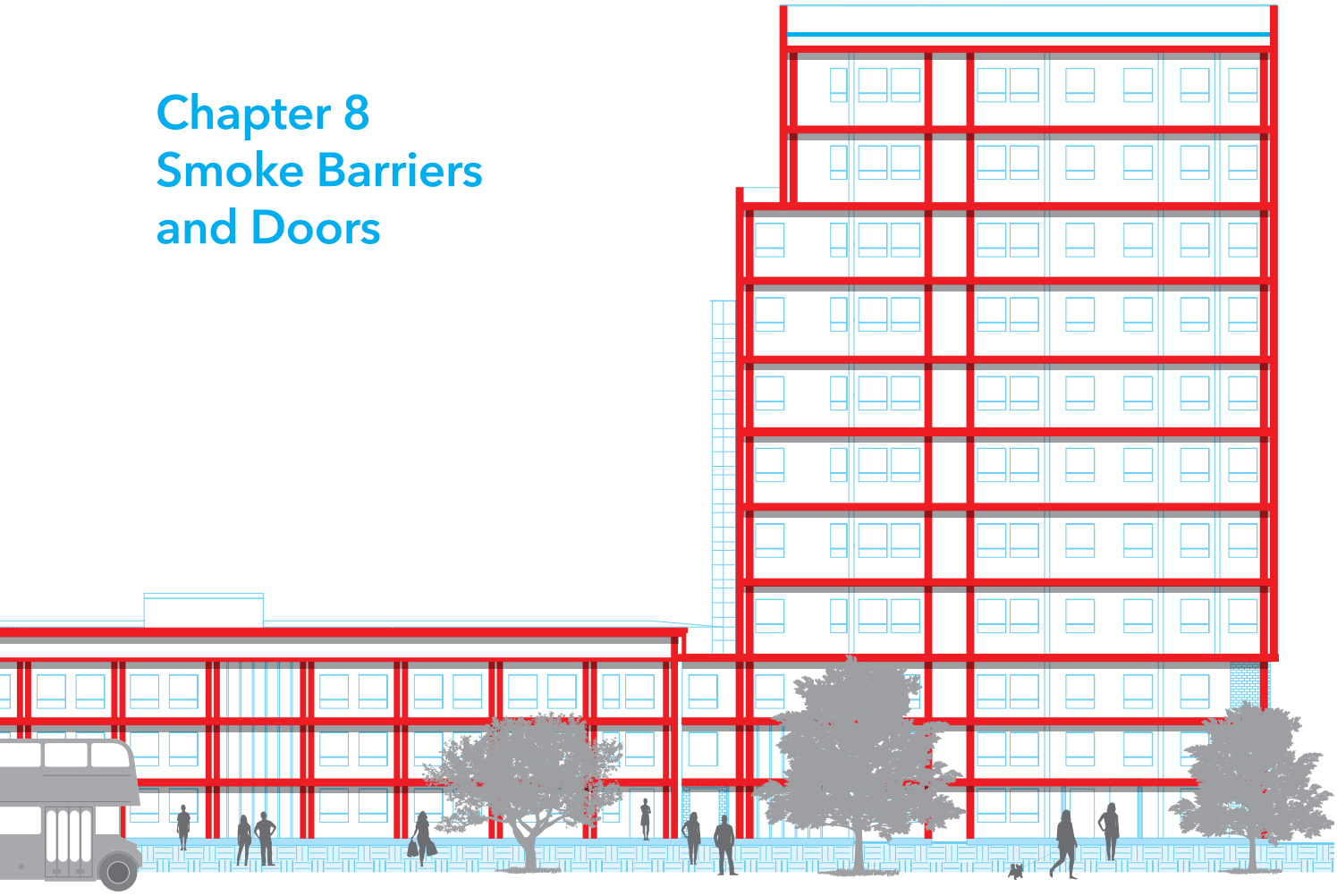
Promat

# The Passive Fire Protection Handbook

## The UK's comprehensive guide to passive fire protection

## Chapter 8 Smoke Barriers and Doors



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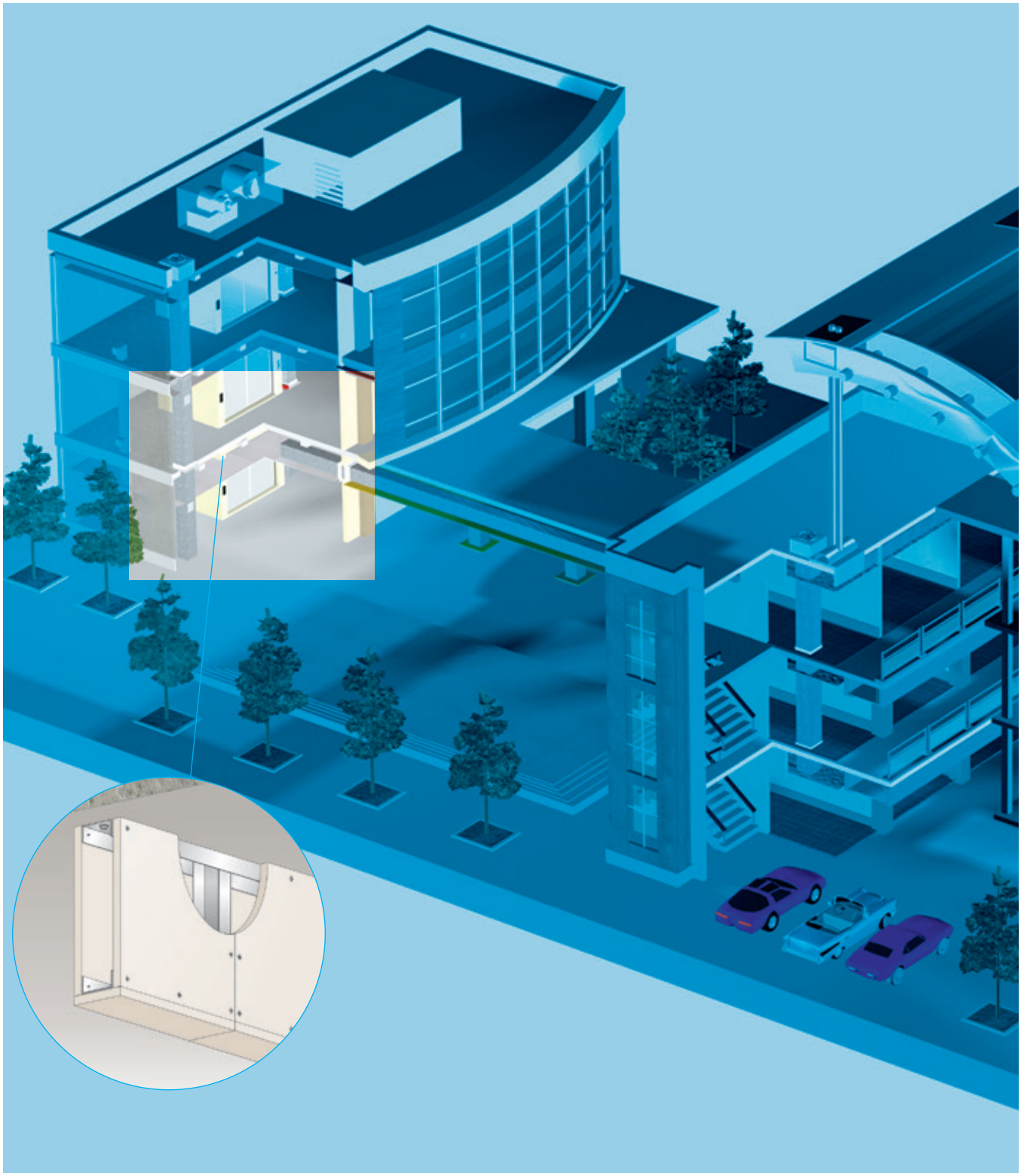
# Smoke Barriers and Doors



