

Establishing a Process for the Design of an Inclusive Space

An Interactive Qualifying Project
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ABSTRACT

The French organization SINGA works with new arrivals in Lyon, many of whom are refugees or asylum seekers, to support them long-term with social, cultural, and entrepreneurship programs. Our project seeks to establish a process to design an inclusive community space that SINGA can use. To achieve this, we have conducted research, interviewed experts in design and inclusion, and analyzed the design of existing spaces. We have adapted a general process into a customized process to be used by SINGA. We have also included recommendations on specific design elements to include. Our key findings indicate that it is most important that end users of the space be included in the design process as much as possible, and that the process be continuously revisited.

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EXECUTIVE SUMMARY

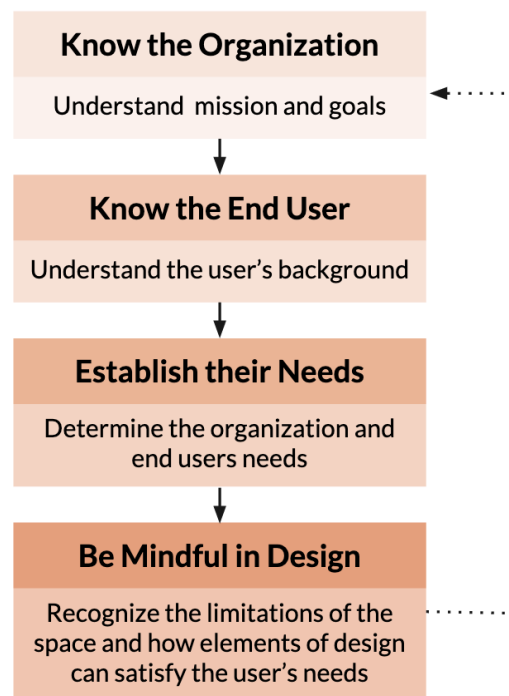
Introduction

There is currently a global crisis of forcibly-displaced people, many of whom are fleeing their homes from war or lack of basic resources like food and water. SINGA Lyon is an organization which helps these new arrivals to find community and opportunities for entrepreneurship when they settle in Lyon, France. SINGA differs from other organizations in that they focus beyond just supplying basic needs like food, water, and shelter, **SINGA aims to help new arrivals in the long-term, by gaining independence and autonomy, as well as a sense of belonging.** To achieve this aim, SINGA hosts a variety of cultural and social events, and they involve new arrivals and program alumni in their decision making. In order to fulfill their goals and meet the needs of the community, SINGA is moving to a new physical space that will allow them to expand their offerings and more fully integrate the organization with the community. **This project was developed in collaboration with SINGA to establish a design process to make their new space as inclusive and welcoming as possible.**

Background

To develop an understanding of the foundational principles our project would uphold, the team first conducted background research. A truly inclusive space is not one that is thrown together. This space requires a thought-out design process to ensure that the needs of the end users are being addressed. This leads us to ask the question: what makes a design process inclusive? To address this question, the team interviewed Nav Anand, an architect and designer who specializes in inclusive design. She walked us through the general process behind designing an inclusive space for an organization. The first step of this process is to know the organization, including their mission and goals, and the purpose of the space to be created. Second is to understand the end user, for whom the space is intended. The third step is to establish their needs: what does the space address and how does it fulfill those needs? This list of end users' needs is a framework, and should be added to or revised as the organization sees fit. The last step is to establish the limitations at play, both of the space and of the organization. The space can then be designed, keeping in mind how the different elements of a physical space meet the needs of the end users while conforming to the organization's goals and limitations. The team came to understand that this process becomes iterative, as shown in Figure 1. Using this process, each element of the space connects to and meets the established needs.

Figure 1
General Iterative Process for Designing an Inclusive Space



The Institute for Human-Centered Design (IHCD) is a non-profit educational and design organization, and also a leading proponent of inclusive design. The IHCD created a set of seven principles that help guide inclusive design in 1997: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, size and space for approach & use. By holding to these principles, a single space can be accessible and useful to everyone who enters it. By accounting for end users' feelings about what they do in a space, a sense of comfort within that space can be cultivated, which may in turn lead to greater use of the space and its associated services.

SINGA's mission is built around a philosophy of mutual aid, where people in a community help each other as opposed to a unidirectional relationship where someone gives help and another receives it in the form of charity. Using this model, fostering a sense of community when there are language barriers could come in the form of sharing food, music, playing sports, and other activities where communication and interaction can be nonverbal. The team also found that it is important for people to feel a sense of control over their environment, so having unstructured and flexible space is essential (Sendra & Sennett, 2020).

Methodology

The goal of this project was to **create guidelines for a process that can assist in the design of a space that is inclusive and welcoming to new arrivals and the existing community in Lyon, France.** Two objectives guided this project: gather information on how to generate a framework for a process to design an inclusive space, and apply the information

gathered to SINGA Lyon's new space. The team created two research questions to guide the project:

1. What aspects are important to consider when thinking about inclusivity?
2. How to translate the feeling of inclusivity to a physical space?

Objective 1 is answered by interviews of design experts to establish a general design process, interviews with similar organizations to compare and develop a more comprehensive process, and by a survey of a new arrival to ensure inclusiveness and relevance.

Objective 2 is answered by an illustrative example where the inclusive design process is applied, and by inclusive space analyses to see past designs and specific elements to make inclusive spaces and insight into the outcomes of the inclusive design process. Addressing these objectives also serves to answer the research questions above.

Results and Analysis

This section includes our key findings and how the team answered our research questions, information from interviews, survey responses from a target end user, experts in inclusive spaces, and content analysis from inclusive spaces. Finally, it details the main design process and elements used as a checklist when doing observations. The team utilized these methodologies to gain information on the process of making an inclusive space, and how that can be applied to SINGA.

Our key findings are structured by our two research questions. To answer our first research question, the team utilized interviews of similar organizations, survey responses from a SINGA new arrival, and inclusive space analyses. These broadened our horizons and taught us new information on what should be considered when thinking about inclusivity. To answer our second research question, the team utilized inclusive space analyses and the illustrative example of South High Community School's design of a new school building. These both gave us deep insight into what has been used to create inclusive spaces and how specific examples work to translate the feeling of inclusivity.

The team interviewed directors and staff members from WPI's Office of Multicultural Affairs (OMA), and Charles Baldwin, the Massachusetts Cultural Council's Program Officer for their Universal Participation Initiative. These interviews were sought by the team to help answer the two research questions, allowing us to determine what aspects are important to consider when thinking about inclusivity and how to translate that inclusive feeling to a physical space.

There were some points of agreement between these two groups. First and foremost, both OMA and Mr. Baldwin use the general process outlined above, or some similar variation on it. This reinforces the credibility of the process itself, and speaks to its wider use in real scenarios. Organizational flexibility is an important attribute to both organizations, since they acknowledge that the needs of the community and the community they serve change over time. OMA and Mr. Baldwin also align in their advice about private spaces. Both parties believe there should be spaces of sanctuary for a variety of reasons. Processing grief, receiving counsel, prayer, or relaxing after becoming sensorily or emotionally overwhelmed can all be done in private spaces. These activities can also be vital to an individual's emotional, mental, and spiritual health, and should be considered as important activities when designing a space.

These two groups also have their own unique perspectives to provide. To start off, Mr. Baldwin stressed that most of the work he does in creating inclusive spaces is an adaptive process that takes the current built environment and intervenes to create a more inclusive space. A lot of this work is uncertain, since there is no way to anticipate the exact needs of every person who

enters the space. However, by following the motto of, “design for the margins and the center will be included,” a space can be welcoming for all.

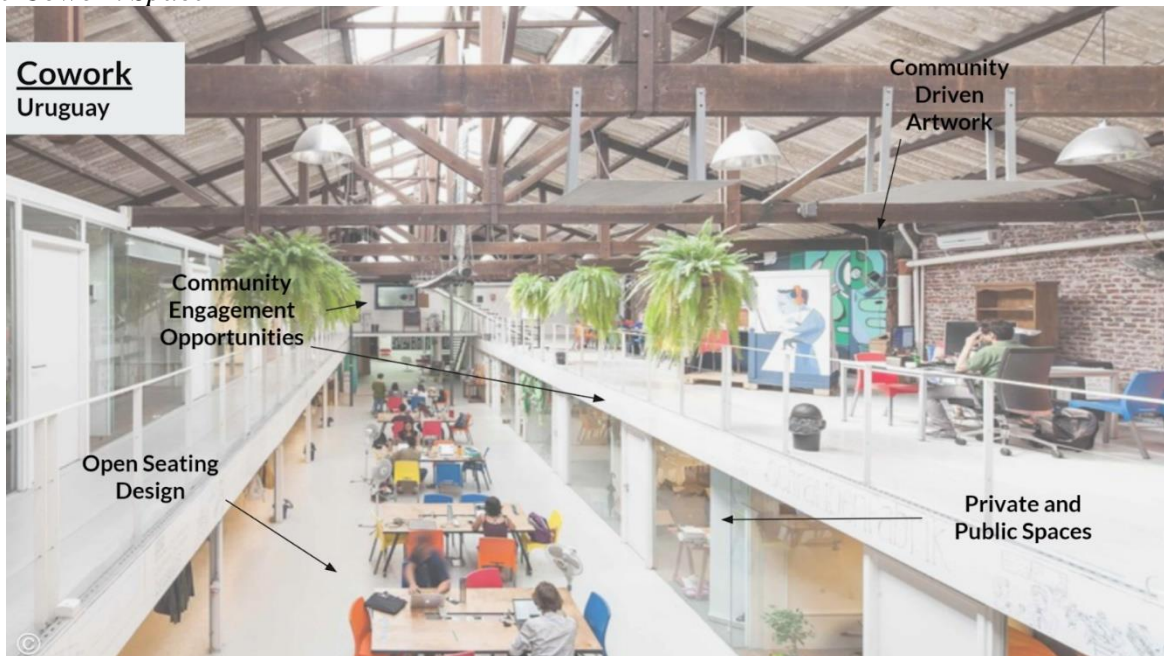
OMA focuses on providing a sense of community and inclusion to WPI students exclusively, which means it can have a more specific approach for the community it serves. OMA has found food is an excellent way to bring people together. This requires adapting the cooking areas to comply with different preparation styles and cultural needs. This includes having separate areas to prepare kosher, halal, and foods for other dietary needs. OMA also aims to cultivate a sense of community through community spaces that feel homey, mainly through the use of comfortable furniture in lounge areas. The food and furniture aim to provide a sense of peace and comfort; OMA wants the community to feel, “This is where I am supposed to be.”

The team also interviewed a member of SINGA’s community to gain an inside perspective of the community. This individual, referred to as C.M. from now on, has been a member since 2016, and is active within the community as an administrator and the founder of an incubator project. Before C.M. arrived at SINGA, they were a refugee, and felt, “alone in a city that I barely knew.” They were met with open arms, feeling, “seen for the first time in a while.” When asked why they continued to work with SINGA, C.M. responded that SINGA feels like home and that they changed their life. C.M. believes SINGA’s culture of inclusivity is aided by the opportunities SINGA provides to, “develop all your capacities and [participate] on a horizontal level for the good of the community.”

The observation of existing inclusive spaces allowed the team to see designs that have been created in the past. These designs were created by other organizations with similar missions to SINGA in that they want to make a space that feels inclusive to their specified end users. The team’s observational research provided insight into the process used to design the space. The observations were analyzed based on the elements discussed in the interviews.

Figure 2

The Cowork Space



Note. Sinergia Cowork. (2017), *Included.co*, Sinergia Cowork.

included.co/join/sinergiacowork/. Cowork is designed as an office and work space with private and public spaces.

The space in Figure 2

Figure 2 is home to those looking for office or work spaces in Uruguay. Those who designed the space listened to the needs of the group that would be using the space, and provided specifically-designed aspects to address the most important needs. To do this, the space involved elements to support social inclusivity, cultural inclusivity, and accessibility of the space. In addition, the designers put a large emphasis on creating both private and public space. This concept is essential to making sure people feel comfortable and connected, while also maintaining a sense of privacy (Sinergia Cowork 2017).

All the inclusive spaces the team analyzed were designed in the hopes of being comfortable for the end user. The organizations and architects designing these spaces were able to figure out who would be using the space, what they would need, and how the space can make sure those needs are met. Even though these spaces are very different and made for different groups of people, there are some common elements that exist. These include open spaces, community driven artwork, and elements that allow people to communicate, despite any barriers that may exist.

Table 1

Summary of Analyzed Spaces

Space	Social	Cultural	Accessible
The Friendship Park	✓	✓	✓
Baotou Vanke Central Park	✓		✓
Cowork	✓	✓	✓
DeafSpace	✓		✓
3M Sensory Room			✓
Casa MAC			✓
Kent Timber House			✓

Note. The team analyzed these spaces and determined whether aspects of their design promoted social inclusion, cultural inclusion, or accessibility.

