

**2023**

**GEORGIA LUPTON**

**DYAD**

**DYAD**

|| DVAID



HOW CAN  
**MUSICAL  
COMPOSITION**

INFORM  
**ARCHITECTURAL  
DESIGN ?**

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**OVERTURE**

|| WHEN I SEE  
**ARCHITECTURE**  
THAT MOVES ME,  
I HEAR  
**MUSIC**  
IN MY INNER EAR. ||

FRANK LLOYD WRIGHT

# ABSTRACT

*DYAD / MUSIC + ARCHITECTURE*

The primary objective of this project is to use musical composition as a framework for making thoughtful and deliberate design decisions. The intention is not to directly incorporate music into the project in a way that simply mimics the art form. Rather, by drawing inspiration from the emotional and expressive qualities of music, the aim is to create a design that captures the essence of a particular feeling or mood.

By using music as a framework for design decisions, the focus is on the emotional and psychological cues provided by music; and how similar methods can be utilized in order to evoke feelings of peace, courage, and optimism in the project. This approach to architecture results in meaningful and thoughtful design.

# 01 TEMPO

THE NUMBER OF BEATS PER  
MINUTE IN A MUSICAL PIECE



# 02 RHYTHM

THE DURATIONAL PATTERN OF THE  
NOTES PLAYED OVER TIME

The design of this project was informed by three key musical components: tempo, rhythm, and timbre. **Tempo** is translated into a grid that lays the foundation for the project's structural and program layout. **Rhythm** determines how elements of the project are oriented within this grid. Finally, **Timbre** guides the selection of materials and their arrangement to create a specific sensory experience.

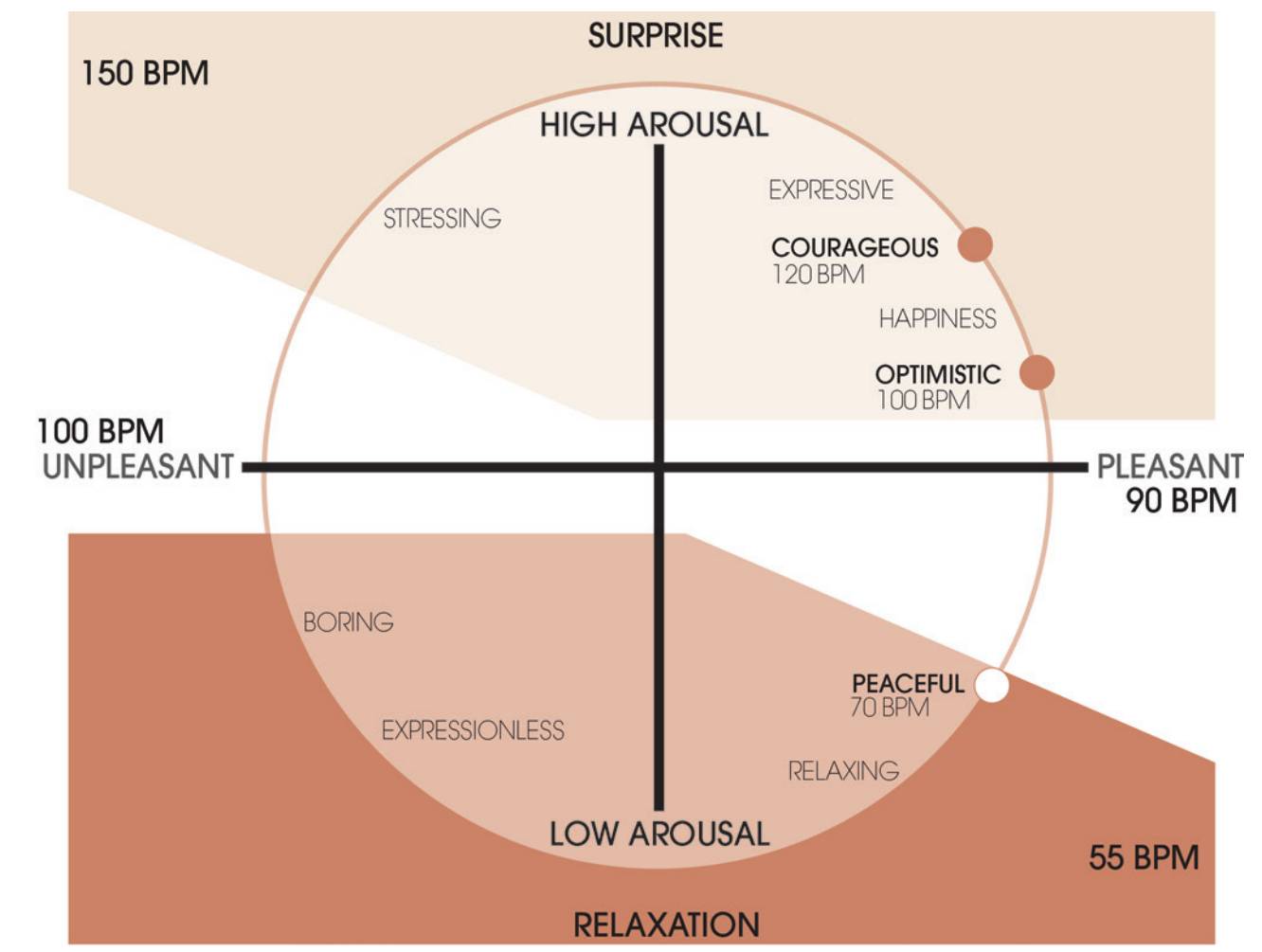


# 03 TIMBRE

THE SPECIFIC TONE & QUALITY  
OF AN INSTRUMENT GROUP

### EMOTION IN MUSIC

Music has the unique ability to convey a wide range of emotional messages, achieved through techniques such as tempo, chord progression, and lyrics. As I will demonstrate in the following sections, I have used these musical techniques to create a sense of peace, courage, and optimism within the design.



### TEMPO + HEARTBEAT

The tempo of a song is interpreted through the human brain - and therefore is generally associated with a particular **emotion** that has the same (or similar) heartbeat as the tempo that we hear in a song.





## **MUSIC**

organization, sequence  
+ **movement** of sound in  
time

# MOVE MENT

## **ARCHITECTURE**

configuration + order of  
space, influencing the  
**movement** of people

## **MUSIC + ARCHITECTURE CONNECTION**

**Music** is the organization and movement of sound in time; while **Architecture** is the configuration of order and space, influencing the movement of people.

People are constantly moving, and in some shape or form they are supported by the architecture of each place. I believe that **movement** is the predominant quality that connects these two compositional arts.

Because of this integral connection, I have chosen to explore a building typology that focuses on supporting and influencing the movement of people.

## MOVEMENT OF PEOPLE

In 2019, almost 50 million people entered the US from either the Mexican or Canadian border. This is an extremely high concentration of people in transit. The ability for millions of people to circulate between these three countries is largely made possible by the design and construction of land ports of entry located along the U.S. border.

The diagram below identifies main ports of entry on the Southern U.S. border. The two busiest locations, San Ysidro and El Paso, see almost 100,000 entries into the U.S. per day - resulting in a large concentration in the movement of people.

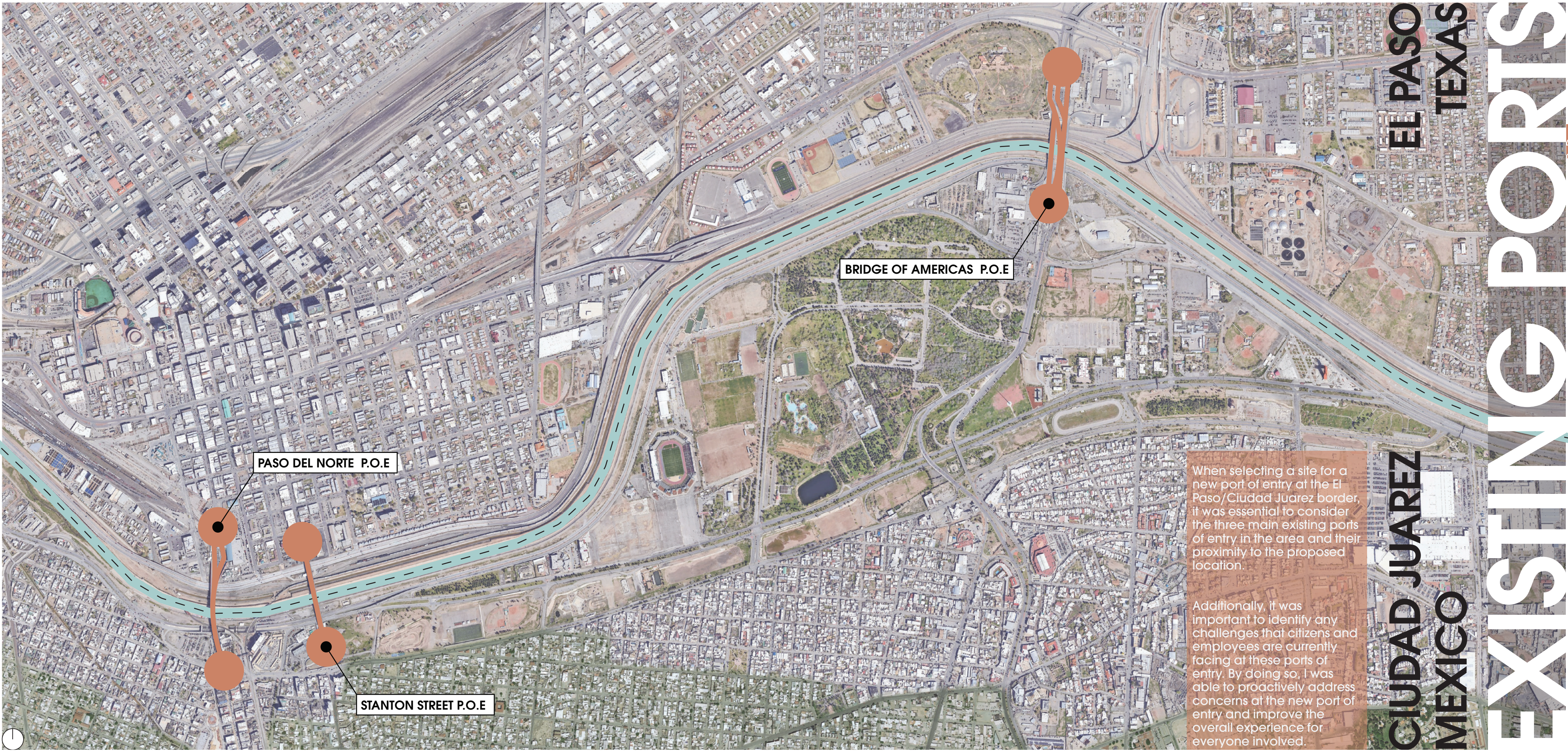
*Based on this information, I have decided to focus on designing a Land Port of Entry in El Paso, Texas as a means of exploring the relationship between music and architecture.*



“ THE ARCHITECT SHOULD  
KNOW **MUSIC**  
IN ORDER TO HAVE A GRASP OF  
**HARMONIC &  
MATHEMATICAL**  
RELATIONS ”

MUSIC AND ARCHITECTURE  
VTRUVIUS' DE ARCHITECTURA

***INTERLUDE***



PASO DEL NORTE P.O.E

BRIDGE OF AMERICAS P.O.E

STANTON STREET P.O.E

When selecting a site for a new port of entry at the El Paso/Ciudad Juarez border, it was essential to consider the three main existing ports of entry in the area and their proximity to the proposed location.

Additionally, it was important to identify any challenges that citizens and employees are currently facing at these ports of entry. By doing so, I was able to proactively address concerns at the new port of entry and improve the overall experience for everyone involved.

EL PASO  
TEXAS

CIUDAD JUAREZ  
MEXICO

EXISTING PORTS

# PROBLEM

## CURRENT LAND PORTS OF ENTRY

Every day, migrants attempt to enter the United States seeking asylum from violent or dangerous situations in their home country. Ideally, these asylum seekers should be able to present themselves to officers at land ports of entry instead of resorting to dangerous and unconventional methods such as wading across the Rio Grande or jumping a wall. Unfortunately, the opposite is currently happening. Asylum seekers are waiting for weeks or even months in nearly all Mexican border towns, hoping for their turn to approach ports of entry that can only process a handful of people each day at best.

The government cites a lack of facility resources and personnel as the reason for their inability to process the large number of migrants waiting at the border. To address this issue, our ports of entry need to be modernized to eliminate long waits and steer asylum seekers away from rural sites, welcoming them at ports of entry instead of pushing them away.



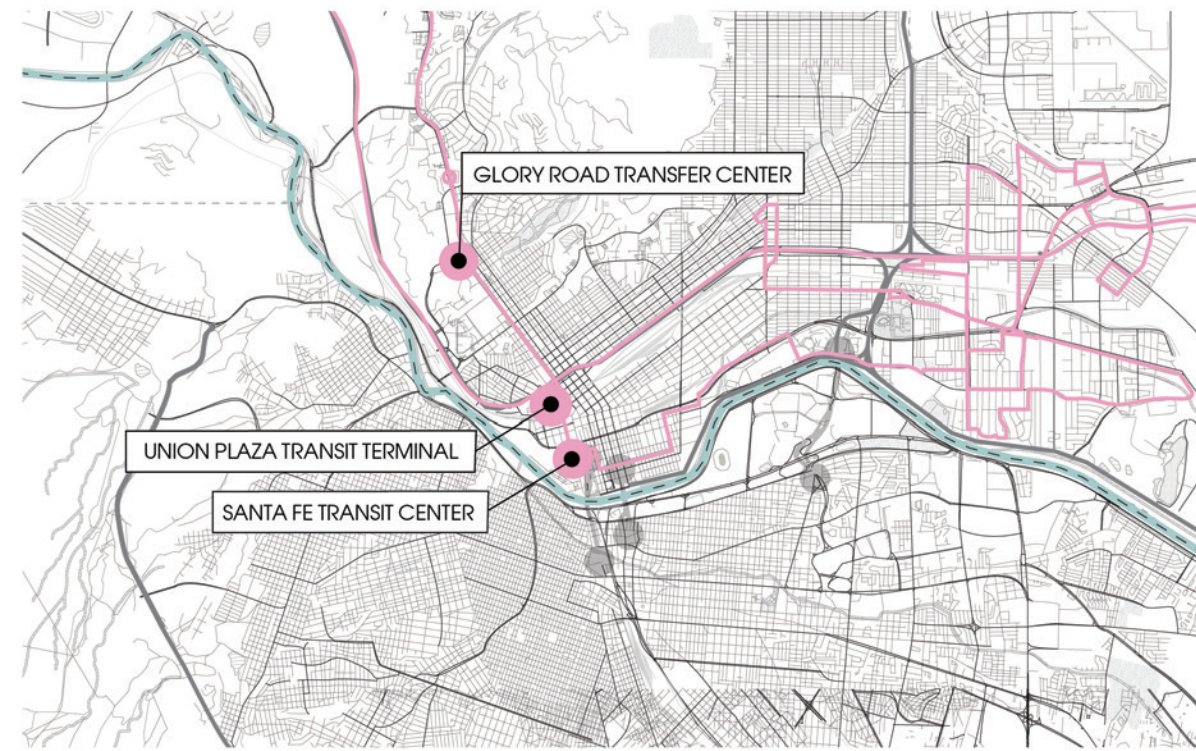
To combat these challenges, I propose the design of a new land port of entry dedicated solely to migrants seeking asylum in the United States.

