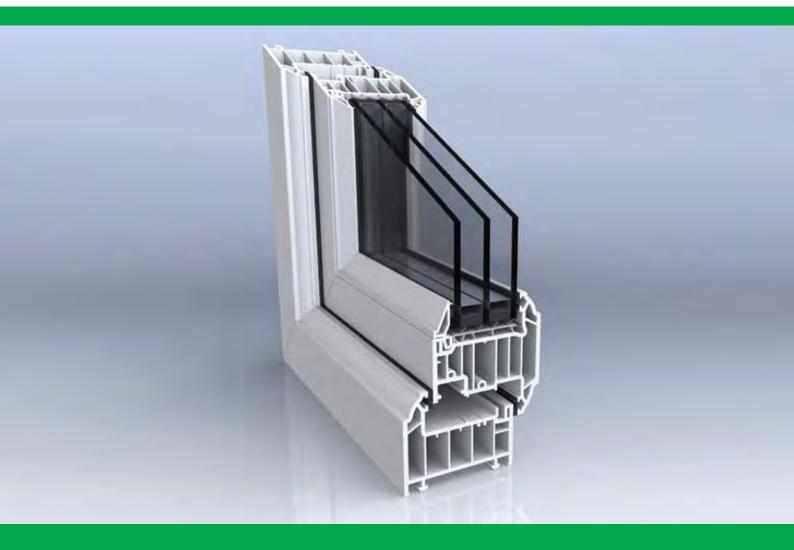
legend



Energy efficient windows and doors, designed for new build housing and replacement installations

PVC-U windows and doors



Legendary performance, every time

Legend delivers installed good looks, energy efficiency and fail-safe performance. It's easy to be impressed with the simplicity of the single leg bead design, and the low sightline appearance, however Legend also contains many concealed benefits.



Legend internally glazed with a 28mm double glazed unit

With outer frames measuring 70mm front-to-back, perfectly dimensioned for new build housing and replacement installations, Legend windows and doors feature multi-chamber PVC-U profiles which help prevent heat loss.

Legend has both chamfered and ovolo profile options that utilise the same range of single leg beads. Legend also has three outer frame size options, a complete series of structural reinforcements, four extension profiles, and a composite door outer frame. This makes it one of the most comprehensive window suites available, perfect for both domestic and commercial applications.

Opening frames are weather-stripped and typically reinforced with 100% recycled PVC-U bars for added strength, coupled with increased thermal performance.

Glazing beads are typically fitted internally for extra security and 28mm thick insulated double glazed units are commonly fitted for thermal efficiency. 40mm triple glazed units can be optionally specified for enhanced performance.

- 70mm front-to-back dimension
- 3 outer frame sizes in both styles along with a composite door outer frame
- Ovolo frame sash and highline chamfered sash options help create bespoke window designs
- Low sightline gasket increased visible glass area
- Combined bubble and flipper gasket for enhanced weather protection
- Range of heavy duty couplings and expansion mullions for structural glazing
- Full depth Eurogroove no restriction on hardware
- Sash profile provides a consistent 8mm coverage for superior weather protection
- Accommodates a full 22mm back set espagnolette system no need for cranked handles
- Sash horns and arch inserts for enhanced aesthetics
- · High gloss finish easy clean surface
- Identical bead and up stand details provide equal sightlines for improved aesthetics
- Equal v notching for better looking windows
- Easy to fit single j leg bead for quick and simple glazing on-site
- Available in 3 woodgrain options and 13 Artisan colours





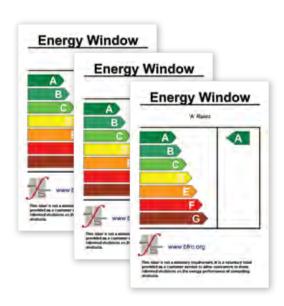
Cost effective energy efficiency

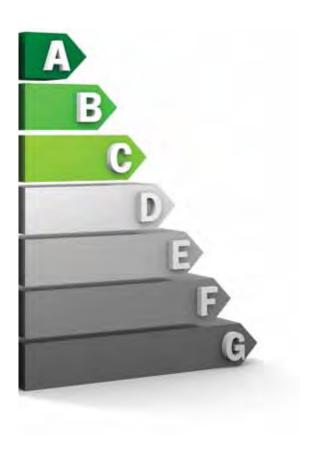
Combining energy-efficient frames and insulating glass is critical to deliver the required overall window thermal performance. Whether the BFRC Window Energy Rating scheme or the FENSA U-value route is selected as a route to technical compliance, Legend PVC-U window and door products designed by Synseal, coupled with sealed IGU products manufactured by Global Glass, are the ideal choice for a thermally efficient specification, giving peace of mind that installed units will keep on performing, year after year.

