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2021/0426 (COD)

Subject:	Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast)

The Annex contains the consolidated compromise text of the above draft Directive, subject to revisions by the legal linguists of both Institutions.

ANNEX

2021/0426 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the energy performance of buildings (recast)

(Text with EEA relevance)

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,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee[1],

Having regard to the opinion of the Committee of the Regions[2],

Acting in accordance with the ordinary legislative procedure,

Whereas:

(1) Directive 2010/31/EU of the European Parliament and of the Council[3] has been substantially amended several times [4]. Since further amendments are to be made, that Directive should be recast in the interests of clarity.

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1 OJ C […], […], p. […].
2 OJ C […], […], p. […].
3 Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).
4 See Annex ***VIII***, Part A.

(2) Under the Paris Agreement, adopted in December 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), its Parties have agreed to hold the increase in the global average temperature well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1,5 °C above pre-industrial levels. Reaching the objectives of the Paris Agreement is at the core of the Commission Communication on "The European Green Deal" of 11 December 2019[5]. The Union committed itself to reduce the Union's economy-wide net greenhouse gas emissions by at least 55 % by 2030 below 1990 levels in the updated nationally determined contribution submitted to the UNFCCC Secretariat on 17 December 2020.

(3) As announced in the Green Deal, the Commission presented its Renovation Wave strategy on 14 October 2020[6]. The strategy contains an action plan with concrete regulatory, financing and enabling measures, with the objective to at least double the annual energy renovation rate of buildings by 2030 and to foster deep renovations***, resulting in 35 million building units renovated by 2030 and the creation of jobs in the construction sector***. The revision of the Energy Performance of Buildings Directive is necessary as one of the vehicles to deliver on the Renovation Wave. It will also contribute to delivering on the New European Bauhaus initiative and the European mission on climate-neutral and smart cities. ***The New European Bauhaus initiative is intended to foster a more inclusive society that promotes the wellbeing of all in keeping with the historical Bauhaus, which contributed to social inclusion and the well-being of citizens, in particular worker communities. By facilitating training, networks and issuing guidelines to architects, students, engineers and designers under the principles of sustainability, aesthetics, and inclusion, the New European Bauhaus initiative can empower local authorities to develop innovative and cultural solutions in creating a more sustainable built environment.***

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5 The European Green Deal, COM(2019) 640 final.

6 A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives, COM/2020/662 final ▌

(4) Regulation (EU) 2021/1119 of the European Parliament and of the Council[7], the 'European Climate Law', enshrines ***in Union law*** the target of economy-wide climate neutrality by 2050 ***at the latest*** and establishes a binding Union domestic reduction commitment of net greenhouse gas emissions (emissions after deduction of removals) of at least 55 % below 1990 levels by 2030.

(5) The "Fit for 55" legislative package announced in the ▌ Commission***'s*** 2021 Work Programme aims to implement those objectives. It covers a range of policy areas including energy efficiency, renewable energy, land use, land change and forestry, energy taxation, effort sharing, emissions trading and alternative fuels infrastructure. The revision of Directive 2010/31/EU is an integral part of that package. ***Building on the Fit for 55 package of proposals, the REPowerEU plan contained in the communication of the Commission of 18 May 2022 put forward an additional set of actions to save energy, diversify supplies, quickly substitute fossil fuels by accelerating Europe's clean energy transition and smartly combine investments and reforms. It contained new legislative proposals and targeted recommendations to increase ambition with regard to energy efficiency and savings. The communication also mentioned taxation measures as means to provide incentives for energy savings and reduce fossil fuels consumption.***

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[7] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') (OJ L 243, 9.7.2021, p. 1).

(6) Buildings account for 40 % of final energy consumption in the Union and 36% of its energy-related greenhouse gas emissions ***while 75% of Union buildings are still energy-inefficient. Natural gas plays the largest role in heating of buildings, accounting for around 39% of energy consumption used for space heating in the residential sector. Oil is the second most important fossil fuel for heating, accounting for 11% and coal accounts for around 3%***. Therefore, reduction of energy consumption ▌ , in line with the energy efficiency first principle as laid down in Article 3 [revised EED] and defined in Article 2(18) of Regulation (EU) 2018/1999 of the European Parliament and of the Council[8] and the use of energy from renewable sources in the buildings sector constitute important measures needed to reduce ▌ greenhouse gas emissions ***and energy poverty in the Union***. Reduced energy consumption and an increased use of energy from renewable sources***, especially solar energy,*** also have ***a key role*** to play in reducing the Union's energy dependency ***on fossil fuels overall and on imports especially***, promoting security of energy supply ***in line with the objectives set out in the REPowerEU plan, fostering*** technological developments and in creating opportunities for employment and regional development, in particular in islands***,*** rural areas ***and off grid communities***.

(7) Buildings are responsible for greenhouse gas emissions before, during and after their operational lifetime. The 2050 vision for a decarbonised building stock goes beyond the current focus on operational greenhouse gas emissions. The whole life-cycle emissions of buildings should therefore progressively be taken into account, starting with new buildings. Buildings are a significant material bank, being repositories for resources over many decades, and the design options ***and choices of materials*** largely influence the whole life-cycle emissions both for new buildings and renovations. The whole life-cycle performance of buildings should be taken into account not only in new construction, but also in renovations through the inclusion of policies for the reduction of whole life-cycle greenhouse gas emissions in Member States' building renovation plans.

(8) Minimizing the whole life-cycle greenhouse gas emissions of buildings requires resource efficiency and circularity. This can also be combined with turning parts of the building stock into a temporary carbon sink.

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8 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).

(9) The global warming potential over the whole life-cycle indicates the building's overall contribution to emissions that lead to climate change. It brings together greenhouse gas emissions embodied in construction products with direct and indirect emissions from the use stage. A requirement to calculate the life-cycle global warming potential of new buildings therefore constitutes a first step towards increased consideration of the whole life-cycle performance of buildings and a circular economy.

(10) Buildings are responsible for about half of primary fine particulate matter (PM2.5) emissions in the EU that cause premature death and illness. Improving energy performance of buildings can and should reduce pollutant emissions at the same time, in line with Directive (EU) 2016/2284 of the European Parliament and the Council[9].

(11) Measures to improve further the energy performance of buildings should take into account climatic conditions, including adaptation to climate change, local conditions as well as indoor climate environment and cost-effectiveness. Those measures should not affect other requirements concerning buildings such as accessibility ▌, fire safety and seismic safety and the intended use of the building.

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[9] Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016, p.1).

(12) 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 ***urban heat island effect,*** heating and air-conditioning installations, ***use*** of energy from renewable sources, building automation and control systems, ***heat recovery from exhaust air or waste water, system balancing,*** smart solutions, passive heating and cooling elements, shading, indoor ***environmental 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 or air-conditioning is required, but should cover the annual energy performance of a building. That methodology should take into account existing European standards. The methodology should ensure the representation of actual operating conditions and enable the use of metered energy to verify correctness and for comparability, and the methodology should be based on ***monthly,*** hourly or sub-hourly time-steps. In order to encourage the use of renewable energy on-site, and in addition to the common general framework, Member States should take the necessary measures so that the benefits of maximising the use of renewable energy on-site, including for other-uses (such as electric vehicle charging points), are recognised and accounted for in the calculation methodology.

(13) Member States should set minimum requirements for the energy performance of buildings and building elements with a view to achieving the cost-optimal balance between the investments involved and the energy costs saved throughout the lifecycle 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.

(14) ***Two-thirds of the energy used for heating and cooling of buildings still comes from fossil fuels. In order to decarbonise the building sector, it is of particular importance to phase out fossil fuel in heating and cooling. Therefore, Member States should indicate their national policies and measures to phase out fossil fuels in heating and cooling in their building renovation plans. They should strive to phase out stand-alone boilers powered by fossil fuels, and as a first step, no financial incentives should be given for the installation of stand-alone boilers powered by fossil fuels as of 2025, with the exception of those selected for investment, before 2025, under the Recovery and Resilience Facility, the European Regional Development Fund and on the Cohesion Fund. It should still be possible to give financial incentives for the installation of hybrid heating systems with a considerable share of renewable energy, such as the combination of a boiler with solar thermal or with a heat pump. A clear legal basis for the ban of heat generators based on their greenhouse gas emissions, the type of fuel used or to the minimum part of renewable energy used for heating at building's level should support national phase-out policies and measures.***

(14a) Domestic hot water generation is one of the main sources of energy consumption for high performing buildings and normally this heat is not recovered. Harvesting heat from domestic hot water drains in buildings could be a simple and cost-effective way to save energy.

(15) Energy performance requirements for technical building systems should apply to whole systems, as installed in buildings, and not to the performance of standalone components, which fall under the scope of product-specific regulations under Directive 2009/125/EC. 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 [10] and Regulation (EU) 2017/1369 of the European Parliament and of the Council[11], with a view to ensuring coherence with related initiatives and minimise, to the extent possible, potential fragmentation of the market. ***Energy saving technologies with very short payback periods, such as the installation or replacement of thermostatic control valves or heat recovery from exhaust air or waste water, are insufficiently considered today. When estimating the effective rated output for heating systems, air conditioning systems or systems for combined space heating and ventilation or systems for combined air conditioning and ventilation systems, in a given building or building unit the effective rated output of different generators of the same system should be added together.***

(16) 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.

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10 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 products (OJ L 285, 31.10.2009, p. 10).

11 Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (OJ L 198, 28.7.2017, p. 1).

(17) The Commission should lay down a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements. A review of this framework should enable the calculation of both energy and emission performance and should take into account environmental and health externalities, as well as the ETS extension and carbon prices. Member States should use ***that*** 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 lifecycle of a building or building element should be determined by Member States, taking into account current practices and experience in defining typical economic lifecycles. The results of ***that*** comparison and the data used to reach those results should be regularly reported to the Commission. Those 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.

(18) 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.

(19) The enhanced climate and energy ambition of the Union requires a new vision for buildings: the zero-emission building, ***with*** very low energy demand***, zero on-site carbon emissions from fossil fuels and zero or a very low amount of operational greenhouse gas emissions***. All new buildings should be zero-emission buildings ***by 2030***, and ▌ existing buildings should be transformed into zero-emission buildings by 2050.

(19a) When an existing building is altered, it is not considered to be a new building.

(20) Different options are available to cover the energy needs of ***a zero-emissions*** building***: energy generated on-site or nearby*** from renewable sources ▌ such as solar thermal, ***geothermal,*** solar photovoltaics, heat pumps***, hydroelectric power*** and biomass, renewable energy provided by renewable energy communities***, efficient*** district heating and cooling based on renewables or waste heat***, and energy from other carbon-free sources. Energy derived from combustion of renewable fuels is considered as energy from renewable sources generated on-site where the combustion of the renewable fuel takes place on-site***.

(20a) Zero-emission buildings can contribute to demand side flexibility for instance through demand management, electrical storage, thermal storage and distributed renewable generation to support a more reliable, sustainable and efficient energy system.

(21) The necessary decarbonisation of the Union building stock requires energy renovation at a large scale: almost 75% of that building stock is inefficient according to current building standards, and 85-95% of the buildings that exist today will still be standing in 2050. However, the weighted annual energy renovation rate is persistently low at around 1%. At the current pace, the decarbonisation of the building sector would require centuries. Triggering and supporting building renovation, including a shift towards emission-free heating systems, is therefore a key goal of this Directive. ***Supporting renovations at district level, including through industrial or serial type renovations, offers benefits by stimulating the volume and depth of building renovations and will lead to a quicker and cheaper decarbonisation of the building stock. Industrial solutions for construction and building renovation include versatile prefabricated elements providing different functions such as insulation and energy generation.***

(22) Minimum energy performance standards are the essential regulatory tool to trigger renovation of existing buildings on a large scale, as they tackle the key barriers to renovation such as split incentives and co-ownership structures, which cannot be overcome by economic incentives. The introduction of minimum energy performance standards should lead to a gradual phase-out of the worst-performing buildings and a continuous improvement of the national building stock, contributing to the long-term goal of a decarbonised building stock by 2050.

(23) Minimum energy performance standards ***for non-residential buildings should be*** set at Union level ***and*** should focus on the renovation of the ***very worst-performing*** buildings***, which have*** the highest potential in terms of decarbonisation ▌ and extended social and economic benefits ***and therefore need to be renovated as a priority. In addition, Member States should establish specific timelines for the further renovation of non-residential buildings in their national building renovation plans. Some specific situations justify exemptions for individual*** buildings ***from minimum energy performance standards, notably the planned demolition of a building or an unfavourable cost-benefit assessment; cases of serious hardship justify an exemption as long the hardship persists. Member States should set stringent criteria for such exemptions in order to avoid a disproportionate share of exempted buildings. They should communicate the criteria in their national building renovation plans and should compensate for the exempted buildings via equivalent energy performance improvements in other parts of the non-residential building stock.***

(23a) As regards residential buildings, Member States should have the flexibility to choose the tools with which they achieve the required improvement of the residential building stock, such as minimum energy performance standards, technical assistance and financial support measures. Member States should establish a national trajectory for the progressive renovation of the national building stock in line with the national roadmap and the 2030, 2040 and 2050 targets contained in the Member State's building renovation plan and with the transformation of the national building stock into a zero-emission building stock by 2050. The national trajectories should comply with intermediate, five-year milestones for the decrease of the average energy performance of the residential building stock, starting in 2030, which ensure similar efforts across Member States.

(24) As regards the rest of the national building stock, Member States are free to decide whether they wish to introduce minimum energy performance standards, designed at national level and adapted to national conditions. When reviewing this Directive, the Commission should assess whether ***the measures established pursuant to this Directive will deliver sufficient progress towards achieving a fully decarbonised, zero-emission building stock by 2050 or whether*** further ***measures, such as*** binding minimum energy performance standards need to be introduced***, notably for residential buildings*** in order to achieve ***the five-year milestones.***

(25) The introduction of minimum energy performance standards should be accompanied by an enabling framework including technical assistance and financial measures***, in particular for vulnerable households***. Minimum energy performance standards set at national level do not amount to "Union standards" within the meaning of State aid rules, while Union-wide minimum energy performance standards might be considered constituting such "Union standards". In line with revised State aid rules, Member States may grant State aid to building renovation to comply with the Union-wide energy performance standards until those Union-wide standards become mandatory. Once the standards are mandatory, Member States may continue to grant State aid for the renovation of buildings and building units falling under the Union-wide energy performance standards as long as the building renovation aims at a higher standard.

(26) The EU Taxonomy classifies environmentally sustainable economic activities across the economy, including for the building sector. Under the EU Taxonomy Climate Delegated Act, building renovation is considered a sustainable activity where it achieves at least 30% energy savings, complies with minimum energy performance requirements for major renovation of existing buildings, or consists of individual measures related to the energy performance of buildings, such as the installation, maintenance or repair of energy efficiency equipment or of instruments and devices for measuring, regulating and controlling the energy performance of buildings, where such individual measures comply with the criteria set out. Building renovation to comply with Union-wide minimum energy performance standards is typically in line with the EU Taxonomy criteria related to building renovation activities.

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(28) Minimum energy performance requirements for existing buildings and building elements were already contained in the predecessors of this Directive and should continue to apply. While the newly introduced minimum energy performance standards set a floor for the minimum energy performance of existing buildings and ensure that renovation of inefficient buildings takes place, minimum energy performance requirements for existing buildings and building elements ensure the necessary depth of renovation when a renovation takes place.

(28a) There is an urgent need to reduce the dependence on fossil fuels in buildings and to accelerate efforts to decarbonise and electrify their energy consumption. In order to enable the cost-effective installation of solar technologies at a later stage, all new buildings should be "solar ready", that is, designed to optimise the solar generation potential on the basis of the site's solar irradiance, enabling the ▌ installation of solar technologies without costly structural interventions. In addition, Member States should ensure the deployment of suitable solar installations on new buildings, both residential and non-residential, and on existing non-residential buildings. Large scale deployment of solar energy on buildings would make a major contribution to shielding more effectively consumers from increasing and volatile prices of fossil fuels, reduce the exposure of vulnerable citizens to high energy costs and result in wider environmental, economic and social benefits. In order to efficiently exploit the potential of solar installations on buildings, Member States should define criteria for the implementation of, and possible exemptions from, the deployment of solar installations on buildings in line with the assessed technical and economic potential of the solar energy installations and the characteristics of the buildings covered by this obligation***, also taking into account the principle of technology neutrality and the combination of solar installations with other roof uses, such as green roofs or other building services installations. When defining criteria at national level for the practical implementation of the obligations of deployment of suitable solar energy installation on buildings, Member States should be able to express the relevant threshold in terms of building's ground floor area instead of building's useful floor area as long as such a method corresponds to an equivalent installed capacity of suitable solar energy installation on buildings. As the obligation to deploy solar installations on individual buildings depends on the criteria specified by Member States, the provisions on solar energy on buildings do not qualify as a "Union standard" within the meaning of State aid rules***.

(28b) It should be possible for Member States to encourage, through information, appropriate administrative procedures or other measures set out in their national building renovation plans, the deployment of suitable solar energy installations in combination with the renovation of the building envelope, with the replacement of technical building systems, with the installation of recharging infrastructure for electric vehicles, of heat pumps or of building automation and control systems.

(28c) With regard to mixed-used buildings that include both residential and non-residential units, Member States may continue to choose whether to treat them as residential or non-residential.

(28d) Solar photovoltaics and solar thermal technologies, including in combination with energy storage, should be rolled-out rapidly to benefit both the climate and the finances of citizens and businesses.

(28e) The electrification of buildings, such as through the deployment of heat pumps, solar installations, batteries and recharging infrastructure, brings along changed risks with regard to the fire safety of buildings, which need to be addressed by Member States. As regards fire safety in car parks, the Commission should publish non-binding guidance for Member States.

