

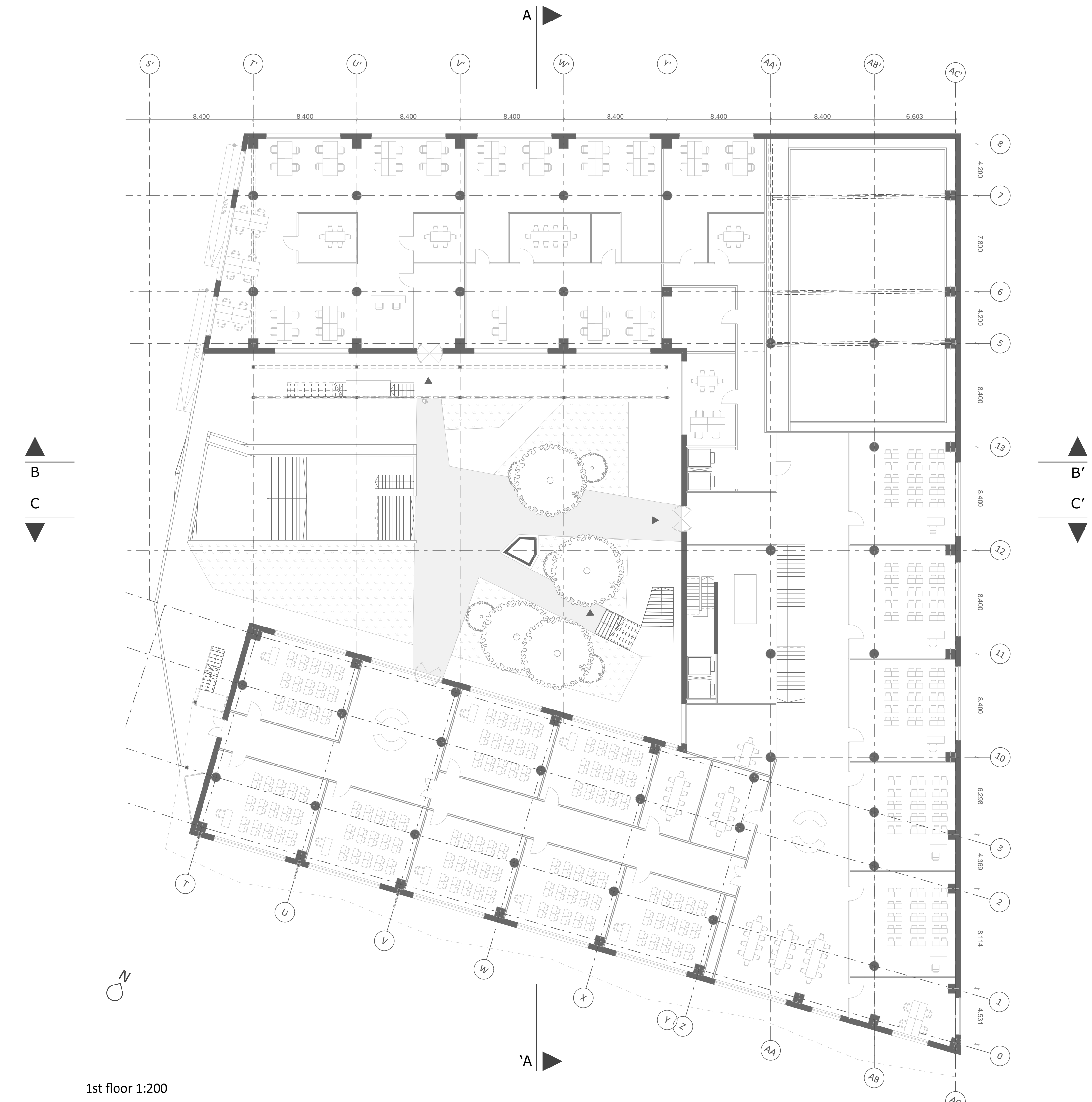
# The Middleground

Challenging Asymmetric Membranes

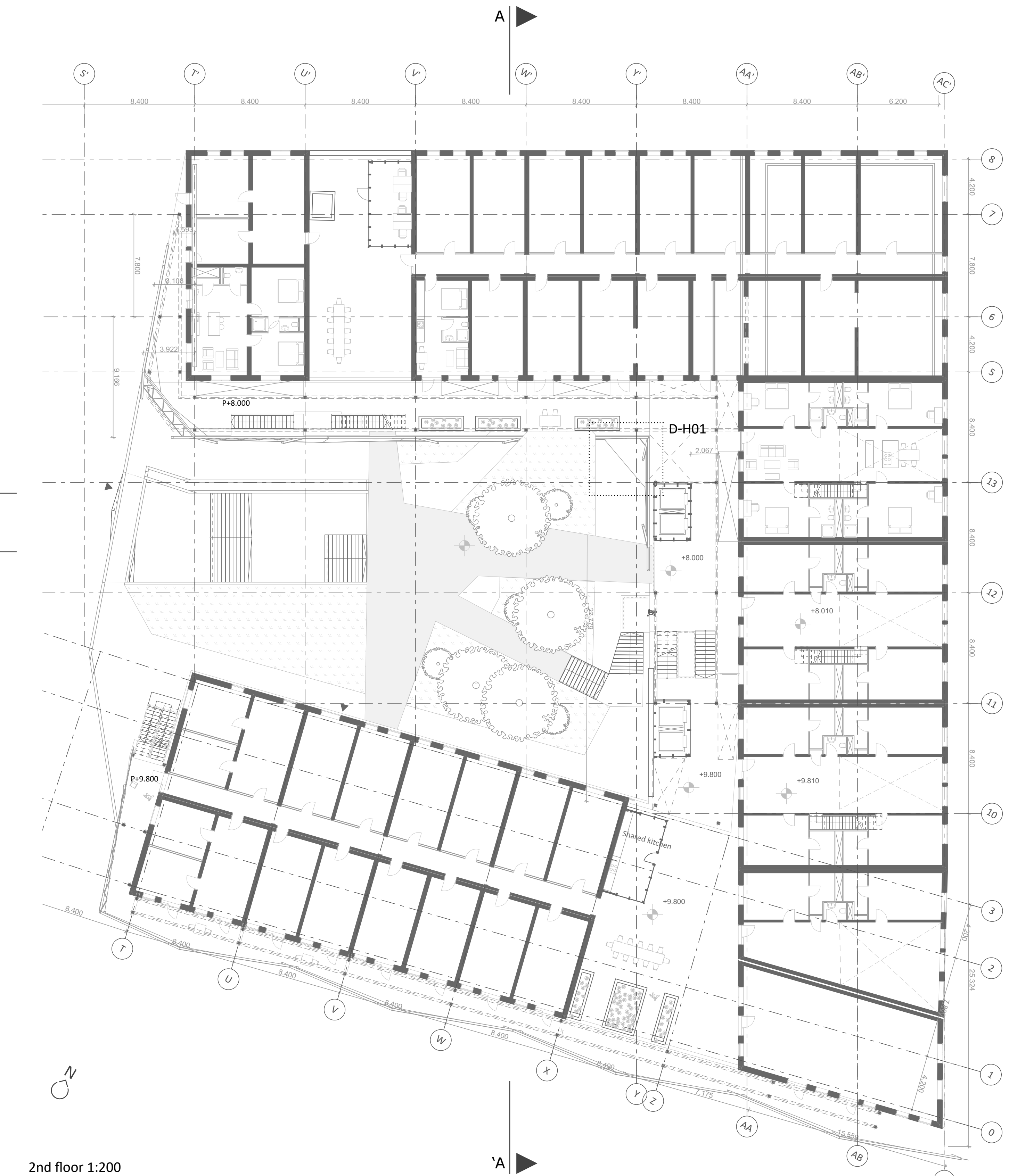


Basement 1:500

