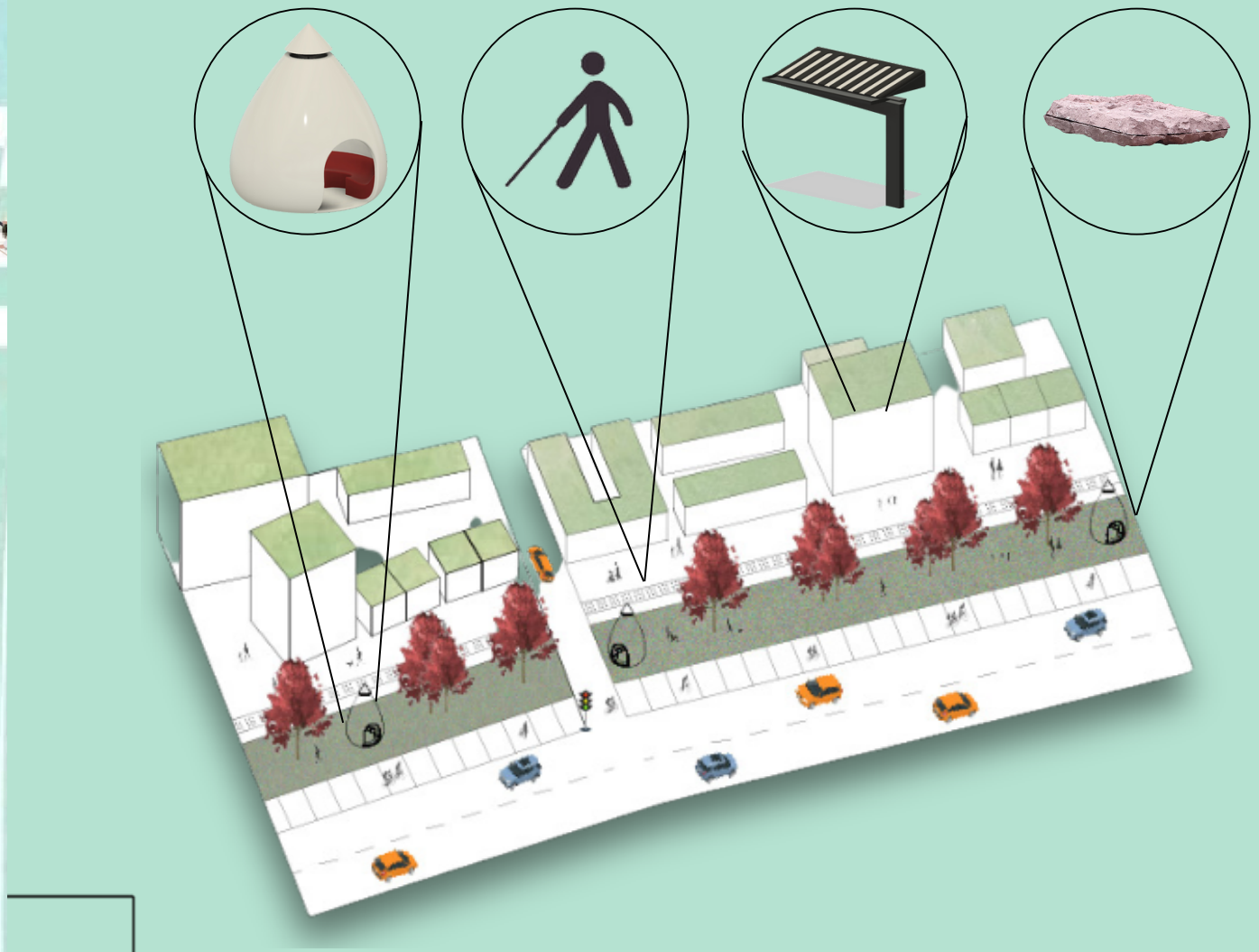
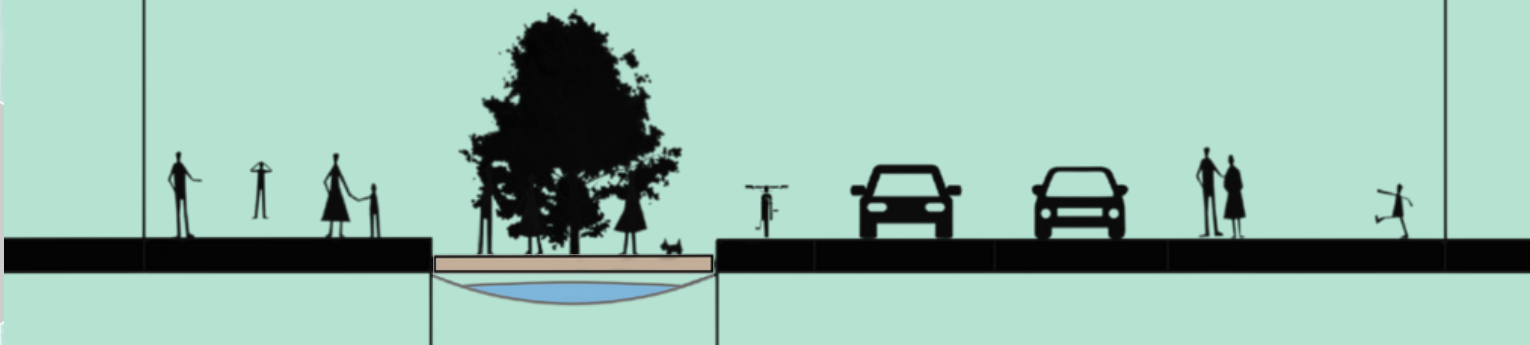
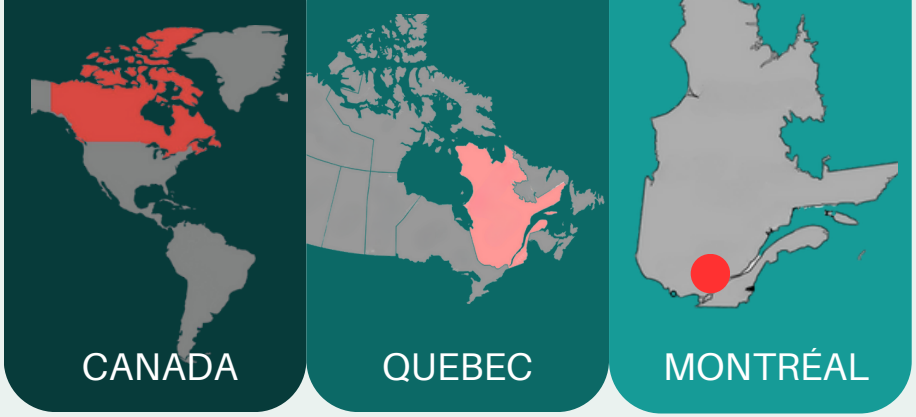
