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BBA / TIMSA SCHEME FOR CALCULATION COMPETENCY

Part 1 - U VALUE AND CONDENSATION RISK

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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. It is anticipated that further parts may be added to this *Scheme* at a later date, for example, junction psi values.

(1) Words shown in italics have an official definition (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 will have demonstrated appropriate technical competency and in-house procedural controls to ensure that their declared *calculations*, in the opinion of the *BBA*, are reasonable.

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 will be permitted, under non-exclusive licence, to identify *calculations* covered by this *Scheme* as subject to third-party approval by means 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* belongs to the *BBA*.

2 Definitions

Applicant – a party applying to be a *Certificate Holder*.

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

Calculation – a *U value* or *condensation risk* calculation that is covered by this *Scheme*.

Competent Person – a named individual, employed by, or contracted to, the *Certificate Holder*, and available on an ongoing basis, who meets the *Scheme* requirements.

Condensation risk calculation – a static calculation of interstitial *condensation risk* as defined in BS 5250 : 2002, Annex D, and BS EN ISO 13788 : 2003, section 6 or by numerical simulation as defined in BS EN 15026: 2007.

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

IPR – 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 of reliable 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.

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

Certificate Holder – a company that employs one or more *Competent Persons*, has satisfied the *BBA*'s requirements for technical competence and procedural controls, complies with the requirements of this document and is listed on the *BBA* website as such.

Scheme Task Group – a task group, comprising *TIMSA* members, to advise the *BBA* on the *Scheme* development and effectiveness.

Scheme website – a part of the *BBA* website describing this *Scheme*, *Certificate Holders* and their scope of assessed competence and the *Scheme Database*.

TIMSA – the Thermal Insulation Manufacturers and Suppliers Association

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

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:

- walls; external and semi – exposed, basement and dormer cheeks
- floors, ground supported, suspended, semi-exposed, exposed and basements
- roofs, flat, sloping and horizontal insulated ceilings.

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

- | | |
|----------------------------|---------------------------------------|
| • The combined method | BS EN ISO 6946 : 2007 |
| • U value conventions | BRE report BR 443 : 2006 |
| • Floors | BS EN ISO 13370 : 2007 |
| • Steel frames | BRE Digest 465 : 2002 |
| • Metal skin Z walls/roofs | BRE Information Paper IP 10/02 : 2002 |
| • Metal roof/wall cladding | SCI Information Sheet P312 : 2002 |
| • Condensation risk | BS 5250 : 2005, Annex D |
| | BS EN ISO 13788 : 2002, Section 6. |
| | BS EN 15026 : 2007 |

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

- BRE report (BR 443 : 2006)
- BS EN ISO 10456 : 2007
- BS EN 15026 : 2007
- CIBSE Guide A3 2006
- Current *BBA* Certificates
- Manufacturer's declarations against harmonised European Standards or European Technical Approvals.
- The *Scheme Database* .

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

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 this *Scheme* and for the creation and maintenance of all of the necessary records to demonstrate this. The *Certificate Holder* must continue to employ at least one *Competent Person* and is responsible for informing the *BBA* should any *Competent Person* cease to carry out work for it. The *Certificate Holder* is also responsible for ensuring that all *U Value* and *condensation risk* results published under this *Scheme* are correctly identified 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 another individual.

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*. However, the source of such *calculations* must be clearly traceable by use of the *Scheme Logo* and associated identification number.

6 Approval process

Stage 1 Screening

Step	<i>Applicant</i>	<i>BBA</i>
1.1	Advise the <i>BBA</i> of the 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	
1.4		Provide the <i>Applicant</i> with relevant construction details, a minimum of two for each element type and <i>calculation</i> method
1.5	Provide the <i>BBA</i> with the required calculations from 1.4	
1.6		Assess the <i>Applicant's Calculations</i> from 1.5. If satisfactory then proceed to Stage 2. If not, advise the <i>Applicant</i> of the reasons and offer a new contract for any work that requires repeating

