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Agrément Certificate
07/4476
Product Sheet 1

NORDAN TIMBER DOOR RANGE

NORDAN 1I, TE, TX, BE and BX TIMBER DOORSETS

This Agrément Certificate Product Sheet(1) relates to NorDan 1I, TE, TX, BE and BX Timber Doorsets, comprising timber inward opening single-leaf (1I), outward opening single-leaf (TE and BE) and outward opening double-leaf (TX and BX) doorsets, for external use as primary or secondary access doors in walls of new or 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 — the thermal transmittance value (U value) of a single-leaf timber door from within the range was calculated as 1.2 $W \cdot m^{-2} \cdot K^{-1}$ (see section 6).

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

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

Unauthorised access — doors from within the range can contribute to preventing unauthorised access to dwellings and similar habitable applications (see section 9).

Access — doors fitted with a low-threshold that have an appropriate clear opening width will satisfy the national Building Regulations (see section 11).

Durability — the doors will have a service life of at least 25 years subject to the necessary maintenance being performed (see section 17).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Sixth issue: 24 May 2022

Originally certificated on 26 September 2007

Hardy Giesler
Chief Executive Officer

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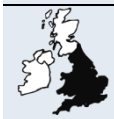
Regulations

In the opinion of the BBA, NorDan 1I, TE, TX, BE and BX Timber Doorsets, 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 systems have 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 systems will not constitute a significant condensation risk and so can contribute towards satisfying this Requirement. See section 12.1 of this Certificate.

Requirement: **F1(1)** **Means of ventilation**
Comment: The systems can contribute to satisfying this Requirement. See sections 8.1 and 8.2 of this Certificate.

Requirement: **K4(a)(b)** **Protection against impact with glazing [applicable to England (dwellings only)]**
Comment: Doors fitted with safety glass can satisfy this Requirement. See section 13.1 of this Certificate.

Requirement: **L1(a)(i)** **Conservation of fuel and power**
Comment: The systems can contribute to satisfying this Requirement. See section 6.1 of this Certificate.

Requirement: **M1** **Access and use of buildings other than dwellings**
Requirement: **M2** **Access to extensions to buildings other than dwellings**
Comment: Doors are fitted with accessible (low) thresholds and contribute to satisfying this Requirement. See section 11.1 of this Certificate.

Requirement: **M4(1)** **Visitable dwelling – access and use [applicable to England (dwellings only)]**
Requirement: **M4(2)** **Accessible and adaptable dwellings (optional requirement) [applicable to England (dwellings only)]**
Requirement: **M4(3)** **Wheelchair user dwellings (optional requirement) [applicable to England (dwellings only)]**
Comment: Doors are fitted with accessible (low) thresholds and contribute to satisfying this Requirement subject to the required clear opening width. See section 11.2 of this Certificate.

Requirement: **N1** **Protection against impact (applicable to Wales only)**
Comment: Doors fitted with safety glass can satisfy this Requirement. See section 13.1 of this Certificate.

Requirement: **Q1** **Unauthorised access**
Comment: Doors, as described in the Enhanced Security sheet (ES1) for Product Sheet 1, can satisfy this Requirement for new dwellings. See section 9.3 of this Certificate.

