

NEW GLAS
MINERAL WOOL
PRODUCTS
NOW IN TS
AND OEM

CUSTOMER MAGAZINE

01/2019

Page 2

**GLOBAL INSULATION
COMPANY OF THE YEAR 2018**

Page 4

**COMFORTABLY SAILING
UNDER THE ECOSE® FLAG**

Page 6

**NEW BIM OBJECTS
FOR TS PRODUCTS**

KNAUFINSULATION
Systems Division

challenge.
create.
care.

SYSTEMS DIVISION NURTURING PARTNERSHIP

Knauf Insulation Systems Division combines technological expertise, innovative experience and digital insight to create the solutions customers will need to face the challenges of tomorrow.

Saša Bavec (left) Managing Director Knauf Insulation System Divisions and Tomaž Lanišek, Finance & HR Director Systems Division cutting cake at the Knauf Insulation Experience Center opening in Škofja Loka.



Systems Division, launched in 2018, brings together cutting-edge technology, innovative research, digital expertise and creative processes from our **OEM, Technical Solutions, Urbanscape® Green Solutions and Knauf Insulation Building Science business** units to provide best solutions for our customers under one roof.

FOCUSED DIVISION

We are a customer oriented platform of highly experienced specialists in research and development providing the latest digital technology from 3D modelling and printing to fibreinjection

moulding and robotic technology. Creating innovations to fulfill our customers needs is our goal. "We listen. We explore and we test options. If necessary we leverage our global knowledge base to find the best solutions," explains Saša Bavec, the Managing Director for Knauf Insulation Systems Division. "We are exceptionally proud of our expertise, but for our customers that knowledge is a given. What they want is something that is meaningful and successful for them. That is why we focus on innovative partnerships with our customers to develop the optimal products they need."

NEVER FELT BETTER



ECOSE® TECHNOLOGY – AN INNOVATION THAT SETS THE STANDARDS

In 2009, 10 years ago, we introduced a significant step change in glass mineral wool insulation through the introduction of our binder technology, ECOSE® Technology. From 2016 we are also using it in one part of the production of rock mineral wool.



Knauf Insulation Technical Solutions – the first one in the industry where the whole product range is produced with our natural binder ECOSE® Technology.

Since the introduction for HVAC applications in 2016, our products with ECOSE® Technology have been refined and dedicated to high performance requirements in Technical Insulation. The excellent technical and fire performance characteristics of the naturally brownish colored insulation materials remain at constant high level. On top the new product range grants benefits in handling and sustainability compared to mineral wool with standard phenol-formaldehyde binder.

ECOSE® Technology was the result of five years of intensive research and testing; part of our ongoing desire to provide customers with innovative products which also meet the growing market demand for more sustainable construction materials. Today our revolutionary, award-winning innovation ECOSE® Technology reduces the impact on environment through lower embodied energy, replaces conventional phenol-formaldehyde resin binders and is responsible for the brown color of our glass wool, which is produced without the addition of colorants.

WHAT DOES THE NAME ECOSE® STAND FOR?

The name embodies the ecological and sustainable components of the binding agent technology. The abbreviation (ECOLOGical, Sustainable, Environmental) highlights the importance of this scientific breakthrough.

ECOSE® Technology triggered a trend in the entire industry. Today, the focus is placed on the components and processing of insulating materials – not only by manufacturers, but also by planners and craftsmen. Knauf Insulation has won numerous important awards in recent years for its unique binder for mineral wool insulating

materials. As well as the usual benefits from our traditional mineral wool, Knauf Insulation mineral wool with ECOSE® Technology offers:

- No added Formaldehyde
- Low product emissions – confirmed by Eurofins Indoor Air Comfort Gold test results
- Lower embodied energy
- Lower environmental impact*
- Softer feel*
- No artificial dyes added

* Based on customer surveys and life-cycle assessment compared to our traditional mineral wool.