As seen in Table 1, these analyses of existing inclusive spaces were used to identify important design elements that have been used in the past and worked. The team found that

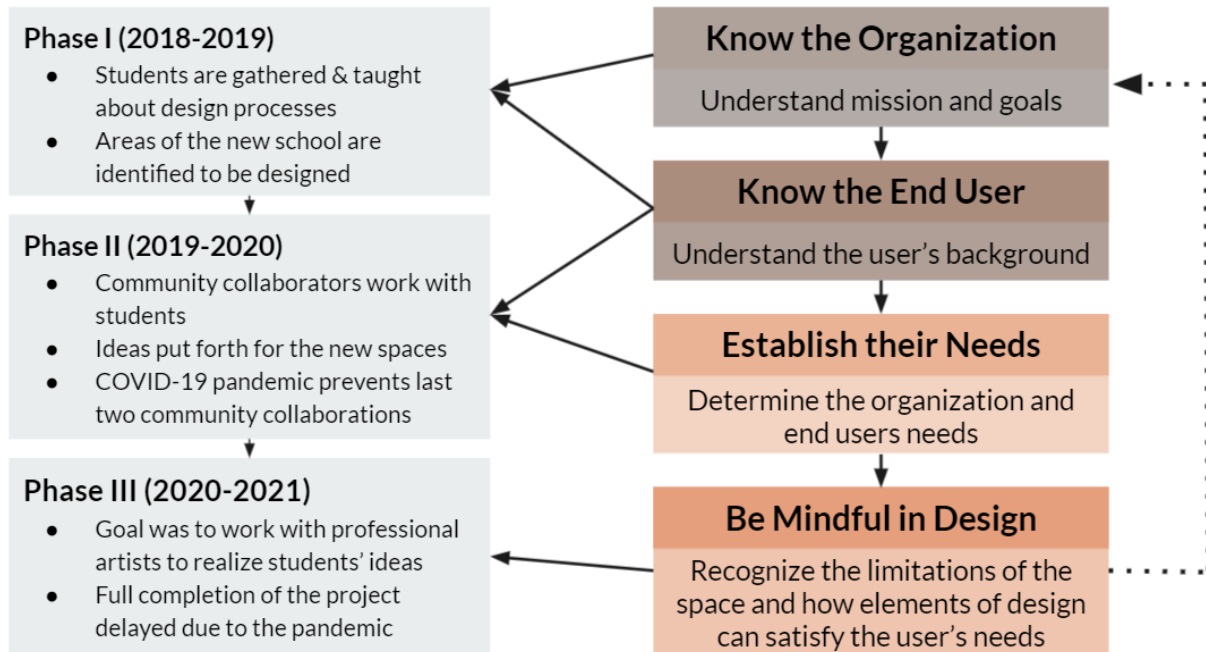
between all the spaces analyzed, they incorporated elements for social inclusion, cultural inclusion, and/or accessibility. These are three important aspects to inclusion that play into making a well-rounded and successful inclusive space. These spaces serve as general examples of inclusive areas. Next, the team looked at a more detailed example of an inclusive space to see what process was followed and what specific elements the space was designed to have.

To look at a current project, South High Community School is a local Worcester high school which serves a largely disadvantaged student body. Nav Anand was brought into a project in 2018 to involve students in the design process for the new South High building that began construction that year. In phase one, students were gathered and taught about the fundamentals of design. Initially, students needed to be provided with the opportunity, resources, and skillset needed to create and innovate to take part in creating the new school. Students struggled with how to move forward with the project because they'd never had their opinions and ideas valued for a real world project, and were used to following rigid constraints and assignment guidelines in class. At the end of phase one, five areas of the school were identified to be places of expression that the students could design. These areas, which were meant to illustrate South High's unique culture and sense of community, included the building's lobby, a word wall, a history wall, a digital display, and a mural. Phase two took place during the 2019-2020 school year, and collaborators were brought from different areas of the community such as the local government, historical society, and arts community to help the students plan and realize their ideas. The goal was for professionals from the community to help the students plan and realize their ideas. However, when the pandemic hit the students didn't get to finish their last collaborations. The aim of phase three, which would have been completed during the 2020-2021 school year, was to implement the students' ideas and complete the design process.

As seen in Figure 3 below, the process South High went through connects and relates back to the general inclusive design process discussed in the Background. However, it strongly focuses on steps 3 and 4, Establishing their Needs and Be Mindful in Design. As discussed above, the designers worked largely with the students to teach and include them within the design process so their needs were met and they felt connected to the space being created.

Figure 3

General Inclusive Design Process related to South High Community design process



Note. The South High Community School design process was broken down into 3 phases that connect back to the General Inclusive Design Process. The team gained most information focusing on steps 3 and 4.

Superintendent Maureen Binienda, a former alumna, teacher, and principal of South High Community School, credits the possibility and successes of the new South High student involvement project to the culture of the school. There is a longstanding tradition of students helping each other and their community through the school food pantry, the Andy's Attic clothes donation nonprofit, and the Youth Council of Philanthropy. The latter two organizations are entirely student run, and empower students to take initiative to enact real change in their school and the wider community.

Some important takeaways from this process and how they may apply to SINGA are outlined in Figure 4 below:

Figure 4

Key Takeaways from South High



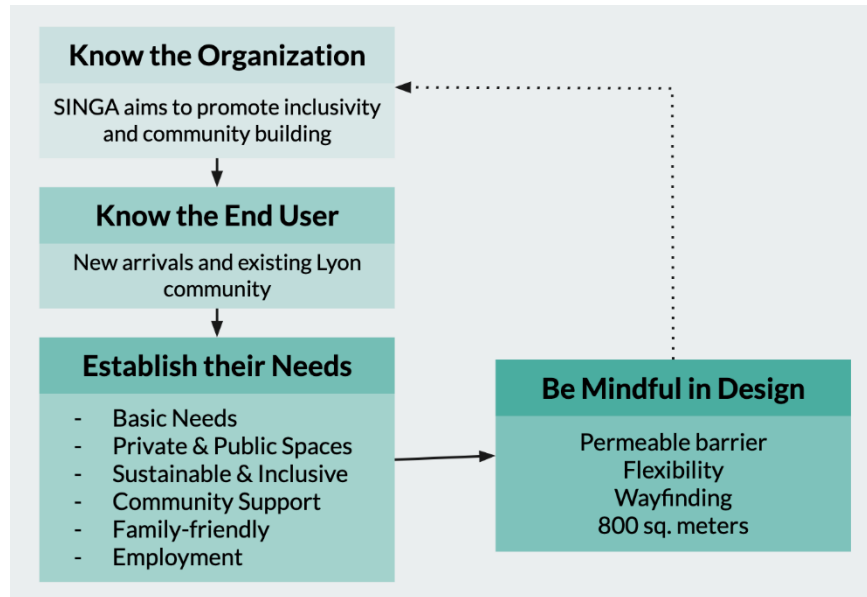
Note. The key takeaways from the South High Community School design process that apply to SINGA are detailed on the right side of the figure

While this project currently anticipates creating a robust process and associated report for SINGA to follow, this project is not without its limitations. The most salient limitations are the ones that separate the team from those the team planned to speak with. First of all, there is a degree of separation from the language barrier. Only one member of the team can fluently converse in French, which forces the team to limit our pool of interviewees from SINGA to those who have a working knowledge of English, possibly with supplemental French. The second limitation is the small sample sizes. When interviewing small pools of people, it can be difficult to get data that is truly representative of the pool as a whole. For example, the team was able to interview only one member of the SINGA community out of the over 300 people who attend SINGA's events.

Recommendations

Based on interviews, the team created a general process for how to design an inclusive space and applied it to SINGA in Figure 5 below:

Figure 5
SINGA Process for Designing an Inclusive Space



Note. The General Design process has been applied for SINGA’s organization and needs

This process should be followed by the design team who is aiming to create this space. This team should consist of members of the organization, architects, and different groups of end users. Detailed in Table 2 below is a comprehensive table of our recommendations to SINGA for the interior of an inclusive space then followed by more details on each recommendation. These recommendations were created to foster community and create connections between new arrivals and the existing surrounding community in Lyon, France.

Table 2
Recommendations to SINGA for Interior Spaces

Universal Signage	<ul style="list-style-type: none"> • Potential hazards • Multiple Languages
Private and Public Spaces	<ul style="list-style-type: none"> • Meeting/Gathering spaces • Work spaces • Religious spaces
Accessibility	<ul style="list-style-type: none"> • Ramps • Visual communication • Textured flooring
Community Support	<ul style="list-style-type: none"> • Inclusive child care area • Donation are • Medical kits
Employment and Entrepreneurship	<ul style="list-style-type: none"> • Eating areas • Cooking Areas

Note. Each main recommendation category on the left has reasons and suggestions listed on the right.

Once the design team has figured out the inside of the space, the exterior is equally important in creating a welcoming environment. Detailed below in Table 3 is a comprehensive table of our recommendations to SINGA for the exterior of an inclusive space then followed by more details on each recommendation. These recommendations were created to foster community and create connections between new arrivals and the existing surrounding community in Lyon, France.

Table 3
Recommendations to SINGA for Exterior Spaces

Welcoming	<ul style="list-style-type: none">• Electronic signage with multiple languages• Community driven artwork• Pick up and drop off areas• Ramps
Flexible	<ul style="list-style-type: none">• Change over time• Community members shape environment

Note. Each main recommendation idea on the left has suggestions listed on the right.

Conclusion

For SINGA, the team believes that this report will provide an introduction to help them structure their own design process for their new space. The information compiled in this document is the product of expert opinions that were formed and refined. Using the general process created, and involving stakeholders at every level, SINGA can make their new space a haven for new arrivals, community members, and anyone else who may use it. Having a space that feels fully theirs will empower new arrivals to take advantage of all that SINGA has to offer and build a home and community in Lyon.

CHAPTER 1: Introduction

Everything manmade we interact with in our day to day lives is designed, from the places we live in, to the objects we use, and the materials we read for navigation and communication. An incredible amount of thought goes into every last detail, and it often goes unnoticed. Making environments comfortable and seamless for those who experience them can be a labor and time intensive process, and there are many ways it can go wrong. Often, spaces are designed using traditional architectural standards and purported to be complete, and are not altered or redesigned unless major changes to building codes are made. Increasingly, however, design is beginning to become a more fluid process, incorporating broader influence and designing for future change (IHCD, n.d.).

This project aims to investigate methods of design and present a process for designing a space to be as inclusive to the target population and community as possible. The research questions that have guided the direction of this project were developed with the organization SINGA, specifically the Lyon branch, to help design the new space they will be moving into to be as inclusive as possible. SINGA is an organization that works with new arrivals to Lyon, France and provides cultural and social activities as well as an entrepreneurship program. Since many of the new arrivals they work with are refugees or have left their homes under painful circumstances, it is of the utmost importance that their new space feels comfortable and welcoming to them. Additionally, the aim of SINGA is to help new arrivals grow ties with the existing community, so it is crucial that the space is seamlessly integrated into the community and that all community members feel included by the space. The process we developed within this report has been put together specifically with SINGA in mind, but it can be adapted and applied to create any inclusive space.

This report begins with background on the global refugee crisis and the experiences and challenges of new arrivals that necessitate an organization like SINGA having an inclusive space. It then explores some foundational themes of SINGA's mission and inclusive design in general, such as community building, mutual aid, and the general design process. Next, the research objectives are introduced, and the project's methodology is discussed. The research questions which have guided our data collection and analysis are then examined, and our findings and results are presented. This includes information about the interviews conducted, the research we did, and the limitations of the project. We have found that inclusive design must be a continuous process, and that it is imperative that the end users of the space be included in the design process as much as possible to most fully meet their needs. The report concludes by detailing a robust process for designing an inclusive space, and by offering recommendations for different design elements, programs, and their respective spaces within SINGA's ideal community center.

CHAPTER 2: Background

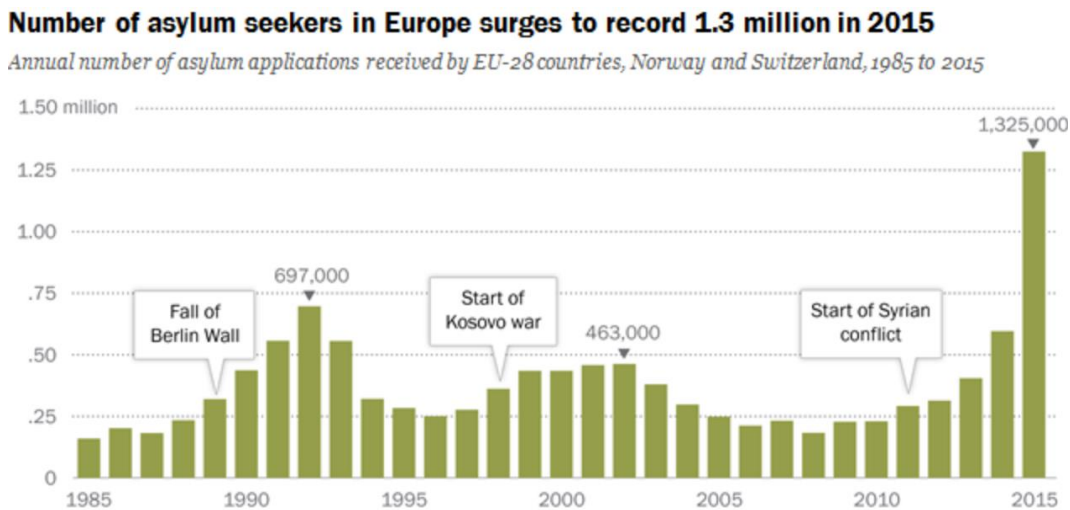
The following sections provide information on the refugee crisis, new arrivals and their experiences, what makes a community, and inclusive physical spaces. An all-encompassing term used many times in this section and throughout the report, “new arrivals” refers to refugees, migrants, asylum seekers or simply those new to Lyon, looking for community.

The Refugee Crisis

The refugee crisis is an urgent and developing global issue. There were almost 80 million forcibly-displaced people around the world by the end of 2019, with forcibly-displaced populations encompassing refugees, asylum seekers and people displaced within their own country. Out of that 80 million, 30-35 million of them were children (Shultz, 2020). This means that around 1% of the world’s population was displaced due to issues in their country of origin. This number is projected to drastically increase in the next few years as seen in Figure 6 below.

