Renovation and transformation can lead the way to a lower carbon footprint in construction

A significant part of the world's CO2 emissions comes from the production of building materials. That's why there's massive potential in extending the lifetime of buildings rather than erecting new ones. In a new online theme, Troldtekt explores successful transformations and renovations of existing buildings.

For every ten tonnes of CO_2 released into the atmosphere, more than one tonne comes from the production and handling of building materials. One of the keys to building with consideration for the environment therefore lies in extending the service life of materials – for example by renovating old buildings or transforming them for completely new purposes.

In 2020, the Department of the Built Environment (BUILD) at Aalborg University analysed the climate impact of materials for 60 newly constructed buildings. The median value for those buildings was 7.1 kg CO_2 e/m2/year. In comparison, the Council for Green Transition reviewed eight transformations in 2022. Their median value for the climate impact of materials was just under 3 kg CO_2 e/m2/year.

Therefore, the climate benefits of renovating and retaining materials are potentially enormous. There can also be a considerable design factor, for example, in transforming old industrial buildings for a new lease of life.

Preserving values and cultural heritage
In this new online theme, Troldtekt, the Danish manufacturer of wood wool acoustic panels, focuses on the renovation and transformation of buildings and looks at a number of interesting examples. One article features an interview with Olav de Linde, founder and chairman of Olav de Linde Property Company. Both the company and its founder have received several awards over the years for their systematic focus on the recycling of building materials and work on building transformations.

"I usually say that I talk to the building: *What are its values? Is there any cultural heritage that needs to be preserved? And what will we be able to use the building for afterwards?* As a general rule, buildings are built for a single purpose and are transformed for another – and that requires new ways of thinking," comments Olav de Linde, adding:

"It's important for us to preserve the building's original look, shape and history. So, once we've finished a transformation, we want it to still be apparent that the building had a different origin."

Recycling in current projects
The themed articles also cover other current projects, including:

> Demolition company Tscherning's renovated headquarters. The office building is constructed using recycled materials – including a Troldtekt ceiling preserved from the former industrial building. In addition, large meeting rooms in the building were built using materials from Tscherning's own demolition projects – such as timber, boards and bricks but also discarded acoustic panels from Troldtekt's production.

> The construction and cohousing community of Sjællandsk Muld. Here, recycled materials can be included as a special concept. The 35 households can help choose the materials they want in their future homes. For example, floorboards made from offcuts, recycled kitchen elements or offcuts and recycled Troldtekt acoustic panels.

> Stenberg farm near Hudiksvall. This 18th Century farmhouse in eastern Sweden has been transformed into eight apartments built according to the Passive House Standard, with an impressive amount of thought behind energy-optimised solutions. Troldtekt acoustic panels were chosen for the interiors of

six of the eight apartments. Here, good sound absorption is important as the ceiling heights are up to 6.5 metres and the floors are concrete and oak.

Troldtekt ceilings last a long time
With a service life of at least 50-70 years and high tolerance to wear and moisture, Troldtekt acoustic panels can live on when old buildings are transformed for new purposes. The panels are made of Danish wood and cement – a combination that makes them robust and durable. A developer can also paint Troldtekt panels over and over again without compromising the acoustic properties.

For example, this was the case during a renovation of Aarhus Airport and at Lula restaurant in the port of Aarhus. The Troldtekt ceilings in the original sailing club have been preserved through three "generations" of restaurants and have recently been given new life with black paint.

Troldtekt has bold ambitions within the circular economy and works with return models that can give the acoustic panels one or more extra life cycles. In the new online feature, one of the articles describes the first recycling schemes for cement-bonded wood wool waste from Troldtekt's own production and building sites – as well as its ambitions for upcycling dismantled panels from old buildings.

See the full theme here: https://troldtekt.co.uk/themes/renovation-and-transformation/

FACTS ABOUT TROLDTEKT:

- Troldtekt A/S develops and manufactures acoustic ceiling and wall solutions.
- Danish wood and cement have been the raw materials used in the production process since 1935, a process which takes place in Denmark at high-tech production facilities. Troldtekt uses only certified wood (PEFC™ and FSC® C115450) from responsible forestry operations.
- Troldtekt's business strategy has been developed around the Cradle to Cradle sustainable design concept as the central element. The entire range of Troldtekt acoustic panels in natural and standard colours is Cradle to Cradle-certified at Gold level.
- Since the spring of 2022, Troldtekt has been part of the Irish Kingspan Group, a global leader in high-efficiency insulation and building envelope solutions with a presence in more than 80 countries.

FURTHER INFORMATION
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