(29) To achieve a highly energy efficient and decarbonised building stock and the transformation of existing buildings into zero-emission buildings by 2050, Member States should establish national building renovation plans, which replace the long-term renovation strategies and become an even stronger, fully operational planning tool for Member States, ***in line with the energy efficiency first principle,*** with a stronger focus on financing and ensuring that appropriately skilled workers are available for carrying out building renovations ***Member States may take into account the Pact for Skills set out in the communication of the Commission of 1 July 2020 entitled "European Skills Agenda for sustainable competitiveness, social fairness and resilience"***. In their building renovation plans, Member States should set their own national building renovation targets. In line with Article 21(b)(7) of Regulation (EU) 2018/1999 and with the enabling conditions set under Regulation (EU) 2021/60 of the European Parliament and of the Council[12], Member States should provide an outline of financing measures, as well as an outline of the investment needs and the administrative resources for the implementation of their building renovation plans.

(29a) The energy efficiency first principle is an overarching principle that should be taken into account across all sectors, going beyond the energy system, at all levels. It is defined in Article 2(18) of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action as meaning to take the utmost account in energy planning, and in policy and investment decisions, of alternative cost-efficient energy efficiency measures to make energy demand and energy supply more efficient, in particular by means of cost-effective end-use energy savings, demand response initiatives and more efficient conversion, transmission and distribution of energy, whilst still achieving the objectives of those decisions. As such, the principle is equally relevant to improve the energy performance of buildings, and in the Renovation Wave strategy (COM(2020) 662), energy efficiency first is highlighted as one of the key principles for building renovation towards 2030 and 2050. As set out in the Commission's Recommendation (EU) 2021/1749 of 28 September 2021 on Energy Efficiency First: from principles to practice — Guidelines and examples for its implementation in decision-making in the energy

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[12] Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and the European Maritime, Fisheries and Aquaculture Fund and financial rules for those and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy (OJ L 231, 30.6.2021, p. 159).

sector and beyond, improved health and well-being are one of the major co-benefits of applying the energy efficiency first principle to improve the energy performance of buildings.

(29b) In order to ensure that the Union's workforce is fully prepared to actively work towards the achievement of the Union climate objectives, Member States should encourage under-represented groups to train and work in the construction and building sector.

(30) The national building renovation plans should be based on a harmonised template in order to ensure comparability of plans. In order to ensure the required ambition, the Commission should assess the draft plans and issue recommendations to Member States.

(31) The national building renovation plans should be closely linked with the integrated national energy and climate plans under Regulation (EU) 2018/1999, and progress in achieving the national targets and the contribution of the building renovation plans to national and Union targets should be reported as part of the biennial reporting under Regulation (EU) 2018/1999. Considering the urgency to scale up renovation based on solid national plans, the date for the submission of the first national building renovation plan should be set as early as possible. ***The subsequent national building renovation plans should be submitted as part of the integrated national energy and climate plans and their updates, which means that the second draft building renovation plan should be submitted with the second draft integrated national energy and climate plans in 2028.***

(32) ***A*** staged ***deep*** renovation can be a solution to address ▌ high upfront costs and hassle for the inhabitants that may occur when renovating 'in one go' ***and can allow for less disruptive and more financially feasible renovation measures***. However, such staged ***deep*** renovation needs to be carefully planned in order to avoid that one renovation step precludes necessary subsequent steps. ***One-step deep renovation can be more cost-effective and result in less emissions linked to the renovation than staged renovation.*** Renovation passports provide a clear roadmap for staged ***deep renovations***, helping owners and investors plan the best timing and scope for interventions. Therefore, renovation passports should be ***encouraged and*** made available as a voluntary tool to building owners across all Member States. ***Member States should ensure that renovation passports do not create a disproportionate burden.***

(32a) There are some synergies between renovation passports and energy performance certificates, in particular as regards the assessment of the current performance of the building and the recommendations for its improvement. In order to reap those synergies and reduce costs for building owners, Member States should be able to allow the renovation passport and the energy performance certificate to be drawn up jointly by the same expert and issued together, in which case the renovation passport should substitute the recommendations in the energy performance certificate. It should nonetheless always remain possible to obtain an energy performance certificate without a renovation passport.

(32b) Long-term contracts are an important instrument to stimulate staged renovation. Member States may introduce mechanisms that allow the establishment of long-term contracts over the various stages of staged renovation. Where new and more effective incentives become available during the various stages of the renovation, access to those new incentives may be ensured by allowing beneficiaries to switch to new incentives.

(33) The concept of 'deep renovation' has not yet been defined in Union legislation. With a view to achieving the long-term vision for buildings, deep renovation should be defined as a renovation that transforms buildings into zero-emission buildings; in a first step, as a renovation that transforms buildings into nearly zero-energy buildings. This definition serves the purpose of increasing the energy performance of buildings. A deep renovation for energy performance purposes ***may also be*** a prime opportunity to address other aspects such as ***indoor environmental quality,*** living conditions of vulnerable households, increasing climate resilience, resilience against disaster risks including seismic resilience, fire safety, the removal of hazardous substances including asbestos, and accessibility for persons with disabilities.

(34) In order to foster deep renovation, which is one of the goals of the Renovation Wave strategy, Member States should give enhanced financial and administrative support to deep renovation.

(35) Member States should support energy performance upgrades of existing buildings that contribute to achieving ***adequate level of indoor environmental quality,*** the removal of asbestos and other harmful substances, preventing the illegal removal of harmful substances, and facilitating compliance with existing legislative acts such as Directives 2009/148/EU[13] and (EU) 2016/2284[14] of the European Parliament and of the Council.

(35a) Integrated district or neighbourhood approaches help to increase the cost effectiveness of the renovations required for buildings that are spatially related such as housing blocks. Such approaches to renovations offer multiple solutions at a larger scale.

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[13] Directive 2009/148/EC of the European Parliament and of the Council of 30 November 2009 on the protection of workers from the risks related to exposure to asbestos at work (OJ L 330, 16.12.2009, p. 28).

[14] Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016, p. 1).

(36) Electric vehicles are expected to play a crucial role in the decarbonisation and efficiency of the electricity system, namely through the provision of flexibility, balancing and storage services, especially through aggregation. This potential of electric vehicles to integrate with the electricity system and contribute to system efficiency and further absorption of renewable electricity should be fully exploited. Charging in relation to buildings is particularly important, since this is where electric vehicles park regularly and for long periods of time. Slow charging is economical and the installation of recharging points in private spaces can provide energy storage to the related building and integration of smart ***recharging*** services ***and bi-directional recharging*** and system integration services in general.

(37) Combined with an increased share of renewable electricity production, electric vehicles produce ***less*** greenhouse gas emissions. Electric vehicles constitute an important component of a clean energy transition based on energy efficiency measures, alternative fuels, renewable energy and innovative solutions for the management of energy flexibility. Building codes can be effectively used to introduce targeted requirements to support the deployment of recharging infrastructure in car parks of residential and non-residential buildings. Member States should ***aim to*** remove barriers such as split incentives and administrative complications which individual owners encounter when trying to install a recharging point on their parking space.

(38) Pre-cabling ***and ducting facilitate*** the rapid deployment of recharging points if and where they are needed. Readily available infrastructure will decrease the costs of installation of recharging points for individual owners and ensure that electric vehicle users have access to recharging points. Establishing requirements for electromobility at Union level concerning the pre-equipping of parking spaces and the installation of recharging points is an effective way to promote electric vehicles in the near future while enabling further development at a reduced cost in the medium to long term. Where technically feasible, Member States should ensure the accessibility of recharging points for persons with disabilities.

(39) Smart ***recharging*** and bidirectional ***recharging*** enable the energy system integration of buildings. Recharging points where electric vehicles typically park for extended periods of time, such as where people park for reasons of residence or employment, are highly relevant to energy system integration, therefore smart charging functionalities need to be ensured. In situations where bidirectional charging would assist further penetration of renewable electricity by electric vehicle fleets in transport and the electricity system in general, such functionality should also be made available.

(40) Promoting green mobility is a key part of the European Green Deal and buildings can play an important role in providing the necessary infrastructure, not only for recharging of electric vehicles but also for bicycles. A shift to ***active*** mobility such as cycling can significantly reduce greenhouse gas emissions from transport. ***With the increase in the sale of electrically power-assisted bicycles and other L-category vehicle types and in order to facilitate the installation of recharging points at a later stage, pre-cabling for those vehicles should be required in new residential buildings and, where technically and economically feasible, pre-cabling or ducting should be required in residential buildings undergoing major renovation.*** As set out in the 2030 Climate Target Plan, increasing the modal shares of clean and efficient private and public transport, such as cycling, will drastically lower pollution from transport and bring major benefits to individual citizens and communities. The lack of bike parking spaces is a major barrier to the uptake of cycling, both in residential and non-residential buildings. ***Union requirements and national*** building codes can effectively support the transition to cleaner mobility by establishing requirements for a minimum number of bicycle parking spaces***, and building bicycle parking spaces and related infrastructure in areas where bicycles are less used can lead to an increase in their use. The requirement to provide bicycle parking spaces should not be dependent on, or necessarily be linked to, the availability and supply of car parking spaces, which may be unavailable in certain circumstances. Member States should allow for the increase of bicycle parking in residential buildings where there are no car parking spaces by installing at least two bicycle parking spaces for every dwelling.***

(41) The agendas of the Digital Single Market and the Energy Union should be aligned and should serve common goals. The digitalisation of the energy system is quickly changing the energy landscape, from the integration of renewables to smart grids and smart-ready buildings. In order to digitalise the building sector, the Union's connectivity targets and ambitions for the deployment of high-capacity communication networks are important for smart homes and well-connected communities. Targeted incentives should be provided to promote smart-ready systems and digital solutions in the built environment. This would offer new opportunities for energy savings, by providing consumers with more accurate information about their consumption patterns, and by enabling the system operator to manage the grid more effectively. ***Member States should encourage the use of digital technologies for analysis, simulation and management of buildings, including with regard to deep renovations.***

(42) In order to facilitate a competitive and innovative market for smart building services that contributes to efficient energy use and integration of renewable energy in buildings and support investments in renovation, Member States should ensure direct access to building systems' data by interested parties. To avoid excessive administrative costs for third parties, Member States shall facilitate the full interoperability of services and of the data exchange within the Union.

(43) The smart readiness indicator should be used to measure the capacity of buildings to use information and communication technologies and electronic systems to adapt the operation of buildings to the needs of the occupants and the grid and to improve the energy efficiency and overall performance of buildings. The smart readiness indicator should raise awareness amongst building owners and occupants of the value behind building automation and electronic monitoring of technical building systems and should give confidence to occupants about the actual savings of those new enhanced-functionalities. The smart readiness indicator is particularly beneficial for large buildings with high energy demand. For other buildings, the scheme for rating the smart readiness of buildings should be optional for Member States.

(43a) A digital building twin is an interactive and dynamic simulation that reflects the real-time status and behaviour of a physical building. By incorporating real-time data from sensors, smart meters and other sources, a digital building twin provides a holistic view of the building's performance, including energy consumption, temperature, humidity, occupancy levels, and more and can be used to monitor and manage the building's energy consumption. Where a digital building twin is available, it should be taken into account, in particular for the smart readiness indicator.

(44) Access to sufficient funding is crucial to meet the 2030 and 2050 energy ***and climate*** targets. Union financial instruments and other measures have been put into place or adapted with the aim of supporting the energy performance of buildings . The most recent initiatives to increase the availability of financing at Union level include, inter alia, the 'Renovate' flagship component of the Recovery and Resilience Facility established by Regulation (EU) 2041/241 of the European Parliament and the Council[15] ***amended*** by Regulation (EU) ***2023/435 related to REPowerEU chapters in recovery and resilience plans and the Social Climate*** Fund established by Regulation (EU) ***2023/955*** of the European Parliament and ▌ the Council[16].

(45) Union financial instruments should be used to give practical effect to the objectives of this Directive, without however substituting national measures. In particular, due to the scale of the renovation effort needed, they should be used for providing appropriate and innovative means of financing to catalyse investment in energy performance of buildings . 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.

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15 Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility (OJ L 57, 18.2.2021)

16 ***Regulation (EU) 2023/955 of the European Parliament and of the Council of 10 May 2023 establishing a Social Climate Fund and amending Regulation (EU) 2021/1060 (OJ L 130, 16.5.2023)*** ▌

(46) Financial mechanisms, incentives and the mobilisation of financial institutions for energy renovations in buildings should play a central role in national building renovation plans and be actively promoted by Member States. Such measures should include encouraging energy efficient mortgages for certified energy efficient building renovations, promoting investments for public ***bodies*** in an energy efficient building stock, for example by public-private partnerships or energy performance contracts or reducing the perceived risk of the investments. ***Information about available funding and financial tools should be made available to the public in an easily accessible and transparent manner. Member States should encourage financial institutions to promote targeted financial products, grants and subsidies to improve the energy performance of buildings housing vulnerable households, as well as to owners in worst-performing multi-dwelling buildings and buildings in rural areas, and other groups for whom access to financing is difficult. The Commission should adopt a voluntary framework to help financial institutions to target and increase lending volumes in accordance with the Union's decarbonisation ambition and relevant energy targets.***

(46a) Green mortgages and green loans can significantly contribute to transforming the economy and reducing carbon emissions.

(47) Financing alone will not deliver on the renovation needs. Together with financing, setting up accessible and transparent advisory tools and assistance instruments such as one-stop-shops that provide integrated energy renovation services or facilitators, as well as implementing other measures and initiatives such as those referred to in the Commission's Smart Finance for Smart Buildings Initiative, is indispensable to provide the right enabling framework and break barriers to renovation. ***One-stop shops should provide technical assistance and be easily available to all those involved in building renovations, including homeowners and administrative, financial and economic actors, including microenterprises and small- and medium-sized enterprises.***

(48) Inefficient buildings are often linked to energy poverty and social problems. Vulnerable households are particularly exposed to increasing energy prices as they spend a larger proportion of their budget on energy products. By reducing excessive energy bills, building renovation can lift people out of energy poverty and also prevent it. At the same time, building renovation does not come for free, and it is essential to ensure that the social impact of the costs for building renovation, notably on vulnerable households, is kept in check. The renovation wave should leave no one behind and be seized as an opportunity to improve the situation of vulnerable households, and a fair transition towards climate neutrality should be ensured. Therefore, financial incentives and other policy measures should as a priority target vulnerable households, people affected by energy poverty and people living in social housing, and Member States should take measures to prevent evictions because of renovation***, such as caps on rent increases***. The Commission proposal for a Council Recommendation on ensuring a fair transition towards climate neutrality provides a common framework and shared understanding of comprehensive policies and investments needed for ensuring that the transition is fair.

(48a) Micro-enterprises represent the majority of companies active in the building sector with 94% of the total. Together with small enterprises, they amount to 70% of employment in the construction sector. They supply essential services and jobs locally. However, as micro-enterprises typically rely on less than ten employees, they have limited resources to comply with regulatory requirements and rules attached to financial support programmes schemes. Energy communities, citizen-led initiatives and local authorities and energy agencies, while indispensable for delivering the Renovation Wave, face the same issues of lower administrative, financial and organisational capacities. This should not hamper the essential role of such entities and should be taken into account in the development of support and training programmes, with sufficient visibility and ease of access. Member States may actively support organisations with lower means with dedicated technical, financial and legal assistance.

(48b) ***Energy performance certificates for buildings have been in use since 2002. However, the use of different scales and formats hinders the comparability between different national schemes. Greater comparability of energy performance certificates across the Union facilitates the use of energy performance certificates by financial institutions, thereby steering financing towards more energy-performant buildings and building renovation. The EU Green Taxonomy relies on the use of energy performance certificates and accentuates the need to improve their comparability. Introducing a common scale of energy performance classes and a common template should ensure sufficient comparability between energy performance certificates across the Union.***

(48c) ***A number of Member States have recently modified their energy performance certification schemes. In order to avoid disruption, those Member States should have additional time to adapt their schemes.***

(49) In order to ensure that the energy performance of buildings can be taken into account by prospective buyers or tenants early in the process, buildings or building units which are offered for sale or rent should have an energy performance certificate, and the energy performance class and indicator should be stated in all advertisements. The prospective buyer ***or*** 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. The energy performance certificate should also provide information on its primary energy ***and final*** consumption***, energy needs,*** renewable energy production***, greenhouse gas emissions, and optionally*** on its ***indoor environmental quality, as well as the life-cycle GWP, if available. The energy performance certificate should contain recommendations for the improvement of the energy performance of the building***.

(50) The monitoring of the building stock is facilitated by the availability of data collected by digital tools, thereby reducing administrative costs. Therefore, national databases for energy performance of buildings should be set up, and the information contained therein should be transferred to the EU Building Stock Observatory.

(51) Buildings occupied by public ***bodies*** 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 those energy performance certificates, in particular in buildings of a certain size which are occupied by public ***bodies*** or which are frequently visited by the public, such as town halls, schools, shops and shopping centres, supermarkets, restaurants, theatres, banks and hotels.

(52) Recent years have seen a rise in the number of air-conditioning systems in European countries. ***That*** 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 ***environmental quality,*** the micro-climate around buildings ***and the urban heat island effect***.

(53) Regular maintenance and inspection of heating ▌ , ventilation 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 ▌ , ventilation and air-conditioning system should occur at regular intervals during its lifecycle in particular before its replacement or upgrading. ***Inspections should address the parts of the systems that are accessible either directly or indirectly through available non-destructive methods.*** 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. ***Where a ventilation system is installed, its sizing and its capabilities to optimize its performance under typical or average operating conditions relevant for the specific and current use of the building should also be assessed.***

(53a) Where the system to be inspected is based on fossil fuels, the inspection should include a basic assessment of the feasibility to reduce the on-site use of fossil fuels, for example by integrating renewable energy, changing energy source, or replacing or adjusting the existing systems. In order to reduce the burden on users, this assessment should not be repeated if such recommendations are already documented, in the context of an energy performance certificate, building renovation passports, energy audit, recommendations from the manufacturer or other means of providing advice in an equivalent official documents or if the replacement of the system is already planned.

(53b) Some heating systems involve a high risk of carbon monoxide intoxication, depending on the type of heating generator (boiler, heat pump), the type of fuel (coal, oil, biomass, gas) or the location of the heating generator (such as within living spaces or in spaces not properly ventilated). Inspections of such systems provide a good opportunity for managing those risks.