Chapter 8: Smoke Barriers and Doors

# Introduction

## SMOKE BARRIERS

The purpose of a cavity barrier is to prevent smoke and flame from penetrating and/or moving within a concealed space in a fire compartment.

Building Regulations provide guidance on where such barriers should be located within hidden voids in a building and they give examples of deemed-to-satisfy barriers for voids in stud walls or partitions.

If a barrier in a concealed space coincides with a compartment wall or floor it will normally be required to provide the same fire performance as the wall or floor. If the barrier is located between such walls or floors however, the barrier is defined as a 'cavity barrier' and as such will normally only be required to provide 30 minutes integrity and 15 minutes insulation.

There are also instances where insurance companies insist on 30 minutes insulation. "Large" and "small" cavity barriers are only defined in Scottish Building Regulations. For insurance purposes, a large barrier is more than 600mm x 600mm.

A large cavity barrier is defined as a barrier across a void in which a square with 1m sides can be accommodated. A small cavity barrier is a barrier in which such a square cannot be accommodated. A large cavity barrier is required to provide 30 minutes integrity and 15 minutes insulation whereas a small cavity barrier need only provide 30 minutes integrity.

## FIRE TESTING METHODS

Cavity barriers should normally be tested or assessed in accordance with BS 476: Part 22: 1987 and be required to satisfy the performance criteria of integrity and insulation for 30 minutes and 15 minutes respectively when exposed to fire from either side. It should be noted that in some instances, the integrity and insulation criteria must be such that the performance requirement could be considerably higher than that detailed above. e.g. if the cavity barrier is situated at the top of a compartment wall, then this barrier would be required to provide the same fire resistance as the main wall.

## DESIGN CONSIDERATIONS

The following points are some of the factors which should be considered when determining the correct specification to ensure the cavity barrier will provide the required fire performance. Further advice can be obtained from the Promat Technical Services Department.

1. Size of barrier and location
   As mentioned previously there may be occasions when the required performance of the barrier will differ from the general requirement of 30 minutes integrity and 15 minutes insulation, e.g. if it is located above a compartment wall.
2. Differential movement
   Cavity barriers are often located between two building elements that may move at different rates in normal conditions and/or in the event of a fire e.g. a floor and a suspended ceiling. The design of the barrier must therefore make an allowance for such movement whilst still maintaining the required levels of integrity and insulation.
3. Service penetrations
   Care needs to be taken in detailing a suitable fire stopping system around any penetration of the barrier by services. Allowance should be made for movement of the services in both ambient and in fire conditions to ensure loads are not applied to the cavity barrier. See Chapter 7 for details of the Promat PROMASEAL® fire stopping range.
4. Adjoining structure
   It is essential that the surrounding building elements e.g. roof, floor or walls, do not collapse in the event of a fire. A cavity barrier in a roof space, for example, will require that the roof truss that it is secured to is also protected to prevent collapse when exposed to fire for at least 30 minutes.

# Promat SUPALUX® System

## TECHNICAL DATA

Fire rating, integrity and insulation in accordance with the criteria of both BS 476: Part 22: 1987 and BS 7346: Part 3: 1990.

1.

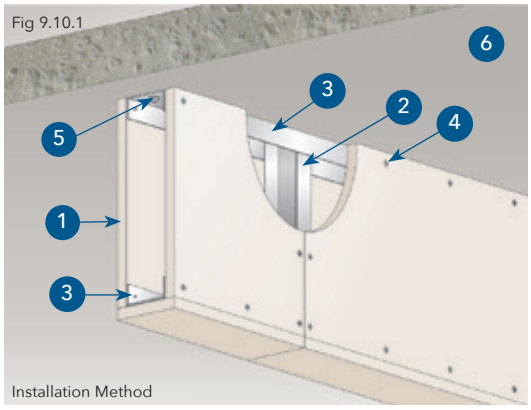
| Fire rating minutes | Promat SUPALUX® Thickness | Cover fillets/ rock wool | Max. height |
|---|---|---|---|
| Integrity 60 | 9mm | - | 2440mm |
| Integrity 120 | 9mm | - | 2440mm |
| Integrity 60 & Insulation 30 | 9mm | 100mm x 9mm Promat SUPALUX® fillets | 2440mm |
| Integrity 60 & Insulation 60 | 9mm | 100mm x 9mm Promat SUPALUX® fillets with 50mm thick x 60 kg/m³ rock wool | 2440mm |

2. Vertical steel channel, 50mm deep x 0.6mm thick at maximum 610mm centres welded or rivetted to top and bottom channels.
3. Top and bottom horizontal steel channel 0.9mm thick for barrier height ≤ 1000mm. 1.2mm thick for barrier height ≤ 2440mm.
4. M4 steel screws at nominal 200mm centres horizontally and at nominal 300mm centres vertically.
5. M6 steel anchor bolt at nominal 400mm centres.
6. Concrete substrate.

Smoke kills more people in fires than heat, flames or structural collapse. Most modern buildings today have an engineered smoke control system and very often it involves the use of smoke reservoirs, channelling screens and curtains.

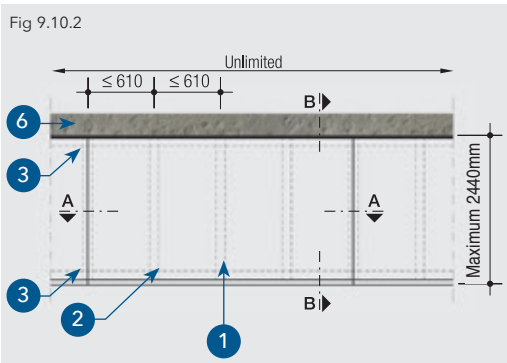
Smoke curtains and screens must meet the requirements of BS 7346: Part 3: 1990. Promat solutions offer a permanent, easy to install and cost efficient method to meet the requirements of the above standard.

