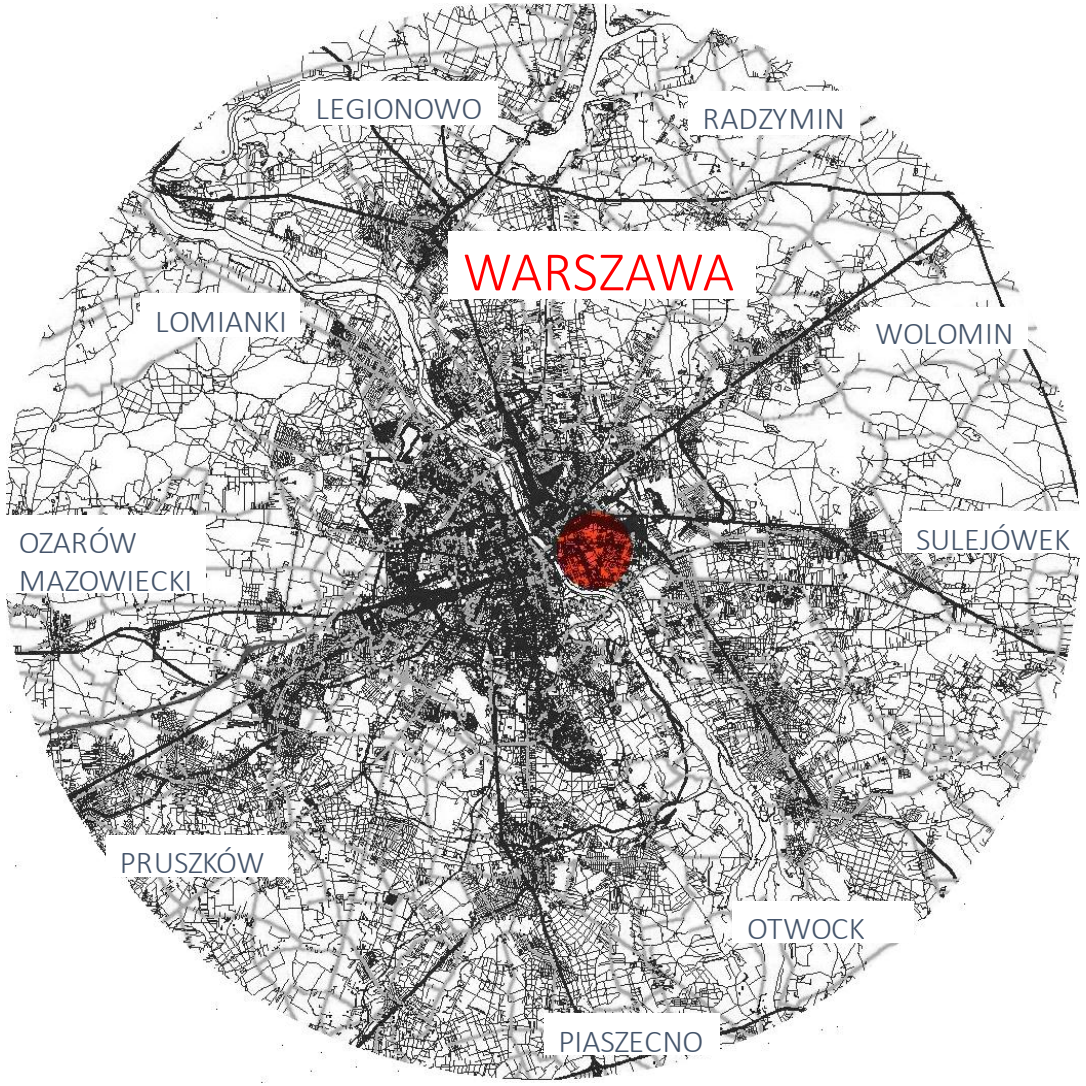
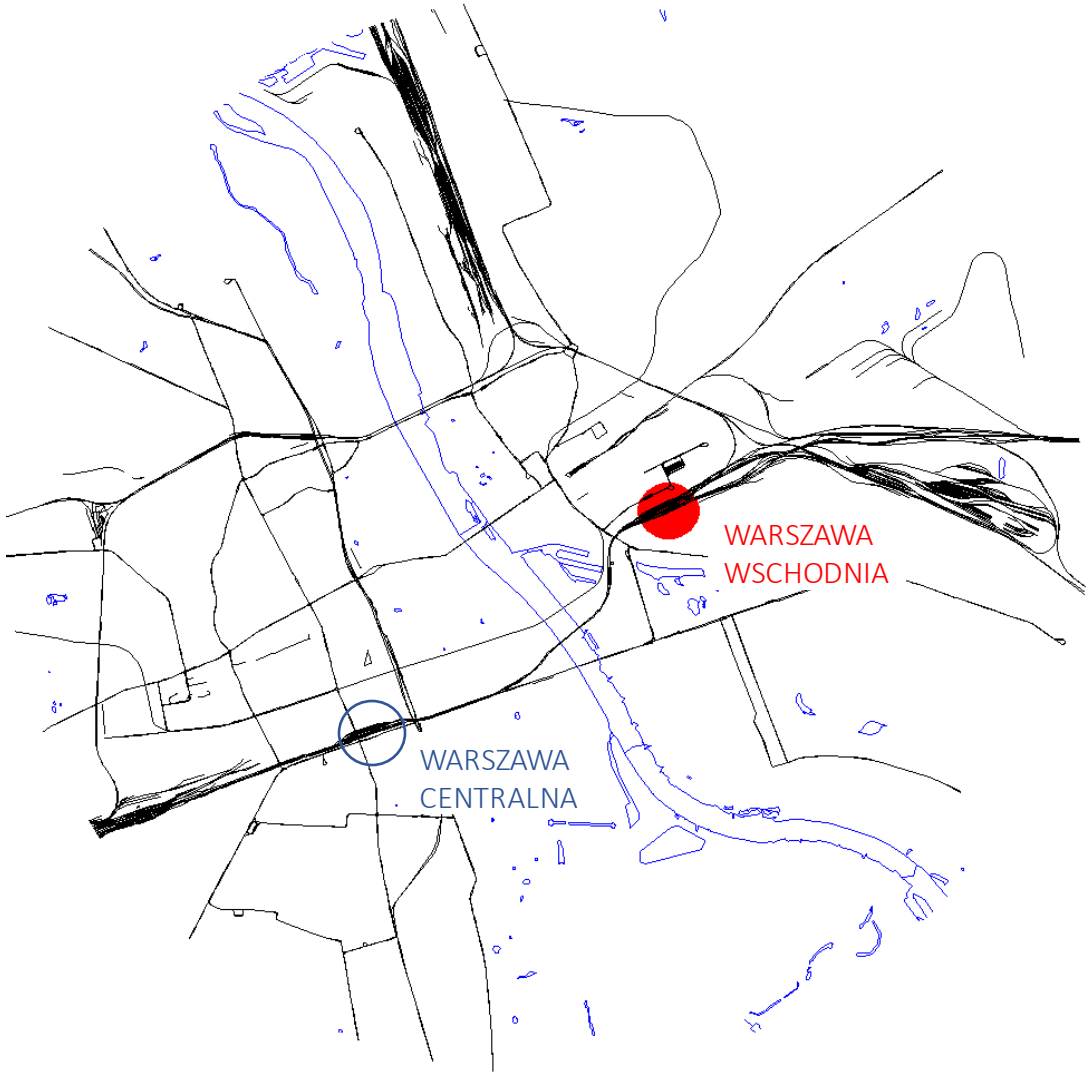
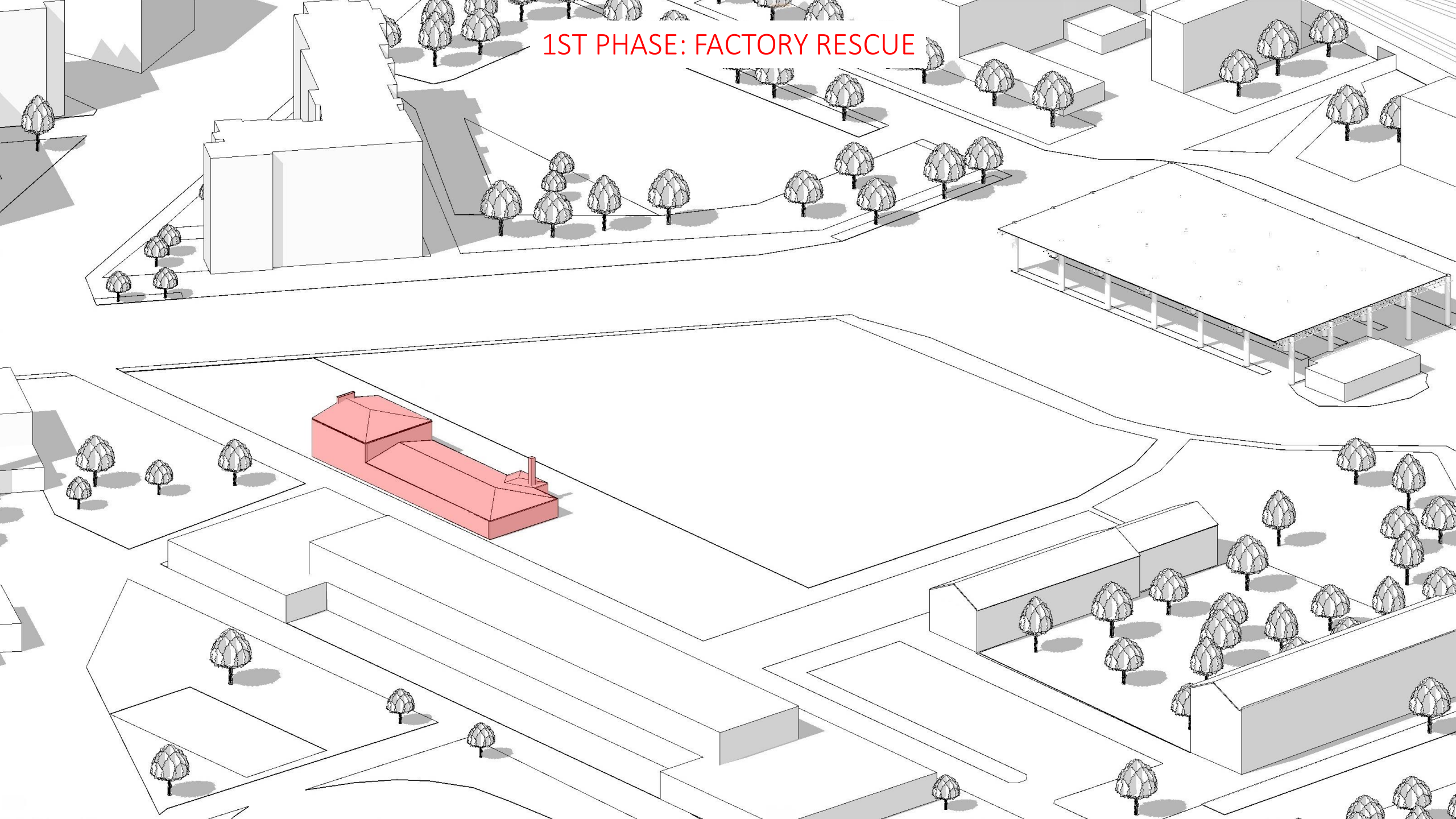
# STUDENT HOUSE

