

# INSPI RATI ON

TROLDTEKT®  
NATURAL  
ACOUSTIC  
SOLUTIONS

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In this magazine you will find 16 buildings where the combination of design and acoustics creates first class international architecture.

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1. edition  
October 2016

**Publisher:**  
Troldekt A/S  
Sletvej 2A  
DK - 8310 Tranbjerg J  
info@troldekt.dk

**Editors:**  
Tina Snedker Kristensen  
Publico

**Photo:**  
Tommy Kosior  
Force4 Architects  
Philip Vile  
Maria Bax  
Shikun & Binui  
Thomas Mayer  
S W Photography  
Peter Würmli  
Werner Huthmacher  
Alastair Lever  
Lendlease  
Vanrit  
Hufton + Crow

**Text:**  
Force4 Architects  
Christopher Sykes, Pressential LLP  
Olaf Wiechers  
Publico

**Layout:**  
Tommy Kosior  
INEO



# INSPIRATION TROLDTEKT® NATURAL ACOUSTIC SOLUTIONS

Working, learning, dining, living... No matter what purpose a building serves, the architectural quality, good acoustics and healthy indoor climate contribute to the best possible user experience.

This magazine introduces you to a range of different projects which have Troldekt acoustic solutions. These range from an award-winning educational centre to Google's new European headquarters which contains some of the most extraordinary interiors imaginable.

On the following pages, you will also meet David Basulto, architect, chief editor and co-founder of ArchDaily, the world's most visited architecture website. He shares his thoughts on current trends in international building design.

Enjoy the inspirational tour!



# A celebration of wood wool

Troldtekt A/S launched the WOOD WOOL AWARD in 2015, celebrating 80 years of the acoustic product Troldtekt. The purpose was to celebrate the use of wood wool in contemporary architecture.

Wood wool is a natural material which ensures good acoustics, a healthy indoor climate and unique aesthetics. The purpose of the WOOD WOOL AWARD 2015 was to honour contemporary architecture where wood wool based acoustic solutions support and enrich the architectural design.

The competition was open to architects and designers from all over the world, who were invited to submit one or more of their own projects with visible wood wool acoustic solutions. There was no requirement regarding the building's character or the manufacturer of the wood wool solution, but the project had to have been completed in 2012 or later.

The jury panel comprised three internationally renowned architects: Mikkel Frost, Co-founder and Partner at CEBRA A/S (DK), David Basulto, Co-founder and Editor in Chief at ArchDaily (CHL), and David Gianotten, Managing Partner-Architect at OMA (NL).



## Winners of the WOOD WOOL AWARD 2015

A beautifully located nature and culture facility – and a modernised sports centre. These two buildings in Denmark and Germany were chosen as the winning entries for the WOOD WOOL AWARD 2015.

**Force4 Architects** in Copenhagen won in the category 'Manufactured by Troldtekt' with the new nature and culture facility in Krik, on the north-west coast of Jutland.

The materials inside have been carefully selected. In respect for the natural beauty of the outside areas the space is kept as minimalistic as the exterior building. The Troldtekt panels provide the room with not only great acoustic performance, but also a simple and natural interior cladding.

Force4 Architect's nature and cultural centre in Krik was one of the two winning projects in the WOOD WOOL AWARD 2015.

**4a Architekten GmbH** in Stuttgart won in the category 'Other manufacturer'. Their winning entry was a refurbished Sports Centre in Leonberg.

This project proves the durability of wood wool panels and the suitability of the material for use in sports halls and wet areas such as swimming pools. Furthermore, the wood wool panels in multiple colours are used not only as acoustic wall and ceiling cladding but also serve as decorative elements and direction finders.

## Raw natural materials create warmth and intimacy

**David Basulto is an architect, chief editor and co-founder of the world's most visited architecture website, ArchDaily.com. Read his thoughts on current trends in international building design.**

### What trend in the choice of materials in architecture would you particularly highlight?

An interesting trend is the use of local materials, in a raw state. This is perhaps less known in developed countries, but in other contexts the use of raw materials – wood, artisanal brick, stone – that come from a nearby forest or quarry has led to an interesting aesthetic that inspires architects in other countries.

An example is the use of bricks in Paraguay by architects such as Solano Benítez or Javier Corvalán.

### What impact can the choice of materials have on a building's expression?

Continuing with the raw state of materials, by combining them with building products you can achieve more warm interiors that

still maintain this raw aesthetics, but without appearing nude or uncomfortable.

An example is the cultural centre that recently won the WOOD WOOL AWARD. Here, the use of wood wool turns a space that is very raw into a comfortable space for its users.

### Function and aesthetics – do architects want to combine these two factors?

It is easy to lose focus when specifying materials to comply with certain requirements – technical, energy, etc. You can end up with a mix that does not have a character. And this is an important challenge for architects. The real "less is more"-issue.

It is all about how to get a material to stay true to its function while being an element of the building's aesthetics. Take a

ceiling for example that has to deal with installations, sound-proofing and acoustics. How can you achieve all these requirements in the simplest way possible?

### How is the current focus on sustainability impacting on the choice of materials?

We are becoming more aware of our footprint, and with the amount of waste we see in the world we as architects are becoming more aware of the life cycle of our buildings.

If we can reduce this, by the scale of our work, we can surely have a positive and measurable impact in the environment. That is why choosing materials that have a low impact, that can help a building to perform better, or that are recycled, is crucial today.



### David Basulto

David Basulto is an architect and chief editor and co-founder of ArchDaily, the world's most visited architecture website. Visit [www.ArchDaily.com](http://www.ArchDaily.com).



### A flexible interior space

The Krik building is formed as a reinterpretation of the simple and traditional pitched roof house. The majority of the building comprises a single large common open space that spans the entire length of the house. There is a centrally placed fireplace and an open kitchen. Each end has a section with changing room, bath and toilet.

From the large common room there is access to the bed loft. In a simple way, the interior space is flexible, well suited for different cultural events and can be used for smaller groups such as windsurfers, school classes or other visitors to Thy National Park.

The materials inside have been carefully selected. In respect for the natural beauty of the outside areas the space is kept as minimalistic as the exterior building. The material choice thereby represents a simple consistency and leaves space for the real attraction - the view. ■

**Project:** New nature and cultural centre in Krik, Denmark

**Architects:** Force4 Architects

**Client:** Thisted Municipality

**Awards:** Winner of the Wood Wool Award 2015 in the category "Manufactured by Troldekt"

#### Troldekt products:

**Ceiling and wall panels:** Troldekt acoustic panels

**Colours:** Painted white 101

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** Square edges, K0-N, installed with concealed KN-brackets

## Close to nature and a play of colours

The building's design and surfaces are modern yet it fits perfectly within its surroundings. Welcome to the nature and cultural centre in Krik.

