

“Building with sandwich panels fast, safe and energy saving”

Barcelona, 24th March 2011

Within the EASIE project (Ensuring Advancement in Sandwich Construction Through Innovation and Exploitation), the largest project in Europe on sandwich panel construction, officially supported by the European Commission, the workshop was well organised by a member of EASIE project, the hosting association APIP'NA.

The organisation was supported by Pan and Pro Europe, France and Institut für Stahlbau und Werkstoffmechanik TU Darmstadt, Germany.



Important !

All presentations are audio-video recorded, so those who did not have the chance to participate will be able to see them online (www.easie.eu) as e-learning modules.

Sandwich panel construction: fast, safe and energy safety.

The second workshop of the EASIE project, organized by APIP'ÑA, the Spanish polyurethane sandwich panel association, took place in Barcelona on the 24th of March.



Workshop, 24th March 2011, Barcelona

The industrial engineering college of Catalunya welcomes the workshop with more than fifty participants from Spain, Portugal, France, Poland, Belgium and The Netherlands.

Spain is the second country, after Italy, with numbers of square meters produced per year, and an event like this was very important and interesting for producers, engineers, architects and labs to improve their acknowledge about sandwich panels.

The following topics were discussed in the workshop with great interest:

- Load bearing behavior - How is a sandwich panel working

- Allowable span tables on the base of the CE-mark
- Sandwich panels and architecture
- Sustainability in Sandwich Panel Construction
- Repair and retrofiting
- Thermal bridges and Air Tightness of Sandwich Construction
- Experimental studies on durability of sandwich panels
- Thermal and structural behavior in openings and joints

The workshop began with an introduction of how sandwich panel is working. Prof. Lange from Darmstadt University showed that sandwich panel is made of three parts but thanks of the fixing between them made that in a mechanical way they work as an individual product allowing long spans, giving excellent heat and cold insulation and sealing against wind and water.

After this introduction Prof. Berner made a very interesting presentation for Spanish producers and labs: how to calculate the allowable span tables based on the CE mark. The way to get span table since sandwich panel





standard changed and IS Mainz have done a very simple use program to get them. This program will be soon in their web site.

Neus Comas from APIP²NA presented the Spanish polyurethane sandwich panel association. After an introduction of the association she presented the most important characteristics of polyurethane sandwich panels: the best thermal insulation product thanks of polyurethane foam characteristics, good mechanical behavior thanks to the unions between polyurethane and metal sheet, right acoustics behavior using other construction materials like bituminous sheet and fire behavior where we can have EUROCLASSES classifications from D to B.

The two speeches which roused more interest of the participants were presented after a short break in the morning. The Dutch architect, Michiel Cohen showed amount of different buildings constructed with sandwich panels. He emphasized that sandwich panels allow easy and fast constructions but what it's more important for him, sandwich panel let all kind of design, a really good thermal and acoustic insulation and sustainability reasons. Sustainability prospective in sandwich construction was explained by Dr.-Ing. Markus Kuhnhenne. This topic was very interesting for all the audience because all future construction regulations will force use products with sustainability identification. Mr. Kuhnhenne showed the great impact building products have on our environment but also showed that sandwich panel is a good product when it comes to sustainable construction.

After this two speeches; Paavo Hassinen from Aalto University in Finland explained the part of the EASIE project, about the influence of the ageing on the direct design parameters such as the wrinkling stress of the face and the shear and compression strengths of the core. The experimental results have shown the importance of the adequate strength and protection of the bond zone to the ageing and corrosion. Development of the resistance due to the ageing seems to depend very much on the product. Verification of the results will be made using full-scale specimens and wall and roof panels removed from the buildings

after a certain service time exposed to effects of the natural environment.

The afternoon began with a presentation about Thermal bridges and Air Tightness; it was show that correct detailing by using sealing strips which are fit for purpose and sufficient insulation, together with reduction of metal bridges between internal and external atmosphere allow us to minimize energy losses. Air and water tightness is also a very important issue and the sealing strips are a crucial point to improve them. Tests show that the panels behave perfect if the right strips are used. The minimization of metal bridges mainly in the area of the joint details is a very important goal.

Repair of sandwich panels may mean cleaning and painting of wall and roof panels but also repairing of defects and covering of the panels with a new cladding. Paavo Hassinen explained that the repairing work may result in a new architectural appearance, improved physical and mechanical behavior and resistance and an extension of the service life. EASIE project studies the mechanical behavior of the principal structural solutions. The project will produce guidelines on the retrofitting in practice.

The last speech was done by Dipl.-Ing. Felicitas Rädels, from Darmstadt University. She explained that the thermal and structural behavior of joints have an important role in sandwich panel constructions. Normative specifications, test results and principles of good practice regarding the air and water tightness of sandwich panel constructions were presented. Due to different requirements like windows, doors or ducts it is further necessary to cut openings in sandwich panels. In the 2nd part of the presentation, several investigations and the resulting calculation models for the load bearing capacity of panels with different kind of openings were presented.

