

BUSINESS PRACTICE

ESSENTIAL INFORMATION IMPROVING STANDARDS

FROM SECURED BY DESIGN, FIRE ESCAPE,
VENTILATION, ENERGY RATINGS, CONSTRUCTION
STANDARDS TO TERMS AND CONDITIONS



IMPROVING STANDARDS RANGING FROM ENVIRONMENTAL ISSUES TO HANDLING AND SITE CARE



- Sound environmental practices in all areas of the production process.
- Increased levels of environmental awareness leading to improved energy efficiency.
- sgc EcoClear®, the superior glazing solution available offered as an option.
- Ventilation meeting Part F of the 2010 Building Regulations.
- Safety glazing automatically included where deemed necessary.
- Handling, deliveries and storage guidelines ensuring items arrive on time and in factory condition.

- **NEW** - the high security Secured by Design locking system now available as an option on all our windows except the Storvik range where it is fitted as standard.



- Safety as a priority with our improved range of Fire Escape Windows.



- Howarth Timber Group Limited and Subsidiary Companies, Terms and Conditions of Trading.

FIGHTING CRIME WITH SECURED BY DESIGN



Secured by Design (SBD) is a national police initiative established by the Association of Chief Police Officers to ensure crime prevention measures are incorporated at the design stage of a new housing development to create a safer, more secure environment for residents. SBD has the backing of the Home Office Crime Prevention Agency.

SBD states that windows should be tested to meet PAS24: 2012 – the specification for Enhanced Security Performance of Casement and Reversible Windows for Domestic Applications. We offer a Secured by Design window frame that incorporates a shootbolt locking system, an anti break-in device between the jambs and reflex hinges, ensuring that SBD window frames meet all the requirements. The following window ranges have been tested by a UKAS accredited testing station.

- Storvik Double and Triple Glazed
- Stormproof Side and Top Hung Casement
- Sliding Sash

Howarth windows are also recognised under the BWF Timber Window Accreditation Scheme and have achieved BS644 Part 1: 1989 – Specification for Factory Assembled Windows – both of which are in addition to SBD requirements.

Howarth High Performance Securitherm™ Single Door Sets are also available in a Secured by Design option, having been tested by a UKAS accredited testing station to meet PAS24: 2012 requirements.

To meet the intruder resistance requirements of Secured by Design, the fitting tolerance between the mushroom bolts and the keeps are tight. Movement of the sashes or door leaves during transportation and installation of the frames or as a consequence of natural timber movement, may require the adjustment of the mushroom bolts. These bolts have cam adjustment to allow the purchaser to make any on-site compensation.



Shootbolt locking



Shootbolt locking (above)

Sash

Shootbolt gear box

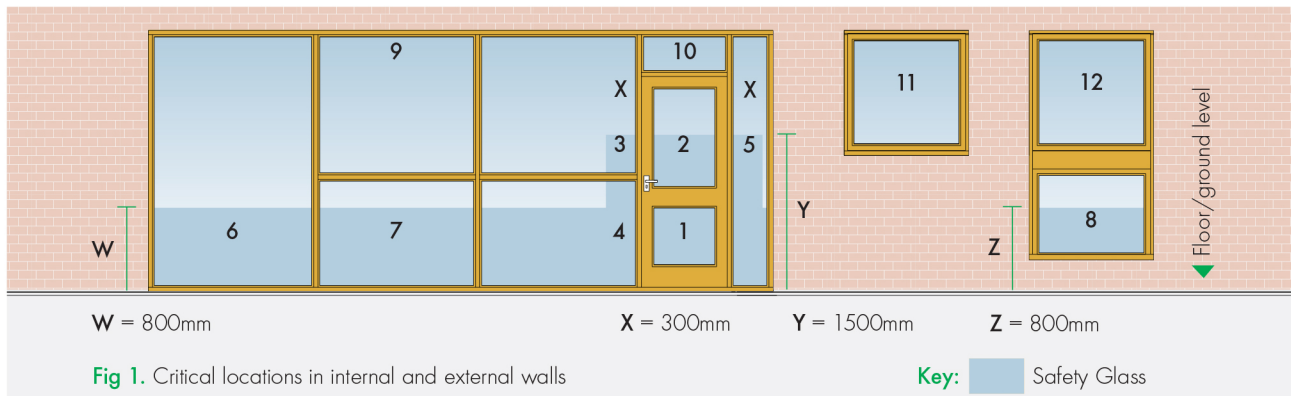
Locking mechanism (below)



Shootbolt locking

NOTE: Secured by Design frames fitted with laminated glass cannot be supplied to A Rated specification.

SAFETY GLAZING STANDARDS GUIDELINES



LOCATION REQUIREMENTS FOR SAFE USE

Howarth will automatically include safety glazing to all windows and doors in locations where safety glazing is deemed necessary.

If drawings are not supplied, please specify where safety glazing is requested.

Fig 1. CRITICAL LOCATIONS IN INTERNAL AND EXTERNAL WALLS AS SPECIFIED IN BUILDING REGULATIONS 2013 PART K.

Glass in doors and side panels to doors (1, 2, 3, 4 and 5) must be at least:

- A Class B safety glazing material if the smaller dimension of the glass is more than 900mm.
- A Class C safety glazing material if the smaller dimension of the glass is less than 900mm.
- Annealed glass in smaller panes if it meets the given criteria (see right).

Glass in low level glazing (6, 7, 8) must be at least Class C, or in small panes. Annealed (non-safety) glass may be used in areas marked 9,10,11 and 12. Robust annealed glass may be used in commercial frontages.

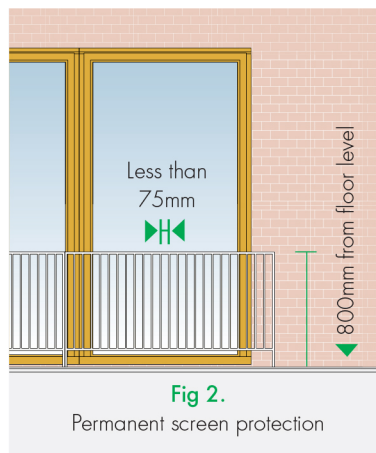


Fig 2. PERMANENT SCREEN PROTECTION

The use of annealed (non-safety) glass is permitted in a critical location if protected by a permanent, robust screen. The screen must prevent the passage of a 75mm sphere and must not be climbable. (Building Regulations 2013 Part K details the specific requirements for such screens and the full document should be consulted).