(54) A common approach to the energy performance certification of buildings , renovation passports, smart readiness indicators and ***to*** the inspection of heating and air-conditioning systems, carried out by qualified ***or*** certified ***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. ***Experts should benefit from using test equipment certified in accordance with EN and ISO standards.*** In order to ensure the quality of energy performance certificates ▌ , renovation passports, smart readiness indicators and of the inspection of heating and air-conditioning systems throughout the Union, an independent control mechanism should be established in each Member State.

(54a) A sufficient number of reliable professionals competent in the field of energy renovation should be available to ensure sufficient capacity to carry out quality renovation works at the required scale. Member States should therefore where appropriate and feasible put in place certification schemes for integrated renovation works, which require expertise in multiple building elements or systems such as building insulation, electricity and heating systems and the installation of solar technologies; professionals involved may include designers, general contractors, specialist contractors and installers.

(55) 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**,** ***planners and engineers*** 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**,** ***including building modelling and simulation technologies***.

(56) 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.

(57) In order to further the aim of improving the energy performance of buildings, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of the adaptation to technical progress of certain parts of the general framework set out in Annex I, in respect of the establishment of a methodology framework for calculating cost-optimal levels of minimum energy performance requirements ▌ , in respect of ***setting out a Union framework for the national calculation of life-cycle GWP with a view to achieving climate neutrality*** , in respect of ***a Union scheme for rating the smart readiness of buildings and to encourage financial institutions to increase volumes provided for energy performance renovations by means of a comprehensive portfolio framework for voluntary use by financial institutions***. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level ▌ , and that those consultations be conducted in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making[17]. In particular, to ensure equal participation in the preparation of delegated acts, the European Parliament and the Council receive all documents at the same time as Member States' experts, and their experts systematically have access to meetings of Commission expert groups dealing with the preparation of delegated acts ▌ .

(58) In order to ensure an effective implementation of the provisions laid down in this Directive, the Commission supports Member States through various tools, such as the Technical Support Instrument[18] providing tailor-made technical expertise to design and implement reforms, including those aimed at increasing the annual energy renovation rate of residential and non-residential buildings by 2030 and to foster deep energy renovations. The technical support relates to, for example, strengthening of administrative capacity, supporting policy development and implementation, and sharing of relevant best practices.

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17 OJ L 123, 12.5.2016, p. 1.

18 Regulation (EU) 2021/240 of the European Parliament and of the Council of 10 February 2021 establishing a Technical Support Instrument (OJ L 57, 18.2.2021, p. 1).

(59) Since the objectives of this Directive, namely enhancing the energy performance of buildings and reducing the greenhouse gas emissions from 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, but can rather, ***by*** 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 principle of proportionality as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

(60) The legal basis of this initiative is Article 194(2) TFEU, which empowers the Union to establish the measures necessary to achieve the objectives of the Union with regard to policy on energy. The proposal contributes to the Union's energy policy objectives as outlined in Article 194(1) TFEU, in particular improving the energy performance of buildings and reducing their greenhouse gas emissions, which contributes to preserve and improve the environment.

(61) In accordance with point 44 of the Interinstitutional Agreement on Better Law-Making, Member States should 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 make them public. In accordance with the Joint Political Declaration of 28 September 2011 of Member States and the Commission on explanatory documents, Member States have undertaken to accompany, in justified cases, the notification of their transposition measures with one or more documents explaining the relationship between the components of a directive and the corresponding parts of national transposition instruments. With regard to this Directive, the legislator considers the transmission of such documents to be justified, in particular following the judgment of the European Court of Justice in Case Commission vs Belgium (case C-543/17).

(62) The obligation to transpose this Directive into national law should be confined to those provisions which represent a substantive amendment as compared to the earlier Directive. The obligation to transpose the provisions which are unchanged arises under the earlier Directive.

(63) This Directive should be without prejudice to the obligations of the Member States relating to the time-limits for the transposition into national law and the dates of application of the Directives set out in Annex VIII, Part B.

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Subject matter

1. This Directive promotes the improvement of the energy performance of buildings and the reduction of greenhouse gas emissions from buildings within the Union, with a view to achieving a zero-emission building stock by 2050***,*** taking into account ***the*** outdoor climatic ***conditions, the*** local conditions, ***the requirements for*** indoor ***environmental quality*** 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 ***and*** building units 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;

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

(d) the application of minimum energy performance standards to existing buildings and existing building units***, in accordance with Articles 3 and 9***;

(da) the calculation and disclosure of the life-cycle Global Warming Potential of buildings;

(db) solar energy in buildings;

(e) renovation passports;

(f) national building renovation plans;

(g) sustainable mobility infrastructure in and adjacent to buildings;

(h) smart buildings;

(i) energy performance certification of buildings or building units;

(j) regular inspection of heating, ventilation and air-conditioning systems in buildings;

(k) independent control systems for energy performance certificates, renovation passports, smart readiness indicators and inspection reports;

(ka) the indoor environmental quality performance of buildings.

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***,*** ***provided that*** such measures ***are*** compatible with the ***TFEU***. They shall be notified to the Commission.

Article 2

Definitions

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

1. 'building' means a roofed construction having walls, for which energy is used to condition the indoor ***environment***;

2. 'zero-emission building' means a building with a very high energy performance, as determined in accordance with Annex I, ***requiring zero or a*** very low amount of energy***, producing zero on-site carbon emissions from fossil fuels and producing zero or a very low amount of operational greenhouse gas emissions***, in accordance with the requirements set out in ***Article 9b;***

3. 'nearly zero-energy building' means a building ***with*** a very high energy performance, as determined in accordance with Annex I ▌, which cannot be lower than the 2023 cost-optimal level reported by Member States in accordance with Article 6(2) and where the nearly zero or very low amount of energy required ***is*** covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby;

3a. 'worst-performing buildings' means buildings which are within the 43% of buildings with the lowest energy performance in the national building stock;

4. ‘minimum energy performance standards’ means rules that require existing buildings to meet an energy performance requirement as part of a wide renovation plan for a building stock or at a trigger point on the market (***such as sale, rent, donation or change of purpose within the cadastre or land registry***), in a period of time or by a specific date, thereby triggering renovation of existing buildings;

5. ‘public bodies’ means ***public bodies within the meaning of Article 2(10) of [recast EED]*** ;***”***

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

7. ‘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;

8. ‘energy performance of a building’ means the calculated or metered 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, ***domestic*** hot water and lighting;

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

9a. ‘metered’ means measured by a relevant device, such as an energy meter, a power meter, a power metering and monitoring device, or an electricity meter;

10. ‘non-renewable primary energy factor’ means non-renewable primary energy for a given energy carrier, including the delivered energy and the calculated energy overheads of delivery to the points of use, divided by the delivered energy;

11. ‘renewable primary energy factor’ means renewable primary energy from an on-site, nearby or distant energy source that is delivered via a given energy carrier, including the delivered energy and the calculated energy overheads of delivery to the points of use, divided by the delivered energy;

12. ‘total primary energy factor’ means the ▌ sum of renewable and non-renewable primary energy factors for a given energy carrier;

13. ‘energy from renewable sources’ means energy from renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) ▌ , ***and*** geothermal energy ▌ , ambient energy, tide, wave ***and*** other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas;

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

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

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

17. ***'residential building or building unit***’ means a room or suite of rooms in a permanent building or a structurally separated part of a building which is designed for habitation by one private household all year round;

18. ‘renovation passport’ means a ▌ tailored roadmap for the ***deep*** renovation of a specific building in ***a maximum number of*** steps that will significantly improve its energy performance;

19. ‘deep renovation’ means a renovation ***in line with the energy efficiency first principle and which focuses on essential building elements, and*** which transforms a building or building unit***:***

    (a) before 1 January 2030, into a nearly zero-energy building;

    (b) as of 1 January 2030, into a zero-emission building;

20. ‘staged deep renovation’ means a deep renovation carried out in ***a maximum number of*** steps, following the steps set out in a renovation passport in accordance with Article 10;

21. ‘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).

22. ***‘***operational greenhouse gas emissions***’*** means greenhouse gas emissions associated with energy consumption of the technical building systems during use and operation of the building;

23. ‘whole life-cycle greenhouse gas emissions’ means ▌ greenhouse gas emissions ***that occur over the whole life cycle of the buildings, including production of construction products, their transport, construction site activities, use of energy in the building and replacement of construction products, as well as demolition, transport and management of waste materials and their*** reuse, recycling ***and final disposal***;

24. ‘Life-cycle Global Warming Potential (GWP)’ means an indicator which quantifies the global warming potential contributions of a building along its full life-cycle;

25. ’split incentives’ means split incentives as defined in Article 2(***54***) of ***Directive (EU) 2023/1791***;

26. ‘energy poverty’ means energy poverty as defined in Article 2(***52***) of ***Directive (EU) 2023/1791***;

27. ‘vulnerable households’ means households in energy poverty or households, including lower middle-income ones, that are particularly exposed to high energy costs and lack the means to renovate the building they occupy;

28. ‘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;

29. ‘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 4;

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

31. ‘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:

i) the category and use of building concerned:

ii) energy-related investment costs based on official forecasts;

iii) maintenance and operating costs, including energy costs taking into account the cost of greenhouse gas allowances;

iv) environmental and health externalities of energy use;

v) earnings from energy produced on-site, where applicable;

vi) waste management costs, where applicable; and

(b) the estimated economic lifecycle is determined by each Member State and 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;

32. ‘recharging point’ means a recharging point as defined in Article 2(***48***) of ***Regulation (EU) 2023/1804;***

32a. ‘pre-cabling’ means all measures that are necessary to enable the installation of recharging points, including data transmission, cables, cable routes and, where necessary, electricity meters;

32b. 'roofed car park' means a roofed construction, with at least three car parking spaces, that does not use energy to condition the indoor climate;

33. 'micro isolated system' means any system with consumption less than 500 GWh in the year 2022, where there is no connection with other systems;

34. 'smart ***recharging***' means smart ***recharging*** as defined in Article 2(***14m***) of Directive (EU) ***2023/2413;***

35. '***bi-directional recharging***' means bidirectional ***recharging*** as defined in Article 2(***14o***) of Directive (EU) ***2023/2413;***

36. 'mortgage portfolio standards' means mechanisms incentivising mortgage lenders to ***establish a path to*** increase the median energy performance of the portfolio of buildings covered by their mortgages ***towards 2030 and 2050,*** and to encourage potential clients to make their property more energy-performant along the Union's decarbonisation ambition and relevant energy targets in the area of energy consumption in buildings, relying on the definition of sustainable economic activities in the EU Taxonomy;

36a. 'pay-as-you-save financial scheme' means a loan scheme dedicated exclusively to energy performance improvements, where a correlation is established in the designing of the scheme between the repayments on the loan and the achieved energy savings, taking into account as well other economic factors, such as the indexation of the energy cost, interest rates, increased asset value and loan re-financing;

37. ‘digital building logbook’ means a common repository for all relevant building data, including data related to energy performance such as energy performance certificates, renovation passports and smart readiness indicators, ***as well as on the life-cycle GWP,*** which facilitates informed decision making and information sharing within the construction sector, among building owners and occupants, financial institutions and public ***bodies***;

38. ‘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;

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

39a. ‘ventilation system’ means the technical building system which provides outdoor air by natural or mechanical means to a space;

39b. ‘cooling generator’ means the part of an air-conditioning system that generates useful cooling for uses identified in Annex I;

40. ‘heat generator’ means the part of a heating system that generates useful heat for uses identified in Annex I, 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;

41. ‘energy performance contracting’ means energy performance contracting as defined in Article 2, point (***33***) ▌ of Directive (EU) ***2023/1791***;

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

43. ‘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;

44. ‘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;

45. ‘useful floor area’ means the area of the floor of a building needed as parameter to quantify specific conditions of use that are expressed per unit of floor area and for the application of the simplifications and the zoning and (re-)allocation rules;

46. ‘reference floor area’ means the floor area used as reference size for the assessment of the energy performance of a building, calculated as the sum of the useful floor areas of the spaces within the building envelope specified for the energy performance assessment;

47. ‘assessment boundary’ means the boundary where the delivered and exported energy are measured or calculated;

48. ‘on-site’ means the premises and the land on which the building is located and the building itself;

49. ‘energy from renewable sources produced nearby’ means energy from renewable sources produced within a local or district level perimeter of the building assessed, which fulfils all the following conditions:

    (a) it can only be distributed and used within that local and district level perimeter through a dedicated distribution network;

    (b) it allows for the calculation of a specific primary energy factor valid only for the energy from renewable sources produced within that local or district level perimeter; and

    (c) it can be used on-site of the building assessed through a dedicated connection to the energy production source, that dedicated connection requiring specific equipment for the safe supply and metering of energy for self-use of the building assessed;

50. ‘energy performance of buildings (EPB) services’ means the services, such as heating, cooling, ventilation, domestic hot water and lighting and others for which the energy use is taken into account in the ***calculation of the*** energy performance of buildings;

51. ‘energy needs’ means the energy to be delivered to, or extracted from, a conditioned space to maintain the intended space conditions during a given period of time disregarding any technical building system inefficiencies;

52. ‘energy use’ means energy input to a technical building system providing a EPB-service intended to satisfy an energy need;

53. ‘self-used’ means part of on-site or nearby produced renewable energy used by on-site technical systems for EPB services;

54. ‘other on-site uses’ means energy used on-site for uses other than EPB services, and may include appliances, miscellaneous and ancillary loads or electro-mobility charging points;

55. ‘calculation interval’ means the discrete time interval used for the calculation of the energy performance;

56. ‘delivered energy’ means energy, expressed per energy carrier, supplied to the technical building systems through the assessment boundary, to satisfy the uses taken into account or to produce the exported energy;

57. ‘exported energy’ means, expressed per energy carrier and per primary energy factor, the proportion of the renewable energy that is exported to the energy grid instead of being used on site for self-use or for other on-site uses.

57a. ‘bicycle parking space’ means a designated space for at least one bicycle;

57b. ‘car park physically adjacent to a building’ means a car park which is intended for the use of residents, visitors, or workers of a building, which is located within the property area of the building or which is in the direct vicinity of the building;

57c. ‘indoor environmental quality’ means the result of an assessment inside a building based upon parameters such as relating to the temperature, humidity, ventilation rate and presence of contaminants, influencing the health and wellbeing of its occupants;

Article 3

National building renovation plan

1. Each Member State shall establish a national building renovation plan ***to*** ensure 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, with the objective to transform existing buildings into zero-emission buildings. ▌

   Each building renovation plan shall encompass:

   (a) an overview of the national building stock for different building types, ***including their share in the building stock,*** construction periods and climatic zones ▌, based, as appropriate, on statistical sampling and the national database for energy performance certificates pursuant to Article 19, an overview of market barriers and market failures and an overview of the capacities in the construction, energy efficiency and renewable energy sectors, ***and of the share of vulnerable households based, as appropriate, on statistical sampling***;

   (b) a roadmap with nationally established targets and measurable progress indicators, ***including the reduction of the number of people affected by energy poverty,*** with a view to the 2050 climate neutrality goal, in order to ensure a highly energy efficient and decarbonised national building stock and the transformation of existing buildings into zero-emission buildings by 2050;

   (c) an overview of implemented and planned policies and measures, supporting the implementation of the roadmap pursuant to point (b)***. Where an overview of specific policies and measures is already included in the national energy and climate plans, a clear reference to the relevant parts of the national energy and climate plans may be included in the building renovation plan in place of a fully developed overview;***

(d) an outline of the investment needs for the implementation of the building renovation plan, the financing sources and measures, and the administrative resources for building renovation. ***Where an outline of specific investment needs is already included in the national energy and climate plans, a clear reference to the relevant parts of the national energy and climate plans may be included in the building renovation plan in place of a fully developed outline.***

(e) the operational greenhouse gas emissions and annual primary energy use of a new or renovated zero-emission building thresholds in accordance with Article 9b (1);

(f) minimum energy performance standards for non-residential buildings, based on maximum energy performance thresholds, in accordance with Article 9(1);

(g) national trajectory for the renovation of residential buildings, including the 2030 and 2035 milestones for average primary energy use in kWh/(m^2.y), in accordance with Article 9(2); and

(h) an evidence-based estimate of expected energy savings, and wider benefits, including indoor environmental quality.

The roadmap referred to in point (b) shall include national targets for 2030, 2040 and 2050 as regards the annual energy renovation rate, the primary and final energy consumption of the national building stock and its operational greenhouse gas emission reductions**,** specific timelines for ***non-residential*** buildings to ***comply with lower maximum*** energy performance ***thresholds*** pursuant to Article 9(1), by 2040 and 2050, in line with the pathway for transforming the national building stock into zero-emission buildings; an evidence-based estimate of expected energy savings and wider benefits ▌ , including ***indoor environmental quality.***

2. Every five years, each Member State shall prepare and submit to the Commission a draft of its building renovation plan, using the template in Annex II. Each Member State shall submit its draft building renovation plan as part of its draft integrated national energy and climate plan referred to in Article 9 of Regulation (EU) 2018/1999 and, where the Member States submits a draft update, its draft update referred to in Article 14 of that Regulation. By way of derogation from Article 9(1) and Article 14(1) of that Regulation, Member States shall submit the first draft building renovation plan to the Commission by ***31 December 2025***.

3. To support the development of its building renovation plan, each Member State shall carry out a public consultation on its draft building renovation plan prior to submitting it to the Commission. The public consultation shall involve in particular local and regional authorities and other socio-economic partners, including civil society and bodies working with vulnerable households. Each Member State shall annex a summary of the results of its public consultation to its draft building renovation plan***. The public consultation may be integrated as part of the public consultation undertaken pursuant to Article 10 of Regulation 2018/1999***.

