



NEWSLETTER 06-2007

The EURACTIVE-ROOF project starts its last year of collective research
Midterm Report



Project partners

Associations	
International Federation for the Roofers	IFD
Hungarian Federation of Roofing Contractors	ÉMSZ
Het Hellende Dak	HHD
Zentralverband des Deutschen Dachdeckerhandwerks	ZVDH
National Federation of Roofing Contractors	NFRC
National Energy Foundation	NEF
Construction Industry Federation (Roofing and Cladding Contractors Association)	CIF (RCCA)
Norwegian roofing research association	TPF
Schweizerischer Verband Dach und Wand	SVDW
Polskie Stowarzyszenie Dekarzy	PSD

Small/Medium Enterprises	
SolarVolta	SolarVolta
Biohaus	Biohaus
Bedachungstechnik Manfred Schröder GmbH	Schröder
Kuipers Consulting SL	Kuipers
Ecovent	ECOvent
H and E Costellos roofing	H&E
Tectum	Tectum
Alukol	Alukol
Puskas Muek	Puskas
Schneiderbau	Schneider
Energy Equipment Testing Service Ltd	EETS
Solarwall Italia	Solarwall

Research Institutes	
TNO	TNO
Building Research Establishment	BRE
Company for Quality Control and Innovation in Building	ÉMI
SINTEF Building and Infrastructure	SINTEF
Centre for Renewable Energy Sources	CRES
Cenergia	Cenergia
Bautechnisches Institut	BTI
Technische Universität Berlin	TU Berlin
TU Warsaw	WU T
Technische Universiteit Eindhoven	TU/e

EUR ACTIVE ROOFer Project

- **Collective Research project**
- **Subsidized by the European Commission**
- **New solutions for Active Roofers**
- **Upgrading of activities** from delivering roof coverings towards 'active-roof contractor'
- **Harmonised solutions** - Crossing European borders
- **Pan-European training** - Joint basis for roofers



New concepts for Active Roofs

Best Practice Catalogue

The Best Practice Catalogue is nearly finished. It is suggested to translate the Best Practice Catalogue or parts of it in other languages e.g. German. Some of the best practices will be presented at the IFD congress 2007 in Siófok, Hungary.

Database

The database structure and the first completion for the Photovoltaic solar systems are available. Feedback and roof information is needed from all the participants of the project! Also it is necessary to discuss the meaning of the database, how to use it in future, after the end of the project etc.

Wind, Wind Driven Rain and Seismic Effects

The objective of this Work Package is to undertake pre-normative research into the effects of rain and wind driven rain on Active Roof systems. The work of this WP is on schedule. Three of the four deliverables have been completed; the latest of which was a draft test method for assessing the performance of Active Roof systems under driving rain conditions. Tests have been carried out using this draft test method on a range of active roof systems; see for example the figure which shows a 'stand-off' PV module. The results from these tests will be analysed and the test method will be refined in light of these results. Other work ongoing is computational modelling of wind driven rain by TU Berlin and full scale measurements of wind and rainfall by BIOHAUS in Paderborn.





Condensation

The tests on samples in the climatic chamber were finished at the beginning of March 2007. Additional tests with a full scale thermal solar panel are started. An integrated active roof 2,50 m x 3,50 m was erected. The erection of the whole sample is finished and the tests will start in the thermal/rain apparatus of BTI, which also had to be modified. The test will started end of May.

Aim of the test: humidity and temperature at particular points of the whole roof construction during heating and cooling cycles.

The results of the calculations, the table to check the quality of the roof depending of in- and outdoor climate and the table of European climatic zones developed for the calculation of roof condensation are available and have been presented and explained.

The main work of the last months of the project will consist of the development of a calculation tool.

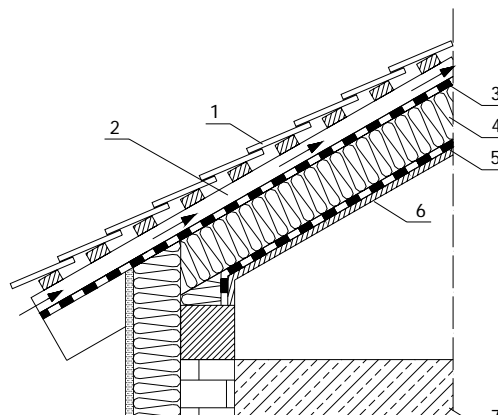
The calculations in combination with different insulating thicknesses are finished. Further calculations will be carried out with the full scale test model and a final check with the exact climatic data of Barcelona.

