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**Agrément
Certificate
No 04/4187**

Designated by Government
to issue
European Technical
Approvals

IG COMPOSITE DOORS

Porte
Tür

Product




• THIS CERTIFICATE RELATES TO IG COMPOSITE DOORS, COMPRISING THE DOOR AND DOORSET TYPES AND SIZES REFERRED TO IN THE ACCOMPANYING DETAIL SHEETS.


- The doors and doorsets in the range are for use in the exposure situations described in the relevant Detail Sheets.
- It is essential that the doors and doorsets are installed and used in accordance with the conditions set out in the Design Data and Installation parts of the Detail Sheets.

Regulations


1 The Building Regulations (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which doors and doorsets can contribute in achieving compliance. In the opinion of the BBA, the position of IG Composite Doors under the Regulations, if used in accordance with the provisions of this Certificate, is as stated in Detail Sheet 1.

2 The Building Standards (Scotland) Regulations

 In the opinion of the BBA, the position of IG Composite Doors under these Regulations, if used in accordance with the provisions of this Certificate, is as stated in Detail Sheet 1.

3 The Building Regulations (Northern Ireland)

 In the opinion of the BBA, the position of IG Composite Doors under these Regulations, if used in accordance with the provisions of this Certificate, is as stated in Detail Sheet 1.

4 Construction (Design and Management) Regulations

In the opinion of the BBA, the position of IG Composite Doors under these Regulations, if used in accordance with the provisions of this Certificate, is as stated in Detail Sheet 1.

Conditions of Certification

5 Conditions

5.1 This Certificate:

- (a) relates only to the product that is named, described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

5.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

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

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

5.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

5.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, IG Composite Doors are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 04/4187 is accordingly awarded to IG Doors Ltd.

On behalf of the British Board of Agrément

Date of issue: 23rd December 2004

Chief Executive



IG Doors Ltd

IG SECURED BY DESIGN COMPOSITE DOORS ENHANCED RESISTANCE TO INTRUSION

Product



CAUTION: This sheet is not valid in isolation and must be read in conjunction with Detail Sheet 2. The information in this sheet supplements the details given in Detail Sheet 2, section 9, *Security against intrusion*.

- The details in this sheet are only relevant to doors fabricated by IG Doors Ltd and meeting the specification defined in section 2, Scope of approval.
- It is essential that the doors are installed in accordance with the recommendations contained in Detail Sheet 2, and in the manufacturer's instructions to achieve the standard of enhanced resistance defined in this sheet.

Enhanced Resistance to Intrusion

1 General

Selected doors from the inward and outward opening doorsets from the IG Secured by Design Composite Doors range covered by Detail Sheet 2, were tested in accordance with a programme based on PAS 24-1 : 1999 *Enhanced security performance requirements for door assemblies*. Single leaf, external door assemblies to dwellings, and met the requirements. The tests included: soft-body impacts, hard-body impacts, simultaneous in-plane/lateral loading (3 kN in-plane and 4.5 kN lateral loads), manipulation, mechanical tests on glazing and hard-body impact on the lock handle.

2 Scope of approval

2.1 The specification for the doors considered to offer enhanced resistance to intrusion comprises inward and outward opening single residential glazed doorsets and doorsets combined with either sidelights⁽¹⁾ or fanlight frames⁽¹⁾ fabricated from the components listed in Table 1.

(1) Maximum sizes in accordance with those detailed in Figure 2 of Detail Sheet 2.

Table 1 List of components

Description
Locking mechanisms
ERA multi-point lock comprising 2 hooks, deadbolt and latch
Fullex multi-point lock and keeps
ERA euro profile cylinder
Fullex 35-10-35 mm brass, key-operated cylinder
zone euro cylinder
Handles
Dortrend lever handle PB7092
Dortrend lever handle aluminium 7092 anodised
Hoppe brass lever/lever M161/200LM-F/P2/92
Fullex brass lever/lever handle
Hoppe disabled handle
Hinge types
Nico loose pin hinge (open in doors)
Nico fixed pin hinge (open out doors)
Thresholds
Stormguard trimline threshold
IG Doors Ltd adjustable weatherguard threshold
Weatherseal
Q-LON DS650 compression weatherseal
Q-LON 7000 (for use on PVC-U)
Letterplate
Paddock P208 letterplate
IG standard, sleeved weather-sealed letterplate

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2.2 The scope of the test programme does not cover glass breakage as a means of entry. The use of laminated glass is recommended for high-risk areas and is a requirement of Secured by Design.

