

# THERMOSHIELD

03

Improve Public facilities for livable city

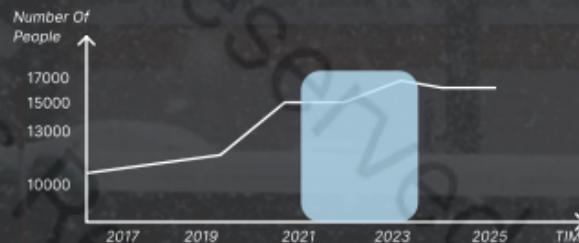
Personal Project

2023.4-6

In response to the **escalating frequency and severity of extreme weather events**, this project introduces a manual thermal insulation module for public bus stops. Designed to combat the cold during blizzards and heavy rains, this innovation aims to **safeguard commuters—especially the vulnerable elderly population— enhancing the usability and appeal of public transportation** in New York City during adverse weather conditions.

## ■ BACKGROUND

- Why I choose this direction



TREND CHART :  
The number of death in winter

**Summary:** Due to the increase in extreme weather caused by global warming, From December 2021 to March 2022, the number of deaths increased by 13400.

Frostbite

Dementia

Alzheimer's  
Disease

Keyword : diseases caused by cold

It Was Found That The Mortality Rate In Winter Is 8% To 12% Higher Than That In Non Winter, Because Cold Can Exacerbate Pre-Existing Diseases Such As Heart Disease, Leading To An Increase In Mortality Rate. Especially For Vulnerable Groups, Increasing Winter Protection Measures Is Crucial.

## ■ RESEARCH

- Where location can cause death in the winter



Summary : there are a large number of people death near the transport line in winter.

## RESEARCH

### • Define of hyperthermia



### • Analysis

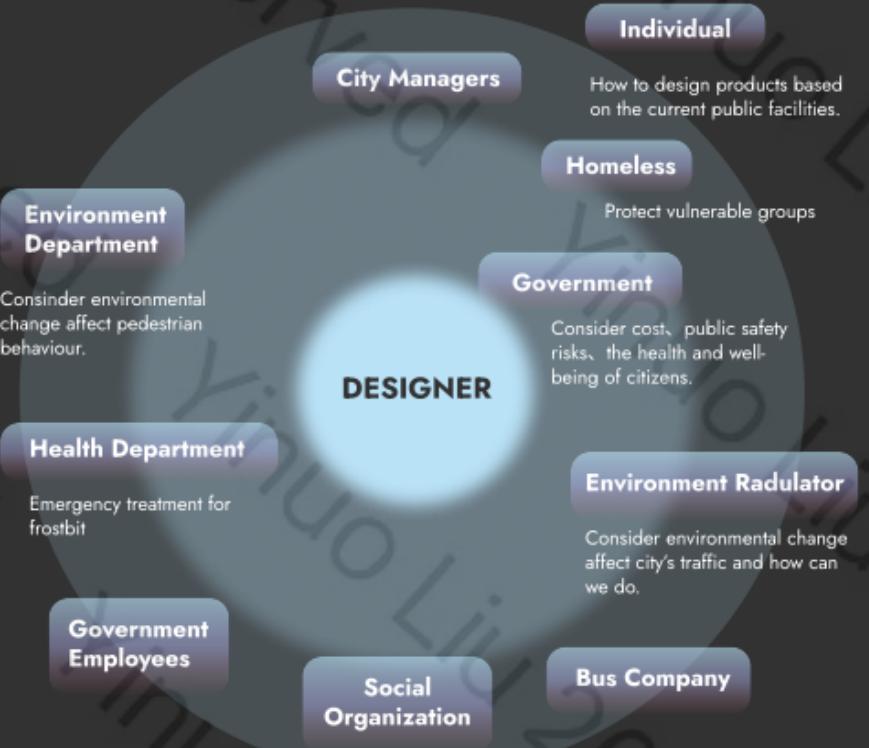
Target Group: Elderly, Children, Chronic Disease Patients, And Homeless

#### Existing Response Measures:

Most Existing Measures Focus On Prevention, Warning, And Emergency Response, Rather Than Providing Variable Public Facilities To Directly Protect Pedestrians Affected By Extreme Weather Conditions

Mild hypothermia can cause trembling and mental confusion.

