

Eurocell Profiles Ltd

Fairbrook House
Clover Nook Road
Alfreton
Derbyshire DE55 4RF

Tel: 01773 842100 Fax: 01773 842109

e-mail: info@eurocell.co.uk

website: www.eurocell.co.uk



Agrément Certificate

14/5150

Product Sheet 3

EUROCELL PVC-U DOOR SYSTEMS

ASPECT PANORAMIC PVC-U BI-FOLD DOOR SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Aspect Panoramic PVC-U Bi-fold Door System, for external use as secondary access doors in walls of new and existing dwellings, light commercial premises and 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 transmittance — the thermal transmittance value (U value) of a door from within the range was calculated as $1.4 \text{ W} \cdot \text{m}^{-2} \cdot \text{K}^{-1}$ (see section 6).

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

Ventilation — the bi-fold doors can provide rapid ventilation (see section 8).

Unauthorised access — doors from within this range can contribute to preventing unauthorised access to dwellings, light commercial premises and similar habitable applications (see section 9).

Durability — the doors will continue to function satisfactorily for a period in excess of 35 years subject to the necessary maintenance (see sections 15 and 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: 29 March 2019

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

©2019

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

In the opinion of the BBA, the Aspect Panoramic PVC-U Bi-fold Door System, if installed, used and maintained in accordance with 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:	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 satisfying this Requirement. See section 7.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The system will not constitute a significant condensation risk and so can contribute towards satisfying this Requirement. See section 11.1 of this Certificate.
Requirement:	F1(i)	Means of ventilation
Comment:		The system can contribute to natural purge ventilation. See section 8.1 of this Certificate.
Requirement:	K4 (a)(b)	Protection against impact with glazing (applicable to England only)
Comment:		Bi-fold doors fitted with safety glass can satisfy this Requirement. See section 12.1 of this Certificate.
Requirement:	K5.2	Manifestation of glazing (applicable to England only)
Comment:		Bi-fold doors used in non-dwellings can satisfy this Requirement when glazing incorporates features which make it apparent. See section 12.2 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The system can contribute to satisfying this Requirement. See sections 6.1 and 6.2 of this Certificate.
Requirement:	N1	Protection against impact with glazing (applicable to Wales only)
Comment:		Bi-fold doors fitted with safety glass can satisfy this Requirement. See section 12.1 of this Certificate.
Requirement:	N2	Manifestation of glazing (applicable to Wales only)
Comment:		Bi-fold doors used in non-dwellings can satisfy this Requirement when glazing incorporates features which make it apparent. See section 12.2 of this Certificate.
Requirement:	Q1	Unauthorised access
Comment:		The doors as described in the Enhanced Security Sheet (ES3) can satisfy this Requirement for new dwellings. See section 9.3 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The system is acceptable. See sections 16.1 and 16.2 and the <i>Installation</i> part of this Certificate.
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (application to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (application to Wales only)
Comment:		The system can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The system can contribute to a construction satisfying this Regulation. See sections 15.1 to 15.4, 16.1 and 16.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.9	Escape
Comment:		Bi-fold doors fitted with a thumb-turn lock can satisfy this Standard, with reference to clauses 2.9.0 ⁽¹⁾ and 2.9.18 ⁽²⁾ . See section 12.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The bi-fold door has adequate resistance to the ingress of rain and wind-driven spray and so can contribute towards satisfying this Standard, with reference to clause 3.10.1 ⁽¹⁾ . See section 7.2 of this Certificate.
Standard:	3.14	Ventilation
Comment:		The bi-fold door can contribute to natural ventilation with reference to clauses 3.14.2 ⁽¹⁾ and 3.14.3 ⁽¹⁾ of this Standard. See section 8.1 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⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See section 11.1 of this Certificate.
Standard:	3.16	Natural lighting
Comment:		In calculating the contribution of the system to natural lighting, with reference to clauses 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(a)(b)	Danger from accidents
Comment:		Bi-fold doors fitted with safety glass can satisfy this Standard, with reference to clause 4.8.2 ⁽¹⁾ . See section 12.1 of this Certificate. For non-domestic applications, large glazed areas should feature some sort of manifestation (marking) to make it apparent. See section 12.2 of this Certificate.
Standard:	4.13	Security
Comment:		The doors as described in the Enhanced Security Sheet (ES3) can satisfy this Standard with reference to clause 4.13.1(c) ⁽¹⁾ . See section 9.3 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 sections 6.1 and 6.2 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 sections 6.1 and 6.2 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		Comments in relation to the 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 (as amended)

