




# KAICHŪ

TEAM  KIMI TOIVOI A REA WAITA

  
SAINT-GOBAIN





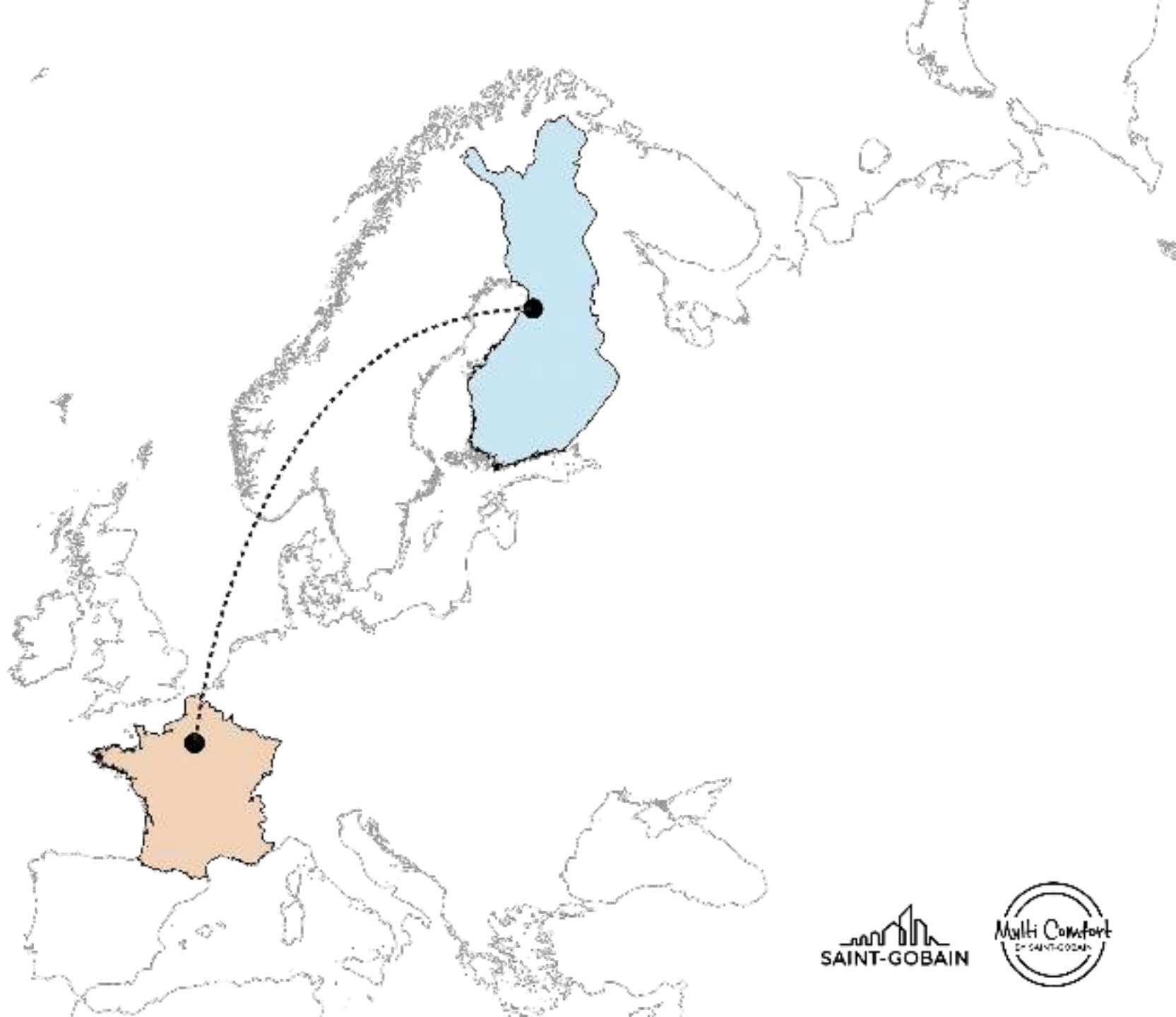
BEA  
WALTA



KIMI  
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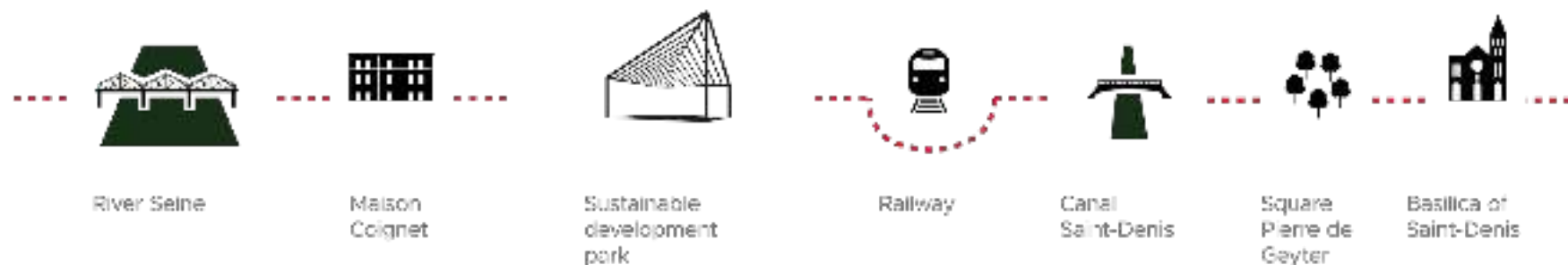


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# PLANNING PRINCIPLES

## WEST-EAST CONNECTION IN SAINT-DENIS



## POSSIBILITIES FOR SPORT



## RESIDENCES FOR YOUNG FAMILIES



## STRONG PRESENCE OF EDUCATION



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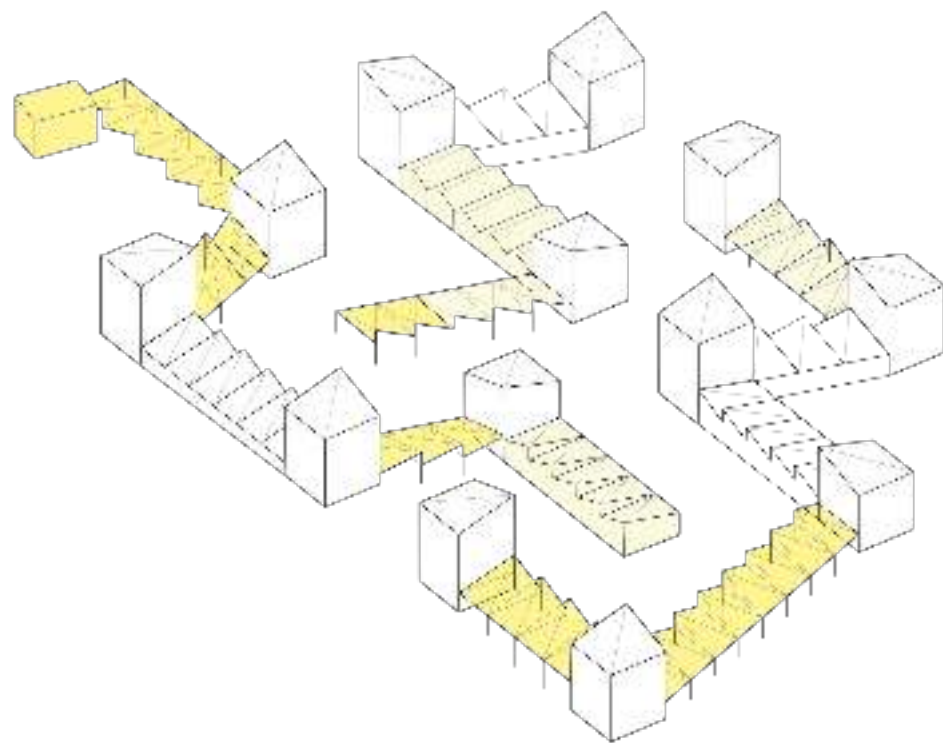
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PUBLIC PLACES






