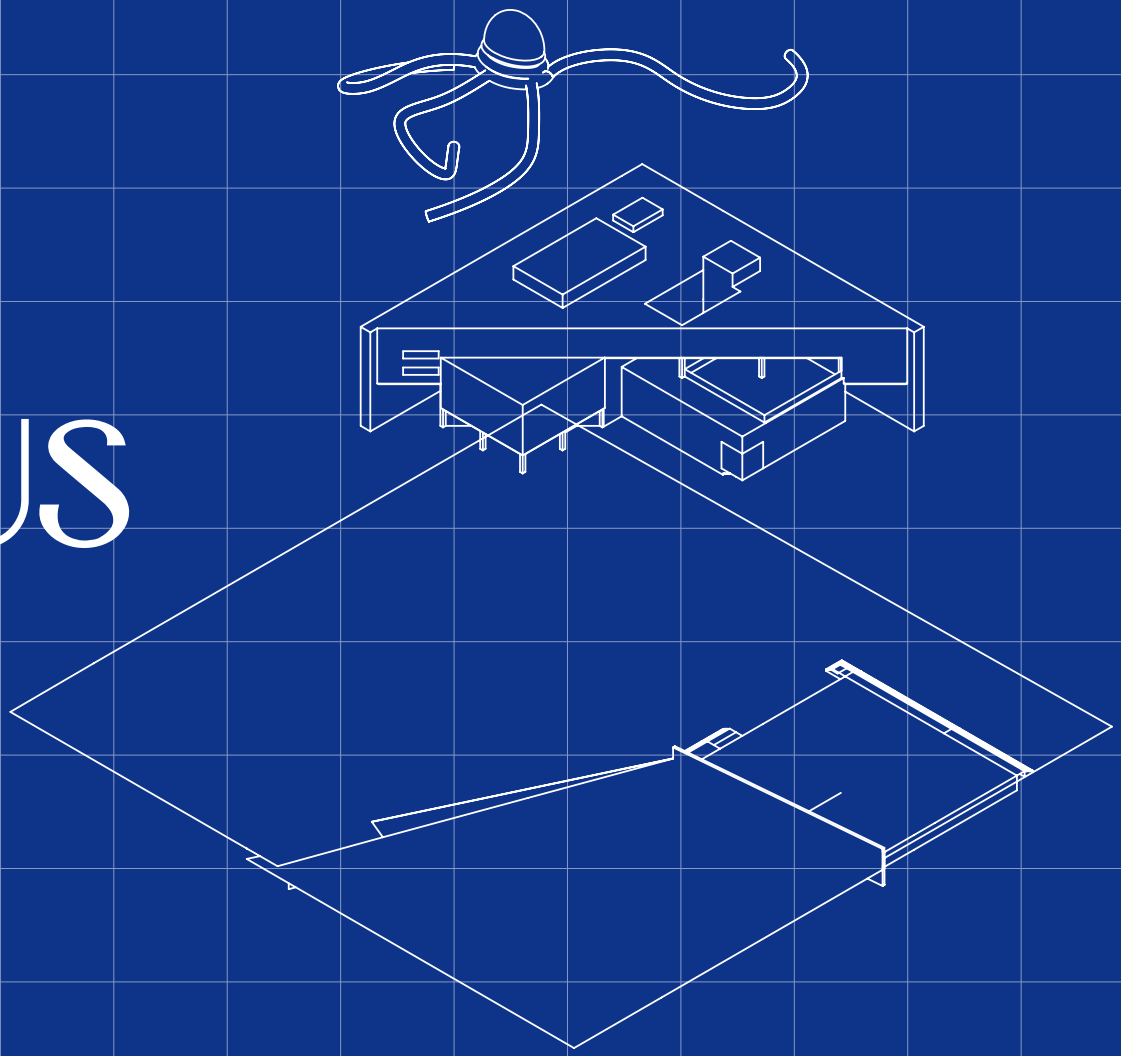
THE OCTOPUS



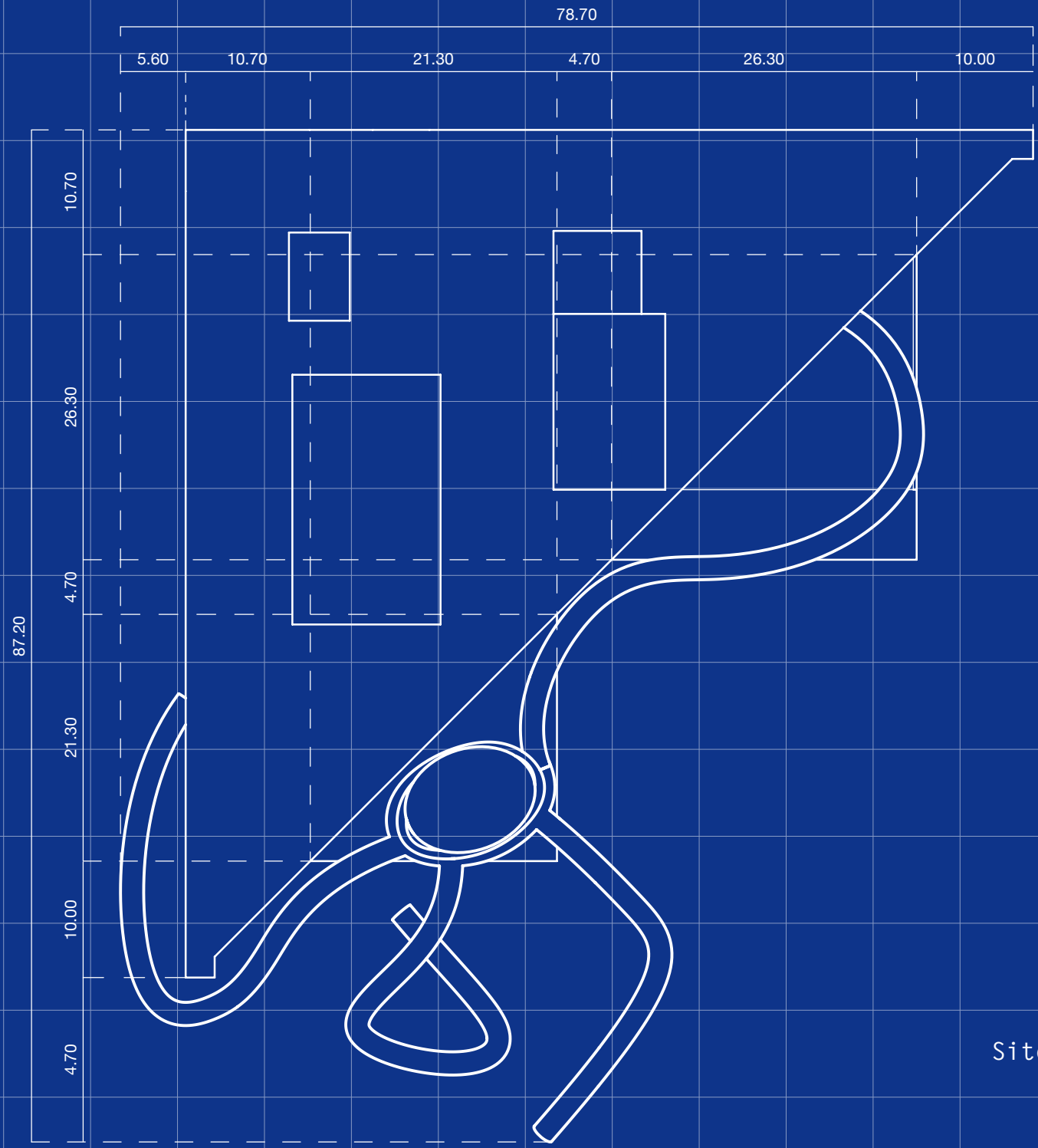
The Maritime Museum seeks to innovate and attract a wider audience with a transformative visitor experience. To achieve this we propose placing a playful maritime adventure with The Octopus Exit, an interactive structure that combines functionality with a fun maritime theme.

