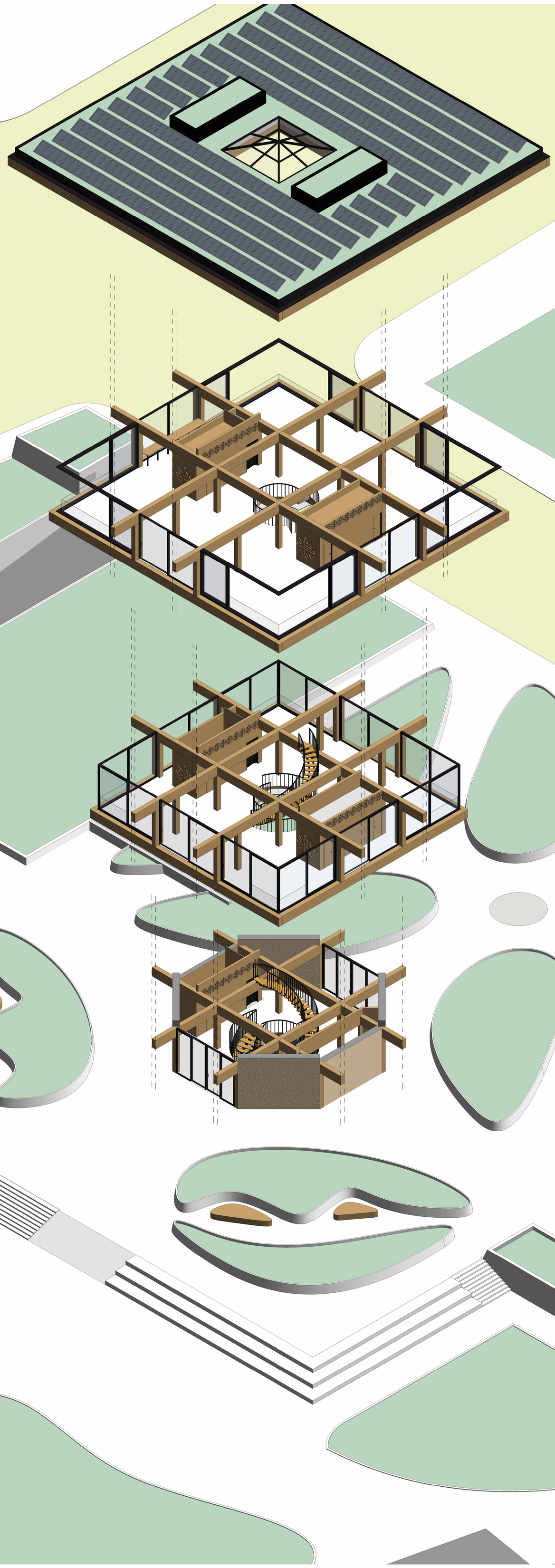
EXPLODED VIEW CAFÉ



ROUTING MUSEUM

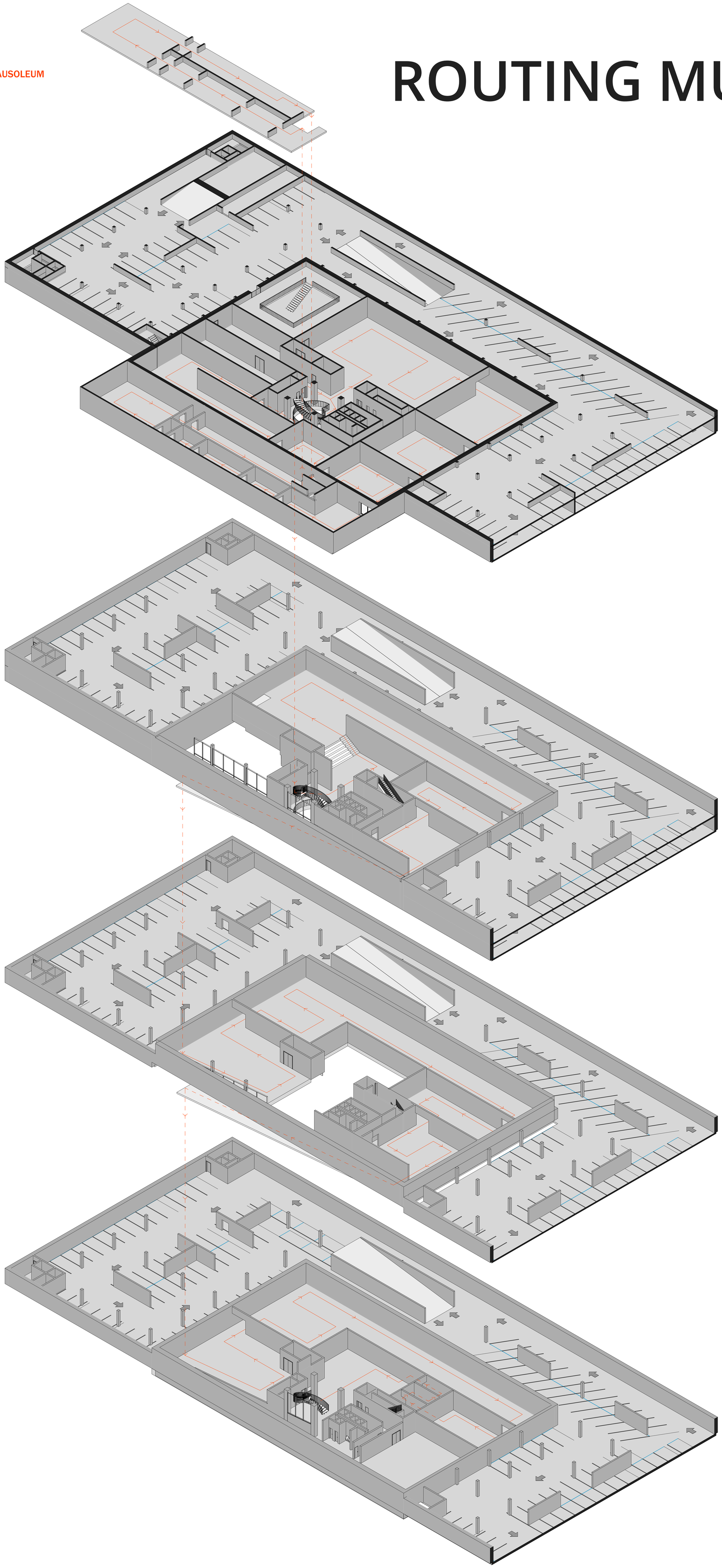
LEVEL -0.5 - EXISTING MAUSOLEUM

LEVEL -1

LEVEL -2 AND -1.5

LEVEL -2.5

LEVEL -3



PV panels

Zehnder ComfoAir XL 2200
Heat recovery rate: 80%
Specific electric power: 0.37 Wh/m3

ODA

ETA

Ceiling
- 7-layer CLT - 22.5cm (airtight layer)
- Installation layer - 20cm
- Sound insulation - 2.5cm
- Acoustic mat
- Battens with intermediate space 25/40mm

Powder coated stainless steel profile

Roof ±13.50

Services (from left to right)
- Sprinklers
- Lighting

Green Roof
- Grass - 1cm
- Earth - 9cm
- Membrane (water- and rootresistant)
- 2 layers XPS insulation - 40cm
- 7-layer CLT - 22.5cm (airtight layer)
- Installation layer - 48cm
- Sound insulation - 2.5cm
- Acoustic mat
- Battens with intermediate space 25/40mm

Powder coated stainless steel capping

Supply air valve

Glulam beam 75/35cm

Extract air valve

Interior wall
- 5-layer CLT 17.5cm
- Mineral wool insulation - 5cm
- 2 layers gypsum board - 2.5cm

Glulam column 75/35cm

Frame system: Alumil S700
Guardian triple glazing with eyerise s350