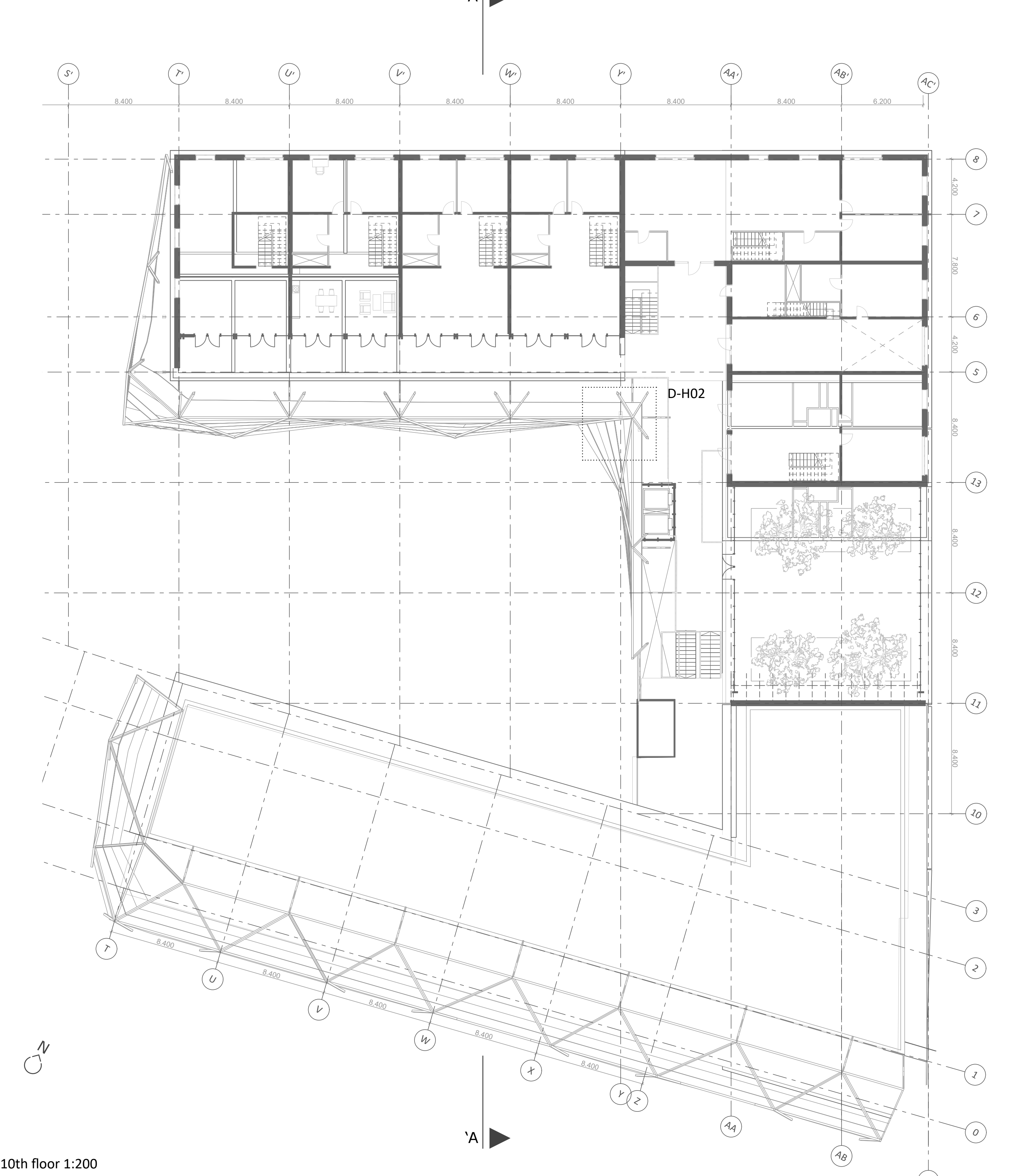




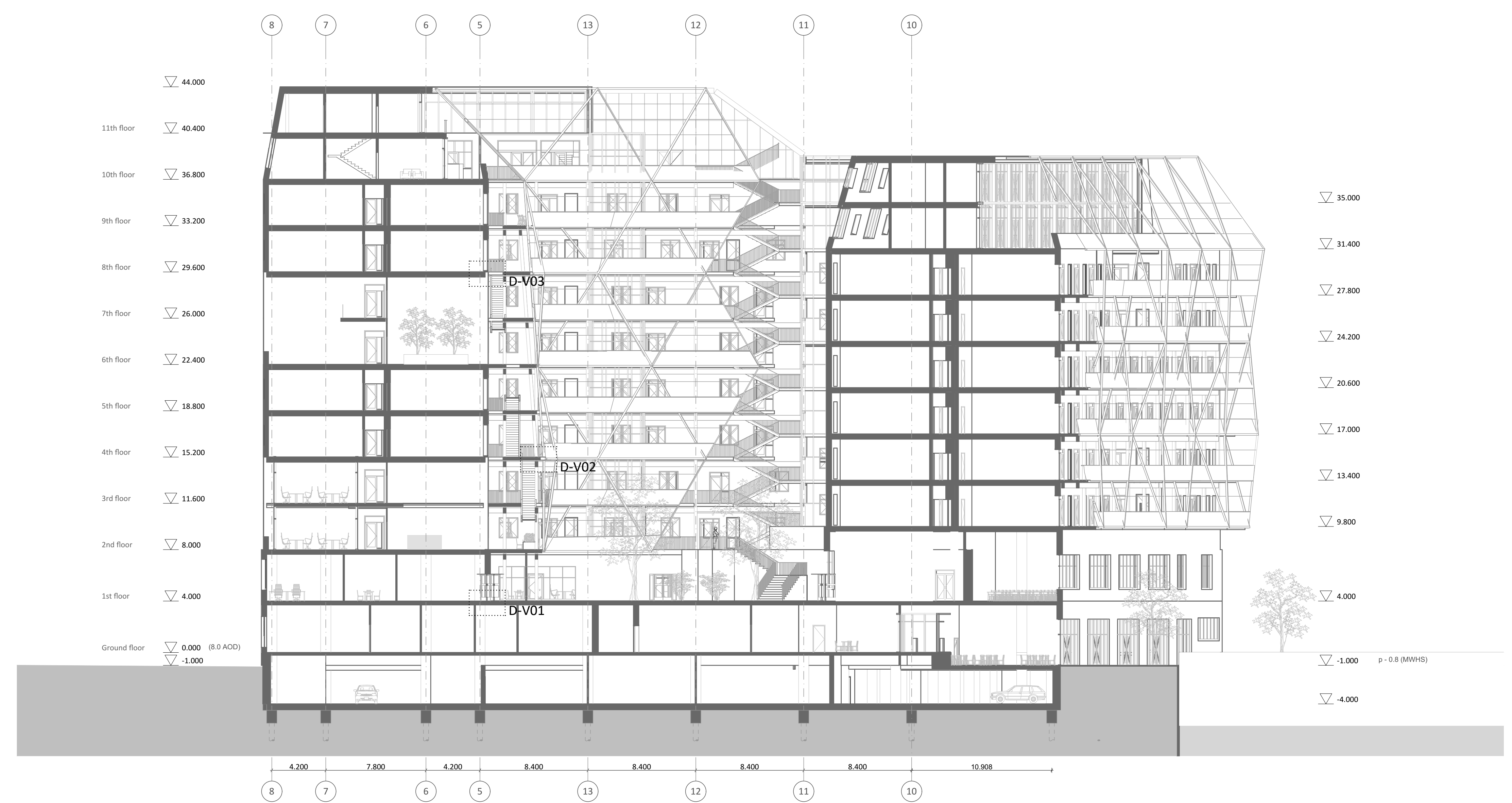
1st floor 1:200



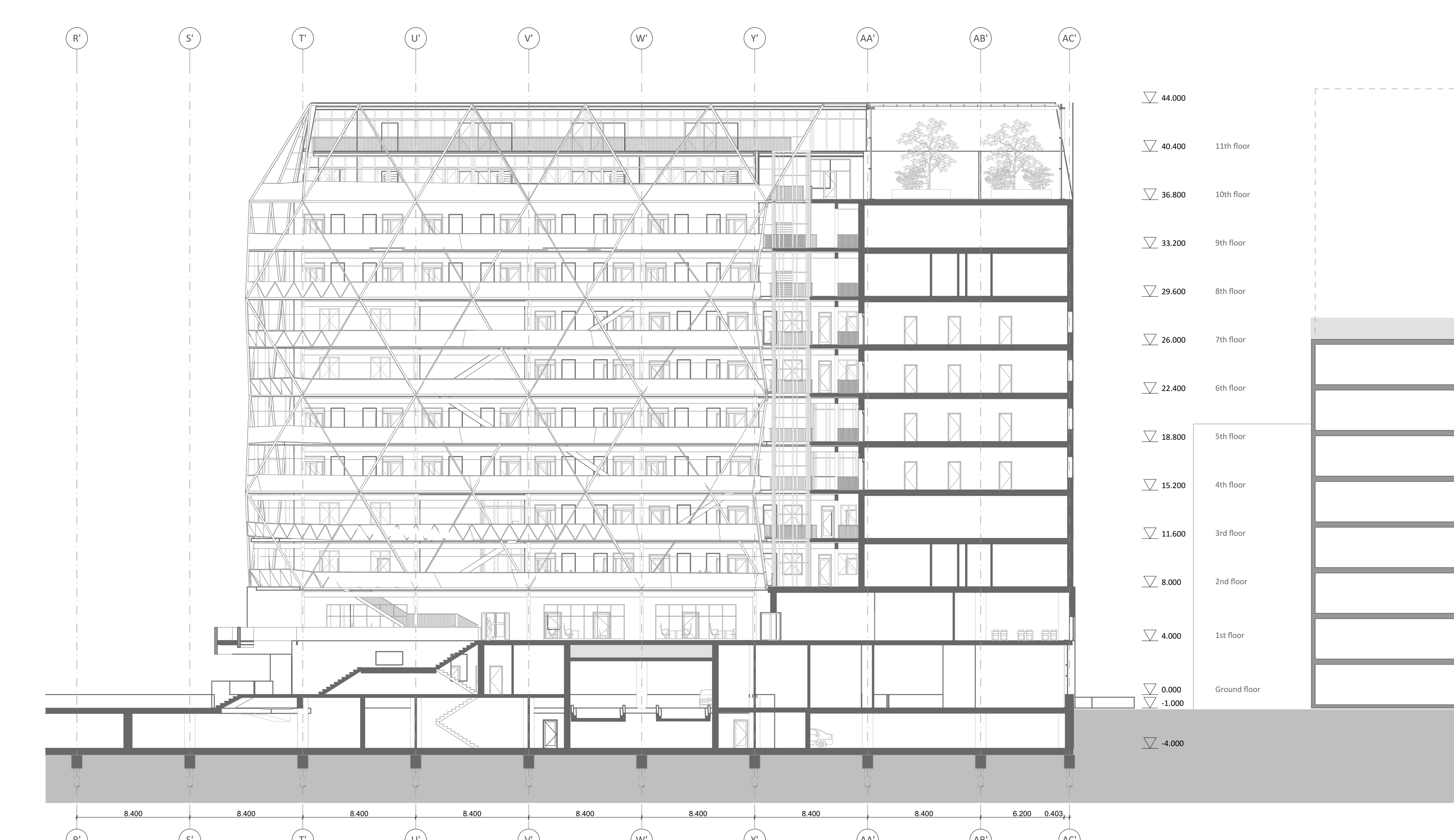
2nd floor 1:200



10th floor 1:200



Section A-A'

