KALEIDOSCOPE

Poland, Warsaw - District
Praga-Południe - Kamionek

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Architecture Student Contest 2022

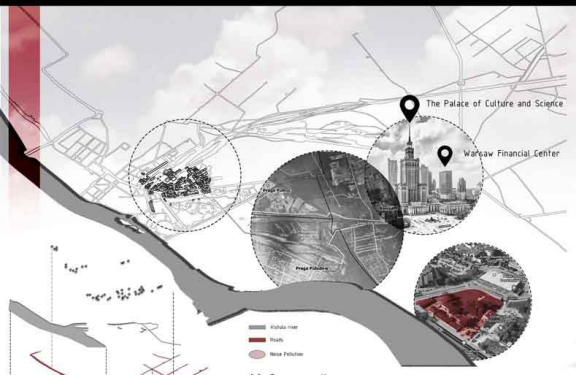
kaleidoscope
/kəˈlʌɪdəskəʊp/

noun

An instrument consisting of a tube containing mirrors and pieces of coloured glass or paper, whose reflections produce changing patterns when the tube is rotated.

Definitions from Oxford Languages

POLAND, WARSAW District Praga-Południe - Kamionek KALEIDOSCOPE



01 Geographic Location

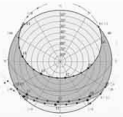
Geography

- Largest cities: Warsaw, Krakow, Łódź, Wrocław, Poznań, Gdańsk
- Total area: 312,679 km2
- Water surface: 2.6%
- Time zone: UTC +1

Demography

- Gentile: Polish
- Total population (2020): 38,262,325 inhabitants
- Urbanized: 59%)
- Density: 122 inhab./km2

Kamionek is a district of Warsaw, located on the right bank of the Vistula in the 19th century, with the onset of the industrial revolution, it turned into a center of textile industry. Today it is part of Praga Południe. It borders Skaryszewski Park to the north and west, To the south, Grochów to the east, and Praga to the north.



Sunpath and Ventilation

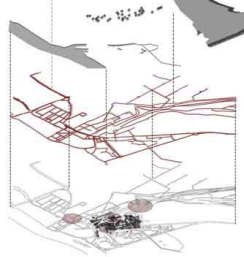
Winter: Sunrise South-East Sunset South-West

Spring: Sunrise East Sunset West

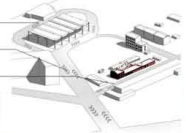
Weak Lighting: East/west
Strong Lighting: South

Wind direction: South-West

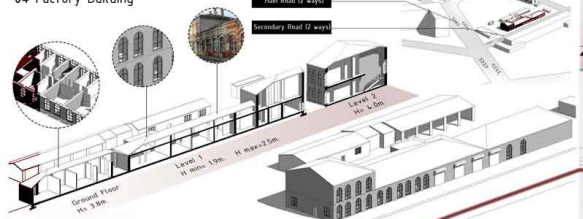
02 Surroundings

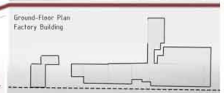


03 Roads and Circulation

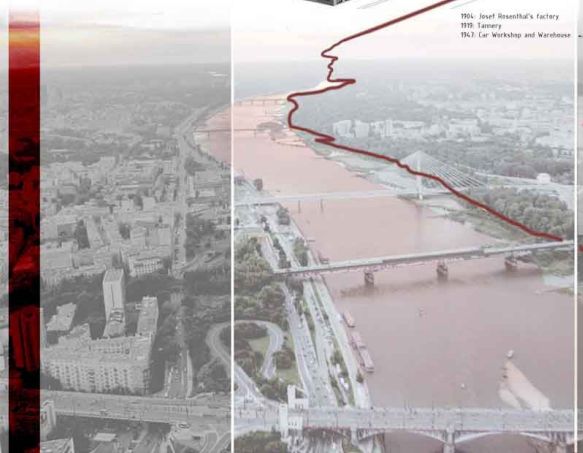


04 Factory Building





1904: Josef Rosenthal's factory
1919: Tannery
1947: Car Workshop and Warehouse



Technical Materials Sheet

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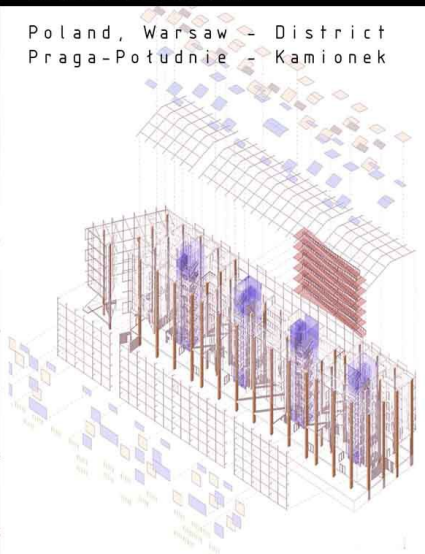
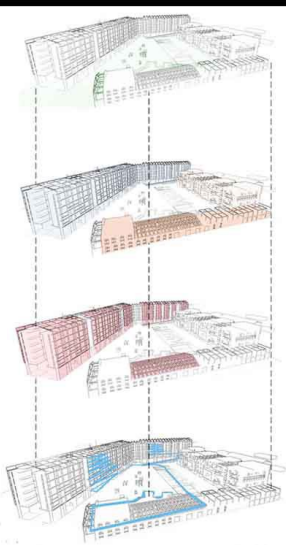
Praga-Południe - Kamionek





Architecture framing the ferrai central garden as the agora of the project

Dorms
Multi-family housing
Factory

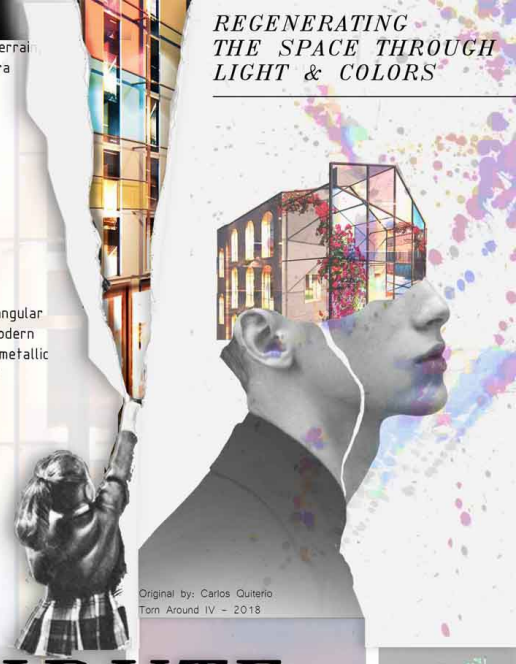
Turning the traditional triangular roofed silhouette into a modern representation, through a metallic skin of colored glass from Saint-Gobain

A virtual thread of fate linking the factory, to the historical pavillion, to the project as a whole

SEEING THE OLD IN A NEW LIGHT, A COLORFUL LIGHT,

LOOKING AT THE NEW THROUGH AN OLD LENS, THE FACTORY'S EYE

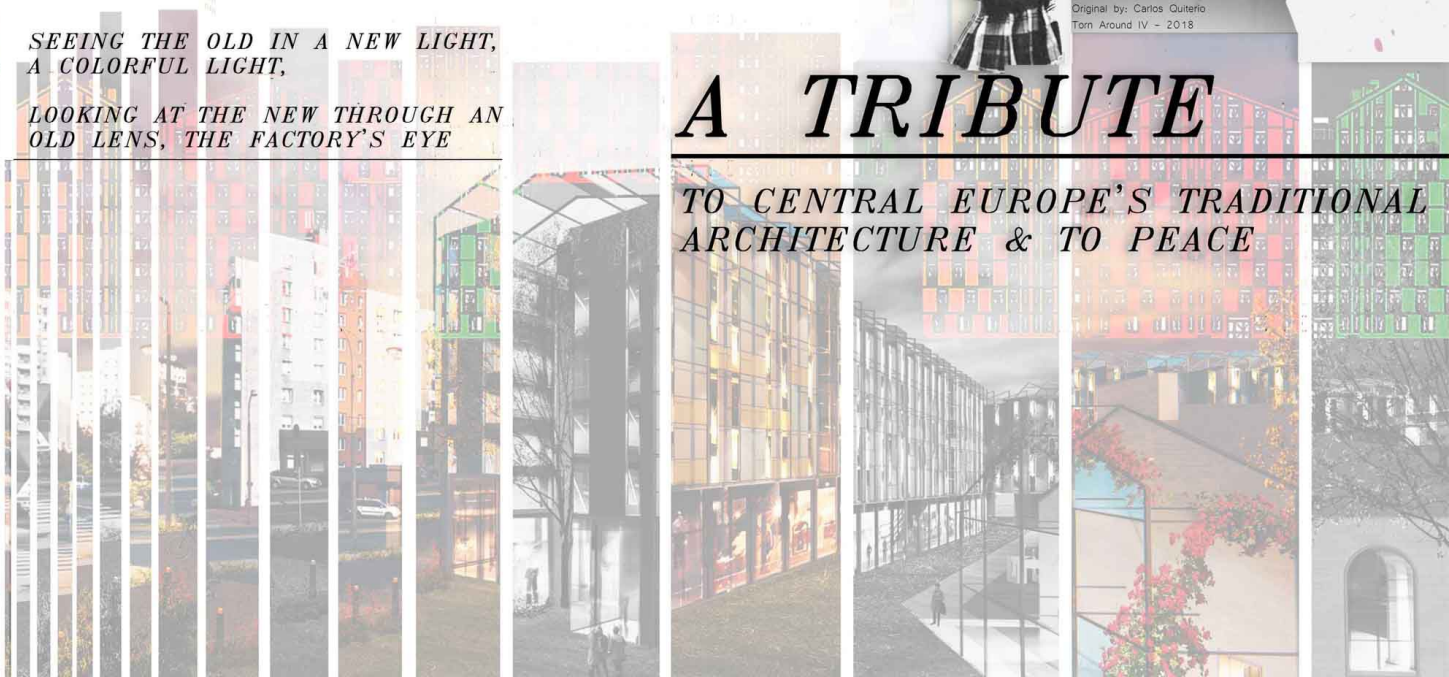
REGENERATING THE SPACE THROUGH LIGHT & COLORS



Original by: Carlos Quiterio
Torn Around IV - 2018

A TRIBUTE

TO CENTRAL EUROPE'S TRADITIONAL ARCHITECTURE & TO PEACE



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South-West entrance to the project

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View from the central garden

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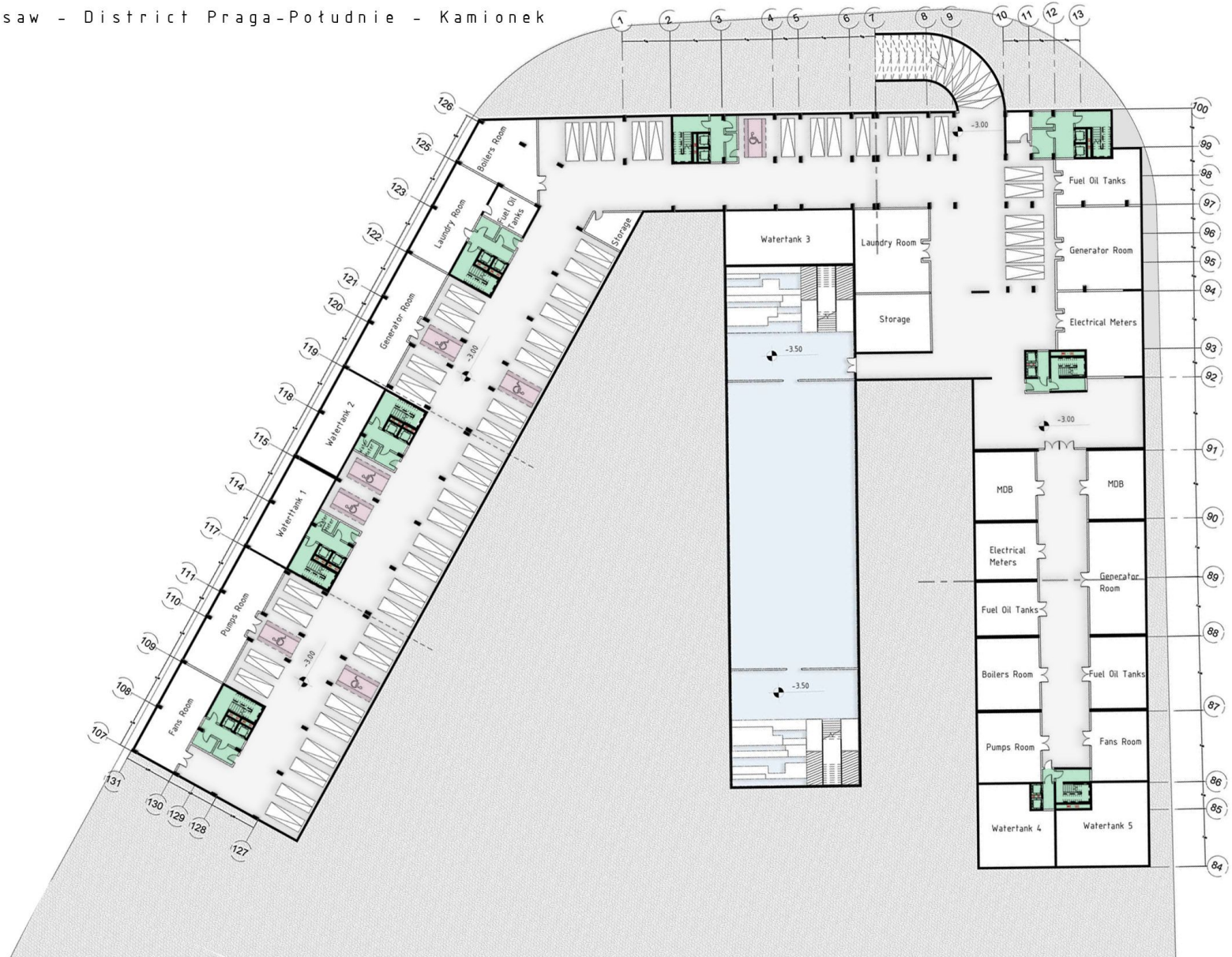
UNDERGROUND PARKING PLAN

