

LINESØYA PASSIVE HOUSE



GROUP 3:

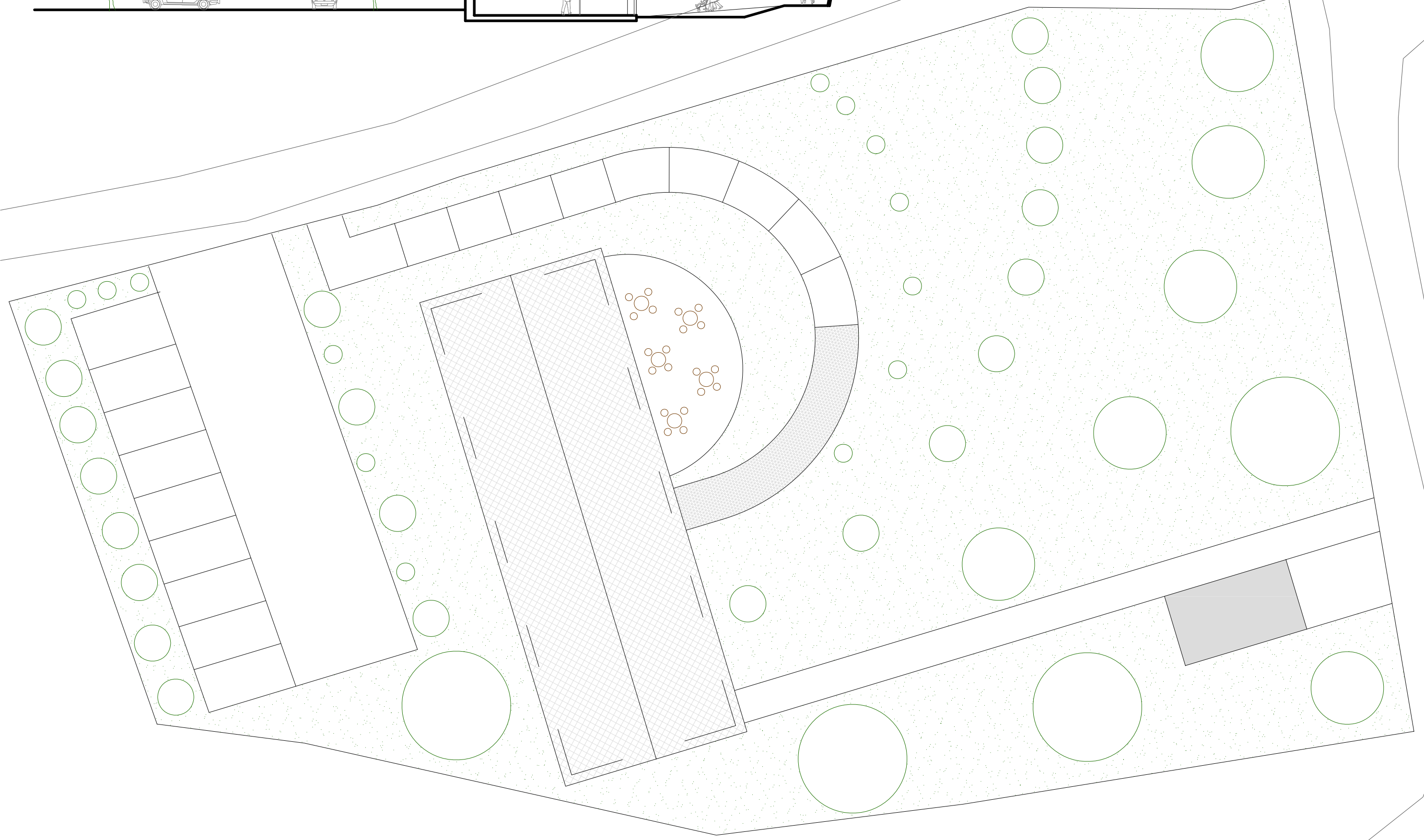
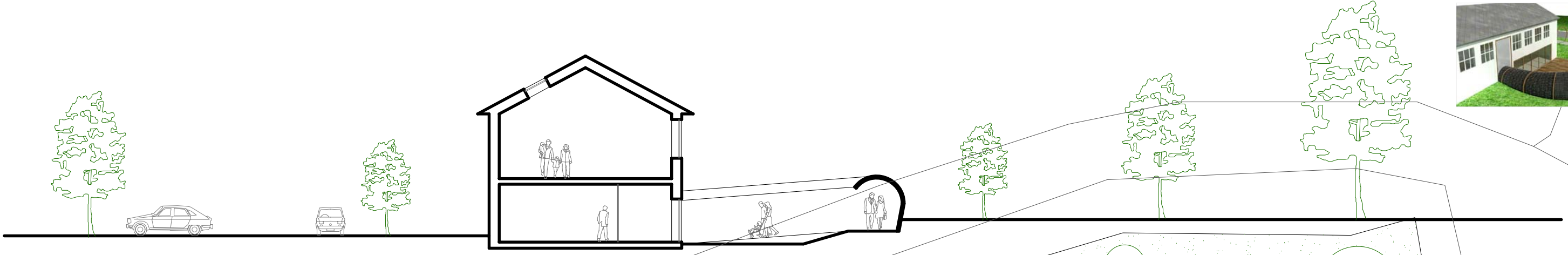
vegard heide

