



SALA SIETE:

**A SPACE FOR THE ARTIST IN
EVERYONE AT TEATRO EN 15**

San Juan, Puerto Rico



WPI





Sala Siete: A Space for the Artist in Everyone at Teatro en 15

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For more information:

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Abstract

This project focused on advancing a design for Sala Siete, a ‘third place’ café and rooftop space for *Teatro en 15*, a microtheater in San Juan, Puerto Rico. The team collaborated with the creative *Teatro en 15* community in an iterative participatory design cycle to envision a relaxed artistic hub for artists to connect and create. Workshops and interviews elicited a variety of creative perspectives addressing ‘third place’ characteristics for Sala Siete as a social gathering space. Visions were imagined, discussed, and brought to life in a final CAD design and in our resources for creative collaborative design that include the “From Concept to Creation: A Designer’s Guide,” the “Café and Rooftop Inspiration Book,” and the “Sala Siete: Creative Vision Pitch Deck.”



Executive Summary

The Curtain Rises: Executive Summary

Theater has a deep-rooted history in Puerto Rico and is an important part of the island's cultural heritage. For centuries, theater has served as a means of artistic expression, political commentary, and social critique (Dauster, 1963). Many of the island's most celebrated writers, musicians, and actors come from the world of theater; their contributions continuously mold Puerto Rican culture (Dauster, 1963). Theater continues to be an important outlet for creative expression and community engagement in Puerto Rico; many local and national theater companies produce works that not only reflect the island's unique history and culture, but also interpret present social dynamics and shape the future.

Despite the significance of art in Puerto Rico, theater is often undervalued, with aspiring theater professionals and many theater companies facing an uphill battle to grow their audience and support actors, directors, and writers, including *Teatro en 15*.



Microtheater

Teatro en 15 (Theater in 15) is a small theater venue in Puerto Rico that offers a space for local artistic and cultural celebration. Located in Old San Juan, the venue opened its doors in 2021 and shows six 15-minute mini-plays each night from Thursday to Sunday. The plays rotate each month, and patrons are taken on a captivating new journey through six stages with each one depicting a unique tale.

According to Alba Florian Vita (2013), modern short-form theater became prominent in 2009 in Spain when Spanish theater producer Miguel Alcantud used a closed-down brothel to put on plays about prostitution. “Microteatro” events are now held in Latin America, the US and around Europe. San Juan’s municipal Director of the Department of Arts and Culture, Antonio Morales Cruz, brought short-form theater to Puerto Rico through *Teatro en 15*.

Currently, *Teatro en 15* has unused space on the third and highest floor connected to the rooftop of a historic building. The arts and culture director saw potential for this space to foster artistic

celebration, create connections with other artists, and host social gatherings. *Teatro en 15* sees this currently unused space to further its mission in spreading a passion for theater and art. A café might attract patrons to the theater who may only be seeking a cup of coffee yet are nevertheless exposed to theater as a result, and a rooftop performance space could be a relaxed artistic hub for artists and others to connect.



Participatory Design

Participatory design processes involve various stakeholders in the creation of designs that address a range of needs, interests, and goals. Both the designers and the community members play meaningful roles in the co-designing processes. Participatory design is characterized by several aspects. First, it involves spontaneous decision-making that embraces suggestions from the community (Luck, 2018). Building strong relationships with the community and prioritizing their needs through interaction is essential (Rodgers, 2015). There are various tools that participatory designers use to facilitate community collaboration. Holding workshops helps designers understand community concerns and develop strong relationships with stakeholders, augmenting the impact of and support for a design solution (Hwang & Fellow, 2009-2012). Participatory design has benefits over other design processes and theories because it prevents the reduction of people solely to their behaviors and characteristics outside of the context of their community (Dowd, 2019).

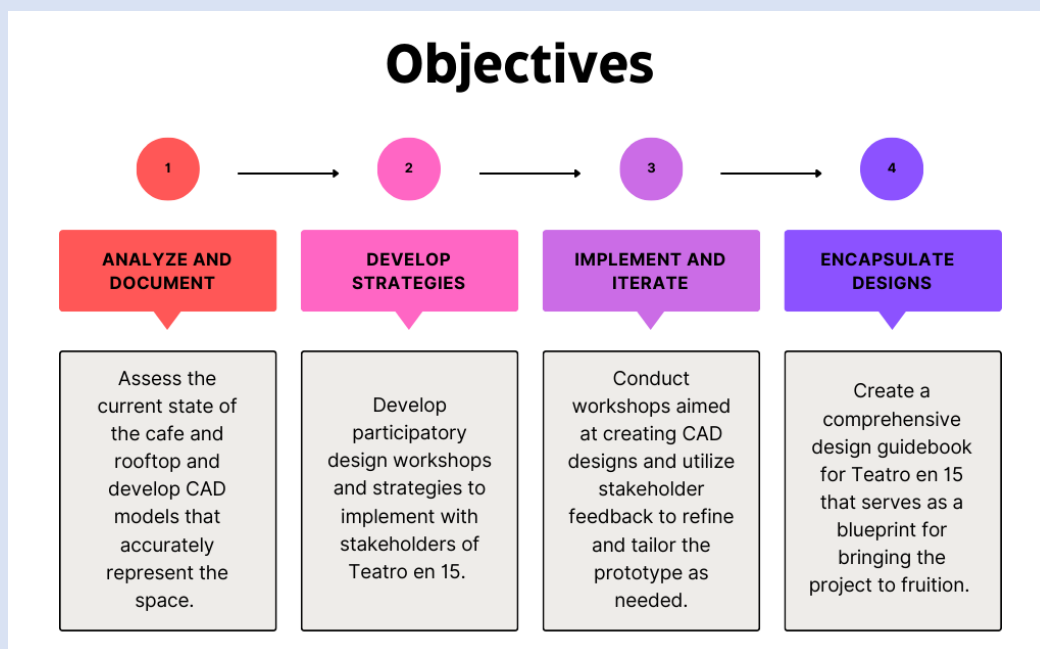
Designing a ‘Third Place’

‘Third places’ play vital roles in social interaction since these spaces foster human interaction. In *Designing Coffee Shops and Cafes for Community* by Lisa Waxman, Waxman (2022) states that these spaces are neutral ground where no one must play the role of host or invitee, and they serve as a leveler or an inclusive place welcoming all people. ‘Third places’ can feature regulars at these establishments and have a playful mood, often becoming a “home away from home.” Place attachment theory suggests that people form attachments to a space when they have a long and intense experience with it, and this space

then takes on special meaning for that person. The presence of other people in this space is essential to forming this patron - ‘third place’ attachment (Waxman, 2022).

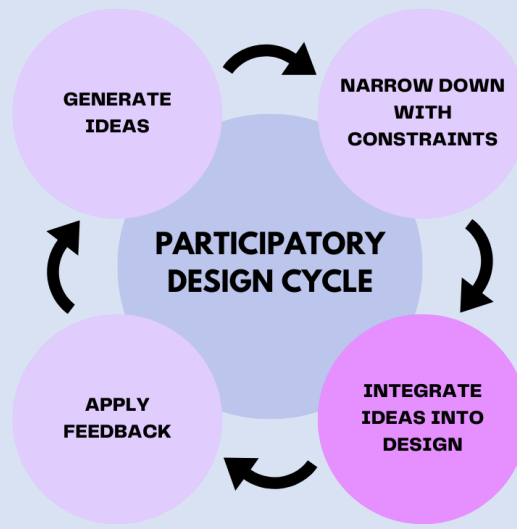
Project Goal

This project aids San Juan’s Arts and Culture Director Antonio Morales in celebrating Puerto Rican culture through the arts by adding a rooftop café and performance space to *Teatro en 15*. The team achieved this by implementing an architectural participatory design process and developing thorough CAD models of the proposed space. We had four objectives to meet this goal:



Methods

The project incorporated an analysis of existing rooftop conditions, participatory design strategies, implementation of the iterative participatory design process, CAD drawings, and the development of human-centered design possibilities and engineering considerations. The primary method was to engage the *Teatro en 15* community in the iterative participatory design cycle to develop the collaborative design elements.



Participatory design strategies included interviewing four key informants and twelve *Teatro en 15* ushers. By incorporating the views of different *Teatro en 15* community members, we aimed to incorporate perspectives from their different creative histories into an inspiring design of the café and rooftop space. The most important work the team did was to facilitate three workshops with the *Teatro en 15* ushers. We called these participatory design workshops the Café Bulletin Activity, the Café Drawing Activity, and the Rooftop Visualization Activity. In these workshops, the ushers discussed and debated various design elements impacting the human elements, or ‘third place’ relationship, that Sala Siete sought to achieve.

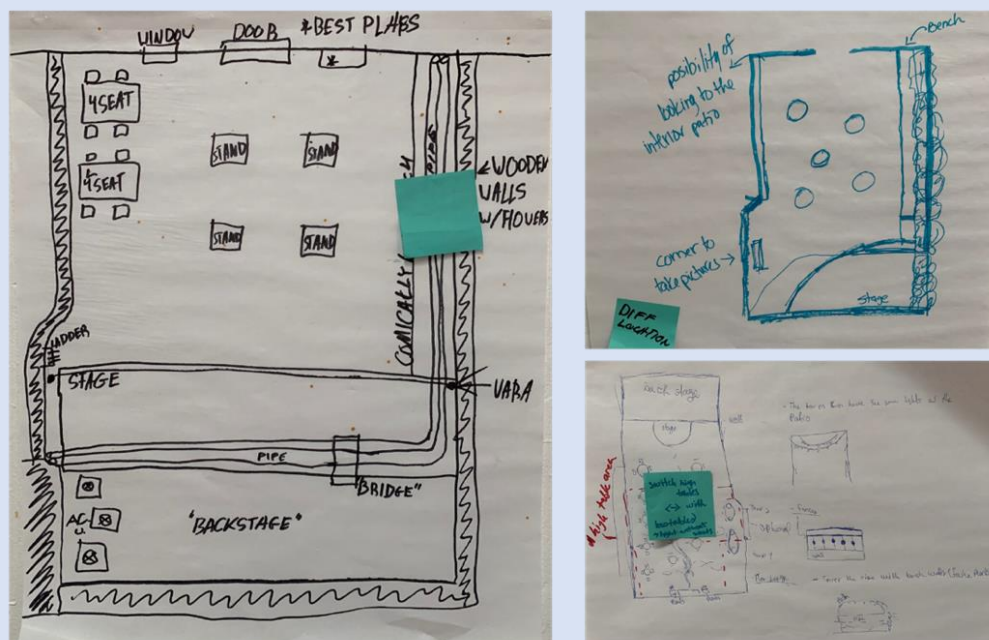
The Café Bulletin Activity was the first workshop held with the ushers where they brainstormed elements for the café that would make it a ‘third place’.



The ushers brought their ‘third place’ brainstorming from the Café Bulletin Activity to life in the Café Drawing Activity that followed by creating hand sketches of their visions.



The Rooftop Visualization Activity both prompted the ushers to brainstorm essentials of the exterior of Sala Siete and to visualize the space through hand draw sketches.



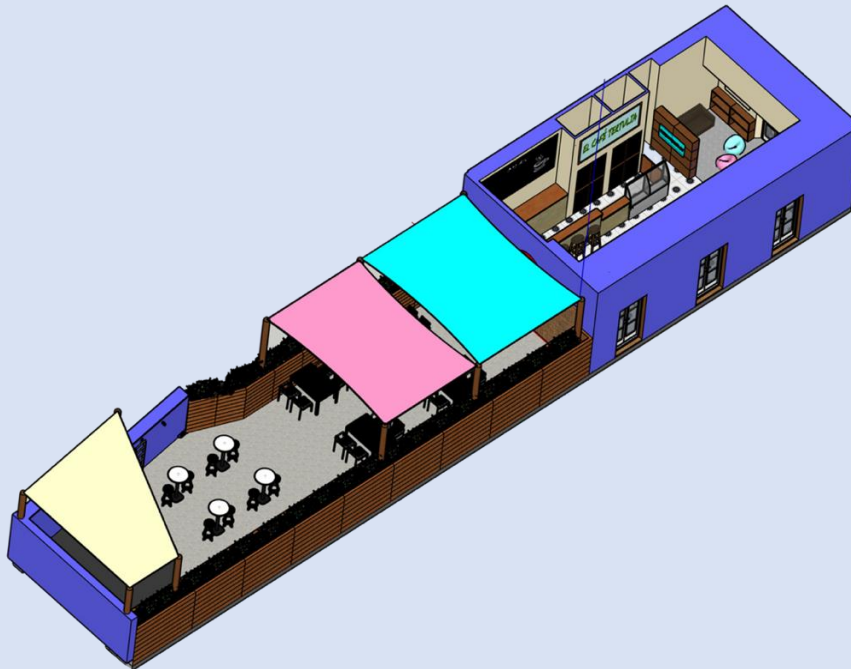
Findings on the Creative and Rewarding Participatory Design Process



The participatory design workshops yielded substantial collaboration with the *Teatro en 15* community and resulted in numerous collaborative designs. The team worked with key stakeholders to advance the design by incorporating their ideas and visions. We prioritized implementing participatory design and collaboration with the *Teatro en 15* community through workshops and interviews. The visions that the community shared in this process directly resulted in a design with a cozy, relaxed atmosphere that incorporated Puerto Rican culture and art. The design became a space where art is celebrated, practiced, and used as a tool of connection.

1. Integrating design concepts is a vital step in the creative participatory design cycle.
2. Hwang's Theory of Participatory Design needed to be adjusted to accurately represent the team's participatory design processes.
3. Manzini and Rizzo's Theory of Participatory Design defined our role as facilitators rather than co-designers.
4. Personal and creative histories of participants influence and drive designs.
5. In the Café Bulletin Activity, ushers analyzed the elements of a 'third place' and reflected on how those should take shape in the café.
6. *Teatro en 15* ushers were eager to participate in our workshops and sparked lively conversation and debate over design elements.
7. Ushers brought their ideas on 'third places' to life by translating words to visuals during the Café Drawing Activity.
8. Ushers addressed 'third place' concepts for the exterior space and brought them to life through hand drawn sketches during the Rooftop Visualization Activity.

