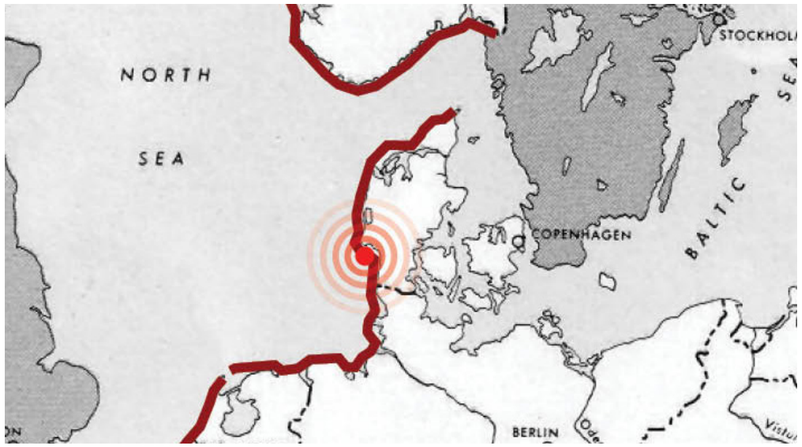
TIRPITZ MUSEUM

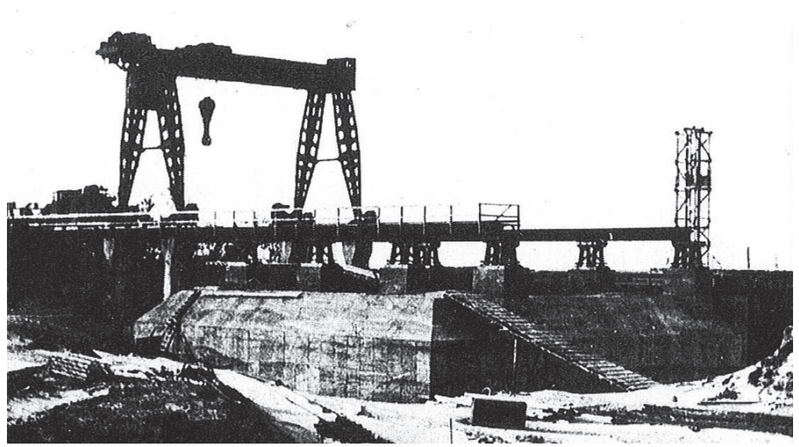
BLÅVAND, DENMARK

2018 RENOVER PRISEN

SITE HISTORY



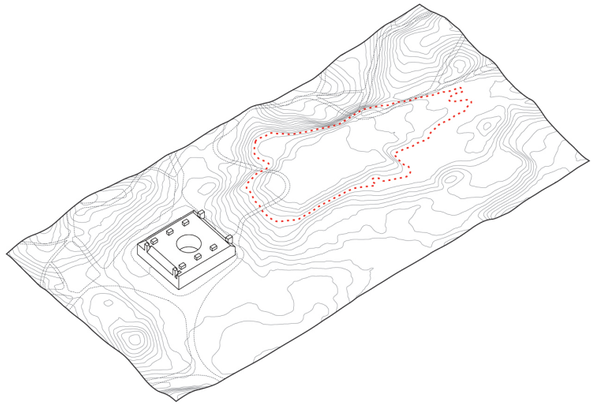
Denmark was invaded by Germany during World War II. To stop the Allied Forces from liberating the occupied countries, the Atlantic Wall was built all along the Western coast of Europe from the north of Norway to the South of France leaving an indestructible architectural heritage behind in the form of abandoned German bunkers.



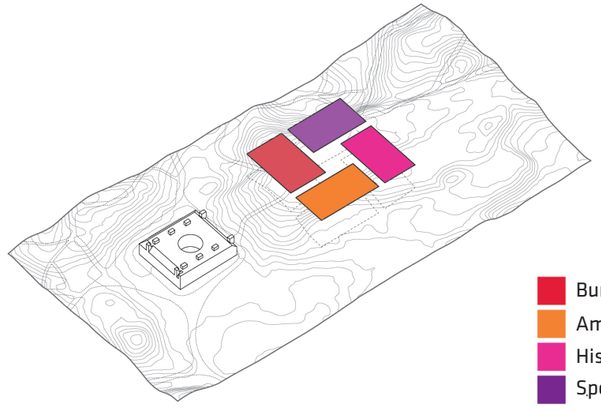
During World War II, a large number of bunkers were constructed along the Danish western coast. The foundation for a double-barreled Bismarck-class canon was under construction and scheduled for completion in September 1945. However, the war ended before the cannons could be installed.

Today, the cannonless bunker survives and sits in a sea of sand.