OBTAINED CERTIFICATES ARE CONFIRMING THE VALUE OF OUR INNOVATION

Indoor Air Comfort Gold Certificate

Knauf Insulation is the first company in the world to receive the prestigious Indoor Air Comfort Gold certificate from Eurofins. The golden seal of approval underlines that the products meet all European criteria for indoor air quality.



TAKE A PART OF OUR
ECOSE-EXPERIENCE
AND WIN GREAT PRIZES!

How it works:

1. Test our ECOSE® Technology products
2. Upload your Foto or Video about your experience on ecose-experience.com
3. Share it with friends & family
4. And win great prizes*!

* Please note the terms and conditions of participation on www.ecose-experience.com.

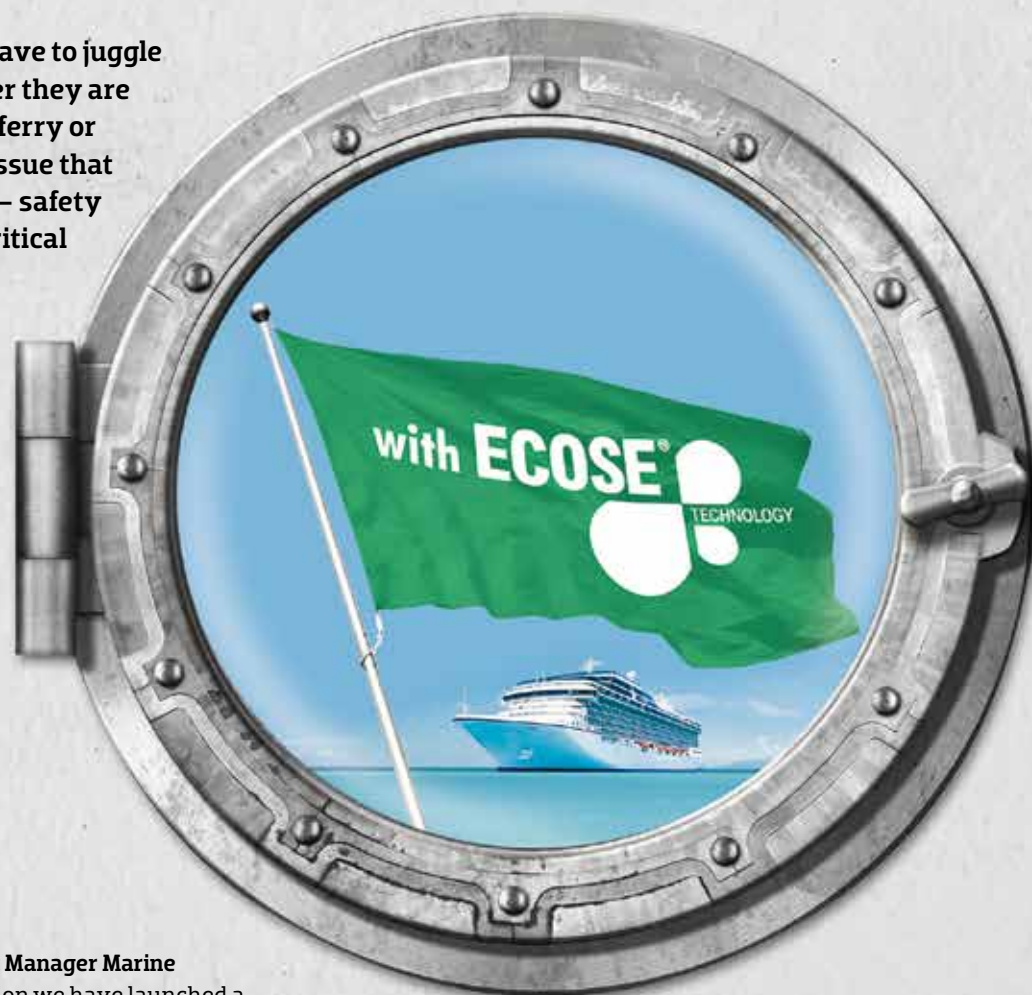


ECOSE-EXPERIENCE.COM

SAFETY AT SEA COMFORTABLY SAILING UNDER THE ECOSE® FLAG



Ship owners and specifiers have to juggle countless challenges whether they are building a motorboat, yacht, ferry or cruise ship, but there is one issue that always overrides all others — safety at sea. And one of the most critical issues of all is fire safety.



