PROJECT SHEET

Flensburg Navy Barrack Conversion

2019

ABOUT THIS PROJECT:

Market Segment:
General Construction

Location:
Flensburg, Germany

Architect:
IGA Haus, Flensburg

Owner:
James B.O.N.E GmbH, Hörup

Building Company:
Davidsen Bauunternehmen GmbH

Concrete:
IONYS, Karlsruhe
IBBI, Dr.Ing. Frank Langer, Hamburg

Waterproofing:
WEISSENBACH Structural Waterproofing, Munich
BAWAX GmbH, Celle

Engineering:
IBS-GmbH, Hamburg and ROHWER INGENIEURE GmbH, Handewitt
Petersen-Ingenieure GmbH, Flensburg

Products Used:
Xypex Concentrate
Xypex Patch'n Plug
Xypex Modified
Xypex Admix

In the picturesque northernmost city of Germany, Flensburg, an ambitious project was undertaken to transform a section of an old German navy base into a new focal point for tourism, leveraging its stunning views of the Baltic Sea harbor and the quaint old town center.

The James B.O.N.E GmbH investment group envisioned converting some old navy barrack buildings into a luxury hotel, situated enticingly next to the quay wall.

This conversion, completed on July 30, 2019, by the innovative team of dedicated architects from IGA Haus, structural engineers from Petersen-Ingenieure GmbH, and waterproofing specialists from BAWAX GmbH, among others, represents a remarkable feat of engineering and architectural prowess.

Despite several attempts over the decades, the persistent infiltration of water had led to a considerable amount of corrosion and damage to the concrete resulting in exposed rebar across walls, slabs, and columns.

This was compounded by the fact that the basement had water up to a height of 1m and was unused for many years. Concrete testing showed a carbonization depth of up to 18cm and compressive strength ranging from as low as 5 to 45 N/mm^2 in the concrete cores analyzed.

After extensive technical discussions among the owner, the architects, all engineers, and the concrete technologist, the team decided to abandon the initial plan of using a sealing membrane system in favor of a superior technology with a proven track record: the unique Xypex Crystalline Technology, capable of creating continuous and robust waterproofing and protection for concrete structures including the extremely deteriorated concrete walls, slabs, and for the new concrete elements like elevator pits, piles or perimeter walls.

A Xypex system solution composed of Xypex Patch'n Plug, Concentrate and Modified for the treatment of existing concrete and Admix for use in all new concrete. Xypex Patch'n Plug is a fast-setting hydraulic cement product that was used to halt flowing water within seconds. Xypex Concentrate and Modified, cementitious mixes known for their ability to waterproof from both the positive and negative sides and for not requiring a dry surface were used to waterproof the existing concrete.

Xypex providing a durable solution to render the concrete waterproof, chemically resistant, and capable of self-healing cracks up to 0.5mm; Xypex Modified, a Xypex Concentrate reinforcer; and Xypex Admix C-Series, a waterproofing admixture added directly to the concrete mix during batching, eliminating the need for post-curing waterproofing membranes or coatings, saving time and money, rendering concrete impermeable to water, resistant to chemicals, and capable of self-healing cracks up to 0.5mm.

Xypex Patch'n Plug played a crucial role applied to leaking joints and cracks to immediately stop the ingress of water. Subsequently, Xypex Concentrate was used as dry pack in joint and crack repairs. Xypex Concentrate and Modified were then spray-applied to safeguard approximately 2,600 m^2 of the basement and wall surfaces. Additionally, Xypex Admix C-Series was used in the reprofiling mortar to address over 900 defects across an area of 1,000 m^2, with some sections requiring up to 18 cm depth of application.

The successful application of the unique Xypex Crystalline Technology not only addressed the immediate waterproofing needs but also ensured the structural integrity and extended service life of the building's concrete elements. This value engineering Xypex system solution showcases the innovativeness of the project's team and the versatility and effectiveness of the Xypex product range.

Opened on July 10, 2020, the hotel stands as a testament to the collaborative effort of engineers, architects, and technologists who leveraged Xypex solutions to breathe new life into a historical structure, ensuring its legacy and functionality for years to come.