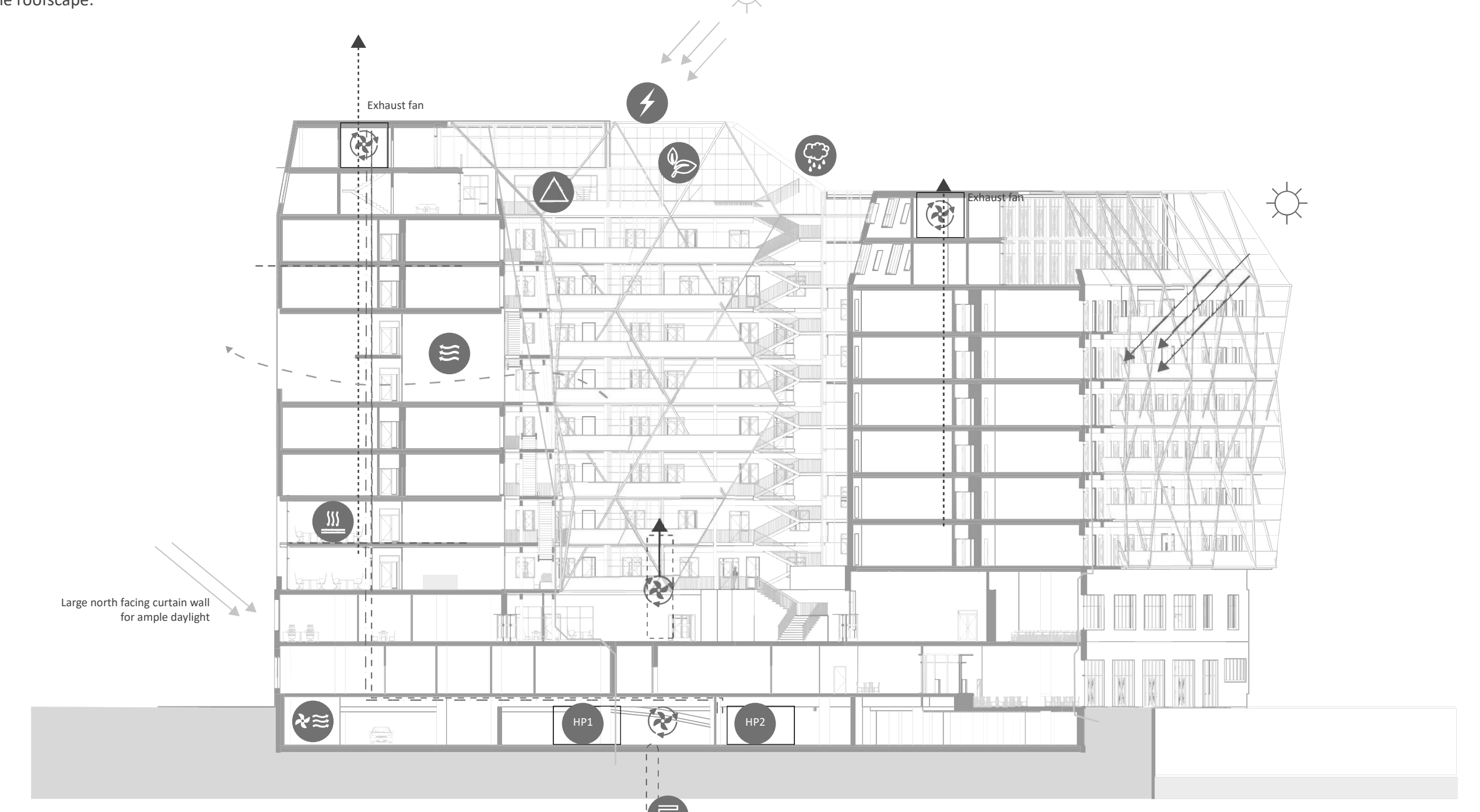


Section B-B'

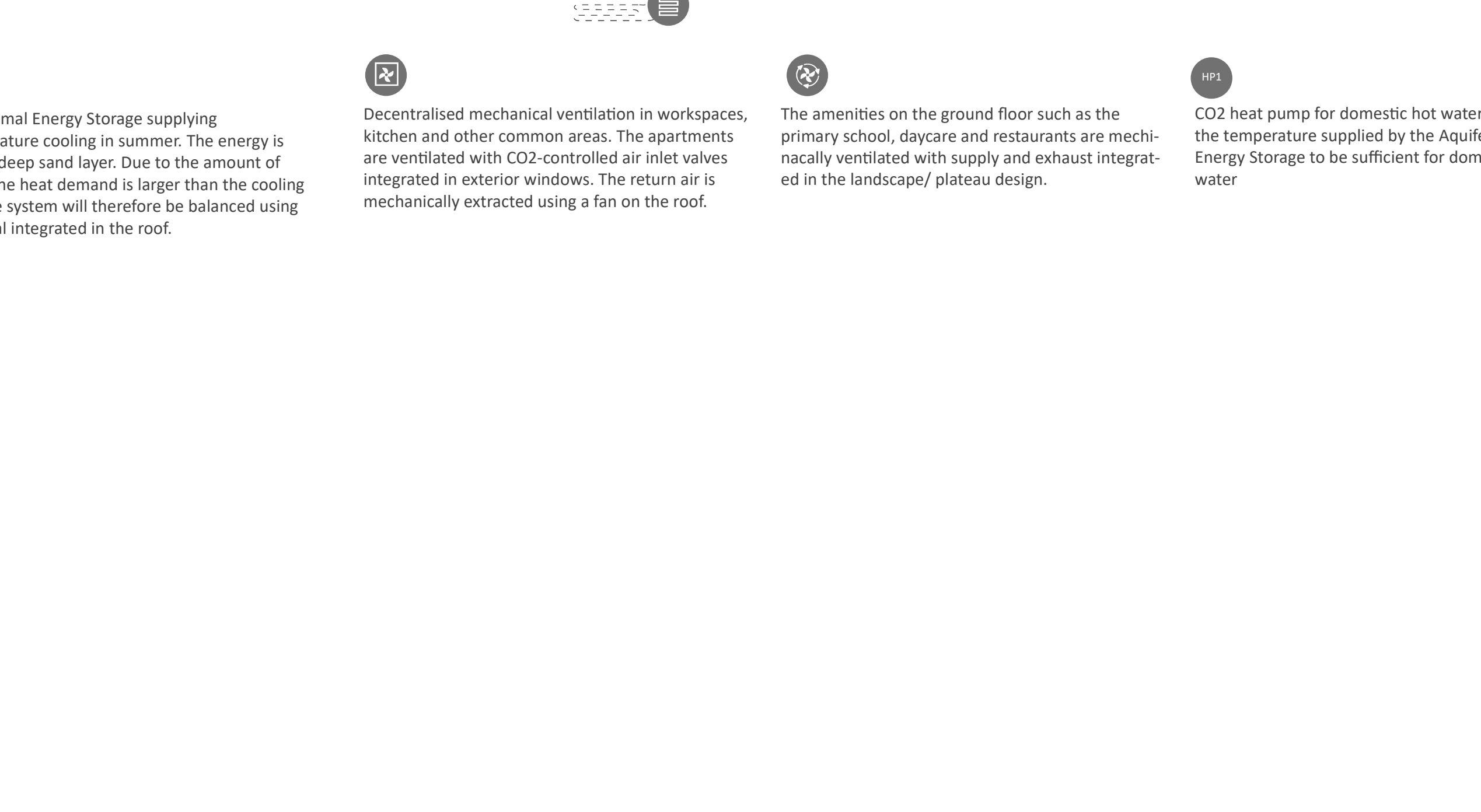


Section C-C'

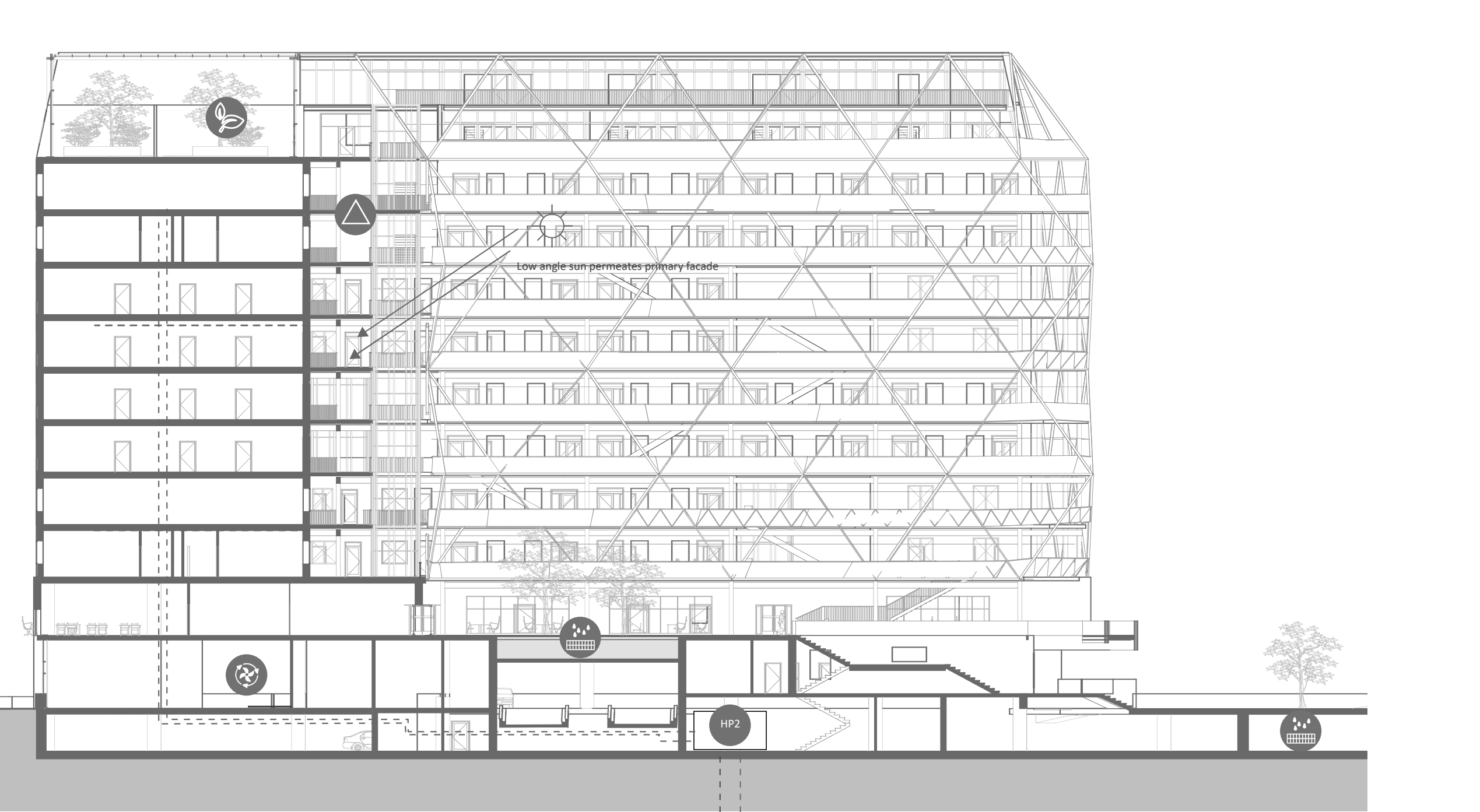
- 1 Staged roof with photovoltaic and thermal solar panels. Since the project contains a large number of dwellings there will be a larger heat demand than cooling demand. In order to balance the Aquifer Thermal Energy Storage, thermal solar panels are integrated in the roofscape.
- 2 Plants growing in the buffer zone cool the building through evaporative cooling.
- 3 Rain water collected in barrels to be used by resident to water plants.
- 4 Semi-transparent membrane creating an adaptable space for appropriation. Moreover, it acts as a wind breaker for London's strong southwest winds. The membrane is a partly active shading device - manually adaptable by residents.