Figure 6

Asylum seekers in Europe rise due to Global Issues



Notes. Asylum applications trend increase after global conflict, especially in recent years

The countries seeing the greatest volume of displaced citizens are Syria, Venezuela, Afghanistan, South Sudan, and Myanmar. There are many reasons people may emigrate including war, persecution, poverty, and food instability (Shultz, 2020). This population of people, by definition, are those that have been forcibly displaced from their country of origin and require international protection (Goodman, 2007).

Despite offering less benefits than a country like Germany, France is still one of the main host countries in Europe for asylum seekers. By definition, asylum seekers are those that are forced out of their country of origin, and apply for asylum in a new country (Goodman, 2007). In France, seeking asylum is a legal right granted by French law, allowing seekers to live and work in France, as well as bring their spouse and children. Despite this right, not all refugees who apply for asylum

are granted it. The French Office for the Protection of Refugees and Stateless Persons (OFPRA) is an organization that offers statistics for people who have lodged an asylum application with them. In 2020, they received over 60,000 applications, of which only 14,000 were offered protection. This provides France with an overall rejection rate of around 80% for 2020. The right to seek asylum in France does not guarantee equal assistance either. Some seekers are granted refugee status and some are labeled with subsidiary status. This is based on guidelines set from the United Nations and is based on how at risk someone's life is in their country of origin. Based on data from 2020, new arrivals in France typically originate from Afghanistan, Bangladesh, and Pakistan (Shultz, 2020). This labeling of refugee status and subsidiary status can lead to issues of prejudice. Another issue about looking at new arrivals in France is obtaining the proper data. The French government does not ask demographic information on the census as a means to decrease prejudice and show that France is all one people. Yet this creates an issue of not knowing a lot of information about new arrivals and asylum seekers.

New Arrivals

Many new arrivals go through long journeys fraught with difficulties. These difficulties often follow them from their original country to their new homes and communities. This is due largely to public opinions of the new arrivals (Soriano, 2019). To be able to recognize the needs of new arrivals, the experience of this population must first be understood.

The Experience of New Arrivals

The journey of a new arrival can be broken up into three main phases: the exit phase, the transition phase, and the entry phase (Boenigk, 2021). Typically, someone who is fleeing their home country is doing so to escape urgent crises such as war, hunger, persecution, or pollution, making the exit phase urgent and immediate at times. This alone can be traumatizing, and the process of finding safety often leads to families being split apart. New arrivals must then enter into the transition phase and find a way to their destination. According to Boenigk (2021) if travel strategies are limited, people are forced to take more dangerous routes that increase the risk of exploitation, forced labor, or human trafficking. All of these issues are large scale problems that new arrivals are more likely to experience. Once the transition phase is completed and they have arrived at their destination, the entry phase begins. In addition to the traumatizing experience of leaving one's home and the conditions endured during travel, they are often not met with basic support, leaving them in a state of limbo. For instance, it is not uncommon for new arrivals to be put into temporary camps where they reside while waiting for their official paperwork to be processed. One article refers to the current system as a "hostile refugee service system" (Boenigk, 2021). For instance, most social science research about new arrivals aims to gather data for proposals of ways to make their lives more habitable (Boenigk, 2021). This goal of making improvements once they have arrived, disregards the fact that the journey new arrivals make is typically described as a process with compounding traumas. The experience does not just need to be better, it needs to reduce new arrivals' pain at every step. The lack of promotion of well-being and community further adds to the hardships experienced by new arrivals. It can easily be seen that the journey to safety for new arrivals is tough and risky at every turn (Shultz, 2020). Very seldom after they overcome so many hardships and arrive in their new country are they met with open arms. Moreover, long-term refugees can not go back to their home countries nor become

integrated into the host society (Kaushal, 2019). More often, they are met with prejudice and bigoted ideas about how they are affecting the country (Soriano, 2019).

Public Opinion of New Arrivals

One of the biggest issues hindering the relief of suffering felt by new arrivals is the public's opinion of them. Across the world there is evidence of prejudice against those seeking asylum (Soriano, 2019). Most commonly, people say that new arrivals are taking jobs from people already residing in the country. They may also say that new arrivals are getting money from the government and taking it away from people who "really need it". Worst of all, many people assume new arrivals are just there to cause problems. This opinion is what led the current issues today to be labeled as a "refugee crisis". Meanwhile, the more pertinent issue lies in how these new arrivals are being received, exposing a larger issue of a lack of empathy (Goodman, 2007). The current opinions on asylum seekers are not based in fact, yet they are continually being perpetuated. People are quick to disregard new arrival's hardships in a bid to promote unity in their country. This warped distortion of inclusivity drives a deeper rift between existing communities and new arrivals. The resulting divide does not allow for new arrivals to fully experience things like a sense of community, economic stability, or a sense of belonging. This creates an additional public health crisis, as those needs are demonstrably crucial to living a safe and healthy life. Some countries are trying to relieve these issues by creating a better refugee service system. Germany, for example, is one of the most accepting countries (Shultz, 2020). Countries like France on the other hand categorize new arrivals based on their experiences. Fortunately, non-governmental organizations have been created to alleviate the troubles new arrivals experience and work to bring the community together. The prejudices holding back wider cultural acceptance of new arrivals need to be dismantled so new arrivals can be welcomed and included in creating stronger communities (Goodman, 2007).

Often, citizens in the host countries do not understand nor try to understand the difficulties new arrivals go through. As it is, attitudes toward migration are becoming more and more susceptible to social change because of migratory history and national models which manage new arrivals in every country. As attitudes change, it influences national identity, social cohesion and security policies as well (Soriano & Cala, 2019). People are not born with inherent negative ideas and attitudes towards new arrivals. The issue of new arrivals has gained much more coverage and traction, some negative and some positive, but as it becomes more widely known, people can begin to be more informed. New arrivals' needs are not just to have their emergency needs of food, water, and shelter met; they also need to be integrated and be part of the social and cultural society in the host country. It is hopeful with attitudes changing and evolving, while slow, that new arrivals' emergency and future needs are being better met with each adjustment. One way new arrivals' needs can be met is through connecting with their community in a safe space.

Community Building

Communities of people have existed for as long as humans have walked the earth. Generally, communities are often formed around proximal relationships, but communities may form around many different lines, and with the advent of the Internet, space is less of a restrictive factor in their formation (Hignell-Tully, 2020). Most people consider themselves as belonging to

several or more communities, however new arrivals often exist at the intersection of many communities. Ultimately the most welcoming and accepting communities seek to minimize tensions at these intersections, however that is not always the case.

Needs of the Community

New arrivals in Europe have a very difficult time traveling to, staying, and settling in other countries. With constant fear and suspicion surrounding flows of new arrival, anxiety in host countries has grown. Citizens' fear leads to a desire to close their country to new arrivals, which is exploited by the host governments. Governments have implemented policies and programs to dissuade new arrivals from leaving their countries of first settlement. Across Europe new arrivals are dependent on international aid to receive even basic needs like food, water, shelter, and health care. These basic needs are being met but it has made it increasingly difficult for new arrivals to come, integrate, and resettle in countries.

However, new arrivals have more than purely physical needs. The experience of immigration to a new country is often one fraught with uncertainty, stress, and sometimes danger. The latter is especially true for new arrivals and other forcibly-displaced people, many of whom have witnessed or experienced one or more traumatic events. These experiences likely play a part in the higher-than-average incidence of psychiatric disorders among forcibly displaced people (Kiela, 2020). While there is not much that can be done to prevent the trauma from occurring in the first place, it is generally accepted that proper social support post-migration leads to better mental health outcomes. As Tay and Silove (2021) discuss, refugees often have their sense of meaning, support networks, sense of justice being done, and part of their identity as a person disrupted when they migrate. The authors postulate that the more of these elements of a person's identity are recovered, the less likely it will be for them to need individual treatment for their trauma. Social support also confers material assistance and helps with the acculturation process. This all reduces the stress placed on new arrivals to a country, allows them to adjust to the new environment, and gives them a healthy sense of autonomy and purpose (Kiela, 2020). The latter can be especially helpful for new arrivals who have had their sense of meaning disrupted, making it important for them to find a place that values their unique skills. In addition, community and social support creates a safe and supportive group of people. New arrivals not only need social support, but also the ability to support themselves and create a network, and hopefully a home within their community.

The needs of the locals must also be taken into account when creating a community. This is especially true for community members in precarious economic situations, which has wide-ranging effects. For example, a study by Pryor et al. (2016) found that among food-insecure French adolescents, the incidence of depression, suicidal ideation, and substance abuse were greater than their food-secure peers. In the United States, Laurito et al. (2019) found that in schools that lack both a climate of safety and a sense of community, violent events outside school predicted a decrease in English Language Arts test scores, especially for Hispanic and male middle school students. While new arrivals and locals may face different challenges, both populations would benefit from having an inclusive community and home.

Creating a Community and a Home

Home can be a complicated concept to fully understand, as everyone understands and relates to it differently. To summarize Brun and Fabos (2015), a home consists of day-to-day practices, values, traditions, memories, and feelings, as well as the broader political and historical contexts in the current global order. One major idea to first understand is the politics of immobilized temporariness for people who continue to think of home as existing in a range of different places (Brun & Fabos, 2015). As the idea of home becomes spread over many locations, so does the person tied to all those places, creating a confusing sense of home. However, home can also be closely connected to a sense of community. Consequently, forced migration and the forced displacement from a home changes its meaning to an experience that is more unsettling and mobile (Brun & Fabos, 2015). According to Brun and Fabos (2015), the idea of home must now be placed in the past and become defined as what was lost, which can cause refugees to become stuck in the present and immobilized by ideas and feelings of helplessness and passiveness. To refugees, home is elsewhere and they are out of place; they become transitional human beings between societies. Without a place that encompasses the main aspects of home - day-to-day practices, values, traditions, memories, and feelings, and the broader political and historical context - refugees are always away from home. In the same way travelers often look forward to returning home after a long trip, refugees constantly live in that feeling but have nowhere to go home to. In order for this sense of home to be established by new arrivals, the community must work to come together and express support and solidarity for them. Having a shared safe space where people can support one another, is one way for the community and new arrivals to come together.

Mutual Aid

Mutual aid, an alternative to the traditional charity model, is an effective theoretical blueprint that could be used to support the new arrivals. What distinguishes a mutual aid network or organization from charity or public welfare is the non-hierarchical structure and the reciprocal nature of the aid being given. Often people who seek charity must meet stringent qualifications, comply with organizational rules, and generally submit to the authority of the charity, thus compromising their autonomy and often their dignity (Nelson, 1998). While mutual aid as a concept has existed in human and animal societies since prehistoric times, philosopher Peter Kropotkin originally coined the term to describe the biological phenomenon of reciprocity among members of a species (Kropotkin, 1902). Also referred to as reciprocal altruism, this biological concept presents an alternative evolutionary strategy alongside Darwin's "survival of the fittest" to explain how cooperation has guided the evolution of human and animal societies.

In the modern day, mutual aid organizations and networks refer to either unstructured or horizontally structured groups of individuals working together in order to help each other and increase collective survival. Aid often consists of monetary assistance, survival supplies, food, housing, and childcare. In the wake of the COVID-19 pandemic, increasing numbers of community mutual aid networks worldwide have been forming and gaining attention (Arnold, 2020). Models of charity tend to portion out a finite amount of resources per interaction, whereas networks of mutual aid focus on a model of redistributing resources from areas of abundance to where they are needed most, regardless of who is asking for aid and how much is required.

As mutual aid has become more widely accepted however, more and more of these organizations have started self-identifying as mutual aid projects, organizing, and developing online presences in order to connect with people wanting to get involved (Arnold, 2020). The non-profit SINGA is one such organization.

SINGA

SINGA is a non-profit, non-governmental organization based in France that works with new arrivals to create jobs, break down prejudice, and create a stronger sense of community. This organization also strives to promote inclusivity. One way that SINGA currently promotes inclusivity is by having a policy of not asking new arrivals about their experiences previous to arriving in France. This allows people to not be defined by their experiences, and to shape their identity by their relationships with others. Another way that SINGA promotes inclusivity is by empowering new arrivals with their entrepreneurship projects and aiding them in linking with others to help create connections and grow the community. Creating a shared space can help open and change perceptions of everyone in the host society and connect people together; in linking new arrivals with the host society SINGA hopes people can effectively integrate from the start and avoid downgrading and isolation that will take even more time to be corrected. One way of doing this is by creating an inclusive space for new arrivals and locals to share.

Designing an Inclusive Space

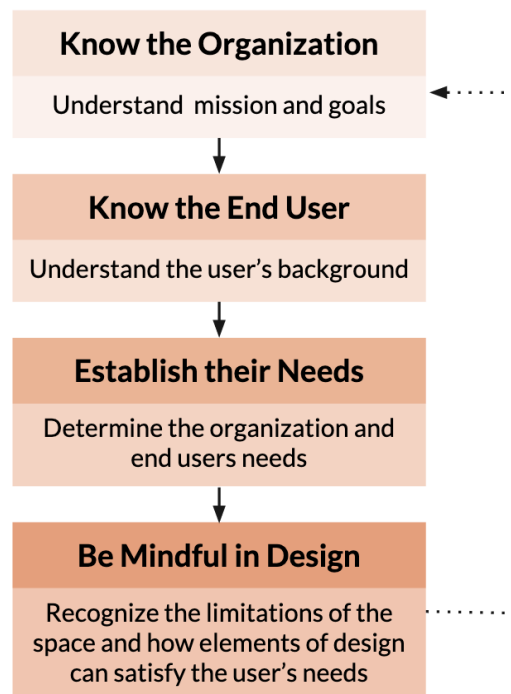
SINGA can use inclusive spaces to make a home, empower, and connect people. An inclusive space is one that welcomes any of the intended users. For SINGA, the intended users could be new arrivals, the existing community, and any marginalized group. To create an inclusive space is to create a space to empower citizens in general and especially marginalised citizens (Roy, 2019). Using various activities like music, food, or sports can help make people feel connected beyond a language barrier with shared experiences together. These spaces should also be set up to meet the needs of the SINGA community. However, that is not to say that the uses of each space must be determined now. Architect Pablo Sendra and sociologist Richard Sennett (2020) argue that overly-determined and -ordered cities, towns, and spaces prevent spontaneity and stifle interaction between different groups within those areas. The authors believe that setting some spaces aside for spontaneous use can encourage interaction between disparate groups; if these spaces' uses are determined democratically, all groups involved are introduced to new ideas and new people. Even disagreements, when presented civilly, can lead to social and personal growth and a breakdown of prejudice between the users of the space.

