



Factsheet on understanding BACS requirements

LEISURE CENTRE OWNERS



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 2025. 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 should 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?

The owners of 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, cooling and ventilation rated output of a process load cannot be separated from the load associated with conditioning spaces intended for human occupancy, for example pool water heating, the full rated output should be accounted for in the assessment of the 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 2025 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.

The owners of buildings are responsible for ensuring that buildings in compliance with the requirements of the Building Regulations. Below are 3 examples set out to assist you with your understanding of the requirements.

Note: Building Automation and Control systems are generally cost effective to implement (typically, a maximum payback time of 10 years for public buildings and 3 years for other buildings) 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: Leisure centre

A leisure centre reviews its heating, air-conditioning and ventilation systems. There is one heating system serving the pool water heating and the pool hall AHU. There is a wet radiator system serving the remainder of the building. The systems are summarised as follows:

System	Rated capacity	Existing controls
Pool LPHW boiler system	850 kW	BMS controlled
Pool hall ventilation	12 kW supply 8 kW exhaust	BMS controlled
Total	870 kW	

The heating, air-conditioning and ventilation systems exceed the 290 kW threshold (as the pool hall heating cannot be segregated from the pool water heating system) and so the regulations apply. In this example the facility already has BMS controls for each system in the table above.

These BMS controls 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: Leisure centre

A leisure centre is located within a hotel complex and is served by a CHP plant which serves two buildings heating needs.

System	Rated capacity	Existing controls
CHP plant	850 kWt	Local control
Back-up LPHW boiler	850 kW	BMS controlled
Pool hall ventilation	25 kW supply 15 kW exhaust	BMS controlled
Total	1,740 kW	

As there is insufficient information to determine the split between the leisure centre and the hotel, all of the thermal energy from both systems will be used for the building and therefore the regulations apply. In this example the facility has BMS controls for some of the systems as outlined in the table above.

These BMS controls 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 incorporating all systems.



Example 3: Leisure centre

A leisure centre reviews its heating, air-conditioning and ventilation systems. There is a dedicated heating system serving the pool water and a dedicated system serving the built environment. The systems are summarised as follows:

System	Rated capacity	Existing controls
Pool water boiler system	750 kW	BMS controlled
Pool hall heating boiler system	100 kW	BMS controlled
Pool hall ventilation	12 kW supply 8 kW exhaust	BMS controlled
Total	870 kW	

The heating, air-conditioning and ventilation systems are less than the 290 kW threshold (the pool water heating system can be excluded as it is a process load) and therefore the regulations do not apply.

FAQ

Q1. What type of controls are required on the heating and ventilation systems?

It is important to note that, regardless of the number or types of systems installed in a building, what matters is that the control systems make it possible for users to adjust temperature settings and effectively control each system zone effectively. The BACS needs to have the functionally requirements outlined in Paragraphs 1.1.1 and 1.1.2 of the EPB Regulations 2021 Technical Guidance.

Q2. The building is operated by a separate company in the form of an ESCO contract. Who is responsible for compliance with the regulations?

The building owner has responsibility for compliance with the regulations and the compliance assessment must take account of all heating, air-conditioning and ventilation systems within the building.

Q3. The leisure centre is associated with a hotel but has separate heating and ventilation systems. Is the regulation applicable to the combined hotel and leisure centre or are they treated separately?

If the leisure centre is attached to the hotel, then it is considered as one building under the building regulations. If they are not adjoined by say a link corridor then the regulations apply to the individual buildings.

Q4. If I have a CHP plant and a back-up boiler how is this addressed in determining if the regulations apply?

The installed capacities of both the CHP plant and the back-up boiler are combined in the assessment to determine if the regulations apply.

Q5. I don't believe it is technically possible to install a BACS, what do I need to do?

Should the building owner decide not to install a building automation and control system a technical and economic feasibility assessment should be completed by an independent competent professional, e.g., a chartered surveyor or a chartered engineer.

Q6. 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