ivan kalc

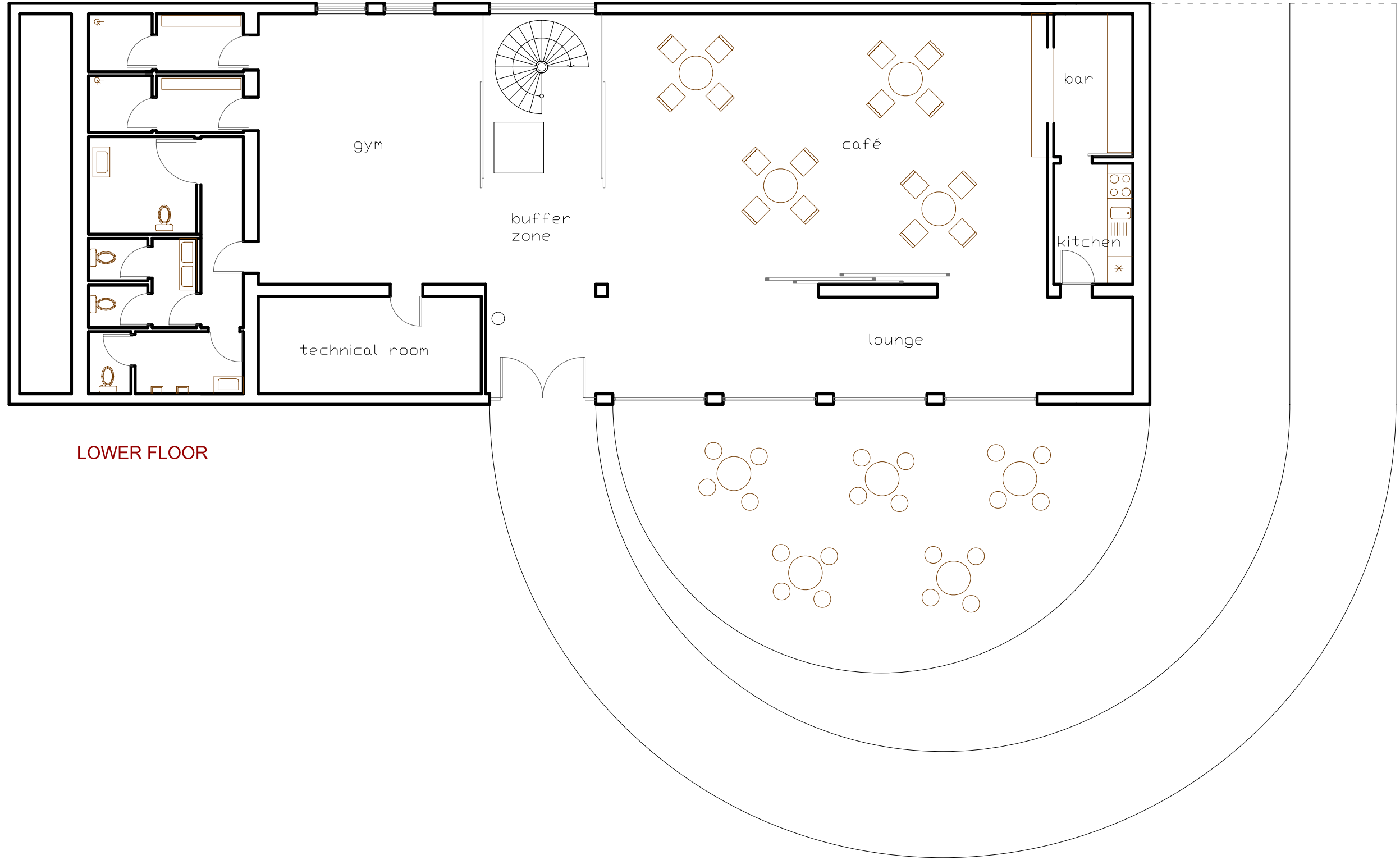
maria coral ness



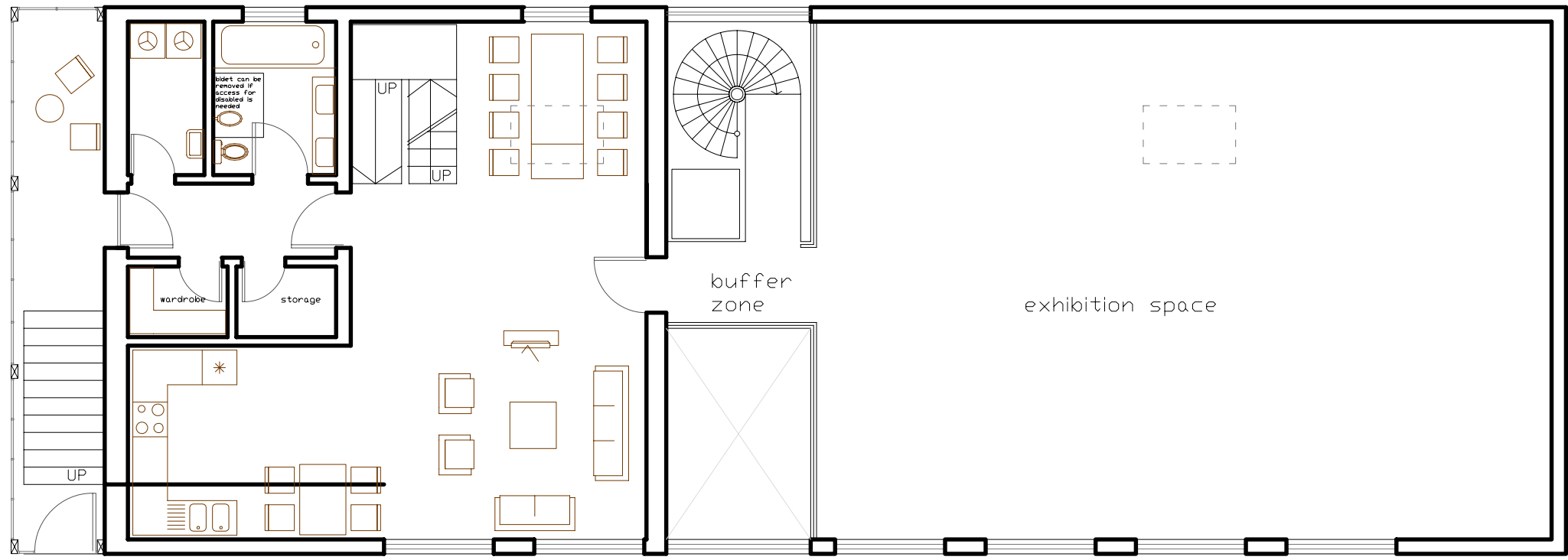
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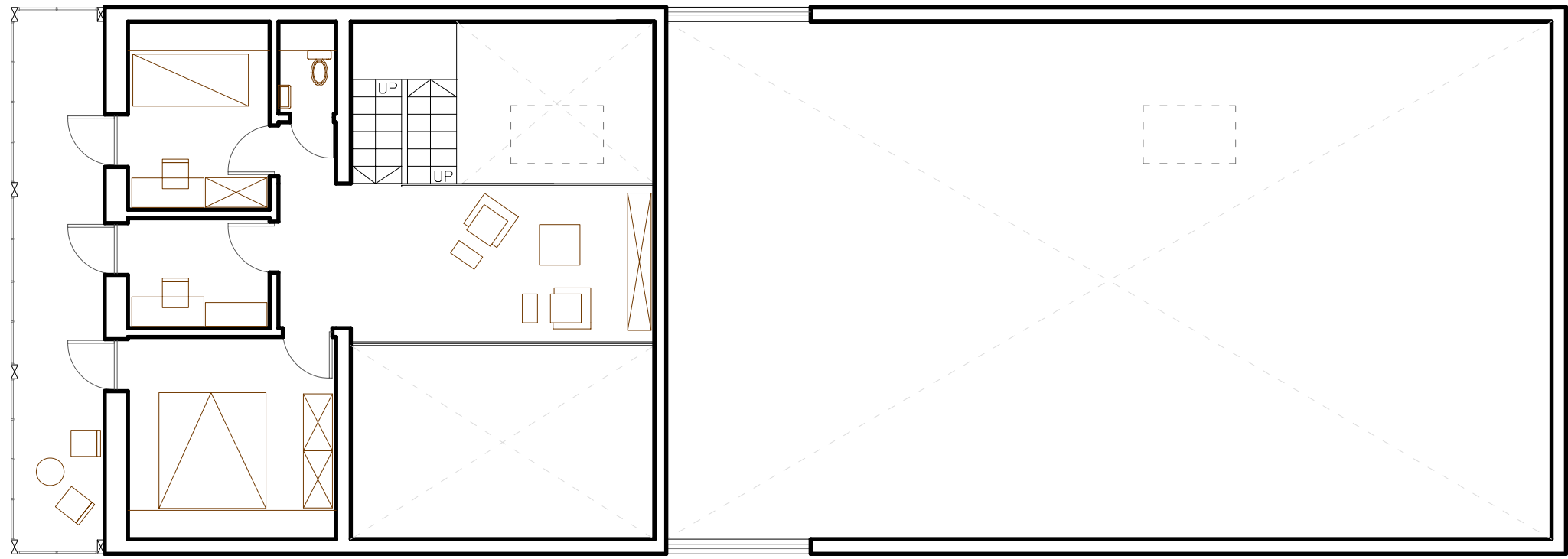
SITE



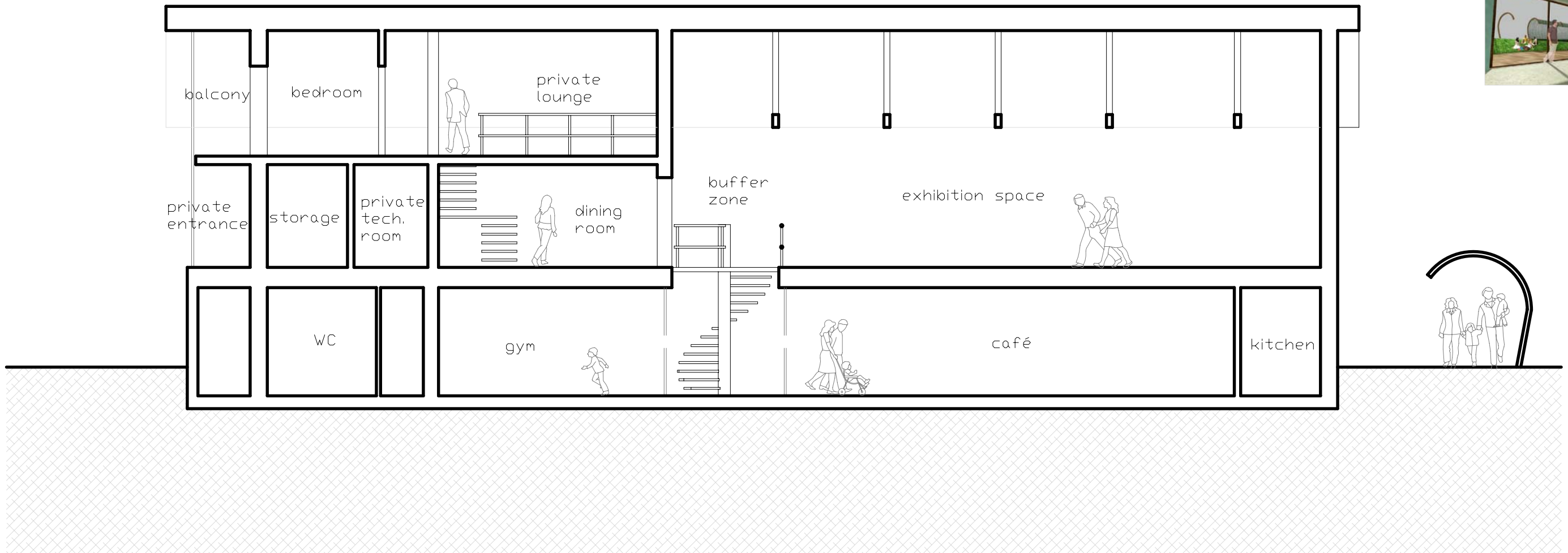
LOWER FLOOR



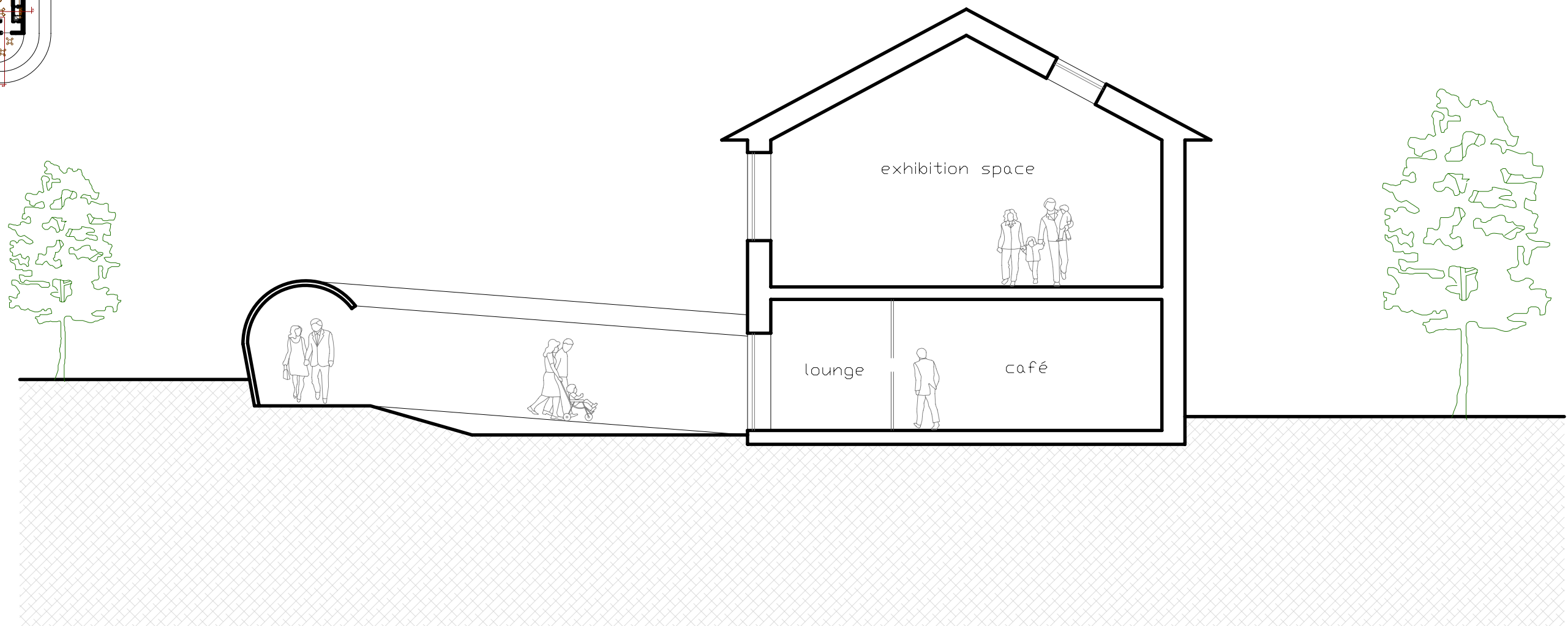
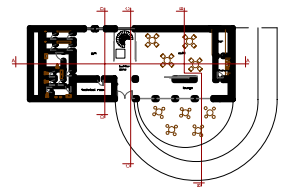
LOWER FLOOR



