

NOTE This draft revision of PAS 2031 is made available for a second period of review and public comment, following the introduction of significant changes to the proposed surveillance inspection regime as a result of comments submitted to the first review. This second review will remain open until midnight on Friday 13th January 2017 when the draft will be withdrawn pending development of the final draft to reflect the comments and recommendations, received.

PAS 2031: 2017

Certification of energy efficiency measure (EEM) installation in existing buildings

EDITORIAL NOTE

Please note that because this is a draft and not a typeset document, the formatting does not necessarily reflect the final format of PAS 2031:2017

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PAS 2031:2015

PUBLICLY AVAILABLE SPECIFICATION

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Contents

Foreword *i*

Introduction *ii*

1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	General requirements	2
4.1	Certification system	2
4.2	Record keeping	2
5	Evaluation requirements	2
5.1	Initial evaluation	2
5.2	Surveillance evaluation	3
5.3	Evaluation of installation process management	6
5.4	Evaluation of customer service capability	6
6	Non-conformity	7
6.1	Types of non-conformity	7
6.2	Action in the event of non-conformity	7
7	Scope and competency of certification bodies	7
8	Claims of conformity	7
8.1	Installer claims of conformity with PAS 2030	7
8.2	Certification body claims of conformity with PAS 2031	8

List of tables

Table 1 – Table 1: Inspection Rates (*proposed*) **4**

Table 2 – Table 2: Measure tier allocation **4**

NOTE This draft revision of PAS 2031 is made available for a second period of review and public comment, following the introduction of significant changes to the proposed surveillance inspection regime as a result of comments submitted to the first review. This second review will remain open until midnight on Friday 13th January 2017 when the draft will be withdrawn pending development of the final draft to reflect the comments and recommendations, received.

Foreword

The revision of this Publicly Available Specification (PAS) has been facilitated by BSI Standards Limited, and is published under licence from The British Standards Institution. It comes into effect in March 2017.

The revision of this PAS was sponsored by the Department for Business, Energy and Industrial Strategy (BEIS) and undertaken by a group of experts representing:

Editorial note

A list of organizations nominating experts to the Steering Group will be included here at publication, subject to agreement from those organizations.

Comments from other parties were also sought by BSI, particularly through the Peer Group Review and Public Comment process which took place during October 2016. The expert contributions from all the organizations and individuals contributing to the development of this PAS are gratefully acknowledged.

Publishing information

The British Standards Institution retains ownership and copyright of this PAS. BSI Standards Limited as the publisher of the PAS reserves the right to withdraw or amend this PAS on receipt of authoritative advice that it is appropriate to do so. This PAS will be reviewed at intervals not exceeding two years, and any amendments arising from the review will be published as an amended PAS and publicized in Update Standards.

Relationship with other publications

This PAS has been drafted exclusively for use in association with BSI PAS 2030:2017 *Specification for the installation of energy efficiency measures (EEM) in existing buildings – Measure determination, installation commissioning and handover* and is not intended for use in any other connection.

Use of this document

It has been assumed in the preparation of this PAS that the execution of its provisions will be entrusted to a competent person or persons for whose use it has been produced.

This PAS is not to be regarded as a British Standard, European Standard or International Standard. In the event that this PAS is put forward to form the basis of a full British Standard, European Standard or International Standard, it will be withdrawn.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Introduction

This PAS is applicable to certification bodies that are providing, or intending to provide, conformity evaluation services in respect of PAS 2030, *Specification for the installation of energy efficiency measures (EEM) in existing buildings*.

Certification of any product or service is a means of providing assurance that it complies with specified standards and other normative documents. This PAS specifies requirements, the uniform observance of which is intended to demonstrate that certification bodies operate third-party certification systems in respect of the installation of energy efficiency measures, in a consistent and reliable manner.

This will facilitate the recognition nationwide of a good standard of EEM installation, promoting consumer and business interest and confidence in improving the energy efficiency of UK housing stock, and helping to achieve the UK Government's objectives for reductions in both energy consumption and CO2 emissions whilst also ensuring that consumers are protected from poor standards of installation.

