

# Technical Support Manual 60

● FIRE RESISTANCE ● HIGH PERFORMANCE



● 100% OF SELECTED RECYCLED SOFTWOOD, HARD WOOD



**FireBAN**  
*Fire Rated Particle Boards*



100 % of selected recycled softwood , hard wood Vermiculite , resin , sawmill residues , carpenters residues .



### 3 FIREBAN FD 60 MATRIX

CHARACTERIZATION			FEATURE GROOVES	5*5 MM
Fire Rated door core	X		GLAZED AREA	0.24 M2
Three layers chipboards	X		ACOUSTIC PERFORMANCE	36
54mm	X		BOARD SIZE	
FD 60	X		From: 2135 X 915mm X 54mm to 2440 x 1220 x 54mm	
Density	600 kg/m3		MAXIMUM LEAF SIZE	
Core Color	Yellow		Refer to the envelope of approved leaf sizes	
DOOR FRAME				
Hardwood FD 60	X			
Steel FD 60	X			
LIPPING GLUE LINES				
PVA	X			
PVAC	X			
U/F	X			
PU	X			
LIPPING THICKNESS				
FD 60	6 -12 mm			
DOOR SET CONFIGURATION				
LSASD	X			
ULSASD	X			
LSADD	X			
ULSADD	X			
STANDARD INTUMESCENT				
Palusol	X			
Graphite	X			
FINISHING				
Timber veneers	X			
decorative plastic based laminate	X			
PVC	X			
varnish	X			
Paint	X			
Decorative paper/non- metallic foil	X			

## 3.1 FABRICATION & SPECIFICATION

FireBAN core is made in 3 layers particle board. The density and surface finish of FireBAN permits the construction of doors without the need for perimeter framing or the addition of plywood or MDF faces. It is manufactured specifically, with doors in mind, ideal as a solid core timber door. In addition, FireBAN high performance door core has been pre-tested for the fabrication of fire doors. Using FireBAN brings flexibility resulting from a continual programmed of development and testing, which increasingly meets the needs of designers.

### 3.1.1 DOORSET CONFIGURATION

<b>Type:</b>	Three Layer particleboard with high performance Confirm to BS EN 312
<b>Composition:</b>	100 % of selected recycled softwood, hard wood Vermiculite, resin, sawmill residues, carpenter's residues
<b>Fire performance:</b>	B.S 467 Part 22 Standard
<b>Assessment Report:</b>	PAR/10346/02 Revision D / Chilt/ A12068 Rev B
<b>Fire Behavior Category:</b>	Resist Fire up to 60 Minutes
<b>Certification:</b>	IFC - FRTD483 & BM TRADA - 589
<b>Green Product:</b>	FSC – TT-COC-004433
<b>Environment:</b>	100 % Recycled product
<b>Density:</b>	600 Kg /m <sup>3</sup> ±10
<b>Moisture Content:</b>	08-10 ±2
<b>Board thickness:</b>	54mm ±0.3
<b>Board size:</b>	2440 X 1220 X 54 mm
<b>Emission Classification:</b>	E 1 according to EN 120 Content < 8mg /100

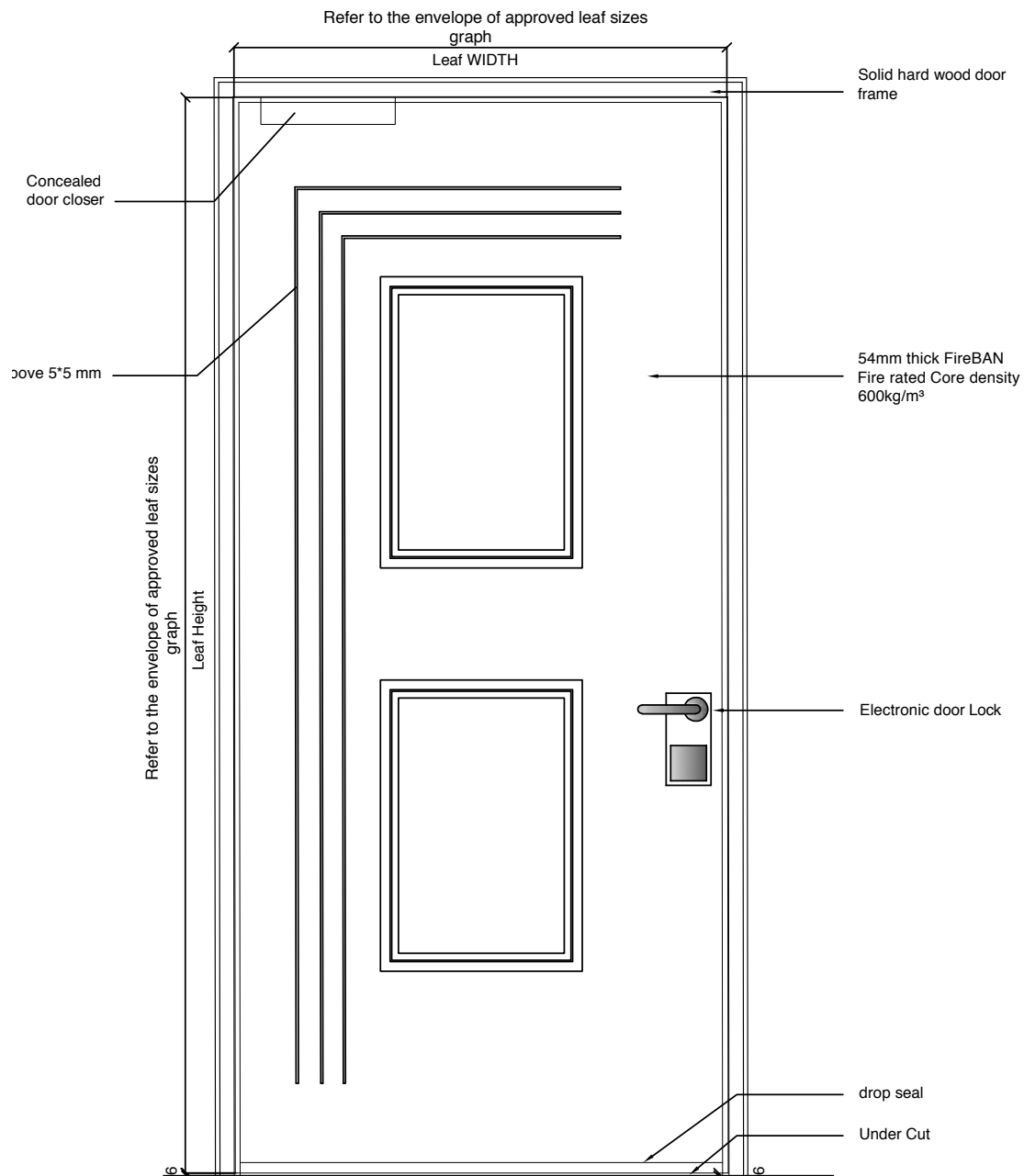


### 3.1.2 DOORSET CONFIGURATION

<ul style="list-style-type: none"> <li>. Latched</li> <li>. Single Acting</li> <li>. Single Door</li> <li>. Without Overpane</li> </ul>	<ul style="list-style-type: none"> <li>. Latched</li> <li>. Single Acting</li> <li>. Double Door</li> <li>. Without Overpanel</li> </ul>
<ul style="list-style-type: none"> <li>. Unlatched</li> <li>. Single Acting</li> <li>. Single Door</li> <li>. Without Overpanel</li> </ul>	<ul style="list-style-type: none"> <li>. Unlatched</li> <li>. Single Acting</li> <li>. Double Door</li> <li>. Without Overpanel</li> </ul>



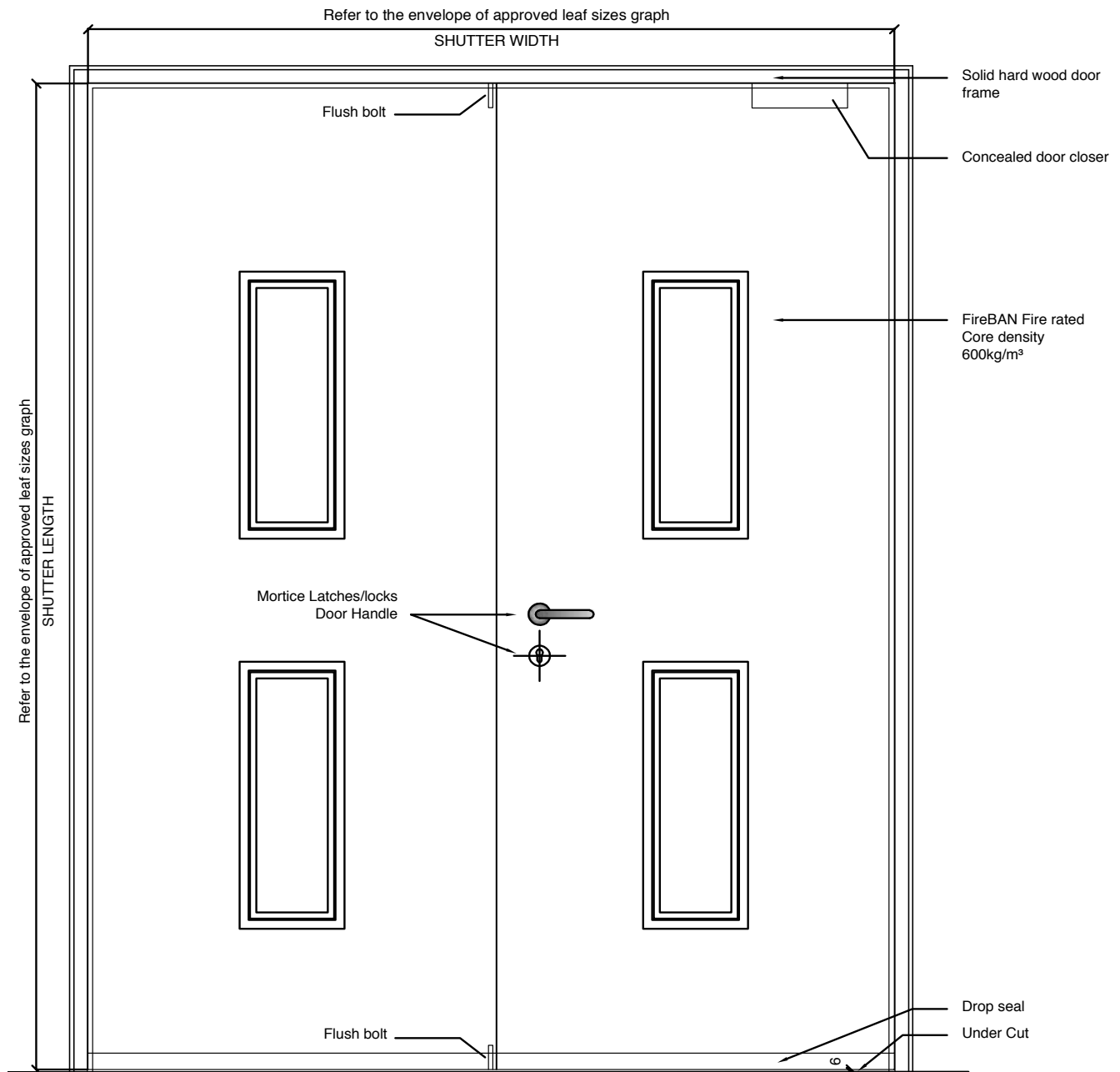
### 3.1.3 SINGLE ACTING SINGLE DOOR:



