



TECHNICAL INFORMATION FOR ENDURANCE DOORS

1. MINIMUM/MAXIMUM WIDTHS – SINGLE DOOR

SINGLE DOOR 72MM FRAME

Glazed Doors with Butt Hinges (Except Malvern & Flat Skin designs, see below)

Min Width	850mm	-	Leaf 736mm
Max Width (Standard)	1004mm	-	Leaf 890mm
Max Width (Eurosize)	1035mm	-	Leaf 921mm

Glazed Doors with Flag Hinges

Min Width	870mm	-	Leaf 756mm
Max Width (Standard)	1004mm	-	Leaf 890mm
Max Width (Eurosize)	1035mm	-	Leaf 921mm

Solid Doors with Flag or Butt Hinges (Except Brecon and Grasmoor, see below)

Min Width	850mm	-	Leaf 736mm
Max Width (Standard)	1004mm	-	Leaf 890mm
Max Width (Eurosize)	1035mm	-	Leaf 921mm

Malvern, Brecon & Flat Skin Design

Min Width	754mm	-	Leaf 640mm
Max Width	1004mm	-	Leaf 890mm

SINGLE DOOR 52MM FRAME

Glazed Doors with Butt Hinges (Except Malvern & Flat Skin designs, see below)

Min Width	810mm	-	Leaf 736mm
Max Width (Standard)	964mm	-	Leaf 890mm
Max Width (Eurosize)	995mm	-	Leaf 921mm

Glazed Doors with Flag Hinges

Min Width	830mm	-	Leaf 756mm
Max Width (Standard)	964mm	-	Leaf 890mm
Max Width (Eurosize)	995mm	-	Leaf 921mm

Solid Doors with Flag or Butt Hinges (Except Brecon and Grasmoor, see below)

Min Width	810mm	-	Leaf 736mm
Max Width (Standard)	964mm	-	Leaf 890mm
Max Width (Eurosize)	995mm	-	Leaf 921mm

Malvern, Brecon or Flat Skin Design

Min Width	714mm	-	Leaf 640mm
Max Width	964mm	-	Leaf 890mm

BUILDING REGULATIONS (Part M) WHEELCHAIR ACCESS WIDTH

Please see the diagram and table on the last page of this document.

2. MINIMUM/MAXIMUM HEIGHTS – SINGLE DOOR**72mm PVC Threshold in a 72mm Frame**

Min Height	1898mm	-	Leaf 1784mm
Max Height	2163mm	-	Leaf 2050mm

52mm PVC Threshold in a 72mm Frame

Min Height	1878mm	-	Leaf 1784mm
Max Height	2143mm	-	Leaf 2050mm

52mm PVC Threshold in a 52mm Frame

Min Height	1858mm	-	Leaf 1784mm
Max Height	2123mm	-	Leaf 2050mm

Aluminium Low Threshold in a 72mm Frame

Min Height	1859mm	-	Leaf 1784mm
Max Height	2125mm	-	Leaf 2050mm

Aluminium Low Threshold in a 52mm Frame

Min Height	1839mm	-	Leaf 1784mm
Max Height	2105mm	-	Leaf 2050mm

3. MINIMUM/MAXIMUM HEIGHTS – SINGLE DOOR WITH A TOPLIGHT**72mm PVC Threshold in a 72mm Frame**

Min Height	1867mm*	-	Leaf 1784mm
Max Height	2133mm*	-	Leaf 2050mm

52mm PVC Threshold in a 72mm Frame

Min Height	1847mm*	-	Leaf 1784mm
Max Height	2113mm*	-	Leaf 2050mm

52mm PVC Threshold in a 52mm Frame

Min Height	1847mm*	-	Leaf 1784mm
Max Height	2113mm*	-	Leaf 2050mm

Aluminium Low Threshold in a 72mm Frame

Min Height	1828mm*	-	Leaf 1784mm
Max Height	2093mm*	-	Leaf 2050mm

Aluminium Low Threshold in a 52mm Frame

Min Height	1823mm*	-	Leaf 1784mm
Max Height	2093mm*	-	Leaf 2050mm

*PLUS HEIGHT OF TOPLIGHT

4. MINIMUM/MAXIMUM WIDTHS – FRENCH DOOR

EQUAL SIZED FRENCH DOORS IN 72MM FRAME

Glazed Doors with Butt Hinges (Except Malvern & Flat Skin designs, see below)

