



ENGINEERED COMPONENT SYSTEM
FOR HIGH PERFORMANCE
FIRE DOOR ASSEMBLIES



Sole UK Distributors & Stockists



safety, consistency and style



Lorient is the exclusive UK technical partner and distributor of the Georgia-Pacific range of high performance fire door components for the 90 and 120 minute market.

The Georgia-Pacific system offers freedom of design for specifiers, enabling stunning aesthetics to be achieved without compromising performance. System benefits include:

- Design continuity (can match all timber veneer finishes)
- Slimline doors – 44mm thick (many other systems are 54mm or more)
- Single and double leaf designs
- Multi-glazed openings, sidelights and overpanels
- Timber frame options
- Proven acoustic performance
- Excellent handling – lighter materials than many competitive systems
- Straightforward to manufacture
- Comprehensive technical support
- Extensive suite of test evidence and global assessments, enabling flexibility and choice

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The Georgia-Pacific High Performance Component System

Lorient has an exclusive relationship with Georgia-Pacific Corporation to supply a unique high performance fire door component system to door and joinery manufacturers in the UK.

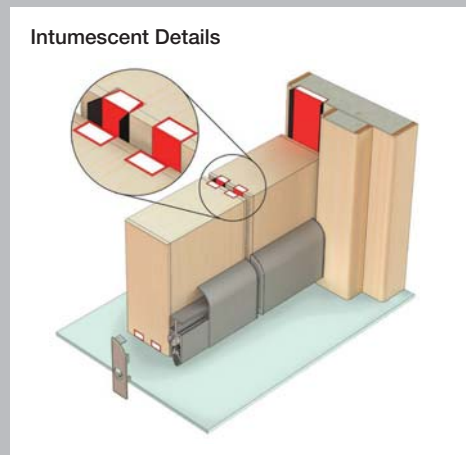
Lorient has been at the forefront of acoustic, smoke, fire and thermal containment for 35 years, and has a reputation for designing, manufacturing and supplying some of the highest quality products available; supported by a library of test evidence. Georgia-Pacific, with headquarters in Atlanta, is one of the world's leading manufacturers and marketers of tissue, packaging, pulp, building products and related chemicals. The collaboration of Lorient and Georgia-Pacific, established experts in their respective fields of operation, spans many years. Together, they provide a unique and unrivalled range of products and services, complemented by dedicated technical support.

The Georgia-Pacific engineered non-combustible component system offers a simple and cost effective method of door leaf and frame construction for up to 120 minutes fire performance. The demand for high performance fire doors is growing, largely driven by the requirements of building insurers to limit the damage to compartments of a building in the case of a fire; and to safeguard high value installations, such as plant room, computer and telecoms equipment.

Despite being a high performance door construction, the Georgia-Pacific system still offers freedom of design for specifiers, flexibility for fire engineers and a range of options for door and joinery manufacturers. Finished doors can be a standard 44mm or 54mm thickness, and may be finished in veneered plywood – so manufacturers can produce doors to their client's unique specification, and the finished doors will appear consistent with others in the building. Single leaf and double leaf combinations are available, to offer freedom of choice throughout a building.

The system comprises:

- GP500 – a low density central core material
- GP1000 – high density elements for the stiles and rails, engineered from non-combustible and non-hazardous products
- Lorient acoustic, smoke and fire seals and glazing systems



Integral to the system are Lorient's acoustic, smoke and fire seals, including the unique DS profile. Please refer to page 8 for full details.



Lorient's System-90 PLUS glazing system features a U-shaped PVC channel encasing sodium silicate intumescent material, retained by a steel 'Z' section with a 44mm wide sodium silicate lining. 6mm Pyran® S or FireLite® glass may be used.