#### 60 minutes Fire Rated Door Leaf

<b>Overall Dimension of Leaf</b>	240 cm * 110 cm
<b>Overall Thickness of Leaf</b>	55 mm
<b>Leaf Constituents</b>	<p>54mm thick FireBAN Core having stated minimum density of 600 kg/m³</p> <p>3 Nos. of 'L' shaped (5 x 5) mm grooves</p> <p>Automatic drop-down seal fixed on bottom of leaf and fixed centrally</p> <p>0.6mm hardwood on both front and back sides</p> <p>6-12 mm thick hard wood Lipping on all sides having stated minimum density of 650 kg/m³ and moisture content of 10±2 % fixed using Fevicol 1K PUR</p>

### 3.1.4 SINGLE ACTING DOUBLE DOOR:



#### 60 minutes Fire Rated Double Door Leaf

<b>Overall Dimension of Single Leaf</b>	192*240 cm
<b>Overall Thickness of Leaf</b>	55 mm
<b>Leaf Constituents</b>	54mm thick FireBAN Core having stated minimum density of 600 kg/m <sup>3</sup>
	0.6mm hardwood veneer on both front & back sides
	6-12 mm thick hardwood wood Lipping on all sides having stated minimum density of 650 kg/m <sup>3</sup> and moisture content of 10±2 % fixed using Fevicol 1K PUR

### 3.1.5 SINGLE ACTING SINGLE DOOR WITH STEEL FRAME:

#### 60 minutes Fire Rated Door Leaf

<b>Overall Dimension of Leaf</b>	240 cm * 105 cm
<b>Overall Thickness of Leaf</b>	55 mm
<b>Frame</b>	Steel frame
<b>Leaf Constituents</b>	54mm thick FireBAN Core having stated minimum density of 600 kg/m <sup>3</sup> Automatic drop-down seal fixed on bottom of leaf and fixed centrally 0.6mm hardwood veneer on both front and back sides 6-12 mm thick hard wood Lipping on all sides having stated minimum density of 650 kg/m <sup>3</sup> and moisture content of 10±2 % fixed using Fevicol 1K PUR



Single Acting single door with steel frame:



Single acting double door with steel frame

### 3.1.6 SINGLE ACTING DOUBLE DOOR WITH STEEL FRAME:

#### 60 minutes Fire Rated Double Door Leaf

<b>Overall Dimension of Single Leaf</b>	192*240 cm
<b>Frame</b>	Steel frame
<b>Overall Thickness of Leaf</b>	55 mm
<b>Leaf Constituents</b>	54mm thick FireBAN Core having stated minimum density of 600 kg/m <sup>3</sup> 0.6mm hardwood veneer on both front and back sides 6mm thick hardwood wood Lipping on all sides having stated minimum density of 650 kg/m <sup>3</sup> and moisture content of 10±2 % fixed using Fevicol 1K PUR

### 3.1.7 SINGLE ACTING SINGLE DOOR WITH LAMINATE FINISHING:

#### 60 Minutes Fire Rated Door Leaf

<b>Overall Dimension of Leaf</b>	240 cm * 105 cm
<b>Overall Thickness of Leaf</b>	56 mm
<b>Leaf Constituents</b>	<p>54mm thick FireBAN Core having stated minimum density of 600 kg/m<sup>3</sup></p> <p>High Pressure Laminate (ABET LAMINATI) with 1mm PVC edging all around</p> <p>intumescent Fire Protection and Acoustic Drop Seal</p> <p>10 mm thick Red Oak Wood Lipping on all sides having stated minimum density of 650 kg/m<sup>3</sup> and moisture content of 10±2 %</p>



60 Minutes  
Fire Rated  
Door Leaf



60 minutes  
Fire Rated  
Door Leaf

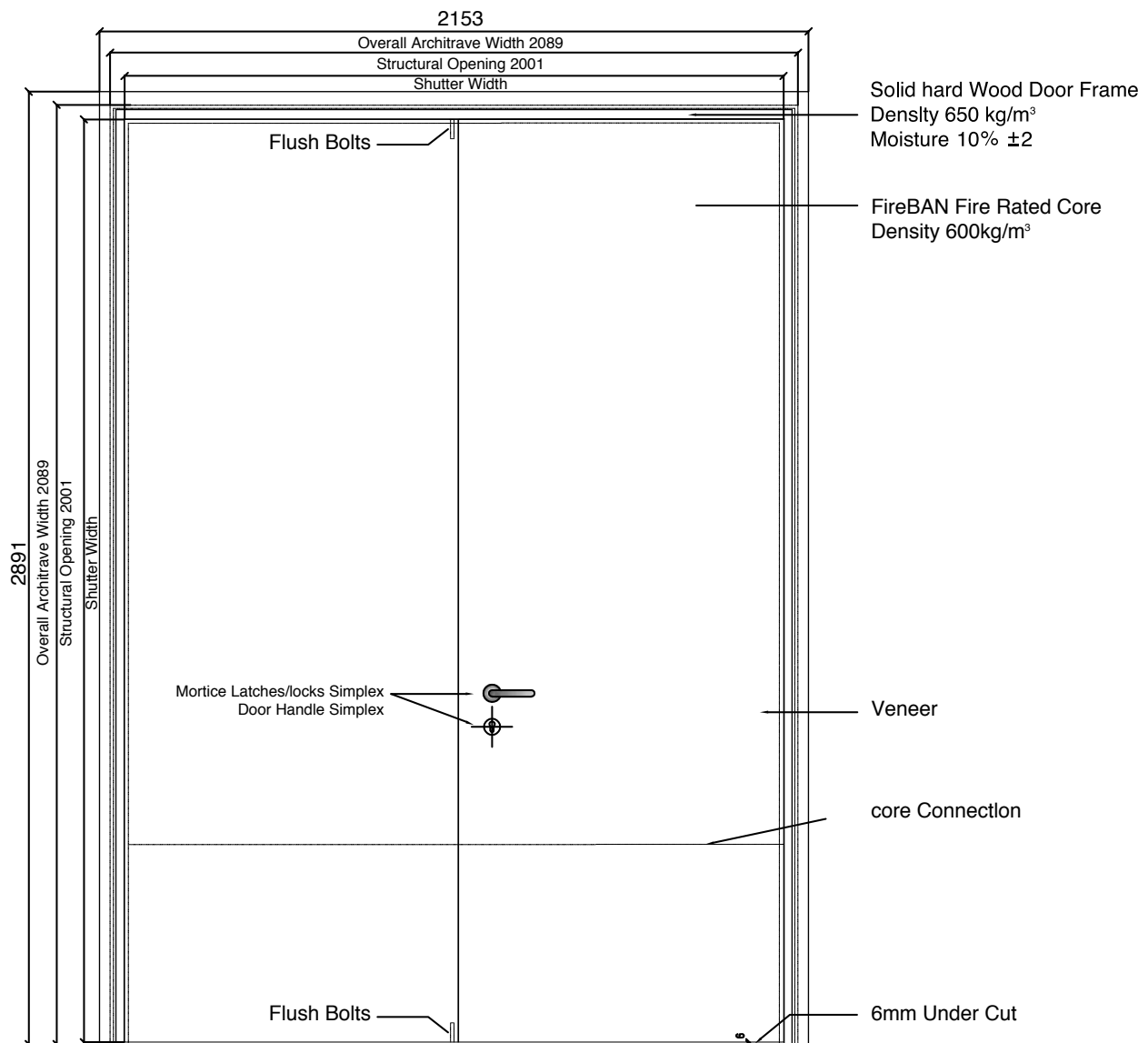
### 3.1.8 SINGLE ACTING SINGLE DOOR 280 CM LEAF HEIGHT

#### 60 minutes Fire Rated Door Leaf

<b>Overall Dimension of Leaf</b>	280 cm * 110 cm
<b>Overall Thickness of Leaf</b>	55 mm
<b>Leaf Constituents</b>	<p>54mm thick FireBAN Core having stated minimum density of 600 kg/m<sup>3</sup></p> <p>3 Nos. of 'L' shaped (5 x 5) mm grooves</p> <p>Automatic drop-down seal fixed on bottom of leaf and fixed centrally</p> <p>0.6mm hardwood on both front and back sides</p> <p>6-12 mm thick hard wood Lipping on all sides having stated minimum density of 650 kg/m<sup>3</sup> and moisture content of 10±2 % fixed using Fevicol 1K PUR</p>

## 60 minutes Fire Rated Double Door Leaf

<b>Overall Dimension of Single Leaf</b>	192*280 cm
<b>Frame</b>	Steel frame
<b>Overall Thickness of Leaf</b>	55 mm
<b>Leaf Constituents</b>	<p>54mm thick FireBAN Core having stated minimum density of 600 kg/m<sup>3</sup></p> <p>0.6mm hardwood veneer on both front and back sides</p> <p>6mm thick hardwood wood Lipping on all sides having stated minimum density of 650 kg/m<sup>3</sup> and moisture content of 10±2 % fixed using Fevicol 1K PUR</p>





## 3.2 DOOR LEAF SPECIFICATION

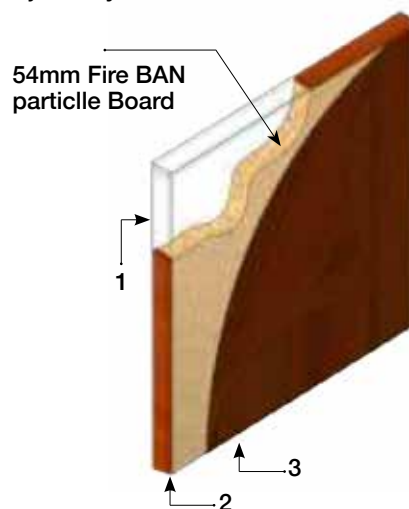
Dimensional tolerance of the door assemblies should comply with the recommendations given in BS4787:1995. Timber densities must be measured at 12% moisture content and must be free of splits, shakes and checks, and have a slope of grain better than 1:15. Any Knots must be sound. Moisture Content; 10+- 2% for UK market (or to suit internal joinery moisture content specification of export countries).

**1- three layers of fireBAN particleboard 600Kg/m<sup>3</sup>**

**2- 6mm Thick Timber Lipping 650kg/m**

**3- 6mm Thick Timber Lipping 650kg/m**

**2mm Maximum Timber veneers, Decorative plastic based laminate, PVC, or varnish**



### 3.2.1 FIREBAN FD 60 COMPONENT

COMPONENT		MATERIAL	DENSITY	DIMENSION
core		Three layers of FIREBAN particleboard	600kg/m <sup>3</sup>	54mm thick
Lipping	Square edges	Hardwood	650Kg/m <sup>3</sup>	6-12mm thick
	Rebated edges			20mm thick to include a 30mm wide x 13mm high rebate
Adhesive	Door Leaf/Lipping	Polyvinyl Acetate (PVA) Or Polyurethane		
Optional feature grooves to face of leaves		Maximum four horizontal grooves equally spaced over height of the leaf & can extend to the leaf edges grooves to be set minimum 50mm apart from each other and glazed apertures		3 mm wide x 3mm deep
		Maximum three horizontal and three vertical grooves. Grooves to be set minimum 50mm apart from each other and glazed aperture and minimum 200mm from the edge of the leaf		5mm wide x 5mm deep
Optional additional decorative finishes (to be applied to leaf faces only)		Timber veneers, decorative plastic based laminate, PVC Paint or varnish		Maximum 2mm thick

### 3.2.2 LEAF SIZE ADJUSTMENT

ELEMENT	REDUCTION
Doors	The manufactured size of the leaf, excluding lipping may be reduced in height or width without restriction.
Lipping	Lipping dimensions 3-6mm may be reduced by 20% for site fitting purposes.

