







### General:

FLAMEBREAK™ Door Blanks are supplied with mixed tropical hardwood stiles and rails as part of the core structure.

The stiles and bottom rail can be removed for the purpose of sizing the door core but the top rail should be retained.

**NOTE: The top rail must be retained for 'Q' Mark fire door applications.**

For general purpose internal door applications the doors should be hardwood lipped on two vertical edges.

Where doorsets with flush overpanels (*i.e. without transom rails to the frame*) are used the bottom edge of the overpanel must be lipped. For pairs of doors with overpanels (*without transoms*), lippings must be applied to the top edge of the door and bottom edge of the overpanel and rebated (Nom.12mm).

**NOTE: Not approved for FD60 'Q' Mark fire rated doorsets.**

For external locations doors must be hardwood lipped on all edges. (See **Section 13 External Locations**).

It is recommended that doors made using FLAMEBREAK™ Door blanks are lipped before applying facings. However, lippings may be applied after facings if required.

**NOTE 1: It is important to ensure that the lipping material and the cores are properly dried with similar moisture contents. Timber can shrink or grow by up to 1% across the grain for every 4% variation in moisture content. Differential movement between the core and lipping resulting from adverse environmental conditions or use of components with different moisture contents can give rise to a number of problems. e.g. cracking of paint at the junction between lipping and core structure and, in extreme circumstances, splitting of veneer facings. (See Storage, Installation & Maintenance Section).**

**NOTE 2: It is recommended that internal doors that are likely to be used in areas that may be washed down or, in areas of high humidity should be hardwood lipped on all edges.**

**NOTE 3: For optimum quality paint grade internal doors it is recommended that FLAMEBREAK™ Types FF630, or FF660 Door Blanks are used with paint grade veneers or painting foils extended over the lippings.**

Lippings, particularly lippings at the closing & meeting stiles may need to be profiled either at the time of manufacture or, on site at the time of installation, to ensure correct operation while maintaining operating gaps to the satisfaction of BS4787 Pt.1. The extent of the profiling may vary according to the configuration and dimensions of the doorset and the choice of hardware (*particularly hanging devices*). A 2° bevel to the closing / meeting stiles of single action doors will satisfy most application requirements.

(See 'Growth Formula' - Section 8 Co-ordination & Section 5 Smoke Sealing).

#### **FD30 Fire Doors:**

The minimum lippings specifications for 'Q' mark FD30 applications to be as follows:

**SQUARE** - 6~18mm thick with maximum of 2mm profiling permitted at corners of lipping.

**ROUNDED** - 8 ~ 20mm thick profiled to suit the minimum radius necessary to suit the door hanging device.

**REBATED** - 20~30mm with equal 12mm deep rebate.

Doors must be lipped on vertical edges as a minimum requirement.

**NOTE: Doors may be rebated to overpanels OR rebated at meeting stiles but not both.**

Lippings to be from hardwood with a minimum density of 640Kg/m<sup>3</sup> and complying with Class J30 - BS EN 942 : 2007 as a minimum requirement.

Lippings must be bonded to the door core Urea Formaldehyde, Resorcinol Formaldehyde or polyurethane (PU) adhesives.

#### **FD60 Fire Doors:**

The minimum lippings specifications for 'Q' mark FD60 applications to be as follows:

**SQUARE** - 10~15mm thick with maximum of 2mm profiling permitted at corners of lipping.

**ROUNDED** - 12 ~ 17mm thick profiled to the minimum radius necessary to suit the door hanging device.

**REBATED** - Not approved.

Single leaf doorsets and pairs must be lipped on all edges.

Lippings to be from hardwood with a minimum density of 640Kg/m<sup>3</sup> and complying with Class J30 - BS EN 942 : 2007 as a minimum requirement.

Lippings must be bonded to the door core Urea Formaldehyde, Resorcinol Formaldehyde.

**NOTE: Polyurethane (PU) adhesives may be used for bonding lippings for door height single leaf doorsets only.**



General Purpose & FD30 Lippings

Lippings - General:

Fig. 3.1

3mm pencil round illustrated.



The profiling of lipping edges is recommended to provide for the following:

- a/ Reduced risk of injury to users in the event of accidental contact.
- b/ Improved resistance to impact.
- c/ The profiling will act as a lead when used with smoke or acoustic sealing systems thus enhancing seal life.
- d/ Provides for improved adhesion of paint and lacquer finishes.

**LIPPINGS - FD30 Doorsets:**

Lippings must be in hardwood of 6mm minimum thickness.

Where shaped lippings for double action hanging stiles or rebates are required, the lipping thickness may be increased. (See: Lippings & Facings Page 1 for 'Q' Mark approved dimensional limits).

Lippings must be applied to the two vertical edges.

Use of top and bottom lippings is recommended but not essential for fire door applications, except when used with certain hardware items. ( See Section 8 - Hardware).

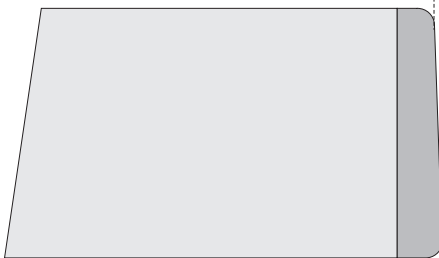
The recommended minimum density for hardwood lippings for fire rated doorsets is 640kgs/m<sup>3</sup> @ 15% moisture content. (See Section 7 - Doorframes).