Regulation: Comment:	23	Fitness of materials and workmanship The system is acceptable. See sections 16.1 and 16.2 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	28b	Resistance to moisture and weather The doors have adequate resistance to the ingress of rain and wind-driven spray and so can contribute towards the wall satisfying this Regulation. See section 7.2 of this Certificate.
Regulation: Comment:	33(c)	Means of escape Bi-fold doors fitted with a thumb-turn lock can satisfy this Regulation with reference to Technical Booklet E, clause 2.87. See section 12.4 of this Certificate.
Regulation: Regulation: Comment:	39(a)(i) 40(2)	Conservation measures Target carbon dioxide emission rate The system can contribute to satisfying these Regulations. See sections 6.1 and 6.2 of this Certificate.
Regulation: Comment:	65(1)	Means of ventilation When calculating the area of door openings for rapid ventilation purposes, see section 8.1 of this Certificate.
Regulation: Comment:	96	Impact with glazing Bi-fold doors fitted with safety glass can satisfy this Regulation. See section 12.1 of this Certificate.
Regulation: Comment:	97	Transparent glazing Bi-fold doors used in non-dwellings can satisfy this Regulation when glazing incorporates features which make it apparent. See section 12.2 of this Certificate.

Construction (Design and Management) Regulations 2015 Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: *Delivery and site handling (3.3)* and *12 Safety (12.5)* of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, the Aspect Panoramic PVC-U Bi-fold Door System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.7 *Doors, windows and glazing*.

General

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

Technical Specification

1 Description

1.1 The Aspect Panoramic PVC-U Bi-fold Door System comprises a series of concertina-style folding, sliding leaves with up to seven door panels, available with or without open door sashes. The opening door sashes can be single- or double-leaf configurations within the folding, sliding system, all framed in white or cream unplasticised polyvinyl chloride (PVC-U) profiles complying with BS EN 12608-1 : 2016 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. The sash profile incorporates post co-extruded (PCE) gaskets, eliminating the need for separate glazing gaskets.

Table 1 Profiles

EWS 7071	C-section	outer frame
EWS 7075	L-section	door sash
EWS 7002	T-section	transom T
EWS 7003	Z-section	transom Z
EWS 7005	T-section	sash T
EWS 7009	T-section	midrail
EWS 7022	T-section	intermediate transom T
EWS 7023	Z-section	intermediate transom Z
EWS AC 180	—	180 mm sill
EWS AC 150	—	150 mm sill
EWS AS 85	—	85 mm sill
EWS 7675S	—	galvanized steel reinforcing (EWS 7075)
EWS 622S	—	galvanized steel reinforcing (EWS 7022, EWS 7023)
EWS 7621S	—	galvanized steel reinforcing (EWS 7002, EWS 7003)
EWS 7676S	—	galvanized steel reinforcing (EWS 7075 hinge reinforcing)
EWS 7671S	—	galvanized steel reinforcing (EWS 7071 hinge reinforcing)
EWS 7672S	—	stainless steel track
EWS 801P	—	thermal insert (EWS 7002, EWS 7003)
EWS 805P	—	thermal insert (EWS 7005)
EWS 7581A	—	aluminium roller track (top and bottom)
EWS 7572A	—	aluminium outer frame insert (jambs) (EWS 7071)
EWS 7583A	—	aluminium internal room divider threshold
EWS 7509A	—	aluminium reinforcing (EWS 7009)
EWS 7584A	—	aluminium door drip
EWS 7475G	—	sash gasket
EWS 7471 GWP	—	wool pile
EWS 7301	—	28 mm chamfered glazing bead
EWS 7312	—	28 mm ovolo glazing bead
EWS 7303	—	36 mm chamfered glazing bead
EWS 7313	—	36 mm ovolo glazing bead

Figure 1 Profiles (all dimensions in mm)

