

Title of the measure:	EU 14	Energy Performance of Buildings Recast (Directive 2010/31/EU)
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General description

The buildings sector accounts for 40% of the EU's energy requirements. It offers the largest single potential for energy efficiency. The aim of improved energy efficiency has been set out in earlier existing legal instruments. Among the main Community legislation for the sector are the Boiler Directive (92/42/EEC), the Construction Products Directive (89/106/EEC) and the buildings provisions in the SAVE Directive (93/76/EEC).

The energy performance of buildings Directive (2002/91/EC of the European Parliament and of the Council, 16 December 2002) in force since January 2003 builds on those measures with the aim to provide for an ambitious step-ahead to increase the energy performance of public, commercial and private buildings in all Member States.

The underlined parts of the following description are new in directive recast in 2010.

The Member States must

- set minimum requirements as regards the energy performance of all new and existing buildings after major renovation and retrofitted or replaced building elements*,
- set system requirements for overall energy performance of new, replaced and upgraded systems in existing buildings and as a recommendation in new buildings*
- encourage intelligent metering*
- ensure new buildings are nearly zero buildings by end of 2020 and by the end of 2018 for publicly owned buildings*
- ensure the certification of buildings' energy performance and extend their certification system by indicators for comparison of buildings and recommendations for cost-optimal improvement*, additionally the public needs to implement recommendations within 10 years
- require regular inspection of accessible parts of the heating systems* in buildings. In addition to Directive 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC, it is an additional instrument, proposing concrete action to fill any existing gaps.

The four key points of the Directive 2002/91/EC on the energy performance of buildings are:

- a common methodology for calculating the integrated energy performance of buildings and building units;
- minimum requirements to the energy performance of
 - new buildings and new building units, existing buildings,
 - building units and building elements that are subject to major renovation and
 - technical systems, when installed, replaced or upgraded
- national plans for increasing number of nearly zero-energy buildings
- systems for the energy certification of new and existing buildings and, for public buildings, prominent display of this certification and other relevant information. Certificates must be less than five years old;
- regular inspection of boilers and central air-conditioning systems in buildings and in addition an assessment of heating installations in which the boilers are more than 15 years old.
- Independant control systems for energy performance certificates and inspection reports.

Scope

The Directive concerns the residential sector and the tertiary sector (offices, public buildings, etc.). The scope of the provisions on certification does not, however, include some buildings, such as historic buildings, industrial sites, etc. It covers all aspects of energy efficiency in buildings in an attempt to establish a truly integrated approach.

Minimum energy performance Requirements

Member states are to ensure that the cost-optimal minimum energy requirements for buildings are set. Moreover, building elements that form building envelop and have significant impact on energy performance of buildings are also to be covered by the minimum energy requirements.

Calculation of cost-optimal levels of minimum energy requirements

Member states are obliged to calculate cost-optimal values of minimum energy performance requirements using the comparative methodology framework. Comparative methodology is to be set according to Annex III for the directive and should differentiate between new and existing buildings and building categories.

New and Existing Buildings

Member states will ensure that the technical and economic feasibility of alternative efficient systems such as,

- decentralised energy supply systems based on energy from renewable sources;
- cogeneration;
- district heating or cooling, in particular where it is based entirely or partially on renewable energy sources;
- heat pumps.

are taken into account before the construction starts.

Nearly Zero-Energy Buildings

The directive mandates the member states that by 2020 all the new buildings are nearly zero-energy buildings. National plans should be drawn to increase the number of nearly zero-energy buildings. For instance, intermediate targets should be set to improve the energy performance of new buildings towards nearly zero-energy buildings by 2015.

Energy performance Certificates

Energy performance certificates should be made available when buildings are constructed, sold or rented out and for public buildings with useful floor area over 500 m². The Directive specifically mentions rented buildings with the aim of ensuring that the owner, who does not normally pay the charges for energy expenditure, should take the necessary action.

Inspection of heating and cooling systems

Member states are obliged to ensure regular checks for heating systems of the buildings with boilers of effective rated output of over 20 kW. The inspection should include the assessment of boiler efficiency and its sizing according to the heat demand of building. For heating systems with boiler of an effective rated output of over 100 kW, inspection should be carried out in two years time at minimum. For gas-fired boilers, inspection can be carried out in four years period.