3 Design features

All main frame and door leaf profiles must be in accordance with the recommendations contained in the *IG Doors Manuals*. Fittings and hardware must be fitted in accordance with the manufacturer's instructions and IG Doors Ltd installation details. Hardware should be selected from the IG Doors Ltd approved list.

4 Design considerations

4.1 Only the specification of doorsets referred to in section 2.1 can be considered to meet the requirements. Any design variations to the frame profiles, internal reinforcement, locking mechanisms, handles, keeps, hinge bolts, hinges or associated fasteners, will require variations to be assessed.

4.2 To ensure the level of resistance to intrusion indicated by the tests is achieved, installation must

be carried out in accordance with the recommendations contained in Detail Sheet 2, and the manufacturer's instructions. For example, correct fixing of the door into the opening is critical.

4.3 Doors assessed for enhanced resistance to intrusion are designed to resist attempts to force entry by the opportunist intruder using basic hand tools. However, the scope of assessment does not extend to an assurance of absolute security. In addition, door security must be considered in the context of the overall security of the building, taking into account such factors as vulnerability of individual doors and the security of windows. Reference should be made to recommendations given by ABI⁽¹⁾, BRE⁽¹⁾, CWCT⁽¹⁾, GGF⁽¹⁾, NHBC⁽¹⁾, Zurich Municipal, and local police *Secured by design* schemes.

- (1) ABI Association of British Insurers
BRE Building Research Establishment
CWCT Centre for Window and Cladding Technology
GGF Glass and Glazing Federation
NHBC National House-Building Council



On behalf of the British Board of Agrément

Date of issue: 23rd December 2004

A handwritten signature in black ink, appearing to read 'P. C. Newman'.

Chief Executive



IG Doors Ltd

Certificate No 04/4187

DETAIL SHEET 1
IG COMPOSITE DOORS

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which doors can contribute in achieving compliance. In the opinion of the BBA, IG Composite Doors specified on the Front Sheet, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	L1(a)(i)	Dwellings
Requirement:	L2(a)	Buildings other than dwellings
Comment:	In calculating the heat loss through doors, the U values given in the <i>Thermal transmittance and condensation risk</i> section of the accompanying Detail Sheets should be used. In new work, the guidance given in the Approved Document to Part L regarding positioning a door in the reveal must be taken into account. In replacement work, an average elemental U value of $2.0 \text{ Wm}^{-2}\text{K}^{-1}$ is required for doors with more than 50% glass area.	
Requirement:	M2	Access to extensions to buildings other than dwellings
Comment:	Doors with accessible (low) thresholds will meet the requirements of M2. Doors not including an accessible threshold cannot be used in new work where this Requirement applies. See the relevant tinted area (6.1) in the <i>Accessible threshold and unobstructed opening area</i> section of the accompanying Detail Sheets.	
Requirements:	N1	Protection against impact
Requirements:	N2	Manifestation of glazing
Comment:	Glazing less than 1500 mm above floor or ground level in doors and side panels should meet the requirements of N1. Except where only small panes are fitted, glass and plastics sheet materials which satisfy the test requirements of BS 6206 : 1981 should be used to meet the requirements of N1. See the tinted area in the <i>Safety</i> section of the accompanying Detail Sheets. To meet the requirements of N2, it may be necessary to incorporate features into glazing in non-domestic buildings to make its existence apparent to people using the doors.	
Requirement:	Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See the tinted areas in the <i>Durability</i> section of the accompanying Detail Sheets.	

2 The Building Standards (Scotland) Regulations 1990 (as amended)



In the opinion of the BBA, IG Composite Doors specified on the Front Sheet, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:	The door system can contribute to a construction meeting this Standard. See the <i>Installation</i> part of the accompanying Detail Sheets.	
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:	The product is an acceptable material. See the tinted areas in the <i>Durability</i> section of the accompanying Detail Sheets.	

