EURAC research

EUROPÄISCHE AKADEMIE

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BOZEN - BOLZANO

IEA-SHC Task 56

Kick-Off Meeting

21 – 22 March 2016

Bolzano

Minutes of the meeting

Monday 21th of March – Day 1

Presentation of Eurac Research and of the Institute for Renewable Energy by W. Sparber

Introduction to the IEA structure and to the new IEA SHC Task 56, scope, participants and timelines by R. Fedrizzi

To-Dos

Roberto and partners, to address Switzerland, The Netherlands and Denmark EXCO representatives to secure partners participation

Roberto to address the EXCO to understand how to integrate Ireland and Japan, participation

Roberto to submit National Participation Letters to partners

Partners to have NPLs signed until next meeting

Presentation of Subtask A activities, deliverables and milestones by Michaela Meir (Aventa Solar, Norway)

Presentation of Subtask B activities, deliverables and milestones by Christoph Maurer (Fraunhofer ISE, Germany)

Presentation of Subtask C activities, deliverables and milestones by Fabian Ochs (University of Innsbruck, Austria)

Presentations of Task participants and interest expression to the Task activities:

- Maurizio Delucia (University of Florence, Italy)
- Pietro Finocchiaro (University of Palermo / Freescoo srl, Italy)
- Stanislav Darula (Institute of Construction and Architecture Slovak Academy of Sciences, Slovakia)
- Jacques Bony (HEIG-LESBAT, Switzerland)
- David Venus (AEE Intec, Austria)
- Tomas Mikeska (Passive House Institute, Germany)
- Ahsan Iqbal (Danish Building Research Institute (SBi), Denmark)
- Jan de Boer (Fraunhofer IBP, Germany)
- Francesco Goia (NTNU, Norway)
- David Geisler-Moroder (Bartenbach, Innsbruck)
- Fabio Zanghirella (ENEA - Enea Saluggia Research Center, Italy)
- Roel Loonen (Eindhoven University of Technology, Netherlands)

Selected presentations on running projects:

- John Hollick (SolarWall, Canada)
- Ricardo Bernardo (University of Lund, Sweden)
- Roberto Garay (Tecnalia, Spain)
- Brian Norton (Dublin Institute of Technology, Ireland)
- Vickie Aagesen (Cenergia, Denmark)
- Paul Denz (Façade Lab, Berlin)

Presentation by Maurizio De Lucia of the “SET-Plan Issues paper Action5 EE in buildings”

Tuesday 22th of March – Day 2

Subtask A session – Michaela Meir

Short recap of the Subtask A activities and definition of the contribution by each participant on activity A.1 (market overview: existing solutions, standards & methods, numerical tools), A.2 (SWOT analysis) and A.3 (dissemination)

Comments:

- In Task 56 the focus is on the exploitation of technologies for covering heating, cooling through solar energy and to control daylighting and luminous comfort of buildings. Classification and focus should be given to this specific scope.
- A lot of existing literature is available and can be retrieved from past or on-going projects. However this information should be shaped in a way to highlight meaningful aspects of Task 56: for the market analysis we have to understand what kind of information is necessary for the SWOT analysis, which is then structured and used to draw educated conclusions on the market status. Following resources have already been mentioned during the meeting:
    - Work performed in IEA SHC Task 41, PVPS Task 15 (R.Fedrizzi)
    - BIPV status report (SEAC + SUPSI) (R.Loonen)
    - SOA reviews on BIST, adaptive facades existing (B.Norton)

To-Dos
Upload an excel file to collect the list of references in Members' Area - Done
Circulate table with contributions to Subtask A and technology
Collect partners' project information
1st issue of the newsletter to be ready before the ExCo meeting in June
Make email distribution list for newsletter
Update website (partner list, In the news, etc.)

A first mapping of the expertise of each present partner was done during the meeting (Table 1).
In

Table 2 the contributions to the Activities in Subtask A are listed.