As migrants undergo immigration court proceedings, this dedicated port of entry will help streamline the asylum process and **provide a more efficient and humane experience for those seeking refuge in our country.**



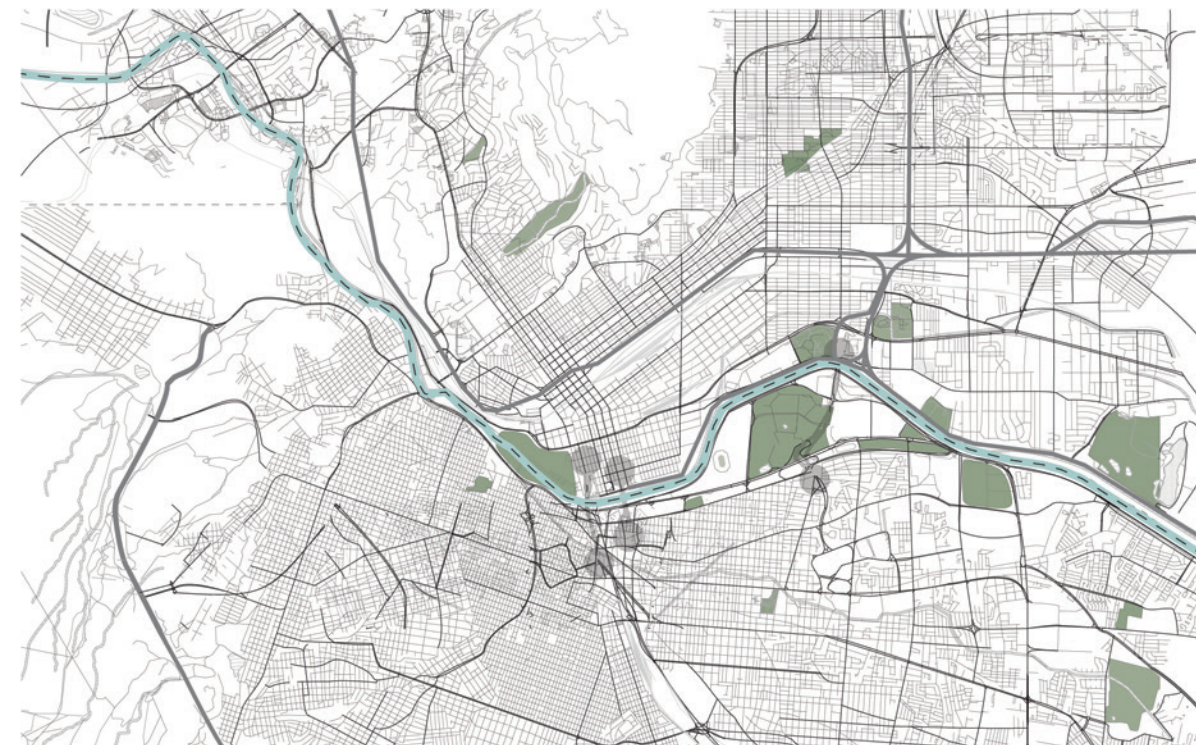
# PROPOSAL

## SITE CONTEXT



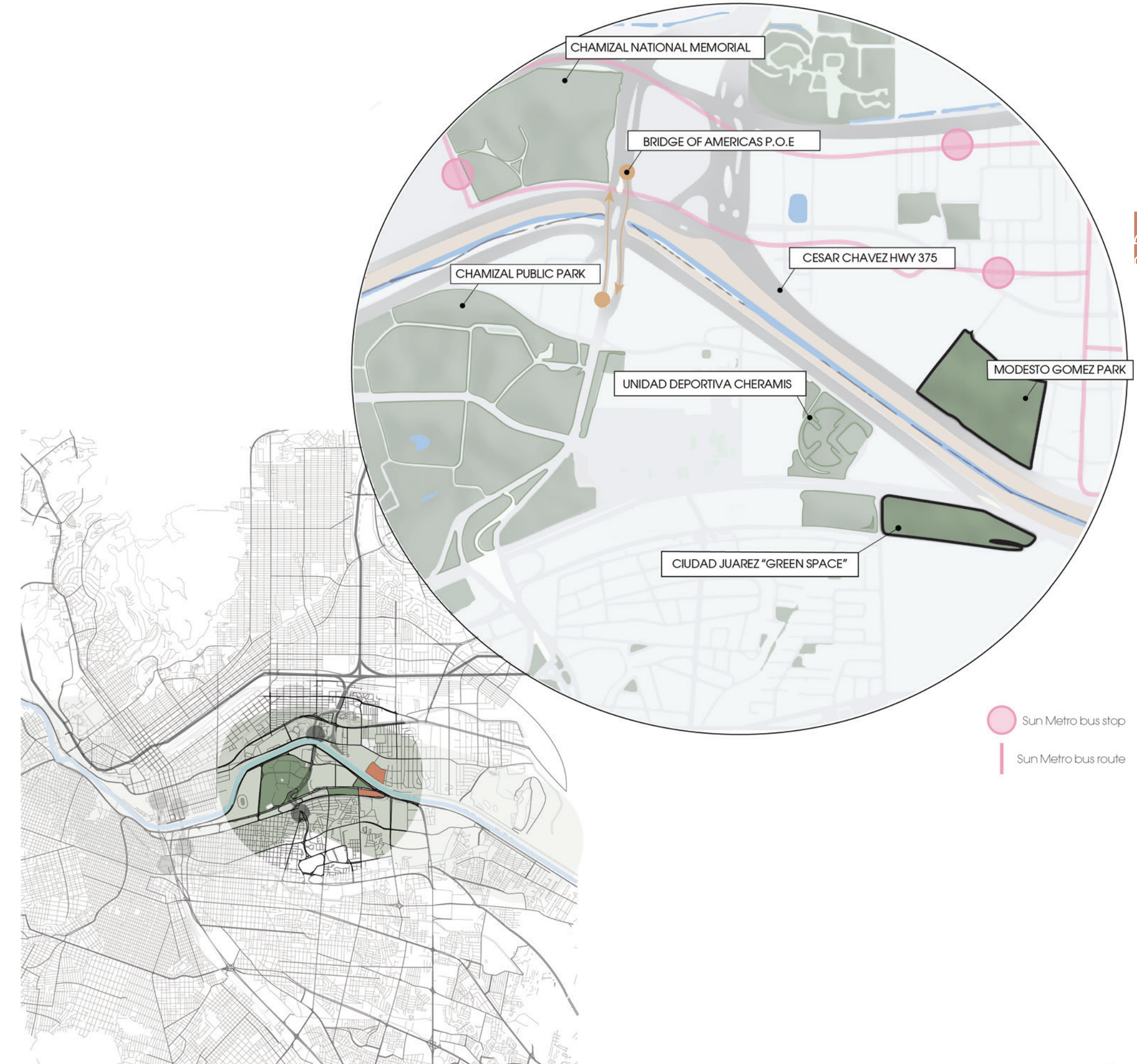
### PUBLIC TRANSPORTATION

With 96% of asylum seekers traveling without vehicular transportation, it is essential to consider proximity to current ports of entry, utilization of green spaces, and access to public transportation.

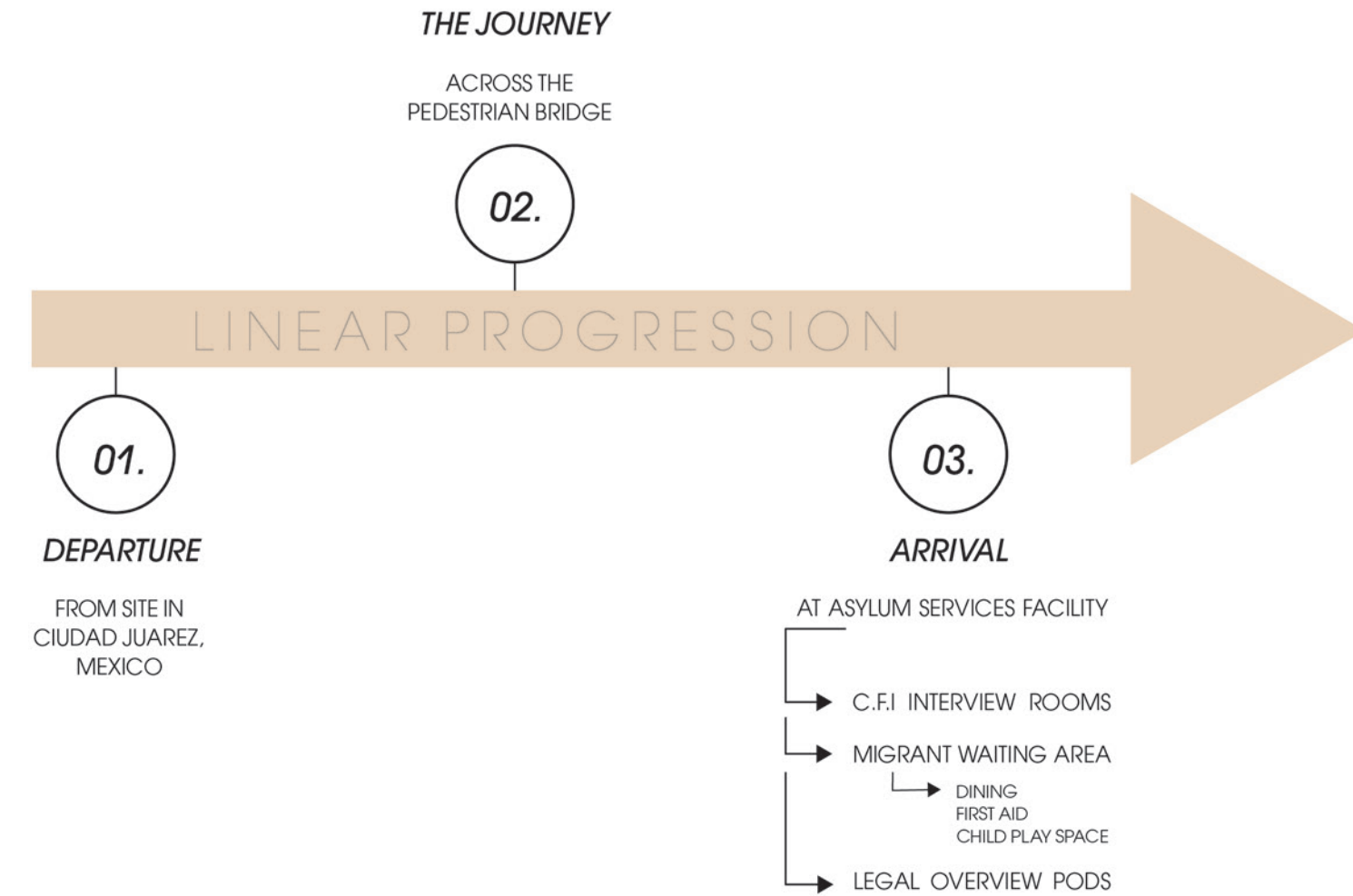


### GREEN SPACES

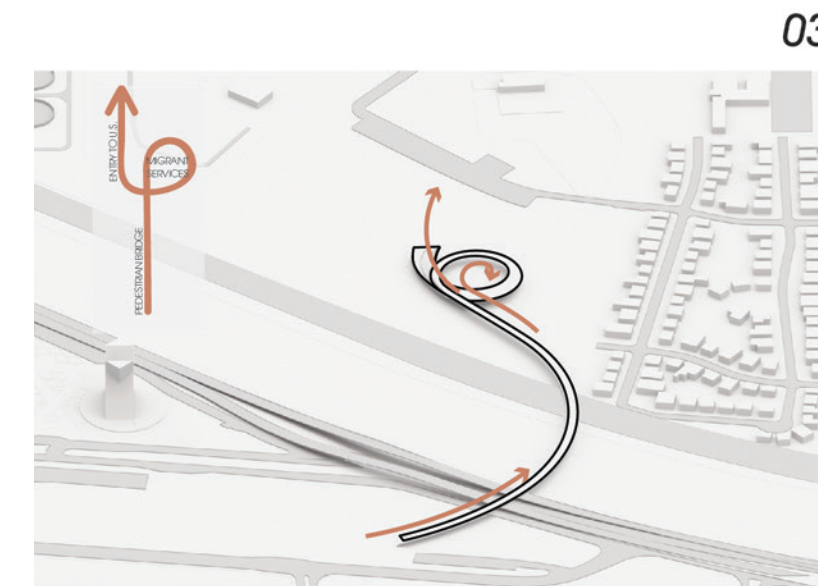
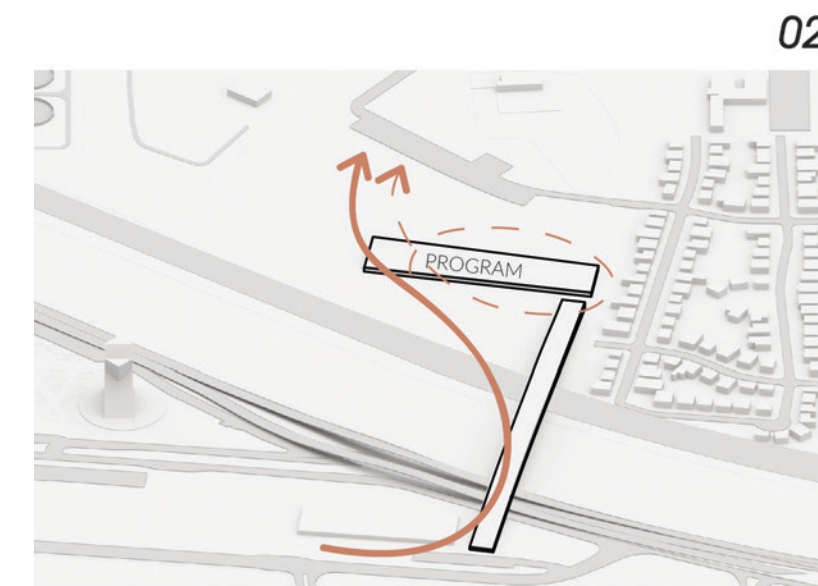
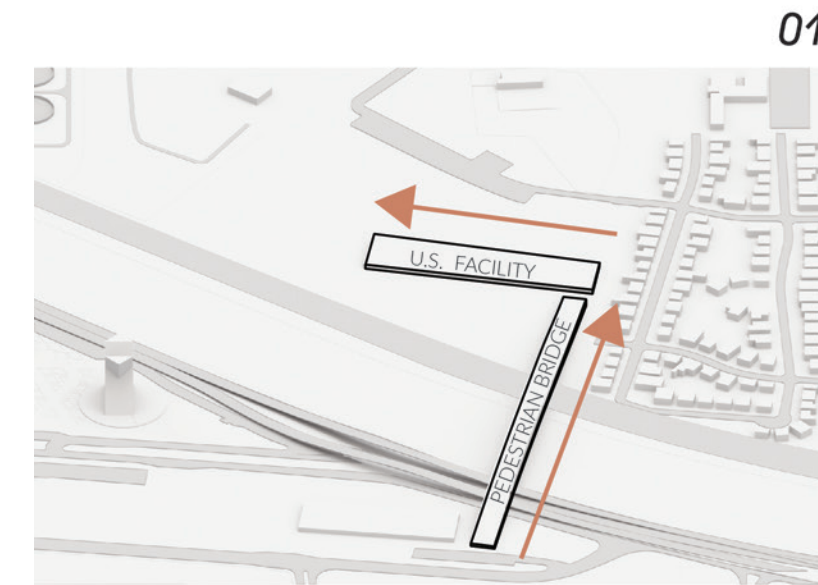
## SITE SELECTION



**PROGRAM  
ADJACENCY  
USER FLOW**



**FORM EXPLORATION**



**PROGRAM**

This project synthesizes two separate entities into one:

01. A pedestrian foot bridge from Mexico into the U.S.

02. U.S. processing facility for migrants seeking asylum

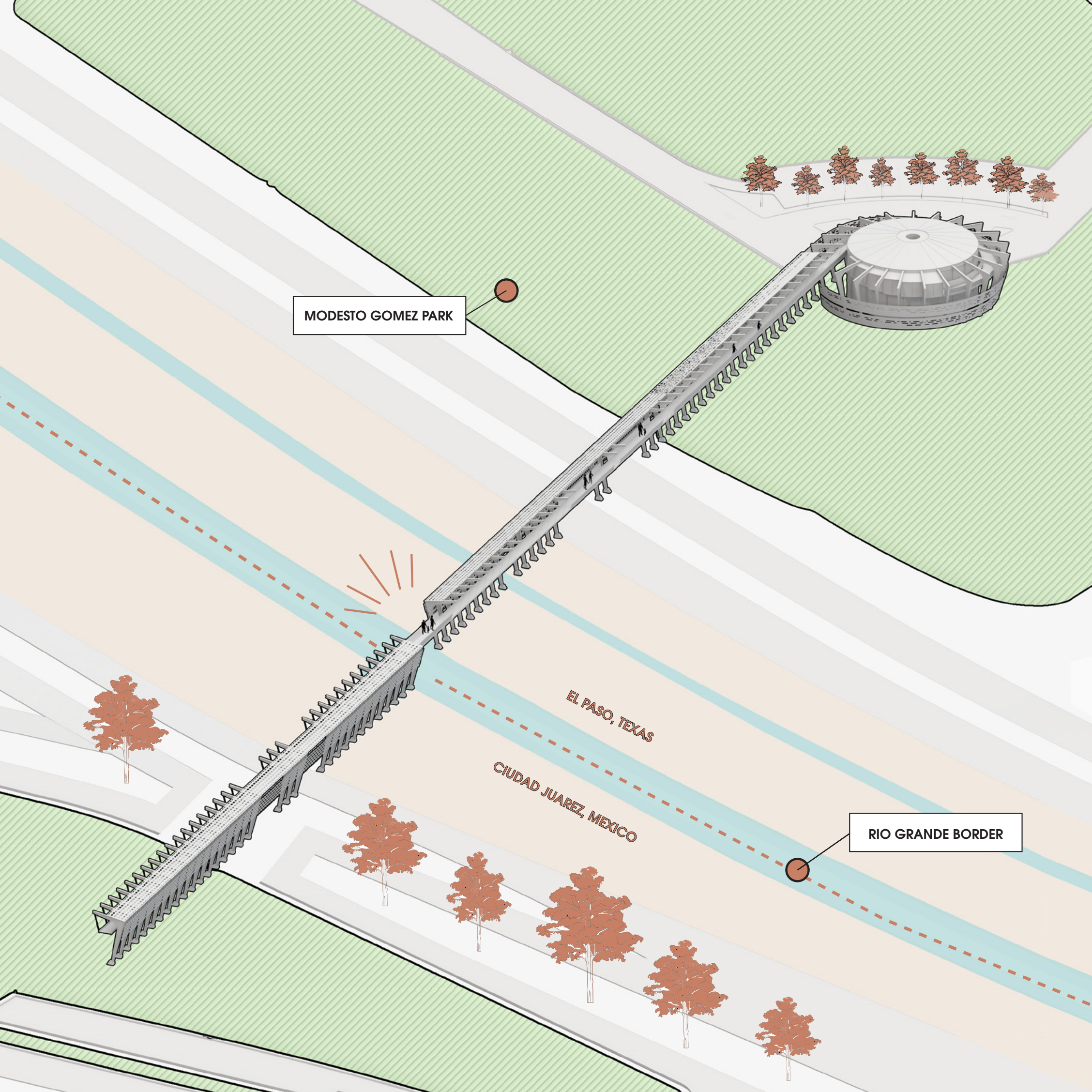
**MOVEMENT**

The program is set to process 50 migrant "units" on a daily basis. The diagram to the left displays how the circulation pattern is derived from the two separate spaces, and combined in one continuous procession.