Text and photos: Force4 Architects

The cultural centre stands as a landmark within the wind-swept landscape and functions as a base in which to enjoy and explore the raw and beautiful nature of the area. It provides new life and cultural opportunities to the Fjord and the town, inviting everyone to experience its beauty.

When the Centre was built, it was essential to acknowledge the context of the rural landscape of Thy National Park. The architecture is directly inspired by the old barns and warehouses that existed throughout the area many years ago.



# A sophisticated and sustainable 'Shed'

For both acoustic and environmental reasons Trolldtekt acoustic panels were installed throughout The Shed, a temporary venue for London's famous National Theatre on the South Bank of the River Thames.

Text: Christopher Sykes, Pressential LLP  
Photos: Philip Vile

For both acoustic and environmental reasons Trolldtekt acoustic panels were installed throughout The Shed, a temporary venue for London's famous National Theatre on the South Bank of the River Thames.

The temporary theatre, with its dramatic simple form and bright red colour, was conceived by architects Haworth Tompkins in collaboration with theatre consultants Charcoalblue. "We talked about an empty space for total flexibility; then Charcoalblue came up with a model of a perfect little octagonal theatre with a gallery and everyone fell in love with it," said Paddy Dillon, Associate Director of Haworth Tompkins.

The result was a space designed to be as low-energy, sustainable and recyclable as possible, in recognition of its one-year lifespan. This highly innovative sustainable approach to the design made use of natural ventilation, LED theatre lighting fixtures, stage floor and galleries constructed from reusable modular panels and seating borrowed from the Cottesloe Theatre itself.

The Shed housed a 225 seat auditorium made of raw steel and plywood. Its modelling together with its red rough sawn timber cladding both echoed and contrasted with the bold board-marked concrete and geometry which denoted the exterior of the National Theatre itself.

Like all theatres, good acoustics is a major consideration. Here, the most effective solution for the NT Future redevelopment has been the installation of 1,100 sqm PEFC certified Trolldtekt acoustic panels with ultrafine structure.

The Shed operated throughout the Cottesloe's refurbishment but was dismantled following its reopening (as the Dorfman Theatre) in Spring 2014. The temporary, new space was connected to the National Theatre's foyers, thereby enabling it to share these facilities with the Lyttelton and Olivier Theatres. ■

**Project:** The Shed, London, England, UK  
**Architects:** Haworth Tompkins  
**Client:** National Theatre  
**Awards:** Blueprint Best Sustainable Project Award, Chicago Athenaeum International Architectural Award, RIBA London Regional Award, AIA UK Excellence in Design Award, Architizer A+ Award, Civic Trust Pro Tem Special Award, Civic Trust Award, Peter Brook Award, German Design Award: Gold, New London Award: The Temporary

**Trolldtekt products:**

**Ceiling panels:** Trolldtekt acoustic panels  
**Colour:** Painted black in situ  
**Structure:** Ultrafine (1.0 mm wood wool)  
**Edge design:** Square edges, K0, installed with Trolldtekt screws





## Books, blues – and a beautiful building

In collaboration the architectural practices of Børve and Borchsenius, Askim / Lantto and Dronninga Landscape won an international architectural competition to design a cultural centre for the Norwegian city of Notodden.

Text: Christopher Sykes, Pressential LLP  
Photos: Tommy Kosior

The brief from the municipality of Notodden was to design an inviting landmark with a very high degree of openness between the floors and good views across the waters of the Heddalsvatnet and the city. It is a good example of a public building where over 3200 sqm of Troldekt white painted acoustic panels in fine structure have been installed on ceilings and walls to absorb reverberated sound from the hard surfaces and to reduce echoes and noise from heavy visitor traffic.

The Book and Blues centre comprises 5,225 sqm ranged over three floors. It incorporates several quite different functions under one roof – a library, a cinema, a museum, a school of music and performing arts, a blues venue, a recording studio and administration offices for local cultural institutions. In addition, an outdoor amphitheatre, to-

gether with beautiful landscaping, play areas and views make this building an important meeting place for the people of Notodden, both inside and out.

The design, inspired by former industrial buildings on the site, is simple and geometric but very dramatic with three large towers diffusing daylight down into the vestibule and public areas below. These well lit spaces enable visual contact between the building's different functions and provide great views of the surrounding landscape through large windows and glazed walls, particularly from the library. Throughout, great emphasis has been placed on using robust and maintenance-free materials. For example, 3,000 sqm of the facades are clad with vertical impregnated heartwood pine while the interior is largely a combination of wood, glass and concrete. ■



**Project:** Book and blues centre, Notodden, Norway  
**Architects:** Askim/Lantto Arkitekter AS and Arkitektkontoret Børve & Borchsenius  
**Client:** Notodden Municipality

**Troldekt products:**

**Ceiling panels:** Troldekt acoustic panels  
**Colour:** Painted white 101  
**Structure:** Fine (1.5 mm wood wool)  
**Edge design:** Square edges, K0, installed with Troldekt screws and K0-FS, installed with concealed T-profiles



# Embracing the spirit of a poet

The Norwegian writer and musician, Alf Proeysen, was one of the greatest poets of his generation. To commemorate his 100th anniversary in 2014, a private initiative raised the funds to create a new national cultural centre in his memory.

Text: Christopher Sykes, Pressential LLP  
 Photos: Tommy Kosior

Snøhetta architects were commissioned to design a building which would appeal both to adults and children and, at the same time, be a gathering point for young musicians and authors. The overall idea for the Proeysenhuset cultural centre was to continue Alf Proeysen as a storyteller through the house's visual character.

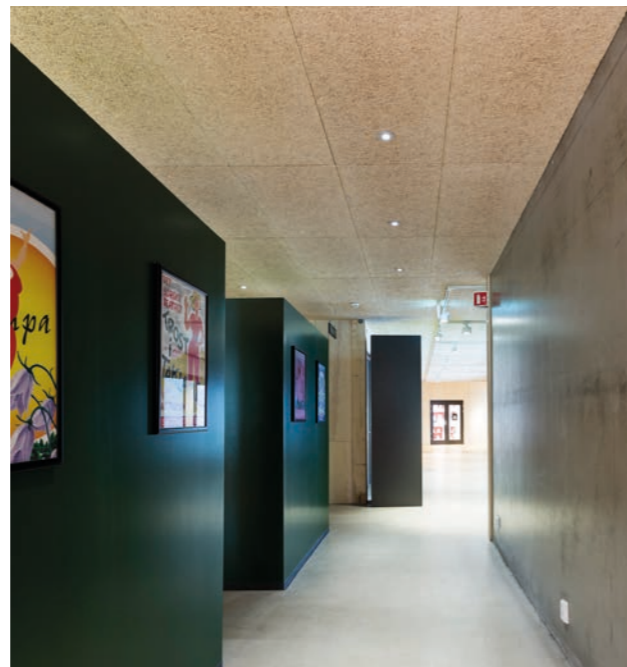
The 1,000 sqm building accommodates a small shop, a café with a fireplace and baking oven, as well as a terrace with view down to the old Proeysen farm, together with a theatre for about 200 people. This has a double aspect stage enabling shows to be seen also from the café. In addition, there is a permanent exhibition with smaller rooms, as well as a small library containing Proeysen books and publications. To access the centre, visitors are led along a very attractive boardwalk through the woods.

