

E4
**HARDWARE
SYSTEM**



E4 bifold door hardware for panels to 160kg

centor®

TALLER, WIDER DOOR PANELS, EXPANSES OF FRAMED GLASS



Engineered excellence

One moment bifold doors are acting as an effective, secure barrier from rain, wind and noise. The next they're effortlessly moved aside to reveal wide open space – with no fixed glass panels or posts. E4's massive weight-bearing capacity sets new standards for functional, stylish ways of bringing the outdoors in. Possible applications for Centor's bifold range are limited only by the imaginations of the world's most progressive architects and designers.

Engineered to withstand the most severe weather, E4 is just as suited to interior use where the ability to visually and physically connect spaces can be equally beneficial and the sound-proofing effect of double-glazing just as important. The benefits to the end-user in flexibly managing interior or exterior space to suit lifestyle or business are literally changing the face of contemporary building design.

E4 Specifications	
max opening width	20800mm
max panel weight	160kg
max panel height	4000mm
max panel width	1300mm
min panel thickness	45mm
max number of panels	16 (8 each direction)

RELY ON CENTOR-GRADE PERFORMANCE WITH WEATHERSEALED E4



High Performance results

Internal environment, operational function, durability, painstaking attention to detail and an unerring commitment to quality mean 'Centor-grade' performance, whatever the category. The result is a degree of control and comfort for the end-user that matches the easy flexibility of modern design.

Interior Comfort

E4 is truly a system for all seasons and all locations. Teamed with quality door panels, E4 hardware ensures a formidable barrier against the elements when closed. The integrity of the required interior environment is never compromised.

Air Infiltration

The E4 system achieves its superior rain and wind resistance in part from the way it allows the folding doors to close snugly against weather seals. In the same way doors using E4 effectively resist air infiltration to a level up to 50 times better than a conventional sliding door.

Noise and Temperature

With double glazing allowed for by E4's impressive panel weight capacity, unprecedented levels of insulation against noise and temperature variation are possible.

Rain and Wind

Centor hardware was utilised in the first tracked bifold door system to be certified under Australian Standard AS2047, which specifies the weather performance required of external windows and sliding doors. Doors utilising the E4 system have since passed all tests required for product approval from Florida's meticulous Miami-Dade County testing authorities – the single toughest standard of testing anywhere in the world in a region legendary for its coastal hurricanes and seasonal weather. This means driving rain and howling gales can be shut out completely with the tough E4 system.



Effortless operation

While E4's outstanding performance as part of a secure, weatherproof barrier is crucial, it's not until the doors are opened that the space-transforming benefits of the system truly come into play. For maximum enjoyment and use of the system, every effort has been made to ensure that doors glide open and slide shut with the minimum of effort throughout their working life.

Quality Manufacture, Clever Design

E4 carriers, guides and pivots use stainless steel bearings custom machined to extremely fine tolerances on state-of-the-art German and Swiss machinery. Machined wheels are individually precision ground while innovative carrier design prevents scraping on the inside of the overhead track.

Assembly and Installation

Assembly and installation couldn't be easier. Comprehensive instructions are included to ensure precise placement of fittings.

Adjustment

While E4 is designed to operate flawlessly well into the future, built-in adjustment mechanisms make the system tolerant of an imperfect world. Surelock II™, Centor's patented carrier pin locking system ensures that once heights are set they stay set. Should door panels swell or a newly built structure settle over time, the end-user can make vertical and lateral adjustments simply using a screwdriver or hex key.

Collaborative Design Process

E4's thoughtful design doesn't achieve the highest performance in all categories on its own. It's in its element teamed with the quality products created by Centor's many manufacturing and custom fabricating clients. The Centor technical department can assist in the design process for door sets incorporating the E4 system to ensure that the highest criteria for completed and installed doors are met even in the most unusual applications.

TOUGH TESTING CONDITIONS FOR HIGH STANDARDS OF DURABILITY



Proven Durability

While Centor Architectural certainly enjoys its reputation for innovation, ensuring that products meet and exceed the highest standards for durability is just as much a passion. This means a significant investment in repeatedly testing systems under the toughest of conditions – then testing them again.

Laboratory Testing

In addition to extensive weather testing as part of complete door systems, all individual E4 components have been extensively laboratory tested, ensuring years of trouble-free use from hardware which ages with grace.

Cyclic Testing

E4 hardware was designed for heavy duty use. In early development, the test period of a four-panel door system was set to 50,000 cycles, at full load.

Corrosion Testing

Stainless steel and engineering-grade plastics are used throughout the E4 system and are carefully selected to maximise performance in any environment. Centor conducts regular, thorough corrosion testing in a salt spray chamber, fixing hardware to various substrates to ensure that E4 will perform admirably even in the most exposed of coastal applications.

Structural Testing

As might be expected from a truly heavy-duty system, E4's tested strength is exceptional. In the course of obtaining approval under the stringent Miami-Dade County testing regime, doors based on the E4 system were subjected to hurricane strength wind loads, flexing the doors in and out five thousand times without component failure. Small and large missile impact testing was also performed as part of the single toughest testing process anywhere in the world.

