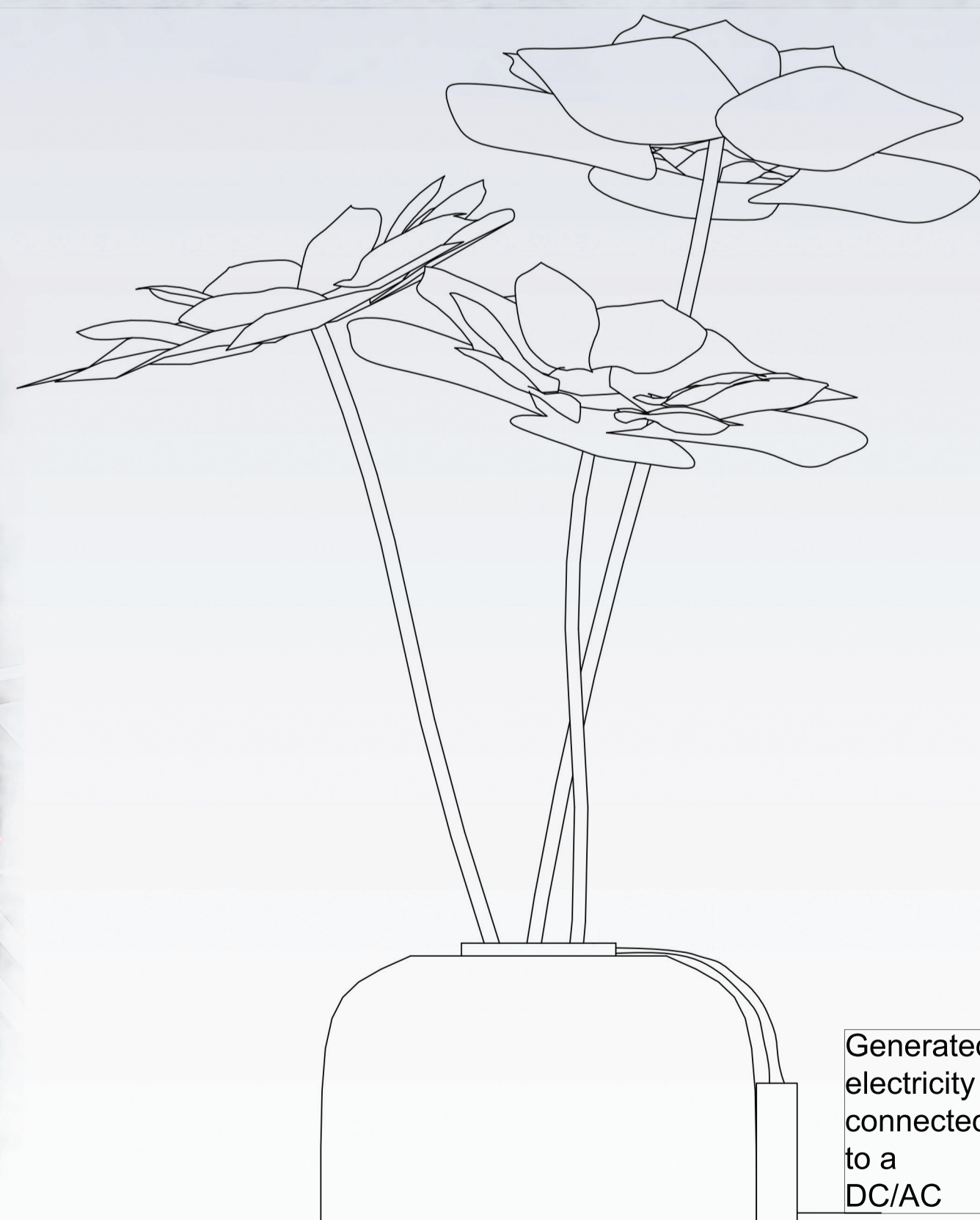
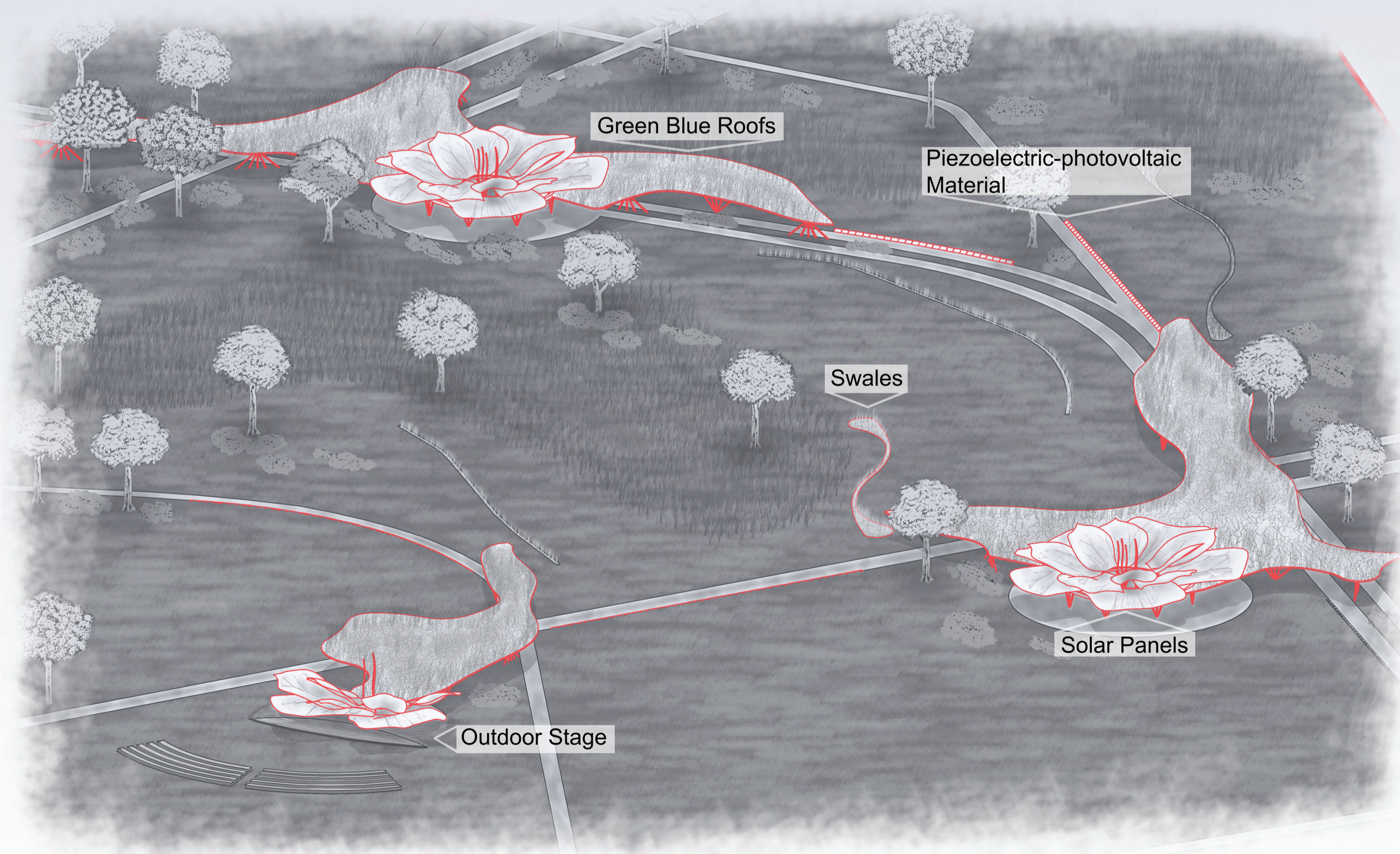
