

# **FIRE STRATEGY**

**AT**

**12 Bensham Close, Thornton Heath, CR7 7AH**

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## **1. INTRODUCTION**

1.1 This report has been prepared by Architecturehausuk. The report sets out the fire safety requirements for the use as to residential household for single storey extension at 12 Bensham Close, Thornton Heath, CR7 7AH.

1.2 The address of the building is 12 Bensham Close, Thornton Heath, CR7 7AH

1.3 The fire safety provisions in this fire strategy will be based on the requirements relating to purpose group Residential (dwellings) 1(a), by reference to Approved Document B to the Building Regulations 2010 (ADB)<sup>1</sup>.

1.4 This strategy is broadly compliant with the requirements of ADB and does not apply fire engineering analysis. Accordingly, ADB provisions for a residential building are applied.

1.5 It is anticipated that this fire strategy report will support a Building Regulations’ application under the Building Regulations.

1.6 The plans contained within this report have been copied or extracted from those prepared Architecturehausuk.

1.7 This fire strategy should be read in conjunction with the fire strategy drawings prepared by the Architecturehausuk.

1.8 The recommendations in this fire strategy are intended to satisfy life safety requirements only. They are not directed towards property protection. Consultation with the building insurers is recommended in case increased levels of property protection are considered necessary.

1.9 The submission of this report constitutes neither a warranty of future results by Architecturehausuk, nor an assurance against risk. The report represents only the best judgement of the consultant involved in its preparation, and is based, in part, on information provided by others. No liability whatsoever is accepted for the accuracy of such information.

## **2. STATUTORY REQUIREMENTS**

### **Building Regulations 2010**

2.1 The development will be subject to the statutory requirements of the Building Regulations 2010, Part B of which relates to fire safety. Under ADB, the building will be categorised as Residential.

2.2 The Building Regulations 2010 include the provision of fire safety issues within certain classes of buildings. Part B of Schedule 1 to the Building Regulations includes five functional requirements, namely: a) Requirement B1: Means of escape.

b) Requirement B2: Internal fire spread (linings).

c) Requirement B3: Internal fire spread (structure).

d) Requirement B4: External fire spread.

e) Requirement B5: Access and facilities for the fire and rescue service.

### **Regulatory Reform (Fire Safety) Order 2005**

2.3 The Regulatory Reform (Fire Safety) Order 2005 (“the Fire Safety Order”) will apply to the development. In accordance with this legislation, the Responsible Person (employer) and/or any other person in control of the premises must carry out a fire risk assessment to determine the fire safety provisions necessary to comply with the Order. Once the development is completed, a fire risk assessment will need to be completed by, or on behalf of, the Responsible Person.

### **Housing Act 2003**

2.4 It should be noted that, when occupied, the Housing Act 2004 will apply to the residential parts of the premises, and additional fire safety measures may be required under the Housing Act in areas not within the scope of the Fire Safety Order. However, for the proposed use, it is very unlikely that any additional fire safety measures would be required under the Housing Act beyond those required in this fire strategy for the purpose of the Building Regulations.

### **Licensing Act 2003**

2.5. The licensing authority should not impose fire safety controls that are already covered by the provisions of the Fire Safety Order.

### **Statutory Consultation**

2.6 During the Building Regulations application process, the building control body is required to formally consult with the local fire authority. The purpose of this consultation is to give the fire authority an opportunity to make observations with respect to the Building Regulations and to provide an opportunity to make the applicant aware of action that may have to be taken to meet the requirements of the Fire Safety Order.

2.7 It is proposed that this fire strategy document will be used to support the Building Regulations application. However, until such time as a Building Regulations application is submitted and an approval, conditional or otherwise, is issued, this fire strategy document cannot be considered as approved, irrespective of any discussions that have taken place.

## **Regulation 38**

2.8 Where a building is erected or extended or has undergone a material change of use, and the Fire Safety Order applies to that building or extension, Regulation 38 of the Building Regulations requires that a package of fire safety information ("as built" information, which records the fire safety design of the building or extension) must be assembled and given to the person responsible for the premises.

2.9 The fire safety information provided should include all fire safety design measures in appropriate detail, and with sufficient accuracy, to assist the Responsible Person to operate and maintain the building in reasonable safety. Where a fire safety strategy, or a preliminary fire risk assessment, has been prepared, these should also be included.