The above findings were essential in the advancement of the collaborative design:



Resources for Creative Collaborative Design

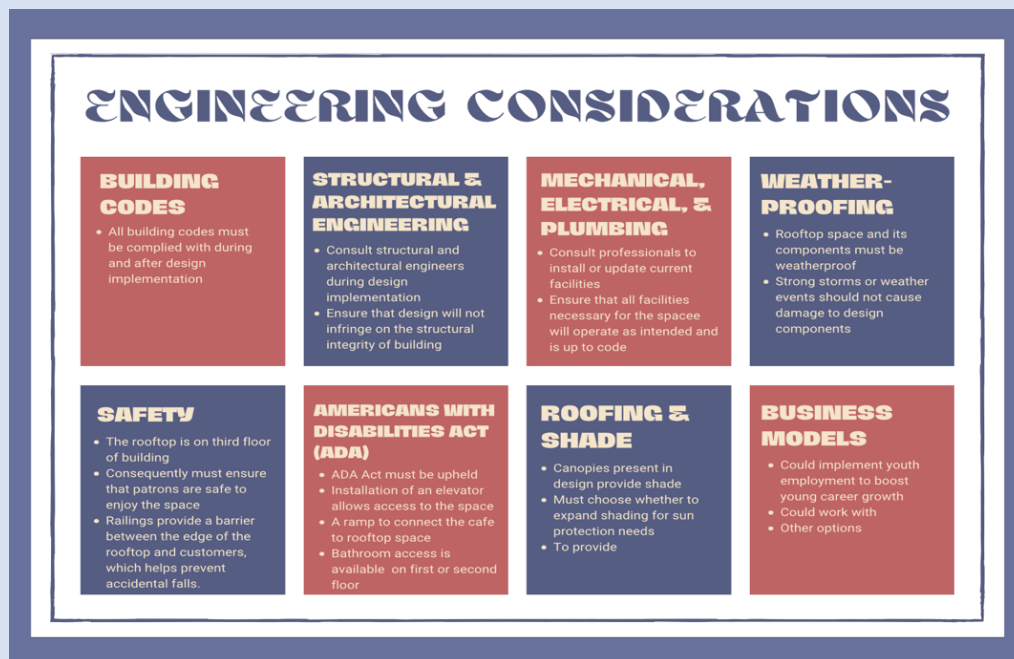
We developed a suite of resources to inspire future creative, collaborative designs. These include the: “From Concept to Creation: A Designer’s Guide,” “Café and Rooftop Inspiration Book,” and the “Sala Siete: Creative Vision Pitch Deck.” Below are pages from “From Concept to Creation: A Designer’s Guide.”



Recommendations

1. Recommendations for Facilitators of Participatory Design Workshops
 - a. Plan workshops around participants' schedules.
 - b. Recognize valuable and unique input.
 - c. Participants' ideas shine when facilitators refrain from sharing their own ideas.
 - d. Allow for spontaneity during participatory design workshops.
 - e. Build in spare time to the workshop schedule.
2. Recommendations for Engineers and Designers

While we focused primarily on the social importance of 'third places' and the desired human connections to Sala Siete throughout the design process, the engineering considerations for design implementation are just as important. Aspects like building codes, accessibility laws, weatherproofing, and facilities are all key to bringing Sala Siete to life.



3. Recommendations for future WPI projects
 - a. English translations during performances
 - b. The creation of a website for the theater

Conclusion: Contributing to the creation of the Sala Siete ‘Third Place’

Our collaborative experiences with the *Teatro en 15* community addressed all the necessary components of a ‘third place,’ ensuring the advancement of a design for Sala Siete that meets the needs of its patrons. By upholding the Americans with Disabilities (ADA) Act, the Sala Siete design allows people of all physical abilities to use and enjoy the space, meeting the vital need of accessibility characteristic of ‘third places.’ Sala Siete’s purpose of spreading passion for art, promoting connection among artists and art lovers, and providing a safe haven for artists gives the space utility, the next characteristic of ‘third places.’ From providing proper protection on the rooftop to creating a welcoming and relaxed environment, the Sala Siete design has the capabilities to make all patrons feel safe if all engineering considerations are implemented, meeting the next ‘third place’ characteristic of safety. The cozy, relaxed ambience of Sala Siete combined with the opportunities for artistic creation and entertainment it offers meet the highest two characteristics of ‘third places,’ comfort and engagement. Patrons could be attracted to Sala Siete for the food and drink offered, the cozy ambience, the performances on the rooftop stage, or all the above.



Table of Contents

<i>Abstract</i>	iii
<i>The Curtain Rises: Executive Summary</i>	v
<i>Table of Contents</i>	xiv
<i>Table of Figures</i>	xv
<i>Table of Tables</i>	xvi
<i>Setting the Scene: The Background</i>	1
Participatory Design	1
Café Design: ‘Third Place’	3
Designing a Reading Space	9
Transforming a Rooftop Space	11
Designing a Rooftop Garden	12
Outdoor Theater and Stage Design	14
Accessibility	15
Teatro en 15 Rooftop and Café Design Stakeholders	17
<i>The Script: Crafting the Methodology</i>	19
Mission Statement	19
Objectives	19
Objective 2: Develop participatory design strategies.	21
Objective 3: Implement the iterative design process.	25
Objective 4: Encapsulate the designs and deliverables.	29
<i>The Big Reveal: Findings</i>	31
Finding #1: Integrating design concepts is a vital step in the creative participatory design cycle.	31
Finding #2: Hwang and Fellow’s Theory of Participatory Design needed to be adjusted to accurately represent the team’s participatory design processes.	32
Finding #3: Manzini and Rizzo’s Theory of Participatory Design defined our role as facilitators rather than co-designers.	34
Finding #4: Personal and creative histories of participants influence and drive designs.	34
Director Antonio Morales Cruz: A Lifetime Dedicated to Art and Drama	35
Building Manager Pascual Febus Pica: Bringing Life to <i>Teatro en 15</i> Daily	36
Marta Gonzalez: Catering the Patio	37
Charlene Nazario: Anchoring the Space	38
The Ushers: Young Artists Working to Promote Theater	39
Finding #5: In the Café Bulletin Activity, ushers analyzed the elements of a ‘third place’ and reflected on how those should take shape in the café.	39
Finding #6: <i>Teatro en 15</i> ushers were eager to participate in our workshops and sparked lively conversation and debate over design elements.	41
Finding #7: Ushers brought their ideas on ‘third places’ to life by translating words to visuals during the Café Drawing Activity.	42
Conclusion: Contributing to the Creation of the Sala Siete ‘Third Place’	46
<i>The Closing Curtain: Recommendations</i>	52
Recommendations for Facilitators of Participatory Design Workshops	52
Recommendations for Engineers and Designers	54
Recommendations for Future WPI Projects	55
<i>References</i>	56
<i>Appendix A: General Stakeholder Interview Planning</i>	59
<i>Appendix B: Café Bulletin Activity Formal Plan</i>	61
<i>Appendix C: Café Drawing Activity Formal Plan</i>	63
<i>Appendix D: Rooftop Visualization Activity Formal Plan</i>	64

Table of Figures

Figure 1: Hwang and Fellow's Participatory Design Theory (Hwang & Fellow, 2009-2012).....	1
Figure 2: Collaborative System Model (Drain & Sanders, 2019).....	3
Figure 3: Waxman's Place Attachment Theory (Waxman, 2022, as cited in Scannell and Gifford, 2010. Drawing by Sarah Rifqi).	4
Figure 4: Kamoli Kafe Butik in San Juan, Puerto Rico.	6
Figure 5: Waxman's Assessment of Personal Space (Waxman, 2022, as cited in Hall, 1966. Drawing by Sarah Rifqi).	7
Figure 6: Bohemia Art Café in Khobar, Saudi Arabia (Waxman, 2022. Photo by Amjad Alfawaz).	8
Figure 7: Caffè Beano in Calgary, Alberta, Canada (Waxman, 2022. Photo by Jacqui McFarland).	9
Figure 8: Waxman's 'Third Place' Pyramid (Waxman, 2022, as cited in Peeters, 2017. Drawing by Sarah Rifqi). ...	11
Figure 9: Café Cola'o in Old San Juan, Puerto Rico.	13
Figure 10: Outdoor stage at Taller Comunidad La Goyco.....	15
Figure 11: Potential placement of an elevator at Teatro en 15 by building manager Pascual Febus Pica.....	16
Figure 12: Empty café space at Teatro en 15.....	20
Figure 13: Design Process Organization of Hwang and Fellow's (2009-2012) Participatory Design Theory.	21
Figure 14: Participatory Design Process as an iterative cycle.	22
Figure 15: Director Morales showing the rooftop space.....	24
Figure 16: Set up of Café Bulletin Activity.	26
Figure 17: Empty rooftop space at Teatro en 15.....	27
Figure 18: Collaborative design of Sala Siete.....	28
Figure 19: The team created a new iterative participatory design cycle.....	31
Figure 20: Design Process Organization of Hwang and Fellow's (2009-2012) Participatory Design Theory.....	32
Figure 21: Hwang and Fellow's Theory of Participatory Design adjusted to emphasize key elements.....	33
Figure 22: Pascual Febus Pica's café service counter drawing.	36
Figure 23: Pascual Febus Pica's rooftop drawing.	37
Figure 24: Cuatro Sombras in Old San Juan, Puerto Rico.	38
Figure 25: Teatro en 15 ushers brainstorming the café menu.	40
Figure 26: Set up of Café Bulletin Activity.	41
Figure 27: Cafe Bulletin Activity.	41
Figure 28: The discussion of different ideas from the Cafe Bulletin Activity.....	41
Figure 29: The discussion of different ideas from the Cafe Drawing Activity.....	42
Figure 30: An usher sketching their ideas for the café.....	43
Figure 31: Teatro en 15 ushers presenting their vision to the group.....	44
Figure 32: The discussion of different ideas from the Rooftop Visualization Activity.....	45
Figure 33: Updated 'third place' pyramid (Waxman, 2022, as cited in Peeters, 2017. Drawing by Sarah Rifqi).....	46
Figure 34: Pages from the 'Concept to Creation: A Designer's Guide.'	49
Figure 35: Sample pages from the Cafe & Rooftop Inspiration Book.....	50
Figure 36: Collage of Teatro en 15 community members who participated in the collaborative design.	53
Figure 37: Engineering considerations from Designer's Guide.	54

Table of Tables

Table 1: Classification of key Teatro en 15 stakeholders and their priority.	17
Table 2: Project Objectives.	19
Table 3: Updated classification of key stakeholders and showing their creative histories and perspectives.	35



Setting the Scene: The Background

Setting the Scene: The Background

San Juan, Puerto Rico has a rich history and vibrant culture expressed through art, literature, and theater. Theater in Puerto Rico appeared as early as the *areyto*, a ceremony performed by the island's Taino inhabitants pre-Spanish conquest. These performances involved elements still seen in modern theater such as costumes, make-up, music, and more (Orlandi, 2010). Local theaters, such as *Teatro en 15*, allow San Juan's actors to perform their craft and celebrate Puerto Rican theater while audiences embrace the stories of Puerto Rico and support the island's artists. Expanding *Teatro en 15* to include rooftop amenities can help the Teatro expand its artistic impact in San Juan.

This chapter examines various stakeholders involved with *Teatro en 15*, along with participatory design methods and considerations for various cultural, artistic, and social spaces. Participatory design theory is examined to show how stakeholders can be involved in a community-oriented design process.

Participatory Design

Participatory design processes involve various stakeholders in the creation of designs that address a range of needs, interests, and goals. Participatory design is “a constellation of design initiatives aiming at the construction of socio-material assemblies for and with the participants of the project [and] where social innovation can take place” (Manzini & Rizzo, 2011). Both the designers and the community members play meaningful roles in the co-designing processes.



Figure 1: Hwang and Fellow's Participatory Design Theory (Hwang & Fellow, 2009-2012).

Hwang and Fellow's Participatory Design Theory showcases a community-driven design process (Figure 1). All phases of the design move through, and are approved by, the community. Hwang and Fellow note that the client in a participatory design process is not only the person who contracts the project; the client label expands to include stakeholders, residents of the community, staff, and others impacted by the design (Hwang & Fellow, 2009-2012). Hwang and Fellow's design process consists of holding workshops to ensure that all parts of the design move through the stakeholder groups. Facilitators design these workshops with the goal of passing each design step through the community. The results of a participatory design process include effective design functions and community acceptance (Hwang & Fellow, 2009-2012).

As Manzini and Rizzo (2011) highlight, participatory design can be performed for both local and framework projects. 'Local' projects are groups of related small projects which are broadcast further by more large-scale projects called 'framework' projects (Manzini & Rizzo, 2011). The goal of both local and framework projects is to promote the community's active participation in the design process. The "planning by project" strategy uses both project styles which successfully results in large-scale transformation processes (Manzini & Rizzo, 2011).

Participatory design is characterized by several aspects. First, it involves spontaneous decision-making that embraces suggestions from the community (Luck, 2018). Expanding on this idea, Luck (2018) states that teams must learn to roll with the spontaneous changes for which participants advocate instead of fighting them. Building strong relationships with the community and prioritizing their needs through conversation is essential (Rodgers, 2015). The Collaboration System Model (Drain & Sanders, 2019) focuses on the factors that impact the designer-community relationship and demonstrates that the collaborative design process is cyclical (Figure 2). Through participatory design workshops, designer knowledge and participant feedback are iteratively gauged to narrow in on a comprehensive design solution.

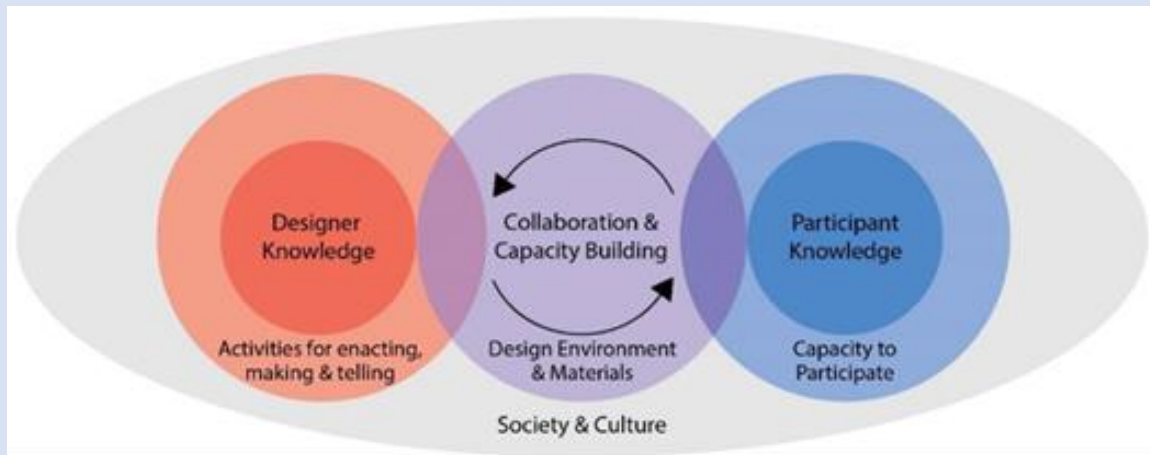


Figure 2: Collaborative System Model (Drain & Sanders, 2019).

Participatory design has benefits over other design processes and theories because it prevents the reduction of people solely to their behaviors and characteristics outside of the context of their community (Dowd, 2019). By working with the community, a team can gain well-rounded knowledge so that a design can address communal issues (Rogers, 2015).

While designers of local projects tend to work more in co-design teams, designers of framework projects primarily function as design activists (Manzini & Rizzo, 2011). This stems from the fact that designers have the choice to either work in co-design teams, which involve collaboration with future design users, or be design activists. They can opt to be either facilitators of ongoing initiatives or triggers for new initiatives. This decision lies completely in the hands of the designers.

