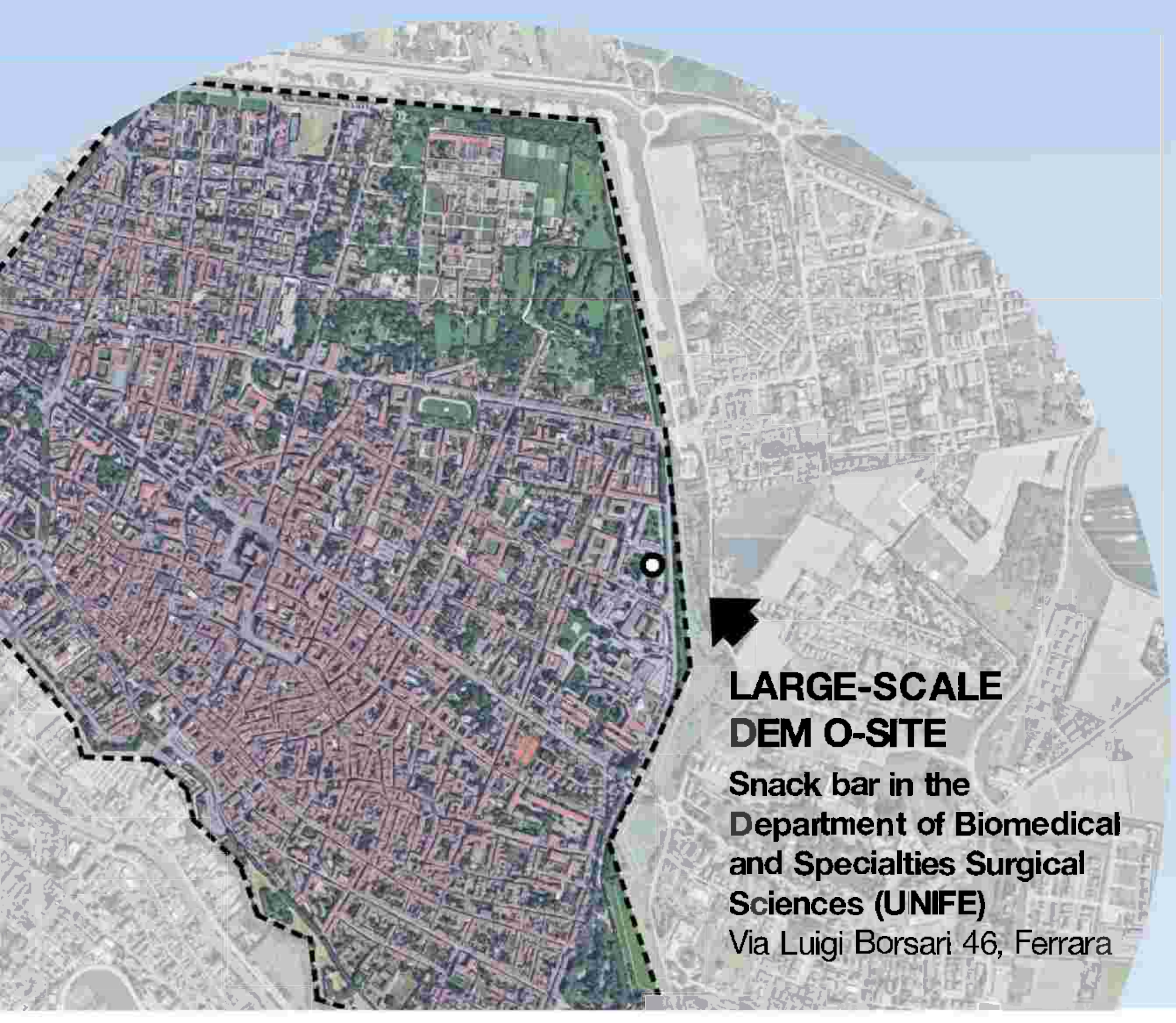


IDEAS

Novel building Integration Designs for increased Efficiencies in Advanced climatically tunable renewable energy Systems

