






UCL

FIRE DOORS CURTAINS & SHUTTERS - GENERAL OVERVIEW & REQUIREMENTS

Fire Door Provision In UCL Buildings - what you need to know:

 Mandatory	<p>Mandatory - all doors on main traffic and circulation routes, corridors, lobbies or stair enclosures to be provided with Vision Panels (VP);</p>
	<p>Mandatory - all doors provided on Laboratory and Sleeping Accommodation rooms must meet Fire Door (FD30) standard;</p>
	<p>Mandatory - blue door signs (or incorporated into manifestation) must be provided for all fire doors as a legal instruction (see table below);</p>
	<p>Mandatory - auto opening devices for Mobility Impaired Persons (MIP) on certain fire doors or locations may NOT be acceptable (See UCL T/Note TN001);</p>
	<p>Mandatory - clear pyro fire glazing must be clearly identified by means of an 'Acid Etching' in the corner of the pane giving the trade name & marked with BS 476 Part 22. If acid etched trade name / BS standard is NOT visible, then the glass will not be accepted as meeting Fire Rated Glazing (FRG) and will need to be replaced for correct specification and clear identification;</p>
 Not Acceptable	<p>Unacceptable Opening Directions - fire doors on circulation routes NOT to open in the direction of escape (<i>unless exceptional circumstances i.e. heritage</i>) - inward opening doors will limit room capacity to a maximum of 60 persons only;</p>
	<p>Unacceptable Double Swing Fire Doors - in locations other than doors forming a mid-corridor smoke break;</p>
	<p>Unacceptable Vision Panels (VP) - not providing VP in doors to 'Inner Rooms', laboratories, kitchens, circulation routes and areas where hazardous items such as chemicals or glassware pass through;</p>
	<p>Unacceptable Perko Fittings - not normally acceptable on standard doors (<i>but may be acceptable on ½ leaves due to size restrictions</i>);</p>
	<p>Unacceptable Air Transfer Grilles / Letter Boxes - fire doors shall not have grilles or letter boxes (no alternative to be discussed with UCL Fire Safety Manager);</p>
 Acceptable	<p>Small Leaves - fire doors with ½ leaves to be fitted with a self-closing device either using an overhead unit where practical or Perko type unit for smaller leaves;</p>
	<p>Inner Rooms - generally doors to 'Inner Rooms' should be provided with VP;</p>
	<p>Smoke Seals - recommended that the smoke seals fitted to all new & upgraded fire doors are the brush type and NOT rubber blade type;</p>
	<p>Security Doors (SR2/SR3/SR4) - fire rated use Stafford Bridge Doors (see below);</p>
	<p>Security Doors (SR2/SR3/SR4) - fire rated use ASSA Abloy Doors also (see below);</p>

- **Definition of a Fire Door** - a door assembly, which is designed to hold back fire and smoke for a designated period and has been tested under conditions for door assemblies described in British Standard 476 Part 22;
- **Fire Door Guidance** - British Standard **8214-2008** (*Code of Practice for Fire Door Assemblies*).

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1.0. General Information

1.1. **Standards** – UCL’s general fire door design standard preference for the fire performance of timber door sets either:

- (a). Use doors and door sets meeting **BS 476: Part 22**.
- (b). Use doors and door sets meeting BS EN 1634-1.





1.2. **Third Party Installation** – for compliancy, fire doors and fire door sets to be installed under UKAS third party accreditation:

- The most robust third party scheme is Building Research Establishment (BRE) Loss Prevention Certification Board standard for installation **LPS1271**.
- Exova BM Trada site installer scheme is acceptable under their manufacture Q-Mark scheme.

1.3. Fire Door Key ([FD30(S)SC&VP])

Key:	Description:	Key:	Description:
FD30	A Fire Door with 30 minutes Integrity properties (<i>also shown as FD30</i>) and complete with intumescent seals	FD60	A Fire Door with 60 minutes Integrity properties (<i>also shown as FD60</i>) and complete with intumescent seals
(S)	Smoke Seals (use brush type as generally found to wear better than rubber blade types)	SC	Self-closing device complying with BS EN 1154: Door Closers
FRG 30 / 60	Fire Resisting Glazing - 30 minutes Resistance including integrity (FRG30 or FRG60) Fire Resisting Glazing integrity and insulation (FRG30/30) or (FRG60/60)	FD30(S) SC & VP	FD30(S)SC&VP - Fire Door 30 or 60 (Smoke Seals) Self Closing & Vision Panel required
VP	Vision Panel - required (<i>if within a fire door then glazing must meet FRG 30/60</i>)	PB	Push Bar - emergency opening device complying with BS EN 1125