Establishing a General Process

A truly inclusive space is not one that is just thrown together. This space requires a thought out design process to ensure that the needs of the end users are being addressed. This leads us to ask the question: what makes a design process inclusive? To address this question, we interviewed Nav Anand, an architect and designer who specializes in inclusive design. She walked us through the general process behind designing an inclusive space for an organization. The first step of this process is to know the organization, including their mission and goals, and the purpose of the space

to be created. Second is to understand the end user, for whom the space is intended for. The third step is to establish their needs; what does the space address and how does it fulfill those needs? This list of end users' needs is a framework, and should be added to or revised as the organization sees fit. The last step is to establish the limitations at play, both of the space and of the organization. The space can then be designed, keeping in mind how the different elements of a physical space meet the needs of the end users while conforming to the organization's goals and limitations. From talking with Nav Anand, we came to understand that this process becomes iterative, as shown in Figure 7. Using this process, each element of the space connects to and meets the established needs.

Figure 7
General Iterative Process for Designing and Inclusive Space



This process will now be examined in greater detail from the perspective of a team tasked to create an inclusive space for an organization. To initiate the cycle of designing an inclusive space, the designers should research the background information of the organization and of the end users. Besides the information provided by the partner organization, the design team should understand the organization's history, goals, mission, and values. By gaining a full understanding of the organization, the design team can shape the final design into one that fits the organization perfectly. The end user, or the ideal person for whom the space is intended, must also be identified and understood. Common needs and experiences can inform the characterization of the end user, as well as demographics like age, sex, race, disability status, religious identity, etc. The end-user group can contain smaller groups within itself, and need not be homogeneous. These two groups are the stakeholders of the space, and must be considered throughout the design process.

Once the stakeholders have been identified and their backgrounds understood, the design team should determine their needs. Since the organization has already articulated their needs to the

design team, the design team should next focus on the end users' needs. While background research can be used to gain a general understanding of the end user, the most accurate understanding of their needs comes from asking the end user themselves. Determining their needs can be done through interviews, or through surveys if the sample pool is large enough. The scope of the needs to be investigated is up to the design team, the organization, or both to decide. After conducting background research, three to five needs should be identified, with the list being expanded and revised as the end users themselves are interviewed. The final number of needs to be accounted for is left to the design team to decide.

Not all of these needs can be met, however. The resources and spaces available to the organization may not allow for some needs to be met. The most salient limitation is an organization's budget, followed by the skills required to meet the end users' needs. The space or building itself may also prevent certain needs from being met, either due to zoning laws and building codes, or the layout and design of the building itself, like being too small or internal structures that are unable to be moved. These needs and limitations will heavily influence the final design of the space, but it is important to note that they will change over time as well, and should occasionally be re-evaluated to ensure the end users' needs are always being met.

Now that the design team has gathered information on the stakeholders' backgrounds and needs, and the limitations of the space and the organization, the design of the space itself can begin. Keeping in mind the limitations in place, the space should be designed to fulfill the end users' needs that have been identified. The Institute for Human-Centered Design (IHCD) is a non-profit educational and design organization, and also a leading proponent of inclusive design. The IHCD created a foundational set of seven principles that help guide inclusive design in 1997: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, size and space for approach & use. In detail, designed spaces should not "disadvantage or stigmatize... users" while "[accommodating] a wide range of individual preferences and abilities". The designed space should also be "easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level." This can be aided by perceptible information; the design should "[communicate] necessary information effectively... regardless of ambient conditions or sensory abilities." The design should also "[minimize] hazards and the adverse consequences of... unintended actions." Finally, the design should be able to "be used efficiently and comfortably," while providing ample space for "use, regardless of the user's body size, posture, or mobility." (IHCD, n.d.) By holding to these principles, a single space can be accessible and useful to everyone who enters it.

Although the seven principles above describe accessibility and inclusion of a single space, they are less easily applied to a collection of multi-use spaces, or to a decision about the location of a space. This is where the feelings of the end users can be useful, and should be anticipated and accounted for. For example, if the design team identified medical advocacy as a need, it may be helpful to set up private, discreet rooms for end users to speak with health advocates about medical problems they may have. This allows medical advocacy to take place, while also preventing potentially sensitive topics from being broached in a more public area. By accounting for end users' feelings about what they do in a space, a sense of comfort within that space can be cultivated, which may in turn lead to greater use of the space and its associated services.

However, not all spaces should be tailored to a single need. Since end users' needs will inevitably change, a space that is exclusively tailored to a singular need is useless once that need disappears or changes. Therefore, some spaces must be set aside and not specifically meet a need, but be flexible for changing needs. Finally, the aesthetics of a space must be considered, although

it is secondary to the layout of the space itself, since the visual character of a space can be more easily changed than its layout.

The design team can use this information on the process and these principles to create a space that is inclusive on both the interior and the exterior. This concept is essential to being able to draw people to the space, while offering a welcoming environment throughout the whole area.

The Interior of the Space

The interior of an inclusive space should be used to foster community engagement, promote communication, be physically safe, and provide the infrastructure for community gatherings and activities. To foster community engagement, the space can include areas for social events. Message or pins boards can be used as means to spark conversations or inform the community of upcoming events. Besides maintaining general cleanliness, the space should be safe for all users. This includes children, for whom certain spaces may be set aside and childproofed in order to maintain that level of safety. This can include nursing tables in the bathrooms or spaces just meant for children to interact. Amenities of the space must be accessible to those who do not speak the dominant language, or those with disabilities. Signage in a variety of different languages or using universal symbols can be prominently displayed and made available so that people from different backgrounds can still understand and use the space to the fullest extent (Landman, 2020). Where possible, spaces should be made accessible to those in wheelchairs or other mobility devices; attention should be paid to countertop and table heights and doorway dimensions (Rizo-Corona et al., 2020).

The Exterior of the Space

The exterior of an inclusive space is important too. The exterior should make the space easily accessible to anyone who wants to enter. This can be done with the use of ramps for disabled people and parking spots and drop-off areas for those with cars. The area surrounding the space can also be used to generate interest and invite people in. Outdoor spaces like gardens, animal sanctuaries, composing or hammock areas (Landman, 2020) can all provide interesting places to gather. Communal gardens can be especially helpful in creating an inclusive community, as it can become a point of mutual interest and connection between disparate groups. Additionally, cultivating a garden is another way in which individuals can voice their needs and have them heard (Roy, 2019). When combined with a front façade that invites the community in and allows for complex use of the space, public interaction with the space is maximized (Sendra & Sennett, 2020).

With all of this background knowledge, we were able to establish a set of research questions and objectives in order to give SINGA a general process, apply the process, and a set of recommendations for the creation of an inclusive community space in Lyon, France.

CHAPTER 3: Methods

The goal of this project was to create guidelines for a process that can assist in the design of a space that is inclusive and welcoming to new arrivals as well as the existing community in Lyon, France. We partnered with the Lyon branch of the non-profit organization SINGA to achieve this goal. Two objectives guided this project: gather information on how to generate a process to design an inclusive space, and apply the information gathered to SINGA Lyon's new space. We created two research questions to guide the project:

1. What aspects are important to consider when thinking about inclusivity?
2. How to translate the feeling of inclusivity to a physical space?

We utilized a variety of methods to answer these questions and achieved the goal using the data collected and analysis techniques detailed below. After that, obstacles and ethical considerations were explored so our work was able to progress smoothly and respectfully for its participants.

Study Objectives

Objective 1: Gather information on how to generate a framework for a process to design an inclusive space. This objective will aid in answering research question 1 and 2.

We **interviewed Nav Anand**, an expert on inclusive design and a key player in the design of South High Community School, a high school in Worcester, Massachusetts. These interviews examined the general design process that Nav Anand follows when designing inclusive processes. We asked Ms. Anand the questions contained in **Appendix A, Item A4**.

We **interviewed Dr. Tiffany Butler, Mia-Kay Fuller, Rachael Heard, Arnold Lane Jr., and Charles Baldwin**. These individuals represent WPI's Office of Multicultural Affairs (Butler, Fuller, Heard, Lane Jr.), and the Massachusetts Cultural Council (Baldwin). These interviews gathered more data from different perspectives on the design process of creating an inclusive space. We asked these individuals the questions found in **Appendix A, Item A3**.

We **consulted Justine Petit**, our contact and a salaried member of SINGA throughout the process to gather her input. Her input was vital to understand more about SINGA as an organization and what they specifically had idealized for their inclusive space.

Objective 2: Apply the information gathered to SINGA Lyon's new space. This objective will aid in answering research questions 1 and 2. These two questions help us critically evaluate and identify specific elements and aspects to assist in the design of an inclusive space.

We interviewed a **new arrival from SINGA**, referred to in our report as **C.M.**, to ensure an inclusive and relevant process was generated. From this survey we gathered information on how SINGA connects with new arrivals. Additionally, we surveyed them to grasp a better understanding of their connection to SINGA and their point of view of the spaces currently created to welcome them. These questions can be found in **Appendix A, Item A2**.

We analyzed the process used to make Worcester's South High Community School an inclusive space through a second interview with Ms. Anand and a single interview with the Superintendent of Worcester Public Schools, Maureen Binienda. This gave us a full model going through the general process of designing an inclusive space. In addition to seeing the process and

outcome, we also came to understand the shortcomings and places for improvement. The questions we asked can be found in **Appendix A5**.

We **evaluated and analyzed Friendship Park in Uruguay, Sinergia Cowork in Uruguay, Deafspace in Washington D.C., and the KultureCity Sensory Room in Minneapolis**, as well as 3 other inclusive spaces listed in **Appendix D**. These inclusive space analyses showed real designs with specific elements implemented to create inclusive spaces. These spaces were found by looking for inclusive spaces online that had gained publicity for their ability to make their end users feel included. Friendship Park caters to children with disabilities, Sinergia Cowork is a collaborative office and workspace, Deafspace accommodates hard of hearing people with visual communication, and KultureCity Sensory room is geared towards those with cognitive disabilities. They provided key elements in the outcomes of an inclusive space.

CHAPTER 4: Results and Discussion

The following sections include our key findings and how we answered our research questions, information from interviews, opinions from the target end user, experts in inclusive spaces, and content analysis from other organizations. Finally, it details the main design process and elements used as a checklist when doing observations. We utilized these methodologies to gain information on the process of making an inclusive space, and how that can be applied to SINGA.

Key Findings

Our key findings are structured by our two research questions:

1. What aspects are important to consider when thinking about inclusivity?
2. How to translate the feeling of inclusivity to a physical space?

To answer our first research question, we utilized interviews of similar organizations, survey responses from a SINGA new arrival, and inclusive space analyses. These broadened our horizons and taught us new information on what should be considered when thinking about inclusivity.

To answer our second research question, we utilized inclusive space analyses and the illustrative example of South High. These both gave us deep insight into what has been used to create inclusive spaces and how specific examples work to translate the feeling of inclusivity.

Interviews and Survey to Help Build the Process

We interviewed directors and staff members from WPI's Office of Multicultural Affairs (OMA), and Charles Baldwin, the Massachusetts Cultural Council's Program Officer for their Universal Participation Initiative. These interviews were sought by us to help answer the two research questions, allowing us to determine what aspects are important to consider when thinking about inclusivity and how to translate that inclusive feeling to a physical space. From Charles Baldwin, we learned a lot of information about considering the aspect of disability and general accessibility when designing a community space. OMA was more focused on the aspects of religious and cultural inclusion, and both touched on social inclusion. To learn more about how to give a physical space an inclusive atmosphere, we received examples of physical elements that would address a particular aspect of inclusion. For example, Baldwin mentioned that spaces designed with autistic people in mind often have a "chillout space" with low lighting, quiet, soothing sounds, and comfortable low to the ground seating to help with overstimulation. We also heard from both interviews that continuous feedback and involvement from people using the spaces was important to developing the design and cultivating a welcoming environment.

There were some points of agreement between these two groups. First and foremost, both OMA and Mr. Baldwin use the general process outlined above, or some similar variation on it. This reinforces the credibility of the process itself, and speaks to its wider use in real scenarios. The two groups also agree on a variety of design attributes and features that can be implemented within spaces. Organizational flexibility is an important attribute to both organizations, since they acknowledge that the needs of the community and the community they serve change over time. OMA and Mr. Baldwin also align in their advice about private spaces. Both parties believe there

should be spaces of sanctuary for a variety of reasons. Processing grief, receiving counsel, prayer, or relaxing after becoming sensorily or emotionally overwhelmed can all be done in private spaces. These activities can also be vital to an individual's emotional, mental, and spiritual health, and should be considered as important activities when designing a space.