Lippings may be bonded to the core using Urea Formaldehyde, Polyurethane (PU) or Resorcinol Formaldehyde adhesives.

Lippings - General:

Fig. 3.2

Max. 2.5° chamfer for 'Q' Mark doors.



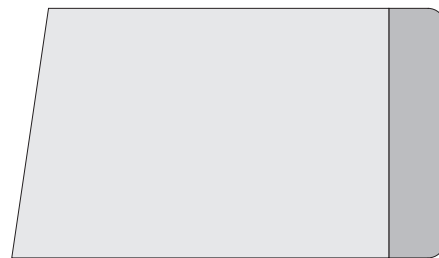
**Splayed Closing Stile** - To achieve correct operation of the doors while maintaining operating gaps to the dimensions recommended by reference to BS4787- Pt.1 it may be necessary to apply a leading edge to the doors.

**NOTE:** 2° leading edge illustrated.

Lippings - General:

Fig. 3.3

Max. 2.5° chamfer for 'Q' Mark doors.



**Slightly rounded closing stiles:** The same effect can be achieved by slightly rounding the closing stiles. The important thing being that the closing of the door should clear the frame during operation without detriment to operating gaps described in BS4787 - Pt. 1.

**NOTE:** This is the recommended closing stile detail for double action doors.

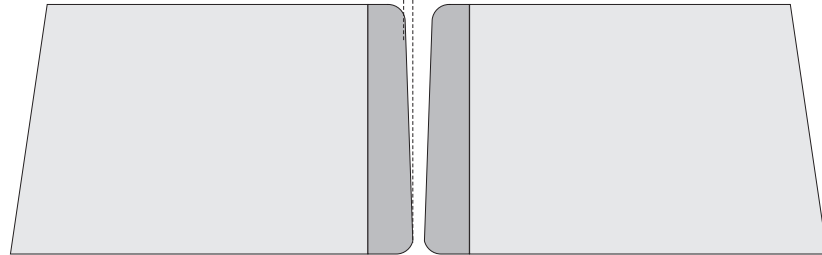


### General Purpose & FD30 Lippings

#### Meeting Stiles - Operational Adjustments:

Fig. 3.4

Max. 2.5° chamfer for 'Q' Mark doors.

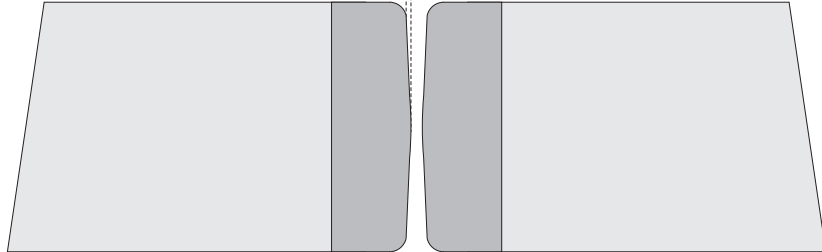


**Splayed Meeting Stiles** - To achieve correct operation of the doors while maintaining operating gaps to the dimensions recommended by reference to BS4787 - Pt. 1 it may be necessary to splay the edges of the doors. Generally Fire doors should be capable of being opened and closed simultaneously.

#### Meeting Stiles - Slightly Rounded:

Fig. 3.5

Max. 2.5° chamfer for 'Q' Mark doors.

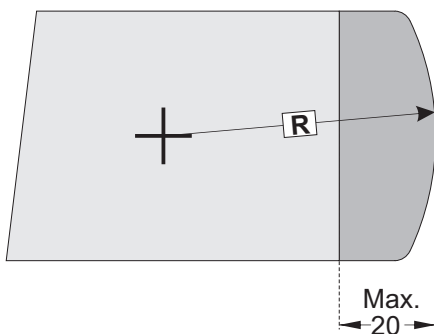


**Slightly rounded Meeting stiles:** The same effect can be achieved by slightly rounding the closing stiles. The important thing being that the closing face (*frame doorstep face*) of the door should clear the adjacent door during operation without detriment to operating gaps described in BS4787 - Pt.1 when opened or closed in any order.

**NOTE:** This is the recommended 'standard' meeting stile arrangement for double action pairs of doors.

#### Hanging Stiles - Double Action Doors:

Fig. 3.6



#### Hanging Stiles : Double Action Doors -

The radius to the hanging stiles for double action doors will generally be determined by the design of the hanging device with lippings rounded to suit the pivot centre. A 50mm radius to the door edges with a 52mm radius scallop to the frame will suit most applications.

For fire door applications the lipping thickness is 8 ~ 20mm for this application.

