alwitra

DIE DACHMARKE

Case Study
Mikado Teahouse
Timmendorf, Germany

“Mikado Teahouse” at the promenade pier “Seeschlösschenbrücke” in Timmendorf, Germany

Pagoda roofs at the Baltic Sea shore

“Exceptional, intense and very attractive” would be the words to describe the restaurant “Wolkenlos” at the end of the promenade pier “Seeschlösschenbrücke” in Timmendorf, Germany, which opened in summer 2014. The completion of the Asian-style building also put an aesthetically very pleasing end to a long lasting story.

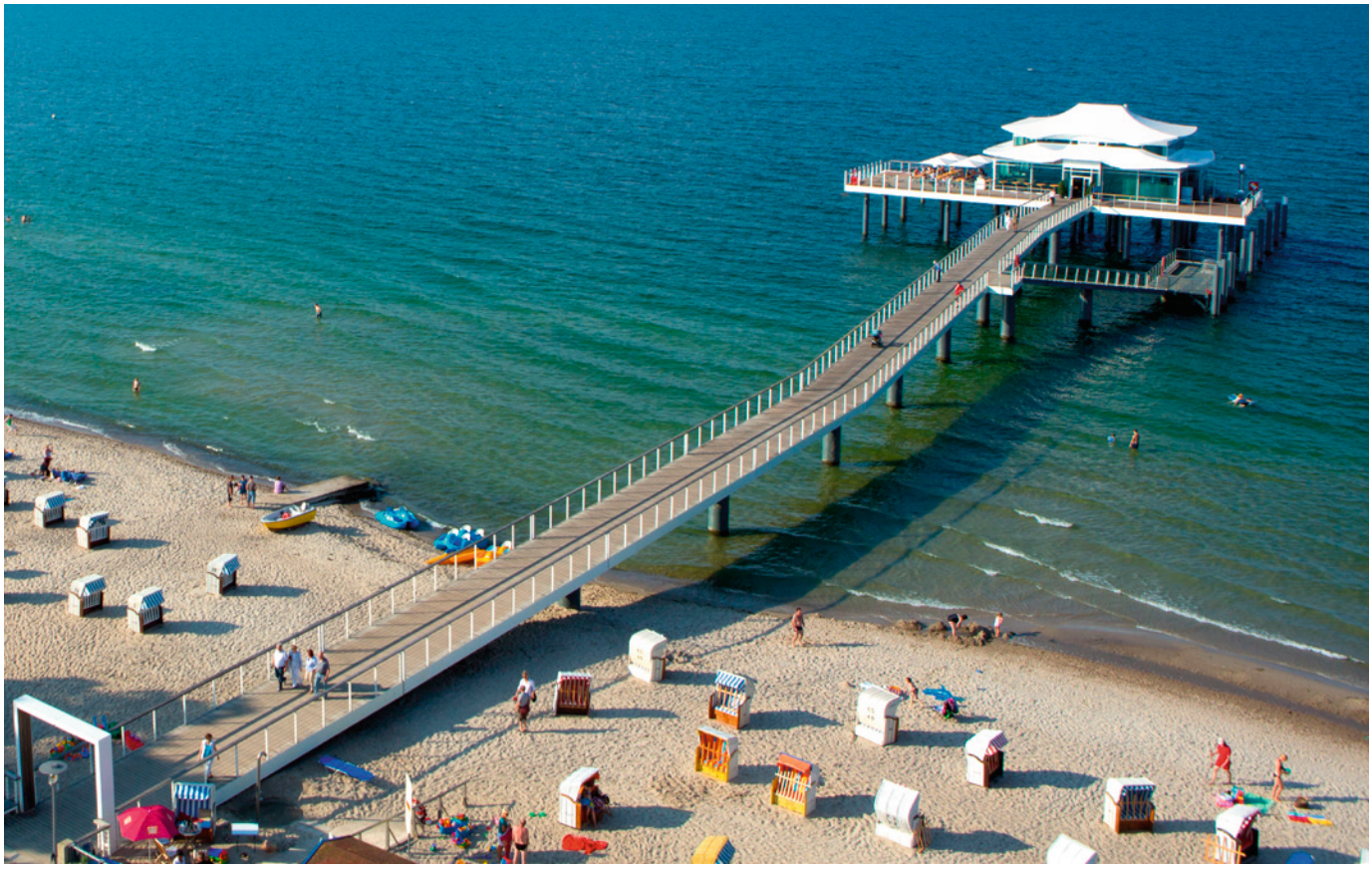
Roofs like playful waves

What was meant as a well-intentioned gift from the patron Jürgen Hunke to the municipality of Timmendorf, caused disagreement and dispute for a couple of years. The initial concept was to build a “House of Arts” in the style of an Asian teahouse, preferably at the end of a promenade pier. So what would be more obvious than to use the ailing “Seeschlösschenbrücke” for this extraordinary project. In 2009, the tourism and building committee planned to dismantle and to rebuild exactly that very pier. At the pier head, an Asian-style teahouse, funded by Jürgen Hunke, was to be erected on a 36 by 16 metre platform.

Not all Timmendorf citizens agreed to such a rather untypical architectural style for this region. In 2013, the deadlock began to resolve. The pier, the platform and the “Mikado Teahouse” were built, the latter according to a project of the Hamburg architect Andreas Schuberth. “Inspired by the sea”, Schuberth confirmed, “the metamorphosis resulted in an Asian-style roof, in playful waves.”

Sophisticated roof style

The untypical roof style was also a particular challenge for the involved roofers. While the range of services of the carpentry company Holzbau Hargus GmbH from Timmendorf already includes some special features, pagoda roofs are not exactly among them. Especially, two-tiered roofs like for this teahouse. While the upper pagoda roof covers the stacked storey, the lower one protects the ground floor with its wide circumferential overhang. Furthermore, both roofs are without any gutters. That is, why the roof waterproofing itself is even more important. It has not only to be sea-waterproof, but must first of all resist wind uplift. The complete waterproofing of both roof areas was carried out by E. Ammen GmbH from Ratekau.



White, sweeping airiness

White, sweeping airiness