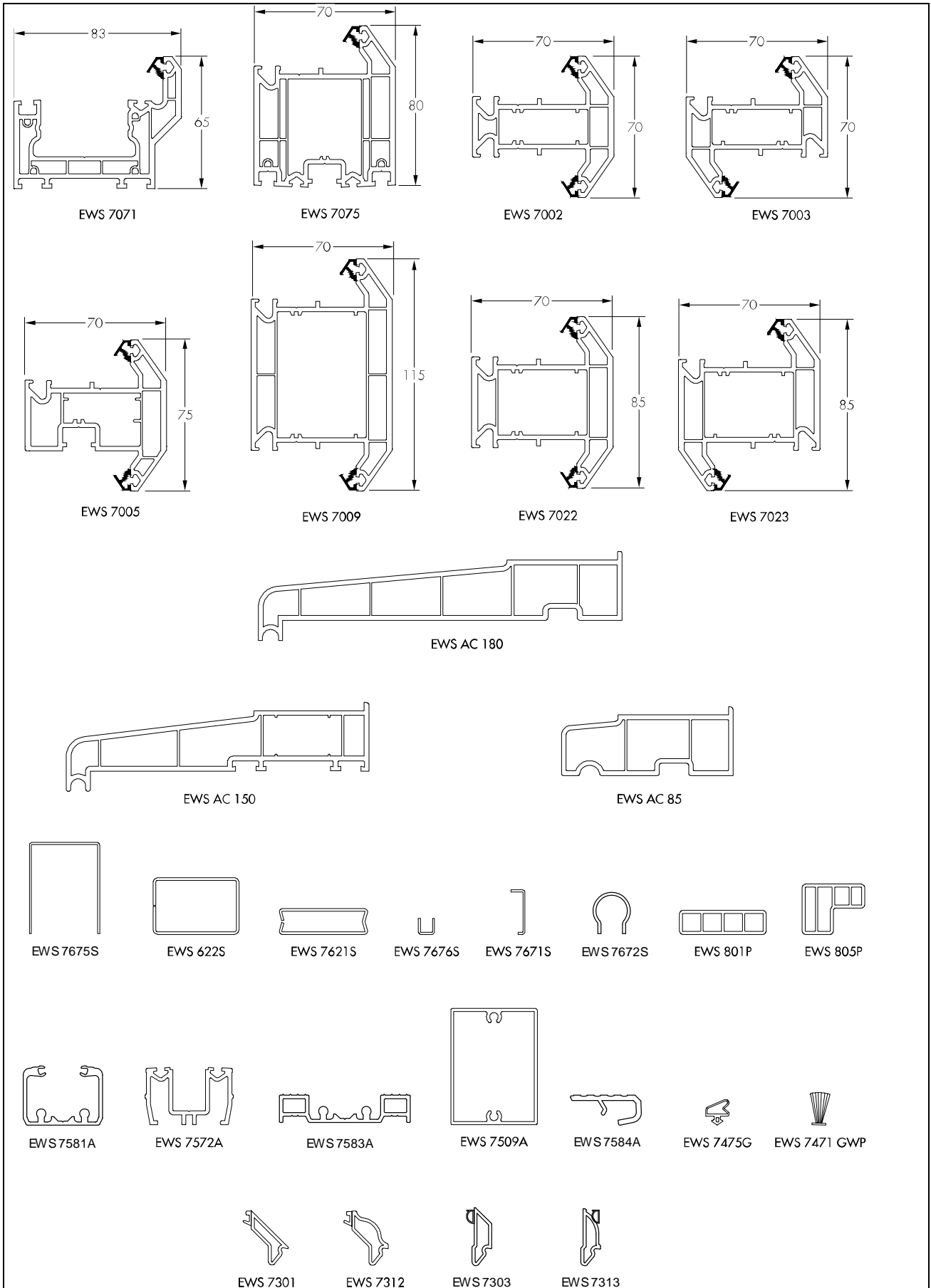


Figure 2 Typical vertical cross-section