The requirements contained in this standard are founded on the general requirements provided by BS EN ISO/IEC 17065, *Conformity assessment- Requirements for bodies certifying products, processes and services*. They have been prepared so as to provide additional, specific criteria for organizations providing evaluation services and operating certification systems in relation to PAS 2030.

Assertion of conformity to PAS 2030 will be in the form of certificates or marks of conformity authorised and issued by the certification body undertaking the validation process.

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1 Scope

This PAS establishes the certification system to be followed by Certification Bodies providing evaluation services in respect of installers of EEM in accordance with PAS 2030.

This PAS is not intended for application by EEM installers although an understanding of its requirements may be useful for installers intending to apply for evaluation.

2 Normative references

The following referenced documents are indispensable for the application of this PAS. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN ISO/IEC 17065, *Conformity assessment- Requirements for bodies certifying products, processes and services*

PAS 2030: 2017, *Specification for the installation of energy efficiency measures (EEM) in existing buildings – Measure determination, installation commissioning and handover.*

3 Terms and definitions

For the purposes of this PAS, the terms defined in BS EN ISO/IEC 17065 and PAS 2030: 2017 together with those provided in this clause, apply.

3.1

audit

systematic, independent, documented process for obtaining records, statements of fact or other relevant information and evaluating them objectively to determine the extent to which specified requirements are fulfilled

NOTE Based on BS EN ISO/IEC 17000 (4.4).

3.2

certification body

entity providing conformity evaluation services

3.3

customer

property owner, landlord and/or tenant of a building at which EEM are being installed

[PAS 2030:2017 3.6]

3.4

evaluation

systematic, independent, documented process involving both audit and inspection for confirming that all specified requirements relating to EEM installation processes undertaken by an installer are fulfilled

3.5

energy efficiency measure (EEM)

planned work undertaken to improve the energy performance of a building by saving or generating energy

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[PAS 2030: 2017 3.11]

3.6

(at location) inspection

examination of pre-installation building inspection and/ or EEM installation activity at the building in which installation is to be, is being or has been, undertaken, either before, during or after its undertaking. This inspection will be at a level of detail sufficient to assess compliance of the installation with the relevant requirements of PAS 2030, and in conjunction with evaluation of the installation process used

3.7

installer

entity undertaking the physical placement of a measure(s) in an existing building

[PAS 2030: 2017 3.12]

4 General requirements

4.1 Certification system

The certification system operated by the certification body shall comply with BS EN ISO/IEC 17065 in relation to the provisions of PAS 2030: 2017.

4.2 Record keeping

The certification body shall maintain a record of:

- a) all installers that it has evaluated for compliance with PAS 2030: 2017 together with the supporting details of those evaluations including:
 - the date on which the installer claimed to be in compliance with PAS 2030:2017; and
 - record of the number and type of installations undertaken, notified by installers to the certification body.
- b) the identity of installers certificated, in a manner that can be made available to potential customers or other interested parties, in accordance with BS EN ISO/IEC 17065 7.8
- c) the identity of any certificated installer in relation to which certification has been suspended or withdrawn, together with the date and reason for that action.

Records of installer evaluations, shall be retained for a minimum of six years and of certification, suspensions or withdrawals for a minimum of 25 years.

5 Evaluation requirements

5.1 Initial evaluation

5.1.1 EEM Installation process evaluation.

The certification body shall confirm that the installer:

- has in place and uses procedures and processes for EEM design validation, pre-installation building inspection, EEM installation, process management and service provision for all measures for which the installer has applied for certification, that comply with the requirements of PAS 2030;
- has in-house capability to ensure the competence of any sub-contractors used and can provide evidence that this is routinely undertaken;

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- is able to demonstrate that competence ratios relevant to the specific measures are routinely complied with by the installer and any sub-contractor; and
- claims of compliance with PAS 2030 are expressed in the terms specified in the relevant declaration in **clause 8** of PAS 2030

This shall be done by audit of installer records and standard procedures, and processes, taking account of the number and scale of installer activities (e.g. number and geographical spread of offices, the number of installation operatives and the range of measure applications).

