

# Atmospheric Water Generating and Urban Farm Tower

CAMILO CERRO

American University of Sharjah

The human right to water and sanitation recognized by the United Nations (UN) General Assembly on July 28th 2010, entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. As we know, this is not the case in the poorest communities of the developing world. But with the use of atmospheric water generators access to clean water in areas with high levels of humidity (relative humidity over 30%) could be possible without huge government expense in plumbing and sewage infrastructure. This poster proposes the construction of multiple water towers in some of the largest slums in the planet, with the primary purpose of generating public access water from the humidity on the air. The towers would be self-sufficient and embedded in the community at a distance from each other as to provide water access to the neighborhood around it. An atmospheric water generator is capable of producing 5000 liters of water a day, the tower design proposes to use 4 generators, producing 20,000 liters of water a day. The tower is also designed for water storage, with a capacity of 24,000 liters.

The tower is designed to serve the community in more than one way. The water generation produces the main element required for the creation of a vertical farm. One of the main reasons to produce food locally is that by doing so we can cut cost by half since transportation costs are taken out of the equation. The tower is designed to produce a variety of food products including mushrooms. All the produce in the tower are of high yield. The people working in the tower would be locals. And the first floor of the tower would serve as a market where people would get access to both food and water. The idea is to have a system that can generate in symbiosis, different ways to help the community.

The last important concept to talk about is that, the only way a hive like the one proposed would work, is if each tower works

self-sufficiently. To achieve this point, the atmospheric water generators have been designed to work on solar energy which will solve all the other electric needs of the tower. The energy will be stored in a commercial tesla battery. Self-sufficiency does not only refer to energy; the farming, cleaning and selling of the food will be done by a local work force allowing for the tower to become an asset to the neighborhood developing a type of social self-sufficiency.

By offering access to clean water and cheap food, the tower is designed to lift the quality of life of the community.

“Like medicine (architecture) must move from the curative to the preventive.”

— Cedric Price, *The Square Book*



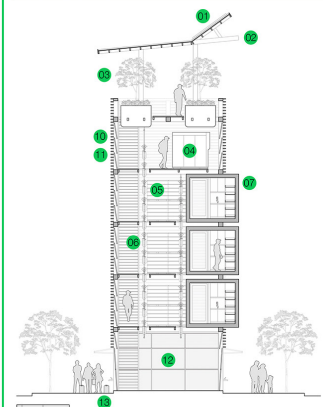
THE ETHICAL IMPERATIVE-ATMOSPHERIC WATER GENERATING AND URBAN FARM TOWER



PROJECT DESCRIPTION:

The idea behind this proposal is to try to solve an existing problem, and by doing so expanding the realm of the solution to tackle other site issues. The main problem is the lack of water in the proposed communities. And to deal with this problem the building houses a number of atmospheric water generators that will produce water to be stored and filtered by the building for the neighborhood to use. As the building will be storing water, we are also proposing that the project also tries to help the community by producing cheaper food. To do this a combination of soil based and hydroponic farming systems together with fungiculture pods are added to develop an interdependent system that works year around and in a semi self-sufficient way for the benefit of the community. In the end we have a six level structure with a market and water dispensing area on the first level, fungi production pods, hydroponic vertical farming and water storage on the second, third and fourth levels. Mechanical, energy storage, water filtration and atmospheric water generators in the fifth level. And a potted fruit garden on the sixth level, which is covered by a roof that houses solar panels.

SECTIONAL DRAWING:



GENERAL LEGEND:

- 1 Solar panel system connected to a Tesla battery to power the facility.
- 2 Steel structure, powder coated to prevent rusting.
- 3 Potted fruit tree garden.
- 4 Atmospheric water generator.
- 5 Water tank.
- 6 Vertical hydroponic farm.
- 7 Fungi culture room.
- 8 Compost toilet/ Washroom.
- 9 Work station.
- 10 Wood louvre facade.
- 11 Polycarbonate illuminated translucent panels.
- 12 Market.
- 13 Water access area.

ENERGY PRODUCTION AND STORAGE:



WATER GENERATION SYSTEM:



METHODOLOGY:

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As more and more people migrate to the cities looking for jobs and escaping climate change, designers have an opportunity to start to solve the problems that humanity will be confronted with in the next decade. We need to understand that engineering infrastructure is one of the best anticipatory investments towards preventing humanitarian emergencies and the foundation to develop resilient cities. The infrastructure is talking about needs to be self-sufficient, smart and rooted to local activities. It is also important that we take the opportunity to develop interdependent systems, designed to solve more than one problem at the time. In the end the role of the designer is to better the quality of life of individuals.



**CONCEPT:** The tower is designed as a vertical farm and water generator. It features a unique facade made of wood louvers and polycarbonate panels. The building is equipped with solar panels, a Tesla battery, and an atmospheric water generator. It also includes a market, water access area, and various farming systems like hydroponic and fungi culture rooms.

**DESIGN:** The tower is a six-story building with a unique facade made of wood louvers and polycarbonate panels. It features a market, water access area, and various farming systems like hydroponic and fungi culture rooms. The building is equipped with solar panels, a Tesla battery, and an atmospheric water generator.

**CONSTRUCTION:** The tower is constructed using a steel structure, powder coated to prevent rusting. It features a unique facade made of wood louvers and polycarbonate panels. The building is equipped with solar panels, a Tesla battery, and an atmospheric water generator.

**OPERATION:** The tower is designed to be self-sufficient and rooted to local activities. It is equipped with solar panels, a Tesla battery, and an atmospheric water generator. It also includes a market, water access area, and various farming systems like hydroponic and fungi culture rooms.

**IMPACT:** The tower is designed to solve the problem of water scarcity in urban areas. It is equipped with solar panels, a Tesla battery, and an atmospheric water generator. It also includes a market, water access area, and various farming systems like hydroponic and fungi culture rooms.