2.10 The exact amount of information and level of detail necessary will vary depending on the nature and complexity of the building's design. A practical way of meeting the requirement of Regulation 38 is to develop a building fire manual, based on the guidance contained in BS 9999<sup>2</sup>.

2.11 The development is relatively simple and the information contained within this fire strategy, together with the Architects' plans, will predominantly cover the duty imposed by Regulation 38

### **3. BUILDING DESCRIPTION**

3.1 The development is for a single storey extension at 12 Bensham Close, Thornton Heath, CR7 7AH.

The building is a terraced property over two floors. The floors are connected by a single protected staircase.

#### **Site Plan**

3.2 It can be seen from the site plan that the site has no restricted access.

3.3 Access for a fire appliance will be available to the front of the premises 12 Bensham Close, Thornton Heath, CR7 7AH.

3.4 The building is built with external brick walls and a pitched tiled roof.

3.5 The height to the surface of the top floor of the building is 8.95m. This is less than the 18m referred to for the purpose of meeting criteria within ADB and less than the 11m threshold that will shortly require apartment buildings to be provided with an automatic sprinkler system.

## **4. MEANS OF FIRE WARNING**

4.1 Provision of detailed fire detection and warning systems is the responsibility of the appointed specialist contractor, based on the following parameters.

4.2 Grade D1 Category LD3 standard fire detection and alarm system, in accordance with the relevant recommendations of BS 5839-63.

4.3 A Grade D1 system is a system having one or more mains-powered smoke and/or heat alarms, each with a sealed-in standby supply consisting of a battery or batteries. Grade D1 systems provide a higher level of reliability by reducing the risk that a standby battery could be removed.

4.4 A Category LD3 system is the minimum specified in ADB. Such systems are intended only to protect circulation areas that would be used as escape routes in the event of a fire, by giving a warning if smoke is detected in these areas, so that occupants can escape before heat or smoke make this impossible.

4.5 A Category LD3 system cannot be expected to protect people who might be involved with the fire at ignition, or in its early stages. A higher level of protection can be provided with a Category LD2 system, with detection installed in circulation routes, kitchens and the living room.

4.6 This type of fire detection and alarm system is designed to raise an alarm only in the apartment where a fire has been detected and is compatible with the “stay put” strategy that will be operated in the building.

## **5. GENERAL FIRE EVACUATION STRATEGY**

5.1 The building will operate a “stay put” evacuation strategy, whereby it is not necessary to immediately evacuate a place that is clear of smoke or other fire products in the event of a fire in another part of the building.

5.2 In the event of a fire, the occupants would be expected to alert others in the building, make their own way out of the building using the common escape routes, and summon the fire and rescue service.

5.5 Written information and instructions explaining the fire evacuation strategy for the building should be provided to all residents. The information should be summarised in a notice displayed in the entrance lobby.

## **6. MEANS OF ESCAPE**

6.1 The means of escape will be designed to meet the requirements of ADB with respect to travel distance, number and width of exits and capacity of protected stairs. Reference should be made to the Architects’ fire plans included in Annex A of this fire strategy.

6.2 The building will be provided with protected entrance hallways, formed from construction providing 30 minutes’ fire resistance (REI), and FD30S fire entrance doors. Protected entrance hallways will be limited to a maximum of 9m length in accordance with Diagram 3.2 of ADB Volume 1: 2019

6.5 The relaxation of the smoke control arrangements in ADB is an acknowledgement of the reduced risk to occupants and is permitted provided that:

- i) the top storey of the building is a maximum of 11m above ground level;
- ii) no more than three storeys are above the ground storey;
- iii) the stair does not connect to a covered car park, unless the car park is open sided;
- iv) the stair does not serve offices, stores or other ancillary accommodation.

6.8 ADB does not set a minimum width for stairs (other than firefighting stairs) and notes that a stair of acceptable width for everyday use will be sufficient for escape purposes.

6.9 The flights and landings of each of the escape stairs will be constructed of materials achieving class A2-s3, d2 or better. Materials achieving class B-s3, d2 or worse may be added to the top horizontal surface of the stairs.

