ORIGIN

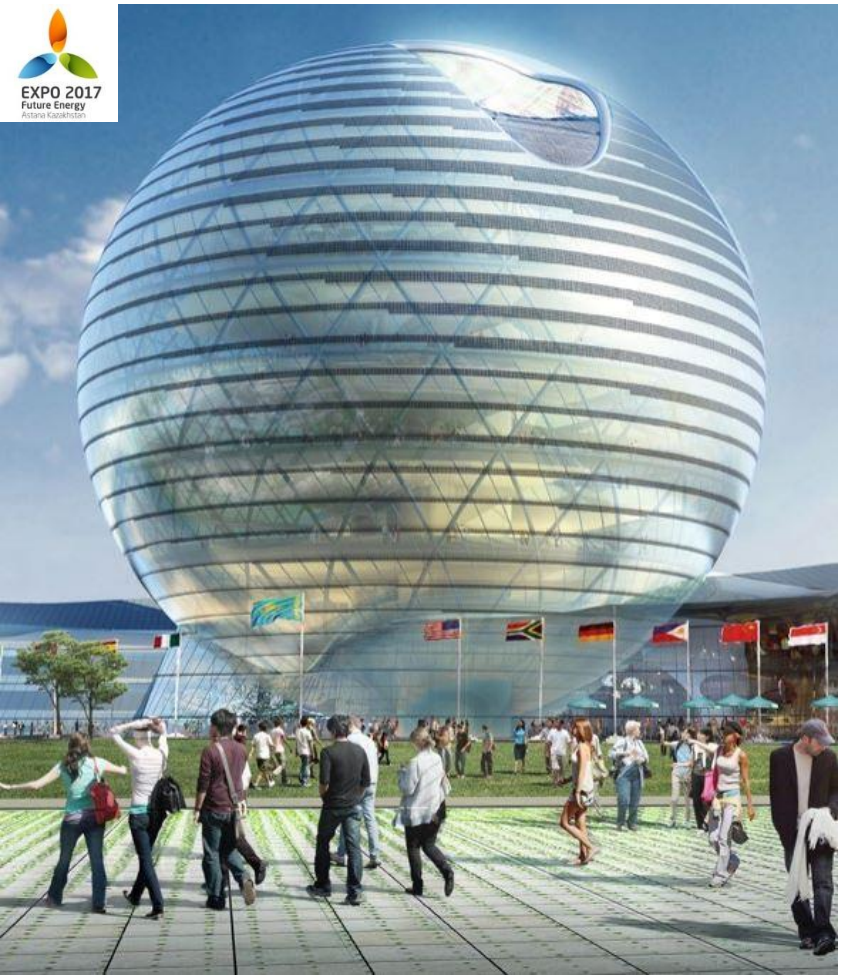
CLARITY. HARMONY. SUSTAINABILITY

Kazakhstan, KAZGASA, 1st Prize, Ruslan Abildinov, Valeriya Sidorenko, Iwan Schröder