**FORM**

A Musical Composition is considered a continuous linear progression of sound. Therefore, when developing the form of this project, it was important to consider the migrant experience as one continuous journey. This results in a pedestrian foot bridge that seamlessly culminates into the building on U.S. soil - without a jarring transition from one space to the next.

\* For further explanation of migrant asylum seeking process - see appendix 02 pg. 74-75



MODESTO GOMEZ PARK

EL PASO, TEXAS

CIUDAD JUAREZ, MEXICO

RIO GRANDE BORDER



# EMOTION

## MUSIC + EMOTION

Migrants seeking asylum are often fleeing dangerous or fearful situations in their home countries - and the asylum process can be a difficult and emotional journey, characterized by stress, worry, fear, and exhaustion.

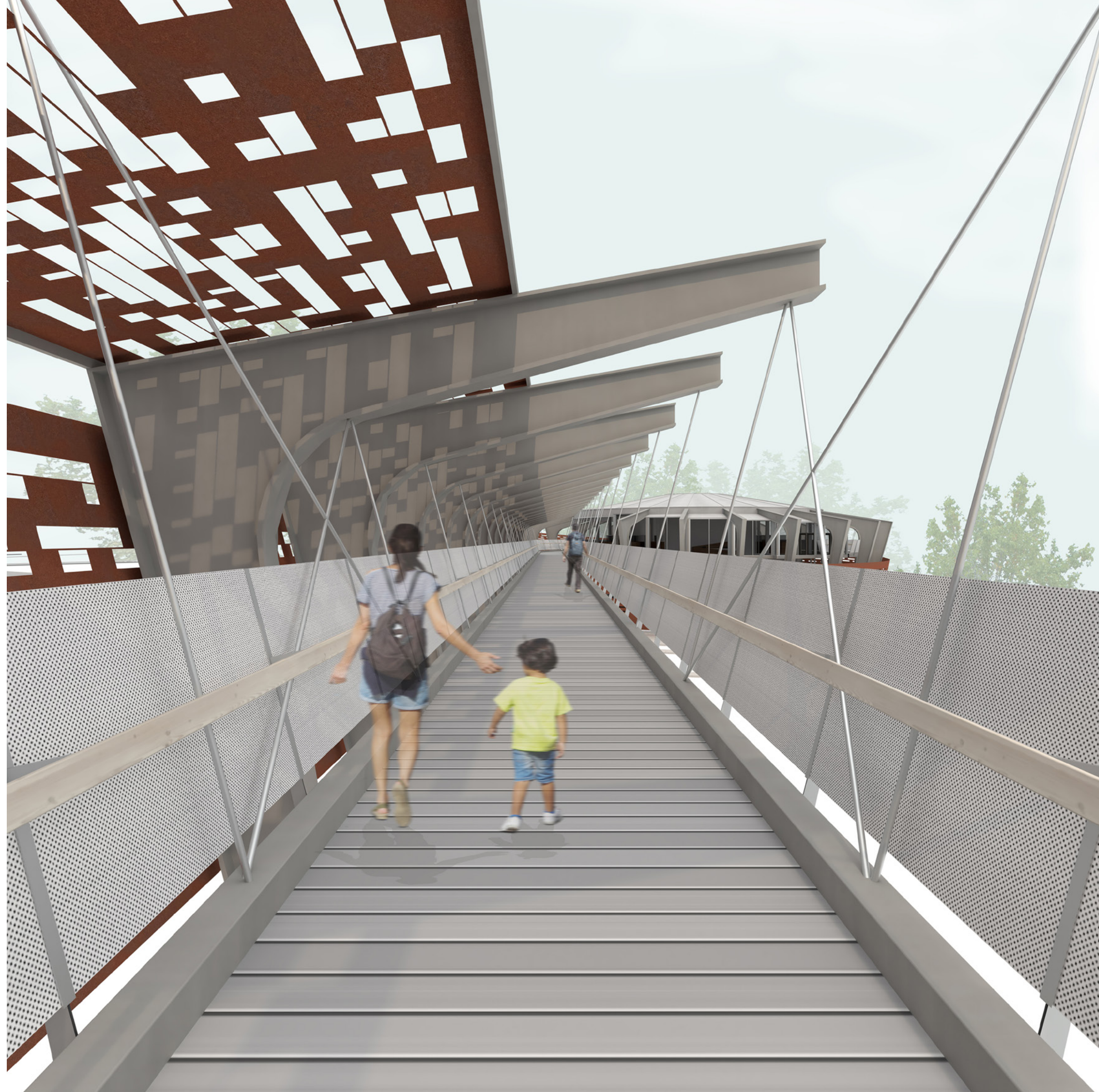
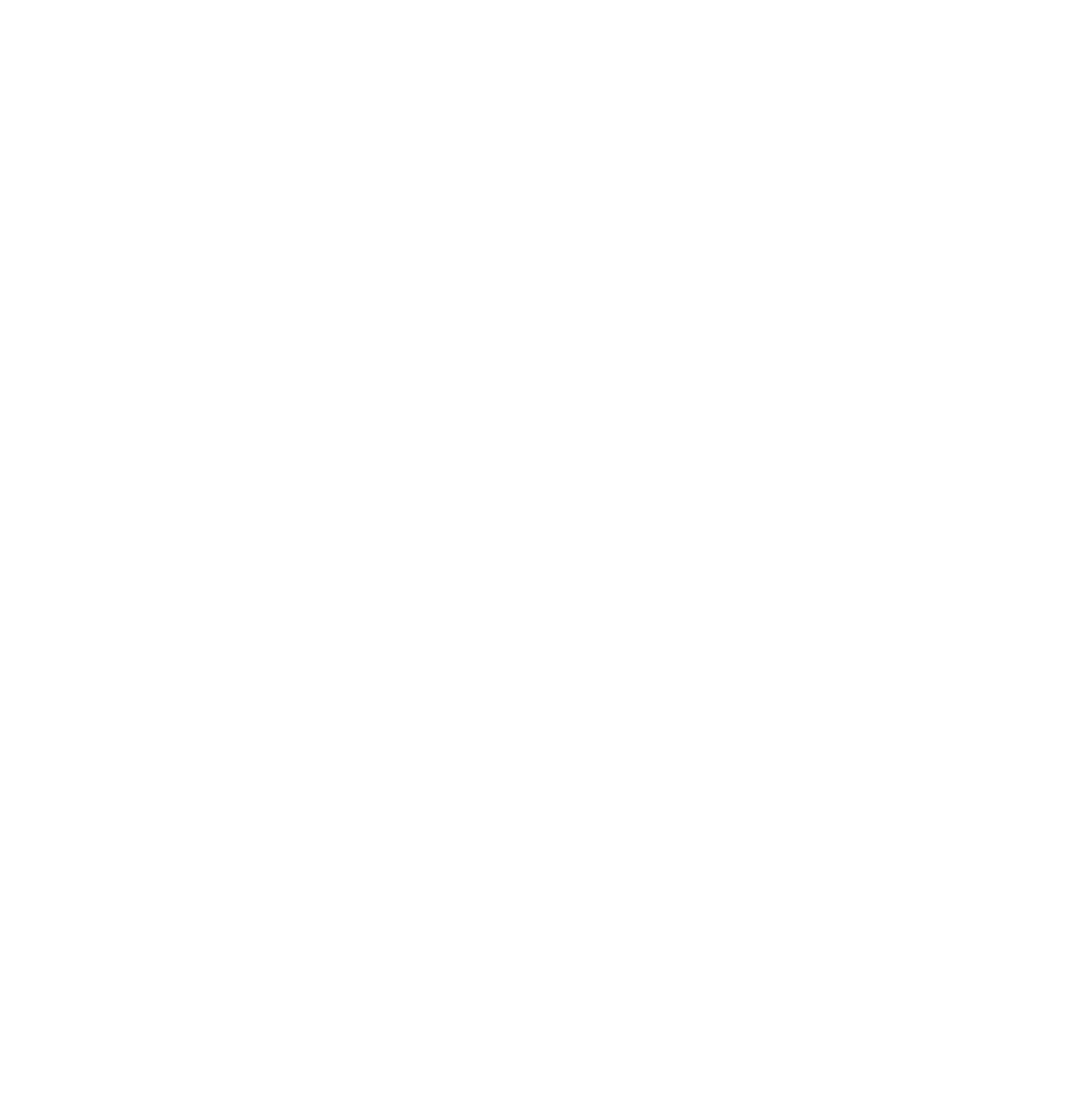
To address these challenges, this project explores how musical composition techniques can be incorporated into architectural design in order to counteract these negative emotions. Through music, the design aims to evoke feelings of perseverance, optimism, and hope, creating a supportive and empowering environment for those seeking asylum.



**FINALE**

|| THE MUSICAL INSTRUMENT  
TRESPASSED BY AIR,  
**CREATES THE GIFT OF  
MUSIC**  
ARCHITECTURAL SPACE  
TRESPASSED BY LIGHT,  
**PRODUCES  
ARCHITECTURE ||**

CAMPO BAEZA



# JOURNEY

## THE JOURNEY / PEDESTRIAN BRIDGE

The pedestrian bridge that stretches across the border is composed of structural steel members, spaced 15' apart, that support a bridge hung by steel tension rods. The bridge is enveloped by a metal perforation screen that provides shade from the North and West. The design of this perforation is based on a transposed version of the song, *Bridge Over Troubled Water* by Simon and Garfunkel.

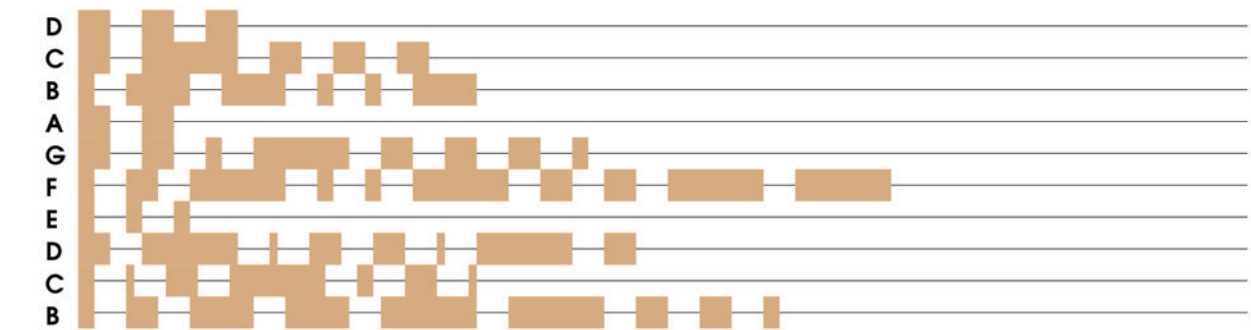
Inspired by lyrics from a gospel hymn, "bridge over troubled water" is a metaphor for someone living through a tough time in their life, referencing sacrifice and perseverance as they find a way through difficulty. The song encourages listeners to push forward, with lyrics "Sail on silver girl/ your time has come to shine/ All your dreams are on their way". I believe this song could be seen as an anthem that is applicable to migrants seeking asylum, encouraging them to persevere through struggle and doubt.

## BRIDGE OVER TROUBLED WATER / PERSERVERANCE

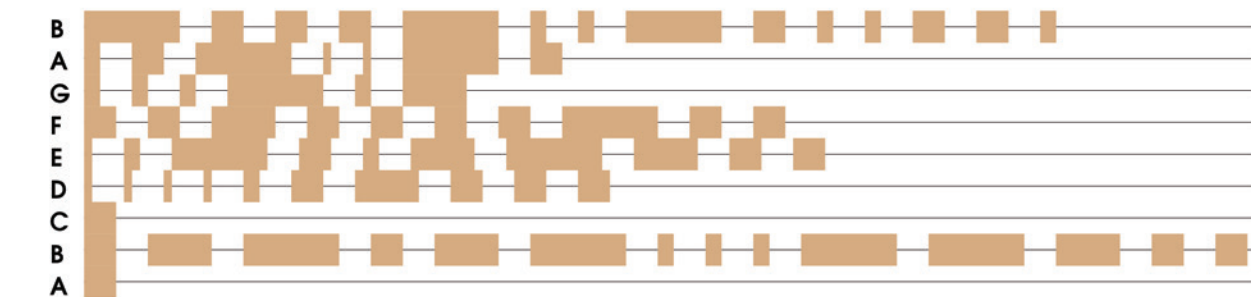
Two staves of musical notation for the song "Bridge Over Troubled Water". The top staff has notes with lyrics: CANT BE FOUND, LIKE A BRIDGE OV ER TROUBLED WA TER I WILL LAY ME DOWN. The bottom staff has notes with lyrics: CANT BE FOUND, LIKE A BRIDGE OV ER TROUBLED WA TER I WILL LAY ME DOWN. Above the notes are letter keys: B C C D C B A G G F D F B C D B B B for the top staff, and E E F B D E E E F F F G G B F D G for the bottom staff.

Assign each note to its' corresponding key - with the width of each perforation resulting from the duration of time that the note is held