These two groups also have their own unique perspectives to provide. To start off, Mr. Baldwin stressed that most of the work he does in creating inclusive spaces is an adaptive process that takes the current built environment and intervenes to create a more inclusive space. A lot of this work is uncertain, since there is no way to anticipate the exact needs of every person who enters the space. However, by following the motto of, "design for the margins and the center will be included," a space can be welcoming for all. Baldwin believes that a space is more welcoming when one's needs are anticipated and met before they are vocalized. An example would be if someone with a medical condition that they may not want to divulge is given a space that is comfortable and welcoming to them without needing to ask for accommodations to be put in place. However, not all needs can be anticipated, and some must be voiced. Taking inspiration from his theater background, Baldwin uses Augusto Boal's improvisational "Theatre of the Oppressed" to allow the audience (referred to as "spect-actors" by Boal) to voice their concerns, needs, and wants with respect to a hypothetical oppressive situation. By identifying their needs in this setting, participants are able to choose their solution to the problem in a way that is realistic and satisfying. While choice is important in reinforcing a person's agency, Baldwin stresses that too many choices can be overwhelming instead.

OMA focuses on providing a sense of community and inclusion to WPI students exclusively, which means it can have a more specific approach for the community it serves. Instead of a representative mix of the population, OMA's community skews towards college-aged young adults, plus older adult staff. While the student body consists primarily of those from the United States, students and professors come from different regions of the U.S. A small proportion of the community are international students or faculty who were born outside the U.S. OMA has found food is an excellent way to bring people together. This requires adapting the cooking areas to comply with different preparation styles and cultural needs. This includes having separate areas to prepare kosher, halal, and foods for other dietary needs. OMA also aims to cultivate a sense of community through community spaces that feel homey, mainly through the use of comfortable furniture in lounge areas. The food and furniture aim to provide a sense of peace and comfort; OMA wants the community to feel like, "This is where I am supposed to be." Finally, OMA aims to be both outward- and inward-facing by attending to both the existing community and to the wider WPI community.

We also interviewed a member of SINGA's community to gain an inside perspective of the community. This individual, referred to as C.M. from now on, has been a member since 2016, and is active within the community as an administrator and the founder of an incubator project. Before C.M. arrived at SINGA, they were a refugee, and felt, "alone in a city that I barely knew." They were, "at the point of losing hope to be well integrated in the society," when they discovered SINGA. They were met with open arms, feeling, "seen for the first time in a while." When asked why they continued to work with SINGA, C.M. responded that SINGA feels like home and that they changed their life. C.M. believes SINGA's culture of inclusivity is aided by the opportunities SINGA provides to, "develop all your capacities and [participate] on a horizontal level for the good of the community."

Although we were unable to interview a greater variety of new arrivals, C.M. was able to provide some insight on the most pressing struggles new arrivals face when adapting to their new

environment. Housing, employment, and navigating the bureaucracy constitute the greatest material needs, while learning French and adapting to French socio-cultural codes formed the less tangible, but no less urgent needs. While further research is required to verify the information C.M. gave, that is beyond the scope of this report, and should be conducted by SINGA as they progress through the design process.

Content Analyses

This next section of results comes from content analysis of several inclusive spaces around the world. It also includes the analysis of South High Community School in Worcester, MA. This space serves as an example of an inclusive space as well as the inclusive design process that was used to create that space. This content analysis is able to answer both research questions, as detailed above.

Inclusive Space Analyses

The observation of existing inclusive spaces allowed us to physically see the designs that have been created in the past. These designs were created by other organizations with similar missions to SINGA, in that they want to make a space that feels inclusive to their specified end users. Our observational research provided insight into the process used to design the space. The observations were analyzed based on the elements discussed in the interviews.

Figure 8
The Friendship Park

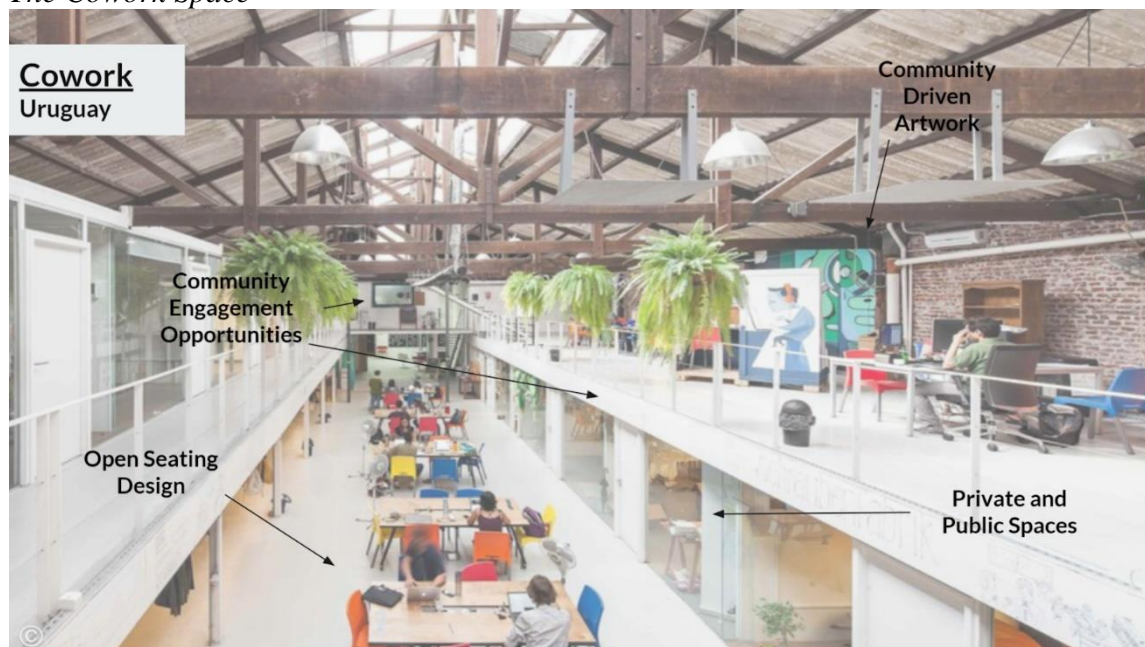


Note. Sánchez, Daniel. (2015), Friendship Park / Marcelo Roux + Gastón Cuña. *ArchDaily*, ArchDaily, www.archdaily.com/770600/friendship-park-marcelo-roux-plus-gaston-cuna.

Friendship Park is designed to welcome children with disabilities

The space in Figure 8 shows The Friendship Park, which is located in Uruguay. This space was designed to be inclusive for all kids. Specifically, they aimed to welcome children with disabilities, especially those who use mobility aids such as wheelchairs. To do this, they designed swings that are wheelchair accessible. The designers of this space also used ramps, wide walkways, and curves rather than corners. These design elements were used by the design team to not only make the space safe, but to also make the space easy to use. In addition to this, the designers also used other inclusive elements like the use of safer flooring. This flooring is resistant to slips and is used to provide some cushion to the ground. This space was also designed with visual elements to help with communication. This is done with the use of the bathroom signage as well as the use of the community driven artwork (Sánchez 2015).

Figure 9
The Cowork Space



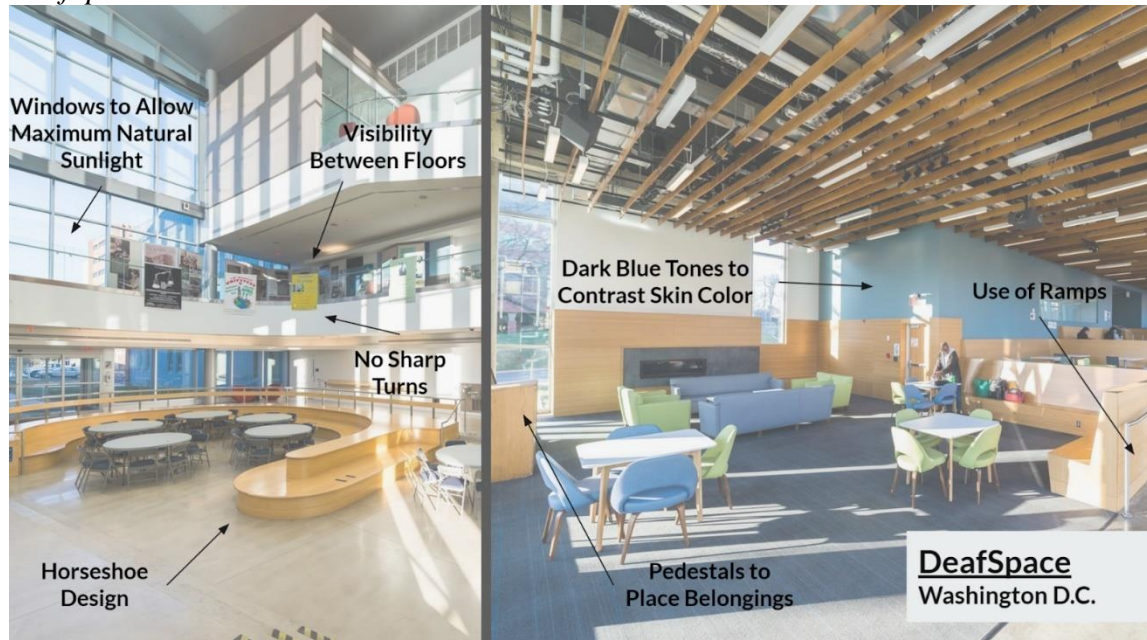
Note. Sinergia Cowork. (2017), *Included.co*, Sinergia Cowork.

included.co/join/sinergiacowork/. Cowork is designed as an office and work space with private and public spaces.

The space in Figure 9 is home to those looking for office/work spaces in Uruguay. Those designing the space listened to the needs of the group that would be using the space, and provided specifically designed aspects to address the most important needs. First of all, this space has an

open seating design that allows people to decide where to work and how to interact with those around them. Another important aspect of this space is the built in opportunities for community engagement. This space was provided with a TV to display upcoming events and announcements. In addition, the walls are left white and people are allowed to write on them. Another community driven aspect of this space is the artwork inside. Lastly, the designers put a large emphasis on creating both private and public space. This concept is essential to making sure people feel comfortable and connected, while also maintaining a sense of privacy (Sinergia Cowork 2017).

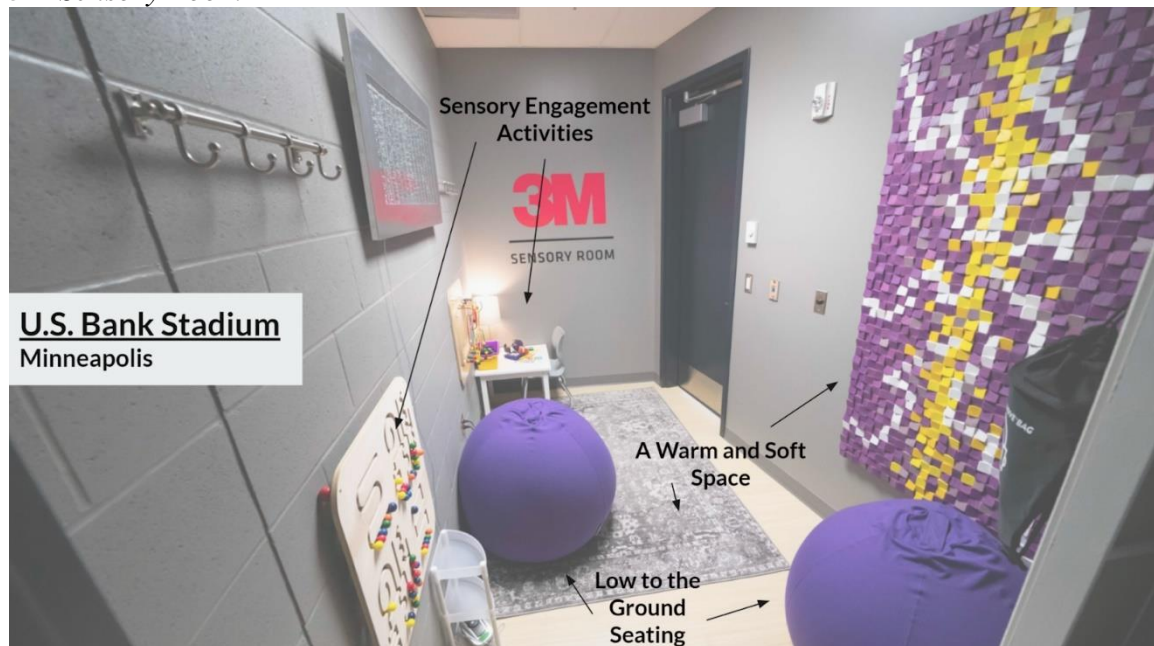
Figure 10
DeafSpace



Note. Create Inclusive Spaces and Climate. (2020) *Diversity, Equity & Inclusion*, diversity.ucdavis.edu/how-do-i/create-inclusive-spaces-and-climate. *DeafSpace is designed to welcome people who are deaf with visual communication.*

DeafSpace, shown in Figure 10, is located in Washington D.C. This area was created to welcome people who are deaf. To accomplish this, designers had to implement aspects of the design that made it easy to use for someone who may not be able to hear and is relying more on visual communication. The space was designed with a lot of windows to let in as much light as possible. The space was also designed to be open, free of sharp turns, and with ramps rather than stairs where possible. All of these elements were implemented as they make it easier for people using sign language to move and communicate at the same time. In addition, the space has made pedestals to place belongings so people have free hands to sign. Lastly, the walls are painted blue, as it contrasts skin color, making it visually easier on the users of the space (Create Inclusive Spaces and Climate 2020).