Window Energy Ratings

Window Energy Ratings are design simulations that can accurately calculate how energy-efficient a specified window will be in use. The WER system is based on a scale of A-G, with A-rated windows being the most energy-efficient. Up to 25% of heat within homes escapes through windows, so consumers are increasingly demanding A-rated windows to retain domestic heat and lower energy bills.

A Window Energy Rating applies to a whole window (frame and glass) rather than the frame or glass components individually. A combination of multi-chambered PVC-U window frame profile, spacer bar and high performance glass will create the most thermally-efficient project solution. Door Set Energy Rating (DSER) calculations provide similar thermal evaluations for doors. Synseal can provide expert advice to assist in all aspects of WER and DSER specification, with simulations carried out in accordance with BS EN ISO10077-2.





A-rated Legend door option

Synseal are now able to offer an A-rated door energy rating option on the Legend profile system. For fully glazed single doors, a 40mm triple glazing unit comprising of two panes of Low-E glass, Argon gas fill, and warm edge spacer bar is used; all of which are off-the-shelf IGU options from Global Glass, Synseal's in-house glass manufacturing plant. The A-rated door option is available for both Legend chamfered and Legend ovolo systems. The new multi-chamber large (door) outer frame (5F6/9F6) is the result of continuous profile development and makes it possible to give the option of full steel reinforcement if required.

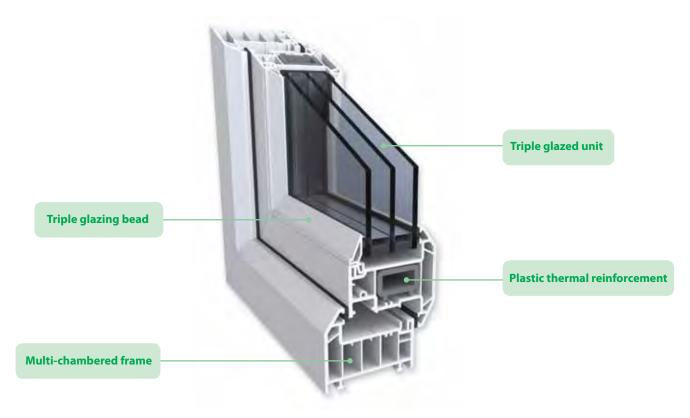


Sealed insulated glass units, custom-made to project specifications

Global Glass can supply double glazed (DGU) and triple glazed (TGU) insulated units in a range of tinted colours and coatings to suit each project, including clear and patterned glass types, solar coated glass, Low-E glass, low maintenance and Argon or Krypton gas-filled options.

Sealed unit construction options are aluminium spacer bar, warm-edge spacer bar and warm-edge super spacer bar, with either polyurethane or butyl hot-melt secondary seals depending on specification.

Legend domestic specification windows and doors are typically glazed with 28mm DG units, although optional 40mm TG units can also be specified.



Plastic Thermal Reinforcements (PTRs)

The Legend system includes a range of BBA approved plastic thermal reinforcements (PTRs) manufactured from recycled PVC-U. PTRs provide increased thermal performance when compared against steel reinforcing, and can save money on insulated glazing unit specifications (IGU) (conductivity of 0.17 W/m·K for PTR, 50 W/m·K for steel and 160 W/m·K for aluminium).

PTRs also provide the following benefits:

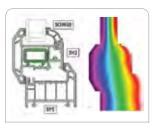
- Easier to fabricate no separate cutting operations required and allows the frame and reinforcing to be welded at the same time
- Environmentally friendly made from 100% recycled material, PTRs also mean the new window is easier to recycle too
- No corrosion problems helps meet the needs of specifiers that have traditionally specified aluminium reinforcement - at a lower cost

'U'-value specifications

The flexibility of the Legend window system enables various window specifications to be used to achieve a given target 'U' value. This enables you to specify the combination of glazing and frame style that offers you the best value for any given project.

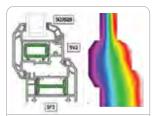
This enables the correct solution to be found for every project, up to and including Passivhaus standards.