Regulation: **7(1)** **Materials and workmanship**
Comment: The systems are acceptable. See sections 17.1 to 17.4 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 energy efficiency rates for new dwellings (applicable to Wales only)**
Comment:		The systems can contribute to satisfying these Regulations. See section 6.1 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The doors satisfy the requirements of this Regulation. See sections 16.1 to 16.7 and 17.1 to 17.5 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.9	Escape
Comment:		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 13.2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The doors have 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)(2). See section 7.2 of this Certificate.
Standard:	3.14	Ventilation
Comment:		The doors can contribute to natural ventilation, with reference to clauses 3.14.2(1)(2) and 3.14.3(1) of this Standard. See section 8.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The doors will not constitute a significant condensation risk and so can contribute to satisfying this Standard, with reference to clauses 3.15.1(1)(2), 3.15.4(1)(2) and 3.15.5(1)(2). See section 12.1 of this Certificate.
Standard:	3.16	Natural lighting
Comment:		The doors can contribute to satisfying this Standard, with reference to clauses 3.16.1(1) and 3.16.3(1). See section 10 of this Certificate.
Standard:	4.1	Access to buildings
Comment:		Doors are fitted with accessible (low) thresholds and contribute to satisfying this Standard, with reference to clause 4.1.9(1)(2). See section 11.1 of this Certificate.
Standard:	4.8(a)(b)	Danger from accidents
Comment:		Doors fitted with safety glass can satisfy this Standard, with reference to clause 4.8.2(1)(2). See section 13.1 of this Certificate.
Standard:	4.13	Security
Comment:		The doors, as described in the Enhanced Security Sheet (ES1) for Product Sheet 1, can satisfy this Standard, with reference to clause 4.13.1(c)(1) and 4.13.4(1). See section 9.3 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
		The systems 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 6.1 of this Certificate.

Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The systems 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 systems 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 6.1 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for the systems 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)].

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

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The doors are acceptable. See sections 17.1 to 17.4 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The doors have adequate resistance to the ingress of rain and wind-driven spray and so can contribute towards satisfying this Regulation. See section 7.2 of this Certificate.
Regulation:	**29**	**Resistance to moisture and weather**
Comment:		The doors will not constitute a significant condensation risk and so can contribute to satisfying this Regulation. See section 12.1 of this Certificate.
Regulation:	**33(c)**	**Means of escape**
Comment:		Doors fitted with a thumb-turn lock can satisfy this Regulation, with reference to Technical Booklet E, clause 2.87. See section 13.2 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Comment:		The doors can contribute to satisfying these Regulations. See section 6.1 of this Certificate.
Regulation:	**65(1)**	**Means of ventilation**
Comment:		The doors can contribute to satisfying this Regulation. See section 8.1 of this Certificate.
Regulation:	**91**	**Access and use**
Regulation:	**92**	**Access to extensions**
Comment:		Doors are fitted with accessible (low) thresholds and will contribute to satisfying these Regulations subject to the required clear opening width. See section 11 of this Certificate.
Regulation:	**96**	**Impact with glazing**
Comment:		Doors fitted with safety glass can satisfy this Regulation. See section 13.1 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: 3 *Delivery and site handling* (3.3) and 13 *Safety* (13.4) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, NorDan 1I, TE, TX, BE and BX Timber Doorsets, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6.7 *Doors, windows and glazing*.

CE marking

The Certificate holder has taken the responsibility of CE marking the systems in accordance with harmonised European Standard BS EN 14351-1 : 2006.

Technical Specification

1 Description

1.1 NorDan 1I, TE, TX, BE and BX Timber Doorsets (see Figure 1) are supplied painted or externally clad in aluminium with a polyester powder coating in any standard RAL colour. Doors can be supplied uncoated on request, subject to the Certificate holder's approval, but the durability of these doors has not been assessed.

1.2 The doorsets are available in a range of approved colours and comprise single, inward opening (1I) doorsets; single, outward opening (TE and BE) doorsets; and double, outward opening (TX and BX) doorsets, mechanically jointed to the timber frame as shown in Figures 1 and 2 and subject to the size restrictions given in Table 1.

1.3 The doorsets are fitted with a low threshold, to provide access according to the national Building Regulations (see Figure 4 and section 11 of this Certificate).

