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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

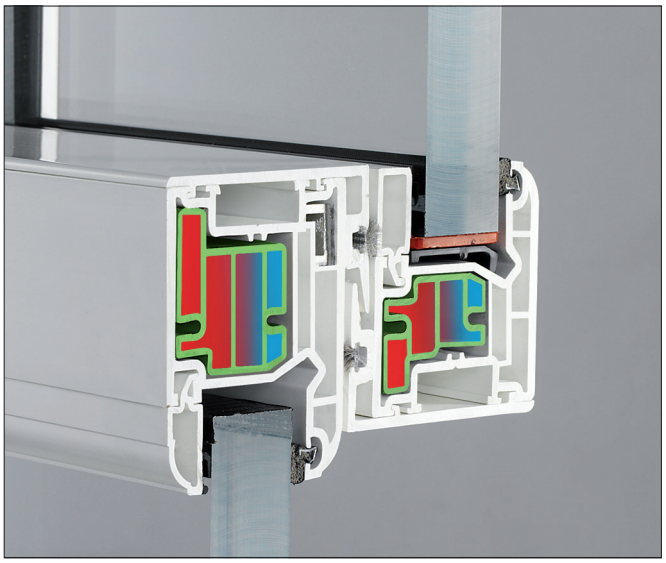
Agrément Certificate
14/5154
Product Sheet 3

EUROCELL PVC-U WINDOW SYSTEMS

EUROCELL CHARISMA VERTICAL SLIDER SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Eurocell Charisma Vertical Slider System, in white finish, for use in walls of domestic and non-domestic buildings for use in new and existing dwellings, light commercial premises or similar habitable applications.

(1) Hereinafter referred to as 'Certificate'.



CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Thermal properties — windows from within the range have a thermal transmittance value (U values) of 1.4 $W \cdot m^{-2} \cdot K^{-1}$, depending on the glazing unit (see section 6).

Weathertightness — the systems can be used in the exposure situations described in this Certificate (see section 7).

Ventilation — opening lights can provide rapid ventilation, and background ventilation can be provided by the incorporation in the window of a suitably-sized trickle ventilator (see section 8).

Basic security against intrusion — the windows meet the basic requirements of NHBC (see section 9).

Durability — the PVC-U extruded profiles will continue to function satisfactorily for a period in excess of 35 years (see section 16).

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 13 October 2014

John Albon — Head of Approvals
Energy and Ventilation

Claire Curtis-Thomas
Chief Executive

Certificate amended on 27 November 2015 to reflect minor text changes in Section 4.

