

# Singer's Inner Space: A new work space for opera singers addressing their well-being

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*“How can you make sure you never miss your target? Shoot first, and whatever you hit, call it a target.”*

-Anonymous

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## Abstract

The theater is the main work space of opera singers. Addressing their well-being at their place of work seems to have been neglected in many theatre design projects, focusing mainly on audience amenities. This doctorate is organized in two sections: research and design application. The research section undertakes various design methods to create a different and more thoughtful approach to the space planning of theatre design. There are three main areas of study that are applied to create such theatre design: Vocal Psychology, Environmental Psychology, and the Sociology in theatre spaces. Each of the areas of study is presented first with their history of development, leading to the selected theories that apply to the theatre design. These theories are supported by case studies and a qualitative data collection to gain a full understanding of each of the areas of study. All of them have overlapping themes that help form the building program, the space planning, and the architectural form of the theatre.

The second section of this doctorate research is the application of the theory into an actual building design that leads to the proposal of the New Hawai'i Opera Theatre. An interview with the company's Artistic Administrator has been performed that further helped in the building program development. The second section documents the site selection and its analysis, followed by the design process, and finally, the illustrations of the New Hawai'i Opera Theatre. This includes additional efforts in marketing opera in Hawai'i such as rebranding Hawaii Opera Theatre and early design stages of a pop-up retail store to sell opera tickets.

The overarching goal of this research is to find a way to keep opera alive and relevant. If the opera singers feel healthy, then it should reflect on their performance and in return, the audience will receive the positive message of that performance, and as a whole, look at opera in a different way.





# 1 Introduction

The design of the new theatre work space integrates three main areas of study: Vocal Psychology, Environmental Psychology, and Sociology. These areas of study are included in the research section of this doctorate thesis, while the second section documents the design process, as it tests the findings from the research section.

The selection of this topic for my doctorate research has been heavily influenced by my love for singing, a hobby I have had since childhood. My love for opera, on the other hand, did not fully develop until only a few years ago. I have become fascinated by this type of singing. As I took formal singing lessons many years ago and sang in front of a crowd, I always felt a great nervousness that affected my performance. So I thought to myself “how would a professional singer feel in dealing with this?” The feeling of waiting seconds before one goes on stage is more than just jitters for me.

Somewhere down the road, I changed my career path to pursue architecture, but the thought of singing and opera has never really left me. This inspired me to contribute as a student of architecture to find a way for a space to make an opera singer feel better. What if there is an opera house designed more to fit the opera singers’ needs?

The built environment greatly affects people unconsciously. The users of an opera theatre are no exception. The design of this opera house will be different from the opera houses that have been built because it will focus more on the design of the back-of-house spaces, which leads to my main thesis argument and theory that opera singers can perform much better if they have proper space for preparation before they go onstage.

This realization has led me to explore a different area of architecture practice that is still emerging - Environmental Psychology. One of the theories developed in this area of study is Well-

being Design, which is being constantly redefined by design firms today. Most of the application of this theory is in Hospitality, Work Spaces, but never, particularly in the back-of-house spaces of an opera theatre, thus making this doctorate research unique.

The other discipline, Vocal Psychology, allows me to explore and investigate what it is that makes opera singers worry about – ranging from singing technique and career longevity, to what makes them comfortable. The latter part presents a bigger challenge, as every singer is different and requires a different means of learning and preparation when they go on stage.

Finally, in Sociology, a set of case studies presenting the history of theatre design evolution provides me an insight of how opera theatres work. The interesting information I have found in this area of study is that, in the past, the theater space was designed around the people and around the musical composition. There are some social issues in the past that still occur today when it comes to

the opera theatre design. This makes me reflect on the issues of preserving opera in Hawai'i.

The key findings I have discovered in the research section have guided me into the development of a new building program for an opera theatre that will be proposed as a new home for Hawai'i Opera Theatre. The key findings, along with recommendations, have also guided me to the site selection for this theatre. In the design section of this thesis presents the documentation of the site analysis, the design process, and ultimately, the illustrations of the opera theatre design.



## 2 Extended Literature Review/Research Document

### 2.1 Introduction

### 2.2 The Singer And Their Needs

### 2.3 Environmental Psychology

### 2.4 Social Implications of Theatre Design for Opera

### 2.5 Conclusion

## 2.1 Introduction

The objective of the extended literature review/research document is to explore the information found from the existing body of knowledge of the following areas of study: Musical Performance Anxiety, Environmental Psychology, and Social Implications of Theater Design. By exploring these topics, it will help to support my main theory, proving that there is a possibility for opera singers to feel less stressed before, during, and after their performances, through a theater design that addresses their well-being.

Addressing their well-being, in theory will allow them to have a better opera performance. However, before I start all of this, let me first clarify that the term *opera* is a combination of “singing, acting, orchestral playing, scenic artistry, costume design, lighting, and dance.”<sup>1</sup>

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<sup>1</sup> “Glossary of Terms.” Accessed August 22, 2014.  
<http://www.operaamerica.org/content/education/learningCenter/glossary.aspx#O>.

While an opera singer is responsible for singing, acting, and dancing, he/she is highly affected by the rest of the aspects mentioned, all of which can affect their psychological state of mind. All of the mentioned activities also happen to take place in “back of house” of theaters, which is where I would like to focus on in the theater design.

In addition to the areas of study mentioned above, I will also analyze existing theaters through case studies, from existing construction documents I have obtained during my Practicum at Gensler Architects, as a continuation of my “pure research” I have made during Arch 546. The nature of my research in Arch 548 is more of a combination of data gathering and design, as shown in **Figure 2**.

Considering the topic of my thesis, a holistic approach plays an integral part of my research strategy. These strategies include narrative research and case studies, all of which I have conducted during Arch 546 and Arch 547 P. A third strategy of data gathering is

done in Arch 548, along with the design process to show the application of the theories discovered in all of the strategies.

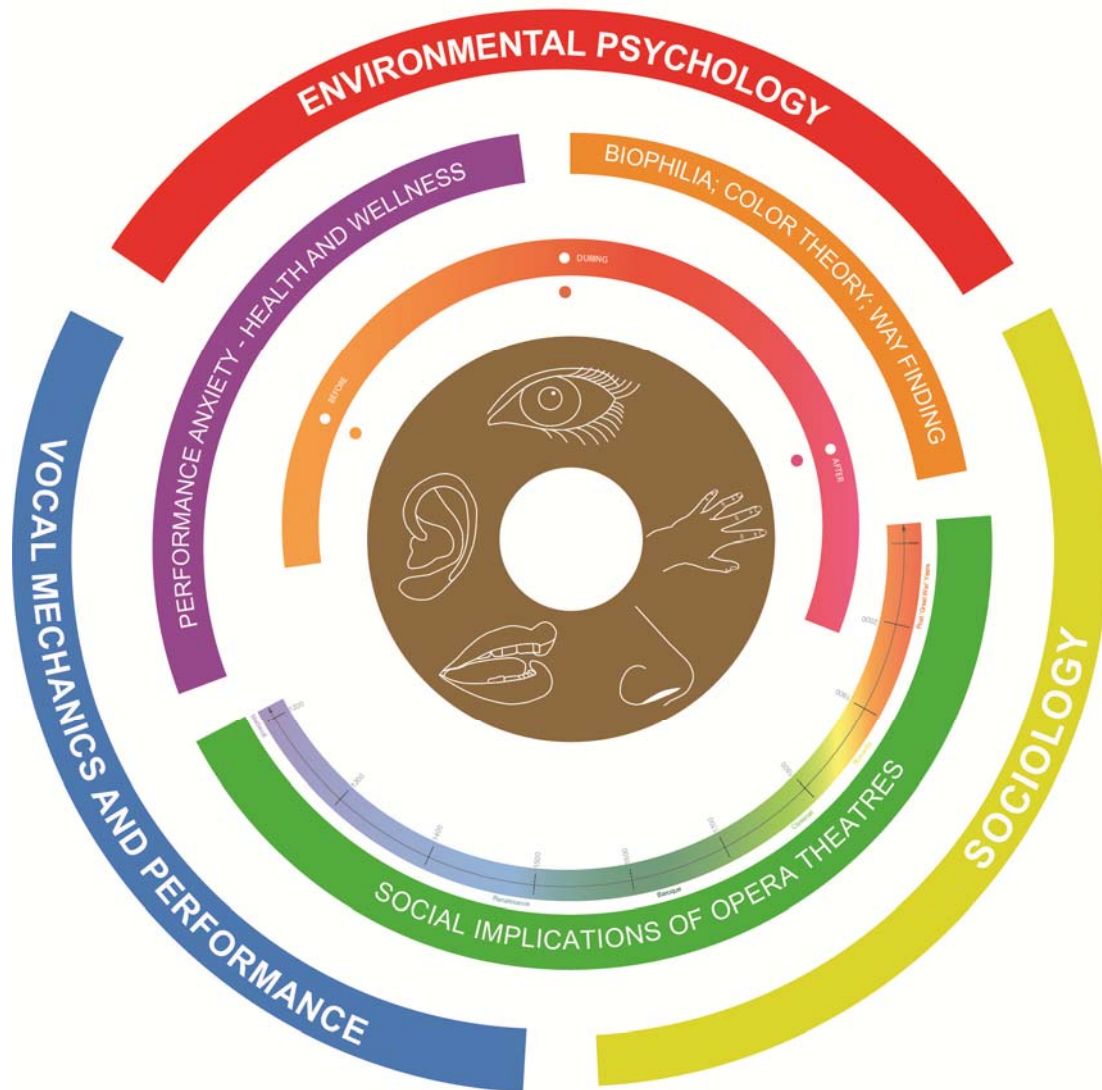


Figure 1. Triangulation diagram of the selected disciplines Starting from the outer bands with primary colors. The inner bands are the overlapping themes represented by secondary colors. The central ring is the realization of the inner bands when all colors mix.



## 2.2 The Singer and Their Needs

### 2.2.1 Introduction

The goal of this sub-chapter is to identify what opera singers go through during opera productions and to determine their needs. To explore this we shall look at two aspects of opera singing: First is the physical aspect, which is the mechanics of the voice, to establish a basic understanding of how a sound is produced and propagated by the human body. Vocal mechanics and performance have many aspects. In addition, there are also many different types of voices. However, I will not be covering this area due to the myriad of

physical and acoustical details involved with singing. Second is the psychological aspect, where I will explore more, for psychology can be a link between an opera singer's way of thinking and feeling, and space. This leads to my theory that a space can positively contribute to an opera singer's performance preparation, therefore, they can bring out better performance results.

### 2.2.2 Development of Western Singing

Western singing is different from pop singing. For someone to become an opera singer, one will have to spend decades to hone the necessary skills in Western singing, acting, and at least becoming familiar with the sung language in opera. Once a singer has become professional, he/she must keep taking lessons or constantly practice to avoid being rusty. There is so much that they have to worry about such as competing to land a part and preserving their voices. But before I begin to delve into investigating ways on how to help improve the opera singer's psychological

preparation before singing, let me first give a background on Western singing. One may argue that it began somewhere between 470 to 520 AD<sup>2</sup> with the Gregorian chants and the standardization of liturgical repertory.<sup>3</sup> The Gregorian chants were invented in order to be heard in cathedrals with long reverberation period, where speech would be inaudible to listeners.<sup>4</sup> Moving forward to the 1600s, music became more secular as church power declined. The unaccompanied monophonic or single melodic line of singing has evolved into multiple singing lines.<sup>5</sup>

During the 1600s, “Western European society entered perhaps its most momentous historical transition as the

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<sup>2</sup> Burton Fisher, *A History of Opera: Milestones and Metamorphoses*, (China: Opera Journeys Publishing, Inc., 2013), chap. 1, pg. 16.

<sup>3</sup> “Thirteen Centuries of Sacred Music,” Antiquity, accessed February 17, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/antiquity.html>.

<sup>4</sup> Leland M. Roth, *Understanding Architecture: Its Elements, History, and Meaning*, (Cambridge: Westview Press, 2007), chap. 5, pg. 107.

<sup>5</sup> Burton Fisher, *A History of Opera: Milestones and Metamorphoses*, chap. 1, pg. 16.

Renaissance and humanistic pursuits began to evolve. In the process, music became liberated, and the secular world, like the ancient Greeks, began to exalt the musical art form and recognized its emotive and expressive power.”<sup>6</sup>

### 2.2.3 The Vocal Anatomy

In order to understand the physicality of the human voice, Richard Miller, author of *English, French, German and Italian Techniques of Signing*, explains the different areas of the human body that are involved in vocal production:

“THE LUNGS. Although the the lungs are the primary organs of respiration, their movement is largely determined by the kinds of pressure brought upon them by the neighboring musculature and by the action of the thoracic cage. Each lung is enclosed by a membranous sac called the pleura, and although attached to both the heart and the trachea by its

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<sup>6</sup> Burton Fisher, *A History of Opera: Milestones and Metamorphoses*, pg. 16.



root, lies freely within its respective pleural cavity. (See plate 4)”<sup>7</sup>

“THE THORACIC CAGE. The chest cage (thorax) is constructed of cartilages and bones and it houses the lungs. It is composed of the sternum, twelve ribs on each side, and posteriorly the thoracic vertebrae. (See plate 5)”<sup>8</sup>

“THE INTERCOSTAL MUSCLES. It is inevitable that methods of breath management in singing should direct considerable attention to the muscular actions which take place within the thoracic cage. Much of this attention has centered upon the intercostal muscles, divided into internal and external groups of eleven on each side. They are thin layers of muscle and tendinous fibers which occupy the intercostal spaces. (See plate 6)”<sup>9</sup>

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<sup>7</sup> Richard Miller, *English, French, German and Italian Techniques of Singing*, (New York: Oxford University Press, 1996), pg 7.

<sup>8</sup> Richard Miller, *English, French, German and Italian Techniques of Singing*, pg 8.

<sup>9</sup> Richard Miller, *English, French, German and Italian Techniques of Singing*, pg 9.

“THE DIAPHRAGM. The diaphragm is a large dome-shaped muscle which divides the thoracic cavity from the abdominal cavity. (See plate 7). It is the chief muscle of inspiration, participating in the rhythmic movements of respiration. The central tendon of the diaphragm, through a downward and forward movement, presses on the abdominal viscera; the abdomen, as a result of that action, swells out upon inspiration. ‘When the limit of this descent is reached the abdominal viscera provide a fixed point for the central tendon of the diaphragm from which the muscle fibers elevate the lower ribs.’”<sup>10</sup>

“MUSCLES OF THE ABDOMEN. Activity which takes place in the abdominal muscles during respiration is of much significance in some vocal methods among the national schools and of little in others. These muscle pairs include the external oblique, the internal oblique, the *transversus abdominis*, and the rectus abdominis. (See plate 8)

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<sup>10</sup> Richard Miller, *English, French, German and Italian Techniques of Singing*, pg 9.

They compress the abdomen and support the viscera. These powerful muscles are both postural and expiratory; they can be expected to figure in an important way in some technical systems of singing.”<sup>11</sup>

There is no denying that vocal production is a complex process that takes years of training to show an effortlessly projected musical sound. This makes the human instrument vulnerable to vocal disorders that can be developed by even the most seasoned opera singers. I would like to explore some possible psychological elements that could affect an opera singer’s performance.

Compared to other musical instruments, the human voice is an invisible type of instrument, which makes it difficult to determine if something is wrong with it. Even more so in the case of a singing student who is not fully aware of the consequences of wrongly engaged

muscles when singing. For that reason, I am narrowing down my research by referring only to professional opera singers, whenever I mention opera singers. It is safe to assume that professional opera singers have more singing experience and are more in tuned with the subtleties of their instruments. On that note, any psychological disorder that will be mentioned in the following topic will also only be associated with professional opera singers.

#### 2.2.4 Psychological Challenges

There can be many different types of problems suffered by opera singers. For the purposes of this doctorate research, I will narrow it down to a few that I believe can be addressed spatially. These problems are presented by Maria Sandgren, author of the thesis, *Becoming and being an opera singer: Health, personality, and skills*. In her thesis, Sandgren elaborates on the modern situations and scenarios of opera singers. Sandgren also has

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<sup>11</sup> Richard Miller, *English, French, German and Italian Techniques of Singing*, pg 11-13.

discovered from the qualitative and quantitative measurements she made, the health-related issues of opera singers are related to psychological and medical factors, including performance anxiety, work-related strain and personality disorders.<sup>12</sup>

### Performance Anxiety Vs. Social Phobia/Anxiety

One of the psychological disorders developed by opera singers is Performance Anxiety. However Sandgren explains that this condition overlaps with Social Phobia/Anxiety:

“The constructs of performance anxiety have in common the focus on the strong, often incapacitating fear of performing in public divided in items assessing affective, cognitive, physical and behavioural responses of the individual (Stephoe, 2001). Wilson and Roland (2002) discuss the overlap of

symptoms between performance anxiety and social phobia/anxiety.”<sup>13</sup>

In the quote below, Sandgren stresses out the difference between Performance Anxiety and Social Phobia/Anxiety. She goes on to state that,

“The essential feature of social phobia is a ‘marked and persistent fear of performance situations in which embarrassment may occur’, manifested as an anxiety response (American Psychiatric Association, 1994). The individual fears the scrutiny by other persons or is exposed to unfamiliar persons. Anticipatory anxiety can occur just before the anxiety-provoking situation and as well fa in advance of the event. The event is anticipated with dread and/or endured with anxiety or distress. Performance anxiety should be diagnosed as a social anxiety when the individual shows marked distress or the

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<sup>12</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, (Doctoral diss., Stockholm University, 2005), pg. 39.

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<sup>13</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, pg. 40.

anxiety leads to significant impairment.”<sup>14</sup>

Sandgren continues that as a result, opera singers often consult physicians to report abusive speech habits, as they tend to be more prone to worries and anxiety regarding their vocal functions.<sup>15</sup>

It is their life and career after all, and therefore they need to protect their career, meaning protecting their instrument. If physician visits happen more often, is it possible to provide a space in the back of house where singers meet with a visiting physician? This can help reshape the building program of the new opera theater I am designing.

Another point in the quotation I would like to address is when Sandgren states, the “individual fears scrutiny,” that individual can benefit from a secluded space, where he/she can relax and focus. This can be further supported by Sandgren as she continues to write,

“Investigators indicate that fear of social situations is positively related to performance anxiety (Steptoe & Fidler, 1987), and that high levels of social anxiety are positively associated with a distorted perception of one’s own voice.”<sup>16</sup>

“Physical incapacities or psychological notions of having an inappropriate attitude or emotions might evoke shame and embarrassment. Similarly, the term of perfectionism can be applied in relation to performing anxiety.”<sup>17</sup>

In other words, if the opera singer is stressed, he/she may perform poorly, therefore heightening his/her fears of poor public review – all of which can be imagined way before or right before a performance. Again, this is an issue that can be addressed spatially to make the opera singer feel calm. There is an opportunity here to design a new kind of back-of-house that has soothing

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<sup>14</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, pg. 40.

<sup>15</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, pg. 40.

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<sup>16</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, pg. 40.

<sup>17</sup> Maria Sandgren, *Becoming and being an opera singer: Health, personality, and skills*, pg. 40.

qualities to its space, therefore, helping to “heal” the worries of an opera singer.

### 2.2.5 Hawai'i Opera Theatre Operations

The new opera theater I am designing will be situated in Hawai'i, on the island of O'ahu. As I have mentioned earlier, my main goal is to design an opera house with a strong focus on the opera singers' needs by providing a new type of back-of-house spatial planning and building program. This is also a theoretical opera house if Hawaii Opera Theatre (HOT) were to have a performance space along with other amenities designed around the activities and operations the company performs.

In order to understand how a theater is used for opera performances, I have interviewed the Artistic Administrator of HOT through email. Based on that email interview, the entire opera production process can be organized into three phases: BEFORE, DURING, AND AFTER a seasonal performance.

The BEFORE phase requires the most work because all of the preparations that need to be done for a seasonal operatic performance happen in this phase. The activities include the selection of what operas to produce, audition invites, the actual auditions, and casting, which are done two to three years before the opera season.<sup>18</sup> This also includes the selection of spaces that are used for these events: the spaces that HOT currently has, and the spaces they do not have but need, as shown in **Figure 3**. Knowing these types of spaces has helped me determine a new building program for the new opera theater.



**Figure 2. Hawaii Opera Theatre activities and spaces are determined by these three stages of the performance.**

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<sup>18</sup> Sicam, Jan Erika, Email to Barrett Hoover. October 11, 2014.

## 2.2.6 Conclusion

The invisible instrument of opera singers has many needs to achieve vocal longevity, therefore it needs to be particularly well taken care of compared to the voices of non-opera singers. In addressing the issues associated with Performance and Social Anxiety, combined with having a sufficient understanding of the opera singers' needs, my new building program is established for the opera theater design has started to take shape. This new building program will have a holistic approach as new spaces will be integrated in the back-of-house. As shown in **Figure 2**, new spaces such as housing, cafeteria, and fitness rooms, will be a part of the back-of-house. However, this still does not immediately provide a "healing" place. This will be determined on the site selection for the building.

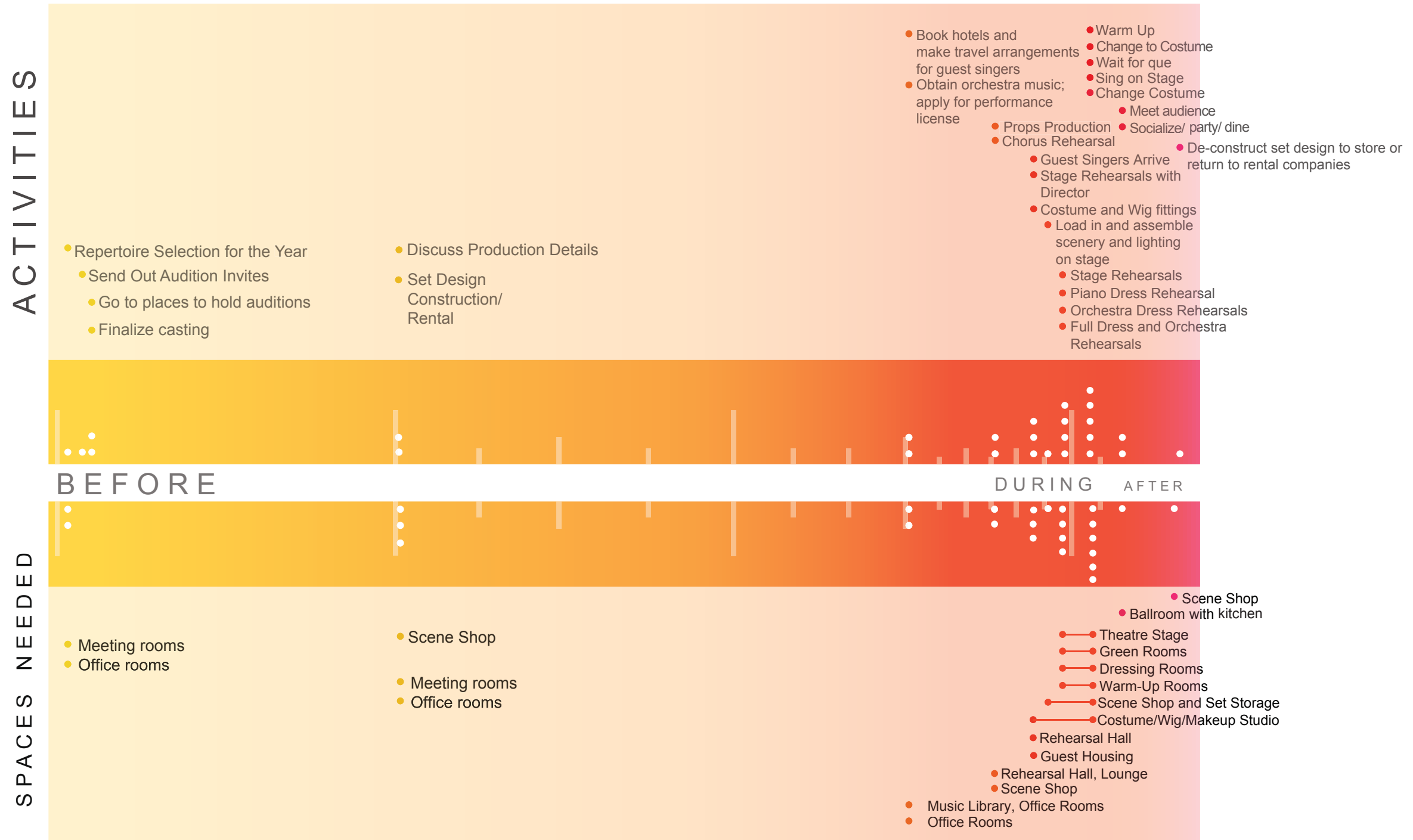
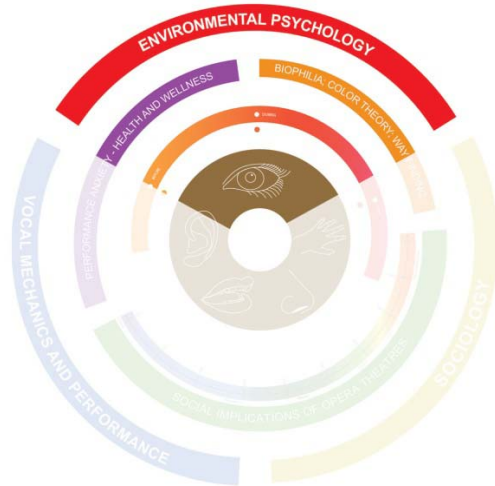


Figure 3: Diagram of the HOT activities and the typical spaces needed to house an opera production organized in the phases, BEFORE, DURING, and AFTER



## 2.3 Environmental Psychology

### 2.3.1 Introduction

In the previous sub-chapter, I have established an understanding of what performance and social anxiety are and how they affect opera singers. I have also established a building program as a result. Now, the next step is to focus on what type of experiences should the new back-of-house offer, combined with the new building program, to truly address the issue of Performance and Social Anxiety among opera singers.

Applying Environmental Psychology will play a key role in addressing those issues. There are some key topics under this discipline that I will be using to apply into the back-of-house design. These

topics are Health and Wellness, Biophilia, Way Finding. But let me first give a background of Environmental Psychology and how it has evolved into what it is today.

### 2.3.2 Development

By definition, Environmental Psychology is “the study of symbiotic relationships between humans and their environments: A stimulus causes an action, which causes an event, which in turn causes another action, and so on.”<sup>19</sup> This discipline traces its way back in 1916, when research was done to assess work performance as it is affected by external distractions. This research was soon followed by research of similar topics – finding a way to manipulate human behavior, which was conducted by professionals from different disciplines, such as Biology, Sociology, Behavioral Psychology, Ecology, Art, and

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<sup>19</sup> Dak Kopec, *Environmental Psychology For Design* (China: Fairchild Publications, Inc, 2006), pg. 9.



Architecture. The result is of the combination of these disciplines has been narrowed down to the term Environmental Psychology.<sup>20</sup>

Dak Kopec, author of *Environmental Psychology for Design*, gives the definition of the said discipline above.

He further explains that considering Environmental Psychology and incorporating in architectural and interior design, it can “positively affect the physical and psychological health and well-being of an environment’s occupants and users.”<sup>21</sup>

The fact that the terms health and well-being are mentioned makes it even more important in the back-of-house design application to address the performers’ well-being. These issues can

be addressed through the following design factors:

1. Site selection
2. Circulation
3. Spatial Proximity
4. Connection to nature

Kopec further explains its importance by stating that

“People respond to the world around them based on who they are. The manner in which people perceive, understand, and make choices about their environments; cope with environmental stressors; and connect emotionally with a place depends in part on their psychological health. This is affected by their physical health, surroundings, and feelings relative to issues of personal control such as autonomy, safety, privacy, territory, and crowding.”<sup>22</sup>

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<sup>20</sup> Dak Kopec, *Environmental Psychology For Design* (China: Fairchild Publications, Inc, 2006), pg. 7.

<sup>21</sup> Dak Kopec, *Environmental Psychology For Design* (China: Fairchild Publications, Inc, 2006), xv.

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<sup>22</sup> Dak Kopec, *Environmental Psychology For Design* (China: Fairchild Publications, Inc, 2006), xv.

Of all the worries an opera singer has, stressing over their surrounding environment should be one of the least of their worries, especially when they are performing.

### 2.3.3 Health and Wellness

As mentioned in the discipline, Environmental Psychology, a person's well-being is the main priority. But what is Health and Wellness? University of Washington has helped break the phrase down:

"Health and Wellness are related terms. We define health holistically as a state of well-being that encompasses mind, body, spirit and community. Wellness is an active, lifelong process of becoming aware of choices and making decisions toward a more balanced and fulfilling life. This process can lead to a healthier

state of well-being that allows individuals and communities to thrive."<sup>23</sup>

The terms, mind, body, spirit, and community, are the same terms that I would like to emphasize and prioritize when it comes to opera singers in the hopes of reducing the negative stresses of performing. I would like to delve more into what is being practiced today, and make connections between the following information and to the back-of-house design through space planning.

"Wellness is the new green"<sup>24</sup> are the words now used by design professionals when I attended one of the meetings held during my Practicum. In today's age, more and more design firms are applying "Health and Wellness" as one of their design services. The trend has started out in health care design, and it

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<sup>23</sup> "Health and Wellness Defined," Welcome to Health & Wellness Education and Promotion, accessed August 23, 2014, [http://www.tacoma.washington.edu/studentaffairs/SHW/hwep\\_home.cfm](http://www.tacoma.washington.edu/studentaffairs/SHW/hwep_home.cfm).

<sup>24</sup> "Health & Wellness," accessed August 23, 2014, <http://www.gensler.com/the-future-of-community#health-wellness>.

has branched out to hospitality design (hotels), retail design, aviation design (airports), and work space design.

Gensler, a design firm that offers Health and Wellness design services, has developed eight practices on Well-being design<sup>25</sup>:

1. Embrace Technology
2. Nudge
3. Make a Difference
4. Create an Experience
5. Make Connections to Nature
6. Extend Youth
7. Make it Convenient
8. Give People Options

So far, I have not heard of Health and Wellness being applied to theater design, particularly in the back-of-house spaces. What I would like to do at this

point is to look at the space types from the design services I have mentioned and learn from them as I find design ideas for the back-of-house.

It seems that in this day and age, one type of use for a space is not enough. It has to have other functions as well to suit the needs of its users. According to the *2014 Design Forecast: Top Trends Shaping Design*, a journal published by Gensler every year, the direction of the building design as a whole is becoming a holistic approach:

“Everything comes in combination – The necessity of mixed use is such that even specialists in single-use development look for ways to introduce it in their own projects or capitalize on it in the adjoining district. The value it brings, even in suburban towns, has as much to do with social connectivity as destination value. Transit is often in the mix, but the

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<sup>25</sup> “Health & Wellness,” accessed August 23, 2014, <http://www.gensler.com/the-future-of-community#health-wellness>.

mix is richer, denser, finer-grained, and more dynamic and unpredictable."<sup>26</sup>

The quote above suggests that a sense of community is the key to a successful urban place, and to have a successful community, that place has to have variety of choices when it comes to spaces for the community to use. Therefore, the need for mixed-use spaces and building structures is the viable solution to a lively community. The article continues to explain that

“Mixed use takes new forms – Asia and the Gulf will lead the way in doing mixed use at a mega-scale, integrating complex programs that weave form and experience together to attract the newly affluent. Mixed use will be seen as an invitation to experiment, rethinking the urban realm as a ‘curated’ place that caters to different lifestyles and

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<sup>26</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 37.

demographics to stay active and attractive on a 24/7 basis.”<sup>27</sup>

The idea of attracting the affluent can be useful in the funding the opera house on the consumer side. Extra amenities surrounding the theatre can be beneficial to the public as a part of their theater experience. What if these amenities can help generate revenue for the theater maintenance as well? This is a key point that I would like to use in developing the building program of the New Hawaii Opera Theatre.

The Journal discusses the new design trends in the following space types as it applies the Health and Wellness component:

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<sup>27</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 37.

## H+W in Retail Design

“Retail centers are pulling out the stops to connect with shoppers , both by curating the mix to reflect local tastes and by layering in activities – a full calendar of farmers’ markets, concerts, craft and maker fairs – and amenities that their target markets will appreciate. The aim is to increase the touch points with shoppers so a center is on their map and worth return visits.”<sup>28</sup>

“Brick-and-mortar stores will persist- Although their overall contribution to retailer revenues is declining, stores will persist because they offer brick-and-mortar retailers a way to differentiate themselves from online shopping.

“To shrink stores and decouple inventory and delivery from the hands-on, tech-augmented experience of stores, sales

staff, and goods, retailers will need to integrate and orchestrate their different retail channels.”<sup>29</sup>

If technology integration is a key player towards the path of new retail design, then how can opera theaters take utilize this to their advantage? Again, this goes back to the development of the building program of the New Hawaii Opera Theatre. This time, however, this technology integration can be applied to both the public and the private spaces of the Theatre. From the quotation above, it makes sense to add a retail component into the building program as part of the public spaces. The theater experience on the consumers’ side can be enhanced with retail spaces for them to explore before walking into the theater space or while waiting for the theater doors to open.

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<sup>28</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 31.

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<sup>29</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 32.

These retail spaces can be rented out by vendors who are looking on branching out their business. A music store, for instance, will be a great addition to the theatre experience if it can feature the seasoned opera singers and sell their music albums if they release one. Creating a curated set of items to sell, similar to what the quotation is saying, will help make up a unique music store showcasing opera. This strategy will help inform the public better on the theater's hired musicians and be more aware of them.

The next Health and Wellness application is through a case study done by the *Design Forecast 2014*, where it discusses the future of Hospitality Design:

### **Case Study #1:**

#### H+W in Hospitality Design

“Medical and wellness tourism – As people shop the world for medical procedures, it’s likely these procedures will be offered as an all-inclusive

package. Also on the horizon are resorts that combine wellness with recreation and other diversions, allowing people to recuperate and recalibrate. Tying these resorts to wellness programs back home could make hospitality brands a player or strategic partner in the healthcare market.”<sup>30</sup>

The idea of hospitality spaces integrated with healthcare amenities is an innovative way to make its users feel more relaxed and well taken care of. In the case of an opera singer, they can benefit from a stress-free performance preparation that begins with where they will stay. For traveling singers of the current Hawaii Opera Theatre, they are provided lodging, organized by the Artistic Administrator. They are checked into hotels in the city, which means the singers have to deal with traffic and noise that can contribute to their stress of performing. It would be better if those stress factors can be eliminated,

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<sup>30</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 31.

so that the opera singers can fully focus on their operatic performances.

Therefore, adding a hospitality component to the new Theatre building program is a viable and bold solution to address this issue.