SCALE 1:200



Main circulation cores

Parking for handicap

Historical Pavilion

Technical rooms

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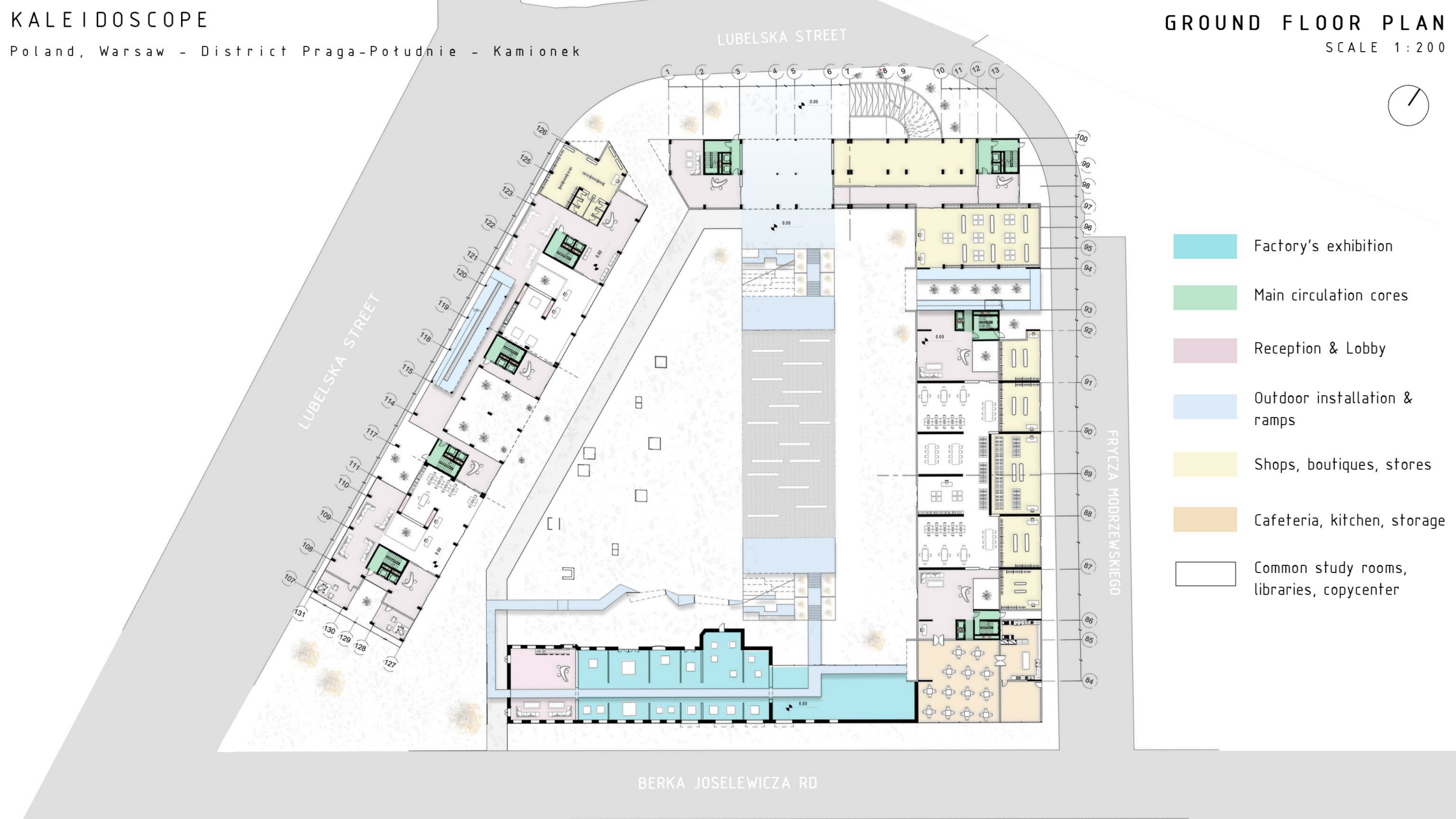
GROUND FLOOR PLAN

SCALE 1:200



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West view on the ramps, Lubelska Street

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Close-up on the Multi-family complex

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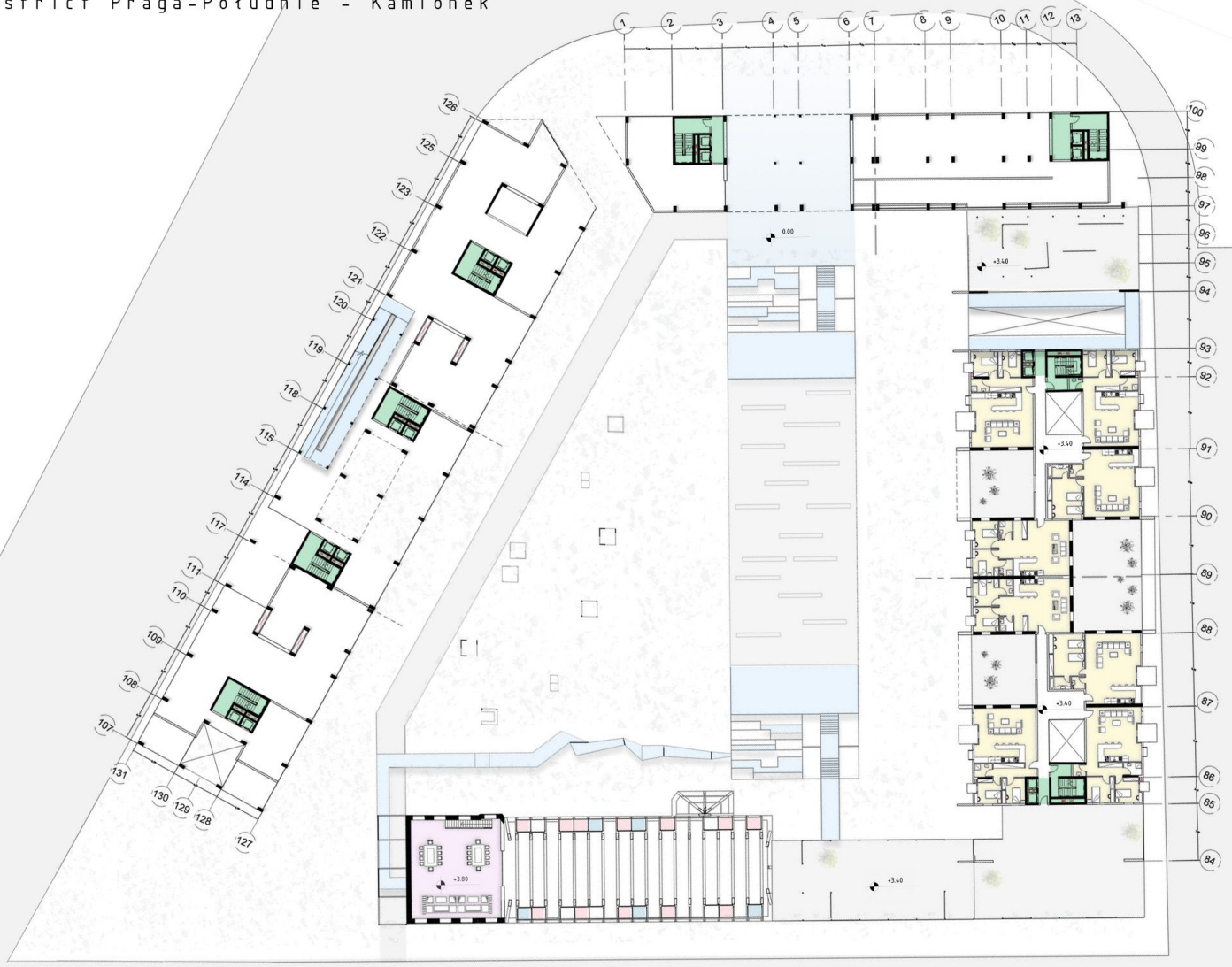
SECOND FLOOR PLAN

SCALE 1:200



- Main circulation cores
- Meeting Area
- Multi-family apartments
- Gardens, terraces
- Outdoor installation & ramps

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THIRD FLOOR PLAN

SCALE 1:200

- Main circulation cores
- Technical room
- Multi-family apartments
- Dorms units
- Gardens, terraces
- Outdoor installation & ramps

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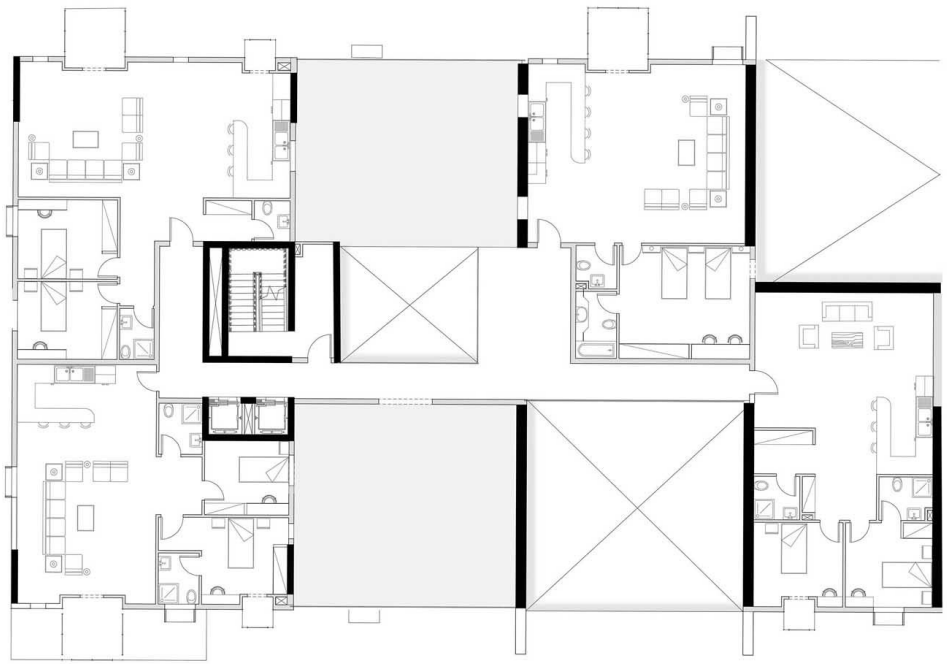
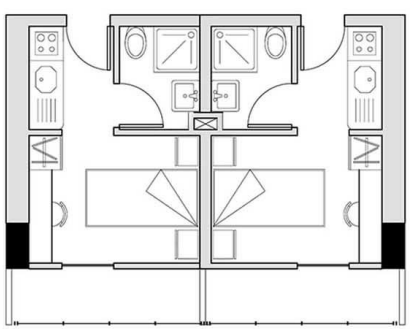
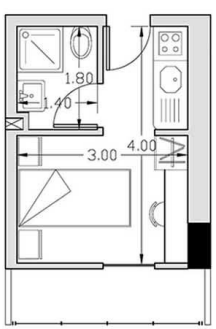
SCALE 1:50



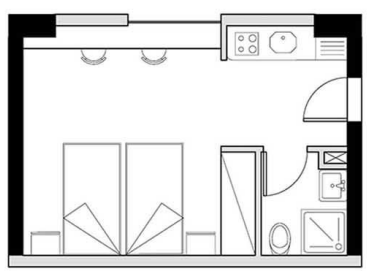
SCALE 1:25

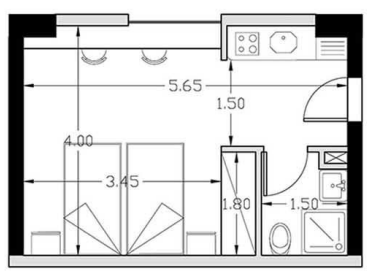
DORM SINGLE 12M2





DORM DOUBLE 23M2





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Interior view of the ramp system facing the station

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FOURTH FLOOR PLAN

SCALE 1:200

Main circulation cores

Technical room

Multi-family apartments

Dorms units

Gardens, terraces

Outdoor installation & ramps

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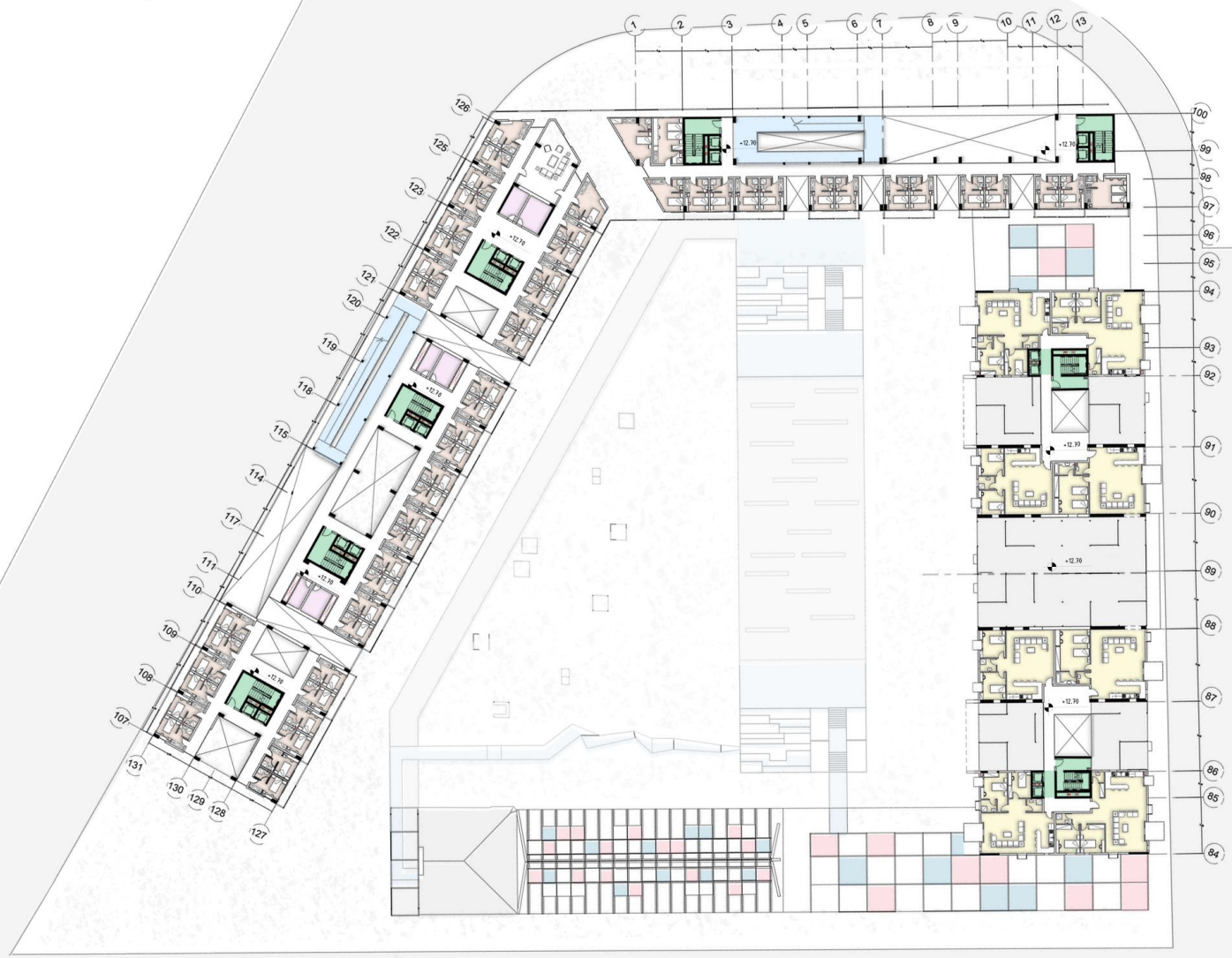
FIFTH FLOOR PLAN & TYPICAL DORMS FLOOR PLAN

