



SOLAR ENERGY AND ARCHITECTURE

IEA SHC TASK 41

Jahresbericht 2010

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ZUSAMMENFASSUNG

Goal of this project is the participation of HSLU and SUPSI at the IEA SHC Task 41. It includes the preparation, the active participation and the post processing of the Task meetings as well as specific work of the partners within the respective Subtasks.

The most important results of the running year were:

HSLU and SUPSI:

- Active participation at 3rd and 4th international meeting of IEA SHC Task 41 in Bozen (March 17-18, 2010) and Graz (September 27-28, 2010).
- Work done within IEA SHC Task 41: Revision of German survey, translation of the survey into French, launch of survey in SIA Newsletter / among architects and other professionals, State-of-the Art of additional tools (mental ray, Houdini, iPhone application), preparation of case studies showcasing high quality Swiss architecture with integrated solar strategies (datasheet and posters).
- Networking (participation at IEA SHC Task 41 Meetings, BiSol Workshops).

Projektziele

Im Rahmen des IEA SHC Task 41 untersucht Subtask B Prozesse und Hilfsmittel (Tools) für Architekten im frühen Entwurfsstadium mit dem Ziel, die Integration von solaren Strategien in der Architektur zu fördern. Die Evaluation der Bedürfnisse und Hindernisse von Architekten, basierend auf einer Online-Umfrage unter Architekten und Ingenieuren, liefert die Grundlage für die Ausarbeitung von Richtlinien für Methoden und Tools, wie auch den Kontakt mit Tool Entwicklern. In Subtask C wird eine Liste von Beispielen guter Architektur mit integrierten solaren Strategien zusammengestellt. Diese Liste zeigt den Best Practise auf nationaler und internationaler Ebene auf und soll Architekten als Inspiration für die eigene Praxis dienen. Die Kenntnis der Bedürfnisse und Barrieren von Architekten im Bezug auf die Integration von solaren Strategien im frühen Entwurfsstadium, wie auch die Präsentation von 'Leuchtturm-Projekten' sind wichtige Schritte für eine vermehrte Integration von solaren Strategien in der Architektur.

Goals of the running year were:

HSLU:

- Active participation at the 3rd international workshop of IEA SHC TASK 41 in Bozen (17.-18. 3. 2010)
- Active participation at the 4th international workshop of IEA SHC TASK 41 in Graz (27.-28. 9. 2010)
- Feedbacks to the draft survey (ST A and B)
- Contact to SIA and completion of Swiss architects list
- Presentation of 2 good Swiss examples of high quality architecture with integrated solar strategies
- Revision of the German version of the survey (ST A and B)
- Feedbacks to the draft form for 'good examples of high quality architecture' (Subtask C)
- Participation in the evaluation of the outcomes of the survey
- Contacts to tool developpers

SUPSI (as stipulated in the contract):

- Active participation at the 3rd international workshop of IEA SHC TASK 41 in Bozen (17.-18. 3. 2010)
- Active participation at the 4th international workshop of IEA SHC TASK 41 in Graz (27.-28. 9. 2010)
- Collect a list of Swiss professionals from the solar (photovoltaic and solar thermal collector) and building field such as architects, industries, consultants and researchers (STA+B)
- Send the survey (and reminder) on architects needs (STA+B)
- Collect Swiss solar active and passive case studies (STC)
- Feedback and inputs for the PV-CAD Tool (ST B)

Durchgeführte Arbeiten und erreichte Ergebnisse

In the running year, the following work was done and goals were achieved:

Both project partners have actively taken part at the international workshops of IEA SHC TASK 41 in Bozen (March 17-18, 2010) and Graz (September 27-28, 2010). Further information on the activities at the meetings can be found in the reports 'Dienstreise ins Ausland' for Bozen and Graz.

HSLU reviewed the German version of the survey (ST A and B), constacted SIA and positionned a link to the survey in the SIA Newsletter to reach all SIA members and summarised the most important features of mental ray for the State-of-the-Art of available Tools (ST B). In Bozen, three case studies of high quality Swiss architecture with integrated solar strategies and important 'crowd pullers' were presented:

- Stadium Letzigrund in Zurich
- Novartis Campus in Basel
- Monte Rosa Hut in Zermatt

In Graz, preliminary results of the national project 'Methodology for the integration of solar strategies in architecture' were presented. For the RGAS, HSLU prepared four evaluation forms and posters:

- Stadium Letzigrund in Zurich
- Self-sustaining office building in Esslingen
- Swiss Pavillon in Shanghai
- Umweltarena in Spreitenbach

SUPSI was designated National Contact Person (NCP) for Switzerland. Concerning the survey for STA and B, it was reviewed and translated in French (partially) by ISAAC. For the preparation of the distribution of the survey ISAAC contact list of the BiSol workshops (BFE project) was implemented with the architects list from HSLU. In Switzerland, the survey was send by email in 3 languages to 100 Authorities, 500 architects, 80 solar manufacturers and 240 PV and STH installers with 2 reminders.