Impact evaluation

Before the directive 2010/31/EU, in the report SEC(2008) 2864, several options and their impacts have been assessed under following categories in terms of amending the existing directive 2002/91/EC ;

- General: Clarification and simplification
- 1000 m² threshold for existing buildings when they undergo major renovation
 - Option A1: Lowering the threshold to 500 m², to include all medium sized buildings
 - Option A2: Lowering the threshold to 200 m², to include all buildings apart from small
 - Option A3: Abolishing the 1000 m² threshold to include all buildings
- Energy performance certificates
 - Option B1: Quality and compliance requirements
 - Option B2: Requiring the recommended cost-effective measures of the certificate are realized within a certain time period
 - Option B3: Making certificates a mandatory part of property advertisement and/or property transaction documents
 - Option B4: Requiring the linking of the certificates with other support or discouragement mechanisms

- Inspection of boilers and air-conditioning systems
 - Option C1: Requiring an 'inspection report' for heating and air-conditioning systems
 - Option C2: Introducing compliance requirements

- Energy performance requirements
 - Option D1: Specifying EU – wide energy performance requirements
 - Option D2: Introducing a benchmarking mechanism
 - Option D3: Requiring an evolving improvement scheme for the buildings stock focussing on the worst performing buildings
 - Option D4: Setting up EU–wide low or zero energy/carbon buildings/passive house requirements

The analysis in the report shows significant positive impacts which are possible if the Directive (2002/91/EC) is revised, that would make use of a large part of the remaining potential in the buildings sector and would also contribute to the realization of the full potential of the current EPBD. Furthermore, such a revision would create a simplified and improved framework for energy savings.

The report estimates following energy savings for a revised directive;

- 60 – 80 Mtoe/year energy savings in 2020, i.e. reduction of 5-6% of the EU final energy in 2020;
- 160 to 210 Mt/year CO₂ savings in 2020, i.e. 4-5% from EU total CO₂ emissions in 2020

The report also estimates that 280,000 (to 450,000) potential new jobs will be created by 2020 by the revised EPBD.

Table 1: CO₂ and energy savings in the sector

Ex-ante evaluation	2010	2020		
CO ₂ (Mt)		160-210		
Energy (TWh)		60-80 Mtoe		

The impact is considered high, however, part of the CO₂ savings will occur in the tertiary (industrial) sector as well.

Historical data

The Directive forms part of the Community initiatives on climate change (commitments under the Kyoto Protocol) and security of supply (the Green Paper on security of supply). Firstly, the Community is increasingly dependent on external energy sources and, secondly, greenhouse gas emissions are on the increase. The Community can have little influence on energy supply but can influence energy demand. One possible solution to both the above problems is to reduce energy consumption by improving energy efficiency. Energy consumption for buildings-related services accounts for approximately one third of total EU energy consumption. The Commission considers that, with initiatives in this area, significant energy savings can be achieved, thus helping to attain objectives on climate change and security of supply. Community-level measures must be framed in order to deal with such Community-level challenges.

This Directive is a follow-up to the measures on boilers (92/42/EEC), construction products (89/106/EEC) and SAVE programme provisions on buildings. Though there is already a directive on the energy certification of buildings (Directive 93/76/EEC repealed by Directive 2006/32/EC), it was adopted in a different political context before the Kyoto agreement and the uncertainties with the security of energy supply in the Union.

References

- Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings; http://europa.eu/legislation_summaries/other/127042_de.htm
http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/construction/en0021_en.htm
- COUNCIL DIRECTIVE 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (SAVE)

Last update: 09 July 2014

- Directorate-General for Energy and Transport
http://ec.europa.eu/energy/demand/legislation/buildings_en.htm
- Directive 2010/31/EU
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:0013:0035:EN:PDF>
- The Energy Efficiency Investment Potential for the Building Environment
http://ec.europa.eu/energy/efficiency/buildings/doc/energy_efficiency_investment_potential_buildings.pdf
- SEC(2008) 2864 – Proposal for recast of Energy Performance Buildings Directive 2002/91/EC
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2008:2864:FIN:EN:PDF>