The Octopus Exit is a large scale, immersive installation that serves as both an architectural statement and a playful farewell to museum visitors. The design is inspired by an octopus, symbolizing the flexibility and mysterious life of the maritime world.

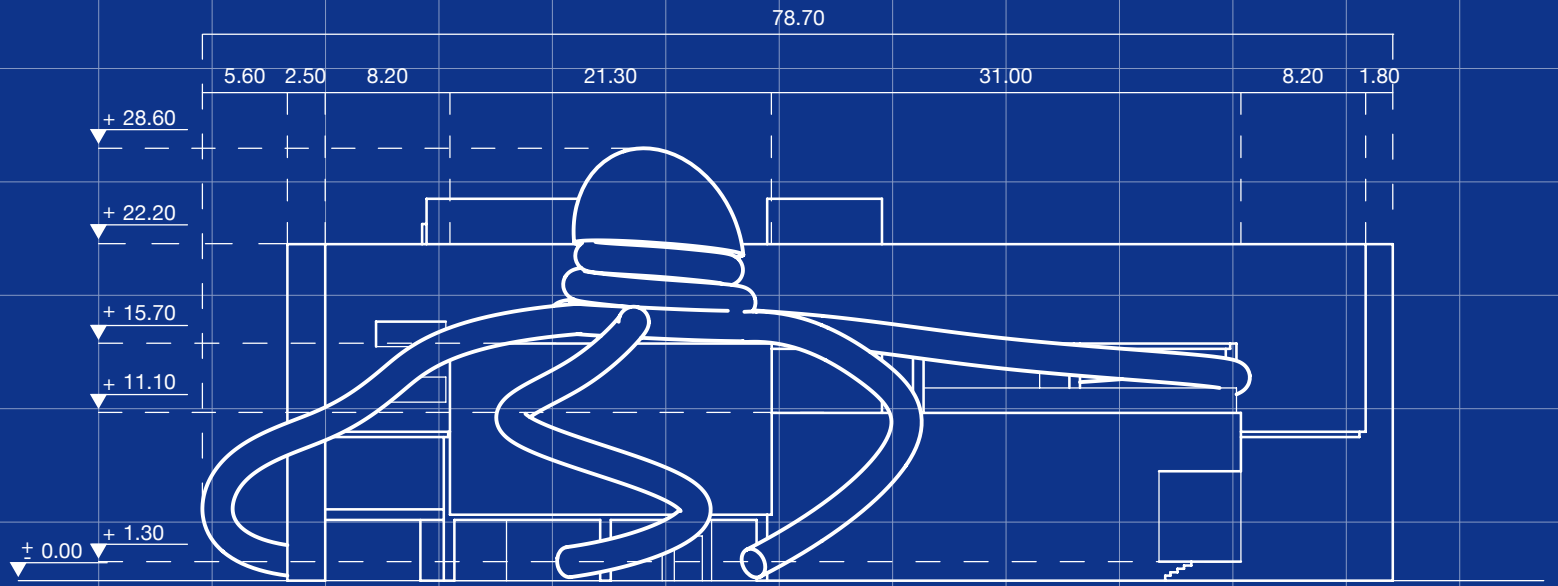
The overall structure comprises of a large dome and a series of spiraling tunnels. Ressembling the head of an octopus, the dome is situated on the southwest triangular structure of the museum. Accessible by a spiral ramp, the open space offers a bright view of the harbor.

A series of slides represent the octopus tentacles, extending from the central spiral to multiple locations on the ground level. The slides enhance the visibility of the octopus from various directions, sparking interest and inviting pedestrians to explore the museum.

