



Rialtas na hÉireann
Government of Ireland

Energy Performance of Buildings Regulations 2021

Technical Guidance

(Energy Performance of Buildings Directive
Articles 8(3), 14(4) and 15(4) – Electric Vehicle
Recharging Points and Building Automation
and Control)

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INTRODUCTION

This document has been published by the Minister for Housing, Local Government and Heritage, under section 3 of the European Communities Act 1972 (No. 27 of 1972).

It provides guidance in relation to the application of the European Union (Energy Performance of Buildings) Regulations 2021 (S.I. No. 393 of 2021). The guidance in this document applies to existing buildings other than dwellings, which are not undergoing any works and are subject to the requirements of Articles 8(3), 14(4) and 15(4) of the European Union Energy Performance of Buildings Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010.

The European Union (Energy Performance of Buildings) Regulations 2021 (and this document) partly transpose Articles 8, 14 and 15 (inserted by Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018) of Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010, on the energy performance of buildings.

The Guidance

The materials, methods of construction, standards and other specifications (including technical specifications) that are referred to in this document are those which are likely to be suitable for these European Union (Energy Performance of Buildings) Regulations. Where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with the European Union (Energy Performance of Buildings) Regulations 2021. However, the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with. Those involved in the design and construction of a building may be required by the relevant building control authority to provide such evidence as is necessary to establish that the requirements of the Regulations are being complied with.

Definitions

Air-conditioning system: means a combination of the components required to provide a form of indoor air treatment, by which temperature is controlled or can be lowered.

Boiler: means the combined boiler body-burner unit, designed to transmit to fluids the heat released from burning.

Building Automation and Control System: means a system comprising all products, software and engineering services that can support energy efficient, economical and safe operation of technical building systems through automatic controls and by facilitating the manual management of those technical building systems.

Effective rated output: means the maximum calorific output, expressed in kW, specified and guaranteed by the manufacturer as being deliverable during continuous operation while complying with the useful efficiency indicated by the manufacturer.

Heating System: means a combination of the components required to provide a form of indoor air treatment, by which the temperature is increased.

Section 1

Building Automation and Control Systems

The European Union (Energy Performance of Buildings) Regulations 2021 (S.I. No. 393 of 2021), insofar as it relates to works relating to buildings other than dwellings, provides as follows:

Regulation 5(c)

An existing building (other than a dwelling) shall, before 31 December 2025, where technically and economically feasible, be equipped with a building automation and control system if:

- (i) the effective rated output for heating systems or systems for combined space heating and ventilation in the building is over 290kW; or
- (ii) the effective rated output for systems for air-conditioning or systems for combined air-conditioning and ventilation in the building is over 290kW.

1.1 APPLICATION OF THE REGULATIONS

1.1.1 For buildings with heating systems or systems for combined space heating and ventilation with an effective rated output of over 290 kW a building automation and control system should be installed, where technically and economically feasible, with the following functions:

- a) continuously monitoring, logging, analysing and allowing for adjusting energy use;
- b) benchmarking the building's energy efficiency, detecting losses in efficiency of technical building systems, and informing the person responsible for the facilities or technical building management about opportunities for energy efficiency improvement; and
- c) allowing communication with connected technical building systems and other appliances inside the building, and being interoperable with technical building systems across different types of proprietary technologies, devices and manufacturers.

1.1.2 For buildings with systems for air-conditioning or systems for combined air-conditioning and ventilation with an effective rated output of over 290 kW a building automation and control system should be installed, where technically and economically feasible, with the following functions:

- a) continuously monitoring, logging, analysing and allowing for adjusting energy use;
- b) benchmarking the building's energy efficiency, detecting losses in efficiency of technical building systems, and informing the person responsible for the facilities

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or technical building management about opportunities for energy efficiency improvement; and

- c) allowing communication with connected technical building systems and other appliances inside the building, and being interoperable with technical building systems across different types of proprietary technologies, devices and manufacturers.

1.1.3 The 290 kW threshold applies to each system individually, i.e. the obligations apply in all of the following cases:

- a) when the effective rated output of the heating system is above 290 kW;
- b) when the effective rated output of the combined heating and ventilation system is above 290 kW;
- c) when the effective rated output of the air-conditioning system is above 290 kW;
or
- d) when the effective rated output of the combined air-conditioning and ventilation system is above 290 kW.

1.1.4 Where combined systems are in place, the effective rated output should reflect the capacity of the combination of systems.

1.1.5 Usually, a system will comprise more than one unit that operates jointly. In this case, the effective rated output corresponds to the sum of the effective rated outputs of the individual units.

1.1.6 The notion of combined heating and ventilation systems should be understood as including the following categories:

- a) Type1: Ventilation systems connected to the heating/ cooling systems. These are systems where the ventilation system is composed of one or more air handling units (AHUs) delivering treated air to the conditioned space(s) and where these AHUs are connected to one or more heat generators or cooling generators/ chillers in order to treat the air. Examples of this type of system: boiler/ chiller + AHU + terminal units (fan coils/ fan convertors/ radiators) or boiler/chiller + variable air volume system;

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- b) Type 2: Ventilation systems coordinated with the heating/ cooling systems. These are systems where there are one or several air handling units delivering treated air to the conditioned space(s). The ventilation system is connected to an independent heat/ cooling source (e.g. dedicated boiler/ chiller or heat pump) or uses an internal heat source (e.g. electrical resistance). Space is heated mostly by a system that uses a different heat source. Even though the heating and ventilation systems do not share heat sources, they operate in an integrated and coordinated way (e.g., in terms of schedules, flow temperatures or flow rates). Examples of this type of system: rooftop units (variable refrigerant volume or variable refrigerant flow) + AHUs;
- c) Type 3: Ventilation systems independent from the heating/ cooling systems. These are systems where the ventilation system is completely independent from the heating/ cooling both in terms of heating/ cooling source and operation. Examples of this type of system: extract-only systems, supply and extract systems (without pre-heating).

