



NSAI
Standards

Irish Standard
I.S. EN 15193:2007

Energy performance of buildings - Energy requirements for lighting

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I.S. EN 15193:2007

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English version
Version Française
Deutsche Fassung

Energy performance of buildings - Energy requirements for lighting

Performance énergétique des bâtiments -
Exigences énergétiques pour l'éclairage

Energetische Bewertung von Gebäuden -
Energetische Anforderungen an die
Beleuchtung

This corrigendum becomes effective on 15 September 2010 for incorporation in the official English and French versions of the EN.

Ce corrigendum prendra effet le 15 septembre 2010 pour incorporation dans les versions officielles anglaise et française de la EN.

Die Berichtigung tritt am 15. September 2010 zur Einarbeitung in die offizielle Englische und Französische Fassung der EN in Kraft.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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1 Modification to Annex F

Replace the whole Table F.1:

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	Quality class	Parasitic Emergency P _{em} kWh/(m ² xyear)	Parasitic Control P _{pc} kWh/(m ² xyear)	F _c			F _o		F _d			
				PN	t _D	t _N	Manual	Auto	Manual	Auto		
Office	*	1	5	15	2 250	250	1	0,9	1	0,9	1	0,9
	**	1	5	20	2 250	250	1	0,9	1	0,9	1	0,9
	***	1	5	25	2 250	250	1	0,9	1	0,9	1	0,9
Education	*	1	5	15	1 800	200	1	0,9	1	0,9	1	0,8
	**	1	5	20	1 800	200	1	0,9	1	0,9	1	0,8
	***	1	5	25	1 800	200	1	0,9	1	0,9	1	0,8
Hospital	*	1	5	15	3 000	2 000	1	0,9	0,9	0,8	1	0,8
	**	1	5	25	3 000	2 000	1	0,9	0,9	0,8	1	0,8
	***	1	5	35	3 000	2 000	1	0,9	0,9	0,8	1	0,8
Hotel	*	1	5	10	3 000	2 000	1	0,9	0,7	0,7	1	1
	**	1	5	20	3 000	2 000	1	0,9	0,7	0,7	1	1
	***	1	5	30	3 000	2 000	1	0,9	0,7	0,7	1	1
Restaurant	*	1	5	10	1 250	1 250	1	0,9	1	1	1	-
	**	1	5	25	1 250	1 250	1	0,9	1	1	1	-
	***	1	5	35	1 250	1 250	1	0,9	1	1	1	-
Sport places	*	1	5	10	2 000	2 000	1	0,9	1	1	1	0,9
	**	1	5	20	2 000	2 000	1	0,9	1	1	1	0,9
	***	1	5	30	2 000	2 000	1	0,9	1	1	1	0,9
Retail	*	1	5	15	3 000	2 000	1	0,9	1	1	1	-
	**	1	5	25	3 000	2 000	1	0,9	1	1	1	-
	***	1	5	35	3 000	2 000	1	0,9	1	1	1	-
Manufacture	*	1	5	10	2 500	1 500	1	0,9	1	1	1	0,9
	**	1	5	20	2 500	1 500	1	0,9	1	1	1	0,9
	***	1	5	30	2 500	1 500	1	0,9	1	1	1	0,9

No cte illuminance		Cte illuminance	
LENI	LENI	LENI	LENI
Limiting value		Limiting value	
Manual	Auto	Manu	Auto
kWh/(m ² xyear)		kWh/(m ² xyear)	
42,1	35,3	38,3	32,2
54,6	45,5	49,6	41,4
67,1	55,8	60,8	50,6
34,9	27,0	31,9	24,8
44,9	34,4	40,9	31,4
54,9	41,8	49,9	38,1
70,6	55,9	63,9	50,7
115,6	91,1	104,4	82,3
160,6	126,3	144,9	114,0
38,1	38,1	34,6	34,6
72,1	72,1	65,1	65,1
108,1	108,1	97,6	97,6
29,6	-	27,1	-
67,1	-	60,8	-
92,1	-	83,3	-
43,7	41,7	39,7	37,9
83,7	79,7	75,7	72,1
123,7	117,7	111,7	106,3
78,1	-	70,6	-
128,1	-	115,6	-
178,1	-	160,6	-
43,7	41,2	39,7	37,5
83,7	78,7	75,7	71,2
123,7	116,2	111,7	105,0

Lighting should be designed and installed by following good lighting practices. The lighting design criteria are given in EN 12464-1 and EN 12193. Each of the criteria has to be considered. The lighting design should fulfil the basic lighting requirements. For an improved lighting design, to achieve better comfort conditions, well-being of and acceptance by the user the following three lighting design classes should be considered:

Quality class (Qual. Class)

- * basic fulfilment of requirements
- ** good fulfilment of requirements
- *** comprehensive fulfilment of requirements. The lighting design criteria are listed in Table F.2.

where

$$LENI = \{F_c \times P_N / 1\,000 \times [(t_D \times F_D \times F_O) + (t_N \times F_O)]\} + 1 + \{5/t_y \times [t_y - (t_D + t_N)]\} \text{ [kWh/(m}^2 \cdot \text{year)]} \quad (\text{F.1})$$

P_N is the installed lighting power density load in the building in W/m^2

cte is constant illuminance control system

Manu is manual control lighting system

Auto is automatic control lighting system".

ICS 91.140.99; 91.160.10

English Version

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Performance énergétique des bâtiments - Exigences énergétiques pour l'éclairage

Energetische Bewertung von Gebäuden - Energetische Anforderungen an die Beleuchtung

This European Standard was approved by CEN on 15 March 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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Foreword

This document (EN 15193:2007) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2008, and conflicting national standards shall be withdrawn at the latest by March 2008.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard was devised to establish conventions and procedures for the estimation of energy requirements of lighting in buildings, and to give a methodology for a numeric indicator of energy performance of buildings. It also provides guidance on the establishment of notional limits for lighting energy derived from reference schemes.