6.10 A 1m<sup>2</sup> AOV will be provided at the head of each stair where necessary. The vents should be operated by smoke detectors located in the stairs and lobbies (where provided). AOVs opening to outside air should conform to BS EN 12101-2<sup>5</sup>. A fire and rescue service override control should be provided at a convenient and accessible position at fire and rescue service access level, e.g. in the entrance lobby. The control should also allow for resting the vents.



## **Evacuation of People Requiring Assistance**

6.19 Specific arrangements for the evacuation of people requiring assistance are not normally provided in a building comprising residential apartments, and no such measures are proposed in this case.

## **Active Fire Barriers**

6.21 Fire and smoke curtains do not currently form part of the fire strategy for this building. Should these be required, they will be designed according to the requirements of BS 8524-1<sup>6</sup> and specified, installed, and commissioned to the recommendations of BS 8524-2<sup>7</sup>. The appointed contractor will be required to provide a design specification, based on the content of Tables 1 to 3 of BS EN 8524-2<sup>8</sup>, suitable for the location and size of the curtain.

6.26 All emergency luminaires will have a standby operation of three hours, with their associated charger units able to suitably recharge within 24 hours. Testing facilities will be key switches.

6.27 Emergency lighting will be designed to a minimum of 1 lx on all escape routes, with 10% of the general illumination level over all distribution boards, switchboards, and plant items. Open floor areas larger than 60m<sup>2</sup> will be provided with horizontal luminance of not less than 0.5 lx at the floor level of the area, excluding a border of 0.5m around the perimeter.

6.28 A detailed emergency escape lighting proposal is the responsibility of the appointed contractor.

## **Fire Exit Signs**

6.29 Escape routes will be provided with suitable 'FIRE EXIT' signs in compliance with the following standards:

- a) BS 5499-412.
- b) BS ISO 3864-113.
- c) BS EN ISO 7010:2020+A1:202014.
- d) BS 5499-1015.

## 7. GENERAL PROVISIONS RELATING TO FIRE DOORS

7.1 The general recommendations in Section 5 of ADB will be applied. This includes, but is not limited to, the following provisions: a) Fire-resisting glass, fire rated solely for integrity, will be subject to the limitations in Table A4 of ADB (Table B5 of ADB Volume 2: 2019 and ADB Volume 1: 2019).

b) Doors on escape routes will open in the direction of travel through a minimum of 90 degrees.

c) Doors on escape routes will be free from locks and unsuitable fastenings. Electronic locks may be used where additional security measures are necessary. However, where used, the recommendations of BS 7273-4 will apply.

d) Fire-resisting doors, sub-dividing corridors or doors that swing in two directions will be provided with suitable vision panels.

e) Fire-resisting doors will be fitted with self-closing devices, complying with the requirements of BS EN 1154<sup>16</sup> for the size of door fitted and specified to overcome any latch or lock fitted to the door. Fire-resisting doors to stores and cupboards may be kept locked shut as an alternative to fitting self-closing devices. Fire-resisting doors should be marked with signs, either 'FIRE DOOR KEEP SHUT' or 'FIRE DOOR KEEP LOCKED SHUT', as appropriate.

h) For doors on escape routes, there should be an unobstructed space of at least 300mm on the pull side of the door between the leading edge of the door and any return wall

## 8. PERFORMANCE OF MATERIALS, PRODUCTS AND STRUCTURES

8.1 Fire performance classifications and standards relevant to this fire strategy are specified in Appendix B of ADB. These are performance requirements necessary to demonstrate that a system or product can meet the relevant performance classification. This will be achieved if the system or product complies with at least one of the following:

a) they should be in accordance with a specification or design that has been shown by a specific test to be capable of meeting that performance classification;

b) they should have been designed by using relevant design standards in order to meet that performance classification;

c) they should have been assessed by applying relevant test evidence, in lieu of carrying out a specific test, as being capable of meeting that performance classification.

8.2 Sections of this report include references to required fire performance. However, where a matter is not directly referenced, for clarification, the following tables of Appendix B should be consulted.

### Tables

B1  
B2  
B3

B4  
B5

### Subject

Reaction to fire classifications.  
Roof covering classifications.  
Specific provisions of the test for fire resistance of elements of structure.  
Minimum periods of fire resistance.  
Limitations on the use of uninsulated glazed elements on escape routes.