Figure 1 Corner detail

Table 1 Size restriction

	Dimension (mm)	
	Width	Height
Single-leaf glazed doorsets, with or without a mid-rail		
Maximum overall size	1090	2300
Single-leaf fully-panelled doorsets		
Maximum overall size	1090	2300
Double-leaf glazed doorsets, with or without a mid-rail		
Maximum overall size	1988	2388

1.4 The doorsets are externally glazed with timber or aluminium glazing beads in any standard RAL colour.

1.5 The doorsets are available in three glazing styles:

- fully glazed
- partly glazed (single and double leaves) — featuring a double-glazed sealed unit (incorporating a single or double timber mid-rail, glued and screwed into the outer frame with a mortise-and-tenon joint) and either a 48 mm and 58.3 mm composite laminate panel leaf(1) (consisting of a 4 mm compact laminate to each face with either a 40 mm or 45.9 mm expanded polystyrene core or a 48 mm and 58.3 mm HDF panel leaf(1) (consisting of 5.5 mm HDF to each face with either a 40 mm or 45.9 mm expanded polystyrene core
- fully panelled leaf(1) (single and double leaves) in the same construction as the partly glazed.

(1) Insulated panels are framed in for 1I doors and glazed in for TE and TX doors.

1.6 Framing members comprise profiled and machined North European Redwood sections, formed by cutting the required profiles from engineered timber. After profiling and machining, the timber is preservative-treated using a vacuum-impregnation technique to BS EN 351-1 : 2007.

1.7 All doorsets are supplied factory glazed, using sealed double-glazed units(1) (see Figures 2 and 3) as standard. Triple-glazed doorsets are available from the Certificate holder as per the double-glazed units above.

(1) Outside the scope of this Certificate.

Figure 2 Typical vertical section (showing aluminium cladding present)

