

CASE STUDY 02

Building for the Long Haul

Architects Uffe Leth and Karsten Gori have designed a single-family house with hefty walls and a small environmental footprint.

BY TRACY METZ



The hipped roof's deep overhang creates a veranda on all four sides of the house.



The steep sloping ceiling would allow for the addition of a loft, if the inhabitants desire one.

For Danish architecture firm Leth & Gori, longevity was paramount in the conception of the Brick House. Designed to stand the test of time, the one-story, three-bedroom residence is made to last for roughly 150 years. Ultimately, says partner Karsten Gori, a long life span and an efficient use of materials make a more significant contribution to a building's sustainability than the typical focus on operating energy does. "We wanted to show that it is possible to build a contemporary house with a long life," he says.

The Brick House is one of six Mini-CO₂ Houses, a project initiated by the philanthropic foundation Realdania to create affordable dwellings for the middle class on the town of Nyborg's suburban fringe. Each house was designed by a different architect and all employed a different sustainability strategy. Together they are intended as a series of prototypes for low-carbon living. Leth & Gori's approach was to design a long-lasting house that requires minimal maintenance and uses traditional materials.

The distinguishing feature of the 1,400-square-foot house, which costs about \$400,000 to build (a budget the architects say is on par with other housing in the region) is its 22-inch-thick walls of clay blocks and brick. The assembly, which has no insulation or an air or vapor barrier, is intended as an alternative to the common response to energy-conscious building codes, says Gori. Walls are usually made of "layers and layers of different materials and insulation that do not last more than 50 years and are so airtight that they cause health problems," he points out. "It is like wrapping a house in a plastic bag."

The architects performed a detailed life-cycle assessment to demonstrate that the Brick House's focus on durable materials and low-tech construction methods would lower its total carbon footprint. Nevertheless, the house is energy-efficient. Its hefty walls provide thermal mass: they store thermal energy and help flatten out interior temperature fluctuations. Moreover, the use of only two materials simplifies the building process and keeps maintenance down.

The building envelope was developed in collaboration with Nini Leimand, a Danish architect with expertise in what Gori calls "homogeneous massive wall construction," along with the contractor and masons. The system includes an inner block wythe and an outer brick wythe, connected by a number of cross-laid interlocking bricks. On the exterior, the bricks have been placed so that some headers protrude and the marks from the production process are visible, providing the facade with texture.

Despite the patterning created by the brick's bond, the house exterior is basic, almost severe, with a hipped tile roof that echoes those of the surrounding houses. Generous overhangs supported by a weathering steel column at each corner protect the walls from the elements and form a narrow veranda on all four sides.

The interior is more expressive, with a tall, sloping ceiling and a rough-and-tumble aesthetic featuring simple finishes reminiscent of artists' studio spaces in industrial buildings: unfinished plywood, unpainted medium-density fiberboard, and the exposed clay blocks. The pinewood floor, equipped with radiant heating, has a traditional Danish soap finish. Daylight flows in from all sides through glass doors that allow access to the surrounding veranda.

This project, Leth & Gori's first finished building since starting their studio seven years ago (three more are nearing completion this year), provides a new take on minimal, simple, and long-lasting materials in a contemporary context. In that sense, it is a prototype—one where workmanship is critical, says Gori. "This is an old-school kind of building that requires craftsmanship on site," he says. "You feel that the Brick House has been touched by human hands." [GS](#)

Tracy Metz is a Netherlands-based journalist who writes about architecture, landscape, and urban issues. She is the author of several books, including *Sweet & Salt: Water and the Dutch*.



TEAM

ARCHITECT Leth & Gori
 Client Realdania Byg
 Engineer Buro Happold
 Consultants Nini Leimand (masonry); Danish Technological Institute (materials and details)
 General Contractor Ebbe Bernth
 Mason Muremester Ask Askhom
 Carpenter Ole Larsen & Sonner v. Anders Larsen

SOURCES

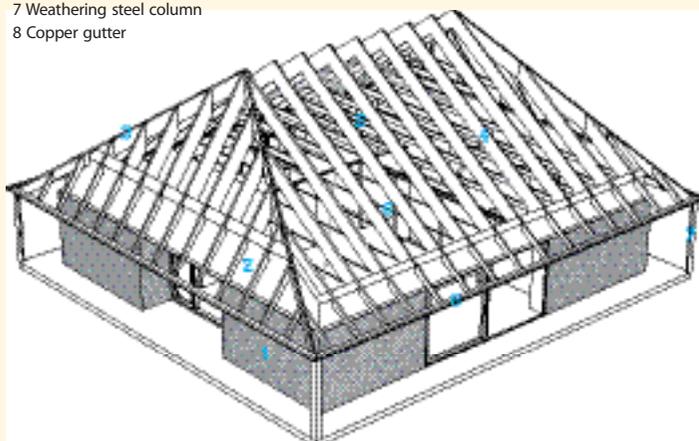
Clay Blocks JUWÖ
 Brick Randers Tegl
 Windows and Doors STM Vinduer
 Roof Tile Monier
 Wood Flooring Moelven
 Lighting Artemide, Bega

The pine flooring has a traditional Danish soap finish.



AXONOMETRIC DIAGRAM

- 1 Homogeneous masonry wall
- 2 Clay blocks
- 3 Hip rafter
- 4 Standard rafter
- 5 Collar tie
- 6 Exposed steel cord
- 7 Weathering steel column
- 8 Copper gutter



The ribbed face of the clay blocks has been left exposed on the interior.