# PUBLIC PLACES

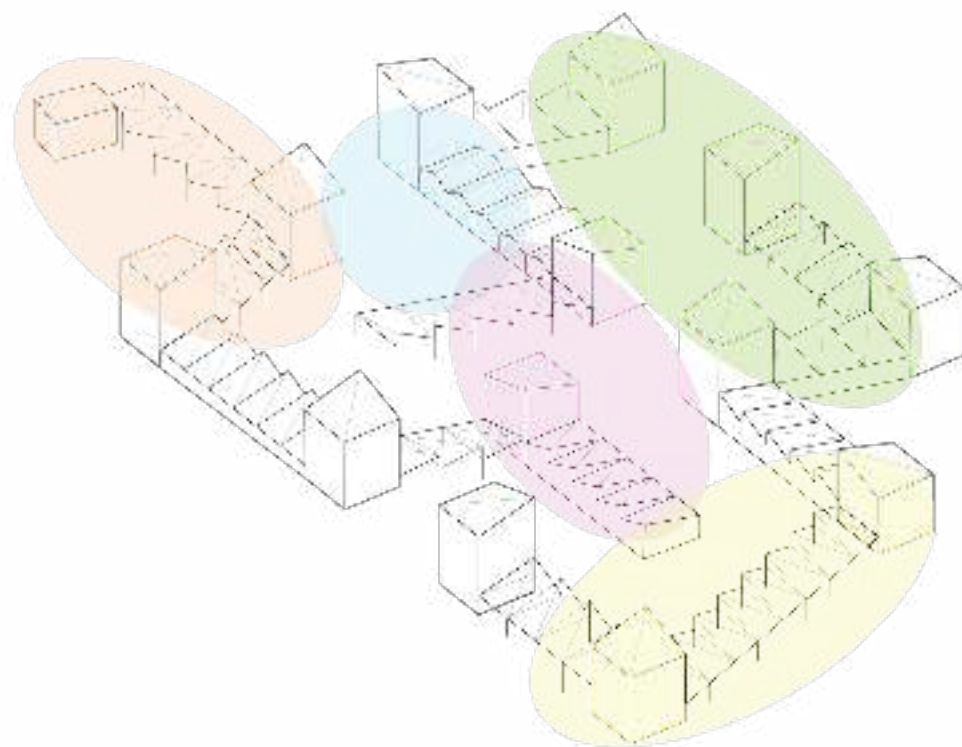


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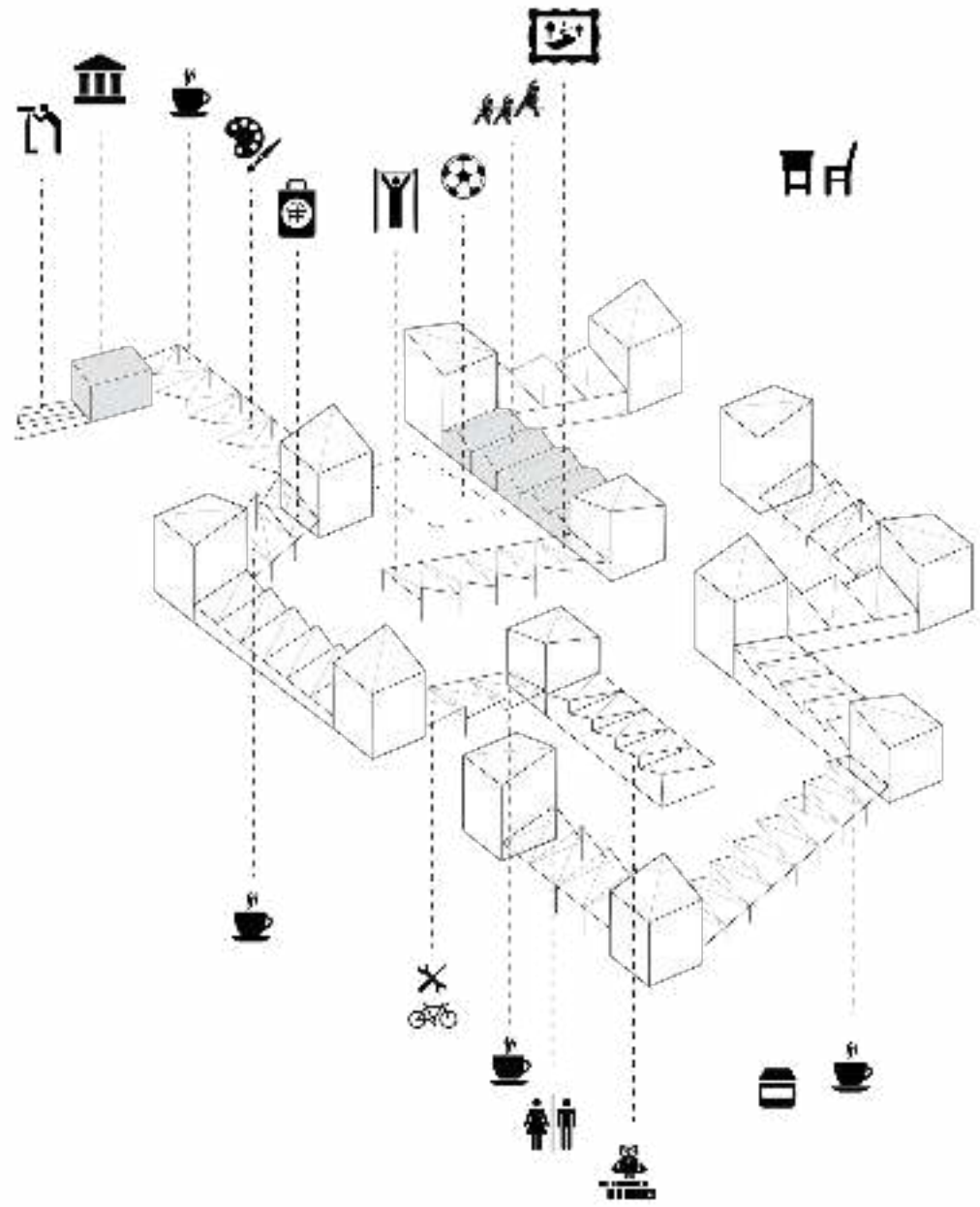
## AREAL DIVISION OF ACTIVITIES

-  Culture
-  Sports
-  Education
-  Leisure center
-  Business



# ACTIVITIES

-  View point
-  Museum
-  Crafting space
-  Souvenir shop
-  Football field
-  Recreational center
-  Outdoor gym
-  Outdoor classroom
-  Gallery
-  Library
-  Bike repair
-  Public toilets
-  Pop up -stands
-  Café





