



# BRICK-TOPIA

*TO BRICK AND BEYOND,,*

*EXPLORING THE EVOLVEMENT OF BRICKWORK INDUSTRY  
TOWARD A CULTURE OF BRICK*

DONE BY: MANAR ALMASHHARAWI

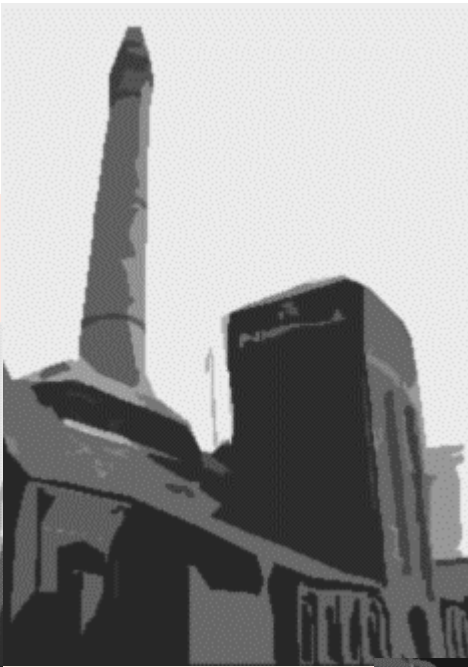
MIAG 14 DESIGN STUDIO ARCSUS LAB  
UNDER THE SUPERVISION OF PROF.DR.ARCH: MARC DUJARDIN  
YEAR: 2019-2020



# INDUSTRIAL HERITAGE



TEXTILE INDUSTRIES



BRICK FACTORIES



BREWERIES

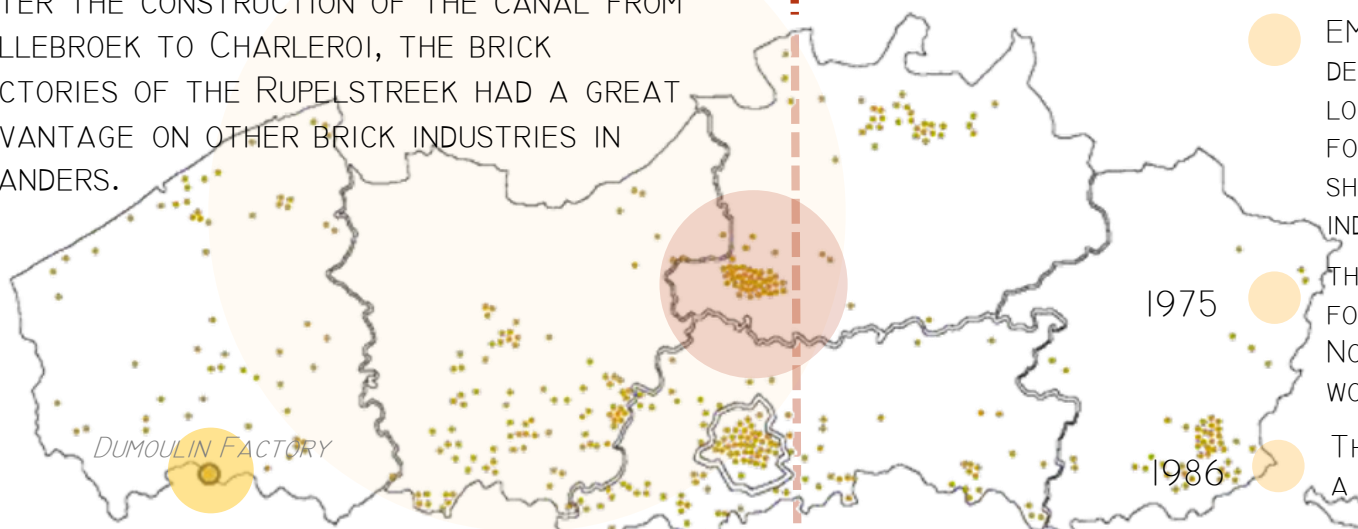
AFTER THE SECOND WORLD WAR PERIOD INVOLVED THE DEMOLITION OF INDUSTRIAL LANDSCAPES FOR THE BENEFIT OF LARGE-SCALE SETTLEMENT IN THE CITIES WHILE INDUSTRY SITES WERE PUSHED TO THE MARGINS OF CITIES. THUS, INDUSTRIAL BUILDINGS AND FACTORIES IN THE CITY CENTERS WERE ABANDONED OR DEMOLISHED TOGETHER WITH THE LOSS OF A GREAT NUMBER OF INDUSTRIAL VALUES.

THE FLEMISH ASSOCIATION FOR INDUSTRIAL, ARCHEOLOGY (VVIA) WAS FOUNDED. THIS INDEPENDENT ORGANIZATION WAS CREATED AS A NON-GOVERNMENTAL PLATFORM FOR THE STUDY AND CONSERVATION OF THE INDUSTRIAL AND TECHNICAL HERITAGE.

## 1978 PIONEER INITIATIVE

*AS THE IDEA OF INDUSTRIAL HERITAGE WAS STILL RELATIVELY UNKNOWN IN EUROPE,*

BECAUSE OF THE CRUCIAL POSITION OF BOOM AFTER THE CONSTRUCTION OF THE CANAL FROM WILLEBROEK TO CHARLEROI, THE BRICK FACTORIES OF THE RUPELSTREEK HAD A GREAT ADVANTAGE ON OTHER BRICK INDUSTRIES IN FLANDERS.



THEY COULD NOW BENEFIT FROM A FASTER AND LARGER IMPORT OF COALS TO HEAT THE OVENS TOGETHER WITH A LARGER MARKET AND EASIER EXPORT OF PRODUCTS OVER THE CANAL

- THE GOVERNMENT INTENDED TO USE THE CLAY PITS OF THE BRICKYARDS TO DUMP WASTE IN THEM.
  - EMABB - INITIATOR OF THE DEVELOPMENT OF THE ECOMUSEUM LOOKED FOR ALTERNATIVES AND FOUND NEW PERSPECTIVES THAT SHOWED RESPECT FOR THE INDIVIDUALITY OF THE RUPEL REGION
  - 1975 THE IMPETUS WAS ALREADY GIVEN FOR THE PROTECTION OF THE NOEVEREN RESIDENTIAL AND WORKING AREA
  - 1986 THE PROTECTION THEREFORE TOOK A LONG TIME, EVEN UNTIL 1986
  - 1997 THE RESTORATION OF THE FRATEUR SITE COULD COMMENCE
- THE AIM WAS, ON THE ONE HAND, TO HOLD AN EXTRA HERITAGE FOR THE MUSEUM AND, ON THE OTHER HAND, TO EXPAND THE VISITOR AND COORDINATION CENTER OF THE ECOMUSEUM RUPELSTREEK.



## LOCATION

THE FACTORY IS LOCATED ON THE TERRITORY OF WIJTSCHATE, BUT IS INTEGRATED IN THE URBAN STRUCTURE OF MESEN, RESULTING THAT THE LOCAL INHABITANTS COUNT THE FACTORY AS PART OF MESEN. MESEN IS A MUNICIPALITY ON THE BORDER OF THE WALLOON AND FLEMISH PART OF BELGIUM, WHICH IMPLICATES THAT THEY ARE OBLIGED TO OFFER ADMINISTRATIVE AND GOVERNMENT ISSUES IN BOTH LANGUAGES



DUMOULIN IPW III PROJECT: PIPE AND BRICK FACTORY WIJTSCHATE

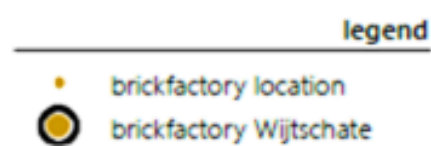
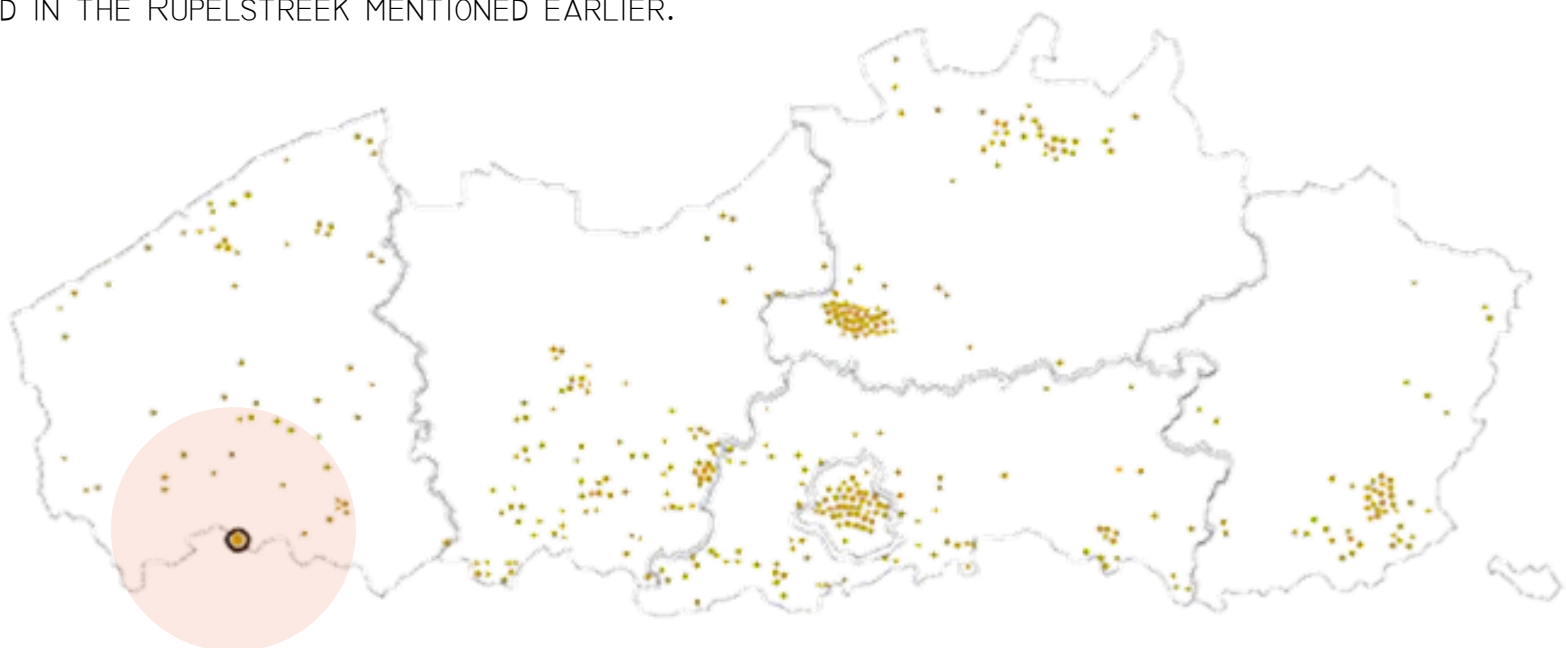


## BRICK:

THE YPRES CLAY: THE SOIL IN THE SOUTH OF WEST FLANDERS IS CHARACTERIZED BY ITS SAND AND LOAM COMPOSITION.

IN THE AREA AROUND YPRES A GEOLOGICAL TOP LAYER OF CLAY CAN BE FOUND. THIS CLAY IS IDEAL FOR THE CLAY INDUSTRY AS IT DEFINED BY ITS EXCELLENT PLASTICITY. THIS MAKES THE CLAY EASILY MOLDABLE AND GUARANTEES THE CONSISTENCY AND LOW DEFORMATION OF THE FINAL PRODUCTS. ADDITIONALLY, THIS CLAY IS CHARACTERIZED BY ITS HIGH WATER-TIGHTNESS WHICH MAKES IT APPLICABLE FOR PRODUCTS AS ROOF TILES AND DRAINAGE PIPES.

BECAUSE OF THIS SUITABILITY OF THE CLAY THERE IS LOTS OF BRICK PRODUCTION IN THE WESTHOEK, ALTHOUGH IT STAYS RATHER A SMALL INDUSTRY IN COMPARISON WITH THE INDUSTRY LOCATED IN THE RUPELSTREEK MENTIONED EARLIER.



DUMOULIN IPW III PROJECT: PIPE AND BRICK FACTORY WIJTSCHATE



# EXISTING BRICK TYPOLOGIES AND CONDITIONS

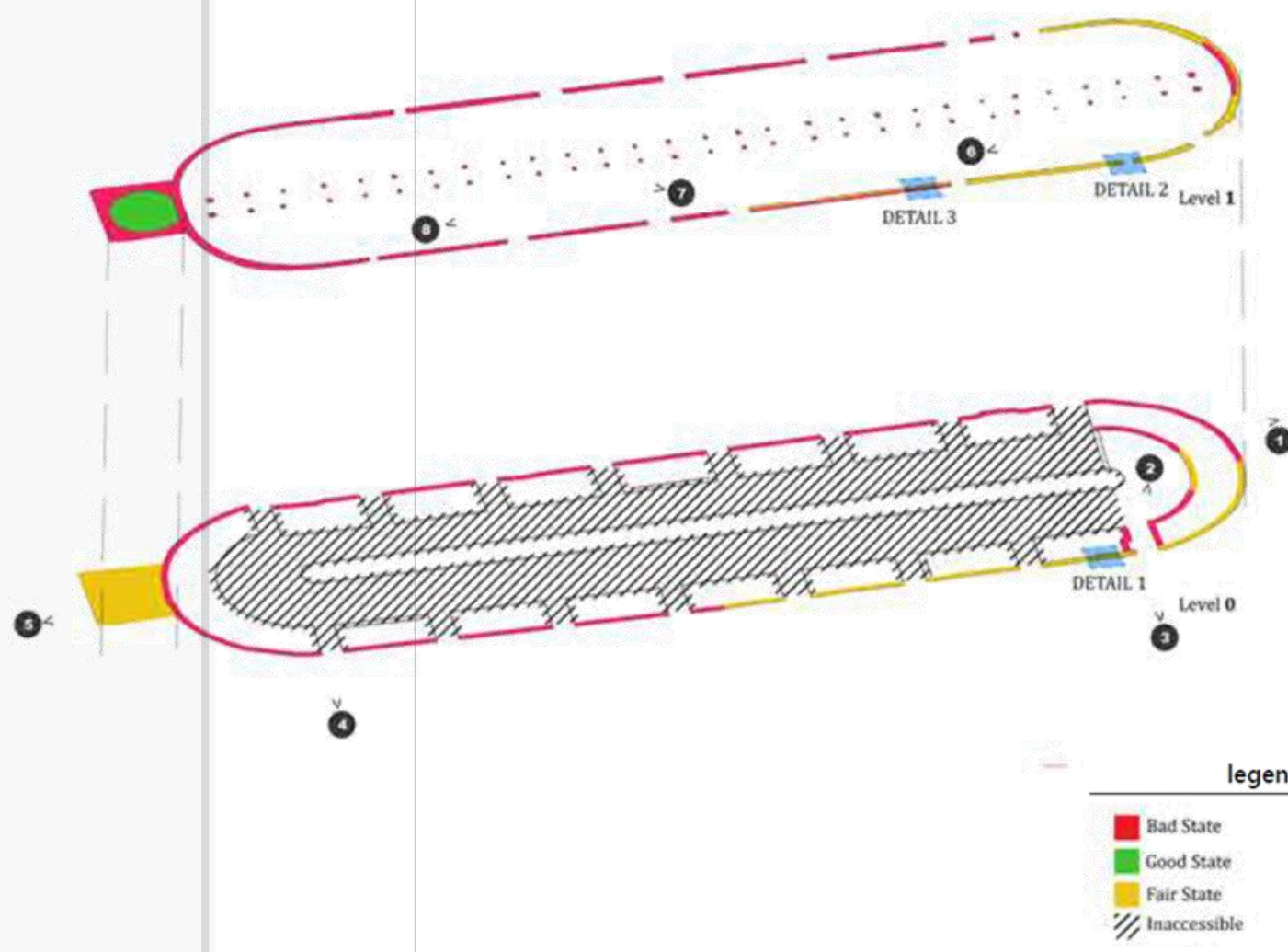




# I. THE HOFFMANN KILN

THE CONSTRUCTION OF THE KILN CONSIST OF A SOLID BOTTOM PART OF WHICH THE WALLS, IN FULL MASONRY, CAN MEASURE UP TO 1.50 M. THIS THICK WALLS FUNCTIONED AS AN ISOLATING LAYER FOR THE HEAT IN THE KILN AND AT THE SAME TIME WAS STABLE FOUNDATION FOR THE CONCRETE STRUCTURE BUILT ON TOP OF IT.

WHAT IS STRIKING IN THE SECTION IS THE INCLINATION INWARDS OF BOTH THE STRUCTURE AND THE OUTER WALL.



## GROUND LEVEL:

THE GROUND FLOOR WALL THICKNESS OF THE KILN IS 1.20M, HOWEVER THE ENTIRE GROUND FLOOR MASONRY IS NOT COMPLETELY BUILT WITH BETTER QUALITY BRICKS. WE CAN ASSUME THAT ONLY UP TO TWO OR THREE LEAVES OF THE BRICK SHAPES BOTH THE EXTERIOR AND INTERIOR SURFACES, BUT THE REST IS INFILLED WITH LOW QUALITY BRICKS, DIRT ETC.



# I. THE HOFFMANN KILN



## FIRST LEVEL:

CURRENTLY, THE ENCLOSING WALLS OF THE KILN ARE MADE OF TWO DIFFERENT MATERIALS; LOWER PART IS FROM A THREE-LEAF BRICK MASONRY AND THE UPPER PART IS FROM CONCRETE. THE TYPE CONCRETE USED, AND ITS COMPONENTS ARE UNKNOWN. HOWEVER, THE VISIBLE SURFACES INDICATE THAT INSTEAD OF FINE GRAINS, THERE ARE LARGE SIZES OF CRUSHED BRICKS THAT WERE USED AS AGGREGATES.



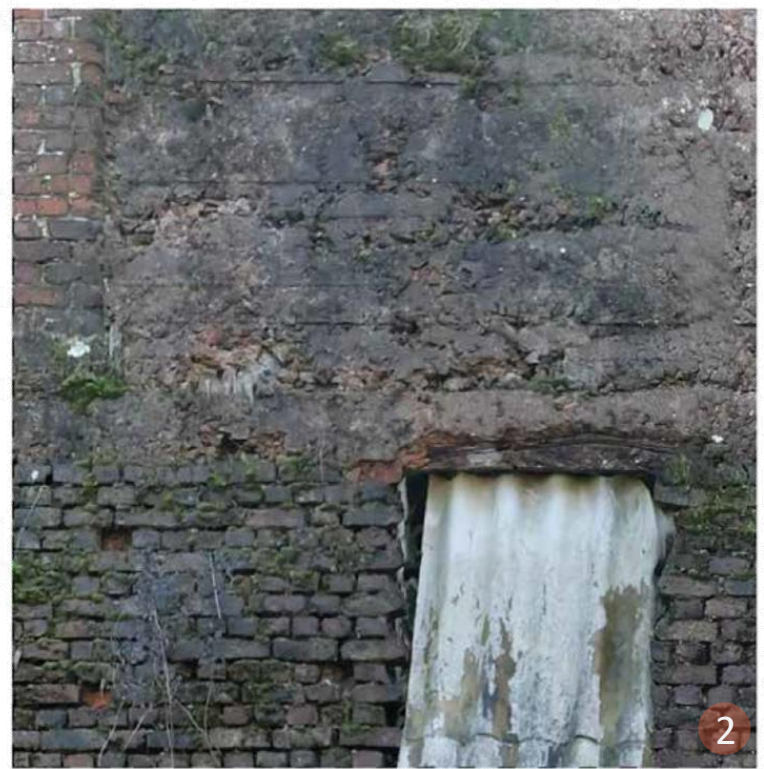
# I. THE HOFFMANN KILN



*EXISTING BRICK PATTERNS AND MASONRY TECHNIQUES  
EXISTING BRICK AND STRUCTURE CONDITIONS*

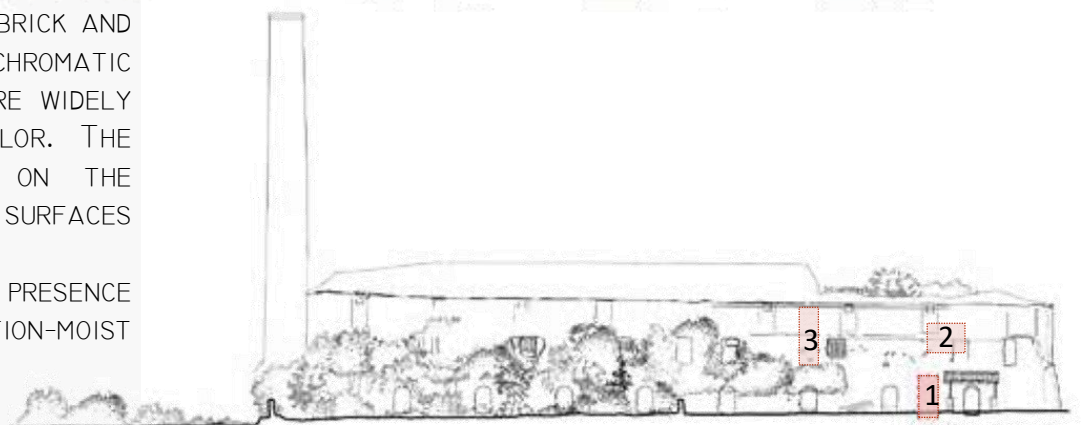


# I. THE HOFFMANN KILN



GENERALLY, THE EXTERNAL SURFACES OF THE MASONRY (BRICK AND MORTAR) ARE CONFISCATED BY BIOLOGICAL GROWTH AND CHROMATIC ALTERATION. BOTH THE ALGAE AND THE MOSS WHICH ARE WIDELY INITIATING FROM THE MORTAR AND ARE IN GREEN COLOR. THE BIOLOGICAL DETERIORATION EXTENSIVELY GENERATED ON THE LONGITUDINAL NORTH-WEST FAÇADE, SPECIFICALLY ON THE SURFACES CLOSER TO THE CHIMNEY, ON THE LOWER FLOOR.

THE RELATIVELY DARKER COLOR OF THE BRICK AND THE PRESENCE OF BIOLOGICAL GROWTH REFLECTS CHROMATIC ALTERATION-MOIST SPOTS ON THE BRICKS COMING FROM THE GROUND



Draw.30 Kiln pathologies Detail I



# I. THE HOFFMANN KILN

## *OBSERVATIONS AND POSSIBLE CAUSES*

COLORS OF THE BRICKS ON THE INTERIOR SURFACE OF THE FIRST FLOOR HAVE A RATHER DARK, GRAY LOOKING CHROMATIC ALTERATION WHEN COMPARED TO THE COLOR OF THE DISINTEGRATED PARTS, WHICH COULD BE INFLUENCED BY A COMBINATION OF CAUSES:

- FIRE IN 1950
- DETERIORATIONS DUE TO EFFLORESCENCE, FROST DAMAGE AND THE DIRT COMING FROM FLOOR COVER
- THE SMOKE COMING FROM THE COAL HOLES AS THEY WERE PLACING THE COAL.



