

# ABOA

## A new take on the advertising pillar

Advertising pillars are a staple in Germany's advertising space history, but during the last few years it was more and more noticeable that those pillars are not future proof. The corona pandemic made any advertising on those pillars unnecessary for several months and showed us a cold and unattractive side that can no longer be tolerated with the rise of needed space in the city of Mannheim. We believe in a smarter, more attractive and multi-functional solution that uses those spaces in a more effective way.

The ABOA is a new take on the advertising pillars that goes way beyond the advertisement capabilities of the predecessor. While keeping the base shape of a pillar, our new take contains functions and technology that breaks the cold and unassuming nature of advertising pillars. Noticeable at first glance are flower petal shaped solar panels on the top. Using photovoltaic, we collect the light emitted from the sun and convert it into electric energy. The positioning on top gives us the advantage that we can maximize the collection of light, we extend that by dividing the solar panels in multiple sections, so it can be movable according to the most ideal position to the sun. These sections are connected through hinges to create a chain that makes one of eight petal shaped solar panels. These panels are also meant to be a protection of rain, direct sun light and cast a shadow to cool down from high temperatures. The top of the base pillar shape emits a green light that makes the ABOA a safe meeting point at night. Green light was chosen specifically to minimize light pollution for animals and insects, as they are less distracted and confused by it in comparison to white light. The positioning of those lights were chosen at the top of the base pillar shape to lessen the spread of the emitted light. Trees, bushes and houses are not going to be disturbed by the light because the solar panels on ABOA hinders the irradiation on them. This further ensures the protection of bats and birds. The second purpose of the panels are to create a cone shape that collects rainwater and ensures that the water is guided to the middle of ABOA so it can be filtered through natural resources such as pebbles and sand. The filtered water will be transported to a storage inside via a water pump and can be used to clean and freshen up visitors or to water nearby plants during intense heat. We wanted to make ABOA a comfortable space to be near and to make it look nature driven. The exterior of the main pillar consists of moss that is used as a fine particle filter. Moss consists of many micro-leaves that create an incredible surface to collect microparticles such as nitrogen and carbon dioxide. This results in fresh air that is emitted by ABOA. To provide a place of rest, an addition of a bench to the base shape was included. The energy that is obtained will also be useful for visitors, as they can rest and charge their mobile devices through inductive charging station build inside the bench. To maximize the usage of ABOA the open space underneath the bench will be used to grow mushrooms. These can be harvested and processed into building material for this project. The mycelium functions as a base for the moss. Therefore, the more ABOAS are build and installed, the more building material can be harvested for future installations. Another way to process the harvested mushrooms are as a food alternative. To further develop the advertising pillar and make it more future proof we included two screens on the surface of the base pillar shape, surrounded by moss. These are connected to a mini computer to display useful information such as the current weather, information about the environment in which the installation is placed or to create events in which multiple installations work together to create a unique light show.

Next to the energy that is collected, we wanted to use the features to create a place to meet and feels safe in. ABOA creates the opportunity to being used as a meeting point and offers the capability for longer stays. Especially with intense heat ABOA covers all the needs to cool down and relax. As a result, people who enjoy the benefits can meet up, interact and forge newfound relationships. At night our installation offers a safe space where any visitors can feel protected and relaxed while waiting for upcoming public transit. The green light breaks the uncertainty of the darkness while not creating extreme light pollution by night. In emergency situations the installation offers to charge your phone and make needed calls in a protected environment. To bring different social classes together, we aim to offer unique and accessible light show that can be created via the green lights and screens on every ABOA. The filtered rainwater is offered to anyone, regardless of social and economical status to help those in need.

## US Sustainable Development Goals

### 1. Zero hunger

The harvested mushrooms, which grow under the benches of our installation can be processed into food to nourish people in need.

### 2. Clean water and sanitation

We offer free filtered rainwater for anyone who want to clean of freshen themselves up. Our installation combats the lack of a basic human need that is water.

### 3. Affordable and clean energy

We obtain far more energy than we use in our installation. We offer the excess energy as an affordable alternative.

### 4. Industry, innovation and infrastructure

Our installation combines multiple technologies in a new way.

### 5. Sustainable cities and communities

Urban spaces are changing in the future; we offer a new way that is future proof that can be part of sustainable societies.

### 6. Responsible consumption and production

Part of our installation is made from mycelium that is grown on our installation on itself. Therefore, we use a sustainable building material with direct access and with multiple processing possibilities of the mushrooms.

### 7. Climate change

Our combined technology limits the increase in global temperatures by using sustainable energy, while also creating a clean environment with filtered air and rainwater.

Usage per ABOA	Per day	Per year
Educational screens	8,8 kWh	3.212 kWh
Waterpump	0,06 kWh	21,9 kWh
Wireless chargers	0,012 kWh	4,38 kWh
Lamps	0,24 kWh	87,6 kWh
Mini computer	0,072 kWh	26,28 kWh
Electric hinges	0,25 kWh	91,25 kWh
<b>Max. power consumption</b>	<b>9,434 kWh</b>	<b>3.443,41 kWh/year</b>
<b>Max. power generation</b> Module Solarwatt Vision 60M style (370 Wp)	<b>21,34 kWh</b>	<b>7.789,1 kWh</b>
In comparison 4 person household	10,958 kWh	4.000 kWh

#### Environmental impact

##### Building materials

The mycelium which is an integral part of our installation is grown on the installation itself. With the growing number of ABOAs the more building material can be harvested and used for further installations. The moss can be easily grown and does not need intensive preparations.

##### Rainwater

The natural filter out of pebbles and sand cleans the rainwater in a way that it can be used to clean and freshen up any incoming visitors. Any excess water can be used to water plants during longer heat periods.

##### Energy

The energy gained through the solar panels is used to operate all mechanisms inside the installation. Through the inductive charging station any visitor can charge compatible devices with clean energy. Excess energy can be given to those in need, as there will be far more gained than needed by our installation.

##### Light

To minimize light pollution green light is used to not disturb insects, birds and bats. Residents will not be bothered by the light as the solar panels keep the light diffusion at a minimum.