Fig 9.10.1




Installation Method

Fig 9.10.2




Detail 1 - Elevation

Fig 9.10.4

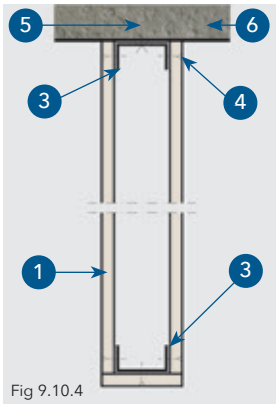
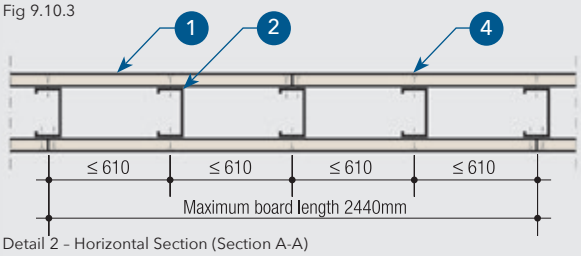
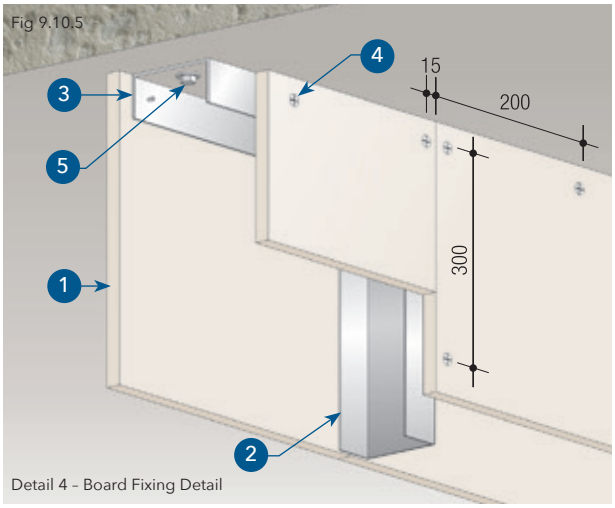



Fig 9.10.3




Detail 2 - Horizontal Section (Section A-A)

Fig 9.10.5

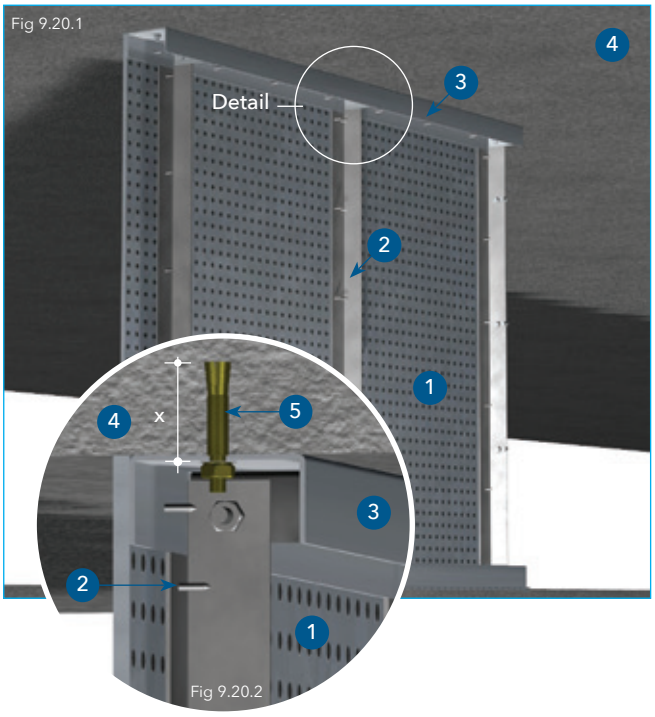



Detail 4 - Board Fixing Detail

Detail 3 - Vertical Section (Section B-B)

Chapter 8: Smoke Barriers and Doors

# Promat DURASTEEL® System




## Technical Data

Single sided barrier to provide integrity only for up to 40 minutes in accordance with the criteria of BS 476: Part 22: 1987.

1. Promat DURASTEEL®, 9.5mm.
2. Steel studs maximum 1200mm centres*, comprising of either 100mm x 50mm x 3mm thick C-channels or 80mm x 60mm x 3mm thick C-channels or 50mm x 50mm x 3mm thick angles.
3. Steel channel tracks.
4. Soffit of concrete or structure with fire-resistance equal to or greater than that of the barrier.
5. Non-combustible fixings, M10 at 500mm maximum centres, minimum penetration into concrete substrate of:
   40mm for up to 120 minutes fire resistance.
   60mm for up to 240 minutes fire resistance.

Maximum drop height 2500mm.

** Dependent upon construction criteria, please refer to Promat Technical Services Department for specific details.*

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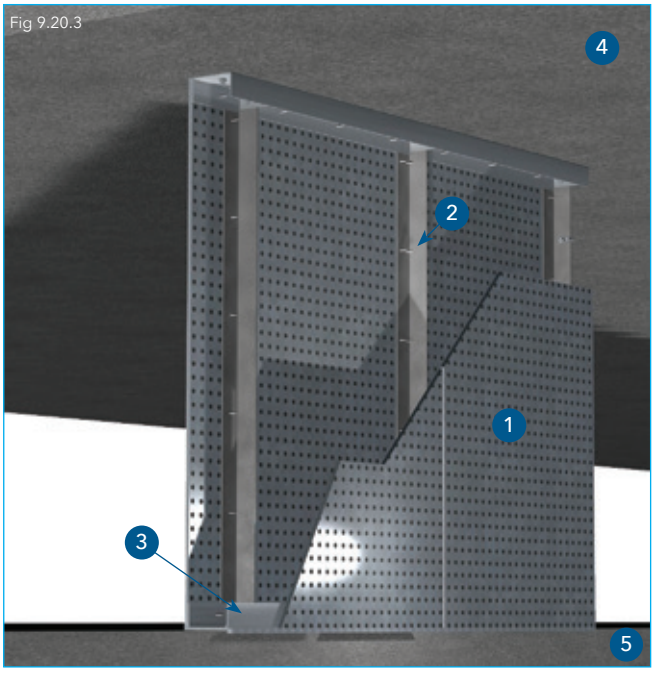


## Technical Data

Double sided barrier to provide integrity only for up to 240 minutes in accordance with the criteria of BS 476: Part 22: 1987.

1. Promat DURASTEEL®, 9.5mm.
2. Steel studs, maximum 1200mm centres* comprising of either 100mm x 50mm x 3mm thick C-channels or 80mm x 60mm x 3mm thick C-channels or 50mm x 50mm x 3mm thick angles.
3. Steel channel tracks.
4. Soffit of concrete or structure with fire resistance equal to or greater than that of the barrier.
5. Ceiling of concrete or structure with fire resistance higher or equal to that of the barrier.

