DES502

Transit Shelter Project

1st Meeting- Our Research To Date

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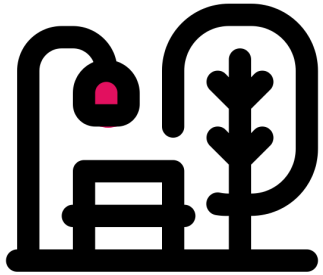
CONTENTS

PROJECT DESCRIPTION

Propose a design solution for the Telus bus shelter that maximizes comfort for all people while addressing safety concerns.

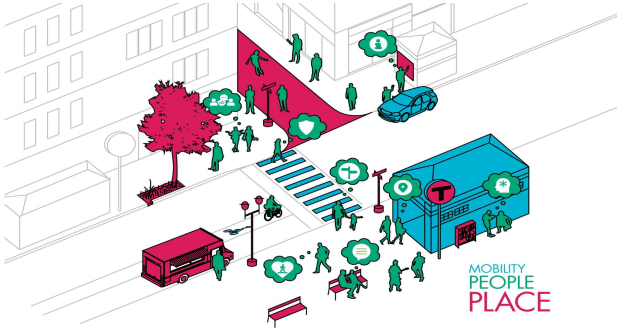
01 - RESEARCH

DEFINING “PUBLIC REALM”



DEFINING PUBLIC REALM

- The public realm is defined as the publicly owned places and spaces that belong to and are accessible by everyone. In this realm, people are encouraged to interact. Shapes our relationship with our surroundings. In doing so, the public realm establishes a community identity, local character and a sense of place for everyone



DEFINING PUBLIC REALM

Public realms can facilitate:

Human Interactions	**Community Identity**	**Sense of Place**

The quality of a public realm can affect:

Livability	**Attractiveness**	**Safety**

History of Public Realm

- The beginning of public spaces takes place in Greece. The Greek Agora was a public realm which was located right at the center of the polis and acted as a focal point of the town.

- The area worked as a social gathering space, market, and for political gatherings also. Like every other public space, the Greek Agora had the best representation of social, political and economical importance. A sacred road run right in the middle of Athens which serves as the travel route for the religious panathenaic festival.

PUBLIC REALM IN CONTEMPORARY SOCIETY

- Increasing demand for more and diverse public spaces, especially in dense and compact urban areas

- Growing complexity and diversity of public space users, who have different needs, preferences, and expectations for the public realm

- Versatility in the use of public space and its ability to adapt to changing context ensures longevity in the use of that space

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01 - RESEARCH

DEFINING
“HOSTILE ARCHITECTURE”

DEFINING HOSTILE ARCHITECTURE

- Deliberate design strategies employed to guide, control, or even restrict how we interact with urban spaces

Maintaining order and cleanliness in public spaces

- Ensures order
- Safety
- Curb unwanted behaviour

vs

Exclusionary practice targeting the most vulnerable user group

- Avoidant in addressing the issue directly

Generally, you would have critics around such a design for making the city look harsh or unfriendly, seen as discrimination against homelessness.

Generally, you would have critics around such a design for making the city look harsh or unfriendly, seen as discrimination against homelessness.

Quote from the gateway 2018 University of Alberta student newsletter

“Hostile design makes cities look harsh and unpleasant, especially for already marginalized populations, and the Edmonton public has had little input into whether or not this is the message they want to send.”

If we use hostile design

How might we incorporate hostile designs into the bus shelter in order to change social media's impression of hostile buildings.

HISTORY OF HOSTILE ARCHITECTURE

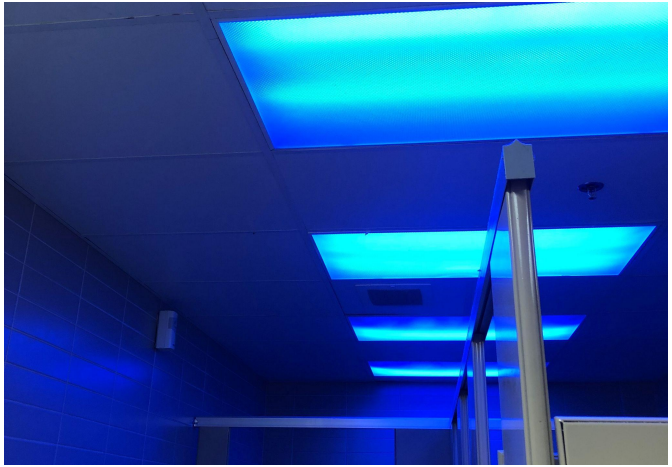
- During the 19th century, in Norwich
- Not enough public restrooms = the issue of public urination
- Resulted in walls of buildings being built with a slant to combat this issue

- Nowadays, hydrophobic paint is used to combat this same issue

EXAMPLES OF HOSTILE ARCHITECTURE

Camden benches - London, England

- Irregular curvature
- Crannyless surface



Blue lights in public washrooms

- Curbing drug use

APTA STANDARDS DEVELOPMENT PROGRAM
RECOMMENDED PRACTICE
American Public Transportation Association
1666 K Street, NW, Washington, DC, 20006-1215

APTA SS-SIS-RP-007-10
Approved June 24 , 2010
APTA Transit Infrastructure
Security Work Group

Crime Prevention Through Environmental Design (CPTED) for Transit Facilities

- **Natural surveillance.** This strategy involves reducing crime by decreasing target opportunities in a space/area by placing physical features, activities and people to maximize visibility.
- **Natural access control.** Channeling people into, alongside or out of spaces/areas and deterring entry elsewhere along the boundary are the concepts of this principle (through the judicial placement of entrances, exits, fencing, landscaping and lighting); This concept denies access to crime targets and creates a perception of risk for adversaries.
- **Territoriality.** Territoriality notifies users and non-users of the boundaries of a space/area or facility. It creates a psychological deterrent to crime by notifying users of the space/area/facility that they are being watched and that the community is the space/area/facility for purposeful activities.
- **Activity support.** By encouraging authorized activities in public spaces, the community and transit system ridership understand its intended use. Criminal acts are discouraged, and an increase in safety and security of the transit system, its operations, facilities, ridership and people are realized.
- **Maintenance.** Care and upkeep demonstrates expression of ownership for the intended purpose of the area. A lack of care indicates loss of control of a space or area and can be a sign of tolerance for disorder. Establishing care and maintenance standards and continuing the service preserves the intended use of the space/area. CPTED maintenance and care standards also safeguard the best interests of the community and transit agency where they serve.

Studies show that morning peak hours attract robberies (Block and Davis 1996; Newton et al. 2014b), assaults, thefts, public disorder (Stringer 2007; Ceccato 2018), and sexual crimes (Ceccato and Paz 2017), while Smith (1986) finds fewer crimes in the early morning hours. Research suggests that people feel unsafe during morning rush hours, especially women (Mitra-Sarkar and Partheeban 2011), which is when sexual crimes can take place (Ceccato et al. 2011, 2017). As exemplified by Vanier and D'arbois (2018b), seven articles deal with peak hours in the mornings, a time that is both "anxiety-inducing" and criminogenic. However, almost half of the papers focusing on the nighttime describe it as the time of day when most people feel the least safe, especially women (e.g. Austin 1984; d'Arbois de Jubainville and Vanier 2017). This feeling is stronger when travelers have to wait for transportation (Chowdhury and van Wee 2020; Mahmoud and Currie 2010), or when the location is associated with a particular land use, such as being near nightclubs (Gosselin 2012). Fear may reflect the risk of different crimes. For instance, violent crimes are said to be prevalent after rush hour, after 6:00 pm (Moreira and Ceccato 2020; Newton 2014), while robberies seem to occur more often late at night than in the early evening (Block and Davis 1996; Chaiken et al. 1974; Clarke et al. 1996).

- **unsafe during morning rush hours**
- **lack of surveillance and fewer patrols affect crime during weekends**

- They show that park-and-riders are willing to walk longer if they experience safer intersections, better pedestrian infrastructure, and an attractive building appearance.

02 - REFLECTION AND ANALYSIS

THE TELUS BUS SHELTER & THE CITY OF EDMONTON

ADDITIONAL CONSIDERATIONS - BUS SHELTER ESSENTIALS

1 Waiting Area. Due to the high volume of people at the bus station and diverse gatherings, it is essential for the bus shelter to have ample space. It is crucial to consider both vehicle and pedestrian flow to ensure convenient boarding and alighting for passengers.

2. Stop signs. Bus stop signs indicated the bus's driving direction and the departure time.

3. Protection. Covering all year round, the wind and rain are unpredictable. The sunshade and rain-proof roof protects passengers from the bad weather of wind, rain and snow.

4. Lighting. Many buses in the city have night buses and bus shelters. Makes it easier for passengers to see license plates and stops. Brand information.

5 Rest. The number of rest seats installed at bus stops is generally determined by the size of the bus shelter to facilitate a certain number of passengers to rest.

6. Trash cans. Adding trash cans can help passengers or citizens with the garbage in their hands, protect the environment and add urban civilization.

7. Visibility. The shelter needs to be visible and stand out from its surroundings. This allows passengers to check if their buses have arrived and also encourages passersby to provide assistance in case of an emergency.

TELUS BUS SHELTER - WHAT DOES IT DO? WHY IS IT THERE? USERS?

“Edmonton Transit Service is committed to providing safe, accessible and reliable transportation to all of our riders, with barrier-free services, programs and features that make public transit easy and convenient”

-City of Edmonton

TELUS BUS SHELTER - WHAT DOES IT DO? WHY IS IT THERE? USERS?

- Used and aimed to provide the user with information, comfort, and safety.
- Acts as protection against harsh weather conditions in Edmonton such as heavy snow storms or cold temperatures.

CITY OF EDMONTON'S POLICIES

LIVE

2.1.1.5

Develop and retrofit publicly accessible spaces and facilities to incorporate safe access for all Edmontonians.

BELONG

1.3.2.4

Improve and integrate winter city design through the development of buildings, the public realm and open spaces.

LIVE

2.1.2.2

Provide safe, comfortable and direct active transportation connections between neighbourhoods, community facilities and schools.

ADDITIONAL CONSIDERATIONS - USER GROUP

Guiding Values

The City Plan has 6 Guiding Values that articulate how Edmontonians want to experience their future city.

- I want to **BELONG** and contribute
- I want to **LIVE** in a place that feels like home
- I want opportunities to **THRIVE**
- I want more **ACCESS** within my city
- I want to **PRESERVE** what matters most
- I want to be able to **CREATE** and innovate

- “We are not designing for an abstract entity, but for human beings”

ADDITIONAL CONSIDERATIONS - WINTER CITY

- The Bus shelter can act as temporary shelter for heavy snow storms / cold temperatures
- How can the space be controlled during these weather conditions?

DESIGN BRIEF

DESIGN BRIEF

PROBLEM STATEMENT

How might we reimagine some elements of the existing space of the Telus Bus Shelter and make it safe and welcoming for all users within the city?

DESIGN BRIEF

Primary Objective

- Provide a welcoming and safe environment where users can comfortably spend their time to wait for commute

Secondary Objectives

- A design solution that addresses the city’s 6 guiding values
- Belong, Live, Thrive, Access, Preserve, Create

03 - POSSIBLE DESIGN DIRECTIONS

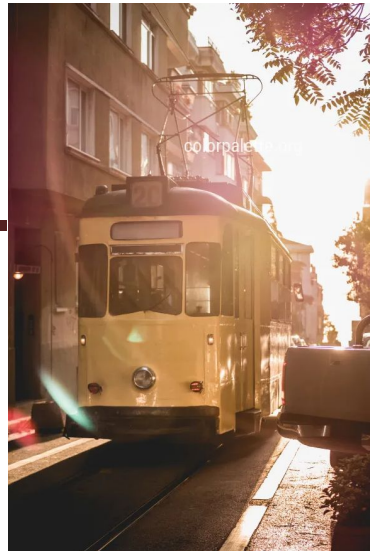
Moodboard

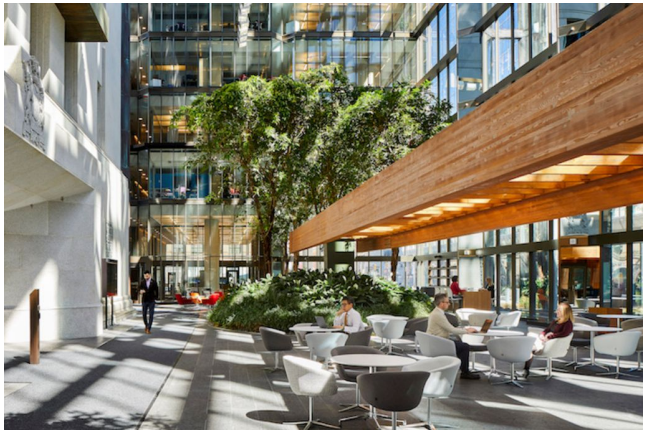
warm

Bright contemporary

Transparence

people





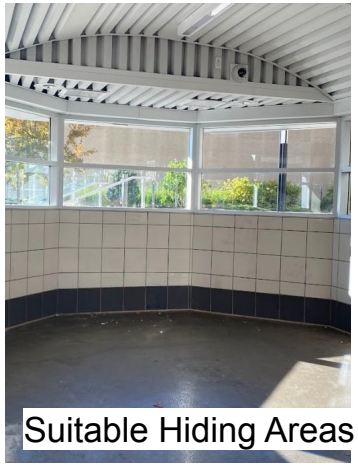
Open

Telus Bus Shelter

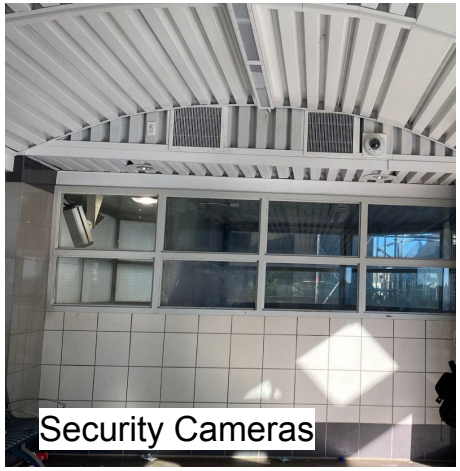

Closed Space


Low contrast from its surrounding


Bus Station Essentials



Suitable Hiding Areas



Security Cameras

Some community artwork

Some Hostile Designs

Decent Sunlight


Garbage Disposed on Site


LRT Replacement
8 University
73A Mill Woods
73B Mill Woods
500X Meadows
511-Owl Mill Woods
523 Mill Woods
401 Strathcona County Transit
411 Strathcona County Transit
BUS STOP 1542
Next Bus: Text 1542 to 31100
edmonton.ca 780-496-1600