Figure 11
3M Sensory Room



Note. Minnesota Vikings. (2019, August 15). *Vikings, MSFA announce 3M sensory room at U.S. Bank Stadium.* www.vikings.com/news/sensory-room-us-bank-stadium-hosts-first-guests. *The Sensory Room designed by KultureCity is a private space for anyone with a cognitive disability.*

The Sensory Room found in the U.S. Bank Stadium in Minneapolis is shown in Figure 11. This room was created to provide a private space for anyone that has a cognitive disability. The space is centered around using tactile objects that can be helpful for people. The space was also made to be comfortable with the use of low lighting, seating that is low to the ground, and furniture/art that is soft (Peters 2020).

All 4 spaces discussed above were designed in the hopes of being inclusive to the end user. The organizations and architects designing these spaces were able to figure out who would be using the space, what they would need, and how the space can make sure those needs are met. Even though these spaces are very different and made for different groups of people, there are some common elements that exist. The first common element is the use of open spaces. These open spaces allow for ease of movement and communication as well as providing flexibility to the space. Another commonly found element was the community driven artwork which is able to visually welcome people. Ramps are another element that is used a lot and is essential to ensuring anyone can enter the space. In addition, many of these spaces were designed to let in a lot of light. Lastly, many of these spaces used tactile elements to communicate with people. These elements seem to be common among several inclusive spaces that have been made, emphasizing their importance.

Table 4
Summary of Analyzed Spaces

Space	Social	Cultural	Accessible
The Friendship Park	✓	✓	✓
Baotou Vanke Central Park	✓		✓
Cowork	✓	✓	✓
DeafSpace	✓		✓
3M Sensory Room			✓
Casa MAC			✓
Kent Timber House			✓

Note. Each space was analyzed under 3 categories and identified which had Social, Cultural, or Accessible elements.

As seen in Table 4, these analyses of existing inclusive spaces were used to identify important design elements that have been used in the past and worked. We found that between all the spaces we analyzed, they incorporated elements for social inclusion, cultural inclusion, and/or accessibility. These are three important aspects to inclusion that play into making a well-rounded and successful inclusive space. Social inclusion seeks to provide equal opportunity to anyone in the space as well as promote social participation. Cultural inclusion describes the ability to make anyone, despite their cultural background, feel welcomed and inspired to educate and learn with others (Azmat 2015). These spaces serve as general examples of inclusive areas. Next, we looked

at a more detailed example of an inclusive space to see what process was followed and what specific elements the space was designed to have.

Illustrative Example: South High Community School

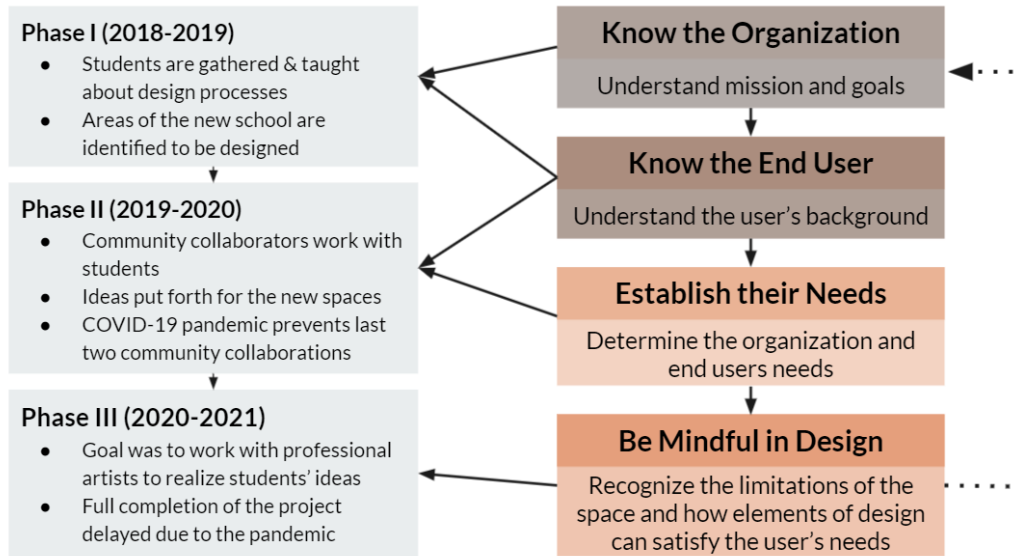
South High Community School is a local Worcester high school which serves a largely disadvantaged student body. Nav Anand was brought into a project in 2018 to involve students in the design process for the new South High building that began construction that year. This was a departure from the usual process of designing a school, where the administration and faculty are consulted and designated as the end users. The students were designated as the end users of the space due to their historic exclusion from the design process. In phase one, students were gathered and taught about the fundamentals of design. Initially, students needed to be provided with the opportunity, resources and skillset needed to create and innovate to take part in creating the new school. Students struggled with how to move forward with the project because they'd never had their opinions and ideas valued for a real world project, and were used to following rigid constraints and assignment guidelines in class. At the end of phase one, five areas of the school were identified to be places of expression that the students could design. These areas, which were meant to illustrate South High's unique culture and sense of community, included the building's lobby, a word wall, a history wall, a digital display, and a mural. Phase two took place during the 2019-2020 school year, and collaborators were brought from different areas of the community such as the local government, historical society, and arts community to help the students plan and realize their ideas. The goal was for professionals from the community to help the students plan and realize their ideas. However, when the pandemic hit the students didn't get to finish their last collaborations. The aim of phase three, which would have been completed during the 2020-2021 school year, was to implement the students' ideas and complete the design process. Due to the difficulties of the pandemic, this project remains incomplete.

As seen in

Figure 12 below, the process Sough High went through connects and relates back to the general inclusive design process discussed in the Background. However, it strongly focuses on steps 3 and 4, Establishing their Needs and Be Mindful in Design. As discussed above, the designers worked largely with the students to teach and include them within the design process so their needs were met and they felt connected to the space being created.

Figure 12

General Inclusive Design Process related to South High Community design process



Note. The South High Community School design process was broken down into 3 phases that connect back to the General Inclusive Design Process. We gained most information focusing on steps 3 and 4.

The previous South High building was built in 1978, and although it was a progressive architectural achievement at the time, it has since become outdated in terms of both design and layout of space, and the actual systems and amenities. Initially, the goal of the project was for students to contribute art to the new school, but evolved into a process where students would have agency in the design of key spaces and would be given the skills and opportunity to shape their community. The actual process as it took place ran into some difficulties. During the first two phases, there was real progress in giving students creative control and empowering them to make choices with real world impact on their environment. Before the pandemic, the biggest hurdle was to overcome the disconnect between students, teachers, and the community, to overcome tradition, and to give the students more power and agency. Students felt like the new school building would be beautiful and state of the art, but wouldn't be meaningful to them because they didn't feel like it was made with and for them. After the pandemic resulted in a transition to online learning, students were even more alienated from the project and most of the ideas established in the first two phases were not able to be implemented.

Superintendent Maureen Binienda, a former alumnus, teacher, and principal of South High Community School, credits the possibility and successes of the new South High student involvement project to the culture of the school. There is a longstanding tradition of students helping each other and their community through the school food pantry, the Andy's Attic clothes donation nonprofit, and the Youth Council of Philanthropy. The latter two organizations are entirely student run, and empower students to take initiative to enact real change in their school and the wider community. Aside from the pandemic halting work on the project, she says student

participation dwindled from the initial phase, and many students had to choose between participating in the process and their other extracurriculars.

Some important takeaways from this process and how they may apply to SINGA are outlined below in Figure 13:

Figure 13

Key Takeaways from South High



Note. The key takeaways from the South High Community School design process are given in broad strokes on the left, and in further detail on the right.

Discussion

Answering the Research Questions

Now that a critical mass of data has been gathered, the research questions that have guided our project can be answered. To review, the first research question is, “What aspects are important to consider when thinking about inclusivity?” Through our analysis of inclusive spaces, we have categorized different aspects of inclusion that are commonly used within these spaces. These categories - accessibility, social inclusion, and cultural inclusion - allowed us to consider different aspects of inclusion that we might not have before. It also provides us with lenses through which to view our recommendations. We can now ask ourselves, “Does this intervention or feature include the cultures of the people who are likely to use it?” These categories allow us to build a space that feels like home. For new arrivals like C.M., this can be a powerful way to make them feel welcome in Lyon; OMA agrees, and aims to create a comfortable, homey atmosphere for all who use their spaces. Another way to make people feel at home is to anticipate their needs and meet them. By meeting needs before they are vocalized, those whose needs are met feel included implicitly. This also has the benefit of not alienating those whose needs are more normative. As such, this feeling of home was key to many of our recommendations we made to SINGA.

The second research question is, “How can we translate the feeling of inclusivity to a physical space?” This is a question about applying the findings from the first research question and the general design process we uncovered earlier in the project. The case of South High Community School was instrumental in providing answers to this question. By allowing the students to participate in the design of the new school, they could imbue the elements they influenced with the inclusive and proud culture of South High. When members of a community

can influence their surroundings in a powerful way such as this, it deepens their connection to the space itself. This is seconded by C.M., who believes that working together in a non-hierarchical way to improve one's community is an important part of an inclusive space. As such, a key part of our recommendations to SINGA is for them to involve community members in the space as much as possible, and to set aside spaces for the community to modify and use.

Difficulties and Limitations

While this project has discovered a robust process and created a report for SINGA to follow, this project is not without its limitations. The most salient limitations are the ones that separate us from those we plan to speak with. First of all, there is a degree of separation due to the language barrier. Only one of us can fluently converse in French, which forces us to limit our pool of interviewees from SINGA to those who have a working knowledge of English, possibly with supplemental French. The second limitation is the small sample sizes. When interviewing small pools of people, it can be difficult to get data that is truly representative of the pool as a whole. For example, we were able to interview only one member of the SINGA community out of the over 300 people who attend SINGA's events. This prevents us from gaining a representative sample of SINGA's community, which in turn prevents us from making well-substantiated claims about the needs of the community. While these limitations hold, we generate recommendations to the best of our ability and knowledge to aid SINGA in designing and creating an inclusive space.

CHAPTER 5: Recommendations

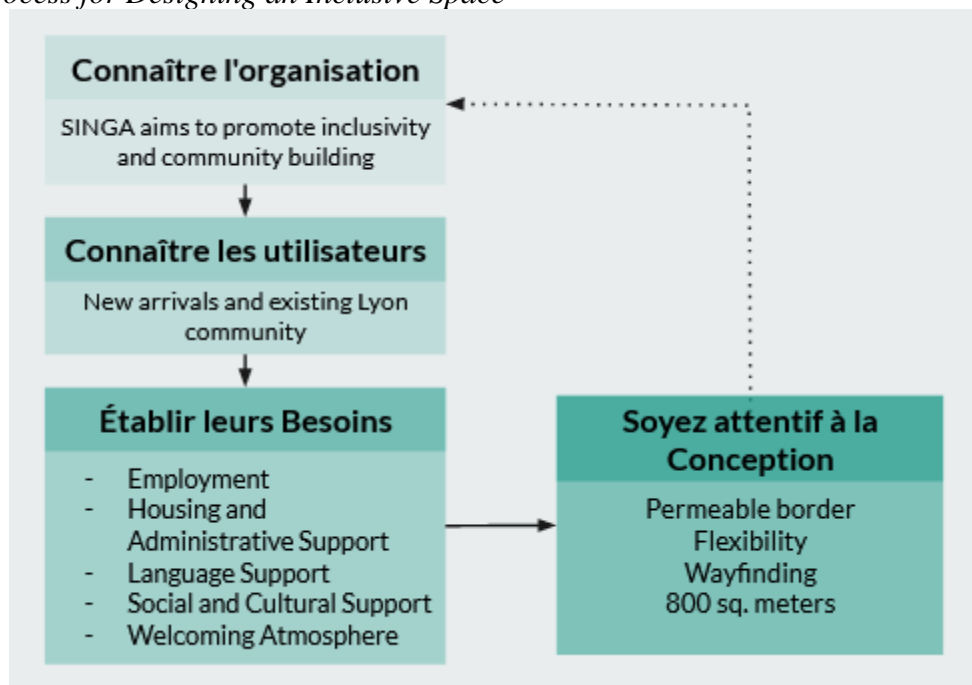
Our recommendations to SINGA include a general outlined process on how to design an inclusive space, as well as specific design element recommendations for the organization. Some important questions to ask when designing the space can be found in Appendix E.

The Process for SINGA

Based on background information and interviews, we have taken the general process for how to design an inclusive space and applied it to SINGA in Figure 14:

Figure 14

SINGA Process for Designing an Inclusive Space



Note. The General Design Process has been applied for SINGA's organization and needs

This process should be followed by the design team who is aiming to create this space. This team should consist of members of the organization, architects, and different groups of end users. The first step of this design process is to know the organization. This includes the mission of the organization, who the organization wants to welcome into the space, what the organization wants the space to be used for, as well as any physical limitations of the space. The design team can use this knowledge to gain an understanding for why and how the space will be used from the organization's point of view. This information can be obtained from interviews of people who work for the organization that is creating the space. For SINGA, the core ideals are rooted in cultural exchange, innovation, collaboration, inclusion, empowerment, and openness. These ideals should all be expressed in the design in some way, specific ways are discussed in the next section.

