METAMORPHOSIS

POLITECNICO
MILANO 1863

SCHOOL OF ARCHITECTURE,URBAN PLANNING AND
CONSTRUCTION ENGINEERING
MASTER OF SCIENCE IN BUILDING ARCHITECTURE

ARCHITECTURAL DESIGN STUDIO FOR BUILT ENVIRONMENT
PRESERVATION AND TRANFORMATION
2021-22

Supervisor :
Prof. Arch. Giulio M. Barazzetta
Co-Supervisor :
Prof. Arch. Sonia Pistidda

Authors:
Chekhav Gautam (10718310)
Sevde Yalcin (10764613)

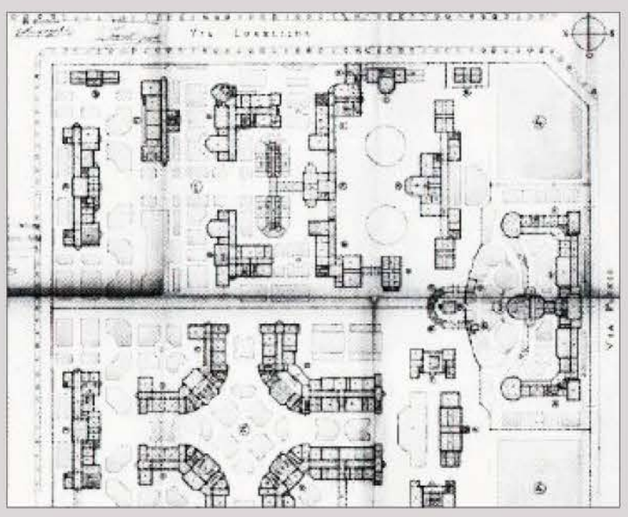
HISTORICAL STUDY

ARIEL VIEW OF NEWLY ESTABLISHED CITTA STUDI

Subjected to the protection of Law 42 of 22 January 2004 with a specific decree of the Regional Directorate for Cultural and Landscape Heritage of Lombardy

The architectural features of the buildings in question are strongly inspired by that eclectic Liberty, that is rich in various stylistic references, which also looked at the rural architecture of northern Europe and which determined the use of housing typologies similar to those of “cottages” or “chalets” on the one hand, but on the other hand it also led to a rich series of hotel typologies or important equestrian centres such as those designed in the same period by Eng. Paolo Vietti Violi (Monza racecourse, or the stables of the Milan racecourse).

The construction technique now considers the technological innovations of the early 1900s where solid brick structures, mostly along the perimeter walls, alternate with concrete pillars and mixed structure floors (latero-cement).



1910 PLANS OF UNIMI CAMPUS, CITTA STUDI

ARIEL VIEW OF POLIMI AND UNIMI AGRARIA BLOCK CONSTRUCTION PHASE

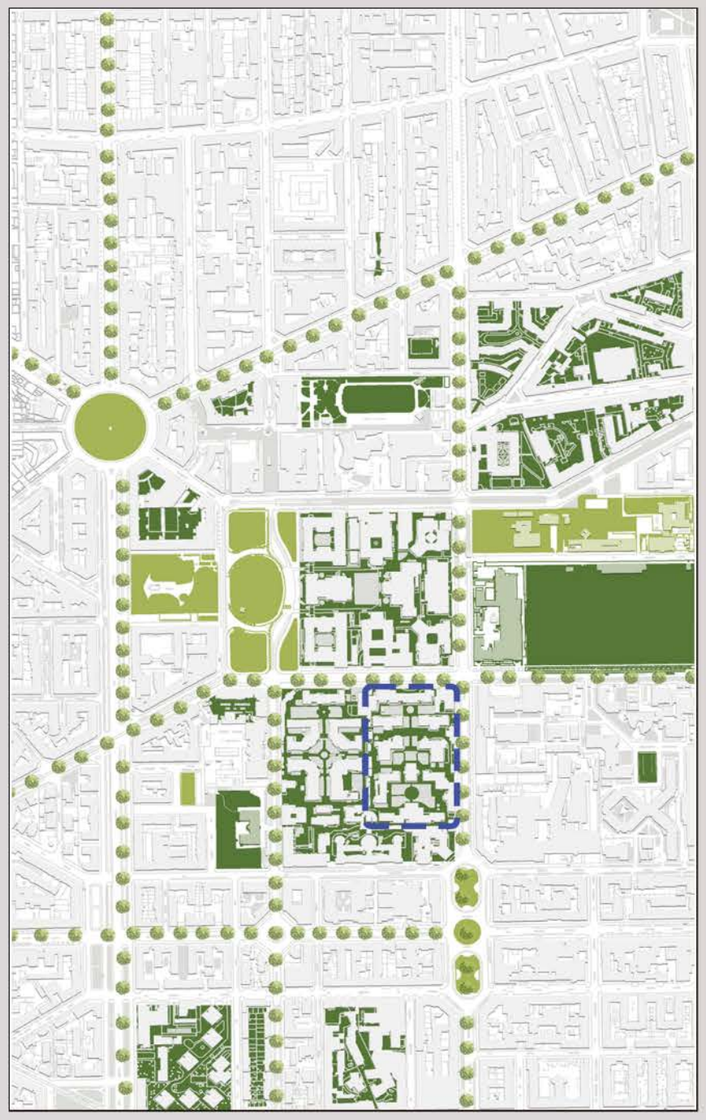
ARIEL VIEW OF POLIMI AND UNIMI AGRARIA BLOCK

URBAN STUDY

URBAN MASS

URBAN SPACES

PROJECT AREA

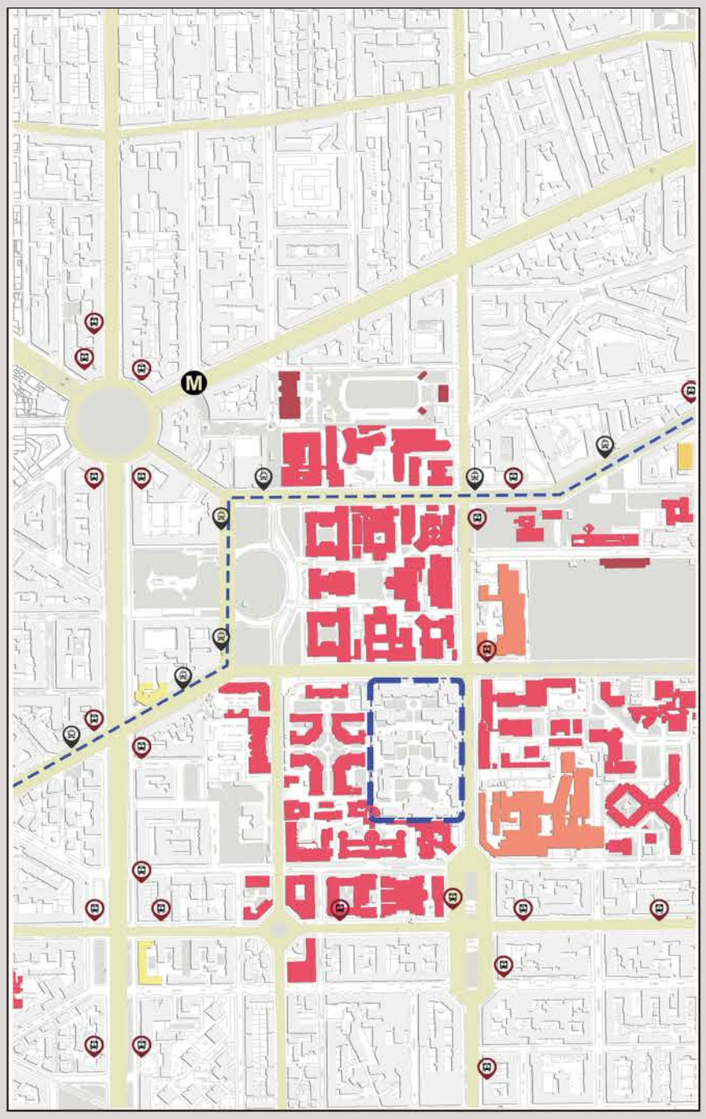


PRIVATE AREAS

PUBLIC AREAS

TREES

PROJECT AREA



SPORTS COMPLEX

UNIVERSITY BUILDINGS

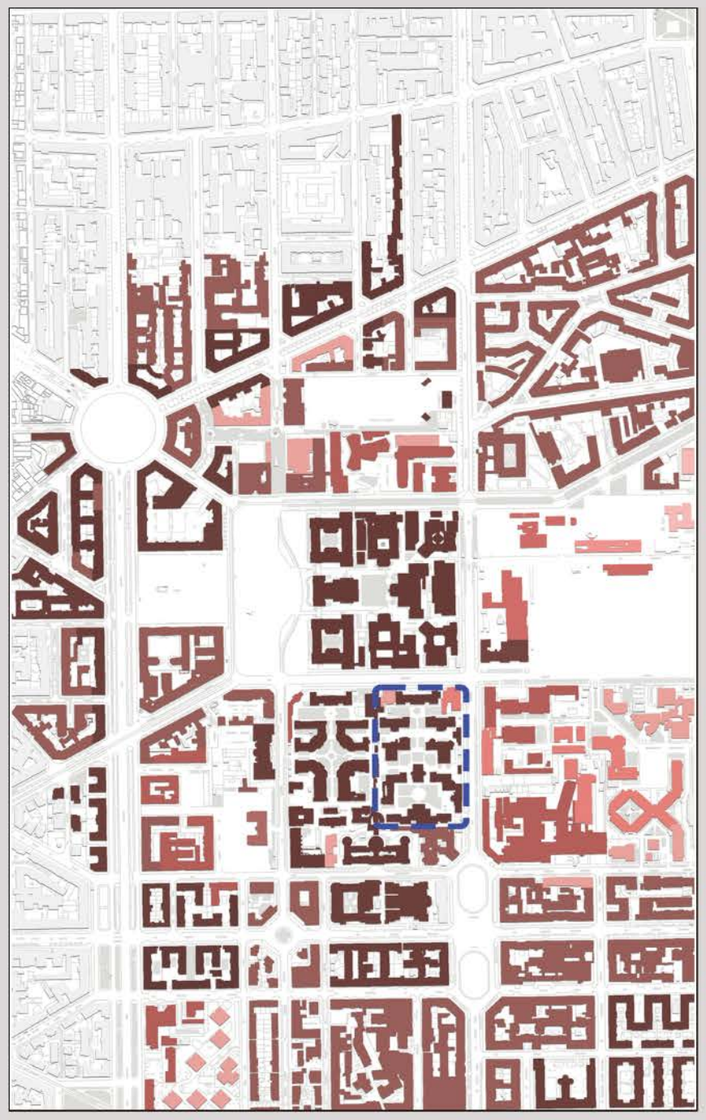
MEDICAL COMPLEX

RESIDENCES

MAIN ROADS

BUS STOPS

TRAM STOPS



CONSTRUCTED AFTER 2000

CONSTRUCTED AFTER 1972

CONSTRUCTED AFTER 1965

CONSTRUCTED AFTER 1956

CONSTRUCTED AFTER 1930

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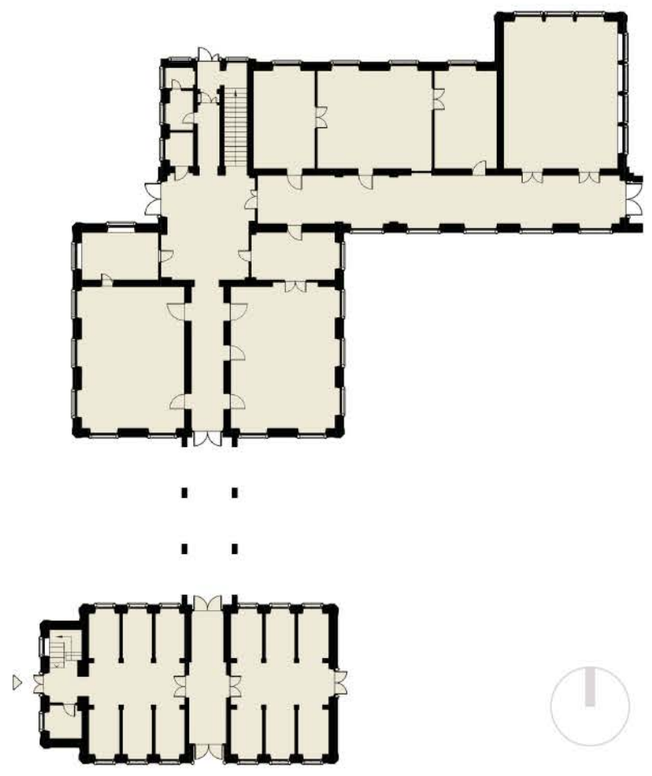
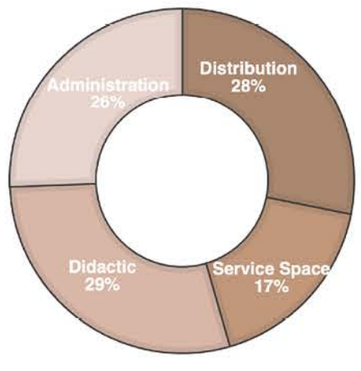
HISTORICAL TRANSFORMATION

1910 STATE OF BUILDING

GROUND FLOOR PLAN - 1910



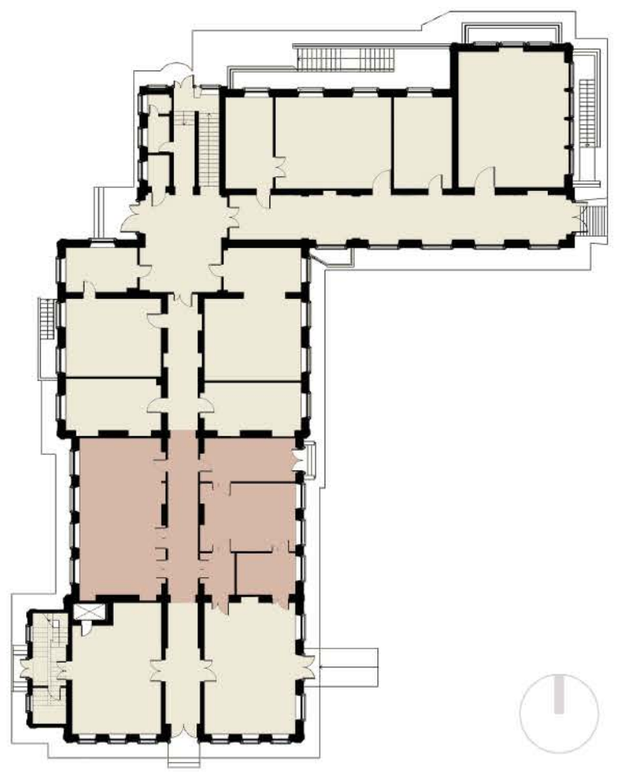
The 1910 plan for the building describes the configuration of building as two separate blocks.
The one being a main block of the vetenaria with the sloping roof wing protuding out of it, whereas the other being the smaller animal clinic both connected to each other with a columnade passage right in the middle of the geometry. Designed in as a monza style house.



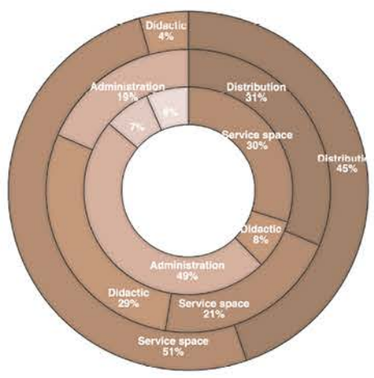
GROUND FLOOR FUNCTION DISTRIBUTION

1958 STATE OF BUILDING

GROUND FLOOR PLAN - 1958



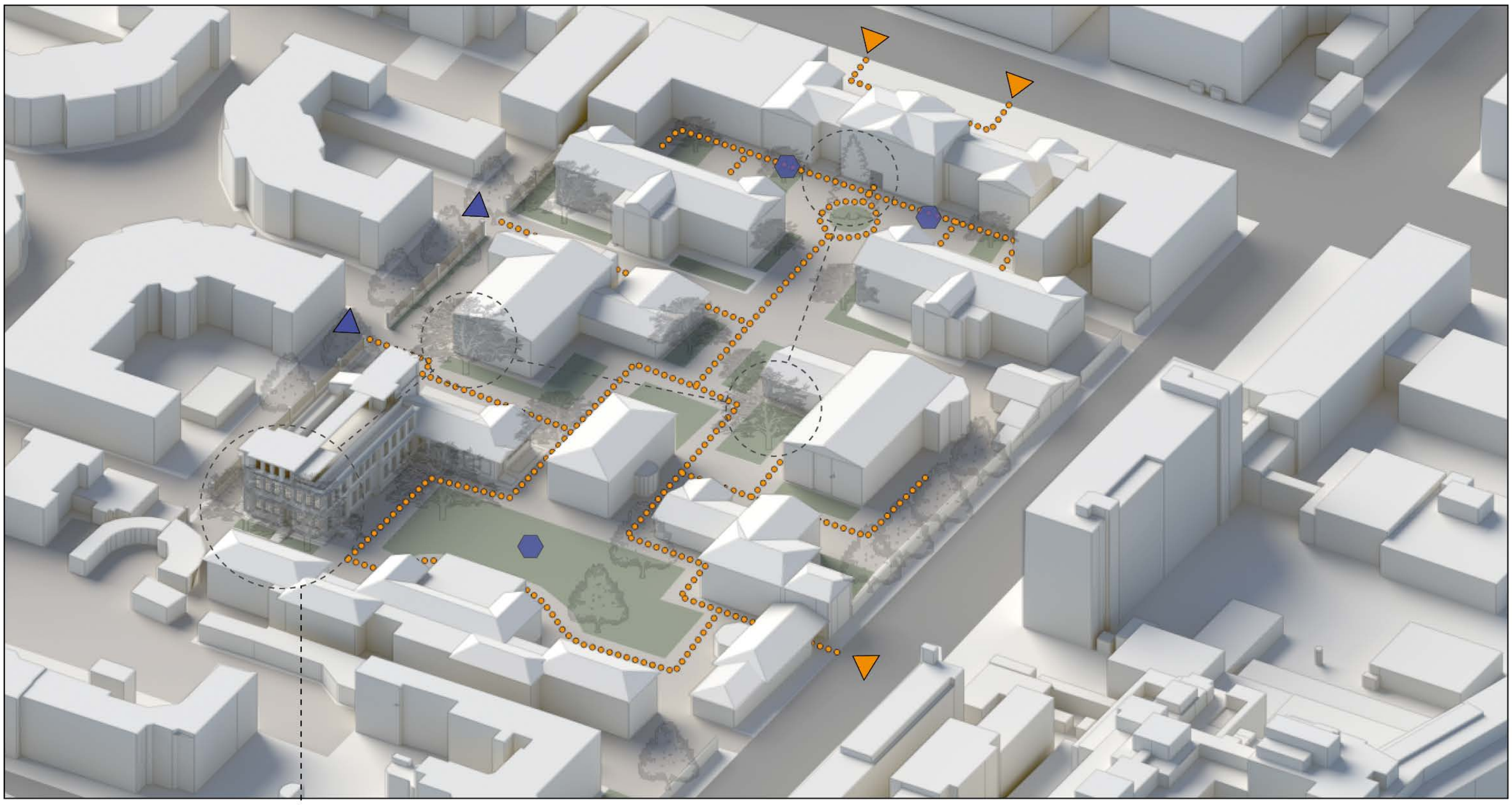
The 1958 additions complete the building as we see it today leading to a unified geometry of the two blocks creating the state of art of the building.
This intervention also changes the materiality and the construction technology of the building in the central addition
The change in the Net area of the building is one outcome as well as the change in the connections of the old and new.



FUNCTION DISTRIBUTION AT DIFFERENT

SITE ANALYSIS

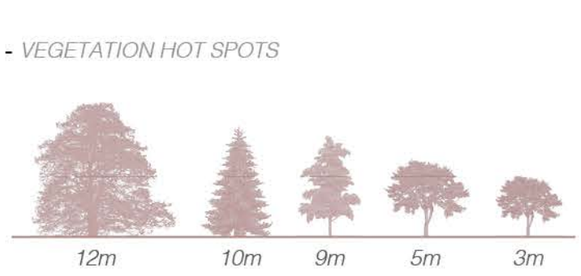
PEDESTRIAN ANALYSIS

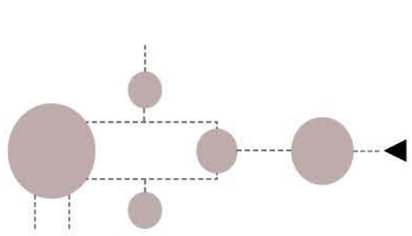


LEGEND:

- PEDESTRIAN PATHS
- PEDESTRIAN ENTRANCE
- ADJACENT CAMPUS
- SEATING SPACE

VEGETATION HOT SPOTS

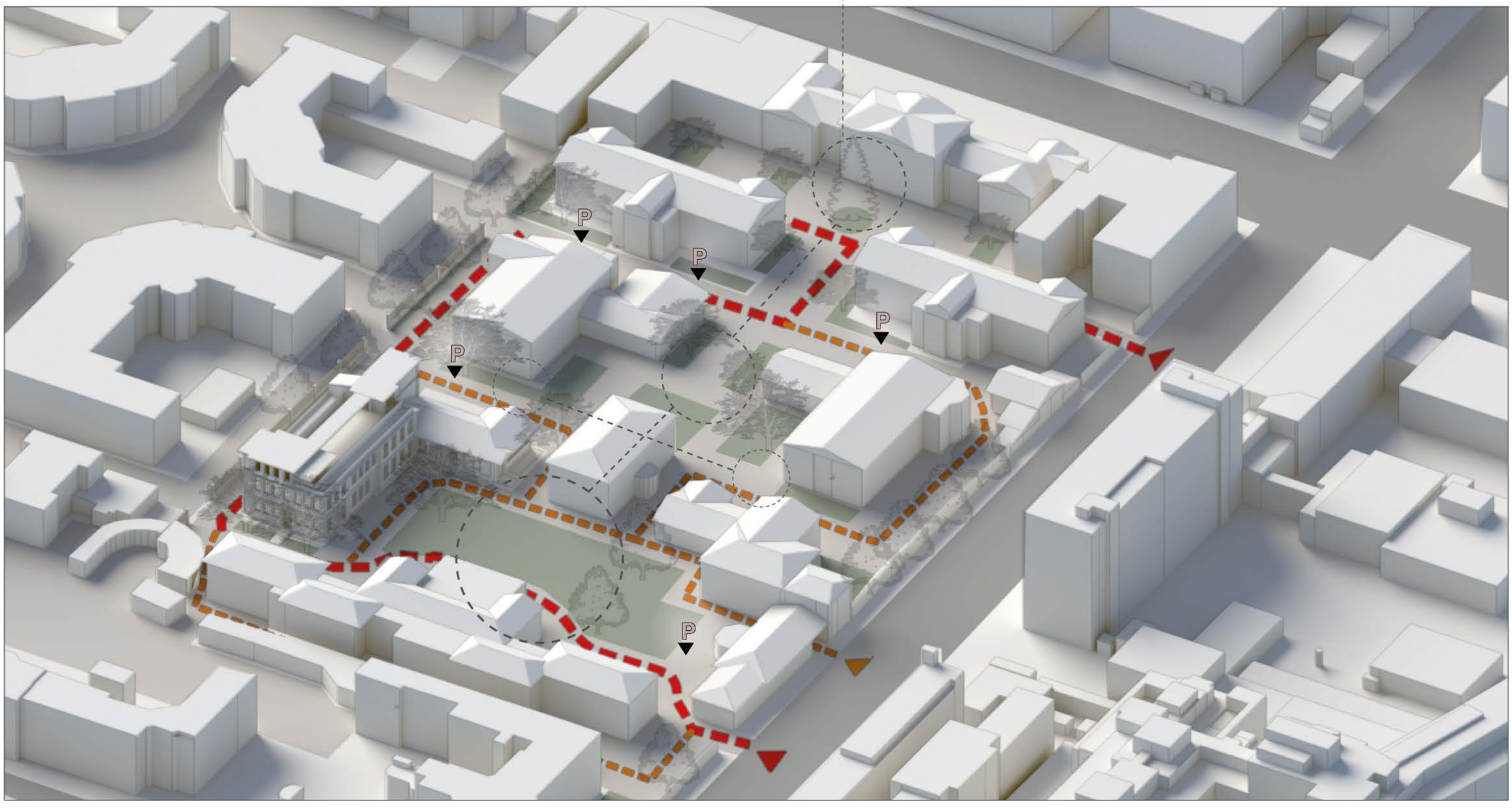




ALIGNMENT OF OPEN SPACES

LEGEND:

