

**Factsheet**

# Integrated Solutions for Daylight and Electric Lighting

## EBC ANNEX 77 - IEA SHC TASK 61

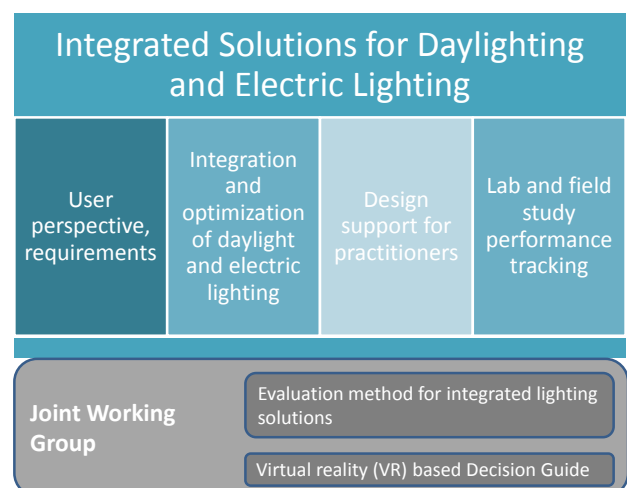
This new project is focusing on R&D to create and develop strategies combining daylighting and appropriate lighting control systems lead both to:

- very highly energy-efficient lighting schemes, and
- solutions offering the best lighting conditions for people.

**PROJECT OBJECTIVES**

- 1 Review the relationships between occupant perspectives and energy in the emerging era of 'smart and connected lighting' for a sample of buildings. Consolidate findings and create 'personas' reflecting the behaviours of typical occupants.
- 2 Based on a review of specifications concerning lighting quality, non-visual effects, ease of design, installation and use, provide recommendations for energy regulations and building performance certificates.
- 3 Assess and improve the technical, environmental and financial robustness of integrated daylight and electric lighting approaches.
- 4 Demonstrate and verify concepts through laboratory studies and real use cases based on performance validation protocols.
- 5 Develop integral photometric, occupant comfort and energy rating models as pre-normative work linked to relevant bodies, including CIE, CEN, ISO, and initiate standardization activities.
- 6 Provide decision making and design guidelines incorporating virtual reality sessions. Integrate approaches into widespread lighting design software

Useful knowledge and results from research will be gathered concerning the perceptions of building occupants on lighting quality, user interfaces and control strategies. The project will propose models for lighting controls that integrate occupant behaviour and expectations. It will identify best practice approaches for control solutions for lighting and daylighting (movable components of windows), with wireless and wired controls, open loop and closed loop, Internet of Things, etc). It will also conduct onsite and laboratory monitoring of innovative solutions and publish the findings to document their benefits. Part of the work will lead to deliverables to inform standardization proposals, particularly in relation to CEN and ISO.



*The project structure of EBC Annex 77 / SHC Task 61. The four subtasks will generate the key results, which results will then be integrated by means of a joint working group. According to the individual focuses of stakeholders, the joint working group will provide information tailored to their specific needs.*  
Source: EBC Annex 77

#### INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA) was established as an autonomous body within the Organisation for Economic Co-operation and Development (OECD) in 1974, with the purpose of strengthening co-operation in the vital area of energy policy. As one element of this programme, member countries take part in various energy research, development and demonstration activities. The Energy in Buildings and Communities Programme has co-ordinated various research projects associated with energy prediction, monitoring and energy efficiency measures in both new and existing buildings. The results have provided much valuable information about the state of the art of building analysis and have led to further IEA co-ordinated research.

#### EBC VISION

By 2030, near-zero primary energy use and carbon dioxide emissions solutions have been adopted in new buildings and communities, and a wide range of reliable technical solutions have been made available for the existing building stock.

#### EBC MISSION

To accelerate the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge and technologies through international collaborative research and innovation.

The following deliverables are planned:

- 'Personas for occupant-centered integrated lighting solutions' report
- 'Integration and optimization of daylight and electric lighting' report / source book
- 'Guidelines for the use of simulation in the design process of integrated lighting solutions' report
- 'Integrated solutions for daylighting and electric lighting in practice: results from case studies' report
- Standardization: Initiation of new work items by appropriate standardization bodies and proposals for methods for draft standards (BSDF daylight system characterization, hourly lighting energy demand rating method)
- Virtual Reality Decision Guide
- A Web-based tool providing an hourly lighting energy demand rating method
- Industry workshops during the project duration, in conjunction with every project meeting, which will be organised in the host country of each meeting, and to which representatives from authorities, manufacturers and designers will also be invited.

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#### Project duration

Ongoing (2018 - 2021)

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#### Operating Agent

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#### Participating countries

Australia, Austria, Belgium, P.R. China, Denmark, Germany, Italy, Japan, the Netherlands, Norway, Slovakia, Sweden, Singapore, Switzerland, USA  
Observers: Brazil

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#### Further information

[www.iea-ebc.org](http://www.iea-ebc.org)

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