Min Width	1628mm	-	Leafs 2 x 737mm
Max Width	1996mm	-	Leafs 2 x 921mm

Glazed Doors with Flag Hinges

Min Width	1680mm	-	Leafs 2 x 763mm
Max Width	1996mm	-	Leafs 2 x 921mm

Solid Doors with Flag or Butt Hinges (Except Brecon and Grasmoor, see below)

Min Width	1628mm	-	Leafs 2 x 737mm
Max Width	1996mm	-	Leafs 2 x 921mm

Malvern, Brecon and Flat skin Designs (Except Grasmoor)

Min Width	1434mm	-	Leafs 2 x 640mm
Max Width	1936mm	-	Leafs 2 x 891mm

Grasmoor

As the Grasmoor is a solid door with a flat skin, the minimum sizes are flexible

Max Width	1996mm	-	Leafs 2 x 921mm
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OFF-SET FRENCH DOORS IN 72MM FRAME

Glazed Doors with Butt Hinges (Except Malvern & Flat Skin designs, see below)

Min Width	1191mm	-	Leafs 1 x 300mm / 1 x 737mm
Max Width	1540mm	-	Leafs 1 x 465 mm/ 1 x 921mm

Glazed Doors with Flag Hinges (Except Malvern & Flat Skin designs, see below)

Min Width	1271mm	-	Leafs 1 x 360mm / 1 x 757mm
Max Width	1540mm	-	Leafs 1 x 465 mm/ 1 x 921mm

Solid Doors and Flat skin designs with Flag or Butt Hinges (Except Brecon and Grasmoor, see below)

Min Width	1191mm -	Leafs 1 x 300mm / 1 x 737mm
Max Width	1540mm -	Leafs 1 x 465 mm/ 1 x 921mm

Grasmoor

As the Grasmoor is a solid door with a flat skin, the minimum sizes are flexible

Max Width	1996mm -	Leafs 2 x 921mm
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NB The Malvern and Brecon designs are not available as an Off-Set French Door