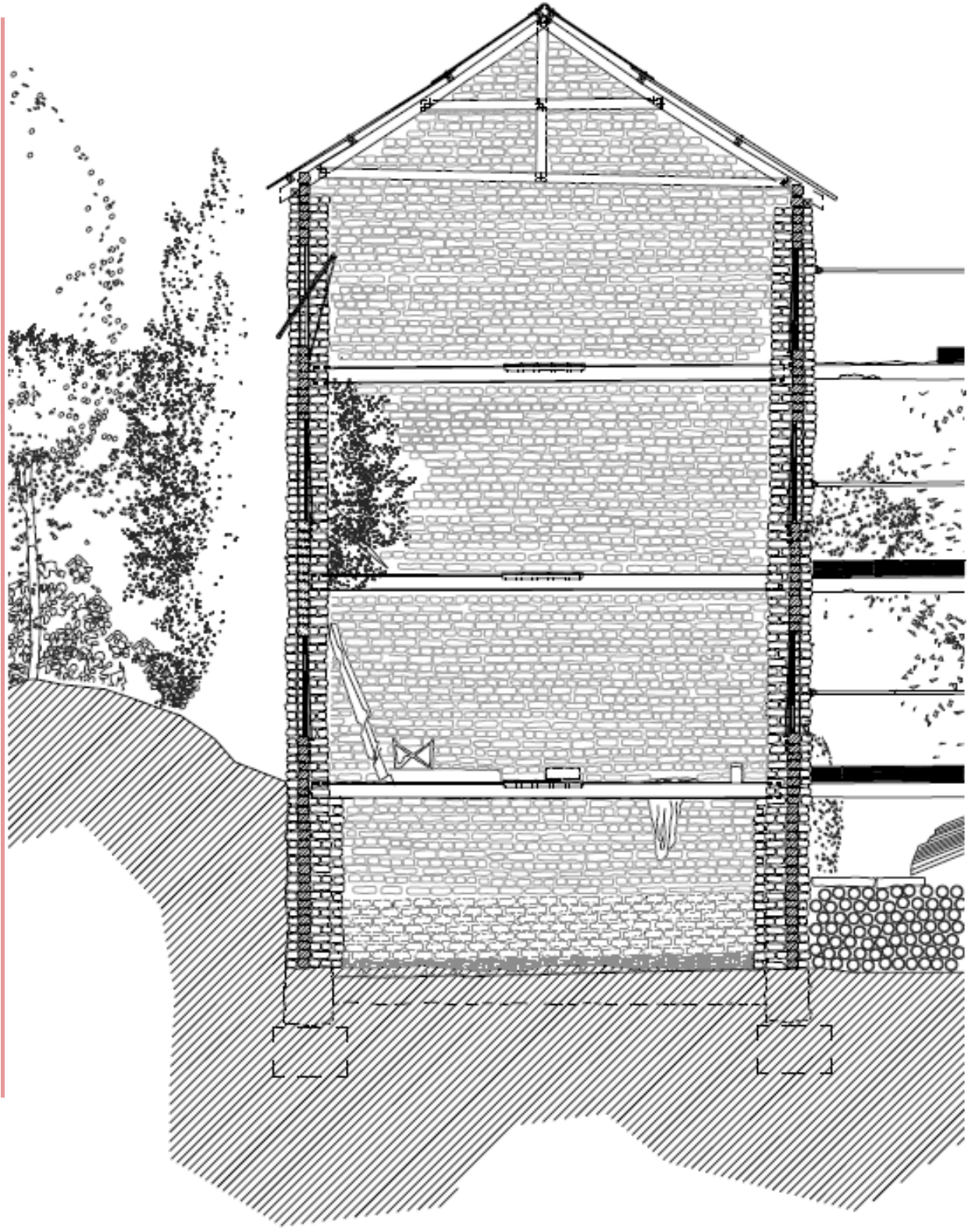
THE ACCESSIBLE CHAMBER ON THE GROUND FLOOR HAS WALLS WITH MODERATELY GLOSSY-LOOKING BRICKS. THIS ALSO SUGGESTS THE ALREADY EXISTING SALTS IN THE BRICK COMPOSITION CAN CAUSE A GLAZED APPEARANCE AFTER BURNING.

EFFLORESCENCE STAINS ARE VISIBLE AT CERTAIN AREAS.

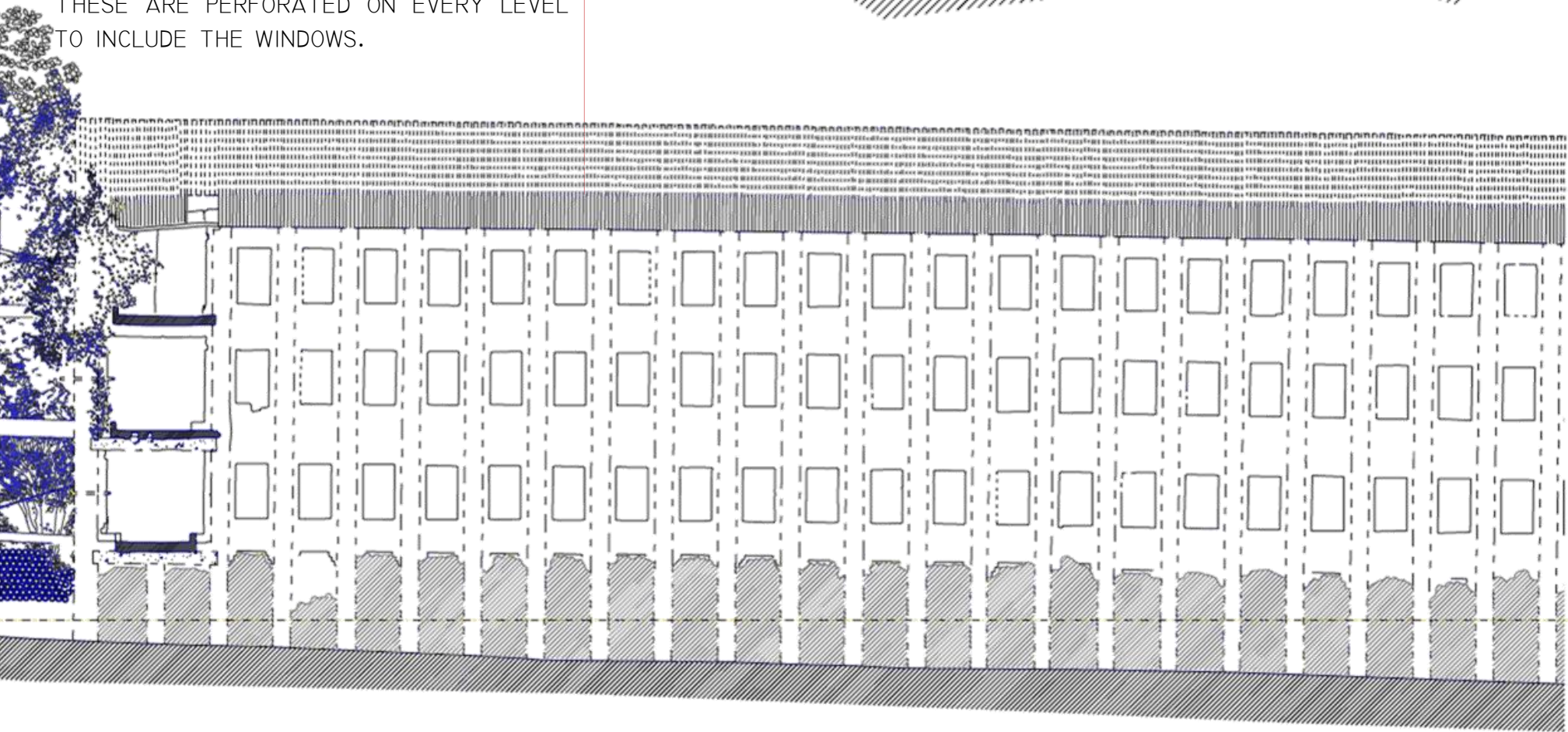


## 2. DRYING SHEDS

THE STRUCTURE OF THE FOUR LEVEL DRYING SHEDS ARE BASED ON A SOLID BRICK STRUCTURE WITH FOUR LEAF BUTTRESSES WHICH BRING THE FORCES FROM THE ROOF AND DIFFERENT LEVELS TO FOUNDATION.



THESE ARE PERFORATED ON EVERY LEVEL TO INCLUDE THE WINDOWS.



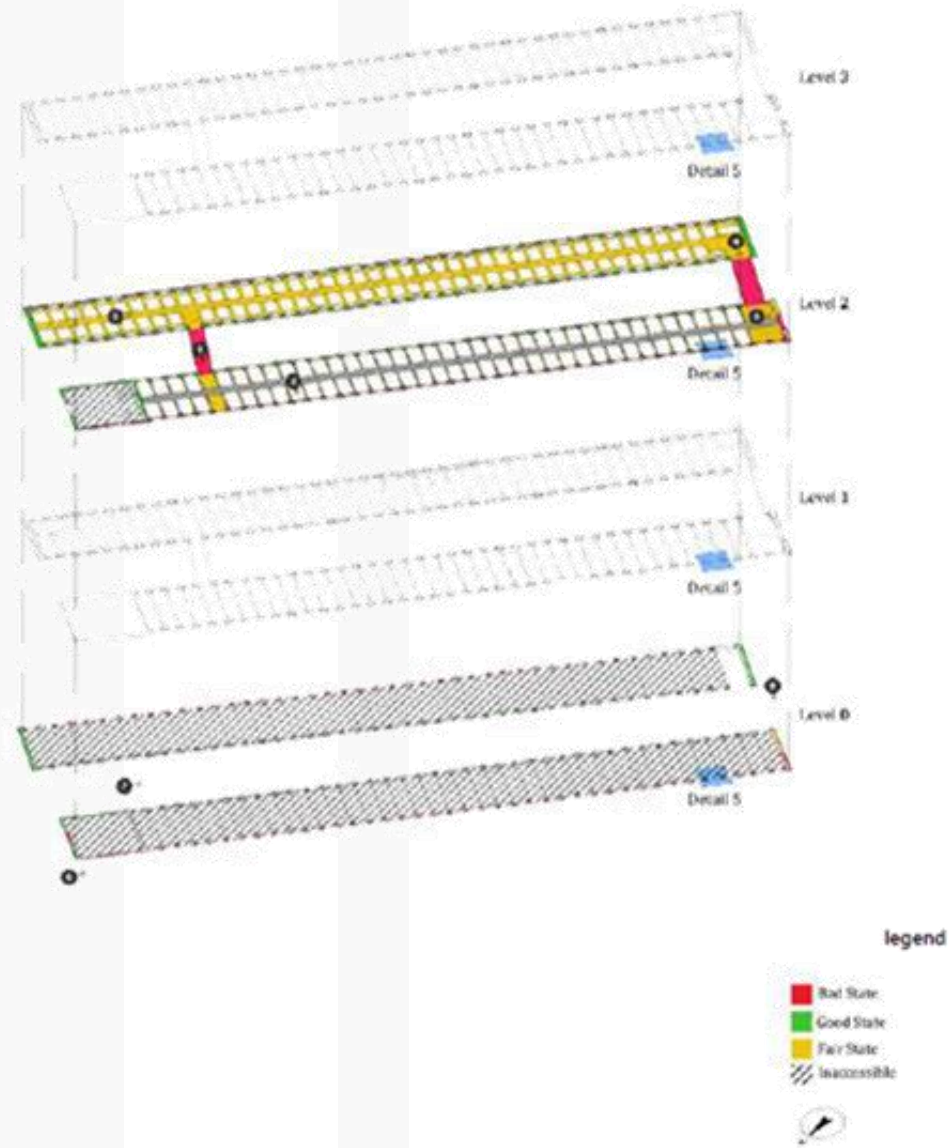


## 2. DRYING SHEDS

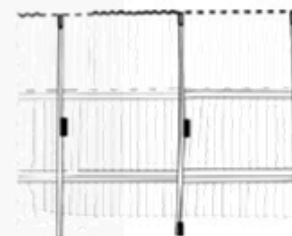
### EXISTING BRICK PATTERNS AND MASONRY TECHNIQUES AND CONDITIONS

EFFLORESCENCE IS ALSO EVIDENT IN SOME PARTS OF THE OUTER PART OF THE MASONRY

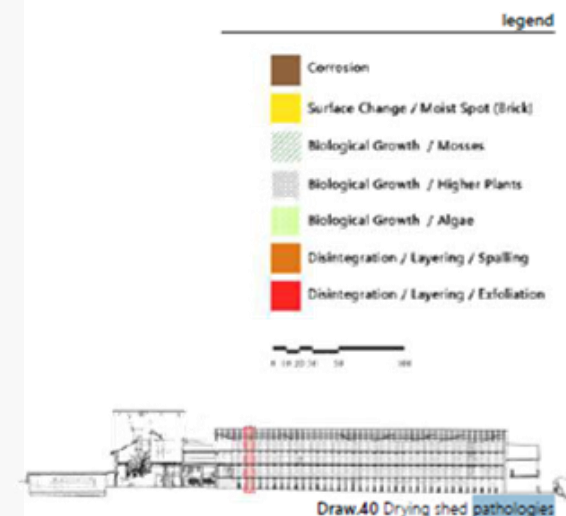
EXTERNAL BRIDGES WHICH CONNECT THE TWO MULTI-LEVELLED BUILDINGS. THEIR CONSTRUCTION CONSISTS OF PRE-FAB BRICKS REINFORCED WITH STEEL AND MOST PROBABLY THEY WERE CREATED IN SITU.



Draw.39 Condition mapping Drying Sheds



SOME BRICKS, USUALLY CLOSE TO THESE REPETITIVE OPENINGS, PRESENT CHROMATIC ALTERATION TO THEIR SURFACE, MOST PROBABLY BECAUSE OF MOIST SPOTS



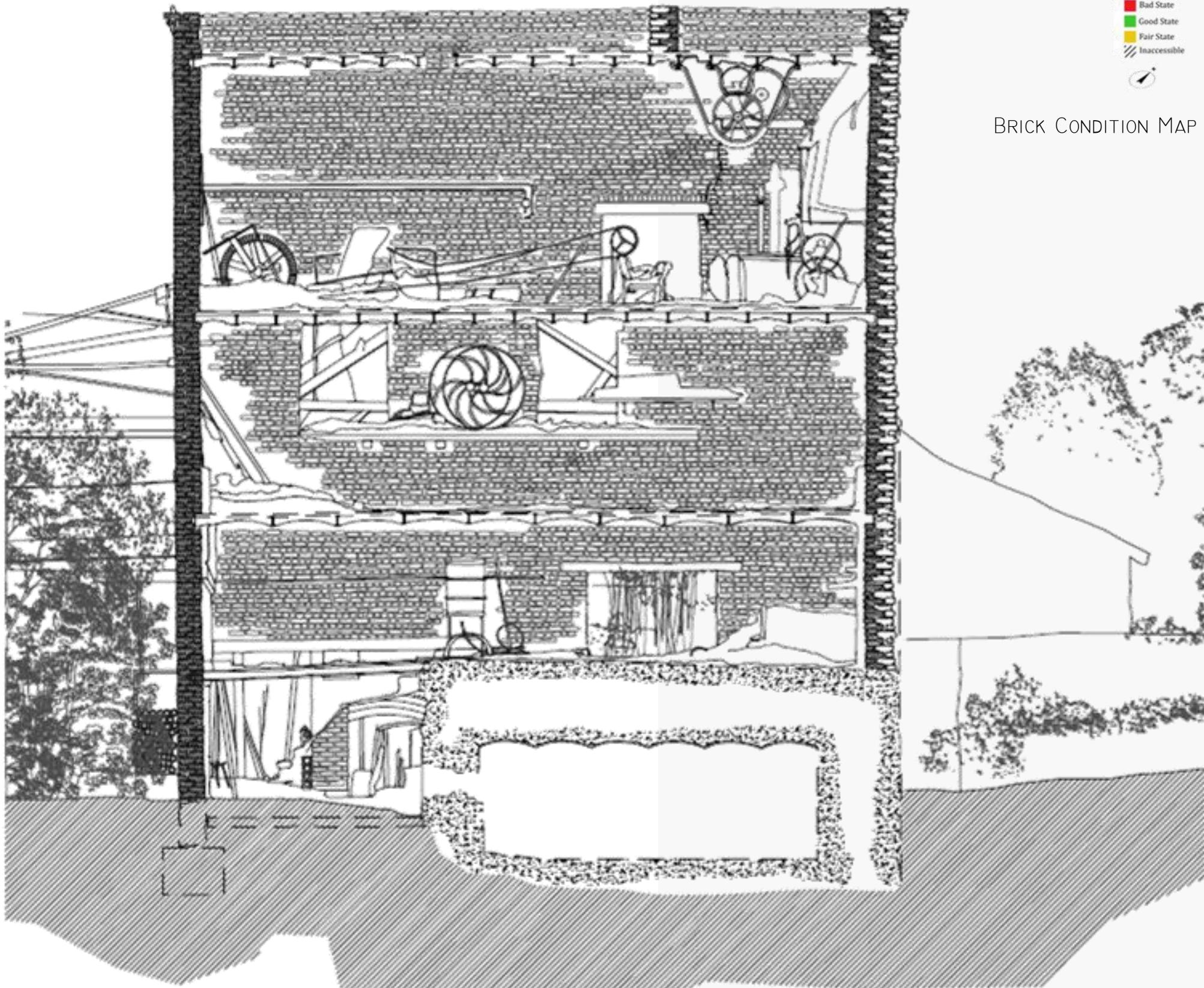


### 3. CLAY TOWER

EXISTING BRICK PATTERNS AND MASONRY TECHNIQUES AND CONDITIONS



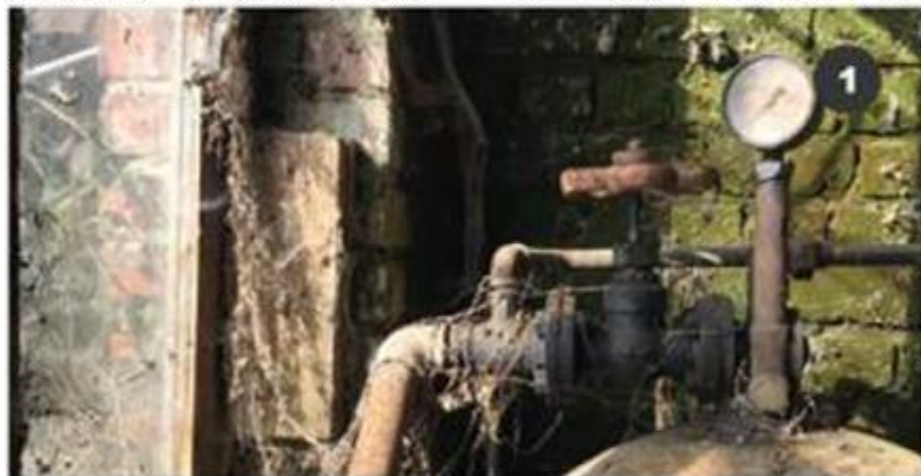
THREE LEAF SOLID WALLS WITH A HEIGHT OF ABOUT 10 METER





### 3. CLAY TOWER

#### EXISTING BRICK PATTERNS AND MASONRY TECHNIQUES AND CONDITIONS



- SALTS HAVE BEEN GROWN ON THE BRICKS OF THE FACADE, MAKING THEMSELVES MUCH MORE VISIBLE
- CRACKS ARE PRESENT MOSTLY ON THE THREE FACADES OF THE OVEN AND THEIR LOCATION VARY.
- SOME OF THEM ARE LOCATED NEAR OR INITIATED FROM THE WEAKER POINTS OF THE MASONRY (OPENINGS, HOLLOWES FOR MACHINERY INSTALLMENT) AND OTHERS ARE INITIATING FROM THE TOP PART OF THE TOWER, CONTINUING VERTICALLY TO THE MASONRY



- BOTH ON THE OUTSIDE AND THE INSIDE, BIG STAINS ARE SPOTTED ON THE SURFACE OF THE BRICK MASONRY
- SOME BRICKS ALSO HAVE CHROMATIC ALTERATION ON THEIR SURFACE, DUE TO THE APPEARANCE OF MOIST SPOTS



# BRICKS OF THE FUTURE

HOW TECHNOLOGY IS RESHAPING THE OLDEST MANMADE BUILDING MATERIAL?

HOW CAN BRICK REINVENT SPACE?

## *DESIGN THROUGH EXPERIMENTS AND MAKING*

THREE YEARS DESIGN THROUGH MAKING STUDIOS AT THE AMSTERDAM ACADEMY OF ARCHITECTURE. STUDENTS DESIGNED AND MADE NEW BRICKS PRODUCED WITH LESS ENERGY OR MATERIAL, RECYCLED MATERIALS AND STACKED OR ASSEMBLED THE BRICKS INNOVATIVELY. EACH STUDIO IS A COOPERATION WITH A DUTCH BRICK FACTORY: DEN DAAS IN AZEWIJN, ZILVERSCHOON IN RANDWIJK AND STONECYCLING-ST.JORIS IN BEESEL.

## *BRICK OF THE FUTURE*

*BRICK OF THE FUTURE* IS PART OF *CRAFTING THE FACADE*, AN INTERDISCIPLINARY EUROPEAN ERASMUS PROGRAM ORGANIZED BY THE AMSTERDAM ACADEMY OF ARCHITECTURE, THE UNIVERSITEIT OF LIECHTENSTEIN IN VADUZ AND THE MACKINTOSH SCHOOL OF THE ARTS IN GLASGOW.



University of Liechtenstein



AMSTERDAM SCHOOL OF THE ARTS, ACADEMY OF ARCHITECTURE

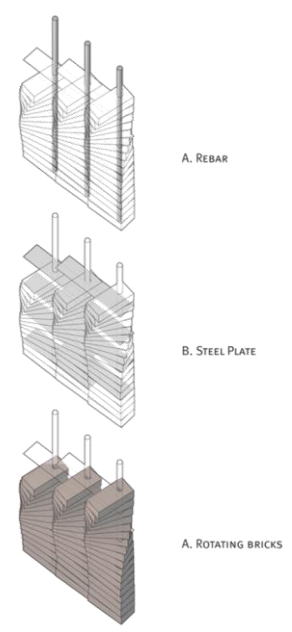
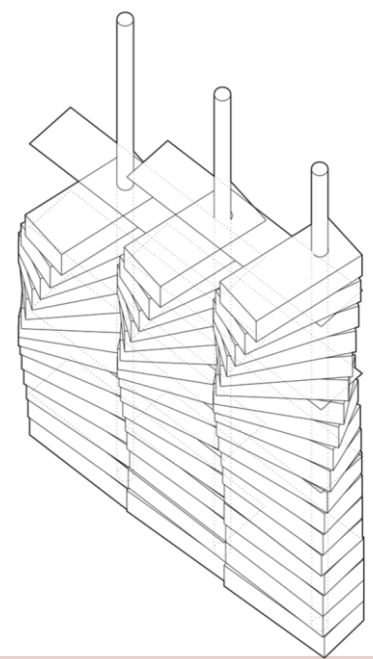
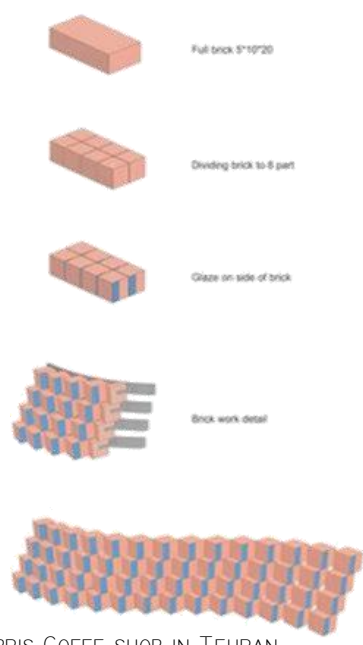


THE GLASGOW SCHOOL OF ART, THE MACKINTOSH SCHOOL OF ARCHITECTURE



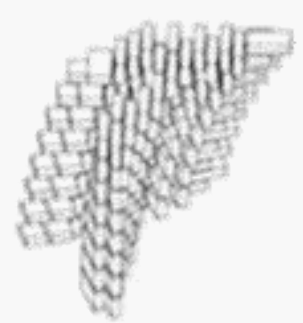
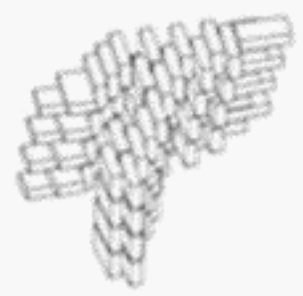


