easie
Ensuring Advancement in Sandwich Construction Through Innovation and Exploitation

e-newsletter #6

June 2010

Foreword

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EASIE Project Manager

The project review process is an essential component of good programme management and has proved to be one of the most effective mechanisms for improving project management practices and actual project results.

Although the written periodic reports are a valuable source of monitoring information, the European Commission has for many years decided to supplement them with an in-depth mid-term review meeting between its representatives and the project partners.

A timely, comprehensive review of project performance can reveal much and be a valuable source of feedback not only of course for those organisations which are involved in performing the project but also for the European Commission itself in contributing to the design of future programmes.

The EASIE project reached this vital decision point this spring when its Mid-Term Review meeting was held in Brussels on 18th May 2010.

The principal objectives of the review were to assess the extent to which the project was likely to meet its stated objectives, to assess its potential impact both from a scientific and from a socio-economic point of view and to assist with any re-orientation of the work which may be required.

The team had to show that the project was well on its way to meeting its objectives, that these objectives were still relevant and achievable and that satisfactory progress had been made towards meeting milestones and completing deliverables.

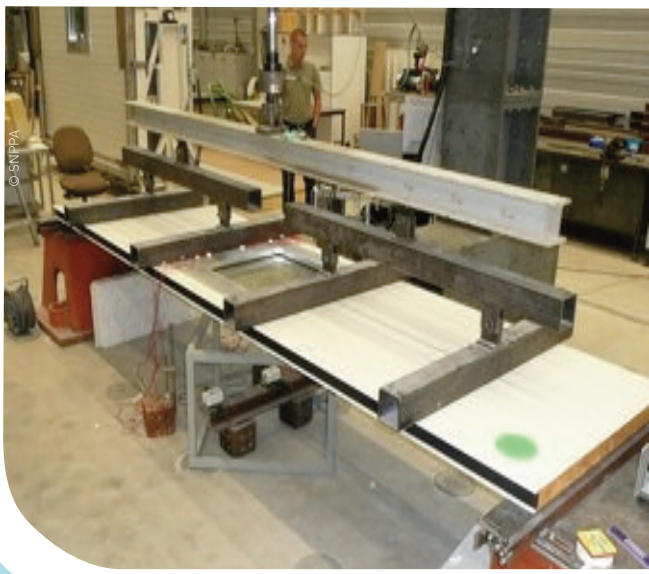
The review proved to be a valuable exercise for the project team. The central conclusion was that the project was on time and on budget. However as an important component of the project was its large and complex experimental programme which covered a broad range of topics including openings, resistance and repairs of sandwich panels, stiffness of fixings and the validation of the design by testing method, it was agreed that greater attention had to be directed towards the planning of the deliverables which depended on the results of the tests and which, as a consequence, will be produced towards the end of the project.

The review highlighted the importance of two aspects of the work for the European industry: codification and training.

The EASIE project is pre-normative in character. However one of its key industrial aims is to harmonise and strengthen European industry views within the main standardisation groups. In this context the project has a broad strategy of contributing its results to the work of the European Committee for Standardisation (CEN) and of the European Convention for Constructional Steelwork (ECCS).

A central plank of the work is concerned with education, training, skill development and dissemination. Work aimed at developing an internet-based teaching unit on the design of sandwich panels including lectures, an online library and data base as well as a central internet portal.

Whatever the importance of the technological advances and innovations that EASIE will offer to industry and in particular to SMEs, the education of the next generation of engineers, the in-service training of professionals and the provision for the industry of a common internet portal could in time prove the more original and lasting legacy of the Project.



WP1 Improvement of thermal and structural behaviour in openings and joints

WP2 End user Focussed Design Strategy

WP3 Use of sandwich technology to optimise the global resistance of buildings

WP4 Retrofitting, durability and maintenance

WP5 Holistic, elearning based education on sandwich construction

WP6 Training, skill development and dissemination

WP7 Management and Governance

Main scientific and technical achievements in EASIE Mid-Term Review of milestones and deliverables

Fourth Meeting of the Management Committee. 19TH of May 2010. Brussels

The first Workpackage of the EASIE research project deals with openings and joints in sandwichelements. The corresponding Milestone M1.2 „thermal loss in joints" gives some interesting recommendations to check and secure air tightness by

- limit values for gaps
- how to optimize joint geometry
- good working types of sealing strips

In Milestone 1.3 „design model for small openings" we obtained useful information from the test series with profiled faces. A positive effect of load-bearing window frames could be recognized. This information provides a good contribution to find an easy design model to take into account the influence of standard openings in wall- and roofpanels for the calculation.