Finite Element Analysis

Finite Element Analysis (FEA) is a computerised simulation technique where products are exposed to virtual operating environments and accurate predictions made in terms of load and deflection. Centor undertakes FEA in the design process to ensure the best balance of performance, cost and materials in every system.

E4 UP CLOSE



E4 System

Even a casual glance at the E4 system gives a strong impression of Centor's commitment to quality, but it's only upon closer inspection that the attention to detail really becomes apparent. Behind E4's tough good looks and robust proportions is a system stacked with standard features and flexible options to choose from. It's a system that looks even better up close.

Materials and Finishes

E4 carriers, guides, pivots and hinges are available in brushed stainless steel. Head tracks and floor guide channels are produced in satin natural anodised finish.

Panel Size and Materials

Centor's innovative hinge system enables the use of uniform-sized door panels regardless of the door configuration ensuring maximum efficiency in door manufacture. Easily installed hardware can be teamed with standard door panels in timber, aluminium, PVC or fiberglass. Maximum panel weight of 160kg means panel construction from the sturdiest of materials is possible.

Design Features

Top-rolling function means superior performance which is never compromised by the issue of debris in tracks. A floating wall pivot is used to control door stile deflection and bowing on tall doors caused by wind loads or climatic conditions. The type of tall, heavy doors typically used with the E4 system will generally require four hinges at each junction to maintain alignment of panels and seals.

Dropbolts

Easily installed with a dedicated router bit available from Centor, DF and DO dropbolts are available in a range of lengths and finishes to suit every E4 application. Available keyed and non-keyed, the clean-lined DF and DO dropbolts anchor doors firmly in the closed position. Together with the weather seals, they eliminate rattling in strong winds.



Performance

If success in modern design can be measured by the degree of comfort and ease afforded to the end-user, then Centor E4 again rates highly. E4's superior function and performance goes a long way to creating a relaxed setting, while a range of other measures allow the system to be utilised with complete confidence.

Unparalleled Security

The E4 system responds to an increasingly security conscious market place with measures designed to ensure unwanted visitors are excluded – as well as the elements.

Concealed Fittings

When doors utilising E4 are closed there are no externally accessible parts that can be removed or damaged. Screw fixings are concealed and hinge caps are retained by hidden fasteners.

Locking Screw Technology

The E4 system incorporates locking screw technology which ensures the E4 hardware cannot be removed from the track when the doors are closed.

Specifying E4

For detailed component selection, including calculating size and number of door panels, specifiers can utilise Doorcalc, Centor's free specification and ordering software. Doorcalc is available from centor.com

Architects and designers can feel comfortable simply specifying 'Centor E4' and leaving detailed component selection to the builder, joiner or fabricator.

Warranty

In line with a commitment to the highest possible quality Centor offers a 10-year warranty on E4 hardware.

WINDOW & DOOR HARDWARE CREATED FOR REAL LIFE SITUATIONS



Centor lifestyle options

Centor Folding

Based on the same functional geometry but with distinctive capacity and features, Centor's internal and external bifold range offers an alternative for every application. From the smallest folding window to four metre high walls of glass which fold away in seconds, Centor bifold systems create a formidable barrier against the elements, yet glide open with finger-tip ease.

EW and E2 are the mainstays of this flexible product range. Developed first and constantly upgraded since their inception they remain the perfect choice for the private residence or lighter commercial application. E2i is Centor's internal bifold system which has no sill or guide channel, allowing for seamless transitions between indoor spaces.

E3 and E4 are Centor's responses to the demands of architects and consumers wishing to expand the potential of bifold innovation into heavier-duty residential and commercial applications. E3 doubles the panel weight capacity of the E2 system, making even sturdier panel materials and double glazing possible. The E4 system takes it even further with a massive 160kg panel weight capacity and substantially increased height, width and overall measurement specifications, ensuring that Centor bifold systems remain the perfect choice for every project.

