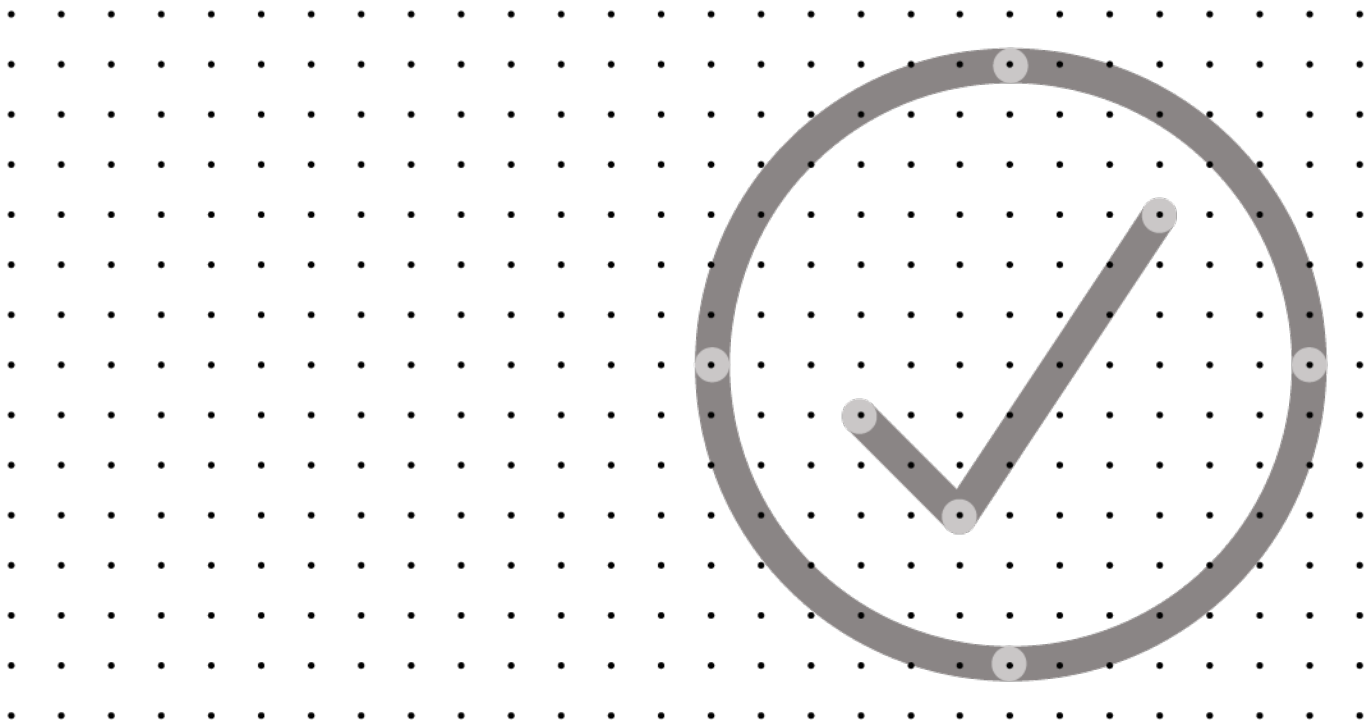


MCS 2025

Biomass: Installation Standard



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It is published by The MCS Service Company Ltd on behalf of The MCS Charitable Foundation.

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ABOUT MCS

MCS: Giving everyone confidence in home-grown energy

With energy costs constantly rising and climate change affecting us all – low-carbon technology has a bigger and bigger role to play in the future of UK energy. MCS is here to ensure it's a positive one.

MCS is the UK's quality mark for small-scale renewable energy technologies like solar PV, solar heating, heat pumps, biomass, and battery storage. We have two main roles – setting and maintaining standards, and providing consumer protection.

Our Standards define how certified renewable energy installations should be designed and installed using MCS certified products. They are a benchmark for quality developed in close consultation with industry through independent technical working groups.

The Standards are owned by The MCS Foundation (a charitable trust), but maintained and developed by MCS.

www.mcscertified.com

CHANGES TO STANDARDS

When MCS Standards are revised, the issue number is also revised to indicate the nature of the changes. This can either be a whole new issue or an amendment to the current issue. Details will be posted on the website at www.mcscertified.com

Technical or other significant changes which affect the requirements for the approval or certification of the product or service will result in a new issue. Minor or administrative changes (e.g. corrections of spelling and typographical errors, changes to address and copyright details, the addition of notes for clarification etc.) may be made as amendments.