## 9. INTERNAL FIRE SPREAD (LININGS)

### Linings/furnishings

9.1 In order to control the spread of flame across surfaces, all finishes to walls and ceilings, internal structures, roof, lights and lighting diffusers will meet the performance classification recommended in ADB-1 Table 4.1 (Table 6.1 ADB-2 for commercial buildings). Therefore, the classification of the surfaces of walls and ceilings within the building will comply with the following:

**Table 4.1 Classification of linings**

Location	Classification
Small rooms of maximum internal floor area of 4m <sup>2</sup>	D-s3, d2
Garages (as part of a dwellinghouse) of maximum internal floor area of 40m <sup>2</sup>	
Other rooms (including garages)	C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including the common areas of blocks of flats)	B-s3, d2 <sup>(1)</sup>

**NOTE:**

1. Wallcoverings which conform to **BS EN 15102**, achieving at least class C-s3, d2 and bonded to a class A2-s3, d2 substrate, will also be acceptable.

**Table 4.1 Classification of linings**

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Small rooms of maximum internal floor area of 4m <sup>2</sup>	D-s3, d2
Garages (as part of a dwellinghouse) of maximum internal floor area of 40m <sup>2</sup>	
Other rooms (including garages)	C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including the common areas of blocks of flats)	B-s3, d2 <sup>(1)</sup>

**NOTE:**

1. Wallcoverings which conform to **BS EN 15102**, achieving at least class C-s3, d2 and bonded to a class A2-s3, d2 substrate, will also be acceptable.

9.2 A wall does not include any of the following:

- doors and doors frames.
- window frames and frames in which glazing is fitted.
- architraves, cover moulds, picture rails, skirtings, and similar narrow members.

- fireplace surrounds, mantle shelves and fitted furniture.

9.3 Small areas of walls in rooms may have a lesser performance than prescribed in the Table above.

9.4 A ceiling comprises a surface at 70 degrees or less to the horizontal, but does not include any of the following:

- trap doors and their frames.
- the frames of windows or rooflights and frames in which glazing is fitted.
- architraves, cover moulds, picture rails, exposed beams, and similar narrow members.

9.5 Thermoplastic materials forming part of, or attached to, a ceiling may result in a fire hazard and will be subject to the controls set out in ADB.

## 10. INTERNAL FIRE SPREAD (STRUCTURE)

### Elements of Structure

10.1 For the purpose of Table B4 of ADB, the height of the highest occupied level is greater than 5m, but less than 18m when measured in accordance with Diagram D5 of ADB. Therefore, the elements of structure will be specified to provide not less than 60 minutes' fire resistance<sup>17</sup>

Table B4 Minimum periods of fire resistance						
Purpose group of building	Minimum periods of fire resistance <sup>(1)</sup> (minutes) in a:					
	Basement storey* including floor over			Ground or upper storey		
	Depth (m) of the lowest basement		Height (m) of top floor above ground, in a building or separated part of a building			
	More than 10	Up to 10	Up to 5	Up to 18	Up to 30	More than 30
1. Residential:						
a. Block of flats						
– without sprinkler system	90 min	60 min	30 min <sup>†</sup>	60 min <sup>+5</sup>	90 min <sup>+</sup>	Not permitted <sup>(2)</sup>
– with sprinkler system <sup>(3)</sup>	90 min	60 min	30 min <sup>†</sup>	60 min <sup>+5</sup>	90 min <sup>+</sup>	120 min <sup>+</sup>
b. and c. Dwellinghouse	Not applicable <sup>(4)</sup>	30 min <sup>†</sup>	30 min <sup>†</sup>	60 min <sup>(5)</sup>	Not applicable <sup>(4)</sup>	Not applicable <sup>(4)</sup>

Superscript (+ s) comments in table value not relevant to building

10.2 Fire resistance means the level of performance of the element of structure, when tested in accordance with the requirements of BS 476 Parts 20 to 24<sup>18</sup> or EN equivalent.

10.3 Where one element of structure supports, or carries, or gives stability to another, the fire resistance of the supporting element will be no less than the minimum period of fire resistance for the other element, whether that element is loadbearing or not

### Fire Compartmentation

10.4 All floors in the building will be specified as compartment floors, providing 60 minutes' fire resistance (REI).

10.6 Partitions forming the enclosure of a protected entrance hall and a protected internal stair in an apartment will provide 60 minutes' fire resistance (REI) and door sets will be FD30S. These doors are not required to be fitted with self-closing devices.