It was also published in various websites and forwarded using mailing lists of association and university, such as:

- SUPSI-Department of Department for Environment Constructions and Design
- Academy of architecture of Mendrisio
- Swisengineering
- Schweizerische Zentrale Fenster und Fassaden
- www.world-architects.com
- Swissolar- schweizerischen Fachverband für Sonnenenergie
- www.ee-news.ch
- Architects' Council of Europe (ACE).

During the meeting in Bolzano, ISAAC presented the results of the BiSol workshops and the ongoing project SURHIB (concepts for solar integration in buildings and specifically in historical constructions).

Concerning the collection of products and examples, ISAAC gave a general feedback on the datasheet layout for photovoltaics products, completed and presented (during the Graz meeting) six datasheets of innovative products for integration STH + PV:

- 3S photovoltaics, Megaslate
- Flexcell-VHF-Technologies, FLX-MO, FLX-TO
- Marcegaglia, Brollo solar
- Schott Solar, ASI Glass
- Solaire France, Sunstyle
- Würthsolar, GeneCIS

and nine innovative STH+PV integration examples:

- Avalanche shelters in Frasco
- Delta Zero in Lugano
- Kraftwerk B in Bennau
- Minergie P in Birmenstorf
- Merry go round the stables in Genolier
- Optic Technium in GB
- Multi-storey Parking Zwolle in NL
- Hotel industriel in F
- Onze lieve in B

A fastening systems datasheet template was also prepared. ISAAC also gave its feedbacks on STA DA2 and DA3 report.

Regarding the Collection of Swiss solar active and passive case studies (ST C); ISAAC gave a general feedback and completed six evaluation forms and posters for the case studies of high quality Swiss architecture with integrated solar strategies:

- Novartis Campus in Basel
- Monte Rosa Hut in Zermatt
- Avalanche shelters in Frasco
- Delta Zero in Lugano
- Kraftwerk B in Bennau
- Self from EMPA

For STB state-of the art report, a text description on the most important features of Houdini software and iPhone solar application was realized. ISAAC also developed a solar thermal collector CAD tool in addition to the PV CAD tool (BIPVTools: BFE project) both will be tested by the task participants.

Nationale Zusammenarbeit

HSLU, SUPSI and EPFL participated at IEA SHC Task 41 meetings, representing Swiss interests in all three Subtasks (ST A, B and C).

HSLU has deepened the contact to Vela Solaris and set up first contacts to a representative of Archi-Cad. These contacts will be followed up.

SUPSI organises the dissemination of the IEA SHC Task 41 outcomes within the BiSol projects. Four of five BiSol workshops have already been organised. The third workshop from February 2010 'Opportunities of collaboration between the building and solar sectors' was closely linked to ST A. At the final 'open event' the outcomes of IEA SHC Task 41 will be presented. HSLU, EPFL, solar and building professional as well as architects are taking part at the workshops.

Contacts to Swiss architects, engineers, tool developers, producers of solar systems and products, etc. as well as the participation at national workshops / events helps to continuously expand the network.

Internationale Zusammenarbeit

The participation of HSLU and SUPSI at the IEA SHC Task 41 Meetings in Bozen and Graz, as well as contacts to experts of IEA SHC Tasks 39 und 40 in Graz (parallelly organised Task meetings) allowed to set up important contacts to experts all over the world.

Bewertung 2010 und Ausblick 2011

Bewertung 2010

In 2010, the planned tasks have been carried out as foreseen and the goals were reached in major parts. Due to little participation at the survey (ST A and B), it has been extended until mid October. As a consequence, the evaluation of the outcomes have not yet been finalised. Both, HSLU and SUPSI, delivered more work than stated in the contract.

Ausblick 2011

Both project partners will participate at the 5th Task meeting in Oslo (March 29 to 31). In agreement with SFOE, only one of the project partners, HSLU or SUPSI, will participate at the 6th Task meeting in Melbourne. Yet, it is not decided who of the partners is participating.

HSLU will work on the evaluation of the outcomes of the Swiss survey, participate at the preparation of the guidelines and recommendations for tools and document two case studies of high quality Swiss architecture with integrated solar strategies. It will contribute to the final documentations (ST B and partially ST C) and present the outcomes of ST B at local seminars.

HSLU proposed the organisation of a second Task meeting in Switzerland in 2011 and discussed it with the Operational Agent in Bozen and Graz. It currently does not look like having another Task meeting in Switzerland. Except of the final meeting, all places have already been assigned.

According to the contract, in 2011 SUPSI will not get BFE funding to continue the activities and to do further work for the IEA SHC Task 41. ISAAC will get funding from the BFE to follow the meetings and organize an open event in Switzerland at the end of the project where the IEA Task 41 results will be presented. Nevertheless, other product datasheets for fastening systems will be prepared. ISAAC will collaborate on the DA2 and DA3 report for the text regarding PV. ISAAC will also be part of the team of architect (RGAS) who will select the case studies (Isa Zanetti) and participate in developing guidelines and recommendations for STC. In general supporting, where support is needed.

Referenzen

None

Anhang

- Minutes of the 3rd IEA SHC Task 41 Meetings in Bozen, September 17 – 18, 2010 (Operational Agent, Maria Wall).
- Minutes of the 4th IEA SHC Task 41 Meetings in Graz, September 27 – 28, 2010 (Operational Agent, Maria Wall).