

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



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 first workshop “Building with sandwich panels - fast, safe and energy saving”, took place in Zagreb, Croatia on the 17<sup>th</sup> of June. It was well organised by a member of EASIE project, the hosting company, M-Profil which is the leading sandwich panel manufacturer in Croatia. The organisation was supported by Pan and Pro Europe 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](http://www.easie.eu)) as e-learning modules.



Topics of the workshop that were discussed, rouse great interest:

- Load bearing behaviour
- Actions and loads
- Sustainability in Sandwich Construction
- Connections of Sandwich Panels
- Fabricating and Designing Sandwich Panels for Fire
- Sandwich Panel Erection
- Thermal Bridges and Air Tightness of Sandwich Construction

Moderator of the workshop was Professor Lange who also made an introduction, followed by the issues on how a sandwich panel is working. He showed that these elements merge the capabilities of spanning long spans, giving excellent heat and cold insulation and sealing against wind and water. The various load bearing modes were introduced and discussed. During the presentation it was stressed out that some minor deflections may occur after erection of the sandwich panel and that this is due to good insulation and the thermal gradient within the panel. One of the main topics of the second presentation (by Prof. Berner) was the application of standard EN 14509. CE marking is defined by this standard, important for all sandwich panel producers who intend to sell this product within EU. Furthermore he explained the various loads that have to be taken into account when designing a structural panel. Besides snow, wind and dead weight the thermal loads need special consideration.

Sustainability prospective in sandwich construction (by Dr. Kuhnhenne) is the topic that roused additional interest of the participants, especially those from Croatia. New regulation for energy saving buildings is in force since spring and will be implemented in the whole region in the close future. Participants welcomed some examples from practice. The great impact building products have on our environment was made clear. It was shown that sandwich panels are a good product when it comes to sustainable construction.

After a break, issues on panel connections and approvals for screw fasteners (by Dr. Misiek) and fire resistance (by Dr. Klosak) followed. The connection of a panel to the structure, e.g. beams and columns made of steel, concrete or timber, leads to special screws that take into account the very thin facings of the panels and the relatively soft core material. It was shown how these screws and whole connections are tested and their behaviour in a building is assessed.

Building safety in case of fire is the factor that influences every investor when deciding on the building material for the investment. Excellent examples were given to illustrate how different types of insulation react to fire. PUR-cores have a fairly good behaviour but might produce a severe amount of smoke when burning, also the metal facings act as barrier against flames and oxygen reducing the flame's progress into the panel. Mineral wool as a core material is

perfectly suited for all cases where fire wall qualities are asked for. Dr. Klosak also explained the common fire-tests and how recommendations are developed from them.

The sandwich panel is an excellent product that needs professional approach. How successful construction activity is conducted was covered by Dr. Möller. He presented such topics such as logistics, engineering, material testing and skilful assembling. It was shown that everything is interconnected. Good planning and good panels are essential for good erection but additional items have to be covered. Storage after production, transportation and storage on site as well as the right equipment to hoist the packages is very important.

Correct detailing by using sealing strips which are fit for purpose and sufficient insulation, together with the topic on reduction of metal bridges between internal and external atmosphere (by Dr. Podleschny) were issues that closed the workshop. Good detailing can help to get the most out of building cladding with sandwich panels. Air and water tightness due to the correct use of sealing strips is a very important issue. 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.

The successful workshop ended with a questions and answers session and invitation to use sandwich panels more in construction industry because of many cost benefit advantages.

by **Sandra Bojic**, Marketing Manager, M-profil  
and **Dr. Ing. Jörg Lange**, TU Darmstadt

## Interview

**Michel Decabane**  
Industrial Manager  
Coldkit



distribution and planning of projects for clients, ensuring excellent client support at all times.

### In which countries your company is present?

ColdKit is present in more than 20 countries worldwide. Apart from offices in Portugal, Spain, France, United Kingdom, Brazil, Angola and India, we have a distribution network through exclusive representatives which provides a worldwide presence of our products, from Australia to Brazil.