Table 1. Partners present at the Kick-off meeting in Bolzano and their expertise for Task 56.

Partner[1]	Lighting/ shading	Solar HVAC	PV electricity	**Comments**[2]
AEE INTEC (AT)		x		ST, Heat pump and mechanical ventilation, facade integrated
Bartenbach	x			
Uni Innsbruck	(x)	x		Compact MVHR + HP
Solarwall		x	x	Solarwall system, PVT
Cenergia		x	x	Decentralised ventilation, BI-PV
SBi				Projects on component level, passive solution, centralised and decentralised
Aarhus University		x		BI liquid PVT collector
Facade-Lab		x	x	collaboration FH ISE; PV; construction projects
Fraunhofer IBP	x			
Fraunhofer ISE		x		Building integrated ST
Passive House Institute		x		
DIT	x	x	x	Luminescent devices, ST heating, PVT (PCM)
ENEA		x	(x)	HP+PV, storages (PV facade integrated), system focus
EURAC	x	x		Curtain wall with solar collector, ST+PV in multifunctional facade (tertial and residential)
Univ. Firenze		x		
Univ. Palermo		x		
Aventa		x		BIST: NorDan Solar, Aventa Solar
NTNU		x	x	Facade-integrated PVT systems
Slovak Academy of Science	x			Daylight harvesting, climate, standardisation
Tecnalia		x		Cladding for unglazed systems, ST
Lund University		x	x	Centralised systems, Facade-integrated PV
HEIG-LESBAT		x	x	ST+PV, integrated facade
TU Eindhoven	x		x	Shading, adaptive facades

[1] Present partners at the Kick-off meeting in Bolzano, 21.-22.03.2016;
[2] The entries are collected during the meeting and can be updated by each partner.

Table 2. Contribution of each partner to the activities in Subtask A; A1 = State of the Art; A2 = SWOT analysis; A3 = Dissemination

Partner*	**Activity A1**	**Activity A2**	**Activity A3**	**Comments related to SOA** a = Lit. review & experts' advice b = Standards, test methods c = Numerical tools
AEE INTEC	x		x	a, b
Bartenbach				
Uni Innsbruck	x	x	x	a, c
Solarwall	x	x	x	a, b, c
Cenergia	x		x	a
SBi	x		x	a
Aarhus University	x		x	c
Facade-Lab	(x)	x	x	a
Fraunhofer IBP				
Fraunhofer ISE	x	x	x	a, b, c
Passive House Institute				
DIT	x		x	a, b
ENEA	x		x	a
EURAC	x	x	x	a, b
Univ. Firenze				
Univ. Palermo				
Aventa	x	x	x	Subtask A lead
NTNU	(x)		x	a, (b), c
Slovak Academy of Science	x	(x)	x	a, b, c

Tecnalia	x	x	x	a
Lund University	x		x	a
HEIG-LESBAT	x		x	a, c
TU Eindhoven	x	x	x	a, c, BIPV status report

* Partners present at the Kick-off meeting in Bolzano, 21.-22.03.2016

Subtask B session – Christoph Maurer

Prioritisation of the activities: first standards and simulation models analysis. In parallel organisation of workshop for identification of market barriers.

Comments:

Analysis of standards and test methods

- Which are the difficulties? How Task 56 can contribute to improving the status?
- Standards include indication on how to test and to classify performance. Standards can range from windows, glass, to building services like ventilation, indoor environmental quality, acoustic, rain penetration and solar energy…
- We need to analyse how standards for conventional building envelopes apply to innovative solar envelopes and how the standards for solar energy or building services apply for building-integrated technologies. Example: A standard for fire safety can describe how to test a facade element. However, it is not yet defined how to build a fire test sample of a facade-integrated component of building services.
- The target is to identify standards useful for innovative solar envelopes when they apply e.g. for a European Technical Approval.