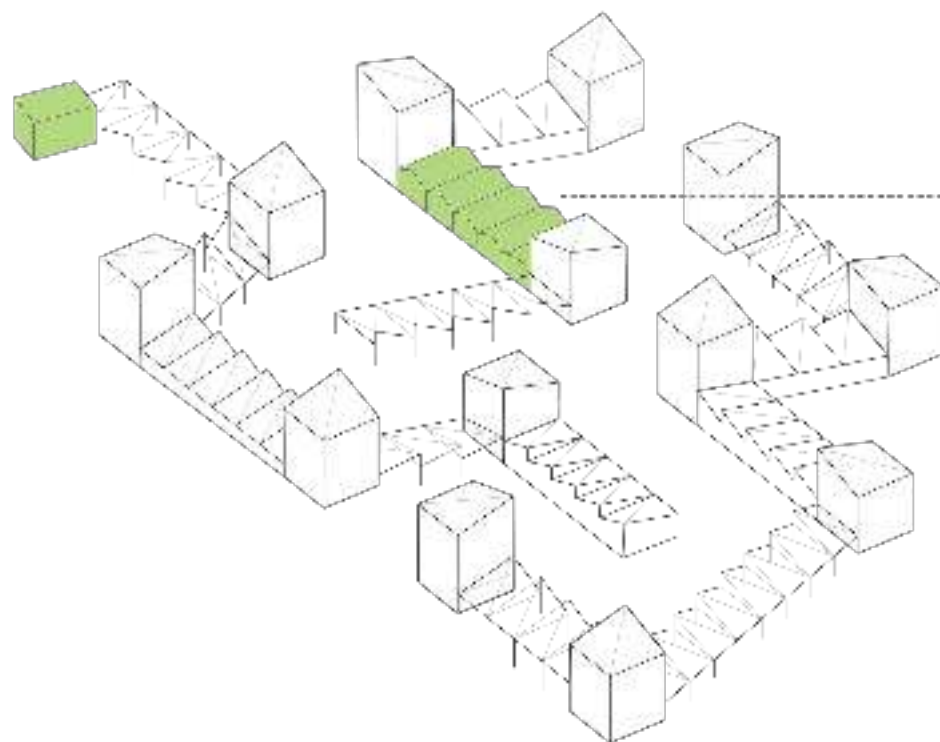




## HERITAGE BUILDINGS

### MAISON COIGNET

Restored and re-opened as a museum, in which is exhibited the history of concrete building and the site



### WAREHOUSES

Restored and re-opened as a recreation center for the school and the neighbourhood



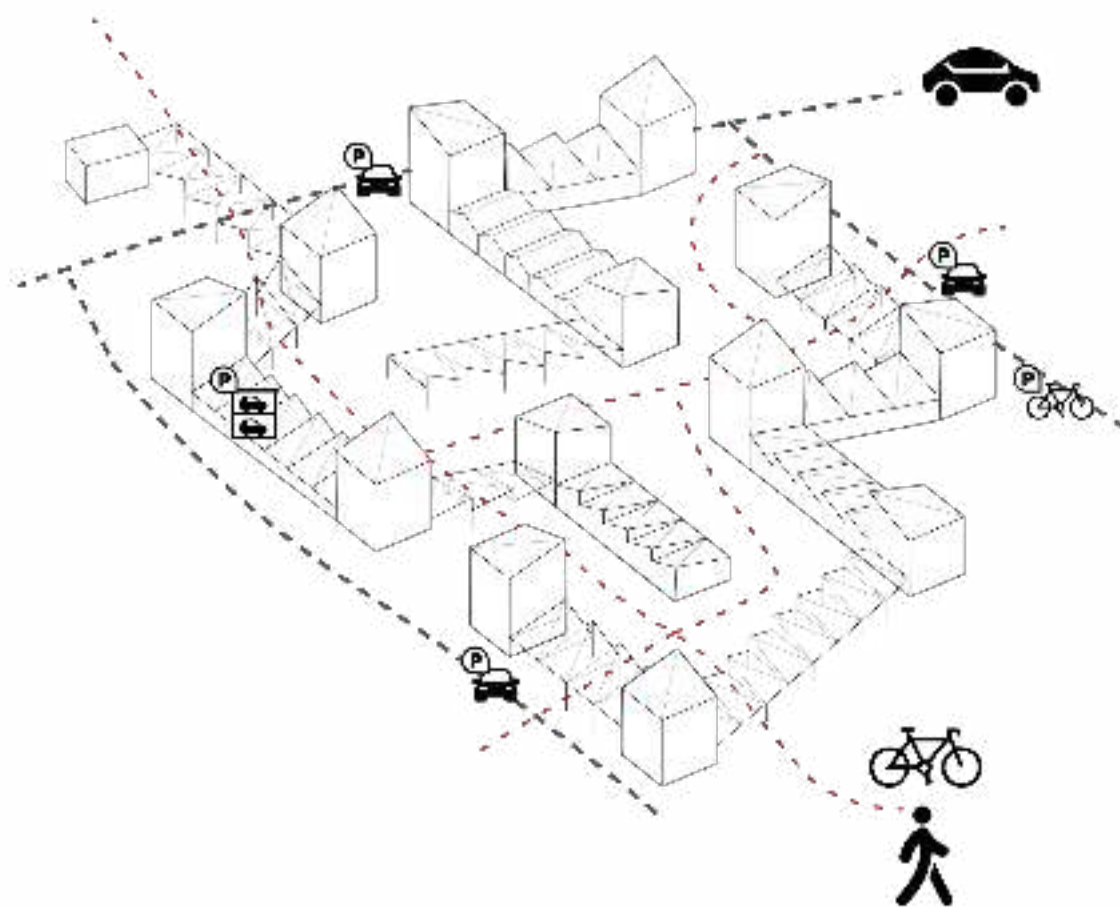
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## TRANSPORTATION

Internal routes of the area are for pedestrians and cyclists, car traffic and parking lots are kept outside of the area.

The main pedestrian route is from river Seine in the east to Saint-Denis city centre in the west. Also a pedestrian connection to Saint-Denis railway station in the north is arranged.



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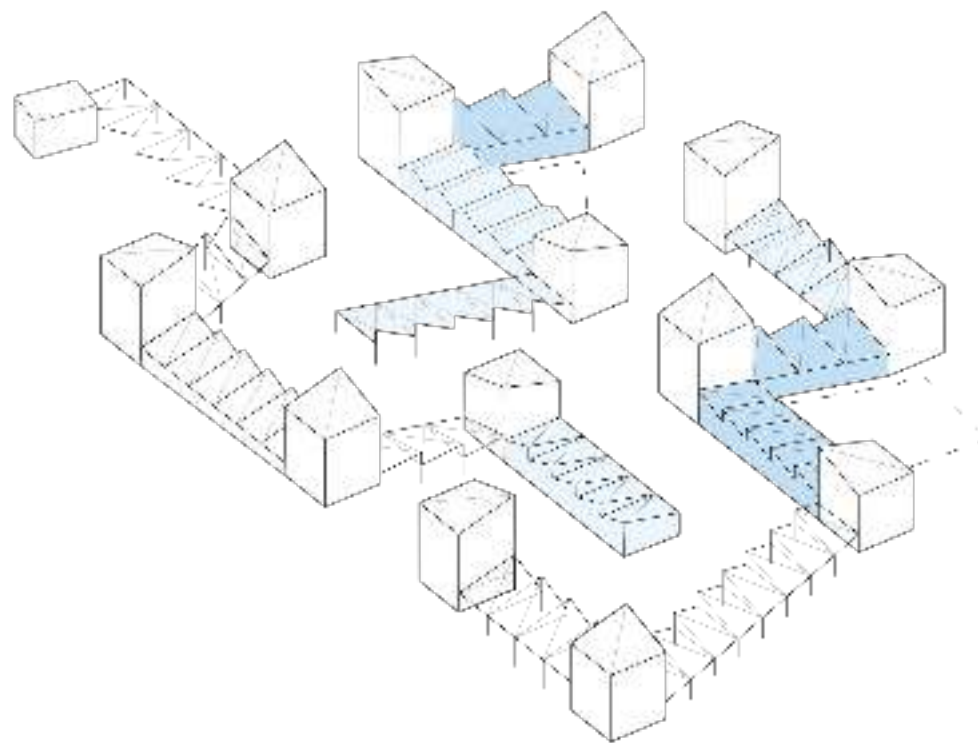
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EDUCATION

