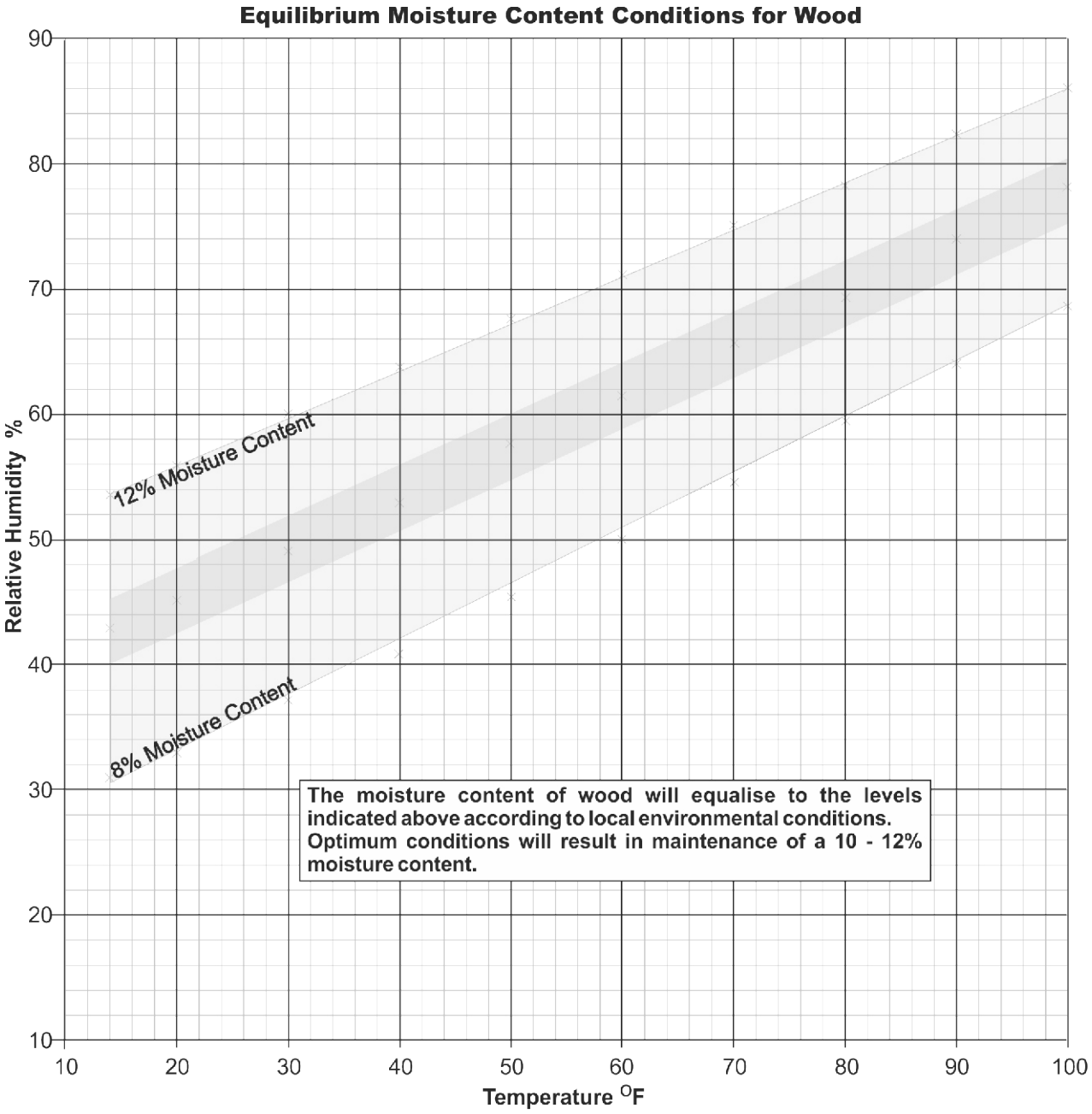
Section 15

Appendices

FALCON
PANEL PRODUCTS LTD

Appendix 1a



NOTE:

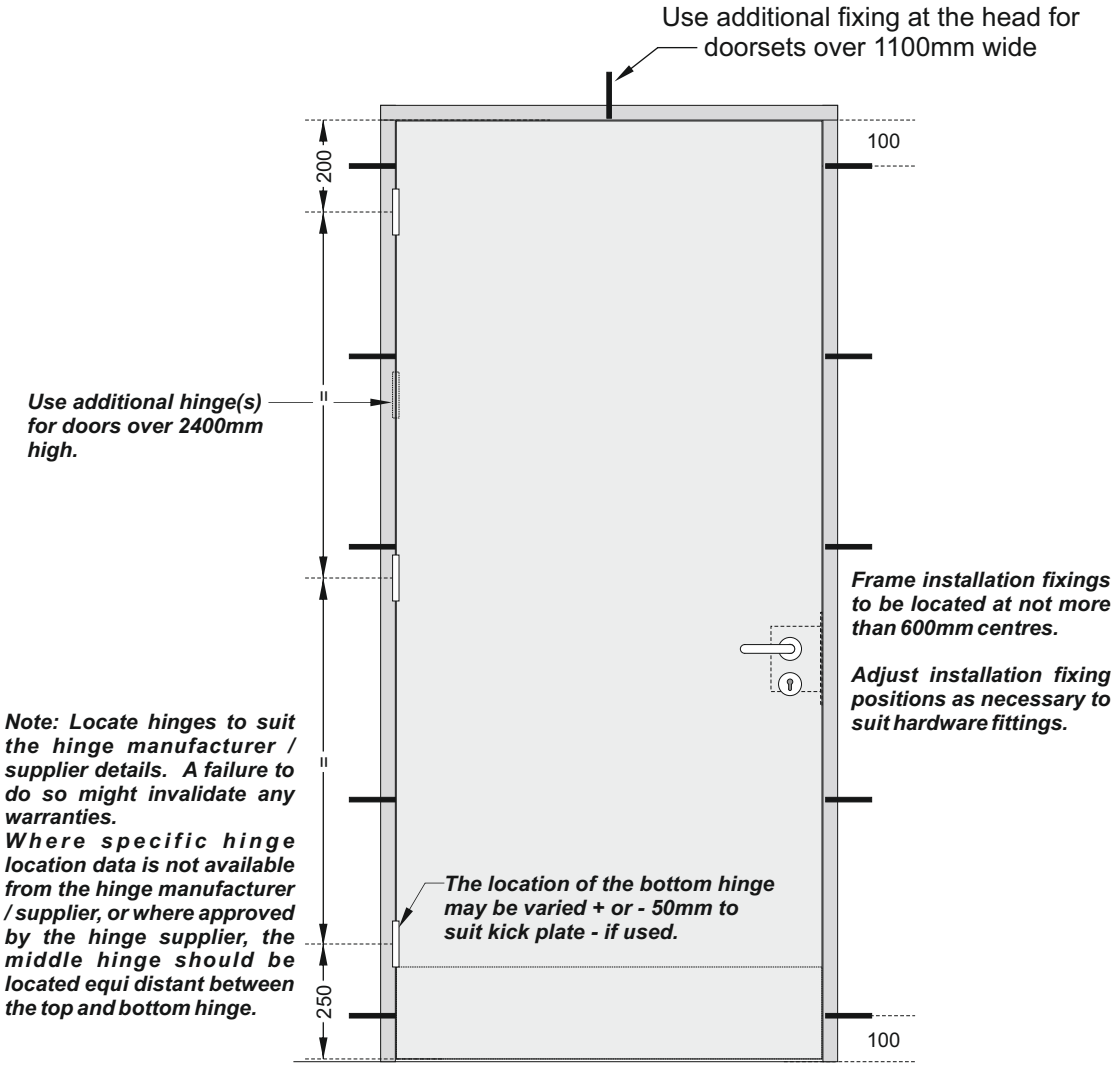
The above graph should be referred to for the purpose of storing Strebord© material and subsequently for the storage and use of finished goods.

Strebord©, like wood is naturally hygroscopic and will absorb or lose moisture according to local environmental conditions. Variations in moisture content will result in growth or shrinkage, (particularly across the grain of wood). This graph shows the environmental conditions that should prevail during storage (and subsequent use) to ensure that Strebord© (and wood) products maintain stable.

Rapid changes in environmental conditions, even within indicated tolerances, can give rise to more dramatic effects.

Strebord©
Door Core

Appendix 1b



Fire doors to be hung on a minimum of 3No. Hinges *(See Section 9 - Hardware)* for door heights up to 2400mm. For door heights less than 1200mm the quantity of hinges may be reduced to 2No. For door heights over 2400mm an additional hinge is required.

The recommended Installation fixings for fixing to blockwork, brickwork or concrete = Rawlplug F100 *(or similar)*. Suitable length wood screws should be used for fixing to timber stud. Wood fire doors should not be fitted to metal stud partitions unless the metal stud around the doorset is filled with full length softwood to resist distortion. ***(OR: Unless the metal stud supplier can provide fire test / assessment evidence supporting the use of wood fire doorsets in the metal stud partitioning).***
The top fixing should be within 100mm of the head and 100mm from the bottom of the frame jamb, the remaining fixings should be *(approx.)* equispaced at not more than 600mm centres with a minimum of 4No. Fixings per jamb.

Care should be taken to ensure that frame fixing positions do not conflict with hardware positions

For doorsets over 1100mm wide, an additional frame fixing should be used centre width of the doorset.

Recommended Installation Procedure (Doorsets):

1/ Check the opening into which the doorset is to be fitted to ensure that it has been prepared to the correct dimensions and that it is plumb and square, within reasonable tolerances.
NOTE: Acceptable tolerances will vary according to the doorset design. In particular, the standard required to receive doorsets that are not fitted with architrave is more demanding.

2/ Position the frame centrally in the width of the opening and fix the hanging jamb using fixings worked against wedges to ensure that the hanging jamb is plumb and square and aligns correctly with the opening.
NOTE: For pairs of doors select one hanging jamb as the primary jamb for this purpose.

3/ Hang the door leaf and align the secondary jamb and head such that the operating gaps between the door and frame are equal. This can be done by visual assessment.
NOTE: The important thing is that the door leaf (leaves) is / are used as the installation template and not the surrounding structure.

4/ Remove the doors and ensure that the frame is fixed firmly in the opening.

5/ Rehang the doors and check for operation. Adjust fixings as necessary to obtain correct operation while maintaining operating gaps within BS4787 tolerances.
NOTE: For some locations (particularly where edge fixed smoke or acoustic seals are used) it might be necessary to apply a leading edge (trim the closing stile of the doors). The minimum amount of lipping material should be removed for this purpose with the closing stile bevelled such that the 'B' face of the door is narrower than the 'A' face.

6/ Cover fixings using pellets or by other means.
NOTE: Fixings can be covered by door stops, suitably sized intumescent seals (where these form part of the doorset design (DO NOT USE ADDITIONAL HIGH PRESSURE INTUMESCENT SEALS FOR THIS PURPOSE).

7/ If a loose doorstop is used, fix the doorstop to suit the face of the door using 32 - 38mm steel pins, fixed at an angle, punched with pin holes filled.
NOTE 1: Use suitably coloured wood filler or hard beeswax to fill pin holes.
NOTE 2: Where smoke (acoustic) seals are used with the doorstop, ensure that sufficient space is left to accommodate the smoke (acoustic) seal or that the smoke (acoustic) seal is fitted to the doorstop before fitting the doorstop to the frame.

8/ Apply packing to the void between the frame and the surrounding structure to comply with recommendations to be found by reference to BS8214 : 2008.
NOTE 1: If in doubt, pack these voids with mineral wool.
NOTE 2: Some frame designs might allow for the insertion of intumescent seals at the back of the frame to the satisfaction of BS8214. These should be fitted to the frame before installation of the doorset.
NOTE 3: Building Control Officers may wish to inspect the doorsets at this time to ensure compliance with the regulations applicable to the building for fire certification reasons.

9/ Cut architrave to the lengths required for the particular location and apply mitres as necessary. Fix architrave using 32 - 38mm steel pins, fixed at an angle, punched with pin holes filled as described for door stops.

10/ Fix projecting hardware and test the doorset for the correct operation.
NOTE: It is recommended that the environmental conditions are measured at the time of installation of the doorset with this information recorded for possible reference in the event of later moisture content related problems resulting from variations in environmental conditions.

11/ Clean the doorset and offer for handover to the Main Contractor (Client).

12/ Apply protection to the doorset as required for the particular project.
NOTE: It might be necessary to remove some items of hardware for this purpose.

GENERAL NOTES:
1/ The above sequence may be varied to suit the normal working practices of the Installation Contractor.
2/ For fixing into Strebord© always drill suitably sized pilot holes and fix using fully threaded 'Twinfast' or course threaded chipboard screws. The screw length should be min. 1 1/2in. (38mm) for load bearing hardware.

Strebord©
Door Core

Appendix 1d

Maintainance:

Strebord© cores are maintenance free.