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In the opinion of the BBA, the Eurocell Charisma Vertical Slider System, if installed, used and maintained in accordance with the provisions of this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B1	Means of warning and escape
Comment:		Windows of an appropriate size can be used as an escape route from floors not more than 4.5 m above ground level. See section 11 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The system has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Requirement. See Table 3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The system will not constitute a significant condensation risk and so can contribute towards the wall satisfying this Requirement. See section 12.1 of this Certificate.
Requirement:	F1(1)	Means of ventilation
Comment:		In assessing the contribution of the system to natural purge ventilation, the area of opening should be calculated in accordance with section 8.1 in this Certificate and related to floor area as set out in Approved Document F. Trickle ventilation can also be provided by the methods described in section 8.3 of this Certificate.
Requirement:	K	Protection from falling, collision and impact
Requirement:	K5.3	Safe opening and closing of windows etc. (applicable to England only)
Comment:		In buildings other than dwellings, windows which can be opened by people in or about the building should be constructed or equipped so that they can be opened, closed or adjusted safely. See sections 13.3 and 13.4 of this Certificate.
Requirement:	K5.4	Safe access for cleaning windows etc (applicable to England only)
Comment:		In buildings other than dwellings, this Requirement can be met. See section 13.1 and 13.2 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The system can contribute to satisfying this Requirement. See section 6 of this Certificate.
Requirement:	N3	Safe opening and closing of windows, etc (applicable to Wales only)
Comment:		In buildings other than dwellings, windows which can be opened by people in or about the building should be constructed or equipped so that they can be opened, closed or adjusted safely. See sections 13.3 and 13.4 of this Certificate.
Requirement:	N4	Safe access for cleaning windows etc (applicable to Wales only)
Comment:		In buildings other than dwellings, this Requirement can be met when opening lights can be safely cleaned from inside the building. See section 13.1 and 13.2 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The system is acceptable. See sections 16.1 and 16.2 and the *Installation* part of this Certificate.
Regulation:	26	CO_2 emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The system satisfies this Regulation. See sections 15.1, 15.2, 15.3, 16.1 and 16.2 and the *Installation* part of this Certificate.
Regulation:	9	Building Standards applicable to construction
Standard:	2.9	Escape
Comment:		Windows of an appropriate size can be used as an escape route from an apartment on an upper storey at a height of not more than 4.5 m above ground level. See section 11 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Standard, with reference to clause 3.10.1[1][2]. See Table 3 of this Certificate.
Standard:	3.14	Ventilation
Comment:		In calculating the contribution of the system to natural ventilation with reference to clauses 3.14.2[1][2] and 3.14.3[1] of this Standard, the area of opening can be calculated in accordance with section 8.1 of this Certificate. Trickle ventilation, with reference to clauses 3.14.3[2] and 3.14.5[1], can also be provided as described in section 8.3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system will not constitute a significant condensation risk and so can contribute towards the wall satisfying this Standard, with reference to clauses 3.15.1[1] and 3.15.4[1]. See section 12.1 of this Certificate.

Standard:	3.16	Natural lighting
Comment:		In calculating the contribution of the system to natural lighting, with reference to clause 3.16.1[1] and 3.16.3[1] of this Standard, the area of glazing can be calculated in accordance with section 10 of this Certificate.
Standard:	4.8(c)	Danger from accidents
Comment:		Opening lights that can be safely cleaned from inside the building can satisfy this Standard, with reference to clause 4.8.3[1][2]. See section 13.1 and 13.2 of this Certificate.
Standard:	4.8(e)	Danger from accidents
Comment:		Opening lights that can be opened, closed and adjusted safely satisfy this Standard, with reference to clause 4.8.5[1][2]. See sections 13.3 and 13.4 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying these Standards, with reference to clauses 6.1.1[1], 6.1.2[1], 6.1.4[2], 6.1.6[1], 6.1.7[1], 6.2.1[1][2], 6.2.4[2], 6.2.6[1], 6.2.7[1], 6.2.8[2], 6.2.9[1][2], 6.2.11[1][2] and 6.2.13[1][2]. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4[1][2] [Aspects 1[1][2] and 2[1]], 7.1.6[1][2] [Aspects 1[1][2] and 2[1]] and 7.1.7[1][2] [Aspect 1[1][2]]. See section 6 of this Certificate.
Regulation:	12	**Building standards applicable to conversions**
Comment:		All comments given for this system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[1][2] and Schedule 6[1][2].

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012

Regulation:	23	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See sections 16.1 and 16.2 and the *Installation* part of this Certificate.
Regulation:	28(b)	**Resistance to moisture and weather**
Comment:		The system has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Regulation. See Table 3 of this Certificate.
Regulation:	33(c)	**Means of escape**
Comment:		Windows of an appropriate size can be used as an escape route in dwellings. See section 11 of this Certificate.
Regulation:	39(a)(i)	**Conservation measures**
Regulation:	40(2)	**Target carbon dioxide emission rate**
Comment:		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.
Regulation:	65(1)	**Means of ventilation**
Comment:		When calculating the area of window openings for ventilation purposes, see section 8.1 of this Certificate. Trickle ventilation can also be provided as described in section 8.3 of this Certificate.
Regulation:	98	**Safe opening and closing of windows, skylights and ventilators**
Comment:		The requirements of this Regulation shall be deemed to be satisfied if the window complies with Technical Booklet V, Section 4. See sections 13.3 and 13.4 of this Certificate.
Regulation:	99	**Safe means of access for cleaning glazing**
Comment:		Opening lights that can be safely cleaned from inside the building can satisfy this Regulation. See section 13.1 and 13.2 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.3) and *Safety* (13.9) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of the Eurocell Charisma Vertical Slider System, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.7 *Doors, windows and glazing*.

