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BSI Standards Publication

Light and lighting - Lighting system design process

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Light and lighting - Lighting system design process

Lumière et éclairage - Méthode de conception d'un système d'éclairage

Licht und Beleuchtung - Planungsprozess für Beleuchtungssysteme

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Ref. No. CEN/TS 17165:2018 E

Contents

Page

European foreword

This document (CEN/TS 17165:2018) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, the secretariat of which is held by DIN.

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Introduction

Light allows us to see visual tasks and their surrounding area effectively and efficiently in comfort, safety and security, in all conditions. Furthermore light affects our circadian rhythms, mood, improves our performance and well-being. A good lighting design will deliver light where and when it is required at the right level, direction and quality over the required time.

Illumination can be provided by daylight, electric light or by a combination of these two sources through a well-designed, installed and operated lighting system.

The lighting system design process is an iterative process and this technical specification describes the key design considerations in the process for a good quality, energy efficient and effective lighting system for major projects in the tertiary lighting sectors listed in the scope. The final designed lighting system should provide efficient and effective good quality lighting for the user needs. Good lighting quality improves quality of life, human health, productivity, comfort and function. The design should include safety/emergency lighting based on risk assessment or legislation identified during consultation. Elements of this design process can also be used for smaller lighting schemes.

The full lighting system design process will support implementation of regulatory measures and the development of verification requirements. In this way it will ensure that the anticipated energy savings will be met without jeopardising the required lighting conditions.

The lighting system design process is a tool that can be regulated by legislation.

Lighting systems are often subject to input from other design disciplines and shall respect and take into account the intrinsic requirements and tolerances of other components.

The complete design of a lighting system typically consists of:

— the lighting system design;

— design of the electrical system and structures of the system, as regulated by the legislation in force and by the applicable International, European and National standards.

This document sets out the general framework of a lighting system design process that can be applied to lighting of any projects including smart buildings.

1 Scope

This document specifies steps to be taken in the lighting system design process and lists responsibilities for the implementation and operation of the lighting solution. The aim of the process is:

1) to design lighting system solutions for sustainable lighting quality based on recommendations in the relevant lighting application standards, for the wellbeing of users and for a pleasant built environment, and

2) to ensure that the light requirements are fulfilled with energy efficient solutions (luminaire and control system) with data that can be used in the energy calculations, and

3) to list the equipment information to be used in the installation, commissioning, operation, maintenance of the lighting system over the years and the decommissioning process, and

4) to compile the documents defining the designed lighting system solution.

The described lighting system design process applies to all projects of buildings and facilities whether, new or a refurbishment in the lighting sector. This includes amongst others the following applications:

— office buildings – business, communication, design;

— industry buildings – manufacture, warehouse;

— outdoor work place areas – shipyards, marshalling yards, timber works;

— healthcare buildings – hospitals, hospice, residential and elderly care facilities;

— retail buildings – shops, supermarkets, wholesale establishments;

— hospitality buildings – bedded areas, meeting rooms, restaurant, café;

— sports – indoor sports facilities and outdoor sports fields;

— education buildings – schools, colleges, universities;

— roads – traffic routes and conflict areas;

— amenity areas – cycle paths, residential roads, pedestrian areas;

— parking areas – indoor and outdoor.

The process does not apply to:

— specialized lighting systems, (historic buildings, stage, studio, dentist, operating table, etc.);

— lighting built into machinery or medical equipment;

— temporary lighting installations.

This document is not applicable to the design of the relevant electrical system and structures.