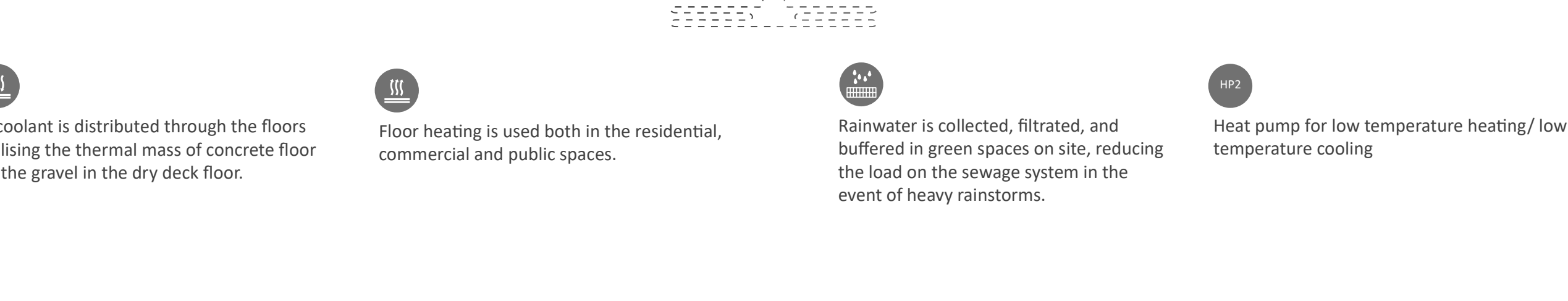
- 5 Aquifer Thermal Energy Storage supplying high-temperature cooling in summer. The energy is stored in a deep sand layer. Due to the amount of residences the heat demand is larger than the cooling demand, the system will therefore be balanced using solar thermal integrated in the roof.
- 6 Decentralised mechanical ventilation in workshops, kitchen and other common areas. The apartments are ventilated with CO2-controlled air inlet valves integrated in exterior windows. The return air is mechanically extracted using a fan on the roof.
- 7 The amenities on the ground floor such as the primary school, daycare and restaurants are mechanically ventilated with supply and exhaust integrated in the landscape/pleasure design.
- 8 CO2 heat pump for domestic hot water increasing the temperature supplied by the Aquifer Thermal Energy Storage to be sufficient for domestic hot water.

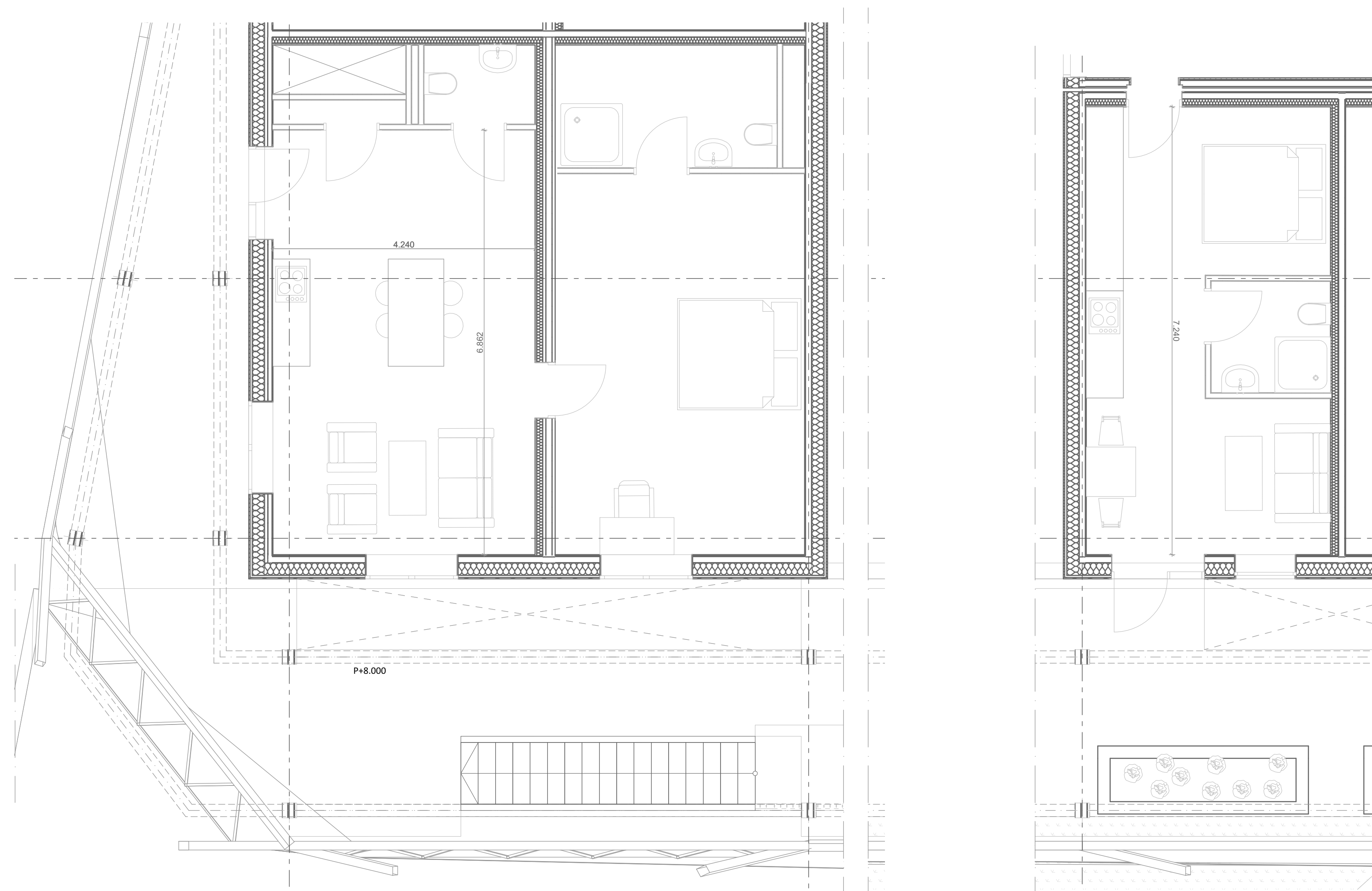


- 9 Rain water collection and filtration.
- 10 The outdoor common areas are naturally cross-ventilated. Public functions in the plinth are cross-ventilated for pre-cooling and daytime natural ventilation in summer and shoulder season.
- 11 Natural ventilation/fan assisted cross-ventilation in basement, ventilation openings are provided on ground level in brickwork.
- 12 In the winter situation the membrane can become more impermeable by moving the panels. The buffer zone turns into a winter garden.