Veneered Doors:
Polish occasionally as required using standard household furniture polish.
Every 5 years refurbish veneered doors and polished frames as follows:
Clean with white sprit.
Apply soft coloured beeswax using grade 00 wire wool working in a circular motion to ensure that the wax fills the grain.
Remove surplus wax using a clean knap free cloth.
Reduce the gloss level by buffing with clean grade 00 wire wool.

Laminate faced Doors:
Clean as necessary using warm soapy water.
Treat frames and hardwood lippings as described for Veneered Doors.
NOTE: Alternatively lightly sand lippings and re apply clear lacquer.

Paint grade Doorsets:
Clean as necessary with warm soapy water.
Re paint at approx. 5 year intervals following paint manufacturers instructions.

Ironmongery:
Lubricate hardware as required by reference to ironmongery suppliers data.
NOTE: Some items of hardware e.g. Hinges with oilite bearings should not be lubricated.

Where it is necessary to remove and replace worn hardware, any intumescent seals or gaskets used for the original fit should also be replaced.

Intumescent Seals:
Intumescent seals should be inspected monthly for the first year of operation and thereafter at quarterly intervals.

Any worn or damaged intumescent seals should be replaced with seals of an identical brand / type.
NOTE: High pressure seals should not be replaced with low pressure seals and vice versa.

Smoke Seals:
Smoke seals should be inspected monthly for the first year of operation and thereafter at quarterly intervals.

Any worn or damaged smoke seals should be replaced with similar seals.
NOTE: Doorsets receiving replacement smoke seals should be tested and eased as necessary to ensure that the seals do not interfere with the operation of the doors. The doors should close and latch from any open angle position under closer force only.

Glass & Glazing:
Where glass is to be replaced the replacement glass should be of the same type as the original glass.
All glazing intumescent and beading should also be replaced to the same detail as the original installation.

Door Adjustments:
Adjustment of Fire Doors after installation is not recommended. However, where this is necessary, the resultant operating gaps after adjustment should satisfy BS4787 Pt. 1 : 1980.

GENERAL NOTE:
Refer to BS8214 : 2008 for further advice concerning maintenance of Fire doors.

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1 Installer Qualifications

It is strongly recommended that the installer is a member of a recognised quality assurance scheme to ensure that best practice is used.
In respect of fire doors, inspection authorities may require evidence that the installation process complies with the tested specification including:

! *Intumescent systems.*
! *Compliance of the glazing with the tested detail supplied by the door manufacturer.*
! *The size of all operating gaps.*
! *Intumescent protection around hardware and the quality of the preparation.*
! *The quality of the supporting construction and the prepared opening.*
! *The fixing of the fire door.*
! *Fire and smoke stopping methods used in fitting-in gaps and voids.*

2 Pre-installation preparation.

2.1 First or second fix.

Best practice is a second-fix operation with openings prepared as construction proceeds and pre-hung door assemblies installed later. The advantages are:

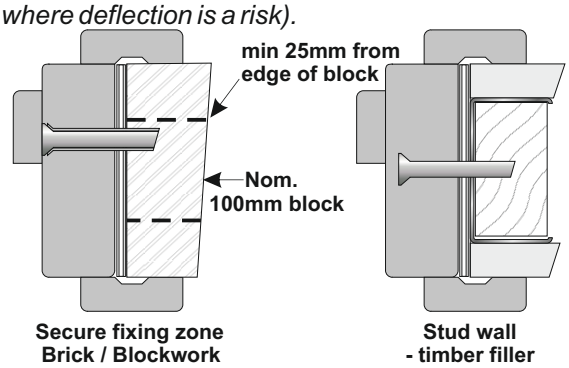
! *Operating gaps (which may contain edge seals) can be maintained.*
! *Doors are delivered when site conditions are suitable.*

Using the 'first-fix' method, doorframes are built in during construction and door leaves are fitted later. This can be unsatisfactory because:

! *Construction operations and wet trades can damage finishes and cause distortion and / or swelling. The cost of remedial and protection can be high.*
! *Door leaves may have to be tailored to each opening.*

2.2 Doorframe design

The doorframe design must allow for secure fixing.
Note 1: Fixing within 35mm from the edge of masonry (excluding any plaster) should be attempted.
Note 2: Fixings into metal stud partitions should be made into a full length timber filler in the stud.
Make fixings to each jamb spaced 100mm from the top and bottom of the frames with intermediate fixings positioned at max. 500mm centres. *(A centre fixing through the head is sometimes used where deflection is a risk).*



2.3 Co-ordinating dimensions

The co-ordinating height, width and thickness of prepared openings, the fitting-in margin and allowed tolerances must be planned. This information must be available before the commencement of door manufacture.

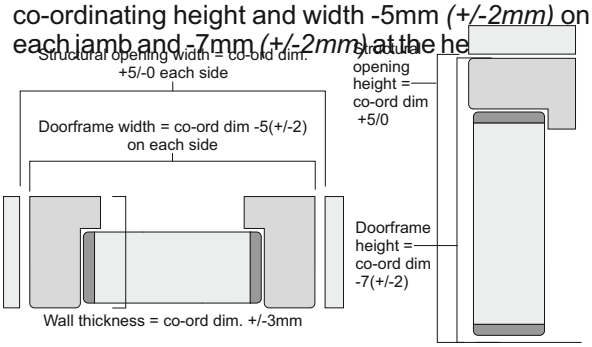
2.3.1 Prepared openings

Prepared openings must be plumb, square and built to the co-ordinating dimensions subject to a tolerance of +5/-0mm at each jamb and +5/-0mm at the head and be of a constant co-ordinating thickness around their perimeter within a tolerance of +/-3mm. It is vital to control partition thickness if architraves are to be fitted without excessive trimming and scribing.

! *Check accuracy of prepared openings as early as possible so that any remedial work can be completed before any attempt is made to install the doors.*

2.3.2 Doorframe size and fitting-in margin

The overall doorframe dimensions should be the co-ordinating height and width -5mm *(+/-2mm)* on each jamb and -7mm *(+/-2mm)* at the he



2.4 Recessing for floor mounted closer boxes

! *Plan pockets to receive closer boxes in floors and screeds. The pockets must be formed and located with great accuracy to co-ordinate with the doorframe position.*

3 Site reception

3.1 Moisture content

Timber doors are manufactured with a moisture content of 10~12% for internal use and 12~14% for external use. The applicable standard on this subject is BS EN 942 : 1996 Timber in joinery. General classification of timber quality.

! *Do not bring joinery to site until moisture readings are between 40~60% RH and until any forced-drying procedure has been completed.*

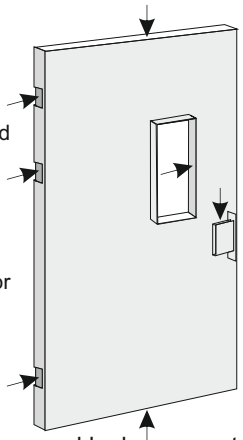
3.2 Storage area

! *The store must be clean, level, suitable for stacking doors and provide sufficient space for doors to be moved around, sorted and re-stacked as installation proceeds. The floor should be suitable to allow the use*

Appendix 2

3.3 Priming and sealing

The applicable British Standard is BS 6150 : 1991 Code of practice for painting buildings.



! Prime or seal all items supplied 'in the white immediately following delivery including top and bottom edges, apertures and preparations for hardware.
! Apply further coats within a reasonable time and before door leaves are hung or assemblies are installed.

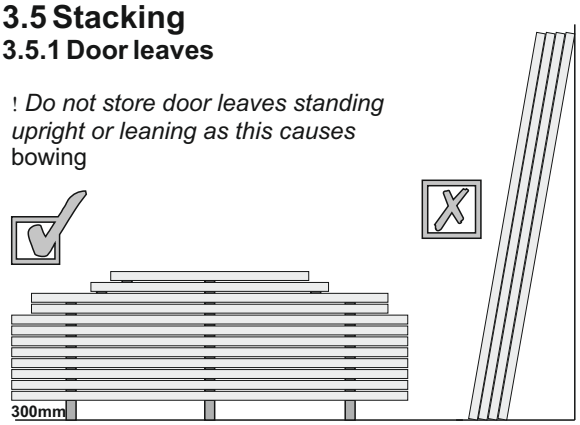
3.4 Handling

! Avoid bruising and damage caused by heavy contact with the ground. Wear clean glloves to avoid leaving finger marks.

3.5 Stacking

3.5.1 Door leaves

! *Do not store door leaves standing upright or leaning as this causes* bowing



! *Stack horizontally on level supports that extend across the full width of the bottom door leaf. Provide support and at 300mm from each end. If over 2150 in height, provide intermediate supports.*
! *Cover the supports with cardboard or similar to prevent marking.*
! *Stack with the largest door leaf at the bottom with size reducing up the stack. Plain flush doors can be stacked to a maximum of around 20 door leaves. When door leaves have projections such as glazing beads or pre fitted hardware, provide level intermediate battens between door leaves to allow clearance.*

3.5.2 Assemblies

The same principles apply when storing door assemblies.

! *Stack with the door leaf lying in the closed position on the door frame doorstop. Separate each assembly with level battens to ensure that projections such as hinge knuckles do not cause damage.*

3.5.3 Covering

Exposure to light may fade timber.

! *Cover stacks with opaque sheeting to prevent fading and keep doors clean. This is very important with veneered doors.*

4 Hardware

4.1 Preparation for hardware

! *Before installation, prepare doors to receive hardware using instructions provided by the hardware manufacturer or supplier.*

Note: Preparations are often available from the door manufacturer. These may be supplied 'off machine' i.e. with corners not squared out. Factory assembled doors can be made available fully prepared for hardware with door leaves hung in position though possibly removed for transit.

4.2 Fitting hardware

! *Fit hardware using instructions provided by the hardware manufacturer or supplier.*
! *Fit morticed hardware before hanging door leaves or installing door assemblies.*
! *Fit intumescent materials exactly in accordance with details supplied.*
! *Fit face fixed hardware at any convenient stage in the installation programme.*

Note: This work is often done immediately prior to handover to avoid risk of loss or damage. The drilling of door leaf faces for latch spindles and keyways or cylinders is best left until there is no further risk of further adjustment to the position of the lock cases or keeps.

! *Lubricate hardware as required by manufacturers instructions.*

5 Glazing

The applicable standard is BS 6262 Code of practice for glazing of buildings.

! *Glaze fire doors strictly in accordance with a specification for each type provided by the supplier and supported by evidence of test or assessment by a recognised authority.*

6 Door Installation

! *Install doors only when site conditions are suitable.*

Note: Operating gaps around door leaves will vary between 1.5 ~ 4mm. Any movement of the structure after doors are installed will definitely affect these margins and cause malfunction. Movement results from:

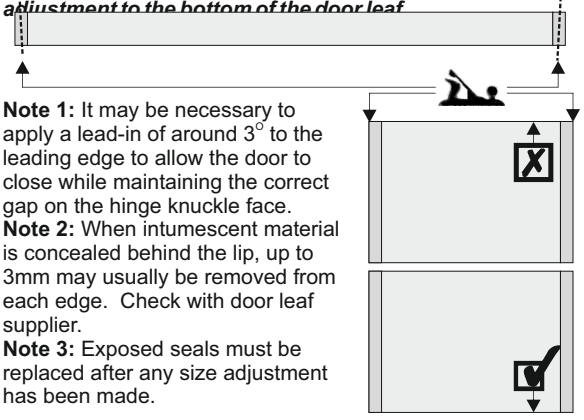
- ***Shrinkage due to drying out.***
- ***Growth due to increased moisture.***
- ***Deflection of structural members.***

! *Defer installation if conditions are unsuitable*

6.1 Hanging Door leaves

6.1.1 Trimming edges

! ***When it is necessary to trim door leaves, remove equal amounts from each vertical edge and make all height adjustment to the bottom of the door leaf.***



Note 1: It may be necessary to apply a lead-in of around 3° to the leading edge to allow the door to close while maintaining the correct gap on the hinge knuckle face.
Note 2: When intumescent material is concealed behind the lip, up to 3mm may usually be removed from each edge. Check with door leaf supplier.
Note 3: Exposed seals must be replaced after any size adjustment has been made.

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6.1.2 Hinges

Hinges must be able to support loads imposed by the door leaf and hardware functions such as self-closing and back check.

Consult the hardware supplier if necessary.

! *Use 3 hinges per door leaf for all fire doors above 1200mm in height unless otherwise specified.*

! *When door leaves exceed 2250mm in height or 160kgs (weight), consult the hardware supplier. One or more additional hinges may be required.*

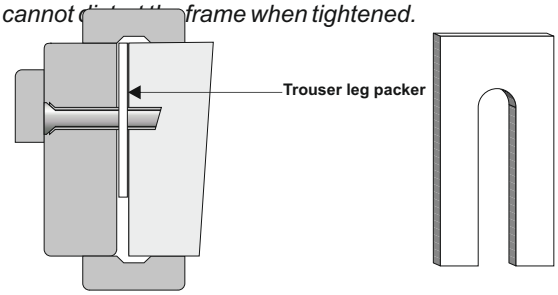
Note: Hinges should be located to conform to the hinge manufacturers recommended position. In the absence of such guidance it is recommended that the top hinge should be located to centre 200mm from the top of the door. The bottom hinge should be centred 250mm from the bottom of the frame jamb (this will clear most kick plate requirements). The third hinge may be centred between the top and bottom hinge (if required by reference to fire test / assessment data) OR approx. 200mm below the top hinge.