General Assessed Assembly Details

Standard construction, for 90 minute doors with hardwood frames

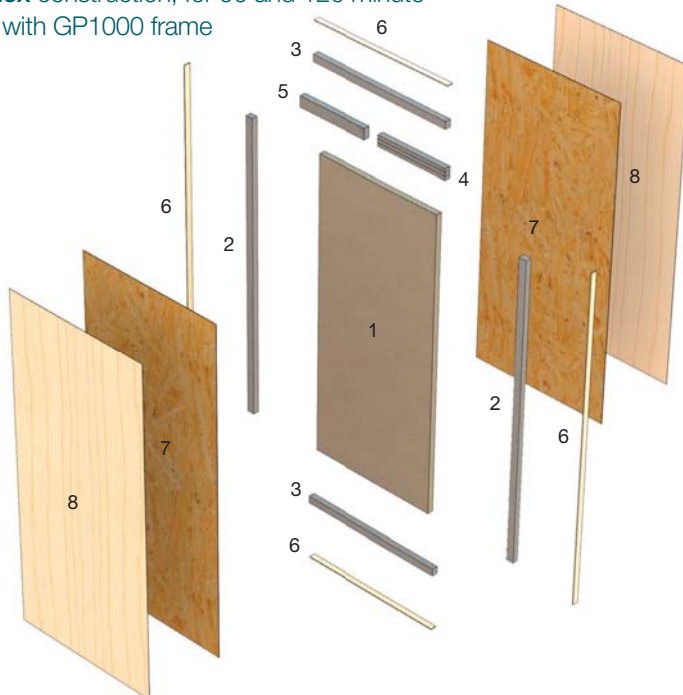


Frame section, featuring Lorient's back of frame seal - please ask for details

Key

- 1 GP500 Core
- 2 GP1000 Stiles (50 x 38mm, 1 stile each side)
- 3 GP1000 Rails (50 x 38mm, 1 rail top and bottom)
- 4 Hardwood Lipping – 6mm
- 5 MDF Facing – Plywood if door is glazed
- 6 Veneer Skin

Complex construction, for 90 and 120 minute doors, with GP1000 frame



Frame Section

Key

- 1 GP500 Core
- 2 GP1000 Stiles (50 x 38mm, 1 stile each side)
- 3 GP1000 Rails (50 x 38mm, 1 rail top and bottom)
- 4 GP1000 Blocking (25 x 38mm layered)
- 5 GP500 Core Material
- 6 Hardwood Lipping – 3mm
- 7 Plywood Facing
- 8 Veneer Skin

Heavyweight Performance in a Lightweight Package

When the safeguard of valuable equipment in commercial, utility and multiple-occupancy environments is key, Georgia-Pacific doors out-perform – without being unduly heavy or oversized.

Georgia-Pacific fire door designs have been comprehensively tested at Exova Warringtonfire, conducted in accordance with BS 476: Part 22: 1987. Comprehensive fire testing has established a very wide scope of design variations compatible with the basic door leaf and frame construction. Detail changes from the basic designs are possible by using this library of test evidence, or by scheduling appropriate additional global assessments. Lorient can provide technical support and assistance with this through its own fire testing facility – for example by verifying the compatibility of alternative hardware, door skins or door frame geometry.

Test evidence can be summarised as shown in the following tables:

a) 90 minute fire performance – standard construction with hardwood frame

Maximum door leaf sizes (using PVA adhesive)

Single Action, Single Leaf, 54mm	Latched	2400mm x 1200mm
	Unlatched	2268mm x 1013mm
Single Action, Double Leaf, 54mm (plain or rebated meeting stiles)	Latched	2268mm x 1013mm
	Unlatched	2268mm x 1013mm

b) 90 minute fire performance – complex construction with GP1000 frame

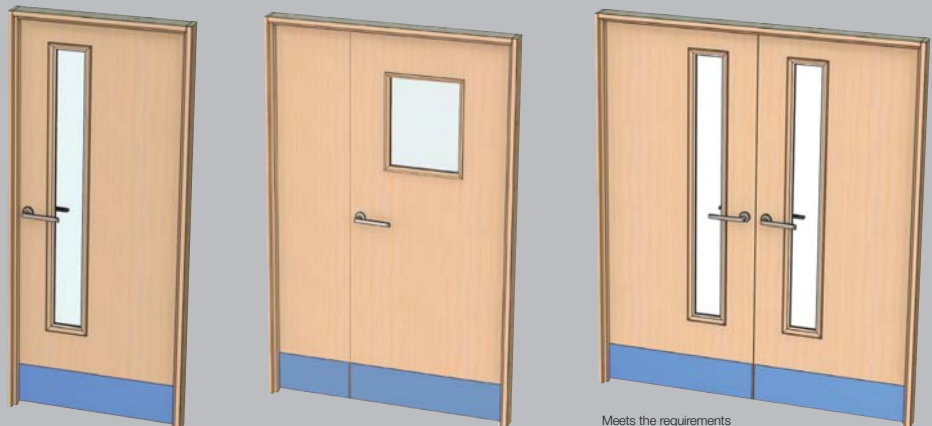
Maximum door leaf sizes (using PVA adhesive)