The hospitality component will provide them optimal privacy and comfort that the opera singers need to relax and recuperate. Part of the hospitality amenities will be the following:

#### 1. Housing

Each unit will be equipped with a living room, a bedroom, a full bath, a kitchenette, and an upright piano. The purpose of the piano is to allow the opera singers to rehearse in private.

#### 2. Lounge Room

To create a sense of community among opera singers and instrumentalists, a lounge room will be provided for them to relax, socialize, and have fun. The Lounge Room will be equipped with the following:

- Varied seating spaces
- Vending machines
- Communal kitchenette
- 2 Ping pong tables
- 1 pool table
- 1 Upright piano

#### 3. Yoga Room and Gym

This room will provide the opera singers and other musicians to relax and rejuvenate during their stay at the New Hawaii Opera Theatre, so that they can feel better and ready to perform.

The following amenities within the Yoga Room and Gym are

- Weight equipment
- 10 Stationary bikes
- 10 Treadmills
- 10 Sit-Up Exercise Equipment
- Women's bathroom and locker rooms
- Men's bathroom and locker rooms
- Yoga classroom
- Check-in counter

#### 4. Cafeteria

Part of having a healthy lifestyle is eating right. The Cafeteria will provide healthy food for the users of the new Hawaii Opera Theatre. Also as part of encouraging an opera community, this cafeteria will bring the administration staff and musicians together as they socialize while enjoying healthy meals.

The next Health and Wellness Design Application by the *Design Forecast 2014* is on Work Spaces:

#### H+W in Work Space Design

“The line between work and city will blur as towers and campuses mix in ‘community’. Coworking space, its informal and collaborative ethos, will scale up. ‘Smart’ environments will take hold. Attracting this young and creative

generation will be a shared goal of cities and employers.”<sup>31</sup>

“Leading organizations know that well-designed workspace improves performance, speeds innovation, and builds healthy cultures. They see it as crucial to achieving their goals. New research bears them out. The push for transformational space will make it standard practice to integrate strategy, collaborative design, engaged change management, and post-occupancy calibration.”<sup>32</sup>

The same can be said about opera singers, which is why they need better work spaces in and surrounding the theatre. The proposed spaces I have mentioned in the theatre building program development will help enhance the opera singers’ work space.

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<sup>31</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 7.

<sup>32</sup> “Design Forecast 2014: Top Trends Shaping Design”, *Gensler*, 2014, 10.



### 2.3.4 Biophilia

Another focus of Environmental Psychology is the power of the spaces connected to nature. It seems that the power of nature is always a topic included in all Well-being guidelines. Although Biophilia is a topic in and of itself, I am going to investigate its connection to Health and Wellness, as this has a link to Musical Performance and Social Anxiety.

Introduced by Edward O. Wilson in 1984, followed by other research contributors, suggest that biophilia affects human behavior – psychological and spiritual.<sup>33</sup> One of them is Stephen Kellert, who “feels that through the development of the human mind and body, peoples’ world is governed by natural environmental features.”<sup>34</sup> Kellert

continues that connecting with the environmental features such as light, sound, odor, wind, weather, water, vegetation, animals and landscapes, that these can be used as an advantage to create a better relation between humans and the built environment.<sup>35</sup>

Another contributor to the subject, Biophilia is Judith Heerwagen, who considers Biophilia is essential for a well-rounded lifestyle, like exercise and nutritious food, as well as practicing sustainable actions when it comes to design.<sup>36</sup> One of these is to incorporate living and vibrant plants to create relaxation and enjoyment.<sup>37</sup> Heerwagen further points out that “The nature should, however, be appropriate to the

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<sup>33</sup> Katelyn Hudson, “Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui” (DArch diss., University of Hawaii at Manoa, 2013).

<sup>34</sup> Katelyn Hudson, “Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui” (DArch diss., University of Hawaii at Manoa, 2013).

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<sup>35</sup> Katelyn Hudson, “Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui” (DArch diss., University of Hawaii at Manoa, 2013).

<sup>36</sup> Katelyn Hudson, “Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui” (DArch diss., University of Hawaii at Manoa, 2013).

<sup>37</sup> Katelyn Hudson, “Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui” (DArch diss., University of Hawaii at Manoa, 2013).

region it's located, using natural environment to ensure success."<sup>38</sup>

Having this in mind, the site of the new Hawaii Opera Theatre will have to not only incorporate plant life within its spaces, but it has to agree with the site it will be built on. Therefore, the selection of the site for the new Hawaii Opera Theatre is crucial.

### 2.3.5 Wayfinding

Another aspect of Environmental Psychology that I believe will help impact the design of the new Hawaii Opera Theatre is Wayfinding. Understanding the concept of wayfinding will help contribute to an effective building design, and therefore eliminate the stress on opera singers and other musicians while they navigate their way inside the theatre.

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<sup>38</sup> Katelyn Hudson, "Holistic Dwelling: integrating biophilic design, environmental psychology, and feng shui" (DArch diss., University of Hawaii at Manoa, 2013).

Kopec, author of *Environmental Psychology for Design* points out that "circulation should be clearly articulated in the spatial organization of a structure so that signage is a secondary means of communication."<sup>39</sup> This is crucial in the theatre work space because the opera singers need easily circulate the theater from their dressing rooms, to the green room, and ultimately, to the stage. The same can be said with the viewing public.

### 2.3.6 Conclusion

The combination of Health and Wellness spaces such as the hospitality, cafeteria, gym, yoga room, and the lounge help create the holistic approach to well-being design in the theatre work space. The addition of spaces in the theatre for public viewing such as the retail and restaurant spaces can be a part of the theatre experience and help generate

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<sup>39</sup> Dak Kopec, *Environmental Psychology For Design* (China: Fairchild Publications, Inc, 2006).

revenue for the theatre, in addition to purchasing tickets. All of these new spaces have to be carefully planned together with the typical theatre back-of-house spaces, so that the result is a building layout that has a clear circulation path. This clear circulation path will help eliminate the stress of opera singers and other musicians as they navigate their way in the theater during a performance.

The overall Health and Wellness guidelines to a better theater workspace is summarized into the following points:

- Create an Experience
  - o Make it Convenient
  - o Provide a Playground
  - o Provide Options
  - o Apply Ubiquitous technology
  - o Connect to Nature

The last sub-point of “Create an experience” will be the application of Biophilic design. This will be essential to the site selection for the new Hawaii Opera Theatre.

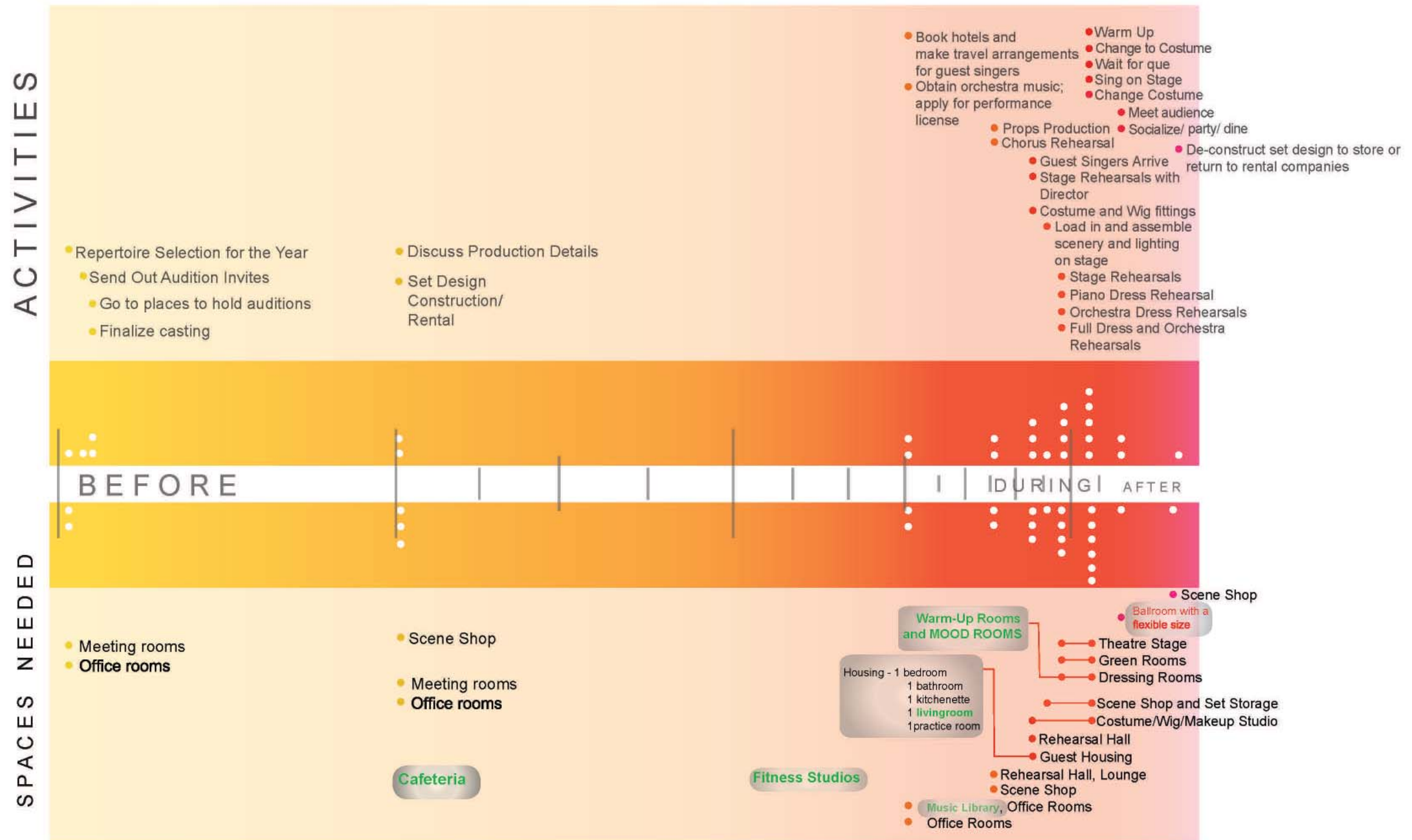
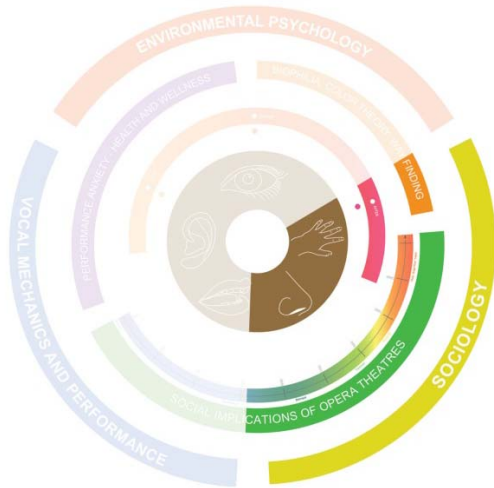


Figure 4: Diagram of HOT Production Process with the addition of Well-being Spaces



## 2.4 Social Implications of Theater Design for Opera

### 2.4.1 Introduction

In the previous sub-chapters, I started to establish a new opera theater building program by learning from the perspectives of the opera-involved and from design ideas of Health and Wellness. As I will be designing an opera theater, I need to investigate the conventions of theater spaces, not only to fill in the gaps in the building program, and to understand how opera has shaped its performance spaces throughout the years, and possibly find what could be causing Performance and Social Anxiety by studying the back-of-house of the opera theaters.

For the purposes of this research, we will look at the history of the social implications of opera and how these social implications helped opera to evolve to what it is now. While finding information on this topic, I immediately realized how little information it is out there that tells about the back-of-house spaces. As a result, most of the illustrations shown will be more on audience-stage analysis. The best I could do was to make educated assumptions on how the back-of-house were/are utilized.

### 2.4.2 The Evolution of Theater Design for Opera Spaces

The goal of this study is to understand the performance space in general, because the general arrangements of performance spaces, whether they be for singing, or for speech alone, is where the first performances of opera derived its form from. Thus, I will be going all the way back to 1218 when church

processions began.<sup>40</sup> Along the way, the five human senses will also come to play to get a sense of what might have taken place during those times. Furthermore, since it will take a lifetime to do a thorough analysis of the theaters of one country, I will provide selected theaters through narratives and case studies that I believe represent their cultural importance and contribution to theater design and opera.

### Historical Outline

In order to have an idea of how Western performance spaces have changed, I have gathered all the examples in a timeline, plotting significant events throughout history. Because all of the books and other sources I have encountered mention historical periods such as Medieval, Renaissance, Baroque, Classical, and Romantic, I have included them in the timeline along with the continuous years. However, there is

some varying information as to when these periods began and ended. To point out the ambiguity of the period transitions, I once again, used the color wheel gradient to mark these periods.

Looking at **Figure 4**, one may notice that the bulk of the changes happened between 1600 and 1963. This range is where opera composition has begun, followed by the creation of the opera houses, all the way before the World War I and World War II. I have labeled the last period in the timeline as “Post Great War Years” as the theater design after WWI and WWII have stopped evolving and had followed the design conventions of its predecessors.

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<sup>40</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 14.

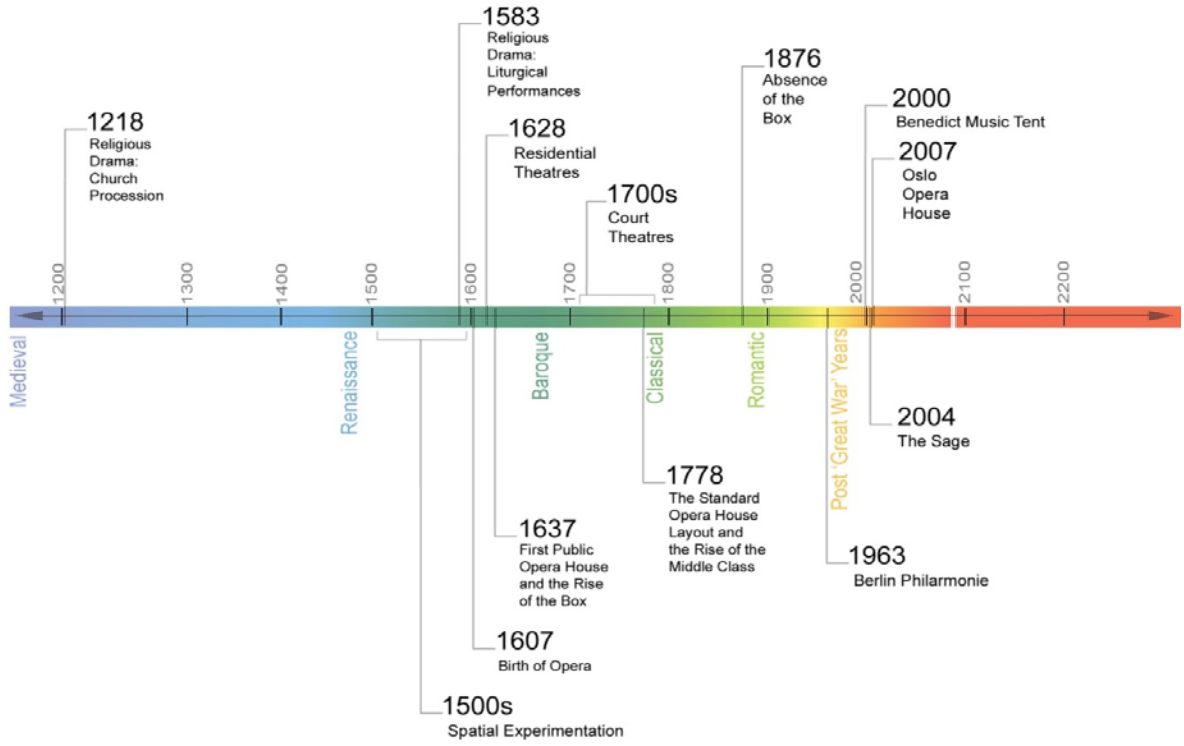


Figure 5. Historical timeline of the theater building typology

## 1218: Religious Drama – Church Processions

“City as a Theatre”

One of the sources I have used “In Places of Performance: The Semiotics of Theatre Architecture” written by Marvin Carlson. In this book, Marvin explains that

“The theatre existed as an important part of urban life without any specific architectural element being devoted to its exclusive use. The absence of a specifically theatrical structure from the medieval city’s repertory of architectural objects by no means indicates that the physical situation of theatre performance within the city was devoid of symbolic significance.

This quote is very telling in a sense that the performers or the idea of performing started out as a purely nomadic event. The performers and its entire “theatre” travels as it does today in the form of

touring artists– a practice that has been carried out since the idea of performance had begun. The idea of space utilization for performance however, is different from how it was used in the past. The absence of the theater as Carlson points out does not necessarily mean the performers cannot work out their new found surroundings to their advantage. Carlson continues to write,

“On the contrary, a situation allowing those producing a performance to place it in whatever locale seemed most suitable meant that theatre could use to its own advantage in the already exiting connotations of other spaces both in themselves and in their placement within the city, and this was in fact consistently done. Such a dynamic was particularly congenial to the medieval world view, which delighted in the discovery of correspondences and in building rich symbolic structures by relating various systems of signs to each other.



“The symbolic center of the medieval town was the cathedral, and nowhere else in the city was so rich a trove of symbolic referents concentrated.”<sup>41</sup>

Because this was the Medieval times, and the symbolic buildings were cathedrals, I am going to make the assumption that the performances held were free of charge, and the performers involved were not compensated in a manner of how they are today. In addition, the outdoor performances meant that it had complete exposure to the public, meaning that there was a strong awareness of secular-related events.

“The public became the audience and participants to witness the rituals of the church, enriched with legend, allegory, doctrine, the whole sum of medieval knowledge of the world, divine and human, was here represented in

painting, sculpture, stained glass and space.”<sup>42</sup>

What does this say for the performers? One may wonder how they rehearse their liturgical performances. As Carlson mentioned, cathedrals were the first building typology to house performances, and because of the architectural symbols manifested in their floor plans and facades, one may deduce that its architectural features are being emulated in the first theater designs that were built in the 1600s.

The cathedral in **Figure 5** shows how symbolism plays a key role in cathedral design. St. Benoit-Sur-Loire is one of the many representations of 11<sup>th</sup> and 12<sup>th</sup>-century architecture in France.<sup>43</sup>

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<sup>41</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 14.

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<sup>42</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 14.

<sup>43</sup> “Saint-Benoit-Sur-Loire Abbey Church, Sain-Benoit-sur-Loire,” accessed August 24, 2014, <http://www.sacred-destinations.com/france/saint-benoit-sur-loire-abbey-fleury>.

The cathedral was considered as the “repository of signs for its culture”<sup>44</sup> could mean that non-secular events also took place in it. Its symbolism not only manifests in its architectural features such as the floor plan and facades, but also in its orientation: “The cathedral itself was architecturally oriented with the presumed world axes, the main line running East and West, with a lesser North-South crossing,”<sup>45</sup> again as shown in **Figure 6**.

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<sup>44</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 14.

<sup>45</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 14.

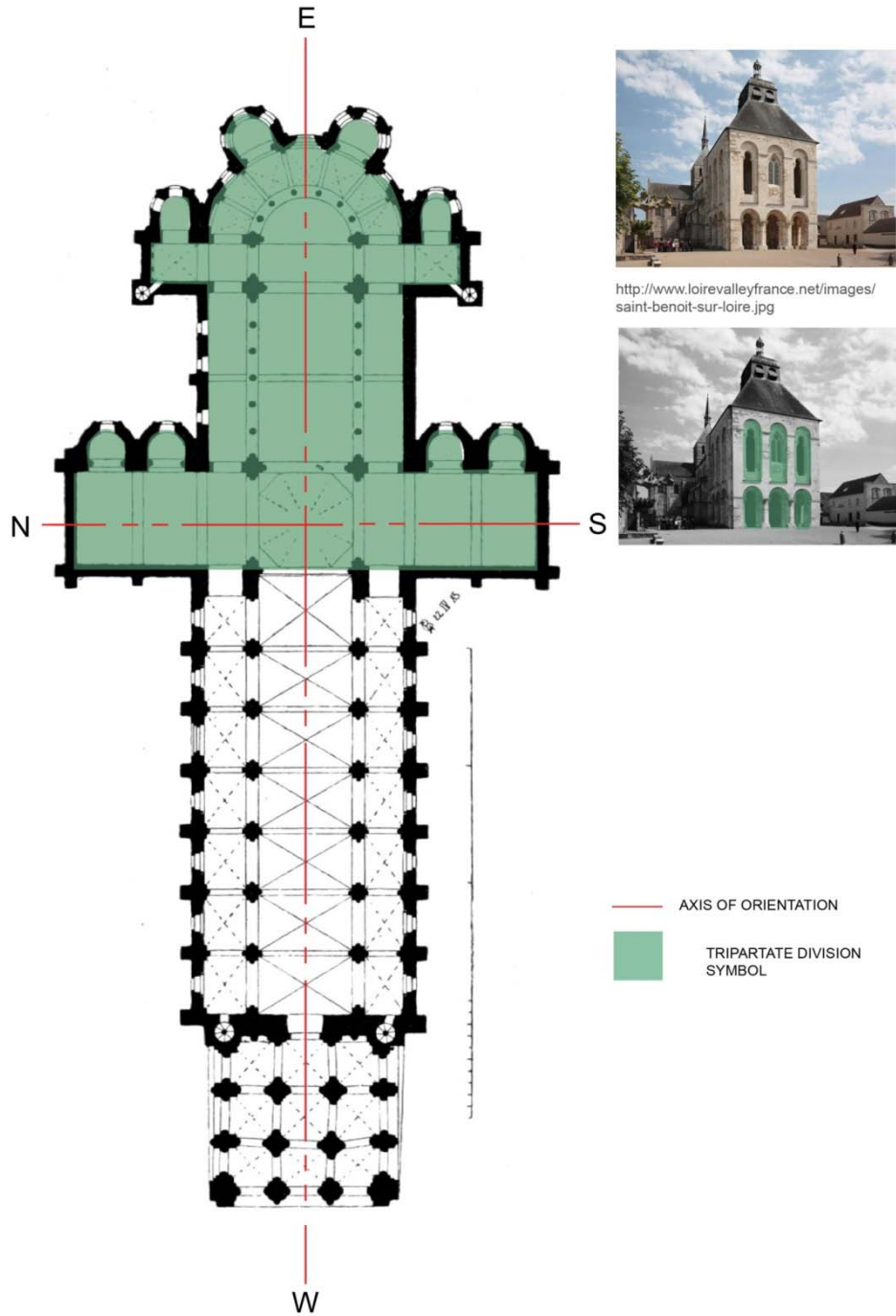


Figure 6. Saint-Benoit-Sur-Loire, France and its architectural symbolism. Floor Plan source: <http://www.pitt.edu/~medart/image/france/france-st/s-benoit-s-loire/df120sbl.jpg>; Image source: <http://www.loirevalleyfrance.net/images/saint-benoit-sur-loire.jpg>

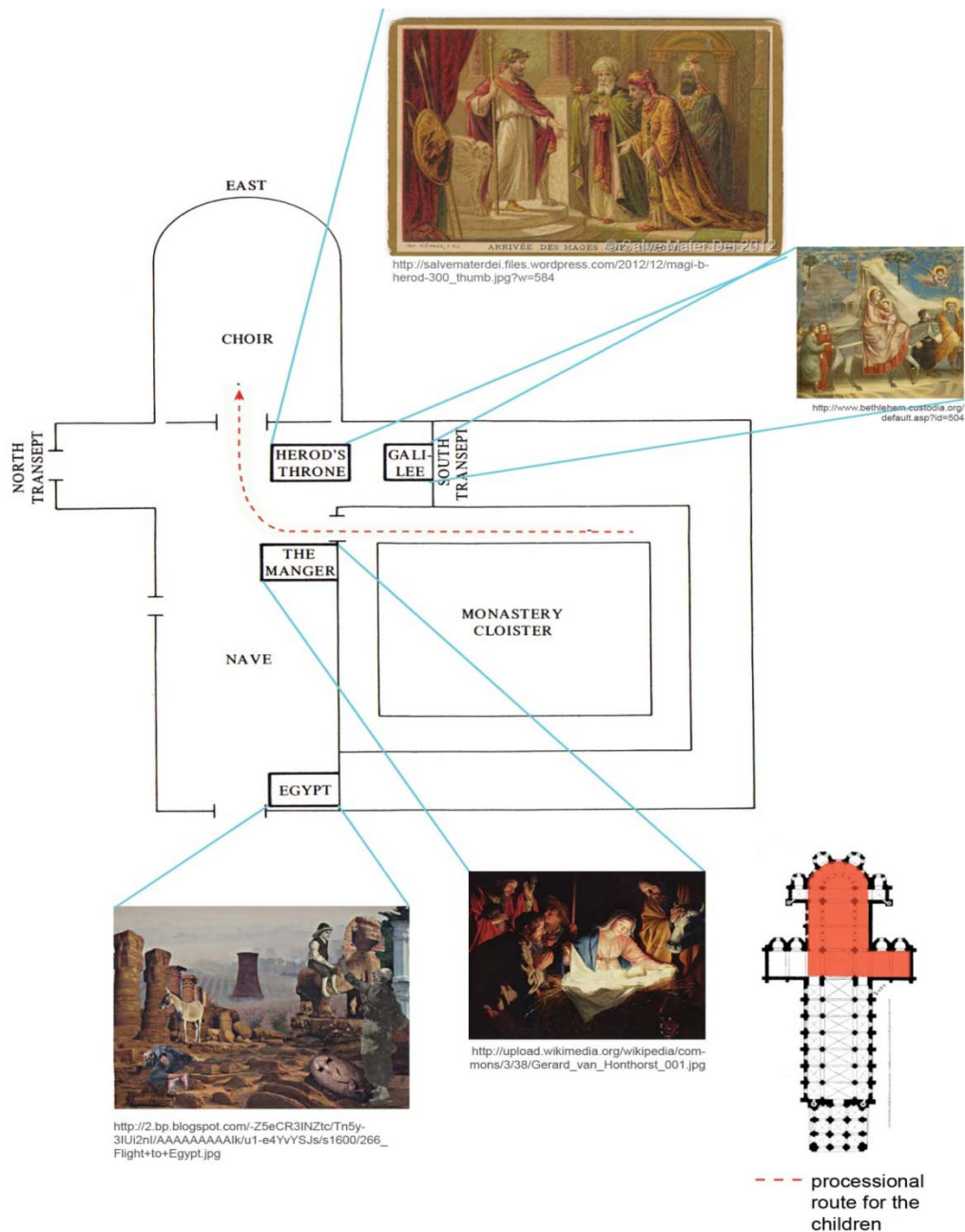
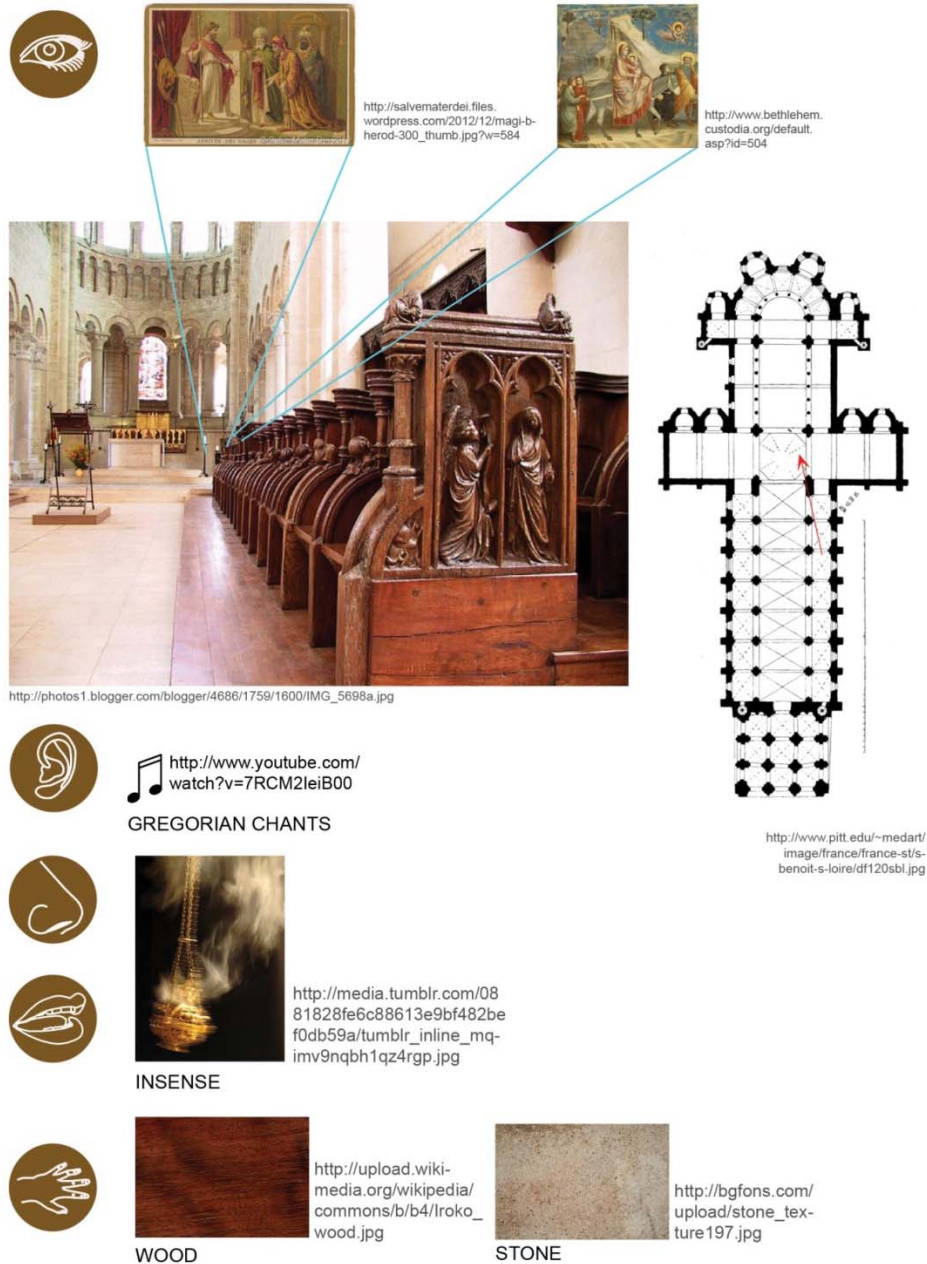


Figure 7. Saint-Benoit-Sur-Loire, France showing possible acting locations for the play, *The Slaughter of the Innocents*. Image Sources (from the top):

[http://salvematerdei.files.wordpress.com/2012/12/magi-b-herod-300\\_thumb.jpg?w=584](http://salvematerdei.files.wordpress.com/2012/12/magi-b-herod-300_thumb.jpg?w=584);  
<http://www.bethlehem.custodia.org/default.asp?id=504>; Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture*; [http://2.bp.blogspot.com/-Z5eCR3INZtc/Tn5y3IU2nl/AAAAAAAAAik/u1-e4YvYSJs/s1600/266\\_Flight+to+Egypt.jpg](http://2.bp.blogspot.com/-Z5eCR3INZtc/Tn5y3IU2nl/AAAAAAAAAik/u1-e4YvYSJs/s1600/266_Flight+to+Egypt.jpg);  
[http://upload.wikimedia.org/wikipedia/commons/3/38/Gerard\\_van\\_Honthorst\\_001.jpg](http://upload.wikimedia.org/wikipedia/commons/3/38/Gerard_van_Honthorst_001.jpg);  
<http://www.pitt.edu/~medart/image/france/france-st/s-benoit-s-loire/df120sbl.jpg>



**Figure 8. Surrounding stimulators that stimulate the senses during liturgical processions.**  
 Image Sources (from the top): [http://salvematerdei.files.wordpress.com/2012/12/magi-b-herod-300\\_thumb.jpg?w=584](http://salvematerdei.files.wordpress.com/2012/12/magi-b-herod-300_thumb.jpg?w=584); <http://www.bethlehem.custodia.org/default.asp?id=504>;  
[http://photos1.blogger.com/blogger/4686/1759/1600/IMG\\_5698a.jpg](http://photos1.blogger.com/blogger/4686/1759/1600/IMG_5698a.jpg);  
<http://www.pitt.edu/~medart/image/france/france-st/s-benoit-s-loire/df120sbl.jpg>;  
[http://media.tumblr.com/0881828fe6c88613e9bf482bef0db59a/tumblr\\_inline\\_mqimv9nqbh1qz4rgp.jpg](http://media.tumblr.com/0881828fe6c88613e9bf482bef0db59a/tumblr_inline_mqimv9nqbh1qz4rgp.jpg);  
[http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko\\_wood.jpg](http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko_wood.jpg);  
[http://bgfons.com/upload/stone\\_texture197.jpg](http://bgfons.com/upload/stone_texture197.jpg)

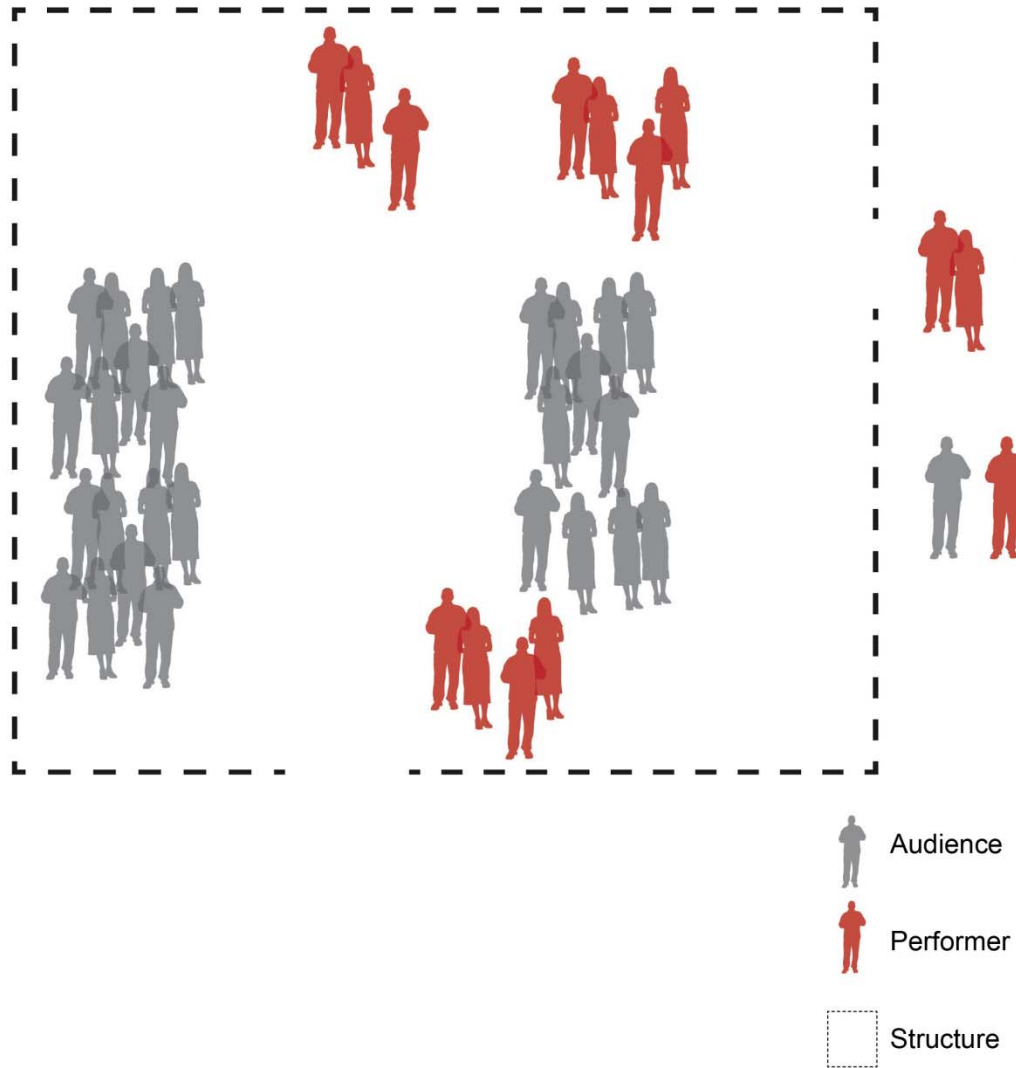


Figure 9. Performer-Audience Diagram – After analyzing the spatial relationships between the audience and the performer, I have transferred my observation to this diagram. It represents the spatial relationship back in the 1200s and inside the cathedrals. One may notice that the performers are scattered through certain positions within the structure for the audience to see.