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Regulation:	13	Means of escape from fire, facilities for fire-fighting and means of warning of fire
Standard:	E2.3	Means of escape from fire in a building of purpose sub-group 1A — Escape routes
Standard:	E5.13	Means of escape from fire in a building of purpose groups 2-7 (design for horizontal escape) — Width of escape routes
Comment:		When a door is fitted in an escape route the unobstructed height and width can be calculated using the profile dimensions indicated in the relevant tinted area (6.2) of the <i>Accessible threshold and unobstructed opening area</i> of the accompanying Detail Sheets.
Regulation:	17	Resistance to moisture
Standard:	G3.1	Resistance to precipitation — Resistance to precipitation
Comment:		Walls incorporating the product, installed and used in accordance with the provisions of the accompanying Detail Sheets, can meet this Standard. See Table 2 in the <i>Design Data</i> section of the accompanying Detail Sheets.
Regulation:	22	Conservation of fuel and power
Standard:	J3.2	Buildings in purpose group 1 — Elemental Method
Standard:	J3.4	Buildings in purpose group 1 — Target U-value Method
Standard:	J3.11	Buildings in purpose group 1 — Carbon index Method
Standard:	J8.3	Buildings in purpose groups 2 to 7 — Elemental Method
Standard:	J8.5	Buildings in purpose groups 2 to 7 — Heat Loss Method
Standard:	J8.7	Buildings in purpose groups 2 to 7 — The Carbon Emissions Calculation Method
Comment:		In calculating the heat loss from a building in connection with the relevant sub-paragraphs of these Standards, the U values given in the <i>Thermal transmittance and condensation risk</i> section of the accompanying Detail Sheets should be used.
Regulation:	27	Miscellaneous hazards
Standard:	P2.2	Danger from accident — Collision with glazing
Comment:		Glazing must comply with the details in BS 6262 : 1982 where accidental collision with it is likely. See the tinted area in the <i>Safety</i> section of the accompanying Detail Sheets.
Regulation:	32	Access to and movement within buildings and, protective barriers
Standard:	S2.4	Access to and movement within buildings, other than dwellings — Principal entrance
Comment:		The principle entrance door of a building other than a dwelling must contain a leaf which provides a clear opening width of at least 800 mm.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, IG Composite Doors specified on the Front Sheet, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The doors are acceptable. See the tinted areas in the <i>Durability</i> section of the accompanying Detail Sheets.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The doors are weathertight when installed and used in accordance with the provisions of this Certificate and can thus contribute to the ability of the wall to meet this Regulation.
Regulation:	E2	Means of escape
Regulation:	E7	Deemed-to-satisfy provisions for Regulation E2
Comment:		When the door is fitted in an escape route, the actual width between door jambs can be determined using the profile dimensions indicated in the relevant tinted area (6.2) in the <i>Accessible threshold and unobstructed area</i> section of the accompanying Detail Sheets.
Regulation:	R2	Access and use
Regulation:	R5	Deemed-to-satisfy provision for Regulation R2
Comment:		In a dwelling, the principle entrance door shall have a minimum clear opening width of not less than 775 mm. The profile dimensions indicated in the relevant section of the accompanying Detail Sheet(s) can be used to determine the door opening width. Doors not including a level threshold, as defined in Technical Booklet R, Section 7, December 2000 cannot be used in new work where these Regulations applies. See the relevant tinted area (6.1) in the <i>Accessible threshold and unobstructed opening area</i> section of the accompanying Detail Sheets.

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Regulation:	V2	Impact with glazing
Regulation:	V6	Deemed-to-satisfy provision for Regulation V2
Comment:		Where people are likely to come into contact with glazing in a building the requirements of these Regulations shall be deemed to be satisfied if the glazing complies with Technical Booklet V, Section 2, December 2000. See the tinted area in the Safety section of the accompanying Detail Sheets.
Regulation:	V3	Transparent glazing
Regulation:	V6	Deemed-to-satisfy provision for Regulation V3
Comment:		In a building, other than in a dwelling, transparent glazing, of which people may be unaware and with which they are likely to collide, shall incorporate features which make it apparent. The requirements of these Regulations shall be deemed to be satisfied if the glazing complies with Technical Booklet V, Section 3, December 2000.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See section: 2 *Delivery and site handling* (2.3) of the accompanying Detail Sheets.

