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THE EUROPEAN PARLIAMENT

THE COUNCIL

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DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE ENERGY PERFORMANCE OF BUILDINGS (RECAST)

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

of 19 May 2010

on the energy performance of buildings

(recast)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 194(2) thereof,

Having regard to the proposal from the European Commission,

Having regard to the opinion of the European Economic and Social Committee¹,

Having regard to the opinion of the Committee of the Regions²,

Acting in accordance with the ordinary legislative procedure³,

¹ OJ C 277, 17.11.2009, p. 75.

² OJ C 200, 25.8.2009, p. 41.

³ Position of the European Parliament of 23 April 2009 (not yet published in the Official Journal), position of the Council at first reading of 14 April 2010 (not yet published in the Official Journal), position of the European Parliament of 18 May 2010 (not yet published in the Official Journal).

Whereas:

- (1) Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings¹ has been amended². Since further substantive amendments are to be made, it should be recast in the interests of clarity.
- (2) An efficient, prudent, rational and sustainable utilisation of energy applies inter alia to oil products, natural gas and solid fuels, which are essential sources of energy, but also the leading sources of carbon dioxide emissions.
- (3) Buildings account for 40 % of total energy consumption in the Union. The sector is expanding, which is bound to increase its energy consumption. Therefore, reduction of energy consumption and the use of energy from renewable sources in the buildings sector constitute important measures needed to reduce the Union's energy dependency and greenhouse gas emissions. Together with an increased use of energy from renewable sources, measures taken to reduce energy consumption in the Union would allow the Union to comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), and to honour both its long term commitment to maintain the global temperature rise below 2 °C, and its commitment to reduce, by 2020, overall greenhouse gas emissions by at least 20 % below 1990 levels, and by 30 % in the event of an international agreement being reached. Reduced energy consumption and an increased use of energy from renewable sources also have an important part to play in promoting security of energy supply, technological developments and in creating opportunities for employment and regional development, in particular in rural areas.

¹ OJ L 1, 4.1.2003, p. 65.

² See Annex IV, Part A.

- (4) Management of energy demand is an important tool enabling the Union to influence the global energy market and hence the security of energy supply in the medium and long term.
- (5) The European Council of March 2007 emphasised the need to increase energy efficiency in the Union so as to achieve the objective of reducing by 20 % the Union's energy consumption by 2020 and called for a thorough and rapid implementation of the priorities established in the Commission Communication entitled "Action Plan for Energy Efficiency: Realising the Potential". That Action Plan identified the significant potential for cost-effective energy savings in the buildings sector. The European Parliament, in its resolution of 31 January 2008, called for the strengthening of the provisions of Directive 2002/91/EC, and has called at various times, on the latest occasion in its resolution of 3 February 2009 on the Second Strategic Energy Review, for the 20 % energy efficiency target in 2020 to be made binding. Moreover, Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020¹, sets national binding targets for CO₂ reduction for which energy efficiency in the building sector will be crucial, and Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources² provides for the promotion of energy efficiency in the context of a binding target for energy from renewable sources accounting for 20 % of total Union energy consumption by 2020.

¹ OJ L 140, 5.6.2009, p. 136.

² OJ L 140, 5.6.2009, p. 16.

- (6) The European Council of March 2007 reaffirmed the Union's commitment to the Union-wide development of energy from renewable sources by endorsing a mandatory target of a 20 % share of energy from renewable sources by 2020. Directive 2009/28/EC establishes a common framework for the promotion of energy from renewable sources.
- (7) It is necessary to lay down more concrete actions with a view to achieving the great unrealised potential for energy savings in buildings and reducing the large differences between Member States' results in this sector.
- (8) Measures to improve further the energy performance of buildings should take into account climatic and local conditions as well as indoor climate environment and cost-effectiveness. These measures should not affect other requirements concerning buildings such as accessibility, safety and the intended use of the building.
- (9) The energy performance of buildings should be calculated on the basis of a methodology, which may be differentiated at national and regional level. That includes, in addition to thermal characteristics, other factors that play an increasingly important role such as heating and air-conditioning installations, application of energy from renewable sources, passive heating and cooling elements, shading, indoor air-quality, adequate natural light and design of the building. The methodology for calculating energy performance should be based not only on the season in which heating is required, but should cover the annual energy performance of a building. That methodology should take into account existing European standards.