There are various tools that participatory designers use to facilitate community collaboration. Holding workshops helps designers understand community concerns and develop strong relationships with stakeholders, augmenting the impact of and support for a design solution (Hwang & Fellow, 2009-2012). Hwang and Fellow recommend that workshops begin early in the design process and include all stakeholders. Additional design tools include ‘subjects of conversation’ and ‘tools for conversation.’ ‘Subjects of conversation’ visually depict design elements, while ‘tools for conversation’ help to facilitate social interaction. Framework projects can be large ‘tools of conversation’ that amplify a local message on a larger scale (Manzini & Rizzo, 2011).

Café Design: ‘Third Place’

‘Third places’ are public spaces that play vital roles in social interaction. *Designing Coffee Shops and Cafés for Community* by Lisa Waxman characterizes cafés as ‘third places’: “open to all where people can relax in the company of others” (Waxman, 2022, p. 4). ‘Third places’ provide a context to

develop low intensity relationships and interactions that are key to social development. Waxman states that these spaces are neutral ground where no one must play the role of host or invitee, and they serve as a leveler or an inclusive place welcoming all people (Waxman, 2022). The book details what to consider in a café design as a ‘third place’, from understanding what types of patrons a café is looking for to creating a layout and atmosphere that promotes its goals. ‘Third places’ often feature regulars and have a playful mood, becoming a “home away from home” for many (Waxman, 2022, p. 20).

Place attachment theory suggests that people form attachments to a space when they have a long and intense experience with it, and this space then takes on special meaning for that person. The presence of other people in this space is essential to forming this patron- ‘third place’ attachment (Waxman, 2022).

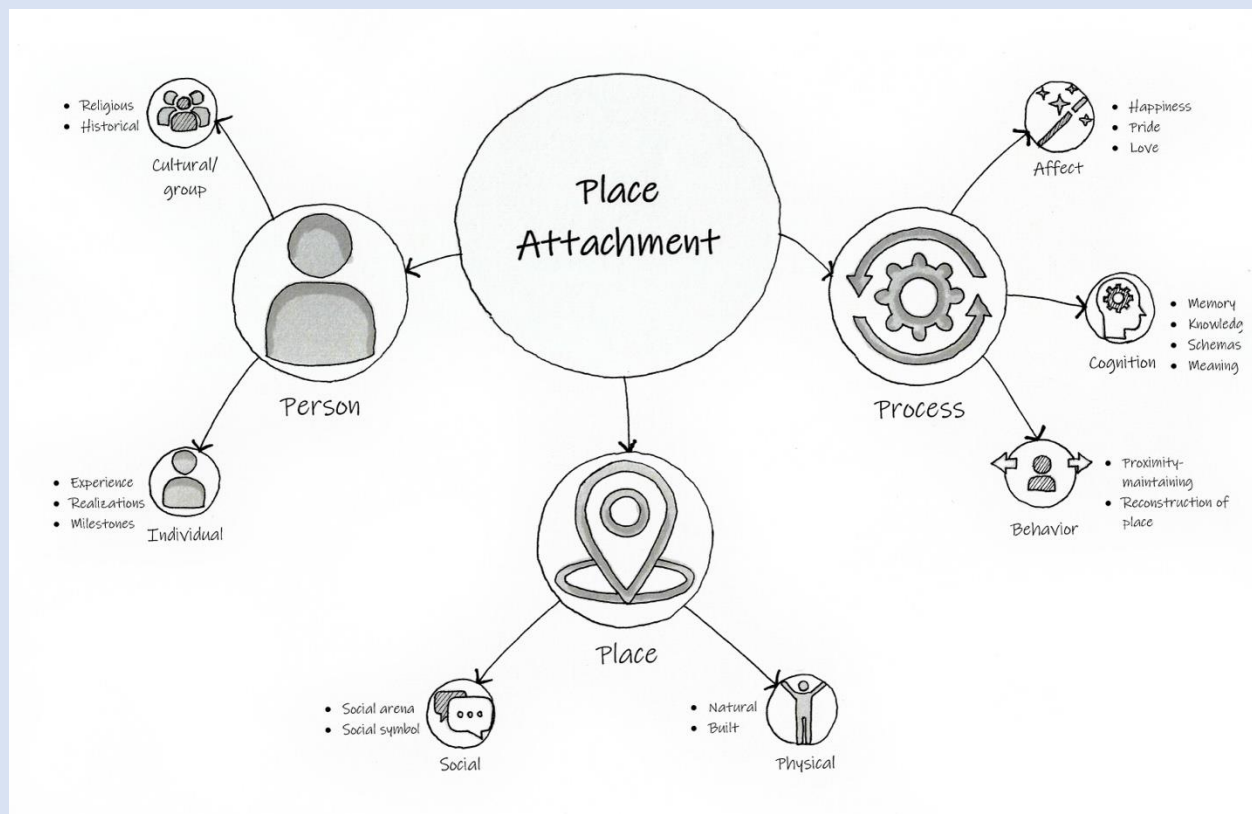


Figure 3: Waxman’s Place Attachment Theory (Waxman, 2022, as cited in Scannell and Gifford, 2010. Drawing by Sarah Rifqi).

As Waxman (2022) notes, understanding the social relations between patrons influences a café’s design. In creating a café design, one must think about the patron’s experience. When patrons have memorable encounters at ‘third places’ such as cafés, they create a connection to these spaces in

meaningful ways that reinforce their identity and encourage repeat visits (Waxman, 2022). Special events with art and entertainment can enhance a patron's experience and establish connections (Waxman, 2022).

Scoping the Design of A 'Third Place'

The first step to approaching the creation of a design of a 'third place' such as a café is determining the scope of the project ranging from equipment selection to franchising (Waxman, 2022):

Level I: Involves “no more than the selection of a major piece of equipment or replacement of a small area of the facility.”

Level II: Involves the “renovation of a significant portion of an existing foodservice facility.”

Level III: Involves the “complete renovation of an existing foodservice facility or the design and construction of a new foodservice facility.”

Level IV: Involves “the development of a chain for a franchise prototype.”

In the case of *Teatro en 15*, the classification of this 'third place' development most closely resembles Level III.

Once the scope of a project is determined, the most important consideration of a café design is that the needs of users or patrons are prioritized and met (Waxman, 2022). Patron needs can be organized by priority. The most basic need of patrons is access; they must be able to enter a space. Furthermore, the establishment must be useful, and patrons must feel safe and secure in the establishment.

Communicating with Space:

Ideally, patrons should engage with the space, and the first impression that the establishment sets is essential to patron experience. The design for a space should communicate the following questions clearly (Waxman, 2022):

- What is it?
- What benefits does it offer me?
- How do I get in?
- What is inside?
- How will I be received?

Waxman (2022) states that when a space clearly answers these questions as the patron walks through the door, they have the information necessary to have meaningful experiences there.



Figure 4: Kamoli Kafe Butik in San Juan, Puerto Rico.

Café Layout

The space planning process consists of “developing the layout of the space, including addressing the location of columns, walls, windows, interior partition, stairs, railings, and other fixed features of the space” (Waxman, 2022, p. 125). The layout of cafés is often broken into the front of house and the back of house. The front of house is “where patrons spend their time and usually includes the entry, seating areas, and in many cases, a service counter” (Waxman, 2022, 125). The back of house is “where the work takes place and consists of the preparation areas, office, receiving, refrigeration, and storage” (Waxman, 2022, p. 125). The layout of an establishment should be adaptable so that space is continuously used effectively.

The café layout must prioritize the patron experience. For example, the interior design of a café influences a patron’s view on how long their visit will be; more comfortable lounging and a greater number of tables may encourage a longer stay, while more rigid seating and less or smaller tables signal shorter stays (Waxman, 2022). Patrons also have a more positive experience when there is both enough space at a table and adequate room to move (Waxman, 2022). To anticipate the seating needs of a café or other types of ‘third places,’ operators should anticipate the fraction of patrons who will visit alone, with another person, or in larger groups (Waxman, 2022). Using buffers such as a counter or shelf in less desirable or high-traffic seating areas encourages the use of those seating spaces (Waxman, 2022). Coffee

Business has found that installing tables that are 32 inches high are most ideal for customers, along with accessible seating and counters (Coffee Business, 2019).

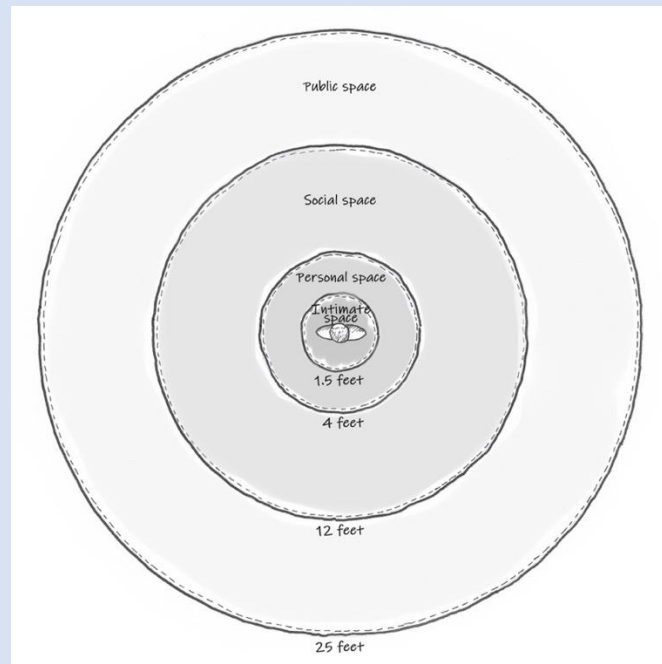


Figure 5: Waxman's Assessment of Personal Space (Waxman, 2022, as cited in Hall, 1966. Drawing by Sarah Rifqi).

In customer areas, traffic management is essential. According to Simms (2018), the three areas where back-up can be expected in customer flow are the register, the pick-up area at the bar, and the condiments station. When determining where to place a register, it is important that customers have enough space to form a line without interfering with other areas of traffic. There should also be enough space between the register and pick-up station, so customers do not get confused by other people in the café. The condiments station should be out of the flow of traffic and provide enough space for multiple customers to attain what they need. Ideally, it would be placed on the side of the main bar or near the front door (Simms, 2018).

A café floor plan should optimize the employee workstation and provide employees with enough space to work efficiently. Simms (2018) states that ensuring that a barista has everything needed at their station available within a 360-degree rotation is critical. The key element in a coffee shop is the espresso machine; all other equipment should be designed around this. A small fridge, sink, and espresso grinders are also essential.

A universal design approach focuses on creating a café that prioritizes creating meaningful experiences with patrons. Universal design “describes spaces that seamlessly work for everyone and

allow patrons to use the building on their own” (Waxman, 2022, p. 134). Standards set by laws such as the Americans with Disabilities Act should be the minimum work done to promote universal design. A café where access is incorporated seamlessly into the design upholds universal design and most effectively welcomes everyone (Waxman, 2022).



Figure 6: Bohemia Art Café in Khobar, Saudi Arabia (Waxman, 2022. Photo by Amjad Alfawaz).

Café Aesthetics: Lighting and Ambience

The atmosphere of a café should be welcoming and inviting. Lighting is an integral part of setting the ambience in a cafe. Different lighting conveys different messages. Lower, softer lighting invites a longer stay while harsher lighting may move patrons along more quickly (Waxman, 2022). Dim and ambient lighting is ideal for a café as it promotes relaxation and creates an intimate ambience (Simms, 2018). Using natural light reduces energy costs and is good for the human body; translucent elements and lighter finishes can bring natural light deeper into a café’s interior (Waxman, 2022). Artificial lighting can set the tone of the interior, allow for staff and patrons to see to complete tasks, and highlight various interior décor. This plays three roles: ambient, task, and accent lighting. (Waxman, 2022). When determining what type of lighting to use, Waxman advises that “the lighting plan should incorporate the desired lighting levels which support the needs of guests and staff while also recognizing the goals of the design concept” (Waxman, 2022, p. 143).

Lighting and color often work together to “communicate to patrons the tone and mood of an establishment in both evident and subliminal ways” (Waxman, 2022, p. 148). Shaping and preserving the element of sound is also crucial; designers must find a balance of materials that absorb and bounce sound so that the desired level of noise is achieved (Waxman, 2022). Showcasing art in a café is yet another way to create ambience that connects patrons to local culture and allows local artists to share their work (Waxman, 2022). Music sets the tone for a space; soft background music will eliminate silence and will allow for customers to comfortably converse (Waxman, 2022).



Figure 7: Caffè Beano in Calgary, Alberta, Canada (Waxman, 2022. Photo by Jacqui McFarland).

Communicating Identity Through Food and Beverage

Cafés communicate their identity through the food and beverages that they offer. As a result, “those involved in the design of an establishment’s building and interior should fully understand the business’s identity prior to developing their approach to the project” (Waxman, 2022, p. 69). The menu and products provided at the café should reflect the café's identity. The menu will also dictate the equipment needed for the coffee bar and kitchen.

Designing a Reading Space

The *Teatro en 15* rooftop space could include a library or reading space, which should be determined early in the co-design process. Spacing a library with shelves and seating creates a separate area (BluEnt, 2022). Some café libraries contain modular components, moveable walls, or side storage

bins to create a flexible and mobile space (BluEnt, 2022). Natural lighting and lounge spaces enhance a patron's experience. Traditional libraries have less natural light but are still good places to read with floor-to-ceiling bookcases (Gheorghe, 2012). Traditional libraries call for more wood, leather, and artwork to enhance the space (Gheorghe, 2012). It is recommended to implement division with curves in the bookshelves. Back lighting strips are recommended to draw interest to displayed books (Gheorghe, 2012).

Energy efficiency is essential to an island suffering from an unstable electrical grid. Using natural ventilation, effectively using the space provided, and implementing light only as required make the space energy efficient.

Participatory Design of a 'Third Place'

The participatory design process can be used to ensure that lighting, ambience, and menus are tailored to meet the needs and preferences of patrons. Involving multiple parties and taking many perspectives into consideration can lead to the creation of a compelling 'third place.' By including customers and employees in designing these elements, the space reflects their preferences.