GLAZING IN SMALL PANES (all critical areas)

The use of annealed (non-safety) glass is permitted in small panes. Small panes must have a maximum smaller dimension of 250mm and an area not exceeding 0.5m². Annealed glass in small panes must not be less than 6mm thick, except in traditional leaded or copper lights if fire resistance is not required.

THE USE OF SAFETY GLAZING

The architectural use of safety glazing is primarily governed by Building Regulations 2013 Part K: Protection from falling, collision and impact. This is a national standard applying to all glazing work, including replacement glazing. It identifies critical locations in general terms only and sets the minimum standards of glazing materials acceptable for use in these areas.

Additional guidance is also provided by BS6262 Part 4. Compliance will also satisfy the requirements of Regulation 14 of the Health and Safety at Work Act.



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FIRE ESCAPE WINDOWS

SAFETY AS A PRIORITY

THE REGULATIONS FOR DWELLING HOUSES

On the April 1st 2007 the Building Regulations 2006 Part B: Fire Safety came into effect to replace the 2000 edition.

The guidance has been applicable to all initial notices submitted to the appropriate Local Authority since 1st April 2007. Some of the main points governing means of escape laid out by the Approved Document Part B are detailed below.

There is a requirement to provide emergency egress windows to habitable rooms on the ground and first floor levels of up to two storey dwellings unless a protected route is provided from those rooms to the final exit. All habitable rooms on the ground floor should either open directly into an entrance hall or other suitable exit or be provided with an escape window. Three storey properties do not require emergency egress windows from the ground and first floor habitable rooms, as they have to be provided with a protected route in any case.

This has had a great impact on which type of window frames can be used for escape purposes and where they can be used. Windows which will meet fire regulations are those with an unobstructed clear opening area which is at least 0.33m^2 , with a minimum clear opening dimension of 450mm in either height or width. The lowest part of the opening must be between 800mm and 1100mm from the floor.

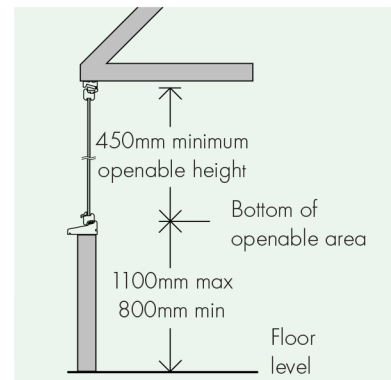
STORVIK^{SKD} 

STORVIK^{SKT} 

STORMPROOF SIDE AND TOP HUNG NARROW CASEMENT 

SLIDING SASH 

NOTE: Howarth recommends non-locking handles on all Fire Escape windows.



The diagram shown (left) illustrates the guidelines for the positioning of fire escape windows as detailed in the Approved Document Part B.

NOTE: When enquiries are received for quoting, Howarth will prepare quotations to the new regulations wherever possible, unless stated otherwise.

Window casement features easy to operate latches. (main photograph and left small inset).

'FLYING' MULLION

On the narrow casement widths of the Howarth Stormproof range the minimum opening width requirement is met by using a 'flying' mullion.



FIRE REFLEX HINGES

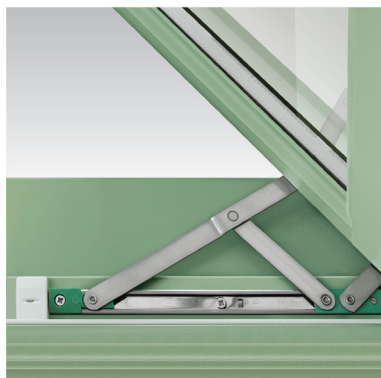
On the standard casement widths of the Stormproof range, Howarth uses the fire reflex hinge (shown below) which enables the sash to be moved from its normal opening position (right centre) to the side of the frame at the release of a catch (far right) to meet minimum opening requirements.

By simply releasing the green locking mechanism (shown below) the mullion can be released to fully open the window (main picture above and below far right).



Left hand casement in the normal opening position

Left hand casement in the fully open position



FRESH AIR CIRCULATION

Ventilation can be simply described as air circulation. This is the supply and distribution of fresh air into a building and the extraction and dispersal of stale contaminated air from it. Requirements for ventilation of buildings are set out in Building Regulations 2010 Part F: Ventilation. There are three main types of ventilation:

1. WHOLE BUILDING OR BACKGROUND VENTILATION

This can be defined as the supply of fresh air to a building to disperse low levels of water vapour or other pollutants, usually by the provision of background ventilators or mechanical supply ventilation.

2. LOCAL EXTRACT

In rooms such as kitchens or bathrooms, where most water vapour or concentrated pollutants are released, ventilation is usually provided by mechanical means such as extractor fans.



NIGHT VENTS

Howarth uses the Titon Trimvent® Select XR16 night vent in all window ranges. This vent gives an equivalent area of 4600mm² per vent and is available as standard in either white or brown. Other colours are available at extra cost. Please contact our Sales Office for more information on 01469 530577.

3. PURGE OR RAPID VENTILATION

For rapid dilution and removal of high concentrations of pollutants, ventilation is provided usually by opening windows and doors.

TOTAL FLOOR AREA	NUMBER OF BEDROOMS (MM² EA) *				
(M²)	1	2	3	4	5
0 - 50	25,000	35,000	45,000	45,000	55,000
51 - 60	25,000	30,000	40,000	45,000	55,000
61 - 70	30,000	30,000	35,000	45,000	55,000
71 - 80	35,000	35,000	35,000	45,000	55,000
81 - 90	40,000	40,000	40,000	45,000	55,000
91 - 100	45,000	45,000	45,000	45,000	55,000
100+	Add 5,000mm² for every additional 10m² floor area				

NEW BUILDINGS

The requirements for ventilation, as set out by the Approved Document Part F, are based on several factors, unique to each particular building. These include:

- Total floor area of building
- Number of floors
- Number of facades
- Number of bedrooms
- Number of occupants

CALCULATION

(Below table)* Based on two people in main bedroom and one person in other bedrooms. For greater levels of occupancy, assume one extra bedroom per additional person. For more than five bedrooms add 10,000mm² per room. For single dwellings, up to four storeys above ground level, add 5,000mm². For single facade flats, requirement is effectively doubled.