The successful workshop ended with a questions and answers session, with thanks to all the audience for their active participation and finally invite to all the participants to improve their acknowledge about sandwich panel following EASIE site (www.easie.eu).

by Neus Comas, General Secretary, APIP²NA

Interview

Eric Rustemeijer
Managing director



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What is your role in the EASIE project?

Together with our partners we have developed a repairing system for blisters and delaminating problems. We learned a lot about the strength of panels after damaging and how our repairing methods could bring the strength back. We found that a combination with people of universities and fieldworkers gave a good result.

What are the benefits of your participation to the EASIE project?

Due to this project, RBM Europe has

profiled itself further into a company with a good know-how and approved repairing methods. Without this project, we could not develop better repairing systems and improve our know-how. RBM Europe has grown further into the European market with help of the Easie network.

What are the objectives of RBM?

RBM wants to grow further in the European market whereby we can give our customers good services, based on

know-how, trust and guaranties. We want to build up a network with several small companies in whole Europe. With RBM the small companies can operate in a large way. We also want to keep in touch with our partners in the easie project. Where possible and necessary we want to find with them answers to the questions in the market.

We found Easie a great project and we were happy that we could join it.



Event • Register now !

Workshop

June 9th
2011

Crown Piast Hotel & Park • PL 31-342, Kraków ul. Radzikowskiego 109 - Poland

Building with sandwich panels fast, safe and energy saving

Workshop Program

- 9:00 **Introduction**
Prof. Dr.-Ing. Klaus Berner - iS engineering - Germany
- 9:10 **Load Bearing Behavior. How is a sandwich panel working?**
*Dipl.-Ing. Aneta Kurpiela - TU Darmstadt - Germany
(in Polish language)*
- 9:40 **Actions and loads**
Special Aspects of Sandwich Structures
Prof. Dr.-Ing. Klaus Berner - iS mainz - Germany
- 10:15 **Coffee**
- 10:40 **Repair and retrofitting of sandwich panels**
Eric Rustemeijer, RBM Europe - The Netherlands
- 11:20 **Sandwich panels and architecture**
Michiel Cohen, architect - The Netherlands
- 12:00 **Lunch**
- 13:00 **Fabricating and designing sandwich panels for fire**
*Dr.-Ing. Maciej Klosak - ArcelorMittal, Poland, Dr.-Ing.
Jacek Tasarek - Poznan University of Technology - Poland
(in Polish language)*
- 13:30 **Detailing**
*Dr.-Ing. Ralf Möller or Dipl.-Ing. Pöter - Pöter & Möller, Siegen -
Germany*
- 14:15 **Coffee**
- 14:30 **Thermal and structural behaviour in openings and joints**
Dipl.-Ing. Felicitas Rädcl - TU Darmstadt - Germany
- 15:00 **Stabilization of steel structures with sandwich panels**
*Dr.-Ing. Thomas Misiek - KIT, Karlsruher Institut für Technologie -
Germany*
- 15:30 **Coffee**
- 15:45 **Thermal bridges and air tightness**
Dr.-Ing. Ralf Podleschny - EPAQ - Germany
- 16:15 **Thermal loads of sandwich panels**
*DAFA - Polish Association of Roofing and Cladding Makers -
Poland*
- 17:00 **Final conclusions**
Prof. Dr.-Ing. Klaus Berner - iS engineering - Germany
- 17:15 **End**

Participation form

Date of application

Company / affiliation

First Name Name

Job position

Address

Postcode Town Country

E-mail

Telephone Fax Mobile phone

Registration

For registration, please email this application form or send a fax to:

Joanna Parzyszek - ArcelorMittal Construction Polska

joanna.parzyszek@arcelormittal.com

Tel. +48 22 255 39 00 - Fax: +48 22 255 39 01

Venue

Crown Piast Hotel & Park

PL 31-342, Kraków ul. Radzikowskiego 109 Poland

Tel: +48 12 683 26 00 - Fax: +48 12 683 26 65

www.hotelpiast.pl

Seminar co-ordination

For any questions about the seminar, the co-ordinator is:

Maciej Klósak • maciej.klosak@arcelormittal.com

Tel +48 665 105 146

The workshop has received support from the European Community. As the number of participants is limited the seat will be filled up according to the date on participation form.

Event

SAVE
THE DATE

EASIE final conference at the joint Congress EPAQ – Pan and Pro Europe

22nd -23rd September 2011, Rome - Italy

Do not miss the opportunity to discover the practical results
of the European research program on sandwich technology!

The presentations will cover a wide field of topics such as:

- How to design sandwich panels with openings?
- How to optimize the global resistance of buildings with the use of sandwich technology?
- Technique for the repair of sandwich panels
- Solutions to assess durability of panels
- The design of sandwich panel by testing

Contact

- valerieprudor@panandpro.eu
- info@epaq.eu

What's new on www.easie.eu?

- Creeping tests on axially loaded sandwich panels
- Tests on axially loaded sandwich panels
- Tests on load application details of axially loaded sandwich panels
- Tests on the in plane-shear resistance of sandwich panel
- Tests on the stabilisation of beams

For more information : www.easie.eu