Identification of barriers for new solar envelopes

- There are a lot of regulations and standards. On the one hand, it can be difficult for innovative products to fulfil the test methods of conventional products. Example: There was no test method for solar air collectors to get a SolarKeymark certificate. On the other hand, there large number and complexity of regulations and standards needs a lot of effort, which makes innovations very difficult
    - In addition to the wide variety of standards, procurement (LCA analysis for solar collectors), communication of the added value of a solar façade to energy consultants and architects, and setup of a proper value chain are strong barriers.

Input gathered here will be useful for SWOT analysis in Subtask A. Strong interaction suggested.

Simulation models assessment for solar envelopes

- There are already reviews of the simulation models of certain subsets of solar envelopes. A general review of simulation models for solar envelope components is needed, which not only references all important review papers, but also evaluates them to help the reader to get a good

overview, and which presents the most important methods on how to model and simulate solar envelopes.

- We will merge the efforts of STA and STB in order to collect important review papers together with an evaluation of the review (stage 1). Afterwards a team of voluntary authors will read this, complete it, structure it and publish it as a review paper with all contributors in the acknowledgment (stage 2). Francesco Goia, Roel Loonen, Stefano Avesani and Christoph Maurer volunteered for this second stage.
- The target is initially a review paper about simulation models of solar envelopes, which is valuable for all our target groups of Task 56 (companies, investors, scientific community). This concludes the first part of the activity.
  The elaboration of simulation models for solar envelop components is foreseen afterwards as part of this activity.

To-Dos

Roberto to ask Jan Erik Nielsen for the new standard on solar collectors' performance assessment out of Task 43

Enlarge partnership to architects and improve industry participation

Activity B.1: If you identify more barriers for innovative solar envelopes than the ones mentioned above, please add them at http://files.iea-shc.org in the folder SubtaskB/BarriersOfInnovation. Thank you for your contributions!

Activity B2: Every participant saves the review papers about simulation models of solar envelopes in http://files.iea-shc.org in the folder SubtaskB/AnalysisOfSimulationModels/01_journalReviewPapers together with a few sentences, which evaluate the contents of this review paper. You can also propose a structure for the planned review paper on simulation models of solar envelopes in the folder 02_proposalsForTheStructure and add very important papers of solar envelope simulation models for which there is no review paper yet in the folders 03 and 04.

Activity B3: Every participant analyses three standards (How does this standard for building envelopes apply for innovative solar envelopes? How does this standard for solar energy or building services apply for building envelopes?) Please save every analysis at http://files.iea-shc.org in the folder SubtaskB/AnalysisOfStandardsTestsRegulations.

At the meeting, there was little time to define who can contribute to which activities. The following table is therefore an estimate based on the discussions. Please write an email to christoph.maurer@ise.fraunhofer.de, if you would like to change these estimated contributions! If you were not able to participate in the meeting, please also write an email to Christoph in which Activities you are able to contribute! Thank you!

Table 3 - Contribution of each partner to the activities in Subtask B; B1 = Strategy to market; B2 = Simulation models; B3 = Laboratory tests

Partner	Activity B1 strategy	Activity B2 simulation	Activity B3 measurements
Roberto Fedrizzi	x	x	x

Fabian Ochs		x	x
Christoph Maurer	x	x	x
Michaela Meir	x	x	x
Maurizio De Lucia		x	x
Ricardo Bernardo		x	x
Roberto Garay		x	x
Paul-Rouven Denz	x		
John Hollick	x	x	x
Pietro Finocchiaro	x	x	x
Stanislav Darula		x	x
Jacques Bony	x	x	x
David Venus	x	x	x
Vickie Aagesen	x	x	x
Brian Norton		x	x
Tomas Mikeska	x	x	x
Ahsan Iqbal	x	x	x
Jan de Boer	x	x	x
Francesco Goia	x	x	x
Wilfried Pohl	x	x	x
David Geisler-Moroder	x	x	x
Fabio Zanghirella	x	x	x
Roel Loonen	x	x	x
Khem Gautam	x	x	x

Subtask C session – Fabian Ochs

Presentation of the activities to go through.