Transforming a Rooftop Space

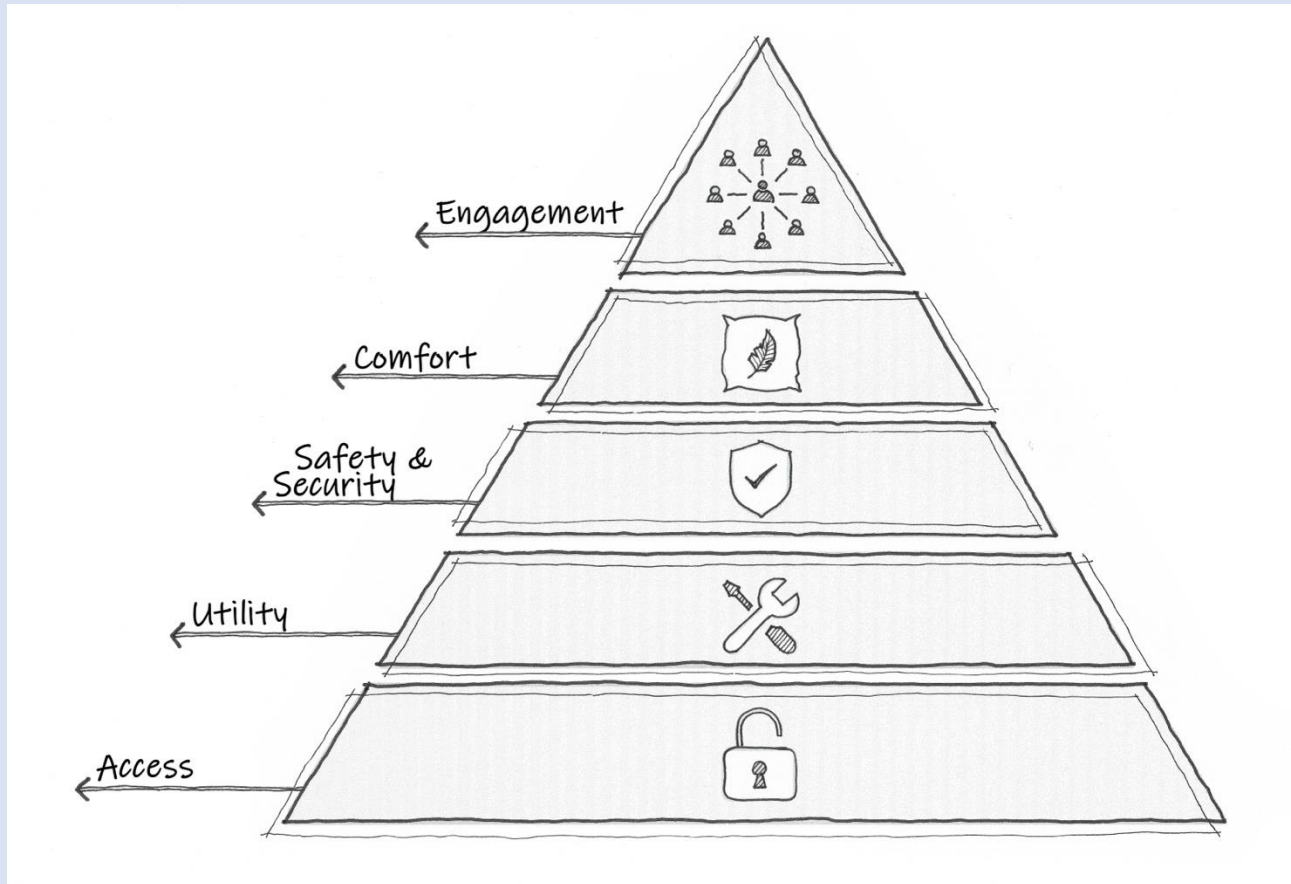


Figure 8: Waxman's 'Third Place' Pyramid (Waxman, 2022, as cited in Peeters, 2017. Drawing by Sarah Rifqi).

Creating a 'third place' café, library, and/or performance space for the roof of a building includes many elements that impact a design. Figure 8 describes the ascending patron needs that a 'third place' must address to engage patrons. In the *Trendy rooftop design in 10 steps* article in Foodservice Magazine (Levin, 2016), the author outlines the following steps to take before starting a rooftop design process:

1. Consider the view from the rooftop. If the view is enjoyable, aim to preserve it.
2. Research all building code requirements and ensure that the design is created to meet them. Consider maximum weight capacity, restrooms, mechanical, electrical, and plumbing facilities, and an elevator to meet Americans with Disabilities Act (ADA) requirements. Work with structural and architectural engineers if needed to ensure these conditions are met.

3. Analyze current rooftop conditions and HVAC needs. Will the space need an air conditioning unit or a condenser? HVAC systems are costly and can be noisy; try working around current systems in place if possible.
4. Consider overall costs and budget for the design. Rooftop spaces can be very costly, especially with add-ons such as a retractable roof or pest prevention. Consider more cost-effective solutions such as an awning or canopy.
5. Study the customer market. Knowing the customers translates into knowing what they will want out of a rooftop space, which will directly impact the design. For example, a more mature clientele may want more table service and enhanced seating, while younger customers may want an informal, casual space. Also develop the menu and the nature of drink service at this stage.
6. Consider the kitchen and storage needs of a rooftop cafe. A rooftop café typically needs a three-compartment sink to meet health requirements. Account for pantry space needs and a location to store trash until it can be brought down to a dumpster or another garbage area.
7. Consider weatherproofing. If an area has high wind speeds, heavier furniture should be chosen or furniture should be nailed down. Additional furniture storage may be needed; choosing furniture with wheels may help. Consider purchasing a tarp or more permanent enclosure to cover the furniture.
8. Consider the aesthetics of the space. Should landscaping be included? If so, this calls for watering and other structures to support plant life. Aesthetically pleasing glass screens to protect customers from wind can also be incorporated.
9. Manage additional staffing and operational needs. In creating a new space, additional staff may need to be hired to manage the space. Consider how much it will cost to hire additional staff if necessary and reflect these costs in the budget.

Designing a Rooftop Garden

Rooftop and Terrace Gardens by Caroline Tilston (2008) provides details of the rooftop design process tailored to a rooftop garden. Consulting a structural or architectural engineer ensures that a rooftop is structurally sound. Building regulations and aspects such as safety, waterproofing, and weight support should be considered before proceeding. Rooftop walls must pass local standards, safely protect people on the rooftop, and potentially block wind.



Figure 9: Café Cola'o in Old San Juan, Puerto Rico.

The location for this design is Puerto Rico, an island reeling with the impacts of hurricanes (U.S. Government Accountability Office, 2022). Extreme weather events mean that any design must be hurricane ready. Concerns such as load bearing areas, indoor and outdoor storage, and water runoff should be addressed to ensure that the necessary conditions are met (Tilston, 2008).

Tilston (2008) also recommends that designers ask:

- ◇ Does the roof have any uneven surfaces?
- ◇ How much sunlight does the roof receive?
- ◇ During what part of the day does the roof receive this sunlight?

Drawing out a plan on paper can be useful at this step to note of outbuildings, roof access points, power sources, where electricity and water are needed, and general rooftop conditions that are considered good or bad (Tilston, 2008).

According to Tilston (2008), once these technical aspects are accounted for, consider the stylistic elements of designing a rooftop space. Designers should choose a theme for the space and apply it in light touches to avoid an overwhelming design (Tilston, 2008). From there, make the decision if the outdoor

design should fit with the interior or stand out. There are several methods to link indoor and outdoor space. Using similar materials will create the same style, although weatherproof materials must be used for outdoor spaces. Colors and patterns of interior space can also be continued into the outdoor space; this generally applies for all décor elements. Dividing the outdoor space as necessary can also be a strategy to create a cohesive indoor-outdoor space (Tilston, 2008).

Outdoor Theater and Stage Design

Cultural leaders and managers of *Teatro en 15* have suggested that the rooftop space contain an outdoor stage. Event stage design is the process of adding production elements to a presentation space to make the stage look appealing and improving the patron experience (Waida, 2021). Understanding event stage design is important to analyzing an event stage, identifying the aspects that should remain, and adapting it appropriately for an outdoor or rooftop performance area. The main components of event stage design are the lighting, audio, visual equipment, set décor, props, and furniture.

Waida (2021) suggests seven steps to designing an event stage:

1. Audience demographics. The demographic of the audience is a primary consideration (i.e., young vs old).
2. Venue. For an outdoor stage, consider spatial limitations, sound levels, noise pollution, and mechanical elements.
3. Production principles. Production principles are “the basic elements of good stage design”. The three production principles that apply to this project are simplicity, cohesion, and texture.
 - 3.1. Simplicity means that rooftop elements should not conflict with one another.
 - 3.2. Cohesion means using elements that support the overall theme of space.
 - 3.3. Texture includes “everything from textured materials to layouts that have elements in the background and foreground of the stage scene design” (Waida, 2021).
4. Layout. Create a strategic layout that maximizes seating space while also allowing audience members to flow smoothly throughout the area.
5. Lighting. Lighting sets the mood and can transform a plain area into an interactive environment full of energy.
6. Technology. Incorporate technology if appropriate.
7. Natural space. Use what is physically nearby. Effectively use natural space and incorporate it into the stage design.



Figure 10: Outdoor stage at Taller Comunidad La Goyco

Inventionland and Arch20 highlight design concepts that center around the audience's experience. Stage designers should be aware of blind spots and areas of visibility, so audience seating should not be in any of those blind spots (Inventionland, n.d.). Additionally, whether for an event stage or a more traditional theater stage, stage design should allow the audience to remain a comfortable distance from the stage (Arch20, n.d.). Theater and stage design cannot impede any emergency exits or their visibility (Chavda, n.d.).

Accessibility

A café and rooftop design must be grounded in the knowledge of accessibility regulations with the goal of allowing everyone to be able to visit the space. The rooftop must adhere to accessibility laws throughout the design process, specifically the Americans with Disabilities Act (U.S. Department of Justice Civil Rights Division, 1990). The ADA states that “in facilities where an accessible route is required to each story, an accessible route must serve rooftop levels that contain public or common use spaces or elements that are required to be accessible” (Corada, n.d.). In this project, the law would require that there be an accessible route to the rooftop theater. An accessible route is defined as “a continuous,

unobstructed path connecting all accessible elements and spaces in a building, facility, or site” (ADA Accessibility, 1998).



Figure 11: Potential placement of an elevator at Teatro en 15 by building manager Pascual Febus Pica.

Another aspect of accessibility that must be considered is emergency exits. According to the ADA (U.S. Department of Justice Civil Rights Division, 1990), emergency exit locations must be kept unobstructed throughout the participatory design process and beyond. Furthermore, if there are not any current emergency exits, any potential designs must include them.

Restrooms are also an accessibility concern, and needs must be met according to the ADA. The ADA (U.S. Department of Justice Civil Rights Division, 1990) requires that all bathrooms, both customer and employee, comply with regulations discussed by ADA Compliance Pros (ADA Compliance Pros, 2020). ADA regulations state that a toilet stall for each gender must be present. Signage must include

braille translations so that those who are visually impaired can properly enter restrooms. Grab bars of certain dimensions are also required to assist those who need them (Corada, n.d.). Proper dimensions of the toilet and sink must also be followed so that people with disabilities can use them. There also must be 60 inches of clearance of floor space so that wheelchair users can easily move around the restroom (U.S. Department of Justice Civil Rights Division, 1990).

Teatro en 15 Rooftop and Café Design Stakeholders

The design of a potential café and performance space at *Teatro en 15* involves multiple stakeholders who have different interests, perspectives, assets, and constraints in relation to the design of a rooftop space.

<i>Teatro en 15 Design Stakeholders</i>			
	Internal Stakeholder	External Stakeholder	Priority Stakeholder
Arts & Culture Director Antonio Morales Cruz	✓		✓
Building Manager Pascual Febus Pica	✓		✓
Teatro en 15 Ushers	✓		
Teatro en 15 Staff	✓		
Teatro en 15 Artists		✓	
Patrons		✓	

Table 1: Classification of key Teatro en 15 stakeholders and their priority.

A key stakeholder for this project is Antonio Morales Cruz, the Director of the Department of Arts and Culture of San Juan. The Department's mission is to provide direct support for communities that seek to empower themselves through the arts (Departamento de Arte y Cultura, 2022). Specifically, Morales Cruz is interested in creating social transformation through the arts. He envisions *Teatro en 15* as a space to make theater and other art forms accessible to as many people as possible. Another important stakeholder is Pascual Febus Pica, the *Teatro en 15* Building Manager. Febus Pica handles the

day-to-day operations at *Teatro en 15* and has close working relationships with the staff. Febus Pica has heavily contributed to the artistic design of the theater over the last two years. He has worked closely with Director Morales Cruz on preliminary drawings of a cafe and rooftop space.

Ushers are the primary *Teatro en 15* staff. The majority of *Teatro en 15*'s twelve ushers are students at the University of Puerto Rico, many of whom study arts and drama. During performances, they guide patrons to the correct rooms, check tickets, ensure that the operations run smoothly, and enhance the overall *Teatro en 15* experiences with their jovial personalities. The ushers are very invested in the success of the theater, which, along with their artistic background, makes them valuable participants in the co-design of Sala Siete.

Other *Teatro en 15* staff members include Charlene Nazario (Administrator), Marta Gonzalez (a chef and cart owner who sells food and drink during performances), and staff who work with set design. This stakeholder group is not as involved in the design process. Nevertheless, each member of this group contributes to a patron's experience at *Teatro en 15*.

Teatro en 15 artists and performers rotate monthly. These artists include actors, producers, and set designers. While these artists are similar to the demographic that the cafe rooftop space aims to attract, they are not essential to the daily operations of the theater.

Local patrons pay to see productions and financially support the theater. Any design of the rooftop area aims to attract new patrons to *Teatro en 15*. Patrons include new and returning customers of *Teatro en 15*.

Project Goal

The primary objective of this project is to assist Director Morales in honoring Puerto Rican art and culture through the participatory design of a rooftop café and performance space at *Teatro en 15*. This



The Script: Crafting the Methodology

Mission Statement

This project aids San Juan’s Arts and Culture Director Antonio Morales in celebrating Puerto Rican culture through the arts by adding a rooftop café and performance space to *Teatro en 15*. The team achieved this by implementing an architectural participatory design process and developing thorough CAD models of the proposed space.

Objectives

The team accomplished the following objectives:

- 1. Analyze and document existing rooftop conditions.
- 2. Develop participatory design strategies.
- 3. Implement the iterative design processes in three design workshops with stakeholders who have expertise in theater design, staging, and acting.
- 4. Encapsulate and develop resources for creative, collaborative designs.

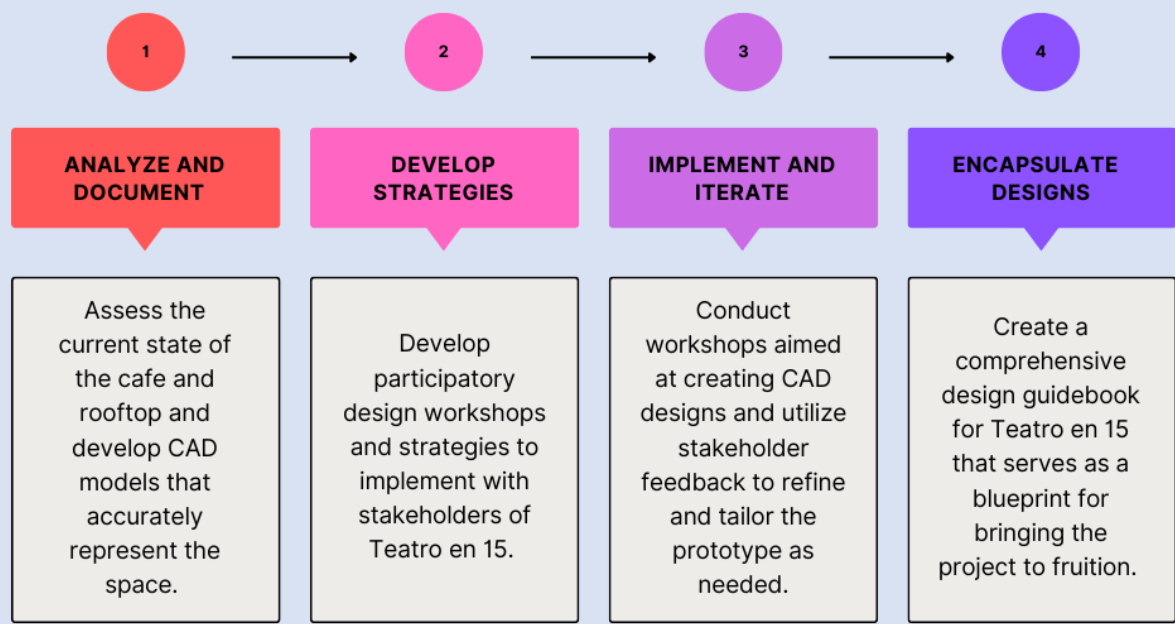


Table 2: Project Objectives.