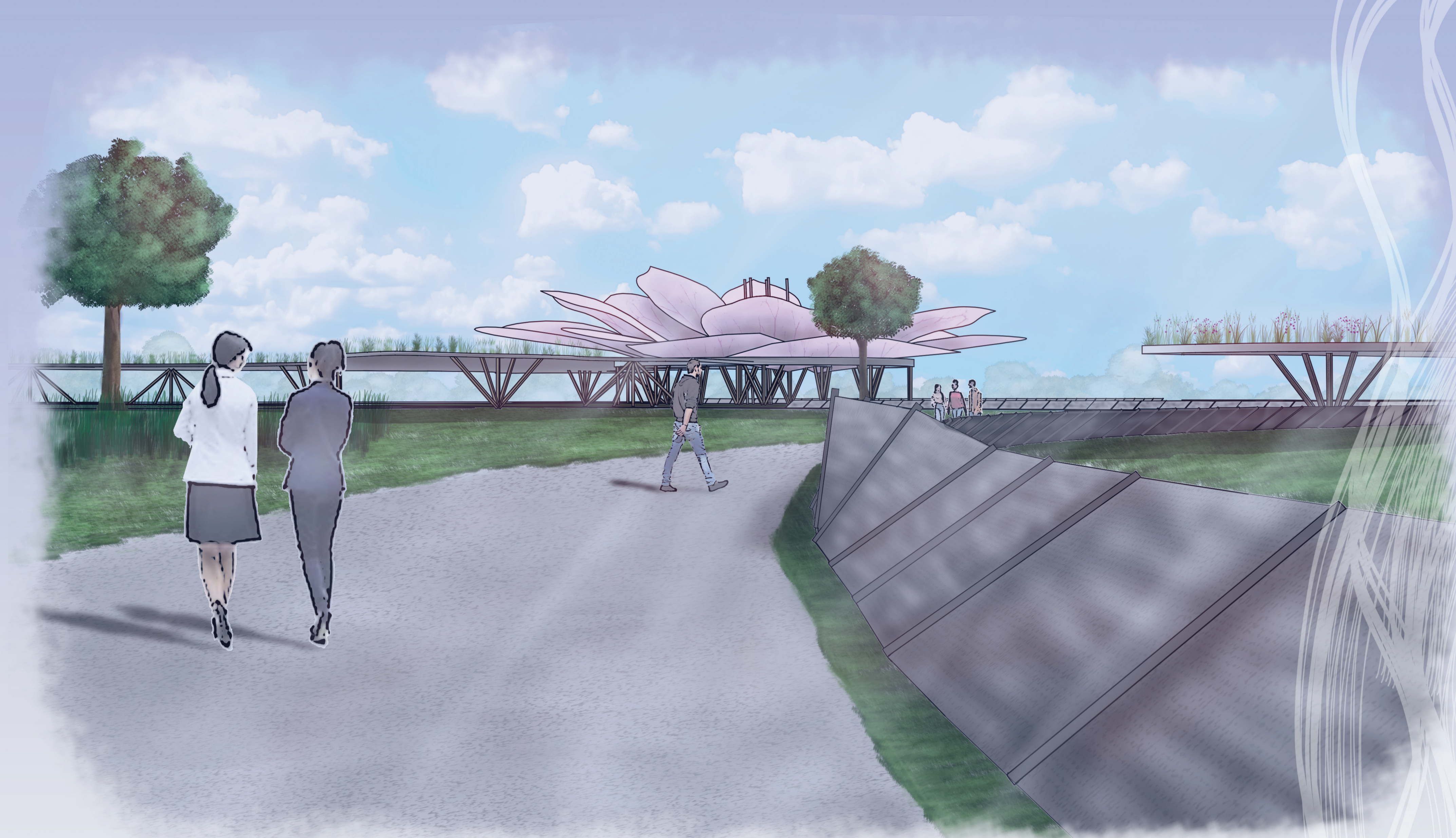