NO SMOKING
Emergency Bottom,
low visibility


ENJOY YOUR MEAL!
EMERGENCY
GUARDIAN


Graffities

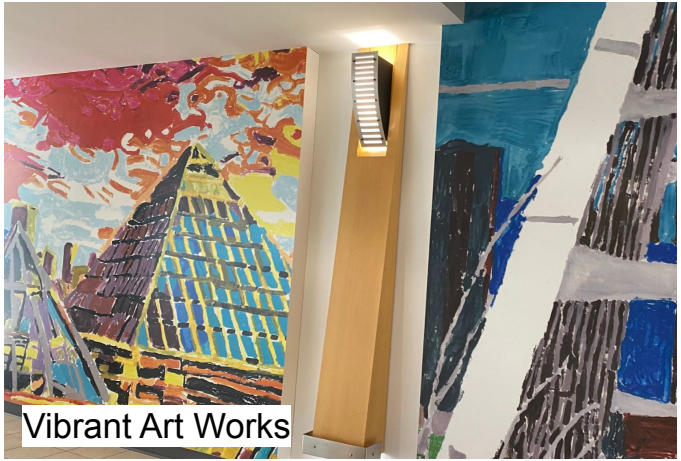

Surrounding Areas


Hostile Designs, able to work around


Bus Station
Surrounding Areas

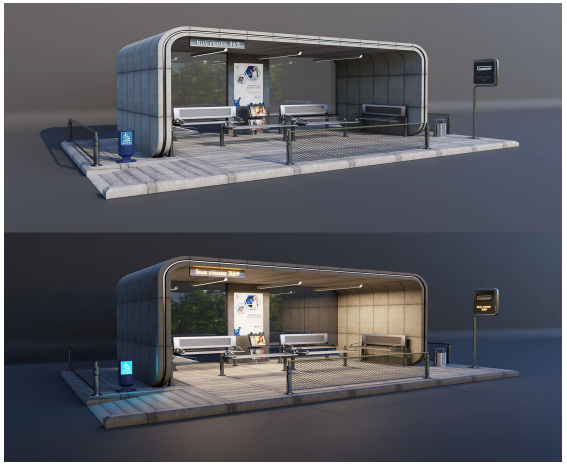

Well lighted & secure public space


Food Court & Shops


Vibrant Art Works

Initial Design Directions

- Split station: more visibility & surveillance, open space
- Vibrant colour for high attention and visibility, focal point
- Install adequate lighting indoor & outdoor
- Community engagement programs to foster sense of community: artworks
- Semi hostile designs
- Engagement to surrounding public spaces, using guided pathways



Initial Design Directions

- Increase natural surveillance.
- Allows for passenger flow

    - Rearrange the sidewalks?

    - Introduce some shops nearby?

Ref

Public space icon - created by Ahmad Roaayala from Noun Project.

Source 1
https://www.hsph.harvard.edu/wp-content/uploads/sites/1008/2013/09/bus-and-bus-stop-lusk.pdf

Source 2
https://link.springer.com/article/10.1007/s12469-021-00265-1

Source 3
https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-SS-SIS-RP-007-10.pdf

Source 4
https://www.archdaily.com/867962/6-tips-for-designing-accessible-and-safe-bus-stops

Source 2 (3.2.2.1)

Hostile architecture definition
https://dictionary.cambridge.org/dictionary/english/hostile-architecture
Hostile Design
https://www.cbc.ca/news/canada/toronto/how-defensive-design-leads-to-rigid-benches-metal-spikes-and-visual-violence-in-modern-cities-1.5192333
Criticism against hostile design in Edmonton
https://thegatewayonline.ca/2018/04/hostile-design-no-place-in-yeg/

Edmonton bus shelter repair fees
https://globalnews.ca/news/9350283/edmonton-bus-shelter-vandalism-cost/

Ref

https://www.centreforcities.org/reader/improving-urban-bus-services/the-benefits-of-buses-for-cities/
(User group)
https://www.statista.com/topics/2994/public-transportation/#topicOverview

(routes map)
https://www.google.com/maps/d/viewer?mid=1o5DnUo2Qwzr9YdGvoGlPcliIPD9EriE&femb=1&ll=53.53771258914176%2C-113.47535018525254&z=14
(route frequency file)
https://www.edmonton.ca/sites/default/files/public-files/assets/transit/ETS-Route-Frequency-Table-Sept-2023.pdf
(Emotional design)
https://www.interaction-design.org/literature/topics/emotional-design

DES502

Transit Shelter Project

Interim Presentation

Kristen Padilla Yimeng Tong Leo Zhang

CONTENTS

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How might we reimagine some elements of the existing space of the Telus Bus Shelter and make it safe and accessible for all users within the city?

Primary Objective

- Provide a welcoming and safe environment where users can comfortably spend their time to wait for commute

How are we approaching our design brief?

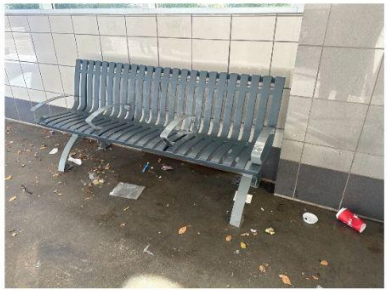
Understanding CPTED

-In our first meeting, we used CPTED as a source to help us pinpoint important strategies to consider

-Gathering an additional understanding of CPTED to guide us in our objectives

The Human Body in relation to Design

-Understanding hostile design: what makes the body uncomfortable?



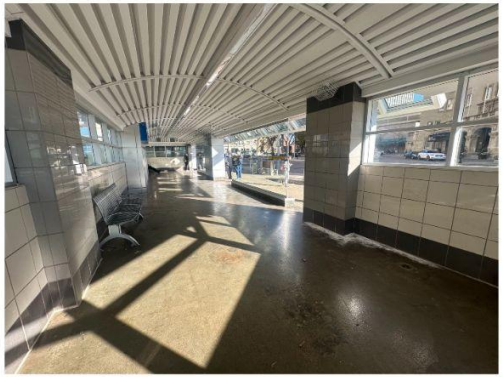
↳ The only seating options
- more seating along walls?

Sense of privacy, can't really see this corner from outside

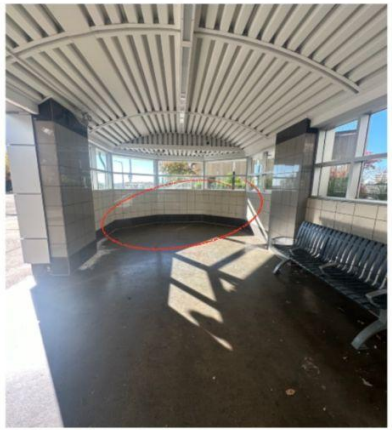
→ Emptiness - empty space, easy to inhabit

Removal of heaters
- Deters people from overstaying

TELUS BUS SHELTER - WHAT MAKES IT PHYSICALLY UNCOMFORTABLE?



- Lack of identity, plain walls
- Limited seating, 2 benches for a large space
- no color - uninviting
- hospital waiting room vibes



CPTED Natural Surveillance Strategy?

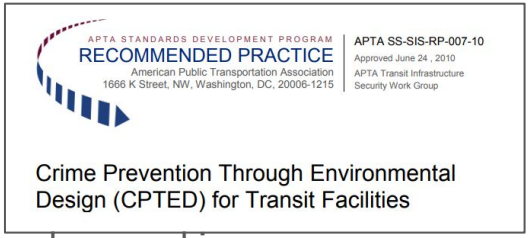
→ Structural change: windows extended vertically, allowing passerbys to look in

- Sitting Area to take up space & make space somewhat functional

CPTED

- **Crime Prevention Through Environmental Design** suggests that the design of buildings, landscaping and outdoor environments can either encourage or discourage crime.
- The proper design and effective use of the built environment can lead to a **reduction in the fear of crime** and the incidence of crime, and to **improvement in the quality of life.**

CPTED'S 5 STRATEGIES



Natural Surveillance

- **Maximize visibility** by designing doors and windows to look into public areas, such as parking lots, roadways or sidewalks. Ensure adequate illumination of public areas

Natural Access Control

- Use landscape structures and architectural designs to **discourage access to private areas.**

Territoriality

- Clearly distinguish the difference between restricted and public areas.

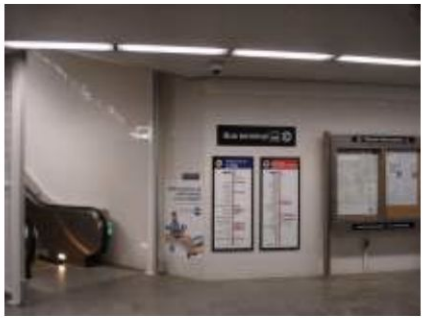
Activity Support

- Identify activities that create community involvement in the public space.

Maintenance

- Maintain the cleanliness and functionality of revenue and non revenue areas and spaces.

TABLE 1
CPTED Strategies and Applications

Strategy	Transit Application
Natural surveillance  	• Maximize visibility by designing doors and windows to look into public areas, such as parking lots, roadways or sidewalks. • Ensure adequate illumination of public areas. • It is directed at keeping intruders under observation. Organized surveillance strategies include use of police and guard patrols. Lighting and CCTV are mechanical strategies for surveillance, and natural strategies include widows, low landscaping and raised entrances.

DIRECTIONS: Utilize this checklist to help you decide which principles may be applicable to your transit agency in conjunction with local zoning laws.

PERFORMANCE STANDARD AND FUNCTIONAL AREA CONSIDERATIONS	EVALUATION
NATURAL SURVEILLANCE **Blind corners** *Avoid blind corners in pathways and parking lots.* ☐ Pathways are direct. All barriers along pathways are permeable (see-through), including landscaping, fencing, etc. ☐ Low-growth vegetation is be used to prevent blind corners. ☐ Consider the installation of mirrors to allow users to see ahead of them and around corners.	Comments or other strategies used:

Human body and activities at the station.

Understanding how ergonomics influences the design of a frequently used public structure is crucial. It's worth noting that besides warmth and space, the shelter should provide a few affordances to certain behavior and specific features for its users.

Before we talk about the activities, user groups have to be addressed.

Categorization of User Groups

Income level

Bus stations are often used by people who have lower incomes and cannot afford to own or maintain a private car.

▶ **Students, Street people, Children**

Location

Bus stations are more common and convenient in urban areas, where there is a higher density of population and demand for public transportation. People who live or work in cities may use bus stations to commute or travel within or between different parts of the city.

▶ **Workers, Shoppers, Downtown residents, Tourists**

Categorization of User Groups

Income level

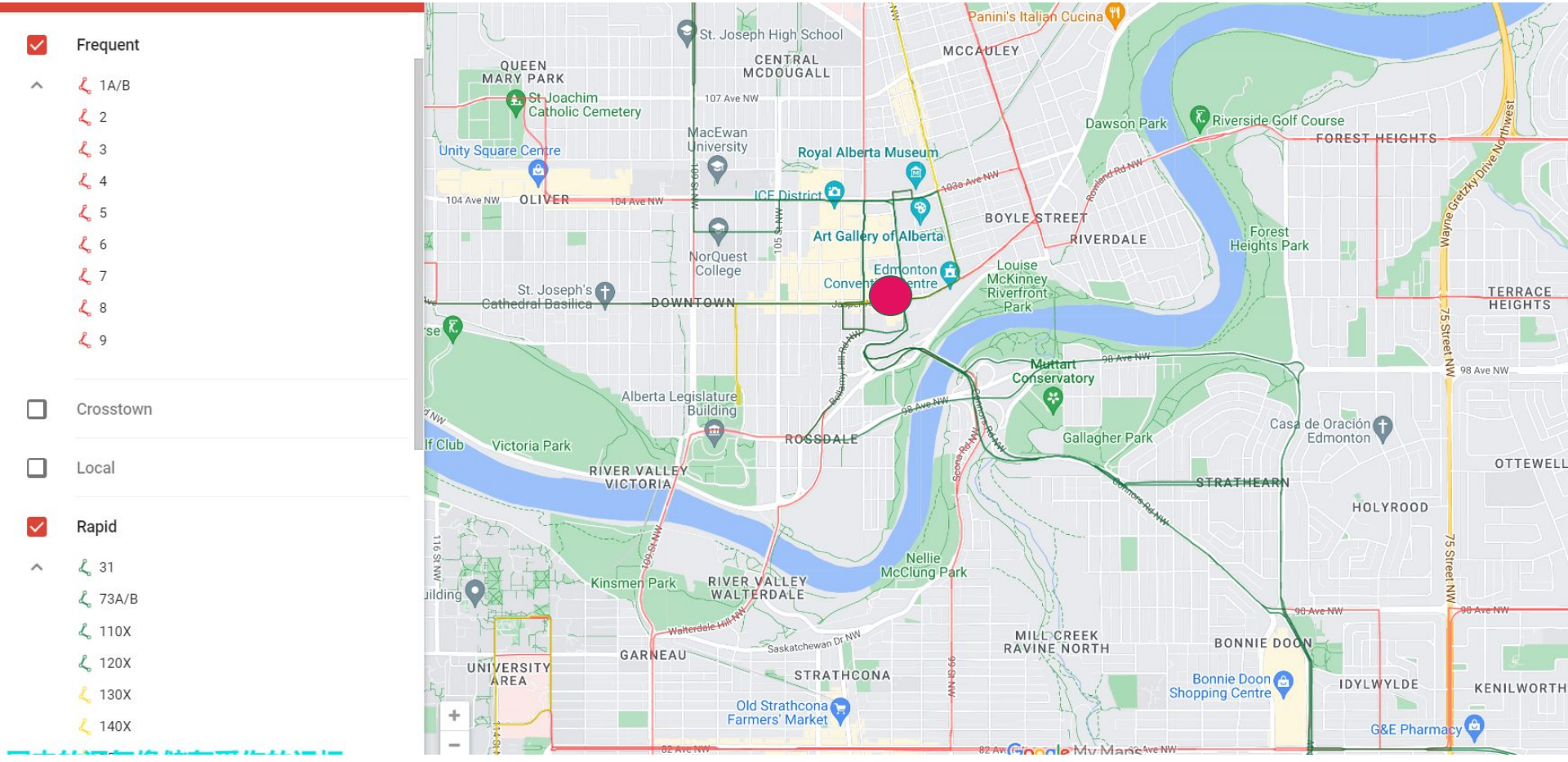
Location

- People who use bus stations for work or education may value the reliability, frequency, and affordability of the bus service.
- People who use bus stations for shopping or leisure may value the accessibility, comfort, and safety of the bus service.
- People who use bus stations for tourism may value the diversity, scenery, and culture of the bus service.

Affordances for each of the groups and ranking in priority.