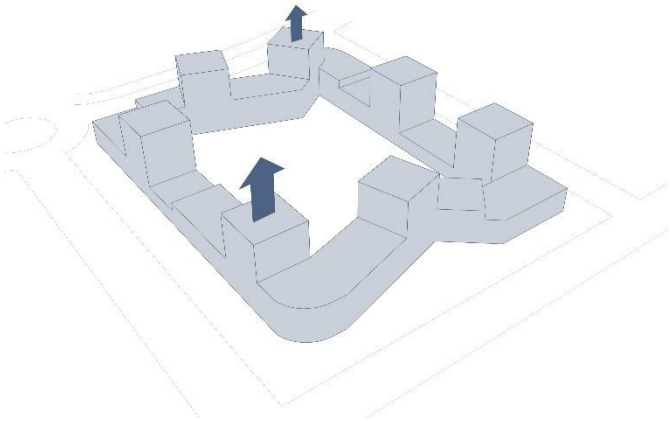
CONCEPT

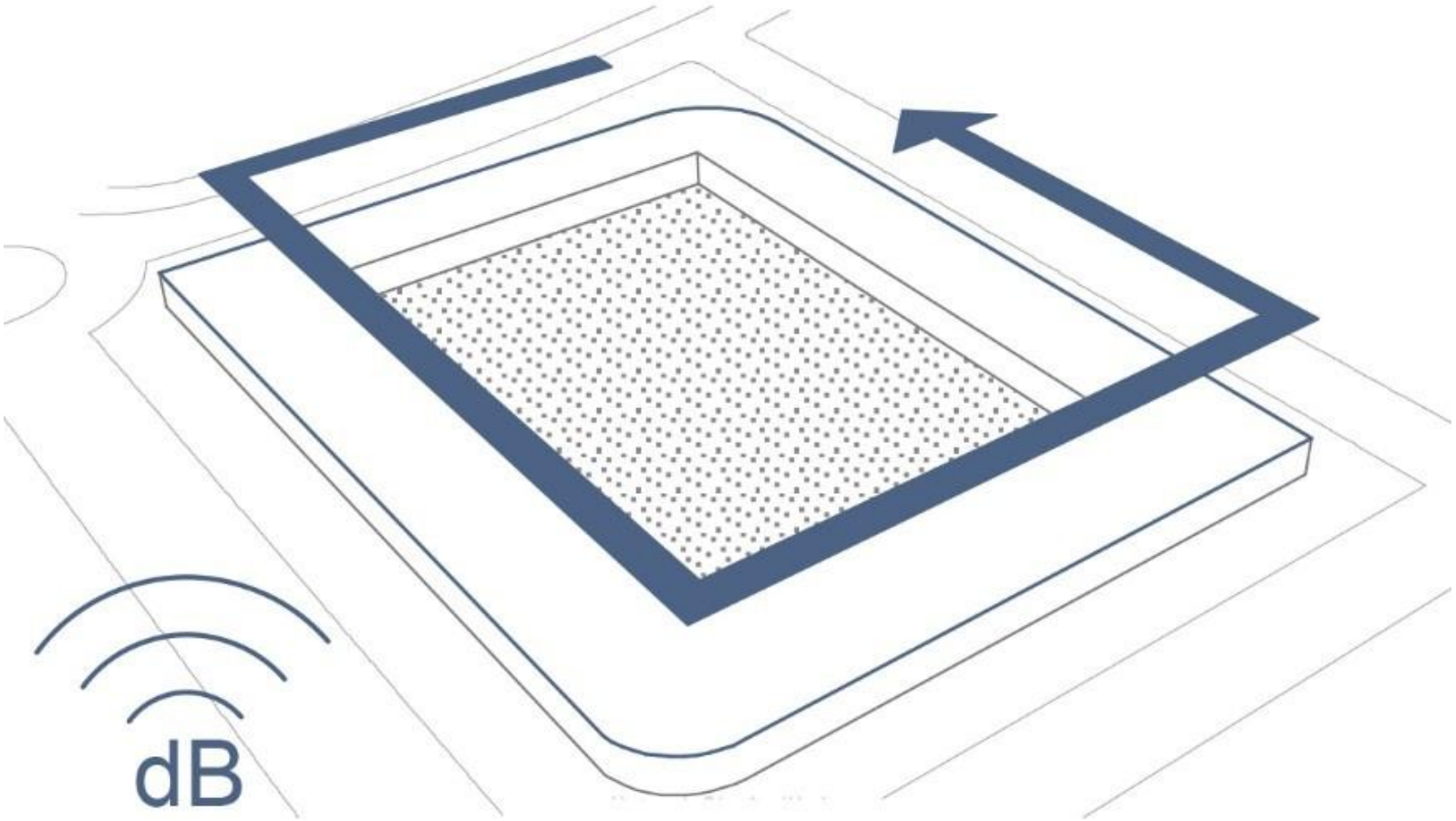
LOCATION OF PROJECT

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY

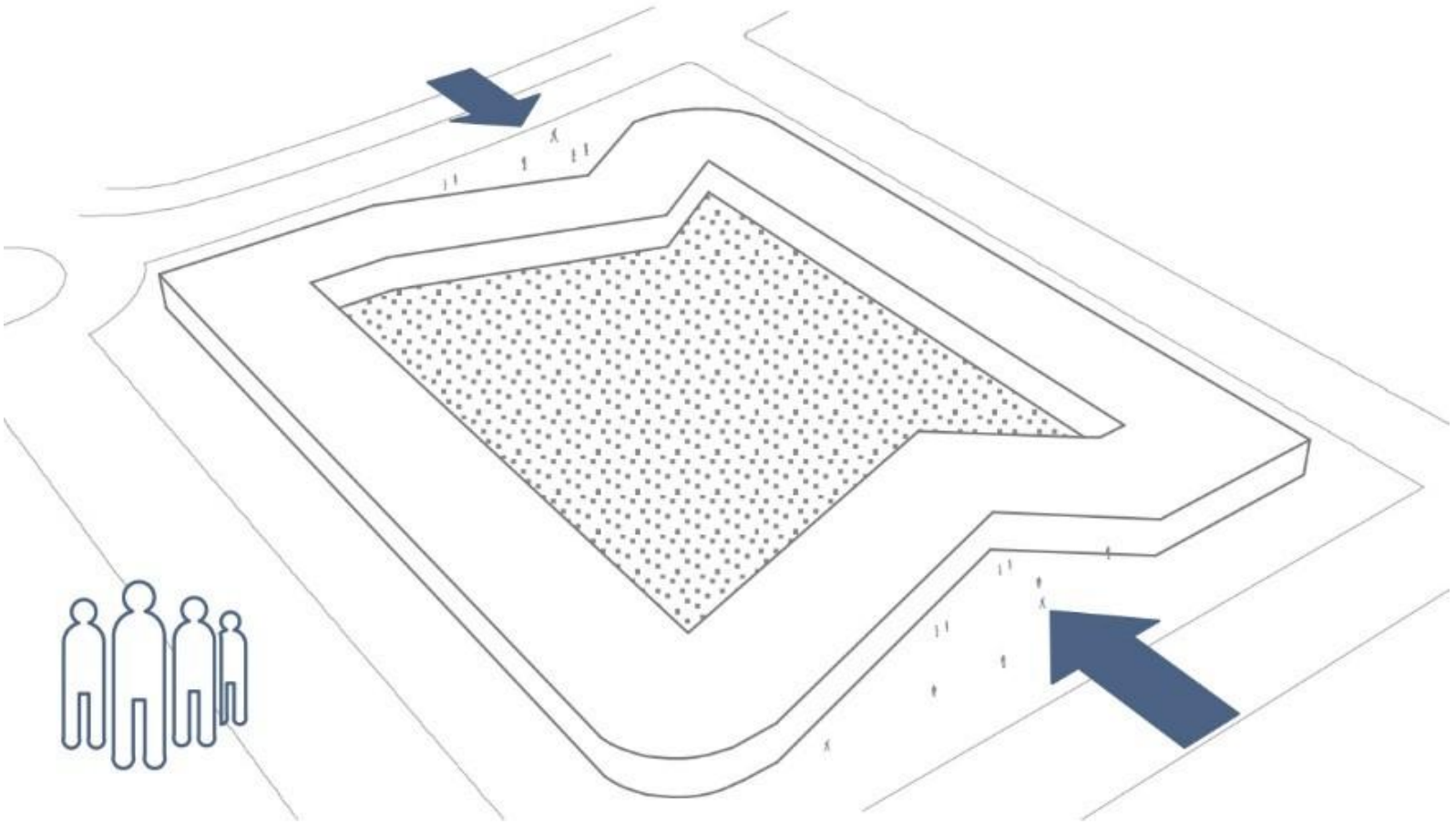


CLARITY , HARMONY , SUSTAINABILITY

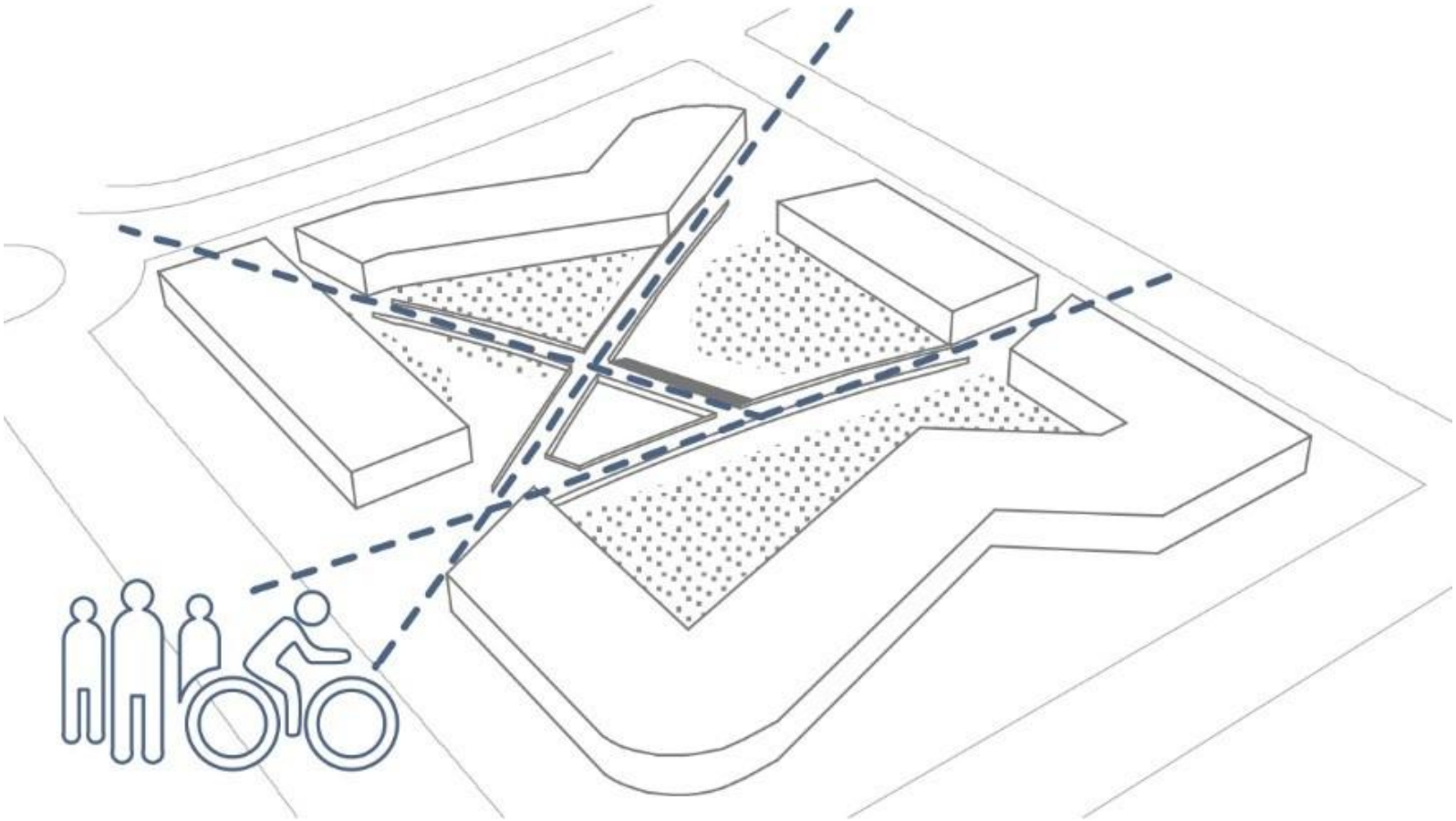




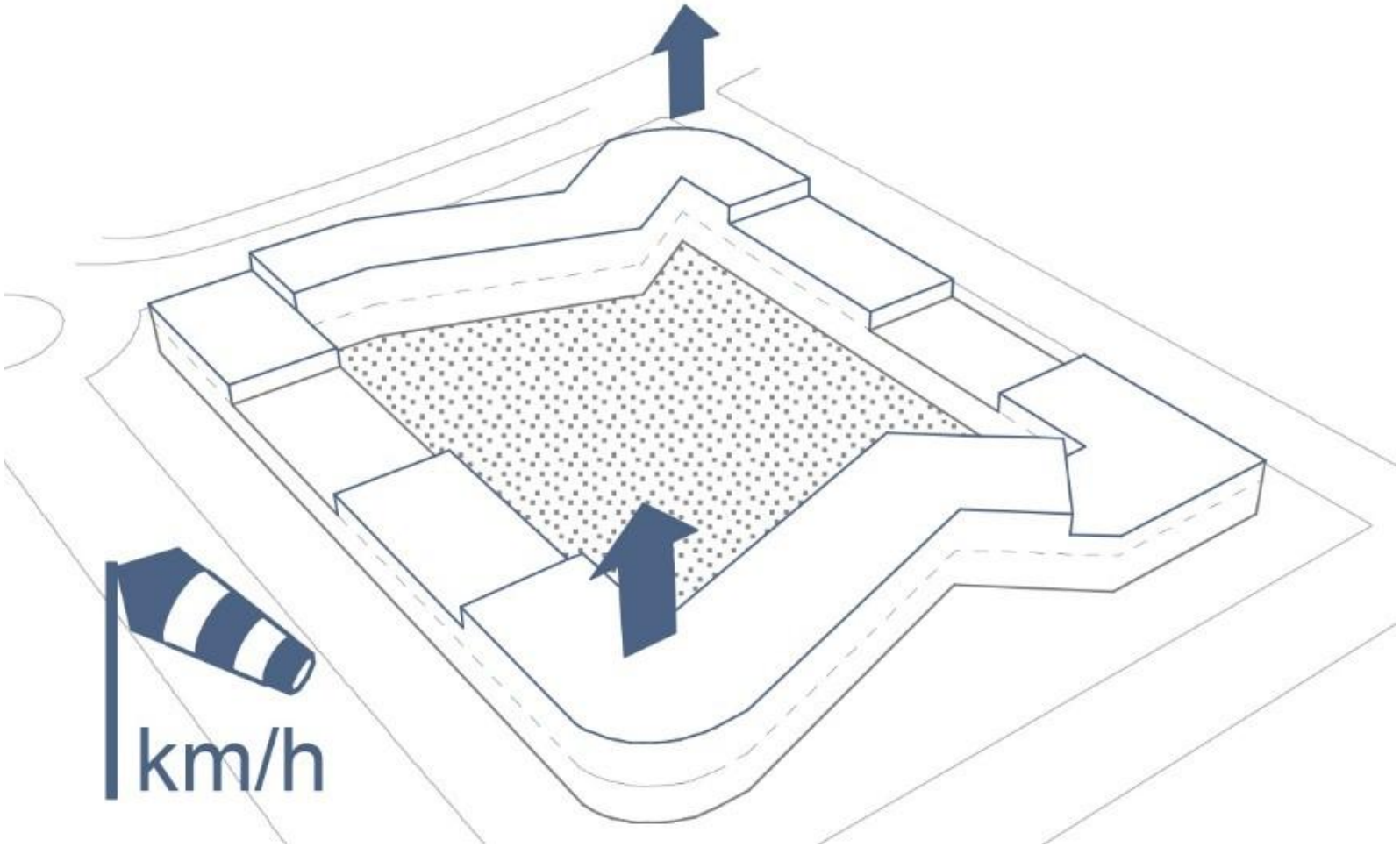
Noise isolation and solitude of the
internal space of the residential complex



