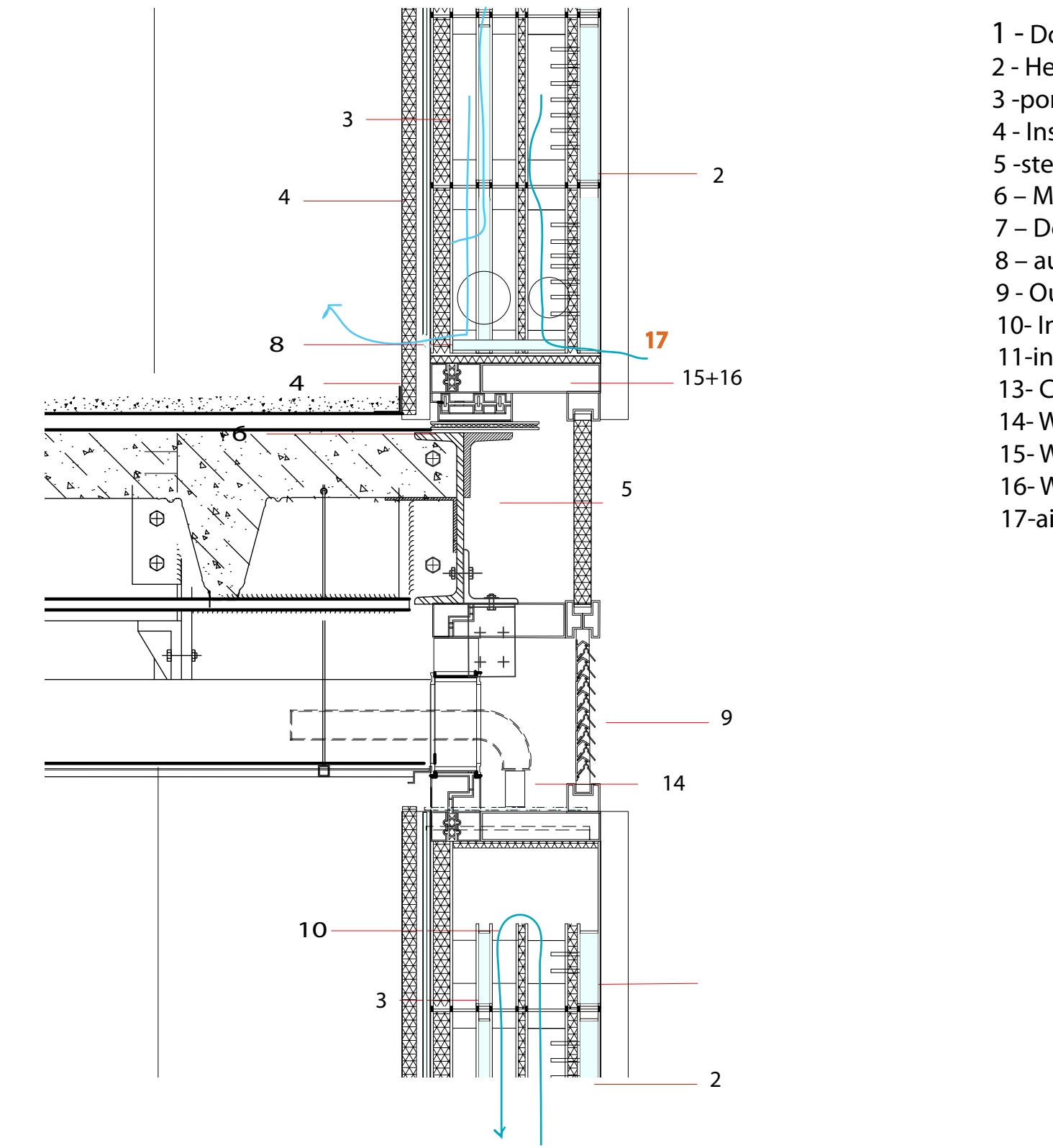
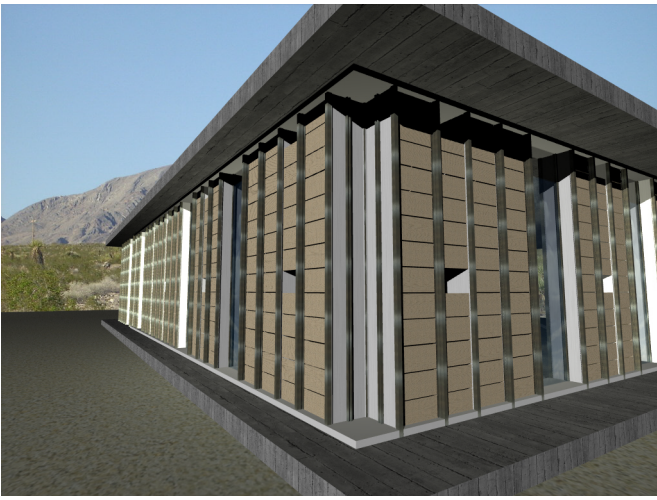