Maximum drop height 2500mm.

**Dependent upon construction criteria, please refer to Promat Technical Services Department for specific details.*

## Promat DURASTEEL® System

Doors form an important component of many fire compartmentation systems. To maintain the integrity of the fire separation, access doors or hatches should be installed with appropriate hardware and signage to ensure that they are suitable for their intended use.

### FIRE TESTING METHODS

Promat manufacture a range of fire doors, offering from 60 to 240 minutes fire protection, each with a specific purpose and application in mind. All doors in this section are tested to BS 476: Part 22: 1987 and will also meet the relevant requirements of BS 5588 for fire resisting doorsets.

### DESIGN CONSIDERATIONS

The new editions of Approved Document B give strict guidance on the use of fire doors and this should be adhered to at all times. In addition, documents such as the FPA Design Guide should be considered to give a wider scope of specific applications and uses.

Promat also manufacture bespoke doorsets for specific applications such as blast resistance or personnel access. For further information on Promat DURASTEEL® doors, please contact Promat Technical Services.

### PROMAT DURASTEEL® DOORS

The following doors are manufactured using Promat DURASTEEL® sheet, offering high levels of fire and impact resistance. The DD range of doorsets can be installed as part of a Promat DURASTEEL® fire protection system or as an individual item suitable for fixing into steel stud partitions and brick or blockwork apertures, provided that wall constructions have a fire resistance of at least the same period as the doorset.

Certifire Approval No CF 418

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# Promat DURAFIRE® DD 120/240

Certifire Approval No CF 418

## PROMAT DURAFIRE® DD 120/240

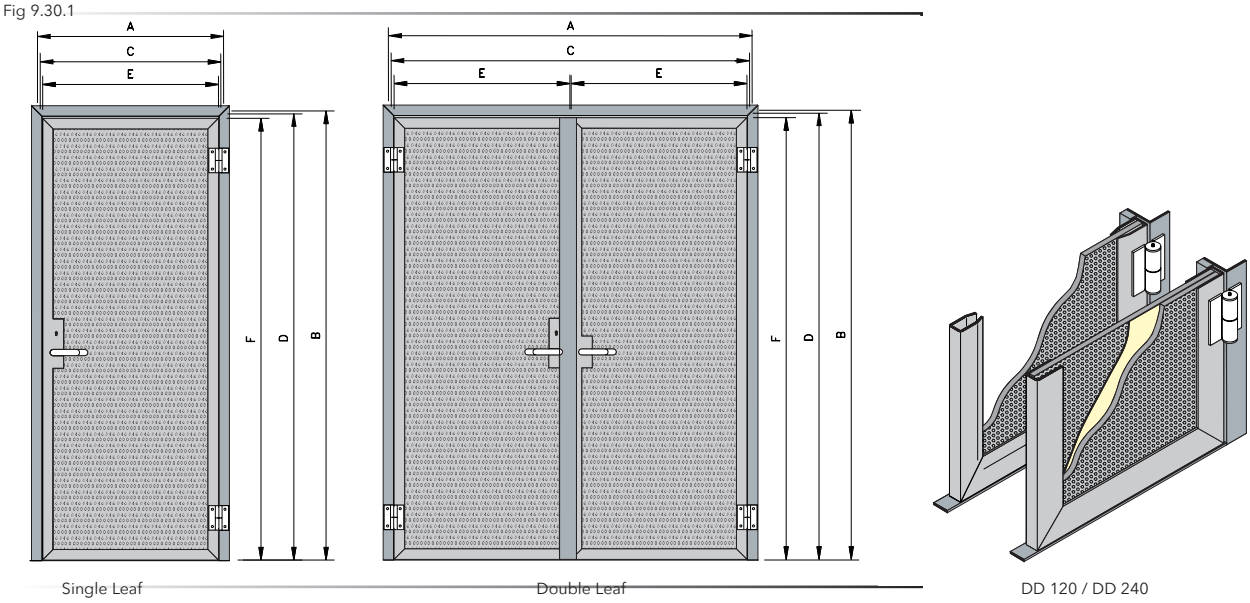
The Promat DURAFIRE® DD door range covers single and double leaf constructions for internal and external use and offers some of the highest fire ratings in the industry.

Each doorset can be built to an exact specification, enabling virtually any shape or size to be created.

Vision panel options are applicable for the entire Promat DURAFIRE® DD range.

The Promat DURAFIRE® DD range of hinged products are certified to BS 476: Part 22: 1987 for up to 240 minutes integrity and to SOLAS and IMO standards.

Fig 9.30.1




| Table 9a | | | |
|---|---|---|---|
| Configurations | Period of fire resistance (minutes) | Maximum Door Leaf Height (mm) | Maximum Door Leaf Width (mm) |
| DD 120 single-acting, single leaf - latched | 240 | 2500 | 1050 |
| DD 120 single-acting, double leaf - latched | 240 | 2500 | 1050 |
| DD 120 single-acting, single leaf - three way shoot bolt mechanism | 240 | 3000 | 1100 |
| DD 120 single-acting, double leaf - three way shoot bolt mechanism on one leaf with shoot bolts to inactive leaf | 240 | 3000 | 1100 |
| DD 240 single-acting, single leaf - three way shoot bolt mechanism | 240 | 2400 | 1100 |
| DD 240 single-acting, double leaf - three way shoot bolt mechanism on one leaf with shoot bolts to inactive leaf | 240 | 2400 | 1100 |
| DD 240 single-acting, double leaf - three way shoot bolt mechanism on one leaf with shoot bolts to inactive leaf. | 120 | 3000 | 1100 |

*DD 240 door leaves satisfy the mean temperature rise requirement of BS 476: Part 22: 1987 for 60 minutes.*

## Promat DURAFIRE® DD 120/240

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| Table 9b Standard Specification | | |
|---|---|---|
| Leaf | Overall thickness | 28mm |
| | Material | 9.5mm thick Promat DURASTEEL® sheet |
| | Jointing construction | Mitred and welded |
| Frame | Overall frame depth | 60mm (FR7) (FR11) |
| | Material | 60 x 60 x 6mm thick angle section |
| | Jointing | Mitred and welded joints or cleated constructions |
| | Type and configuration | Single rebate/3-sided frame |
| | Threshold plate | 70 x 10mm thick MS plate (FR15) |
| Finish | Frame and leaf | Standard shop-applied zinc based primer, ready for site painting (P3) |
| Ironmongery | | Leaf fitted with 3-way shoot bolt mechanism, handle set and rose plates. 2 no. hook and ride hinges and central hinge keep per leaf. Passive leaf on double leaf doorset is fitted with either face fixed tower bolts top and bottom or 2-way shoot bolts |
| Test Method | | BS 476: Part 22: 1987 |

| Table 9c | | | | | |
|---|---|---|---|---|---|
| Dimensional Details | Ref | Single Leaf Doorset | Example Calculation | Double Leaf Doorset | Example Calculation (mm) |
| Structural opening width | A | A | 900 | A | 1800 |
| Structural opening height | B | B | 2100 | B | 2100 |
| Overall frame width | C | (A - 8 = C) | 892 | (A - 8 = C) | 1792 |
| Overall frame height | D | (B - 6 = D) | 2094 | (B - 6 = D) | 2094 |
| Door leaf width | E | (A - 25 = E) | 875 | (A - 30)/2 = E) | 885 |
| Door leaf height | F | (B - 35 = F) | 2065 | (B - 35 = F) | 2065 |