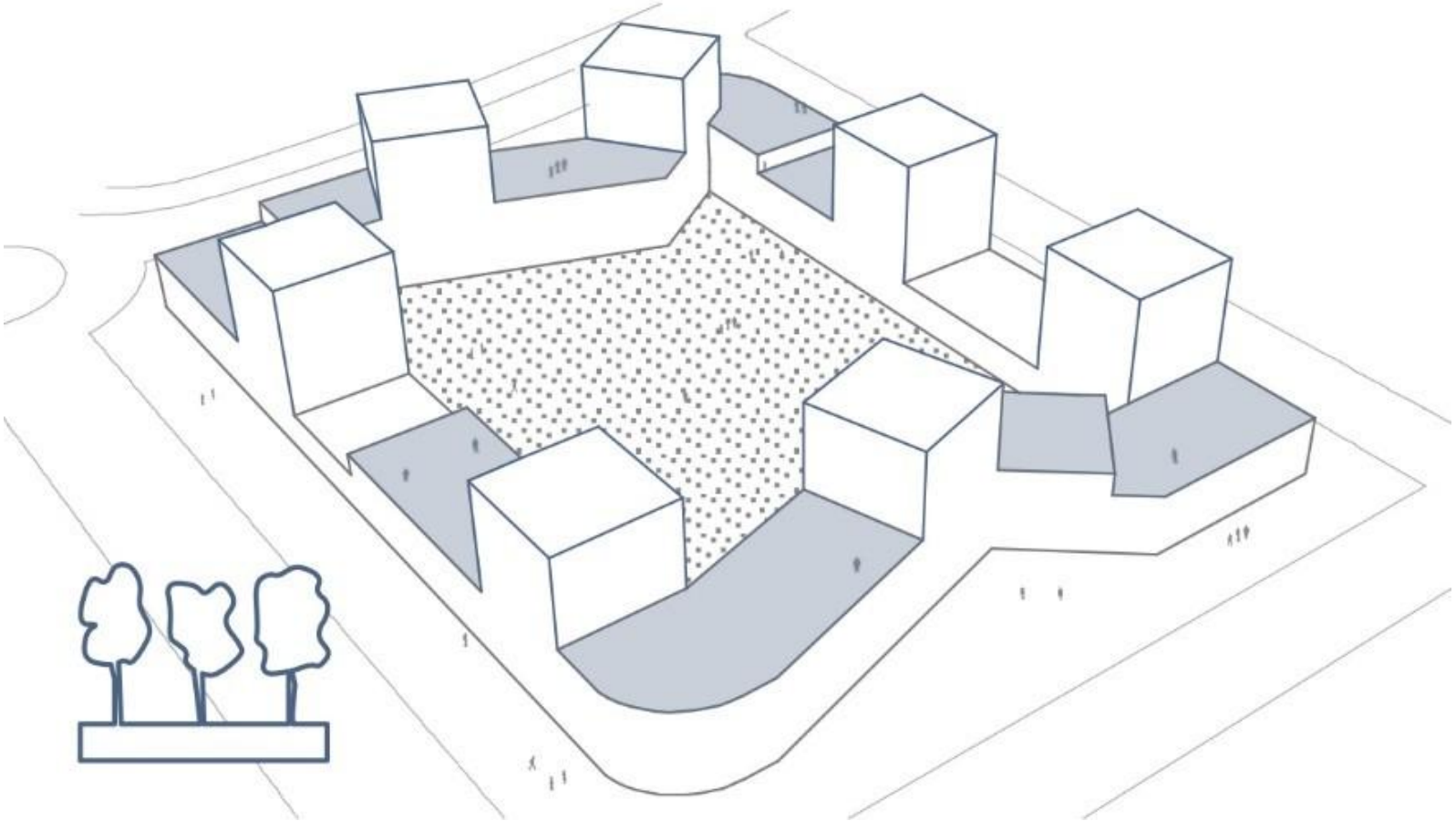
Creation of public and recreational spaces



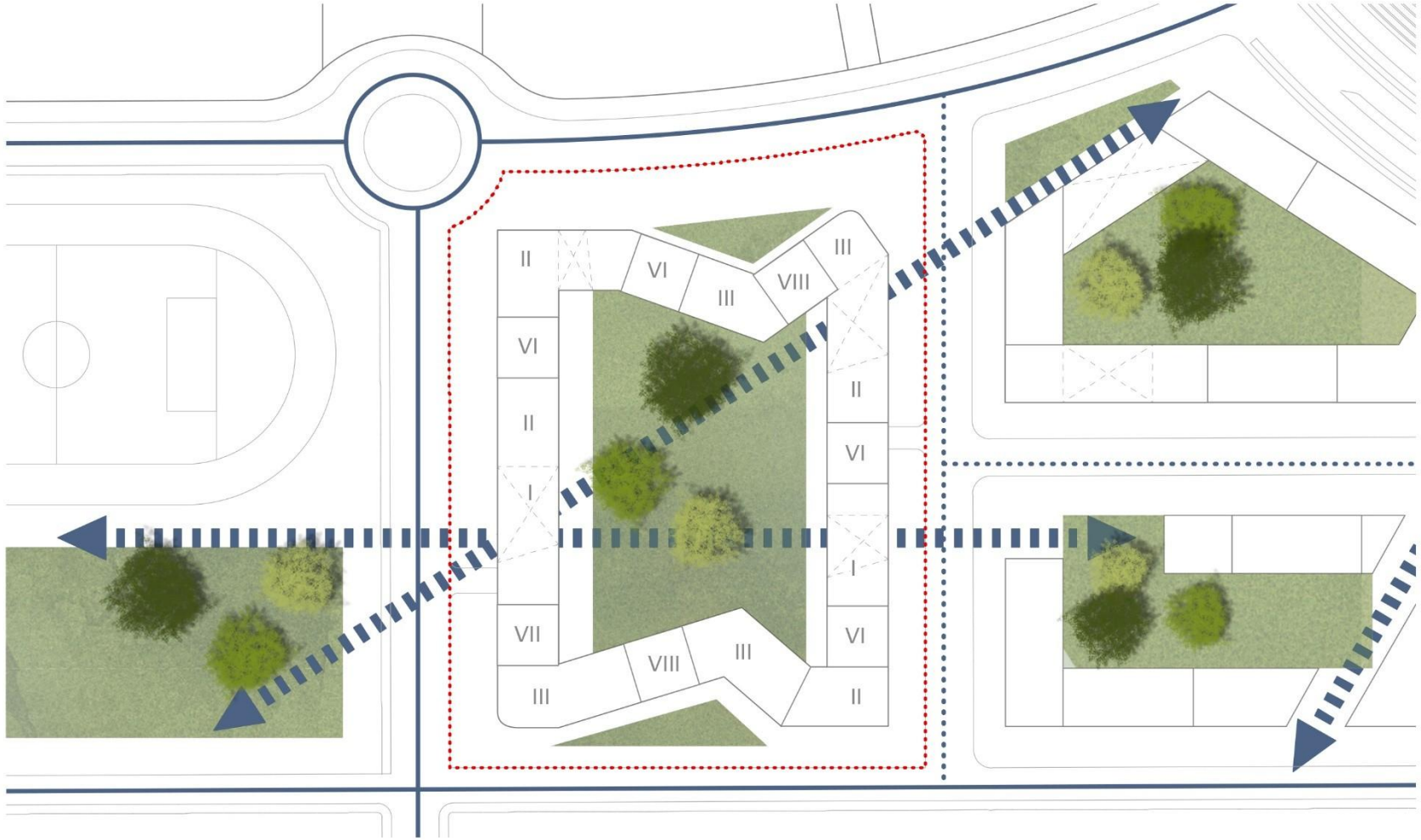
Connection of the residential complex with
the surrounding infrastructure



Protection from wind due to increasing the level of high-altitude platforms



Location of houses and green terraces in accordance with the insolation



building plot

traffic calmed street

public and rcreational spaces

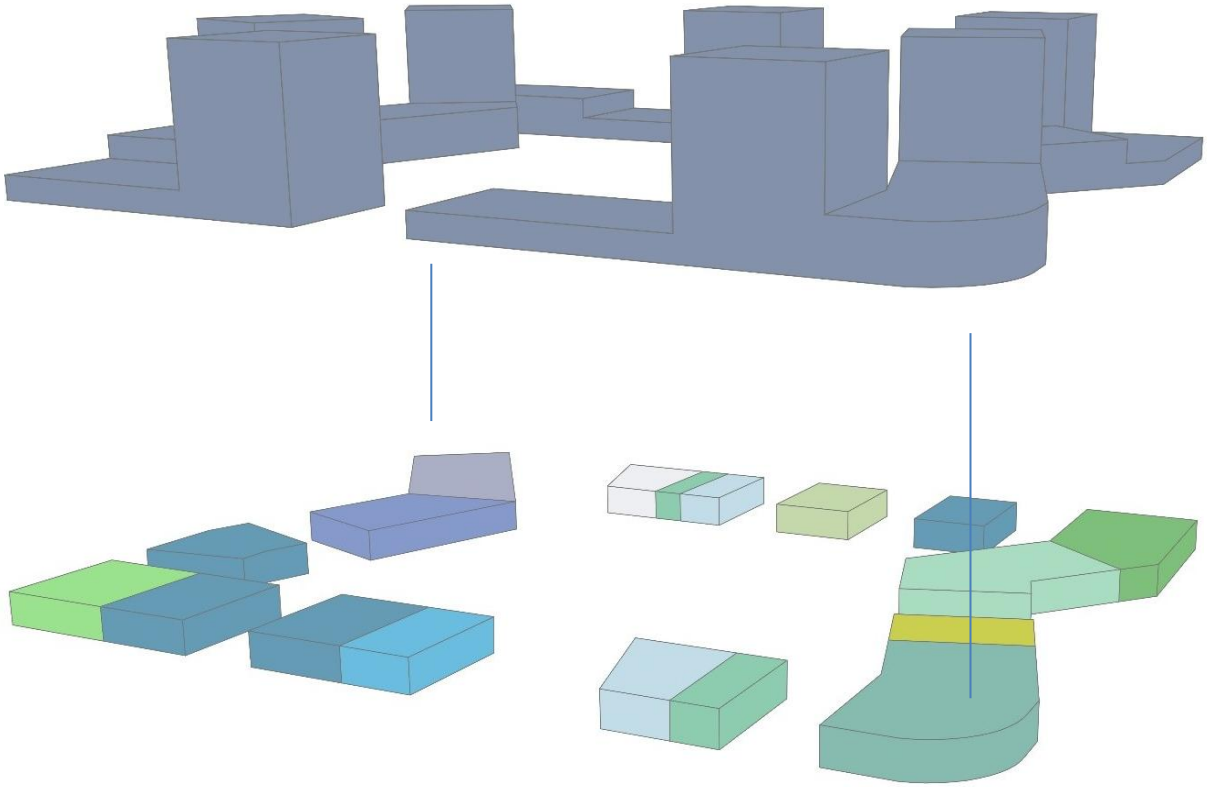
residential pedestrian/automobile routes