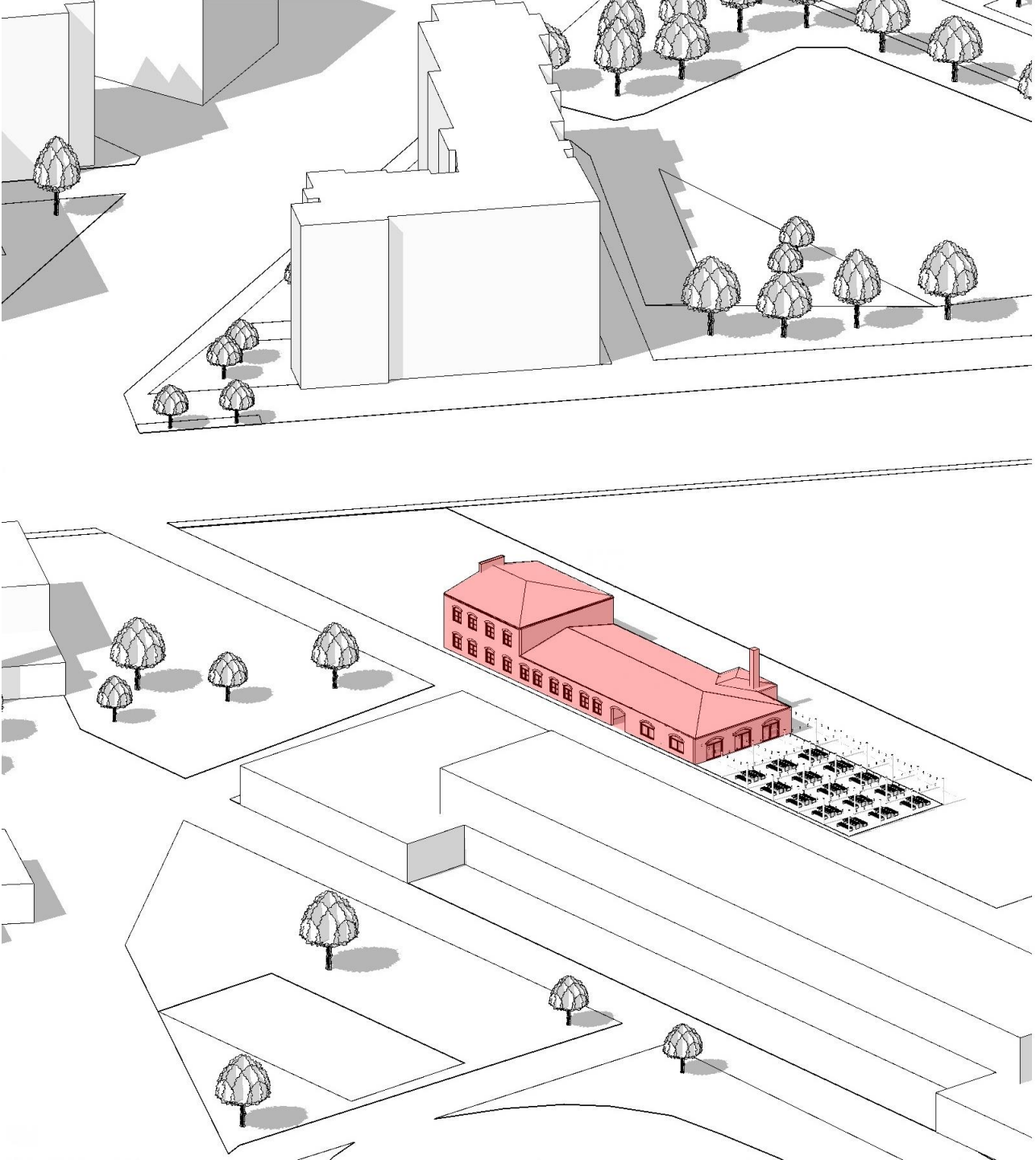
Vladimír Vacík, FUA TUL


LEGIONOWO
RADZYMIN
WARSZAWA
LOMIANKI
WOLOMIN
OZARÓW
MAZOWIECKI
SULEJÓWEK
PRUSZKÓW
OTWOCK
PIASZECNO

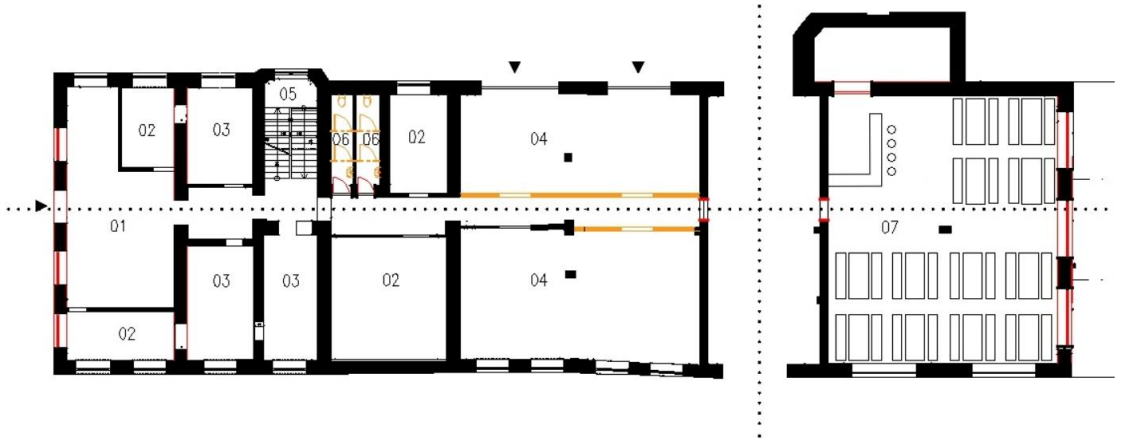

WARSZAWA
WSCHODNIA
WARSZAWA
CENTRALNA

# 1ST PHASE: FACTORY RESCUE

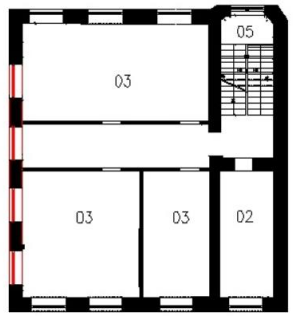




## 1ST FLOOR




## 2ND FLOOR

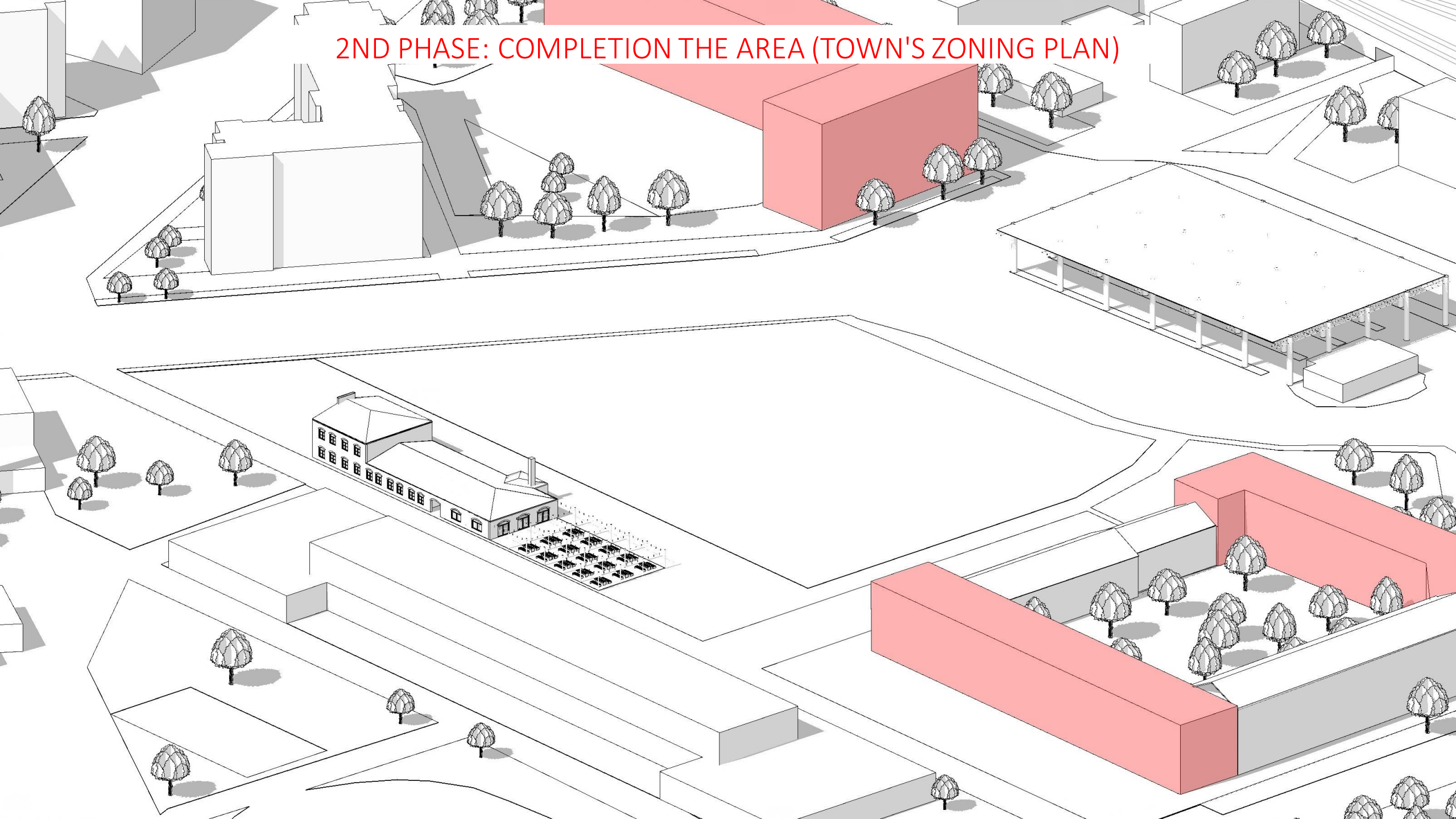



