

HANYU SHUANG

THESIS 2020

*INT-402-01
PRATT INSTITUTE*

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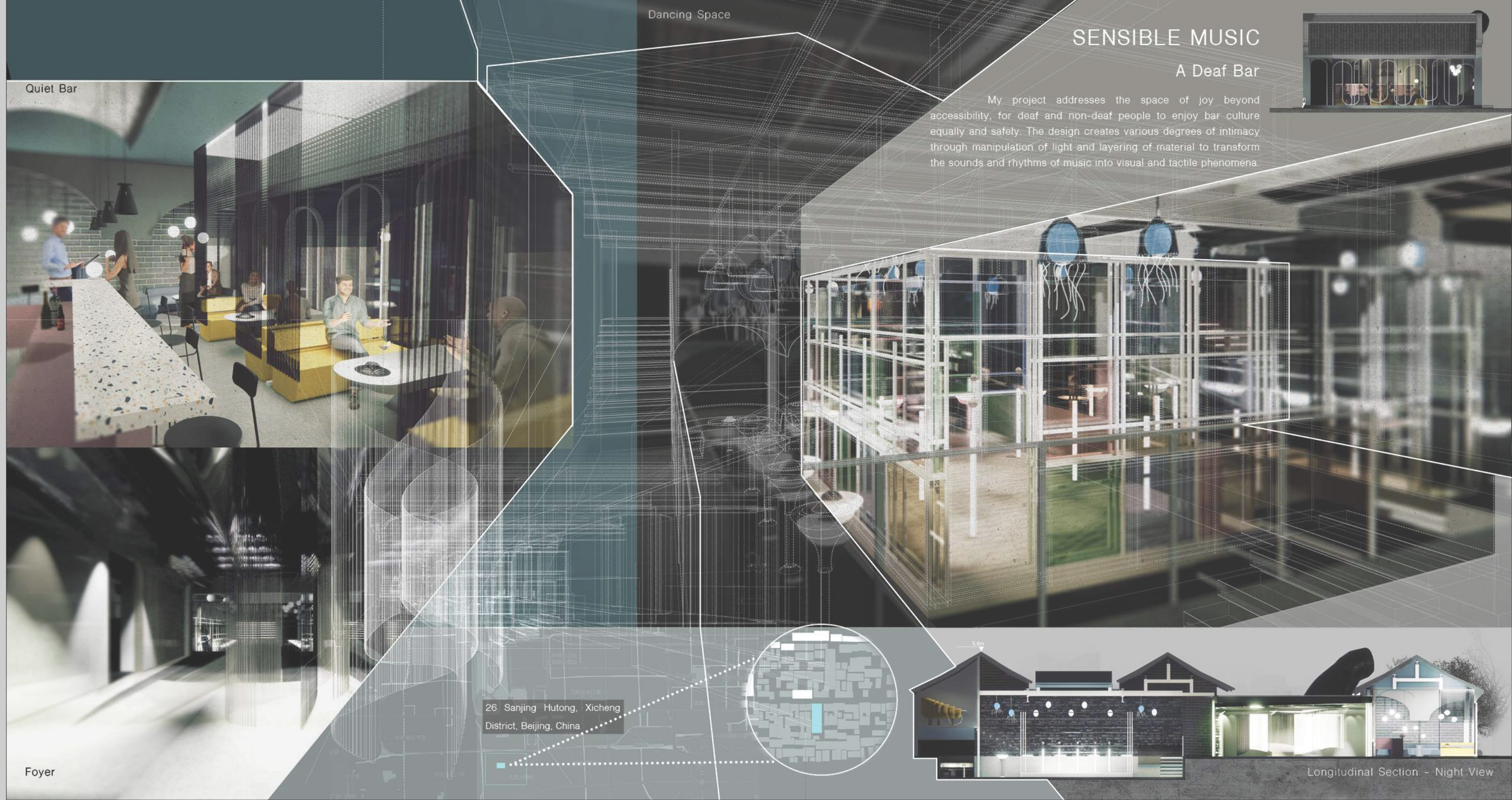
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INTRODUCTION

THESIS ISSUE:

- Lack of equality and consideration of the needs of underserved people beyond accessibility in current society.

THESIS STATEMENT

My project addresses the **space of joy** beyond accessibility, for deaf and non-deaf people to enjoy bar culture equally and safely. The design creates various degrees of intimacy through manipulation of light and layering of material to transform the sounds and rhythms of music into visual and tactile phenomena.

My project addresses the lack of concern towards the needs of underserved people in existing built environment. These issues are explored in Digital inclusion of people with disabilities: a qualitative study of intra-disability diversity in the digital realm which states that disabled people are feeling excluded and oppressed sometimes when access to the current public space due to the inconvenience caused by the design.

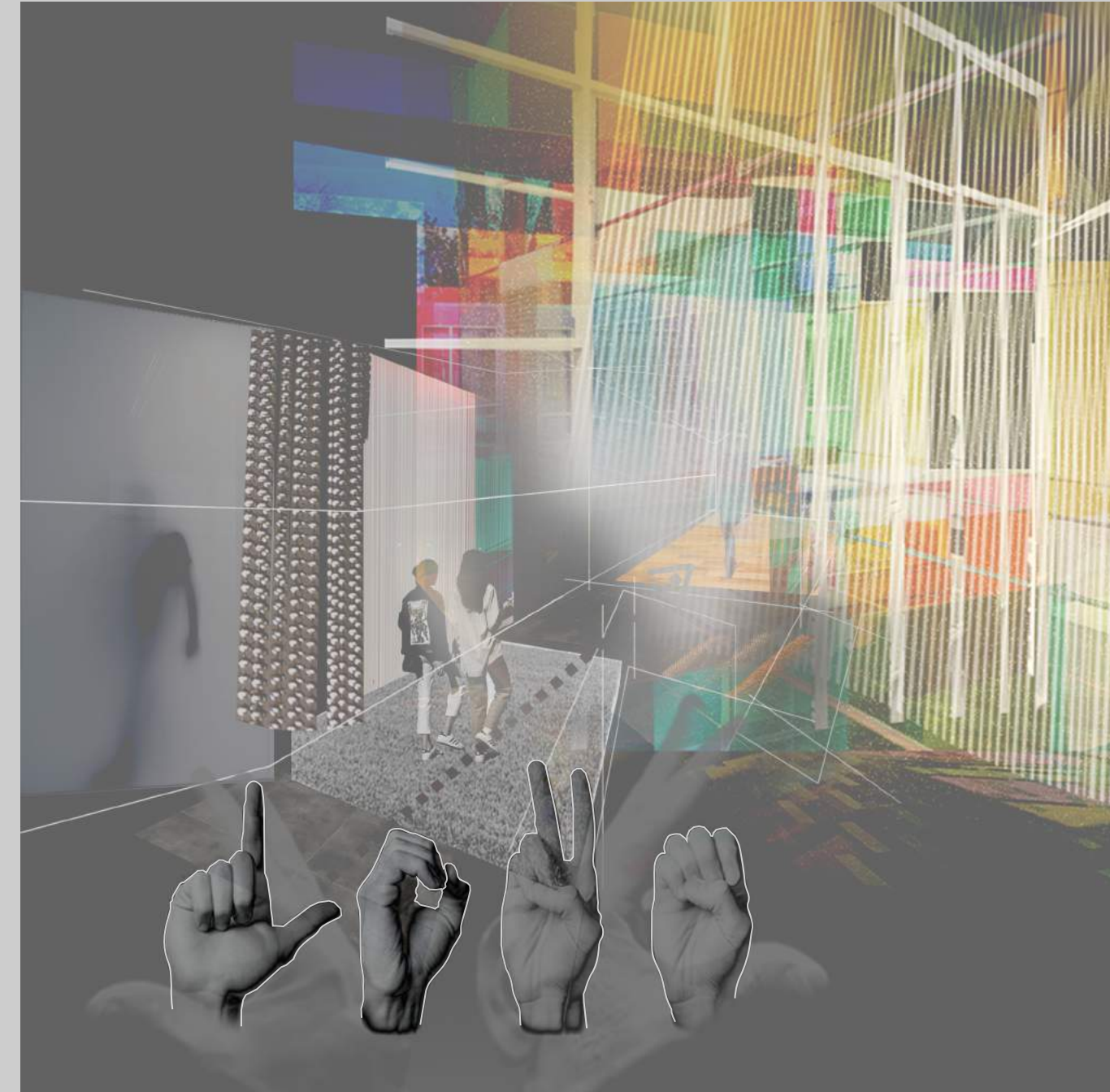
I intend to explore this through manipulation of light and layering of material to transform the sounds and rhythms of music into visual and tactile phenomena. A similar idea is explored in "alternative sensory system," which is a set of jewelry-like devices that designs to help deaf and hard-of-hearing people to experience music through vibration. This project is important to my thesis because it introduces a way to transform music into vibration for deaf people to enjoy.

A similar idea is also explored in the lighting design "Inner Personality." That project is important to my thesis because the manipulation of light and layering of transparent materials in the project can be referred as a design strategy to create night club atmosphere in the space.

My site is in 26 Sanjing Hutong, Xicheng District, Beijing, China. It is within a traditional Chinese courtyard neighborhood. I am working with this site because it is located in the central of the city, having a convenient traffic, near a gathering area of young population, and having a quiet surrounding. My program is a deaf bar for both deaf and non-deaf people. I am working with this program because within our current society, there are not many spaces of joy designed particularly consider about the needs of disabled people in socialization and safely desire of enjoying music and dance.

A similar program was observed at The Deaf Rave, which is a music rave founded only for deaf people to bring them a place to communicate with similar group of people and enjoy music without being discriminated. In my visit, I found out that deaf people are able to feel music within the space through the vibration of floor and surfaces next to them.

By working with this program and site, I hope to create a space of joy beyond accessibility, for deaf and non-deaf people to enjoy bar culture equally and safely, at the meantime enhance social awareness of the needs for entertainment of underserved people.

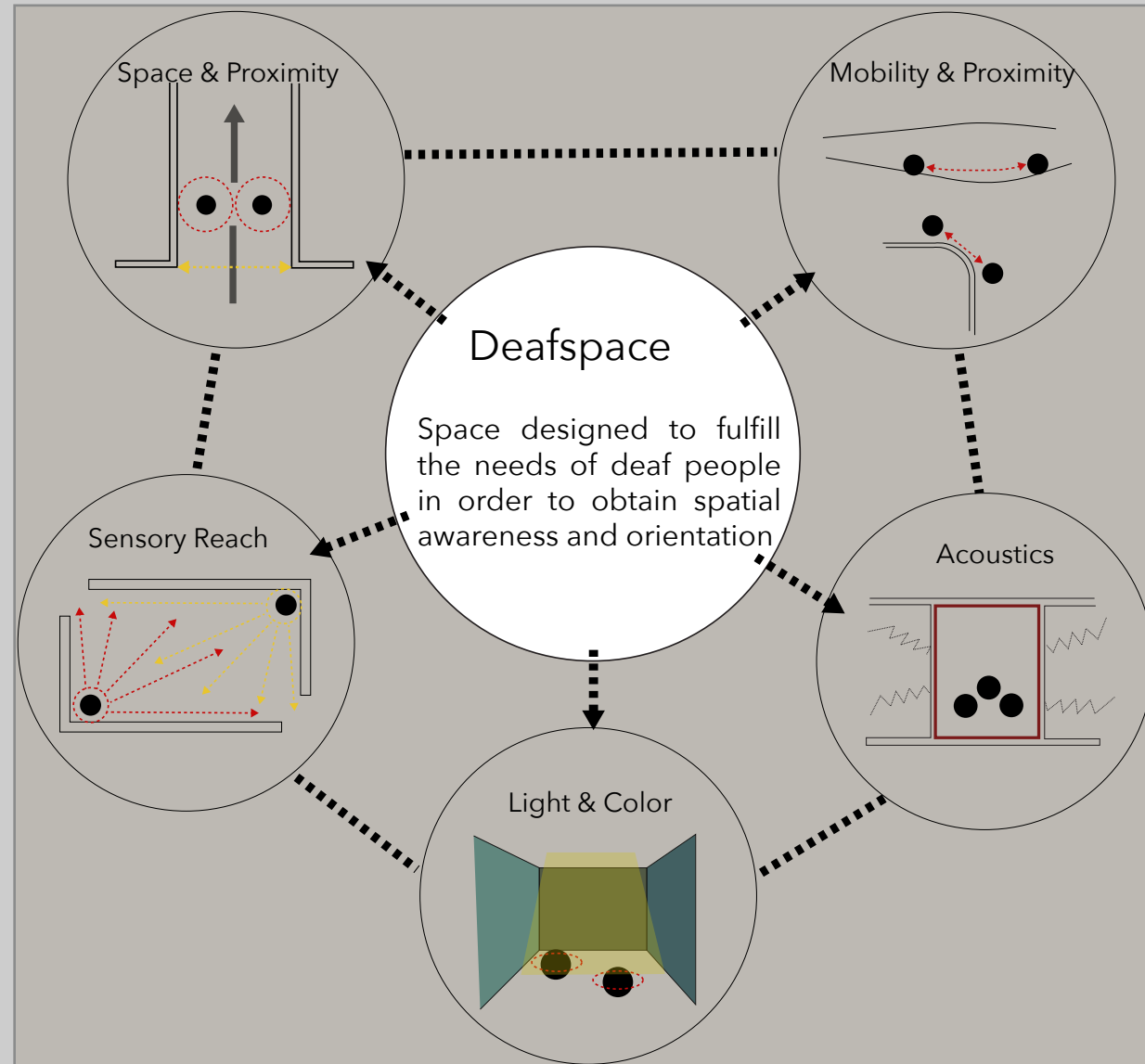


THESIS IMAGE

RESEARCH



5 Major Points Between Deaf Experiences and Built Environment



In 2005, architect Hansel Bauman and the ASL Deaf Studies Department in Gallaudet University established the DeafSpace Project which we refer as DSP. Over the next five years, this project developed the DeafSpace Guidelines -- a catalog of over one hundred and fifty distinct architectural design elements of DeafSpace.

SPACE & PROXIMITY

- More space is needed between two speaking partners to create a better visual conversation
- The space between individuals increases as the numbers within the conversation group grow
- Spaces like hallways or sidewalks need to be wider in order for deaf people to walk through safely while having a conversation.

MOBILITY & PROXIMITY

- The pathway should be clear without any obstacles. Examples: the hallway should be free of objects or steps except the stairways
- The corner can be curved in order for people coming from two directions to easily aware of each other.

SENSORY REACH

- Deaf people maintain an acute situational and environmental awareness.
- They are uncomfortable when their back are to others or to empty space.
- According to "Deafspace" principle, it is best if the deaf person has greater than 180 degree vision
- Examples:
 - circular seating arrangement
 - let the deaf people be face outward from their table

COLOR & LIGHT

- The color within the space should be contrast with the skin color in order to less distract deaf people's attention on sign language
- According to research, soft blue and green tones are the best choices for background color of the space.
- Poor or too bright light would cause eyestrain or headaches especially for deaf people.
- Soft, natural, diffused lighting is better to be used in space design for deaf people.

ACOUSTICS

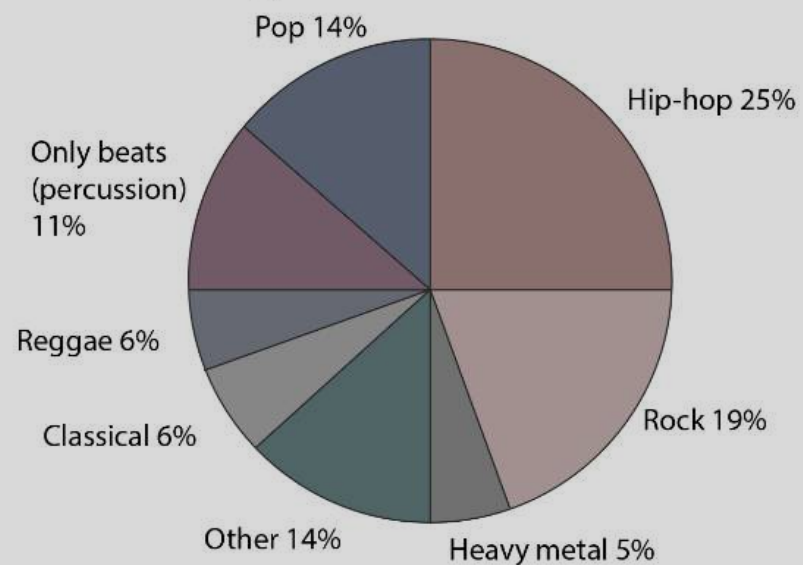
- Deaf people may experience different hearing levels since many of them use assistive devices like hearing aids or cochlear implants to enhance sound. Those sound seriously distract deaf people.
- Reverberation caused by sound waves reflected by hard surfaces is especially distracting the deaf people.
- The interior space for deaf people should designed to reduce reverberation and other kinds of background noises.