UPPER FLOOR



LONGITUDINAL SECTION - AA

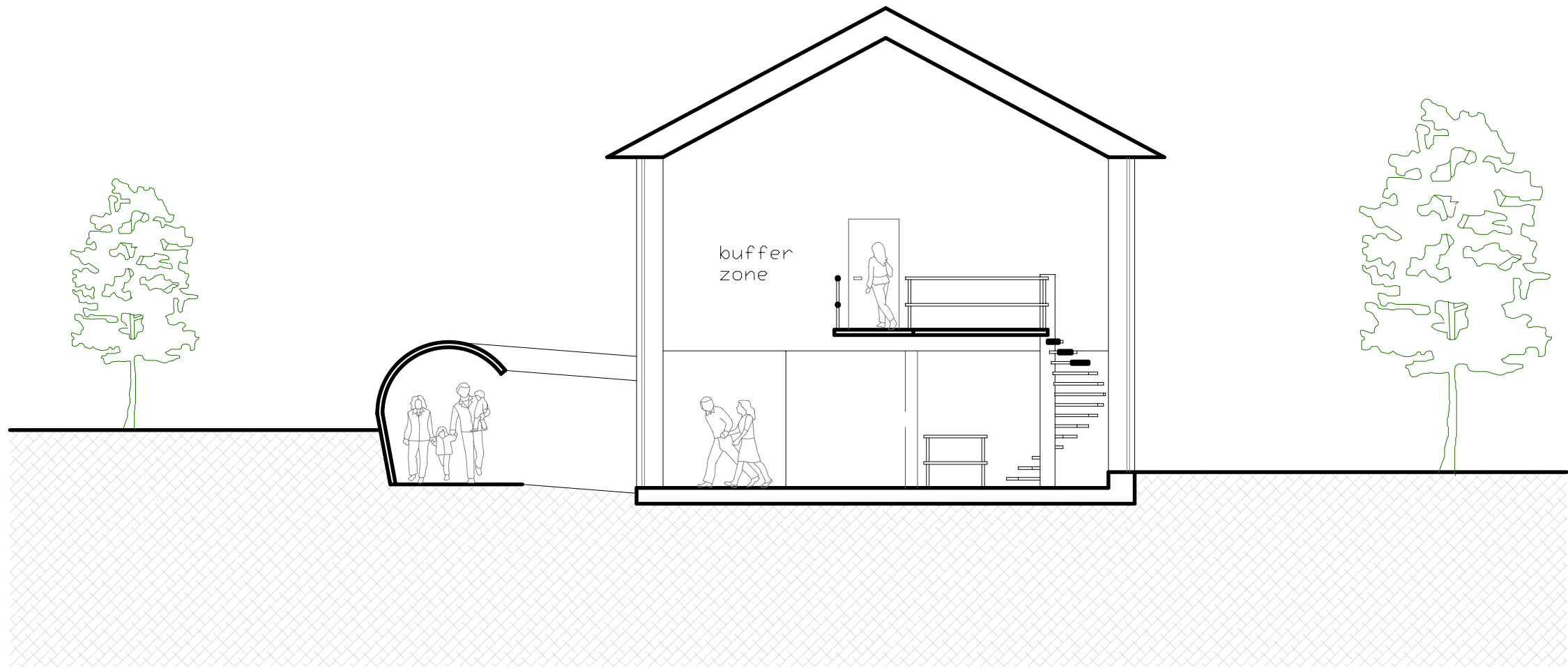


CROSS SECTION - BB

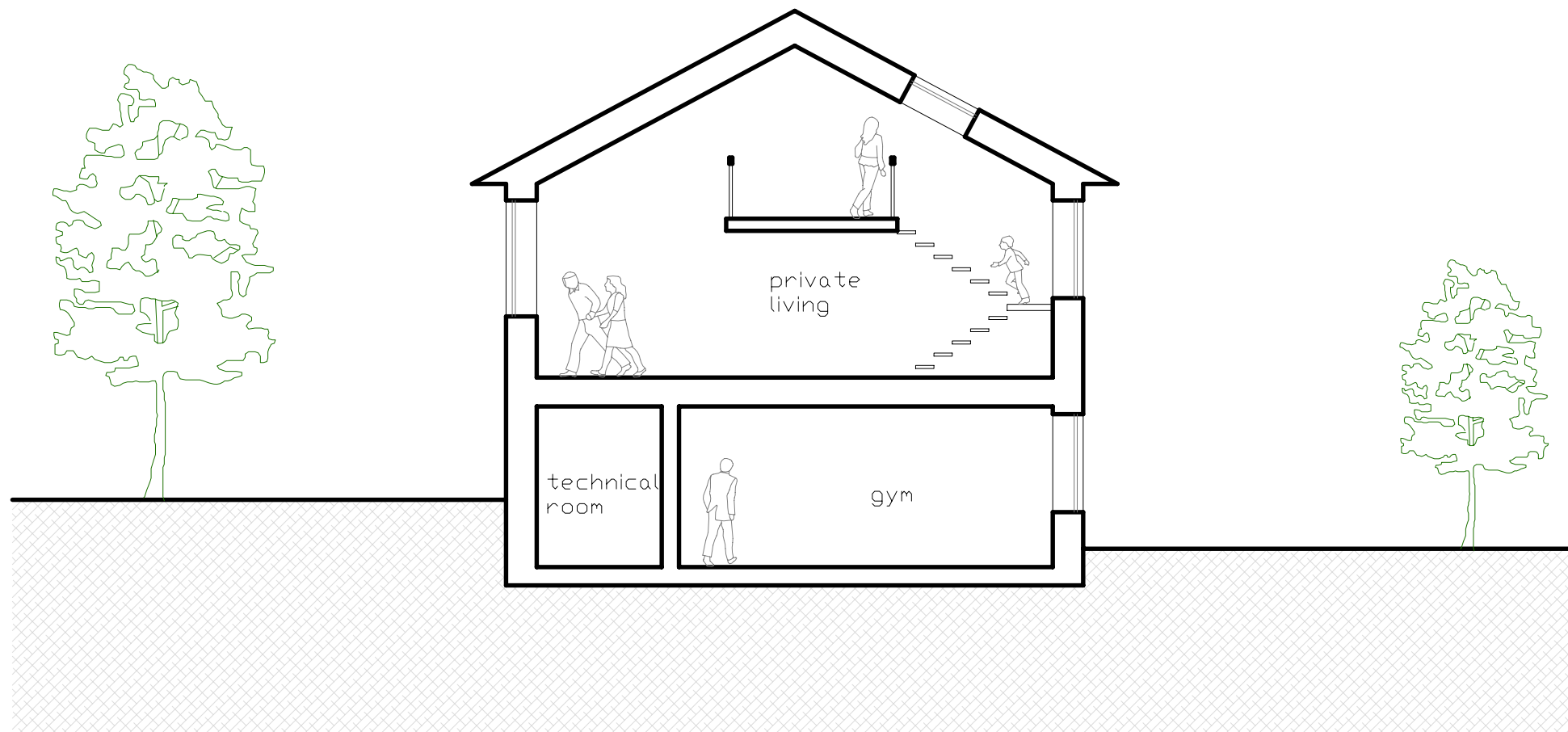
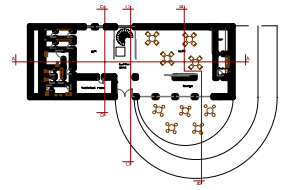


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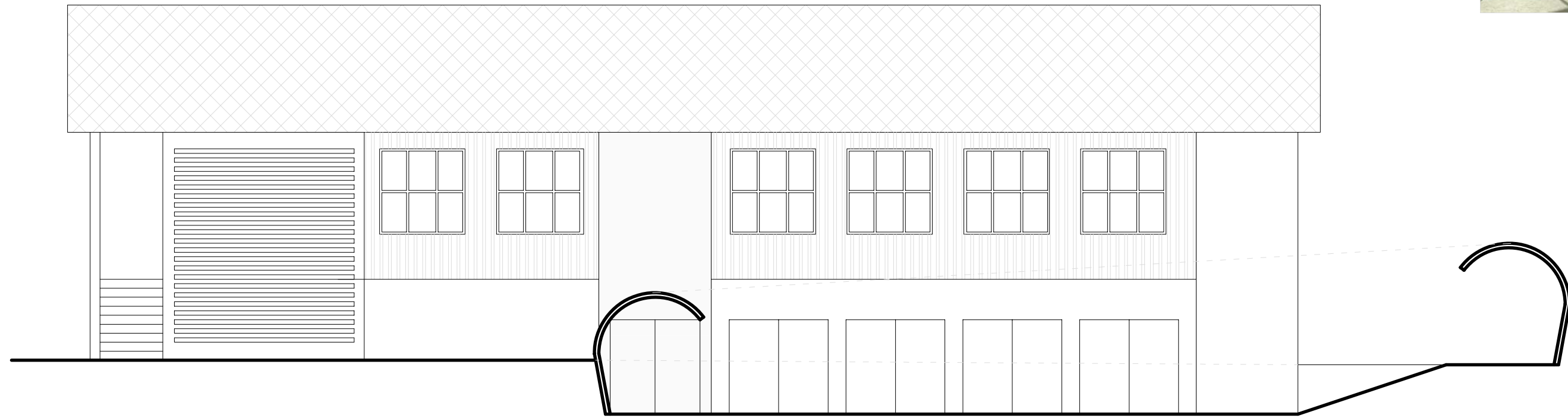
SECTIONS