## 1583: Religious Drama – Liturgical and Mystery Performances

From the walls within the cathedrals to their outside surroundings, the performances have started to expand to be more visible to the public. One may assume that this was done so that the public could participate. Carlson continues to write,

“Early twentieth-century scholars considered the mystery plays presented outside the church to be direct descendants of these liturgical dramas, but one recent research shows challenged this theory, citing as evidence not only historical overlap of the forms, but their many important differences in organization, themes, and social function.”<sup>46</sup>

If this was the case of the nature of performances, both the performers and the public are what I would consider

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<sup>46</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 17.

performers because both groups have to move from one place to another. These dynamic performances may have made the performers exhausted from all the travelling in the midst of performance. This practice is significantly different from what we have now, because of the utilization of theaters. Carlson continues to write,

“Nevertheless in the matters of spatial and urban signification, liturgical and mystery performances had important similarities. The general east-west symbolism predated the construction of the great cathedrals and was by no means restricted to them. A similar symbolic system was to be found in almost every outdoor organization of medieval drama where the physical configuration would allow it.”<sup>47</sup>

It is interesting to find out how performers became easily adaptable to a set of buildings in the Medieval period.

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<sup>47</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 17.

It is as if the buildings themselves were the stages, and the outdoor spaces were the audience sat.

“Cities offered a variety of richly significant locations for the performance of religious drama. In many of them the space immediately adjacent to the cathedral was apparently employed, as for the famous medieval play, the *Jeu d’Adam*, with the cathedral as a whole serving as the abode of God.”<sup>48</sup>

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<sup>48</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 17.



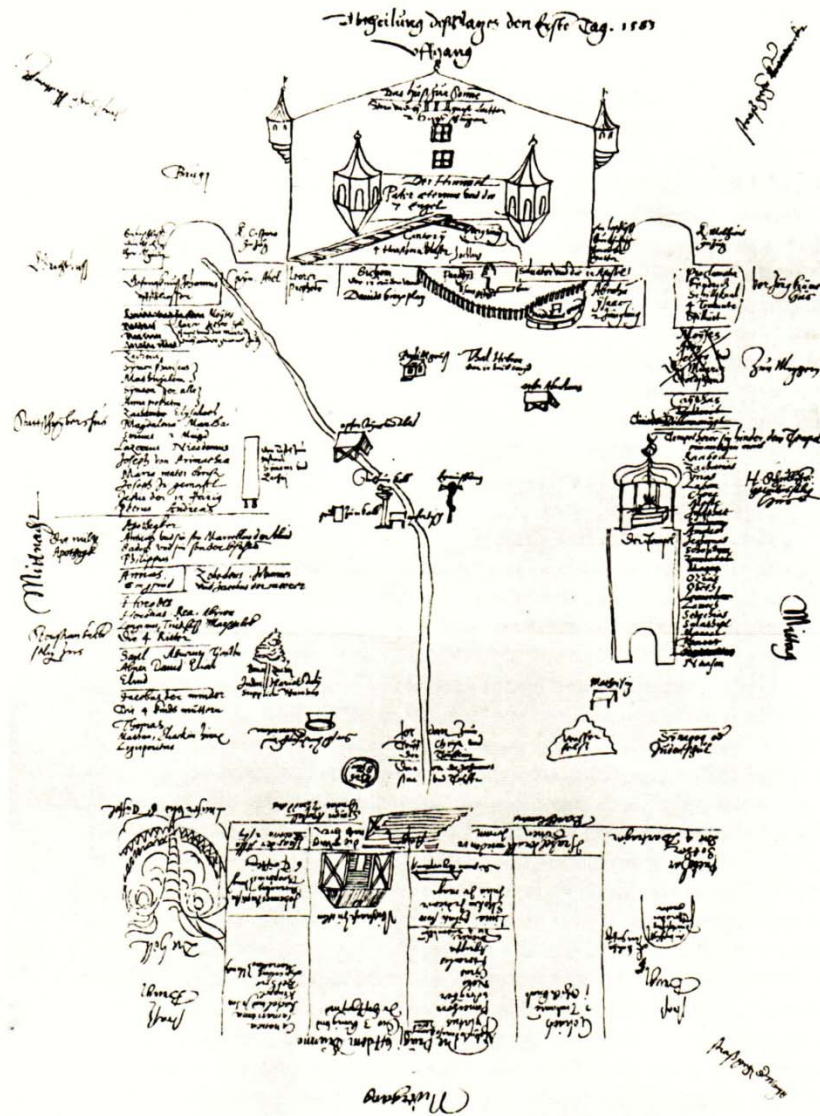
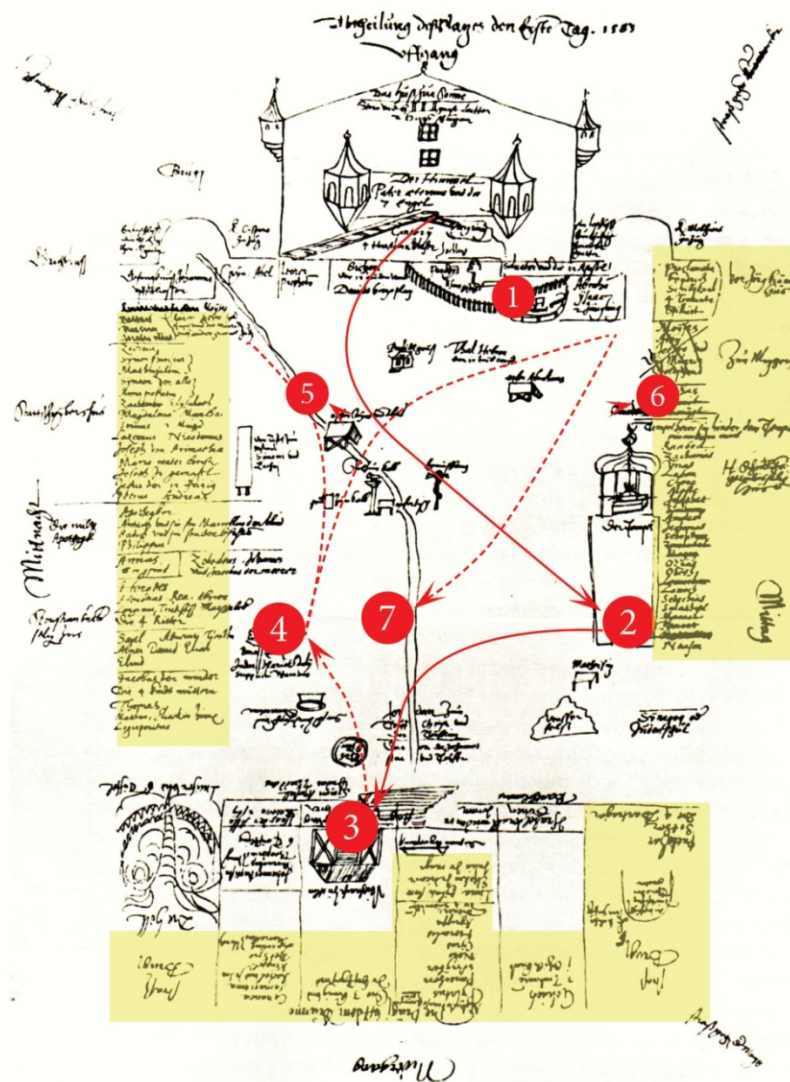


Figure 10. Lucerne Fischmarkt stage plan where “heaven is placed against the permanent building at the top, where the action begins. Other structures - the largest are the temple on the right side of the marketplace, and the Hell-Mouth (upside-down in this drawing) at the lower left - for various later scenes are scattered about the open area. Characters are listed next to their stations. From Franz Leibing, *Die Inszenierung des zweitägigen luzernes Osterspiels (1869)*.” Image Source: Marvin Carlson, In *Places of Performance: The Semiotics of Theatre Architecture*



noted characters to be in their stations

path of performers

1 start

2 temple

3 Hell-Mouth

4 5 6 7 various later scenes

Carlson, Places of Performance, Pg. 18

Figure 11. Circulation analysis of the Lucerne Fischmarkt stage plan. Image Source: Marvin Carlson, In Places of Performance: The Semiotics of Theatre Architecture



<http://www.hist.umn.edu/hist3611/moved/protected/week9/images/ambassadors1.jpg>



<http://www.hist.umn.edu/hist3611/moved/protected/week9/images/oath2.jpg>



<http://alyve.org/theatre/classes/images/Medieval-Pageant-Wagon.jpg>



<http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg>

FOOD

**Figure 12. Surrounding stimulators that stimulate the senses during 1583.**

Image Source (from the top):

<http://www.hist.umn.edu/hist3611/moved/protected/week9/images/ambassadors1.jpg>;

<http://www.hist.umn.edu/hist3611/moved/protected/week9/images/oath2.jpg>

; <http://alyve.org/theatre/classes/images/Medieval-PageantWagon.jpg>

; [http://1.bp.blogspot.com/-](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg)

[IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg)

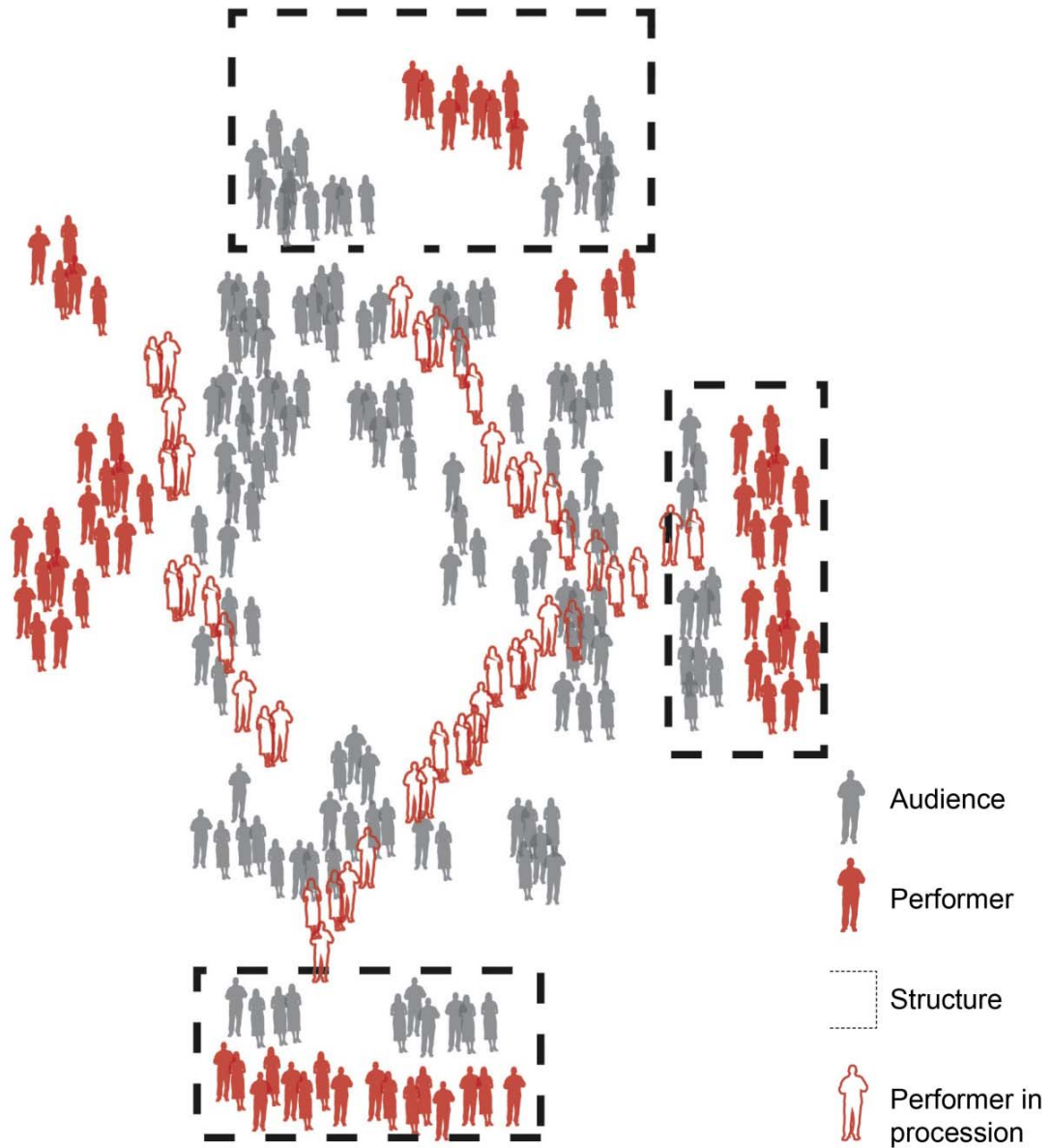


Figure 13. Performer-Audience Diagram – Using the city as a performance space, the both the audience and performers get to utilize indoor and outdoor spaces

## 15?: Spatial Experimentation

### Predecessors of Opera

Sometime after 1583 in Florence, there was an abundance of theater centers that were active. However, although processions of great civic and religious festivals still ran from time to time, the revivals of Latin comedy remained played indoors. Interests in the theater and the art of the garden have also sprung up, and that “theatre ties geometry to urbanism. Theatrical decor would have its effect on urban decor, while scenography was born from the treaties of perspective.”<sup>49</sup>

It seems that there was a need and desire to bring the outdoor performances into indoors while maintaining the feel of the outdoor stimulators. Florence is also known for being the birth place of opera. It started as *Florentine Camerata*, an experimental form of entertainment that quickly grew

more elaborate and expensive.<sup>50</sup>

Compared to the liturgical performances where there were no importance emphasized on social class, the emergence of *Florentine Camerata* introduced the place where social stratosphere is acknowledged.

Extravagant display of wealth among the audience was a part of the performance “to do so under the guise of art and culture.”<sup>51</sup> There was also a change of status for the performers, particularly the conductors, who at the time, composed their own music: “Composers came to the new form not only because their royal patrons demanded it, but because the *stile rappresentativo*, let them exercise their expressive skills and find ways to represent varying emotions and dramatic situations with their music.

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<sup>49</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 23.

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<sup>50</sup> “Opera develops” accessed September 15, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/develop.html>.

<sup>51</sup> “Opera develops” accessed September 15, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/develop.html>.

(The long established sacred style had offered little opportunity to make music sound as though it had either emotional content for programmatic meaning.) Singers were drawn to opera for the same reasons: it offered them new challenges and more artistic latitude than had sacred music.”

In some sense, the thirst for a more varied type of music by the public had been because of their exposure to liturgical music and performances. From the quote, one can observe the emergence of famous composers as they were singled out by those who can provide them compensation. These composers, as it seems, became inspired by being free from the musical restrictions of the church.<sup>52</sup>

As a result, there was experimentation with musical form before opera was considered the opera of today, for there

were no precedents to follow in terms of musical composition and of performance traditions. All that were made were prototypes, including performers being assigned to roles. The thought of a particular voice type for a particular role was not even born. The only musical model for them to base their experiments on was the Baroque logic when it came to casting roles: main roles casted to the most skillful singers.<sup>53</sup> Another assumption I would make here is that this was the time that competition among singers and composers began, because of casting.

Part of the experimentation was the type of performance space they were to use. Figure 13 illustrates the model of the Greek theater. This was used as a model on where to place the instrumentalists, singers, and audience. More importantly, the Greek theater model is where the idea of back stage

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<sup>52</sup> “Opera develops” accessed September 15, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/develop.html>.

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<sup>53</sup> “Opera develops” accessed September 15, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/develop.html>.

was born. Since the liturgical performances, there were no record of how the performers prepared for their performances. This is probably because they did not need any costume change, considering how far they were travelling in the middle of their performances.

One important space learned from the Greek theater is the *orchesthai* or 'dancing place', because it became a divider between performer and audience, thus creating a space between them. The consequence to the orchestra placement is the need from the singers to be able to project their voices to greater distances.<sup>54</sup>

So far, we know the birth of casting roles to singers and requiring them to have more powerful singing voices. One can assume that this could have been the start of the rising problems of opera

singers, therefore leading to Performance and Social Anxiety.

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<sup>54</sup> "Opera develops" accessed September 15, 2013, <http://www2.lawrence.edu/fast/KOOPMAJO/develop.html>.

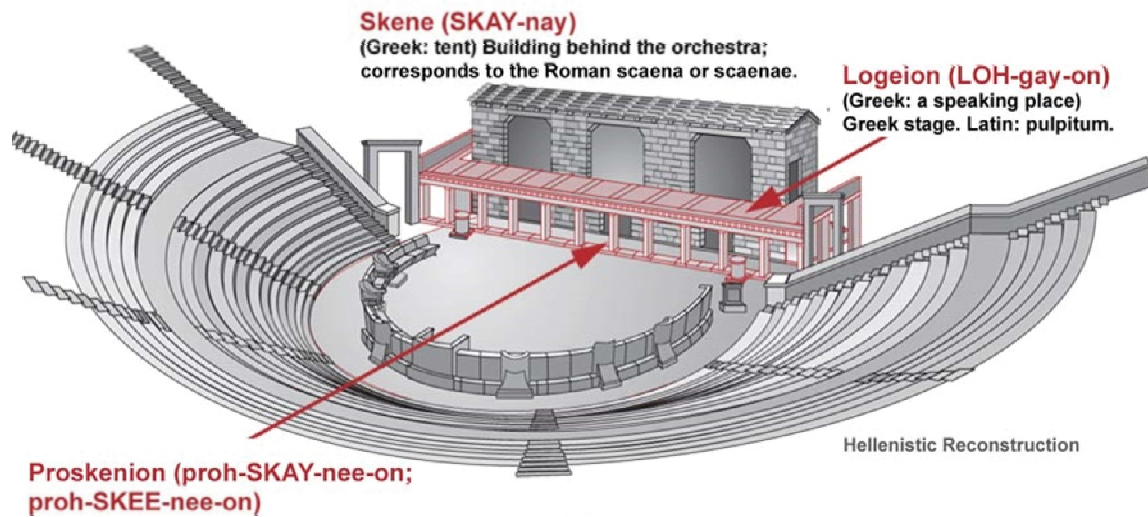


Figure 14. A Hellenistic reconstruction of the Greek theatre as a model for Florentine Camerata performances, where it gives birth to the different parts of the theatre: Proscenium or Stage (Proskenion), Orchestra pit (Orchesthrai), and Back drop (Skene).

Image Source:

<http://www.whitman.edu/theatre/theatretour/glossary/glossary%20images/proskenion.jpg>



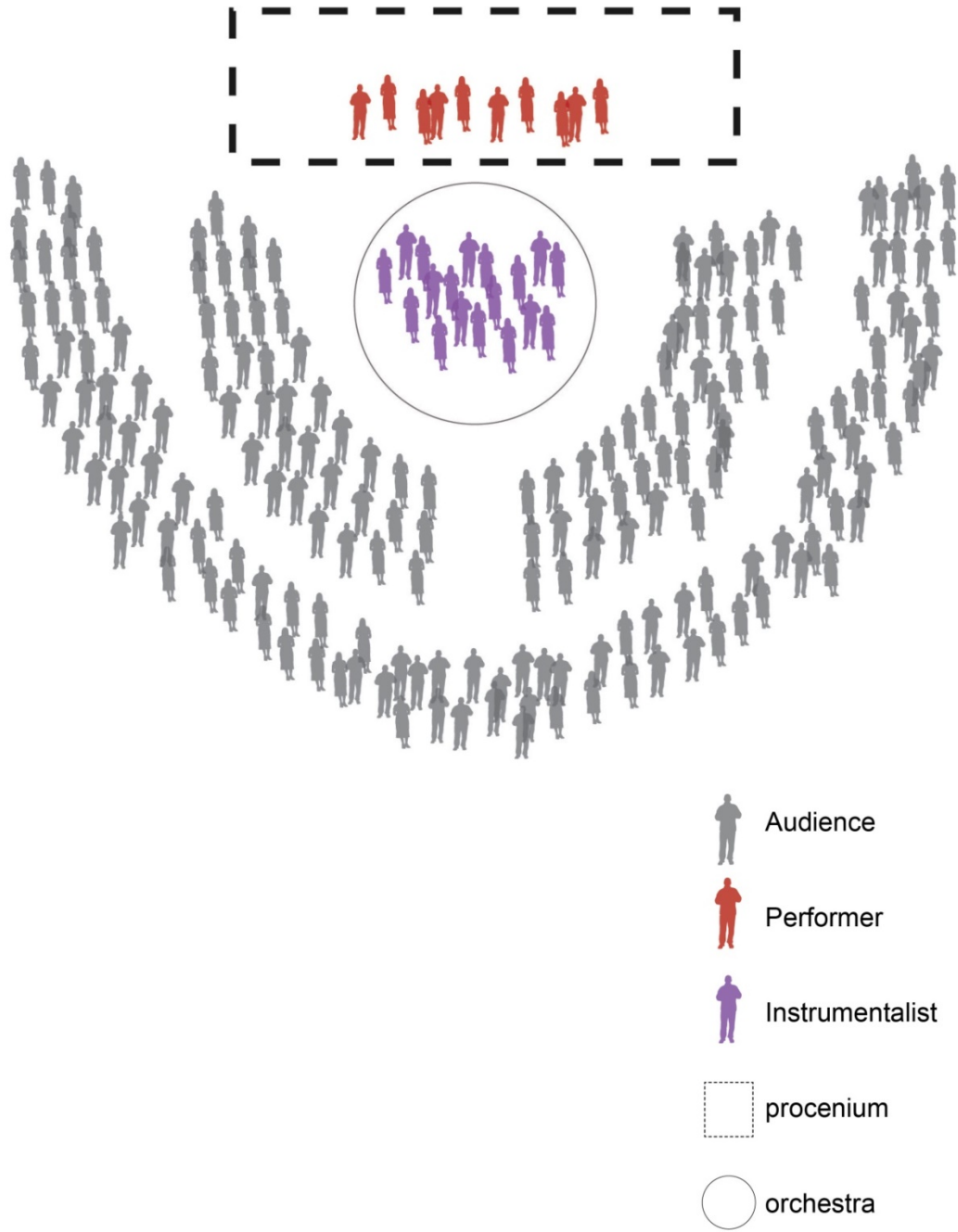


Figure 15. Performer-Audience Diagram – Following the Greek theater model, new features are being added to the theater.

## 1607: Birth of Opera

### Play of Power – Shift of Symbolism

For some reason, the need for procession performances grew in 1607. One can only assume it is due to the need to display one's wealth, and the rising distinction of social classes, that people thought would combine the ideals of *Florentine Camerata* and the liturgical processions would be an innovative idea for an opera performance. This, it seems, was still a part of the experimentation of the development of opera. Carlson narrates, According to the quotation above, the idea of admission was born in this time period, and more importance than ever, was placed upon one's social class. As a result, religious symbolism slowly faded as it was replaced by secular symbolism, displaying one's power and wealth. One of the ways they displayed such wealth was their financial ability to house singing performances. The layout of the venues of these residential areas are so complex that it did filter out those of lower social class, keeping them from

gaining entry. Procession has now shifted its symbolism.<sup>55</sup>

One of the social groups that gained prominence was the princes. As their power rose, the more the medieval city became less suitable for processions. As Carlson states that with the new social imbalance inevitably taking place, the sovereign "achieved the conquest of urban space which would be carried out in reality during the baroque period. The urban texture of the medieval city would resist this change for some time, however, and it continued to serve as a kind of ironic counter design to such ephemeral experiments as Henri's painted perspective or the temporary arches of triumph which were frequently built to serve as more proper initiating sign for the entry than the more forbidding city gates, with their connotations of defense rather than subjection."<sup>56</sup>

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<sup>55</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 20.

<sup>56</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 23.

## For the Sake of Arts

One of the outcomes of the rise of the princely power was that during the Renaissance period, official theaters were made by the new social order. Financing was made possible by way of sponsorship, as a way for the princes to show their appreciation for the arts, for the sake of arts.<sup>57</sup>

## Rise of Aristocracy

Concurrent to the rise of the princely power was the rise of aristocracy. Majority of them lived in the ducal courts of *Ferrara*. Carlson continues to narrate that the pageants also became prominent in *Ferrara*, as it travels from the district's gates to its rivers, to the major streets of its central piazza, leading to the ducal courts, and then to the merchants.<sup>58</sup>

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<sup>57</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 38.

<sup>58</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-40.

## Same Symbols, Different Connotations

The Renaissance and Baroque periods may have shared the same symbols, but their meanings were very different when used for power and importance. For instance, the *cortile* or court, one of the main spaces in a ducal court, was used differently during the Renaissance and Baroque periods. Carlson writes

“Chroniclers of the period remark that the audience for these first cortile performers were almost as varied as those for the medieval religious spectacles, but they entered the cortile under quite different conditions. The piazza ‘belonged’ to the general public, the cortile to the duke, who admitted the populace at his own choice. Despite the variety of social classes represented in these first audiences, this choice was already being to some extent exercised, since the cortile, a more limited space than the piazza, could not accommodate everyone who wished to come. A

historian of the Ferrara theatre calls this limitation a ‘temporary compromise’ – an accommodation of the principle of public access to the developing new idea of theater as an art restricted to learned society.”<sup>59</sup>

The last sentence in the quote may have possibly contributed to one of the main problems opera faces today. This is another issue, however, that will re-emerge in the latter part of this thesis.

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<sup>59</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-40.

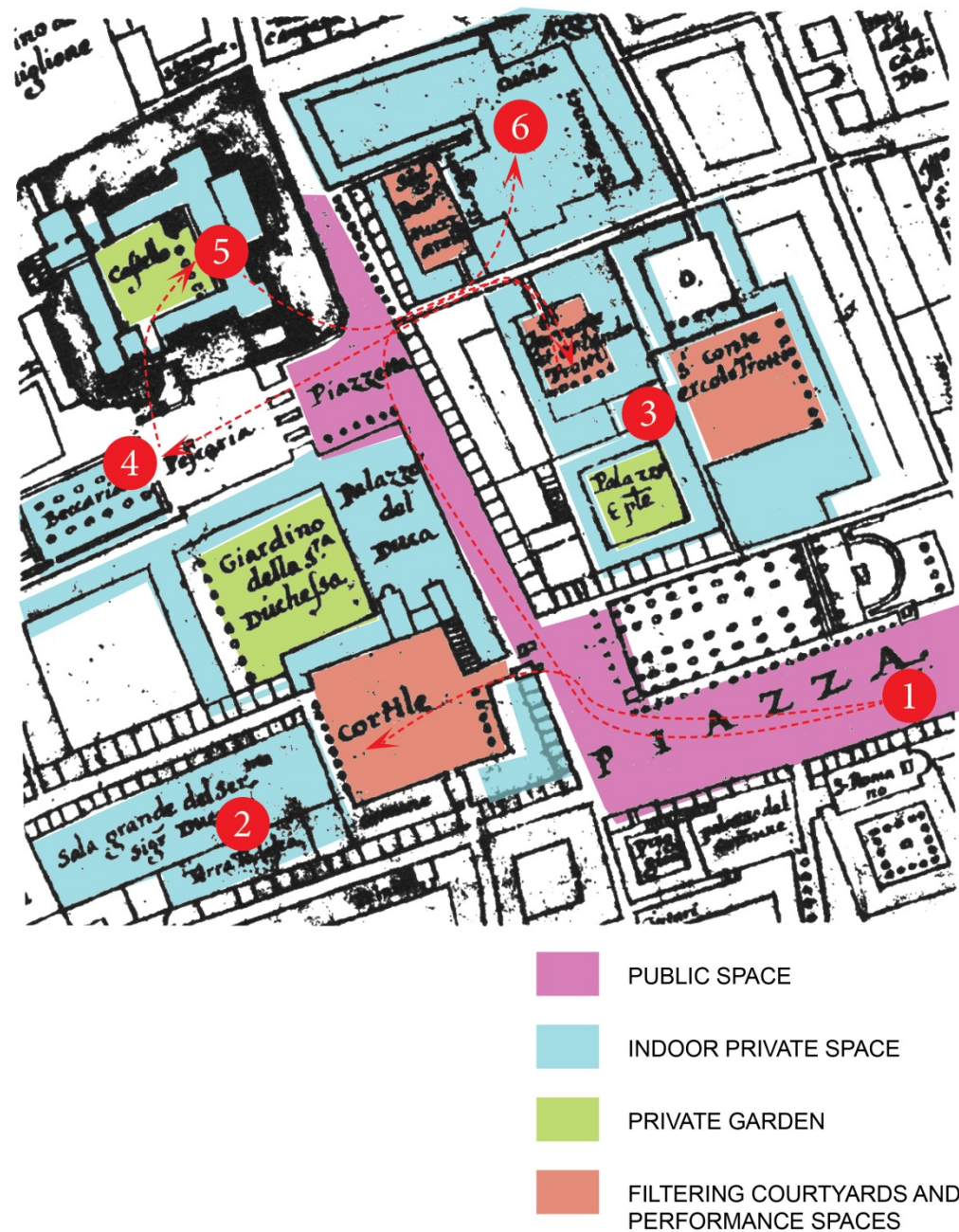


Figure 16. Urban space showing Ferrara Cortile and a new type of procession. (From G.B. Aleotti's *Pianta Topografica di Ferrar*. Courtesy Biblioteca Comunale Ariostea, Ferrara).  
 Image Source: Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture*

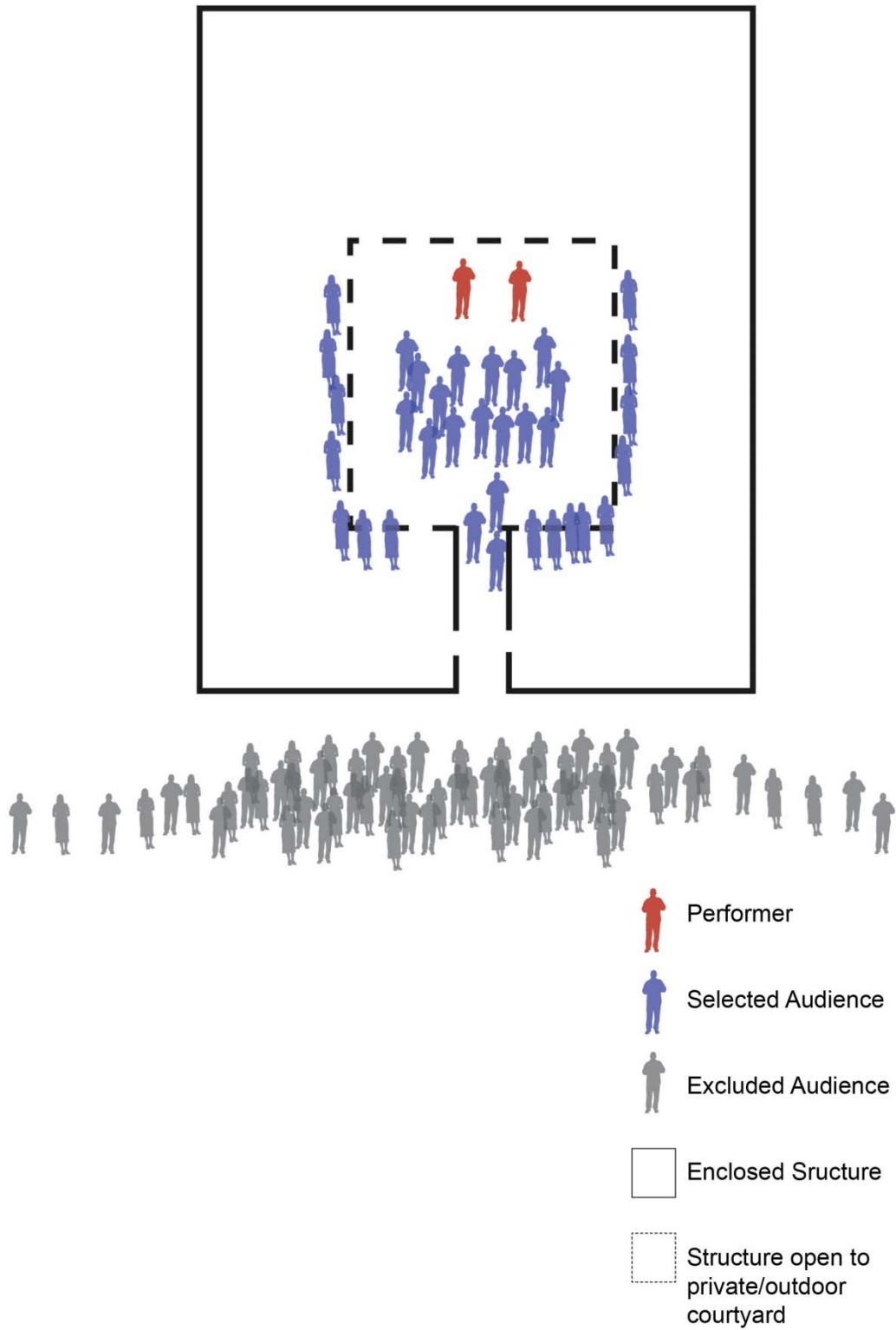


Figure 17. Performer-Audience Diagram – Separation of social classes during the rise of aristocracy.