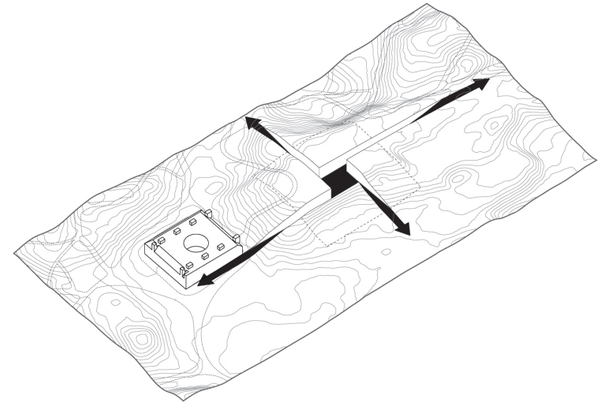
CONCEPT



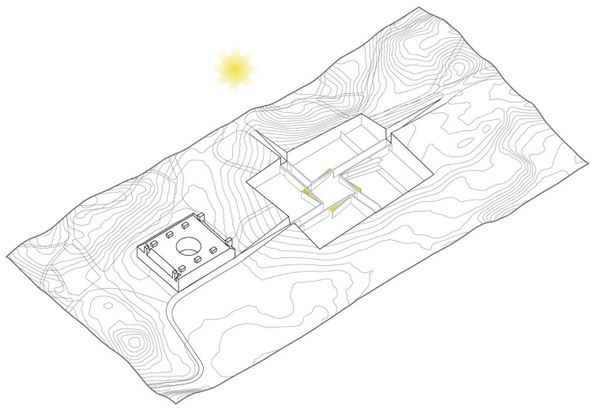
EXISTING SITE
The landscape is a nature preserve prohibiting any construction. However, one of the dunes is artifical - the remnant of a military berm.



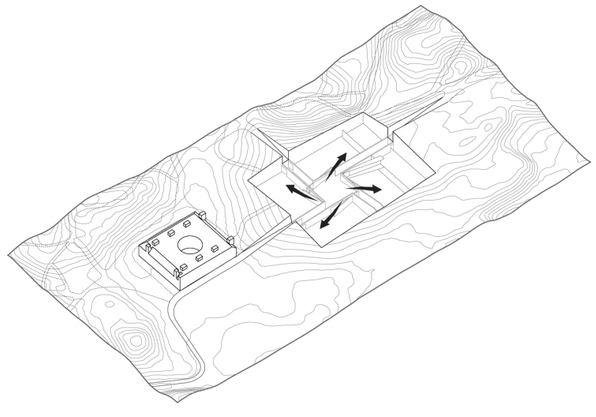
PROGRAM
Tirpitz brings together four unique and independent institutions: a World War II Bunker Museum, an amber museum, a local history museum, and a gallery for special exhibitions.



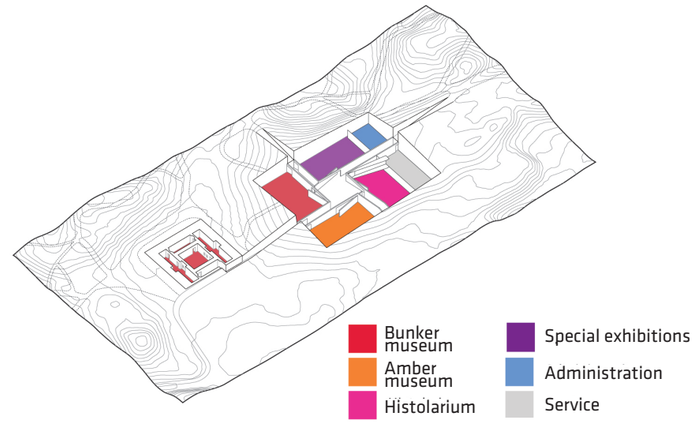
INTEGRATION INTO THE LANDSCAPE
Four simple cuts are made into the topography, creating a central courtyard for the museum. The four paths connect back into the existing network of trails in the dune landscape.



DAYLIGHT
Four skylights at each entrance bring daylight into the foyer



AUTONOMOUS & UNIFIED
Each museum serves as an independent unit with the ability to change exhibitions, host special events and to have their own opening hours. At the same time, the complex is seen as a larger entity with the possibility of continuous circulation and communication.



CONNECTION TO THE TIRPITZ BUNKER
An underground tunnel connects back to the old TIRPITZ bunker.

TIRPITZ

COUNTERBALANCE
To counterbalance the monolithic object of the bunker - a dark, heavy object of war, the new museum is its polar opposite

ABSENCE
A light open space sunken like a sanctuary in the sand - absence rather than presence

PROJECT DESCRIPTION

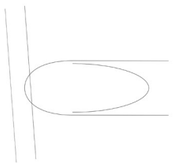
The new TIRPITZ Museum is a sanctuary in the sand that acts as a gentle counterbalance to the dramatic war history of the site along the west coast of Denmark. Located in the city of Blåvand, a German foothold during World War II, the 2,800 M2 'invisible museum' transforms and expands a historic German bunker into a groundbreaking cultural complex. As the antithesis to the dark and heavy bunker, it is comprised of a public central square, surrounded by transparent, light-filled spaces and seamlessly embedded into the landscape.

