



Meeting of the Management Committee & Working Groups of COST Action TU1205
 "Building Integration of Solar Thermal Systems (BISTS)"

4-5 April 2016, Barcelona, Spain

MINUTES OF THE MEETING

Place:

CIMNE building
 Edificio C1 Campus Nord
 Gran Capitán s/n, 08034 Barcelona

Participants

Number	Name	Country	4-4-2016	5-4-2016	WG
1	Aeleni Laura	Portugal	√	√	WG1
2	Agathocleous Rafaella	Cyprus			WG3
3	Almeida Manuella	Portugal			WG1
4	Ayompe Lacour Mody	IE			
5	Belis Jan	BE			
6	Blagojebic Mirko	Serbia			
7	Bojic Milorad	Serbia			
8	Bonnet Jean	France			
9	Borg Simon Paul	Malta			WG3
10	Braganca Luis	Portugal			
11	Buhagarian Vincent	Malta			WG1
12	Buonomano Annamaria	Italy	√	√	WG2
13	Cabeza Luisa	Spain			WG3
14	Cappel Christoph	Germany			WG2
15	Chemisana Daniel	Spain	√	√	WG2
16	Christofi Constantinos	Cyprus	√	√	WG2
17	Chwieduk Dorota	Poland	√	√	WG1
18	Coronas Alberto	Spain			
20	Cristofari Christian	France			WG1
21	Deb Mondol Jayanta	UK	√	√	WG2
22	Farkas Istvan	Hungary	√	√	
23	Fedrizzi Roberto	Italy			WG2
24	Florides Georgios	Cyprus	√	√	WG1
25	Ford Andy	UK	√	√	WG1
26	Georgiev Aleksandar	Bulgaria	√	√	
27	Ghosh Aritra	Ireland			
28	Grobman Yasha Jacob	Israel			

29	Hyde Trevor	UK			
30	Kalogirou Soteris	Cyprus	√	√	
31	Kennedy David	Ireland	√	√	WG1
32	Keys Donal	Ireland			
33	Kilik Muhsin	Turkey	√	√	
34	Kosic Tatjana	Serbia			WG3
35	Kramer Korbinian	Germany			
36	Krstic Furundzic Aleksandra	Serbia	√	√	WG1
37	Lamnatou Chrysovalanto	Spain	√	√	WG1
38	Leindecker Gerald	Austria	√	√	WG3
39	Lollini Roberto	Itali	√	√	
40	Lopez Lorenzo Jose	Spain			
41	Mateus Ricardo	Portugal	√	√	WG2
42	Maurer Christoph	Denmark	√	√	WG3
43	McCormack Sarah	Ireland			WG3
44	Miletic Ivan	Serbia			WG1
45	Monteiro Da Silva Sandra	Portugal	√	√	WG3
46	Nikolic Danijela	Serbia			WG2
47	Norton Brian	Ireland			WG4
48	Norvaisiene Rosita	Lithuania	√	√	WG1
49	Notton Gilles	France	√	√	WG1
50	O'Hegarty Richard	Ireland			
51	Ochoa Carlos	Israel			WG3
52	Oleary Tim	Ireland			
53	Palombo Adolfo	Italy	√	√	WG1
54	Pero Michael	Belgium			
55	Platzer Werner	Germany			
56	Popov Rumen	Bulgaria			
57	Radulovic Jasna	Serbia	√	√	WG3
58	Remke Stefan	Spain			WG3
59	Riverola Alberto	Spain			WG3
60	Rusowicz Artur	Poland			WG3
61	Savvides Andreas	Cyprus	√	√	WG1
62	Shiff Galit	Israel			WG1
63	Smyth Mervyn	UK	√	√	WG1
64	Tamasauskas Rokas	Lithuania			WG2
65	Tripanagnostopoulos Yiannis	Greece	√	√	WG1
66	Tsioutis Charalambos	Cyprus	√	√	WG3
67	Vassiliades Costantinos	Cyprus			WG1
68	Visa Ion	Romania	√	√	
69	Vittoriosi Alice	Italy			WG1
70	Wansdronk Rene	Netherland	√	√	WG3
71	Zacharopoulos Aggelos	UK	√	√	WG3

