

Fit-Out Fire Safety Strategy

Unit 7 Level 3 and Level 3 Mezzanine, Building 11,
Harbourside, Bristol

IFC Report FSS/24061/01

Canada Life Ltd



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Prepared on behalf of:	Canada Life Ltd
Project:	Unit 7 Level 3 and Level 3 Mezzanine Building 11, Harbourside Bristol

Issue Record

REV	DATE	AUTHOR	REVIEW	SECTION	AMENDMENTS
-	03/03/2023	LM	SM		

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1. Introduction

International Fire Consultants Ltd (IFC) has been commissioned by Canada Life Ltd to advise on the Fire Safety Strategy for the fit-out to Unit 7 Level 3 and Level 3 mezzanine in Building 11, Harbourside in Bristol.

This report is intended to describe the fire strategy for the tenant fit-out of a two-storey unit in an existing building and has been produced at the RIBA Stage 4 of design.

This report is based on compliance with the fire safety legislation listed in Section 2 below. It does not include for compliance with any other criteria (e.g. additional client requirements, insurance etc.) unless specifically described in this report.

This project consists of the following:

- Fit-out of Level 3 of Unit 7
- Provision of Level 3 mezzanine and fit-out creating a two-storey unit (the term mezzanine here is architectural as it's a storey for Building Regulation purposes)
- Alterations to existing Rainbow Casino unit as the unit is taking part of the floor area of the Casino at Level 3
- OH3 sprinklered building and Category L1 detection & alarm system

The report has been based on drawings produced by SRA Architects, received on the 27th February 2023, listed in Table 1 - Drawings reviewed. As the design of the project is an iterative process these drawings may not include all recommendations with this report.

Table 1 - Drawings reviewed

DRAWING NUMBER	REVISION	DRAWING DESCRIPTION
3716-HAR-SRA-XX-XX-DR-A-67-290	P01	Level 1 Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-291	P01	Level 1 Mezzanine Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-292	P01	Level 2 Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-293	P01	Level 2 Mezzanine Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-294	P01	Level 3 Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-295	P01	Level 3 Mezzanine Proposed Fire Strategy Plan
3716-HAR-SRA-XX-XX-DR-A-67-296	P02	Level 4 Proposed Fire Strategy Plan

IFC have also reviewed the existing Fire Safety Strategy report from when the building was constructed;

- Fire Safety Strategy Issue 05 by Fire Safety Engineering Consultants Ltd dated January 2006

2. Legislation and Guidance Documents

2.1 Building Regulations

The building work will be subject to approval under the Building Regulations 2010 as modified by the Building (Amendment) Regulations 2018. That will require the design and construction to comply with the functional Requirements as shown below.

- B1 – Means of warning and escape
- B2 – Internal fire spread – linings
- B3 – Internal fire spread – structure
- B4 – External fire spread
- B5 – Access and facilities for fire service

In order to demonstrate compliance with functional Requirements B1 to B5, it is conventional to base the design on standard fire safety design documents. Variations to the guidance given in those documents is permitted, as long as it can be demonstrated to have still met the function Requirements shown above.

In addition, under changes introduced in the Building (Amendment) Regulations 2018, for buildings classified as “relevant buildings”, Regulation 7(2) (and other modified Regulations) applies additional criteria on the combustibility of materials within the external walls. The definition of a “relevant building” is a building with a storey that is 18m or more above ground level (excluding roof-top plant areas and storeys consisting solely of plant rooms) and contains one or more dwellings, an institution or a room for residential purposes. This building does not meet the criteria above. As such, the additional requirements needed for “relevant buildings” under Regulation 7(2) would not be needed.

This report has based the design of the building on BS 9999:2017¹. The intended use would incur a B2 risk profile under BS 9999 but is reduced to B1 by the sprinkler system; persons will be awake but unfamiliar with the building, and the fire growth rate will be ‘slow’.

Travel distances limits where alcohol is served are recommended under BS 9999 to be reduced by 25%. It is acknowledged staff would have been trained in evacuation procedures and each floor is largely open plan; however, for the purpose of this strategy the 25% will be applied except in sanitary accommodation which incurs a very low risk.

In situations where the building design varies from the guidance in that document, that has been highlighted and justified in this report.

This report describes the main fire safety issues relating to the building. In any areas that are not mentioned in this report, the design should comply with the guidance of the relevant guidance documents mentioned above.

¹ BS 9999:2017. Fire safety in the design, management and use of buildings. Code of practice

2.2 Regulatory Reform (Fire Safety) Order 2005

Once completed, the unit will be subject to the Fire Safety Order. That will require the Responsible Person for the building to ensure that a fire risk assessment has been carried out by a competent person.

This report (or subsequent updated versions of this report) could be used to assist that fire risk assessment.

2.3 Construction (Design and Management) Regulations 2015

The CDM Regulations require that the design of the building should ensure that it can be constructed and managed safely.

This report deals with the fire safety design of the building when completed and does not address fire safety during construction.

There are a number of standard guidance documents available giving guidance on managing fire safety within construction sites (such as HSG168 produced by the HSE) and so the relevant main contractor will need to ensure that the construction site complies with that guidance.

3. Fire Safety Systems

The main fire safety systems that are to be provided within the building are summarised below.

Sections 4 to 8 of this report then demonstrate how these systems achieve compliance with the relevant requirements of the Building Regulations.

3.1 Fire Detection and Alarm System(s)

A Category L2 automatic detection and alarm system is required throughout the unit to BS 5839 Part 1 and interlinked with the Landlord system to comply with the building wide fire strategy.

The unit will need a control panel in a readily accessible space such as adjacent the unit entrance.

The existing building also has a voice alarm system.

3.2 Sprinkler System

The existing OH3 sprinkler system, designed to BS EN 12845, will be modified and extended throughout the unit.

Activation of the system must raise an alarm via the low switch.

3.3 Emergency Lighting

Emergency lighting to BS 5266 Part 1 will be provided throughout the unit and external escape routes.

3.4 Escape Route Signage

Exit signage to BS 5499 Part 4 will be provided to all storey exits and routes to them. This will include any external route over the roof.

Rear illuminated exit signage will be provided to storey and final exits within the unit.

3.5 Secondary Power Supplies

Any cabling for life safety systems will comply with BS8519.

The following require a secondary power supply:

- Automatic fire detection and alarm system (battery)
- Emergency lighting (battery or inverter)
- Sprinkler system (existing as part of Landlord system)
- Emergency voice communication system to disabled refuges (existing when in Landlord areas)
- Automatic smoke curtain (if required)

4. B1 – Means of Warning and Escape

The building is existing and therefore reference has been made to the fire strategy for the building as when constructed.