General

The Certificate holder is a system supplier, supplying bar length of window profile. The window system detailed within this Product Sheet are manufactured by BBA approved window fabricators. Details of currently approved window fabricators can be found on the BBA website.

1 Description

1.1 The Eurocell Charisma Vertical Slider System comprises a combination of two vertical sliding or fixed sashes, with or without surface-applied Georgian bars, within a frame or multiple frames coupled together with a single sill, in white finish unplasticised polyvinyl chloride (PVC-U) profiles complying with BS EN 12608 : 2003 and glazed internally with sealed double-glazed units(1).

(1) Outside the scope of this Certificate.

1.2 The profiles covered by this Certificate are listed in Table 1 and shown in Figure 1.

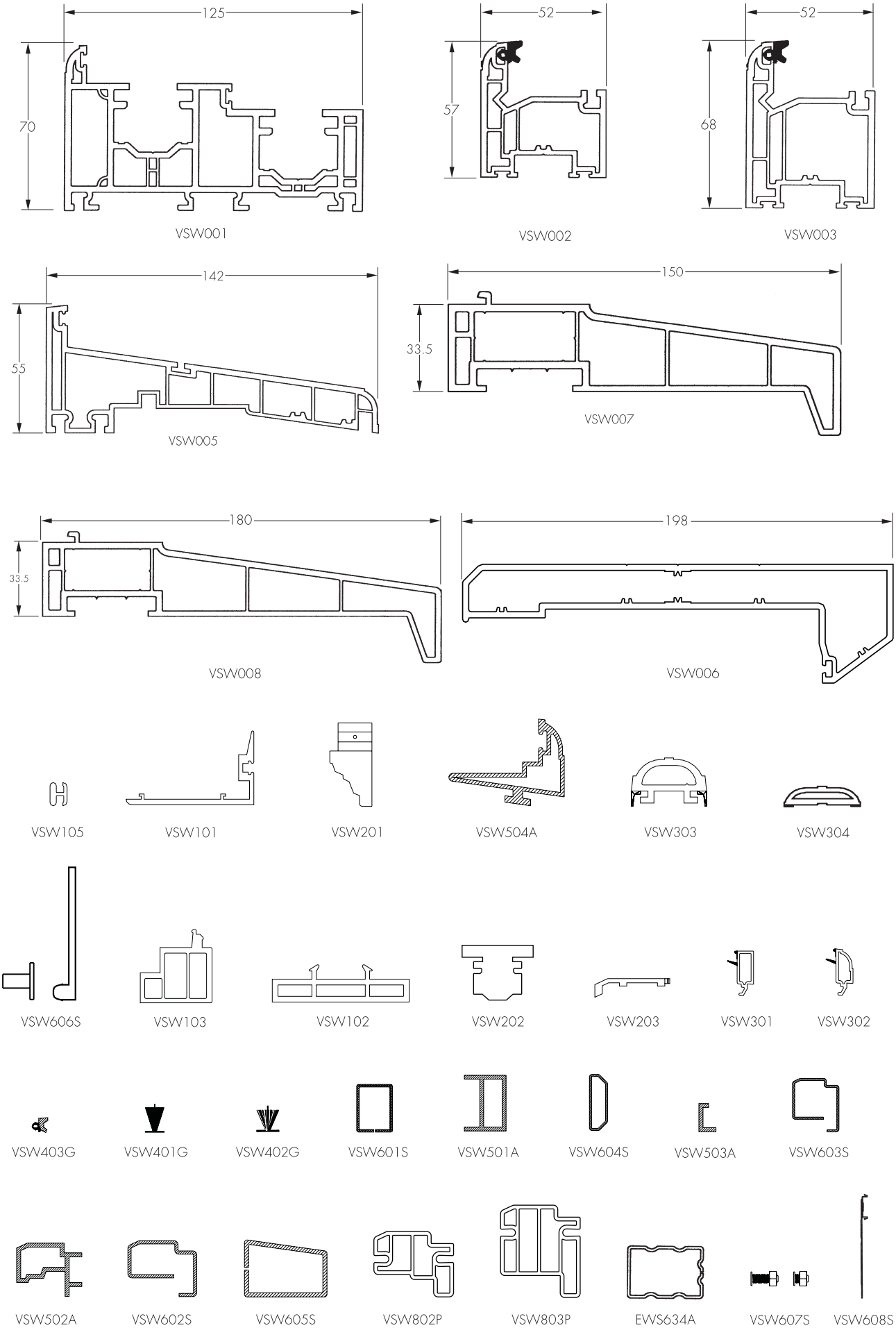
Table 1 Profiles

Manufacturer's designation	Profile type	Application
VSW001	L-section	outer frame
VSW002(1)	L-section	slim sash frame
VSW003(1)	L-section	medium sash frame
VSW005	—	sill adaptor
VSW007	—	sill (150 mm)
VSW008	—	sill (180 mm)
VSW006	—	overhead vent
VSW205(2)	—	sill adaptor end cap
VSW206(2)	—	overhead vent end cap
VSW105	—	overhead vent insert
VSW101	—	interlocker
VSW201	—	decorative horn
VSW504A	—	security bar
VSW303	—	external Georgian bar
VSW304	—	internal Georgian bar
EWS419(2)	—	tape for Georgian bar
VSW606S	—	Georgian bar fixing kit
VSW103	—	adaptor frame extension
VSW102	—	frame stop
VSW202	—	frame stop cap
VSW203	—	glass packer
VSW301	—	glazing bead
VSW302	—	glazing bead
VSW403G	—	rolled-in gasket
VSW401G	—	brush seal (frame)
VSW402G	—	brush seal (sash)
VSW601S	—	steel reinforcement (VSW001)