4. The Commission shall assess the national draft building renovation plans, in particular whether:

   (a) the level of ambition of the nationally established targets is sufficient and in line with the national commitments on climate and energy laid down in the national integrated energy and climate plans;

   (b) the policies and measures are sufficient to achieve the nationally established targets;

   (c) the allocation of budgetary and administrative resources is sufficient for the implementation of the plan;

(ca) the financing sources and measures referred to in paragraph 3(1)(d) are in line with the planned reduction of energy poverty referred to in 3(1)(b);

(cb) the plan prioritises worst-performing buildings, in accordance with Article 9;

(d) the public consultation pursuant to paragraph 3 has been sufficiently inclusive; and

(e) the plans comply with the requirements of paragraph 1 and the template in Annex II.

After consulting the ***experts of the*** Committee established by Article 30, the Commission may issue country-specific recommendations to Member States in accordance with Article 9(2) and Article 34 of Regulation (EU) 2018/1999.

With regard to the first draft building renovation plan, the Commission may issue country-specific recommendations to Member States no later than six months after the Member State has submitted that plan.

5. ***In its final building renovation plan,*** each Member State shall take due account of any recommendations from the Commission ***on the draft*** building renovation plan. If the Member State concerned does not address a recommendation or a substantial part thereof, it shall provide a justification to the Commission and make public its reasons.

6. Every five years, each Member State shall submit its building renovation plan to the Commission, using the template in Annex II. Each Member State shall submit its building renovation plan as part of its integrated national energy and climate plan referred to in Article 3 of Regulation (EU) 2018/1999 and, where the Member States submits an update, its update referred to in Article 14 of that Regulation. By way of derogation from Article 3(1) and Article 14(2) of that Regulation, Member States shall submit the first building renovation plan to the Commission by ***31 December 2026***.

7. Each Member State shall annex the details of the implementation of its most recent long-term renovation strategy or building renovation plan to its next final building renovation plan . Each Member State shall state whether its national targets have been achieved.

8. Each Member State shall include in its integrated national energy and climate progress reports, in accordance with Articles 17 and 21 of Regulation (EU) 2018/1999, information on the implementation of the national targets referred to in paragraph 1, point (b) of this Article***. In its annual State*** of the ***Energy Union report pursuant to Article 35 of Regulation (EU) 2018/1999, the Commission shall include, biennially, an overall progress report on the renovation of the national stock of residential and non-residential buildings, both public and private, in line with the roadmaps set out in the building renovation plans, based upon the information submitted by the Member States in their integrated national*** energy ***and climate progress reports. The Commission shall monitor annually the evolution of the energy performance of the EU building stock, on the basis of best available information from Eurostat and other sources, and publish the information through the EU Building Stock Observatory***.

Article 4

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.

That methodology shall be adopted at national or regional level. ***The Commission shall issue guidance about the calculation of the energy performance of transparent building elements that form part of the building envelope and the consideration of ambient energy.***

Article 5

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 at least achieving cost-optimal levels ***and, where relevant, more stringent reference values such as nearly zero-energy building requirements and zero-emission buildings requirements***. The energy performance shall be calculated in accordance with the methodology referred to in Article 4. Cost-optimal levels shall be calculated in accordance with the comparative methodology framework referred to in Article 6 ▌ . ▌

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 at least cost-optimal levels. ***In establishing the requirements for building elements, Member States may set them at a level that would facilitate the effective installation of low temperature heating systems in renovated buildings.***

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

Those requirements shall take account of ***optimal*** indoor ***environmental quality***, 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.

▌ Member States shall review their minimum energy performance requirements at regular intervals which shall not be longer than five years and shall ▌ , if necessary, update them in order to reflect technical progress in the building sector ▌ , the results of the cost-optimal calculation set out in Article 6, and updated national energy and climate targets and policies ▌ .

2. Member States may decide to adapt the requirements referred to in paragraph 1 to buildings officially protected ***at national, regional or local level,*** as part of a designated environment or because of their special architectural or historical merit, in so far as compliance with certain ▌ requirements would unacceptably alter their character or appearance.

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

(-a) buildings owned by the armed forces or central government and serving national defence purposes, apart from single living quarters or office buildings for the armed forces and other staff employed by national defence authorities;

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

(b) 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 ***used*** by a sector covered by a national sectoral agreement on energy performance;

(c) 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;

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

Article 6

Calculation of cost-optimal levels of minimum energy performance requirements

1. The Commission is empowered to adopt delegated acts in accordance with Article 29 ***to supplement this Directive*** concerning a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements. By 30 June ***2025 ,***the Commission shall revise the comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements in ***new buildings and*** existing buildings undergoing major renovation and for individual building elements***, which are in line with the national pathways set out in the national energy and climate plans submitted to the Commission pursuant to Article 14 of Regulation (EU) 2018/1999***.

   The comparative methodology framework shall be laid down in accordance with Annex VII 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 ***that*** calculation with the minimum energy performance requirements in force. ***Member States may take into account the life-cycle GWP.***

   Member States shall report to the Commission all input data and assumptions used for those calculations and the results of those calculations. Member States shall update and submit those reports to the Commission at regular intervals, which shall not be longer than five years. The first report based on the revised methodology framework pursuant to paragraph 1 shall be submitted by 30 June 2028.

3. If the result of the comparison performed in accordance with paragraph 2 shows that the minimum energy performance requirements in force are more than 15% less energy efficient than cost-optimal levels of minimum energy performance requirements, the Member State concerned shall ***adjust the minimum energy performance requirements in place within 24 months of the availability of the results of that comparison***.

4. The Commission shall publish a report on the progress of the Member States in reaching cost-optimal levels of minimum energy performance requirements. ***Member States shall report to the Commission and make use of the template provided in Annex III to the Commission Delegated Regulation (EU) No 244/2012[19].***

Article 7

New buildings

1. Member States shall ensure that ▌ new buildings are zero-emission buildings in accordance with ***Article 9b***:

   (a) as of 1 January ***2028***, new buildings ▌ owned by public ***bodies***; and

   (b) as of 1 January 2030, all new buildings;

   ▌ Until the application of the requirements under the first subparagraph, Member States shall ensure that ***all*** new buildings are at least nearly zero-energy buildings and meet the minimum energy performance requirements laid down in accordance with Article 5. ***Where public bodies aim to occupy a new building that they do not own, they shall aim for that building to be a zero-emission building.***

2. Member States shall ensure that the life-cycle Global Warming Potential (GWP) is calculated in accordance with Annex III and disclosed through the energy performance certificate of the building:

   (a) as of 1 January ***2028***, for all new buildings with a useful floor area larger than ***1000*** square meters; ▌

   (b) as of 1 January 2030, for all new buildings.

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[19] ***Commission Delegated Regulation (EU) No 244/2012 of 16 January 2012 supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings by establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements (OJ L 81, 21.3.2012, p. 18).***

2a. ***The Commission is empowered to adopt delegated acts in accordance with Article 29 to amend Annex III to set out a Union framework for the national calculation of life-cycle GWP with a view to achieving climate neutrality. The first such delegated act shall be adopted by 31 December 2025.***

2b. ***Member States may decide not to apply paragraphs 1 and 2 to categories of buildings for which building permit applications or equivalent applications including for change of use have already been submitted by the dates pursuant to paragraphs 1 and 2.***

2c. ***By 1 January 2027 Member States shall publish and notify to the Commission a roadmap detailing the introduction of limit values on the total cumulative life-cycle GWP of all new buildings and set targets for new buildings from 2030, considering a progressive downward trend, as well as maximum limit values, detailed for different climatic zones and building typologies.***

Those maximum limit values shall be in line with the Union's objectives to achieve climate neutrality.

The Commission shall issue guidance, share evidence on existing national policies and offer technical support to Member States, at their request.

4. Member States shall address, in relation to new buildings, the issues of ***optimal indoor environmental quality***, adaptation to climate change, fire safety, risks related to intense seismic activity and accessibility for persons with disabilities. Member States shall also address carbon removals associated to carbon storage in or on buildings.

Article 8

Existing buildings

1. 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 5 in so far as ***that*** 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.

2. 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 ***that*** is technically, functionally and economically feasible.

3. Member States shall encourage, in relation to buildings undergoing major renovation, high-efficiency alternative systems, in so far as ***that*** is technically, functionally and economically feasible. Member States shall address , in relation to buildings undergoing major renovation, the issues of indoor ***environmental quality***, adaptation to climate change, fire safety, risks related to intense seismic activity , the removal of hazardous substances including asbestos and accessibility for persons with disabilities .

Article 9

Minimum energy performance standards ***and trajectories for progressive renovation***

1. ***Member States shall establish minimum energy performance standards which ensure that non-residential buildings do not exceed the specified maximum energy performance threshold, as referred to in subparagraph 3, expressed by a numeric indicator of primary or final energy use in kWh/(m2.y), by the dates specified in subparagraph 6.***

The maximum energy performance thresholds shall be established on the basis of the non-residential building stock on 1 January 2020, based on available information and, where appropriate, on statistical sampling.

A "16 % threshold" shall be set so that 16 % of the national building stock is above that threshold, and a "26 % threshold" shall be set so that 26 % of the national building stock is above that threshold. The maximum energy performance thresholds may be differentiated between different building types and categories.

Compliance by individual buildings with the thresholds shall be checked on the basis of energy performance certificates or, where appropriate, other available means. Member States may set the thresholds at a level corresponding to a specific energy performance class provided that they comply with the level of the thresholds in subparagraph 3.

The minimum energy performance standards shall at least ensure that all non-residential buildings are below:

(a) the 16 % threshold as of 2030; and

(b) the 26 % threshold as of 2033.

In their roadmap referred to in Article 3(1)(b), Member States shall establish specific timelines for the buildings referred to in this paragraph to comply with lower maximum energy performance thresholds by 2040 and 2050, in line with the pathway for transforming the national building stock into zero-emission buildings.

Member States shall exclude from the baseline buildings that they exempt pursuant to paragraph 6.

Member States may set and publish clear criteria to exempt individual buildings, in light of the expected future use of the building, serious hardship or in the case of an unfavourable cost-benefit assessment, from requirements in this paragraph. Any such criteria shall be precise, stringent and ensure equal treatment between buildings. When setting those criteria Member States shall enable ex-ante assessment of the potential share of buildings covered and avoid that a disproportionate number of buildings are exempted. Member States shall also report the criteria as part of their building renovation plans submitted to the Commission under Article 3.

Where Member States set exemptions pursuant to the previous subparagraph, they shall achieve equivalent energy performance improvements in other parts of the non-residential building stock.

In cases where the overall renovation necessary to achieve the energy performance thresholds specified in this paragraph has an unfavourable cost-benefit assessment for a given building, Member States shall require that, for that given building, at least those individual renovation measures with a favourable cost-benefit assessment are implemented.

To the extent that the national non-residential building stock, or part of it, is seriously damaged by a natural disaster, a Member State may temporarily adjust the maximum energy performance threshold so that the energy renovation of damaged non-residential buildings replaces the energy renovation of other worst-performing buildings, whilst ensuring that a similar percentage of the non-residential building stock undergoes energy renovation. In that case, the Member State shall report the adjustment and its projected length in its national building renovation plan.

2. The Member States shall establish a national trajectory for the progressive renovation of the residential building stock in line with the national roadmap and the 2030, 2040 and 2050 targets contained in the Member State's building renovation plan and with the transformation of the national building stock into zero-emission buildings by 2050. This trajectory shall be established as of the transposition date.

The trajectory shall be expressed as a decrease of the average primary energy use in kWh/(m2.y) of the whole residential building stock over the period from 2020 to 2050, and shall identify the number of buildings and building units or floor area to be renovated annually, including the number of worst performing buildings and building units or floor area.

Member States shall ensure that from 2020 the average primary energy use in kWh/(m2.y) of the whole residential building stock:

(a) decreases by at least 16 % by 2030;

(b) decreases by at least 20-22% by 2035;

(c) by 2040, and every 5 years thereafter, is equivalent to, or lower than nationally determined value derived from a progressive decrease of the average primary energy use from 2030 to 2050 in line with the transformation of the residential building stock into a zero-emission building stock.

Member States shall ensure that at least 55 % of the decrease of the average primary energy use is achieved through the renovation of worst-performing residential buildings. Member States may count the energy savings achieved by the renovation of buildings affected by natural disasters such as earthquakes and floods towards the share achieved through the renovation of worst performing buildings.

In their renovation efforts to achieve the required decrease in the average primary energy use of the whole residential building stock, Member States shall put in place measures such as minimum energy performance standards, technical assistance and financial support measures.

In their renovation efforts, Member States shall not disproportionately exempt rental dwellings.

Member States shall report in the national building renovation plans the methodology used and data gathered for estimating the values referred to in subparagraphs 2 and 3. As part of the assessment of national building renovation plans, the Commission shall monitor the achievement of the values referred to in subparagraphs 2 and 3, including the number of buildings and building units or floor area of worst performing buildings, and make recommendations where necessary. Those recommendations may include a more extensive use of minimum energy performance standards.

The trajectory shall refer to data on the national residential building stock, based, as appropriate, on statistical sampling and energy performance certificates.

If the average fossil share of energy use in residential buildings is lower than 15 %, Member States may adjust the levels in points a) and b) to ensure that the average primary energy use in kWh/(m^2.y) of the whole residential building stock by 2030, and every 5 years thereafter, is equivalent to, or lower than a nationally determined value derived from a linear decrease of the average primary energy use from 2020 to 2050 in line with the transformation of the residential building stock into a zero-emission building stock.

3. In addition to primary energy use referred to in paragraphs 1 and 2, Member States may define additional indicators of non-renewable and renewable primary energy use, and of operational greenhouse gas emissions produced in kgCO_2eq/(m^2.y). In order to ensure reduction of operational greenhouse gas emissions, the minimum energy performance standards shall take into account the [Article 15a (1) Renewable Energy Directive COM (2021) 557 final] [20].

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[20] Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652.

4. In accordance with Article 15, Member States shall support compliance with minimum energy performance standards by all the following measures:

(a) providing appropriate financial measures, in particular those targeting vulnerable households, people affected by energy poverty or***, where applicable,*** living in social housing, in line with Article 22 of Directive (EU) .../…. [recast EED];

(b) providing technical assistance, including through one-stop-shops ***with a particular focus on vulnerable households and, where applicable, people living in social housing, in accordance with Article 24 of Directive (EU).../…. [recast EED]***;

(c) designing integrated financing schemes***, which provide incentives for deep and staged deep renovations, pursuant to Article 15***;

(d) removing non-economic barriers, including split incentives; and

(e) monitoring social impacts, in particular on the most vulnerable ***households.***

5. Where a building is renovated in order to comply with a minimum energy performance standard, Member States shall ensure compliance with the minimum energy performance requirements for building elements pursuant to Article 5 and, in ***the*** case of major renovation, with the minimum energy performance requirements for existing buildings pursuant to Article 8.

6. Member States may decide not to apply the minimum energy performance standards referred to in paragraphs 1 and 2 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, ***or other heritage buildings,*** in so far as compliance with the standards would unacceptably alter their character or appearance***, or if their renovation is not technically or economically feasible***;

(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 used 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;

(f) buildings owned by the armed forces or central government and serving national defence purposes, apart from single living quarters or office buildings for the armed forces and other staff employed by national defence authorities.

7. Member States shall take the measures necessary to ensure the implementation of minimum energy performance standards referred to in paragraphs 1 and 2, including appropriate monitoring mechanisms and penalties in accordance with Article 31.

When laying down the rules on penalties, Member States shall consider the financial situation and access to adequate financial support of homeowners, in particular for vulnerable households.

8. In support of the implementation of this Directive and taking due account of the principle of subsidiarity, the Commission shall, by 31 March 2025, present an analysis on, in particular:

(a) the effectiveness, the appropriateness of the level, the actual amount used and types of instruments in structural funds, framework programmes from the European Union, including from the EIB, for improving the energy performance of buildings, especially in housing;

(b) the effectiveness, the appropriateness of the level and types of instruments and measures from public finance institutions;

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

Based on that analysis, the Commission shall subsequently submit a report to the European Parliament and to the Council on the effectiveness and appropriateness of financing instruments towards the improvement of energy performance of buildings, in particular the worst-performing ones.

▌ ***Article 9a***

Solar Energy in buildings

1. Member States shall ensure that all new buildings are designed to optimise their solar energy generation potential on the basis of the solar irradiance of the site, enabling the ***subsequent*** cost-effective installation of solar technologies.

2. For the installation of solar energy equipment, the permit-granting process pursuant to Article 16c, and notification procedure pursuant to Article 17 of Directive (EU) 2018/2001 [RED as amended] apply.

3. Member States shall ensure the deployment of suitable solar energy installations***, if technically suitable and economically and functionally feasible, as follows***:

(a) by 31 December 2026, on all new public and ***non-residential*** buildings with useful floor area ***over 250 m²***;

(b) by 31 December 2027, on all existing public ▌ buildings with useful floor area larger than ***2000*** m²; ▌

(c) by 31 December ***2028***, on all ***existing public*** buildings ***with useful floor area larger than 750 m²;***

(d) by 31 December 2030, on all existing public buildings with useful floor area larger than 250 m²;

(e) by 31 December 2027, on existing non-residential buildings with useful floor area larger than 500 m², where the building undergoes a major renovation or an action that requires an administrative permit for building renovations, works on the roof or the installation of a technical building system;

(f) by 31 December 2029, on all new residential buildings; and

(g) by 31 December 2029, on all new roofed carparks physically adjacent to buildings.

In their building renovation plans referred to in Article 3, Member States shall include policies and measures with regard to the deployment of suitable solar energy installations on all buildings.

4. Member States shall define, and make publicly available, criteria at national level for the practical implementation of these obligations, and for possible exemptions for specific types of buildings ***taking into account the principle of technological neutrality with regard to technologies not producing any on-site emissions and*** in accordance with the assessed technical and economic potential of the solar energy installations and the characteristics of the buildings covered by this obligation.

In order to achieve the objectives of this Article and to take into account the issues linked to the stability of the electricity network, Member States shall include relevant stakeholders in the establishment of the above criteria.

Member States shall also take into account structural integrity, green roofs, and attic and roof insulation, where appropriate.