## 1628: Residential Theatres

Before the first opera house was built, it started as a part of an aristocratic residence - a way to entertain guests and to flaunt their riches. The residential theatre has become a place of socialization and gossip. No longer did the guests gathered in open courtyards, the covered performance spaces made these gatherings more exclusive and harder to be admitted to. Carlson continues to write:

“In large places these halls could be spacious indeed, providing space for the gathering of hundreds, and occasionally of thousands of spectators, but as a general rule the public at large was rarely given access to such spaces, and admission was always at the sufferance of the palace owner, and not infrequently only at his personal invitation.”<sup>60</sup>

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<sup>60</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-40.

From performances being held outdoors in ducal courts and royal palaces, the performance space found its way inside royal palaces. No longer they were performed in *cortiles*, but now in a much more private setting, in demand by more private people. One of the known architects at the time was Joseph Furttenbach, who designed floor plans for both a ducal palace and a modest, private home.<sup>61</sup>

According to Rosanne Martorella, author of *The Sociology of Opera*, the plans for the ducal palaces were not designed for the internal theatrical space to be accessed from the outside, but through its adjacent spaces. This was deliberately done so that the visitors may admire the splendor of the palace, more proof of displaying one's wealth.<sup>62</sup> One can deduce that this transitional

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<sup>61</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 44.

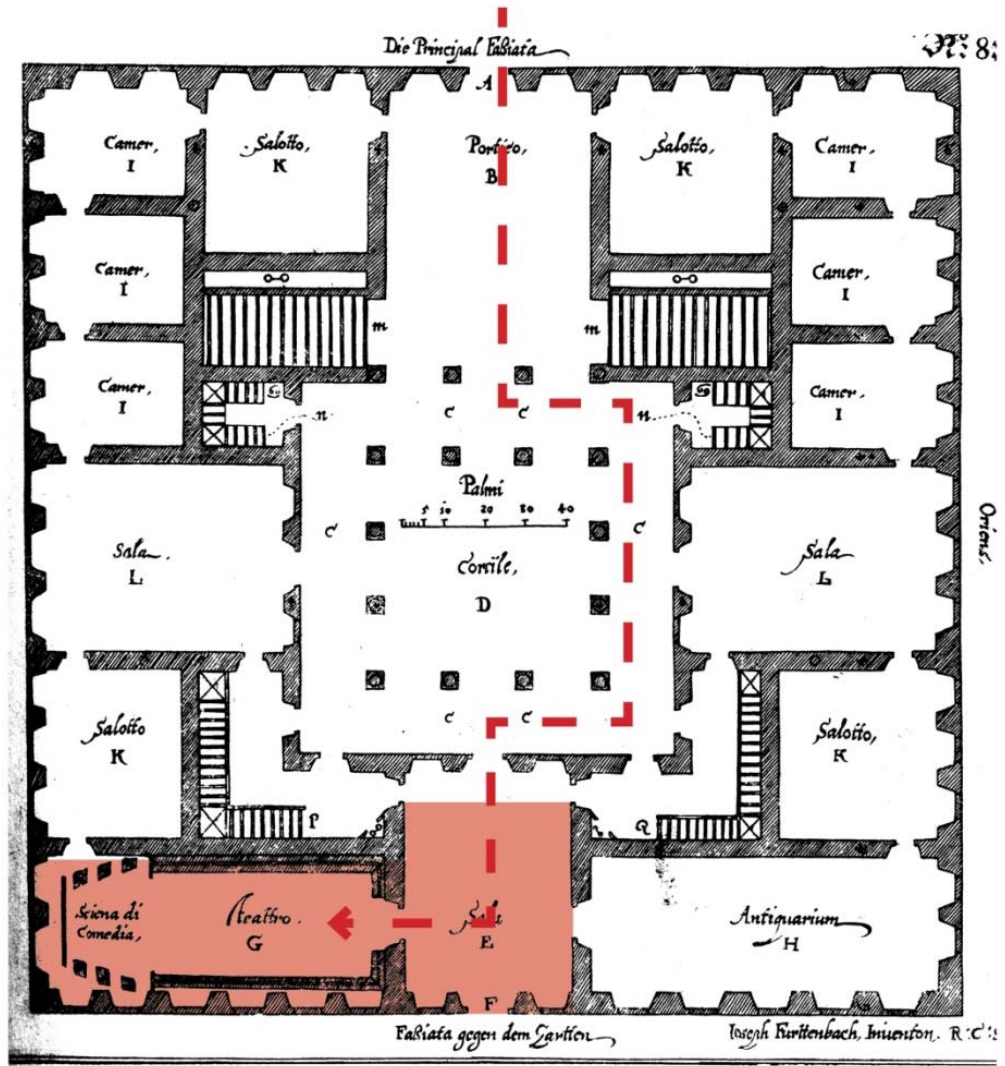
<sup>62</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 44.

space was the birth of the grand foyers and lobbies in the theatres we have today. The modest homes are designed similarly but with shorter sequences.



**Figure 18.** Performance in a great hall in **1851**. Image Source: Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture*





- PERFORMANCE SPACE
- ← VISITOR CIRCULATION

Figure 19. Ducal palace by Furtenbach, showing how visitors enter the palace. One has to pass through two major spaces, the portico and the cortile, before one reaches the sala that leads to the theatrical space. Image Source: Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture*

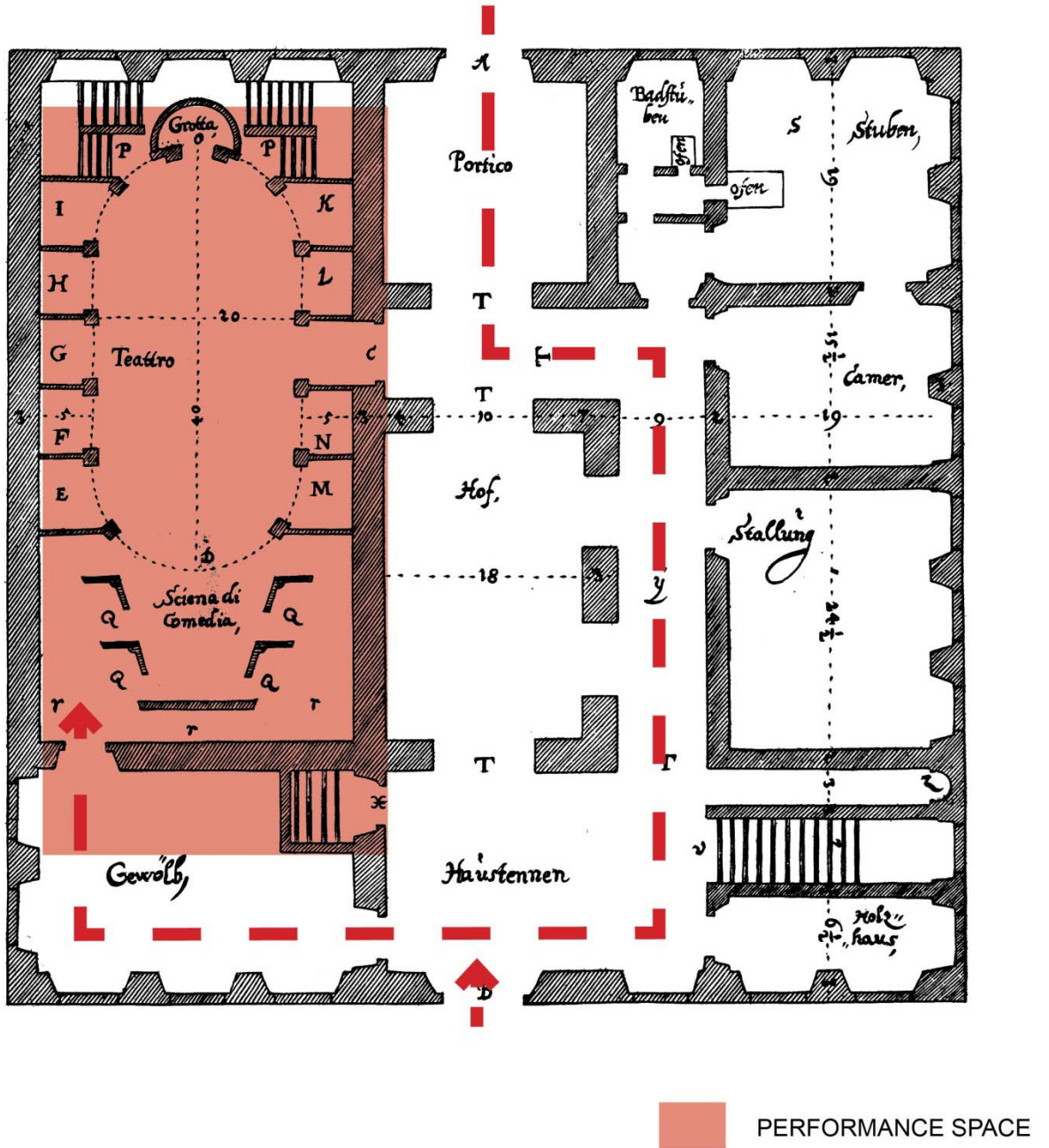
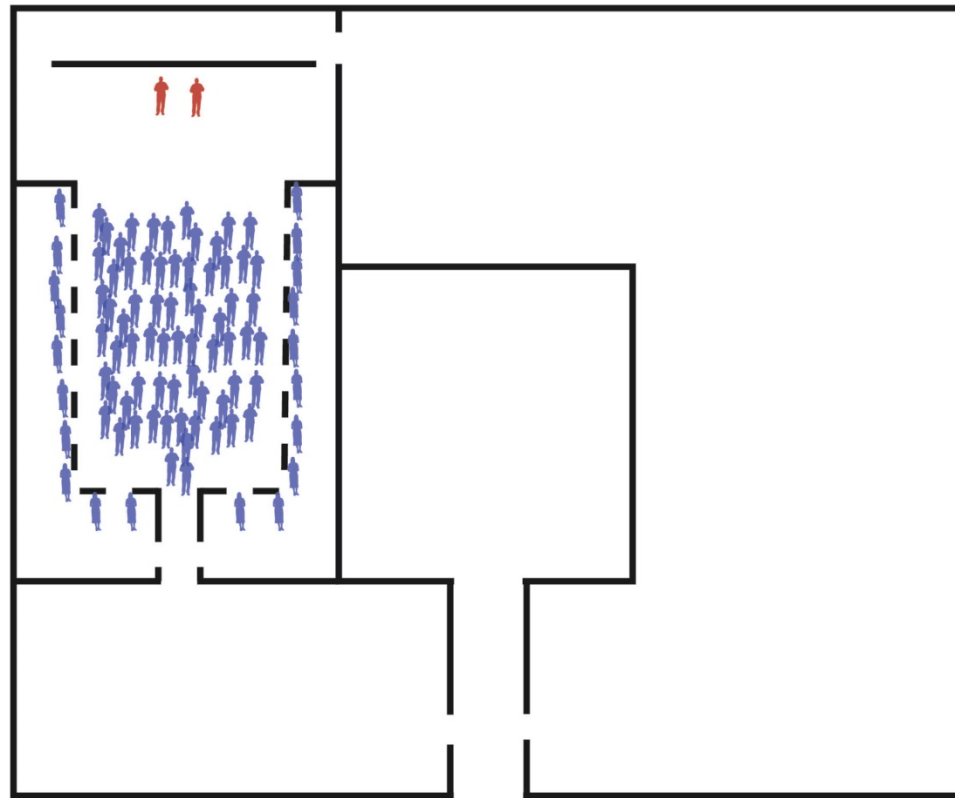


Figure 20. Private home by Furttentbach, showing two points of entry to the theatrical space. Photo courtesy by Architectura civilis. Image Source: Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture*








-  Performer
-  Selected Audience
-  Excluded Audience
-  Enclosed Structure
-  Structure open to private/outdoor courtyard

Figure 21. Performer-Audience Diagram – expanded point of entry or an experience on the way to the theatrical space



[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837.\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837._Original_at_Museo_Correr.jpg)

INTERIOR SPLENDOR, STAGE, PERFORMERS, OTHER PEOPLE



<http://img.photobucket.com/albums/v411/iiboobeari/timeline617thcentury.jpg>

LATEST FASHION



1:19:53  
<http://www.youtube.com/watch?v=4ZsfZbxMxI4>

OPERA PERFORMANCE



<http://foreveryoungadult.com/wp-content/uploads/2012/05/ladiesinwaiting.jpg>

CHATTING / GOSSIP



<http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg>

FOOD



<http://blogmedia.eventbrite.com/wp-content/uploads/Red-Wine-6.15.11.jpg>

WINE



[http://www.wysinfo.com/Perfume/picts/0\\_paerfume\\_bottle\\_cut\\_glass\\_260\\_1.JPG](http://www.wysinfo.com/Perfume/picts/0_paerfume_bottle_cut_glass_260_1.JPG)

PERFUME



[http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko\\_wood.jpg](http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko_wood.jpg)

WOOD ON RAILINGS

Figure 22. Surrounding stimulators that stimulate the senses during 1628 in the residential theatres. Image Source (from the top):

[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837.\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837._Original_at_Museo_Correr.jpg);

<http://img.photobucket.com/albums/v411/iiboobeari/timeline617thcentury.jpg>;

<http://foreveryoungadult.com/wp-content/uploads/2012/05/ladiesinwaiting.jpg>;

[http://1.bp.blogspot.com/-](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg)

[IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg);

<http://blogmedia.eventbrite.com/wp-content/uploads/Red-Wine-6.15.11.jpg>;

[http://www.wysinfo.com/Perfume/picts/0\\_paerfume\\_bottle\\_cut\\_glass\\_260\\_1.JPG](http://www.wysinfo.com/Perfume/picts/0_paerfume_bottle_cut_glass_260_1.JPG);

[http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko\\_wood.jpg](http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko_wood.jpg)

## 1637: First Public Opera House and the Rise of the Box

One of the new developments of theater design is that its change in location. No longer it is situated inside a residential space. The residential buffer is now taken away, and all that is left is the theatrical space itself with the lobby. This new kind of architectural and social model has multiplied in commercial centers in urban areas. The theater now has its own structure, but it was still owned by aristocracy. Its new purpose was to make profits. Displaying their wealth also was no longer a priority at this time.<sup>63</sup> This was a pivotal change as it welcomed the rise of the middle class in Europe. *Teatro di San Cassiano*, the first public opera house was opened in 1637.<sup>64</sup> Opera production was no longer

sponsored by those with wealth, but now by middle class. The selling of opera tickets became crucial, because the funding of opera productions depended on it.<sup>65</sup>

Another change that came with the public theatre was the expansion of the spaces in the theatre. To be able to accommodate a larger audience, the spaces must be made bigger. For the singers, this meant having a greater ability to project their sound to be heard.<sup>66</sup>

The scheduling of performing also had to be adjusted in this new move. In order to fund the theatres, they have to play more frequently to sell more tickets. Because of the doubling of the audience

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<sup>63</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-48.

<sup>64</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-48.

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<sup>65</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-48.

<sup>66</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-48.

size, early opera composers such as Claudio Monteverdi doubled the number of string players to be heard.<sup>67</sup>

### The Challenge for the Performers

The early 1600s is also an era where musicians had to prove their talent to gain the audiences' attention, and now that there is more variety of social classes admitted in the theatres, one may conclude that more gossips were made among the audience. Seating or lack thereof, depended on the ticket price. There was also the presence of light in the audience that encouraged chatting and mingling, wanting to see and be seen. The stage performers had to fight for attention against the noisy crowd.<sup>68</sup>

An example of a public opera house is *Teatro Santi Giovanni e Paolo*, an opera theatre built in 1639 (**Figure 20**).<sup>69</sup>

Notice that in the floor plan, the stage is considerably larger, and reaches out further in depth. Since there is not enough information about this drawing, one can assume that the parallel lines behind the stage are the different scenic background, and its tapered is used to create perspective effect. The image on the upper right is the stage of *Teatro di Sabionetta*, known as the very first playhouse in Europe, built in 1588.<sup>70</sup>

The design evolution of the opera house has tried to address the issues above in order to give the people the best type of spatial accommodations, while enjoying the show, and when I say show, I do not necessarily refer to the opera being performed, but to the

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<sup>67</sup> "Opera Develops," Accessed September 23, 2013.  
<http://www2.lawrence.edu/fast/KOOPMAJO/dev elop.html>.

<sup>68</sup> "Opera Develops," Accessed September 23, 2013.  
<http://www2.lawrence.edu/fast/KOOPMAJO/dev elop.html>.

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<sup>69</sup> Ellen Rosand, *Opera in Seventeenth-Century Venice* (University of California Press, Ltd, 2007), pg. 396.

<sup>70</sup> "Renaissance Theatre: Italy," Accessed October 10, 2013,  
<http://www3.northern.edu/wild/th100/chapt13a .htm>.

“mutual exhibitionism and jostling for social position. In some Italian cities, boxes were passed from one generation of nobles to the next, perpetuating the opera-defined status of families; many had suites of rooms attached, furnished according to their owner’s tastes and with spaces for servants to prepare refreshments.”<sup>71</sup>

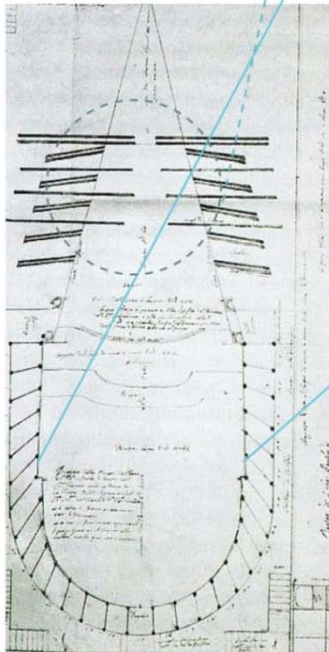
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<sup>71</sup> “Typology Quarterly: Opera Houses,” *The Architectural Review*, accessed October 15, 2013, <http://www.architectural-review.com/essays/typology/typology-quarterly-opera-houses/8653735.article>.



[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837.\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837._Original_at_Museo_Correr.jpg)

La Fenice



[http://en.wikipedia.org/wiki/File:Fontana\\_Drawing\\_Giovanni\\_e\\_Paulo\\_1654.jpg](http://en.wikipedia.org/wiki/File:Fontana_Drawing_Giovanni_e_Paulo_1654.jpg)

The Teatro Santi Giovanni  
(1638)



<http://www3.northern.edu/wild/th100/teatrosabbioneta1.jpg>

Teatro di Sabbioneta  
(1588-1590)

Figure 23. Surrounding stimulators that stimulate the senses during 1628 in the residential theatres. Source of images (from the top):

[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837.\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837._Original_at_Museo_Correr.jpg);

[http://en.wikipedia.org/wiki/File:Fontana\\_Drawing\\_Giovanni\\_e\\_Paulo\\_1654.jpg](http://en.wikipedia.org/wiki/File:Fontana_Drawing_Giovanni_e_Paulo_1654.jpg);

<http://www3.northern.edu/wild/th100/teatrosabbioneta1.jpg>





[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837_Original_at_Museo_Correr.jpg)

INTERIOR SPLENDOR, STAGE, PERFORMERS, OTHER PEOPLE



<http://img.photobucket.com/albums/v411/iiboibeari/timeline617thcentury.jpg>

LATEST FASHION



1:19:53  
<http://www.youtube.com/watch?v=4ZsfZbxMxI4>

OPERA PERFORMANCE



<http://foreveryoungadult.com/wp-content/uploads/2012/05/ladiesinwaiting.jpg>

CHATTING / GOSSIP



<http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg>

FOOD



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WINE



[http://www.wysinfo.com/Perfume/picts/0\\_paerfume\\_bottle\\_cut\\_glass\\_260\\_1.JPG](http://www.wysinfo.com/Perfume/picts/0_paerfume_bottle_cut_glass_260_1.JPG)

PERFUME



[http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko\\_wood.jpg](http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko_wood.jpg)

WOOD ON RAILINGS

**Figure 24. Surrounding stimulators that stimulate the senses during the early public opera houses.** Image Source (from the top):

[http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior\\_of\\_La\\_Fenice\\_in\\_1837\\_Original\\_at\\_Museo\\_Correr.jpg](http://upload.wikimedia.org/wikipedia/commons/1/1d/Interior_of_La_Fenice_in_1837_Original_at_Museo_Correr.jpg);

<http://img.photobucket.com/albums/v411/iiboibeari/timeline617thcentury.jpg>;

<http://foreveryoungadult.com/wp-content/uploads/2012/05/ladiesinwaiting.jpg>;

[http://1.bp.blogspot.com/-](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg)

[IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg](http://1.bp.blogspot.com/-IJC4Pf6MFGw/UWnL7FsVuyl/AAAAAAAAAPo/yWChr00SGFM/s1600/steam+bread.jpg);

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[http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko\\_wood.jpg](http://upload.wikimedia.org/wikipedia/commons/b/b4/Iroko_wood.jpg)

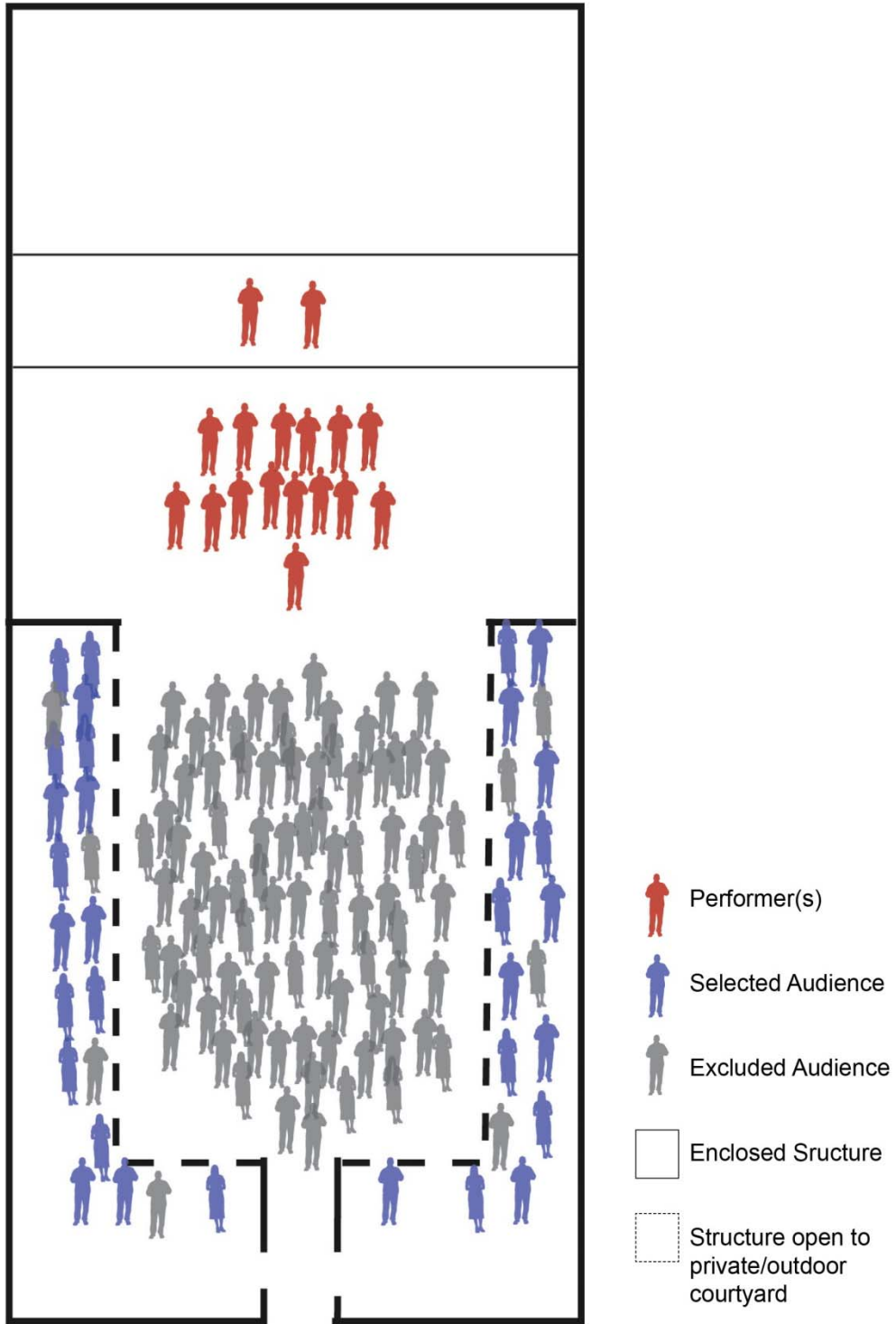


Figure 25. Performer-Audience Diagram – the new public opera house

## 1778: Teatro Alla Scala

### The Standard Theatre

From here on, the theaters have been the same. I included the Teatro Alla Scala because it is one of Europe's renowned opera theatres. It has a very high reputation of making the "who's who" among opera singers and conductors.

"The teatro alla Scala was founded, under the auspices of the Empress Maria Theresa of Austria, to replace the Royal Ducal Theatre, which was destroyed by fire on 26 February 1776 and had until then been the home of opera in Milan. The cost of building the new theatre was borne by the owners of the boxes at the Ducal, in exchange for possession of the land on which stood the church of Santa Maria alla Scala (hence the name) and for renewed ownership of their boxes. Designed by the great neoclassical architect Giuseppe Piermarini, La Scala opened on 3 August 1778 with Antonio

Salieri's opera *L'Europa riconosciuta*, to a libretto by Mattia Verazi."<sup>72</sup>

In addition to having been known for making the careers of singers and conductors, it had also become home to a number of influential opera composers known throughout history as Gioachino Rossini, Vincenzo Bellini, and Giuseppe Verdi has contributed to the high reputation and rich history of this opera house.<sup>73</sup>

By looking at the floor plan, one can observe the presence of the seats in

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<sup>72</sup> "Typology Quarterly: Opera Houses," *The Architectural Review*, accessed October 15, 2013, <http://www.architectural-review.com/essays/typology/typology-quarterly-opera-houses/8653735.article>.

<sup>73</sup> "History," *Teatro Alla Scala*, accessed September 20, 2013, [http://www.teatroallascala.org/en/discover/theatre/history\\_slide\\_11.html](http://www.teatroallascala.org/en/discover/theatre/history_slide_11.html).

what used to be an empty space in the middle. Another observation one can make is the addition of support spaces such as the dressing rooms, (**Figure 23**).

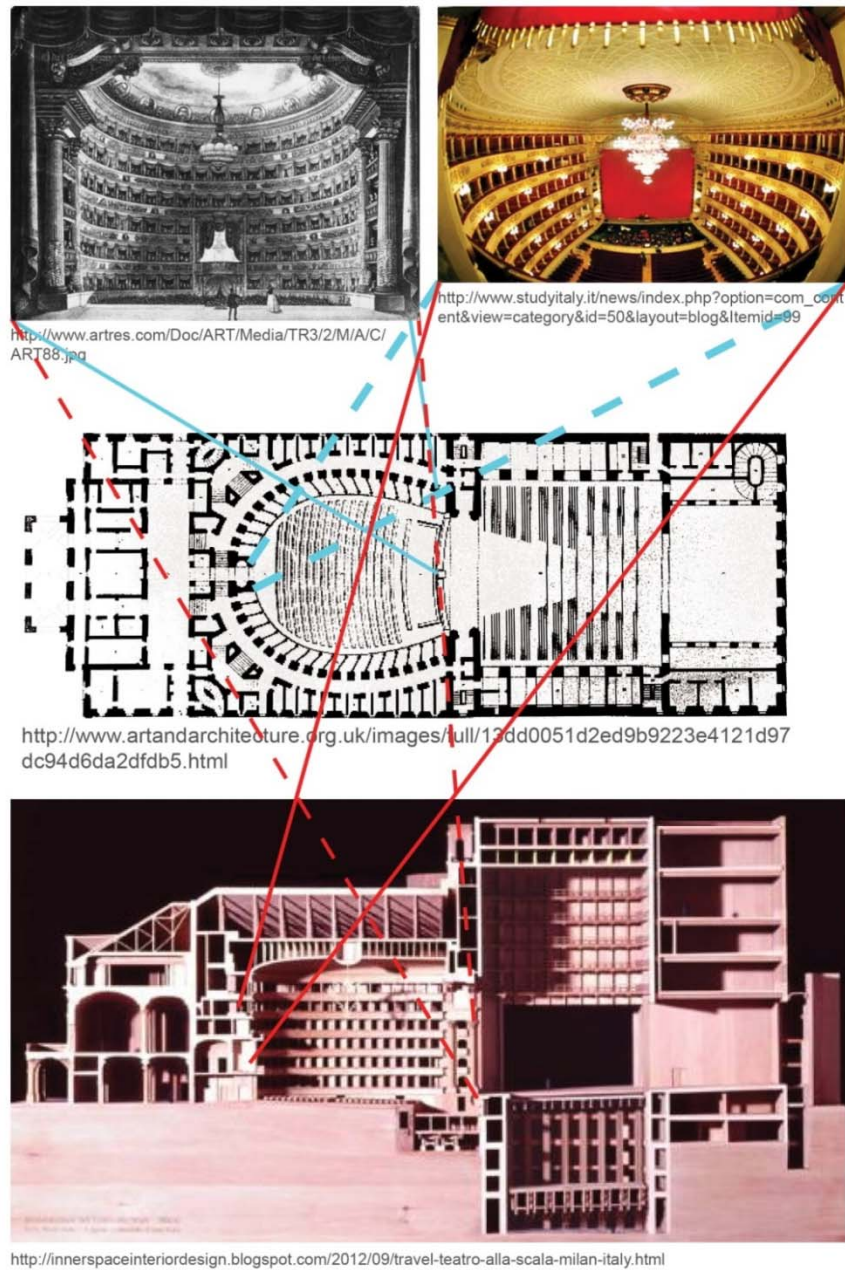


Figure 26. Teatro Alla Scala – top: view of seating; middle: floor plan; bottom: section model showing the front-of-house and the back-of-house spaces. Source of images (from the top): <http://www.artres.com/Doc/ART/Media/TR3/2/M/A/C/ART88.jpg>; [http://www.studyitaly.it/news/index.php?option=com\\_content&view=category&id=50&layout=blog&Itemid=99](http://www.studyitaly.it/news/index.php?option=com_content&view=category&id=50&layout=blog&Itemid=99); <http://www.artandarchitecture.org.uk/images/full/13dd0051d2ed9b9223e4121d97dc94d6da2dfdb5.html>; <http://innerspaceinteriordesign.blogspot.com/2012/09/travel-teatro-alla-scala-milan-italy.html>

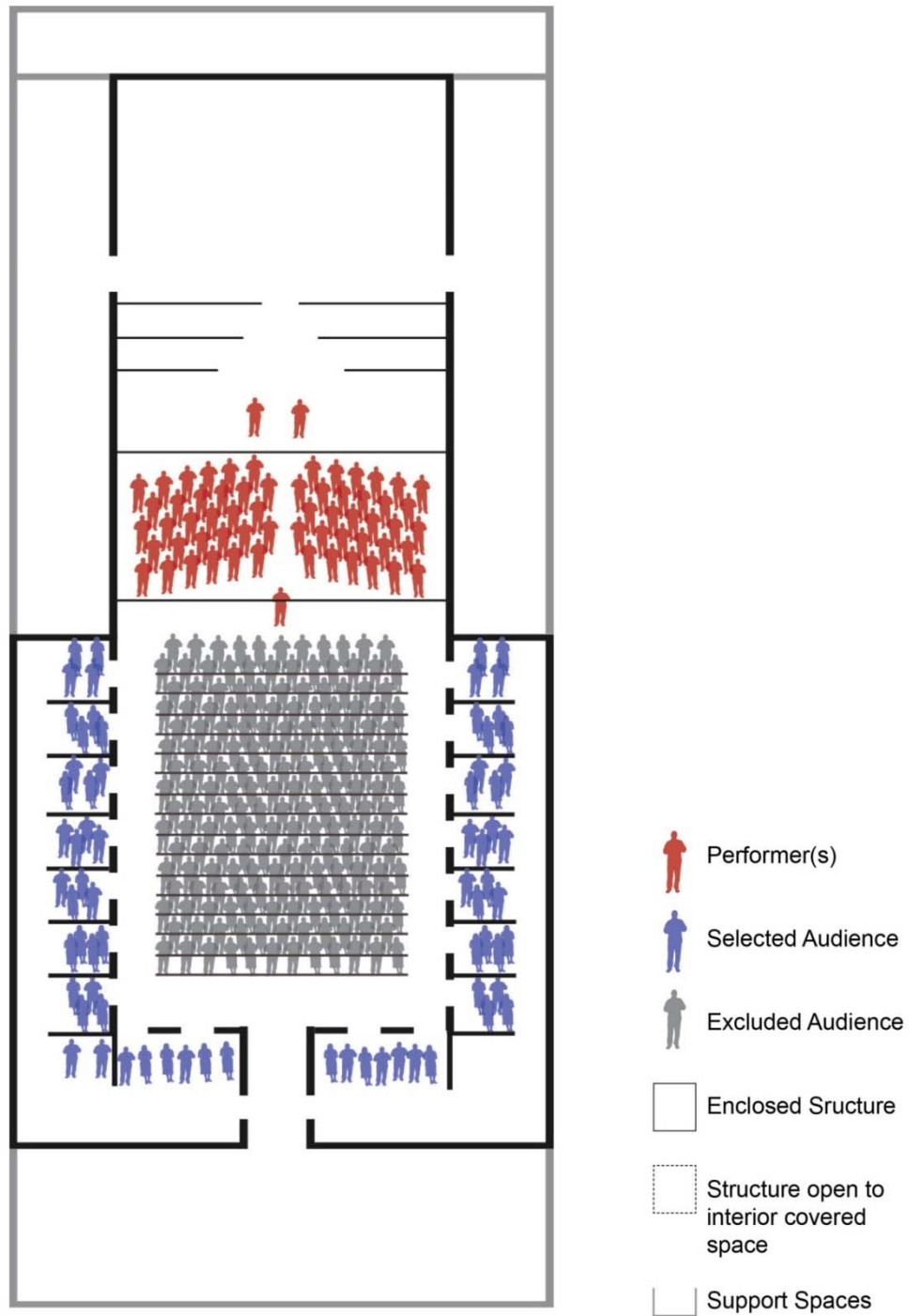


Figure 27. Performer-Audience Diagram – the addition of the boxed seating around the orchestra seating, and the expanded back-of-house.