Observed numbers of profoundly deaf and partially deaf subject taking part in musical activities

		Yes	No	Total
Level of deafness	Partial	17	5	22
	Profound	6	13	19
Total		23	18	41

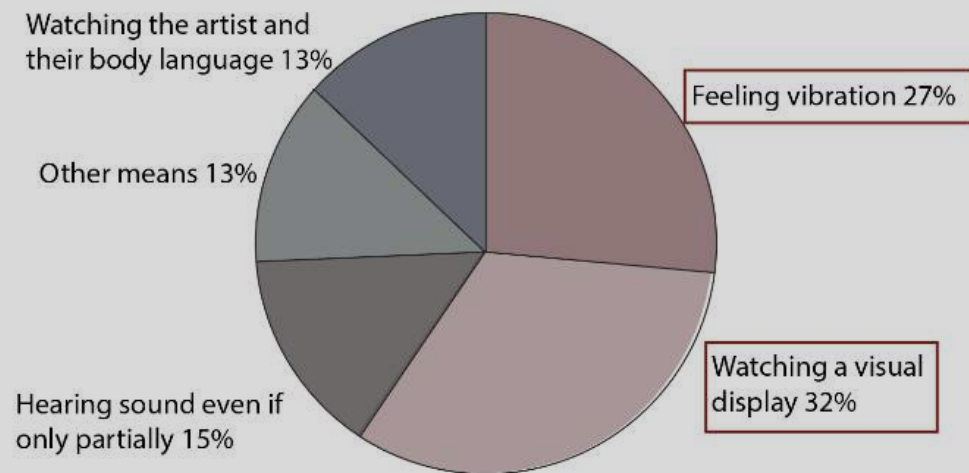
The result suggests that partially deaf people are more tend to participate in musical activities. From the result, we can get an idea that the proportion of partially deaf people will be large than profoundly deaf people within the user group.

Preferred music genres

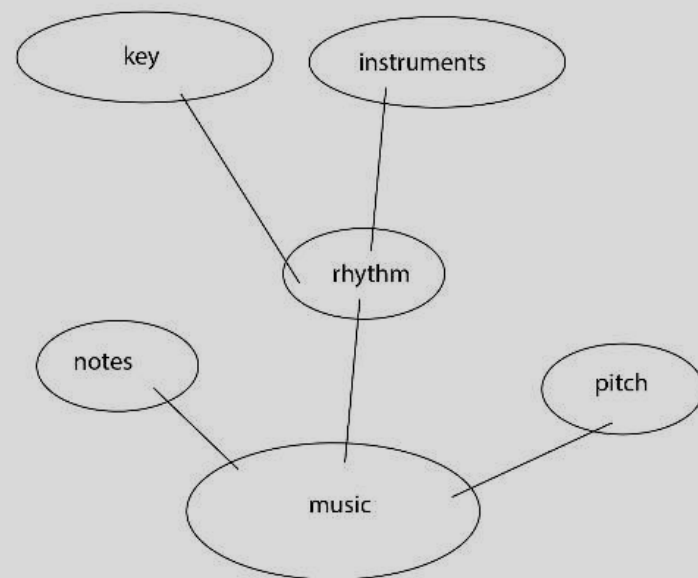


Research about the music genre enjoy by the hearing impaired suggests that they are more tend to listen to music with a strong beat. The result gives a reference of what kinds of music to play i the bar.

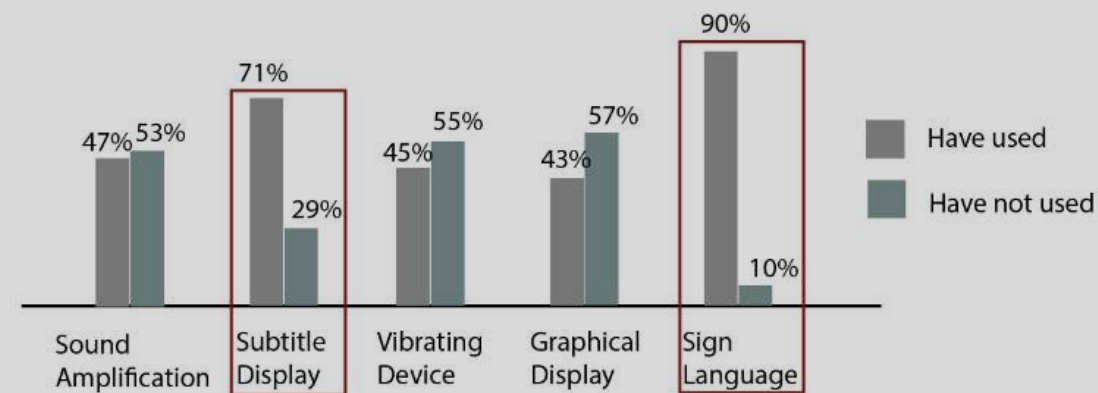
Factors that enable enjoyment of music



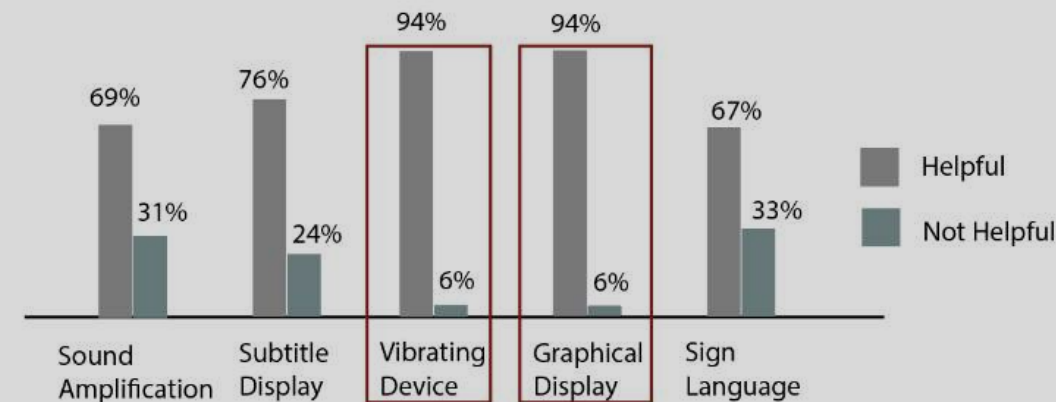
Research about the respondents to identify the dominant factor which enable them listen to a music activity are **feeling vibration** and **watching a visual display** which gives a sense of the type of assistive systems we use in the design of the space.



Assistive devices that hearing impaired people have used while engaging in a musical activity



Usefulness of different assistive devices



Research about the respondents to identify the assistive devices that might enhance a musical experience shows the type of assistive devices they use during a musical activity and the devices that are useful.

- **Subtitle and sign language** are being used mostly since **they are the most easily available options**.

- However, **94% of the people who used a graphical display and a vibrating device** thought those devices **contribute significantly to their enjoyment**.

Levels of Deafness:

-Mild: Very soft sounds, the lowest around 25-40dB, are out of reach.

-Moderate: The lowest decibels of 40-75 are out of reach for those with moderate loss.

-Severe: Levels from 75-90 dB are out of reach.

-Profound: The level that most people think of when it comes to deafness, and 90-120dB it the lowest level of sounds those with this level of loss can hear.

Ways hard-of hearing people feel music:

-Wear no shoes

-Hold a balloon

-Stand next to a speaker

CASE STUDY - DEAF RAVE

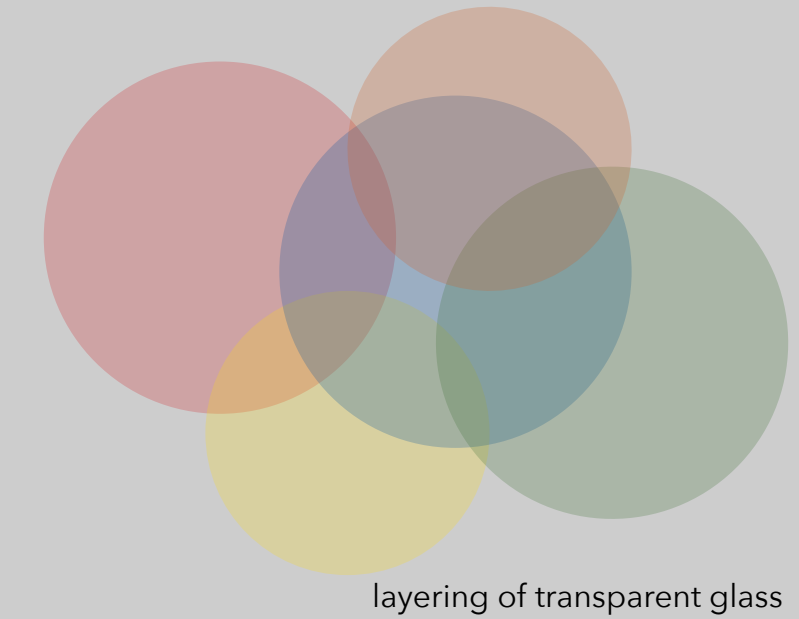


This is a rave which is particularly held for deaf people. This Deaf Rave was founded by Troi Lee who wanted to provide an isolated place to let deaf people experience music without being stigmatized. This rave is held once a week in a deaf hub, in which deaf people gather together to enjoy music and communicate with people having similar problems. This is not only a place for deaf people to enjoy music but also a place for them to freely socialize. Bass is very important to produce intense vibration of music in this event. Those vibration can be transformed to the floor and the surfaces next to the people. **As another project based on the idea to raise hearing people's awareness of deaf people's desire to enjoy bar culture, it is important to my thesis as a potential model to allow deaf people to feel music in the space i intend to design.**



preceive music through
touching and feeling vibration

PRECEDENT STUDY



Reflective Lights - The Inner Personality & Outer Traits of Myself

This project shows the contrast and durability between my inner and outer traits. This lamp is composed with three layers. Each layer is composed with several transparent PVC boards connecting together. Those colorful stickers are cut into rounds of different sizes and stick to the transparent pieces. Those greyish shadows are there to represent my inner characters which can only be seen when the lamp is under lighting exposure. Without the lighting source, others could only see those colorful round stickers and irregular geometric shapes which represent my outer traits that I expose in front of the belonging. This lamp shows my vulnerability through lighting exposure.

The relationship of this text to my emerging design is the use of lighting and color to create a kind of illusion. I think lighting and virtual illusion would be a good design strategy to make the space visually open from one side but blurred from the other side. By doing so, maintain a level of privacy for customers.

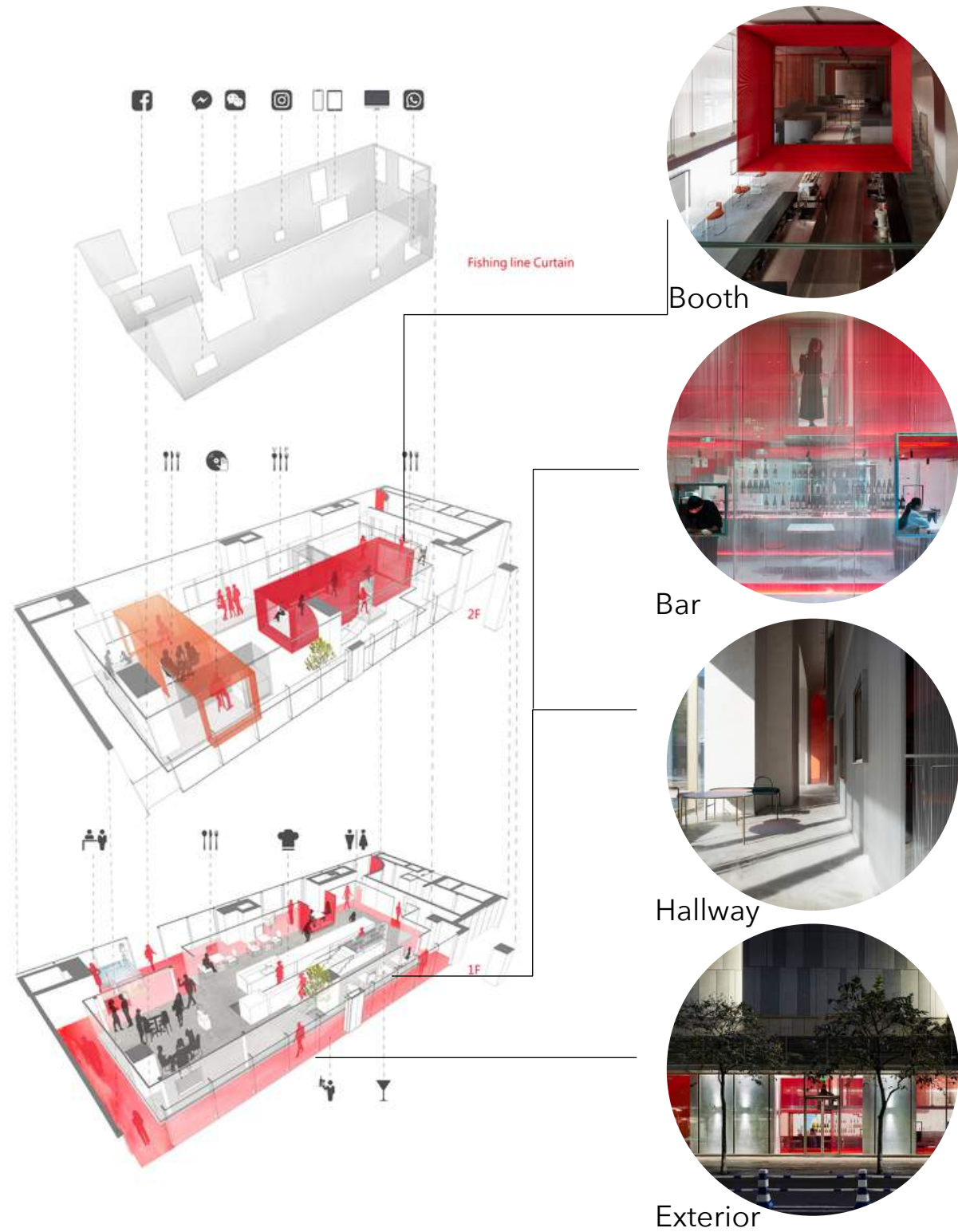
CASE STUDY

DOKO BAR
 Shenzhen, 2018
 Waterfrom Design
 Total Footage: 4198 sq ft

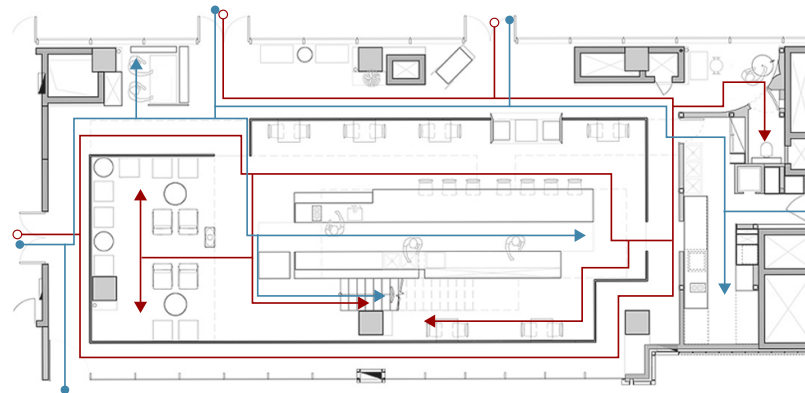
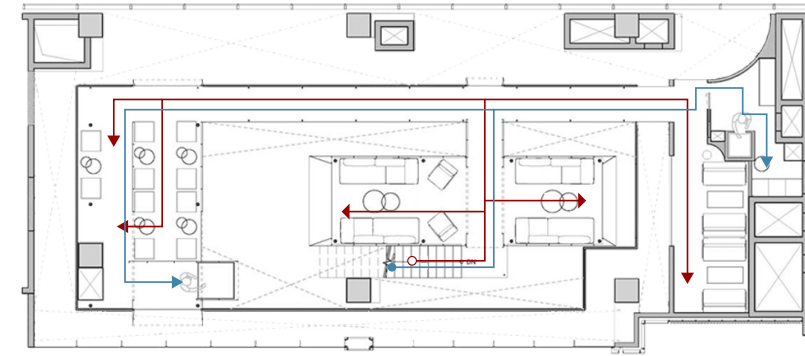
This bar is designed for people who not only want something to eat but also consider the process as a way to show off themselves. The inspiration of this design came from the 15-minute theory, which is to bring everyone a chance of 15minutes' fame. The interior space is surrounded by a hallway which is like a runway in a fashion show. All the activities like placing the food, putting the dishes on tables, taking the seats, eating are parts of the theatre. The guests become an actor within the theatre who are willing to be observed by others in the hallway. The hallway and the inner space is separated by a translucent wall which is constructed by lines made of nylon threads. The space creates a sense of virtuality through the use of transparent, translucent, and semi-translucent boundaries and blur the real distance of viewing.

Furthermore, the semi-translucent shield successfully symbolize the complexity of interpersonal webs of relationships in reality.

The idea of building transparent, translucent, and semi-translucent boundary to separate the space and creating an illusion of the distance of viewing is an inspiration to my project. Also, using soft materials like nylon threads to build partition is a good idea as well.

