



BBA / TIMSA SCHEME FOR CALCULATION COMPETENCY
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BBA / TIMSA SCHEME FOR CALCULATION COMPETENCY

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1 INTRODUCTION

This document sets out the details and requirements of the BBA's Scheme for assessing and monitoring *U value*⁽¹⁾ and *condensation risk* calculation competency.

(1) Words shown in italics are defined terms (see section 2).

Assessment can be made of an individual's competency for *U value* calculations alone or *U value* and *condensation risk*. This is indicated by the *Applicant* when making the initial approach to the *BBA* for assessment, using the *Scheme* Application Form.

The primary purpose of the *Scheme* is to promote and assist accurate, objective, and consistent calculation of *U values* and *condensation risk* within the UK construction industry.

Certificate Holders have demonstrated appropriate technical competency, and in-house procedural controls, to ensure that their declared *calculations*, in the opinion of the *BBA*, are accurate.

The *Scheme* is operated in four separate stages;

- an initial screening,
- an office inspection,
- validation, and
- conclusions

followed by issue of a Certificate to the *Applicant* and ongoing surveillance. These stages are described individually below.

Certificate Holders are permitted, under a non-exclusive licence, to identify *calculations* covered by this *Scheme* as subject to third-party approval by means of the use of the dedicated *BBA Scheme Logo*.

The *IPR* of the *Scheme*, its content including procedures and documentation, and any other work carried out under the *Scheme* by the *BBA* is owned by the *BBA*.

2 DEFINITIONS

Applicant – a party who has applied to be assessed under the scheme

Application for BBA TIMSA Form – application form confirming *Applicant*, *Competent Persons*, *Construction types*, *calculation* methods, and software used, with guideline figures for calculations per year.

BBA – the British Board of Agrément (the owner and operator of this *Scheme*).

Calculation – a *U value* or *condensation risk* calculation that is undertaken within the scope of the *Scheme*.

Certificate – in the *Certificate Holder* (*Certificate* number eg CS/xxxx) and *Competent Person's* names. Each *Competent Person* has their own Product Sheet with *Scheme Logo*, numbered CS/xxxx-x (eg CS/6711-1). Confirms the *Construction types*, *calculation* methods, and software used.

Certificate Holder – a company that employs one or more *Competent Persons*, has satisfied the requirements of this document and is listed on the *BBA* website as such.

Competent Person – a named individual, employed by the *Certificate Holder*, and assessed as having satisfied the competency requirements of the scheme.

Condensation risk calculation – a static calculation of interstitial *condensation risk* as defined in BS 5250 and BS EN ISO 13788, section 6. This previously included the non-static numerical simulation as defined in BS EN 15026.

Construction types – building materials such as masonry, timber, and steel, cross-referenced with building elements such as roofs, walls, floors and basements

Customer – the individual or company to whom Calculations are supplied by the Certificate Holder.

IPR (intellectual property rights) – any actual or claimed intellectual property or ownership rights including without limitation copyright, trademarks, patents, data and designs anywhere in the world and whether registered or not.

Scheme – the *BBA* Scheme for 'Assessing the Competency of Persons to Undertake U Value Calculations and Condensation Risk', owned and operated by the *BBA* and described in this document

Scheme Database – a database proposed at the start of the scheme of thermal performance data and conventions, for components / materials not adequately defined within the Scope of the *Scheme*, defined and controlled by the *BBA* and available to *Certificate Holders* on the *BBA* website. This does not currently exist.

Scheme Document – this guide to the *Scheme* and the requirements.

Scheme Logo – a logo used to identify *calculations* generated in accordance with this *Scheme*.

Scheme Task Group – a task group proposed at the start of the scheme, comprising *TIMSA* members, to advise the *BBA* on the *Scheme* development and effectiveness. The intention was the *BBA* would liaise with the *Scheme Task Group* to monitor and develop the *Scheme* effectiveness and to discuss areas of dispute / complaint and improvements. The *Scheme Task Group* would have met annually, although additional meetings would have been held in exceptional circumstances. This does not currently exist.

Scheme website – a section of the *BBA* website describing this *Scheme*, including the *Application for BBA TIMSA Form* *Certificate Holders*, and *TIMSA Application Guide*. *Certificates* can be searched for in the MyBBA section of the *BBA* website.

TIMSA – the Thermal Insulation Manufacturers and Suppliers Association

TIMSA Application Guide – external document from the *BBA* laying out the *Scheme* and the process for application

Trained staff (previously *Non-Competent Person*) – a named individual employed by the *Certificate holder* who has not been assessed according to the scheme requirements by the *BBA* assessment process for becoming a *Competent Person*.

U value – thermal transmittance of a roof, wall or floor (measured in $\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$).

3 SCOPE

The *Scheme* is restricted to constructions of masonry, steel frame and timber frame⁽²⁾.