According to the architect, the extraordinary roof design should be accentuated by a homogeneous white waterproofing. As a roofing material, the designer therefore selected the waterproofing membrane EVALON® VSK from alwitra GmbH, Trier, Germany. Being one of the first manufacturers of white synthetic waterproofing membranes, alwitra is the most experienced company in this respect. Furthermore, the installed waterproofing membrane is equipped with a lower self-adhesive coating significantly facilitating the handling on the three-dimensional substrate.

Reliable with self-adhesive coating

EVALON® VSK integrates the best characteristics and advantages of the tested and proven waterproofing membranes EVALON® with the additional possibility of full-size bonding. The waterproofing membrane can be used for both new build and refurbishment. The homogeneous waterproofing layer of the membrane is equipped with a polyester fleece backing, reducing stress and strain on the system after laying (vapour decompression, movement compensation etc.) At the factory, the synthetic adhesive compound coating is covered with a release film. Besides, the waterproofing membrane has a welding edge on one side for reliable membrane connection using hot air or solvent-welding agent.

Thanks to this lower self-adhesive coating, laying is extremely time-efficient and clean. Even with self-adhesive coating the waterproofing membrane allows diffusion. Since fixing the membrane is achieved by cold bonded application without open flame there is no fire hazard.

In addition to the CE marking as waterproofing membranes according to EN 13956 and EN 13967, for all EVALON® membranes comprehensive Environmental Product Declarations (EPD) are available, issued by the renowned Institute Bauen und Umwelt (IBU).

Professional installation of typical individual roof elements is supported by a wide variety of accessories and preformed details. It includes e.g. EVALON® self-adhesive tapes, expansion joint tapes, rainwater outlets or sleeves for roof penetrations. Not least, EVALON® coated metal sheets allow for optimum flashing against critical elements.

Homogeneous roof area due to EVALON® VSK

Double-layer pre-decking

For trimming the edges of the pagoda roofs of the Timmendorf teahouse, again EVALON® coated metal sheets were used. However, prior to that the structure including the rough-sawn formwork boarding had to be protected against wind and weather. Therefore, the team of master roofer Andreas Konrad nailed a bituminous waterproofing directly to the formwork. For a smooth surface, the sheets were butt-joined. This installation method required a second layer of self-adhesive bituminous sheets, laid in a staggered pattern with butt joints.