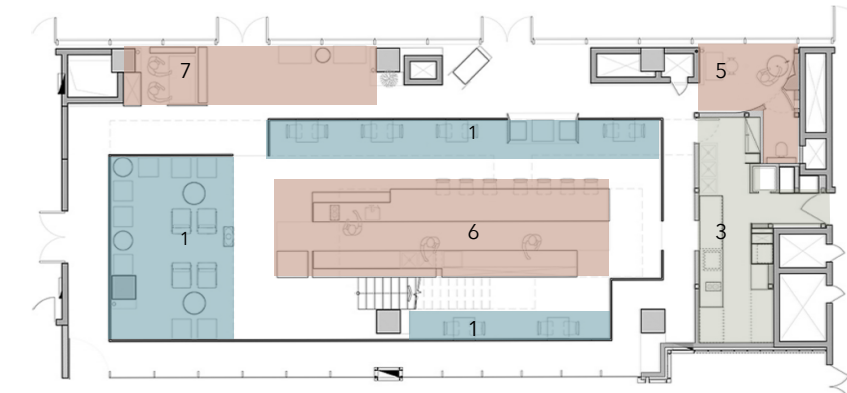
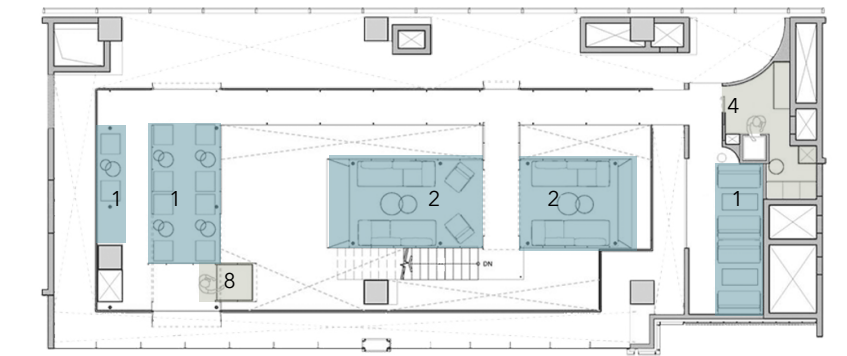


Circulation



— Guests
 — Servers

Adjacency



1 Dining
 2 Booth
 3 Kitchen
 4 Pantry
 5 Toilet
 6 Bar
 7 Reception
 8 Stage

■ Serving
 ■ Be Served
 ■ Intersection

Project Name: Chernyi Coffee Bar
 Program: Restaurant & Bar, Coffee Shop
 Location: Ukraine
 Architects: Ponomarenko Bureau
 Year: 2020
 Area: 1076 sqft

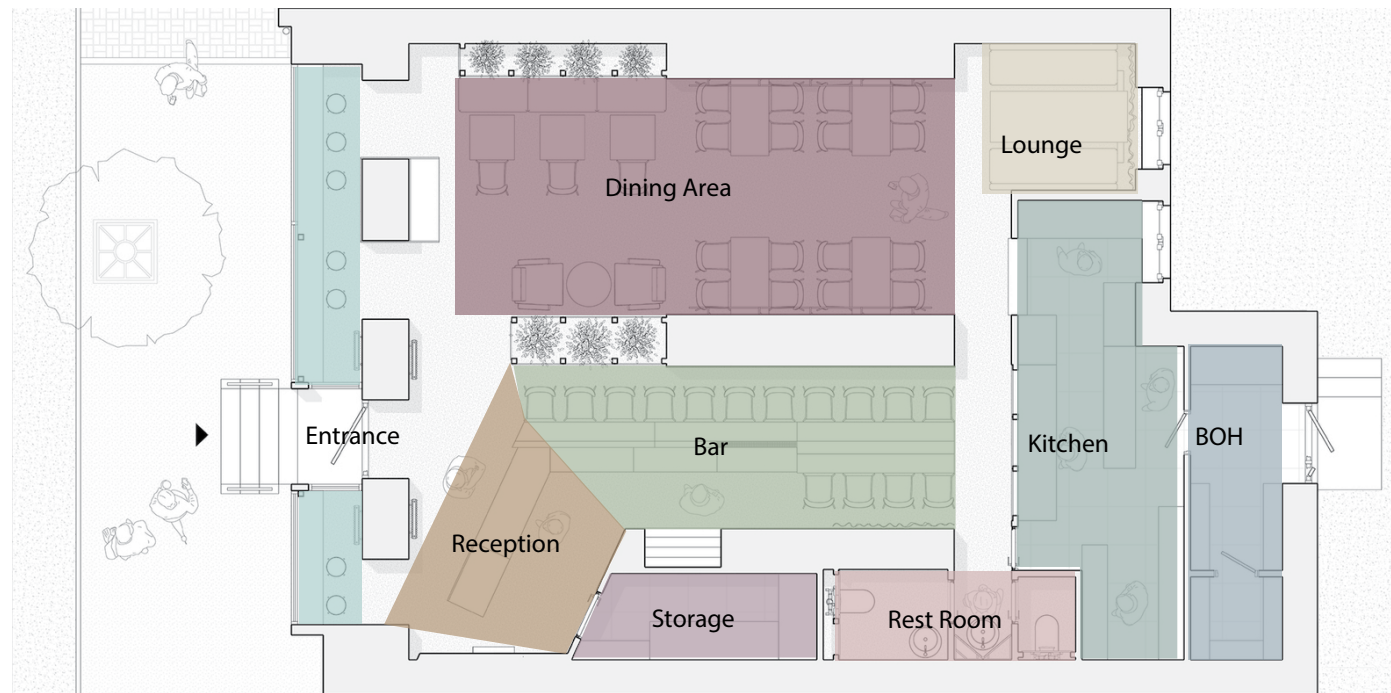
Activities:

1. Entrance: Sitting, Viewing outside
2. Dining Area: sitting chatting with friends, eating, drinking
3. Lounge: sitting, more quiet conversation, eating
4. Bar: (customers) sit, drink, talk (server) make drink, help customers
5. Reception: (customer) ordering desserts, coffee
6. Kitchen: (server) preparing food
7. BOH: (server) store food, change clothes
8. Storage: store coffee products
9. Rest Rooms: (for both servers and customers) wash hands

This bar is close to the program proposing in my thesis. The bar is divided into several spaces to serve for foyer, communal bar, vip room and lounge. This programming method can be referenced to the program layout of my project.

This project is partially close to the program proposed in my thesis. It has a similar large glass facade as my site. Some of the programming methods in the project can be studied. A row of stools right in front of the facade is for people to sit and wait. The storage should be designed in a hidden place like behind the reception. Also, the rest room can be designed close to the back of BOH, to make it more convenient for both costumers and servers to use. The programming method of this project can be a reference to my thesis.

https://www.archdaily.com/950136/chernyi-coffee-bar-ponomarenko-bureau?ad_source=search&ad_medium=search_result_projects



Project Name: Secret Bar
 Program: Bar
 Location: Shanghai, China
 Designers: Atelier xy
 Year: 2020
 Area: 1722 sqft

Gross Floor Area: 1722 sqft
 Net Occupiable Area: 1670 sqft
 Reception: 109 sqft
 Foyer :147 sqft
 Communal Bar: 607 sqft
 Smoking Room: 77 sqft
 VIP Room: 173 sqft
 Lounge : 205 sqft
 BOH: 98 sqft
 Rest Room: 123 sqft
 Storage: 52 sqft

Activities:

1. reception
2. foyer
3. communal bar
4. lounge
5. vip room
6. restroom
7. storage
8. smoking room
9. BOH

This bar is close to the program proposed in my thesis. The bar is divided into several spaces to serve for foyer, communal bar, vip room and lounge. This programming method can be referenced to the program layout of my project.

<https://www.archdaily.com/943180/secret-bar-atelier-xy>



SITE DOCUMENTATION

SITE LOCATION

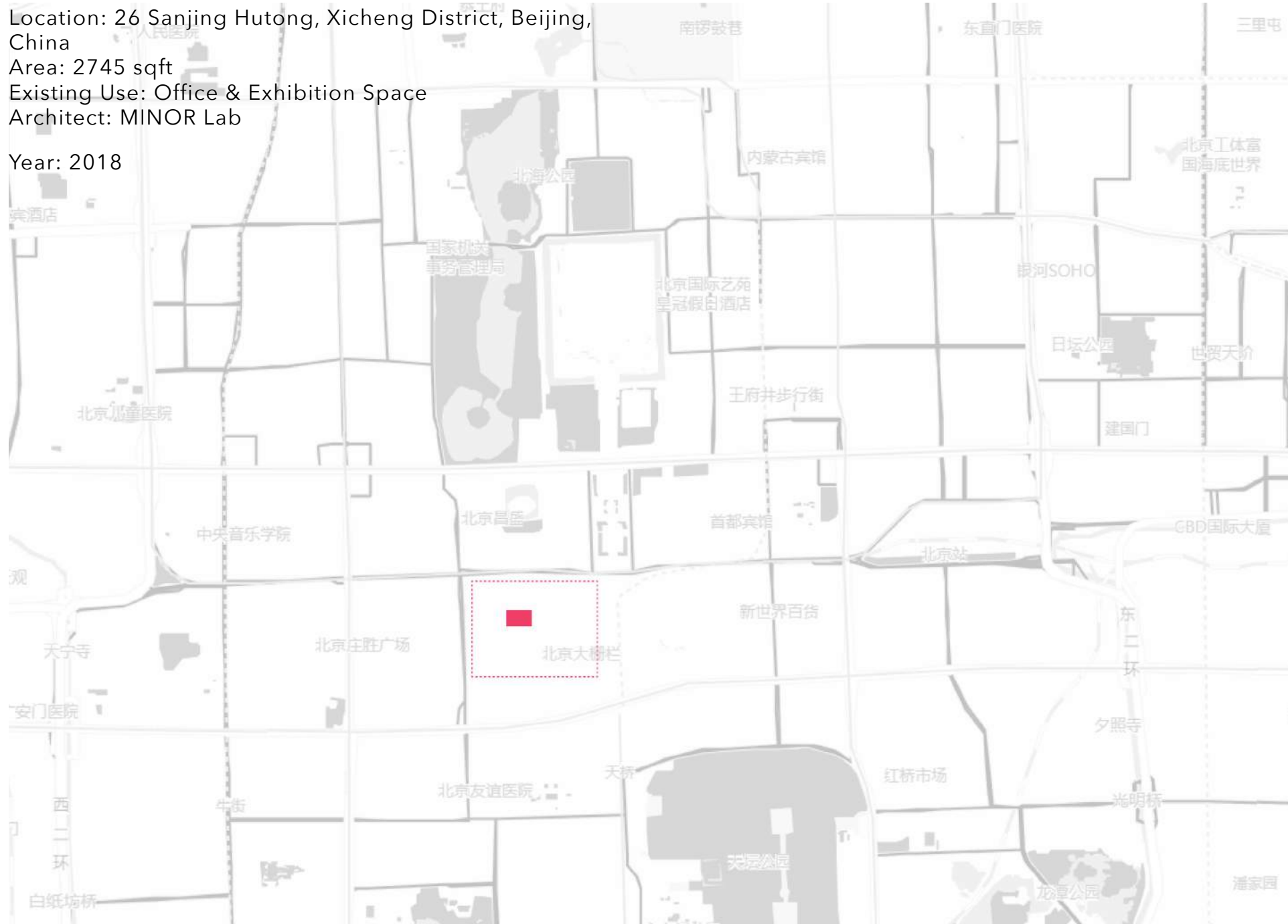
Location: 26 Sanjing Hutong, Xicheng District, Beijing, China

Area: 2745 sqft

Existing Use: Office & Exhibition Space

Architect: MINOR Lab

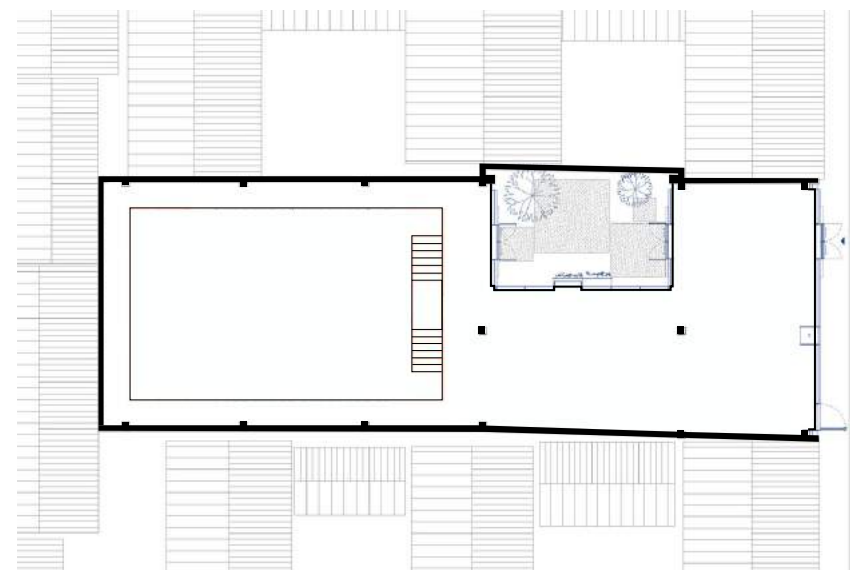
Year: 2018



SURROUNDING

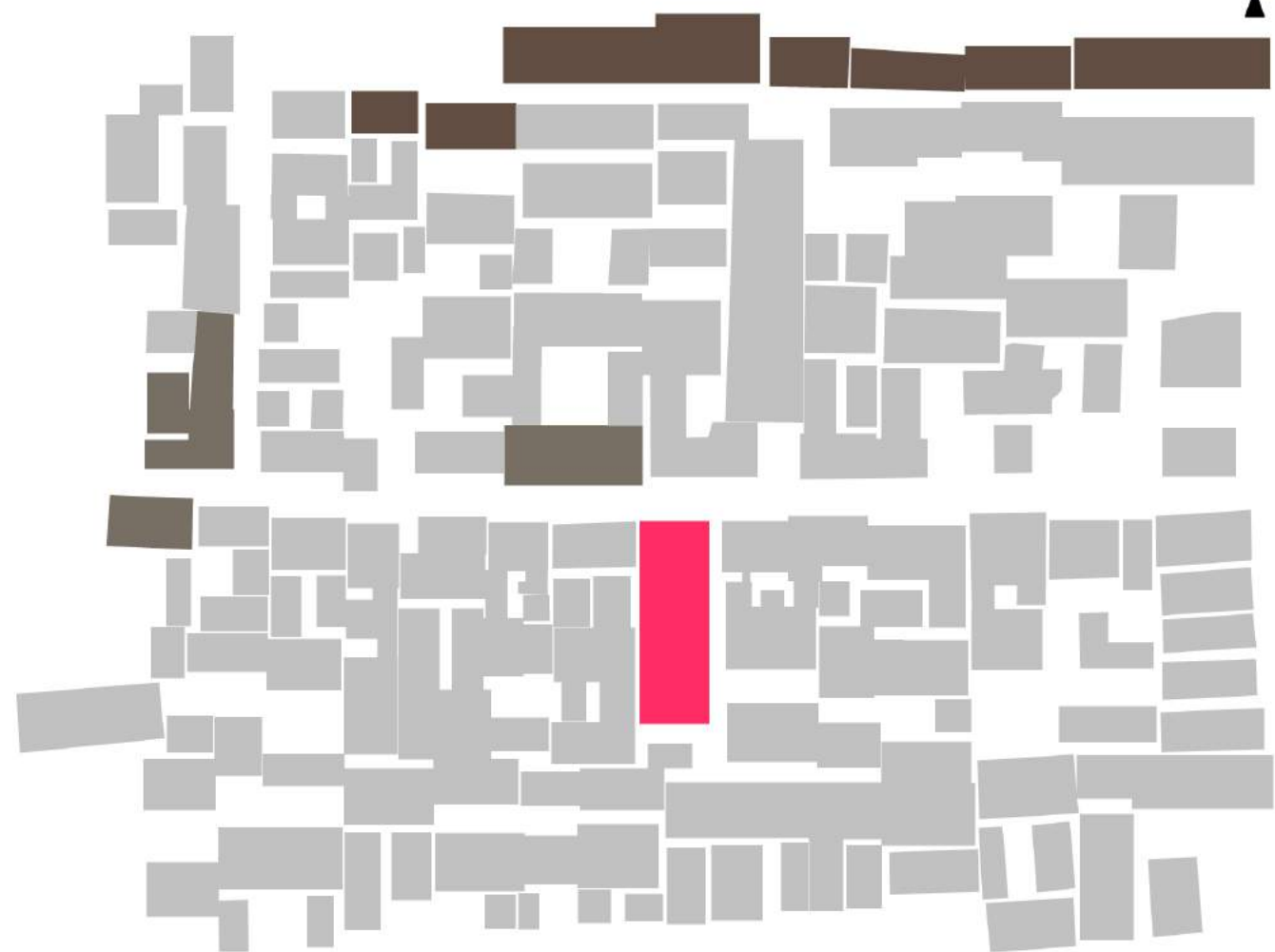
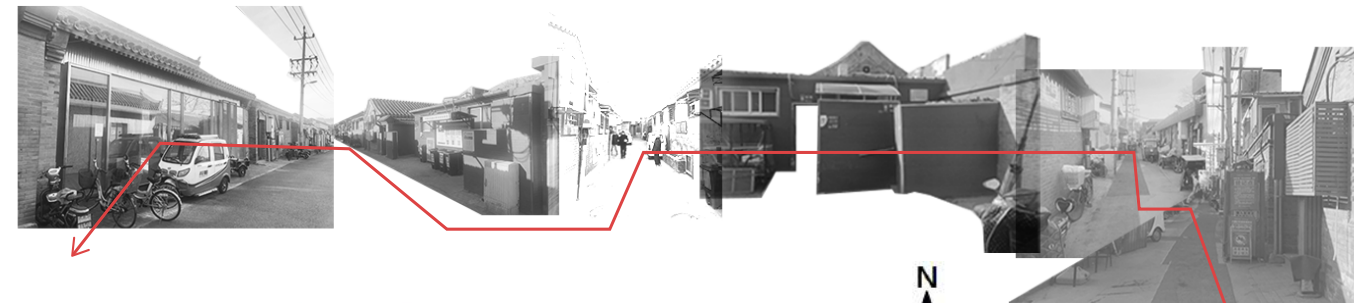