Specifications to achieve a 'U' value of 1.6



Bead: 5OJB28 Reinforcing: PTRs



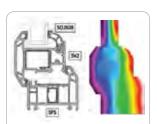


Outer Frame: 5F3 Sash: 5V2

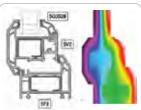
Bead: 5OJB28 Reinforcing: PTRs

Glass: Pilkington K/Argon/Float Spacer Bar: Warm Edge

U 1.6



Outer Frame: 5F5 U 1.6 Sash: 5V2 Bead: 5OJB28 Reinforcing: Steel Glass: Total+/Argon/Float Spacer Bar: Aluminium



Outer Frame: 5F3 U 1.6 Sash: 5V2 Bead: 5OJB28 Reinforcing: Steel

Glass: Total+/Air/Float

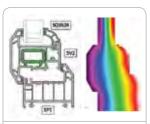
Spacer Bar: Warm Edge

Specifications to achieve 'U' value targets



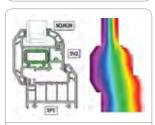
Outer Frame: 5F5 U 1.4 Sash: 5V2 Bead: 5OJB28

Reinforcing: Steel Glass: Total+/Argon/Float Spacer Bar: Warm Edge



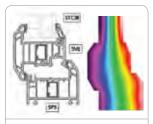
Outer Frame: 5F5 U 1.3 Sash: 5V2 Bead: 5OJB28 Reinforcing: PTRs

Glass: Total+/Argon/Float Spacer Bar: Warm Edge

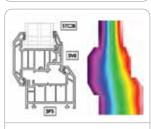


Outer Frame: 5F5 U 1.2 Sash: 5V2 Bead: 5OJB28

Reinforcing: PTRs Glass: ONE/Argon/Float Spacer Bar: Warm Edge



Outer Frame: 5F5 U 1.0 Sash: 5V8 Bead: 5TCJB Reinforcing: Steel Glass: Total+/Argon/Float Spacer Bar: Warm Edge



U 0.7

Outer Frame: 5F5 Sash: 5V8

Bead: 5TCJB Reinforcing: None

Glass: 2 x One/Krypton/Float Spacer Bar: Warm Edge (as single opener)



WER energy ratings

Specifications to achieve 'A' and 'C' Window Energy Ratings (WERs)



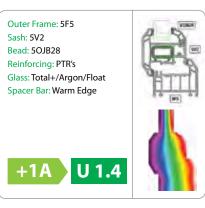


















Building Regulations Compliance

The sub-sections of Building Regulations Part L (2010) refer to different building types and itemise U-value thermal performance. Standards for refurbishment of existing buildings are more exacting and provide options for using WER'whole unit' calculations in place of the established U-values. It is anticipated that a B-rating will replace the C-Rating to become the minimum WER requirement in 2013.

Installed product	Part L	Building application	U-value
Windows, roof windows,	L1A	New dwellings	2.0W/m2K
rooflights, curtain walling and pedestrian doors	L1B	Existing dwellings	1.6W/m2K*1
	L2A	New buildings other than dwellings	2.2W/m2K
	L2B	Existing buildings other than dwellings	1.8W/m2K^

- * Option of WER Band C or better
- ¹ In Part L1B, a U-value of 1.8W/m2K is required for doors
- ^ Option of WER Band C for buildings essentially domestic in character (e.g student accommodation)

PVC-U material benefits









Polyvinyl Chloride (PVC-U) is a major thermoplastic material, which finds widespread use in building, transport, packaging, electrical/electronic and healthcare applications. PVC-U has been in commercial production since 1933. It now accounts for about 20% of all plastic manufactured worldwide, second only to polyethylene. The UK produces approximately 500,000 tonnes of PVC-U per annum.

The recycling of PVC-U is relatively straightforward, as both production waste and post consumer windows can easily be recycled back into new energy efficient PVC-U products. Unlike some of our competitors we recycle our waste in the UK, meaning no transcontinental movement of product, which has a huge carbon footprint, defeating the whole point of recycling.

PVC-U windows can be recycled up to 10 times, with a life span of 400 years.

PVC-U is...

- Low maintenance
- Durable
- Economical and energy efficient
- Safe and secure
- Versatile
- · Environmentally sound
- Recyclable



Quality and accreditations

Quality

Legend PVC-U window and door profiles carry a 10 year guarantee. In addition, Legend system profiles are BSI kitemarked and BBA assessed, with manufacture and supply carried out under ISO9001 quality management systems.

Every aspect of Synseal's manufacturing processes, from blending to extrusion, injection moulding to foil finishing, from product design and development to full-manufacture of vertical sliding sash windows and conservatory roof kits, is undertaken on-site in Huthwaite, Nottinghamshire.

Production techniques are largely automated and testing is computerised to ensure a consistently high quality product. Boasting the latest technologies and modern machinery, Synseal is able to deliver extruded PVC-U profiles which are consistent in colour, shape and finish.

Accreditations

Synseal is ISO14001 accredited which ensures that all company environmental management systems comply with and even exceed government mandates. All quality management systems are ISO9001 accredited which ensures that all processes are constantly checked and improved upon, to reduce waste and increase efficiency.