The outer skin is a cladding of treated pine wood battens in an uneven pattern plus colourful cement fibre panels with an acrylic finish. This creates a slight transparency into the underlying red facade which is exposed on the front of the

terrace and by the entrance. The atmosphere of the interior is unpretentious with solid wooden floors and plywood veneered walls and contrasting painted colours on fixed and loose furniture. Troldekt acoustic panels have been installed on the ceilings throughout to help create a noise free, attractive and healthy environment. ■

**Project:** Cultural centre, Proeysenhuset, Rudshoegda, Ringsaker, Norway  
**Architects:** Snøhetta Architects  
**Client:** Arthur Buchardt

**Troldekt products:**  
**Ceiling panels:** Troldekt acoustic panels  
**Colour:** Natural wood  
**Structure:** Fine (1.5 mm wood wool)  
**Edge design:** Square edges, K0, installed with Troldekt screws and K0-S and K0-FS installed with visible T-profiles





## Top tuned facilities for music and more

The famous music venue Doornroosje in Nijmegen has new premises with a range of special technical solutions after the architects AGS from Heelan designed a multi-purpose complex for the renowned venue which has just opened.

Text: Christopher Sykes, Pressential LLP  
Photos: Maria Bax

Doornroosje's new premises nestle between the bus station, the city's railway station, the local police station and a very busy thoroughfare with lots of cyclists. The complex has been built on the plot which previously housed the railway post office, and the project has been realised through a co-operation between Klokbouw (Nijmegen, NL), Ed Züblin (Duisburg, DE) and AGS (Heerlen, NL).

In addition to the new music venue, which has a large stage, a small stage and adjoining facilities, the complex also comprises 350 residential units for young people and a bicycle parking facility for 4,000 bicycles. Doornroosje opened at the beginning of 2016. ■

**Project:** New music venue, Doornroosje, Nijmegen, Netherlands

**Architects:** AGS architecten

**Troldekt products:**

**Ceiling panels:** Troldekt acoustic panels

**Colour:** Painted black 207

**Structure:** Fine (1.5 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5, installed with Troldekt screws





## Historical treasures in modern facilities

This attractive visitor centre and gallery is located within the headquarters of Shikun & Binui, in Airport City close to Tel-Aviv. The design maintains the company's principles of sustainability and green building.

Text: Christopher Sykes, Pressential LLP  
Photos: Courtesy of Shikun & Binui

The company is one of Israel's leading infrastructure and real estate groups, involved in large scale projects in Israel and overseas. These include the construction of residential neighbourhoods, commercial and public buildings as well as large ventures in the fields of transportation infrastructure, ecology, water purification and desalination.

The 250 sqm gallery, designed by architect Amit Namlich, celebrates the 90th anniversary of the Housing and Construction Group's work by bringing together a historic collection of treasures and original material from various sources. This includes archive material and personal testimonies from the beginning of the last century together with interactive exhibits, based on advanced technologies. The new facility will host both local and international audiences together with Group employees, customers and guests.

### Light and gaps create interesting effects

The Gallery's meticulous design maintains the company's principles of sustainability and green building. This is one reason for the use of acoustic ceilings installed using C60 profiles with Troldekt panels in the colour natural wood directly mounted. It also displays an interesting linear combination of strip lighting together with parallel gaps created by 40 mm black brackets.

The visitor centre reflects its form and its contents is the common thread in the glorious history of the Group and the Group's vision to act for future generations. The archive material and personal testimonies from the beginning of the last century, on the one hand, and interactive exhibits, based on advanced technologies, on the other hand, are held together in the centre, just as the past and the future fit into the daily work of all the group companies. ■

**Project:** Shikun & Binui Visitor Gallery, Israel  
**Architects:** Amit Nemlich  
**Client:** Shikun & Binui

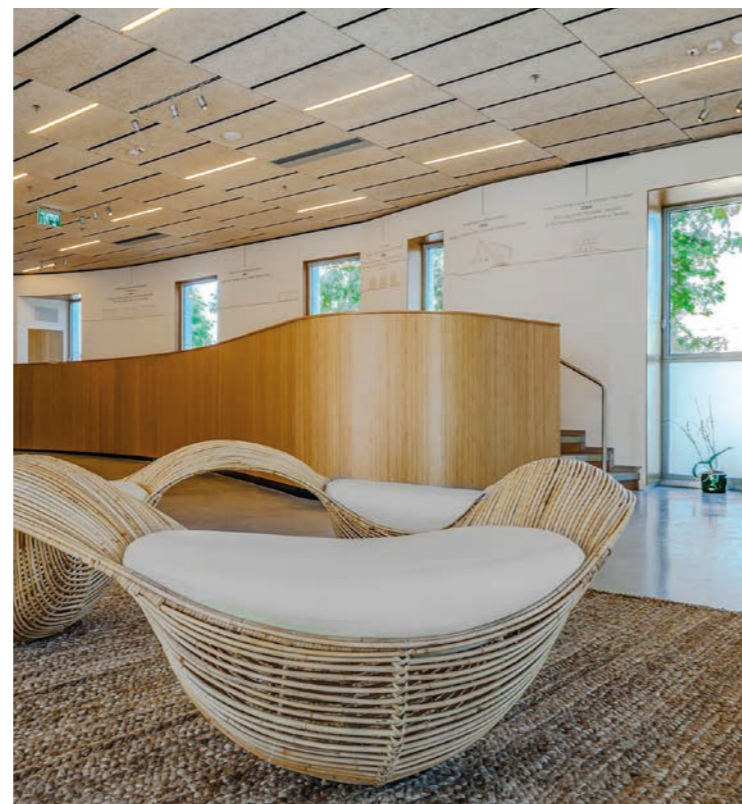
### Troldekt products:

**Ceiling panels:** Troldekt acoustic panels

**Colour:** Natural wood

**Structure:** Fine (1.5 mm wood wool)

**Edge design:** Square edges, KO, installed with Troldekt screws





## When control of sound is vital

The Astana Media Center, designed by Tabanlıoğlu Architects, was conceived as a stunning and distinctive media project, housing Kazakhstan national radio and TV studios and offices.