Pavol Harmanos

Sales and Market Manager Marine

At Knauf Insulation we have launched a Marine Management Commercial Section along with a new range of Sea-teK® solutions which are designed to provide outstanding product performance in order to contribute to passengers comfort and offer exceptional fire protection.

Fire safety is a key component of any vessel's design, especially in the passenger segment, whether it is a yacht or a massive 6,000-passenger cruise liner," says Pavol Harmanos our Sales & Market Manager Marine.

"That's why our specially developed Sea-teK® product range is non-combustible with variety of products certified for A-15, A-30 and A-60 fire insulation of steel decks and bulkheads, according to rules and regulations of the International Maritime Organisation (IMO 2010 FTP Code)."

Internal comfort, particularly good air quality, is another incredibly important issue in shipbuilding especially for cruise liners that carry thousands of passengers in relatively small cabins. All Sea-teK® products feature our revolutionary ECOSE binder

which means no formaldehyde, acrylics or phenols are added during their manufacture. In addition, they are certified by Eurofins Indoor Air Comfort Gold as an "outstanding material" according to Volatile Organic Compounds and Indoor Air Quality emissions standards. Considering that cruise passengers will spend a great deal of time in their cabins, this is highly reassuring.

In the communal areas of the ship, as well as individual cabins, there are different source of noise. Effectively reducing this noise is another challenge in order to achieve passenger's well-being. An excellent acoustic properties of Sea-teK® products helps to reduce amount of reflected noise, but also noise passing true the structural ship elements such as decks and bulkheads, corridors, etc.

Finally, the low thermal conductivity of Sea-teK® product range helps to achieve pleasant temperature comfort as well as contribute to energy savings on heating and air conditioning.

KNAUF INSULATION WAS AWARDED A GLOBAL INSULATION COMPANY OF THE YEAR 2018



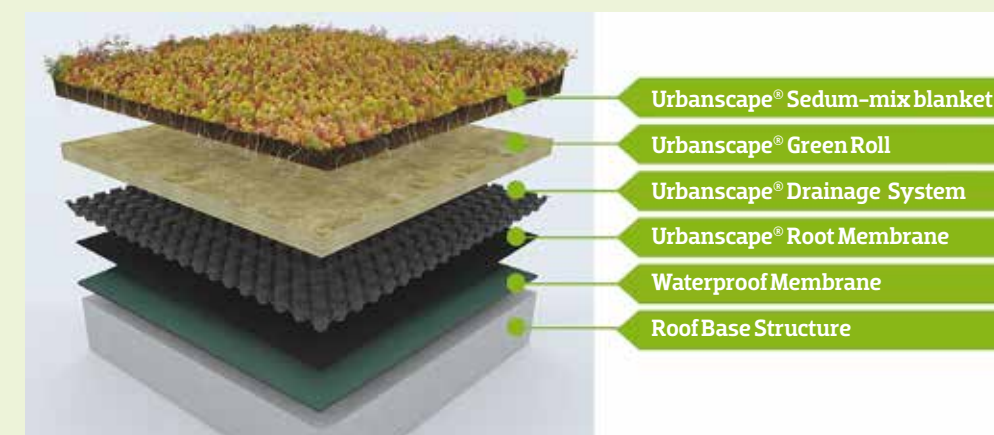
In Wien, at the 13th annual Global Insulation Conference, visited by 160 delegates from all over the world's leading companies, Knauf Insulation was honored as a Global Insulation Company of the year 2018. This is our 2nd award; in 2009 our revolutionary Ecosse Technology was awarded as Global Insulation Product of the Year.



