

Factsheet on understanding BACS requirements

LEASED 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 W 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?

The owners and/or occupants 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. Landlord and tenant systems should be assessed individually to determine if these regulations apply.



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 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, including landlord and tenant-controlled systems. The installed capacities can be obtained from system design files, operations manuals or nameplate data obtained from a site survey.

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.

Who is going to check this?

The building control authority is responsible for enforcement of the Regulations.

The owners and/or occupants of buildings are responsible for ensuring that buildings comply with the requirements of the Building Regulations. Below are 4 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: Shopping centre

A shopping centre reviews its heating, air-conditioning and ventilation systems. There is one air-conditioning system serving the communal area and a food court, 25 individual retail units with individual air-conditioning systems, owned and operated by the landlord, along with a separate “back of house” ventilation only system. These systems are summarised as follows:

System	Rated capacity	Existing controls
Communal LPHW boiler system	1,250 kW	#BMS controlled
Chilled water system	900 kW	#BMS controlled
Retail units AC systems	25 * 20 kW	Space AC controls
Back of house ventilation	15 kW supply 10 kW Exhaust	#BMS controlled
Total	2,675 kW	

#Building Management System

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

Should the building owner decide not to install a BACS due to economic or technical reasons, a cost-benefit assessment should be completed by an independent competent professional, e.g., a chartered surveyor or a chartered engineer.





Example 2: Multi-tenant office building

A four-story office complex with different tenants occupying each floor is served by a common ventilation and air-conditioning system as follows:

System	Rated capacity	Existing controls
Air-conditioning system	280 kW	BMS controlled
Canteen AC unit	12 kW	Room AC controls
Ventilation plant	35 kW supply 20 kW exhaust	BMS controlled
Total	347 kW	

The installed capacities of the ventilation and air-conditioning systems exceeds the 290 kW threshold and therefore the regulations apply. In this 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.

Should the building owner decide not to install a BACS due to economic or technical reasons, a cost-benefit assessment should be completed by an independent competent professional, e.g., a chartered surveyor or a chartered engineer.



Example 3: Multi-tenant office building

A three-story office complex with different tenants occupying each floor, has landlord areas served by a common ventilation and air conditioning system. Each tenant has installed their own air conditioning system within their leased space. A summary of the applicable systems is outlined as follows:

System	Rated capacity	Existing controls
Landlord – air-conditioning system	100 kW	BMS controlled
Tenant 1 – air-conditioning system	80 kW	BMS controlled
Tenant 2 – air-conditioning system	50 kW	BMS controlled
Tenant 3 – air-conditioning system	50 kW	BMS controlled
Landlord – ventilation plant	35 kW supply 20 kW exhaust	BMS controlled

The total installed capacity of the landlord ventilation and air-conditioning systems is 155 kW and therefore the regulations do not apply to the landlord. The installed capacities of the tenant heating and air-conditioning systems is 80 kW, 50 kW and 50 kW respectively. None of these systems are greater than the 290 kW threshold therefore the regulations do not apply to any of the tenants.