- SERVICE & FORMAL VEHICULAR ROUTE
- ADAPTED VEHICULAR ROUTE
- PARKING SPOTS



VEHICULAR ANALYSIS

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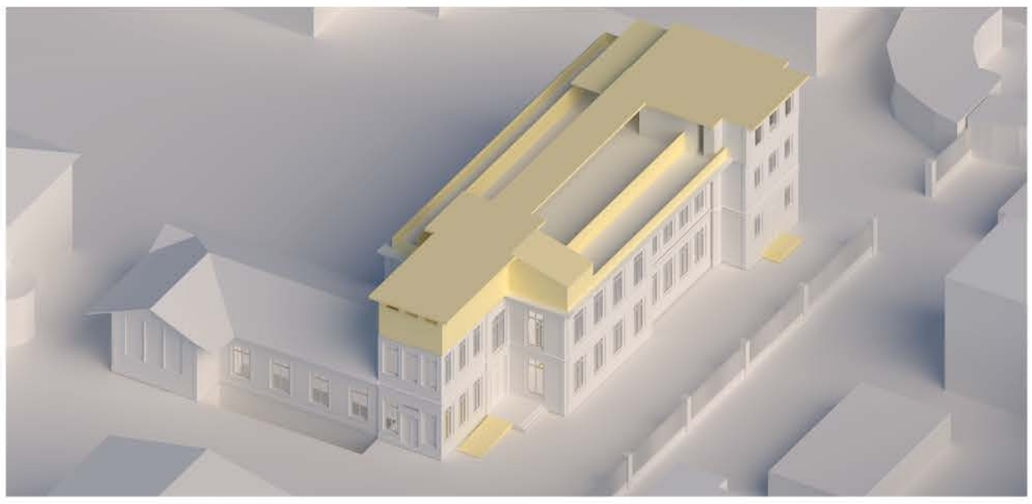
MASSING DIAGRAM

REMOVAL AND INTERNAL ADDITION

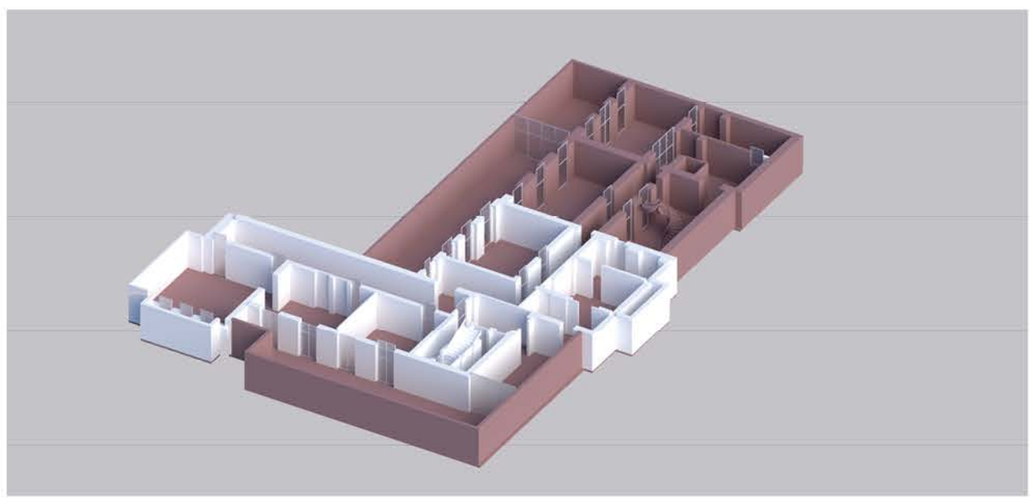


TERRACE DEMOLISHION

SECOND FLOOR DEMOLISHION & ADDITION

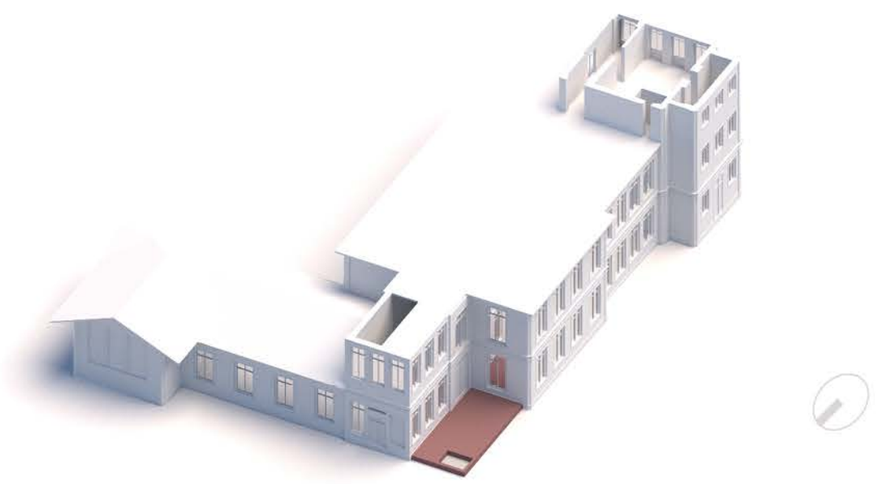
FIRST FLOOR DEMOLISHION & ADDITION

GROUND FLOOR DEMOLISHION & ADDITION

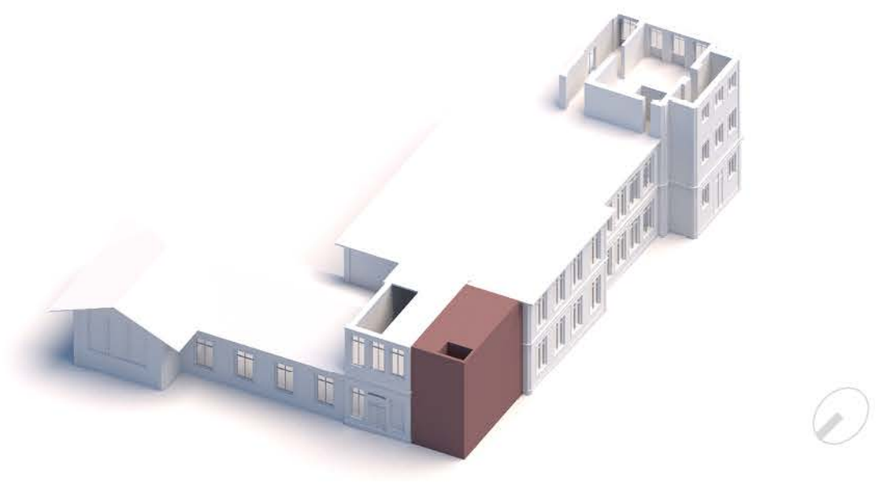


BASEMENT FLOOR DEMOLISHION & ADDITION

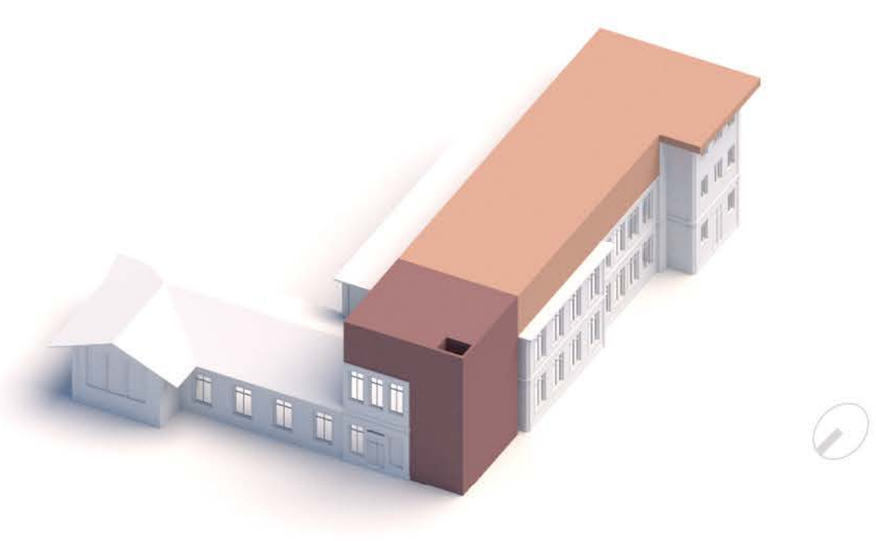
MASSING DIAGRAM



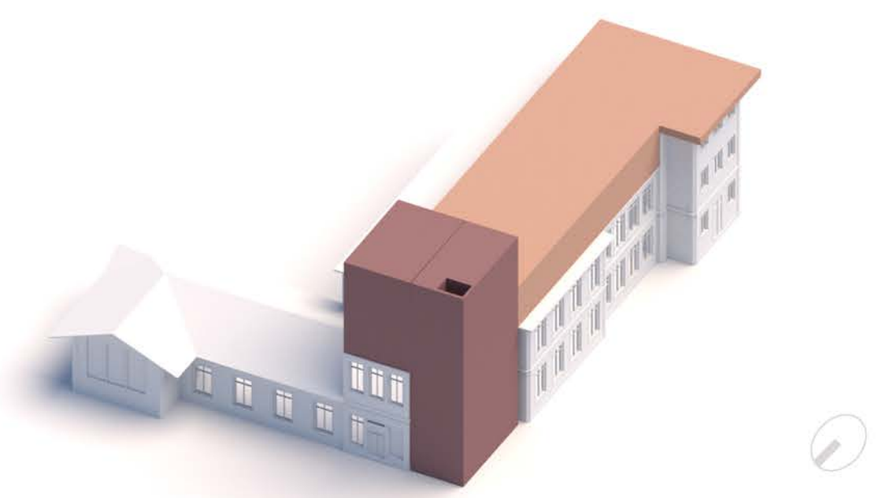
1 *CORNER ADDITION FOR THE PURPOSE OF HORIZONTAL CIRCULATION*



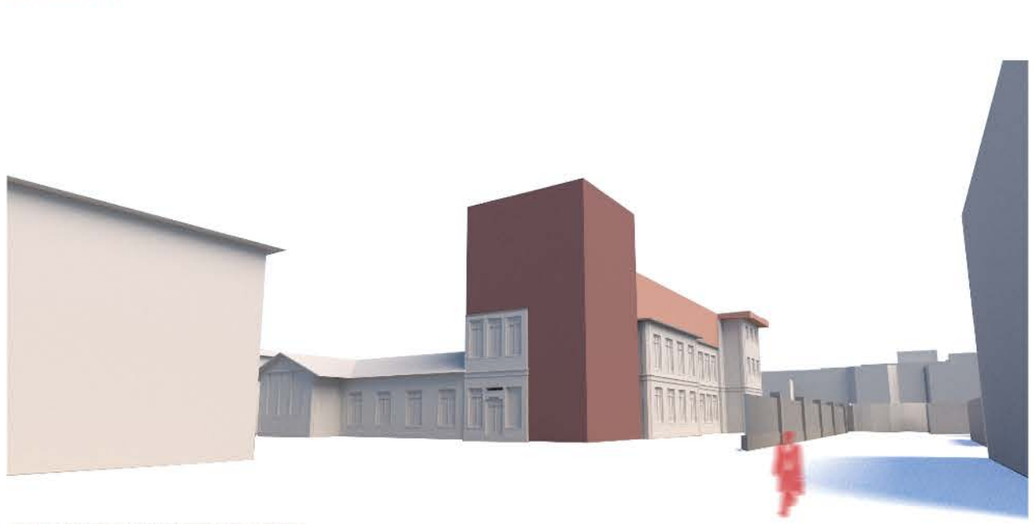
2 *USING THE CORNER ADDITION AS A METHOD FOR VERTICAL CIRCULATION*



3 *ADDITION OF THE EXHIBTION VOLUME ON TOP OF THE ROOF MERGING WITH THE RISING CORNER*



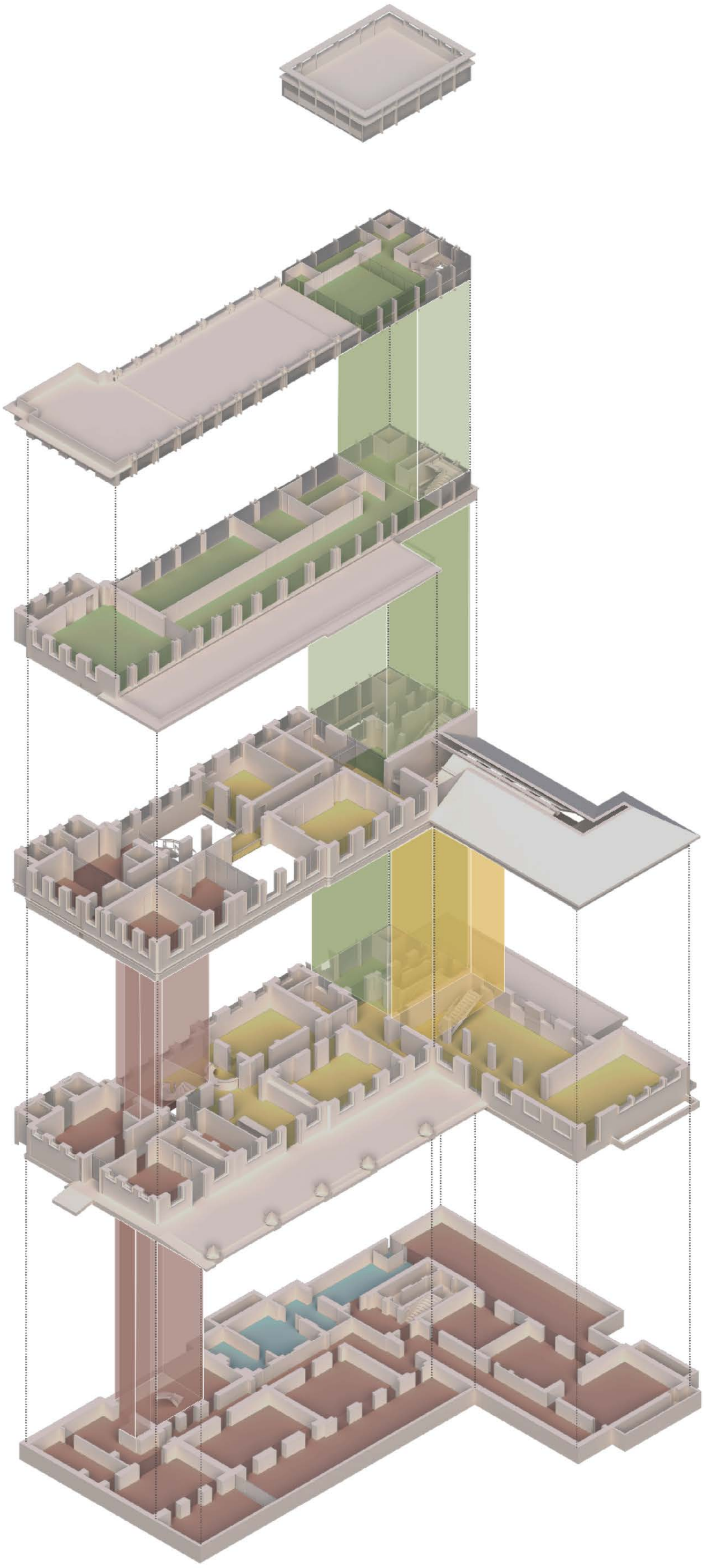
4 *ADDITION OF THE EXHIBTION VOLUME ON TOP OF THE ROOF MERGING WITH THE RISING CORNER GEOMETRY*



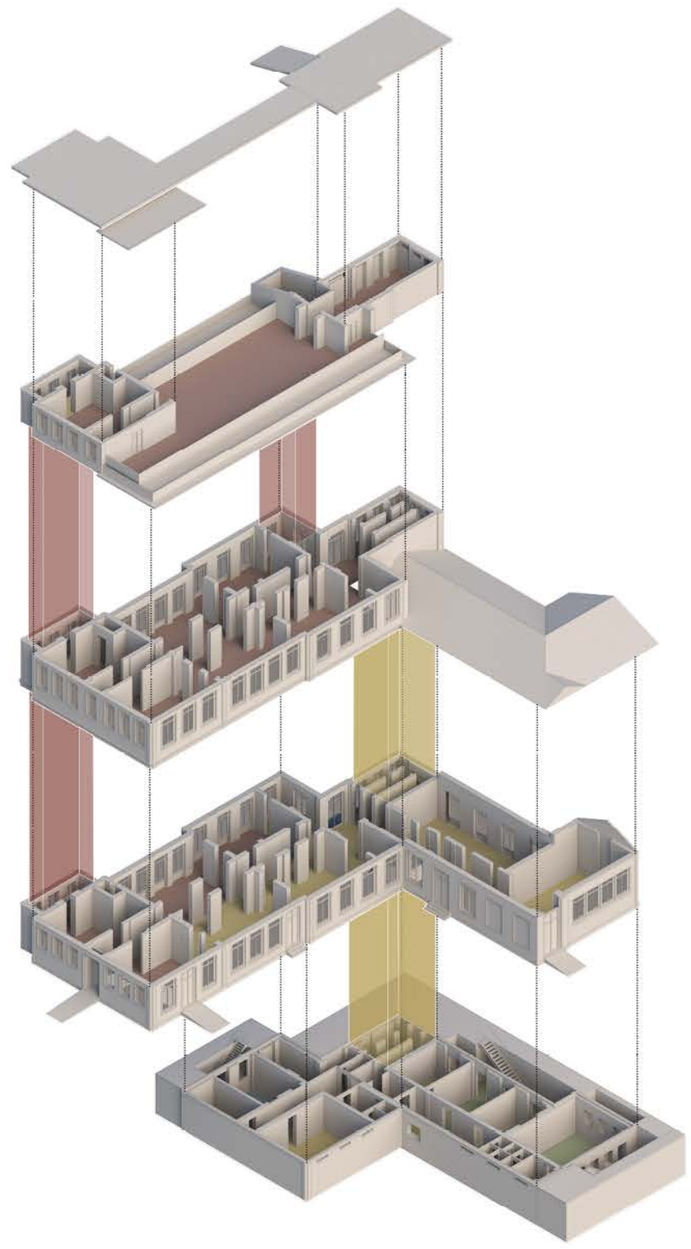
5 *VOLUMETRIC MASSING VIEW*

FUNCTIONAL AXONOMETRIC

NEW DESIGN



EXISITNG BUILDING



PUBLIC ACCESS
CAFFE

RESTRICTED ACCESS
SEMINAR

SERVICE AREAS

PRIVATE ACCESS
OFFICES
DIRECTOR'S OFFICE
LABORATORIES
ANIMAL RESTING ROOM
OPERATION THEATHERS

SECOND FLOOR FUNCTION
DISTRRUBITION

SECOND FLOOR FUNCTION
DISTRRUBITION

FIRST FLOOR FUNCTION
DISTRRUBITION

GROUND FLOOR FUNCTION
DISTRRUBITION

BASEMENT FLOOR FUNCTION
DISTRRUBITION

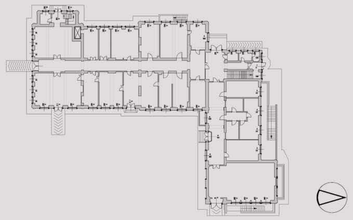
PUBLIC ACCESS
CAFFE
EXHIBITION HALL
CONFERENCE ROOM

RESTRICTED ACCESS
CONSULTATION ROOMS
RESEARCHES HALL
SEMINAR

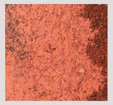
SERVICE AREAS

PRIVATE ACCESS
OFFICES
DIRECTOR'S OFFICE
MEETING ROOM
STAFF LOCKER ROOM
RECEIVING, SHIPPING, PACKAGING
REPOSITORIES
DOCUMENT REPAIR ROOM
DISINFECTION ROOM
PRE-STOREGE ROOM

MATERIAL AND DETERIORATION SURVEY



MATERIALS

A.RED PLASTER

Used for covering all facade.

B.LIGHT YELLOW PLASTER

Used as a decorative element running outside the mouldings of existing windows and doors.

C.REINFORCED CONCRETE

Generally used in the mouldings surrounding of the present doors and windows.

D.ALUMINIUM

Used for framing of the latest windows.

E.STAINLESS STEEL

Largely present in the railings.

F.COPPER

This material used for rain water pipes , which are resting on the building facade.

G.WOOD

Used in the original window frames and to for the truss structure of the roof.

H.GLASS

Generally used in windows and doors but not as a seperation element.

I.MARSEILLE TILES

Used in the roof as a covering.

J.CEMENT PLASTER

Used as method of conservation.

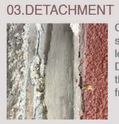
DECAY ANALYSES

01.FLAKING

Peeling of the facade. It is caused by movement of moisture through the wall section and the presence of incompatible top layer added on the existing

02.CRACKS

Superficial crevices on the surface of the facade developed due to varying thermal response of the interacting materials and further expanded from a freeze-thaw mechanism.

03.DETACHMENT

Caused by the existence of salt and water, the layers lose their adhesive strength. Due to the salt crystalization, the layers tent to detached from the wall substrate.

04.BIO COLONIZATION

This form of deterioration showed up because of lack of sun, presence of humidity and water. Particularly on the northern facade. Mostly harmless in nature.

05.MATERIAL LOSS

Largely located on the skirting of the facade due to physical damages and movement of water.

06.DEPOSIT

Depositing of black soot on the surface of the facade largely composed of carbon and dirt. The presence of this is in areas that are protected from the rain

07.MECHANICAL DAMAGE

This sort of damages are present at the place of addition of signage which were added later on the original structure.

08.CORRESION

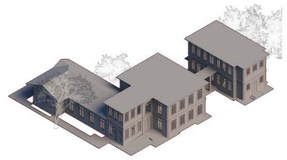
Staining of the mouldings as well the corrosion of the internal bars of the window moulds due to the carbonation which occurs largely due to the weather conditions.