- (10) It is the sole responsibility of Member States to set minimum requirements for the energy performance of buildings and building elements. Those requirements should be set with a view to achieving the cost-optimal balance between the investments involved and the energy costs saved throughout the life-cycle of the building , without prejudice to the right of Member States to set minimum requirements which are more energy efficient than cost-optimal energy efficiency levels. Provision should be made for the possibility for Member States to review regularly their minimum energy performance requirements for buildings in the light of technical progress.
- (11) The objective of cost-effective or cost-optimal energy efficiency levels may, in certain circumstances, for example in the light of climatic differences, justify the setting by Member States of cost-effective or cost-optimal requirements for building elements that would in practice limit the installation of building products that comply with standards set by Union legislation, provided that such requirements do not constitute an unjustifiable market barrier.

- (12) When setting energy performance requirements for technical building systems, Member States should use, where available and appropriate, harmonised instruments, in particular testing and calculation methods and energy efficiency classes developed under measures implementing Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products¹ and Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products (recast)⁺², with a view to ensuring coherence with related initiatives and minimise, to the extent possible, potential fragmentation of the market.
- (13) This Directive is without prejudice to Articles 107 and 108 of the Treaty on the Functioning of the European Union (TFEU). The term "incentive" used in this Directive should not therefore be interpreted as constituting State aid.

¹ OJ L 285, 31.10.2009, p. 10.

⁺ OJ: please fill in the publication reference.

² OJ L ...

- (14) The Commission should lay down a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements. Member States should use this framework to compare the results with the minimum energy performance requirements which they have adopted. Should significant discrepancies, i.e. exceeding 15 %, exist between the calculated cost-optimal levels of minimum energy performance requirements and the minimum energy performance requirements in force, Member States should justify the difference or plan appropriate steps to reduce the discrepancy. The estimated economic life-cycle of a building or building element should be determined by Member States, taking into account current practices and experience in defining typical economic life-cycles. The results of this comparison and the data used to reach these results should be regularly reported to the Commission. These reports should enable the Commission to assess and report on the progress of Member States in reaching cost-optimal levels of minimum energy performance requirements.
- (15) Buildings have an impact on long-term energy consumption. Given the long renovation cycle for existing buildings, new, and existing buildings that are subject to major renovation, should therefore meet minimum energy performance requirements adapted to the local climate. As the application of alternative energy supply systems is not generally explored to its full potential, alternative energy supply systems should be considered for new buildings, regardless of their size, pursuant to the principle of first ensuring that energy needs for heating and cooling are reduced to cost-optimal levels.

- (16) Major renovations of existing buildings, regardless of their size, provide an opportunity to take cost-effective measures to enhance energy performance. For reasons of cost-effectiveness, it should be possible to limit the minimum energy performance requirements to the renovated parts that are most relevant for the energy performance of the building. Member States should be able to choose to define a "major renovation" either in terms of a percentage of the surface of the building envelope or in terms of the value of the building. If a Member State decides to define a major renovation in terms of the value of the building, values such as the actuarial value, or the current value based on the cost of reconstruction, excluding the value of the land upon which the building is situated, could be used.
- (17) Measures are needed to increase the number of buildings which not only fulfill current minimum energy performance requirements, but are also more energy efficient, thereby reducing both energy consumption and carbon dioxide emissions. For this purpose Member States should draw up national plans for increasing the number of nearly zero-energy buildings and regularly report such plans to the Commission.