5. MINIMUM/MAXIMUM HEIGHTS – FRENCH DOOR

72mm PVC Threshold in a 72mm Frame

Min Height	1898mm -	Leaf 1784mm
Max Height	2163mm -	Leaf 2050mm

52mm PVC Threshold in a 72mm Frame

Min Height	1878mm -	Leaf 1784mm
Max Height	2143mm -	Leaf 2050mm

Aluminium Low Threshold in a 72mm Frame

Min Height	1859mm -	Leaf 1784mm
Max Height	2125mm -	Leaf 2050mm

6. MINIMUM/MAXIMUM HEIGHTS – FRENCH DOOR WITH A TOPLIGHT

72mm PVC Threshold in a 72mm Frame

Min Height	1867mm* -	Leaf 1784mm
Max Height	2133mm* -	Leaf 2050mm

52mm PVC Threshold in a 72mm Frame

Min Height	1847mm* -	Leaf 1784mm
Max Height	2113mm* -	Leaf 2050mm

Aluminium Low Threshold in a 72mm Frame

Min Height	1823mm* -	Leaf 1784mm
Max Height	2093mm* -	Leaf 2050mm

*PLUS HEIGHT OF TOPLIGHT

7. MINIMUM/MAXIMUM WIDTHS – MATCHING ENDURANCE SIDE PANEL

72MM FRAME

With Letterplate

Min Width	474 mm	-	Leaf 360mm
Max Width	579 mm	-	Leaf 465mm

Without Letterplate

Min Width	404 mm	-	Leaf 290mm
Max Width	579 mm	-	Leaf 465mm

52MM FRAME

With Letterplate

Min Width	434 mm	-	Leaf 360mm
Max Width	539 mm	-	Leaf 465mm

Without Letterplate

Min Width	364 mm	-	Leaf 290mm
Max Width	539 mm	-	Leaf 465mm

8. MINIMUM/MAXIMUM WIDTHS – SIDELIGHT WITH MIDRAIL AND ENDURANCE HALF OR QUARTER PANEL

72MM FRAME

Half Panel With or Without Letterplate

Min Width	774mm	-	Leaf 660mm
Max Width	954mm	-	Leaf 840mm

Quarter Panel With Letterplate

Min Width	474 mm	-	Leaf 360mm
Max Width	579 mm	-	Leaf 465mm

Quarter Panel Without Letterplate

Min Width	404 mm	-	Leaf 290mm
Max Width	579 mm	-	Leaf 465mm

52MM FRAME

Half Panel With or Without Letterplate

Min Width	734mm	-	Leaf 660mm
Max Width	914mm	-	Leaf 840mm

Quarter Panel With Letterplate

Min Width	434 mm	-	Leaf 360mm
Max Width	539 mm	-	Leaf 465mm

Quarter Panel Without Letterplate

Min Width	364 mm	-	Leaf 290mm
Max Width	539 mm	-	Leaf 465mm

9. MINIMUM WIDTH – GLAZED OR UNGLAZED SIDELIGHT

72MM OR 52MM FRAME WITH OR WITHOUT TRANSOM

Min Width	200 mm
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10. STABLE DOOR SIZING

The minimum and maximum sizing is per the single door information above.

The two halves of the door leaf are manufactured using a 60/40 split, the top half being 60% of the overall size and the bottom half 40%.

11. HINGE SPECIFICATIONS

Positioning

Top Hinge	=	150mm from top of door leaf to middle of hinge
Bottom Hinge	=	150mm from bottom of door leaf to middle of hinge
Central Hinge	=	Centralised between the top and bottom hinges

FLAG HINGE

Plasterline clearance

72mm Frame	=	25mm from edge of frame to hinge
52mm Frame	=	5mm from edge of frame to hinge

Adjustability

Full 3 dimensional adjustability

Compression	-	Side to Side 3>4mm each-way,
	-	Height +/- 3mm

BUTT HINGES

Plasterline clearance

72mm Frame	=	30mm from edge of frame to hinge
52mm Frame	=	10mm from edge of frame to hinge

Adjustability

Compression	-	Side to Side 2>3mm each-way,
	-	Height +/- 2>3mm

12. HANDLE SETS

SINGLE DOOR

- The standard handle set supplied is the Windsor range from Fab 'n' Fix.
- It is available in Lever/Lever and Lever/Pad. Both options can be fitted with a split spindle.

FRENCH DOOR

- The handles are supplied with the lock at the point of ordering.
- The Slave door has a fixed external handle
- The master door has an operational external handle
- Lever/Pad handles are not available
- The split spindle operation is not available.
- The handles are colour matched to the centre mullion which forms part of the locking mechanism.
- The available colours are: Silver (anodised), Gold (anodised) & White.
- The Windsor handle sets from Fab 'n' Fix are not compatible with the French Door.

STABLE DOOR

Top door

- The standard Windsor handle from Fab 'n' Fix is supplied
- The lever/lever and lever/pad designs are available
- The split spindle operation is not available

Bottom door

- No handle is fitted to this door section.
- The door is operated by a thumb-turn on the inside and the key only on the outside.

13. ENDURANCE DOOR LOCKS

SINGLE DOOR STANDARD LOCKS

Open in with or without split spindle and Open out without split spindle

- The standard lock is the Tru-lock from Winkhaus
- It comprises of top and bottom hooking bolts and a central latch and deadbolt.
- This lock is handed right or left. **The latching mechanism on this lock is 'None Reversible'.**
- The lock is suitable for inward and outward opening doors without a split spindle function and with inward opening doors with a split spindle
- The lock **will not** operate correctly when fitted to opening out doors with the split spindle function.