Bibliography

BS 6206 : 1981 *Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings*

BS 6262 : 1982 *Code of practice for glazing for buildings*



On behalf of the British Board of Agrément

Date of issue: 23rd December 2004

A handwritten signature in black ink, appearing to read 'P. C. Newson', is written over a light grey background.

Chief Executive

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For technical or additional information,
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front page).
For information about the Agrément
Certificate, including validity and
scope, tel: Hotline 01923 665400,
or check the BBA website.



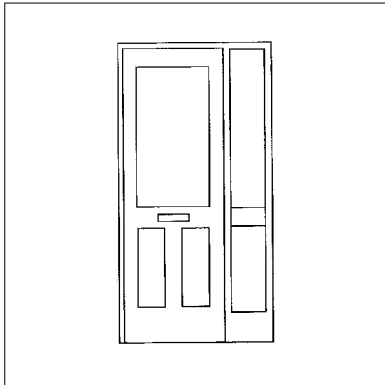
IG Doors Ltd

Certificate No 04/4187

**IG SECURED BY DESIGN COMPOSITE
INWARD AND OUTWARD OPENING DOORS**

DETAIL SHEET 2

Product



- THIS DETAIL SHEET RELATES TO IG SECURED BY DESIGN COMPOSITE INWARD AND OUTWARD OPENING DOORS.
- The range comprises single inward and outward opening and combinations of opening and fixed-light door leaves, constructed from a timber and polyurethane foam core covered on the external and internal face with either fibreglass or steel skin and glazed with sealed double-glazed units with laminated glass.
- The doors are for external use as primary and secondary access doors in dwellings or similar applications where the test pressure classes for doors defined in PAS 23-1 : 1999 and indicated in Table 2 are applicable.
- It is essential that the doors are installed and maintained in accordance with the conditions set out in the Design Data and Installation parts of this Detail Sheet.

This Detail Sheet must be read in conjunction with the Front Sheet and Detail Sheet 1, which give the Certificate holder's name and Conditions of Certification, and the product's position regarding the Building Regulations, respectively.

Technical Specification

1 Description

1.1 The leaves of IG Secured by Design Composite Inward and Outward Opening Doors, can be supplied primed for site finish or factory finished (outside the scope of this Certificate) and are fabricated from either:

- two galvanized steel skins with a polyurethane core and a sub-frame of laminated, engineered timber stiles with softwood bottom rails (see Figure 1), or
- two glass-reinforced plastic (GRP) skins, with a polyurethane core and a sub-frame of softwood timber stiles and bottom rail made from a wood composite material.

1.2 Outer frames (see Figure 2) are available in hardwood or white PVC-U, produced by conventional extrusion techniques from material complying with BS 7413 : 2002.

1.3 Doorsets with sidelight or toplight frames incorporate mullions/transoms and midrails. Details of door styles and clear unobstructed access is given in the Certificate holder's literature for door make-up and dimensions.

Fittings

1.4 Door leaves are hung on three, non-adjustable hinges.

1.5 Doors are fastened by a multi-bolt lock with two hook bolts and a deadbolt. Lock cylinders are grade 3 to BS EN 1303 : 1998. The cylinder mechanism is designed to be anti-drill and anti-pick, as required by Secured by Design.

1.6 Operating handles are available in a variety of finishes.

Glazing

1.7 All door leaves are factory glazed using sealed, double-glazed cassette units with an overall thickness of

26 mm. They are available with toughened or laminated glass to BS 6206 : 1981 with or without a low-emissivity coating. Glass thicknesses are in accordance with BS 6262-4 : 1994.

1.8 Glazing units are cassette glazed and sealed into the door leaf. Should damage occur in service, requiring the replacement of the glazing unit, it is replaceable without damage by removing screws from the inner styrene cassette frame.

1.9 Sealed double-glazed units are Kitemarked by BSI to BS 5713 : 1979 and comply with BS EN 1279-1 : 2004 and BS EN 1279-2 : 2002.