Day 1: 4th April 2016

Management Committee meeting

(All were present but only MC Members had voting right)

1. Welcome to participants
Prof. Kalogirou welcomed the participants and thank Daniel Chemisana for organising the meeting. Daniel gave some information concerning the history of the University of Barcelona.
2. Adoption of agenda
The agenda of the meeting as circulated by email to all members was adopted.
3. The minutes of the sixth meeting at Guimaraes, July 2015, were approved without any modification.
4. Short presentation of new participants
New members from Romania have joined the Action. They are Prof. Ion Visa, MC member, Viorel Badescu, MC member, Anca Duta and Ilinca Nastase, MC member substitutes. Prof. Ion Visa (present at the meeting) introduced himself and his institute to the participants. Also Roberto Lollini for Italy joined the action and presented himself to the meeting.
5. One-minute silence in memory of Professor Milorad Bojic
After a long illness, Professor Milorad Bojic passed away on 22 January 2016. He was a respected and active member of the action. His death is a big loss to the academic and engineering communities.
6. Report from the COST Office
 - a. News from the COST Office
The new version of e-COST system is now in operation and is fully electronic. The OTRR forms should be electronically handled, submitted and signed. All documents should be uploaded properly and there is no chance for the management to do any corrections.
 - b. Budget status, budget planning and allocation process
 - There are 6,000 EUR available for STSM (up to 31/3/2017). Four persons can participate in total (preferably new people)
 - Greatest interest should be shown for sending and accepting students for STSM.
 - The New budget is 101,750 Eur and is reduced from previous years by a further 16.5% (last year it was 122k).
 - MC members will receive an email for approval of the new budget via e-cost. When this happens member should reply ASAP.
 - c. Critical managerial issues- Provisional planning for meetings #8 and #9
 - Meeting **#8**: During the next Regular meeting the conference should be almost completely organised. The Handbook chapters must be submitted and first review carried out. This meeting has to be

combined with the third training school because in the last meeting #9, the conference will take place.

- Meeting #9: This meeting will combine with the Final Action Conference.
- It was approved to organize a SG meeting, if needed, in a few months to coordinate the organization of conference and examine the progress in the various projects.

7. Four STSMs - applications to be sent to Gilles ASAP.

STSM students to be suggested to Guilles and the procedures to be completed before the end of April 2016 -Better to be combined with work on deliverables.

8. Status report of the Training School (31/3-2/4)

The training school was successful. 30 students participated and evaluated the lectures given. On average they were very satisfied. All lectures will be available on the internet site of the action for easy reference (already done).

9. Action Planning

- The Eighth meeting will be carried out in autumn of 2016. The meeting will take place at Warsaw University of Technology, Warsaw, Poland.
Dates: 8-9/9/2016 (Thu-Fri), combined with the Training school (5-7/9/2016) Mon-Wed.
- The MC approved the request of the Final Action Dissemination (FAD) Grant to cover the publication of the Action Final Conference proceedings and the Handbook.

Working Groups Parallel Sessions

Planning of work to be done – Finalise Deliverables, Projects

Working Group 1 - Development and characterisation of new BISTS

Working Group 2: Modelling and Simulation of BISTS

Working Group 3: Investigation of new applications for innovative BISTS

Agenda for all WGs:

1. Welcome to participants
2. Adoption of the agenda
3. Progress of deliverables
4. Discuss projects and activities until the end of the Action
5. Distribution of work/tasks
6. Promotion of gender balance and of Early Stage Researchers (ESR)
7. Time-table for future work (very important to be agreed and strictly followed)

Working Groups (1-3) Parallel Sessions.

It was decided that Mervyn Smith will replace Platzer Werner in the leadership of WG1. Werner was relocated in Chiles and will not be able to contribute further to the Action Activities.

