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►B DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 19 May 2010

on the energy performance of buildings

(recast)

(OJ L 153, 18.6.2010, p. 13)

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DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 19 May 2010

on the energy performance of buildings

(recast)

Article 1

Subject matter

1. This Directive promotes the improvement of the energy performance of buildings within the Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness.

2. This Directive lays down requirements as regards:

(a) the common general framework for a methodology for calculating the integrated energy performance of buildings and building units;

(b) the application of minimum requirements to the energy performance of new buildings and new building units;

(c) the application of minimum requirements to the energy performance of:

(i) existing buildings, building units and building elements that are subject to major renovation;

(ii) building elements that form part of the building envelope and that have a significant impact on the energy performance of the building envelope when they are retrofitted or replaced; and

(iii) technical building systems whenever they are installed, replaced or upgraded;

(d) national plans for increasing the number of nearly zero-energy buildings;

(e) energy certification of buildings or building units;

(f) regular inspection of heating and air-conditioning systems in buildings; and

(g) independent control systems for energy performance certificates and inspection reports.

3. The requirements laid down in this Directive are minimum requirements and shall not prevent any Member State from maintaining or introducing more stringent measures. Such measures shall be compatible with the Treaty on the Functioning of the European Union. They shall be notified to the Commission.

Article 2

Definitions

For the purpose of this Directive, the following definitions shall apply:

1. ‘building’ means a roofed construction having walls, for which energy is used to condition the indoor climate;

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2. ‘nearly zero-energy building’ means a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby;

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3. ‘technical building system’ means technical equipment for space heating, space cooling, ventilation, domestic hot water, built-in lighting, building automation and control, on-site electricity generation, or a combination thereof, including those systems using energy from renewable sources, of a building or building unit;

3a. ‘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;

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4. ‘energy performance of a building’ means the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting;

5. ‘primary energy’ means energy from renewable and non-renewable sources which has not undergone any conversion or transformation process;

6. ‘energy from renewable sources’ means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases;

7. ‘building envelope’ means the integrated elements of a building which separate its interior from the outdoor environment;

8. ‘building unit’ means a section, floor or apartment within a building which is designed or altered to be used separately;

9. ‘building element’ means a technical building system or an element of the building envelope;

10. ‘major renovation’ means the renovation of a building where:

(a) the total cost of the renovation relating to the building envelope or the technical building systems is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated; or

(b) more than 25 % of the surface of the building envelope undergoes renovation;

Member States may choose to apply option (a) or (b).

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11. ‘European standard’ means a standard adopted by the European Committee for Standardisation, the European Committee for Electrotechnical Standardisation or the European Telecommunications Standards Institute and made available for public use;

12. ‘energy performance certificate’ means a certificate recognised by a Member State or by a legal person designated by it, which indicates the energy performance of a building or building unit, calculated according to a methodology adopted in accordance with Article 3;

13. ‘cogeneration’ means simultaneous generation in one process of thermal energy and electrical and/or mechanical energy;

14. ‘cost-optimal level’ means the energy performance level which leads to the lowest cost during the estimated economic lifecycle, where:

    (a) the lowest cost is determined taking into account energy-related investment costs, maintenance and operating costs (including energy costs and savings, the category of building concerned, earnings from energy produced), where applicable, and disposal costs, where applicable; and

    (b) the estimated economic lifecycle is determined by each Member State. It refers to the remaining estimated economic lifecycle of a building where energy performance requirements are set for the building as a whole, or to the estimated economic lifecycle of a building element where energy performance requirements are set for building elements.

    The cost-optimal level shall lie within the range of performance levels where the cost benefit analysis calculated over the estimated economic lifecycle is positive;

15. ‘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;

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15a. ‘heating system’ means a combination of the components required to provide a form of indoor air treatment, by which the temperature is increased;

15b. ‘heat generator’ means the part of a heating system that generates useful heat using one or more of the following processes:

    (a) the combustion of fuels in, for example, a boiler;

    (b) the Joule effect, taking place in the heating elements of an electric resistance heating system;

    (c) capturing heat from ambient air, ventilation exhaust air, or a water or ground heat source using a heat pump;

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15c. ‘energy performance contracting’ means energy performance contracting as defined in point (27) of Article 2 of Directive 2012/27/EU of the European Parliament and of the Council ([1]);

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16. ‘boiler’ means the combined boiler body-burner unit, designed to transmit to fluids the heat released from burning;

17. ‘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;

18. ‘heat pump’ means a machine, a device or installation that transfers heat from natural surroundings such as air, water or ground to buildings or industrial applications by reversing the natural flow of heat such that it flows from a lower to a higher temperature. For reversible heat pumps, it may also move heat from the building to the natural surroundings;

19. ‘district heating’ or ‘district cooling’ means the distribution of thermal energy in the form of steam, hot water or chilled liquids, from a central source of production through a network to multiple buildings or sites, for the use of space or process heating or cooling;

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20. ‘micro isolated system’ means micro isolated system as defined in point 27 of Article 2 of Directive 2009/72/EC of the European Parliament and of the Council ([2]).

Article 2a

Long-term renovation strategy

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1. Each Member State shall establish a long-term renovation strategy to support the renovation of the national stock of residential and non-residential buildings, both public and private, into a highly energy efficient and decarbonised building stock by 2050, facilitating the cost-effective transformation of existing buildings into nearly zero-energy buildings. Each long-term renovation strategy shall encompass:

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(a) an overview of the national building stock, based, as appropriate, on statistical sampling and expected share of renovated buildings in 2020;

([1]) Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (OJ L 315, 14.11.2012, p. 1).

([2]) Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC (OJ L 211, 14.8.2009, p. 55).

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(b) the identification of cost-effective approaches to renovation relevant to the building type and climatic zone, considering potential relevant trigger points, where applicable, in the life-cycle of the building;

(c) policies and actions to stimulate cost-effective deep renovation of buildings, including staged deep renovation, and to support targeted cost-effective measures and renovation for example by introducing an optional scheme for building renovation passports;

(d) an overview of policies and actions to target the worst performing segments of the national building stock, split-incentive dilemmas and market failures, and an outline of relevant national actions that contribute to the alleviation of energy poverty;

(e) policies and actions to target all public buildings;

(f) an overview of national initiatives to promote smart technologies and well-connected buildings and communities, as well as skills and education in the construction and energy efficiency sectors; and

(g) an evidence-based estimate of expected energy savings and wider benefits, such as those related to health, safety and air quality.