VSW501A	—	aluminium reinforcement (VSW001)
VSW604S	—	steel reinforcement (VSW001)
VSW503A	—	aluminium reinforcement (VSW003)
VSW603S	—	steel reinforcement (VSW003)
VSW502A	—	aluminium reinforcement (VSW002)
VSW602S	—	steel reinforcement (VSW002)
VSW605S	—	steel reinforcement (VSW005)
VSW802P	—	PVC-U thermal insert reinforcement (VSW002)
VSW803P	—	PVC-U thermal insert reinforcement (VSW003)
EWS634A	—	aluminium reinforcement (VSW007, VSW008)
VSW607S	—	balance fixing kit
VSW608S	—	fixing cleat

(1) With rolled-in gaskets.

(2) Not shown in Figure 1.

Figure 1 Profiles (all dimensions in mm)



1.3 The Certificate holder must adhere to the methods of selection, machining and assembly of frame components as detailed in the fabrication instructions and this Certificate.

1.4 The outer frame has three welded sides and a mechanically-jointed sill adaptor. The bottom and top sashes are fully welded.

1.5 Where required, PVC-U reinforcement sections are inserted in the PVC-U sections before they are welded together. The sill adaptor is mechanically-jointed to the jambs of the outer frame and the appropriate template. The window is completed by fixing the sashes to the balances, locating the weatherstrips and brush seals and securing the furniture in position with screws in accordance with the instructions in the fabrication instructions.

1.6 Drainage is provided by a series of slots (5 mm by 30 mm) and holes (5 mm diameter), positioned in accordance with the fabrication instructions.

Reinforcement

1.7 Where their width exceeds 1000 mm and/or their height exceeds 1400 mm, outer frame members are reinforced with galvanized mild steel and aluminium in accordance with the fabrication instructions.