In a common session of WG1 and WG3 the following were decided:

- i. David Kennedy will produce a template for the reports of D3.4 and D3.5.
- ii. For each of the 5 projects to be presented in the book a report of about 20 pages will be produced
- iii. Mervyn will produce a template for the description of the projects in the book. The description should include the following headings:
 - Concept
 - Application
 - Model construction
 - Physical description
 - Detail
 - Engineering drawings
 - Materials (type, quality, life span/duration/durability)
 - Physical fabrication
 - Pictures
 - techniques
 - assembly
 - sizes, dimensions, modular, upscaling - commercialisation
 - product D.f.M.
 - economics
 - Physical mounting/installation
 - details, jointing
 - aesthetics

(undertaken by Alexandra, Savvides and Leindecker)

- In situ 'Artist' impression (undertaken by Leindecker)
- L. C. A.
- iv. Sandra will provide staff for the 5th project –The Israeli project, concerning the use of building integrated evacuated tube collectors.
- v. Daniel and Ian will suggest ways to advertise the conference.
- vi. There will be a RENE special issue for the conference. Adolfo will be the Managing Guest Editor with Guilles and Laura acting as Guest Editors.
- vii. All present in the Barcelona meeting will be reviewers of submitted papers
- viii. George will prepare an abstract template and a book chapter template.
- ix. The conference abstract should be extended two-page long
- x. Abstract submissions/acceptance to be completed by the 3rd week of August

Scientific Session

The scientific session included the following presentations:

1. Costas Kapsis (Concordia University): Research on Building-Integrated Photovoltaic Thermal systems and Semi-Transparent PV windows
2. Professor John Currie, Director, Scottish Energy Centre, Edinburgh Napier University: Research being undertaken by the Scottish Energy Centre into Integrated Collector Storage Solar Water Heaters (ICS-SWHs)
3. Roberto Lollini, IEA: Task 56-Building Integrated Solar Envelope Systems for HVAC and lighting – outcomes of kick-off meeting

Day 2: 5th April 2016

Working Groups (1-3) Sessions and Coordination Meeting

General discussion and decisions taken on the following:

Deliverables –WG1

- Task 1.2 Development of new BISTS solutions (Year 3 & 4)
- Task 1.3 Characterisation of BISTS developed in Task 1.2 (Y 3 & 4)
- Need to prepare a report (part of D3.4) based on the various projects which will be included also as chapters of the handbook (by end of June 2016).

Deliverables –WG2

- Task 2.1 Development of new mathematical and numerical models for BISTS (Years 3 & 4)
- Task 2.2 Validation and implementation of codes developed in 2.1.
- D 2.4. Report on the validation of developed codes, both thermal and optical (Month 30) (DONE)
- D 2.5. Report on the new models developed during the project and potential for adaptation for RES (Month 42), (September 2016)
- D.2.6. Report on the development of new models for innovative integrated STS applications (Month 46), (November 2016)

Deliverables –WG3

- Task 3.1 Design of innovative BISTS
- Task 3.2 Fabrication of BISTS prototypes
- Task 3.3 Characterisation of novel BISTS indoors and outdoors to assess the actual performance in real conditions
→ For all the above, use material from various projects – Any other member who has a system developed to contribute (send details to Aggelos)
- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research as funding allows (Month 36). Report together with WG1 (ASAP, by end of May 2016).
- D.3.5. Report on the performance of new integrated STS/RES prototypes: A country performance comparison with geographic diversity (South, Central and North Europe), (Month 42), (September 2016). Together with WG2 (D2.5)
- D.3.6. Handbook for architects and building services engineers on the developed BISTS solutions for the design market ready products. (Month 46).

Handbook

- The Handbook must be delivered in month 46. This means that the book must be ready and everything submitted for editing before the next meeting in September. Its specifications are given in the BISTS proposal in paragraph D3.6 and will cover the BISTS from the Architectural and Engineering aspect.
- A responsible person for each section/chapter and date for delivery for all submissions were decided as shown below.