pedestrian/bicycle trans-neighborhood routes

SITE PLAN

ARCHITECTURAL DECISION

PROJECT OVERVIEW



living area = 26 000 m²

offices = 515 m²

restaurant = 558 m²

shop = 1406 m²

beauty shop massage = 363 m²

bakery = 197 m²

parking entrance/exit

garbage room = 294 m²

market = 786 m²

pharmacy = 217 m²

fitness studio = 647 m²

kindergarten = 698 m²

repair shop = 272 m²

bicycle shop = 242 m²

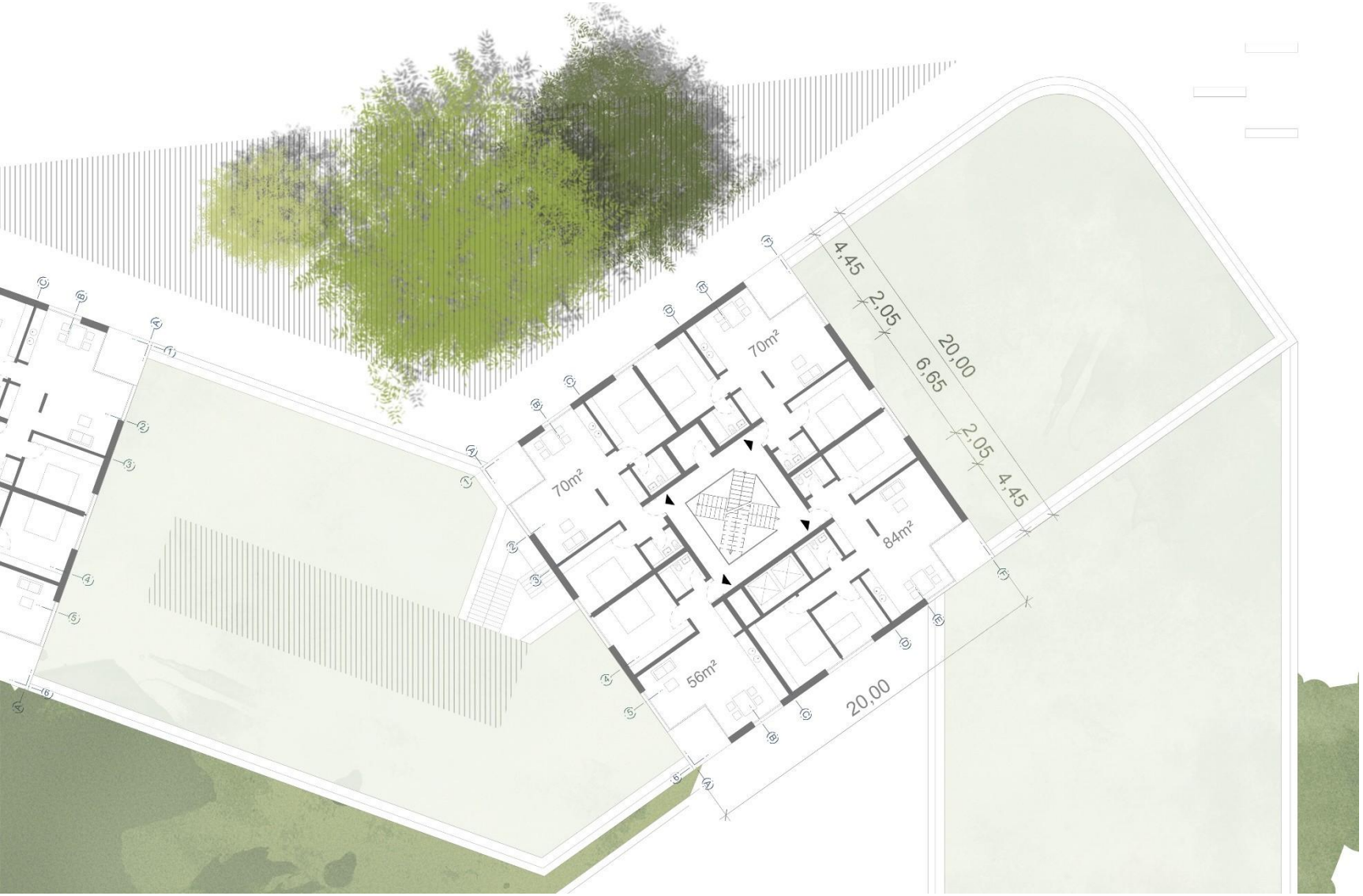
GROUNDFLOOR PLAN WITH LANDSCAPE DESIGN

PARKING PLACES CA. 50 AROUND RESIDENTIAL COMPLEX

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY

FIRSTFLOOR PLAN