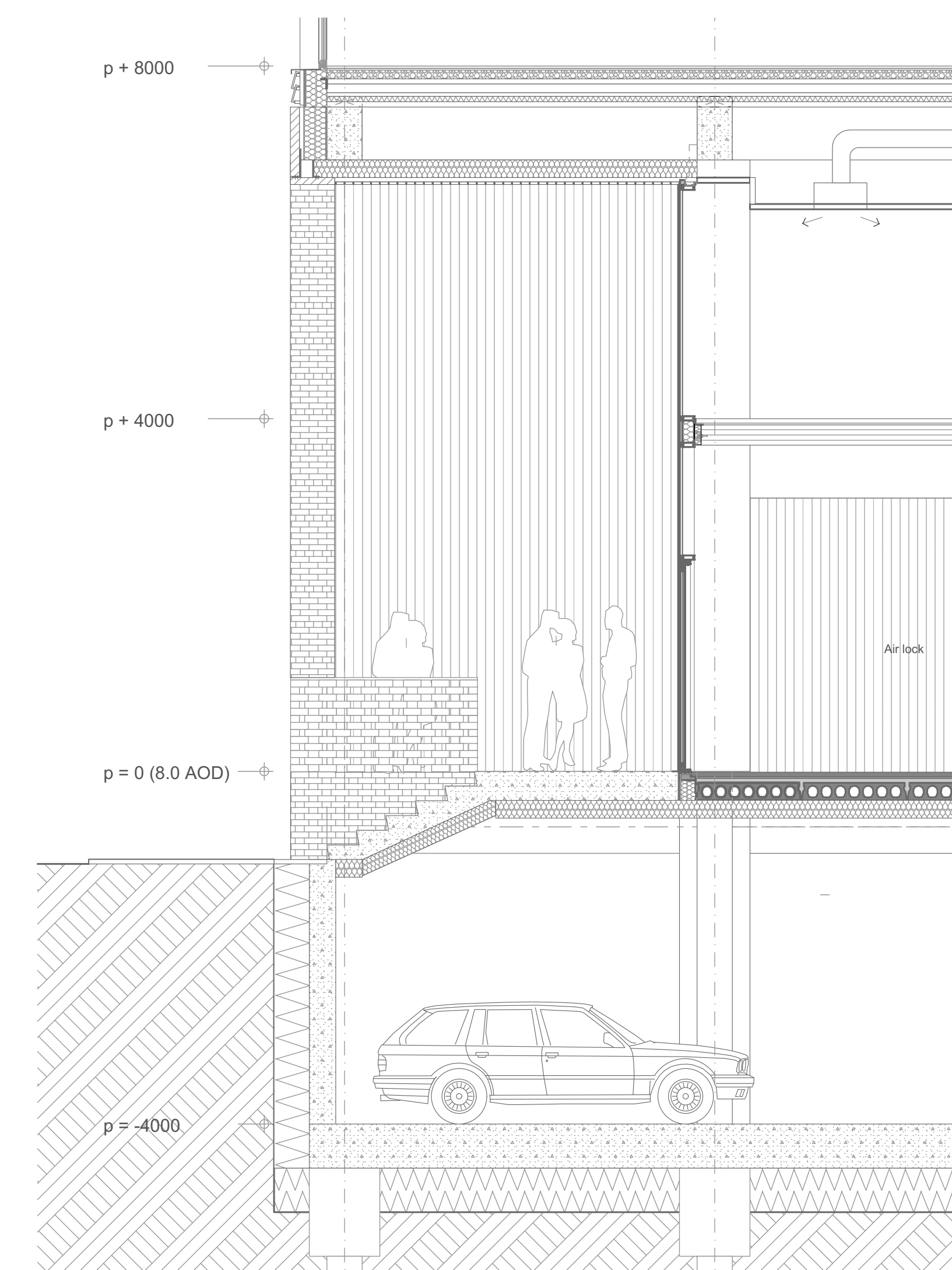
- 13 A radiant is distributed through the floors utilizing the thermal mass of concrete floor or the gravel in the dry deck floor.
- 14 Floor heating is used both in the residential, commercial and public spaces.
- 15 Rainwater is collected, filtered, and buffered in green spaces on site, reducing the load on the sewer system in the event of heavy rainstorms.
- 16 Heat pump for low temperature heating/ low temperature cooling.