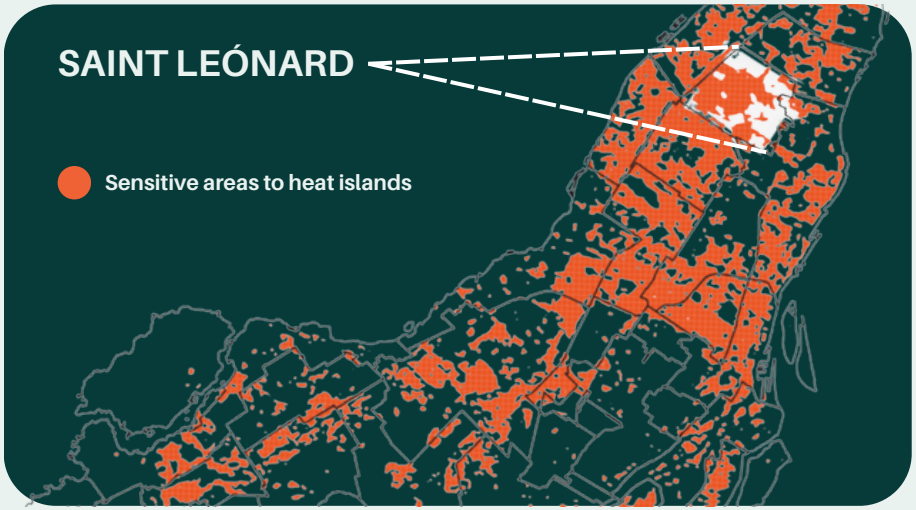
KEEPING MONTRÉAL AS AN URBAN OASIS