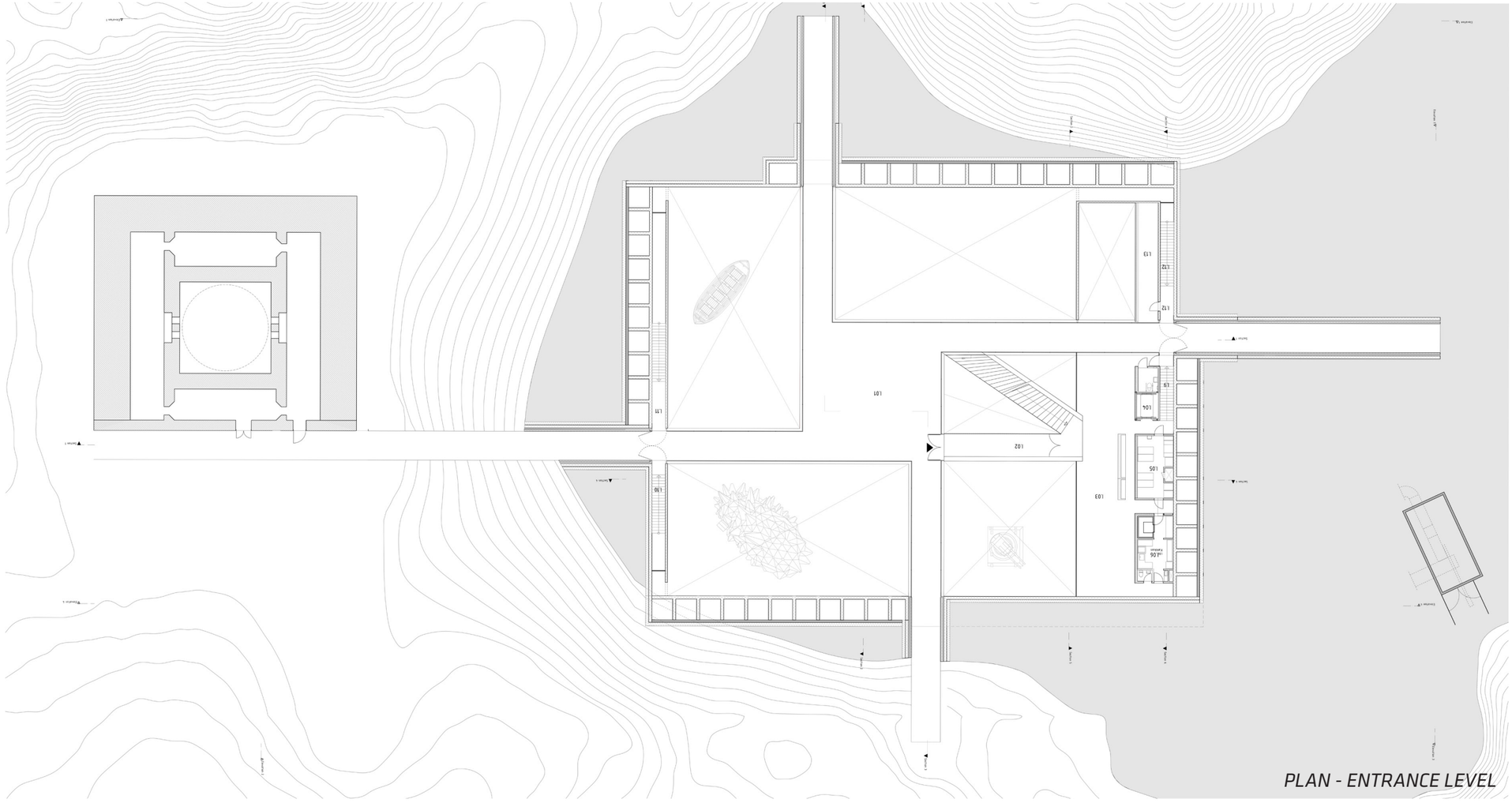
Located in a protected landscape, TIRPITZ appears as a natural dune. Visitors follow winding heath-lined pathways, which transition into a fine, rigid intersection into the landscape as they near the historic bunker. Four simple incisions in the topography lead visitors to a sunken, central courtyard where they can access the four underground gallery spaces. Though carved into the sand, 20-foot tall glass facades provide an abundance of daylight into the underground spaces.

