

Mini CO2 house

Fredericia, DK



Project details

Client	Realdania By&Byg A/S
Architecture	JAJA Architects
Project type	Residential construction apartment building
Construction type	Wood element construction
Services	Timber construction
Construction	2022-2023
Locality	Fredericia
Country	Denmark

Apartment building with minimal carbon footprint

The Mini CO2 house serves as a model of how the construction industry can reduce its carbon emissions. Following designs by Jaja Architects in Copenhagen, Blumer Lehmann is creating the sustainable residential building using timber and renewable raw materials.

The ribbed ceilings in the Mini CO2 building, for example, feature exposed timber beams and biobased insulation. These were developed specifically for this building and first had to pass full-scale fire testing at the Danish Institute of Fire and Security Technology (DBI).

The five-storey residential building – a frame construction using prefabricated timber units – houses 4 four-room apartments, each with 95 m² of living space. A photovoltaic system on the roof supplies the apartment building with power. Remarkably, this model example of sustainable building uses timber for a full 20% of its interior surfaces – representing the upper level by Danish standards. Laminated timber, cross-laminated timber and other timber materials made with spruce/fir were used for the construction, with oak used for the stairway structure.

Alongside other buildings, the client Realdania By&Byg is creating the Mini CO2 building in the Kanalbyen district in Fredericia to point the way to more sustainable and efficient building methods. The design of the Mini CO2 building can be directly compared with the solid, steel and lightweight constructions of its neighbouring townhouses. In addition, transparent and comprehensive life-cycle assessments are being carried out and the timber building materials evaluated according to quality parameters including construction, architecture, indoor climate, flexibility, fire, building physics, availability of resources and build time.

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The fascinating world of wood

Mini CO2 house

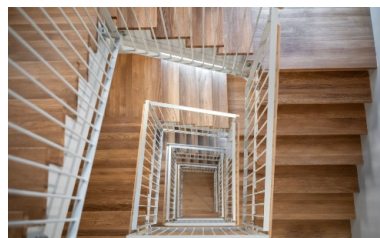
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The MiniCO2 House was designed to support the construction industry in its efforts to reduce CO2 emissions.



A notable feature of this exemplary sustainable building is the high proportion of wooden surfaces in the interior of the building.



An outstanding feature of this sustainable housing project is the ribbed ceilings, which are equipped with exposed wooden beams and bio-based insulation.

The MiniCO2 house consists of five floors built in a skeleton construction of wooden elements.

Mini CO2 house

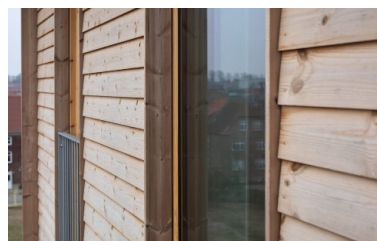
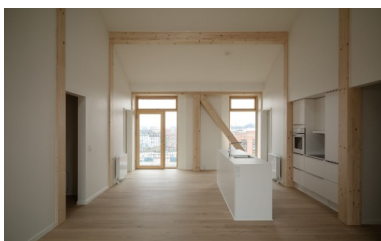
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Different timber materials such as glulam, board plywood and spruce/fir were used for the construction.



Oak was used for the staircase construction.



The MiniCO2 house offers space for a total of four spacious 4-room apartments with 95 m² each.

The MiniCO2 house is being built as part of a larger project in the Kanalbyen district in Fredericia.