Text: Christopher Sykes, Pressential LLP  
Photos: Thomas Mayer

It is not only a significant structure but also a synergetic project designed to blend with the daily life of Astana and linking Kazakhstan efficiently to the rest of the world.

This stunning 22 storey high tower is one of the most striking buildings in Astana, a city that has been hailed worldwide

for its innovative and experimental architecture. It has become the country's chief technological broadcasting platform and meets all international standard requirements for creating high-quality films, TV and radio programmes, as well as organising concerts, press conferences and meetings.

The new facility aims to enhance the professionalism of TV journalism, television and filmmaking in Kazakhstan. The huge complex occupies 75,500 sqm with 7,000 sqm of studios and over 21,000 sqm of offices. There are 14 major television studio units, including facilities with the latest high-definition technology for creating TV series and round the clock news, plus 4 large audio recording areas together with a large contemporary concert hall in which orchestras, gala performances and other events can be staged.

Obviously, control of extraneous sound, echoes and noise is vital in any broadcasting facility where programmes are continuously being made at the same time as hundreds of people are visiting or being entertained. This is the reason why high performance acoustics and the control of sound were such an important consideration of the interior design and why 30,000 sqm of Troldekt acoustic panels in natural wood with an ultra-fine finish were installed. ■

**Project:** Astana Media Center, Kazakhstan, housing Kazakhstan national radio and TV studios and offices together with public entertainment facilities

**Architects:** Tabanlıoğlu Architects

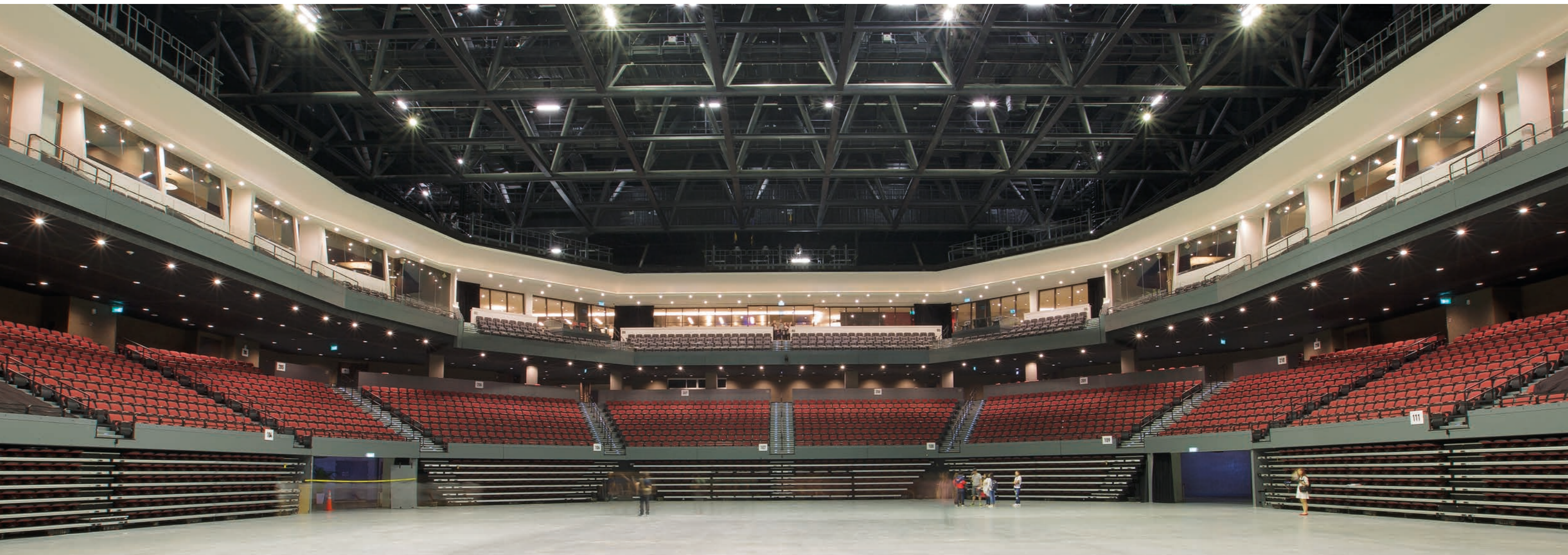
**Troldekt products:**

**Ceiling panels:** Troldekt acoustic panels

**Colour:** Natural wood

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5, installed with screws



## A labyrinth of pleasures

Studio City is the hotel and casino resort in Macau. It is Asia's first leisure resort to integrate television and film production facilities, gaming and shopping while offering luxury accommodation in its 1,600 rooms.

Text: Christopher Sykes, Pressential LLP  
Photos: S W Photography

The 3.2 billion dollar project, located on Cotai Strip, opened in 2015. It is claimed to be one of the world's very best global entertainment, iconic landmarks and resort experiences.

Architect Brad Friedmutter headquartered in Las Vegas has been responsible for some of the most expensive integrated resorts and casinos in the world and oversaw the design of the Studio City resort.

Set against a backdrop of Art Deco-inspired architecture, Studio City is a magnificent resort which encompasses a labyrinth of pleasures: a glamorous twin tower hotel, the very best entertainment venues for world-class performances, a global range of dining options, spectacular gaming areas and a wonderland of luxury shopping, all designed to bring the

visitor's wildest imagination to life. It also includes the "Golden Reel", Asia's highest Ferris wheel which straddles the hotel towers at a height of some 130 metres.

Obviously, the interiors are designed to reflect the different activities and atmospheres within, bearing in mind the noise and excitement which can be created by the chatter of thousands of visitors. Consequently, 6,300 sqm of Troldekt acoustic panels were specified for three particular areas – the Flying theatre, the very large Entertainment area and the TV studio – to absorb sound and provide the ideal environment. They were specified from Troldekt's Hong Kong distributor, Eurasia Architectural Products. ■





**Project:** Studio City Resorts, TV Studios, Flying Theatre and Entertainment Venue, Macau, China  
**Architects:** Brad Friedmutter, Las Vegas  
**Client:** Studio City Macau

