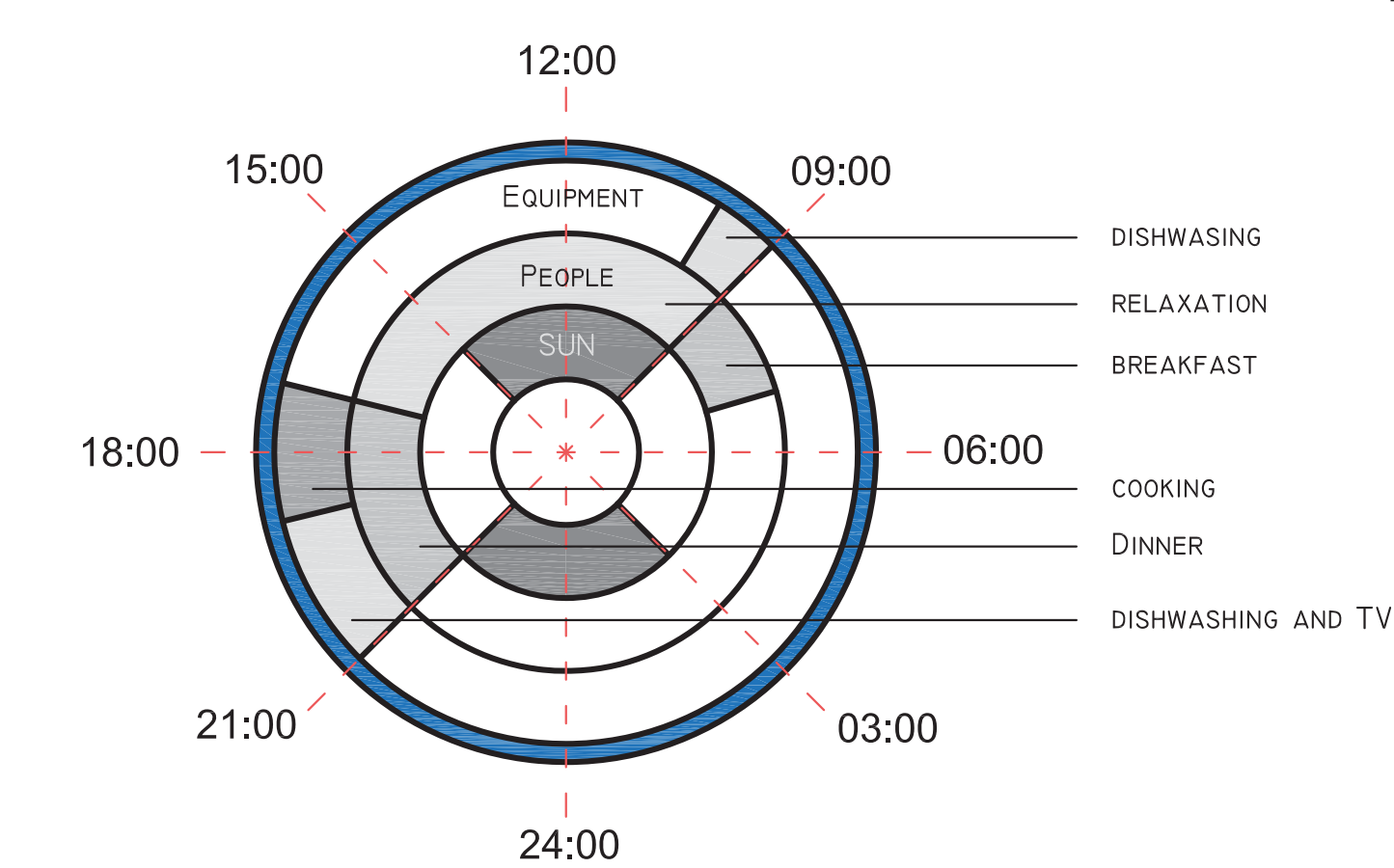
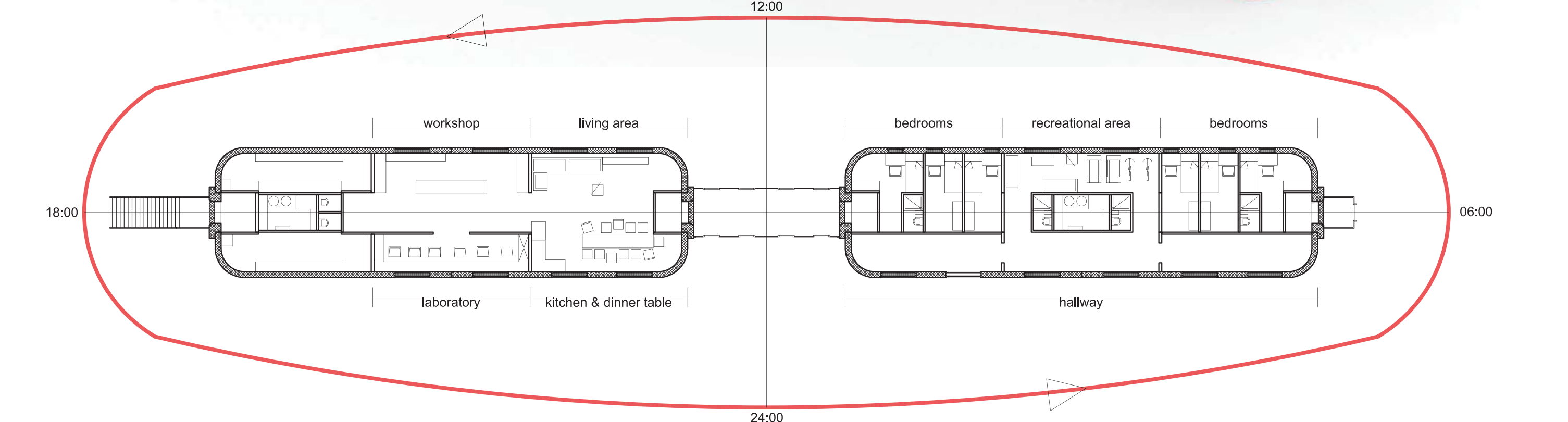
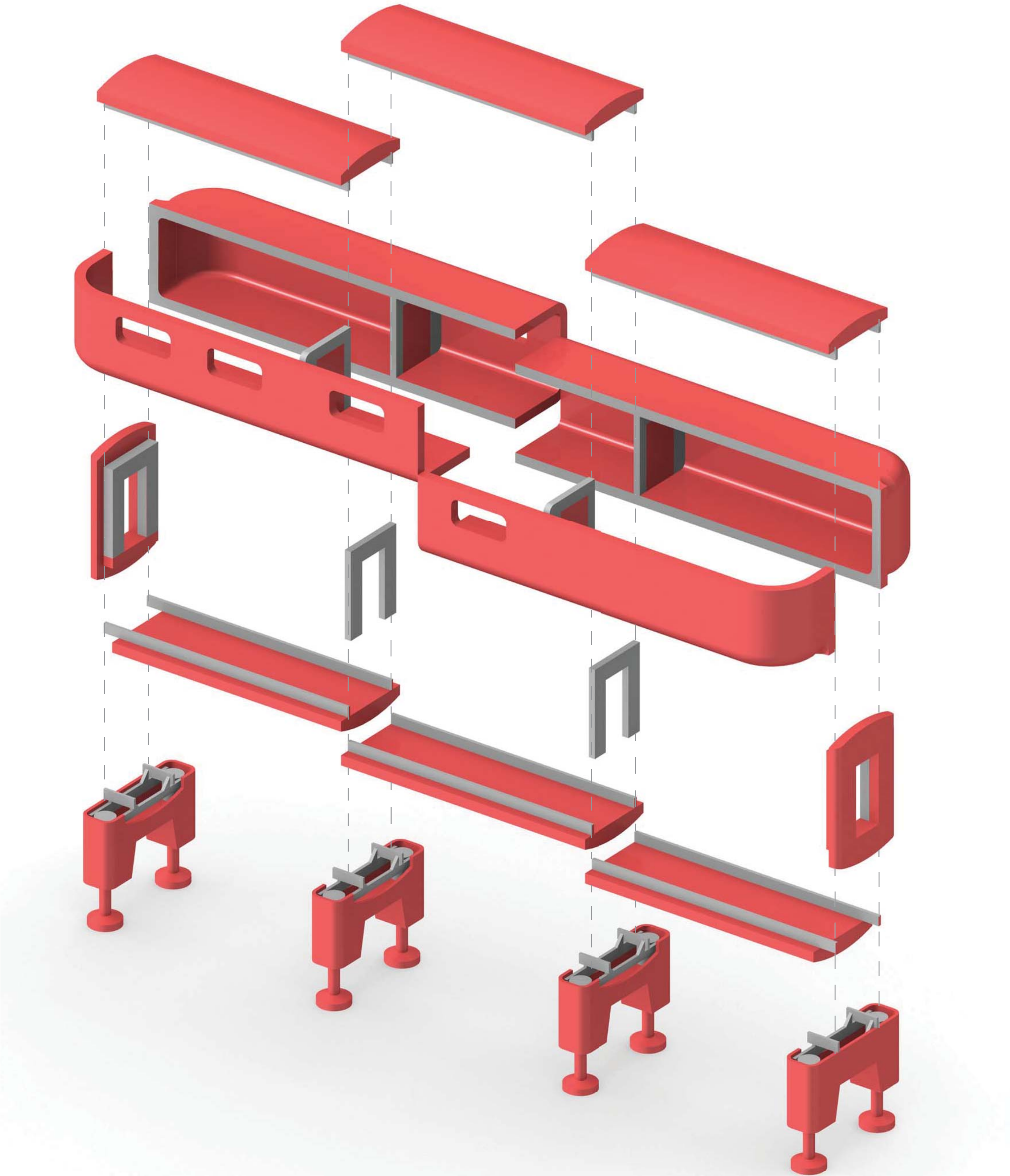


14 flights

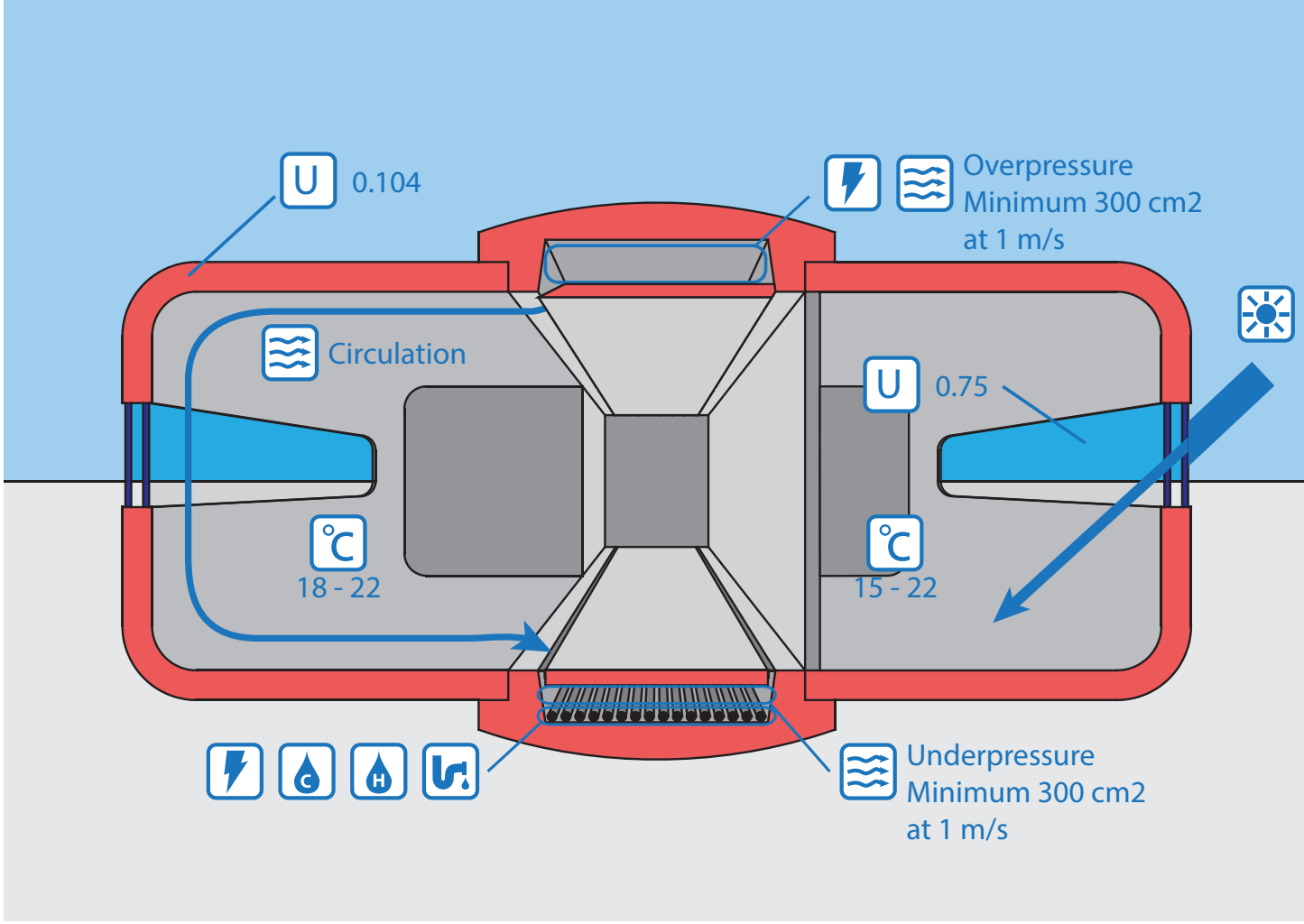
Detail

PIERRE MOSTERT 1527398