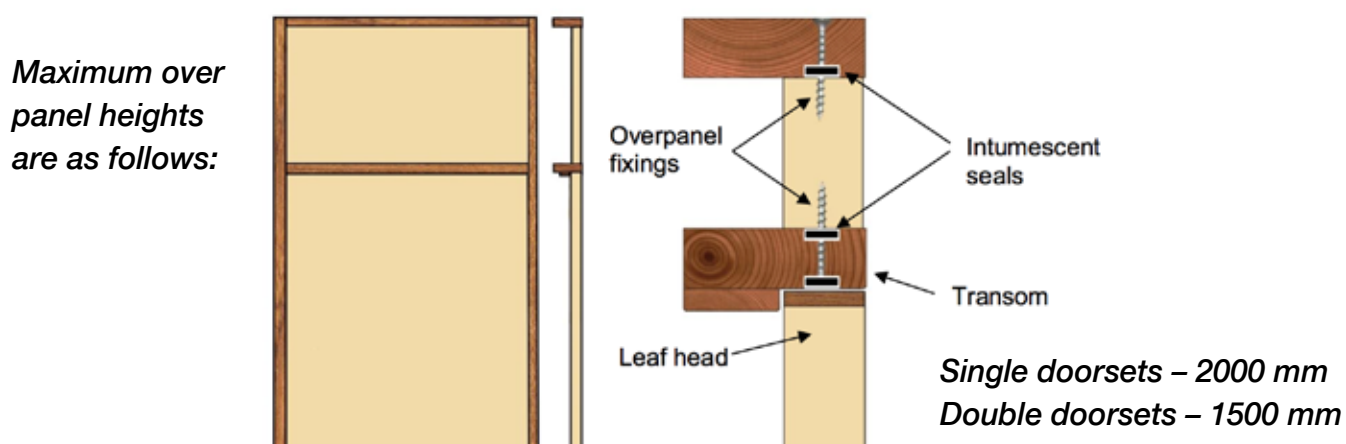
### 3.2.3 OVER PANELS

Over panels of the same construction as the door leaves may be used when separated by a transom. The over panel must be fully contained within the door frame the transom material must be to the same specification as the door frame.

Door frame transom joints must utilize mortise and tenon joints or butt joints must be tight, with no gaps and requires mechanical fixing with the appropriate size ring shank nails or screws. Butt joints must be additionally bonded with urea formaldehyde or equivalents.

Over panels must be fixed by screwing through the rear of the frame with steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum 2mm gap tolerance.

**THE FOLLOWING DIAGRAM ILLUSTRATES THE PRINCIPLES DESCRIBED:**



## 3.3 LEAF FACING MATERIALS

FireBAN is particularly suitable for laminating & veneering. Whether fire door or not, FireBAN is successful with veneer and clear lacquer, paint, plastic laminate. The fine, hard surface

minimizes preparation time and together with its monolithic structure, these eliminate the problems like grin-through and ripple effect, found with other types of board.

### 3.3.1 VENEER

Decorative or structural veneers maximum 2 mm in thickness can be applied to FireBAN using the appropriate glue lines for the purpose. Balanced construction must always be maintained.

### 5.3.2 PAINTING

Problems usually associated with other types of board are eliminated by using FireBAN for example, it is not essential to add paper or veneer before painting. With no preparation

or only minimal attention, FireBAN door blanks provide a suitable surface for a good paint finish, eliminating the usual problems associated with other types of board.

### 3.3.3 DECORATIVE AND PROTECTIVE FACING

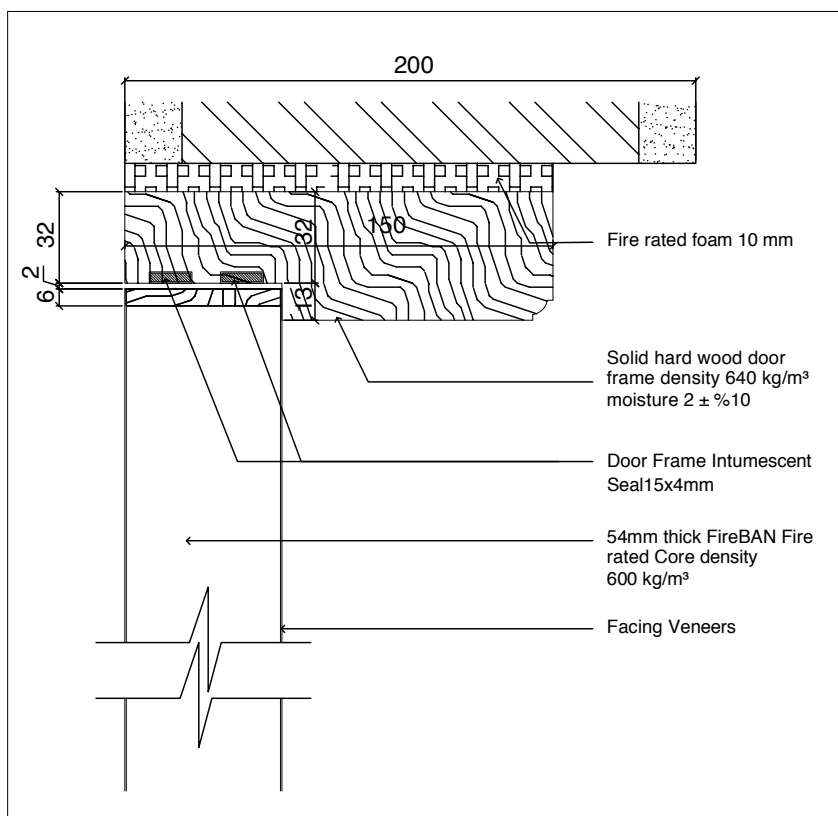
The following additional materials are permitted for this door design since they would degrade rapidly under test conditions without significant effect:

FACING MATERIAL	MAXIMUM PERMITTED THICKNESS (MM)
paint	0.5
Timber veneer	2
PVC	2
Plastic laminate	2
Decorative paper/ non-metallic foil	0.4

- 1. May replace the tested 0.6mm hardwood veneer.*
- 2. additional facing materials must not return around the edge of door leaves*
- 3. metallic Facing are not permitted except for push plates and kick plates*

## 3.4 DOOR FRAME

<b>MATERIAL</b>	American Ash
<b>DENSITY</b>	650kg/m <sup>3</sup>
<b>Minimum Face Width</b>	32mm excluding stop
<b>Minimum frame Depth</b>	90mm
<b>Minimum stop depth</b>	13mm



### THE FOLLOWING SPECIES OF HARDWOOD ARE ALSO ACCEPTABLE;

oak	nominal density	660kg/m <sup>2</sup>	(+20-10%)
American Cherry	nominal density	580kg/m <sup>3</sup>	(+20-10%)
Maple	nominal density	650kg/m <sup>3</sup>	(+20-10%)
Beech	nominal density	650kg/m <sup>3</sup>	(+20-10%)
cherry	nominal density	580kg/m <sup>3</sup>	(+20-10%)
sapele	nominal density	640kg/m <sup>3</sup>	(+20-10%)
American Black walnut	nominal density	660kg/m <sup>3</sup>	(+20-10%)
Merbau	nominal density	830kg/m <sup>3</sup>	(+10-10%)
pacific Walnut	nominal density	660kg/m <sup>3</sup>	(+20-10%)
Tropical cherry	nominal density	580kg/m <sup>3</sup>	(+20-10%)
Dark Red Meranti	nominal density	640kg/m <sup>3</sup>	(+20-10%)

The density of meranti varies considerably, hence the density of each specific batch used for production must be checked for compliance]. Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 1996. The moisture content shall be 10+- 2% for UK market (or to suit internal joinery moisture content specification of export countries). These dimensions assume that the rear of the frame is protected by the adjacent

wall and that the frame does not project out from the wall

The door stop is to comprise the same material as the door frame and maybe either planted and pinned using 40mm steel pins, or integral with the main door frame, providing the minimum frame thickness remains as stated.

The overall Frame depth may be increased by the use of extension linings, But the joint between the main frame and the extension lining must not intrude in the plane of the door thickness.

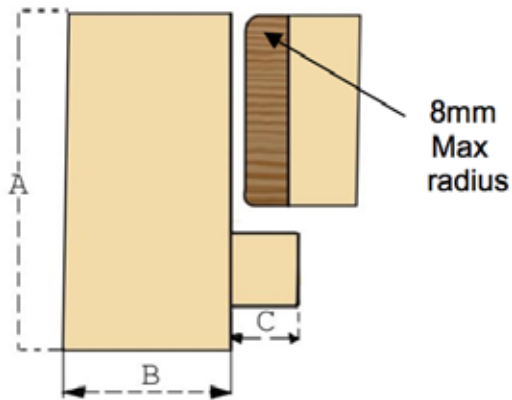


## HEAD/JAMB

Joint: Mitered Corner with single finger joint using urea Formaldehyde adhesive and 5no. 50mm long steel screws per joint.

Architraves: Architraves are optional and have no fire performance requirements

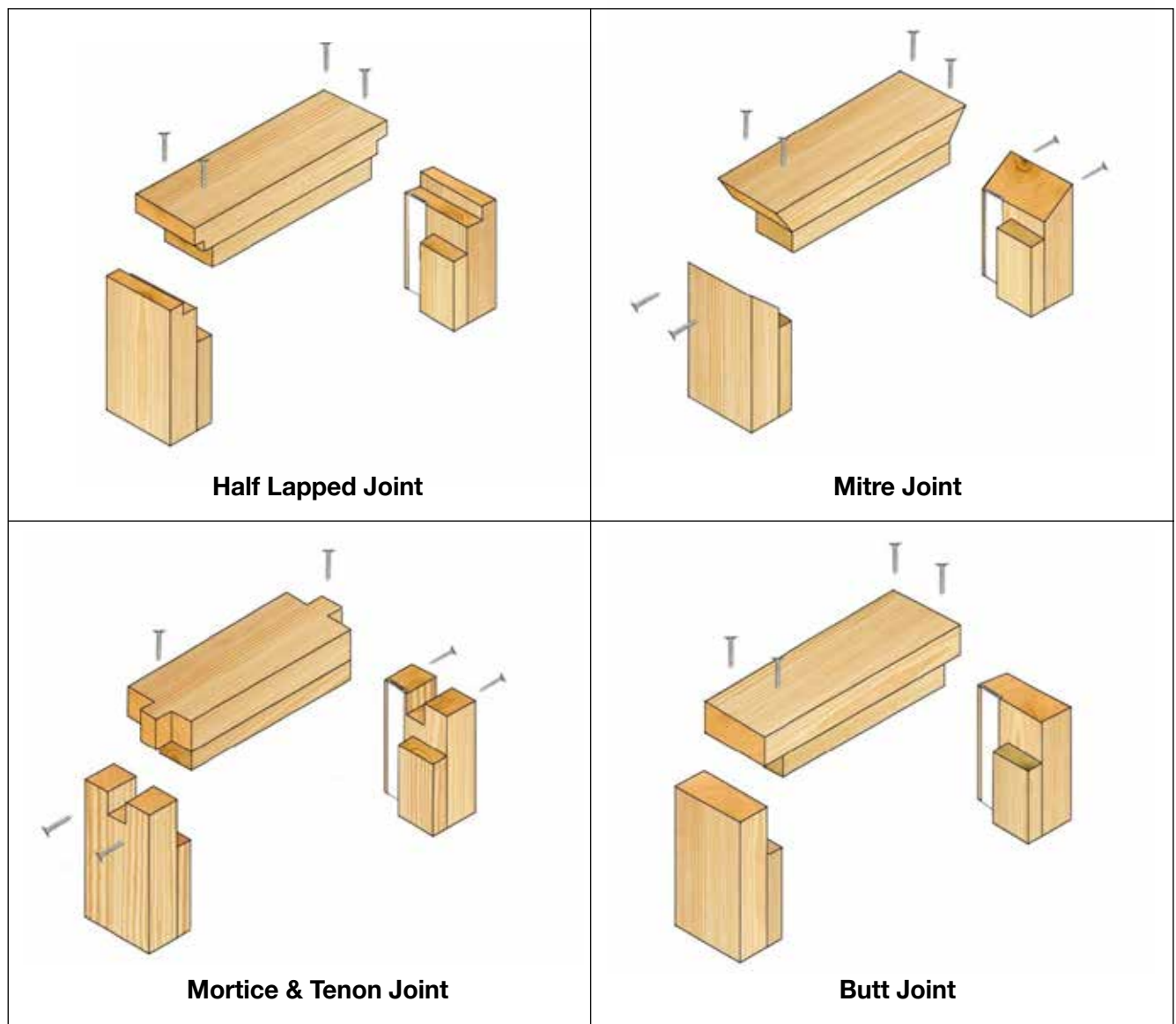
The following diagram depicts the assessed frame profiles and dimensions:



A = min 90mm  
B = min 32mm  
C = min 13mm

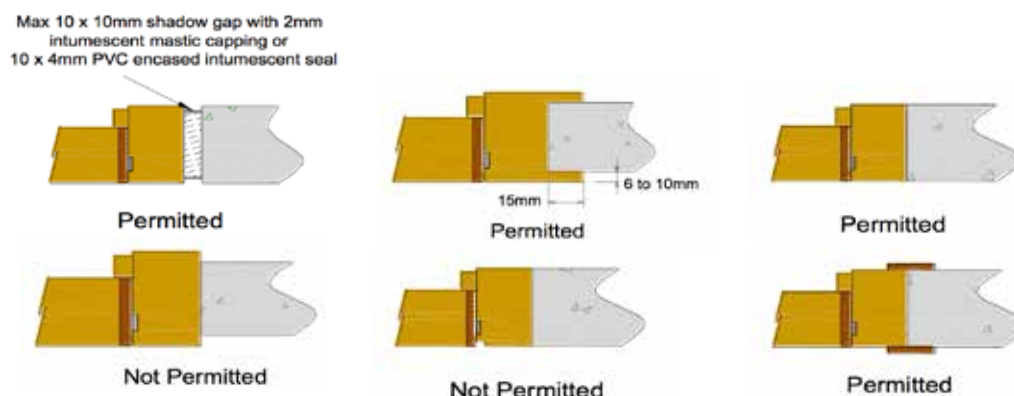
8mm max radius to create a  
maximum 2mm edge profiling

### 3.4.1 DOOR FRAME JOINTS



### 3.4.2 DOOR FRAME INSTALLATION

The following diagram indicates the acceptable and unacceptable door frame installation:



### 3.4.3 FIXINGS

The frame jambs are to be fixed to the supporting construction using steel fixing at 500mm maximum centers. The fixing must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 60mm. It is not necessary to fix the frame head, although packers must be inserted.

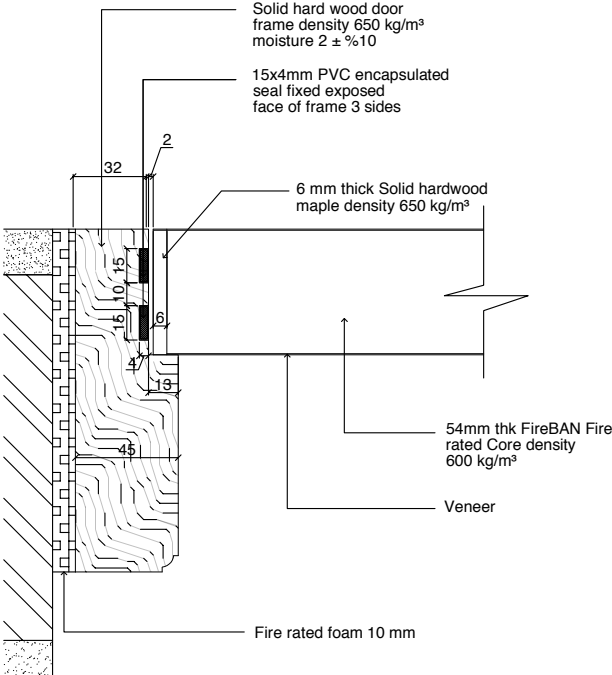
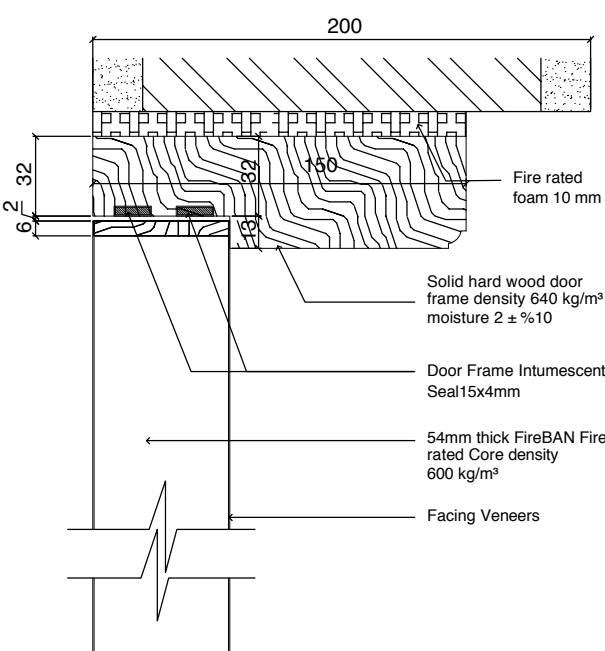
### 3.4.4 SEALING TO STRUCTURAL OPENING

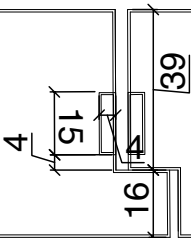
The door frame to structural opening gap must be protected using one of the following methods:

<p>1. Gaps up to 10mm must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.</p> <p>2. Gaps Between 10mm and 20mm must be tightly packed with mineral fiber capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: part 22: 1987 or BS EN 1634-1. architraves are optional.</p>	<p>3. Gaps up to 20mm filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam) Products must be tested for this application to BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.</p>	<p>4. Timber based or non-Combustible subframe up to 50mm thick, with gaps up to 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS476: part22:1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side</p>
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## 3.5 INTUMESCENT SEAL SPECIFICATIONS FOR FIREBAN FD60 DOOR LEAVES INSTALLED IN TIMBER FRAMES

The following intumescent seal specification shall be used for the doorset configurations

POSITIONS	STANDARD SEAL SPECIFICATION	ENHANCED SEAL SPECIFICATION
<p><b>Door jambs</b></p>  <p>Solid hard wood door frame density 650 kg/m³ moisture 2 ± %10</p> <p>15x4mm PVC encapsulated seal fixed exposed face of frame 3 sides</p> <p>2</p> <p>32</p> <p>15</p> <p>10</p> <p>6</p> <p>4</p> <p>19</p> <p>6 mm thick Solid hard wood maple density 650 kg/m³</p> <p>54mm thk FireBAN Fire rated Core density 600 kg/m³</p> <p>Veneer</p> <p>Fire rated foam 10 mm</p>	<p>2no 15 x 4mm thick, including PVC carrier, fixed 10mm apart into grooves in the leaf edge or frame reveal</p>	<p>2no 15 x 4mm thick, including PVC carrier, fixed 10mm apart into grooves in the frame reveal and 1no 15 x 4mm thick, including PVC carrier, fixed centrally in all leaf edges, excluding leaf bottom</p>
<p><b>Door head</b></p>  <p>200</p> <p>32</p> <p>15</p> <p>10</p> <p>6</p> <p>13</p> <p>Fire rated foam 10 mm</p> <p>Solid hard wood door frame density 640 kg/m³ moisture 2 ± %10</p> <p>Door Frame Intumescent Seal 15x4mm</p> <p>54mm thick FireBAN Fire rated Core density 600 kg/m³</p> <p>Facing Veneers</p>	<p>2no 15 x 4mm thick, including PVC carrier, fixed 10mm apart into grooves in the leaf edge or frame reveal</p>	<p>2no 15 x 4mm thick, including PVC carrier, fixed 10mm apart into grooves in the frame reveal and 1no 15 x 4mm thick, including PVC carrier, fixed centrally in all leaf edges, excluding leaf bottom</p>

POSITIONS	STANDARD SEAL SPECIFICATION	ENHANCED SEAL SPECIFICATION
<b>Flush meeting stiles</b>	2no 15 x 4mm thick, including PVC carrier, fixed into grooves centered approximately 10mm apart in the edge of the leaf without bolts, only	2no 15 x 4mm thick, 1no including PVC carrier, fixed on each leaf at 20mm from the leaf face
<b>Unequal rebated meeting stiles</b> 	1no 10 x 4mm thick, including PVC carrier, fixed into a groove centered in the small up stand of the passive leaf and 1no. 20 x 4mm thick, including PVC CARRIER, FIXED into a groove centered in the large rebate in the active leaf	

**Notes:**

*Seals to be Lorient Polyproducts LP1504 and LP2004 type 617.*

## 3.6 HARDWARE PROTECTION

One of the following intumescent gaskets must be used to protect the hardware:

ELEMENT	LOCATION	SPECIFICATION
Hinges	Fitted under both blades	<ol style="list-style-type: none"> <li>2mm interdens - Dufaylite Developments Ltd.</li> <li>2mm MAP Lorient Polyproducts Ltd.</li> <li>2mm Therm-A-strip- Intumescent Seals Ltd.</li> </ol>
Locks & latches	Fitted under the forend & keep, & lining all side of the lock body rebate	<ol style="list-style-type: none"> <li>1mm interdens - Dufaylite Developments Ltd.</li> <li>1mm MAP - Lorient Polyproducts Ltd.</li> <li>1mm Therm-A-strip-Intumescent Seals Ltd.</li> </ol>
Flush bolts	Lining all side of the lock body rebate	<ol style="list-style-type: none"> <li>1mm interdens - Dufaylite Developments Ltd.</li> <li>1mm MAP - Lorient Polyproducts Ltd.</li> <li>1mm Therm-A-strip-Intumescent Seals Ltd.</li> </ol>



## 3.7 GLAZING

The testing conducted on gulf trade link FZCO - fireBAN FD60 doorsets has demonstrated that the design is capable of tolerating glazed apertures, whilst providing a margin of over performance. Glazing is therefore acceptable within the following parameters:

### 3.7.1 ASSESSED GLAZING SYSTEMS

The glazing system must be one of the following proprietary tested systems:

Glazing System	Manufacturer	Max. Area (m2)
Therm -A- Glaze 60	intumescent Seals Ltd.	0.24
System 36 plus	Lorient polyproducts Ltd.	0.24
Fireglaze 60	Sealmaster Ltd.	0.24
System 63+(circular apertures only)	Lorient Polyproducts Ltd.	0.24
Pyroglaze 60	Mann McGowan Ltd.	0.24
System 90+	Lorient Polyproducts Ltd.	0.24

### 3.7.2 ASSESSED GLASS PRODUCTS

Assessed glass types are as follows:

GLASS TYPE	MANUFACTURER	THIC. (MM)	MAX. AREA (M2)
firelite	Gulf glass industries (UAE)	5	0.24
keralite	Vetrotech Saint-Gobain	5	0.24
pyroshield	pilkington Group Ltd.	6-7	0.24
pyroshield II	pilkington Group Ltd.	6-7	0.24
pyran s	Schott glass Ltd	6	0.24
pyrostem	Pyroguard Ltd.	6	0.24
pyrodur	pilkington Group Ltd.	10	0.24
pyroguard EW30	Pyroguard Ltd.	11	0.24
Pyrobelite 12	AGC flat glass	12	0.24
pyrodur	pilkington Group Ltd.	13	0.24
pyroguard 12	Pyroguard Ltd.	15	0.24
contraflam	Vetrotech Saint-Gobain Ltd.	16	0.24
pyrostop	pilkington Group Ltd.	15	0.24
pyrobel 16	AGC flat glass	15	0.24

#### Notes:

1. all glass types must be fitted fully in accordance with the manufactures' tested details/ installation requirements, particularly with respect to edge cover & expansion tolerance.
2. for 5mm keralite the maximum single pane size is 0.12m2,

### 3.7.3 ASSESSED APERTURE SIZES

Apertures are created by cutting directly into the door leaf, with beads fitted directly to the leaf. Based upon the size of the aperture tested. When using glazing system combination G60/2, s60/2 and B60 / 2:

Maximum area of single aperture	- 0.20m <sup>2</sup>
Maximum vertical length of aperture	- 1390mm
Maximum horizontal length of aperture	- 320mm
Maximum distance from leaf edge (top)	- 300mm
Maximum distance from leaf edge (sides)	- 300mm
Maximum distance from bottom of leaf	- 300mm

*More than one aperture may be included in each leaf subject to the limitation below, and the maximum total area of apertures allowed above.*

Minimum distance between apertures - 265mm

### 3.7.4 CIRCULAR GLAZING

the leaves are approved for the incorporation of circular glazing up to aperture dimensions of 300mm diameter, subject to the parameters for aperture margins,

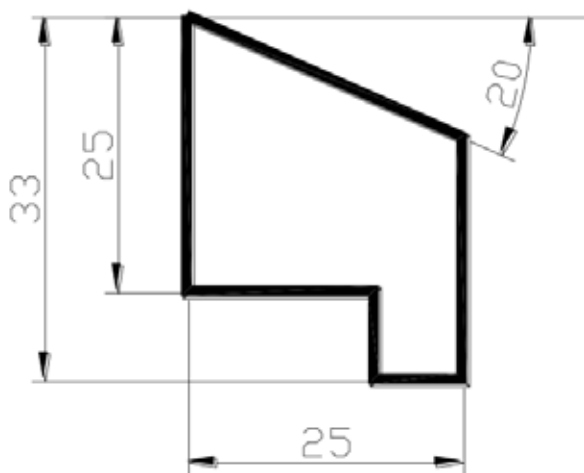
### 3.7.5 GLAZING BEADS & INSTALLATIONS- FIRELITE GLASS

Glazing beads must be from hardwood as specified in the following table:

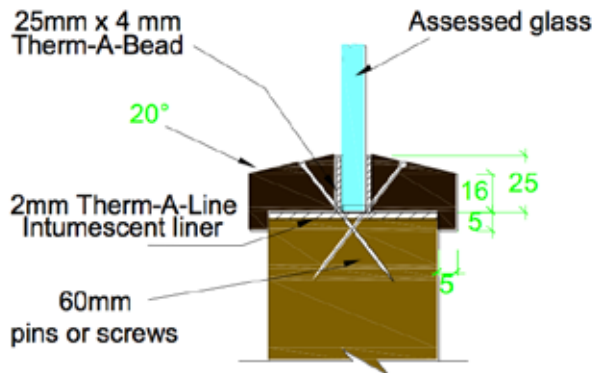
Profile	Mi. Density (kg/m <sup>3</sup> )	Size (mm)
Splayed - 45° splay top	640	Minimum 22 high x 19 wide <sup>1</sup>
Splayed - 20° splay top	640	Minimum 25 high x 25 wide <sup>2</sup>

Bead profile as per proprietary system 90+

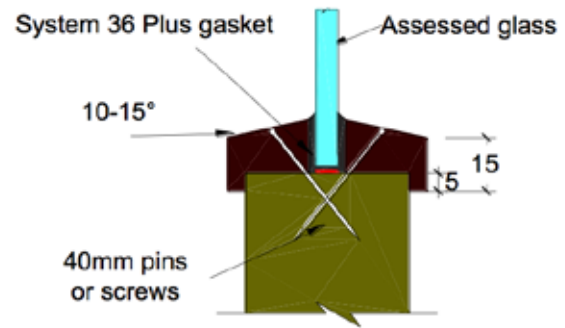
Bead Profile as tested and shown below, incorporating 8x8mm bolection return



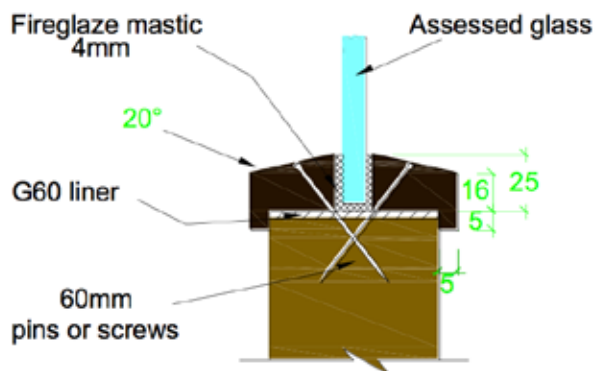
## Proprietary Glazing Systems



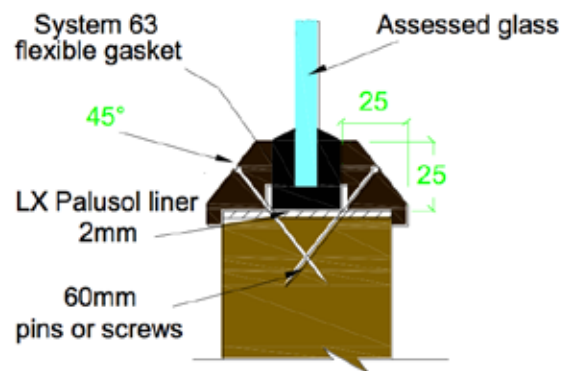
**Therm-A-Glaze 60**  
Intumescent Seals Ltd



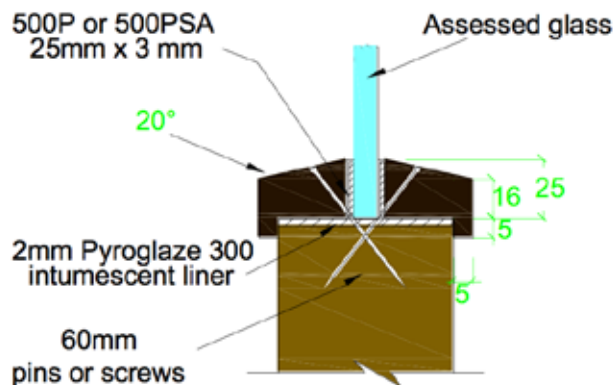
**System 36 Plus**  
Lorient Polyproducts Ltd



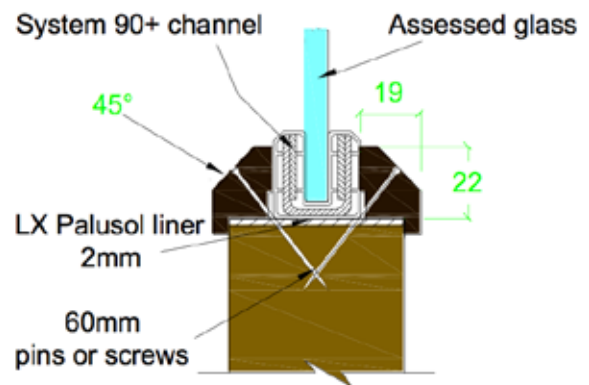
**Fireglaze Mastic**  
Seamaster Ltd



**System 63**  
Lorient Polyproducts Ltd



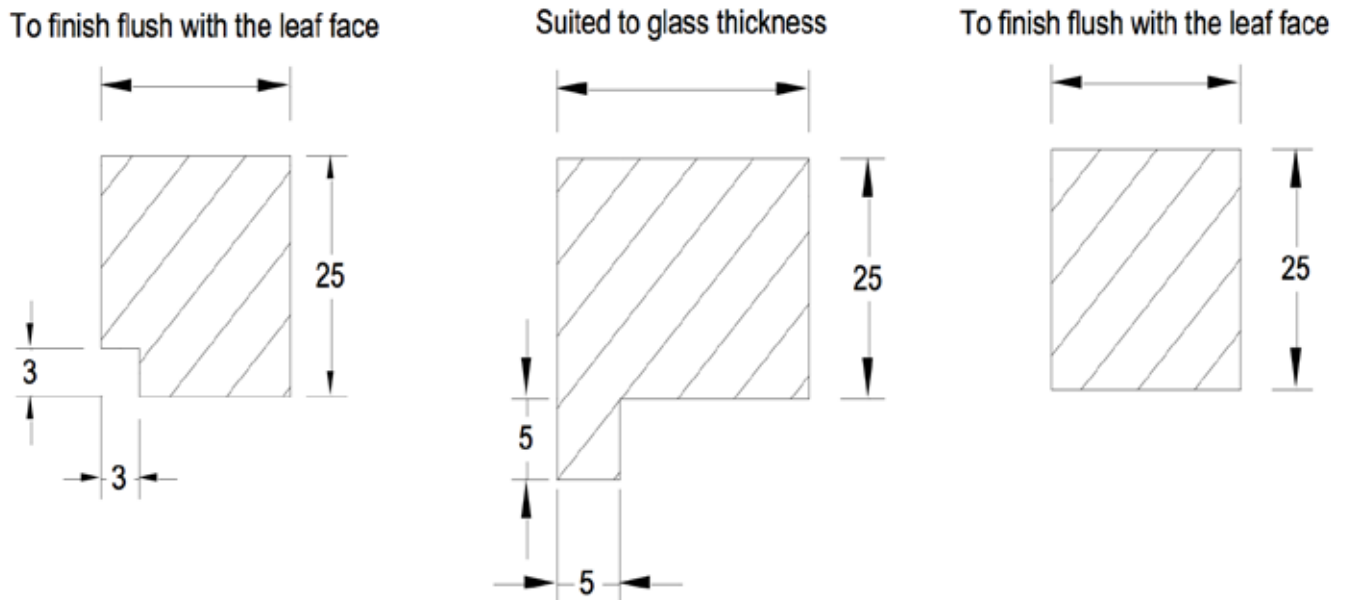
**Pyroglaze 60**  
Mann McGowan Ltd



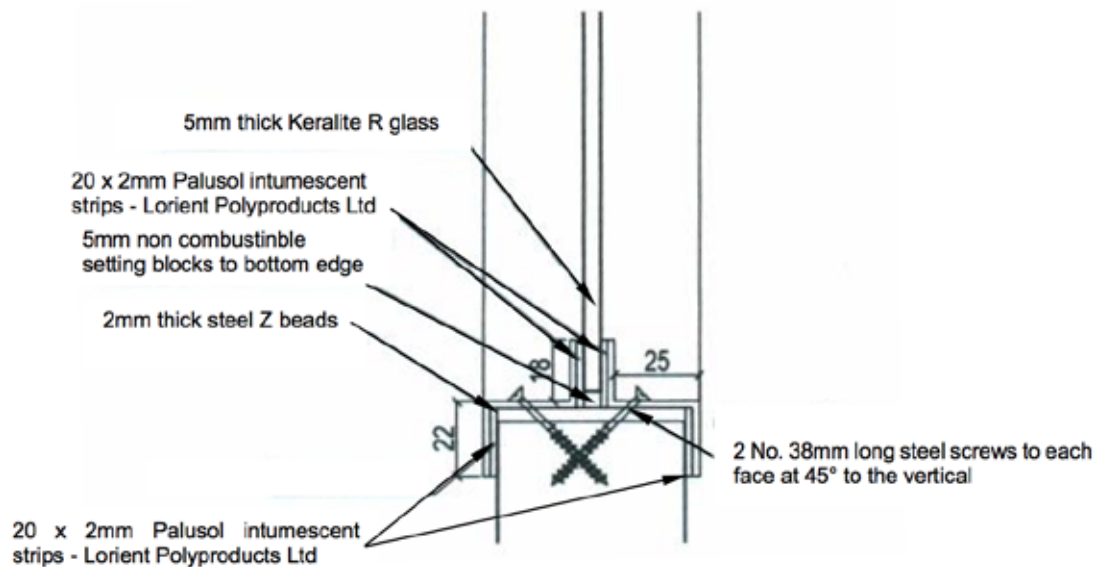
**System 90+**  
Lorient Polyproducts Ltd

### 3.7.6 ASSESSED SQUARE GLAZING BEAD PROFILES

The following square bead profiles may be used as an alternative to splayed beads refer to section 7 for full details of glazing system and glass restrictions.