09.DISCOLORATION

Caused by the movement of water on the facade, Discoloration effect varies with the varying volumes of water movement influenced both by the architectural elements and lack of maintenance.

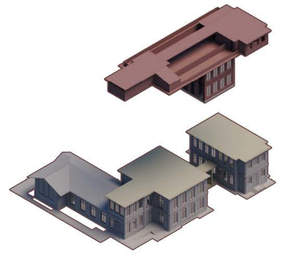
10.EFFLORESCENCE

This decay is largely oriented with the presence of salts in the new interventions as well as the presence of salts in the water.

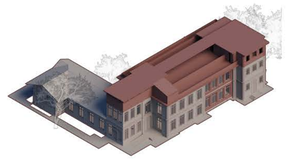


ORIGINAL CONSTRUCT 1910

The building was constructed in 1910 as two separate units which where later consolidated into a single unit with the addition of the centre building completing the present state of the structure. Later addition was done



ADDITION AND TRANFORMATION 1950



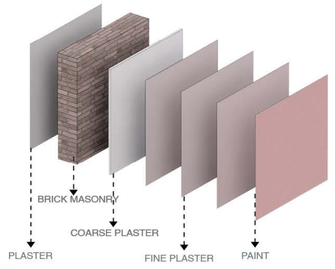
STATE OF ART 2022

in 1950, which calls for an investigation into the materials and structural compatability of the original and the new addition, to understand the tectonics of the construct of the new and the old.

1 VISUAL ANALYSIS
The initial step in the investigation of the project is to use non intrusive methods of analysis like visual analysis, to locate the decays and materials on the facade, and establish some logics for the decay patterns based on the visual inspection to develop a diagnostic project and the conservation project.

2 POINT CLOUD & ORTHO PHOTOS
The second step is to digitally capture of the building using the metashape programme to have point cloud , having 3D model with all deterioration and materials ensure the base for visual mapping of materials and deteriortation hence facilitating the process of understanding the structure and the materials.

3 HYPOTHESIS
Based on the historical data and the visual analysis of the project helps generating various hypothesis largely revolving around the idea of incompatability of the materials of all the interventions that took place on the project. mainly the outer surface coverings used for ordinary maintanence purposes.



WALL STRUCTURE

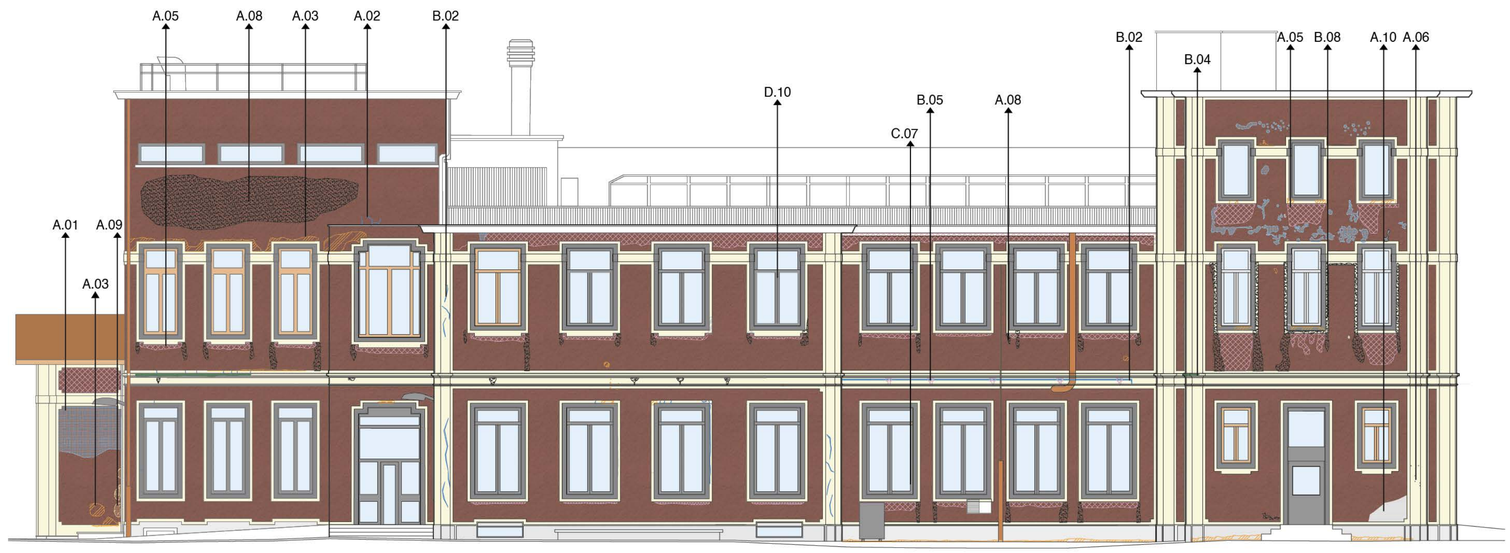
LEGEND

MATERIALS

A. RED PLASTER
B. LIGHT YELLOW PLASTER
C. REINFORCED CONCRETE
D. ALUMINIUM
E. STAINLESS STEEL
F. IRON
G. WOOD
H. GLASS
I. MARSEILLE TILES
J. CEMENT PLASTER

DETERIORATION

01. FLACKING
02. CRACKS
03. DETACHMENT
04. BIO COLONIZATION
05. DEPOSIT
06. MECHANICAL DAMAGE
07. CORROSION
08. DISCOLORATION
09. EFFLORESCENCE
10. NEW INTERVENTION



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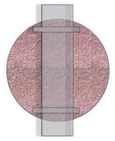
CONSERVATION SURVEY

PHASE 1

R.01
Removal of any type of residuces by using tools.

R.02
Removal of hardly attached residues by using spatula, scarper etc.



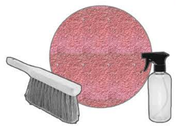
R.03
Removal of incompatible and unnecessary materials from the facade and surrounding of building.

Pl.02
General dry cleaning by using brushes and sponges

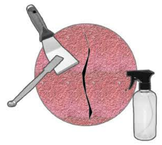
Pl.03
Application of the suitable biocide by injection into the plant's holes or diffusion by spray. After treatment , nebulized and deionized water must be used to remove any trace of product.

PHASE 2

Pl.03
Cleaning by deonized water at low pressure to remove any material residue.

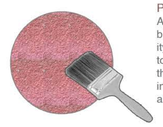


Co.01
General consolidation using ethyl silicate to slow down exfoliation, pulverization, disintegration on the all facade by using brush, spray and airless.
(For deep consolidations, injections can be used)

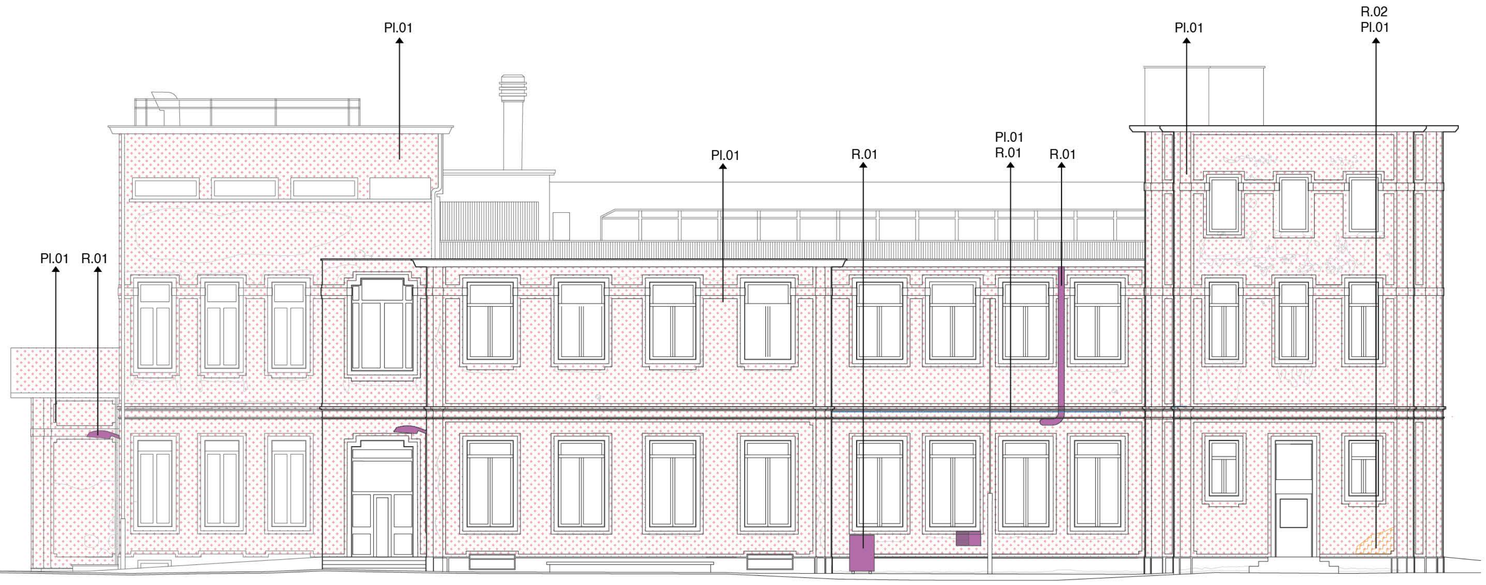


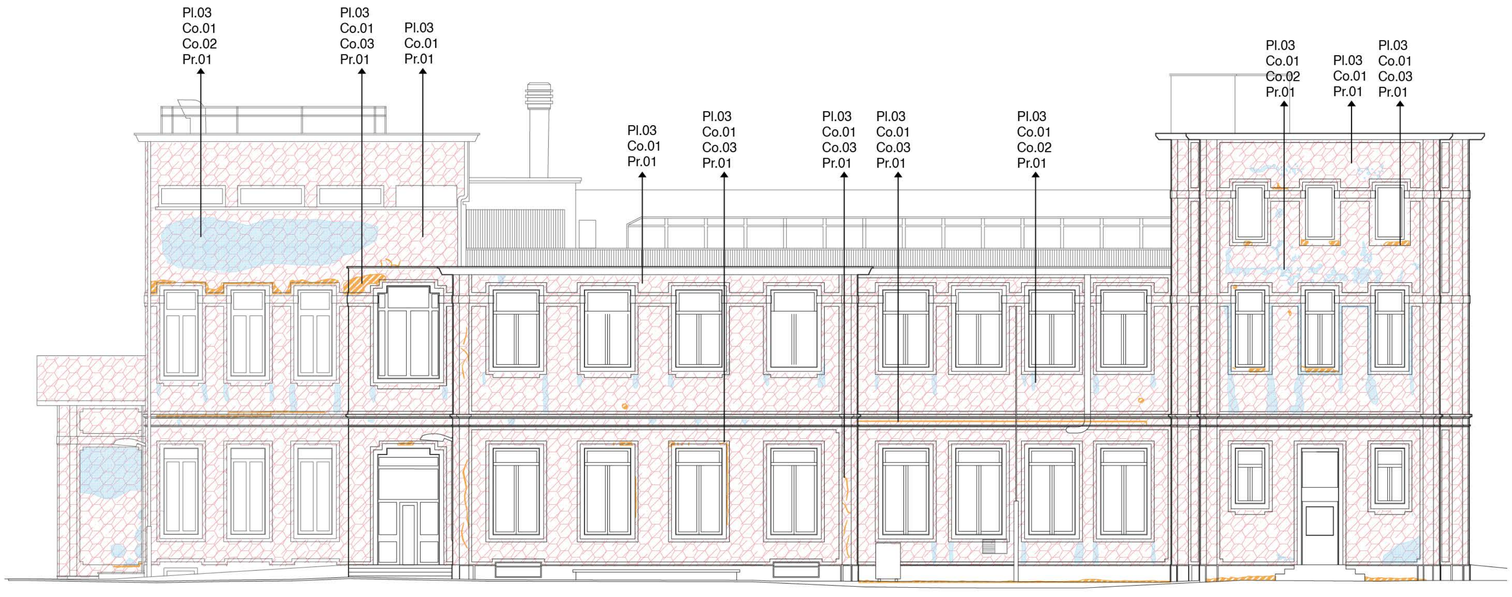
Co.02
Consolidation of cracks by integration of compatible plaster by using spatula etc. Before application of consolidation , the wall must be prepared as dry, clean and rough.

Co.03
Consolidation of detachments and corners must be filled up with compatible mortar. Before application ,the gap must be cleaned up and wetted with clean water to avoid the absorption of liquid and new mortar.



Pr.01
Application of breathable,not glossy, light stability plaster on the facade to avoid the aggresion to the wall structure by using brush on small parts and by using spray.





LEGEND

PHASE 1

- R.01 — REMOVAL OF INCOMPATIBLE MATERIAL
- R.02 — REMOVAL OF PLASTER STRONGLY DETACHED
- R.03 — REMOVAL OF UNNECESSAY ELEMENTS
- Pl.01 — GENERAL DRY CLEANING
- Pl.02 — APPLICATION OF BIOCIDES BY BRUSH

PHASE 2

- Pl.03 — GENERAL CLEANING WITH DEONIZED WATER
- Co.01 — GENERAL CONSOLIDATION OF ETHYL SILICATE
- Co.02 — INTEG. OF COMPATIBLE PLASTER FOR CRACKS
- Co.03 — INTEG. OF COMPATIBLE MORTAR FOR MISSING PARTS
- Pr.01 — LYING A BREATHABLE PLASTER ON FACADE BY SPRAY
- I.01 — PARTICULAR PARTS TO BE THREATED SEPERATELY

DIAGNOSTIC APROACH

1.THERMOGRAPHY
It is required to identify roof structure ,closed openings, and humidity mapping. It may explain flaking caused by humidity and water. This aproach more important for southern facade close to trees.

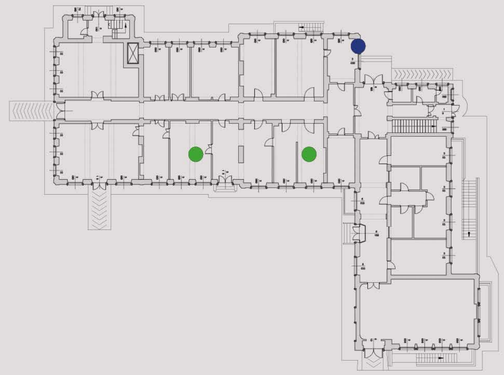
2.ULTRASONIC INVEST.
To identify the presence of existing rain water pipes in the external walls.It is required to investigate further in any sort of deterioration based on internal leakage.

3.FACADE SAMPLE
To identify and understand the compositioin of the overlapping layers on facade. And finally implement material specific conservation strategy rather then using generic one.

3.FLAT-JACK TEST
To understand the possibility of addition by computing the compressive strength of the existing masonry structure.

5.ENDOSCOPY
To understand the construction technique as well as the thickness of the horizontal elements in the existing building.

6.MAGNOMETER
To identify the position of any sort of metallic components underline on the facade and to be ensure the position of the horizontal and vertical elements in the buildiing section.



North-West Facade

West Facade

East Facade

East Facade

South Facade

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SITE PROPOSAL

VIA GIUSEPPE PONZIO

VIA GIOVANNI CELORIA


VIEW 1


VIEW 2


VIEW 3

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GROUND FLOOR PLAN

DEMOLITION / NEW CONSTRUCTION

- EXISTING BUILDING
- DEMOLITION
- ADDITION

LEGEND

1. WC 13.5 SQM
2. RECEIVING, SHIPPING 19 SQM
3. LIFT LOBBY 45.5 SQM
4. CORRIDOR 24.2 SQM
5. OFFICE 38.2 SQM
6. STAFF LOCKER 7.7 SQM
7. DOC. RECEIVING 28.2 SQM
8. RECEPTION 18.7 SQM
9. LOBBY/LOCKERS 46 SQM
10. CONSULTATION 37.9 SQM
11. WC 19.4 SQM
12. SEMINAR HALL 60 SQM
13. WC 19.8 SQM
14. LIFT LOBBY 35 SQM
15. SERVICE SHAFT 9.8 SQM
16. LOBBY 9.2 SQM
17. LOBBY 19 SQM
18. READING HALL 144 SQM
19. CONSULTATION 85.4 SQM

SCALE- 1:200

POLITECNICO
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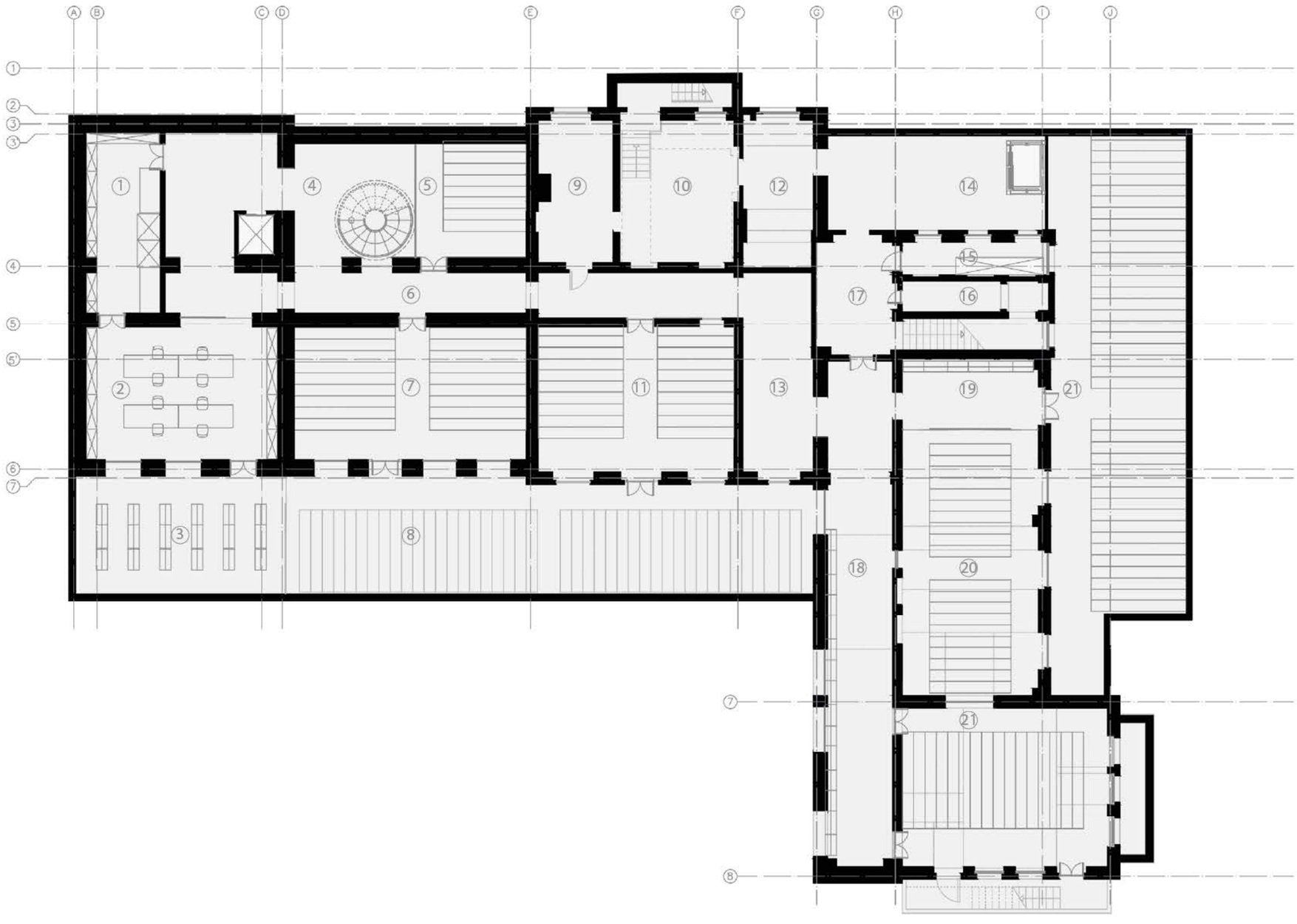
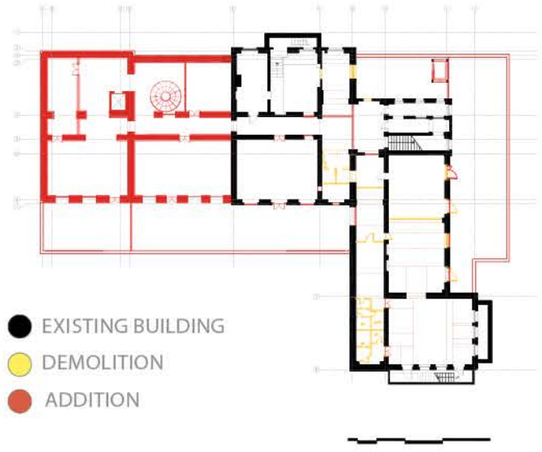
FLOOR PLANS