## STAKEHOLDER MAP



**Summary:**By analyzing the expectations and needs of core stakeholders. My design needs to pay attention to the following points:

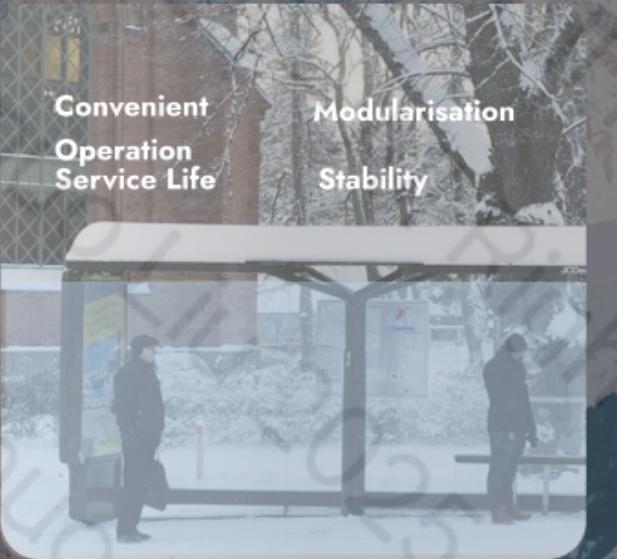
1. How to prevent urban residents from experiencing hyperthermia during their travels?
2. How to facilitate worker installation, disassembly, and maintenance through shed?
3. How to choose materials to reduce costs?

## SUMMARY

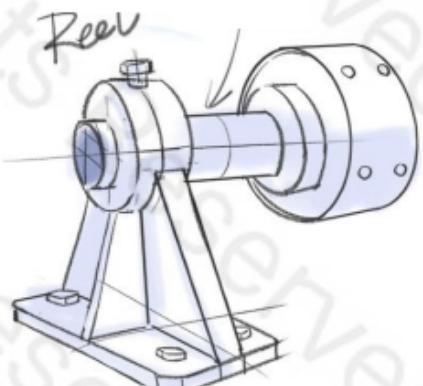
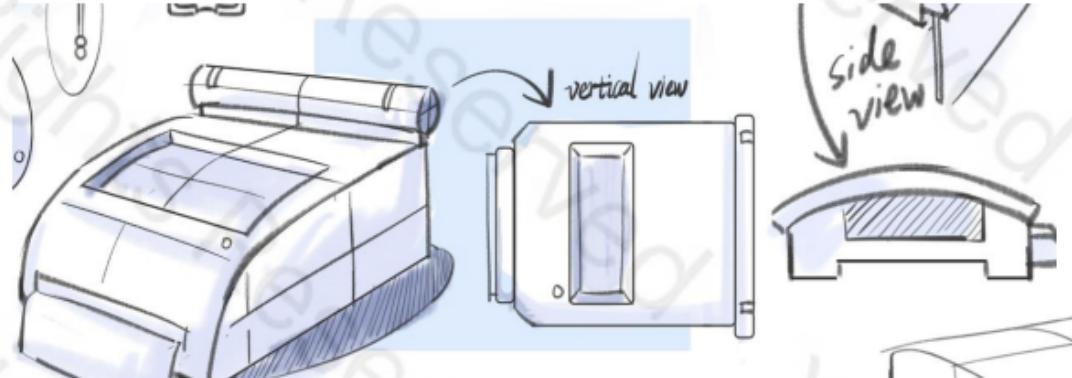
### Design Direction

By adding insulation modules to the existing bus stations, residents can avoid the phenomenon of hypothermia and reduce costs while driving.