Each of the four museums is housed within its own gallery, separated by hallways and an interior central plaza. The four sides of the central space contain large rotating doors, maximizing the flexibility of the galleries. When closed, each individual exhibition functions independently and allows curators to regulate which exhibitions are available. A tunnel to the south connects the gallery spaces to the historic bunker. Here, visitors will find themselves inside of the preserved concrete bunker where an interactive light exhibit reveals how the bunker should have functioned.

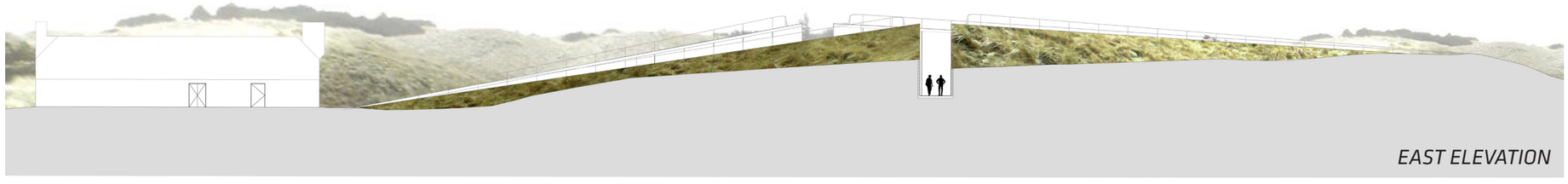
ROOF PLAN

TIRPITZ





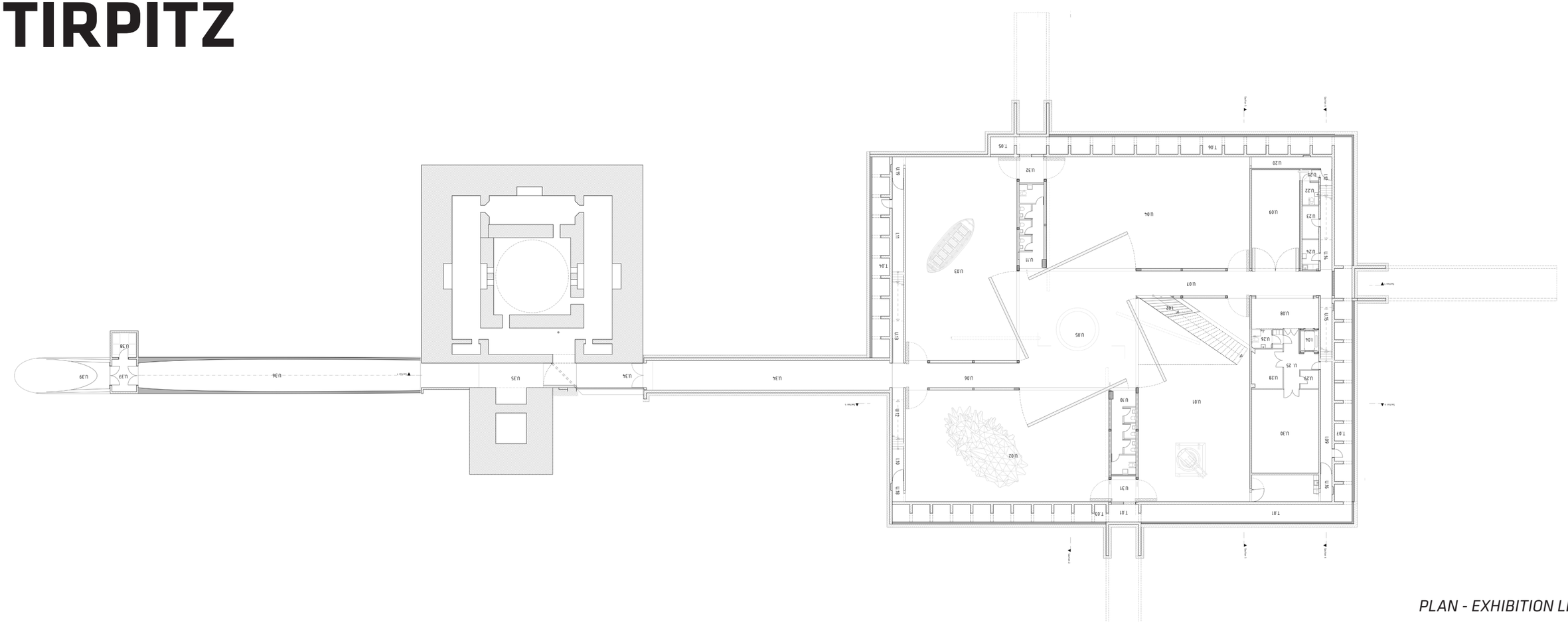
PLAN - ENTRANCE LEVEL



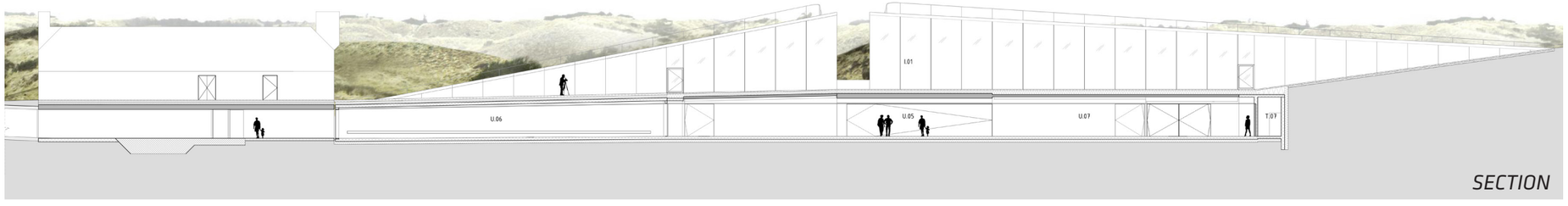
EAST ELEVATION

0 5m 10m 20m 40m N

TIRPITZ



PLAN - EXHIBITION LEVEL

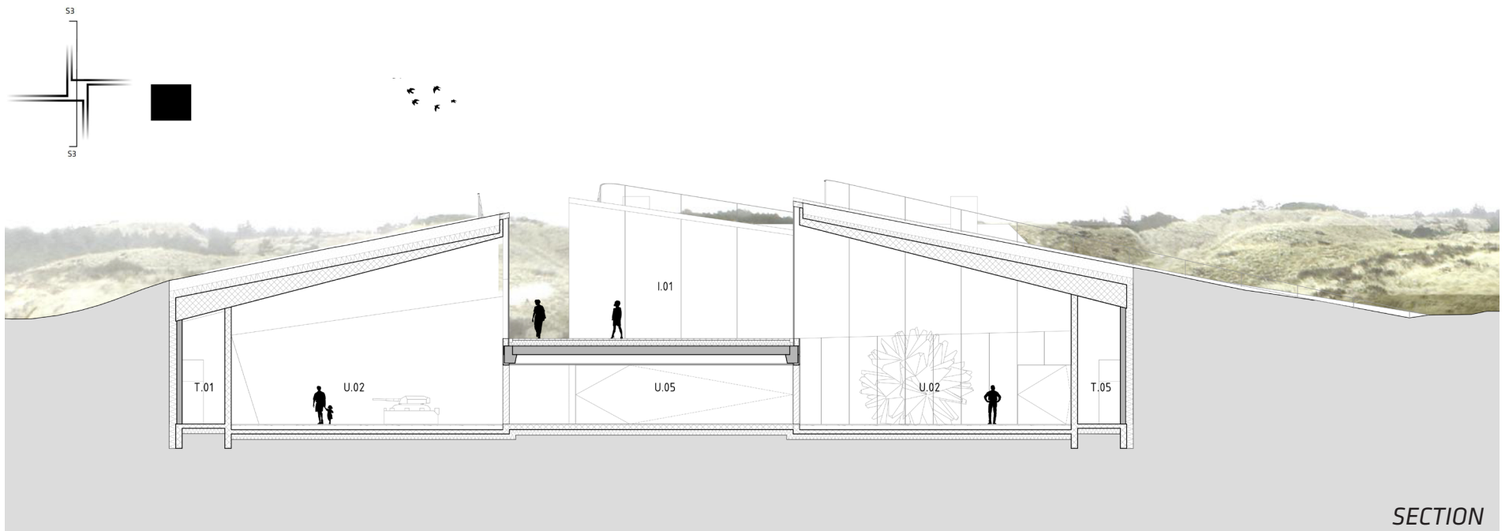


SECTION

0 5m 10m 20m 40m N

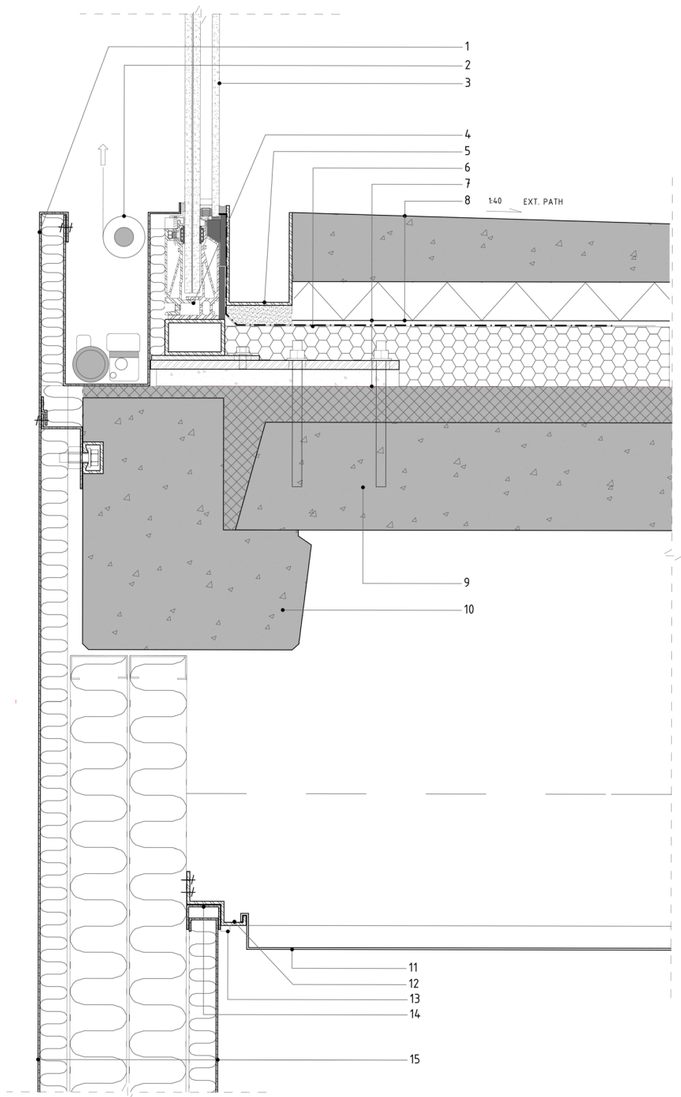
TIRPITZ

SOUTH ELEVATION



SECTION

0 5m 10m 20m



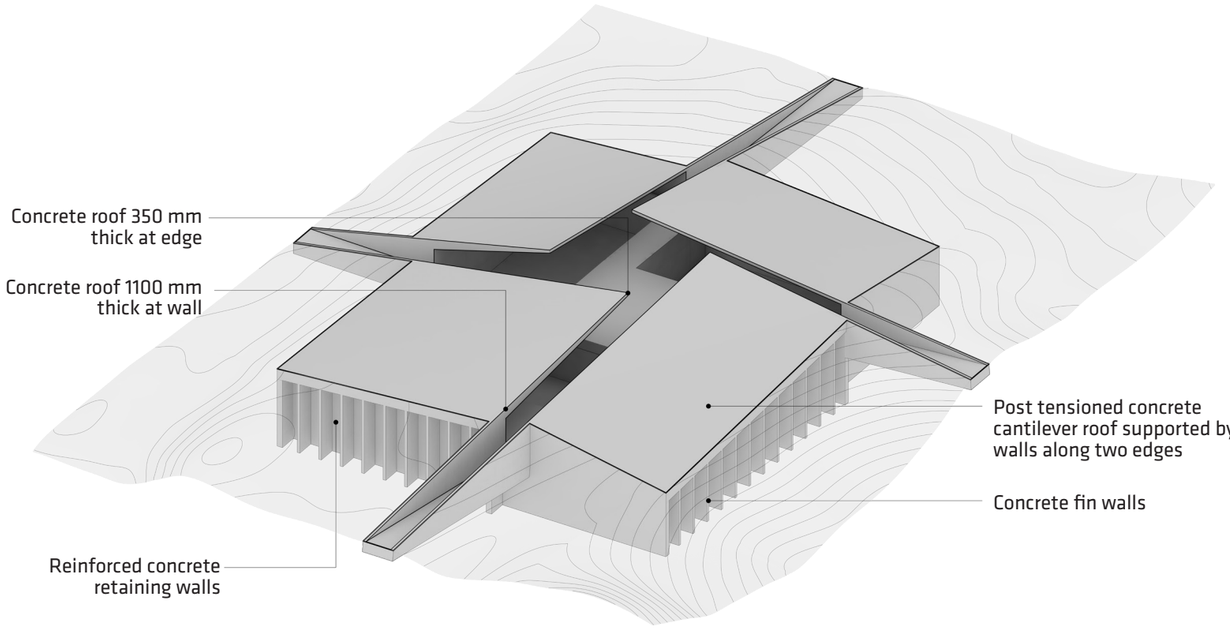
FACADE DETAIL

TIRPITZ

TIRPITZ

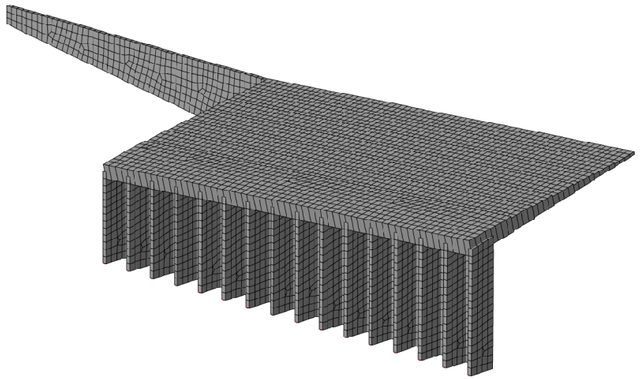

VEJRS
VEJRS

STRUCTURE



The structural solution consists of a series of four, single-story rectangular concrete boxes, half submerged into the coastal landscape. Each box is formed from a reinforced concrete base slab, two RC walls and a post-tensioned concrete roof. The concrete walls are arranged such that the two walls are at right angles to each other and the roof is supported along only two edges. As well as supporting the roof, the walls act as earth retaining structures and face outwards from the center of the site.