PICKING FRUITS OF HARD WORK

"These awards are an incredible tribute to the hard work of everyone at Knauf Insulation especially in the light of such quality competition", emphasized our CEO Jean-Claude Carlin. » Being awarded Global Insulation Company of the Year 2018 recognises our commitment to creating solutions to challenges facing customers, colleagues and the planet. **This is an award that shows we care — something we should all be proud of,**" added Mr. Carlin.

URBANSCAPE® GREEN ROOF SYSTEM WAS NOMINATED FOR 2018 GERMAN FEDERAL ECODESIGN AWARD



Great information from Germany: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety nominated our Urbanscape® Green Roof System for the Federal Ecodesign 2018 Award.

The German Federal Ecodesign Award, which was launched in 2012, recognises innovative products and concepts that embody high ecological and aesthetic aspirations. The interdisciplinary jury nominated just 24 projects from the sectors architecture, energy, communication, household, interior, transportation and fashion available on German market. Our Green Roof System was nominated in Product category, together with 8 other nominees and the only one

from insulation industry, what makes us incredibly proud. At the Award Ceremony, Mrs. Svenja Schulze, the Federal Minister for the Environment, clearly stated that the aim of this federal prize is to honour products and services which help to avoid plastic or general waste and can be at the same time used in everyday life. We didn't make it this time, but our goal still stays the same: To design climate sensitive green roofs and at the same time fight for better, greener and healthier environment! The Eco Design Award is developed by IDZ Internationales Design Zentrum Berlin and supported by German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.



INNOVATION WITH THE CREATION OF BIM-OBJECTS

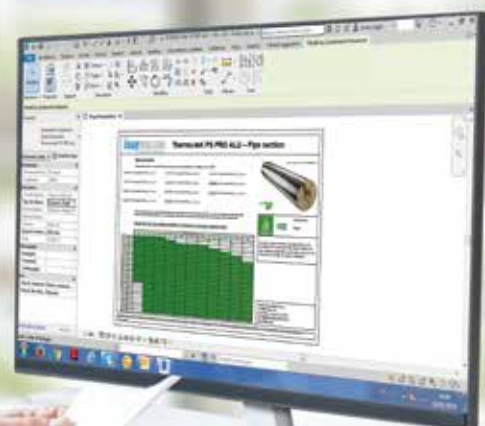


Ing. Laura Raggi
Specification Manager
TS Europe

Building Information Modelling (BIM) is an innovative method of designing, increasingly gaining importance in Europe. It allows to include all the relevant information of a project in a virtual building model. The final result is a 3D model that offers a clear picture of the design bottlenecks and project complexity. This enables to flag possible errors in the construction process at an early stage, which effectively controls possible extra costs. BIM is an innovative and efficient method of working, which furthermore benefits the overall quality of the design. Always keeping up with innovation, Knauf Insulation Technical Solutions has developed BIM objects for the Thermo-teK (HVAC insulation) and Fire-teK® (fire protection for air ducts) ranges in order to allow specifiers to save valuable time and to offer smart solutions that meet their needs and can be integrated in their BIM projects. In addition to simple and ready-to-use BIM objects, an innovative tool for the selection of our materials will be provided. This service facilitates the daily job of specifiers and planners with BIM and let them to enhance their projects with high-quality technical insulation products.

NEW! BIM WEBINARS PLANNED FOR 2019

Completely cost free, mainly addressed to planners and specifiers, the webinars will provide practical knowledge about BIM on the Revit platform. Soon more on www.ki-ts.com



ENVIRONMENTAL DECLARATIONS EPD FOR OUR ECOSE PRODUCTS

At Technical Solutions we believe that our products should be not only strong in performance, but also gentle to the nature. In addition to legal documentation fulfilment, we provide also a transparent picture of all impacts that our products and their production have on the environment. TS products are now almost 100 % in Ecosse®. High quality of the binder can be now reflected also in EPD documentation. New generation of EPDs (Environmental Product Declaration) is just about to be realised. First products with classified environmental impacts are from Thermo-teK segment. We haven't chosen these products just coincidentally. The selection stems from sharply increasing demand of this type of certificates in "green buildings" (LEED, BREEAM, WELL, ...). Our HVAC products are a solid part of these eco buildings and now we have also this up-to-date supporting documentation.