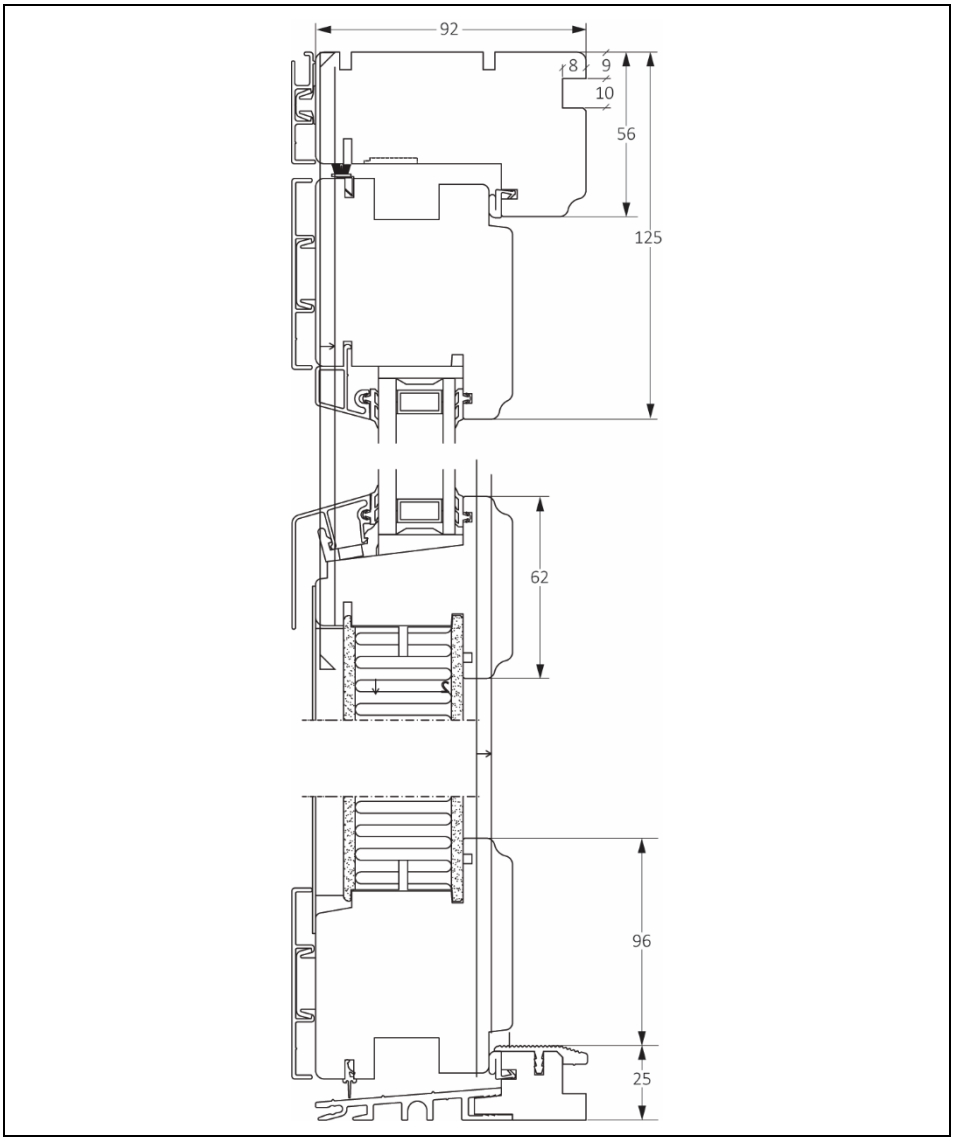
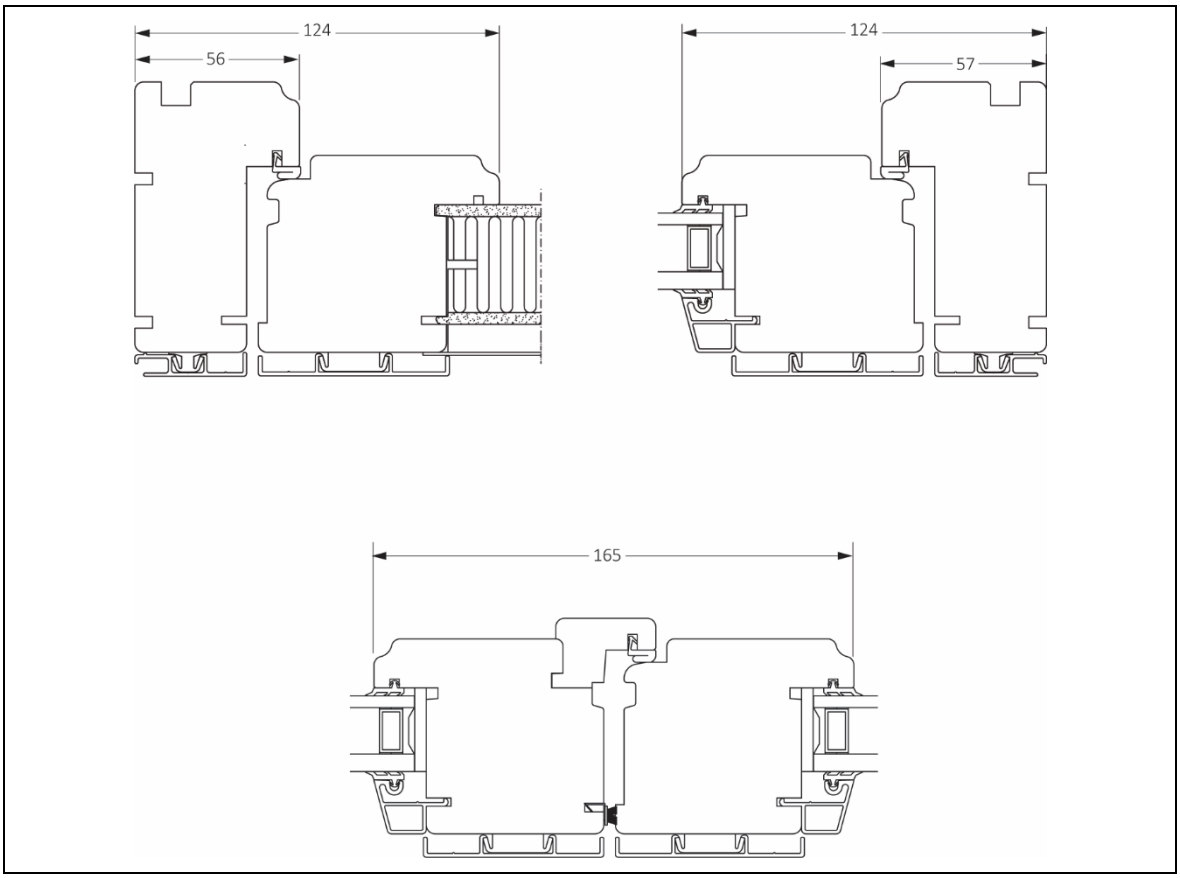