EXISTING CONDITION



0 1 2 3 4 5m

ADJACENCY DIAGRAM



Site Community center Hotel Courtyard Residential

DESIGN PROCESS & PROTOTYPE TESTS

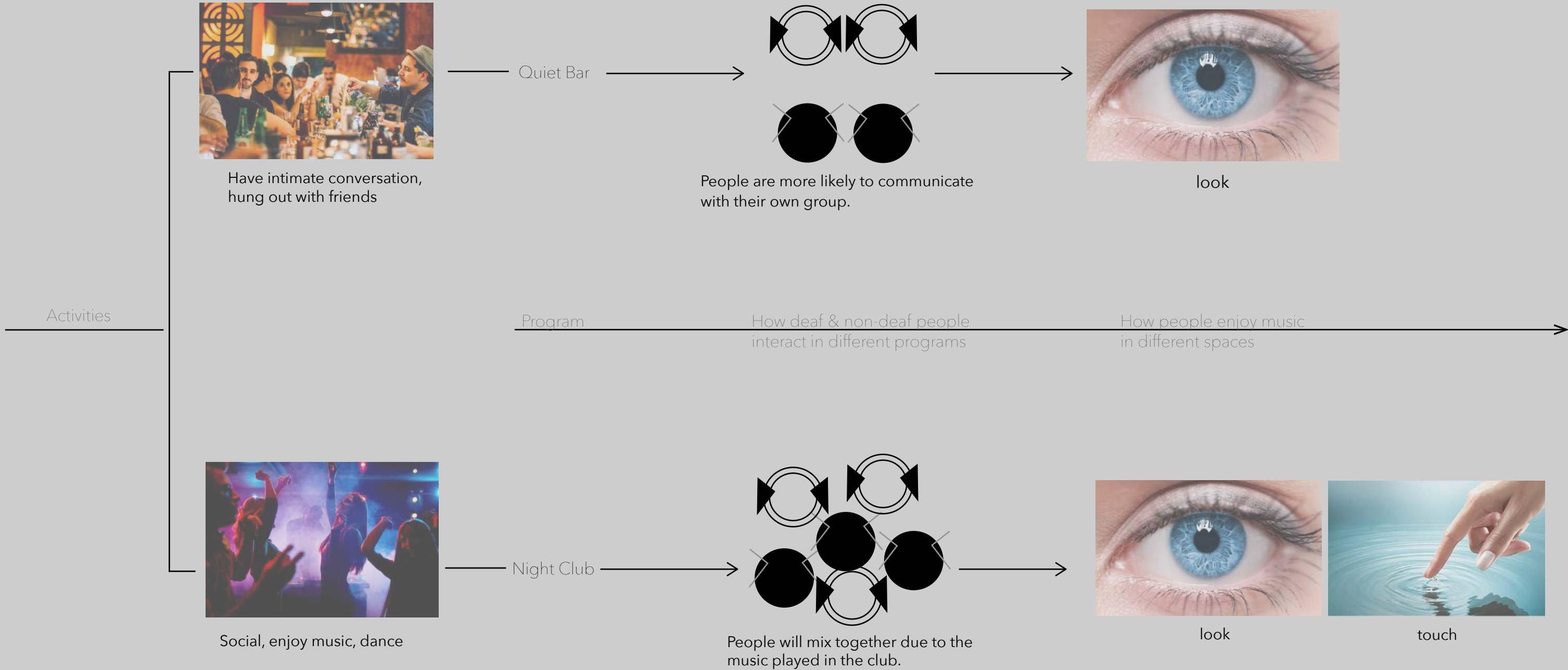
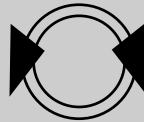
USER & ACTIVITIES & WAYS OF INTERACTION



Non - deaf



Deaf



PROGRAM AREA

Gross Floor Area: 2670 sqft
 Net Occupiable Area: 2290 sqft
 Reception: 100 sqft
 Foyer :120 sqft
 Communal Bar: 650 sqft
 Dancing Space: 250 sqft
 VIP Room: 150 sqft
 Lounge : 40 sqft x 5
 Standing Area: 100sqft
 Kitchen: 100sqft
 Outdoor Lounge: 200sqft
 BOH: 100 sqft
 Rest Room: 100 sqft
 Storage: 50 sqft
 Program Required Area: 2020sqft

Activities: (customers)

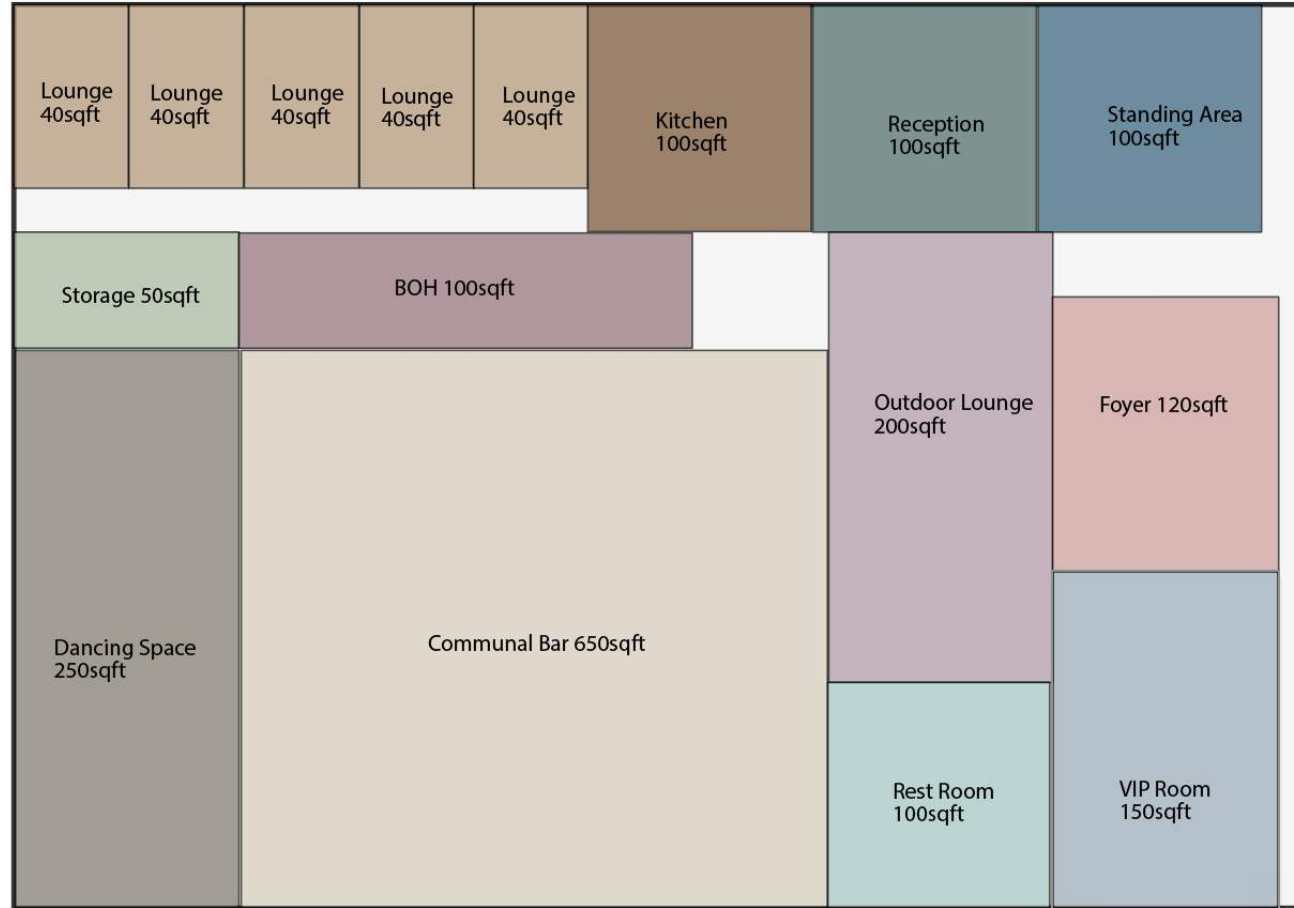
1. sitting
2. talking
3. walking
4. drinking
5. eating
6. party
7. more private meeting
8. dancing
9. standing

(servers)

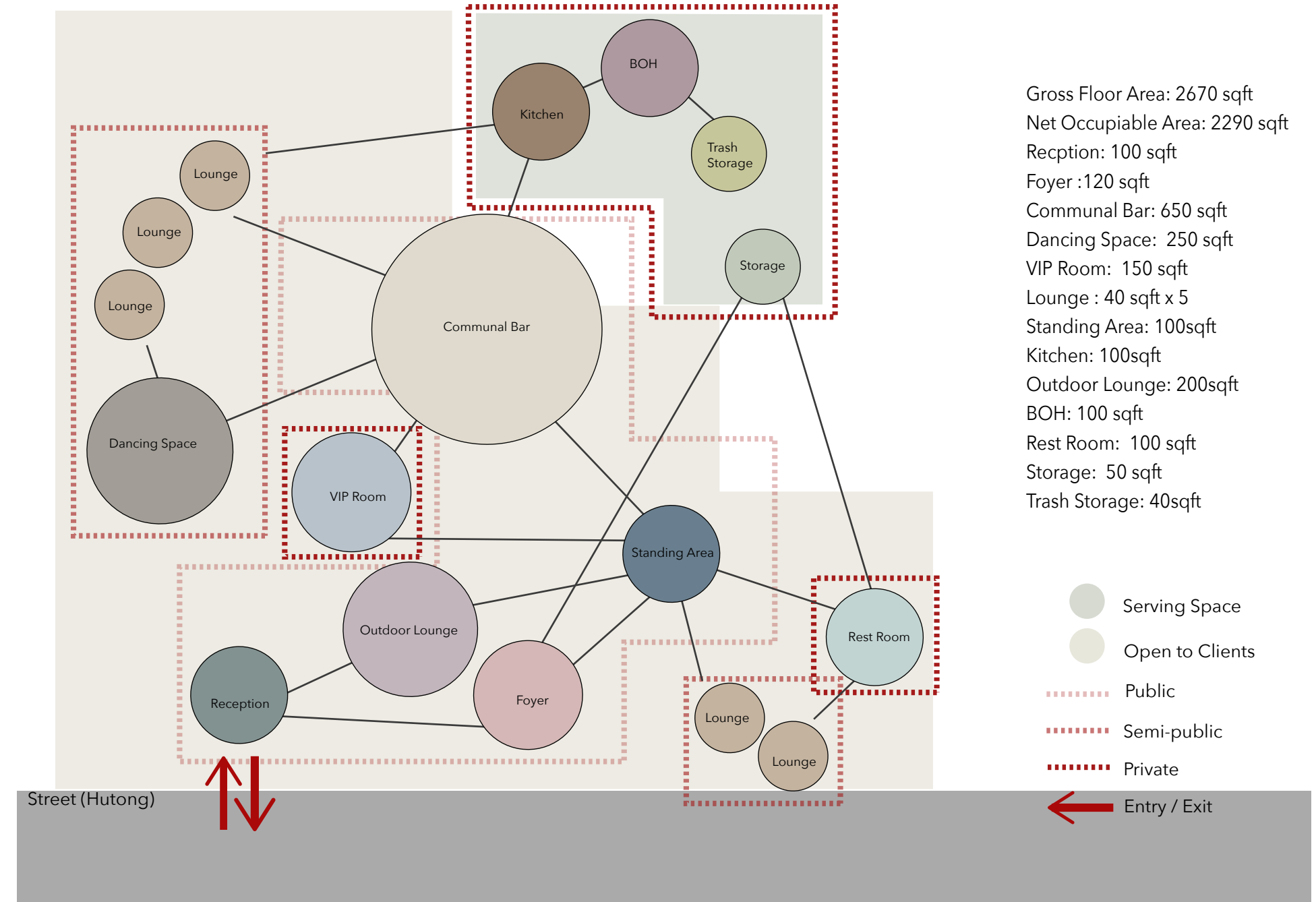
1. preparing snack and drink
2. changing clothes and rest
3. helping customers

-People can chat with their friends and meet new people.
 -Encouraging silent interaction between deaf and non-deaf people through dancing and music.
 -Enjoying music while have chance to observe other people's action.

PROGRAM AREA



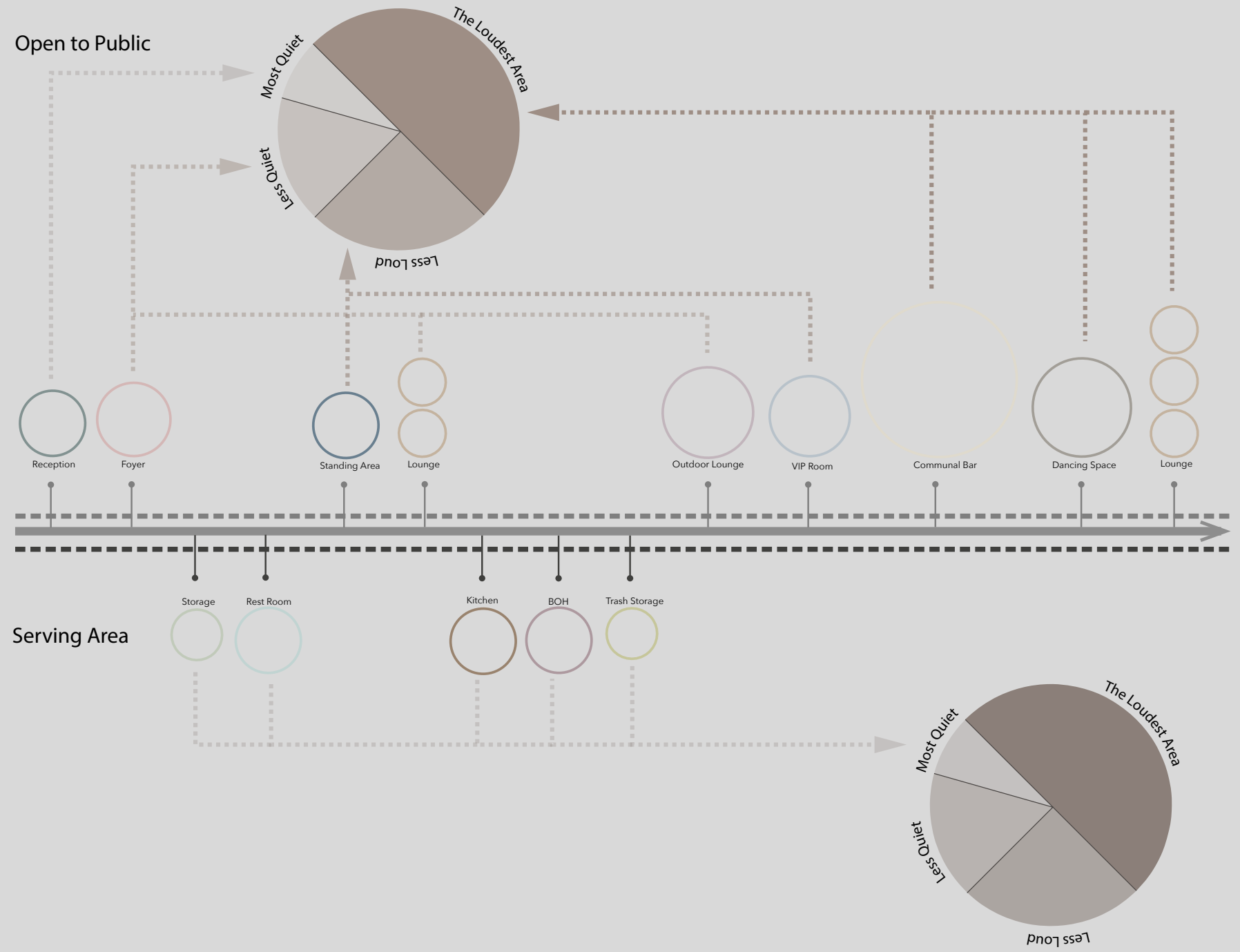
BUBBLE DIAGRAM



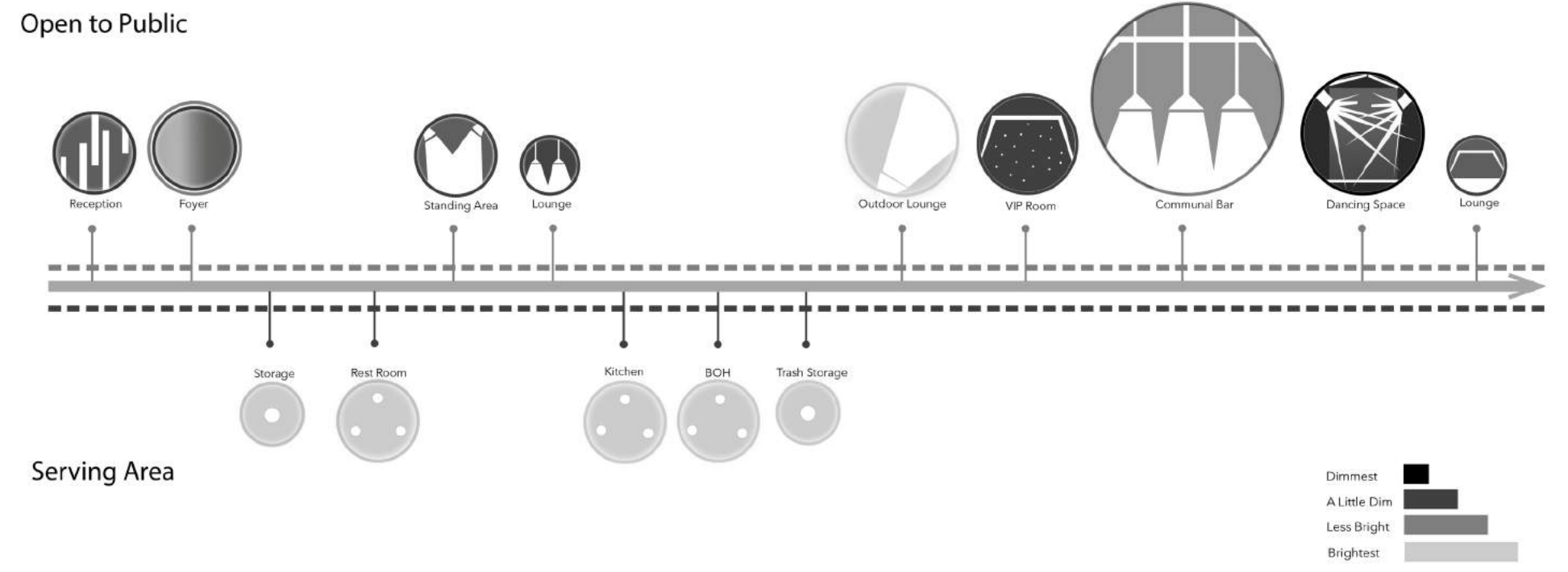
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 Standing Area: 100sqft
 Kitchen: 100sqft
 Outdoor Lounge: 200sqft
 BOH: 100 sqft
 Rest Room: 100 sqft
 Storage: 50 sqft
 Trash Storage: 40sqft