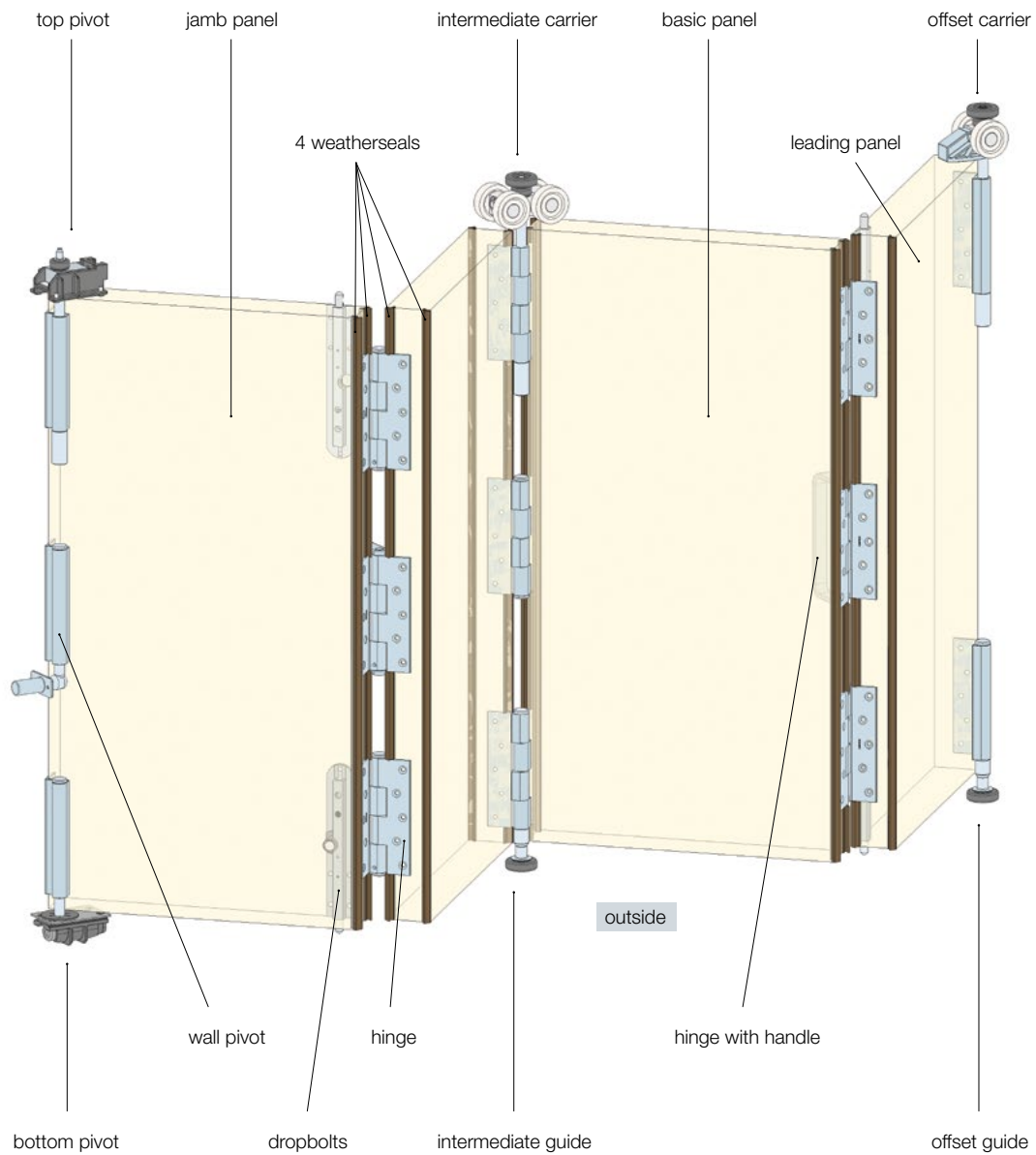
Centor Screening

Centor's award winning S4 screen is the perfect match for E4 bifolding doors. Its options of insect screen, light-filtering, blackout or combinations, enhance any E4 installation.