Figure 3 Typical horizontal section (showing aluminium cladding present)



Furniture and fittings

1.8 All doors covered by this Certificate are hung on three or four butt hinges (dependent on door size), each fixed to the frame and the door leaf with corrosion-resistant screws.

1.9 Doors are secured by a multi-point locking mechanism, operated by a lever type handle on both sides. Handles are available with an anodised alloy finish. The lock is supplied with adjustable keeps and is fitted with a two-part cylinder mechanism.

Glazing and panelling

1.10 Glazed units are sealed into the wooden sash using a polyurethane adhesive sealant.

1.11 All doors are available fully glazed with full height glass, composite laminated timber-insulated panels, or optional panelled/glazed configurations. All doors are available with a single mid-rail.

1.12 Where glass is to be used, doors are supplied factory glazed using sealed double-glazed units with thicknesses in accordance with BS 6262-1 : 2017 or, if required by the national Building Regulations, with toughened or laminated glass in accordance with BS EN 12600 : 2002. All glass used is safety glass (see section 13), positioned by polyethylene setting blocks and packing pieces. The double-glazed unit is secured by timber or aluminium glazing bead with an integral EPDM gasket.

1.13 Insulated timber panels are 48 or 53.9 mm thick, and comprise an inner and outer skin of compact laminate and a central core of closed-cell extruded polystyrene foam insulation. As an alternative a 48 or 53.9 mm thick HDF panel is also available comprising of an inner and outer skin of HDF and a central core of closed-cell extruded polystyrene foam insulation.

1.14 The glazing units satisfy the requirements of BS EN 1279-2 : 2018 and (if relevant) BS EN 1279-3 : 2018.

1.15 NHBC requires(1) that compliance to the Standards referred to in sections 1.12 and 1.14 of this Certificate is confirmed by an appropriate independent technical approvals authority.

(1) *NHBC Standards* 2022, Chapter 6.7.7 *Glazing, Insulated Glass Units.*

Weatherstripping and gaskets

1.16 Q-LON weatherstripping is located in grooves around the periphery of the door leaf and the fixed frame.

1.17 The externally beaded doors are fitted with EPDM gaskets between the frame and the double-glazed unit.

1.18 Aluminium glazing beads are polyester powder coated to match the coloured timber or aluminium cladding. Optional timber glazing beads are factory finished painted in any standard RAL colour.

2 Manufacture

2.1 The door framing members are profiled from engineered North European Redwood. After all machining has taken place, each wooden component is treated with a vacuum-impregnation preservative to BS EN 351-1 : 2007. Doors with or without aluminium cladding can be supplied in colours according to the RAL colour scales.

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 1I, TE and TX doors are manufactured by NorDan Sp. z o.o ul. Powodowo 54, 64-200 Wolsztyn, Poland and BE, BX doors are manufactured by NorDan AS, Tengsareidv. 1, 4370 Egersund, Norway. The management systems of both factory locations has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015.

3 Delivery and site handling

3.1 The doorsets are delivered to site ready glazed. For transportation they are set securely on timber pallets, shrink-wrapped and steel-banded to provide protection against surface damage. Care must be taken during all subsequent handling processes to avoid the risk of damage. Each door is marked with the customer's reference, production serial number, and glass size and make-up for easy identification on site.