**NOTE:** For Closing and Meeting stiles use 'Slightly Rounded Closing / Meeting Stile' Details

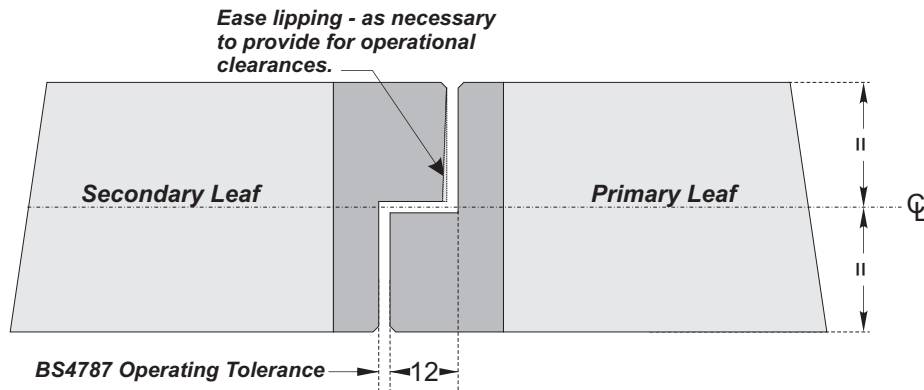
**R = Minimum radius necessary to suit pivot fixings.**



General Purpose & FD30 Lippings

Rebated Meeting Stiles:

Fig. 3.7



Rebated meeting Stile Detail:

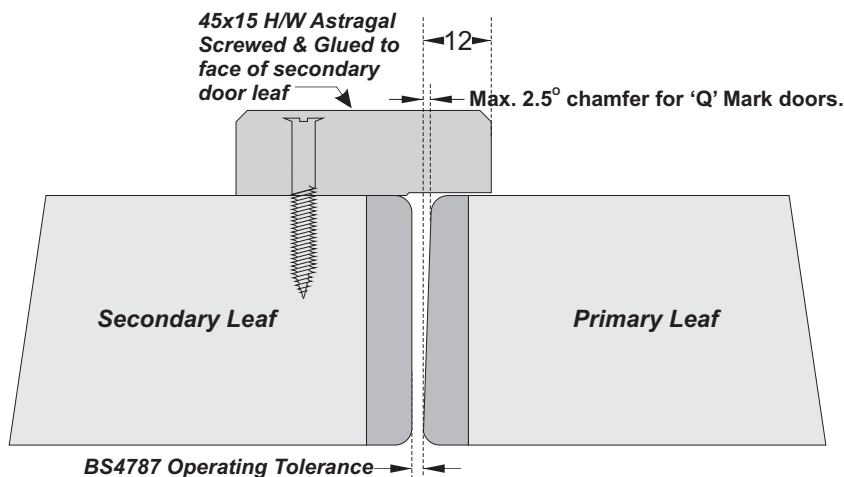
The use of rebated meeting stiles is not recommended for fire doors that should generally provide for simultaneous opening. However, there are occasions where sequential opening is necessary, perhaps to provide for additional performances. (e.g. Acoustic performance).

Where the astragal detail (shown below) is not acceptable, (perhaps for aesthetic reasons), rebated meeting stiles may be used.

**NOTE: For fire door applications rebated meeting stiles must not be used where the door leaf is rebated to a flush overpanel.**

Meeting Stile Astragals:

Fig. 3.8



Astragal Detail:

Generally fire doors should be capable of opening simultaneously. However, where additional performances are required, (e.g. Acoustic performances) it may be necessary to provide for sequential opening (e.g. To provide for a mounting for seals).

The astragal detail is recommended for maximum performance where these considerations apply and may be used without adverse influence on existing fire test / assessment data.

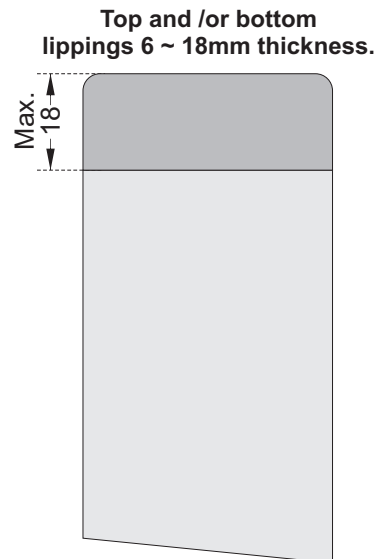
**NOTE: Astragals can be applied to one or both door leaves and may be profiled for aesthetic effect.**



### General Purpose & FD30 Lippings

#### Top & Bottom Door lippings:

Fig. 3.9

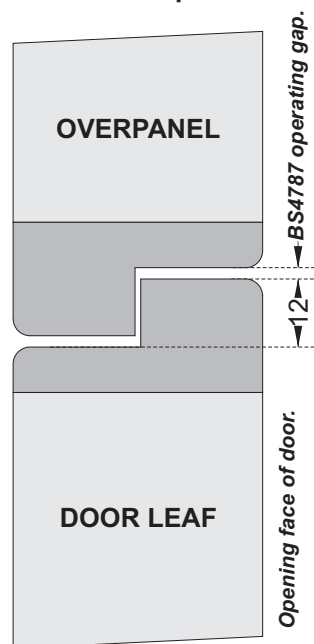


#### Top & Bottom Lippings :

- a/ The use of top and bottom lippings is optional. However, the use of top and bottom edge lippings is strongly recommended for use where doorsets are to be used in external locations or in areas that may be subject to occasional wet cleaning OR, where used in high humidity areas.
- b/ Use of top and bottom lippings is also recommended for use in severe duty locations with load bearing hanging devices e.g. pivot fixings.
- c/ For FD30 fire door applications the lipping thickness must not be less than 6mm with a maximum thickness of 18mm.

#### Rebated Door / Overpanel:

Fig. 3.10



#### Rebated Door / Overpanel:

Rebating of the door to the overpanel is not essential, and not recommended, for single leaf doorsets. Rebates are necessary for single action pairs of doors with flush overpanels unless astragals or other devices are used to prevent swing through. For fire door applications the lipping thickness at the top of the door and bottom of the overpanel must not exceed 30mm thickness with a 12mm rebate located centre thickness of the door.