Figure 1 Typical details

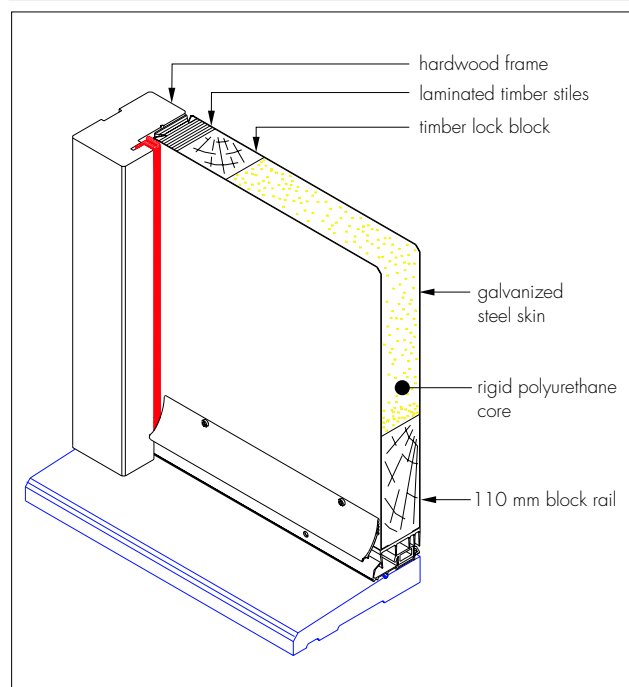
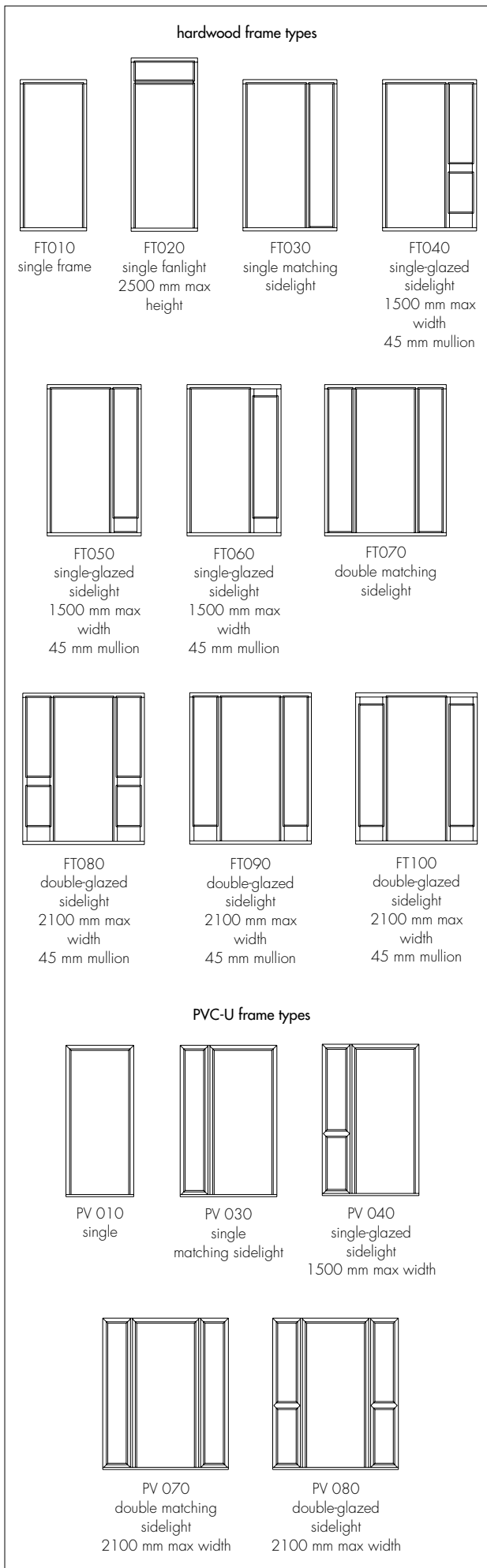


Figure 2 Product range



Weatherstripping

1.10 A compression type Q-LON weatherstrip is fitted to the door frame.

Quality control

1.11 Quality control during manufacture includes checks on:

- dimensions on door slab
- frame construction
- foam density
- visual check after CNC operations.