MSC 2 EXTREME Q4 2014
TUTOR: HANS KALKHOVEN



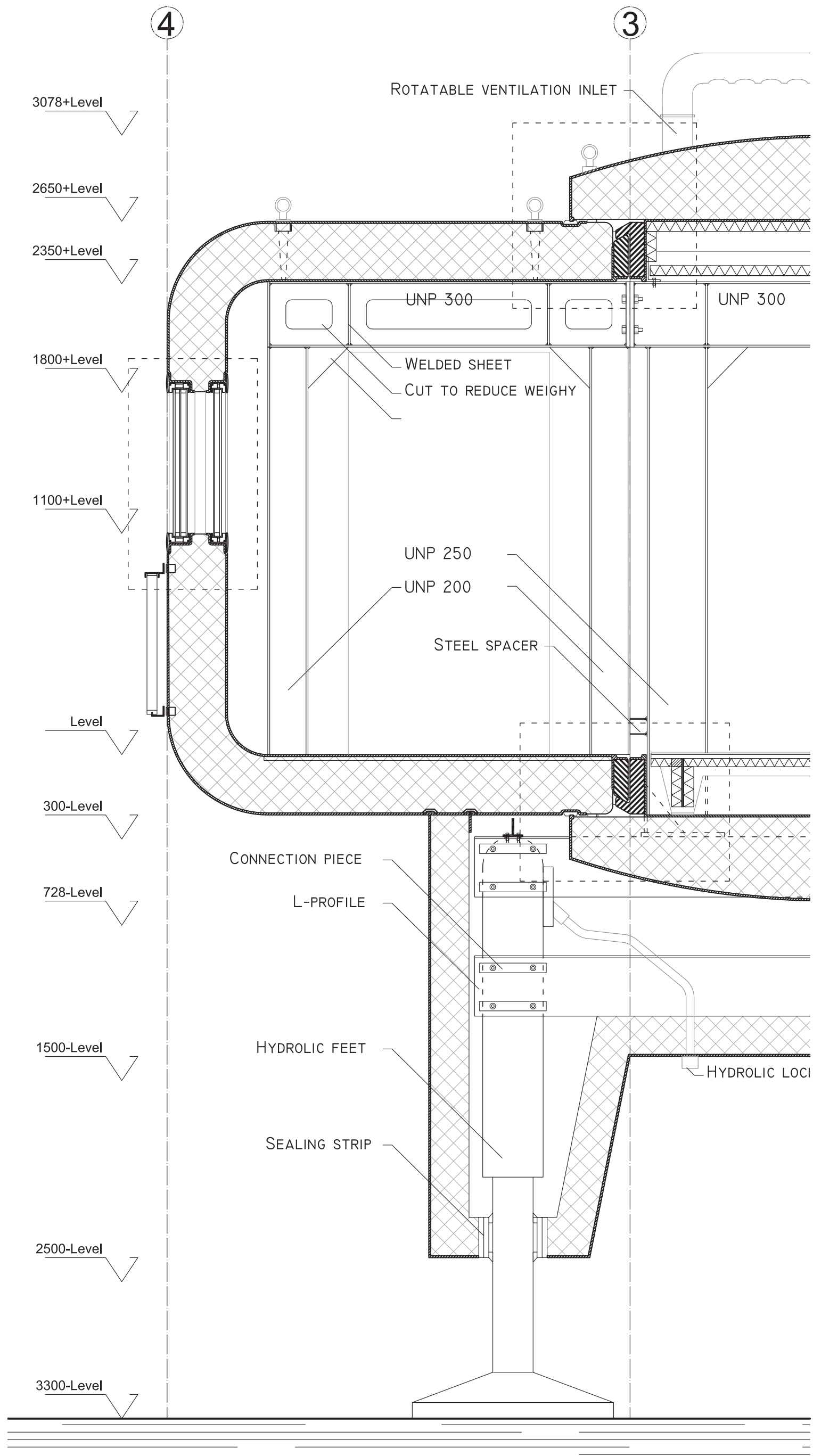
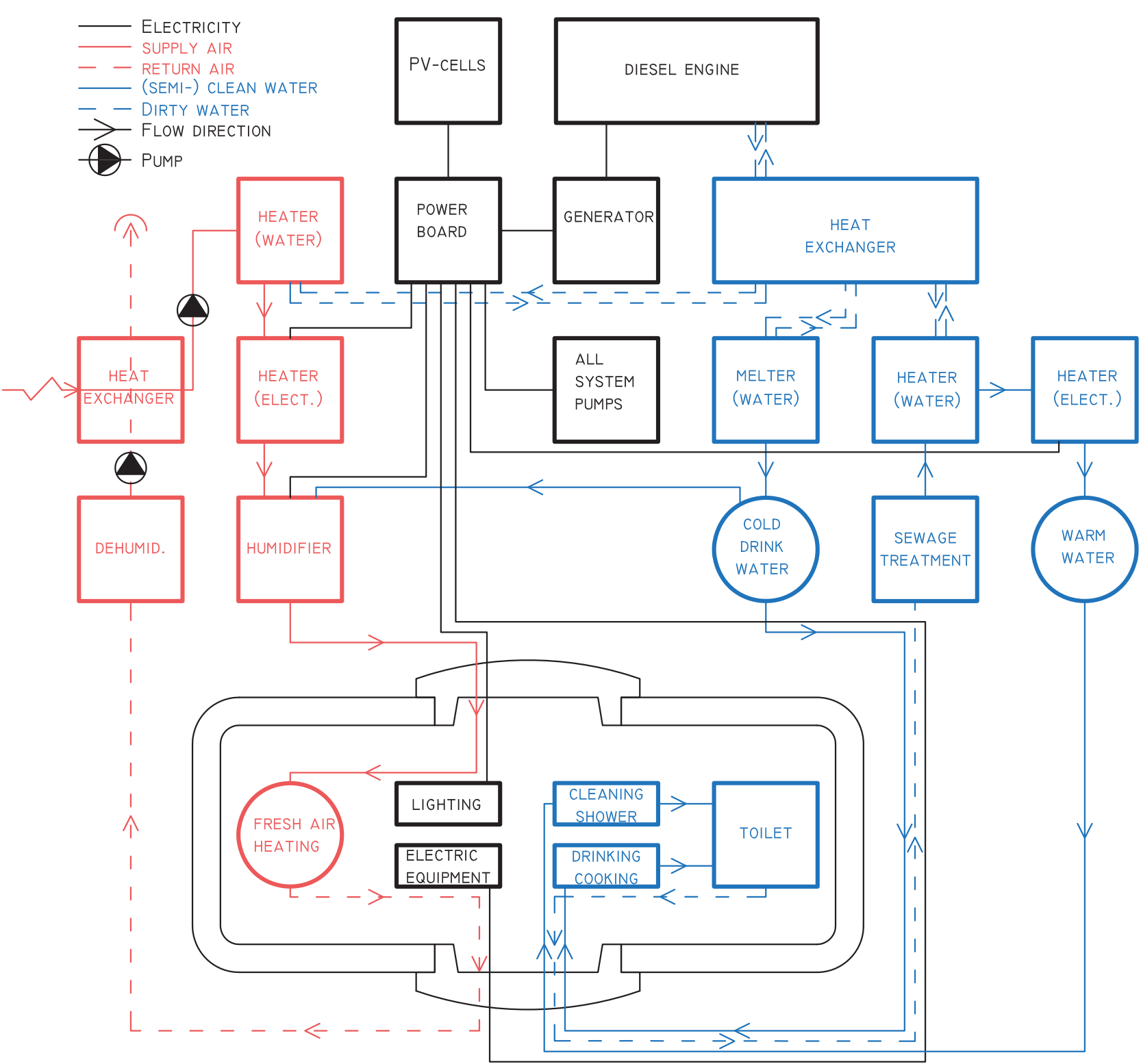
Climate
TO PREVENT A NEED FOR COOLING IN THE SUMMER THE FUNCTIONS ARE LOCATED **AWAY FROM THE SUN** WHEN OCCUPIED. THE DISTRIBUTION OF HEAT GAIN ALSO MINIMIZES THE HIGHT OF THE PEAKS FOR HEATING AS IT IS MORE CONSTANT. IT CAN ALSO CREATE A NOTION OF DAY AND NIGHT DURING THE SUMMER AS THE SUN START SHINING IN THE BEDROOM AT AROUND 08:00.

ALL PIPES AND LINES ARE LOCATED IN THE TOP AND BOTTEM ELEMENT OF THE STATION. HEATING IS DONE WITH HEATED SUPPLY AIR COMING FROM THE TOP ELEMENTS AND CIRCULATES ALONG THE SIDES TO THE BOTTOM FROM WHERE THE AIR IS DISPOSED OF. THE TOP ELEMENT HAS A **OVERPRESSURE** AND THE BOTTOM ELEMENT IS IN CONSTANT **UNDERPRESSURE**. USING ACOUSTIC INSULATION THE NOISE TRANSFER BETWEEN THE DIFFERENT ROOMS WILL BE MINIMIZED.