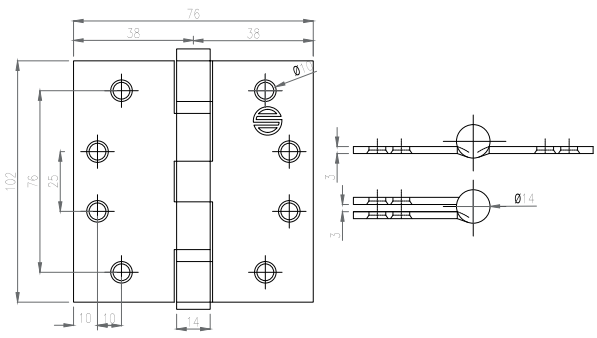

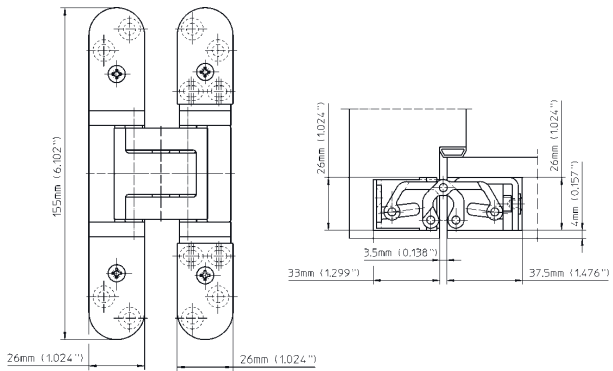
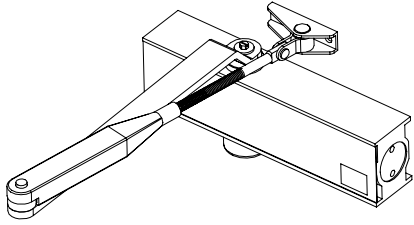
### TESTED GLAZING SYSTEM FOR 5MM KERALITE R GLASS








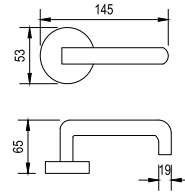


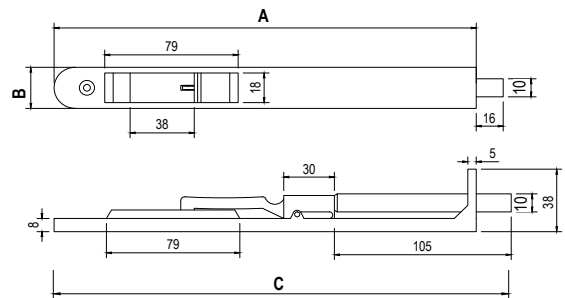


### 3.8 TESTED HARDWARE:

The following hardware has been successfully incorporated in the tests on the Gulf Trade Link FZCO-FireBAN FD60 doorset design

Element	Make/Type	Size(mm)
Hinges	Europe Architectural Hardware 1433/13 SSS 2BB butt hinge	1433/13 SSS 2BB butt hinge Fitted 200, 1025 & 1850 from head of leaf to top of blade
	Double bearing butt hinges-ref: HSSBS-SIM-FR 304 Grade stainless steel 	102x76 (overall) Fitted 150, 1150 & 2150 from head of leaf to top of blade 
	Simonswerk concealed Tectus hinges ref:TE 527 3D 	155X74X26 (Overall size) Fitted 150, 1130 & 2110 from head of leaf to top of blade 
Automatic Overhead closers	Eurospec Architectural Hardware overhead type-ref DCT2024 	Body-207x55x40 fitted per manufacturers specification

Element	Make/Type	Size(mm)
Automatic Overhead closers	Simplex SCC24385 c oncealed overhead closer	Fitted in a 6mm Calcium Silicate gasket to all sides of the mortice 1 
Lock/Latches	Europe Architectural Hardware sash lock ref DLE7255EPSSS	235x24(forend size)
	KABA(CONFIDANT RFID KIT 1) Electronic lock/latch	283x60 (facing plate size)  <i>Outside Lock Housing Only</i>
	Anti-Panic Escape Sash Lock Simplex ref: 886085ZAPN	230high x 24wide (forend)165high x 85high (body) 
	Mortice Sash Lock Simplex ref: 885572-SSS	235high x 24wide (forend)165high x 85high (body) 

Element	Make/Type	Size(mm)
	Dorma	25 thick x 230 high x 70 deep
Furniture	Europe Architectural Hardware- lever handle ref CSL 1191SSS	125 Handle x 19 circular
	Simplex-lever handle ref: MS0101	145 Handle x 19 circular
		
Eye Viewer	Simplex-lever handle ref: MS0111	147 Handle x 20 circular
	Simplex SDV200 200 	
Flush Bolts- fitted top & bottom of leaf	Europe Architectural Hardware- ref FBT1008	Body-203 x 34 x 20
	Simplex ref: SDBSS301 	Body-220 x 38 x 19 

### 3.8.1 ADDITIONAL & ALTERNATIVE HARDWARE GENERAL

The following section details the permitted scope and constraints for fitting hardware to this door design. Additionally, for doorsets supplied to the European Union, the following items of hardware must also bear the CE Mark:

<b>Latches &amp; locks:</b>	harmonised standard EN 12209
<b>Single axis hinges:</b>	harmonized standard EN 1935
<b>Controlled door closing devices:</b>	harmonised standard EN 1154
<b>Door coordinators:</b>	harmonized standard EN 1158
<b>Panic exit hardware:</b>	harmonized standard EN 1125

### 3.8.2 HINGES

Leaves must be hung on a minimum of 3 hinges. Hinges with the following specification are acceptable:

Element	Specification	
<b>Blade height</b>	90 - 120 mm	
<b>Blade width (excluding knuckle)</b>	30 - 32 mm	
<b>Blade thickness</b>	2.5 - 4 mm	
<b>Fixing</b>	Minimum 4 No. 32mm long No. 8 or No. 10 steel wood screw per blade	
<b>Materials</b>	Steel or stainless steel	
<b>Hinge positions</b>	<b>Top</b>	150 - 250mm from the head to top hinge
	<b>Middle</b>	Minimum 200mm from bottom of top hinge to top of 2nd hinge or centrally fitted between top and bottom hinges
	<b>Bottom</b>	150-250 mm from leaf threshold

### 3.8.3 LATCHES & LOCKS

Latches and locks must either be as tested or alternatively components with the following specifications are acceptable

Element	Specification
<b>Maximum forend &amp; strike plate dimensions</b>	235 mm high by 24 mm wide by 4 mm thick
<b>Maximum body dimensions</b>	150 mm high by 85 mm wide by 18 mm thick
<b>Materials</b>	All the parts essential to locking / latching action to be steel or stainless steel
<b>Position</b>	900-120mm from leaf threshold

### 3.8.4 AUTOMATIC CLOSING

Automatic closing devices, must either be as tested or components of equal specification that have demonstrated contribution to the required performance of these types of doorsets designs, when tested to BS 476; Part 22: 1987 or BS EV 1634 -1 Additionally, concealed overhead closers must fit the manufacturers tested intumescent or non - combustible protective gaskets



### 3.8.5 PULL HANDLES

These may be surface - fixed or bottled through the door leaf provided that they are steel, or stainless steel, mounting bolts are steel and that their length is limited

to 1000mm. no additional intumescent protection is required provided that the hole for the bolt through the leaf is tight, unless test evidence dictates otherwise.

### 3.8.6 PUSH PLATES & KICK PLATES

Steel & stainless-steel push plates & kick plates may be fitted to the doorset provided that their fitting requires the removal of no part of the door leaf. These items of hardware are permitted up to a max of 20% of the door area if mechanically fixed & a max of 30% if bonded with contact or thermally softening adhesive. Plates must not return around the door edges.

### 3.8.7 AIR TRANSFER GRILLES

Air transfer grilles may be fitted providing the product has suitable test evidence to BS 476: part 22: 1987 or BS EN 1634- 1 that demonstrates a minimum 60 minutes integrity performance when installed within door leaves of comparable thickness to these Gulf trade link FZCO -Fire BAN FD 60 designs. Margins to the leaf edges will remain

as detailed for glazing and the position to the unit will be dictated by the pressure regime tested in the proving evidence (normally below mid height) The area occupied by the air transfer grille must not exceed that proven by the supporting fire test for the specific type of grille being used, & must be deducted from the area of glazing, if both elements are fitted.

### 3.8.8 DOOR SECURITY VIEWERS

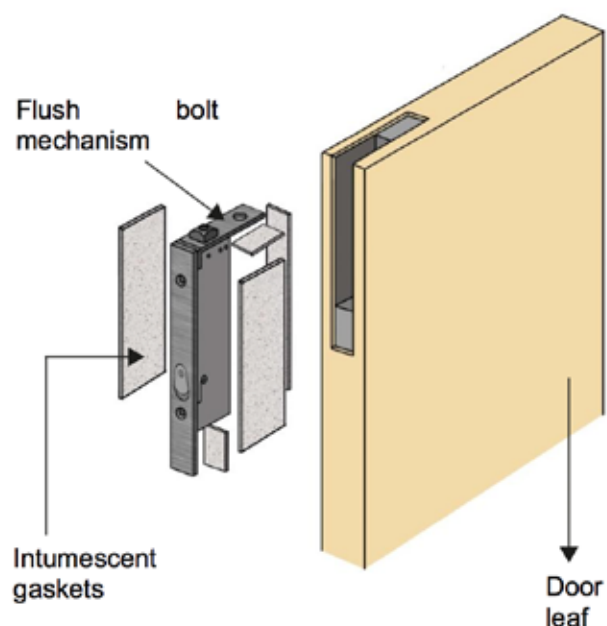
Door security viewers with steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (Max. tolerance +1mm). Lenses must be glass and the item must be bedded in to a testes intumescent mastic.