2. In its long-term renovation strategy, each Member State shall set out a roadmap with measures and domestically established measurable progress indicators, with a view to the long-term 2050 goal of reducing greenhouse gas emissions in the Union by 80-95 % compared to 1990, in order to ensure a highly energy efficient and decarbonised national building stock and in order to facilitate the cost-effective transformation of existing buildings into nearly zero-energy buildings. The roadmap shall include indicative milestones for 2030, 2040 and 2050, and specify how they contribute to achieving the Union's energy efficiency targets in accordance with Directive 2012/27/EU.

3. To support the mobilisation of investments into the renovation needed to achieve the goals referred to in paragraph 1, Member States shall facilitate access to appropriate mechanisms for:

(a) the aggregation of projects, including by investment platforms or groups, and by consortia of small and medium-sized enterprises, to enable investor access as well as packaged solutions for potential clients;

(b) the reduction of the perceived risk of energy efficiency operations for investors and the private sector;

(c) the use of public funding to leverage additional private-sector investment or address specific market failures;

(d) guiding investments into an energy efficient public building stock, in line with Eurostat guidance; and

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(e) accessible and transparent advisory tools, such as one-stop-shops for consumers and energy advisory services, on relevant energy efficiency renovations and financing instruments.

4. The Commission shall collect and disseminate, at least to public authorities, best practices on successful public and private financing schemes for energy efficiency renovation as well as information on schemes for the aggregation of small-scale energy efficiency renovation projects. The Commission shall identify and disseminate best practices on financial incentives to renovate from a consumer perspective taking into account cost-efficiency differences between Member States.

5. To support the development of its long-term renovation strategy, each Member State shall carry out a public consultation on its long-term renovation strategy prior to submitting it to the Commission. Each Member State shall annex a summary of the results of its public consultation to its long-term renovation strategy.

Each Member State shall establish the modalities for consultation in an inclusive way during the implementation of its long-term renovation strategy.

6. Each Member State shall annex the details of the implementation of its most recent long-term renovation strategy to its long-term renovation strategy, including on the planned policies and actions.

7. Each Member State may use its long-term renovation strategy to address fire safety and risks related to intense seismic activity affecting energy efficiency renovations and the lifetime of buildings.

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8. Each Member State's long-term renovation strategy shall be submitted to the Commission as part of its final integrated national energy and climate plan referred to in Article 3 of Regulation (EU) 2018/1999 of the European Parliament and of the Council ([1]). As a derogation from Article 3(1) of that Regulation, the first long-term renovation strategy under paragraph 1 of this Article shall be submitted to the Commission by 10 March 2020.

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Article 3

Adoption of a methodology for calculating the energy performance of buildings

Member States shall apply a methodology for calculating the energy performance of buildings in accordance with the common general framework set out in Annex I.

This methodology shall be adopted at national or regional level.

([1]) Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1).

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Article 4

Setting of minimum energy performance requirements

1. Member States shall take the necessary measures to ensure that minimum energy performance requirements for buildings or building units are set with a view to achieving cost-optimal levels. The energy performance shall be calculated in accordance with the methodology referred to in Article 3. Cost-optimal levels shall be calculated in accordance with the comparative methodology framework referred to in Article 5 once the framework is in place.

Member States shall take the necessary measures to ensure that minimum energy performance requirements are set for building elements that form part of the building envelope and that have a significant impact on the energy performance of the building envelope when they are replaced or retrofitted, with a view to achieving cost-optimal levels.

When setting requirements, Member States may differentiate between new and existing buildings and between different categories of buildings.

These requirements shall take account of general indoor climate conditions, in order to avoid possible negative effects such as inadequate ventilation, as well as local conditions and the designated function and the age of the building.

A Member State shall not be required to set minimum energy performance requirements which are not cost-effective over the estimated economic lifecycle.

Minimum energy performance requirements shall be reviewed at regular intervals which shall not be longer than five years and, if necessary, shall be updated in order to reflect technical progress in the building sector.

2. Member States may decide not to set or apply the requirements referred to in paragraph 1 to the following categories of buildings:

(a) buildings officially protected as part of a designated environment or because of their special architectural or historical merit, in so far as compliance with certain minimum energy performance requirements would unacceptably alter their character or appearance;

(b) buildings used as places of worship and for religious activities;

(c) temporary buildings with a time of use of two years or less, industrial sites, workshops and non-residential agricultural buildings with low energy demand and non-residential agricultural buildings which are in use by a sector covered by a national sectoral agreement on energy performance;

(d) residential buildings which are used or intended to be used for either less than four months of the year or, alternatively, for a limited annual time of use and with an expected energy consumption of less than 25 % of what would be the result of all-year use;

(e) stand-alone buildings with a total useful floor area of less than 50 m^2.

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Article 5

Calculation of cost-optimal levels of minimum energy performance requirements

1. The Commission shall establish by means of delegated acts in accordance with Articles 23, 24 and 25 by 30 June 2011 a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements.

The comparative methodology framework shall be established in accordance with Annex III and shall differentiate between new and existing buildings and between different categories of buildings.

2. Member States shall calculate cost-optimal levels of minimum energy performance requirements using the comparative methodology framework established in accordance with paragraph 1 and relevant parameters, such as climatic conditions and the practical accessibility of energy infrastructure, and compare the results of this calculation with the minimum energy performance requirements in force.

Member States shall report to the Commission all input data and assumptions used for those calculations and the results of those calculations. ►M2 ——————— ◄ Member States shall submit those reports to the Commission at regular intervals, which shall not be longer than five years. The first report shall be submitted by 30 June 2012.

3. If the result of the comparison performed in accordance with paragraph 2 shows that the minimum energy performance requirements in force are significantly less energy efficient than cost-optimal levels of minimum energy performance requirements, the Member State concerned shall justify this difference in writing to the Commission in the report referred to in paragraph 2, accompanied, to the extent that the gap cannot be justified, by a plan outlining appropriate steps to significantly reduce the gap by the next review of the energy performance requirements as referred to in Article 4(1).

4. The Commission shall publish a report on the progress of the Member States in reaching cost-optimal levels of minimum energy performance requirements.

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Article 6

New buildings

1. Member States shall take the necessary measures to ensure that new buildings meet the minimum energy performance requirements laid down in accordance with Article 4.

2. Member States shall ensure that, before construction of new buildings starts, the technical, environmental and economic feasibility of high-efficiency alternative systems, if available, is taken into account.

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Article 7

Existing buildings

Member States shall take the necessary measures to ensure that when buildings undergo major renovation, the energy performance of the building or the renovated part thereof is upgraded in order to meet

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minimum energy performance requirements set in accordance with Article 4 in so far as this is technically, functionally and economically feasible.