3.2 The doorsets should be stored in accordance with the Certificate holder's recommendations.

3.3 The weight of the glazed frame (which can be obtained from the Certificate holder) and its 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 NorDan 1I, TE, TX, BE and BX Timber Doorsets.

Design Considerations

4 Use

NorDan 1I, TE, TX, BE and BX Timber Doorsets are satisfactory for use in non-loadbearing applications where doors are installed vertically into the external walls of new and existing dwellings, light commercial premises or similar habitable applications as primary and secondary access doors.

5 Practicability of installation

The systems are designed to be installed by a competent general builder, or a contractor, experienced with these types of systems.

6 Thermal properties

6.1 The thermal transmittance value (U value) of a single-leaf timber door, 2000 mm high by 1000 mm wide, with the upper-glazed section featuring a 24 mm double-glazed unit with toughened safety glass as the outer pane, 90% argon, organic foam warm edge spacer, soft coat (0.03 emissivity) glass as the inner pane and a timber mid-rail (single or double), with a lower panelled section consisting of a 37 mm closed-cell extruded polystyrene foam insulation (λ = 0.03 $W \cdot m^{-1} \cdot K^{-1}$), sandwiched between 5.5 mm fibreboard panels (λ = 0.12 $W \cdot m^{-1} \cdot K^{-1}$), when calculated by computer simulation in accordance with BS EN ISO 10077-2 : 2012, is 1.2 $W \cdot m^{-2} \cdot K^{-1}$

6.2 The overall thermal insulation of the door will be dependent on the performance of the double-glazed units. For units other than those described in section 6.1 of this Certificate, the indicative U values shown in SAP 2012 *The Government's Standard Assessment Procedure for Energy Rating of Dwellings*, Table 6e 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 or 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 When tested, generally in accordance with the methods defined in BS EN 14351-1 : 2006 (EN 1026 : 2016, EN 1027 : 2016 and EN 12211 : 2016), selected samples of the door systems were shown to be suitable for use as indicated in Table 2 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.

Table 2 Weathertightness classifications

	Classification according to:			UK exposure category (BS 6375-1 : 2015)
	Resistance to wind load (BS EN 12210 : 2016)	Watertightness (BS EN 12208 : 2000)	Air Permeability (BS EN 12207 : 2016)	
Single-leaf outward opening doorset (TE, BE)	Class CE2400	Class 9A	Class 4	1200
Single-leaf inward opening doorset (1I)	Class E2400A	Class E1500A	Class 4	1200
Double-leaf outward opening doorset (TX, BX)	Class E2700A	Class E1500A	Class 4	1200

7.2 The classifications in Table 2 can be used to determine suitability when selecting exposure categories, in conjunction with BS 6375-1 : 2015, Annex A.

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 In assessing the contribution of the systems to natural purge ventilation, the area of opening should be calculated in accordance with section 8.2 of this Certificate and related to floor area as set out in Approved Document F.

8.2 The opening area for natural purge ventilation may be calculated by subtracting the various frame dimensions detailed in Table 3 from the overall width.

Table 3 Frame dimensions for clear opening width

Door type	Timber	Aluminium clad
TE/BE doorset (92/67 mm frame)	179 mm	183 mm
TE/BE doorset (105/80 mm frame)	192 mm	196 mm
TX/BX doorset (92/67 mm frame)	246 mm	254 mm
TX/BX doorset (105/80 mm frame)	272 mm	280 mm
1I doorset (105/80 mm frame)	209 mm	223 mm

8.3 The background ventilation requirements of the 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 Doors (fitted with locking mechanisms and features as described in section 1.9), when fastened in the locked 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* 2022*,* Part 6.7 *Doors, windows and glazing*.

9.3 Doors as described in Enhanced Security sheet (ES1) for Product Sheet 1, 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 Attention should be paid to the 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 Externally fitted glazing beads can be removed but subsequent removal of the glass without breakage and noise is extremely difficult due to the glazing being additionally secured with polyurethane sealant.