10.7 Places of special fire risk, which, for the purpose of this fire strategy, include any ancillary room or store, will be enclosed with fire-resisting construction, having not less than 30 minutes' fire resistance (REI), and FD30S fire-resisting doors.

10.8 All service shafts will be constructed as protected shafts with 60 minutes' fire resistance (REI). Alternatively, surface shafts may be provided with compartmentation at each floor level and a combination of permitted penetrations, suitable fire stopping, dampers and proprietary seals used to maintain integrity.

10.9 Common stairs will be enclosed in construction to a 60 minutes' fire-resisting standard (REI).

### **Concealed Spaces**

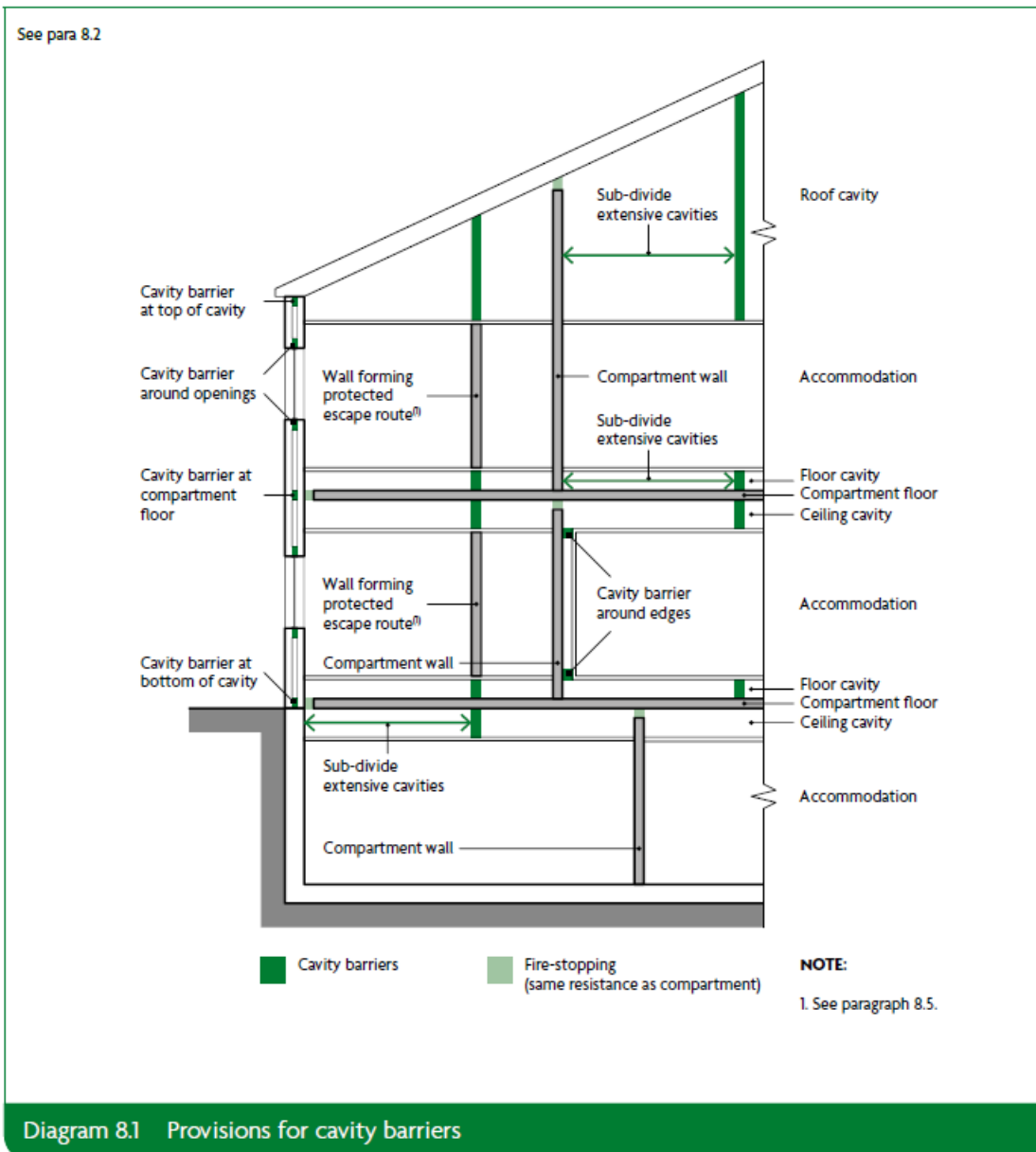
10.12 Cavity barriers should be provided at all of the following locations, namely: a) at the edges of cavities, including around openings (such as windows, doors and exit/entry points for services);