1.4. **Fire Door Signs** - all fire doors **MUST** be signed using one of the following standard signs (*as a minimum it is recommended 80 mm x 80 mm Ridged Plastic signs in size with 4 x screw holes*) but, others styles may be provided appropriate to door design & surfaces:

Sign, Colour & Pictogram	Description, Uses and Conventions
	1. 'Fire Door Keep Shut / Closed' - positioned at eye level, on both faces of each fire doors leaf that are fitted with a self-closing device - include any ½ leaves which should also be signed in addition to the main door leaf.
	2. 'Fire Locked Shut' - used on fire doors that are not fitted with self-closing devices (<i>for example cleaner's cupboard, some types of stores, plant rooms & service risers</i>) - sign fixed to outer door face, at eye level.
	3. Automatic Fire Door Keep Clear - used on doors connected to ' <i>fire door hold open devices</i> ' that release the doors on activation of the fire alarm system. Signs to be placed on the visible open leaf at eye level when the door is held open by device; this is to avoid obstructing the fire door on being released automatically. 3a. Provide a fire door keep shut' sign on the door leaf facing to the wall at eye level when held open.
	4. Fire Escape Doors - provided generally on external door leaves to prevent obstructions that might impede the opening of the fire escape door in an emergency. Fitted on the external face of a fire exits to prevent vehicles park to close, cycles or rubbish bins being placed in front of doors etc.
Glazed Fire Doors & Partitions	5. Manifestation Incorporating Fire Signage - on fire rated glazed partitions & door sets we strongly recommend that the fire signs above be incorporated into the ' manifestation ' to ensure compliance.

1.5. **Door Widths and Means of Escape:**

The following guide can be used to determine the general capacities of escape routes based on clear opening door widths:	
Door Widths:	Numbers of persons able to pass through:
750 mm (absolute minimum width)	60 persons (normal risk)
850 mm	110 persons (normal risk)
950 mm (minimum width for wheelchairs)	160 persons (normal risk)
1050 mm	220 persons (normal risk)
Doors greater than 1050 mm wide	1050mm = 220 persons - then add 5mm per person on width greater than 1050mm (e.g. door width of 1500mm - 1050mm = 450mm (450 ÷ 5mm = 90) 220 + 90 = max 310 persons

- An additional 75 mm should be allowed for each additional 15 persons (or part thereof 15);

2.0. Fire Doors *(General UCL requirements and recommendations, which may be in addition to current regulations / guidance):*

2.1. Where fire doors [FD30(S)SC&VP] are generally required:

- All doors to escape stair enclosures *(both internal & external and protected fire routes)*; [FD30(S)SC&VP]
- Laboratory and equipment rooms [FD30(S)SC&VP];
- Cleaners' cupboards and storage rooms [FD30(S)];
- Service risers access doors and hatches[FD30(S)];
- Electrical switch rooms / cupboards on means of escape [FD30(S)];
- Plant Rooms [FD30(S)SC];
- ISD / Server Equipment Rooms (some locations only - to be confirmed), [FD30(S)SC];

2.2. Student Halls of Residences - fire doors [FD30(S)SC&VP] required:

- All bedrooms (including within cluster flats) [FD30(S)SC];
- All kitchens including within cluster flats [FD30(S)SC&VP];
- All studio flats [FD30(S)SC];
- All cleaner cupboards / storage rooms or cupboards [FD30(S)SC&VP];
- All service riser access doors and hatches [FD30(S)];
- Electrical switch cupboards (particaurly on corridors and lobbies) [FD30(S)];
- Plant Rooms and Switch Rooms [FD30(S)SC];
- All information systems / server cupboards or rooms[FD30(S)SC];
- Office and ancillary accommodation (laundry rooms computer rooms study spaces etc.) depending on location [FD30(S)SC&VP];

2.3. Fire Resisting (FR):

Generally, indicates that the construction is designated as capable of resisting the passage of flame and smoke, and providing insulation as defined in under the prescribed conditions of test appropriate to such construction in accordance with the current British Standard 476.