Detail on the need to account for the seasonal variation of primary energy factor. A group is set up for discussing on seasonal variation of primary energy factor.

Definition of the list of contributors to Subtask C and their experience is reviewed. TRNSYS seems to be the most used simulation environment even though experience also in IDA-ICE, E+, Mathlab.

Definition of the matrix of simulation topics and projects: new and refurbished buildings; SFH, MFH, office and tertiary buildings; ventilation, heating, cooling, daylighting, electricity generation. Matrix is almost all covered.

Predesign tool: PHPP, Active House and RetScreen are the candidates. PHPP is preferred and PHI are keen on upgrading that with new numerical models.

Discussion on the scope and methodology for simulations within Task 56

Comments:

Suggestion to simplify the calculation as much as possible and calculate traditional macro, yearly or monthly parameters (solar fraction, …).

The scope of the simulations should be to compare systems under same/similar boundary conditions. The method could be to use same reference buildings for all products or use similar buildings with agreed boundary conditions (users behaviour, domestic hot water loads, etc..). to be further deepen.

Todos

Roberto to contact Doug McClenahan to possibly get RETSREEN code and evaluate the possible integration into PHPP

Fabian to rationalise on performance figures for solar envelope systems integrated into buildings.

Table 4 - Contribution of each partner to the activities in Subtask C; C1 = Building models; C2 = Systems simulations; C3 = Simulations analysis; C4 = Monitoring; C5 = Predesign tool

Name	Surname	Organisation	**Activity C1**	**Activity C2**	**Activity C3**	**Activity C4**	**Activity C5**
Roberto	Fedrizzi	EURAC	x	x	x	x	x
Fabian	Ochs	University Innsbruck	x	x	x	?	x
Christoph	Maurer	Fraunhofer ISE		x	x		x
Michaela	Meir	Aventa					
Maurizio	De Lucia	Università degli Studi di Firenze	?	?	?	?	?
Ricardo	Bernardo	University Lund	?	?	?	?	?
Roberto	Garay	Tecnalia					
Paul-Rouven	Denz	Facade-Lab GmbH				?	
John	Hollick	Solar Wall					x
Pietro	Finocchiaro		?	?	?	?	?
Stanislav	Darula	Institute of Construction and Architecture Slovak Academy of Sciences			x		

Jacques	Bony	HEIG - LESBAT	x	x	x	x	x
David	Venus	AEE-INTEC	x	x	x		
Vickie	Aagesen	Cenergia				x	x
Brian	Norton	Dublin Institute of Technology	?	?	?	?	?
Tomas	Mikeska	Passive House Institute					x
Ahsan	Iqbal	Danish Building Research Institute (SBi) - Aalborg University Copenhagen	?	?	?	?	?
Jan	de Boer	Fraunhofer IBP	?	?	?	?	?
Francesco	Goia	NTNU, Felles fakturamottak	?	?	?	?	?
David	Geisler-Moroder	Bartenbach GmbH					?
Fabio	Zanghirella	ENEA - Enea Saluggia Research Center		x	x		
Roel	Loonen	Eindhoven University of Technology		x	x		
Khem	Gautam		?	?	?	?	?

Closing session by OA

- Potential dates for the next meeting are 12-13 or 22-23 September, TU Darmstad, kindly invited by Prof Ulrich Knaack. Final dates will be communicated soon, once verified with Prof Knaack.
- Offers to host next meetings by Paul Denz, John Hollick and Brian Norton.

- Suggestion to follow a pragmatic approach: let's focus on running projects and try to get out the most from them in terms of experience and knowledge.
- We should identify at least one project per partner around which the partner can fold his Task activities and out of which significant contribution can be brought into Task.