### 3.8.9 FLUSH BOLTS

Steel or stainless-steel flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded:

**220 mm long X 38mm deep X 20mm wide.**

*Flush bolts must be steel and the mortise must be as tight to the mechanism as is compatible with its operation. All edges of the mortise for booth top and bottom bolts, as fitted, must be protected with intumescent gaskets. Alternatively, the hardware manufacturers tested gaskets may be used.*



### 3.9.10 PANIC HARDWARE

steel or stainless-steel panic hardware may be fitted, providing the installation does not require the removal of any timber from the leaf, stop or frame reveal and it does not interfere with the self-closing action of the door leaf. Door Selectors steel or stainless-steel selectors may be fitted providing the installation does not require the removal of any timber from the leaf, stop or frame reveal and they do not interfere with the self-closing action of the door leaf.

### 3.9.11 THRESHOLD SEALS

The following types of automatic threshold drop seals may be recessed into the bottom rail of leaves to this design without compromising the performance

Manufacturer	Product
Lorient Polyproduct	IS8010si
Raven	RP8Si
Athmer	Schall-Ex Duo 1-15
Norsound	810

## 3.10 DOOR GAPS

For fire resistance performance door gaps & alignment tolerances must fall within the following range:

Location	Dimensions
Door edge gaps	A minimum of 2mm & a maximum of 4mm
Alignment tolerances	Leaves must not be proud of the door frame or each other By more than 1mm
Threshold	10mm between bottom of leaf and top of floor covering

## 3.11 ENVELOPE OF APPROVED LEAF SIZES

### 3.11.1 ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved. POINT A represents the maximum leaf height and its associated width. POINT B represents the maximum width height and its associated height.

### PROPOSED CONFIGURATION

LATCHED

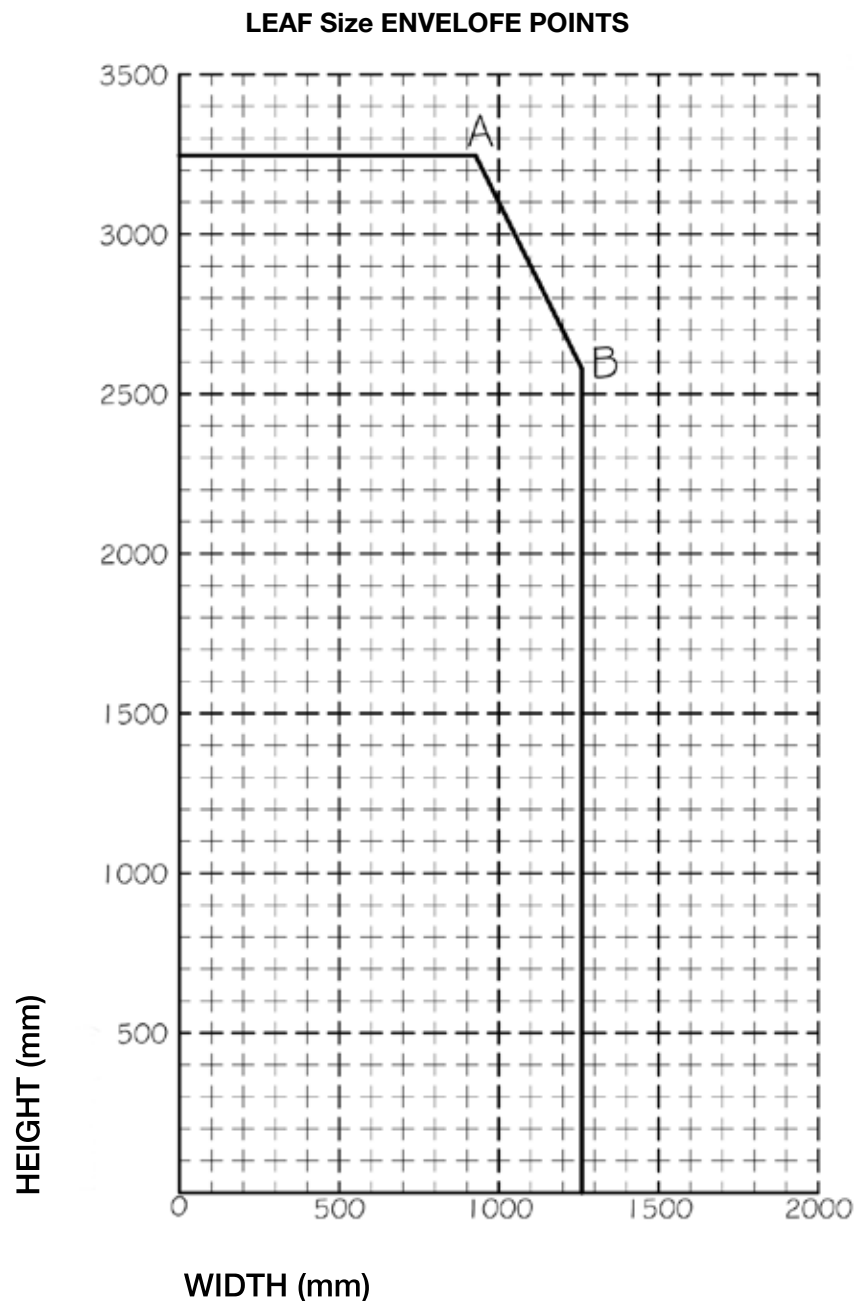
SINGLE ACTING

SINGLE LFAF

WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 Minutes

	A	B
Width	927	1260
Height	3246	2579



### 3.11.2 ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved. POINT A represents the maximum leaf height and its associated width. POINT B represents the maximum width height and its associated height.

### PROPOSED CONFIGURATION

UN LATCHED

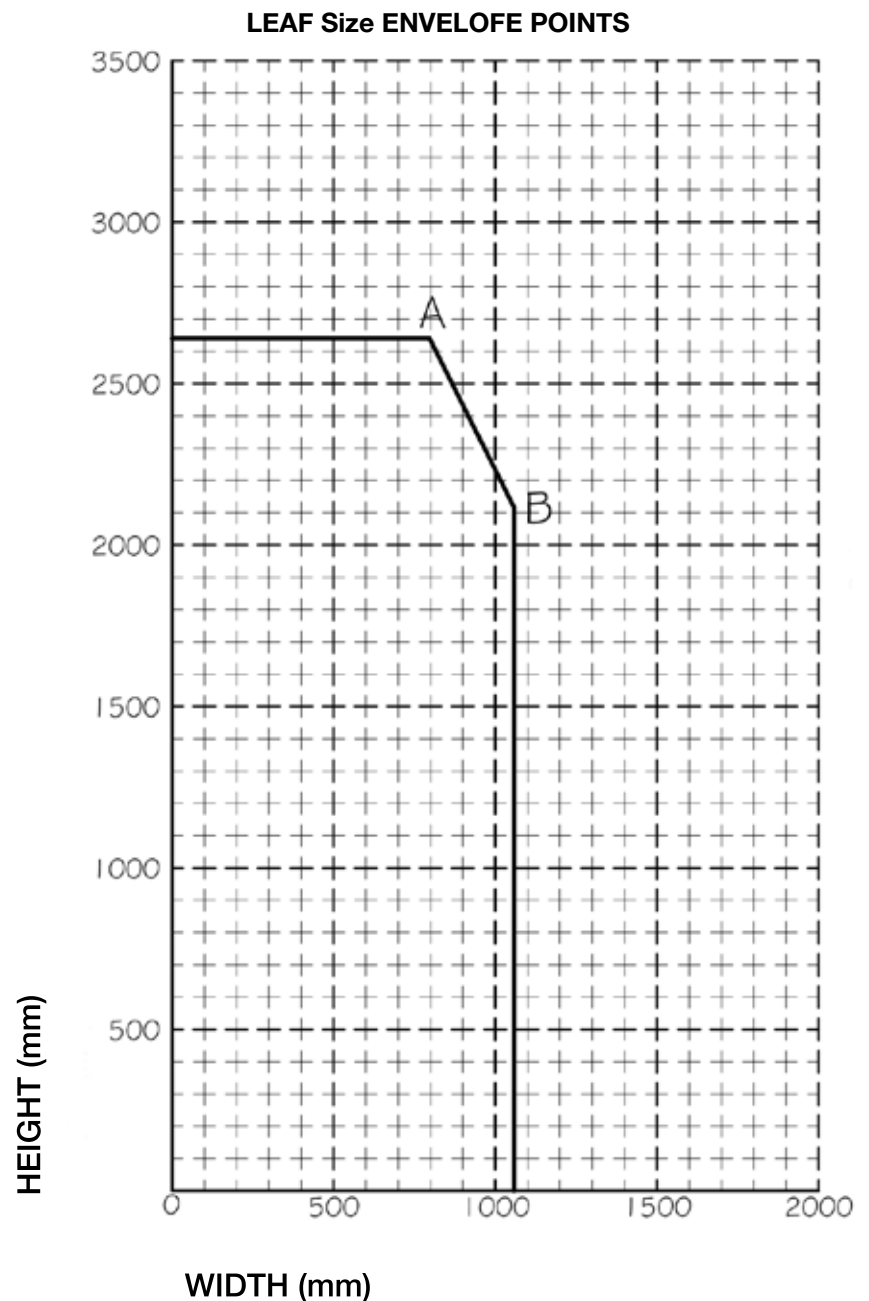
SINGLE ACTING

SINGLE LFAF

WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 Minutes

	A	B
Width	797	1058
Height	2640	2117



### 3.11.3 ENVELOPE OF APPROVED LEAF SIZES

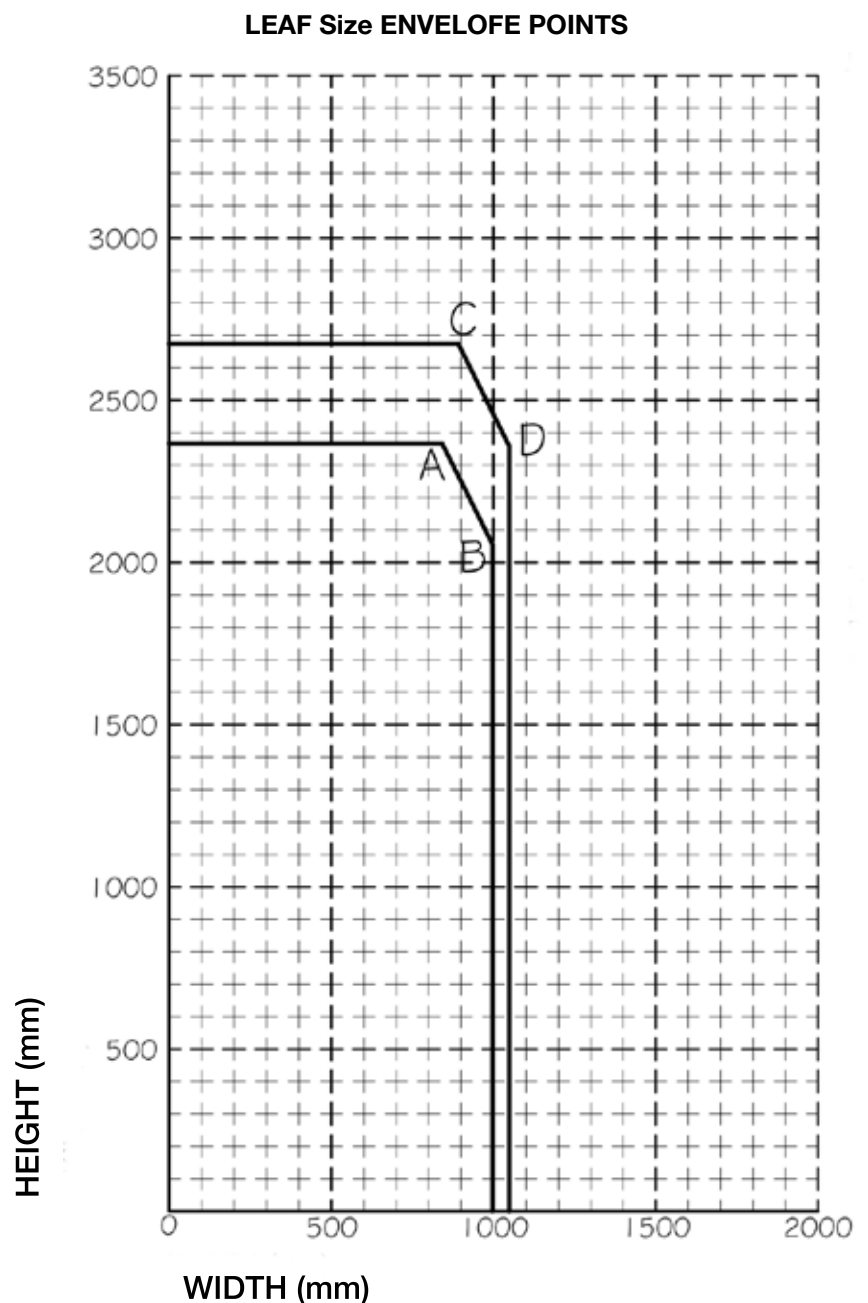
The above graph represents the envelope of approved leaf sizes for the proposed leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved. POINT A represents the maximum leaf height and its associated width. POINT B represents the maximum width height and its associated height.