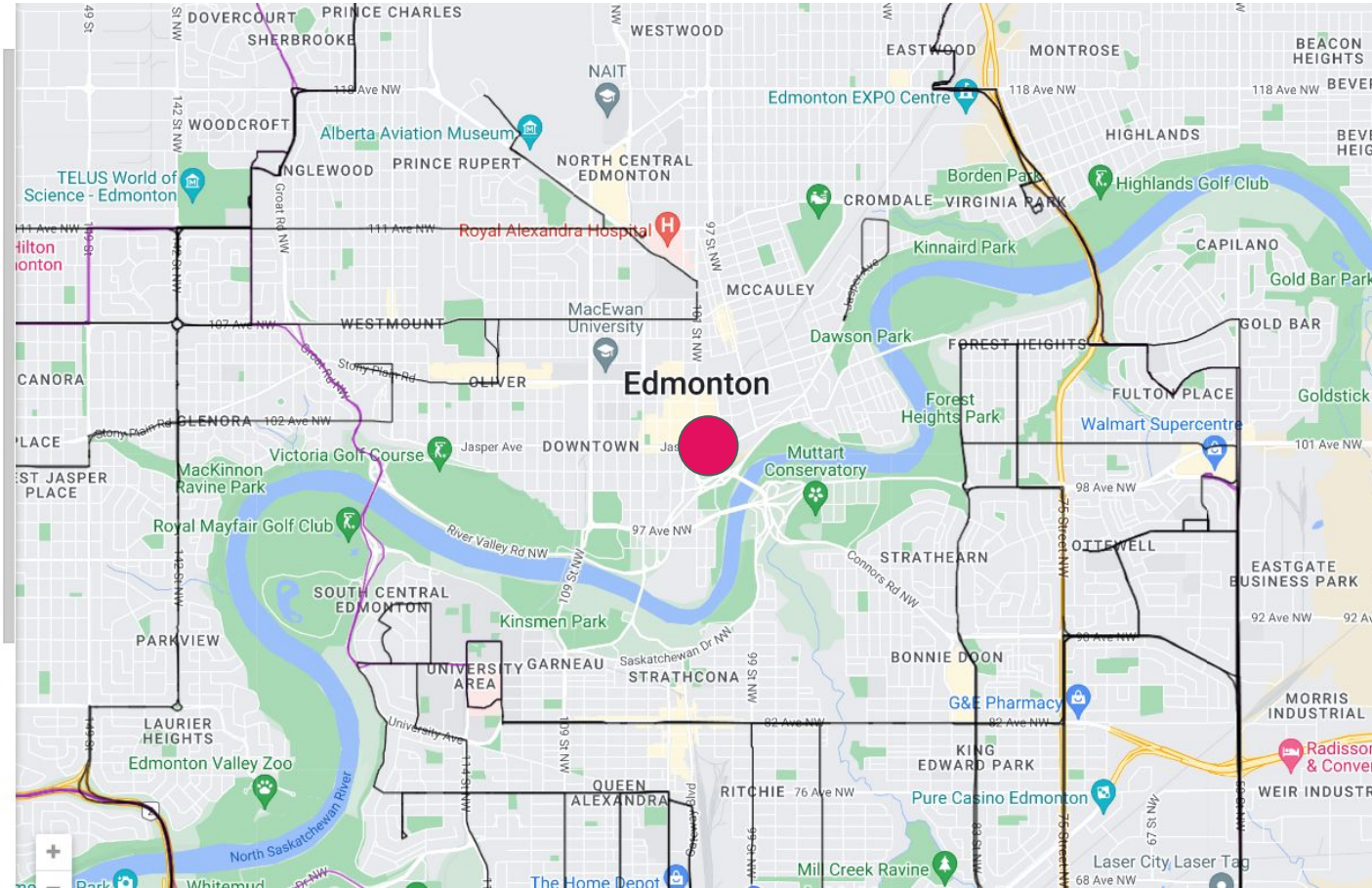
To narrow our attention to particular demographics, we will prioritize them based on their frequency of bus usage and the time they spend waiting at the station.

Affordances for each of the groups and ranking in priority.



Affordances for each of the groups and ranking in priority.

- [ ] Frequent
- [x] Crosstown
  - 51
  - 52
  - 53
  - 54
  - 55
  - 56
- [ ] Local
- [ ] Rapid
- [ ] Community
- [ ] LRT
- [x] School
  - 610
  - 611
  - 612
  - 613



As indicated by the routes, the main user groups of this station are primarily

Downtown workers, shoppers and residents

Some of the **activities** related with these user groups

- Reading a book/ listening to music
- Playing games on their phone or other device
- Chatting with friends
- Carrying backpacks/ Grocery bags
- Sitting down / Leaning on the wall
- Watching for the bus number

Some **behavior** the station might want to discourage

- Begging
- Loitering
- Sleeping/ camping
- Littering

Some of **affordance** the station might want to have

- Platforms to put carrying bags and items
- Platforms to support the body (walls / seats)
- Not overwhelmingly quiet
- Acquire bus time information
- Warmth to the hands

The Human Body in Design

- ERGONOMICS is the study of the interaction between human beings and the tools, tasks, and environments of work and everyday living.
- Ergonomics can be an integral part of design, manufacturing, and use. Knowing how the study of anthropometry, posture, repetitive motion, and workspace design affects the user is critical to a better understanding of ergonomics as they relate to end-user needs.

1	4:59-12:46	40	20	30	20	30	40	---	5:34-12:58	40	30	30	40	---	5:39-12:00	40	30	40	40	---
2	4:43-3:28	15	10	15	12	15	20	30	5:07-3:28	20	15	15	20	30	5:08-3:27	20	15	15	20	30
3	4:58-12:12	20	12	15	12	15	20	---	5:51-12:22	20	15	20	20	---	5:48-24:12	20	15	20	30	---
4	4:39-3:49	15	10	15	10	15	15	30	5:16-4:07	20	15	15	20	30	5:25-4:04	20	15	15	20	30
5	4:55-1:29	15	15	15	15	15	20	---	5:24-1:22	20	15	15	20	---	5:26-1:11	20	15	20	20	---
6	5:57-12:36	15	15	15	15	15	20	---	5:30-1:18	20	15	15	20	---	5:55-12:10	20	15	20	20	---
7	5:06-12:53	15	7.5	12	7.5	15	20	---	5:12-1:04	20	15	20	20	---	5:54-12:37	20	15	20	20	---
8	4:49-3:32	15	12	12	12	15	15	30	5:19-3:38	20	15	15	20	30	5:30-3:33	20	15	20	20	30
9	4:45-3:27	15	15	15	15	15	15	30	5:10-3:24	20	15	15	20	30	5:15-3:25	20	15	15	20	30

Amount of comfort times : 15 — 20 minutes

Another thing worth mentioning is that ergonomic design is intended for long term usage, as it aims to reduce the physical and mental strain and stress. As for this project, considering most waiting time for major routes averages around 15 minutes and others around 20 minutes, it is not the priority to make assets in the station ergonomic but to instead make it comfortable for this amount of time.

Characteristics and categories of discomfort in hostile designs (Listed by severity)

Physical (stops action)

1. **Anti homeless spikes** (Pain to the body)
2. **Skateboard stopper** (Uncomfortable to use and might injure)
3. **Armrests or seat dividers** (Uncomfortable)
4. **Water sprinklers** (discourage loitering or sleeping but have minor consequences)

Emotional (repels actions)

1. **High-pitched sounds, bright lights, or cameras**
   (create a sense of insecurity or danger to discourage certain behaviors or entrance)

2. **Glass walls, automated gates, Territoriality**
   (Reduce empathy or compassion, isolate the users from each other and or the local culture, creating a sense of alienation)

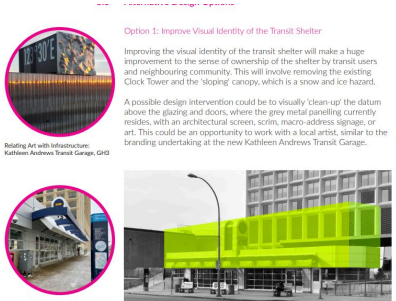
3. **Natural surveillance, natural access control**
   (Aims at keeping intruders under observation, discourages certain behaviors)

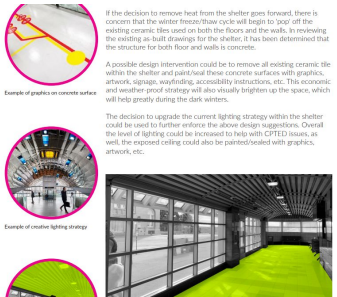
Emotional (repels actions)

1. **High-pitched sounds, bright lights, or cameras**
   (create a sense of insecurity or danger to discourage certain behaviors or entrance)

2. **Glass walls, automated gates, Territoriality**
   (Reduce empathy or compassion, isolate the users from each other and or the local culture, creating a sense of alienation)

3. **Natural surveillance, natural access control**
   (Aims at keeping intruders under observation, discourages certain behaviors)





Our Design Direction - Areas of Focus

Natural Surveillance (CPTED)

Main area of focus: Interior, Rounded Corner

Increasing Natural Surveillance through opening visibility - increased amount of windows

Larger sitting area - providing seating and personality into the interior, taking up a big area to avoid inhabitation

Unique

Singular Spaces

Organic

Inviting

Material Research for Benches

Aluminum

- Lightweight, easy to install
- Low cost, acceptable life span
- Oxidation cause wear & chip
- Avoid extreme weather and temperature changes

Recycled Plastic

- Eco-friendly and durable
- Moderate in price
- Color stays vibrant
- Maintenance-free
- Resists to moisture, rot, mold and insects

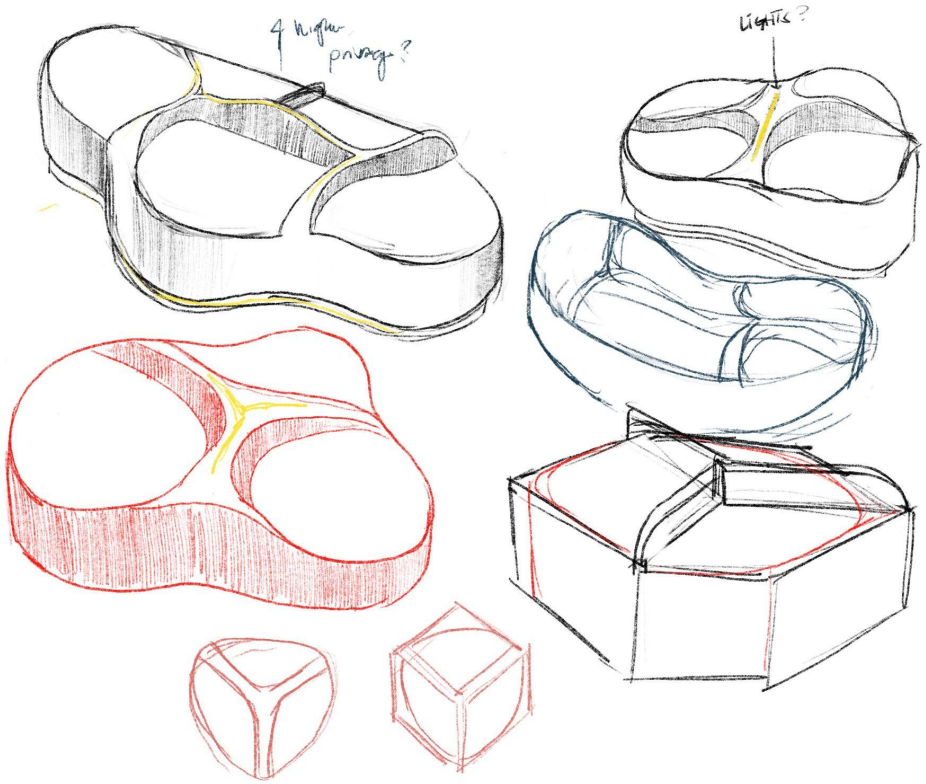
Thermoplastic

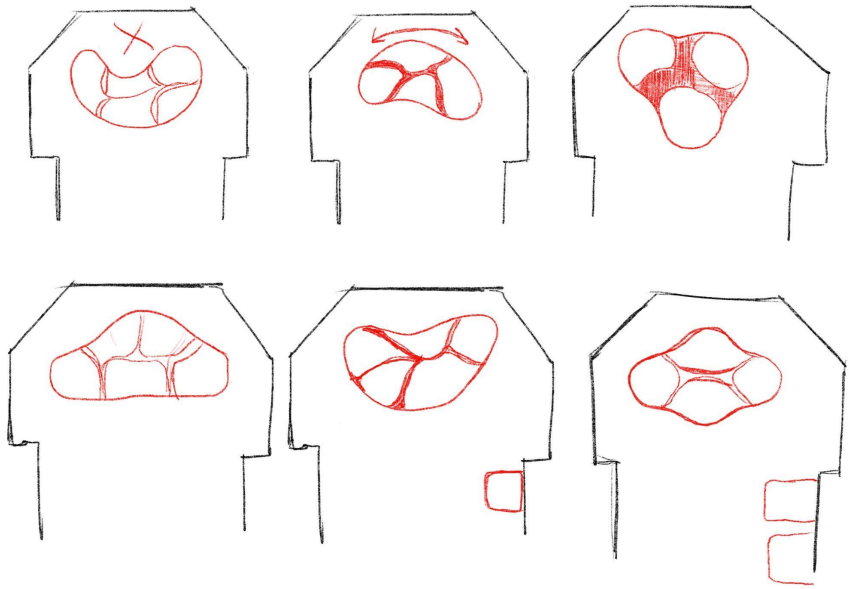
- Durable & long lasting
- Low maintenance
- Keeps colour
- Heavier & costly than aluminum
- Less natural aesthetics
- Used to match other vibrant equipment