Objective 1: Analyze and document existing rooftop conditions.

Method: Document Existing Space

The team documented the current conditions of the rooftop as a starting point in the design process. To accurately portray the current state of the rooftop and café space, the team took photographs, cross-referenced existing blueprints provided by Febus Pica, collected measurements, and made sketches to create a comprehensive 3D CAD model. Team members measured walls, doorways, and other mechanical elements in the café and roof.

Method: Create CAD models

Documenting the space was vital in creating an accurate CAD model of the café and in understanding space parameters and constraints. Once the base CAD model was made using these documentations, the team added café and other design elements to the base model. This was an important first step and gave a concrete starting point for the team. The shape and dimensions of the space had a large effect on the design elements within the café as the team chose elements which comfortably fit within the space.

This data was then translated into a large to-scale drawing. The team used SketchUp to craft a base CAD model of the rooftop and café space.



Figure 12: Empty café space at Teatro en 15.

Objective 2: Develop participatory design strategies.

The various stakeholders at *Teatro en 15* represented a range of opinions, expertise, and backgrounds, along with varying levels of closeness to the design. As a result, the team created strategies catered to each stakeholder group that allowed them to be appropriately and effectively involved in the creation of the designs.

Method: Develop Facilitator Skills

The team implemented various aspects of the participatory design processes. With all stakeholders, the team implemented some aspects of Hwang and Fellow's theory of participatory design. In this theory, many aspects such as conceptual design and design development involve participant stakeholders. This theory was loosely implemented because some stakeholders, such as Director Morales and building manager Pascual Febus Pica, were more involved in each step of the design process than others. Hwang and Fellow's theory incorporates workshops to facilitate participation, which were used with stakeholders relatively close to the design such as the *Teatro en 15* ushers (Hwang & Fellow, 2009-2012).



Figure 13: Design Process Organization of Hwang and Fellow's (2009-2012) Participatory Design Theory.

The team also implemented many aspects of Manzini and Rizzo's Theory of Participatory Design in the team's interactions with different stakeholders and community members. The team functioned as a facilitator of designs by initiating the design process and creating a CAD model (Manzini and Rizzo, 2011). The team did not act as co-designers with stakeholders because none of the team's input was incorporated into the design; rather, the team facilitated the discussion of what stakeholders wanted in the design and then incorporated those qualities into the design.

Method: Create Participatory Design Strategies

The participatory design process is a three-phase cycle adapted from Hwang and Manzini that repeated itself as designs developed.

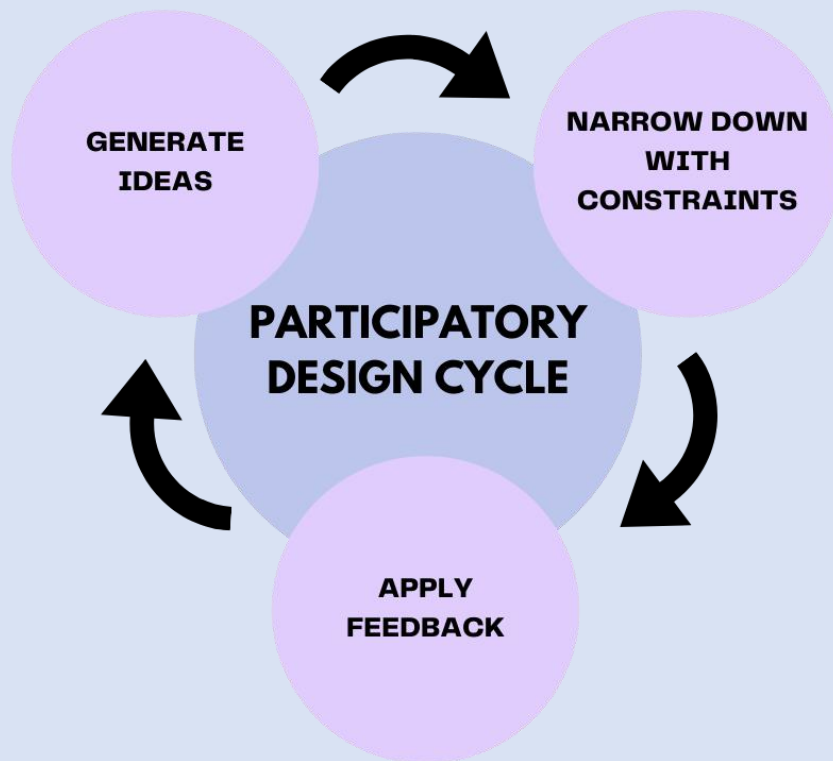


Figure 14: Participatory Design Process as an iterative cycle.

The first phase of the iterative participatory design cycle that the team implemented was to generate ideas for the design. This phase consisted of implementing the strategies developed below to gather input from stakeholders. For example, during workshops with the *Teatro en 15* ushers, the team received the ushers' ideas on different aspects of the café and rooftop.

The second phase of the design cycle was to narrow down the ideas generated from stakeholders to be realistic and plausible for the space. The primary way that the design ideas were constrained was by the physical size of the space. Once the team measured the dimensions of the space, it became clear that certain elements would have to be prioritized in the café due to its relatively limited size. Knowing the spatial availability of the space helped the team prioritize certain design elements over others and ensured that the plethora of ideas did not create a cramped space.

The third phase of the design cycle was to receive and apply feedback. The team presented the model with design ideas integrated to key stakeholders such as Director Morales and Febus Pica. These stakeholders commented on what elements they liked and what should be changed. The team also presented the model to several ushers in the last workshop where they gave the team valuable feedback on elements such as seating and art integration. With this feedback given, the team restarted the design cycle by implementing the feedback into the design and using this feedback to prompt new ideas from stakeholders.

Participatory Design Strategies

The team incorporated the following participatory design strategies in the design process:

1. Conducted semi-structured interviews with stakeholders. The team interviewed various stakeholders to learn what each stakeholder wants from the design and to co-develop designs with these stakeholders.
2. Conducted regular feedback meetings.

Method: Stakeholder Interviews

Interviewing key stakeholders and *Teatro en 15* community members gave the team important insights that aided in developing participatory design strategies. The team interviewed various stakeholders to not only receive their input on the design, but also to consult them on the design process that the team planned (Appendix A contains stakeholder interview questions). The team interviewed stakeholders closest to the design such as Director Morales, Pascual Febus Pica, Marta Gonzalez, and Charlene Nazario. These interviews were both formal and informal, as the team worked closely with some of these stakeholders and began having more informal conversations with them. This allowed the team to properly format workshops to involve the *Teatro en 15* ushers, who were key in running *Teatro en 15*.



Figure 15: Director Morales showing the rooftop space.

Director Morales served as the project liaison and therefore was heavily involved in the design process. He works closely with *Teatro en 15* and is experienced in Puerto Rican theater. As someone heavily invested in the success of *Teatro en 15*, working with him throughout the design process was vital to creating a design that furthers the goals of *Teatro en 15*. While he has various roles as Director other than *Teatro en 15* and was not there every day, he was an asset to the team. The team conducted a key informant interview with Director Morales before arriving in Puerto Rico. Since, the team has conducted bi-weekly meeting to keep Director Morales informed of the design's progress.

The team also conducted an interview with building manager Pascual Febus Pica. He showed the team his various design sketches which were integral to the jumpstart of the design. He also shared

information about the usher's schedule so the team could plan workshops. The team had additional conversations with Febus Pica to discuss designs for Sala Siete.

The team interviewed Marta Gonzalez, who runs a cart selling pastries, empanadas, and beverages in the patio space during performances. As a small merchant, Gonzalez has many insights on creating a small business model.

The team interviewed Charlene Nazario, who is the Administrator of *Teatro en 15*. Nazario has a unique perspective as she had attended yoga classes on the rooftop in the past. She previously worked at The Museo de San Juan, a position which gave her a more logical perspective. The CAD models were presented, and the team gathered her input on what she liked and what she would change about the design.

Objective 3: Implement the iterative design process.

The team implemented three participatory design workshops. Preliminary designs were created incorporating key elements to ensure that the design was well-rounded. The elements considered were the café, rooftop seating area, outdoor stage, accessibility, and ambience. The designs addressed each element's needs to develop a cohesive rooftop design. The team prioritized the visions of stakeholders Director Morales, Febus Pica, and the *Teatro en 15* ushers.

The Process:

Below is a list of the ways that the team implemented the participatory design process:

- 1) Hosted workshops with stakeholders. The team incorporated the ushers into the design process through three workshops held on the currently empty third floor of *Teatro en 15*, where the design will be created.
- 2) Created preliminary CAD designs and resources for creative, collaborative designs to prompt design ideas from stakeholders throughout the participatory design cycle.



Figure 16: Set up of Café Bulletin Activity.

Method: Develop and Run Café Bulletin Activity

The first workshop was the Café Bulletin Activity. The icebreaker used was a name game; each person preceded their name with an animal starting with the same letter as their name, and then each person had to repeat all the previous animal-name combinations. This helped the team learn the ushers' names and showed that the ushers were very lively and conversational with each other. The icebreaker therefore set the atmosphere of the workshop before moving into the main activity.

The activity consisted of two phases. First, the ushers gathered in a circle and brainstormed overall key topics that make up a cafe experience, such as ambience. Then, each of these topics was written on a poster and put up on the wall, and the ushers wrote on each poster what they envision for the café in terms of that topic. The activity ended with the ushers reconvening and having a passionate discussion over the various elements written on the posters (Appendix B contains Cafe Bulletin Activity formal plan).

Method: Develop and Run Café Drawing Activity

The second workshop was the Café Drawing Activity. The goal of this workshop was for the ushers to take the ideas discussed in the Café Bulletin Activity and bring them to life through a visualization. The team opened the workshop with an icebreaker which was a game of Telephone but adapted to a drawing version. This warmed up the ushers' drawing abilities for the activity where they were split into teams. Each team drew on posters what they envisioned for the café and then presented their design to the group. At the end, Febus Pica chose the best design (Appendix C contains Café Drawing Activity formal plan).



Figure 17: Empty rooftop space at Teatro en 15.

Method: Develop and Run Rooftop Visualization Activity

The final workshop was the Rooftop Visualization Activity, where the rooftop was the central focus as the team combined the previous activities. The objective of the workshop was to translate the team's ideas for the exterior of Sala Siete into visual representations. To kick off the session, the team began with a blindfolded drawing exercise of the *Teatro en 15* logo, which served as a fun and engaging warm-up for the ushers. This was followed by a brainstorming session where the group identified the

essential elements that would make the exterior a success. Next, the ushers were tasked with creating their vision for the rooftop, and their ideas were captured on posters. In a lively and interactive presentation, each person shared their drawings, and their peers provided feedback on how they could improve their designs through the addition of sticky notes (Appendix D contains Rooftop Visualization Activity formal plan).

Create CAD Designs

Using the information the team gathered from participatory design workshops, we created design options for the café and rooftop space. To guarantee that the design fully captured the collective vision of all stakeholders, the team adopted an iterative design approach. The CAD model was shared with the stakeholders throughout the design process. During weekly meetings with Director Morales and Febus Pica, the design team went over changes that have been made and specified new features that were added to the design. The team carefully considered and incorporated their feedback to refine and enhance the café and rooftop design.

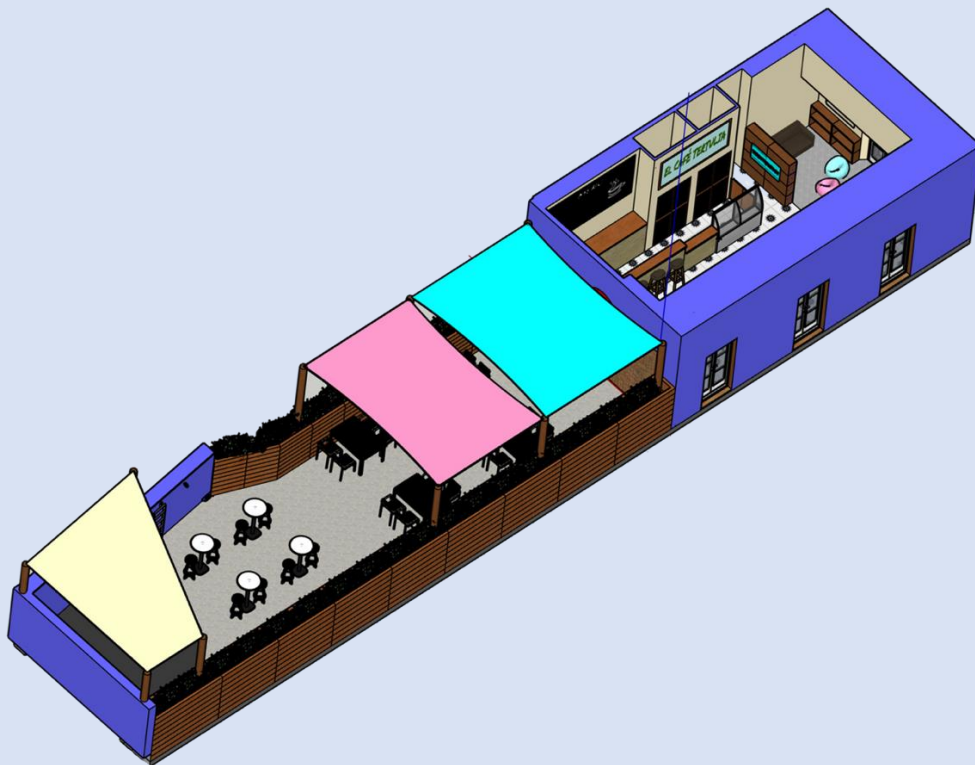


Figure 18: Collaborative design of Sala Siete.

Method: Designing the Inspiration Book

The team created the “Café and Rooftop Inspiration Book” that featured captivating images from a diverse range of cafes in Puerto Rico, as well as relevant books and websites. This book served as a rich source of inspiration and helped guide the patrons' creativity. By involving key stakeholders, the team was able to foster a sense of ownership and excitement around the rooftop space, which ultimately contributed to its success.

Objective 4: Encapsulate the designs and deliverables.