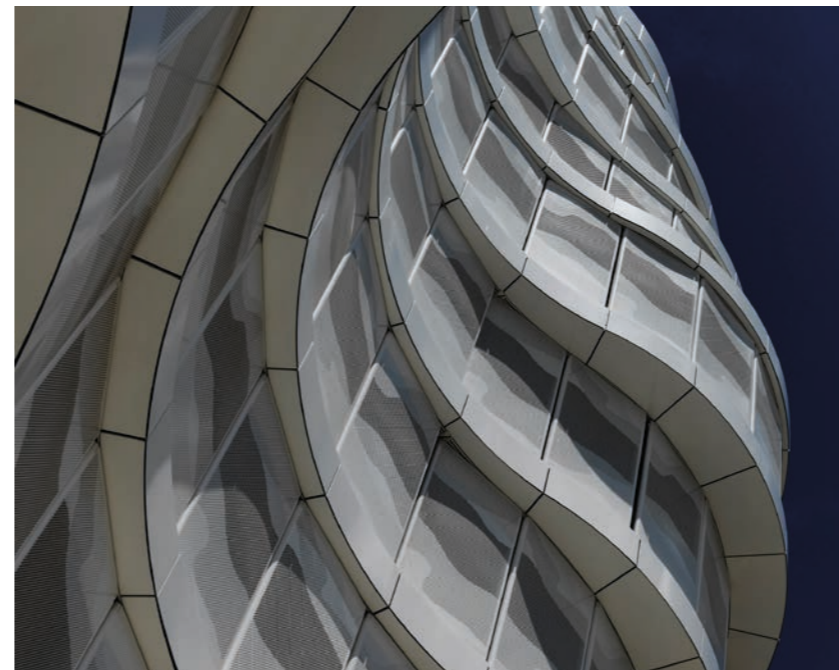
**Troldtekt products:**

**Ceiling panels:** Troldtekt acoustic panels

**Colour:** Custom grey and black 207

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5, and 5 mm bevelled edges and rebate, K5-F, installed with screws



## NOMA went down under for 10 weeks

The NOMA Pop-up Restaurant at Barangaroo near Sydney in Australia was most unusual - unusual because it was designed to operate only 10 weeks, just like another temporary one which popped-up for a short time in Tokyo.

Text: Christopher Sykes, Pressential LLP  
Photos: Lendlease

It was the initiative of famous Chef René Redzepi and his Danish team, designed and built in a few months by the Australian Design and Planning collaboration, lead by Lendlease and principal architect Darren Kindrachuk.

The restaurant covered about 500 sqm including the main kitchen, serveries and the dining area as well as an out-

door preparation space and guest lounge. With space for only 56 diners, 27,000 disappointed visitors were left on the waiting-list!

The idea of the restaurant was to interpret NOMA's bespoke culinary creations and give them a unique Australian identity. References to elements of the Australian landscape,

as well as Rene's in-depth investigation and sourcing of natural Australian ingredients, also provided the foundation for the underlying design theme of Land and Water. Materially, Land was interpreted by the use of rammed earth, charred/charcoal surfaces and dark colour selections, deep within the restaurant. The notion of Water was suggested in the control of natural light and shadows, glass surfaces and spatial volume expressed on the frontages of the restaurant.

References to NOMA Copenhagen and the Danish origins of the restaurant and its Chef were subtly incorporated in the restaurant design. In this context, the review of materials and furnishings included only a limited number of selected Danish sourced options, chosen for their outstanding quality, performance and aesthetics. For example, the dining furniture was designed by Carl Hansen while the ceilings were lined with acoustic panels from Troldekt, widely specified in Denmark and worldwide to reduce noise and create a quiet and peaceful environment. ■

**Project:** NOMA's 10 week's pop-up restaurant, Barangaroo, Australia

**Architects:** Lendlease

**Client:** NOMA restaurant, Australia

**Troldekt products:**

**Ceiling and wall panels:** Troldekt acoustic panels

**Colour:** Painted black 207

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5, installed with Troldekt screws



**POP-UP FACTS:**

- 4:** times NOMA has won the title of World's Best Restaurant
- 5:** world ranking NOMA currently holds
- 10:** weeks René Redzepi and crew fed Australia
- 75:** NOMA staff members making the nearly 16,000 km trip
- 56:** seats in the pop-up restaurant
- 10 to 12:** courses served per meal
- 5,600:** total number of seats available for the pop-up duration
- 90:** seconds it took for reservations to book up entirely
- 27,000:** people were left out wanting a reservation
- 485:** Australian dollars per person for a seat (approximately \$339 USD)
- 2.7 million:** estimated Australian dollars paid up front for all reservations

## NEW RESTAURANT AT THE OLD ZOO

London Zoo is one of the UK's best known tourist attractions and the world's oldest scientific zoo. Opened in 1838, it now houses nearly 20,000 animals representing over 800 species.

Text: Christopher Sykes, Pressential LLP  
Photos: Alastair Lever





The zoo recently achieved another record with the opening of one of the UK's largest day-visitor restaurants. This is the new Terrace Restaurant which has tripled its dining space to provide 700 covers. The aim was to create both a highly functional and high impact space which would add real quality to the visitor experience and be able to cope with up to 10,000 visitors a day. Troldekt ceilings play a major part in helping to create an exciting and acoustically pleasant environment for this very exceptional number of visitors.

SHH architects and interior designers created the transformation by remodelling and extending the 1920s building as part of a three year, £4.6m (5.84 million euros) project. It includes a new tiered extension to the front of the old block - a 6m high, double-height space - with new stairs leading up to a hugely expanded mezzanine level and two expansive terraces, thereby increasing the building's footprint by almost 1,000 sqm. The overall feel is clean, raw and urban in glass, timber, exposed brick and steelwork columns, with a striking ribbed deck ceiling in the double-height extension.

One of the key considerations for the designers was sound absorption. With such an abundance of hard surfaces in different materials, coupled with echoes and the vocal enthusiasm and chatter from so many visitors, it was important to find a solution which would complement the overall design and create a user-friendly environment. This has been achieved by installing over 400 sqm of Troldekt ultrafine acoustic panels on the ceilings below the mezzanine floor. The 1200 x 500 x 35mm panels have a natural finish and are supported by a T35 concealed grid system. ■

**Project:** The Terrace Restaurant, London Zoo, England, UK  
**Architects:** SHH architects  
**Client:** Zoological Society of London, ZSL

**Troldekt products:**

**Ceiling panels:** Troldekt acoustic panels

**Colour:** Natural wood

**Structure:** Fine (1.5 mm wood wool)

**Edge design:** Bevelled edges, K5-FN, installed with concealed T-profiles



## It's Google - it's unique

Google's new European headquarters in Ireland is located in the docklands area of Dublin. It comprises four buildings providing 47,000 sqm of working area. The tallest of the buildings has 14 storeys and is also the highest commercial building in Dublin.

Text: Christopher Sykes, Pressential LLP  
Photos: Peter Würmli

The facility houses Google sales, marketing, and finance employees who come from 65 countries and speak over 45 languages.

