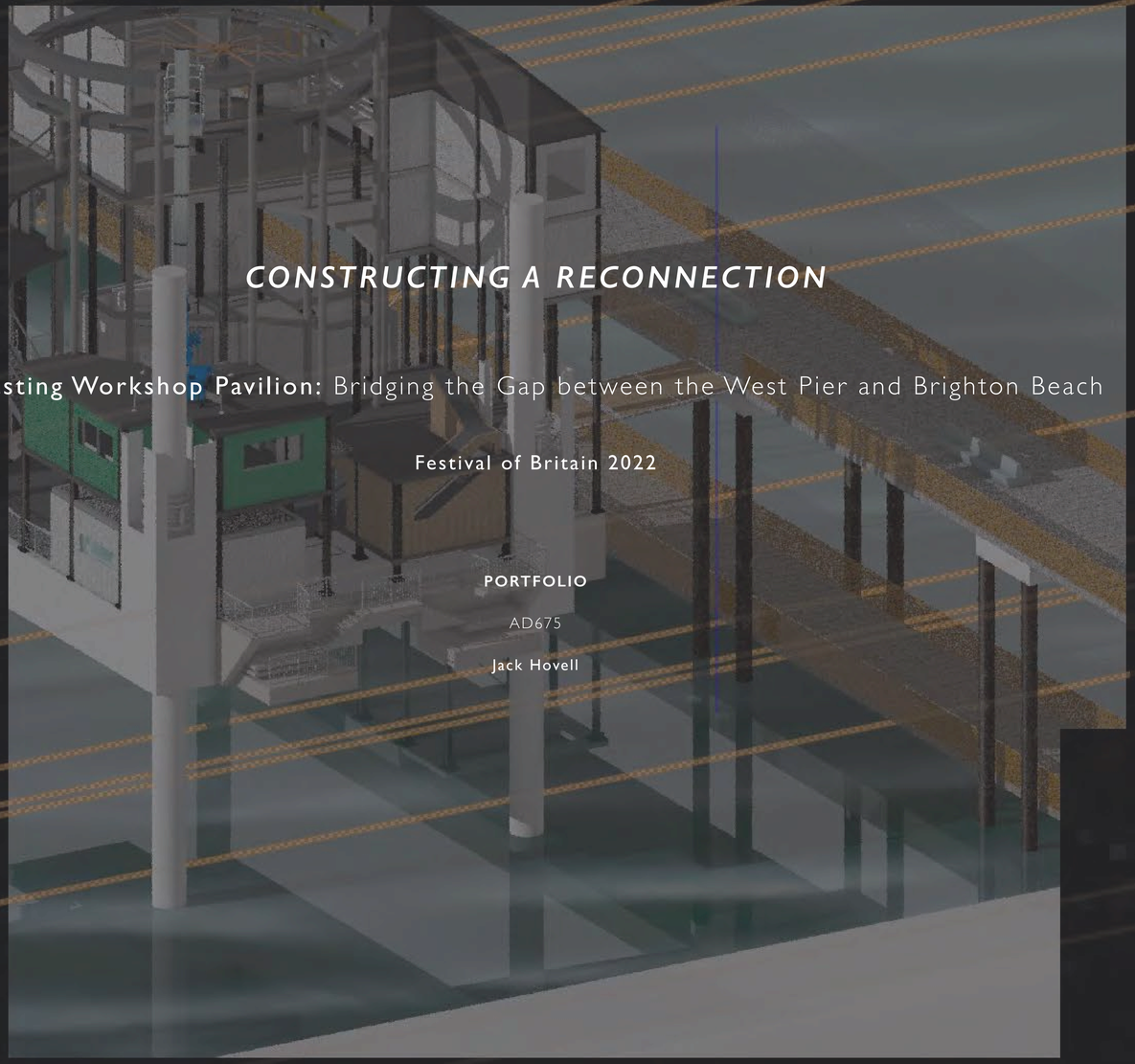


CONSTRUCTING A RECONNECTION

Casting Workshop Pavilion: Bridging the Gap between the West Pier and Brighton Beach

Festival of Britain 2022

PORTFOLIO

AD675

Jack Hovell

CONTENTS

INTRODUCTION: Context - History - Precedents

RESOURCES MAPPING: Key Locations and Site

CURATE - BRIEF 01: Programme Requirements

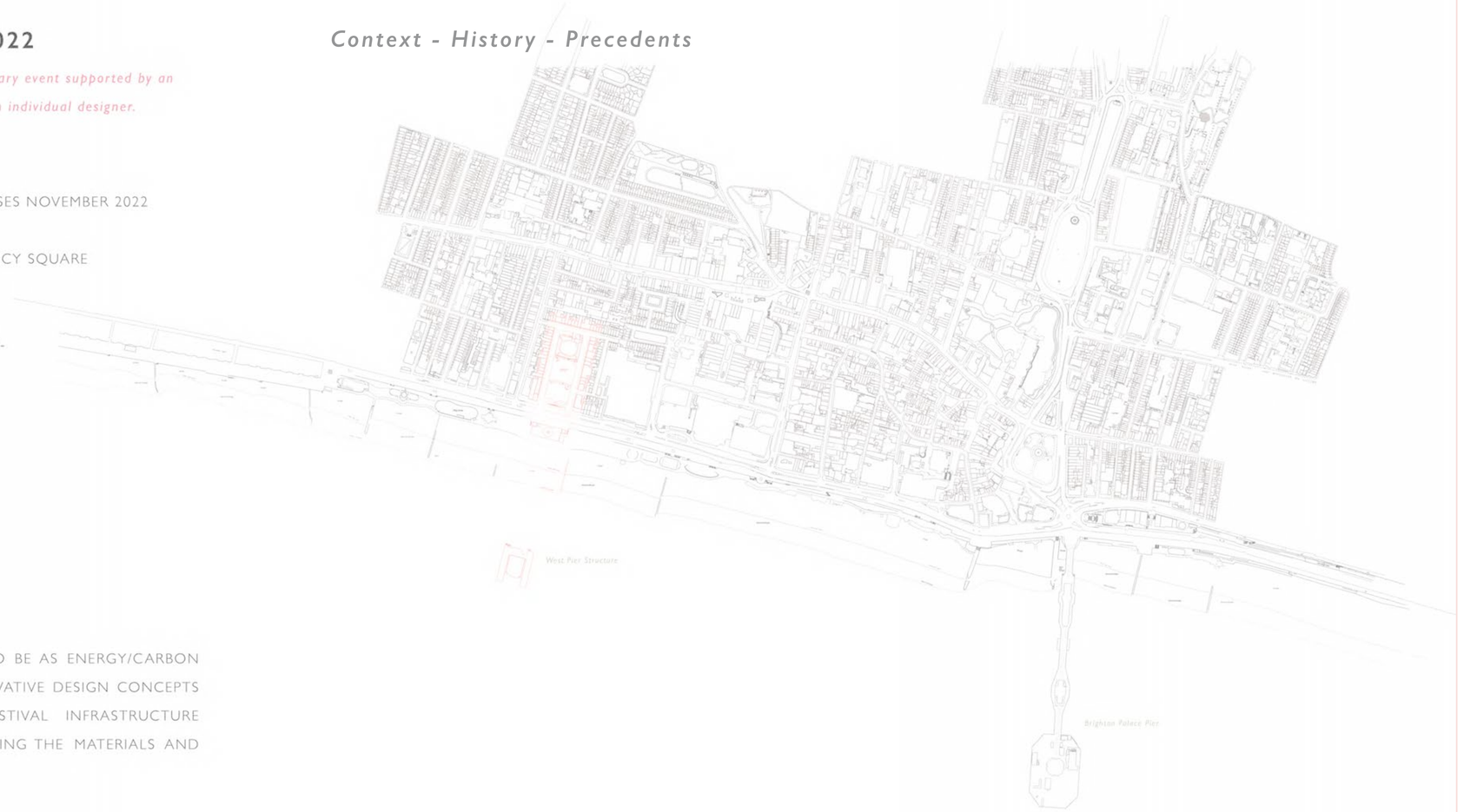
- **TASK A:** Pavilion Programme Timeline
- **TASK B:** Plan - Section - Elevation
- **TASK B:** Infrastructure / Masterplan

PARTI - BRIEF 02: Iteration + Development

- **TASK A:** Parti Diagramatic Sketching
- **TASK A:** Parti Diagramatic Iterations
- **TASK A:** Infrastructure Parti Iterations
- **TASK B:** Collage Sequence - 3 Key Views
- **TASK B:** Collage Sequence - Infrastructure
- **TASK C:** SysMat Matrix - Exploded Axo

INTRODUCTION

Context - History - Precedents



FESTIVAL OF BRITAIN 2022

The celebration of Britishness through a temporary event supported by an array of unique pavilions - each developed by an individual designer.

WHEN: FESTIVAL OPENS APRIL 2022 - CLOSES NOVEMBER 2022

LOCATION: BETWEEN WEST PIER & REGENCY SQUARE
KINGS ROAD, BRIGHTON

FEATURING: THE FESTIVAL WILL INCLUDE:-
-TAKEAWAY RESTAURANT
-EXPERIMENTAL LABORATORY
-SUSTAINABLE WORKSHOP
-CINEMA/AUDITORIUM
-VISUAL EXHIBITION
-ACTIVIST WORKSHOP
-RELAXATION SPACES
-KINETIC INSTALLATION
+ ACCESS AND FACILITIES

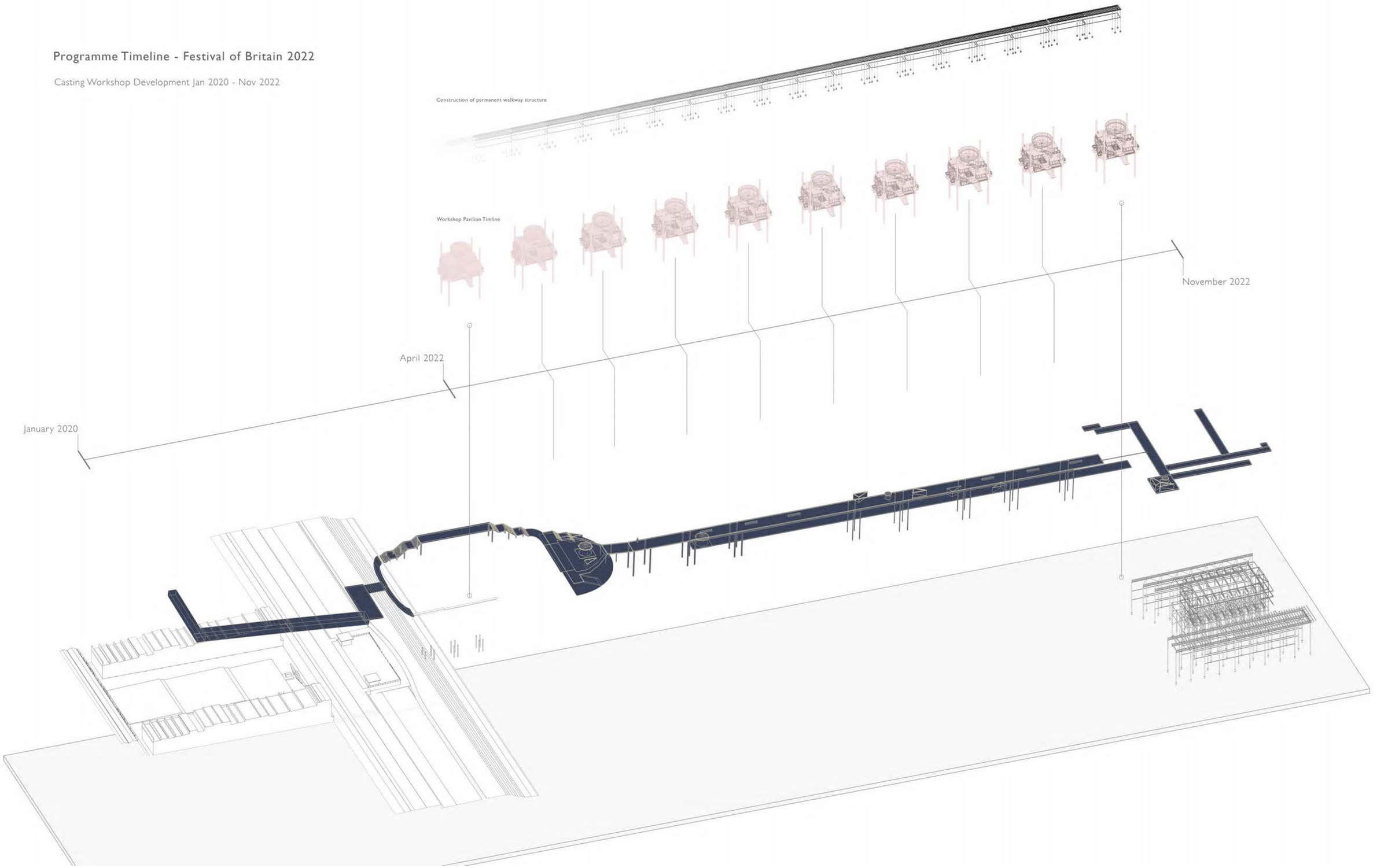
STRUCTURE: THE FESTIVAL PROPOSES TO BE AS ENERGY/CARBON EFFIECIENT AS POSSIBLE, THROUGH INNOVATIVE DESIGN CONCEPTS AND FORWARD-THINKING OF THE FESTIVAL INFRASTRUCTURE LIFE-SPAN BY RE-USING AND RE-PURPOSING THE MATERIALS AND TEMPORARY PAVILIONS.

THE REPLICATION WORKSHOP PAVILION:

MY PAVILION IS A COURSE OF SPACES, SITUATED BETWEEN THE BEACH AND THE WEST PIER STRUCTURE.
AIMED AT STUDENTS, SCHOOL GROUPS, CREATIVES AND GENERAL PUBLIC, THE PAVILION WILL GUIDE GROUPS OF 10-20 IN A SESSION THROUGH AN EDUCATIONAL JOURNEY ON SUSTAINABLE CONSTRUCTION AND ENVIRONMENTAL IMPACT.
THEN ULTIMATELY INTO THE WORKSHOP TO REPLICATE AND MAKE NEW FORMS TO REPLACE THE BROKEN SECTIONS OF THE WEST PIER; WHICH ARE PRESENTED IN THE EXHIBITION PLATFORM NEXT TO THE WEST PIER STRUCTURE.