- (18) Union financial instruments and other measures are being put into place or adapted with the aim of stimulating energy efficiency-related measures. Such financial instruments at Union level include, inter alia, Regulation (EC) No 1080/2006 of the European Parliament and of the Council of 5 July 2006 on the European Regional Development Fund¹, amended to allow increased investments in energy efficiency in housing; the public-private partnership on a "European energy-efficient buildings" initiative to promote green technologies and the development of energy-efficient systems and materials in new and renovated buildings; the EC-European Investment Bank (EIB) initiative "EU sustainable energy Financing Initiative" which aims to enable, inter alia, investments for energy efficiency and the EIB-led "Marguerite Fund": the 2020 European Fund for Energy, Climate Change and Infrastructure; Council Directive 2009/47/EC of 5 May 2009 amending Directive 2006/112/EC as regards reduced rates of value added tax², structural and cohesion funds instrument Jeremie (Joint European Resources for micro to medium enterprises); the Energy Efficiency Finance Facility; the Competitiveness and Innovation Framework Programme including the Intelligent Energy -Europe II Programme focused specifically on removing market barriers related to energy efficiency and energy from renewable sources through for example the technical assistance facility ELENA (European Local Energy Assistance); the Covenant of Mayors; the Entrepreneurship and Innovation programme; the ICT Policy Support Programme 2010, and the Seventh Research Framework Programme. The European Bank for Reconstruction and Development also provides funding with the aim of stimulating energy-efficiency-related measures.

¹ OJ L 210, 31.7.2006, p. 1.

² OJ L 116, 9.5.2009, p. 18.

- (19) Union financial instruments should be used to give practical effect to the objectives of this Directive, without however substituting national measures. In particular, they should be used for providing appropriate and innovative means of financing to catalyse investment in energy efficiency measures. They could play an important role in the development of national, regional and local energy efficiency funds, instruments, or mechanisms, which deliver such financing possibilities to private property owners, to small and medium-sized enterprises and to energy efficiency service companies.
- (20) In order to provide the Commission with adequate information, Member States should draw up lists of existing and proposed measures, including those of a financial nature, other than those required by this Directive, which promote the objectives of this Directive. The existing and proposed measures listed by Member States may include, in particular, measures that aim to reduce existing legal and market barriers and encourage investments and/or other activities to increase the energy efficiency of new and existing buildings, thus potentially contributing to reducing energy poverty. Such measures could include, but should not be limited to, free or subsidised technical assistance and advice, direct subsidies, subsidised loan schemes or low interest loans, grant schemes and loan guarantee schemes. The public authorities and other institutions which provide those measures of a financial nature could link the application of such measures to the indicated energy performance and the recommendations from energy performance certificates.

- (21) In order to limit the reporting burden on Member States it should be possible to integrate the reports required by this Directive into the Energy Efficiency Action Plans referred to in Article 14(2) of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services¹. The public sector in each Member State should lead the way in the field of energy performance of buildings, and therefore the national plans should set more ambitious targets for the buildings occupied by public authorities.
- (22) The prospective buyer and tenant of a building or building unit should, in the energy performance certificate, be given correct information about the energy performance of the building and practical advice on improving such performance. Information campaigns may serve to further encourage owners and tenants to improve the energy performance of their building or building unit. Owners and tenants of commercial buildings should also be encouraged to exchange information regarding actual energy consumption, in order to ensure that all the data are available to make informed decisions about necessary improvements. The energy performance certificate should also provide information about the actual impact of heating and cooling on the energy needs of the building, on its primary energy consumption and on its carbon dioxide emissions.

¹ OJ L 114, 27.4.2006, p. 64.

- (23) Public authorities should lead by example and should endeavour to implement the recommendations included in the energy performance certificate. Member States should include within their national plans measures to support public authorities to become early adopters of energy efficiency improvements and to implement the recommendations included in the energy performance certificate as soon as feasible.
- (24) Buildings occupied by public authorities and buildings frequently visited by the public should set an example by showing that environmental and energy considerations are being taken into account and therefore those buildings should be subject to energy certification on a regular basis. The dissemination to the public of information on energy performance should be enhanced by clearly displaying these energy performance certificates, in particular in buildings of a certain size which are occupied by public authorities or which are frequently visited by the public, such as shops and shopping centres, supermarkets, restaurants, theatres, banks and hotels.
- (25) Recent years have seen a rise in the number of air-conditioning systems in European countries. This creates considerable problems at peak load times, increasing the cost of electricity and disrupting the energy balance. Priority should be given to strategies which enhance the thermal performance of buildings during the summer period. To that end, there should be focus on measures which avoid overheating, such as shading and sufficient thermal capacity in the building construction, and further development and application of passive cooling techniques, primarily those that improve indoor climatic conditions and the micro-climate around buildings.