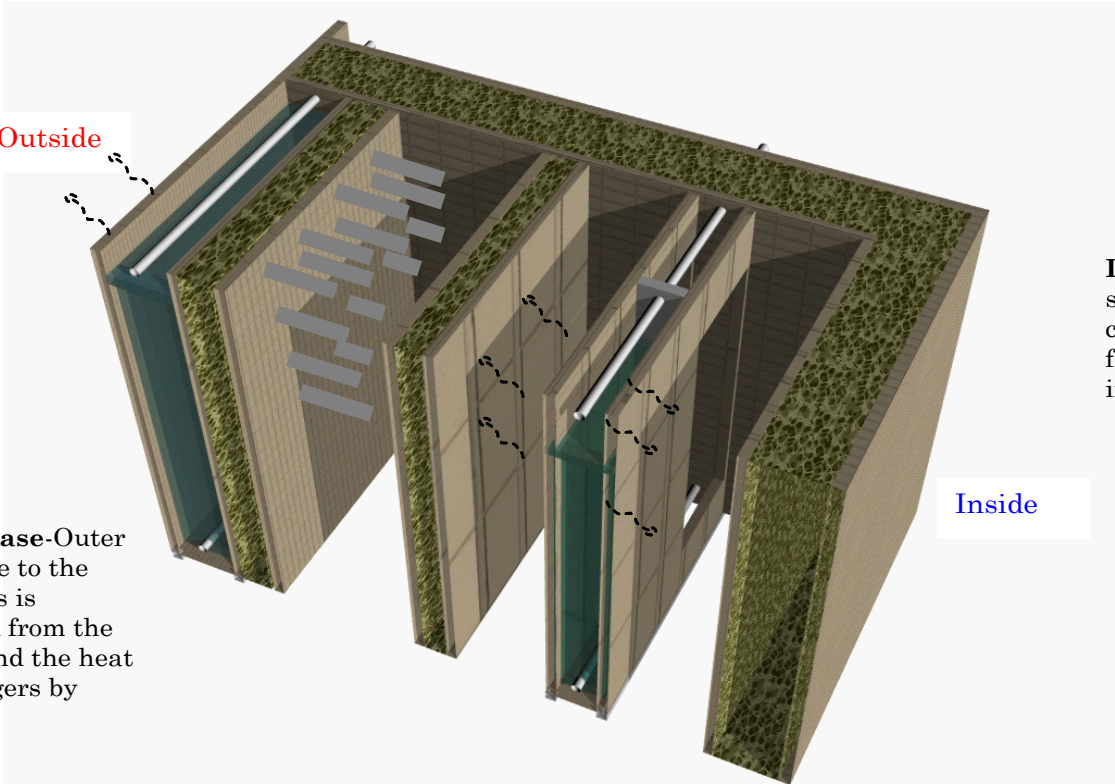
heat exchanger-DETAILS



- 1 - Double porous clay block
- 2 - Heat pipes inserted in water clay container
- 3 -porous clay "sweating container"
- 4 - Insulated aluminium frames
- 5 -steal floor beam
- 6 - Mounting shoe
- 7 - Double glass box 2x8 toughened glass
- 8 - auto-vents
- 9 - Outer air exhaust
- 10- Inner upper air ventilation block
- 11-inner air ventilation of clay block
- 13- Concrete top coping
- 14- Water supply system
- 15- Waterproof mat +filter layer and drain pipe
- 16- Water pump
- 17-air flow