# EDUCATION



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# EDUCATION

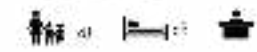
The educational premises consist of a kindergarten, primary school and a leisure center. The functions are located in different buildings around the plan.

In addition the education area also includes a recreation center, a gallery for art projects and a canteen.

Additional outdoor comfort can be experienced at large playgrounds and in a separate outdoor classroom.



Kindergarten



Recreational center



Gallery



Cooking canteen



Canteen



Primary school



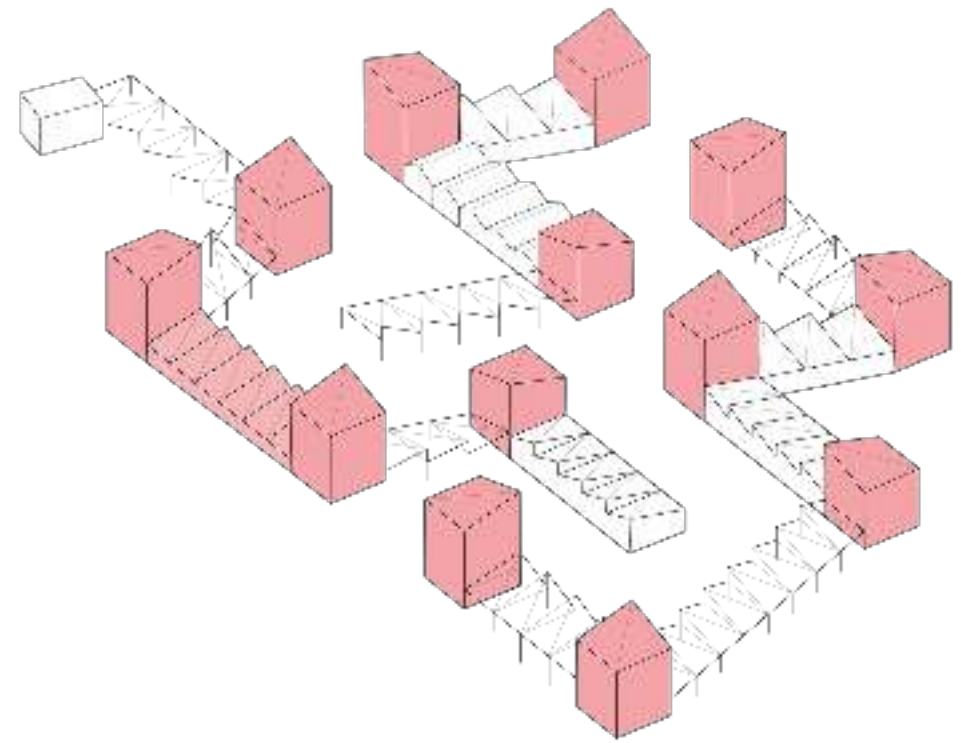
Leisure center



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HOUSING  
HOUSING



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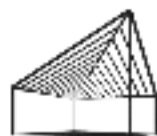


## RESIDENCES

There are located 250 residences in the area, which are targeted for young families with children.

Residential buildings are built up from alternating floor plans A and B. There are residences from two-room apartments to five-room apartment. Every residence has a balcony, and adjustable trellises in those could be adjusted as residents wish to shade from sun shine.

There are plenty of common spaces for residents in the buildings: spaces for activities and storages on the ground floor and partly on the first and second floor; and a green roof garden as a refreshing private yard for residents.



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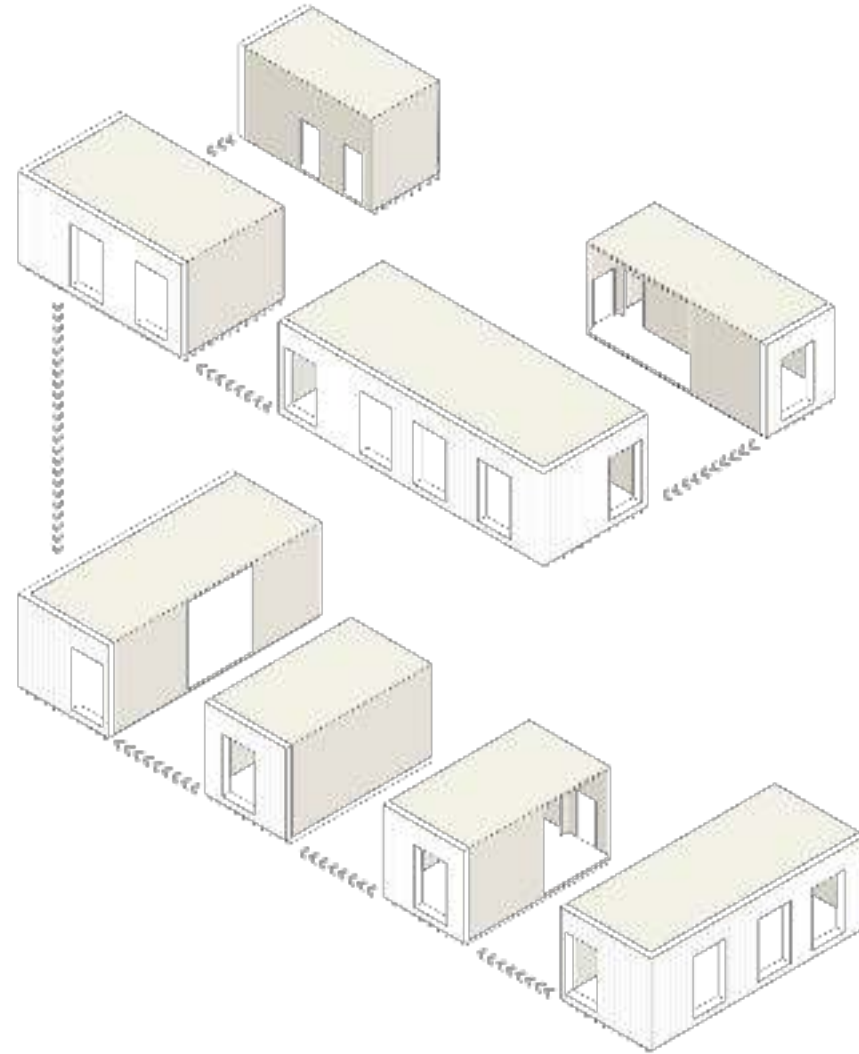


## PREFABRICATED UNITS

Residential buildings are built up from CLT (cross-laminated timber) prefabricated box units. One residence includes two box units.