### TREBLE

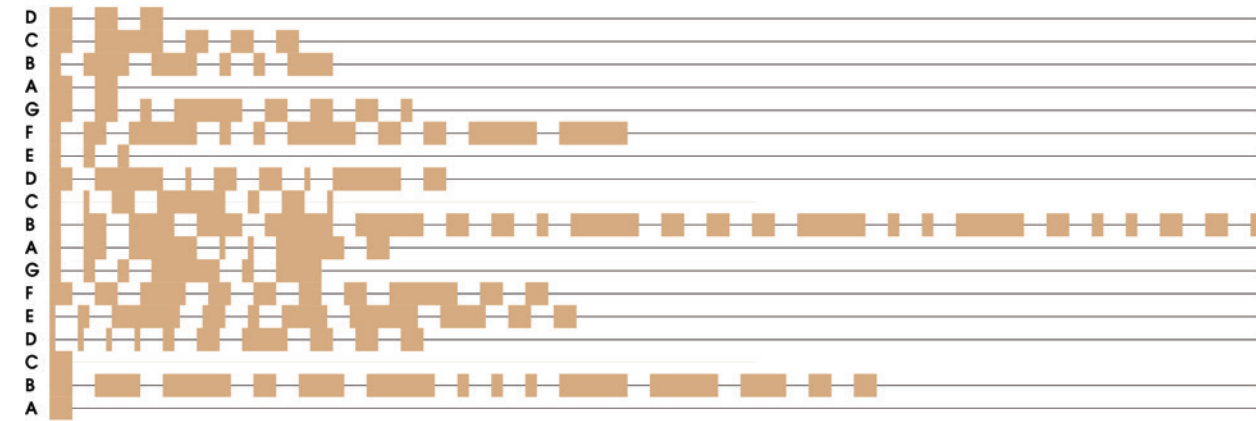


### BASS



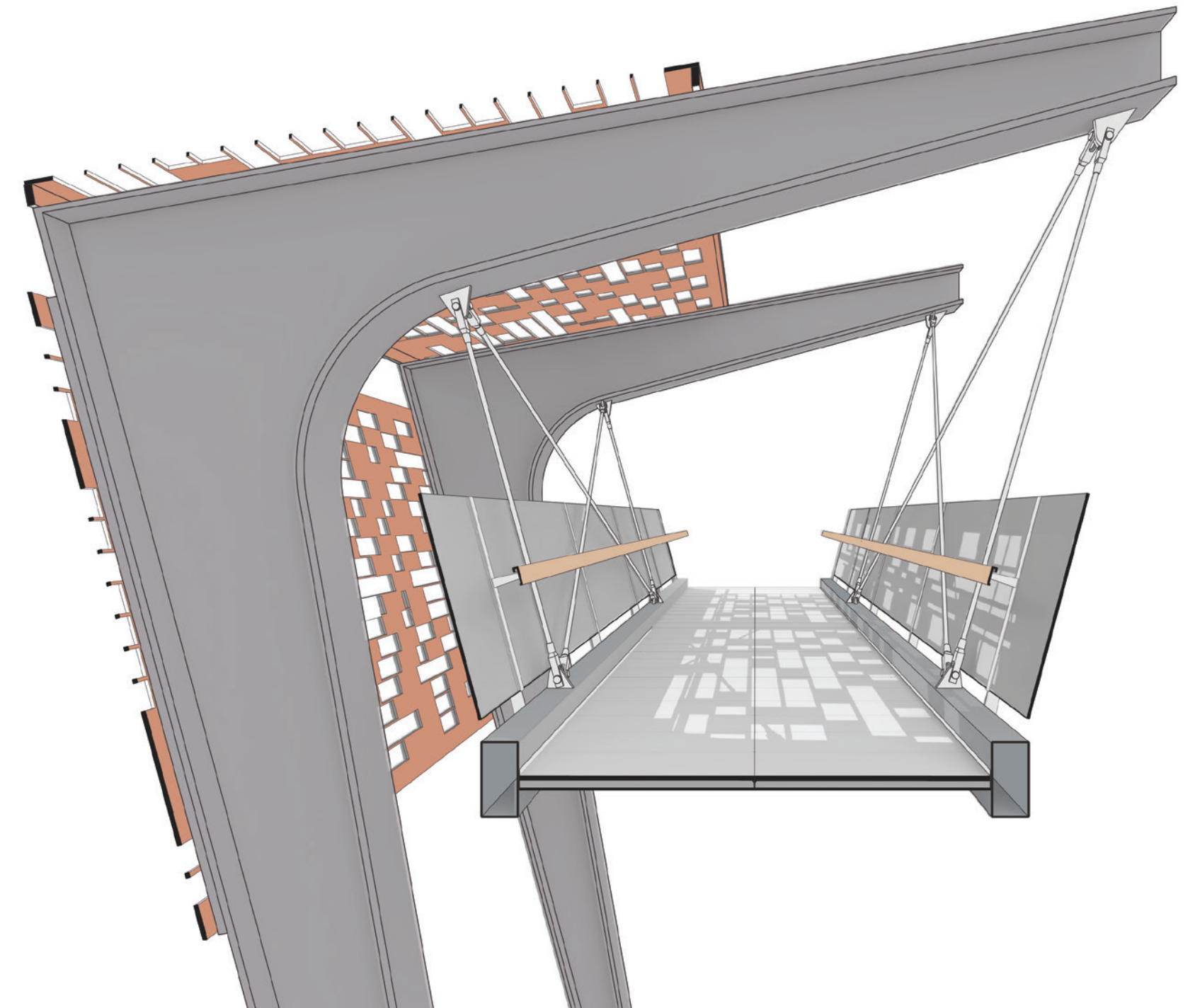
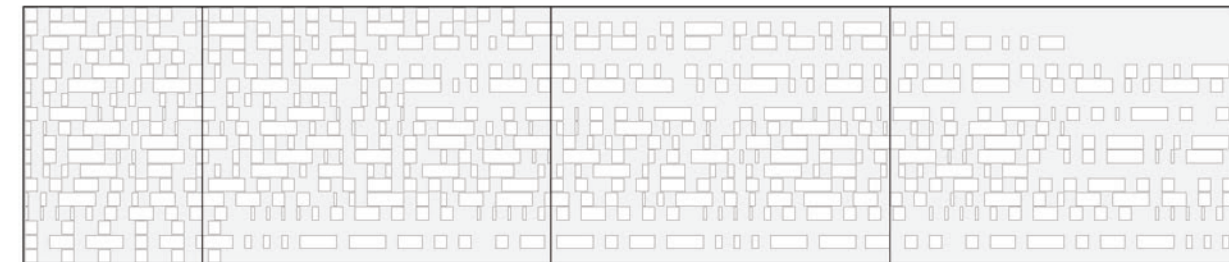
### TREBLE + BASS

Combine the treble clef & base clef into one musical staff using the results of step 01.

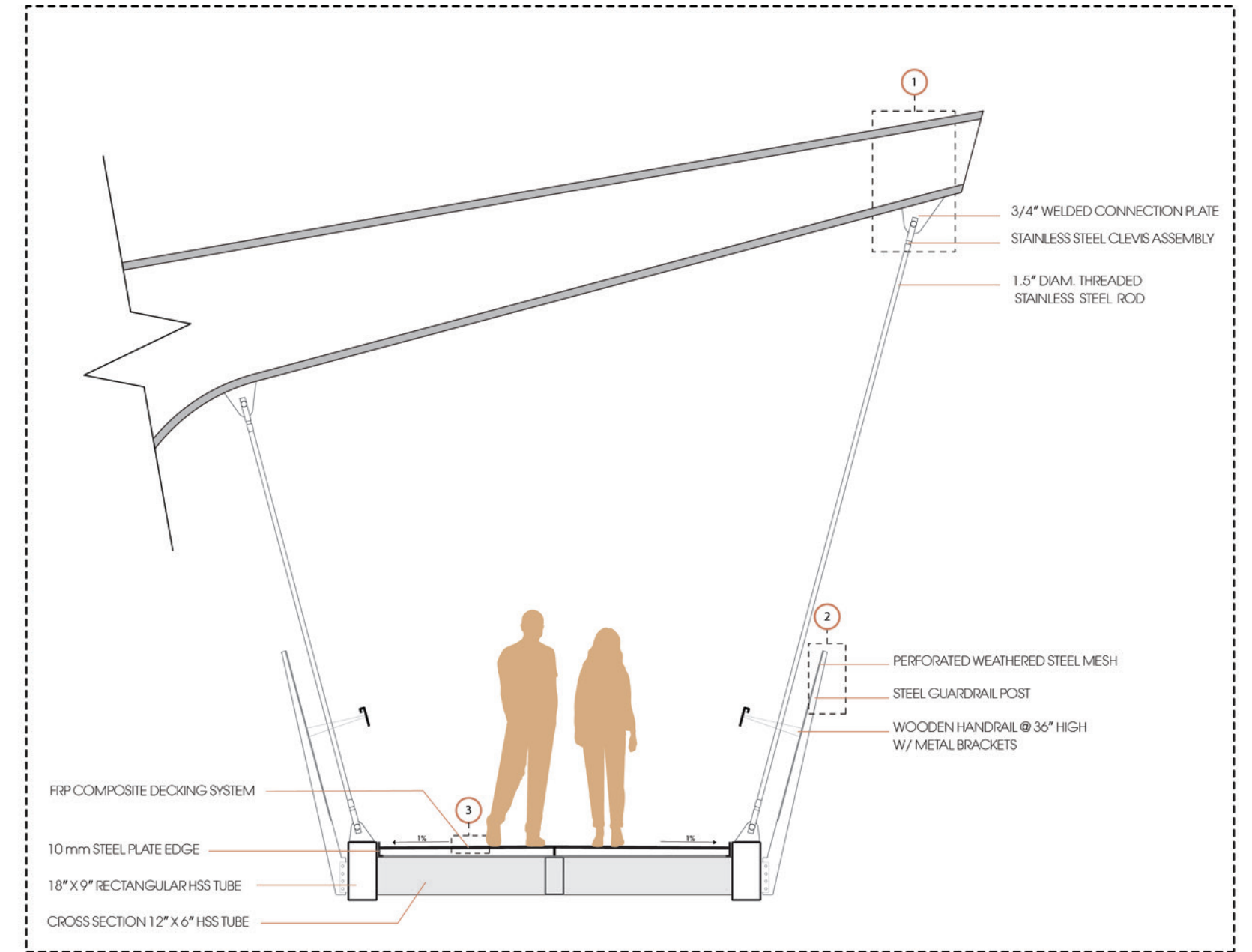
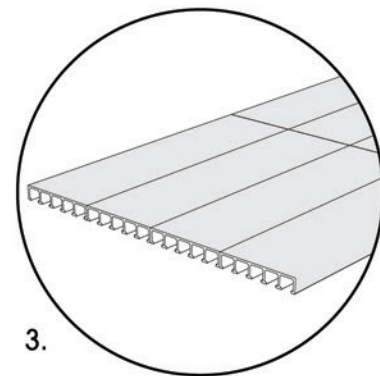
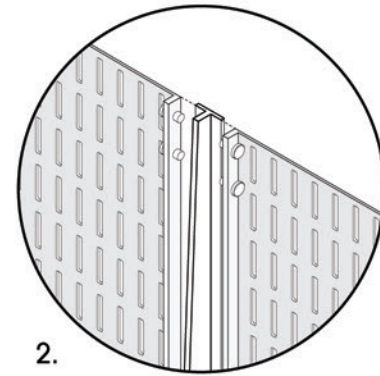
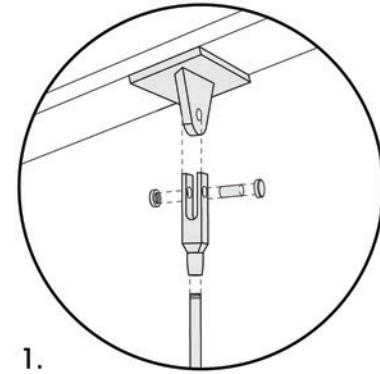
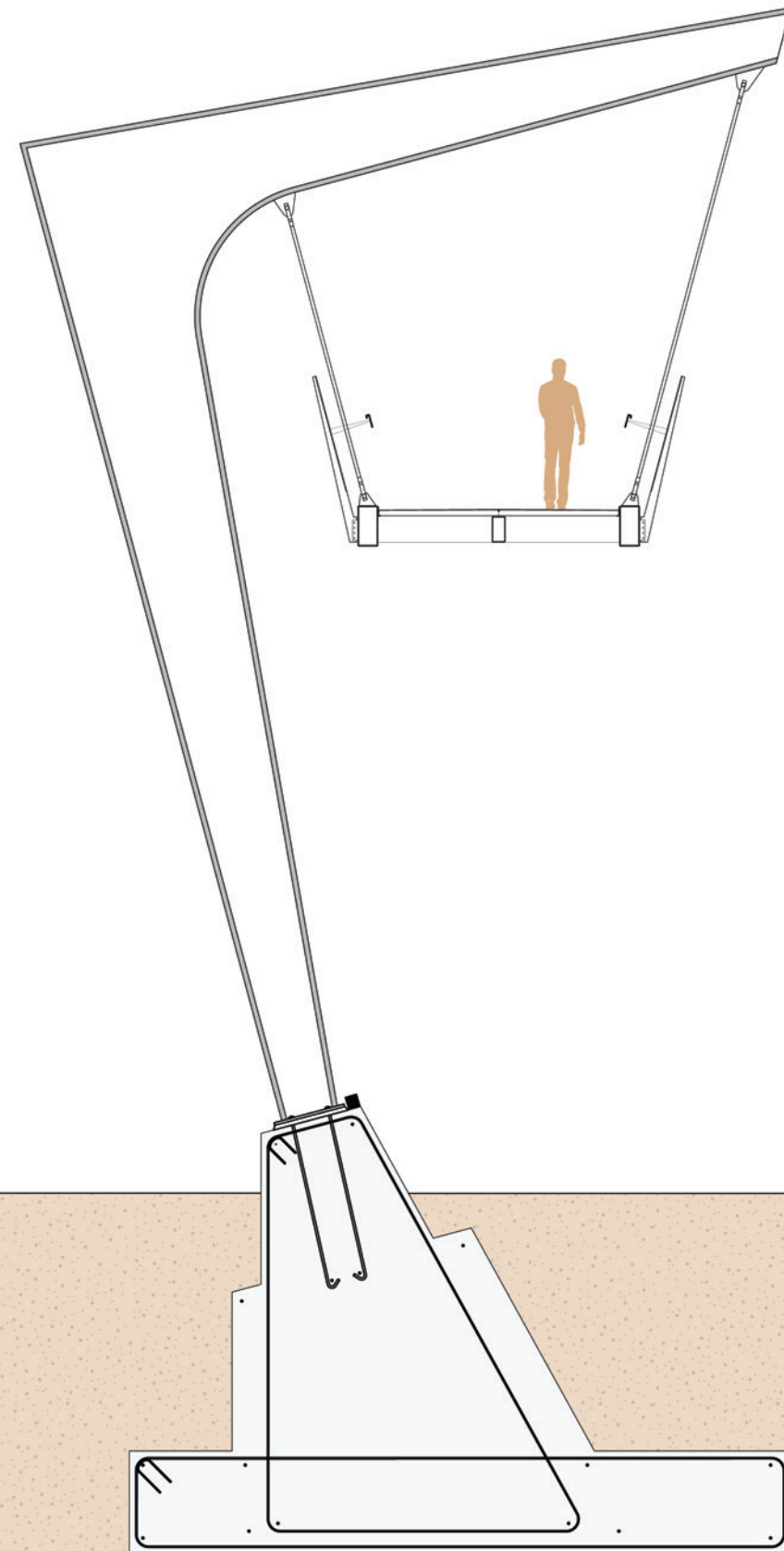


### DESIGN

*Bridge Over Troubled Water* results in the design of the metal perforation shown below



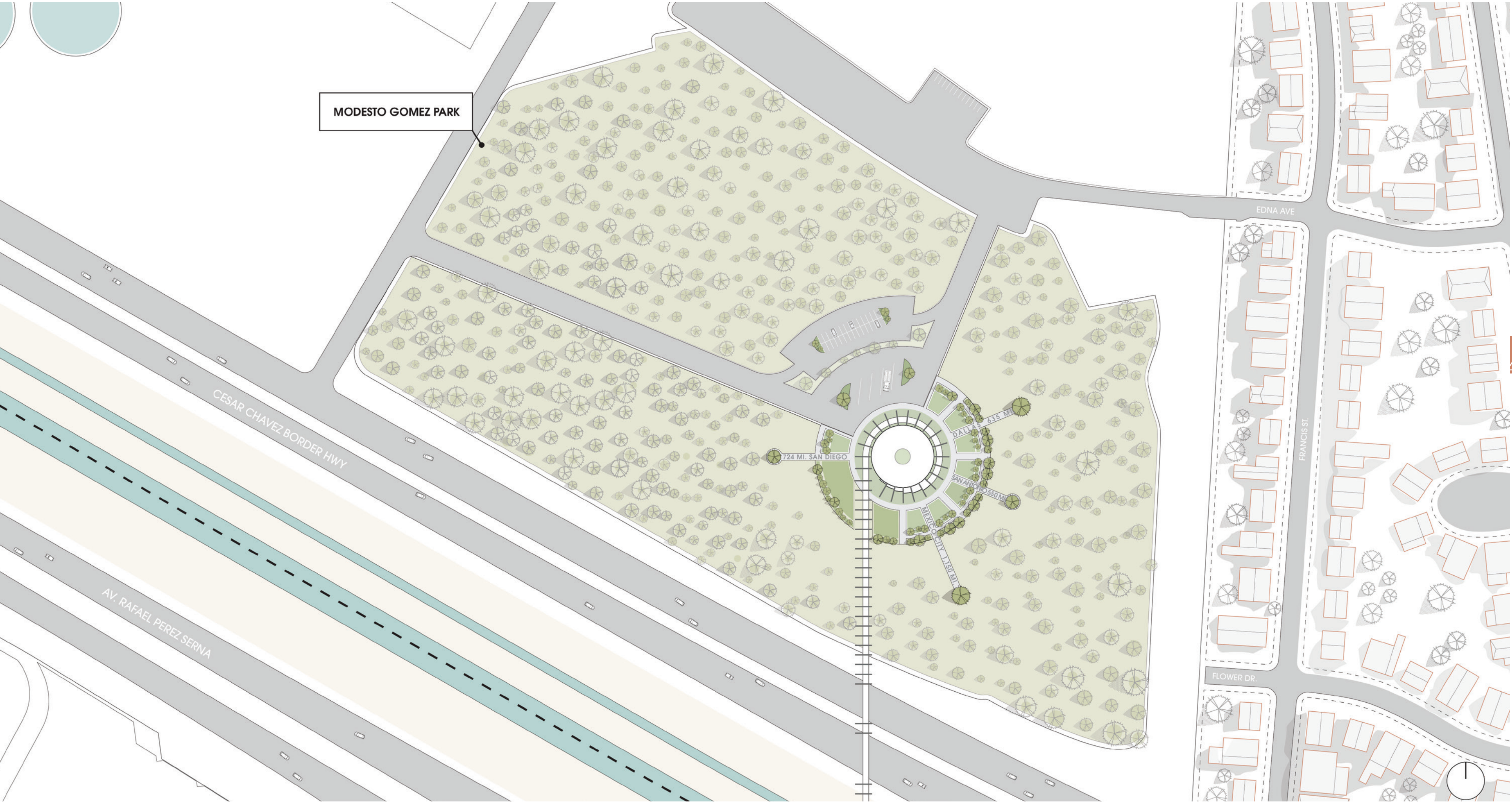
PEDESTRIAN BRIDGE / DETAIL SECTION



# URBAN FABRIC

EL PASO  
TEXAS

CIUDAD JUAREZ  
MEXICO





1500 CITY 1150 N



# APPROACH

## THE APPROACH / BUILDING ENVELOPE

As the pedestrian bridge flows effortlessly into the conditioned building, the perforation transitions from an anthem of perseverance into an anthem of optimism and hope. The metal mesh splits from one large screen into two smaller screens that follow the slope of the ramps on the interior of the building. These two perforated screens that envelope the building are based on a transposed version of the song, *Amazing Grace*.

Originally a hymn written in 1772, *Amazing Grace* speaks of the transformation of suffering into beauty, and of alienation into empathy and connection. The overwhelming grace that the song speaks of conveys a message of redemption and hope - offering the chance for a fresh start, a new life.

## AMAZING GRACE / OPTIMISM

Musical score for 'Amazing Grace' in G major, 4/4 time. The score includes lyrics and chord annotations for both Treble and Bass staves.