instant solar shading technology

Intermediate floor slab
- Floor finish - 2.5cm
- Fermacell - 2.5cm (impact sound insulation and fire resistance)
- 5-layer CLT - 17.5cm (airtight layer)
- Service layer - 50cm
- Battens with intermediate space 25/40mm

Thermal-bridge free window installation with Triotherm

Level 2 +9.00

Glulam beam 70/35cm

Glulam beam 75/35cm

Floor to outside
- Floor finish - 2.5cm
- Fermacell - 2.5cm (impact sound insulation and fire resistance)
- 5-layer CLT - 17.5cm (airtight layer)
- Minderal wool insulation - 50cm
- Battens with intermediate space 25/40mm

Level 1 +4.50

Ground floor wall
- Rammed earth - 15cm (mixture 7 dirt : 2 sand : 1 cement | airtight layer)
- Minderal wool insulation - 20cm
- Rammed earth - 15cm (mixture 7 dirt : 2 sand : 1 cement)

Ground floor slab (inside)
- Screed - 10cm
- Impact sound insulation - 3cm
- Steel profile sheeting with concrete - 15cm
- IPE Steel beams - 25cm (secondary structure)
- Installation layer with IPE Steel beams - 50cm (primary structure)
- Sound insulation - 2.5cm
- Acoustic mat
- Battens with intermediate space 25/40mm

