

2012 HIGHLIGHTS

SHC Task 41 Solar Energy and Architecture

THE ISSUE

Our vision - and the opportunity - is to make architectural design a driving force for the use of solar energy. Solar energy use can be an important part of the building design and the building's energy balance to a much higher extent than it is today. The development towards zero energy buildings will cause a more frequent use of building integrated solar energy systems. Due to the large size of such systems in relation to the scale of the building envelope, the architectural quality of their integration has a major impact on the final architectural quality of the building. Many solar systems do exist on the market, and with better and better energy performance. But, if they are not designed to be integrated into buildings in an appealing way, probably no building permit will be given, at least not in urban areas. And then – what is the use of a highly efficient collector if it will not be used?

OUR WORK

The main objective of this Task was to help achieve high quality architecture for buildings integrating solar energy systems: on one hand by improving the qualifications of the architects, their communications and interactions with engineers, manufactures and clients; on the other hand by enhancing manufacturers' awareness on building integration issues.

Criteria were defined and guidelines proposed for all the actors in the field; architects, collector and façade/roof manufacturers, tool developers, clients and public bodies (municipalities, city planners). Through various interactions with all these actors, the results of this Task should largely contribute to increasing the architectural quality of the products and of the integrations.

PARTICIPATING COUNTRIES

Australia
Austria
Belgium
Canada
Denmark
Germany
Italy
Norway
Portugal
Republic of Korea
Singapore
Spain
Sweden
Switzerland

SHC Task 41 was a three-year collaborative project, completed in 2012.

Task Date 2009-2012
Task Leader Maria Wall, Energy and Building Design
Lund University, Sweden
Email maria.wall@ebd.lth.se
Website <http://task41.iea-shc.org/>

KEY RESULTS OF 2012

Since it was the final year of the Task, many results are available. Highlighted below are just a few.

Solar Energy Systems in Architecture - Integration Criteria and Guidelines

This guideline for architects includes both solar thermal and PV technologies.

The report summarizes knowledge needed to integrate active solar technologies into buildings, handling at the same time architectural integration issues and energy production requirements. For each technology, the guideline addresses key technical information, constructive/functional integration possibilities in the envelope, system sizing and positioning criteria, examples of good integration examples, and standard products and Innovative market products. The report concludes with a short section describing the differences and similarities between solar thermal and photovoltaic systems, with the purpose to help architects optimize the use of the sun exposed surfaces of their buildings. The report is available on the SHC website under Task 41. See also the new website on innovative solar products via Task 41 website or go directly to <http://solarintegrationsolutions.org/>.

Communication Guideline

This report provides guidance to architects on communicating with clients, authorities and contractors.

To stimulate the increased use of solar in energy conscious building design, the *Communication Guideline* was developed as a tool to support architects. Today, the energy performance of solar solutions is well documented and well known, especially in the “technical environment.” This knowledge, however, needs to be communicated in a convincing way to the decision makers to ensure a broad implementation of sustainable solar solutions in future building design. The Communication Guideline includes convincing arguments and facts supporting the implementation of solar-based design solutions, and is divided in three parts:

Part 1: Convincing clients to request and commission solar buildings

Part 2: Communication strategies at the design/ construction team level

Part 3: Tools and References

The report is available on the SHC website under Task 41.



The illustration shows one of the case stories described in the Communication Guideline. In this case story the process is described and the story is focused on important actions, statements and documents that enable solar integration in the real estate development of Frodeparken, Uppsala, Sweden. Real Estate holder: Uppsala Hem. Architect: Mats Egelius, White arkitekter.