



Brussels, Thursday 30 March 2017

# **Position Paper on the review of Directive 2010/31/EU on the energy performance of buildings**

***“From energy efficiency to quality of light”***

## **Introduction**

The use of daylight and adequate electrical light within the building helps to reduce energy consumption, promote wellbeing, and increase productivity of people. While saving energy is very important for the environment, we should not forget the value of addressing human comfort, wellbeing, and task performance via good quality lighting. LightingEurope has published a [Position Paper](#) on the importance of good quality lighting whilst saving energy, which highlights the significance thereof. Energy savings in lighting can also have a multiplying effect on the air conditioning, because installing efficient lighting reduces heat waste from lighting, and therefore the load on the cooling system (1.5 W is needed to cool down 1 W of heat).

LightingEurope supports all activities of the European Commission to improve the energy performance of buildings within Europe and welcomes the European Commission’s proposal on amending Directive 2010/31/EU on the energy performance of buildings (EPBD), which was adopted on 30 November 2016.

LightingEurope is glad to see that the European Commission proposal imposes on Member States to set system requirements for all technical building systems, built-in lighting included. A proper implementation of lighting systems in non-residential buildings strongly reduces the final energy consumption of lighting within the scope of the EPBD.

Depending on a low or high policy scenario, lighting accounts for around 20 % of the total cost-effective energy saving potential towards 2030 (source: EPBD Impact Assessment (SWD (2016) 414 final)).

## LightingEurope comments on priority messages

### Priority messages

- For a proper transposition at national level, the term built-in lighting requires further explanation. LightingEurope suggests to use a specific definition;
- LightingEurope believes that built-in lighting, like all technical building systems, should be taken into account in order to determine the energy performance of buildings;
- Lighting Systems Design should also be taken into account when measuring the energy performance of buildings.

#### 1) Definition of built-in lighting

In the EPBD proposal adopted by the European Commission, lighting is finally included in the scope of technical building systems including system requirements. This meets the recommendations issued by LightingEurope in an earlier Position Paper from June 2016.

The recently adopted EPBD review proposal includes several new categories in the scope of 'technical building system,' and 'built-in lighting' is one of them. This expression is already used in Annex I. For consistency reasons, the Commission proposal replaced the term 'lighting' with 'built-in lighting' in Article 2(3).

Article 8 of the current EPBD states that mandatory system requirements are set to cover heating systems, hot water systems, air-conditioning systems, large ventilation systems, or a combination thereof. Lighting is not mentioned. As a consequence, built-in lighting was often overlooked at national level, meaning that poor and inefficient lighting was installed, even in new buildings.

The lighting industry welcomes the opportunities deriving from the obligation for the Member States to set system requirements for all technical building systems, now including built-in lighting (Art. 2(3)).

However, we think that more clarity is needed on the definition of built-in lighting to help Member States to correctly transpose the Directive into national legislation. Especially often-used terms, like 'fixed' and 'plugged' luminaires that come with built-in lighting, create confusion.

Different interpretations may hinder the level playing-field. In particular, it is important that Member States do not underestimate the potential of a well-designed and advanced lighting system combined with the best lighting product for the different applications. Therefore, LightingEurope proposes the following:

*Article 2(20) (new)*

*"Built-in lighting" means "luminaire(s) or equipment to provide illumination according to the lighting design installed into or onto the structure."*

## 2) Built-in lighting and lighting systems in the energy performance measurement

None of the technical building systems has seen comparable strides in efficiency like lighting. According to Commission's estimates, by substituting a halogen lamp with an LED, consumers could save up to € 100 over the product's lifetime of around 20 years. Energy efficient lighting could save enough energy to power 11 million households for one year and avoid the emission of 12 million tonnes of CO<sub>2</sub> in Europe. On top of the savings given by efficient lighting products, lighting systems<sup>1</sup> are one of the most cost efficient ways to reduce CO<sub>2</sub>-emissions. Hence, LightingEurope strongly supports that built-in lighting, including Lighting System Design<sup>2</sup>, should be balanced mandatorily and independently from other building trades as proposed by the Commission in the EPBD review.

Moreover, all technical building systems, including built-in lighting (plus Lighting System Design), should be considered in the calculation of the energy performance of a building. In particular, as suggested by the European Commission's ENER Lot 37 Study (released on 14 February 2017), lighting systems energy savings can be addressed via a specific calculation method, also called LENI (specified in EN 15193).