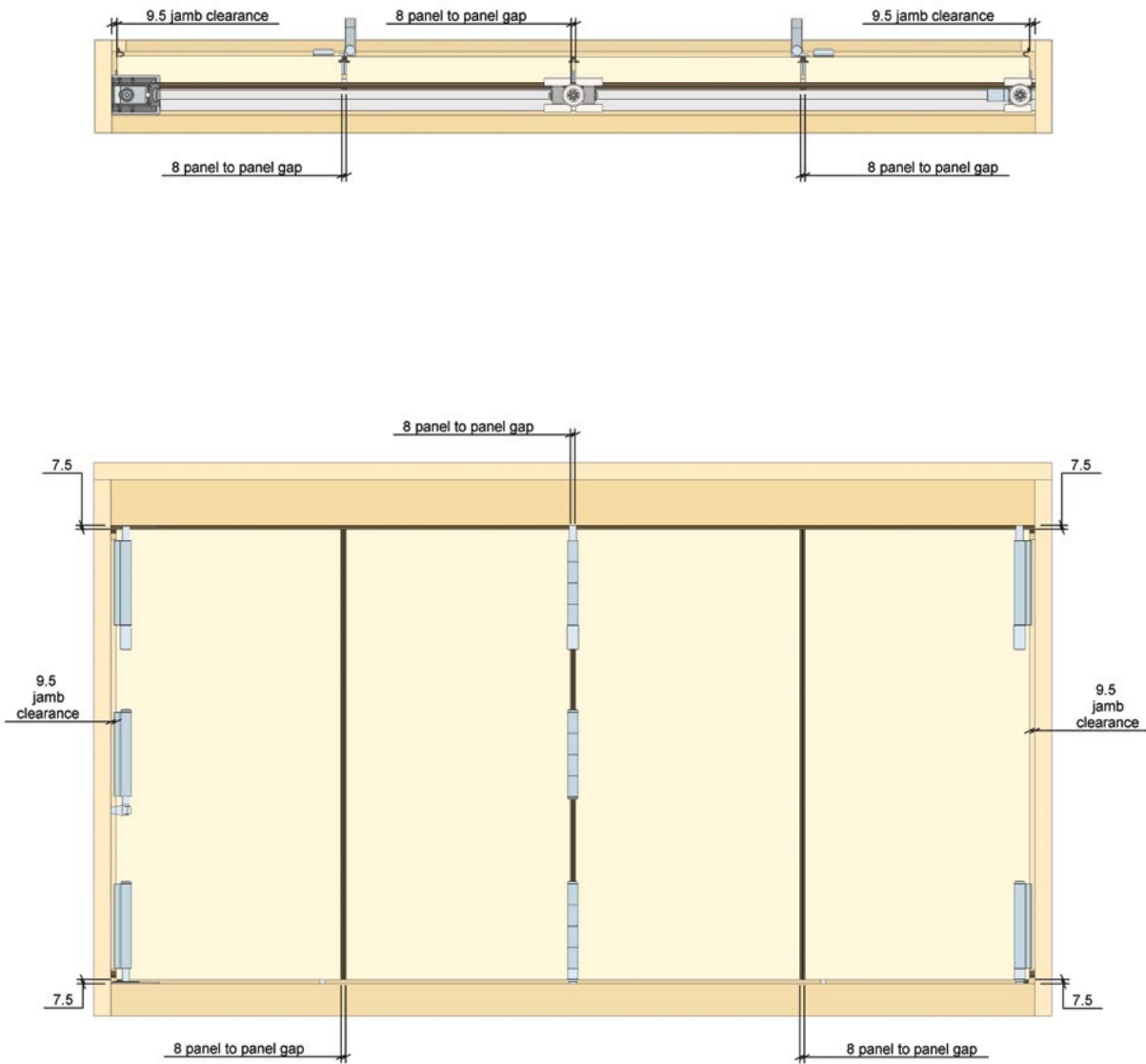
E4 PRODUCT DETAILS

Downloadable DXF or DWG files ready for use in your own documentation are a convenient resource for architects and specifiers wishing to use Centor systems.

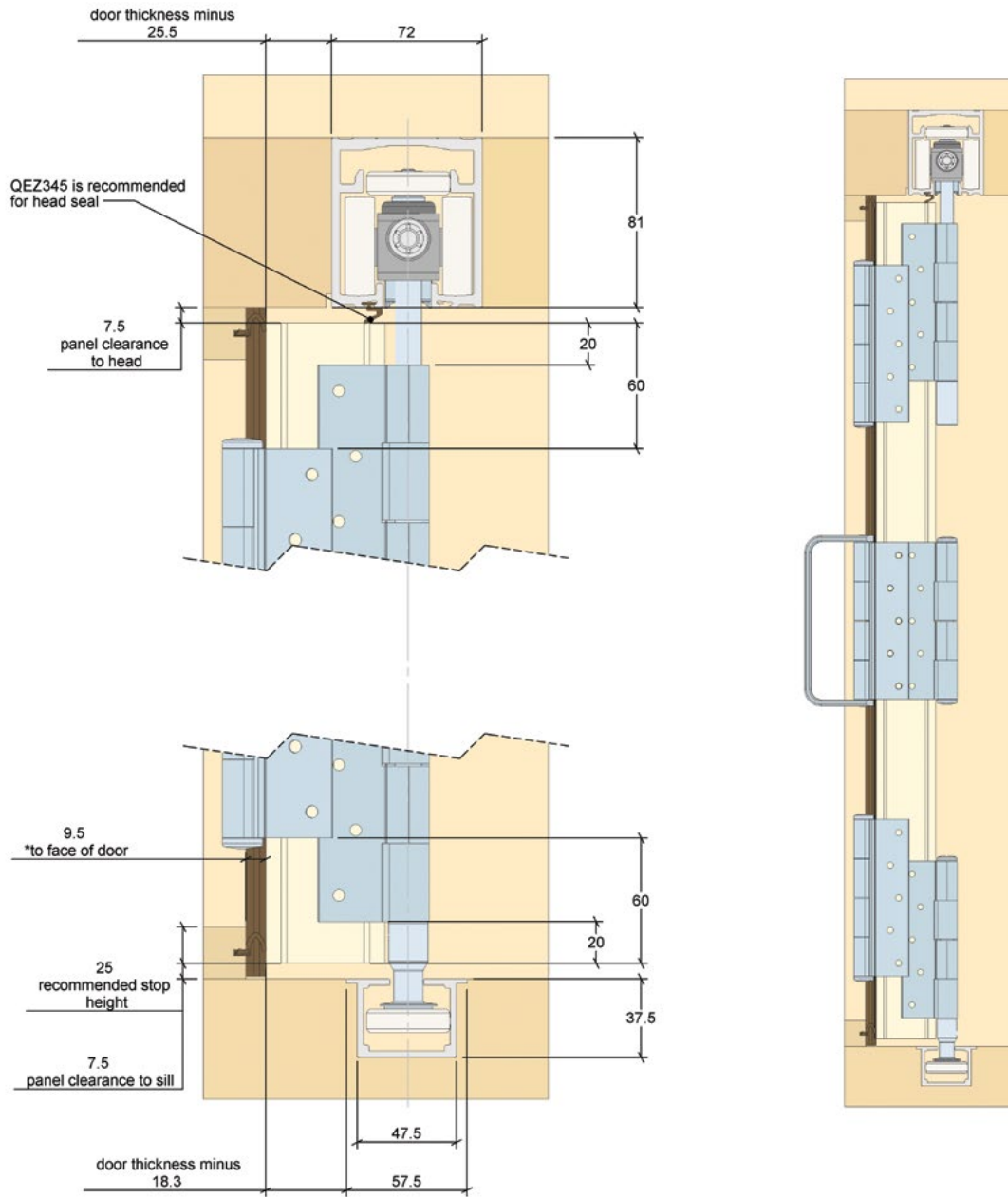
E4 DXF or DWG files can be downloaded from centor.com