| | |
|---|---|
| 01 | ENTRANCE SPACE |
| 02 | STORAGE |
| 03 | ATELIER |
| 04 | WORKSHOPS |
| 05 | STAIRS |
| 06 | TOILETS |
| 07 | PUB |

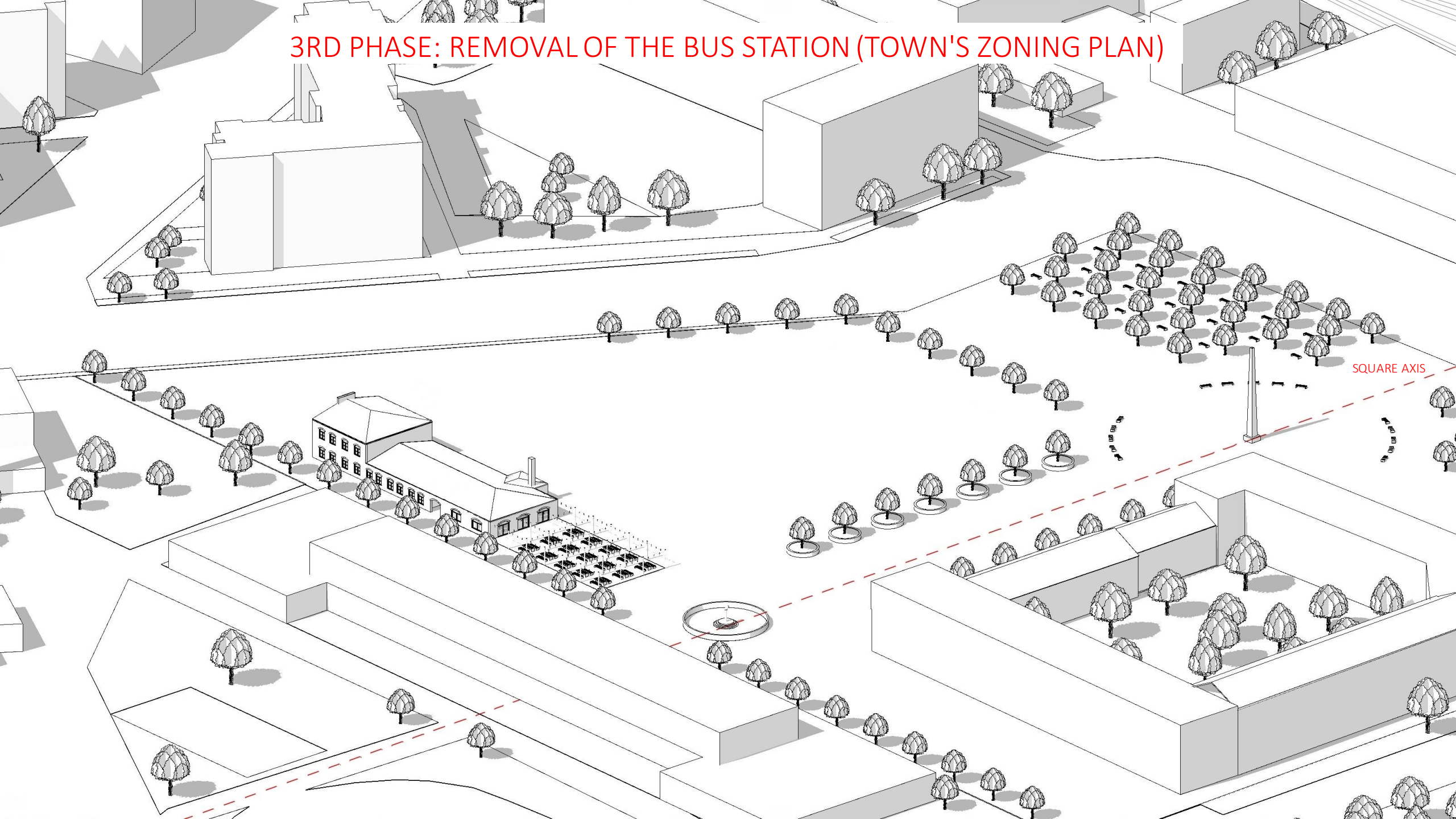
DEMOLISHED WALL AREAS
NEW CONSTRUCTIONS

0 2 10

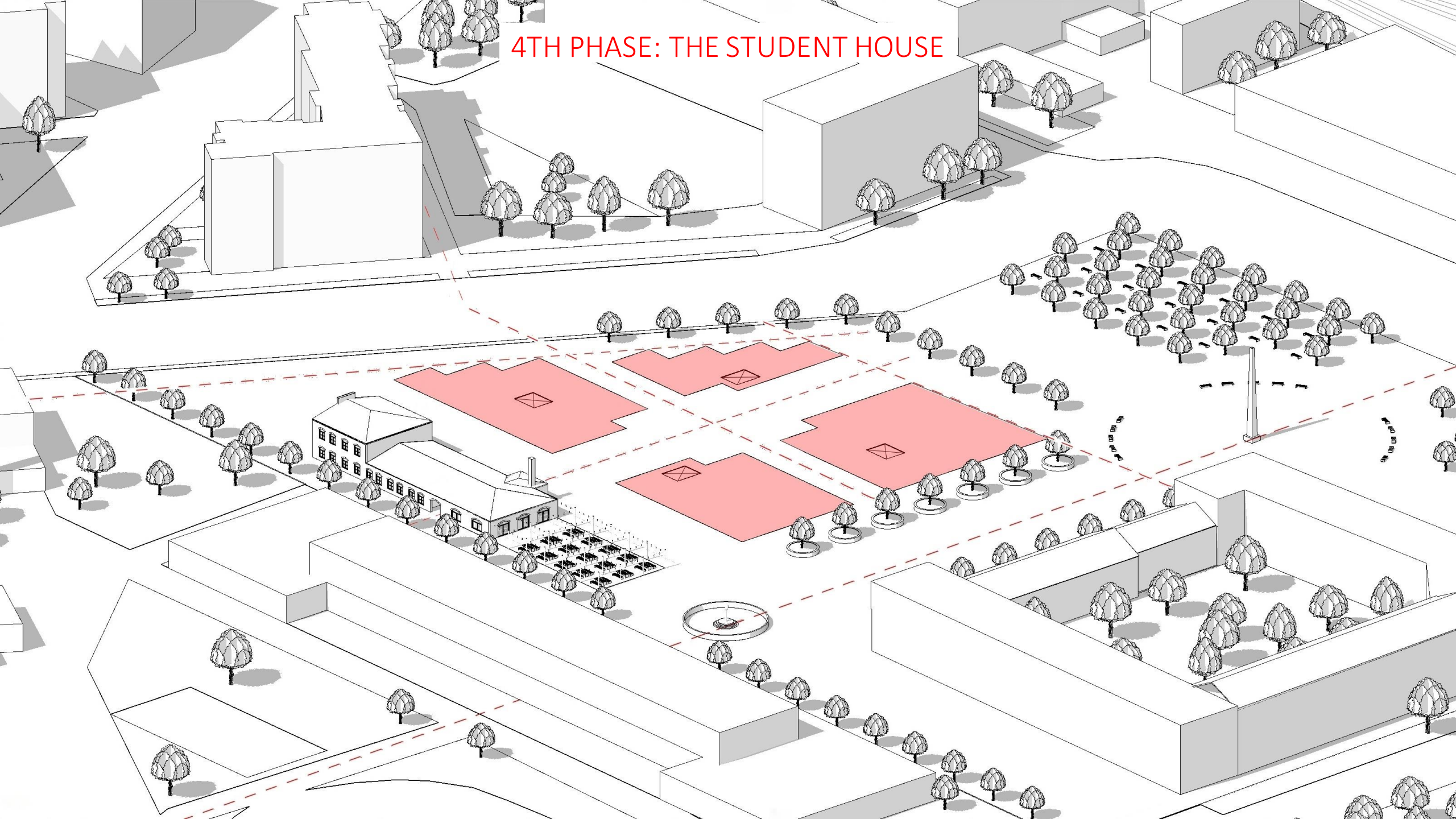
# 2ND PHASE: COMPLETION THE AREA (TOWN'S ZONING PLAN)