5.1.2 EEM Installation delivery evaluation

The certification body shall confirm the delivery of the installation through at-location inspection of pre-installation building inspection activity and of installation activity both during and after completion, in relation to each of the measures for which the installer has applied for certification. This can be on the basis of inspection undertaken by the certification body or inspection already undertaken by another certification body accredited to BS EN ISO/IEC 17065 that also meets all or some of the requirements of PAS 2030. In the event that the other inspection used does not meet all of the requirements of PAS 2030, the certification body shall undertake direct inspection of the installer's activity, in respect of the missing requirements

If, at the time of initial evaluation, the installer has not undertaken installations claimed to comply with PAS 2030 for the measures under evaluation, the inspection shall be carried out on analogous work or if suitable example is not available by examination of capability and available competence. Where one or other of these alternatives are applied, the certification body shall require that the installer notify it of the first instance of installation of a relevant measure to PAS 2030 and provide opportunity for retrospective inspection and evaluation.

5.2 Surveillance evaluation

5.2.1 EEM Installation process evaluation

The certification body shall review and evaluate at least annually the installer's recorded pre-installation building inspections and installation processes in relation to each of the measures for which the installer has been certificated, to establish whether or not they comply with the core requirements of PAS 2030 and the relevant measure-specific Annex(es) of PAS 2030.

5.2.2 EEM Installation delivery evaluation

The certification body shall undertake at-location inspection of the installer's pre-installation building inspection activity and of installation activity both during and after completion, in relation to and representative of, the range of measures for which the installer has been certificated, in accordance with the schedule provided in 5.2.3. The choice between inspection during or after installation shall be on the basis of random selection but can be influenced by previous non-conformity or complaint.

If, at the time of inspection, the installer has not undertaken installations claimed to comply with PAS 2030 in respect of any particular measure, since the previous inspection of that measure, the inspection shall be carried out on analogous work or if suitable example is not available, by examination of capability and available competence. Where one or other of these alternatives are applied, the certification body shall require that the installer notify it of the first instance of installation of a relevant measure to PAS 2030 and provide opportunity for retrospective inspection and evaluation.

If the installer still has no PAS 2030 work for a particular measure after a second consecutive certification cycle, the certification body shall consider withdrawal of certification for that measure. Such action shall be considered on a case by case basis and decision to continue certification shall be justified.

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5.2.3 EEM Installation delivery evaluation schedule

5.2.3.1 For newly certified installers and installers being assessed for the first time against PAS 2030:2017, inspection rates in accordance with the standard rate for the relevant measure tier of Table 1, shall be applied to the total of installations undertaken in accordance with PAS 2030 each year, in relation to each of the measures for which the installer has been certificated.

5.2.3.2 After one year without major non-conformities, installers certified to earlier editions of PAS 2030 can be inspected at the reduced inspection rate for the relevant measure tier of Table 1. This reduced rate of inspection can continue until one or more major non-conformities are identified, subject to the restrictions on reduced rate inspection set out in Table 1. Installers achieving their first certification to PAS 2030 against the 2017 edition shall continue at the standard rate for two years after which if no major non-conformities have been identified they can be inspected at the reduced inspection rate for the relevant tier of Table 1. This reduced rate of inspection can continue until one or more major non-conformities are identified, subject to the restrictions on reduced rate inspection set out in Table 1 and in 5.2.3.4

5.2.3.2 In the event that one or more major non-conformities are identified, the installer shall be returned to the standard inspection rate provided for in the relevant measure tier of Table 1 until two years without major non-conformity have again been achieved..

5.2.3.4 The Tier 1 reduced inspection rate requires a minimum of one at location inspection for each EEM measure for which the installer has been certified, in any three year period and once achieved, can continue for as long as major non-conformities are not identified and provided there have been no substantive changes to installer personnel and significant complaints have not been received.

Table 1 – Table 1: Inspection Rates (proposed)

Measure tier (allocated as Table 2)	Standard inspection rate	Reduced inspection rate**
Tier 1	1%	<i>See 5.2.3.4</i>
Tier 2	5%	3%***
Tier 3	10%	5%***

**Reduced inspection shall be applied not before 1 year of standard inspection with not more than 3 minor non-conformities AND with not less than 3 installations inspected at standard rate.