TECHNICAL DRAWINGS



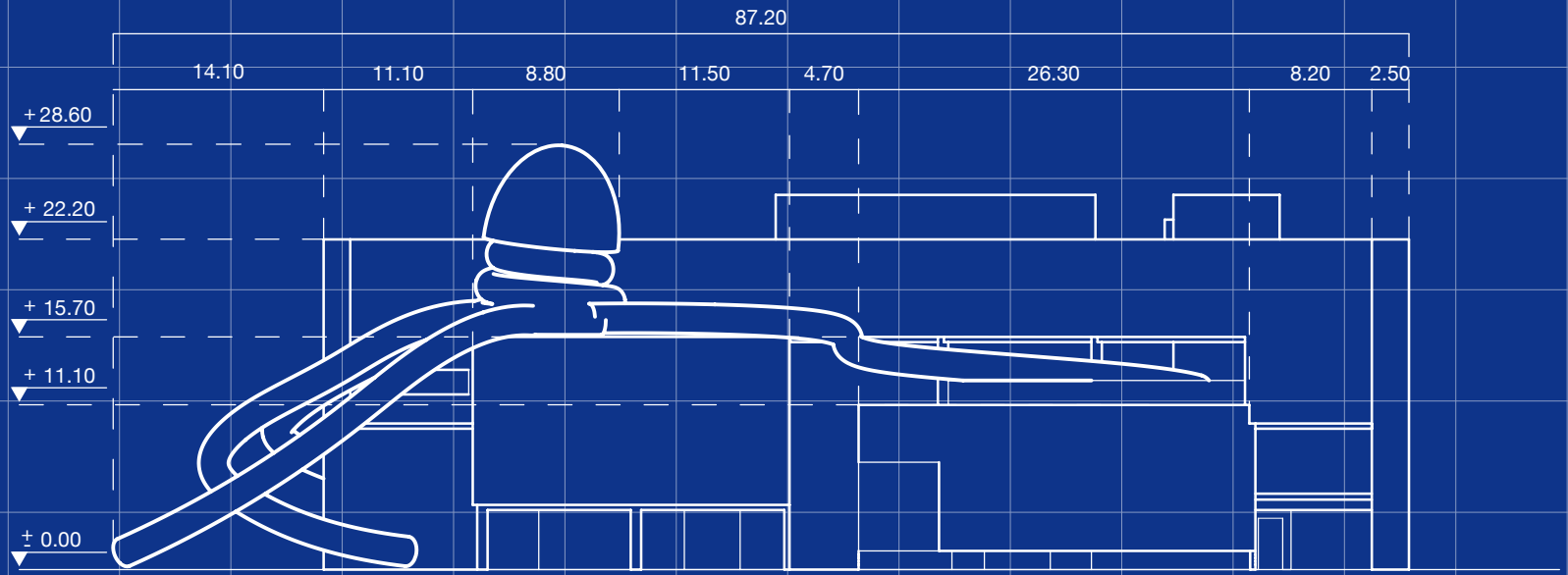
Siteplan 1 : 500



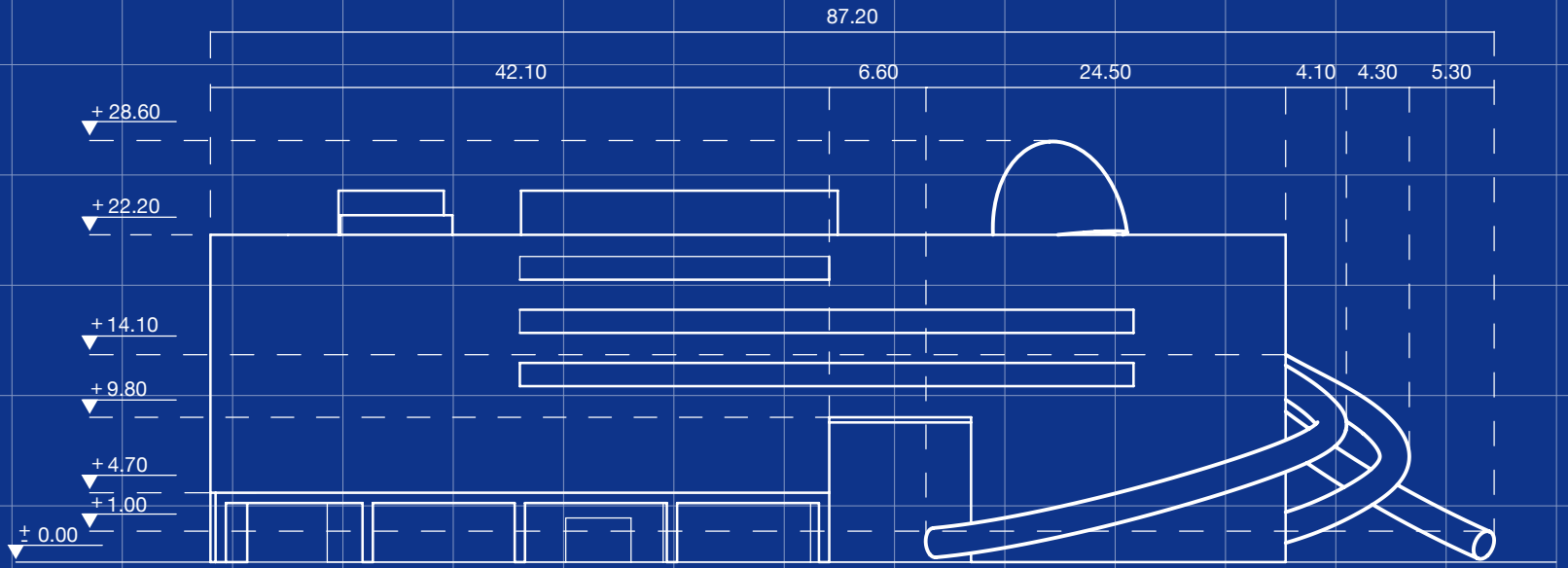
TECHNICAL DRAWINGS

South Elevation 1 : 500

TECHNICAL DRAWINGS



East Elevation 1 : 500



West Elevation 1 : 500

TECHNICAL DRAWINGS

DETAILS & SECTIONS

A Walkway |Floor 2 Terrace to Floor 3 Rooftop
L: 64 Meters | Ø: 3.0 Meters | Slope: 6%