Programme Timeline - Festival of Britain 2022

Casting Workshop Development Jan 2020 - Nov 2022

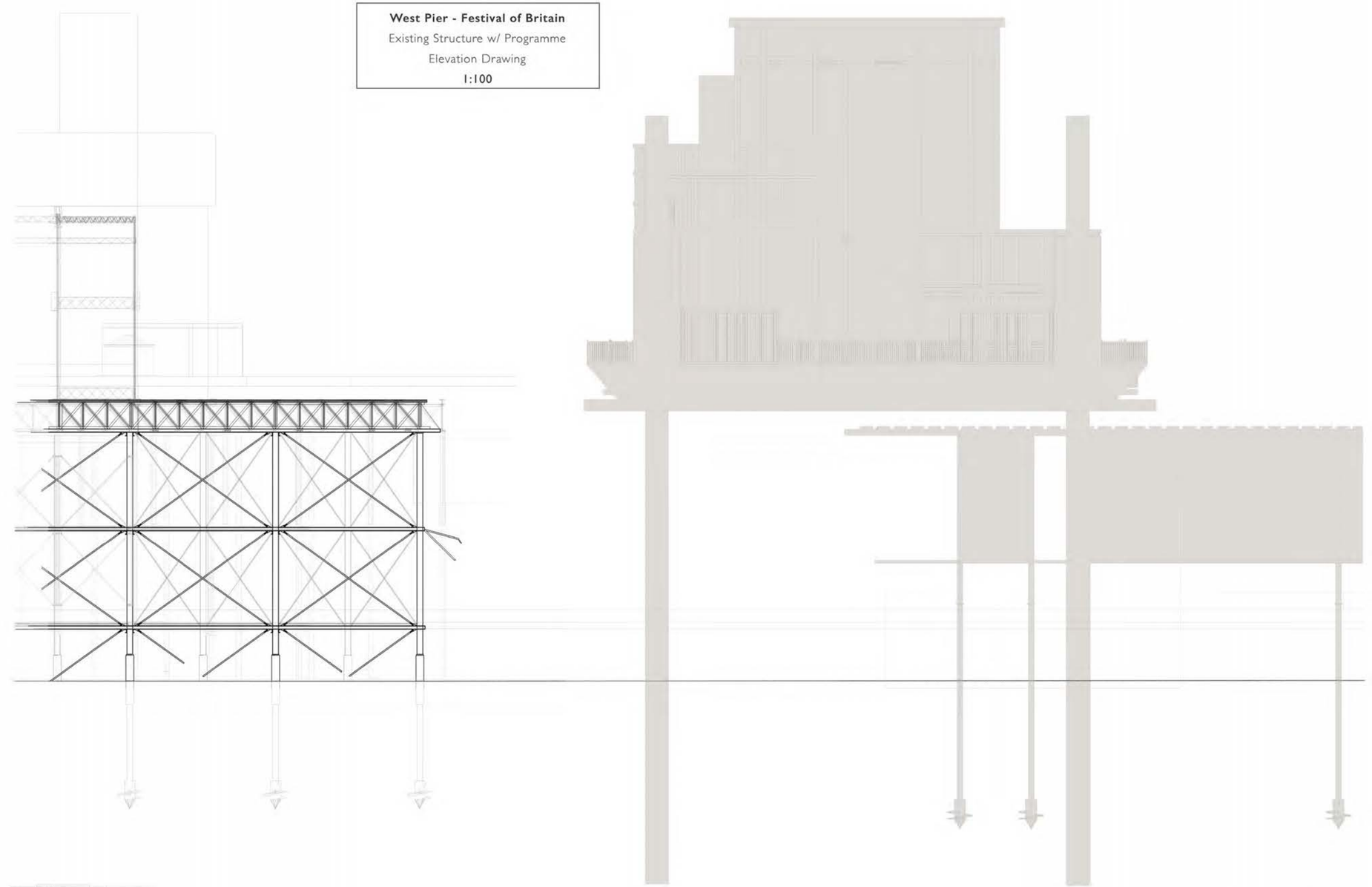


West Pier - Festival of Britain

Existing Structure w/ Programme

Elevation Drawing

1:100



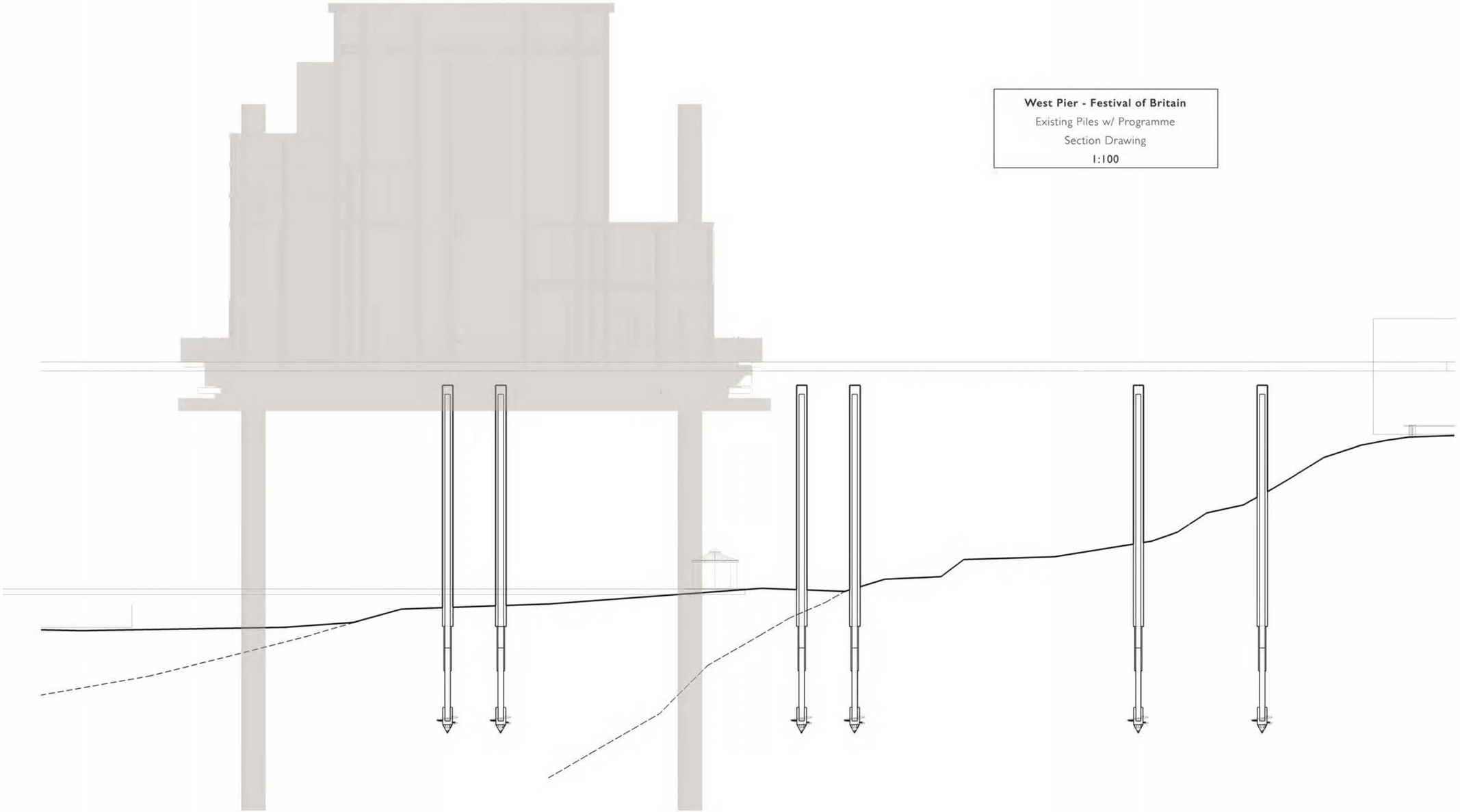
SCALE BAR 1:100

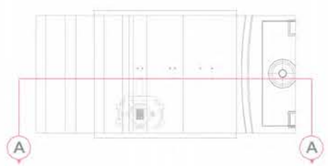
West Pier - Festival of Britain

Existing Piles w/ Programme

Section Drawing

1:100





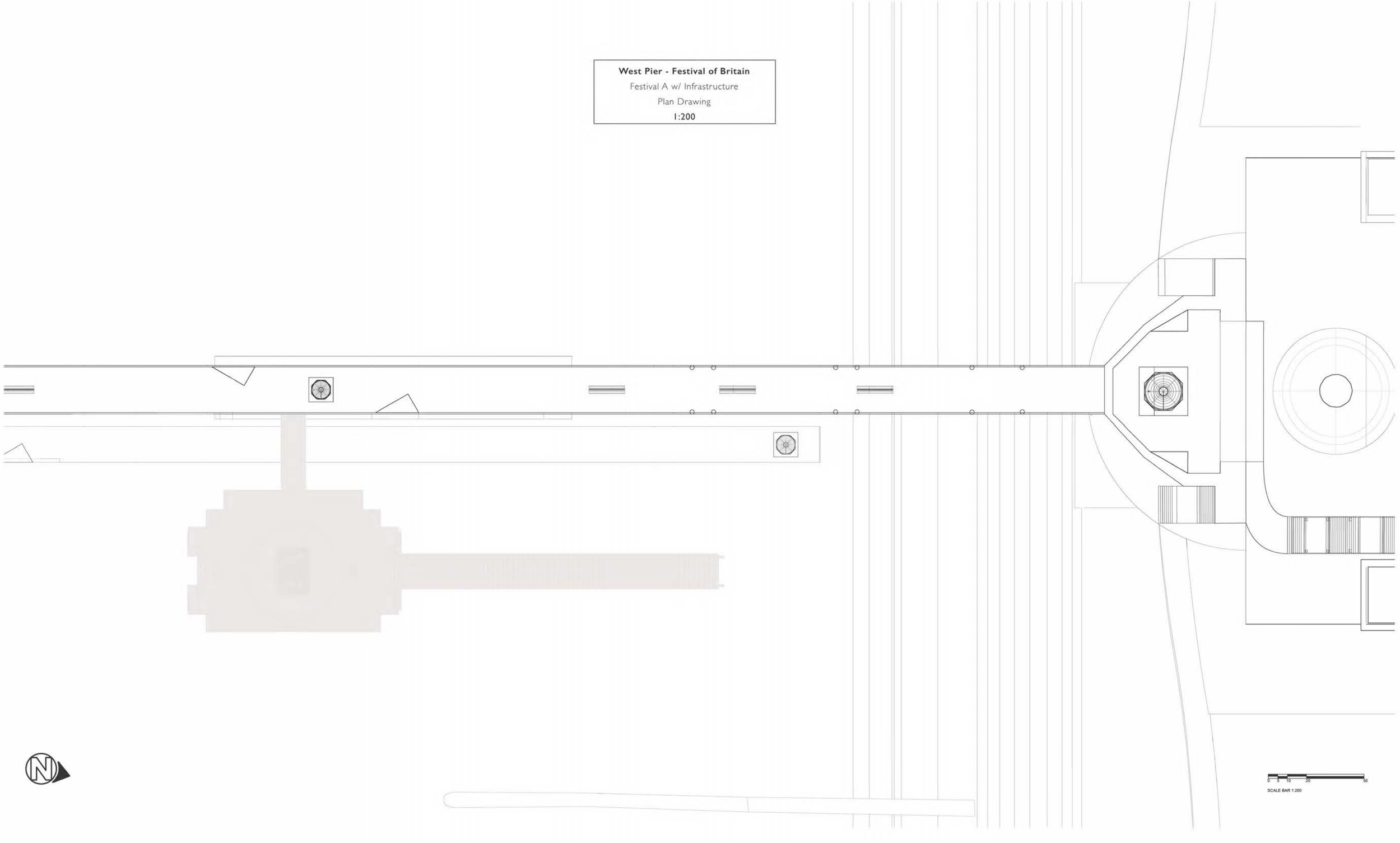
SCALE BAR 1:100

West Pier - Festival of Britain

Festival A w/ Infrastructure

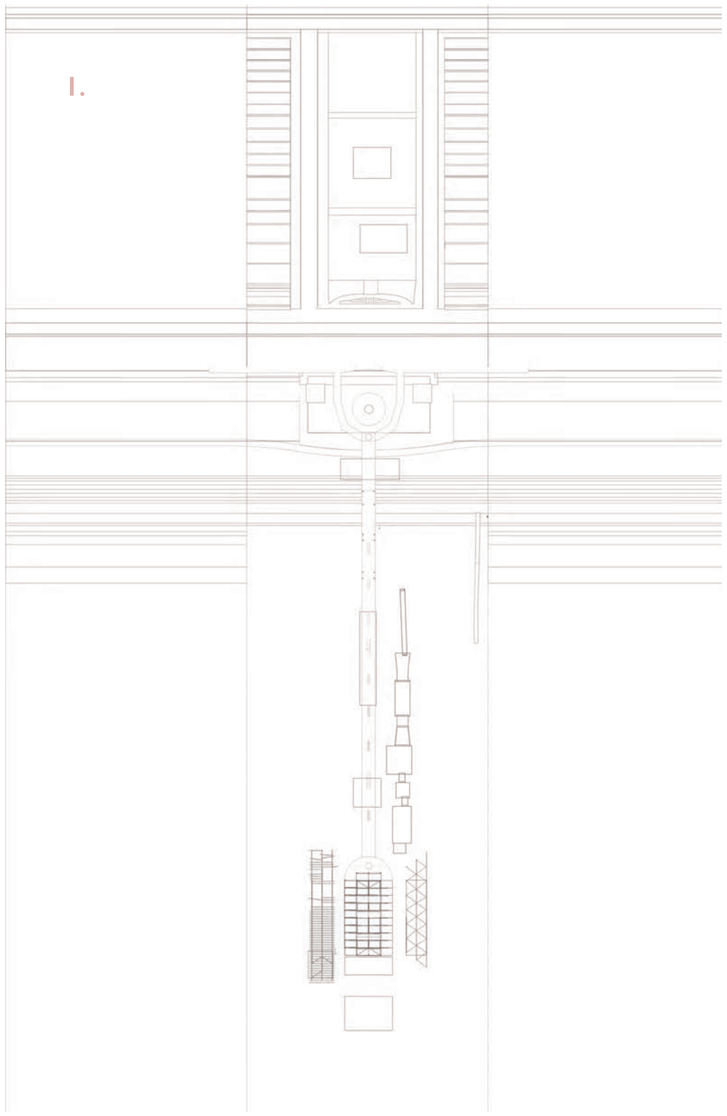
Plan Drawing

1:200



INFRASTRUCTURE DESIGN DEVELOPMENT

1.



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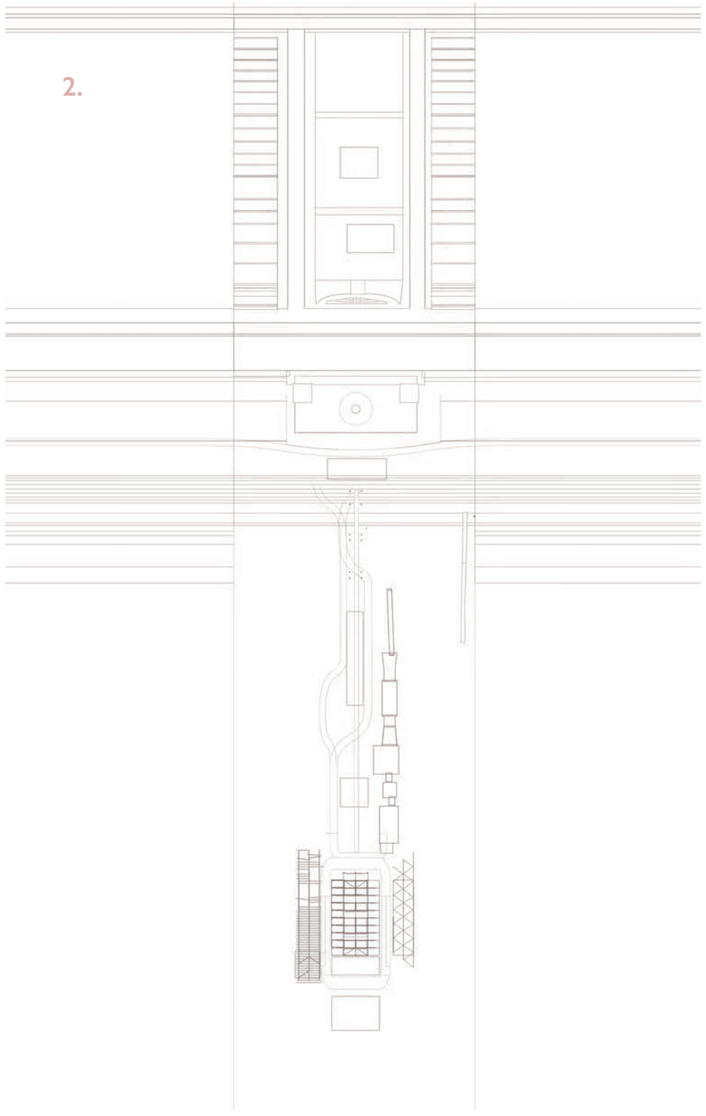

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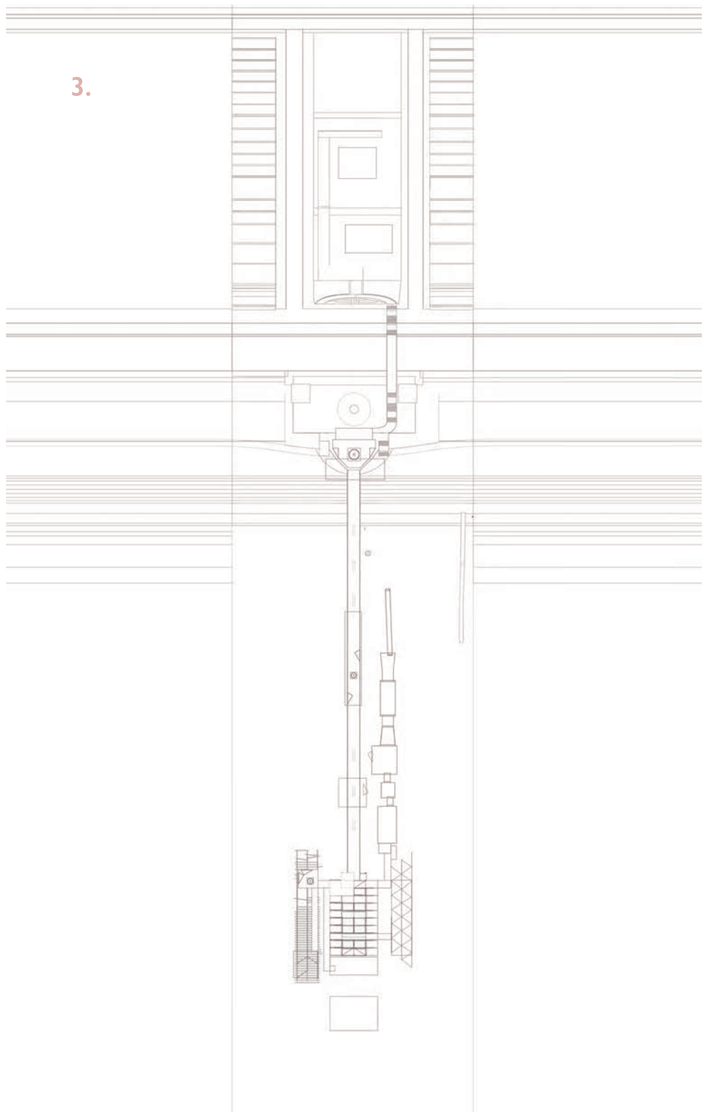
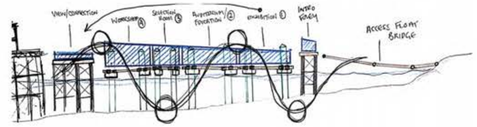
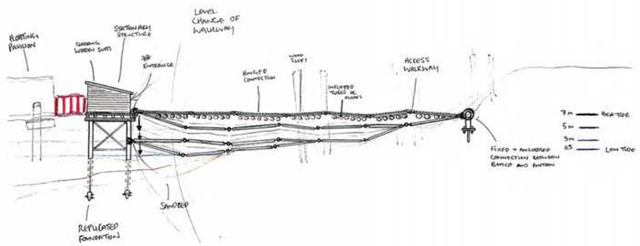
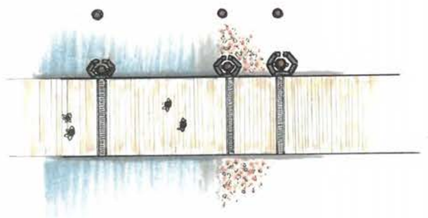