Single Action, Single Leaf, 44mm	Latched	2400mm x 1200mm
	Unlatched	2400mm x 1200mm
Single Action, Double Leaf, 44mm (plain or rebated meeting stiles)	Latched	2350mm x 1130mm
	Unlatched	2350mm x 1130mm
Single Action, Double Leaf, 54mm, Vision Panel (1600mm x 200mm)	Latched	2100mm x 938mm
	Unlatched	2100mm x 938mm

NB: An increase in door thickness to 54mm, or a change to Resorcinol-based adhesives instead of conventional cross-linking PVA will enable still larger assemblies if required. Please refer to the Lorient technical department for further details.

Possible Configurations

Please refer to page 8, or contact Lorient Technical Services for details of which configurations are possible with which door constructions



Meets the requirements of Approved Document M

Test reports and constructional specifications are available to any UK manufacturer who wishes to build doors using the Georgia-Pacific design, under free licence.

The Georgia-Pacific door component system can now be manufactured with long vision panels in double doors, to meet the requirements of Approved Document M.

c) 120 minute fire performance – complex construction with GP1000 frame

Maximum door leaf sizes (using Resorcinol-based adhesive)

Single Action, Single Leaf, 44mm	Latched	2500mm x 1100mm
	Unlatched	2040mm x 826mm
Single Action, Double Leaf, 44mm (plain or rebated meeting stiles)	Latched	2500mm x 1100mm
	Unlatched	2500mm x 1100mm

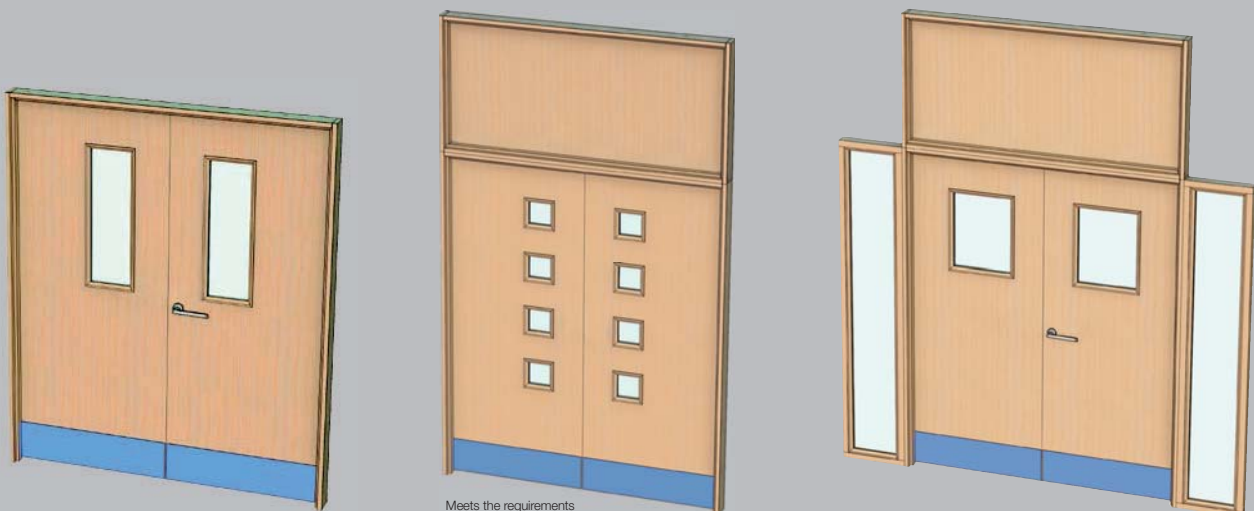
NB: Resorcinol-based adhesives are essential for a 120 minute 44mm construction. An increase in door thickness to 54mm will enable larger sizes to be achieved.