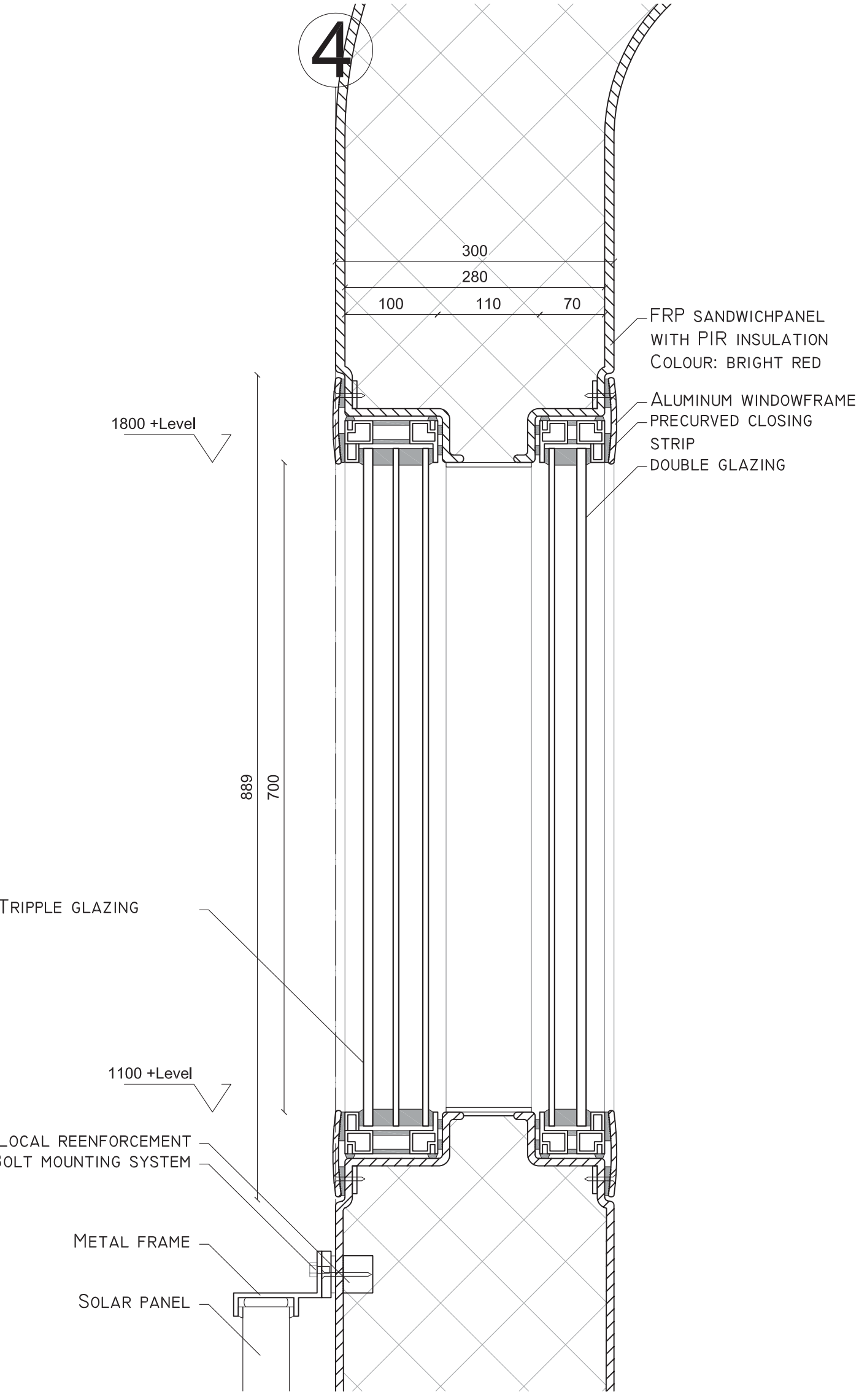
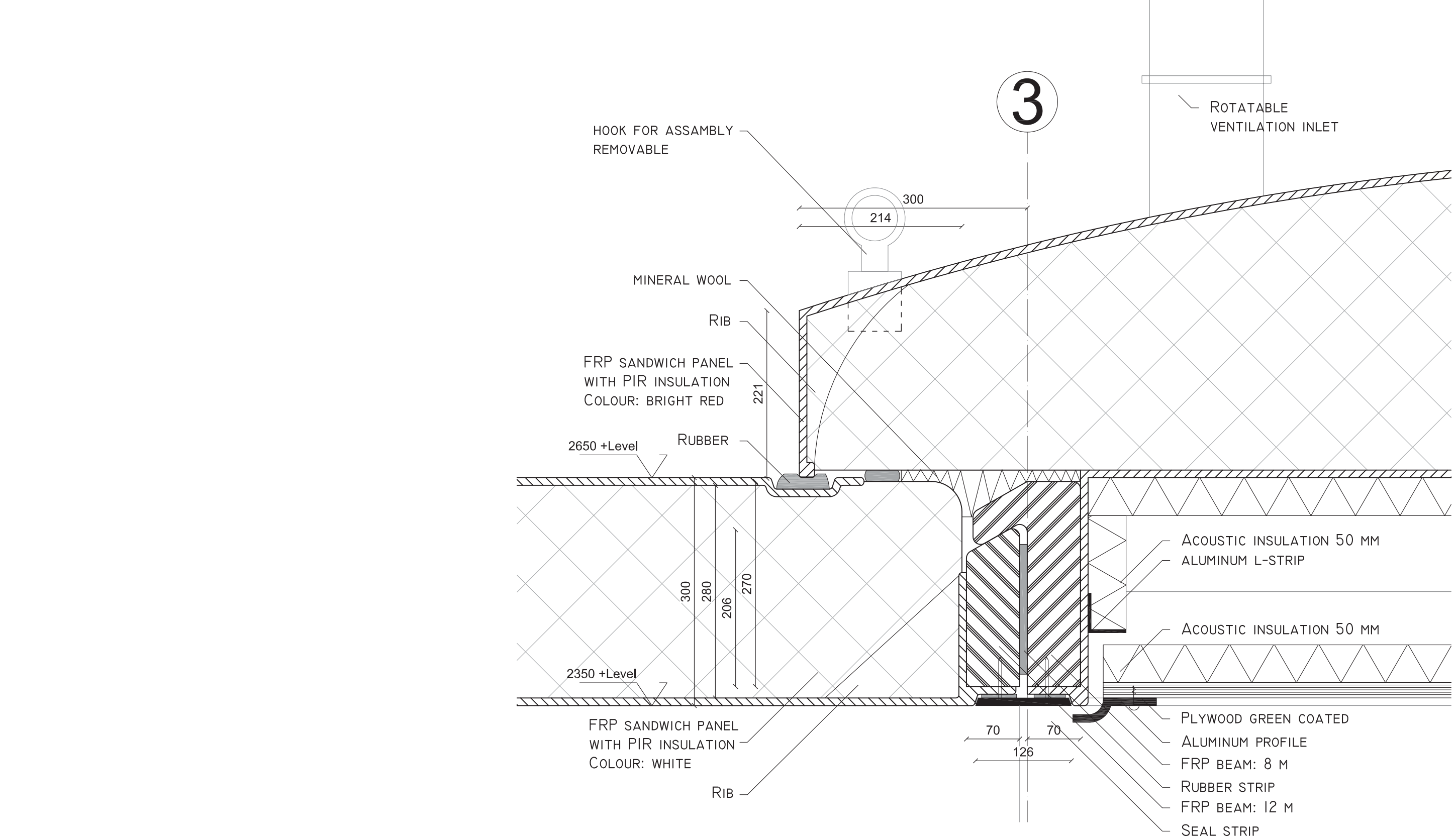
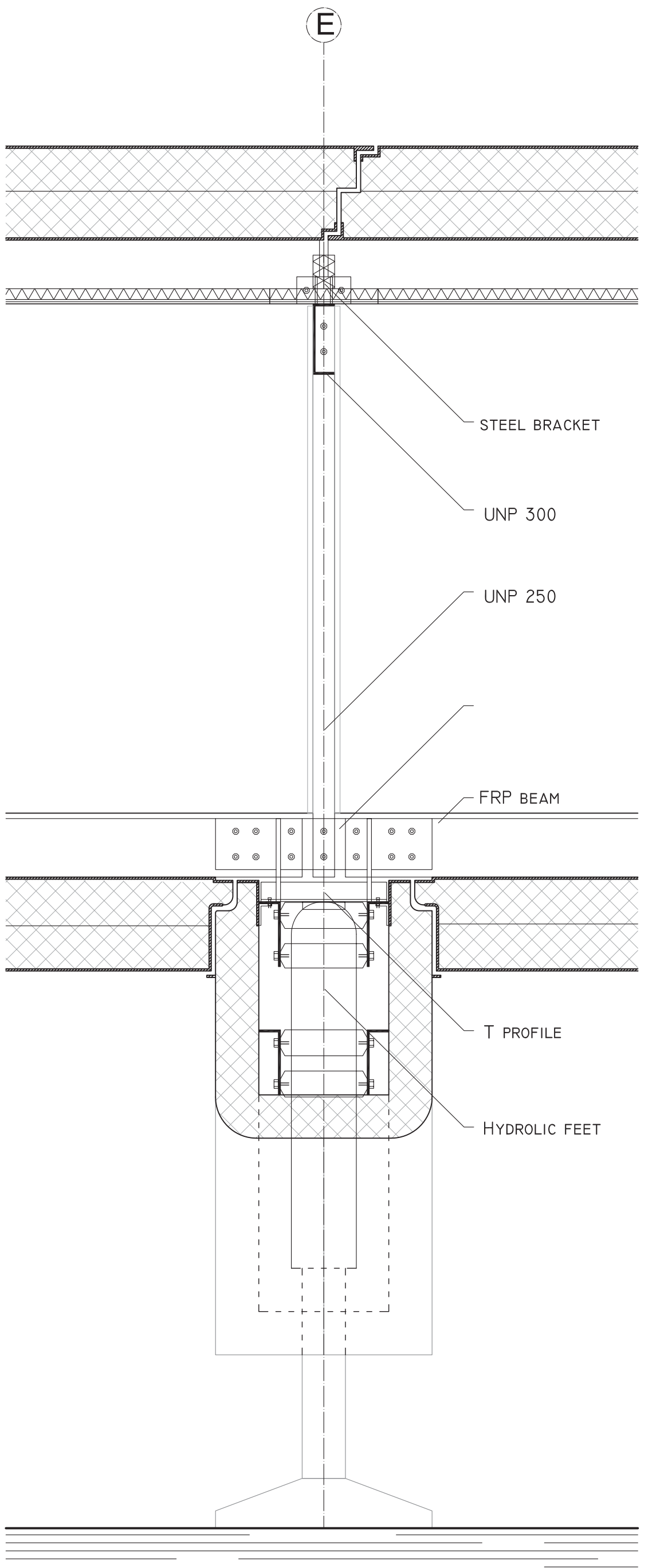


INTERCONNECTING ALL CLIMATE SYSTEMS INSIDE THE RESEARCH STATION MAXIMIZES THE EFFICENCY OF THE USED ENERGY. THE CORE OF THE SYSTEM ARE TWO DIESEL ENGINES THAT PROVIDE ELECTICITY AND HEAT. DURING SUMMER WHEN THE STATION HAS ITS HIGHEST OCCUPANCY, MORE HEAT WILL BE USED FOR SHOWERING AND WATER PRODUCTION. DURING THE WINTER MORE HEAT WILL BE USED TO HEAT THE STATION. DURING SUMMER PHOTOVOLTAIC CELLS PROVIDE EXTRA ENERGY AS THE DEMAND WILL RISE THEREFORE THE GENERATOR PRODUCTION CAN BE MORE STABLE DURING THE YEAR. THE CELLS ARE REMOVED DURING WINTER TO PREVENT DAMAGE

