

# DESCRIPTIVE MEMORY

*"The main energy sources of our Industrial Civilization are called Fossil Fuels. We use wood as fuel oil, natural gas and coal, all of them become airborne waste gases, mainly CO<sub>2</sub>. Consequently, our big cities are contaminated with harmful molecules. We do not understand the effects that long term these activities."* (C. Sagan, 1980)

The project stems from the interest in the lithium exploitation as a counter globally from burning fossil fuels; considering that lithium along with the process of exploitation is a raw material that can store a lot of times energy, which is currently used in the manufacture of rechargeable batteries, in cell phones, computers, vehicles, aeronautics, astronautics. The most important place for the lithium exploitation is "Salar de Atacama" (Salt Flat) located in the Antofagasta Region, Republic of Chile. This is the world's largest place for lithium exploitation, representing about 44 % in global production.

The main problems and opportunities around the Lithium are:

1. The current political contingency around lithium extraction and new foundations for a new public policy to support possible future mineral exploration and mining.
2. The demand for research in the "Salar de Atacama" (Salt Flat) required by "Corporación de Fomento de la Producción de Chile".
3. The possibility of a Research Center associated with the extraction and exploration of lithium mentioned by CIL (Lithium Research Center)
4. The opportunity to create an area of good quality accommodation and much closer to the plant's operating lithium; for workers in the biggest charge of the exploitation of lithium in the world called "SQM Company".

**For all the reason exposed, we consider to create our project in the closest area to the company's production, this area is taking into account buffer zone of 200 meters, the project specifically consider an "Arrangement and Center production of lithium Research", so this project proposes to create a place with "Deliver living conditions in the desert through an oasis protected by a self-sustainable architecture."**

In the architecture field, architects can't claim a project that solves all the problems that exist; however, you can choose to answer the most important questions to resolve architectural problems:

## 1. How to contain and scale space?

Firstly, as a priority, it was decided to promote socialization among the different workers, so a single space is the option that helps generate more social connections within the project. And secondly, considering that the project needs a lot of built area, but less than recommended area by "WHO", considering this problem we decided to choose the form that may contain a larger amount of area with the least amount of perimeter, we solve this problem creating circle architecture.

## 2. How to build in "Salar de Atacama" (Salt Flat)?

To build on the salt-place analyze all alternatives, basic materiality to build, either concrete, steel or wood, however all of them have problems with salt desert conditions to link up with the saline environment of the place. However, the best material to protect against the conditions mentioned is steel, because a smaller amount of material is needed, so there will be less material in contact with the environment of salt. *Everything suggests that the question posed the problem posed the same answer.* This means that there is the possibility of using the same salt of the site of construction, protecting the steel.

## 3. How to respond to a geographical scale?

Because the nearest neighboring structures are approximately 200 meters away and are low-rise buildings are almost imperceptible within the vastness of the "Salar de Atacama" (Salt Flat). The nearest the project context is the same desert, and the lines that make up the skyline and the line of the ridge. Therefore, the project directly faces a geographical context, and given the importance of the project, and the larger context in which it is located, must mark a recognizable landmark from different places and become a reference point.

## 4. How to respond to weather conditions?

Firstly, SQM workers work evaporating water and one of the things they most need is water, it is proposed to project a methacrylate cover to generate a greenhouse effect that can help the growth of vegetation in place. Secondly, it is proposed that is covered can desalinate water drawn from the same Salt Flat, through solar desalination. In addition, the circular shape and cover help deflect winds from different directions. The project is inhabited from 7 p.m. to 7 a.m. enabling collect water and energy during the day and used at night. According to locate sunlight decide bedrooms east and west for use at dawn and sunset, the research center and access to the north with a much more direct connection to the production area and equipment to the south as a shot from access

## 5. How to give a level playing field for users?

The circle is a form that has a tendency to level the playing field between the different parts that compose it. And it allows the project possesses relatively equal distances for services that the project (free areas, dining rooms and game rooms).

## 6. How to respond architecturally shaky ground?

The Circular form to settle much more easily in the field, being able to distribute the horizontal loads over the structure of the whole building and we also choose to use "Tensegrity" to better triangulate the roof and create an interior free area, if were possible, not interrupted by vertical structures, in that way the roof structure work together.