The building has a phased evacuation procedure; thereby, if there is a fire in the two-storey unit it will have a simultaneous evacuation and an alert will be sent to other units. Other units will evacuate after a pre-determined time as they are sharing some escape routes, in particular the stairs.

If the fire is in another unit, then this Level 3 unit will receive an alert and evacuate 6 minutes after the alert is received or as advised by the Building Management. CCTV in common circulation spaces can be used to confirm conditions of these spaces.

Management of the overall building are responsible for the co-ordination of the phased evacuation rather than the tenant; however, the tenant will need to comply with any instruction during a fire event and ensure they evacuate any disabled persons in their demise.

For B1 risk profile the minimum door clear exit width is based on 3.6 mm/person.

The travel distance limits for B1 risk profile are 24 m in single direction and 60 m to the nearest alternative exit.

Under the 25% reduction for alcohol use, this would be 18 m in single direction and 45 m to nearest alternative exit. As stated in Section 2 the reduction is not applied to the sanitary accommodation given the very low risk of a fire being within these rooms. There are no travel distance issues.

Any door/gate used by more than 60 persons must open in direction of escape.

Any secured door must automatically unlock on alarm and have a local manual override (green call point). IFC expect, given the bar use, staff will be trained to go to any secured door to ensure smooth operation as the public may not understand how to operate the manual override if the door did not automatically unlock.

Any final exits or gates must have suitable panic furniture given the type of use.

The tenant wishes to have a maximum occupancy of 500 persons on Level 3 mezzanine and 330 on Level 3.

It is not possible to alter exit widths in Landlord areas which includes the protected escape stairs.

[Level 1](#)

Unit 7 entrance is at this level direct from outside with Stair 6 and lift accessible from the entrance lobby. Level 6 has an exit direct to outside.

Although there is a 60-minute shutter stated on the drawing to the stair door in the entrance lobby, this is not required for Building Regulation purposes unless an existing item.

On the upper floors a disabled refuge is shown in the protected lobbies and therefore if the entrance lobby has fire load an automatic smoke curtain is to be provided in front of the lift landing door to lift smoke spread into the refuges. If no fire load, the smoke curtain is not required.

The smoke curtain will be rated at 600°C for minimum 30 minutes and close off smoke detection in the entrance lobby only. If it operates the lift will stop at Level 1 Mezzanine.

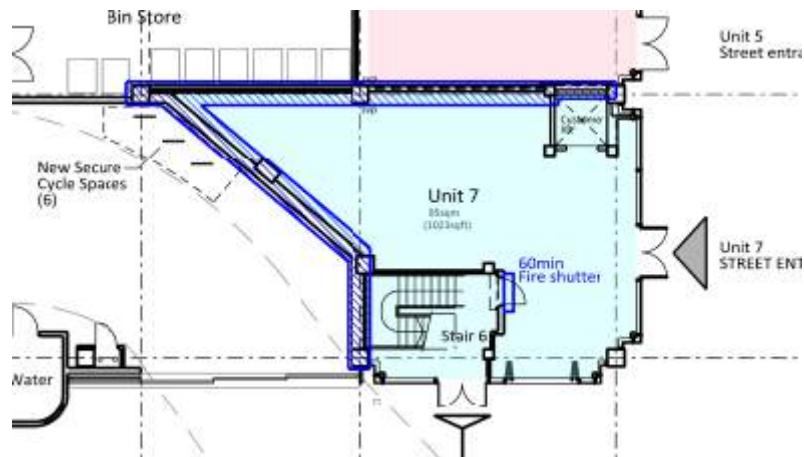


Figure 1: Level 1 Unit 7 entrance

Level 1 Mezzanine

This has Stair 6 with a protected lobby which has the lift shaft inside. The lobby has a disabled refuge space though this would not be for Unit 7 but the car park generally. This is only of use if the car park has staff during operational hours to assist in evacuation.

Level 2

This has Stair 6 with a protected lobby which has the lift shaft inside. The lobby has a disabled refuge space though this would not be for Unit 7 but the car park generally. This is only of use if the car park has staff during operational hours to assist in evacuation.

There is a lift opening directly into the car park which is an entrance route into Casino (unit 5). This will have a E 60-minute fire shutter which closes should fire be detected in the car park.

Level 2 Mezzanine

This has Stair 6 with a protected lobby which has the lift shaft inside. The lobby has a disabled refuge space though this would not be for Unit 7 but the car park generally. This is only of use if the car park has staff during operational hours to assist in evacuation.

Level 3

Level 3 has two alternative escape paths, one via a protected lobby in protected escape Stair 6 and one via an existing Landlord protected lobby into protected escape Stair 5. There is an accommodation stair up to Level 3 mezzanine which whilst not signed as a fire exit from the floor above may be used as such by occupants.

One door is minimum 1400 mm clear width at narrowest point and the other has 1200 mm clear width to Stair 6 door (note the panic furniture must not reduce this below 1188 mm clear width with 330 persons intended).

One disabled refuge is in the protected lobby to Stair 6 and one existing in the Landlord protected lobby to Stair 5.

The Rainbow Casino has 4 exits, each 1800 mm clear width, and thereby after discounting one, has a horizontal exit capacity of 1500 persons (5400/3.6).

Level 3 Mezzanine

Level 3 mezzanine has one exit into the existing Stair 4 via a new protected lobby (1800 mm clear width) and one 1800 mm alternative route over the existing roof to the existing protected Stair 1 on the opposite side of the building.

This externally accessed stair must be openable from the roof side without use of a key and must therefore either be unlocked or fitted with panic furniture and open into the stair.

Routes to this stair over the roof must be suitably illuminated (including emergency lighting) and have suitable guarding to prevent occupants moving from the designated path.

The exit capacity for an 1800 mm exit (after discounting the other 1800 mm exit) at 3.6 mm/person is 500 persons.

Bi-fold doors in the external wall when closed would form a route to an external gate used as an escape path. It must have a minimum fixed door(s) of 1800mm clear width within the bi-fold door or directly adjacent it. One of these exits is discounted and the remaining exit capacity of 500 persons is satisfactory.

There is an escape path on the Level 3 Mezzanine within 4.5 m; however, if the fire is on the floor below the other exit will satisfy B1 and occupants can be more than 4.5 m away or outside on the terrace.

[Vertical Egress](#)

Each storey uses two stairs but they are separate, so the vertical egress uses 4 stairs in total none of which would be discounted (though largest storey exit would be).

Therefore no stair would have more than 500 persons and the existing widths are satisfactory with stairs width of minimum 1200mm. At B1 risk profile over 5 floors served would be 2.3mm/person which has exit capacity of 522 each.