Open out with split spindle

- The standard lock is the Cobra lock from Winkhaus
- It comprises of top and bottom hooking bolts and a central latch and deadbolt.
- The latch is reversible and can be used on both the left and right of the door.
- The lock is used on outward opening doors requiring a split spindle function.

Lock Keeps

- The above locks locate into a three piece keep set fitted to the inside edge of the outer frame.
- The keeps are fully adjustable on a cam system to allow for additional adjustment and compression to gaskets on site following installation.
- The cams are operated using a torque/star headed tool.

SINGLE DOOR HIGH SECURITY LOCKS

AV2 lock (manual operation)

- The lock is handed RH or LH.
- It has automatically operating hook bolts top and bottom and a central latch and deadbolt.
- This lock is handed right or left. **The latching mechanism on this lock is 'None Reversible'.**
- It has a fixed handle on the external face.
- It requires a split spindle to be fitted with the handle set.
- The lock can be used on both inward and outward opening doors
- Similar keep sets are used as described above for the standard locks

AV2E lock (Electronic operation)

- The lock is handed RH or LH.
- It has automatically operating hook bolts top and bottom and a central latch and deadbolt.
- This lock is handed right or left. **The latching mechanism on this lock is 'None Reversible'.**
- It has a fixed handle on the external face.
- It requires a split spindle to be fitted with the handle set.
- The lock can be used on both inward and outward opening doors.
- It is compatible with most electronic access systems, FOB's, etc.
- A wiring diagram and manual is available on request
- Similar keep sets are used as described above for the standard locks

Electronic Release Latch

- Doors can be prepared for and supplied with an electronic release latch which is compatible for use with Key-Pad and Fob entry systems.

- The Tru-lock and handles cannot be used in conjunction with the electronic release latch.
- ALL ELECTRICAL WORKS SHOULD BE CARRIED OUT BY A FULLY CERTIFIED ELECTRICIAN.

ALTERNATIVE LOCKING SYSTEMS FOR THE SINGLE DOOR

Rim Lock

- The doors can be prepared for and supplied with a Rim Lock
- The lock supplied is the Era Double Locking Night Latch
- It is available with either a 40mm or 60mm backset.
- The most appropriate backset is supplied which is dependent on the width of the door and the glazing type.
- A colour matched Ring-Pull is supplied as standard with the Rim Lock
- Due to the weight of the door, we do not recommend that the Rim Lock is used on its own as a locking mechanism for the door.

Mortice Lock

- The doors can be prepared for and supplied with a Mortice Lock.
- The lock supplied is the Era High Security Fortress Mortice Lock.
- It is a 5 lever British Standard High Security Mortice Lock to BS3621:2007.
- Due to the weight of the door, we do not recommend that this is used on its own as a locking mechanism for the door.

FRENCH DOOR LOCK

- The French doors are fitted with the Gemini lock from Fullex.
- The lock is made up of two parts, the Master and the Slave.
- Master: Deadbolts to top and bottom along with latch and deadbolt to centre.
- Slave: Incorporates integral keep locations for the Master-door deadbolts and latching.
- The Slave mechanism is fitted with shoot-bolts to the top and bottom.
- All handles and locking cylinders are supplied with the lock at point of ordering.
- Lever/Pad handles are not available.
- Slave door has a fixed external handle.
- The Lock is restricted to the following colours: Silver (anodised), Gold (anodised) & White.

STABLE DOOR LOCK

Top Door

- The lock fitted to the top half of the stable door is an ERA lock.
- The lock comprises of a hook bolt at the top along with a centre latch and deadbolt.
- The lock uses the standard cylinder fitted to the Endurance door range.
- This half is fitted with the standard Endurance handle (Windsor range).

Bottom Door

- The lock fitted to the bottom half of the stable door is a Winkhaus lock.
- This lock comprises of a hook bolt to the bottom and a centre roller latch.

- The cylinder fitted as standard is a thumb turn cylinder 35/35 split along with two circular cover caps.