The table for calculating ventilation requirements shown above is a simplified version of the requirements laid out in the Approved Document Part F Table 1.2a and should be used only as a rough guide.



REPLACEMENT OF EXISTING WINDOWS

Where windows are to be replaced on-site, trickle vents should be fitted to any replacement window where the original window had trickle vents. The equivalent area of ventilators in the replacement windows should not be less than the equivalent area of the ventilator in the original window. Where there was no ventilator, or the size of the ventilator was unknown, a minimum of 5,000mm² equivalent area should be provided to all habitable rooms and 2,500mm² equivalent area to all wet rooms.

PURGE OR RAPID VENTILATION

The requirement for purge or rapid ventilation is that the total opening area of all windows and doors exceeds 1/60th of the floor area of the room or building.



Trimvent® Select is a registered trademark of Titon Hardware (UK).

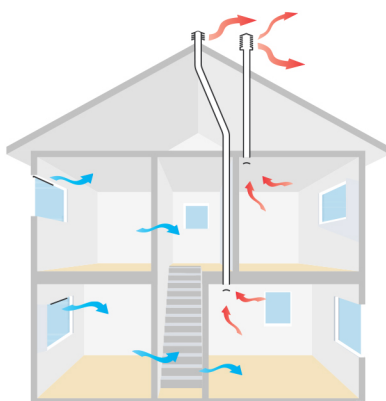


System 1

In order to achieve the air flow rates required, buildings need to be fitted with a ventilation system. The Approved Document Part F provides guidance on four ventilation systems:

System 1 BACKGROUND VENTILATORS AND INTERMITTENT EXTRACTOR FANS

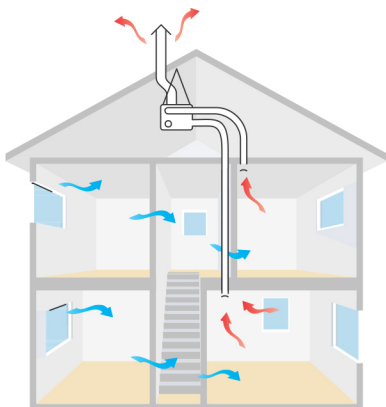
Equivalent area for all ventilation should exceed that determined using Table 1.2a of the Approved Document Part F. Background ventilators should be fitted in all rooms to provide a minimum of 5,000mm² equivalent area to habitable rooms and 2,500mm² equivalent area to wet rooms.



System 2

System 2 PASSIVE STACK VENTILATION

The equivalent area of ventilation required for the building should be determined from the Approved Document Part F, as for System 1. A deduction of 2,500mm² equivalent area should be made for each passive stack ventilator (located in the wet rooms). Background ventilators should be fitted to provide a minimum of 5,000mm² equivalent area to all habitable rooms. No background ventilators should be fitted in wet rooms.



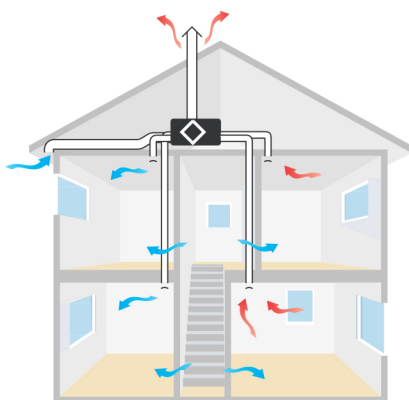
System 3

System 3 CONTINUOUS MECHANICAL EXTRACT

Background ventilators, providing a minimum of 2,500mm² equivalent area, should be fitted in all rooms except wet rooms where mechanical extracts are located.

System 4 CONTINUOUS MECHANICAL SUPPLY AND EXTRACT WITH HEAT RECOVERY

This system relies solely on mechanical ventilation systems to supply and remove air from the building. There is no requirement for background ventilators to be fitted to windows.



System 4

In all cases, the ventilation system is only compliant with Part F when the installed performance meets the ventilation requirements shown in the document. This is tested in accordance with new European Standards detailed in BSEN13141. To help achieve the required performance, Part F provides guidance on the location of ventilation devices within a room and the allowable controls.

EQUIVALENT AREA OF VENTILATION

The Approved Document Part F introduces the measurement of ventilation as an equivalent area in mm² rather than the free area as had previously been used. Equivalent area for ventilation devices is tested in accordance with BSEN13141 by measuring the flow of air through the device at differing pressure levels. It is a requirement that all products are clearly marked with their equivalent area. This enables the figures to be used to calculate the background ventilation for the whole building.

VENTILATION CALCULATIONS

As part of our design and quotation service, our Estimating Department will provide calculations assessing compliance with Document F based on the drawings issued. We will need a full set of detailed drawings of the dwelling/property.

However, although we can assist at the design phase, overall responsibility for ensuring compliance with Document F still remains with the builder.

Images on this page provided by Titon Hardware (UK).

DRIVING WINDOW ENERGY EFFICIENCY STANDARDS

During recent years, increased levels of environmental awareness have led to improvements in the energy efficiency requirements of buildings. Choosing the correct window specification minimises energy loss which can save on heating costs, in addition to reducing the impact on the environment.

Window Energy Ratings (WER) were launched in March 2004 by the British Fenestration Rating Council (BFRC), an independent government-supported body established to develop and administer a system of Window Energy Ratings in the UK. The idea was to develop a consumer-friendly method of illustrating which windows performed well in terms of energy efficiency, using the same type of labels already seen on white goods. Full details relating to Window Energy Ratings can be found on the BFRC website:

www.bfrc.org

In late 2006, the BFRC became part of the Glass and Glazing Federation.

WHAT IS A WINDOW ENERGY RATING (WER)?

A BFRC rating and label apply to a whole window (i.e. frame and glass). They do not apply to either the frame, or the system or the glass individually. Therefore it is at the point at which all these components come together to produce a whole window that the rating and label are obtained. A window's energy rating is determined by a formula which takes into account available solar heat gains (window g-Value) and subtracts the thermal losses (window U-Value and air leakage).

$$\text{WER} = \text{Solar Gains} - (\text{Thermal Losses} + \text{Air Leakage})$$

The resulting value (energy index) is then placed into a band on an A-G scale consistent with other energy performance labels already familiar to the consumer. The A-G rating system provides a means of promoting energy-efficient windows to the consumer and should also help the government to incentivise the windows' uptake.