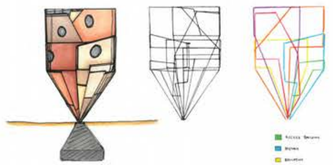
ITERATION AND DESIGN DEVELOPMENT

- ITERATION OF PONTOON AND FLOATING DECKING SYSTEMS

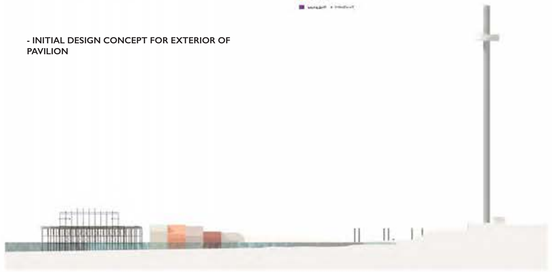




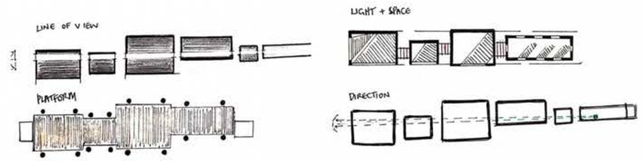


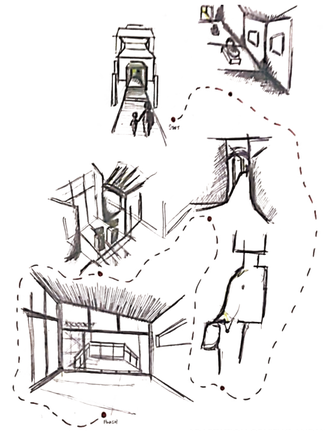


- INITIAL DESIGN CONCEPT FOR EXTERIOR OF PAVILION

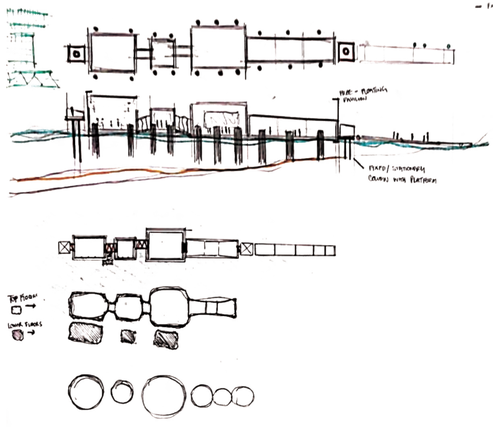


- SPATIAL AND ESSENTIAL CONDITIONS TO CONSIDER IN DESIGN DEVELOPMENT

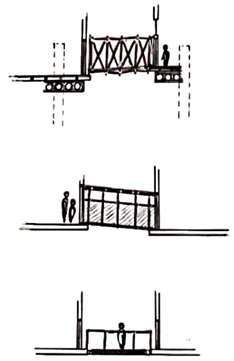


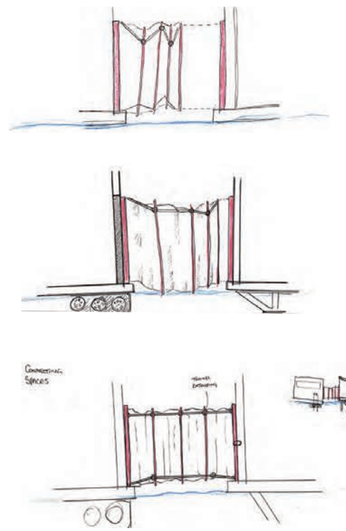


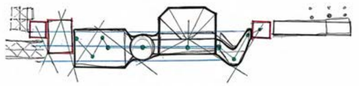
- ADAPTATION OF VIEWS AND WALK THROUGH THE SPACES

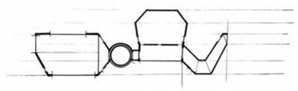


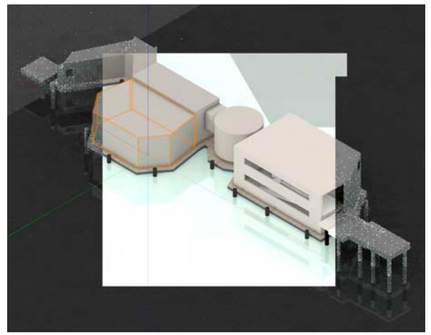
- ITERATION OF DESIGNS FOR THE LINKS AND CONNECTIONS BETWEEN FLOATING SPACES

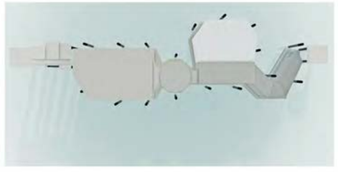




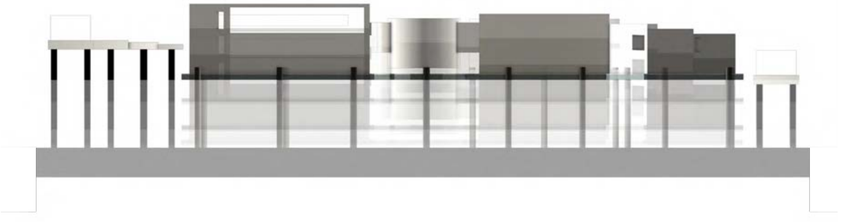






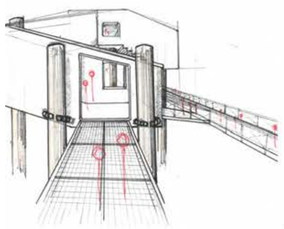


HIGH AND LOW TIDE CONTRAST

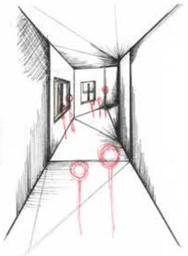


COLLAGE SEQUENCE

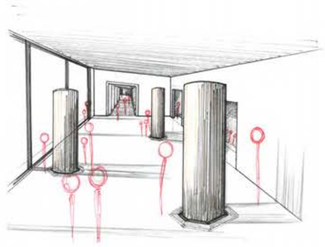
PAVILION ENTRANCE



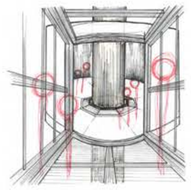
TUNNEL OF HISTORIC ARTEFACTS



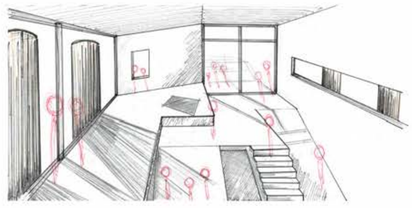
INSTALLATION/EXHIBITION SPACE



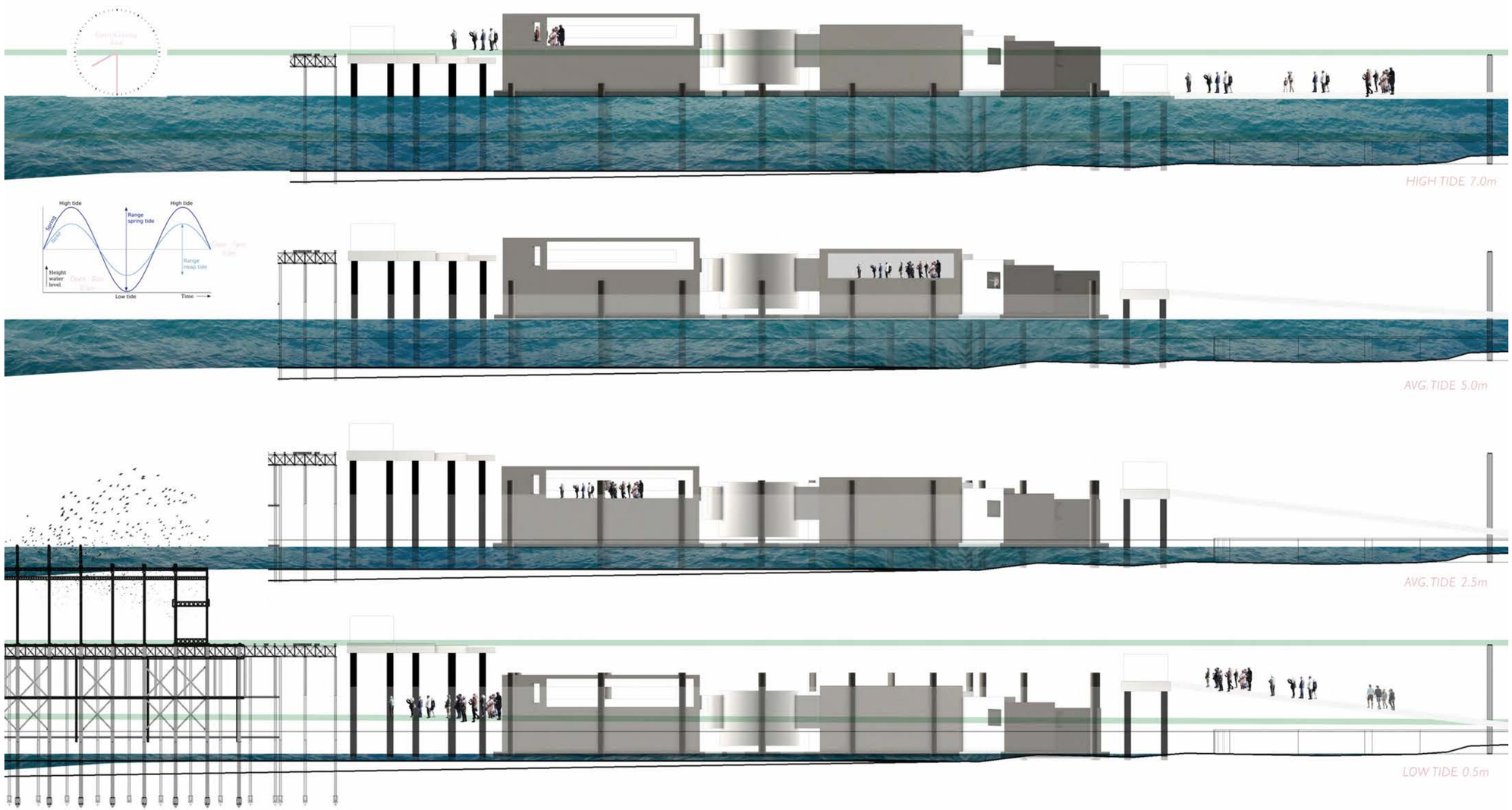
CONNECTION BETWEEN EXHIBIT TO SELECTION CYLINDER

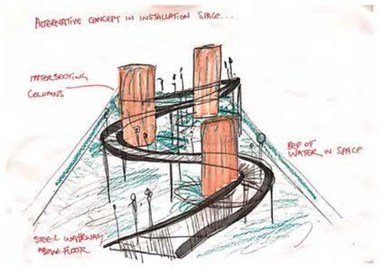


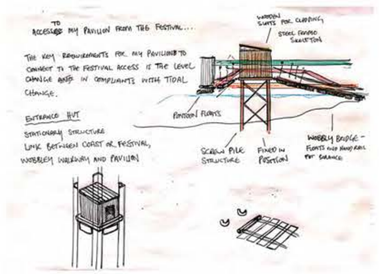
WORKSHOP/FINAL SPACE
LEADING TO DISPLAY PLATFORM AND FESTIVAL

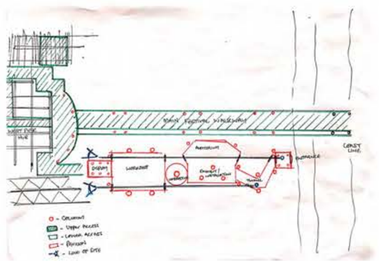


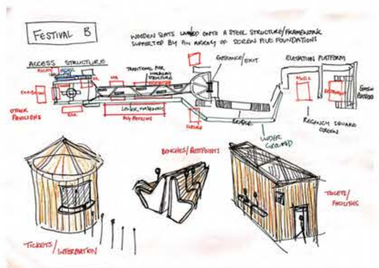
TIDAL ACCESS DIAGRAM

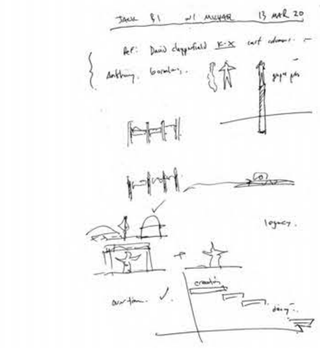


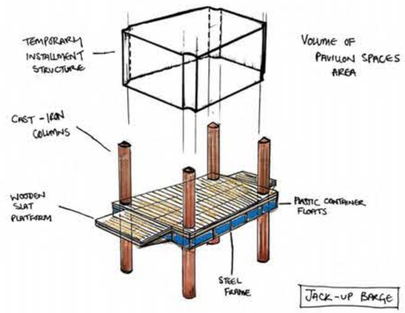












CAST IRON WORKSHOP

- Health + Safety
- Training
- Briefing

MATERIALS SOURCED FROM LOCAL SCRAPYARDS OR CAR PARTS

METAL CASTING REQUIREMENTS

- CRUCIBLE
- FURNANCE
- MOULD BOXES
- HAND RAMMING TOOL
- CRUCIBLE TONGS
- VENT WIRE ROD
- HAND SIEVE
- WATER SPRAY

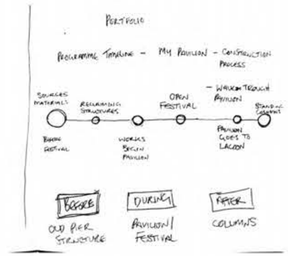
PROTECTIVE WEAR
- Cotton Top Shirts
- Long Pants
- Long Sleeves
- Insulated Gloves
- Goggles

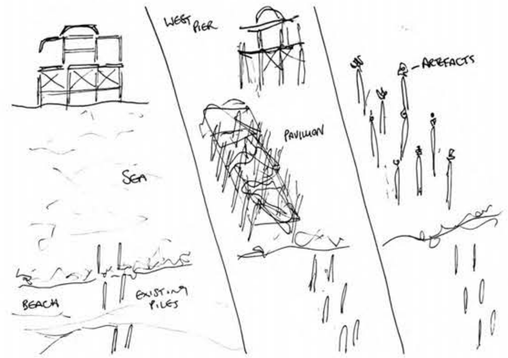
AREA CONDITIONS
- well ventilated
- Dry Sand for Emergencies

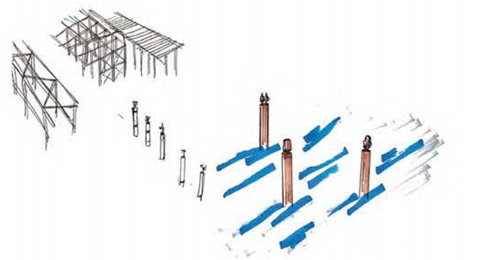
MOLTEN METAL MOULD - MAKE IN SEPERATE PART OF WORKSHOP

CASTING GRAINS - GREEN SAND OR CLAY

ALMANAC FERRIES
RUBBLESOFT & ROUGH WORKSHOP BROCHURE







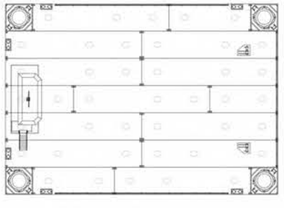
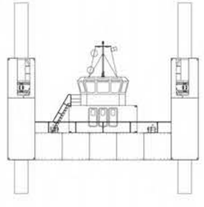
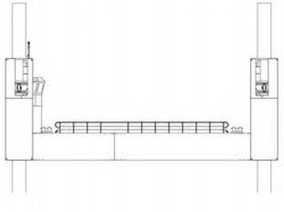
EuroJack-Up 2417 | Jack-up barge

Neptune

The EuroJack-Up is a multi-purpose jack-up barge design, which offers solutions to all kinds of maritime operations such as offshore construction. It can be modified to fit your demands. This could either be the installation of propulsion, or the installation of a heavy lift crane to fit your project.