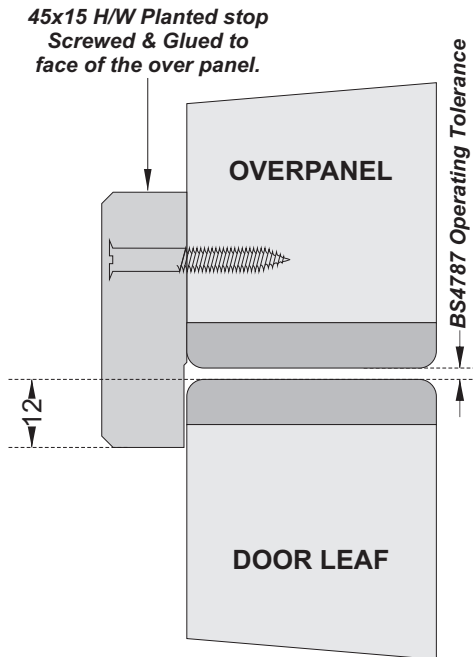
**NOTE: For fire door applications rebating to overpanels is not approved where rebated meeting stiles are used.**



## General Purpose & FD30 Lippings

### Planted Door Stop - Flush Overpanels:

Fig. 3.11



### Planted door stop - Flush Overpanel:

Planted door stops may be screwed and glued to the closing face of the overpanel as an alternative to rebating to prevent swing through of single action pairs of doors.

The planted stop is required in the area of the meeting stiles (*covering the face of each door leaf by a minimum of 50mm*) but need not be to the full widths of the doors or the overpanel.

Provided that the particular design is otherwise approved with rebated meeting stiles; this option provides for a solution for use in conjunction with single swing pairs with flush overpanels for FD30 fire rated applications with rebated meeting stiles.

This planted stop detail is recommended for maximum performance where these considerations apply and may be used without adverse influence on existing fire test / assessment data.

**NOTE:** *Planted stops are applied to the closing face of the overpanel only and may be profiled for aesthetic effect.*



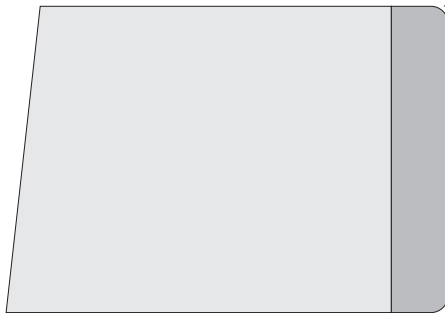


### General Purpose & FD60 Lippings

#### Lippings - General:

Fig. 3.12

3mm pencil round illustrated.



The profiling of lipping edges is recommended to provide for the following:

- a/ Reduced risk of injury to users in the event of accidental contact.
- b/ Improved resistance to impact.
- c/ The profiling will act as a lead when used with smoke or acoustic sealing systems thus enhancing seal life.
- d/ Provides for improved adhesion of paint and lacquer finishes.

#### LIPPINGS - FD60 Doorsets:

Lippings must be in hardwood of 10mm minimum thickness.

Where shaped lippings for double action hanging stiles or rebates are required, the lipping thickness may be increased. (See: Lippings & Facings Page 1 for 'Q' Mark approved dimensional limits).

Lippings must be applied to all edges.

Use of top and bottom lippings is recommended but not essential for fire door applications, except when used with certain hardware items. ( See Section 8 - Hardware).

The recommended minimum density for hardwood lippings for FD60 fire rated doorsets is 640kgs/m<sup>3</sup> @ 15% moisture content. (See Section 7 - Frame materials).

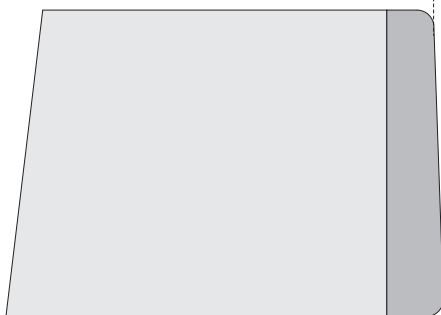
Lippings may be bonded to the core using Urea Formaldehyde, Polyurethane (PU) or Resorcinol Formaldehyde adhesives.

**NOTE: Use of Polyurethane (PU) adhesives is limited for use with single leaf doorsets only.**

#### Lippings - General:

Fig. 3.13

Max. 2.5° chamfer for 'Q' Mark doors.



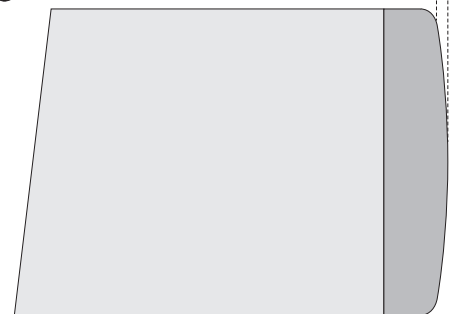
**Splayed Closing Stile** - To achieve correct operation of the doors while maintaining operating gaps to the dimensions recommended by reference to BS4787 - Pt.1 it may be necessary to apply a leading edge to the doors.

**NOTE: 2° leading edge illustrated.**

#### Lippings - General:

Fig. 3.14

Max. 2.5° chamfer for 'Q' Mark doors.