SCALE 1:200



- Main circulation cores
- Technical room
- Multi-family apartments
- Dorms units
- Gardens, terraces
- Outdoor installation & ramps

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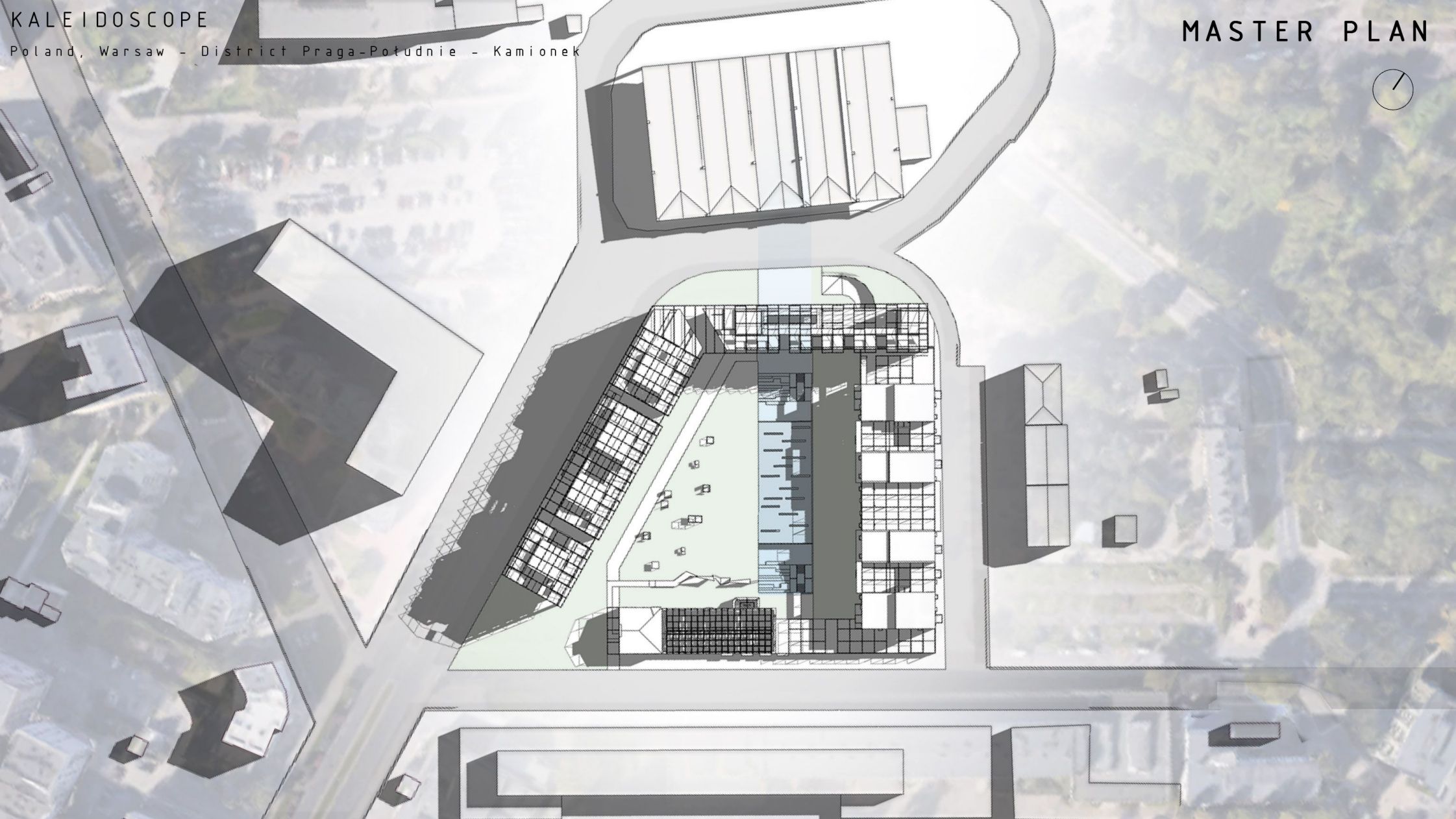
MASTER PLAN



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Roof-top of the project, GreenHouse

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ELEVATIONS

SCALE 1:200

South-West Elevation

South-East Elevation

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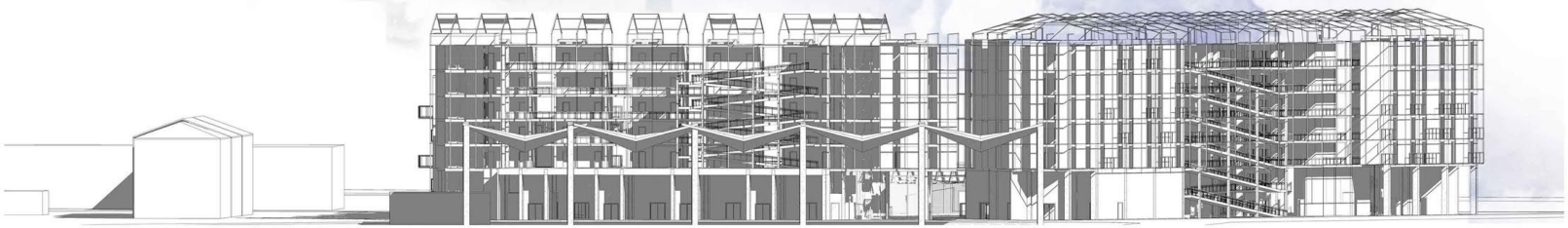
ELEVATIONS

SCALE 1:200



North-West Elevation

North-East Elevation

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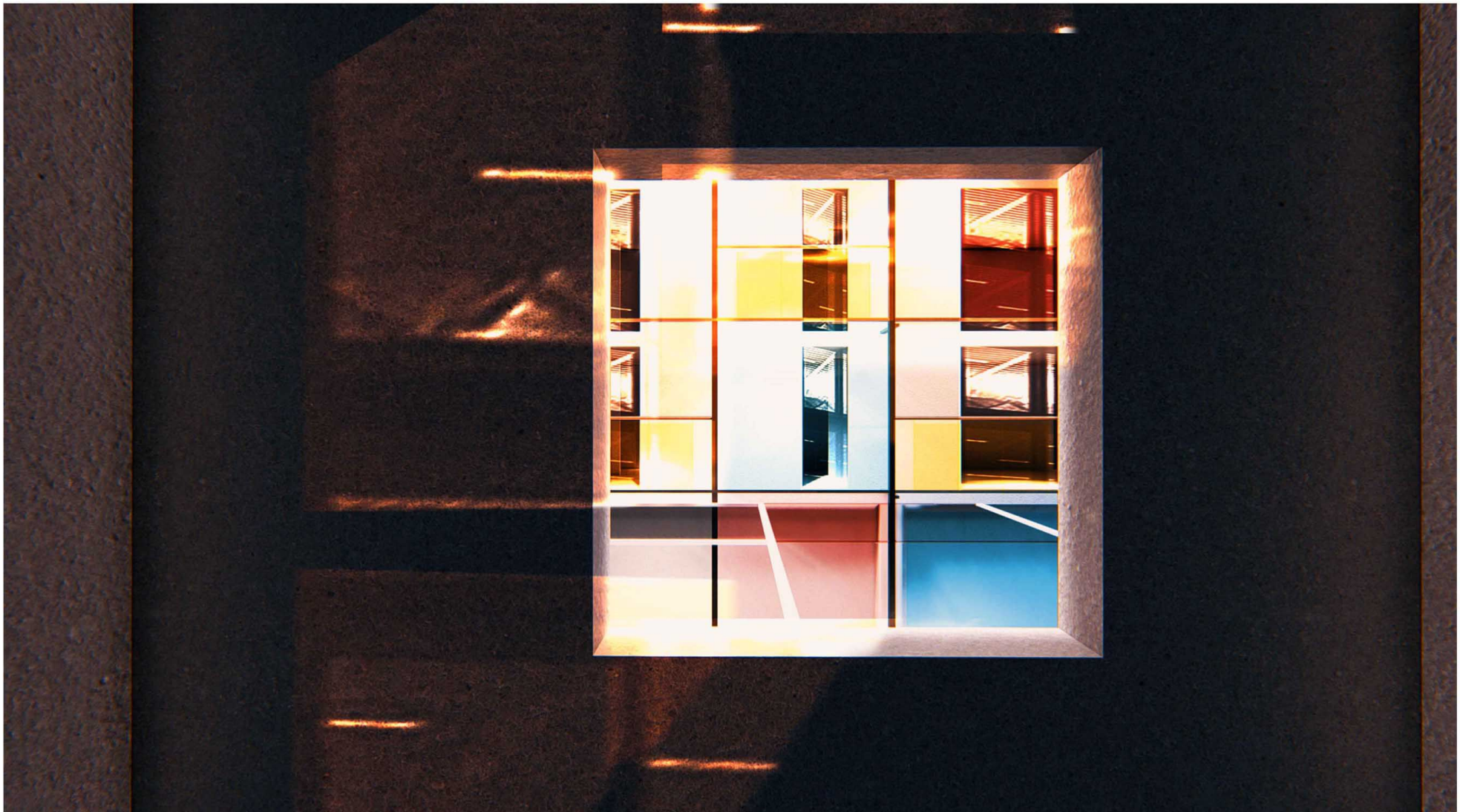

Simplicity, colors, light

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Simplicity, colors, light

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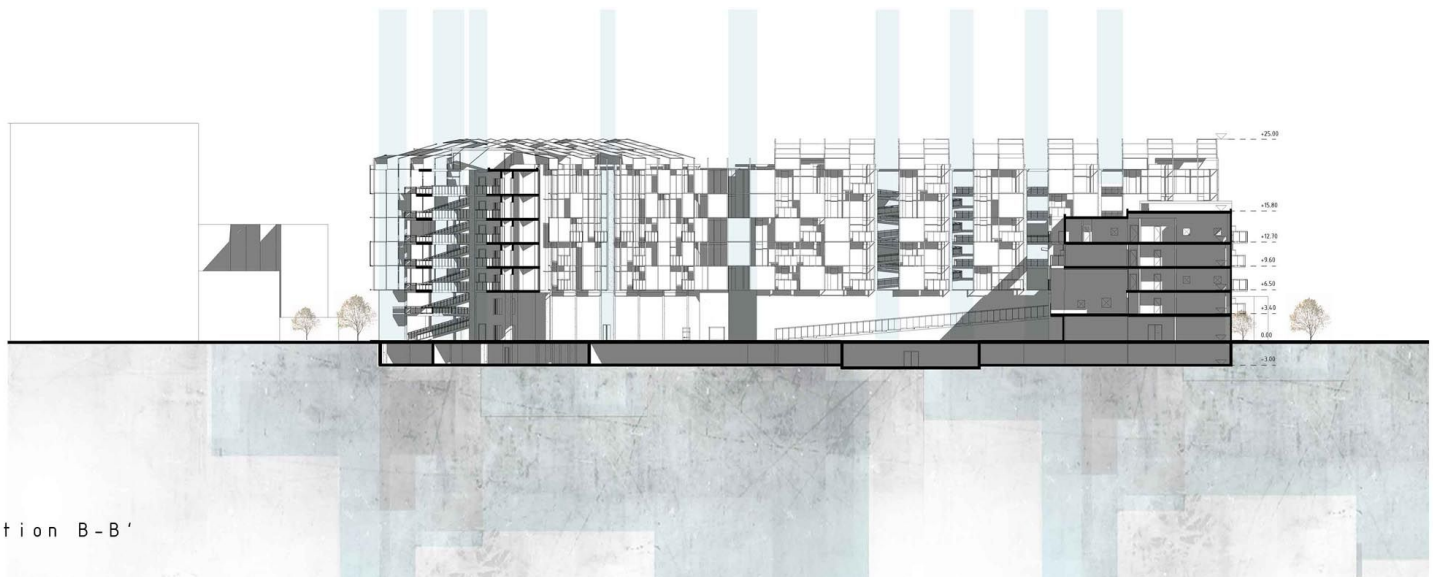
SECTIONS

SCALE 1:200

Section A-A'

KEY PLAN



Section B-B'

KEY PLAN

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The Factory and outdoor installation

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The Factory's Exhibition space
Featuring Pawel Althamer's (Polish artisti and sculptor) figurative sculpture series 'Venetians'

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AXONOMETRIC

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Historical Pavilion box "buried" under the garden

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Quick construction
Envelope assembled and parts mounted off-site

Solar photovoltaic systems (PV) fixed on slanted roof, convert sunlight into electrical energy

Partitions designed with the required fire resistance

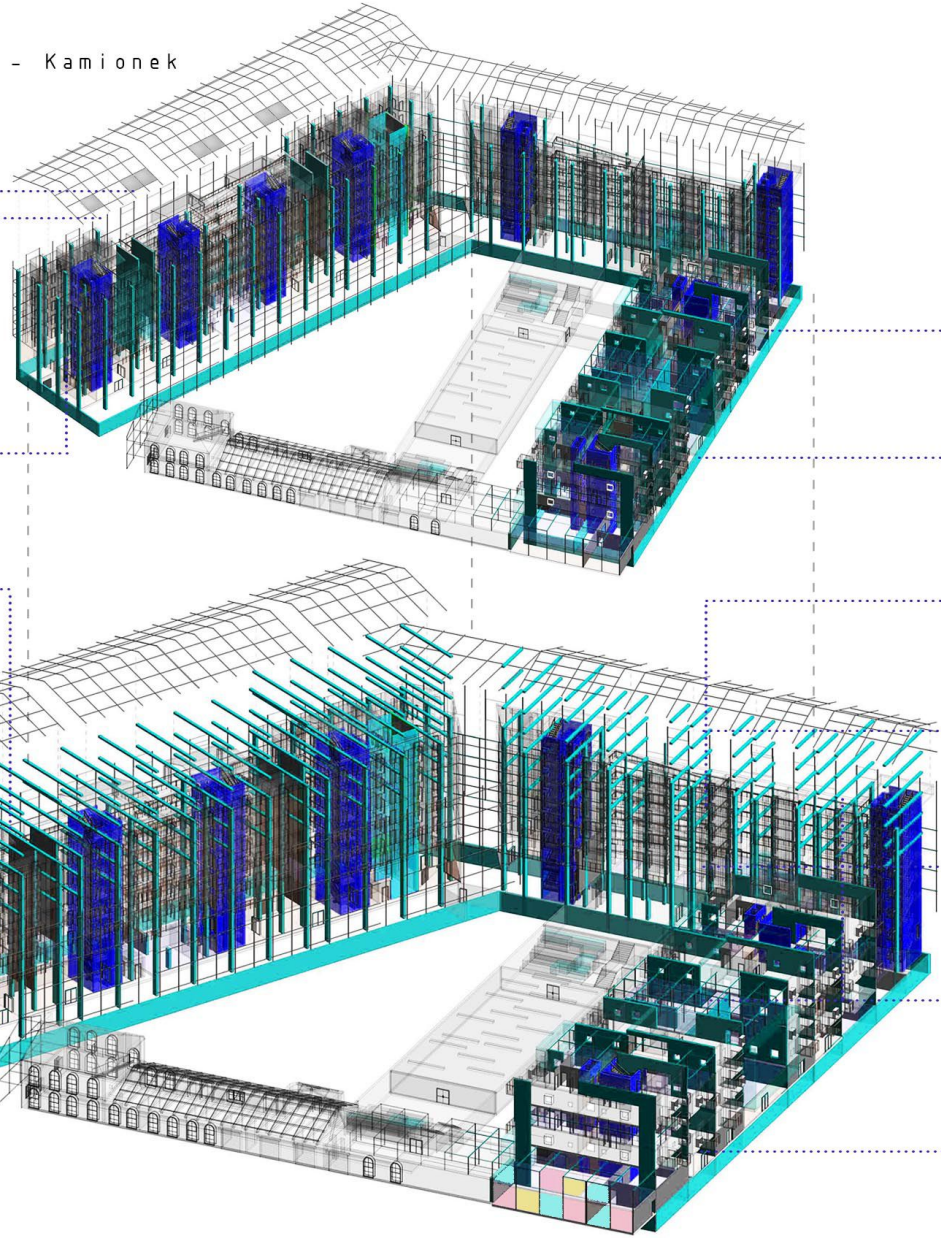
Partitions designed in line with requirement of Polish standard on acoustic classes for dwellings - AQ-2 level