E4 ARCHITECTURAL DETAIL



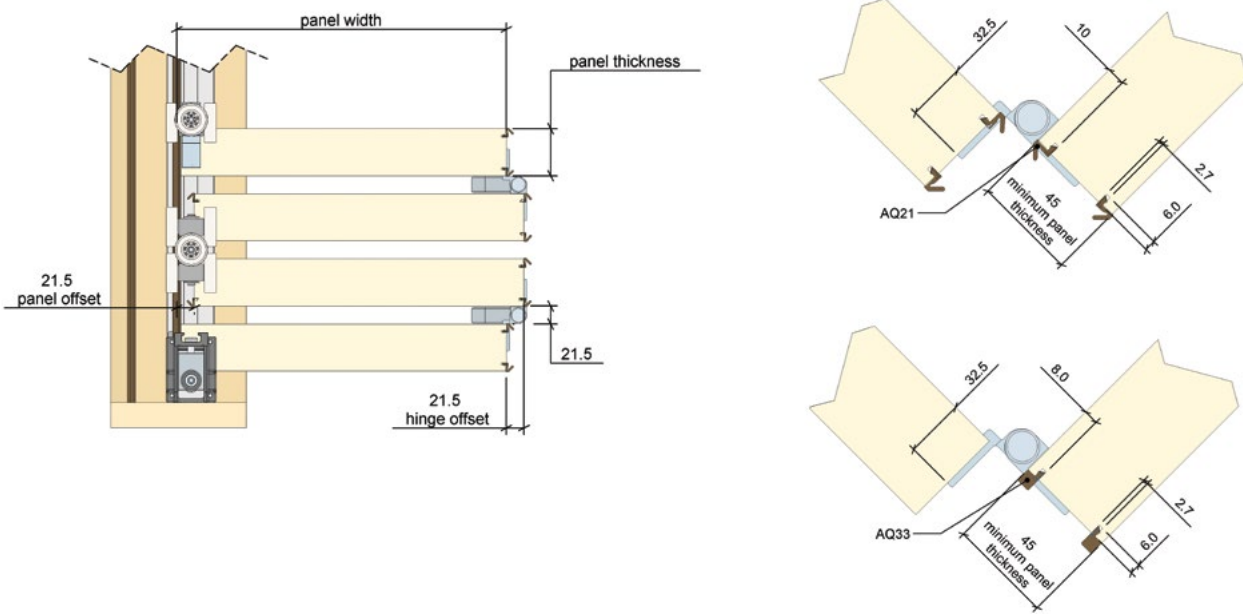
E4 ARCHITECTURAL DETAIL



* recommended seal is E4QLS

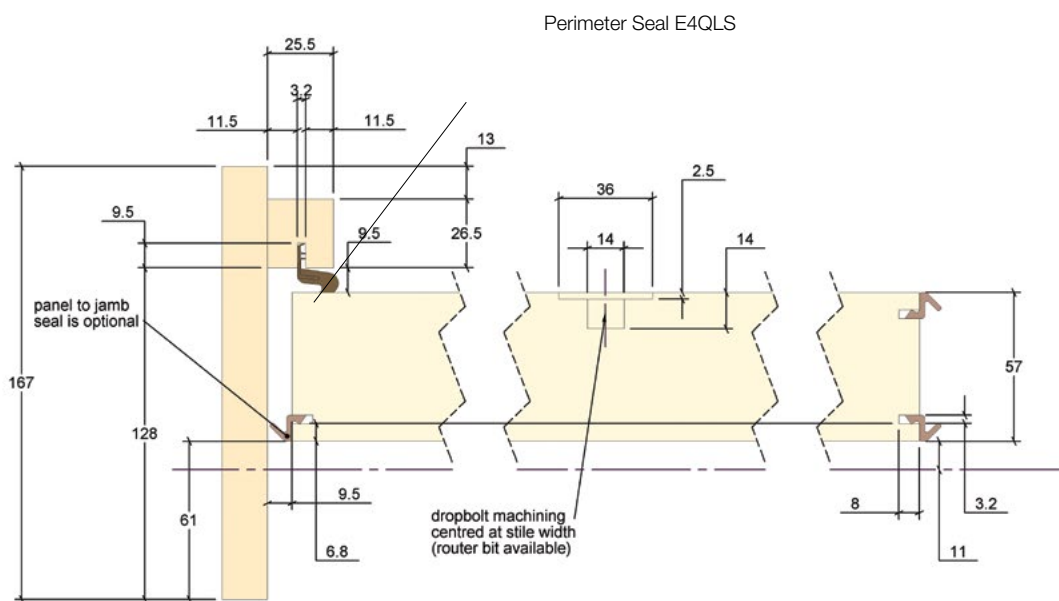
E4 ARCHITECTURAL DETAIL

Equal Size Panels



E4-003.DXF

E4 Jamb for 57.2mm Door Thickness (typical)




E4 COMPONENT SELECTION


E4 is specified with 5 separate component groups. Components are required from each group to build an E4 folding door system.