Those requirements shall be applied to the renovated building or building unit as a whole. Additionally or alternatively, requirements may be applied to the renovated building elements.

Member States shall in addition take the necessary measures to ensure that when a building element that forms part of the building envelope and has a significant impact on the energy performance of the building envelope, is retrofitted or replaced, the energy performance of the building element meets minimum energy performance requirements in so far as this is technically, functionally and economically feasible.

Member States shall determine these minimum energy performance requirements in accordance with Article 4.

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Member States shall encourage, in relation to buildings undergoing major renovation, high-efficiency alternative systems, in so far as this is technically, functionally and economically feasible, and shall address the issues of healthy indoor climate conditions, fire safety and risks related to intense seismic activity.

Article 8

Technical building systems, electromobility and smart readiness indicator

1. Member States shall, for the purpose of optimising the energy use of technical building systems, set system requirements in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems which are installed in existing buildings. Member States may also apply these system requirements to new buildings.

System requirements shall be set for new, replacement and upgrading of technical building systems and shall be applied in so far as they are technically, economically and functionally feasible.

Member States shall require new buildings, where technically and economically feasible, to be equipped with self-regulating devices for the separate regulation of the temperature in each room or, where justified, in a designated heated zone of the building unit. In existing buildings, the installation of such self-regulating devices shall be required when heat generators are replaced, where technically and economically feasible.

2. With regard to new non-residential buildings and non-residential buildings undergoing major renovation, with more than ten parking spaces, Member States shall ensure the installation of at least one recharging point within the meaning of Directive 2014/94/EU of the European Parliament and of the Council [1] and ducting infrastructure, namely conduits for electric cables, for at least one in every five parking spaces to enable the installation at a later stage of recharging points for electric vehicles where:

[1] Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure (OJ L 307, 28.10.2014, p. 1).

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(a) the car park is located inside the building, and, for major renovations, renovation measures include the car park or the electrical infrastructure of the building; or

(b) the car park is physically adjacent to the building, and, for major renovations, renovation measures include the car park or the electrical infrastructure of the car park.

The Commission shall report to the European Parliament and the Council by 1 January 2023 on the potential contribution of a Union building policy to the promotion of electromobility and shall, if appropriate, propose measures in that regard.

3. Member States shall lay down requirements for the installation of a minimum number of recharging points for all non-residential buildings with more than twenty parking spaces, by 1 January 2025.

4. Member States may decide not to lay down or apply the requirements referred to in paragraphs 2 and 3 to buildings owned and occupied by small and medium-sized enterprises as defined in Title I of the Annex to Commission Recommendation 2003/361/EC ([1]).

5. With regard to new residential buildings and residential buildings undergoing major renovation, with more than ten parking spaces, Member States shall ensure the installation of ducting infrastructure, namely conduits for electric cables, for every parking space to enable the installation, at a later stage, of recharging points for electric vehicles, where:

(a) the car park is located inside the building, and, for major renovations, renovation measures include the car park or the electric infrastructure of the building; or

(b) the car park is physically adjacent to the building, and, for major renovations, renovation measures include the car park or the electrical infrastructure of the car park.

6. Member States may decide not to apply paragraphs 2, 3 and 5 to specific categories of buildings where:

(a) with regard to paragraphs 2 and 5, building permit applications or equivalent applications have been submitted by 10 March 2021;

(b) the ducting infrastructure required would rely on micro isolated systems or the buildings are situated in the outermost regions within the meaning of Article 349 TFEU, if this would lead to substantial problems for the operation of the local energy system and would endanger the stability of the local grid;

(c) the cost of the recharging and ducting installations exceeds 7 % of the total cost of the major renovation of the building;

([1]) Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (OJ L 124, 20.5.2003, p. 36).

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(d) a public building is already covered by comparable requirements according to the transposition of Directive 2014/94/EU.

7. Member States shall provide for measures in order to simplify the deployment of recharging points in new and existing residential and non-residential buildings and address possible regulatory barriers, including permitting and approval procedures, without prejudice to the property and tenancy law of the Member States.

8. Member States shall consider the need for coherent policies for buildings, soft and green mobility and urban planning.

9. Member States shall ensure that, when a technical building system is installed, replaced or upgraded, the overall energy performance of the altered part, and where relevant, of the complete altered system, is assessed. The results shall be documented and passed on to the building owner, so that they remain available and can be used for the verification of compliance with the minimum requirements laid down pursuant to paragraph 1 of this Article and the issue of energy performance certificates. Without prejudice to Article 12, Member States shall decide whether to require the issuing of a new energy performance certificate.

10. The Commission shall, by 31 December 2019, adopt a delegated act in accordance with Article 23, supplementing this Directive by establishing an optional common Union scheme for rating the smart readiness of buildings. The rating shall be based on an assessment of the capabilities of a building or building unit to adapt its operation to the needs of the occupant and the grid and to improve its energy efficiency and overall performance.

In accordance with Annex Ia, the optional common Union scheme for rating the smart readiness of buildings shall:

(a) establish the definition of the smart readiness indicator; and

(b) establish a methodology by which it is to be calculated.

11. The Commission shall, by 31 December 2019, and after having consulted the relevant stakeholders, adopt an implementing act detailing the technical modalities for the effective implementation of the scheme referred to in paragraph 10 of this Article, including a timeline for a non-committal test-phase at national level, and clarifying the complementary relation of the scheme to the energy performance certificates referred to in Article 11.

That implementing act shall be adopted in accordance with the examination procedure referred to in Article 26(3).

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Article 9

Nearly zero-energy buildings

1. Member States shall ensure that:

(a) by 31 December 2020, all new buildings are nearly zero-energy buildings; and

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(b) after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings.

Member States shall draw up national plans for increasing the number of nearly zero-energy buildings. These national plans may include targets differentiated according to the category of building.

2. Member States shall furthermore, following the leading example of the public sector, develop policies and take measures such as the setting of targets in order to stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings, and inform the Commission thereof in their national plans referred to in paragraph 1.

3. The national plans shall include, inter alia, the following elements:

(a) the Member State's detailed application in practice of the definition of nearly zero-energy buildings, reflecting their national, regional or local conditions, and including a numerical indicator of primary energy use expressed in kWh/m^2 per year. Primary energy factors used for the determination of the primary energy use may be based on national or regional yearly average values and may take into account relevant European standards;

(b) intermediate targets for improving the energy performance of new buildings, by 2015, with a view to preparing the implementation of paragraph 1;

(c) information on the policies and financial or other measures adopted in the context of paragraphs 1 and 2 for the promotion of nearly zero-energy buildings, including details of national requirements and measures concerning the use of energy from renewable sources in new buildings and existing buildings undergoing major renovation in the context of Article 13(4) of Directive 2009/28/EC and Articles 6 and 7 of this Directive.