Relevant acoustic quality of windows, and design following the required acoustic requirements

Quality thermal insulation properties, ecologically clean

Natural ventilation through vertical gardens, voids and envelope, providing thermal comfort

Natural lighting, helping to reduce artificial lighting requirements and saving energy



STRUCTURAL SYSTEM

Beams and Bearing Structure & Walls

Circulation Core
Main Mechanical & Electrical Shafts

Structure from prefabricated modular curtain wall panels

Verified structural details and intelligent structural assemblies

Modular system in panels, partitions, glass and envelope structure

Minimizing the carbon footprint

Specified low-carbon concrete mixes; using fly ash, slag, calcined clays

Use of lightweight systems in treatment of the facade (light metallic structure)

Light colors for exterior surfaces (pastel colored glass envelope, light concrete colored walls)

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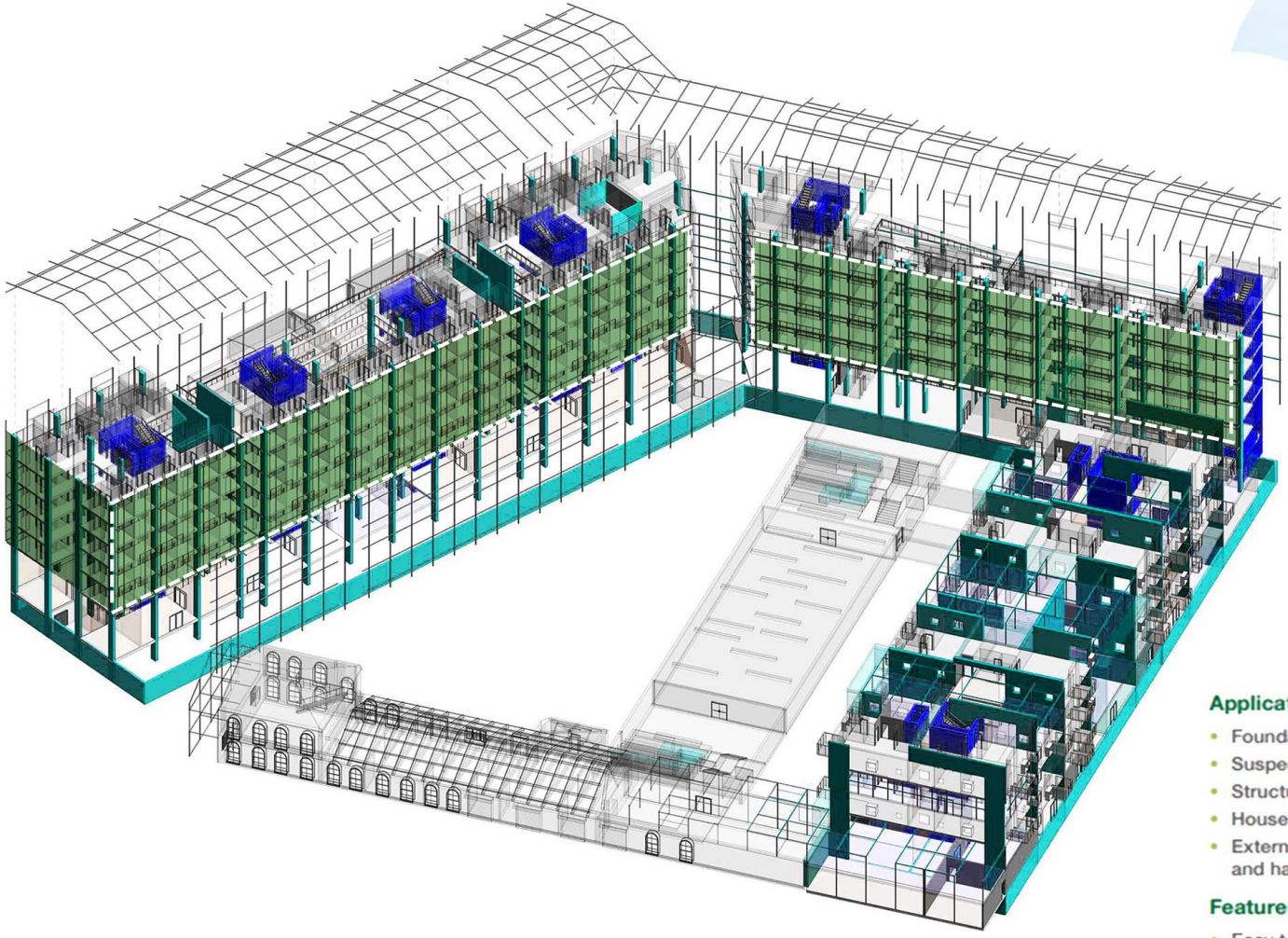


GREATER THAN **70%** EMBODIED CARBON REDUCTION

Applications

- Foundations, including piling
- Suspended slabs
- Structural elements
- House and garage ground floor slabs
- External concrete for pavements and hard standing

Features

- Easy to use and place
- Suitable for pumping
- Complies with Design Chemical Class DC-2 to BRE Special Digest 1

CEMEX

STRUCTURAL SYSTEM

- Bearing Structure & Walls
- Circulation Core
  Main Mechanical & Electrical Shafts
- Floors

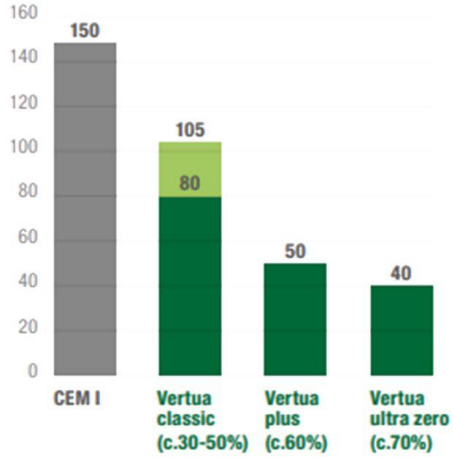
Vertua® classic

Low carbon by design

A low carbon concrete that has a c.30-50% CO_2 reduction versus a standard concrete (CEM I) mix.

Available in a range of compressive strengths from C16/20 to C40/50 and meets the requirement of DC-2.

Vertua compared to CEM I concrete - CO_2 per tonne

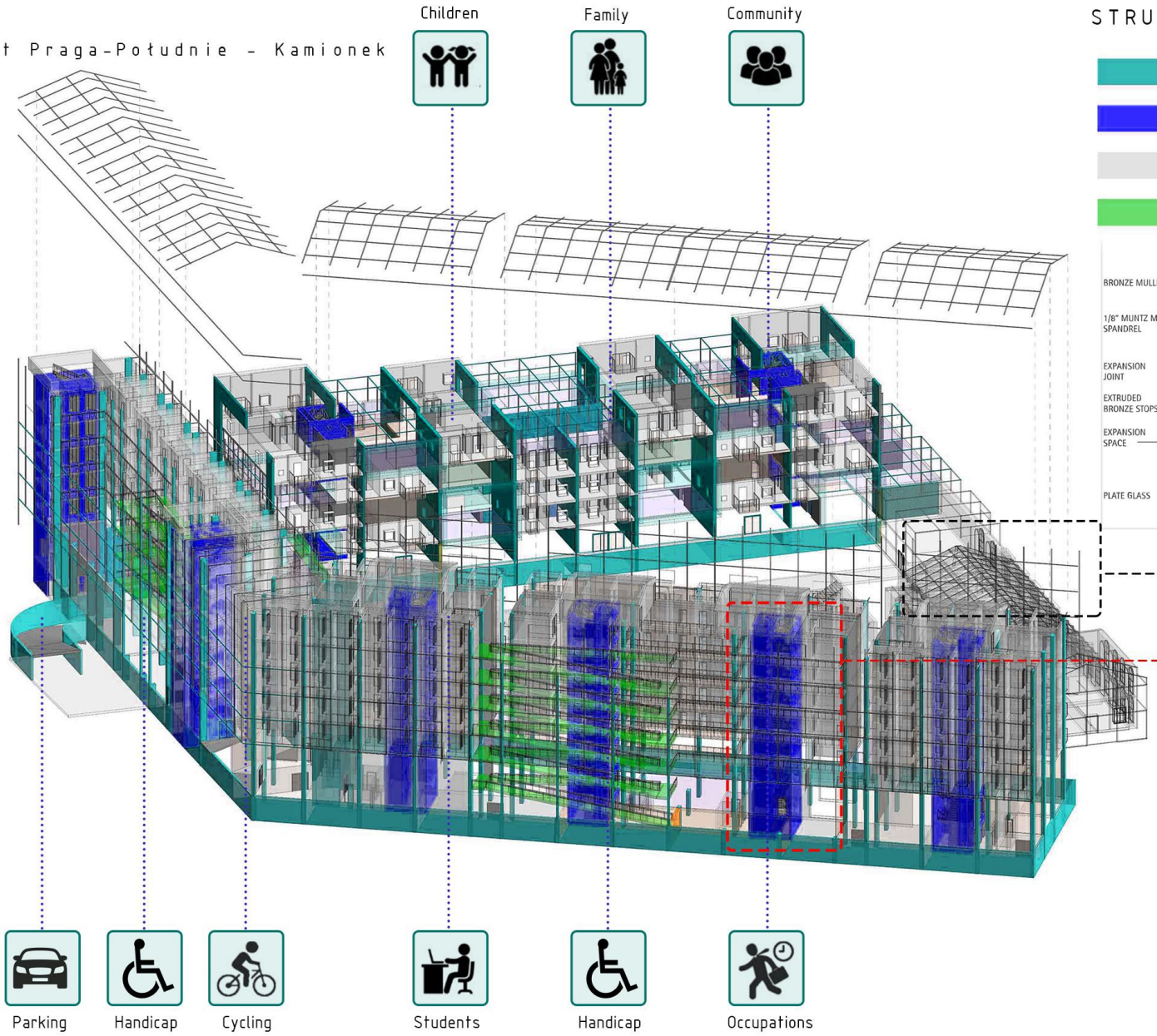


Calculated using the Carbon Calculator below.
Note: figures may vary - but based on typical CEMEX ready-mixed concrete plant.

KALEIDOSCOPE

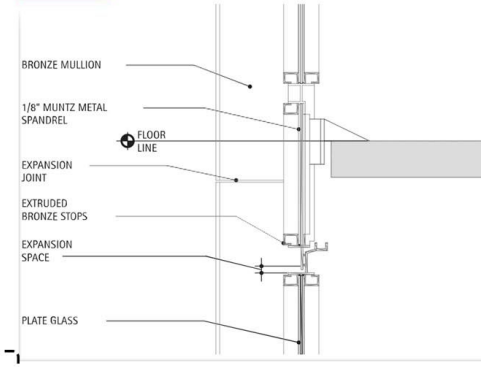
Poland, Warsaw - District Praga-Południe - Kamionek

- 250 dorms units
  220 single rooms
  30 double rooms
- 30+ multi-family housing apartments
- Libraries, study rooms, copy centers
- Restaurant, coffee shop
- Boutiques and shops
- Culture, exhibitions, entertainment
- Identity and history
- Heritage and traditional architecture
- Services and facilities
- Recreational area and plaza
- Natural outdoors and biodiversity



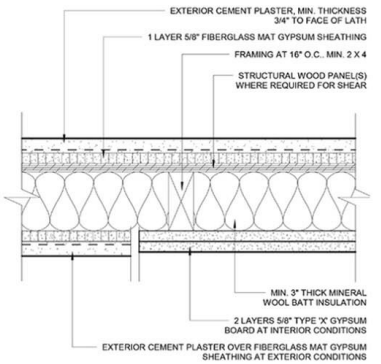
STRUCTURAL SYSTEM

- Bearing Structure & Walls
- Circulation Core
  Main Mechanical & Electrical Shafts
- Floors
- Ramps



Detail on metallic envelope

Detail on 2hrs fire-rated wall



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INSULATION AND TECHNICAL DETAIL

F4 FAÇADE

FAÇADE F4

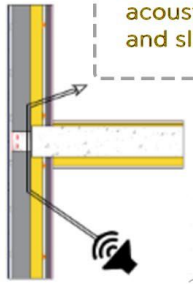
Prefab kit with high thermal and acoustic performances for a light and slim façade