6.2 Installation second fix

6.2.1 Packing

! *Pack between the doorframe and the prepared opening immediately above each fixing position. Ensure that the door assembly, when in position is perfectly plumb and square. The best practice is to use the hung door leaf as the fixing template. Avoid later shrinkage by using packing that is durable, hard and stable. The use of proprietary 'trouser leg' packers is recommended. Alternatives are offcuts of laminate, or plywood.*

! *Ensure that jambs are straight, operating gaps are even and within tolerance and that fixing screws cannot distort the frame when tightened.*



Note: The lateral force at the bottom hinge position can compress packings and metal studs causing the leading edge to drop. Before installing, ensure that studs are secure and that fillings are dry.

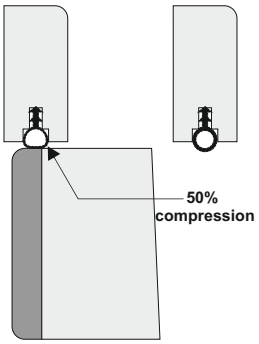
6.2.2 Fixing

! *When the doorframe has been packed into the prepared opening, remove door leaves if necessary to facilitate fixing.*

! *Fix doorframes in masonry in conjunction with plugs and woodscrews with minimum 50mm penetration into the masonry.*

! *Fix doorframes in metal stud partitions with woodscrews having drilled a pilot hole through the stud into the timber stud filler. Ensure that the doorframe fixing pulls the timber filling tightly into the stud and pulls the stud tight against the packing.*

! *Re-hang door leaves. Check and adjust for correct gaps and operation of seals. Compression seals should be 50% compressed along their entire length. Blade and brush contact seals should overlap the opposing face by*



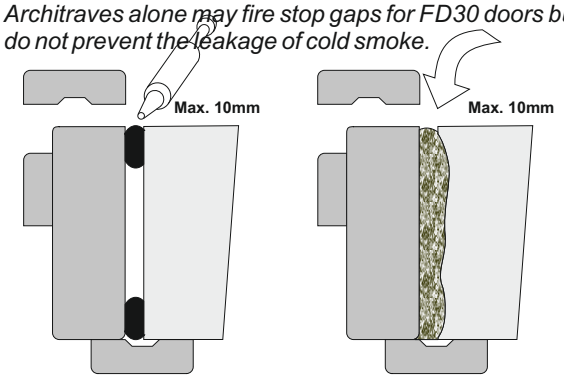
Note: Adjustment to the fit of door leaves at the installation stage should be deferred until the site is completely dry when the need for adjustment will be fully apparent and can be remedied in a single operation:
- Adjustments made too early can result in excessive gaps as the building dries.
- If possible, carry out adjustments by reducing or increasing packing. Alternatively, pack out behind hinges or recess them further.
- Only as a last resort should door leaf edges be trimmed, this may necessitate replacement of seals and repositioning of hardware affecting the quality and integrity of the door.

6.2.3 Doorstops

! *Fix loose doorstops after all adjustment. Fit to suit the shape of the door leaf, permit an easy latching action and ensure any seals are in correct contact with the door face.*

6.2.4 Stopping the fitting in gap

! *Fill the fitting-in gap to suit fire, smoke or acoustic requirements before fitting architraves or installing the second half of split frames with integral architraves. Architraves alone may fire stop gaps for FD30 doors but do not prevent the leakage of cold smoke.*



Note 1. To prevent cold smoke leakage the filler must completely close the gap and have some flexibility.
Note 2. When the fitting-in gap is constant and does not exceed 10mm the options include:
- Gun-applied intumescent mastic suitable for both fire and smoke stopping.
- Intumescent strips (with convential mastic for smoke).
Note 3. Large or irregular gaps or voids can be filled with cementitious material, packed with mineral wool or sealed with intumescent material. The intumescent options for gaps up to 35mm that can accomodate some movement and close voids in the case of fire are intumescent plasters, acrylic emulsions and dry foams.

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Appendix 2

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6.2.5 Concealment of fixings

! *Dress exposed fixings of doorframes, doorstops and architraves as specified.*

Note 1: This operation and the final fitting of architraves should be left until all adjustments to gaps and door leaf operation have been made.

Note 2: Screws are normally concealed with timber or plastic pellets. Pins are punched and filled with hard beeswax coloured to match.

6.2.6 Cleaning

! *Remove all dust, clean the installed door and make good any damage to finishes according to instructions provided by the manufacturer.*

7 Handover

The installation process will usually conclude with an inspection and handover procedure when the installation at the point of delivery from the responsible contractor is verified as compliant with any certification and is operating satisfactorily.

A maintenance period normally follows during which the responsible contractor will correct defects that are his responsibility. Beyond this, ongoing maintenance of the installation is the responsibility of the owner (or user) of the premises. A suggested checklist of routine maintenance is given in Appendix 2.

8 Specialist services

Because door installation and maintenance is a specialised trade, it may be considered advantageous to employ a specialist contractor to carry out a planned routine combining the inspection and corrective action procedures.

9 Priority actions

Priority should be given to:

! *The continued correct operation of the doors.*

! *The preservation of operating gap sizes within the range described in test or assessment reports relating to the installed fire doors.*

! *The preservation or replacement of elements of the door that may be subject to degradation through wear or damage e.g.:*

- *Glass and hardware.*
- *Intumescent, acoustic and smoke seals.*
- *Applied finishes.*

9.1 Pre-emptive inspection programme

The objective must be to pre-empt malfunction and defects helped by a planned programme of inspection.

Corrective action is likely to be required more frequently during the early life of an installation. The small movements that occur in the building fabric at this stage can affect gap sizes. The presence of smoke or acoustic seals can make door operation even more sensitive to small changes in gap sizes.

9.2 Reporting of malfunctions

It is also vital to the quality of the installation that building users report malfunctions immediately and that there is a system that provides for recording these and for prompt corrective action.

10 Damage prevention

Much damage to doors is caused by abusive use of the building. This may be unintentional and result from inadequate planning or briefing of personnel on the correct operation of the door system. Those who use equipment that is potentially damage-causing can be trained and encouraged to prevent this.

Personnel using the building can make an important contribution to maintaining the quality and safety of the door installation if they are encouraged to use the installation in a caring manner.

10.1 Protective measures

Planning the operation and protection of doors will play an important part in the avoidance of damage to the door installation. The following measures will reduce the more predictable causes of damage:

Type of damage	Preventative measure
Damage caused by objects being wheeled or dragged through the doorway: **Damage to faces and the leading edge of door leaves.** **Broken lippings, damaged smoke and intumescent seals.**	The use of a hold open device with doors on frequently trafficked corridors linked in with a fire detection system, if applicable. Delayed action closers set to allow for the passage of encumbered users and wheeled items.
Damage caused by impact by wheeled equipment. **Dislocation of doorframe fixings.** **Damage to doorframes, door faces and edges.**	Rail or guards that will deflect the equipment. Recesses in corridor walls within which held-open door leaves will be protected from edge damage. Fit buffers to equipment.

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11 Troubleshooting door malfunction

Malfunctions arise from a variety of causes. It is important that these be corrected promptly to minimise damage and avoid any compromising of safety.

11.1 Binding

The most common malfunction is a loss of operating gaps that result in door leaves sticking or failing to close correctly. It may be that the leading edge binds on the doorframe or at meeting edges of double leaf doors. Often the bottom edge of a door will bind on the floor.

The causes of and suggested remedies for this can be:

Defect	Possible cause	Remedial options
Swelling of door components due to moisture intake.	Moisture content in the building is too high.	Reduce humidity. Do not adjust doors unless essential until the moisture content is stable at 12% (for internal use).
Hinges have worked loose allowing door leaf to fall away from the hanging jamb.	Stressing caused by racking or blocks put in hinge side rebate to hold doors open. Wrong size screw fixings. Not all screw positions have been used.	Remove obstructions. Tighten fixing screws. If necessary increase screw size. Replace if defective. Provide restraint to prevent racking
Hinges have worn allowing door leaf to drop.	Hinges are not to the correct BS EN 1935 class for the application.	Replace with correct class of hinge.
Doorframe jambs have spread at the bottom allowing the leading edge of the door leaf / leaves to drop.	Door leaf weight may cause compression of packing or stud due to the effect of lateral load at the bottom hinge position.	Check that the background is stable and that it will support the lateral load. Re-pack at fixing positions particularly at the bottom, until the door leaves hang correctly. Re-fix doorframe.
Doorframe fixings are loose.	Racking exerting leverage on doorframe fixings. Overdrilling or breakout of fixing positions. Impact from wheeled loads.	Re-pack and correct the hang of the door leaf. Tighten fixing screws and if necessary replace failed plugs or make new fixing positions. Provide restraint to prevent racking. Provide protective rails / guards to deflect wheeled traffic away from the door frame.
Door leaf binding on floor.	Floor covering may be over planned thickness. Possible high spot in screed within the arc of the door. Doorframe not set plumb.	Re-fix the door as necessary. Packing under frame jambs may raise the door sufficient to clear obstacle.
Binding and none of the previous apply.	It is possible that the edge gap has been set too fine.	Adjust the gap by deepening or moving the hinge recess/es in the door frame or leaf. Bevel closing stile to maintain a minimum gap on the hinge knuckle face.

Note: The edges of door leaves should not be planed or otherwise modified unless it is impossible to correct the fault by other means. If door leaves are adjusted, any intumescent and smoke seal that is damaged will have to be replaced.

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Appendix 3

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11.2 Oversize gaps

Operating gaps may become enlarged and may exceed the range permitted by specifications and test and assessment reports.

The causes and suggested remedies can be these:

Defect	Possible cause	Remedial options
When no smoke or acoustic seal is present: Gaps in excess of range permitted by test / assessment reports.	Shrinkage of door components, packingss and timber grounds, studs or subframes.	Pack out behind hinges. If necessary re-pack and re-fix doorframe. Re-lip (by manufacturer) and replace seals.
When smoke or acoustic seal is present: Any visible gap.	Shrinkage or disturbance caused by impact. Seals have worn or have become permanently compressed. Extended pivot centre hanging devices.	Pack out behind hinges. If necessary re-pack and re-fix doorframe. Replace seals with new or larger. Profile closing stile of leaf to suit closing arc of door.

Note: The edges of door leaves should not be planed or otherwise modified unless it is impossible to correct the fault by other means. If door leaves are adjusted, any intumescent and smoke seal that is damaged will have to be replaced.

11.3 Failure to close

In addition to closing failure caused by loss of operating gaps, other defects can develop or become apparent:

Defect	Possible cause	Remedial options
Hinge binding resulting in the door leaf tending to spring open.	Hinges have not been sufficiently recessed. The doorstop is too tight on the closing face of the door leaf at the hinged edge.	Modify fitting of hinges. Adjust position of doorstops. Reset hinge positions when doorframe has an integral doorstop.
Door leaves twisted, bowed or cupped.	Twist caused by hold open device tht is not level with the closing force. Hygrothermal differences on faces.	Remove the cause; the door leaf may return to a flat condition. If not, replace door leaf. Relocate hold open device. Reduce the effect by relocating hinges.
Door leaves fail to latch	Closer failing to overcome resistance of latch or seals. Latch bolt and keep plate may have become misaligned. Door bolts may not be engaged. Misalignment of door bolts and sockets.	Adjust closer speed and latching action. If necessary fit larger closer. Change seals. Reposition keep plate. Ensure that users engage bolts at top and bottom of door leaf. Realign bolts with sockets by adjustment of the doorframe fixings.
Binding of smoke or acoustic seals when none of the previous problems apply.	It is possible that the leading edge gap has been set too fine. Seals may be broken or disrupted by wear due to incorrect fitting.	When applicable, modify retaining grooves to suit. The seals, if in good condition, may be refitted. Fit smaller seals. If damaged, seals should be replaced with attention to correct fitting and cause of disruction.

Maintenance check list for doors

Premises _____

Door

- Door No.
- Location
- Door Manufacturer
- Fire Assessment Ref.
- Date Installed
- Hardware supplier
- Hinge type
- Closer type
- Lock / Latch Type
- Bolts

Door Leaf

- Is it warped
- Is it split / cracked
- Other evident damage
- Edge lipping condition
- Meeting edge gap double doors closing correctly
- Closer effective
- Modifications added since last inspection

Doorframe

- Signs of damage
- Well fixed / sealed to surrounding structure
- Max. leaf / doorframe gap
- Max. leaf / threshold gap
- Max. leaf doorstop gap

Seals

- Are edge seals complete
- Any damaged seals
- Protection where necessary at hardware
- Are smoke seals fitted
- If yes, are they in good condition and effective

Glazing

- Glass damage
- Retaining system in good condition
- Retaining system correctly fixed
- Any change since last inspection *(e.g. broken glass replaced)*

Hardware

Hinges

- Correctly fixed
- Working correctly
- Need lubrication

Closers & Selectors

- Correctly fixed
- Working correctly
- Double doors closing in correct order *(where applicable)*
- Needing lubrication
- Overrides any latch mechanism / seals

Locks / Latches

- Correctly fixed
- Working correctly
- Needing lubrication

Hold open devices

- Fixed in correct position
- Releases correctly

Bolts

- Aligned with sockets
- Well fixed
- Working correctly
- Damage around bolts

Signs

- Correct fire signage on both sides of door

Additional Hardware

- Added since last inspection *(e.g. letterplates, bolts etc.)*

Appendix 3 & 4 of this document are reproduced from the Architectural and Specialists Door Manufacturers Association publications.