5. B2 – Internal Fire Spread (Linings)

5.1 Material Classifications

Although unlikely to be the first materials to ignite, wall and ceiling linings of an enclosure such as a room can have a dramatic effect on the development of a fire and, in particular, the time it takes for the room to become completely involved.

Surface finishes and floor coverings should not comprise of materials that might contribute to surface spread of flame and/or fire or adversely affect the means of preventing such propagation.

The recommendations in relation to surface spread of flame are shown in Table 2 below. In each situation it gives two options, for the materials to comply either with the National Class or the European Class. Use of either option would be acceptable.

- National Class would relate to testing under BS 476-7:1997² and gives a result of Class 1, 2 or 3. For Class 0, testing is also needed under BS 476-6:1989³ as described below.
- European Class would relate to the material's classification under BS EN 13501-1:2018⁴.

Table 2 - Classification of linings

LOCATION	NATIONAL CLASS ^{a)}	EUROPEAN CLASS ^{b)}
Small rooms of area not more than 30m ² in non-residential accommodation	Class 3	D-s3,d2
Rooms, general	Class 1	C-s3,d2
Circulation spaces in protected stair/lobbies/corridors	Class 0	B-s3,d2

Note:

a) The National classifications do not automatically equate with the equivalent classifications in the European column, therefore products cannot typically assume a European class, unless they have been tested accordingly.

b) When a classification includes "s3,d2", this means that there is no limit set for smoke production and/or flaming droplets/particles.

In this table, Class 0 is better than Class 1. It is not identified in any BS test standard. A Class 0 product is either:

- composed throughout of materials of limited combustibility; or
- a material having a Class 1 surface spread of flame and which has a fire propagation index (I) of not more than 12 and a sub-index (i1) of not more than 6.

IFC recommends that Class 3 products should be avoided where possible.

² BS 476-7:1997. Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products

³ BS 476-6:1989+A1:2009. Fire tests on building materials and structures. Method of test for fire propagation for products

⁴ BS EN 13501-1:2018. Fire classification of construction products and building elements. Classification using data from reaction to fire tests

6. B3 – Internal Fire Spread (Structure)

6.1 Structural Fire Resistance

It is important that the structure and key construction elements of a building remain fully functional for a reasonable period during a fire. It is obviously beneficial if these elements remain in a serviceable condition after the fire for ease of reinstatement. In addition, a fire should be contained by fire resisting elements of the building to prevent it spreading to other parts of the building. This containment should include voids and cavities that could provide a path for fire.

The main structure of the existing building is concrete frame.

Following Table 23 of BS 9999:2017, as the highest occupied floor level is more than 18 m above ground level, the structural fire resistance requirements for load bearing elements is minimum 90 minutes.

Structure that only supports a roof does not need any specific fire resistance unless it also supports a fire resisting wall, rooftop plant or escape route.

Here there will be escape routes over the roof and the existing roof is fire resistant to minimum REI 30.

6.2 Compartmentation

The fire resistance performance of compartment walls and floors (or any other parts of the building which are required to prevent fire spread) should be not less than that specified below when tested in accordance with the relevant part of BS 476: Parts 20 to 24 or classified in accordance with BS EN 13501 Parts 2, 3 or 4.

This applies to:

- a. load-bearing walls, for load-bearing capacity, integrity and insulation from either side;
- b. non-load-bearing walls and partitions, for integrity and insulation from either side;
- c. fire doors for integrity from either side, with the exception of doors to lift wells where performance is in respect of exposure of the landing side only;
- d. floors, for load-bearing capacity, integrity and insulation with respect to exposure of the underside only.

The main elements of compartmentation and the relevant fire performance is summarised below. Any items not described below would be in accordance with Table 22 of BS 9999:2017.

Table 3 - Fire compartmentation requirements

ELEMENT	FIRE RESISTANCE
Floors	REI 90
Walls separating Unit 3 from the Casino	EI 90 mins (doors in walls to be E60S)
Enclosure of stairs	EI 90 mins (doors to stairs to be E60S)
Enclosure of protected lobby	EI 30 (door to lobby to be E30S)
Enclosure of risers	EI 90 mins (doors to stairs to be E60 or E60S if facing a protected escape route)
Walls enclosing plant rooms	
External walls	See Section 7 of this report

There is an accommodation stair linking the two floors and no compartment floor is provided between the levels.

One lift is within the protected lobby at all levels it serves (as necessary for a phased evacuation building where the lift connects other compartments). This will form a protected shaft on floors below Level 3 of minimum EI 90 fire resistance. The lift landing door will be minimum EI 60 fire resistance.

There is a separate lift within the unit only connecting the two floors and this does not need to be fire resistant other than the compartment walls to Unit 5.

There should be no opening within 3 m of an external escape route unless it has EI 30 fire resistance.

Fire doors should be capable of demonstrating compliance with the relevant standard (as shown above) when tested as a complete installed assembly.

Any fire doors should be fitted with self-closing devices so they return to the closed position, except for cupboards and doors into service risers which are kept locked shut.

Magnetic hold-open devices should be employed to doors in common areas where such doors are expected to be rendered ineffective by occupants – i.e. chocked open or continued overuse. These should be linked to the fire alarm system so that the doors are released to the closed position in the event of a fire.

All pipes, ductwork and services passing through fire-resisting barriers should be penetration sealed with an appropriate sealing system and/or fire/smoke damper which has been shown by an appropriate test or assessment to maintain the period of the fire resistance of the barrier. The penetration sealing system should be designed and installed in accordance with the recommendations contained within The Association for Specialist Fire Protection (ASFP) “Fire Stopping & Penetration Seals for the Consultation Industry” (commonly referred to as The Red Book).

Any fire and smoke control assemblies should be provided with an appropriate certificate from a recognised third-party accreditation body to demonstrate compliance with Regulation 38 of the Building Regulations 2010. Assessment and test evidence should also be available for inspection by the approving authorities and other interested parties.

Any parts of the building occupied mainly for different purposes should be separated from one another by compartment walls and/or compartment floors.

6.3 Cavity Barriers

Cavity barriers should be provided in all areas in accordance with BS 9999:2017.

Cavity barriers should be provided to limit the extent of any unseen cavities to no more than 10 m (which can be increased to 20 m if all the surfaces within the cavity achieve a UK Class 1 or European Class C performance or better).

Within external walls, cavity barriers should be provided in line with any locations where fire rated walls or floors meet the façade.

Cavity barriers should also be provided around all openings in the external walls, such as windows, doors and service penetrations. Cavity barriers should be provided around service penetrations through the external walls in accordance with Building Control Alliance (BCA) Technical Guidance Note 26⁵.