Maximum door leaf sizes (using PVA adhesive)

Single Action, Single Leaf, 54mm	Latched	2040mm x 826mm
	Unlatched	2040mm x 826mm
Single Action, Double Leaf, 54mm (plain or rebated meeting stiles)	Latched	2040mm x 826mm
	Unlatched	2040mm x 826mm

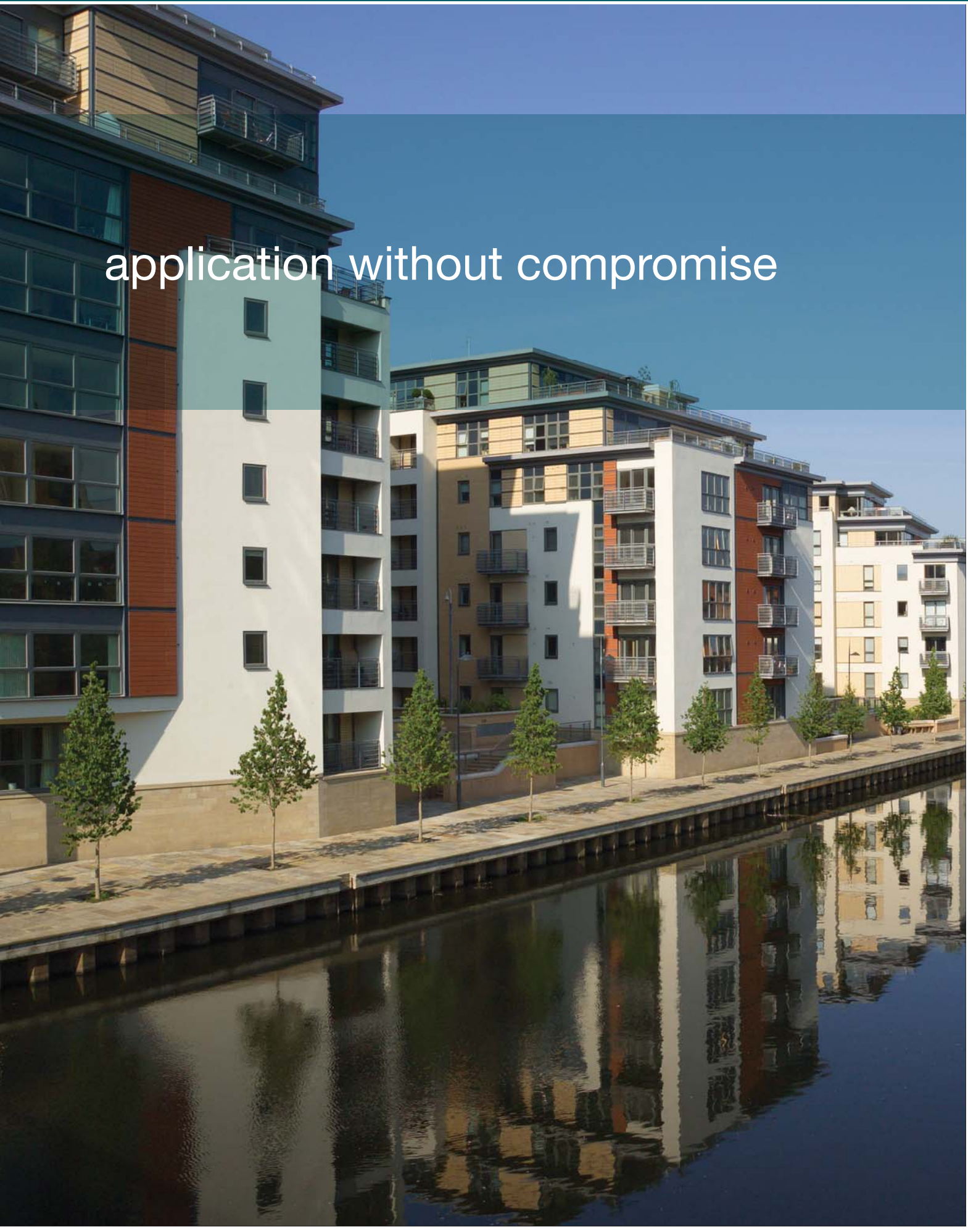
Other options

- Overpanels may be incorporated, up to 1000mm in height; flush, rebated or with transom (for complex construction with GP1000 frame only).
- Unequal pairs, or leaf-and-a-half doors can be incorporated. Please refer to test evidence.



Meets the requirements of Approved Document M

application without compromise



More applications are now calling for doors to provide acoustic containment, as well as smoke and fire protection. The Georgia-Pacific system, utilising Lorient's seals, can provide an integrated solution.

When testing for acoustic containment, a door and its seals are tested as a complete assembly. The seals will help to maintain the acoustic performance of the door itself, and over many years of acoustic testing, Lorient's seals have been proven to be particularly effective for acoustic containment on many different door constructions.