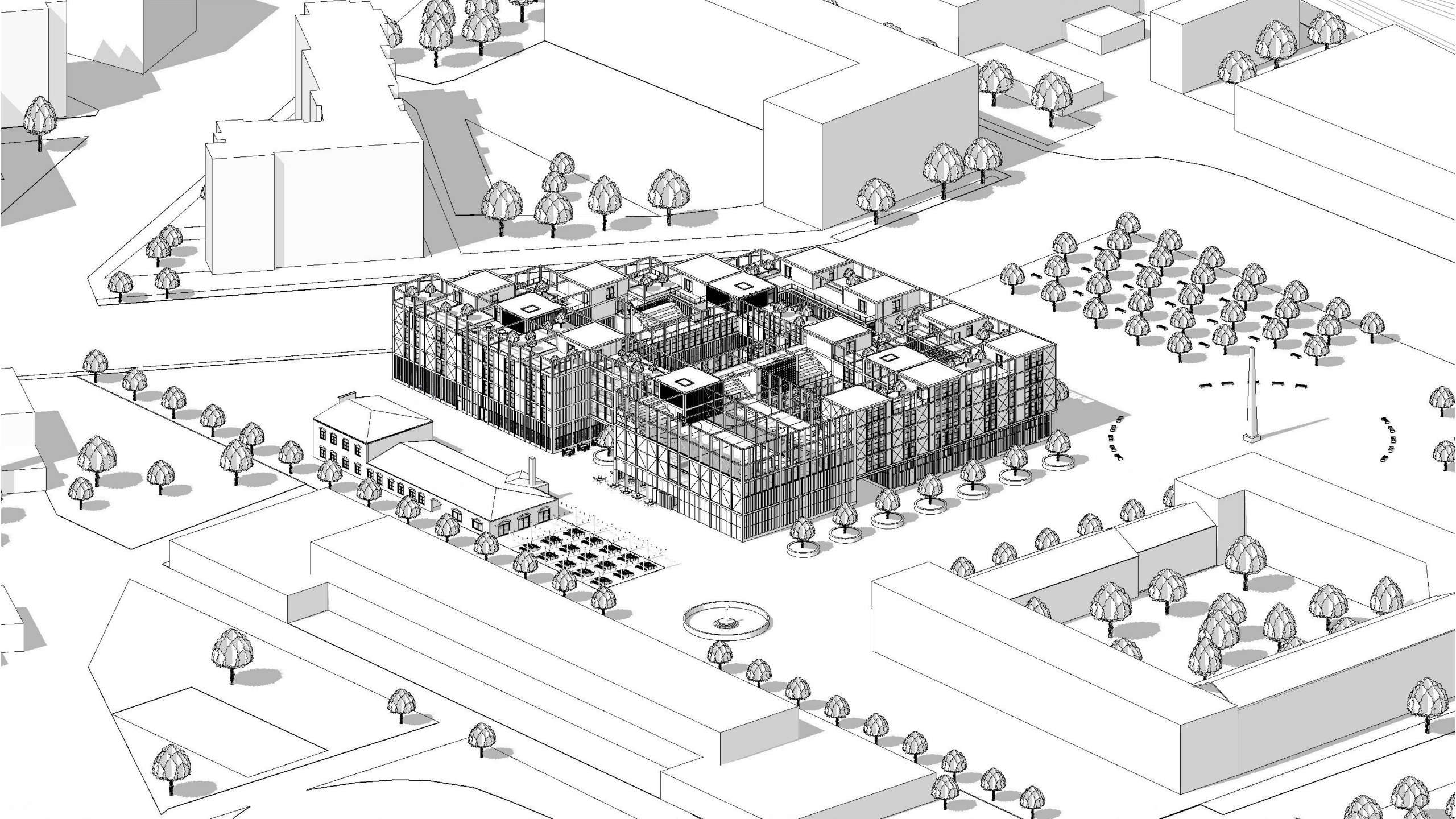


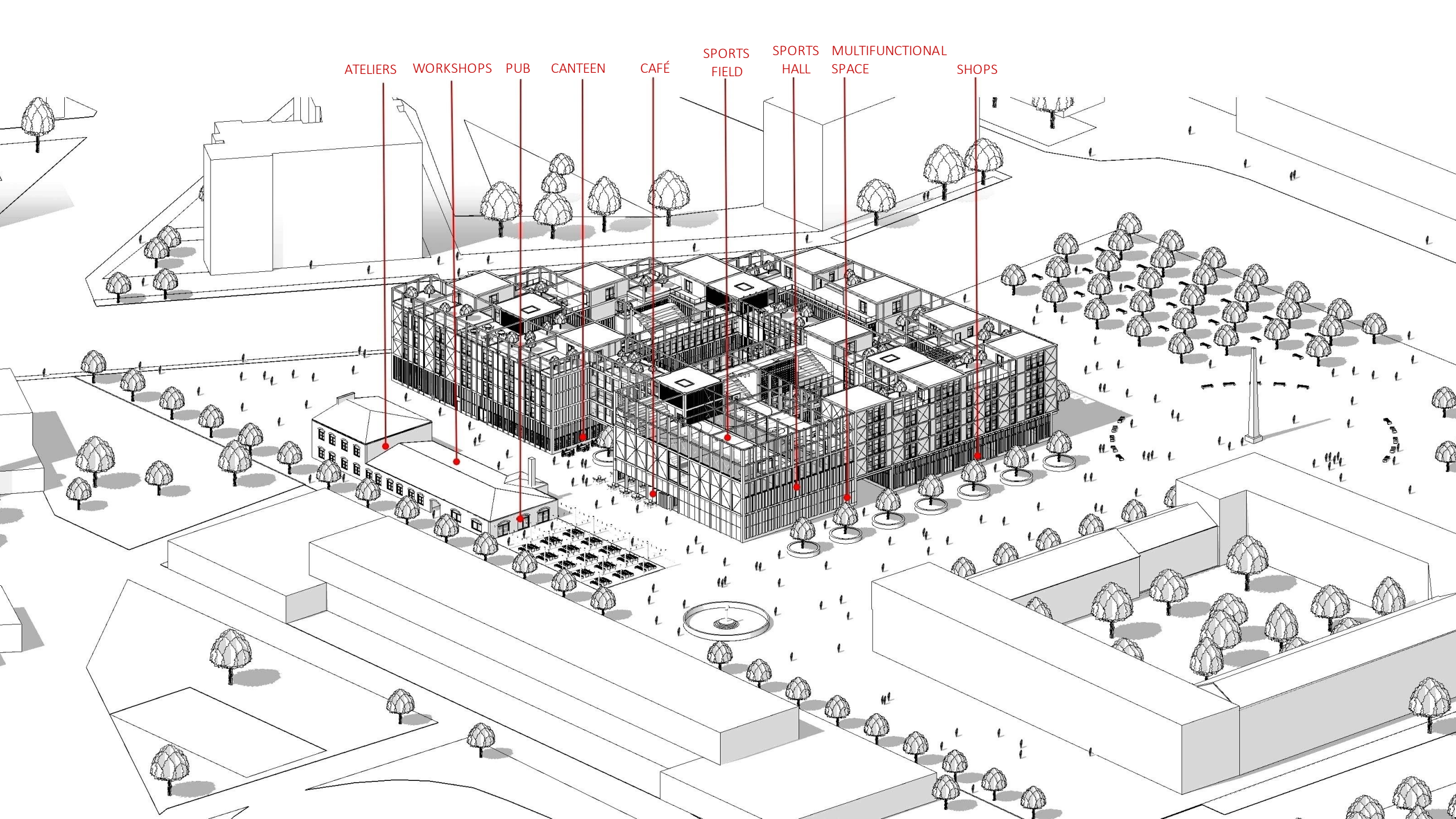
# 3RD PHASE: REMOVAL OF THE BUS STATION (TOWN'S ZONING PLAN)