One of the main features of the building are the large glazed elevations which form the internal walls of each box. In order to accentuate the sense of transparency, it was important that these elevations were kept free from structural elements such as walls or columns. This is achieved by forcing the roof to cantilever from the walls at the back of the box and extending them to the glazed elevations without the need for further support. To achieve this, the profile of the roof structure is tapered such that the concrete is 1100mm thick at the connection with the walls, and 350mm thick at the free edges. This moves the weight of the structure away from the cantilever tip and adds material to the part of the structure where the stresses are highest. Furthermore, the entire roof is post-tensioned which allows the roof deflections and cracking of the concrete to be carefully controlled. The large forces generated by the cantilever roof are transfered to the ground via concrete fin walls located on the rear of the retaining walls.



Large forces generated by the cantilever are transfered to the ground via concrete fin walls

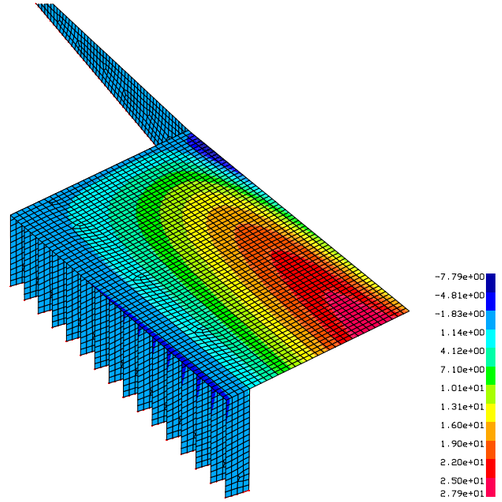
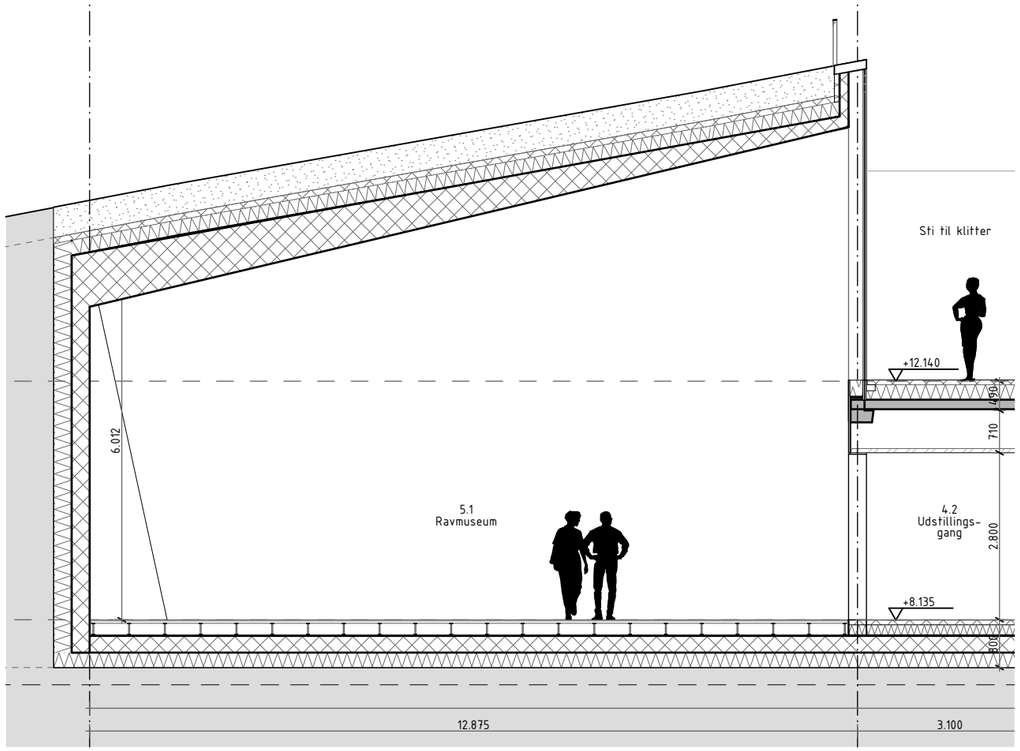