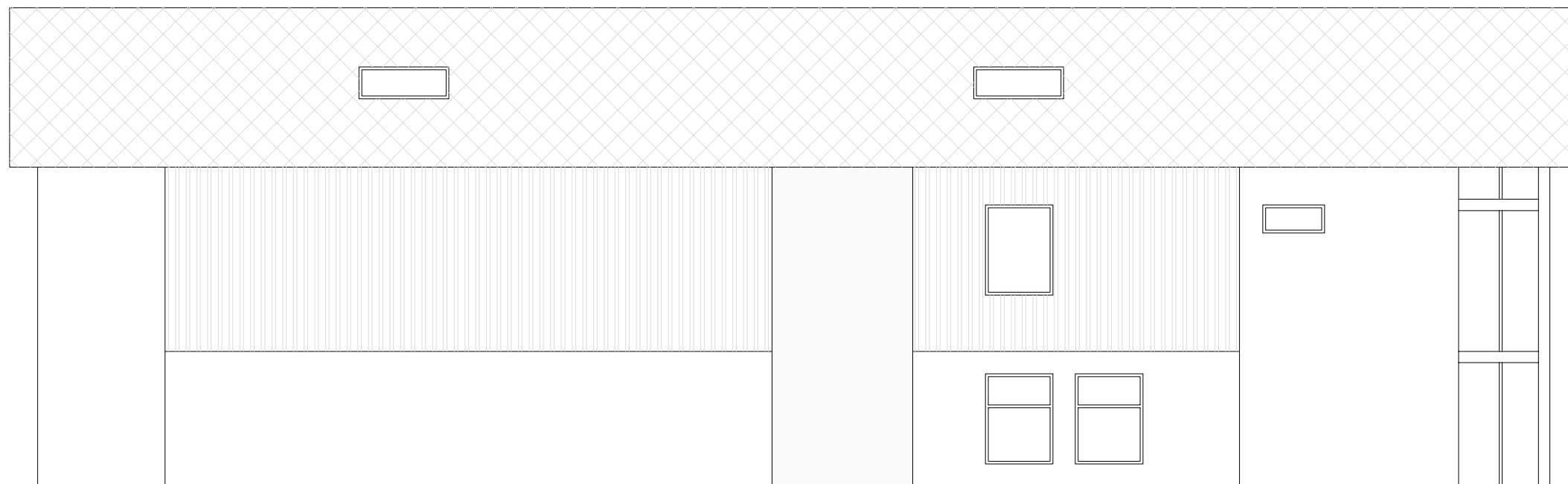
CROSS SECTION - CC



CROSS SECTION - DD



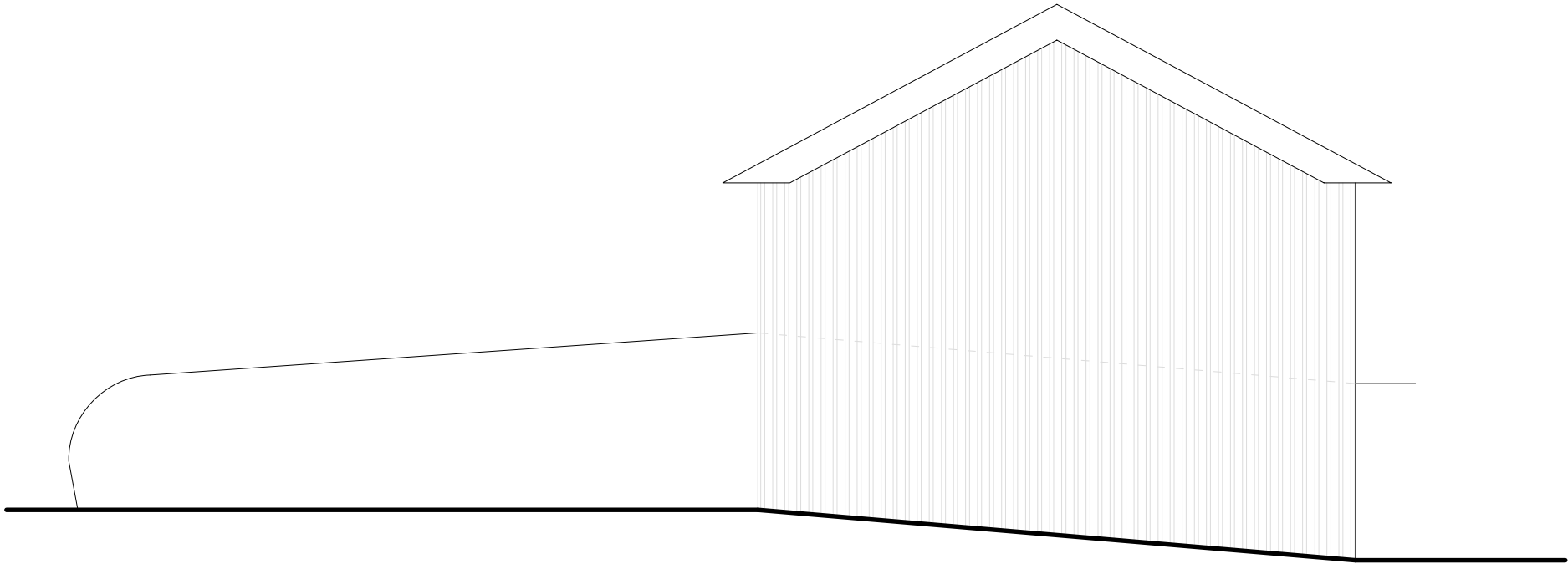
SOUTH FAÇADE



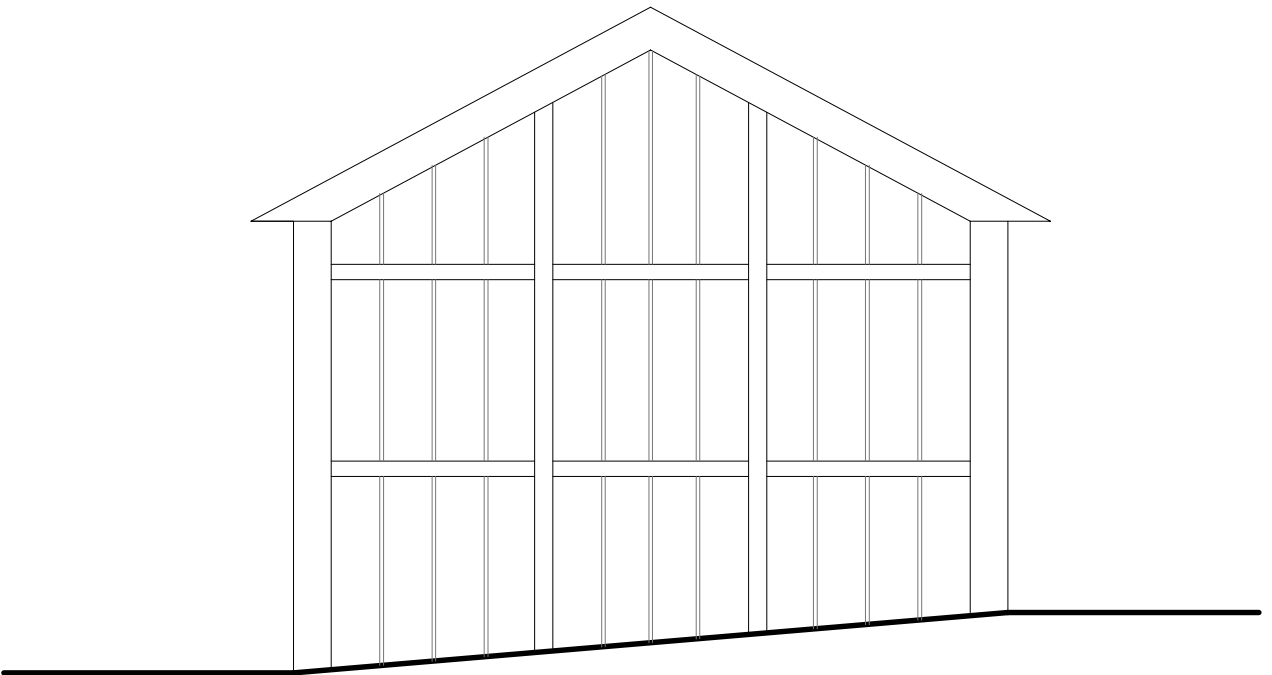
NORTH FAÇADE

1:100

FAÇADES



EAST FAÇADE

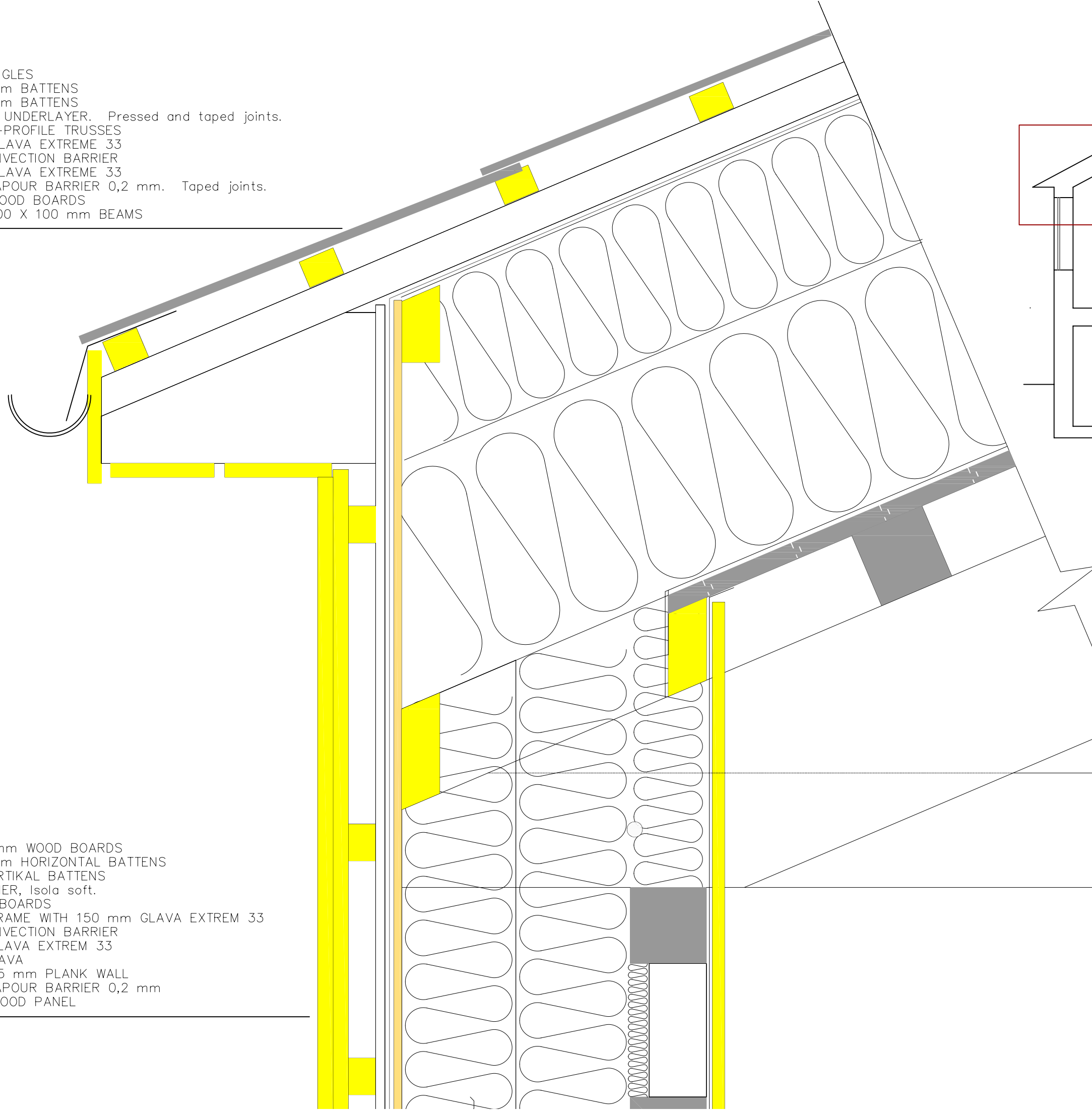


WEST FAÇADE

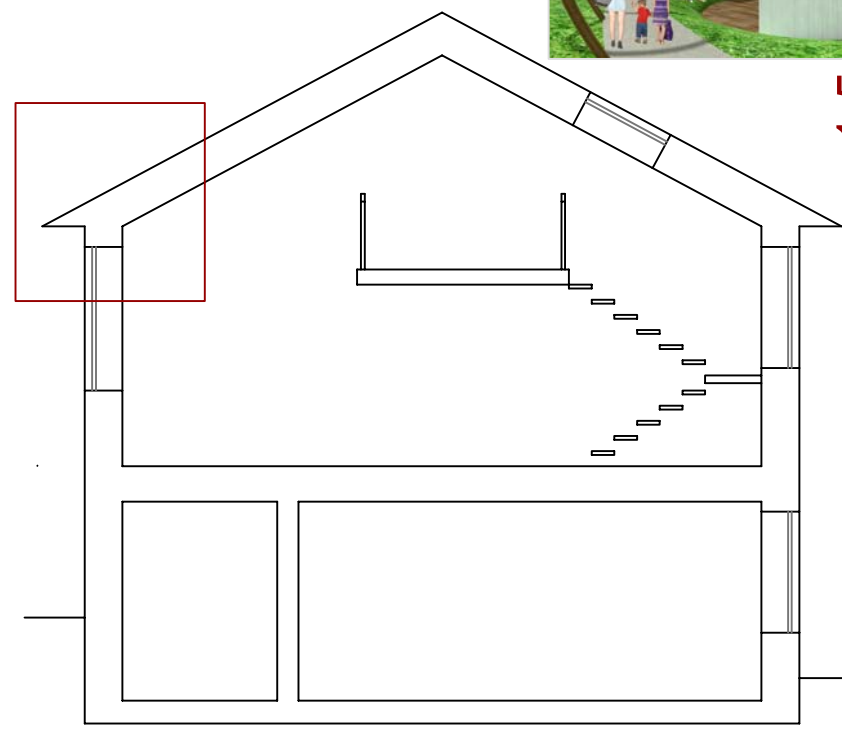
1:100

FAÇADES

- SLATE SHINGLES
- 36 x 48 mm BATTENS
- 48 x 48 mm BATTENS
- BREATHING UNDERLAYER. Pressed and taped joints.
- 500 mm I-PROFILE TRUSSES
- 200 mm GLAVA EXTREME 33
- PAPER CONVECTION BARRIER
- 300 mm GLAVA EXTREME 33
- PLASTIC VAPOUR BARRIER 0,2 mm. Taped joints.
- EXISTING WOOD BOARDS
- EXISTING 100 X 100 mm BEAMS