## LightingEurope comments on additional messages

### Additional messages

- LightingEurope encourages Member States to adopt the Lighting Systems Design Process (currently under discussion at CEN/CENELEC) during the transposition of the EPBD, in order to tap into the 20 % potential of cost-effective energy savings (more information in the Annex);
- LightingEurope believes that binding energy requirements for technical building systems should be set by Member States, not only for existing buildings, but for new buildings as well;
- LightingEurope is glad to see that the European Commission proposes to encourage the use of ICT and smart technologies to ensure that buildings operate efficiently;
- LightingEurope believes that, instead of 'natural' and 'artificial light,' it is better to use the terms 'daylight' and 'electric light,' as defined in CIE 017 ILV (International Lighting Vocabulary). Moreover, for reasons of consistency with the Commission's review, the term 'built-in lighting' should replace 'lighting' throughout the EPBD text.

<sup>1</sup> According to the EN 12655 standard, a lighting system is defined as 'lighting equipment or lighting solution (lamps, ballast, luminaire and controls) required for the lighting scheme, its installation and operation during the life of the scheme.' More generally, according to a recent Commission's study on lighting systems ([ENER Lot 37](#)), a lighting system means a system of devices intended to deliver effective lighting to create a comfortable, functional, and safe environment for human habitation, travel, work, and leisure activities.

<sup>2</sup> Lighting System Design is usually based on minimum quality parameters as described in European standards, such as EN 12464 Lighting of work places, EN 12193 Sports lighting, and EN 13201 for Road lighting (source: ENER Lot 37 study).

1) Technical building systems should be applied in new buildings as well

According to the current EPBD and its review proposal, system requirements shall be set for new, the replacement, and the upgrading of technical building systems, and shall be applied in so far as they are technically, economically, and functionally feasible.

According to the EPBD review proposal and current text, Member States have the possibility to decide to apply these system requirements also to new buildings, significantly improving savings for newly constructed buildings.

We think that this optional approach will potentially miss a huge amount of opportunities in new buildings. Well-designed technical building systems allow Member States to significantly and permanently reduce further energy consumption and carbon dioxide emissions. Therefore, we think that technical building systems can play a major role in new building as well. In particular, concerning lighting, it is easier to install a proper and an effective Lighting System Design in a new building than in an old one, unless major renovations are foreseen.

Moreover, a framework to ensure that energy criteria are actually met would be needed at national level. Amongst others, this would concern the design, dimensioning, commissioning, monitoring, and decommissioning of Lighting System Design. For further details, please look at the Annex on Lighting Systems Design process.

2) Other new technical building system categories

Other relevant categories now included in the definition are: building automation and control, or a combination of such systems. LightingEurope is glad to see that the European Commission proposes to encourage the use of ICT and smart technologies to ensure that buildings operate efficiently. Building automation and control systems, infrastructure for e-mobility, and the introduction of a smartness indicator can bring huge savings in the building sector.

3) Change terms used on 'natural' and 'artificial light'

LightingEurope believes that, instead of 'natural' and 'artificial light,' it is better to use terms 'daylight' and 'electric light,' in order to be consistent with CIE 017 International Lighting Vocabulary (ILV).

4) Change terms used on 'lighting' with 'built-in lighting'

For reasons of consistency with the Commission's EPBD proposal, 'built-in lighting' expression shall replace 'lighting' expression throughout the text.

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## Annex

### Lighting Systems Design Process in national legislation at Member State level

An important necessity to ensure valid long-term energy performance measures for a technical building system is the implementation of a system design process. This process shall be considered by Member States when transposing the new EPBD legislation at a national level.

A system design approach will ensure the support of the implementation of possible measures, such as components, design, and the usage of control systems, and thus represents an important factor in securing the compliance with anticipated energy savings.

A continuous monitoring of the necessary steps in the design, implementation, and maintenance processes is an important tool for an evolving improvement of a technical building system's energy performance, including later verification purposes. Therefore, LightingEurope assigned a task to CEN/TC 169 to develop a Lighting Systems Design Process.

The process will holistically cover the following milestones in a Lighting System Design, implementation, and operation:

1. Design;
2. Installation (according to design);
3. Commissioning (according to specifications);
4. Verification (according to design);
5. Operation & Maintenance (according to design).

The Lighting Systems Design Process will especially meet the current EPBD requirements regarding the inspection of technical building systems and the energy certification of buildings. Its main goal will be ensuring that anticipated energy savings will be met.

According to CEN/TC 169, the Lighting Systems Design Process will become available in the second half of 2017. This upcoming EN document will support the implementation of possible measures, secure that anticipated energy savings will be met and can be used for later verification purposes and market surveillance.