FIRST ECOSE PRODUCTS WITH EPDS WILL BE FOLLOWING:

- Thermo-teK PS Eco ALU
- Thermo-teK LM Eco ALU
- Thermo-teK PS Pro ALU
- Fire-teK BD 912 ALU



ISO-WIKI:

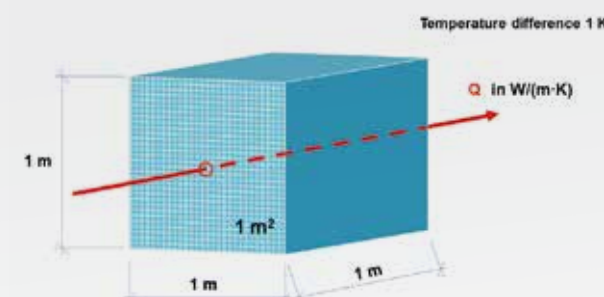
THERMAL CONDUCTIVITY



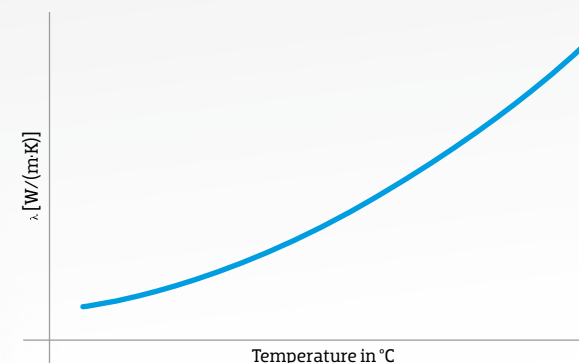
Dipl. Ing. Andreas Regel
Head of Specifications Manager
TS Europe
Senior TipCHECK engineer

Thermal conductivity indicates which amount of heat (Q) that can move through a cross section of 1m² and through a 1m thick layer of a substance at a constant temperature difference from 1K. Thermal conductivity is expressed as watts per meter and Kelvin [W/(m·K)], and the symbol is the Greek Letter lambda (λ). The lower the value of the thermal conductivity is, the better the insulating effect of the material. Thermal conductivity can vary widely for each material, and additionally it is dependent on the temperature difference between one side and the other. Therefore, the thermal conductivity is a temperature dependent material property.

ILLUSTRATION OF THERMAL CONDUCTIVITY



TYPICAL THERMAL CONDUCTIVITY CURVE FOR MINERAL WOOL



EXPER-TEK®

USE OUR ONLINE TOOL FOR
THERMAL CALCULATIONS,
ENERGY SAVINGS –
QUICK AND EASY!

EXPER-TEK:
WITH NEW
LOOK AND
FEEL!



- Intuitive and easy to use guidance
- Online at any time and free of charge
- Uncomplicated calculation of heat losses and energy costs in 5 steps
 - VDI-certified / ISO 12241 calculation methods
- Available in various languages
- Now also for HVAC installations

WWW.EXPER-TEK.ONLINE

FULL INSULATION POWER WITH LESS LAYERS: POWER-TEK RL 150



With its new product **Power-teK® RL 150** Knauf Insulation provides a new solution

for heat storage tanks and similar applications that require a relative thick insulation, but have below average demand regarding maximum service temperature. The product is based on high quality Mineral Wool and features Ecos® Technology. For easy transport and sustainable logistics the slabs are delivered as highly compressed rolls. Key advantage compared to when traditional products is the option to achieve the required insulation thickness at a **reduced number of material layers**. This results in lower installation labor installation labor cost without any compromise on insulation performance. The product range is from **140-300mm** thickness; this, as an example, allows to build a total thickness of 500mm with just two layers of 250mm each.