The Georgia-Pacific door construction, with Lorient seals, has been tested for acoustic performance and has achieved an R_w rating of 30dB. Tests were conducted under the conditions of BS EN ISO 10140-2: 2010, and rated according to BS EN ISO 717-1: 1997.

Tests have been carried out on both single leaf and double leaf door assemblies, in either latched or unlatched applications;

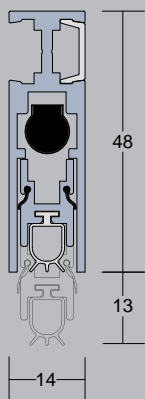
also double swing configurations and combinations with steel frames.

The Lorient seals recommended for acoustic containment with the Georgia-Pacific system are:

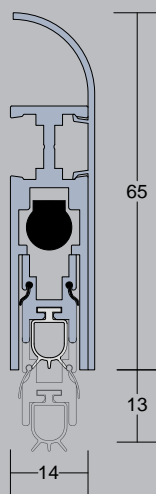
- LP3506DS combined acoustic, smoke and fire seal (head and jambs of doors)
- LP1006DS combined acoustic, smoke and fire seal at meeting stiles (1 seal, plus 3 x LP1006 fire seal – refer to page 8)
- LAS8003 si or LAS8008 si automatic threshold seal
- LAS1212 Batwing® acoustic and smoke perimeter seal, together with fire seals

For details of alternative choices, please refer to page 8.

LAS8003 si
drop seal



LAS8008 si
drop seal



Threshold Sealing

The gap between the bottom of the door and the floor is a very commonly overlooked risk area. It is particularly important for smoke protection where the gap is in excess of 3mm, the maximum allowable for a fire/smoke door. Threshold sealing is also essential for effective acoustic containment.

Lorient can provide a range of threshold seals; key benefits of the LAS8003 si and the LAS8008 si automatic threshold seals include:

- High efficiency mechanism which lifts the seal clear of the floor as soon as the door is opened by a few millimetres
- Exceptional acoustic performance
- No power connection is required
- Tested for durability, completing over 1 million open and close cycles without failure

Permissible Design Variations

90 or 120 minute performance

FRAME SECTIONS	38mm x 100mm or 25mm x 100mm GP1000 frame stock with 12-16mm planted stop. 38mm x 100mm GP1000 material with machined rebate 12-16mm. For 90 minute doors of appropriate construction (see page 3), hardwood frames may be used, dimensions 90mm x 45mm with a 34mm x 15mm planted stop.
BACK OF FRAME	For 90 and 120 minute construction with GP1000 frame: back of frame to be filled with Lorient intumescent mastic and mineral fibre wool. For 90 minute construction with hardwood frame: back of frame to be fitted with Lorient back of frame seal – please contact the Lorient Technical Department for details.
GLAZED APERTURES	Pyran S® clear glass or FireLite® and Lorient System-90 PLUS glazing channel, in conjunction with steel retaining beads. Maximum sizes as shown below. ALTERNATIVE GLAZING SYSTEMS ARE NOT PERMITTED, AS TEST CERTIFICATION WOULD BE INVALIDATED. 90 minute standard construction – maximum dimensions (height x width) Single Action, Single Leaf 500mm x 400mm; 1600mm x 200mm; 180mm x 180mm (4 No) Single Action, Double Leaf 500mm x 400mm; 180mm x 180mm (4 No per leaf) 90 minute complex construction – maximum dimensions (height x width) Single Action, Single Leaf 500mm x 400mm; 1600mm x 200mm; 180mm x 180mm (4 No) Single Action, Double Leaf 500mm x 400mm; 180mm x 180mm (4 No per leaf) 120 minute complex construction – maximum dimensions (height x width) Single Action, Single Leaf 500mm x 400mm; 750mm x 260mm; 180mm x 180mm (4 No) Single Action, Double Leaf 500mm x 400mm; 750mm x 260mm; 180mm x 180mm (4 No per leaf)
AIR TRANSFER GRILLES	Maximum size 450mm high x 450mm wide using Lorient type LVH44 only.
FACINGS	Any wood veneer up to 1mm thickness on 3mm plywood skins (8mm plywood skins for 54mm doors). Any melamine type decorative laminate up to 2mm thickness on 3mm plywood skins (8mm plywood skins for 54mm doors). MDF skins may be used on unglazed 90 minute doors of appropriate construction, when used with a hardwood frame (see page 3 for correct construction). Glazed doors must have a plywood skin.
HINGES	Class 9 load rating, 100mm x 75mm butt hinge. Royde and Tucker product ref. H207 in stainless steel is particularly recommended and can be supplied from stock by Lorient. Please ensure hinges are bedded in sodium silicate intumescent hinge pads/mastic.
LATCH / KNOBSET	Mortise type up to maximum dimensions 90mm x 150mm long x 22mm thickness. Cylindrical type up to maximum cut-out of 52mm diameter. Both types to be installed with Lorient intumescent lock and lack protection jackets.
HYDRAULIC CLOSER	Any surface mounted CE marked closer to suit width of door.
OTHER HARDWARE	Any surface mounted items may be used without limitation.
INTUMESCENT SEALS	Frames LORIENT ref: LP3506DS combined acoustic, smoke and fire seal; OR LP3506 fire seal, plus additional smoke seal (eg, LAS1212 Batwing®). Meeting stiles only LORIENT ref: LP1006 fire seal (3 seals); plus LP1006DS combined acoustic, smoke and fire seal (1 seal) Bottom dooredge LORIENT ref: LP1006 fire seal (2 seals) Overpanel interfaces LORIENT ref: LP1006 fire seal (1 seal); plus LP1006DS combined acoustic, smoke and fire seal (1 seal) For guidance on location of seals, please refer to the drawing on page 2. NO VARIATIONS ARE PERMITTED, AS TEST EVIDENCE WOULD BE INVALIDATED.
ACOUSTIC SEALS	Any surface mounted type may be used without reservation. It is possible to use a variety of combinations including the LAS7001 si perimeter seal and the LAS8009 si automatic threshold seal combination.

