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SOLAR ENERGY AND ARCHITECTURE

IEA SHC TASK 41

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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 5th and 6th international meeting of IEA SHC Task 41 in Oslo, March 29-31, 2011 (HSLU and SUPSI) and Melbourne, September 26-29, 2011 (SUPSI, representing both partners).

- Work done within IEA SHC Task 41: preparation of additional case studies showcasing high quality Swiss architecture with integrated solar strategies, analysis of international survey, preparation of additional BiPV product datasheet and Hybrid (PV-T) product datasheet. Online pubblication of the CAD object developped by ISAAC in the framework of a National Project (BIPV-Tool). Collaboration in the deliverables of STA, B and C.

- Networking (participation at IEA SHC Task 41 Meetings). Participation at the Workshop organized during the Task Meetings in Oslo and Melbourne.

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.

According to the contract, the goals of the running year were:

HSLU:
- Collection of the specific facts of 2 good Swiss examples of high quality architecture with integrated solar strategies.
- Collaboration in the development of guidelines and recommendations for tools.
- Presentation of the results of ST B at local seminars
- Assistance in writing the final documentation (ST B, partially ST C)
- Option: Organisation of a Task Meeting in Switzerland
- Active participation at the 5th international workshop of IEA SHC TASK 41 in Oslo (29-31. 3. 11)
- Active participation at the 6th international workshop of IEA SHC TASK 41 in Melbourne (26-29. 9. 11)

SUPSI (as stipulated in the contract):
- Organize an open event where the IEA Task 41 activities will be presented
- Active participation at the 5th international workshop of IEA SHC TASK 41 in Oslo (29-31. 3. 11)
- Active participation at the 6th international workshop of IEA SHC TASK 41 in Melbourne (26-29. 9. 11)

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 of IEA SHC TASK 41 Meeting in Oslo (March 29-31, 11). SFOE requested that just one of the partners should take part at the 6th Task Meeting in Melbourne. Consequently, HSLU and SUPSI decided that SUPSI would represent both partners (HSLU and SUPSI) at the meeting in Melbourne (September 26-29, 2011).
Further information on the activities at the meetings can be found in the reports 'Dienstreise ins Ausland' for Oslo and Melbourne, respectively.

HSLU participated in the RGAS evaluation in Oslo and presented additional 4 new good Swiss examples of high quality architecture with integrated solar strategies. These were:
- Multi-residential building Sunny Wood in Zurich
- Residential building in St. Moritz
- Piz Nair cable car station in St. Moritz
- Dock midfield, Zurich Airport
- 2nd presentation: Self-sustaining office building in Esslingen

As a result of the RGAS evaluation, 4 case Studies, Swiss Pavillon in Shanghai, Umweltarena in Spreitenbach, Sunny Wood in Zurich and Dock midfield at Zurich Airport have been taken up in the good examples list of Switzerland. Even though achieving good feedback, the residential building in St. Moritz and the self-sustaining office building in Esslingen did not reached the requested number of votes. As these two buildings are considered important and good examples of solar energy integration, they will be published on the web-site of the BIPV swiss competence center (www.bipv).

The following work is still in progress:
- publication of the results of the international survey, comparing the Swiss results to the international ones (ST B)
- test of 3 simulation tools (bSol, DPV, Polysun) using a building given by ST B (ST B)
- Collection of national references to design guidelines and other national documents relating to the communication guidelines (ST C).

The experts collectively decided, that Australia and Portugal will be the last countries for Task Meetings. Thus, there won't take place an another IEA SHC Task 41 Meeting in Switzerland.

SUPSI presented 6 more case studies of high quality Swiss architecture with integrated solar strategies:
- Onze Lieve-Hospital enlargement
- Marry go house - Private residence
- Hotel Industriel
- Multi-storey Parking
- Passiv Haus
- GB Optic Technicum

As a result of the RGAS evaluation a total of 17 Swiss Case Studies (collected by EPFL, HSLU and SUPSI), have been considered as good examples. Switzerland resulted to have the most selected Case Studies of all participating countries.

ST-A:
- new BiPV product datasheets
- Hybrid PV-T product datasheets and presentation of the technologies during the meeting.
- Collaboration on the DA1, DA2 and DA3 report for the text regarding PV (part 1 is finished and is waiting from approval from other partners, part 2 is in the final stage and 3 is in progress).

ST-B:
- preparation of a report on ArchiCAD and AutoCAD objects to be included in deliverable DB4. The report was included now in the deliverables and the CAD object is available online. Review of the available tool for solar energy.

ST-C:
- Participation in the RGAS evaluation.

Nationale Zusammenarbeit

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

SUPSI organised the dissemination of the IEA SHC Task 41 outcomes within the BiSol projects. 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 Meeting in Oslo and SUPSI at the meeting in Melbourne allows keeping in contact with experts all over the world. New collaboration and R&D exchanges have been established with some partners (I.E SERIS in Singapore). SUPSI presented his interest in the preparation of the new IEA Task on Solar Energy in Urban design. The preparation of the task was approved by the ExCo members. Results of the task will be presented in a public seminar in Ticino in 2012.

Bewertung 2011 und Ausblick 2012

Bewertung 2011

In 2011, most of the planned tasks have been carried out as foreseen and the goals were reached in major parts. As the Task (who's work is also slightly delied) will finish in few month, it is expected that

the delayed work is been done by the end of 2011 / the beginning of 2012. HSLU and SUPSI in particular, delivered more and/or other work than stated in the contract.

As there hasn't been an another IEA SHC Task 41 Meeting in Switzerland in 2011, SFOE agreed with the two partners (June 30, 2011) that the optional money (13'000 CHF) can be used by SUPSI to finance some of the additional expert work requested by the Task, that is not part of the contract, as long as the overall budget is not touched.

Ausblick 2012

Both project partners will participate at the 7th and final Task meeting in Lisbon (March 27 to 30).

According to the contract, HSLU will contribute to the final documentations (ST B and partially ST C) and present the outcomes of ST B at local seminars. In additon, it will be part of the RGAS team, finalise the 4 case studies of high quality Swiss architecture with integrated solar strategies, finalise and publish the analysis of the international survey focussing on the Swiss results of ST B, test 3 simulation tools (bSol, DPV, Polysun) using a given building (ST B) and collect national references to design guidelines and other national documents relating to the communication guidelines.

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. The public event could be done in collaboration with other international IEA Task partners. 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 selects the case studies (Francesco Frontini and Morena Ferrazzo) and participate in developing guidelines and recommendations for STC. In general SUPSI is supporting, where support is needed.

The expertise provided by the two Swiss partners was considered very important by the international consortium.

Referenzen

Work done in the IEA SHC Task 41 see http://www.iea-shc.org/publications/task.aspx?Task=41

Anhang

- Minutes of the 5th IEA SHC Task 41 Meetings in Oslo, March 29 - 31, 2011 (Operational Agent, Maria Wall).

- Minutes of the 6th IEA SHC Task 41 Meetings in Melbourne, September 26 - 29, 2011 (Operational Agent, Maria Wall).