1. Track – choose surface finish and size required to suit opening
2. Sill Assembly – choose a pre-assembled Centor sill with surface finish, floor guide type and size to suit opening
3. Door Hardware Sets – choose surface finish, floor guide type and sets required to suit panel layout
4. Dropbolts – choose surface finish, type, size & number required to suit panel layout
5. Weather Seals – choose colour, type and amount of each seal required to suit opening size and panel layout

Track



Part	Track	Product Code	Description
	aluminium track, machined	E4TM4N E4TM6N	4000mm machined track, natural anodised 6000mm machined track, natural anodised



Channel Selection

Part	Channel	Product Code	Description
	aluminium floor channel pre-machined	E4FCM4N E4FCM6N	4000mm machined channel, natural anodised 6000mm machined channel, natural anodised

E4 COMPONENT SELECTION

Intermediate Carrier Set

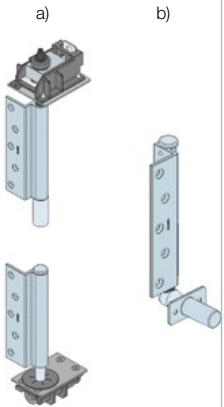
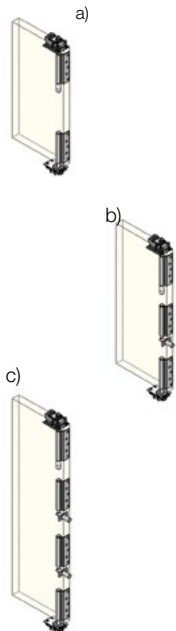
Part	Parts on Panels	Product Code	Description
		E4ICSS	E4 intermediate carrier set, stainless steel

Part	Parts on Panels	Product Code	Description
		E4OCSS	E4 offset carrier set, stainless steel

E4 COMPONENT SELECTION

Pivot Set – Wall Pivot

Wall pivots are recommended on door panels over 2250mm. Wall pivots are strongly recommended on all door panels in wet or humid climates, exposed locations, inward opening applications and unstable timber doors. On very tall doors with four hinges second pivot can be used on door panels to match the additional row of hinges.



Part	Parts on Panels	Product Code	Description
		E4PSS E4WPS	E4 adjustable pivot set, stainless steel E4 wall pivot set, stainless steel

a) pivot set

b) pivot set and jamb mounted middle wall pivot recommended on door panels over 2250mm to prevent/control deflection and bowing


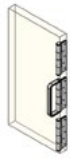
c) pivot set and jamb mounted two middle wall pivots recommended for door panels over 2750mm

Half Offset Hinge Set


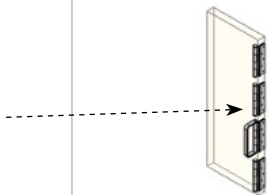
Part	Parts on Panels	Product Code	Description
		E4HHSS	E4 offset hinge set with handle, stainless steel

E4 COMPONENT SELECTION


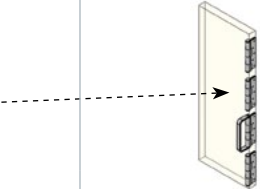
Straight Hinge Set

Part	Part on Panel	Product Code	Description
		E4HSS	E4 straight hinge set with handle, stainless steel

Single Half Offset Hinge (recommended for doors over 2250mm)



Part	Part on Panel	Product Code	Description
		E4HNHS	E4 offset hinge no handle, stainless steel

Single Straight Hinge (recommended for doors over 2250mm)



Part	Part on Panel	Product Code	Description
		E4HNHS	E4 straight hinge no handle, stainless steel