The issue number is given on the left of the decimal point, and the amendment number on the right. For example, issue 3.2 indicates that it is the third significant version of the document which has had two sets of minor amendments.

Users of this Standard should ensure that they are using the latest issue.

Amendments issued since publication

Issue No.	Amendment details	Date
1.0	First publication for MCS:2025 1.0	01/01/2025

FOREWORD

Compliance with this Standard is mandatory for MCS Contractors certified to MCS: 2025.

The purpose of this Standard is to specify best practice in achieving high-quality low carbon technology installations. Whilst it is not possible to ensure safety, this Standard provides requirements which should help mitigate potential safety risks associated with the design and installation of this technology.

This document contains references to other documents which may be either normative or informative. At the time of publication any editions of those documents, where indicated, were valid. However, as all documents are subject to revision, any users of this document should apply the most recent editions of those referenced documents (unless a dated version is specified).

NOTE:

This MCS Installation Standard makes use of the terms 'must', 'shall' and 'should' when prescribing certain requirements and procedures. In the context of this document:

- the term 'must' identifies a requirement by law at the time of publication;
- the term 'shall' prescribes a requirement or procedure that is intended to be complied with in full and without deviation;
- the term 'should' prescribes a requirement or procedure that is intended to be complied with unless reasonable justification can be given.

Compliance with this MCS Installation Standard does not in itself confer immunity from legal obligations.

1 PURPOSE & SCOPE

This Standard specifies the requirements for MCS Contractors undertaking the supply, design, installation, set to work and commissioning of microgeneration solid biofuel heating systems, and their fuel supply systems and heating systems supplying permanent buildings.

For wet systems, elements of the building's space heating and/or hot water circuits including design, installation and system performance calculations are included in this Standard.

Multiple MCS certified solid biofuel heating products may be used in a single installation, but the individual output for a single product shall not exceed 45 kWth as defined by the MCS Product Certification Scheme document MCS 008.

All products must meet the requirements of MCS 008. For a summary of product categories see MCS 008.

The Scope of this MCS Installation Standard is limited to installations with a design heat load requirement of up to 70 kWth.

2 DEFINITIONS

Refer to Scheme Rules for general definitions (not specific to Biomass). For technical definitions please see below.

Term	Definition
Solid Biofuel	Solid biofuel as defined in the "BS EN 14961 Solid biofuels – Fuel specifications and classes. Terminology, definitions and descriptions" and excluded from the Waste Incineration Directive.
Solid Biofuel Heating Product	A product, including its fuel supply system, with a heat output up to 45kW, designed to burn only solid renewables biofuels; certified as meeting the requirements of MCS 008.
Wet solid Biofuel Heating System	Boilers complying with MCS 008 designed to operate in the condensing or non-condensing mode for the heating of domestic dwellings and domestic dwellings in commercial premises by the circulation of heated water in open or closed systems. The boiler may also be used to provide domestic hot water.

3 DESIGN & INSTALLATION REQUIREMENTS

3.1 LEGISLATION

3.1.1 All applicable legislation must be met in full.

Note: the legislation which applies may be different in England, Wales, Scotland and Northern Ireland.

3.1.2 The Contractor shall ensure the building is assessed by a competent professional experienced in biomass heating systems to ensure that it is suitable for the installation and, by undertaking the proposed works, the building's compliance with the Building Regulations (in particular those relating to energy efficiency and electrical safety) is not compromised.

3.1.3 Suitable and sufficient risk assessments shall be conducted before any work on site commences.

3.1.4 A Construction Phase Plan in accordance with the Construction (Design and Management) Regulations 2015 shall be drawn up before work on site commences.

3.1.5 Where responsible for notification under the Building Regulations, the MCS Contractor shall ensure that notification has been completed prior to handing over the installation.

Note: Where notification under the Building Regulations is to be undertaken by others (e.g. the developer of a new-build project) then it is permissible for the MCS Contractor to handover the installation immediately following commissioning.

Self-certification, in lieu of building control approval, is only permitted where installation and commissioning is undertaken by a person or organisation deemed competent and registered with a Competent Persons Scheme (CPS) approved by the relevant government department for the scope of work being undertaken. Further details can be found at <http://www.competentperson.co.uk>.

3.2 MANUFACTURER'S INSTRUCTIONS

3.2.1 All equipment should be installed in accordance with its manufacturer's instructions.

3.2.2 Where the manufacturer's instructions conflict with the requirements of this Standard then the requirements of this Standard take precedence unless it can be proven that system performance, safety and durability are no worse than if the requirements of this Standard are followed.