Full scale test

Full scale tests are carried out by the project partners Kuipers, Solarwall, Cenergia and EMI. The test samples were presented within the presentations of WPA and WPF. In the last 6 months the samples have been erected and the measuring equipment installed. Solarwall and Cenergia have started with measurements in June, the start at EMI was in January 2007.

The detailed data to carry out parallel calculations will be submitted to WUT and/or CRES directly from the testing institutes.

Due to the mild winter 2006/2007 and construction reasons the end result of the full scale tests will be available after the next winter. The associations and roofers are kindly requested to check and comment the documents which will be finalised according to the project schedule beginning 2008.





Snow and Ice Load

In general Work Package E (WP E) - Snow and Ice Load - deals with snow and ice friction issues on active roofs. The general concept load is not restricted to only weight issues, but includes snow drift, various snow coverage/blocking problems (e.g. solar cell panels, roof windows and glass roofs), humidity problems due to snow or ice, etc. As future roofs will become more active, these roofs may be more sensitive to snow and ice load and consequently increase the risk of roof / roof installations damage or other problems. The work to be carried out within WP E has been divided into the following three specific work tasks:

- WT A. Friction between snow/ice and roofing/active roof installation surfaces.
- WT B. Fresh air ventilation intake and snow inlet problems.
- WT C. Insulated, natural ventilated pitched roofs and problems associated with solar cell installations.

Part of the WT A objectives are the development of the new NBI Method 169, further divided into two methods A and B, as follows:

- **NBI Method 169**
Measurement of Friction between Snow and Roofing
- **Method A**
Friction Coefficient Determination between Snow and Roofing by Horizontal Plane Applied Pulling Force Method
- **Method B**
Friction Coefficient Determination between Snow and Roofing by Inclined Plane Slip Method

Another important part of the WT A objectives is evaluations concerning the two contradictory snow philosophies with possible solutions which may be written as:

- **Keep the snow on the roofs**
 - Normal roof solution.
- **Remove the snow from the roofs**
 - Increased solar cell efficiency when not covered by snow.
- **Possible solutions**
 - New advanced material or surface technology, e.g.
 - Self-heating materials (e.g. from ambient infrared radiation or solar radiation)
 - "Zero" friction for snow and ice – Immediately removal of falling snow.
 - Self-cleaning surface.
 - New roof design.
 - Others?





Safety, Installation, Maintenance and Repair

The final version of the report “Prototypes of mobile safety devices, best practice examples and legislation proposals.” is being produced. This will be uploaded to the EurActiveRoofer website soon.

Guidance and dissemination

The main objectives of work package Guidance and dissemination are laid down in the following four points:

1. Evaluation of the performance criteria of work packages on wind loading, rain and driving rain, snow and snowdrift, condensation effects and Safety in Installation, Maintenance and Repair
2. An increase of competitiveness of roofers through development of simple rules for design and guidelines on Active Roofs.
3. Gathering of best practice examples.
4. Providing guidance documents for the European SMEs on Active Roofs.

Presentations on national roofer meetings are foreseen. Interested organisations can register at IFD office. Information is planned on national level.

Publication of the (intermediate) results in national and international journals for the roofing trade is planned. A minimum of 4 publications is foreseen.

A draft document for guidance, a set of documents or guidelines will be set up, of which the performance requirements and assessment procedures, the product characteristics and the application rules will be an integral part. This draft documents will be European, under the IFD-mark and passing relevant courses may lead to a marking for Active Roofs in the future. The label system can/may include a proposal for product and system label (Active Roofs), as well as label of the process (Active Roofers).

Pre-standardisation and labelling

A first format of the Pre-standardisation document is produced and most of the WP-leaders have give input about the requirements and test methods of their concerning product. This will be incorporated in the coming months and presented in October 2007.

Piet Vitse, chairman of CEN TC128, is informed about the project, and wants to discuss possible actions towards CEN. Some partners of the project are member of TC128 and other involved TCs e.g. 254 (flat roofs), TC 89 (moisture), TC 250 (structural eurocodes). Possible actions towards CEN will be coordinated by Detlef Stauch.

In discussion on pre-standardisation a route should be set up and end up with a CEN Technical Document or an IFD document, or other options? This has to be discussed and will be coordinated.

Training Activities

Finally, the draft documents will be the basis for training courses. The input from workshops, seminars and information meetings will give input to finalize these documents for the project. But these documents have to be updated regularly after the end of the project. This is a continuing task of IFD.