Technical Specifications

Product Specifications

GP500 Core Material		GP1000 Stile & Rail / Framestock Material	
Colour	Light grey	Colour	Light grey
Density	480-561 kg/m ³	Density	1100-1276 kg/m ³
Moisture content	<1.5% by weight	Moisture content	<1% by weight
Screw holding – load at break	Not applicable	Screw holding – load at break (#12 wood screw/25mm penetration)	590 kg
Compressive load at break	2.59 N/mm ²	Compressive load at break	24 N/mm ²
Flexural load at break (158mm wide x 38mm thick on 355mm span)	39-57 kg	Flexural load at break (158mm wide x 28mm thick on 355mm span)	232 kg
Component dimensions (sheets) (Length x Width x Diameter)	2083 x 876 x 38mm	Component dimensions (lengths) Stile & Rail (Length x Width x Diameter)	2185 x 25 x 38mm 2185 x 50 x 38mm
Thermal conductivity	0.1167 W/m ² K	Component dimensions (lengths) Framestock (Length x Width x Diameter)	2185 x 100 x 25mm 2185 x 100 x 38mm
Tensile load at break	6-9.5 kg	Split resistance (load required at break latch stile)	385 kg
Core thickness (876mm x 2071mm x 38mm)	38mm		

All Georgia-Pacific component parts for doors and frames are available ex-stock in the UK from Lorient.

Screw Retention Tests

Warnock-Hersey test reports 646-4039 and 646-4080 show that the GP1000 frame stop did not show any visual indications of failure, the door did not show any visual indications of de-lamination or other failure. The screws into the stile and frame remained in place and the hinges were tight to the stile and frame. The reports fully endorse the screw retention characteristics of GP1000 as being at least equal to most hardwoods.

Comparative Screw Retention Values

(per 1mm Thread Insertion – No 12 Woodscrew)

Douglas Fir, Teak, Iroko, Meranti	15.3-23.0 Newtons
Georgia-Pacific GP1000	23.6 Newtons

Timber information from Table 66, BS 5266 PT 11

Slamming Tests (performed in the USA)

A typical Georgia-Pacific door construction has also been tested through 1,000,000 slam cycles under the 'National Window and Door Manufacturers Association – T.M. 7-90'; a test method to determine the physical endurance of wood doors and associated hardware connections under accelerated operating conditions.

Storage and Handling Conditions

Georgia-Pacific fire door components must be stored flat in dry conditions. There are no critical temperature control requirements. Components should be handled carefully to avoid breakage and sheets of core material in particular should be properly supported around the perimeter rather than just at each end.

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