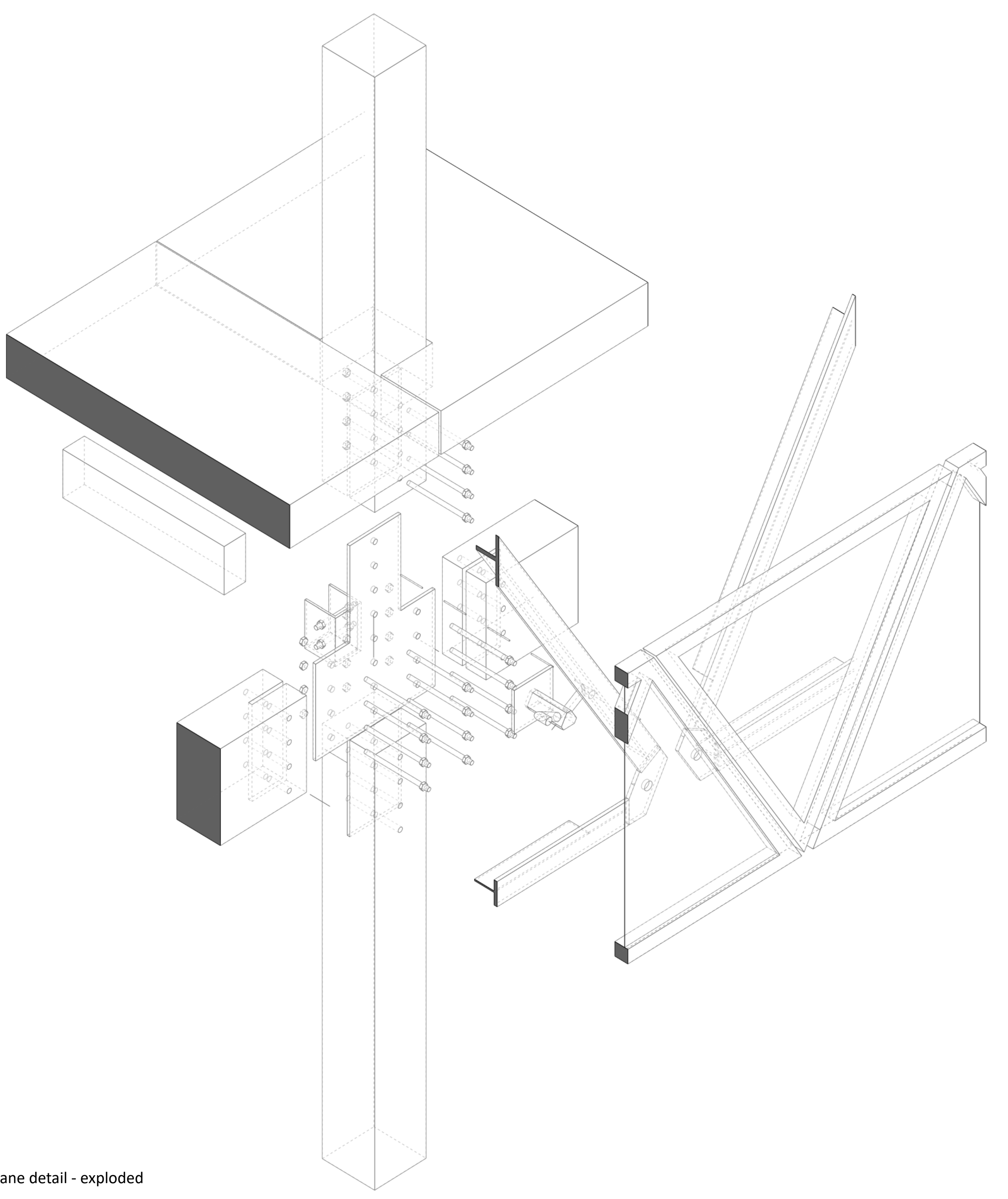


Corner apartment 2nd floor  
1:50

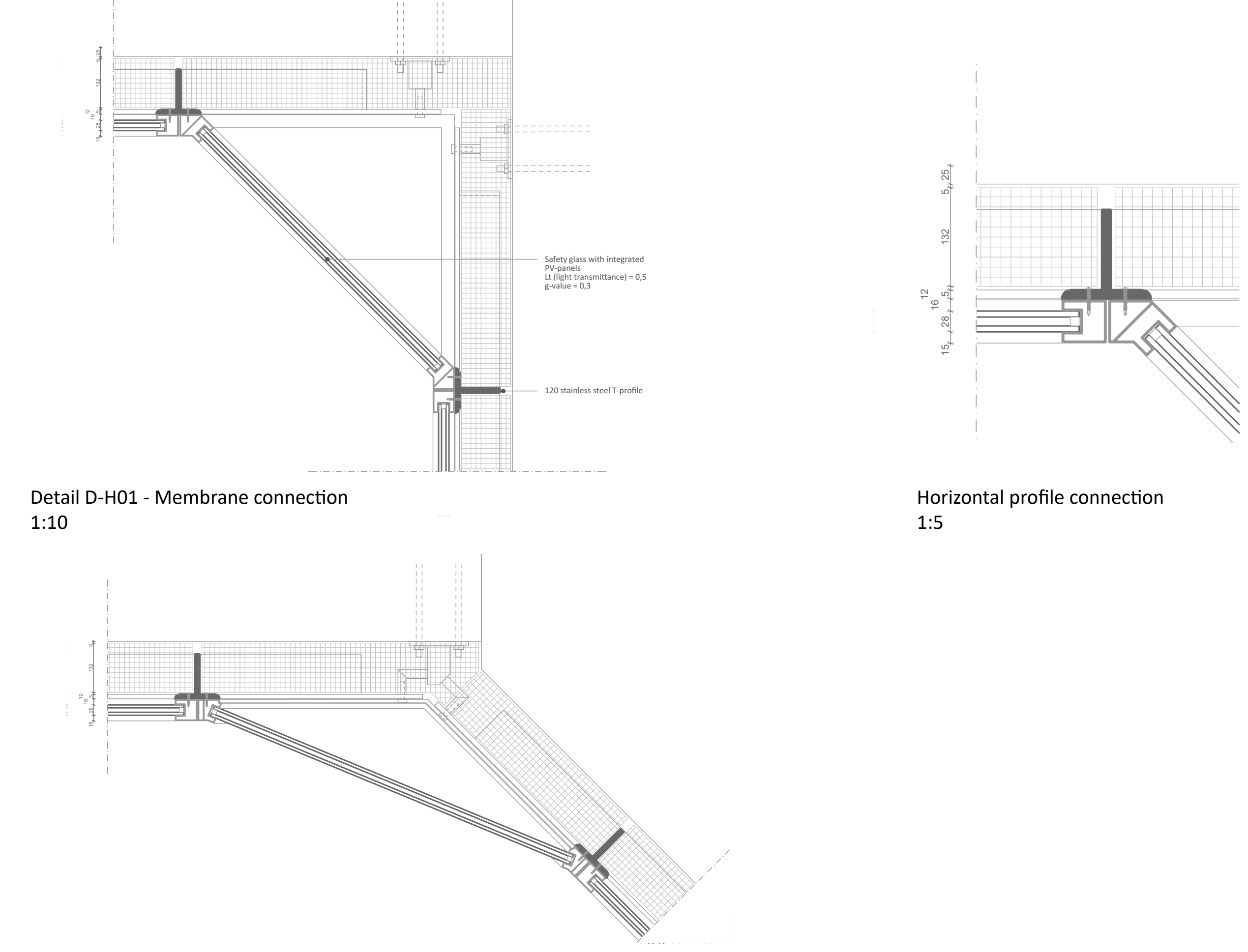
Compact studio 2nd floor  
1:50



School entrance fragment  
1:50

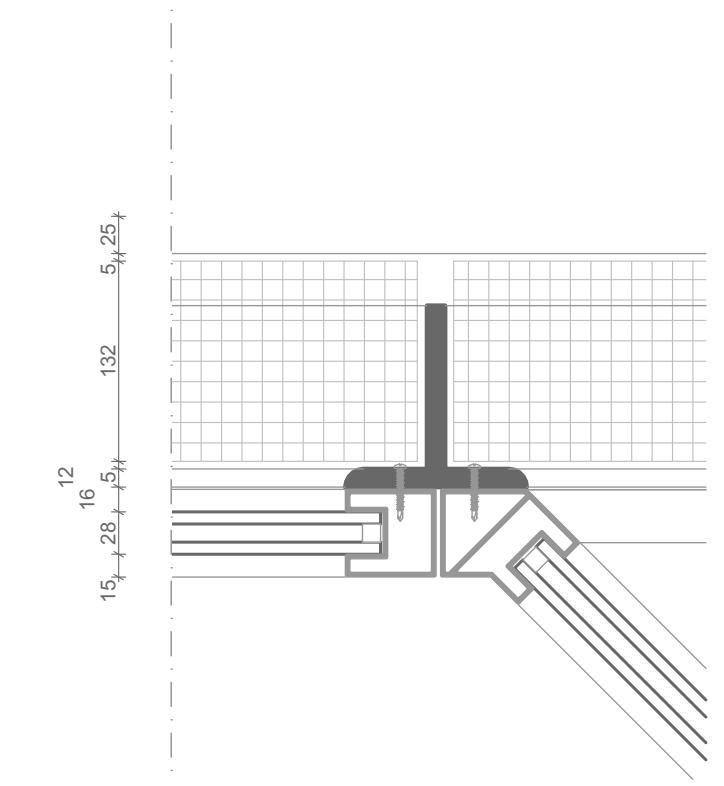


Membrane detail - exploded

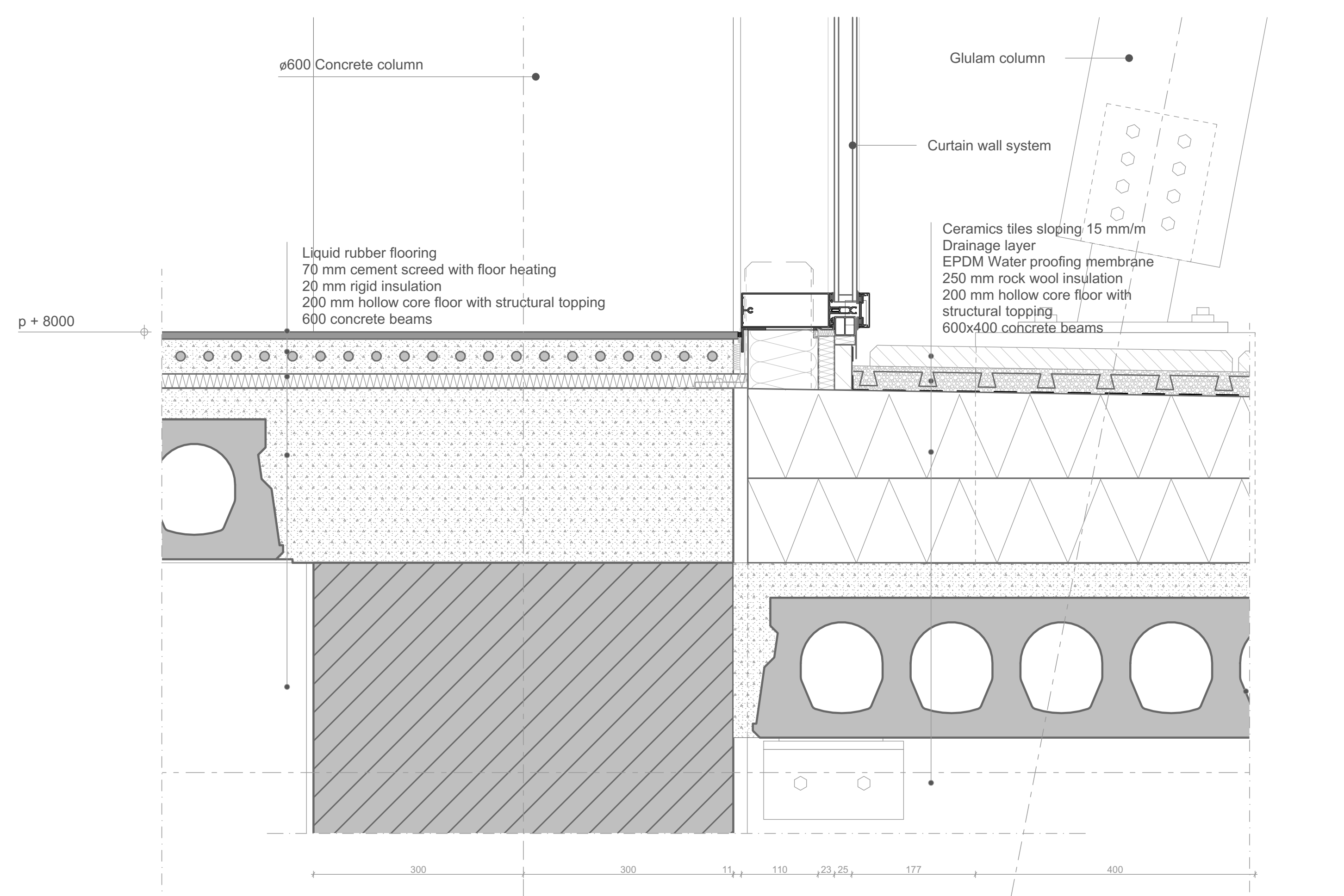


Detail D-H01 - Membrane connection  
1:10

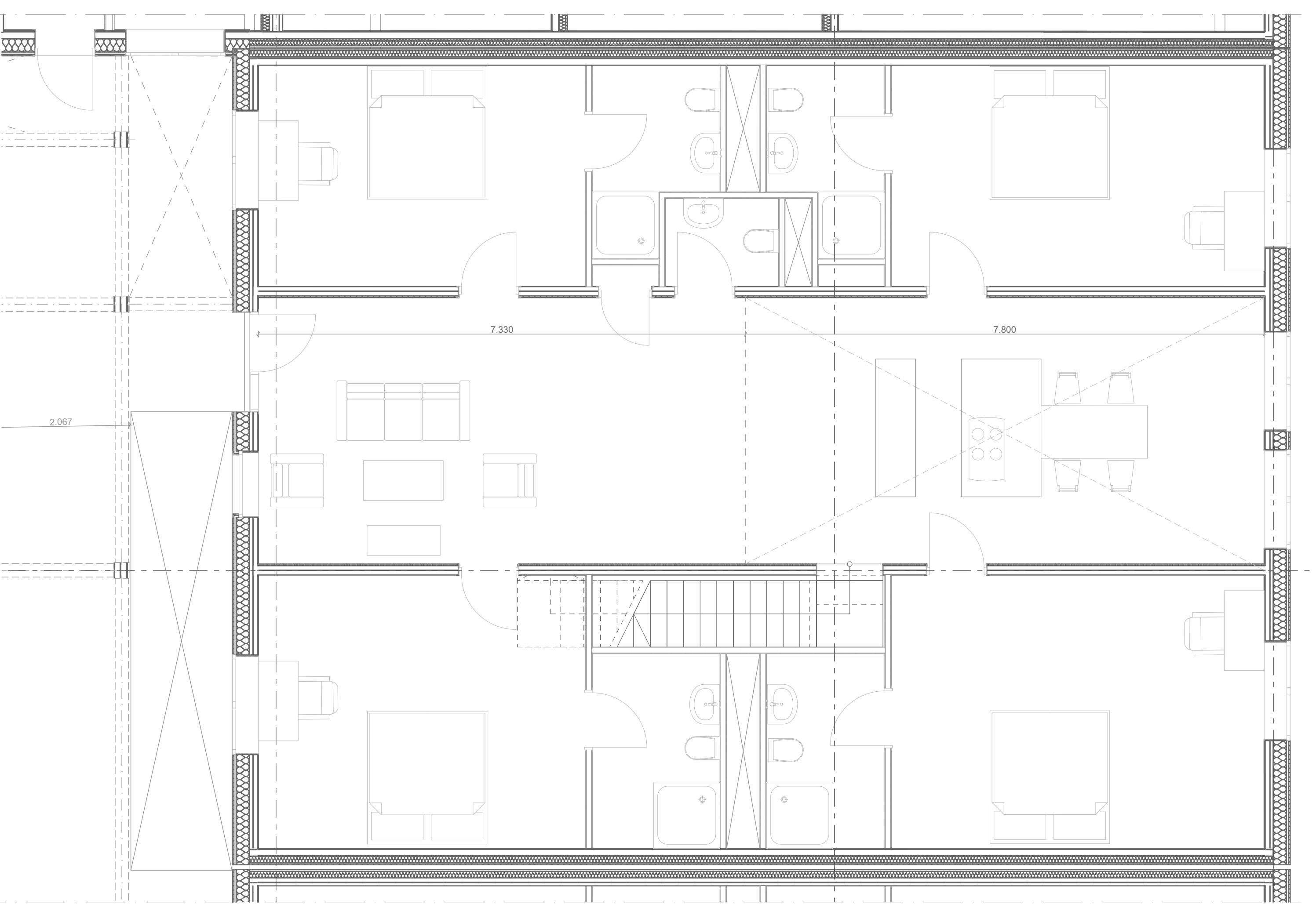
Detail D-H02 - Membrane connection  
1:10