Units include floor and ceiling, interior and exterior walls, facade claddings and interior surface materials, fenestrations, and even kitchen and bathroom fittings and HVAC installations.

Thus residences are assembled in clean and dry circumstances and this e.g. prevents indoor air issues and makes construction more efficient.



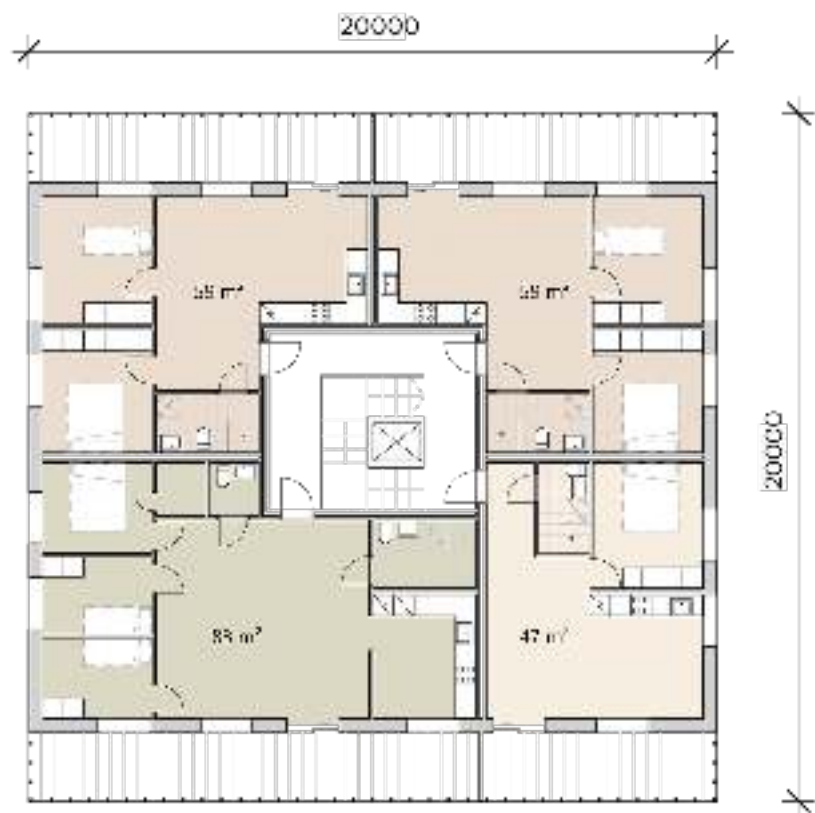
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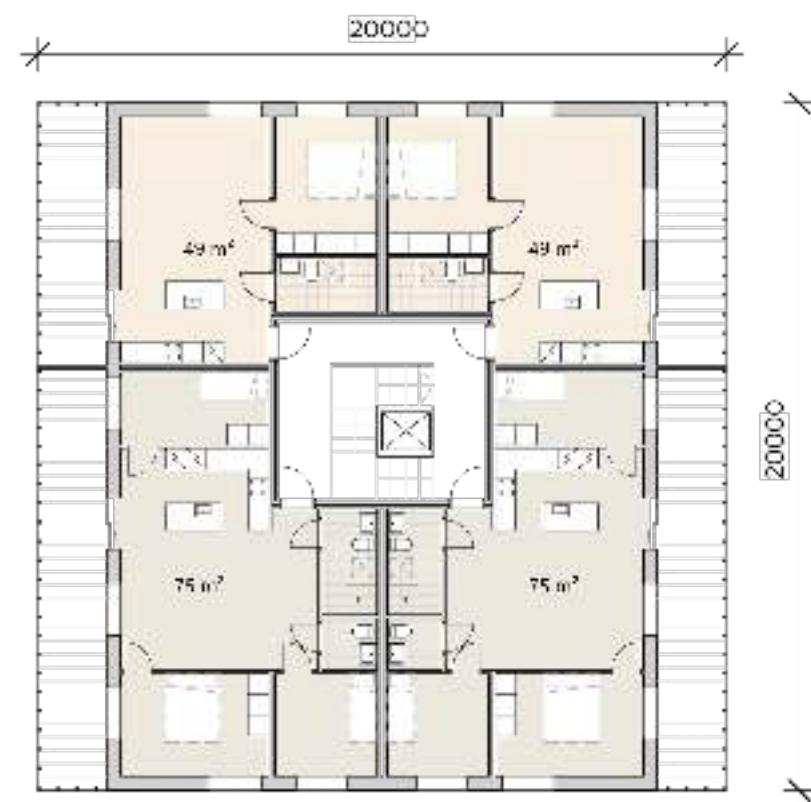


## FLOOR PLANS

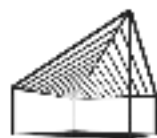
- 1 bedroom apartment
- 2 bedroom apartment
- 3 bedroom apartment
- 3 bedroom apartment with separate kitchen



A



B



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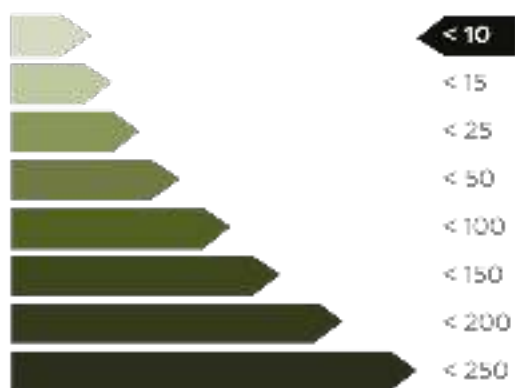




## TECHNICAL ASPECTS

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### ENERGY EFFICIENCY CLASS



### CALCULATIONS

#### Specific heat demand

Transmission heat losses	30265,01	MWh
Ventilation heat losses	2106,52	MWh
Total heat losses	42174,53	MWh
Minimal heat gains	22925,69	MWh
Solar heat gains	14814,50	MWh
Total heat gains	37740,19	MWh
Annual heat demand	5380,61	MWh
Specific heat demand	4,21	kWh/m <sup>2</sup> a

#### Overheating

Exterior thermal transmittance	436,48	W/K
Ground thermal transmittance	20,00	W/K
Ventilation thermal transmittance	722,13	W/K
Ventilation thermal transmittance to ground	0,00	W/K
Solar aperture	0,04	m <sup>2</sup>
Frequency of overheating (>22°C)	0,00	%



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Adjust incoming daylight with adjustable blinds and trellis

**VISUAL COMFORT**



Live without voices and vibrations from neighbours (thank to insulation and impact sound insulation between apartments)