- (26) Regular maintenance and inspection of heating and air-conditioning systems by qualified personnel contributes to maintaining their correct adjustment in accordance with the product specification and in that way ensures optimal performance from an environmental, safety and energy point of view. An independent assessment of the entire heating and air-conditioning system should occur at regular intervals during its life-cycle in particular before its replacement or upgrading. In order to minimise the administrative burden on building owners and tenants, Member States should endeavour to combine inspections and certifications as far as possible.
- (27) A common approach to the energy performance certification of buildings and to the inspection of heating and air-conditioning systems, carried out by qualified and /or accredited experts, whose independence is to be guaranteed on the basis of objective criteria, will contribute to a level playing field as regards efforts made in Member States to energy saving in the buildings sector and will introduce transparency for prospective owners or users with regard to energy performance in the Union property market. In order to ensure the quality of energy performance certificates and of the inspection of heating and air-conditioning systems throughout the Union, an independent control mechanism should be established in each Member State.

- (28) Since local and regional authorities are critical for the successful implementation of this Directive, they should be consulted and involved, as and when appropriate in accordance with applicable national legislation, on planning issues, the development of programmes to provide information, training and awareness-raising, and on the implementation of this Directive at national or regional level. Such consultations may also serve to promote the provision of adequate guidance to local planners and building inspectors to carry out the necessary tasks. Furthermore, Member States should enable and encourage architects and planners to properly consider 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.
- (29) Installers and builders are critical for the successful implementation of this Directive. Therefore, an adequate number of installers and builders should, through training and other measures, have the appropriate level of competence for the installation and integration of the energy efficient and renewable energy technology required.
- (30) Member States should take account of Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications¹ with regard to the mutual recognition of professional experts which are addressed by this Directive, and the Commission should continue its activities under the Intelligent Energy Europe Programme on guidelines and recommendations for standards for the training of such professional experts.

¹ OJ L 255, 30.9.2005, p. 22.

- (31) In order to enhance the transparency of energy performance in the Union's non-residential property market, uniform conditions for a voluntary common certification scheme for the energy performance of non-residential buildings should be established. In accordance with Article 291 TFEU, rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers shall be laid down in advance by a regulation adopted in accordance with the ordinary legislative procedure. Pending the adoption of that new regulation, Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission¹ continues to apply, with the exception of the regulatory procedure with scrutiny, which is not applicable.
- (32) The Commission should be empowered to adopt delegated acts in accordance with Article 290 TFEU in respect of the adaptation to technical progress of certain parts of the general framework set out in Annex I, and in respect of the establishment of a methodology framework for calculating cost-optimal levels of minimum energy performance requirements. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level.
- (33) Since the objective of this Directive, namely of enhancing the energy performance of buildings, cannot be sufficiently achieved by the Member States, due to the complexity of the buildings sector and the inability of the national housing markets to adequately address the challenges of energy efficiency, and can by the reason of the scale and the effects of the action be better achieved at Union level, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principles of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve that objective.

¹ OJ L 184, 17.7.1999, p. 23.

- (34) The obligation to transpose this Directive into national law should be confined to those provisions which represent a substantive change as compared with Directive 2002/91/EC. The obligation to transpose the provisions which are unchanged arises under that Directive.
- (35) This Directive should be without prejudice to the obligations of the Member States relating to the time-limits for transposition into national law and application of the Directive 2002/91/EC.
- (36) In accordance with point 34 of the Interinstitutional Agreement on better law-making¹, Member States are encouraged to draw up, for themselves and in the interest of the Union, their own tables, illustrating, as far as possible, the correlation between this Directive and the transposition measures, and to make them public,

HAVE ADOPTED THIS DIRECTIVE:

¹ OJ C 321, 31.12.2003, p. 1.