- Windows with a B Rating or higher are endorsed by the Energy Saving Trust's Energy Efficiency Recommended (EER) scheme and may also carry their logo.

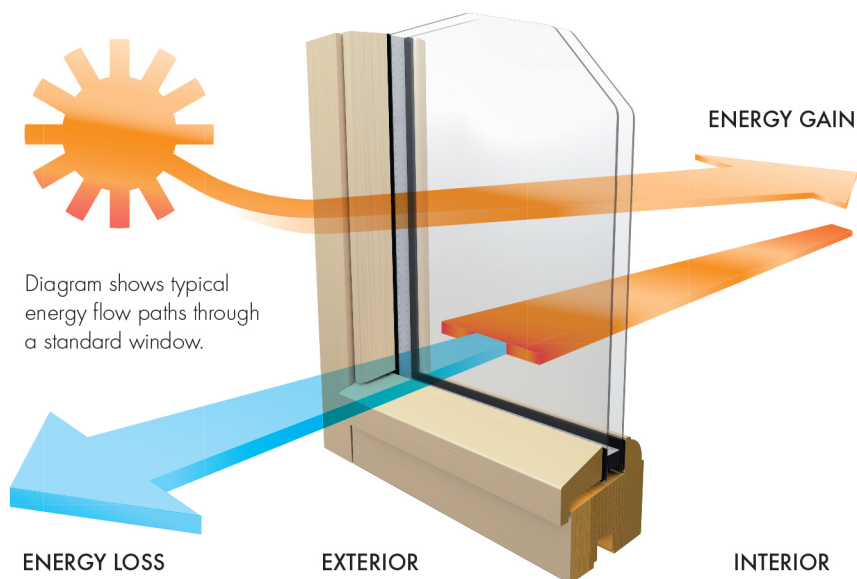


Diagram shows typical energy flow paths through a standard window.

- The Energy Saving Trust (EST) has also produced a series of Best Practice Guides for windows in new dwellings which use BFRC ratings as the measure of window performance. Good practice is achieved by the use of C Rated windows and best practice via the use of B Rated windows. Whilst not mandatory, these guides will be used in any government-funded construction (e.g. social housing).
- C Rated windows are also included on DEFRA's (Department of Environment, Food and Rural Affairs) illustrative list of possible energy efficiency measures as part of the Energy Efficiency Commitment (EEC), paving the way for possible future subsidies.

A BFRC RATING IS AWARDED HAVING FOLLOWED THREE STAGES

- 1 A BFRC Certified Simulator produces an assessment report † of the window.
 - 2 A BFRC Independent Agency ensures the window company has a satisfactory quality management system, approves the Certified Simulator's report and informs BFRC.
 - 3 BFRC authorises, and informs the window company of the product's rating and gives permission for them to use the labels. BFRC places the product on the database on its website. The Energy Saving Trust, on receipt of the appropriate rating, allows the use of the Energy Efficiency Recommended logo on the window.
- † The Certified Simulator's report gives an assessment of the BFRC Rating, which takes into account U-Value, g-Value and L-Value (air leakage). The U-Value would normally be produced by the Simulator using approved software. The g-Value comes from the glass manufacture; and the L-Value from testing to BS 6375. The U-Value simulation is performed for a window to the standard GGF configuration, and the result can be applied to all products of other configurations using the same system/profile.

HOW DO WINDOW ENERGY RATINGS IMPROVE?

The overall performance of a window is dependent upon the combined effect of the frame and the glazing components and the air tightness of the finished window. Each frame style is then a fixed element and ratings within each frame style are varied by calculating the decreasing thermal losses and/or increasing solar gains that vary with the glazing specification.

U-VALUES

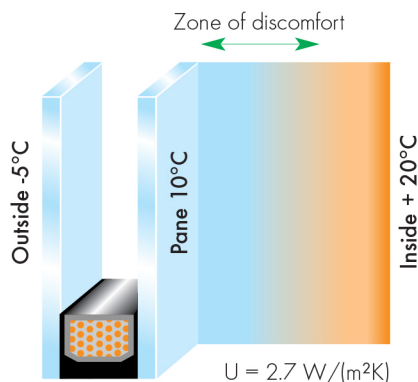
The U-Value is a measure of the rate of heat flow through a window. A lower U-Value indicates less energy loss through the window. U-Values should always be representative of the entire window. U-Values for individual components of the window for example the glazing should not be used in any calculations.

Heat is lost through the window by conduction, convection and radiation. Various measures can be taken to reduce heat loss through the window. Using a low-E coating to the glazing helps to reflect the heat back into the room. Filling the double glazed unit with an inert gas such as argon reduces the amount of heat lost through the glazing unit through convection. Warm edge spacer bars can also be used instead of conventional metal spacer bars to reduce the conduction through them.

SGG PLANITHERM TOTAL® LOW-E GLASS FITTED AS STANDARD

Standard double-glazing

4 mm (16 mm air filled cavity) 4mm



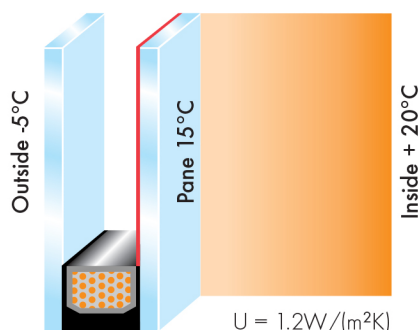
SGG PLANITHERM TOTAL® is a low-E glass supplied as standard on all our double glazed units. This advanced low-emissivity product provides superior performance in thermal insulation. With centre pane U-Values as low as $1.2 \text{ W/m}^2\text{K}$ this ensures minimal thermal losses for frames incorporating this glazing.