# 4TH PHASE: THE STUDENT HOUSE



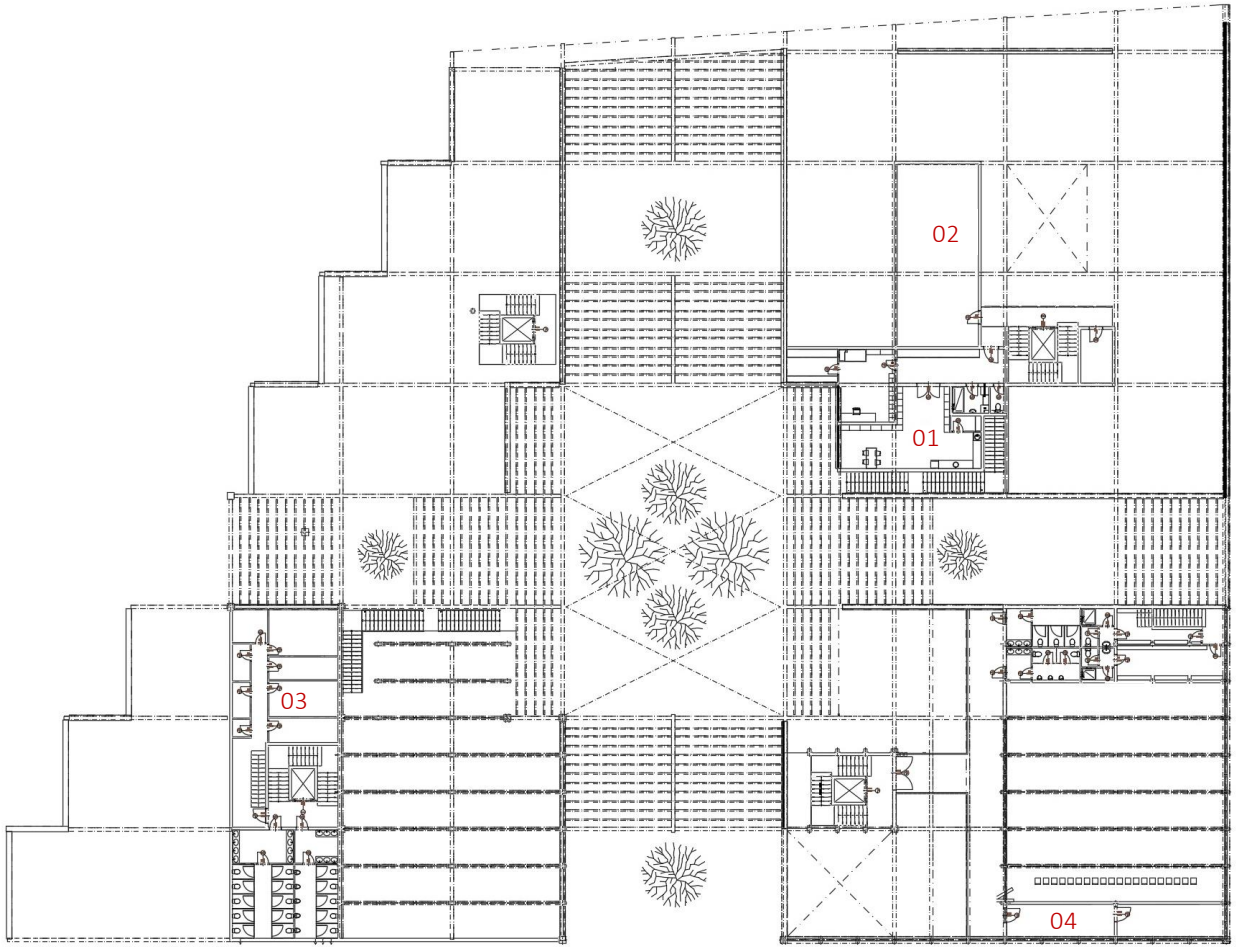



ATELIERS
WORKSHOPS
PUB
CANTEEN
CAFÉ
SPORTS FIELD
SPORTS HALL
MULTIFUNCTIONAL SPACE
SHOPS


01 RECEPTION
02 BIKE STORAGE
03 COMMERCIAL AREA
04 CAFÉ
05 MULTIFUNCTIONAL SPACE
06 CANTEEN

0 5 20

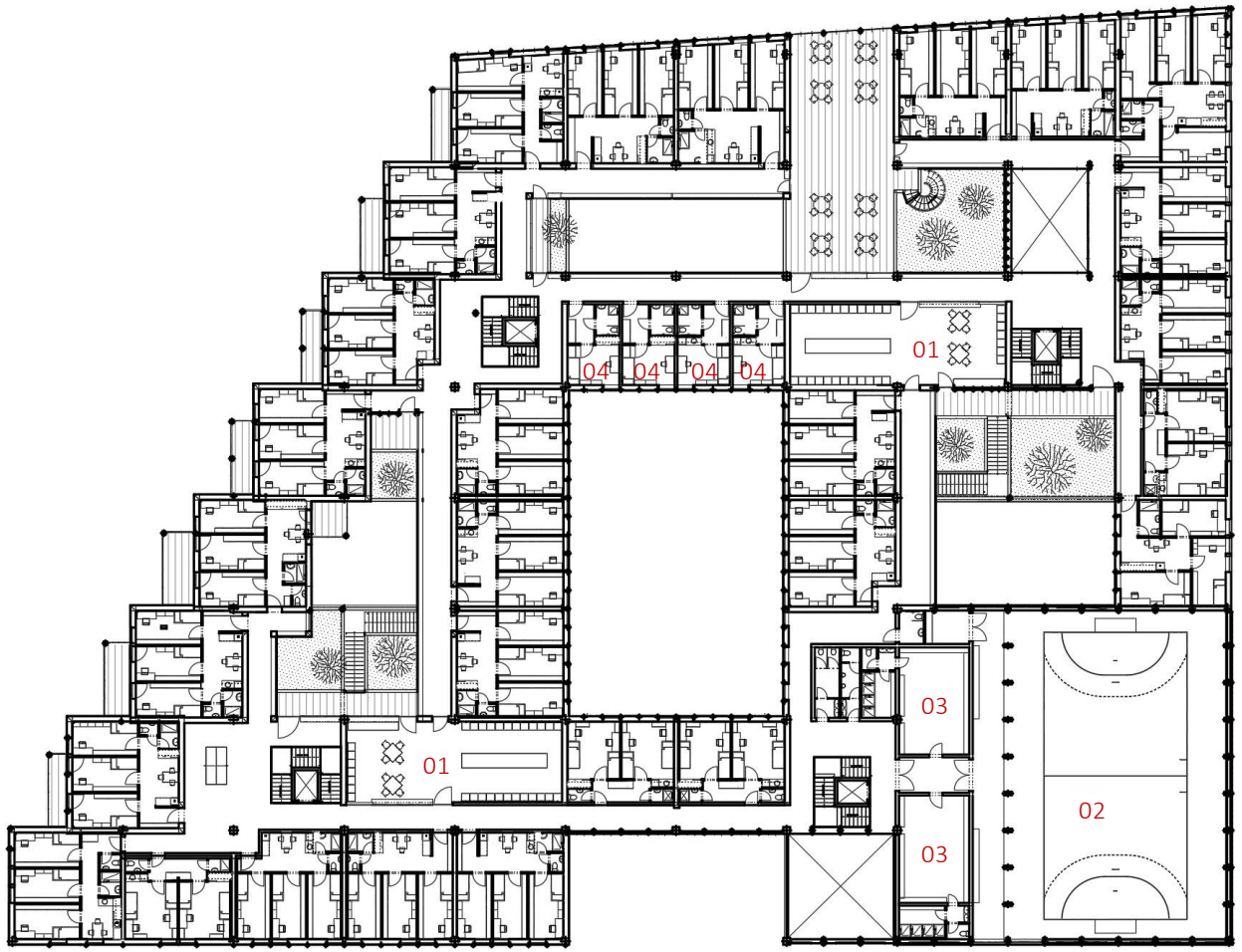
# 2ND FLOOR




01 FLAT OF THE BULDING ADMINISTRATOR
02 ENGINEERING ROOM
03 PANTRY
04 MEDIA STORAGE

0 5 20

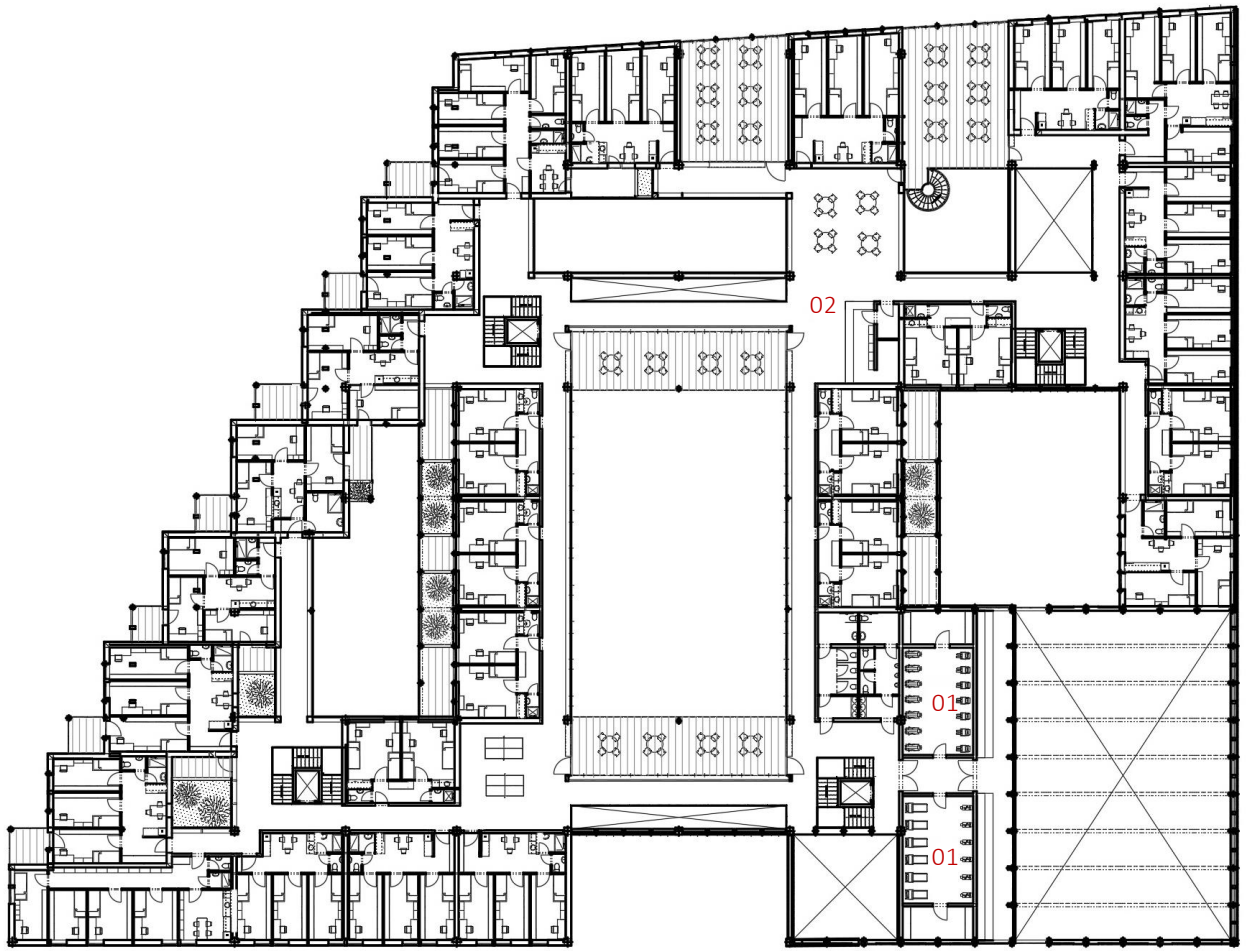
# 3RD FLOOR




01 LAUNDRY ROOM
02 SPORTS HALL
03 CHANGING ROOM
04 UNIT FOR THE DISABLED