- 19 x 148 mm WOOD BOARDS
- 26 x 49 mm HORIZONTAL BATTENS
- 12 mm VERTIKAL BATTENS
- WIND BARRIER, Isola soft.
- 9 mm GU BOARDS
- 148 mm FRAME WITH 150 mm GLAVA EXTREM 33
- PAPER CONVECTION BARRIER
- 150 mm GLAVA EXTREM 33
- 30 mm GLAVA
- EXISTING 75 mm PLANK WALL
- PLASTIC VAPOUR BARRIER 0,2 mm
- INTERIOR WOOD PANEL



1:5

DETAILS



1:5

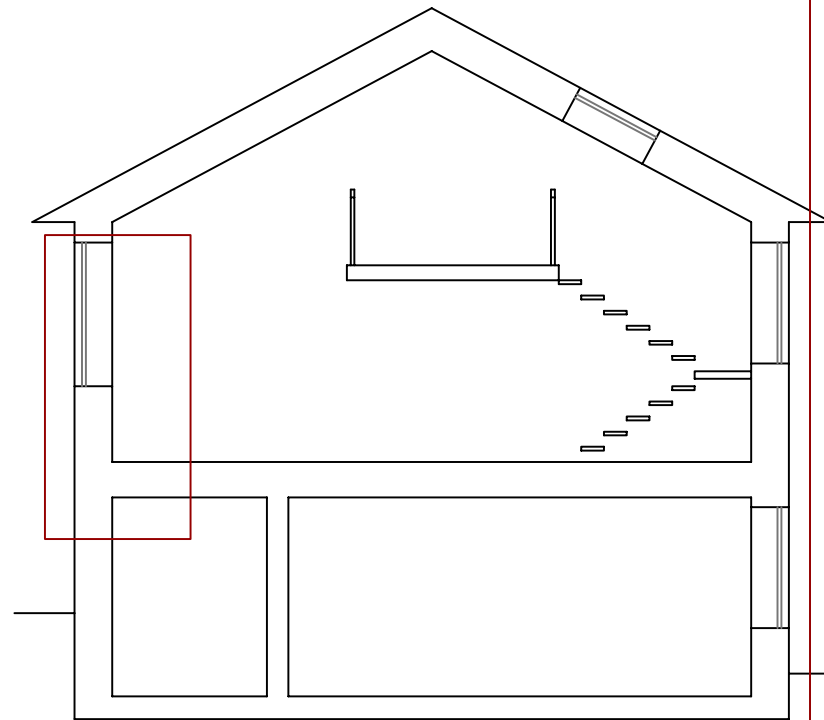
EXISTING WINDOWS REINSTALLED

1/3 OF NEW WINDOW OPENS INWARD FOR VENTILATION AND CLEANING

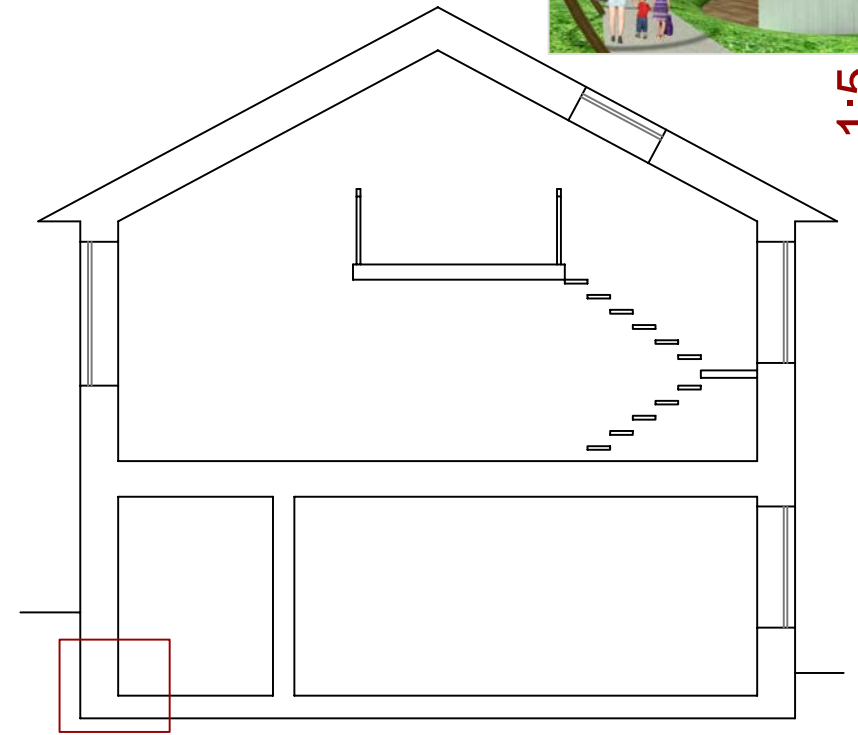
6 mm GLASS ALLOWING A VIEW OF A CROSS-SECTION OF THE WALL

16 mm PLYWOOD CONNECTING OUTER FRAME TO CONCRETE WALL

- 10 mm FIBRECEMENT BOARD
- 150 mm EPS 150 kPa with tongue and groove
- 150 mm EPS 150 kPa with tongue and groove
- EXISTING CONCRETE WALL
- 50 mm EXISTING WOOD-WOOL-CEMENT

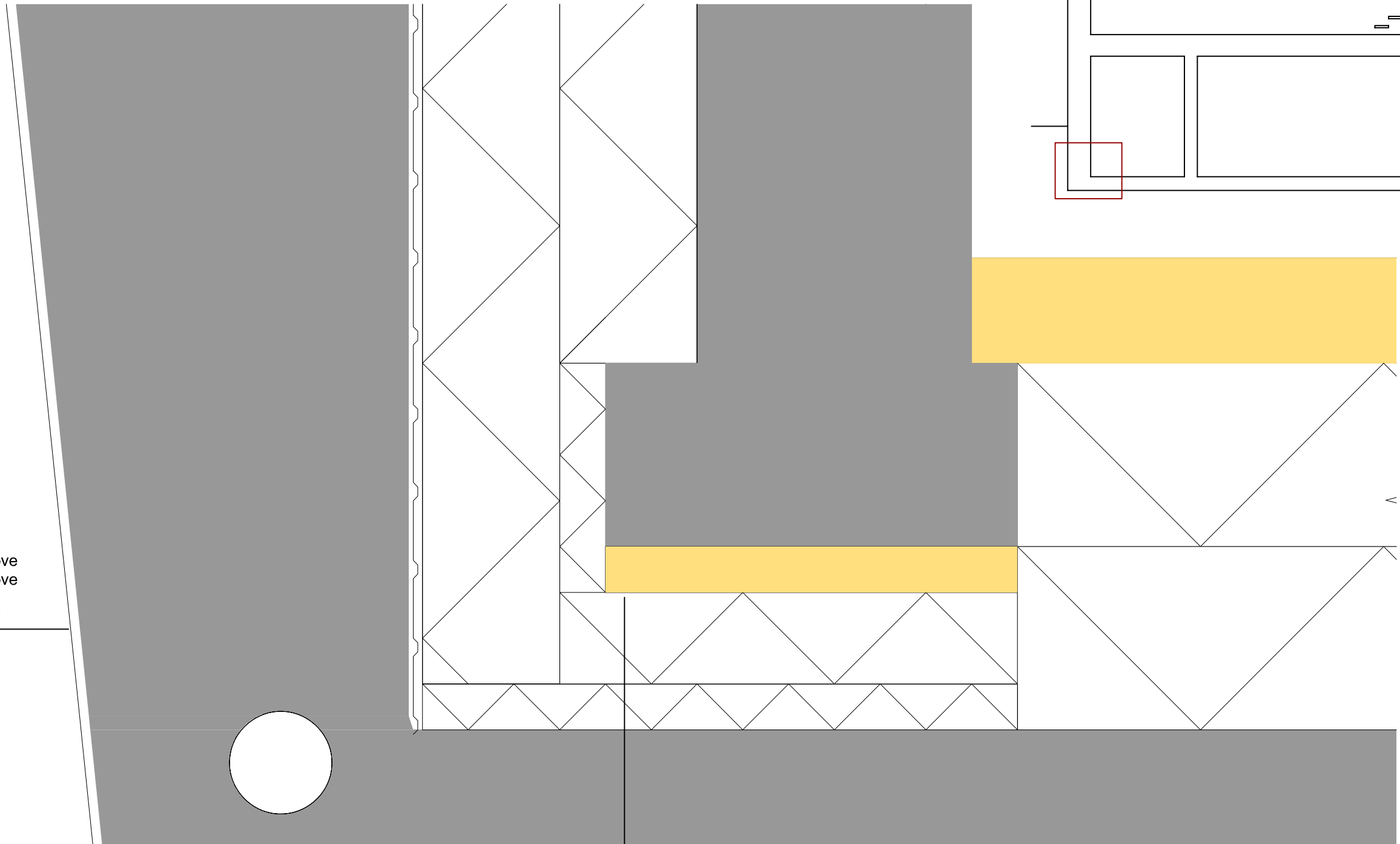


DETAILS



1:5

- GEOTEXTILE
- KNOTTPLAST (studded water barrier)
- 150 mm EPS 150 kPa with tongue and groove
- 150 mm EPS 150 kPa with tongue and groove
- EXISTING CONCRETE WALL
- 50 mm EXISTING WOOD-WOOL-CEMENT