THICK INSULATION AND A AIRTIGHTNESS OFFERS A LOW U-VALUE AND TRANSITIONAL SPACES BETWEEN OUTDOORS AND LIVINGSPACE REDUCES THE DRAFT WHEN ENTERING.



1:20 CROSS SECTION IN TWO DIRECTIONS



Top element connection 1:5
THE TOP ELEMENT IS **THE LAST PIECE** TO BE INSTALLED AND IS THE MAIN DISTRIBUTOR OF FRESH AIR. THE STRENGTH OF THE CONNECTION COMES FROM AN INCREASED THICKNESS OF THE FIBER REINFORCED POLYMER. TWO FRP BEAMS INTERLOCK AND COMPRESSES THE RUBBERS FOR AIRTIGHTNESS

Window connection 1:5
THE WINDOW IS A 5 LAYERED GLASS SYSTEM CONSISTING OF A 3 LAYERS GLASSPANE ON THE OUTSIDE AND A DOUBLE GLASSPANE ON THE INSIDE. THE GLASS IS COATED WITH A **UV PROTECTIVE LAYER** TO DECREASE THE LIGHT INTENSITY FOR THE OCCUPANTS. IF ONE OF THE GLASS PANES FAILS, THE OUTSIDE WINDOW SHOULD BE MOUNTED LAST TO PREVENT HOT, MOIST AIR FROM INSIDE TO BE TRAPED BETWEEN BOTH WINDOWS AN CONDENSATE. TO GARANATEE AIR TIGHTNESS AN EXTRA PIECE WITH **RUBBER STRIPS** IS FIXED ON THE OUTSIDE. THE OUTSIDE WINDOWS ARE ONLY CONNECTED ON SITE THE FIRST TIME THE STATION IS USED TO MAKE SURE THERE IS VERY LITTLE AIR BETWEEN THE DIFFERENT WINDOWS. AFTERWARDS THE WINDOWS CAN BE TRANSPORTED MOUNTED INTO THE SIDE ELEMENTS.

Bottom element 1:5
THE BOTTOM ELEMENT IS CONNECTED TO THE FEET SYSTEM. A LARGE COSTOM MADE, L-SHAPED, FRP BEAM IS USED TO STRENGTHEN THE ELEMENT FOR THE INSTALLATION MODULE AND HELPS THE SIDE ELEMENTS TO BE MOUNTED LATER. THE BOTTOM ELEMENT ACTS AS A DUCT FOR THE RETEURN AIR AND AS OFFERS SPACE FOR THE CABLES AND PIPES.