# NEW TECHNIQUES TO DEAL WITH CLAY BASED REALIZATIONS



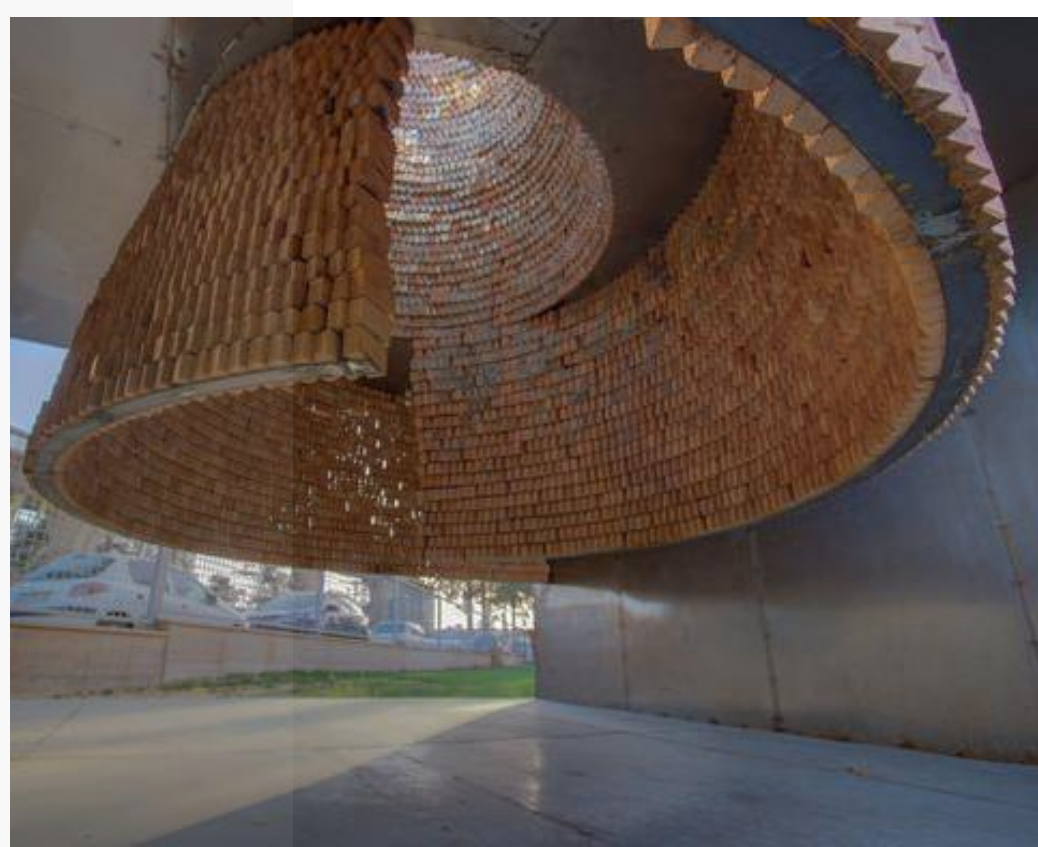
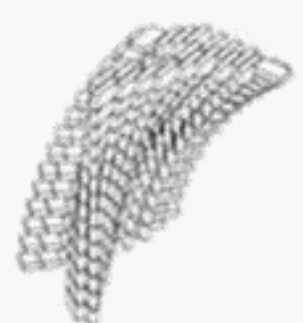
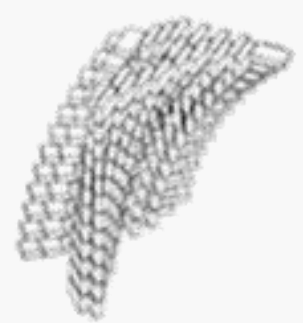
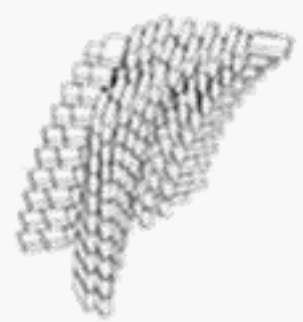
HOOPA DESIGN CAVE-LIKE BRICK SPRIS COFFEE SHOP IN TEHRAN

## LIMITLESS DIRECTIONS

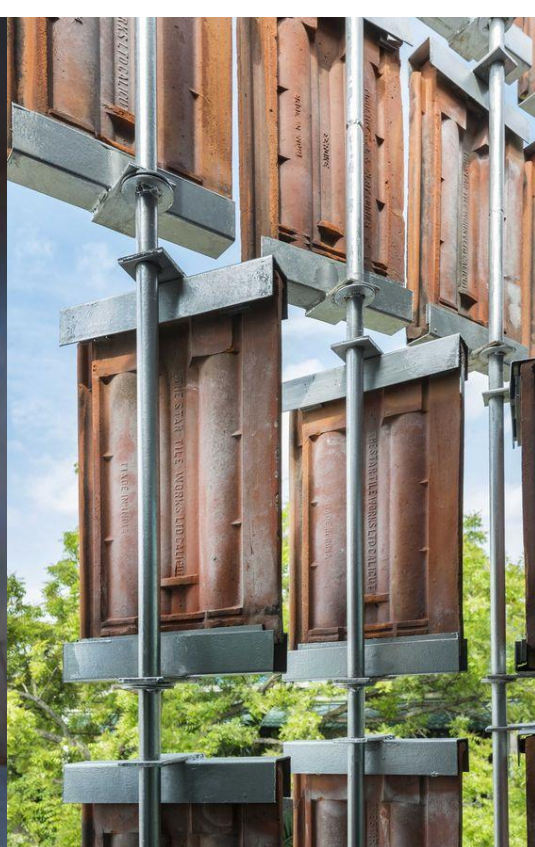


[HTTP://WWW.GREENWAYSYSTEMS.COM.AU/BRICK-CLADDING-SYSTEMS/](http://www.greenwaysystems.com.au/brick-cladding-systems/)

## LIMITLESS TECHNIQUES



A DESIGN BY ASHARI ARCHITECTS FOR AN ARCHITECTURAL INSTALLATION IN IRAN



GRAÑA Y BERNALTE VIVERO EMPRESAS TOLEDO

## LIMITLESS ASSEMBLIES

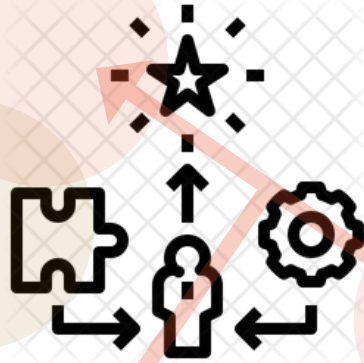


# PROPOSED PROGRAM

EUROPEAN EXPERIMENTAL ATTRACTION

BRICK: OLDEST MATERIAL

*( WITH MUCH POTENTIAL TO TRIGGER ARCHITECT CREATIVITY )*



TECHNOLOGY HUB

## SCULPTURING SPACE

- INTERWEAVE PAST AND FUTURE
- REINVENTING RELATION BETWEEN INSIDE AND OUTSIDE

## ARTISTIC ATTRACTION

*BY BEING SCULPTURE ITSELF*

LIMITLESS DIRECTIONS

LIMITLESS TECHNIQUES

DIFFERENT SKYLINE

*BY TREATING INDUSTRIAL LANDSCAPE AND ITS BUILDINGS AS A SINGLE UNIT.*

IN WHICH IT IS IMPOSSIBLE TO ISOLATE FROM ONE ANOTHER



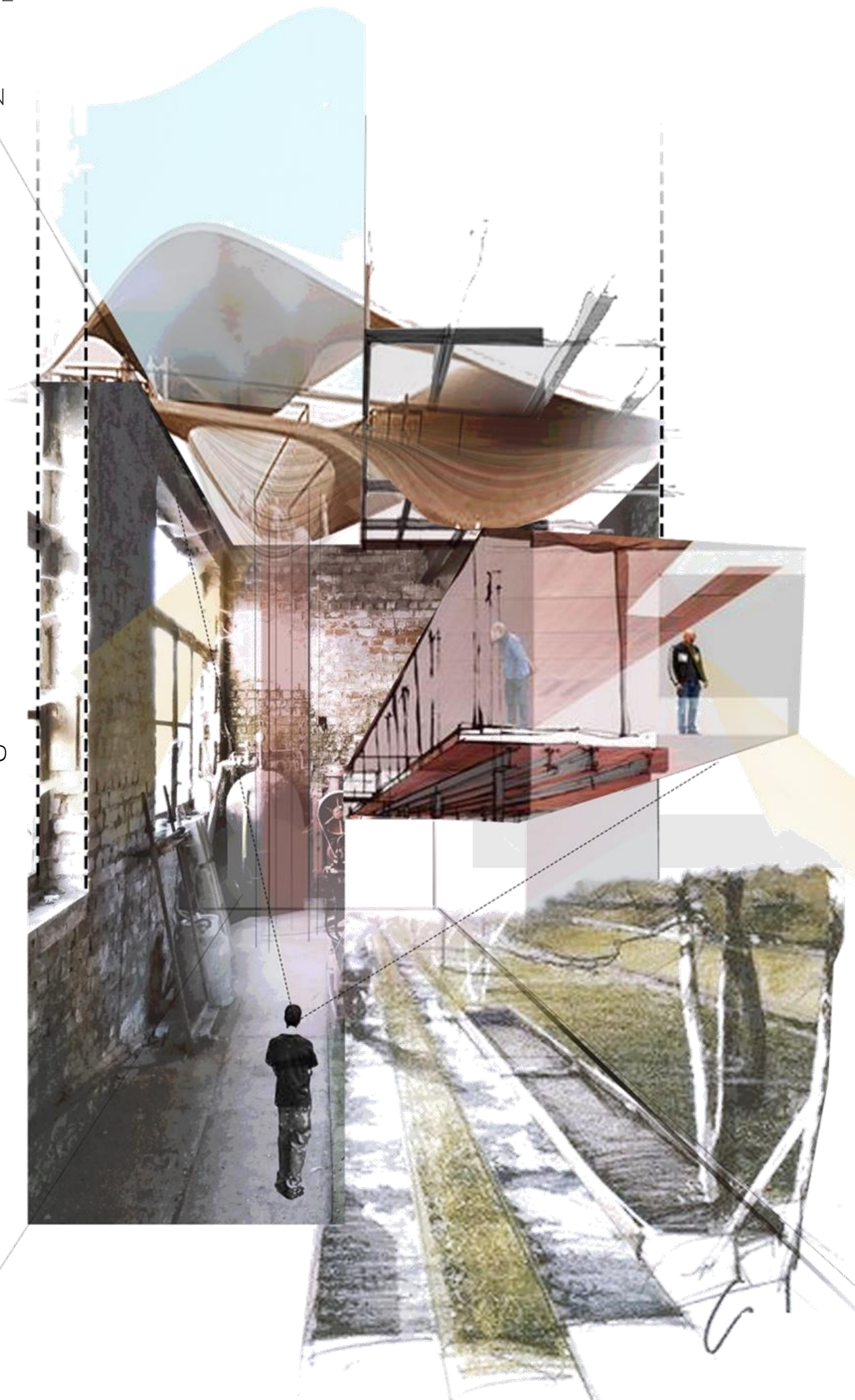
# CONCEPT

## *TRANSFORMING BRICK INTO SPACE*

LET THE NEW BRICKS INTERWEAVE WITH THE INDUSTRIAL HERITAGE AND SCULPTING NEW EXPERIENTIAL SPACES THAT EVOKE THE SENSE OF PAST AND FUTURE AND REINVENT THE RELATION WITH THE INDUSTRIAL LANDSCAPE ( INSIDE AND OUTSIDE)

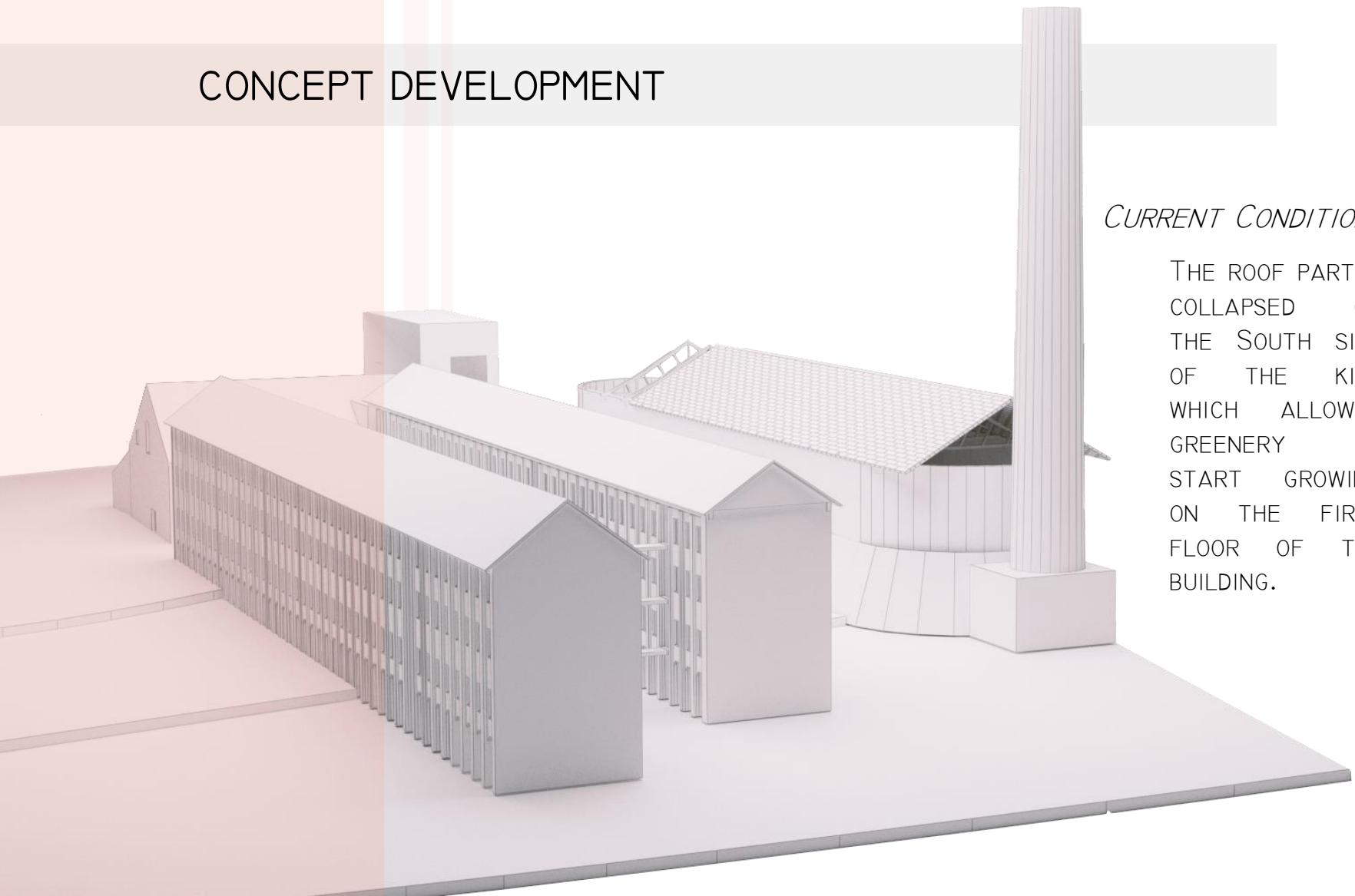
THE DESIGN MEDIATES THE DIALOGUE BETWEEN, PAST AND FUTURE, RIGID AND DYNAMIC, ORTHOGONAL AND ORGANIC CONTAINER AND CONTAINED.

RESULTING INTERIOR  
SCULPTURING THE EXTERIOR  
AND EXTERIOR SCULPTURING  
INTERIOR



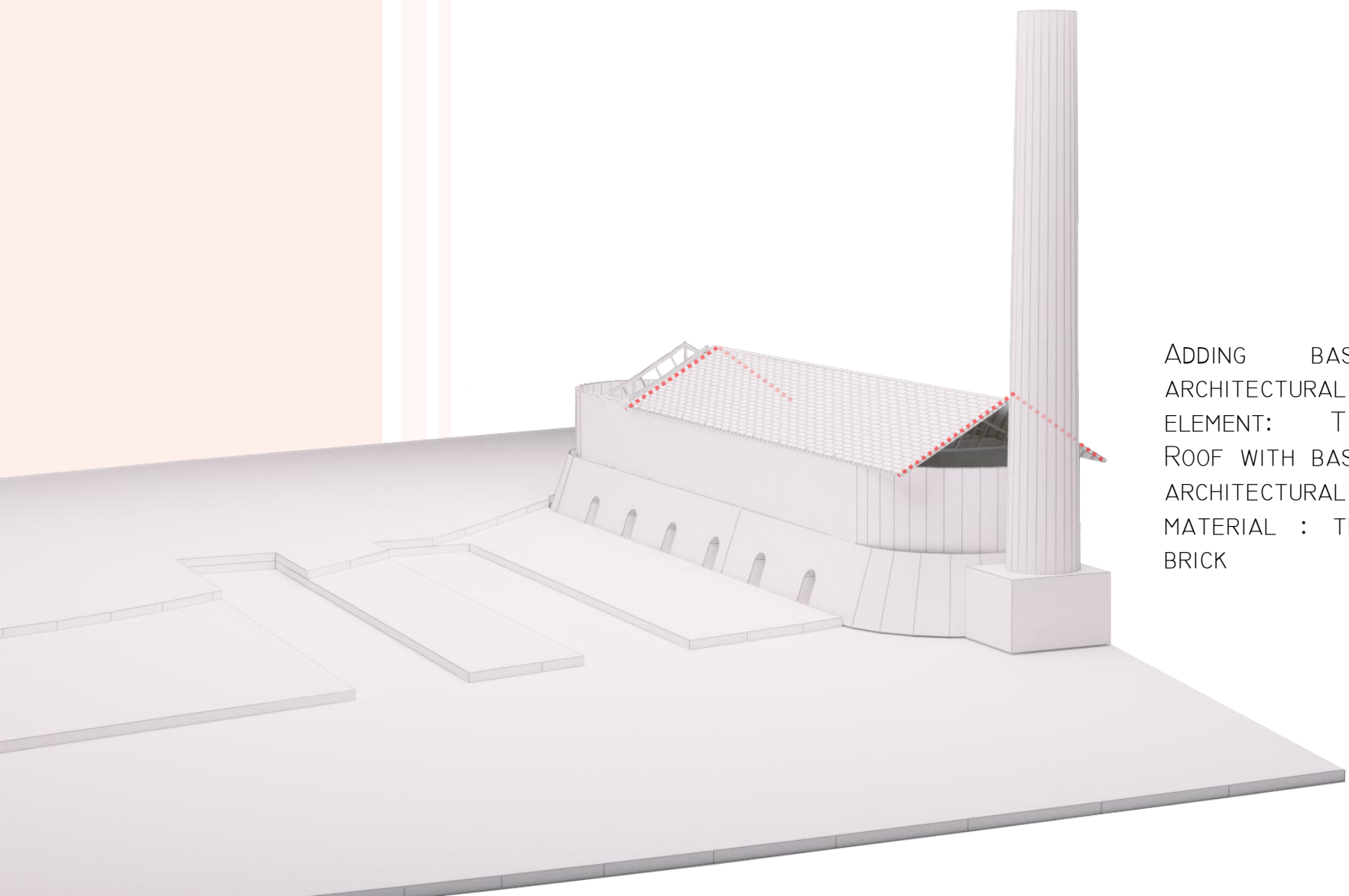


## CONCEPT DEVELOPMENT



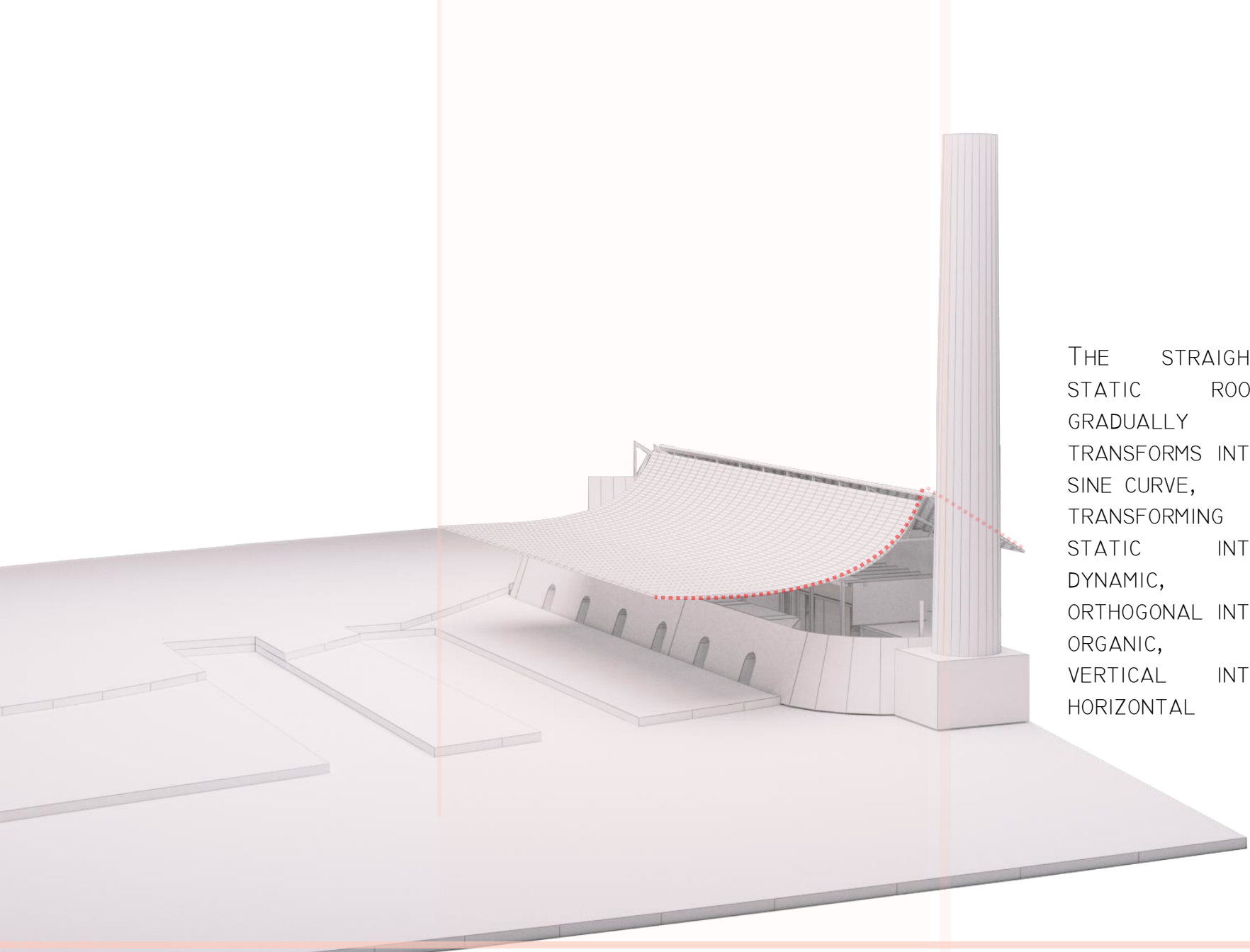
### *CURRENT CONDITION:*

THE ROOF PARTLY COLLAPSED ON THE SOUTH SIDE OF THE KILN WHICH ALLOWED GREENERY TO START GROWING ON THE FIRST FLOOR OF THE BUILDING.