SUPERMARKET

COLECTIVE PARKING

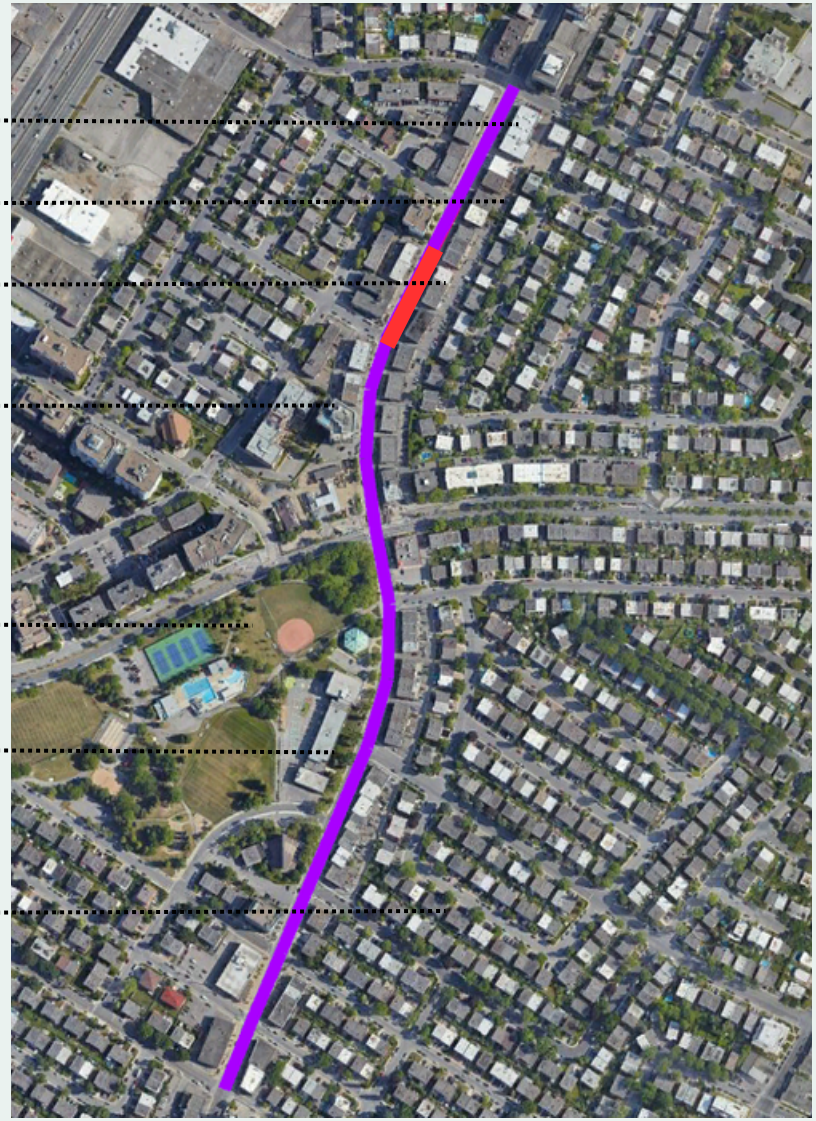
RESTAURANTS

NATIONAL BANK

LADAUVERSIERE PARK

PRIMARY SCHOOL

RESIDENTIAL



Section of the challenge street

Entire Jean Talon Street

- Vertical land use mixity (commercial on ground floor and residential on the upper floors)
- Transparent commercial windows
- Sidewalk of 4 to 6 meters
- Absence of trees and green spaces on the street section
- Urban furniture
- Presence of some commercial terraces
- Street parking available on both sides

ITS 2075...

HOW DO WE SAFEGUARD MONTREAL'S RESIDENTS FROM URBAN HEAT ISLAND EFFECTS?

WHAT ARE URBAN HEAT ISLAND EFFECTS?

Urban Heat islands are areas that have higher temperatures than surrounding areas. Buildings, roads, and other infrastructure in these areas absorb and release more of the sun's heat compared to natural landscapes like forests and bodies of water.

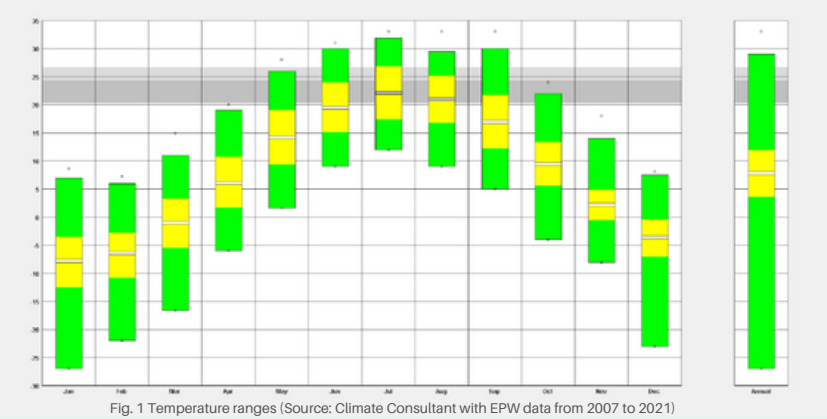


Fig. 1 Temperature ranges (Source: Climate Consultant with EPW data from 2007 to 2021)

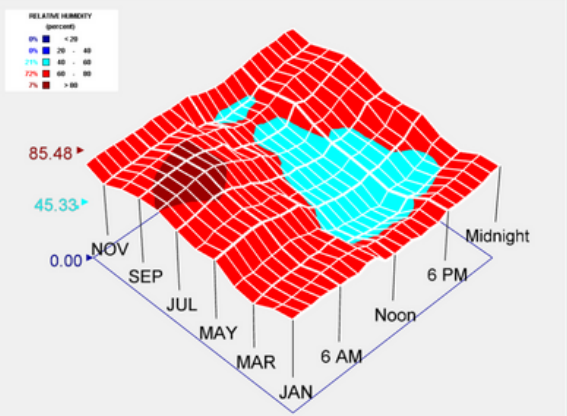


Fig. 3 Annual Relative Humidity (Source: Climate Consultant with EPW data from 2007 to 2021)