⁵ Building Control Alliance: BCA Technical Guidance Note 26 Service Penetrations through External Wall Constructions of Residential Buildings, Issue 0, April 2017

Cavity barriers in external walls should pass through all insulation and other materials within the external wall, forming a seal between the edge of the fire rated wall/floor and the inner face of the external cladding. If the external cladding comprises composite panels which contain materials that are not of limited combustibility, the cavity barrier should be extended to continue through the core of the external panel as well (to prevent the combustible core of the panel bypassing the cavity barrier).

Cavity barriers should achieve a fire resistance of at least 30 minutes for integrity and 15 minutes for insulation. Alternatively, if located in a stud wall or partition, or provided around openings in the external wall, they may be formed of:

- a. steel at least 0.5mm thick;
- b. polythene-sleeved mineral wool, or mineral wool slab, in either case under compression when installed in the cavity; or
- c. calcium silicate, cement-based or gypsum-based boards at least 12mm thick.

Fire stopping (the seal between the fire rated wall/floor and the external wall) should be of the same fire resistance as the fire rated wall/floor.

7. B4 - External Fire Spread

7.1 Unprotected Areas

When a building is on fire, heat will radiate through non-fire-resisting openings in the external walls. This heat can be intense enough to set fire to adjoining buildings. To reduce the chance of this occurring, the Building Regulations place limits on the area of external elevation with no fire resistance. This area is known as the 'unprotected area' and is affected by such factors as distance from the boundary, use of the building and compartment size.

For non-load bearing external walls over 1m from the relevant boundary, BRE Report BR187 *External fire spread: building separation and boundary distances* has been applied as a suitable method for calculating minimum boundary distances or maximum unprotected areas, as referenced in BS 9999:2017. This approach assumes that:

- a fire has spread throughout the full extent of any fire compartment (i.e. full flashover fire throughout the compartment);
- any non-fire rated parts of the external wall have failed; and
- the heat and flames are radiating from the entire façade.

Boundary locations are taken as the centre of a public highway or the boundary of the site if no public highway beyond.

7.2 External Walls

7.2.1 External Wall Surface

The external surfaces of the building should comply with the guidance of Figure 47 of BS 9999:2017. That essentially means that the external walls should achieve a UK Class 0 or European Class B/minimum European Class A2-s1,d0 for surface spread of flame.

7.2.2 External Wall Materials

As the building is over 18 m high but does not meet the criteria of a "relevant building" (as described in Section 2.1 of this report) then Building (Amendment) Regulations 2018 would not apply to this building.

Regulation 7(1A) requires no cladding can be formed of a composite with thin metal layers on either side of a plastic core with calorific value exceeding 35MJ/Kg.

Requirement B4 still applies to the building. Hence, the materials used within any new external walls should comply with Clause 35.5 of BS 9999:2017. This gives two main options as shown below.

Option 1 - All materials within the external wall (including insulation, fillers, core materials within composite panels, support systems and other similar) should be of limited combustibility. Minor use materials, such as gaskets and sealants can be excluded from this however care should be given to the choice of materials used for any other parts of external walls which could affect fire spread over the wall.

'Limited combustibility' is a specific performance criteria as defined in BS 9999:2017. To meet this it should either have been tested to BS 476-11:1982⁶ or have met the European Class A2 rating.

Option 2 - The wall build-up should have met the performance criteria given in BR 135⁷ when tested to BS 8414-1:2015⁸ or -2:2015⁹. It should be noted that this is a large-scale test which involves the entire wall build-up, including insulation materials, cladding, cavity barriers etc. and so if this approach is used, the proposed wall make-up should be the same as that which was used in the test.

It should be noted that this test applies to the entire wall build-up. If there are any subsequent changes to any part of the wall design (such as product substitutions) that may require retesting. IFC would suggest that relevant controls be put in place to prevent such changes occurring without the impact of those changes being considered.

IFC would note that previously there were two other options. Option 3 was to commission an expert to carry out a 'desktop study' of the proposed wall design to confirm that it would pass the BR 135 criteria if tested to BS 8414. Option 4 was to carry out a fire engineering review of the building design as a whole. However, on 10 September 2018 the government department responsible for enforcing Building Regulations (MHCLG) issued a letter which essentially stated that only Options 1 or 2 as shown above would be acceptable. Options 3 or 4 would therefore not be possible for projects where the Building Regulation application was after that date.

7.3 Other External Surfaces

Roof coverings should comply with the guidance of Section 35.4 of BS 9999. That gives recommendations regarding the combustibility of the roof surfaces. This would be minimum $B_{\text{roof}}(t_4)$ to BS EN 13501 Part 5 for any new roof covering.

There is no specific guidance in BS 9999 regarding the fire performance of any exposed soffits (i.e. downward facing external building surfaces such as may occur in building overhangs). However, IFC would recommend that for good practice, any insulation and any exposed surfaces used in those situations should be of limited combustibility.

⁶ BS 476-11:1982. Fire tests on building materials and structures. Method for assessing the heat emission from building materials

⁷ Colwell, Sarah; Baker, Tony: BR 135 Fire Performance of external thermal insulation for walls of multistorey buildings, 3rd edition, HIS BRE Press, Watford 2013

⁸ BS 8414-1:2015+A1:2017. Fire performance of external cladding systems. Test method for non-loadbearing external cladding systems applied to the masonry face of a building

⁹ BS 8414-2:2015+A1:2017. Fire performance of external cladding systems. Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame

8. B5 – Access and Facilities for the Fire Service

In order to extinguish a fire within this building it is important that the fire service can gain access to the premises, and from there, into the building. This section deals with the various facilities intended to aid the fire service access to the building and in fighting a fire in the building.

There is no change to fire service access or facility due to the fit-out.

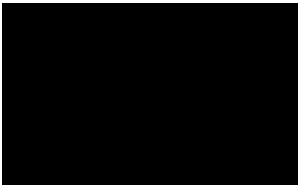
The existing fire-fighting shaft has a dry riser outlet allowing all points in the unit to be within 60m using hose as laid.

9. Limitations

Our advice is strictly limited to the scope of our current brief, i.e. to provide the fit-out Fire Safety Strategy report within Unit 7 Level 3 and Level 3 Mezzanine to Building 11, Harbourside, Bristol.

International Fire Consultants Ltd have not reviewed any other issues within the project other than those identified in our report. We offer no comment on the adequacy or otherwise of any other aspects of the development (whether related to fire safety or any other issue) and any absence of comment on such issues should not be regarded as any form of approval. The advice should not be used for buildings other than that named in the title.