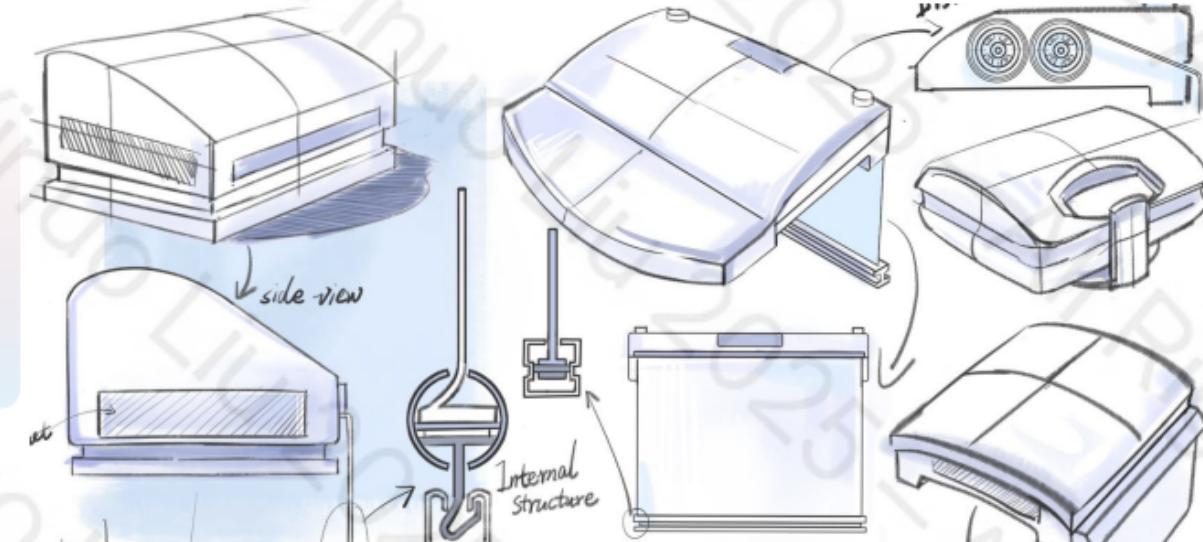
### Design Point



## HAND DRAWING



Due to its forward-leaning arch design, rainwater or snow will not collect on its surface, hence greatly benefiting the durability of the casing and extending the life of the product



I have designed various versions of this curtain after understanding .

The setup process by the municipal authority and use by the end-user in a simple way. This **human-centered approach** ensures that the **product is accessible and even user-friendly**.

## MATERIAL



### Emergency Thermal Blankets

Metalized Plastic Films  
Designed To Retain Body Heat  
And Provide Protection In  
Various Emergency Situations.



### PVC Curtains

They Allow For Easy Passage  
Of People And Vehicles While  
Blocking Cold Air And  
Maintaining Interior  
Temperatures.



### Heavy Thermal Fabrics

These Materials Can Trap Air Within  
Their Fibers, Creating A Barrier That  
Retains Warmth And Reduces Heat  
Loss. Ideal For Both Residential And  
Commercial Settings.