Concrete

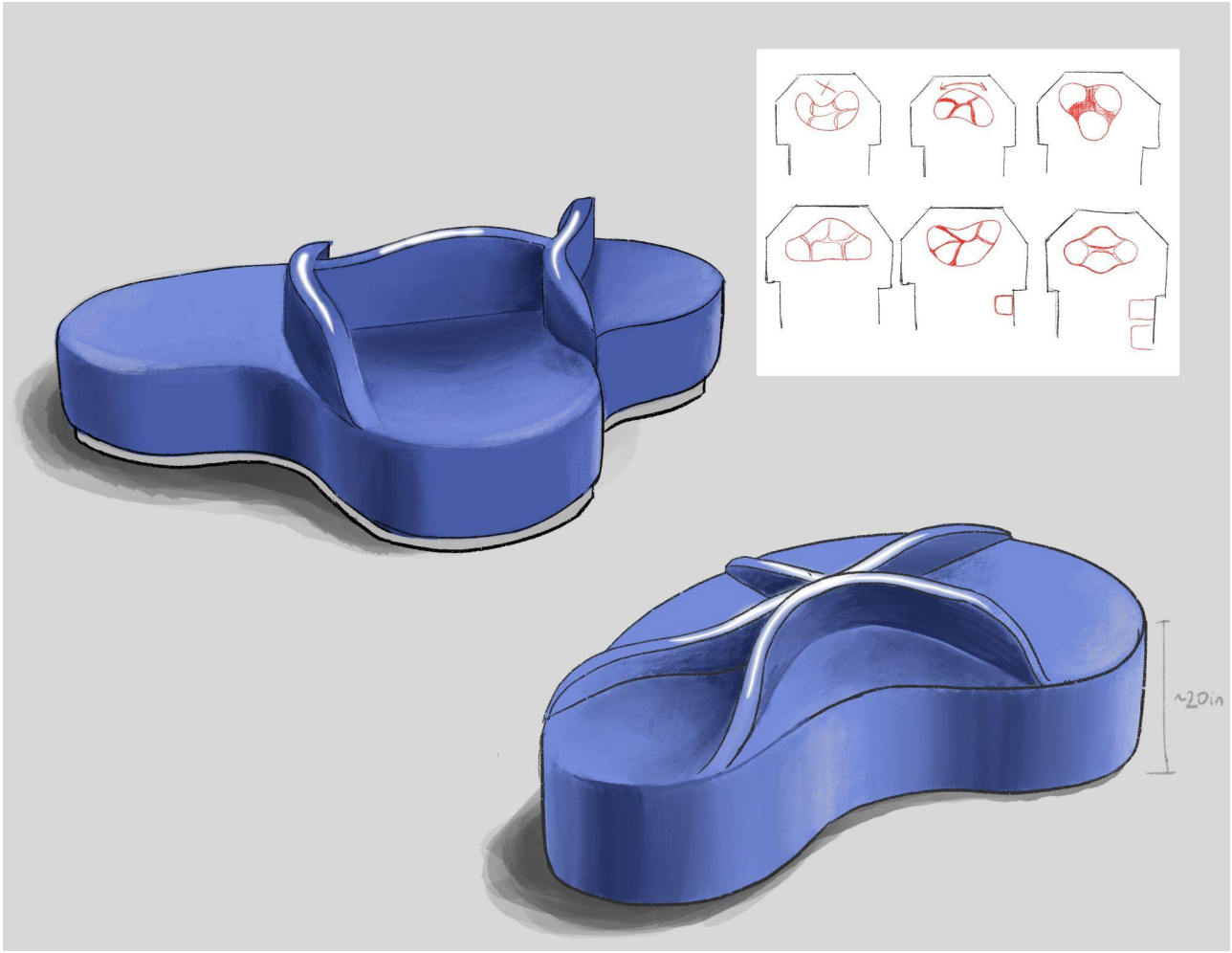
- Highly durable
- Minimalist
- Customizable in colour & shapes
- Not as comfortable
- Match well with other concrete structures
- Bulk & heavy, costly to ship

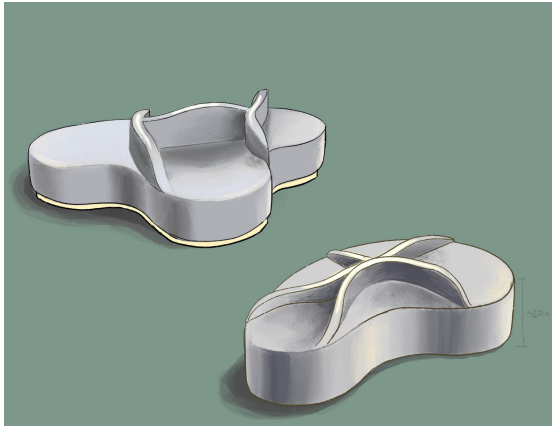
Benefits	Wooden Benches	Aluminum Benches	Recycled Plastic Benches	Metal Benches with Coating	Concrete Benches
Cost Range	$100 - $1000	$150 - $1200	$280 - $1250	$350 - $2000	$350 - $4000
Easy To Install	X	X	X		
Durability			X	X	X
Rust/Wear Free			X		X
Fade Resistant			X	X	X
Low Maintenance			X	X	X
Eco-Friendly	X		X		X
Aesthetic	X		X		X
Style Options			X		X

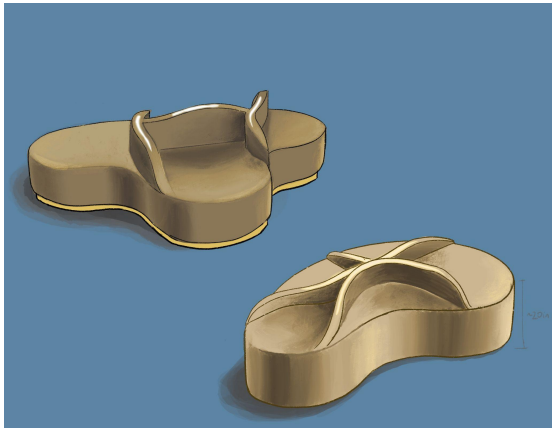


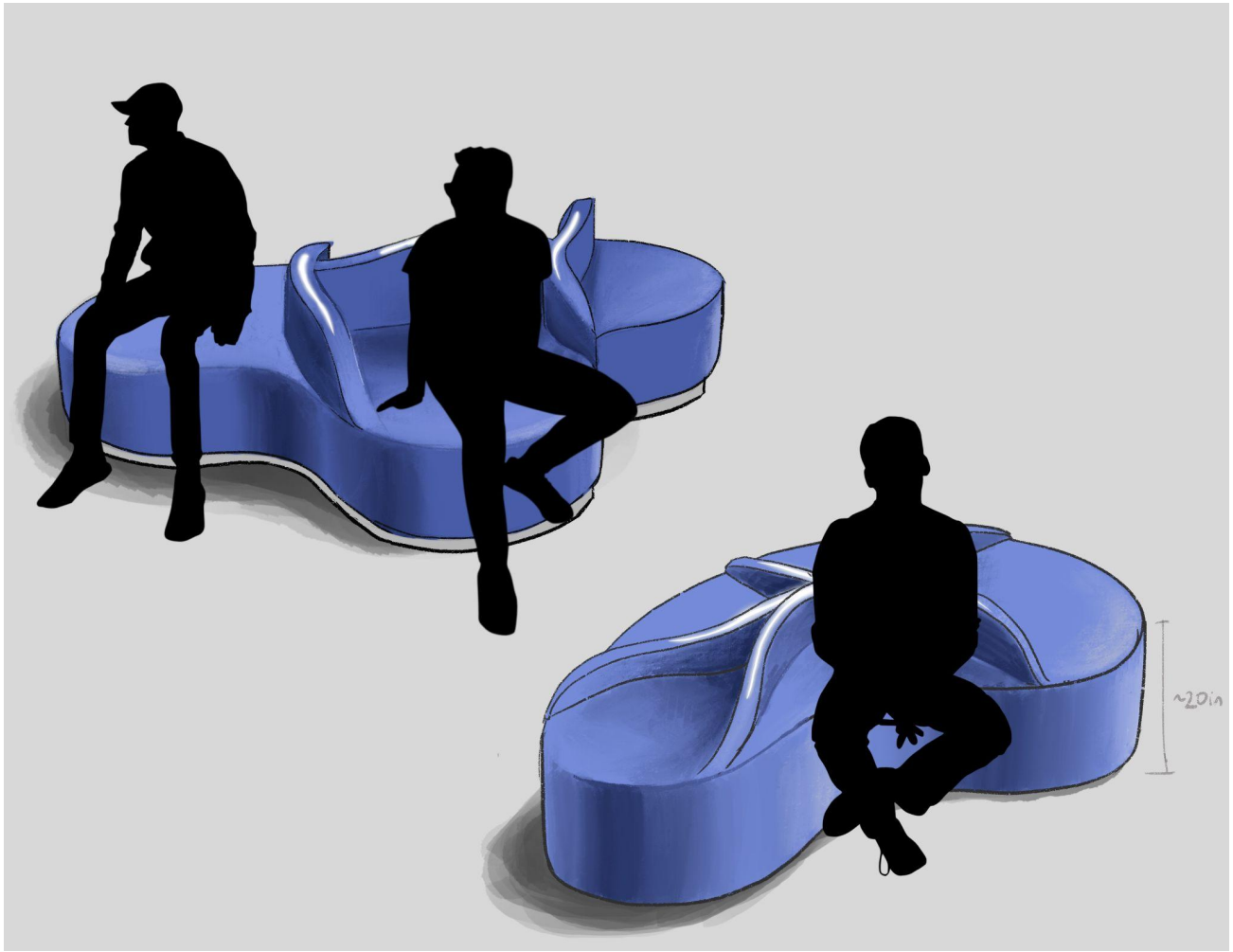


-take up space in the corner
-exploring lighting options within the seats
-shapes to deter certain behaviour
-flowy, organic, playful atmosphere


~20in



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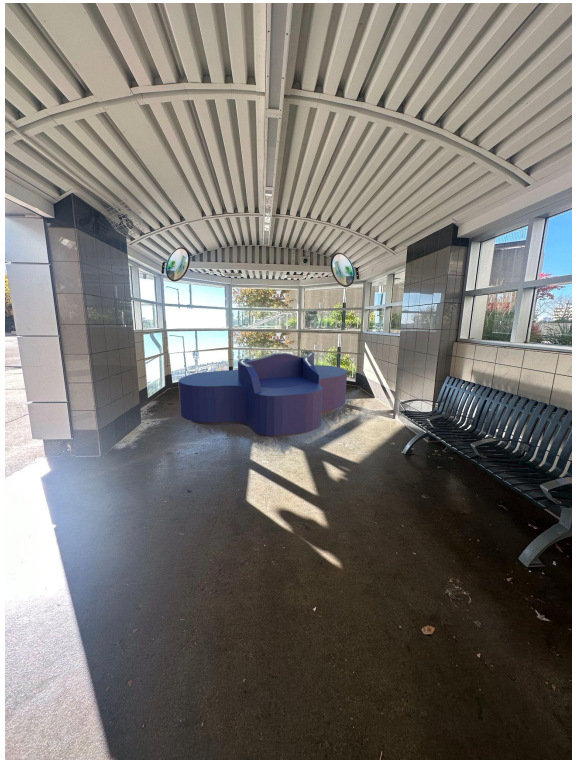
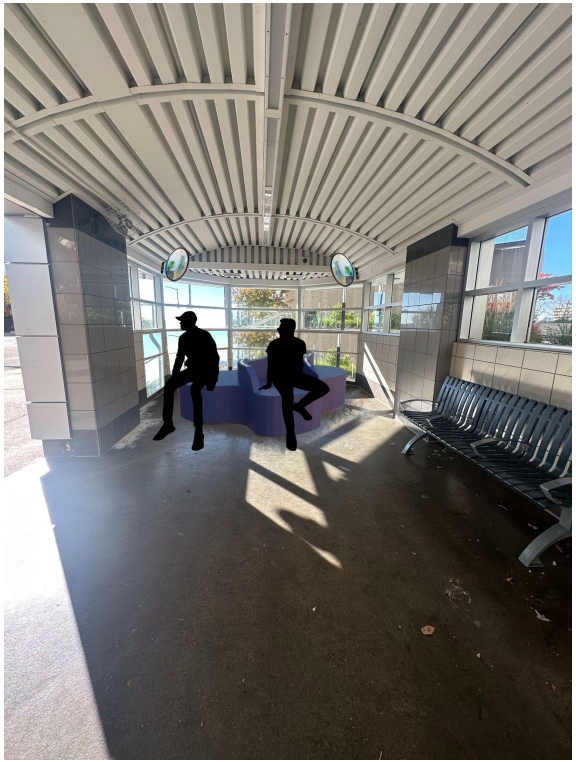
Structural Changes - windows





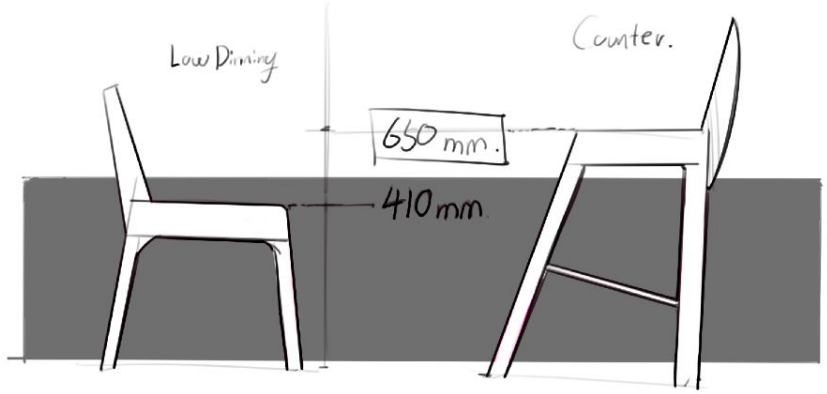
Increased Natural Surveillance -

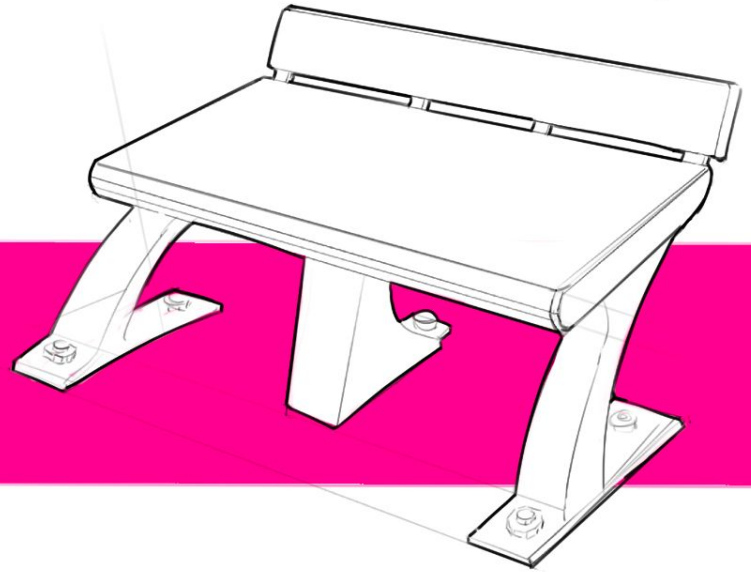
CTPED's guidelines:

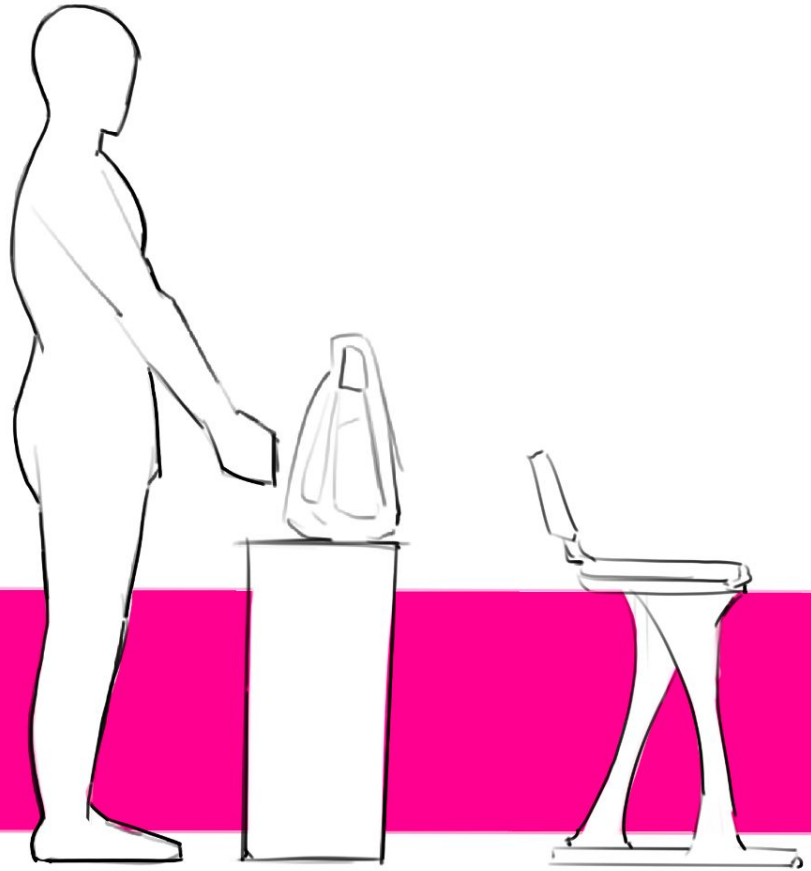
-avoiding blind corners: corner mirrors to allow users full visibility

-additional windows for visibility

-seating area taking up space to prevent uninvited habitation


Low Dining
Counter.
650 mm.
410 mm





Focus on

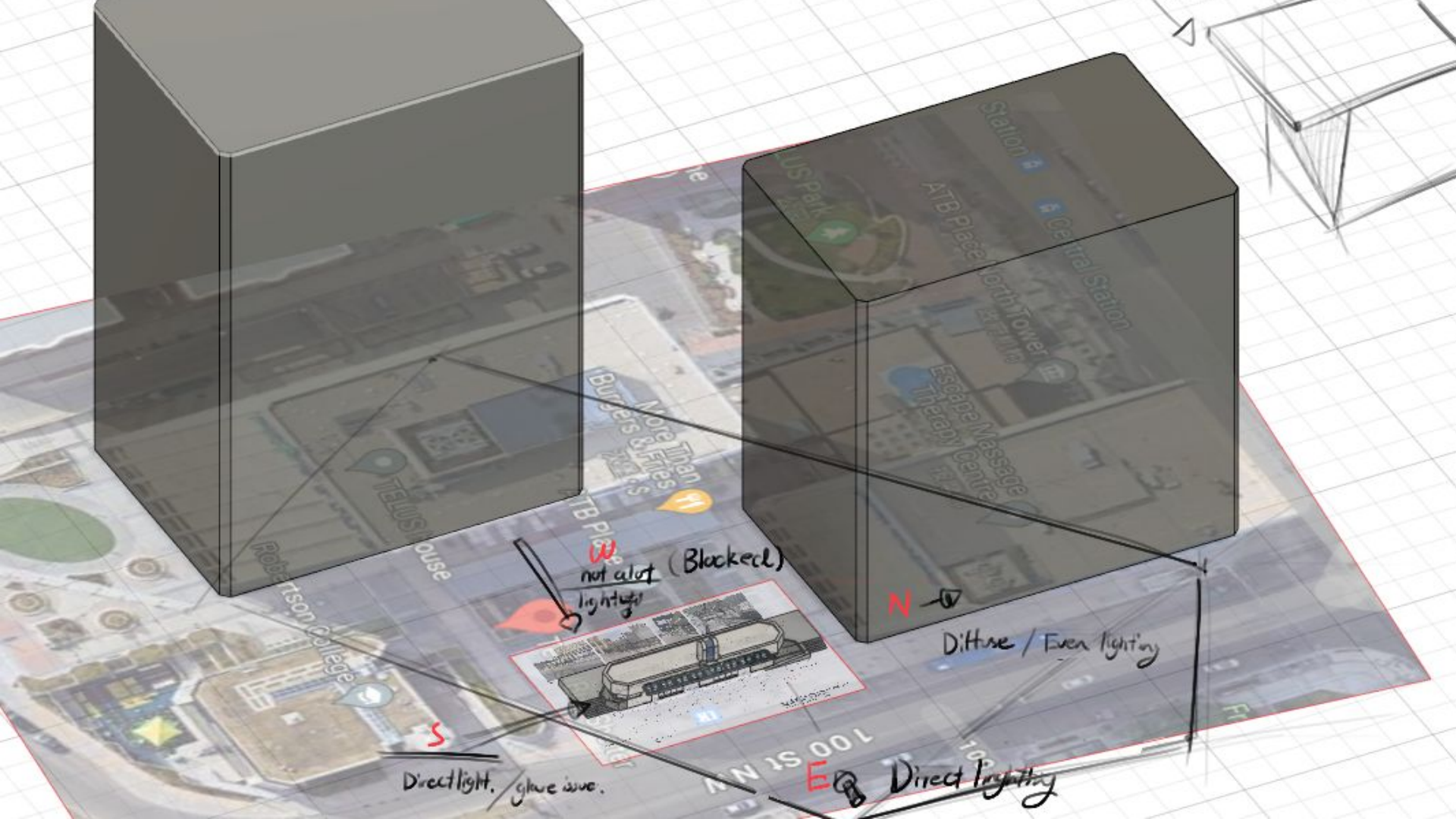
Lighting

Increase in light transmittance will directly lead to the **reduction** of artificial lighting energy consumption

The **lower** the window position, the higher the illumination value in the room and **the lower the indoor visual comfort will be.**

Thinner and taller the window shape, the better for lighting and the more conducive to lighting and energy-saving design.

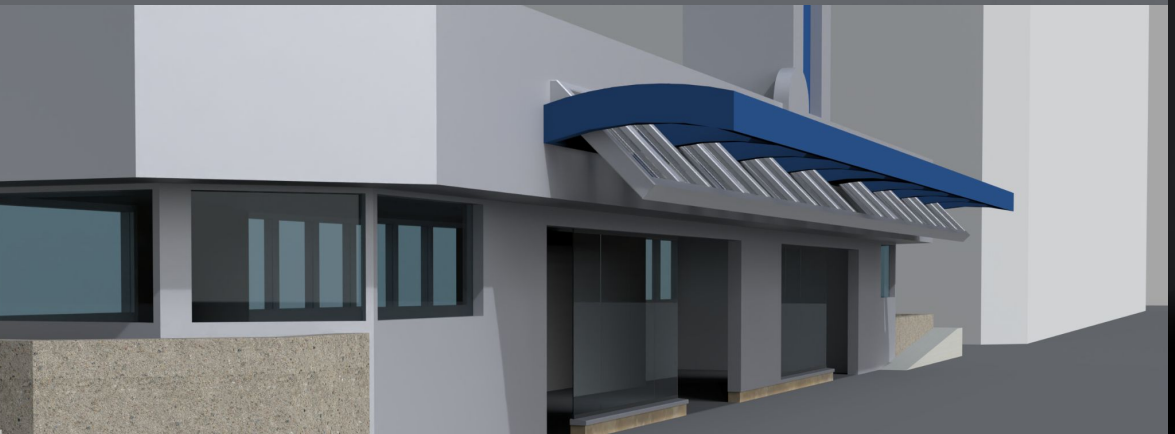
Visual

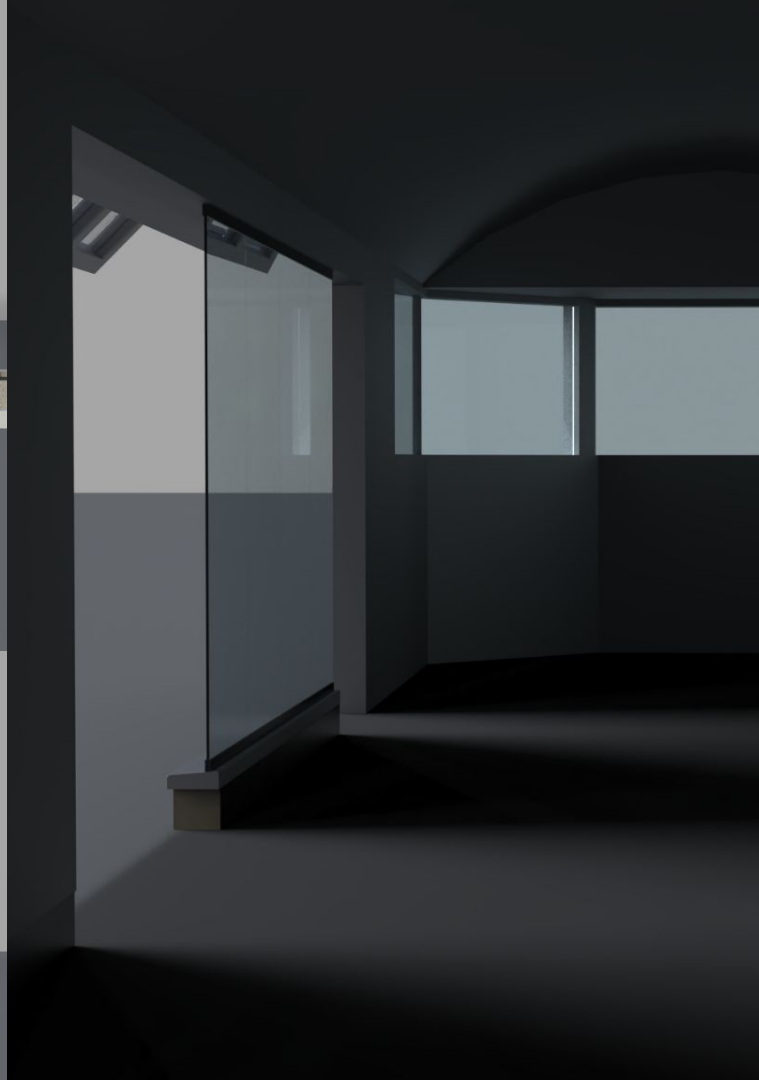

W
not alot (Blocked)
lighting
N
Diffuse / Even lighting
S
Direct light. / glare issue.
E
Direct lighting

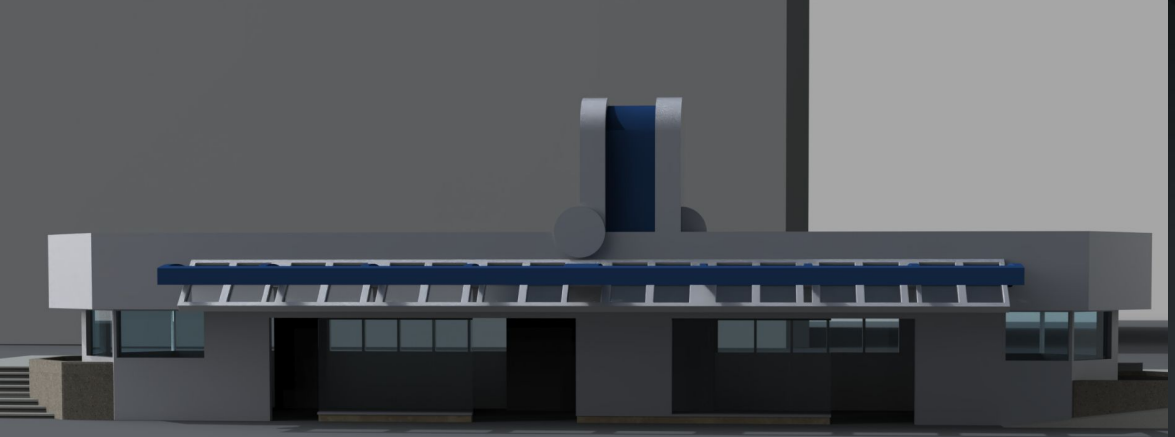

not accessible to people in the shelter.
100 STREET
ETS
plants
Eyesight
plants blocking
Real bench strength
Blocking sight.
Visitors can only see the bus number from the blue zone. (visibility).
covered mostly in shadow.
• Concealment
• comfortable. / quiet
• Dark
• Interpreted as small area.