(2) This specifically excludes any calculations requiring the use of numerical modelling, such as those for rainscreen cladding.

The *Scheme* covers the following elements:

- roofs, flat (including inverted), tapered, sloping, and horizontal insulated ceilings
- walls; external and semi-exposed, basement and dormer cheeks
- floors, ground supported, suspended, semi-exposed, and exposed
- basements

The *Scheme* is limited to the following *calculation* methods:

- | | |
|----------------------------|--------------------------------|
| • The combined method | BS EN ISO 6946 |
| • U value conventions | BRE report BR 443 |
| • Floors | BS EN ISO 13370 |
| • Steel frames | BRE Digest 465 |
| • Metal skin Z walls/roofs | BRE Information Paper IP 10/02 |
| • Metal roof/wall cladding | SCI Information Sheet P312 |
| • Condensation risk | BS 5250 |
| | BS EN ISO 13788 |

The *Scheme* is limited to the following sources of data:

- BRE report (BR 443)
- BS EN ISO 10456
- CIBSE Guide A *
- BS 5250 *,
- Current *BBA* Certificates
- Manufacturer's declarations against harmonised European Standards or European Technical Approvals.

* Default values contained within these two documents shall not supersede declarations made in *BBA* certificates (or similar) or declarations made according to harmonised European Standards (hENs) or UK Designated Standards.

For all the documents listed above the version current at the time that the calculation is carried out should be used.

The *BBA* can assess, for a fee, any alternative calculation method or data source required by a *Certificate Holder* and approve this on an individual basis. Any such validation will become part of the scheme database.

Other methodologies may be considered on a case by case basis, dependent on *BBA* competence and senior management agreement.

The validation of individual software tools are not part of the scope of the scheme. However, if as part of the assessment process issues arise that are deemed to be due to software inaccuracies such as using an older

version of a document, these will be pointed out to the Applicant. It is then the responsibility of the Applicant to liaise with the software provider to resolve these issues to an extent that is satisfactory to the BBA.

4 RESPONSIBILITIES

The *BBA* is responsible for assessing and monitoring the *Competent Person*, but is not responsible for the accuracy of individual *calculations* (see below).

The *Certificate Holder* is responsible for operating a quality system in accordance with the requirements of this *Scheme* and for the creation and maintenance of all of the necessary records to demonstrate that these requirements have been met. The *Certificate Holder* must continue to employ at least one *Competent Person* to remain certified, and is responsible for informing the *BBA* should any *Competent Person* cease to be employed by it. The *Certificate Holder* is also responsible for ensuring that all *U Value* and *condensation risk* results published under this *Scheme* are correctly identified as having been undertaken under the scheme by using the *Scheme Logo*.

The *Competent Person* is responsible for ensuring the accuracy of all *calculations* carried out under the *Scheme* for the *Certificate Holder*, even if the actual work is carried out by *Trained Staff*. The *BBA* requires that all calculations are checked by a *Competent Person* before being released. For this to be achievable, it is required that the ratio of *Trained Staff* to *Competent Persons* is no greater than 5 to 1.

The *Trained Staff* is responsible for performing *U value* calculations as instructed by, and under the direction of, the *Competent Person*. In order to make amendments to the number of *Trained Staff*, the *Certificate Holder* must notify the *BBA* and, for example, in the case of adding *Trained Staff*, provide evidence that adequate training has been provided. It is not permissible to have different levels of *Trained Staff* within an individual organisation. *Calculations* checked and signed off by a *Competent Person*, make use of the *Competent Person's Scheme Logo*

5 SUB-CONTRACTING

It is permissible under the terms of the *Scheme* for a company to use a *Competent Person* not directly employed by the company to carry out *U value calculations* under the *Scheme*, assuming that the *Competent Person* has access to the *Quality system in force by the Certificate holder*. However, the source of such *calculations* must be clearly traceable by use of the *Scheme Logo* and associated identification number.

The *Certificate holder* is required to inform the *BBA* of sub-contract work being undertaken.

6 APPROVAL PROCESS

The competency of the *Applicant* will be assessed by an investigation into their use of the standards and software including any training, education/qualifications and experience. The *Screening* process will cover the first item, while the *Office Inspection* will cover the remaining. The *Office Inspection* visit will cover the quality assurance process the *Certificate Holder* has put in place in order to meet the scheme requirements.

If the *Certificate holder* is ISO 9001 registered, then if any of the queries in the *CCS Quality Plan* are fully covered by an internal procedure, it is sufficient to reference the relevant document(s).