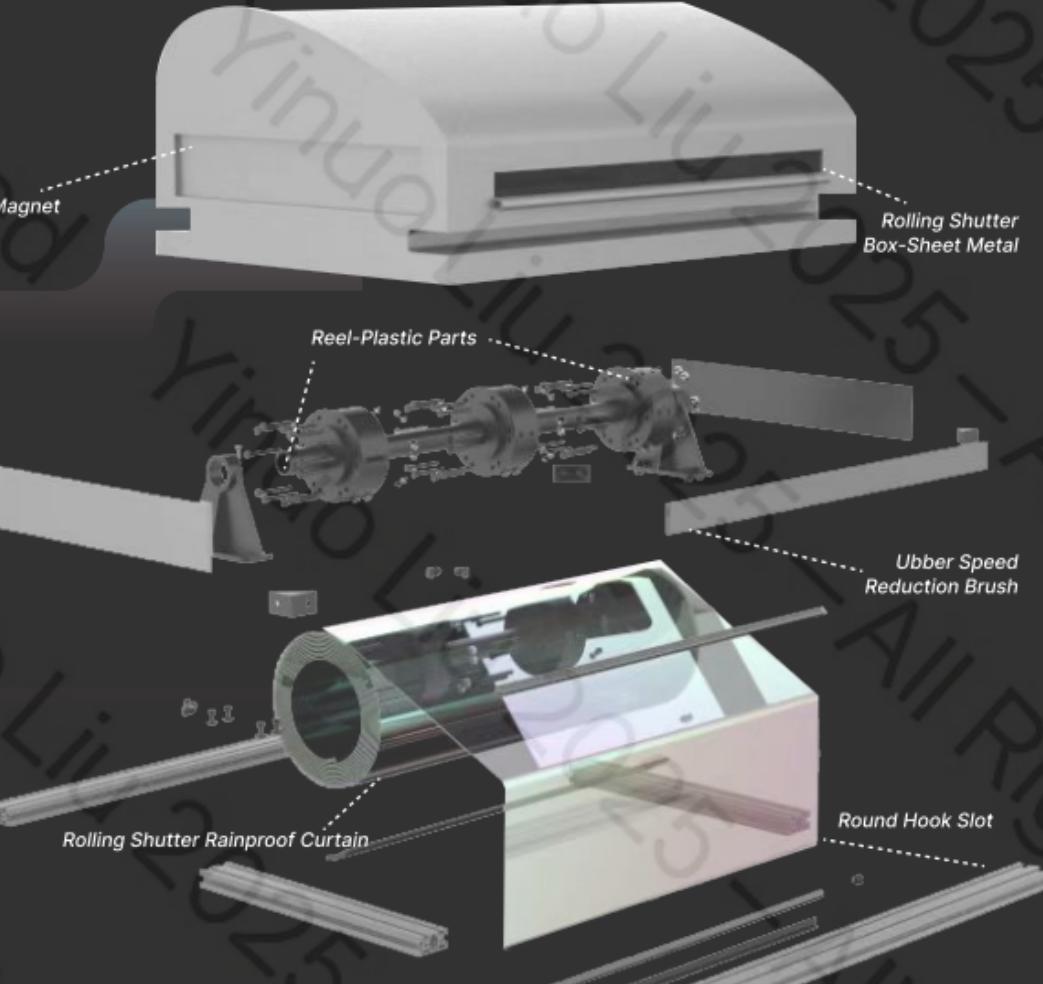
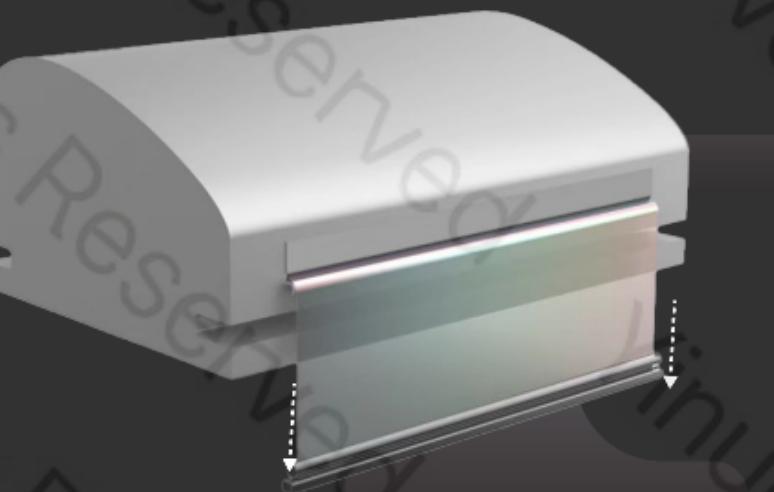
#### Advantages:

1. Lightweight: Easy To Fold And Store.
2. Reflective: Reflects Up To 90% Of Body Heat, Preserving Warmth.
3. Waterproof And Windproof: Offers Protection Against Rain And Wind.
4. Cost-Effective: Affordable Addition To Safety And Emergency Supplies.

#### Disadvantages:

1. Durability: Thin Material Can Tear Easily If Not Handled With Care.
2. Noise: Material Can Be Noisy, Which Might Be Inconvenient In Certain Situations.

## EXPLDED VIEW



ThermoShield, our innovative emergency insulating curtain, **enhances comfort and safety at bus stations during severe weather like heavy rain or cold.** Installed above waiting areas, it quickly deploys to trap heat and provide immediate warmth and shelter.

Its durable material withstands various weather conditions without losing performance. To use, **simply pull it down, secure it into a ground groove,** preventing swaying and ensuring a snug fit for optimal heat retention and protection, making it crucial for keeping commuters warm and dry.

## THERMOSHIELD



## AMBITION



We plan to boost public transport safety and comfort by installing emergency insulating curtains at bus stations for protection against extreme weather. This quick-deploy solution offers immediate warmth and shelter, enhancing commuter experiences. Our goal is to expand this product globally, ensuring a safer, more comfortable wait for transport in any weather.