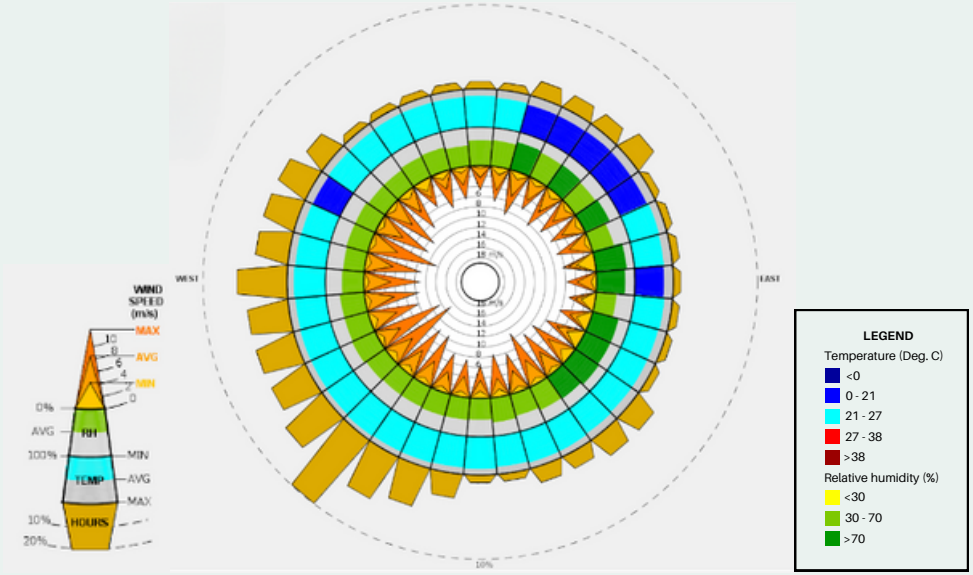
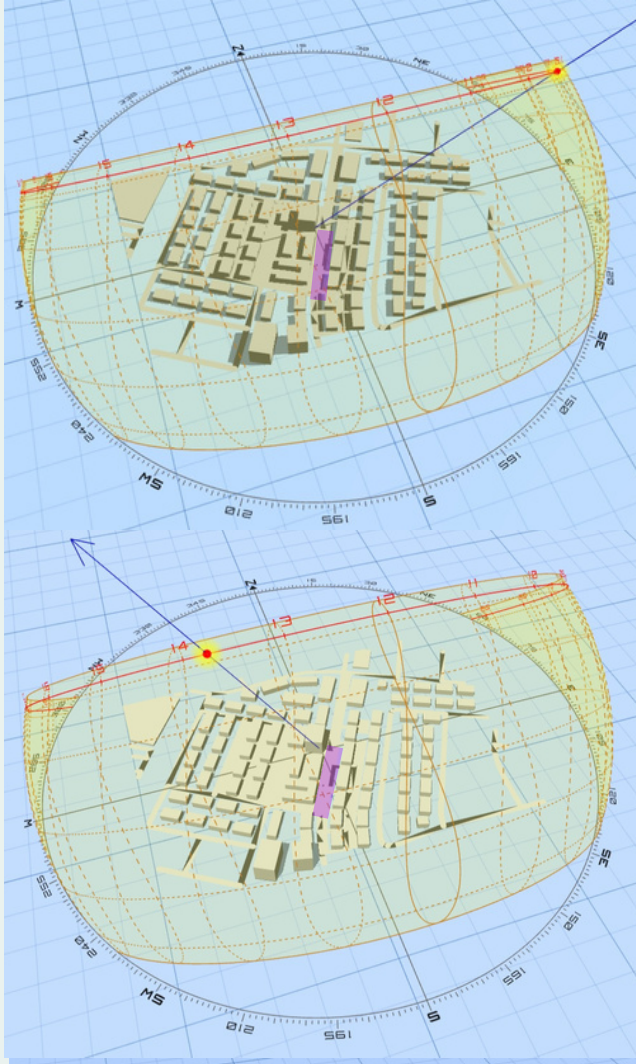
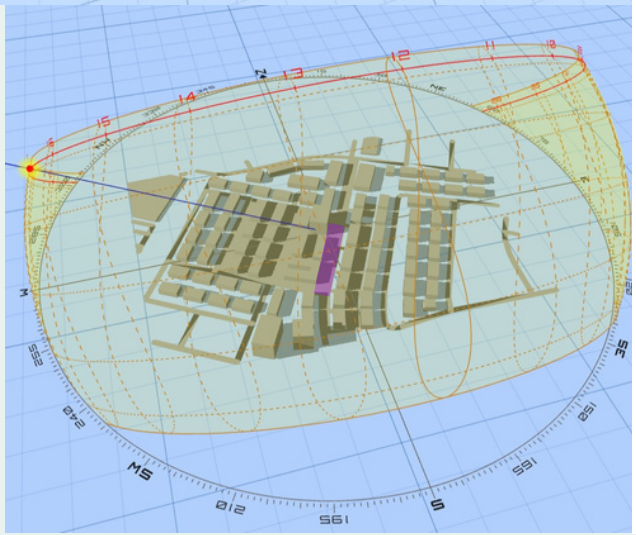


Fig. 2 Prevailing winds from June to August (Source: Climate Consultant with EPW data from 2007 to 2021)