**Slightly rounded closing stiles:** The same effect can be achieved by slightly rounding the closing stiles. The important thing being that the closing stile of the door should clear the frame during operation without detriment to operating gaps described in BS4787 - Pt.1.

**NOTE: This is the recommended closing stile detail for double action doors.**

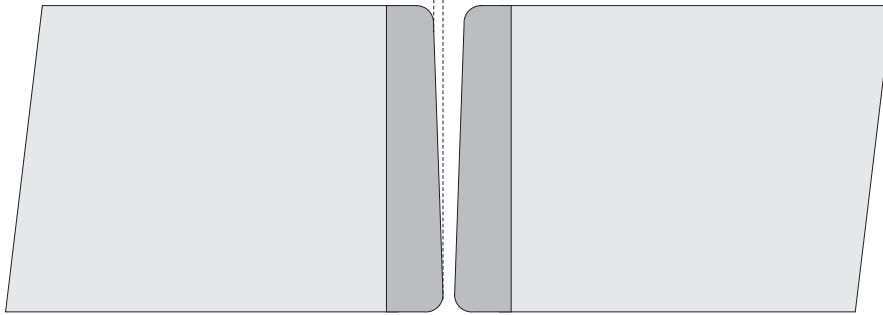


General Purpose & FD60 Lippings

Meeting Stiles - Operational Adjustments:

Fig. 3.15

Max. 2.5° chamfer for 'Q' Mark doors.

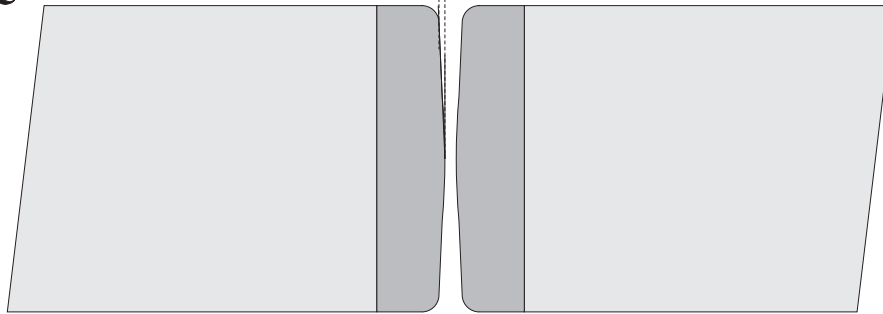


**Splayed Meeting Stiles** - To achieve correct operation of the doors while maintaining operating gaps to the dimensions recommended by reference to BS4787 - Pt.1 it may be necessary to splay the edges of the doors. Generally Fire doors should be capable of being opened and closed simultaneously.

Meeting Stiles - Slightly Rounded:

Fig. 3.16

Max. 2.5° chamfer for 'Q' Mark doors.

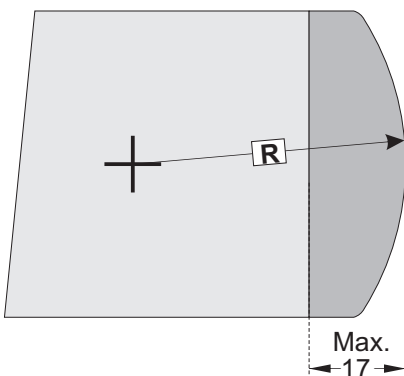


**Slightly rounded Meeting stiles:** The same effect can be achieved by slightly rounding the closing stiles. The important thing being that the closing face (*frame doorstep face*) of the door should clear the adjacent door during operation without detriment to operating gaps described in BS4787- Pt.1 when opened or closed in any order.

**NOTE:** This is the recommended 'standard' meeting stile arrangement for double action pairs of doors.

Hanging Stiles - Double Action Doors:

Fig. 3.17



**Hanging Stiles : Double Action Doors -**

The radius to the hanging stiles for double action doors will generally be determined by the design of the hanging device with lippings rounded to suit the pivot centre. A 50mm radius to the door edges with a 52mm radius scallop to the frame will suit most applications. The recommended lipping thickness is 12 ~ 17mm for this application.

**NOTE:** For Closing and Meeting stiles use 'Slightly Rounded Closing / Meeting Stile' Details

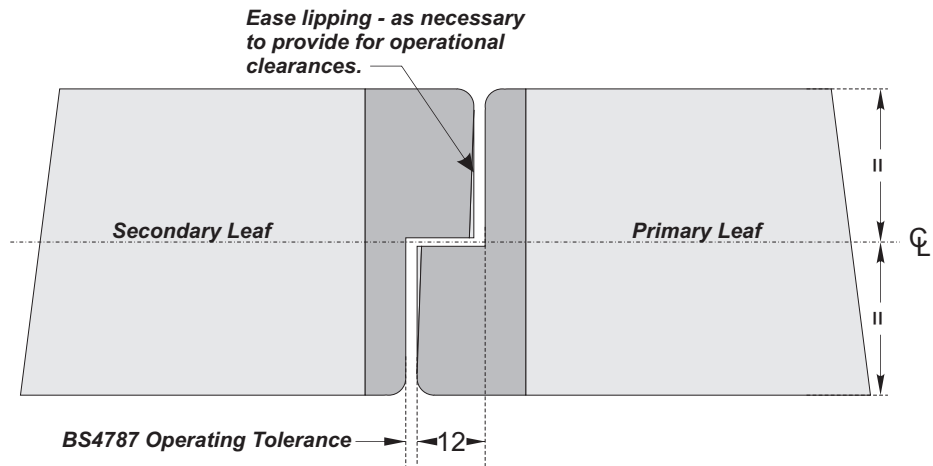
R = Minimum radius necessary to suit pivot fixings.