The two door halves are held together with a shoot-bolt/latch fastening. When the latch is fastened, the door opens and closes as a single door. When the latch is released it allows the two halves to operate independently.

Lock Maintenance

- The locks require minimal maintenance which is dependent on usage.
- Normal usage – Light application of spray lubricant (e.g.WD40) to locks main moving parts. Light spraying of lubricant to both sides of cylinder. (6 monthly)
- Heavy usage – Application of silicone grease to hook bolts along with latch and deadbolts. Light spraying of lubricant (e.g. WD40) to both sides of cylinder. (3 monthly)

CYLINDERS

Standard

- The standard cylinder is a 40/40 barrel with 6 pins
- It offers anti-drill and anti-bump protection.
- The finish is either Nickel or Brass
- It is fitted as standard into the Single Door and the top lock of the Stable Door
- Keyed alike cylinders are available for front and back doors

High Security

- The high security cylinder is a Magnum Superior
- It offers anti-drill, anti-bump, anti-snap and anti-pick protection
- The finish is either Nickel or Brass
- A key card/code is required for replacement or additional keys to be cut
- It is an option available for the Single Door
- Keyed alike cylinders are available for front and back doors.

14. OUTER FRAME

The outer frame profile is the Rehau 706 System which is BBA approved and manufactured to BS7413.

It is fully welded and reinforced with galvanised steel and is available in 72mm and 52mm options.

The colour choices are:

- White
- Oak
- Oak on White
- Mahogany
- Mahogany on White
- Rosewood
- Rosewood on White
- Black (Schwartz Brown) on White

OUTER FRAME SEALS

The external seal on the outer frame is Q Lon 7000

- White frames are fitted with White Q-lon
- Woodgrain frames are fitted with Black Q-lon

The internal seal is Schlegel brush pile PB691300

FRAME ADD-ON / PACKER

- Add-on's are available in 15mm & 45mm
- They can be used in multiples to acquire the overall width of packer required.

FRAME TO FRAME JOINING COUPLER

- An 8mm aluminium coupler is used to join the door and side light frames
- The cover is supplied with PVC covering strips to match the outer frame.

TOPLIGHT TO FRAME COUPLER

- Toplight/Fanlights connectors are PVC "H" channel at 3mm wide.

15. THRESHOLDS

72mm PVC Threshold

- Height 72mm
- Width 70mm
- Internal clearance 56mm
- Does not meet Part M compliance.

52mm PVC Threshold

- Height 52mm
- Width 70mm
- Internal clearance 36mm
- Does not meet Part M compliance.

Aluminium Low Threshold to Brickwork - Single or French Doors

Open in Doors

- The threshold used is the Exitex MDS25
- Height 25mm
- Width 115mm
- Internal clearance 18mm.
- Meets part M compliance

Open out Doors

- The Threshold used is the Exitex OUM
- Height 25mm
- Width 100mm
- Internal clearance 18mm.
- Meets part M compliance

Aluminium Low Threshold onto a Sill - Single Doors

Open In or Open Out

- The Threshold used is the Exitex Macclex 15FS
- Height 15mm
- Width 72mm (plus sill of 95mm or 150mm)
- Internal clearance 35mm (including sill)
- Meets part M compliance

Aluminium Low Threshold onto a Sill - French Doors

- The Threshold used is the Exitex MWK
- Height 15mm
- Width 48mm (plus sill of 95mm or 150mm)
- Internal clearance 40mm (including sill)
- Meets part M compliance

16. DOOR LEAF

The door leaf has a solid core and an overall thickness of 48mm.

Skins

- The inner and outer skins are manufactured from vacuum formed 1.5mm thick Paldoor Cool skins.
- They have Heat Reflective Properties which minimise the effects of the sun to protect against cracking.
- When vacuum formed, the skins have a Woodgrain effect finish.