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Station Approach,
Shepperton,
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Falcon Panel Products Ltd.
are members of:

ASDMA

Architectural & Specialist Door Manufacturers Association
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Buckinghamshire HP13 5EY
Telephone: 01494 447370
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Strebord©
Door Core

Appendix 4

This document is copied from the FSC web site
For further information See: www.fsc-uk.org

The mark of responsible forestry

FSC
www.fsc.org
FSC® C016787

Strebord carries FSC certification, subject to availability

FSC

Forest Stewardship Council
United Kingdom

WHAT IS THE FOREST STEWARDSHIP COUNCIL?

Forests support up to 1.6 billion of the poorest people in the world. Sixty million indigenous people and countless species of plants and animals are wholly dependent on forests for their lives.

Demand for forest products, such as timber and paper, continues to grow, putting increasing pressure on the world's forests.

Wood is a renewable resource; when forests are well-managed, with consideration for the environment, the wildlife and the people who live and work in them, harvesting timber can actually be an effective way of safeguarding the forests for future generations.

Choosing products sourced from these well-managed forests and from recycled post-consumer waste allows businesses and consumers to support the world's forests.

How can you be sure that you are not supporting deforestation?

Look out for the Forest Stewardship Council (FSC) logo on paper, timber and other forest products.

FSC enables you to buy forest products of all kinds with confidence that you are not contributing to global forest destruction.

What is the Forest Stewardship Council?

The Forest Stewardship Council (FSC) is an international, non-governmental organisation dedicated to promoting responsible management of the world's forests. It was founded in 1993 in response to public concern about deforestation and demand for a trustworthy wood-labelling scheme. FSC has developed a system of forest certification and product labelling that allows consumers to identify wood and wood-based products from well-managed forests.

How can you be sure that the product really does come from an FSC certified forest?

In addition to forest certification, the FSC system includes a certified chain of custody that tracks the timber through every stage in the supply chain from the forest to the final user. This is monitored through the invoicing process and the final label on the product has a code that confirms that the item is genuinely FSC. Codes can be verified by contacting FSC UK.

What does the FSC logo mean?

FSC

The Forest Stewardship Council (FSC) logo on a wood or wood based product is your assurance that it is made with, or contains, wood that comes from FSC certified forests or from post-consumer waste.

What makes FSC forests special ?

FSC certified forests must be managed to the highest environmental, social and economic standards. Trees that are harvested are replanted or allowed to regenerate naturally, but it does not stop there. The forests must also be managed with due respect for the environment, the wildlife and the people who live and work in them. This is what makes the FSC system unique and ensures that a forest is well-managed, from the protection of indigenous people's rights to the methods of felling trees.

Photocredits: © G Deakin - © Neil Attard - © Juraj Vysocky / FSC Slovakia

FSC

What do the different labels mean ?

FSC 100% - All the timber or fibre in the product comes from an FSC-certified forest

FSC Recycled - All the timber or fibre in the product is reclaimed material

FSC Mix - The timber or fibre in the product is a mixture of some/all of the following:

- Timber or fibre from an FSC-certified forest
- Post-consumer reclaimed timber or fibre
- Timber or fibre from other controlled sources

Which products carry the label?

The FSC label is currently found on over 10,000 product lines in the UK alone. You can find it on garden furniture, decking, sheds, conservatories, tools, bird boxes and bird tables, kitchen, bathroom and general housewares, brushes, wall paper, flooring, doors, shelves, furniture, toilet tissue, paper, books, pencils - in fact most things made from wood. It can also be found on other forest products such as venison, essential oils and latex for footballs and balloons.

Where can you buy FSC labelled products?

Almost all the major DIY stores such as B&Q, Homebase and Focus DIY stock FSC items. You can also find them in High Street stores such as Marks & Spencer, Sainsbury's, John Lewis, The Body Shop, Tesco and Co-op.

Why is the FSC trademark different from other forest certification schemes?

There are a number of other forest certification around but they do not have the same strict environmental, social and economic standards or such a rigorous chain of custody; tracking timber from the forest to the final user. Therefore the FSC is the only one endorsed by the major environmental charities.

What should you do if you cannot find products with the FSC label?

Although more and more products are becoming available all the time there are still gaps in the market. If you cannot find a product you should ask for it; the greater the demand, the bigger the supply. FSC UK can also help with tracing items and there is a product search facility on the web site (www.fsc-uk.org).

10 Facts about FSC

1. You can buy wood products with a clear conscience when you see the FSC logo. FSC forests are managed with consideration for people, wildlife and the environment.

2. The FSC label guarantees that the trees that are harvested are replaced or allowed to regenerate naturally.

3. Parts of the forest are protected entirely, in order to protect rare animals and plants.

4. FSC protects the rights of indigenous people to use the forest. If they have sacred sites in the forest these are exempt from felling.

5. The forest owner must use local workers to run the forest, and provide training, safety equipment and a decent salary. The forest owner is often obliged to support the community in other ways, such as through the development of schools.

6. FSC is a market-based initiative which also ensures better conditions for the forest and the people whose livelihoods depend on it.

7. FSC gives an assurance that future generations will be able to enjoy the benefits of the forest.

8. All the wood is tracked from the forest to the store. Every link between the forest and the consumer is certified to make it clearly identifiable which wood is FSC certified and which is not.

9. FSC is the only wood certification scheme endorsed by the major environmental charities, including WWF, Greenpeace and The Woodland Trust.

10. The FSC label is not only available on wood for furniture. It can also be found on floors, decking, paper, printed matter, charcoal, kitchen utensils, latex, even venison!

The mark of responsible forestry

Strebord carries FSC certification, subject to availability

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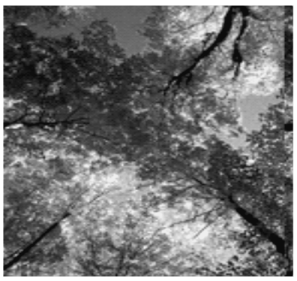
Appendix 4



About PEFC

The PEFC Council (Programme for the Endorsement of Forest Certification schemes) is an independent, non-profit, non-governmental organisation, founded in 1999 which promotes sustainably managed forests through independent third party certification. The PEFC provides an assurance mechanism to purchasers of wood and paper products that they are promoting the sustainable management of forests.

PEFC is a global umbrella organisation for the assessment of and mutual recognition of national forest certification schemes developed in a multi-stakeholder process. These national schemes build upon the inter-governemental processes for the promotion of sustainable forest management, a series of on-going mechanisms supported by 149 governments in the world covering 85% of the world's forest area.

PEFC has in its membership 32 independent national forest certification systems of which 22 to date have been through a rigorous assessment process involving public consultation and the use of independent consultants to provide the assessments on which mutual recognition decisions are taken by the membership. These 22 schemes account for over 193 million hectares of certified forests producing millions of tonnes of certified timber to the market place making PEFC the world's largest certification scheme. The other national members schemes are at various stages of developement and are working towards mutual recognition under the PEFC processes.

Mission and objectives

PEFC provides a framework for the development of and mutual recognition of national or sub-national forest certification schemes that have been developed locally according to internationally recognised requirements for sustainable forest managements.

PEFC provides an assurance mechanism to purchasers of wood and paper products that they are promoting the sustainable management of forests.

PEFC contributes to the environmentally appropriate, socially beneficial and economically viable management of forests for present and future generations.

PEFC aims at strengthening and improving the positive image of forestry and wood as a renewable raw material.

Whereas this Manual is based upon 3rd. party certification provided by BM TRADA under the 'Q' Mark scheme, Falcon Panel Products Ltd. recognise that users of Strebord© may prefer to belong to alternative schemes.

Falcon Panel Products Ltd. will support users of Strebord© by providing base test data for use by the following UKAS approved 3rd.party certification bodies and may assist in other ways.

The following information has been provided by leading 3rd. party certification providers to describe brief details of

BM TRADA:
BM TRADA is a UK and internationally recognised provider of high quality customer focused independent third party certification. A member of the BM TRADA Group with 75 years experience, the company is UKAS (United Kingdom Accreditation Service) accredited and offers the 'Q-Mark' certification scheme, one of the most rigorous certification processes available.

Q–Mark certification scheme:
Q-Mark is a membership-based certification scheme which companies can join either as manufacturers, system/blank suppliers or fabricators using Q-Mark approved products. Additional schemes are also available for registered installers of windows and doors. Q-Mark product certification provides the reassurance to customers and specifiers that the certified products are not only fit for purpose and therefore safe to use, but they have satisfied the most stringent of quality processes.

Specifiers are increasingly using Q-Mark to ensure that their products meet the highest standards. This is particularly important in life saving products such as fire doors. Approved Document B recommends the use of independent third party product certification such as Q-Mark for demonstrating performance of fire doors.

Product certification criteria:
To achieve Q-Mark product certification, members are required to prove to BM TRADA's own team of specialist auditors that their products perform to the relevant standard and that stringent factory production control processes are in place. All members must have independent test evidence in the form of a product test report from a UKAS or recognised equivalent accredited laboratory. Any variations in the fire door specification from the tested product can be catered for with a Chiltern Fire Global Assessment Report. Members also need to provide evidence of a traceable documented factory production control system which controls the specification, quality and consistency of manufacture.

On-going certification requirements:
Ensuring that our members maintain the very highest standards of product quality is a stringent criterion of the Q-Mark product certification scheme. Annual and in certain cases twice-yearly audits are carried out to confirm that the original certified specification is fully adhered to throughout the production process. In addition we periodically insist on undertaking full product testing to prove that not only do our members' products continue to perform to standard, but that the specifications accurately reflect those of the originally tested product.

Additional requirements:
For safety critical products, such as fire doors, we also provide additional training through our in-house seminar and demonstration programmes.

BM TRADA Q-MARK
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Fax: +44 (0) 1494 564 895
Email: enquiries@qmark.info
Web: www.qmark.info

LPCB (Loss Prevention Certification Board) is part of BRE Global and is an independent third party approvals body offering certification of fire and security products and services to an international market. Our product testing and approvals are carried out by recognised experts in our world renowned testing laboratories. Overall BRE Global Limited is custodian of a number of world leading brands including:

- LPCB for the approval of fire and security products and services, listed in the Red Book (www.redbooklive.com)

- BREEAM, the world's leading environmental assessment method for buildings

BRE Global's mission is to 'Protect People, Property and the Planet' and is a trading subsidiary of the BRE Trust, the registered research and education charity which owns the BRE Group.

For further information please contact: BRE Global, Garston, Watford, UK WD25 9XX, Tel: +44 (0)1923 664100, Fax: +44 (0)1923 664910, Email: enquiries@breglobal.com or visit www.breglobal.com

Certifire – A mark of Fire Safety

Warringtonfire deals with all aspects of fire safety from developing fire safety design strategies, through testing and certification of fire protection products, to certification of installers and inspection of completed buildings. Certification is provided via a separate company – Warrington Certification.

Warrington Certification provides certification of products, installers and quality management systems in accordance with internationally recognised standards. Where appropriate, each scheme is approved or accredited nationally, normally via UKAS. All schemes are operated under the direction of an independent management board representing all stakeholders in fire safety.

Product certification can be divided into 2 categories; Voluntary and Mandatory.

Voluntary certification is chosen freely to promote performance and quality. Products are certificated under **CERTIFIRE** and companies that install fire protection products are certificated under **FIRAS**

Both **CERTIFIRE** and **FIRAS** offer significant advantage in promotion and recognition of products and services and provide confidence to the end user.

The Certifire scheme is accredited by UKAS to EN45011 and complies with the requirements of Level 5 certification as specified in ISO/IEC Guide 67:2004, Conformity assessment – Fundamentals of product certification.
Certifire is the only independent third party product conformity scheme dedicated to passive fire protection products. To obtain certification products are required to undergo:

- Initial type testing
- Factory production control audits or inspections
- Independent audit testing and independent sampling of the products
- Quality management system certification to ISO 9001:2000
- Product labelling

A comprehensive field of application document is produced following the certification process and this has proven to be a much valued aid to sales.
Certifire has been in operation over 15 years and has become the flagship mark for the fire performance of passive fire safety products and is now recognised as a true 'Mark of Fire Safety'

Products must satisfy the requirements of detailed Technical Schedules that prescribe the performance and design characteristics required of a product to perform its fire protection function. The specific Technical Schedules are listed adjacent. Testing for fire performance and other attributes such as mechanical and durability performance is carried out. The Schedules, drafted by Warrington Certification and industry experts, draw on harmonised European tests where available, or British Standard tests or other recognised International standards. Type and audit testing is conducted on independently sampled product and manufacture is subject to independent factory production control inspection. The BWF-Certifire Timber fire door scheme is nationally recognised as the leading certification scheme for timber fire doors with the vast majority of the fire doors sold in the UK being covered by this certification

Certifire certification offers significant advantage in promotion and recognition of fire safety products showing that the product has been assessed by an independent third party and that these assessments are ongoing. This provides confidence to the end user. The presence of the Certifire mark shows that the product is a Fire Safety product. Certifire certification is backed up by entry into a free issue Directory which is divided into relevant product sectors. This is available via www.warringtonfire.net/certifire and full copies of all current Certifire certificates can also be accessed via this link and are available for download.