#### PROPOSED CONFIGURATION WITH FLUSH OR UNEQUALLY REBATED MEETING STILES LATCHED SINGLE ACTING SINGLE LEAF WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 Minutes

	A	B
Width	841	997
Height	2367	2056

	C	D
Width	891	1048
Height	2674	2359





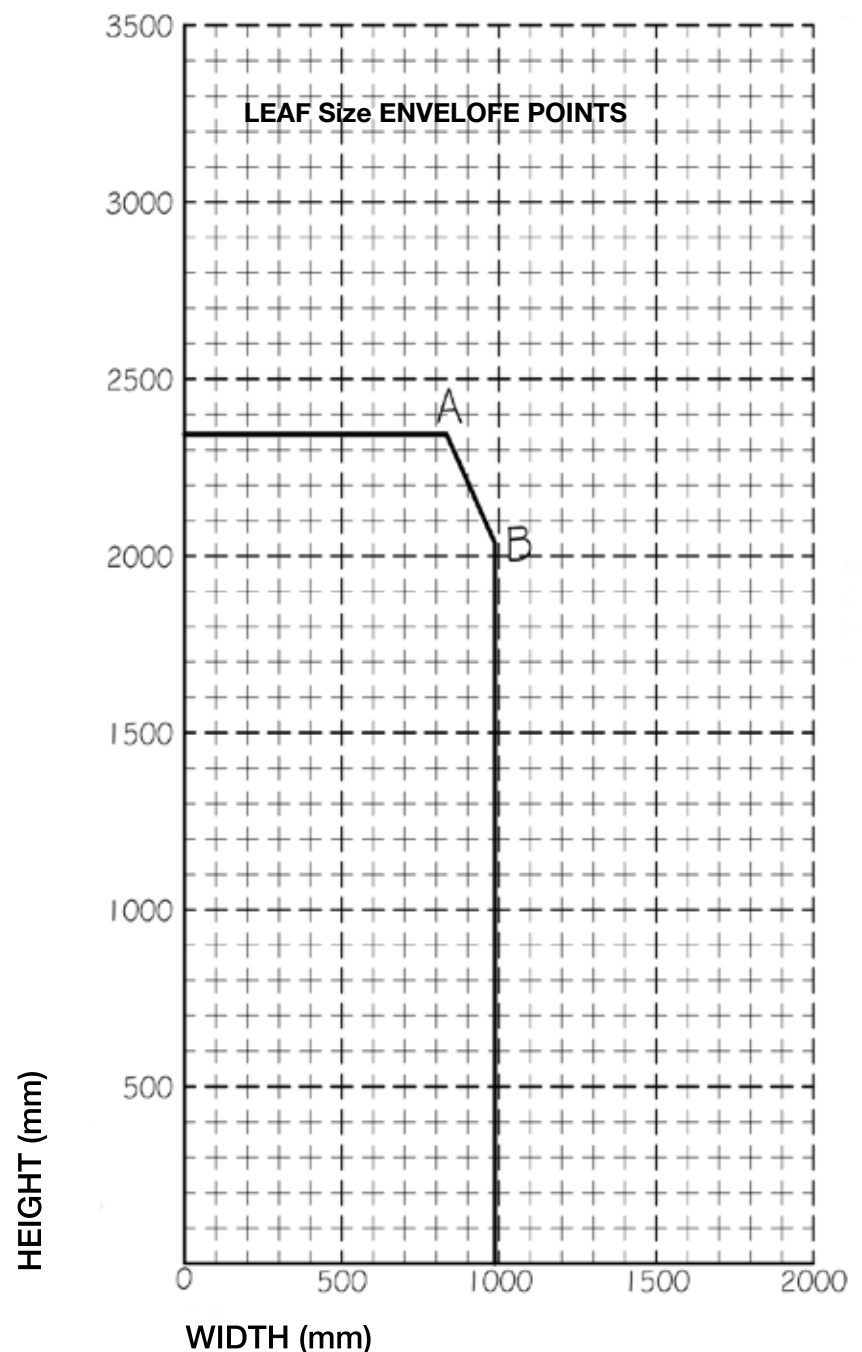
### 3.11.4 ENVELOPE OF APPROVED LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph above are approved. POINT A represents the maximum leaf height and its associated width. POINT B represents the maximum width height and its associated height.

#### PROPOSED CONFIGURATION WITH FLUSH OR UNEQUALLY REBATED MEETING STILES UN LATCHED SINGLE ACTING SINGLE LEAF WITHOUT OVERPANEL

REQUIRED INTEGRITY: 60 Minutes

	A	B
Width	833	987
Height	2344	2036



## 3.12 ACOUSTIC PERFORMANCE

### 1. INTRODUCTION

60 Minutes Fire Rated Wooden Door Assembly with 54mm thick FIREMAN Core, solid Hard wood frame of dimension (2320 x 1118 x 150) mm, 2Nos. of Acoustic fire seal (LP1504DS), Acoustic Batwing Seal (LAS1212) & Acoustic Bottom Seal (LAS8001si).

### 2. TESTING METHOD

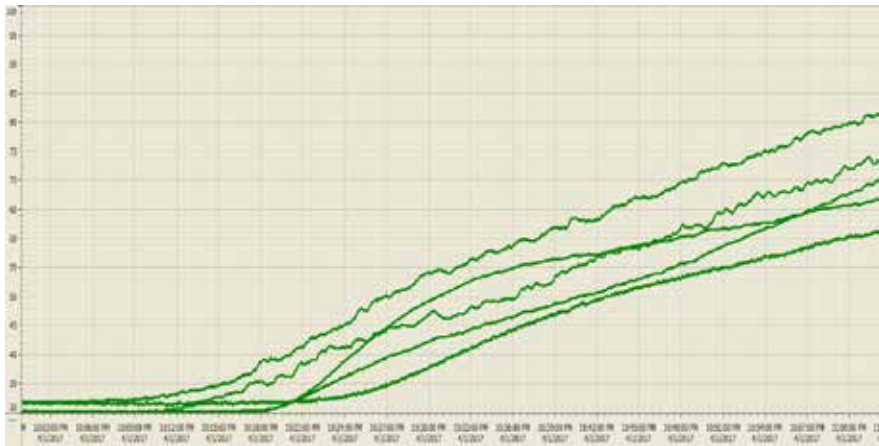
The specimen were tested in accordance with the American Society for Testing and materials designation ASTM E 90 - 2004, «Standard Test Method for Laboratory Measurement of Airborne Sound Transmission loss of Building partitions», ASTM E - 1408, «Standard Test method for Laboratory measurement of the sound Transmission loss of Door panels and door systems», and classified in accordance with the American Society for Testing and Materials designation ASTM E 413 - 2004 « Classification for Rating Sound Insulation» and ASTM Standard E 1332 - 90 (Re- Approved 2003) entitled,» Standard classification for Determination of outdoor indoor transmission class».



#### 3.12.1 TEST RESULTS

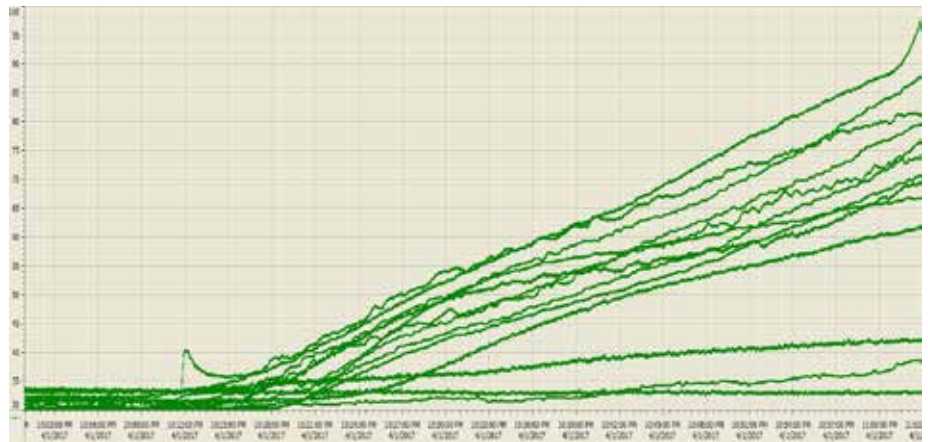
Description	Avg. STC
60 Minutes Fire Rated Wooden Door Assembly with 54mm thick <b>FireBAN</b> Core, Solid Hard Wood Frame of dimensions (2320 x 1118 x 150) mm, 2 Nos. of Acoustic fire seal (LP1504DS), Acoustic Batwing Seal (LAS1212) & Acoustic Bottom Seal (LAS8001si).	36

### 3.12.2 DATA RESULTS & GRAPHICAL ILLUSTRATIONS FOR FIREBAN FD 60 SHEET:



Thermocouple graphs used for obtaining average unexposed surface temperature of FD 60 door assembly (TC1 to TC5) up till 62mins

Thermocouple graphs used for obtaining maximum unexposed surface temperature of FD 60 door assembly (TC1 to TC13) up till 62mins



### 3.12.3 SUMMARY OF FIRE TEST EVIDENCE

Test Report	Configuration Tested	Leaf Size	Test Standard	Integrity
WF Test Report No.190977/B	ULSASD	2108mm X 910mm X 55mm	BS476: Part 22: 1987	66 minutes
WF Test Report No.197538	ULSASD	2151mm 930mm X 55mm	BS476: Part 22: 1987	69 minutes
ME31-1	Fixed Panel	2200mm X 900mm X 55mm	BS476: Part 22: 1987	69 minutes
	Fixed Panel	2200mm X 900mm X 55mm	BS476: Part 22: 1987	77 minutes
161115377	LSADD	2400mm X960/960mm X 55mm	BS476: Part 22: 1987	65 minutes
161122383	LSASD	2800mm X 1100mm X55mm	BS476: Part 22: 1987	65 minutes
	LSASD	2400mm X1050mm X55mm	BS476: Part 22: 1987	65 minutes





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