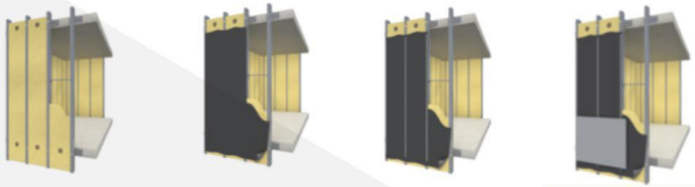
1 Installation of F4 plates

2 Installation of F4 profiles

3 Installation of horizontal joints

4 Installation of joists



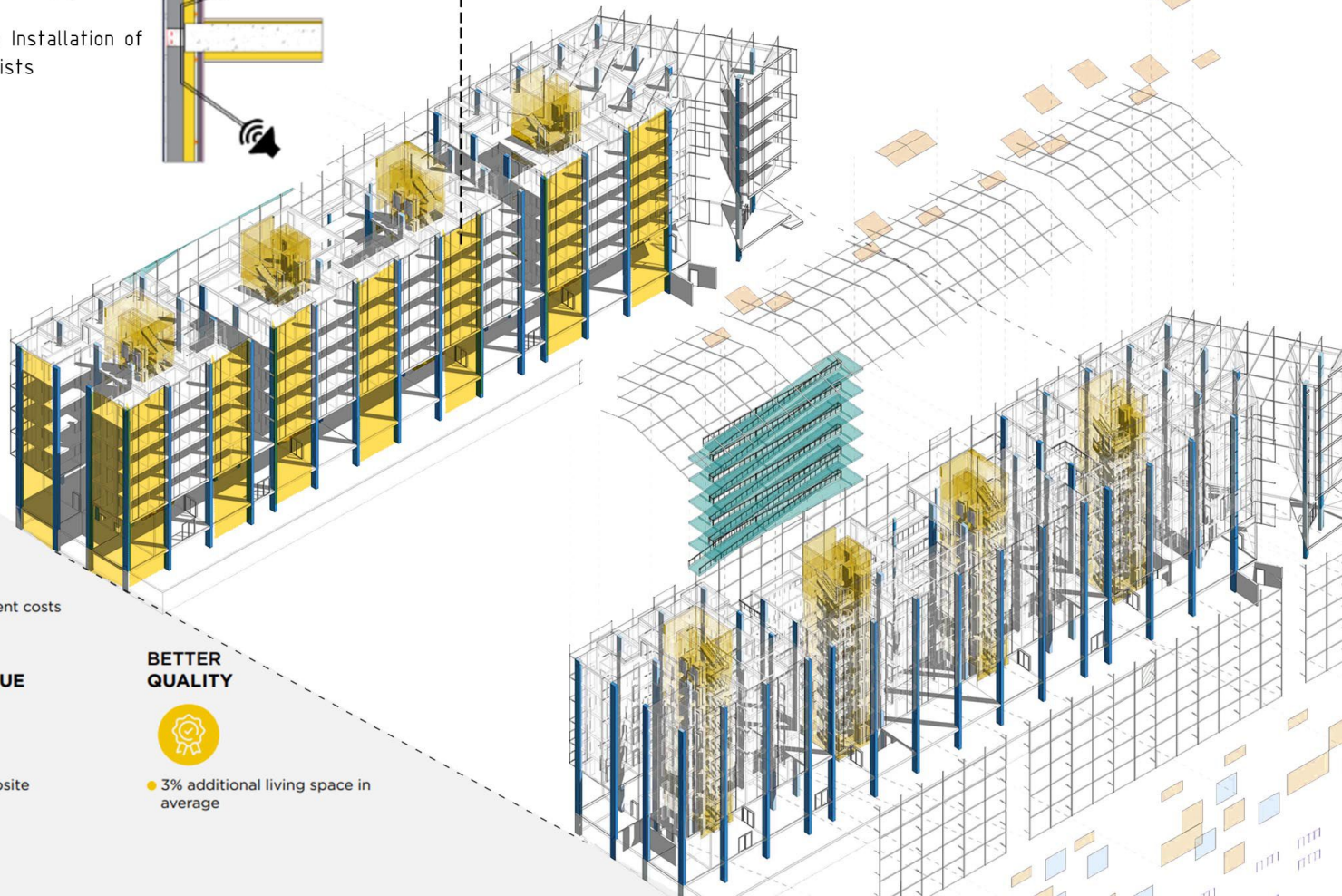


5 Insulation: ISOFACADE 30 or 32

6 Membrane: ISOVER UV-FACADE

7 Installation of cladding interface profiles

8 Cladding



BETTER FOR PEOPLE

- Thermal losses up to 2 times lower than traditional façades
- High acoustic performance
- Dry assembly: low-dust
- Quick to install
- Lower energy bills
- Reduction of equipment costs

BETTER FOR THE PLANET

- Dry assembly: 50% reduction of CO_2 emissions and water consumption
- Optimized transport
- Easily dismountable

BETTER ECONOMIC VALUE

- Time saving on jobsite execution

BETTER QUALITY

- 3% additional living space in average

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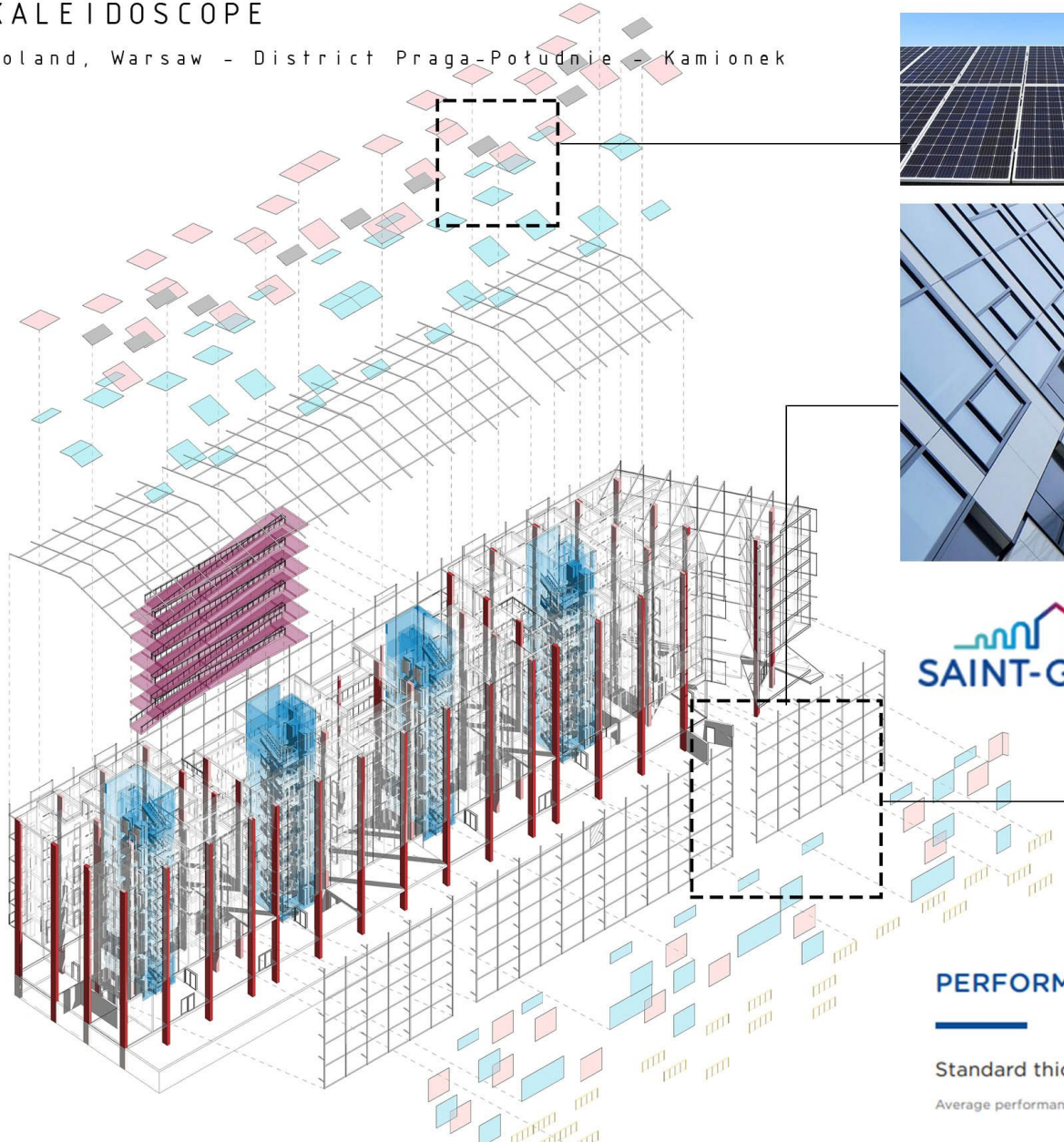
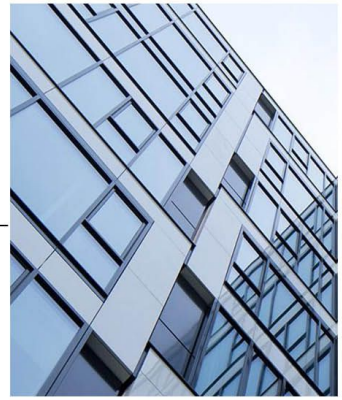




SAINT-GOBAIN

SAINT-GOBAIN MATERIALS, SKIN, SUSTAINABILITY

COOL-LITE SKN series

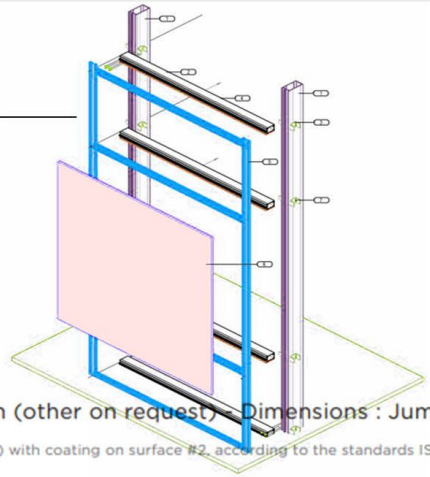
Combining excellent solar control with thermal insulation properties for optimum energy efficiency

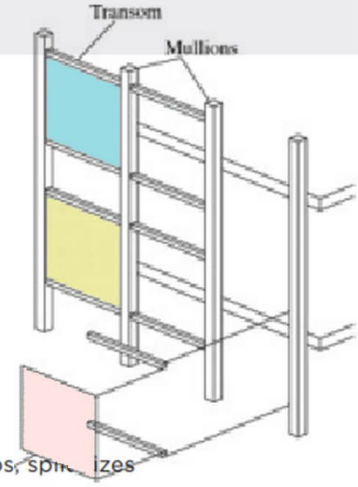
BETTER PLACE FOR PEOPLE

This solution protects interior spaces from heating up while maximizing daylight. Thereby sustainably reducing the cooling, heating and lighting effort required; the result is a bright atmosphere and comfortable room temperature – in any season.

- SOLAR CONTROL
- TEMPERATURE CONTROL LOW-E
- DAYLIGHT COMFORT (from 30% to 70% transparency)
- ENERGY SAVINGS
- COLORED, REFLECTIVE OR NEUTRAL AESTHETICS

STICK SYSTEM- CURTAIN WALL





PERFORMANCES

Standard thicknesses : 6-8-10 mm (other on request) - Dimensions : Jumbos, spi... izes

Average performance values of DGU (6+12+6 mm) with coating on surface #2, according to the standards ISO 9050 m1 /EN 673² and to the standards NFRC 100

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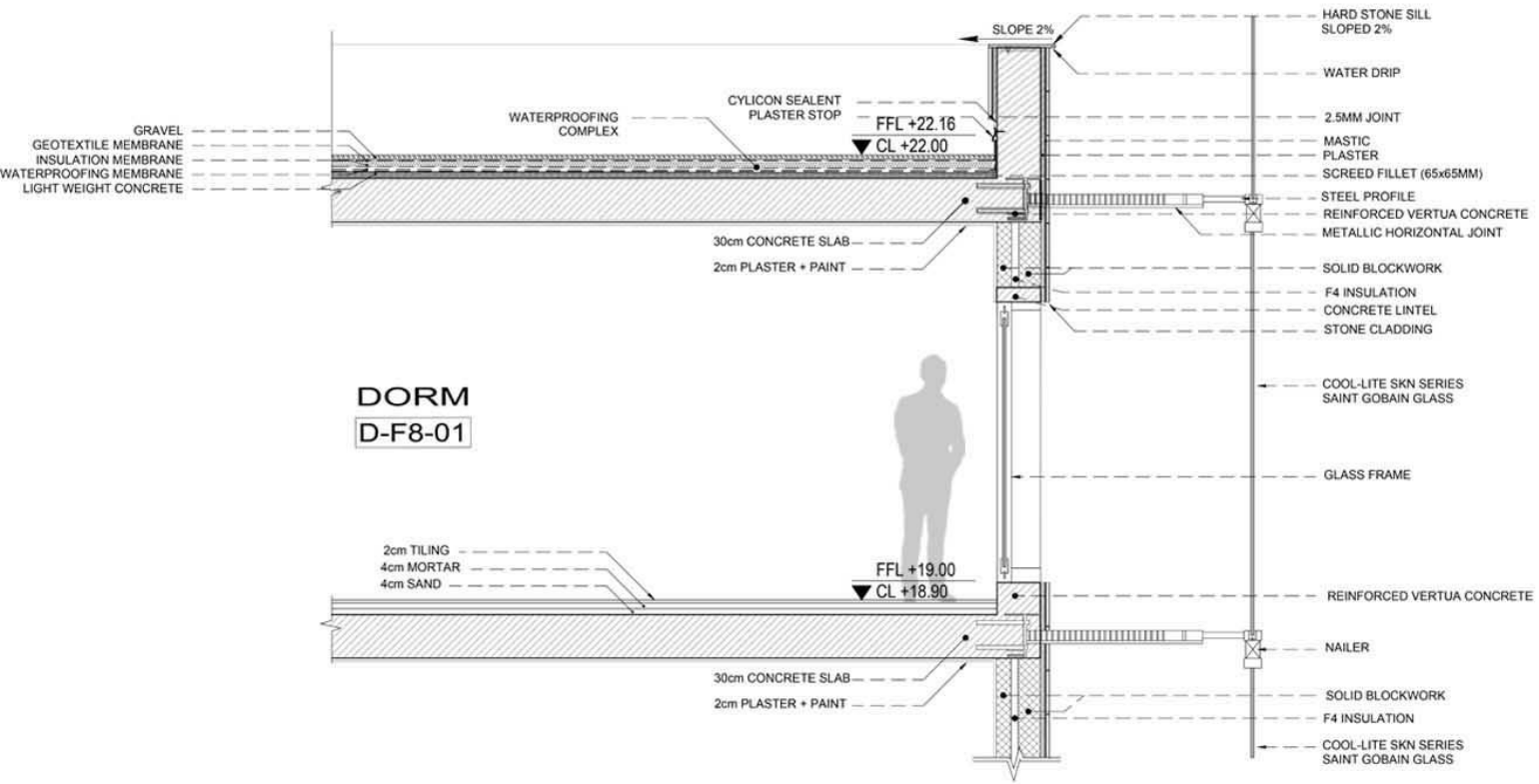
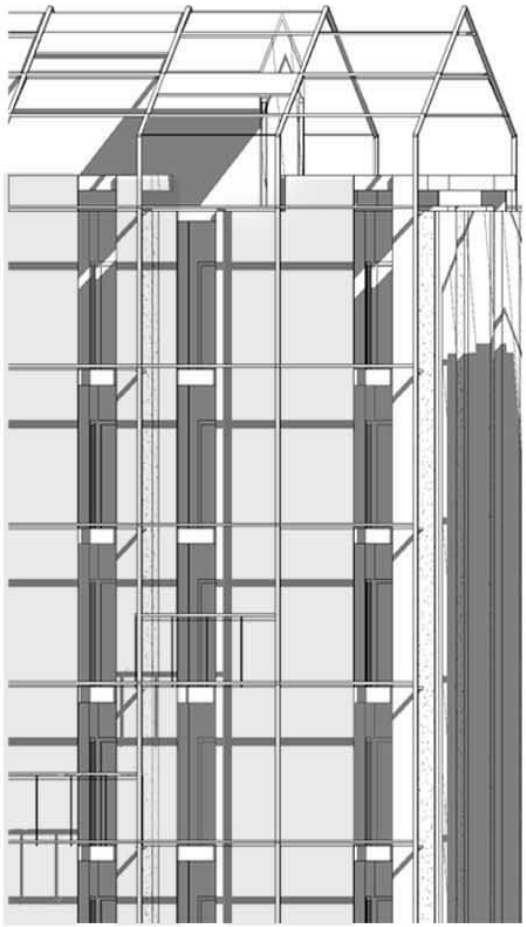
DETAILED SECTION