*Note: Calculations based on standard specification.*

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# The Promat DURAFIRE® DD 240 Slider

Certifire Approval No CF 418

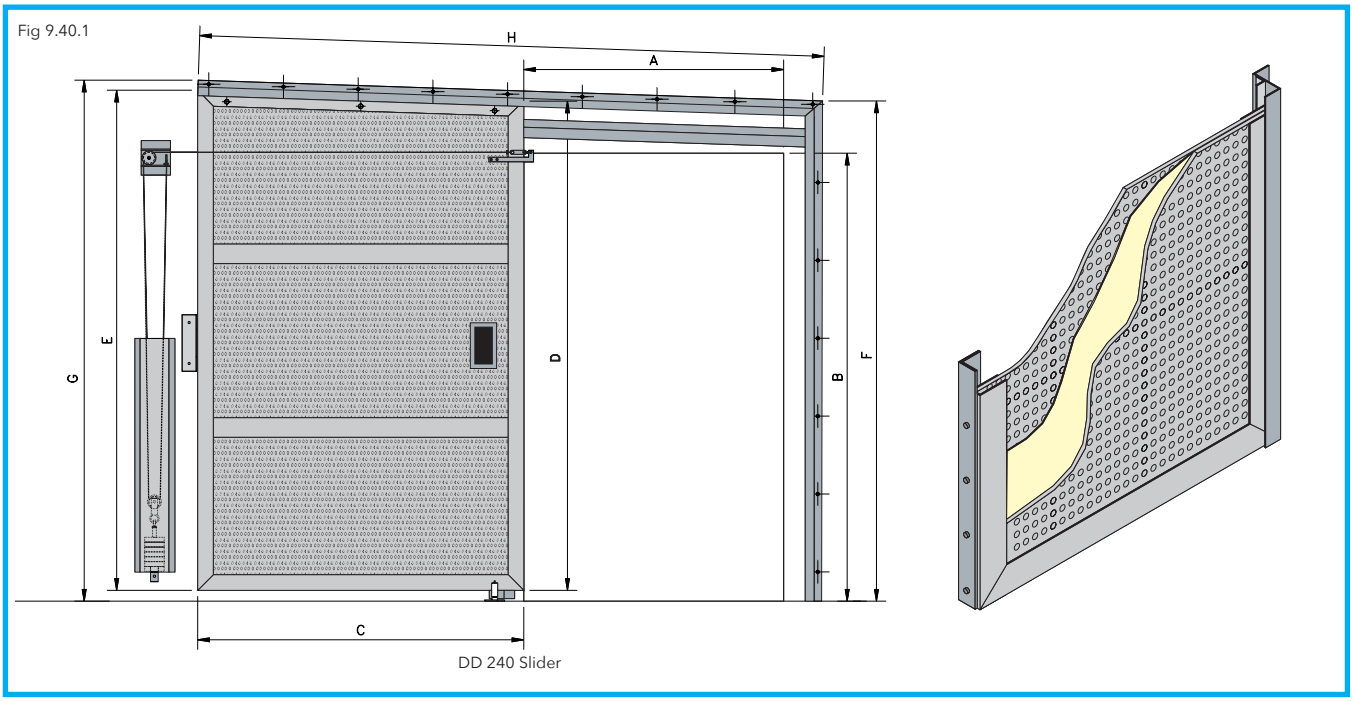
## THE PROMAT DURAFIRE® DD 240 SLIDER

The Promat DURAFIRE® DD Slider can be produced to much larger dimensions than conventional hinged doorsets, offering access to large plant and machinery etc, whilst retaining the specified fire performance of a compartment wall. These doorsets can be designed to incorporate a wicket door for personnel access.

The Promat DURAFIRE® DD slider door range is supplied with a counterbalance system to ensure a controlled closure. If required, fuseable links and electro-magnetic devices can be incorporated in the design to provide fail-safe operation.

The Promat DURAFIRE® DD sliders are certified to BS 476: Part 22: 1987 for up to 240 minutes integrity and are ideally suited to medium to heavy duty industrial situations in power generation and industrial buildings.

Fig 9.40.1




DD 240 Slider

## PROMAT DURASTEEL® DURAFIRE DD 240 SLIDING DOORSETS

| Table 9d | | | |
|---|---|---|---|
| Configurations | Period of fire resistance (minutes) | Maximum Door Leaf Height (mm) | Maximum Door Leaf Width (mm) |
| Single leaf | 240 | 5000 | 5000 |

## The Promat DURAFIRE® DD 240 Slider

Certifire Approval No CF 418

| Table 9e Standard Specification | | |
|---|---|---|
| Leaf | Overall thickness | 28mm |
| | Material | 9.5mm thick Promat DURASTEEL® sheet |
| | Jointing construction | Mitred and welded |
| Frame | Overall frame depth | 80mm |
| | Material | 80 x 40 x 80 x 6mm thick Z-section |
| | Jointing | Mitred and welded joints |
| | Type and configuration | Single rebate/3-sided frame |
| | Threshold plate | Not as standard |
| Finish | Frame and leaf | Standard shop-applied zinc based primer, ready for site painting (P3) |
| Ironmongery | | Heavy duty mild steel track and rollers recessed handle and bottom guide rollers. Standard weight counterbalance system and thermo-fusible link. |
| Test Method | | BS 476: Part 22: 1987 |

| Table 9f | | | |
|---|---|---|---|
| Dimensional Details | Ref | Single Leaf Doorset | Example Calculation |
| Structural opening width | A | A | 920 |
| Structural opening height | B | B | 2100 |
| Door leaf width | C | (A + 340 = C) | 1260 |
| Door leaf leading edge height | D | (B + 212 = D) | 2312 |
| Door leaf trailing edge height | E | (C/30 + D = E) | 2354 |
| Frame leading edge height | F | (B + 272 = F) | 2372 |
| Frame trailing edge height | G | (H/30 + F = G) | 2451 |
| Frame Length | H | ((2 x A) + 536 = H) | 2376 |