International development has been one of our key goals in the past years, and therefore we have been investing in factories worldwide. Thus after finishing the production plant in India, in this 2010 we shall open our third factory in Brazil.

Having Companies partners in America, Europe and Asia can give us continuous improvement, time to market and optimized logistics, important keys to success along with our products and organisation.

### You are specialised in markets that make use of conservation solutions. What can you explain about your products? What are the specificities of your products?

Actually our products are dedicated to three main markets

- HORECA activities (Hostelry – Restoration & Catering)
- COLD STORAGE (Agro food industry – Super, hyper market etc.)
- CLEAN ROOMS applications (Pharmaceutical – laboratories – Hospital – electronic )

In HORECA activities we can offer a complete solution with cold rooms – refrigerated counters - vertical display and shelving).

### Could you present your company?

ColdKit was first conceived over 20 years ago for filling a relevant gap in those days sector: a manufacturer of innovative products which could combine:

- First class materials
- Excellent isolation
- Long lasting solutions
- Complete modularity
- Fast and easy assemble, no cuts
- Different thicknesses for different purposes
- Design

At a first glance it was an ambitious goal, even more when these products had to be competitive in pricing due to the internal organisation and processes of the company.

As a result of these strict premises, ColdKit launched its most distinctive product and the one which made us popular throughout the sector: **Matrix cold room**. With a fantastic rounded design and choices of colours were revolutionary in a market not very used to innovations and progresses in this field.

But there was another product launch aimed to small premises: **Isark mini-cold room**, the ideal solution for those businesses where a cold storage cabinet is not enough for its conservation requirements.

As a traditional supplier of products for the Agro food market, in 2007 we invested in a state-of-the-art continuous panel factory which turned out to be the

most modern plant in Europe in this specialty and, combined with the discontinuous panels production plant, makes our range of products the most complete on the market.

Today, ColdKit has some factories worldwide and is consolidated as a leading company in the sector, where it is noted for its commitment to its clients, technological innovation and design.

With clear international vocation, ColdKit has its head office in Portugal and has dedicated and highly professional collaborators worldwide, all united by the common desire to effectively and efficiently serve all their clients.

After 20 years ColdKit has significant international experience in the manufacture and distribution of professional insulation products, as well as refrigeration solutions, for different markets. Our factories have ISO 9001 certification by IQN and Certification Network, which guarantee the quality and safety of our products and processes. Our range of equipment for the catering business includes an extensive array of solutions for professional kitchens, catering shops (bakeries, cafeterias, patisseries...) and self-services, which exceed the expectations of our clients through their strength and excellent behaviour.

ColdKit supplies almost all that is needed for opening and operating this kind of premises, saving problems and money as a result of trusting in a brand of recognised track record such as ours. Our company has also a projects department specialised in the design,







For example,

**Matrix cold rooms** have first a specific design and colour but also technical advantages for the customers:

Modularity of 20 cm, this permits large possibility of dimensional adaptations, Four thicknesses of insulated panels (60 – 85 – 105 – 150 mm) it's an economical parameter, in fact, customers can choose the best thickness in accordance to the functional temperatures (internal and external).

Range of finishing, we can manufacture panels with galvanized steel pre-lacquered (different colours), or stainless steel. All internal and external combinations Range of accessories: shelving – sanitary profiles – skirting etc.

**Isark cold rooms** is positioned as a first product in our catalogue and offers an economical investment for conservation and storage. There are 2 higher (2 m and 2, 40 m), and 4 models for each one.

Cold storage, with our continuous line we are able to manufacture 3 types of panels:

- Wall panels
- Cover panels
- Refrigerated panels

With a length capacity of 13 m these panels are perfectly designed to the construction of plant of agro food industry or another big volume of storage.

Thicknesses from 30 mm to 200 mm are also interesting for all these activities.