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;
- (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;

- (3) "technical building system" means technical equipment for the heating, cooling, ventilation, hot water, lighting or for a combination thereof, of a building or building unit;
- (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).
- (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 life-cycle, 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 life cycle is determined by each Member State. It refers to the remaining estimated economic life cycle of a building where energy performance requirements are set for the building as a whole, or to the estimated economic life cycle 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 life-cycle 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;
- (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.

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.

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 life-cycle.

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 m².

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. The report may be included in the Energy Efficiency Action Plans referred to in Article 14(2) of Directive 2006/32/EC. 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.

Article 6

New buildings

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

For new buildings, Member States shall ensure that, before construction starts, the technical, environmental and economic feasibility of high-efficiency alternative systems such as those listed below, if available, is considered and taken into account:

- (a) decentralised energy supply systems based on energy from renewable sources;
 - (b) cogeneration;
 - (c) district or block heating or cooling, particularly where it is based entirely or partially on energy from renewable sources;
 - (d) heat pumps.
2. Member States shall ensure that the analysis of alternative systems referred to in paragraph 1 is documented and available for verification purposes.
 3. That analysis of alternative systems may be carried out for individual buildings or for groups of similar buildings or for common typologies of buildings in the same area. As far as collective heating and cooling systems are concerned, the analysis may be carried out for all buildings connected to the system in the same area.

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 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.

Member States shall encourage, in relation to buildings undergoing major renovation, the consideration and taking into account of high-efficiency alternative systems, as referred to in Article 6(1), in so far as this is technically, functionally and economically feasible.

Article 8

Technical building systems

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.

The system requirements shall cover at least the following:

- (a) heating systems;
- (b) hot water systems;
- (c) air-conditioning systems;
- (d) large ventilation systems;

or a combination of such systems.

2. Member States shall encourage the introduction of intelligent metering systems whenever a building is constructed or undergoes major renovation, whilst ensuring that this encouragement is in line with point 2 of Annex I to Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity¹. Member States may furthermore encourage, where appropriate, the installation of active control systems such as automation, control and monitoring systems that aim to save energy.

¹ OJ L 211, 14.8.2009, p. 55.

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
 - (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/m² 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.
5. The Commission shall by 31 December 2012 and every three years thereafter publish a report on the progress of Member States in increasing the number of nearly zero-energy buildings. On the basis of that report the Commission shall develop an action plan and, if necessary, propose measures 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.
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.
2. Member States shall draw up, by 30 June 2011, a list of existing and, if appropriate, proposed measures and instruments including those of a financial nature, other than those required by this Directive, which promote the objectives of this Directive.

Member States shall update this list every three years. Member States shall communicate these lists to the Commission, which they may do by including them in the Energy Efficiency Action Plans referred to in Article 14(2) of Directive 2006/32/EC.

3. The Commission shall examine the effectiveness of the listed existing and proposed measures referred to in paragraph 2 as well as of relevant Union instruments, in supporting the implementation of this Directive. On the basis of that examination, and taking due account of the principle of subsidiarity, the Commission may provide advice or recommendations as regards specific national schemes and coordination with Union and international financial institutions. The Commission may include its examination and possible advice or recommendations in its report on the National Energy Efficiency Plans referred to in Article 14(5) of Directive 2006/32/EC.
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.

6. Member States shall take account of the cost-optimal levels of energy performance when providing incentives for the construction or major renovation of buildings.
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).
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 life-cycle.
 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
 - (b) buildings where a total useful floor area over 500 m² is occupied by a public authority and frequently visited by the public. On ...^{*}, this threshold of 500 m² shall be lowered to 250 m².

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.

^{*} OJ: five years after the date of entry into force of this Directive.

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 certificateare 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 m² 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 ...^{*}, this threshold of 500 m² shall be lowered to 250 m².

2. Member States shall require that where a total useful floor area over 500 m² 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.

* OJ: five years after the date of entry into force of this Directive.

Article 14

Inspection of heating systems

1. Member States shall lay down the necessary measures to establish a regular inspection of the accessible parts of systems used for heating buildings, such as the heat generator, control system and circulation pump(s), with boilers of an effective rated output for space heating purposes of more than 20 kW. That inspection shall include an assessment of the boiler efficiency and the boiler sizing compared with the heating requirements of the building. The assessment of the boiler sizing does not have to be repeated as long as no changes were made to the heating system or as regards the heating requirements of the building in the meantime.