- **FD30** doors generally should not be less than **44mm** in thickness;

- **FD60** doors generally should not be less than **54mm** in thickness;
- 2.4. **Vision Panels (VP)** - all doors on main traffic and circulation routes, corridors, lobbies or stair enclosures etc., shall be provided with **Vision Panels** for general safety (*regardless of being fire doors or not - with fire resisting VPs embedded in fire doors*);
- **All doors** to laboratories, kitchens and areas where hazardous items such as chemicals or glassware pass through the doors regularly are also provided with **Vision Panels** for general safety;
 - **Inner Rooms** - doors to 'Inner Rooms' should be provided with Vision Panels;
 - **Vision Panels (Exceptions)** - where there is a need for privacy such as WCs / sleeping accommodation / rooms used for Patients / store rooms / dark rooms or light sensitive equipment rooms some specialist laboratory space etc.
 - **Disability Access** - require vision panels (*see approved Document Part M, The Building Regulations below*);
- 2.5. **Smoke Seals (S)** - fire doors **MUST** be fitted with 'intumescent and cold smoke seals / brushes' where appropriate
- For UCL projects cold smoke seals fitted to all new & upgraded fire doors are the **brush type** wherever possible and **not rubber blade type**. *Rubber blade type, appear from experience, not to be as durable and long lasting in maintenance terms, as the brushes.*
- 2.6. **Self-Closing (SC) Devices** - generally standard overhead units are to be used meeting the latest edition *BS 6459: Door Closers*. Door closers and accessories should comply fully with the latest edition *BS EN 1154*:
- (a). **Fire doors with ½ leaves** - shall be **self-closing** and fitted with either overhead unit where practical or using a Perko type fitting in smaller leaves, as necessary.
 - (b). **Perko fitting** are **not** normally acceptable on UCL doors with the exception of ½ leaves due to size restrictions.
 - (c). **Perkomatic / Powermatic** concealed door closers are acceptable for certain applications where an overhead SC unit is not practical due to local restrictions or for ½ leaves fitted to fire doors for self-closing.
 - **Exceptions** on some smaller leaves it may be acceptable for practical reasons not to provided SC devices to be agreed with the UCL Fire Safety Manager.

2.7. Air Transfer Grilles and Fire Doors:

Fire doors fitted air transfer grilles will not only allow air to pass through but smoke and fire also. It is, therefore, essential that whatever fire door a transfer grille is fitted, the fire and smoke resisting qualities of the door must not be reduced as a result:

- (a). Where a fire door is fitted purely to resist the passage of fire and not to resist the combination of fire and smoke, a heat activated fire damper is usually acceptable. These are normally of the intumescent honeycomb or fusible strut type of operation.
- (b). Where a fire door is fitted to protect an **internal escape route** and especially if the door has '**Smoke Seals**' fitted, then the only air transfer grille permitted is one that resists the passage of smoke as well as fire:
 - This type of damper is electro-magnetically released by the activation of a smoke detector located on the risk side(s) of the door [*such as a 'Gilbert' typed damper – see UCL Fire Safety Technical Note **TN038***].
 - Air transfer grilles in fire doors should not be fitted higher than 1000 mm from the floor threshold.

3.0. Ironmongery

- 3.1. **Ironmongery** - provide strong and fully functioning ironmongery that is approved for use with fire doors.
- 3.2. '**D' Handles** - in many cases the installation of a 'D' handle allows the tension to be released on locks to allow ease of opening, close external doors and against wind etc. Otherwise, pulling a door open on a thumb turn, key or a small knob is difficult and not acceptable on an escape route where the door needs to open inwards without a suitable handle;
- 3.3. **Locks** - locking devices fitted with Thumb Turns (*known as Emergency Fastenings(EF)*) should always be used on the inside leaf in direction of escape, unless other types of escape furniture is to be provided; or no locking furniture at all designated '**Free From Fastenings**' (FFF) for Means of Escape purposes.
- 3.4. **Final Exit (Gallagher) Security Locks** - UCL Security have a policy of fitting specialised locks on all perimeter exit doors fitted with Gallagher access control magnetic locks, in case of system failure. This allows UCL Security to lockdown a building without occupants with key only they hold, fitted with a Thumb Turn on the inside, which cannot be overridden unless the key has been turned to secure allowing escape when locked.

4.0. Fire Resisting Glazing

4.1. If a Vision Panel (VP) or glazing is required in a fire door or partition then the glazing has to be **Fire Resisting Glazing of 30 or 60 minutes integrity** (FRG30/60) meeting BS 476: Part 22.

Note 1: **Clear Fire Glazing** - it is extremely important to be able identify clear glazing as fire glazing (Pyro) this is generally done by ensuring each glass sheet is provided with a visible '**Acid Etching**' giving the trade name in the corner of the pane and marked with BS 476: Part 22.

Note 2: If the acid etched trade name or BS 476: Part 22 information is **NOT** visible then the UCL Fire Safety Manager **will not** accept the glazing as **FRG** - **the glazing will be required to be replaced for correct specification and visible etching.**

Note 3: **Safety Glazing** - glazing that is marked with BS 6206: 1981 / BS 6262 Series (or latest issue) is **not fire resisting glazing**. It is often mistaken for FRG30 and the UCL Fire Safety Manager will require this glazing to be replaced for FRG where necessary.