Italian large-scale prototype

AI control system

Multi-source heat-pump

- ground, sun, air
- 25kW

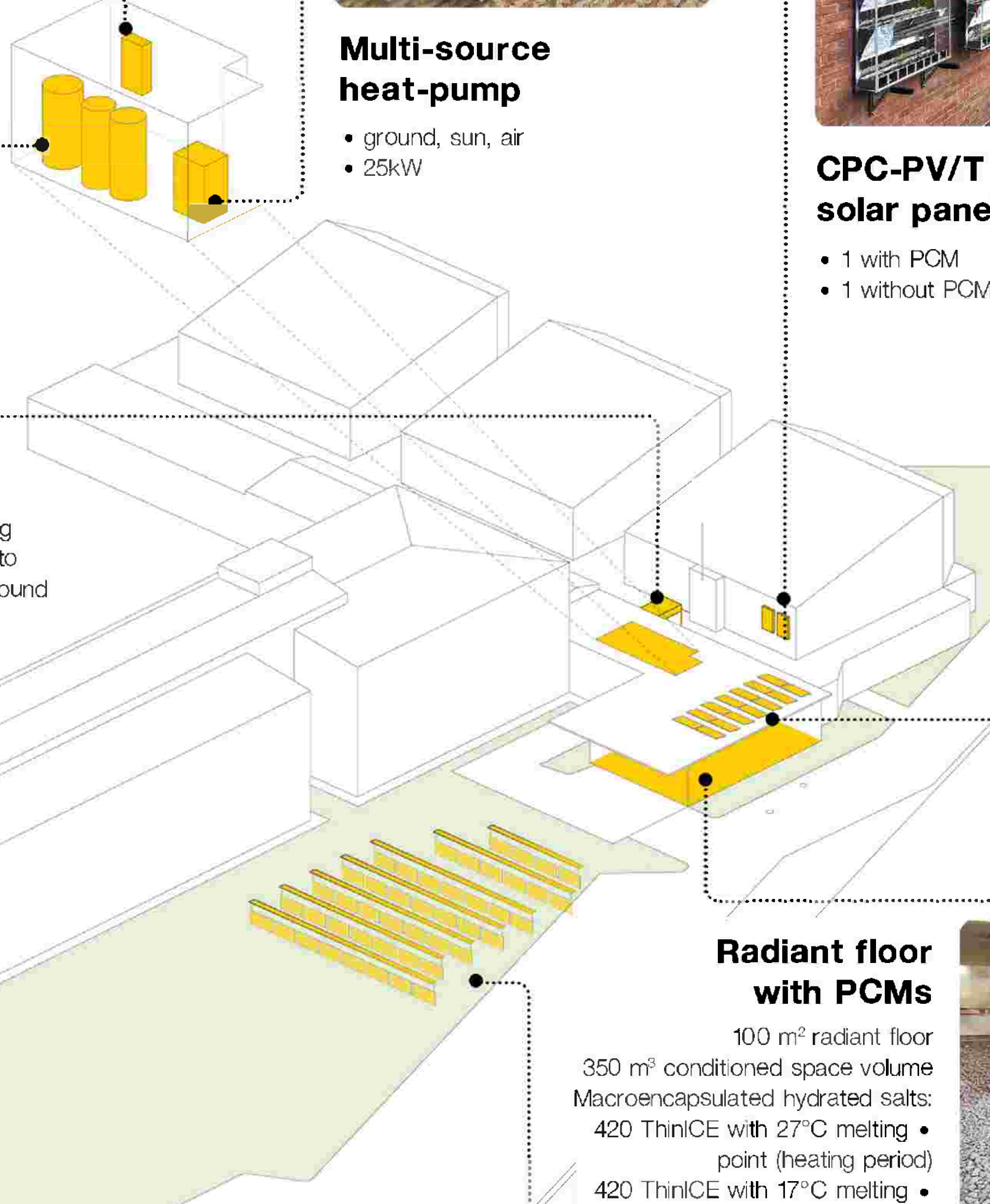
View of the two PV/T fields

CPC-PV/T solar panels

- 1 with PCM
- 1 without PCM

