THE TYPOLOGY OF ASTRONOMICAL OBSERVATORIES

1. The design combines the themes of astronomy and nature. The scheme is comprised of functional and formal clusters. Formally, the design is influenced by the local building tradition, where observations are usually located in small towers on stone plinths. The design is based on a linear plan with wings ending in telescope rooms, creating a horizontal hierarchy. The first addition is the limestone middle wall, a differentiation of the earthly concrete. The second addition is the wooden construction thus representing the spheres of heaven, only anticipating the true translation of the local building tradition.

2. The plan is diversified by two additions that can be seen in the diagram. The first addition is the limestone middle wall, a differentiation of the earthly concrete. The second addition is the wooden construction representing the spheres of heaven. The program is divided twice; the first time in public and private functions, the second time in astronomical and supporting functions. Public functions are housed in the main wing, private functions in the narrower secondary wing. Astronomical functions are stacked on top of the supporting functions, resulting in the shape of a lightning bolt.

3. The design is formed by combining two conclusions of the research thesis: the scheme of functional development and the formality of change. Formally, the design is influenced by the local building tradition, where observations are usually located in small towers on stone plinths. The design is based on a linear plan with wings ending in telescope rooms, creating a horizontal hierarchy. The first addition is the limestone middle wall, a differentiation of the earthly concrete. The second addition is the wooden construction representing the spheres of heaven, only anticipating the true translation of the local building tradition.

4. One of the appealing characteristics of astronomy is that it is a good example of a citizen science. During the observation season, citizens are invited to participate in the observations. The amateur astronomers are an integral part of the astronomical community and contribute to the success of the project. They share their observations with the professional astronomers, helping to improve the understanding of the universe. This citizen science approach is unique in astronomy and is an important link in the local building tradition.

5. The design is formed by combining two conclusions of the research thesis: the scheme of functional development and the formality of change. Formally, the design is influenced by the local building tradition, where observations are usually located in small towers on stone plinths. The design is based on a linear plan with wings ending in telescope rooms, creating a horizontal hierarchy. The first addition is the limestone middle wall, a differentiation of the earthly concrete. The second addition is the wooden construction representing the spheres of heaven, only anticipating the true translation of the local building tradition.
Transitions between the four main materials from the tectonic concept

Concrete core activation in table for local heating

Main hall roof from section AA' and BB'

Light effect of the central hall roof at other time

Scale 1:20

Scale 1:5

Materialisation of tectonic transitions
Sand Filter
• Active Carbon Filter
• Vertical Reedbed Filter
• UV Light

Grade 2 Use
Upflow Anaerobic Sludge Blanket Septic Tank
Infiltration to Groundwater

Rainwater Harvest
Footpath

Grade 1 Cistern
• Volume: 1000L
• Under lecture room
Pond

Heat Pump
See electricity diagram
• Removing particles and algae
• Fine Mesh Filter
• Active Carbon Filter
• Removing soap and small debris

Precipitation: 724 mm yr\(^{-1}\)
Evaporation rate: \(\sim 700 \text{ mm yr}^{-1}\)
Area: \(\sim 200 \text{ m}^2\) minimum

Biogas Treatment
• Making water potable

Buffer container
• Volume: 2000L
• Under lecture room
Concrete Core Activation
• Cooling water

Excess Heat Outflow
• Solar panels at 31º (top) angle
• South South West orientation
• Local solar irradiation: 1680 kWhm\(^{-2} \text{yr}^{-1}\)
• Storage efficiency: 80 %
• Total use: \(\sim 5000 \text{ kWhyr}^{-1}(\text{without telescopes})\)
Batteries
Under lecture room
Emergency Generator
• Energy collector system
• On offices roof
• Total area: 30 m\(^2\)

Heat Pump
• Photovoltaic cells
• On lecture room roof
• Total area: 34 m\(^2\)
• Solar panel efficiency: 15 %