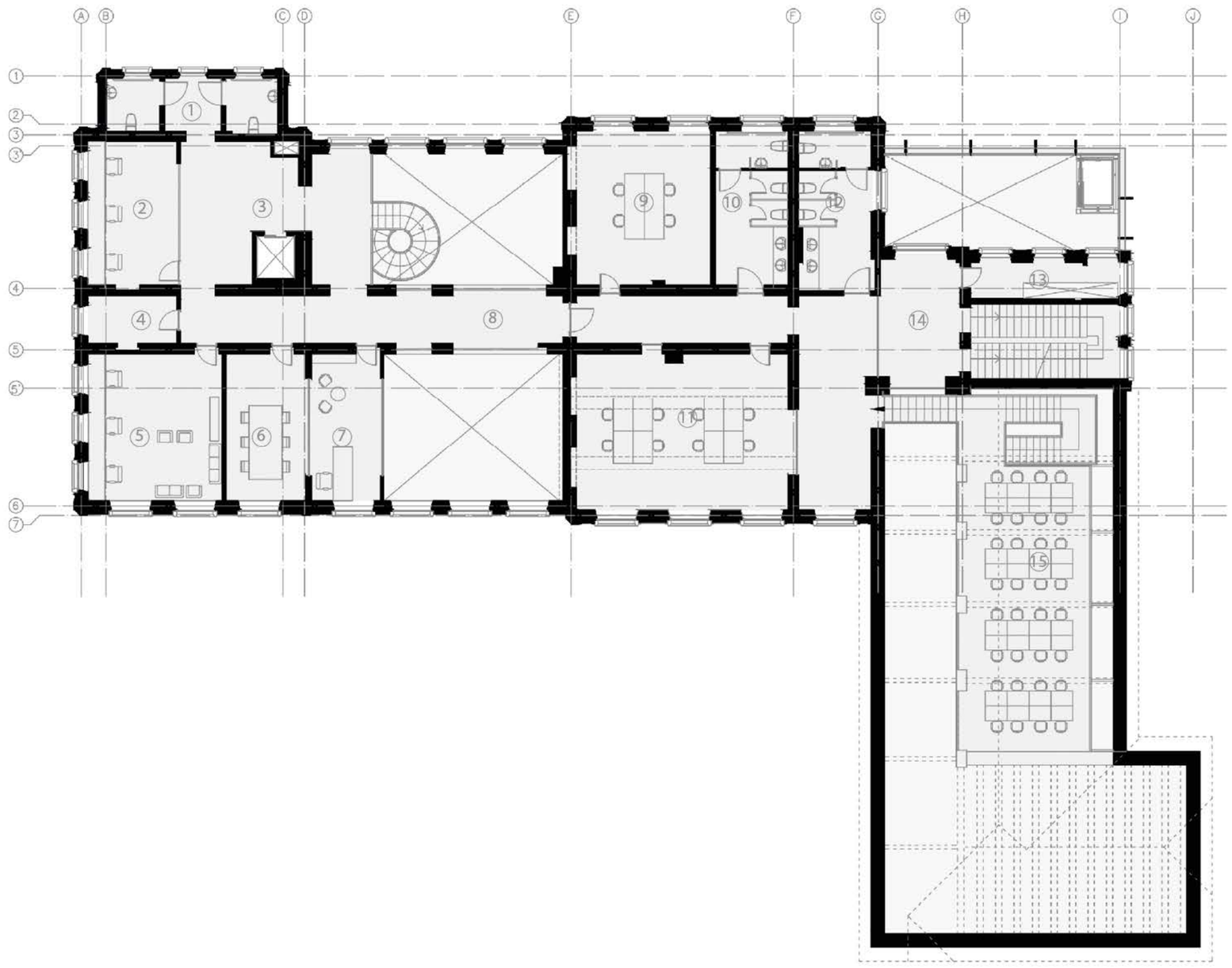


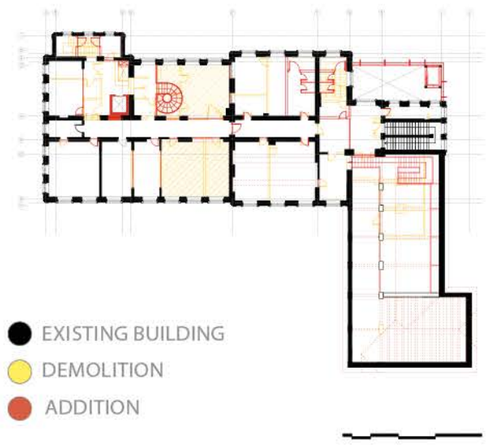


EXISTING BUILDING
DEMOLITION
ADDITION

① DISINFECTION ROOM 26 SQM
② DOC. REPAIR R. 51 SQM
③ PRE STORAGE SPACE 51 SQM
④ LIFT LOBBY 41 SQM
⑤ REPOSITORY1 25.4 SQM
⑥ CORRIDOR 50.2 SQM
⑦ REPOSITORY2 60.6 SQM
⑧ REPOSITORY3 122 SQM
⑨ ELEC. / COM. 21 SQM
⑩ SERVICE AREA 34 SQM
⑪ REPOSITORY4 58 SQM
⑫ TECH. AREA 20.4 SQM
⑬ CORRIDOR 29 SQM
⑭ LIFT LOBBY 38 SQM
⑮ SERVICE SHAFT 9.8 SQM
⑯ STORAGE 9 SQM
⑰ LOBBY 18 SQM
⑱ CORRIDOR 64 SQM
⑲ LOBBY 19.3 SQM
⑳ REPOSITORY5 73.4 SQM
㉑ REPOSITORY6 66 SQM
㉒ REPOSITORY7 135 SQM

BASEMENT FLOOR PLAN





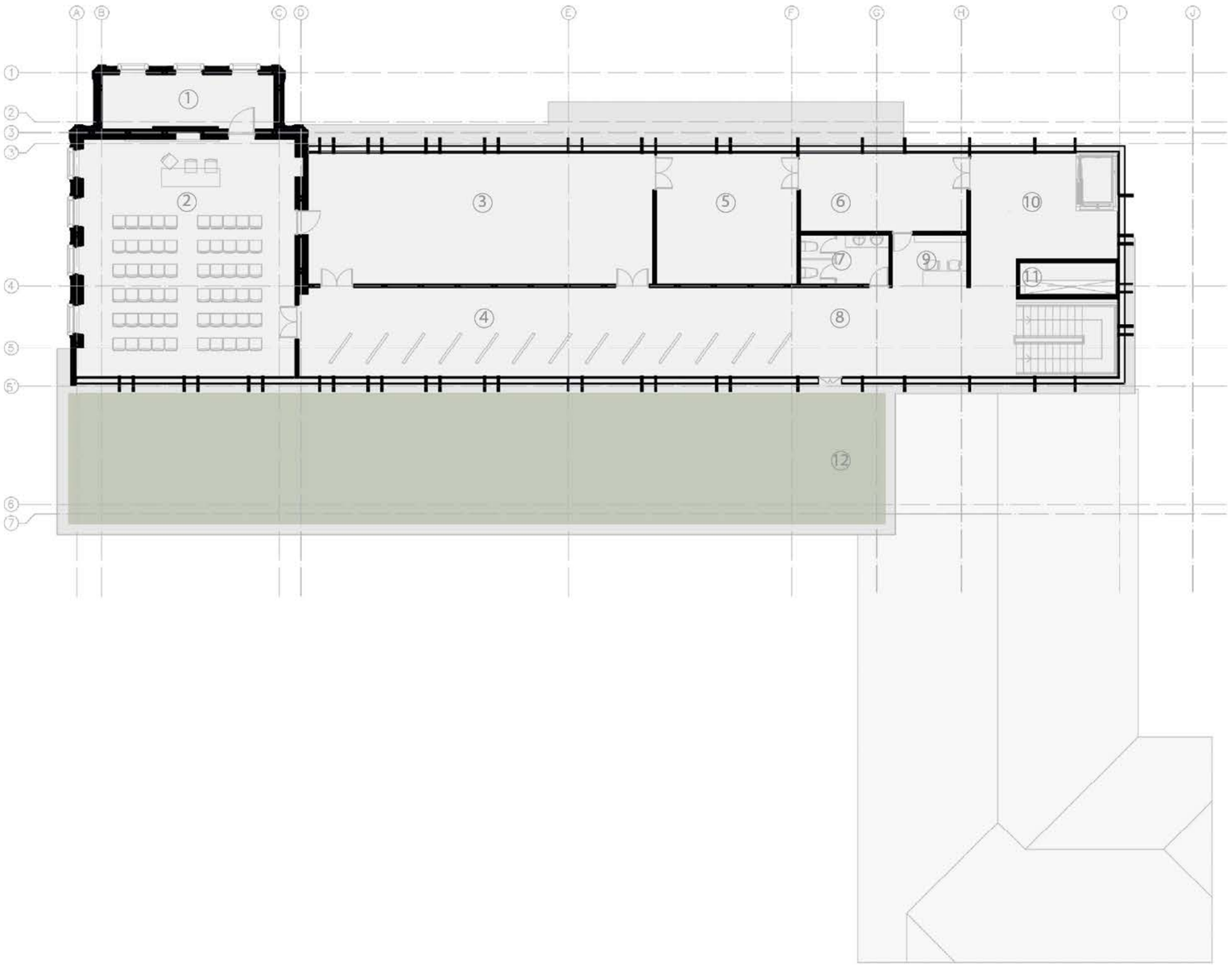
EXISTING BUILDING
DEMOLITION
ADDITION

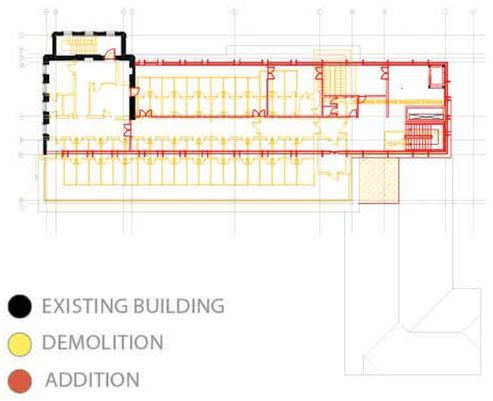
① WC 13.5 SQM
② SHARED OFFICE 22.6 SQM
③ LIFT LOBBY 39.7 SQM
④ STORAGE 7.7 SQM
⑤ SHARED OFFICE 35 SQM
⑥ MEETING R. 20.8 SQM
⑦ DIREC. OFFICE 18.2 SQM
⑧ CORRIDOR 35 SQM
⑨ MAP REAING R. 37 SQM
⑩ WC 19.4 SQM
⑪ SPEC. CONS. 58.9 SQM
⑫ WC 20.2 SQM
⑬ SERVICE SHAFT 10.1 SQM
⑭ LOBBY 18.3 SQM
⑮ READING HALL 80 SQM

FIRST FLOOR PLAN

SCALE- 1:200

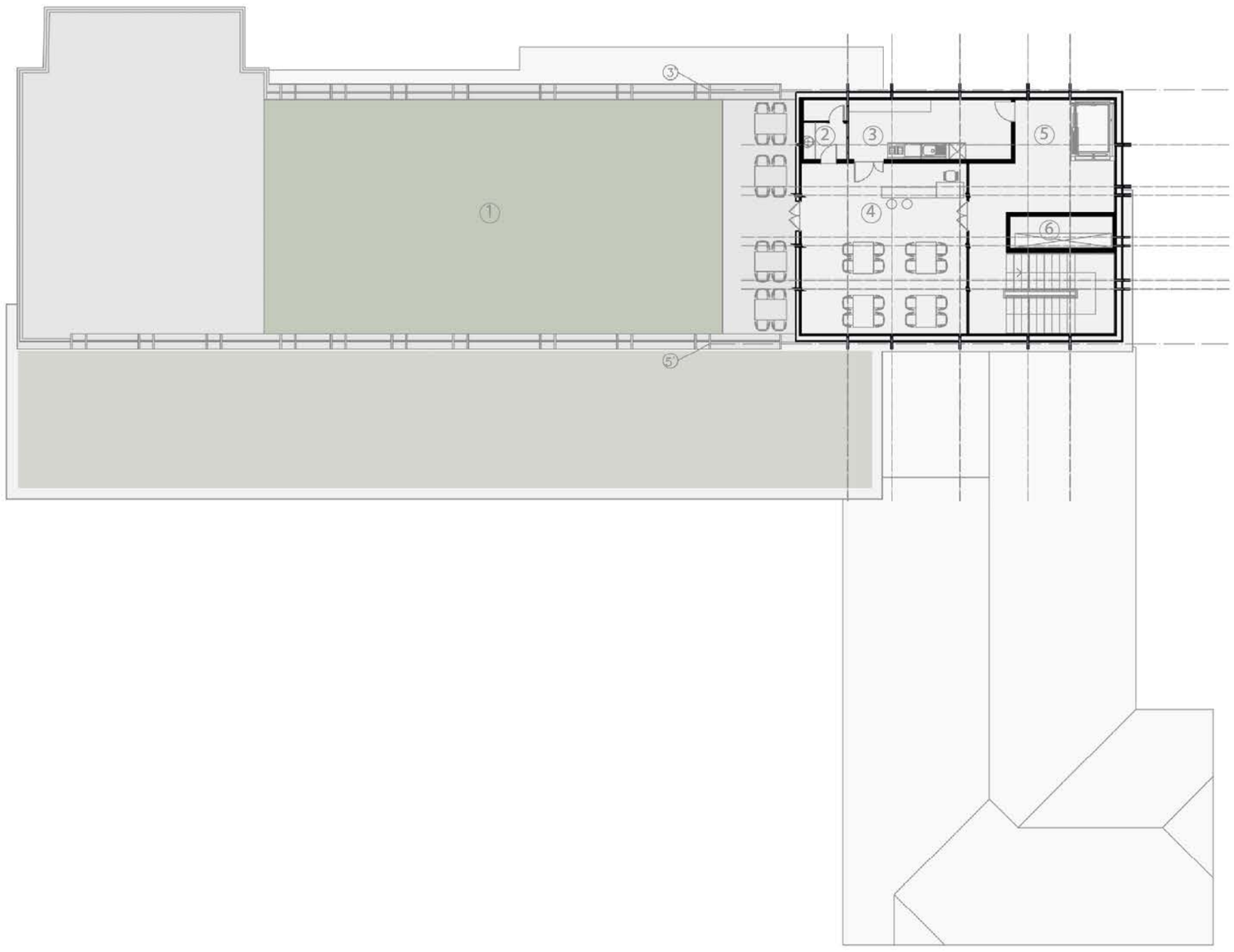
FLOOR PLANS

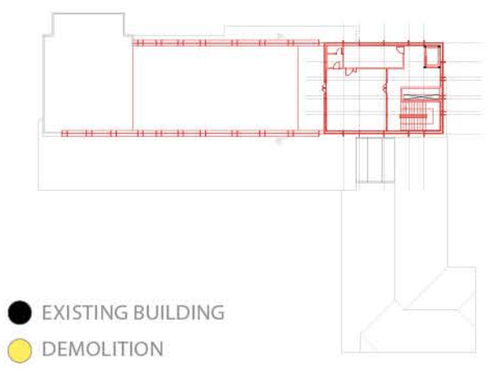




① STORAGE 15.7 SQM
② CONFERENCE ROOM 87 SQM
③ EXHIBITION AREA 78.7 SQM
④ GALLERY 88 SQM
⑤ WORKSHOP 29.8 SQM
⑥ STORAGE 24.8SQM
⑦ WC 7.9 SQM
⑧ ENTRANCE HALL 18.5 SQM
⑨ RECEPTION 7.2 SQM
⑩ LIFT LOBBY 23.4 SQM
⑪ SERVICE SHAFT 4.8 SQM
⑫ TERRACE

SECOND FLOOR PLAN
SCALE- 1:200





① TERRACE 316.6 SQM
② WC 4.7 SQM
③ KITCHEN 11.5 SQM
④ SEATING 44.1 SQM
⑤ LIFT LOBBY 23.5 SQM
⑥ SERVICE SHAFT 4.8 SQM

THIRD FLOOR PLAN
SCALE- 1:200

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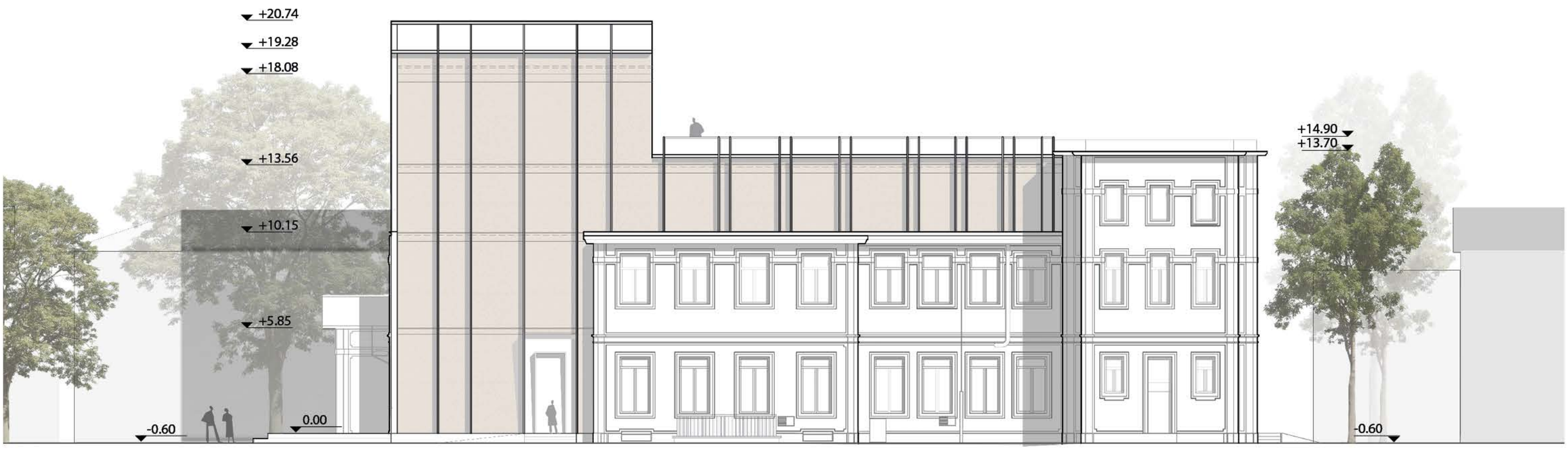
ELEVATIONS

EXISTING BUILDING
DEMOLITION
ADDITION

NORTH ELEVATION
SCALE- 1:200



EXISTING BUILDING
DEMOLITION
ADDITION

WEST ELEVATION
SCALE- 1:200

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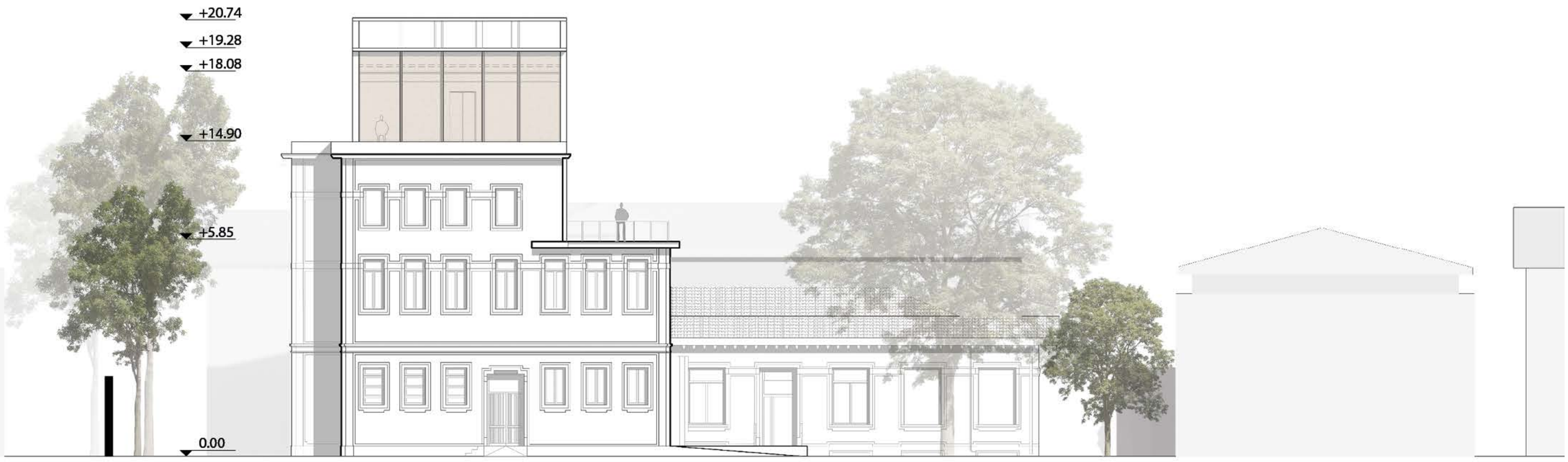
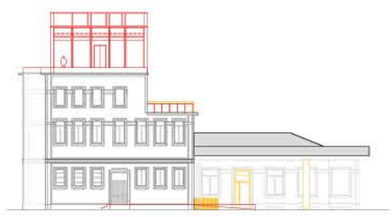
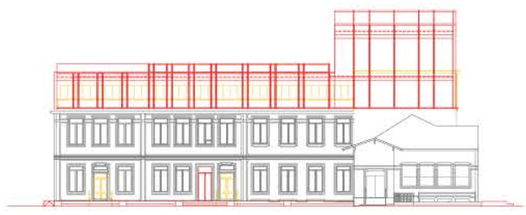
ELEVATIONS





EXISTING BUILDING
DEMOLITION
ADDITION

SOUTH ELEVATION
SCALE- 1:200



EXISTING BUILDING
DEMOLITION
ADDITION

EAST ELEVATION
SCALE- 1:200

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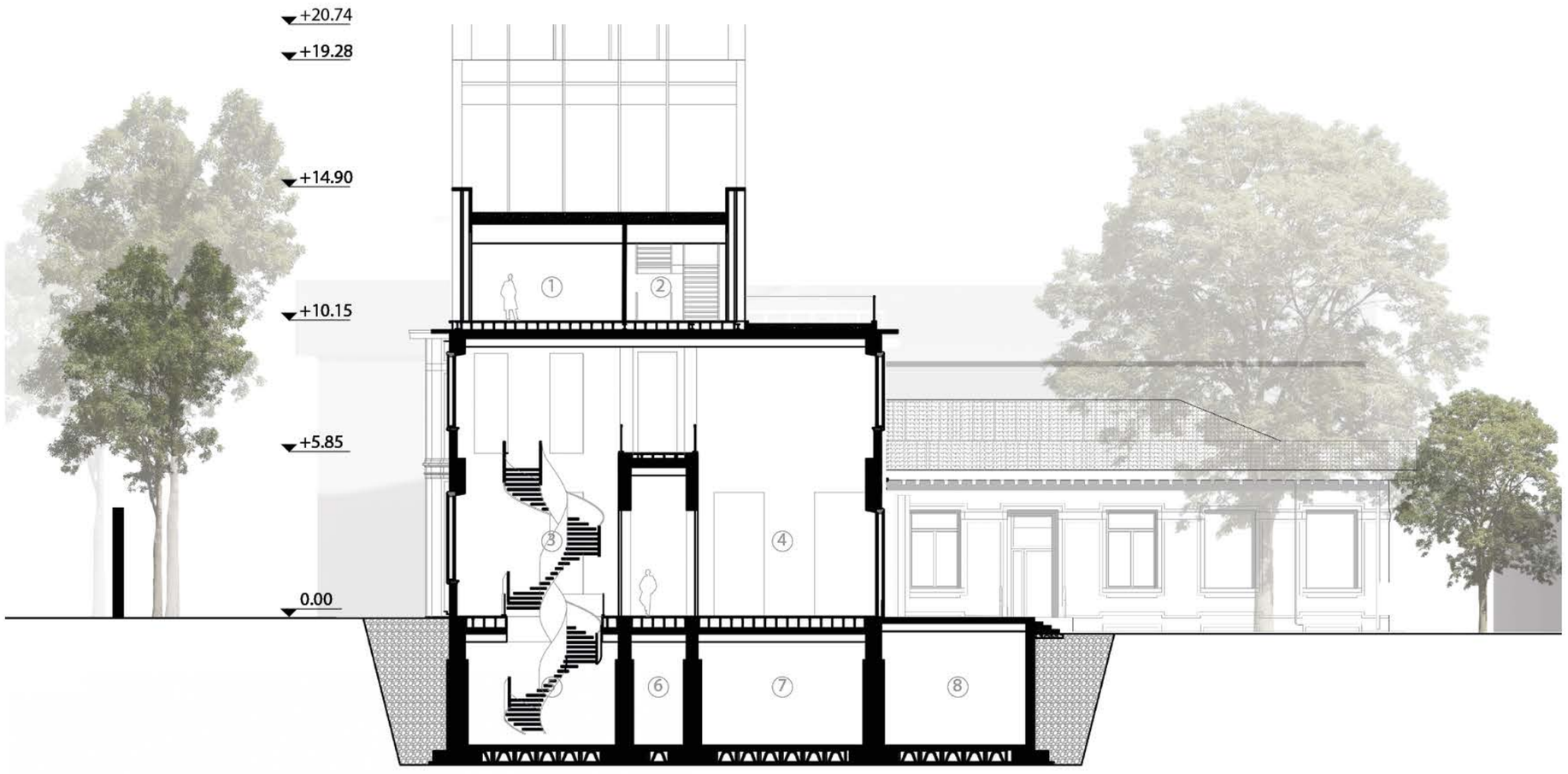
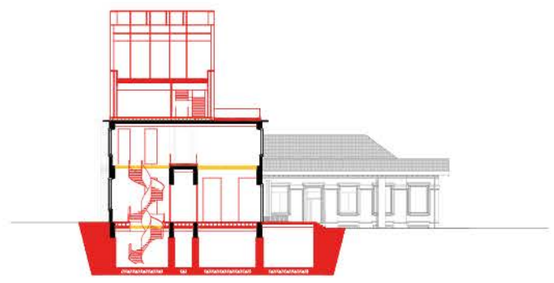
SECTIONS