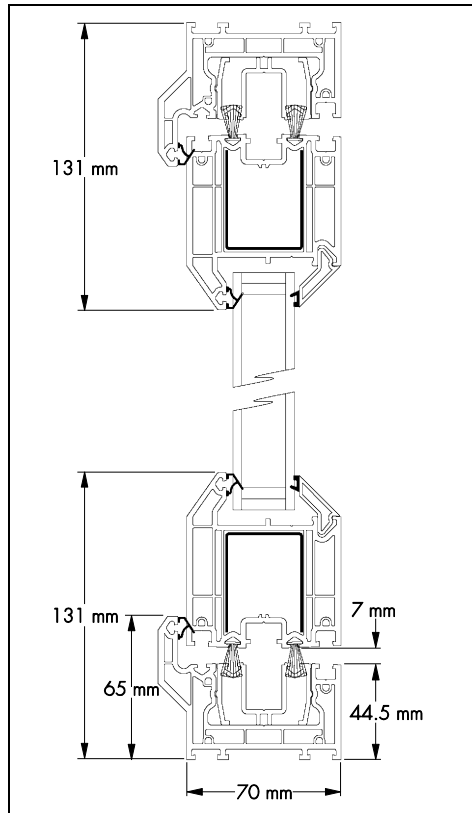
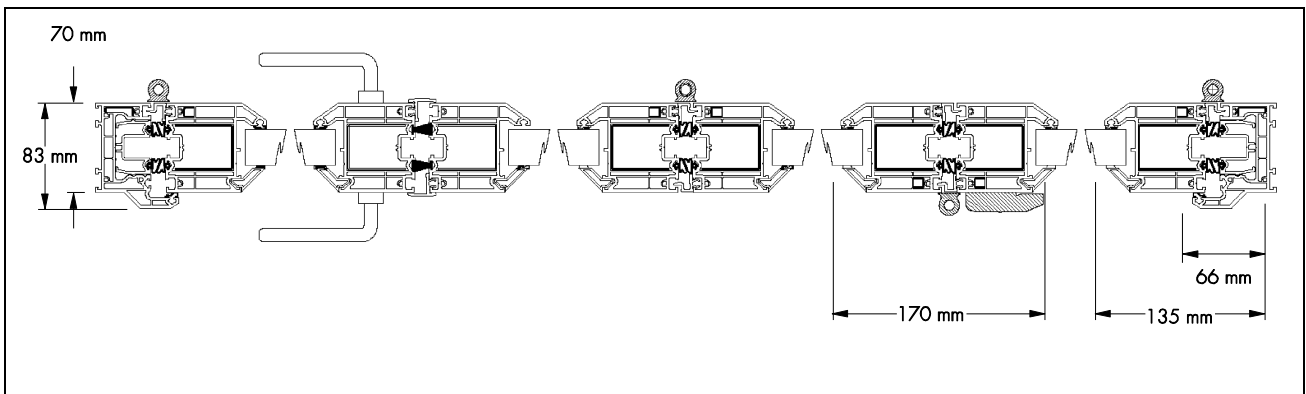