ROBERTSON
School of New Work
CAMPUS
ENTRANCE
Blocking sight

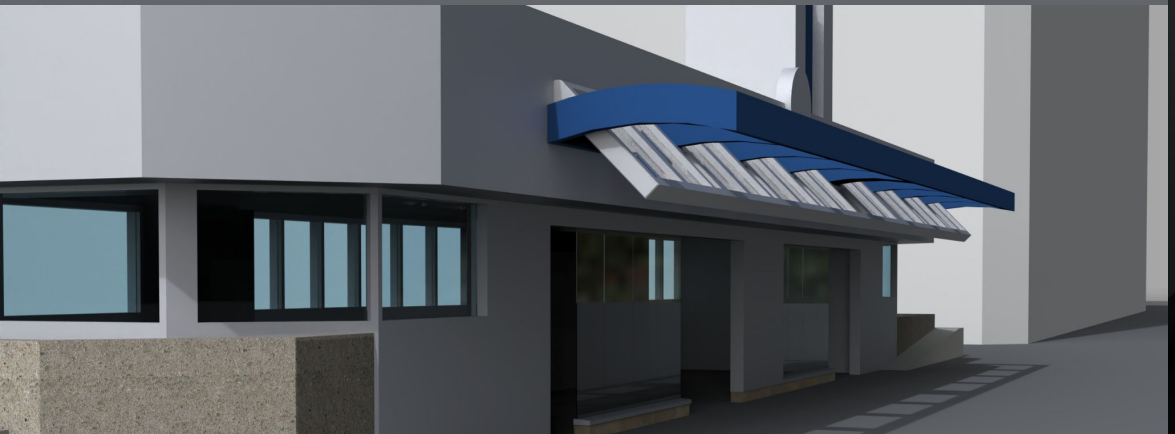
Morning

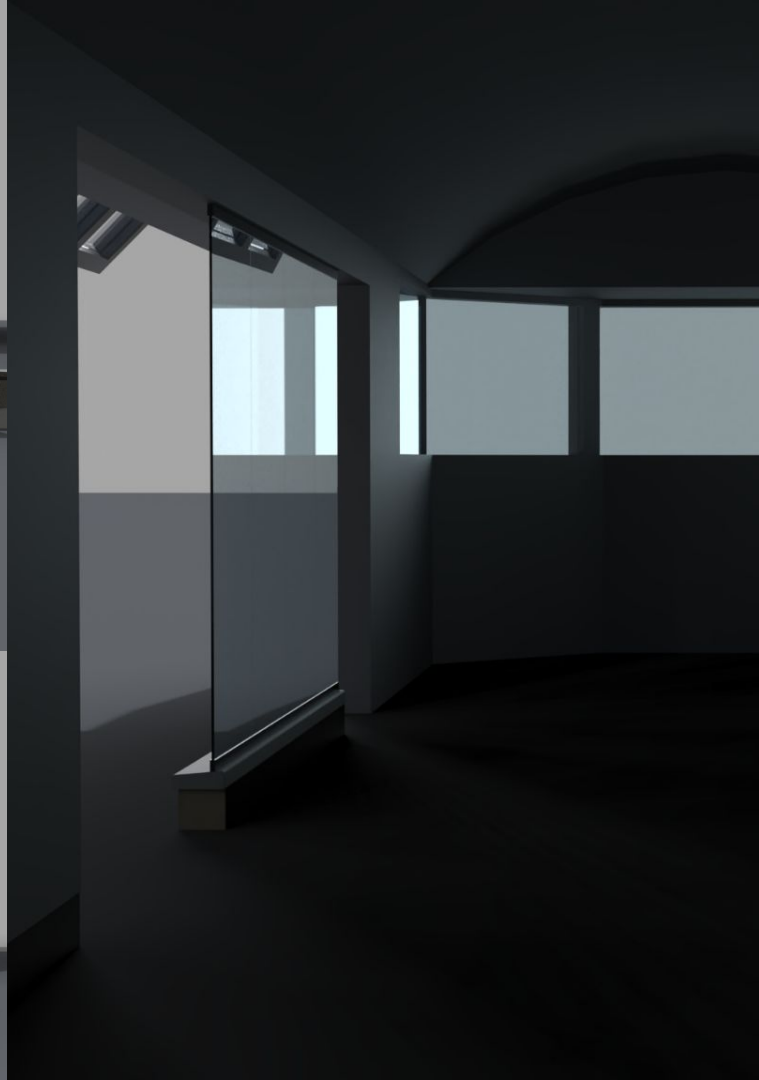




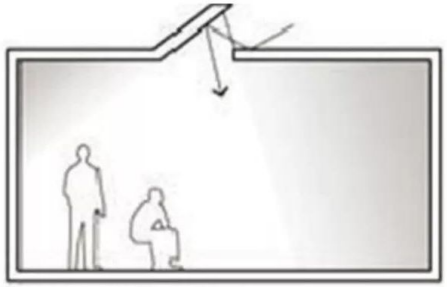


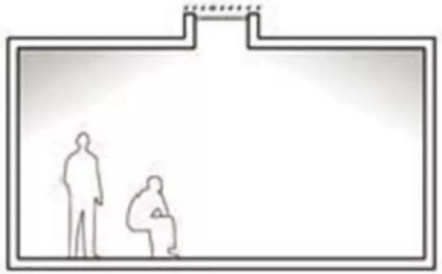
Noon

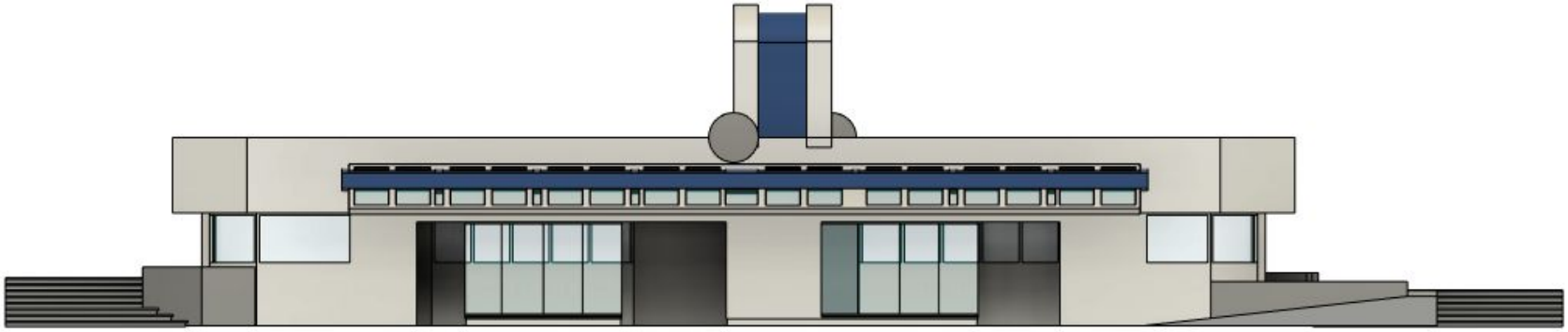


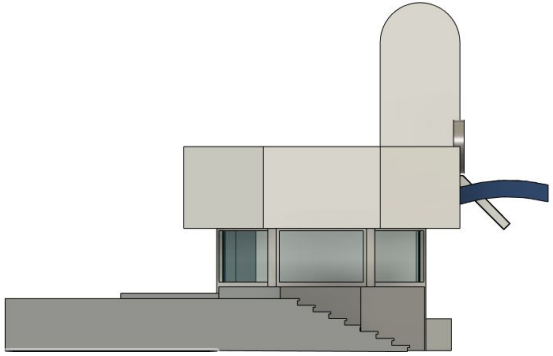


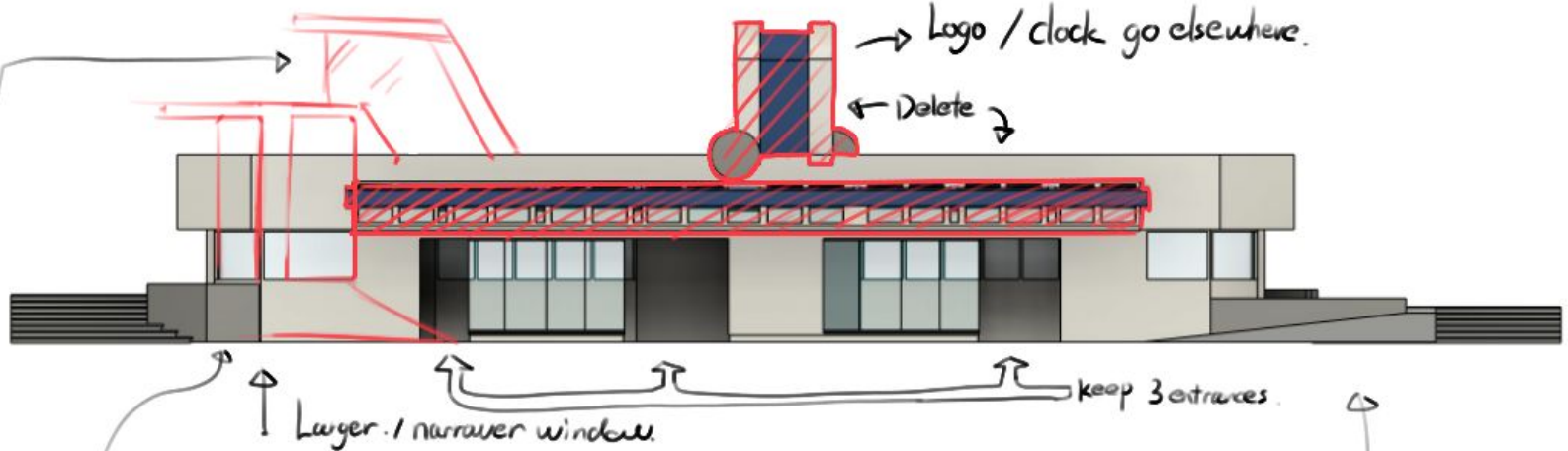

Dusk







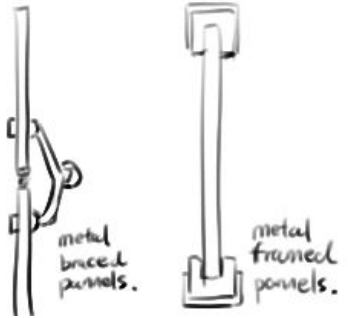




- Either get rid of flower pit or elevate the platform.

Right side unchanged

- Add more light source.
  - To be modern and decorative that elevates the station to look beyond just being a station.
  - Lots of windows and exposure.

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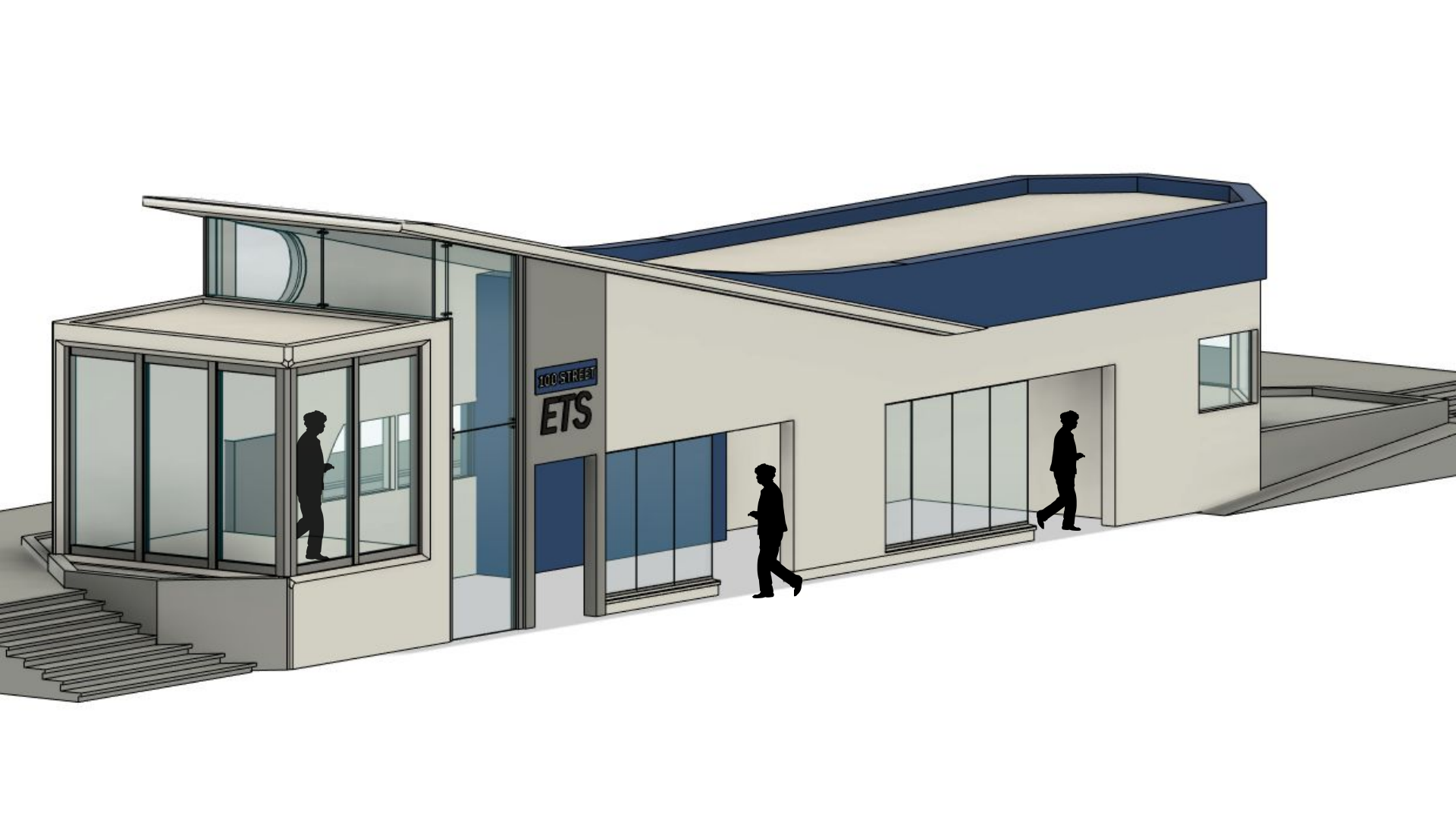
ETS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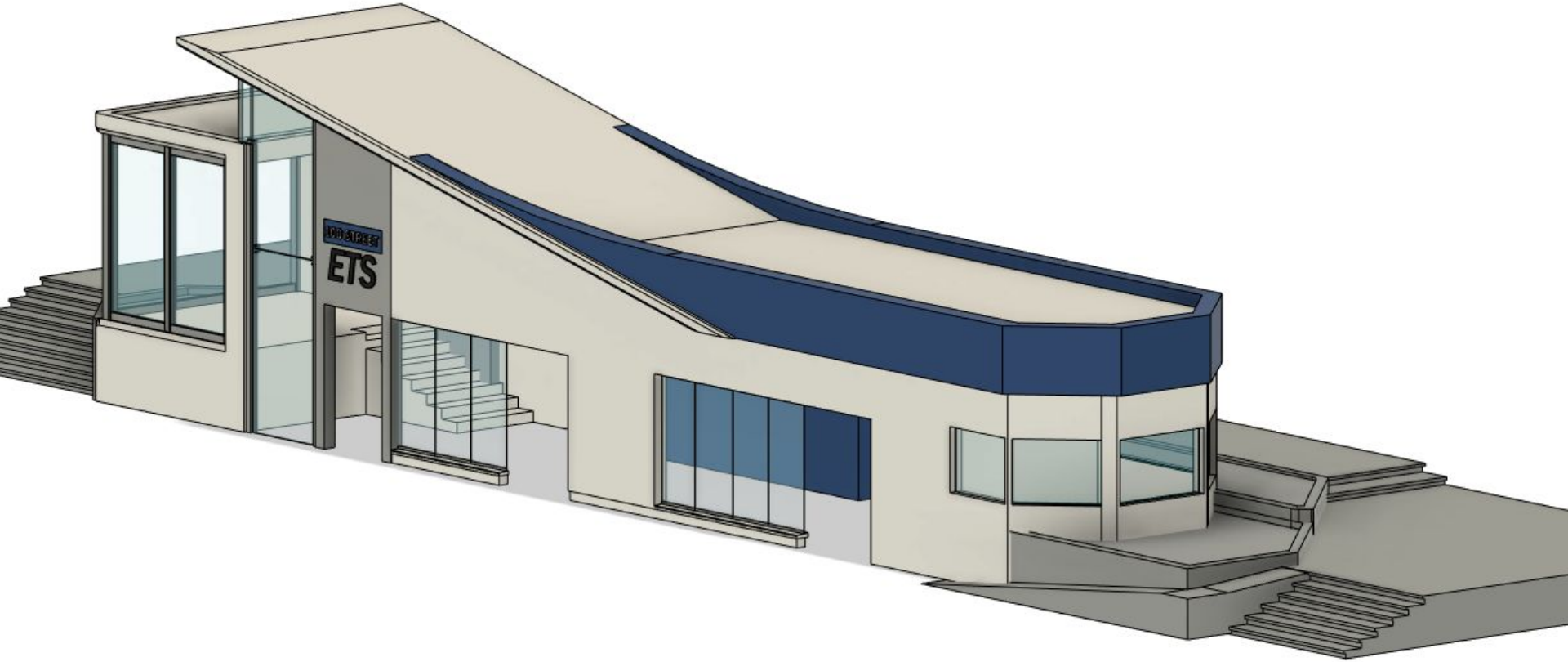
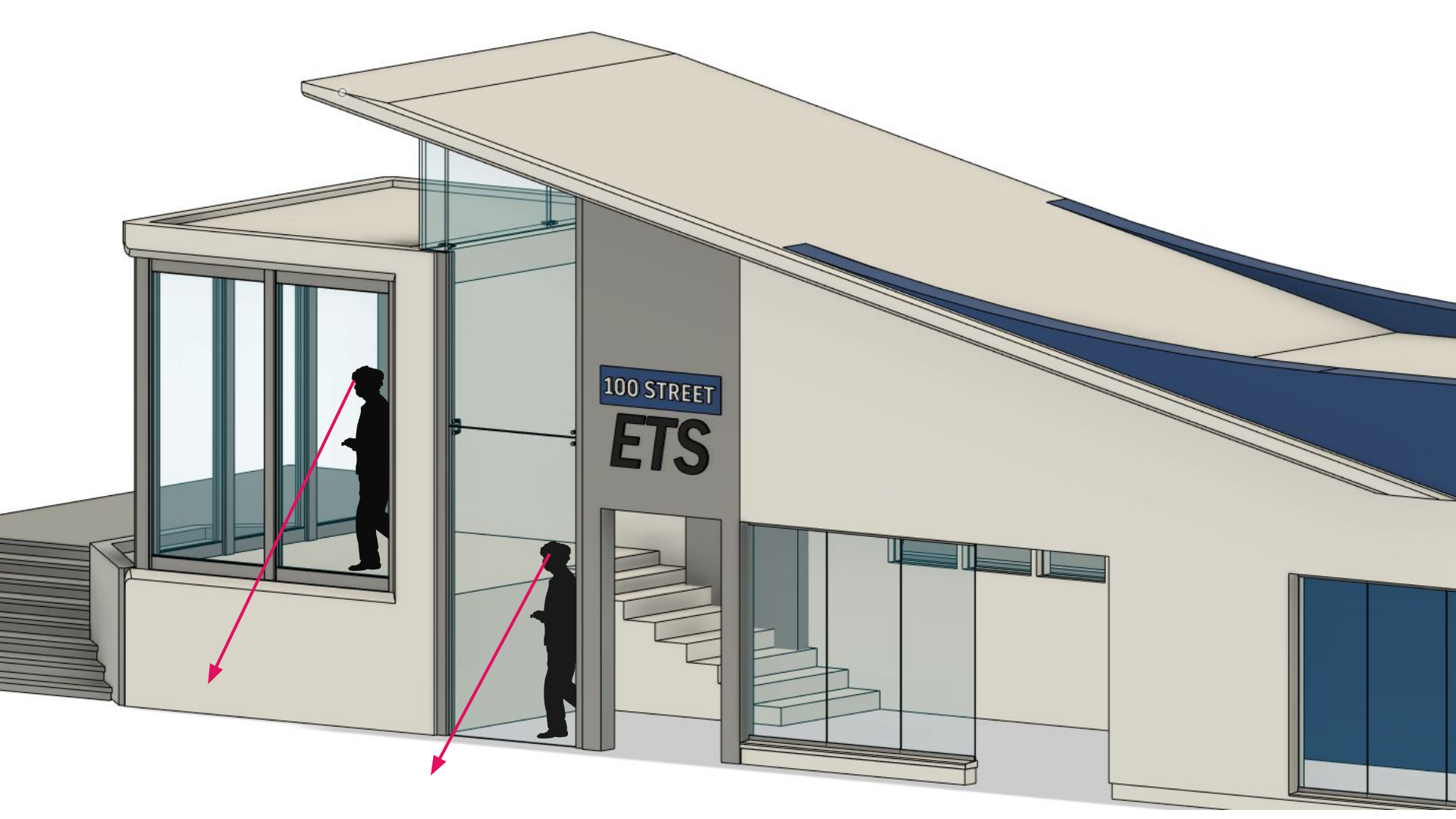