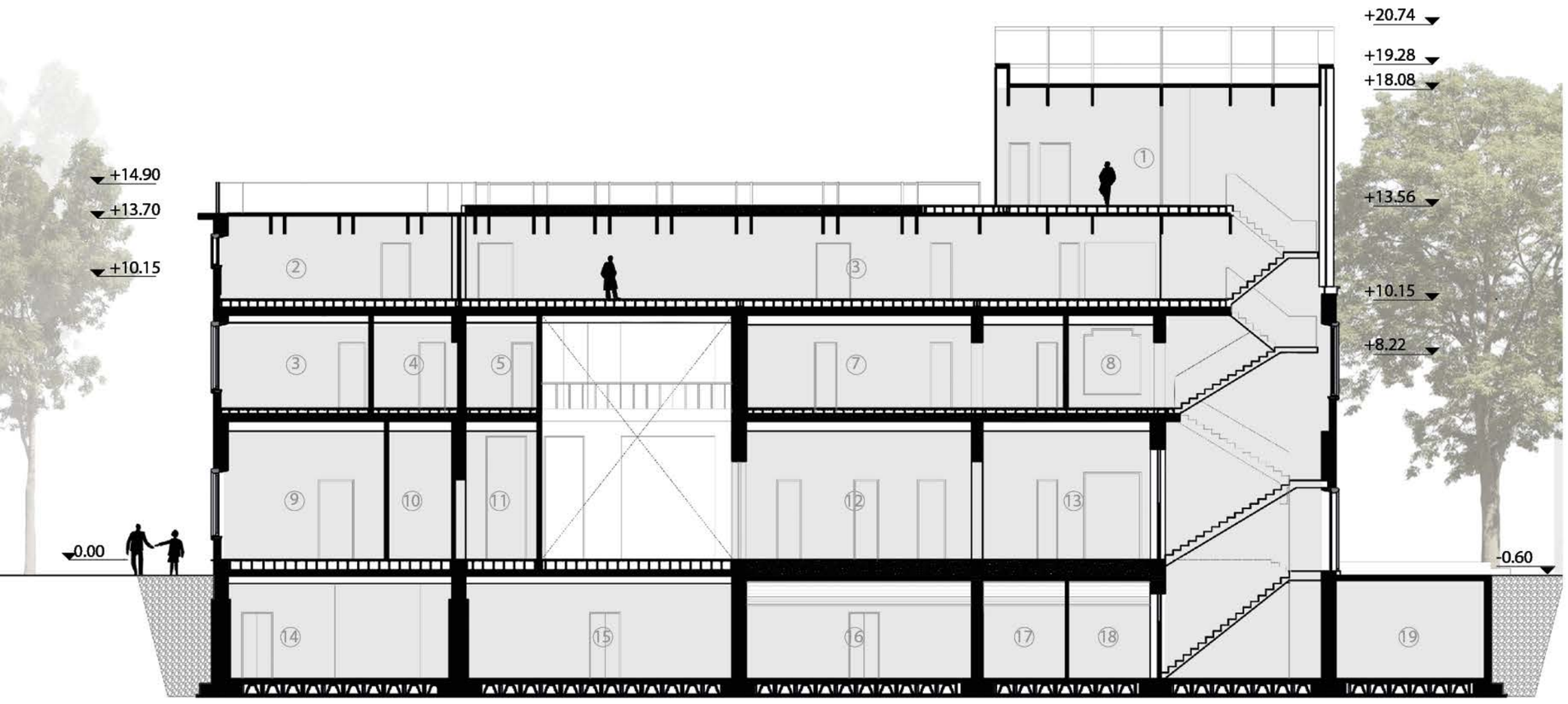


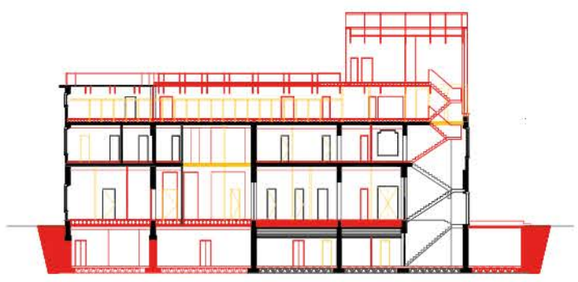


- EXISTING BUILDING
- DEMOLITION
- ADDITION

① EXHIBITION AREA 78.7 SQM
② GALLERY 88 SQM
③ DOC. RECEIVING 28.2 SQM
④ RECEPTION 18.7 SQM
⑤ LIFT LOBBY 41 SQM
⑥ CORRIDOR 50.2 SQM
⑦ REPOSITORY2 60.6 SQM
⑧ REPOSITORY3 122 SQM

SECTION A/A
SCALE- 1:200





- EXISTING BUILDING
- DEMOLITION
- ADDITION

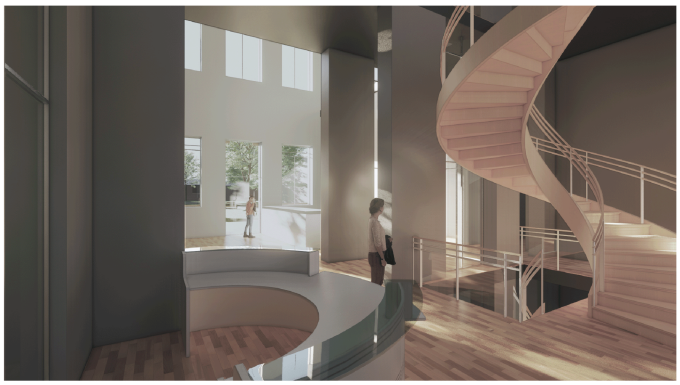
① SEATING 44.1 SQM
② CONFERENCE ROOM 87 SQM
③ EXHIBITION AREA 78.7 SQM
④ SHARED OFFICE 35 SQM
⑤ MEETING R. 20.8 SQM
⑥ DIREC. OFFICE 18.2 SQM
⑦ SPEC. CONS. 58.9 SQM
⑧ LOBBY 18.3 SQM
⑨ SHARED OFFICE 35 SQM
⑩ STAFF LOCKER 7.7 SQM
⑪ RECEPTION 18.7 SQM
⑫ LOBBY/LOCKERS 46 SQM
⑬ SEMINAR HALL 60 SQM
⑭ DOC. REPAIR R. 51 SQM
⑮ REPOSITORY2 60.6 SQM
⑯ REPOSITORY4 58 SQM
⑰ CORRIDOR 29 SQM
⑱ LOBBY 18 SQM
⑲ REPOSITORY7 135 SQM

SECTION B/B
SCALE- 1:200

INTERIOR VIEWS

ARCHIVE VIEWS 1 (Basement Floor)

ARCHIVE VIEWS 2 (Basement Floor)



ENTRANCE FOYER VIEWS 3 (Ground Floor)

READING ROOM VIEWS 4 (Ground Floor)

DOUBLE HEIGHT VOLUME VIEWS 5 (First Floor)

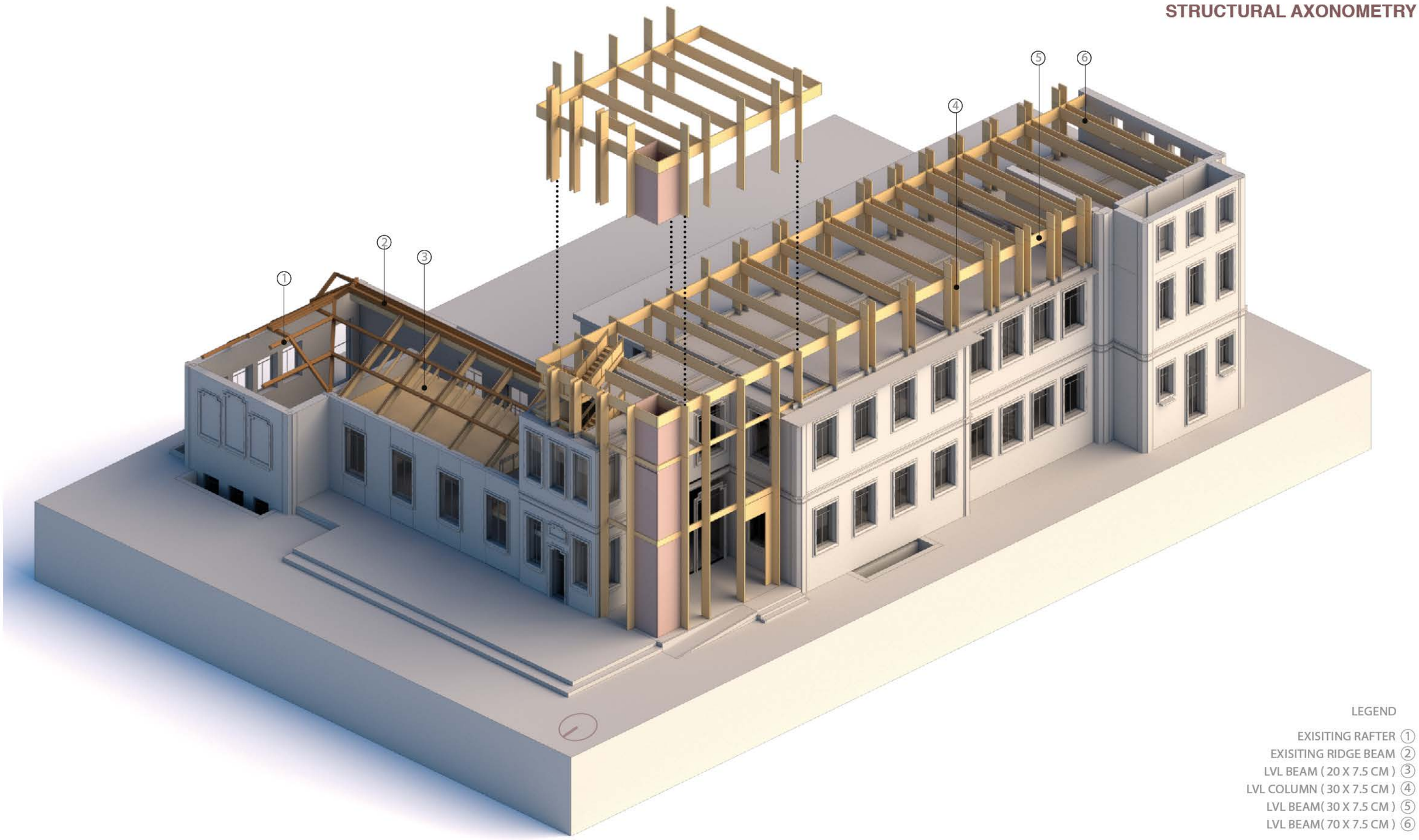
GALLERY VIEWS 6 (Second Floor)

EXHIBTION AREA VIEWS 7 (Second Floor)

ROOF TOP CAFE VIEWS 8 (Third Floor)

STRUCTURAL CONCEPT

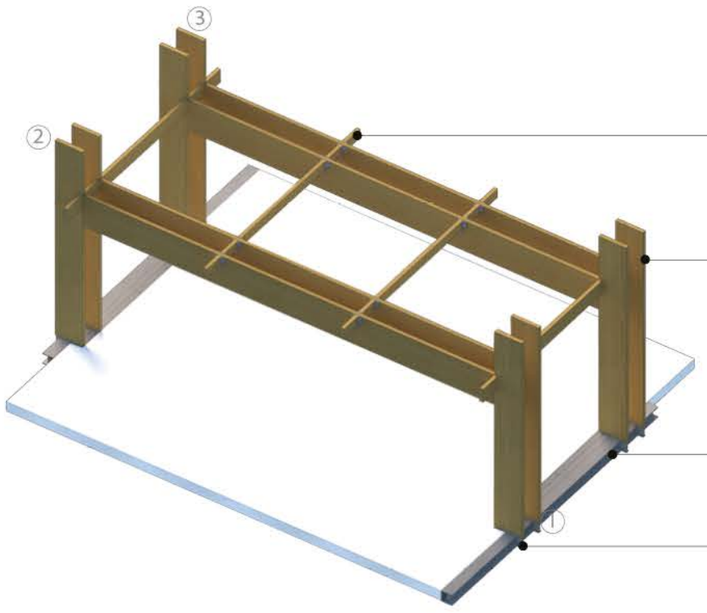
STRUCTURAL AXONOMETRY



LEGEND

EXISITING RAFTER ①
EXISITING RIDGE BEAM ②
LVL BEAM (20 X 7.5 CM) ③
LVL COLUMN (30 X 7.5 CM) ④
LVL BEAM(30 X 7.5 CM) ⑤
LVL BEAM(70 X 7.5 CM) ⑥

STRUCTURAL SYSTEM



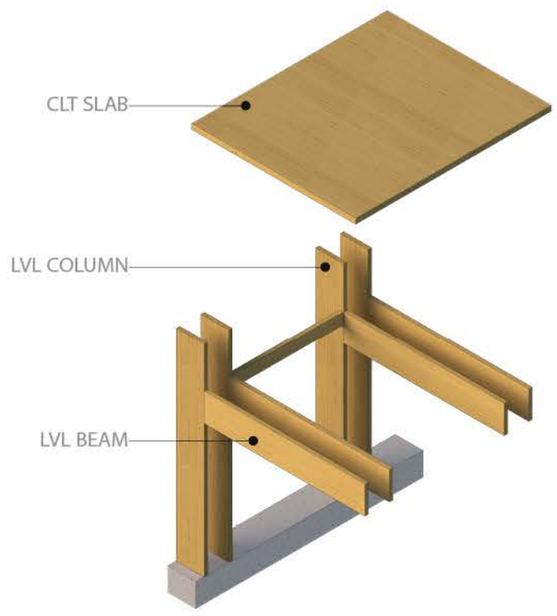
THE PRIMARY STRUCTURE OF THE EXISTING BUILDING IS CONCIEVED IN BRICK MASONRY WHICH IS ORIGINALLY A LOAD BEARING STRCUTURE WORKING LARGELY WITH A BOX SHAPED GEOMERTY WITH A FIXED COMPARTMENT APPROACH.

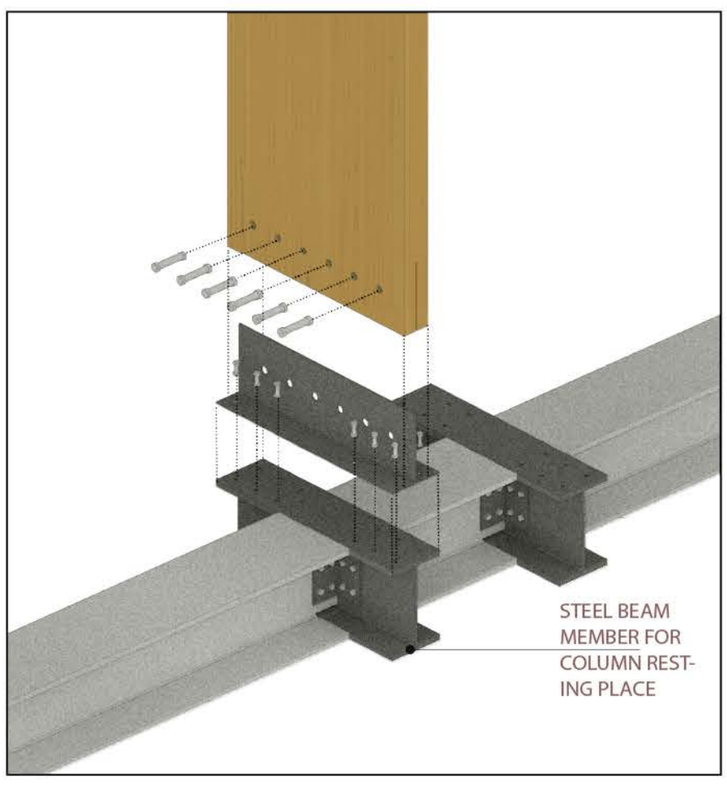
THE NEW INTERVENTION IS ADDED WITH LVL WOODEN COLUMNS AND BEAMS WITH CLT PANEL AS THE SLAB PANEL, WITH STEEL PLATE CONNECTIONS.

TO DISTRIBUTE THE POINT LOAD ON THE LOAD BEARING WALL WE USE A STIFF STEEL MEMBER .A HEB STEEL BEAM 24X24 TO CONVERT THIS POINT LOAD TO VARIABLE DISTRIBUTED LOAD.

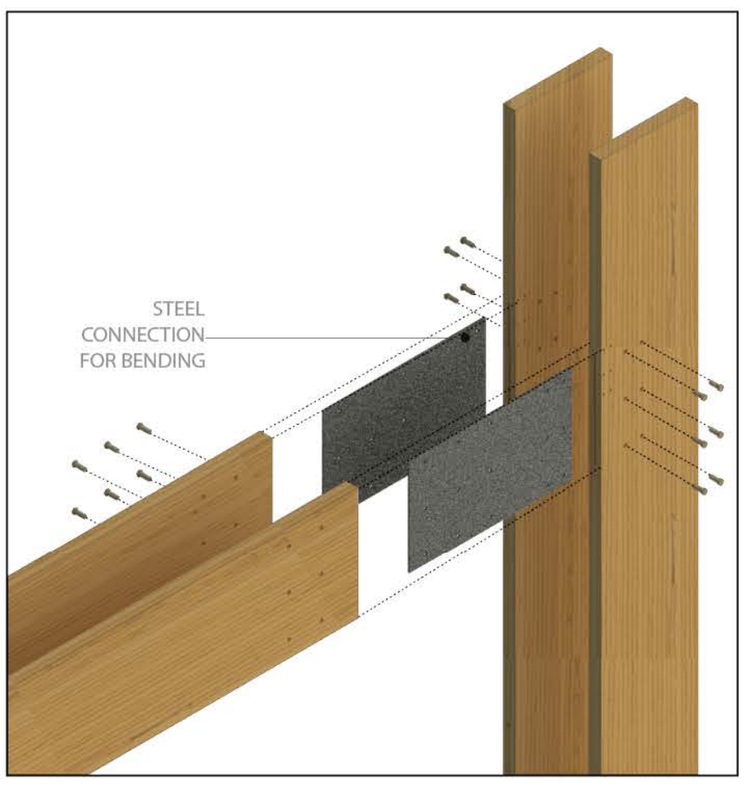
TO CONNECTIONS ARE ADEQUATE LONG STEEL PLATE TO COUNTER CONNECTION BENDING AND PROVIDE ADDITIONAL SUPPORT.

SINGLE STRUCTURAL MODULE

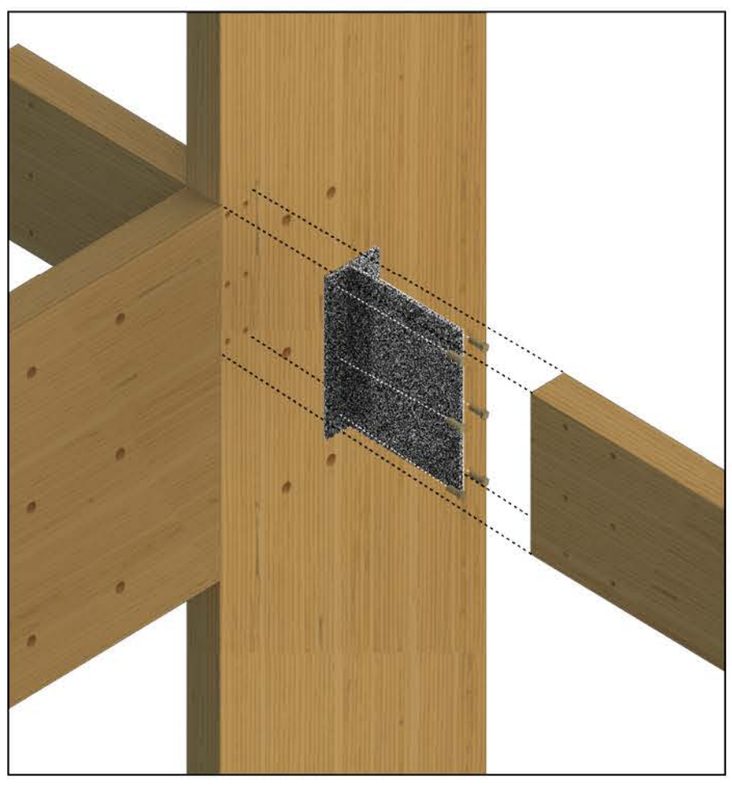




1.COLUMN AND DISTRIBUTION BEAM CONNECTION (M25 BOLTS)



2.MAIN BEAM CONNECTION (M25 BOLTS)



3.LATERAL BEAM CONNECTION

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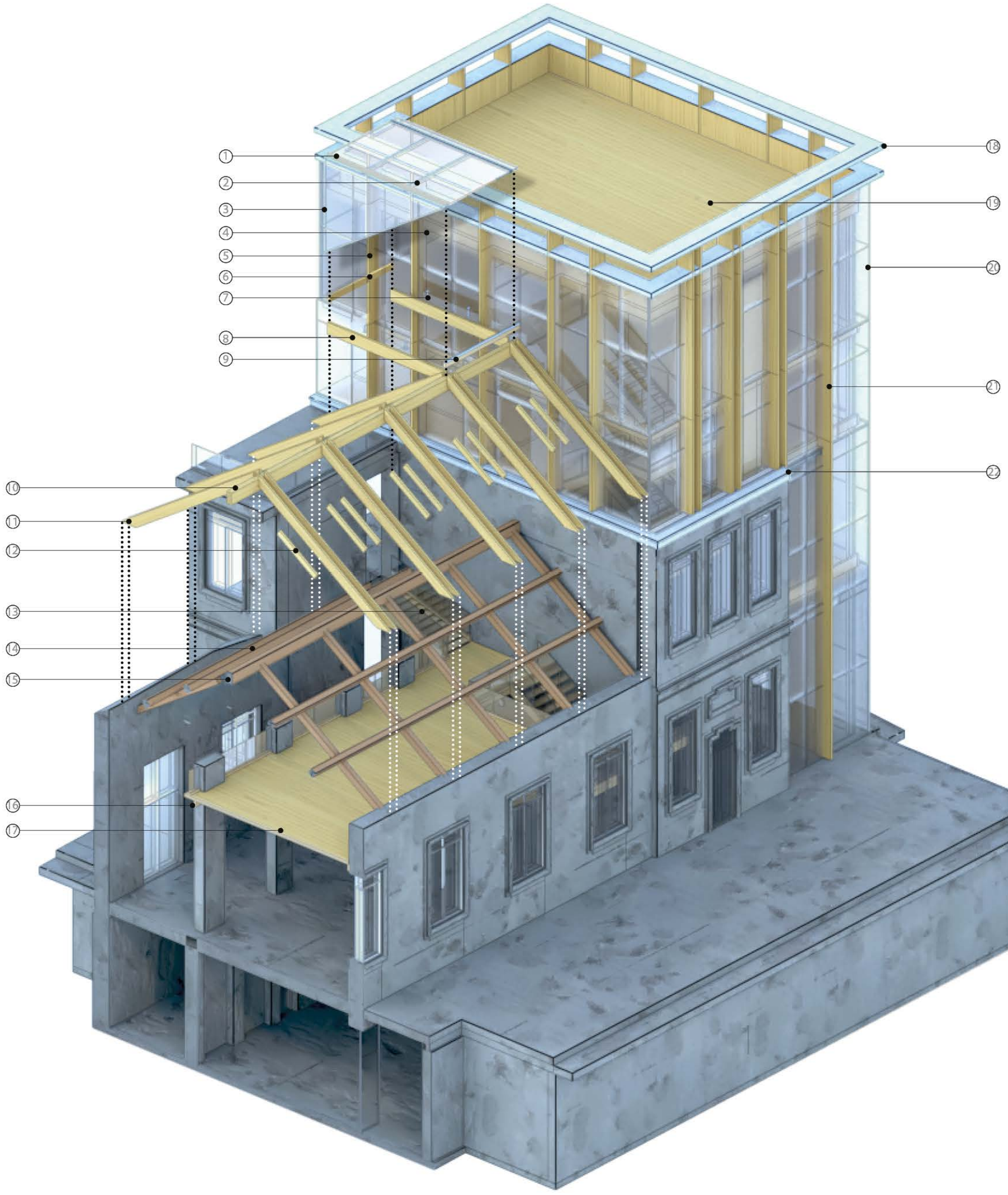
MEZZANINE TRANSFORMATION