July 2023 | 9:00am

July 2023 | 2:00pm



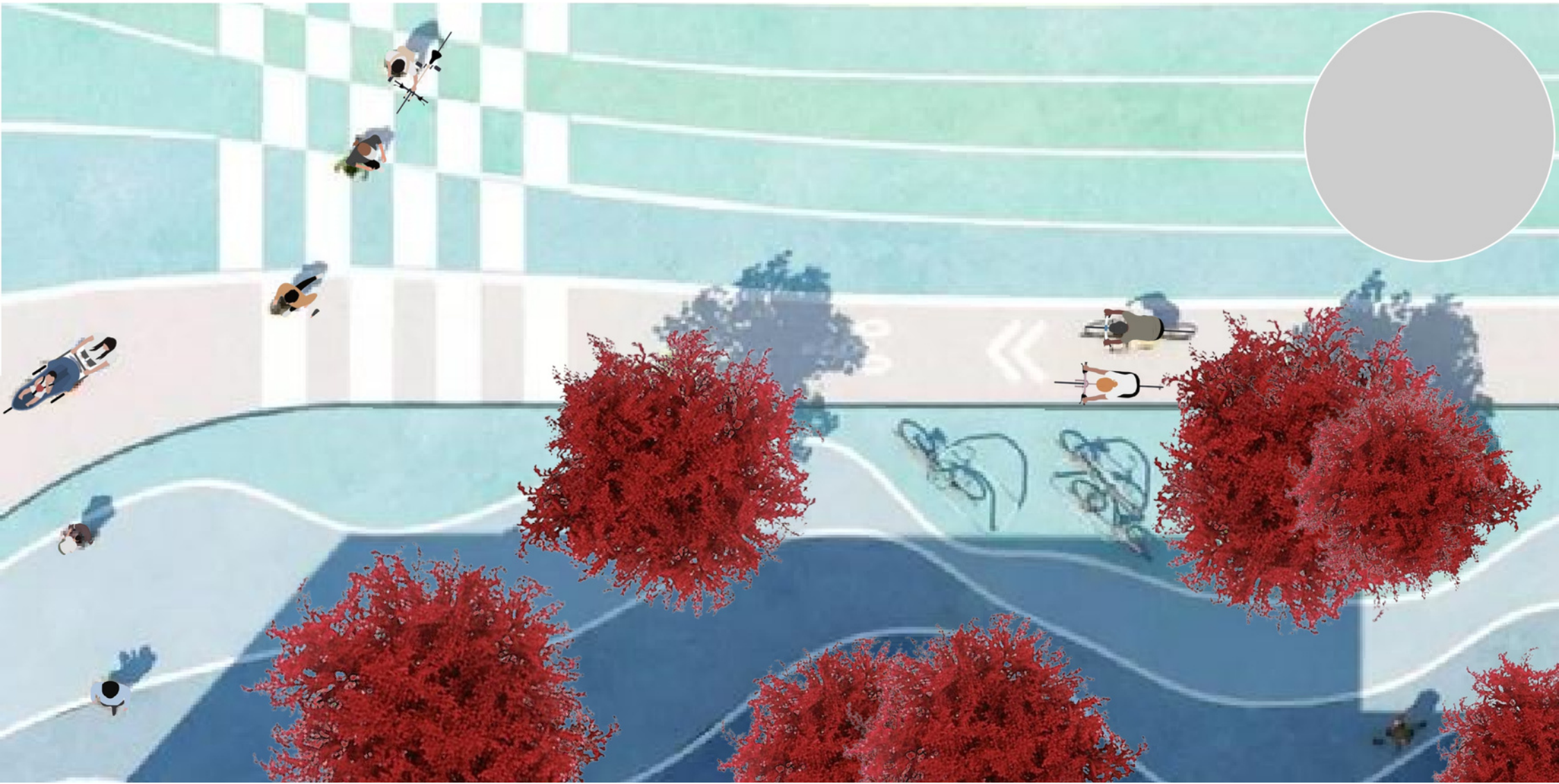
July 2023 | 5:00pm

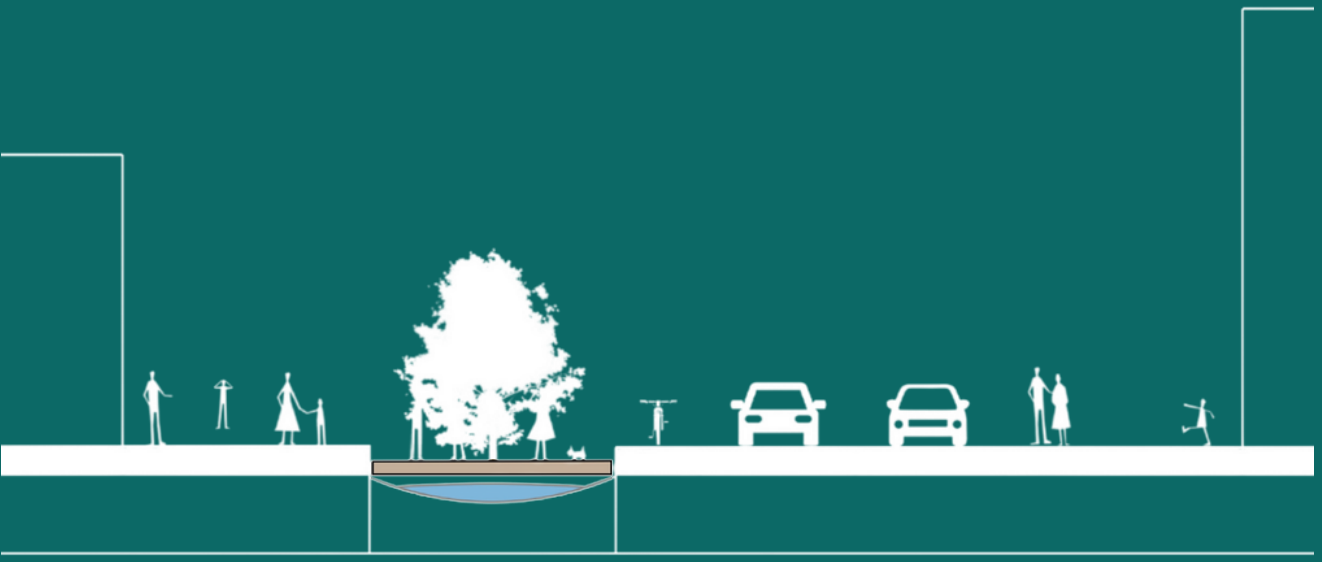
VISION

Identify and prevent possible future scenarios within 50 years where climatic conditions are more extreme and urban design strategies can be implemented to rearrange streets, focusing on pedestrianism and general comfort when traveling.

DESIRABLE EXPERIENCE

Generate memorable tours through the senses, which invite users to go through each module until maintaining security, culture, interaction, rest, thermal comfort and even unique memories.



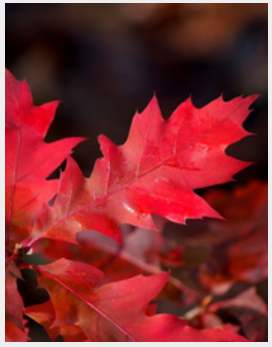


The primary issue on the streets of Montreal is the occurrence of severe heat waves affecting the population. These are primarily attributed to the numerous "heat islands" scattered throughout the city. Our objective with this street design proposal is to concentrate on the future, particularly the year 2075. We are striving to speculate on the future and establish what will be considered normal in 50 years.

In order to address the escalating heatwaves, we have created a thermal refuge. The CoolDown Pod aims to implement technology inspired by Cooling Towers, which are occasionally found outside mosques.