*Calculations based on standard specification.*

Chapter 8: Smoke Barriers and Doors

# Promat DURAFIRE® DD 240 Trap

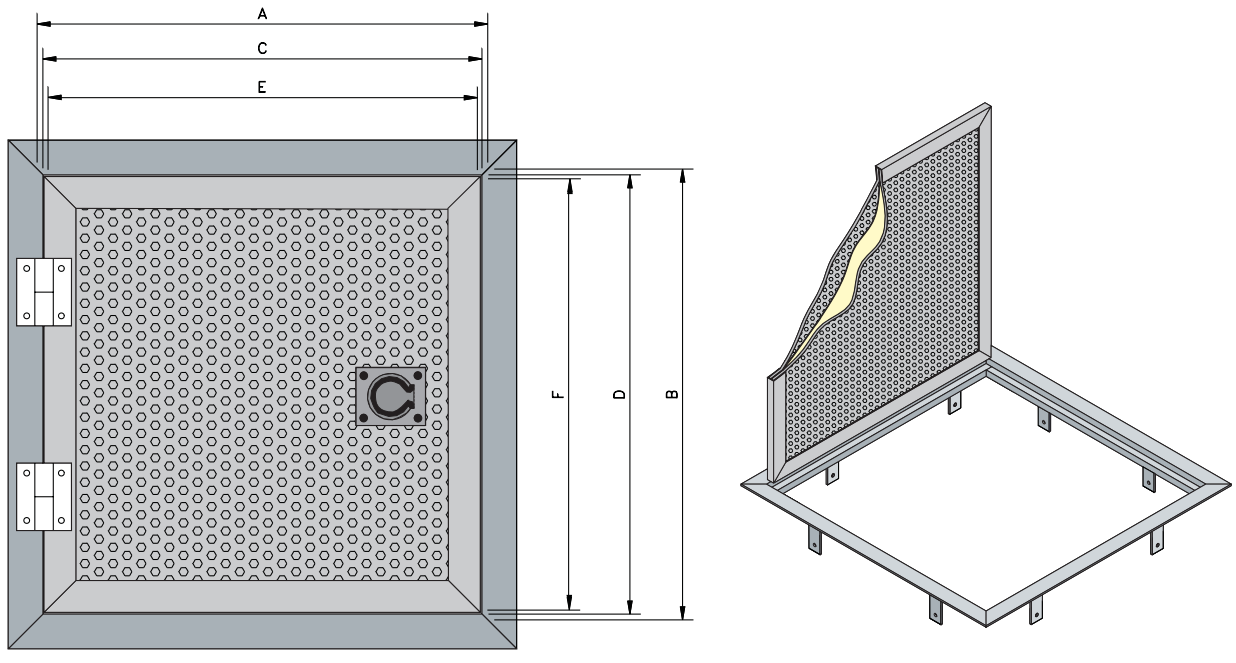
## PROMAT DURAFIRE® DD 240 TRAP

The Promat DURAFIRE® DD 240 Trap is a high performance trap door, tested to BS 476: Part 22: 1987 for up to 240 minutes integrity.

The unique design of the Promat DURAFIRE® DD 240 trap enables the manufacture of almost any shape or size, including single or multiple leaf constructions. Gas struts can be provided where controlled closure is required.

The Promat DURAFIRE® DD 240 traps can be designed to withstand light traffic loads and with a flush face and pivot hinge to avoid trip hazards.

Fig 9.50.1




DD 240 Trap

| Table 9g Standard Specification | | |
|---|---|---|
| Leaf | Overall thickness | 28mm |
| | Material | 9.5mm thick Promat DURASTEEL® sheet |
| | Jointing construction | Mitred and welded |
| Frame | Overall frame depth | 60mm (FR7) |
| | Material | 60 x 60 x 6mm thick angle section |
| | Jointing | Mitred and welded joints |
| | Type and configuration | Single rebate/4-sided frame |
| Finish | Frame and leaf | Standard shop-applied zinc based primer, ready for site painting (P3) |
| Ironmongery | | 2 no. hook and ride hinges per leaf and recessed pull handle |
| Test Method | | BS 476: Part 22: 1987 |

| Table 9h | | | |
|---|---|---|---|
| Dimensional Details | Ref | Single Leaf Doorset | Example Calculation (mm) |
| Structural opening width | A | A | 900 |
| Structural opening height | B | B | 1000 |
| Overall frame width | C | (A - 8 = C) | 892 |
| Overall frame length | D | (B - 8 = D) | 992 |
| Door leaf width | E | (A - 25 = E) | 875 |
| Door leaf length | H | (B - 26 = F) | 974 |

*Note: For maximum leaf sizes, configurations and options, please refer to Promat Technical Services Department. Calculations based on standard specification.*

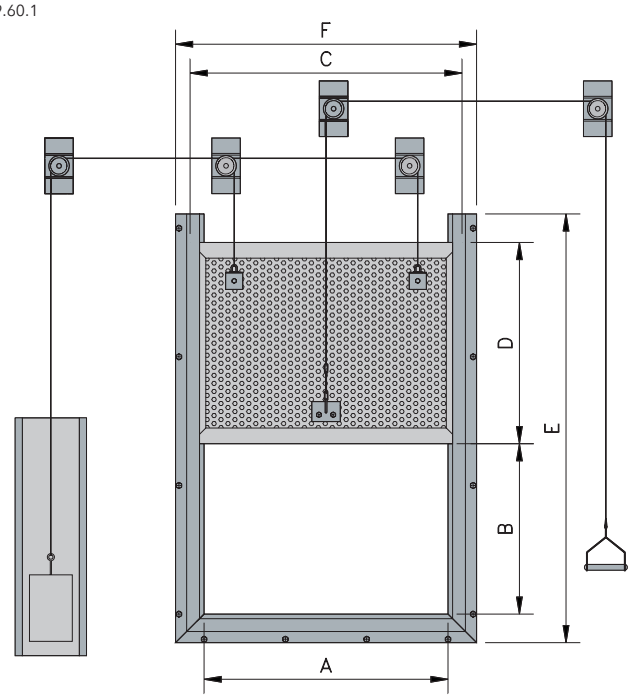
# Promat DURAFIRE® DD 120 and 240 Shutter

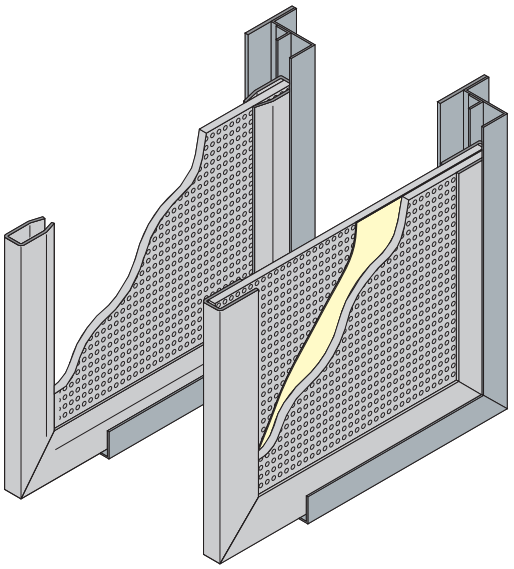
## PROMAT DURAFIRE® DD 120 AND 240 SHUTTER

The Promat DURAFIRE® DD 120 and 240 Shutters are ideal for incorporation into industrial fire protection systems, especially where conveyor belts penetrate compartment walls. The design of DURAFIRE® DD 240 shutter allows a variety of configurations, both dropping and rising to close, dependent upon the application.