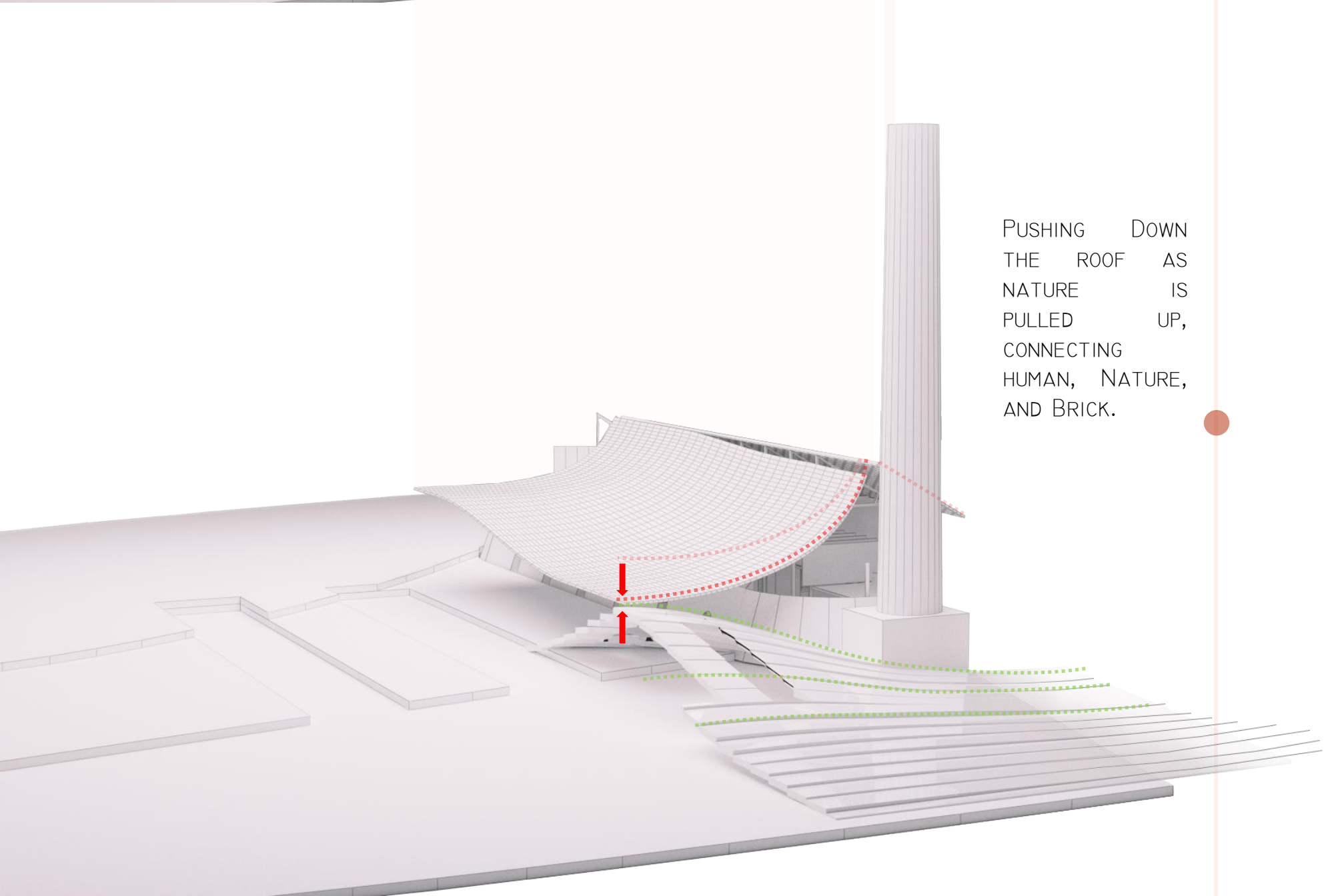


ADDING BASIC ARCHITECTURAL ELEMENT: THE ROOF WITH BASIC ARCHITECTURAL MATERIAL : THE BRICK



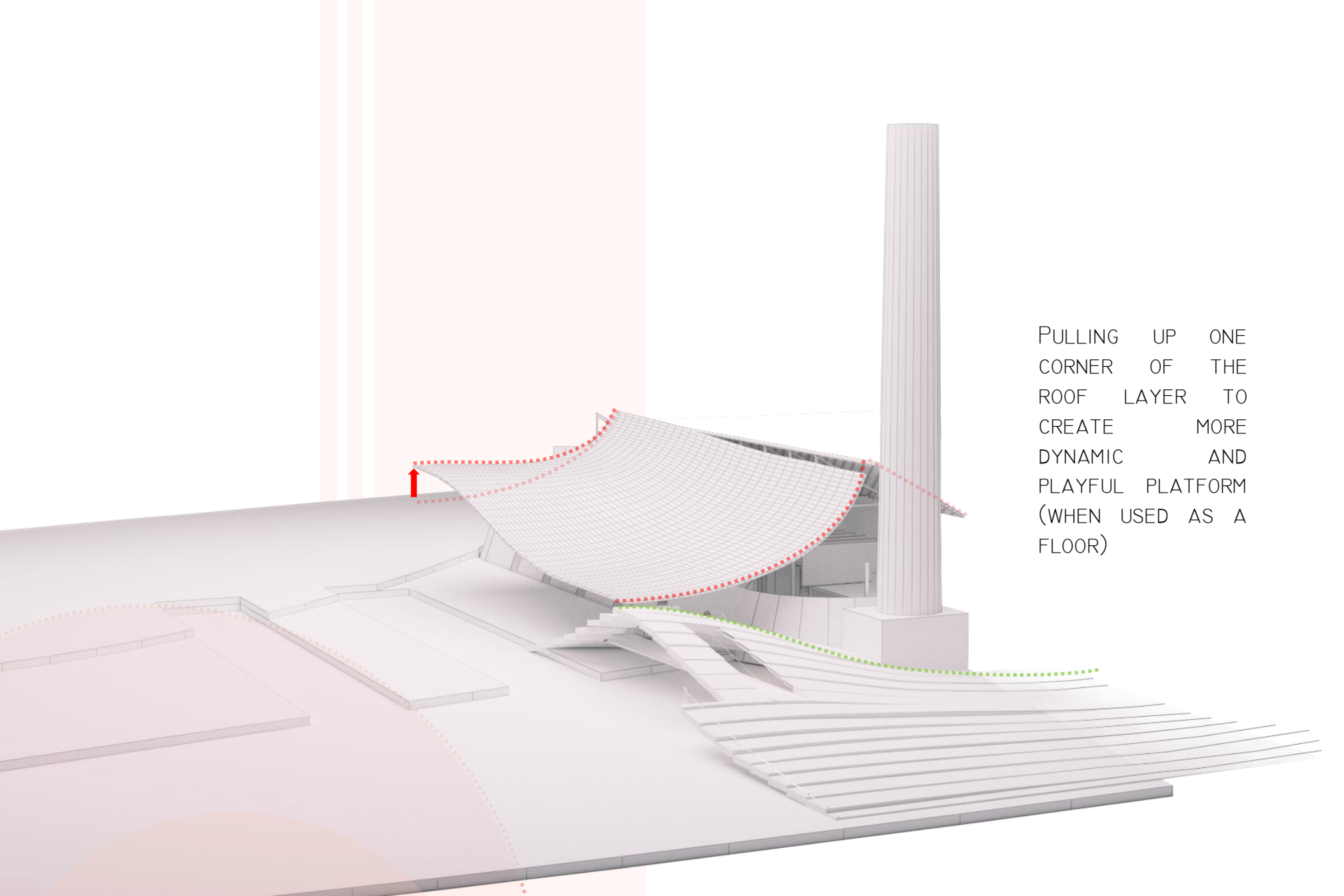


THE STRAIGHT  
STATIC ROOF  
GRADUALLY  
TRANSFORMS INTO  
SINE CURVE,  
TRANSFORMING  
STATIC INTO  
DYNAMIC,  
ORTHOGONAL INTO  
ORGANIC,  
VERTICAL INTO  
HORIZONTAL

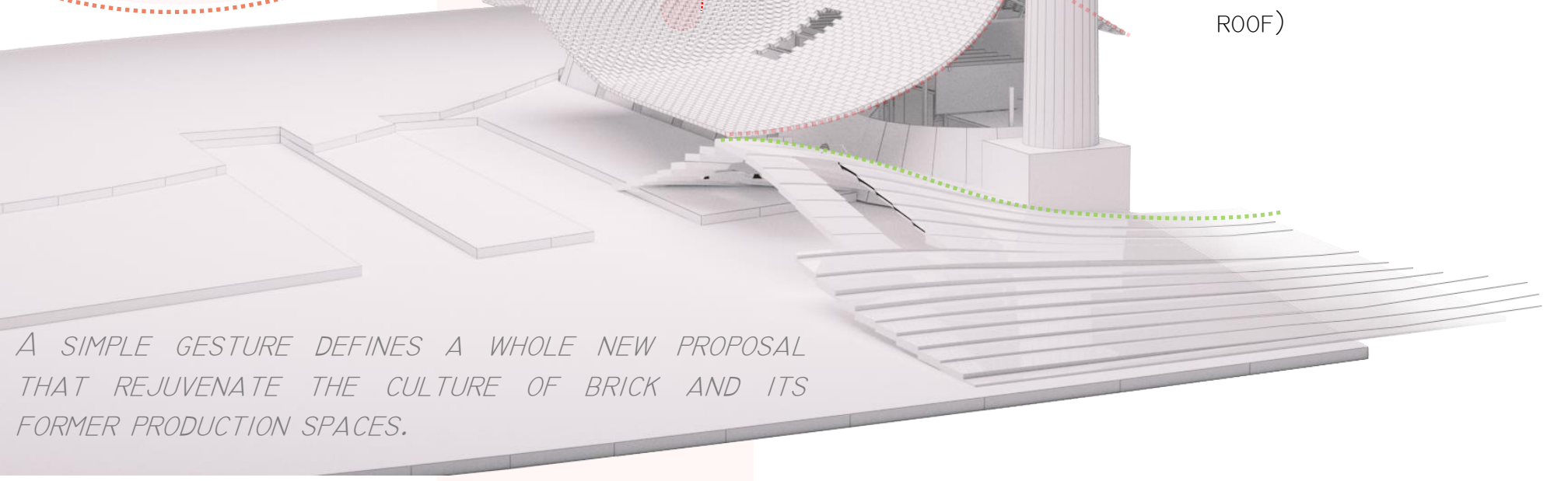
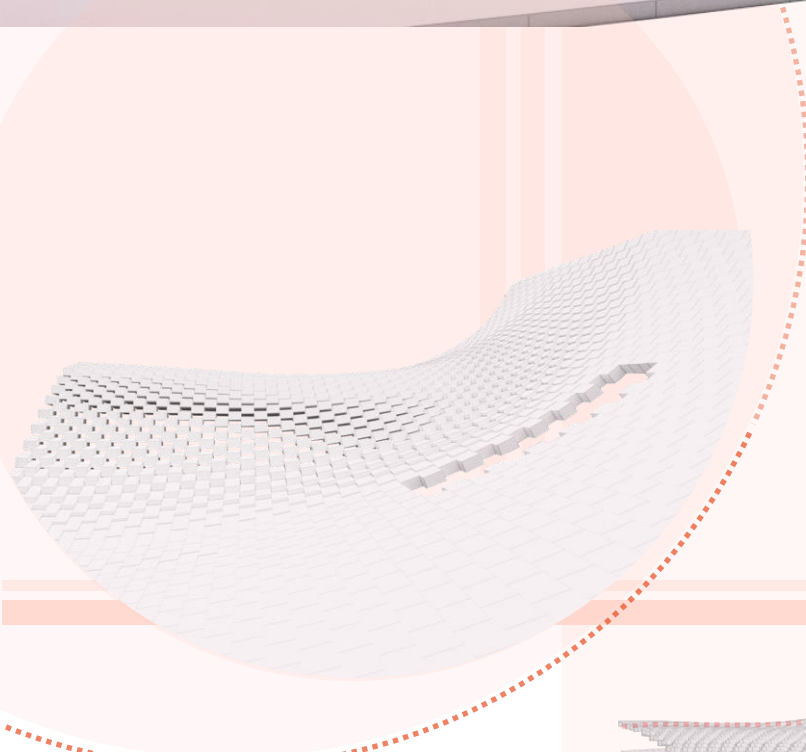


PUSHING DOWN  
THE ROOF AS  
NATURE IS  
PULLED UP,  
CONNECTING  
HUMAN, NATURE,  
AND BRICK.





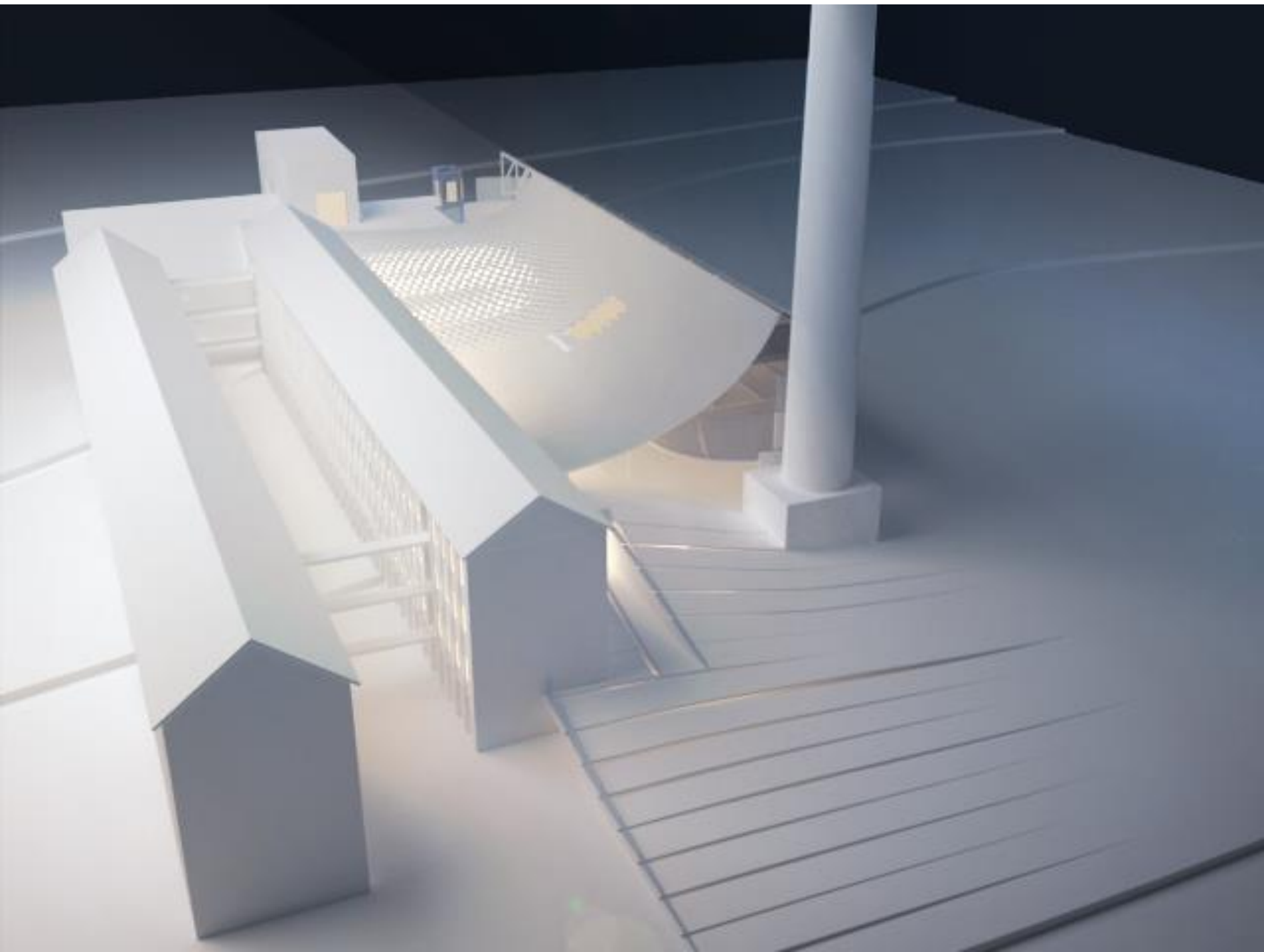
PULLING UP ONE CORNER OF THE ROOF LAYER TO CREATE MORE DYNAMIC AND PLAYFUL PLATFORM (WHEN USED AS A FLOOR)



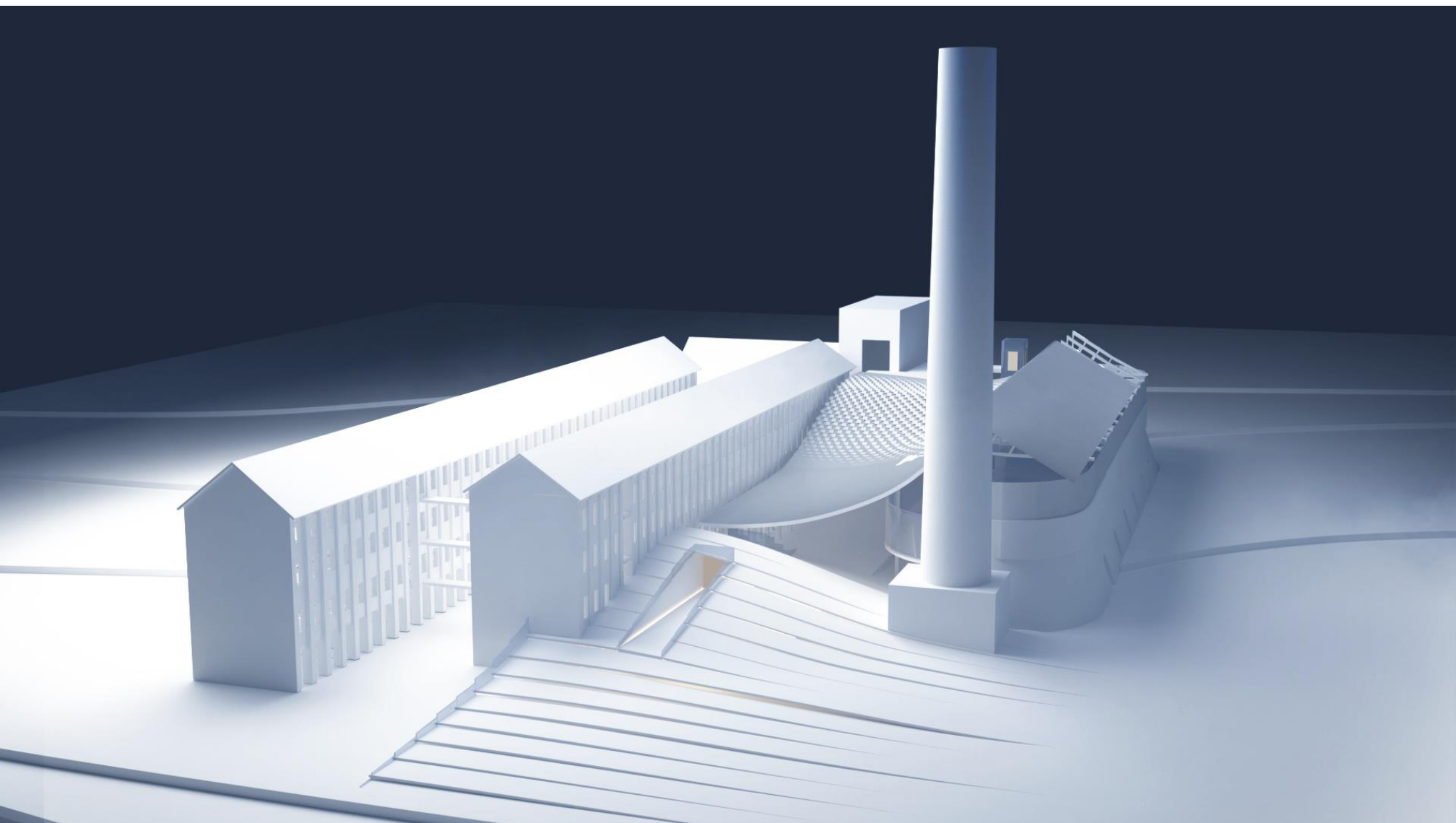
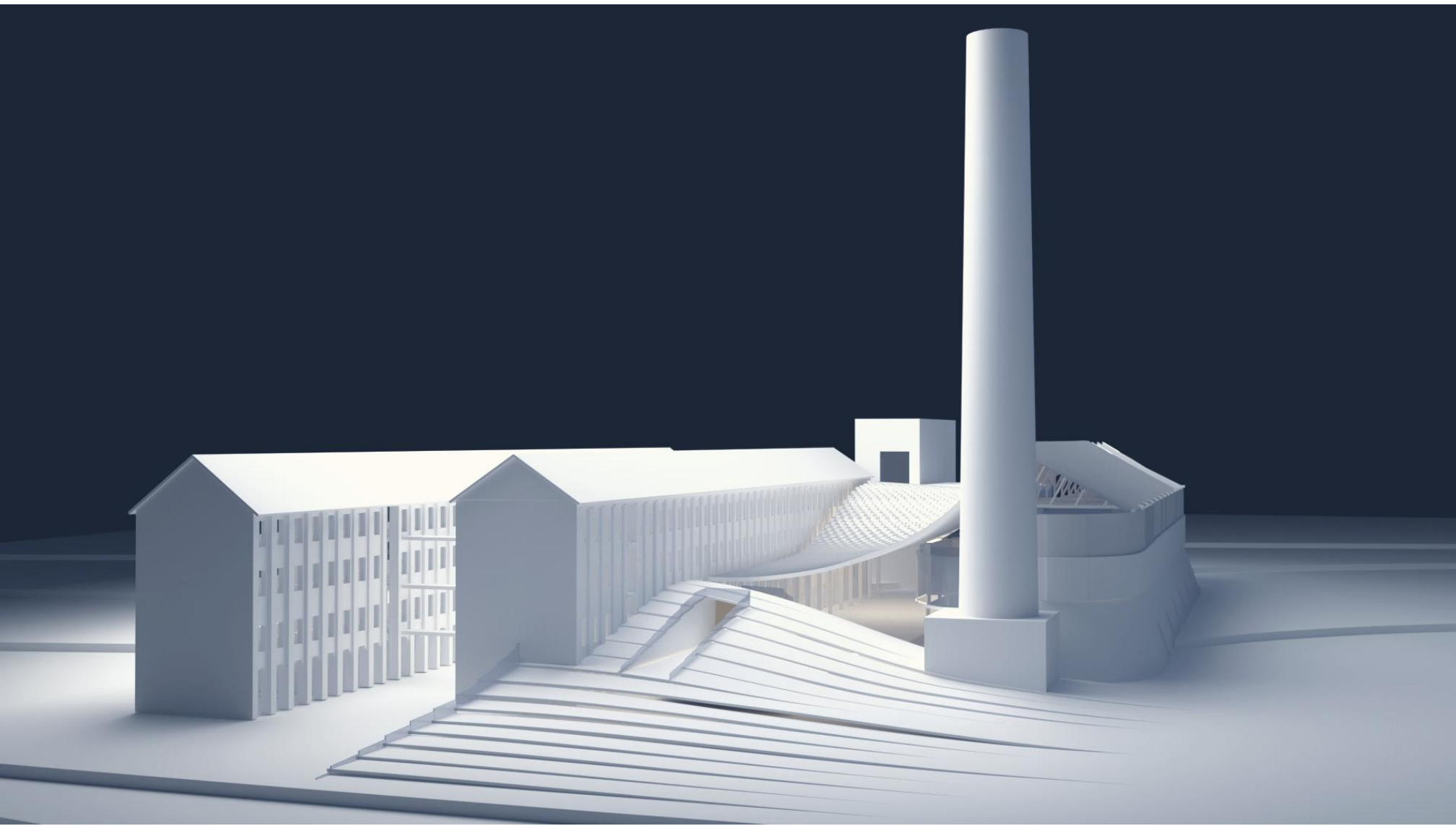
GRADUALLY ROTATING BRICKS ALONG THEIR VERTICAL AXIS, IN ORDER TO CREATE GAPS WITHIN THE PLATFORM THAT LET LIGHT PENETRATE TO THE SPACES BELOW (WHEN USED AS A ROOF)