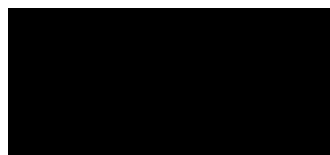
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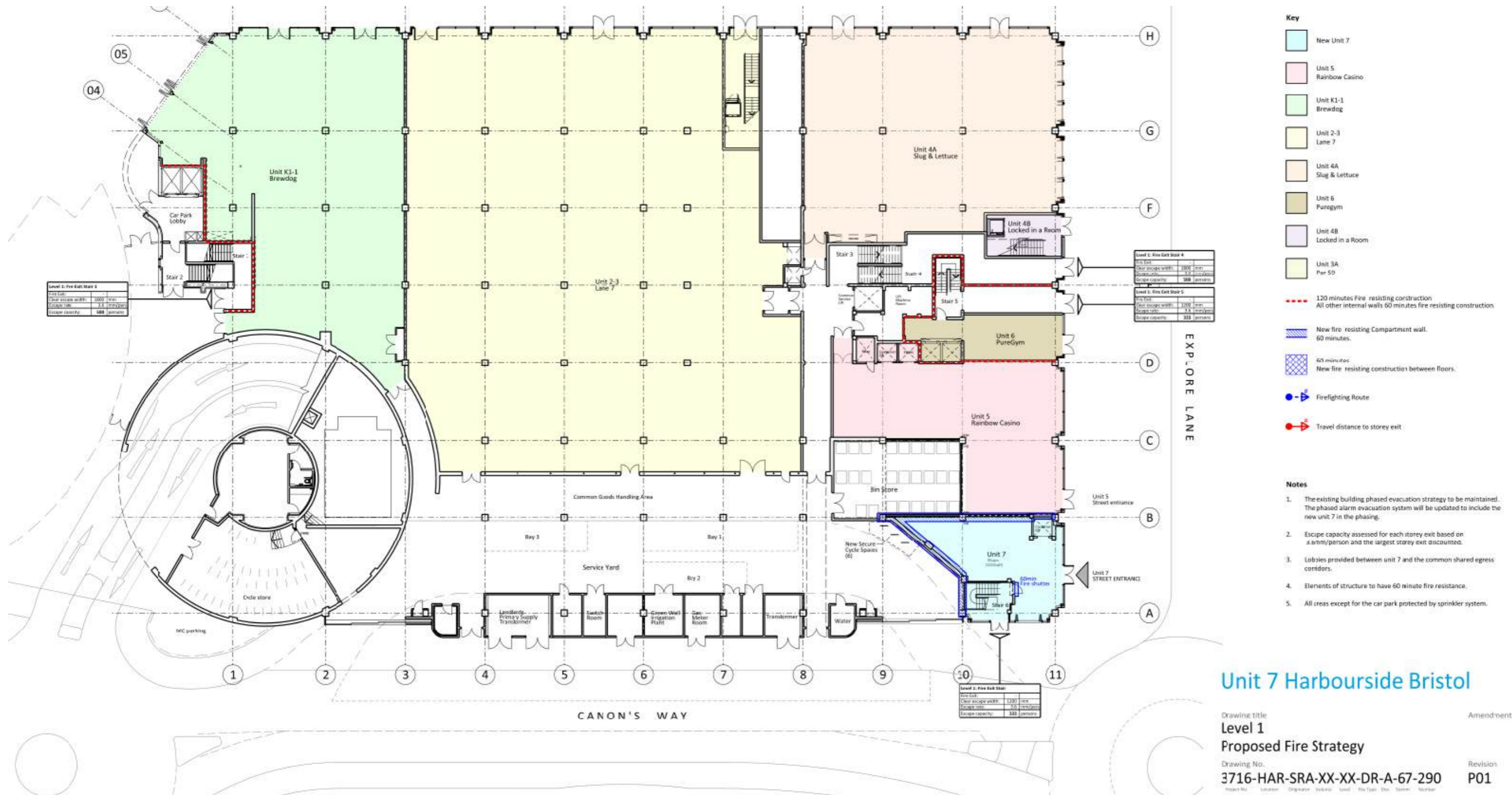
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(part of the Kiwa UK Group)