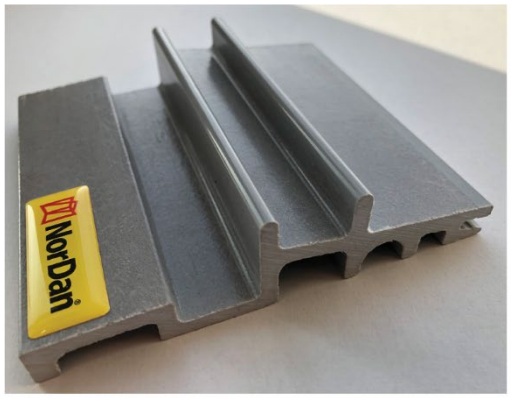
10 Glass area

In Scotland, 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 can be measured.

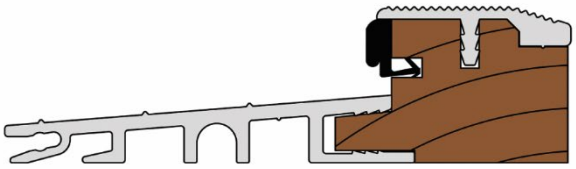
11 Access

11.1 Outward opening residential doorsets are fitted with a 25 mm high, thermally broken aluminium low threshold, and inward opening residential doorsets are fitted with a 25 mm high GRP (glass reinforced plastic) low threshold, each designed to satisfy the requirements of the relevant national Building Regulations when suitably installed (see Figure 4).

Figure 4 Typical threshold section



Inward opening threshold



Outward opening threshold

11.2 When an external residential door has a minimum clear opening width according to the documents supporting the national Building Regulations, it will provide access for all persons, including those who require wheelchair access.

12 Condensation risk

12.1 In normal domestic or similar applications, timber doors do not constitute a significant condensation risk when correctly installed.

12.2 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 and the *Accredited Construction Details*. Further information is contained in BRE Report BR 262 : 2002.

13 Safety

13.1 Glazed doors, where required, are fitted with safety glass complying with BS EN 12600 : 2002 and therefore satisfy the safety recommendations given in BS 6262-4 : 2018(1).

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

13.2 In Scotland and Northern Ireland, 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; such doors using a thumb-turn lock have been tested by the BBA.

13.3 Single leaf outward opening (TE) doors can be manufactured with a fire-rating option but these doors have not been assessed by the BBA and are outside the scope of this Certificate.

13.4 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 Resistance to impact

14.1 Without considering the glass, opaque/unglazed parts of the doorset, the systems will be unaffected by the soft or hard body impacts likely to be encountered in dwellings or similar applications.

14.2 Slamming of a door, which could occur in high winds, will not cause damage to the door leaf or frame.

15 Ease of operation

The doors achieve Class 4 — Moderate duty, when classified according to BS EN 12400 : 2002, and can be operated without difficulty when correctly installed.

16 Maintenance

16.1 The doors can be re-glazed and the gaskets and weatherstripping replaced. Should damage occur to the glazing unit, the damaged unit should be removed by cutting through the polyurethane adhesive sealant with a sharp knife. This process should only be carried out by specialist operatives using the materials recommended by the Certificate holder and approved by the BBA. Details of replacement units are available from the Certificate holder.

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

16.3 If damage occurs, the furniture and fittings can be replaced.

16.4 The hinges and locking mechanism should be cleaned and lubricated periodically in accordance with the Certificate holder's instructions to minimise wear and to ensure smooth operation. More frequent lubrication may be required depending on the environmental conditions.

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

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

16.7 Care should be taken when using proprietary materials for cleaning the glass, to ensure that deposits are not allowed to remain on the painted surfaces 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).

16.8 If damage occurs to the paint, repairs should be carried out as described in the Certificate holder's instructions using paints(1) recommended by the Certificate holder.

(1) Outside the scope of this Certificate.