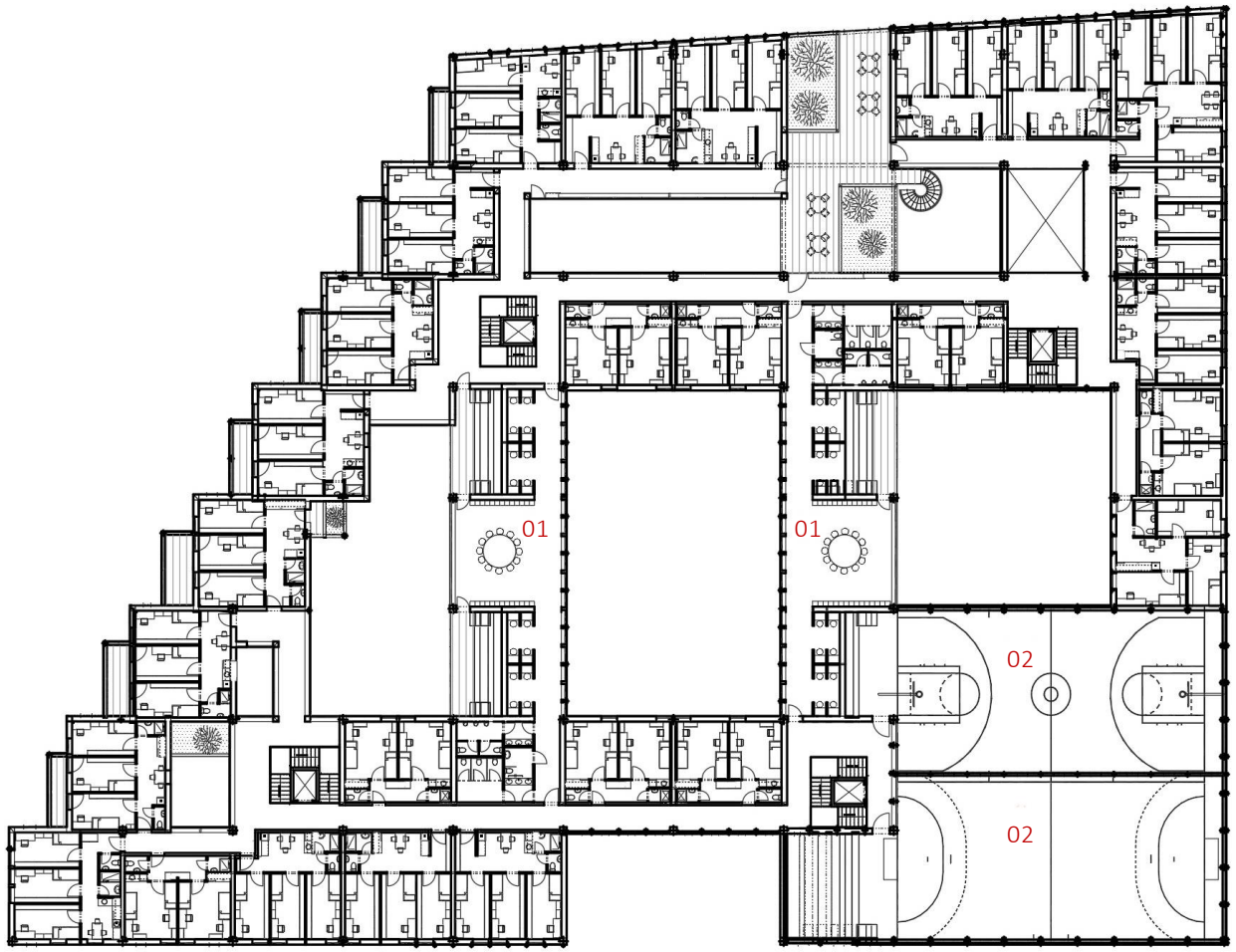
0 5 20

# 4TH FLOOR




01 GYM
02 BUFFET

# 5TH FLOOR

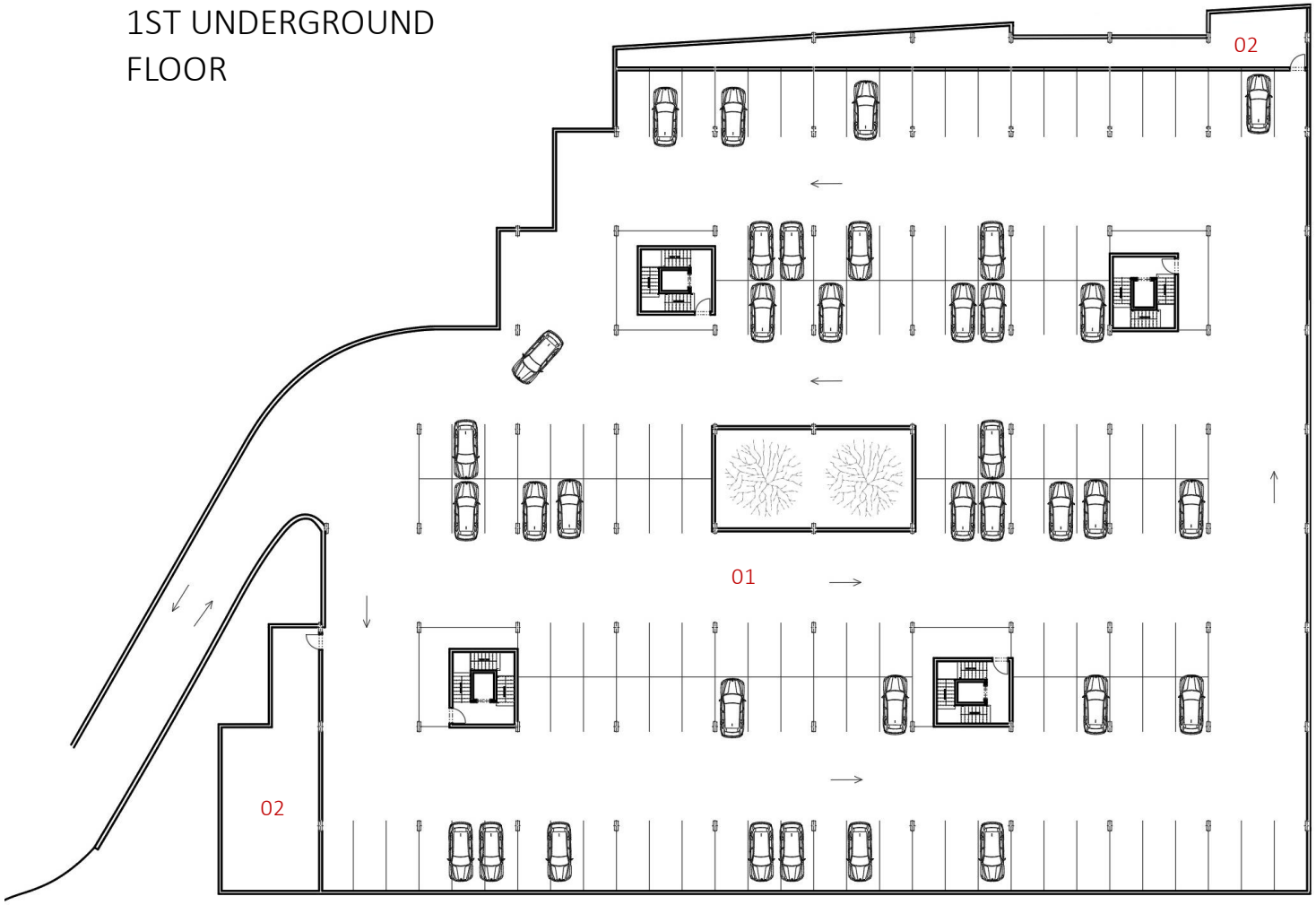



01 STUDY ROOM
02 SPORTS FIELD

0 5 20

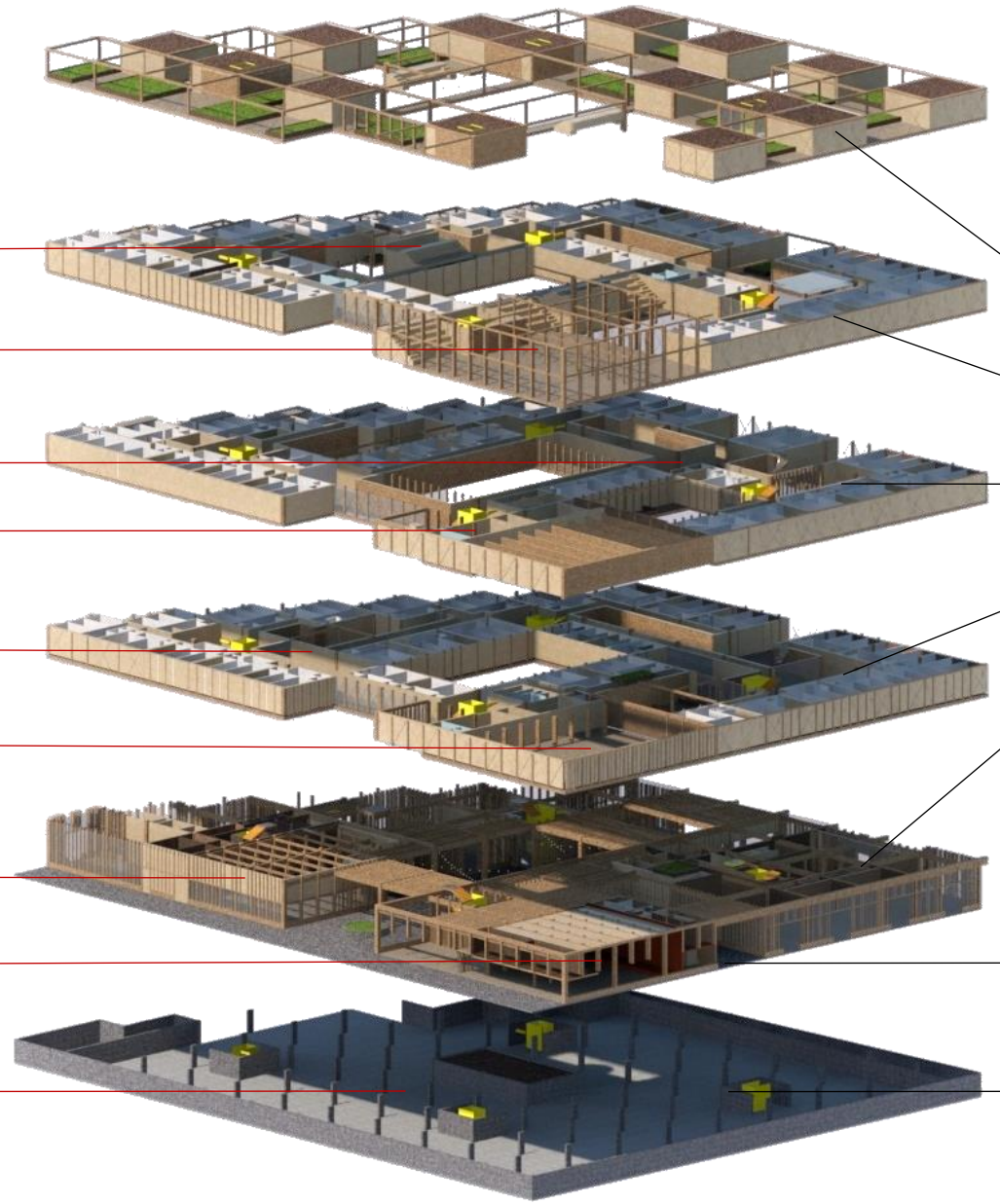
6TH FLOOR

# 1ST UNDERGROUND FLOOR

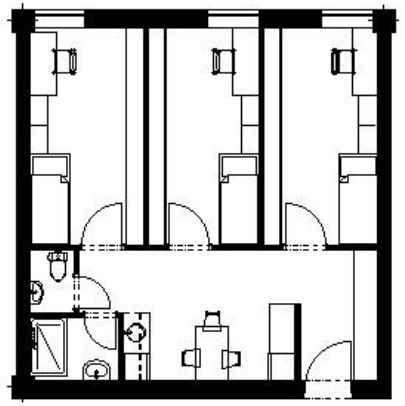



01 PARKING LOT (146 PARKING PLACES)
02 ENGINEERING ROOM

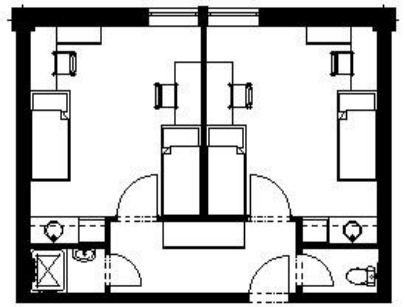
0 5 20


STUDY ROOM
SPORTS FIELDS
BUFFET
GYM
LAUNDRY ROOM
SPORTS HALL
CANTEEN
MULTIFUNCTIONAL SPACE
PARKING LOT
COMBINED CLT PANEL SYSTEM