4. The Commission shall evaluate the national plans referred to in paragraph 1, notably the adequacy of the measures envisaged by the Member State in relation to the objectives of this Directive. The Commission, taking due account of the principle of subsidiarity, may request further specific information regarding the requirements set out in paragraphs 1, 2 and 3. In that case, the Member State concerned shall submit the requested information or propose amendments within nine months following the request from the Commission. Following its evaluation, the Commission may issue a recommendation.

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5. As part of its State of the Energy Union report referred to in Article 35 of Regulation (EU) 2018/1999, the Commission shall report every four years to the European Parliament and to the Council on the progress of Member States in increasing the number of nearly zero-energy buildings. On the basis of this reported information the Commission shall, where necessary, develop an action plan and propose recommendations and measures in accordance with Article 34 of Regulation (EU) 2018/1999 to increase the number of those buildings and encourage best practices as regards the cost-effective transformation of existing buildings into nearly zero-energy buildings.

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6. Member States may decide not to apply the requirements set out in points (a) and (b) of paragraph 1 in specific and justifiable cases where the cost-benefit analysis over the economic lifecycle of the building in question is negative. Member States shall inform the Commission of the principles of the relevant legislative regimes.

Article 10

Financial incentives and market barriers

1. In view of the importance of providing appropriate financing and other instruments to catalyse the energy performance of buildings and the transition to nearly zero-energy buildings, Member States shall take appropriate steps to consider the most relevant such instruments in the light of national circumstances.

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4. The Commission shall, where appropriate, assist upon request Member States in setting up national or regional financial support programmes with the aim of increasing energy efficiency in buildings, especially of existing buildings, by supporting the exchange of best practice between the responsible national or regional authorities or bodies.

5. In order to improve financing in support of the implementation of this Directive and taking due account of the principle of subsidiarity, the Commission shall, preferably by 2011, present an analysis on, in particular:

(a) the effectiveness, the appropriateness of the level, and the actual amount used, of structural funds and framework programmes that were used for increasing energy efficiency in buildings, especially in housing;

(b) the effectiveness of the use of funds from the EIB and other public finance institutions;

(c) the coordination of Union and national funding and other forms of support that can act as a leverage for stimulating investments in energy efficiency and the adequacy of such funds for achieving Union objectives.

On the basis of that analysis, and in accordance with the multiannual financial framework, the Commission may subsequently submit, if it considers this appropriate, proposals with respect to Union instruments to the European Parliament and the Council.

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6. Member States shall link their financial measures for energy efficiency improvements in the renovation of buildings to the targeted or achieved energy savings, as determined by one or more of the following criteria:

(a) the energy performance of the equipment or material used for the renovation; in which case, the equipment or material used for the renovation is to be installed by an installer with the relevant level of certification or qualification;

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(b) standard values for calculation of energy savings in buildings;

(c) the improvement achieved due to such renovation by comparing energy performance certificates issued before and after renovation;

(d) the results of an energy audit;

(e) the results of another relevant, transparent and proportionate method that shows the improvement in energy performance.

6a. Databases for energy performance certificates shall allow data to be gathered on the measured or calculated energy consumption of the buildings covered, including at least public buildings for which an energy performance certificate, as referred to in Article 13, has been issued in accordance with Article 12.

6b. At least aggregated anonymised data compliant with Union and national data protection requirements shall be made available on request for statistical and research purposes and to the building owner.

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7. The provisions of this Directive shall not prevent Member States from providing incentives for new buildings, renovations or building elements which go beyond the cost-optimal levels.

Article 11

Energy performance certificates

1. Member States shall lay down the necessary measures to establish a system of certification of the energy performance of buildings. The energy performance certificate shall include the energy performance of a building and reference values such as minimum energy performance requirements in order to make it possible for owners or tenants of the building or building unit to compare and assess its energy performance.

The energy performance certificate may include additional information such as the annual energy consumption for non-residential buildings and the percentage of energy from renewable sources in the total energy consumption.

2. The energy performance certificate shall include recommendations for the cost-optimal or cost-effective improvement of the energy performance of a building or building unit, unless there is no reasonable potential for such improvement compared to the energy performance requirements in force.

The recommendations included in the energy performance certificate shall cover:

(a) measures carried out in connection with a major renovation of the building envelope or technical building system(s); and

(b) measures for individual building elements independent of a major renovation of the building envelope or technical building system(s).

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3. The recommendations included in the energy performance certificate shall be technically feasible for the specific building and may provide an estimate for the range of payback periods or cost-benefits over its economic lifecycle.

4. The energy performance certificate shall provide an indication as to where the owner or tenant can receive more detailed information, including as regards the cost-effectiveness of the recommendations made in the energy performance certificate. The evaluation of cost effectiveness shall be based on a set of standard conditions, such as the assessment of energy savings and underlying energy prices and a preliminary cost forecast. In addition, it shall contain information on the steps to be taken to implement the recommendations. Other information on related topics, such as energy audits or incentives of a financial or other nature and financing possibilities may also be provided to the owner or tenant.

5. Subject to national rules, Member States shall encourage public authorities to take into account the leading role which they should play in the field of energy performance of buildings, inter alia, by implementing the recommendations included in the energy performance certificate issued for buildings owned by them within its validity period.

6. Certification for building units may be based:

(a) on a common certification of the whole building; or

(b) on the assessment of another representative building unit with the same energy-relevant characteristics in the same building.

7. Certification for single-family houses may be based on the assessment of another representative building of similar design and size with a similar actual energy performance quality if such correspondence can be guaranteed by the expert issuing the energy performance certificate.

8. The validity of the energy performance certificate shall not exceed 10 years.

9. The Commission shall, by 2011, in consultation with the relevant sectors, adopt a voluntary common European Union certification scheme for the energy performance of non-residential buildings. That measure shall be adopted in accordance with the advisory procedure referred to in Article 26(2). Member States are encouraged to recognise or use the scheme, or use part thereof by adapting it to national circumstances.

Article 12

Issue of energy performance certificates

1. Member States shall ensure that an energy performance certificate is issued for:

(a) buildings or building units which are constructed, sold or rented out to a new tenant; and

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(b) buildings where a total useful floor area over 500 m^2 is occupied by a public authority and frequently visited by the public. On 9 July 2015, this threshold of 500 m^2 shall be lowered to 250 m^2.