Workpackage 2 deals with the „design by testing" method. By performing Milestone 2.1 „test method simulating temperature loads", a test rig in Aalto University was developed allowing to combine distributed loads and temperature gradient on two span panels.
The evaluation of these test is ongoing and we recognized some interest effects.

By reaching Milestone M2.2 „Mechanical Tests and Validation" we come to the conclusion, that the stresses above the central support are significantly smaller compared to the current design by calculation method. This leads also to an increase of load bearing capacity.

Workpackage 3 mainly covers the global resistance of buildings consisting of sandwich panels. As far as the testing series are conducted, multiple results for the design of sandwich elements and substructure can be expected:

- characteristic values for torsional restraint to stabilize purlins
- load-deflection-curves for different kinds of connections
- proposals for standard details for load introduction to minimize risk of wrinkling and debonding
- sandwich elements under bending and axial load can be easily designed by second order theory after evaluation of creeping tests

Workpackage 4 is concerned with durability, retrofitting and maintenance. In order to conduct the scheduled test programme, is-mainz developed its own climate chamber for artificial ageing of complete sandwich panels. The evaluation of the first test results will be compared to naturally aged elements.

Workpackage 5 and 6 deal with e-learning and dissemination. The first training workshop will be held in Zagreb in the middle of June to record the lectures for the e-learning platform. Until now 5 newsletters have been published on the EASIE Website.

To sum up the latest scientific and technical achievements as communicated between industrial and scientific partners:

- a large amount of test data, that provides a solid basis for future design models
- innovative new test rigs for temperature gradient, artificial ageing, creeping under axial loads and air tightness.
- ongoing dissemination of topics concerning sandwich technology

Interview

Uwe Lipka
Product manager
ECP GmbH
Germany

Your company was founded in 2002. What was the beginning like?

Hans-Christian Ruhberg, the owner and manager of the company was in cold room and panel production activities for a long time ago. He gained much experience, especially as regards the benefits of corrosion-resistant fiberglass when used in rooms with high hygiene requirements. The fact that there were only few suppliers of GRP sandwich panels on the market, led to the idea these products to further develop and to market them with his own company. ECP was founded in 2002 and was initially a trading company.

How did the company develop?

With the rapidly increasing sales of products the plan to take the production into the own hand was soon in practice. Once a suitable site was found in the course of the year 2005 the production of sandwich panels began in Gadebusch. Due to the flexible manufacturing the product portfolio could be expanded. ECP is able to cover a wide range of applications of sandwich panels.

ECP's corporate philosophy is to create complete system solutions for its clients. Can you further explain your philosophy?

Almost all suppliers provide sandwich panels in fixed widths to the construction sites. The panels must then be adapted to local conditions, and tailored. ECP creates to the customer installation plans and parts list and moved the cutting work in the factory. The costs are reduced and the quality is increased. Due to the large number of possible combinations of materials ECP is able to manufacture economically products designed to customer needs in almost every batch size.

What are your products? And especially could you explain what is the EasyClean-Pan® system?

Our main products are panels with GRP surfaces for use in food production and distribution. EasyClean-Pan ® is a system for highest hygienic demands. It combines GRP panels, special modules with rounded corners and a special, stable joint sealing. This results in quasi jointless wall and ceiling surfaces that can not be attacked by rust or mildew and are resistant to aggressive media. The product range includes furthermore sandwich panels with steel facings, e. g. our special flat roof element used with roof pitches close to 0 degrees.

What is your role in the EASIE project?

ECP sees itself as representing the interests of the manufacturing companies of the SME sector, who suffer from existing market access barriers for new sandwich products and solutions. EASIE pursues a holistic approach in advancing sandwich technology that ECP fully supports. It stands to reason that creating of better technical and regulatory conditions for new application of sandwich panels is important to us. Therefore, ECP is involved especially in the context of the WP 3 for the development of self-supporting sandwich constructions. We believe that simplified design solutions will enhance the potential applications of sandwich panels, which in turn create better market opportunities for our products.