NOVATOP THK 124 mm
AND BSH LAMELLA WOOD COLUMNS
REINFORCED CONCRETE CEILING DESK
THK 200 mm
REINFORCED CONCRETE SKELETON –
COLUMNS 800x300 mm a´8,1 m

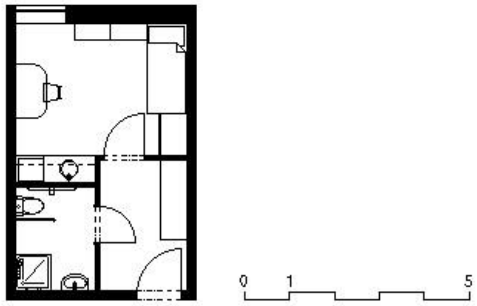
222 UNITS FOR ONE



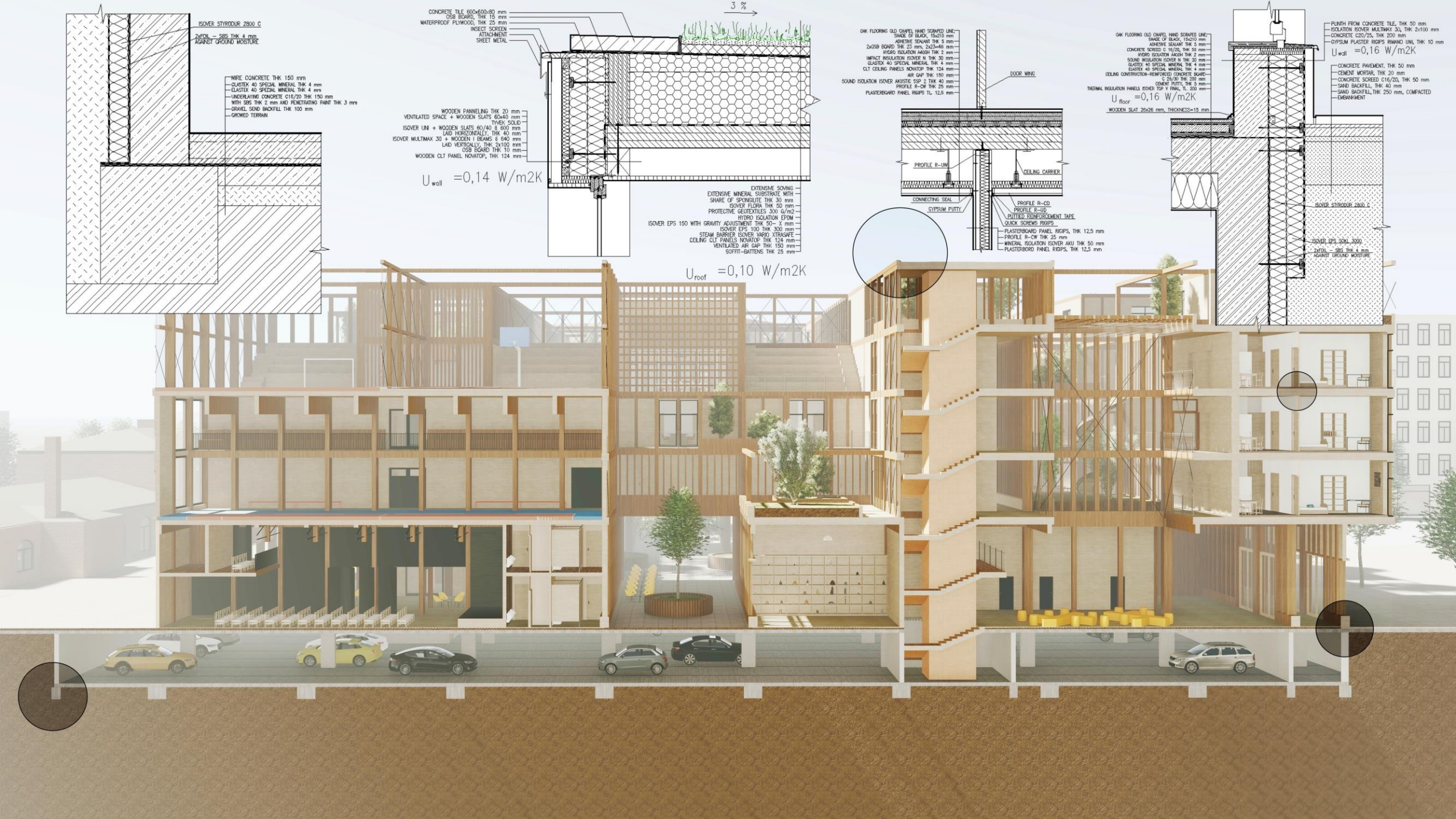
38 UNITS FOR TWO



4 UNITS FOR THE DISABLED

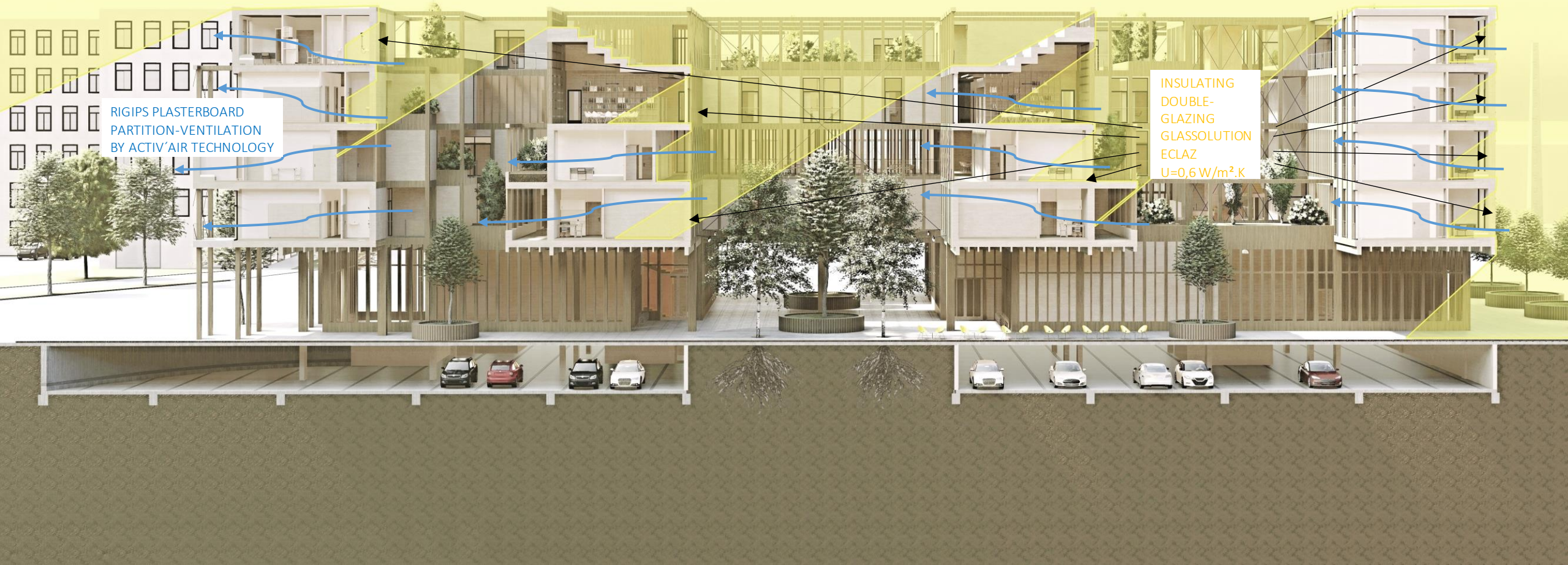



ISOVER MULTIMAX 30
ISOVER AKUSTIC SSP
61 dB
ISOVER TOP V FINAL
ISOVER EPS 100
ISOVER MULTIMAX 30
ISOVER FLORA
ISOVER EPS 150
REFAGLASS
ISOVER AKU
57 dB
61 dB
ISOVER FLORA
ISOVER EPS 200
ISOVER STYRODUR 2800 C