**ACOUSTIC COMFORT**



Underfloor heating warms the whole apartment evenly

**THERMAL COMFORT**



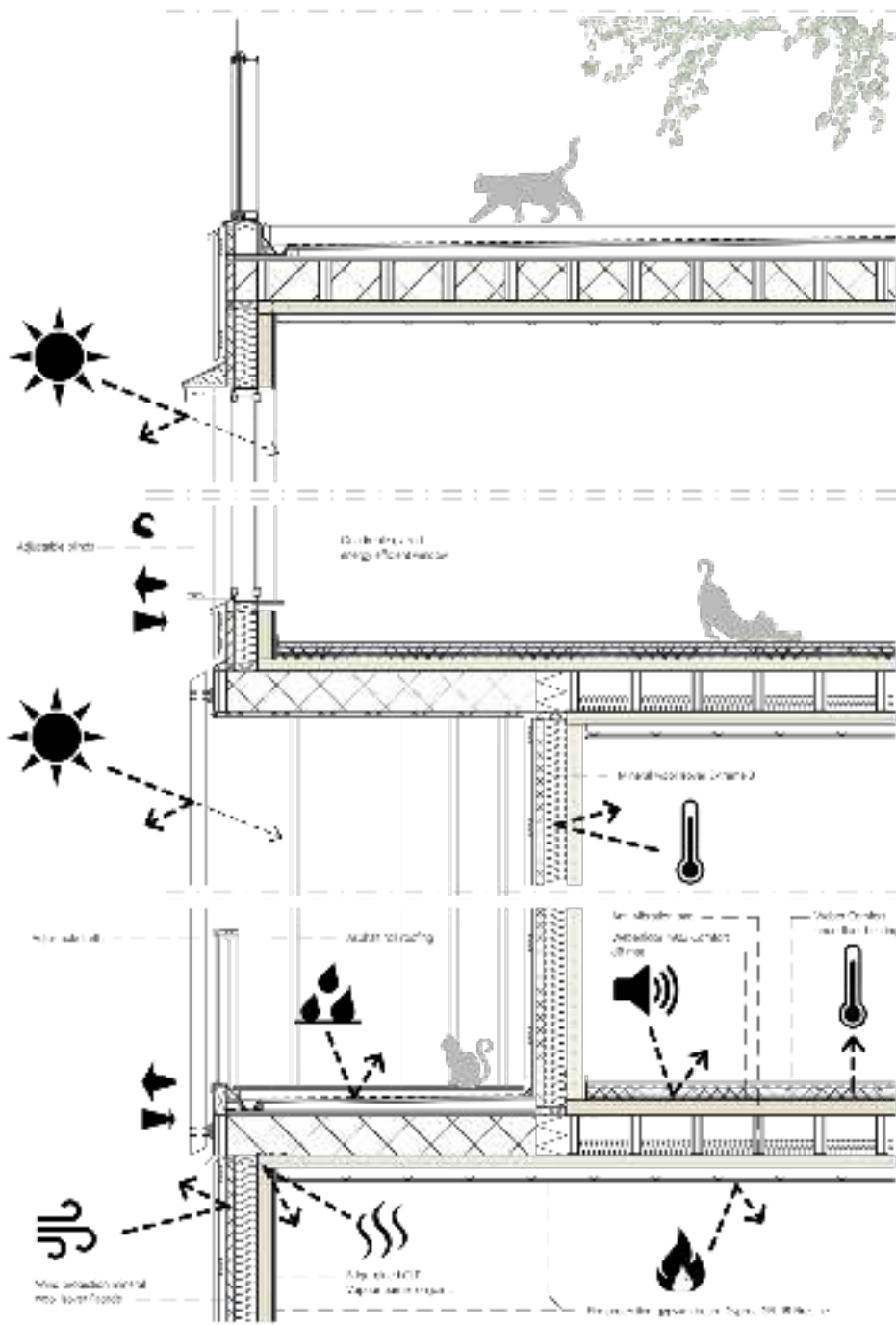
Vapour proof structure don't let outdoor pollutants in

**INDOOR AIR COMFORT**



Fire safety is secured by sprinkler system, fire protection gypsum board on indoor surfaces and fire stops in facade

**INDOOR AIR COMFORT**



**ROOF & BALCONY FLOOR**

**U = 0,08 W/(m²K)**

- Balcony flooring, 20mm
- Supporting rails, 50x50, 25mm, spaced 190
- Asphalt waterproofing
- Plywood or particleboard species 30mm
- Supporting rails, 50x50, 25mm, spaced 190
- Laminated wood Lumber beams 75x250 mm E400
- + poplar Lumber, 250mm
- Edge-glued CLT, 100mm
- Supporting rails, 50x50mm E400
- + spiderlike insulation
- Acoustic spring rails, 25mm E400
- Fire protection gypsum board, 25mm
- CLT 18 thickness, 18mm

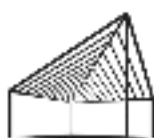
**EXTERIOR WALL**

**U = 0,13 W/(m²K)**

- Fire protection gypsum board, 25mm
- GFL 8 P 2 L No, 12mm
- Edge-glued CLT, 100 mm
- Mineral wool cover 140mm E1, 150mm
- Fire protection mineral wool cover-Facade, 50mm
- Supporting rails 2x 25x100mm E200, 1x 25x100mm, 50mm
- Vertical wood paneling 20x120mm

**INTERIOR FLOOR**

- Flooring, 8mm
- Flooring support underlayment 150
- CLT 18 General, 18mm
- Fireproof net Wapenstone 4500
- Separation fabric Wapenstone 4500
- Woodfloor 4900 Comfortack
- + under floor heating, 25mm
- Wapenstone 4900 Comfortack, 20mm
- Separation 4900 General 4500, 20mm
- Edge-glued CLT, 100mm
- Laminated wood Lumber beams 75x250 mm E400 + mineral wool Lumber beams 25, 100mm
- Edge-glued CLT, 100mm
- Supporting rails 15x150mm E400
- + spiderlike insulation
- Acoustic spring rails 25mm E400
- Fire protection gypsum board, 25mm
- CLT 18 thickness, 18mm