1.8 Sashes are always reinforced with galvanized mild steel, PVC-U thermal inserts or aluminium in accordance with the fabrication instructions.

1.9 Sill adaptors are always reinforced with galvanized mild steel in accordance with the fabrication instructions.

1.10 Galvanized steel reinforcement is roll-formed from material with a Z275N coating complying with BS EN 10346 : 2009. Aluminium reinforcement is extruded from alloy type 6063-T6 to BS EN 755-2 : 2008.

Size range

1.11 This Certificate covers individual frames, comprising two vertical sliding or fixed sashes or multilights incorporating combinations of individual frames coupled together on a single sill within the limitations shown in Table 2.

Table 2 Size restrictions

	Dimension (mm)
All windows	
Maximum overall width of any single outer frame	1200
Maximum height of any outer frame	2000
Sashes	
Maximum size of individual sash	
slim	1085 wide x 1156 high
medium	1107 wide x 1178 high

Fittings

1.12 Opening windows covered by this Certificate are fitted with various forms of sash balances. The balances are pre-tensioned to suit the size and weight of the sash and are fixed to the frame with screws.

1.13 The sashes are fastened by means of locking catches manufactured from zinc alloy and available with various finishes. The catches are available with a key locking facility as an option. The keeps are made from zinc-based alloy. Sash lock and keep plates are placed between the lock/keep and the sash members. The catches and the keeps are fixed by means of self-tapping screws which penetrate a thickened area of the profile wall or the reinforcing. Handles, manufactured from zinc alloy or brass, are fitted to upper and lower sashes. In addition, the sashes may be fitted with a tilt mechanism for cleaning purposes.

1.14 Additional components are available from the range of fittings to restrict the opening of the window to a maximum distance of 100 mm.

Glazing

1.15 Windows are supplied factory glazed or ready for glazing using double-glazed units with glass thicknesses in accordance with BS 6262-1 : 2005. All glass is positioned by plastic setting blocks and packing pieces.

1.16 The glazing units must meet the requirements of BS EN 1279-2 : 2002 and (if relevant) BS EN 1279-3 : 2002.

Weatherstripping and gaskets

1.17 Brush seals, made from polypropylene wool pile, are located in the grooves around the periphery of the sash and outer frame and on the security bar.

1.18 The sash profiles incorporate integral rolled-in gaskets made from black EPDM or Q-LON (see Figure 1). The double-glazed unit is secured by post calibration co-extruded (PCE) bead.

2 Manufacture

2.1 The windows are fabricated from white finish, PVC-U profiles, produced by conventional extrusion techniques from material complying with BS EN 12608 : 2003. The system is fabricated using conventional production processes for PVC-U windows.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Eurocell Profiles Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate No FM 45551).

3 Delivery and site handling

3.1 The windows without Georgian bars are delivered to site glazed or ready for glazing. Windows with Georgian bars are supplied factory glazed. For transportation they are suitably protected to avoid damage.

3.2 The windows should be stored under cover in a clean area, on edge and suitably supported to avoid distortion or damage.

3.3 The weight of the unglazed frame and of the glazing (which can be obtained from the Certificate holder) and their ease of handling, particularly by one person, must be taken into account when planning site operations.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Eurocell Charisma Vertical Slider System.

Design Considerations

4 Use

The Eurocell Charisma Vertical Slider System is satisfactory for use in non load-bearing applications where windows are installed vertically into the external walls of buildings of new and existing dwellings, light commercial premises or similar habitable applications.