Once the design process was finalized, the team created resources for creative, collaborative designs to present the design. The resources for creative, collaborative designs include: “From Concept to Creation: A Designer’s Guide,” “Café and Rooftop Inspiration Book,” formal presentations, and “Sala Siete: Creative Vision Pitch Deck.” “From Concept to Creation: A Designer’s Guide” will be left with *Teatro en 15* as a formalized record of the different design options and elements that were based on stakeholder input. “Café and Rooftop Inspiration Book” is a photo book of different café elements from cafes around the world to provide *Teatro en 15* actors and patrons ideas that will get them brainstorming different design elements. The formal presentation, “Sala Siete: Creative Vision Pitch Deck,” and report will share the design and details on the participatory design process. With these resources the team hopes to have achieved the goal of the creation of a café and rooftop design that allows artists and art lovers to relax and celebrate art.



The Big Reveal: Findings

The Big Reveal: Findings

The participatory design workshops yielded substantial collaboration with the *Teatro en 15* community and resulted in numerous collaborative designs. The team worked with key stakeholders to advance the design by incorporating their ideas and visions. We prioritized implementing participatory design and collaboration with the *Teatro en 15* community through workshops and interviews. The visions that the community shared in this process directly resulted in a design with a cozy, relaxed atmosphere that incorporated Puerto Rican culture and art. The design became a space where art is celebrated, practiced, and used as a tool of connection.

Finding #1: Integrating design concepts is a vital step in the creative participatory design cycle.

We initially thought the participatory design cycle had only three steps: generate ideas, narrow down with constraints, and apply feedback. However, our experience taught us that we needed to propose an alteration to the commonly used three-step iterative participatory design process that the team had planned to use (Figure 14). The team's design process in practice resulted in the addition of a fourth step to the iterative design process (Figure 19).

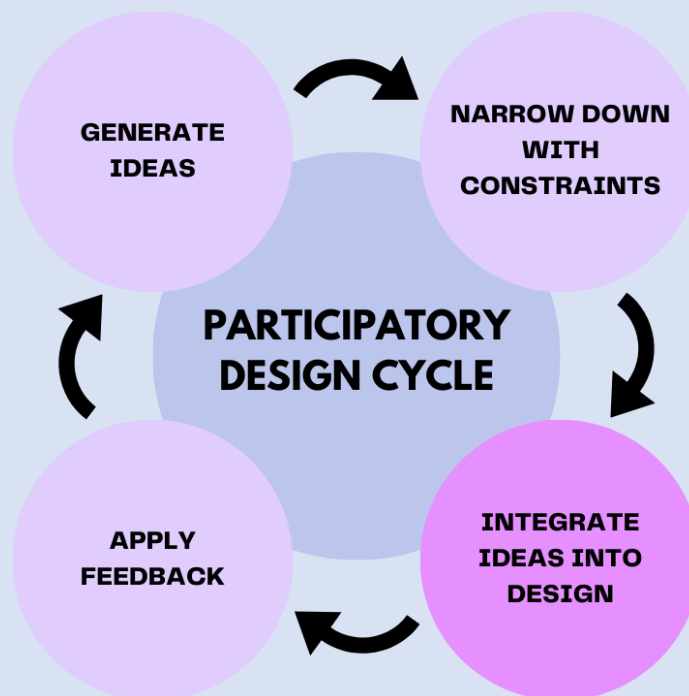


Figure 19: The team created a new iterative participatory design cycle.

The team found that a four-step cycle more accurately represented the reality of our participatory design process. The first two steps of the process, generating ideas and narrowing ideas down, were accomplished in workshops with ushers. Before the team could present the design to stakeholders and get feedback, we found it beneficial to translate design elements and ideas from the workshops into architectural renderings using a 3D CAD model. Therefore, we found it important to add the step of ‘integrating ideas into the design’ to the iterative design cycle. During workshops, participants created hand drawn sketches of the space throughout the design process. Examining other sources such as Febus Pica’s concept sketches helped the team create initial designs. As workshops progressed, analyzing and implementing key concepts were vital in developing the design.

Finding #2: Hwang and Fellow’s Theory of Participatory Design needed to be adjusted to accurately represent the team’s participatory design processes.

We also adjusted Hwang and Fellow’s Theory of Participatory Design (Hwang & Fellow, 2009-2012) by going deeper into the development and integration phase described in **Finding #1**.



Figure 20: Design Process Organization of Hwang and Fellow's (2009-2012) Participatory Design Theory.

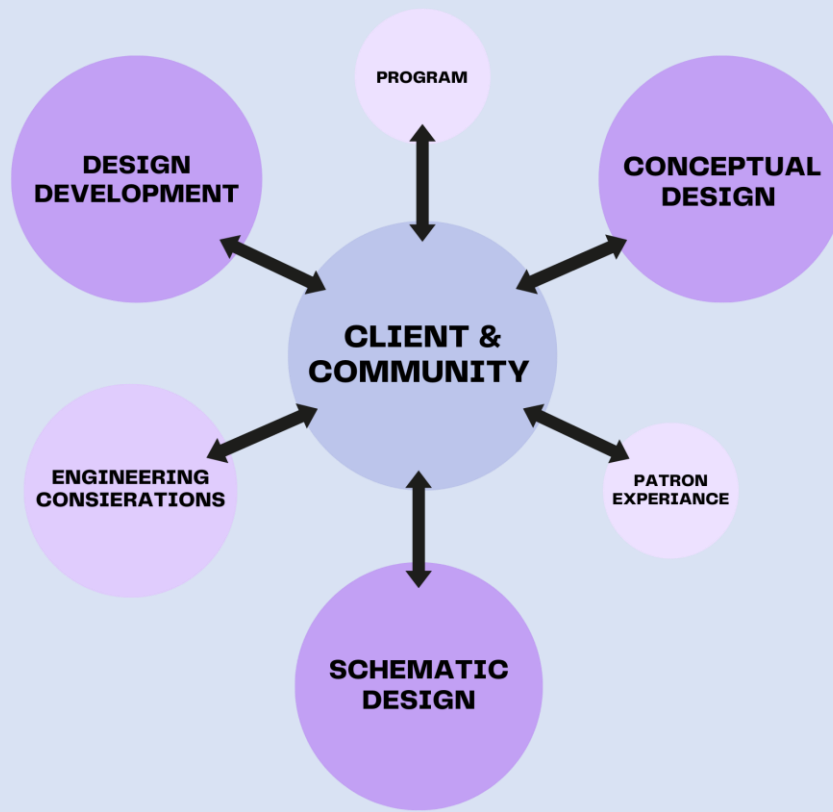


Figure 21: Hwang and Fellow's Theory of Participatory Design adjusted to emphasize key elements.

Overall, the team made three adjustments to Hwang and Fellow's model of participatory design. First, we removed the construction documents, construction, and asset management phases of the design process due to time constraints and the scope of this project. During the team's seven-week project period, we led workshops and created a prototype design for the space but did not implement or construct the design.

The second adjustment prioritized phases of conceptual design, schematic design, and design development over others. The team emphasized developing stakeholder ideas through workshops and integrating them into the design. As a result, the design phases focused on this while the considerations for design implementation is left for the theater and appropriate government officials.

Our third adjustment to Hwang and Fellow's (2009-2012) model of participatory design challenged its definition. Hwang and Fellow's theory states that *all phases* of the design process move through each key stakeholder. For this project, different key stakeholders participated in design phases; not all stakeholders were directly involved in each design phase. For example, Director Morales was not

present at design workshops with the ushers, and the ushers were not present at key informant interviews with Director Morales, Febus Pica, Charlene Nazario, and Marta Gonzalez.

Finding #3: Manzini and Rizzo's Theory of Participatory Design defined our role as facilitators rather than co-designers.

The team followed Manzini and Rizzo's (2011) Participatory Design Theory as it applied to our role as facilitators. Workshops were the primary way that the team prompted ushers to consider and discuss different design elements. Manzini and Rizzo's (2011) theory states that teams must choose whether they should function as co-designers or as facilitators. Our team functioned as facilitators by workshopping design ideas with stakeholders while design elements were developed by the *Teatro en 15* community. The team also facilitated design development by connecting different key stakeholders. For example, by hosting workshops with the theater's ushers, the team shared Director Morales's and Febus Pica's initial vision with the ushers. While the team physically created the design in a 3D CAD model, the team had no part in influencing the ideas or elements that were included in this design.

Finding #4: Personal and creative histories of participants influence and drive designs.

Because of the nature of *Teatro en 15*, all the project's key stakeholders are creative people yet in different ways, and each stakeholder brings unique ideas and perspectives to the design of a 'third place' café and rooftop performance space. This resulted in versatile design development. Stakeholders' visions for Sala Siete were informed by their creative histories and perspectives.

The Creative Perspectives of Teatro en 15 Stakeholders

	Street Theatre	Formal Theatre Training	Sketch Artist	Administrative Position	Design Knowledge
Arts & Culture Director Antonio Morales Cruz	✓	✓		✓	✓
Building Manager Pascual Febus Pica			✓		✓
Teatro en 15 Ushers		✓			✓
Administrator Charlene Nazario				✓	✓
Chef Martha Gonzalez					✓

Table 3: Updated classification of key stakeholders and showing their creative histories and perspectives.

Director Antonio Morales Cruz: A Lifetime Dedicated to Art and Drama

The arts and culture director Antonio Morales Cruz grew up in a low-income neighborhood, and the struggles he faced led him to theater. He credits theater for providing him with an outlet to celebrate himself and art. This has given Director Morales a deep affection for the dramatic arts. While he loved acting, he eventually transitioned into a management role due to his desire to expand theater in Puerto Rico. Director Morales was inspired to create *Teatro en 15* and further provide opportunities for artistic learning. His goals led him to the position of the Director of the Department of Arts and Culture of San Juan, a governmental role that allows him to inspire artistic growth throughout the city. Director Morales had ideas for the café and rooftop design that accomplishes his goal of promoting the creation of art among artists and art-lovers. He sees Sala Siete as “an artist’s safe haven where artists can create and celebrate art”. Director Morales envisioned this space with a cozy, relaxed atmosphere that would be conducive to creative thinking. Director Morales brings a theatrically creative element to the table, strengthened by his experiences working with the arts. He also has a logistical influence to his creativity due to his position in the government.

Building Manager Pascual Febus Pica: Bringing Life to *Teatro en 15* Daily

Teatro en 15's Building Manager, Pascual Febus Pica, is vital to the daily operations of the theater, and he is personally invested in the success of the theater and its community. Febus Pica saw the potential that the empty third floor held to further the goals of *Teatro en 15*. While Febus Pica agreed on most of Director Morales's ideas such as the implementation of natural ventilation and an outdoor stage on the rooftop, Febus Pica brought his own visions to the team such as naming the interior Café Tertulia (coffee gathering). He further communicated his vision for the space through conceptual design sketches shown in Figure 22 and Figure 23. Febus Pica offers creativity to design through visually artistic methods. As a result, his sketches provided the team with a baseline to begin expanding the design and inspired further design development.



Figure 22: Pascual Febus Pica's café service counter drawing.



Figure 23: Pascual Febus Pica's rooftop drawing.

Marta Gonzalez: Catering the Patio

Marta Gonzalez runs a food and beverage kiosk in the first-floor patio space during performance nights at *Teatro en 15*. She interacts with patrons in the central patio; as a result, she has deep insight into patron behaviors and has a grounded idea of what kinds of food and drink patrons desire. Her extensive background in cooking informed the design of a potential café and possible menu items. Gonzalez's creativity is expressed through cuisine and interaction with patrons.

Gonzalez provided valuable insights into small business operations, including her ideas for the café space. One concept was to install a "micrococina," a small kitchenette designed for limited space that typically includes essential appliances like a mini fridge, a microwave, and a sink, but may not have a full-sized stove or oven. This information helped the team determine the appropriate amount of space needed for a café bar.

In addition to discussing the practical aspects of a café, Gonzalez also shared her aesthetic vision for the space. She suggested an open layout with soft, warm colors and plenty of greenery. To achieve a

flexible and easily updatable menu, Gonzalez recommended the use of a chalkboard menu that could be erased and redesigned to feature rotating specials and seasonal changes.



Figure 24: Cuatro Sombras in Old San Juan, Puerto Rico.

Charlene Nazario: Anchoring the Space

Charlene Nazario works as the Administrator of *Teatro en 15*. Her past work at the Museo de San Juan was an important influence in this project, and her experiences give her a technical outlook on the design. She presented a compelling vision for the rooftop, depicting it as a serene oasis in the heart of Old San Juan that offered visitors a “space to think.” The ushers proposed featuring local art on the walls during the Café Bulletin Activity. However, Nazario raised concerns about insurance liability, as she had previously worked at The Museo de San Juan and knew that loaned art needed to be kept in a secure area to prevent damage. Given the potential for heat, spills, and humidity in the interior of Sala Siete, Nazario deemed it an infeasible idea. Instead, she suggested incorporating murals, seeking donations, and holding a competition where *Teatro en 15* would purchase the best pieces.

Nazario's eco-friendly vision entailed a natural ambience with soft hues, blending modern and antique perspectives. Incorporating the original brick walls would add stylistic character to the space. Focusing the color scheme on the doors, windows, ceiling, and counter space would create a welcoming and open atmosphere in the space and would allow the walls to feature murals. Nazario recommended that the lighting design of the space should accentuate the use of colors and emphasize key features such as the service counter and stage. A focused lighting approach in these areas would create an inviting atmosphere. For the rest of the space, a combination of string lighting, lamps, and natural sunlight could be used to illuminate the area. Providing unique seating options would help differentiate the café from others in the area. Nazario suggested incorporating swings and chairs with bookshelves integrated into their legs, which would add an element of whimsy and functionality to the space.

The Ushers: Young Artists Working to Promote Theater

The *Teatro en 15* ushers are primarily college students studying the dramatic arts. They offer a young outlook on the creativeness of the design and possess an extensive understanding of the influence and incorporation of art into a space from studies in theatre and fine arts. Their experience working at *Teatro en 15* makes them a passionately inspired group that offers unobstructed and creative ideas. For example, the ushers envisioned the service window into the rooftop and the entertainment corner, two important elements of the collaborative design.

Finding #5: In the Café Bulletin Activity, ushers analyzed the elements of a 'third place' and reflected on how those should take shape in the café.

In the first workshop with *Teatro en 15* ushers, they applied Waxman's (2022) characteristics of a 'third place' to the café design. By brainstorming and debating topics such as the ambience, layout of seating, and interior décor, the ushers referenced and reinforced the elements that would allow a 'third place' to cater to the patron's experience. The ushers agreed that the menu should be simple and like typical cafes, featuring coffee, tea, hot chocolate, pastries, and other café items. They also agreed that the ambience should be set with low, warm lighting; they advised avoiding white lights. Most ushers agreed that there should be a variety of seating offered between the café and rooftop, from typical tables and chairs to bean bags. They agreed that incorporating local art would provide a way to give new, local artists exposure.



Figure 25: Teatro en 15 ushers brainstorming the café menu.

Many topics generated debate among the ushers. Ushers disagreed over whether the café space should include air conditioning or if the natural ventilation from open doors should be sufficient. Another topic that sparked debate was music, as many ushers were fans of reggaeton music such as Bad Bunny and wanted to hear that music present in the café. Others argued that the music should preserve the relaxed ambience, making quiet music such as piano would be more appropriate. Ushers were very interested in having an entertainment corner including a bookshelf with books about Puerto Rican history, board games, low tables, and bean bags. Ushers also suggested having a map of Puerto Rico where customers could pin where they are from on the island; this would be a unique and interactive way to include Puerto Rican culture in the design.