***Reduced inspection shall be conducted on at least 1 installation per year otherwise standard inspection shall be applied.

Table 2 – Table 2: Measure tier allocation

2.1 Category BFM (Building Fabric Measures)				
Measure	Measure type	Measure reference	Current Annex	Inspection tier
Cavity wall insulation including that installed in party walls	As measure	BFM.1	B1	3
Draught proofing	As measure	BFM.2	B2	3
Energy efficient glazing and doors including replacement insulating glass units (IGU)	As measure	BFM.3	B3	1

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External wall insulation	1. Site rendered external wall insulation systems	BFM.4.1	B4	3
	2. Pre-finished external wall insulation systems	BFM.4.2		
Flat roof insulation	As measure	BFM.5	B5	3
Floor Insulation	As measure	BFM.6	B6	3
Hybrid wall insulation	As measure	BFM.7	B7	3
Internal wall insulation	As measure	BFM.8	B8	3
Loft insulation	1. Roll insulation	BFM.9.1	B9	3
	2. Blown insulation	BFM.9.2		
Pitched roof insulation	As measure	BFM.10	B10	3
Solar blind, shutters and shading devices (internal and external)	1. Mechanically operated devices	BFM.11.1	B11	1
	2. Electrically operated devices	BFM.11.2		
Room-in-roof insulation	As measure	BFM 13	B13	3

2.2 Category BSM (Building Service Measures)

Chillers	As measure	BSM.1	C1	1
Condensing boilers, natural gas-fired and liquefied petroleum gas-fired (domestic and non-domestic)	As measure	BSM.2	C2	1
Condensing boilers, oil-fired (domestic and non-domestic)	As measure	BSM.3	C3	1
Flue gas heat recovery devices	Devices for use with gas-fired condensing boilers (domestic scale)	BSM.4	C4	1
Heating system insulation	As measure	BSM.5	C5	1
Heating, hot water system, air conditioning or ventilation system controls and components	1. Heating and hot water system controls (domestic)	BSM.6.1	C6	1
	2. Heating and hot water system controls (non-domestic)	BSM.6.2		
	3. Air conditioning controls	BSM.6.3		
	4. Ventilation controls	BSM.6.4		
	5. Low energy circulator pumps	BSM.6.5		
	6. Low temperature radiators and fan convectors	BSM.6.6		
Hot water systems	1. Domestic hot water systems	BSM.7.1	C7	1
	2. Non-domestic hot water systems	BSM.7.2		
Mechanical ventilation with heat recovery	1. Domestic ventilation systems with heat recovery	BSM.8.1	C8	1
	2. Non-domestic ventilation systems with heat recovery	BSM.8.2		
Radiant heating	Natural gas-fired and liquefied petroleum gas-fired radiant heating systems.	BSM.9	C9	1
Underfloor heating	Hydraulic (wet) systems*	BSM.10	C10	2
Warm-air heating	1. Natural gas-fired and liquefied petroleum gas-fired warm air heating systems	BSM.11.1	C11	1
	2. Oil-fired warm air heating systems	BSM.11.2		

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	<i>Note: Electric warm air heating systems are included under the measure electric storage heaters (see Annex D1</i>			
Water efficient taps and showers	As measure	BSM.12	C12	1

2.3 Category BSE (Building Services Electrical)

Electric storage heaters (including electric warm air heating units that incorporate heat storage)	1. Domestic electric storage heaters	BSE.1.1	D1	1
	2. Non-domestic electric storage heaters	BSE.1.2		
	3. Domestic electric storage heaters with warm air heat distribution	BSE.1.3		
	4. Non-domestic electric storage heaters with warm air heat distribution	BSE.1.4		
Light fittings, lighting systems and lighting system controls	• Domestic	BSE.2.1	D2	1
	• Non-domestic	BSE.2.2		
Variable speed drives for fans and pumps (non-domestic)	As measure	BSE.3	D3	1

5.2.4 Interval between evaluations

Surveillance evaluation of certificated EEM installation processes and deliveries shall be undertaken at not more than 16 +4) months from the date of certification..