**TREBLE**

Chord annotations: C (1 BEAT), F (2 BEATS), A (1/2 BEAT), F (2 BEATS), A (2 BEATS), G (1 BEAT), F (2 BEATS), D (1 BEAT), C (2 BEATS), C (1 BEAT).

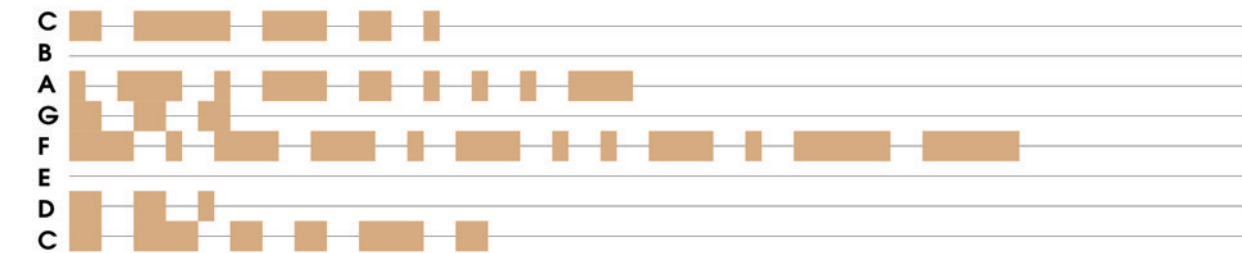
**BASS**

Chord annotations: F (2 BEATS), C (1/2 BEAT), F (2 BEATS), C (1/2 BEAT), B (1/2 BEAT), D (1/2 BEAT), F (2 BEATS), C (1/2 BEAT).

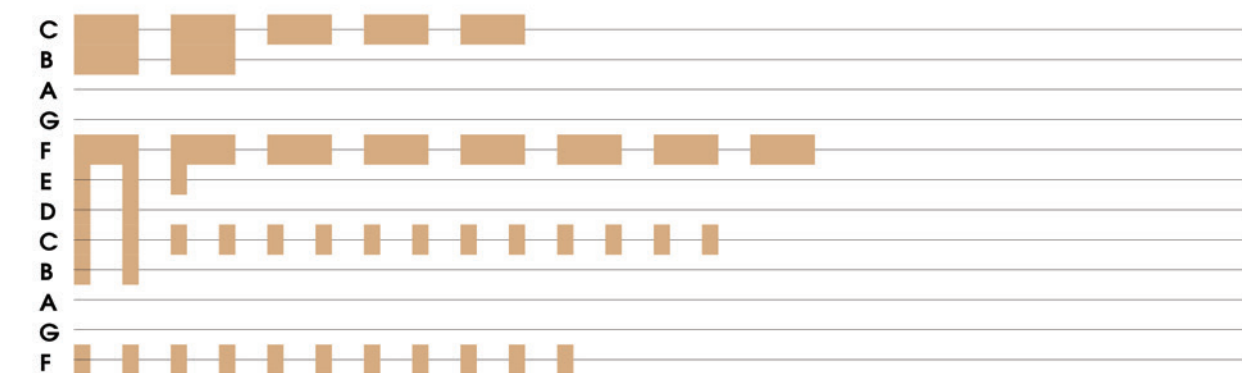
Lyrics:  
 A - ma - zing\_\_ grace how sweet the sound that  
 Twas grace that taught my heart to fear, And  
 Thro' ma - ny dan - gers, toils, and snares, I  
 The Lord has pro - mised ten good to me, His  
 When we've been there ten thou - sand years, Bright

Assign each note to its corresponding key - with the width of each perforation resulting from the duration of time that the note is held

### TREBLE

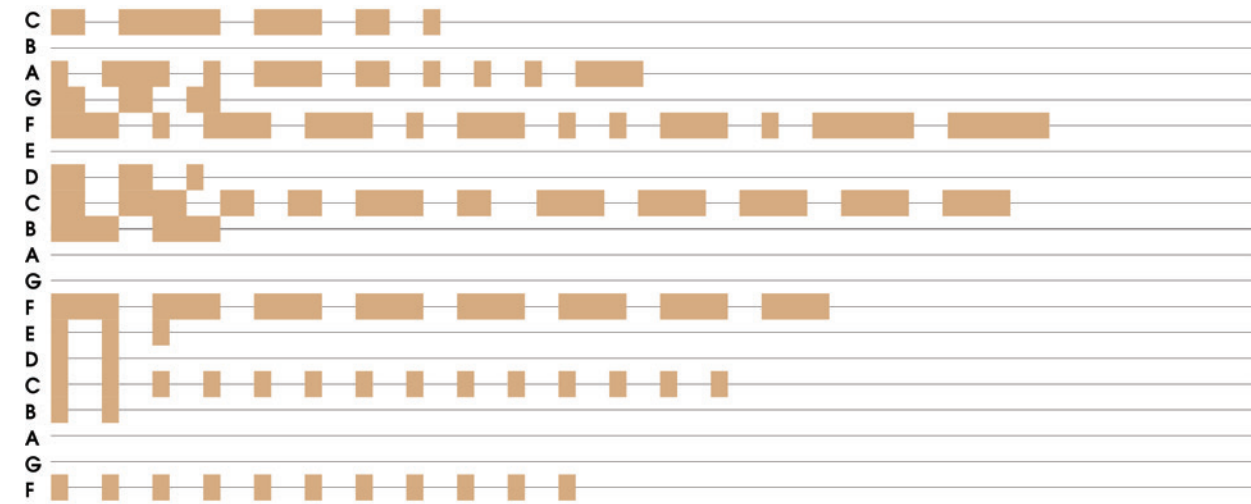


### BASS



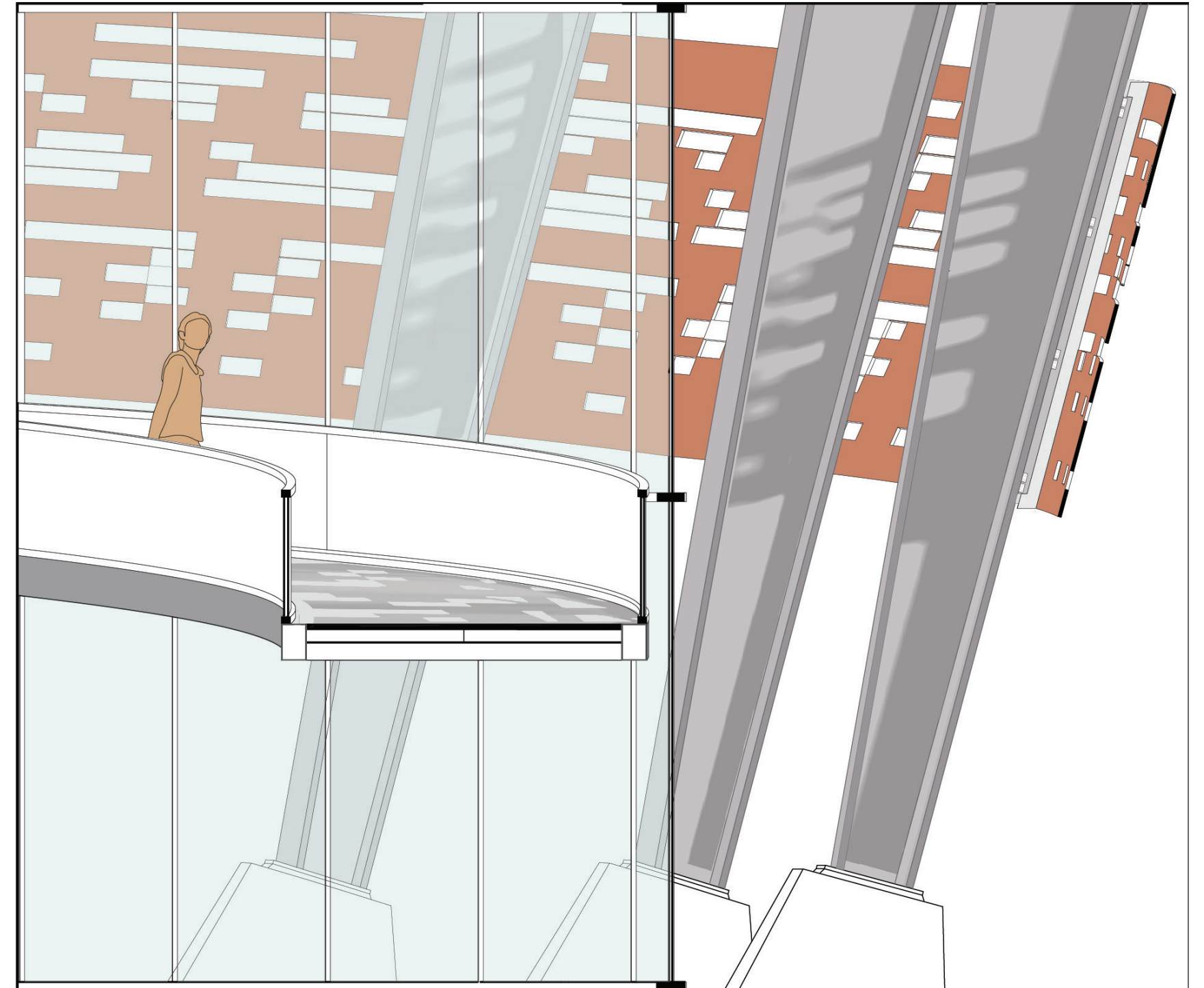
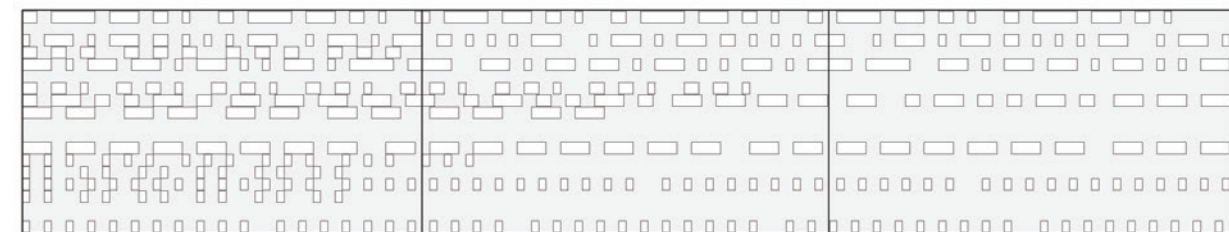
### TREBLE + BASS

Combine the treble clef & bass clef into one musical staff using the results of step 01.



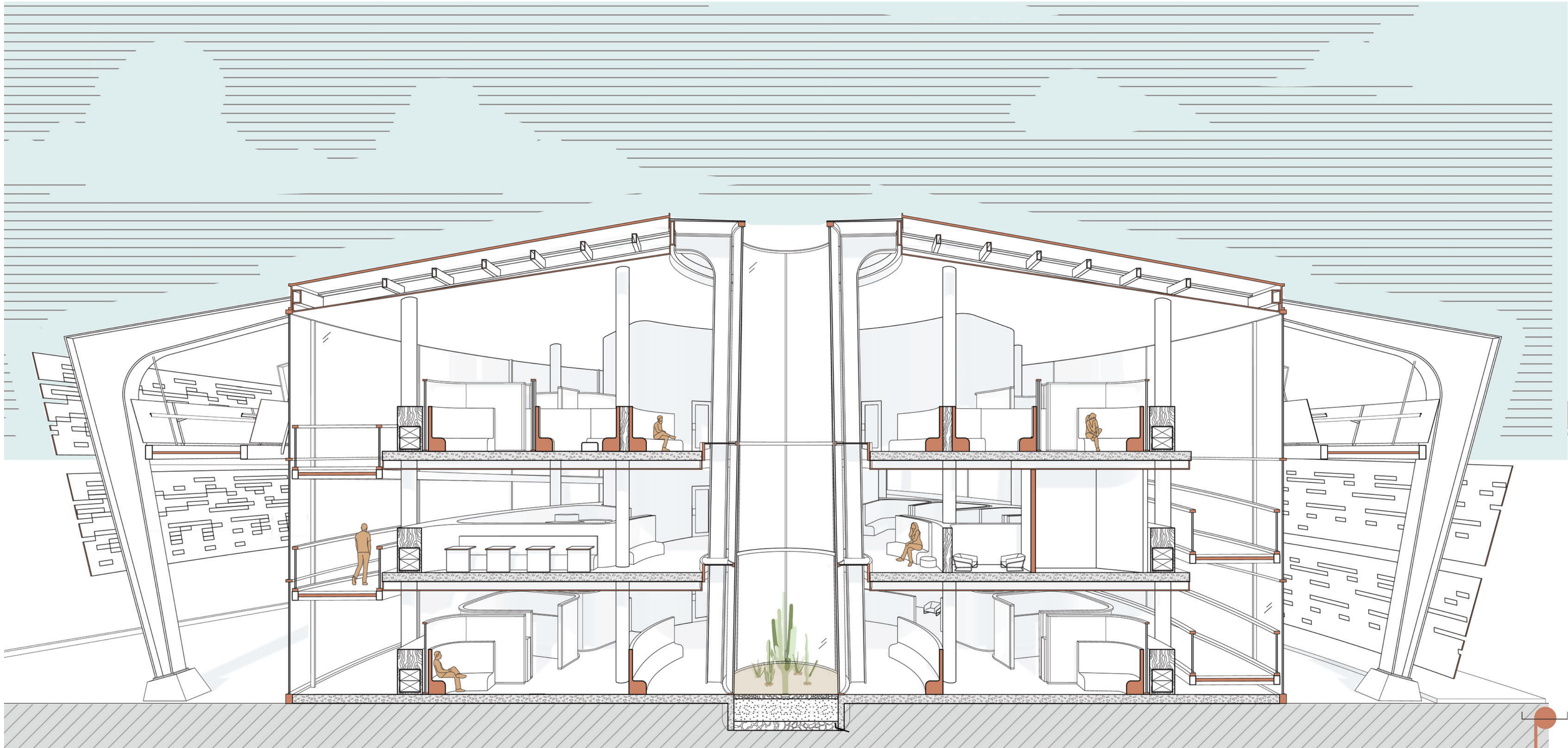
### DESIGN

The hymn *Amazing Grace*, results in the design of the metal perforation shown below



# THE ARRIVAL



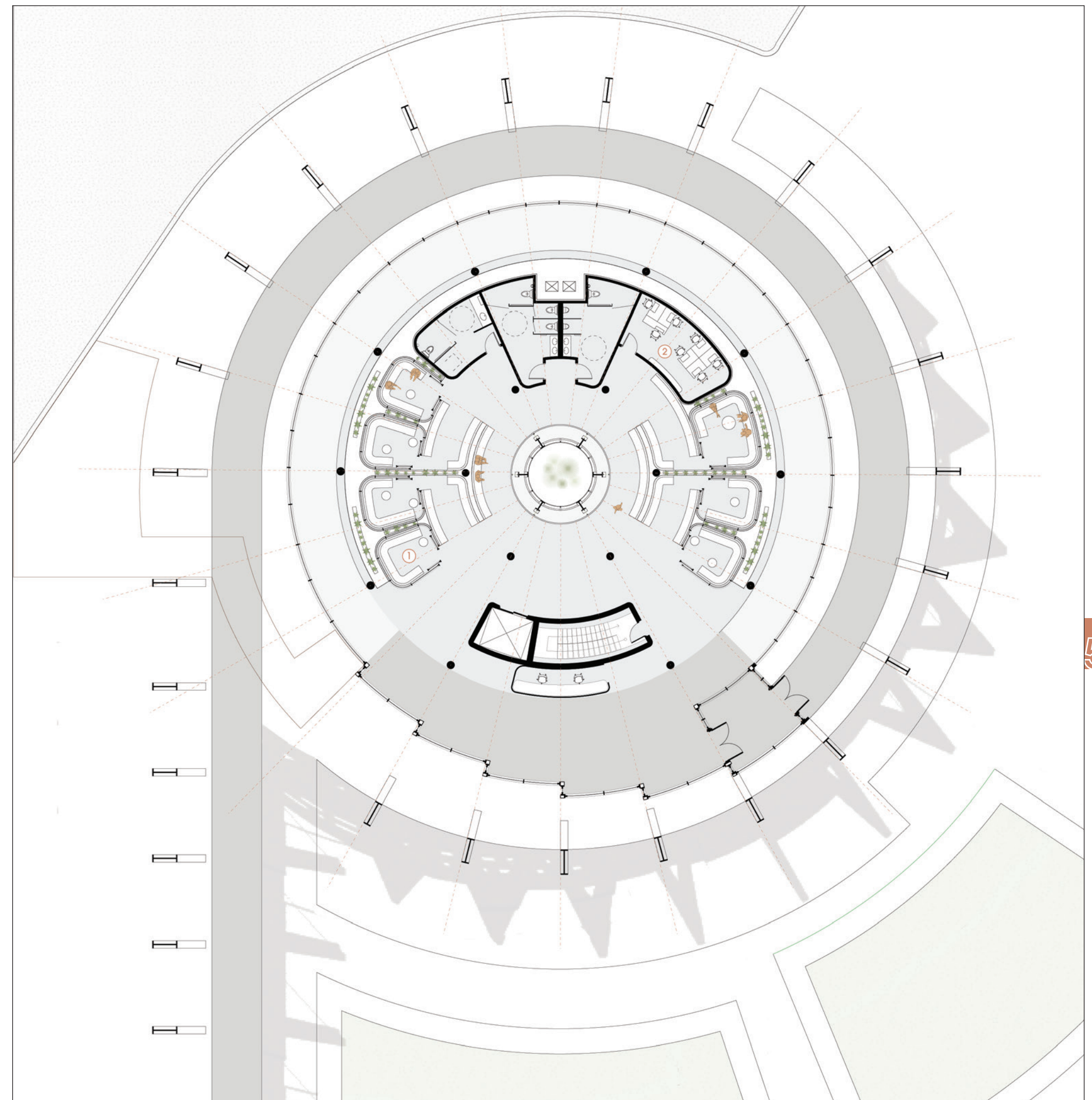
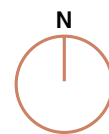