### General Purpose & FD60 Lippings

#### Rebated Meeting Stiles:

Fig. 3.18



#### Rebated meeting Stile Detail:

The use of rebated meeting stiles is not recommended for fire doors that should generally provide for simultaneous opening. However, there are occasions where sequential opening is necessary, perhaps to provide for other performances. (e.g. Acoustic performance).

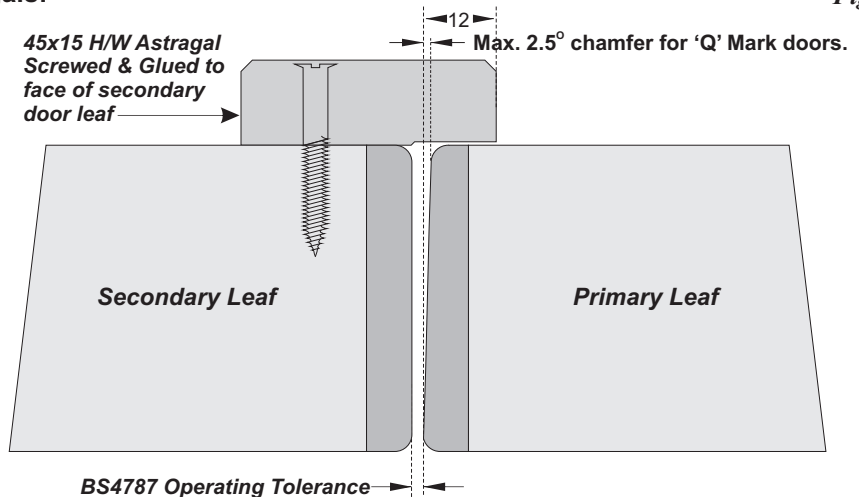
Where the astragal detail (shown below) is not acceptable, (perhaps for aesthetic reasons), rebated meeting stiles may be used for non fire rated locations.

Rebates may be equal as detail Fig. 3.17 or off-set as illustrated for rebated door / overpanel junctions - See Fig. 3.20.

**NOTE:** This detail is not approved for FD60 'Q' Mark applications with 54mm FLAMEBREAK® - See Section 4 - Intumescent Sealing.

#### Meeting Stile Astragals:

Fig. 3.19



#### Astragal Detail:

Generally fire doors should be capable of opening simultaneously. However, where additional performances are required, (e.g. Acoustic performances) it may be necessary to provide for sequential opening (e.g. To provide for a mounting for seals).

The astragal detail is recommended for maximum performance where these considerations apply and may be used without adverse influence on existing fire test / assessment data.

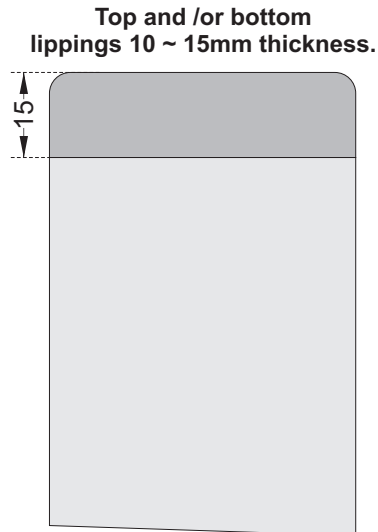
**NOTE:** Astragals can be applied to both door leaves and may be profiled for aesthetic effect.



**General Purpose & FD60 Lippings**

**Q** Top & Bottom Door lippings:

*Fig. 3.20*



**Q** Top & Bottom Lippings :

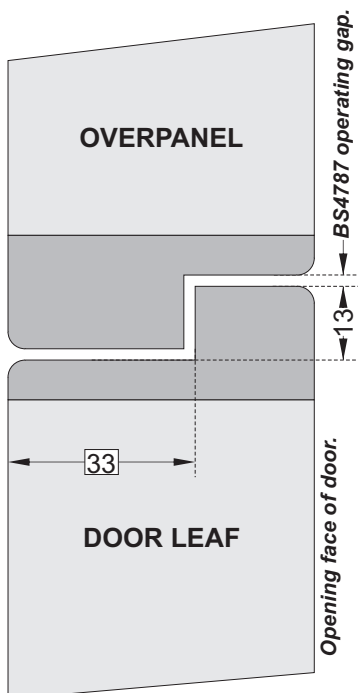
a/ For FD60 applications doors must be lipped on all edges. Additionally the use of top and bottom edge lippings is recommended for use with external doorsets and where doorsets are likely to be used in areas that may be subject to occasional wet cleaning OR, where used in high humidity areas.

b/ Use of top and bottom lippings is also recommended for use in severe duty locations with load bearing hanging devices e.g. pivot fixings.

c/ For FD60 fire door applications the lipping thickness must not be less than 10mm with a maximum thickness of 15mm.

**Rebated Door / Overpanel:**

*Fig. 3.21*



**Rebated Door / Overpanel:**

Rebating of the door to the overpanel is not essential, and not recommended, for single leaf doorsets.

Rebates are necessary for single action pairs of doors with overpanels.