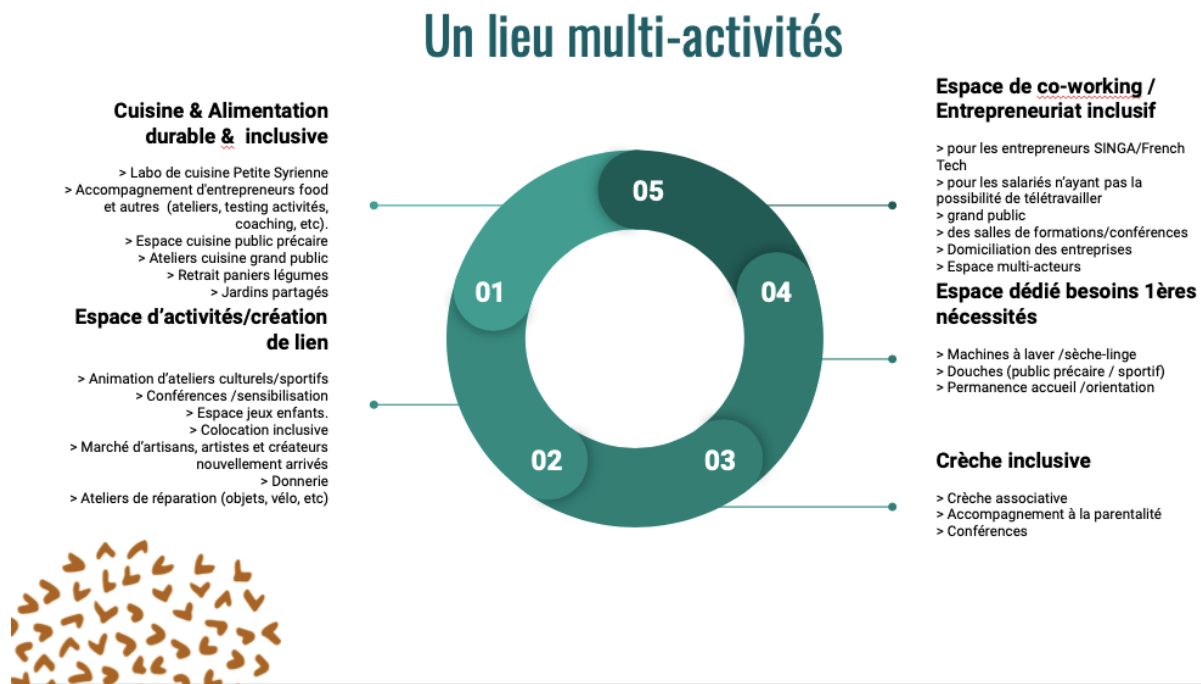
SINGA has already completed the first step and can use it to guide the rest of the process. The rest of the steps need to be carried out, but we were able to provide a starting point by

establishing the end users, finding some of their needs, and by recommending specific design elements SINGA could use.

The second step is to know the end user, the people the space was intended to welcome. To know the end user, the organization has to understand the user's background. Research and interviews to get this knowledge allows the design team to gain an understanding for why and how the space will be used from the end user's point of view. Those conducting the interviews must cultivate questions carefully. It is important to be sensitive to the subject and their background. For the space the SINGA will create, the end users will be new arrivals in Lyon and existing members of the community. New arrivals typically don't want to talk about their past. Due to this, questions should be tailored in such a way that the interviewer can understand what their experience in Lyon has been like, what community means to them, and how SINGA can help them.

Near the beginning of the project, SINGA provided Figure 15 below, which shows what they hope for the space, a product of following steps one and two.

Figure 15
Inclusive Space activities by SINGA



Note. The graphic given to us by SINGA describing what they would like the space to be used for. This includes cooking, culture and sports activities/events, co-working spaces, basic needs, and an inclusive nursery.

After learning about the end user comes the third step, establishing the needs of the end user. The design team can use these needs to extrapolate a list of design goals from the needs of the end user. To know the needs of the end user, the design team must ask them what their primary needs are as well as what they need to feel included. Primary needs include spaces to cook, get

clean, and do laundry. Other needs include safety, public space, private space, community support, employment, and accessibility. All groups of people that the space was made for should be considered. Common needs between the groups can be prioritized in space. Analysis of other spaces has shown us that other important elements to include can be categorized as having a social purpose, a cultural purpose, or an accessibility purpose. Parts of a space that can be for a social purpose is the use of open spaces to allow for easier communication in the space.

The final step is to be mindful when designing the space. The design team should be thinking of how specific design elements can satisfy the needs of the end users and the organization, while keeping in mind the physical limitations of the space. Following these four main steps, it is imperative to receive feedback from the end users and adjust the space according to feedback. The process does not end once the space is made. End users and members of the organization must give feedback on what works in the space as well as what can be improved. With this application of the general design process for SINGA, we were able to generate a set of recommendations for SINGA to begin and fuel their design process,

Design Elements for SINGA

Through the methodologies conducted, we were able to create a set of recommendations specific to SINGA. The first set of recommendations refers to the inside of the space, while the second set will refer to the outside of the space.

Recommendations for the Interior

Detailed below is a comprehensive table of our recommendations to SINGA for the interior of an inclusive space then followed by more details on each recommendation. These recommendations were created to foster community and create connections between new arrivals and the existing surrounding community in Lyon, France.

Table 5

Recommendations to SINGA for Interior Spaces

Universal Signage	<ul style="list-style-type: none"> • Potential hazards • Multiple Languages
Private and Public Spaces	<ul style="list-style-type: none"> • Meeting/Gathering spaces • Work spaces • Religious spaces
Accessibility	<ul style="list-style-type: none"> • Ramps • Visual communication • Textured flooring
Community Support	<ol style="list-style-type: none"> 1. Inclusive child care area 2. Donation area 3. Medical kits

Employment and Entrepreneurship

- Eating areas
- Cooking Areas

Note. Each main recommendation category on the left has reasons and suggestions listed on the right.

As stated before, the design elements should be chosen based on their ability to satisfy the needs of the organization and the end users. One of the main needs of the users is safety. The space that is created should be done so to minimize any hazards. This can be done with the use of universal signage to denote any potential hazards, like a wet floor sign can.

Users also need both private and public spaces. This ensures the users feel connected and comfortable. Private spaces can be used for many different reasons, and could be designed differently to accommodate this. Some users need private space to escape the public space, to talk with people, to work, or to conduct religious activities. The private spaces, regardless of the use, should be ones that are soft, warm, and inviting. This can be achieved with the use of comfortable seating, speakers in the space to provide soothing sounds, and tactile objects for people who are soothed by tactile activities. Private spaces used for religious activities should be left open and without speakers so the end user can use the space how they intend. The main thing to keep in mind for making a space for religious reasons, is to keep it open to everyone and provide enough physical space. Public spaces, on the other hand, should be as open as possible for ease of communication and making the space comfortable to use. The space should also be designed with areas that allow for community collaboration. A great way to do this is with community driven artwork and murals. Other ways to do this are with chalk boards or post-it note walls. Additionally, an easy way to display events and announcements in different languages is with the use of a TV.

To welcome the intended users into the space, the space must be accessible to all, including those who use mobility aids. First of all, the space should use ramps when possible to allow for ease of movement as well as ease of visual communication. Another way to make the space more accessible is by the use of textured flooring, such as that used in Casa MAC. Textured flooring could be a way to let visually impaired people navigate the space as well as help with the intuitiveness of the design. Lastly, wayfinding materials should be provided in multiple languages. This is especially true for SINGA's space since one of the largest barriers is language.

Another need of the end user is community support. Community support can be expressed in the design of the space by giving areas that can support community driven activities, such as childcare. To create an inclusive childcare area, the children and parents should be involved in the design process as they are the primary end users of that specific space. Other elements to promote community support are areas to place and receive donations, safe spaces for people to place their belongings, and areas where people can post their business cards and things that are important to them.

The end users of this space SINGA is creating also need opportunities for employment and entrepreneurship. To do this, the space can be equipped with areas for people to test out their businesses, especially restaurants. There should be indoor and outdoor areas for eating, and a method for people to provide feedback. The kitchen should include amenities for kosher and halal food preparation to be as inclusive as possible, as there are new arrivals from countries of differing religious backgrounds and dietary restrictions.

Overall, the inside of the space should satisfy the needs established earlier, as well as cover any basic needs of the users. This entails bathrooms with visual and written signage that are fully

inclusive to any gender identity. Basic medical kits with proper signage in the building should also be used to satisfy the users basic needs. Other amenities to meet this need are showers, and safe spaces to place personal belongings.

Recommendations for the Exterior

Once the design team has figured out the inside of the space, the exterior is equally important in creating a welcoming environment. Detailed below is a comprehensive table of our recommendations to SINGA for the exterior of an inclusive space then followed by more details on each recommendation. These recommendations were created to foster community and create connections between new arrivals and the existing surrounding community in Lyon, France.

Table 6
Recommendations to SINGA for Exterior Spaces

Permeable Barrier	<ol style="list-style-type: none"> 1 Electronic signage with multiple languages 2 Community driven artwork 3 Pick up and drop off areas 4 Ramps
Flexible	<ul style="list-style-type: none"> • Change over time • Community members shape environment

Note. Each main recommendation idea on the left corresponds to the suggestions listed on the right.

The outside of the space should be designed in a way that it acts as a permeable barrier between the people inside and the surrounding area. To make this happen, proper signage is essential. This signage should be able to welcome anyone, despite any language barriers. Ideally, an electronic screen could be used to cycle through the same message in different languages. In addition, the community driven artwork can be used outside to make the space more welcoming and collaborative. Lastly, the building itself should not be set back from the road/sidewalk/passageway, which increases the barrier to entry. If it is, proper pick up and drop off areas should be used. The exterior should also use ramps if needed so that anyone can enter the space.

Overall, the spaces should be able to change over time according to the developing needs and wants of the end users. Flexibility offers a way for community members to shape their environment, which is especially helpful for refugees and migrants to feel included and that the space is truly theirs. In addition, the space should be able to welcome the end users, while also being able to inspire participation and interaction.

CHAPTER 6: Conclusion

Ultimately, the design process for an inclusive space has no absolutes. It is important to consider the needs and comfort of everyone involved, but not everyone can be completely comfortable all the time, and the process is about continuous improvement and balancing the needs of the whole community. As the world constantly changes and evolves, so must the spaces we inhabit.

Throughout this project, we investigated methods of design and presented a general process for designing a space to be as inclusive to the target population and community as possible. This report can be used as reference with background on the global refugee crisis and the experiences and challenges of new arrivals that necessitate an organization like SINGA having an inclusive space. It can also be used to supply information on some foundational themes of SINGA's mission and inclusive design in general, such as mutual aid and community building. It includes information about the interviews conducted, the research we did, and the limitations of the project. The report concludes by detailing a robust process for designing an inclusive space, and applies the general process to our partner organization SINGA to guide them in designing their new space and provides ideas and recommendations to implement.

While this report covers a wide variety of subjects under the global refugee crisis and designing an inclusive space, the scope was narrowed to best apply to SINGA and similar community-based organizations. We recommend to those outside that scope, to use the general inclusive design process that we derived and furthering their own research based on the guidelines set in it. In the future, SINGA and the design team should find and talk to more people in the community that will use the space to identify further needs the space can address. The organization should also seek out feedback from the people using the space to determine what has worked in the space created and what can be improved upon.

For SINGA, we believe that this report will provide an introduction to help them structure their own design process for their new space. The information compiled in this document is the product of expert opinions that were formed and refined. Using the general process created, and involving stakeholders at every level, SINGA can make their new space a haven for new arrivals, community members, and anyone else who may use it. Having a space that feels fully theirs will empower new arrivals to take advantage of all that SINGA has to offer and build a home and community in Lyon.

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APPENDIX A: Questions

Item A1: Interview Questions for New Arrivals

1. What is your age?
2. Do you have any relatives or close friends in the community?
3. What language or languages do you speak at home?
4. Do you participate in other communities, like religious groups, hobbies, or organized sports?
 - a. What are some things you enjoy doing?
 - b. Are you happy with your current level of engagement in the community? Why?
5. SINGA is a non-profit organization that works to break down prejudice to create a sense of community between the locals of Lyon, marginalized groups, and new arrivals. How has SINGA been able to make you feel welcome? Why did that make you feel welcome?
6. Are there areas in which SINGA could improve their space to make you feel more welcome?
7. Are there any needs that SINGA could fulfill in this space that would help you?
8. What are some spaces that are uncommon in Lyon that you would like to see more of?
 - a. How do you feel about these spaces?
 - b. Why would you like to see more of these spaces?
9. How are expectations here in France different from what you would expect elsewhere?
 - a. Are there some cultural norms, events, activities, etc. that you would like to see more of in Lyon?
 - b. Are there some cultural norms, events, activities, etc. in Lyon that make you feel unwelcome or uncomfortable?
 - c. Are there some cultural norms here that make you feel welcome or comfortable?
10. What aspects of a physical space could make you feel welcomed? Why do you feel welcomed by it?
11. SINGA would like to have a kitchen in their new space. Are there any cookware or ingredients that are not commonly found in a French kitchen that you would like to see in this new kitchen?
12. What kind of music would you like to hear in this new space?
13. If you were to imagine an inclusive space in your head, what would it look like?
 - a. What elements would it have to make you feel included?

Item A2: Interview Questions for Volunteers

1. What inspired you to work for SINGA?
2. How long have you worked with SINGA?
3. How do you participate in SINGA?
4. Why do you continue to work with SINGA?
5. How has SINGA made you feel included?
6. From your observations, what do new arrivals struggle with the most when adapting to their new environment?
7. Is there anything you would add to an inclusive space if you had unlimited resources?
8. What do you think constitutes an inclusive physical space?