SGG PLANITHERM TOTAL® has several advantages over traditional low-E glazing:

- **Better thermal insulation** - Reduces heat loss, saving money on heating bills and hence reducing use of energy and the impact on the environment.
- **More comfortable homes** - Better insulation means less draughts and cold spots near windows and doors.
- **Less condensation** - A warmer interior surface of the glazed unit reduces the probability of condensation.
- **Less of a tint to the glass** - Allows more natural light into the building whilst also giving clearer vision through the windows.
- **Energy efficiency** - Improved thermal insulation combined with greater solar gains make SGG PLANITHERM TOTAL® one of the most energy-efficient products on the market.

Double-glazing

4 mm (16 mm argon filled cavity) 4mm
SGG PLANITHERM TOTAL



SGG SWISSPACER® ULTIMATE - THERMALLY EFFICIENT SPACER BAR

SGG SWISSPACER® ULTIMATE is a next generation warm edge spacer bar. It is reputed to be the best performing foiled warm edge spacer bar in the world. Warm edge spacer bars insulate the edges of an energy efficient sealed unit. They keep the

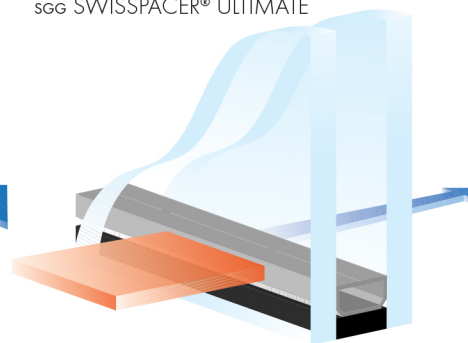
panes of glass apart and maintain the integrity of the air gap that insulates a building from heat loss through windows. This gives a greater level of energy efficiency and reducing the cost to both heating bills and the environment.

SWISSPACER
SAINT-GOBAIN


Standard Spacer



SGG SWISSPACER® ULTIMATE



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Energy Window	
Howarth Timber (Windows & Doors) Ltd Softwood Casement Window Stormproof Energy Ultra	
<div> <div>A</div> <div>B</div> <div>C</div> <div>D</div> <div>E</div> <div>F</div> <div>G</div> </div>	A
Energy Index (kWh/m ² /year) (Energy Index certified by BFRG and based on UK standard window. The actual energy consumption for a specific application will depend on the building, the local climate and the indoor temperature)	2
The climate zone is:	UK
Thermal Transmittance (U _{window})	1.4 W/m ² .K
Solar Factor (g _{window})	0.44 W/m ² .K
Effective Air Leakage (L _{factor})	0. W/m ² .K
	Reg. No.: 918 M175 www.bfrc.org
This label is not a statutory requirement. It is a voluntary label provided as a customer service to allow consumers to make informed decisions on the energy performance of competing products.	

HIGHER ENERGY RATINGS AND LOWER FUEL BILLS

HOWARTH ENERGY RATED WINDOWS

In addition to the standard specification windows in each of our ranges, Howarth now offers a new energy rated family of windows.

ENERGY

The Energy family offers performance equivalent to **BFRC C Rated** windows.

ENERGY PLUS

The Energy Plus family offers performance equivalent to **BFRC B Rated** windows.

ENERGY ULTRA

The Energy Ultra family offers **BFRC A Rated** performance.

LOW U-VALUES

For projects specifically requiring low U-Values, Howarth Windows and Doors has introduced a new family of windows to our Energy Range.

ENERGY ULTRA U

The Energy Ultra U family offers the optimum thermal insulation with the lowest achievable U-Values.

GLAZED UNITS GUARANTEES

We offer a ten year guarantee on all sealed units. First five years supply and replacement on site, remaining five years supply only.



Sealed Units

NOTE: All guarantees given in this catalogue are subject to limitations and are strictly dependent upon compliance with manufacturers' usage and maintenance instructions. These are available upon request.

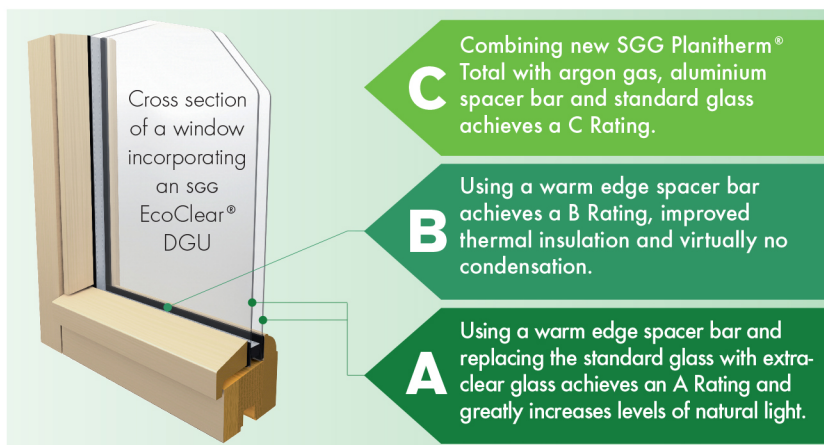
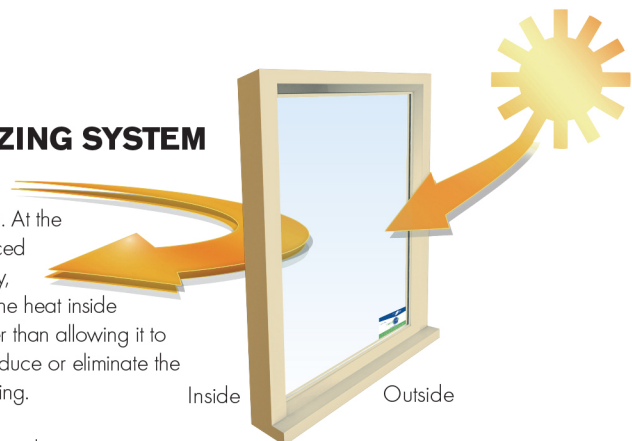
SGG ECOCLEAR® - HIGH PERFORMANCE GLAZING SYSTEM

Howarth offers the option to specify SGG EcoClear®, the most technically superior glazing solution available today.

Incorporating the new SGG Planitherm® Total coated glass technology, windows can now achieve the highest possible Window Energy Ratings (WERs) and will qualify for Energy Saving Recommended status with most frame systems. Windows glazed with SGG EcoClear® allow optimal amounts of the sun's energy to pass through the glass

into the room, benefiting from free solar heat gain. At the same time, using advanced glass coating technology, SGG EcoClear® reflects the heat inside back into the room rather than allowing it to escape. Both features reduce or eliminate the need for additional heating.