5 Practicability of installation

The system is designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

6 Thermal properties

6.1 The following Eurocell Charisma vertical sliding window, 1230 mm wide by 1480 mm high, achieves a U value (U_w) of 1.4 $W \cdot m^{-2} \cdot K^{-1}$ when simulated in accordance with BS EN ISO 10077-2 : 2012, and achieves a Window Energy Rating of 'Band A':

- an opener above an opener
- VSW001 outer frame (unreinforced)
- VSW002 upper sash (reinforced with VSW802P) thermal insert
- VSW803 lower sash (reinforced with VSW803P) thermal insert
- VSW302 and VSW301 glazing beads

4/16/4 mm sealed double-glazed unit

- 16 mm argon-filled cavity (90%)
- external pane: 4 mm Planilux, Saint Gobain
- internal pane: 4 mm Planitherm KS, Saint Gobain, (ε = 0.05)
- spacer: Edgetech Superspacer.

6.2 The overall thermal insulation of the window will be dependent on the performance of the double-glazed units. For units other than those described above, the indicative U values shown in Table 6e of SAP 2009 *The Government's Standard Assessment Procedure for Energy Rating of Dwellings* can be used. When available, a certified U value by measurement to BS EN ISO 12567-1 : 2010, or calculation to BS EN ISO 10077-1 : 2006 and BS EN ISO 10077-2 : 2012 should be used in preference. Alternatively, window energy ratings may be available for specific frame and glazing combinations on the BFRC website (www.bfrc.org).

6.3 Design U values are detailed in the documents supporting the national Building Regulations.

7 Weathertightness

7.1 Selected samples from the system were tested for weathertightness, generally in accordance with BS EN 14351-1 : 2006 (BS EN 1026 : 2000, BS EN 1027 : 2000 and BS EN 12211 : 2000) and are suitable for use as indicated in Table 3. The gradings are based on the assumption that the outer frame is supported on all four sides in accordance with the manufacturer's instructions.

7.2 For unusual building layouts, building shapes or ground topography, the designer will need to give particular consideration to the prevailing exposure conditions.

Table 3 Weathertightness classifications

Window style	Strength and Stability/ resistance to wind according to BS EN 12210 : 2000	Watertightness according to BS EN 12208 : 2000	Air permeability according to BS EN 12207 : 2000	Overall UK exposure category (BS 6375-1 : 2009)
All windows up to maximum size	Class A5, 2000Pa	Class 6A	Class 3	2000

8 Ventilation

8.1 The opening area for natural ventilation may be calculated by using the formula: [A – (A/2 + 149)] x (B-140), where A and B are the total frame height and width respectively.

8.2 Only one sash can be fully opened at a time, therefore the maximum opening area must be calculated accordingly.

8.3 The background ventilation requirements of the various building regulations can be met by the incorporation in the window of a suitably-sized trickle ventilator(1). The ventilator may be glazed in or fitted in a supplementary head member.

(1) Outside the scope of this Certificate.

9 Basic security against intrusion

9.1 Eurocell Sliding sashes are fitted with lock mechanisms as described in sections 1.12 and 1.13. When fastened in the closed position the opening light cannot be opened by manipulation from the outside (for example, by the insertion of a thin blade). Key operated handles are required for certain windows to meet the security requirements of *NHBC Standards* 2014 Chapter 6.7 *Doors, windows and glazing*. It is vital that glass packing is carried out to the manufacturer's recommendations to prevent forced entry by the flexing of frame members allowing disengagement of the lock mechanism.

9.2 Sash lock and keep plates must be positioned between the sash profiles and the cam lock and keep.

9.3 The design of the glazing is such that the removal of the glazing from the outside is extremely difficult, as all glazing beads are fitted internally.

10 Glass area

The approximate unobstructed glass area of the windows is determined by deducting from the overall width and height the appropriate profile dimensions.

11 Unobstructed opening area

11.1 A window can provide an adequate means of escape from a dwelling when it incorporates an opening light that:

- is in a room with a floor not more than 4.5 m above ground level
- is positioned so that the bottom of the opening is no more than 1.1 m above the floor
- provides a clear opening area of at least 0.33 m^2 and not less than 450 mm high by 450 mm wide, which may be at an angle or straight through.