Figure 3 Typical horizontal cross-section



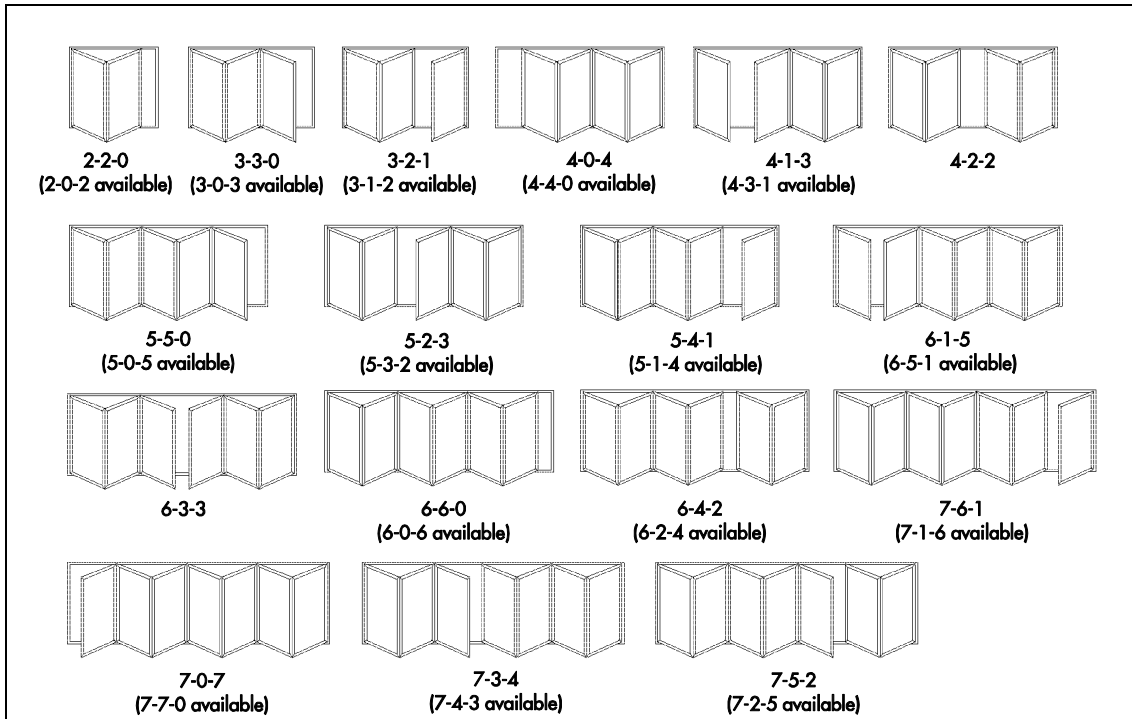
1.3 The Certificate holder must adhere to the methods of selection, machining and assembly of frame components detailed in the fabrication instructions and this Certificate.

1.4 The frames are connected with welded joints.

1.5 Drainage is provided by a series of slots (5 by 30 mm) positioned in accordance with the fabrication instructions and this Certificate.

1.6 The system is available in a number of configurations with multiple options of folding, sliding and opening leaves (see Figure 4). All options are available with inward or outward opening door leaves. The configurations are described using three numbers denoting the total number of leaves, the number of leaves folding left and the number of leaves folding right (eg 3-3-0).

Figure 4 Bi-fold door configurations



Reinforcement

1.7 Outer frame members are reinforced with aluminium track (EWS 7581A top and bottom and EWS 7572A for jambs). Vertical outer frame members are also reinforced with EWS 7675S for securing the hinge fixing.

1.8 All members of sliding door leaves and interlock jamb members of fixed leaves are reinforced with galvanized steel in accordance with the fabrication instructions and this Certificate.

1.9 Galvanized steel reinforcement is roll-formed from material with a Z275N coating complying with BS EN 10346 : 2015. Aluminium reinforcement is extruded from alloy type 6063-T6 to BS EN 755-2 : 2016.

1.10 PVC-U reinforcement is extruded from ERM_a or RM_a material as defined in BS EN 12608-1 : 2016.

Size range

1.11 This Certificate covers bi-fold doors up to a maximum of seven leaves within the limitations shown in Table 2.

Table 2 Size restrictions

Glazed folding/sliding doors	Dimension (mm)	
	Width	Height
Maximum overall size	6000	2050
Maximum size of individual non-opening leaves	735	2050
Maximum size of single-leaf opening leaf	740	2050

Furniture and fittings

1.12 BBA-approved hardware must be used with this system.

1.13 Folding, sliding door leaves have two adjustable-height rollers fitted in the top and bottom rails.

1.14 Doors are secured with a multi-point locking mechanism, comprising three hookbolts (two opposing action, one standard action with latch) two deadlocks and two optional shootbolts. The test doors were fitted with white lever/lever security handles which feature a cylinder guard.

Glazing

1.15 Folding/sliding doors are supplied factory-glazed or ready for glazing using sealed double-glazed units⁽¹⁾. The glass thicknesses are in accordance with BS 6262-1 : 2005 or, if required by the national Building Regulations, the glazing units are supplied with toughened or laminated glass in accordance with BS EN 12600 : 2002. All glass used is safety glass and is positioned by polyethylene setting blocks and packing pieces.

(1) Outside the scope of this Certificate.

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

1.17 NHBC require⁽¹⁾ that compliance with the Standards referred to in sections 1.15 and 1.16 of this Certificate is confirmed by an appropriate independent technical approvals authority.