The requirement to issue an energy performance certificate does not apply where a certificate, issued in accordance with either Directive 2002/91/EC or this Directive, for the building or building unit concerned is available and valid.

2. Member States shall require that, when buildings or building units are constructed, sold or rented out, the energy performance certificate or a copy thereof is shown to the prospective new tenant or buyer and handed over to the buyer or new tenant.

3. Where a building is sold or rented out in advance of construction, Member States may require the seller to provide an assessment of its future energy performance, as a derogation from paragraphs 1 and 2; in this case, the energy performance certificate shall be issued at the latest once the building has been constructed.

4. Member States shall require that when:

— buildings having an energy performance certificate,

— building units in a building having an energy performance certificate, and

— building units having an energy performance certificate,

are offered for sale or for rent, the energy performance indicator of the energy performance certificate of the building or the building unit, as applicable, is stated in the advertisements in commercial media.

5. The provisions of this Article shall be implemented in accordance with applicable national rules on joint ownership or common property.

6. Member States may exclude the categories of buildings referred to in Article 4(2) from the application of paragraphs 1, 2, 4 and 5 of this Article.

7. The possible effects of energy performance certificates in terms of legal proceedings, if any, shall be decided in accordance with national rules.

Article 13

Display of energy performance certificates

1. Member States shall take measures to ensure that where a total useful floor area over 500 m^2 of a building for which an energy performance certificate has been issued in accordance with Article 12(1) is occupied by public authorities and frequently visited by the public, the energy performance certificate is displayed in a prominent place clearly visible to the public.

On 9 July 2015, this threshold of 500 m^2 shall be lowered to 250 m^2.

▼B

2. Member States shall require that where a total useful floor area over 500 m^2 of a building for which an energy performance certificate has been issued in accordance with Article 12(1) is frequently visited by the public, the energy performance certificate is displayed in a prominent place clearly visible to the public.

3. The provisions of this Article do not include an obligation to display the recommendations included in the energy performance certificate.

▼M1

Article 14

Inspection of heating systems

1. Member States shall lay down the necessary measures to establish regular inspections of the accessible parts of heating systems or of systems for combined space heating and ventilation, with an effective rated output of over 70 kW, such as the heat generator, control system and circulation pump(s) used for heating buildings. The inspection shall include an assessment of the efficiency and sizing of the heat generator compared with the heating requirements of the building and, where relevant, consider the capabilities of the heating system or of the system for combined space heating and ventilation to optimise its performance under typical or average operating conditions.

Where no changes have been made to the heating system or to the system for combined space heating and ventilation or to the heating requirements of the building following an inspection carried out pursuant to this paragraph, Member States may choose not to require the assessment of the heat generator sizing to be repeated.

2. Technical building systems that are explicitly covered by an agreed energy performance criterion or a contractual arrangement specifying an agreed level of energy efficiency improvement, such as energy performance contracting, or that are operated by a utility or network operator and therefore subject to performance monitoring measures on the system side, shall be exempt from the requirements laid down in paragraph 1, provided that the overall impact of such an approach is equivalent to that resulting from paragraph 1.

3. As an alternative to paragraph 1 and provided that the overall impact is equivalent to that resulting from paragraph 1, Member States may opt to take measures to ensure the provision of advice to users concerning the replacement of heat generators, other modifications to the heating system or to the system for combined space heating and ventilation and alternative solutions to assess the efficiency and appropriate size of those systems.

Before applying the alternative measures referred to in the first subparagraph of this paragraph, each Member State shall, by means of submitting a report to the Commission, document the equivalence of the impact of those measures to the impact of the measures referred to in paragraph 1.

▼M2

Such a report shall be submitted to the Commission as part of the Member States' integrated national energy and climate plans referred to in Article 3 of Regulation (EU) 2018/1999.

▼M1

4. Member States shall lay down requirements to ensure that, where technically and economically feasible, non-residential buildings with an effective rated output for heating systems or systems for combined space heating and ventilation of over 290 kW are equipped with building automation and control systems by 2025.

The building automation and control systems shall be capable of:

(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.

5. Member States may lay down requirements to ensure that residential buildings are equipped with:

(a) the functionality of continuous electronic monitoring that measures systems' efficiency and informs building owners or managers when it has fallen significantly and when system servicing is necessary; and

(b) effective control functionalities to ensure optimum generation, distribution, storage and use of energy.

6. Buildings that comply with paragraph 4 or 5 shall be exempt from the requirements laid down in paragraph 1.

Article 15

Inspection of air-conditioning systems

1. Member States shall lay down the necessary measures to establish regular inspections of the accessible parts of air-conditioning systems or of systems for combined air-conditioning and ventilation, with an effective rated output of over 70 kW. The inspection shall include an assessment of the efficiency and sizing of the air-conditioning system compared with the cooling requirements of the building and, where relevant, consider the capabilities of the air-conditioning system or of the system for combined air-conditioning and ventilation to optimise its performance under typical or average operating conditions.

Where no changes have been made to the air-conditioning system or to the system for combined air-conditioning and ventilation or to the cooling requirements of the building following an inspection carried out pursuant to this paragraph, Member States may choose not to require the assessment of the sizing of the air-conditioning system to be repeated.

▼M1

Member States that maintain more stringent requirements pursuant to Article 1(3) shall be exempt from the obligation to notify them to the Commission.

2. Technical building systems that are explicitly covered by an agreed energy performance criterion or a contractual arrangement specifying an agreed level of energy efficiency improvement, such as energy performance contracting, or that are operated by a utility or network operator and therefore subject to performance monitoring measures on the system side, shall be exempt from the requirements laid down in paragraph 1, provided that the overall impact of such an approach is equivalent to that resulting from paragraph 1.

3. As an alternative to paragraph 1 and provided that the overall impact is equivalent to that resulting from paragraph 1, Member States may opt to take measures to ensure the provision of advice to users concerning the replacement of air-conditioning systems or systems for combined air-conditioning and ventilation, other modifications to the air-conditioning system or system for combined air-conditioning and ventilation and alternative solutions to assess the efficiency and appropriate size of those systems.

Before applying the alternative measures referred to in the first subparagraph of this paragraph, each Member State shall, by means of submitting a report to the Commission, document the equivalence of the impact of those measures to the impact of the measures referred to in paragraph 1.

▼M2

Such a report shall be submitted to the Commission as part of the Member States' integrated national energy and climate plans referred to in Article 3 of Regulation (EU) 2018/1999.