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# VENTILATION

## CHOSEN SYSTEM:

Forced ventilation with heat recovery

Separate air supply for each apartment, collective air exhaust



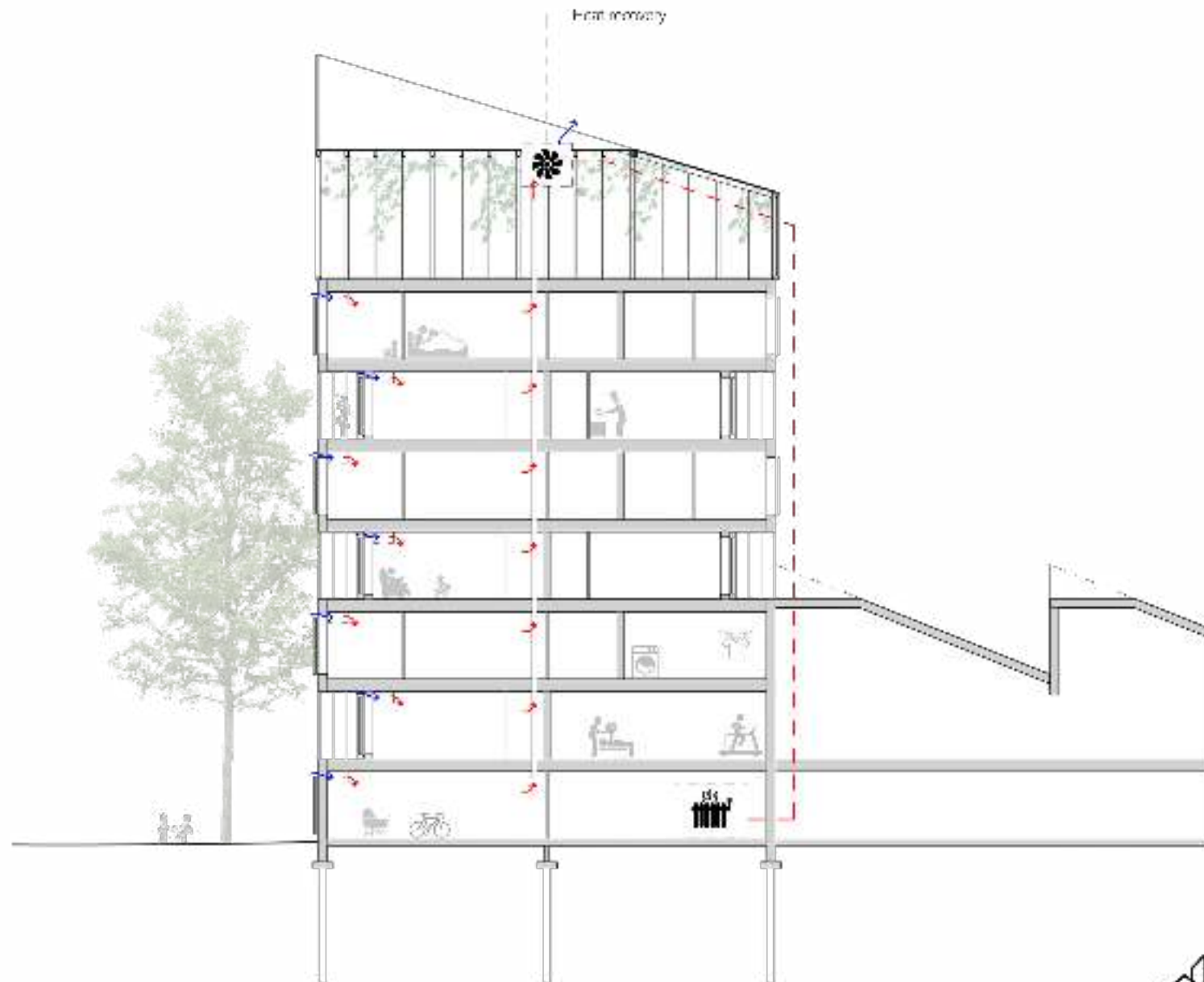
THERMAL COMFORT

Adjust the temperature of their own apartment separately



INDOOR AIR COMFORT

Enjoy good indoor air quality made possible by forced ventilation



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# HEATING

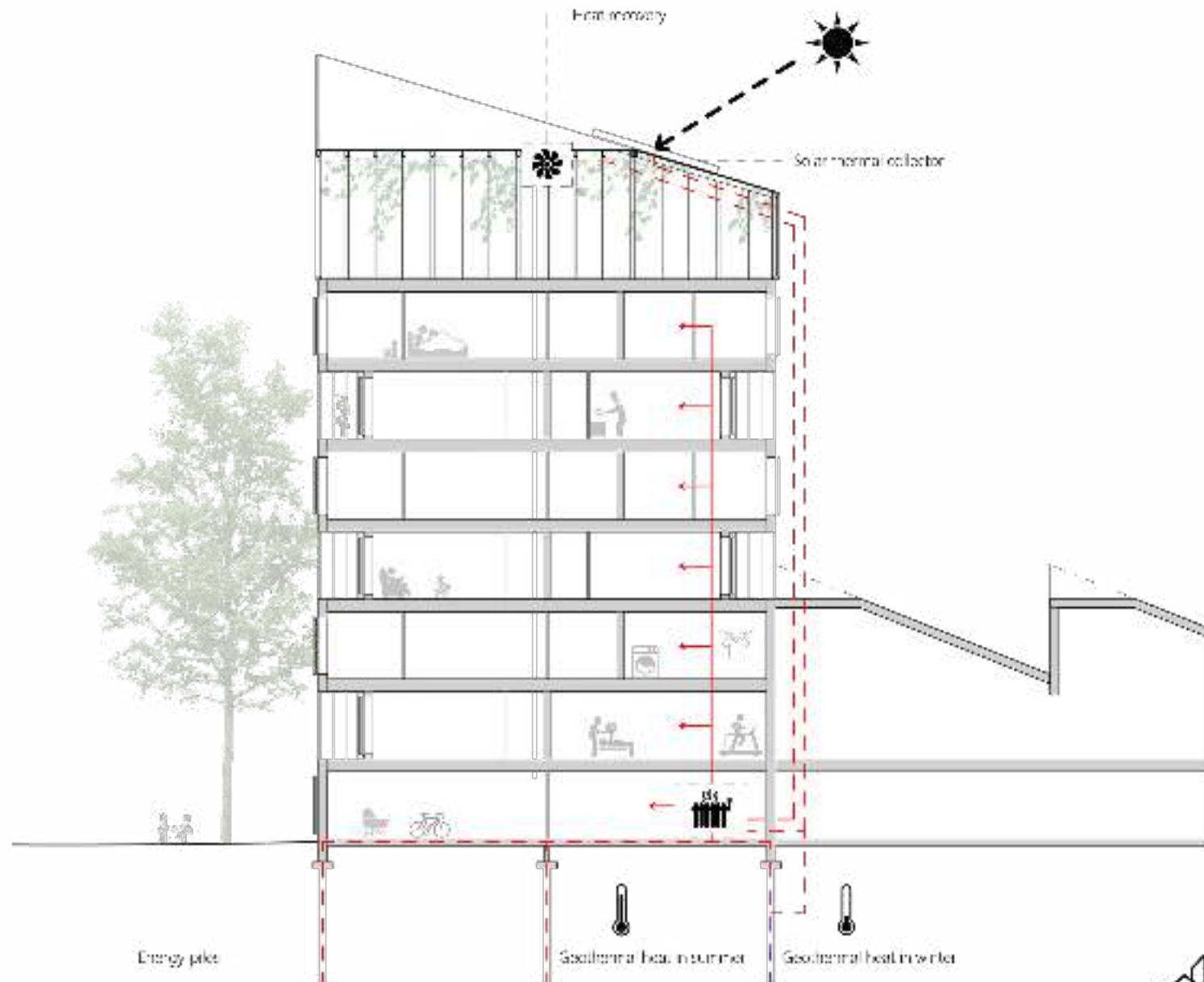
## CHOSEN SYSTEM:

- Energy piles extract geothermal heat
- Solar thermal collectors collect solar heat, with geothermal heat in winter
- Ventilation heat recovery system picks warmth from exhaust air