E4 COMPONENT SELECTION

Weatherseals and Astragal Selection

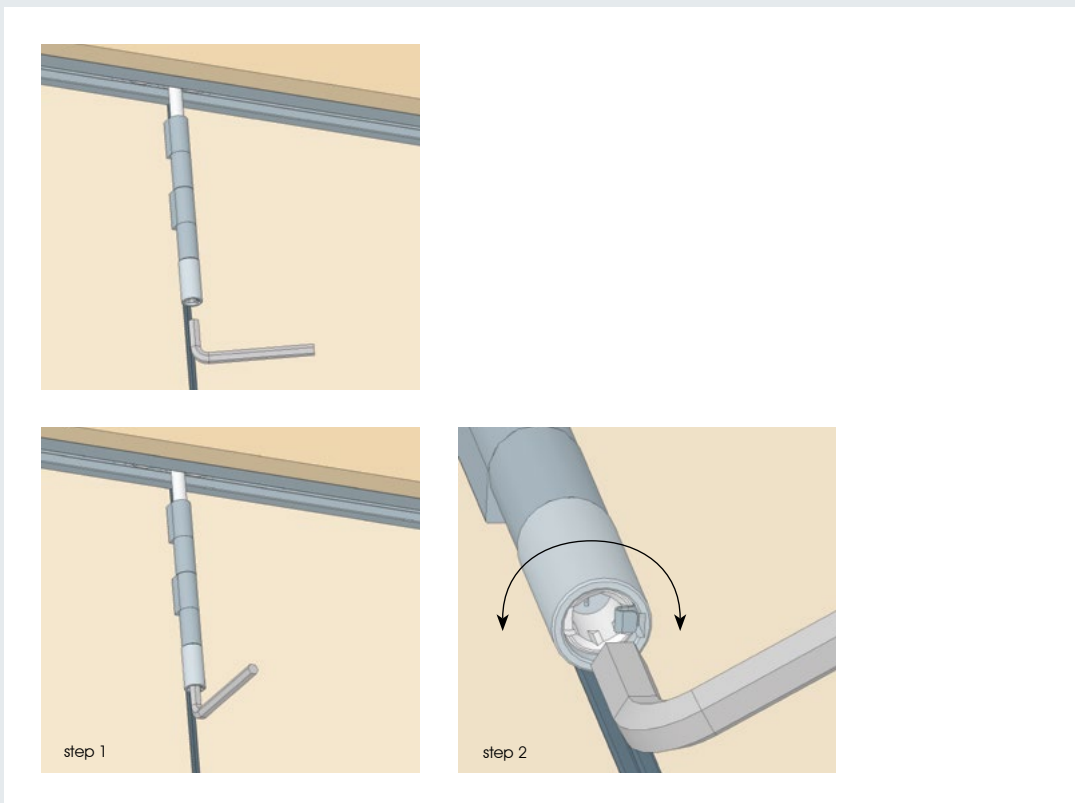
Part	Product Code	Description
	AQ21B AQ21L AQ21W	Schlegel Aquamac 21, brown Schlegel Aquamac 21, black Schlegel Aquamac 21, white
	E4QLSB E4QLSW	Schlegel Q-lon perimeter seal, brown Schlegel Q-lon perimeter seal, white

Weatherseal Alternate Selection

Part	Product Code	Description
	AQ33B AQ33L AQ33W	Schlegel Aquamac 33, brown Schlegel Aquamac 33, black Schlegel Aquamac 33, white
	AQ109B AQ109L AQ109W	Schlegel Aquamac 109, brown Schlegel Aquamac 109, black Schlegel Aquamac 109, white

SURELOCK II ADJUSTMENT™

E4 hardware has been designed for large, heavy doors which inevitably will also be tall. The ability to conveniently adjust and set the heights of such door panels has been given careful consideration. The Sure-Lock II™ allows easy adjustment with the hex key provided.


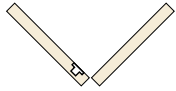


This stainless steel Surelock II™ mechanism has three significant features:

1. Adjusting the height setting requires only a single tool, a 9.5mm / (3/8") Hexagon hex key, in a single-handed operation. There is no need to hold or steady the Surelock II™ while the adjustment is being made. An hex key is provided with E4 pivot sets.
2. Insertion of the key disengages the self-locking spring latch. Once adjusted, the new setting is locked into place simply by allowing the latch to fall back into the locating slot as the key is removed.
3. A retaining screw limits the travel of the Sure-Lock II™ so that it cannot be adjusted to a structurally unsafe position.

E4 COMMON PANEL LAYOUTS

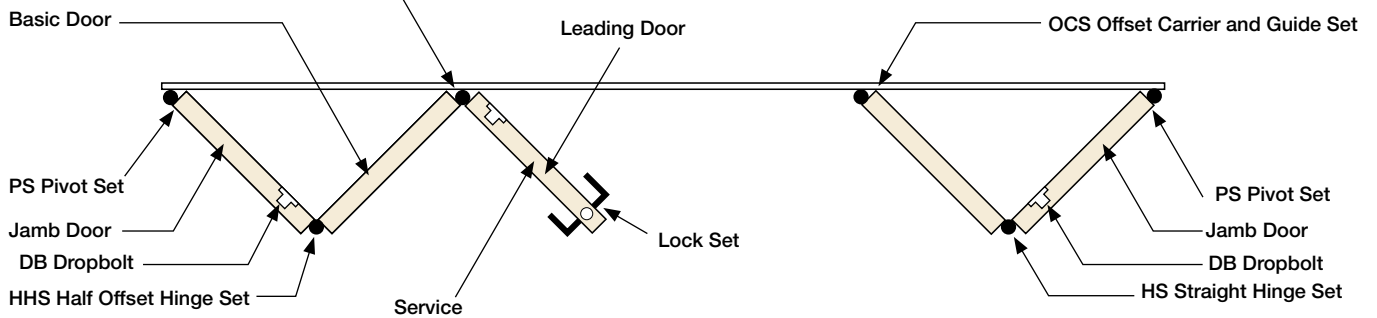
Hardware Legend	
PS	pivot set
WPS	wall pivot set
ICS	intermediate carrier set
OCS	offset carrier set (reversible)
HS	straight hinge set
HHS	half offset hinge set
DB	dropbolt

Legend	
Lock set	
Handles / Lock sets refer to centor.com	
Dropbolts top and bottom	

Note> Wall Pivot Set recommended for doors over 2250mm in height.