The lipping thickness at the top of the door and bottom of the overpanel should 20 ~ 25mm thickness with a 13mm rebate located off centre thickness of the door as illustrated.

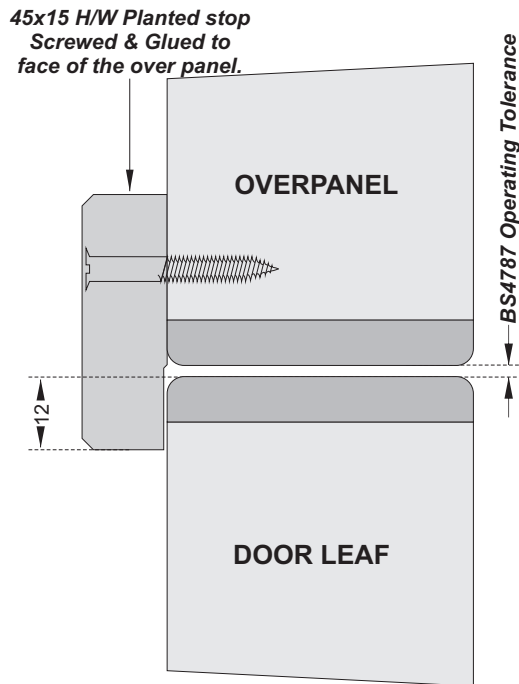
*This detail is not 'Q' Mark approved for FD60 Fire door applications.*



## General Purpose Lippings

### Planted Door Stop - Flush Overpanels:

Fig. 3.22



#### Planted door stop - Flush Overpanel:

Planted door stops may be screwed and glued to the closing face of the overpanel as an alternative to rebating to prevent swing through of single action pairs of doors.

The planted stop is required in the area of the meeting stiles (*covering the face of each door leaf by a minimum of 50mm*) but need not be to the full widths of the doors or the overpanel.

**NOTE:** *Planted stops are applied to the closing face of the overpanel only and may be profiled for aesthetic effect.*

**This detail is not 'Q' Mark approved for FD60 Fire door applications.**



**Door Facings:**

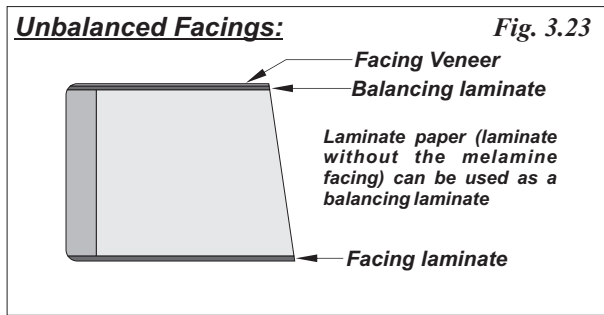
FLAMEBREAK door core constructions are supplied sub facings already applied as follows:  
 FLAMEBREAK 430 = Nom. 44mm thickness faced with 4mm plywood.  
 FLAMEBREAK 630 = Nom. 44mm thickness faced with 6mm plywood.  
 FLAMEBREAK FF630 = Nom. 44mm thickness faced with 6mm Medium Density Fibreboard.  
 FLAMEBREAK 660 = Nom. 54mm thickness faced with 4mm plywood.  
 FLAMEBREAK FF660 = Nom. 54mm thickness faced with 6mm Medium Density Fibreboard.

Additional facings / finishings can be applied to the base core constructions.

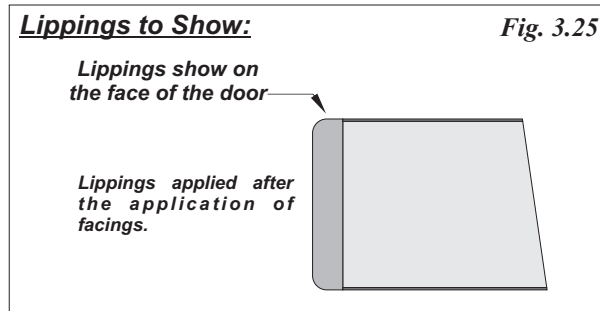
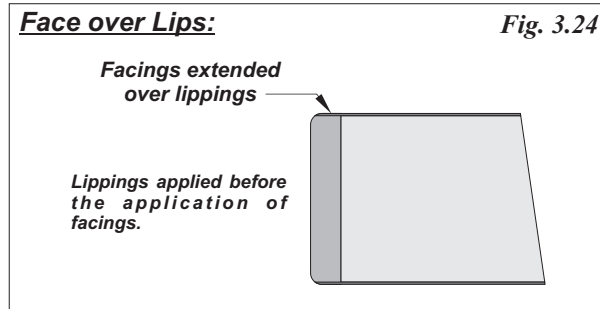
The adhesives used for the application of door facings should be suitable for use with the particular material for bonding onto a wood / MDF base.

FLAMEBREAK cores can be lightly sanded to permit the application of paint finishes direct onto the core material with grain filling or use of painting foils being recommended to achieve optimum quality finishes where plywood faced FLAMEBREAK cores are used.

Where different facing materials are used on each face of the door (e.g. Use of 1.3mm thickness laminate on one face and veneer on the other), it is recommend that consideration is given to the creation of a balanced structure to minimise the risk of distortion resulting from changes in environmental conditions. i.e. for the veneered face it is recommended that a balancing laminate paper is used on the veneered face (to balance the laminate face) before applying the thinner facing veneer. See Fig. 3.23



Facings can be applied after lipping i.e. 'face over lips'. OR, Lippings can be applied after facing the core, 'lippings to show on the face of the door'. See Fig. 3.24 & 25.