Member States may reduce the frequency of such inspections or lighten them as appropriate, where an electronic monitoring and control system is in place.

2. Member States may set different inspection frequencies depending on the type and effective rated output of the heating system whilst taking into account the costs of the inspection of the heating system and the estimated energy cost savings that may result from the inspection.
3. Heating systems with boilers of an effective rated output of more than 100 kW shall be inspected at least every two years.

For gas boilers, this period may be extended to four years.

4. As an alternative to paragraphs 1, 2 and 3 Member States may opt to take measures to ensure the provision of advice to users concerning the replacement of boilers, other modifications to the heating system and alternative solutions to assess the efficiency and appropriate size of the boiler. The overall impact of this approach shall be equivalent to that arising from the provisions set out in paragraphs 1, 2 and 3.

Where Member States choose to apply the measures referred to in the first subparagraph, they shall submit to the Commission a report on the equivalence of those measures to measures referred to in paragraphs 1, 2 and 3 of this Article by 30 June 2011 at the latest. Member States shall submit these reports to the Commission every three years. The reports may be included in the Energy Efficiency Action Plans referred to in Article 14(2) of Directive 2006/32/EC.

5. After receiving the national report from a Member State about the application of the option as described in paragraph 4, the Commission may request further specific information regarding the requirements and equivalence of the measures set out in that paragraph. In that case, the Member State concerned shall present the requested information or propose amendments within nine months.

Article 15

Inspection of air-conditioning systems

1. Member States shall lay down the necessary measures to establish a regular inspection of the accessible parts of air-conditioning systems of an effective rated output of more than 12 kW. The inspection shall include an assessment of the air-conditioning efficiency and the sizing compared to the cooling requirements of the building. The assessment of the sizing does not have to be repeated as long as no changes were made to this air-conditioning system or as regards the cooling requirements of the building in the meantime.

Member States may reduce the frequency of such inspections or lighten them, as appropriate, where an electronic monitoring and control system is in place.

2. The Member States may set different inspection frequencies depending on the type and effective rated output of the air-conditioning system, whilst taking into account the costs of the inspection of the air-conditioning system and the estimated energy cost savings that may result from the inspection.

3. In laying down the measures referred to in paragraphs 1 and 2 of this Article, Member States shall, as far as is economically and technically feasible, ensure that inspections are carried out in accordance with the inspection of heating systems and other technical systems referred to in Article 14 of this Directive and the inspection of leakages referred to in Regulation (EC) No 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases¹.
4. As an alternative to paragraphs 1, 2 and 3 Member States may opt to take measures to ensure the provision of advice to users on the replacement of air conditioning systems or on other modifications to the air conditioning system which may include inspections to assess the efficiency and appropriate size of the air conditioning system. The overall impact of this approach shall be equivalent to that arising from the provisions set out in paragraphs 1, 2 and 3.

Where Member States apply the measures referred to in the first subparagraph, they shall, by 30 June 2011 at the latest, submit to the Commission a report on the equivalence of those measures to the measures referred to in paragraphs 1, 2 and 3 of this Article.

Member States shall submit these reports to the Commission every three years. The reports may be included in the Energy Efficiency Action Plans referred to in Article 14(2) of Directive 2006/32/EC.

¹ OJ L 161, 14.6.2006, p. 1.

5. After receiving the national report from a Member State about the application of the option as described in paragraph 4, the Commission may request further specific information regarding the requirements and equivalence of the measures set in that paragraph. In this case, the Member State concerned shall present the requested information or propose amendments within nine months.

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.

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.

Article 19

Review

The Commission, assisted by the Committee established by Article 26, shall evaluate this Directive by 1 January 2017 at the latest, in the light of the experience gained and progress made during its application, and, if necessary, make proposals.

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.
2. Member States shall in particular provide information to the owners or tenants of buildings on energy performance certificates and inspection reports, their purpose and objectives, on cost-effective ways to improve the energy performance of the building and, where appropriate, on financial instruments available to improve the energy performance of the building.