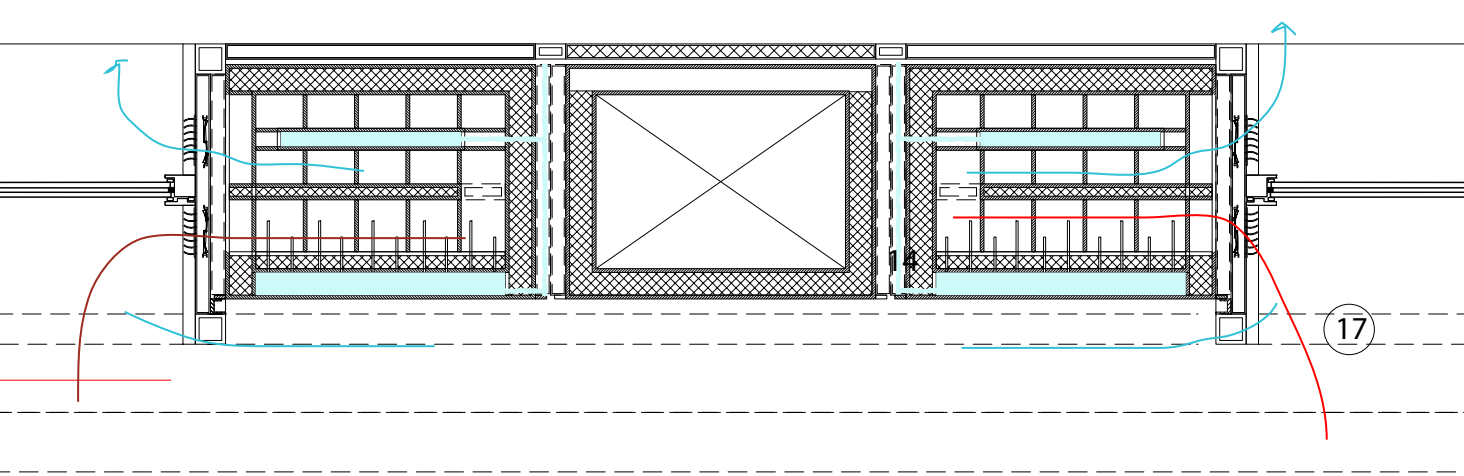
A **heat pipe** is device that combines phase change and convection. A liquid vaporizes at the warm end, absorbing heat. Vaporization produces a pressure difference that drives gas toward the cool end. There it condenses, releasing heat. Liquid then returns to the warm end by capillarity through some wicking material lining the pipe



Indirect phase-Outer sweating side to the surroundings is disconnected from the inner duct and the heat pipe exchangers by insulation.