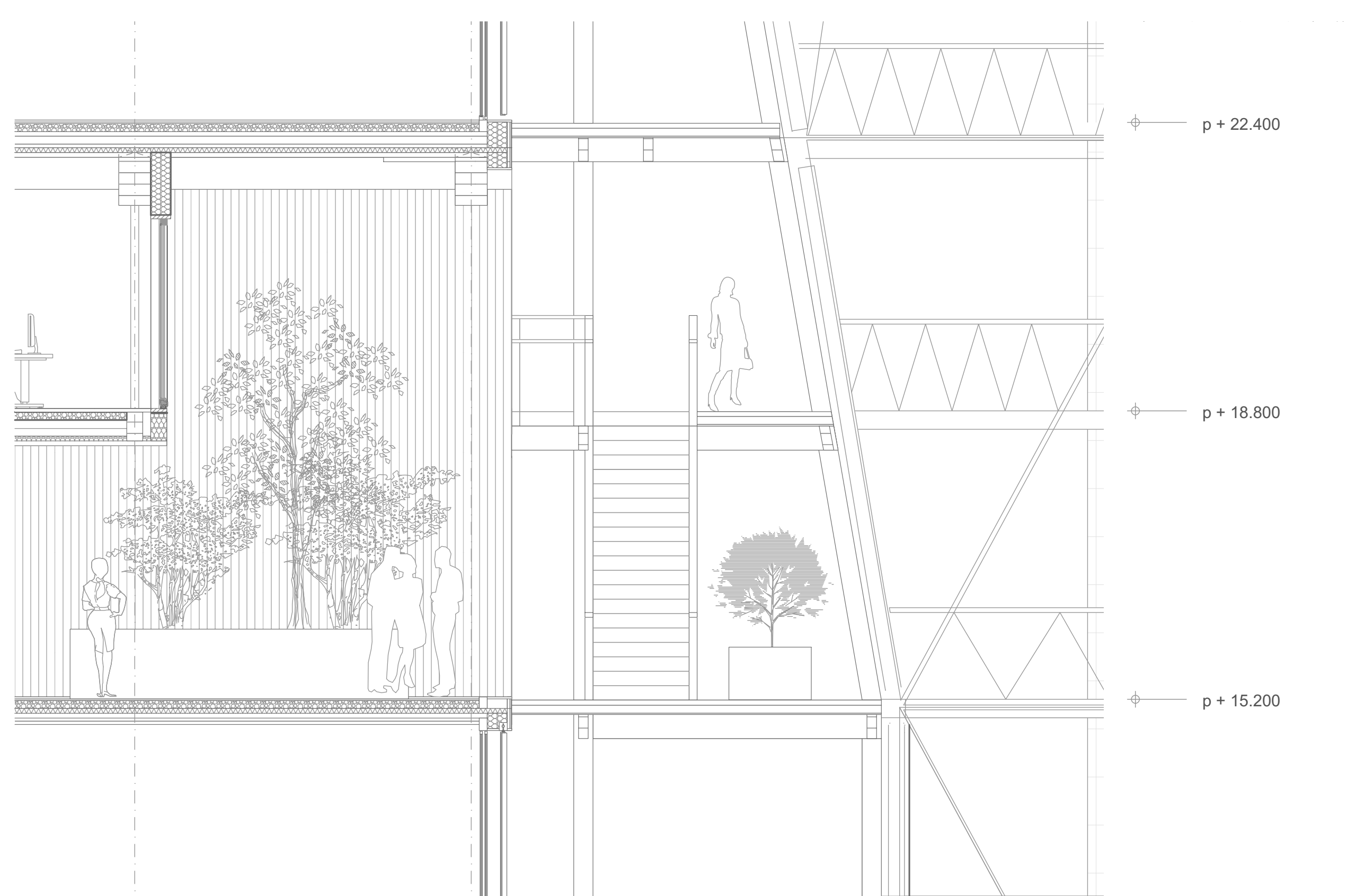
Horizontal profile connection  
1:5



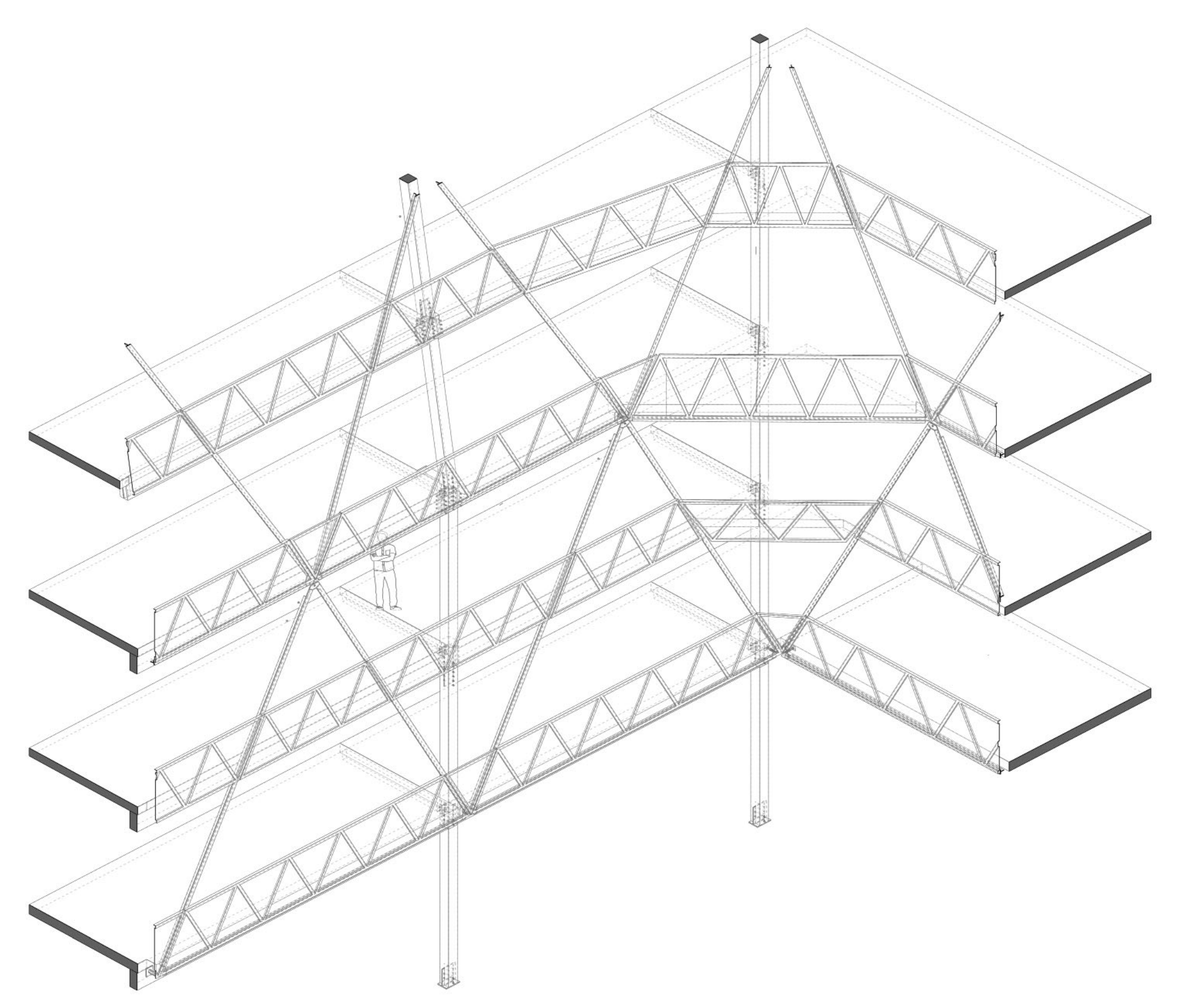
Detail D-V03 - Facade  
1:5



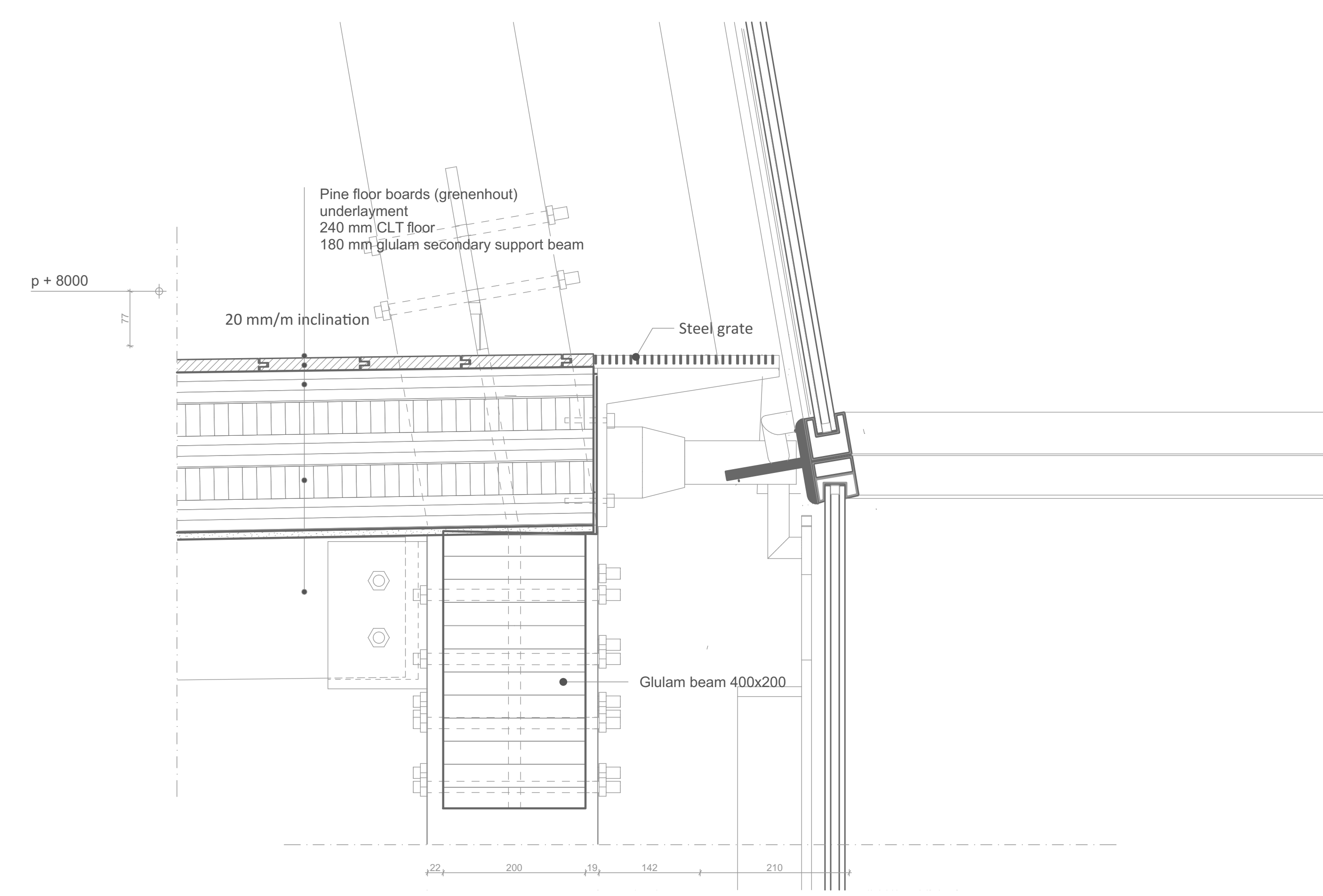
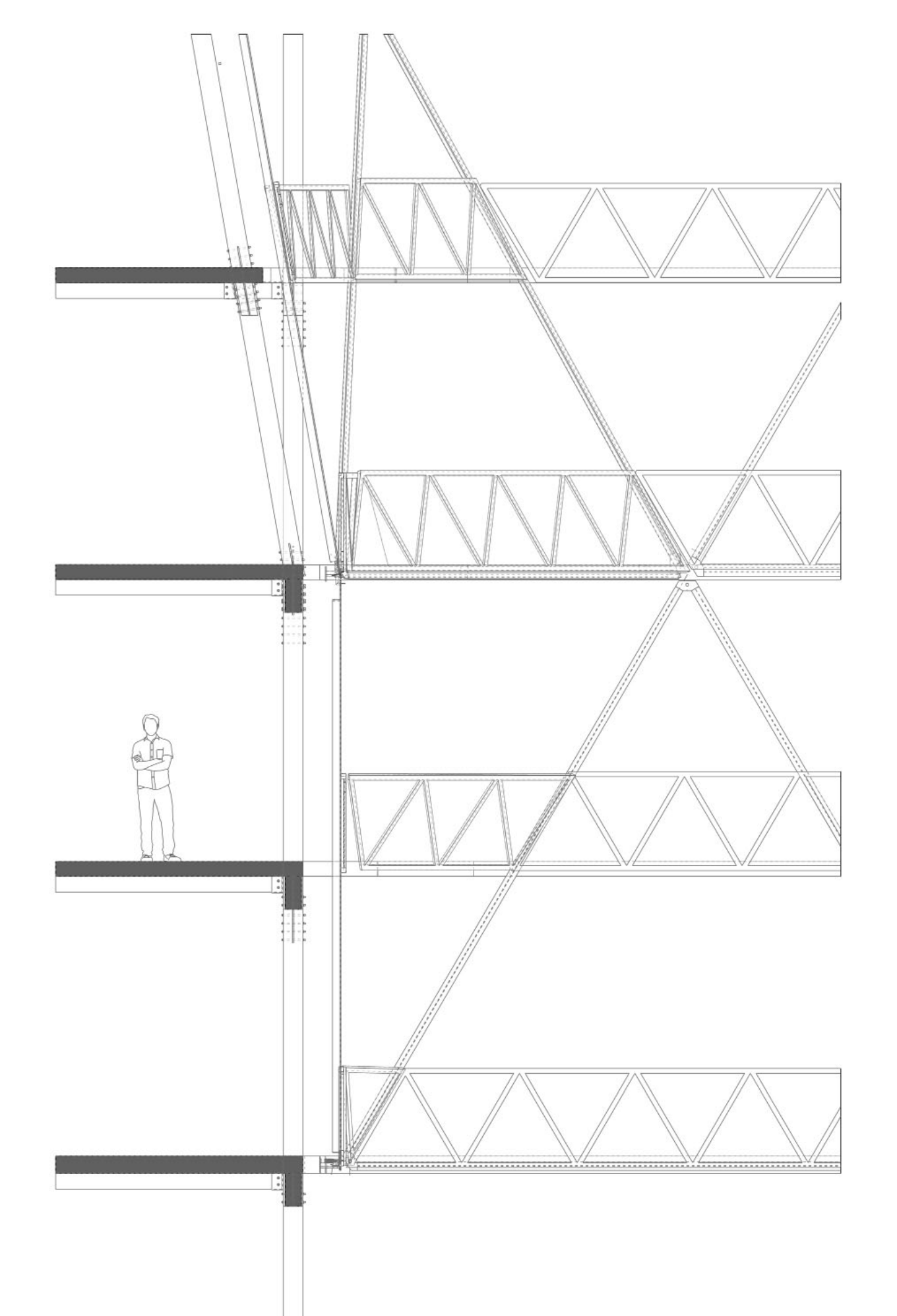