Fire Strategy Plans



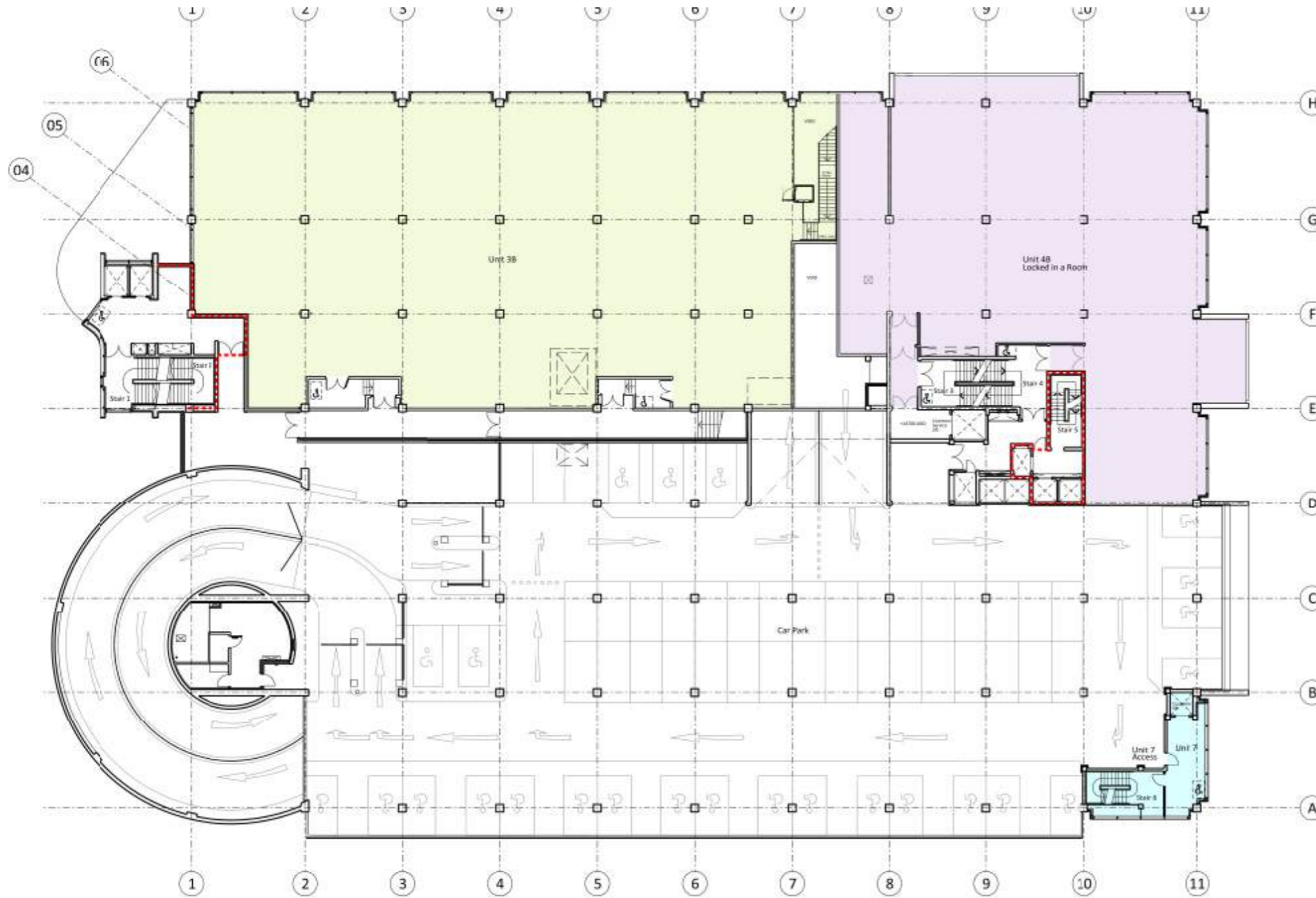
Unit 7 Harbourside Bristol

Drawing title
Level 1
Proposed Fire Strategy

Drawing No.
3716-HAR-SRA-XX-XX-DR-A-67-290

Amendments

Revisions
P01



Key

- New Unit 7
- Unit 5 Rainbow Casino
- Unit KI-1 Brewdog
- Unit 2-3 Lane 7
- Unit 4A Skag & Lettuce
- Unit 6 Puregym
- Unit 4B Locked in a Room
- Unit 3A Per 52
- 120 minutes Fire resisting construction
All other internal walls 60 minutes fire resisting construction
- New fire resisting Compartment wall, 60 minutes.
- RT structure
New fire resisting construction between floors.
- Firefighting Route
- Travel distance to storey exit

Notes

1. The existing building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
2. Escape capacity assessed for each storey exit based on a 150 person and the largest storey exit discounted.
3. Lobbies provided between unit 7 and the common shared egress corridors.
4. Elements of structure to have 60 minute fire resistance.
5. All areas except for the car park protected by sprinkler system.

Unit 7 Harbourside Bristol

Drawing title
**Level 1 Mezzanine
 Proposed Fire Strategy**

Amendments

Drawing No.
3716-HAR-SRA-XX-XX-DR-A-67-291

Revision
P01



Key

- New Unit 7
- Unit 5 Rainbow Casino
- Unit K1-1 Brewdog
- Unit 2-3 Lane 7
- Unit 4A Slug & Lettuce
- Unit 6 Puregym
- Unit 4B Locked in a Room
- Unit 3A Per 50
- 120 minutes Fire resisting construction
All other internal walls 60 minutes fire resisting construction
- New fire resisting Compartment wall, 60 minutes.
- 60 minutes New fire resisting construction between floors.
- Firefighting Route
- Travel distance to storey exit

- Notes**
1. The existing building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
 2. Escape capacity assessed for each storey exit based on 3.6m²/person and the largest storey exit discounted.
 3. Lobbies provided between unit 7 and the common shared egress corridors.
 4. Elements of structure to have 60 minute fire resistance.
 5. All egress except for the car park protected by sprinkler system.