The headquarters are designed to be a stimulating and interactive campus. It contains some of the most extraordinary interiors imaginable, with a plethora of shapes, spaces and

colours quite unlike any other workplace. The main area of each floor is the communication hub which is integrated among various functions depending on each floor – from open plan and flexible working spaces, to micro kitchens and informal meeting rooms, alternative working zones, game areas, cafés, gym and even a 25m indoor swimming pool. These

spectacular hubs are created as unique highlights on each floor, bringing an exciting fresh quality to the working experience. The distinctive character of the individual floor theme is also reflected through various different materials, colours and shapes.

One interesting example of this theming is a particular room used for games and leisure. This colourful and stimulating interior has been given a Troldekt ceiling, particularly chosen for its acoustic high performance in reducing continuous talking, echo and noise from its relaxing occupants.

### Awaiting prestigious certifications

The Google Dublin Campus was designed by the Swiss architectural firm of Camenzind Evolution together with Irish architect Henry J. Lyons. For the Masterplan the architects had to find a smart solution for the nearly impossible – to create a stimulating and interactive campus within a bustling environment in the midst of the inner city. There are different the-

mes for the floors, as well as for each office building, including spaces for 5 restaurants, 42 kitchen areas, game rooms, gyms, and over 400 meeting rooms. The project is currently awaiting the prestigious LEED Gold and LEED Platinum certification. Obviously, Troldekt helps by contributing points to this certification. ■

**Project:** Google Headquarters, Dublin, Ireland

**Architects and Designers:**

Swiss Camenzind Evolution with Irish architect Henry J. Lyons

**Client:** Google Ireland

**Troldekt products:**

**Ceiling panels:** Troldekt acoustic panels

**Colour:** Natural wood and painted white 101

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5-FN, installed with concealed T-profiles

## A capsule form translated into a design element

The international player in the field of marketing, selling and life cycle management of medicinal products for humans, Riemser Pharma GmbH, has established an additional location in Greifswald.

Text: Dipl.-Ing. Olaf Wiechers  
Photos: Werner Huthmacher

The interior design of the three-storey building, developed by the Berlin interior design firm of Reuter Schoger, is defined by design features reflecting and derived from capsules, the dosage form for medication.

The high-ceilinged, open plan spaces have been furnished in a functional, almost minimalist style. The capsule-shaped space dividers, tables and counters with their white surfaces form a strong and dramatic contrast to the dark flooring. The white painted CNC-milled Troldekt panels as ceiling elements reflect not only the design of the furniture; they also ensure optimal room acoustics in the hallways and spacious offices.

In addition, baffles were installed on the ceilings in the offices and hallways. They absorb not only the lighting, but also reduce the reverberation time within the rooms. Because sound is absorbed on all surfaces of the sequentially arranged Troldekt panels, the otherwise untreated ceilings can still be observed. ■



**Project:** Office Riemser Pharma GmbH, Greifswald, Germany  
**Architects:** Reuter Schoger Architekten  
 Innenarchitekten BDIA  
**Client:** Riemser Pharma GmbH

**Troldtekt Products**

**Ceiling clouds:** CNC-milled Troldtekt panels, "Capsules"  
**Ceiling baffles:** Troldtekt baffles, custom made with integrated lighting  
**Colour:** Painted white 101





## Silence with a seaview

IXNAH is the newest residential building in Cancun, a city in south-east Mexico and a world-renowned tourist destination. The building is located on the shoreline with a stunning view overlooking the Caribbean beach.

Text: Christopher Sykes, Pressential LLP  
Photos: Vanrit

Designed by well-known interior designers Treceavo Plano and Mauricio Loberia from Monterrey, it has a contemporary facade and houses 8 large apartments, each 600 sqm in size.

Each apartment is purpose decorated in muted pastel colours and simply furnished occasionally highlighted with bright panels of art or marine scenes or artefacts. The floors are part covered with large rugs which help to absorb the echoes from the otherwise hard surfaces. However, in order to minimise completely the noise from TVs and voices and to keep the core of the apartments as quiet as possible, the designers chose to line all the ceilings with Troldekt acoustic panels.

The panels provide an aesthetically pleasing link between all the apartment rooms. They are further enhanced by the lighting integrated into the ceiling. ■

**Project:** IXNAH apartments PB and 5N, Cancun, Mexico.  
**Architects and interior designers:** Treceavo Plano and Arq. Mauricio Loberia

**Troldekt products:**

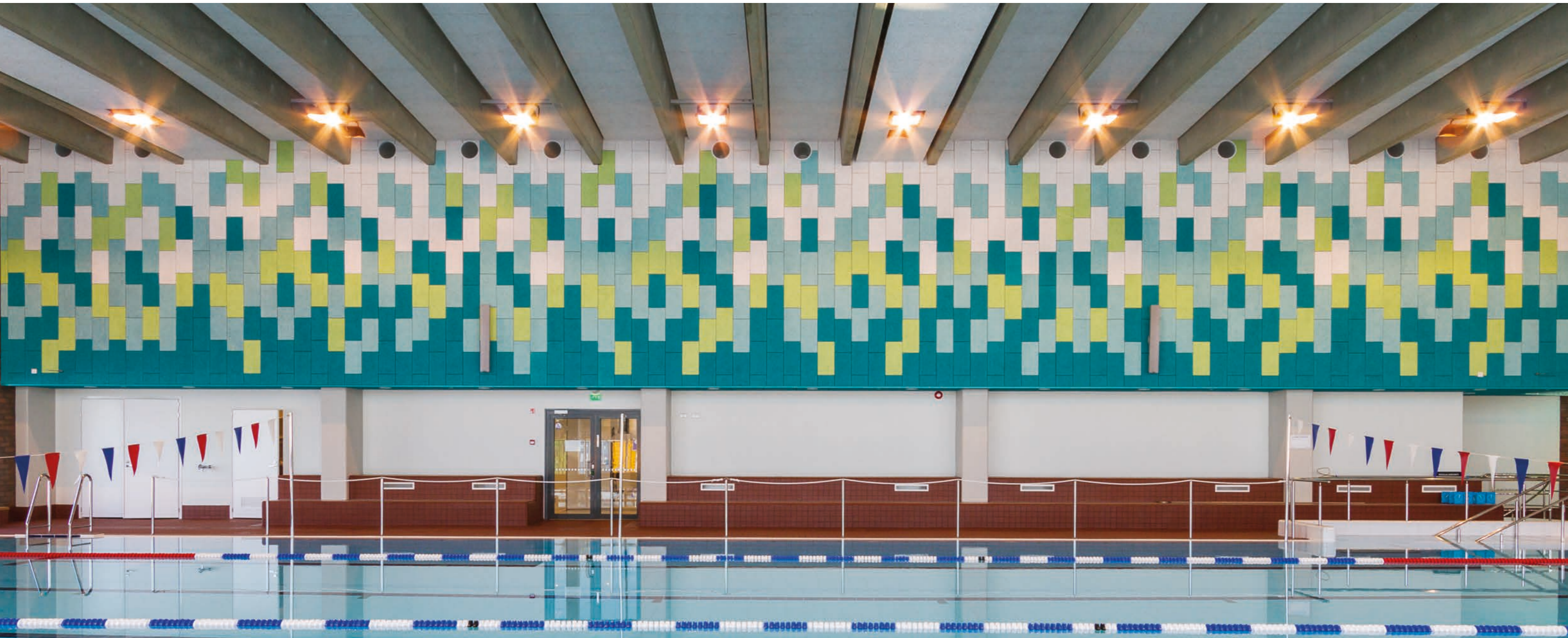
**Ceiling panels:** Troldekt acoustic panels