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY



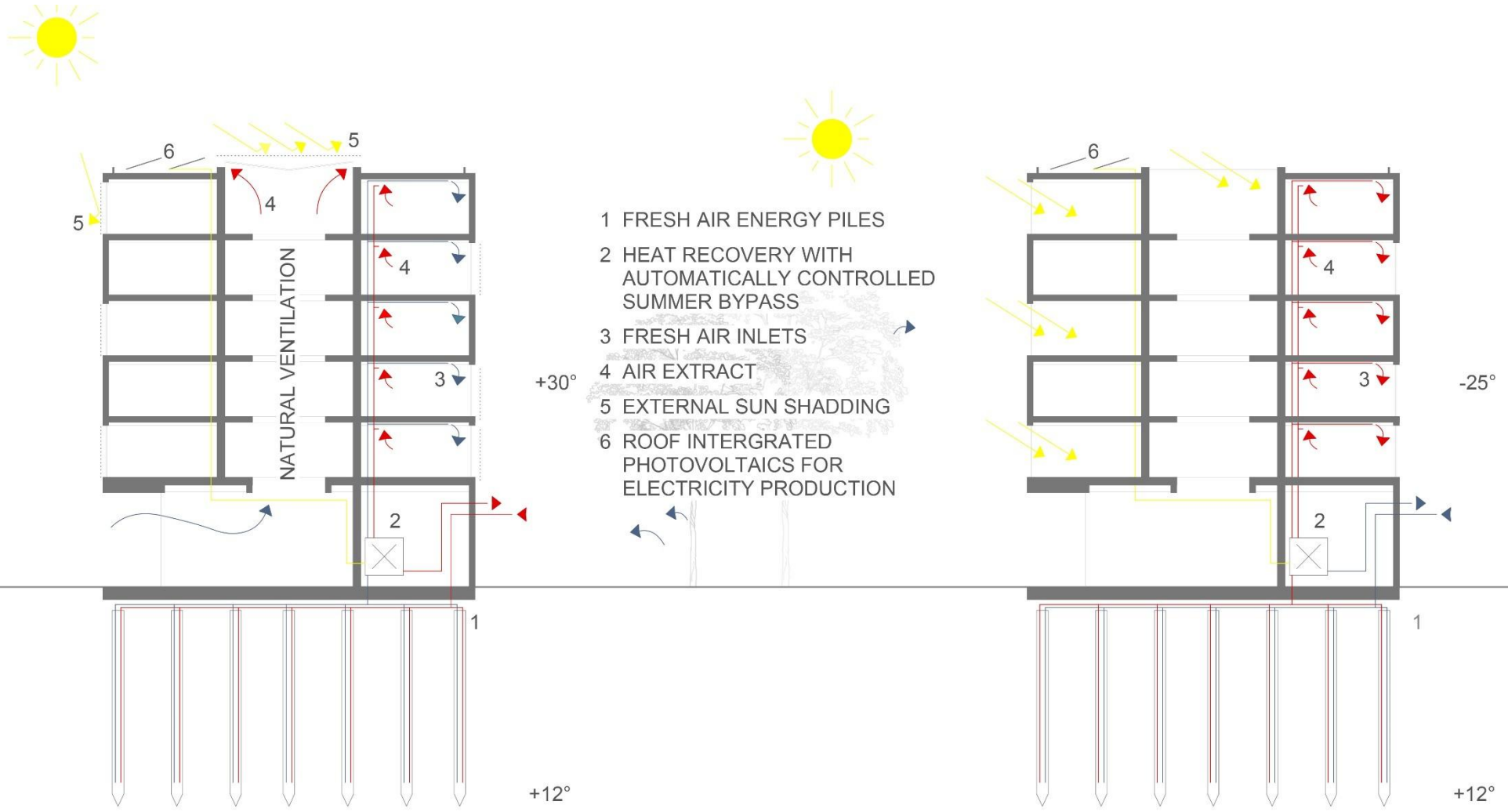
SECONDFLOOR PLAN

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY

VIEW COURTYARD PARK

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY

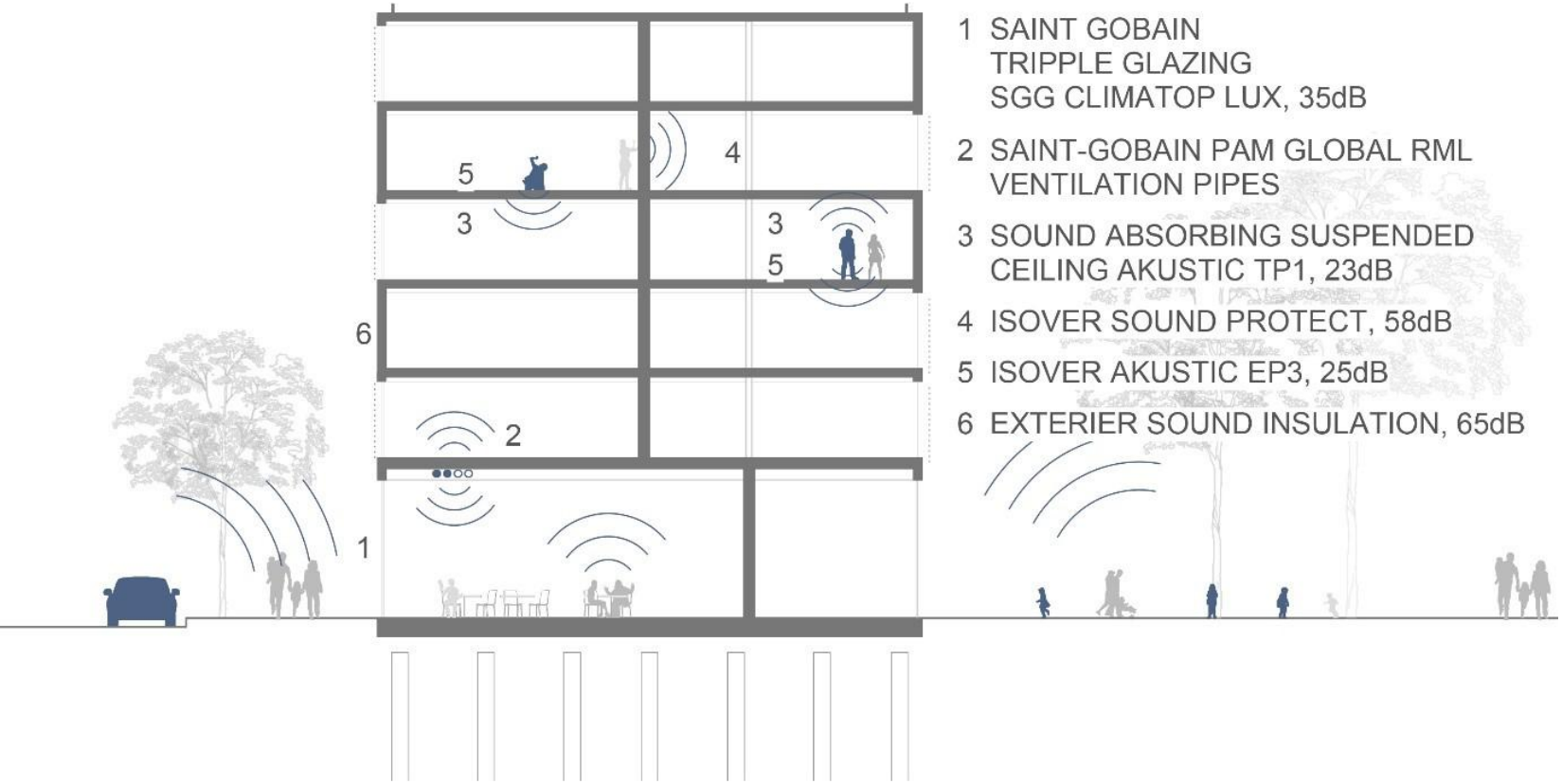
TECHNICAL ASPECTS



SUMMER VENTILATION/ COOLING

WINTER PASSIVE HEAT GAINS

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY



1 SAINT GOBAIN
TRIPPLE GLAZING
SGG CLIMATOP LUX, 35dB

2 SAINT-GOBAIN PAM GLOBAL RML
VENTILATION PIPES

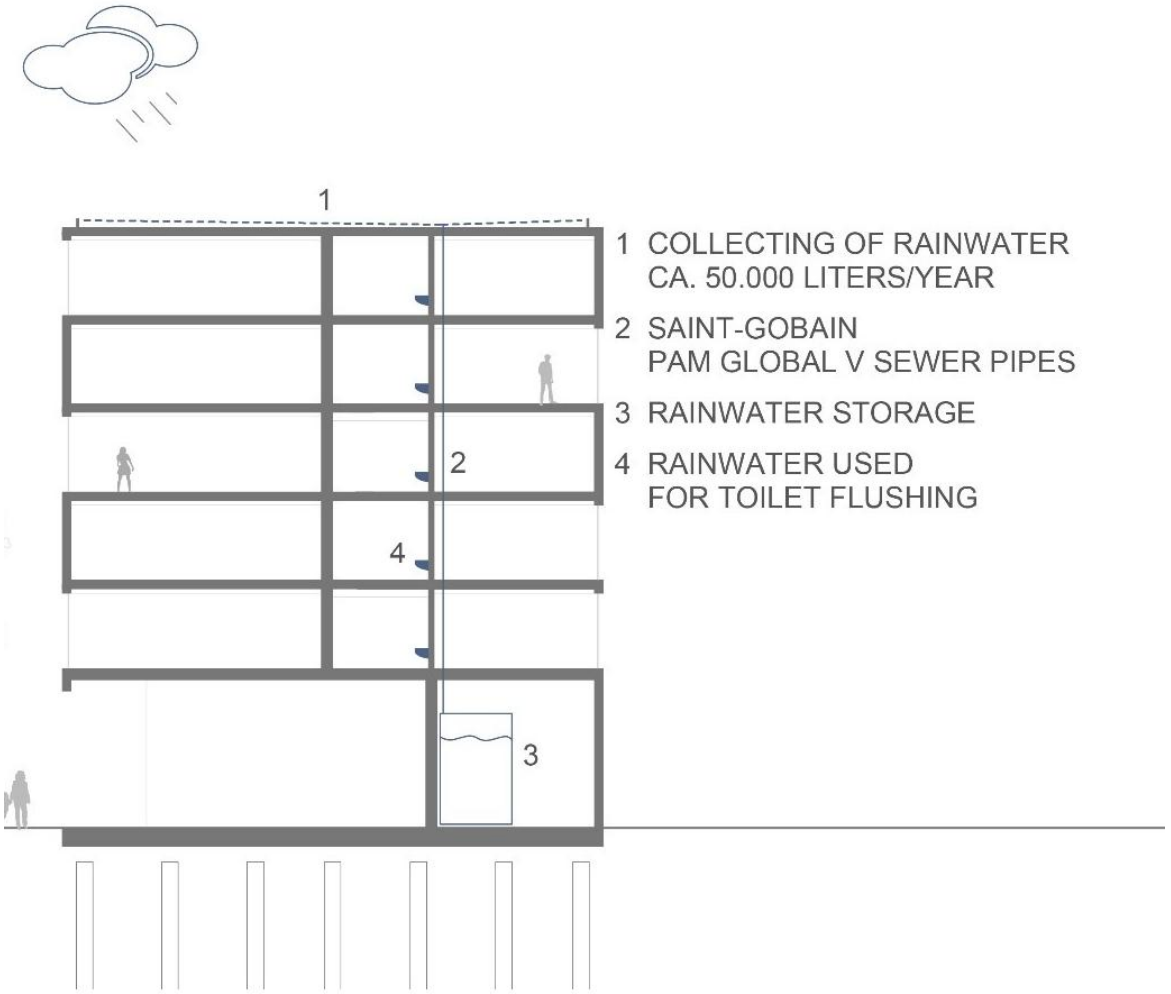
3 SOUND ABSORBING SUSPENDED
CEILING AKUSTIC TP1, 23dB