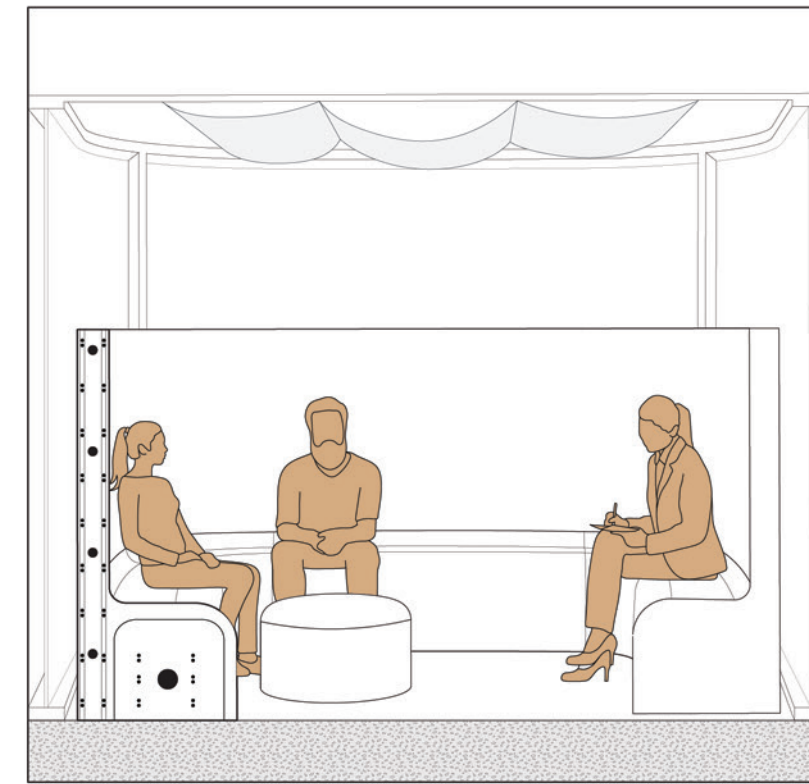
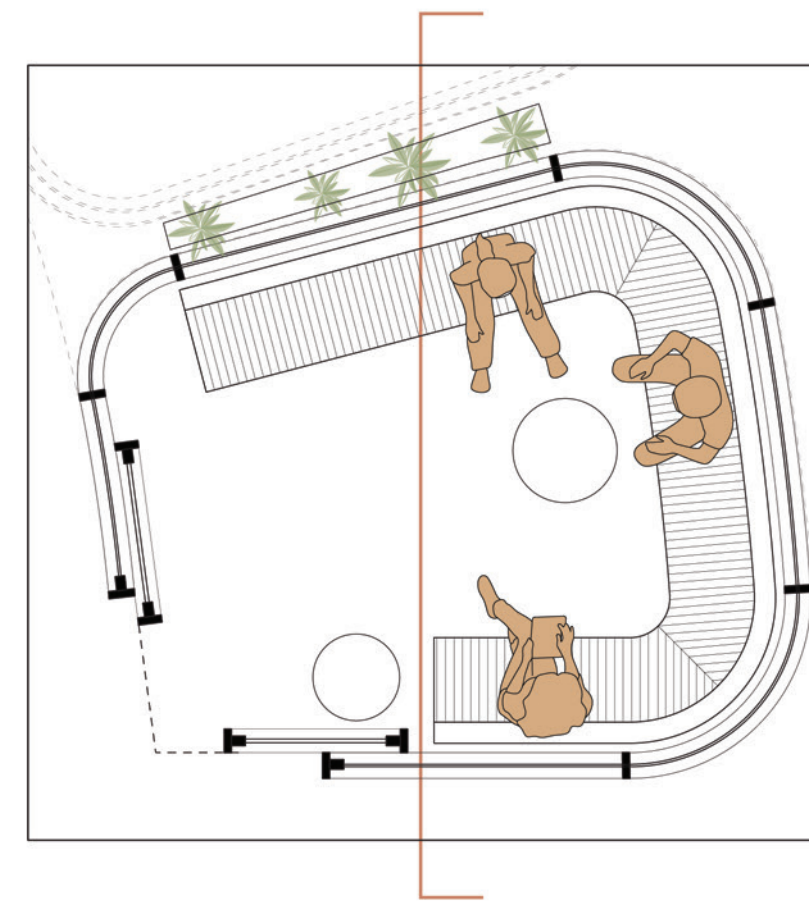
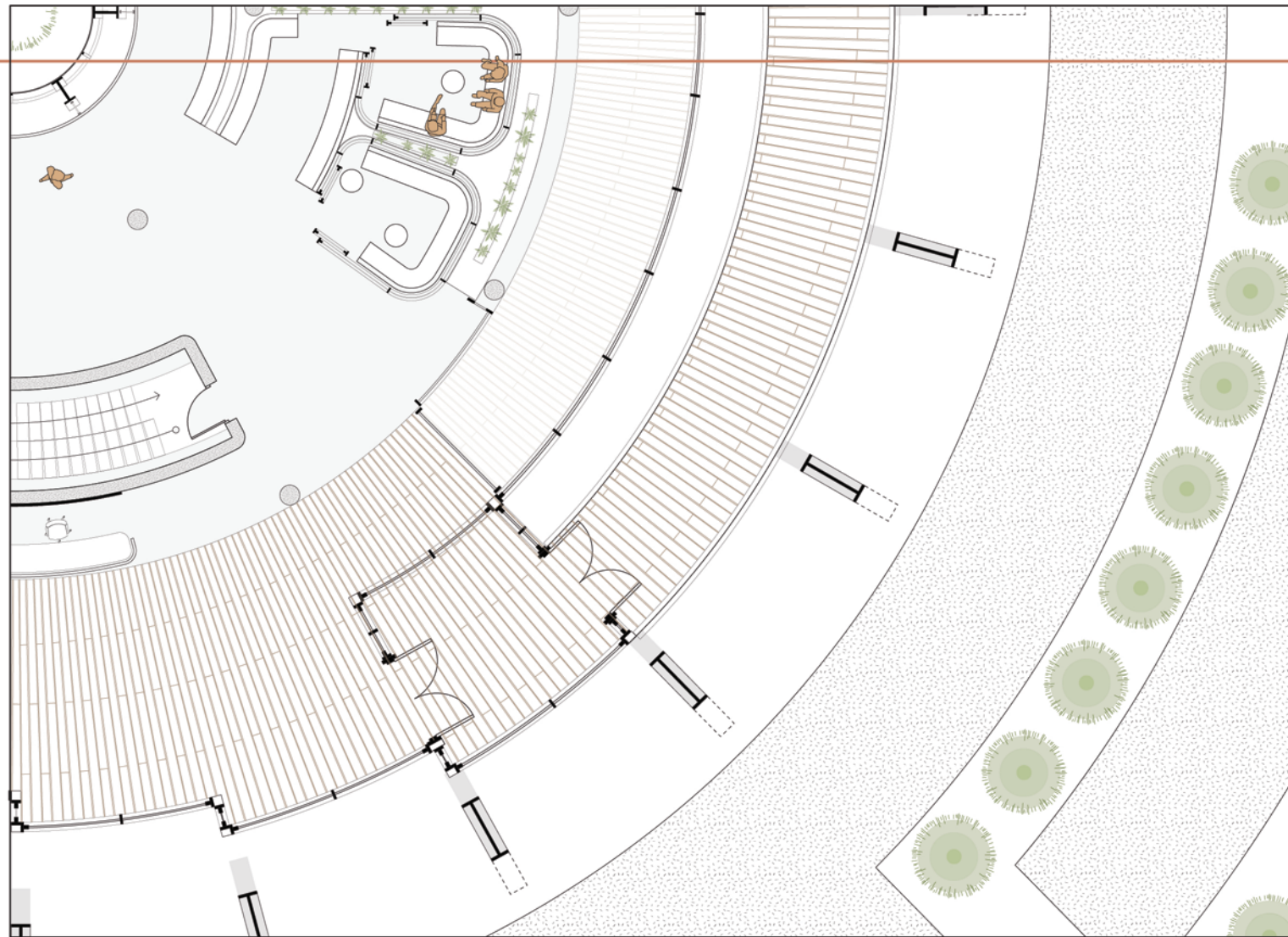
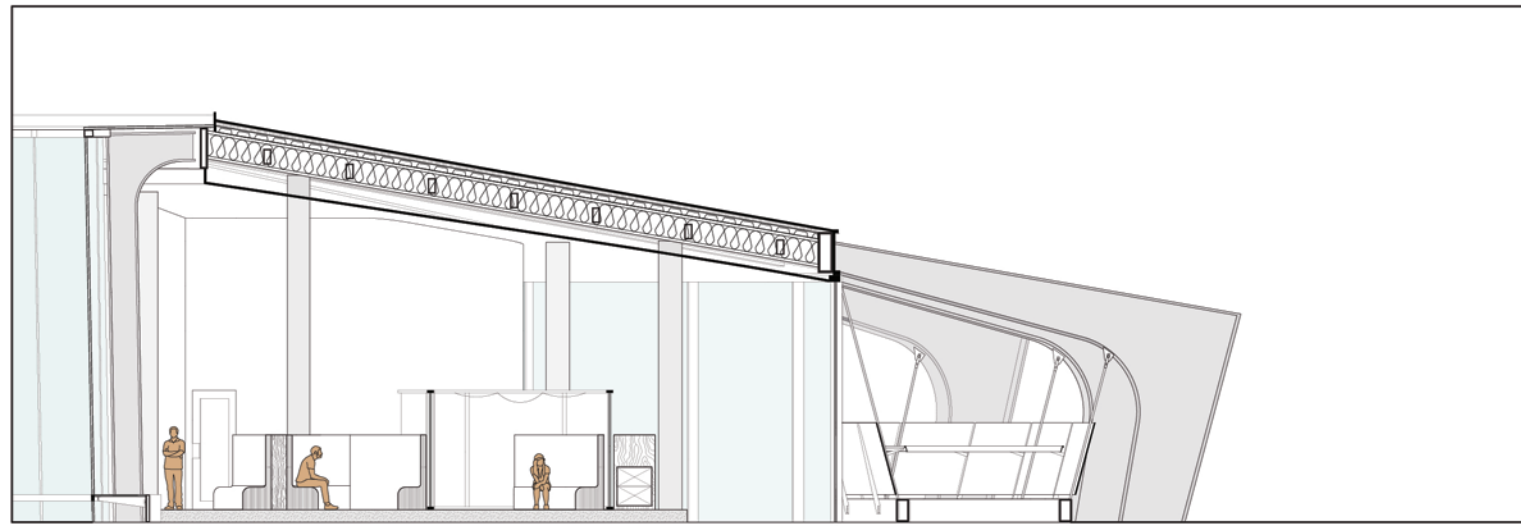
### ENTRY LEVEL + 24'

When arriving at the building, the user enters via the pedestrian bridge on the top level. Here, they are welcomed into interview rooms (or pods) where migrants can share their asylum stories. Once the interview is finished, migrants return to the continuous ramp to continue their journey through the building.

### LEGEND

1. interview rooms
2. employee offices
3. self - service snack bar
4. child play space
5. waiting area
6. first aid services
7. staff breakroom
8. legal counsel

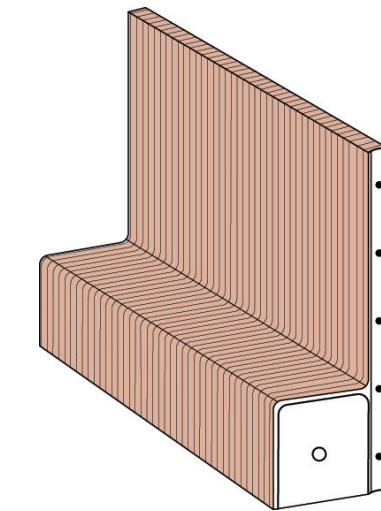




## A SPACE TO LISTEN

The interview rooms on the entry level floor have been thoughtfully designed as a **space for listening**. Just as music depends on an audience's ability to listen; the stories and experiences that these migrants will tell depend on the immigration employee's ability to listen attentively.

As such, it becomes crucial to create a quiet environment that provides sufficient acoustic insulation, while still maintaining an open and inviting feel. Embracing silence in these rooms is important, and this design works to ensure that the space doesn't feel closed off or claustrophobic, as this could have a negative effect on someone who just went through a stressful or traumatic experience.



To further ensure the comfort of the user, the interview pods are designed with flexible couch-style seating. This relieves the formality of a typical interview space and adds an element of comfort and relaxation. The seating is made up of a paper or textile bench with a tall 5' backrest, which not only acts as an acoustic space partition but also allows for flexible seating arrangements.

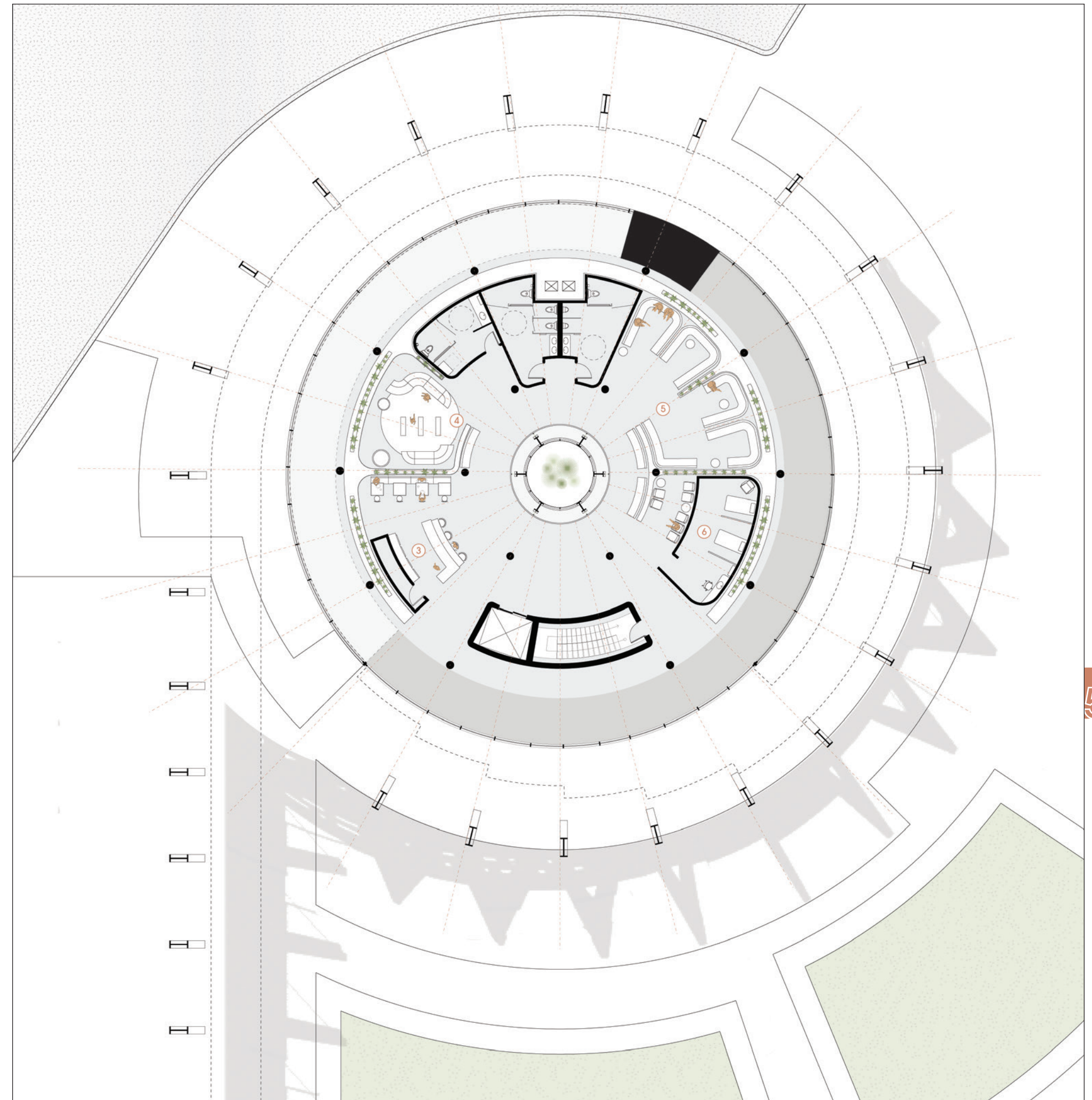
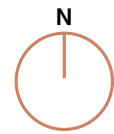
## SECOND LEVEL + 12'

The building's program has been carefully designed to meet the unique needs of migrants, recognizing the difficult and emotionally taxing journey they have undertaken.