- Serving Space
- Open to Clients
- Public
- Semi-public
- Private
- ↕ Entry / Exit

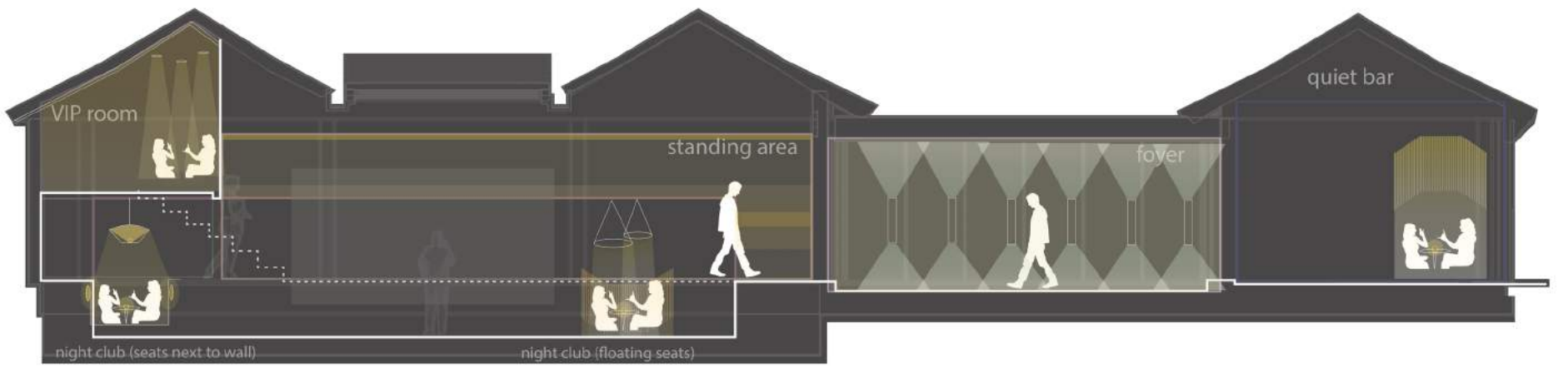
SOUND DIAGRAM



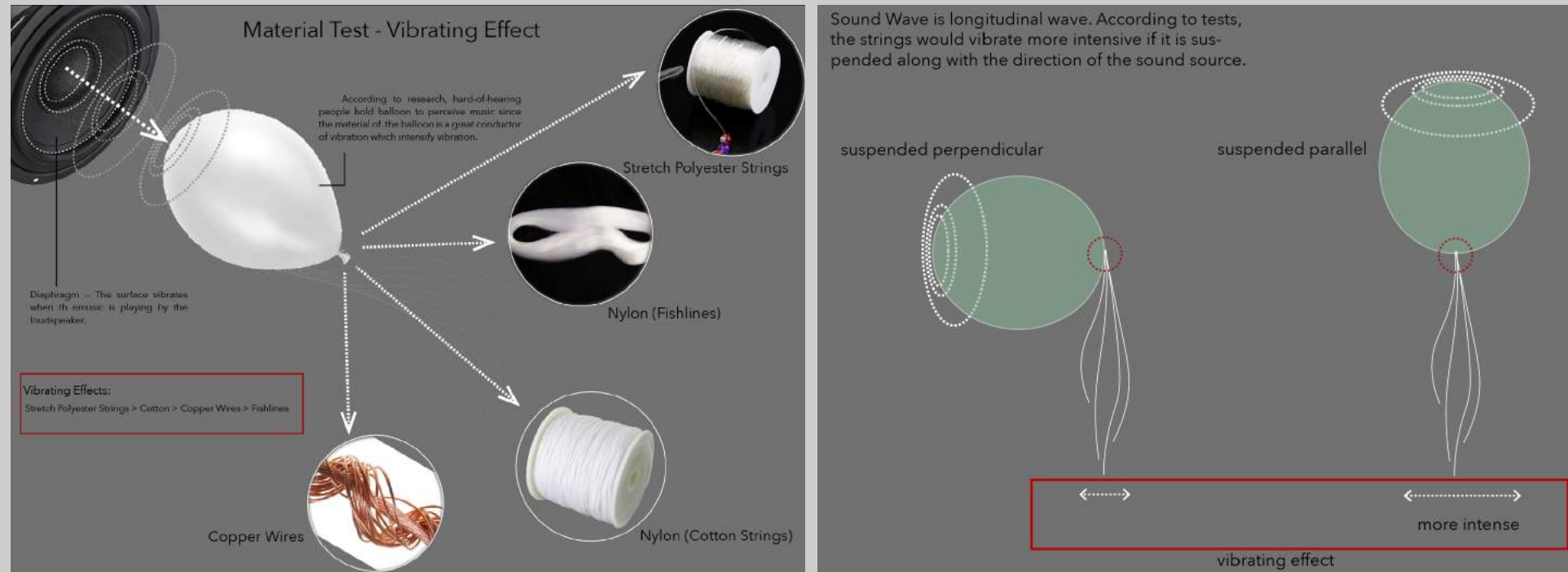
BRIGHTNESS DIAGRAM



SECTION - LIGHTING EFFECTS



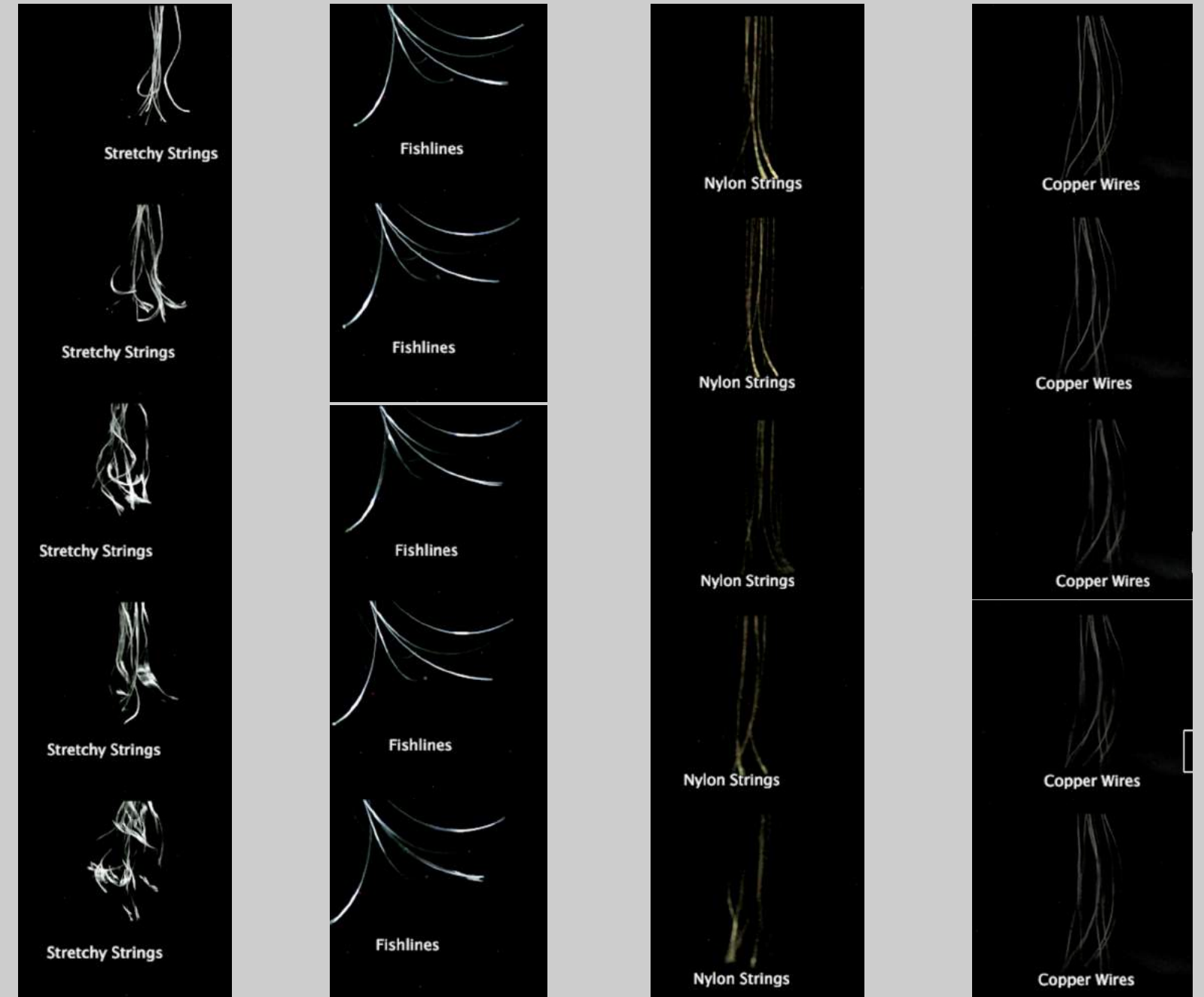
MATERIAL TEST - STRINGS



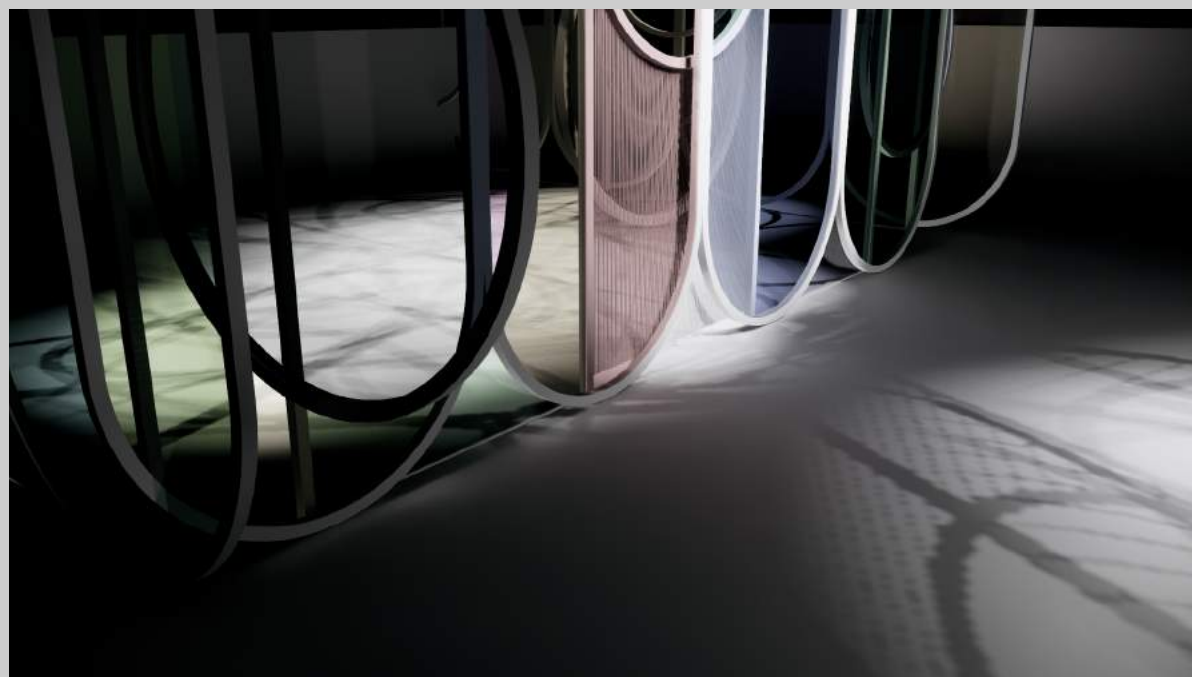
In order to test the vibrating effect of different strings, I design an installation to connect strings close to the loud speaker using balloon. Balloon would magnify the sound wave and transmit to the strings. According to the test, stretchy strings vibrate the most intensely.

MATERIAL TEST - VIDEO

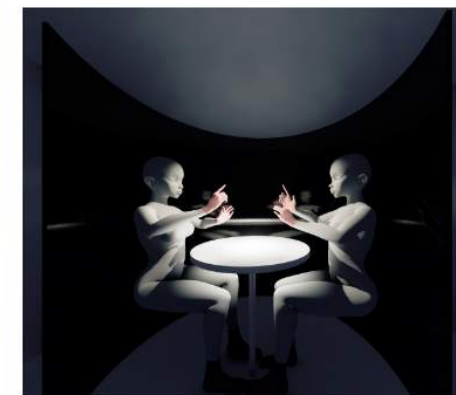
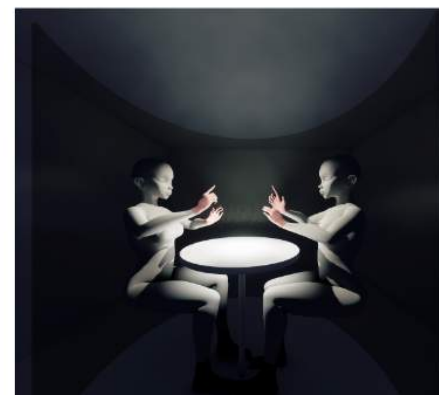
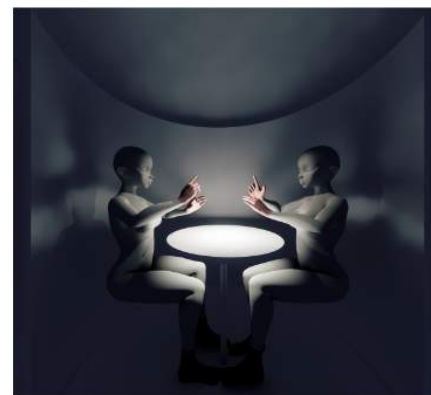
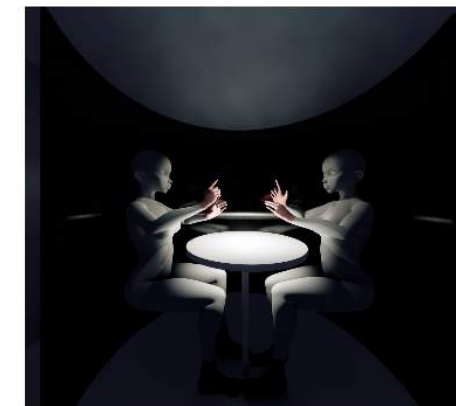
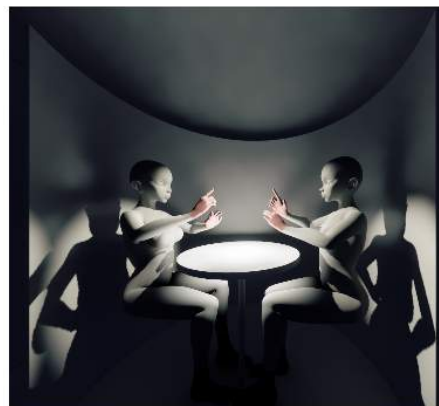
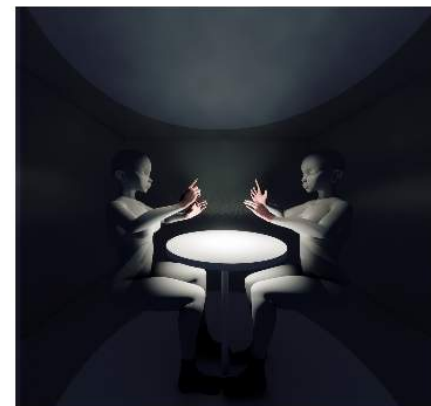
<https://www.youtube.com/watch?v=mml9lJrmo8A>