Figure 26: Set up of Café Bulletin Activity.



Figure 27: Café Bulletin Activity.

Finding #6: Teatro en 15 ushers were eager to participate in our workshops and sparked lively conversation and debate over design elements.

Many more ushers showed up to the workshop than we expected, and they were passionate and enthusiastic about participating in the creation of a café and rooftop space. The ushers were eager to discuss ideas and were intrigued and excited about the design of a potential space (Figure 28).



Figure 28: The discussion of different ideas from the Café Bulletin Activity.

Finding #7: Ushers brought their ideas on ‘third places’ to life by translating words to visuals during the Café Drawing Activity.

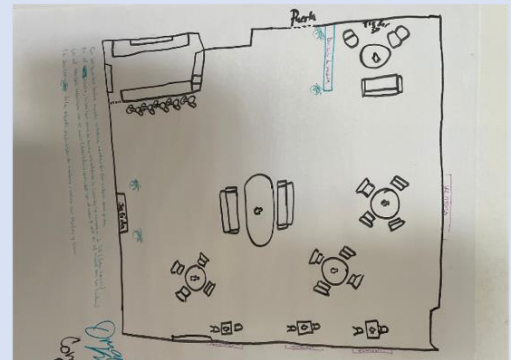
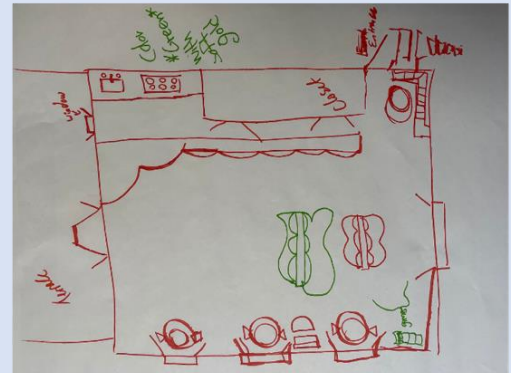
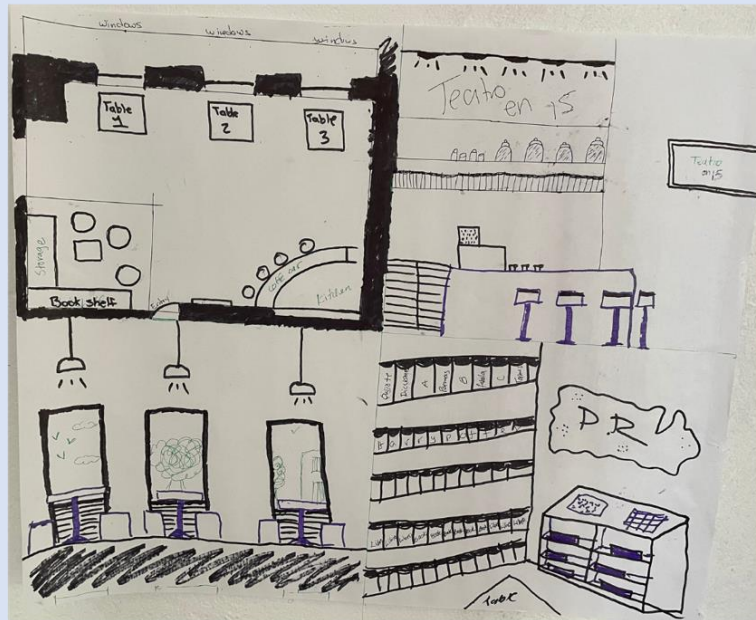


Figure 29: The discussion of different ideas from the Café Drawing Activity.

The ushers drew detailed drawings of their visions which prompted valuable conversation and solidified what design elements should be present. They built on the ideas and topics they discussed in the Café Bulletin Workshop and brought them to life through visualizations.

All the drawings incorporated the entertainment corner, mentioned in the first workshop. Elements of the entertainment corner were somewhat different, such as its layout, but mostly the space remained consistent across the drawings. While the service counter was different for each drawing, it resided in the same corner. All three drawings also had one table in front of each of the three open doors, which was another element incorporated into the design. The overall layout of the space for each drawing was relatively the same.



Figure 30: An usher sketching their ideas for the café.

While there were common elements, each drawing brought something different to the space. One team drew the service counter extending in front of the closet space, which was not previously considered but was implemented in the final design to provide more counterspace for workers. Another drawing, as mentioned, had a rounded service counter instead of a straight one. Some drawings had more seating in the café than others, and the type of seating varied among each drawing. One drawing included a TV behind the service counter to show *Teatro en 15* trailers. Another drawing included art on the walls from local artists. The main points of contention were the service counter shape and length, the presence of tables in the middle of the café, and where storage spaces are located.

The discussion that took place after each team drew their vision was vital for the team to understand the drawings and where the key places of overlap were that should be incorporated into the design. One key point from the discussion was that art is a more appropriate way to celebrate Puerto Rican culture than the Puerto Rican flag. This was one cultural difference of which the team was previously unaware, so this discussion proved valuable to understanding ways to weave Puerto Rican culture into the design. Another key point was that designers should be sure not to saturate the café since it is already a small room; using colors such as those in the lobby of *Teatro en 15* would be too

overwhelming. The process of drawing their visions brought ideas to life and helped the ushers to enlighten the team, solidifying what the café design should include.



Figure 31: Teatro en 15 ushers presenting their vision to the group.

Finding #8: Ushers addressed ‘third place’ concepts for the exterior space and brought them to life through hand drawn sketches during the Rooftop Visualization Activity.

The objective of this workshop was to translate the usher’s ideas into visual representations through brainstorming and visualization exercises. The ushers carried out the same activities from the two café workshops in one. The ushers started by brainstorming key ‘third place’ characteristics for the exterior of Sala Siete and translated these ideas into drawings to communicate ideas. The team saw that it was appropriate to condense these two phases for the rooftop space into one workshop since the ushers were now familiarized with the creative thinking process. The team had also gotten to know the ushers, so there was no icebreaking activity. The outcome of this activity was a series of inspiring drawings that sparked passionate conversations and helped to refine the essential design elements for the rooftop.

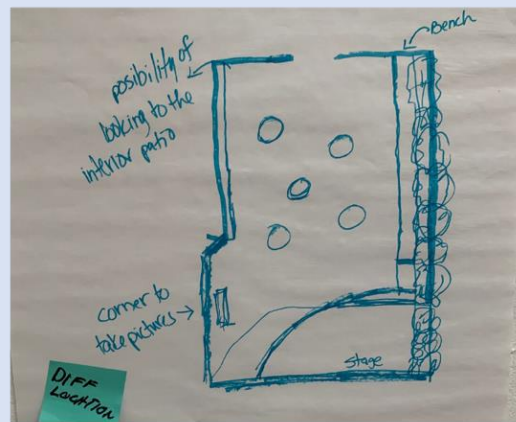
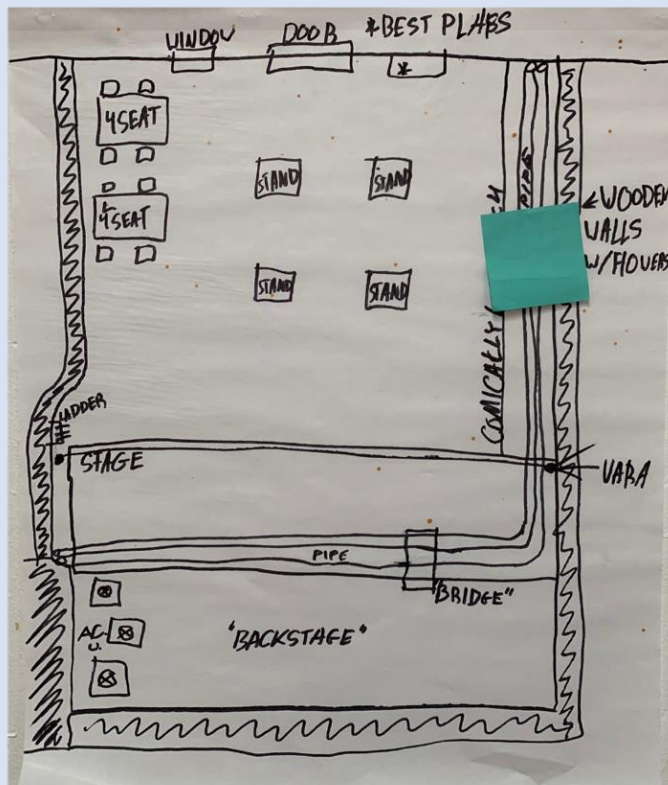


Figure 32: The discussion of different ideas from the Rooftop Visualization Activity.

Each of the drawings showcased an array of seating options, including low and high tables, as well as bench seating to ensure comfort and accessibility for all visitors. All the drawings noted the importance of adding greenery and vegetation to the space. The ushers noted that the trees were an ideal visual and noise buffer that makes the space a separate oasis. Additionally, most of the designs incorporated a photo nook where customers could capture their experiences and share them on social media. While each drawing presented a unique take on the rooftop's stage, they all shared a similar layout that emphasized flow and functionality. Ultimately, all participants shared a similar vision for the rooftop space.

Despite the shared design elements, each drawing presented a unique perspective on the rooftop space. One design showcased cozy rugs positioned in front of the stage, offering a laid-back and bohemian atmosphere that patrons could personalize to their liking. The stage designs also varied, including horizontal, rounded-off to the side, and semi-circle stages. The horizontal stage would provide

performers with an ideal setup, while the semi-circle stage would pay homage to classical theater stages and emphasize the significance of historical and cultural elements in the design. Notably, two of the designs included a separate, enclosed space behind the stage for performers to prepare and store their equipment, while the other design featured storage space beneath the stage.

Conclusion: Contributing to the Creation of the Sala Siete 'Third Place'

Our collaborative experiences with the *Teatro en 15* community addressed all the necessary components of a 'third place,' ensuring the advancement of a design for Sala Siete that meets the needs of its patrons. Below, we revisit Figure 8 so that it reflects our design process.

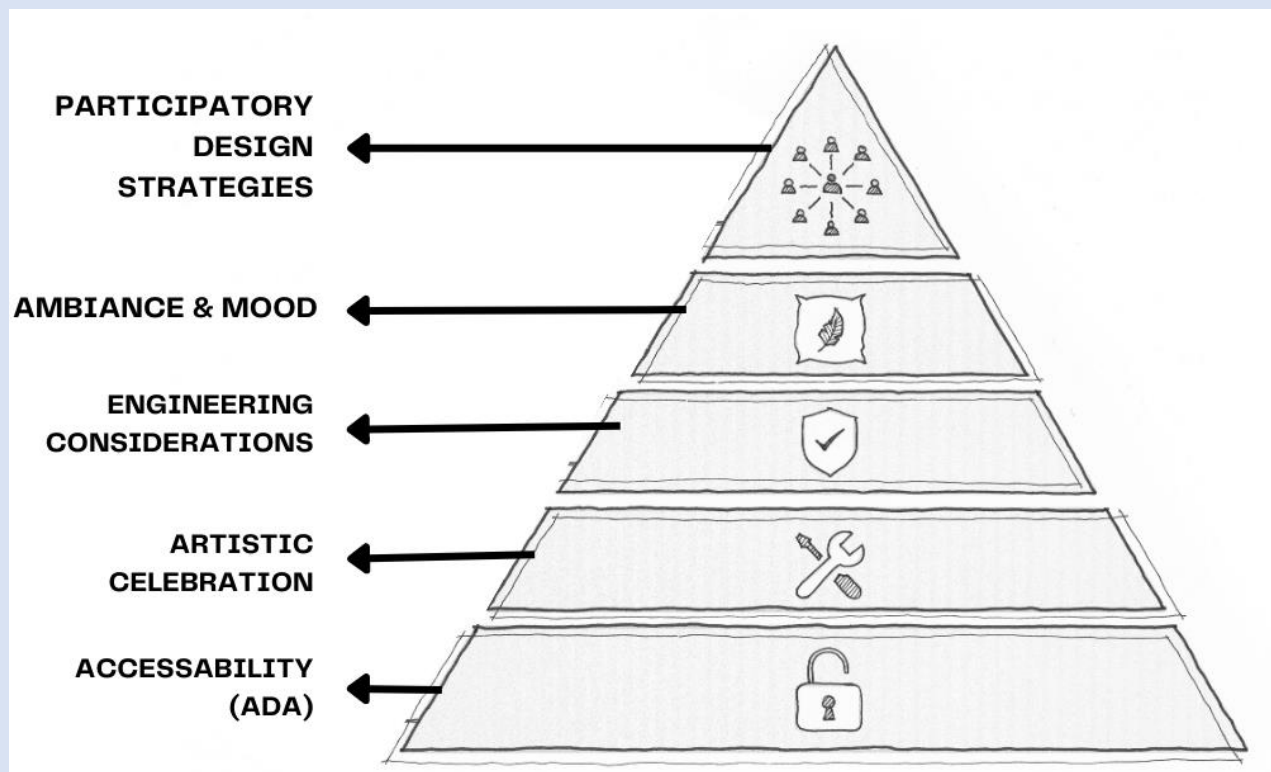


Figure 33: Updated 'third place' pyramid (Waxman, 2022, as cited in Peeters, 2017. Drawing by Sarah Rifqi).

The most basic component that must be addressed before any other for a 'third place' is accessibility. By upholding the Americans with Disabilities (ADA) Act, the Sala Siete design allows people of all physical abilities to use and enjoy the space. An elevator will allow not just access to the

space but also a clear route to restrooms on the first floor. A small ramp will allow café customers to cross into the exterior of the space.

Sala Siete's purpose of spreading passion for art and promoting connection among artists and art lovers gives the space utility. The design creates a safe haven for artists. Patrons could be attracted to Sala Siete for the food and drink offered, the cozy ambience, the performances on the rooftop stage, or all the above.

Patrons should always feel safe in a 'third place.' From providing proper protection on the rooftop to creating a welcoming and relaxed environment, the Sala Siete design has the capabilities to make all patrons feel safe if all engineering considerations are implemented.

A 'third place' should be comfortable and inviting to patrons. Sala Siete creates a warm, relaxed ambience through multiple design elements. There are choices that patrons can make to give them a sense of control, such as where to sit, what to eat or drink, and what entertainment to enjoy.

Engagement makes patrons' visits memorable by providing entertainment. Through the rooftop stage, Sala Siete could offer performances. The entertainment corner can provide patrons with a comfortable space to enjoy literature and relax.

A photograph of two young women in a creative studio. The woman on the left, with short dark hair and a tattoo on her right arm, is wearing a grey tank top and grey sweatpants. She is gesturing with her hands while talking to the other woman. The woman on the right, with long dark hair and bangs, is wearing a grey crop top and grey sweatpants. She is looking down at something in her hands. The background is a white wall with some papers pinned to it. The floor is dark. There are some colorful lights (blue and purple) in the background. A white text box is at the bottom of the image.