Thermal storage tanks

- 800 litres on the source-side
- 2 x 500 litres on the user-side



Dry-cooler

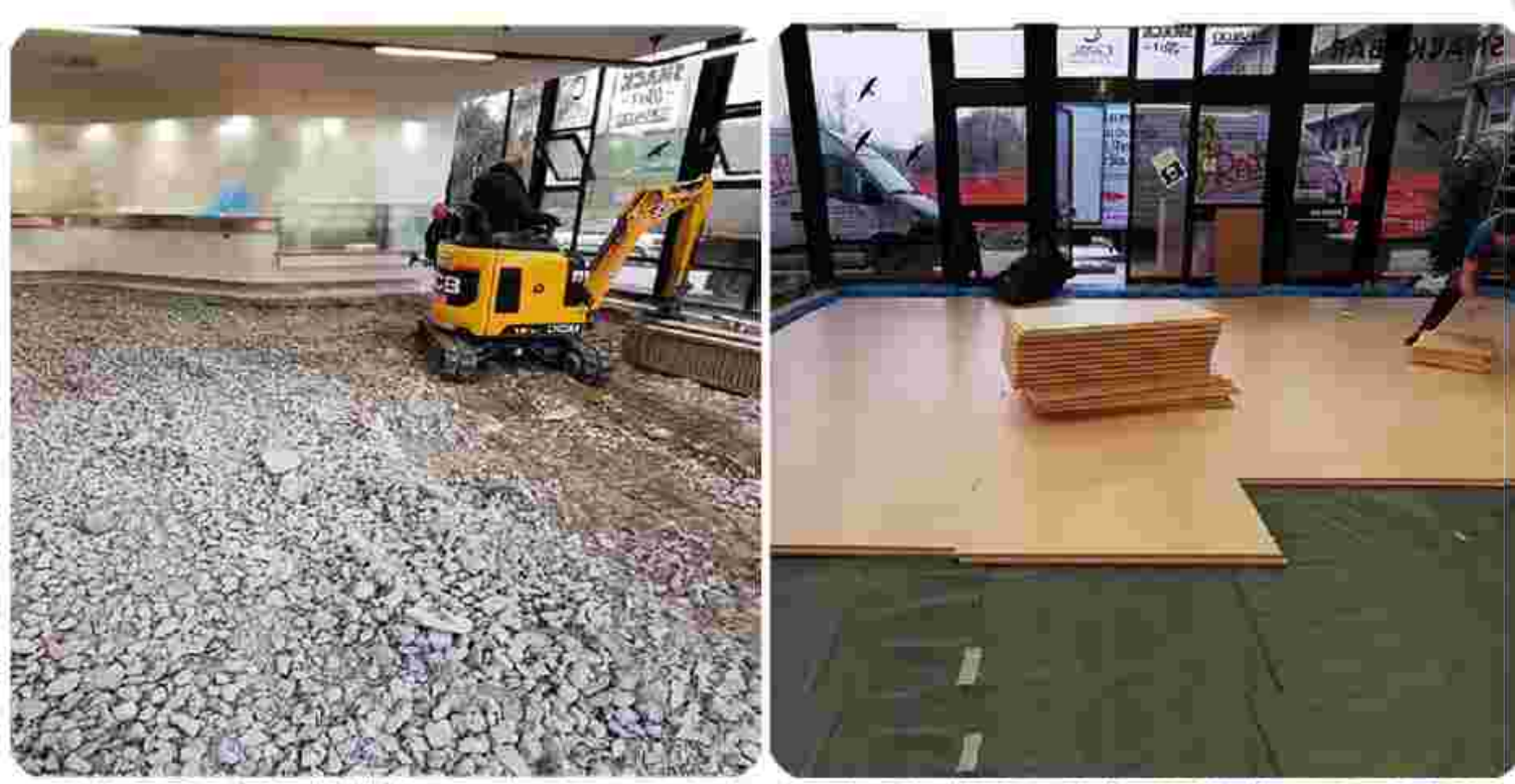
- for the disposal of the heat coming from the PV/T or to regenerate the ground
- 20 kWt, 0.5 kWe