Notes (based on ADB):

b. Double leaf brick or concrete cavity walls are subject to some relaxations from the requirements for cavity barriers.

10.14 It is noted that the building has a flat roof so cavities may not be present.

10.15 Cavity barriers, tested from each side separately, should provide a minimum of 30 minutes' integrity (E 30) and 15 minutes' insulation (I 15) (see also diagram 8.1 below).



## Ventilation Ductwork and Dampers

10.16 Details of any ventilation systems are currently unknown to CSTA and, hence, the general guidelines below are provided.

10.17 Where air handling/ventilation ducts pass through fire-separating elements, such as compartment walls or the enclosures to protected escape routes, then

the integrity of those elements should be maintained, using one, or a combination, of the following four methods:

- Method 1: thermally actuated fire dampers.
- Method 2: fire-resisting enclosures;

- Method 3: protection using fire-resisting ductwork.
- Method 4: automatically actuated fire and smoke dampers triggered by smoke detectors.

10.18 A combination of these methods may provide a suitable level of protection. Consequently, a detailed design must be proposed by the appointed contractor for approval by the fire engineer and Approved Inspector.

10.19 Method 1 should not be used for extract ductwork passing through the enclosures of protected escape routes, as large volumes of smoke can pass thermal devices without triggering them.

10.20 For Method 3, ducting should have the same fire integrity rating as the building element breached.

10.21 Where ducts pass between fire-separating elements to serve multiple flats or dwellings, fire dampers or fire and smoke dampers should be actuated by both of the following.

- i) Smoke detector-controlled automatic release mechanisms.
- ii) Thermally actuated devices.

10.22 Further information on fire-resisting ductwork is given in the ASFP Blue Book.

10.23 Fire dampers should be situated within the thickness of the fire separating elements and be securely fixed.

10.24 Fire dampers should conform to the requirements of BS EN 15650<sup>19</sup>. They should have an 'E' classification equal to, or greater than, 60 minutes. Fire and smoke dampers should also conform to the requirements of BS EN 15650. They should have an 'ES' classification equal to, or greater than, 60 minutes.

10.25 Adequate means of access should be provided to allow inspection, testing and maintenance of both the fire damper and its actuating mechanism.

10.26 The building includes a sleeping risk; therefore, any fire dampers protecting escape routes should be actuated by smoke detector-controlled automatic release mechanisms, in addition to being actuated by thermally actuated devices.

10.27 Further information on fire and smoke-resisting dampers is given in the ASFP Grey Book.

10.28 Further information on fire-resisting ductwork is given in the ASFP Blue Book and the ASFP Blue Book (European version).

10.29 It is essential that the appointed contractor provides detailed plans to the Approved Inspector and fire consultant, demonstrating conformity with the preceding paragraphs, for approval prior to installation.



## **Fire Stopping**

10.30 All openings around pipes and services passing through a fire-resisting wall or ceiling will be adequately protected by sealing or fire stopping, so that the fire resistance of the element is not impaired. Openings for pipes through a fire-separating element may be dealt with by proprietary sealing, restricted pipe diameter or sleeve.

10.31 Appointed fire stopping contractors should be certified by a third party, such as FIRAS or the Loss Prevention Certification Board (LPCB). This means that they work to agreed industry standards, employ trained operatives and are subject to on-site audits and inspection of representative samples of the work carried out to ensure compliance with manufacturers' recommendations and Building Regulations.

## **11. FIRE SUPPRESSION**

### **Fire Extinguishers**

11.1 Portable fire extinguishers of the foam (for Class A fires) and carbon dioxide (for Class B fires) should be provided where necessary.