A clean rooms application, Coldkit manufactures specifics sandwiches panels, doors and proposes lot of accessories of finishing. Coldkit studies all projects of the customers and sells especially for this activity though the internal Company called PUREVER Tech,

### What is your role in the EASIE project?

I meet very early the management team of EASIE project invited by EPPF association.

The proposition to manage the industrial committee seems first an important responsibility and I was afraid do not have sufficient availability.

But quickly I appreciated the main benefice that we can find in the Working group with all the others partners (Universities – Associations – Others SME's)

### What do you expect from the EASIE project?

This is a very good question! Allow me to first one positive remark regarding EASIE project.

SME's have a real possibility to give her opinion and participate to all debates in this project.

Secondly, the exchange between the partners is also really good training for us.

I expect from Easie project a demonstration of the real performances of the sandwiches panels. I mean the results of the testing carried out according the EN 14509 regulation in the universities and her large dissemination contribute to give to the users a best confidence.

The easy access to the results should be an important help to the SME's.

Until now we are often restrained to looking for technical information inside books.

We know in our factories that we do not produce today the sandwiches panels like it was 10 years ago.

Easie project has to give another and real performs of this product.

# Event



**PAN and PRO EUROPE** Panels and Profiles Association  
**EPAQ** European Quality Assurance Association for Panels and Profiles

Congress will run in English language

## Thursday, 16<sup>th</sup> September

11.00 – 13.00	PAN and PRO General Assembly   Room "Discovery"
13.00 – 14.00	Buffet
	Congress   Room "Apollo 3 + 4"
14.00 – 15.30	Environmental Product Declarations (EPDs) for panels and profiles Dr. Markus Kuhnhenne (AAINA GmbH)
	Research Report: Fixation of Sandwich Panels, Mechanism and Innovations Dirk Heiner Urbanek (ZBN Civil Engineers Ltd.)
15.30 – 16.15	Coffee Break
16.15 – 17.45	Steel architecture Sergio Baragaño (b architects)
	Air and water permeability of sandwich panel joints - requirements and state of research Prof. Klaus Berner / Marc Rippe, IS-mainz
17.45 – 18.00	Discussion
20.00	Cocktail and dinner

## Friday, 17<sup>th</sup> September

	Congress   Room "Apollo 3 + 4"
09.00 – 10.15	Fire resistant roofs made of sandwich panels Bogdan Wróblewski, Andrzej Borowcy (Building Research Institute, Fire Research Department)
	Revision of Annex C of EN 14509 – Fire performance tests Johan Schedin (CHEMACH bvba, Chairman of TC128 SC11 WG3)
	New EXAP standards – Extended Application of fire resistance tests Dick Karlsson (Paroc Panel System Oy Ab)
10.15 – 11.00	Coffee Break
11.00 – 13.15	Comparison of classifications regarding different fire test scenarios Prof. Vandevelde (Warringtonfire Gent)
	Design by testing/calculation of sandwich panels David Izabel (INPPA) Prof. Bernd Naujoks (IS-mainz)
	Life cycle analysis for steel construction products Jean Sebastian Thomas (ArcelorMittal)
13.15	End of the Congress
13.15 – 14.00	Buffet
14.00 – 16.00	EPAQ General Assembly   Room "Discovery"

Registration fee: 250,00 €  
 For registration and detailed congress information, please visit the websites: [www.epaq.eu](http://www.epaq.eu) · [www.panandpro.eu](http://www.panandpro.eu)  
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# Schedule

- September 15<sup>th</sup> 2010** EASIE 5<sup>th</sup> meeting of the Management Committee, Porto (Portugal)
- September 16<sup>th</sup>-17<sup>th</sup>** PAN & PRO Europe and EPAQ annual congress, Porto (Portugal)
- March 24<sup>th</sup> 2011** Second workshop, Barcelona (Spain)
- June 9<sup>th</sup> 2011** Third workshop, Crakow (Poland)

For more information : [www.easie.eu](http://www.easie.eu)