▼M1

4. Member States shall lay down requirements to ensure that, where technically and economically feasible, non-residential buildings with an effective rated output for systems for air-conditioning or systems for combined air-conditioning and ventilation of over 290 kW are equipped with building automation and control systems by 2025.

The building automation and control systems shall be capable of:

(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.

▼M1

5. Member States may lay down requirements to ensure that residential buildings are equipped with:

(a) the functionality of continuous electronic monitoring that measures systems' efficiency and informs building owners or managers when it has fallen significantly and when system servicing is necessary, and

(b) effective control functionalities to ensure optimum generation, distribution, storage and use of energy.

6. Buildings that comply with paragraph 4 or 5 shall be exempt from the requirements laid down in paragraph 1.

▼B

Article 16

Reports on the inspection of heating and air-conditioning systems

1. An inspection report shall be issued after each inspection of a heating or air-conditioning system. The inspection report shall contain the result of the inspection performed in accordance with Article 14 or 15 and include recommendations for the cost-effective improvement of the energy performance of the inspected system.

The recommendations may be based on a comparison of the energy performance of the system inspected with that of the best available feasible system and a system of similar type for which all relevant components achieve the level of energy performance required by the applicable legislation.

2. The inspection report shall be handed over to the owner or tenant of the building.

Article 17

Independent experts

Member States shall ensure that the energy performance certification of buildings and the inspection of heating systems and air-conditioning systems are carried out in an independent manner by qualified and/or accredited experts, whether operating in a self-employed capacity or employed by public bodies or private enterprises.

Experts shall be accredited taking into account their competence.

Member States shall make available to the public information on training and accreditations. Member States shall ensure that either regularly updated lists of qualified and/or accredited experts or regularly updated lists of accredited companies which offer the services of such experts are made available to the public.

▼B

Article 18

Independent control system

1. Member States shall ensure that independent control systems for energy performance certificates and reports on the inspection of heating and air-conditioning systems are established in accordance with Annex II. Member States may establish separate systems for the control of energy performance certificates and for the control of reports on the inspection of heating and air-conditioning systems.

2. The Member States may delegate the responsibilities for implementing the independent control systems.

Where the Member States decide to do so, they shall ensure that the independent control systems are implemented in compliance with Annex II.

3. Member States shall require the energy performance certificates and the inspection reports referred to in paragraph 1 to be made available to the competent authorities or bodies on request.

▼M1

Article 19

Review

The Commission, assisted by the Committee established by Article 26, shall review this Directive by 1 January 2026 at the latest, in the light of the experience gained and progress made during its application, and, if necessary, make proposals.

As part of that review, the Commission shall examine in what manner Member States could apply integrated district or neighbourhood approaches in Union building and energy efficiency policy, while ensuring that each building meets the minimum energy performance requirements, for example by means of overall renovation schemes applying to a number of buildings in a spatial context instead of a single building.

The Commission shall, in particular, assess the need for further improvement of energy performance certificates in accordance with Article 11.

Article 19a

Feasibility study

The Commission shall, before 2020, conclude a feasibility study, clarifying the possibilities and timeline to introduce the inspection of stand-alone ventilation systems and an optional building renovation passport that is complementary to the energy performance certificates, in order to provide a long-term, step-by-step renovation roadmap for a specific building based on quality criteria, following an energy audit, and outlining relevant measures and renovations that could improve the energy performance.

▼B

Article 20

Information

1. Member States shall take the necessary measures to inform the owners or tenants of buildings or building units of the different methods and practices that serve to enhance energy performance.

▼M1

2. Member States shall in particular provide information to the owners or tenants of buildings on energy performance certificates, including their purpose and objectives, on cost-effective measures and, where appropriate, financial instruments, to improve the energy performance of the building, and on replacing fossil fuel boilers with more sustainable alternatives. Member States shall provide the information through accessible and transparent advisory tools such as renovation advice and one-stop-shops.

▼B

At the request of the Member States, the Commission shall assist Member States in staging information campaigns for the purposes of paragraph 1 and the first subparagraph of this paragraph, which may be dealt with in Union programmes.

3. Member States shall ensure that guidance and training are made available for those responsible for implementing this Directive. Such guidance and training shall address the importance of improving energy performance, and shall enable consideration of the optimal combination of improvements in energy efficiency, use of energy from renewable sources and use of district heating and cooling when planning, designing, building and renovating industrial or residential areas.

4. The Commission is invited to continuously improve its information services, in particular the website that has been set up as a European portal for energy efficiency in buildings directed towards citizens, professionals and authorities, in order to assist Member States in their information and awareness-raising efforts. Information displayed on this website might include links to relevant European Union and national, regional and local legislation, links to Europa websites that display the National Energy Efficiency Action Plans, links to available financial instruments, as well as best practice examples at national, regional and local level. In the context of the European Regional Development Fund, the Commission shall continue and further intensify its information services with the aim of facilitating the use of available funds by providing assistance and information to interested stakeholders, including national, regional and local authorities, on funding possibilities, taking into account the latest changes in the regulatory framework.

Article 21

Consultation

In order to facilitate the effective implementation of the Directive, Member States shall consult the stakeholders involved, including local and regional authorities, in accordance with the national legislation applicable and as relevant. Such consultation is of particular importance for the application of Articles 9 and 20.

▼B

Article 22

Adaptation of Annex I to technical progress

The Commission shall adapt points 3 and 4 of Annex I to technical progress by means of delegated acts in accordance with Articles 23, 24 and 25.

▼M1

Article 23

Exercise of the delegation

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.

2. The power to adopt delegated acts referred to in Articles 5, 8 and 22 shall be conferred on the Commission for a period of five years from 9 July 2018. The Commission shall draw up a report in respect of the delegation of power not later than nine months before the end of the five-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension not later than three months before the end of each period.

3. The delegation of power referred to in Articles 5, 8 and 22 may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.

4. Before adopting a delegated act, the Commission shall consult experts designated by each Member State in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making.

5. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.

6. A delegated act adopted pursuant to Article 5, 8 or 22 shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

Article 26

Committee procedure

1. The Commission shall be assisted by a committee. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.

▼M1

2. Where reference is made to this paragraph, Article 4 of Regulation (EU) No 182/2011 shall apply.

3. Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

▼B

Article 27

Penalties

Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. Member States shall communicate those provisions to the Commission by 9 January 2013 at the latest and shall notify it without delay of any subsequent amendment affecting them.