All Promat DURAFIRE® DD shutters are supplied with a counterbalance system to ensure a controlled closure. If required, fuseable links and electro-magnetic devices can be incorporated in the design to provide fail-safe operation.

Fig 9.60.1



DD120 (12mm thick)

DD240 (28mm thick)

| Table 9i Standard Specification | | |
|---|---|---|
| Leaf | Overall thickness | 12mm (DD 120) 28mm (DD 240) |
| | Material | 9.5mm thick Promat DURASTEEL® sheet |
| | Jointing construction | Mitred and welded |
| Frame | Overall frame depth | 80mm |
| | Material | 45 x 80 x 45 x 6mm thick Z-section/25 x 15 x 3mm thick angle section |
| | Jointing | Mitred and welded |
| | Type and configuration | 3-sided frame with trailing edge flame trap |
| Finish | Frame and leaf | Standard shop-applied zinc based primer, ready for site painting (P3) |
| Ironmongery | | Standard weight counterbalance system, heavy duty mild steel track |
| Test Method | | BS 476: Part 22: 1987 |

| Table 9j | | | |
|---|---|---|---|
| Dimensional Details | Ref | Single Leaf Doorset | Example Calculation (mm) |
| Structural opening width | A | A | 920 |
| Structural opening height | B | B | 900 |
| Overall frame width | C | (A + 92 = C) | 1012 |
| Overall frame length | D | (B + 96 = D) | 996 |
| Door leaf width | E | ((B + D + 92 = E) | 1988 |
| Door leaf length | F | (A + 178 = F) | 1098 |

*Note: For maximum leaf sizes, configurations and options, please refer to Promat Technical Services Department. Calculations based on standard specification.*

Chapter 8: Smoke Barriers and Doors

# Door Upgrades, 30 minutes

Chiltern International Fire Assessment FEA/F98048.

Promat SUPALUX® and Promat MASTERBOARD® boards provide a quick and economical method of upgrading existing latched single leaf, single acting panelled timber doors to achieve 20 minutes or 30 minutes fire integrity (FD 20 and FD 30). Specification details included on the following pages refer to upgrading of doors to achieve FD 30 performance. Additional specifications are available for upgrading of doors to achieve FD 20 performance. Please contact Promat Technical Services Department for further details.

For use, for example, where required by alterations to a building, change of use, or under certification requirements of the Regulatory Reform (Fire Safety) Order (RRFSO).

Promat products are robust, and their use eliminates the task of installing a new door and frame. They are particularly good for high quality panelled doors and it is possible to retain the original character and panelled appearance whilst achieving fire resistance.

The upgrading specifications described in this document have been fully tested or assessed by recognised independent authorities. They can be used to meet the relevant requirements of Building Regulations and the Regulatory Reform (Fire Safety) Order (RRFSO).

In relation to the latter, upgrading can be used in hotels and boarding houses as well as conversion to multiple occupancy housing. All door upgrades should be carried out to the satisfaction of the appropriate district surveyor, fire officer or other specifiying authority.

Promat SUPALUX® is a non-combustible board and Promat MASTERBOARD® is a material of limited combustibility. Both products are equally suited to door upgrade applications.

## DESIGN

### Sealing the Leaf/Frame Gap

To enable a doorset to achieve its required performance, an intumescent seal must be fitted across the head and down both jambs. The seals may be fitted either centrally in the leaf edge or centrally in the frame reveal opposite the leaf edge.

Where the leaf is being removed for upgrading work, it may be easier to fit the intumescent seal into the leaf edges.

An intumescent seal will activate to fill the gap between the leaf edge and the frame when fire breaks out. Intumescent seals alone are not designed to offer any resistance to cold smoke but, when activated, are effective barriers to hot smoke, flames and hot gases.

Smoke control can be achieved by the use of a proprietary smoke seal brush or blade, fitted into the leaf edges, or with combined intumescent/smoke seals that have been tested in accordance with BS 476: Section 31.1: 1983.

### Frame Construction

This upgrade does not apply to door leaves fitted into metal frames.

The door leaves should be hung in a doorframe of minimum dimensions 70mm x 32mm.

The leaf to frame gaps must be controlled to a maximum of 4mm. Similarly, the threshold gap should be controlled to a maximum of 10mm.

The doorframe to structural opening gap must be suitably firestopped, and the doorset securely fastened to the surround.

It is not necessary for doorstops to be machined from the solid, a pinned and glued or screwed and glued stop is equally satisfactory. Doorstops must be a minimum 12mm deep. The density of timber used for constructing the leaf and the doorframe must be in excess of 480kg/m$^3$, and may be softwood or hardwood.

Existing door hardware cannot be assumed to be suitable for use on a fire resisting door, or assumed to be sufficiently well fitted.

Leaves must be hung on three brass or steel butt hinges of blade sizes as follows:

- 100mm high x 32mm to 35mm x 3mm thick blade for 44mm thick leaves.
- 100mm high x 25mm to 30mm x 3mm thick blade for 38mm to 43mm thick leaves.

The full width of the hinge blade must be fitted within the leaf edge/frame reveal.

The doorset must be fitted with a type of face-fixed automatic closing device and a latch/lock assembly, that have demonstrated their capability of maintaining integrity for the required period in similar doorset designs, when tested to the current standard. Concealed overhead closures are not suitable unless specifically proven by test.

## CARE OF THE DOOR LEAF

Gaps greater than 2mm between the stiles, rails and muntins must be filled over with Promat PROMASEAL® Sealant. The top and bottom mortise and tenon junctions must be additionally fixed with a 10mm softwood dowel, glued into position with a urea formaldehyde adhesive.

## Door Upgrades, 30 minutes

### METHOD 1: (FIRE FROM EITHER SIDE)

**Original Door:**
**Timber panelled door, with minimum 40mm thick leaf.**
Maximum leaf size 2000mm x 815mm.

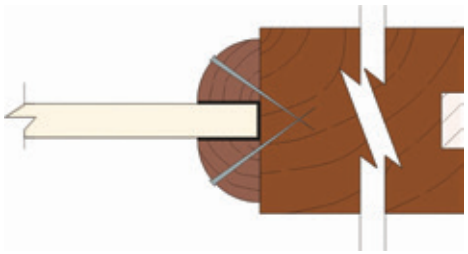
**Panels:**
12mm Promat SUPALUX® or 12mm Promat MASTERBOARD® (faced with or without 0.7mm veneers to both faces, bonded with PVA adhesive), set in Promat PROMASEAL® Sealant and held in place with 11mm hardwood quadrant beads skew nailed with 32mm steel pins at 200mm centres.