(1) *NHBC Standards 2019, Chapter 6.7.7 Glazing, Insulating Glass Units.*

Weatherstripping and gaskets

1.18 Weatherstripping, made up of double strips of polypropylene pile, is located in grooves around the periphery of each door leaf.

1.19 Flexible PVC-U gaskets are inserted into the sash profiles on the hinge side (see Figure 1). The double-glazed unit is secured by an internal co-extruded bead.

2 Manufacture

2.1 The system is fabricated using conventional production processes for PVC-U windows/doors. The doors are fabricated from white or cream PVC-U profiles, produced by conventional extrusion techniques from material complying with BS EN 12608-1 : 2016.

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 (Certificate FM 45551) and BS EN ISO 14001 : 2004 (Certificate 25110/A/0001/UK/En) by BSI.

3 Delivery and site handling

3.1 The folding/sliding doors are delivered to site glazed or ready for glazing. The doors are generally transported complete but can be delivered in separate leaves for assembly on site. During transportation the leaves are suitably protected to avoid damage.

3.2 The doors should be stored under cover in a clean area, on edge and suitably supported to avoid distortion or damage in accordance with the Certificate holder's recommendations.

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 Aspect Panoramic PVC-U Bi-fold Door System.

Design Considerations

4 Use

The Aspect Panoramic PVC-U Bi-fold Door System is satisfactory for use in non-loadbearing applications where doors are installed into the external walls of new and existing dwellings, light commercial premises and similar habitable applications, as secondary access doors.

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 transmittance



6.1 The thermal transmittance value (U value) of a PVC-U bi-fold door with two leaves 2000 mm high by 2000 mm wide incorporating a 28 mm double-glazed unit with 4 mm Planitherm Total Plus coated glass as the outer pane, 90% argon, Swisspacer V spacer and 4 mm toughened float glass as the inner pane, when calculated in accordance with BS EN ISO 10077-1 : 2017 and BS EN ISO 10077-2 : 2017, is $1.4 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$.

6.2 The overall thermal insulation of the door will be dependent on the performance of the double-glazed units. For units other than that described above, the indicative U values shown in Table 6e of SAP 2012 *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 : 2017 and BS EN ISO 10077-2 : 2017, should be used in preference.

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 in accordance with BS EN 14351-1 : 2006 (BS EN 1026 : 2016, BS EN 1027 : 2016 and BS EN 12211 : 2016) and are suitable for use as indicated in Table 3 of this Certificate. The classifications are based on the assumption that the outer frame is supported on all four sides in accordance with the Certificate holder's instructions. If classification of a door not covered within Table 3 is required, it should be tested in accordance with BS EN 14351-1 : 2006.



7.2 The classifications in Table 3 can be used to determine suitability when selecting exposure category, in conjunction with Annex A of BS 6375-1 : 2015.

Table 3 Weathertightness classifications

Bi-fold door style	Classification according to:			UK exposure category BS 6375-1 : 2015
	Strength and stability/resistance to wind loading (BS EN 12210 : 2016)	Watertightness (BS EN 12208 : 2000)	Air permeability (BS EN 12207 : 2016)	
2260 mm wide ⁽¹⁾ x 2160 mm high (3-3-0 style)	Class A3/1200 Pa	Class 3A/200 Pa	Class 2/600 Pa	1200

(1) The width of the test sample was restricted by test rig size.

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

8 Ventilation



8.1 The opening area for natural ventilation may be calculated by multiplying together the overall width and height dimensions of the frame containing the individual folding/opening sashes, reduced by the relevant profile dimensions.

8.2 The background ventilation requirements of the various national Building Regulations can be satisfied by the incorporation in the door of a suitably sized trickle ventilator⁽¹⁾.

(1) Outside the scope of this Certificate.

9 Unauthorised access

9.1 The bi-fold doors (fitted with locking mechanisms and features as described in sections 1.13 and 1.14) when fastened in the closed position, cannot be opened by manipulation from the outside (for example, by the insertion of a thin blade) and can contribute to offering security against intrusion.

9.2 Doors provide adequate security against unauthorised entry by the opportunist intruder, when judged against BS 6375-3 : 2009. Where relevant, reference should be made to *NHBC Standards 2019, Part 6.7 Doors, windows and glazing*.