4.2. Fanlights above fire doors are to be sealed so they cannot be opened and the construction to meet either FRG30 or FR30, as required.

5.0. Security and Fire Rated (Croydon) Door Sets *(Security door specifications need to be discussed with UCL Access Systems in the first instance).*

5.1. UCL has standardised its requirements for those areas requiring security doors (SR2 - SR4) with a fire rating using a range of security doorsets fully certified to the Loss Prevention Certification Board's LPS 1175 standard.

- **Stafford Bridge** Doors** (www.sbdoors.com) Croydon Security Door sets for aesthetics and FD30 to FD60 range of specialist doors;
- **Ascot Doors** (www.ascotdoors.co.uk) manufacture specialist fire & security doors meeting 120 minutes with SR ratings (suitable for tunnels and other specialist requirements);
- **ASSA-ABLOY** - provide SR Security and Fire rated doors, which meet UCL locking and security requirements

5.2. **Stafford Bridge** Security Doors (Fire Alarm Interface)** - fitted with the 'Safe and Secure' locking solution must have a local fire alarm interface used to cut the power to the fail-locked locking mechanism, along with the local break glass; this then leaves the door secure, but with a free exit handle for easy escape in the event of fire.

6.0. SMOKE & FIRE CURTAINS / SHUTTERS

- 6.1. From a practical solution, UCL as Client wishes project design teams to **avoid fire & smoke curtains / fire shutters wherever possible**, experience has shown that they are notoriously unreliable. *Commentary* - often architects and designers want to open up spaces for aesthetic reasons with fire curtains being a convenient solution. However, fire curtains leave a legacy of ongoing and costly maintenance. Additionally, they also present a significant management burden, should they fail to operate correctly. This failure to activate would significant impact on the means of escape and the general fire strategy of the premises, leaving a management burden on UCL the Client and the occupying departments that may affect core business functions.
- 6.2. Where there is no option but to install a fire curtain / fire shutter the in terms of specification then the emphasis **MUST** be on the quality in installation and ongoing maintenance. The following provides general guidance:
- To meet LPCB approved smoke curtains (**LPS1182**) requirements and tests for fixed fabric smoke curtains, fixed metal smoke curtains and powered smoke curtains;
 - Fire curtains must achieve both Insulation and Integrity ratings of 60 minutes as well as a smoke rating (therefore suitable guiderails will be required) and should be PAS121 compliant;
 - Must deploy on activation of a signal from a smoke detector, not a temperature based fusible link;
 - There should be warning mechanisms in place to indicate its operation:
 - to occupants when the curtain is descending (visually and audibly) with use of flashing beacons and alarm;
 - Floors / surfaces shall be marked / lineated to identify curtain or shutter operating / closure line and to ensure path not obstructed;
 - furniture and other obstruction will prevent the path of the fire curtain, therefore prevention measures that would block its descent may need installing (i.e. beams that detects any object under the fire curtain);
 - The curtain needs to be fail-safe in the closed position;
 - There should be a manual override button facilities to open curtain;
 - Some manufacturers we are aware of are noted below:
 - www.ascotdoors.co.uk (Shutters & Curtains)
 - www.coopersfire.com

6.3. **Approved Installer and Contractors** - all existing fire curtains and fire shutter equipment is installed, service and maintained through the following contactor:

- **Fisk Fire Protection Ltd** (www.fiskfire.co.uk) - have the contract and responsibility for the maintenance and servicing of this equipment and installation at UCL and it is essential to ensure that whatever is specified can be easily maintained;