BSI - Registered to BS EN ISO9001:2000, Certificate No. FM 31451

Quality Management System Scope: -Manufacture and supply of a range of white and brown windows PVC-U profiles and beads for the fabrication of doors and windows. Manufacture of conservatory roofing systems to customer specified requirements.



BS EN 12608

BS EN 12608

BSI - Kitemark License No KM 41324

and tilt and turn window system.

BSI - Kitemark License No KM 30983

- Conforms with BS12608 Legend suite PVC-U casement

- Conforms with BS7950/BS12608 Specification for enhanced security

performance of casement and tilt and turn windows for domestic applications in association with BS7413.

Synseal is focused on finding new ways to design, produce and deliver products to its customers. Operational processes are continually evaluated to find improvements, reduce waste, identify problems and then define solutions guickly and systematically. All products undergo a wide range of QC inspections during and after the production process. All equipment is checked following every extrusion run and maintenance schedules are strictly adhered to.



Legend PVC-U window and door profiles carry a guarantee of up to 10 years. Full details available on request.

Guarantee

Synseal Extrusions Ltd. holds a number of accreditations from recognised authorities such as the British Standards Institute (BSI) and the British Board of Agrément (BBA). To maintain registration, licenses and certificates, periodic on-site audits are carried out by the regulatory authority to inspect systems and where necessary take product samples for independent third party testing.



BS EN 12608

BSI - Kitemark License No KM 57030 - Conforms with PAS 23 -1

General performance requirements for (single) door assemblies.



BS EN 12608

BSI - Kitemark License No KM 57030 - Conforms with PAS 24-1

Enhanced security performance requirements for (single) door assemblies both with and without midrails and sidelights.



KM 582382

BSI - Kitemark License No KM 582382

Windows Energy Rating - Legend system simulation reports.



BBA - Agrement certificate No. 12/4914

Legend outward opening and tilt and turn PVC-U window system.

Sustainability and recycling

Recycled windows for sustainable home building

The Code for Sustainable Homes (CSH) has been developed by the Building Research Establishment (BRE) and Construction Industry Research and Information Association (CIRIA) to introduce sustainable building practices for new homes.

It is intended as a single national standard for the industry, to drive continuous improvement, greater innovation and exemplary achievement in sustainable home building. Homes are measured against design categories, rating the 'whole home' as a complete package.

Design categories included are:

- Energy/CO2
- Water
- Materials
- · Surface water run off
- Waste

- Pollution
- · Health and well being
- Management
- Ecology

dec water rair on - Leolog

The CSH is intended to signal the future direction of Building Regulations in relation to carbon emissions from energy use in the home, providing greater regulatory certainty for the house building industry. The government's goal is to not only build more homes, but also ensure they are better homes. All new homes from 2016 must be zero carbon (Code Level 6) with progressively tough standards being introduced over the coming years. As the public are becoming more environmentally conscious there is a growing requirement for more sustainable products and services and by choosing recycled windows from Synseal you will be able to meet those demands. The use of our recycled windows allows you to tick many of the design category criteria boxes.

Legend environmental options

Plastic thermal reinforcements



Made from 100% recycled material which means the whole window is recyclable.

Recycled core product (virgin skin)



PVC-U profile is extruded using a 100% recycled core with virgin material on visible outer faces.

100% recycled window foiled



PVC-U profile is extruded using 100% recycled material and then foiled in either woodgrain or an Artisan finish.

100% recycled window unfoiled



PVC-U profile is extruded using 100% recycled material and left in its natural form.



Recycling

One of the benefits of PVC-U as a material is that it is readily and economically recyclable like all other thermoplastic materials. The primary aim of recycling is to elicit a net environmental benefit through reducing the use of primary resources and/or diverting resources from landfill.



There are 3 types of waste we recycle into new windows:

Manufacturing

We pride ourselves on running efficient manufacturing processes with scrap levels under 5%. We also ensure we recycle all of the manufacturing waste we produce back into environmentally sustainable products.

Fabricator off-cuts

We take our fabricator off-cuts and recycle them back into new products.

Post-consumer windows

End of life PVC-U windows can be collected from our installers and specifiers and given a new lease of life via recycling.

All of these types of waste can be recycled into energy efficient new windows.

Closed loop recycling

PVC-U windows that were traditionally deemed 'end of life' can be recycled to create perfect new windows - with no need to lose this valuable resource to landfill.



A life cycle model of post consumer PVC-U recycling

Old PVC-U frames and off-cuts are collected in containers

Transport to recycler

Manual sorting

Crushing and granulation of PVC-U waste

Gasket removal by 2 step electrostatic separator

Metal removal by magnetic separators

Colour recognition and removal

White PVC-U re-chip

Legend windows and doors - a wealth of options

The Legend range includes top hung or side hung casement windows, tilt and turn casement windows, multi-light combinations of fixed light and opening windows, residential doors, double doors and patio doors.