Stage 1 Screening

Step	Applicant	BBA
1.1	Advise the <i>BBA</i> of the nominated competent persons, element types, calculation methods and software package(s) for which approval is sought, using the dedicated <i>BBA</i> Application form	
1.2		Check methods / software are appropriate and provide a formal contract including the required fee to cover the cost of Assessment Stages 1, 2 and 3 .
1.3	Enter into a contract and pay the appropriate fee for Stages 1, 2 and 3 .	
Step	Applicant	BBA
1.4		Send initial letter, Draft CCS Quality Plan, and provide the <i>Applicant</i> with a single relevant combined method detail. Request evidence of thermal calculation experience (it is expected CV, records of CPD and other material deemed relevant can be supplied to the BBA).
1.5	Provide the <i>BBA</i> with the completed Draft CCS Quality Plan, signed initial letter, evidence of experience, and the required hand-written calculation from Step 1.4 .	
1.6		Assess the <i>Applicant's</i> calculation from Step 1.5 . If satisfactory then proceed to Step 1.7 . If not, advise the <i>Applicant</i> of the reasons. Return scanned copies of the calculations to the <i>Applicant</i> , indicating the problem areas, without offering a solution. A single resit is allowed. If the mistakes are more than 80 %, then a contract variation should be offered to the client to proceed with an additional resit.
1.7		Confirm the hand-written calculation is satisfactory, and provide the <i>Applicant</i> with relevant construction details, a minimum of two for each element type and <i>calculation</i> method. There is no need for more examples for IP 10/02 or P312 if these have been used for the combined method.
1.8	Provide the <i>BBA</i> with the required software calculations from 1.7	
1.9		Assess the <i>Applicant's</i> calculations from Step 1.8 . If satisfactory then confirm to the <i>Applicant</i> and proceed to Stage 2 . If not, advise the <i>Applicant</i> of the reasons. Return scanned copies of the calculations to the applicant, indicating the problem areas, without offering a solution. A single resit is allowed. If the mistakes are more than 80 %, then a contract variation should be offered to the client to proceed with an additional resit.

Stage 2 Office inspection

Step	Applicant	BBA
2.1		Check Draft CCS Quality Plan (see Steps 1.3 and 1.4) for details of <i>Applicant's</i> systems for training staff, carrying out <i>U value</i> and <i>Condensation risk calculations</i> , monitoring / checking the results and for identifying changes in the relevant <i>Calculation</i> methods/sources of data. Raise any issues with the <i>Applicant</i> and request a response.
2.2	Supply the details requested in 2.1	
2.3		Convert Draft to Proposed CCS Quality Plan. Checked and signed by the relevant BBA Operations Manager.
2.4		Visit the <i>Applicant's</i> office to assess their in-house procedures, interview the proposed <i>Competent Person</i> and select samples of existing <i>Calculations</i> (3 real world calculations per competent person). Raise any issues with the <i>Applicant</i> and request a response.
2.5	Supply a response to points raised (if applicable)	
2.6		Advise Applicant of the outcome. If satisfactory, proceed to Stage 3 . If not, advise the Applicant of the reasons

Stage 3 Validation and conclusions

Sep	Applicant	BBA
3.1		Assess and check the <i>Calculations</i> obtained during the office visit and advise the <i>Applicant</i> of the conclusions
3.2	Respond to any issues raised (if appropriate)	
3.3		Advise the <i>Applicant</i> of the outcome. If satisfactory, proceed to Step 3.4 and Stage 4 . If not, advise the <i>Applicant</i> of the reasons
3.4		Convert Proposed to Agreed CCS Quality Plan with signatures from BBA then <i>Applicant</i> . Draft the CCS Certificate and follow Simplified Traveller Log process.
3.5		Supply a Certificate of Competency to the <i>Applicant</i> confirming compliance with this <i>Scheme</i> . Provide a symbol / logo that can be displayed with <i>Calculations</i> .

7 MONITORING

Stage 4 Surveillance

Step	Applicant	BBA
4.1	Maintain a register of <i>Calculations</i> , training and records of internal audits of <i>Calculations</i>	
4.2		Invoice the <i>Certificate Holder</i> for the cost of the surveillance visit, one per year.
4.3		A&I revisit the <i>Certificate Holder</i> annually to repeat Step 2.3 and to check all methods, software issue numbers, etc are unchanged. It is likely the software will be updated regularly, and this can be raised as an Observation. Select samples of <i>Calculations</i> carried out in review period (2 per construction type per competent person and trained staff, where available).
4.4		Check <i>Calculations</i> obtained for accuracy and advise the <i>Certificate Holder</i> of the outcome. If satisfactory, continue to monitor, without further action. If not, advise the <i>Certificate Holder</i> of the reasons and repeat any necessary work at additional cost, invoiced separately.
4.5	Identify to the <i>BBA</i> any proposed changes to the in-house control arrangements, including procedures, methods and software issue numbers, prior to them being implemented.	
4.6		Assess as appropriate.

