SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

2013 HIGHLIGHTS

SHC Task 50
Advanced Lighting Solutions for Retrofitting Buildings

THE ISSUE

Lighting accounts for approximately 19% (~3000 TWh) of the global electric energy consumption. Without essential changes in policies, markets and practical implementations, it is expected to continuously grow despite significant and rapid technical improvements like solid-state lighting, new façade and light management techniques. Major lighting energy savings can be realized by retrofitting existing out of date lighting installations, as new solutions allow a significant increase in efficiency combined with highly interesting payback times. However, lighting refurbishments are still lagging behind compared to what is economically and technically possible and feasible.

OUR WORK

The overall objective of SHC Task 50 is to accelerate retrofitting of daylighting and electric lighting solutions, using cost effective, best-practice approaches that can be applied in a wide range of existing buildings.

The Task is working to:

- Develop a sound overview of the lighting retrofit market.
- Trigger discussion and initiate revision of regulations and certifications.
- Increase robustness of daylight and electric lighting retrofit approaches (technically, ecologically and economically).
- Increase understanding of lighting retrofit processes and stakeholders involved.
- Demonstrate state-of-the-art lighting retrofits.
- Develop an electronic interactive source book including design inspirations, design advice, decision tools and design tools.

SHC Task 50 is a three-year project.

PARTICIPATING COUNTRIES

Austria
Belgium
China
Denmark
Finland
Germany
Italy
Japan
Norway
Slovakia
Sweden
Switzerland

INDUSTRY

Philips

Task Date	**2013-2015**
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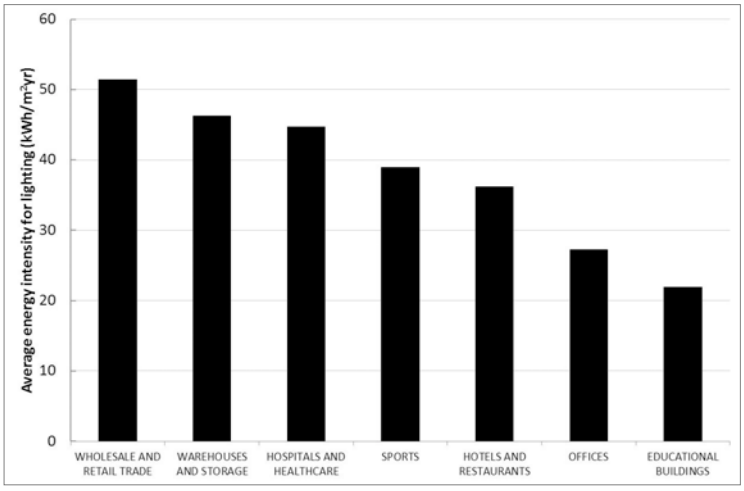
KEY RESULTS OF 2013

Preliminary Results from the Analysis of Building Stock Distribution

To define the most important building types for the Task work, the current distribution of the building stock in the non-residential sector, the average energy intensity for electric lighting for each building type, and the characteristics of the existing lighting installations were analyzed. Preliminary results from this analysis show that the non-residential building stock can, by approximation, be characterized by seven dominant building types 1) offices, 2) educational buildings, 3) wholesale and retail trade, 4) industrial buildings, 5) hotels and restaurants, 6) hospitals and healthcare, and 7) sports buildings.



The energy intensity for lighting has generally higher values for wholesale and retail trade buildings, hotels and restaurants, hospitals and healthcare buildings and sports buildings. The results further indicate that fluorescent lighting is the dominant light source in the non-residential sector and roughly half of the fluorescent lamps are of the older T12 or T8 type lamps with conventional ballasts.

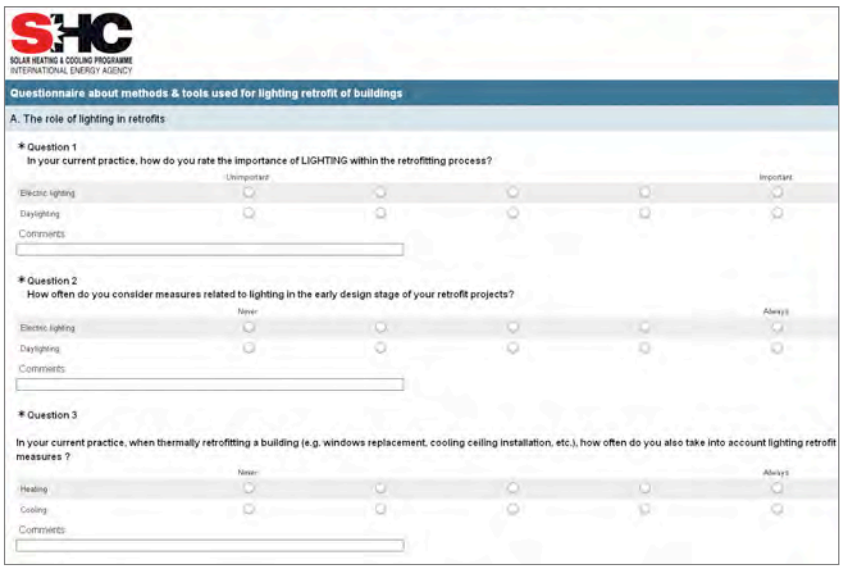
Questionnaire on Methods & Tools Used for Building Lighting Retrofits

To analyze the workflows and needs in practical retrofitting processes a web-based survey was prepared for all actors involved in building retrofit processes. The questionnaire focuses on electric lighting practices and design strategies to increase daylight utilization. The results will contribute to the understanding of the retrofit process, the barriers, and needs.

The questionnaire is subdivided into the following four parts:

1. The role of lighting in retrofits.
2. The design methods within the retrofitting process.
3. Tools for lighting design.
4. Background information for statistical purposes.

The questionnaire is available in different languages and can be found on the SHC Task 50 website or at http://leso2.epfl.ch/task50/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Questionnaire about methods & tools used for lighting retrofit of buildings

A. The role of lighting in retrofits

* Question 1
In your current practice, how do you rate the importance of LIGHTING within the retrofitting process?

Unimportant — Important
Electric lighting
Daylighting
Comments

* Question 2
How often do you consider measures related to lighting in the early design stage of your retrofit projects?

Never — Always
Electric lighting
Daylighting
Comments

* Question 3
In your current practice, when thermally retrofitting a building (e.g. windows replacement, cooling ceiling installation, etc.), how often do you also take into account lighting retrofit measures ?

Never — Always
Heating
Cooling
Comments