**Colour:** Natural grey and painted white 101

**Structure:** Fine (1.5 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5, installed with Troldekt screws





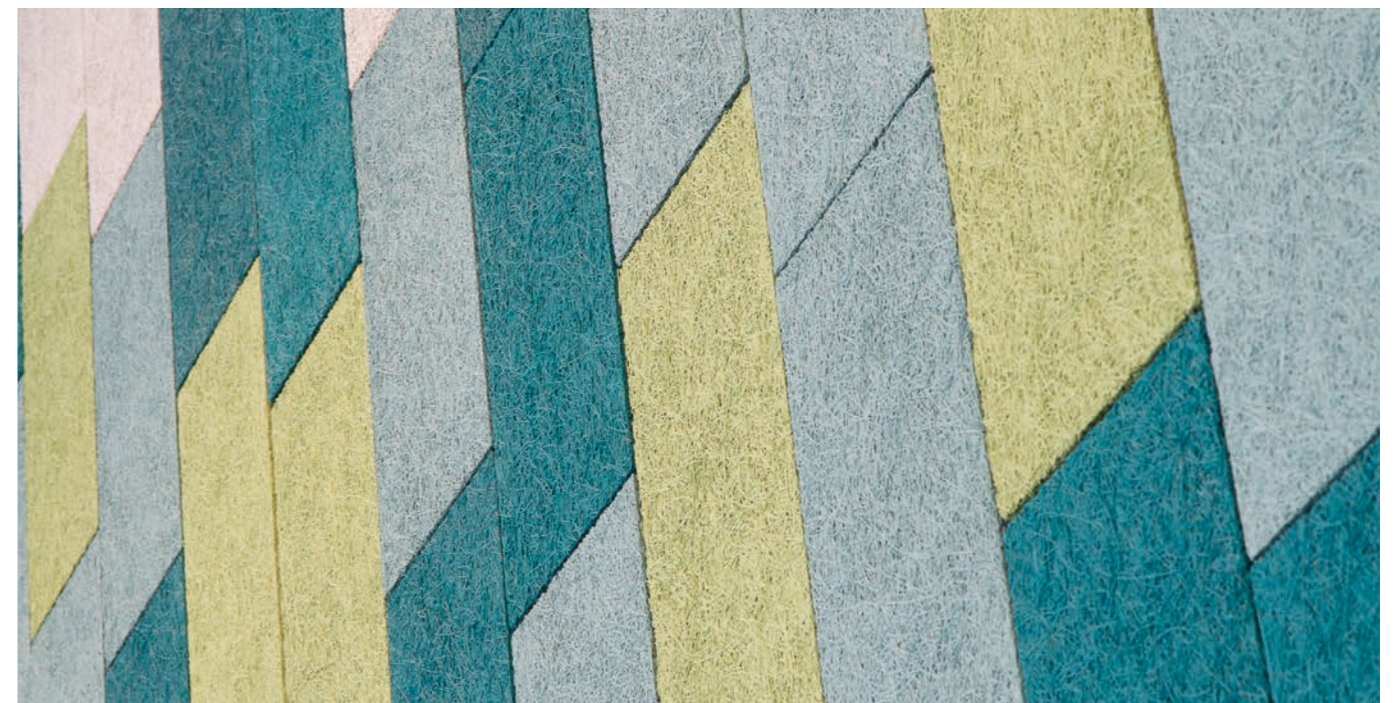
## Eura in an aura of colours

Eura is located in western Finland. The area is one of the most distinguished places in Finland in terms of prehistoric findings and archaeological remains. Now the region also has a new, colourful swimming and sports centre.

Text: Christopher Sykes, Pressential LLP  
Photos: Tommy Kosior

Designed by the architectural practice of Heino & Niirainen, its simple white and beige coloured rectangular blocks are very different to the character of its interior. On entering, the visitor is welcomed by the cacophony of bright colours which pervade the building and provide a warmth in the often dark days of winter and relief from the somewhat bleak, often snow filled landscape.

Noise in sports and leisure centres can suffer from the exaggerated echoes from both spectators and participants reflected off hard wall and floor surfaces. Here the architects have solved that problem and created pleasant acoustics by the extensive use of Troldekt ultrafine panels on the ceilings and the walls of the main activity rooms, in the corridors and circulation areas and even on the underside of the wide pro-





jecting eaves which provide cover and protection around the exterior.

The most dramatic space is the swimming pool which has a ribbed ceiling, with acoustic panels between the ribs, linking a multi-coloured wall of Troldekt panels on one side and a full height glazed view of the landscape on the other. The ribbed ceiling and acoustic panel theme is continued in the entrance hall which is dramatically coloured in red and in the dining area where blue dominates. In addition, the bowling alley has Troldekt acoustic ceilings and more highly coloured Troldekt acoustic panel walls.

This very successful project is typically Finnish with its simplicity and clever use of colour and fine details. Its architecture complements the area which is also well-known for its many buildings designed by Finland's leading architect and designer Alvar Aalto. ■

**Project:** Eura Leisure Centre, Finland  
**Architects:** Arkkitehdit Heino & Niirainen Oy  
**Client:** Euran kunta

**Troldekt products:**

**Ceiling and wall panels:** Troldekt acoustic panels  
**Colour:** Painted white, orange, turquoise and other colours  
**Structure:** Ultrafine (1.0 mm wood wool)  
**Edge design:** Square edges, K0-FS installed with visible T-profiles and K5 installed with Troldekt screws



# The art of acoustics

Manchester School of Art, in the UK's original industrial heartland, recently celebrated its 175th birthday. As a part of a substantial retrofit, acoustic panels in the ceilings serve to avoid noise pollution in the open spaces of the building.

Text: Christopher Sykes, Presential LLP  
Photos: Hufton + Crow

Now it is enjoying a new major extension which has not only generated much interest but was a 2014 contender for the renowned Stirling Prize awarded annually by the Royal Institute of British Architects for the best building. It was the only building which included a substantial retrofit.