11.2 Fire extinguishers should be placed on a dedicated stand, or hung on a wall at a convenient height, so that occupants can easily lift them off (at about 1m for larger extinguishers and 1.5m for smaller ones, to the level of the handle). Ideally, no-one should have to travel more than 30m to reach a fire extinguisher. If there is a risk of malicious use, it may be necessary to use alternative, and more secure, locations.

11.3 Further guidance on the selection of portable fire extinguishers is contained in BS 5306-820.

## **12. EXTERNAL FIRE SPREAD**

12.1 The external walls of an apartment building must meet specified fire performance criteria for: a) resisting fire spread over the external surface.

b) material and products.

c) cavities and cavity barriers.

12.2 These requirements are in addition to fire resistance required for an external wall forming a structural function (see Section 10 of this report) or where an external wall is required to be fire resisting, to limit the risk of fire spread to adjacent buildings (see “External Fire Spread” below).

### **Resisting Fire Spread over External Walls**

12.3 The external envelope of a building should not contribute to undue fire spread from one part of a building to another part.

12.4 The external surfaces (i.e. outermost external material) of external walls should comply with the provisions in Table 10.1 of ADB. The provisions in Table 10.1 apply to each wall individually in relation to its proximity to the relevant boundary.

12.5 The relevant section of Table 10.1 for this project is highlighted below. As can be seen, different provisions apply to walls within 1,000mm of a relevant boundary and those greater than this distance. For this project, significant sections of the wall are within 1,000mm of the relevant boundary. Differentiation between external walls has been marked on the architects’ fire plans.

12.6 The external walls will be generally constructed from materials of limited combustibility.

<b>Table 10.1 Reaction to fire performance of external surface of walls</b>			
Building type	Building height	Less than 1000mm from the relevant boundary	1000mm or more from the relevant boundary
'Relevant buildings' as defined in regulation 7(4) (see paragraph 10.10)		Class A2-s1, d0 <sup>(1)</sup> or better	Class A2-s1, d0 <sup>(1)</sup> or better
Assembly and recreation	More than 18m	Class B-s3, d2 <sup>(2)</sup> or better	From ground level to 18m: class C-s3, d2 <sup>(3)</sup> or better From 18m in height and above: class B-s3, d2 <sup>(2)</sup> or better
	18m or less	Class B-s3, d2 <sup>(2)</sup> or better	Up to 10m above ground level: class C-s3, d2 <sup>(3)</sup> or better Up to 10m above a roof or any part of the building to which the public have access: class C-s3, d2 <sup>(3)</sup> or better <sup>(4)</sup> From 10m in height and above: no minimum performance
Any other building	More than 18m	Class B-s3, d2 <sup>(2)</sup> or better	From ground level to 18m: class C-s3, d2 <sup>(3)</sup> or better From 18m in height and above: class B-s3, d2 <sup>(2)</sup> or better
	18m or less	Class B-s3, d2 <sup>(2)</sup> or better	No provisions

**NOTES:**

In addition to the requirements within this table, buildings with a top occupied storey above 18m should also meet the provisions of paragraph 10.6.

In all cases, the advice in paragraph 10.4 should be followed.

1. The restrictions for these buildings apply to all the materials used in the external wall and specified attachments (see paragraphs 10.9 to 10.12 for further guidance).
2. Profiled or flat steel sheet at least 0.5 mm thick with an organic coating of no more than 0.2mm thickness is also acceptable.
3. Timber cladding at least 9mm thick is also acceptable.
4. 10m is measured from the top surface of the roof.