## 1700s: Court Theatres

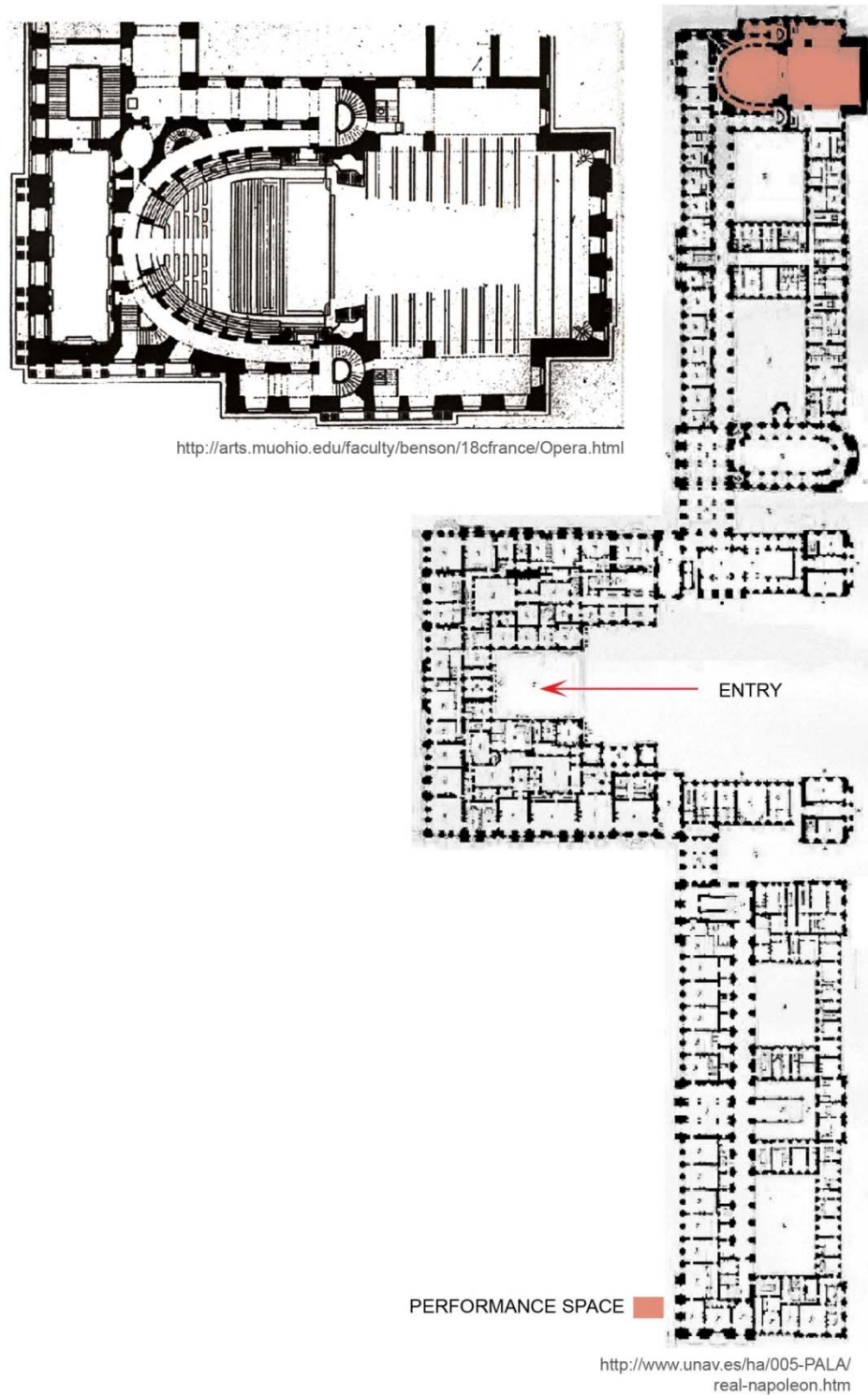
Similar to the layout and additional support spaces of Teatro Alla Scala in Milan, and along with the rise of the Middle Class, the 18th century is also known for the rise of the Court theaters. As Carlson writes:

“The eighteenth century was the golden age of the court and private theatres, the vast majority of them open only to highly select audiences by special invitation. In France the liberation of manners, a taste for intimacy, and a refinement of culture after 1715 encouraged many in polite society to establish such theatres, and during this century France much more than Italy set the social fashion for the rest of Europe. The French court had its own theatres, as did various individuals there, but the real expansion of private theatres was among the aristocracy, and

these reflected the social and cultural concerns of their owner as clearly as had the ducal theatres of Italy a century before. The usual emphasis of eighteenth-century private and court theatres was on intimacy, refinement, and elegance. Materials in them were costly, but carefully worked rather than lavishly displayed, and it was clear to audiences that they were a small and select company.”<sup>74</sup>

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<sup>74</sup> Marvin Carlson, *In Places of Performance: The Semiotics of Theatre Architecture* (London: Cornell University Press, 1989), 39-48.



**Figure 28. Floor Plan of the Palace of Versailles.** Source of Images (from left to right):  
<http://arts.muohio.edu/faculty/benson/18cfrance/Opera.html>; <http://www.unav.es/ha/005-PALA/real-napoleon.htm>



## 1876: Absence of the Box

### Contributions of Wagner

Richard Wagner, one of the great composers of the 19th century was a rare composer because aside from the operas he composed, he is also known for having an opera house built just to suit his music. The realization of the Wagner Opera House in Bayreuth was one filled with political, societal, and financial struggles:

His vision of a democratic opera house was ironically funded by Ludwig II of Bavaria, an absolute monarchist.<sup>75</sup>

With the help of Gottfried Semper, Wagner's vision was built in Bayreuth, north of Bavaria. As for the building materials, Wagner had originally opted for a temporary wooden construction, designed to burn after the festival was

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<sup>75</sup> "Typology Quarterly: Opera Houses," The Architectural Review, accessed October 15, 2013, <http://www.architectural-review.com/essays/typology/typology-quarterly-opera-houses/8653735.article>.

over.<sup>76</sup> "His operas – or music dramas, as he called them – were meant to reject opera's role as a distraction for the rich. Instead, he would help to forge a new nation, overcoming the money-motivation of the age by reviving the communal spirit of Greek tragedy."<sup>77</sup>

Its site also created new significance among its visitors. "The theatre was to be "The theatre was to be a suitable ascetic backdrop for this sacrament. Standing above the worldly affairs of Bayreuth on a little hill, the isolated building made opera-goers into pilgrims (and inspired the more modest festival operas of the 20th century, such as Glyndebourne and Aldeburgh)."<sup>78</sup>

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<sup>76</sup> "Typology Quarterly: Opera Houses," The Architectural Review, accessed October 15, 2013, <http://www.architectural-review.com/essays/typology/typology-quarterly-opera-houses/8653735.article>.

<sup>77</sup> "Typology Quarterly: Opera Houses," The Architectural Review, accessed October 15, 2013, <http://www.architectural-review.com/essays/typology/typology-quarterly-opera-houses/8653735.article>.

<sup>78</sup> Ellen Rosand, *Opera in Seventeenth-Century Venice* (University of California Press, Ltd, 2007), pg. 396.

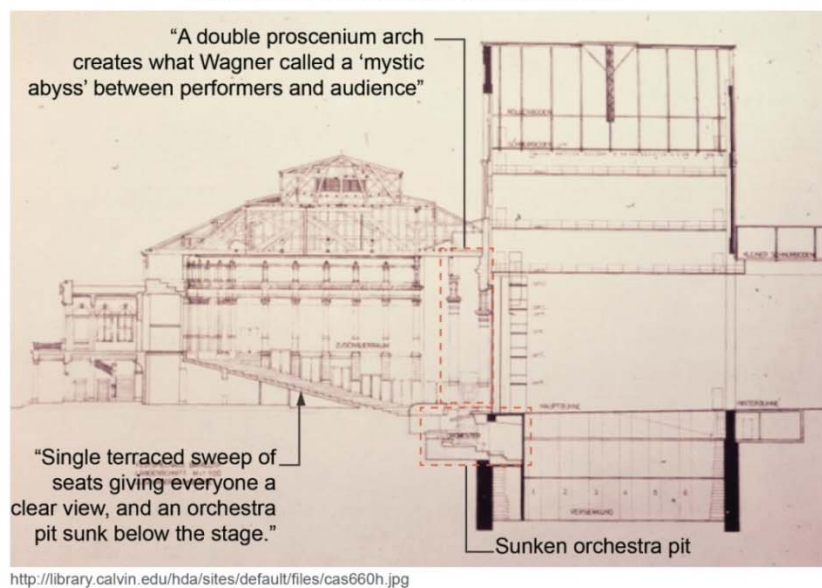
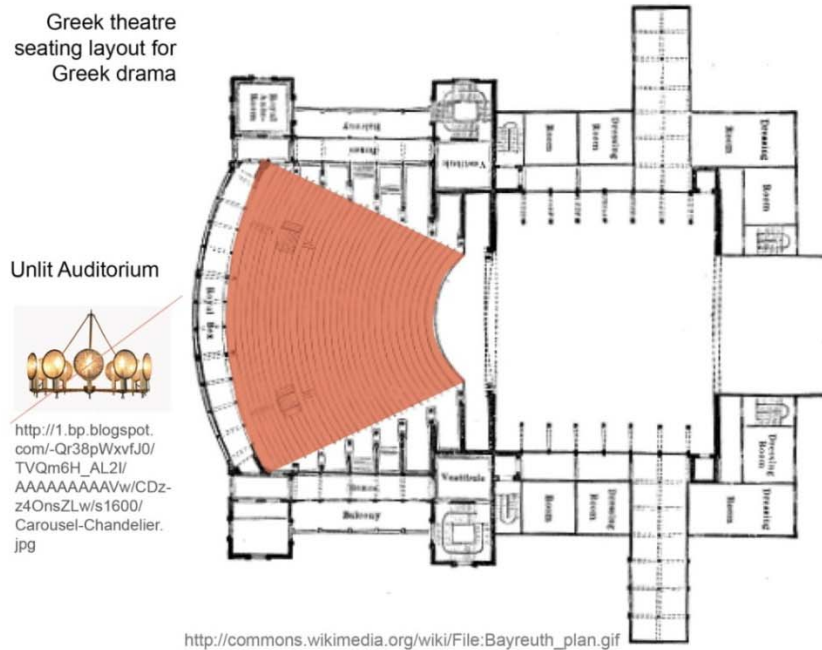
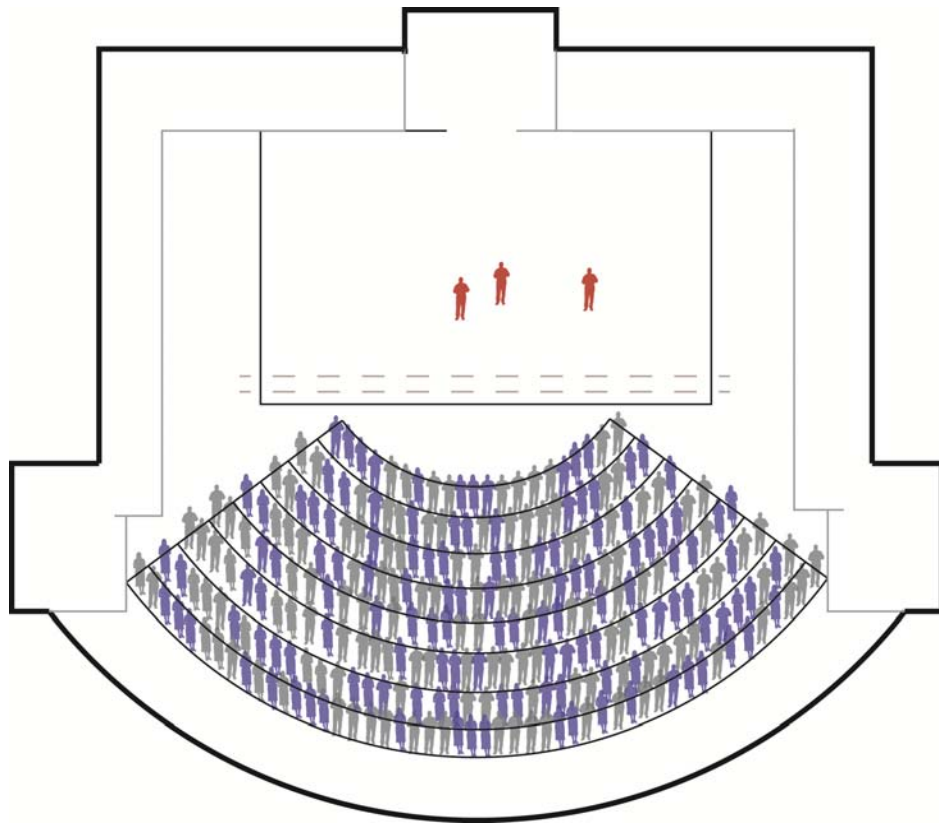


Figure 29. Festspielhaus, Bayreuth. Theatre co-designed by Richard Wagner and Gottfried Semper. It emphasizes an all-equal seating layout and the absence of lighting except on stage to avoid any distraction from the performance. The orchestra pit is also sunken so it does not compete with the stage performance. Source of Images (from the top):

[http://1.bp.blogspot.com/-Qr38pWxvfJ0/TVQm6H\\_AL2I/AAAAAAAAAVw/CDz-z4OnsZLw/s1600/Carousel-Chandelier.jpg](http://1.bp.blogspot.com/-Qr38pWxvfJ0/TVQm6H_AL2I/AAAAAAAAAVw/CDz-z4OnsZLw/s1600/Carousel-Chandelier.jpg);  
[http://commons.wikimedia.org/wiki/File:Bayreuth\\_plan.gif](http://commons.wikimedia.org/wiki/File:Bayreuth_plan.gif);  
<http://library.calvin.edu/hda/sites/default/files/cas660h.jpg>



- ENCLOSED STRUCTURE
- SEATING
- SUPPORTING SPACES
- - - PROSCENIUM ARCH
- PERFORMER
- COMMONER
- ARISTOCRAT

Figure 30. Diagram – Performer-Audience for Wagner and Semper’s ideal design for the opera house.

## 1600s – 1900s: The People Factor

When opera flourished in Italy, it also flourished in Germany and France. This would explain why most of our operas are written in these languages. Each country is unique, but it is interesting to look at the attitudes of each towards music. Rosanne Martorella, author of *The Sociology of Opera* quotes Romain Rolland who is the author of *Some Musicians of Former Days* that the Germans

“have natural taste for music...“They are quite at home in the nascent symphony. Their natural taste for instrumental music, the necessity in which members of the little German Courts found themselves of confining themselves to such music, as the result of a strict application of the principles of the Reformed Church, which forbade them to maintain an opera house, the gregarious instinct which impelled the German musicians to unite in small societies, in small ‘colleges,’ in order to play together, instead of practicing the individualism of the Italian *virtuosi* - all

these things - everything, in short - even to the comparative inferiority of German singing, was bound to contribute to the universal development of instrumental music in Germany. Nowhere in Europe were there more schools in which it was taught, or more good orchestras.”<sup>79</sup>

With this information about the Germans, one can make the assumption that this is the reason why Richard Wagner, an opera composer, went to great lengths to improve the orchestra pit and expand the number of instrumentalists in the opera he composed. One can assume that his German ties were why *Festspielhaus* in *Bayreuth* was built, which contributed to theatre design.

On a different note and reflecting back to what we have in Hawaii, why is it that opera has such a limited audience?

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<sup>79</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 17.

## The Fate of the Musician

While all the different spatial developments for the opera theater were occurring in the 1600s to the late 1700s, it also shaped the social spaces outside the theater walls and the lives of the musicians.

It is not different the way audiences today perceive musicians turned celebrities. They are perceived as gods and goddesses because of their talent, whatever kind of talent it is that appeals to their audiences. It was not different in the 1600s onwards. Martorella explains the ironic situation of the opera singers and composers back in the 1600s and 1700s:

“The mania for spectacle and virtuosity was epitomized by the adoration given a particular solo singer of ‘mistaken’ identity as outcries of ‘bravo’ and ‘viva il coltello’ echoed through the opera houses. Audiences listened to an unusually high and beautiful coloratura range contained in the body of a tall,

broad-shouldered, hairless male - the *castrato*.”<sup>80</sup>

The life of the musician sounds fantastic when one looks at it from an audience’s perspective. In reality however, not everybody who wanted to become a musician was, and still is, guaranteed a prestigious spot for a life-long fulfilling career. Even then, they worried about what is going to happen next.

Martorella explains,

“The musician’s social position was solely dependent upon the position of his patron, both private and public... Musicians were subjected to court whims; commissions glorified birthdays, weddings, and other ceremonial festivities.”<sup>81</sup>

The career of the opera singers depended on their patrons, putting them in the servant class. The musician

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<sup>80</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 26.

<sup>81</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 18.

was seen in the same social standing as craftsmen.<sup>82</sup>

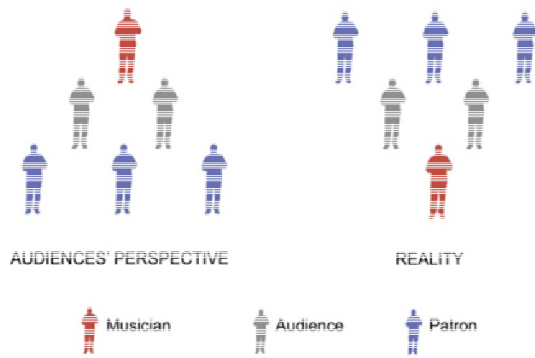


Figure 31. The illusion of the social status of opera singers and their actual position in society.

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<sup>82</sup> Rosanne Martorella, *The Sociology of Opera* (New York: Praeger Publishers, 1982), 18.

## 1963: Berliner Philharmoniker

**Location:** Berlin, Germany

**Architect:** Hans Scharoun

**Seating Capacity:** 2,218

**Context:** Urban

The Philharmonie has been the musical heart of Berlin for 50 years. Still at the periphery of West Berlin when it opened in 1963, it became part of the new urban center after the fall of the Berlin Wall. Its unusual tent-like shape and distinctive bright yellow color makes it one of the city's landmarks. Its unusual architecture and innovative concert hall design initially ignited controversy, but it now serves as a model for concert halls all over the world.<sup>83</sup>

A competition in 1956 has declared Hans Scharoun the winner with the design concept where the stage is surrounded by the audience. This design is influenced by Herbert Von Karajan who

was a Austrian conductor said that, "Of all the designs submitted, one seems to stand out above the others; which is founded on the principle that the performers should be in the middle... It seems to me... that this arrangement with the orchestra centrally placed will be better suited than any known hall to the musical style of the Berlin Philharmonic"

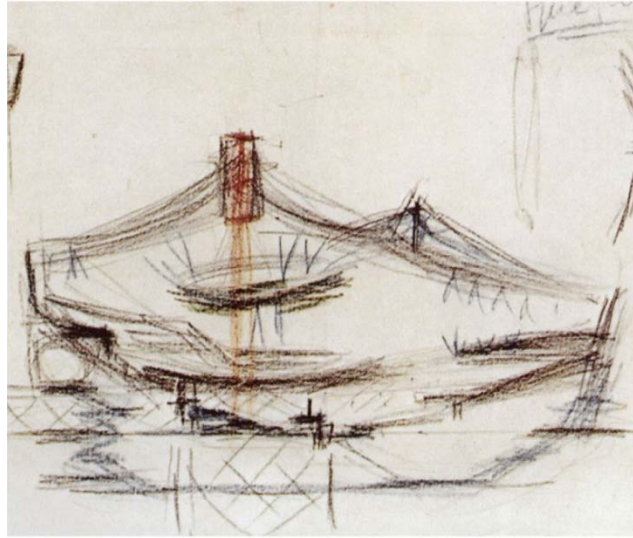
Beranek explains, "the choice did result in certain trade-offs, however: many of the seats in a surround hall are acoustically inferior to those in the great traditional shoebox halls. Of course, the loss is balanced by a gain: listeners behind the stage trade acoustical quality for the opportunity to see the conductor face-on and to feel closer to the performers."<sup>84</sup>

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<sup>83</sup> "Music and people first," Berliner Philharmoniker, accessed October 29, 2013, <http://www.berliner-philharmoniker.de/en/philharmonie/>.

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<sup>84</sup> Leo Beranek, *Concert Halls and Opera Houses* (Cambridge, 1996), 3.



<http://www.berliner-philharmoniker.de/en/philharmonie/>

Figure 32. Hans Scharoun's conceptual sketch



 lawn area

Figure 33. Berlin Philharmonie, site plan. This site plan shows the building is situated in an

urban area. Source of Images (from the top): <http://www.berliner-philharmoniker.de/en/philharmonie/>;

[http://data.greatbuildings.com/gbc/drawings/Berlin\\_Philhamonic\\_Site.jpg](http://data.greatbuildings.com/gbc/drawings/Berlin_Philhamonic_Site.jpg)



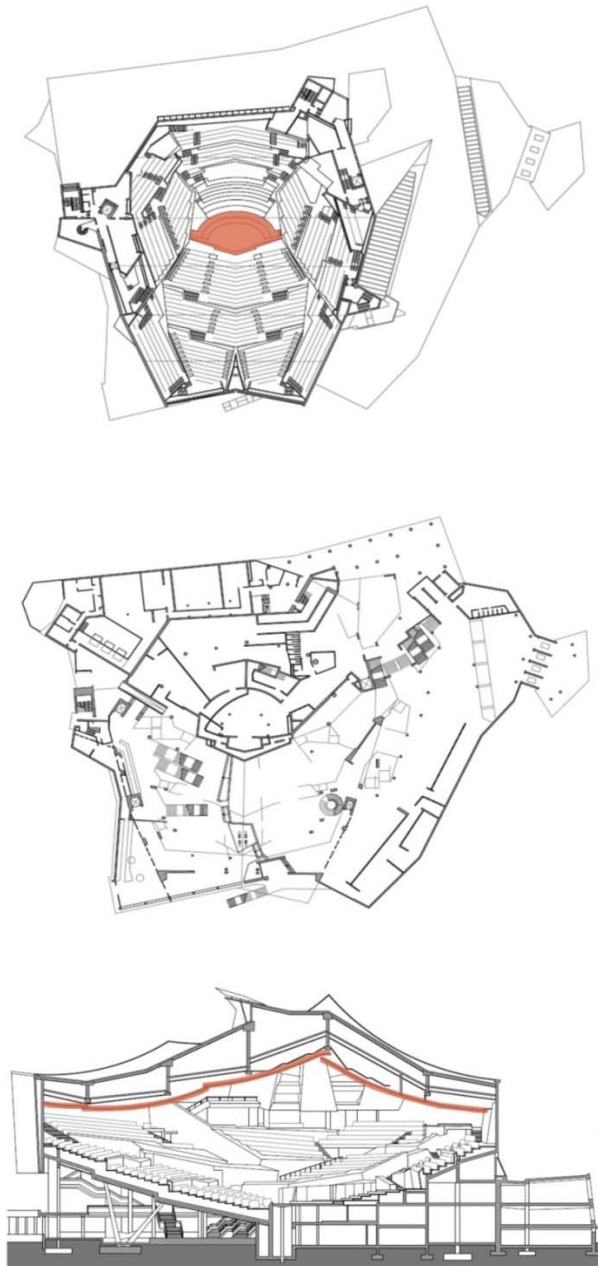


Figure 34. (top) Berlin Philharmonie, Seating Plan, where the stage is located at the center of the hall; (middle) Berlin Philharmonie, Floor Plan; (bottom) Berlin Philharmonie, Building Section, where the red light points out the ceiling and drapes. Images courtesy of [www.greatbuildings.com](http://www.greatbuildings.com) - [http://www.greatbuildings.com/cgi-bin/gbc-drawing.cgi/Berlin\\_Philharmonic\\_Hall.html/Berlin\\_Philharmon\\_Sect.jpg](http://www.greatbuildings.com/cgi-bin/gbc-drawing.cgi/Berlin_Philharmonic_Hall.html/Berlin_Philharmon_Sect.jpg)

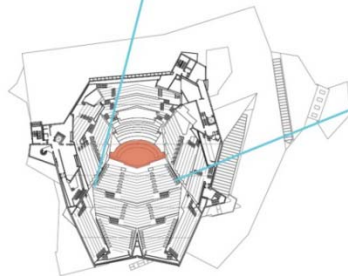


Figure 35. (Top) Berlin Philharmonic, interior view of central stage; (Bottom) Berlin Philharmonic, aerial view of the building on site, showing the contrasting surroundings on each side of the building. The north side is rich with lush vegetation, while the south side is filled with the built environment. Source of Images (from the top):

[http://www.archdaily.com/419145/ad-classics-berlin-philharmonic/5037fab528ba0d599b000764\\_ad-classics-berlin-philharmonic\\_stringio-jpg/;](http://www.archdaily.com/419145/ad-classics-berlin-philharmonic/5037fab528ba0d599b000764_ad-classics-berlin-philharmonic_stringio-jpg/)

[http://www.archdaily.com/419145/ad-classics-berlin-philharmonic/5037fac928ba0d599b000768\\_ad-classics-berlin-philharmonic\\_stringio-jpg/](http://www.archdaily.com/419145/ad-classics-berlin-philharmonic/5037fac928ba0d599b000768_ad-classics-berlin-philharmonic_stringio-jpg/)

## 2000: Benedict Music Tent

Location: Aspen, Colorado

Architect: Harry Teague Architects

Seating Capacity: 2,050 + additional lawn seating

Context: Victorian Town

Construction: Concert-hall-like stage enclosure, tensioned membrane roof over most of the audience, solid disc ceiling over the center of the audience, canvas reflectors

“The Benedict Music Tent was dedicated in 2000. With 2050 seats, it has the outdoor appearance of a circus tent, but closer inspection reveals a hurricane - and snow-resistant structure augmented to give it an acoustical ambience that rivals that of excellent concert halls.”<sup>85</sup>

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<sup>85</sup> “Outdoor Performance Spaces,” (presentation for Architectural Acoustics II, April 10, 2008).

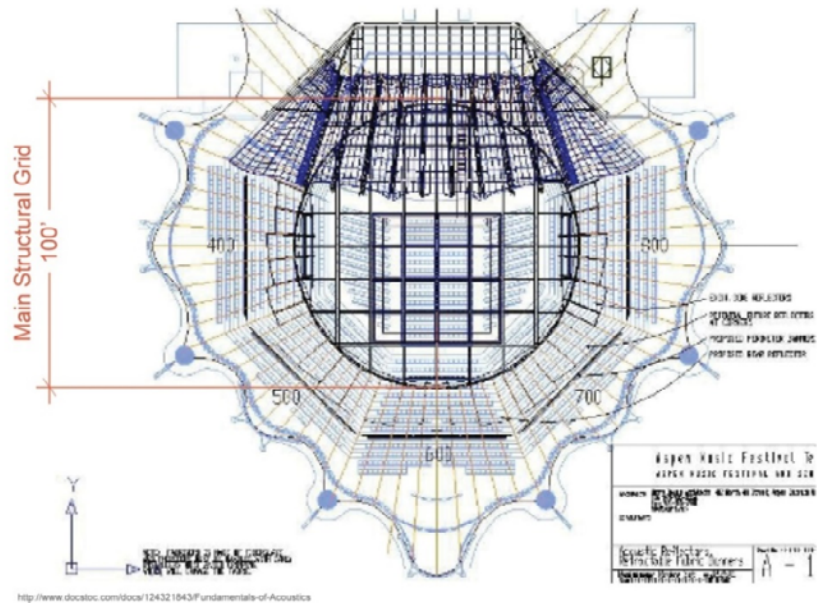


Figure 36. Benedict Musical Tent, construction layout, floor plan, courtesy of Kirkegaard Associates. This shows how an outdoor performance space can be protected by a tent-like structure to combine the comforts of an indoor theatre while enjoying the vegetation and fresh air of the outdoors. Source of Image:

<http://www.docstoc.com/docs/124321843/Fundamentals-of-Acoustics>

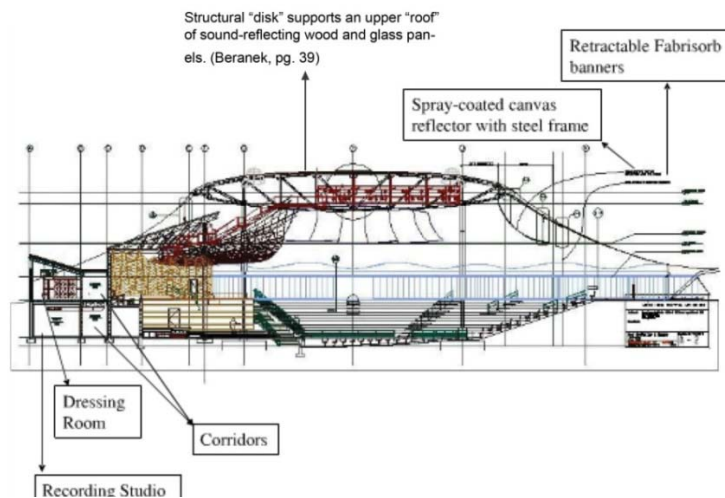


Figure 37. Benedict Musical Tent, construction layout, building section, courtesy of Kirkegaard Associates. This gives us information on how the back-of-house relates to the stage and the seating space. Some the back-of-house spaces are in multiple stories and some are just all in one level, depending on the space available to construct a theatre. .

Source of Image: <http://www.docstoc.com/docs/124321843/Fundamentals-of-Acoustics>

## 2004: The Sage, Gateshead

**Location:** Gateshead, UK

**Architect:** Foster + Partners Ltd

**Seating Capacity:** 2,725

**Context:** Urban<sup>86</sup>

“The Sage Gateshead is a regional music centre of international standing, with approximately half a million visitors each year. It fills a 'gap on the map' for music venues in the North-East and has helped to consolidate Tyneside's position as an arts destination. The building forms the heart of an ambitious project to regenerate Gateshead's river frontage and lies alongside the Baltic Centre for Contemporary Art and the Tyne Bridge with its great arch, which is echoed in the form of the Sage's roof.

The largest of the three main performance spaces is an acoustically state-of-the-art concert hall that can

seat up to 1,650 people. The second hall can be arranged to suit folk, jazz and chamber performances and seats up to 400. The third space is both a rehearsal hall for Northern Sinfonia and the focus of the Music School. The school is accessible to children, schools and people of all ages, raising the profile of the region as an innovative provider of musical education.

### **The Site - Water and Land**

The building is situated by the river front and in-between two bridges. Its sheer size is in contrast to the buildings, smaller in scale across the river (**Figure 37 and 38**).

### **Building Form - “Windswept” Nature**

While the auditoriums has its own enclosure, all three are united by an over shell structure, “shrink-wrapping” the spaces including the ones in between them.<sup>87</sup> (**Figure 39**)

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<sup>86</sup> “Facts+Figures,” The Sage Gateshead, accessed November 12, 2013, <http://www.fosterandpartners.com/projects/the-sage-gateshead/>.

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<sup>87</sup> “Description,” The Sage Gateshead, accessed November 12, 2013, <http://www.fosterandpartners.com/projects/the-sage-gateshead/>.

## Overall Building Program



Figure 38. The Sage theatre, diagram of its theater spaces, courtesy of Foster and Partners. The Music Rehearsal space is where the musicians would interact with the children to share their music. Because this space is open to the public, it creates a community among the public and musicians without having to do with a formal performance, and at the same time, educating the public. Source of Images: <http://www.fosterandpartners.com/projects/the-sage-gateshead/gallery/>

And <http://www.fosterandpartners.com/projects/the-sage-gateshead/>

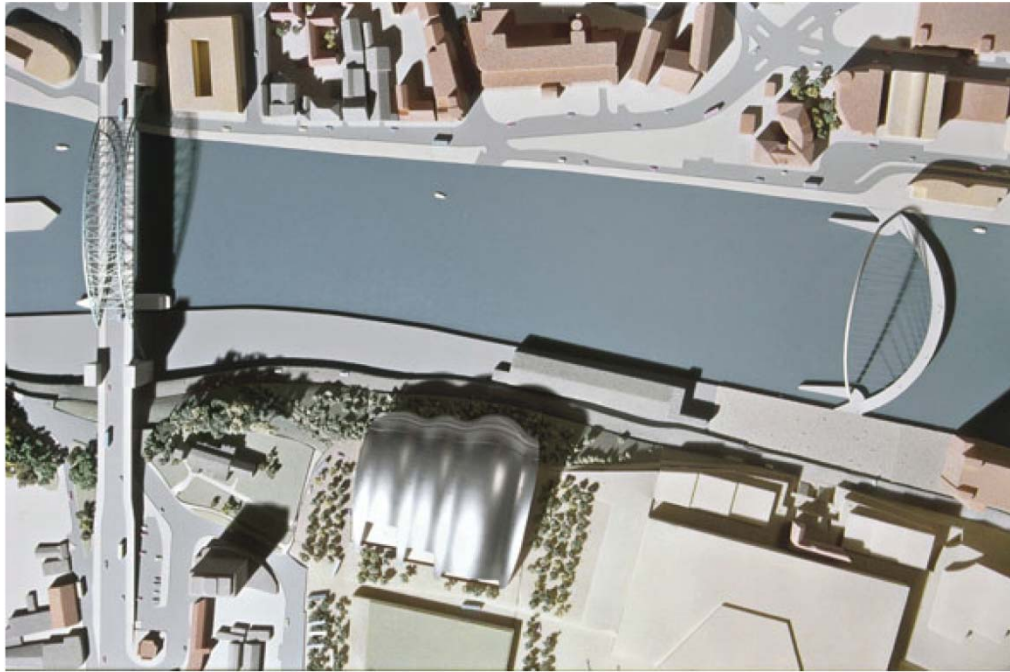


Figure 39. The Sage theater, physical site model depicting the theatre, the river, and its surrounding buildings and roads, courtesy of Foster and Partners. Image Source: <http://www.fosterandpartners.com/projects/the-sage-gateshead/>



Figure 40. The Sage theater, photograph of the site showing the form of the shell relates to the bridge on the river next to it, courtesy of Foster and Partners. Image Source: <http://www.fosterandpartners.com/projects/the-sage-gateshead/>

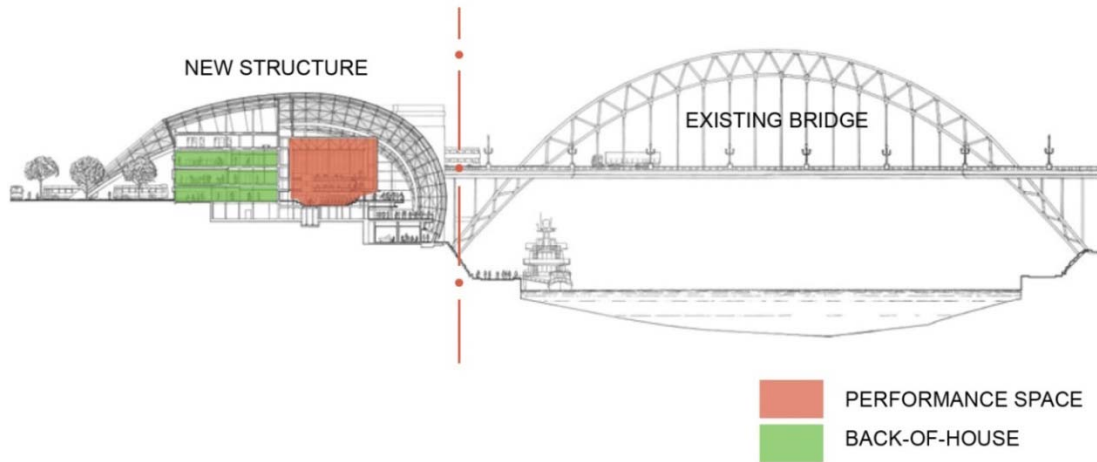


Figure 41. The Sage theater, building section diagram showing how the form is derived from the existing bridge. Courtesy of Foster and Partners. Image Source: <http://www.fosterandpartners.com/projects/the-sage-gateshead/>

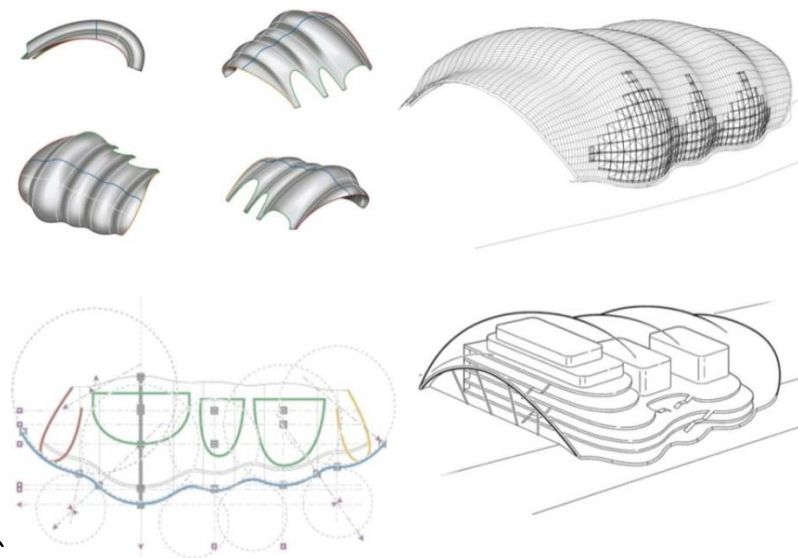


Figure 42. The Sage theater, computer model images of the shell structure, showing fenestrations and how it covers the three auditorium spaces. Courtesy of Foster and Partners. Image Source: <http://www.fosterandpartners.com/projects/the-sage-gateshead/>.