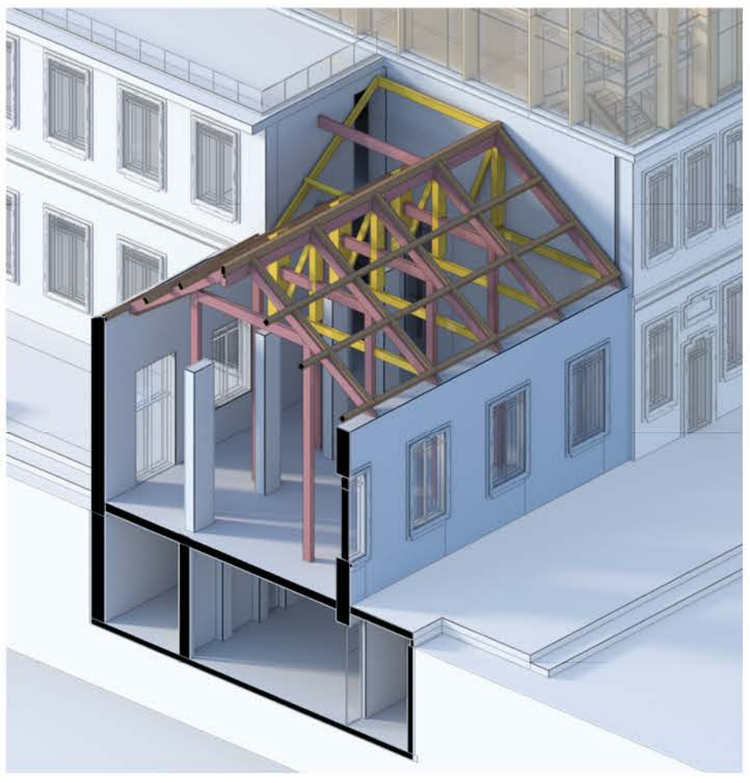
LEGEND

1. ALUMINIUM WINDOW FRAME
2. PRESSURE CUP
3. TEMPERED GLASS
4. FROSTED GLASS
5. LVL COLUMN (60 X 7.5 CM)
6. LVL BEAM (30 X 7.5)
7. PEDESTAL
8. LVL BEAM (60 X 7.5)
9. ALUMINIUM WINDOW FRAME
10. GLULAM BEAM (50 X 19 CM)
11. LVL BEAM (60 X 7.5)
12. LVL BEAM (20 X 7.5)
13. CLT STAIRS
14. EXISTING RAFTERS
15. EXISTING RIDGE BEAM
16. LVL BEAM (20 X 7.5 CM)
17. CLT SLAB (10 CM)
18. ALUMINIUM COPING
19. CLT SLAB (10 CM)
20. FROSTED GLASS
21. LVL COLUMN (60 X 7.5 CM)
22. ALUMINIUM COPING

STATE OF ART

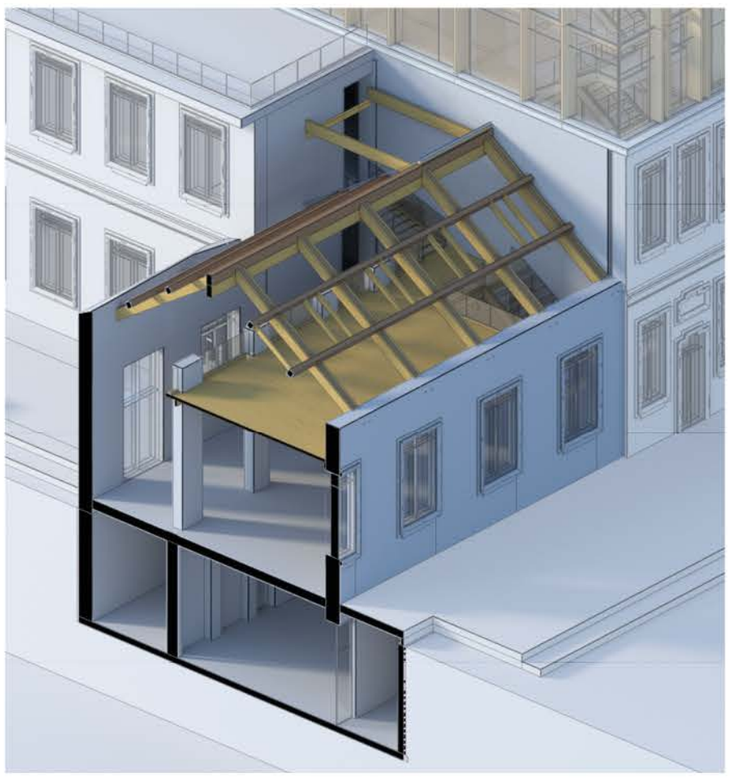
1.REMOVAL OF EXISTING SLAB

TRANSFORMATION PROCESS



2.SUPPORTING THE EXISITING RAFTERS WITH SCAFFOLDING
3.REMOVAL OF WEBS AND BOTTOM CHORD

INTERVENTION



4.INTEGRATION OF NEW RAFTERS ,ADJACENT TO THE OLD RAFTERS

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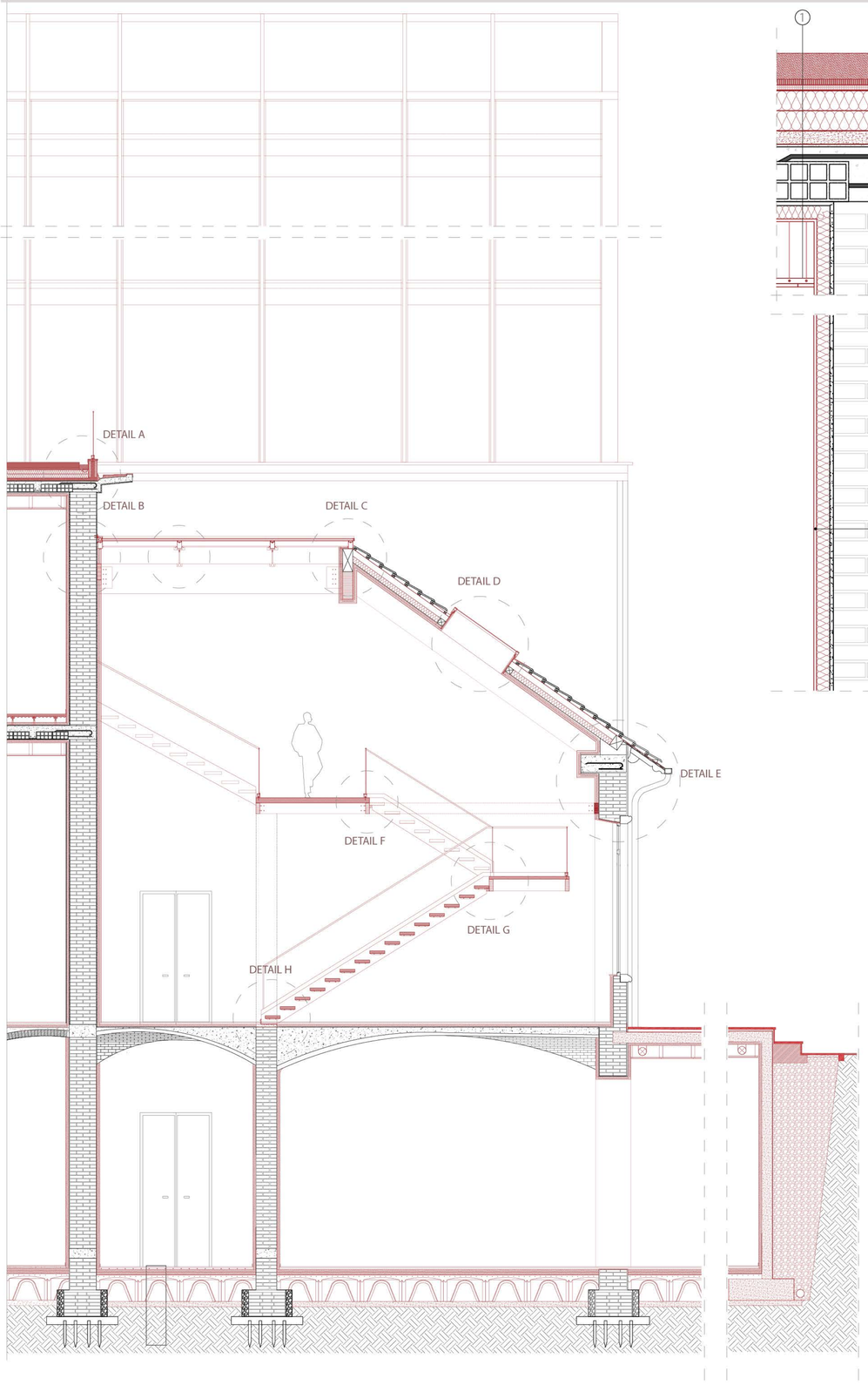
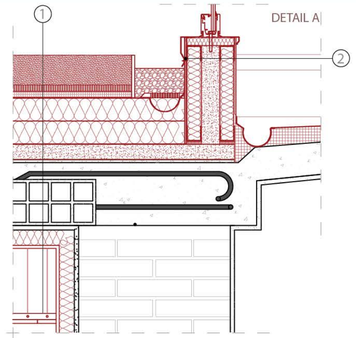
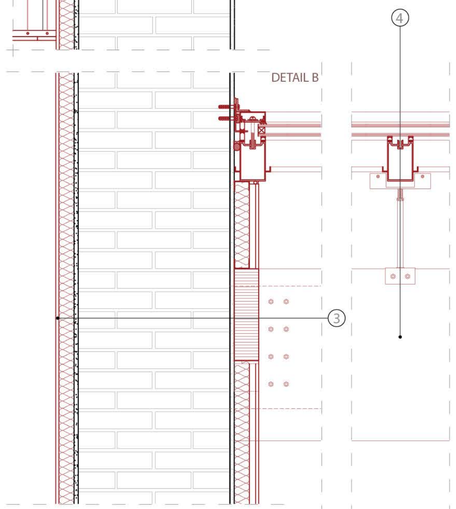
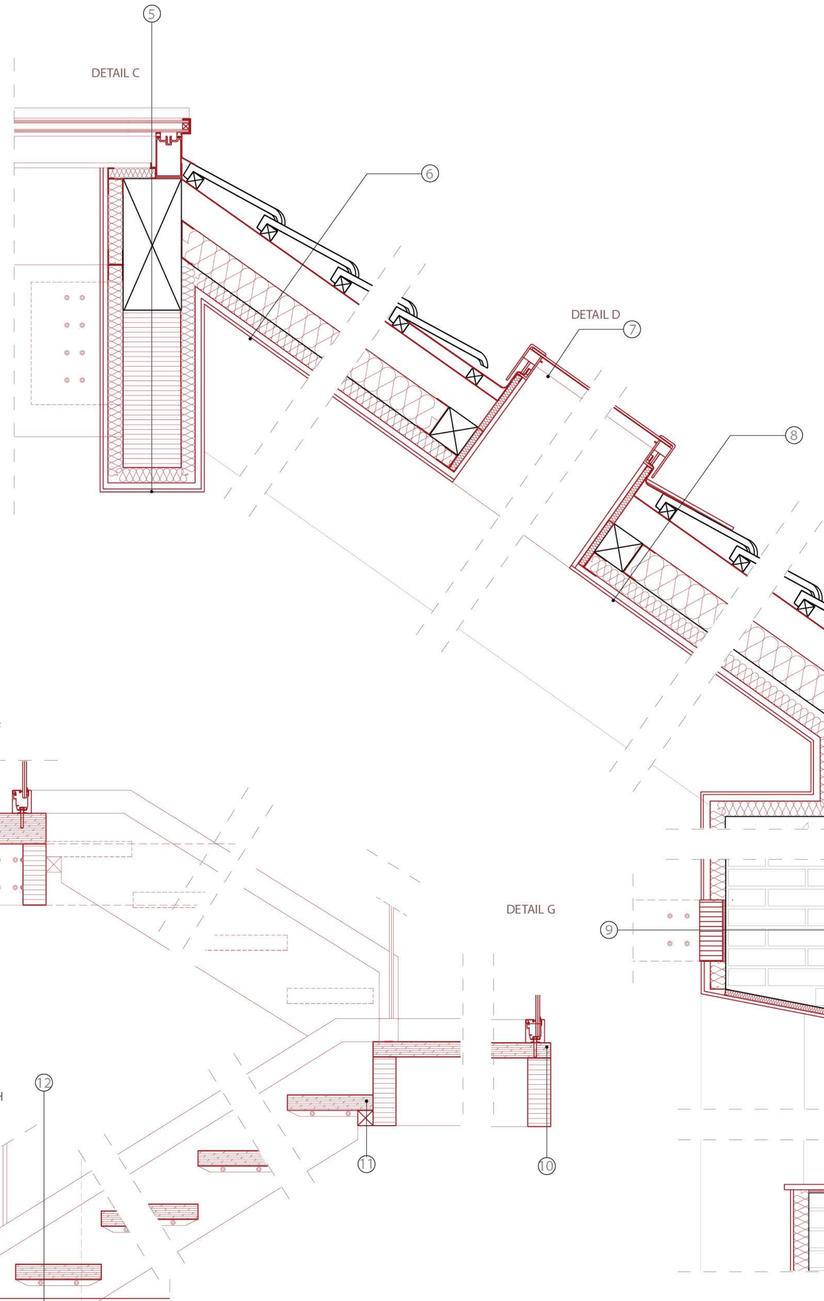
MEZZANINE DETAIL









KEY ELEVATION

1. SOIL SUBSTRATE (10 CM)
   FILTER (3 CM)
   DRANAIGE (2 CM)
   WATER PROOF LAYER
   INSULATION (15 CM)
   LIGHT CONCRETE (5CM)
   LATERO CEMENTO (20 CM)
   VAPOUR BARRIER
   GYPSIUM BOARD (2 CM)
   GYPSIUM BOARD CEILING(2 CM)

2. WATER PROOF LAYER
   GYPSIUM BOARD (1 CM)
   RIGID INSULATION (5 CM)
   REINFORCED CONCRETE (5CM)
   RIGID INSULATION (5 CM)
   WATER PROOF LAYER
   GYPSIUM BOARD (1 CM)

3. LVL BEAM (30 X 7.5 CM)
   VAPOUR BARRIER
   EXISTING WALL
   EXISTING PLASTER
   INSULATION (5 CM)
   GYPSIUM BOARD (2 CM)

4. PRESSURE CUP (3 CM)
   GLASS (2 CM)
   AL. WINDOW FRAME (5 CM)
   PEDESTAL HEAD
   PEDESTAL TUBE
   PEDESTAL BASE CLAMP

5. GLASS (2 CM)
   INSULATION (3 CM)
   EXISTING BEAM
   GLULAM BEAM (50 X 19 CM)
   INSULATION(5 CM)
   GYPSIUM BOARD (1 CM)

6. MARSELLE TILES
   WATER PROOF LAYER
   EXISTING BEAM
   INSULATION (10 CM)
   INSULATION (5 CM)
   GYPSIUM BOARD (1 CM)

7. GLASS(1 CM)
   ALUMINIUM FRAMING

8. ALUMINIUM SHEET
   WATER PROOF LAYER
   EXISTING BEAM
   INSULATION (5 CM)
   GYPSIUM BOARD (1 CM)

9. LVL BEAM (20 X 7.5 CM)
   RIGID INSULATION (1 CM)
   VAPOUR BARRIER
   EXISTING WALL

10. CLT PANEL (10 CM)
    LVL BEAM (20X 7.5 CM)

11. CLT THREAD (5 CM)
    LEDGER SUPPORTER (5X 5CM)

12. CLT THREAD (5 CM)
    BRACKET
    STONE TILES (2 CM)
    SCREED (3 CM)
    L PROFILE
    LIGHT CONCRETE (5 CM)
    EXISTING WALL

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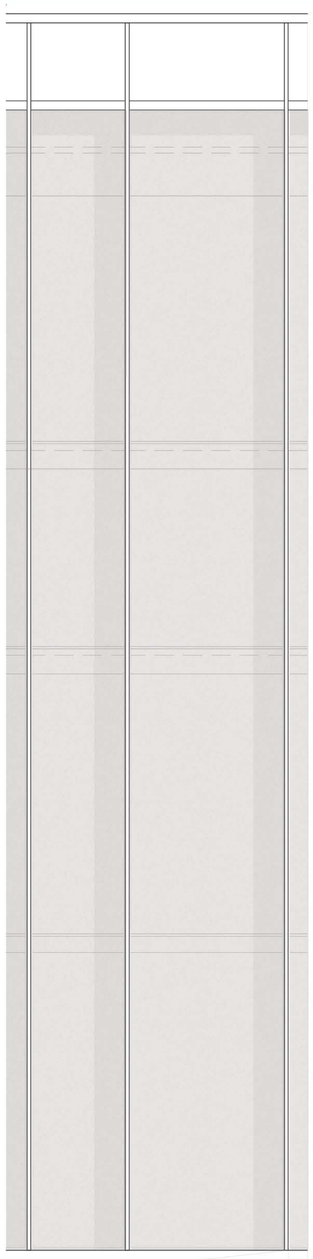
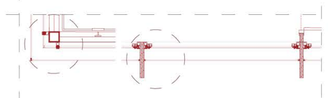
Sevde Yalcin (10764613)

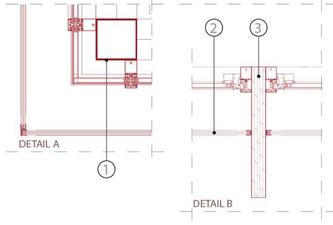
DETAIL 'A'



PART ELEVATION
SCALE- 1:50

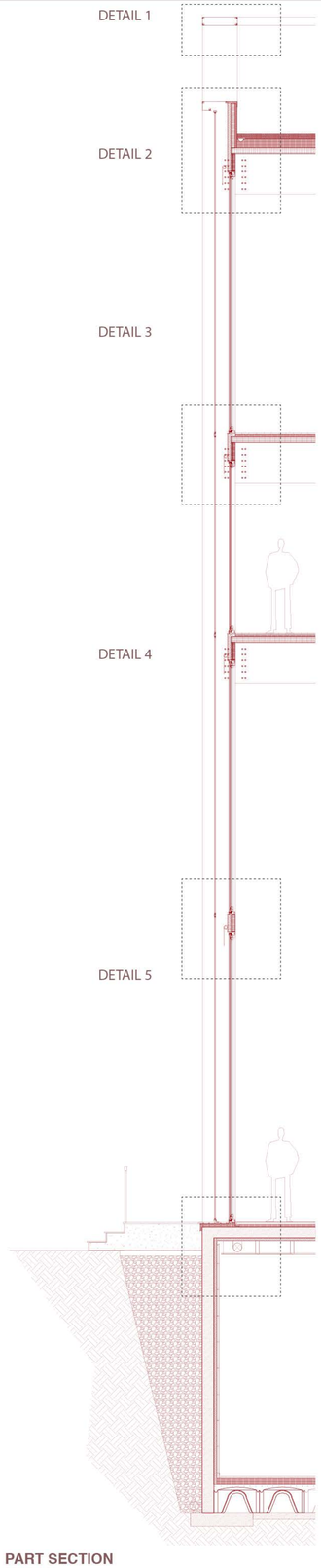


PART PLAN
SCALE- 1:50

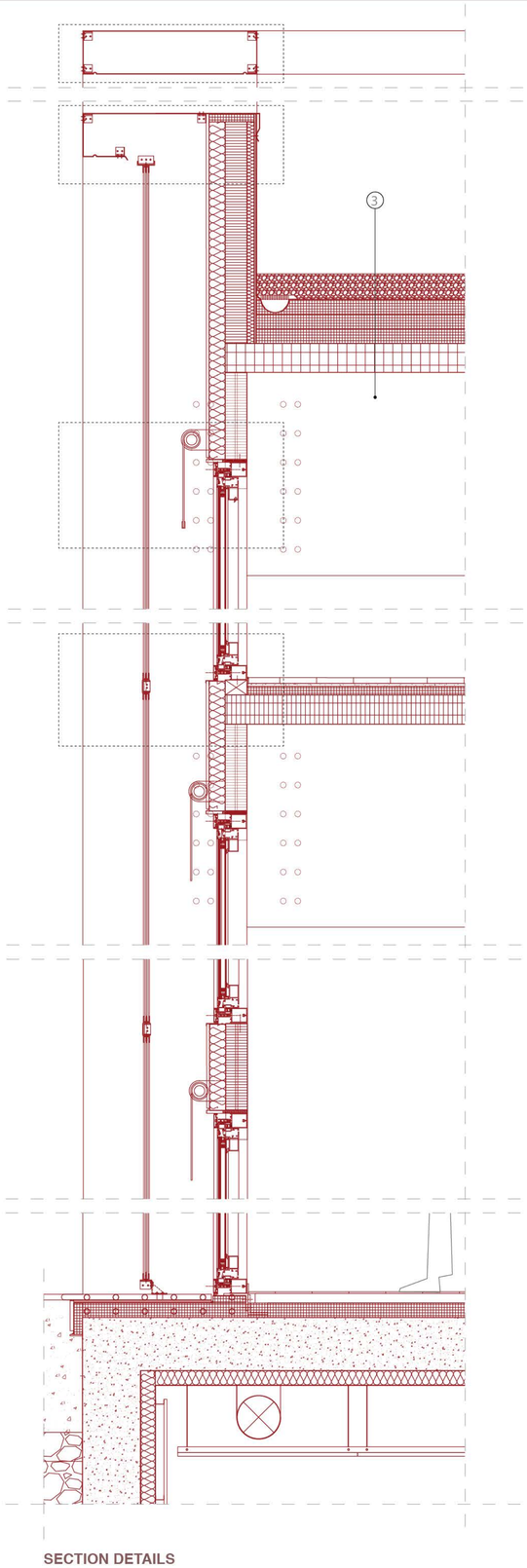


PLAN DETAILS
SCALE- 1:10

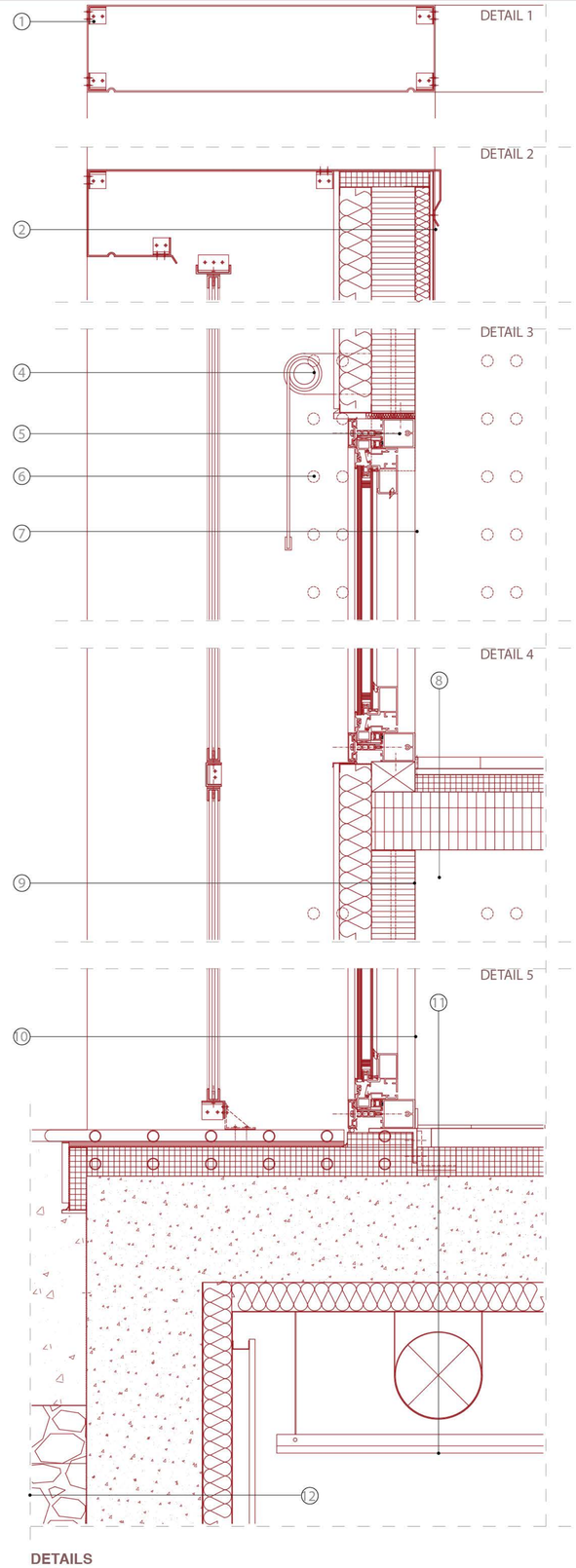
1. HEB 200
2. FROSTED GLASS (06 CM)
   AIR GAP (20 CM)
   TOUGHENED GLASS (1.2 CM)
3. LVL COLOUM (60 X 7.5)