Core

- The leaf core consists of a solid 45mm core of “Kerto q (IvI)”, tested to BS476: part 22 1987, accredited with BBA 00/3717 and compliant with ISO9001 & ISO2000 requirements.
- Kerto consists of fifteen 3.2mm thick veneers, three of which are laid cross grain. All veneers are scarf jointed except the middle one which is butt jointed.
- The veneers are made from Norway spruce or Scots Pine, bonded together by a type WPB, phenol-formaldehyde adhesive.
- The skins are bonded to the Kerto using a moisture-cured adhesive manufactured by Apollo adhesives.

Edgebanding

The edge of the door leaf is fully sealed with a 1.5mm ABS edge band. The adhesive used is a moisture resistant hot melt.

The edgebanding is applied in the following colourways:

- White edgebanding is applied to White and all coloured door leaves.
- Black edgebanding is applied to Black leaves
- Caramel edgebanding is applied to Oak leaves
- Dark Brown edgebanding is applied to Mahogany and Rosewood leaves.

17. WEIGHT OF DOORS

The average weight for a single Endurance door inclusive of frame is 55Kg.

- Door leaf: 40Kg
- Standard reinforced frame: 15Kg

18. “U” VALUE

The term U value relates to the thermal efficiency of a product.

Approved Building Regulations Part L require that new and replacement windows and doors need to comply to the following values in England and Wales;

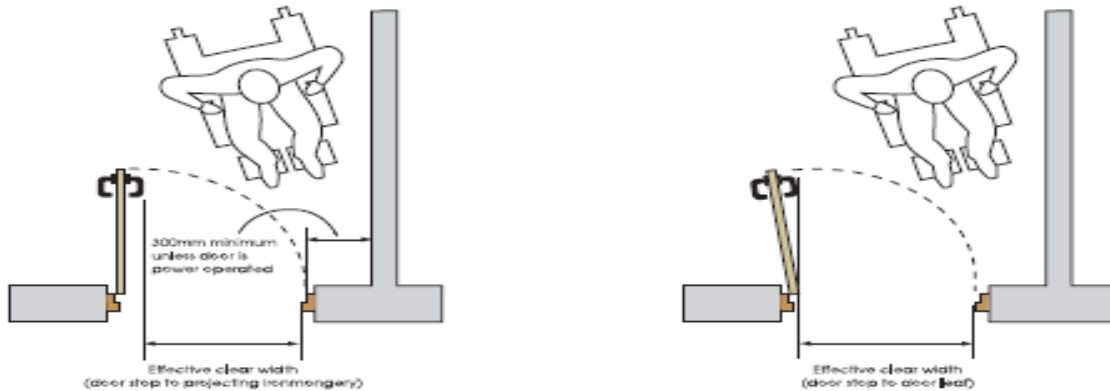
- Windows – 1.6W/m²K
- Doors - 1.8W/m²K
- Sidelights are considered to be Windows under Part L unless they form part of an all in one door frame
- replacement doors of less than 50% glazed area do not need to comply

The Average U value of the Endurance door is currently 1.8W/m²K

BUILDING REGULATIONS (Part M) WHEELCHAIR ACCESS WIDTH

The chart below provides the minimum and maximum door widths we can supply in order to comply with Building Regulation (Part M) Wheelchair Access widths.

- The door sizes at 90° are the minimums required to meet the Part M standards.
- The doors sizes above 90° give an increased clear access of up to 115mm.



Approved Document Part M - Minimum Effective Clear Widths(single doors)

Direction and Width of Approach	Building Regulations for New Buildings Excluding the Frame Width	Rocal Door Set size including the frame to give the 800mm at a 90° angle opening	Building Regulations for Existing Buildings Excluding the Frame Width	Rocal Door Set Minimum size including the frame to give the 750mm at a 90° angle opening	Rocal Door Set Maximum size including the frame to give in excess of 750mm at a 90° angle opening
Straight on approach.	800mm	1037mm	750mm	987mm	1037mm
At right angles to an access route at least 1500mm wide.	800mm	1037mm	750mm	987mm	1037mm
At right angles to an access route at least 1200mm wide.	825mm	1037mm	775mm	1012mm	1037mm