B Exit 1 | Harbor Facing
L: 48 Meters | Ø: 1.0 Meter

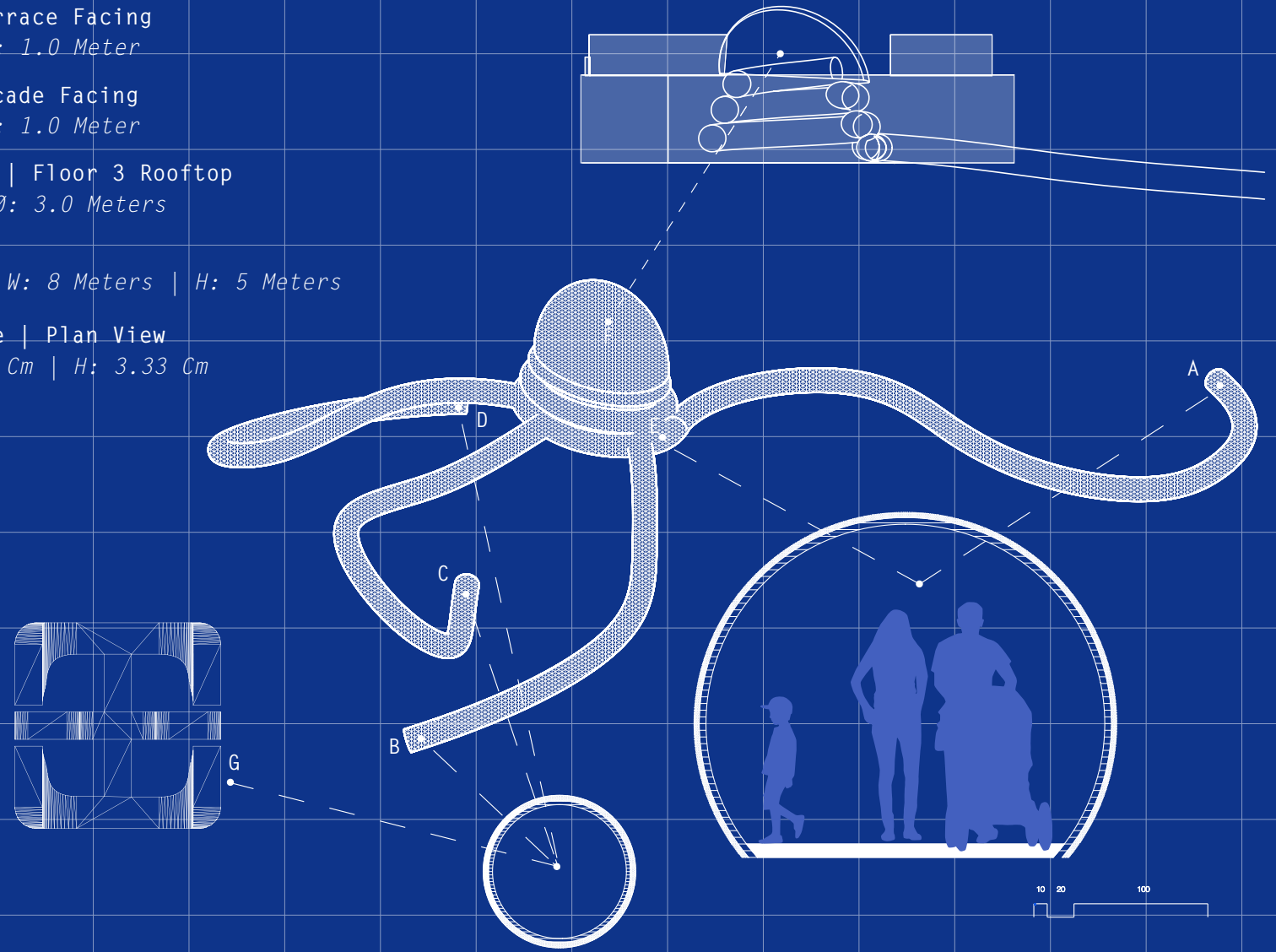
C Exit 2 | Cafe Terrace Facing
L: 39 Meters | Ø: 1.0 Meter

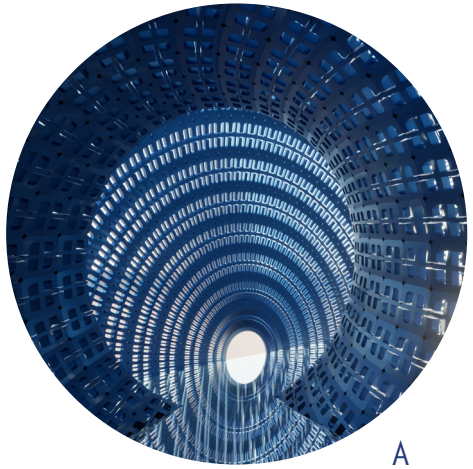
D Exit 3 | West Arcade Facing
L: 58 Meters | Ø: 1.0 Meter

E Circulation Ramp | Floor 3 Rooftop
L: 120 Meters | Ø: 3.0 Meters

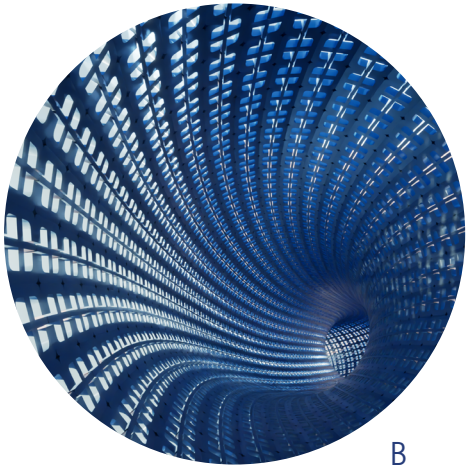
F Observation Deck
L: 11.5 Meters | W: 8 Meters | H: 5 Meters