PART SECTION
SCALE- 1:50



SECTION DETAILS
SCALE- 1:10



DETAILS
SCALE- 1:5

KEY ELEVATION

1. ALUMINIUM SHEET
   L PROFILE

2. ALUMINIUM SHEET
   L PROFILE
   GYPSIUM BOARD (1 CM)
   WATER PROOF LAYER
   INSULATION (5 CM)
   LVL PANEL (7.5 CM)
   INSULATION (3 CM)
   WATER PROOF LAYER
   GYPSIUM BOARD (1 CM)

3. GRAVEL (10 CM)
   WATER PROOF LAYER
   INSULATION (15 CM)
   VAPOUR BARRIER
   CLT PANEL (10 CM)
   LVL BEAM (70 X 7.5 CM)

4. ROLLING SHADING DEVICE

5. WINDOW FRAMING

6. BOLTS

7. FROSTED GLASS (06 CM)
   AIR GAP (20 CM)
   TOUGHENED GLASS (1.2 CM)

8. STONE TILES (2 CM)
   ADHESIVE SCREED
   AQUISTIC INSULATION (3 CM)
   CLT PANEL (10 CM)
   LVL BEAM (70 X 7.5 CM)

9. FROSTED GLASS (0.6 CM)
   AIR GAP (20 CM)
   GYPSIUM BOARD (1 CM)
   WATER PROOF LAYER
   INSULATION (5 CM)
   VAPOUR BARRIER
   LVL BEAM (30 X 7.5 CM)

10. FROSTED GLASS (06 CM)
    AIR GAP (20 CM)
    TOUGHENED GLASS (1.2 CM)

11. STONE TILES (2 CM)
    ADHESIVE SCREED
    INSULATION (5 CM)
    REINFORCED CONCRETE SLAB
    (15 CM)
    INSULATION (10 CM)
    AIR CONDITIONING DUCT
    (R : 7.5 CM)
    GYPSIUM BOARD CEILING (2 CM)

12. GRAVEL
    WATER PROOF LAYER
    REINFORCED CONCRETE WALL
    (30 CM)
    VAPOUR BARRIER
    INSULATION (5 CM)
    U PROFILE
    CONCRETE PANEL (2 CM)

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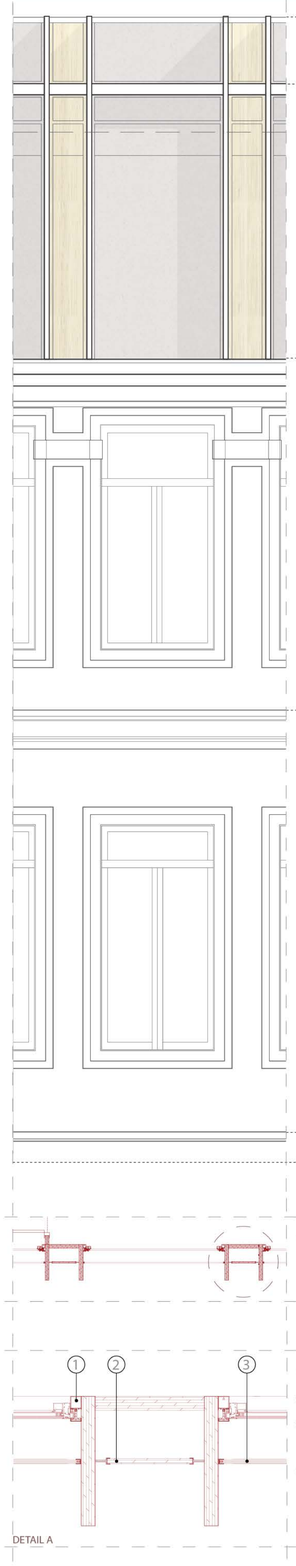
DETAIL ‘B’



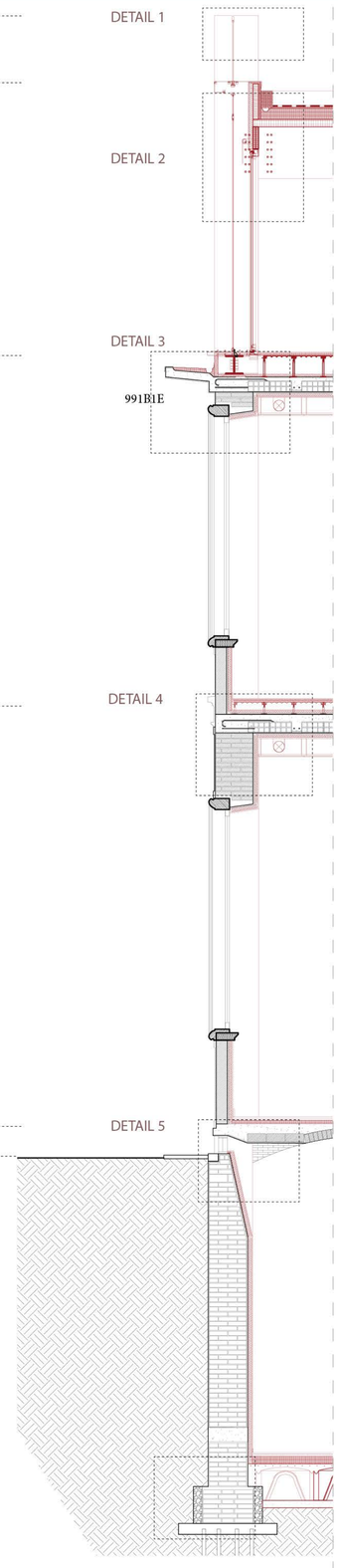
PART ELEVATION
SCALE- 1:50

PART PLAN
SCALE- 1:50

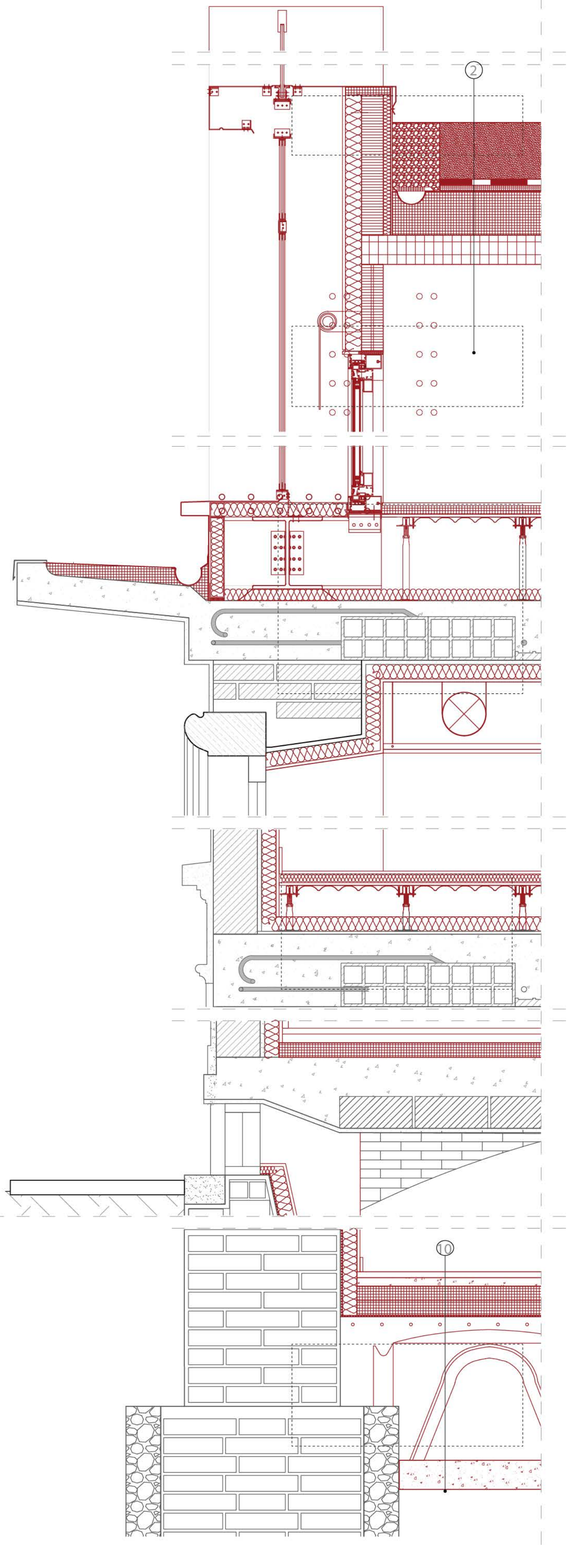
DETAIL A

PLAN DETAILS
SCALE- 1:10

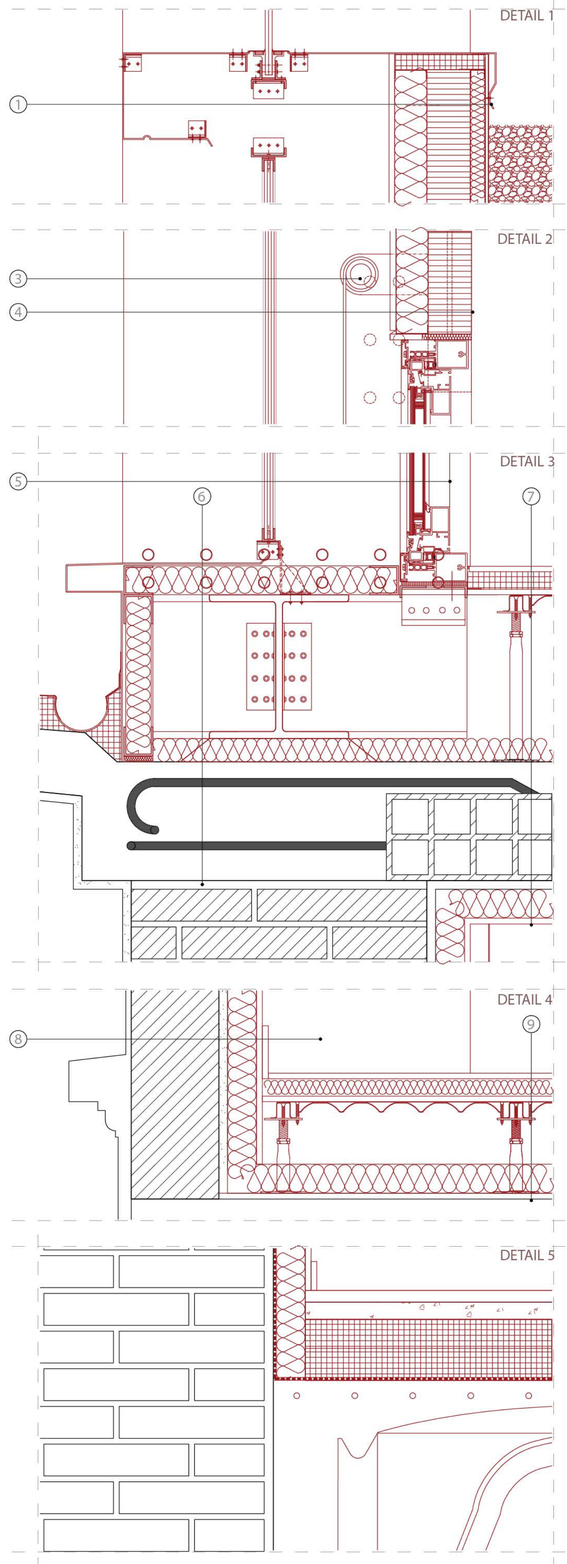
1. WINDOW FRAMING
2. CLT PANEL (5 CM)
   CLT PANEL (10 CM)
3. FROSTED GLASS (0.6 CM)
   AIR GAP (20 CM)
   TOUGHENED GLASS (1.2 CM)



PART SECTION
SCALE- 1:50



SECTION DETAILS
SCALE- 1:10



DETAILS
SCALE- 1:5

KEY ELEVATION

1. ALUMINIUM SHEET
   GYPSIUM BOARD (1 CM)
   WATER PROOF LAYER
   INSULATION (5 CM)
   LVL PANEL (7.5 CM)
   INSULATION (3 CM)
   WATER PROOF LAYER
   GYPSIUM BOARD (1 CM)

2. SOIL SUBSTRATE (20 CM)
   FILTER (2 CM)
   DRANAIGE (2 CM)
   WATER PROOF LAYER
   INSULATION (15 CM)
   VAPOUR BARRIER
   CLT PANEL (10 CM)
   LVL BEAM (70 X 7.5 CM)

3. ROLLING SHADING DEVICE

4. FROSTED GLASS (0.2 CM)
   AIR GAP (20 CM)
   GYPSIUM BOARD (1 CM)
   WATER PROOF LAYER
   INSULATION (5 CM)
   VAPOUR BARRIER
   LVL BEAM (30 X 7.5 CM)

5. FROSTED GLASS (06 CM)
   AIR GAP (20 CM)
   TOUGHENED GLASS (1.2 CM)

6. METAL SHEET
   WATER PROOF LAYER
   INSULATION (3 CM)
   U PROFILE
   HEA 240 BEAM
   CONCRETE FILL (3 CM)
   LATERO CEMENTO (20 CM)

7. STONE TILES (2 CM)
   AQUISTIC INSULATION (3 CM)
   RAISED FLOOR SYSTEM (28 CM)
   INSULATION (3 CM)
   LATERO CEMENTO (20 CM)
   INSULATION (5 CM)
   AIR CONDITIONING D. (R : 7.5 CM)
   GYPSIUM BOARD CEILING (2 CM)

8. EXISTING WALL
   VAPOUR BARRIER
   INSULATION (5 CM)
   GYPSIUM BOARD (2 CM)
   FINISHING TILE (2 CM)

9. STONE TILES (2 CM)
   AQUISTIC INSULATION (3 CM)
   RAISED FLOOR SYSTEM (15CM)
   INSULATION (5 CM)
   LATERO CEMENTO (20 CM)

10. STONE TILE (2 CM)
    ADHESIVE SCREED (3 CM)
    INSULATION (10 CM)
    WATER PROOF LAYER
    VENTILATION CRAWL
    REINFORCED CONCR. SLAB (10CM)

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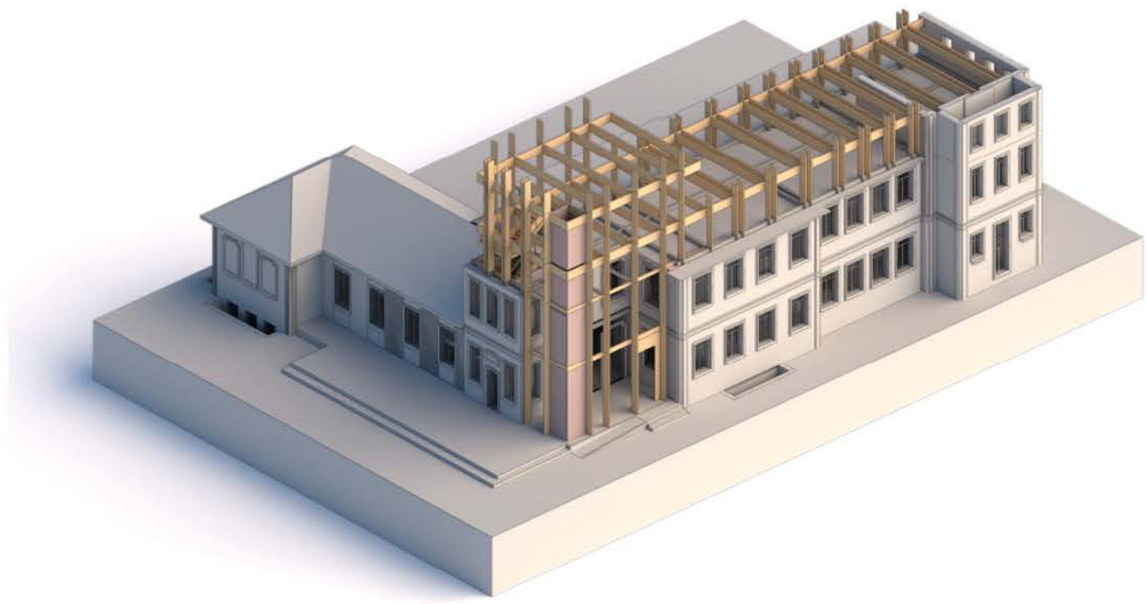
SUSTAINABILITY CONCEPTS

THE SUSTAINABLE CONCEPTS ARE USED IN ORDER TO MAKE A LESS IMPACT ON THE NATURAL WORLD AS MUCH AS POSSIBLE. IT IS CRUCIAL NOT JUST PROMOTING THE HEALTH OF THE BUILDING OCCUPANT'S,IMPROVING PRODUCTIVITY BUT ALSO REDUCING THE NEGATIVE EFFECTS OF THE CONSTRUCTION PROCESS ON THE ENVIROMENT.USING PLANET- FRIENDLY APPROACH CONCEIVE THE PROJECT TO BRING IT TOWARDS A MORE ENERGY EFFICIENT WAY SUCH AS RECUDING THE ENERGY REQUIREMENT FOR COOLING AND HEATING, RECUCING CARBON FOOT PRINT OF THE BUILDING, REUSING WATER , INCREASING THERMAL MASS .



