IEA SHC Task 50:
Advanced lighting solutions for retrofitting buildings

Daylighting
Electric Lighting
Lighting Controls

January 2013 – December 2015
Task Structure

The objective is to accelerate retrofitting of daylighting and electric lighting solutions in the non-domestic sector using cost-effective, best practice approaches, which can be used on a wide range of typical existing buildings.
Subtask A: Market and Policies
[Coordination: M. Fontoynont, SBI, Denmark]

**Objective:** To understand and model the financial and energy impact associated to retrofitting daylighting and electric lighting of buildings.

A.1 Global economical models
A.2 Barriers and benefits
A.3 Building Energy regulation and certification
A.4 Proposal of action concerning value chain

<table>
<thead>
<tr>
<th>Typology / best solutions</th>
<th>TCO of lighting</th>
<th>Value benefit</th>
<th>Energy benefit</th>
<th>Function benefit</th>
<th>Human benefit</th>
<th>Other benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Offices</strong>&lt;br&gt;New blind system and blind control&lt;br&gt;Ambient task lighting&lt;br&gt;Task lighting control&lt;br&gt;Daylight harvesting</td>
<td>€/m²</td>
<td>€/m² (value)</td>
<td>€/m² (lighting) + €/m² (cooling &amp; lighting)</td>
<td>Higher productivity</td>
<td>Less stress&lt;br&gt;Extra hours of comfortable work</td>
<td>€/m²</td>
</tr>
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</table>
Objective: To assess quality of existing and new solutions in the field of façade and daylighting technology, artificial lighting and lighting controls. To identify and structure existing and develop new lighting system technologies.

B.1 Definition - system characterization

B.2 Definition of (regional) baseline conditions

B.3 Review of state of the art technology and architectural solutions

B.4 New technical developments

B.5 Measurements of selected state of the art and new technologies

B.6 Source book
Subtask C: Methods and Tools

[Coordination: Jérôme Kaempf, EPFL, Bernard Paule, Estia, Switzerland]

**Objective:** Provide methods and tools to make energy efficiency and economics of lighting retrofits transparent to stakeholders.

C.1 Analysis of workflow and needs

C.2 State of the art review

C.3 Development of a simple integrated rating model

C.4 Energy audit and inspection procedures

C.5 Advanced and future simulation tools

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Subtask D: Case Studies

[Coordination: Marie-Claude Dubois, Niko Gentile, Lund University, Sweden]

Objective: Perform building stock analysis including generation of a building typology for lighting retrofits. Based on this deliver proven and robust evidence on achievable savings and show integrated retrofit strategies for representative Case studies

D.1 Building stock/typology
D.2 State-of-the-art review
D.3 Assessment and monitoring procedure
D.4 Case study assessment
D.5 Overall conclusions, lessons learned
D.6 Case study book / e-documentation

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Lighting Retrofit Adviser

design inspirations, design advice, decision and design tools for relighting

Identify demands by simple question, who the user is
Configure the contained information (components) into a suited workflows
Leave access to other information (components) open
Here a more target group oriented starting page.

Select your Country

You are Investor / Owner

START

Identify Potentials
Financing
Starting the relighting process
...

Discover what potentials lie in relighting and specifically in your building (portfolio), then decide how to proceed
Investigate on financial aspects
You see it as an opportunity: See recommendations on how to get started

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Who is behind the activity ...

30 participants
18 universities/institutes/companies
14 Countries

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„Low hanging fruits“