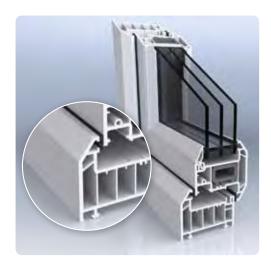






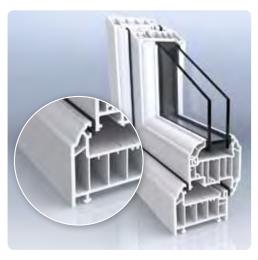
Versatile style options

Legend's main profiles are available in either chamfered or ovolo styles. As all other components are interchangeable this provides fabricators with an efficient way to offer their customers choice.



Legend chamfered

With a clean, crisp angle, chamfered windows are perfect for those wanting a more contemporary look. Chamfered windows can either be specified with a matching bead, or optionally a sculptured bead can be chosen for a softer look inside the property.



Legend ovolo

The ovolo option offers an aesthetically pleasing sculptured look that replicates the look of traditional bead detailing on wooden windows. Again the versatility of the Legend system allows a choice of ovolo or chamfered beads to be used internally.

Georgian glazing bars

Legend fixed lights and casement windows can be specified with snap-on astragal glazing bars for an authentic Georgian look.

These glazing bars provide design variety for both retro-fits and new housing developments as they can be



Astragal bars

swiftly installed on-site. Featuring U-shaped clips, end caps and cruciform cover mouldings, Georgian glazing bars can be fitted internally, externally or on both glass faces. Colour finish options are White, Golden Oak, Cherrywood and Mahogany.

Mock sash horns

Recreating the external look of a traditional sash window in a modern casement window - mock sash horns are an affordable way to help create a distinctive aesthetic. If traditional sliding sash windows are required



Mock sash horn

Synseal's Evolve range of vertical sliding sash windows provides the perfect solution.

Curved windows

Synseal is able to supply high quality, architecturally shaped PVC-U frames for when circular or curved windows are required.

Using state of the art profile bending machinery, Synseal's experienced team is committed to providing the best possible quality shaped products, backed up by unbeatable service levels.

Arched top inserts

Decorative arched top inserts affixed to glass are available to instantly provide a swept head look for Legend casement and tilt and turn windows. Available in a full range of colour options, arched top inserts are easy to fabricate and provide an aesthetic design option.



Colour options

The colour revolution has taken over Europe during the last 20 years, with 40% of European homes now choosing coloured product... and the UK is catching on fast. Brilliant White is still the most popular exterior and interior colour for British homes - but more and more people are choosing realistic woodgrains or bold colours to enhance their homes.



Synseal offers a full range of colour options for Legend windows and doors: standard White and 3 popular woodgrain shades, plus 13 foiled PVC-U finishes in the luxurious Artisan Woodgrain Collection (4 'real' woodgrains and 9 woodgrain colours). All these choices are available in dual-colour specification (e.g. Golden Oak woodgrain on outside faces, with White on inside faces).

Woodgrains







Cherrywood

Golden Oak

Mahogany

Artisan Woodgrain Collection





Woodgrain White

Woodgrain Brilliant White





Cream

Chartwell Green







Rustic Cherry

Antique Oak

Irish Oak







AnTeak

Grey

Black/Brown







Green

Blue

Deep Red

The colours shown are designed as a guide to the Woodgrain and Artisan Woodgrain Collection.

Before making your final decision, please ensure you have seen a foil swatch.

Ancillary products

Hardware

Synseal offers a comprehensive hardware range that brings together the very best residential handles, hinges, shootbolts and accessories, providing products that offer affordable quality you can trust.

A choice of White, Polished Gold or Polished Chrome hardware finishes are available. Key-operated locking handles in accordance with BS 7950 and friction stays capable of meeting the requirements of BS 6375-1&2 are available, as well as a wide range of espagnolettes, shootbolts, door hinges, cylinder locks, strikers and letter boxes.







Synseal is licensed to provide Police-approved hardware boasting the 'Secured By Design' logo, including door handles, locks and hinges providing enhanced security performance to PAS023 and PAS024 test specifications.



Trickle Vents

Synseal trickle vents can be fitted into Legend outer frames to provide air flow and reduce condensation.

Slimline design (2000 or 4000mm²), standard design (2000 or 4000mm²) or modular design (2000mm²) trickle vent options can be specified in White, Brown or Caramel colours to provide ventilation and meet Building Regulations Part F1 for new dwellings. The modular design trickle vents clip neatly together to cater for wider window frames.