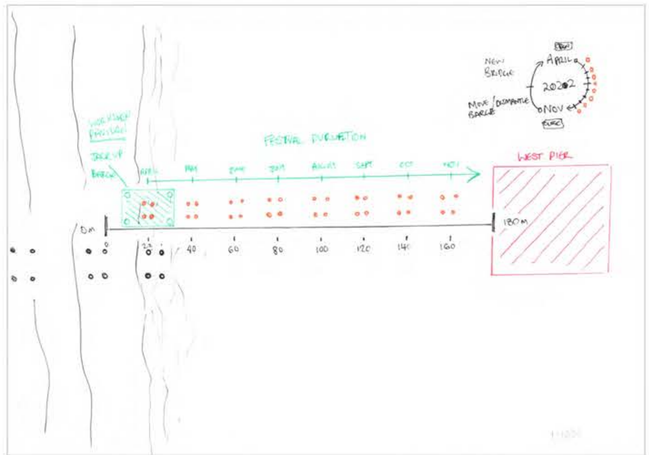
CLASSIFICATION	Bureau Veritas I ✠ HULL • MACH Offshore Self Elevating Unit. Coastal Area. Transit over 20 miles from shore with HS < 2.5m
DIMENSIONS	
LENGTH O.A.	24.38 meters
BREADTH MLD	17,08 meters
DEPTH AT SIDE	2.43 meters
DRAFT	1.89 meters
OPERATING CONDITIONS	
MAX. DESIGN WATER DEPTH	25 meters
SPUD LEGS	
LENGTH	42,0 meters
DIAMETER	1,2 meters
WEIGHT	38 tons
AUXILIARIES	
GENERATOR SETS	2x Caterpillar C4.4
TOTAL E-POWER	142.4 kW
FiFi	Certified fifi system
JACK-UP	Double acting jacking system

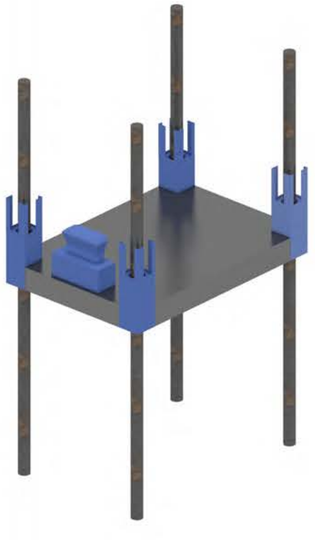
CAPACITY	
FUEL OIL	1000 liters
HYDRAULIC OIL	3600 liters
DECK LOAD	6 ton/m²
JACKING PARAMETERS	
JACKING SPEED	32 m/hour
VARIABLE LOAD	300 tons
PRELOAD FORCE PER LEG	335 tons
PARAMETERS AT 16M DEPTH	
CURRENT VELOCITY	2.0 m/sec
WIND VELOCITY(SURVIVAL)	13 m/sec (30 m/sec)
SIGNIF. WAVE HEIGHT (SURVIVAL)	2.0 meters (4.0 meters)
MAX. WAVE HEIGHT (SURVIVAL)	3,72 meters (7.44 meters)
PARAMETERS AT 20M DEPTH	
CURRENT VELOCITY	2.0 m/sec
WIND VELOCITY (SURVIVAL)	13 m/sec (30 m/sec)
SIGNIF. WAVE HEIGHT (SURVIVAL)	2.0 meters (2.5 meters)
MAX. WAVE HEIGHT (SURVIVAL)	3,72 meters (4,65 meters)
OPTIONS	
MODULAR CONSTRUCTION	21 containers of 20' and 40'
POSITIONING SYSTEM	4 point mooring system
ACCOMMODATION	Modular units

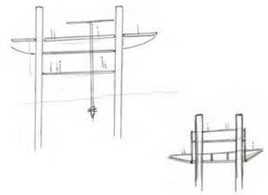
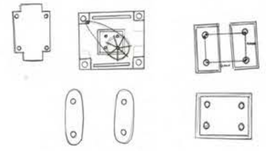




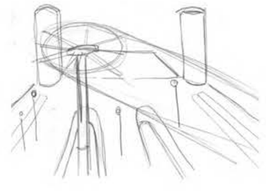
New Development of Programme and Design

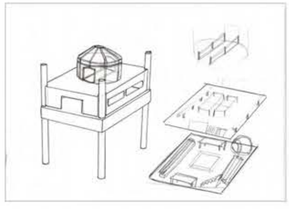
A workshop pavilion which rebuilds a permanent connection between the coast and the west pier structure. Primarily a casting/machinery learning and making environment.

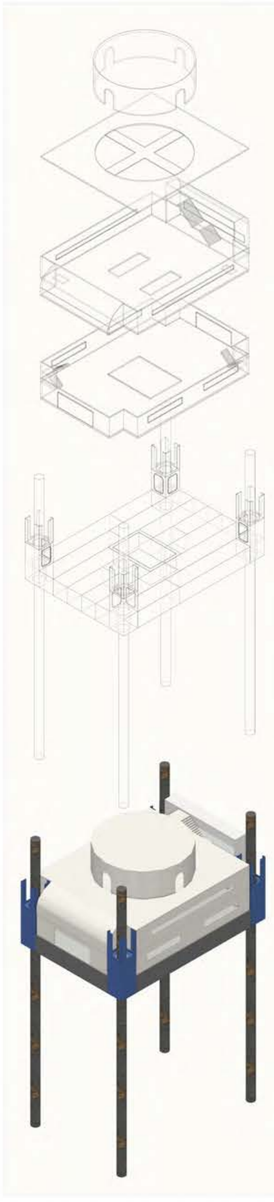


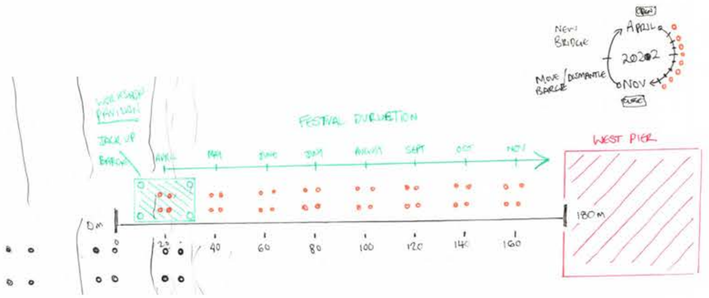






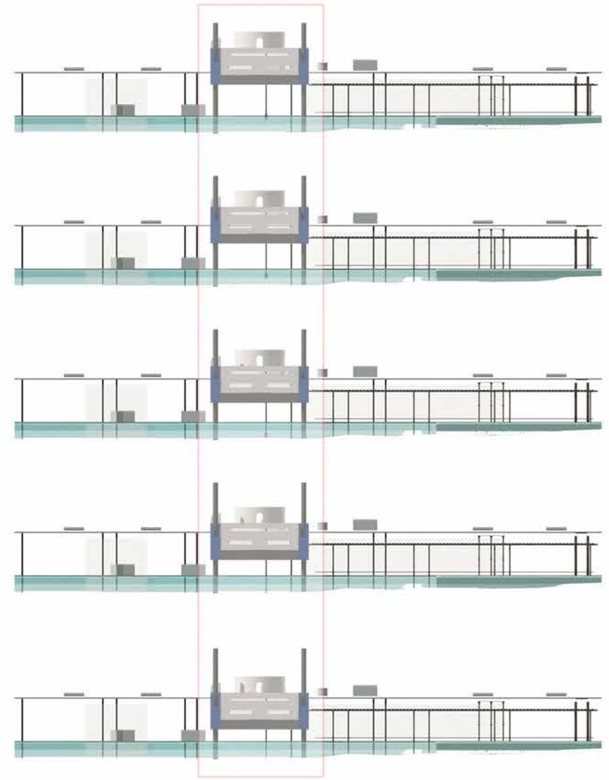


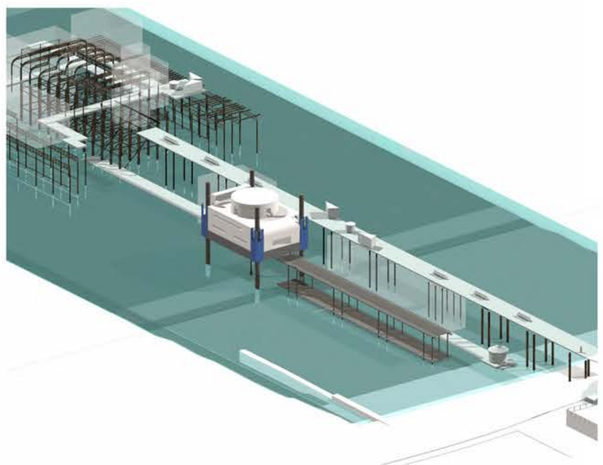


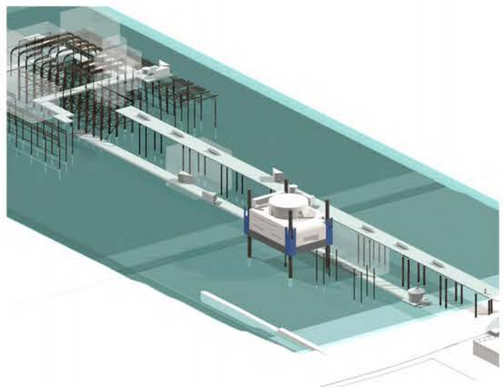
the process and function of the pier is to build a permanently walkway which is constructed using a modified jack up barge - the engineering workshop pre-fabricated into the barge.

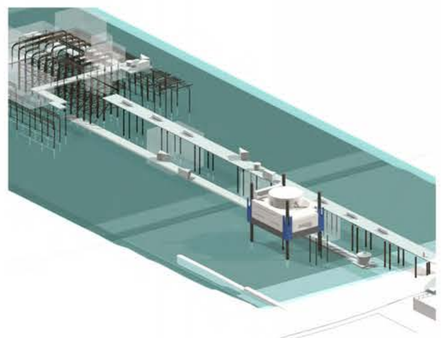
the barge moves closer to the west pier as the months progress in the festival of britain - each month the barge with move 20 metres - laying four columns and connecting the columns with a steel framework.

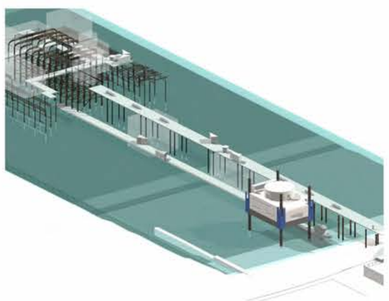
Barge position during festival after 5 months activity.



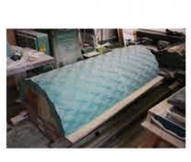






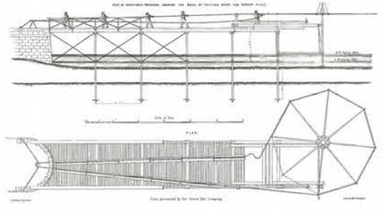


Casting Iron Columns - using green sand mold and wooden form of column

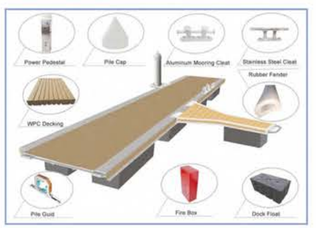


Cast Iron Column Designs
Using catalyst idea of totems and traditional iron columns

Traditional Installation techniques and designs
Demonstration of install methods in pavilion

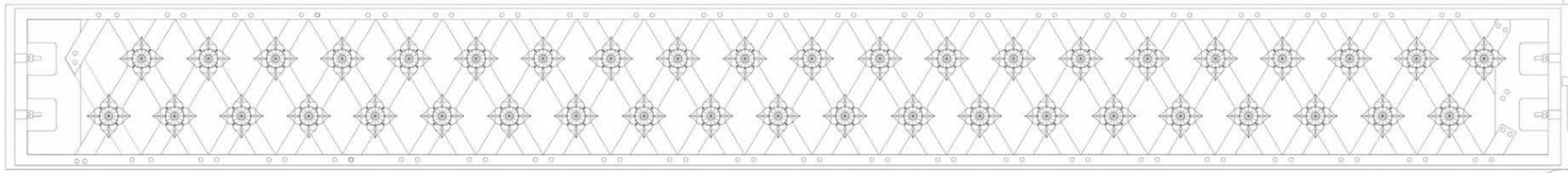


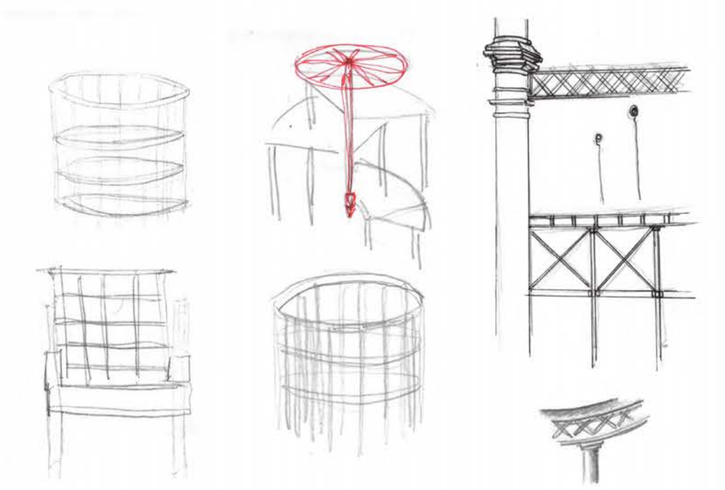
Mapping of local resources in sussex - for constructing the pavilion



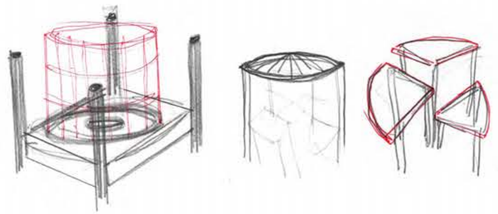
19th Century Gasholder Structures

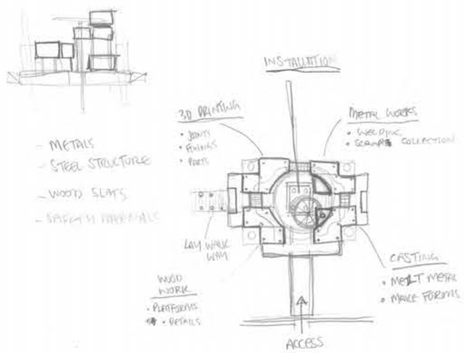
In the 1800's the metalworks industry was booming with the revolutionary methods of casting large metal components for construction. The common components being casted were columns, beams, brackets and girders for building structures. These structures included residential, factories, warehouses or any large structure. In relation to my research and project, I have developed a connection between the cast iron piles or columns from pier structures in the 1800's and the gasholder structures which are located all across the UK.

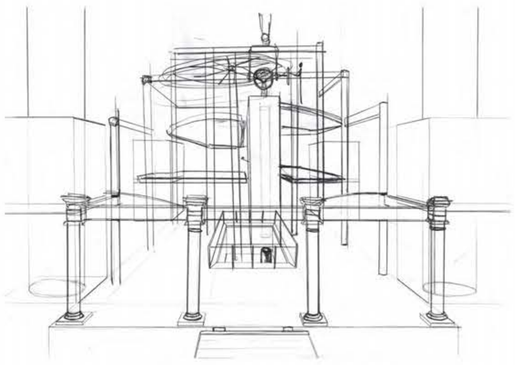


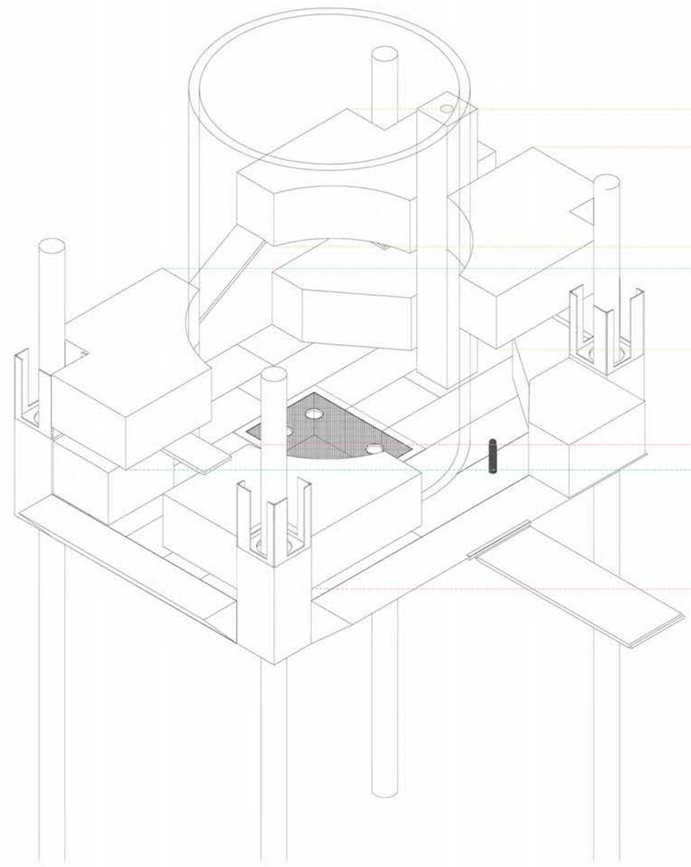


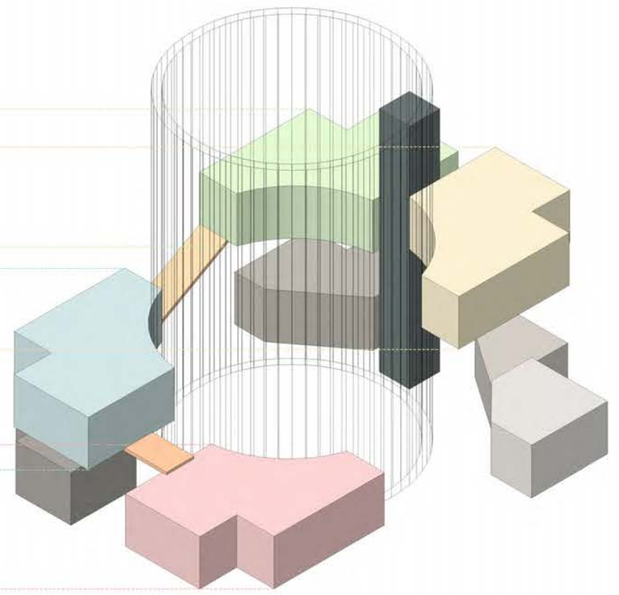
Victorian Ornate Detailing from a cast iron derelic gas holder structure in Kings Cross, London.