**Door Facings - Fire Doors:**

Whereas for general purpose applications the core may be calibrated to provide for a constant finished door thickness when facing materials have been applied, for fire door applications the calibration should be limited to 1mm (0.5mm from each face).

For Fire Door Applications there are restrictions on the approved thickness of door finishes / facings as follows:

Facing Material	Max. Approved Thickness
Paint	0.5mm
Timber veneer	2mm
PVC / Plastic Laminate	2mm
Cellulosic foils	0.4mm

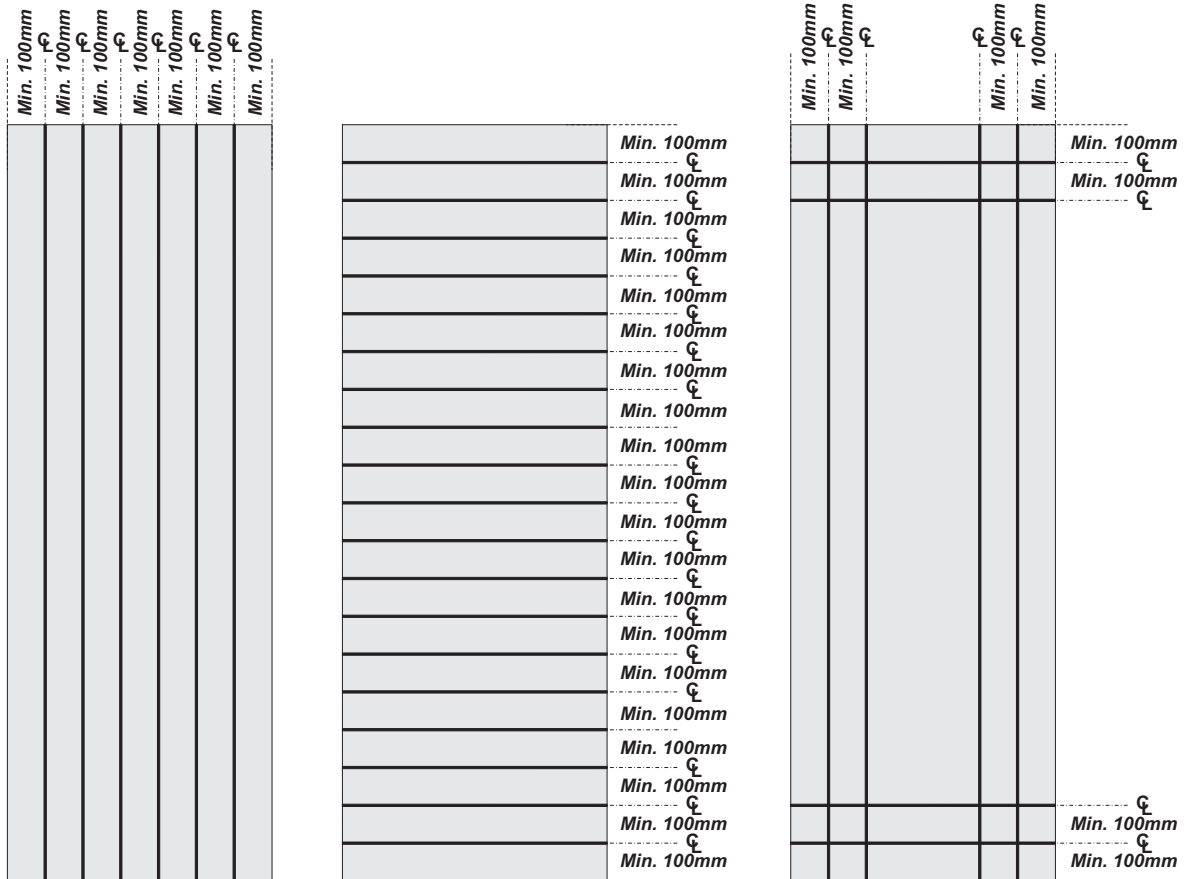
**NOTES:**

- Metallic facings are not approved (except for push / buffer and kick plates) See Section 8 Hardware.
- Core calibration is limited to 1mm (0.5mm from each face).
- Plastic laminates should not extend over door edges.
- Materials must not conceal intumescent seals.



### Decorative Grooves:

Fig. 3.26



### **Decorative Grooves:**

FLAMEBREAK based doors, (including doors for fire rated applications) using 630 and FF630 cores only may be face machined to provide for decorative grooves.

The use of maximum 3mm x3mm decorative grooves is approved for fire door applications for single leaf and double leaf configurations for FD30 fire door applications only.

Grooves may be painted or stained or may be filled with hardwood strips (or other material e.g. Laminate) to create desired aesthetic effects.

For vertical or horizontal grooving the grooves may extend to the full height or width of the door leaf with an unlimited number of grooves, subject to the minimum approved margins shown in this detail.

Where horizontal and vertical grooves are required for the same door leaf, this decorative feature is limited to 4No. vertical and 4No. horizontal grooves.

Grooves may be extended through to transomed overpanels (not flush overpanels) for storey height doorsets and to the adjacent leaf for pairs of doors.