LIGHTING EFFECT TEST - DANCING SPACE



LIGHTING EFFECT TEST - SIGN LANGUAGE



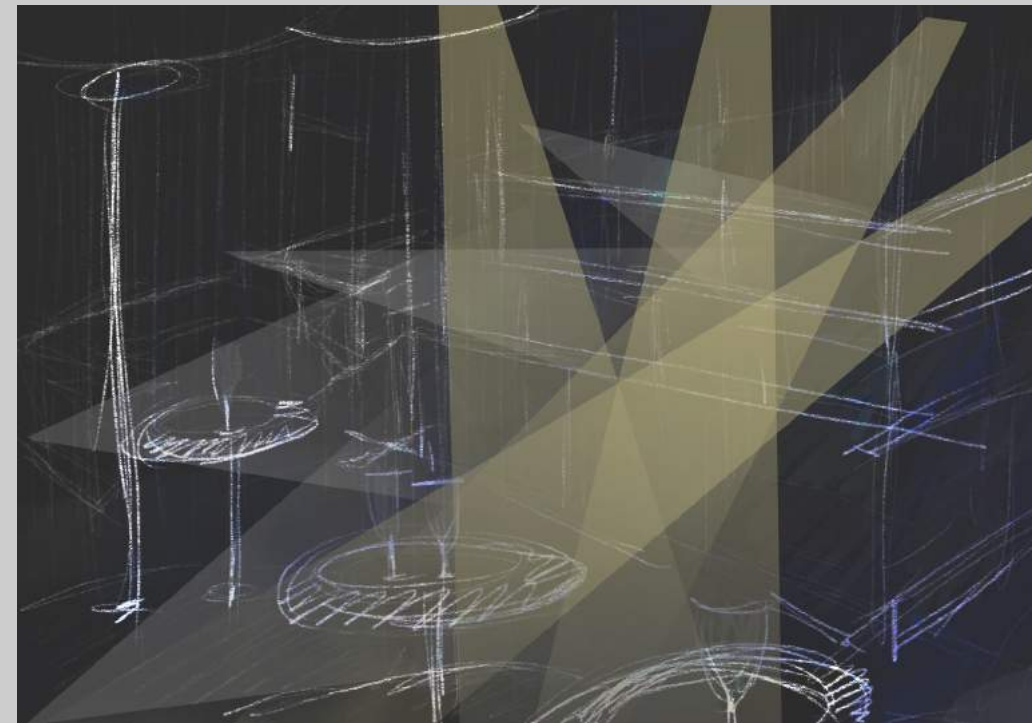
SKETCHES



quiet bar



foyer



club - dancing space

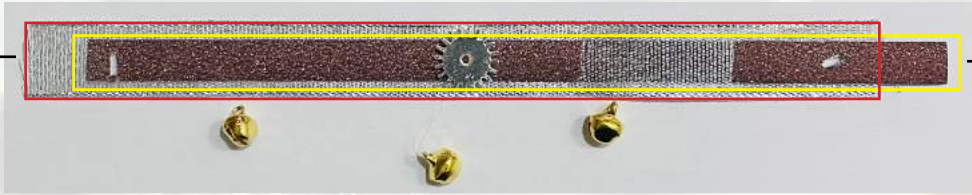


club - back booth

Sketches show the lighting effect as well as the atmosphere in each space.

OBJECT - VIBRATING SUITS

Elastic Ribbon (fit to body)



Vibration Sensor

Small Bells



Small Bells

Front

Back



1. Transform Music into Vibration

Transforming music into vibration is a way to let deaf people to enjoy music equally as non-deaf people. Through vibration which are transmitted from the sensor on the vibrating suits, deaf people are able to experience sound and enjoy bar.

2. Emphasize the bar atmosphere

The vibrating suits are assigned to each person coming to the bar. They are wearable and would emphasize bar atmosphere and enhance customers' sense of experience by transmitting music through vibration and hit different parts of their body all the time.

3. Reflective materials interact with the space

The suit consists of a pair of bracelets and anklelets, and a waist chain. In order to better interact with the interior space and enhance the atmosphere, reflective material are used for the suit to reflect the lights. Also, small bells are hanged on the wrist ribbons, waist ribbon and ankle ribbons. They will hit the body while dancing and moving in the bar which will create a better bar experience for customers.



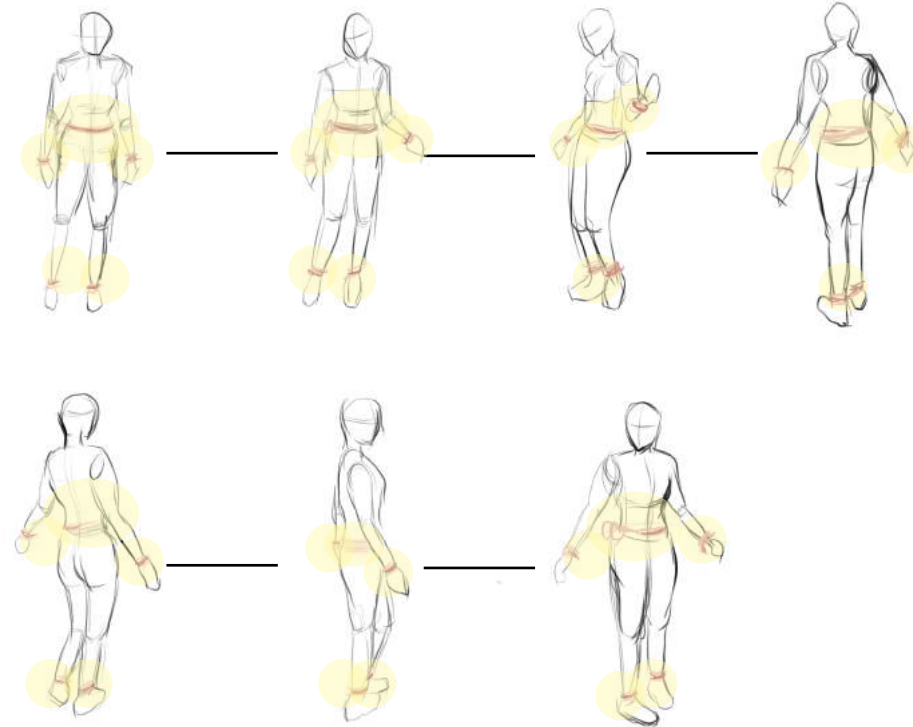
bracelets



waist chain



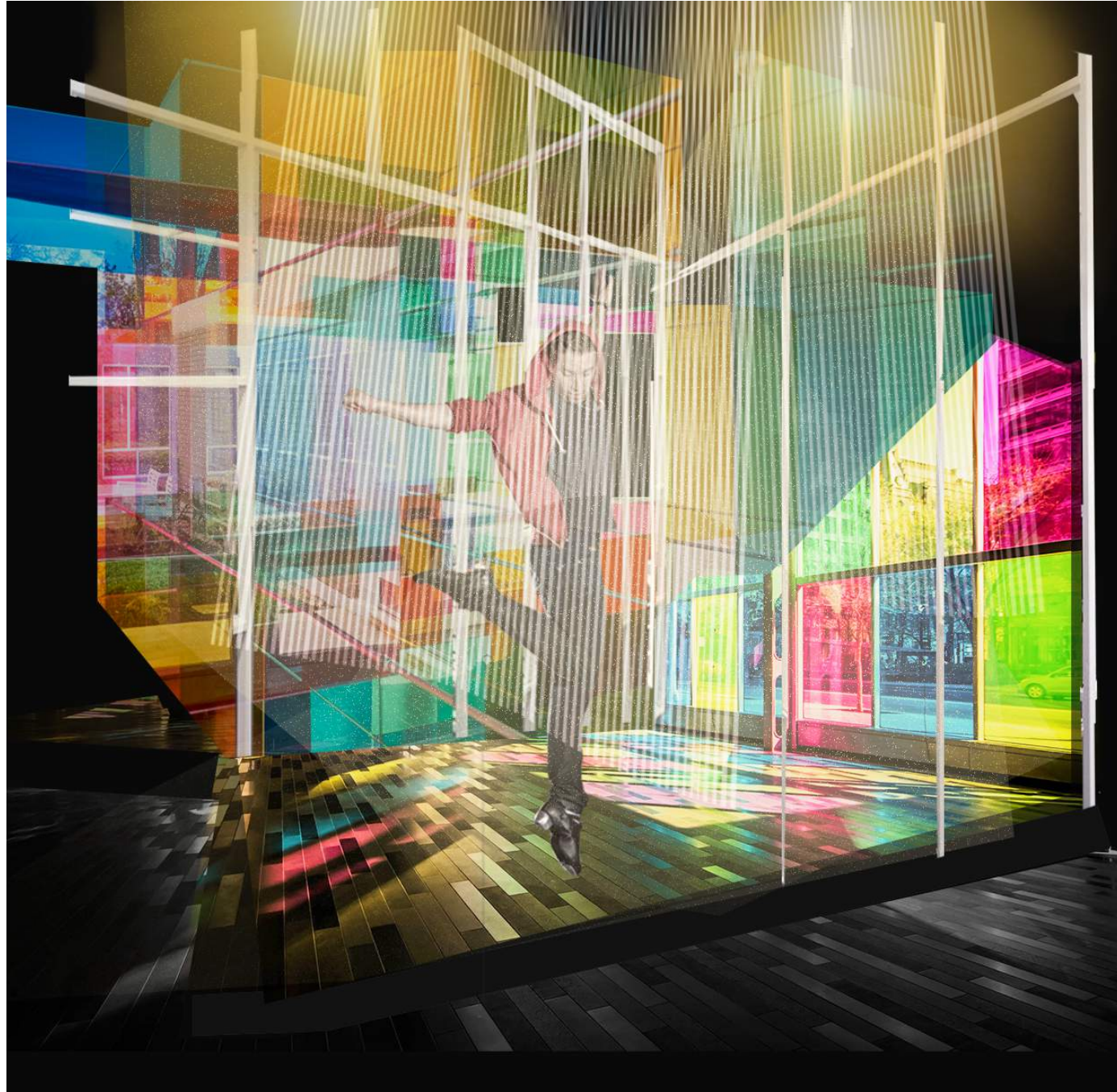
Actions



My project addresses how design would satisfy the needs of underserved people to enjoy bar culture equally and safely by playing with materiality and colors, as well as introducing ways to transform music into vibration.

To focus my thesis on the scale of body. The set of "vibrating suit" is designed to bring people different ways of experiencing music in a bar. Deaf people would feel music through the vibrations from the devices, and non-deaf people would be able to understand how deaf people experience sound. Each set consists a pair of wrist ribbons, anklelets, and a waistlet. Both deaf and non-deaf people coming to the bar would be asked to wear them. Music in the space would be transformed into vibration which would be transmitted from the devices and hit different parts of the body. The suit is built with shiny material that can reflect the light and interact with the design. People would be able to feel music through vibration anywhere in the bar. By introducing a way to experience music through vibration, the set of vibrating suit can bring deaf and non-deaf people together to better enjoy and integrate into bar culture.

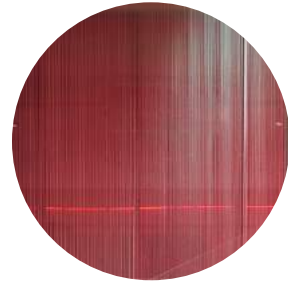
DANCING SPACE



White Steel Frame



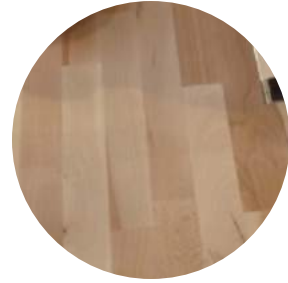
Metal Loops



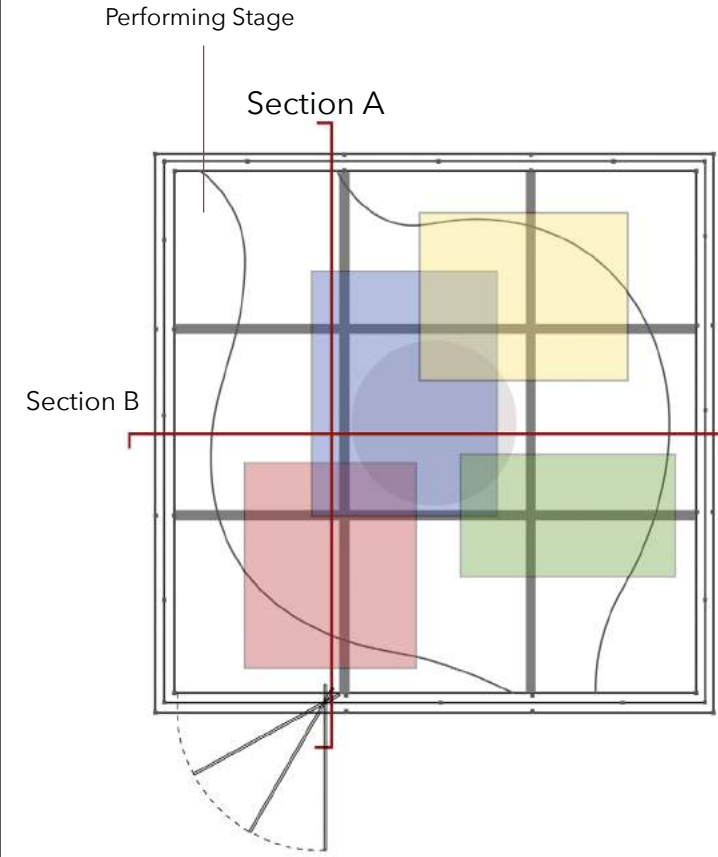
Nylon Strings



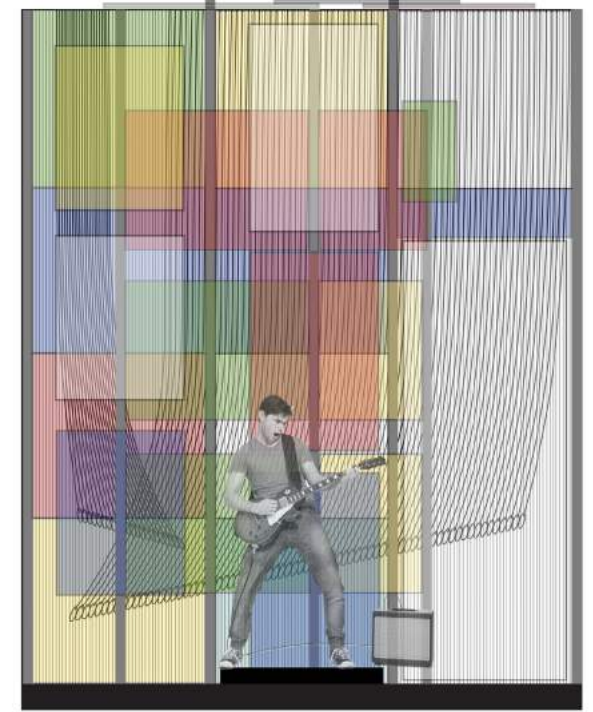
Colored Glass



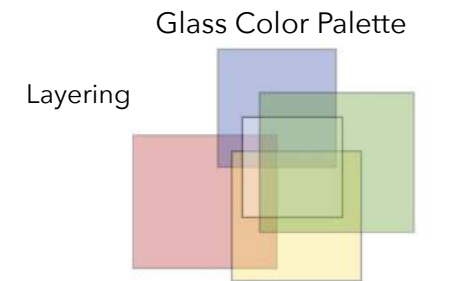
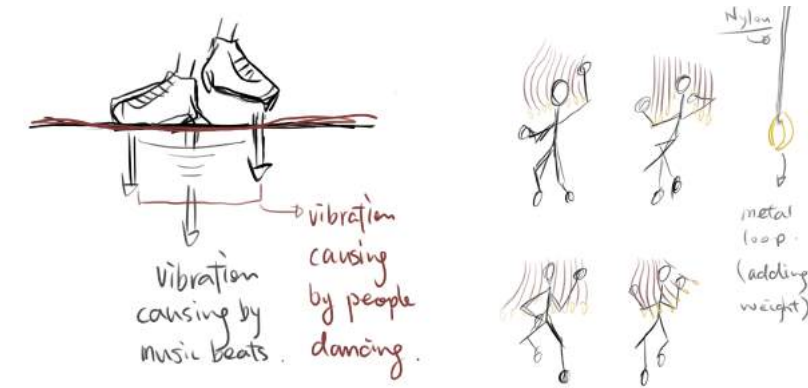
Elastic Wood 22