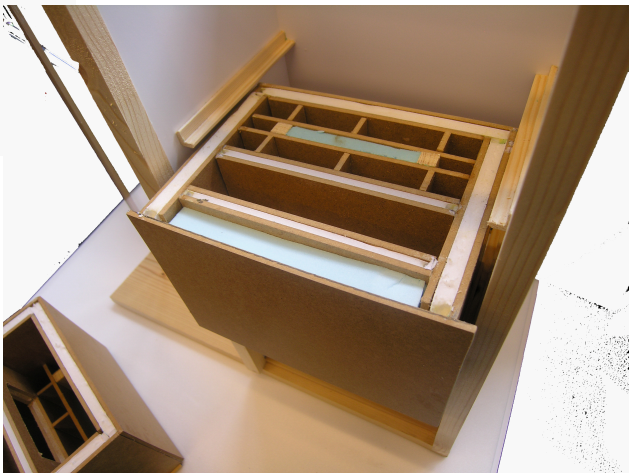
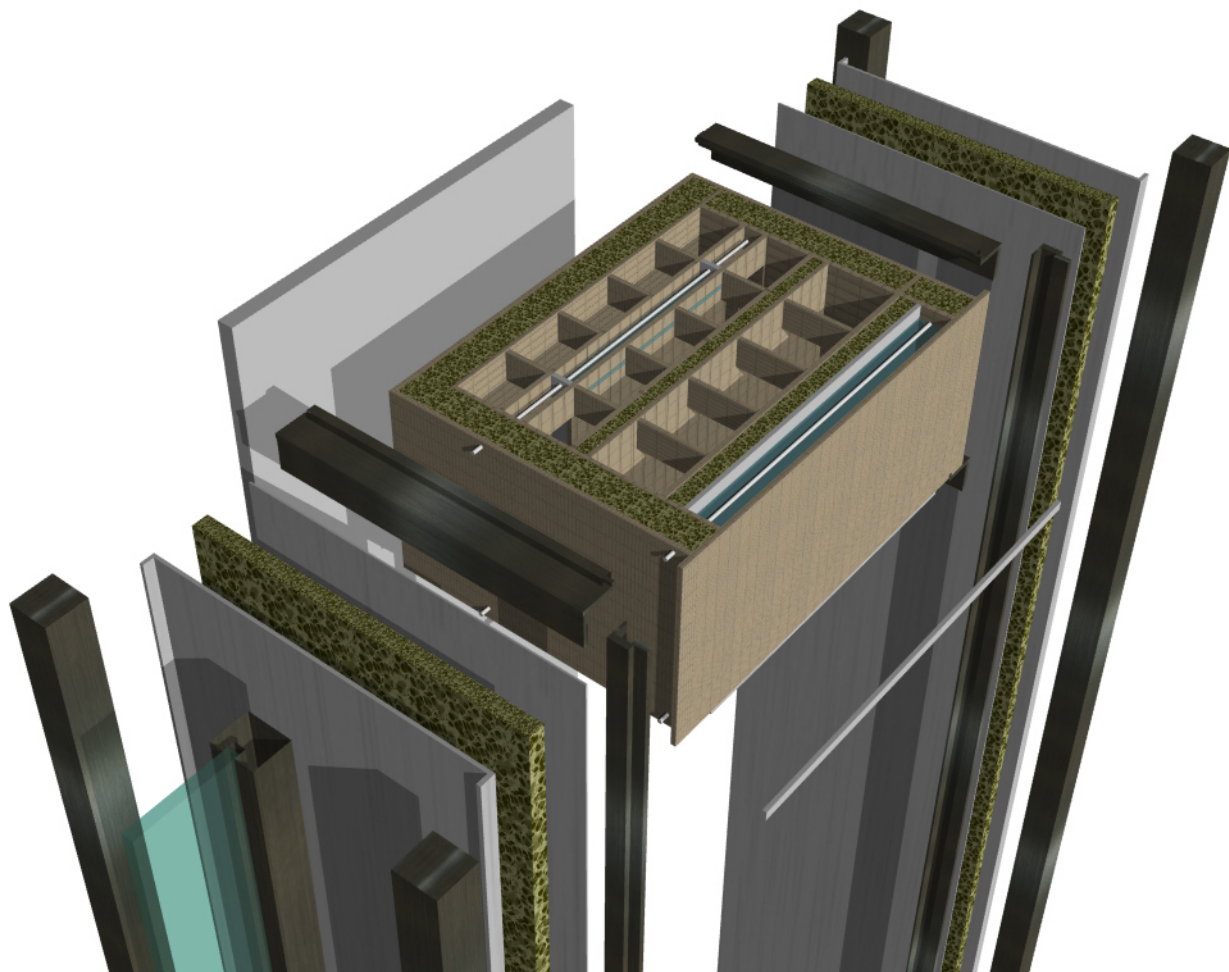
Direct phase-middle sweating ceramic container is disconnected from the indirect duct by insulation

