



Factsheet on understanding
BACS requirements

MANUFACTURING BUILDINGS



Introduction

The EU Energy Performance of Buildings Regulations 2021 (S.I. 393 of 2021) requires building owners and/or occupants to install building automation and control systems (BACS) in buildings where the effective rated output of heating, air conditioning and ventilation systems is above 290 kW by 31st December 2024. The Regulations transpose requirements of the European Union Energy Performance of Buildings Amending Directive 2018/844.

What should be completed

The building heating, air-conditioning and ventilation systems should be reviewed to determine the size of the systems. Where the combined systems are larger than 290 kW then a building automation and control system is required to be installed in accordance with the functionality outlined in Paragraphs 1.1.1 and 1.1.2 of the Energy Performance of Buildings Regulations 2021 Technical Guidance, where technically and economically feasible.

Who is required to comply with these requirements?

Organisations who own buildings, where the combined effective rated **output of the heating, air-conditioning and ventilation systems in a building is above a threshold of 290 kW**, should complete an assessment of these systems to determine if the requirements of the regulations apply.



Note: where the heating, air conditioning and ventilation effective rated output of a process load cannot be separated from the load associated with conditioning spaces intended for human occupancy, for example an operating theatre, the full effective rated output should be accounted for in the assessment of the effective rated output.

Benefits of installing BACS

- Better control of energy using equipment leading to greater energy efficiency and more comfortable room conditions;
- Delivery of energy savings from more effective control;
- More effective maintenance;
- Easier fault detection of equipment;
- Enhanced information on energy consumption;
- Improved energy management in the various building spaces.

The process of demonstrating compliance

- 1 Determine if the Regulation applies to the building by assessing the effective rated output of the heating, air-conditioning and ventilation systems.
- 2 If the Regulations apply, assess if a building automation and control system is in place and if the functionality of the system meets the requirements of Paragraphs 1.1.1 and 1.1.2 of the EPB Regulations 2021 Technical Guidance.
- 3 Install the required Building Automation and Control system by 31st December 2024 if it is technically and economically feasible.
- 4 If the installation of the required BACS is deemed not technically or economically feasible, this should be confirmed by a competent professional following an assessment on the technical and economic feasibility of installing a Building Automation and Control system in the building.

The information that is required to complete the assessment is based on the effective rated output of the installed building services related to the heating, air-conditioning and ventilation systems throughout the building. Any process related heating and cooling is excluded from the assessment. The installed capacities can be obtained from system design files, operations manuals or nameplate data obtained from a site survey.

Who is going to check this?

The building control authority is responsible for enforcement of the Regulations. Below are 2 examples set out to assist you with your understanding of the requirements.

The owners of buildings are responsible for ensuring that buildings are in compliance with the requirements of the Building Regulations.

Note: Building Automation and Control systems are generally cost effective to implement (typically, a maximum payback time of 3 years is considered cost effective) and will yield benefits to any building system operator and should be considered as a cost avoidance exercise as opposed to a compliance exercise.



Example 1: Manufacturing facility

A manufacturing facility reviews its heating, air-conditioning and ventilation systems. The cooling system serves both HVAC and process systems. There are challenges associated with the segregation of the cooling energy associated with the building services due to the pipework configuration of the cooling system. The systems are sufficiently large to require compliance with the regulations as follows:

System	Rated capacity	Existing controls
LPHW boiler system	250 kW	BMS controlled
Chilled water system	1,200 kW	BMS controlled
Meeting room AC unit	12 kW	Room AC controls
Production floor ventilation	N/A	N/A
Total	1,462 kW	

The specific installed capacity of the chilled water system, related to the building services, is not known and as such the total installed capacity is to be included in the assessment. The heating, air-conditioning and ventilation systems exceeds the 290 kW and therefore the regulations apply.

In the example the facility already has some BMS controls as noted in the table above. These systems should be assessed against the functionality requirements outlined in Paragraphs 1.1.1 and 1.1.2 of the EPB Regulations 2021 Technical Guidance and upgraded or replaced to meet the full BACS requirements of the Regulations.

Example 2: Manufacturing facility



A manufacturing facility reviews its heating, air-conditioning and ventilation systems. There is ventilation and heating in the building, with an air-conditioned boardroom as follows:

System	Rated capacity	Existing controls
LPHW boiler system	260 kW	BMS controlled
Meeting room AC unit	12 kW	Room AC controls
Production floor ventilation	15 kW supply 10 kW exhaust	Timed controls
Total	297 kW	

The heating, air-conditioning and ventilation systems exceed the 290 kW threshold and therefore the regulations apply.

In the above example the facility already has some BMS controls as noted in the table above. These systems should be assessed against the functionality requirements outlined in Paragraphs 1.1.1 and 1.1.2 of the EPB Regulations 2021 Technical Guidance and upgraded or replaced to meet the full BACS requirements of the Regulations.

FAQs

Q1. The regulations state that the works must be completed by the 31st December 2024, is there a compliance assessment due prior to that date?

No.

Q2. I do not have the data to split the LPHW energy from the process related energy, what do I do?

In this case you take the whole system installed capacity when completing the compliance assessment.

Q3. The site maintenance team have completed a review of the applicable systems and have confirmed that the systems have all of the requirements of the required BACS installed. Is this acceptable?

Yes, as long as the assessment of compliance has been documented and the records are provided to the building owner/organisation for review by Building Control upon request.

Q4. Is process related heating, or cooling, included in the requirements assessment?

The guidance provided in this document for space heating, cooling, lighting and ventilation systems are appropriate for typical conditioned spaces intended for human occupancy.

Where a building has specialist processes, alternative operational procedures or ventilation requirements other than those required for human occupancy, different performance specifications may be appropriate. In this context “specialist processes” can include any activity or operational profile where the resulting need for heating, hot water, ventilation or air conditioning is significantly different to that required for human occupancy.’

Source: Technical Guidance Document L 2021 for Buildings other than Dwellings



For further information:

- Energy Performance of Buildings Regulations 2021 – Technical Guidance
- Statutory Instrument No. 393/2021 – European Union (Energy Performance of Buildings) Regulations 2021
- [Factsheet to assess BACS compliance requirements](#)