4 ISOVER SOUND PROTECT, 58dB

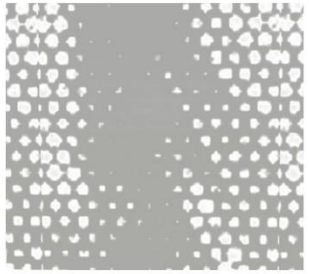
5 ISOVER AKUSTIC EP3, 25dB

6 EXTERIER SOUND INSULATION, 65dB

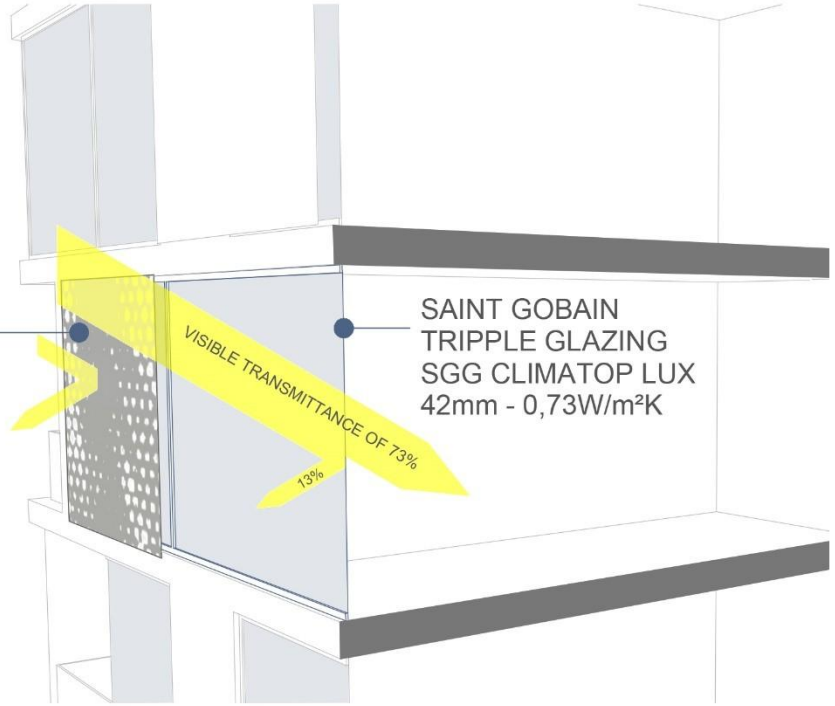
ACOUSTICS



RE-USE OF RAIN WATER

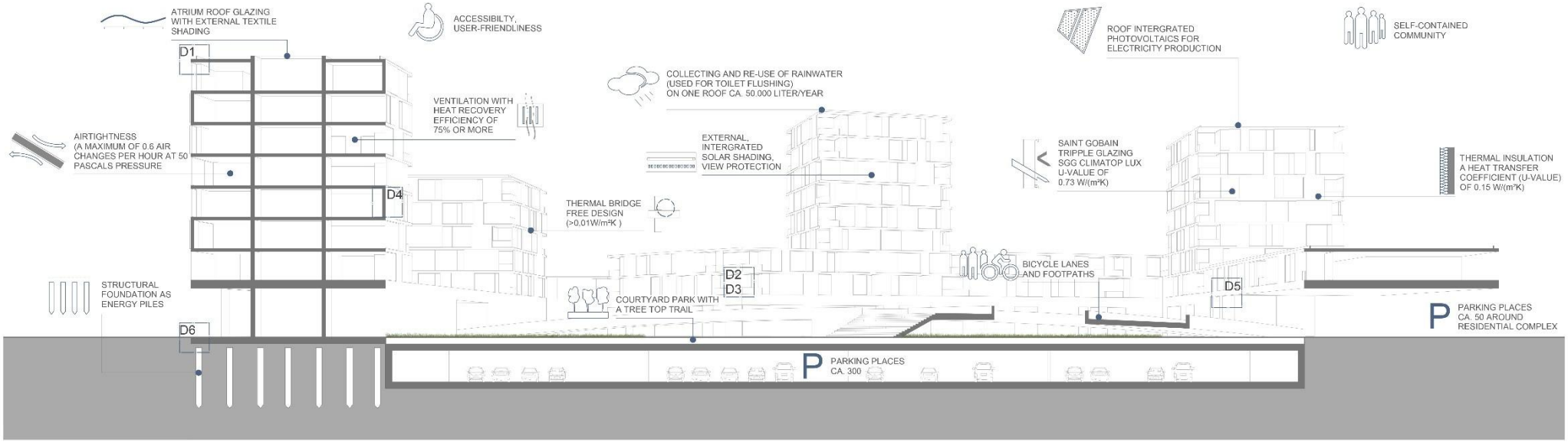


PERFORATED METAL PLATE
PROVIDES 60 TO 80%
SHADING



WAVE SURFACE USED AS PATTERNS FOR PERFORATION ON SHELF

GROSS FLOOR AREA	31753 m²
DENSITY OF HOUSING	8807 m²/ha
TOTAL NUMBER OF APARTMENTS	ca. 330



SECTION A-A WITHOUT SCALE

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY

MULTI-COMFORT DESIGNER:
CALCULATION FOR A TOWER WITH 8 FLOORS - OVERVIEW PALETTE

A.PROJECT DATA
Object: Residential Complex
Climate zone: Astana
Construction: New Building
Building Type: Residential
Usage: For living
Design Temperature: 22.00°C

B. AREA INPUT
Sum of living area: 3200.00 m²
Sum of Heated Space Volume: 9422.16 m²
V/A Ratio: 2.94
Sum of Thermal Envelope: 2392.00 m²

C. ENVELOPE- OPAQUE ELEMENTS
(Average U-Values)
Flat Roof: 0.11
Wall against air: 0.08
Wall against ground: 0.17
Slab against ground: 0.10

D.ENVELOPE- WINDOWS AND DOORS
(Average U-Values)
Windows: 0.73
Doors: 0.80

E. QUALITY
Airtightness rate: 0.60
Thermal Bridge Free: Yes

F. MEAN SHADING FACTORS
North 0°: 0.47
South 180°: 0.70
West 270°: 0.70
East 90°: 0.70

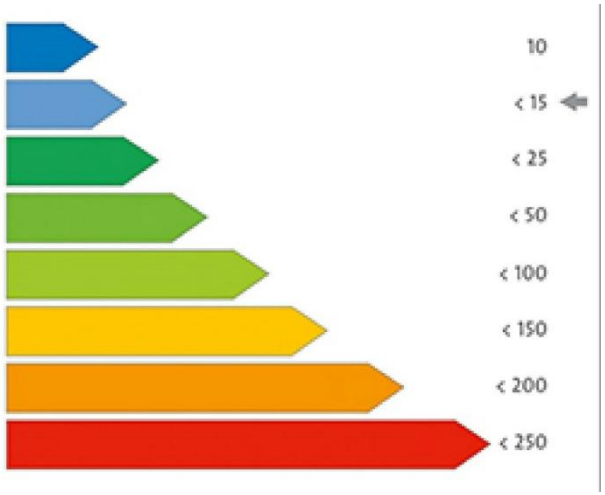
OVERHEATING PARAMETERS
Kind of Construction: Massive
Max. admitted interior temperature: 25

SUMMER VENTILATION STRATEGY
Summer Air Exchange Rate
Natural Ventilation Losses 0.2
Mechanical Ventilation Losses 0.4

G. HVAC
Heat Recovery System: 90.00 %
Subsoil Heat Exchanger
Efficiency: 33.00 %
Length: 80 m

H.CALCULATIONS
Transmission Heat Losses: 122782.89 kWh/a
Ventilation Heat Losses: 36370.72 kWh/a
Total Heat Losses: 159153.60 kWh/a
Internal Heat Gains: 35965.44 kWh/a
Available Solar Heat Gains: 103632.60 kWh/a
Total Heat Gains: 123246.58 kWh/a
Annual Heat Demand: 35907.02 kWh/a

Specific Annual Heat Demand:**11.22 kWh/(m²a)**



MULTI-COMFORT DESIGNER:
ORIGIN RESIDENTIAL COMPLEX SIMULATION – OVERVIEW PALETTE

A.PROJECT DATA
Object: Residential Complex
Climate zone: Astana
Construction: New Building
Building Type: Residential
Usage: For living
Design Temperature: 22.00°C

B. AREA INPUT
Sum of living area: 31753 m²
Sum of Heated Space Volume: 73126.88 m³
V/A Ratio: 2.07
Sum of Thermal Envelope: 44598.30 m²

C. ENVELOPE- OPAQUE ELEMENTS
(Average U-Values)
Flat Roof: 0.11
Wall against air: 0.08
Wall against ground: 0.17
Slab against ground: 0.10

D.ENVELOPE- WINDOWS AND DOORS
(Average U-Values)
Windows: 0.73
Doors: 0.80

E. QUALITY
Airtightness rate: 0.60
Thermal Bridge Free: Yes

F. MEAN SHADING FACTORS
North 0°: 0.47
South 180°: 0.70
West 270°: 0.70
East 90°: 0.70

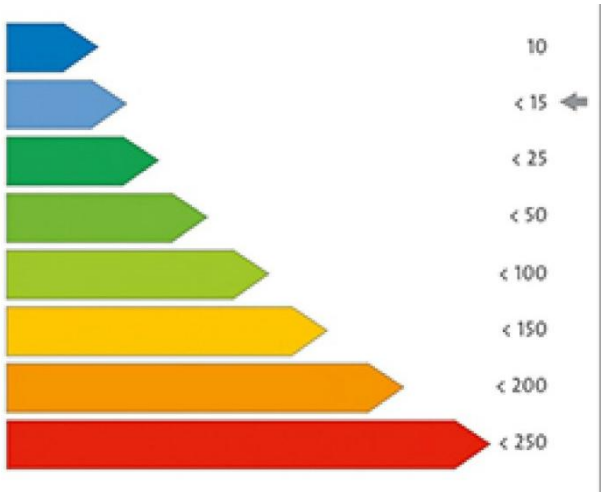
OVERHEATING PARAMETERS
Kind of Construction: Massive
Max. admitted interior temperature: 25

SUMMER VENTILATION STRATEGY
Summer Air Exchange Rate
Natural Ventilation Losses 0.2
Mechanical Ventilation Losses 0.4

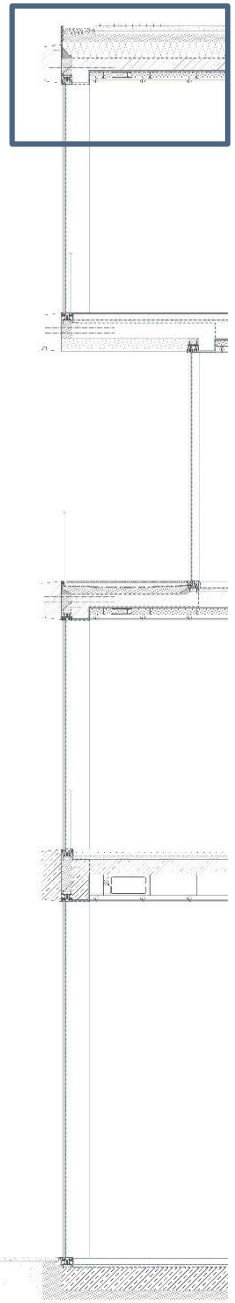
G. HVAC
Heat Recovery System: 90.00 %
Subsoil Heat Exchanger
Efficiency: 33.00 %
Length: 80 m

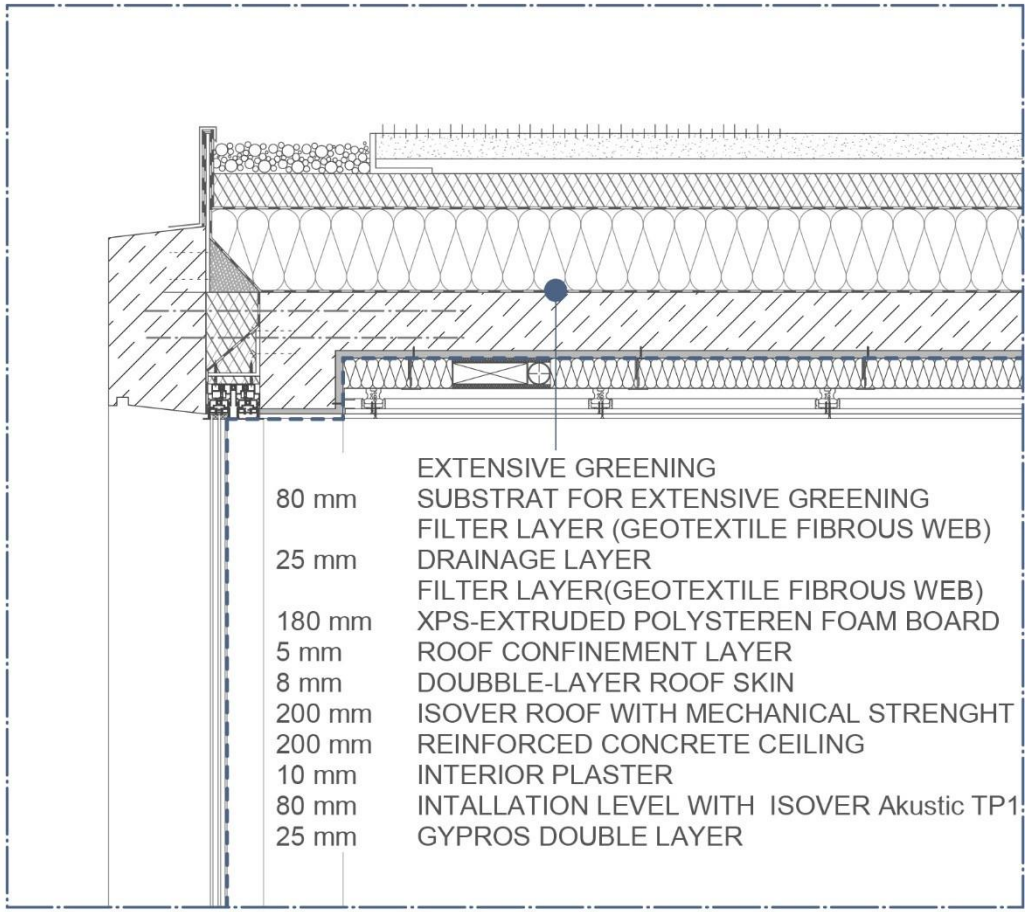
H.CALCULATIONS
Transmission Heat Losses: 1430980.88 kWh/a
Ventilation Heat Losses: 401265.12 kWh/a
Total Heat Losses: 1832246.01 kWh/a
Internal Heat Gains: 396793.83 kWh/a
Available Solar Heat Gains: 918164.04 kWh/a
Total Heat Gains: 1233091.15 kWh/a
Annual Heat Demand: 599154.85 kWh/a