NEW CONCRETE INFILL UNDER FOUNDATION

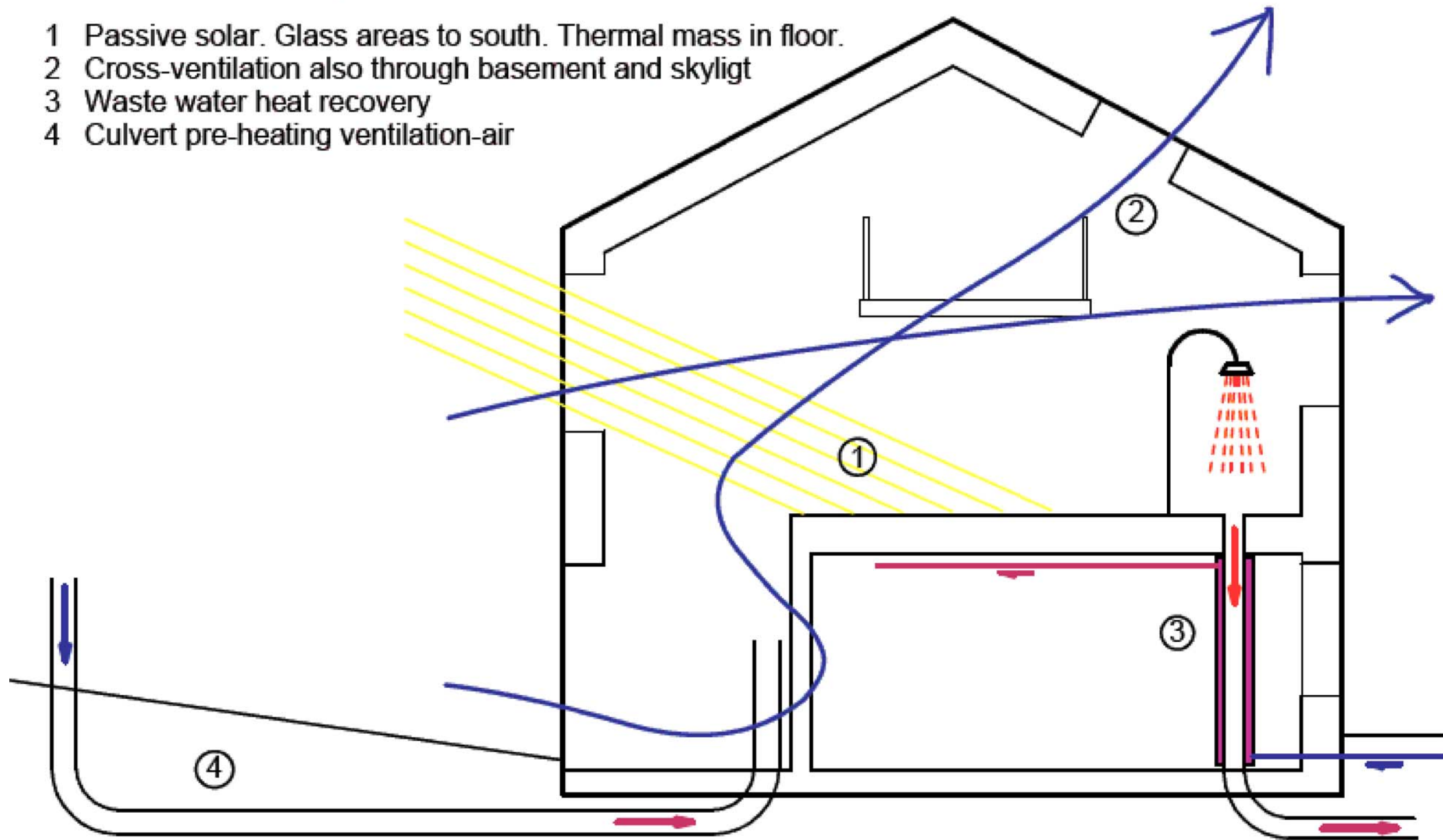
- 120 mm NEW CONCRETE SLAB
- 200 mm EPS 150 kPa
- 0,2 mm PLASTIC MOISTURE BARRIER
- 200 mm EPS 150 kPa
- GRAVEL

DETAILS



Passive energy strategies

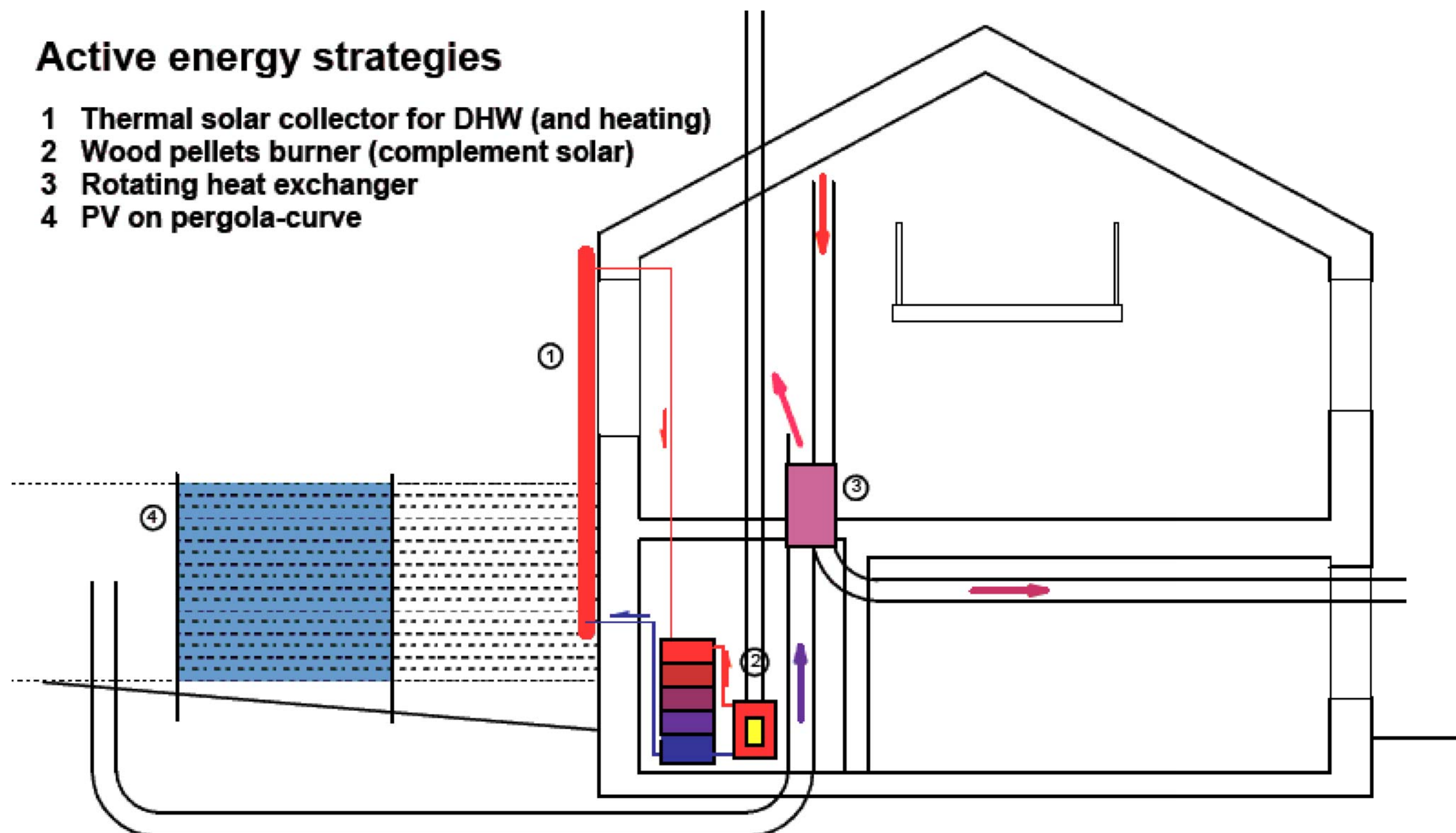
- 1 Passive solar. Glass areas to south. Thermal mass in floor.
- 2 Cross-ventilation also through basement and skylight
- 3 Waste water heat recovery
- 4 Culvert pre-heating ventilation-air