Ground floor slab
- Pavement - 3cm
- Gravel - 10cm
- Membrane (water- and rootresistant)
- 3 layers XPS insulation - 25cm
- Steel profile sheeting with concrete - 15cm (airtight layer)
- Installation layer - 50cm
  IPE Steel beams - 50cm (primary structure)
  IPE Steel beams - 25cm (secondary structure)
- Sound insulation - 2.5cm
- Acoustic mat
- Battens with intermediate space 25/40mm

Services (from left to right)
- Sprinklers
- Ventilation
- Lighting

Ground floor slab - parking
- Pavement - 3cm
- Gravel - 10cm
- Membrane (water- and rootresistant)
- Concrete - 25cm

Intermediate floor slab
- Screed - 8cm
- Impact sound insulation - 3cm
- Steel profile sheeting with concrete - 15cm
- Installation layer - 50cm
  IPE Steel beams - 50cm (primary structure)
  IPE Steel beams - 25cm (secondary structure)
- Sound insulation - 2.5cm
- Acoustic mat
- Battens with intermediate space 25/40mm

Wall (inside-out)
- Plaster - 2cm
- Brickwork Porotherm 25 - 25cm
- Plaster - 0.5cm (airtight layer)
- Brickwork Poroton T8-50 - 50cm
- Plaster - 2cm

Intermediate floor slab - parking
- Concrete - 25cm (according to structural eng.)

Jet fan ventilation system

Pipes for the brine-to-air heat exchanger

Diaphragm wall (inside - out)
- Concrete 20cm
- Watertight membrane
- Concrete 50 cm

Floor slab
- Screed - 8cm (airtight layer)
- Gravel foamglass - 60cm
- Concrete - 40cm (according to structural eng.)
- Membrane (water- and root-resistant)
- Gravel

Thermoblock Marmox

Thermoblock Marmox

Thermoblock Marmox

Floor slab - parking
- Concrete - 40cm (according to structural eng.)
- Membrane (water- and root-resistant)
- Gravel

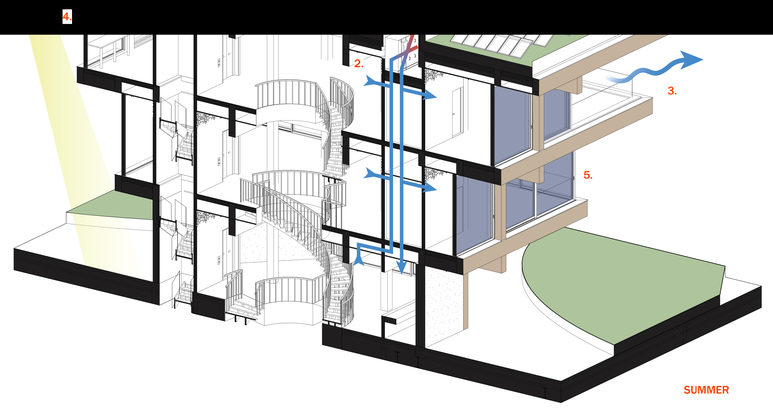
Strip foundation (according to struntural eng.)

Strip foundation (according to struntural eng.)

Strip foundation (according to struntural eng.)