Envirosill

Providing an environmentally-friendly sill specification without compromising aesthetics and installed performance.

Envirosill is specially made from recycled material with virgin PVC-U material on visible outer faces.



Bi-fold doors

Legend bi-fold doors provide wide panoramic views and contemporary living. Engineered to the highest standard, and available in a variety of finishes and combinations, they are designed to ensure years of trouble free service with aluminium top and bottom tracks and PVC-U door sashes. These bi-fold doors require little maintenance and will help keep homes warm due to their energy efficient design.



Low thresholds

Two types of easy-access low threshold design are available for Legend.

Silver or Gold finish low threshold supports for both inward or outward-opening doors can be used in combination with a PVC-U sill to provide extra stability when a reduced 'step-over' is required. For full compliance with Building Regulations Part M, Synseal low threshold kits can be specified for inward or outward-opening doors in either Silver or Gold finish, ensuring mobility access for all.



Window trims

Synseal's window trims can be specified for enhanced aesthetic appeal and a highly professional finish.

The product range includes 12mm and 19mm quadrants, 25mm and 46mm sculptured architraves (12.5mm thick, also available in White PVC-U), 65mm and 90mm bullnoses and a 30mm D-mould. Available in White as well as in the standard 3 woodgrain finishes and the range of 13 Artisan colours, which convincingly mimic real wood and painted timber finishes respectively.



CavSeal cavity closers

Manufactured from 100% recycled PVC-U and BBA accredited, CavSeal frame-forming cavity closers are vital components for new build developments, providing a simple and cost-effective solution to seal cavities around wall openings, creating a rigid window or door acceptor.

The system clicks together, so no tools, adhesives or screws are required. 50mm, 75mm, 100mm, 150mm, 175mm and 200mm cavity closers are available.

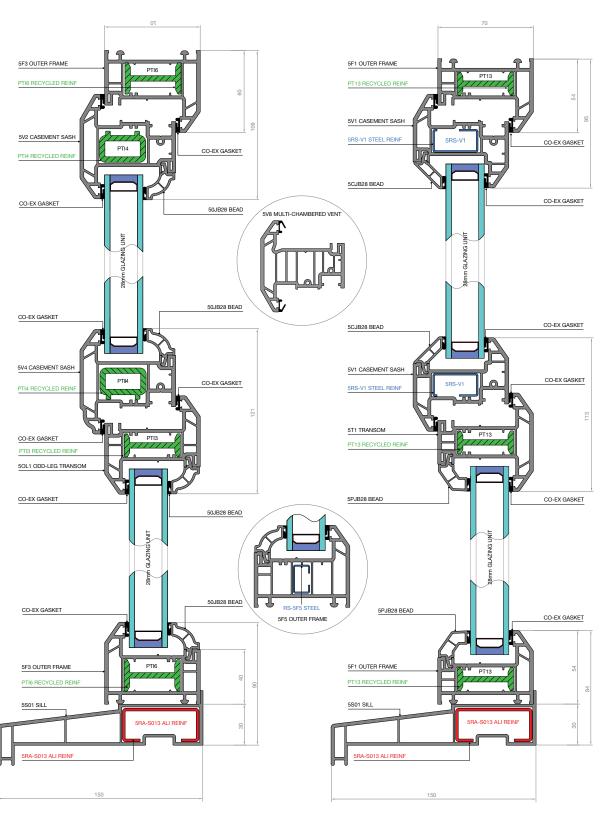
French casements

Fitted with a dummy or 'floating' mullion, Legend French casements are ideal for fire exit specification, as this window design provides a full aperture opening.



To comply with Building Regulations Part B1, an opening required for means of escape should have a clear unobstructed opening area of $0.33m^2$ with a minimum width or height of 450mm and a maximum floor to window sill dimension of 1100mm. If a width of 450mm is proposed, then the height should be at least 733mm to give the required $0.33m^2$ area.