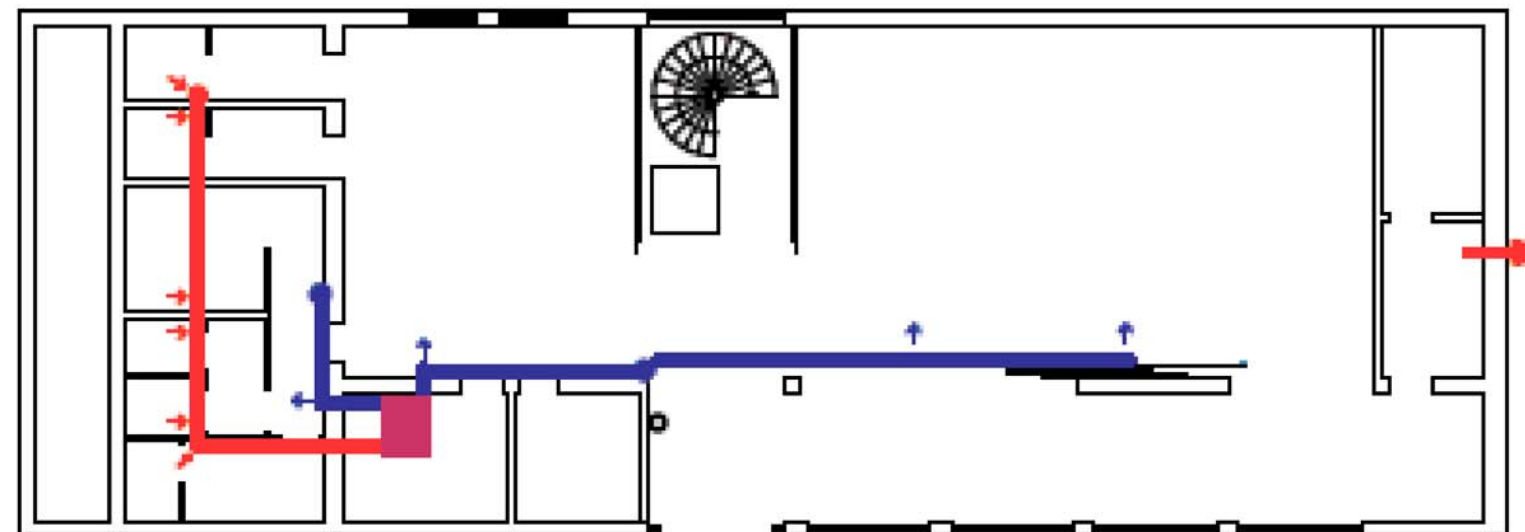
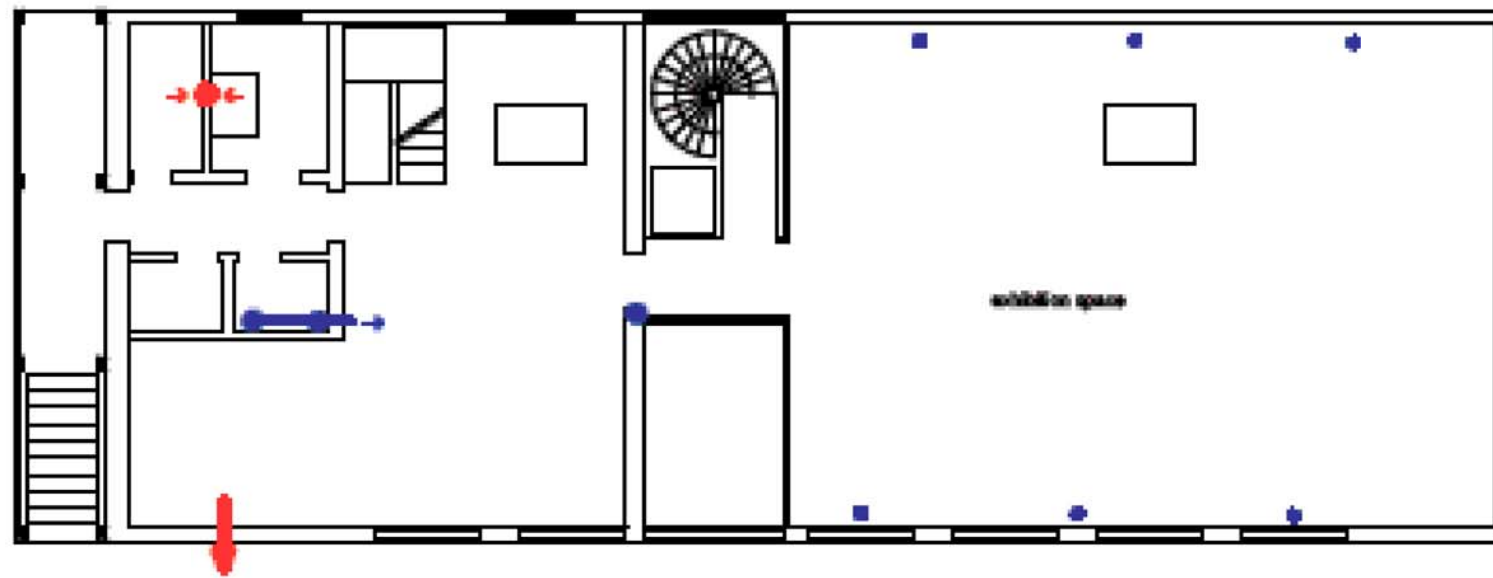
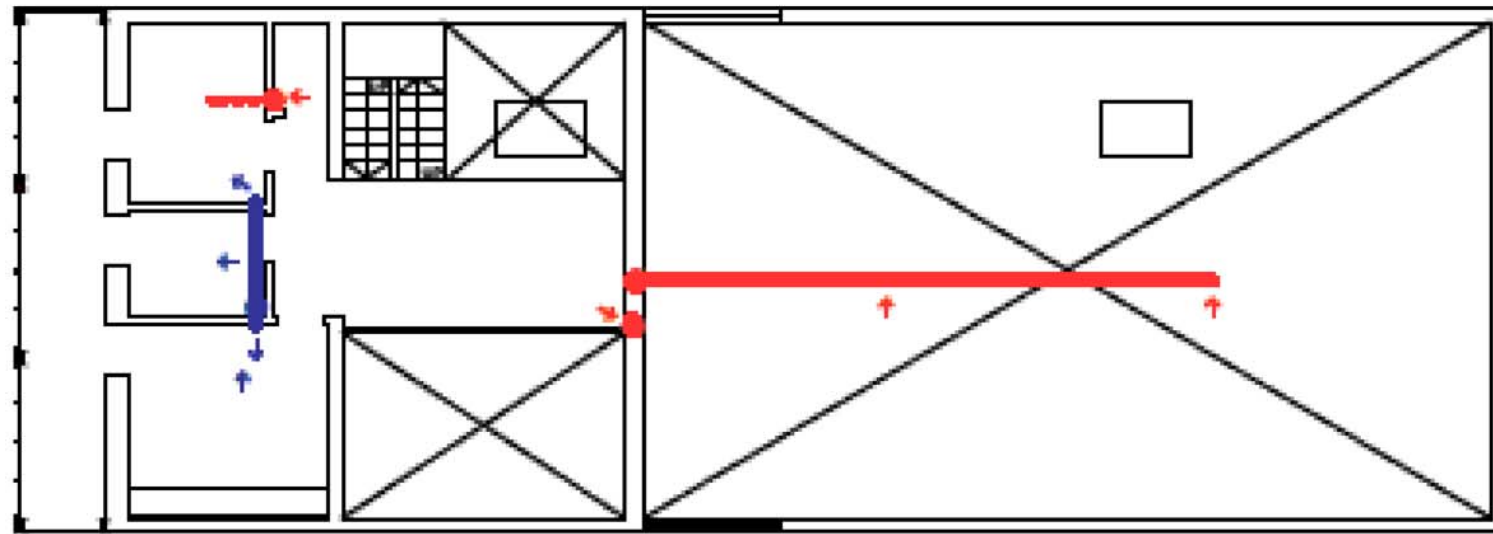
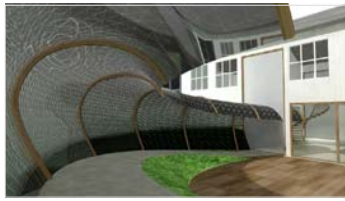


Active energy strategies

- 1 Thermal solar collector for DHW (and heating)
- 2 Wood pellets burner (complement solar)
- 3 Rotating heat exchanger
- 4 PV on pergola-curve



Balanced ventilation





Energy calculations in Simien

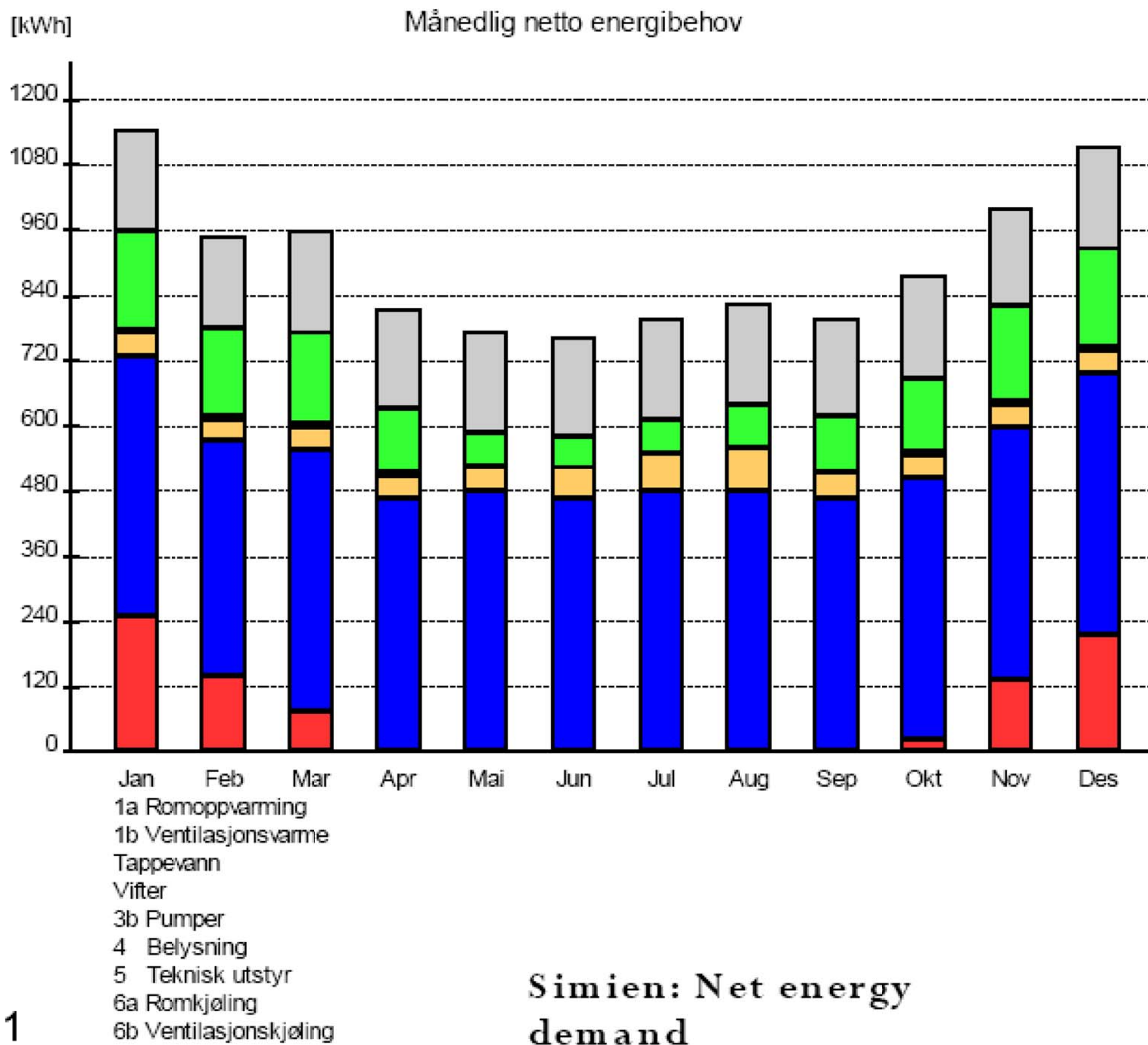
Requirements from NS 3700: (and Prosjektrapport 42).