Mandatory certification is that required by regulation e.g. in Europe the Construction Products Directive and the Marine Equipment Directive, which require products to be marked (e.g. CE marked) to indicate compliance. Within Europe Bodycote warringtonfire certification operates as both a Notified Body and as a European Technical Approvals issuing body.

Warrington Certification also provide **ISO 9001:2000 certification** of quality management systems primarily in support of other schemes to provide a cost effective solution to client needs.

Email: certifire@warringtonfire.net

Web: www.warringtonfire.net/certifire

Warrington Certification
Holmesfield Road
Warrington
Cheshire
WA1 2DS
Great Britain

Tel: +44(0) 1925 646 669
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IFC certification

UKAS PRODUCT CERTIFICATION 175

IFC Certification Ltd is a UKAS (United Kingdom Accreditation Service) approved and internationally recognised provider of high quality and customer focused third party certification. IFC Certification Ltd is a Fully Notified Body certification body under the Construction Products Directive (89/106/EEC directive). The company is a member of the long established IFC Group of companies.

3rd Party Accredited Certification

IFC Certification Ltd has achieved registration with UKAS under the Product Certification Standard for Certification Bodies EN 45011 and is a member of the IAF (International Accreditation Forum). Accredited third party status provides all stakeholders with the highest level of assurance that products and companies; displaying the IFC Certification/UKAS combined logo; have products which satisfy the rigors of both technical and manufacturing assurances of quality.

All products registered within such schemes have been reviewed by certification body personnel for their essential requirements of relevant test evidence and scope of application, and have had their Factory Production Control systems (FPC) verified both initially and on an on-going basis to ensure that the product certificated, is to the same design or formulation as the original test samples.

Product Certification Schemes and Factory Production Control (FPC)

IFC Certification Ltd staff will assess products for compliance to both, scheme documents and any relevant Standards (International, European, British or Industry etc.) followed by an evaluation of a company's compliance with their own documented quality control systems. This is carried out against the requirements of typical FPC (Factory Production Control) systems as determined by both UKAS & the Construction Products Directive, including specific requirements contained in each scheme. The purpose of this evaluation is to assure the certification body and all stakeholders that the end user of the products receives a quality product, traceable to manufacturers and beyond.

Product Certification for IFC Certification Ltd not only includes prime manufacturers of fire safety products but also those companies who install fire safety products, such as fire doors and vision panels. The already established Fire Resistant Timber Door Scheme, for example, covers approvals for door leaves or doorsets which satisfy the criteria of integrity, integrity and insulation or integrity and radiation, as outlined in more detail in the technical guidance documents and has been joined by an installation scheme for contractors.

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Head & Registered Office:
20 Park Street
Princes Risborough
Buckinghamshire
HP27 9AH
United Kingdom

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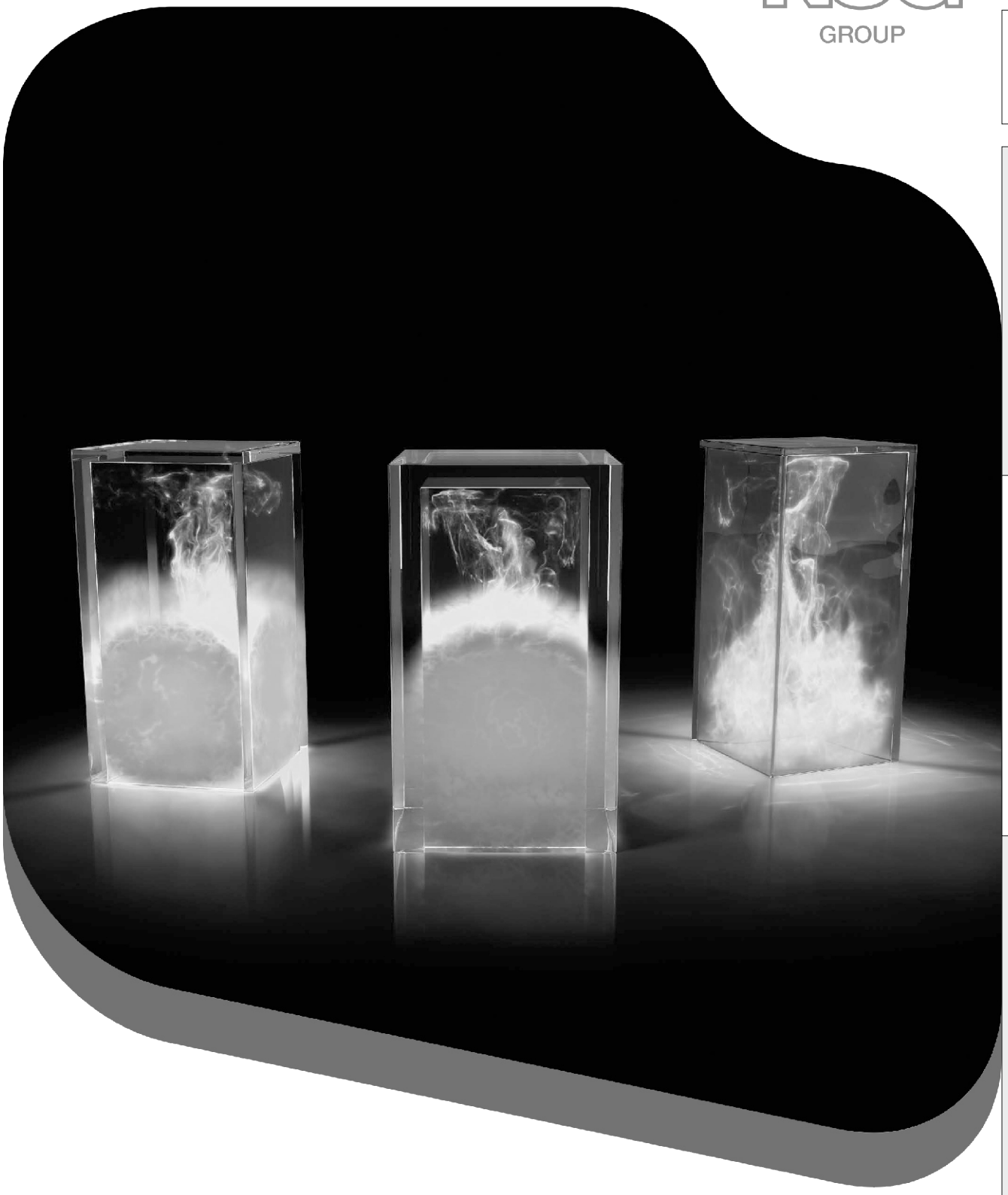
Email: info@ifccertification.com
Web: www.ifccertification.com

PILKINGTON

NSG GROUP



Fire-Resistant Glass Range

Pilkington **Pyrostop**®
Pilkington **Pyrodur**®
Pilkington **Pyrodur**® Plus
Pilkington **Pyroclear**®
Pilkington **Pyroshield**™ 2

- Pilkington **Pyrostop®**
- Pilkington **Pyrodur®**
- Pilkington **Pyrodur®** Plus
- Pilkington **Pyroclear®**
- Pilkington **Pyroshield™** 2

The UK's most versatile and reliable suite of re resistant glass solutions. Tried tested trusted.

Application

- Doors and door sets, ith side and o er glazed panels, internal and external
- Glazed partitions and screen assem lies
- Units ith integral linds a aila le tair ells, lo ies and escape routes
- Protected re ghter shafts
- O erhead glazing and fa ades
- Load- earing glass oors for safet , must e insulation rated
- ide range of practical framing options, glazing con gurations and glass sizes. aila le in a comprehensi e size range and can e used in arious com inations ith other glass t pes in nsulating Glass Units GUs

Key Guidance

- Test e idence must e a aila le, appropriate to the application
- Customers, installers and users should make sure that the test e idence is a aila le and applica le
- The glazed s stem must e installed according to the e idence
- Edge protection tape must not e remo ed
- Please o ser e guidelines on product handling and storage

Taking Responsibility

The Regulator Reform Fire afet Order 2005 emphasizes responsi ilit in la for the pro ision of re safet measures in uildings, starting ith those in control of the premises. That includes suppliers and installers, ho ha e a dut of care to ensure that the product is t for purpose and appropriate.

ene ts

- Comprehensi e range of appro als for a ide range of applications
- Relia le and ro ust proprietar technologies acked the reno ned Pilkington rand
- Consistent and reproduci le re resistance performance, tested internall to our ualit re uirements
- Personal guidance on the ke elements go erning applications regulations, legislation, re safet principles, custom and design practice
- Fire test summaries pro ide read reference support documentation
- ll products in the range CE arked and ha e their o n DoP Declaration of Performance
- Certi re certi cation a aila le, reference CF5140, CF328, CF718
- Detailed guidance on glazing, handling, ualit and product performance data, readil a aila le as do nloads

peci re our on line speci cation tool to help nd the right gla ing solution. www.pilkington.co.uk speci re

To nd out more
visit www.pilkington.co.uk re
email pilkington@respond.uk.com
or call our customer contact centre on 01744 692000.

Insulation

Pilkington **Pyrostop®**

- Highl successful intumescent technolog
- Forms opa ue and ro ust insulating arrier against heat, ames and fumes
- sodium silicate interla er therefore not lia le to ame or smoke on non- re side
- Classes 30, 60, 90, 120 and 180 minutes insulation integrit E [2]
- mpact safet up to class 1 1 [1]
- Extensi el speci ed orld ide in tim er and metal framing s stems
- Good isual and optical ualit

Integrity

Pilkington **Pyrodur®**

- ased on intumescent technolog
- Class 30 and 60 mins integrit E [2]
- Protection from radiant heat E 30 and added insurance of insulation for 15 minutes E [2]
- mpact safet class up to 1 1 [1]

Pilkington **Pyrodur®** Plus

- uni ue and special intumescent technolog
- Onl 7 mm thick, integrit 30 minutes E [2]
- Protection from radiant heat E 30 and added insurance of insulation for 15 minutes E [2]
- deal for internal applications in partitions, doors and door set glazed screens
- 2 2 impact safet class [1]
- nsulating Glazing Units also a aila le

Pilkington **Pyroshield™** 2

- Traditional Georgian ired glass
- afet , 30 and 60 minutes integrit E [2], impact safet class 3 3 [1]
- Texture ersion integrit 30 minutes E [2]
- Extensi el used the trade o er decades
- NE test e idence for 60 minutes integrit E [2]

Pilkington **Pyroclear®**

- uni ue, NE , special modi ed toughened glass, 30 and 60 minutes integrit E [2]
- Designed for consistenc proprietar N G processing technolog , a special toughening speci cation and speci c control criteria
- Product design and use acked a ne alidated computer model
- chie ed 50 successi e tests in tim er frames efore launch
- Less sensiti e to edge co er relati e to standard modi ed toughened glasses
- mpact safet 1 C 1, i.e. at highest drop height in the impact test [1]
- Large sizes and exi le use in tim er, metal and composite doors and screens
- deal for safe escape efore re conditions ecome untena le

Fire resistance

Integrity

ph sical arrier against ames, smoke and fumes.

Insulation

heat and ph sical arrier against re, ased on measured surface temperature limits under test in standard conditions. For protection against all heat, i.e. conduction, radiation and con ection.

Protection from noise

Pilkington **Pyrostop®** and Pilkington **Pyrodur®** pro ide good acoustic performance, hich can e further enhanced in nsulating Glass Units and com ination ith acoustic laminated glass. coustic design is no important for man situations, e.g. in schools, hospitals and of ces. Options from R 34 to R 48 d a aila le.

Notes:

1 EN 12600, mpact test and classi cation. Class C indicates mode of reakage as toughened safet glass.
Class indicates mode of reakage as toughened laminated glass.

2 EN 13501-2, Classi cation from re resistance tests. nsulation E ntegrit radiation not in U regulations .

This pu lication pro ides onl a general description of the products. Further, more detailed, information ma e o tained from our local supplier of Pilkington products. t is the responsi ilit of the user to ensure that the use of these products is appropriate for an particular application and that such use complies ith all rele ant legislation, standards, codes of practice and other re uirements. To the fullest extent permitted applica le la s, Nippon heet Glass Co. Ltd. and its su sidiar companies disclaim all lia ilit for an error in or omission from this pu lication and for all conse uences of rel ing on it.