What do you expect from the EASIE project?

The more awareness of the benefits of the use of sandwich panels is widespread, the better the overall market environment for sandwich technology is. EASIE will contribute to this in a long-term way.

The development of clear rules governing use of sandwich panels, which go beyond the current state of the art, will create conditions that companies like ECP will have short term advantages in product development and improvement.

Production at ECP Gmbh. Germany

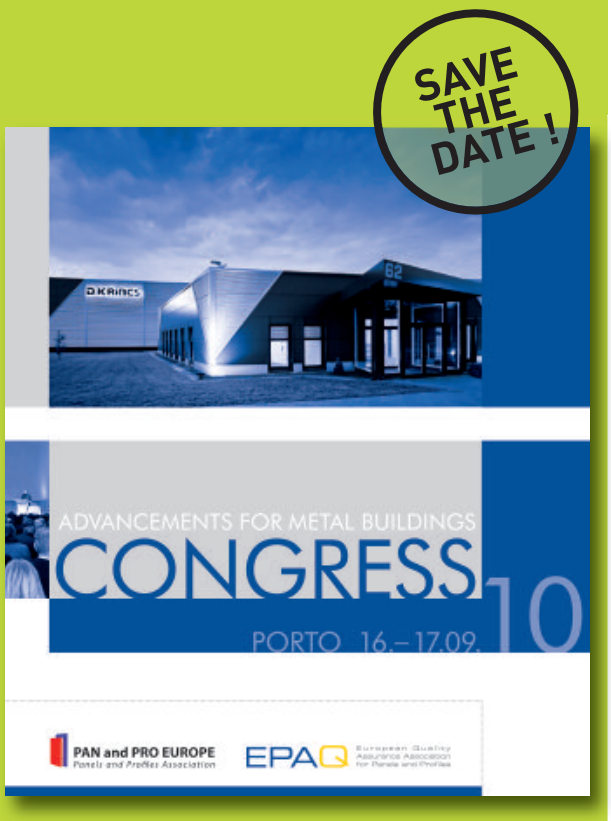
Event

Building with sandwich panels fast, safe and energy saving

Workshop Program • June 17th 2010 • Zagreb

9:00	**Introduction** *Prof. Dr.-Ing. Jörg Lange – TU Darmstadt*
9:10	**Load Bearing Behaviour** **How is a sandwich panel working** *Prof. Dr.-Ing. Jörg Lange – TU Darmstadt*
9:50	**Actions and loads** **Special Aspects of Sandwich Structures** *Prof. Dr.-Ing. Klaus Berner - IS Mainz*
10.30	**M-PROFIL, Company presentation,** Sandra Bojić, M.Econ.
10:40	**Coffee**
11:05	**Sustainability in Sandwich Construction** *Dr.-Ing. Markus Kuhnhenne – RWTH Aachen*
11:45	**Connections of Sandwich Panels** *Prof. Dr.-Ing. Thomas Ummenhofer – KIT, Karlsruhe*
12:30 - 13:45	**Lunch**
13:45	**Fabricating and Designing Sandwich Panels for Fire** *Dr. Maciej Klosak - ArcelorMittal, Poland*
14:25	**Coffee**
14:40	**Erection** **From the Factory to the Final Building** *Dr.-Ing. Ralf Möller, Pöter & Möller, Siegen*
15:20	**Thermal Bridges and Air Tightness of Sandwich Construction** *Dr.-Ing. Ralf Podleschny – EPAQ*
16:00	**Final conclusions** *Prof. Dr.-Ing. Jörg Lange – TU Darmstadt*
16:05	**End**

The first workshop on EASIE research results was held in Zagreb. More than 80 persons attended the workshop. Do not miss the next e-letter which will be dedicated to the workshop!



Schedule

September 15th	5th meeting of the Management Committee in Porto
September 16th-17th	PAN & PRO Europe and EPAQ annual congress in Porto

For more information : **www.easie.eu**