Co-living apartments  
1:50



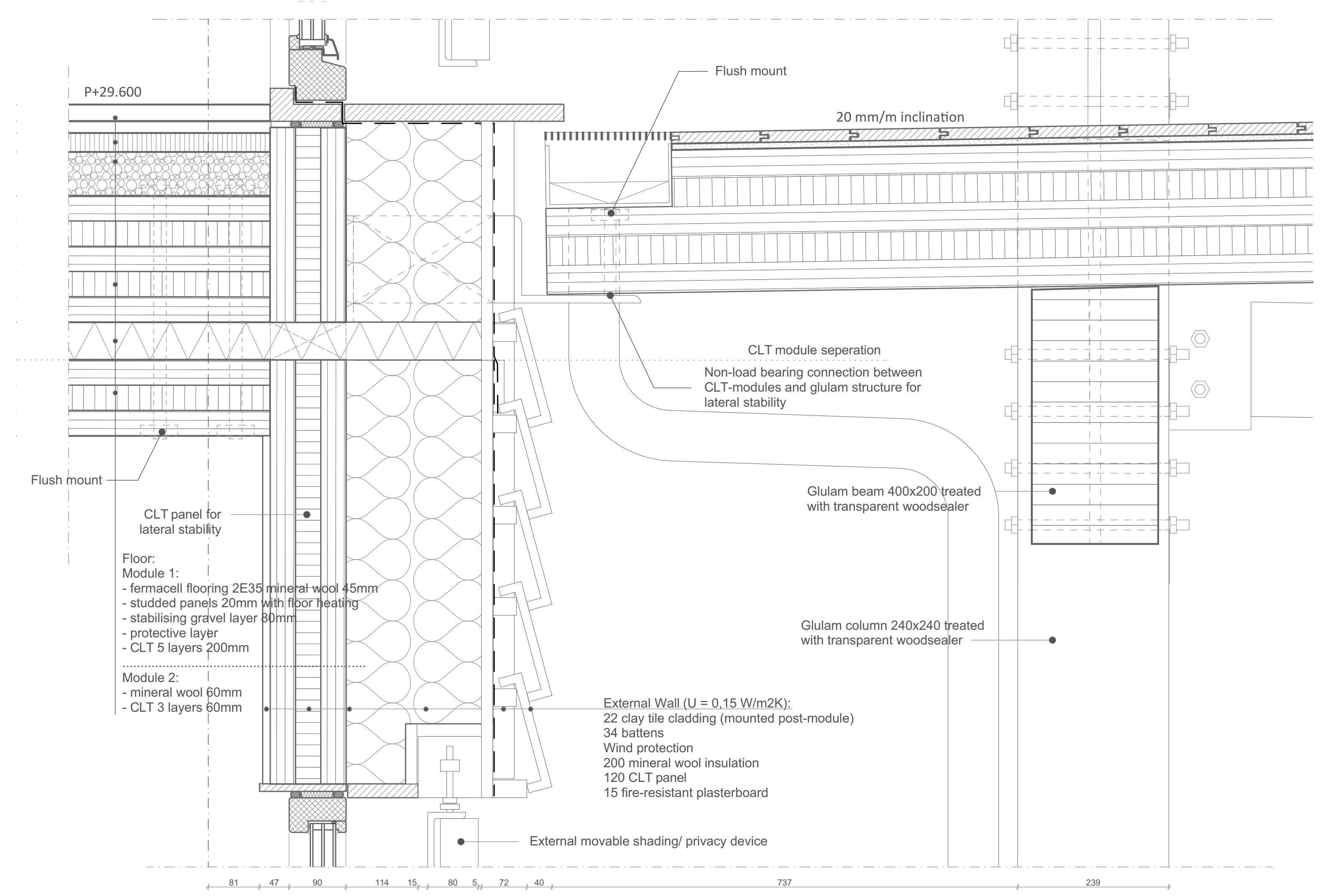
Community space fragment  
1:50



Facade fragment



Detail D-V02 - Membrane connection  
1:5



Detail D-V01 - Plateau connection  
1:5