Designed by architects Feilden Clegg Bradley, it aims to provide a lively environment and help reassert the Art School and the University on the national stage. It retains the original brief that one of its major purposes is to help students bridge the gap between education and professional life. It is also an interesting showcase for demonstrating how noise pollution in large crowded spaces can be overcome by installing Troldekt acoustic panels.

The architects' concept is a modern interpretation of the traditional Manchester textile trade warehouse, comprising a highly visible seven storey Vertical Gallery space together with an interactive 'hybrid' studio behind. With its vast glazed facade, it is also a place which proudly showcases its students' work to all who pass by in the street - described as being more like a metropolitan art gallery than a university department. It's a factory-like place where students can see each other's different work and exchange ideas.

The potential noise pollution from its large open spaces has been solved by installing white painted 1200 x 600mm Troldekt acoustic panels on the ceilings. The panels were specified not only because of their long established performance reputation but because they are made with 100% natural wood fibres

mixed with cement which means that the interior environment benefits from high sound absorption, high durability, natural breathability, low cost life cycle performance and sustainability.

David Crow, Dean of Manchester School of Art says, 'This is a building that is proud of its product and shows the work to everyone. It's a hugely exciting arena where anything is possible and everything is relevant.' ■

**Project:** Manchester School of Arts, England, UK  
**Architects:** Feilden Clegg Bradley  
**Client:** Manchester Metropolitan University  
**Awards:** RIBA National Award, RIBA North West Award, RIBA Stirling Shortlist,

**Troldekt products:**

**Ceiling panels:** Troldekt Plus panels

**Colour:** Painted white 101

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** Bevelled edges, K5, installed with Troldekt screws







## Closer to the woods

Haukaasen Kindergarten in Trondheim is the first BREEAM certified kindergarten in Norway achieving a 'Very good' rating. Troldekt acoustic panels were the natural choice in this rebuilding project centered around wood.

Text: Christopher Sykes, Pressential LLP  
Photos: Tommy Kosior

The original building was poor so the local authority decided to rebuild as part of the 'Tree Town Trondheim' project with high environmental aspirations.

The Kindergarten's construction is a combination of massive wood walls and wood stud walls clad with plywood, while interior supporting walls and surfaces consist of prefabricated solid wood. It has four distinct departments, two catering for very young children plus two large paediatric areas, and is designed so that children spend much of their time outside in the highly forested area.

**Project:** Haukaasen Kindergarten, Trondheim, Norway

**Architects:** Pir II AS Trondheim

**Client:** Trondheim Municipality

**Troldekt products:**

**Ceiling panels:** Troldekt Plus

**Colour:** Natural wood

**Structure:** Ultrafine (1.0 mm wood wool)

**Edge design:** 5 mm bevelled edges, K5-FN, installed with concealed T-profiles



To reduce the footprint, it is arranged on two floors both of which can easily be accessed from outside including via a bridge from the higher part of the site. Corridor lengths have been reduced to a minimum giving universal access to all the facilities. Window sills are lowered to maximise views while interior doors are finished with brightly coloured foil depicting images of nature. The idea is to maximise the experience of every child, to help them build confidence and develop a sense of belonging between the youngest, the oldest and the adults. ■





## Good acoustics with a vibrant design

Acoustics have a major effect on indoor climate in modern offices. However, for most people, aesthetics also play a role.

Troldtekt offers several design solutions that allow developers and consultants to give the classic acoustic panels a unique and vibrant design.

Troldtekt cement-bonded wood wool is an honest material with a natural and characteristic look. The variety of colours, structures, edge designs and suspension systems permit a wide range of customised solutions.

Troldtekt has gone one step further by launching new design solutions. The Troldtekt wave, Troldtekt mosaic and Troldtekt rhomb are some of the design solutions that combine good acoustics with unique design – e.g. in office environments.

All three design solutions offer the same good acoustic, fire-protective and indoor climate properties as the classic Troldtekt acoustic panels. The entire range of Troldtekt acoustic panels is Cradle to Cradle certified in the silver category, whether 'natural' or painted in Troldtekt standard colours.



## Troldtekt® rhomb



Troldtekt rhomb are Troldtekt acoustic panels with CNC-milled pattern which adds an element of three-dimensionality to the wall: Close up you experience a beautiful, repeating pattern of surfaces, while from a distance the wall will appear as a formation of cubes in perspective.

With Troldtekt rhomb mini, we have scaled down the 3D pattern formed by Troldtekt rhomb into a single element: Each element is 60 cm wide, and CNC-milled grooves create the effect of a three-dimensional cube.



## Troldtekt® wave



Troldtekt wave is a wave-shaped acoustic panel designed to give ceilings or walls a sculptural, three-dimensional look. The undulating surfaces create a sense of movement, reinforcing the simplicity and honesty of the material.



## Troldtekt® mosaic

Troldtekt mosaic allows the architect to create a distinctive graphic look on wall surfaces. With Troldtekt acoustic panels in varying panel widths, the architect enjoys a high degree of freedom when it comes to designing a unique look.



## GOOD ACOUSTICS FOR MORE THAN 80 YEARS

At Troldtekt A/S, we believe that acoustic comfort and a healthy indoor climate are key elements of high-quality buildings. Since 1935, we have manufactured Troldtekt acoustic panels from the natural materials wood and cement. We design, develop and manufacture the panels in Denmark – from local materials and under state-of-the-art and eco-friendly conditions.

### The sustainable choice

Our range of natural Troldtekt acoustic panels has achieved Cradle to Cradle certification in the “Silver” category. This certifies that Troldtekt contains no hazardous substances and therefore can be returned to nature as compost. At Troldtekt, we share the holistic approach of the Cradle to Cradle concept and are therefore implementing it in our long term business strategy. When choosing Troldtekt products for sustainable buildings, specifiers can be assured that Troldtekt can provide assessors and auditors documentation for the international sustainable building certifications LEED, BREEAM and DGNB.

### Intelligent architectural solutions

The vision of Troldtekt is to be a trendsetter within intelligent acoustic solutions with focus on a sustainable indoor climate. Therefore, we continuously develop new special products for modern architecture in close cooperation with architects and building consultants. Every other year, we also present the Troldtekt Award to the international architectural or design student who best applies Troldtekt in a different and innovative way.

### An audible difference

Today, Troldtekt acoustic panels are among the leading and preferred solutions for ensuring high quality sound environments. Our panels clad ceilings and walls in offices, commercial and industrial buildings and in public facilities such as schools, kindergartens, cultural centres, sports centres, swimming pools as well as private residences. Troldtekt makes a real audible difference, not least in minimalist architecture where good acoustics are often challenged by the extensive use of hard surfaces.

