

## **BUSINESS PLAN**

### **CEN/TC 169 Light and lighting**

#### **EXECUTIVE SUMMARY**

##### **Business Environment**

CEN/TC 169 is responsible for standards in the field of vision, photometry and colorimetry, involving natural and man-made optical radiation over the UV, the visible and the IR regions of the spectrum, and application subjects covering all usages of light, indoors and outdoors, including environmental, energy and sustainability requirements and aesthetics and non-image forming biological aspects as well as lighting related information modelling systems.

The Lighting Industry as well as designers are active in almost all European Countries and world wide. On the European basis these are represented by, e. g.

- LightingEurope
- LUX Europa
- European Energy Network (E<sup>N</sup>R)
- Building Regulators, Environmental and Energy Associations

##### **Benefits**

The standards are important for consumers, employees at their work places, employers, legal authorities, manufacturers of light sources, luminaires and measurement equipment, lighting designers, architects, for an optimized utilization of energy and for the protection of sustainable environment.

##### **Priorities**

It is the strategy of CEN/TC 169 to produce the basic standards on terminology and photometry first and to base all application standards on these. Most of the basic material is based on publications from the CIE and, where possible, CIE-publications and CIE-Standards are referred to. Only where CIE documents do not correspond to current European needs does CEN develop its own standards. The process of using CIE material is governed by the agreement between CEN and CIE.

## 1 BUSINESS ENVIRONMENT OF THE CEN/TC

### 1.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this CEN/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

- The European Commission has issued and continues to issue Directives and Regulations concerning the energy consumption and environmental aspects for lighting purposes. They need standards to describe the energy performance of lighting products and lighting systems in their applications and to ensure sustainability of the lighting solutions.
- Following the state of art, new emerging technologies necessitate amendments and creation of new Standards to ensure best practice and fair play.
- International standardization in the field of light and lighting is ongoing in the technical committees of the International Commission on Illumination (CIE), ISO and IEC.
  - o An agreement between CEN and CIE on technical co-operation is established. The resulting international standards are of scientific and commercial importance for Europe and CEN/TC 169 responds to the need to harmonize and/or modify these international documents with regard to European conditions.
  - o Further, a cooperation is established with ISO/TC 274 "Light and Lighting" which is responsible for international standardization in the field of application of lighting in specific cases complementary to the work of CIE.
- CEN/TC 169 is interested in setting up its work program according to the principles of the New Legislative Framework (former: New Approach) to encourage the use of European Standards and to support small and medium sized enterprises (SMEs) to do business outside their national markets. In addition, CEN/TC 169 is interested in the implementation of EU-regulations and directives, e. g. Ecodesign and EPBD, by providing the necessary European Standards of this Committee. One available standard has already been cited in the Official Journal of the European Union under Directive 2006/42/EC and confers presumption of conformity with Essential Requirements of that Directive.

### 1.2 Quantitative Indicators of the Business Environment

Quantitative Indicators of the Business Environment are not available.

## 2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

- About 80% of the information perceived by humans is via the eye and is revealed by light and lighting. Furthermore, lighting plays a significant role in the health and wellbeing of the occupants in buildings. People in industrialized countries typically spend approximately 90 % of their time inside buildings – living, working, learning and playing, this means that the physical conditions indoors, including light exposures, are those that will have the greatest

influence on health and well-being. In outdoor spaces lighting at night is important for safety, wayfinding and perception of spaces.

- For CEN/TC 169, the final consumers of "light" are the people living in Europe. Being aware of individual variations in visual capability, the basic mechanism of response to light is the same for all humans. Lighting is essential for visual and non-visual effects to support the regulation of human health, performance and well-being.
- The Lighting industry in Europe as well as lighting designers are active in almost all European Countries, and it is important for them to find similar application standards everywhere. These standards make it possible to apply the same products and the same design in different countries even under consideration of different national lighting habits.

### **3 PARTICIPATION IN THE CEN/TC**

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

## **4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT**

### **4.1 Defined objectives of the CEN/TC**

- Elaboration of standards on terminology of light and lighting, lighting applications, daylight, measurement procedures, evaluation of lighting conditions, on assessment of exposure of people to optical radiation and on non-visual effects on humans.
- To be proactive in identifying EU standardisation needs and to make relevant regional (EN) standards and other documents whenever there is not an acceptable international document ready for adoption (or in pipeline)
- To prioritize the making of new documents and the revision of existing documents according to market needs, the need for public health, energy savings and preservation of resources while improving the quality of lighting
- To cooperate with selected national, regional and international standardization bodies (ISO, CIE) to achieve good results as fast as possible and to achieve the broadest possible acceptance of the documents, e.g. through liaisons with prioritized CEN/CENELEC TCs, which partly treat lighting in the context of their scope.
- To specify the required lighting conditions for good visual performance, safety and well being e. g. in homes, at work places, whilst traveling and in leisure facilities.
- To address scientific and research institutes with problems that call for further investigation to support the development of documents
- To be a responsible partner for development of technical documents for the needs of the European Union

### **4.2 Identified strategies to achieve the CEN/TC's defined objectives**

It is the strategy of CEN/TC 169 to produce the basic standards on terminology and photometry first and to base all application standards on these. Besides, most of the basic material is based on publications from the CIE and where possible CIE-publications and CIE-

Standards are referred to. Only where CIE documents do not correspond to current European needs does CEN develop its own standards.

CEN develops its own standards while including the information within CIE standards to correspond to current European needs.

The process of using CIE material is governed by the agreement between CEN and CIE.

With reference to this agreement, it is also possible, that in the future CIE will be fully entrusted with carrying out the work on a previously identified work item.