Casting and Molding Workshop

Metal Works

Mixed Materials and 3D Printing

Wood Work

Health and Safety Inductions

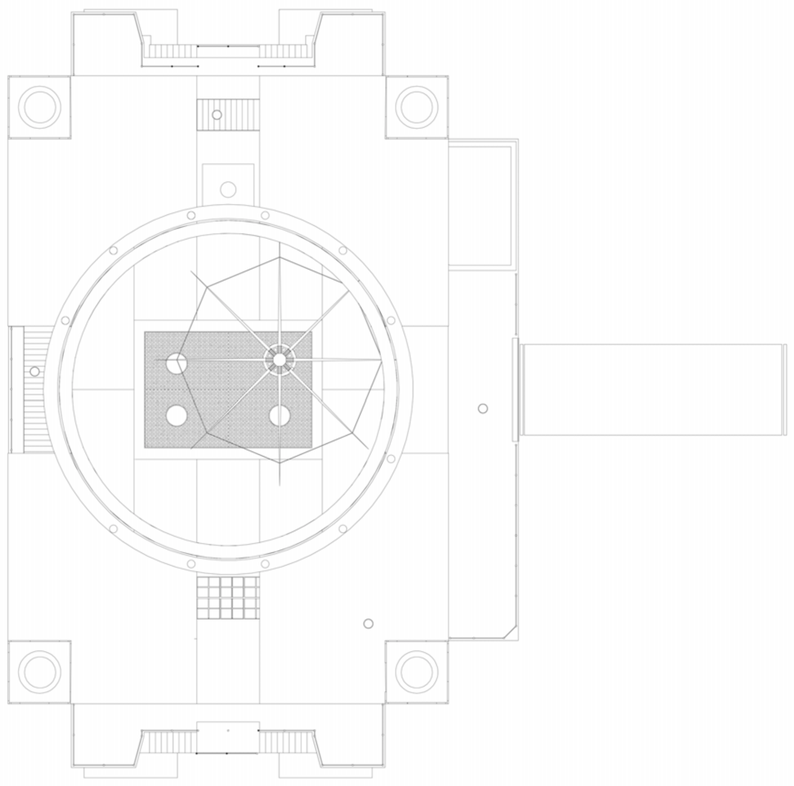
Display and Exhibition

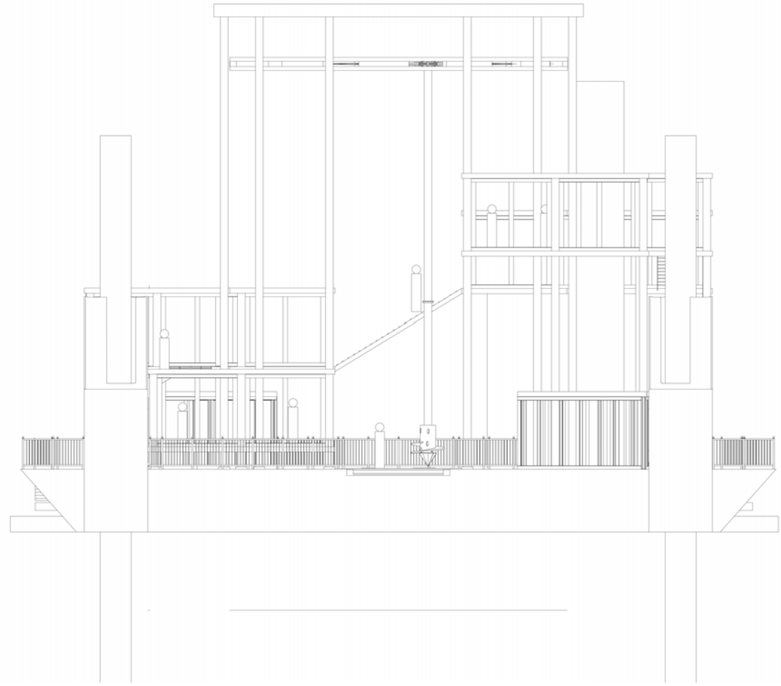
Toilets and Facilities

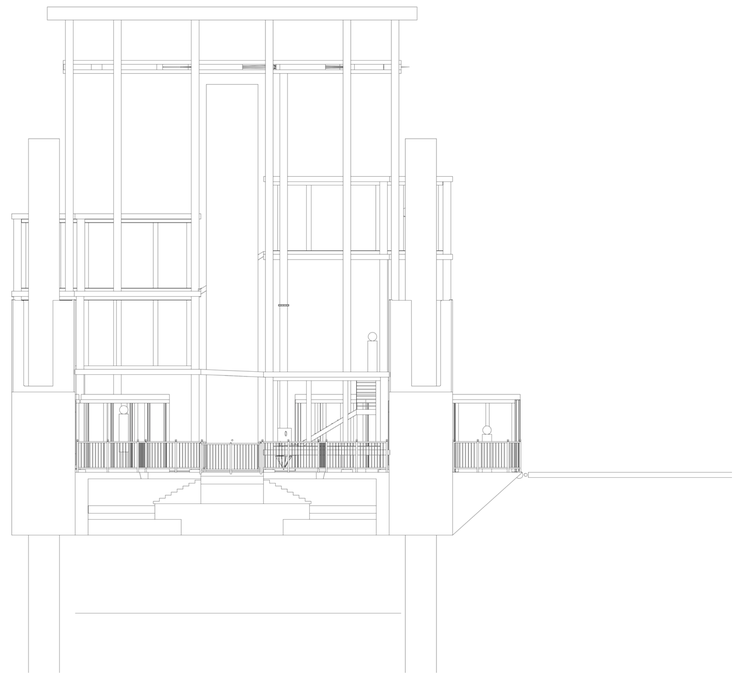
Introduction and Information

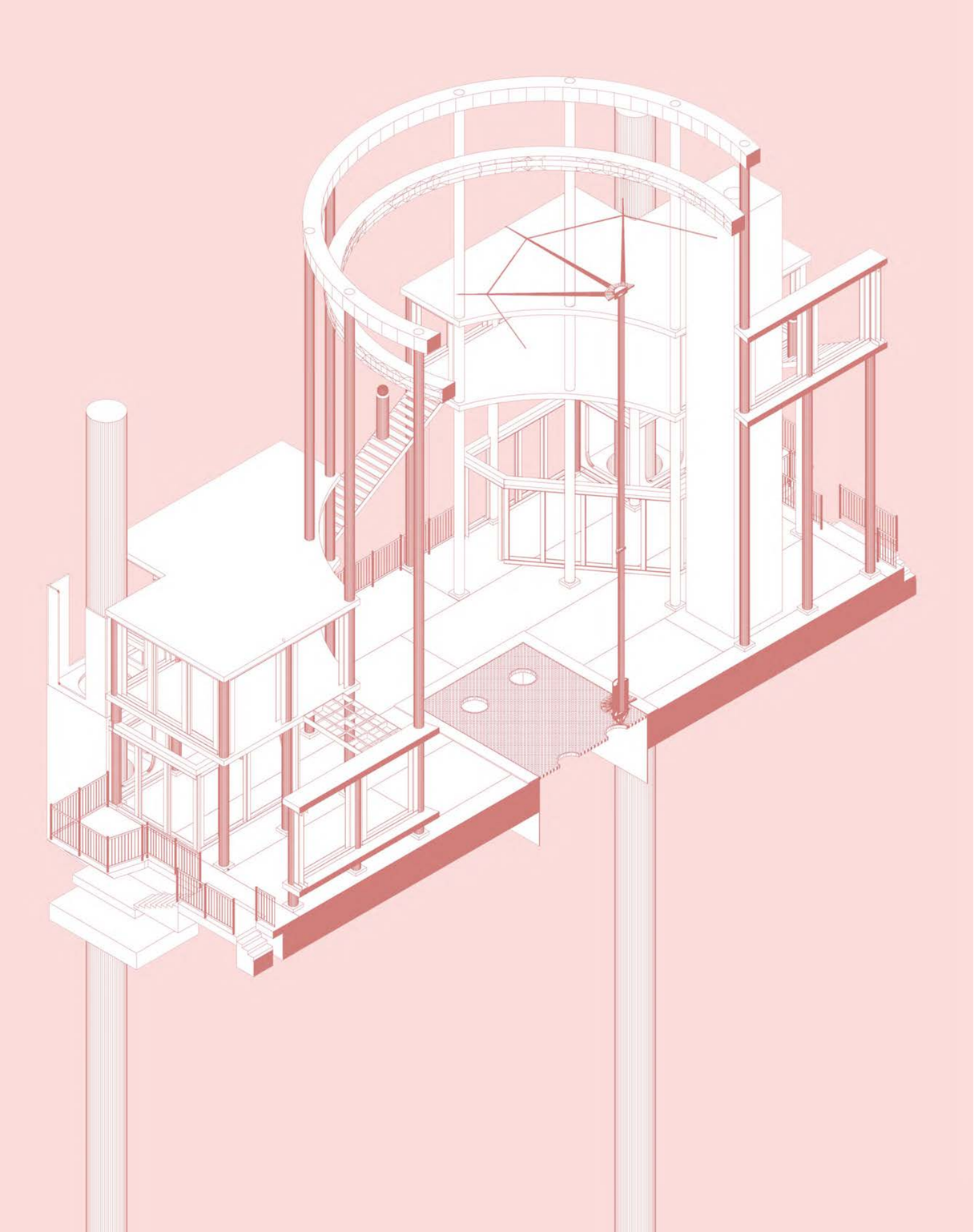
METAL WORKSHOP PAVILION

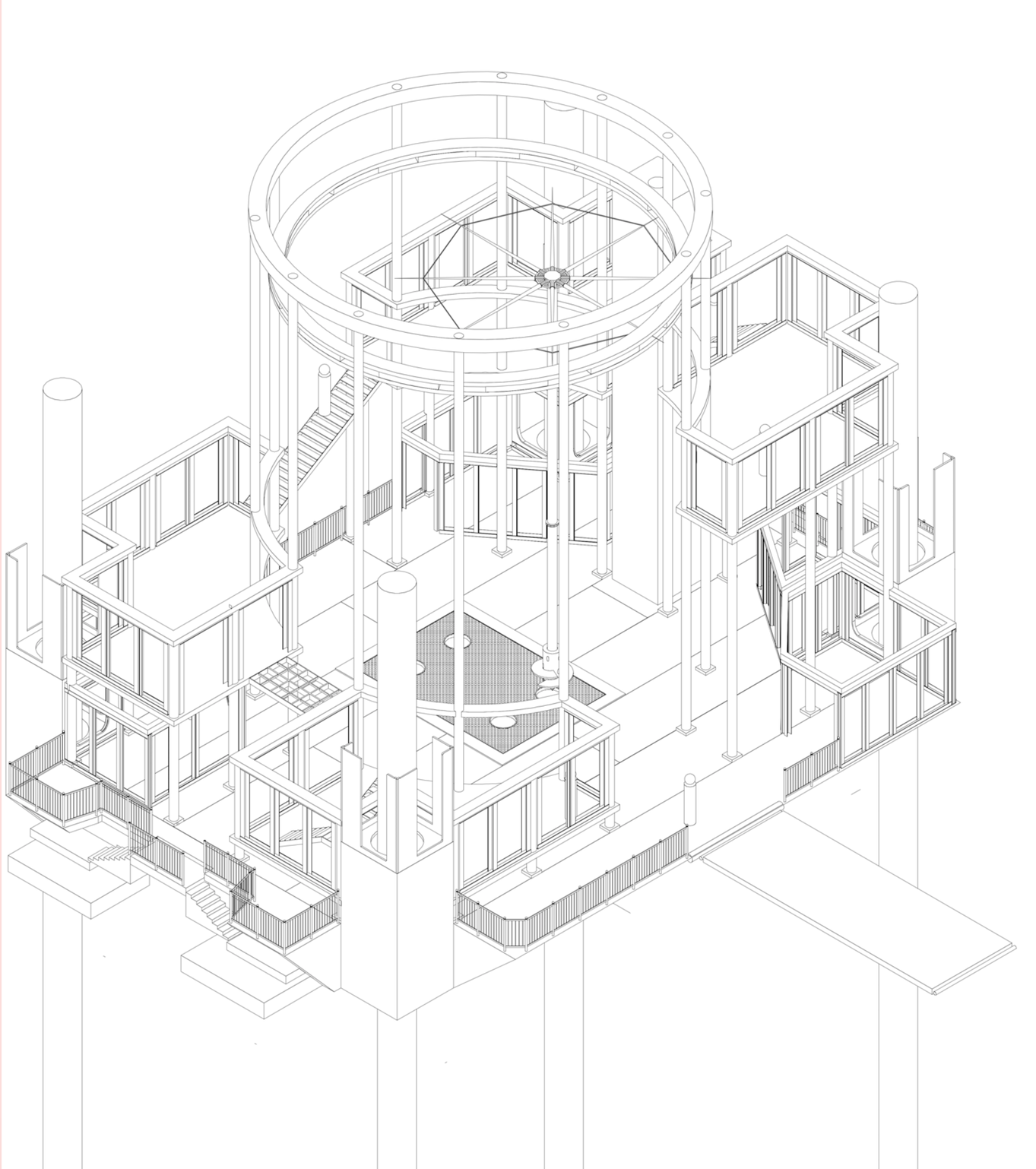
Initial Technical Drawings

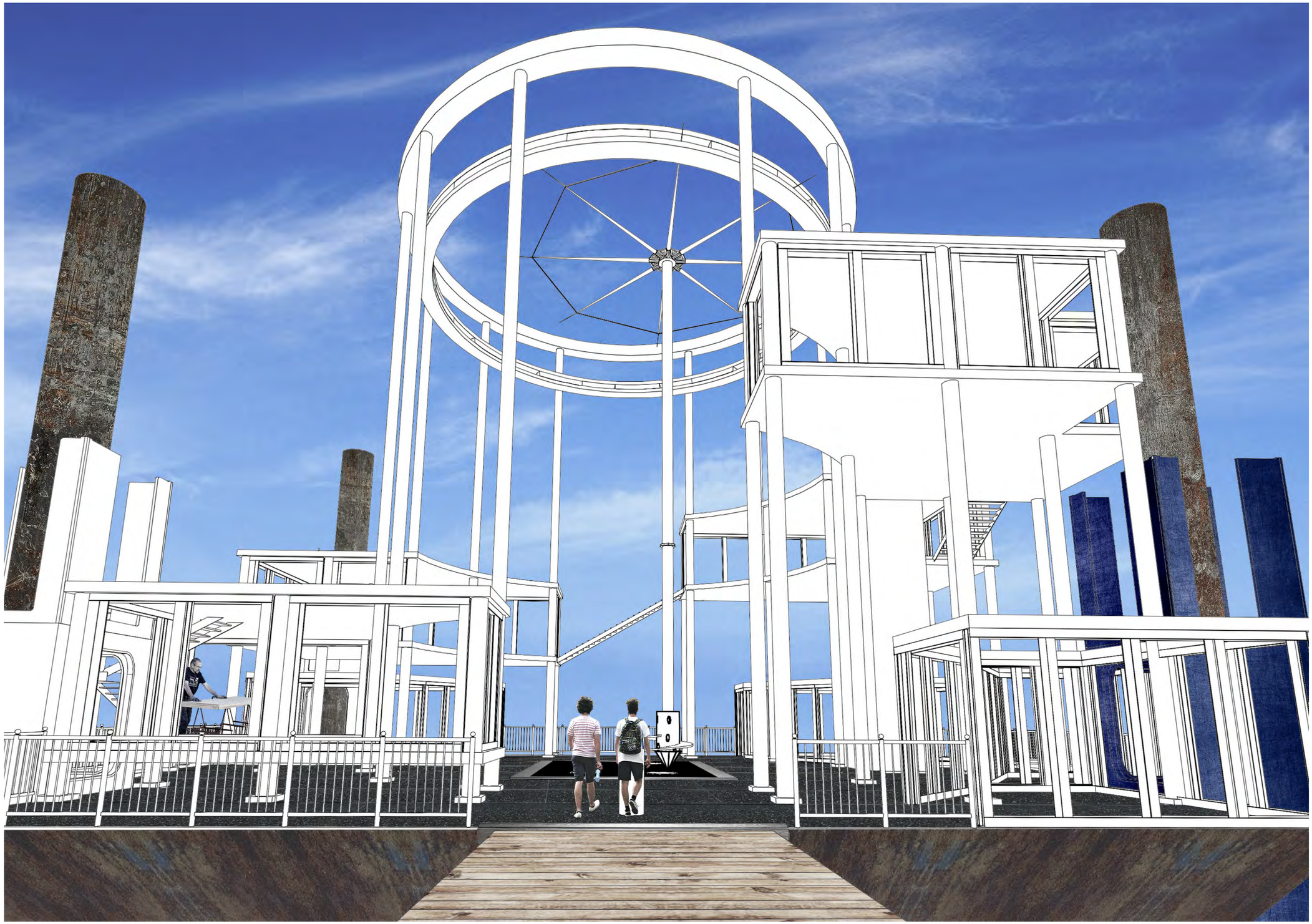








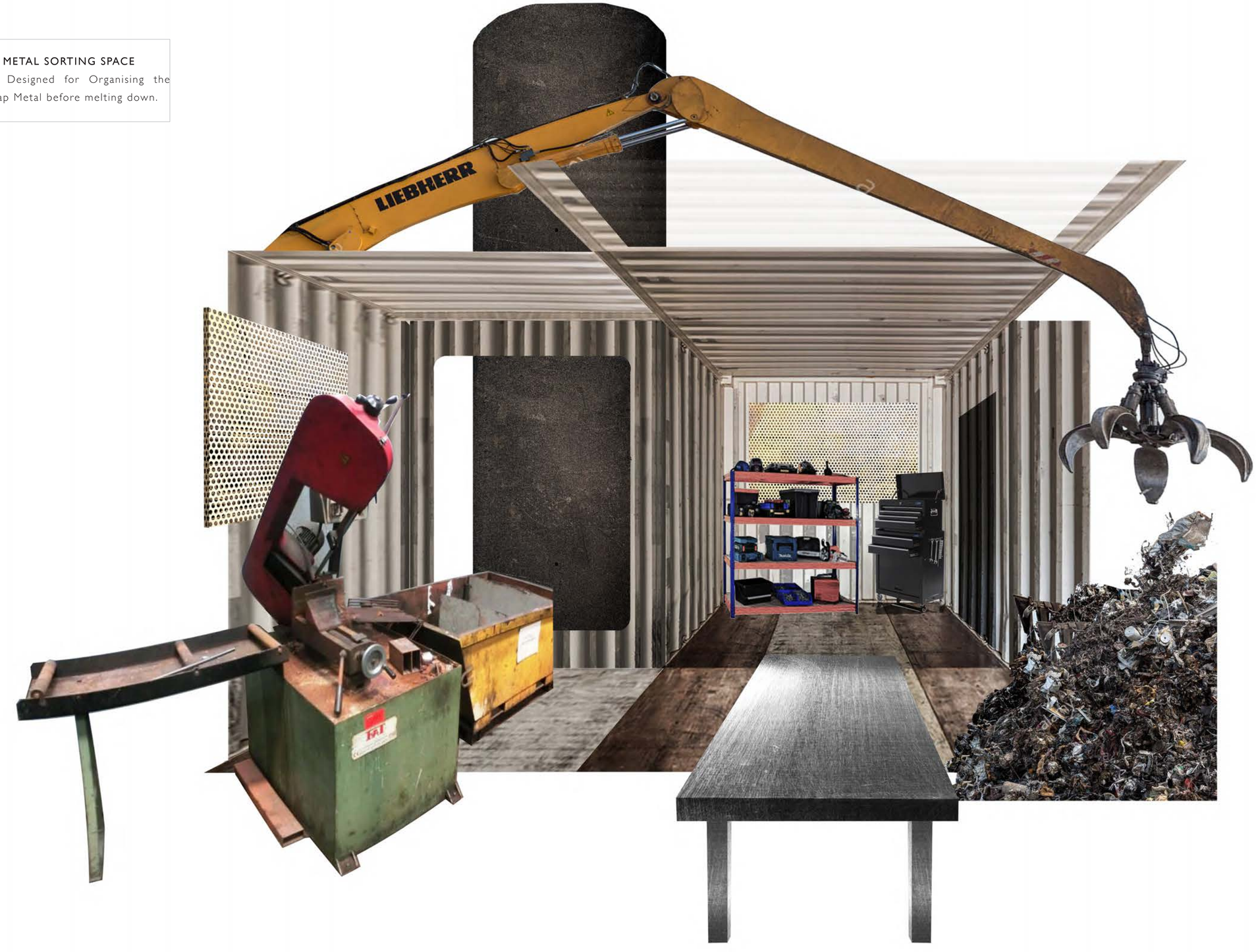




METAL SORTING SPACE

Room Designed for Organising the Scrap Metal before melting down.

COLLAGE #1



COLLAGE #2

METAL CASTING SPACE

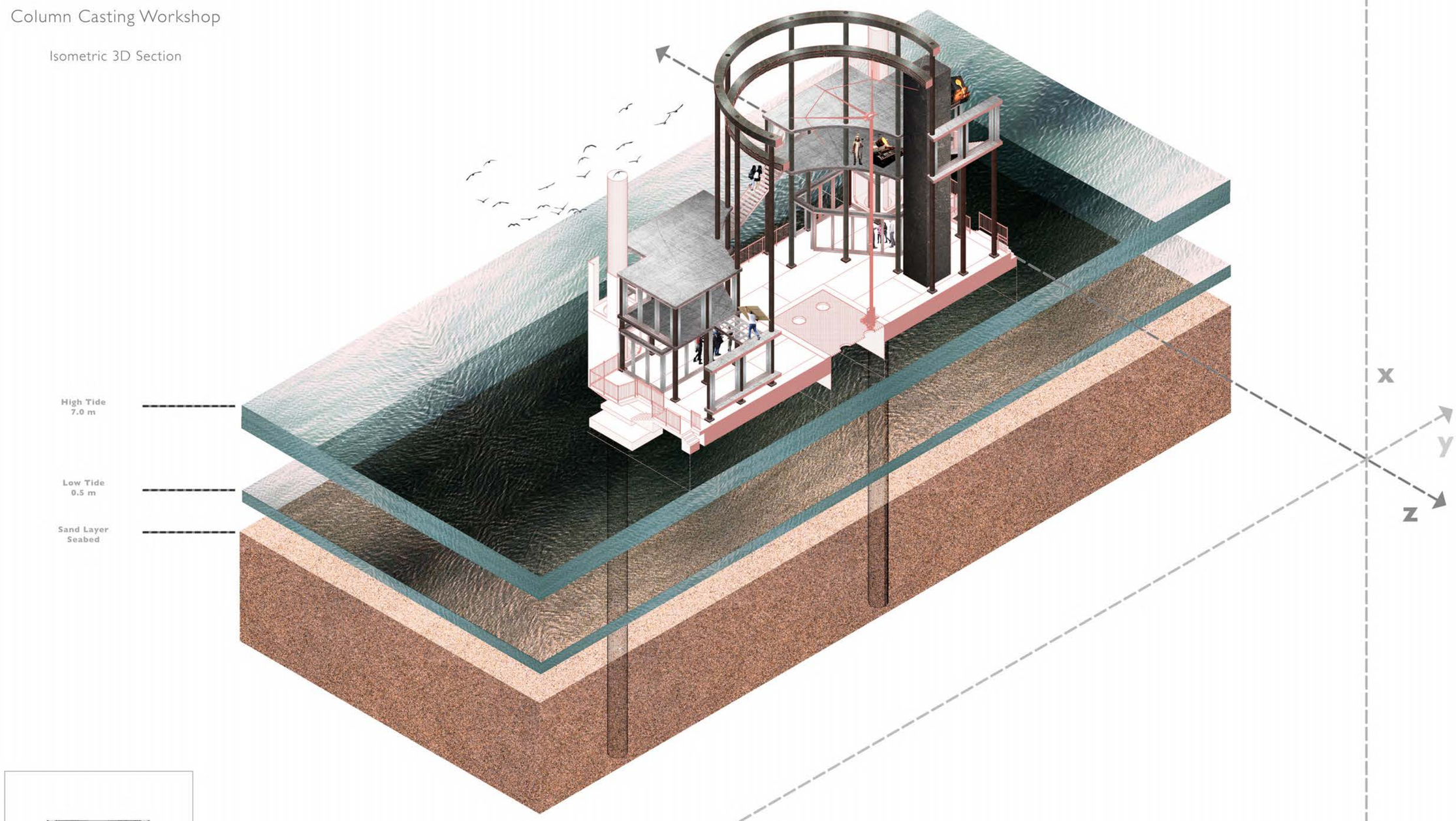
The foundry room, casting, mold making and metal melting space