Unit 7 Harbourside Bristol

Drawing title: **Level 2 Proposed Fire Strategy** Amendments

Drawing No.: **3716-HAR-SRA-XX-XX-DR-A-67-292** Revision: **P01**

Head Office London Brighton Spire Road Hove East Sussex BN1 9AF

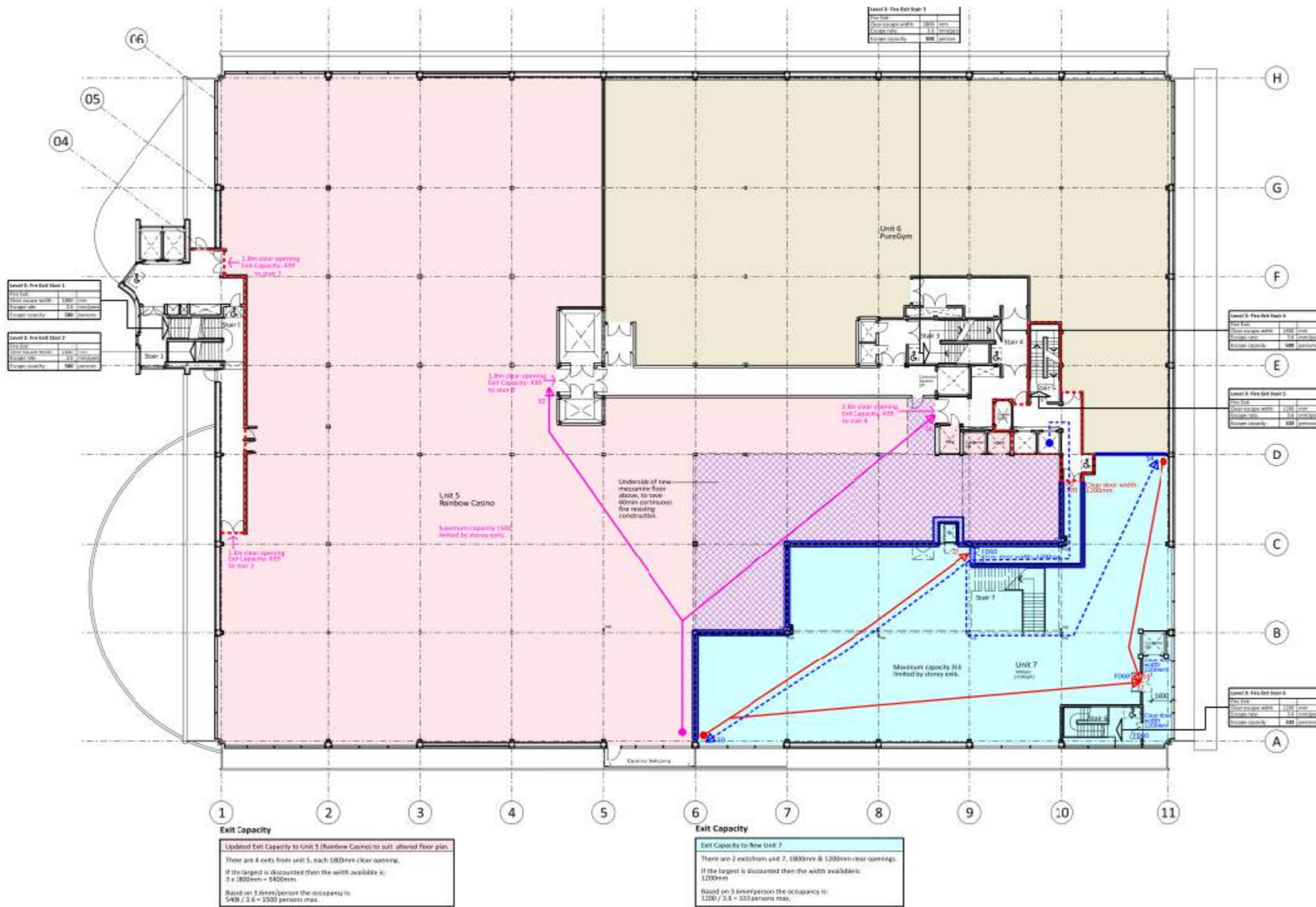


- Key**
- New Unit 7
 - Unit 5 Rainbow Casino
 - Unit K1-1 Brewdog
 - Unit 2-3 Lane 7
 - Unit 4A Slug & Lettuce
 - Unit 6 Purogym
 - Unit 4B Locked in a Room
 - Unit 3A For 50
 - 120 minutes Fire resisting construction
All other internal walls 60 minutes fire resisting construction
 - New fire resisting Compartment wall, 60 minutes.
 - 60 minutes New fire resisting construction between floors.
 - Firefighting Route
 - Travel distance to storey exit

- Notes**
1. The existing building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
 2. Escape capacity assessed for each storey exit based on a 0.8m²/person and the largest storey exit discounted.
 3. Lobbies provided between unit 7 and the common shared egress corridors.
 4. Elements of structure to have 60 minute fire resistance.
 5. All areas except for the car park protected by sprinkler system.

Unit 7 Harbourside Bristol

Drawing title	Amendments
Level 2 Mezzanine	
Proposed	
Drawing No.	Revision
3716-HAR-SRA-XX-XX-DR-A-67-293	P01



Key

- New Unit 7
- Unit 5 Rainbow Casino
- Unit K1-1 Brewdog
- Unit 2-3 Lane 7
- Unit 4A Slug & Lettuce
- Unit 6 PureGym
- Unit 4B Locked in a Room
- Unit 3A Por 55
- 120 minutes Fire-resisting construction
All other internal walls 60 minutes fire-resisting construction
- New fire-resisting Compartment wall, 60 minutes.
- 60 minutes New fire-resisting construction between floors.
- Firefighting Route
- Travel distance to storey exit

- Notes**
1. The existing building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
 2. Escape capacity assessed for each storey exit based on 3.0mm/person and the largest storey exit discounted.
 3. Lobbies provided between unit 7 and the common shared egress corridors.
 4. Elements of structure to have 60 minute fire resistance.
 5. All areas except for the car park protected by sprinkler system.

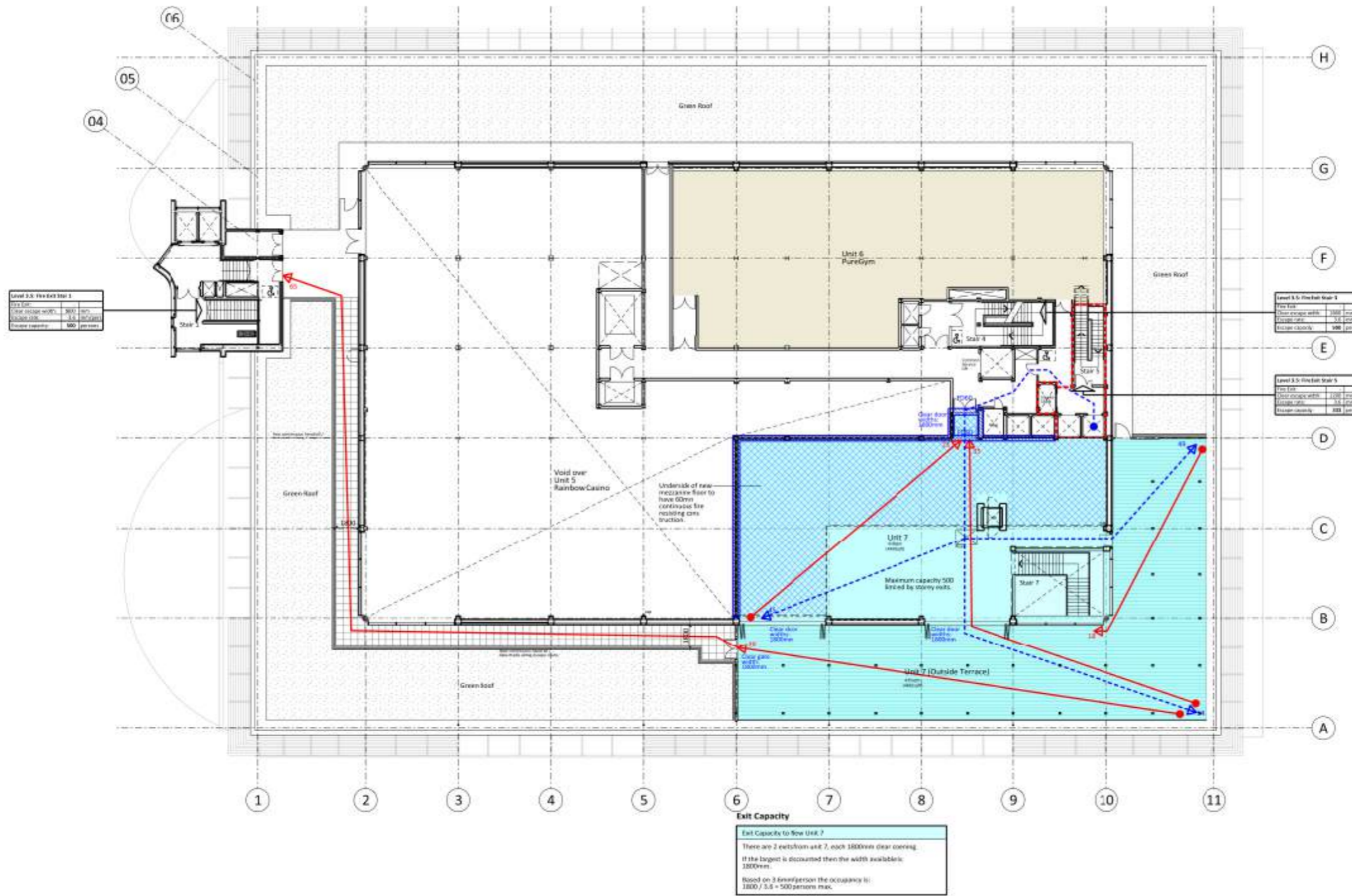
Unit 7 Harbourside Bristol

Drawing title:
Level 3
Proposed Fire Strategy

Drawing No.
3716-HAR-SRA-XX-XX-DR-A-67-294

Amendments

Revision
P02



Key

- New Unit 7
- Unit 5 Rainbow Casino
- Unit KI-1 Brewdog
- Unit 2-3 Lane 7
- Unit 4A Slug & Lettuce
- Unit 6 PureGym
- Unit 4B Locked in a Room
- Unit 3A Per SS

- 120 minutes Fire-resisting construction
All other internal walls 60 minutes fire-resisting construction
- New fire-resisting Compartment wall, 60 minutes.
- All structure
New fire-resisting construction between floors.
- Firefighting Route
- Travel distance to storey exit
- New escape route walkway, With continuous balustrading.