Detail 1

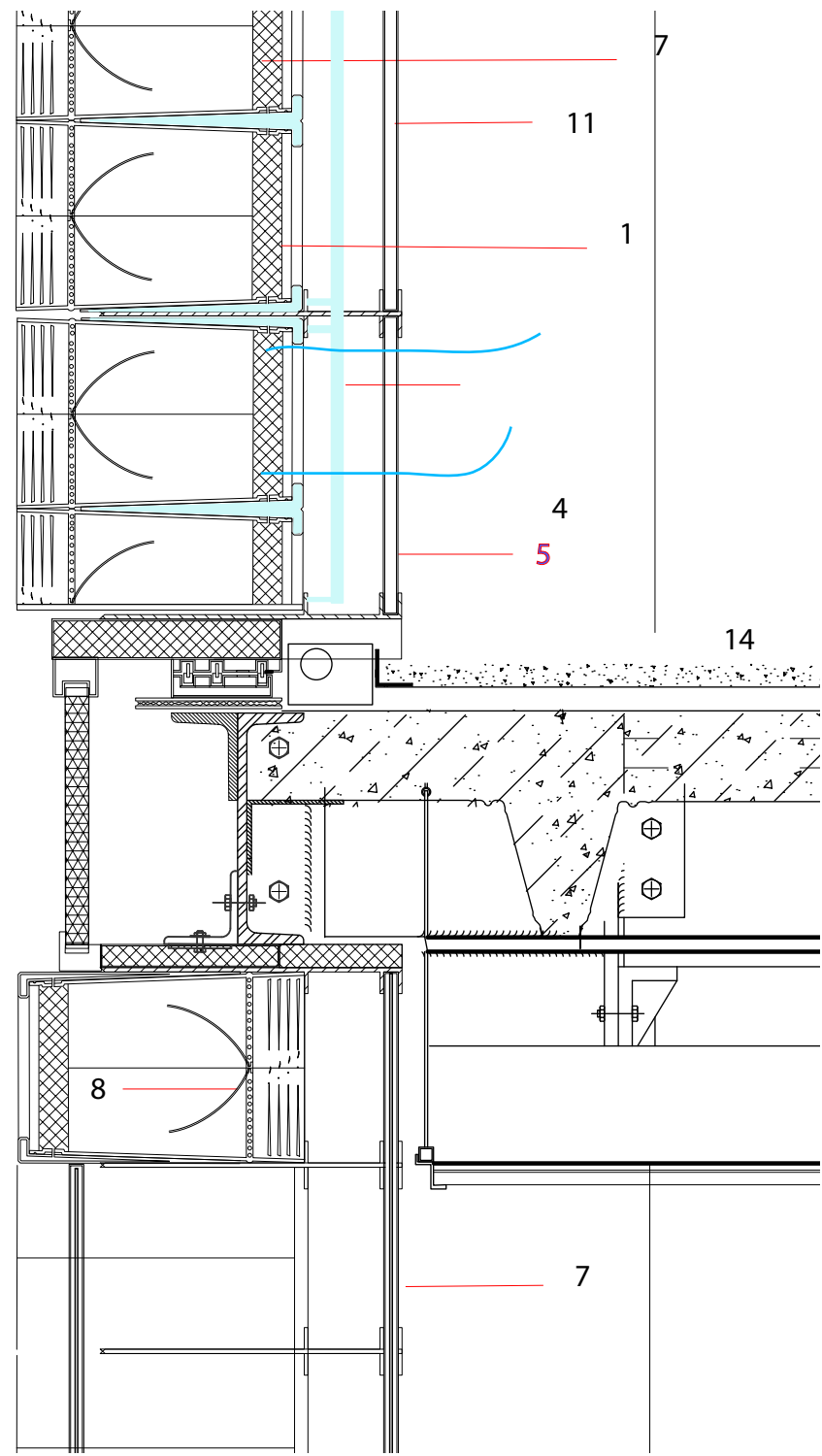


Main detail of clay blocks +insulation box-1

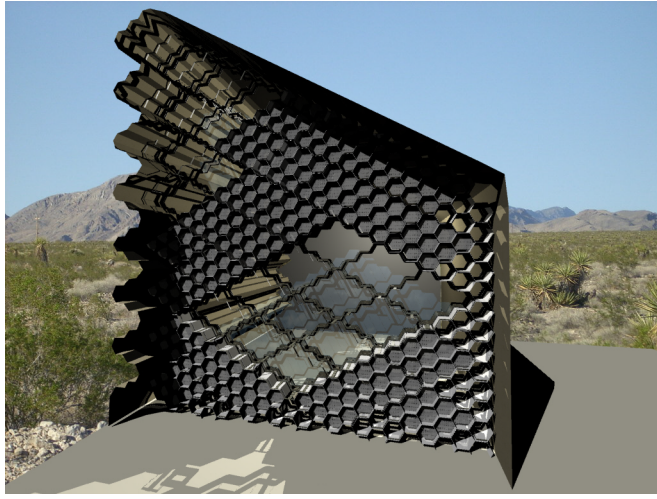
Detail 2



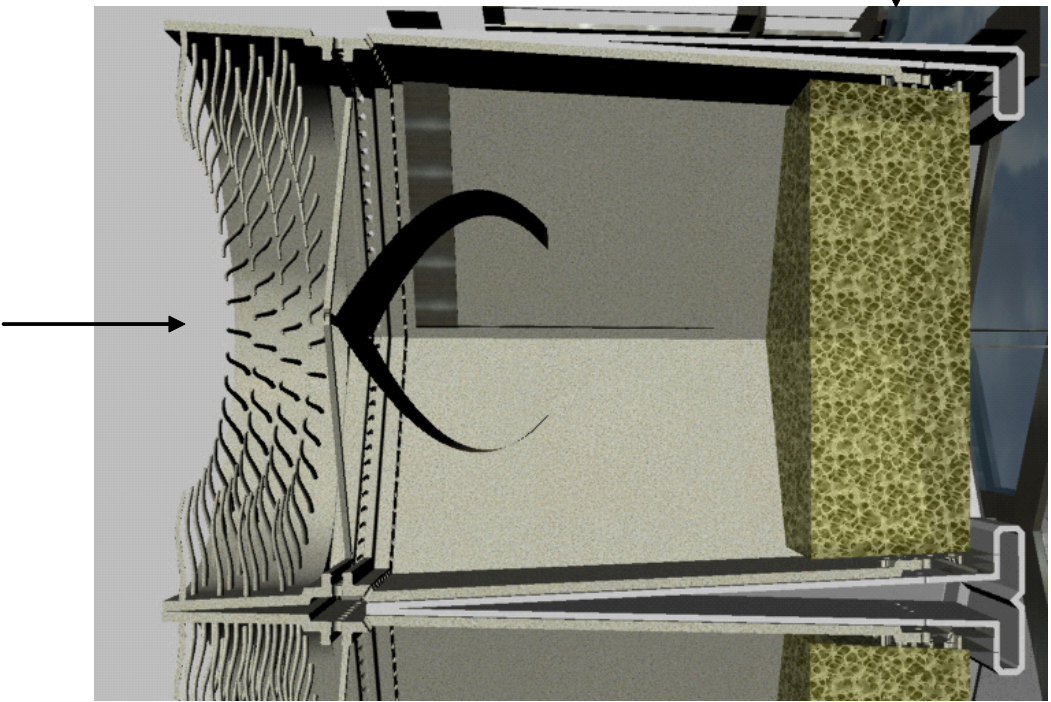
stoma bricks -DETAILS



- 1 - Extruded/3d print stoma brick section
- 2 -water "Irrigation system" embedded in brick
- 3 -porous sponge
- 4 - Insulated hepa filter or glass in metal frames
- 5 -Steal frame
- 6 - Mounting shoe
- 7 - Double acrylic glass.
- 8 - Wooden veneer- responsive to humidity
- 9 - Outer air Intake
- 10-floor system