17 Durability

17.1 The doors will have a service life of at least 25 years, subject to the necessary maintenance being carried out as described in section 16 of this Certificate. This may be extended up to 60 years for the coloured coating system, provided that it is regularly overcoated in accordance with section 17.3 of this Certificate.

17.2 The timber frame members are preservative treated with an effective fungicide to BS EN 351-1 : 2007.

17.3 The coloured coating system used on the aluminium cladding has good chemical resistance and colour stability and will retain its appearance for at least 10 years without decoration. The coating adheres well to the substrate and will retain its integrity for a similar period. The coloured coating system used on the wooden surfaces also has good chemical resistance and colour stability. However, the coating may need to be repainted within this period using paints(1) as recommended by the Certificate holder.

(1) Outside the scope of this Certificate.

17.4 Fittings, including the hinges, locking mechanism and operating handles, as described in this Certificate, will have a durability of 25 years, 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 doorset.

17.5 The gaskets, weatherstripping and fittings may need to be replaced within the life of the doorset.

17.6 Any slight colour change or surface dulling of the painted coating which might occur will be uniform over the visible surfaces of the doorsets.

18 Reuse and recyclability

The timber frame members and aluminium cladding sections of the systems can be recycled.

Installation

19 General

19.1 The NorDan 1I, TE, TX, BE and BX Timber Doorsets must be fixed into the opening, in accordance with the manufacturer's installation instructions and BS 8213-4 : 2016, using appropriate fixing screws and/or proprietary expanding anchors through the frame or galvanized steel fixing lugs.

19.2 Openings in new walls should be formed using a suitable template, making suitable allowance 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. The door should not be built-in at the construction stage.

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

19.4 The provision of a cavity closer and/or cavity barrier around the door opening, prior to the installation, may be required. Details of such products covered by a BBA Certificate can be found on the BBA website.

20 Procedure

20.1 After checking the dimensions of the doorset, the door leaf is lifted off its hinges and the frame positioned into the opening using rot-proof dense wedges, ensuring the frame is level and plumb without twist.

20.2 The door leaf is re-fitted and a suitable weight applied to seat the hinges, removing any slack and thus reducing future fatigue. The gap on the lockable side is checked to ensure it is a little less than that on the hinged side.

20.3 The installation is completed by spraying all surfaces with water and applying a low-expansion polyurethane foam in the gap between the wall and door frame whilst ensuring that the door frame is braced to resist over expansion of the foam. This is followed by the application of a silicone or similar durable sealant to the door/wall junction as required.

21 Tests

21.1 Results of tests were assessed to determine:

- operating forces
- air permeability
- watertightness
- wind resistance
- accidental loading
- strength of restricted opening device
- slamming resistance
- closure against obstruction
- abusive forces on handles
- resistance to soft and heavy body impact
- resistance to hard body impact
- cyclic operation
- basic security
- enhanced security.

21.2 Tests were carried out to determine the durability of the painted coating.

21.3 Additional test work was carried out on the door hardware to determine:

- resistance to salt spray corrosion
- cross-cut adhesion
- appearance after UV-ageing.

22 Investigations

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

22.2 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 : 2018 *Glazing for buildings — Code of practice for safety related to human impact*

BS 6375-1 : 2015 + A1 : 2016 *Performance of windows and doors — Classification of weathertightness and guidance on selection and specification*
BS 6375-3 : 2009 + A1 : 2013 *Performance of windows and doors — Classification for additional performance characteristics and guidance on selection and specification.*

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

BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 1279-2 : 2018 *Glass in building — Insulating glass units — Long term test method and requirements for moisture penetration*
BS EN 1279-3 : 2018 *Glass in building — Insulating glass units — Long term test method and requirements for gas leakage rate and for gas concentration tolerances*

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 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 14351-1 : 2006 + A2 : 2016 *Windows and doors — Product standard, performance characteristics — Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics*

BS EN ISO 9001 : 2015 *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*

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

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

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

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

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*

23 Conditions

23.1 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.

23.2 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.

23.3 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.

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

23.5 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.

23.6 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.