*A SIMPLE GESTURE DEFINES A WHOLE NEW PROPOSAL THAT REJUVENATE THE CULTURE OF BRICK AND ITS FORMER PRODUCTION SPACES.*



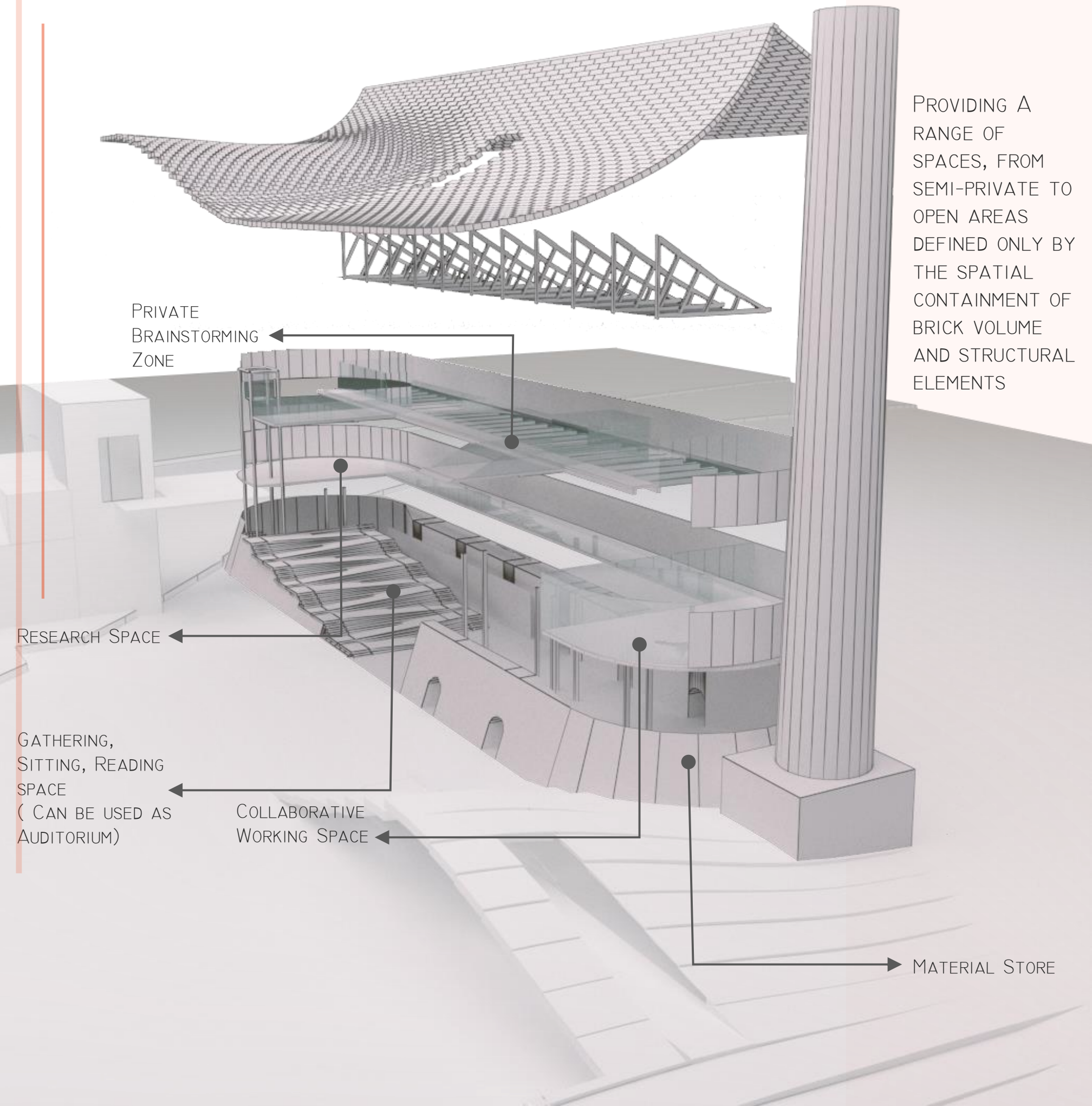




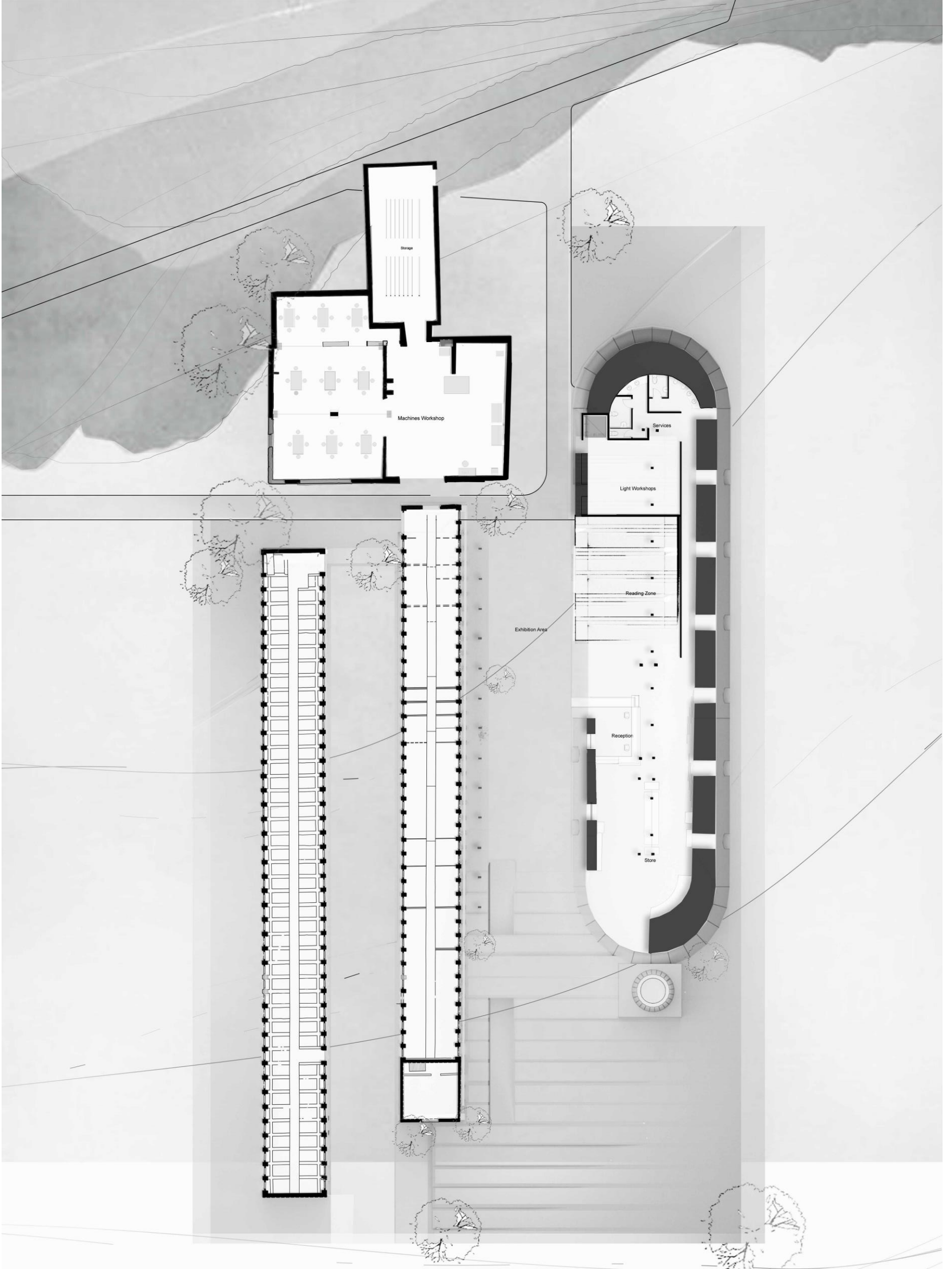




# AXONOMETRIC DIAGRAM OF THE SPACE PROGRAM

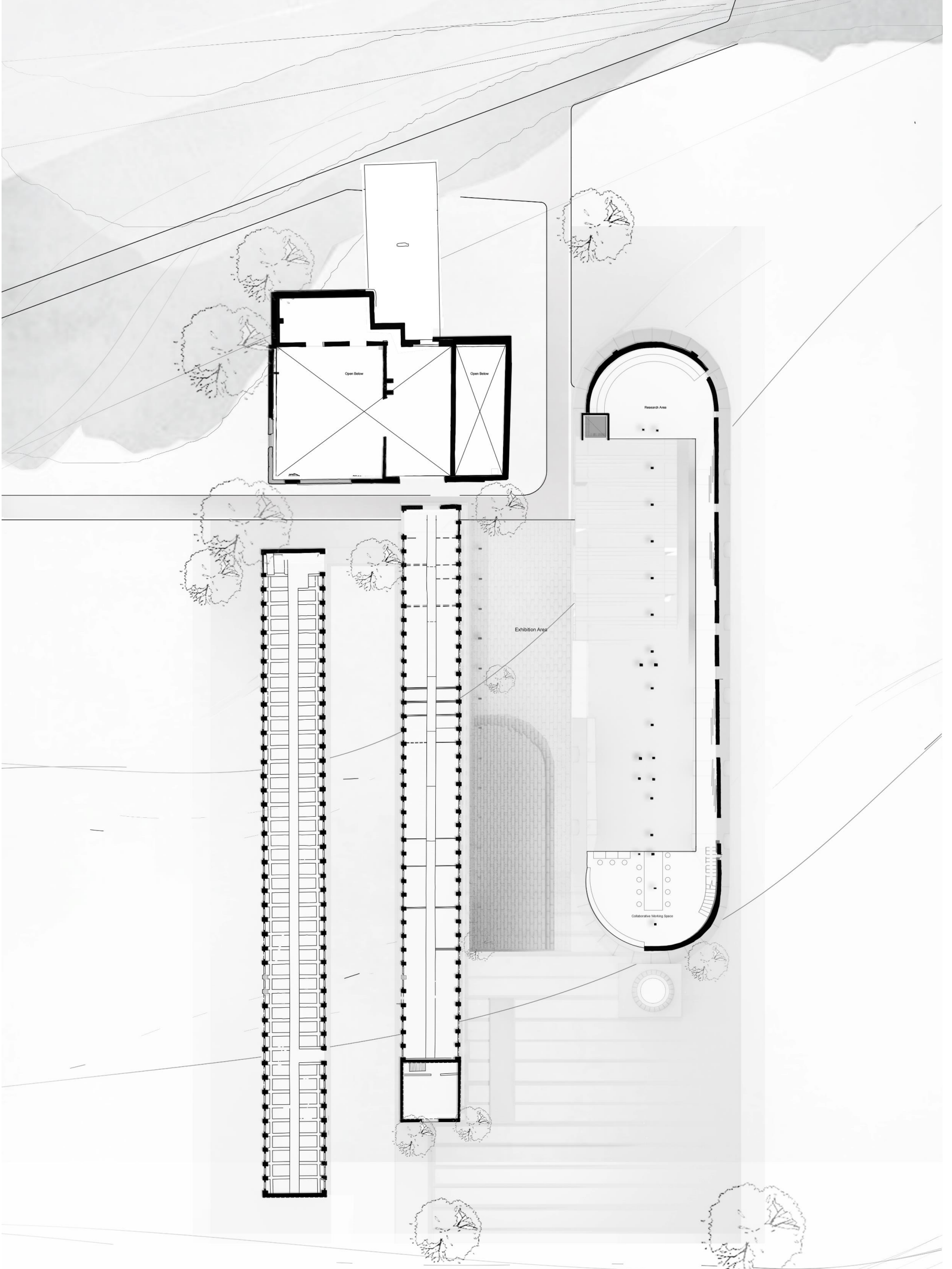






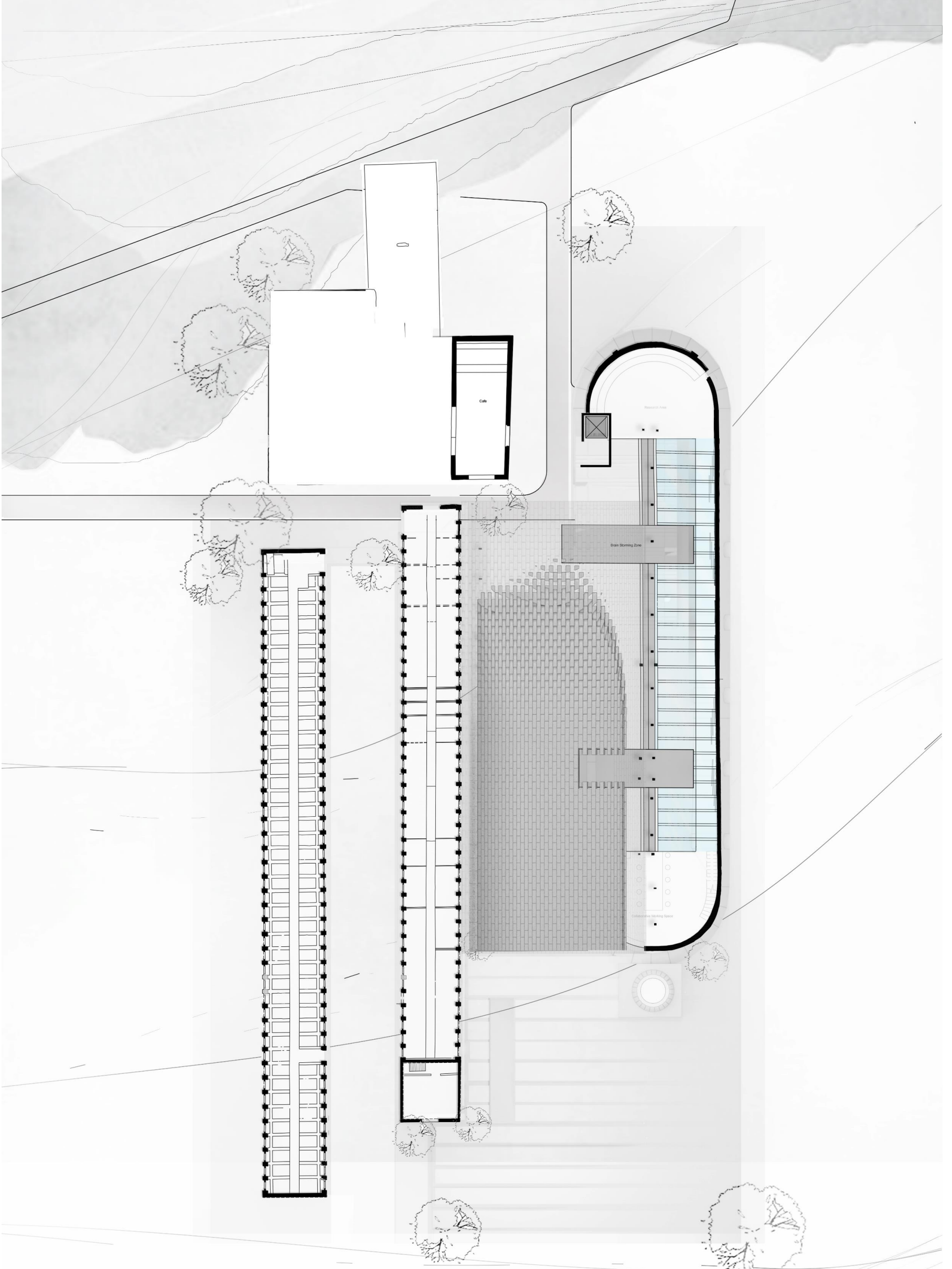
GROUND FLOOR PLAN





FIRST FLOOR PLAN

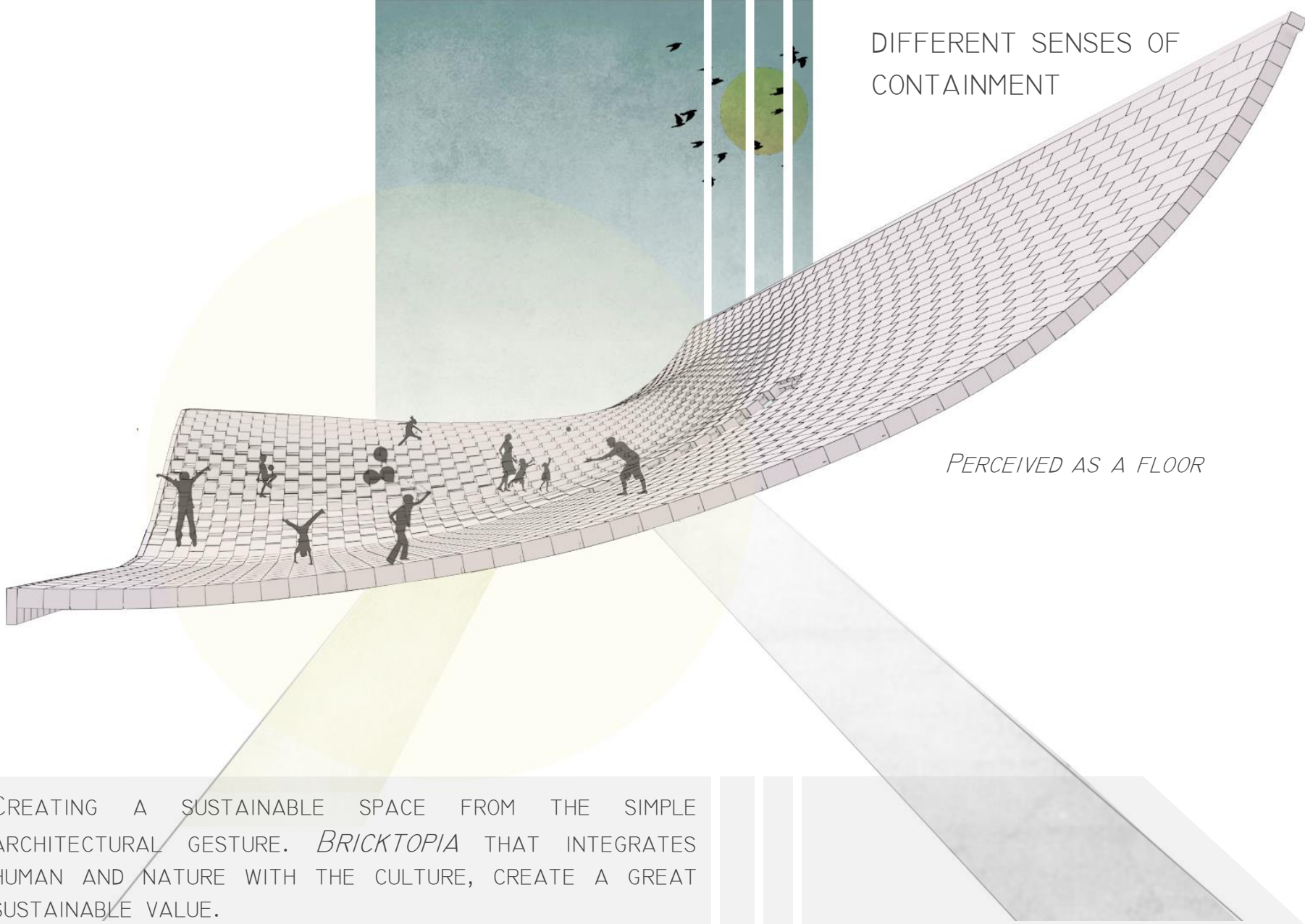




SECOND FLOOR PLAN

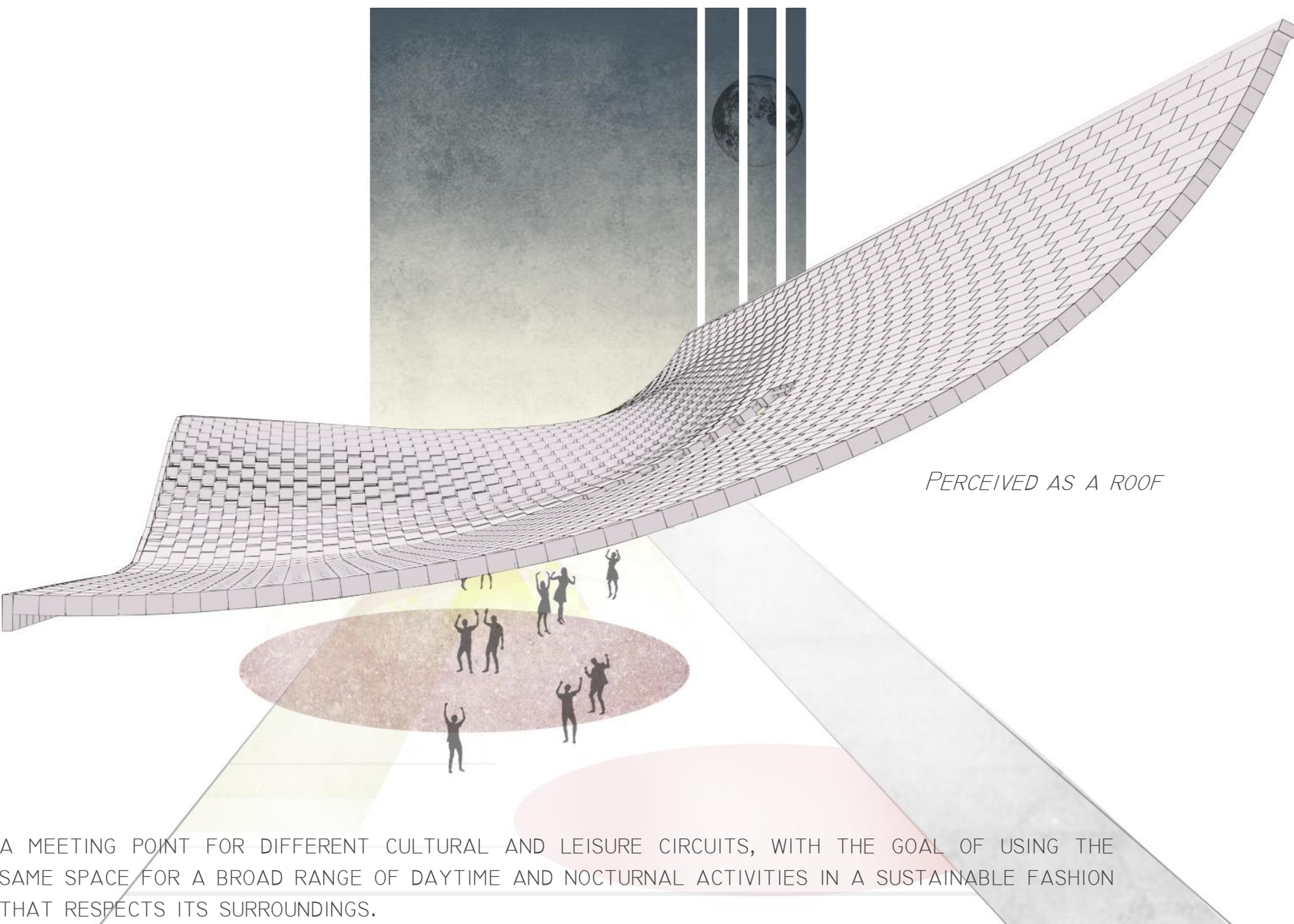


DIFFERENT SENSES OF  
CONTAINMENT



*PERCEIVED AS A FLOOR*

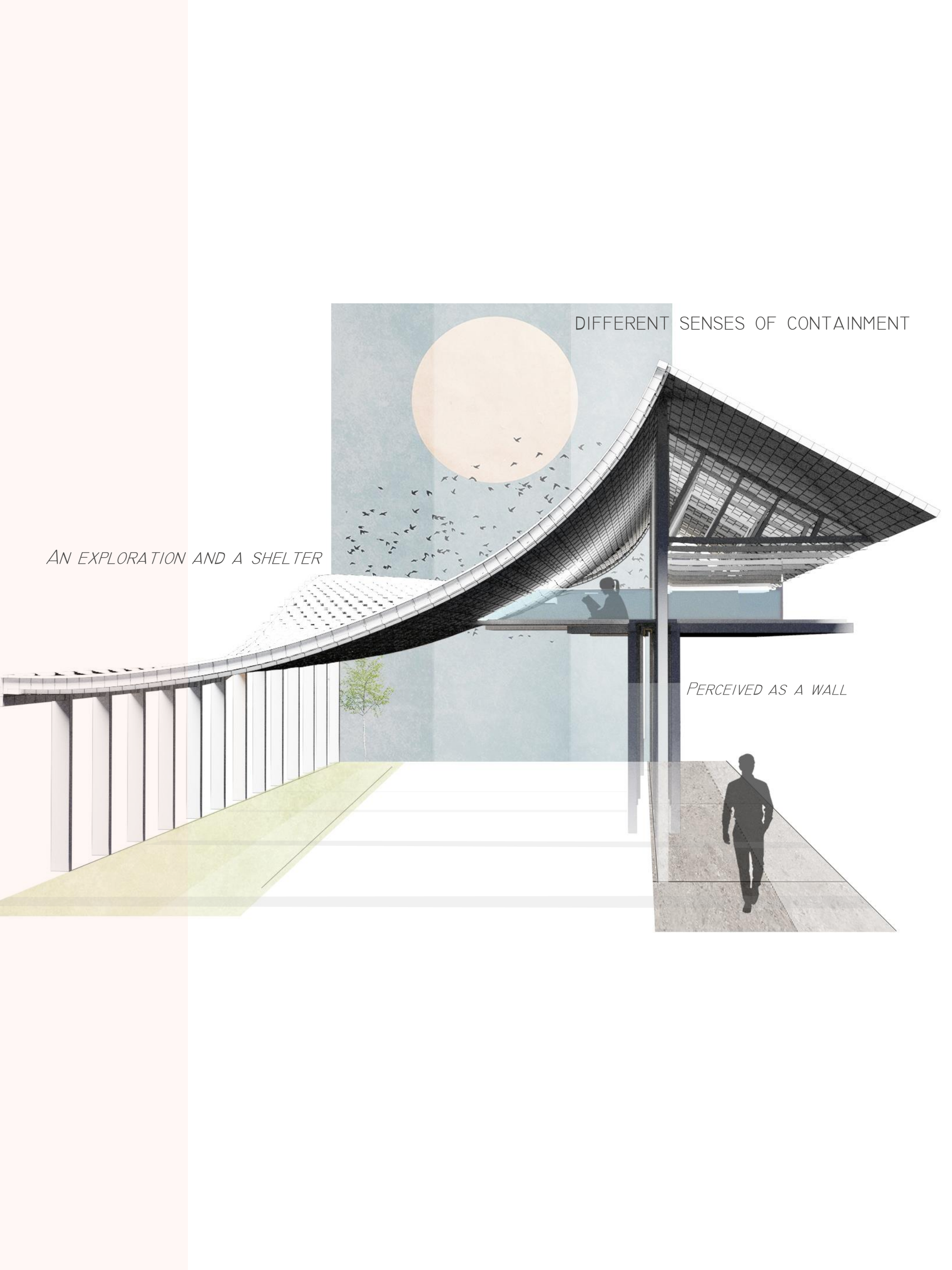
CREATING A SUSTAINABLE SPACE FROM THE SIMPLE ARCHITECTURAL GESTURE. *BRICKTOPIA* THAT INTEGRATES HUMAN AND NATURE WITH THE CULTURE, CREATE A GREAT SUSTAINABLE VALUE.



*PERCEIVED AS A ROOF*

A MEETING POINT FOR DIFFERENT CULTURAL AND LEISURE CIRCUITS, WITH THE GOAL OF USING THE SAME SPACE FOR A BROAD RANGE OF DAYTIME AND NOCTURNAL ACTIVITIES IN A SUSTAINABLE FASHION THAT RESPECTS ITS SURROUNDINGS.