WOODEN ADDITION STRUCTURE AXO

WOODEN STRUCTURE

INDUSTRIAL APPLICATION HAS LOW CARBON PRINT AND RENEWEBLE AND BIODEGRABLE RESOURCE

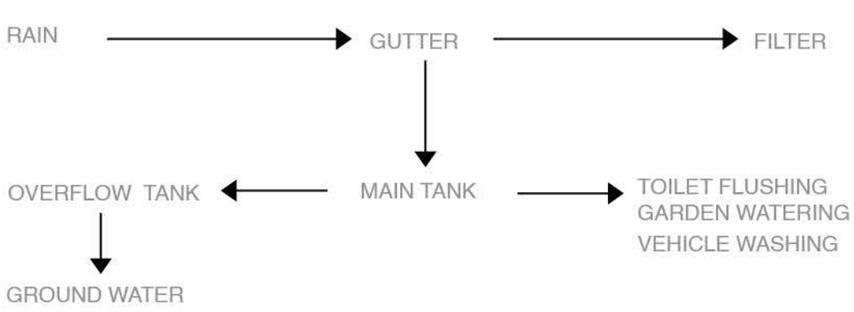
LESS DEMANDING IN TERMS OF AIR, ENERGY AND WATER POLLUTION

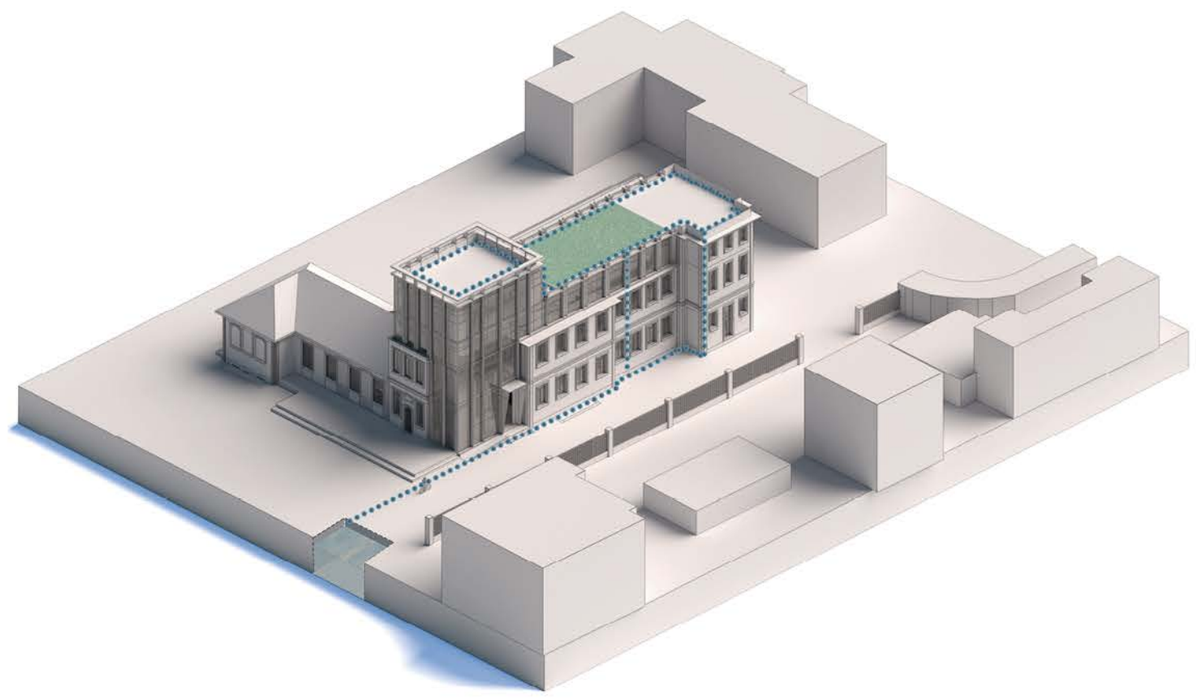
LVL , CLT AND GLULAM HAVE USED IN DIFFIRENT COMBINATIONS

RAIN HARVESTING SYSTEM

COLLECTED WATER FOR VARIES OF NEEDS SUCH AS WC FLUSHING, GARDEN AND GREEN ROOF IRRIGATION VEHICLE WASHING

GUTTERS AND PIPES HAS REPLACED WITH THE NEW ONES IN THE SAME LOCATION EXCEPT FOR ADDITIONAL NEEDS FOR THIR FLOOR AND ROOF





RAIN HARVESTING SYSTEM

VENTILATED FACADE

USED WHERE ADIITIONAL TOWER ON THE NORTH-WEST AND FLOOR ADDITION ON THE SECOND FLOOR

INTEGRATION OF CLEAR AND FROSTED GLASS INTO STRUCTURE

CREATING THERMAL INSULATION AND LIGHT WEIGHT STRUCTURE

MAXIMIZING ENERGY EFFICIENCY AND MINIMAZING THE THICKNESS OF FACADE

GREEN ROOF

LOCATED IN THE SECOND AND THIRD FLOOR

TO REDUCE ENERGY COST BY ABSORBING HEAT

NATURAL INSULATION

TO DECREASE GREENHOUSE GAS EMISSION

TO PREVENT URBAN HEAT ISLAND EFFECT AND AIR POLLUITION

SHADING DEVICES

HENCE THE ALMOST ALL FACADE DESIGNED AS A FROSTED GLASS , ROLLING SHADING SHUTTERS USED IN VENTILATED FACADE

TO REDUCE THE THERMAL GAINS

TO PREVENT THE PENETRATION OF SOLAR RADIATION

TO HAVE BETTER THERMAL COMFORT

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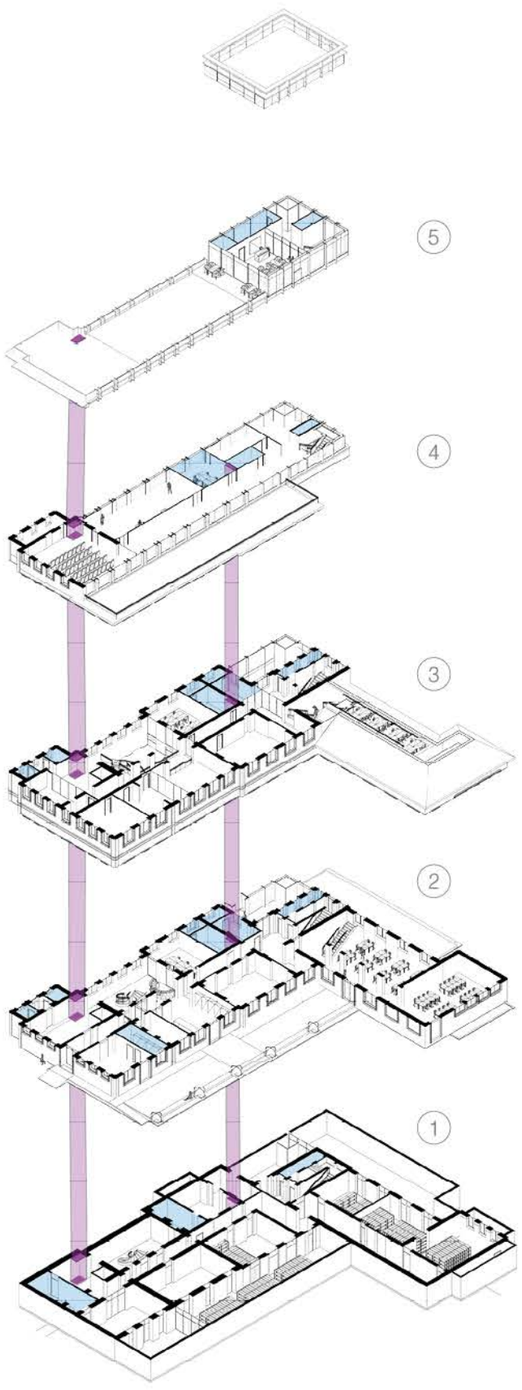
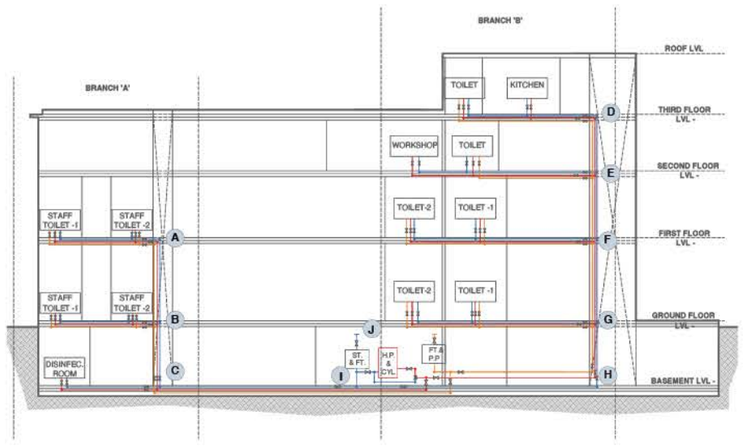
SERVICES

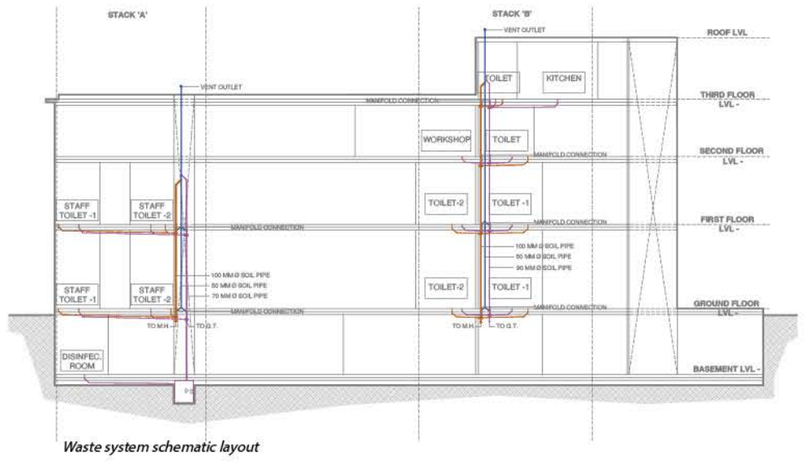


EXPLODED AXONOMETRIC VIEW WITH TOILET AND SINKS LOCATION.
SCALE - 1:1000

WATER SUPPLY SYSTEM

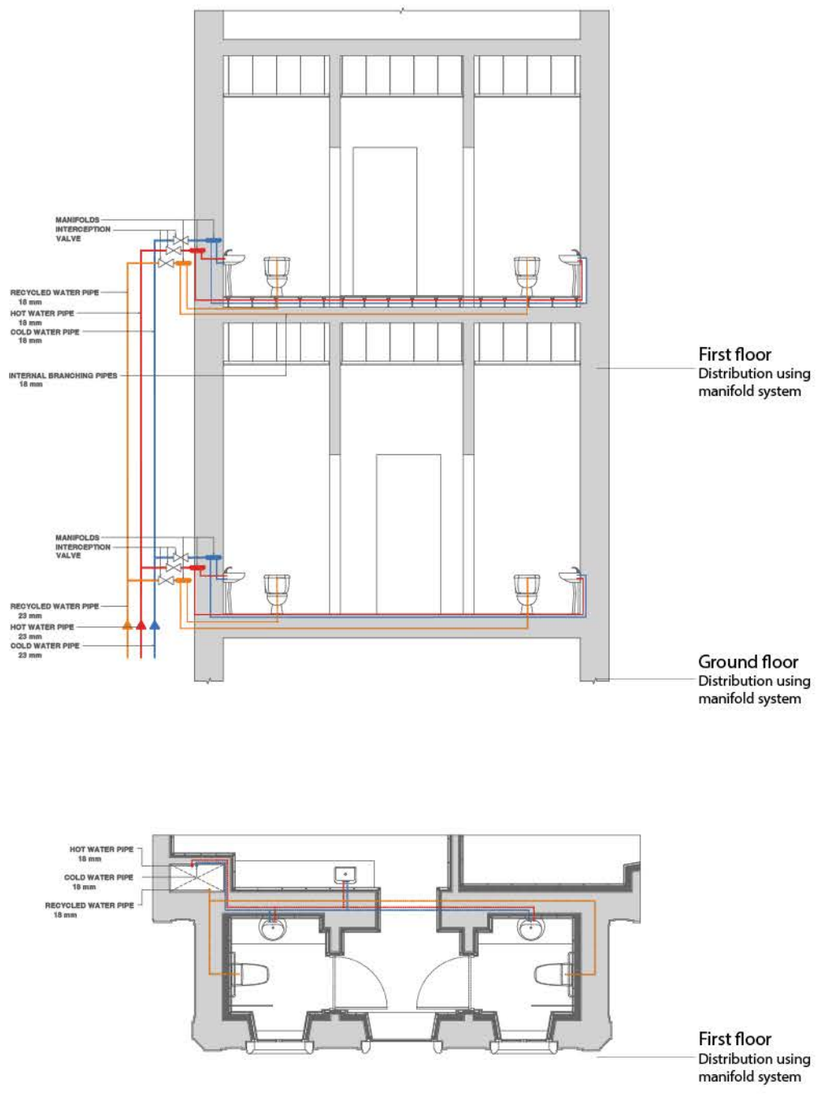


WASTE SYSTEM

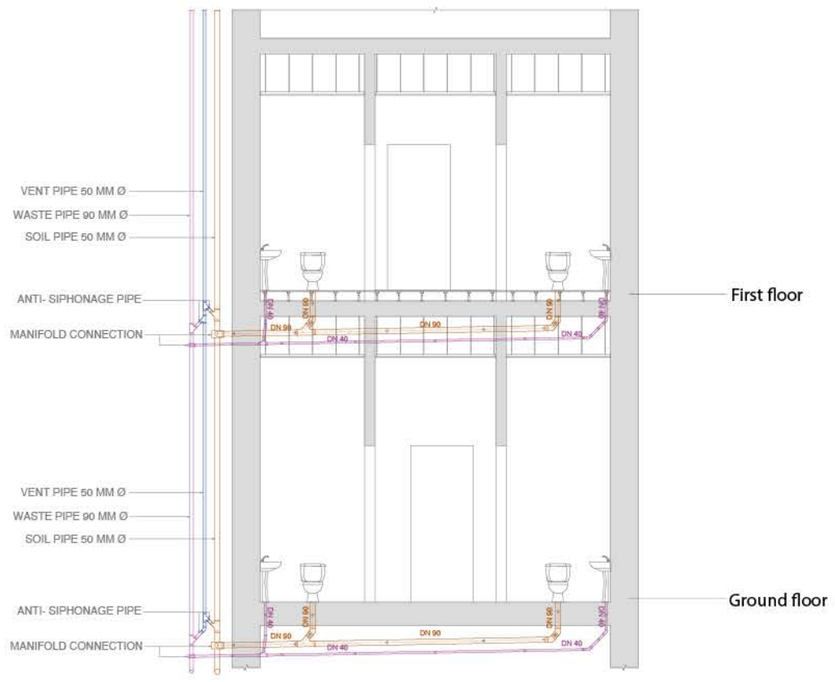


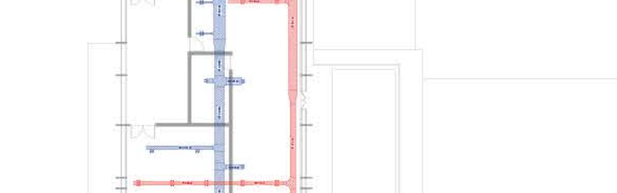
Waste system schematic layout

BRANCH 'A':

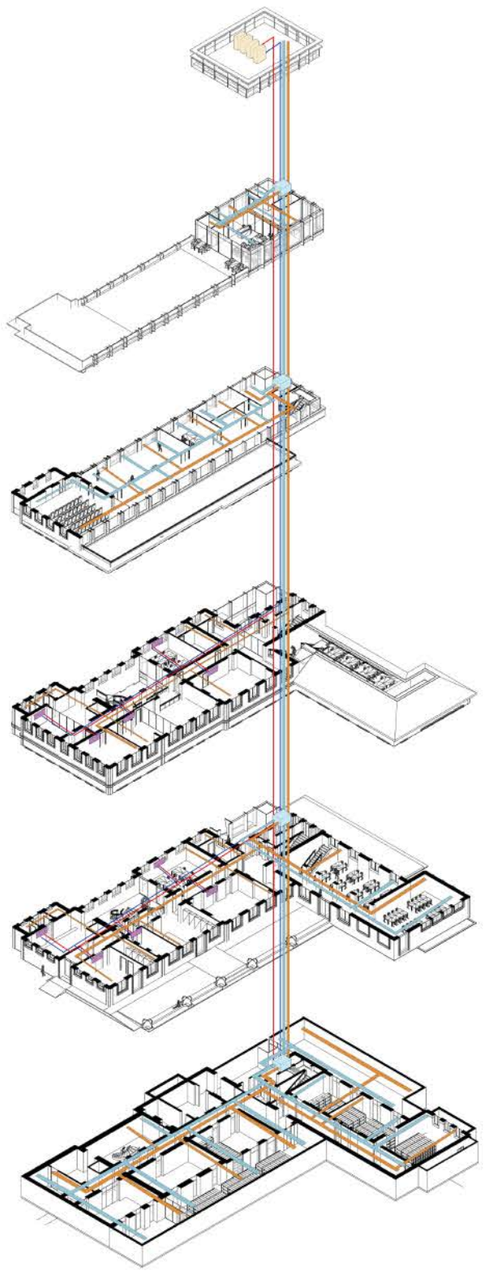


STACK 'A':

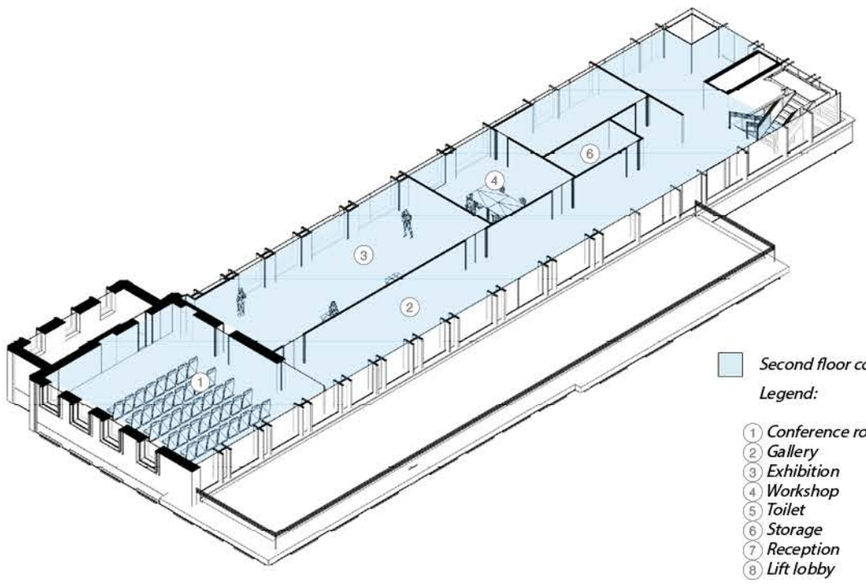




VENTILATION SYSTEM



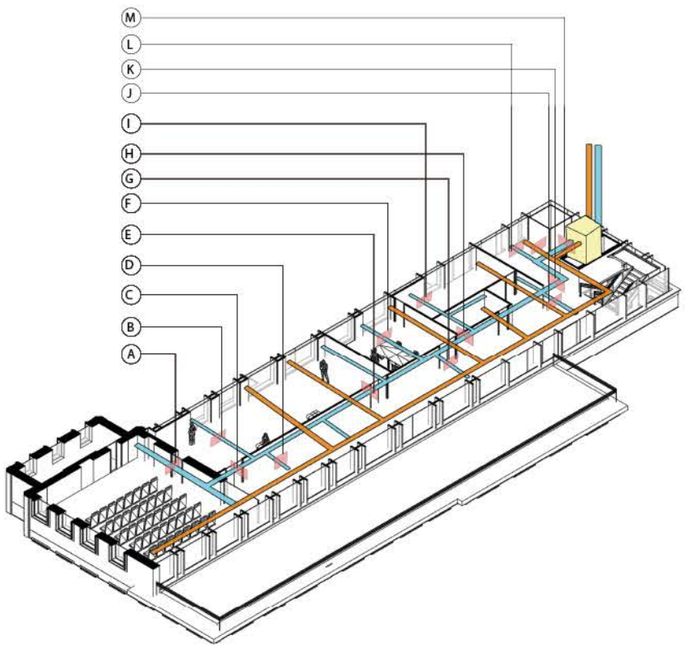
EXPLODED AXONOMETRIC VIEW WITH VENTILATION SYSTEMS PER FLOOR



Second floor conditioned spaces

Legend:

1. *Conference room*
2. *Gallery*
3. *Exhibition*
4. *Workshop*
5. *Toilet*
6. *Storage*
7. *Reception*
8. *Lift lobby*



Second floor duct layout

SECTION	DIAMETER
A	31.5 cm
B	31.5 cm
C	31.5 cm
D	25.0 cm
E	40.0 cm
F	12.5 cm
G	25.0 cm
H	40.0 cm
I	10.0 cm
J	31.5 cm
K	40.0 cm
L	31.5 cm
M	50.0 cm

Second floor duct layout
Return ducts
Supply ducts
Scale - 1:200

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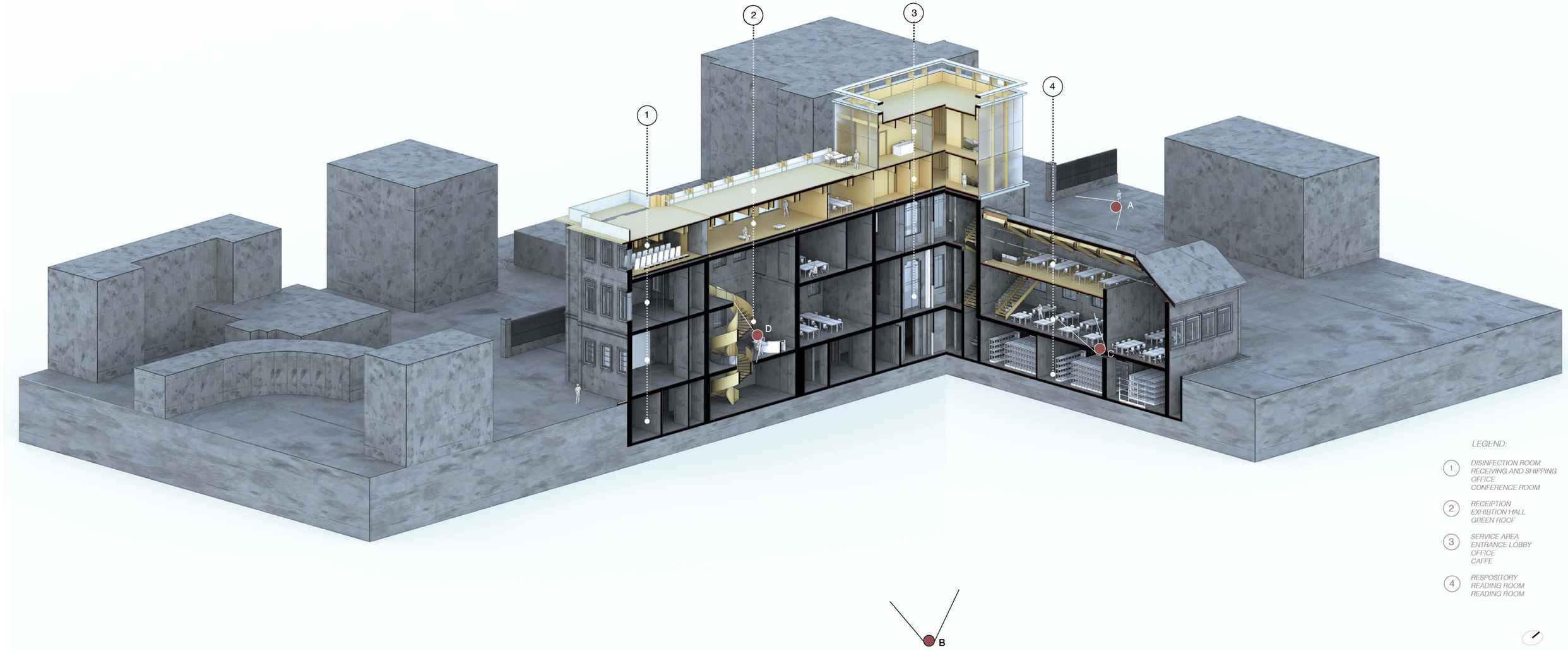


LEGEND:

1 *DISINFECTION ROOM*
RECEIVING AND SHIPPING
OFFICE
CONFERENCE ROOM

2 *RECEIPTION*
EXHIBTION HALL
GREEN ROOF

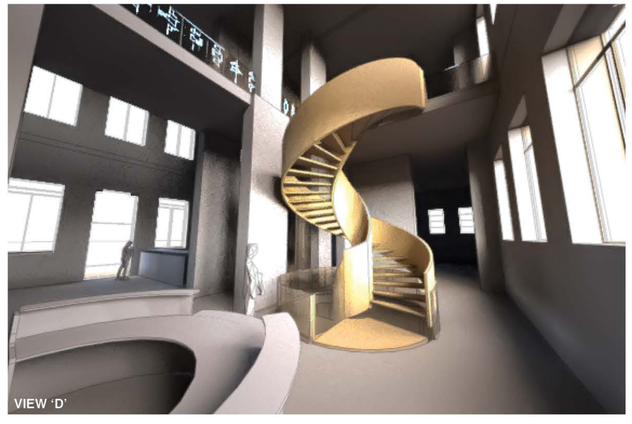
3 *SERVICE AREA*
ENTRANCE LOBBY
OFFICE
CAFFE

4 *RESPOSITORY*
READING ROOM
READING ROOM


VIEW 'A'


VIEW 'B'


VIEW 'C'


VIEW 'D'