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Feel THERMAL COMFORT | Hear ACOUSTIC COMFORT | Breathe INDOOR AIR COMFORT | See VISUAL COMFORT

MULTI-COMFORT

1 SAINT-GOBAIN **COOL-LITE SKN SERIES**

Average performance values of DGU (6+12+6 mm) with coating on surface #2, according to the standards ISO 9050 m1 /EN 6732 and to the standards NFRC 100

2 ISOVER SAINT-GOBAIN Placo SAINT-GOBAIN **F4 FACADE**

Floor thermal bridge: Ψ = 0.28 W/(m.K)

Wall loss: High = 0.20 to 0.10 W/(m2.K)

Thermal losses up to 2 times lower than traditional façades

3 **PV SOLAR PANELS**

-Used for hot water or to generate steam and electricity
-Economical LED lighting, **More light and Less heat**
-Correct concept of solar gains usage

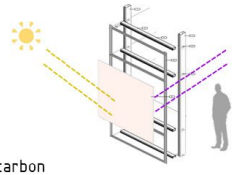
4 **NATURAL VENTILATION & LIGHTING**

-Facade ventilation cooling the building envelope

-Use of light colored glass and materials with higher reflectivity than absorption

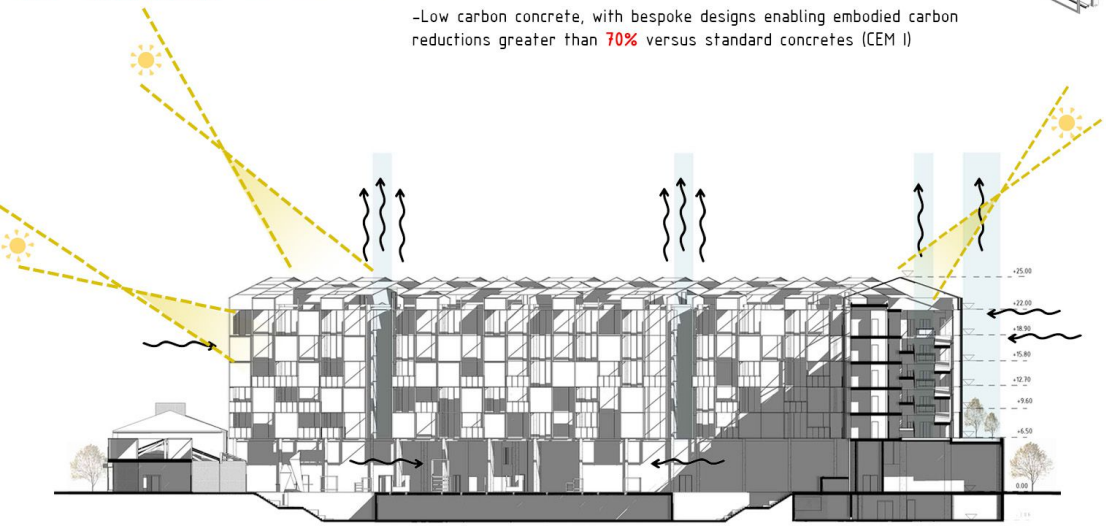
5 **GREEN HOUSE ON ROOF**

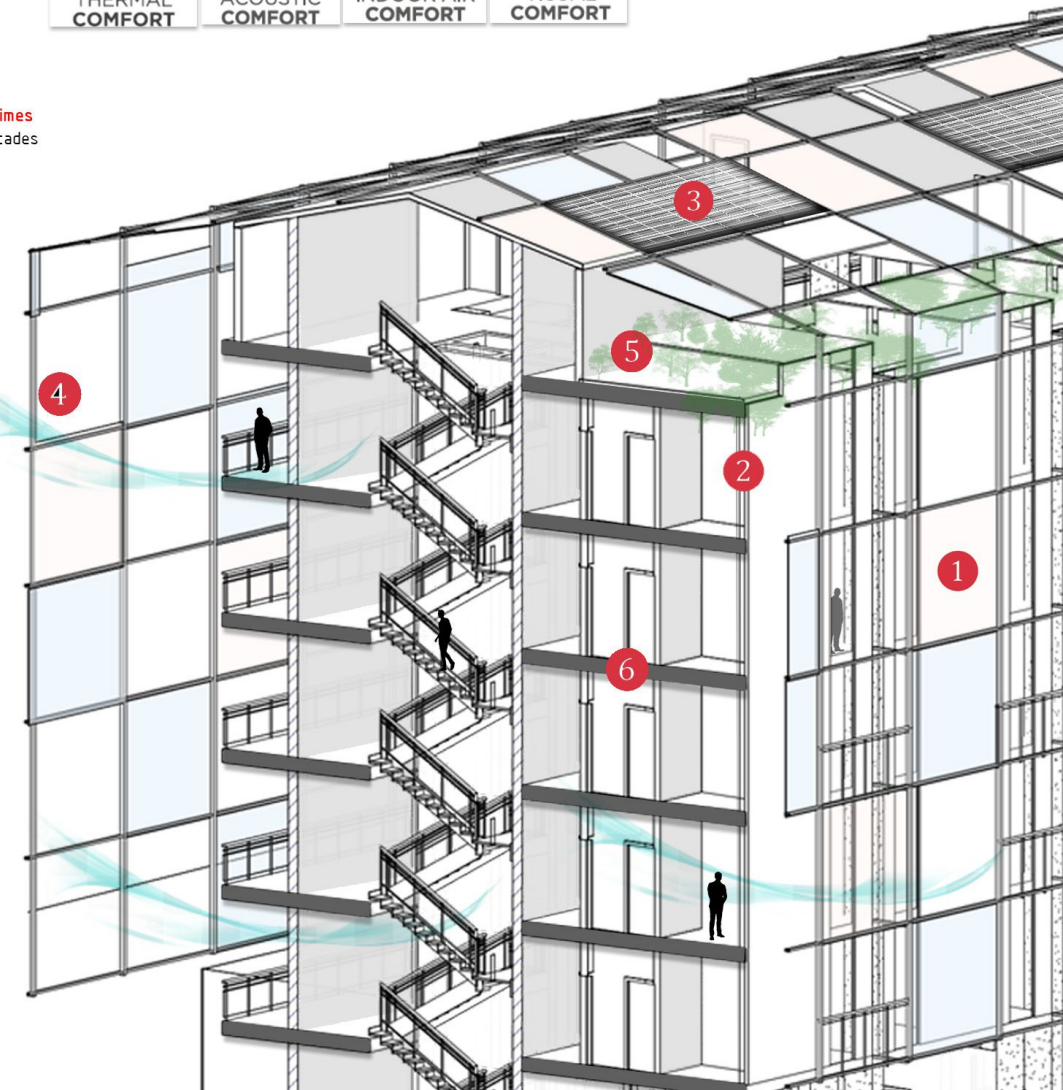
-Vegetation cooling the microclimate
-O2 production



6 Vertua Low carbon by design | CEMEX **LOW CARBON CONCRETE**

-Low carbon concrete, with bespoke designs enabling embodied carbon reductions greater than 70% versus standard concretes (CEM I)





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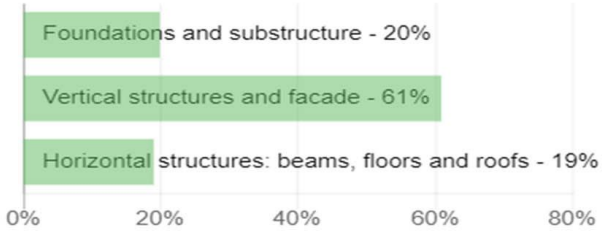
CARBON EMISSION AND ENERGY CONSUMPTION

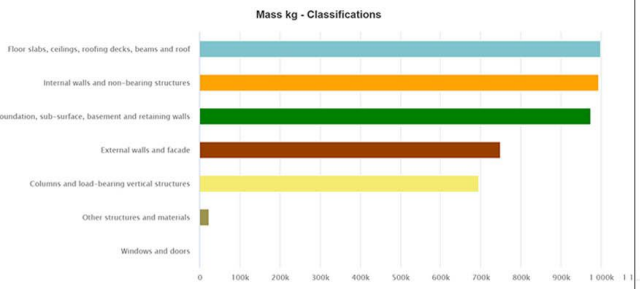
F4 FACADE

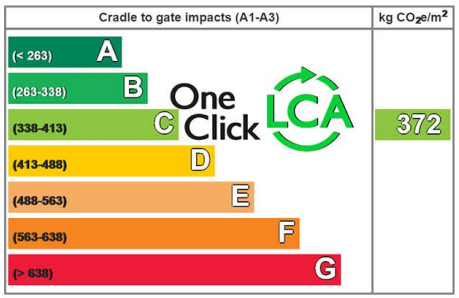
Performances thermiques de la Façade F4 paroi courante :

				BBC	BEPOS
Up Façade F4 (W/(m².K))	0,20	0,17	0,16	0,14	0,10
Ep. totale de la paroi hors bardage (mm)	282	302	322	342	432
Ep. Isofaçade 32 + Isoconfort 32 (mm)	120 + 80	120 + 100	120 + 120	120 + 140	120 + 230

MATERIAL USE BY MASS BY SRUCTURE



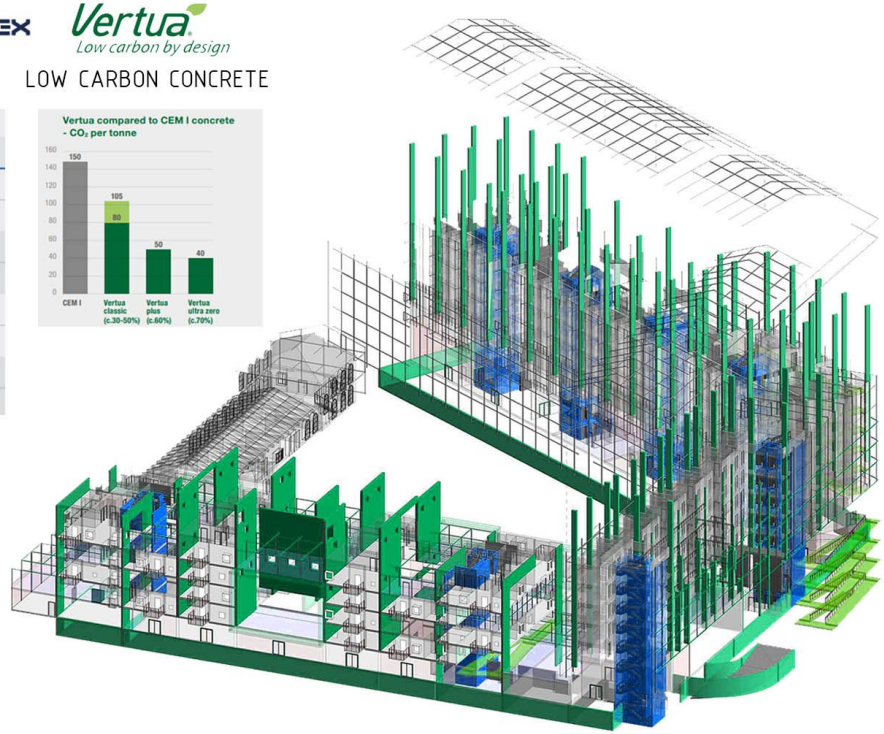




GLASS ENVELOPE COOL-LITE SKN SERIES

Product	Norm	Light Transmittance LT (%)	Solar Factor g -value	Shading Coefficient SC	External Light Reflectance LRe (%)	Internal Light Reflectance LRi (%)	U-Value W/(m².K) 12mm air	U-Value W/(m².K) 16mm argon
SKN 176 II	ISO	70	0.35	0.40	13	15	1.5	1.0
	NFRC	70	0.34	0.39	13	15	1.61	1.39
SKN 165 II	ISO	60	0.32	0.36	16	17	1.5	1.0
	NFRC	60	0.31	0.36	16	17	1.63	1.41
SKN 154 II	ISO	50	0.26	0.30	18	26	1.5	1.0
	NFRC	50	0.26	0.30	18	26	1.61	1.39
SKN 144 II	ISO	40	0.23	0.26	20	12	1.6	1.1
	NFRC	40	0.22	0.26	20	12	1.64	1.42

LOW CARBON CONCRETE



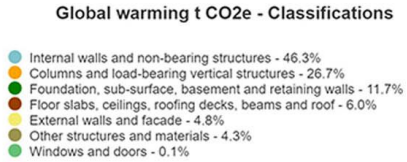
PROJECT DATA

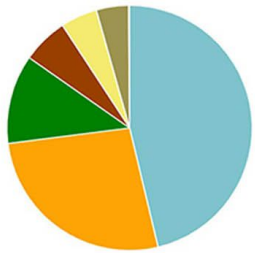
Climate Zone: Poland, Warsaw

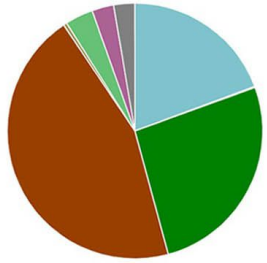
Construction: New Building + Renovation of Factory

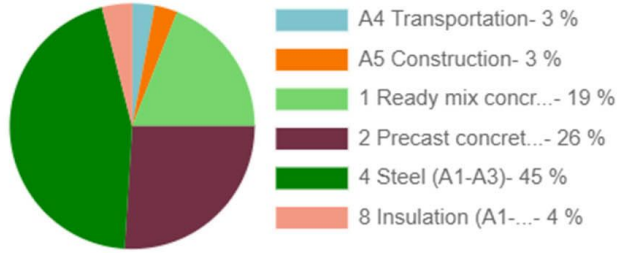
Building Type: Public/Residential Complex (Dorms, Facilities, Services, Culture)

Usage: For living









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FIRE SAFETY GROUND FLOOR PLAN