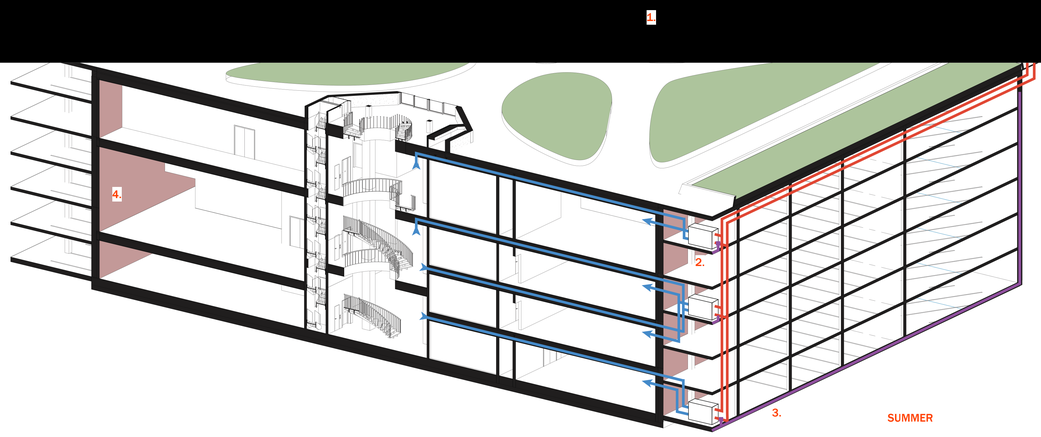
Detail fragment
1 : 20

CLIMATE DESIGN



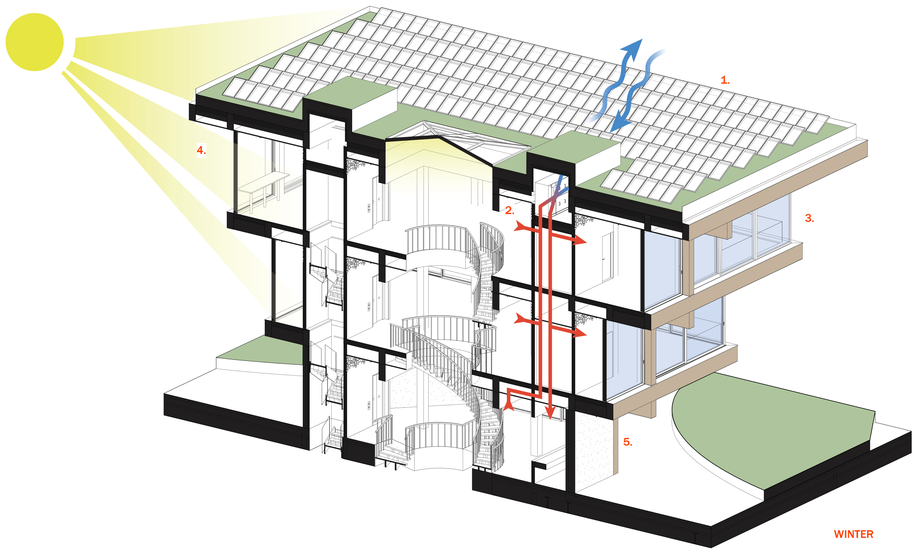
SUMMER

1. PV panels – produce energy for the whole building
2. MVHR with air-to-air heat pump for cooling (with bypass)
3. Additional night ventilation for cooling
4. Structure provides shading and minimizes solar loads
5. Dynamic glazing with liquid crystal technology



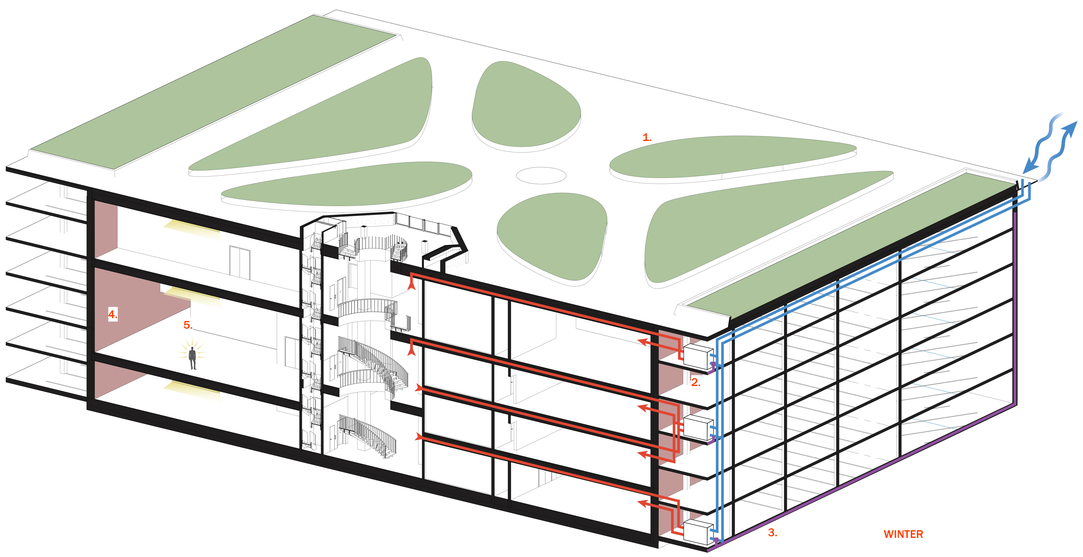
SUMMER

1. Greenery - lower UHI effect and capture rainwater
2. MVHR with summer bypass
3. Brine-to-air subsoil heat exchanger for precooling the air using the ground's temperature
4. Bricks used as high thermal mass material



WINTER

1. PV panels – produce energy for the whole building
2. MVHR with air-to-air heat pump for heating
3. High-performance glazing
   U_g=0.53 W/m^{2}K
   g=0.42
4. Maximize daylight and solar gains
5. Wooden structure (circular material)



WINTER

1. Greenery - lower UHI effect and capture rainwater
2. MVHR
3. Brine-to-air subsoil heat exchanger for preheating the air using the ground's temperature
4. Bricks used as high thermal mass material
5. Building is heated solely via the internal heat gains (devices, lights and people)