Article 28

Transposition

1. Member States shall adopt and publish, by 9 July 2012 at the latest, the laws, regulations and administrative provisions necessary to comply with Articles 2 to 18, and with Articles 20 and 27.

They shall apply those provisions as far as Articles 2, 3, 9, 11, 12, 13, 17, 18, 20 and 27 are concerned, from 9 January 2013 at the latest.

They shall apply those provisions as far as Articles 4, 5, 6, 7, 8, 14, 15 and 16 are concerned, to buildings occupied by the public authorities from 9 January 2013 at the latest and to other buildings from 9 July 2013 at the latest.

They may defer the application of Article 12(1) and (2) to single building units that are rented out, until 31 December 2015. This shall however not result in fewer certificates being issued than would have been the case under the application of the Directive 2002/91/EC in the Member State concerned.

When Member States adopt measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. They shall also include a statement that references in existing laws, regulations and administrative provisions to Directive 2002/91/EC shall be construed as references to this Directive. Member States shall determine how such reference is to be made and how that statement is to be formulated.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 29

Repeal

Directive 2002/91/EC, as amended by the Regulation indicated in Annex IV, Part A, is hereby repealed with effect from 1 February 2012, without prejudice to the obligations of the Member States relating to the time limit for transposition into national law and application of the Directive set out in Annex IV, Part B.

▼B

References to Directive 2002/91/EC shall be construed as references to this Directive and shall be read in accordance with the correlation table in Annex V.

Article 30

Entry into force

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

Article 31

Addressees

This Directive is addressed to the Member States.

▼B

ANNEX I

Common general framework for the calculation of energy performance of buildings

(referred to in Article 3)

▼M1

1. The energy performance of a building shall be determined on the basis of calculated or actual energy use and shall reflect typical energy use for space heating, space cooling, domestic hot water, ventilation, built-in lighting and other technical building systems.

   The energy performance of a building shall be expressed by a numeric indicator of primary energy use in kWh/(m^2.y) for the purpose of both energy performance certification and compliance with minimum energy performance requirements. The methodology applied for the determination of the energy performance of a building shall be transparent and open to innovation.

   Member States shall describe their national calculation methodology following the national annexes of the overarching standards, namely ISO 52000-1, 52003-1, 52010-1, 52016-1, and 52018-1, developed under mandate M/480 given to the European Committee for Standardisation (CEN). This provision shall not constitute a legal codification of those standards.

2. The energy needs for space heating, space cooling, domestic hot water, ventilation, lighting and other technical building systems shall be calculated in order to optimise health, indoor air quality and comfort levels defined by Member States at national or regional level.

   The calculation of primary energy shall be based on primary energy factors or weighting factors per energy carrier, which may be based on national, regional or local annual, and possibly also seasonal or monthly, weighted averages or on more specific information made available for individual district system.

   Primary energy factors or weighting factors shall be defined by Member States. In the application of those factors to the calculation of energy performance, Member States shall ensure that the optimal energy performance of the building envelope is pursued.

   In the calculation of the primary energy factors for the purpose of calculating the energy performance of buildings, Member States may take into account renewable energy sources supplied through the energy carrier and renewable energy sources that are generated and used on-site, provided that it applies on a non-discriminatory basis.

2a. For the purpose of expressing the energy performance of a building, Member States may define additional numeric indicators of total, non-renewable and renewable primary energy use, and of greenhouse gas emission produced in kgCO_2eq/(m^2.y).

▼B

3. The methodology shall be laid down taking into consideration at least the following aspects:

   (a) the following actual thermal characteristics of the building including its internal partitions:

      (i) thermal capacity;

      (ii) insulation;

      (iii) passive heating;

      (iv) cooling elements; and

      (v) thermal bridges;

▼B

(b) heating installation and hot water supply, including their insulation characteristics;

(c) air-conditioning installations;

(d) natural and mechanical ventilation which may include air-tightness;

(e) built-in lighting installation (mainly in the non-residential sector);

(f) the design, positioning and orientation of the building, including outdoor climate;

(g) passive solar systems and solar protection;

(h) indoor climatic conditions, including the designed indoor climate;

(i) internal loads.

▼M1

4. The positive influence of the following aspects shall be taken into account:

▼B

(a) local solar exposure conditions, active solar systems and other heating and electricity systems based on energy from renewable sources;

(b) electricity produced by cogeneration;

(c) district or block heating and cooling systems;

(d) natural lighting.

5. For the purpose of the calculation buildings should be adequately classified into the following categories:

(a) single-family houses of different types;

(b) apartment blocks;

(c) offices;

(d) educational buildings;

(e) hospitals;

(f) hotels and restaurants;

(g) sports facilities;

(h) wholesale and retail trade services buildings;

(i) other types of energy-consuming buildings.

▼M1

ANNEX IA

COMMON GENERAL FRAMEWORK FOR RATING THE SMART READINESS OF BUILDINGS

1. The Commission shall establish the definition of the smart readiness indicator and a methodology by which it is to be calculated, in order to assess the capabilities of a building or building unit to adapt its operation to the needs of the occupant and of the grid and to improve its energy efficiency and overall performance.

   The smart readiness indicator shall cover features for enhanced energy savings, benchmarking and flexibility, enhanced functionalities and capabilities resulting from more interconnected and intelligent devices.

   The methodology shall take into account features such as smart meters, building automation and control systems, self-regulating devices for the regulation of indoor air temperature, built-in home appliances, recharging points for electric vehicles, energy storage and detailed functionalities and the interoperability of those features, as well as benefits for the indoor climate condition, energy efficiency, performance levels and enabled flexibility.

2. The methodology shall rely on three key functionalities relating to the building and its technical building systems:

   (a) the ability to maintain energy performance and operation of the building through the adaptation of energy consumption for example through use of energy from renewable sources;

   (b) the ability to adapt its operation mode in response to the needs of the occupant while paying due attention to the availability of user-friendliness, maintaining healthy indoor climate conditions and the ability to report on energy use; and

   (c) the flexibility of a building's overall electricity demand, including its ability to enable participation in active and passive as well as implicit and explicit demand response, in relation to the grid, for example through flexibility and load shifting capacities.

3. The methodology may further take into account:

   (a) the interoperability between systems (smart meters, building automation and control systems, built-in home appliances, self-regulating devices for the regulation of indoor air temperature within the building and indoor air quality sensors and ventilations); and

   (b) the positive influence of existing communication networks, in particular the existence of high-speed-ready in-building physical infrastructure, such as the voluntary 'broadband ready' label, and the existence of an access point for multi-dwelling buildings, in accordance with Article 8 of Directive 2014/61/EU of the European Parliament and of the Council [1].