In the transposition of the obligations in points a to g, a Member State may use the measurement of buildings' ground floor area instead of buildings' useful floor area, provided that the Member State shows that this results in an equivalent amount of installed capacity of suitable solar energy installations on buildings.

7. Member States shall put in place a framework providing the necessary administrative, technical and financial measures to support the deployment of solar energy in buildings, including in combination with technical building systems or efficient district heating systems.

Article 9b

Zero-emission buildings

1. *A zero-emission building shall not cause any on-site carbon emissions from fossil fuels. A zero-emission building shall offer the capacity to react to external signals and adapt its energy use, generation or storage, where economically and technically feasible.*

2. *Member States shall take the necessary measures to ensure that the energy demand of a zero-emission building complies with a maximum threshold.*

   Member States shall set this maximum threshold with a view to achieving at least the cost-optimal levels established in the most recent national cost-optimal report pursuant to Article 6. Member States shall revise the maximum threshold every time that the cost-optimal levels are revised.

3. *The maximum threshold shall be at least ten percent lower than the threshold for total primary energy use established at Member State level for nearly zero-energy buildings on [date of entry into force].*

4. *Member States may decide to adjust the thresholds as referred to in subparagraph 2 for renovated buildings, while complying with the respective provisions on cost optimality, and, where thresholds for renovated nearly zero-energy buildings have been established, the requirements of paragraph 3.*

5. Member States shall take the necessary measures to ensure that the operational greenhouse gas emissions of zero-emission building comply with a maximum threshold established at the Member State level in their building renovation plans. This maximum threshold may be set at different levels for new and renovated buildings.

Member States shall notify the Commission about their maximum thresholds, including a description of the calculation methodology per building type and applied climate, in accordance with Annex I. The Commission shall review the maximum thresholds and recommend their adaptation where appropriate.

▌

6. Member States shall ensure that the total annual primary energy use of a new or renovated zero-emission building is covered by:

(a) energy from renewable sources generated onsite or nearby, fulfilling the criteria of Article 7 of Directive (EU) 2018/2001 [amended RED];

(b) energy from renewable sources provided from a renewable energy community within the meaning of Article 22 of Directive (EU) 2018/2001 [amended RED];

(c) energy from an efficient district heating and cooling system in accordance with Article 24(1) of Directive (EU) …/… [recast EED]; or

(d) energy from carbon free sources.

Where it is technically and economically not feasible to fulfil the requirements under this paragraph, the total annual primary energy use may also be covered by other energy from the grid complying with criteria established at national level.

Article 10

Renovation passport

1. By ***[date of transposition], Member States*** shall ***introduce a scheme of*** renovation passports ▌ based on the ***common framework*** set out in ***Annex VIIa***.

2. ***That scheme shall be of voluntary use by owners of buildings and building units, unless the Member State decides to make it mandatory***.

   Member States shall take measures to ensure that building renovation passports are affordable and shall consider providing financial support to vulnerable households wishing to renovate their buildings.

3. ***Member States may decide to allow for*** the renovation passport ***to be drawn up and issued jointly*** with the ***energy performance certificate.***

4. ***The renovation passport*** shall be issued ***in a digital format suitable for printing*** by a qualified ***or*** certified expert, following an on-site visit***.***

5. ***When the renovation passport is issued, a discussion with the building owner shall be suggested to allow the expert to explain to the building owner the best steps*** to transform the building into a zero-emission building ***well before 2050.***

6. ***Member States*** shall ***strive to provide a dedicated digital tool for preparing and potentially updating the renovation passport. Member States may decide to develop a complementary tool allowing building owners and building managers to simulate a draft simplified renovation passport for*** the building ***and for them to update it once a renovation takes place or a building element is replaced.***

7. Member States shall ensure that the renovation passport can be uploaded to the national database for the energy performance of buildings in accordance with Article 19.

8. Member States shall ensure that the building renovation passport is stored in, or can be accessed via, the digital building logbook, when established.

▌

Article 11

Technical building systems

1. Member States shall, for the purpose of optimising the energy use of technical building systems, set system requirements, ***using energy saving technologies,*** in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems***, and, where appropriate, hydronic balancing,*** which are installed in new or existing buildings. When setting up the requirements, Member States shall take account of design conditions and typical or average operating conditions. ▌

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 may set requirements related to the greenhouse gas emissions of, or to the type of fuel used by heat generators ***or to the minimum part of renewable energy used for heating at building's level,*** provided that such requirements do not constitute an unjustifiable market barrier.

Member States shall ensure that the requirements they set for technical building systems reach at least the latest cost-optimal levels.

1a. ***Member States may set specific system requirements for technical building systems in order to facilitate the effective installation and operation of low temperature heating systems in new or renovated buildings.***

2. 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 ***or cooled*** zone of the building unit ***and, where appropriate, with hydronic balancing.*** The installation of such self-regulating devices ***and, where appropriate, hydronic balancing in existing buildings*** shall be required when heat ***or cooling*** generators are replaced, where technically and economically feasible.

2a. ***Member States shall set requirements for the implementation of adequate indoor environmental quality standards in buildings in order to maintain a healthy indoor climate.***

3. Member States shall require ***non-residential*** zero-emission buildings to be equipped with measuring and control devices for the monitoring and regulation of indoor air quality. In existing buildings, the installation of such devices shall be required, where technically and economically feasible, when a building undergoes a major renovation. ***Member States may require the installation of such devices in residential buildings.***

4. Member States shall ensure that, when a technical building system is installed, 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 and the issue of energy performance certificates.

Member States shall take the necessary measures to ensure that when a technical building system is retrofitted or replaced, the energy performance of the system is optimised.

Member States shall promote energy storage for renewable energy in buildings.

Member States may adopt new incentives and funding to encourage the switch from fossil-fuelled heating and cooling systems to non-fossil fuel based systems.

5. Member States shall strive to replace stand-alone boilers powered by fossil fuels in existing buildings to be in line with the national phase-out plans for fossil fuel boilers.

6. The Commission shall issue guidance on what qualifies as a fossil fuel boiler.

7. Member States shall lay down requirements to ensure that, where technically and economically feasible, non-residential buildings are equipped with building automation and control systems, as follows:

(a) by 31 December 2024, non-residential buildings with an effective rated output for heating systems, air conditioning systems or systems for combined space heating and ventilation or systems for combined air conditioning and ventilation of over 290 kW;

(b) by 31 December 2029, non-residential buildings with an effective rated output for heating systems, air conditioning systems or systems for combined space heating and ventilation or systems for combined air conditioning and ventilation systems of over 70 kW.

▌

8. 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;

(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;

(d) monitoring of indoor environmental quality

9. Member States shall lay down requirements to ensure that, where technically, economically and functionally feasible, from [date of transposition], new residential buildings and residential buildings undergoing major renovations are equipped with the following:

(a) the functionality of continuous electronic monitoring that measures systems' efficiency and informs building owners or managers in the case of a significant variation and when system servicing is necessary;

(b) effective control functionalities to ensure optimum generation, distribution, storage, use of energy and, where applicable, hydronic balance;

(c) a capacity to react to external signals and adjust the energy consumption

10. Member States may exclude single-family houses undergoing major renovations from the requirements laid down in this paragraph where the costs of installation exceed the benefits.

11. Member States shall lay down requirements to ensure that by 31 December 2027, where technically and economically feasible, non-residential buildings with an effective rated output for heating systems, air conditioning systems or systems for combined space heating and ventilation or systems for combined air conditioning and ventilation of over 290 kW are equipped with automatic lighting controls. The automatic lighting controls shall be suitably zoned and capable of occupancy detection.

Member States shall lay down requirements to ensure that by 31 December 2029, where technically and economically feasible, non-residential buildings with an effective rated output for heating systems, air conditioning systems or systems for combined space heating and ventilation or systems for combined air conditioning and ventilation of over 70 kW are equipped with automatic lighting controls. The automatic lighting controls shall be suitably zoned and capable of occupancy detection.

Article 12

Infrastructure for sustainable mobility

1. With regard to new non-residential buildings ***with more than five car parking spaces*** and non-residential buildings undergoing major renovation, with more than ***five car*** parking spaces, Member States shall ensure:

   (a) the installation of at least one recharging point ***for every five parking spaces***;

   (b) the installation of pre-cabling for ***at least 50% of car*** parking ***spaces and ducting, namely conduits for electric cables, for the remaining parking spaces,*** to enable the installation at a later stage of recharging points for electric vehicles***, electrically power-assisted cycles and other L-category vehicles types***; and

   (c) ***bicycle parking spaces representing*** at least ***15% of average or 10% of total user capacity of non-residential buildings, taking into account the*** space ***required also for bicycles with larger dimensions than standard bicycles***;

   where:

   (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.

   Member States shall ensure that the pre-cabling ***and ducting are*** dimensioned so as to enable the simultaneous ***and efficient*** use of the ***required*** number of recharging points ***and support, where appropriate, the installation of a load or charging management system, to the extent that this is technically and economically feasible and justifiable***.

By way of derogation from the first subparagraph, point (a), for new office buildings and office buildings undergoing major renovation, with more than five parking spaces, Member States shall ensure the installation of at least one recharging point for every two parking spaces.

2. With regard to all non-residential buildings with more than twenty parking spaces, Member States shall ensure ▌ by 1 January 2027***:***

(a) the installation of at least one recharging point for every ten parking spaces, or

(b) ducting, namely conduits for electric cables, for at least 50% of the parking spaces to enable the installation at a later stage of recharging points for electric vehicles; and

(c) bicycle parking spaces representing at least 15% of average or 10% of total user capacity of the building and with space required also for bicycles with larger dimensions than standard bicycles.

In case of buildings owned or occupied by public bodies, Member States shall ensure pre-cabling for at least one in two parking spaces by 1 January 2033.

Member States may decide to postpone the implementation of this requirement until 1 January 2029 for all non-residential buildings that have been renovated in the two years prior to entry into force of this directive to comply with the national requirements set in accordance with Article 8(3) of Directive 2010/31/EU.

3. Member States may adjust requirements for the number of bicycle parking spaces in accordance with paragraphs 1 and 2 for specific categories of non-residential buildings ***that are not*** typically ***accessed by bicycles***.

4. With regard to new residential buildings ***with more than three car parking spaces*** and residential buildings undergoing major renovation, with more than three ***car*** parking spaces, Member States shall ensure:

(a) the installation of pre-cabling ***for at least 50% of car parking spaces and ducting, namely conduits for electric cables, for the remaining car*** parking ***spaces*** to enable the installation, at a later stage, of recharging points for electric vehicles***, electrically power-assisted cycles and other L-category vehicle types;***

(aa) the installation of at least one recharging point for new residential buildings, and

(b) at least two bicycle parking spaces for every ***residential building unit;***

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;

(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.

By way of derogation from the first subparagraph, Member States may, subject to an assessment by local authorities and taking into account local characteristics, including demographical, geographical and climate conditions, adjust requirements for the number of bicycle parking spaces.

Member States shall ensure that the pre-cabling is dimensioned to enable the simultaneous use of recharging points on all parking spaces. Where, in the case of major renovation, ensuring two bicycle parking spaces for every ***residential building unit*** is not feasible, Member States shall ensure as many bicycle parking spaces as appropriate.

5. Member States may decide not to apply paragraphs 1, 2 and 4 to specific categories of buildings ***where:***

(a) the pre-cabling 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; or

(b) the cost of the recharging and ducting installations exceeds at least 10 % of the total cost of the major renovation of the building.

6. Member States shall ensure that the recharging points referred to in paragraphs 1, 2 and 4 ***of this Article*** are capable of smart charging and, where appropriate ▌ bidirectional charging, and that they are operated based on non-proprietary and non-discriminatory communication protocols and standards, in an interoperable manner, and in compliance with any legal standards and protocols in the delegated acts adopted pursuant to Article 19(6) and Article 19(7) of Regulation (EU) ***2023/1804***.

7. Member States shall encourage that operators of non-publicly accessible recharging points operate them in accordance with Article 5(4) of Regulation (EU) ***2023/1804***, where applicable.

8. Member States shall provide for measures in order to simplify***, streamline and accelerate the procedure for the installation*** of recharging points in new and existing***,*** residential and non-residential buildings***, especially of co-owners associations, and*** remove regulatory barriers, including permitting and approval procedures ***from public authorities*** without prejudice to the property and tenancy law of the Member States. Member States shall remove barriers to the installation of recharging points in residential buildings with parking spaces, in particular the need to obtain consent from the landlord or co-owners for a private recharging point for own use. ***A request by tenants or co-owners to be allowed to install charging equipment in a parking space may only be refused if there are serious and legitimate grounds for doing so.***

Without prejudice to their property and tenancy law, Member States shall assess administrative barriers regarding the application for the installation of a recharging point in a multi-dwelling building at a tenants' or co-owners association.

By 31 December 2025, the Commission shall publish guidance for fire safety in car parks.

Member States shall ensure the availability of technical assistance for building owners and tenants wishing to install recharging points ***and bicycle parking spaces***.

With regard to residential buildings, Member States shall consider the introduction of support schemes for the installation of charging stations, pre-cabling or ducting of parking spaces in line with the number of battery electric light-duty vehicles registered in their territory.

▌

9. Member States shall ensure the coherence of policies for buildings, ***active*** and green mobility***, climate, energy, biodiversity*** and urban planning. ▌

Article 13

Smart readiness of buildings

1. The Commission shall adopt delegated ***acts*** in accordance with Article 29 concerning 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***, in particular concerning indoor environmental quality*** and the grid and to improve its energy efficiency and overall performance.

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

   (a) the definition of the smart readiness indicator; ▌

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

2. The Commission shall, by 31 ***June 2026, submit a report to the European Parliament and the Council on the testing and implementation of the smart readiness indicator, based on the available results of the national test phases and other relevant projects. Taking into account of the outcome of the report, the Commission shall, by 30 June 2027***, adopt a delegated act in accordance with Article 29, ***supplementing this Directive by*** requiring the application of the common Union scheme for rating the smart readiness of buildings, in accordance with Annex IV, to non-residential buildings with an effective rated output for heating systems, ***air-conditioning systems*** or systems for combined space heating***, air-conditioning*** and ventilation of over 290 kW.

▌

3. The Commission shall, 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 1 , 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 16.

That implementing act shall be adopted in accordance with the examination procedure referred to in Article 30(3).

4. ***Provided that*** the Commission ***has adopted the delegated act referred to in paragraph 2, the Commission shall, by 30 June 2027,*** adopt an implementing act detailing the technical modalities for the effective implementation of the application of the scheme referred to in paragraph 2 to non-residential buildings with an effective rated output for heating systems, or systems for combined heating and ventilation of over 290 kW. ▌

That implementing act shall be adopted in accordance with the examination procedure referred to in Article 30(3).

Article 14

Data exchange

1. Member States shall ensure that the building owners, tenants and managers can have direct access to their building systems' data. ***Upon*** their ***consent***, the access or data shall be made available to a third party***, subject to the existing applicable rules and agreements***. Member States shall facilitate the full interoperability of services and of data exchange within the Union in accordance with paragraph ***5***.

   For the purpose of this Directive, building systems data shall include at least all ***readily available*** data related to the energy performance of building elements, the energy performance of building services, ***the projected lifespan of the heating systems, where available,*** building automation and control systems, meters***, measuring and control devices*** and charging points for e-mobility ***and be linked, where available, to the digital building logbook***.

▌

2. When laying down the rules regarding the management and exchange of data, ***taking into account the international standards and management format to data exchange,*** Member States or, where a Member State has so provided, the designated competent authorities, shall ***comply with the applicable Union legal framework.*** The rules on the access ***and any charges shall not constitute a barrier or create discrimination for third parties to access building systems data***.

3. No additional costs shall be charged to the building owner, tenant or manager for access to their data or for a request to make their data available to a third party ***subject to the existing applicable rules and agreements***. Member States shall be responsible for setting the relevant charges for access to data by other eligible parties such as financial institutions, aggregators, energy suppliers, energy services providers and National Statistical Institutes or other national authorities responsible for the development, production and dissemination of European statistics. Member States or, where applicable, the designated competent authorities, shall ensure that any charges imposed by regulated entities that provide data services are reasonable and duly justified. ***Member States shall incentivise the sharing of the relevant building systems data.***

4. The rules on access to data and data storage for the purpose of this Directive shall comply with the relevant Union law. The processing of personal data within the framework of this Directive shall be carried out in accordance with Regulation (EU) 2016/679 of the European Parliament and of the Council[21].

▌

5. ***By 31 December 2025,*** the Commission shall adopt implementing acts detailing interoperability requirements and non-discriminatory and transparent procedures for access to the data. Those implementing acts shall be adopted in accordance with the advisory procedure referred to in Article 30(2).

▌

The Commission shall issue a consultation strategy, setting out consultation objectives, targeted stakeholders and the consultation activities for the development of the implementing acts.

Article 15

Financial incentives, *skills* and market barriers

1. Member States shall provide appropriate financing, support measures and other instruments able to address market barriers ***in order to deliver*** the necessary investments

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[21] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

identified in their national building renovation plan ***to transform*** their building stock into zero-emission buildings by 2050.

1a. Member States shall ensure that application and procedures for public financing are simple and streamlined in order to facilitate the access to financing especially for households.

1b. Member States shall assess, and where appropriate, address barriers related to up-front costs of renovations.

1c. When designing financial support schemes for building renovation, Member States shall consider using revenue-based parameters.

If set up, Member States may use the national energy efficiency funds to finance dedicated schemes and programmes pursuant to Article 30 of Directive (EU) 2023/1791 for energy performance renovations.

2. Member States shall take appropriate regulatory measures to remove non-economic barriers to building renovation. With regard to buildings with more than one building unit, such measures may include removing unanimity requirements in co-ownership structures, or allowing co-ownership structures to be direct recipients of financial support.