*AN EXPLORATION AND A SHELTER*

DIFFERENT SENSES OF CONTAINMENT

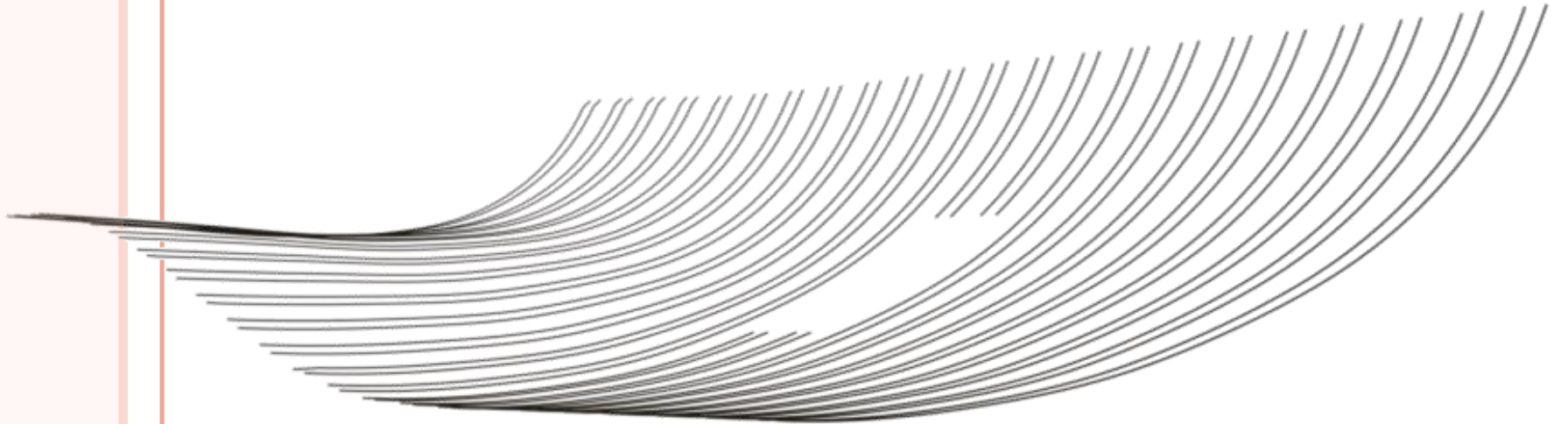
*PERCEIVED AS A WALL*



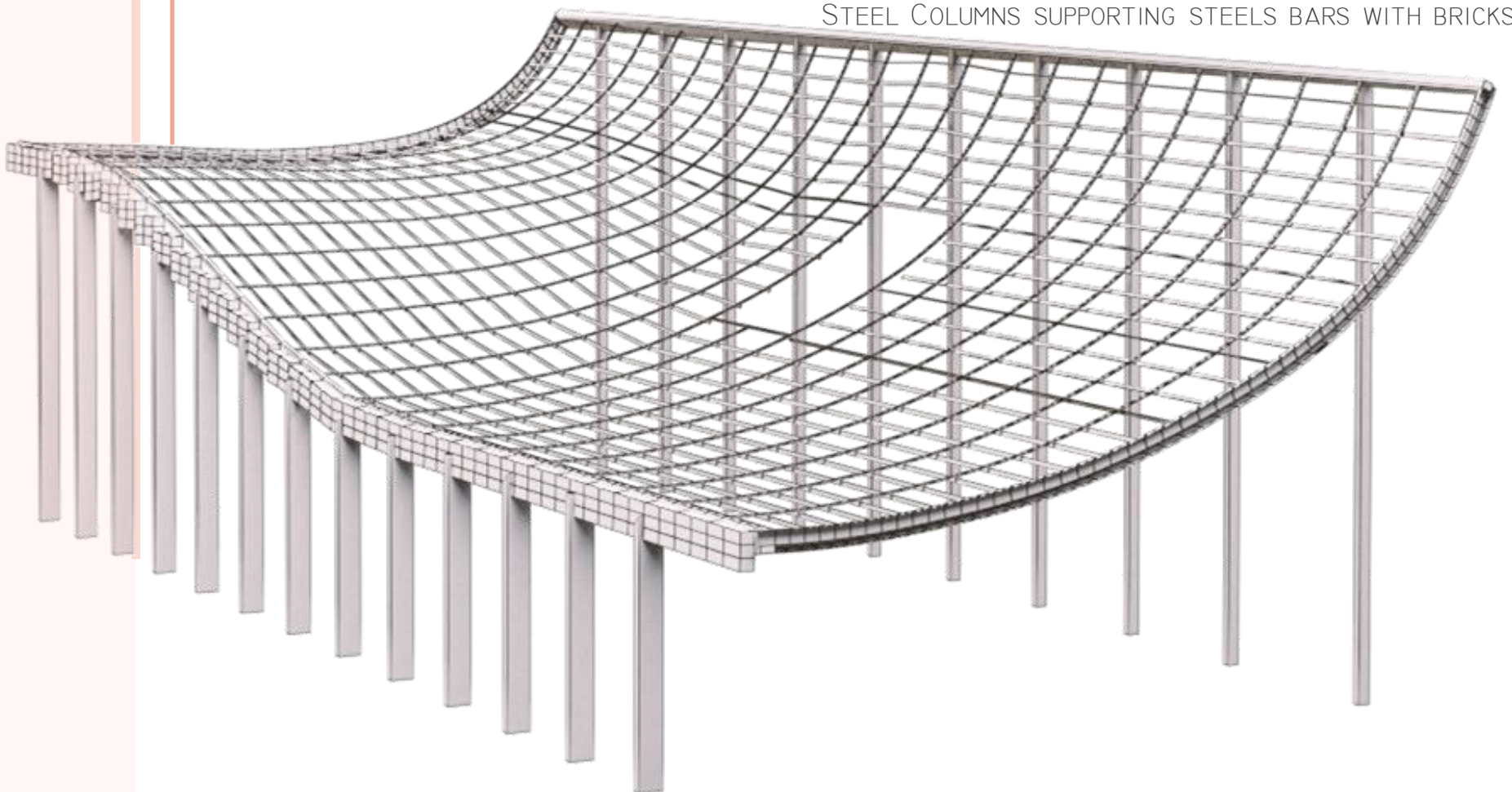
UNDULATING LAYERS OF BRICK



ROUNDED STEEL BEARS THAT CARRY THE BRICKS

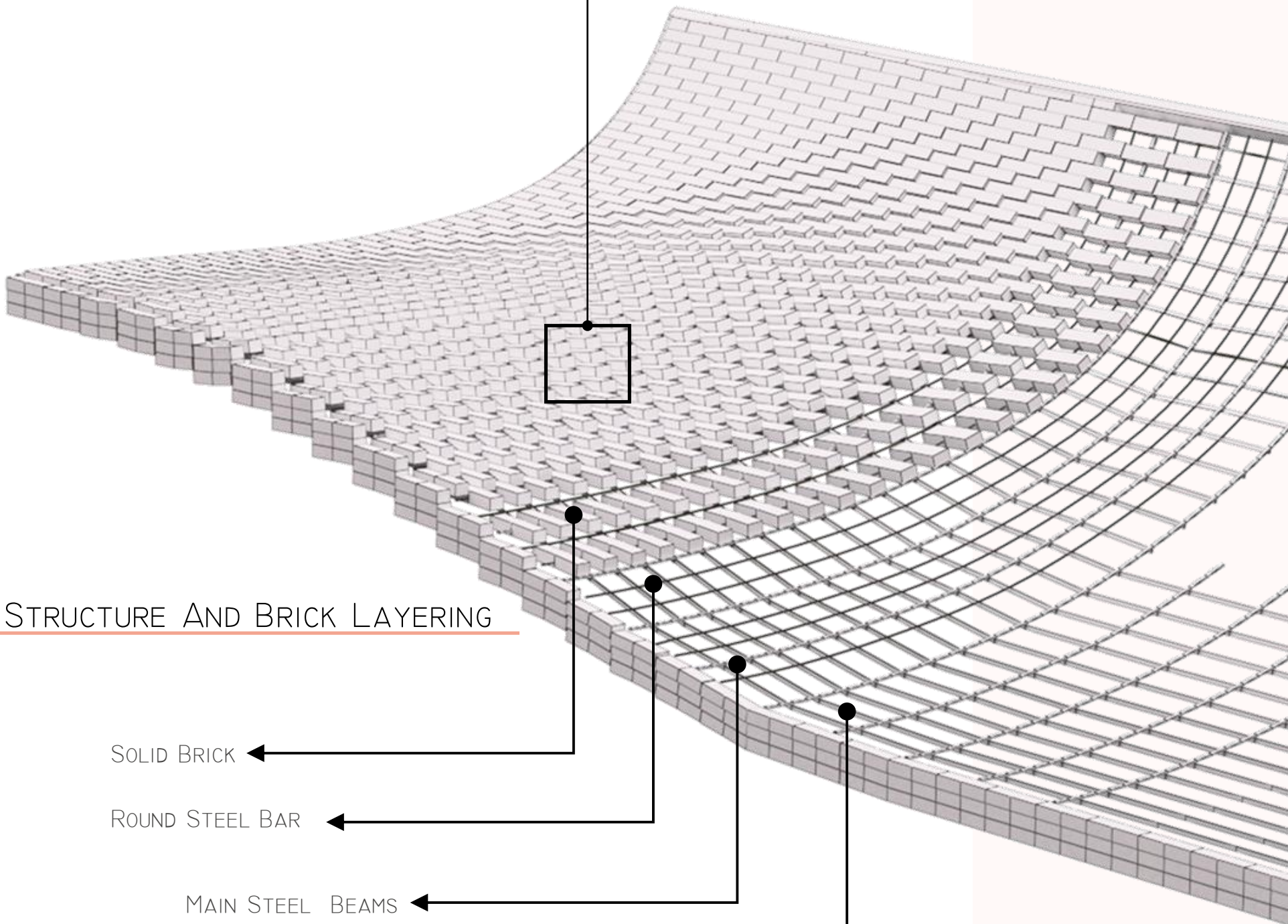
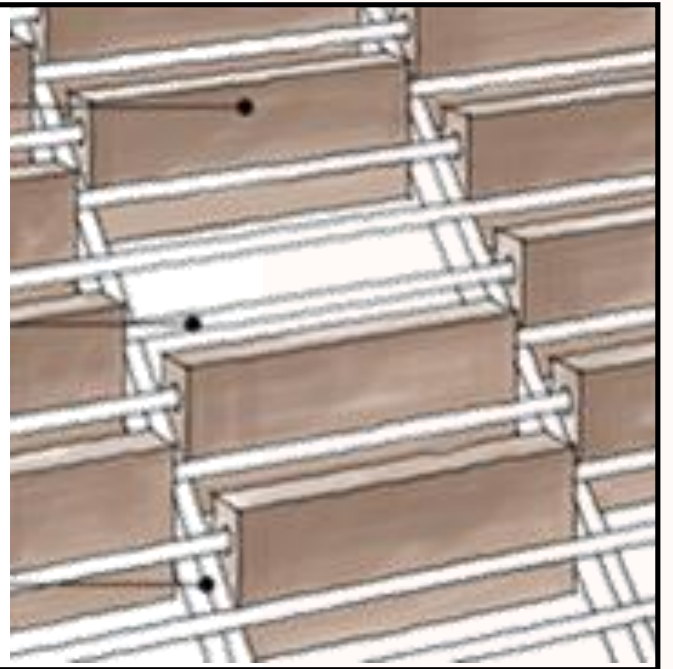
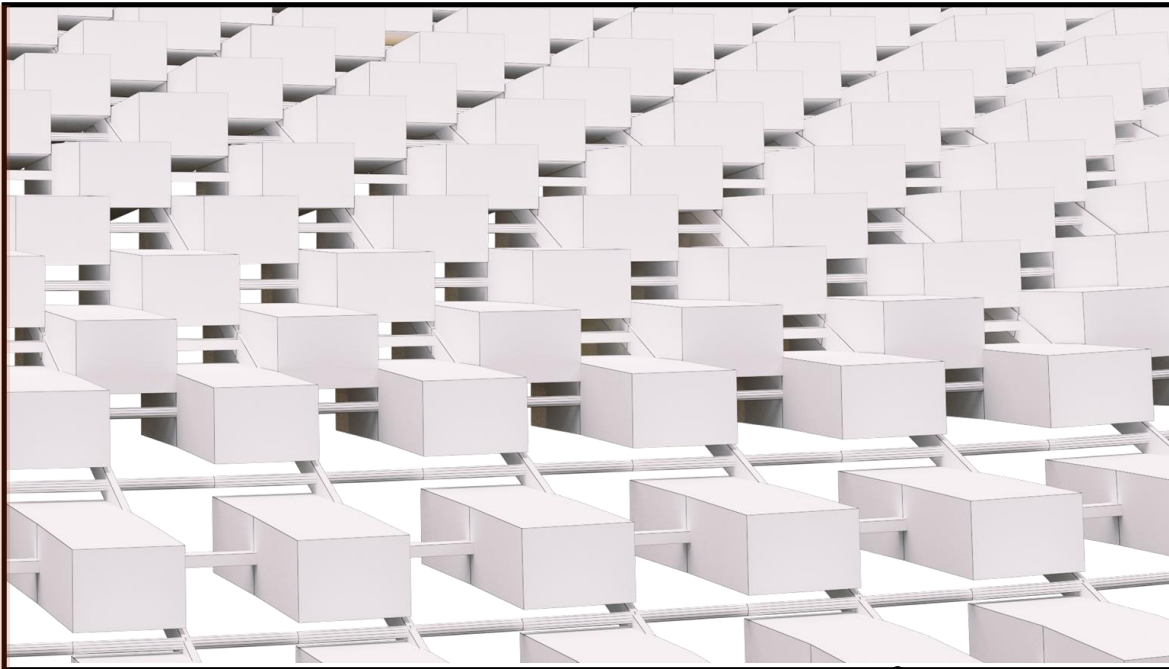