9.3 Doors, as described in the Enhanced Security Sheet (ES3), have been tested in accordance with PAS 24 : 2016, Annexes A and B, and can contribute to satisfying the regulatory requirements for unauthorised access in new dwellings in England and Wales and new and existing dwellings in Scotland.

9.4 Glass packing must be carried out according to the Certificate holder's recommendations to prevent forced entry by the flexing of frame members allowing disengagement of the lock mechanism. Attention should be paid to packing of glazing units adjacent to all locking points. In addition, frame fixings should coincide with the locating points of the locking system, with suitable packing installed between the frame and the fabric of the building.

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

9.6 The bi-fold door is captive within top and bottom tracks, making removal by lifting extremely difficult.

10 Glass area



The approximate unobstructed glass area of the doors is determined by deducting from the overall width and height the appropriate profile dimensions. Typical profile dimensions can be obtained from the Certificate holder. Alternatively, the glazed area of the door leaves can be measured.

11 Condensation risk



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

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

12 Safety



12.1 Bi-fold doors are fitted with safety glass complying with BS EN 12600 : 2002 and, therefore, satisfy the safety recommendations given in BS 6262-4 : 2005⁽¹⁾.

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

12.2 In buildings other than dwellings, the glazing should incorporate features that make it apparent and therefore prevent people who are unaware of the doors or who are visually impaired from colliding with the glass.

12.3 The bi-fold doors do not have an established fire-resistance rating and should not be used where fire-resistance requirements apply.



12.4 When the doors are fitted in an escape route, they should be fitted only with a lock or fastening which is readily operated, without a key, from the side approached by people making an escape; a thumb-turn option is available from the Certificate holder that satisfies this requirement.

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

13 Resistance to impact

Without considering the glass, bi-fold doors will be unaffected by the soft or hard body impacts likely to be encountered in dwellings or similar applications.

14 Ease of operation

14.1 The doors achieve Class 1 — Light duty when classified according to BS EN 12400 : 2002.

14.2 The doors can be operated without difficulty when correctly installed.

15 Maintenance



15.1 The bi-fold doors can be re-glazed and the flexible gaskets and weatherstripping replaced, but these operations should be carried out by specialist operatives using the materials recommended by the Certificate holder and approved by the BBA.

15.2 If the gasket of the glazing bead is damaged (for example, during re-glazing), it can be replaced. This operation should be carried out by specialist operatives using materials recommended by the Certificate holder and approved by the BBA.

15.3 If damage occurs, the furniture and fittings can be readily replaced in situ without removing the outer frame.

15.4 The hinges, locking mechanism and upper and lower track should be cleaned and lubricated periodically in accordance with the manufacturer's instructions to minimise wear and to ensure smooth operation. More frequent lubrication may be required depending on the environmental conditions.

15.5 The seal to the building structure will need to be replaced within the life of the doors.

15.6 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.

15.7 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 doors will continue to function satisfactorily for a period in excess of 35 years subject to the necessary maintenance being performed (see section 15 of this Certificate).

16.2 The co-extruded glazing beads, gaskets and fittings, including the locking mechanism, hinges and operating handles, as described in this Certificate, may need to be replaced within the life of the bi-fold doors, particularly when furniture and fittings are 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 doors.

16.4 Paint 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. Therefore, paint must not be applied.

17 Reuse and recyclability

The PVC-U, aluminium and steel material can be recycled.

Installation

18 General

18.1 The Aspect Panoramic PVC-U Bi-fold Door System must be fixed into the opening in accordance with the recommendations in BS 8213-4 : 2016 and the Certificate holder's installation guide, using proprietary expanding anchors through the frame or galvanized steel fixing lugs.

18.2 Openings in new walls should be formed, making suitable allowances for fitting tolerances. As details may vary depending on the type of construction employed, tolerances should be discussed with the Certificate holder prior to establishing the manufacturing dimensions for the door. Doors should not be built-in at the construction stage.

18.3 In common with other types of doors fitted to prepared openings, the system must be correctly positioned in relation to vertical 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 door opening, prior to installation, may be required. Details of products covered by an Agrément Certificate can be found on the BBA website (www.bbacerts.co.uk).