1.1.7 It is normally considered technically and economically feasible to install a building automation and control system for the heating, air-conditioning and/or ventilation systems as provided for in paragraph 1.1.3. Paragraph 1.1.8 provides guidance on how to carry out an economic feasibility assessment.

Additional situations where it is typically considered technically and economically feasible to install a building automation and control system where the heating, air-conditioning system and/or ventilation system is greater than 290kW include when:

- a) a heat generator and a heating system are being replaced;
- b) a heating system is being replaced;
- c) a combined heating and ventilation system is being replaced;
- d) an air-conditioning system is being replaced;
- e) a combined air-conditioning and ventilation system is being replaced.

In all of the above cases the technical characteristics of the existing system and the building (or building unit) should make it possible to install a building automation and control system.

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- 1.1.8** Where it is considered that it is not economically feasible to install a building automation and control system a cost-benefit assessment should be completed by an independent competent professional, e.g. a chartered surveyor or a chartered engineer. This assessment should be based on the expected energy cost savings generated by the building automation and control system and a comparison of the upfront and running costs of installing the building automation and control system, over the system's lifetime. CIBSE Guide H – Building Control Systems provides guidance on Cost Benefit Analysis under Section 8.7.

Alternatively, a simple payback method can be used taking into account the length of time to recover the initial investment from the benefits produced by that investment (excluding interest rates) from the time the building automation and control system is operational. This should be completed by an independent competent professional, e.g. a chartered surveyor or a chartered engineer. This will be based on average annual energy fuel bills over the preceding three years and expected energy savings of the installed building automation and control system in operation. Typically, a maximum payback time of 10 years for public buildings and 3 years for other buildings (hotels, offices, etc.) is considered economically feasible.

The assessments outlined above should be retained by the building owner.

- 1.1.9** It may not be technically feasible to install a building automation and control system when the system's technical characteristics prevent the requirements from being applied, i.e. in buildings that are equipped with old systems, e.g. historical or protected structures with protected services and should rarely arise.

It is normally considered economically feasible to install a building automation and control system in the buildings specified in Paragraph 1.1.7 above.

Section 2

Electric Vehicle Recharging Infrastructure

The European Union (Energy Performance of Buildings) Regulations 2021 (S.I. No. 393 of 2021), insofar as it relates to works relating to buildings other than dwellings, provides as follows:

Regulation 5(d)

In respect of an existing building (other than a dwelling) with more than 20 car parking spaces, there shall be installed, before 1 January 2025, one, or more, recharging points.

2.1 APPLICATION OF THE REGULATIONS

2.1.1 For buildings, where there are more than twenty car parking spaces, at least one recharging point within the meaning of Directive 2014/94/EU of the European Parliament and of the Council should be installed where:

- (a) the car park is located inside the building; or
- (b) the car park is physically adjacent to the building.

2.1.2 Where an electric vehicle recharging point is installed, the guidance below should be followed:

- (a) the recharging point should be installed in accordance with the general wiring rules and safety requirements as outlined in the National Rules for Electrical Installations I.S. 10101:2020, e.g. guidance for isolation, earthing, etc.;
- (b) the recharging point should be commissioned by competent persons so that at completion, it is left in the intended working order;
- (c) the associated parking bay should be clearly marked and consist of the words 'Electric Vehicle Charging' or 'EV Charging' written on the roadway in letters at least 350mm in height and in accordance with the visual contrast guidance provided in Section 1.6.4 of TGD M 2010. Where this is an accessible parking bay the access symbol as outlined in Diagram 8 and Diagram 9 of TGD M 2010 should also be marked on the parking bay;
- (d) consideration should be given to the location of recharging points and associated charging cables, to be outside of access routes and the recharging point clear space, to avoid hazards associated with tripping and obstruction of these routes and spaces.

2.1.3 Where only 1 recharging point is provided in a car park with accessible spaces this should be located so that it can be used either from a standard car parking bay or from an accessible car parking bay. Where this is not possible then 2 recharging points should be provided, one of which should serve the existing accessible car parking bay.

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- 2.1.4** Where an existing building is located within the curtilage of a campus with multiple buildings, and car parking is shared between buildings, any car parking spaces associated with the existing building must meet the minimum recharging infrastructure provisions as outlined above.

Standards and Publications

Publications Referred To:

CIBSE Guide H: Building Control Systems; CIBSE 2009 2nd Edition

Other useful Standards and Publications:

Commission Recommendation (EU) 2019/1019 of 7 June 2019 on building modernisation

I.S. EN 15232-1:2017 Energy Performance of Buildings – Energy performance of buildings - Part 1: Impact of Building Automation, Controls and Building Management – Modules M10-4,5,6,7,8,9,10

European Building Automation and Controls Association (EU.BAC): Building Automation and Control System (BACS) Compliance Verification Checklist

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