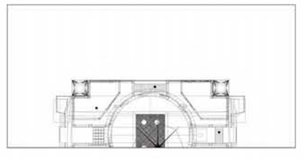
COLLAGE #3

2nd METAL CASTING SPACE
Space to pouring melted metal into column molds

Column Casting Workshop

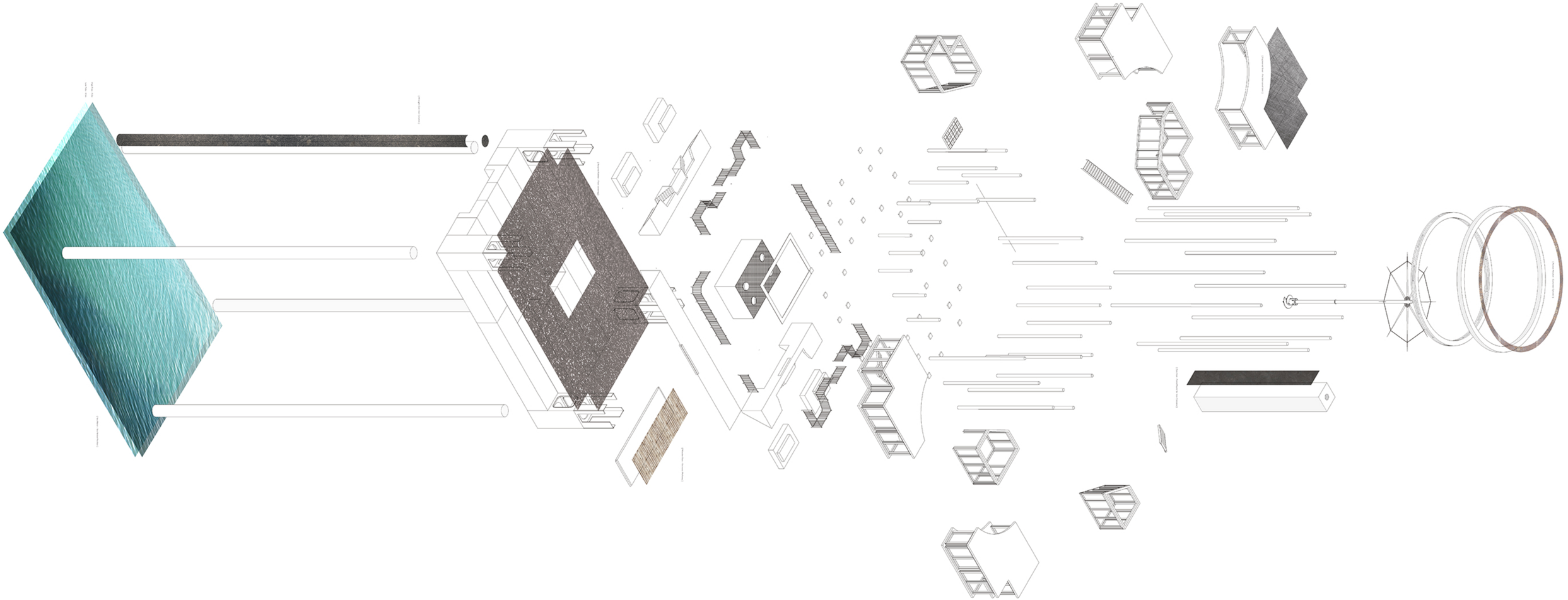
Isometric 3D Section





SysMat Matrix

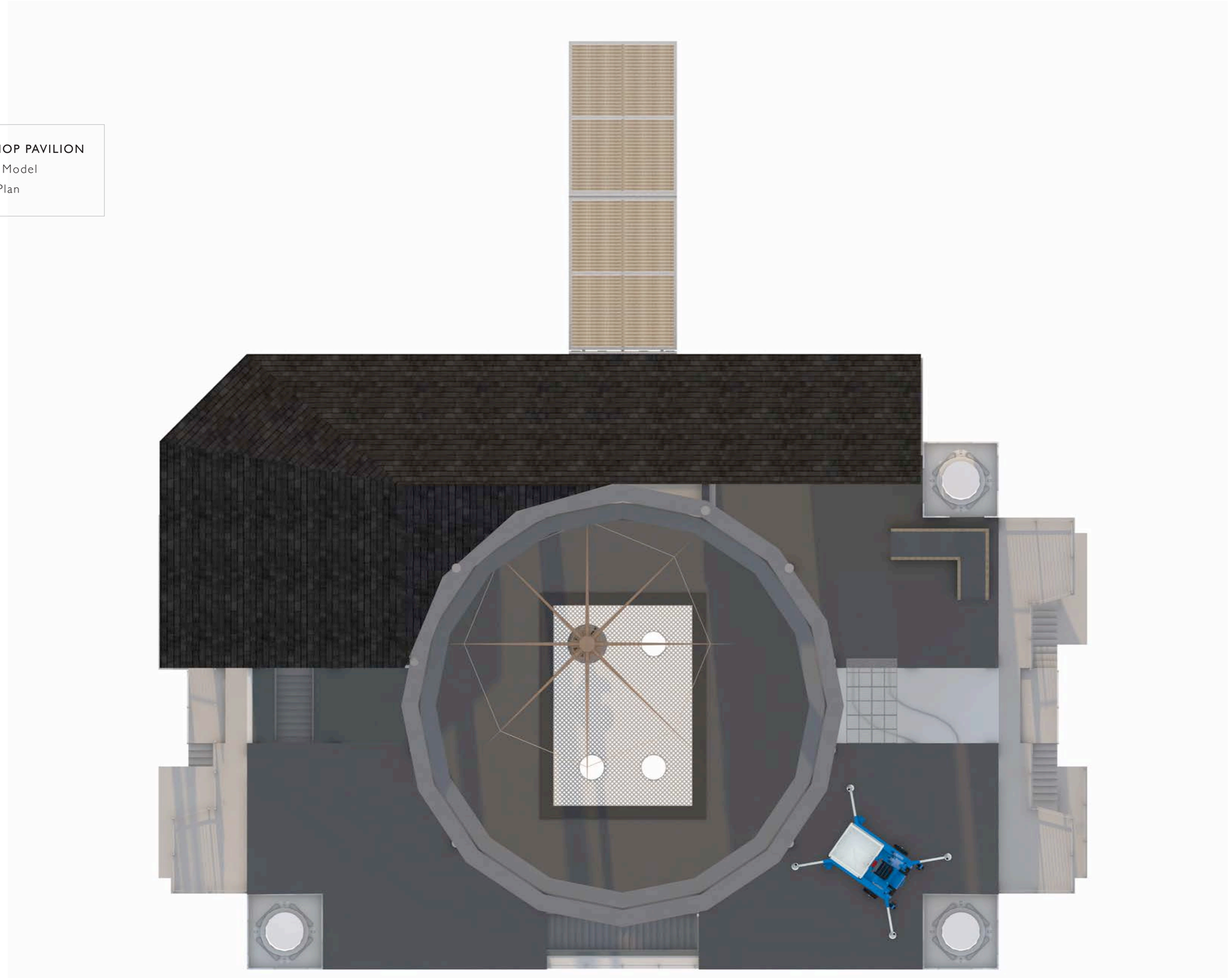
Exploded Axonometric



METAL WORKSHOP PAVILION

3D CAD Model

Roof Plan



METAL WORKSHOP PAVILION

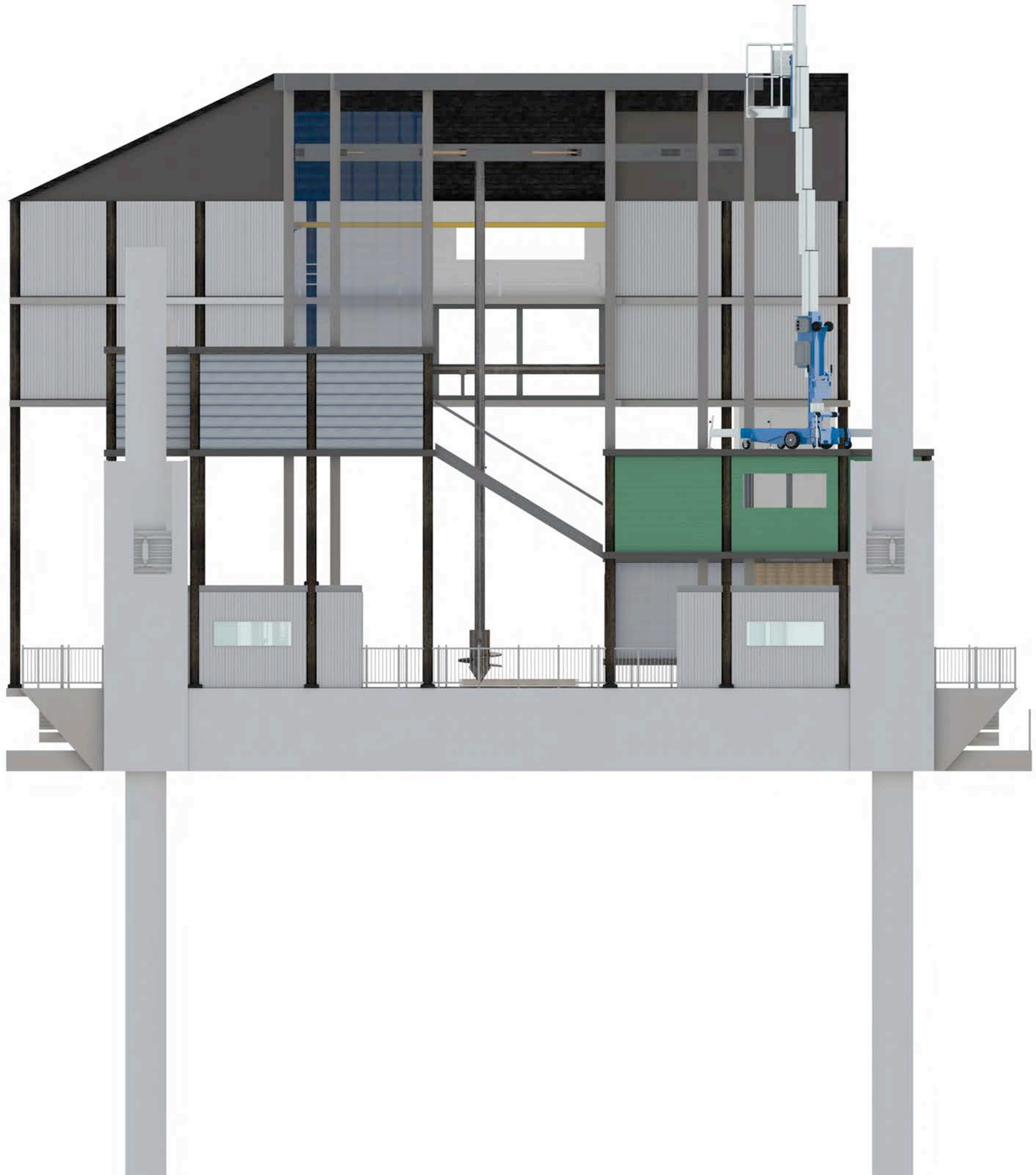
3D CAD Model

Side Elevation

METAL WORKSHOP PAVILION

3D CAD Model

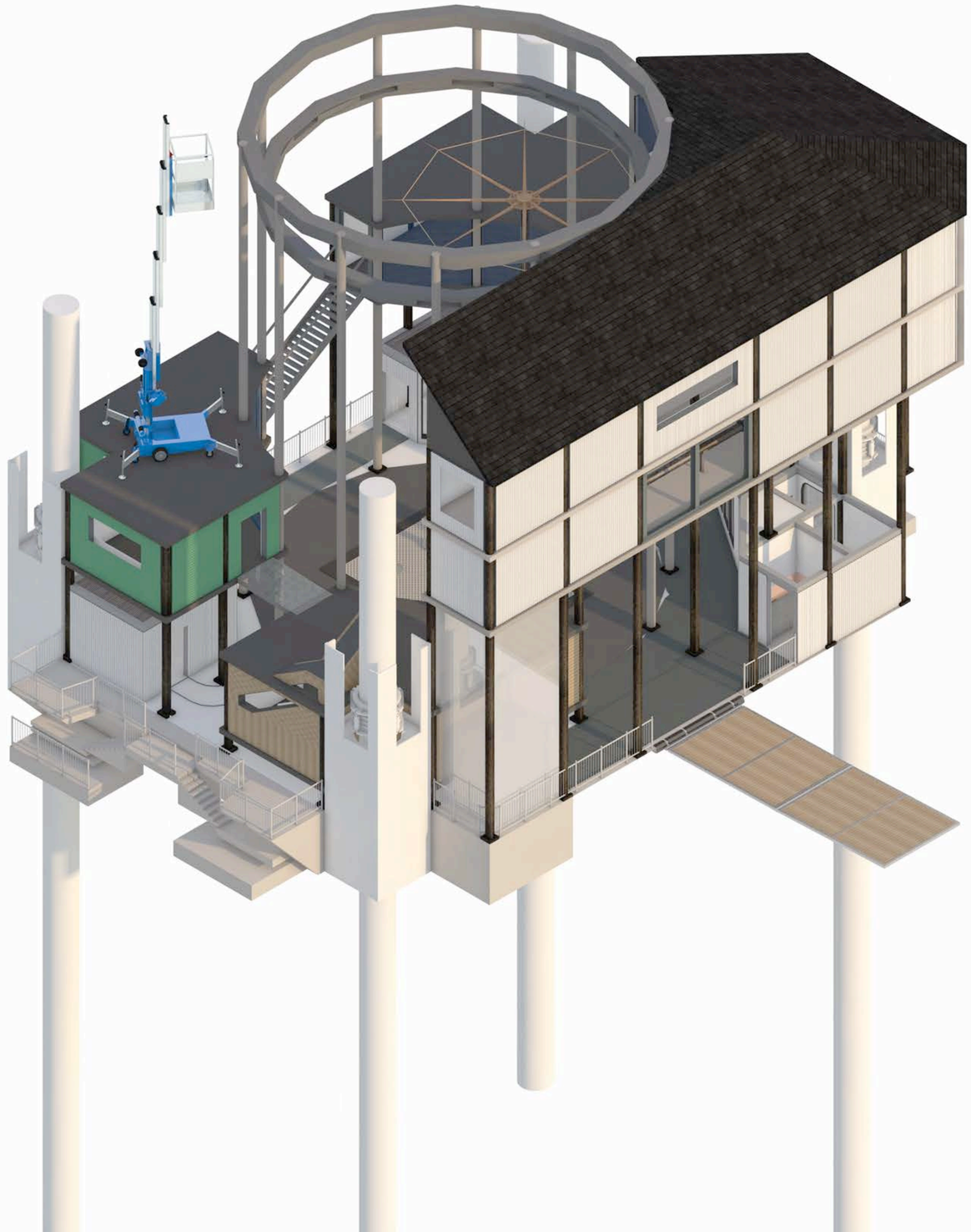
Back Elevation



METAL WORKSHOP PAVILION

3D CAD Model

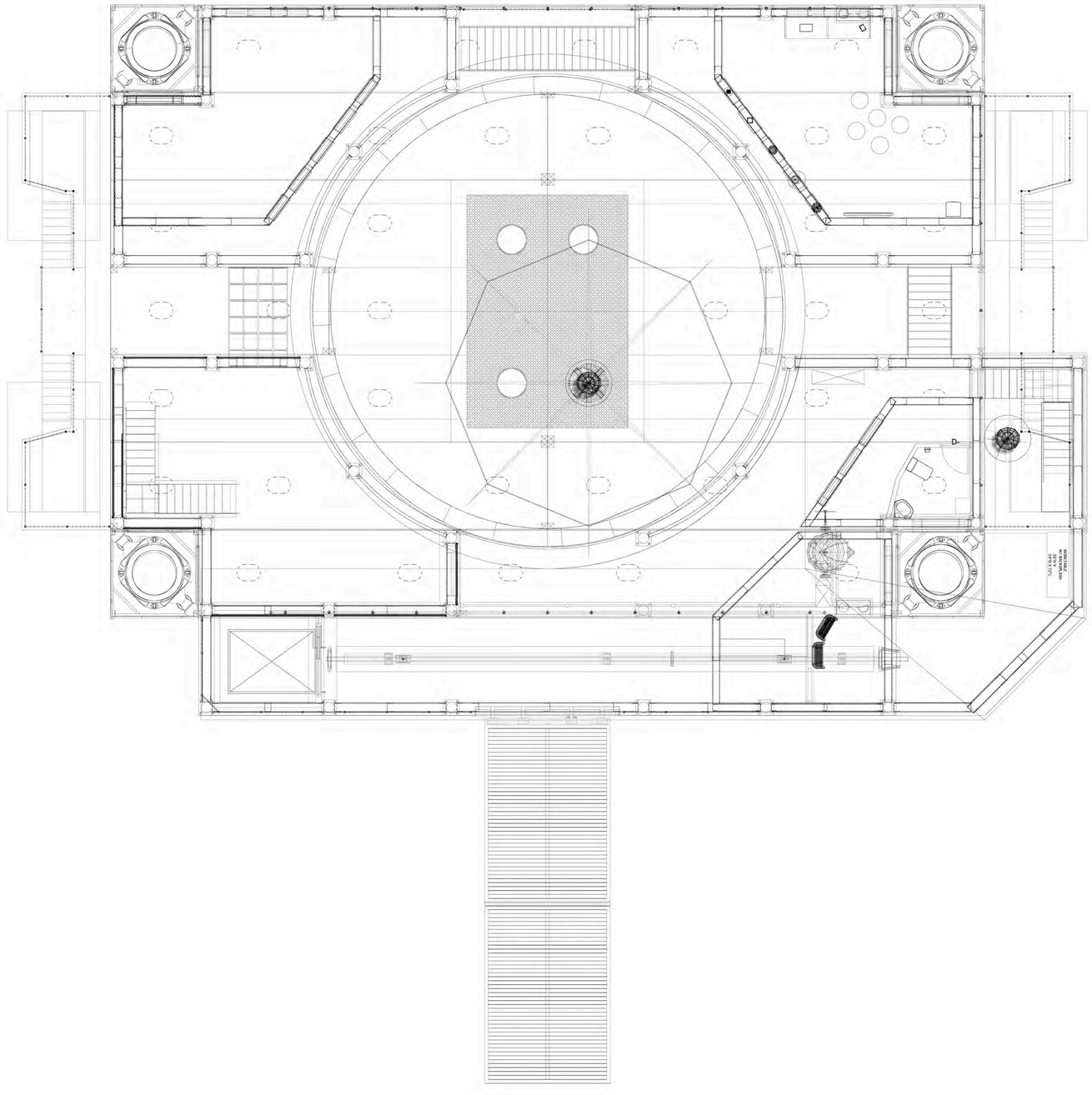
Perspective/Axo Views



METAL WORKSHOP PAVILION