SGG EcoClear® offers up to three times more thermal insulation than standard double glazing and 20% better insulation than old fashioned thermally insulating glass. All this is achieved without compromising the amount of natural light passing through the glass.



C

Combining new SGG Planitherm® Total with argon gas, aluminium spacer bar and standard glass achieves a C Rating.

B

Using a warm edge spacer bar achieves a B Rating, improved thermal insulation and virtually no condensation.

A

Using a warm edge spacer bar and replacing the standard glass with extra-clear glass achieves an A Rating and greatly increases levels of natural light.

REDUCE ENERGY BILLS

Windows glazed with SGG EcoClear® can drastically cut the cost of heating bills over their lifetime.



REDUCING CARBON FOOTPRINTS

In the UK, homes create over a quarter of all CO2 emissions. SGG EcoClear® windows will help reduce energy loss and significantly lower CO2 emissions.

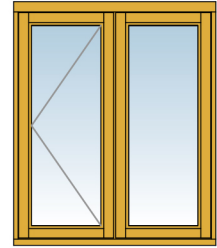
All SGG EcoClear® double glazed units (DGUs) are manufactured to the highest British and European quality standards (BS EN 1279-3).

ULTRA LOW U-VALUES

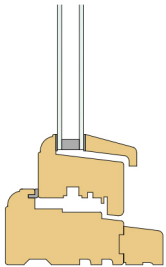
The tables below illustrate indicative thermal performance data for the Howarth range of timber windows with U-Values as low as 0.8 W/m²K on the Storvik^{SKD} triple glazed.

For further details please contact the sales office on 01469 530577.

Benchmark
Window
1230mm wide
x
1480mm high

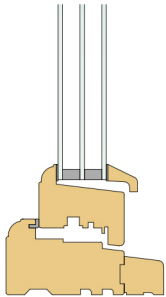


NEW STORVIK^{SKD} DOUBLE GLAZED CASEMENT



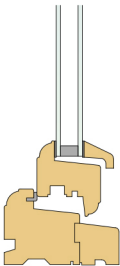
DESCRIPTION	ENERGY	ENERGY PLUS	ENERGY ULTRA	ENERGY ULTRA U
Glazing Configuration	4 -16 - 4	4 -16 - 4	4 -16 - 4	4 -16 - 4
Internal Glazing Type	Low E	Low E	Low E	Low E (High Spec)
External Glazing Type	Clear	Clear	Low Iron	Low Iron
Gas Type	Argon 90%	Argon 90%	Argon 90%	Argon 90%
Spacer Bar Type	Standard	Warm Edge	Warm Edge	Warm Edge
Solar Gain (g _w Value)	0.42	0.42	0.44	0.31
Thermal Insulation (U-Value) W/m ² K	1.5	1.3	1.3	1.2
Window Energy Rating	C	B	A	C

NEW STORVIK^{SKT} TRIPLE GLAZED CASEMENT



DESCRIPTION	ENERGY	ENERGY PLUS	ENERGY ULTRA	ENERGY ULTRA U
Glazing Configuration	4 -16 - 4 -16 - 4	4 -16 - 4 -16 - 4	4 -16 - 4 -16 - 4	4 -16 - 4 -16 - 4
Internal Glazing Type	Low E	Low E	Low E	Low E (High Spec)
Centre Glazing Type	Clear	Clear	Low Iron	Low E (High Spec)
External Glazing Type	Clear	Clear	Low Iron	Low Iron
Gas Type	Argon 90%	Argon 90%	Argon 90%	Krypton
Spacer Bar Type	Standard	Warm Edge	Warm Edge	Warm Edge
Solar Gain (g _w Value)	0.38	0.38	0.41	0.24
Thermal Insulation (U-Value) W/m ² K	1.3	1.1	1.1	0.8
Window Energy Rating	B	A	A	B

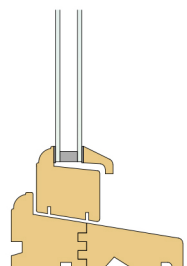
STORMPROOF GLAZED CASEMENT



DESCRIPTION	ENERGY	ENERGY PLUS	ENERGY ULTRA	ENERGY ULTRA U
Glazing Configuration	4 -16 - 4	4 -16 - 4	4 -16 - 4	4 -16 - 4
Internal Glazing Type	Low E	Low E	Low E	Low E (High Spec)
External Glazing Type	Clear	Clear	Low Iron	Low Iron
Gas Type	Argon 90%	Argon 90%	Argon 90%	Argon 90%
Spacer Bar Type	Standard	Warm Edge	Warm Edge	Warm Edge
Solar Gain (g _w Value)	0.44	0.44	0.46	0.32
Thermal Insulation (U-Value) W/m ² K	1.6	1.4	1.4	1.3
Window Energy Rating	C	B	A*	D#

This option does not meet Document L1B for window energy ratings.

SLIDING SASH GLAZED CASEMENT



DESCRIPTION	ENERGY	ENERGY PLUS	ENERGY ULTRA
Glazing Configuration	4 -16 - 4	4 -16 - 4	4 -16 - 4
Internal Glazing Type	Low E	Low E	Low E
External Glazing Type	Clear	Clear	Low Iron
Gas Type	Argon 90%	Argon 90%	Argon 90%
Spacer Bar Type	Standard	Warm Edge	Warm Edge
Solar Gain (g _w Value)	0.45	0.45	0.47
Thermal Insulation (U-Value) W/m ² K	1.6	1.4	1.4
Window Energy Rating	C	B*	A

NOTE: * Results based on energy rating calculations ratified by the BFRC

NOTE: All other results generated by Howarth to determine energy ratings are conducted using the rules and procedures used by the BFRC and are based upon the BFRC standard specification and frame sizes for such calculations.

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From July 2013, under Article 9 of the Construction Products Regulation, it became mandatory for building products sold in the UK to comply with the European Economic Area (EEA) CE Marking requirements.

New European test methods, and the means of measuring these, have been developed and accepted by all countries in the EEA. As responsible manufacturers, committed to maintaining the highest standards, we welcome the recognition that the CE mark brings, and its visible reassurance to our customers and end users.