Problem	Strategy	Solution
Lack of greenery	Walkable gardens	Street patch
Increasing heat waves	Thermal refuge	Cooldown Pod
Unused communal space	Redistribute roads	Street patch
Need for resting place	Communal space	Cooldown Pod
Lack of bike lines	Redistribute roads	Street Patch
On Street parking	Redistribute roads	Sunken curb
Car Dependant	15 Minute City	Street Patch
Lack of Accesibility	Tactile guides	Geothermal heating
Ice waste	Reduce waste	Geothermal heating
Excess Water	Reuse	Street Patch
Lack of accesibility	Curved pathways	Sunken curb

VEGETATION PALETTE

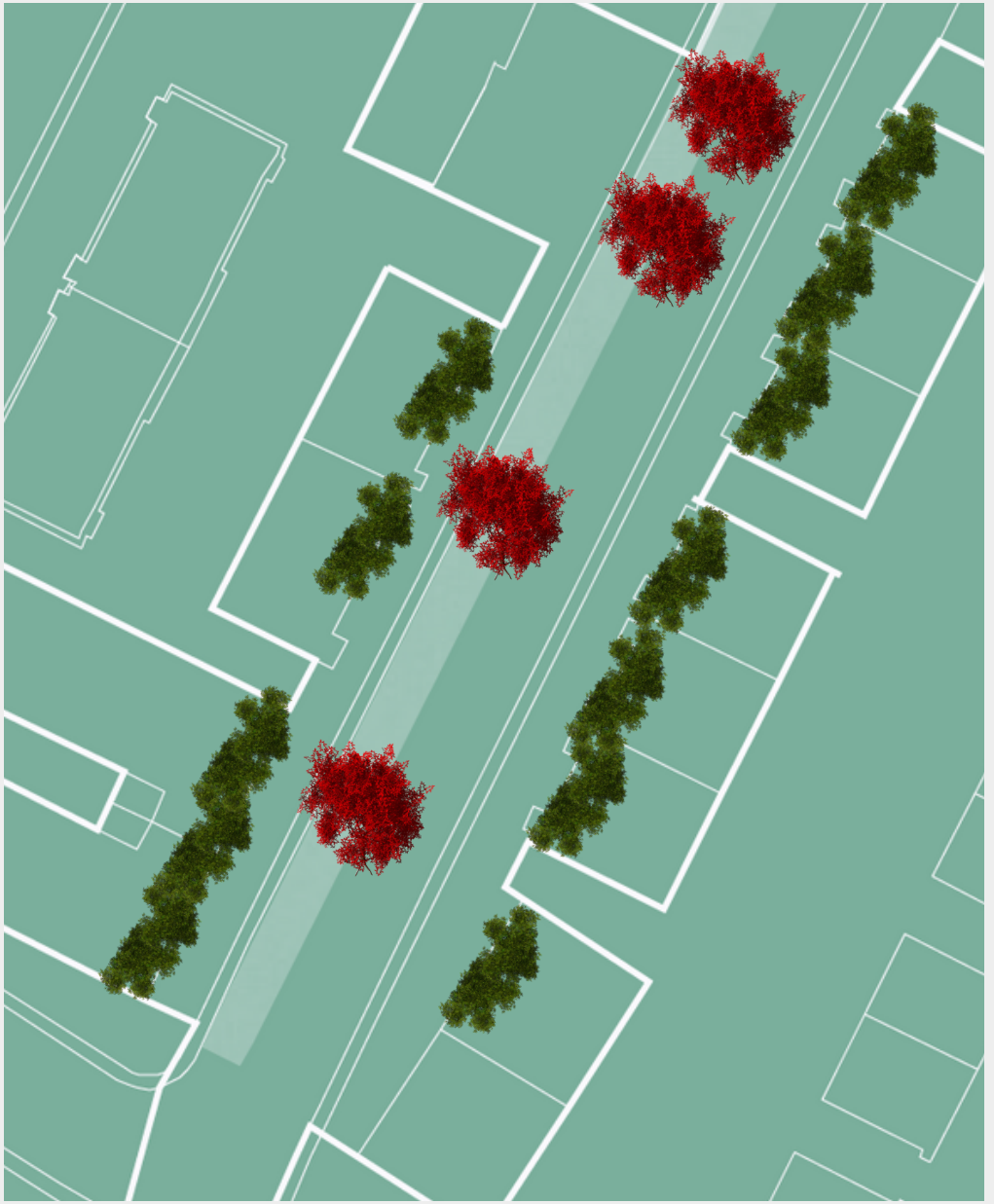


RED OAK

- Grows straight and tall, reaching 35 m in height
- Trunk up to 1 m in diameter.
- Grows quickly and is tolerant to soils of varied situations, although it prefers glacial drift and well-drained, near streams.
- The color refers to the symbolic red color of the Canadian flag.
- Deep-rooted tree that would not affect the level of the sidewalk
- Shields from the sun's rays
- Covers the impact of the sun's rays, casting shade and reducing the temperature of the area.

RED COHOSH

- It produces fetid or putrid odors purported to attract carrion fly and beetle pollinators
- The common name stinking benjamin which doen't refer necessarily to its odor, cause the smell is similar to a wet dog.
- It has a whorl of three bracts (leaves) and a single trimerous flower with three sepals, three petals, two whorls of three stamens each, and three carpels (fused into a single ovary with three stigmas).
- Mitigates the impact and reflection of the sun's rays by its closeness to the ground.