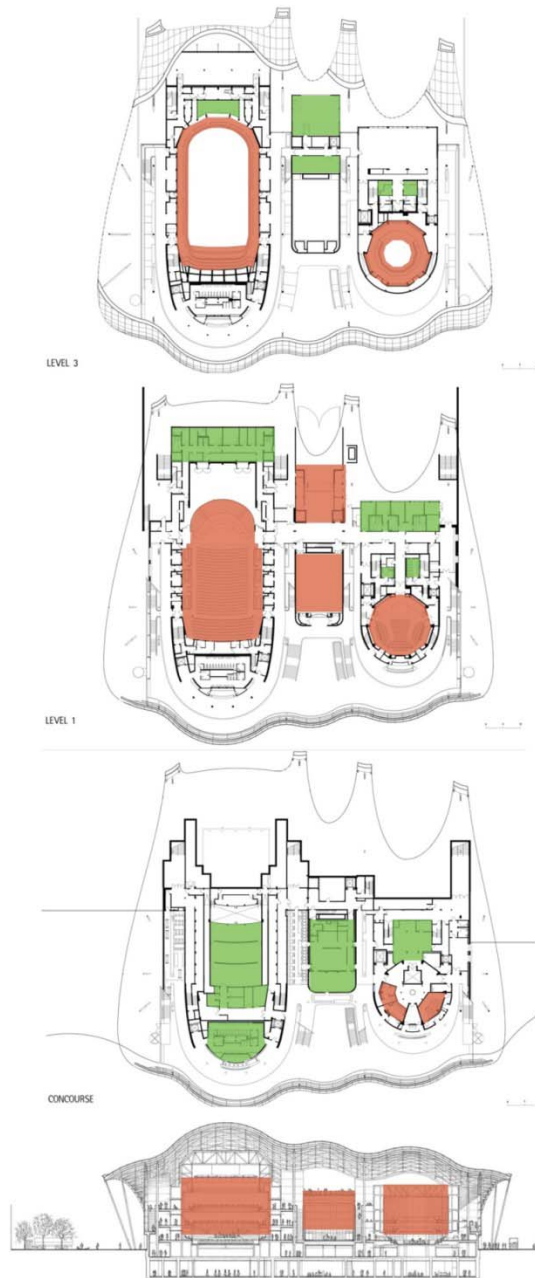


Figure 43. Spatial Analysis of the Sage Theatre: (From the top) 1. Level 3 Floor Plan, showing how the performance spaces and the back-of-house spaces are laid out; 2. Level 2 Floor Plan, showing how the performance spaces and the back-of-house spaces are laid out; 3. Concourse level Floor Plan, showing staff workspace; 4. Longitudinal building section, showing public circulation and performance spaces. All images, Courtesy of Forster and Partners. Source of Images: <http://www.fosterandpartners.com/projects/the-sage-gateshead/>

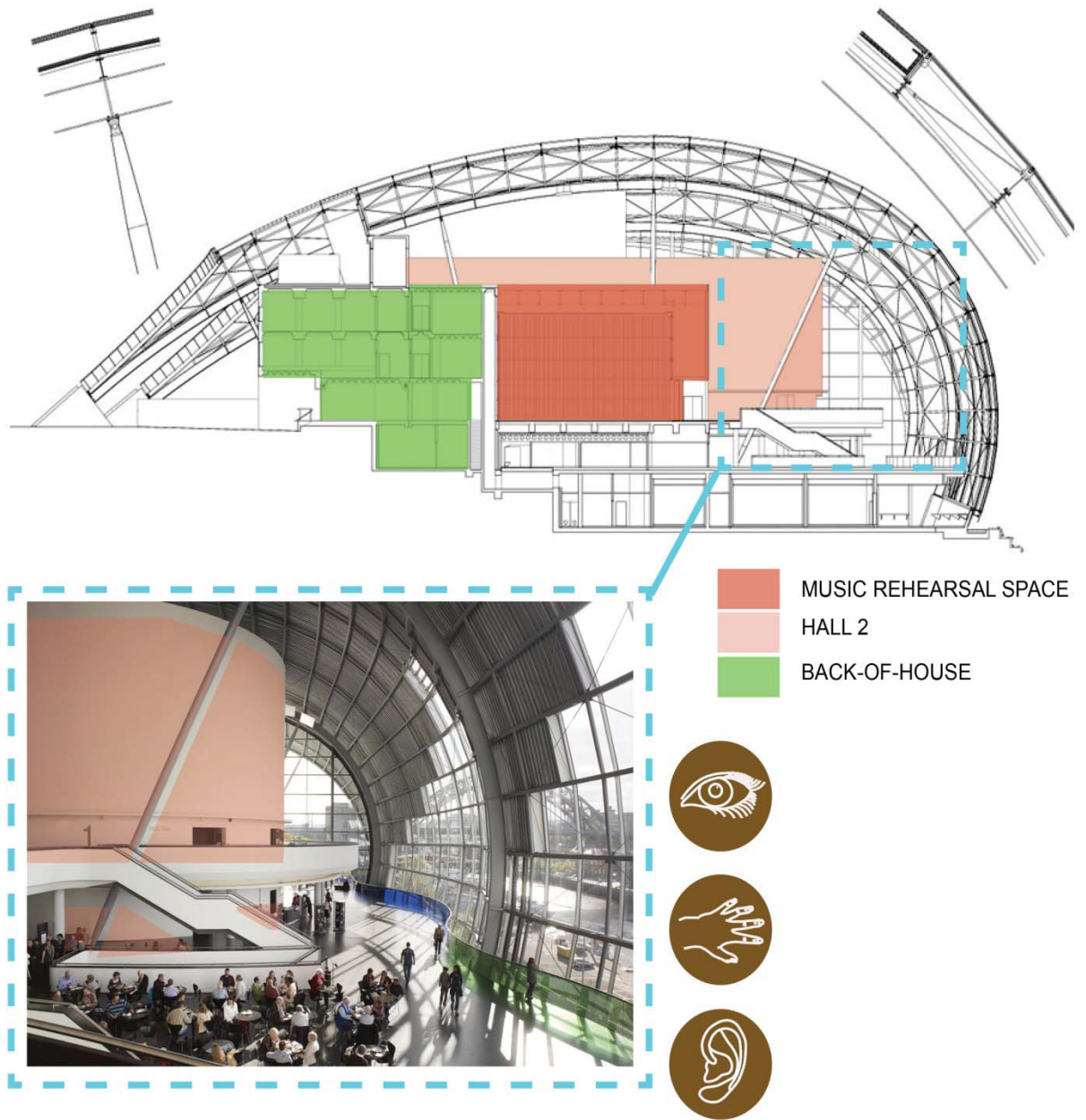


Figure 44. The Sage theatre, diagram of the different spaces shown in transverse building section and perspective view of Hall 2. Drawings and images, courtesy of Foster and Partners. Sources of Images (from the top): <http://www.fosterandpartners.com/projects/the-sage-gateshead/>  
And <http://www.fosterandpartners.com/projects/the-sage-gateshead/gallery/>

## 2007: Oslo Opera House

**Location:** Bjorvika, Oslo, Norway

**Architect:** Snohetta

**Seating Capacity:** 2,725

**Context:** Urban / Harbour City

The Oslo Opera House has a unique building concept that integrates the back-of-house spaces into its unique building form. As the largest music and theatrical institution in Norway,<sup>88</sup> the building concept's main purpose is to be recognized as the "national producer of opera, ballet, music, and dance theatre, and concerts. Producing 300 shows annually, the Opera house is supported by workplaces that accommodate approximately 600 employees.<sup>89</sup>

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<sup>88</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

<sup>89</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

## The building concept

Its building concept consists of three major spaces that organize its spatial program: the carpet, the wave wall, and the factory<sup>90</sup> as seen in **Figure 46**.

The Wave Wall: "Opera and ballet are young art forms in Norway. These art forms evolve in an international setting... The *Bjorvika* peninsula is a part of a harbor city, which is historically the meeting point with the rest of the world."<sup>91</sup> (**Figure 47**).

The Factory: this is the representation of the spaces for artists and staff in the theatre, i.e. the back-of-house spaces.<sup>92</sup>

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<sup>90</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

<sup>91</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

<sup>92</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

The Carpet: the exterior space open to the public that provides access to the roof of the theatre. "By laying our 'carpet' of horizontal and sloping surfaces on top of the building. This carpet has been given an articulated form, related to the cityscape."<sup>93</sup> (Figure 48)

### The Site

Building the opera theater in the site is a strategy to transform the area of the city by its unique aesthetics, designed to stand apart from the rest of its surrounding structures.<sup>94</sup>

### Materiality

The goal of the theater design when it comes to materiality is to avoid decoration. A specific building material and how it relates to other materials is

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<sup>93</sup> "Opera House / Snohetta," Arch Daily, accessed December 15, 2013, "Oslo Opera House / Snohetta" 07 May 2008. ArchDaily. Accessed 15 Dec 2013.

<http://www.archdaily.com/?p=440>.

<sup>94</sup> Ibid.

used to define each of the three major spaces<sup>95</sup>, as shown in Figure 49.

The materials used for the "carpet" are glass and stone, to provide views and geometry. For the "factory," metal is used for cladding the exterior skin of the building for durability. And finally for the "wave wall", which is located inside the building, the use of timber is put to display to show connection with the different geometric forms in the building and to provide acoustic absorption. The timber cladding looks so interesting that it invites visitors to feel its texture.<sup>96</sup> (Figure 49).

### Plan Solution and General Arrangement

In Figure 50, the overall spatial organization is laid out so that the main performance spaces are in between the private spaces i.e. "factory", and the public spaces.

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<sup>95</sup> Ibid.

<sup>96</sup> Ibid.

## The building concept

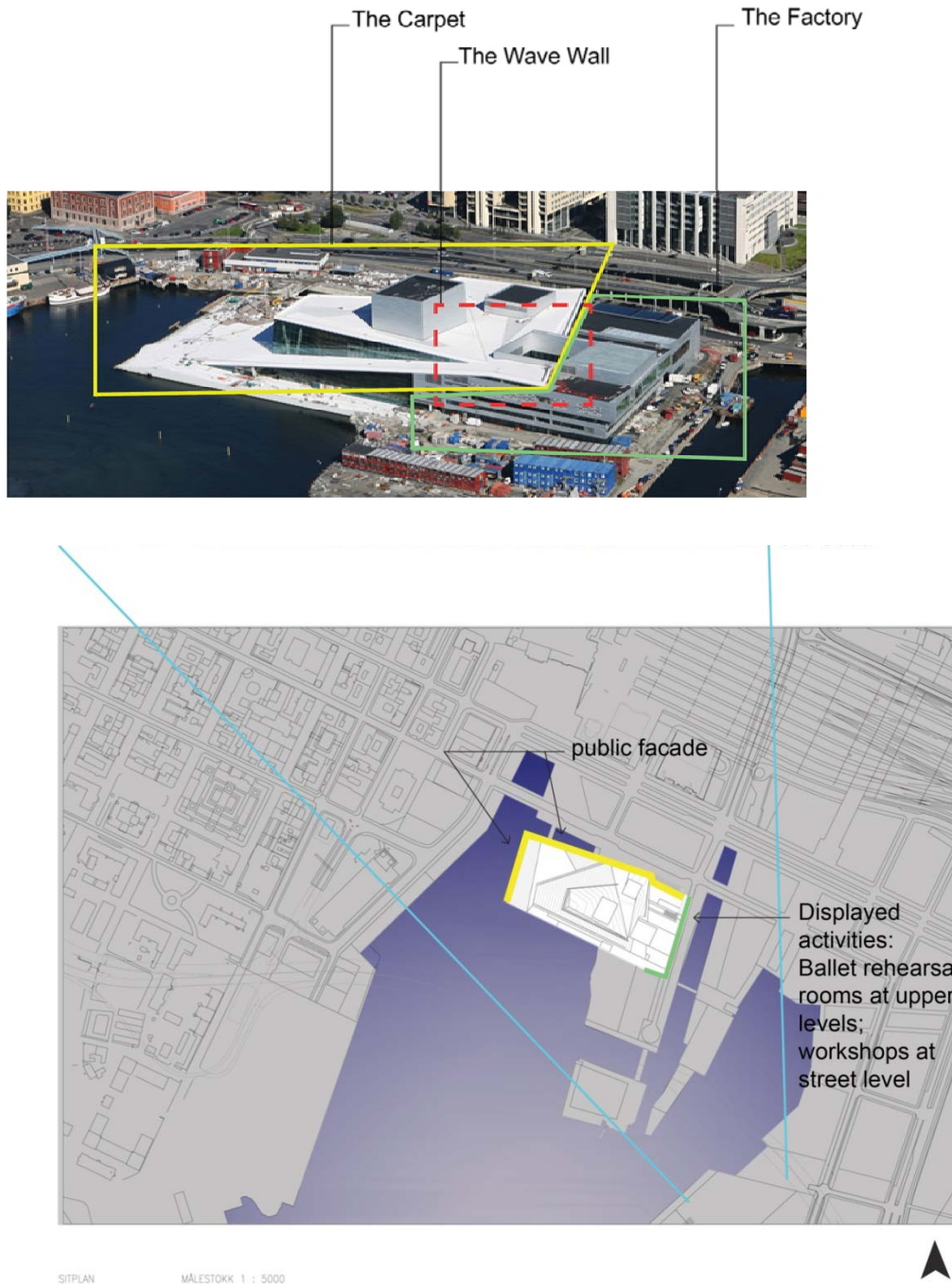


Figure 45. Oslo Opera House, diagrammed images showing the three major spaces. Site plan and image, courtesy of Snohetta, Nina Reistad, Statsbygg, Erik Berg & Nicolas Buisson.

Sources of Images (from the top): <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/61.jpg>; <http://www.archdaily.com/440/oslo-opera-house-snohetta/ooslo-opera-01dakarkivplansjerplaneradt-planermodellfile>



THE WAVE WALL



GROUND = HERE  
WATER = THERE

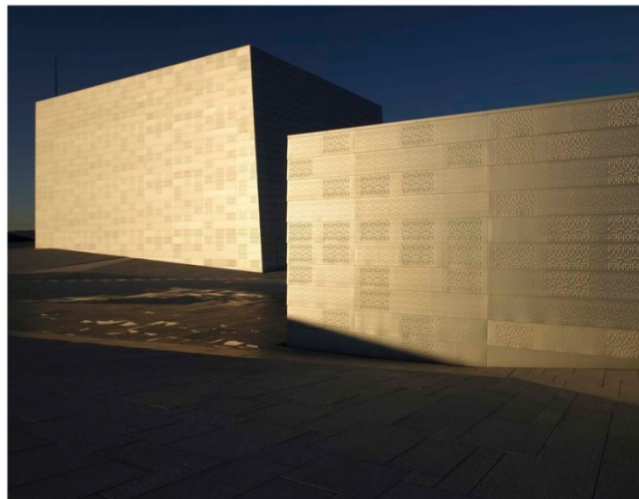


Figure 46. Oslo Opera House, diagrammed images of the “Wave Wall” as the threshold between Norway and the world, art and everyday life – where public meets art. Site plan and image, courtesy of Snohetta, Nina Reistad, Statsbygg, Erik Berg & Nicolas Buisson.

Sources of Images (from the top): <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/61.jpg>; <http://www.archdaily.com/440/oslo-opera-house-snohetta/ooslo-opera-01dakarkivplansjerplaneradt-planermodellfile/>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/operaen19--foto-nicolas-buisson.jpg>



THE FACTORY

Facilities of the operahouse

=

"Planned Factory"

self-contained, rational and flexible



THE CARPET

OPERAHOUSE should be High architectural quality;

Monumental

"togetherness, joint ownership, easy and open access for all"

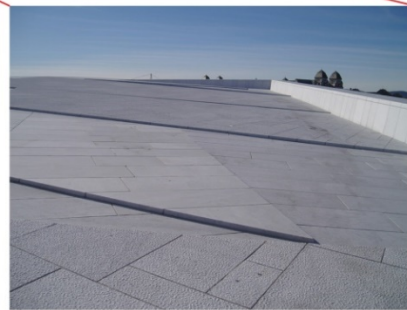


Figure 47. Oslo Opera House, diagrammed images of the "Factory" and the "Carpet". Site plan and image, courtesy of Snohetta, Nina Reistad, Statsbygg, Erik Berg & Nicolas Buisson.

Sources of Images (from the top): <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/61.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/23.jpg>



THE CARPET



GLASS



STONE



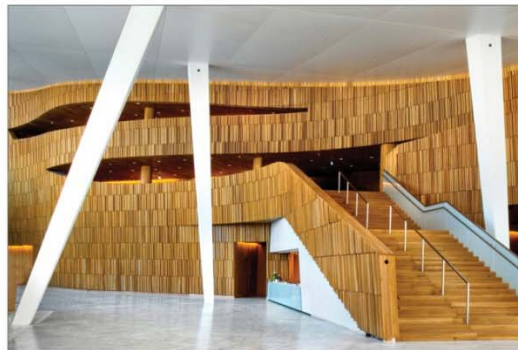
THE FACTORY



METAL



THE WAVE WALL



TIMBER

Figure 48. Oslo Opera House, diagrammed images of materiality for the “Factory” and the “Carpet”. Images, courtesy of Snohetta, Nina Reistad, Statsbygg, Erik Berg & Nicolas

Buisson. Sources of Images (from the top): <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/61.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/operaen25-photo-trond-isaksen-statsbygg.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/22.jpg>;

<http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/operaen28-photojaro-hollan-statsbygg.jpg>



**Plan Solution and General Arrangement**

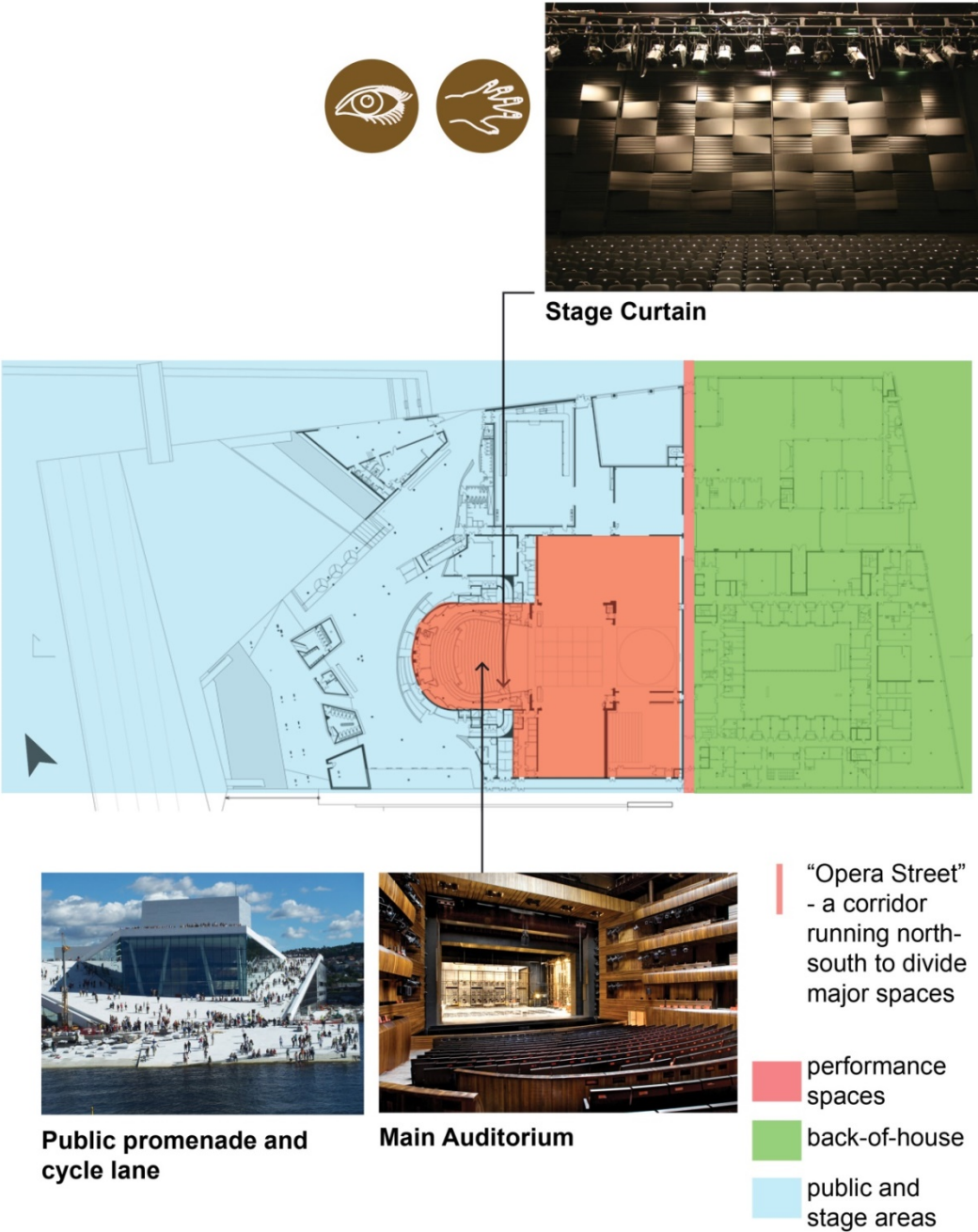


Figure 49. Oslo Opera House, diagrammed floor plan and images of the theatre’s overall spatial arrangements. Images, courtesy of Snohetta, Nina Reistad, Statsbygg, Erik Berg & Nicolas Buisson. Sources of Images (from the top): <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/13.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/plan1.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/11.jpg>; <http://ad009cdnb.archdaily.net/wp-content/uploads/2008/05/10.jpg>

### 2.4.3 Spaces Now

The following case studies are more detailed in terms of building information. To get a sense of square footage for each type of space in a theatre, I have provided a color-coding convention to represent each space as seen in **Figure 49**. They will be compared in terms of spatial organization and size, where the main space types are labeled “support”, “ancillary”, and “core”. Although the color red means seating spaces under “core”, their labels will change depending on the theatre analyzed. Circulations are also shown after analyzing the floor plans.

At this point, the theater case studies will no longer be following the timeline. In addition, there will be more information on how the back-of-house are used and relate to other spaces, as seen in bubble diagram form.

There is a particular room used by performers as they wait for their cue on stage. This space is called green room. Although not all theaters have green rooms, it is still an important space as this serves as the living area for performers should they not want to use their dressing rooms.

**Figure 50. Color Coding Convention for Theater Spaces**

SPACE TYPE	SPACE DESCRIPTION
SUPPORT	TRAP ROOM
	MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE
	WET ROOM
	TECHNICAL ROOM
ANCILLARY	PUBLIC RESTROOM
	MAKE UP ROOM
	SEATING STORAGE
	MUSICIAN'S CHANGING STORAGE
	MANAGEMENT ROOM
	USHER
	MANAGER
	4P DRESSING ROOM
	13P DRESSING ROOM
	1P DRESSING ROOM
	GREEN ROOM
	VIP
	WARDROBE AND SHOP
	FLY GALLERY
GALLERY VESTIBULE	
LOUNGE AND CONCESSION	
CORE	BOX SEATING
	ORCHESTRA SEATING
	UPPER SEATING
	BALCONY SEATING
	MAIN LOBBY
	STAGE
	MECHANICAL BACK STAGE
	ORCHESTRA PIT

## American Conservatory Theatre, Geary

**Location:** San Francisco, United States

**Architect:** Gensler

**Seating Capacity:** 1400

**Context:** Urban

This is one of Gensler's renovation projects back in 1989. In the hopes of restoring the theatre after the 1989 earthquake, the project scope included an improvement in the front-of-house, restoration of auditorium walls, creation of more spaces for gathering, reduction of outdoor noise, rebuilding the proscenium, better lighting, and reconfiguring its structure by providing lateral supports for future earthquakes.

While this is seen as more of a project, I am more curious as to how the back-of-house spaces are used during a production.

Based on the images, the greenroom contains two types of seating, a microwave, a small refrigerator, a coffee brewer, and a water dispenser, in

addition to storage. Signers will have everything they need here while waiting for their queue on stage (**Figure 55**).

Although the green room has all the physical necessities of opera singers, the space does not look cluttered and a bit difficult to move around. The size is relatively small and the furniture is too close from each other.

Another observation is there is no view to the outside. The reason for this is because the space is within the building, but given the opportunity, a good view of the outside will create the feeling of not being too enclosed in a space.

The access to the greenroom in the first floor plan (**Figure 54**), the pathway to the greenroom to the dressing rooms is straight-forward and short, which makes it efficient. It is also a safe pathway because it is clear and away from the stage such as wiring and storage spaces.

ACT, Geary – Current Conditions

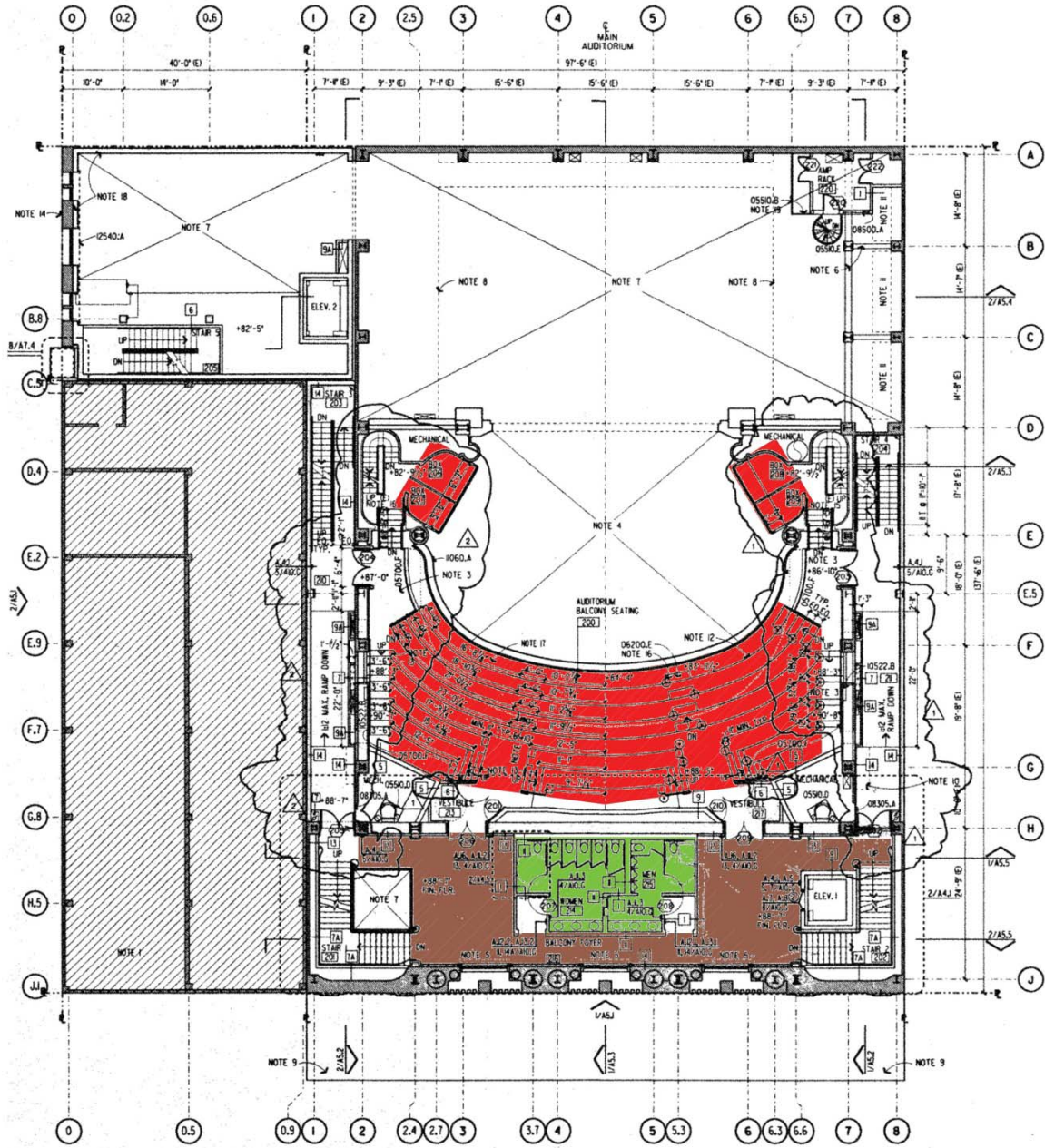


Figure 51. ACT, 3<sup>rd</sup> Floor plan, Drawing courtesy of Luke Sheridan, architect at Gensler.