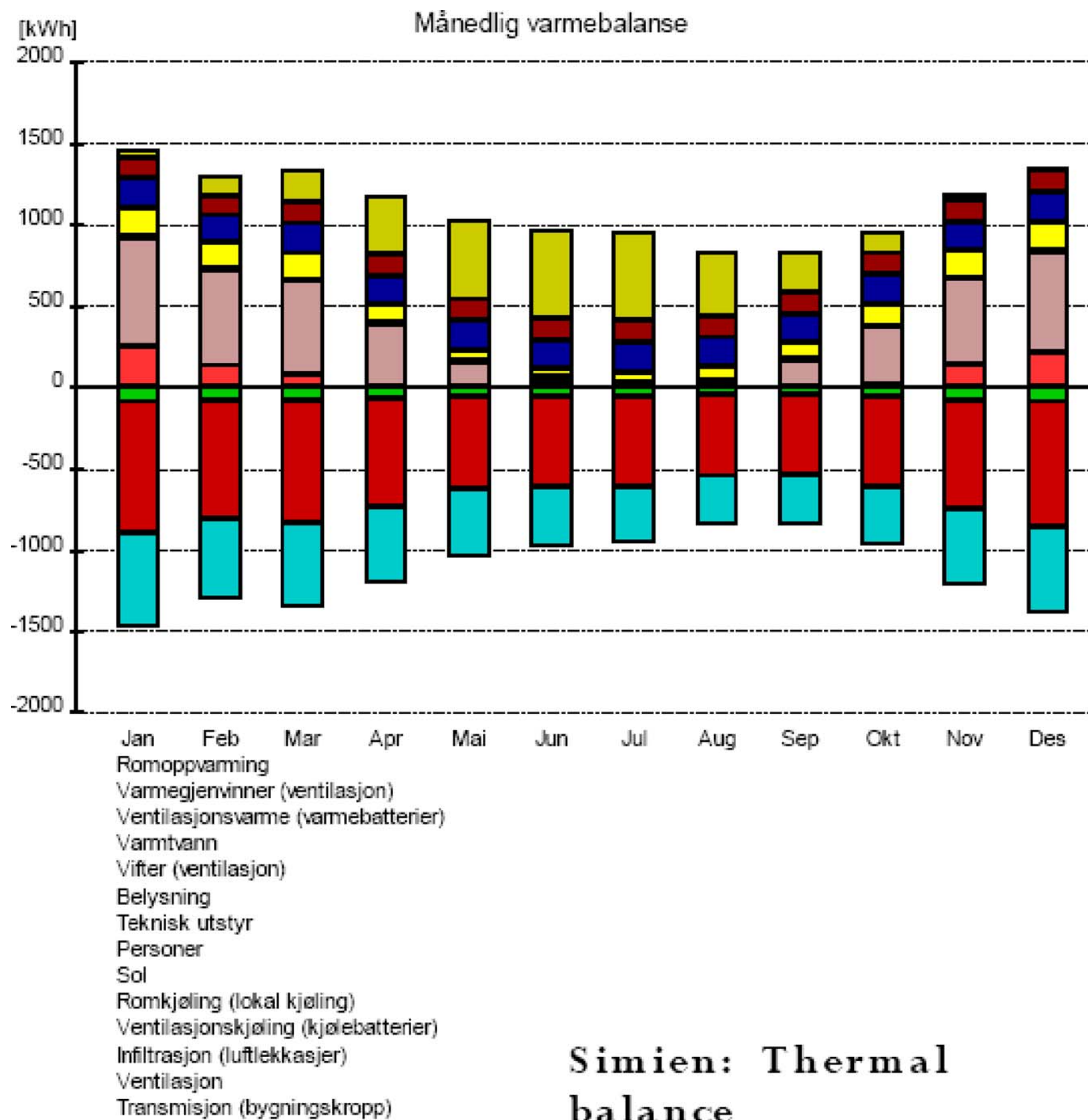
	<u>Calculated</u>	<u>Required maximum</u>
-Heating demand:	14,7 kWh/m ²	15 kWh/m ²
-Overall heat loss factor	0.36 W/m ² *K	0,5 W/m ² *K
-CO ₂ -emission	16,3 kg/m ²	25 kg/m ²

- At least halv of the energy used for heating and DHW has to come from non-fossil: In our case this is fulfilled by the biofuel alone (3558 kWh) without counting the contribution from the solar collector.

Net energy demand: 10887kWh 86 kWh/m²

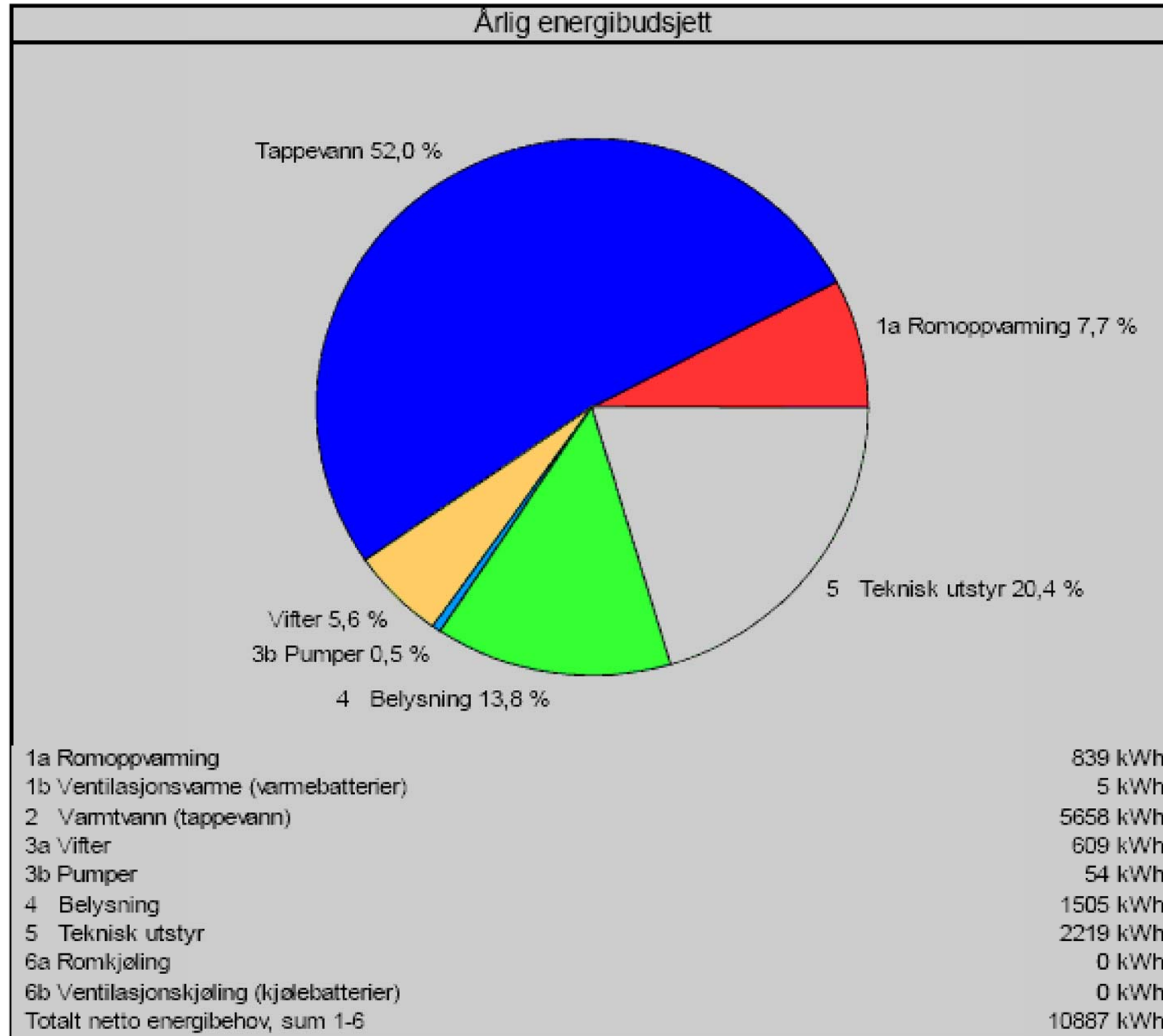
Total electricity consumption: 21700 kWh
PV on curved pergola covers 10% of this.
With PV also on south roof 45% is covered.



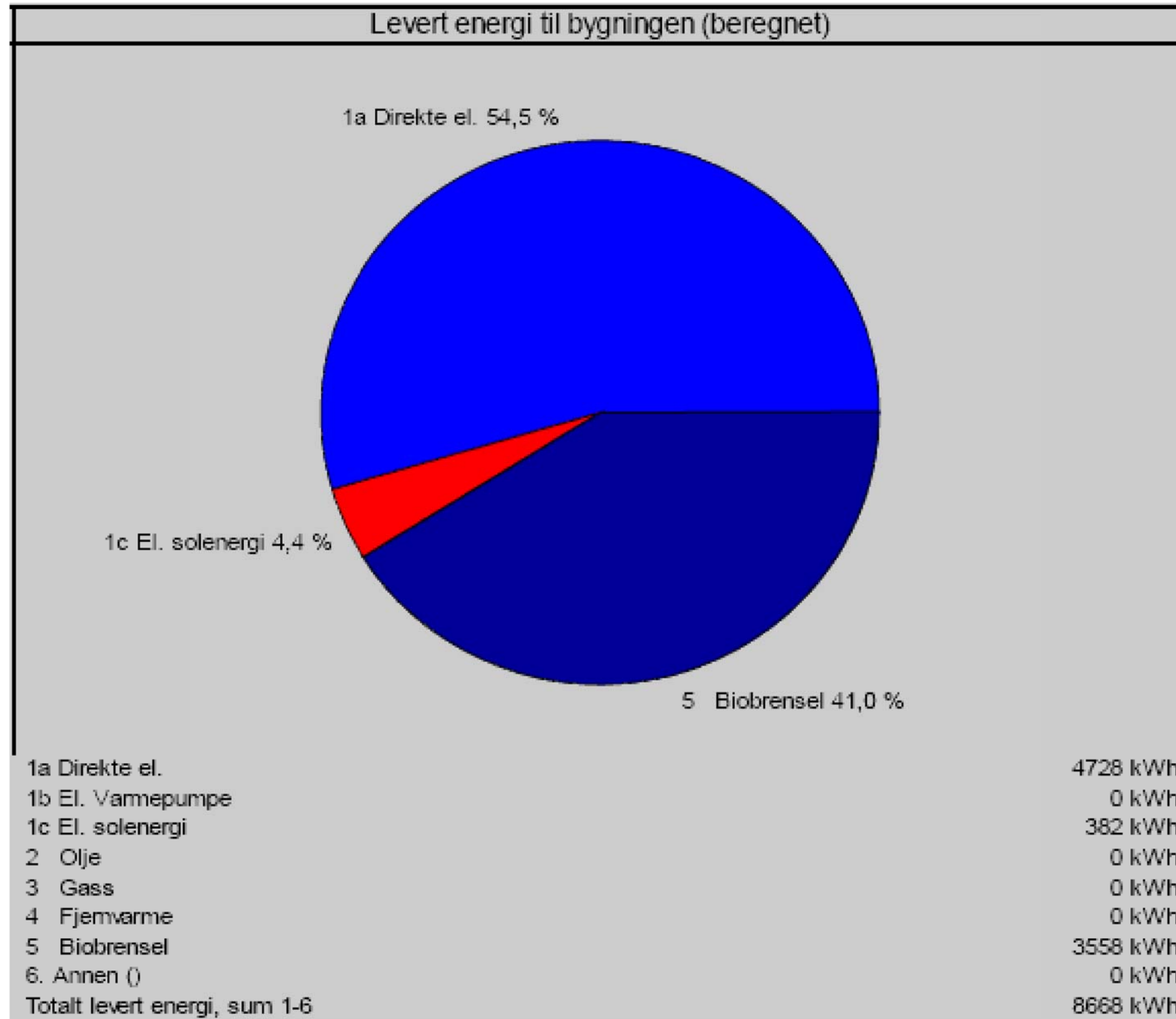


Simien: Thermal balance

ANNUAL ENERGY BUDGET



DELIVERED ENERGY



HEAT LOSS

