healthcare design

HCD
HEALTHCARE DESIGN
CONFERENCE + EXPO

AUGUST 2022
VOL.22 NO. 6
HCDMAGAZINE.COM

HEALTHCARE DESIGN SHOWCASE

AWARD OF MERIT

IN HARMONY

Waldkliniken Eisenberg orthopedic hospital's unusual building shape, natural materials, and cutting-edge construction create a forest retreat *By Anne DiNardo*

The hospital uses a timber-hybrid construction method. On the façade, horizontal wooden battens and vertical "pilaster strips" will turn gray over time, allowing the facility to further blend into its forest surroundings.

BUILDING ON THE role that nature can play in improving the health and well-being of staff and patients, the Waldkliniken Eisenberg orthopedic hospital, opened in October 2020, stands out for a variety of reasons. For starters, the 177,600-square-foot hospital is designed in a circular shape with large openings that direct views outward toward nature and its forest setting in Eisenberg, Thuringia, Germany. From there, the project breaks the mold in biophilic design with an extensive use of wood materials, both in the structure and the façade as well as in interior spaces. Additionally, operable windows and verandas off the patient rooms provide access to nature sounds and fresh air, while green roofs and a central courtyard with plantings help maintain comfortable temperatures and further connect the facility to nature. Jurors lauded the project for its integration into the surrounding landscape and use of natural materials, which together lend the feel of a "wellness spa," in the words of one juror. The project was submitted by HDR and Matteo Thun & Partners. Here, Johannes Kresimon, director of health for Germany at HDR (Dusseldorf, Germany), and Matteo Thun, founder of Matteo Thun & Partners (Milan), share insight on some of the project's stand-out features.

Healthcare Design: **What inspired the facility's circular shape and how did it help you deliver on goals to create a hospital that's "within and part of nature"?**

Matteo Thun: Waldkliniken is surrounded by the forest of the Saale-Holzland district in Thuringia. The circular façade, wherever you are, gives the same relaxing view of the forest outside. We wanted all patient rooms to have views toward the green outdoors. Nature itself takes part in the healing processes.

Together with HDR, we planned the building as a "three zeros" concept—zero distance, zero carbon dioxide, and zero waste—employing local materials such as regionally sourced larch wood and labor when possible, optimizing energy loads and emissions, and using or reusing renewable materials. For example, where possible, we have tried to use wood not only for the façade, but also in the public areas such as parquet natural oak in the restaurant, piazza, and lobby.

Johannes Kresimon: The aim was to develop a hospital that puts people at the center. The new building is influenced by the surrounding nature: a lot of green for the interior and exterior spaces, natural materials, daylight as well as color compositions of flora and fauna.

Because the immediate environment plays a major role in the healing process of the patients, it was important that the large window openings create a strong connection to the forest with its weather and seasons. Additionally, the windows can be opened so that inside the hospital patients and staff can also listen to the sound of the wind and smell the damp forest floor.

What type of structure was required to support the building's shape?
Kresimon: The new building was constructed using a timber-hybrid construction method. The reinforced concrete skeleton structure, necessary for fire protection and for the large spans required in hospital construction, was reduced to a minimum. Infill walls, such as the exterior walls on the upper floors, are designed as a timber-frame construction and clad with wood. The hybrid construction is given shape on the exterior façades via the horizontal exposed concrete fire bulkheads between the timber façades.

Wood plays a starring role on the project. Why was that important, and how did you make it feasible from a code perspective?
Kresimon: The Saale-Holzland district is characterized by craftsmanship with wood, making a wood-concrete hybrid construction method for the new hospital an obvious choice. Individual concepts had to be developed for the complex requirements of a clinic building in terms of fire protection. Only in this way was it possible to reduce the reinforced concrete skeleton construction required for fire protection to a minimum.

At the same time, the infill panels of the exterior walls, designed as a timber frame construction, were also clad with wood on the upper floors.

ABOVE, LEFT: The facility's two-bed patient rooms are designed in a z-shaped geometry that provides personal space to each, as well as a shared veranda. Operable windows in the rooms maximize access to fresh air and views to nature. ABOVE, RIGHT: Contributing to a hospitality-like setting, the facility includes a cafeteria, three restaurants, and landscaped areas in the inner courtyard. BELOW: Wood is a focus throughout the interior, including on the ceiling and walls in the dining areas.