SYSTEM OF STEEL BEAMS ( MAIN AND SECONDARY) AND STEEL COLUMNS SUPPORTING STEELS BARS WITH BRICKS



AXONOMETRIC DIAGRAM OF THE STRUCTURE SYSTEM





## STRUCTURE AND BRICK LAYERING

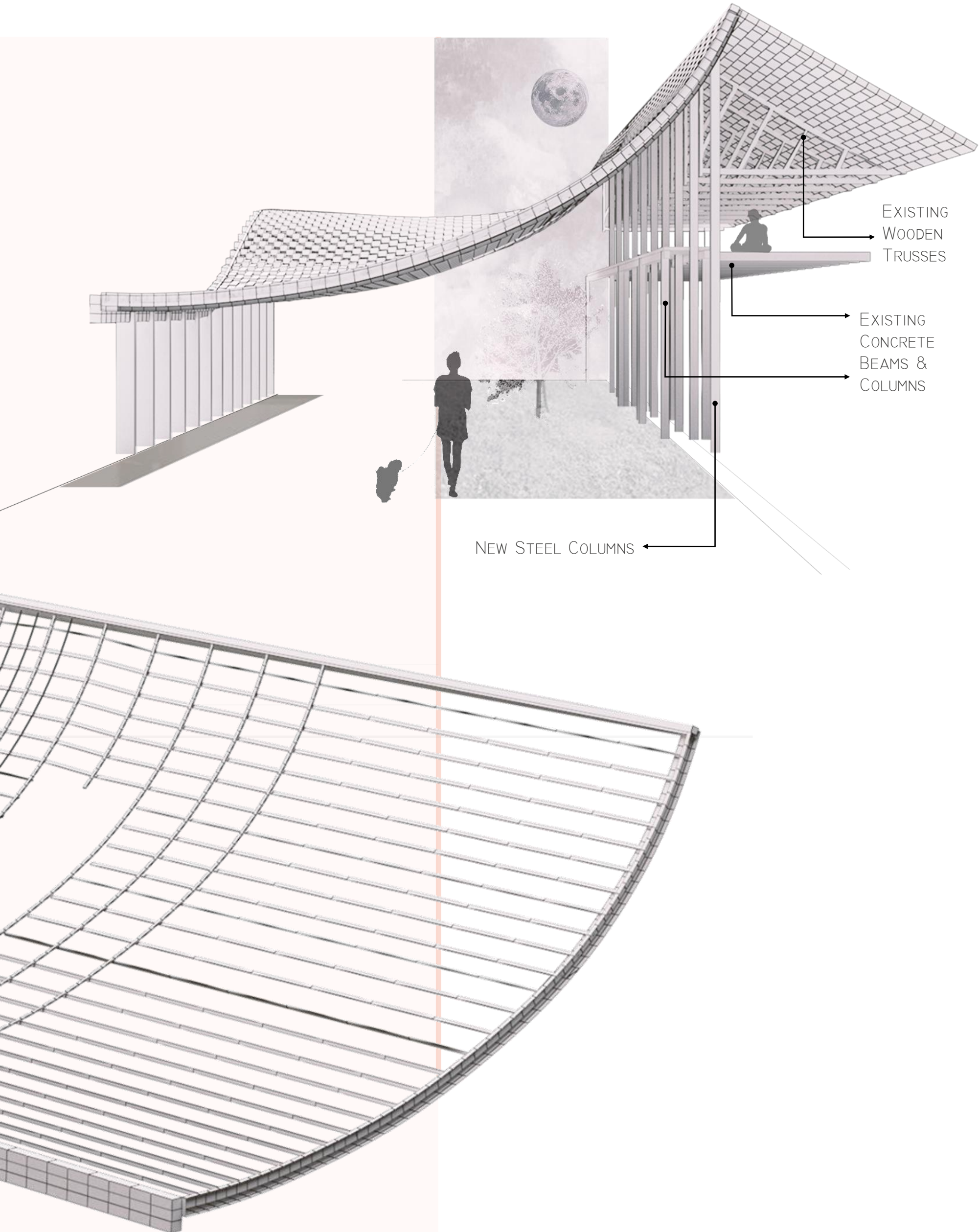
SOLID BRICK

ROUND STEEL BAR

MAIN STEEL BEAMS

SECONDARY SUPPORTING BEAMS





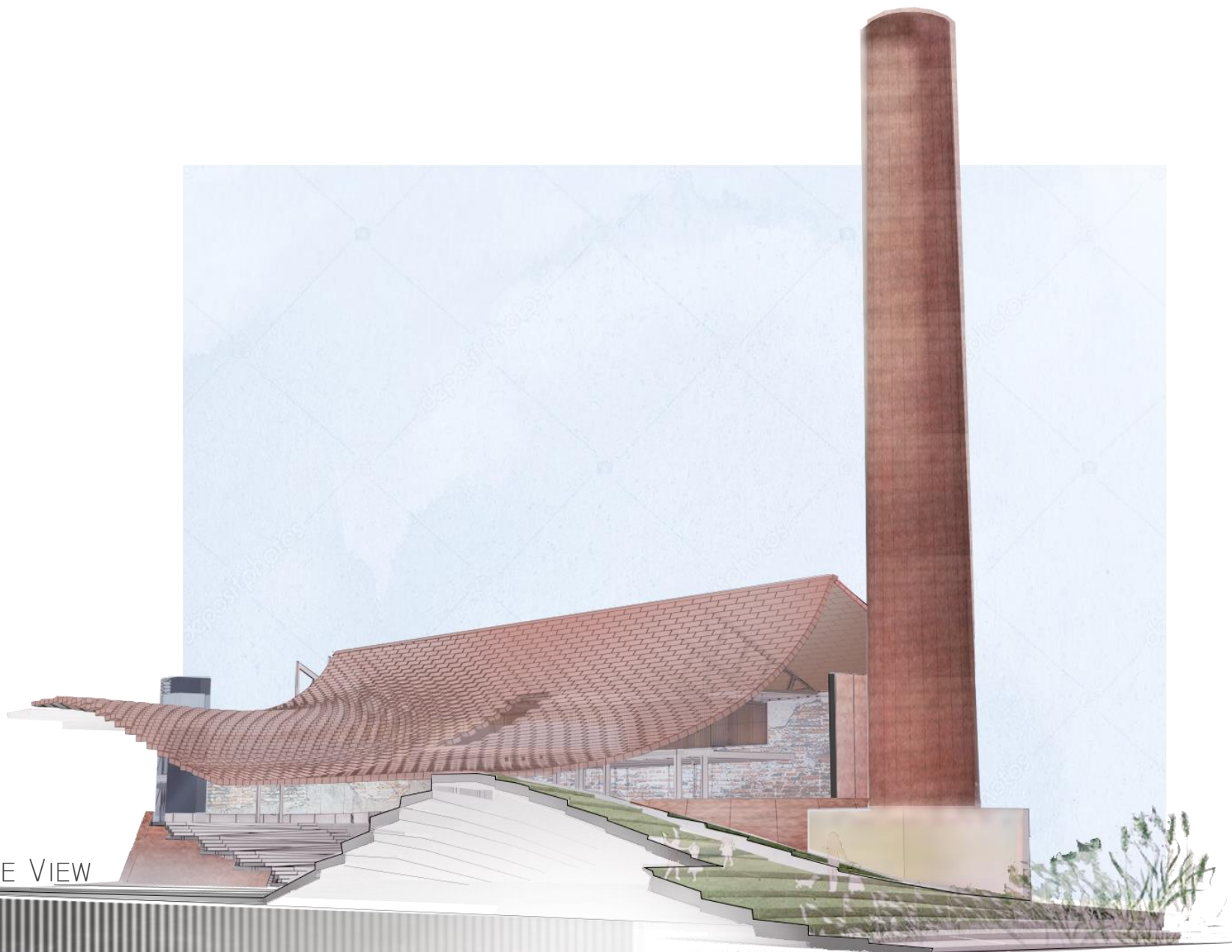
EXISTING  
WOODEN  
TRUSSES

EXISTING  
CONCRETE  
BEAMS &  
COLUMNS

NEW STEEL COLUMNS



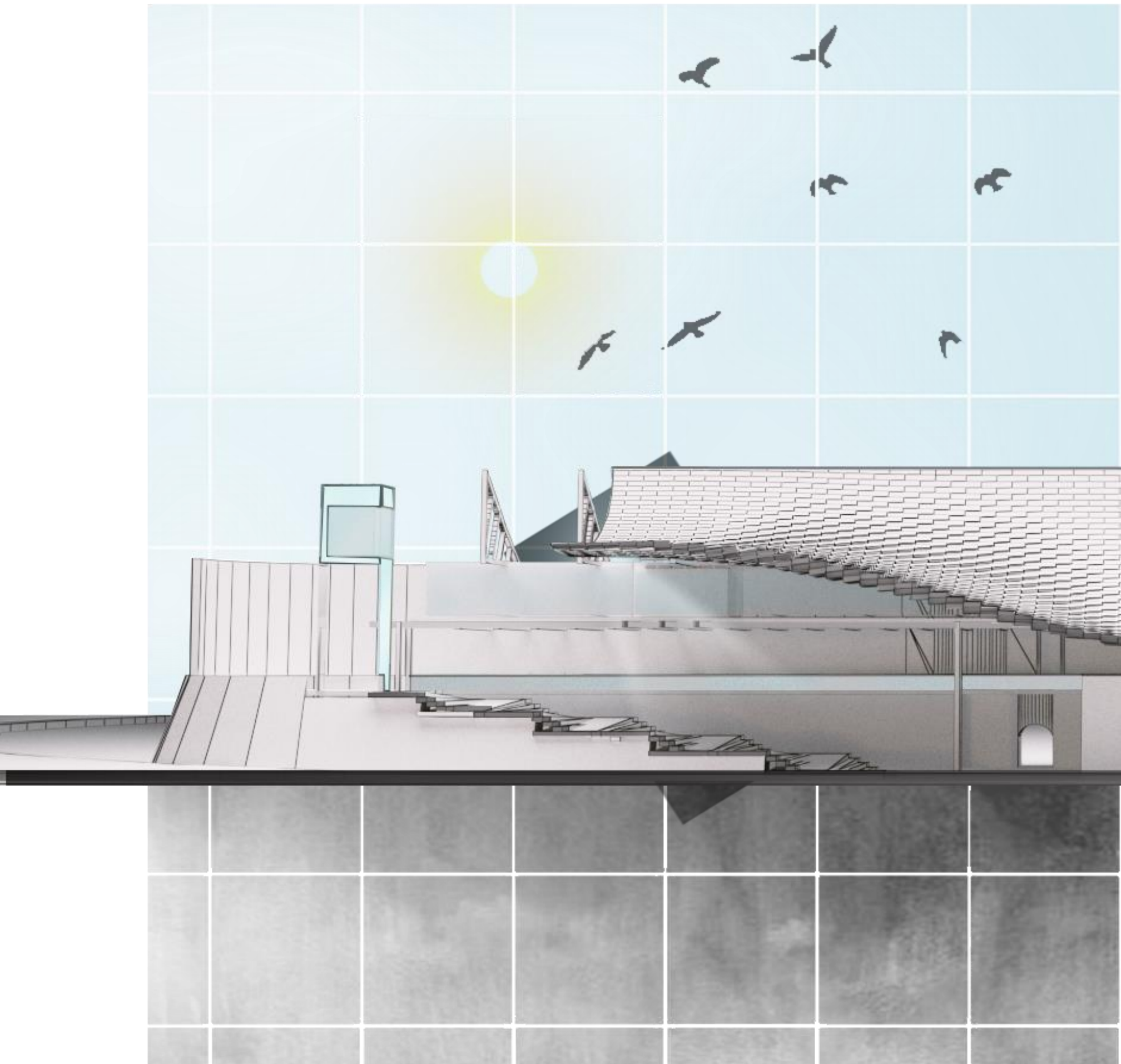
PERSPECTIVE VIEW



PERSPECTIVE SECTION

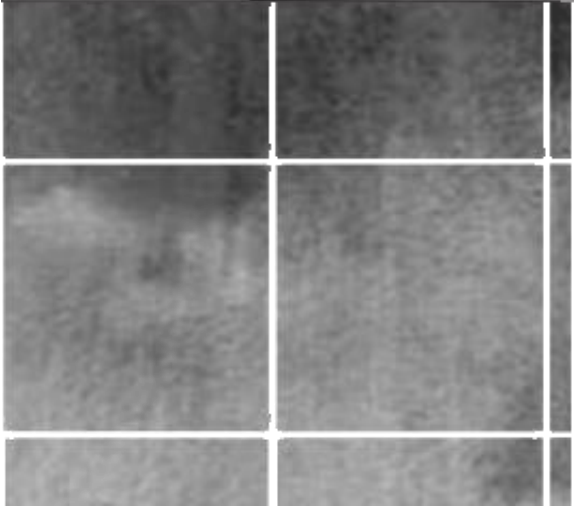
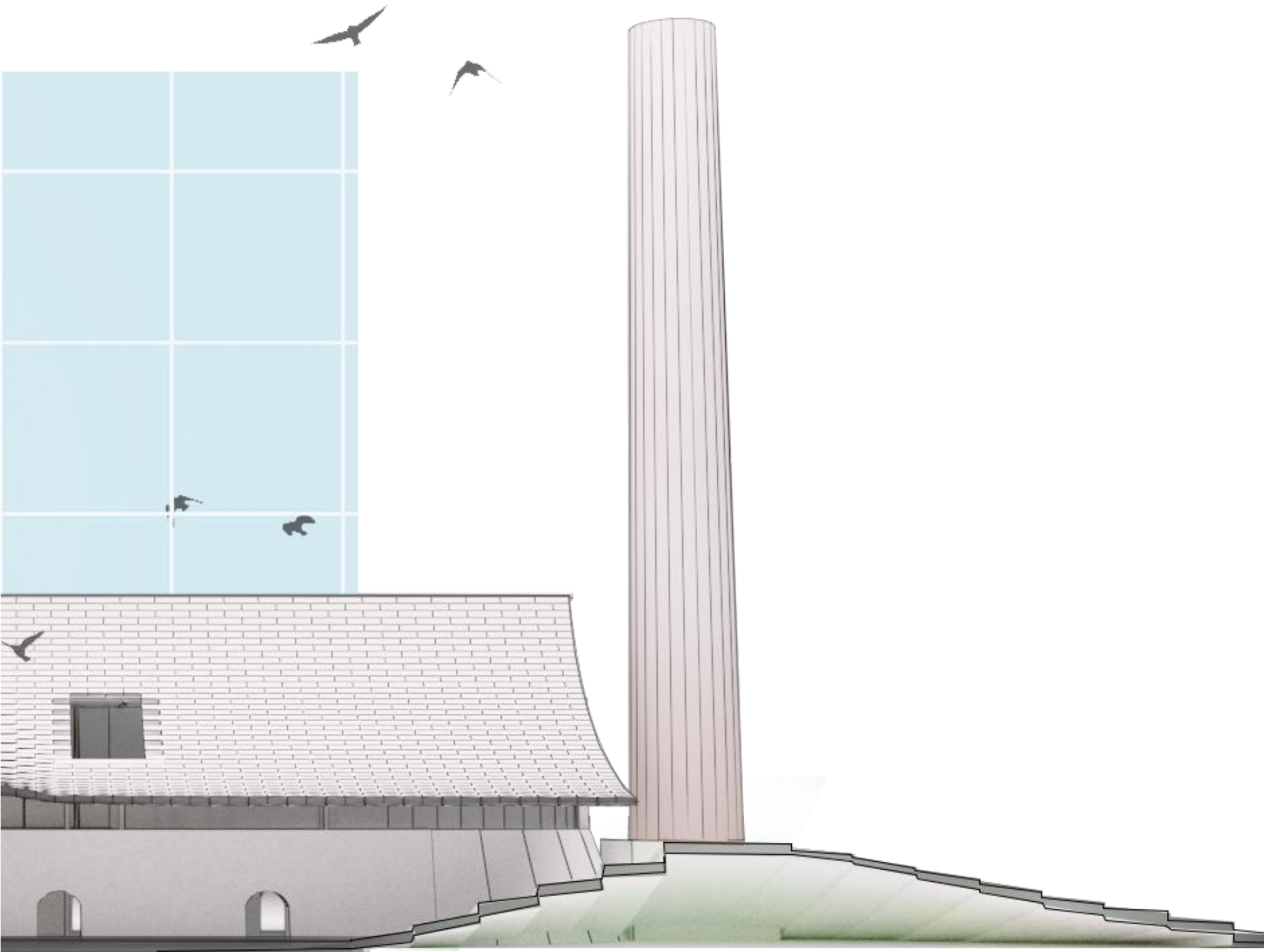






SECTION



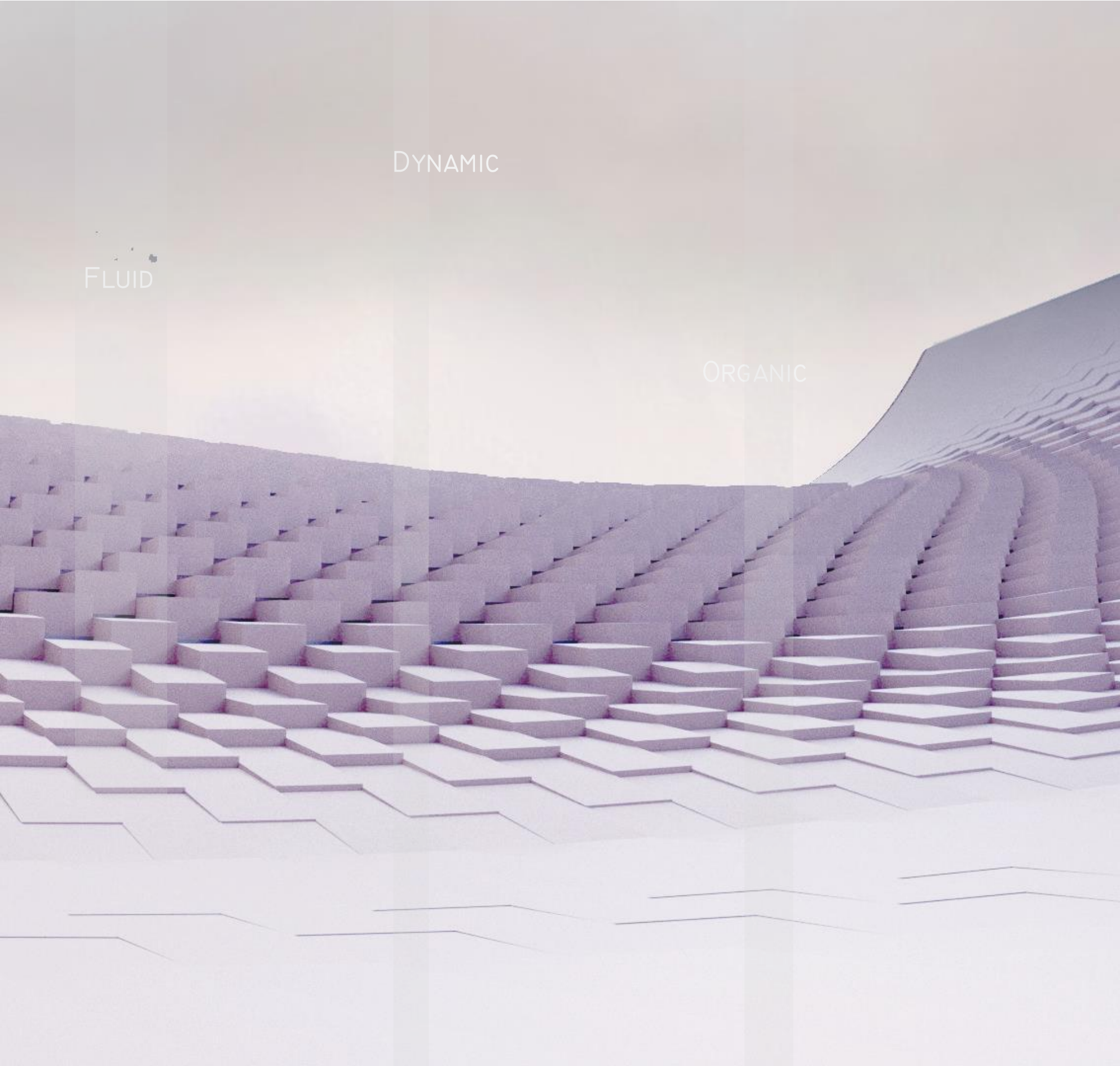




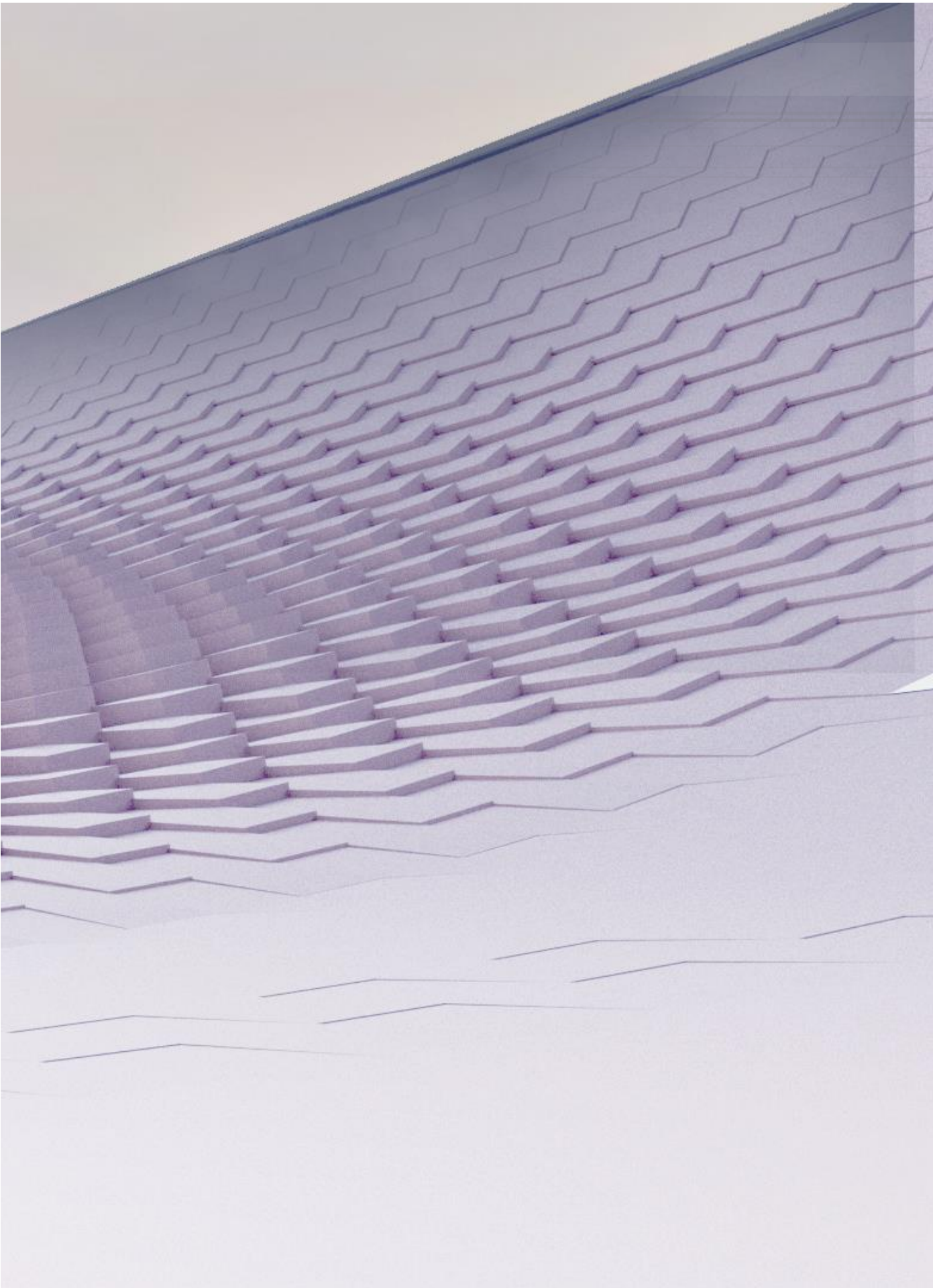
DYNAMIC

FLUID

ORGANIC



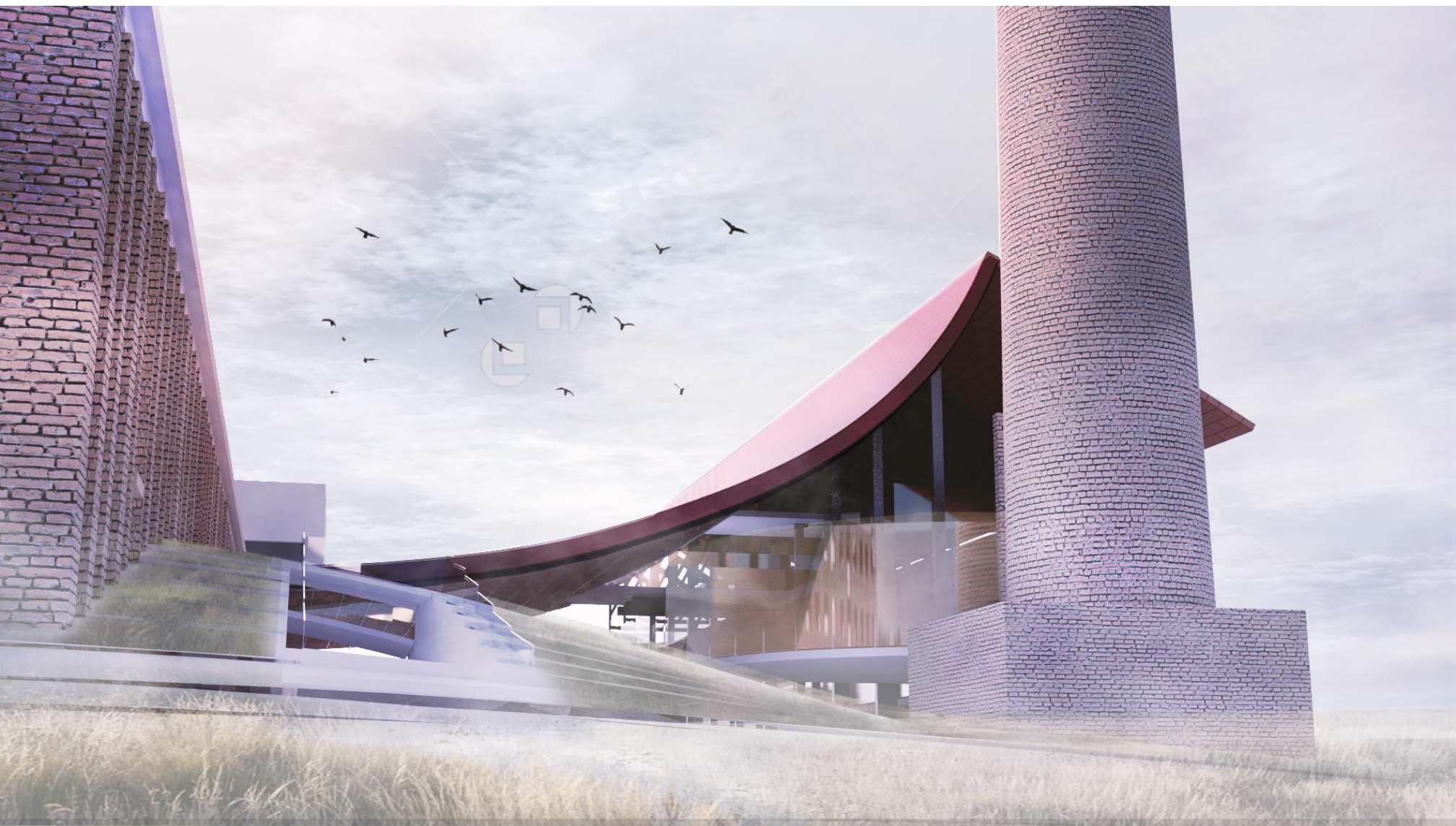




## 3D SHOTS







*CREATING SPATIO-CULTURAL AFFORDANCES IN, ALONG AND BEYOND THE FACTORY,,,*



ORGANIC

OUTSIDE INSIDE



ORTHOGONAL

DYNAMIC

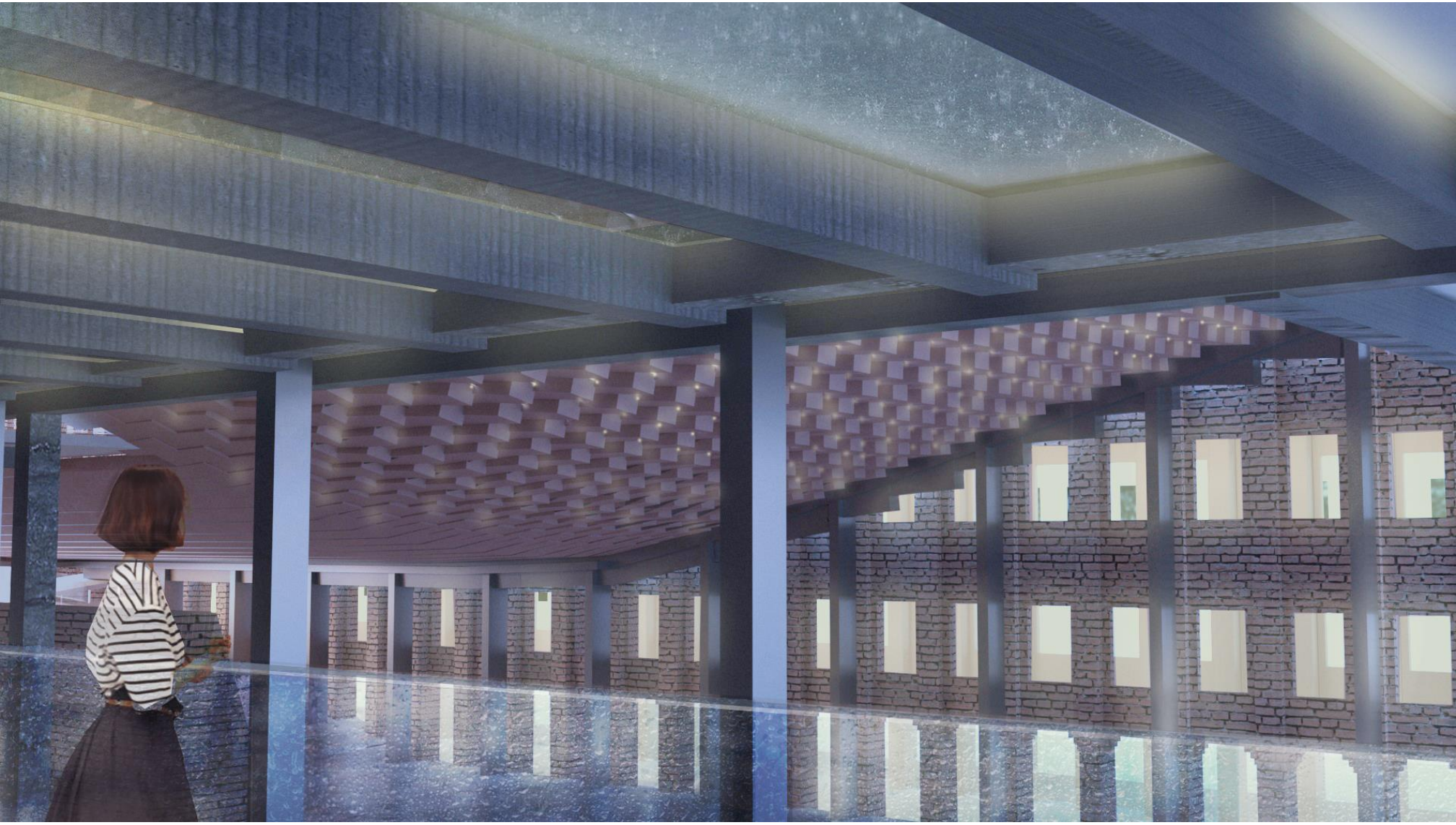




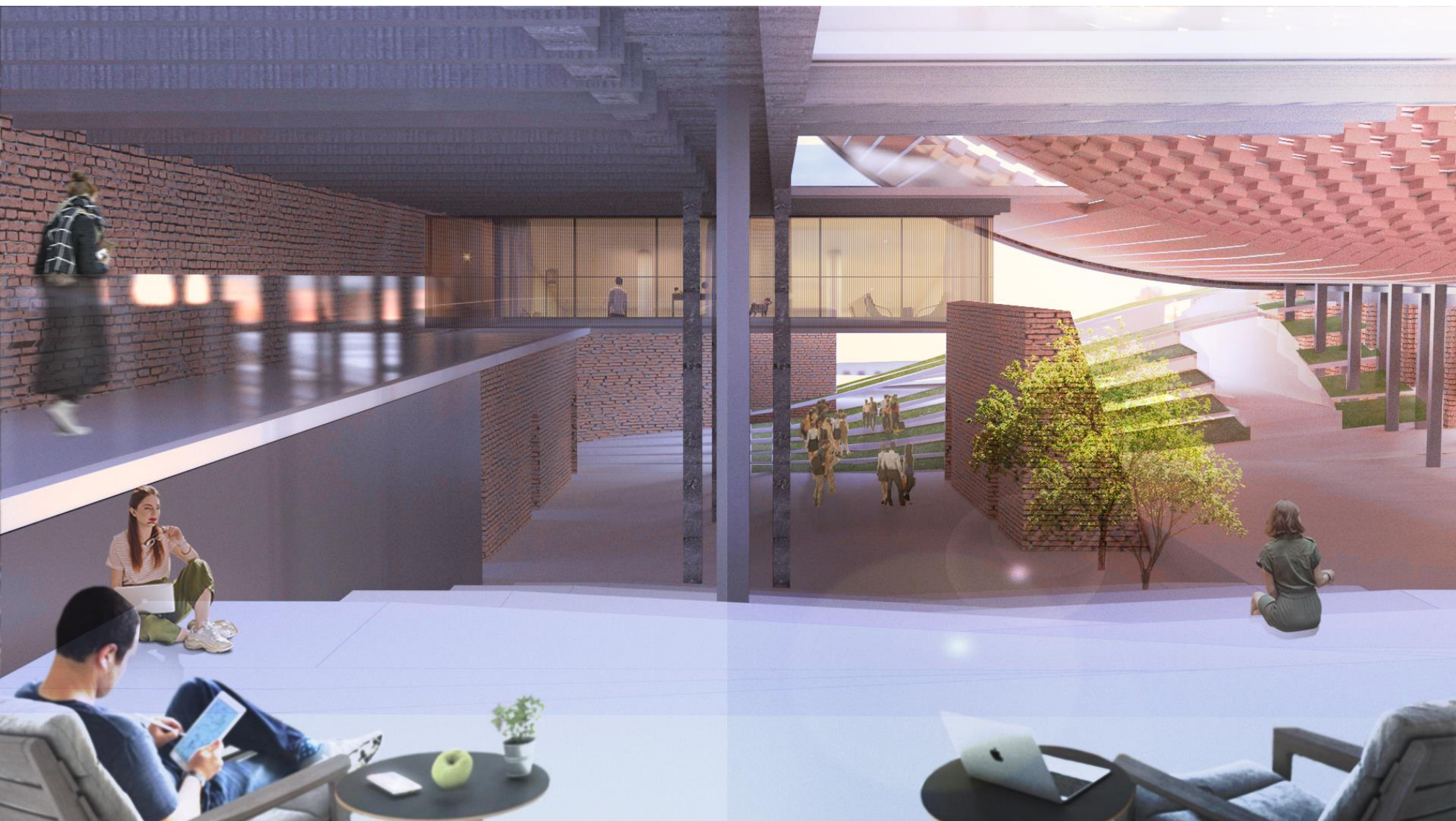
*TENSION AND CONTINUOUS DIALOGUE BETWEEN THE PRESENT AND FUTURE EXPERIENCES OF SPACES.*