ACT, Geary – Current Conditions

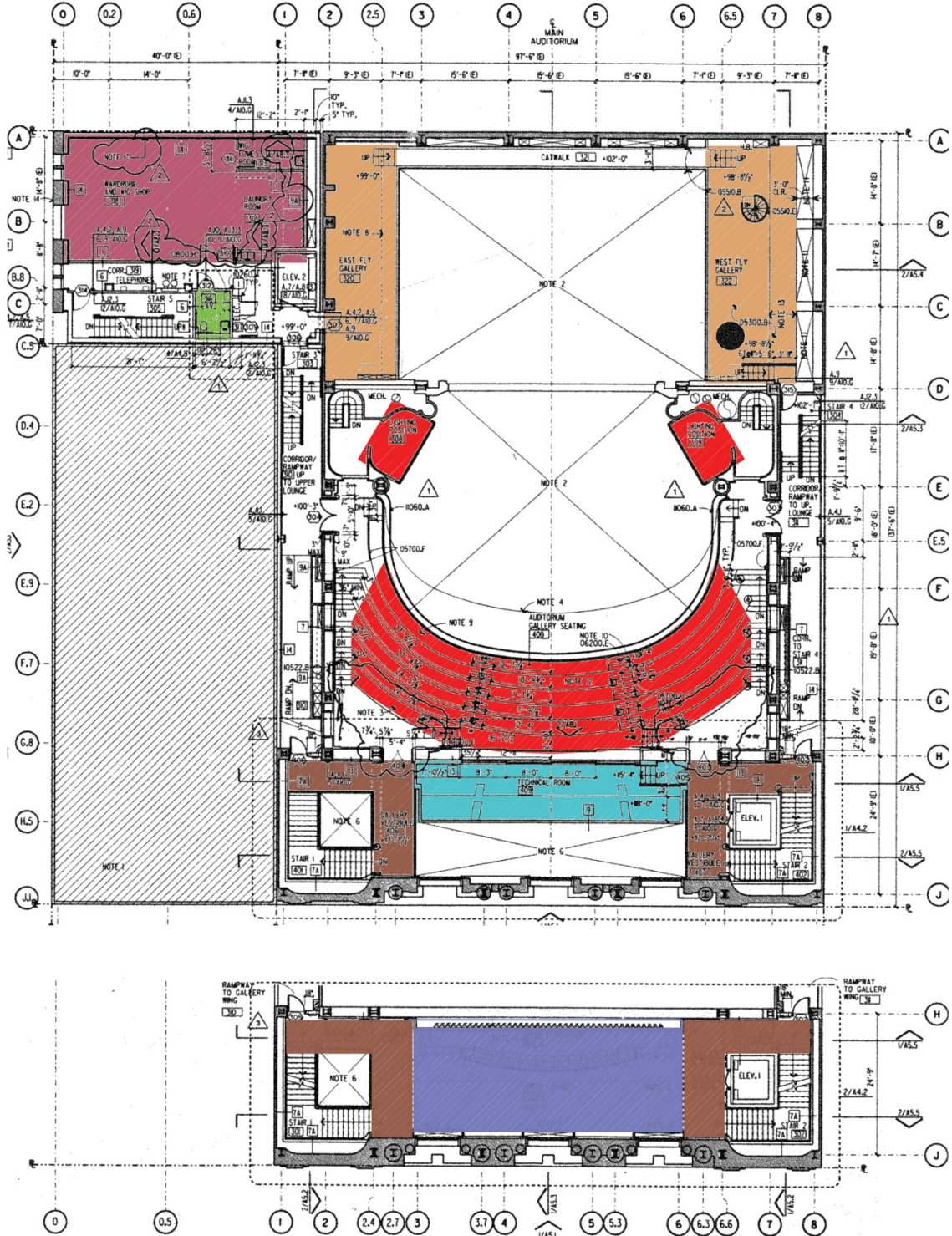


Figure 52. (top) ACT, Upper Lounge Floor Plan, (bottom) ACT, Gallery Floor Plan, Drawing courtesy of Luke Sheridan, architect at Gensler

ACT, Geary – Current Conditions

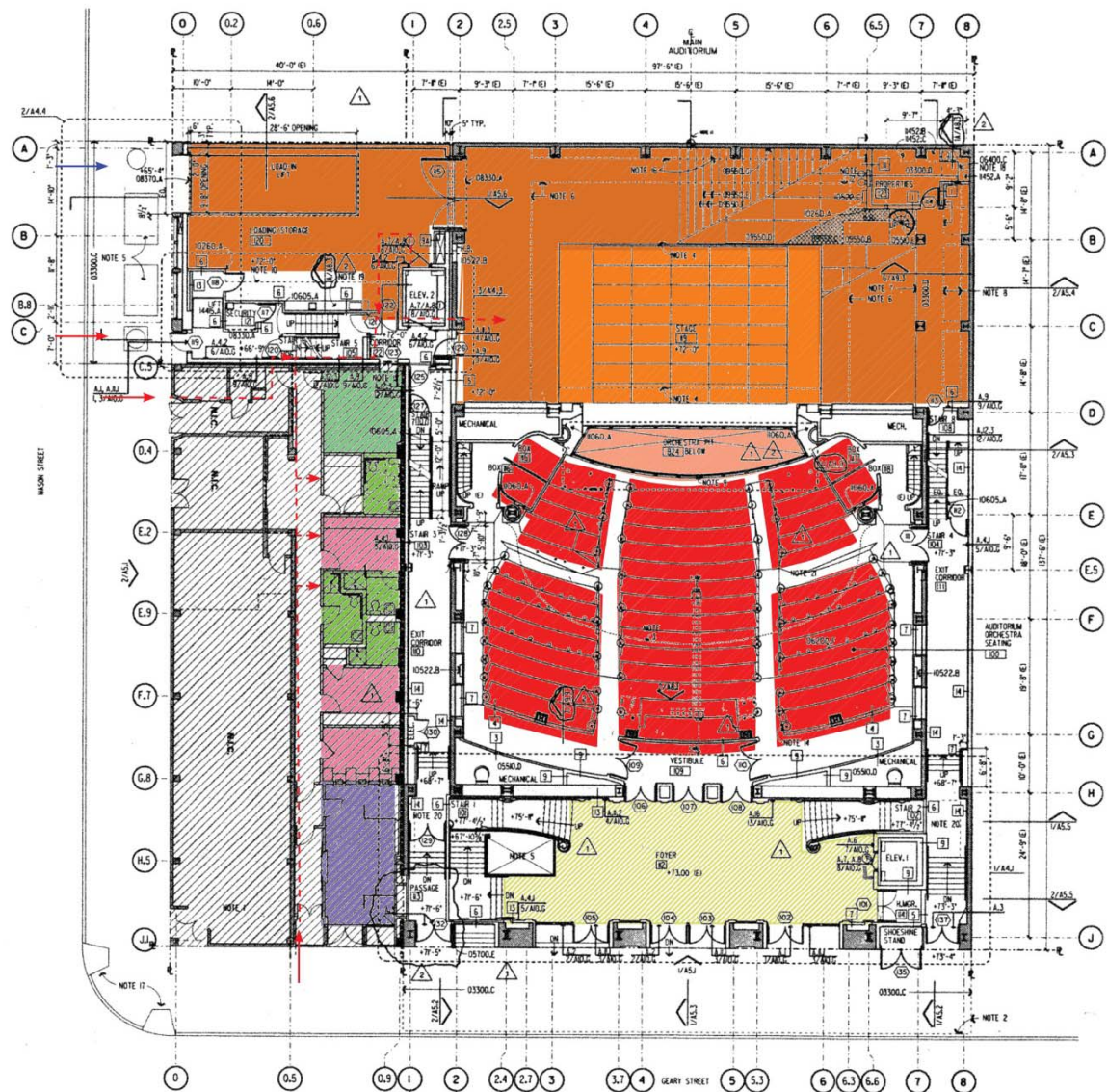


Figure 53. ACT First Floor Plan, (bottom) ACT, Drawing courtesy of Luke Sheridan, architect at Gensler.

ACT, Geary – Current Conditions

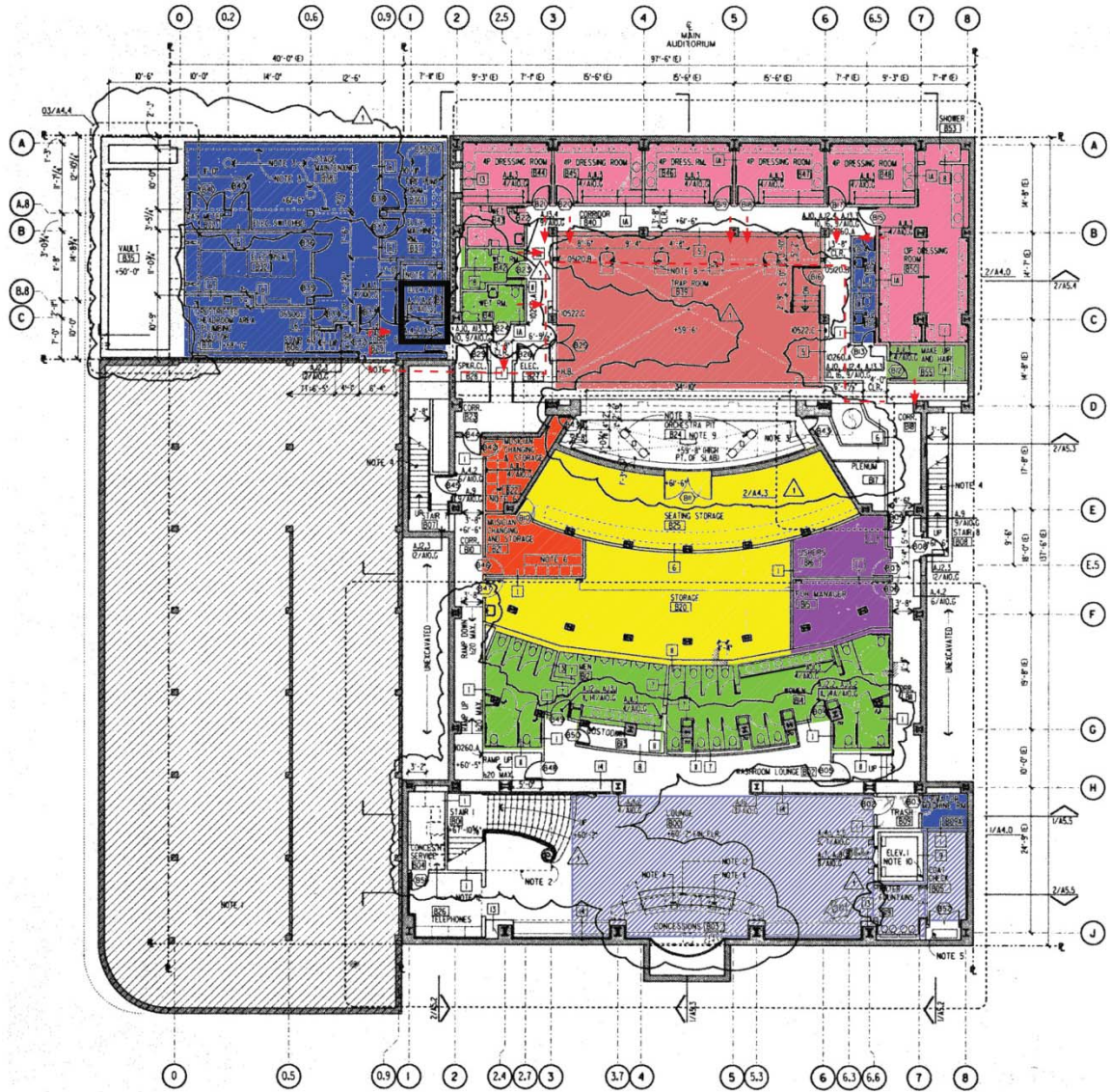
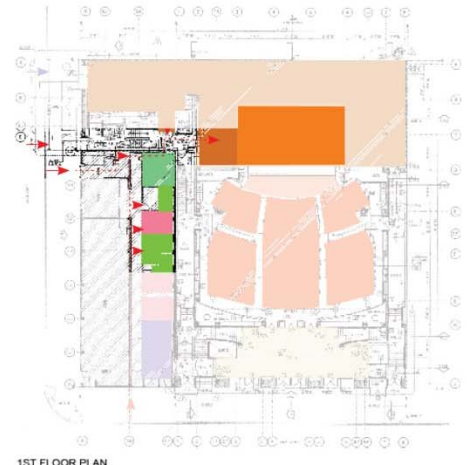


Figure 54. ACT First Floor Plan, (bottom) ACT, Drawing courtesy of Luke Sheridan, architect at Gensler.

ACT, Geary – Green Room



a

- GREEN ROOM
- 1P DRESSING ROOM
- STAGE



b

Figure 55. ACT green room images, (a) green room showing couch and water dispenser; (b) green room showing more seating spaces, tables, storage and other kitchen amenities.

Images courtesy of Luke Sheridan, architect at Gensler.



Figure 56. ACT Geary, Summary of spaces and their estimated square footage, according to the Floor Plans, courtesy of Gensler.

SPACE TYPE	SPACE DESCRIPTION	AREA (SQFT)	QTY	AREA SUM (SQFT)
SUPPORT	TRAP ROOM	1195	1195	1195
	MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE	1627	1627	1627
	WET ROOM	111	7	774
	TECHNICAL ROOM	567	1	567
ANCILLARY	PUBLIC RESTROOM	359	4	1435
	MAKE UP ROOM	88	1	88
	SEATING STORAGE	1612	1	1612
	MUSICIAN'S CHANGING STORAGE	298	1	298
	MANAGEMENT ROOM	841	1	841
	USHER	154	1	154
	MANAGER	183	1	183
	4P DRESSING ROOM	166	5	829
	13P DRESSING ROOM	400	2	800
	1P DRESSING ROOM	80	3	240
	GREEN ROOM	187	1	187
	VIP	304	1	304
	WARDROBE AND SHOP	1038	1	1038
	FLY GALLERY	557	4	2226
GALLERY VESTIBULE	243	4	1701	
LOUNGE AND CONCESSION	1032	1	1032	
CORE	BOX SEATING	110	4	440
	ORCHESTRA SEATING	2659	1	2659
	UPPER SEATING	1360	1	1360
	BALCONY SEATING	1628	1	1628
	MAIN LOBBY	1119	1	1119
	STAGE	1195	1	1195
	MECHANICAL BACK STAGE	3700	1	3700
	ORCHESTRA PIT	287	1	287

## War Memorial Opera House

**Location:** San Francisco, United States

**Architect:** Skidmore, Owings and Merrill

**Seating Capacity:** 3146

**Context:** Urban

Home to San Francisco Opera and San Francisco Ballet, the War Memorial Opera House is the only opera house in San Francisco. The theatre also utilizes its lobby differently, depending on the function needed to take place, “in addition to opera and ballet performances, the 3146-seat auditorium is available for special presentations, lectures and concerts. With its ornate features and 38-foot ceiling, the grand Main Lobby makes an unforgettable setting for elegant cocktail receptions, sit-down dinners and celebrations.”<sup>97</sup>





















## Review of the Spaces

Not all of the spaces I am looking for were available in terms of their square footages. The square footage measurements of the spaces in the summary table in Figure 65 are estimated figures that will provide a sense of scale of the theatre. For a particular theater typology, this is ideal for what I am designing. However, its size is too large, therefore, I will only look at how the available spaces are laid out. Unfortunately, there is no drawing of the dressing rooms and the greenroom, so I took photographs of the back-of-house spaces during my tour of the theater. They do not have a greenroom per se, but what they call the lounge that has similar amenities with that of the greenroom in ACT, Geary. The lounge, although is a very important space in my research, unfortunately is not shown in any of the floor plans I am able to obtain. It is located in the theater’s basement, and the best I could do is to estimate the square footage of the space as shown in **Figure 56**.

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<sup>97</sup> War Memorial Opera house, accessed March 10, 2014, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

Figure 57. Color-coding Convention of Spaces for WMOH

SPACE TYPE	SPACE DESCRIPTION
SUPPORT	 MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE
	 TECHNICAL ROOM
	 EDUCATION
ANCILLARY	 PUBLIC RESTROOM
	 MAKE UP ROOM
	 SEATING STORAGE
	 MUSICIAN'S CHANGING STORAGE
	 OFFICES
	 1P DRESSING ROOM
	 GREEN ROOM
	 WARDROBE AND SHOP
	 FLY GALLERY
	 VESTIBULE
	 LOUNGE AND CONCESSION
	 CAFETERIA
	CORE
 DRESS CIRCLE (THIRD FLOOR)	
 GRAND TIER (SECOND FLOOR)	
 BOXES (MEZZANINE)	
 ORCHESTRA SEATING (GROUND FLOOR)	
 MAIN LOBBY	
 STAGE	
 MECHANICAL BACK STAGE	
 ORCHESTRA PIT	

WMOH – Current Conditions

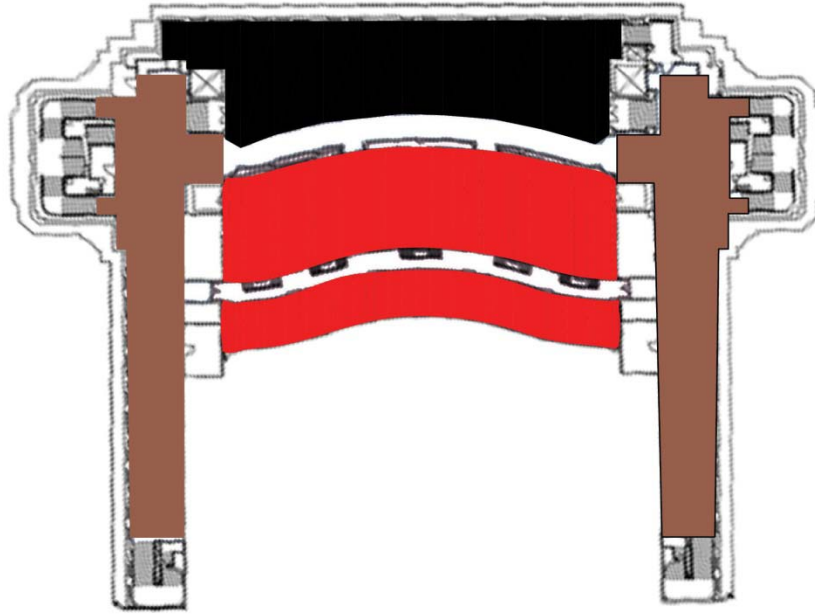


Figure 58. WMOH Balcony (4th Floor Plan). Source of Image: Brochure SF WMOH,3, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

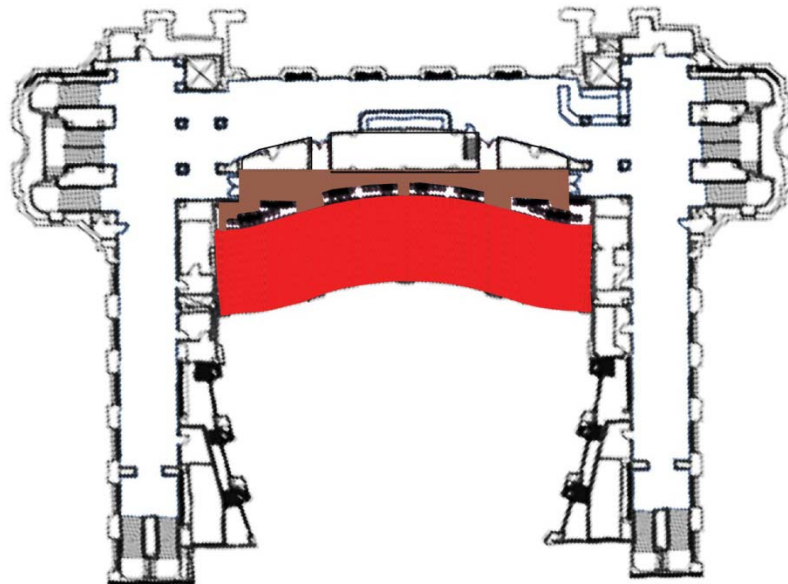


Figure 59. WMOH Dress Circle (3rd Floor Plan). Source of Image: Brochure SF WMOH,3, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

WMOH – Current Conditions

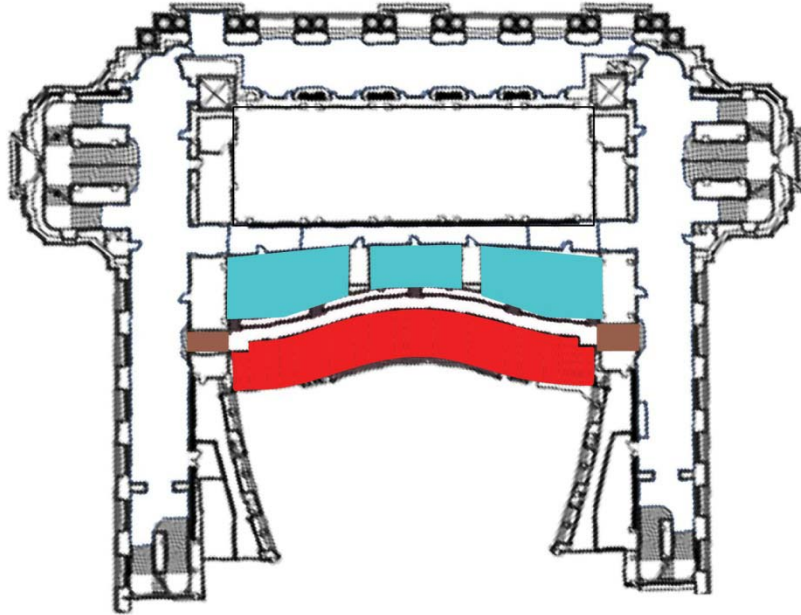


Figure 60. WMOH Grand Tier (2nd Floor Plan). Source of Image: Brochure SF WMOH,3, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

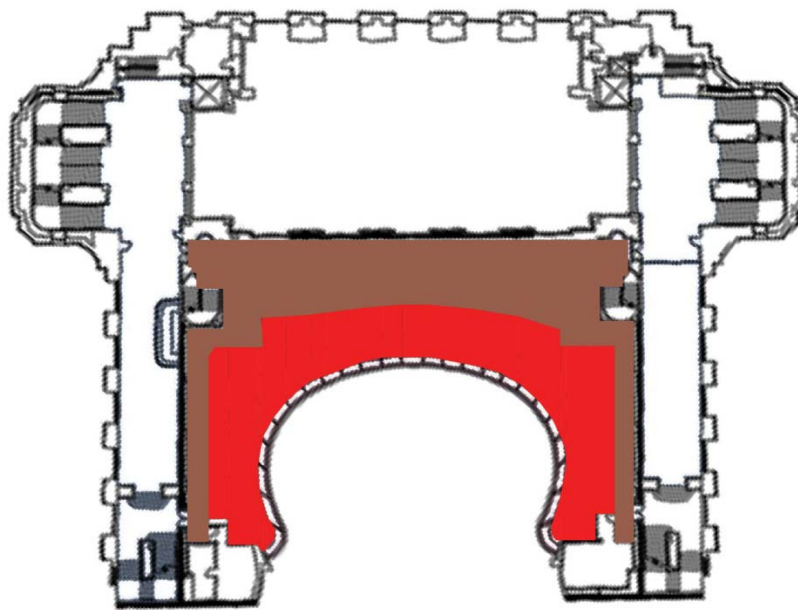


Figure 61. WMOH Boxes (Mezzanine). Source of Image: Brochure SF WMOH,3, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

WMOH – Current Conditions

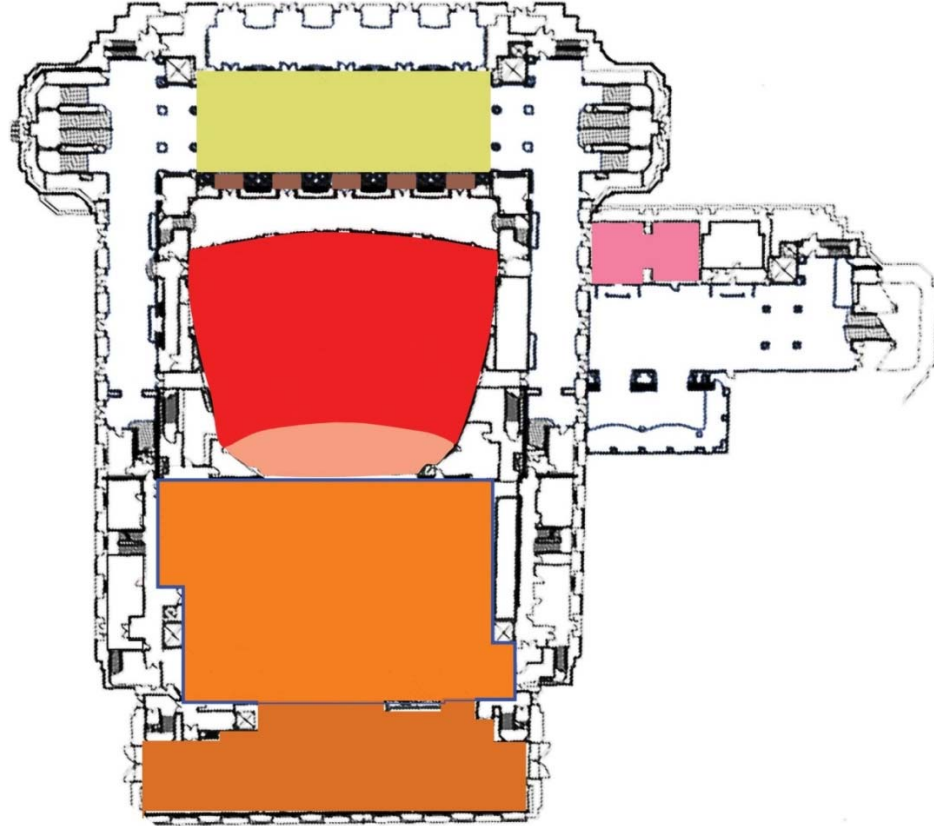


Figure 62. WMOH Orchestra Seating (Ground Floor Plan). Source of Image: Brochure SF WMOH,3, [http://www.sfwmpac.org/operahouse/oh\\_pdfs/oh\\_brochure.pdf](http://www.sfwmpac.org/operahouse/oh_pdfs/oh_brochure.pdf).

























## WMOH – The Lounge



Figure 63. WMOH images of the Lounge. (a) amenities such as a photocopier and tack board are provided for music sheet reproduction; (b) television, varied seating spaces, and small kitchen area are provided; (c) poker table and more seating; (d) table tennis for socialization. The Lounge in this theatre is used for socializing and other leisure activities for performers to enjoy. Although it may have the same amenities as the green room in ACT, its location is not near the stage and dressing rooms, therefore, it does not function as a green room where performers wait for their queues. The amenities in this space allow the musicians and other types of performers to create a community within the theater.

Images courtesy of Luke Sheridan, architect at Gensler.

Figure 64. SF WMOH, Summary of the spaces and their estimated square footage, according to the floor plans. Courtesy of Luke Sheridan, architect at Gensler.

SPACE TYPE	SPACE DESCRIPTION	AREA (SQFT)	QTY	AREA SUM (SQFT)
SUPPORT	 MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE	6687	1	6687
	 TECHNICAL ROOM	1124	1	1124
	 EDUCATION	4273	1	4273
ANCILLARY	 PUBLIC RESTROOM	751	1	751
	 MAKE UP ROOM	—	—	—
	 SEATING STORAGE	—	—	—
	 MUSICIAN'S CHANGING STORAGE	—	—	—
	 OFFICES	3786	1	3786
	 1P DRESSING ROOM	—	—	—
	 GREEN ROOM	—	—	—
	 WARDROBE AND SHOP	2863	1	2863
	 FLY GALLERY	—	—	—
	 VESTIBULE	8993	VARYING SIZES	8993
	 LOUNGE AND CONCESSION	1032	1	1032
CORE	 CAFETERIA	575	1	575
	 BALCONY (FOURTH FLOOR)	4860	4	4860
	 DRESS CIRCLE (THIRD FLOOR)	2622	1	2622
	 GRAND TIER (SECOND FLOOR)	1070	1	1070
	 BOXES (MEZZANINE)	2993	1	2993
	 ORCHESTRA SEATING (GROUND FLOOR)	4941	1	4941
	 MAIN LOBBY	2645	1	2645
	 STAGE	6340	1	6340
	 MECHANICAL BACK STAGE	3205	1	3205
	 ORCHESTRA PIT	846	1	846



## American Conservatory Theatre, Geary

**Location:** San Francisco, United States

**Architect:** Gensler

**Seating Capacity:** 1400

**Context:** Urban

Although this theater is not for plays and opera, it is important to learn from a type of theater that houses pop music and concerts as they might have something conventional theaters may not have. One of them is the different variety of seating. The concession/bar is integrated into the different seating configuration, giving the idea of a casual type of theater. It is safe to assume that lighting is present during performances, providing dynamic human stimulators. This may be useful for a ballroom space, not for a formal opera performance, for it is crucial that the audience focus on the singers and the story of opera. Thus, the Wagnerian theater style, where there is no presence of light but within the stage, is appropriate. The dressing rooms are a decent size that includes a

living space which can be useful in the new Hawai'i Opera Theatre design.

The theater only has two dressing rooms since, like I have mentioned, a theater not for musical productions. Besides the theater type, the theater has limited space because of the available space provided during its construction. The chart below shows the spaces:

**Figure 65. Color-coding Convention for Nokia Theatre**

SPACE TYPE	SPACE DESCRIPTION
SUPPORT	MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE
	TECHNICAL ROOM
ANCILLARY	PUBLIC RESTROOM
	WET ROOM
	OFFICES
	1P DRESSING ROOM
	GREEN ROOM (LOUNGE)
	VESTIBULE
CORE	LOUNGE AND CONCESSION (BAR)
	CAFETERIA (KITCHEN)
CORE	BALCONY (FOURTH FLOOR)
	MOVEABLE SEATS (THIRD FLOOR)
	LOUNGE (THIRD FLOOR)
	PRIVATE CABANAS (THIRD FLOOR)
	STAGE
	MECHANICAL BACK STAGE (SET STORAGE)

# Nokia Theatre – Current Conditions

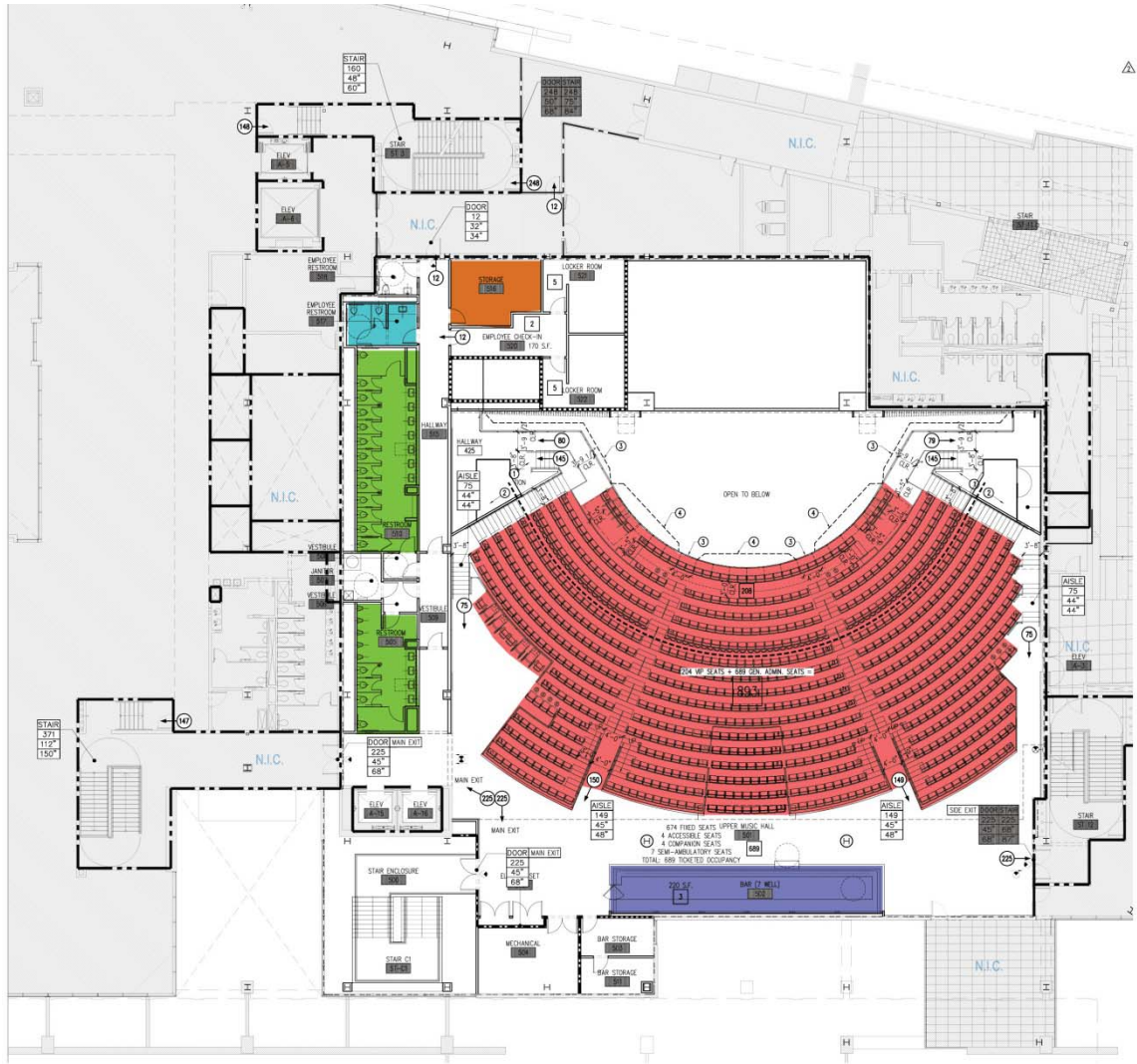


Figure 66. Nokia Theatre, Fifth Floor Plan. Drawing courtesy of Gensler.

# Nokia Theatre – Current Conditions

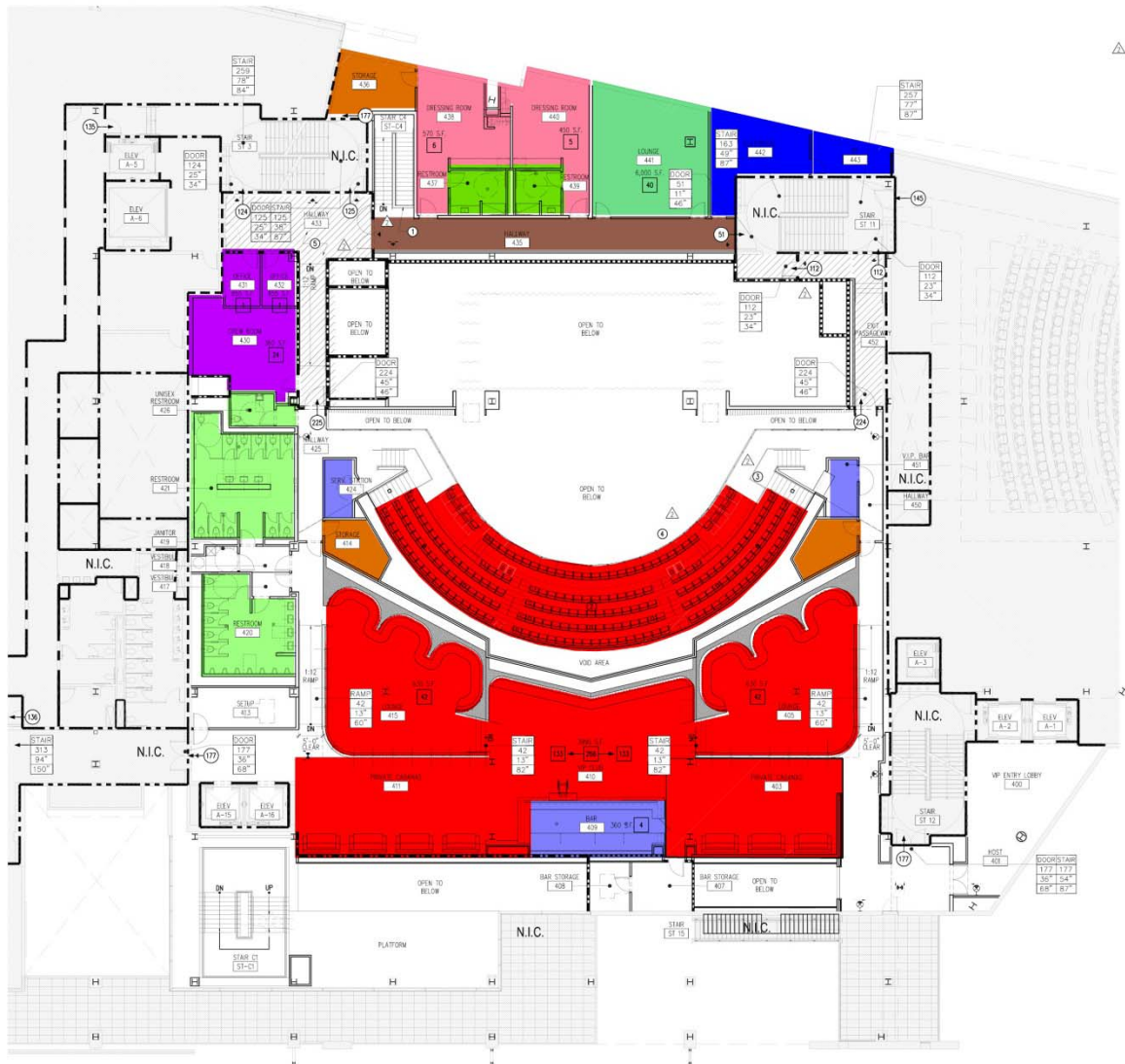


Figure 67. Nokia Theatre, Fourth Floor Plan. Drawing courtesy of Gensler.