Resources for Creative, Collaborative Designs

Resources for Creative, Collaborative Designers

The team produced four encapsulations for *Teatro en 15* to foster further design processes. These resources for creative, collaborative designers include the “From Concept to Creation: A Designer’s Guide.” This guide encapsulates the design the team created using stakeholder collaboration while also providing options for other elements important to space design (Figure 34)



Figure 34: Pages from the “Concept to Creation: A Designer’s Guide.”

The team also created a “Café and Rooftop Inspiration Book” which is a book of photos of different design elements of cafes and restaurants around the world (Figure 35). This book provides ideas on different elements for the design because the design implementation progresses past the team’s departure from Puerto Rico.



Figure 35: Sample pages from the “Cafe & Rooftop Inspiration Book.”

The team created a PowerPoint presentation of the progression of the project and the development of the design. This slide deck shows key developments of the design process and can be easily shared. The “Sala Siete: Creative Vision Pitch Deck” is a booklet of key slides from the team’s presentation and designers guide that can be printed and left with key stakeholders who might be involved in making funding decisions or decisions on approving the construction of Sala Siete.

A photograph of three men in historical costumes performing on a stage. The man in the center is singing with his mouth open and hands raised. The man on the left is holding a maraca. The man on the right is playing a guitar. They are all wearing black outfits with white ruffled collars and red and blue sashes. The background is a dark archway with a blue and white tiled base.

The Closing Curtain: Recommendations

The Closing Curtain: Recommendations

Facilitators of participatory design workshops, engineers and designers implementing the Sala Siete design, and appropriate WPI faculty, can gain insights from our experience carrying out participatory design strategies to envision this space of artistic celebration. Participatory design workshops can effectively capture stakeholder visions, Sala Siete can come to life, and WPI can have further opportunities to work with *Teatro en 15* if these recommendations are followed.

Recommendations for Facilitators of Participatory Design Workshops

Plan workshops around participants' schedules.

Participants were not obligated to take part in these workshops, so there will likely be a lower turnout if a workshop is scheduled at a time that is less convenient for participants. For example, the team had planned a workshop for a Sunday morning based on our schedule, and the team had no participants available to join the workshop.

Recognize valuable and unique input.

We recommend that facilitators show that they appreciate the unique contributions that participants provide in a participatory design workshop. Recognizing their valuable and irreplaceable input makes participants feel welcomed and further excites them to provide more collaboration. The team recognized the ushers by creating a *Teatro en 15* photo frame and taking photos of each of the ushers that participated with that frame.



Figure 36: Collage of Teatro en 15 community members who participated in the collaborative design.

Participants' ideas shine when facilitators refrain from sharing their own ideas.

We recommend allowing participants to discuss their ideas without influencing them with those from facilitators. The purpose of the team's workshops was purely to receive the input of the ushers for Sala Siete, and the goal of participatory design is to ensure that the design fully belongs to the community of *Teatro en 15*; as a result, influencing the ushers' ideas with the team's preconceived vision would taint the ushers' ideas and would pull the design away from *Teatro en 15*.

Allow for spontaneity during participatory design workshops.

The team also recommends not to stick too closely to workshop plans. While it is vital to fully plan and prepare for workshops, if the participants start to pull away from the team's predetermined plan, let them. Do not restrict where the participants want to take the workshop and, consequently, the design. This is where the spontaneity of participatory design comes in; teams and facilitators must be willing to go where participants take them. This preserves the flow of conversation and provides more quality ideas from participants.

Build in spare time to the workshop schedule.

Ensure that there is ample time to fully run the workshop and leave enough time for an in-depth discussion. The team had to rush the end of the first workshop because not enough time was allotted for it

in the planning process; after this, the team started workshops 30 minutes earlier so that there was enough time for the natural progression of the workshop and a substantial discussion of design ideas.

Recommendations for Engineers and Designers

While we focused primarily on the social importance of ‘third places’ and the desired human connections to Sala Siete throughout the design process, the engineering considerations for design implementation are just as important. Aspects like building codes, accessibility laws, weatherproofing, and facilities are all key to bringing Sala Siete to life.

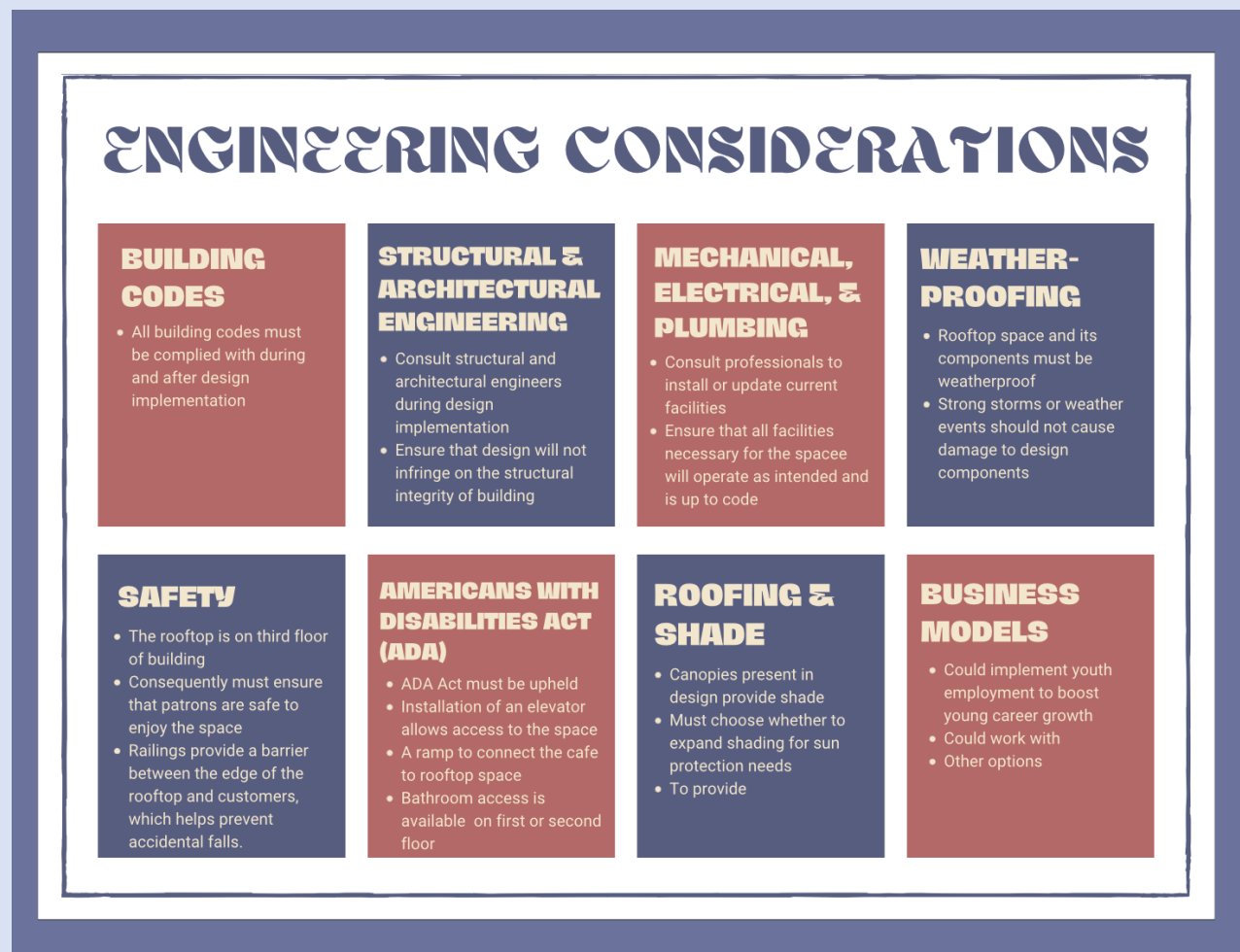


Figure 37: Engineering considerations from Designer's Guide.

Below is a list of elements that must be considered to bring the design to life:

1. Research building codes and ensure that design implementation would not infringe on these codes.
2. Consult structural and architectural engineers so that the structural integrity of the building is not only currently stable but also would not be compromised by implementing the design.
3. Work with mechanical, electrical, and plumbing professionals to adjust or add any facilities needed for the design to run as intended.
4. Ensure that the rooftop is a weatherproof space that can withstand strong storms with little to no damage.
5. Design the rooftop space so that it is safe for patrons to enjoy comfortably, keeping in mind that it is on the third floor of the building.
6. Uphold the Americans with Disabilities Act (ADA) through the installation of an elevator. This elevator will provide an accessible entrance for those unable to use stairs, and it will also serve as an accessible route to bathrooms on the second floor. Adding a ramp in the rooftop doorway will also ensure that all can use the space.
7. Expand roofing for shade as needed. The design already includes canopies to provide some shading, but other methods can be implemented if more sun protection is needed.
8. Create and implement a business model for the café. There are several directions for this business plan, but one with potential is to employ young people living nearby to promote youth employment and young career experience.

Recommendations for Future WPI Projects

With the goal of expanding *Teatro en 15* and its artistic celebration, there are numerous projects that could be undertaken in the coming years. One initiative could focus on English-language translations during performances, which could attract a wider audience to the theater. Additionally, *Teatro en 15* lacks an online presence, so a project that builds their online brand by creating a website and supplemental outreach would expand the theater's reach.

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Appendix A: General Stakeholder Interview Planning

The following questions and topics may not necessarily be asked in a formal interview or meeting, but they may be answered in informal conversations or observed in informal settings.

Director Antonio Morales Cruz

The team used the guiding questions below to learn from Director Morales:

1. What is your role as the city's Executive Director of the Department of Arts and Culture?
Can you tell us how you got here?
2. Can you tell us a bit about your work with *Teatro en 15*? How did it start?
3. What plays are currently being performed at *Teatro en 15*? Why were these plays chosen?
4. What functions or aspects of *Teatro en 15* are going well, and what functions or aspects do you think need to be improved?
5. What is your vision for the café and rooftop?
6. What are the goals of *Teatro en 15*? How will this design further these goals?
7. What is the impact that an added café and library space would have on you, the staff, and the clientele?
8. How do you picture the relationship between the theater, the café, and the rooftop space?
9. What are the constraints on the design that we need to consider?
10. What is the relationship like between you and the *Teatro en 15* staff and actors?
11. What challenges has *Teatro en 15* faced in the past?
12. Are there any essential elements that you would like to see in our design?
13. Are there any other contacts that we should reach out to or interview?

Teatro en 15 Ushers

The team asked the *Teatro en 15* ushers to answer the following guiding questions:

1. How long have you worked at *Teatro en 15*? What has changed, or how has the theater developed, since then?
2. What is your role working at *Teatro en 15*? What things would you consider necessary in completing this role?
3. Do you want your role to change at all? Why or why not?
4. How do you see the addition of a café and rooftop space impacting *Teatro en 15*?

5. How would you picture this space, as well as how it functions as a part of *Teatro en 15*?
6. What would you like to see this space used for? What is your vision for such a space?

Appendix B: Café Bulletin Activity Formal Plan

Introduction:

- Note: Posters and chairs should be pre-set up before beginning workshop
- We are four students from Worcester Polytechnic Institute in Massachusetts
 - Each team member says their name
- Thank you for attending this workshop.
 - We look forward to working with you over the next coming weeks.
 - We appreciate the time you're taking to share your ideas with us.
- Our goal is to hear your ideas and vision for the cafe that will be designed for this space.
- Explain that we want to host these workshops every week, would love their participation in furthering the cafe design.

Ice-Breaker Activity:

- Animal name game
- Explain activity:
 - One person starts with ball and says an animal that starts with the first letter of their name followed by their name (i.e., "Lizard Liz")
 - They then pass the ball to someone else who has to repeat the previous name and then create an animal name of their own.
 - Go around the whole circle.
 - Goal: Learn the names of the ushers in a fun way

Participatory Design Activity:

- Transition from icebreaker to activity
- Explain activity:
 - First, we want you all to brainstorm the overall essential elements of a cafe, keeping in mind what concepts make up a cafe experience?
 - We will write these elements down and then together create 4-5 overall topics to put on the other posters in this room.
 - Then, we will give you 10-15 minutes to visit each topic poster and write whatever comes to mind: What is most important to have? What don't you want to see? What are some ideas that could be included here? Do you disagree with any of the ideas already there? Anything about that topic is welcome.
- Start activity by having them brainstorm ideas.
- Then guide them in creating overall topics to put on posters.

- Before dismissing them to write on the posters, ask if anyone would be comfortable providing their phone number (on a pre-set-up poster) so that we could plan these workshops with them and make a group chat.
- Engage with them, ask questions but save majority of that for debrief.
 - Get to know them.

Debrief:

- Sit down in a circle with team spread out among ushers.
- Start with one topic poster.
- Prompt a conversation to begin - ask questions until they get the conversation going and then let them talk.
- Two notetakers for this portion.
- Can use questions to prompt further discussion.
- Repeat for all topics.

Appendix C: Café Drawing Activity Formal Plan

Introduction:

Ice-Breaker Activity: Telestrations

- First person draws a word, next person writes the word that they think the drawing is, next person draws that word, so on until everyone goes.
- Share drawings and guesses with the group.

Participatory Design Activity:

- Note: Put bulletin posters from previous workshop up on the cafe walls
- Explain activity:
 - The ushers will be divided into groups where they will draw what they envision for the cafe using poster paper and markers. While they draw, the team works with them and rotates through the groups.
- Tell them it's a competition, Pascual is the judge, winner will get a prize.
 - Prize will be candy.
- During this time, there will be a profile station to get photos and a brief biography of the ushers.
- Team should not influence their drawing.

Debrief:

- Each group puts up their drawing around the room and presents briefly about.
- Once all teams share, debrief about each design.
 - What are common elements?
 - Are there things in some drawings you disagree with?
 - What do you think is key to these drawings?
- Have Pascual judge the best design and reward group.

Appendix D: Rooftop Visualization Activity Formal Plan

Introduction:

- Have the CAD drawings either printed or on display on laptops.
- Have a poster up where they can put feedback.
- Can also get feedback through informal conversations with the ushers.
- Bring ushers to the rooftop to explore the space.
- Introduce team if needed.

Ice-Breaker Activity: Teatro en 15 logo

- The ushers will close their eyes and use one continuous line to draw the Teatro en 15 logo.
- Compare and see whose drawing is best.

Participatory Design Activity:

- First part: brainstorm general topics (beginning portion of bulletin activity).
- Ask the ushers what they think are essential elements for the rooftop space.
 - Brainstorm a list on poster paper.
- Second part: Explain that we will be doing the same drawing activity that we did for the cafe, but now for the rooftop.
 - Split up ushers appropriately, have them draw what they picture for the rooftop space.
 - Tell them it's a competition, Pascual is the judge, winner will get a prize.
 - Prize will be candy.
 - During this time, Praniva will be stationed at the profile station to get photos and a brief biography of any new ushers.
 - Team should not influence their drawing.
 - Give them a more limited amount of time to draw.

Debrief:

- Walk around to each team's drawing, let them explain it.
 - Each group will have one sticky note where they can either add or subtract an element to each team's drawing.
- Sit down in circle, discuss common elements, elements that are disagreed on, most important elements.
- Have Pascual judge and pick his favorite.