1.12 A random sample of the final product is checked for:

- compliance with work order
- operation of lock.

2 Delivery and site handling

2.1 Doors and frames are identified with the IG Doors Ltd works order number marked on both the frame and the door. Doors are protected by a polythene bag to avoid site staining.

2.2 The doors should be stored under cover in a clean area, vertically, and suitably supported to avoid distortion or damage.

2.3 The approximate weight of individual glazed door leaves, where required for manual handling operations, can be obtained from the Certificate holder.

Design Data

3 General

3.1 In accordance with the recommendations given in PAS 23-1 : 1999, doors, for the purpose of assessing weathertightness, were considered as doors. Accordingly, selected samples from the IG Secured by Design Composite Inward and Outward Opening Doors range covered by this Detail Sheet have been tested in accordance with PAS 23-1 : 1999. Assessment of the test results shows that the products, within the range described in section 1.3, are suitable for use where the test pressure classes defined in PAS 23-1 : 1999 and indicated in Table 1 are applicable. The gradings are based on the assumption that the outer frame is supported on all four sides in accordance with the manufacturer's instructions.

Table 1 Test pressure class

	PAS 23-1 Test pressure class (Pa)
With Storm Guard threshold and single sidelight	
Strength and stability	800
Watertightness	100
Air permeability	200
With IG Weather Guard adjustable threshold and single sidelight and all other doors including toplight and sidelight	
Strength and stability	800X
Watertightness	50
Air permeability	200

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

4 Practicability of installation

4.1 Installation does not present undue difficulty when fitting the doors in openings in new or existing walls provided the installation instructions are followed.

4.2 In common with other types of doors fitted to prepared openings, IG Secured by Design Composite Inward and Outward Opening Doors must be correctly positioned in relation to vertical damp-proof courses to prevent water penetration to the internal reveal.

5 Glass area

If a glazed door is to be considered as part of the window area the approximate unobstructed glass area of individual door leaves can be calculated by the Certificate holder.

6 Accessible threshold and unobstructed opening area



6.1 Doors meet the requirements of the Building Regulations Part M (England and Wales), or Part R2 (Northern Ireland) depending on the clear width selected.



6.2 When a residential doorset is fitted in an escape route, the approximate unobstructed width and height are given in the Certificate holder's literature.

7 Thermal transmittance and condensation risk



7.1 The thermal transmittance value of an IG Secured by Design inward or outward opening door and sidelight with an overall width of 1500 mm and height of 2095 mm with a half-glazed panel (in the door) incorporating a 4/18/4 mm air-filled, double-glazed cassette unit with a fully-glazed sidelight of 4/12/4 mm air-filled, double-glazed unit when calculated according to BS EN 10077-1 : 2000 is $2.0 \text{ Wm}^{-2}\text{K}^{-1}$.

7.2 Experience of door systems similar to the IG Composite Door system has shown that, in normal domestic or similar applications, composite doors do not constitute a significant condensation risk when correctly installed. Guidance on some satisfactory design details is given in *Limiting thermal bridging and air leakage : robust construction details for dwellings and similar buildings*, TSO 2002. Further information is contained in BRE Digest 262 : 2002 *Thermal insulation : avoiding risks*.

8 Safety



Glazed doors and sidelights/toplights are fitted with safety glass complying with BS 6206 : 1981 and therefore meet the safety recommendations given in BS 6262-4 : 1994⁽¹⁾.

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

9 Security against intrusion

Doors provide adequate security against unauthorised entry by the opportunist intruder, when judged against PAS 24-1 : 1999. They are designed to meet the physical security requirements of Secured by Design.

10 Resistance to solar heat gain

Doors will not suffer permanent distortion when subjected to temperatures equivalent to those likely to be attained in service in summer conditions.

11 Resistance to impact and slamming loads

11.1 Doors will be unaffected by the soft-body impacts likely to be encountered in dwellings or similar applications.

11.2 Hard-body impacts on the framing members or the door leaves may cause local damage and thus affect appearance. Such damage is unlikely to lead to progressive deterioration of the door leaf but, if necessary, replacement may be carried out.