9. What activities do you think should be conducted in this space?

Item A3: Interview Questions for Similar Organizations

1. What was the process for creating your space like?
2. How do you know that providing an inclusive space is important?
3. What is your definition of inclusion?
4. How do you feel your organization/space is inclusive?
 - a. How do you know it is inclusive?
5. What specific elements or aspects of your space are inclusive?
 - a. How did you know what to incorporate?
 - b. How did you know what not to incorporate?
6. What do you wish you had done, included, or thought about before?
7. What changes/adjustments have you made since the initial design? What would you change now?
8. What is/has been the hardest part about making an inclusive space? The easiest part?

Item A4: Interview Questions for Nav Anand

1. Why are inclusive spaces important?
2. What is the process of creating an inclusive physical space like?
3. What aspects of a space can make people feel included?
4. What aspects of a space can make people feel excluded?
5. Have you worked with language barriers when creating an inclusive space? How did you overcome this challenge?
6. How can the exterior of a space be inclusive?
7. How can the exterior signage be constructed to be easily understood by anyone?
8. What is the most important area to include an inclusive space?

Item A5: Interview Questions on Illustrative Example, South High

1. Who are the intended end users?
2. Who were the key actors in this process?
3. When did the process occur?
4. Are there any groups besides the students, teachers, and administration that were taken into account when designing this space?
5. Were there any groups you feel should have been considered end users, but were excluded? Why should they have been included?
6. How did you determine the needs of these groups?
7. What needs were identified during the process?
8. Were there any needs that you believe were not identified?
9. What were some limitations imposed on this project? (Time, space, money, etc.)
10. Did these limitations prevent you from fully addressing some of these needs?
11. How did the design of the space meet these needs?
 - a. Which needs couldn't be met by the space?
 - b. Which needs were met with programs instead of design?

- c. Were there any needs that were acknowledged by the group, but went unaddressed?
12. If you could have remade the high school to meet the community's needs, how would you do it?
 13. Were there any other successes or failures that you'd like to mention?
 14. Could you describe your experience with the school itself? As a student, teacher, principal, superintendent
 15. How has your view of the school evolved over time?
 16. The culture of the school has been described as very unique, one that's proud of the school. Could you provide a closer look at the culture?
 17. Why are students proud of the school?
 18. What spurred your decision to incorporate the students into the design process?
 19. How exactly were the students involved in the process? How were they asked?
 20. How she felt the project with the students went
 21. Have the students given any feedback about the space?
 22. Did they get feedback and go through the cycle again?
 23. Any magic wand changes to project and the school/school system in general
 24. Who was involved in the design team?
 25. We talked with Nav a bit about parts of the school like the food pantry and Andy's Attic, and how it is difficult to empower students who need help to reach out. Can you speak to how you can empower students in this way?
 26. How does she feel about the end product? Satisfied with the outcome?

APPENDIX B: Physical Spaces Observation Checklist

Using information gathered from our background research on similar organizations these questions will be used as a checklist in existing physical spaces to gauge if they are inclusive. Questions are subject to change based on data gathered from interviewing current architects about inclusive spaces.

1. Does this space use exterior signage?
2. Is the building well lit?
3. Are there parking spots for those who want to enter the space?
4. Does this space include any outdoor activity areas/gardens?
5. Does this space have easy building access for all?
6. Do the bathrooms have signs?
 1. Do these signs have braille?
 2. Do these signs have words?
 3. Do these signs have images?
7. Does this space have any interior activity areas?
8. Does this space have something to facilitate community engagement?
 1. Does this space have a pin board?
9. Does this space have the infrastructure to hold a community?

APPENDIX C: Generalized Informed Consent Script

Investigators: Isabelle Ho, Olivia Petropulos, Ezra Vail, Mike Viozzi

Contact Information: maviozzi@wpi.edu (French), ojpetropulos@wpi.edu (English)

Title of Research Study: Designing an Inclusive Space for All

Sponsor: SINGA Lyon

Introduction:

You are being asked to participate in a research study. Before you agree, however, you must be fully informed about the purpose of the study, the procedures to be followed, and any benefits, risks or discomfort that you may experience as a result of your participation. This form presents information about the study so that you may make a fully informed decision regarding your participation.

Purpose of the study:

This study will be used to gain knowledge from new arrivals, the existing community, and SINGA members to find what elements are desired/necessary to creating an inclusive physical space for SINGA.

Procedures to be followed:

[The procedures to be followed varied between the different studies. This section was tailored to fit the individual study being conducted. Information included the estimated time duration of the study and the types of questions respondents could have been asked.]

Risks to study participants:

The risk presented to the participants is minimal due to the design of the questions.

Benefits to research participants and others:

The benefits to research participants and others include being part of and adding their own input on a project that can positively affect a space they can use.

Record keeping and confidentiality:

Records will be kept by the team in a password secured folder online. The names of participants will not be added to keep confidentiality.

Compensation or treatment in the event of injury:

This research does not involve risk of injury or harm. You do not give up any of your legal rights by signing this statement.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact:

Mike Viozzi: maviozzi@wpi.edu (Researcher)

Olivia Petropulos: ojpetropulos@wpi.edu (Researcher)

Ruth McKeogh: (508) 831-6699 OR irb@wpi.edu (WPI IRB Manager)

Gabriel Johnson: (508) 831-4989 OR gjohnson@wpi.edu (WPI Human Protection Administrator)

Your participation in this research is voluntary. Your refusal to participate will not result in any penalty to you or any loss of benefits to which you may otherwise be entitled. You may decide to stop participating in the research at any time without penalty or loss of other benefits. The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit.

By (signing/answering 'yes') below, you acknowledge that you have been informed about and consent to be a participant in the study described above. Make sure that your questions are answered to your satisfaction before signing. You are entitled to retain a copy of this consent agreement.

APPENDIX D: Supplemental Analyzed Inclusive Spaces

Figure 16

Baotou Vanke Central Park



Note. Green Lungs in Urban Areas. (2020) The Finest Magazine, thefinestmagazine.com/green-

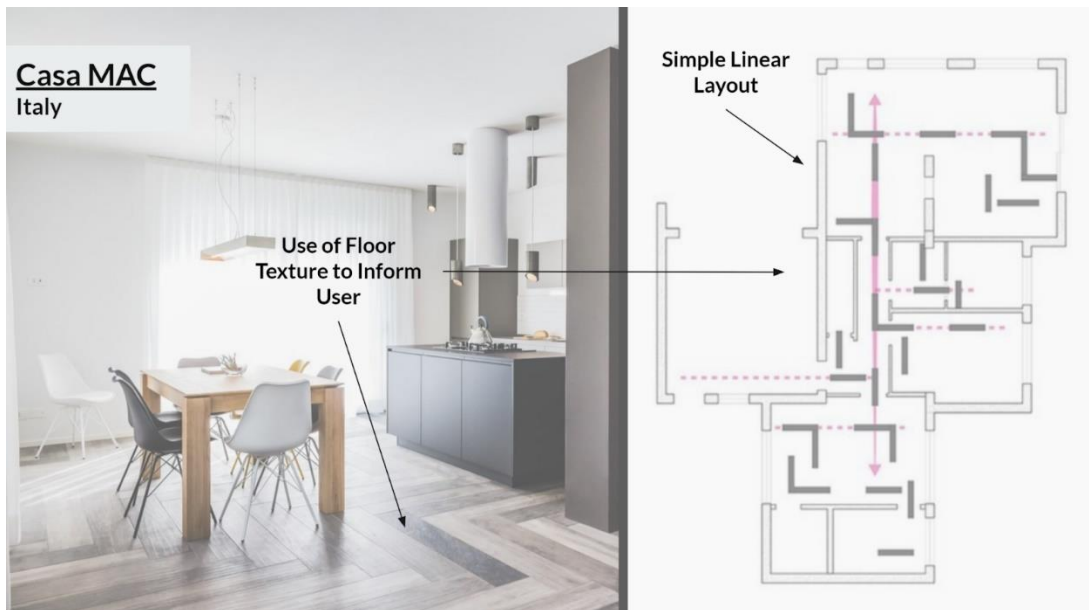
lungs-among-urban-

areas/#:~:text=Baotou%20Vanke%20Central%20Park%2C%20China&text=Located%2

0on%20the%20land%20with,for%20both%20adult%20and%20children.

Figure 16 shows the Baotou Vanke Central Park in China; an outdoor urban renewal project that was designed to be inclusive. The most important feature of this space is the use of interactive zones for community engagement. One example of an interactive zone is a playground. This playground is situated near an area dedicated to community driven artwork. Other important features of this space are the wide curving walkways, and the parking lot/drop off area. This space addresses the needs of the local community by being a space that is accessible to all and promotes communication in an area that was not used before (Green Lungs in Urban Areas 2020).

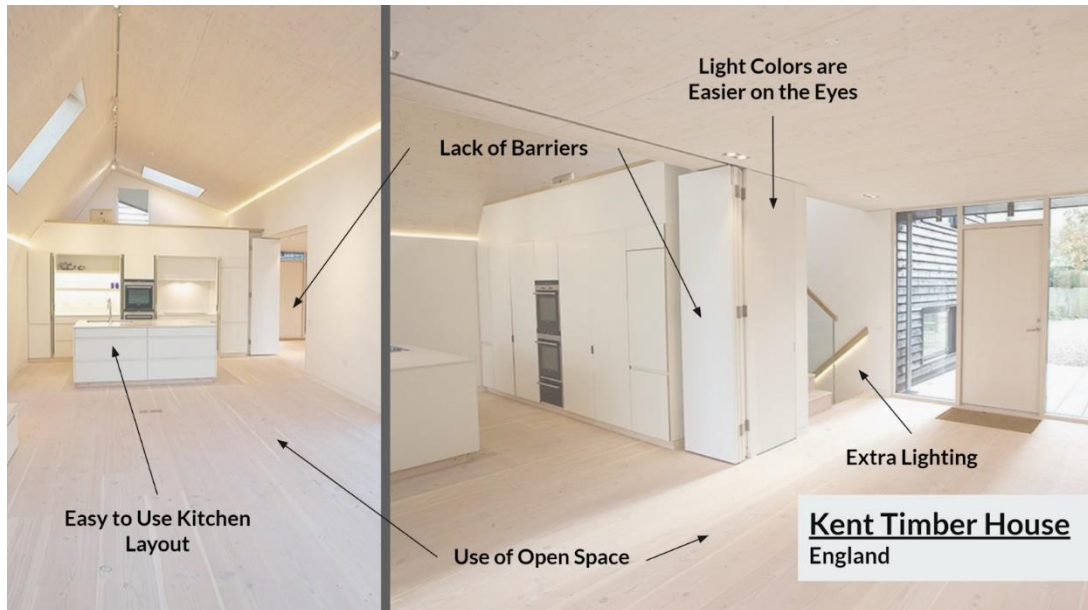
Figure 17
Casa MAC



Note. Casa MAC by So & So Studio UG; Italy. (2021), BigSEE, bigsee.eu/casa-mac-by-so-italy/.

Figure 17 shows an inclusive living space called Casa MAC in Italy. The living space was made with a simple linear design that is based off a central corridor. In addition, the floor is made from textured stone tiles. These tiles were designed to direct the flow of the space and inform the user of where they are or where to go. This space is able to use sensory cues to help the user (Casa MAC 2021).

Figure 18
A Kent Timber House



Note. Carponen, Claire. (2020) 700-Year-Old Timber-Frame Manor in Kent Offers Historic Hideaway. Mansion Global, Mansion Global, www.mansionglobal.com/articles/700-year-old-timber-frame-manor-in-kent-offers-historic-hideaway-213916.

England is home to the Kent Timber Houses shown in Figure 18. These houses were created to satisfy the needs of elderly individuals. The designers used open spaces free of barriers to allow for easy movement in the space. The space was also provided with extra lighting and large windows. Lastly, the designers used light colors that are easy on the eyes for the user (Carponen 2020).

APPENDIX E: Inclusive Space Checklist

1. Are the needs of the end users being met?
2. Are the needs of the organization being met?
3. Does this space fulfill the design goals?
4. Does the space disadvantage any of the intended users?
5. Can this space be flexible and change overtime?
6. Is this space easy to use/intuitive?
7. Is the space capable of accommodating the activities the organization hopes to host?
8. Is the space safe?
9. Does the space have elements that bring people together?
10. Can the space bring the community together and allow communication, despite any barriers?
11. Can this space foster cultural exchange?

APPENDIX F: Institutional Review Board Approval Letter

WORCESTER POLYTECHNIC INSTITUTE

100 INSTITUTE ROAD, WORCESTER MA 01609 USA

Institutional Review Board

FWA #00015024 - HHS #00007374

Notification of IRB Approval

Date: 03-Jun-2021

PI: Miller, Fabienne

Protocol Number: IRB-21-0660

Protocol Title: Designing an Inclusive Space for All

Approved Study Personnel: Viozzi, Michael~Miller, Fabienne~Vail, Emily~Ho, Isabelle~Petropulos, Olivia~Krueger, Robert~

Effective Date: 03-Jun-2021

Exemption Category: 2

Sponsor*:

The WPI Institutional Review Board (IRB) has reviewed the materials submitted with regard to the above-mentioned protocol. We have determined that this research is exempt from further IRB review under 45 CFR § 46.104 (d). For a detailed description of the categories of exempt research, please refer to the [IRB website](#).

The study is approved indefinitely unless terminated sooner (in writing) by yourself or the WPI IRB. Amendments or changes to the research that might alter this specific approval must be submitted to the WPI IRB for review and may require a full IRB application in order for the research to continue. You are also required to report any adverse events with regard to your study subjects or their data.

Changes to the research which might affect its exempt status must be submitted to the WPI IRB for review and approval before such changes are put into practice. A full IRB application may be required in order for the research to continue.

Please contact the IRB at irb@wpi.edu if you have any questions.

*if blank, the IRB has not reviewed any funding proposal for this protocol