- 11- Weather proof translucent membrane.
- 13- Concrete top coping
- 14- Water supply system
- 15- Waterproof mat +filter layer and drain pipe

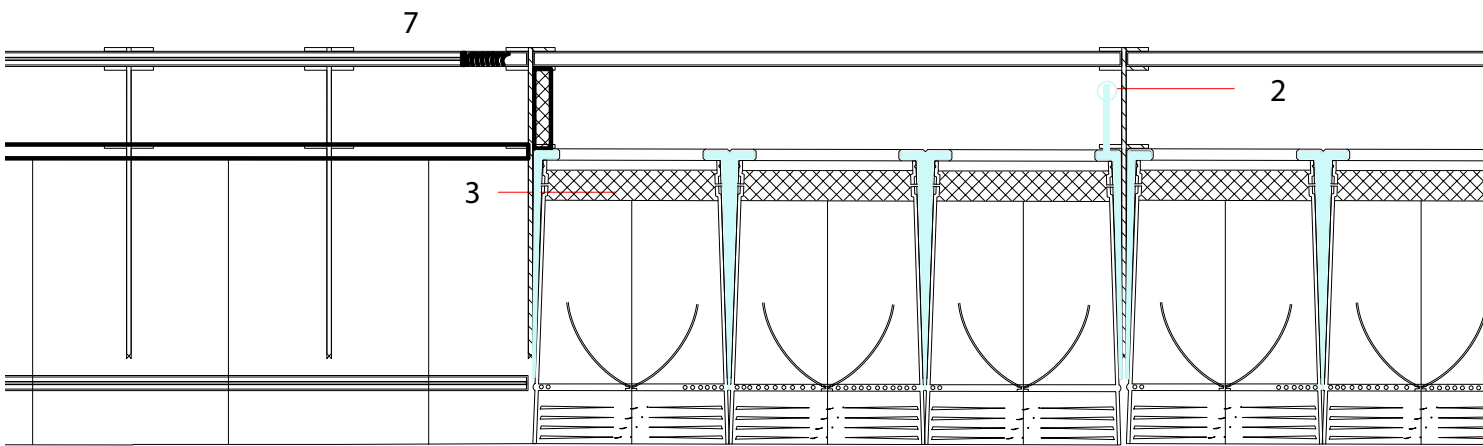


The **3d printed block** is made out of a porous material . the part for the evaporator can act as an insulator when it is d The Vanier wooden door is a self responsive material which shrinks and expands depending on the dryness or humidity of the air



3Dprint

Detail 1



Detail 2

Desert "hairs" against sand and dust

Irrigation holes for humidity