The second floor is dedicated to providing them with much-needed support, offering a range of free services including a dining area, first aid station, child play space, and semi-private seating arrangements. These services are available to all migrants while they await a decision from an immigration employee. Once a decision is made, the user is guided back to the continuous ramp for a smooth descent to the ground level.

## LEGEND

1. interview rooms
2. employee offices
3. self-service snack bar
4. child play space
5. waiting area
6. first aid services
7. staff breakroom
8. legal counsel

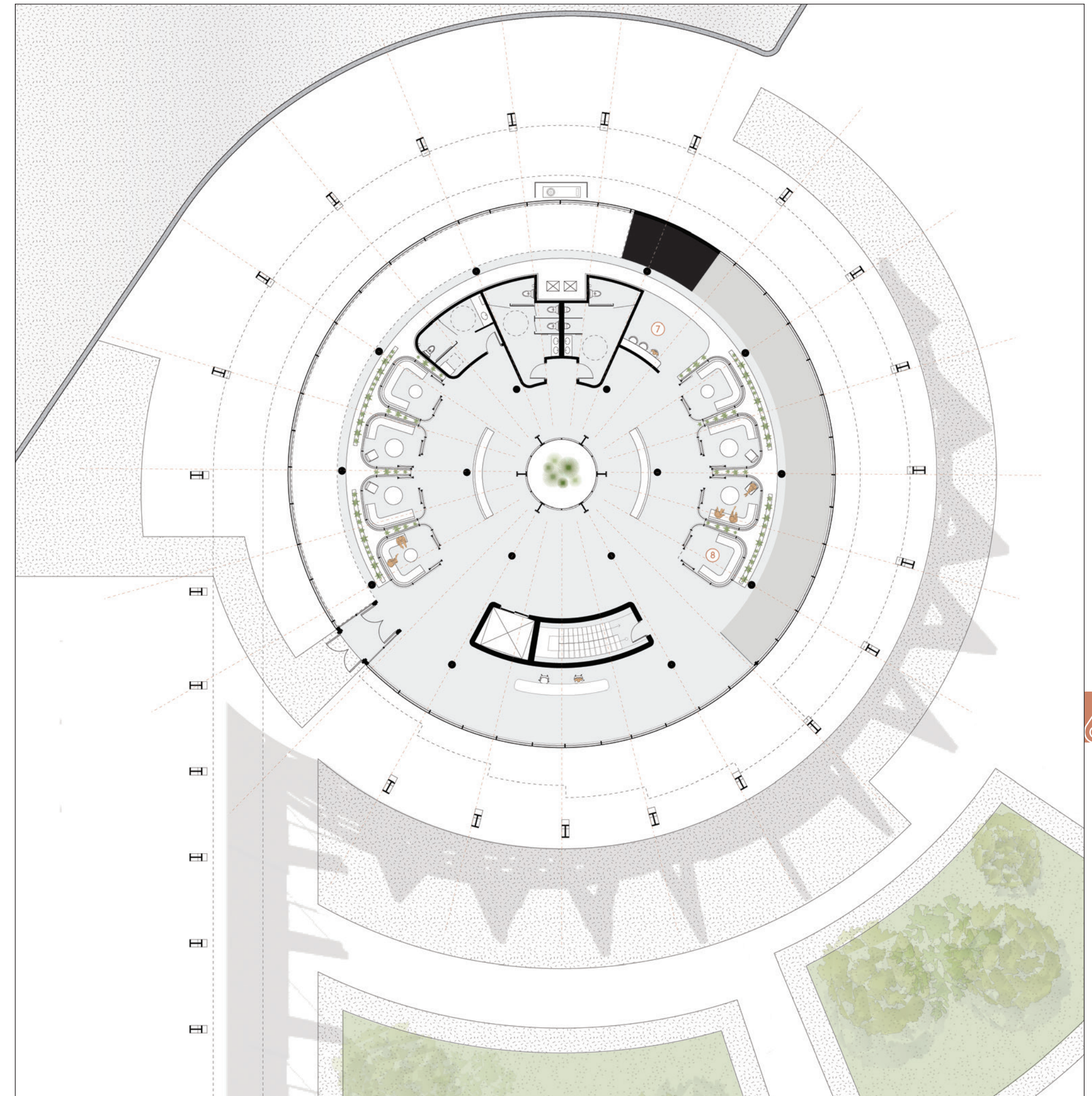
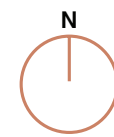


### GROUND LEVEL + 0'

At the ground level, the migrant receives the ultimate decision on whether they are accepted into the U.S. legal asylum process. Once again, they are guided to a smaller conference room, similar to the interview pods on the entry level. Here, a legal advisor explains the asylum court process, provides guidance on what to expect, and offers resources on transportation and shelter in the surrounding area. Once the migrant family fully understands what is expected of them in the coming months, they are granted freedom on U.S. soil to reside during the extent of their court proceedings.

### LEGEND

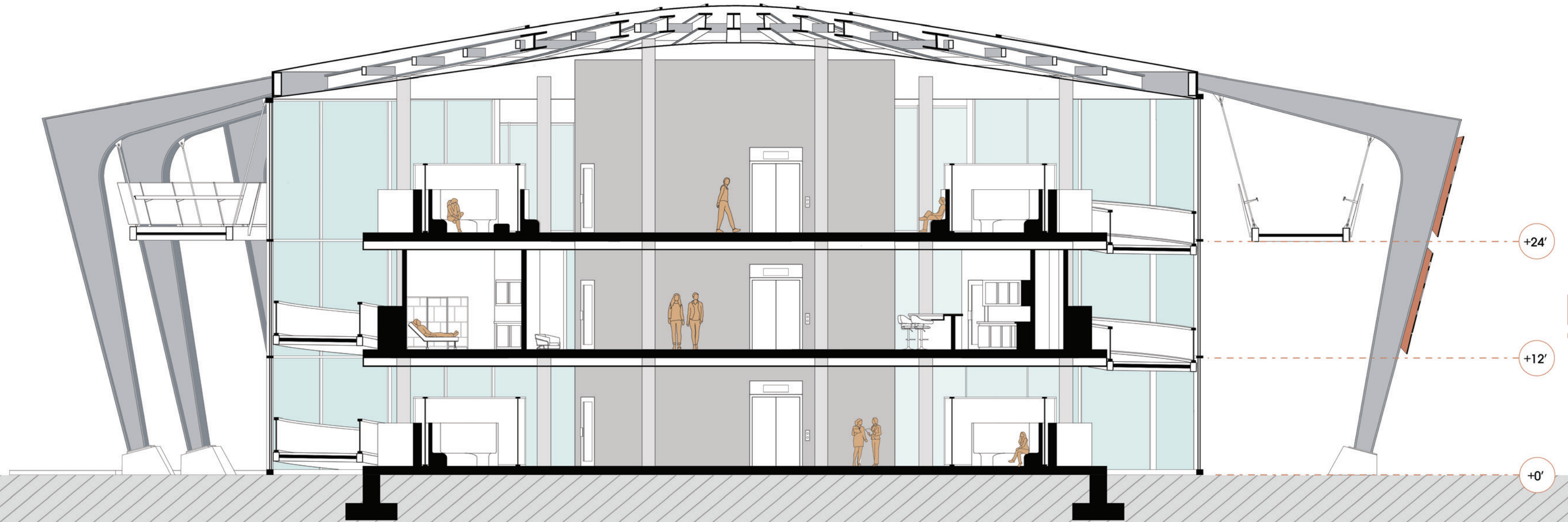
1. interview rooms
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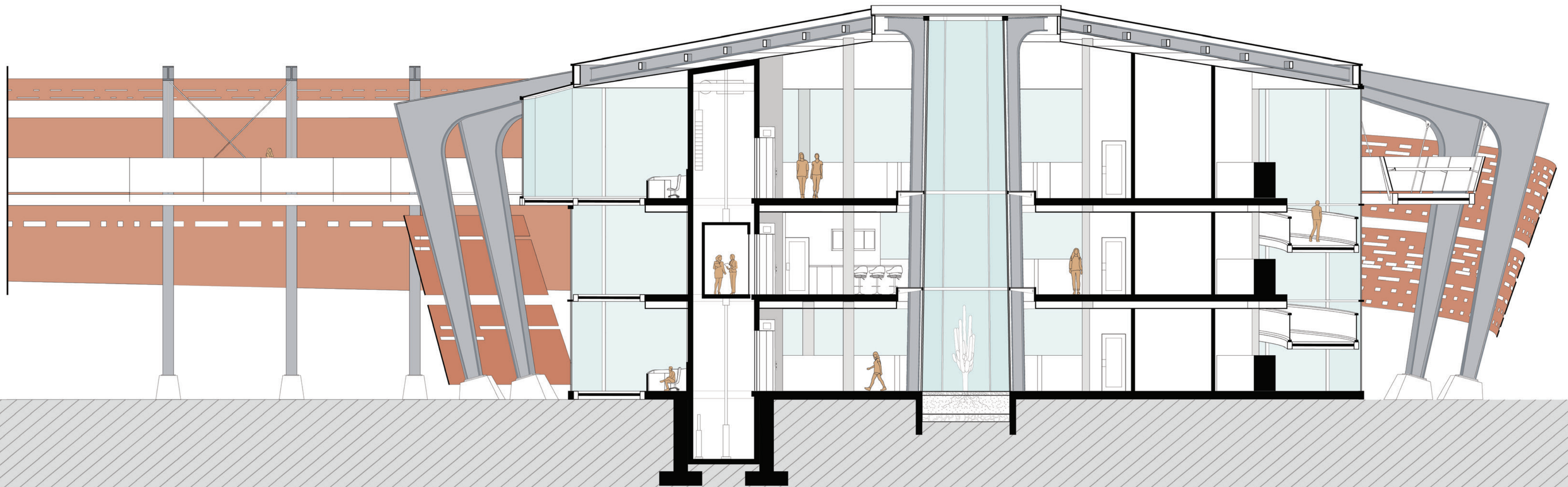




## CONTINUOUS CIRCULATION

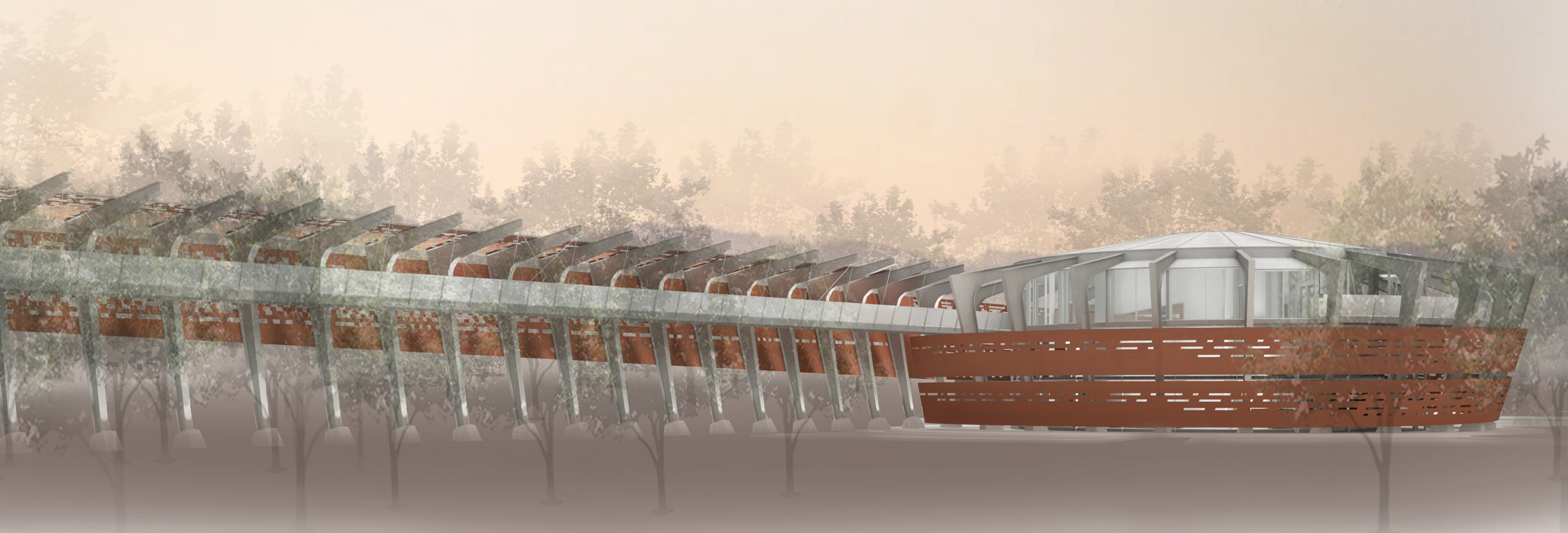
The continuous circulation of the sloping ramp becomes evident when looking at the building sections. The purpose of this continuous procession is to allude to the linear progression of sound in a musical measure; resulting in a seamless user experience from one space to the next.





## *FINALE / CONCLUSION*

To apply for asylum is to seek refuge ; the journey from danger to opportunity is translated into spots of welcome shade and bits of light, structured by the inherent optimism of the songs ***Bridge Over Troubled Water*** and ***Amazing Grace***. Using musical composition as a design method functioned to inform program, and became the framework to create a visual interpretation of music that conveys an uplifting and supportive message throughout the building's linear progression.



# CLOSURE

*DYAD / THOUGHTS MOVING FORWARD*

There is still so much more to be explored within the topic of music and architecture.

This project has given me the unique opportunity to meld two of my passions - and through this journey I was able to discover the significance of emotion, and how both music and design have the opportunity to evoke an emotional response from their audience.

I believe that Dyad successfully translates music into design through visual interpretation. However if the project were to continue forward, what are methods beyond the visual where music could act as a framework for design?

# THANK YOU

## ***MY FAMILY***

Your unwavering support and constant encouragement has been invaluable to me throughout the past six years in this program. Without y'all, I could not have made it this far. Thank you for being there for me through all of the ups and downs. I am who I am because of you.

## ***MY PROFESSORS***

It has been an absolute privilege to study under each and every one of you. I want to express my heartfelt gratitude for your dedication, time, and encouragement to both this project and my education. The education I have received during my time at Texas A&M has undoubtedly left a lasting impact on me, and I am confident that anyone fortunate enough to be part of this program will feel the same. Thank you for contributing to my growth and development as an architect and as a person.

## KEY TERMS

### ASYLUM

Asylum is a protection grantable to foreign nationals already in the United States or arriving at the border who meet the international law definition as a "refugee".

### REFUGEE

A person who is unable or unwilling to return to his or her home country, and cannot obtain protection in that country due to past persecution or a well-founded fear of being persecuted in the future.

### LAND P.O.E.

Land Port of Entry, providing access to and from the United States.

### C.B.P. OFFICER

U.S. customs and border protection officer

### U.S.C.I. OFFICER

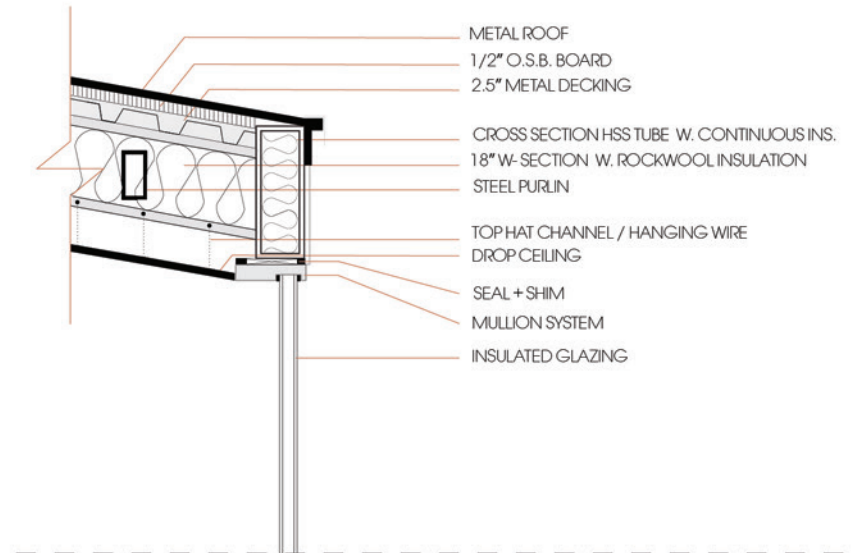
Officer employed by the United States citizenship and Immigration services.