Specific Annual Heat Demand:**16.97 kWh/(m²a)**

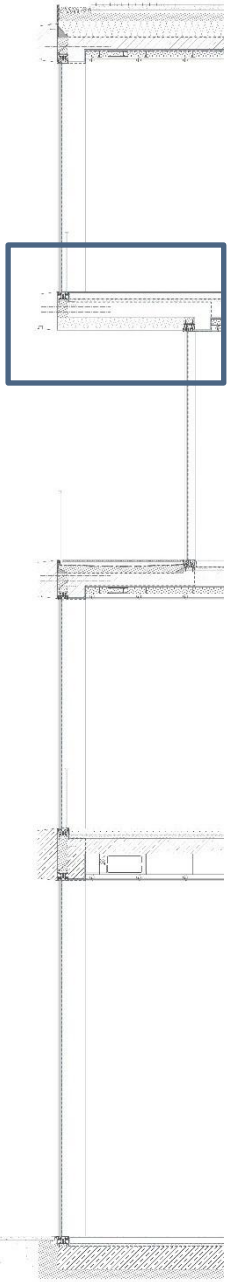


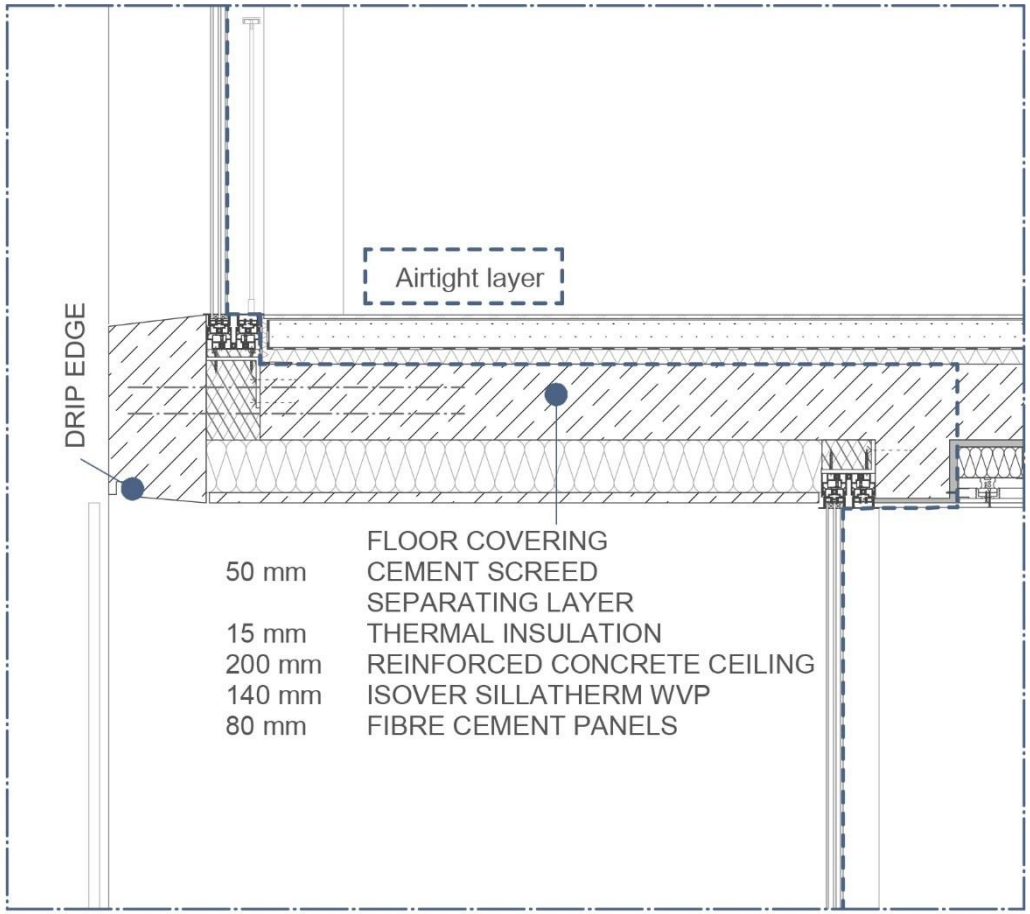
CONSTRUCTION DETAILS



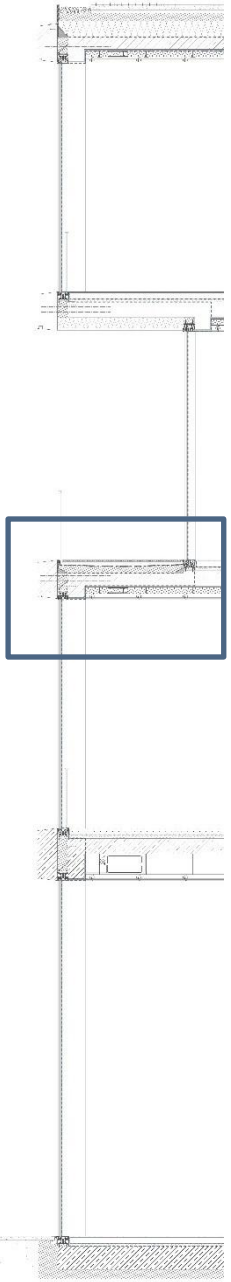

EXTENSIVE GREENING
80 mm SUBSTRAT FOR EXTENSIVE GREENING
FILTER LAYER (GEOTEXTILE FIBROUS WEB)
25 mm DRAINAGE LAYER
FILTER LAYER(GEOTEXTILE FIBROUS WEB)
180 mm XPS-EXTRUDED POLYSTEREN FOAM BOARD
5 mm ROOF CONFINEMENT LAYER
8 mm DOUBBLE-LAYER ROOF SKIN
200 mm ISOVER ROOF WITH MECHANICAL STRENGHT
200 mm REINFORCED CONCRETE CEILING
10 mm INTERIOR PLASTER
80 mm INTALLATION LEVEL WITH ISOVER Akustic TP1
25 mm GYPROS DOUBLE LAYER