*RIGID AND DYNAMIC, ORTHOGONAL AND ORGANIC CONTRADICTIONS CAN BE CLEARLY EXPERIENCED IN THE DIFFERENT SPACES AND FROM DIFFERENT ANGLES.*

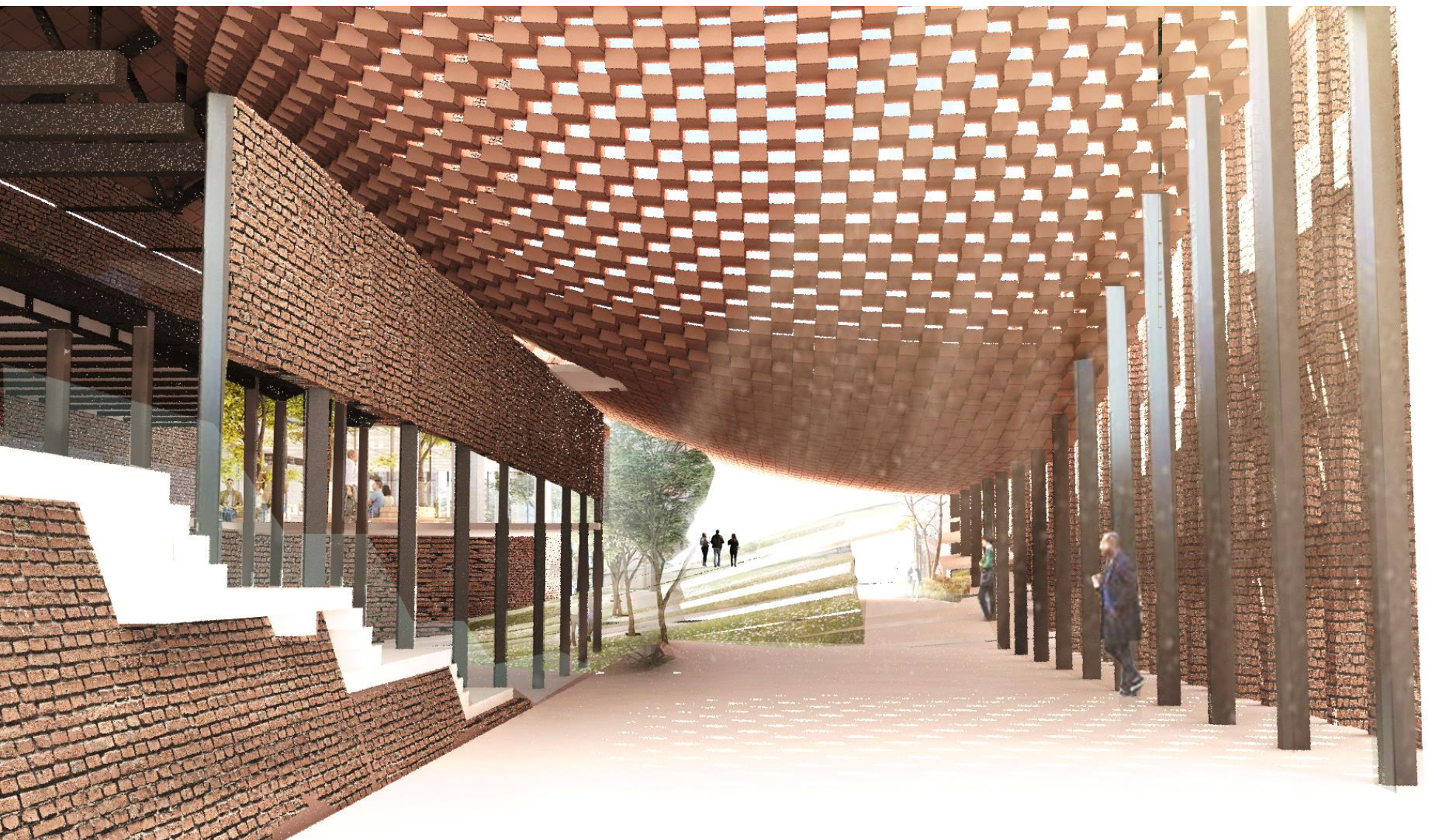




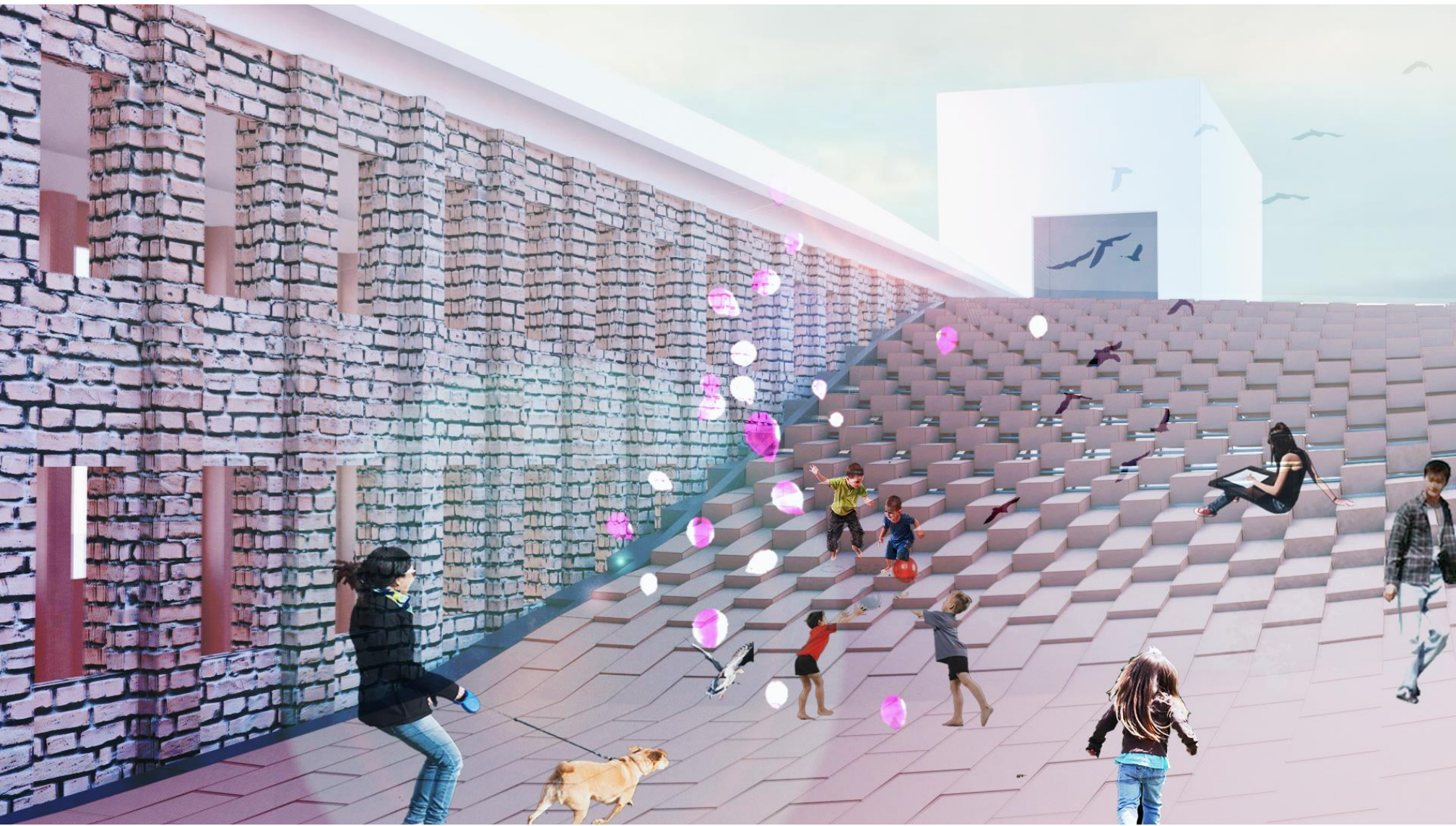


*SPACE OF EXPERIENCES*

SIMPLY PUSHED-DOWN THE BRICK CONNECTS HUMAN AND NATURE AS A PLATFORM AT THE SAME TIME, A SIMPLE GESTURE DEFINES A WHOLE PROPOSAL THAT SHOWS AS AN OBJECT.



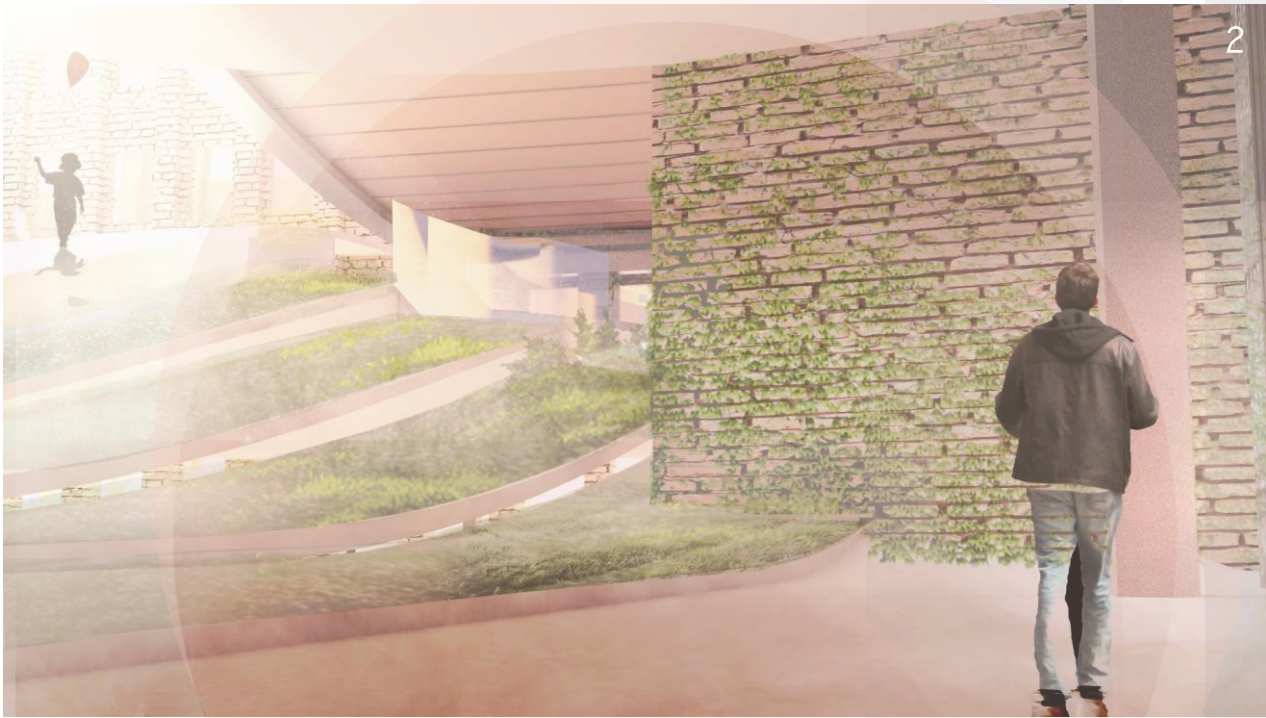




THE PROJECT PROVIDES VERSATILE PUBLIC PROGRAMS WHICH ATTRACT VISITORS, BLEND DIVERSE CULTURE AND NEIGHBORS. THE LARGE GREEN OPEN SPACE GIVES USERS SPACE TO INTERACT, PLAY, RELAX, AND GATHER; IT PROVIDES SPACE FOR MUSIC FESTIVAL, OPEN AIR CINEMA. THE *BRICKTOPIA* INVITES PEOPLE IN ALL AGES TO EXPERIENCE DIFFERENT PROGRAMS OF THE NEW GESTURE.

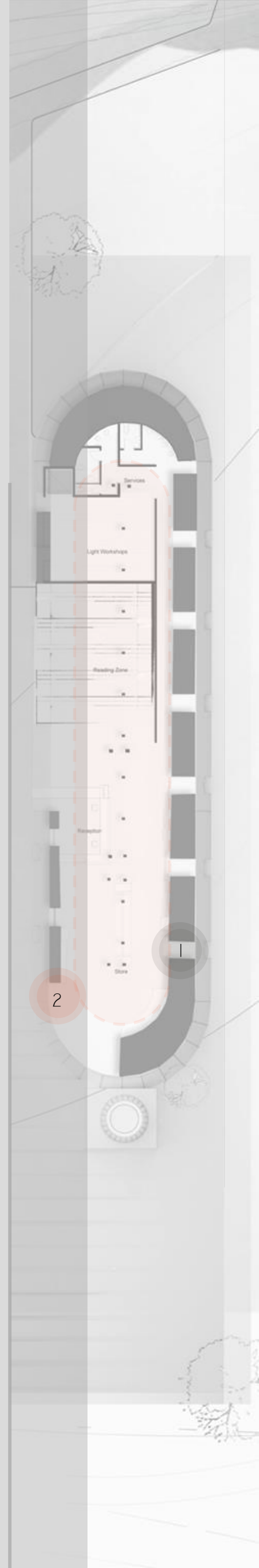






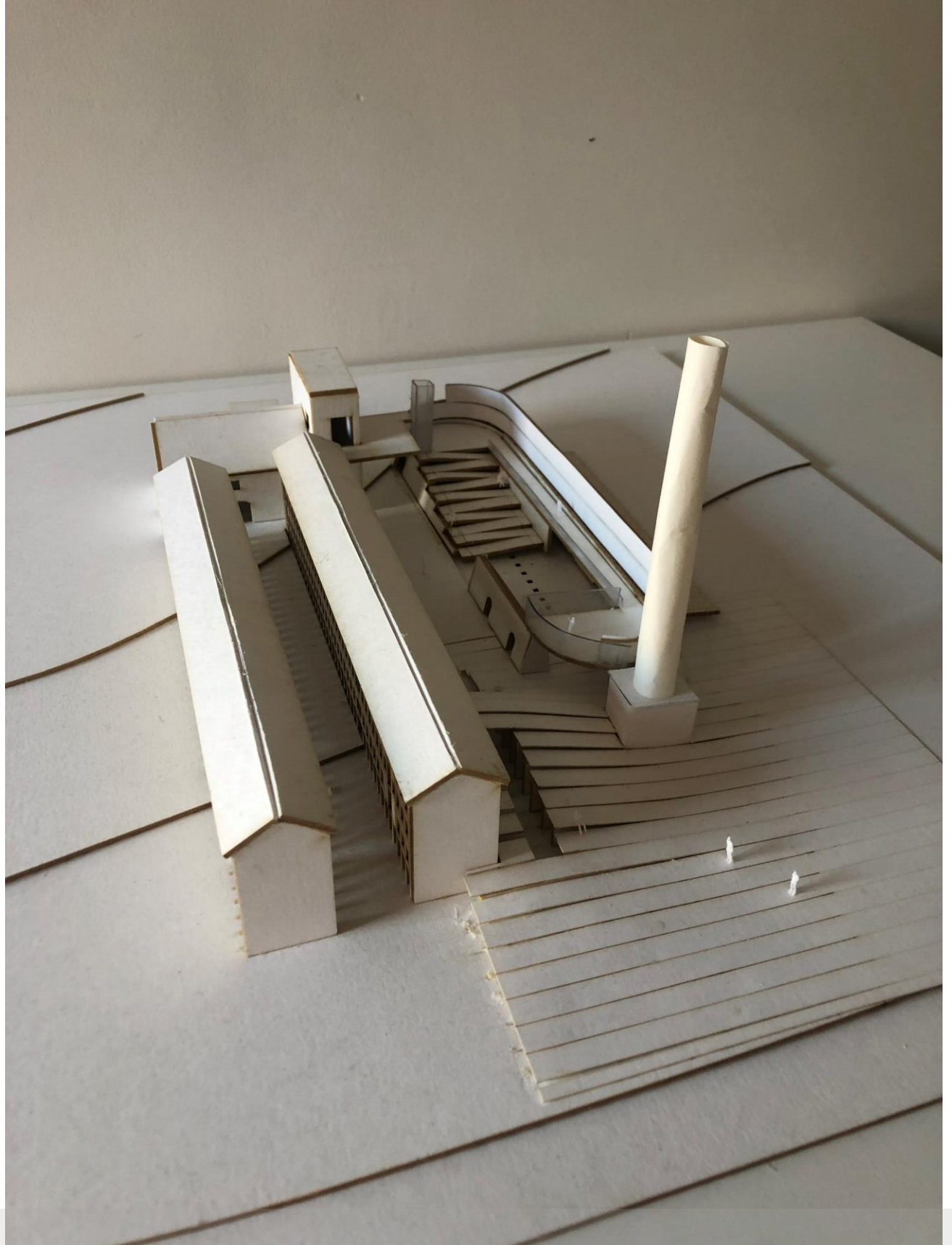
## *A SPACE OF INSPIRATION*

A SPACE THAT FORMERLY WAS USED TO PRODUCE BRICKS IN A CYCLIC PROCESS, IS NOW USED TO GENERATE CONCEPTS AND INNOVATIONS. THE USER ENTERS THE SPACE WITH VAGUE AND UNCLEAR IDEAS IN MIND, GET GRADUALLY ENLIGHTENED AND INSPIRED AS HE USES AND EXPLORES THE SPACES.



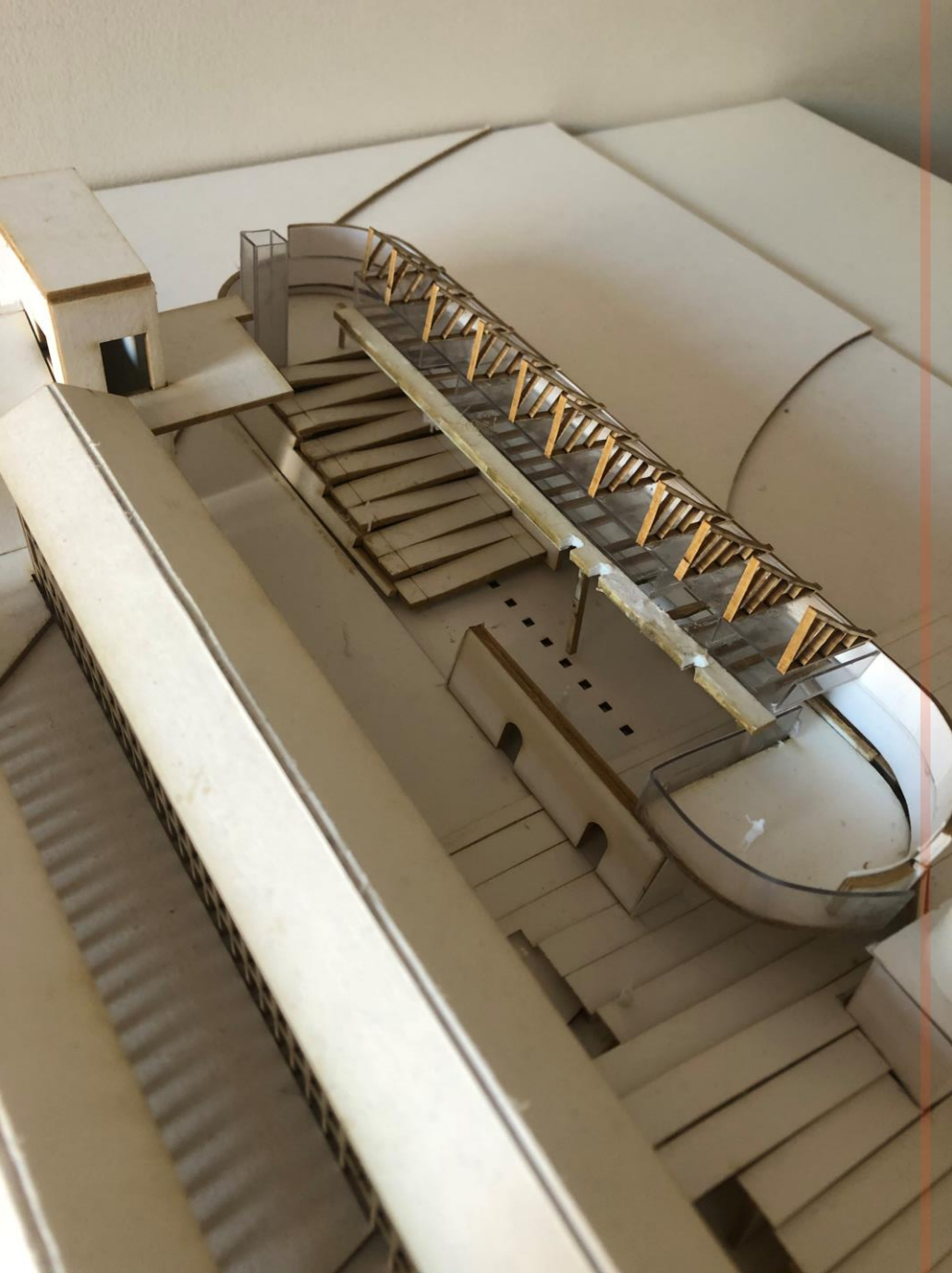


*3D MARQUETTE*



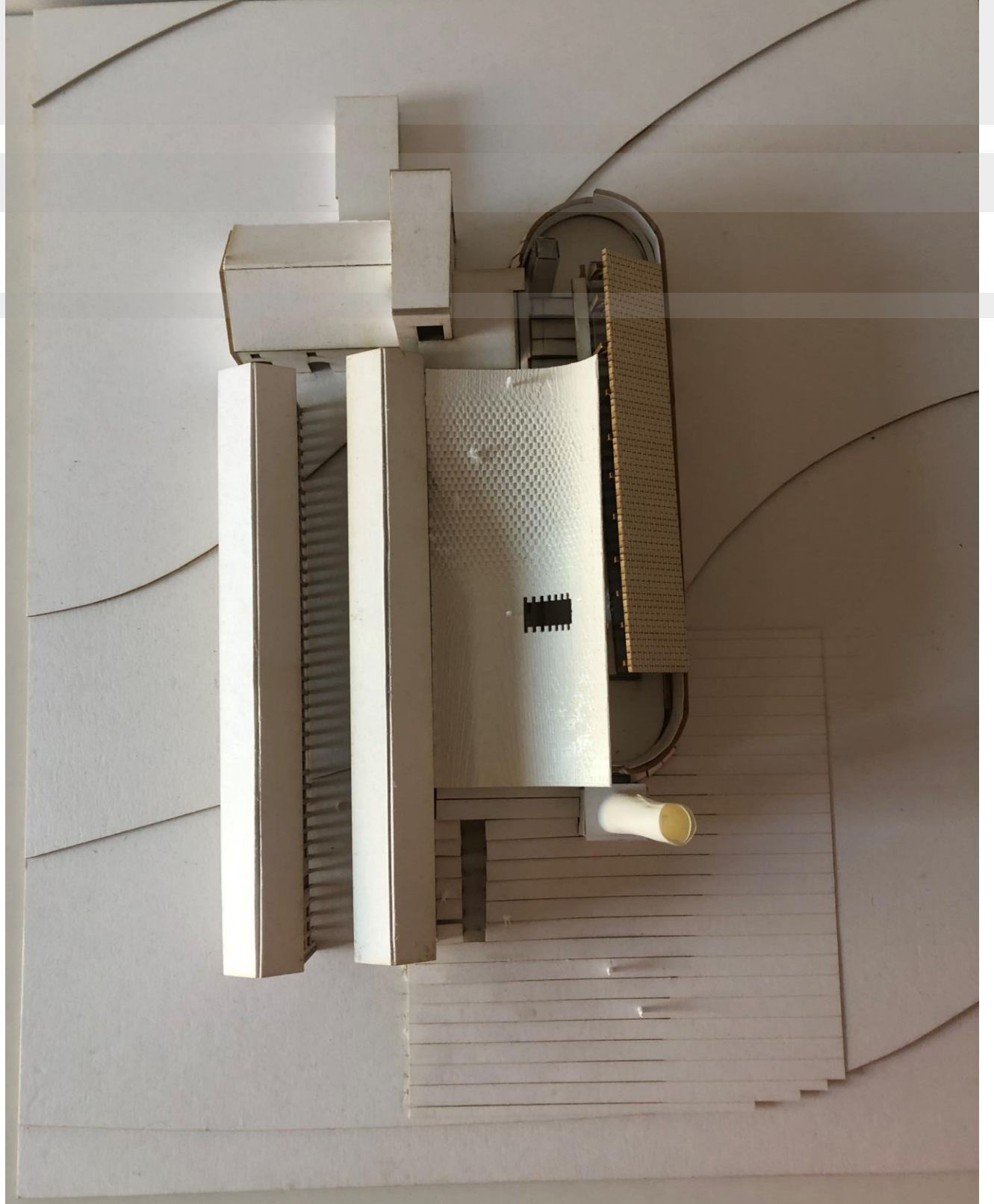


3D MARQUETTE





3D MARQUETTE





3D MARQUETTE