ETS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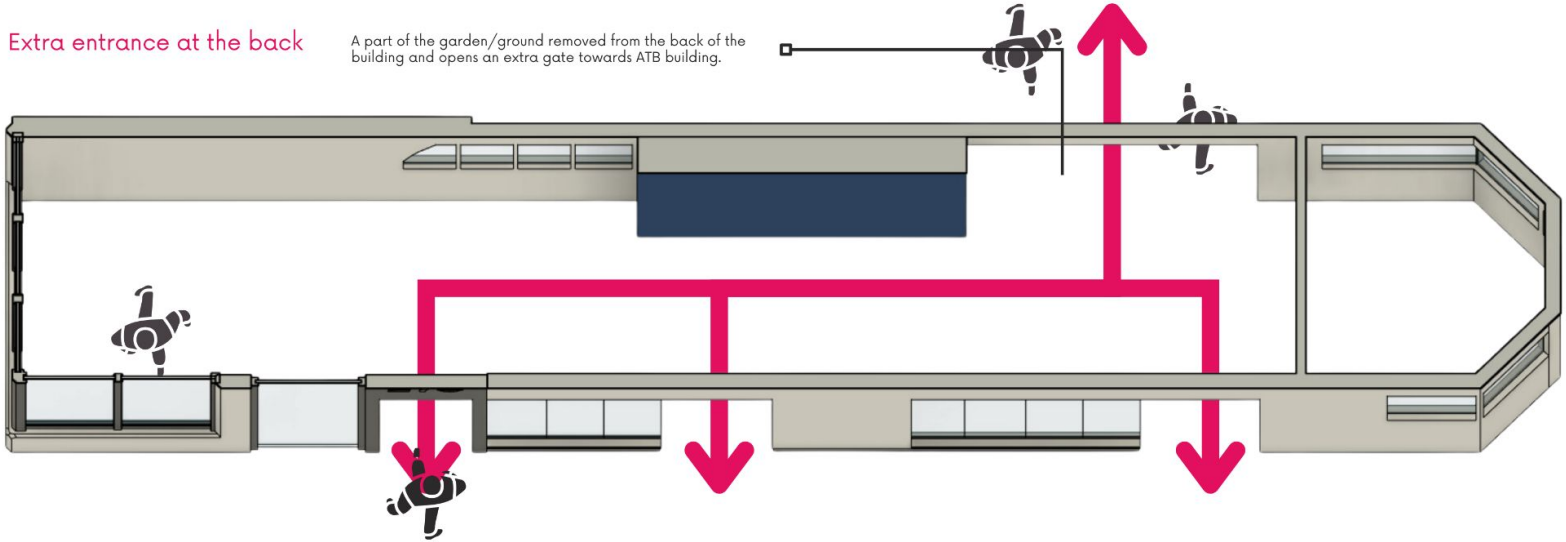
Extra entrance at the back

A part of the garden/ground removed from the back of the building and opens an extra gate towards ATB building.



Multiple Entrances

Traffic efficiency and flexibility

Multiple entrances can facilitate the entry and exit of people from different directions and purposes. It is a relatively common design technique to guide the flow of visitors to the entrance transition space through the guidance space. Guiding the main flow direction can be divided into linear type by presenting a significantly larger gate at the back of the building.

Security and emergency

For a public space, multiple entrance can avoid congestion and danger, and create a built environment easy for evacuation and rescue in emergency situations. Generally, two exits need to be in the same space. In a single-passage space, once one of the entrances and exits of the space becomes unusable, people will not be able to escape smoothly.

Spatial form and functional layout

Multiple entrances and exits can increase the efficiency and flexibility of public buildings and facilitate the entry and exit of people from different directions and purposes. For example, the east and west entrances are connected to the bus station and the Back pedestrian walk way to the ATB building respectively, making transportation convenient for the visitors without having to moving around the bus station and active the space and flow.

Windows on the south is set as a full-length window to the top

Left garden removed to provide a better sight outside

Pros

High visibility (natural surveillance)

Maximize visibility by designing doors and windows to look into public areas, keeping intruders under observation.

An adequate illumination of public area enhance the harmonious coexistence between man and nature, and promote people's physical and mental health and happiness

Sunlight

Windows in the south can make full use of the sun's light and heat, improve indoor lighting and thermal insulation effects, and save energy consumption, especially in winter.

The lower the window position, the higher the illumination value in the room and the lower the lighting energy consumption. However, the lower the window position, the lower the indoor **visual comfort** will be.

Cons

Maintenance

Windows in the south are also affected by southerly winds. which usually carry more moisture and dust and requires more frequent maintenance.

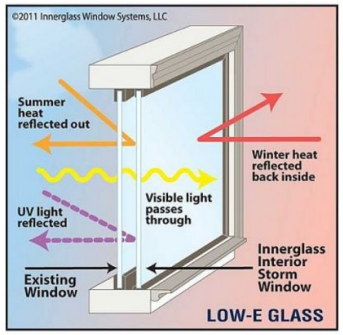
Vandalism

Easily seen or broken by people or objects from the outside

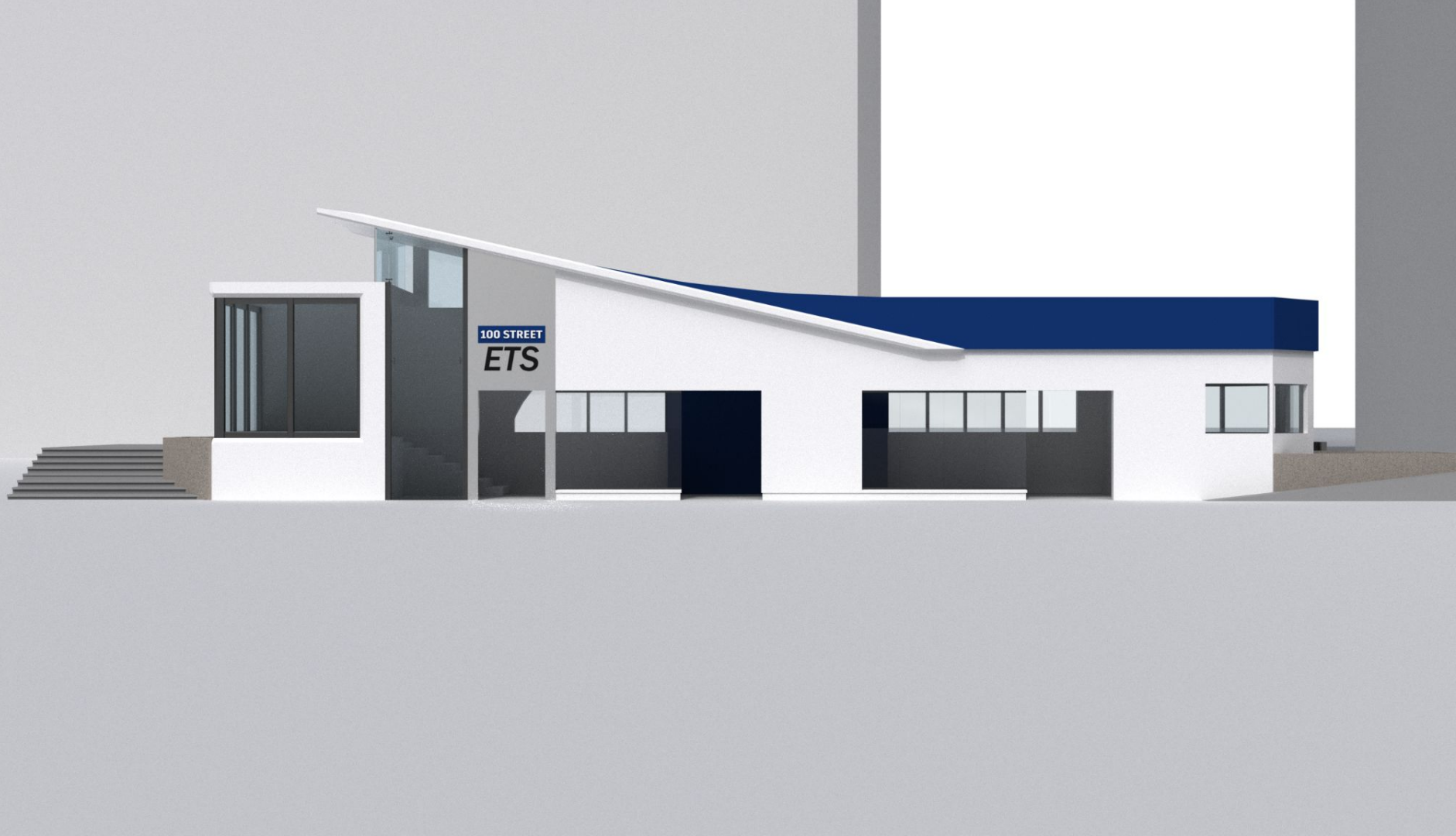
Heat (from sunlight)

For example, in summer, the indoors will be too bright and hot, and you need to install shading facilities or use air conditioning to adjust the indoor light and temperature.

However, this kind of visual discomfort can also be used to control the time people stay here, such as controlling the glare, uniformity, intensity, heat, etc. of light reflected by the glass to preventing people from over staying.