Please note that imagery throughout is for illustration purposes only.

CE

CE marking con rms that a product complies ith its rele ant harmonised European Norm. The Declaration of Performance for each product, including declared alues, can e found at .pilkington.com CE

NSG GROUP

Pilkington United Kingdom Ltd
European Technical Centre, Hall Lane, Lathom, Nr Ormskirk, Lancashire L40 5UF
Telephone 01744 692000 Fax 01744 692880
pilkington@respond.uk.com
www.pilkington.co.uk

Staff Only

Construction Specialties™

Construction Specialties (UK) Limited are the sole manufacturers of Acrovyn® Doors, offering exceptional durability and extended door lifecycle.

Ideal for any new or refurbished facility requiring a high performance, robust and easy to maintain solution for high traffic areas such as healthcare, education, commercial and transport environments.

And now, thanks to recent collaborations, Acrovyn® Doors can incorporate Strebord® Door Cores, allowing the use of Acrovyn® Sheets (post-formed) and Acrovyn® Edge Protectors on the Strebord® Door Core.

C/S Acrovyn® Doors offer:

- Impact resistant Acrovyn® cladding for increased durability and reduced maintenance costs
- 30 minute or 60 minute resistance to fire and/or smoke
- BM TRADA Q-Mark certification for reliable performance of fire rated doors
- Easy to clean and maintain finish
- Door construction types and configuration options to suit project requirements
- Flush vision panel option for hygiene sensitive areas
- Optional, fire rated and replaceable Acrovyn® Door Edge Protectors for doors particularly exposed to damage from impact
- A wide range of colour and vision panel options to meet Approved Document M requirements

Construction Specialties (UK) Limited
1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
Tel: +44 (0)1296 652800 | **Email:** enquiries@c-sgroup.co.uk | **Web:** www.c-sgroup.co.uk

Norsound Acoustic Solutions

Tested with Strebord© door cores

in partnership with Falcon Panel Products

Norsound – The latest development in acoustic seals.

Norsound have developed a range of seals allowing the specifier / user to build high quality acoustic doorsets working within UK approved Document 'E' (Rw.29dB), and Building Bulletin 93 (Rw.30dB and Rw.35dB). The range offers low opening / closing forces together with minimal sight lines creating visually appealing doorsets working to the most demanding standards.

The use of Norsound products take the sound attenuating performance doorsets to new and higher levels. With the details outlined in this publication the latest acoustic requirements of Document 'E' together with Building Bulletin 93. can be comfortably achieved. This creates exciting opportunities for users to offer competitive solutions where continuous smoke seals, and acoustic performances are required.

The Norsound range of acoustic seals along with an extensive range of intumescent seals, fire rated glazing solutions and fire rated grilles are all available through:

Norseal Ltd, Norseal House,

5 Regents Drive, Prudhoe.

United Kingdom.

NE42 6PX

Tel 00 44 (0)1661 830088

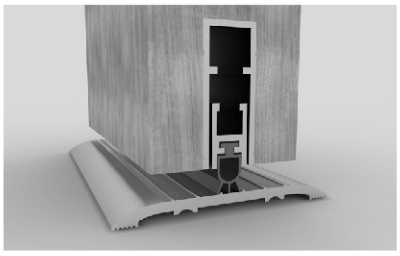
Fax 00 44 (0)1661 830 099

www.norseal.co.uk

email sales@norseal.co.uk

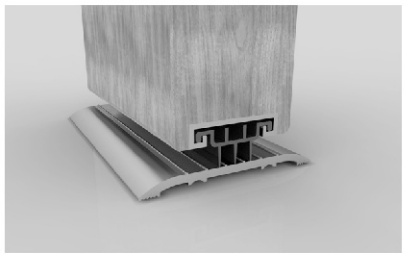
Norsound 710

The Norsound 710 offers unique 'dual air pocket' technology creating optimum acoustic sealing together with low opening / closing forces for the door leaf.



Norsound 810

The Norsound 810 is a fully self levelling threshold seal which retracts into the bottom edge of the door on opening of the door leaf. The seal gasket only seals against a hard floor (or threshold plate) when the leaf is in its fully closed position. The seal carrier is operated when a button at the hanging stile position is depressed on contact with the frame jamb.



Norsound 850 / Norsound 615

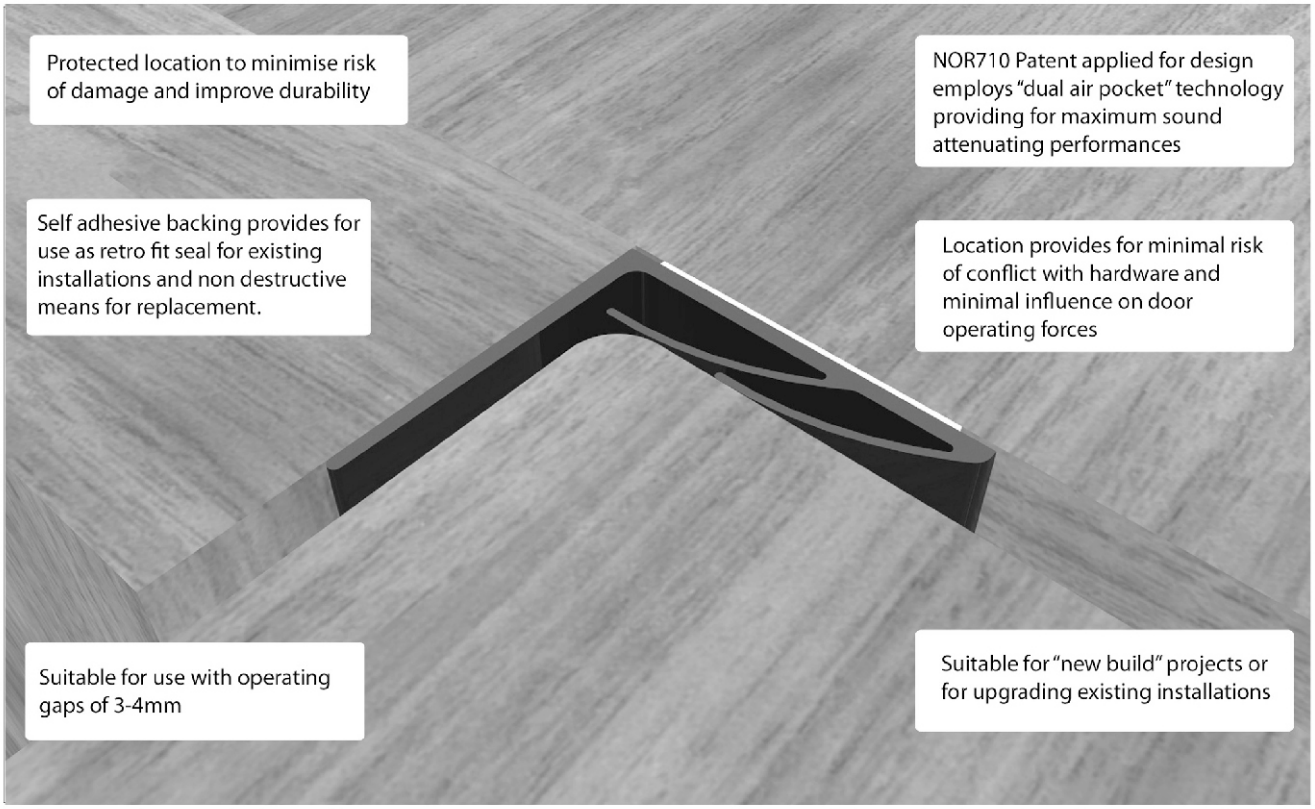
The Norsound 850 offers a non mechanical alternative for threshold sealing. The gasket design employs Norsound 'dual air pocket' technology to provide for optimum sound attenuating performances when used in conjunction with a Norsound Threshold plate.

Norsound Acoustic Seals

Norsound seals, available through Norseal Ltd, offer the market a unique range of seals available on an ex stock AM Next Working Day delivery. When used in conjunction with suitable door constructions Norsound seals provide for a competitive and versatile method for achieving acoustic performances up to and beyond Rw.35dB.

The Norsound range is unique in its 'dual air pocket' technology which acts in a similar manner to triple glazing, the seal blades create simple but effective barriers to prevent the passage of airborne sound. The Norsound 710 perimeter seal is a great example of this technology in use, the first blade offers a sound barrier, vibrating as the sound comes into contact and allowing a degree of sound to penetrate into the void behind it. Once the sound has been reduced the remainder of sound then is blocked by the second seal and onto the back blade, the results are truly impressive.

Under test the Norsound 710 seal was tried where, for test purposes only, the threshold was 'caulked' whilst the perimeter was sealed with the Norsound 710, the result was exactly the same as a 'fully caulked' door! Further, the Norsound 710 seal was tested without the use of a frame doorstop with a minimal loss of sound attenuating performance. These results, although not generally used in practice, are indicative the efficiency of the Norsound 710 that, quite simply did not allow any measurable airborne sound to pass through the doorset. The dual air pocket technology of the Norsound 710 is applied to other products in the Norsound range while still meeting design objectives for competitively priced products that are simple to install, even when fitted as up grade products to existing installations.



Norsound durability

Norsound have embarked on a third party 100,000 cycle test for the range once again proving the suitability for application.

Norsound – A Complete Range


NOR115

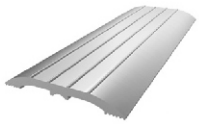

NOR250

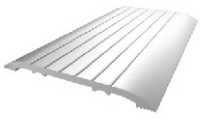

NOR350

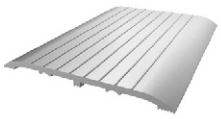

NOR400

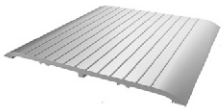

NOR510

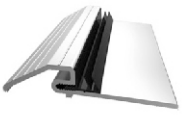

NOR610

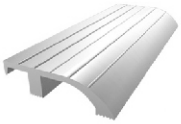

NOR615


NOR620


NOR625


NOR630


NOR650


NOR695


NOR710


NOR710SR


NOR710FR


NOR720


NOR810


NOR810T


NOR810S


NOR815


NOR855


NOR850

Norsound – Design criteria

Demanding considerations applied to the development of the Norsound range of seals with the design criteria met or exceeded in all cases by full scale testing – these included:

- **Norsound seals provide for the minimum sound attenuating performance requirements set out in Building Regulations (England & Wales) – Approved Document 'E' and Building Bulletin 93 (Schools & Educational Establishments) Classrooms & Music Rooms - when used with suitable door constructions.**
- **Norsound seal are to be location to provide for continuous sealing with a minimal risk of conflict with hardware fittings.**
- **Norsound seals are simple to installed and with minimal influence on door operating forces.**
- **Norsound seals provide for the smoke sealing performance as defined by reference to BS5588 and BS9999 when tested to BS476 Section 31.1.**
- **Norsound seals are self extinguishing and suitable for use with fire rated doorsets.**
- **Norsound seals are fitted in locations considered to be at minimal risk of damage in use but also provide for ease of replacement in the event of damage or wear.**
- **Norsound seals are designed to work in operating gaps as defined by reference to BS4787 Pt.1 (2~3mm) but with a simple means of adjustment where it is necessary to seal larger gaps.**
- **Norsound threshold sealing options satisfy the requirement of Building Regulations – (England & Wales) – Approved Document 'M' (BS8300).**
- **Norsound seals are suitable for fitting to existing doorset installations with a minimal intrusive influence on the existing doorset design.**

Norsound – Flame Retardancy – Designed for Fire Doors

The Norsound range incorporates the latest in flame retardant materials, without loss of gasket flexibility, specifically developed for Norsound. The flame retardant nature of the Norsound seal gaskets provides for a preferred choice when used in conjunction with fire doors. Indeed when tested they have demonstrated a potential to complement the fire door performance and may actually improve the ability to seal a door for fire, they do this by sealing the voids in the early stages of test restricting the passage of hot gasses from eroding the door / frame in advance of the activation of intumescent seals.

Norsound are tested to BS 476 Part 31:1 with 'continuous' smoke seals!

While designed primarily to meet increasing demands for efficient sound attenuating products, it was apparent that sealing systems that could effectively prevent the flow of airborne sound would also provide for an effective barrier to the passage of airborne particles i.e. smoke.

The Norsound range is supported with BS476 Section 31.1 related test evidence for smoke sealing applications. Norsound seals are located to avoid the need to interrupt seals to accommodate hardware fittings, thus providing for a continuous seal around the doorset.

Norsound threshold seals provide for a wide range of Building Regulations – (England & Wales) – Approved Document 'M' (BS8300) compliant design options for the sealing of thresholds as defined by reference to BS5588 (BS9999) for smoke sealed doorsets.

Norsound availablity

Norsound products are sourced through Norseal Ltd, the largest UK distributor for acoustic / fire related seals commanding the market for many years. The company has forged an enviable reputation as a competent quick and competitively priced supplier for the products it supplies. Originally founded some ten years ago the business principles have never changed: *service – service – service*. The company offers a full technical backup for UK specifiers and manufacturers.