3. Member States shall make best cost-effective use of national financing and financing available established at Union level, in particular the Recovery and Resilience Facility, the Social Climate Fund, cohesion policy funds, InvestEU, auctioning revenues from emission trading pursuant to Directive 2003/87/EC [amended ETS] and other public funding sources. ***Those funding sources shall be deployed consistently with a path to achieving a zero-emission building stock by 2050.***

4. To support the mobilisation of investments, Member States shall promote the ***effective development and use*** of enabling funding and financial tools, such as energy efficiency loans and mortgages for building renovation, energy performance contracting, ***pay-as-you-save financial schemes,*** fiscal incentives, ***for example reduced tax rates on renovation works and materials,*** on-tax schemes, on-bill schemes, guarantee funds, funds targeting deep renovations, funds targeting renovations with a significant minimum threshold of targeted energy savings and mortgage portfolio standards. They shall guide investments into an energy efficient public building stock, in line with Eurostat guidance on the recording of Energy Performance Contracts in government accounts.

Member States may also promote and simplify the use of public-private partnerships.

4a. Member States shall ensure that information about available funding and financial tools is made available to the public in an easily accessible and transparent manner, including by digital means.

4b. The enabling funding and financial tools may include renovation loans or guarantee funds for energy performance renovations, including in combination with relevant EU programmes, where applicable.

4c. By 12 months after the date of entry into force of this Directive, the Commission shall adopt a Delegated Act in accordance with Article 29 supplementing this Directive in order to effectively encourage financial institutions to increase volumes provided for energy performance renovations, by means of a comprehensive portfolio framework for voluntary use by financial institutions that supports lenders to targeting and increasing lending volumes provided in accordance with the Union's decarbonisation ambition and relevant energy targets. The actions set out in this framework shall cover increasing lending volumes for energy renovations and shall include suggested safeguards to protect vulnerable households through blended funding solutions. The framework shall describe best practices to encourage lenders to identify and act upon the worst performing buildings within their portfolios.

5. Member States shall facilitate the aggregation of projects to enable investor access as well as packaged solutions for potential clients.

Member States shall adopt measures ▌ that ***promote*** energy efficiency lending products for building renovations***, such as green mortgages and green loans, secured and unsecured, and ensure that they*** are offered widely and in a non-discriminatory manner by financial institutions and***,*** are visible and accessible to consumers. Member States shall ensure that banks and other financial institutions and investors receive information on opportunities to participate in the financing of the improvement of energy performance of buildings.

▌

7. Member States shall put in place measures and financing to promote education and training ***with a view to ensuring*** that there is a sufficient workforce with the appropriate level of skills corresponding to the needs in the building sector***, especially targeting microenterprises and small- and medium-sized enterprises, as appropriate. One-stop-shops established pursuant to Article 15a may facilitate access to such measures and financing***.

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

Member States shall ensure that such programmes are developed in a way that they are accessible to organisations with lower administrative, financial, and organisational capacities

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9. Member States shall link their financial measures ***with due regard to vulnerable households*** for energy performance improvements ***and reduced greenhouse gas emissions*** in the renovation of buildings to the targeted or achieved energy savings ***and improvements***, as determined by one or more of the following criteria:

(a) the energy performance ***and greenhouse gas emissions reduction*** 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 and shall comply with ***at least*** minimum energy performance requirements for building elements ***or higher reference values for improved performance of buildings energy consumption***;

(b) standard values for ***the*** calculation of energy ***and greenhouse gas emission*** 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***, for example by comparing the energy consumption before and after renovation with metering systems, provided it complies with requirements in Annex I***.

10. From 1 January ***2025*** at the latest, Member States shall not provide any financial incentives for the installation of ***stand-alone*** boilers powered by fossil fuels, with the exception of those selected for investment, before ***2025***, in accordance with ***Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility,*** Article 7(1)(h)(i) third hyphen of Regulation (EU) 2021/1058 of the European Parliament and the Council[22] on the European Regional Development Fund and on the Cohesion Fund and with Article 73 of Regulation (EU) 2021/2115 of the European Parliament and the Council[23] on the CAP Strategic Plans.

11. Member States shall incentivise deep renovation and ***staged deep renovation with higher financial, fiscal, administrative and technical support. Where it is technically and economically not feasible to transform a building into a zero-emission building, a renovation resulting in at least a 60% reduction of primary energy use shall be considered a deep renovation for the purposes of this paragraph. Member States shall incentivise*** sizeable programmes that address a high number of buildings***, in particular the worst-performing buildings, such as through integrated district renovation programmes, and that*** result in an overall reduction of at least ***30%*** of primary energy ***use*** with higher financial, fiscal, administrative and technical support***, according to the level of performance achieved.***

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22 Regulation (EU) 2021/1058 of the European Parliament and of the Council of 24 June 2021 on the European Regional Development Fund and on the Cohesion Fund (OJ L 231, 30.6.2021, p. 60).

23 Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013 (OJ L 435, 6.12.2021, p. 1).

11a. Without prejudice to their national economic and social policies and to their systems of property law Member States shall address eviction of vulnerable households caused by disproportionate rent increases following energy renovation of their dwelling.

12. Financial incentives shall target as a priority vulnerable households, people affected by energy poverty and people living in social housing, in line with Article ***24*** of Directive (EU) ***2023/1791***.

13. When providing financial incentives to owners of buildings or building units for the renovation of rented buildings or building units, Member States shall ***aim at*** financial incentives ***benefiting*** both the owners and the tenants***. Member States shall introduce effective safeguards, to protect*** in particular ***vulnerable households, including*** by providing rent support or by imposing caps on rent increases***, and may incentivise financial schemes to tackle the upfront costs with renovations, such as on-bill schemes, pay-as-you-save schemes or energy performance contracting, as referred to in Article 29 of [recast EED] and in Article 2(52) of [recast EED]***.

▌

Article 15a

One-stop-shops for energy performance of buildings

1. *Member States shall, in cooperation with competent authorities, and, where appropriate, private stakeholders, ensure the establishment and the operation of technical assistance facilities, including through inclusive one-stop-shops for energy performance of buildings, targeting all actors involved in building renovations, including home owners and administrative, financial and economic actors, including microenterprises and small- and medium-sized enterprises.*

   Member States shall ensure that technical assistance facilities are available across their territory by establishing at least one one-stop-shop:

   (a) per 80 000 inhabitants, or

   (b) per region, or

   (c) in areas where the average age of the building stock is above the national average, or

   (d) in areas where Member States aim to implemented integrated district renovation programmes, or

   (e) in a location that can be reached within less than 90 minutes of average travel distance.

   Member States may designate the one-stop shops established pursuant to Article 21(2a) of Directive (EU).../... [recast EED] as one-stop shops for the purposes of this Article.

2. Those facilities shall:

(a) advise with streamlined information on technical and financial possibilities and solutions to households, SMEs, microenterprises, public bodies;

(b) provide holistic support to all households, with a particular focus on households affected by energy poverty and on worst performing buildings, as well as to accredited companies and installers providing retrofit services, adapted to different housing typologies and geographical scope, and provide support covering the different stages of the retrofit project.

Member States may designate the one-stop shops established pursuant to Article 21(2a) of Directive (EU) 2023/1791 as one-stop shops for the purposes of this Article.

3. One-stop shops for energy performance of buildings shall provide independent advice on energy performance of buildings and may accompany integrated district renovation programs.

4. The one-stop shops shall offer dedicated services for people affected by energy poverty, vulnerable households and people in low-income households. The Commission shall provide guidelines to develop those one-stop shops in accordance with Article 22(6) of the Directive (EU) 2023/1791.

Article 16

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 expressed by a numeric indicator of primary energy use in kWh/(m^2.y), and reference values such as minimum energy performance requirements ▌, minimum energy performance standards, nearly zero-energy building requirements and zero-emission building requirements, in order to make it possible for owners or tenants of the building or building unit to compare and assess its energy performance.

2. By ***[date of transposition]***, the energy performance certificate shall comply with the template in Annex V. It shall specify the energy performance class of the building, on a closed scale using only letters from A to G. The letter A shall correspond to zero-emission buildings as defined in Article 2, point (2) and the letter G shall correspond to the ***very*** worst-performing buildings in the national building stock at the time of the introduction of the scale***. Member States that, at the date of transposition, already designate zero-emission buildings as "A0" may continue to use this designation instead of class A***. Member States shall ensure that the remaining classes (B to F or respectively A to F) have an ***appropriate distribution of energy performance indicators among the energy performance classes.***

Member States may define an A+ energy performance class corresponding to buildings with a maximum threshold for energy demand which is at least twenty percent lower than the maximum threshold for zero-emission buildings, and which generates more renewable energy on-site annually than its total annual primary energy demand. For existing buildings renovated to A+ class, Member States shall ensure that the life-cycle Global Warming Potential (GWP) is estimated and disclosed through the energy performance certificate of the building.

Member States which have rescaled their energy performance classes on or after 1 January 2019 and before the date of entry into force of this Directive, may postpone the rescaling of their energy performance classes until 31 December 2029.

2b. ***Member States shall ensure a common visual identity for energy performance certificates on their territory.***

3. Member States shall ensure the quality, reliability and affordability of energy performance certificates.

Member States shall take measures to ensure that energy performance certificates are affordable and shall consider providing financial support for vulnerable households. ***Member States*** shall ensure that energy performance certificates are issued ***in accordance with Article 17(1) and*** by independent experts ***based on*** an on-site visit***, which may be carried out, where appropriate, by virtual means with visual checks. The energy performance certificates shall be clear and easily legible and be available in a machine-readable format and in accordance with Annex V***.

4. The energy performance certificate shall include recommendations for the cost-effective improvement of the energy performance and the reduction of operational greenhouse gases emissions ***and the improvement of indoor environment quality*** of a building or building unit, unless the building or building unit already ***achieves at least energy performance class A***.

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 or systems ; and

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

4a. ***When Member States choose to integrate a renovation passport in accordance with Article 10(2), the renovation passport shall substitute the recommendations according to Article 16 (4).***

5. The recommendations included in the energy performance certificate shall be technically feasible for the specific building and shall provide an estimate for the energy savings and the reduction of operational greenhouse gas emissions. They may provide an estimate for the range of payback periods or cost-benefits over its economic lifecycle ***and information on available financial incentives, administrative and technical assistance along with financial benefits, which are broadly associated with the achievement of the reference values***.

6. The recommendations shall include an assessment of whether the heating***, ventilation,*** air-conditioning ***and domestic hot water systems*** can be adapted to operate at more efficient temperature settings, such as low temperature emitters for water based heating systems, including the required design of thermal power output and temperature/flow requirements.

6a. ***The recommendations shall include an assessment of the remaining lifespan of the heating and/or air conditioning systems. Where relevant, the recommendations shall indicate possible alternatives for the replacement of the heating and/or air-conditioning system, in line with the 2030 and 2050 climate targets, taking into account local and system-related circumstances.***

7. 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***, the contact information of relevant one-stop-shops and, where relevant, on financial support options.*** Other information on related topics, such as energy audits or incentives of a financial or other nature and financing possibilities ▌, or advice on how to increase the climate resilience of the building, may also be provided to the owner or tenant.

8. 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.

9. 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.

▌

10. The validity of the energy performance certificate shall not exceed ***ten*** years. ***For energy performance certificates below level C, Member States shall ensure that buildings owners are invited to a one-stop shop to receive renovation advice, whichever is the earliest:***

(a) immediately after the energy performance certificate ***of the building expires; or***

(b) five years ***after the issuance of the energy performance certificate***.

11. Member States shall make simplified procedures for updating an energy performance certificate available where only individual elements are upgraded (single or standalone measures).

Member States shall make simplified procedures for updating an energy performance certificate available where measures identified in a renovation passport are put in place ***or where a building digital twin, other certified methods, or data from certified tools determining the energy performance of a building are used***.

Article 17

Issue of energy performance certificates

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

   (a) buildings or building units which are constructed ▌, have undergone a major renovation, are sold or rented out to a new tenant or for which a rental contract is renewed***;***

   (b) ***existing*** buildings owned or occupied by public bodies ▌.

   Member States shall ensure that a paper version is issued on request. The requirement to issue an energy performance certificate does not apply where a certificate, issued in accordance with either Directive 2010/31/EU 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, ***have undergone a major renovation, are*** sold or rented out or when rental contracts are renewed ▌, the energy performance certificate is shown to the prospective tenant or buyer and handed over to the buyer or tenant.

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

4. Member States shall require that buildings or buildings units which are offered for sale or for rent have an energy performance certificate ▌, and that the energy performance indicator and class of the energy performance certificate of the building or the building unit, as applicable, is stated in online and offline advertisements ▌, including in property search portal websites ▌.

▌ Member States shall carry out sample checks or other controls to ensure compliance with these requirements.

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

5a. Member States may exclude the categories of buildings referred to in Article 5(3) a), b) and d) from the application of paragraphs 1, 2, 4 and 5 of this Article. Member States which chose to exclude from the obligations of this article, by the date of entry into force of this Directive, 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, may continue to do so.

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

7. Member States shall ensure that all energy performance certificates issued are uploaded to the database for energy performance of building referred to in Article 19. The upload shall contain the full energy performance certificate, including all necessary data required for the calculation of the energy performance of the building.

Article 18

Display of energy performance certificates

1. Member States shall take measures to ensure that where a building for which an energy performance certificate has been issued in accordance with Article 17(1) is occupied by public ***bodies*** and frequently visited by the public, the energy performance certificate is displayed in a prominent place clearly visible to the public.

2. Member States shall require that in ***a non-residential*** building for which an energy performance certificate has been issued in accordance with Article 17(1) ▌ , the energy performance certificate is displayed in a prominent ***and*** clearly visible ***place***.

3. The provisions of paragraphs 1 and 2 do not include an obligation to display the recommendations included in the energy performance certificate.

Article 19

Databases for energy performance of buildings

1. Each Member State shall set up a national database for energy performance of buildings which allows data to be gathered on the energy performance of ***individual*** buildings and on the overall energy performance of the national building stock. ***Such databases may consist of a set of interconnected databases.***

   The database shall allow data to be gathered ***from all relevant sources*** related to energy performance certificates, inspections, the building renovation passport, the smart readiness indicator and the calculated or metered energy consumption of the buildings covered. ***In order to populate the database, building typologies may also be gathered. Data may also be gathered and stored on both operational and embodied emissions and overall life-cycle GWP.***

2. The ***aggregated and anonymised data of building stock*** shall be ***made*** publicly ***available***, in compliance with Union and national data protection rules. ***The data stored shall be machine-readable and accessible via an appropriate digital interface.*** Member States shall ensure ***easy and free-of-charge*** access to the full energy performance certificate for building owners, tenants and managers ▌ and to financial institutions as regards the buildings in their investment ***and lending portfolios, and, upon permission from the owner, also to independent experts***. For buildings offered for rent or sale, Member States shall ensure access to the full energy performance certificate for prospective tenants or buyers ***that have been authorised by the owner of the building***.

2a. Member States shall ensure that local authorities have access to relevant data on energy performance of buildings on their territory as required to facilitate drafting of heating and cooling plans and include operational geographic information systems and the related databases, in accordance with Regulation (EU) 2016/679 of the European Parliament and of the Council[24]. Member States shall support the local authorities in obtaining necessary resources for data and information management.

3. Member States shall make publicly available information on the share of buildings in the national building stock covered by energy performance certificates and aggregated or anonymised data on the energy performance***, including the energy consumption, and, where available, the life-cycle GWP*** of the buildings covered. The public information shall be updated at least twice per year. Member States shall make anonymised or aggregated information available to public and research institutions such as National Statistics Institutes, upon request.

4. At least once per year, Member States shall ensure the transfer of the information in the national database to the Building Stock Observatory. ***Member States may transfer the information more frequently.***

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[24] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

5. The Commission shall ▌ adopt ▌ implementing ***acts for*** common ***templates*** for the transfer of the information to the Building Stock Observatory. ***The first such implementing act shall be adopted by 30 June 2025.***

Those implementing ***acts*** shall be adopted in accordance with the examination procedure referred to in Article 30(3).

6. For the purpose of ensuring coherence and consistency of information, Member States shall ensure that the national database for energy performance of buildings is interoperable and integrated with other administrative databases containing information on buildings, such as the national building cadastre ***or land registry*** and digital building logbooks.

▌

Article 20

Inspections

1. Member States shall lay down the necessary measures to establish regular inspections of ***the accessible parts of*** heating, ventilation and air conditioning systems with an effective rated output of over 70 kW. The effective rating of the system shall be based on the sum of the rated output of the heating and air-conditioning generators.

2. Member States ***may*** establish separate inspection schemes for the inspections of residential and non-residential systems.

3. Member States may set different inspection frequencies depending on the type and effective rated output of the system whilst taking into account the costs of the inspection of the system and the estimated energy cost savings that may result from the inspection. Systems shall be inspected at least every five years. Systems with generators of an effective rated output of more than 290 kW shall be inspected at least every ***three*** years.

4. The inspection shall include the assessment of the generator or generators, circulation pumps, ***and where appropriate, components of ventilation systems, air and water distribution systems, hydronic balancing systems*** and control system. Member States may decide to include in the inspection schemes any additional building systems identified under Annex I. ▌

The inspection shall include an assessment of the efficiency and sizing of the ***heat and air-conditioning*** generator or generators and of its main components compared with the requirements of the building and consider the capabilities of the system to optimise its performance under typical or average operating conditions***, using available energy saving technologies, and under changing conditions due to use variation***. Where relevant, the inspection shall assess the feasibility of the system to operate under different and more efficient temperature settings, ***such as at low temperature for water-based heating systems, including via the design of thermal power output and temperature and flow requirements,*** while ensuring the safe operation of the system. ***The inspection shall, where relevant, include a basic assessment of the feasibility to reduce on-site use of fossil energy, for example by integrating renewable energy, changing energy source or replace or adjust the existing systems.***

Where a ventilation system is installed, its sizing ***and its capabilities to optimize its performance under typical or average operating conditions relevant for the specific and current use of the building shall also be assessed***.

Where no changes have been made to the system or to the requirements of the building following an inspection carried out pursuant to this Article , Member States may choose not to require the assessment of the main component sizing or the assessment of operation under different temperatures to be repeated.