- A template for the book chapters will be prepared and distributed to all authors of H/B sections and posted on the Action website.
- After a discussion it was decided that the Handbook will have the following structure:
- **Chapter 1.** Introduction-description of the Action (Soteris)
 - 1.1 Classification & Characterisation of BISTS (case studies) (Mervyn and Laura)
- **Chapter 2.** Design Process of BISTS
 - 2.1 Architectural planning/integration (Aleksandra + Savvides+ Gerald + Vasiliades)
 - 2.2 Solar system design (mechanical/optical/materials, control) (Christoph, Soteris, Aggelos, Mirko, Ivan)
 - 2.3 Modelling and performance analysis (Daniel, Jayanta, Christoph, Aggelos, Adolfo, Danijela).
 - 2.4 Installation options/strategies (Stefan+Yiannis)
 - 2.5 Testing (standards) (Christoph)
 - 2.6 Commissioning of systems (Stefan)
 - 2.7 Maintenance (Stefan+Jayanta)
 - 2.8 LCA (Disposal) (Daniel + Chrysa+Ricardo)
 - 2.9 Economics (Mervyn + Christoph)
 - 2.10 Legal issues (Christofari + Gilles+Rozita)
- **Chapter 3.** New Options
 - 3.1 New architectural design options(Aleksandra + Savvides+ Gerald + Vasiliades+Visa+Rene)
 - 3.2 New systems and application options (Yiannis + Dorota + Jasna + Istvan + Andy)
 - 3.3 New materials (pcm, nanomaterials, nanofluids) (Jasna)
 - 3.4 New construction, different solutions (Trevor+Laura)
 - 3.5 Options for retrofit applications (e.g. extent SHW to space heating) (Trevor+Andy)
- 4. **Chapter 4.** Analysis of new project concepts/ideas
 - 4.1 Project #1: Soteris
 - 4.2 Project #2: Mervyn
 - 4.3 Project #3: Aggelos
 - 4.4 Project #4: David
 - 4.5 Project #5 : Sandra(?)
 - 4.6 Architectural integration (Aleksandra + Savvides+ Gerald + Vasiliades)
 - 4.7 New simulation models (Annamaria+Adolfo)
- 5. **Chapter 5.** Conclusions and Outlook (Christoph+Soteris)
- 6. **Chapter 6.** Supporting material (Laura + Sarah+Gilles)

Section leaders for the book:

- Chapter 1. Introduction (Mervyn)
- Chapter 2. Design Process of BISTS (Daniel)
- Chapter 3. Analysis of concepts/ideas (Aggelos)
- Chapter 4. Projects (all project leaders)
- Chapter 5. Conclusions (Ricardo)
- Chapter 6. Supporting material (Laura)

- Material to be submitted first to the above persons and after an initial screening and review to Soteris

Management Committee meeting

(All present but only MC Members have voting right)

1. Action conference

- All need to contribute with a paper
- All need to participate
- The Action event is reimbursed
- Time: Before end of March 2017
- It will be open to other persons (major event)
- Needs a good planning and organisation.

2. Scientific conference

- Name: International Conference on Building Integrated-Renewable Energy Systems (BI-RES)
- Areas to be covered:
 - Building integrated solar thermal systems (BISTS)
 - Building integrated PV/T (BIPV/T)
 - Building integrated Thermal Storage (BITS)
 - Building integrated hybrid systems (BIHS)
- Publish a SI in RENE+Energy+SE
- Need a Guest Editor (GE) to handle the review process or Guest Editor team (one Managing GE)

3. Dissemination Activities

New additions to website:

- Photos of participants plus affiliation.
- All case studies received so far.
- Guimaraes presentations
- HB instructions
- Book PDF
- Photos from previous meetings - Guimaraes added

Status of deliverables

- Book published and each member received at least one a copy. More copies are available.
- D 1.4. Report on the evaluation technologies available for BISTS characterisation (Month 24). (Now finished with 1 year delay).
- D 2.4. Report on the validation of developed codes, both thermal and optical (Month 30)(ready)

- D.3.4. Report on fabricated integrated STS prototypes optimised for increased efficiency and low cost. Full building services integration (e.g. into existing heating, cooling, hot water) or stand-alone operation but integral to the structure. This will depend on the extent of own research as funding allows (Month 36). (ready).

4. Next meeting:

The next meeting will take place at Warsaw University of Technology, Warsaw, Poland.

Dates: Meeting: 8-9/9/2016 (Thu-Fri)
Training school 5-7/9/2016 (Mon-Wed)