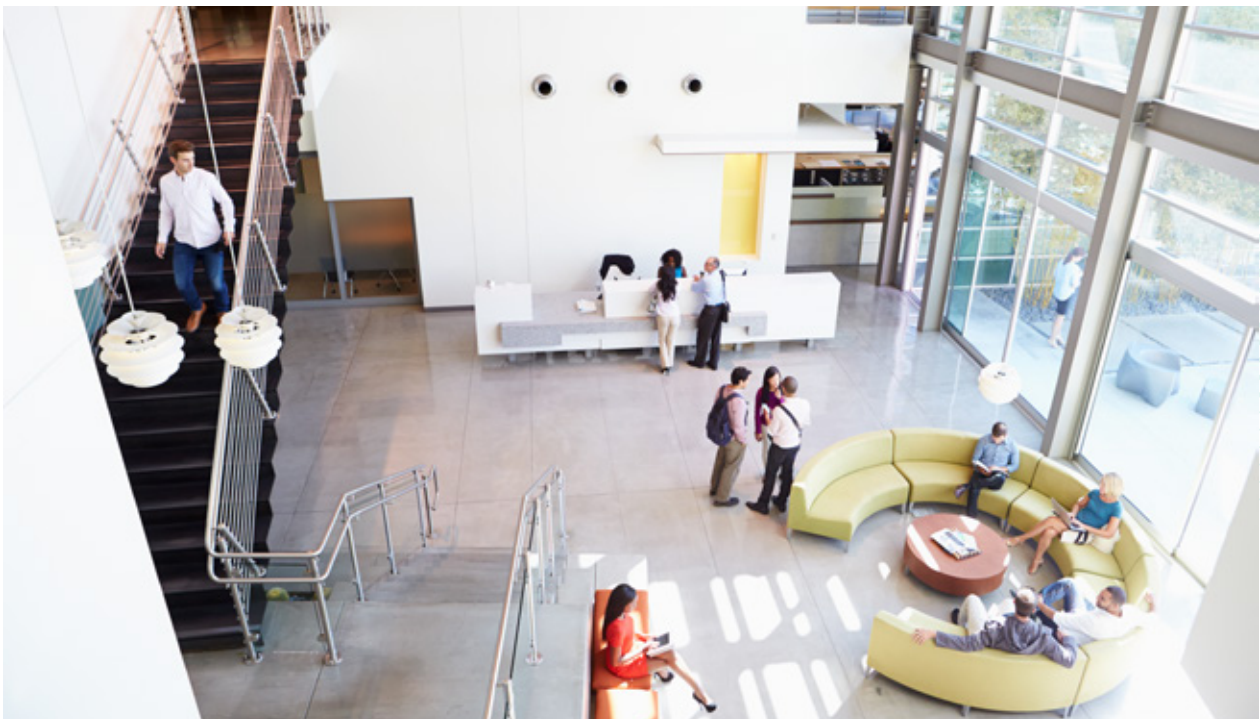
Example 4: Multi-tenant office building

A three-story office complex has common landlord areas and three separate tenants occupying each floor. Each tenant has installed their own air-conditioning system within their leased space. The landlord operates a ventilation and air-conditioning system that serves the building's common spaces. A summary of the applicable systems is outlined below:

System	Rated capacity	Existing controls
Landlord – air-conditioning system	110 kW	BMS controlled
Tenant 1 – air-conditioning system	315 kW	BMS controlled
Tenant 2 – air-conditioning system	300 kW	BMS controlled
Tenant 3 – air-conditioning system	50 kW	BMS controlled
Landlord – ventilation plant	35 kW supply 20 kW exhaust	BMS controlled

The landlord, Tenant 1, Tenant 2 and Tenant 3 assess their individual systems to check if the regulations apply.

- The total installed capacity of the landlord ventilation and air-conditioning systems is 165 kW. This is **less than the 290 kW threshold** and therefore the **regulations do not apply** to the Landlord.
- The total installed capacity of Tenant 1's air-conditioning system is 315 kW. As this is **greater than the 290 kW threshold**, the **regulations apply** to Tenant 1.
- The total installed capacity of Tenant 2's air-conditioning system is 300 kW. As this is **greater than the 290 kW threshold**, the **regulations apply** to Tenant 2.
- The installed capacity of Tenant 3's air-conditioning system is 50 kW. This is **less than the 290 kW threshold** and therefore the **regulations do not apply** to Tenant 3.



FAQs

Q1. Do the regulations apply to the building owner or the tenant?

The responsibility for compliance with the regulations applies to the building owner or the tenant. If tenant areas are fitted out by the tenant and not the landlord, each tenancy would need to assess their respective systems separately.

Q2. Does the landlord need to supply tenants with the energy associated with their operations?

Where a landlord controls the building services, the tenancy should be informed of the energy consumption associated with their heating, air-conditioning and ventilation systems.

Q3. If individual air-conditioning units are controlled in their respective rooms, i.e. not centrally controlled, does this comply with the requirements?

No, the individual systems need to be networked back to a BACS to comply with the Regulations.

Q4. The facilities management team have completed a review of the applicable systems and have confirmed that the systems are adequately monitored and controlled on the BMS. Is this acceptable?

The BMS referred to must have the BACS functionality requirements outlined in Paragraphs 1.1.1 and 1.1.2 of the EPB Regulations 2021 Technical Guidance.

Q5. 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](#)