5. 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.

6. ***Provided*** that the overall impact is equivalent to that resulting from paragraph 1, Member States may opt to take ***alternative*** measures ***such as financial support or*** the provision of advice to users concerning the replacement of generators, other modifications to the system and alternative solutions to assess the performance, 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***, including in terms of energy savings and greenhouse gas emissions***.

9. Buildings that comply with ***Article 11(4b) or (4c)*** shall be exempt from the requirements laid down in paragraph 1 ***of this Article***.

10. Member States shall put in place inspection schemes or alternative measures ***such as*** digital tools ***and checklists*** to certify that the delivered construction and renovation works meet the designed energy performance and are compliant with the minimum energy performance requirements as laid down in by the building codes ***or equivalent regulations***.

11. Member States shall include a summarised analysis of the inspection schemes and their results as an annex to the building renovation plan referred to in Article 3. Member States that have chosen the alternative measures indicated in paragraph 6 of this Article shall include a summarised analysis and the results of the alternative measures.

Article 21

Reports on the inspection of heating, ventilation and air-conditioning systems

1. An inspection report shall be issued after each inspection of a heating ▌, ventilation or air-conditioning system. The inspection report shall contain the result of the inspection performed in accordance with Article 20 and include recommendations for the cost-effective improvement of the energy performance of the inspected system. ***The inspection report shall indicate any safety issue that was detected during inspection. However, the author of the report shall not be considered liable in relation to the detection or indication of any such safety issues.***

▌ Those recommendations may be based on a comparison of the energy performance of the system inspected with that of the best available feasible system***, using energy saving technologies,*** 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.

2a. The recommendations shall, where relevant, include the results from the basic assessment of the feasibility to reduce on-site use of fossil fuels.

3. The inspection report shall be uploaded into the national database for energy performance of buildings pursuant to Article 19.

Article 22

Independent experts

1. Member States shall ensure that the energy performance certification of buildings ▌ , the establishment of renovation passports, the smart readiness assessment, the inspection of heating***, ventilation*** and air-conditioning systems are carried out in an independent manner by qualified or certified experts, whether operating in a self-employed capacity or employed by public bodies or private enterprises. ▌

   Experts shall be certified in accordance with Article 28 of Directive (EU) …/… [recast EED] taking into account their competence.

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

Article 23

Certification of building professionals

1. Member States shall ensure the appropriate level of competence for building professionals carrying out integrated renovation works in ***accordance*** with Article ***3 and Annex II of this Directive and Article 28 of*** [recast EED].

2. Where appropriate and feasible, Member States shall ensure that certification or equivalent qualification schemes are available for providers of integrated renovation works where this is not covered by Article 18(3) of Directive (EU) 2018/2001 [amended RED] or Article 28 of Directive (EU) …/….[recast EED].

Article 24

Independent control system

1. Member States shall ensure that independent control systems for energy performance certificates are established in accordance with Annex VI, and that independent control systems for renovation passports, smart readiness indicators and reports on the inspection of heating and air-conditioning systems ***and ventilation*** are established . Member States may establish separate systems for the control of energy performance certificates ▌ ,

renovation passports, smart readiness indicators ***and*** 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 VI.

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

Article 25

Review

The Commission, assisted by the ***experts of the*** Committee referred to in Article 30, shall review this Directive by the end of ***2028*** 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 assess whether the application of this Directive in combination with other legislative instruments addressing energy ***performance*** and greenhouse gas emissions from buildings, notably through carbon pricing, deliver sufficient progress towards achieving a fully decarbonised, zero-emission building stock by 2050, or whether further binding measures at Union level, in particular mandatory minimum energy performance standards across the whole building stock, need to be introduced***, including in order to ensure that the values for 2030 and 2035 set out in Article 9(2) can be achieved***. ***The Commission shall also assess the national roadmaps and in particular the planned limit values for the life-cycle GWP of new buildings pursuant to Article 7(2b) and consider additional measures promoting a sustainable built environment.*** The Commission shall ***also*** 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 ***integrated renovation plans and*** overall renovation schemes applying to a number of buildings in a spatial context instead of a single building. ***The Commission shall also assess whether alternative indicators, such as final energy use and energy needs would be better suited for the purposes of Annex I.***

Article 26

Information

1. Member States shall ***prepare and carry out information and awareness-raising campaigns. They shall*** take the necessary measures to inform the owners ***and*** tenants of buildings or building units and all relevant market actors***, such as local and regional authorities and energy communities,*** of the different methods and practices that serve to

enhance energy performance. In particular, Member States shall take the necessary measures to provide tailor-made information to vulnerable households. ***That information shall also be made available to local authorities and civil society organisations.***

▌

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 ***the one-stop shops established pursuant to Article 15a, paying particular attention to vulnerable households.***

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***, including for under-represented groups,*** 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, reduction of greenhouse gas emissions, use of energy from renewable sources and use of district heating and cooling when planning, designing, building and renovating industrial or residential areas. Such guidance and training may also address structural improvements, adaptation to climate change, fire safety, risks related to intense seismic activity, the removal of hazardous substances including asbestos, air pollutant emissions (including fine particulate matter)***, indoor environmental quality*** and accessibility for persons with disabilities. ***Member States shall endeavour to put in place measures to support training for local and regional authorities, renewable energy communities and other relevant actors, such as citizens-led renovation initiatives, to promote the objectives of this Directive.***

4. The Commission ***shall*** 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 ***that*** website might include links to relevant ▌ Union ***law*** and national, regional and local ***rules***, 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***, including with regard to the one-stop shops established pursuant to Article 15a***. In the context of the European Regional Development Fund, the Cohesion Fund and the Just Transition Fund, ***the Social Climate Fund, and the Recovery and Resilience Facility,*** 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***, including, in cooperation with the European Investment Bank, through the European Local Energy Assistance facility,*** to interested stakeholders, including national, regional and local authorities, on funding possibilities, taking into account the latest changes in the regulatory framework.

Article 27

Consultation

In order to facilitate the effective implementation of ***this*** 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 Article 26.

Article 28

Adaptation of Annex I to technical progress

The Commission shall adopt delegated acts in accordance with Article 29 concerning the adaptation of points 4 and 5 of Annex I to technical progress.

Article 29

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 6, ***7,*** 13***, 15*** and 28 ***[...]*** shall be conferred on the Commission for an indeterminate period of time ***from*** [date of entry into force of this Directive] .

3. The delegation of power referred to in Articles 6, ***7,*** 13***, 15*** and 28 ***[...]*** 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 Articles 6, ***7,*** 13***, 15*** or 28 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 30

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.

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.

Article 31

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 notify the Commission without delay of any amendment affecting the provisions communicated in accordance with Article 27 of Directive 2010/31/EU.

Article 32

Transposition

1. ***1.*** Member States shall***,*** bring into force the laws, regulations and administrative provisions necessary to comply with Articles 1 to 3, 5 to 26, 29 and 32 ***and*** Annexes I to III and V to IX by ***[24 months after the date of entry into force of this Directive]***. They shall immediately communicate the text of those measures and a correlation table to the Commission.

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with Article 15(10) by 1 January 2025.

When Member States adopt those 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 ***the*** Directive repealed by this Directive 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 33

Repeal

Directive 2010/31/EU, as amended by the acts listed in Annex VIII, Part A, is repealed with effect from ***[…]*** , without prejudice to the obligations of the Member States relating to the time-limits ***for the*** transposition into national law and the dates of application of the Directives set out in Annex VIII, Part B.

References to the repealed Directive shall be construed as references to this Directive and shall be read in accordance with the correlation table in Annex IX.

Article 34

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***.

Articles 4, 27, 28, 30, 31 and 33 to 35 and Annex IV shall apply from [the day after the date in the first subparagraph of Article 32].

Article 35

Addressees

This Directive is addressed to the Member States.

Done at Brussels,

For the European Parliament	*For the Council*
The President	*The President*

Annex I

COMMON GENERAL FRAMEWORK FOR THE CALCULATION OF ENERGY PERFORMANCE OF BUILDINGS

(referred to in Article 4)

1. The energy performance of a building shall be determined on the basis of calculated or metered 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. Member States shall ensure that the typical energy use is representative of actual operating conditions for each relevant typology and reflects the typical user behaviour. Where possible, typical energy use and typical user behaviour shall be based on available national statistics, building codes and metered data.

   Where metered energy is the basis for calculating the energy performance of buildings, the calculation methodology shall be capable of identifying the influence of the behaviour of occupants and the local climate, which shall not be reflected in the result of the calculation. Metered energy to be used for the purposes of calculating the energy performance of buildings shall require readings of at least ***monthly*** intervals and must differentiate between energy carriers.

   Member States may use metered energy consumption under typical operating conditions to verify the correctness of the calculated energy use and enable comparison between calculated and actual performance. Metered energy consumption for the purposes of verification and comparison may be based on monthly readings.

   The energy performance of a building shall be expressed by a numeric indicator of primary energy use per unit of reference floor area per year, 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 based on Annex A of the key European standards on energy performance of buildings , namely ***EN*** ISO 52000-1, EN ISO 52003-1, EN ISO 52010-1, ▌ EN ISO 52016-1, EN ISO 52018-1, ▌ EN 16798-1***, EN 52120-1*** and EN 17423 or superseding documents ▌ . This provision shall not constitute a legal codification of those standards.

Member States shall take the necessary measures to ensure that, where buildings are supplied by district heating or cooling systems, the benefits of such supply are recognised and accounted for in the calculation methodology ***in particular the renewable energy share*** through individually certified or recognised primary energy factors.

2. The energy needs and energy use for space heating, space cooling, domestic hot water, ventilation, lighting and other technical building systems shall be calculated using ***monthly,*** hourly or sub-hourly time calculation intervals in order to account for varying conditions that significantly affect the operation and performance of the system and the indoor conditions, and to optimise health, indoor air quality and comfort levels defined by Member States at national or regional level. ▌

Where product-specific regulations for energy-related products adopted under Regulation 2009/125/EC include specific product information requirements for the purpose of the calculation of energy performance ***and life-cycle GWP*** under this Directive, national calculation methods shall not require additional information.

The calculation of primary energy shall be based on ***regularly updated and forward-looking*** primary energy factors, (distinguishing non-renewable, renewable and total) ***or weighting factors*** per energy carrier, which have to be recognised by the national authorities ***and taking into account the expected energy mix on the basis of its national energy and climate plan***. Those primary energy factors may be based on national, regional or local information. Primary energy factors may be set on an annual, seasonal, monthly, daily or hourly basis or on more specific information made available for individual district systems ▌ .

Primary energy factors or weighting factors shall be defined by Member States. The choices made and data sources shall be reported according to EN 17423 or any superseding document. Member States may opt for an average EU primary energy factor for electricity established pursuant to Directive (EU) …/… [recast EED] instead of a primary energy factor reflecting the electricity mix in the country.

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

4. 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;

      (v) thermal bridges;

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

   (ba) capacity of installed on-site renewables and storage;

   (c) air-conditioning installations;

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

   (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;

(ia) building automation and control systems and their capabilities to monitor, control and optimise energy performance.

5. The positive influence of the following aspects shall 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.

(da) electrical and/or thermal storage systems.

6. 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

TEMPLATE FOR THE NATIONAL BUILDING RENOVATION PLANS

(referred to in Article 3)

EPBD Article 3	Mandatory indicators	Optional indicators ▌
(a) Overview of the national building stock	Number of buildings and total floor area (m²): - per building type (including public buildings and social housing) - per energy performance class - NZEB - worst-performing (including a definition) - ***estimation of the share of buildings exempted pursuant to Article 9(6)b***	Number of buildings and total floor area (m²): - per building age - per building size - per climatic zone - demolition (number and total floor area)
	Number of energy performance certificates: - per building type (including public buildings) - per energy performance class	Number of energy performance certificates: - per construction period
	Annual renovation rates: number and total floor area (m²) - per building type - to nearly zero-energy ***and/or to zero-emission*** building levels - per renovation depth (weighted average renovation) - ▌ - public buildings	
	Primary and final annual energy consumption (ktoe): - per building type - per end use Energy savings (Ktoe): - ▌ - ***residential*** - ***non-residential*** - public buildings ***Average primary energy use in kWh/(m².y) for residential buildings*** Share of renewable energy in the building sector (▌ ***MWh installed or GWh*** generated): — for different uses	Reduction in energy costs (EUR) per household (average) Primary energy ▌ ***use*** of a building corresponding to the top 15% (substantial contribution threshold) and the top 30% (do no significant harm threshold) of the national building stock, as per the EU Climate Taxonomy Delegated Act Share of heating system in the building sector per boiler/heating system type ***Share of renewable energy in the building sector (MW installed or GWh generated):*** - ***on-site*** - ***off-site***

	▌	
	Annual ***operational*** greenhouse gas emissions ($kgCO_2eq/(m^2.y)$): - per building type ▌ Annual ***operational*** greenhouse gas emission reduction ($kgCO_2eq/(m^2.y)$): - per building type ▌	***Annual life-cycle GWP ($kgCO_2eq/(m^2.y)$) in new buildings:*** - ***per building type***
	Market barriers and failures (description): - Split incentives - Capacity of construction and energy sector ▌ ***Evaluation*** of the capacities in the construction, energy efficiency and renewable energy sectors	Market barriers and failures (description): - Administrative - Financial - Technical - Awareness - Other Number of: - Energy service companies - construction companies - architects and engineers - skilled workers - one-stop-shops - SMES in the construction/renovation sector - ***renewable energy communities and citizens-led renovation initiatives*** Projections of the construction workforce: - Architects/ engineers/skilled workers retired - Architects/ engineers/skilled workers entering the market - Young people in the sector - Women in the sector Overview and forecast of the evolution of prices of construction materials and national market developments
	Energy poverty (definition): - % of people affected by energy poverty - proportion of disposable household income spent on energy - population living in inadequate dwelling conditions (e.g. leaking roof) or with inadequate thermal comfort conditions	

	Primary energy factors: - per energy carrier - non-renewable primary energy factor - renewable primary energy factor - total primary energy factor	
	Definition of nearly-zero energy building for new and existing buildings	***Overview*** of the legal and administrative framework
	Cost-optimal minimum requirements for new and existing buildings	
(b) Roadmap for 2030, 2040, 2050	Targets for annual renovation rates: number and total floor area (m^2): - per building type - worst-performing ***Information pursuant to Article 9(1):*** - ***criteria to exempt individual buildings*** - ***estimated share of exempted buildings*** - ***estimation of equivalent energy performance improvements due to exempted buildings***	Targets for expected share (%) of renovated buildings: - per building type - per renovation depth
	Target for expected primary and final annual energy consumption (ktoe): - per building type - per end use Expected energy savings: - per building type ***Targets for the increase of the share of renewable energy in line with Article 15a of Directive (EU) 2023/2413*** ***Numerical targets for the deployment of solar energy in buildings***	Share of energy from renewable sources in the building sector (MW ***installed or GWh*** generated)
	Targets for expected ***operational*** greenhouse gas emissions ($kgCO_2eq/(m^2.y)$÷ - per building type Targets for expected **operational** greenhouse gas emission reduction (%)÷ - per building type	Split between emissions covered by Chapter III [stationary installations], Chapter IVa [new emissions trading for buildings and road transport] of Directive 2003/87/EC, and other stock; ***Targets for expected whole life-cycle greenhouse gas emission***

		($kgCO_2eq/(m^2.y)$ in new buildings: - ***per building type***
	Expected wider benefits ▌ - % reduction of people affected by energy poverty	- ***Creation of new jobs*** - Increase of GDP (share and billion Euros)
	▌	
	▌ ***The Member State's contribution*** to the Union's energy efficiency targets in accordance with ***Article 4 of the*** Directive (EU) …/…. [recast EED] ***attributable to its building stock's renovation*** (share and figure in ktoe)▌	▌
	▌ ***The Member State's contribution*** to the Union's renewable energy targets in accordance with Directive (EU) 2018/2001 [amended RED] ***attributable to its building stock's renovation*** (share, MW ***installed or GWh*** generated**)** ▌ ▌	
	▌	
(c) Overview of implemented and planned policies and measures	Policies and measures with regard to the following elements: (a) the identification of cost-effective approaches to renovation for different building types and climatic zones, considering potential relevant trigger points in the lifecycle of the building; (b) national minimum energy performance standards pursuant to Article 9 and other policies and actions to target the worst-performing segments of the national building stock**, *including safeguards as referred to in Article 15(13);*** (c) the promotion of deep renovation of buildings, including staged deep renovation; (d) empowering and protecting vulnerable customers and the alleviation of energy poverty, including policies and measures pursuant to Article 22 of Directive (EU) …/… [recast EED], and housing affordability; (e) the creation of one-stop-shops or similar mechanisms ***pursuant to Article 15a*** for the	Policies and measures with regard to the following elements: (a) the increase of climate resilience of buildings; (b) the promotion of the energy services market; (c) the increase of fire safety; (d) the increase of resilience against disaster risks, including risks related to intense seismic activity; (e) the removal of hazardous substances including asbestos; (f) accessibility for persons with disabilities; ***(fa) the role of renewable energy communities and citizen energy communities in district and neighbourhood approaches;*** ***(fb) addressing mismatches in human capacities; and***