Implmentation of roof garden to get fewer heat waves inside buildings and absorb humidity from snow

COOLDOWN POD

The material used to build the structure would be LUMUS™, a 3D printed material made by Mighty Buildings, meant to be 30% lighter than concrete with 5x tensile properties.

Water, mold, mildew, and insect resistance
Superior material characteristics and UV protective coating

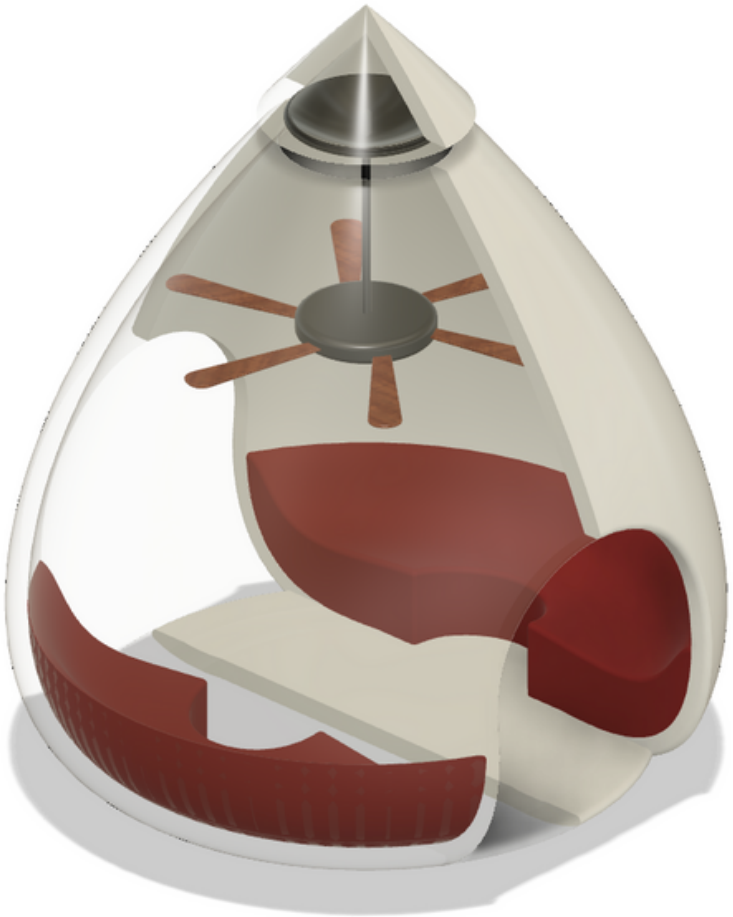
High velocity hurricane resistance
Hurricane wind resistance, 4-5x more flexural and tensile strength than concrete

Class A surface burning characteristics
Self-extinguishing material with Flame Spread Index 5 and Smoke Developed Index 10

Expected building lifespan 50+ years
Evaluated by EAD standard: EAD 040287-00-0404

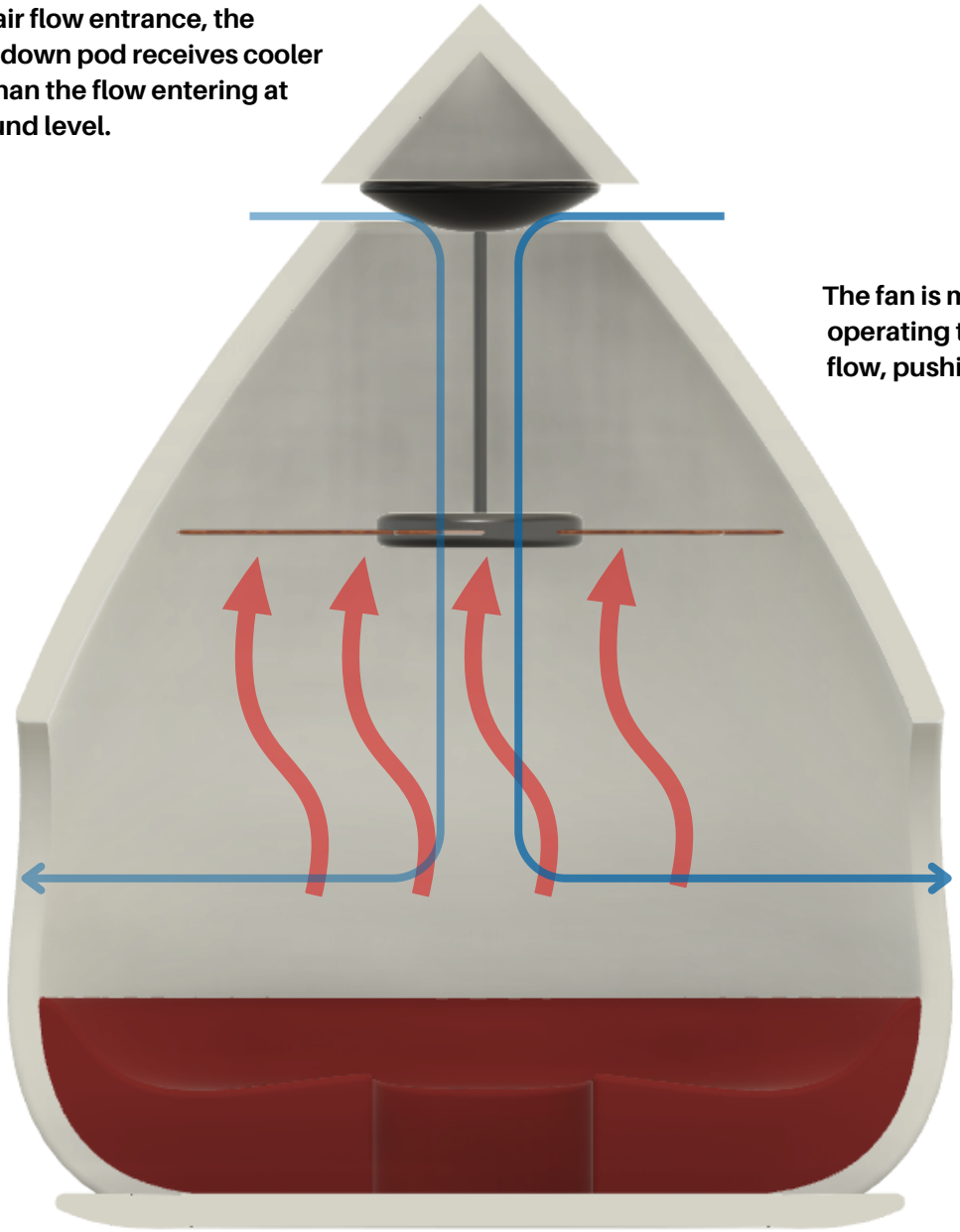
Highly insulated and soundproof design
>18 R-value for 7"-thick, insulated 3D-printed panel

