



Micro Comfort Sphere

Franklin Square, Washington, D.C.

Designer: Chanon Wangkachonkai

American novelist and author of Moby Dick, Herman Melville's commentary concerning the perception of homelessness in Poor Man's Pudding and Rich Man's Crumbs (1854) inspired my advocacy for social change. *"Of all the preposterous assumptions of humanity over humanity, nothing exceeds most of the criticisms made on the habits of the poor by the well-housed, well-warmed, and well-fed."* Melville's comments on how groups with direct access to food, housing, and heating disparage those without. This sentiment sparked my imagination as I started to consider how I might use my knowledge to help alter the perception of and improve the overall well-being for the homeless? I want to find out how to manipulate micro-climate as public facilities in urban public space and support the homeless people. This question led to the design of Micro-Comfort-Sphere, which I created in Fall 2015 with the guidance of professors and award winning designers at Rhode Island School of Design in Providence, Rhode Island.

Coupling my knowledge of environmental science and expertise in Landscape Architecture, I developed a blueprint for microclimatic public facilities for the homeless. My primary goal attempted to address the lack of public service assistance given to the homeless. I used an urban park called Franklin Square (Washington, D.C.) as a testing ground to explore microclimate manipulation. While visiting D.C in winter season and also spring season, I had the opportunity to see Franklin Square in the winter and spring seasons and noticed how the space serves as a popular destination for the homeless population in all kinds of weather.

The investigation into human factors and ergonomics revealed key issues relating to physical health, specifically the differing thermal sensations and/or regulations the human body experiences when in contact with softscape or hardscape material surfaces. It also tracked and analyzed environmental heat loss and gain, in addition to the tactics typically applied by humans to dissipate heat. Secondly, it looked at mental health, focusing on brain chemistry associated with physical activity and human interaction.

The project design is based on two theoretical studies of wind movement; first study is the focus of air moving from high to low pressure. Second study is thermodynamics – the relationship of heat transfer between substances by radiation, conduction and convection - which can enable a comfortable environment in chosen areas. The



design strategy is to manipulate temperature in certain areas by using landforms as obstacles to collect wind and create an eddy formation in-between two mounds. It also creates curvilinear stone walls and uses internal rock inserts within mounds for heat absorption and release.

Together, these strategically constructed landforms and stone walls form a thermal control system in the park. There are three typologies of thermal mounds, differing only in response to privacy concerns. The difference between each thermal mound is size and capacity for people's occupation of occupants. This design proposal creates several subspaces with specific but connected functions, rather than the typical multi-use common area. These subspaces support different community needs rather than relying on a "one-size-fits-all" attitude. Additionally, within each thermal mound is an installation of stone wall, acting as both a slope stabilizer and as a supportive structure to build-up the mound. As a material choice, stone allows heat absorption and accumulation from heat sources and the release of heat to the air during the night, thus helping create multiple microclimatic comforts for park users. In turn, these accumulations enabled by solar radiation and fluid, are used to transfer heat to piped water from underground subway ventilation shafts to above the ground as found in sections such as the eddy formations.

The project also considers brain chemistry as related to human activity, concretizing it in the form of an outdoor fitness center and jogging track. Exercising outside offers many mental and physical health benefits. It encourages social engagement, which the outdoor fitness circuit hopes to achieve, by helping connect the homeless and non-homeless, showing that they can occupy the same spaces and build understanding between each other.

In the 21st century, we are grappling with the problems of climate change, which will increase the threats of extreme weather and uneven seasons. The consequences of these problems are dangerous for the people forced to live outdoors. They will suffer most from incidences of hypothermia and hyperthermia, the balance between the body's heat production and heat loss. Most people think homeless people are a negative part of public space, because most people do not consider them as relevant members of the public. This is why homeless people are denied from the society and in many big cities worldwide, power players use architectural strategies such as spiked floors or armrests within benches to deny them the ability to rest.

The outcome of this project will be a proposal for public facilities that



provide both increased opportunities for physical comfort and societal engagement. This project demonstrates a type of landscape architecture design strategy that finds grounding in scientific experimentation and other concerns about human and environmental sustainability in order to improve environmental climate, socio- cultural connections, and quality of life.

Moreover, the future of public spaces must be concerned about social equity as a matter of fairness and justice. The project recognizes the issue of homelessness as one caused by low availability of finances and adequately-priced housing. Thus, in my role as landscape architect to uphold the health, safety and welfare of ALL people, I hope this project spurs new approaches to public space design that supports short term and long term human health, wellness and thermal comfort. Finally, this project seeks to eliminate the invisibility of the homeless in society - especially public spaces - and challenge the non- homeless to understand the living needs of city residents who live differently.

#Socialequity