Top/Layered Plan

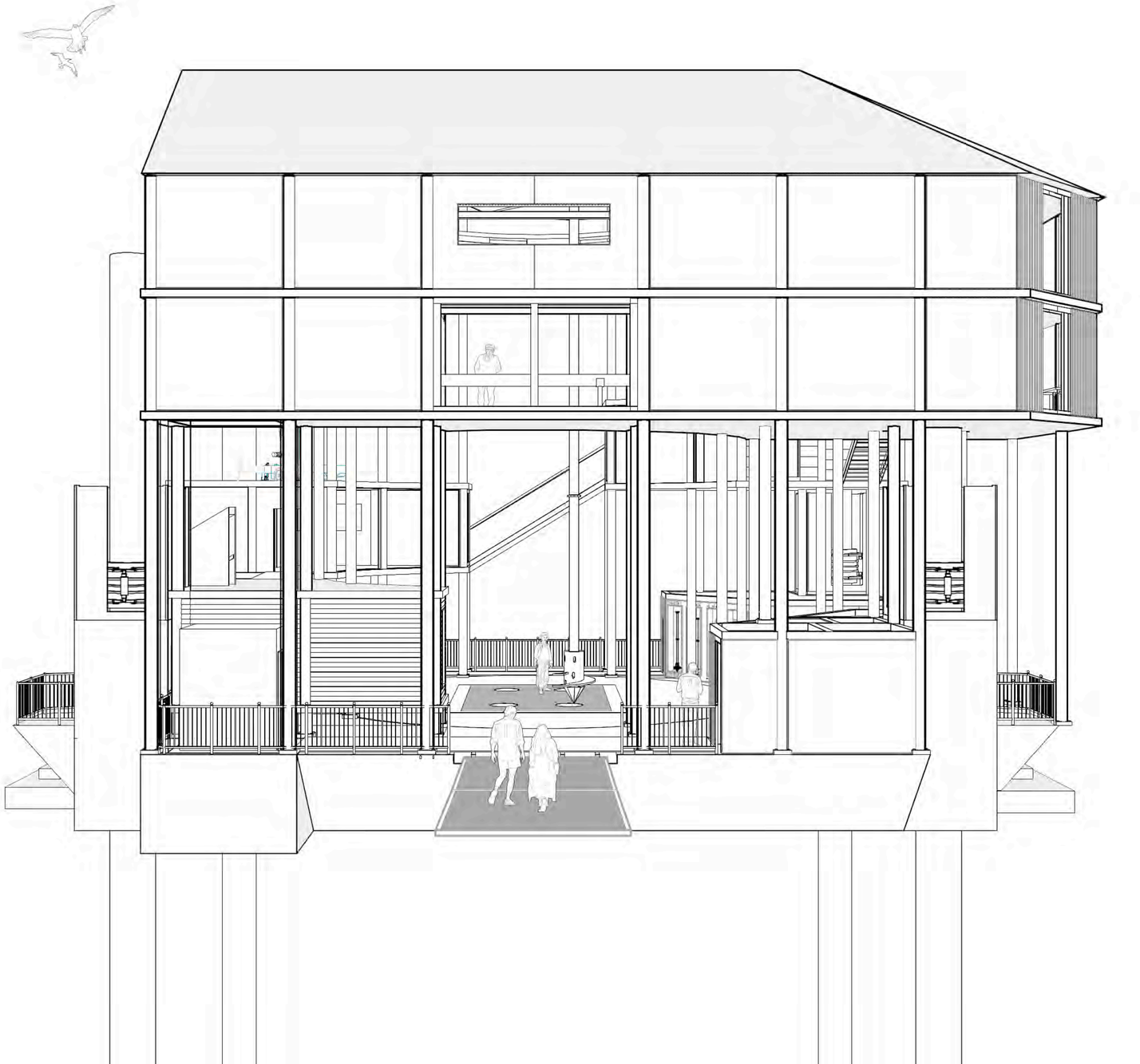
Layered Overview of Floors



METAL WORKSHOP PAVILION

Elevation

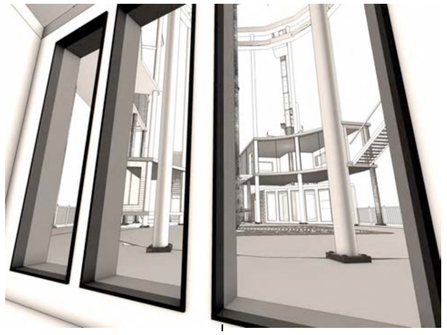
Inhabited Perspective View

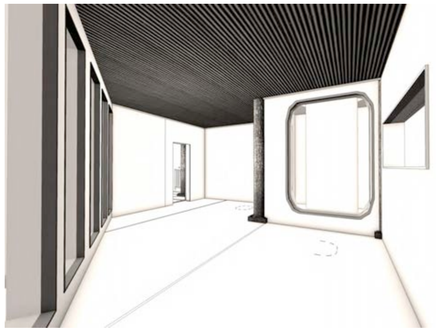


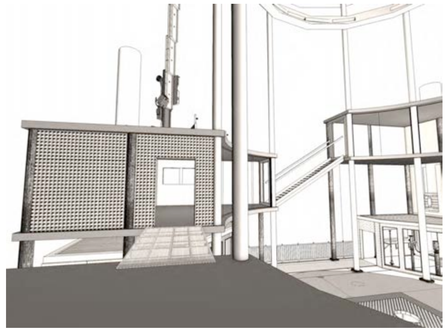
PERSPECTIVE SEQUENCE

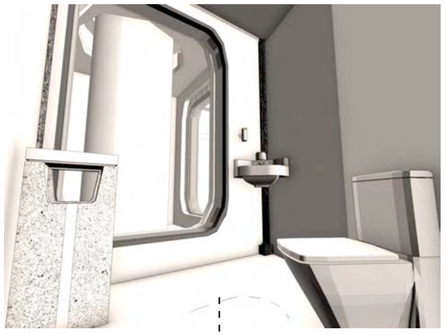
Point of View -

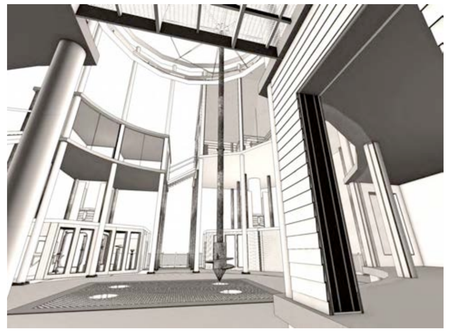
Through the Pavilion

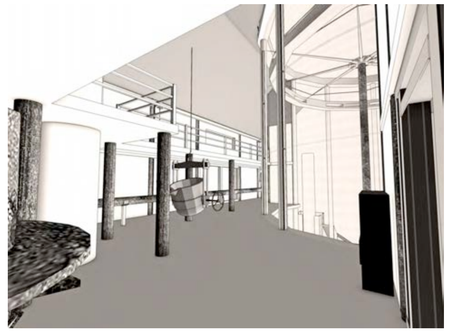


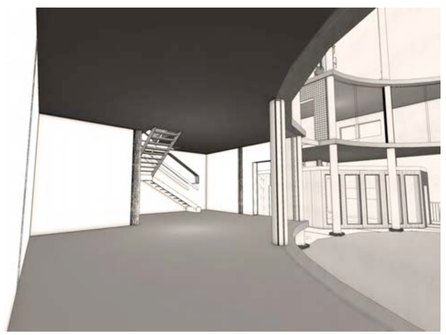


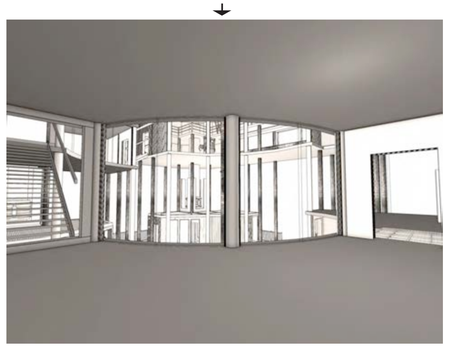


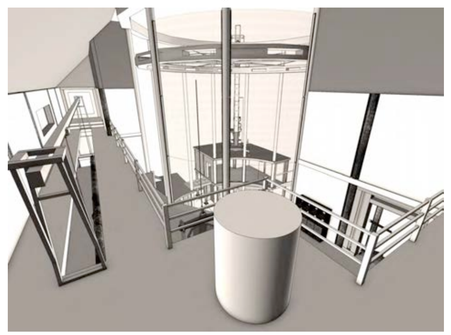












VIEWING PLATFORM ON PAVILION
Render/Photoshop Editing
PERSPECTIVE VIEW
3D CAD Model