7.0. UCL Design Requirements / Criteria for Fire Doors:

7.1. **All fire-resisting doors shall be:**

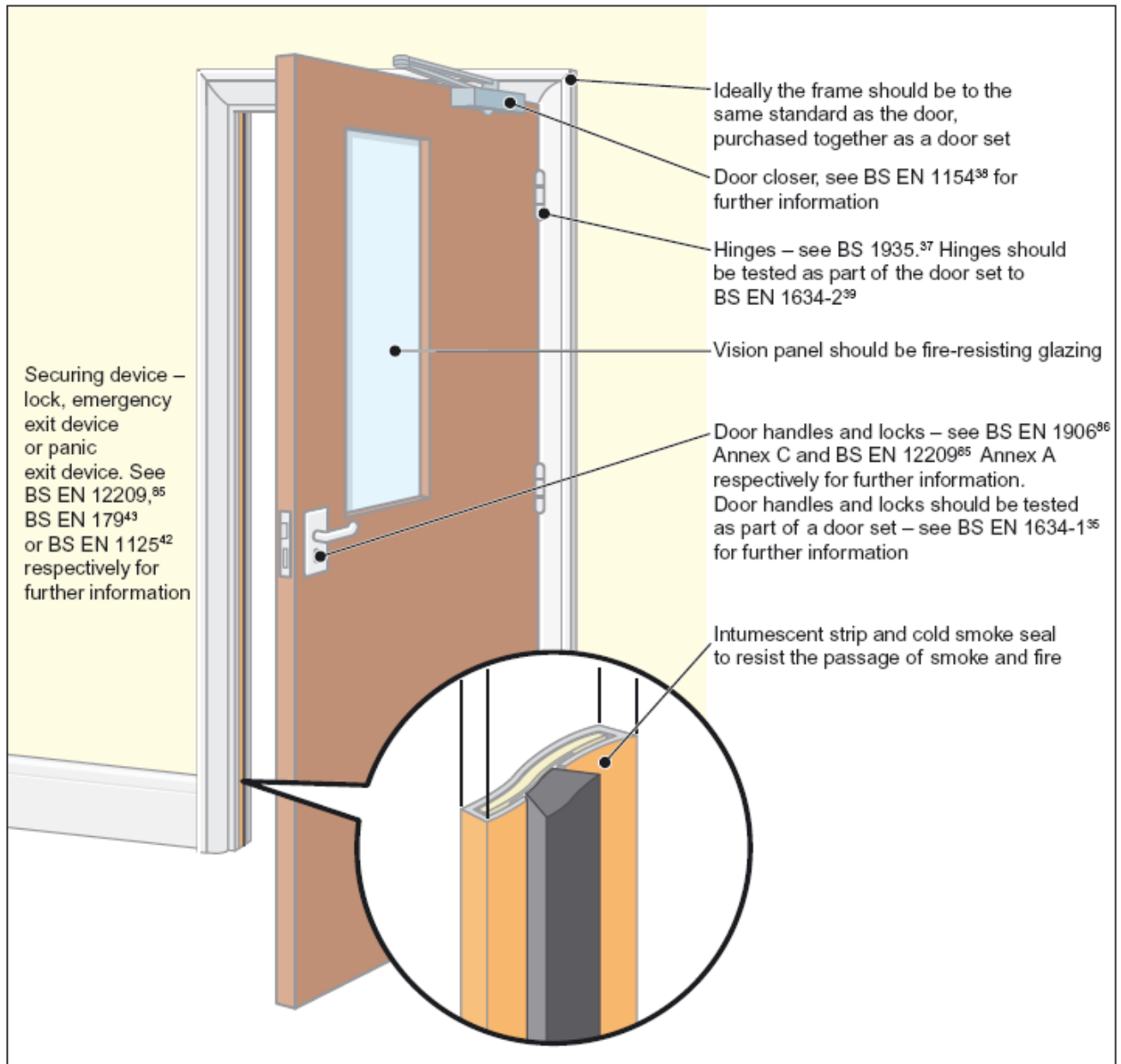
- (a). **Gaps**- close fitting to the frame with a maximum gap of 5mm, but **3mm** is the accepted working gap to meet BS 8214-2008;
- (b). **Hinges** - hung by a minimum of 1½ pairs of all metal hinges to meet BS 1935 / BS EN 1634;
- (c). Fitted with an effective self-closing device that is capable of closing the door tight against the stop, overcoming the resistance of any latch or lock provided to meet BS EN 1154;
- (d). **Generally** - all fire doors on circulation routes should open in the direction of escape and be rebated to ensure intumescent and smoke seals work correctly:
 - (1). Doors should **NOT be double swing** on to stairs or within circulation areas.
 - (2). Exception, doors forming a mid-corridor smoke break where these may be double swing.

7.2. **Disability Access** – door-opening devices to assist Mobility Impaired Persons (MIP) needs careful consideration and details for providing automated opening doors is detailed in:

- UCL Fire Safety Technical Note **TN001**;

8.0. General View of a Fire Door and Associated Furniture

Figure 61: A fire resisting and smoke stopping door



9.0. Approved Document M - The Building Regulations

- 9.1. General guidance on Vision Panel dimensions, however if Vision Panels form part of a fire resisting door set then the area of the glass may be determined by the fire resistance properties and the manufactures' s specifications etc.
- 9.2. All door glazing on traffic routes and public areas should be **Safety Glazing Standard**, in addition to any fire resistance required.