Earthquake resistance
Evaluated accorded to ICC-EO AC156



*see through for presentation purposes

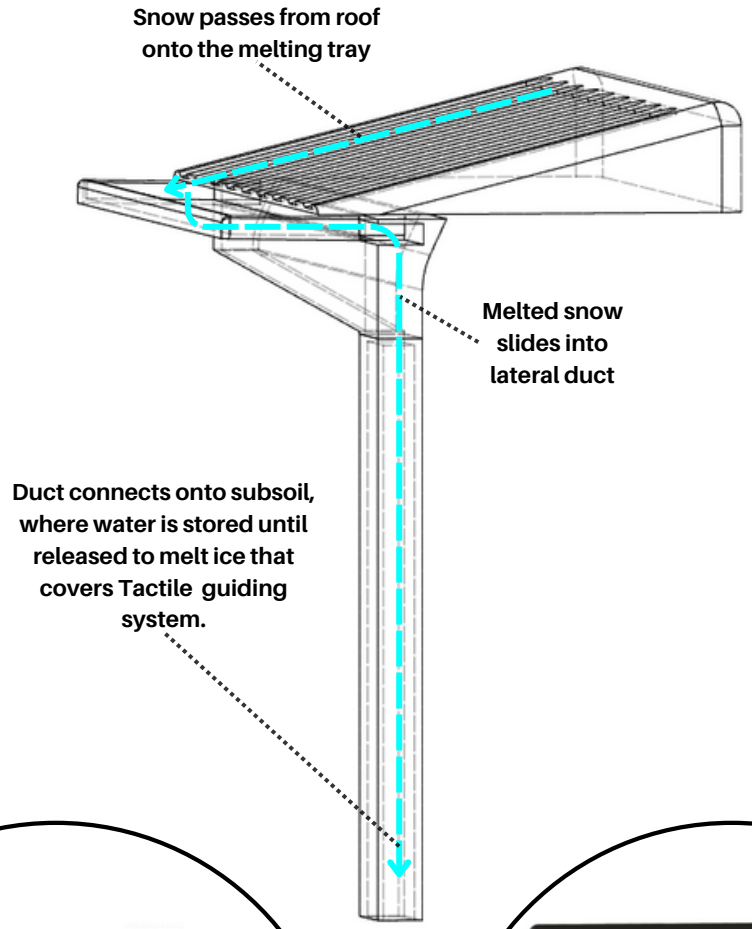
Due to the higher altitude of the air flow entrance, the cooldown pod receives cooler air than the flow entering at ground level.

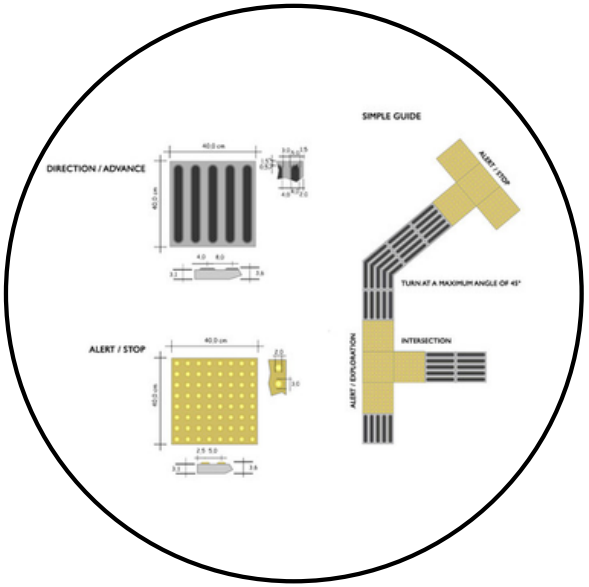


The fan is meant to be operating through air flow, pushing the hot air out.

Due to the exchange of air flow, the pod manages to cool things nearby at ground level.

Geothermal Heating





QUARRY PAVING

There are several advantages in locations with cold winters like Montreal. Firstly, its porous surface enables water to seep through, lowering the risk of ice build-up and puddles. Additionally, the quarry material tends to withstand extreme temperatures and the salt used for ice removal, thereby extending its durability.

The light color of the surface tends to reflect sunlight rather than absorb it, minimizing heat retention compared to darker surfaces. This contributes to maintaining cooler temperatures in the urban environment, creating a cooling effect.


CLUB UOMO
2023


2075
30