11.2 In addition:

England and Wales — windows must remain open without needing to be held

Scotland — locks may be used but must not cause a permanent obstruction to satisfy clause 2.9.4(1) as escape windows.

(1) Technical Booklet (Domestic).

Northern Ireland — the window must be positioned not less than 800 mm above the floor.

12 Condensation risk

12.1 In normal domestic or similar applications, PVC-U windows will not constitute a significant condensation risk when correctly installed.

12.2 Guidance on some satisfactory design details are given in *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar building*, TSO 2002 and the *Accredited Construction Details*. Further information is contained in BRE Report BR 262 : 2002 .

13 Safety

13.1 For opening lights fitted with tilt mechanism, the external face of the window can be cleaned from inside the building.

13.2 For windows not covered by section 13.1, reasonable provision shall be made for safe means of access to clean both faces of the window. For ways of complying with the requirements of the Building Regulations see:

England — Approved Document K5.4 (requirement does not apply to dwellings)

Wales — Approved Document N4 (requirement does not apply to dwellings)

Scotland — Standard 4.8(c), clauses 4.8.3[1][2] and 4.8.4[1][2]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet V, Section 5.

13.3 When fitted with a restrictor, movement of the opening light can be effectively limited to give an opening of not more than 100 mm, as recommended for child safety in BS 8213-1 : 2004.

13.4 The windows can comply with the recommendations of BS 8213-1 : 2004 with regard to the positioning of hand-operated controls.

13.5 Under certain circumstances, account must be taken of the recommendations given in BS 6262-4 : 2005[1], which includes the use of safety glass complying with BS EN 12600 : 2002.

(1) Dealing with the safety of people upon impact with the glazing.

13.6 Reasonable provision shall be made to minimise the risk of people colliding with an open window when moving in or about a building. For ways of complying with the requirements of the Building Regulations see:

England — Approved Document K5.1 (for buildings other than dwellings)

Wales — Approved Document N1 (for buildings other than dwellings)

Scotland — Standard 4.8(a), clause 4.8.1[1][2]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet H, Section 8. The requirements of Regulation 60 shall only apply to a window installed in a dwelling which opens over a public route of travel.

13.7 Transparent glazing, of which people may be unaware and with which they are likely to collide, shall incorporate features which make it apparent. For ways of complying with the requirements of the Building Regulations see:

England — Approved Document K5.2 (for buildings other than dwellings)

Wales — Approved Document N2 (for buildings other than dwellings)

Scotland — Standard 4.8(b), clause 4.8.2[1][2]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet V, Section 3.

13.8 Approved Document K4 to the Building Regulations (England), Approved Document N1 to the Building Regulations (Wales), *NHBC Standards* 2014, Appendix 6.7B, and BS 6262-4 : 2005[1], make recommendations to ensure the safe performance of glazing. These include the use of safety glass complying with BS EN 12600 : 2002 in locations where accidental collision is likely. The toughened or laminated glazing units supplied with Eurocell Charisma windows meet these requirements.

(1) Dealing with the safety of people upon impact with the glazing.

13.9 When selecting means of access during the period of installation (for example use of scaffolding), the safety of the operatives, occupants and passers-by should be considered.

14 Ease of operation

The windows are suitable for external use in dwellings and can be operated without difficulty when correctly installed.

15 Maintenance

15.1 The windows can be re-glazed, but if the integral gasket is damaged it must be replaced by conventional gaskets and weatherstripping. The Georgian bars can be replaced by reglazing the sash. If a co-extruded glazing bead is fitted and the gasket is damaged, for example during re-glazing, it may be necessary to replace the complete bead. These operations should be carried out by specialist operatives using materials recommended by the Certificate holder and approved by the BBA.

15.2 If damage occurs, the furniture and fittings can be replaced by releasing the fixing screws and changing the fitting.

15.3 The sash balances, tilt mechanism and locking catches should be cleaned and lubricated periodically to minimise wear and to ensure smooth operation.