This made it possible to achieve not only ecological advantages, such as the use of renewable raw materials, the improvement of the carbon dioxide balance, and prefabrication, but also economic advantages, such as lower lifecycle costs and shorter construction times.

Additionally, the use of oak wood from the region creates a pleasant warmth in all rooms of the hospital.

Thun: From the outside, the large windows reflect the trees. As the larch wood on the exterior ages to a silvery patina, the façade will seem to disappear into the forest. In 50 years, this building will look even better.

In addition to the unusual building shape, the patient rooms are configured in a Z-shape. What inspired this and how does it contribute to the healing environment?
Kresimon: In primarily two-bed rooms, the design and staggered arrangement of the beds, the bathroom, and the veranda allows for opportunities for retreat or creates a meeting place close to the bed. By interlocking with the bathroom and veranda, each bed is given its own assigned spatial zone, which can be separated by a curtain if necessary.

Thun: We designed the floor plans of the multiple-bed rooms as Z-shaped to offer guests the opportunity to withdraw and enjoy their privacy. The patios between the homey environments act as a connector and climate buffer but also provide a space where guests can socialize. The size of the rooms is equal to those used in conventional hospitals.

For more on this project, see page 66. ⌘

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2022 healthcare design AWARD OF MERIT

ORTHOPEDIC HOSPITAL

Waldkliniken Eisenberg

Eisenberg, Thüringen, Germany

SUBMITTED BY: HDR (DÜSSELDORF, GERMANY) AND MATTEO THUN & PARTNERS (MILAN, ITALY)

Nestled into the edge of the Thuringian forest among the oak and spruce, the circular Waldkliniken Eisenberg appears to be anything but a hospital. However, behind the wooden battens and timber façade blended naturally with its surroundings, high-quality medical care is being delivered in harmony with the forest, connecting both patients and caregivers to nature.

Waldkliniken Eisenberg is a lighthouse project in terms of content, design, and construction, realized a new class of hospitality. One of the most innovative and sustainable hospital buildings in Europe has emerged—nicknamed the "Forest Clinic."

Nature can play a significant role in medical care. It brings joy and helps patients relax. Being in nature brings you a new calm that you can take back to the hospital with you. Now what if the hospital was already within and part of nature? Pale light, bare walls, unpleasant noises and smells—typical hospital associations are a thing of the past in the new building of the Waldklinken

Eisenberg in the Thuringian forest. The forest clinics are a communal building and belong to the public sector.

The new building is shaped by the surrounding nature: lots of green for the interior and exterior, natural materials, daylight and color compositions of the local flora and fauna. With a view of the green inner courtyard, the "La Piazza" restaurant forms the focal point of the building.

The result is a circular structure with large openings that specifically direct views into nature. The external façade with horizontal wooden battens and vertical "pilaster strips" made of glued laminated timber will turn a little gray over time so the wooden house will blend in naturally with its surroundings. The large window openings create a strong connection to the forest with its weather and seasons. The windows can be opened generously to hear the rustling of the wind inside the house and smell the damp forest floor.

At Waldkliniken Eisenberg, the focus is on the patient journey. Starting with the concierge, who personally guides the patient through the time

in Eisenberg, to the digital patient information system on flat screens in patient rooms. The philosophy follows an approach that dissolves the information barriers between patients, employees, and guests and creates an atmosphere of a smooth transition from the surrounding forest all the way to the patient room.

PROJECT CATEGORY:
New construction

CHIEF ADMINISTRATOR:
David-Ruben Thies, CEO, Waldkliniken Eisenberg

FIRMS:
HDR, hdrinc.com/de; Matteo Thun & Partners, matteothun.com

DESIGN TEAM:
HDR (architect); Matteo Thun & Partners (architect); R&P Ruffert (structural); Potthoff (HVAC/plumbing); Gnnuse Ingenieurbüro (electrical/lighting); IB FMM (façade)

PHOTOGRAPHY:
HGEsch Photography

TOTAL BUILDING AREA (SQ. FT.):
177,600

CONSTRUCTION COST/SQ. FT.:
$388

TOTAL CONSTRUCTION COST (EXCLUDING LAND):
$69 million

COMPLETED:
September 2020