G 3D Printed Module | Plan View
L: 10 Cm | W: 10 Cm | H: 3.33 Cm





A



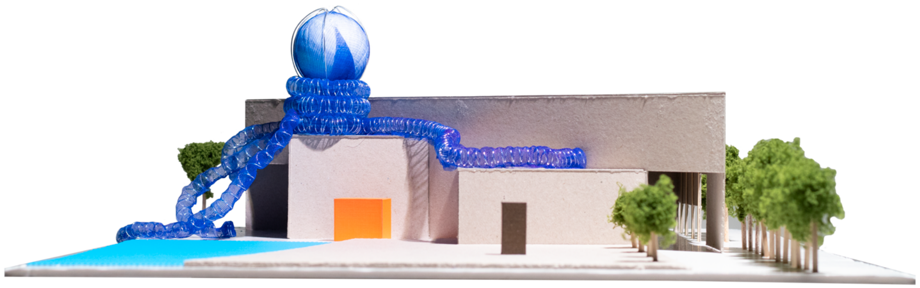
B

F

G

RENDERED VIEWS

1:200 CONCEPT MODEL



1:200 CONCEPT MODEL

1:1 COMPONENT CONCEPT

A major component of our design is the membrane that wraps the octopus' head and tentacles. The membrane, or skin as we like to call it, play an important role for both the function and aesthetic of our design. From the outside, we intend for the octopus' skin to appear as a solid, striking color that captures interest from afar. On the inside, we wanted a perforated surface that would endow visitors visibility of the exterior of the Maritime Museum, which offers a significant view of the harbor.

From the onset, we were committed to the modularity of the skin which arose from main aims of (1) ease of connection and (2) ease of replacement. Both assembling the membrane and replacing parts should be self-explanatory with minimal instruction. Therefore, we explored 3D-printed materials such as fabrics, mesh, chainmail, and connectors, aiming to achieve modularity as well as consistency, flexibility, and strength.

1.

Our first idea was inspired by plastic egg-shaped connectors found in children's climbing playgrounds, which hold climbing ropes together at intersections. At this point, we were exploring the idea of using PP ropes as the main material, which would be joined together to form a net. The main challenge was to find a mechanism that can allow for ease of installation and replacement. Forms like spirals and "X" joints were the main focus in this stage.

2.

During our research, we learned about 3D-Printed fabrics, which itself can already satisfy the modularity, flexibility and porosity that was required. These fabrics mimic the flexibility of textile which shifted our focus and we began experimenting with various 3D-printed designs found on Thingiverse to determine which one would be best suited for our application.

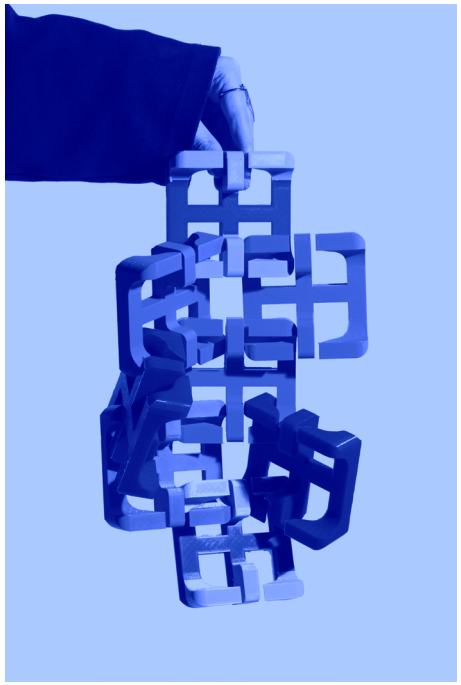
3.