Diagram of deflection in the concrete roof

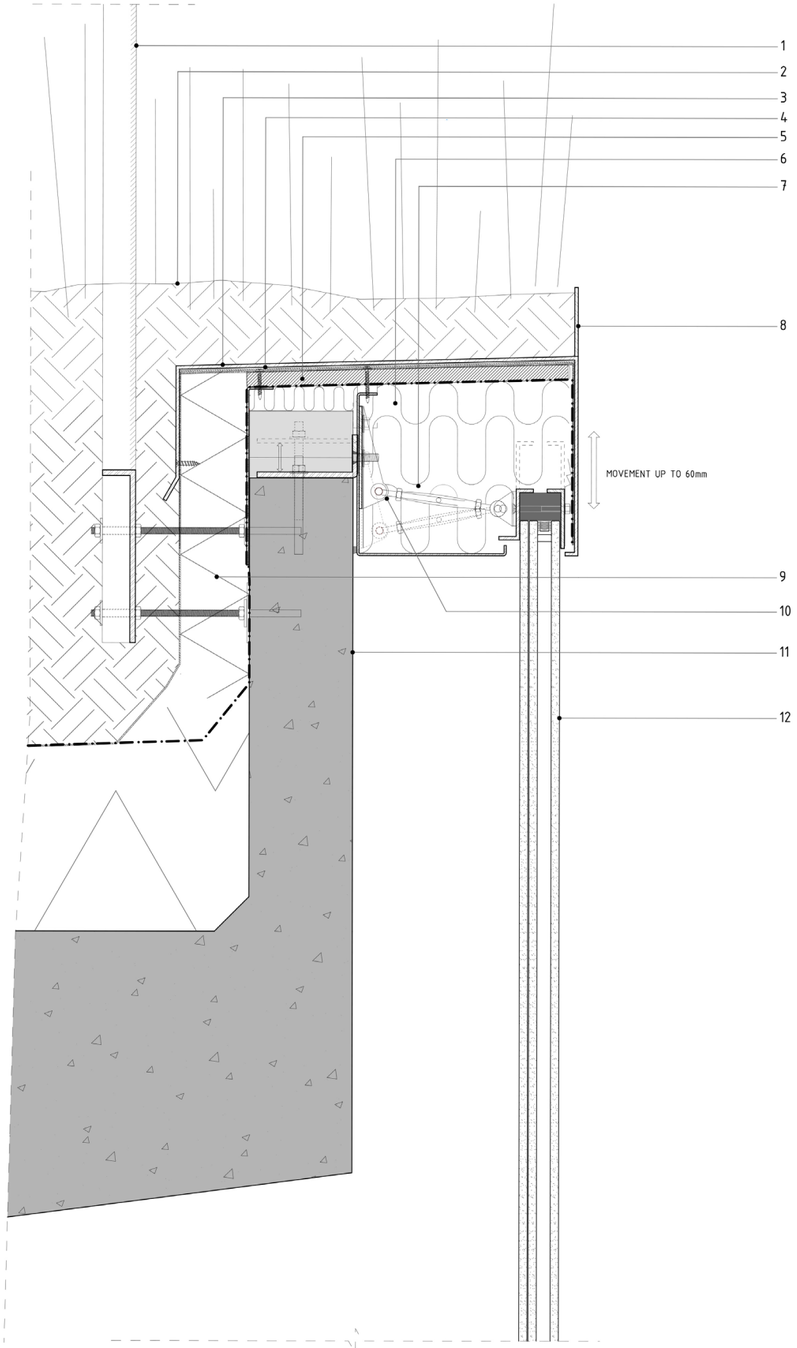


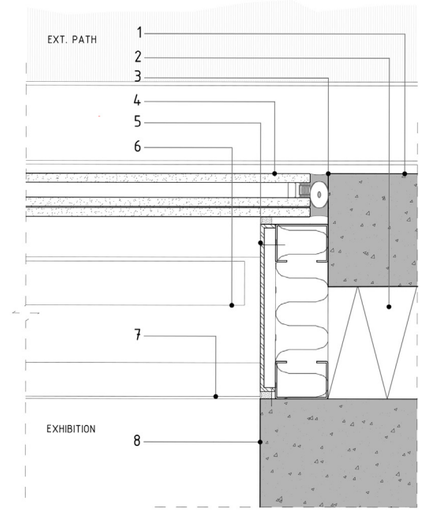
Cross Section of roof structure

TIRPITZ UNDER CONSTRUCTION & ROOF FORMWORK

This 950-ton roof slab is supported on only two sides, and cantilevers about 50 feet in one direction and 98 feet in the other.

The facade is constructed as a self-supporting system of large glass panels of up to 8.5 by 21 feet





FACADE DETAILS