Since the different application areas require different expertise, the work of CEN/TC 169 is organized in the following way:

- two working groups are working on standards for terminology and photometry (CEN/TC 169/WG 1 "Basic terms and criteria" and CEN/TC 169/WG 7 "Photometry");
- fundamental subjects are dealt with in CEN/TC 169/WG 11 "Daylight", and CEN/TC 169/WG 13 "Non-visual effects of light on human beings";
- the different applications are dealt with in separate working groups (CEN/TC 169/WG 2 "Lighting of work places", CEN/TC 169/WG 3 "Emergency lighting in buildings", CEN/TC 169/WG 4 "Sports lighting", CEN/TC 169/WG 6 "Tunnel lighting", CEN/TC 169/WG 12 "Joint Working Group with CEN/TC 226 - Road lighting", and CEN/TC 169/WG 15, "Assessment and control of obtrusive light in outdoor spaces");
- including one working group on energy performance of buildings considering "environment"-related aspects CEN/TC 169/WG 9 "Energy performance of buildings");

This strategy was agreed upon at the constitutional meeting of CEN/TC 169 in 1989 and revised in 2024.

Liaisons/cooperations have been established with the following organisations:

Liaison and Partner organisations:

- CIE
- Eurolux
- ECOS
- IALD
- LightingEurope

TC Cooperation:

- CEN/TC 156 "Ventilation for buildings"
- CEN/TC 247 "Building Automation, Controls and Building Management"
- CEN/TC 346 "Conservation of Cultural Heritage"
- CEN/TC 371 "Energy Performance of Buildings"
- CEN/TC 442 "Building Information Modelling"
- CLC/TC 34 "Lighting"
- ISO/TC 274 "Light and Lighting"

### **4.3 Environmental aspects**

The following environmental aspects are considered in the work of CEN/TC 169:

- Use of daylight,
- Energy requirements for lighting,
- Obtrusive light.

## **5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME**

### **5.1 General**

The work of CEN/TC 169 will only be successful if all full-time standardizers, convenors, secretaries and all national representatives fulfil their duties in line with the respective rules and guidelines and in time. It is also necessary that the work results at all stages are discussed thoroughly by the national bodies that send their representatives to the working groups of CEN/TC 169 and to its plenary meeting.

Since there is only a restricted number of experts available and the willingness of the parties involved to give them the necessary time and financial resources for the work in CEN/TC 169 is limited there is a certain risk that target dates for work items of CEN/TC 169 will not be met.

The Secretariat of CEN/TC 169 is funded by the German lighting industry, on a yearly basis.

### **5.2 Responding to external factors**

The following table describes different kinds of societal and industrial needs as well as research results that influence the CEN/TC 169 work programme.

Table 5.1 — Megatrends and their impact on the CEN/TC 169 work programme

Megatrends	Relation to standardisation	Possible topics
1. Urbanisation	Liveability, growing populations, mega-cities, denser population of cities	Adaptive outdoor lighting and how it can serve both energy savings and human needs (safety, infrastructure efficiency, wayfinding, parking etc.) Daylight and artificial lighting in dense cities for exterior as well as interior spaces (such as dwellings and work spaces)
2. Sustainability	Need for energy savings and resource preservation. Preserving wildlife and dark skies. Lighting without loss of other lighting benefits (function, comfort, ambience etc.)	Avoiding excessive and obtrusive lighting in outdoor spaces; Using daylight as essential light source (e. g. in nearly Zero-Energy Buildings); Unfolding the potential of intelligent lighting controls;
3. Aging populations	Need for daylight and electric lighting in work places and lighting suitable for the elderly. Need for proper light in public spaces to prevent accidents and improve orientation	Current standards are valid for people with normal sight. We need guidelines how to customize lighting to sight of actual occupants (for example age-related deteriorations and maybe common eye diseases). Furthermore quantitative guidelines for e. g. light levels, glare and colour temperatures, including recommendations how the dynamic change of these parameters should be defined.
4. Knowledge society	Quality of work and educational spaces. In industrialised countries 72% of the work forces work in the tertiary sector.	As more and more work takes place in offices, daylight and artificial light must be specifically adapted to office tasks as watching computer screens and communicating. Further, lighting should match new flexible work spaces.
5. Advanced support of human wellbeing, whilst respecting ecology and environment	We know more and more about how living conditions affect human wellbeing and how space design (sizing, materials, light and air) supports health.	CEN/TC 169 is not authorized to standardize in health issues, but the normalization of increasing well-being through lighting falls within the scope. Therefore, requires CEN Guidelines, for example for <ul style="list-style-type: none"> <li>- light solutions that support well-being and circadian rhythms in homes, work places, education spaces etc.</li> <li>- light solutions that support well-being and healing in health care facilities</li> </ul>

<p>6. Connectivity, IoT (internet of things), wireless communication</p>	<p>How will these technological advances work with light and lighting to improve/preserve spaces for people and preserve energy?</p>	<p>Need for good control strategy practices: Automation vs manual control, user and technical interfaces, safety issues etc. The topic of 'connectivity' goes far beyond lighting and could be a disruptive technology for the industry. How can the lighting industry be part of this global trend dominated by ICT tech companies and what are the needs for standardisation here? Commissioning and maintenance standards – lighting controls and creation of interface definitions for lighting.</p>
<p>7. Digitalisation</p>	<p>Definitions of common BIM (Building information modelling) terms in the field of light and lighting are necessary</p>	<p>During the life cycle (planning, installation, operation, maintenance and disassembly) product data should be available so that a cross-technology information source for the respective products are available. BIM topics are worked on in cooperation with ISO/TC 274.</p>

A more detailed overview on future revisions and possible new work items is continually updated and subject at plenary meetings.