A handful of additional options are available if visitor comfortability has to be considered, such as pyrolytic low emission windows or low-reflective glass/shades.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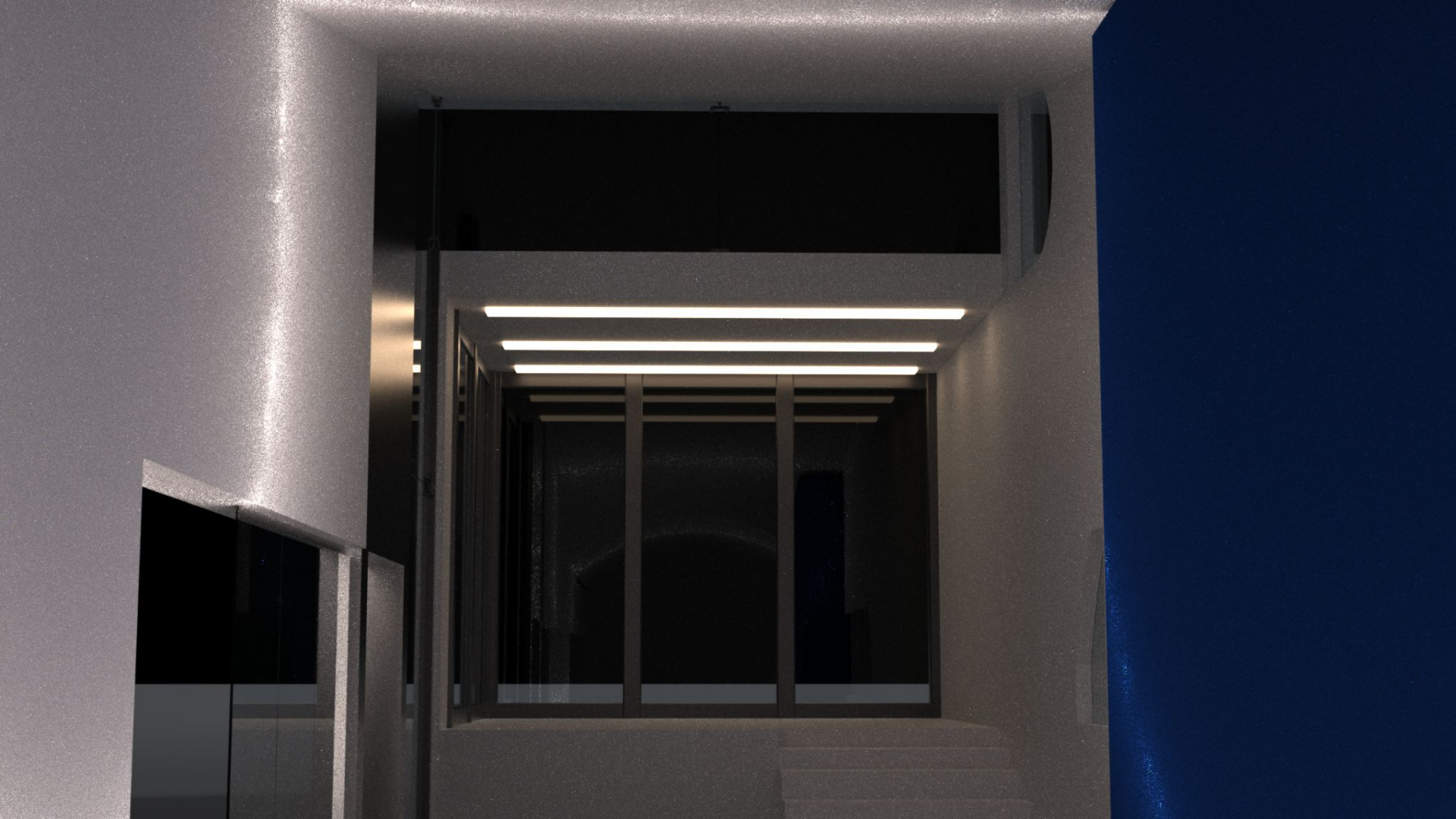


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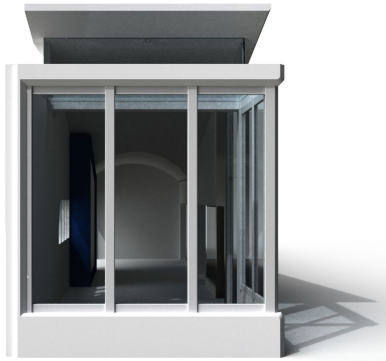
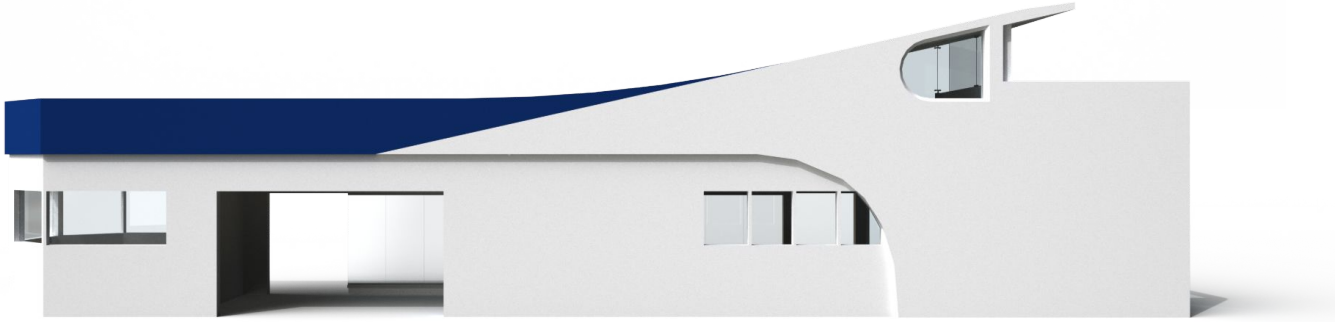
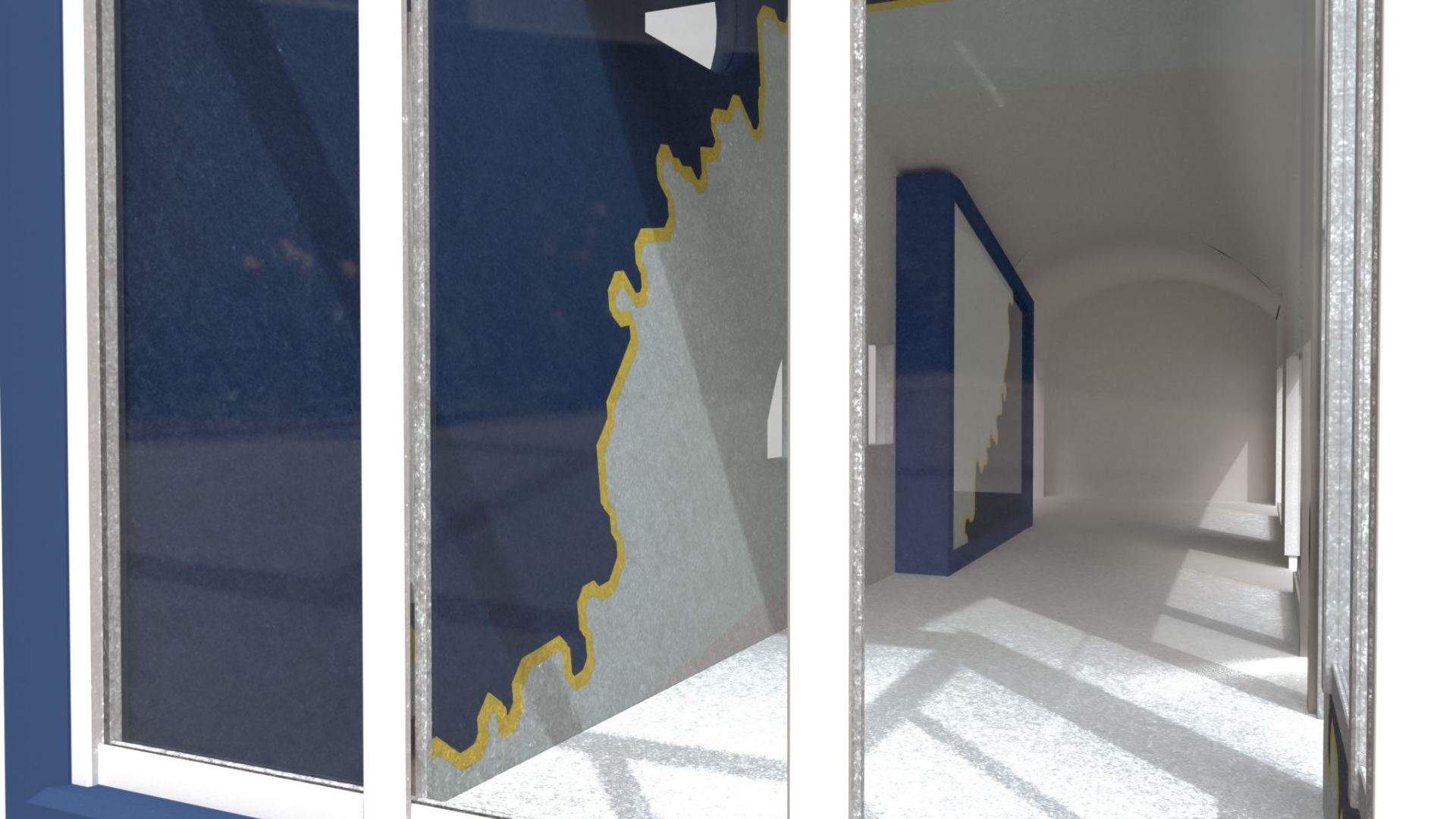
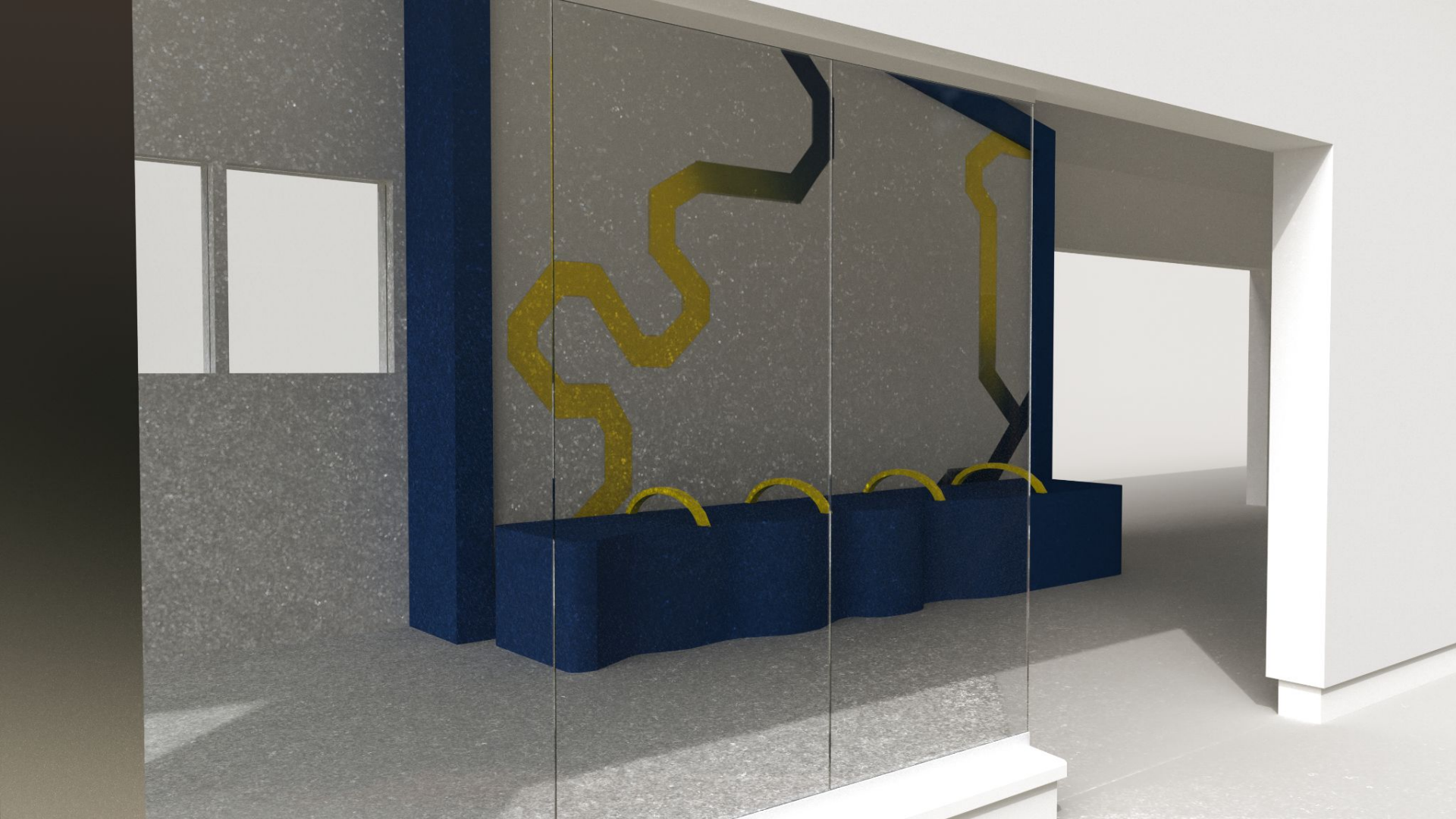




Renders



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In-Situ

THANK YOU!

Reference

https://uxdesign.cc/hostile-design-how-can-urban-design-impact-social-inequality-e948d428292e

https://www.re-thinkingthefuture.com/designing-for-typologies/a5354-rise-of-hostile-architecture-in-the-united-states/

https://www.youtube.com/watch?v=NWZLB8CvPbM
https://www.re-thinkingthefuture.com/designing-for-typologies/a2564-15-examples-of-hostile-architecture-around-the-world/#e897eb3b47dbb2000c68bd12ef1aed669aa472ed#185367

https://www.hsph.harvard.edu/wp-content/uploads/sites/1008/2013/09/bus-and-bus-stop-lusk.pdf
https://link.springer.com/article/10.1007/s12469-021-00265-1
https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-SS-SIS-RP-007-10.pdf
https://www.archdaily.com/867962/6-tips-for-designing-accessible-and-safe-bus-stops

Hostile architecture definition
https://dictionary.cambridge.org/dictionary/english/hostile-architecture
Hostile Design
https://www.cbc.ca/news/canada/toronto/how-defensive-design-leads-to-rigid-benches-metal-spikes-and-visual-violence-in-modern-cities-1.5192333
Criticism against hostile design in Edmonton
https://thegatewayonline.ca/2018/04/hostile-design-no-place-in-yeg/

Edmonton bus shelter repair fees
https://globalnews.ca/news/9350283/edmonton-bus-shelter-vandalism-cost/
https://www.centreforcities.org/reader/improving-urban-bus-services/the-benefits-of-buses-for-cities/
https://www.statista.com/topics/2994/public-transportation/#topicOverview
(routes map)
https://www.google.com/maps/d/viewer?mid=1o5DnUo2Qwzr9YdGvoGlPclilPD9EriE&femb=1&ll=53.53771258914176%2C-113.47535018525254&z=14
https://www.edmonton.ca/sites/default/files/public-files/assets/transit/ETS-Route-Frequency-Table-Sept-2023.pdf
https://www.interaction-design.org/literature/topics/emotional-design