11.3 Under normal circumstances, slamming of the door leaf, such as could occur in high winds, will not cause damage to the door leaf or frame.

12 Ease of operation

The door leaves can be operated without difficulty when correctly installed.

13 Maintenance

13.1 Should damage occur to the glazing unit, it can be re-glazed (see section 1.8).

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

13.3 If required, the door leaves can be re-painted using the painting procedures recommended by the Certificate holder.

13.4 The hinges and locking mechanism should be cleaned and periodically lubricated to minimise wear and to ensure smooth operation. The required lubrication frequency will depend on the environmental conditions but should be at least once a year.

14 Durability



14.1 Evidence indicates that the doors under normal usage will have a life of up to 20 years.

14.2 Fittings, including the hinges, locking mechanism and operating handles, as described in this Detail Sheet, will have similar durability except where doorsets are to be installed in areas subject to particularly aggressive conditions. These conditions can prevail in coastal locations or near sources of industrial pollutants and replacement of fittings may be necessary within the life of the door.

14.3 The sealed, double-glazed units, weatherstripping and the mastic seal to the building structure may need to be replaced within the life of the door.

Installation

15 General

15.1 The doors must be fixed into the opening, in accordance with the recommendations given in the Certificate holder's literature, by proprietary screws through the frame. Replacement doors should be fitted in accordance with BS 8213-4 : 1990 in particular with reference to clause 9.3.1.

15.2 The doors can be built in at the construction stage.

16 Procedure

16.1 For installation into masonry or timber-frame construction, the dimensions of the door are checked and the door is positioned in the opening. The frame is then fixed into place, using screws or frame fixings through the jambs.

16.2 The installation is completed by application of a silicone or similar durable sealant to the perimeter and the fitting of interior trims and hardware.

Technical Investigations

The following is a summary of the technical investigations carried out on IG Secured by Design Composite Inward and Outward Opening Doors.

17 Tests

17.1 Tests were carried out in accordance with the methods defined in PAS 23-1 : 1999 and PAS 24-1 : 1999 to determine:

PAS 23-1

- air permeability
- watertightness
- wind resistance
- operating forces
- resistance to vertical loads
- resistance to static torsion
- slamming resistance
- closure against obstructions
- abusive forces on handles
- door assembly resistance to soft and hard body impact
- door leaf restrictions to hard body impact
- cyclic operations
- basic security.

PAS 24-1

- manipulation
- infill medium removed
- mechanical loading
- manual check
- soft body impact
- hard body impact.

17.2 The thermal transmittance of IG composite doors was calculated and simulated to BS EN ISO 10077-1 : 2000, and BS EN ISO 10077-2 : 2003.

17.3 A thermal cycle test, comprising heat and water spray, was carried out to draft Annex D of PAS 23-1 : 1999.

18 Investigations

The manufacturing process, including the methods adopted for quality control, have been examined and found satisfactory by the BBA.

Bibliography

BS 5713 : 1979 *Specification for hermetically sealed flat double glazing units*

BS 6206 : 1981 *Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings*

BS 6262-4 : 1994 *Glazing of buildings — Codes of practice for safety — Human impact*

BS 7413 : 2002 *Unplasticized polyvinyl chloride (PVC-U) profiles for windows and doors — Specification*

BS 8213-4 : 1990 *Windows, doors and rooflights — Code of practice for the installation of replacement windows and doorsets in dwellings*

BS EN 1279-1 : 2004 *Glass in building — Insulating glass units — Generalities, dimensional tolerances and rules for the system description*

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

BS EN 1303 : 1998 *Building hardware — Cylinders for locks — Requirements and test methods*

BS EN ISO 10077-1 : 2000 *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Simplified method*

BS EN ISO 10077-2 : 2003 *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Numerical method for frames*

PAS 23-1 : 1999 *General performance requirements for door assemblies. Single leaf, external door assemblies to dwellings*

PAS 24-1 : 1999 *Enhanced security performance requirements for door assemblies. Single leaf, external door assemblies to dwellings*



On behalf of the British Board of Agrément

Date of issue: 23rd December 2004

Chief Executive