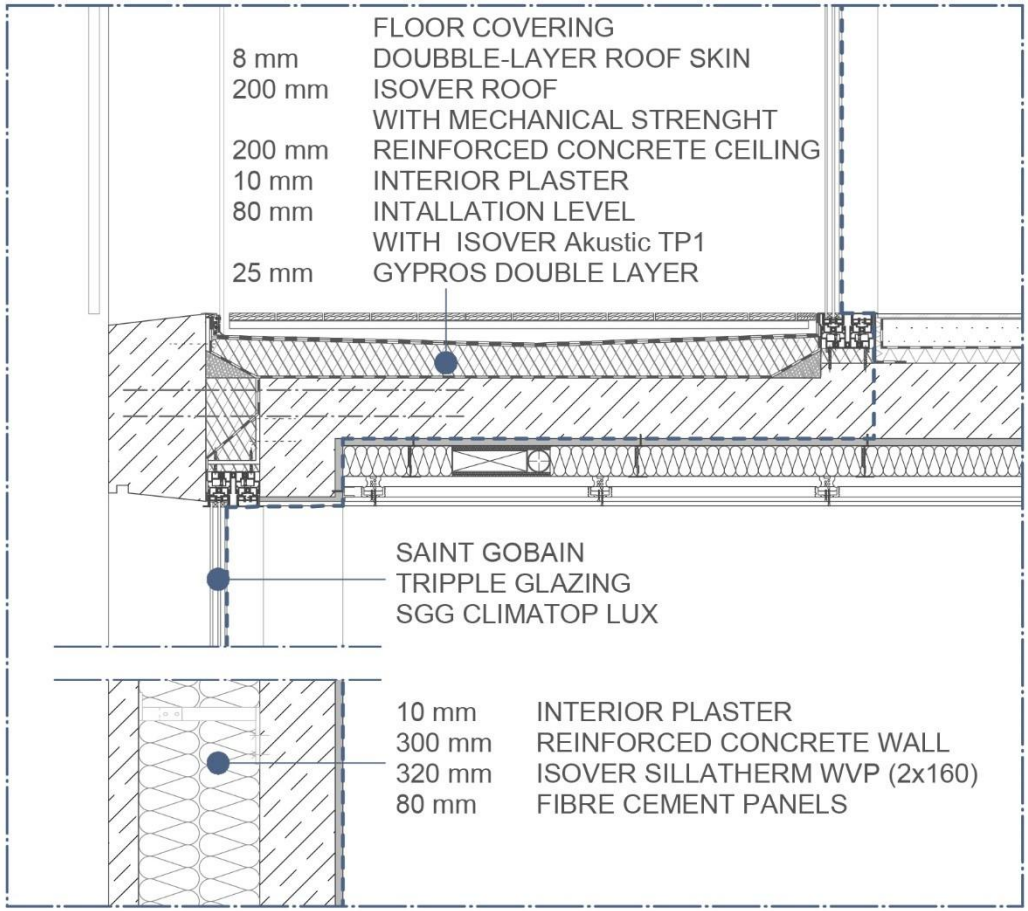
DETAIL 1



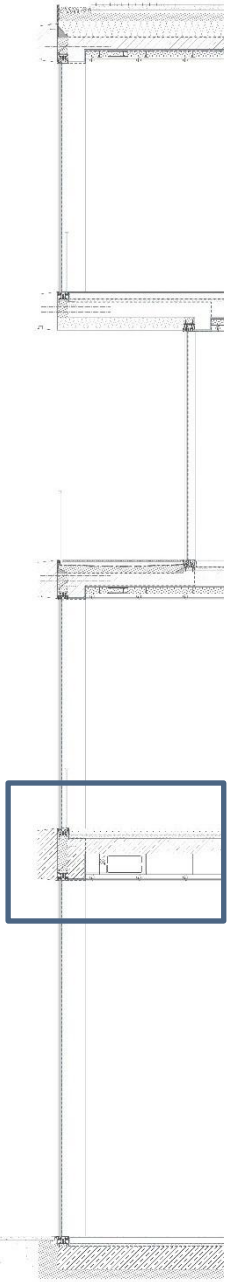

Airtight layer
DRIP EDGE
FLOOR COVERING
50 mm CEMENT SCREED
SEPARATING LAYER
15 mm THERMAL INSULATION
200 mm REINFORCED CONCRETE CEILING
140 mm ISOVER SILLATHERM WVP
80 mm FIBRE CEMENT PANELS

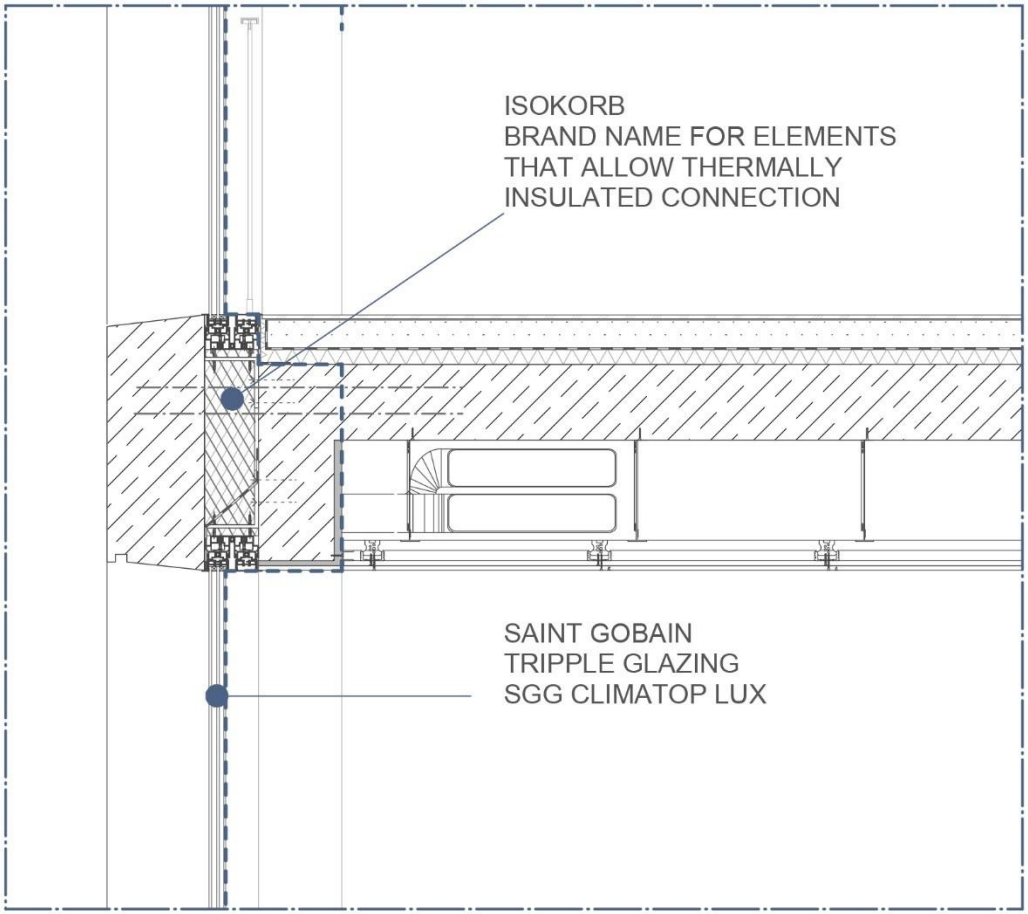
DETAIL 2



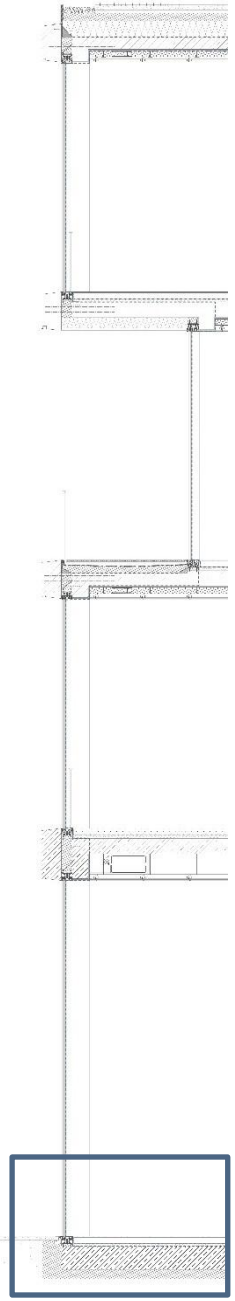

FLOOR COVERING
8 mm DOUBBLE-LAYER ROOF SKIN
200 mm ISOVER ROOF
WITH MECHANICAL STRENGHT
200 mm REINFORCED CONCRETE CEILING
10 mm INTERIOR PLASTER
80 mm INTALLATION LEVEL
WITH ISOVER Akustic TP1
25 mm GYPROS DOUBLE LAYER
SAINT GOBAIN
TRIPPLE GLAZING
SGG CLIMATOP LUX
10 mm INTERIOR PLASTER
300 mm REINFORCED CONCRETE WALL
320 mm ISOVER SILLATHERM WVP (2x160)
80 mm FIBRE CEMENT PANELS

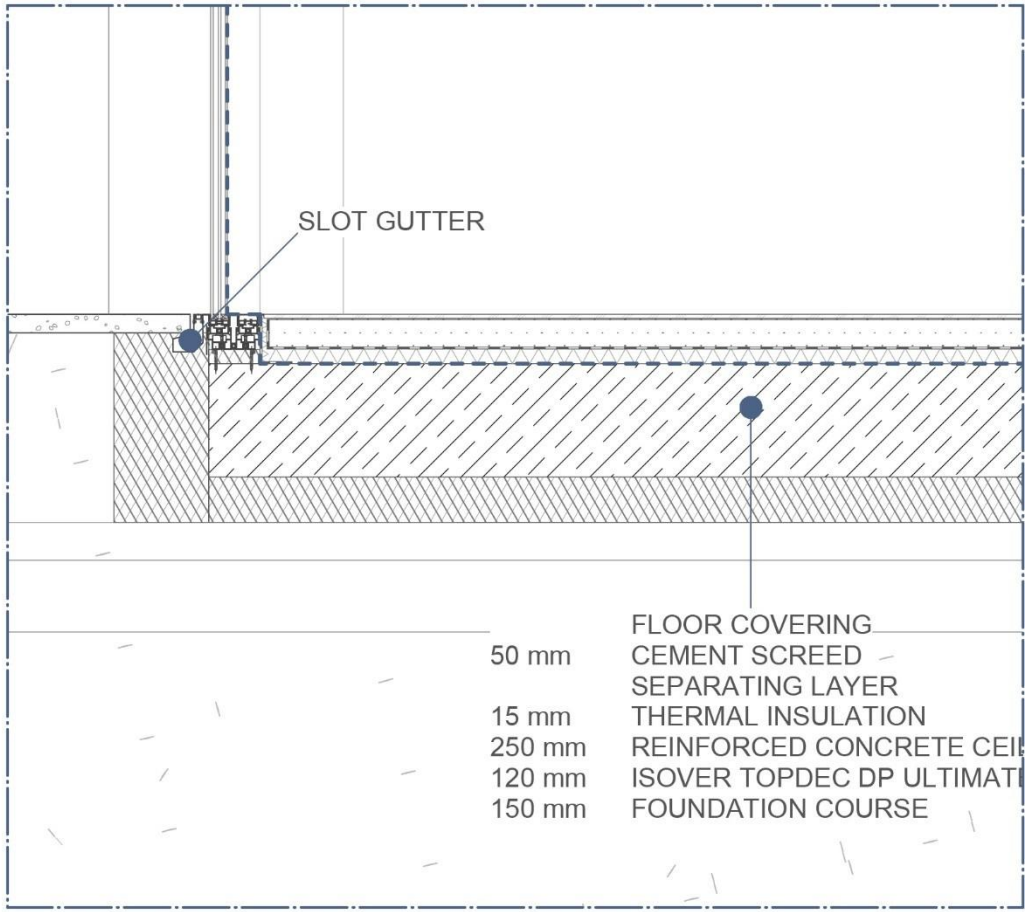
DETAIL 3/4




ISOKORB
BRAND NAME FOR ELEMENTS
THAT ALLOW THERMALLY
INSULATED CONNECTION
SAINT GOBAIN
TRIPPLE GLAZING
SGG CLIMATOP LUX

DETAIL 5




SLOT GUTTER
FLOOR COVERING
50 mm CEMENT SCREED
SEPARATING LAYER
15 mm THERMAL INSULATION
250 mm REINFORCED CONCRETE CEI
120 mm ISOVER TOPDEC DP ULTIMATI
150 mm FOUNDATION COURSE

DETAIL 6

SIMPLICITY IS EFFICIENCY

ORIGIN
CLARITY. HARMONY. SUSTAINABILITY