WHAT THE CE MARK SIGNIFIES

The CE mark (Conformité Européenne) signifies European Conformity and is the manufacturer's declaration that the product complies with the essential requirements of the relevant EEA health, safety and environmental protection legislation. Manufacturers of building products who want to export to any EEA member state are now required to meet the regulations and their products must carry the CE mark.

In effect, the CE mark on Howarth products demonstrates that the product can be sold legally throughout the EEA, and is fit for

purpose. It provides assurance that our products meet defined minimum standards for health, safety and economy of energy. The CE designation is not a 'quality mark' - where, for example, a UK trade or professional organisation has drawn up its own requirements and standards and owns its own mark - but is a regulatory common approach to conformity throughout all member countries of the EEA.



CE MARK ON WINDOWS AND DOORS



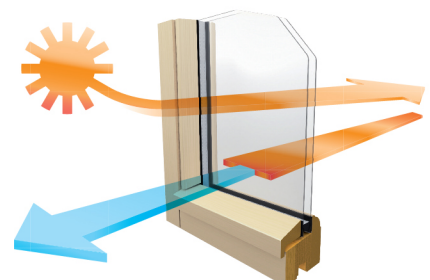
SECURITY ASSURED

Secured by Design is a national police initiative to create a safer more secure environment for residents.



WINDOW ENERGY RATINGS

The ratings are a consumer-friendly method of illustrating which windows perform well in energy efficient terms. For more information, please see page 130.



THE MARK AND ITS RELEVANCE TO THE WHOLE BUILDING

The CE mark shows that the product, when properly installed and maintained, will enable the finished construction works to comply with the Construction Products Regulation requirements of:

- Mechanical resistance and stability.
- Safety in case of fire.
- Hygiene, health and environment.
- Safety and accessibility in use.
- Protection against noise.
- Energy economy and heat retention.
- Sustainable use of natural resources.

THE STANDARDS REQUIRED

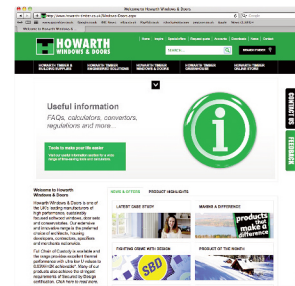
Most external windows and door sets require CE marks and it is the responsibility of installers, fabricators and suppliers to comply. To qualify for a CE mark, products must achieve prescribed levels of performance and must be manufactured in line with a factory production control system (FPC).

Product standard EN 14351-1 standardises performance characteristics for windows and exterior doors, setting out the requirements for manufacturing and including acoustics, ventilation, test methods, production control and more.

COMPREHENSIVE TESTING

All testing is carried out by an accredited and independent body which ensures that the window and door systems have been design to fulfil all EN Standard requirements. Products are assessed for:

- Air permeability.
- Water resistance.
- Wind loading.
- Safety.
- Impact resistance.
- Thermal transmittance value.



LATEST THERMAL PERFORMANCE FIGURES

For the latest figures on how our windows and doors perform in terms of thermal efficiency, please visit our website at:

- www.howarth-timber.co.uk

MANUFACTURING QUALITY AND CONSTRUCTION



As a founder member of the British Woodworking Federation Timber Window Accreditation Scheme and as a member of The Wood Windows Alliance, we can assure our customers of the highest levels of product performance, durability and manufacturing standards.



All Howarth windows are covered by these schemes, which incorporate third party quality inspection and product guarantees.

LAMINATED TIMBER

Main frame and sash components on all Howarth window ranges are now made from clear-faced laminated finger jointed timber. This helps to reduce waste, improve stability and means the main frame components will be free of knots and subsequently, resin stain. This is a major advance, improving the performance and look of the frame and durability of its paint system.



TIMBER

- BS EN 942:2007 Timber in Joinery; General Classification of Timber Quality.



All timber used is Redwood Nordic Pine from well-managed yield sources.

PRESERVATION OF TIMBER

BS5589:1989 Table 5 Performance Level B for 30 years service life.

- Test Results: BS6375 Part 1 & Part 2.

MATERIALS, CONSTRUCTION AND WORKMANSHIP REQUIREMENTS

- BS644:2012 Timber Windows and Door Sets. Fully Finished Factory-Assembled Windows and Door Sets of Various Types, Specification.
- BS1186 Part 2:1988 Specification for Workmanship in Joinery.



BS644:2012

PERFORMANCE

- BS5368 Part 1, 2 & 3 High Performance Part C Rating. It should be noted that this is higher than the Part A Rating to which many windows are routinely tested.
- BS6375 Part 1:2009 Please consult our performance declarations available to download from our website for Water Tightness, Wind Resistance and Air Permeability.
- www.howarth-timber.co.uk
- BS6375 Part 2:2009 Operation and Strength Performance: Pass

ADHESIVES

- BS EN 204 D4 D3 adhesive for concealed or semi concealed joints and D4 for exposed joints is the minimum requirement for BS644:2012. Howarth uses D4 adhesive throughout which offers the following benefits:
- Improved durability.
- Greater strength.
- Improved water resistance.

DECORATION

All Fully Finished decorative and glazing processes are carried out at our purpose-built finishing factory in New Holland, under strict quality-controlled conditions, ensuring that our high standards are continually met. Components are hand picked and prepared in our factory prior to assembly and every exposed joint or end grain is sealed. Once assembled, the frames are base coated with either a translucent or opaque water-based, moisture-permeable protective coat, after which they are denibbed prior to top coat application.

At the paint plant, the frames are spray coated with water-based, moisture-permeable paint or stain to the required colour. Our strict quality control ensures the correct coating thickness is applied. The newly decorated product is then glazed using the very latest drained and ventilated glazing systems. By ensuring that the glazing rebates are sealed prior to fitting and that all the recommended setting blocks, distance spacers and security tapes are used, we can guarantee that the product will give many years of satisfaction.

FRAME COATING SYSTEMS SUITABILITY

Can be overcoated immediately with water-borne or solvent-borne paint or woodstain which will adhere well.

MAINTENANCE

Regular maintenance of the frame is essential to ensure maximum performance of the glazing system and double glazed unit.

GLAZING STANDARDS COMPLIANCE

At Howarth, we manufacture all our glazed units to the relevant industry standards.