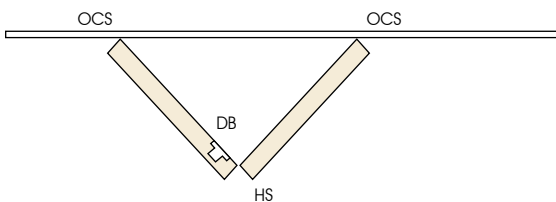
Hardware Application (3L2R)

ICS Intermediate Carrier and Guide Set



Floating Door Pairs

- Per pair of doors
- 2 x offset carrier set
- 1 x hinge set



E4 COMMON PANEL LAYOUTS / OUTWARD

Code	Opening Configuration	Hardware
2L	<p>inside WPS, PS not accessible from exterior</p> <p>outside</p>	<p>1 x pivot set 1 x wall pivot set 1 x offset carrier set 1 x hinge set</p>
2L1R	<p>inside WPS, PS</p> <p>outside</p>	<p>2 x pivot set 2 x wall pivot set 1 x offset carrier set</p>
3L	<p>inside WPS, PS</p> <p>outside</p>	<p>1 x pivot set 1 x wall pivot set 1 x intermediate carrier set</p>
3L1R	<p>inside WPS, PS</p> <p>outside</p> <p>may be reversed</p>	<p>2 x pivot set 2 x wall pivot set 1 x intermediate carrier set</p>
4L	<p>inside WPS, PS</p> <p>outside</p> <p>not accessible from exterior</p>	<p>1 x pivot set 1 x wall pivot set 1 x intermediate carrier set</p>
4L1R	<p>inside WPS, PS</p> <p>outside</p>	<p>2 x pivot set 2 x wall pivot set 1 x intermediate carrier set</p>
3L2R	<p>inside WPS, PS</p> <p>outside</p>	<p>2 x pivot set 2 x wall pivot set 1 x intermediate carrier set 1 x offset carrier set</p>
5L	<p>inside WPS, PS</p> <p>outside</p>	<p>1 x pivot set 1 x wall pivot set 2 x intermediate carrier set</p>
3L3R	<p>inside WPS, PS</p> <p>outside</p> <p>may be reversed</p>	<p>2 x pivot set 2 x wall pivot set 2 x intermediate carrier set</p>
7L	<p>inside WPS, PS</p> <p>outside</p>	<p>1 x pivot set 1 x wall pivot set 3 x intermediate carrier set</p>
4L3R	<p>inside WPS, PS</p> <p>outside</p>	<p>2 x pivot set 2 x wall pivot set 2 x intermediate carrier set</p>
5L2R	<p>inside WPS, PS</p> <p>outside</p>	<p>2 x pivot set 2 x wall pivot set 2 x intermediate carrier set 1 x offset carrier set</p>
5L3R	<p>inside WPS, PS</p> <p>outside</p> <p>may be reversed</p>	<p>2 x pivot set 2 x wall pivot set 3 x intermediate carrier set</p>

E4 COMMON PANEL LAYOUTS / OUTWARD

Code	Opening Configuration	Hardware
2R	<p>inside PS, WPS</p> <p>outside OCS HS</p> <p>not accessible from exterior</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>1 x offset carrier set</p>
1L2R	<p>inside WPS, PS</p> <p>outside OCS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>1 x offset carrier set</p>
3R	<p>inside ICS</p> <p>outside WPS, PS HHS</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>1 x intermediate carrier set</p>
1L3R	<p>inside WPS, PS</p> <p>outside ICS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>1 x intermediate carrier set</p>
2L2R	<p>inside WPS, PS</p> <p>outside OCS HS</p> <p>not accessible from exterior</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>2 x offset carrier set</p>
1L4R	<p>inside WPS, PS</p> <p>outside OCS ICS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>1 x intermediate carrier set</p>
4R	<p>inside OCS</p> <p>outside ICS HS</p> <p>not accessible from exterior</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>1 x intermediate carrier set</p>
2L3R	<p>inside WPS, PS</p> <p>outside OCS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>1 x intermediate carrier set</p> <p>1 x offset carrier set</p>
5R	<p>inside ICS</p> <p>outside WPS, PS HHS</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>2 x intermediate carrier set</p>
3L4R	<p>inside WPS, PS</p> <p>outside ICS OCS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>2 x intermediate carrier set</p>
7R	<p>inside ICS</p> <p>outside WPS, PS HHS</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>3 x intermediate carrier set</p>
2L5R	<p>inside WPS, PS</p> <p>outside OCS HS</p>	<p>2 x pivot set</p> <p>2 x wall pivot set</p> <p>2 x intermediate carrier set</p> <p>1 x offset carrier set</p>
8R	<p>inside OCS</p> <p>outside ICS HS</p> <p>not accessible from exterior</p>	<p>1 x pivot set</p> <p>1 x wall pivot set</p> <p>3 x intermediate carrier set</p> <p>1 x offset carrier set</p>

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