



**BRE Global Limited  
Scheme Document**

**SD 227: Rev 0.4**

**24 February 2021**

**Certified Thermal Details and Products Scheme**

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## Introduction

As more stringent legislation and energy awareness lead to increased insulation levels in walls, roofs and floors, heat losses due to thermal bridging become increasingly important. The heat loss associated with these thermal bridges is expressed as a linear thermal transmittance ( $\Psi$ -value). The surface temperature factor ( $f$ ) is also calculated to determine surface temperature, and as such the risk of mould growth, which can have significant health implications.

BRE Report BR 497 (Conventions for calculating linear thermal transmittance and temperature factors) details the conventions that should be followed by thermal modellers to produce consistent, reproducible results and so help the push towards ambitious energy improvements and healthier buildings. The conventions are based on utilising thermal modelling software to assess the 'as designed' thermal performance of building junction details, products or elements.

BR 497 is available for purchase from the BRE bookshop –

<https://www.brebookshop.com/details.jsp?id=327685>

For building regulation purposes two key modelling outputs, linear thermal transmittance and temperature factor, are identified. These key outputs will enable designers to confirm the adequacy of particular junction details and help with the development of solutions to improve the thermal performance of junctions. BR 497 is currently referenced within English and Welsh Approved Documents L1A (domestic) and L2A (non-domestic), Scottish Technical Standards (Energy) for both domestic and non-domestic, and Technical Booklets F1 (domestic) and F2 (non-domestic) for Northern Ireland.

The industry (primarily focusing on developers and designers) relies on having these thermal performance figures calculated and supplied from credible and reliable sources to ensure that accurate and reliable figures are readily incorporated into the National Calculation Tools, such as SAP (Standard Assessment Procedure) and SBEM (Simplified Building Energy Model).

BRE's position as impartial and knowledgeable experts in the assessment and certification of details and products can provide guidance and robust performance data for an area of the industry which often allows for 'self-assessment' with no formal training or certification scheme in place.

The BRE Certified Thermal Details and Products scheme and database will allow users to search a wide range of accurate, credible and independently assessed thermal junction details, products and elements, ensuring accuracy, consistency and quality throughout the design and specification process.

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## 1. Scope

This scheme provides ongoing independent assessment and certification of the 'as designed' thermal performance of building junction details, products and elements to ensure that the performance, marking and classification requirements of the appropriate standards are met and maintained. The Scheme Document must be read in conjunction with PN 110 - the product certification process.

The thermal performance values are:

- For 'Junctions Details' -  $\Psi$ -value (W/mK) and temperature factor ( $f$ )
- For 'Openings Products' and 'Major (Plane) Building Elements' - Overall (or effective) U-value (W/m<sup>2</sup>K)

## 2. Assessment of Products

Annex 1 sets out the generic testing standards and requirements which the specific junction detail, product or element must meet to achieve certification.

*Not all of these standards are applicable to each detail, product or element. The proposal will set out those test standards and requirements which are applicable.*

The product will be assessed initially to enable publication within the Certified Thermal Details and Products Scheme database, and will be required to be retested should any alterations from the original design be undertaken; Annex 1 also sets out the audit testing requirements.

Where there are multiple standards applicable to the product, the extent of audit testing will be advised within the proposal.

*Note, examples of junction details, products and elements are detailed below:*

- *Junction Details (e.g. SAP Table K plus other bespoke junctions)*
- *Opening Products (e.g. windows, doors, rooflights)*
- *Major (Plane) Building Elements (e.g. walls, roofs, floors)*

## 3. Applications to join the Scheme

To apply for thermal details product certification contact BRE with details of your product or complete and return the application form and a quotation will be prepared.

[certifiedthermalproducts@bre.co.uk](mailto:certifiedthermalproducts@bre.co.uk)

For more information or help with your application contact BRE on +44 (0)333 321 8811.

Assessment and certification fee schedules are available via the website – [www.bregroup.com/certifiedthermalproducts](http://www.bregroup.com/certifiedthermalproducts)

Certification is valid for three years, and an annual Scheme administration fee will be charged per product.

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#### 4. Satisfactory control of production processes and materials

Where a specific product is referenced within the assessment, to ensure the junction detail, product or element meets, and continues to meet, the requirements of SD 227, applicants are required to maintain full control of their production processes and the quality of the products that they supply through a structured documented management system.

To maintain BRE Global Ltd product certification, Companies must as a minimum:

- Maintain a current accredited certificate to ISO 9001\* in order to ensure consistency of product, OR
- Hold an audited and approved Factory Production Control Management System

\*If this is not provided by BRE Global Ltd, an alternative certification body accredited for ISO 9001 assessments may be used – this accreditation should be from an organisation registered under:

- The European co-operation for Accreditation - <http://www.european-accreditation.org/> or;
- The International Accreditation Forum - <http://www.iaf.nu/>

#### 5. Certification

A certificate is awarded following satisfactory completion of the assessment programme as detailed in Section 2.