19 Procedure

19.1 After checking the dimensions of the doorset, the unglazed door is carefully lifted into the correct position and the frame fixed into the opening using appropriate fixing screws as recommended by the Certificate holder. Fixings in the head and sill must sit as flush as possible to enable rollers to easily pass over the fixings but should not be over tightened.

19.2 Sashes are checked for correct operation before glazing is carried out, and glazing is installed and packed appropriately with polypropylene packing plates.

19.3 Silicone spray is applied to the top and bottom aluminium tracks to allow lubrication for the rollers.

19.4 Hinge, roller and locking keep adjustments are carried out according to the Certificate holder's installation guide, to ensure a smooth operation.

20 Tests

20.1 Tests were carried out on the Aspect Panoramic PVC-U Bi-fold Door System to determine:

- operating forces
- air permeability
- watertightness
- wind load resistance
- resistance to vertical load
- resistance to static torsion
- resistance to soft and heavy body impact
- resistance to hard body impact
- cyclic operation
- basic security
- enhanced security.

20.2 Tests were carried out on the PVC-U extrusions in accordance with BS EN 12608-1 : 2016.

20.3 Tests were carried out on the furniture and fittings in accordance with BS EN 1670 : 2007 and BS EN ISO 2409 : 2013 to determine:

- resistance to salt spray corrosion
- cross-cut
- resistance to UV ageing.

21 Investigations

21.1 The thermal transmittance value of a bi-fold door was calculated in accordance with BS EN ISO 10077-1 : 2017 and BS EN ISO 10077-2 : 2017.

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

Bibliography

BS 6262-1 : 2017 *Glazing for buildings — General methodology for the selection of glazing*

BS 6262-4 : 2005 *Glazing for buildings — Code of practice for safety related to human impact*

BS 6375-1 : 2015 + A1 : 2016 *Performance of windows and doors — Classification for weathertightness and guidance on selection and specification*

BS 6375-3 : 2009 *Performance of windows and doors — Classification for additional performance characteristics and guidance on selection and specification*

BS 8213-4 : 2016 *Windows and doors — Code of practice for the survey and installation of windows and external doorsets*

BS EN 755-2 : 2016 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Mechanical properties*

BS EN 1026 : 2016 *Windows and doors — Air permeability — Test method*

BS EN 1027 : 2016 *Windows and doors — Watertightness — Test method*

BS EN 1279-2 : 2002 *Glass in building — Insulating glass units — Long term test method and requirements for moisture penetration*

BS EN 1279-3 : 2002 *Glass in building — Insulating glass units — Long term test method and requirements for gas leakage rate and for gas concentration tolerances*

BS EN 1670 : 2007 *Building hardware — Corrosion resistance — Requirements and test methods*

BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products — Technical delivery conditions*

BS EN 12207 : 2016 *Windows and doors — Air permeability — Classification*

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

BS EN 12210 : 2016 *Windows and doors — Resistance to wind load — Classification*

BS EN 12211 : 2016 *Windows and doors — Resistance to wind load — Test method*

BS EN 12400 : 2002 *Windows and pedestrian doors — Mechanical durability — Requirements and classification*

BS EN 12600 : 2002 *Glass in building — Pendulum test — Impact test method and classification for flat glass*

BS EN 12608-1 : 2016 *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Classification, requirements and test methods — Non-coated PVC-U profiles with light coloured surfaces*

BS EN 14351-1 : 2006 + A2 : 2016 *Windows and doors — Product standard, performance characteristics — Windows and external pedestrian doorsets*

BS EN ISO 2409 : 2013 *Paints and varnishes — Cross-cut test*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

BS EN ISO 10077-1 : 2017 *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — General*

BS EN ISO 10077-2 : 2017 *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Numerical method for frames*

BS EN ISO 12567-1 : 2010 *Thermal performance of windows and doors — Determination of thermal transmittance by the hot-box method — Complete windows and doors*

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

PAS 24 : 2016 *Enhanced security performance requirements for doorsets and windows in the UK — Doorsets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk*

TSO 2002 : *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings*

BRE Report BR 262 : 2002 *Thermal insulation : avoiding risks*

22 Conditions

22.1 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
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

22.2 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.

22.3 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.

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

22.5 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:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- 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.

22.6 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.