Having the correct lighting standard in buildings is of paramount importance and the convention and procedures assume that the designed and installed lighting scheme conforms to good lighting practices. For new installations the design should be to EN 12464-1.

This European Standard also gives advice on techniques for separate metering of the energy used for lighting that will give regular feedback on the effectiveness of the lighting controls.

The methodology of energy estimation not only provides values for the numeric indicator but will also provide input for the heating and cooling load impacts on the combined total energy performance of building indicator.

Figure 1 gives an overview of the methodology and the flow of the processes involved.

The methodology and format of the presentation of the results would satisfy the requirements of the EC Directive on Energy Performance of Buildings 2002/91/EC.

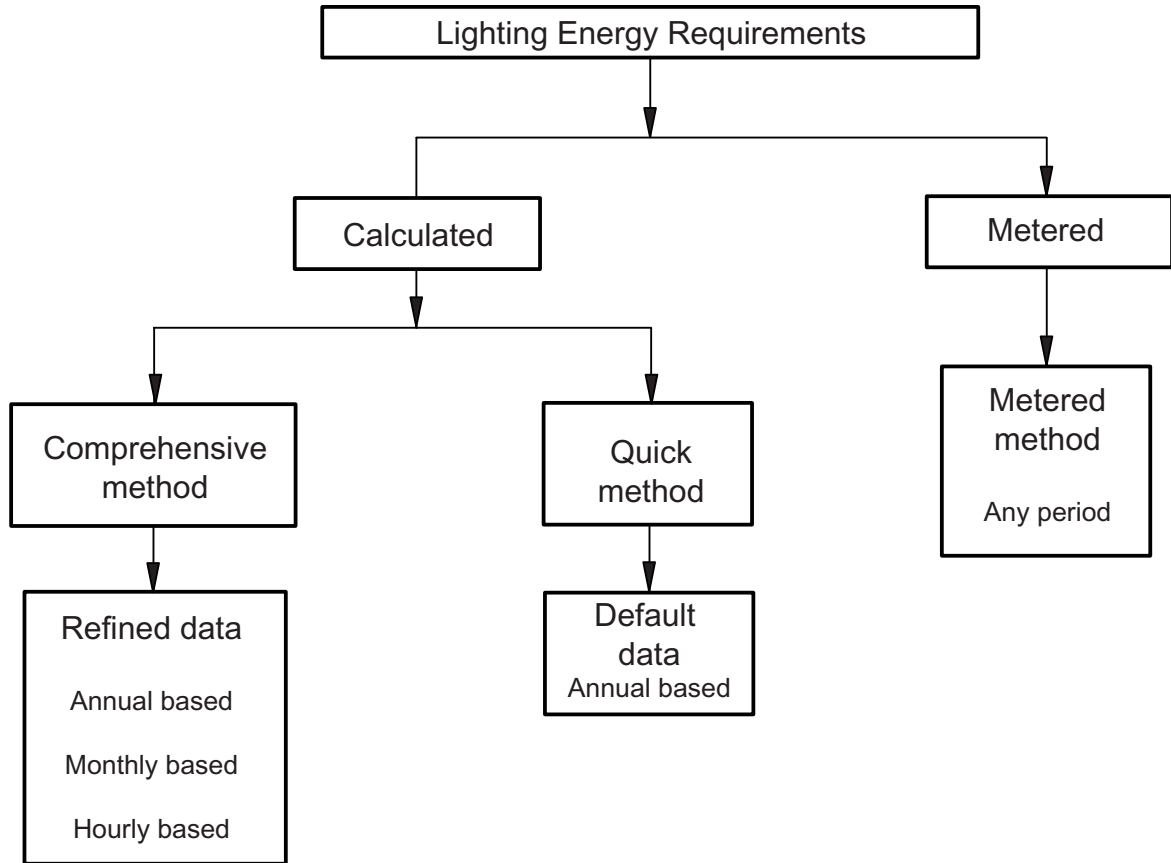


Figure 1 — Flow chart illustrating alternative routes to determine energy use

1 Scope

This European Standard specifies the calculation methodology for the evaluation of the amount of energy used for indoor lighting inside the building and provides a numeric indicator for lighting energy requirements used for certification purposes. This European Standard can be used for existing buildings and for the design of new or renovated buildings. It also provides reference schemes to base the targets for energy allocated for lighting usage. This European Standard also provides a methodology for the calculation of instantaneous lighting energy use for the estimation of the total energy performance of the building. Parasitic powers not included in the luminaire are excluded.

In this European Standard, the buildings are classified in the following categories: offices, education buildings, hospitals, hotels, restaurants, sports facilities, wholesale and retail services and manufacturing factories.

In some locations outside lighting may be fed with power from the building. This lighting may be used for illumination of the façade, open-air car park lighting, security lighting, garden lighting etc. These lighting systems may consume significant energy and if they are fed from the building, this load will not be included in the Lighting Energy Numeric Indicator or into the values used for heating and cooling load estimate. If metering of the lighting load is employed, these loads may be included in the measured lighting energy.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1838, *Lighting applications — Emergency lighting*

EN 12193, *Light and lighting — Sports lighting*

EN 12464-1:2002, *Light and lighting — Lighting of work places — Part 1: Indoor work places*

EN 60570, *Electrical supply track systems for luminaires (IEC 60570:2003, modified)*

EN 60598 (all parts), *Luminaires*

EN 61347 (all parts), *Lamp controlgear*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

built-in luminaires

fixed luminaires installed to provide illumination in the building

3.2

control gear

components required to control the operation of the lamp(s)

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