Section A



Section B



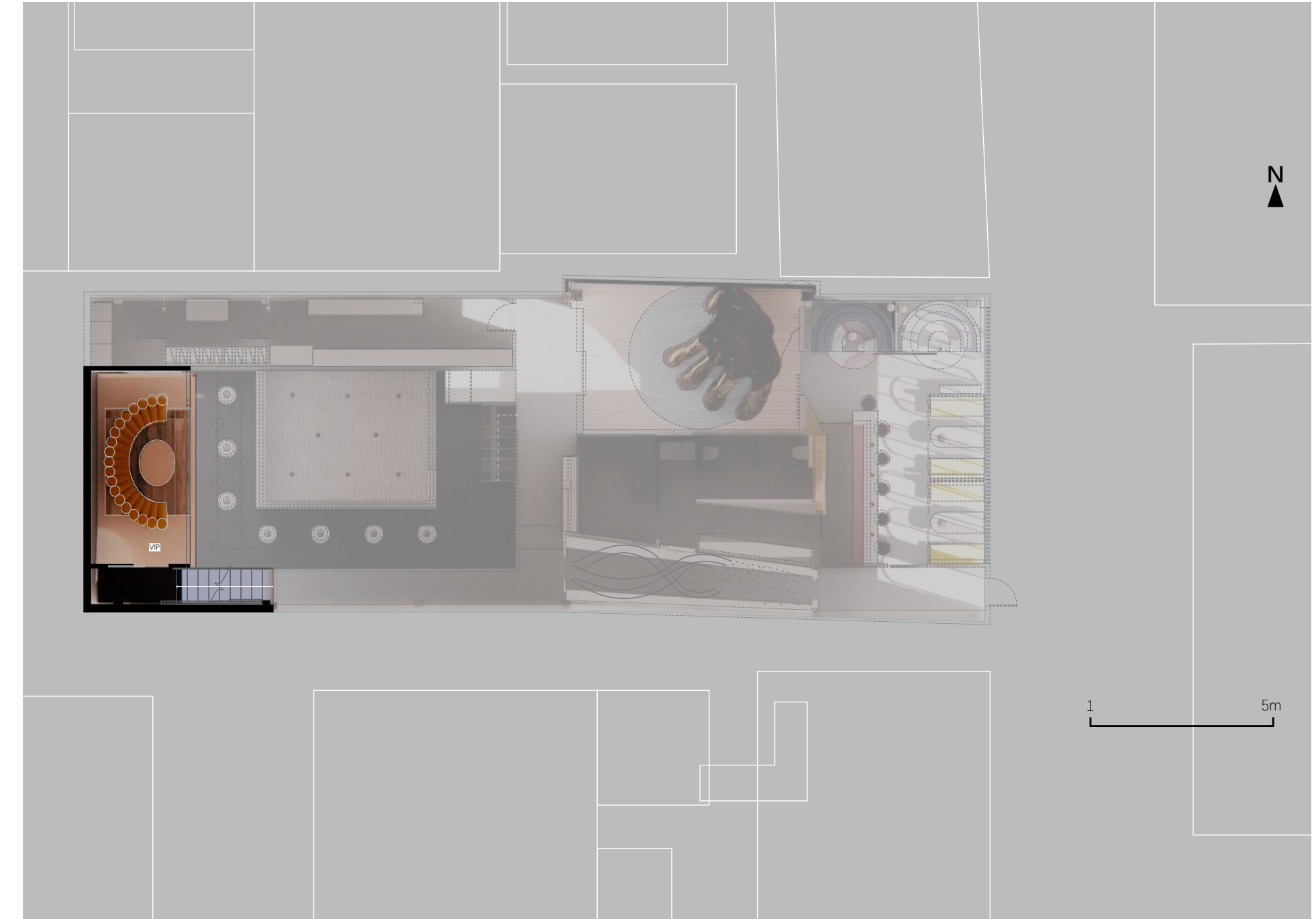
I want to create a vibrating dancing space in which people are able to enjoy music and dance freely follow the rhythm. In order to intensify the beats of music, the space is built with elastic floor material which can better transmit vibration so that people are able to feel it through their feet. To better enhance the bar atmosphere visually, the surrounding partitions of the space are mainly built with transparent glass and colored glass which are supported by white steel frames. These layers of glass will interact with light and reflecting colorful shadows on the floor which will help people intergrate in the environment. By hanging curvilinear screen which can move along with the beats of music, vibration is being amplified through **tactile sense**. Nylon screens visually partial divide the space, so that it reflects the complex and intimate relationships between people. Furthermore, he nylon strings which suspended from ceiling to floor tightly build the innermost partition of the space, which protects the privacy of people dancing inside. By introducing tactile senses and visual elements to build a vibrating space which will lead people to dance with music freely and safely, the space help to bring deaf and non-deaf people together to equally enjoy music and bar culture.

DESIGN PROPOSAL

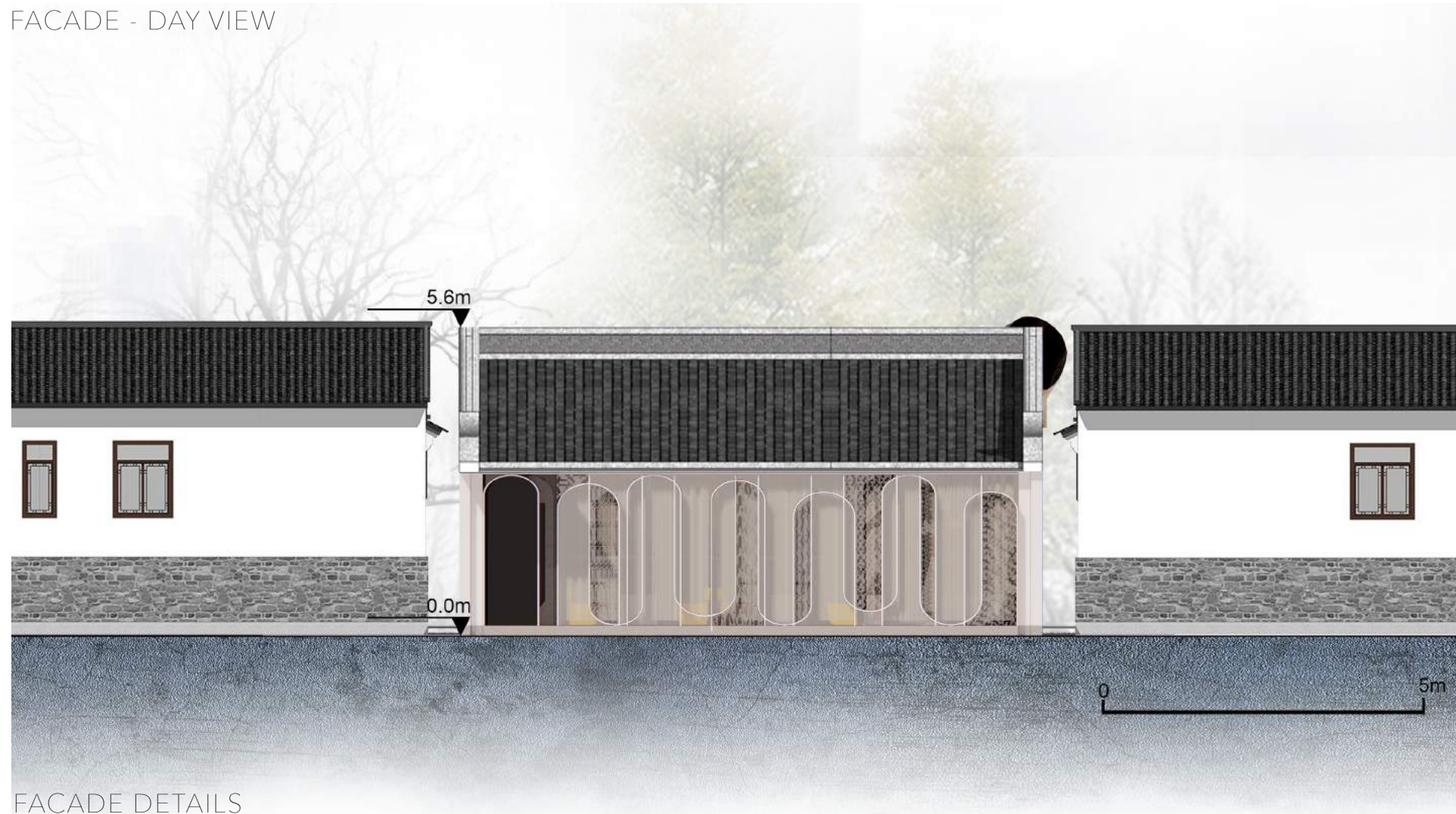
1ST FLOOR & MEZZANINE PLAN



2ND FLOOR PLAN



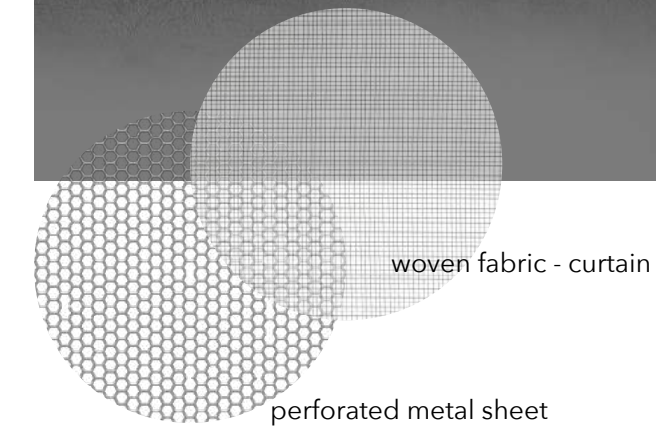
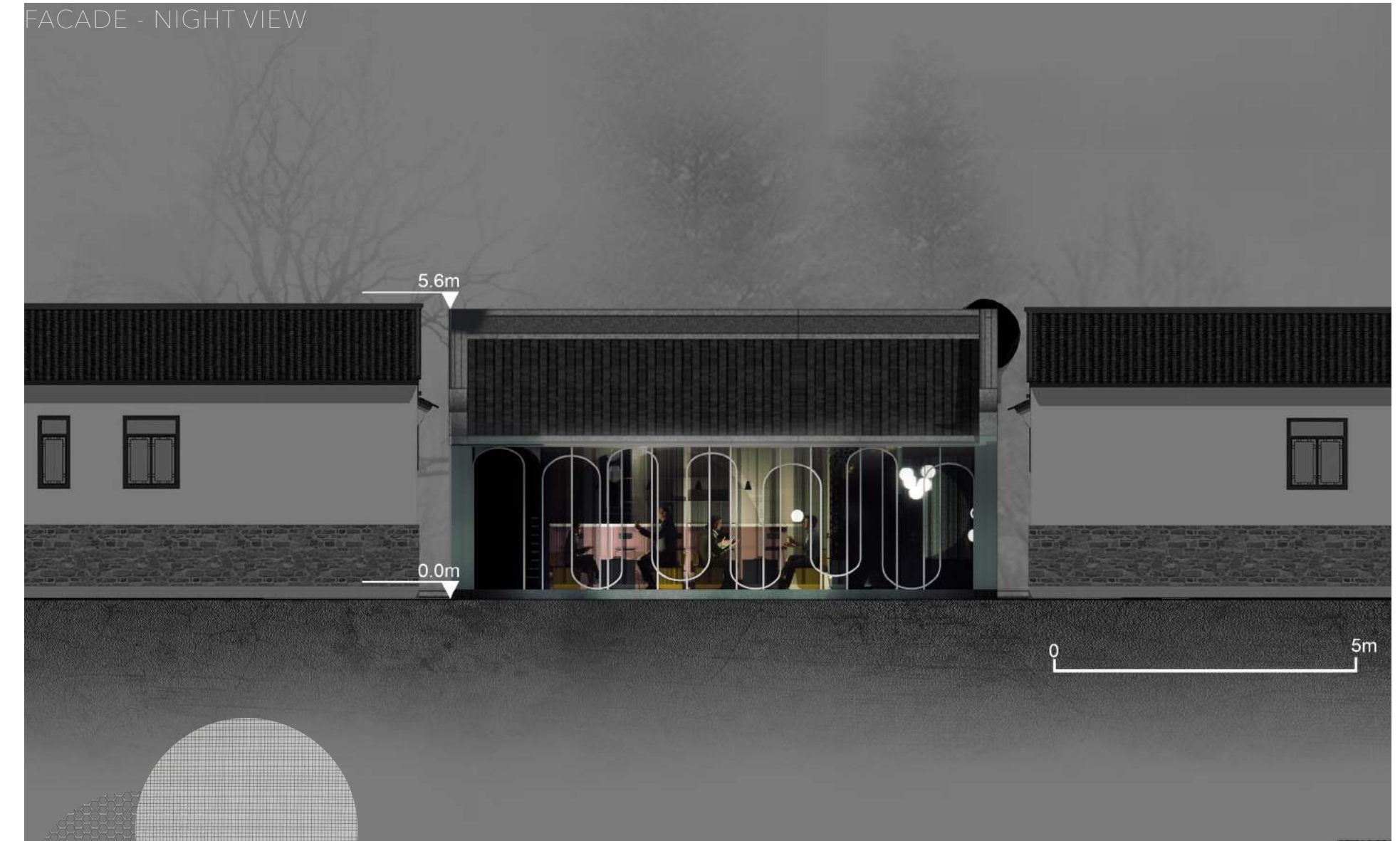
FACADE - DAY VIEW



FACADE DETAILS

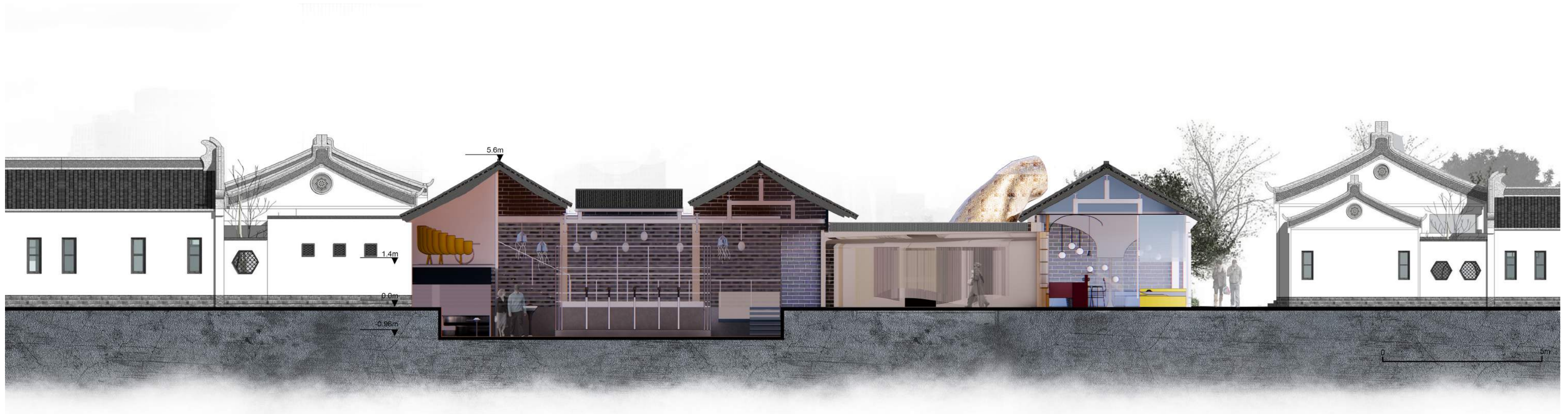


FACADE - NIGHT VIEW



The facade is constituted with perforated metal sheet and large glass panels. The facade is designed to accommodate the sign language communication of deaf people. During the night, there will be curtains inside the facade to help protect the intimacy of clients. People passing by will only be aware of people inside but not the detail information during the conversation.

LONGITUDINAL SECTION - DAY VIEW



LONGITUDINAL SECTION - NIGHT VIEW



SHORT SECTION - QUIET BAR - DAY



SHORT SECTION - QUIET BAR - NIGHT



The quiet bar is designed to bring people an easy and relaxed feeling. This space allows people to have intimate conversation with their friends, have a drink and enjoy soft music. The space is lighted with diffused light which is conducive to sign language communication. Both deaf and non-deaf people can visually perceive music through the lighting installation on the table surface. There will also be music playing in the space for non-deaf people to hear.