THERMAL COMFORT

Multiple use of renewable energy in heating keeps it warm even in cold weather



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# ELECTRICITY

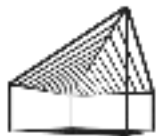
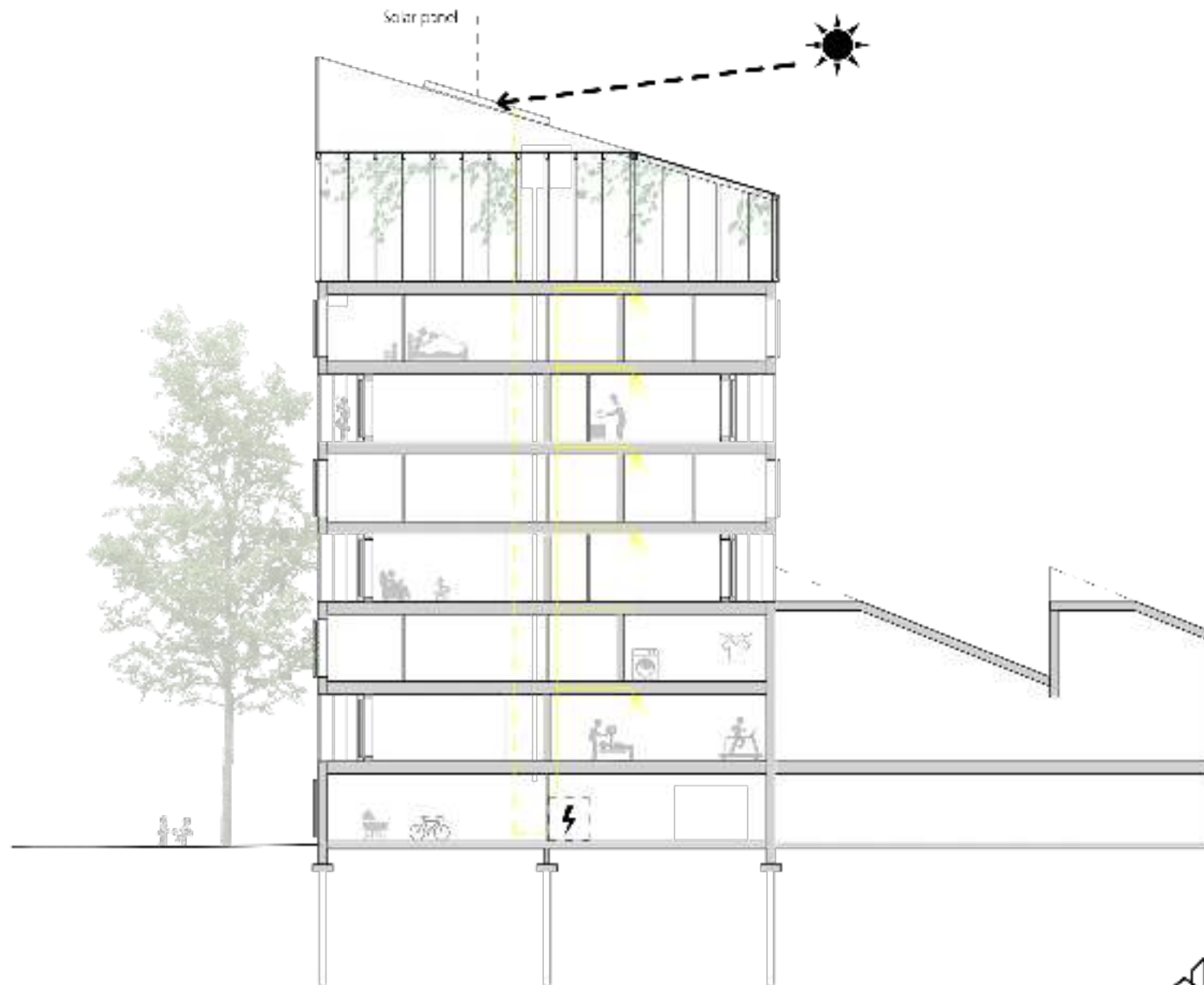
## CHOSEN SYSTEM:


Solar panels utilize solar energy



VISUAL  
COMFORT

Solar energy  
keeps lights on  
clean and green



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# WATER SUPPLY

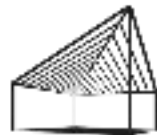
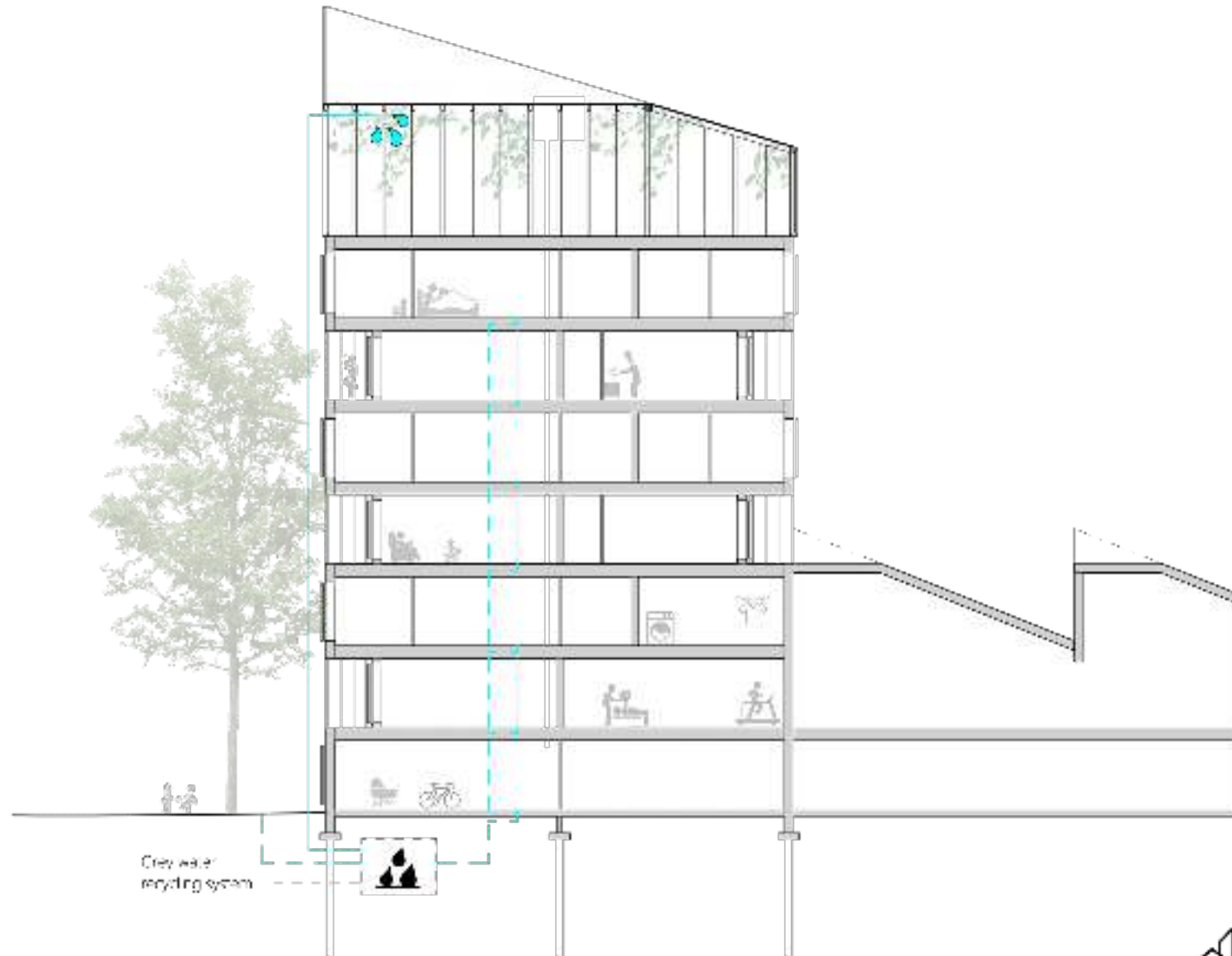
## CHOSEN SYSTEM:

Grey water recycling system

Rain water recycling system

Breathe  
INDOOR AIR  
COMFORT

Refresh in the middle of roof garden vegetation watered with grey and rain water



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Thank you for your attention!

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