ISOVER STYRODUR 2800 C
2xFOIL – SBS THK 4 mm
AGAINST GROUND MOISTURE
WIRE CONCRETE THK 150 mm
CLASTEK 40 SPECIAL MINERAL THK 4 mm
ELASTEK 40 SPECIAL MINERAL THK 4 mm
UNDERLAYING CONCRETE C16/20 THK 150 mm
WITH SBS THK 2 mm AND PENETRATING PAINT THK 3 mm
GRAVEL SEND BACKFILL THK 100 mm
GROWED TERRAIN
CONCRETE TILE 600x600x80 mm
OSB BOARD, THK 15 mm
WATERPROOF PLYWOOD, THK 25 mm
INSECT SCREEN
ATTACHMENT
SHEET METAL
3 %
WOODEN PANNELING THK 20 mm
VENTILATED SPACE + WOODEN SLATS 60x40 mm
TYVEK SOLID
ISOVER UNI + WOODEN SLATS 60/40 á 600 mm
LAID HORIZONTALLY, THK 40 mm
ISOVER MULTIMAX 30 + WOODEN I BEAMS á 640 mm
LAID VERTICALLY, THK 2x100 mm
OSB BOARD THK 10 mm
WOODEN CLT PANEL NOVATOP, THK 124 mm
U wall =0,14 W/m2K
EXTENSIVE SOWING
EXTENSIVE MINERAL SUBSTRATE WITH
SHARE OF SPONGILITE THK 30 mm
ISOVER FLORA THK 50 mm
PROTECTIVE GEOTEXTILES 300 G/m2
HYDRO ISOLATION EPDM
ISOVER EPS 150 WITH GRAVITY ADJUSTMENT THK 50– X mm
ISOVER EPS 100 THK 300 mm
STEAM BARRIER ISOVER VARIO XTRASAFE
CEILING CLT PANELS NOVATOP THK 124 mm
VENTILATED AIR GAP THK 150 mm
SOFFIT–BATTENS THK 25 mm
U roof =0,10 W/m2K
OAK FLOORING OLD CHAPEL HAND SCRAPED LINE;
SHADE OF BLACK, 15x210 mm
ADHESIVE SEALANT THK 5 mm
2xOSB BOARD THK 23 mm, 2x23=46 mm
HYDRO ISOLATION A40GH THK 2 mm
IMPACT INSULATION ISOVER N THK 30 mm
GLASTEK 40 SPECIAL MINERAL THK 4 mm
CLT CEILING PANELS NOVATOP THK 124 mm
AIR GAP THK 150 mm
SOUND ISOLATION ISOVER AKUSTIC SSP 2 THK 40 mm
PROFILE R–CW THK 25 mm
PLASTERBOARD PANEL RIGIPS TL 12,5 mm
DOOR WING
PROFILE R–UW
CEILING CARRIER
CONNECTING SEAL
GYPSUM PUTTY
PROFILE R–CD
PROFILE R–UD
PUTTIED REINFORCEMENT TAPE
QUICK SCREWS RIGIPS
PLASTERBOARD PANEL RIGIPS, THK 12,5 mm
PROFILE R–CW THK 25 mm
MINERAL ISOLATION ISOVER AKU THK 50 mm
PLASTERBORD PANEL RIGIPS, THK 12,5 mm
OAK FLOORING OLD CHAPEL HAND SCRAPED LINE;
SHADE OF BLACK, 15x210 mm
ADHESIVE SEALANT THK 5 mm
CONCRETE SCREED C 16/20, THK 50 mm
HYDRO ISOLATION A40GH THK 2 mm
SOUND INSULATION ISOVER N THK 20 mm
GLASTEK 40 SPECIAL MINERAL THK 4 mm
ELASTEK 40 SPECIAL MINERAL THK 4 mm
CEILING CONSTRUCTION–REINFORCED CONCRETE BOARD–
C 28/30 THK 200 mm
CEMENT PUTTY, THK 5 mm
THERMAL INSULATION PANELS ISOVER TOP V FINAL TL 200 mm
U floor =0,16 W/m2K
WOODEN SLAT 26x26 mm, THICKNESS=15 mm
PLINTH FROM CONCRETE TILE, THK 50 mm
ISOLATION ISOVER MULTIMAX 30, THK 2x100 mm
CONCRETE C20/25, THK 200 mm
GYPSUM PLASTER RIGIPS RIMANO UNI, THK 10 mm
U wall =0,16 W/m2K
CONCRETE PAVEMENT, THK 50 mm
CEMENT MORTAR, THK 20 mm
CONCRETE SCREED C16/20, THK 50 mm
SAND BACKFILL, THK 40 mm
SAND BACKFILL, THK 250 mm, COMPACTED
EMBANKMENT
ISOVER STYRODUR 2800 C
ISOVER EPS SOKL 3000
2xFOIL – SBS THK 4 mm
AGAINST GROUND MOISTURE


RAIN WATER -
537 mm/YEAR
VEGETATIVE ROOF-
COOLING OF THE
CITY
FIRE-PROOF
DEVICE
SPRINKLER
TANK

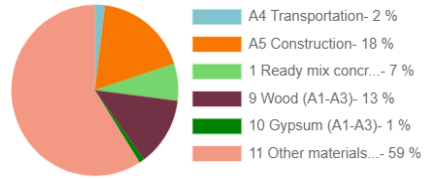
MORNING LIGHT

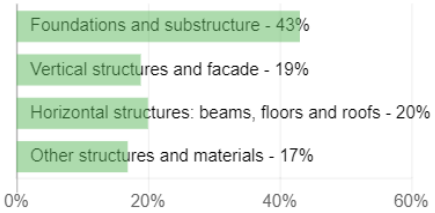



AFTERNOON
LIGHT
HEATING FOIL FENIX ECOFLOOR
WITH WEBER MATERIALS

| | |
|---|---|
| **Address** | Lubelska 18, Poland |
| **Type** | Apartment buildings |
| **Gross Floor Area (m²)** | 11 288,5 |

| Cradle to gate impacts (A1-A3) | kg $CO_2e/m^2$ |
|---|---|
| (< 263) A<br>(263-338) B<br>(338-413) C<br>(413-488) D<br>(488-563) E<br>(563-638) F<br>(> 638) G<br>One Click LCA | 257 |



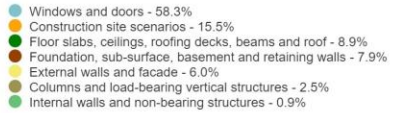



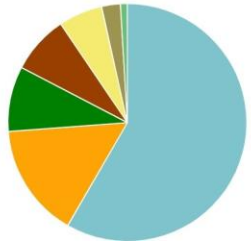

## Most contributing materials (Global warming)

| No. | Resource | Cradle to gate impacts (A1-A3) | Of cradle to gate (A1-A3) |
|---|---|---|---|
| 1. | Ready-mix concrete, normal strength, generic | 22 kg $CO_2e$ | 43.4 % |
| 2. | Cross laminated timber (CLT) board | 17 kg $CO_2e$ | 34.2 % |
| 3. | Wood-alu frame window, triple-glazed | 5,9 kg $CO_2e$ | 11.9 % |
| 4. | Sliding door system, MDF board | 2,8 kg $CO_2e$ | 5.6 % |
| 5. | Engineered wood flooring, 3-layered | 1,7 kg $CO_2e$ | 3.5 % |
| 6. | Timber frame external wall element, for cold storage, without cladding | 0,53 kg $CO_2e$ | 1.1 % |
| 7. | Steel stud framing for drywall/gypsum plasterboard per sq. meter of wall area (incl. air gaps per m3) | 0,08 kg $CO_2e$ | 0.2 % |
| 8. | Gypsum plaster board, regular, generic | 0,11 kg $CO_2e$ | 0.2 % |

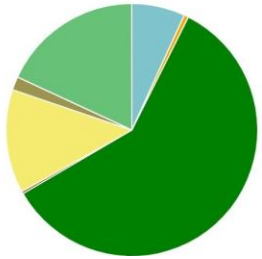
| | Result category | Global warming t $CO_2e$ | Global warming kg $CO_2e/m^2$ | Mass of raw materials t | Mass of raw materials kg/$m^2$ |
|---|---|---|---|---|---|
| 1 | Ready mix concrete (A1-A3) | 199 | 18 | 2 784 | 247 |
| 4 | Steel (A1-A3) | 8 | 1 | 6 | 0 |
| 9 | Wood (A1-A3) | 385 | 34 | 2 097 | 186 |
| 10 | Gypsum (A1-A3) | 16 | 1 | 48 | 4 |
| 11 | Other materials (A1-A3) | 1 720 | 152 | 724 | 64 |
| A1-A3 | Construction Materials | 2 328 | 206 | 5 659 | 501 |
| A4 | Transportation to site | 50 | 4 | | |
| A5 | Construction/installation process | 526 | 47 | 463 | 41 |

**Global warming t CO2e - Classifications**

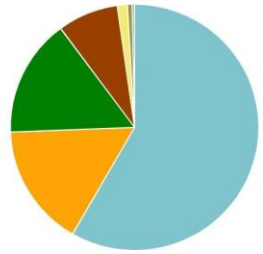


**Global warming t CO2e - Life-cycle stages**

**Global warming t CO2e - Resource types**

**Mass kg - Classifications**