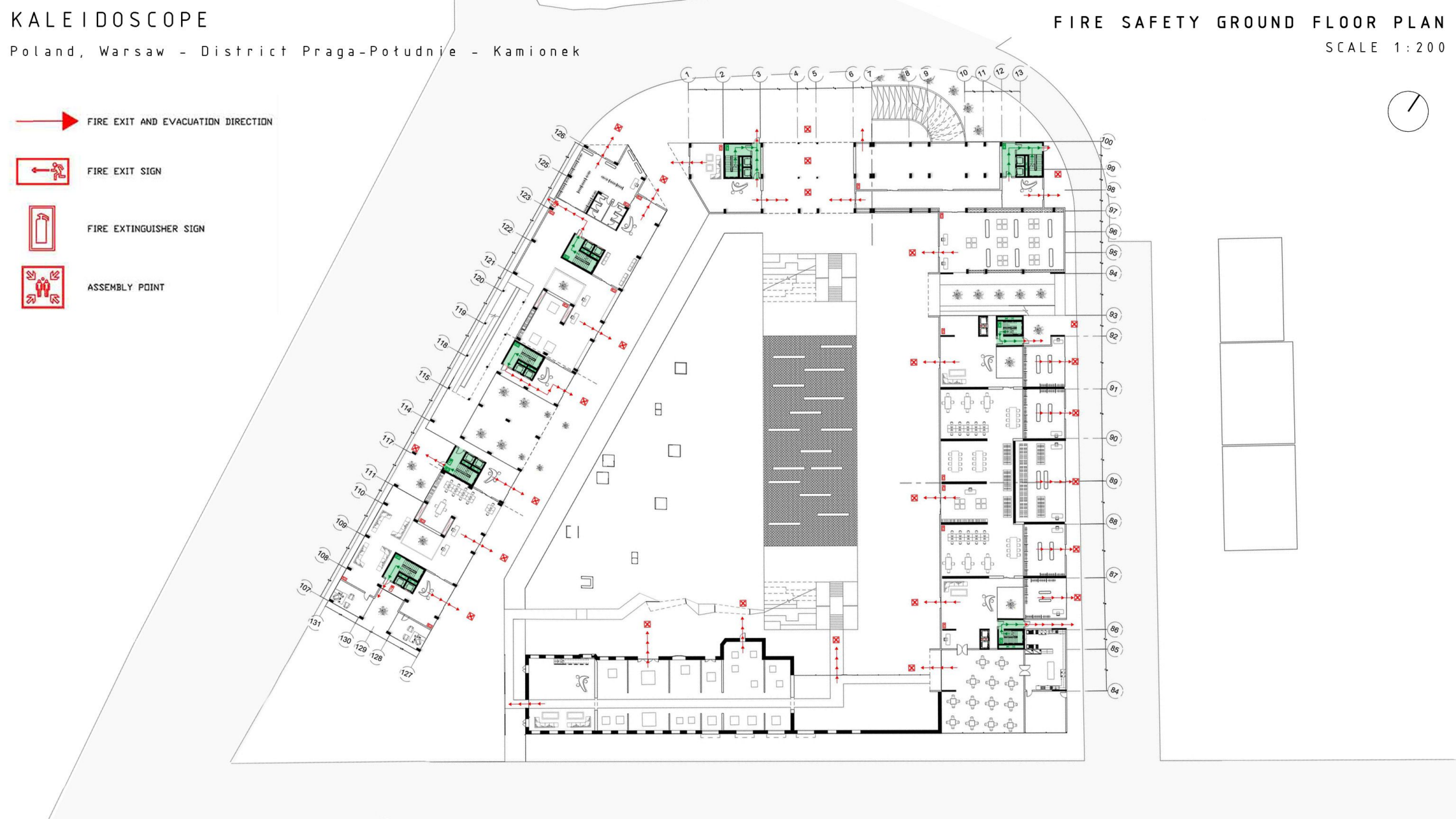
SCALE 1:200

FIRE EXIT AND EVACUATION DIRECTION

FIRE EXIT SIGN

FIRE EXTINGUISHER SIGN

ASSEMBLY POINT



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FIRE SAFETY TYPICAL FLOOR PLAN

SCALE 1:200

FIRE EXIT AND EVACUATION DIRECTION

FIRE EXIT SIGN

FIRE EXTINGUISHER SIGN

ASSEMBLY POINT

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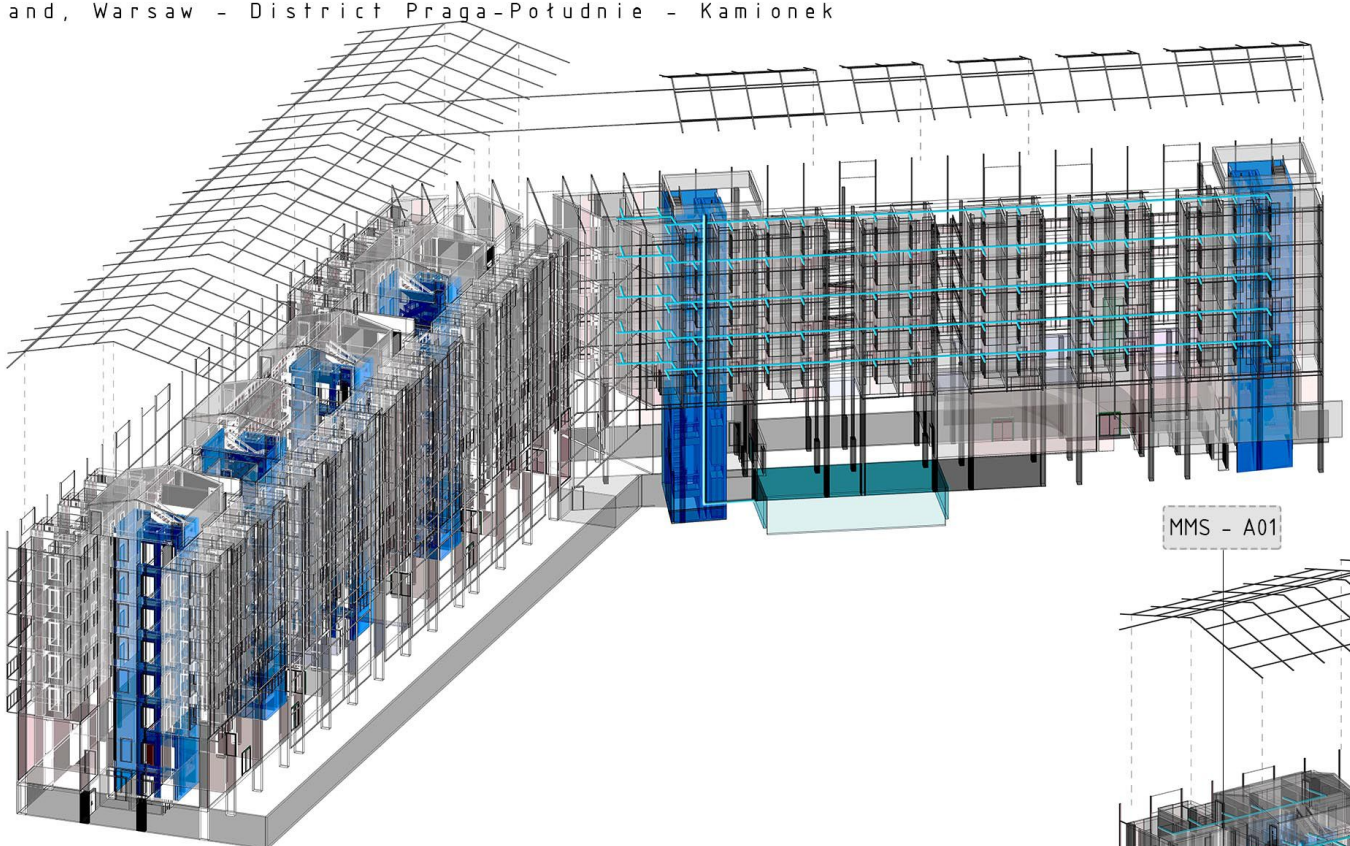
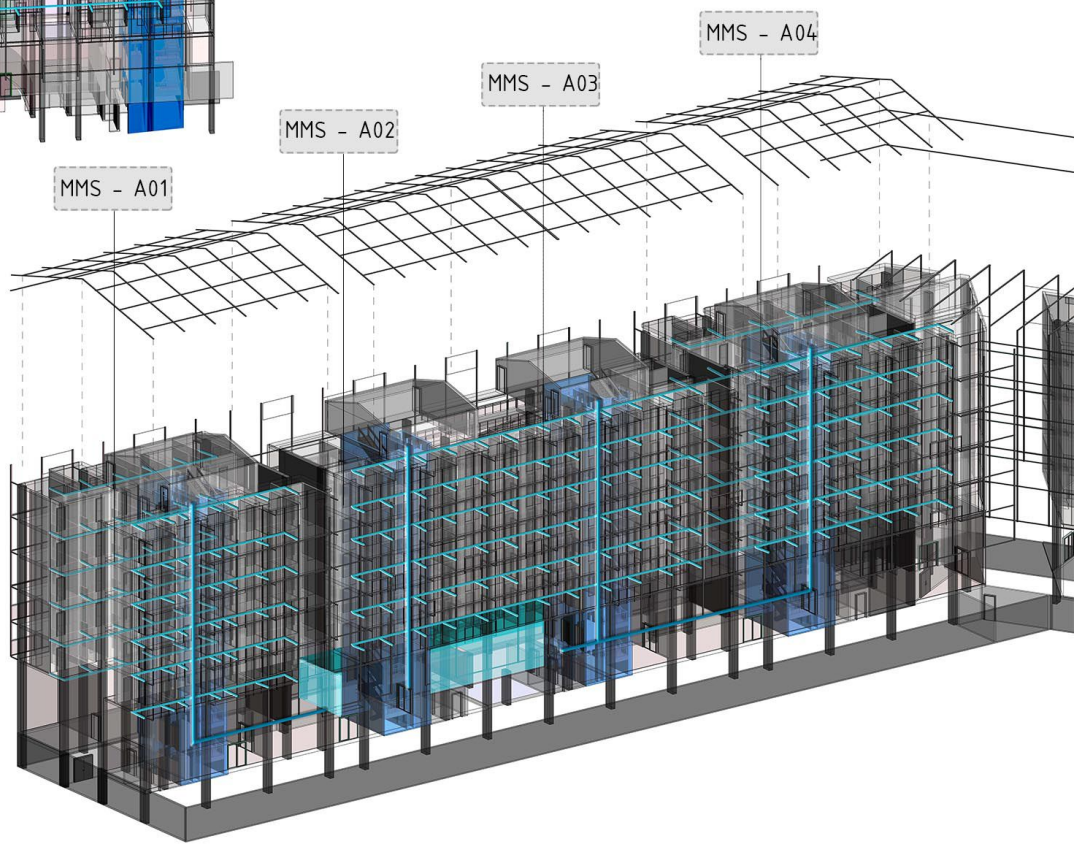
MEP - WATER SUPPLY

DORMS

- Mechanical Main Shafts
- Watertanks





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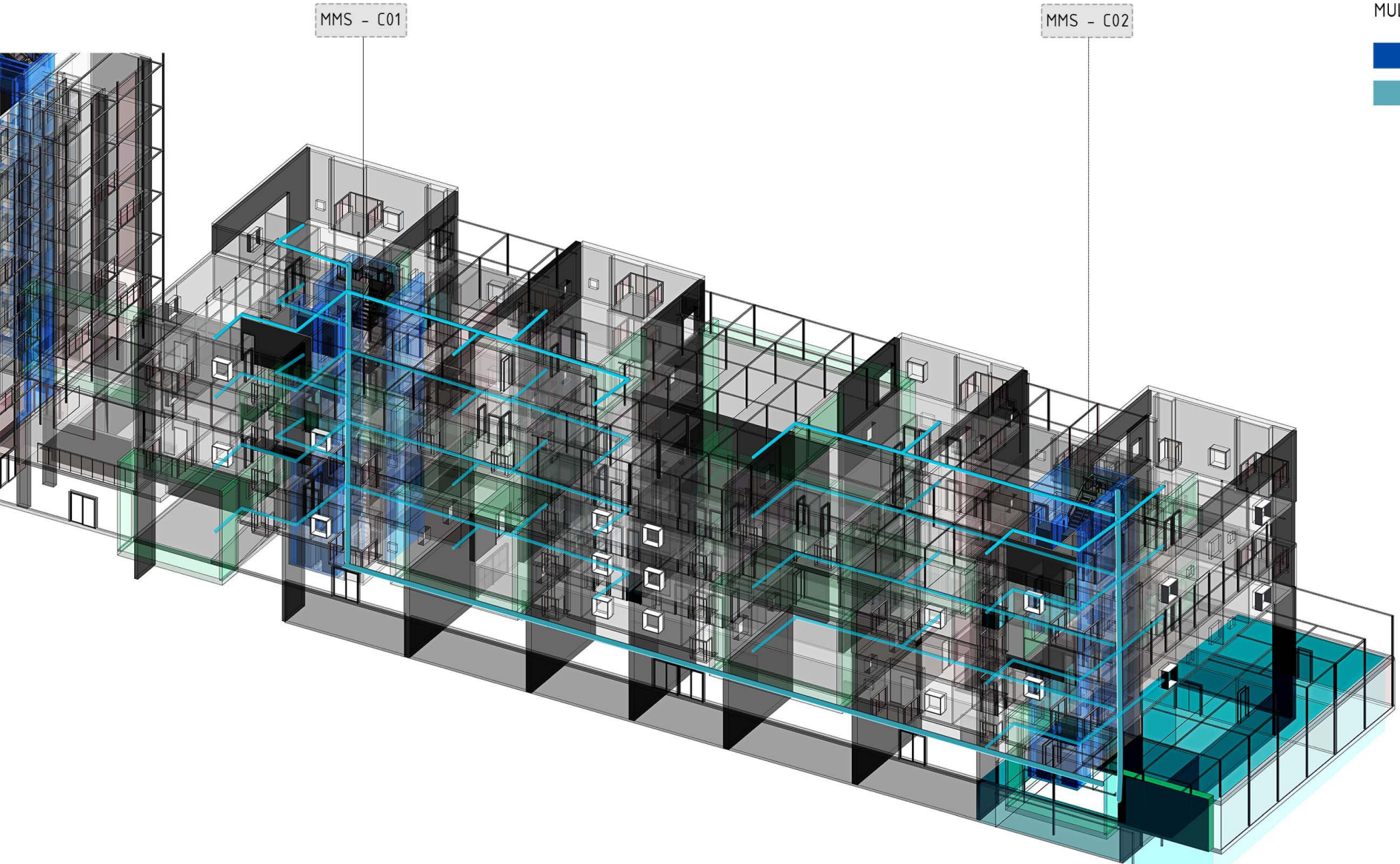
MEP - WATER SUPPLY