GLAZING STANDARDS

The NHBC, BRE and TRADA recommend the use of drained and vented glazing systems. All factory-fitted glazing from Howarth is glazed using this method. For replacement glazing units a CD-ROM illustrating best practice for on-site glazing methods, as approved by the BWF, is available from Howarth.

Please telephone **01469 530577** for further details.

PERMISSIBLE VISUAL QUALITY STANDARDS WITHIN DOUBLE GLAZED UNITS

The following extract is from the Glass & Glazing Federation's information sheet on the permissible visual defects within double glazed units:

- Both panes of the sealed unit shall be viewed at right angles to the glass from the room side, standing at a distance not less than 2 metres; but for toughened, laminated or coated glass, not less than a distance of 3 metres in natural daylight and not in direct sunlight. The area to be viewed is the normal vision area with the exception of a 50mm wide band around the perimeter of the unit.
- Flat, transparent glass, including laminated or toughened (tempered) glass, shall be deemed acceptable if the following phenomena are neither obtrusive nor bunched: totally enclosed seeds, bubbles or blisters; hairlines or blobs; fine scratches not more than 25mm long; minute embedded particles. Obtrusiveness of blemishes shall be judged by looking through the glass, not at it, under lighting conditions as described above.
- The above criteria do not apply to patterned glass as, due to the method of manufacture, imperfections such as seeds and bubbles are deemed to be acceptable.

Full information is available upon request from the Sales Office on 01469 530577.

DRAINED AND VENTED SECURITY GLAZING SYSTEM

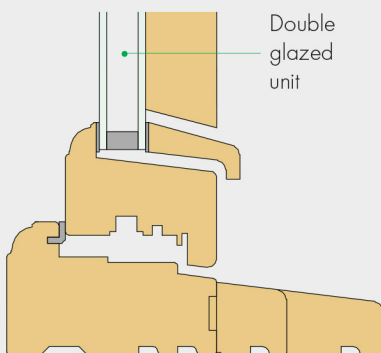


Diagram illustrates external beads only

FEATURES

- Superior resistance to unauthorised entry.
- Has excellent durability and movement accommodation.
- Provides a neat and professional finish at sightline.
- Suitable for all types of glass.

SECURITY RATING

Successfully tested to BS7950: 1997. Specification for Enhanced Security Performance of Casement and Windows for Domestic Applications (Annex A5 Glazing Removal Test).



ANTI-CAPILLARY GAP

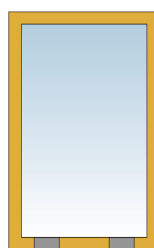
Both vertical glazing beads and vertical external plant-on bars have an anti-capillary gap created where they meet the drained and vented bottom bead. This design minimises the chance of moisture uptake through the exposed endgrain, reducing the likelihood of degradation to both timber and paint finish.

REQUIRED POSITIONS FOR 'SETTING' AND 'LOCATION' BLOCKS FOR REPLACEMENT GLAZING

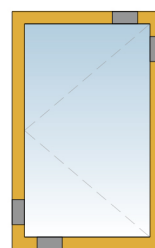
The diagrams illustrated on the right are for guidance only.

For full details, please refer to British Standard BS6262.

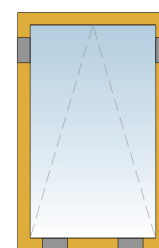
1982 Glazing for Buildings and BS8000 Part 7:1990 Code of Practice for Glazing.



Fixed Light



Side Hung



Top Hung

HANDLING GUIDELINES

PACKAGING AND PROTECTION

Once completed, frames are carefully wrapped and detailed labels are applied to the frame on two edges. These labels contain details about the frame including its approximate weight, size and its final location in the plot (e.g. Plot 1, Bed 1). This is to assist site staff to correctly install the frame in its rightful place, ensuring that fire escapes and other vital specifications are not misplaced.

The completed unit is loaded, usually in plot lots, onto a pallet for ease of unloading, and secured by further wrapping and strong retaining straps.

Some door sets and particularly large items may be loaded onto specially designed stillages for extra safety.

DELIVERIES

To assist you with deliveries, we will contact the site agent, or their associate, 24 hours prior to despatch from our factory. The driver will then contact the site again approximately two hours prior to his arrival on-site.

Offloading is the responsibility of the authorised site agent and is not carried out by the Howarth driver. However, the driver will position the vehicle in the most suitable position on-site to provide access for offloading of products.

NOTE: Particular care needs to be taken when offloading and moving door sets to ensure they do not suffer damage to bottom and corners of frame.



CHECKING DELIVERIES

It is important that an authorised person is available at the time of delivery to inspect for any physical damage and that this is pointed out to the delivery driver at the time and the notes signed to highlight this. Similarly, the number of frames delivered must also be checked and only this number should be signed for, if possible establishing which frames or materials are missing.

If problems are not reported upon delivery they must be reported in writing within three days of delivery.

NOTE: Some ancillary items will be marked as a unit and will need to be counted as such (e.g. certain handles will be supplied boxed or cover beads may be shown as an item).

NOTE: Any mechanical damage reported after the driver has left the site will be the responsibility of the builder.

HEALTH AND SAFETY

It is imperative that correct health and safety procedures are followed on-site when loading or unloading heavy items. Most frames weigh over 25kg and can weigh over 100kg. These frames are marked with a yellow caution label as shown. To facilitate the handling of particularly heavy or awkward frames,

we may deliver these frames in sections ready for site assembly.

It is the responsibility of the customer to ensure that handling methods are adequate and the correct health and safety measures are followed.



STORAGE OF PRODUCTS

Fully decorated windows require additional care when handling and should be stored vertically off the ground on bearers and under cover in a well ventilated environment. Leave the protective wrapping in place at the end of the build process until just before final inspection. When removing packaging take extra care not to damage paint film or glass. Any damage must be recorded on the delivery note at the time of delivery.

To prevent unnecessary damage caused by storage and exposure to the elements, it is recommended that frames are planned for delivery just prior to requirement for installation.



REMOVAL OF PACKAGING

Door sets are supplied with both wedge and brace blocks to ensure the frame remains square and stable during transit and storage. These should be removed just before offering the door set into the opening.

Riser blocks as shown in the above photograph, are a design feature of Howarth windows. They ensure smooth operation of the window mechanisms and should not be removed from the frame.