The Norseal range covers all of the Norsound products together with being a major stockholder of door edge intumescent seals and intumescent glazing systems.

Norseal Ltd. Provides for a true 'one stop shop' for acoustic, fire and smoke seals held ex stock and delivered on an AM Next Working Day delivery as standard.

For further technical support please contact: Norsound on 01661 831 311

Norsound / Norseal - Proven Performance combined with ex-stock availability

Norseal Ltd.,
Norseal House,
5 Regents Drive,
Prudhoe,
Northumberland NE42 6PX
United Kingdom

Tel: 00 44 (0)1661 830088
Fax: 00 44 (0)1661 830099
e sales@norsound.co.uk
www.norsound.co.uk

NORSOUND
SPECIALISTS IN ACOUSTIC DOOR SEALS

v8 April 2010

Strebord© 44

Strebord©
An environmentally responsible particleboard alternative to solid hardwood/softwood door cores.

Acoustic Door Cores

Strebord 44 is suitable for use as a general purpose door core and has been extensively tested (BS476 Pt.22) for FD30 fire door applications.

Acoustic Door Applications:With additional sealing Strebord 44 can provide for sound attenuating performances between Rw.29dB and Rw.35dB.

NOR710

NOR810

NOR625

For all acoustic seals please contact Norsound

Single Leaf Doorsets - 44mm Acoustic Door Applications

Configuration	Glazed	Head	Jambs	Threshold	Meeting Stiles	dB Rating
Latched or Unlatched single action single leaf doorset	N/A	NOR710	NOR710	NOR810	N/A	**32dB**
Latched or Unlatched single action single leaf doorset	N/A	NOR710	NOR710	NOR815	N/A	**32dB**
Latched or Unlatched single action single leaf doorset	N/A	NOR710	NOR710	NOR850 + NOR650	N/A	**33dB**
Latched or Unlatched single action single leaf doorset	7mm Pyrobelite	NOR710	NOR710	NOR810	N/A	**33dB**
Latched or Unlatched single action single leaf doorset	10mm Pyrodur	NOR710	NOR710	NOR810 + NOR650	N/A	**34dB**
Latched or Unlatched single action single leaf doorset	16.8mm Optilam Phon	NOR710	NOR710	NOR810 + NOR650	N/A	**35dB**
Double action single leaf doorset	N/A	NOR720 x 2	NOR720 x 2	NOR855 x 2 NOR620	N/A	**32dB**

Note 1: A lobby configuration using 44mm strebord cores has achieved **42dB** performance using NOR710 and NOR810 seals

Double Leaf Doorsets - 44mm Acoustic Door Applications

Configuration	Glazed	Head	Jambs	Threshold	Meeting Stile	dB Rating
Latched or Unlatched single action double leaf doorset	N/A	NOR710	NOR710	NOR810 x 2	NOR510 NOR720	**32dB**
Latched or Unlatched single action double leaf doorset	N/A	NOR710	NOR710	NOR810 x 2	NOR755 x 2	**32dB**
Latched or Unlatched single action double leaf doorset	15mm & above	NOR710	NOR710	NOR850 + NOR615	NOR720 NOR755 x 2	**35dB**
Latched or Unlatched single action double leaf doorset	15mm & above	NOR710	NOR710	NOR720 x 2 + NOR615	NOR720 NOR755 x 2	**35dB**

NOTE 2: The NOR810 Automatic Drop Seal may be used without additional provision in conjunction with hard floor finishes e.g. vinyl. When used with soft floor finishes e.g. carpet the use of a threshold strip e.g. NOR615 is recommended.

Glazing area per Doorsets

Where glazed, performance relates to a glazed area of 25% of door leaf

Frame construction for 44mm Doorsets

Hardwood or softwood frame of Min. 450Kg/m³ density or 700Kg/m³ MDF

BM TRADA Timber Fire Doors — Certificate Number 006/020

Approved Component Supplier

Membership No. 064056

Strebord carries either FSC or PEFC certification, subject to availability.

NORSOUND
Acoustic seals available from Norseal Ltd

contact
T +44 (0)1661 831311
F +44 (0)1661 830099
sales@norsound.co.uk
www.norsound.co.uk

FALCON PANEL PRODUCTS LTD

contact
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F +44 (0)1932 230268
sales@falconpp.co.uk
www.falconpp.co.uk

v8 April 2010

Strebord© 54

Acoustic Door Cores

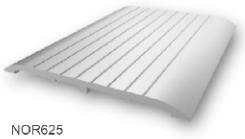
Strebord 54 has been extensively tested (BS476 Pt.22) for FD60 fire door applications and may be used as a general door core where heavier duty performances are required.

Acoustic Door Applications: With additional sealing Strebord 54 can provide for sound attenuating performances between Rw.29dB & Rw.35dB.

Strebord 54 is also available for **FD90 applications**

NOR710

NOR810



NOR625

For all acoustic seals please contact Norsound

Single Leaf Doorsets - 54mm Acoustic Door Applications

Configuration	Glazed	Head	Jambs	Threshold	Stiles	dB Rating
Latched or Unlatched single action single leaf doorset	N/A	NOR710	NOR710	NOR810	N/A	31dB
Latched or Unlatched single action single leaf doorset	N/A	NOR710	NOR710	NOR850 + NOR615	N/A	31dB
Latched or Unlatched single action single leaf doorset	N/A	NOR710 + NOR720 + NOR755	NOR710 + NOR720 + NOR755	NOR810 + NOR650	N/A	34dB
Latched or Unlatched single action single leaf doorset	6mm Pyroshield	NOR710	NOR710	NOR810	N/A	35dB
Latched or Unlatched single action single leaf doorset	7mm Pyrobelite	NOR710	NOR710	NOR810 + NOR650	N/A	35dB
Latched or Unlatched single action single leaf doorset	16mm Pyrobel	NOR710	NOR710	NOR810	N/A	35dB
Double action single leaf doorset	N/A	NOR720 x 2	NOR720 x 2	NOR855 x 2 NOR620	N/A	32dB

Double Leaf Doorsets - 54mm Acoustic Door Applications

Configuration	Glazed	Head	Jambs	Threshold	Meeting Stile	dB Rating
Latched or Unlatched single action double leaf doorset	N/A	NOR710	NOR710	NOR810 x 2	NOR710	31dB
Latched or Unlatched single action double leaf doorset	N/A	NOR710	NOR710	NOR810 x 2	NOR710 NOR720	32dB
Latched or Unlatched single action double leaf doorset	10mm & above	NOR710	NOR710	NOR850 & NOR615	NOR720 NOR755 x 2	35dB
Latched or Unlatched single action double leaf doorset	10mm & above	NOR710	NOR710	NOR720 x 2 NOR615	NOR720 NOR755 x 2	35dB

NOTE 2: The NOR810 Automatic Drop Seal may be used without additional provision in conjunction with hard floor finishes (e.g. vinyl). When used with soft floor finishes (e.g. carpet) the use of a threshold strip (e.g. NOR615) is recommended.'

BM TRADA Timber Fire Doors — Certificate Number 006/020

Approved Component Supplier

Membership No. 064056

FSC www.fsc.org FSC® C016787 The mark of responsible forestry

PEFC PEFC/16-37-92

Glazing area per Doorsets

Where glazed, performance relates to a glazed area of 25% of door leaf

Frame construction for 44mm Doorsets

Hardwood or softwood frame of Min. 450Kg/m³ density or 700Kg/m³ MDF

NORSOUND
Acoustic seals available from Norseal Ltd

contact
T +44 (0)1661 831311
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www.norsound.co.uk

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FALCON PANEL PRODUCTS LTD

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T +44 (0)15 919 2000
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E sales@falconpp.co.uk
www.falconpp.co.uk

CTH A Consolidated Timber Holdings Company

STEEL DOOR FRAMES

PARTITION WALLS

Nordform GmbH/Srl

QUALITY AT THE TOP

Nordform is one of Europe's leading producers of steel door frames and partition profile systems.

Our state-of-the-art factory in northern Italy is equipped with the latest cutting edge machinery to profile, stamp, weld and finish the frames to suit the requirements of our door and partition customers throughout Europe.

Nordform GmbH/Srl

THE APPEAL OF STEEL

- **Durable** – withstands heavy abuse and stays looking good
- **Secure** – resists attack, no splitting or warping
- **Aesthetic** – clean minimalist good looks, in a wide choice of finishes
- **Reliable** – factory made dimensional consistency, never rots or rusts
- **Practical** – quick to install, factory prepped for any type of hardware
- **Performance** – for fire, acoustic, clean room, X-ray & weather protection

Suits a wide variety of applications


Hospitals


Offices


Commercial


School & Universities


Industry


Detention


Apartments

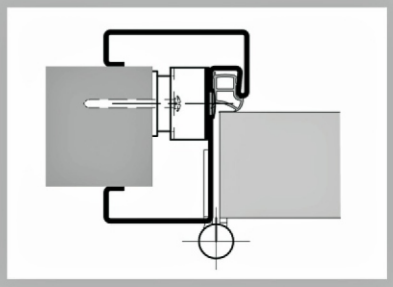

Hotels


Airports

HINGED DOOR FRAME TYPES

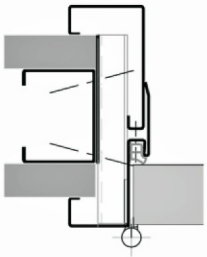
Standard Fixed Frame

- 1.5 to 2mm thick galvanised or stainless steel
- Mitred corners with quick-fix corner plates
- Invisible wall fixings and adjustable spacers
- Built-in peripheral sound & weather seals
- Prepped for hinges, locks & door closers
- Choice of fixed (welded) or 3-part KD frames
- Optional radius style frame profiles
- Optional over panels and side lights



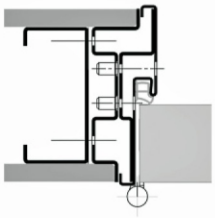
Telescopic Frame

- Ideal for uneven walls and renovation work
- Allows for +25mm to -5mm variation in wall thickness
- All other features same as the standard frame



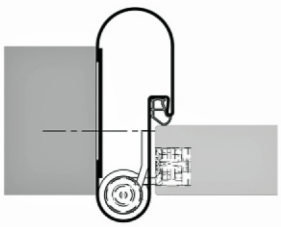
Flush Frame

- Minimalist look with eye-pleasing shadow line
- Ideal for sports halls, corridors and laboratories
- Optional concealed hinges



Finger Safety Frame

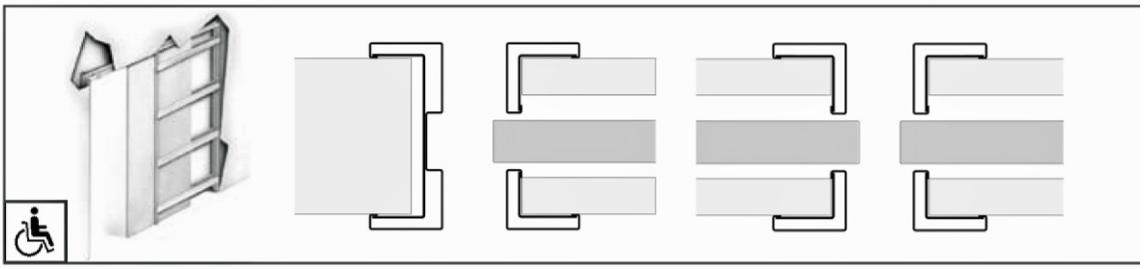
- Unique no “finger-pinch” gap near the hinges
- Ideally suited to children and the elderly or infirm



OTHER DOOR FRAME TYPES

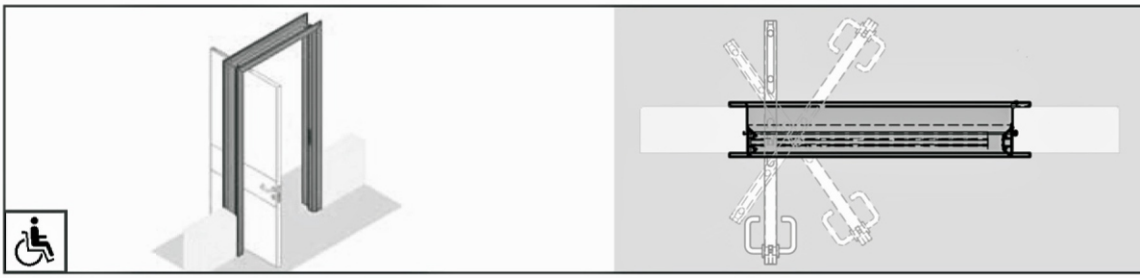
Sliding Pocket Door Frames

- Galvanised pocket stud walls for plasterboard
- Suits 35 to 44mm thick doors, max weight 60kg
- Peripheral door trim in painted steel with brushes
- Available in single or double door kits
- Suits standard doors H1981,2040 W726,826,926,1026