Stage 2 Office inspection

Step	<i>Applicant</i>	<i>BBA</i>
2.1		Request 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.
2.2	Supply the details requested in 2.1	
2.3		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> . Raise any issues with the <i>Applicant</i> and request a response

Stage 2 Office inspection (continued)

Step	Applicant	BBA
2.4	Supply a response to points raised (if applicable).	
2.5		Advise <i>Applicant</i> of the outcome. If satisfactory, proceed to Stage 3. If not, advise the <i>Applicant</i> of the reasons and offer a new contract for any work that requires repeating

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 Stage 4. If not, advise the <i>Applicant</i> of the reasons and offer a new contract for any work that requires repeating
3.4		Provide a symbol / logo that can be displayed with <i>Calculations</i> . Supply a Certificate of Competency to the <i>Applicant</i> confirming compliance with this <i>Scheme</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		Revisit the <i>Certificate Holder</i> annually to repeat Step 2.3 and to check all methods, software issue numbers, etc are unchanged. Select samples of <i>Calculations</i> carried out in review period.
4.3		Invoice the <i>Certificate Holder</i> for the cost of the visit.
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

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 will be permitted, under non-exclusive licence, to identify *Calculations* as being carried out under the terms of a competency scheme assessed by a third party, by means of the dedicated *Scheme Logo*. This logo will include 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 competency
- 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.

A disclaimer should appear on any calculation that is outwith the *Scheme*. Wording of the following kind is considered suitable:

This calculation is outside the scope of the BBA/TIMSA Scheme for calculation competency

This disclaimer should appear in a clear and prominent position such that it is clear to a reasonable person that the calculation is not covered by a calculation competency scheme.

The *Certificate Holder* shall keep a record of all such calculations and the reasons for them being outside of the *Scheme*.

11 Complaints/disputes

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

It is not the *Scheme* owner's responsibility to investigate or validate individual *Calculations* carried out under the *Scheme*. However, a reported case of procedural malpractice, when accompanied by documentary written evidence, will be investigated and any necessary action taken under the terms of the *Scheme* as appropriate.

The scale of the action taken will be at the sole discretion of the *BBA* and will be proportionate to both the nature of the perceived malpractice and the context of its occurrence. For example, a single human error made by an individual carrying out hundreds of calculations will be treated differently to deliberate falsification of results, misleading publications or genuine mistakes made on a regular basis.

Possible sanctions include requirements for the withdrawal / correction of incorrect calculations or publications, assessment of additional calculations set by the *BBA* to re-evaluate competence, and suspension or withdrawal of the approval.

Where it is necessary to apply sanctions as described above, 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 7 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 whenever there is a change in the technical requirements of the *Scheme*, the *Competent Person* shall arrange training to instruct staff on the changes and the requirements of this *Scheme* and keep records to demonstrate participation.

13 Scheme management

The *Scheme* is managed by the *BBA*, who will 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* will meet at least annually, although additional meetings will be held in exceptional circumstances, as required.

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*.

Non *TIMSA* members will pay an additional 50% on top of the fees charged to *TIMSA* members for surveillance under the *Scheme*

15 Bibliography

- BS 5250 : 2005 *Code of practice for control of condensation in buildings (Amd 2005)*
- BS EN ISO 6946 : 2007 *Building components and building elements – Thermal resistance and thermal transmittance – Calculation method*
- BS EN ISO 10456 : 2007 *Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values*
- BS EN ISO 13370 : 2007 *Thermal performance of buildings – Heat transfer via the ground – Calculation methods*
- BS EN ISO 13788 : 2002 *Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods*
- BRE report (BR 443 : 2006) *Conventions for U-value calculations*
- BRE Digest 465 : 2002 *U-values for light steel-frame construction*
- BRE Information Paper
IP 10/02 : 2002 *Metal cladding: assessing the thermal performance of built up systems which use 'Z' spacers*
- CIBSE Guide A : 2006 *Environmental design*
- SCI Sheet P312 : 2002 *The Steel Construction Institute. Metal Cladding Information Sheet P312 Metal cladding: U-value calculation*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements. Assessment of moisture transfer by numerical simulation.*