**Intumescent Strip:**
15mm x 4mm PVC encased Palusol 100 strip to both vertical edges and top of the door.

**Door Stop:**
Minimum 12mm deep.

Chiltern International Fire Assessment FEA/F98048.

Fig 9.110.1



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### METHOD 2: (FIRE FROM EITHER SIDE)

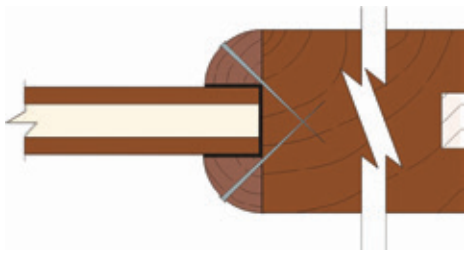
**Original Door:**
Timber panelled door, with minimum 40mm thick leaf.
Maximum leaf size 2000mm x 815mm.

**Panels:**
9mm Promat SUPALUX® or 9mm Promat MASTERBOARD® with 4mm plywood facings or softwood raised and fielded panels (minimum 4mm at the fielding), set in Promat PROMASEAL® Sealant and held in place with 11mm hardwood quadrant beads skew nailed with 32mm steel pins at 200mm centres.

**Intumescent Strip:**
15mm x 4mm PVC encased Palusol 100 strip to both vertical edges and top of the door.

**Door Stop:**
Minimum 12mm deep.

Fig 9.110.2



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### METHOD 3: (FIRE FROM ONE SIDE ONLY - PROMAT PANEL ON UNEXPOSED FACE)

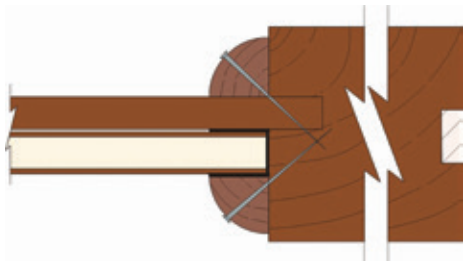
**Original Door:**
Timber panelled door, with minimum 40mm thick leaf and minimum 6mm thick panels.
Maximum leaf size 2000mm x 815mm.

**Panels:**
9mm Promat SUPALUX® or 9mm Promat MASTERBOARD® (veneer not permitted), set in Promat PROMASEAL® Sealant and held in place with 11mm hardwood quadrant beads skew nailed with 32mm steel pins at 200mm centres. (If the door leaf is a minimum 44mm thick, the 9mm Promat SUPALUX® or 9mm Promat MASTERBOARD® may be faced with 0.7mm veneer on both faces using a PVA adhesive).

**Intumescent Strip:**
15mm x 4mm PVC encased Palusol 100 strip to both vertical edges and top of the door.

**Door Stop:**
Minimum 12mm deep.

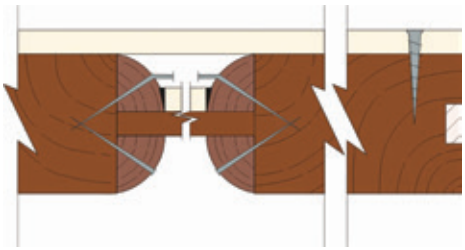
Fig 9.110.3



## Door Upgrades, 30 minutes

Chiltern International Fire Assessment FEA/F98048.

Fig 9.110.4



### METHOD 4: (FIRE FROM ONE SIDE ONLY - PROMAT PANEL ON EXPOSED FACE)

**Original Door:**
Timber panelled door, with minimum 44mm thick leaf, and minimum 6mm thick panels.
Maximum leaf size 1981mm x 762mm.

**Infill Panels:**
6mm Promat SUPALUX® or 6mm Promat MASTERBOARD® retained between the 11mm hardwood quadrant beads with 32mm long steel pins at 200mm centres with the top 10mm bent back over the face of the board. Sealed to bead edges with Promat PROMASEAL® Sealant.

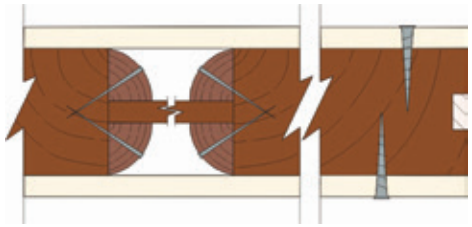
**Facing Panel:**
6mm Promat SUPALUX® or 6mm Promat MASTERBOARD® fixed with 32mm x No. 8 steel screws around the perimeter of the leaf and across the mid-rail only at 150mm centres.

**Intumescent Strip:**
15mm x 4mm PVC encased Palusol 100 strip to both vertical edges and top of the door.

**Door Stop:**
12mm deep.

*Note: This upgrade may be applied in-situ, and does not require the door stop to be repositioned, or the door re-hung.*

Fig 9.110.5



### METHOD 5: (FIRE FROM EITHER SIDE)

**Original Door:**
Timber panelled door, with minimum 44mm thick leaf, and minimum 6mm thick panels.
Maximum leaf size 1981mm x 762mm.

**Facing Panels:**
6mm Promat SUPALUX® or 6mm Promat MASTERBOARD® fixed with 32mm x No. 8 steel screws around the perimeter of the leaf and across the mid-rail only at 150mm centres.

**Intumescent Strip:**
15mm x 4mm PVC encased Palusol 100 strip to both vertical edges and top of the door.

**Door Stop:**
12mm deep.

*Note: This upgrade may be applied in-situ, and does not require the door stop to be repositioned, or the door re-hung.*

Alternative specifications are also available for 20 minute upgrades, please contact the Promat Technical Services Department for further details.

## GB ORDERLINE

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and local stockists etc.
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E: orderline@etexbp.co.uk

## TECHNICAL SERVICES

For technical support and advice.
T: 0800 145 6033
E: technical.promat@etexbp.co.uk

## RESOLUTIONS

For any problems with invoices or deliveries.
T: 01275 379 031 or 0800 373 636
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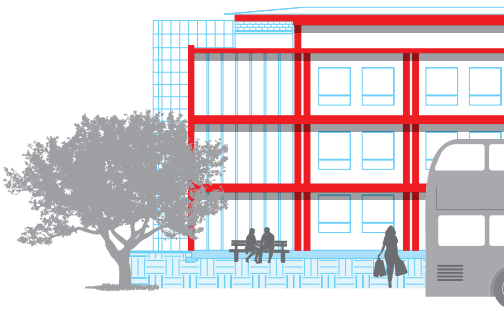


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