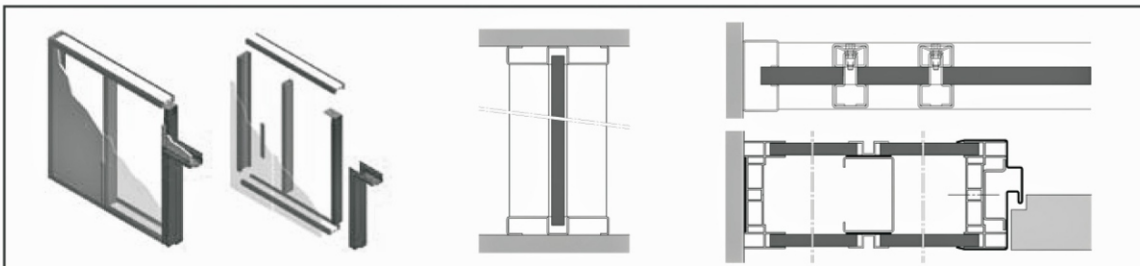
Two Way Compact Swing Door Frame

- Unique galvanised steel frames and swing mechanism
- Ideally suited for wheelchair access to bathrooms & toilets
- Suits 35 to 44mm thick doors, max weight 60kg



Steel Framed Partition System

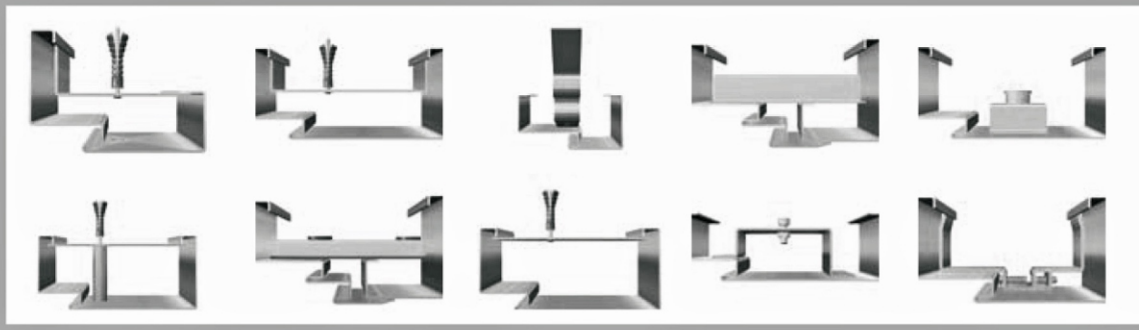
- Painted galvanised steel profiles
- Wide choice of profile designs & systems
- For glazed or solid wall panels



DESIGN OPTIONS

Side Lights and Over Panels

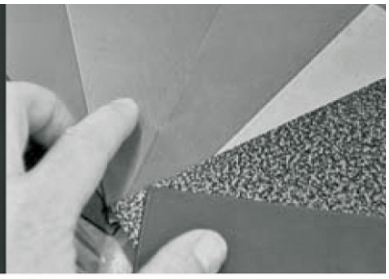
Choice of Wall Fixing Methods



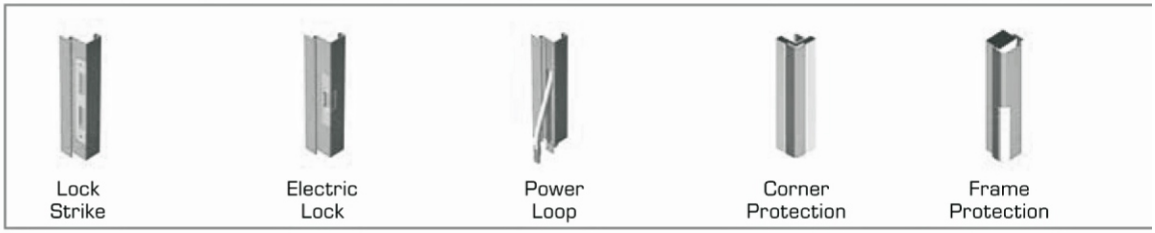
Hinge Preparations

Door Closers

DESIGN OPTIONS

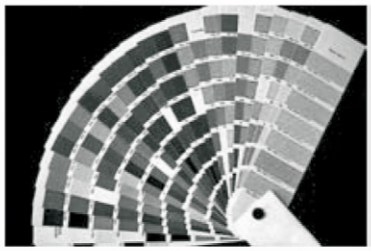


Locks, Access Controls etc.



Special Protection

Surface Finishes



- Painted to any RAL colour
- Smooth or Textured
- Polished or Brushed Stainless Steel

some REFERENCES

HOSPITALS

Italy	Brunico	Regional Hospital
	Bolzano	Regional Hospital
	Bressanonoe	Regional Hospital
	San Candido	Regional Hospital
	Correggio	Regional Hospital
	Vittorio Veneto	Regional Hospital
	Cittadella	Regional Hospital
	Trento	Santa Chiara Hospital
	Udine	Gervasutta Hospital
	Venezia	Mirano Hospital
Germany	Munich	Dritter Orden Hospital
	Ulm	University Clinic
	Ulm	Military Hospital
	Erlabrunn	Clinic Erlabrunn
	Engeltal	Clinic Frankenalp
Austria	Salzburg	Barmherzige Brüder Hospital
	Vienna	Caritas

BANKS / OFFICES / HOTELS

Italy	Bressanone	Syncom Center
	Bolzano	Erca Center
	Bolzano	Sportler
	Bolzano	Campill Center
	Merano	Cofrum
	Trento	Raiffeisenbank Fondo
	Rome	Opera Mater Die
	Alatri	Tecnical Institute
	Milan	University Bocconi
	Bolzano	Professional School
Germany	Munich	BMW
	Leipzig	BMW
	Hamburg	NDR
	Munich	HKW
	Munich	Brain Factory
	Munich	Chronoswiss
	Frankfurt	MEAG
	Frankfurt	Telekom
Switzerland	Zürich	Airport Hotel
	Geneva	Demaine de Perrieres
United Kingdom	London	MSD - Merck Sharp & Dohme
	London	Art Gallery – Great Titchfield Street
	Cheltenham	Big Sleep Hotel

GmbH/Srl
Nordform®

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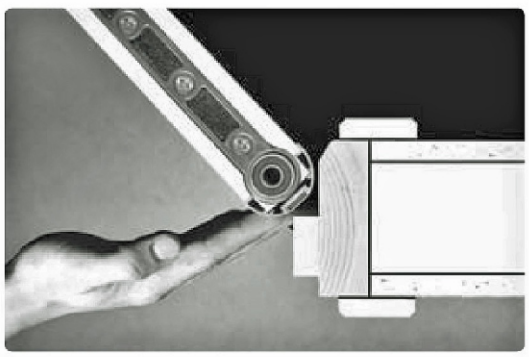
Tel. +39 0472 86 85 89 · Fax +39 0472 86 85 90
info@nordform.it · www.nordform.it

Safehinge ALU Range - Integrated Finger Protection for Doors

safehinge™

30,000 children trap and seriously injure their fingers in doors every year in the UK and 1,500 of these will require surgery.

Royal Society for the Prevention of Accidents



The Safehinge ALU range

Safehinge ALU eliminates any opportunity for finger trappings to occur by using a specialist pivot set and integrating a curved aluminium profile with the door. Clever design means there is no opportunity for wandering fingers to be trapped, which is without doubt the best way to protect against accidents: total prevention.

Ease of manufacture

Safehinge ALU is designed for efficient manufacturing. The Safehinge ALU range is compatible with both CNC and manual manufacturing techniques and can be incorporated into a doorset as easily as conventional butt hinges.

Install once

Safehinge ALU is designed for quick and easy installation. Our product offers installers on-site adjustability, that allows for building imperfections and enables fast, stress-free installation, ensuring outstanding results are achieved every time.

Technical performance

NFR/FD30/FD60

SEVERE DUTY

UP TO 38dB

RAL COLOUR OPTIONS

Full technical details can be found online at www.safehinge.com

Save up to 75% on life costs

Retrofit hinge covers have limited durability and typically fail every 6 – 24 months, leading to regular replacements which incur substantial cost. Safehinge ALU is a durable solution to this issue. Installed once, it lasts the life of the door and will save 75% - around £500 per door - over the life of a school or hospital.

Why choose the Safehinge ALU range?

Education

- Improve safety for entire community who use flexible spaces in school buildings
- Embody best practice and create inspirational schools fit for the 21st century
- Save devolved budgets for pupil education, not replacing broken hinge covers
- Maximise value of your capital investment – Safehinge ALU will last the life of the door
- Protect local authorities against costly compensation claims

Healthcare

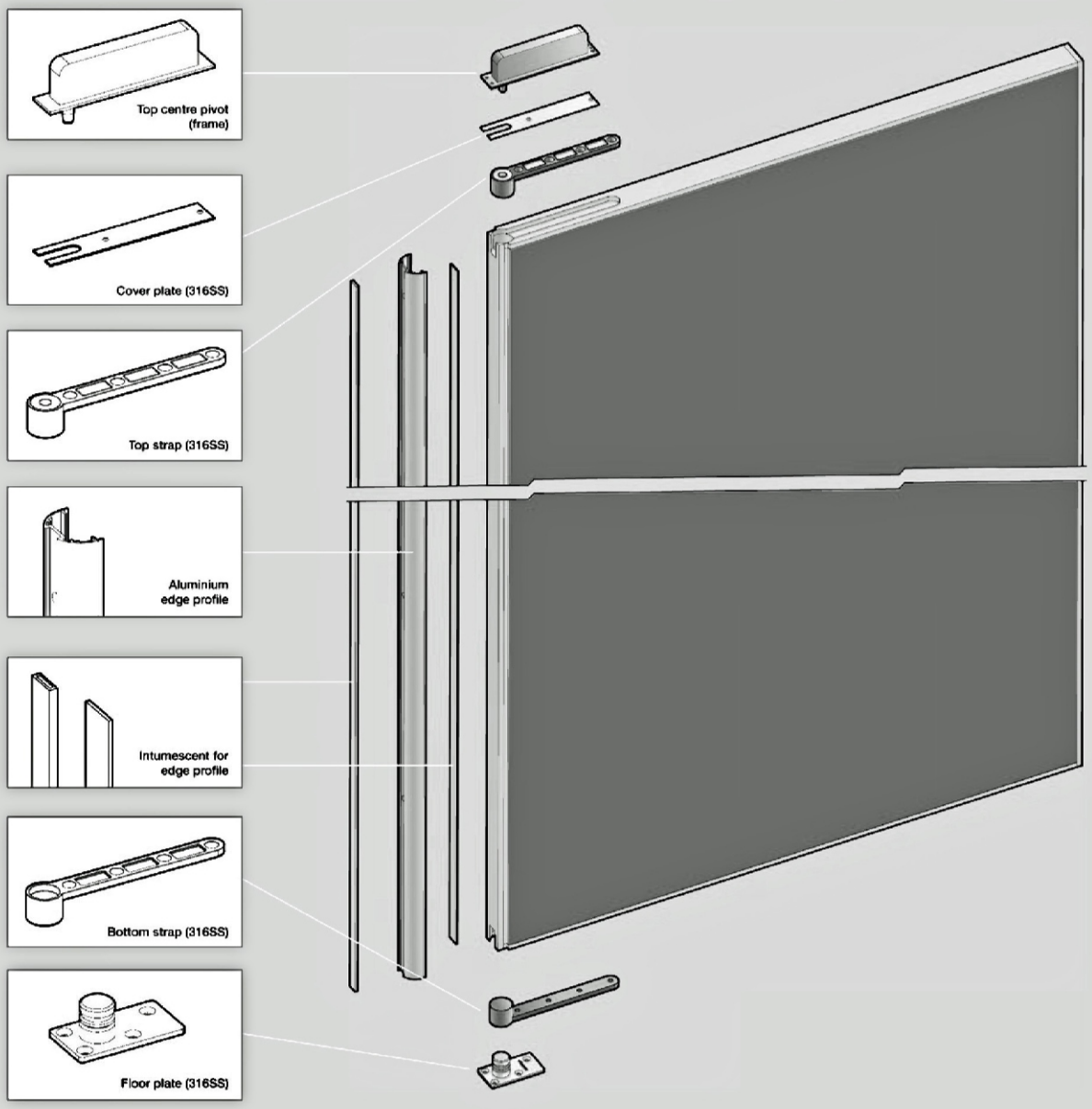
- Comply with HTM 58 recommendation of finger protection for doors
- Eliminate risk, provide total finger protection for vulnerable patients
- Combat Healthcare Associated Infections (HCAI) with wipe clean surface
- Specify durable finger protection that lasts the life of door
- Provide additional edge impact resistance with aluminium profile

Retail and Leisure

- Demonstrate unparalleled commitment to customer safety by using most effective finger protection
- Create outstanding, attractive environments for your customers
- Protect against negative publicity associated with finger trapping injuries
- Improve sustainability credentials by reducing landfill from broken hinge covers

Safehinge ALU range:

Safehinge ALU versions are available for 44 and 54mm thick doors for NFR/FD30/FD60 rating.



For further information and to order contact: www.safehinge.com

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Strebord®

Door Core Technical Manual

Version 9

Strebord 35 FD30
Strebord 44 FD30
Strebord 54 FD60

FD30 FD60




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The environmentally responsible engineered particleboard.

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