PV/T solar panels

- 14 panels (400W of peak)

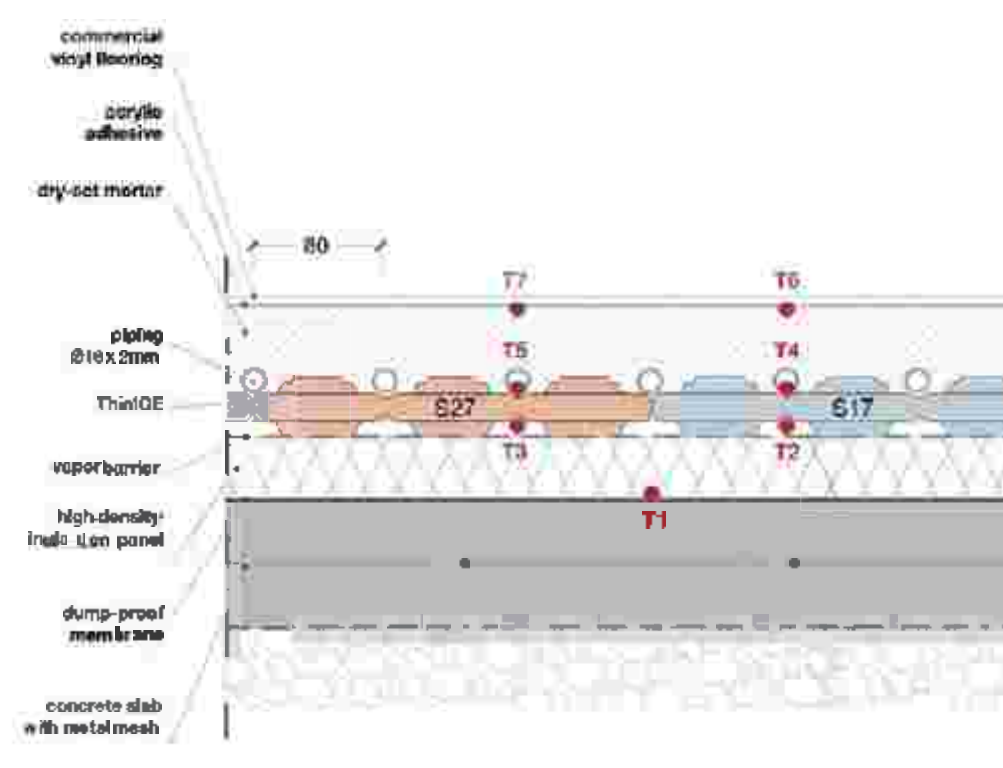
Radiant floor with PCMs

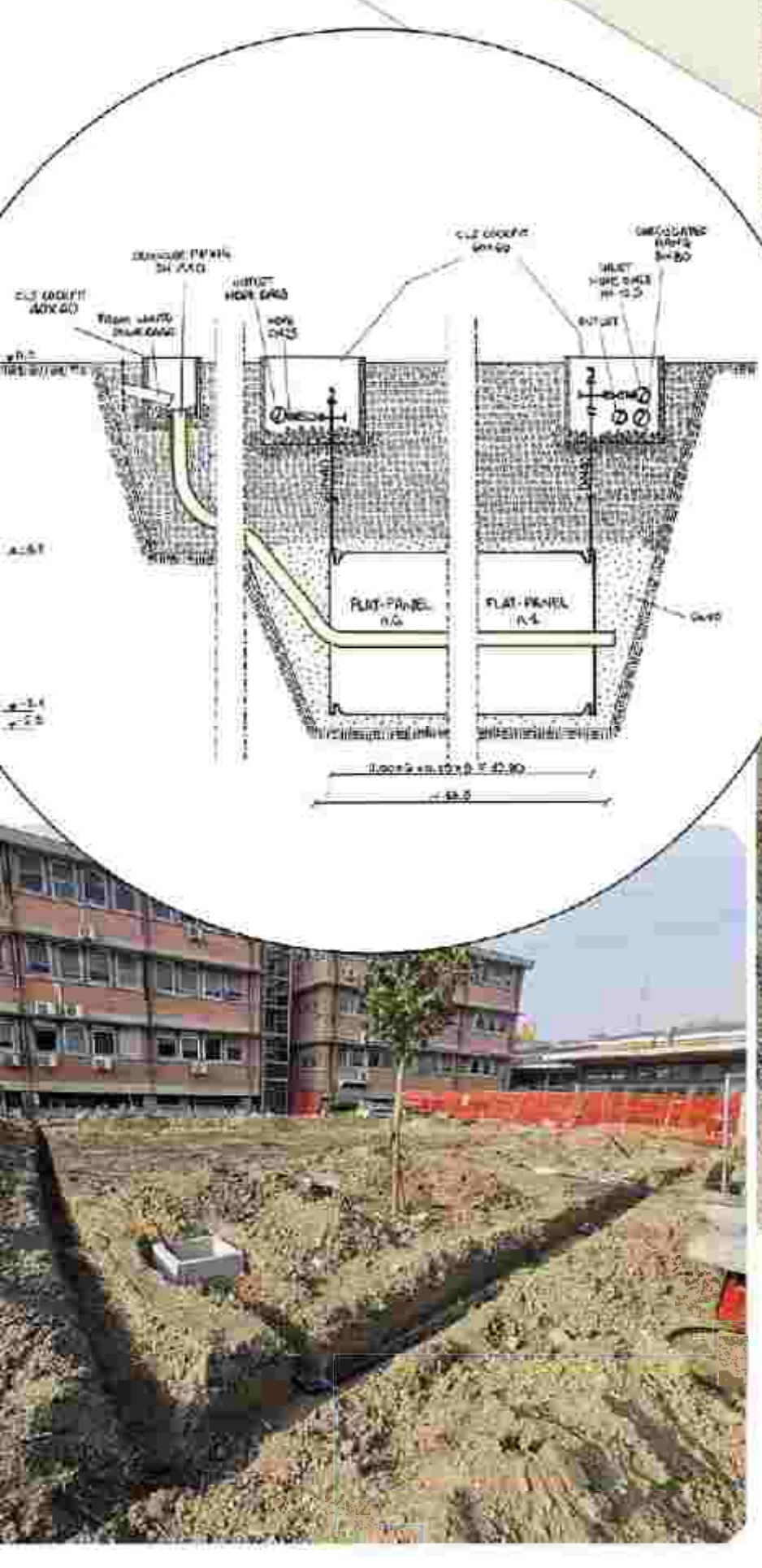
- 100 m² radiant floor
- 350 m³ conditioned space volume
- Macroencapsulated hydrated salts:
- 420 ThinICE with 27°C melting point (heating period)
- 420 ThinICE with 17°C melting point (cooling period)