**Table 10.1 ADB: Volume1**

## **Cavities and Cavity Barriers**

12.7 The provision of cavity barriers is specified in Section 10 of this report.

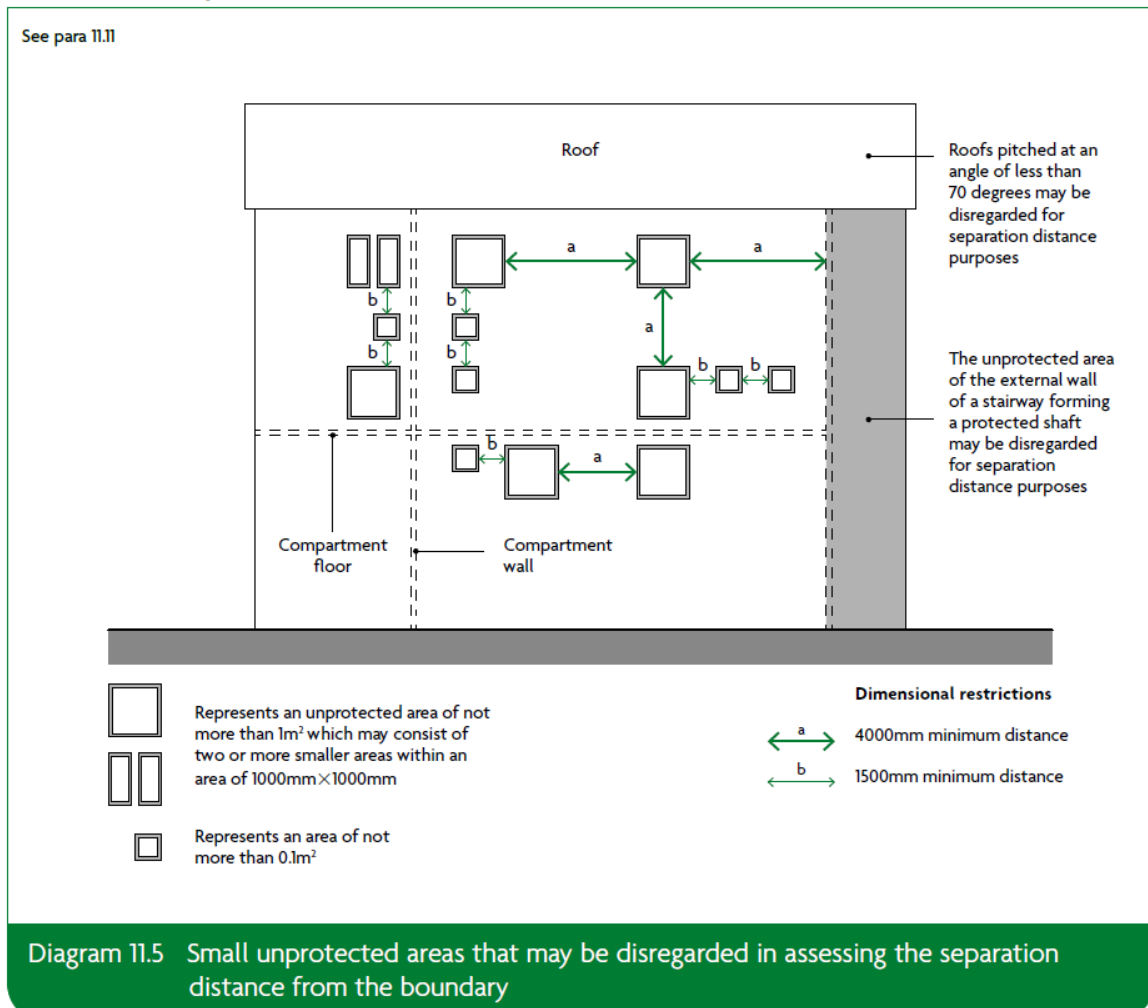
## **External Fire Spread by Thermal Radiation**

12.8 Reasonable measures must be in place to prevent fire spread to adjacent buildings by radiant heat flux from unprotected areas of a building façade in the event of a fire. An unprotected area, typically, comprises windows, together with any other part of an external wall that does not meet the specified fire resistance set out in this report.

12.9 The building is on, or close to, the relevant boundary on one side elevation and to the rear, and the extent of permitted unprotected glazing is limited.

Diagram 11.5 of ADB: Volume 1 does allow for small areas of separated unprotected glazing of 1m<sup>2</sup> in cases where an external wall is within 1,000mm of a relevant boundary.

The diagram is copied below. It is possible to have permitted unprotected openings closer to each other than shown by the green lines in the diagram, where the relevant windows are in different apartments, because the assumption is that a fire would not spread between apartments.



12.10 Where it is necessary to calculate the extent of permitted unprotected openings, an emitter value of 84kW/m<sup>2</sup> has been applied to the apartments. This is consistent with ADB and the recommendations in BR 187<sup>21</sup>.