	provision of technical, administrative and financial advice and assistance; (f) the decarbonisation of heating and cooling, including through district heating and cooling networks, and the phase out of fossil fuels in heating and cooling with a view to a complete phase-out ***of fossil fuel boilers*** by 2040 ▌ ; ***(fa) prevention and high-quality treatment of construction and demolition waste in line with Directive 2008/98/EC, notably as regards the waste hierarchy, and the objectives of the circular economy;*** (g) the promotion of renewable energy sources in buildings in line with the indicative target for the share of energy from renewable sources in the building sector set in Article 15a(1) of Directive (EU) 2018/2001 [amended RED]; ***(ga) the deployment of solar energy installations on buildings;*** (h) the reduction of whole life-cycle greenhouse gas emissions for the construction, renovation, operation and end of life of buildings, and the uptake of carbon removals; ▌ ***(j) the promotion of district and neighbourhood approaches and integrated renovation programmes at district level, which may address issues such as energy, mobility, green infrastructure, waste and water treatment and other aspects of urban planning and may take into account local and regional resources, circularity and sufficiency;*** (k) the improvement of buildings owned by public bodies, including policies and measures pursuant to Articles 5, 6 and 7 of the [recast EED]; (l) the promotion of smart technologies and infrastructure for sustainable mobility in buildings; (m) addressing market barriers and market failures; (n) addressing skills gaps ▌ and promoting education, ***targeted*** training, upskilling and reskilling in the construction, sector and energy efficiency and renewable energy sectors ▌ ***(public or private), with a view to ensuring that there is a sufficient workforce with the***	***(fc) addressing the improvement of indoor environmental quality.*** For all policies and measures: - administrative resources and capacities - area(s) covered: - worst-performing - minimum energy performance standards - energy poverty, social housing - public buildings - residential (single-family, multi family) - non-residential - industry - renewable energy sources - phase-out of fossil fuels in heating and cooling - whole life-cycle greenhouse gas emissions - circular economy and waste - one-stop-shops - renovation passports - smart technologies - sustainable mobility in buildings - district and neighbourhood approaches - skills, training - awareness campaigns and advisory tools

	appropriate level of skills corresponding to the needs in the building sector, with a special focus on the underrepresented groups; (o) awareness raising campaigns and other advisory tool***; and*** ***(oa) promotion of modular and industrialised solutions for construction and building renovation.*** For all policies and measures: - Name of policy or measure - Short description (precise scope, objective and modalities of operation) - Quantified objective - Type of policy or measure (such as legislative; economic; fiscal; training, awareness) - Planned budget and funding sources - Entities responsible for implementing the policy - Expected impact - Status of implementation - Date of entry into force - Implementation period	
(d) Outline of the investment needs, the budgetary sources and the administrative resources	- Total investment needs for 2030, 2040, 2050 (million EUR) - Public investments (million EUR) - Private investments (million EUR) - Budgetary resources - ▌	▌
(e) Thresholds of new and renovated zero-emission buildings, referred to in Article 9b	- ***Operational greenhouse gas emissions thresholds of new zero-emission buildings;*** - ***Operational greenhouse gas emissions thresholds of renovated zero-emission buildings;*** - ***Annual primary energy use thresholds of new zero-emission buildings;*** - ***Annual primary energy use thresholds of renovated zero-emission buildings***	
(f) Minimum energy performance standards for non-residential buildings	- ***Maximum energy performance thresholds, in accordance with Article 9(1)***	
(g) Minimum energy performance standards for	- ***The national trajectory, including the 2030 and 2035 milestones for average primary energy use in kWh/(m².y), in accordance with Article 9(2)***	

residential buildings		

Annex III

REQUIREMENTS FOR THE CALCULATION OF LIFE-CYCLE GLOBAL WARMING POTENTIAL (GWP)

(referred to in Article ▌ 7)

▌ ▌

▌ ▌

(-1a) Calculation of life-cycle global warming potential (GWP) of new buildings pursuant to Article 7(2) ▌

For the calculation of the life-cycle global warming potential (GWP) of new buildings pursuant to Article 7(2), the ***total*** GWP is communicated as a numeric indicator for each life-cycle stage expressed as $kgCO_2e/m^2.y$ (of useful floor area) averaged for one year of a reference study period of 50 years. The data selection, scenario definition and calculations shall be carried out in accordance with EN 15978 (EN 15978:2011***) and taking into account any subsequent standard relating to the sustainability of construction works and the calculation method for the assessment of environmental performance of buildings.*** Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method). The scope of building elements and technical equipment is as defined in the Level(s) common EU framework for indicator 1.2. Where a national calculation tool ***or method*** exists, or is required for making disclosures or for obtaining building permits, that tool ***or method*** may be used to provide the required disclosure. Other calculation tools ***or methods*** may be used if they fulfil the minimum criteria laid down by the Level(s) common EU framework. Data regarding specific construction products calculated in accordance with [revised Construction Products Regulation] shall be used when available.

Annex IV

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 the possible existence of a digital twin of the building.

   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 ***the following*** 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 ***energy*** demand, including its ability to enable participation in active and passive as well as implicit and explicit demand response, ***and through storing and releasing energy back*** to the grid, for example through flexibility and load shifting capacities ***and energy storage;***

(ca) the ability to improve its energy efficiency and overall performance through the use of energy saving technologies.

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.

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.

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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).

Annex V

TEMPLATE FOR ENERGY PERFORMANCE CERTIFICATES

(referred to in Article 16)

1. On its front page, the energy performance certificate shall display at least the following elements:

(a) the energy performance class;

(b) the calculated annual primary energy use in kWh/(m^2 y);

(c) the calculated annual final energy use in kWh/(m^2y);

▌

▌

(d) renewable energy ***produced on site*** in % of energy use;

(e) operational greenhouse gas emissions (kg CO_2/(m^2 y))***, and the value of the life cycle GWP, if available***;

▌

The energy performance certificate shall also display the following elements:

(a) the calculated annual primary and final energy consumption in kWh or MWh;

(b) renewable energy production in kWh or MWh; main energy carrier and type of renewable energy source;

(c) the calculated energy needs in kWh/(m^2.y);

(d) a yes/no indication whether the building has a capacity to react to external signals and adjust the energy consumption;

(e) a yes/no indication whether the heat distribution system inside the building is capable to work at low or more efficient temperature levels, where applicable;

(f) the contact information of the relevant one-stop shop for renovation advice.

2. In addition, the energy performance certificate may include the following indicators:

(a) energy use, peak load, size of generator or system, main energy carrier and main type of element for each of the uses: heating, cooling, domestic hot water, ventilation and in-built lighting;

▌

(c) ***the greenhouse gas emission class (if applicable).***

▌

(e) information on carbon removals associated to the temporary storage of carbon in or on buildings;

(f) a yes/no indication whether a renovation passport is available for the building;

(g) the average U-value for the opaque elements of the building envelope;

(h) the average U-value for the transparent elements of the building envelope;

(i) type of most common transparent element (e.g. double glazed window);

(j) results of the analysis on overheating risk (if available);

(k) the presence of fixed sensors that monitor the ▌ indoor ***environmental*** quality;

(l) the presence of fixed controls that respond to the levels of indoor ***environmental*** quality;

(m) number and type of charging points for electric vehicles;

(n) presence, type and size of energy storage systems;

(o) expected remaining lifespan of the heating and/or air conditioning systems and appliances, where applicable;

(p) feasibility of adapting the heating system to operate at more efficient temperature settings;

(q) feasibility of adapting the domestic hot water system to operate at more efficient temperature settings;

(r) feasibility of adapting the air-conditioning system to operate at more efficient temperature settings;

(s) metered energy consumption;

(t) the presence of a connection to a district heating and cooling network, or, if available, information about a potential connection to an efficient district heating and cooling system;

(u) local primary energy factors and related carbon emission factors of the connected local district heating and cooling network;

(v) operational fine particulate matter (PM2.5) emissions.

The energy performance certificate may include the following links with other initiatives if these apply in the relevant Member State:

(a) a yes/no indication whether an smart readiness assessment has been carried out for the building;

(b) the value of the smart readiness assessment (if available);

(c) a yes/no indication whether a Digital Building Logbook is available for the building.

Persons with disabilities shall have equal access to the information in energy performance certificates.

Annex VI

INDEPENDENT CONTROL SYSTEMS FOR ENERGY PERFORMANCE CERTIFICATES

1. Definition of quality of energy performance certificate

Member States shall provide a clear definition of what is considered a valid energy performance certificate.

The definition of a valid energy performance certificate shall ensure:

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

(b) the validity of the calculations;

(c) a maximum deviation for the energy performance of a building, preferably expressed by the numeric indicator of primary energy use (kWh/(m^2 year));

(d) a minimum number of elements differing from default or standard values.

Member States may include additional elements in the definition of a valid energy performance certificate, such as maximum deviation for specific input data values.

2. Quality of the control system for energy performance certificates

Member States shall provide a clear definition of the quality objectives and the level of statistical confidence that the energy performance certificate framework should achieve. The independent control system shall ensure at least 90% of valid issued energy performance certificates with a statistical confidence of 95% for the evaluated period, which shall not exceed one year.

The level of quality and the level of confidence shall be measured using random sampling and shall account for all elements provided in the definition of a valid energy performance certificate. Member States shall require third-party verification for the evaluation of at least 25% of the random sample when the independent control systems have been delegated to non-governmental bodies.

The validity of the input data shall be verified with information provided by the independent expert. Such information may include product certificates, specifications or building plans that include details on the performance of the different elements included in the energy performance certificate.

The validity of the input data shall be verified by on-site visits***, which may be carried out by virtual means, where appropriate*** in at least 10% of the energy performance certificates that are part of the random sampling used to assess the overall quality of the scheme.

In addition to the minimum random sampling to determine the overall level of quality, Member States may use different strategies to specifically detect and target poor quality in energy performance certificates with the objective to improve the overall quality of the scheme. Such targeted analysis cannot be used as the basis to measure the overall quality of the scheme.

Member States shall deploy pre-emptive and reactive measures to ensure the quality of the overall energy performance certificate framework. Those measures may include additional training for independent experts, targeted sampling, obligation to re-submit energy performance certificates, proportional fines and temporary or permanent bans for experts.

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.

3. Availability of energy performance certificates

The independent control system shall verify the availability of energy performance certificates to prospective buyers and tenants in order to ensure that it is possible to consider the energy performance of the building in their decision to buy or rent.

The independent control system shall verify the visibility of the energy performance indicator and class in advertising media.

4. Treatment of building typologies

The independent control system shall account for different building typologies, particularly for those building typologies that are most prevalent in the real estate market, such as single residential, multi-residential, offices or retail.

5. Public disclosure

Member States shall regularly publish, on the national database on energy performance certificates, at least the following information on the quality system:

(a) the definition of quality in energy performance certificates;

(b) quality objectives for the energy performance certificate scheme;

(c) results of the quality assessment, including number of certificates evaluated and relative size to the total number of issued certificates in the given period (per typology);

(d) contingency measures to improve the overall quality of energy performance certificates.

Annex VII

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 and emission performance of buildings and building elements and the economic aspects of measures relating to the energy and emission performance, and to link them with a view to identifying the cost-optimal level ***to achieve the 2030 emission reduction and climate neutrality goals, as well as a zero-emission building stock by 2050 at the latest***.

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

The comparative methodology framework shall allow for taking into account use patterns, outdoor climate conditions and their future changes according to best available climate ***projections, including heat and cold waves***, investment costs, building category, maintenance and operating costs (including energy costs and savings), earnings from energy produced, where applicable, environmental and health externalities of energy use, and waste management costs, where applicable***, and technological developments***. It should be based on relevant European standards relating to this Directive.

The Commission shall also provide:

- guidelines to accompany the comparative methodology framework; those 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 Commission shall issue recommendations to Member States regarding their cost optimality levels, where relevant.***

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. Those 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 and resulting emissions of 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. ***That*** will allow the determination of cost-optimal levels of energy performance requirements.

Annex VII a

REQUIREMENTS FOR BUILDING RENOVATION PASSPORTS

1. The renovation passport shall include:

(a) Information on the current energy performance of the building;

(b) A graphical representation or graphical representations of the roadmap and its steps for a staged deep renovation;

(c) Information on relevant national requirements such as minimum energy performance requirements for buildings, minimum energy performance standards and rules in the Member State on the phase-out of fossil-fuel used in buildings for heating and cooling, including application dates;

(d) A succinct explanation on the optimal sequencing of steps;

(e) Information about each step, including:

i. The name and description of the renovation measures for the step, including relevant options for the technologies, techniques and materials to be used;

ii. The estimated energy savings in primary and final energy consumption, in kWh and in percentage improvement compared to the energy consumption prior to the step;

iii. The estimated reduction of operational greenhouse gas emissions;

iv. The estimated savings on the energy bill, clearly indicating the assumptions on energy costs used for the calculation;

v. The estimated energy performance class of the energy performance certificate to be achieved following completion of the step;

(f) Information about a potential connection to an efficient district heating and cooling system;

(g) The share of individual or collective generation and self-consumption of renewable energy estimated to be achieved after the renovation;

(h) General information on available options for improving construction products' circularity and for reducing their whole lifecycle greenhouse gas emissions, as well as wider benefits related to health and comfort, indoor environmental quality and the improved adaptive capacity of the building to climate change;

(i) Information on available funding and relevant weblinks to the sources of such funding;

(j) Information on technical advice and advisory services, including contact details and weblinks to one-stop-shops.

2. The renovation passport may include:

(a) An indicative timing of the steps;

(b) For each step:

i. A detailed description of the technologies, techniques and materials to be used, their advantages, disadvantages and costs;

ii. How the energy performance of the building would compare to minimum energy performance requirements for buildings undergoing major renovation, nearly zero-energy building and zero-emission building requirements after completion of the step and how the energy performance of the building elements replaced would compare to minimum energy performance requirements for single building elements [where these exist];

iii. The estimated costs for carrying out the step;

iv. The estimated pay-back period for the step, with and without any financial support available;

v. The estimated time needed to carry out the step;

vi. Where available, the reference values on the lifecycle greenhouse gas emissions for the materials and equipment and a link to the relevant webpage where they can be found;

vii. The estimated lifetime of measures and the estimated maintenance costs;

(c) Independent modules on:

i. The typical trades necessary or recommended for carrying out energy renovations (architects, advisors, contractors, suppliers and installer, etc.) or a weblink to the relevant page(s);

ii. A list of relevant architects, advisors, contractors, suppliers or installers in the area, that may include only those fulfilling certain conditions such as matching higher qualification or certification labels or conditions, or a weblink to the relevant page(s);

iii. The technical conditions needed for an optimal roll-out of low temperature heating;

iv. How the renovation steps and additional measures could improve the smart readiness of a building;

v. Technical and safety requirements for materials and works;

vi. The underlying assumptions behind the calculations provided or a link to the relevant webpage where they can be found;

(d) Information on how to access a digital version of the renovation passport;

(e) Any major renovations made to the building or building unit, as referred to in Article 8(1), and any retrofitting or replacement of a building element that forms part of the building envelope and which has a significant impact on the energy performance of the building envelope, as referred to in Article 8(2), where such information is made available to the expert carrying out the renovation passport;

(f) Information related to seismic safety, where such information relevant to the building is made available to the expert;

(g) upon request of and based on information made available by the current building owner, contain in an attachment additional information, such as the adaptability of spaces to evolving needs and any planned renovations.

3. Regarding the status of the building prior to the renovation steps, the renovation passport shall consider, to the extent possible, information contained in the energy performance certificate.

4. Each metric used for estimating the impact of steps shall be based on a set of standard conditions.

ANNEX VIII

Part A

Repealed Directive
with list of the successive amendments thereto
(referred to in Article 33)

Directive 2010/31/EU of the European Parliament and of the Council (OJ L 153, 18.6.2010, p. 13)	
Directive (EU) 2018/844 of the European Parliament and of the Council (OJ L 156, 19.6.2018, p. 75)	only Article 1
Regulation (EU) 2018/1999 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1)	only Article 53

PART B

Time-limits for transposition into national law and dates of application

(referred to in Article 33)

Directive	Time-limit for transposition	Dates of application
2010/31/EU	9 July 2012	as far as Articles 2, 3, 9, 11, 12, 13, 17, 18, 20 and 27 are concerned, 9 January 2013; as far as Articles 4, 5, 6, 7, 8, 14, 15 and 16 are concerned, 9 January 2013 with regard to buildings occupied by the public authorities and 9 July 2013 with regard to other buildings
(EU) 2018/844	10 March 2020	

ANNEX IX

Correlation table	
Directive 2010/31/EU	This Directive
Article 1	Article 1
Article 2, point (1)	Article 2, point 1
—	Article 2, point (2)
Article 2, point (2)	Article 2, point (3)
—	Article 2, points (4) and (5)
Article 2, points (3), (3a), (4) and (5)	Article 2, point (6), (7), (8) and (9)
—	Article 2, points (10), (11) and (12)
Article 2, points (6), (7), (8) and (9)	Article 2, points (13), (14), (15) and (16)
—	Article 2, points (17), (18), (19) and (20)

Article 2, point (10)	Article 2, point (21)
—	Article 2, points (22), (23), (24), (25), (26) and (27)
Article 2, points (11), (12), (13) and (14)	Article 2, points (28), (29), (30) and (31)
—	Article 2, points (32), (33), (34), (35), (36) and (37)
Article 2, point (15)	Article 2, point (37)
Article 2, points (15), (15a), (15b), (15c), (16) and (17)	Article 2, points (38), (39), (40), (41), (42) and (43)
Article 2, point (18)	—
Article 2, point (19)	Article 2, point (44)
—	Article 2, points (45), (46), (47), (48), (49), (50), (51), (52), (53), (54), (55), (56) and (57)
Article 2, point (20)	—
Article 2a	Article 3

Article 3	Article 4
Article 4	Article 5
Article 5	Article 6
Articles 6 and 9	Article 7
Article 7	Article 8
—	Article 9
—	Article 10
Article 8(1), (9)	Article 11
Article 8(2) to (8)	Article 12
Article 8(10), (11)	Article 13
—	Article 14
Article 10	Article 15
Article 11	Article 16

Article 12	Article 17
Article 13	Article 18
—	Article 19
Articles 14 and 15	Article 20
Article 16	Article 21
Article 17	Article 22
—	Article 23
Article 18	Article 24
Article 19	Article 25
Article 19a	—
Article 20	Article 26
Article 21	Article 27
Article 22	Article 28

Article 23	Article 29
Article 26	Article 30
Article 27	Article 31
Article 28	Article 32
Article 29	Article 33
Article 30	Article 34
Article 31	Article 35
Annex I	Annex I
—	Annex II
—	Annex III
Annex IA	Annex IV
—	Annex V
Annex II	Annex VI
Annex III	Annex VII
Annex IV	Annex VIII

Annex V	Annex IX