Notes

1. The existing building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
2. Escape capacity assessed for each storey exit based on 3.5m²/person and the largest storey exit discounted.
3. Lobbies provided between unit 7 and the common shared egress corridors.
4. Elements of structure to have 60 minute fire resistance.
5. All areas except for the car park protected by sprinkler system.

Exit Capacity

Exit Capacity to New Unit 7

There are 2 exits from unit 7, each 1800mm clear opening.
If the target is discounted then the width available is:
1800mm

Based on 3.5m²/person the occupancy is:
1800 / 3.5 = 500 persons max.

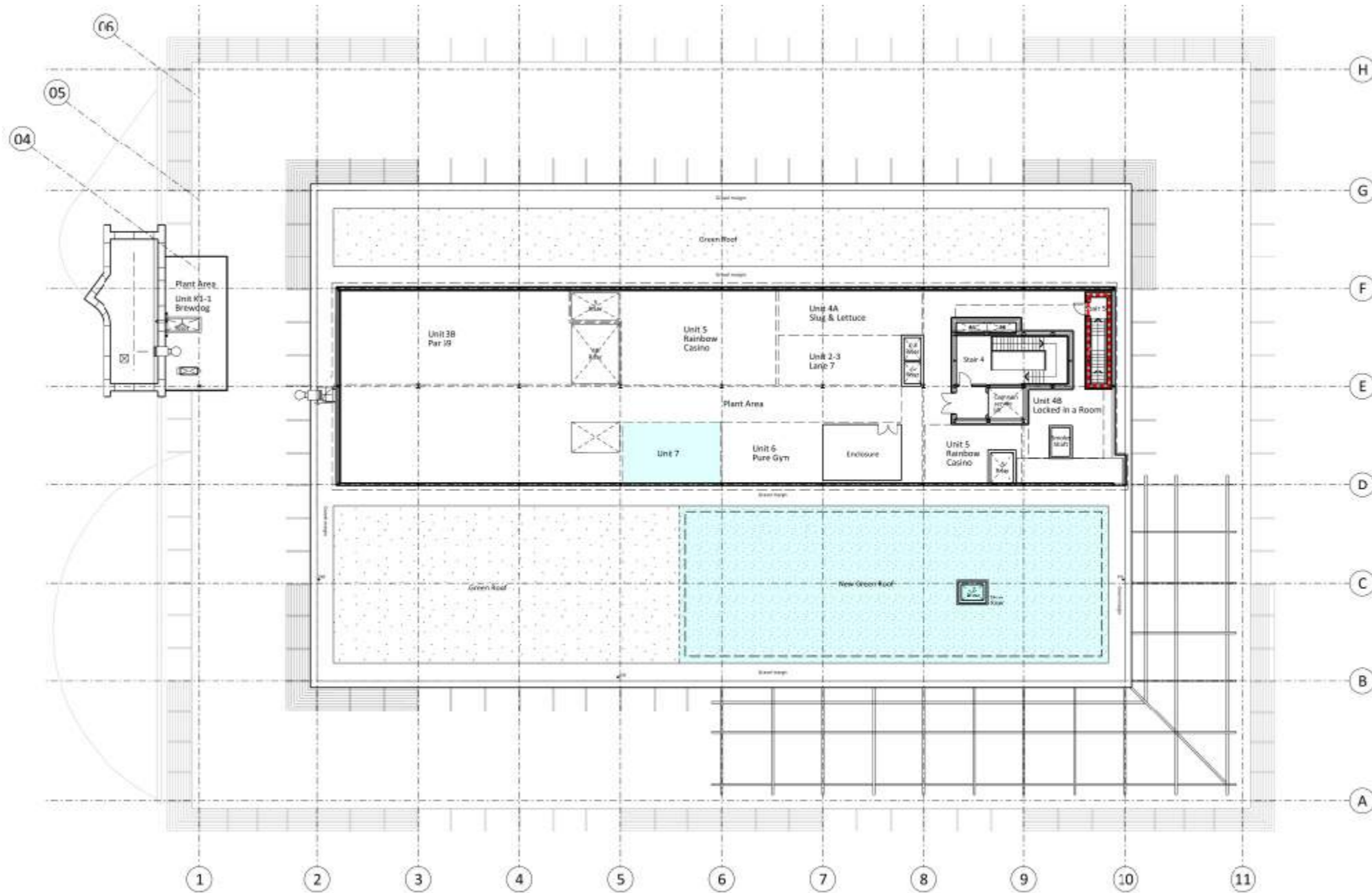
Unit 7 Harbourside Bristol

Drawing title
**Level 3 Mezzanine
Proposed Fire Strategy**

Drawing No.
3716-HAR-SRA-XX-XX-DR-A-67-295

Amendments

Revision
P02



Key

- New Unit 7
- Unit 5 Rainbow Casino
- Unit KI-1 Brewdog
- Unit 2-3 Lane 7
- Unit 4A Slug & Lettuce
- Unit 6 Pure Gym
- Unit 4B Locked in a Room
- Unit 5A For 55
- 120 minutes Fire resisting construction
All other external walls 60 minutes fire resisting construction
- New fire resisting Compartment wall, 60 minutes.
- 60 minutes
New fire resisting construction between floors.
- Firefighting Route
- Travel distance to storey exit

- Notes**
1. Thresholding building phased evacuation strategy to be maintained. The phased alarm evacuation system will be updated to include the new unit 7 in the phasing.
 2. Escape capacity assessed for each storey exit based on a unitary person and the largest storey exit discounted.
 3. Lobbies provided between unit 7 and the common shared egress corridors.
 4. Elements of structure to have 60 minute fire resistance.
 5. All areas except for the car park protected by sprinkler system.

Unit 7 Harbourside Bristol

Drawing title
Level 4
Proposed Fire Strategy

Amendments
New riser location.

Drawing No.
3716-HAR-SRA-XX-XX-DR-A-67-296

Revision
P02