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.

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.

Article 23

Exercise of delegation

1. The powers to adopt the delegated acts referred to in Article 22 shall be conferred on the Commission for a period of five years beginning on ...^{*}. The Commission shall make a report in respect of the delegated powers not later than six months before the end of the five-year period. The delegation of powers shall be automatically extended for periods of an identical duration, unless the European Parliament or the Council revokes it in accordance with Article 24.
2. Without prejudice to the deadline referred to in Article 5(1), the powers to adopt the delegated acts referred to in Article 5 shall be conferred on the Commission until 30 June 2012.
3. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
4. The powers to adopt delegated acts are conferred on the Commission subject to the conditions laid down in Articles 24 and 25.

* OJ: please insert the date of entry into force of this Directive.

Article 24

Revocation of the delegation

1. The delegation of powers referred to in Articles 5 and 22 may be revoked by the European Parliament or by the Council.
2. The institution which has commenced an internal procedure for deciding whether to revoke the delegation of powers shall endeavour to inform the other institution and the Commission within a reasonable time before the final decision is taken, indicating the delegated powers which could be subject to revocation and possible reasons for a revocation.
3. The decision of revocation shall put an end to the delegation of the powers specified in that decision. It shall take effect immediately or at a later date specified therein. It shall not affect the validity of the delegated acts already in force. It shall be published in the *Official Journal of the European Union*.

Article 25

Objections to delegated acts

1. The European Parliament or the Council may object to a delegated act within a period of two months from the date of notification.

At the initiative of the European Parliament or the Council that period shall be extended by two months.

2. If, on expiry of that period, neither the European Parliament nor the Council has objected to the delegated act it shall be published in the *Official Journal of the European Union* and shall enter into force on the date stated therein.

The delegated act may be published in the *Official Journal of the European Union* and enter into force before the expiry of that period, if the European Parliament and the Council have both informed the Commission of their intention not to raise objections.

3. If the European Parliament or the Council objects to a delegated act, it shall not enter into force. The institution which objects shall state the reasons for objecting to the delegated act.

Article 26
Committee procedure

1. The Commission shall be assisted by a Committee.
2. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

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 ...* 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 ...** at the latest, the laws, regulations and administrative provisions necessary to comply with Articles 2 to 18, and with Articles 20 and 27.

* OJ: two years and six months after the entry into force of this Directive.

** OJ: two years after the date of entry into force of this Directive.

They shall apply those provisions as far as Articles 2, 3, 9, 11, 12, 13, 17, 18, 20 and 27 are concerned, from ...^{*} 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 ...^{*} at the latest and to other buildings from ...^{**} 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.

^{*} OJ: two years and six months after the entry into force of this Directive.

^{**} OJ: three years after the entry into force of 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.

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 twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 31
Addressees

This Directive is addressed to the Member States.

Done at Strasbourg,

For the European Parliament
The President

For the Council
The President

ANNEX I

Common general framework for the calculation of energy performance of buildings (referred to in Article 3)

1. The energy performance of a building shall be determined on the basis of the calculated or actual annual energy that is consumed in order to meet the different needs associated with its typical use and shall reflect the heating energy needs and cooling energy needs (energy needed to avoid over-heating) to maintain the envisaged temperature conditions of the building, and domestic hot water needs.
2. The energy performance of a building shall be expressed in a transparent manner and shall include an energy performance indicator and a numeric indicator of primary energy use, based on primary energy factors per energy carrier, which may be based on national or regional annual weighted averages or a specific value for on-site production.

The methodology for calculating the energy performance of buildings should take into account European standards and shall be consistent with relevant Union legislation, including Directive 2009/28/EC.

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) 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.

4. The positive influence of the following aspects shall, where relevant in the calculation, be taken into account:

- (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.
-

ANNEX II

Independent control systems for energy performance certificates and inspection reports

1. 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 energy performance certificates issued annually and subject those certificates to verification.

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.

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 life cycle 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 life cycle, 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.

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

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)
-	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) and (3)
-	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