### C.F.I.

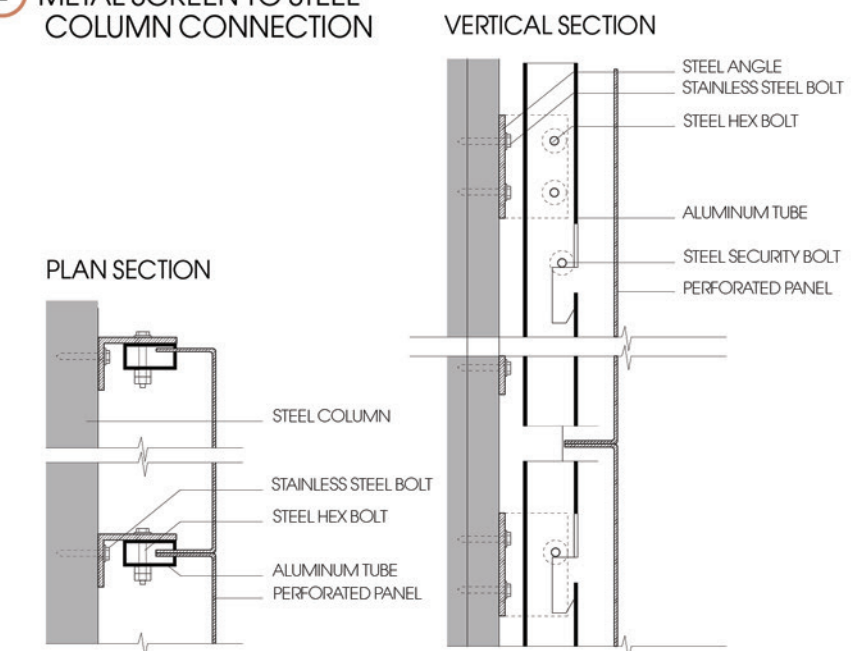
Credible Fear Interview; performed by USCI officer to determine whether or not the asylum seeker has "significant possibility" of qualifying for being granted asylum.

## DETAILS

### 1 WALL SECTION - ROOF DETAIL



### 2 METAL SCREEN TO STEEL COLUMN CONNECTION



## PROCESS / ASYLUM SEEKER ENTERING THE U.S.

+ Migrant presents themselves at a border port of entry requesting asylum.

+ Migrant is questioned and inspected by Immigration officers; if the migrant expresses fear of returning to their home country, they are granted permission to cross the pedestrian bridge into the U.S. processing facility.

+ Upon entry into the facility, the migrant or migrant family is given a Credible Fear Interview by a USCI officer. This interview can last 1 - 2 hours, and each migrant unit has the right to have an attorney present.

+After the CFI is complete and while awaiting a decision from the Immigration officer, the migrant has access to:

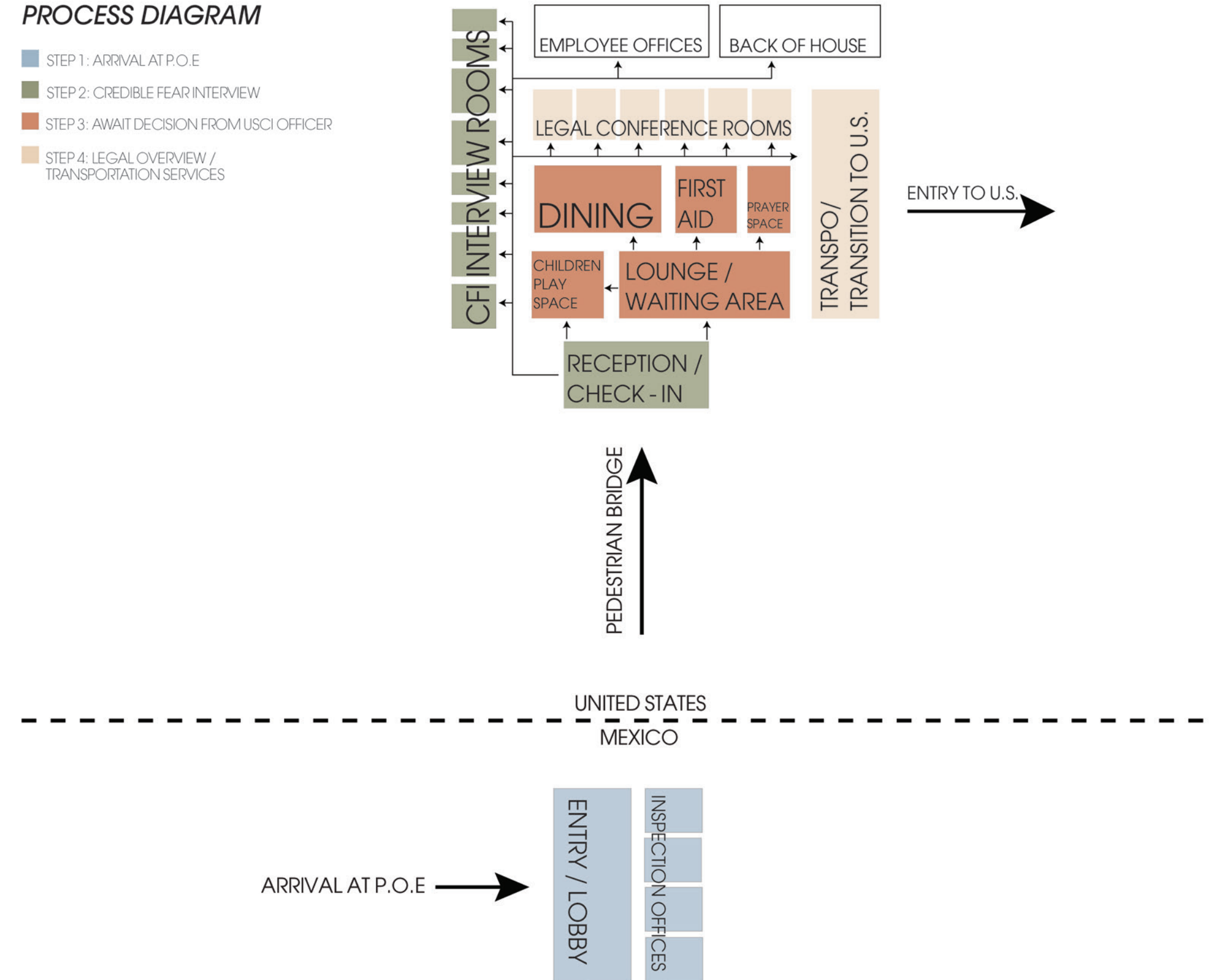
- + Medical / First Aid screening
- + Day care / play space for children
- + Dining services
- + Lounge style waiting area

+ Upon affirmative decision of credible fear from a USCI officer - migrant is given a legal overview, explaining their rights and how the immigration court process will work.

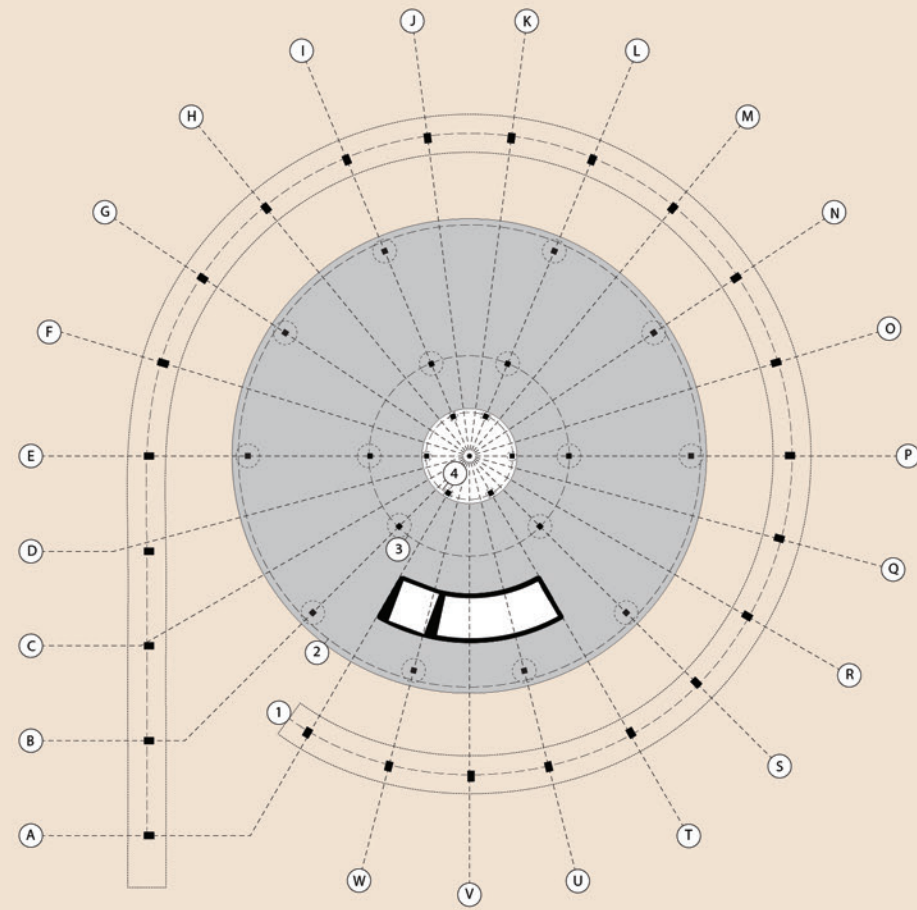
+ Migrant unit is then taken to a transition area where an employee will set them up with transportation to their desired location, as they can now reside in the United States during their Immigration court proceedings.

## PROCESS DIAGRAM

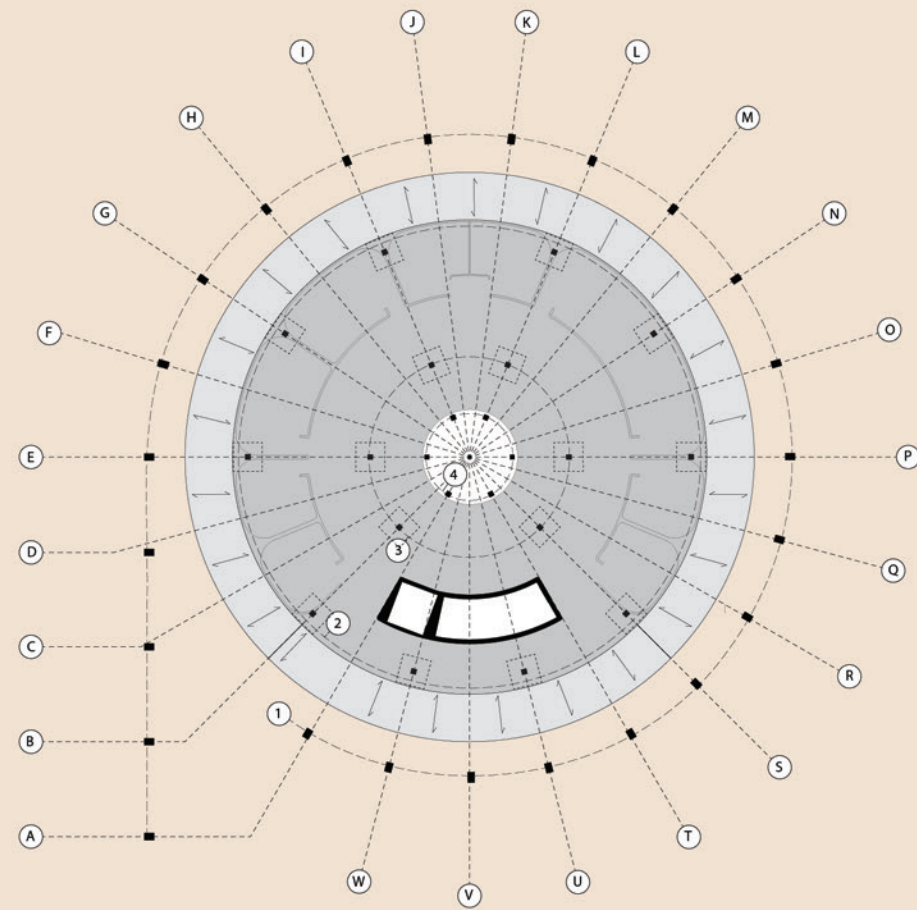
- STEP 1: ARRIVAL AT P.O.E
- STEP 2: CREDIBLE FEAR INTERVIEW
- STEP 3: AWAIT DECISION FROM USCI OFFICER
- STEP 4: LEGAL OVERVIEW / TRANSPORTATION SERVICES



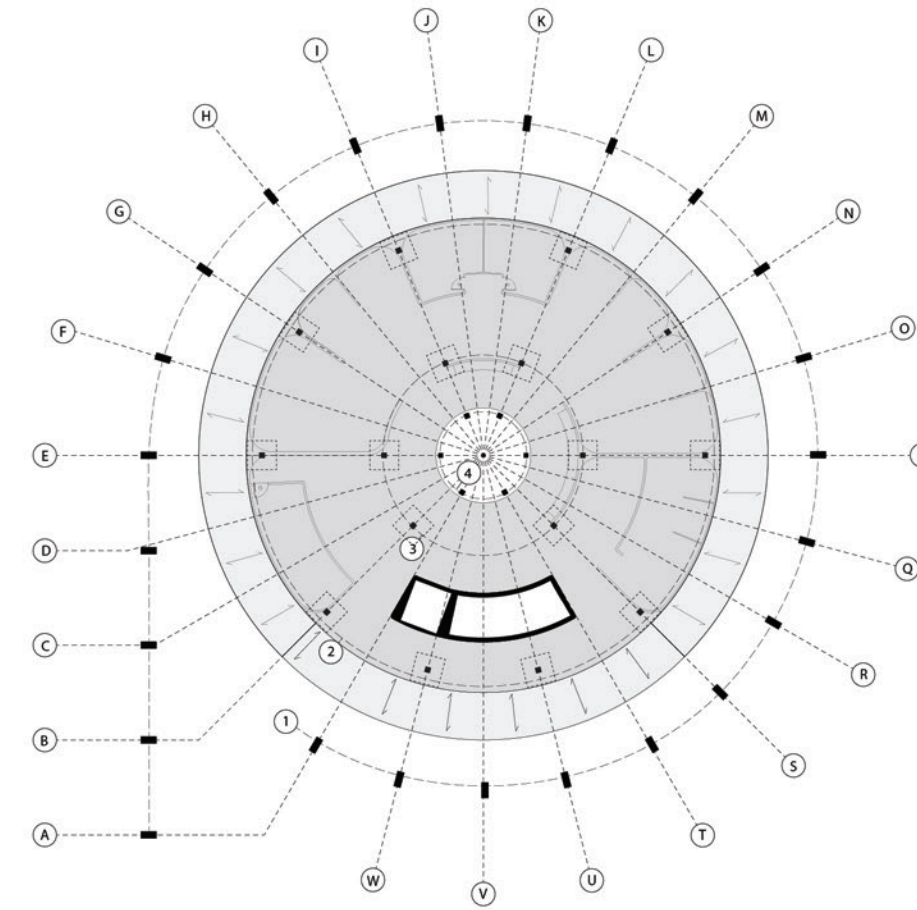
## FRAMING PLANS



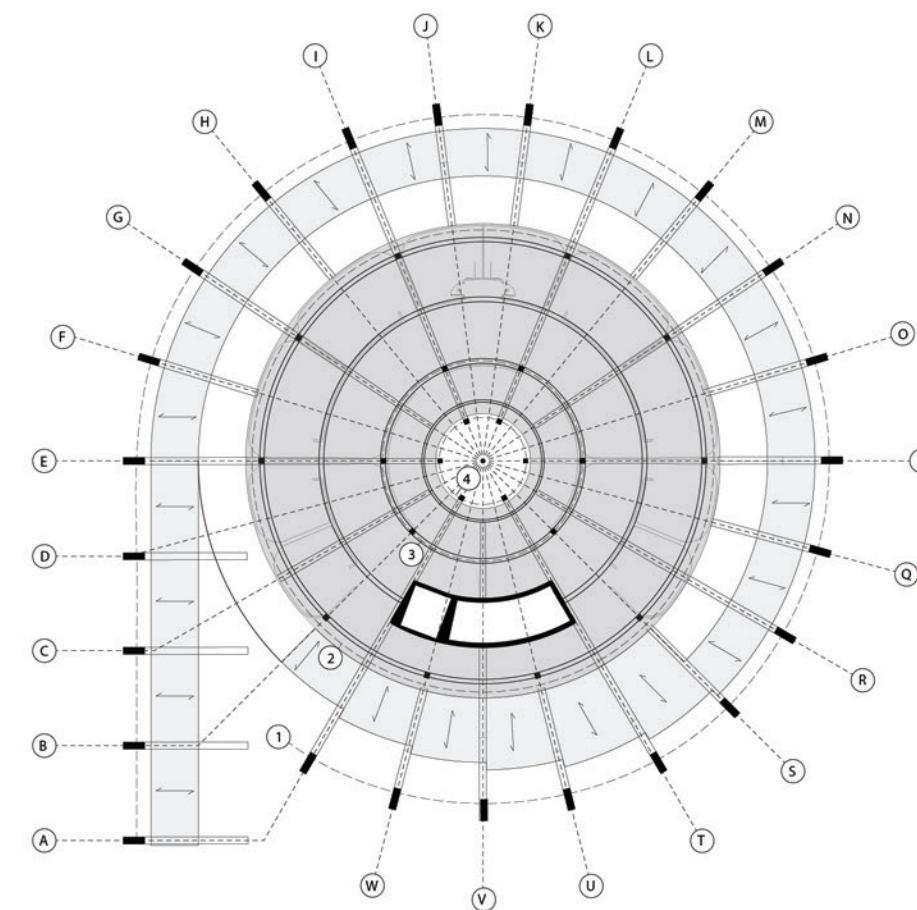
FOUNDATION PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN



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# IMAGES

