

2016 HIGHLIGHTS

Task 56 – Building Integrated Solar Envelope Systems for HVAC and Lighting

THE ISSUE

In the residential sector, solar thermal and PV systems are typically placed on building roofs with limited attempts to incorporate them into the building envelope thus creating aesthetic drawbacks and space availability problems. On the contrary, the use of facades is highly unexplored. And, daylight control is delegated to individual management of blinds and curtains, leading to high thermal loads during mid-seasons and summer.

In the tertiary segment (offices, schools, hospitals), the roof is again, most of the time, the only surface devoted to the installation of solar thermal and PV technologies. While daylight control here is state of the art in terms of shading effect, the utilization of shading devices to redirect natural light into the room thus improving visual comfort still needs further work.

When energy efficient technologies are installed together with traditional ones, frequently they are just “added on top” of the main systems, resulting in high investment costs and low performance optimization.

OUR WORK

SHC Task 56 focuses on the analysis, simulation, laboratory testing and onsite monitoring of active envelope solutions that are integrated with building HVAC and comfort systems faced with one of the following:

- Delivering renewable thermal or/and electric energy to the building's systems providing heating, cooling and ventilation, or
- Reducing a building's heating and cooling demands while controlling daylight

The strategic objective of Task 56 is to coordinate the research and innovation effort taking place within the scientific community and the private sector towards the utilization of envelope integrated technologies by:

- Gathering relevant information on market available and “under-developed” solar envelope systems both in terms of performance and costs,
- Assessing test methods for the performance characterization of solar envelope elements,
- Assessing simulation models for the performance characterization of solar envelope elements,

Participating Countries

Austria

Canada

Denmark

Germany

Italy

Netherlands

Norway

Slovakia

Spain

Sweden

Task Period

2016 - 2020

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Building Integrated Solar Envelope Systems for HVAC and Lighting

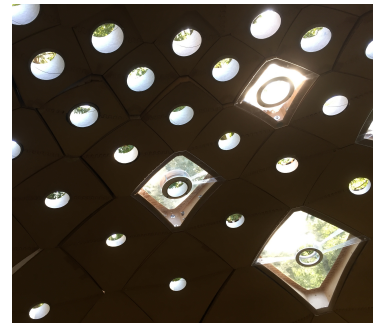
- Developing design, manufacturing and installation guidelines for solar envelope systems, accounting for technological, architectural/aesthetical, economic, financing and customer acceptance viewpoints, and
- Assessing and elaborating on business models for solar envelope systems.

KEY RESULTS IN 2016

Task Kick-Off

Successful Task 56 Kick-off Meeting at EURAC in Bolzano, Italy, October 19-21, 2016

Task 56 was launched in February 2016 with 10 countries participating in the work. Besides architects and construction companies, public institutions, as well as solar technology producers and manufacturers of building envelope systems are involved in the Task 56 activities.



Task 56 Session at Advanced Building Skins Conference

11th Conference on Advanced Building Skins, 10-11 October 2016 Bern, Switzerland

Five talks by Task 56 partners were given in a dedicated session at the 11th Conference on Advanced Building Skins, on on-going projects followed by discussions with experts from the multifunctional envelopes sector worldwide.



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