RESTROOM FACILITIES
Render/Photoshop Editing
PERSPECTIVE VIEW
3D CAD Model

CAST METAL WORKSHOP
Render/Photoshop Editing
PERSPECTIVE VIEW
3D CAD Model

FESTIVAL B - INFRASTRUCTURE

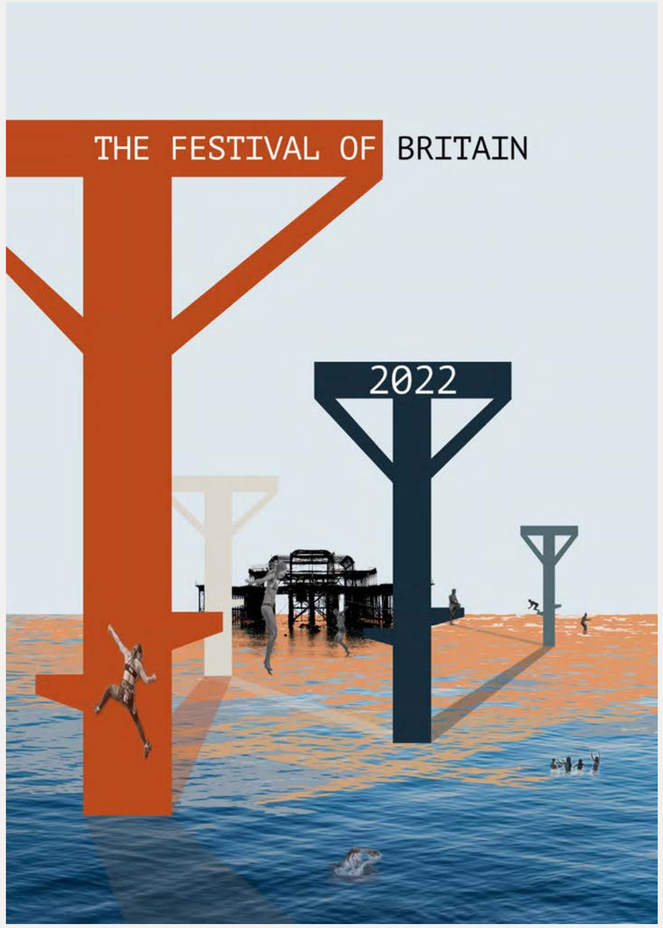
GROUP TASKS

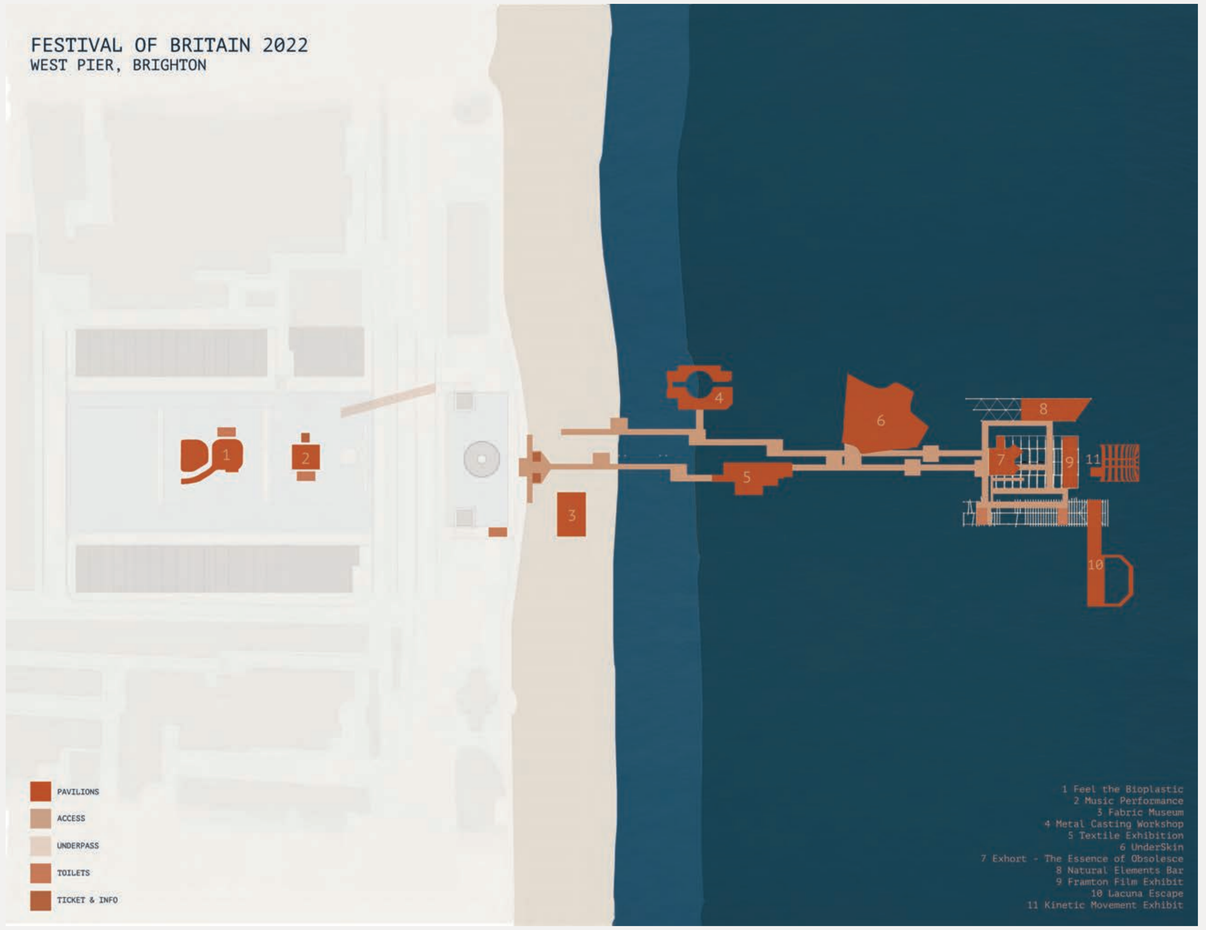
FESTIVAL B - GROUP WORK

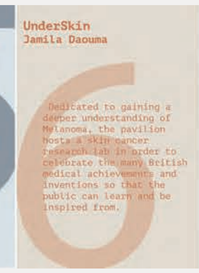
POSTER - LEAFLET - MASTERPLAN

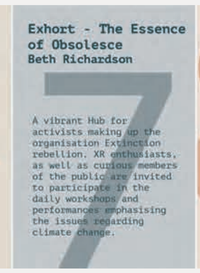
Produced by Amira Madbouly,
Beth Richardson and Jamila Daouma

The festival infrastructure has been developed through iteration of the design and network of each individual pavilions concept.



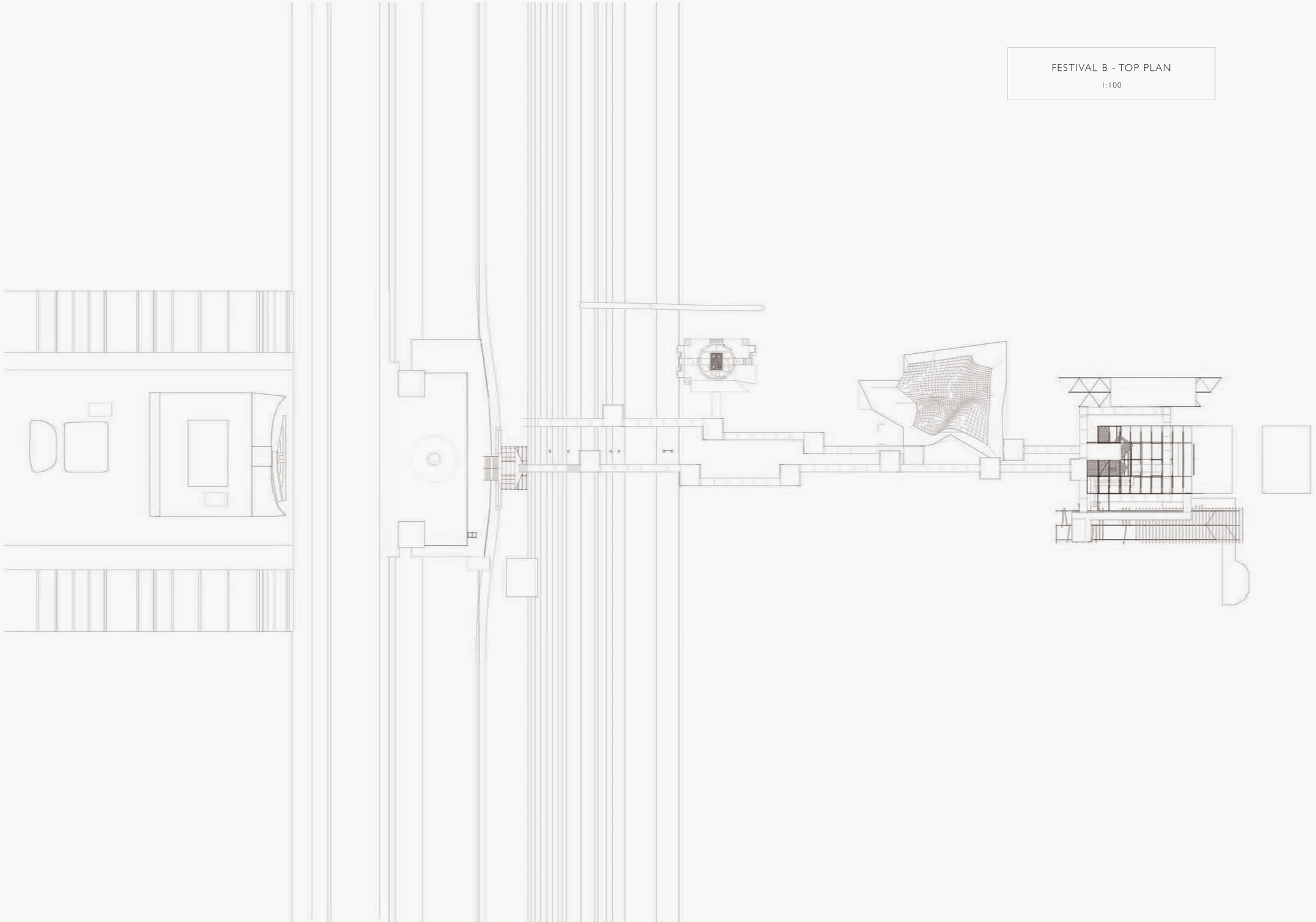






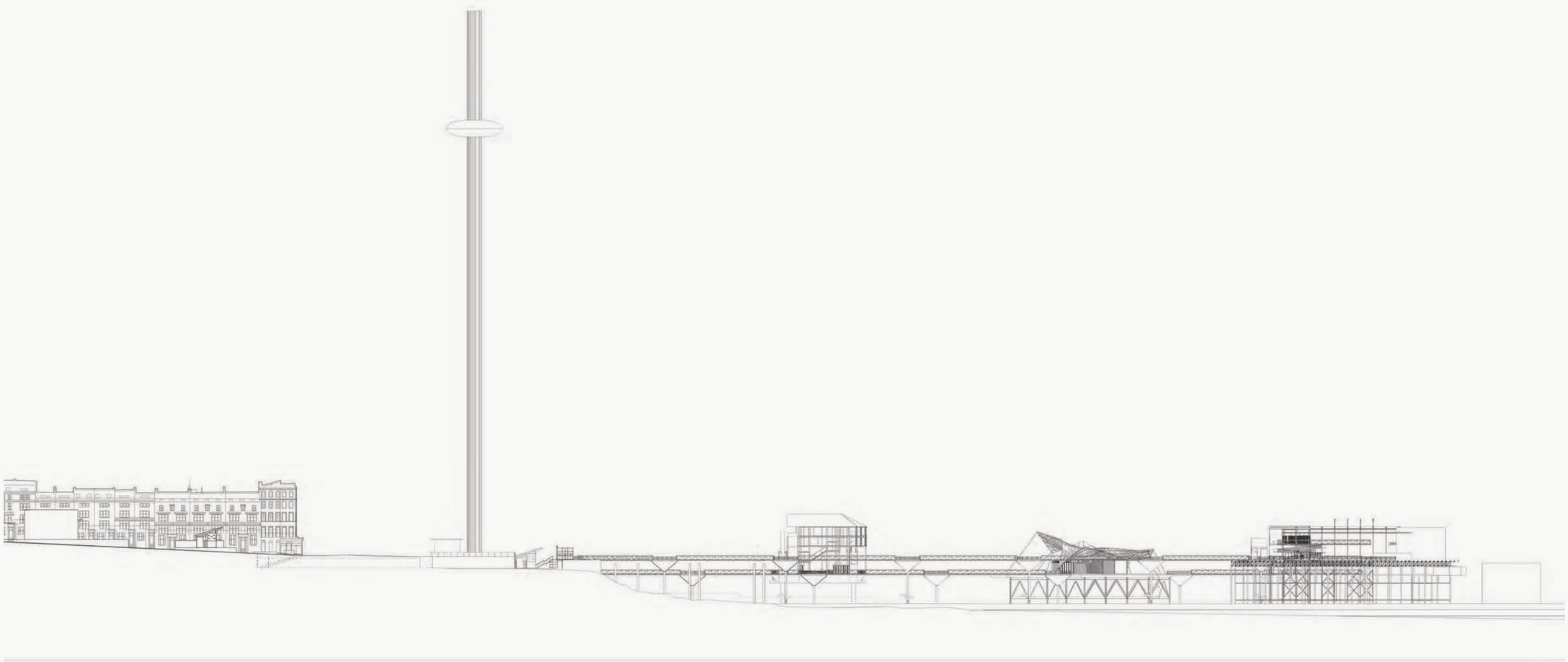
FESTIVAL B - TOP PLAN

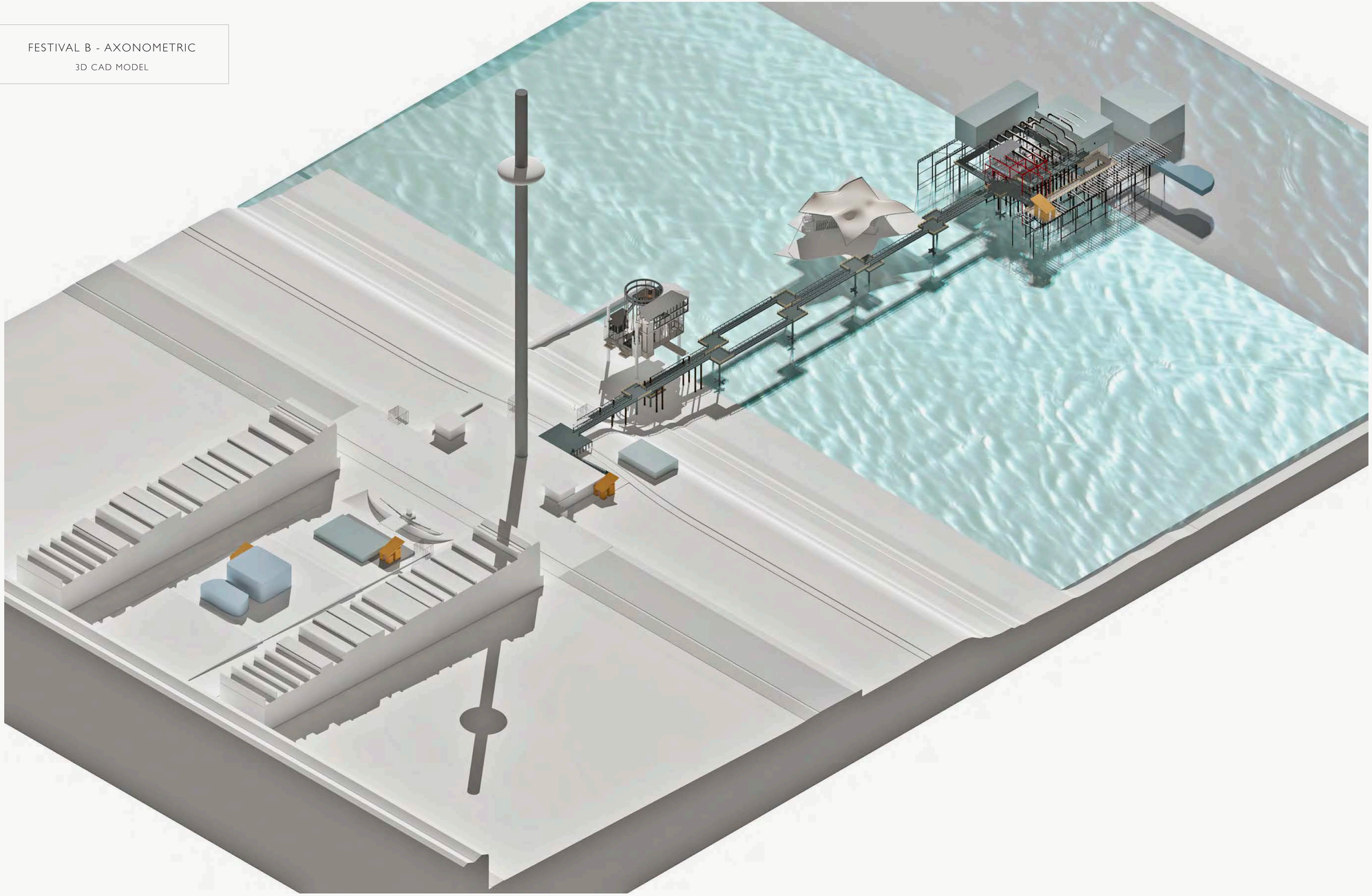
1:100



FESTIVAL B - ELEVATION

1:100



FESTIVAL B - AXONOMETRIC

3D CAD MODEL