5.3 Evaluation of installation process management

The evaluation of installation process management shall be undertaken as part of both initial evaluation and surveillance evaluation and shall include confirmation that

- arrangements are in place and used that ensure that for every EEM installation undertaken, the installer cannot commence the installation of EEM without being in possession of an EEM design (PAS 2030, 4.1) that has been confirmed by the installer in accordance with PAS 2030, 4.2.
- prior to commencement of any installation the installer has prepared a dedicated installation method statement in accordance with PAS 2030, 5.1 and has undertaken a pre-installation building inspection meeting the requirements of PAS 2030 6.2.
- installation, commissioning and handover of installed EEM has been undertaken in accordance with the relevant installation method statement and the relevant installation process elements PAS 2030 5.2 to 5.10
- in undertaking and completing EEM installations the installer has routinely maintained oversight procedures in accordance with the requirements of PAS 2030, 6.1, 6.3 to 6.7 and 6.9.
- installer records of current capability, training and competence for pre-installation building inspection and installation operatives, meet the requirements of PAS 2030, 5.5 including evidence supporting the competence of personnel employed by subcontractors.
- pre-installation building inspection records (6.2.5) and Installation process records, are routinely prepared, maintained and made available as required in PAS 2030, 6.8.

5.4 Evaluation of customer service capability

The evaluation of customer service capability shall be undertaken as part of both initial evaluation and surveillance evaluation and shall include:

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- a) **Complaints procedure**, confirming that the installer has in place and operates, a complaints procedure in accordance with **7.1** of PAS 2030 and that records in respect of complaints are maintained in accordance with **7.2** of PAS 2030.
- b) **Interaction with customers**, confirming that the installer has in place, and operates, procedures to instruct operatives with regard to their responses to customers in accordance with **7.2** of PAS 2030.

6 Non-conformity

6.1 Types of non-conformity

Defined in BE EN ISO/IEC 17021-1: 2015 as *non-fulfilment of a requirement*, a *non-conformity* shall be expressed factually and objectively in language that clearly and concisely identifies the nature and extent of the non-fulfilment and the action necessary for its correction in a manner that is recognisable by other assessors. Statement of the non-compliance shall be uniquely identifiable, related to the clause number of the relevant standard and categorised as one of the following:

- **Observation**: a finding from which there is a possibility of moving towards a non-conformity, if not corrected. This is often followed by a recommendation.
- **Minor Non-Conformity**: either a failure to meet one requirement of a clause of the reference standard or a single observed lapse in following one item of a Company procedure.

Note, with minor non-conformities, the assessor should take steps to ensure that the auditee understands that the non-conformity is minor and that a number of minors could demonstrate a system breakdown and perhaps contribute to a major non-conformity

- **Major Non-Conformity**: the absence or the total breakdown of a system to meet the requirements of a clause of the reference standard, or a number of minor non-conformities listed against one clause can represent systematic breakdown of the requirement and thus be considered a major non-conformity.

6.2 Action in the event of non-conformity

Where installer non-conformities are identified or reports of installation failure are received by the certification body, the certification body shall require the installer to provide evidence of correction, including action taken to prevent reoccurrence, within eight weeks of the evaluation that identified the non-conformance and inform the installer of the implications of non-correction by 12 weeks from the date of the evaluation.

Where a non-conformity is not corrected within 12 weeks of the evaluation date, the certification body may suspend/withdraw the certificate of the installer, subject to appeal or impose additional sanctions which can include the imposition of additional evaluation and/ or inspection .

7 Scope and competency of certification bodies

The certification body shall undertake certification activities of only those PAS 2030-related EEM in relation to which it has been accredited in accordance with BS EN ISO/IEC 17065.

8 Claims of conformity

8.1 Installer claims of conformity with PAS 2030

The certification body shall confirm by observation that for EEM measures within the scope of their accreditation, claims of conformity made by the installer are in accordance with Clause **7** of PAS 2030 and that any related claims accurately represent its competence and capability.

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8.2 Certification body claims of conformity with PAS 2031

Conformity evaluation activities for which conformity with PAS 2031 is claimed shall be identified by the inclusion of reference to this PAS in associated documentation.