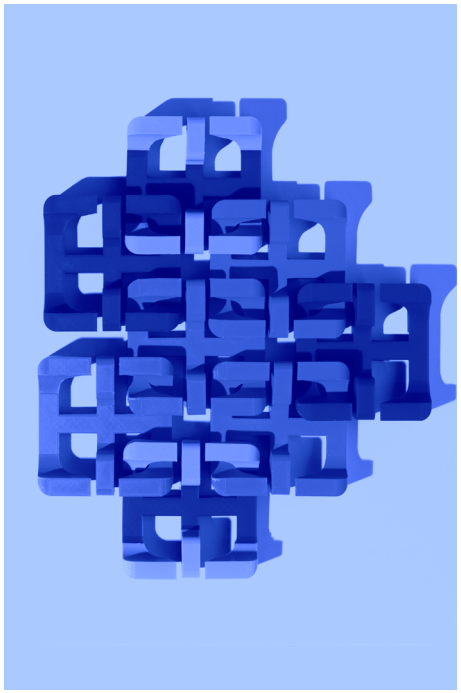
Inspired by Tomas Sarceno's work "On Space Time Foam" where he collaborated with an external actor who created the material he used in his final work, we resorted to employing the fabric design of Agustin Flowlistik, a designer we found on Thingiverse. Flowlistik's design satisfied our design objective for modularity, flexibility and a aesthetic value.

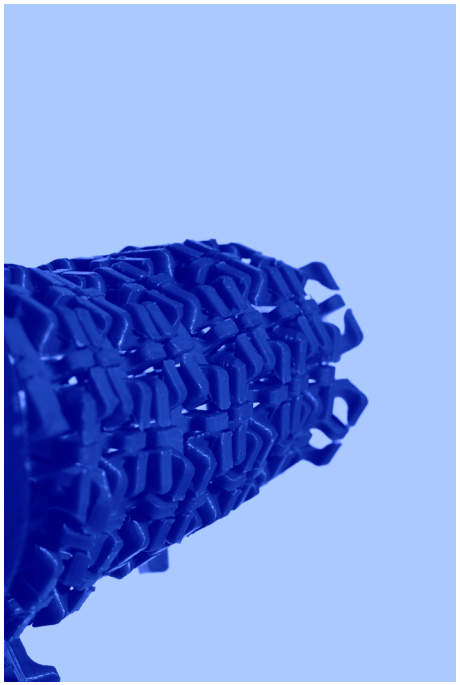
1:1 COMPONENT DESIGN CONSIDERATRIONS

For the 1:1 component, we explored the different ways to construct the skin of our octopus. The brainstorming, sketches, and prototypes showcases the evolution and development of entire process.

The size of the gaps in the net was an important consideration, since ensuring visibility was one of our goals. The slides will be made from a transparent material and the nets will act like a mesh overlay on the clear slides. To keep a clear view of the outside , we tested different 3D-printed designs. However some of the designs had gaps that were too small, resulting in a very limited view and a more closed off appearance. This is why our focus shifted more towards designs with larger gaps.







The flexibility of the nets were also a key factor as the slides have an organic shape. The nets needed to be both stable and flexible to comfort the curves of the slides. We also wanted the nets to move with the wind creating an environment as of you are experiencing the feeling of being in a harbor setting.

The strength and stability were an important factor, so we looked at how securely the individual pieces fit together ensuring that once assembled the net would stay intact under stress. For example it is important that on the slides the pieces stay together and prevent slipping or sliding at the corner of the joints.

Creating 3D-Printed net-like designs brought us some challenges such as:

1. Printing in groups: Many existing designs are designed in a way that its required to print large sections as a single unit. However, this approach is not practical for our project since one of the important segments of our project is to easily replace a damaged part of the net.

2. Material Flexibility: We noticed as we were printing that not all of the fabrics are flexible enough for our project. So we need to print and find the right amount of flexibility and strength.

3. Net Appearance: We noticed that not all of the 3D-Printed fabrics have gaps which we need for the visibility of the outside view to the harbor.