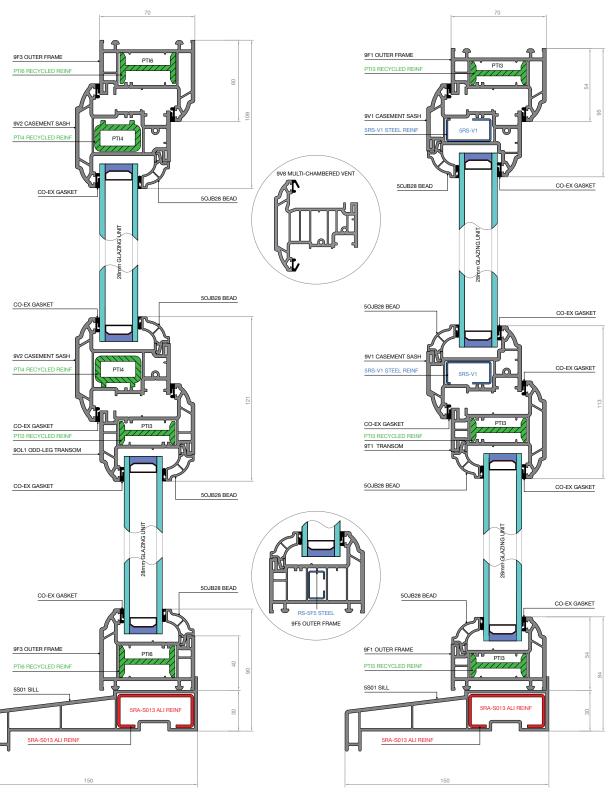


Internally beaded with ovolo bead

Externally beaded with chamfered bead

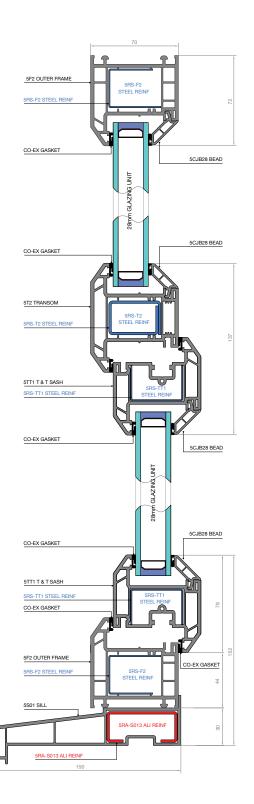


Cross section: casement - ovolo



Internally glazed with ovolo bead

Externally glazed with ovolo bead



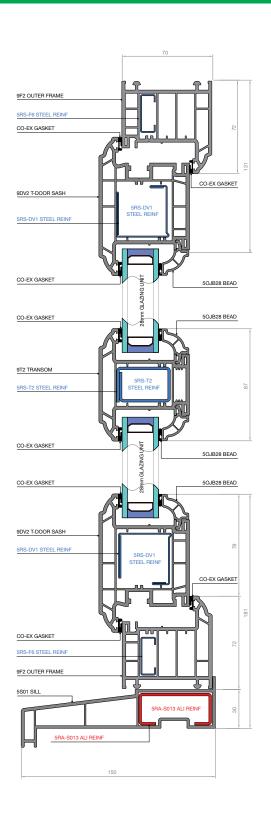
9F2 OUTER FRAME CO-EX GASKET 50JB28 BEAD 50JB28 BEAD CO-EX GASKET 5RS-T2 STEEL REINF 9TT1 T & T SASH CO-EX GASKET 5OJB28 BEAD 5OJB28 BEAD CO-EX GASKET 9TT1 T & T SASH 5RS-TT1 STEEL REINE CO-EX GASKET 9F2 OUTER FRAME CO-EX GASKET 5S01 SILL 5RA-S013 ALI REINF

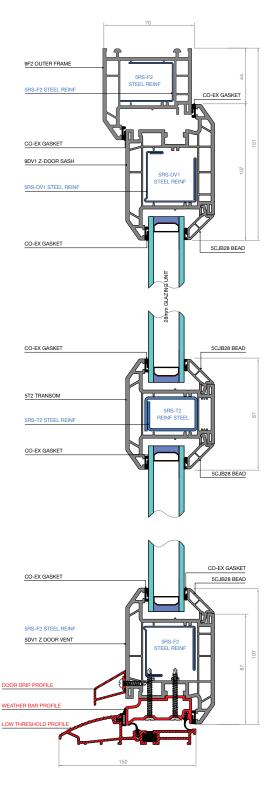
Chamfered frame, internally beaded with chamfered bead