SHORT SECTION - NIGHT CLUB - DAY

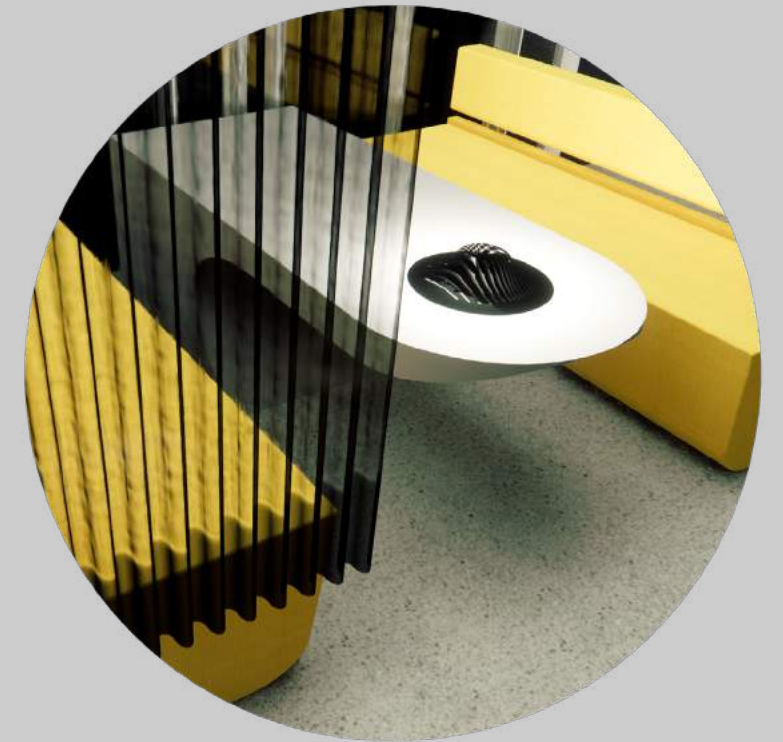


SHORT SECTION - NIGHT CLUB - NIGHT

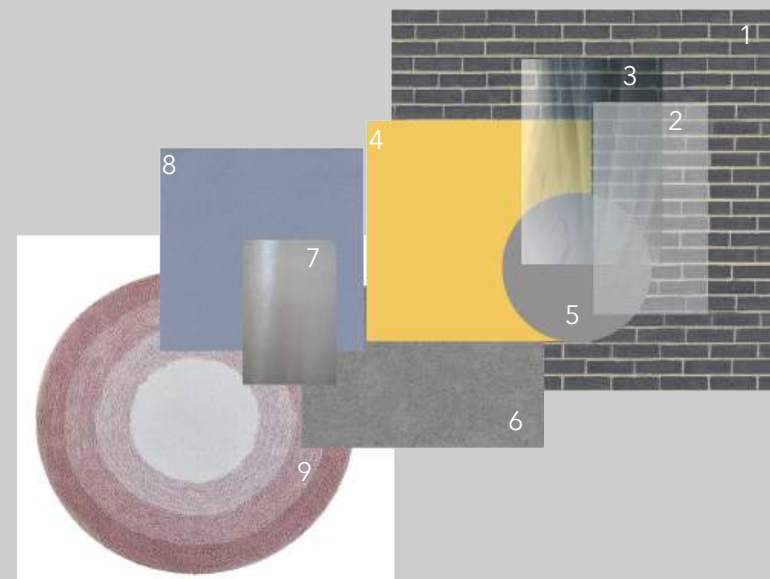


The dancing space is located at the center of the nightclub. There are several standing spots around the dancing space. The second floor is the VIP room. Under the VIP Room are the booths which are customized to transform music into vibration. The dancing space is surrounded by layers of colorful transparent glass. The light lighting through the glass will create colorful shadows on the metal dancing floor in the space.

QUIET BAR



SOFA



1. Medium gray brick wall
2. woven fabric
3. gradient blue woven mesh
4. yellow upholstery
5. light gray paint
6. concrete floor
7. stainless steel
8. blue upholstery
9. carpet

QUIET BAR

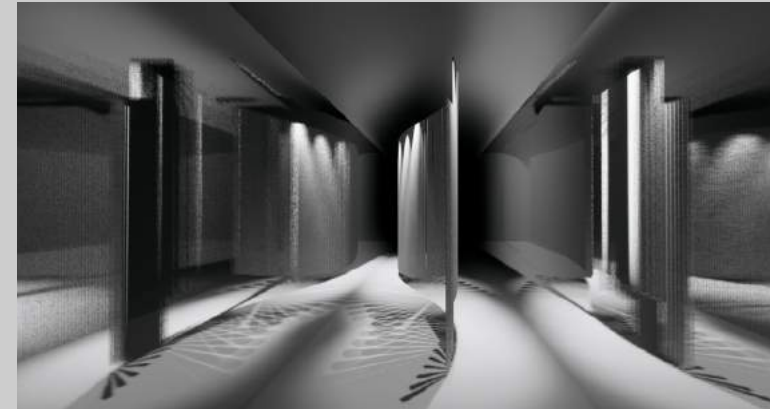
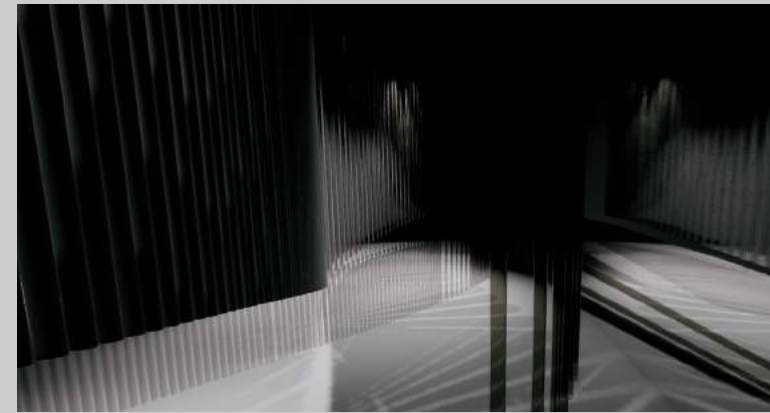
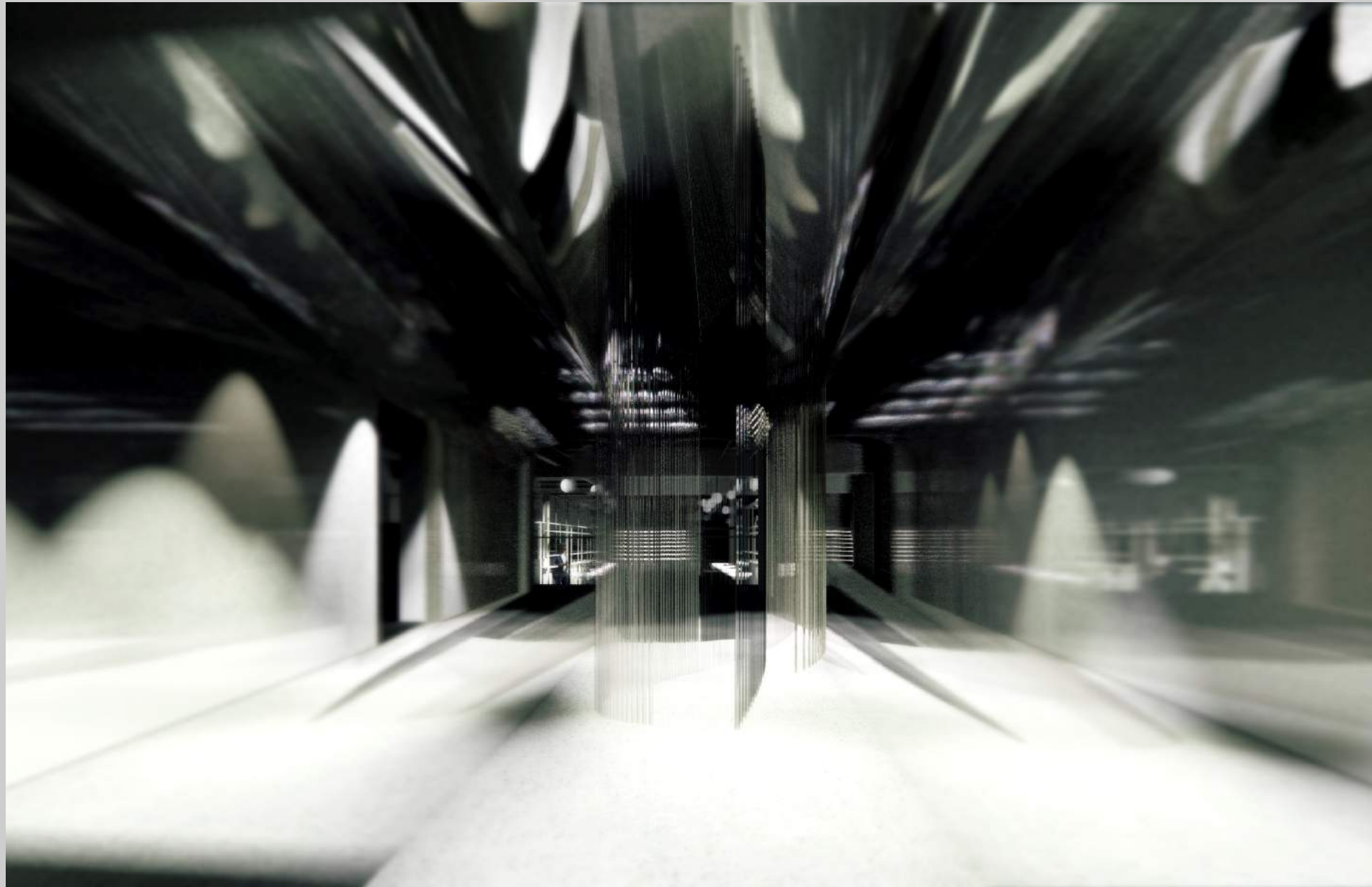


GIF - SHADOW OF SIGN LANGUAGE & LIGHTING EFFECT



The series of image show the lighting effect which creates shadows of hands during sign language communication. The lighting in the installation on table will change according to the music.

FOYER



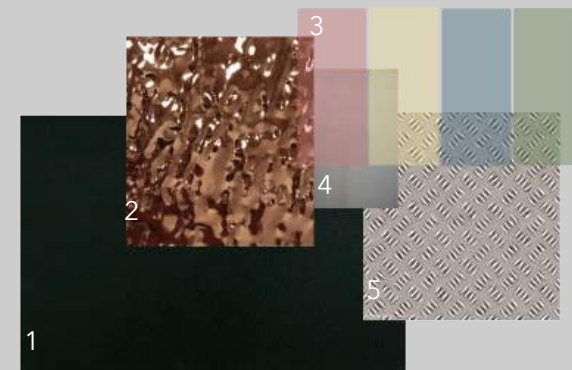
The foyer is designed with reflective material like mirror and layers of strings which creates a shiny and dramatic atmosphere that lead people to the nightclub at the back.



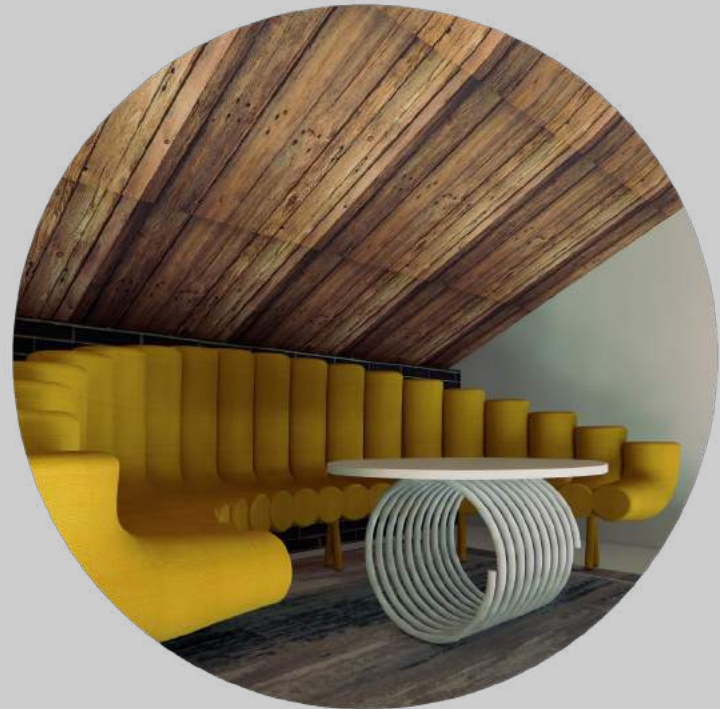
STANDING TABLE



PILLAR



- 1. black rubber floor mat
- 2. pink wavy metal
- 3. colorful transparent glass
- 4. stainless steel
- 5. metal floor



VIP ROOM



BOOTH

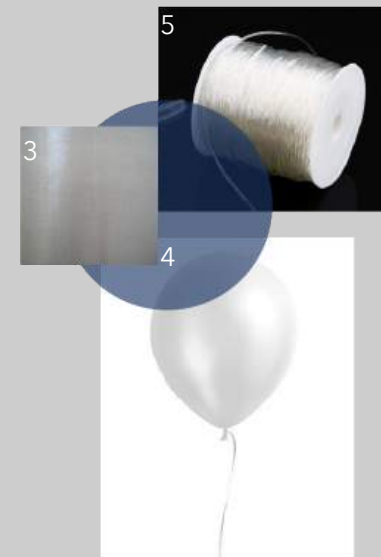
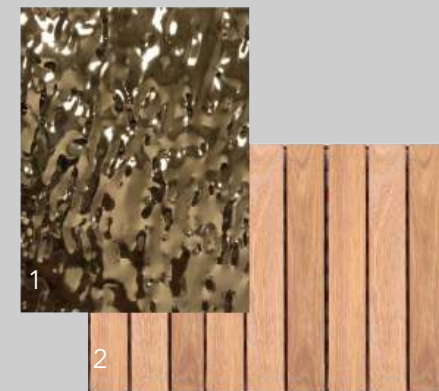


COURTYARD



STRINGS INSTALLATION

- 1. carpet
- 2. wood panel ceiling
- 3. yellow upholstery
- 4. stainless steel
- 5. dark blue paint
- 6. light grey frosted glass



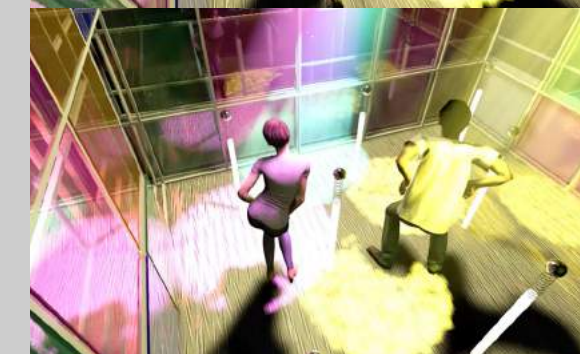
- 1. yellow wavy metal
- 2. exterior wood floor
- 3. stainless steel
- 4. blue plexiglass
- 5. stretchy nylon strings

LIGHTING EFFECT VIDEO - WITH SOUND

<https://www.youtube.com/watch?v=CRlJO0zNmsU&feature=youtu.be>

LIGHTING EFFECT VIDEO - NO SOUND

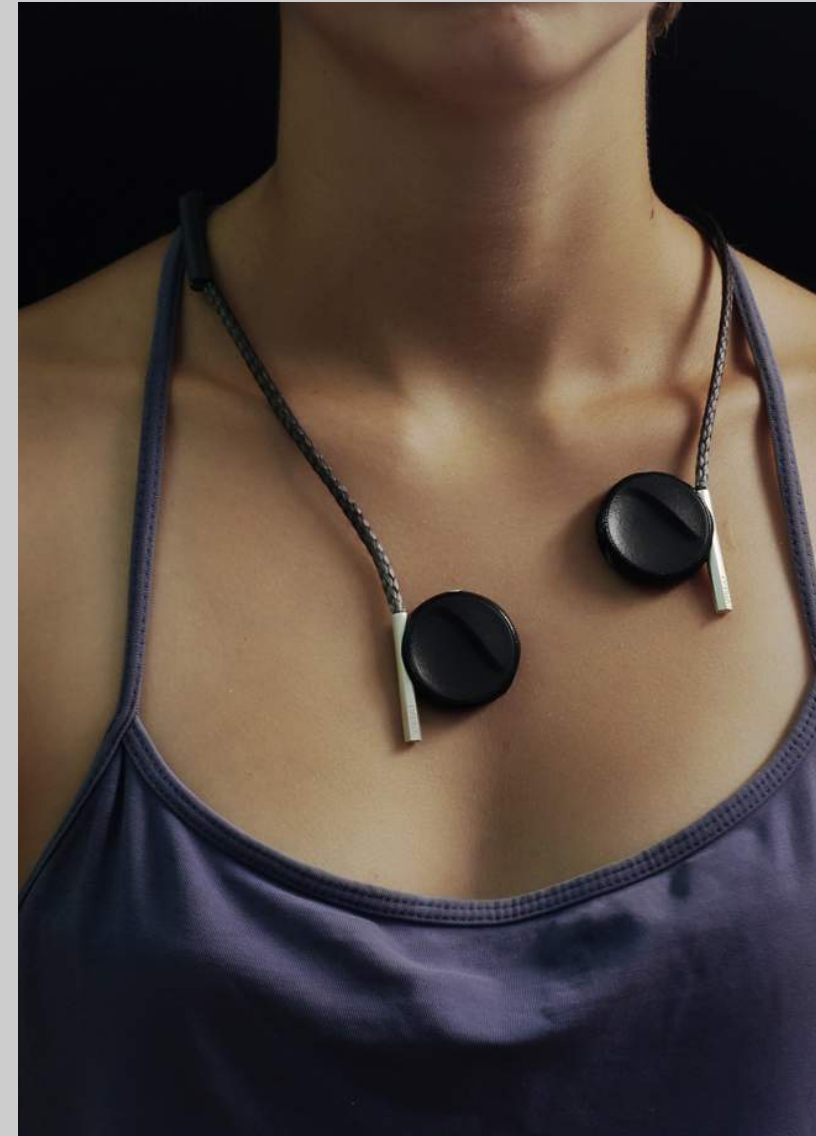
<https://youtu.be/HNLjDlkRqk4>



APPENDIX



PRECEDENT STUDY



<https://www.dezeen.com/2016/08/07/liron-gino-design-vibeat-listening-devices-wearable-hearing-impaired-tactile-music/>

This is a set of jewelry-like devices that designs to help deaf and hard-of-hearing people to experience music through vibration. This product creates an opportunity for deaf people to feeling music through portable devices. **This context is important to my thesis because it provides inspirations on creating a “vibrating space” in my project to bring deaf people a bar atmosphere.**

PRECEDENT STUDY



This is an interview of a deaf dancer, Shaheem Sanchez, who teaches deaf people dancing and builds up a bridge between deaf community and non-deaf community. In this video, he talks about some social misconceptions relate to deaf people. For instance, deaf people have the same desire to listen to music. He also introduces the ways he transform music into dancing. **This context is important to my thesis because it provides inspirations on design strategy of my thesis.**