Certificates are valid for three years subject to:

1. Satisfactory results from the product audit testing programme set out in Annex 1;
2. Compliance with Building Regulation 'backstop' U-values for:
  - Flanking elements (within Junction Details)
  - Opening products or Major (Plane) Building Elements
3. Where a specific product is included within the assessment, demonstration of Factory Production Control Management, through:
  - Maintenance of ISO 9001 certification from an appropriately accredited certification body (see Section 4) or;
  - A Factory Production Control Management System Audited and approved by BRE Global

Certificates will include the following information:

- a) Name and address of the certification body
- b) Name and address of the producer of the certificated products
- c) Identification of the product(s)
- d) Reference to the version of the Scheme Document
- e) Date of issue of certificate
- f) Signature and title of authorised officer
- g) Thermal performance of detail, product or element

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Following three years certification, a detail / product review audit will be undertaken to ensure that compliance with Building Regulation 'backstop' U-values is still achieved. Where this is not the case, the detail or product will be removed from the database.

Certification can be reinstated when the detail or product is revised to meet the required backstop level. This will require to be reassessed and certified, prior to relisting.

## 6. Factory Production Control

Where relevant, factory Production Control (FPC) assessments may be undertaken to confirm that the products are manufactured under a documented management system. These assessments concentrate on the product specific aspects of the management system to confirm that the products meet and continue to meet the requirements of the standard or specification. BRE Global's generic requirements for FPC are detailed in publication PN 111.

## 7. Marking

For product certification, the BRE Global Certification mark may be used as directed in the publication PN 242 'General Rules and Guidance for the uses of the BRE Global Certification Mark'. For this scheme, the Mark and accompanying wording that can be used is as follows:



*Scheme details  
Cert/Ref. No. XXXa/x*

## 8. Change of Details

The certificate holder shall give notice in writing to BRE Global of a change in legal constitution, trading or title, address or other significant particulars and declarations upon which the current certificate was granted. Such notice shall be given to BRE Global within thirty days of any change becoming effective.

Where the changes are such that the conditions under which certification was granted are significantly affected, the certificate holder will be advised of the actions, and any associated fees, that will be required to be completed to maintain certification.

## 9. Complaints & Appeals

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The BRE Group procedure for complaints and appeals (XP107E) will be used where required.

## 10. Suspension and Withdrawals

The BRE Global Quality Procedure for certificate suspension and withdrawal (BF061B/C) will be followed where required.

Suspension of certification is a certification decision. Typically, certification is suspended when:

- a. There is evidence that there is nonconformity with the certification requirements and the certification holder is given an opportunity to take action to correct the nonconformity within an agreed timescale
- b. The organisation that is the 'holder' of certification enters an insolvency event
- c. There are overriding matters of public interest, such as health and safety issues
- d. There is a breach of contract

There are a number of potential causes for certification withdrawal, these include but are not limited to:

- a. Failure of the client to take sufficient corrective actions in a timely manner following certification suspension
- b. A nonconformity with the certification requirement, a breach of contract, overriding matters of public interest such as health and safety, are so severe that it poses an immediate risk to BRE Global or its affiliates, the public or other stakeholders
- c. The certification expiry date is reached
- d. The client no longer wishes to maintain its certification status, this is sometimes referred to as a 'voluntary withdrawal'
- e. The 'scope' of the changes and therefore the current certification documentation is not accurate, this is sometimes referred to as a 'de-listing' or 'reduction' (where content is removed) or 'amendment' (where content is added) or generically as a 'revision'
- f. A company that is the 'holder' of certification enters an insolvency event

## 11. Publications referred to

BF061B/C	Certificate Suspension/Withdrawal
ISO 9001	'Quality management systems. Requirements'
PN 110	'The product certification process'
PN111	'Factory Production Control'
PN 242	'General Rules and Guidance for the uses of the of the BRE Global Certification Mark'
XP107E	BRE Group Complaints and Appeals Procedure

For undated references please refer to the most recent dated issue.

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## Appendix 1

### Assessment Test Requirements

Standards / regulations applicable	Summary Requirements
BR 497	Conventions for Calculating Linear Thermal Transmittance and Temperature Factors, BRE
BR 443	Conventions for U-values, BRE
BS EN ISO 10211	Thermal bridges in building construction – Heat flows and surface temperatures – Detailed calculations
BS EN ISO 6946	Building components and building elements. Thermal resistance and thermal transmittance - Calculation methods
BS EN ISO 13370	Thermal performance of buildings. Heat transfer via the ground - Calculation methods
BS EN ISO 10077 (parts 1 and 2)	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance Numerical method for frames

### Audit Review requirements

Standards / regulations applicable	Summary Requirements
See above	Review of any changes to junction detail, product or element in compliance with 'assessment test requirements' standards

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## Appendix 2

### Certification Process