Beam holder to harvest electricity from the piezoelectric-photovoltaic material



Small scale solar design to collect rainwater

Biophilic designs embrace natural form and beauty. Shown to lead to societal benefits, it contributes to goal 3 of the UN, "Ensure healthy lives and promote well-being for all at all ages". The design embraces natural structure to explore biophilia with renewable infrastructure. Inspiration behind this design is the floral form, from the petals which capture the sun, to the drift of the leaves in the wind. The aim was designing for urban climates and to integrate the design into the landscape. An artwork to represent the balance of design and science within Mannheim's park is a very fitting, in relation to the city's historical scientific achievement.

This design uses piezoelectric-photovoltaic hybrid materials. Piezoelectric fibres convert mechanical energy into electricity, it works better when wet as it improves contact between each fibre. This makes it suited for existing environmental conditions, generating an annual capacity of 125MWh. The diversity in electric generation increases reliability when the main source of energy is dependent on the inconsistent weather, intensified in the urban realm. This contributes to the UN goal 7, "Ensuring access to affordable and clean energy". The fabric attaches to linear poles which transfers electricity underground. It also allows for movement, attached to a pivot at the base, to increase public engagement through the use of motion. This connects the green corridors of the park with the renewable energy sculpture.

There is minimal impact on the wider area of the instalment due to its smaller scale. This makes it suitable and easily applicable, allowing for diversity in how this can be implemented into any landscape, through the use of microgeneration. It helps evolve the urban system to reduce reliance on natural energy sources. Microgeneration can be implemented throughout the urban realm, achieving UN goal 12, "Ensure sustainable consumption and production patterns". Small scale generation of energy within households or communities where there is increased efficiency and no distribution of costs would be beneficial, environmentally and economically.

# First Rays Of Spring