8 AMENDMENTS TO APPROVAL

As described in **Steps 4.5 and 4.6**, should the *Certificate Holder* require any amendments to the circumstances of their approval, the *BBA* will undertake to repeat the steps in the approval process that are affected by the proposed amendments, at the then rate for the work. This may include but is not limited to changes in the number of non-competent persons, assessment for additional calculations methods etc.

9 ADDITIONAL WORK

The *BBA* reserves the right to carry out work additional to that allowed for in the contract in place, such as repeat visits or calculations, should the assessment or surveillance indicate that, in the opinion of the *BBA*, this is necessary. Additional charges will be made to cover this work, as appropriate.

10 USE OF SCHEME LOGO AND DISCLAIMERS

Certificate Holders are permitted, under non-exclusive licence, to identify *Calculations* as having been carried out under the terms of the competency scheme by means of application of the dedicated *Scheme Logo*. This logo includes a unique identifying number traceable to the relevant *Competent Person*.

The *Scheme Logo* may only be used by *Certificate Holders* in a context that clearly relates only to authorised *Calculations*. Examples are shown below indicating where the *Scheme Logo* may and may not be used. This list is not exhaustive.

The *Scheme Logo* must be used:

- on a *calculation* covered by the *Scheme*

The *Scheme Logo* may be used:

- on a brochure or on a website page, adjacent to a calculated *U value* or a Table of calculated *U values* that are covered by the *Scheme*

The *Scheme Logo* must not be used on:

- a calculation that is outside the assessed scope of the scheme
- on a brochure or on a website page, adjacent (or otherwise) to a calculated or a Table of calculated *U values* that includes one or more values that are not covered by the scheme
- a verbal/telephone calculation, unless it is confirmed in writing and available for audit

Certificate Holders may refer to the *Scheme* in general terms, on trade literature and websites but will:

- withdraw or amend any statement that, in the opinion of the *BBA*, could be seen as misleading, within a timescale that is, in the opinion of the *BBA*, reasonable.
- include the *Scheme Website* address.

11 COMPLAINTS/DISPUTES

The *Competent Person* shall maintain a record of all complaints received pertaining to *Calculations* carried out as part of this *Scheme*. They will supply copies of all correspondence relating to technical disputes to the *BBA* for review on request, and in any case within seven working days of receipt of the request.

The *BBA* will investigate all complaints, at the expense of the certificate holder and report their findings. Sanctions can be applied by the *BBA* against the *Certificate Holder* or against the *Competent Person* where it is necessary to apply sanctions, the *Competent Person* or *Certificate Holder* will be required to complete the corrective action within a defined timescale or further action will be taken, as considered appropriate. This may ultimately lead to suspension or withdrawal of the approval.

In the event where a *Competent Person* becomes aware that they have supplied an erroneous calculation they should advise the *Customer* in writing within 5 working days and supply a corrected calculation. Any instance of an erroneous calculation should also be recorded in the *Certificate Holder's* quality system in such a way that it can easily be identified and investigated during surveillance inspections.

12 CONTINUING DEVELOPMENT

At least twice a year, or sooner if there is a change in the technical requirements of the *Scheme*, the *Competent Person* shall arrange training to instruct non-competent staff on the changes and the requirements of this *Scheme* and shall keep records to demonstrate participation.

13 SCHEME MANAGEMENT

The *Scheme* is managed by the *BBA*, who will monitor and develop the *Scheme* effectiveness and to discuss areas of dispute/complaint and improvements.

Communication with the *BBA* will be via the use of the email address clientservices@bbacerts.co.uk so that all enquiries can be directed to the most appropriate individual i.e. complaints, further assessment or marketing activities.

14 SCHEME FUNDING

The administrative funding of the *Scheme*, to include the initial set-up and *Scheme* review meetings was met by TIMSA.

The funding of individual assessments leading to the issue of *Competent Person* Certificates and the maintenance of the *Scheme* details on the *BBA* website will be met by the *BBA*, via income generated by the fees paid by *Applicants*.

15 BIBLIOGRAPHY

BS 5250	<i>Management of moisture in buildings. Code of practice</i>
BS EN ISO 6946	<i>Building components and building elements – Thermal resistance and thermal transmittance – Calculation method</i>
BS EN ISO 10456	<i>Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values</i>
BS EN ISO 13370	<i>Thermal performance of buildings – Heat transfer via the ground – Calculation methods</i>
BS EN ISO 13788	<i>Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods</i>
BRE report (BR 443) BRE Digest 465	<i>Conventions for U-value calculations U-values for light steel-frame construction</i>
BRE Information Paper IP 10/02 'Z' spacers	<i>Metal cladding: assessing the thermal performance of built-up systems which use</i>
CIBSE Guide A	<i>Environmental design</i>
SCI Sheet P312	<i>The Steel Construction Institute. Metal Cladding Information Sheet P312 Metal cladding: U-value calculation</i>