4. The methodology shall not negatively affect existing national energy performance certification schemes and shall build on related initiatives at national level, while taking into account the principle of occupant ownership, data protection, privacy and security, in compliance with relevant Union data protection and privacy law as well as best available techniques for cyber security.

[1] Directive 2014/61/EU of the European Parliament and of the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks (OJ L 155, 23.5.2014, p. 1).

▼**M1**

5. The methodology shall set out the most appropriate format of the smart readiness indicator parameter and shall be simple, transparent, and easily understandable for consumers, owners, investors and demand-response market participants.

▼B

ANNEX II

Independent control systems for energy performance certificates and inspection reports

1. ►M1 The competent authorities or bodies to which the competent authorities have delegated the responsibility for implementing the independent control system shall make a random selection of all the energy performance certificates issued annually and subject them to verification. The sample shall be of a sufficient size to ensure statistically significant compliance results. ◄

   The verification shall be based on the options indicated below or on equivalent measures:

   (a) validity check of the input data of the building used to issue the energy performance certificate and the results stated in the certificate;

   (b) check of the input data and verification of the results of the energy performance certificate, including the recommendations made;

   (c) full check of the input data of the building used to issue the energy performance certificate, full verification of the results stated in the certificate, including the recommendations made, and on-site visit of the building, if possible, to check correspondence between specifications given in the energy performance certificate and the building certified.

2. The competent authorities or bodies to which the competent authorities have delegated the responsibility for implementing the independent control system shall make a random selection of at least a statistically significant percentage of all the inspection reports issued annually and subject those reports to verification.

▼M1

3. Where information is added to a database it shall be possible for national authorities to identify the originator of the addition, for monitoring and verification purposes.

▼B

ANNEX III

Comparative methodology framework to identify cost-optimal levels of energy performance requirements for buildings and building elements

The comparative methodology framework shall enable Member States to determine the energy performance of buildings and building elements and the economic aspects of measures relating to the energy performance, and to link them with a view to identifying the cost-optimal level.

The comparative methodology framework shall be accompanied by guidelines outlining how to apply this framework in the calculation of cost-optimal performance levels.

The comparative methodology framework shall allow for taking into account use patterns, outdoor climate conditions, investment costs, building category, maintenance and operating costs (including energy costs and savings), earnings from energy produced, where applicable, and disposal costs, where applicable. It should be based on relevant European standards relating to this Directive.

The Commission shall also provide:

— guidelines to accompany the comparative methodology framework; these guidelines will serve to enable the Member States to undertake the steps listed below,

— information on estimated long-term energy price developments.

For the application of the comparative methodology framework by Member States, general conditions, expressed by parameters, shall be laid down at Member State level.

The comparative methodology framework shall require Member States to:

— define reference buildings that are characterised by and representative of their functionality and geographic location, including indoor and outdoor climate conditions. The reference buildings shall cover residential and non-residential buildings, both new and existing ones,

— define energy efficiency measures to be assessed for the reference buildings. These may be measures for individual buildings as a whole, for individual building elements, or for a combination of building elements,

— assess the final and primary energy need of the reference buildings and the reference buildings with the defined energy efficiency measures applied,

— calculate the costs (i.e. the net present value) of the energy efficiency measures (as referred to in the second indent) during the expected economic lifecycle applied to the reference buildings (as referred to in the first indent) by applying the comparative methodology framework principles.

By calculating the costs of the energy efficiency measures during the expected economic lifecycle, the cost-effectiveness of different levels of minimum energy performance requirements is assessed by the Member States. This will allow the determination of cost-optimal levels of energy performance requirements.

▼B

ANNEX IV

PART A

Repealed Directive with its successive amendment

(referred to in Article 29)

Directive 2002/91/EC of the European Parliament and of the Council (OJ L 1, 4.1.2003, p. 65)	
Regulation (EC) No 1137/2008 of the European Parliament and of the Council (OJ L 311, 21.11.2008, p. 1)	only point 9.9 of the Annex

PART B

Time limits for transposition into national law and application

(referred to in Article 29)

Directive	Time limit for transposition	Date of application
2002/91/EC	4 January 2006	4 January 2009 as regards Articles 7, 8 and 9 only

▼B

ANNEX V

Correlation table

Directive 2002/91/EC	This Directive
Article 1	Article 1
Article 2, point (1)	Article 2, point (1)
—	Article 2, points (2) and (3)
Article 2, point (2)	Article 2, point (4) and Annex I
—	Article 2, points (5), (6), (7), (8), (9), (10) and (11)
Article 2, point (3)	Article 2, point (12)
Article 2, point (4)	Article 2, point (13)
—	Article 2, point (14)
Article 2, point (5)	Article 2, point (15)
Article 2, point (6)	Article 2, point (16)
Article 2, point (7)	Article 2, point (17)
Article 2, point (8)	Article 2, point (18)
—	Article 2, point (19)
Article 3	Article 3 and Annex I
Article 4(1)	Article 4(1)
Article 4(2)	—
Article 4(3)	Article 4(2)
—	Article 5
Article 5	Article 6(1)
—	Article 6(2) and (3)
Article 6	Article 7
—	Articles 8, 9 and 10
Article 7(1) first subparagraph	Article 11(8) and Article 12(2)
Article 7(1) second subparagraph	Article 11(6)
Article 7(1) third subparagraph	Article 12(6)
Article 7(2)	Article 11(1) and (2)
—	Article 11(3), (4), (5), (7) and (9)
—	Article 12(1), (3), (4), (5) and (7)
Article 7(3)	Article 13(1) and (3)

▼B

Directive 2002/91/EC	This Directive
—	Article 13(2)
Article 8, point (a)	Article 14(1) and (3)
—	Article 14(2)
Article 8, point (b)	Article 14(4)
—	Article 14(5)
Article 9	Article 15(1)
—	Article 15(2), (3), (4) and (5)
—	Article 16
Article 10	Article 17
—	Article 18
Article 11, introductory wording	Article 19
Article 11, points (a) and (b)	—
Article 12	Article 20(1) and Article 20(2) second subparagraph
—	Article 20(2) first subparagraph and Article 20(3) and (4)
—	Article 21
Article 13	Article 22
—	Articles 23, 24 and 25
Article 14(1)	Article 26(1)
Article 14(2) and (3)	—
—	Article 26(2)
—	Article 27
Article 15(1)	Article 28
Article 15(2)	—
—	Article 29
Article 16	Article 30
Article 17	Article 31
Annex	Annex I
—	Annexes II to V