SAVING
IN
LOGISTICS



SAVING
IN
MONEY



SAVING
IN
TIME

KNAUF INSULATION SPA BOARD: CLAY BRICKS WITH OUR NEW GLASS MINERAL WOOL INSULATION MATERIAL

Insulated Clay Bricks are mainly used in residential areas for multi-family houses and small apartment houses, and seldom for non-residential buildings. With great pride, we can announce that our new product Knauf Insulation SPA Board in Glass Mineral Wool technology was launched. The material is produced in patented ECOSE® Technology. Due to its thermal and acoustic properties SPA Board is suitable especially for use in insulated Bricks.

Main advantages of our product are:

- Excellent thermal conductivity ($\lambda d = 0,031 \text{ W/m}\cdot\text{K}$)
- Non-combustibility (Euroclass A1)
- Excellent sound absorption and insulation
- Mechanical stability throughout its lifetime
- Hydrophobic properties help resist external influences (condensation)

λ
0,031

URBANSCAPE® GREEN ROOF SYSTEM

Sloped Green Roofs becoming an increasingly important factor in modern infrastructure. In the case of sloping green roofs, same as in flat roofs, we are not only looking at the aesthetic aspect, but also on the energy and water regime of green infrastructure on buildings. Green roofs help to provide additional green space in urban areas with limited open space and add value to buildings. When installing sloping green roofs, the following measures must be taken into account:

- a reliable and permanently functioning anti-slip system
- appropriate choice of vegetation in the form of pre-cultivated blankets.

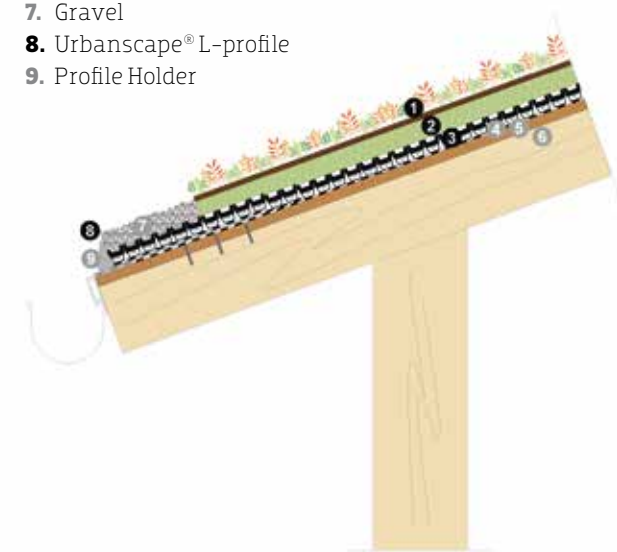
WHAT ABOUT WEIGHT?

In older buildings or new-build this may require costly structural reinforcement which in some cases may prove prohibitively expensive. The solution is simple. If the weight of the green roof is reduced the need for structural reinforcement is also reduced. Sedum vegetated green roof designed by Urbanscape is much lighter than traditional green roof systems. This lightness means most buildings have a comfortable load-bearing capacity that is sufficient and architects can even plan green roofs where it had not been possible.

URBANSCAPE GREEN ROOF SYSTEMS REPRESENT TWO DIFFERENT BASIC SOLUTIONS FOR SLOPED ROOFS:

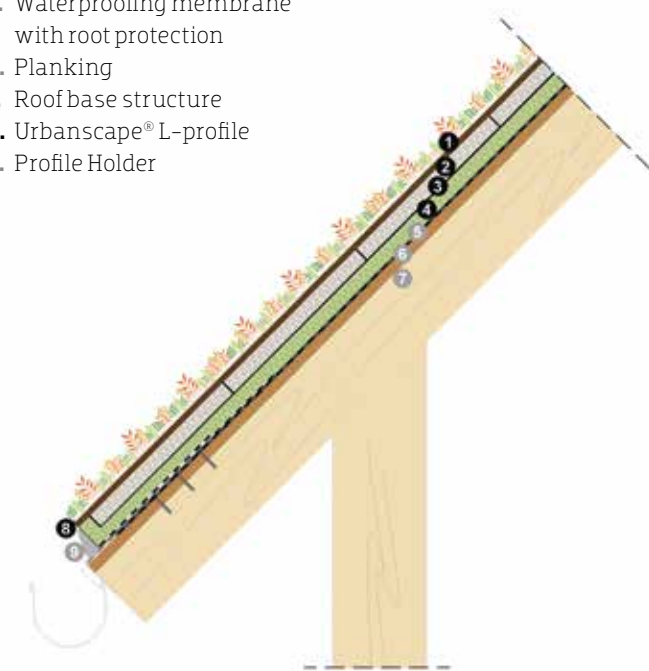
Urbanscape Green Roof System for slopes up to 20°