15.4 The seal to the building structure will need to be replaced within the life of the window.

15.5 The PVC-U frame members can be cleaned using a soft sponge and soapy water. Solvent-based, corrosive or abrasive cleaners must not be used. If dirt is allowed to build up on the members over long periods it may become more difficult to restore the surface appearance.

15.6 Care should be taken when using proprietary materials for cleaning the glass, to ensure that deposits are not allowed to remain on the PVC-U where they may cause discoloration and damage to the surface. In addition, care must be taken to avoid damage to, or discoloration of, the members when stripping paint from adjacent timber, for example, by means of a blowlamp or paint stripper.

16 Durability

16.1 The PVC-U extruded profiles will continue to function satisfactorily for a period in excess of 35 years.

16.2 The co-extruded glazing beads, gaskets and fittings, including the sash balances, tilt mechanism and operating handles, as described in this Certificate, may need to be replaced within the life of the window, particularly when exposed to aggressive environments, such as coastal or industrial locations.

16.3 Any slight colour change or surface dulling that might occur will be uniform over the visible surfaces of the windows. Therefore paint must not be applied.

16.4 Paint must not be applied as it can adversely affect the impact strength of the PVC-U frame members and the application of dark colours to white profiles could lead to a risk of thermal distortion.

17 Reuse and recyclability

The PVC-U profiles of the systems can be recycled.

Installation

18 General

18.1 The window must be fixed into the opening, in accordance with BS 8213-4 : 2007, using proprietary expanding anchors through the frame or galvanized steel fixing lugs.

18.2 Openings in new walls should be formed using a suitable template 10 mm wider and higher than the window to be installed. The window should not be built in at the construction stage.

18.3 In common with other types of window fitted to prepared openings, the system must be correctly positioned in relation to damp-proof courses to prevent water penetration to the internal reveal.

18.4 The provision of a cavity closer and/or cavity barrier around the window opening, prior to the installation, may be required.

Technical Investigations

19 Tests

19.1 Tests were carried out on the Eurocell Charisma Vertical Slider System, in accordance with the methods defined in BS 6375-1 : 2009, BS 6375-2 : 1987, BS 6375-2:2009, BS 6375-3 : 2009 and BS 7412 : 2007 to determine:

- air permeability
- watertightness
- effect of wind loads
- efficiency of window fittings
- resistance to mechanical loading
- basic security
- ease of operation.

19.2 Tests were carried out in accordance with BS EN 12608 : 2003 on the PVC-U extrusions.

19.3 Tests were carried out on various items of hardware in accordance with BS EN 1670 : 2007 Resistance to salt spray corrosion.

19.4 Tests were carried out on Georgian bar in accordance with BS 7716 : 1990, Part H and MOAT No 33 : 1986.

20 Investigations

20.1 The thermal transmittance values of the system were calculated in accordance with BS EN ISO 10077-1 : 2006 and BS EN ISO 10077-2 : 2012.

20.2 The manufacturing process was evaluated, including methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

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BS 6375-2 : 1987 *Performance of windows — Specification for operation and strength characteristics*
BS 6375-2 : 2009 *Performance of windows and doors — Classification for operation and strength characteristics and guidance on selection and specification*
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BS 7412 : 2007 *Specification for windows and doorsets made from unplasticized polyvinyl chloride (PVC-U) extruded hollow profiles*

BS 7716 : 1990 *Preparation of Function Charts for Control Systems*

BS 8213-1 : 2004 *Windows, doors and rooflights — Design for safety in use and during cleaning of windows, including door-height windows and roof windows — Code of practice*
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BS EN 1026 : 2000 *Windows and doors — Air permeability — Test method*

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BS EN 12208 : 2000 *Windows and doors — Watertightness — Classification*

BS EN 12210 : 2000 *Windows and doors — Resistance to wind load — Classification*

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BS EN ISO 10077-2 : 2012 *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Numerical method for frames*

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21 Conditions

21.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
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21.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

21.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

21.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

21.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
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- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

21.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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