MULTI-FAMILY COMPLEX

Mechanical Main Shafts

Watertanks



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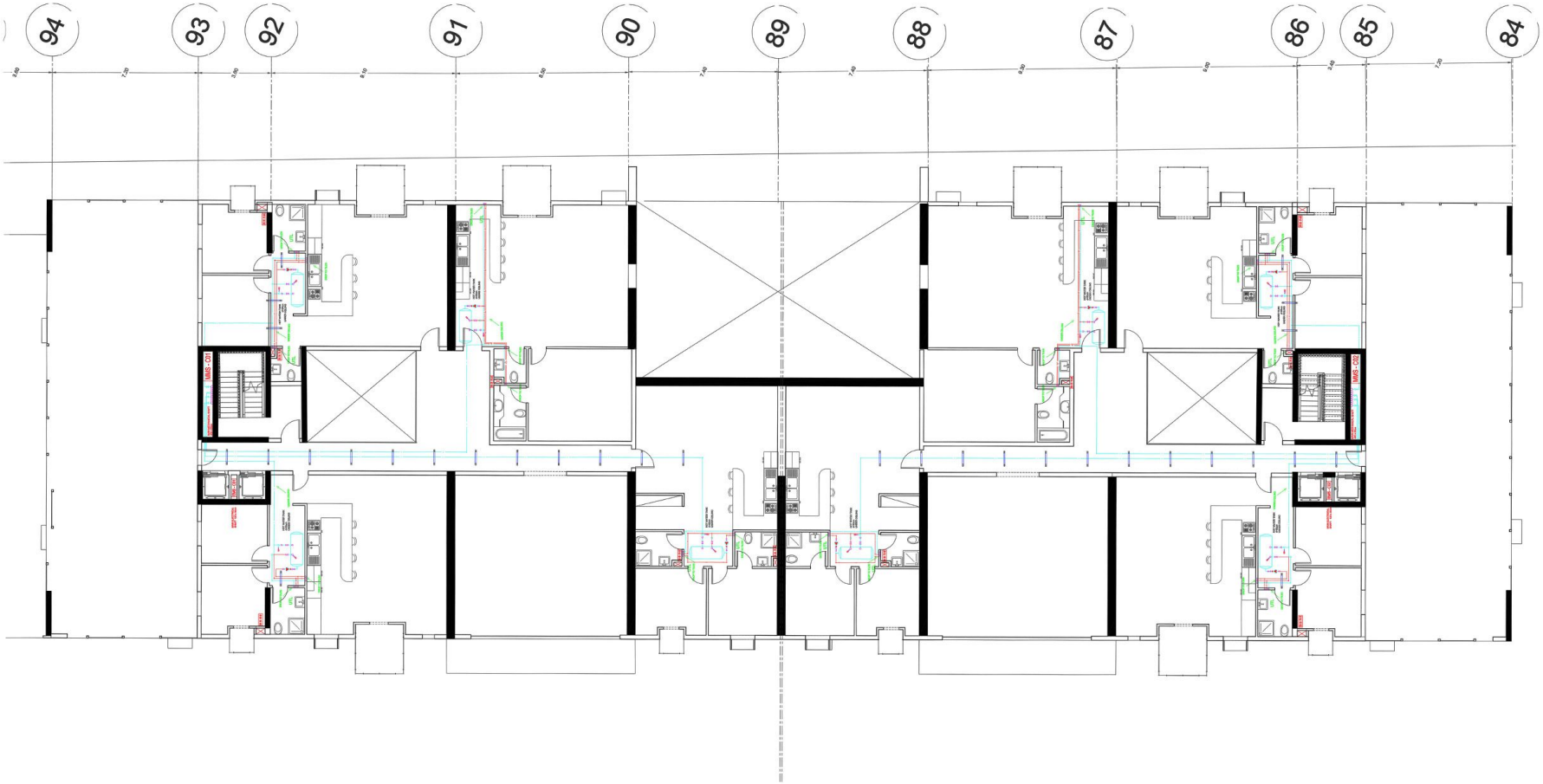
MEP - WATER SUPPLY

Floor Plan Level 04



LEGEND

UNDER CEILING	UCL
UNDER TILES	UTL
TO HIGH LEVEL	THL
TO LOW LEVEL	TLL
COLD WATER PIPE	CW
HOT WATER PIPE	HW
HOT WATER RETURN PIPE	HWR
WASHING MACHINE	W.M
DISH WASHER	D.W
GATE VALVE	GV
STORAGE WATER HEATER	HWT
CIRCULATOR OR PUMP	CIR

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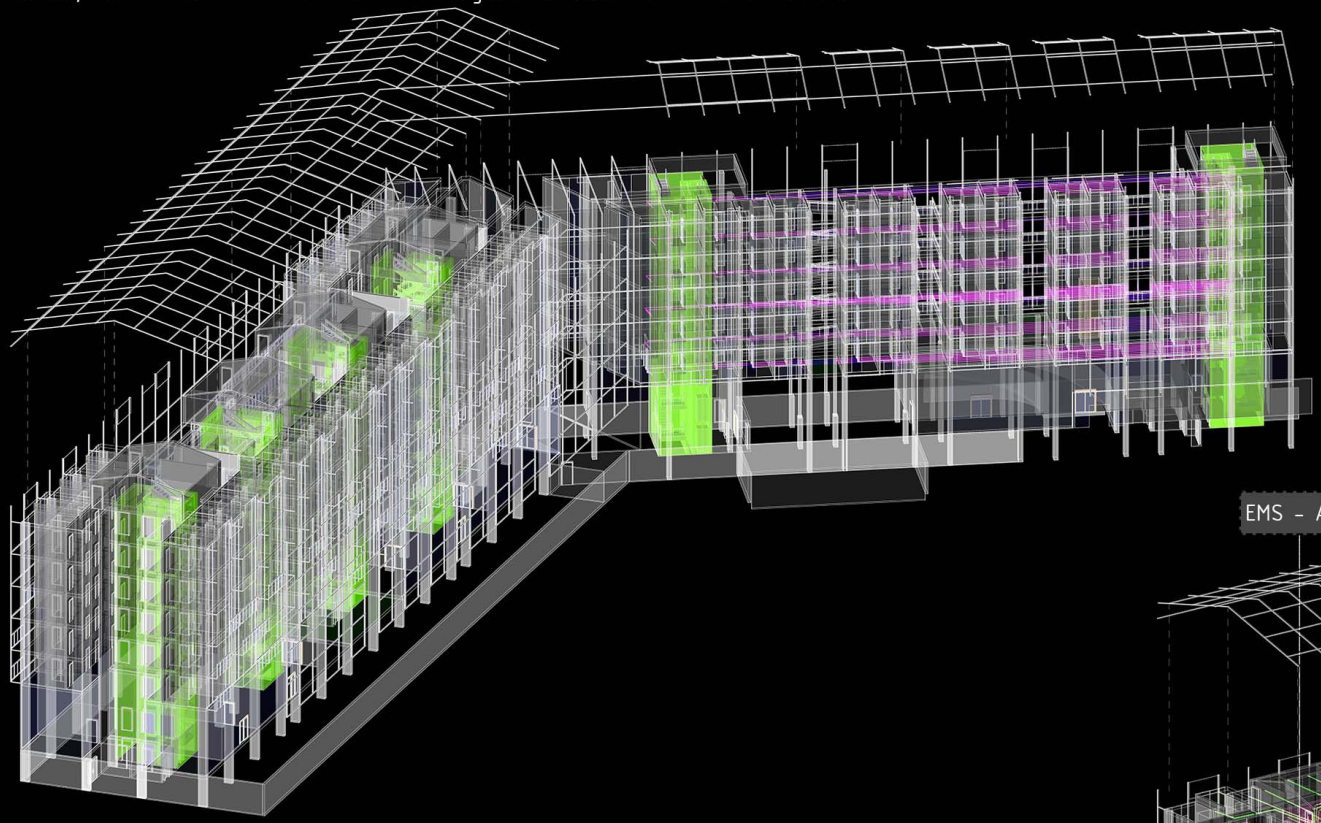
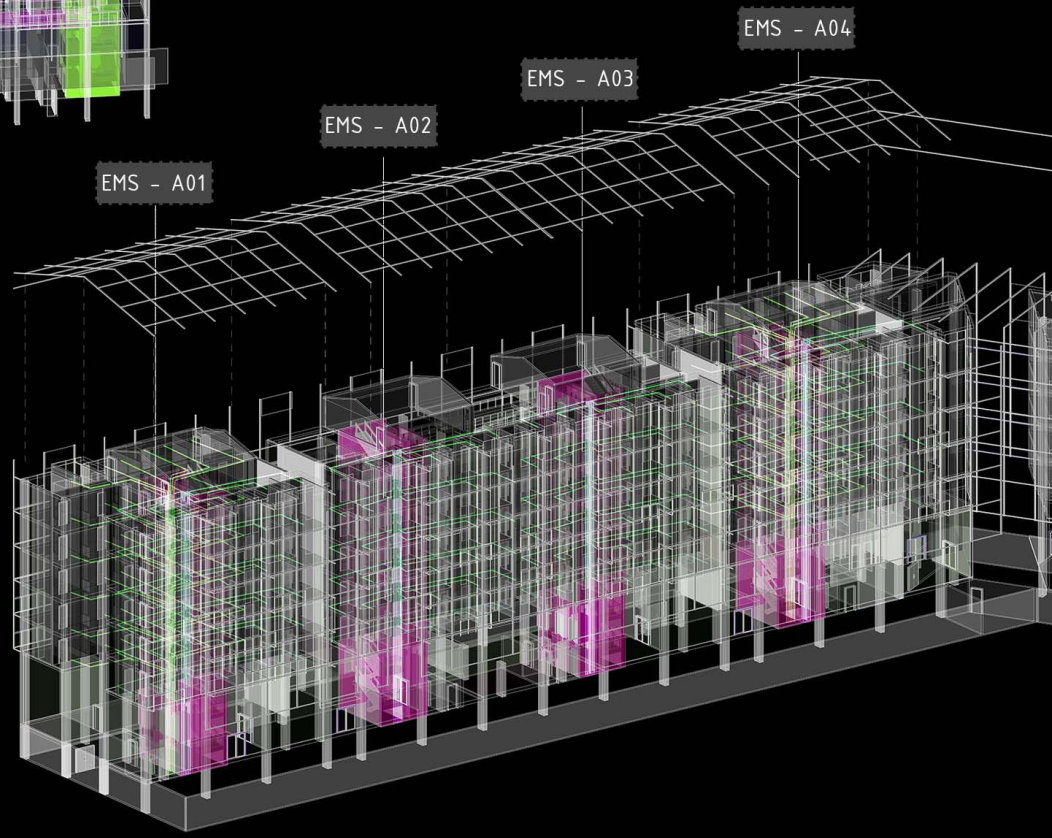
MEP - ELECTRICAL SUPPLY

DORMS



Electrical Main Shafts

Horizontal Distribution



Electrical Main Shafts

Horizontal Distribution

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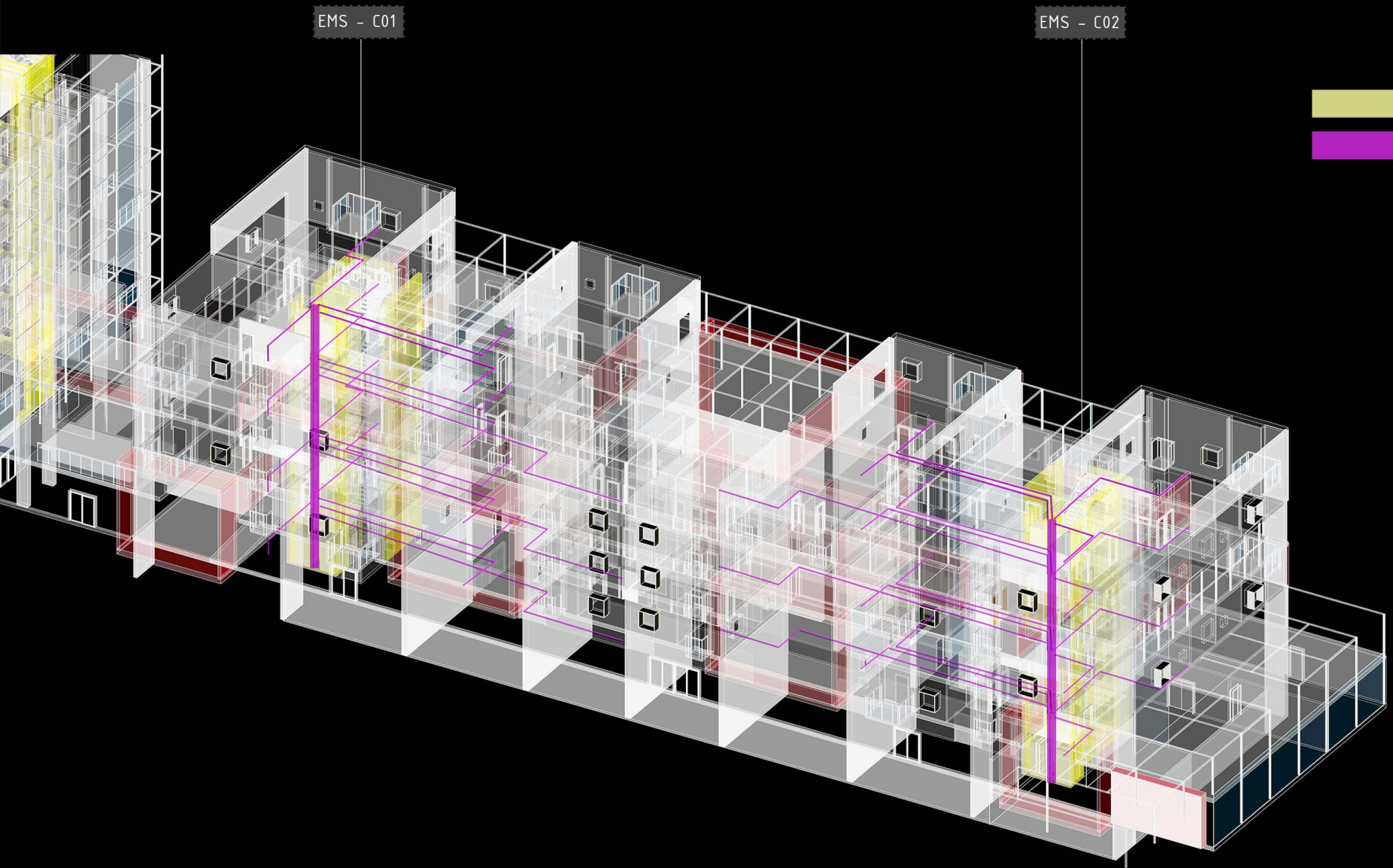
MEP - ELECTRICAL SUPPLY

MULTI-FAMILY COMPLEX



"Architecture is the learned game, correct and magnificent, of forms assembled in the light"

Le Corbusier