1. Urbanscape® Sedum-mix blanket
2. Urbanscape® Green Roll 4 cm
3. Urbanscape® drainage layer with buffer
4. Waterproofing membrane with root protection
5. Planking
6. Roof base structure
7. Gravel
8. Urbanscape® L-profile
9. Profile Holder



Urbanscape Green Roof System for slopes 20°-45°

1. Urbanscape® Sedum-mix blanket
2. Lightweight Green Roof Substrate
3. Urbanscape® Substrate holder
4. Urbanscape® Green Roll 4 cm
5. Waterproofing membrane with root protection
6. Planking
7. Roof base structure
8. Urbanscape® L-profile
9. Profile Holder

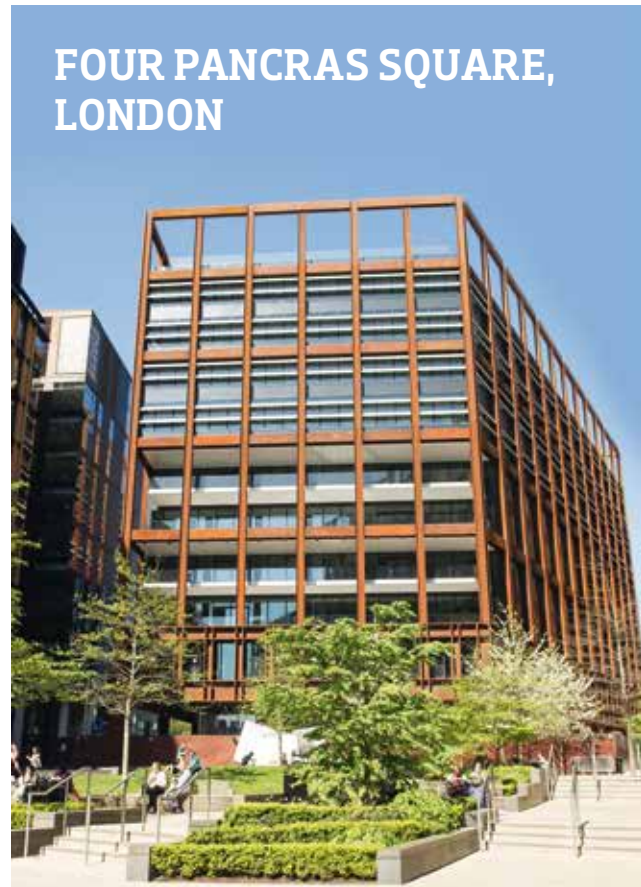


DOLLAR BAY apartment complex and 4 PANCRAS SQUARE OFFICE BUILDING in London: 2 very nice examples on what can be done if our insulation materials are cut to very exact dimensions.

Our **Knauf Insulation CNF Board D7**, produced in Skofja Loka (Slovenia) and cut to exact dimensions in our converting unit (Knauf Insulation Customized Solutions) in Ajdovščina (Slovenia) was installed into the aluminium cassette panels, used **on both facades**.

Both of the buildings have one thing in common: its facades are made of aluminium cassette panels and manufactured by Focchi Group, a leading company in the curtain walling sector, engaged in the full cladding process from design, manufacture, delivery and site installation.