Ovolo frame, internally beaded with ovolo bead



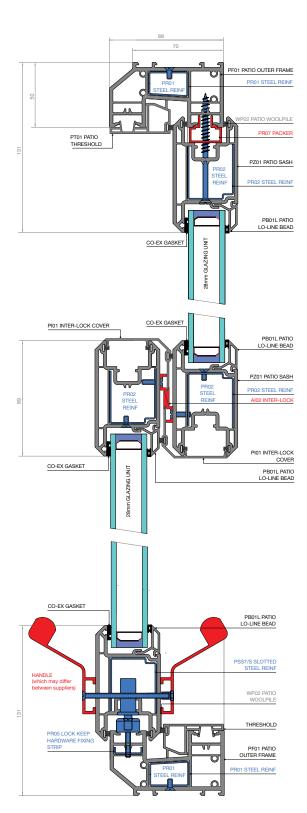
Cross section: residential door

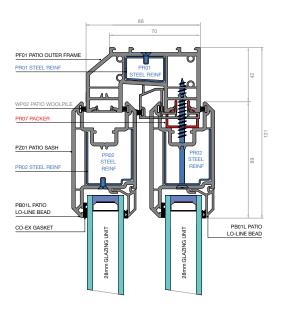


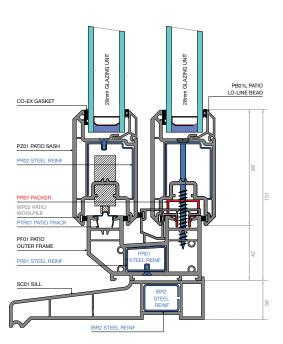


Externally opening, ovolo frame, internally beaded with ovolo bead

Inward opening, chamfered frame, internally beaded with chamfered bead and Part M compliant low threshold





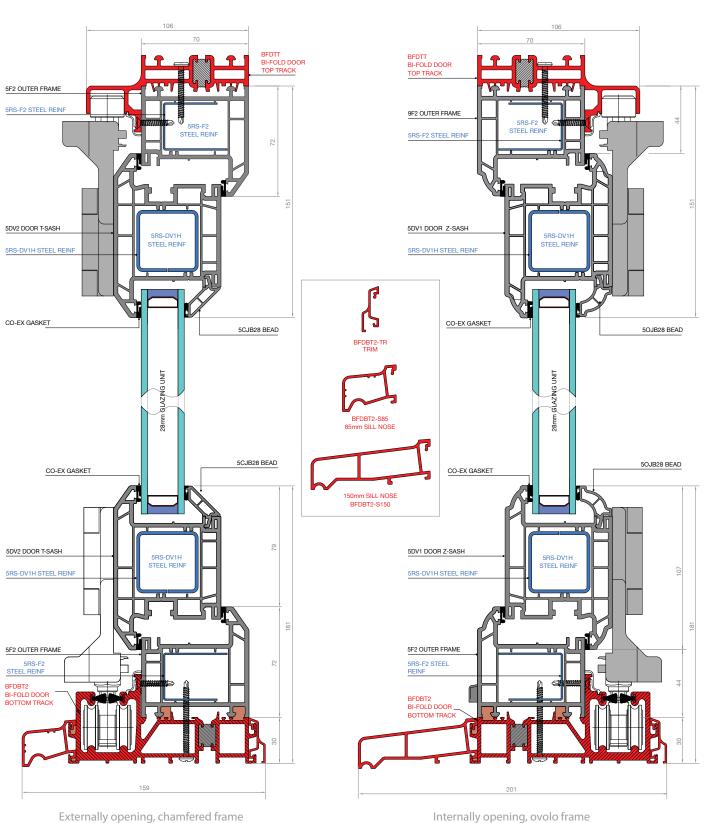


Horizontal cross section

Vertical cross section



Cross section: bi-fold



and chamfered bead with 85mm sill

Internally opening, ovolo frame and ovolo bead with 150mm sill



Sales, technical and customer care support







At Synseal a skilled customer care team is always on hand to provide technical information, answer any window or door related questions and assist with project enquiries. With many years of industry knowledge and experience, the team can offer you specialist advice at all stages:

- Advice on energy ratings and how to optimise the use of Synseal products
- Tendering assistance
- CAD details
- Design guides
- Dedicated commercial manager support
- Guidance on how to comply with the latest Building Regulations
- · Wind load calculations
- Product specifications
- Installation instructions
- Maintenance guidelines
- Guarantee information

As a business Synseal understands that its responsibility doesn't end when products are installed and a dedicated technical team is available to provide support and ensure customer satisfaction.

Synseal is a leading UK manufacturer of conservatory roof, window and door systems

Legend is designed and manufactured by Synseal Extrusions Ltd. Established over 30 years ago, Synseal now employs over 500 people and has a turnover in excess of £75 million. Main operations are located at a UK-based 35 acre site with 70,000 square metres of production, warehousing and office facilities.

The corporate objective at Synseal is to deliver thermally efficient products of consistently excellent quality and design to markets worldwide at competitive prices.

Synseal constantly seeks to develop environmentally-friendly new products which will support sustainable development and reduce carbon consumption.

New ranges are designed with 100% recyclability, improved performance and cost-effectiveness in mind.

Synseal is ISO14001 accredited which ensures that all company environmental management systems comply with and even exceed government mandates.

All quality management systems are ISO9001 accredited which ensures that all processes are constantly checked and improved upon, to reduce waste and increase efficiency.

Synseal products are independently tested and accredited by the British Standards Institute (BSI) and the British Board of Agrément (BBA).