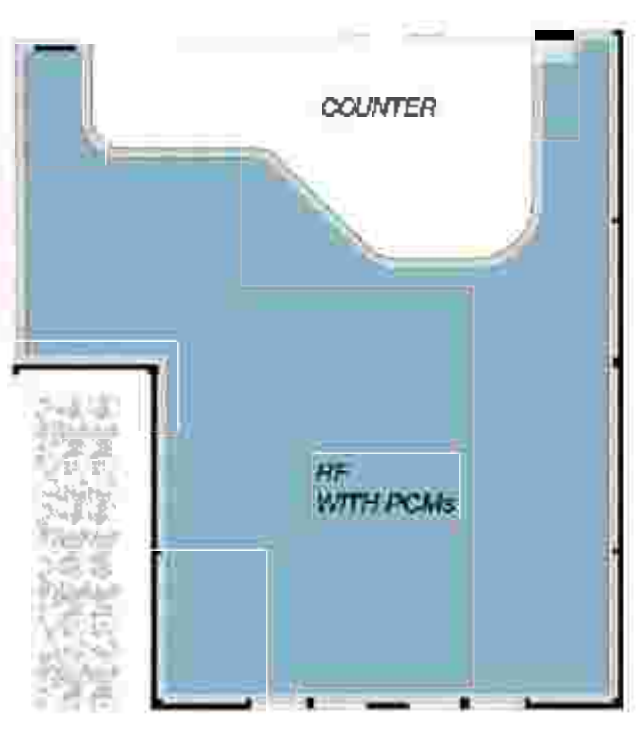


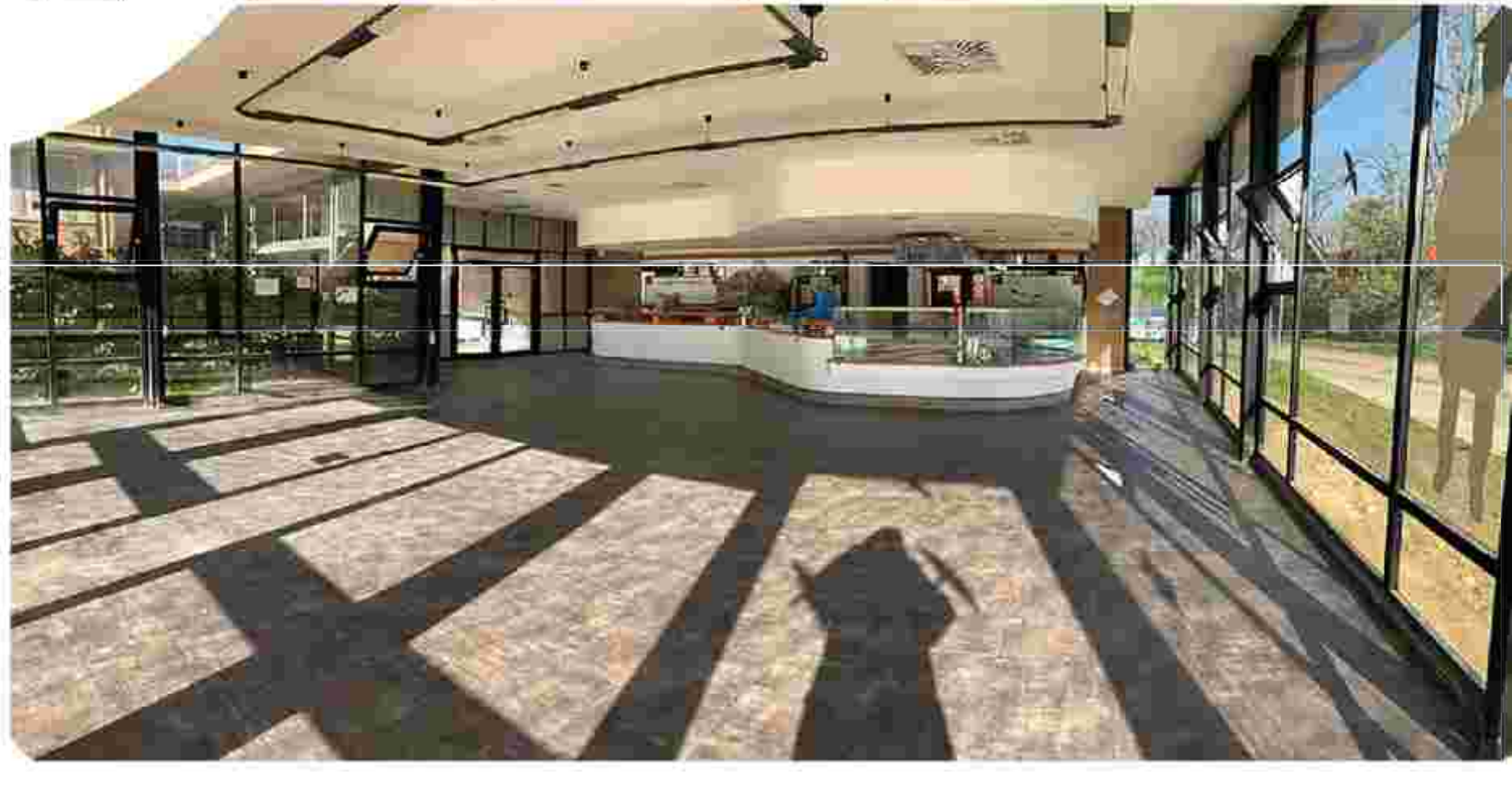
Shallow ground heat exchangers

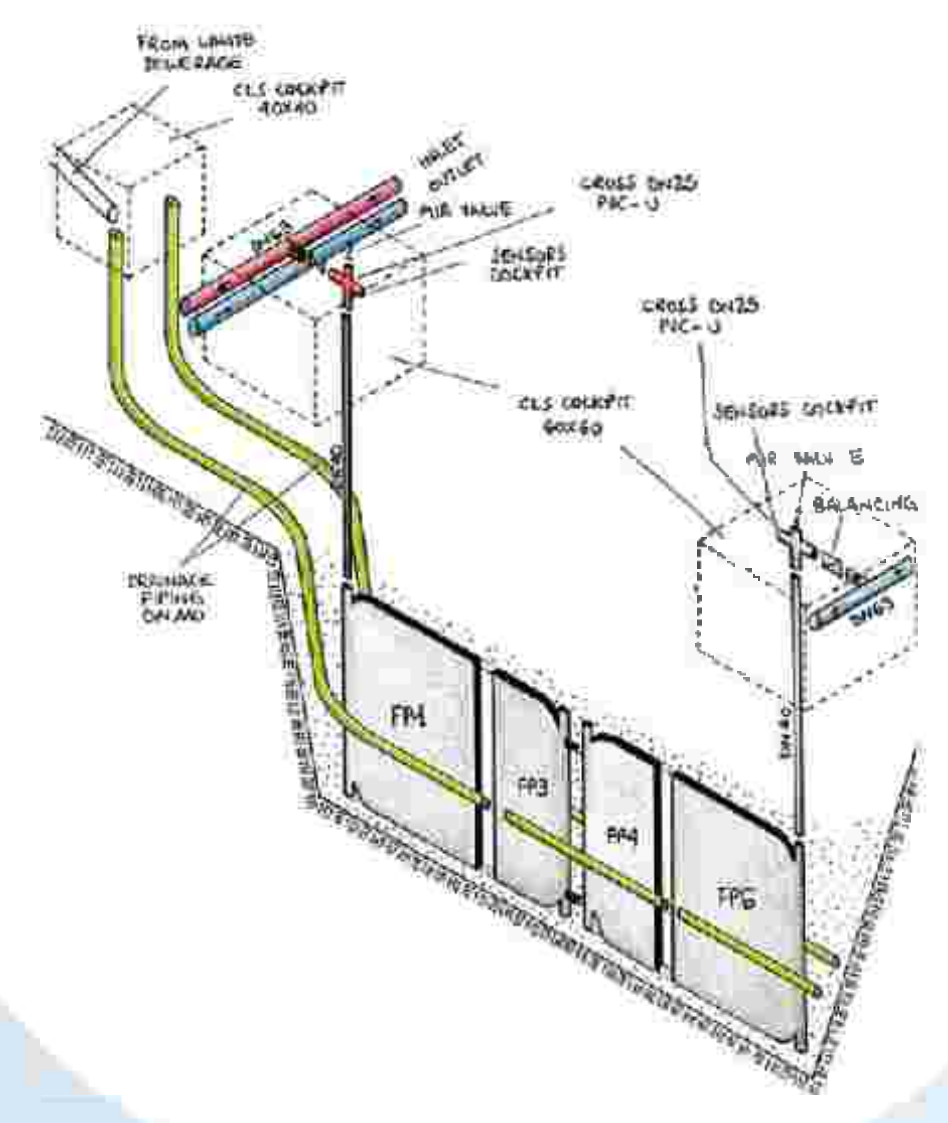
- 46 Shallow ground heat exchangers, UNIFE patent
- 7 lines, 92 m of GHXs (> 10kW continuous peak power)











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