3.3 EQUIPMENT CERTIFICATION AND LISTING

3.3.1 The biomass product(s) specified shall be listed on the MCS website (www.mcscertified.com). These listings include biomass products both MCS certified (against MCS 008) and by other schemes that MCS considers equivalent.

3.3.2 All installed equipment:

- a) Shall be fit for its purpose in the installation
- b) Has completed the conformity assessment process and is appropriately marked by a Notified Body in compliance with the relevant legislation

Note: for example this means the CE mark but could change as the UK leaves the EU.

3.4 DESIGN AND INSTALLATION

3.4.1 A heat loss calculation shall be carried out for every room that is to be heated. Examples of suitable heat loss calculation methods are:

- The current version of SAP for new dwellings. This provides a heat loss coefficient for the whole building in units of W/K, and should be multiplied by a representative temperature difference (external temperature on the design day minus internal temperature);
- The *Domestic Heating Design Guide* published by CIBSE. In the current edition, the design heat loss is calculated as the sum of the heat losses from each room, with final adjustments for exposed locations, high ceilings, etc.;
- The *HHIC Heatloss Calculator & Radiator Selector* published by EES Data Ltd. The design heat loss is calculated as the sum of the heat losses from each room. See: <http://ees-data.co.uk/the-heat-loss-calculator/>
Note: Enquiries can be emailed to calculator@ees-data.co.uk or Tel: 01924200103;
- A method that is compliant with BS EN 12831 (UK National Annex).

3.4.2 If intermittent heating is specified, then a suitable uplift factor shall be applied to the design heat loss used to size the heat generator and the emitters;

Note 1: intermittent heating means that the heating system has the ability to provide all of the space heating requirement on the design day within a period of no more than 16 hours, without use of supplementary heaters. Continuous heating means that the heating system has the ability to provide all the space heating requirement on the design day within a period of no more than 24 hours (but taking more than 16 hours), without use of supplementary heaters.

Note 2: the uplift factor means the ratio between building heat loss used for sizing and the building heat loss calculated for the design day. For example, if an additional allowance of 20% has been included for intermittent heating then the uplift factor is 1.2, and if the building heat loss calculated for the design day was 10kW the building heat loss used for sizing is 12 kW. Normally the same uplift factor would be used for both the heat generator and emitters.

4 COMMISSIONING

4.1 COMMISSIONING

4.1.1 Biomass systems shall be commissioned in accordance with manufacturer's guidance (this might be reviewed as and when new guidance / legal requirements appear). Also, as part of commissioning of a biomass boiler appliance and its system, due regard must be given to the performance of the heating and hot water systems, their operation and control in conjunction with the biomass heating boiler and its controls.

4.1.2 A commissioning check sheet shall verify and record the following variables, by the MCS Contractor or commissioning engineer, as a minimum:

- Address at which the heating system is installed;
- Model and description of the solid biofuel biomass boiler(s) including serial numbers;
- Compliance with building regulations (such as ADJ and ADG);
- A notice plate fitted;
- Adequate ventilation for the appliance;
- A CO alarm fitted (for appliances in dwellings);
- Date on which the system was commissioned;
- Draught reading (including setting of draught stabiliser if used);
- Gas flue analyses including:
 - Carbon monoxide (CO)
 - Carbon dioxide (CO₂)
 - Flue gas temperature
 - Oxygen, (O₂) content
- Pressure relief valve fitted (for un-vented systems);
- Confirmation that controls and system performance of the whole heating and hot water systems has been adjusted to achieve the designed performance.

5 PUBLICATIONS, REFERENCE AND FURTHER READING

The below lists are provided so that Contractors know which documents have been used as a basis for the development of the requirements of this MIS Standard and they are able to further research topics if they need to do so.

- Scheme documents (available from www.mcscertified.com)
 - MCS 008 - Product Certification Scheme Requirements – Biomass
- The MCS Solid Biofuel Wet Heating System Calculator (available from www.mcscertified.com).
- The Compliance Certificate for solid biofuel wet heating systems available from www.mcscertified.com
- Domestic Heating Compliance Guide (available from The Stationery Office or from: http://www.planningportal.gov.uk/uploads/br/domestic_building_compliance_guide_2010.pdf)
- BS EN 14961 Solid Biofuels – Fuel Specifications and Classes (available from: www.bsi-global.com/en/Standards-and-Publications)
- The Government's Standard Assessment Procedure for Energy Rating of Dwellings (available from: www.bre.co.uk)
- Domestic Heating Design Guide - The Chartered Institution of Building Services Engineers (CIBSE) (available from: www.cibse.org)
- BS EN 12831 Heating systems in buildings. Method for calculation of the design heat load