FOUR PANCRAS SQUARE, LONDON



The office and retail building is located on the edge King's Cross, and is part of a complex of nine office buildings with a total surface area of approx. 186,000 m². Featuring an innovative structural weathering steel exoskeleton against a backdrop of aluminium and ceramic cladding, the new build draws on the industrial heritage of the area but seeks to set a lasting visual and architectural reference for London.

2017 London Design Award, Residential Constructed – Gold Winner
Dollar Bay is one of the most recent apartment complex developments (125 luxury apartment units), which originates from 1807. It is located in the new and fast-developing financial centre of London, the Isle of Dogs. Its stunning glass façade, reflecting the ever-changing light, is shaped by a strong contemporary concept and it represents a striking addition to London's impressive skyline.

DOLLAR BAY, LONDON



BIOGAZ POWER PLANT



Thermal insulation of pipelines for Biogaz power plant, located in Paris region, was realized in collaboration with POUJAUD, part of ALTRAD Group, one of the main insulation companies in France. Knauf Insulation supported the project with 2.800 ml of Power-teK PS680 and PB 680. ECOSE® Technology, innovative approach that substitutes formaldehyde binder in the mineral wool with rapidly renewable bio-based materials, was a crucial decision point for the investor to choose Knauf Insulation environmental friendly products.

AMPO is an international leader in stainless steel and high alloy castings as well as in highly engineered valves for the most severe applications and industries. Their heartfelt commitment to the environment moves them to constantly monitor all processes that affect production and to introduce renewable energy sources on the development of new plants with the aim of minimizing any possible impact on the environment. In order to promote sustainable buildings, AMPO has decided to implement sustainability strategies in the expansion of its Machining Plant in Idiazabal, Spain, applying for LEED Gold certification and following certifications granted by the U.S. Green Building Council Spain (USGBC). It's equipped with Urbanscape Green Roof System Premium High with built-in irrigation system.



AMPO HEADQUARTERS, IDIAZABAL, SPAIN

ALL INFORMATION ABOUT OUR PRODUCTS & APPLICATIONS ARE AVAILABLE ON:

WWW.KI-TS.COM

WWW.OEM.KNAUFINSULATION.COM

WWW.URBANSCAPE-ARCHITECTURE.COM



KONTAKT/HERAUSGEBER: Knauf Insulation d.o.o. · Varaždinska 140 · 42220 Novi Marof · T +385 42 401300 · ts@knaufinsulation.com · www.ki-ts.com

UNTERNEHMENSPROFIL Knauf Insulation ist mit seinen 40 Jahren Erfahrung einer der renommiertesten Namen in der Dämmstoff-Industrie und wächst weiterhin rasch. Zum Unternehmen gehören 5.500 Mitarbeiter in mehr als 35 Ländern und 38 Produktionsstätten. Als Teil der Knauf-Gruppe im Familienbesitz bietet Knauf Insulation Technical Solutions Lösungen für die Kundenbedürfnisse in der Industrie, in Marineanwendungen und im Bereich Heizung, Lüftung und Klimatechnik. Durch unser tiefgreifendes Marktverständnis und das Hintergrundwissen zu Dämmstoffen verfügen wir über ein breites Produktportfolio für Ihre besonderen Anforderungen. Alle Rechte vorbehalten, einschließlich der fotomechanischen Wiedergabe und der Speicherung in elektronischen Medien. Die kommerzielle Nutzung von Prozessen und Arbeitsaktivitäten, die in diesem Dokument vorgestellt werden, ist nicht erlaubt. Bei der Zusammenstellung der Informationen, Texte und Abbildungen in diesem Dokument haben wir größte Sorgfalt walten lassen. Fehler können jedoch nicht ausgeschlossen werden. Der Herausgeber und die Redakteure können keine rechtliche Verantwortung oder Haftung für fehlerhafte Informationen und daraus folgernde Konsequenzen übernehmen. Der Herausgeber und die Redakteure sind für Verbesserungsvorschläge und Hinweise auf Fehler dankbar.