Continuous waterproofing membranes

An EVALON® system pre-coat/primer was applied to the surface of the self-adhesive bituminous sheets in order to facilitate bonding of the waterproofing membrane EVALON® VSK. Subsequently, the individual EVALON® VSK membranes were applied. Due to the form of the roof, installation was carried out from the ridge to the eaves. First, the roofers cut to length the individual membranes in order to achieve a homogeneous installation pattern without any short-end joints. Then they rolled out the membrane from the ridge to the eaves and removed the factory-applied release film. The membrane was dynamically pressed on to the substrate from the ridge to the eaves. Always two roofers cared for sufficient tension of the membrane to avoid folds or buckles. The overlapping membrane seams were welded with hot air. In order not to soil the membranes during installation, the roofers who worked directly on the EVALON® waterproofing membranes even changed their footwear. At the circumferential roof edges, the roofers let the membranes protrude for an unproblematic trimming of the roof edge after completing the roof area waterproofing.

Field fasteners against wind uplift

The architect‘s design envisaged a plain white roof surface without any visual discontinuation. However, for practical reasons, this could not be achieved. Due to the exposed location and the expected wind loads, the waterproofing area had to be additionally secured with field fasteners. The roofers placed them in a symmetric regular pattern designed by the architect so that they would harmonically fit in with the overall picture and almost be invisible. How necessary these additional fasteners were, the roofers experienced themselves during installation in November 2013. Wind at times exceeding even 160 km/h was measured at the construction site crane. At such wind speeds, no roofing works could be carried out. Even at lower wind speeds the workers on the roof always put on suitable mansafe equipment.

Professional roof edge trimming

The roof edges turned out to be a particular challenge. Creating a homogeneous visual impression of the roof edge partly including three-dimensional structures was a highly demanding task for the roofers. As already mentioned, EVALON® coated metal sheets were used for this purpose. The roofers formed the roof edge in two phases. First, they formed

Striking promenade pier architecture

a panel with dripping edge arranging several coated metal sheets in a row. Instead of welding over the individual metal sheet joints with EVALON®, the roofers welded a 20 cm wide EVALON® tape onto the entire panel length. This produced a visually continuous surface, although the metal sheets follow the curve of the roof edge. The roofers attached this panel directly to the roof edge. On top, a second bent coated metal sheet was installed. One leg of the coated metal sheet covers a part of the panel, the second flushes with and is mechanically fastened to the EVALON® VSK water-proofing membrane thus preventing wind blowing under the roof waterproofing. Then, the roofers welded another 33 cm wide tape to the coated metal sheets in the roof area. Thus, rainwater can freely drain or drip off the roof area over the edge. Due to their special form, the water mostly drains off at the lowest points of the curved pagoda roofs.

Striking promenade pier architecture

The teahouse at the Timmendorf beach with its striking curved white pagoda roofs, beyond any doubt, is a genuine architectural treasure, by night dressing in blue or any other colour by LED light and turning into a unique gemstone. Its delicate structure conveys a visual sense of ease and tranquillity, while at the same time awakening a certain longing for the sea and far-away places. You can get a perfect experience of both at the restaurant “Wolkenlos” with its international cuisine of the managing company Vivaldi Hotelmanagement AG from Lübeck. No, it has not become a teahouse at the pier head, however, at the “Wolkenlos” they stick to the original idea: different sorts of tea are on offer.

Construction site sign

Investor:
municipality of Timmendorf/
Jürgen Hunke

Architect:
Dipl.-Ing. Andreas Schuberth,
schuberth.architekten, Hamburg

Carpentry company:
Holzbau Hargus GmbH,
Timmendorf, Germany

Roofing company:
E. Ammen GmbH, Ratekau

Material:
EVALON® VSK, 1.5 mm,
EVALON® tape,
EVALON® coated metal sheets

Manufacturer:
alwitra Flachdach-Systeme, Trier

alwitra

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