# Nokia Theatre – Current Conditions

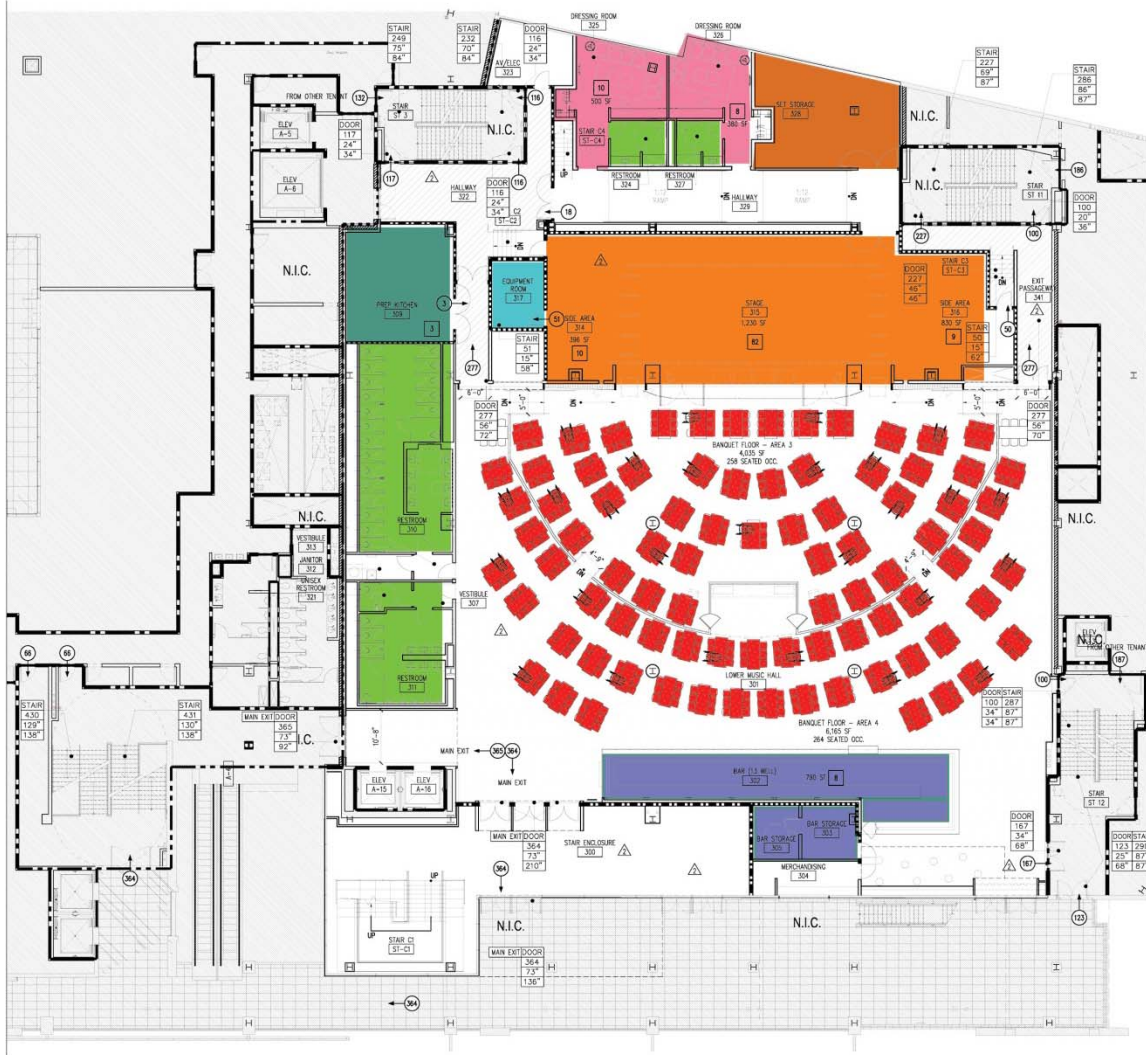


Figure 68. Nokia Theatre, Third Floor Plan. Drawing courtesy of Gensler.

## Nokia Theatre – Current Conditions

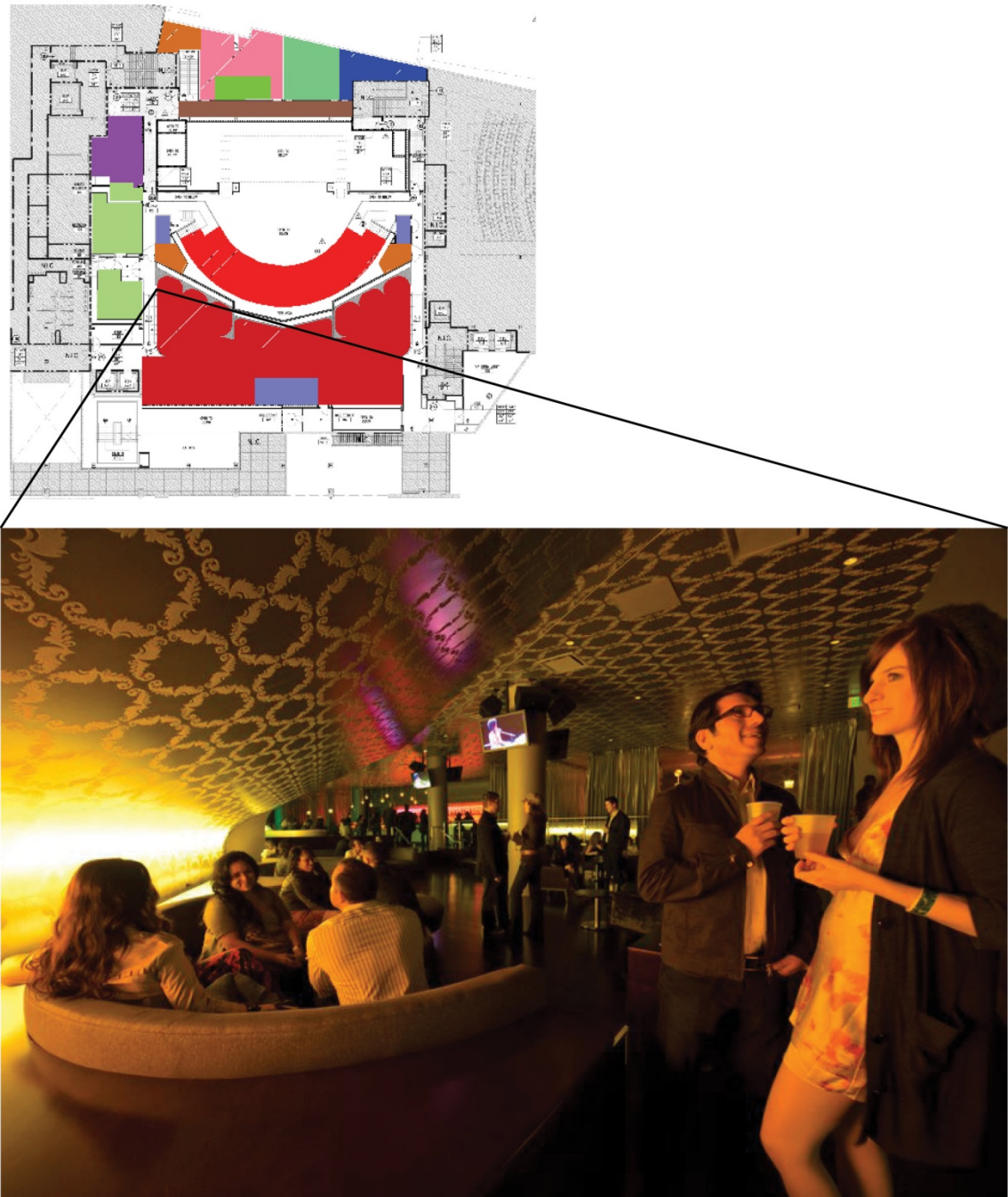


Figure 69. Nokia Theatre, Fourth Floor Lounge view of private seats. Image and drawing courtesy of Gensler.

## Nokia Theatre – Current Conditions

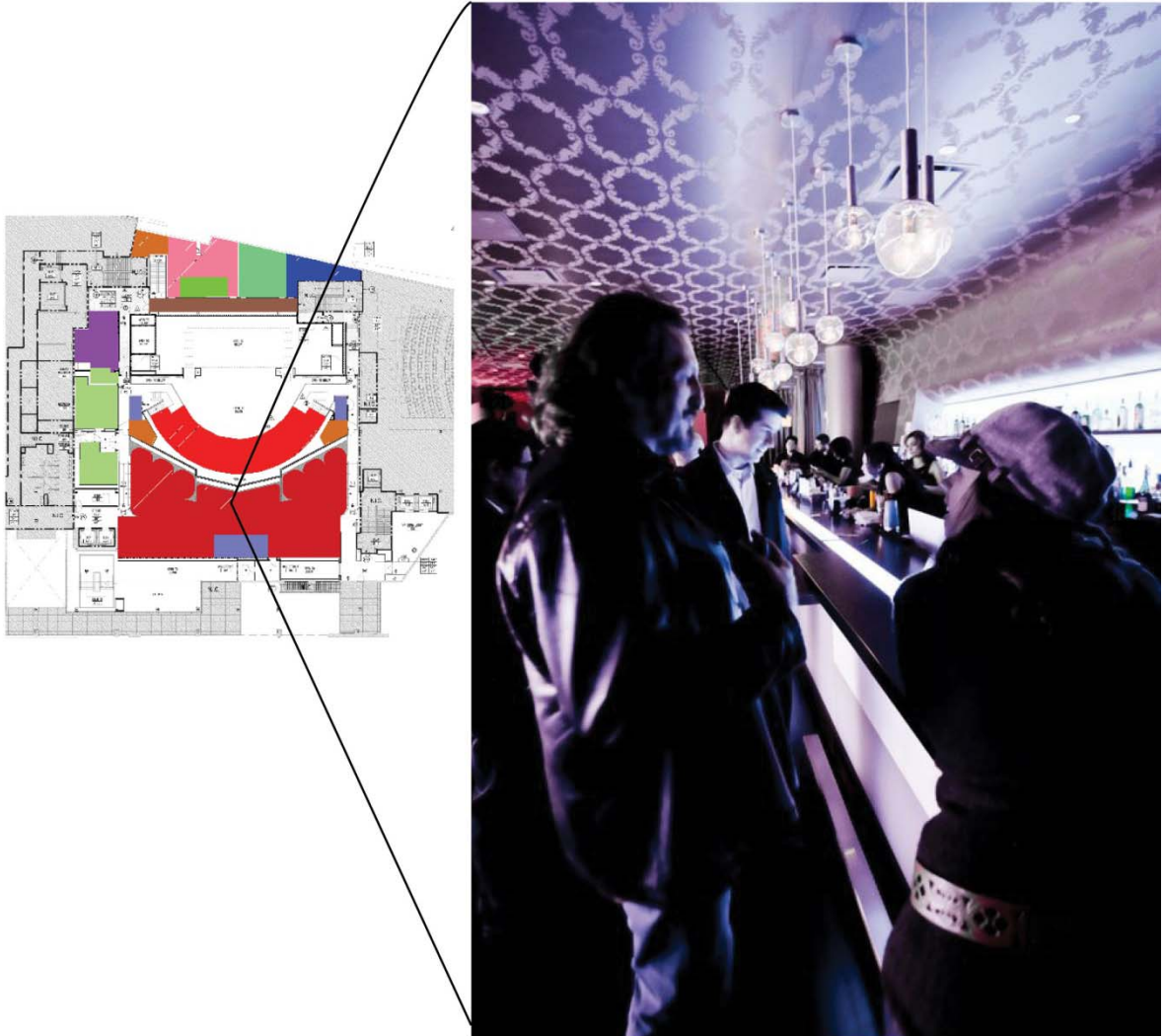


















Figure 70. Nokia Theatre, Third Floor Lounge view of bar. Image and drawing courtesy of Gensler.

Figure 71. Nokia Theatre, Summary of the spaces and their estimated square footage, according to the floor plans, courtesy of Gensler.

SPACE TYPE	SPACE DESCRIPTION	AREA (SQFT)	QTY	AREA SUM (SQFT)
SUPPORT	 MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE	566	VARYING SIZES	566
	 TECHNICAL ROOM	208	1	208
ANCILLARY	 PUBLIC RESTROOM	2181	VARYING SIZES	2181
	 WET ROOM	437	VARYING SIZES	437
	 OFFICES	533	VARYING SIZES	533
	 1P DRESSING ROOM	1420	4	1420
	 GREEN ROOM (LOUNGE)	591	1	591
	 VESTIBULE	2839	VARYING SIZES	2839
	 LOUNGE AND CONCESSION (BAR)	1426	VARYING SIZES	1426
	 CAFETERIA (KITCHEN)	515	1	515
CORE	 BALCONY (FOURTH FLOOR)	1553	1	1553
	 MOVEABLE SEATS (THIRD FLOOR)	5390	VARYING SIZES	5390
	 LOUNGE (THIRD FLOOR)	880	2	1760
	 PRIVATE CABANAS (THIRD FLOOR)	2580	VARYING SIZES	2580
	 STAGE	2659	1	2659
	 MECHANICAL BACK STAGE (SET STORAGE)	3205	1	3205

#### 2.4.4 Conclusion

The case studies of the more recent theater typology reveal that there are many different possibilities to bring people together to improve the awareness of opera in terms of site selection and unique building programs. The evolution of opera houses that began in 1637 however, tells us that opera used to be for the masses, until it became an elitist art form along the way. As a result, it has divided social classes that further gave opera the reputation that it has today. However, the social aims of Wagner and Semper has revolutionized and heavily influenced the way opera is performed today. What we should do today is to break that barrier of opera as an exclusive art form, and make it available to people from all walks of life.

By giving it more exposure to the public, opera will have a better relevance today, encouraging a higher demand for productions. This in turn, will help the singers' confidence to become more

inspired about singing, and in turn, give a performance more inspired than ever.

Exploring the social implications of opera building typology, combined with the theories of Environmental Design, and finding out the opera production process, has allowed me to establish a new opera theatre program that supports my main thesis, which is to design an improved theatre work space that promotes well-being among opera singers for a better operatic performance.

Now, the next step is to determine a final building program for the new Hawai'i Opera Theatre. As I have learned from investigating the evolution of theatre building typology, theaters that were built in the year 2000 and beyond have more complex building programs. Amenities around the performance space itself are being provided to accommodate the visitors, all of which are part of the front-of-house spaces. There is little to none when it comes to the evolution of the



back-of-house. It is up to the new building program to apply my theory, hoping that it will open doors on how to help opera singers through architectural design.



## 3 Design Project

3.1 Introduction

3.2 The New Theater Program

3.3 The Chosen Site: Helemano

3.4 Preliminary Sketches

3.5 The Theater Design

3.6 Selling Opera

### 3.1 Introduction

The objective of this chapter is to show the documentation of the new opera house design with an improved back-of-house space to address the opera singers' needs. During the research phase, I have investigated the production process of Hawaii Opera Theatre. This goes back to my main argument that architectural design can positively affect the well-being of opera singers by through a well-designed theatre work space, so that they could produce a better performance.

To apply this theory, I have established a new building program that will serve as a guideline to the new theatre design. The goal in addition to the improved back-of-house, but to integrate all the scattered support and core spaces Hawaii Opera Theatre has now.

The following step is to select a site for the new opera theatre, which will need to be analyzed to determine how the new building program will fit.

## 3.2 The New Theatre Program

### 3.2.1 Analysis of Activities

Going back to the last chapter, I have created a diagram that analyzes the different activities in an opera production, and the spaces to house them. After learning that housing, mood rooms, and warm-up rooms, a ballroom, a cafeteria, and a fitness studio, play an integral part in addressing Performance and Social Anxiety among opera singers, I have added these into the entire opera production process, as seen in **Figure 71**. What I would like to do at this point is to combine these spaces with the building program of a conventional theatre.

As seen in **Figure 72**, I have maintained the color-coding convention from the theatre case studies, and I have added the new spaces to form the New Hawaii Opera Theatre.

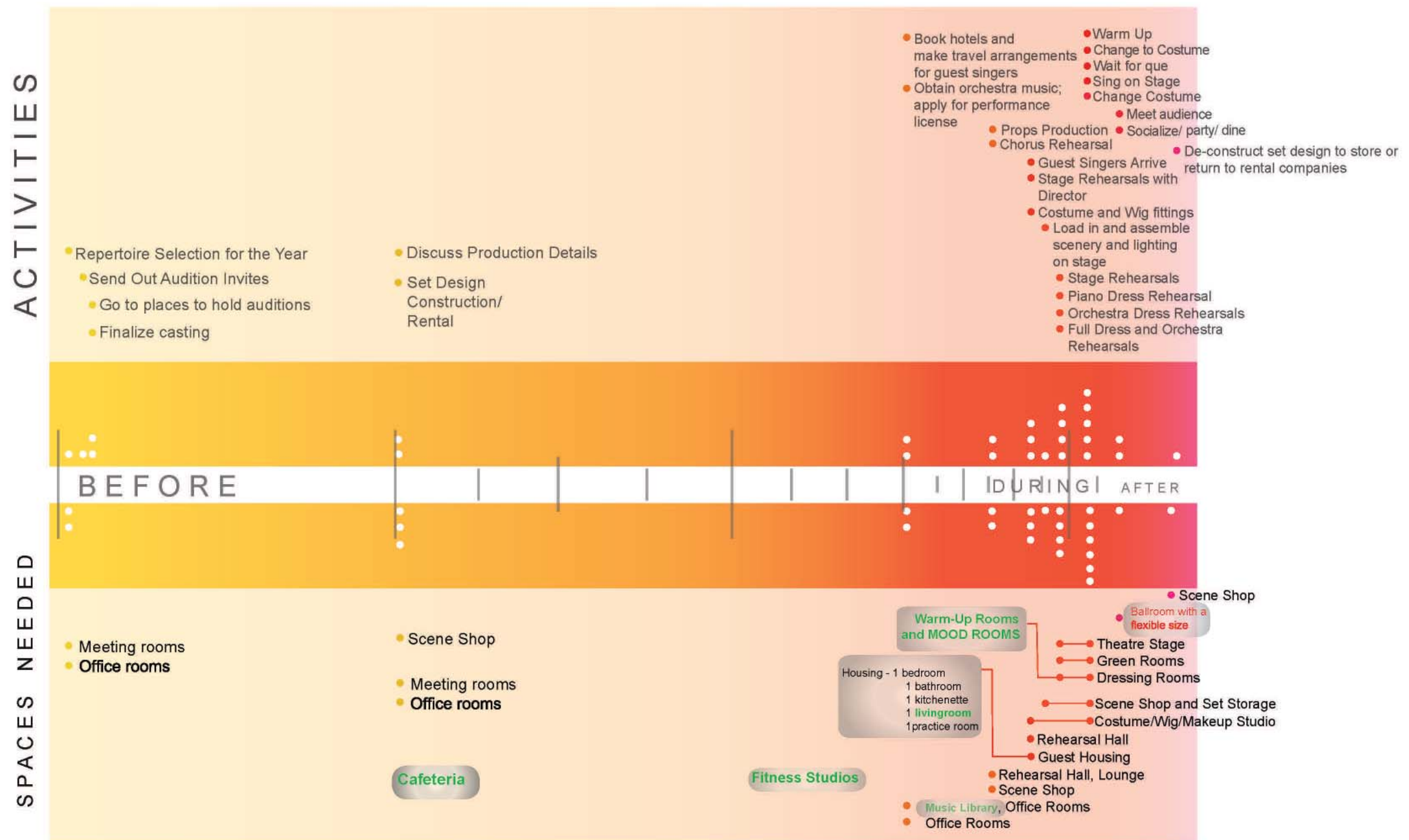





































Figure 7: Recap of Figure 4

Figure 73. New Hawaii Opera Theatre, Final Building Program

SPACE TYPE	SPACE DESCRIPTION	AREA (SQFT)	QTY	AREA SUM (SQFT)
SUPPORT	 TRAP ROOM	1195	1195	1195
	 MECH/ ELEC/ FIRE/ PLUMBING/ ELEVATOR MACHINE	1627	1627	1627
	 WET ROOM	111	7	774
	 TECHNICAL ROOM	567	1	567
	 HOUSING	400	20	8000
	 REHEARSAL ROOM	6893	1	6893
	 PHYSICIAN'S CLINIC	250	1	250
ANCILLARY	 PUBLIC RESTROOM	359	4	1435
	 MAKE UP ROOM	88	1	88
	 SEATING STORAGE	1612	1	1612
	 MUSICIAN'S CHANGING STORAGE	298	1	298
	 MANAGEMENT ROOM	841	1	841
	 USHER	154	1	154
	 MANAGER	183	1	183
	 4P DRESSING ROOM	166	5	829
	 13P DRESSING ROOM	400	2	800
	 1P DRESSING ROOM	80	8	240
	 GREEN ROOM	187	1	187
	 VIP	304	1	304
	 WARDROBE AND SHOP	1038	1	1038
	 FLY GALLERY	557	4	2226
	 GALLERY VESTIBULE	243	4	1701
	 LOUNGE AND CONCESSION	1032	1	1032
	 WARM UP ROOM	25	5	125
 MOOD ROOM	90	18	1620	
CORE	 BOX SEATING	110	4	440
	 ORCHESTRA SEATING	2659	1	2659
	 UPPER SEATING	1360	1	1360
	 BALCONY SEATING	1628	1	1628
	 MAIN LOBBY	1119	1	1119
	 STAGE	1195	1	1195
	 MECHANICAL BACK STAGE	3700	1	3700
	 ORCHESTRA PIT	287	1	287
	 BALLROOM WITH FLEXIBLE SIZE	2446	1	2446
	 BALLROOM KITCHEN	734	1	734

### 3.2.2 Adjacency Study

In order to determine where each space will be situated and how they should relate to one another, a series of bubble diagram studies is done. Keeping in mind that it is crucial on how the new spaces in the back-of-house will be integrated into these adjacency study, The square footages of each space is also applied, to get a sense of spatial scale. To be able to organize the spaces in a systematic manner, I have decided to do the adjacency study on the back-of-house spaces first as shown in **Figures 73-75**. Following that, I will combine it with the front-of-house spaces to fully analyze the entire building program in **Figure 76**. The result is the combination of the front and back-of-house spaces of the new Hawaii Opera Theatre in **Figure 77**.



Figure 74. Adjacency Study 1: Bubble Diagram of the back-of-house spaces according to the theatre case studies.



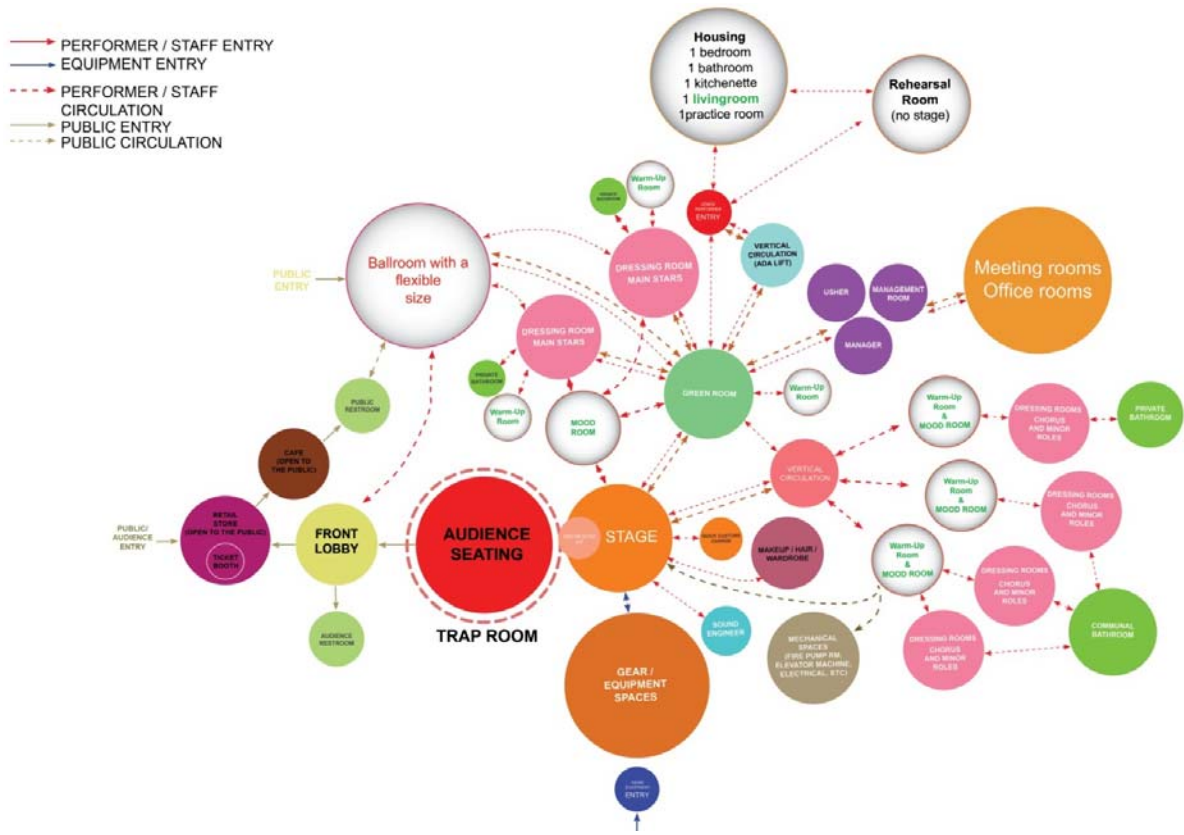
Figure 75. Adjacency Study 2: Bubble Diagram of the back-of-house with well-being spaces integrated with the dressing rooms.







Figure 78. Adjacency Study 5: Bubble Diagram – Final reiteration of the back-of-house and front-of-house spaces with their sizes scaled to their corresponding square footage.



## 3.3 The Chosen Site: Helemano

### 3.3.1 Criteria for Site Selection

Based on the design principles I have established from Well-being design, I have created some criteria for selecting the proper site for the New Hawaii Opera Theatre. The site must have the following attributes:

1. To induce a relaxing feeling, the site must be in abundance of vegetation. This way, the application of what has been learned from biophilia would be more natural.
2. Its proximity to people must be far enough so that distractions such as people and traffic noise can be avoided by the opera singers.
3. The environment must be one that can be taken advantage of in terms of Hawai'i's climate and weather.

As a result of following these criteria, Helemano becomes a viable choice for designing the New Hawai'i Opera Theatre. But before I go straight to the site analysis of Helemano, let me first explore its history and understand how the addition of the New Hawai'i Opera Theatre can impact this historical land:

### 3.3.2 Helemano Revitalization

Located in central O'ahu, Helemano is a country-like place known for its plantation fields and military housing. It is one of the farming areas of "North Shore triangle"<sup>98</sup>, adjacent to Haleiwa and Mokule'ia. It is formerly known as the sugar plantation that took a halt in 1996.<sup>99</sup> Now, it is thriving as different

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<sup>98</sup> "North Shore Farms Revitalizing Agriculture," accessed October 20, 2014, <http://www.bizjournals.com/pacific/stories/2004/11/22/story3.html?page=all>.

<sup>99</sup> "North Shore Farms Revitalizing Agriculture," accessed October 20, 2014, <http://www.bizjournals.com/pacific/stories/2004/11/22/story3.html?page=all>.

farming products are being produced there.<sup>100</sup> The preservation of the agricultural land is maintained by North Shore Sustainable Communities Plan, a plan that restricts development only in Haleiwa.<sup>101</sup> Situating an opera house in Helemano, a place known for farming, may seem counter-intuitive in its efforts to preserve its land-use. However, by placing the New Hawai'i Opera Theatre in the edges of the farming plains of Helemano, it will not only enhance its land use, but reintroduce it to the public as the New Hawai'i Opera Theatre provides a public park for people to enjoy the outdoors, as well as become a major performance space on the West Side of O'ahu.

In addition, the New Hawai'i Opera Theatre will join one of the places of interests in Helemano and Haleiwa. Along Kamehameha highway, Helemano Plantation and Dole Plantation are two of the plantation fields in Helemano that are thriving today (**Figure 81**). They invite visitors by educating them about what is being farmed (Dole Plantation)<sup>102</sup>, as well as provide housing, education, and training facilities for developmentally ill individuals (Helemano Plantation)<sup>103</sup>. In a total of 50 acres of land dedicated to agricultural use,<sup>104</sup> this means that there are hardly any built structure in the district, and more of plain fields and relatively flat terrain (**Figure 83**).

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<sup>100</sup> "North Shore Farms Revitalizing Agriculture," accessed October 20, 2014, <http://www.bizjournals.com/pacific/stories/2004/11/22/story3.html?page=all>.

<sup>101</sup> "North Shore Farms Revitalizing Agriculture," accessed October 20, 2014, <http://www.bizjournals.com/pacific/stories/2004/11/22/story3.html?page=all>.

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<sup>102</sup> "Dole Plantation", accessed October 20, 2014, <http://www.dole-plantation.com/The-Sugar-Industry>

<sup>103</sup> "About Us", Helemano Plantation, accessed October 20, 2014, <http://helemano.org/aboutus.shtml>

<sup>104</sup> "Event Description," accessed October 20, 2014, <http://www.kokua.coop/events/helemano-plantation-tour-and>.

### 3.3.3 Helemano Site Analysis

Away from the noisy and heavily commercialized urban area of Waikiki, Helemano is a place abundant of vegetation, but at the same time, its location is not too far from the nearest town.

#### Location

The Helemano district is located in Central O'ahu, in the state of Hawai'i. It is a part of the town, Whitmore.

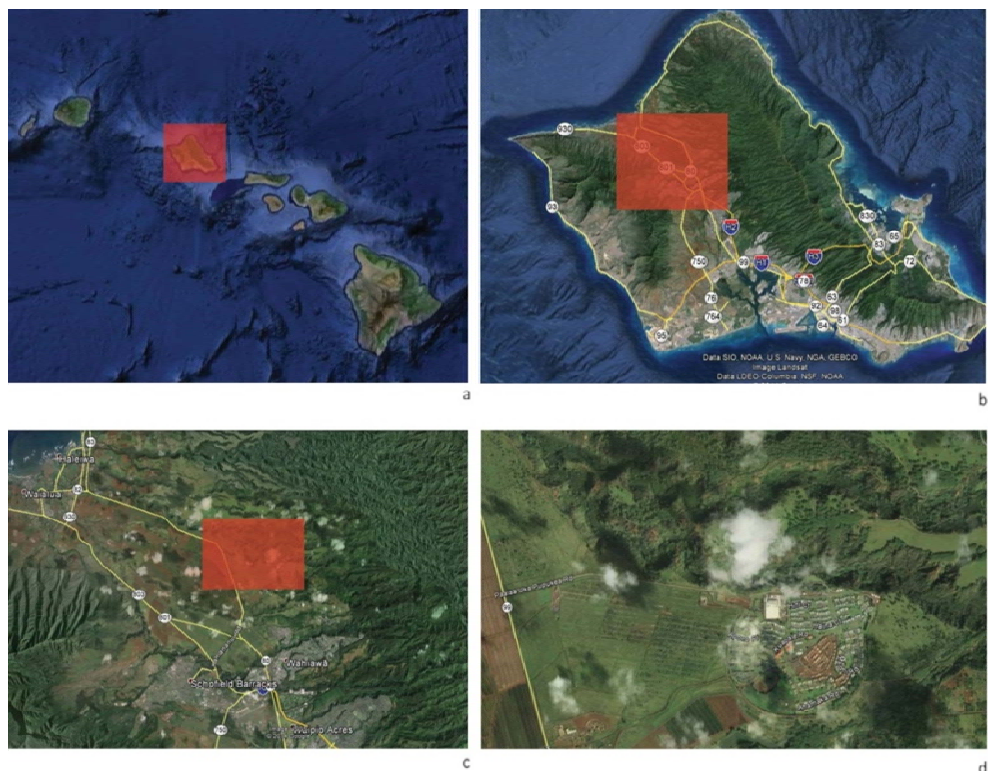


Figure 79. Helemano: a. Location of site in the Hawai'ian islands; b. Location of Central O'ahu; c. Location of site in Helemano; d. Magnification of image c. Images from Google Earth.



## Circulation

The district of Helemano can be accessed by Kamehameha Highway, a major highway that runs from the North part of O'ahu to South of central O'ahu, where it meets the H-1 freeway.

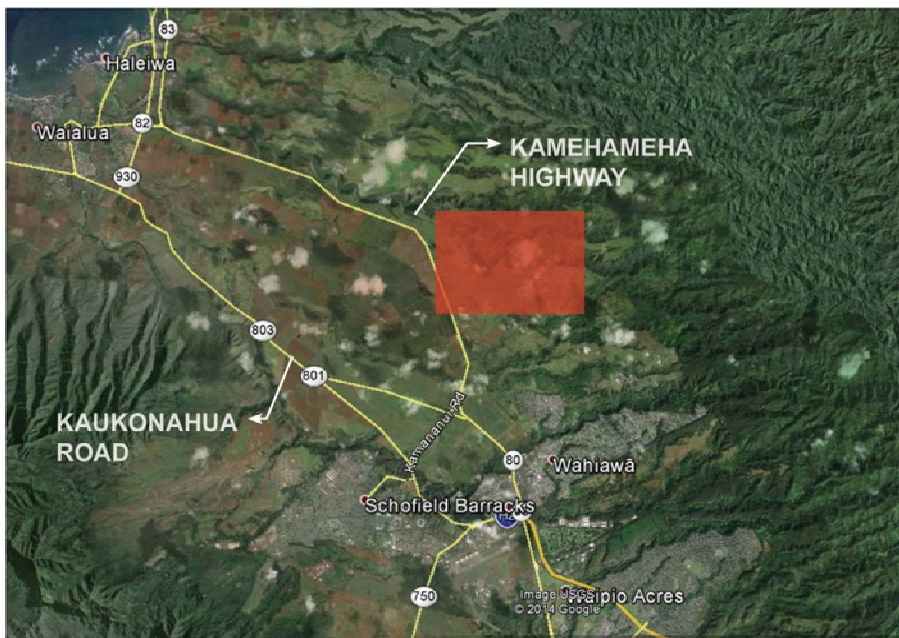


Figure 80. Helemano – major roads, from base image C. Images from Google Earth.

## Surrounding Areas

Helemano (marked in red) is in the center of the following points of interest: Haleiwa town, located up North that attracts tourists from all over the world; on the south of Helemano: Helemano Plantation, Dole Plantation, and Wahiawa.

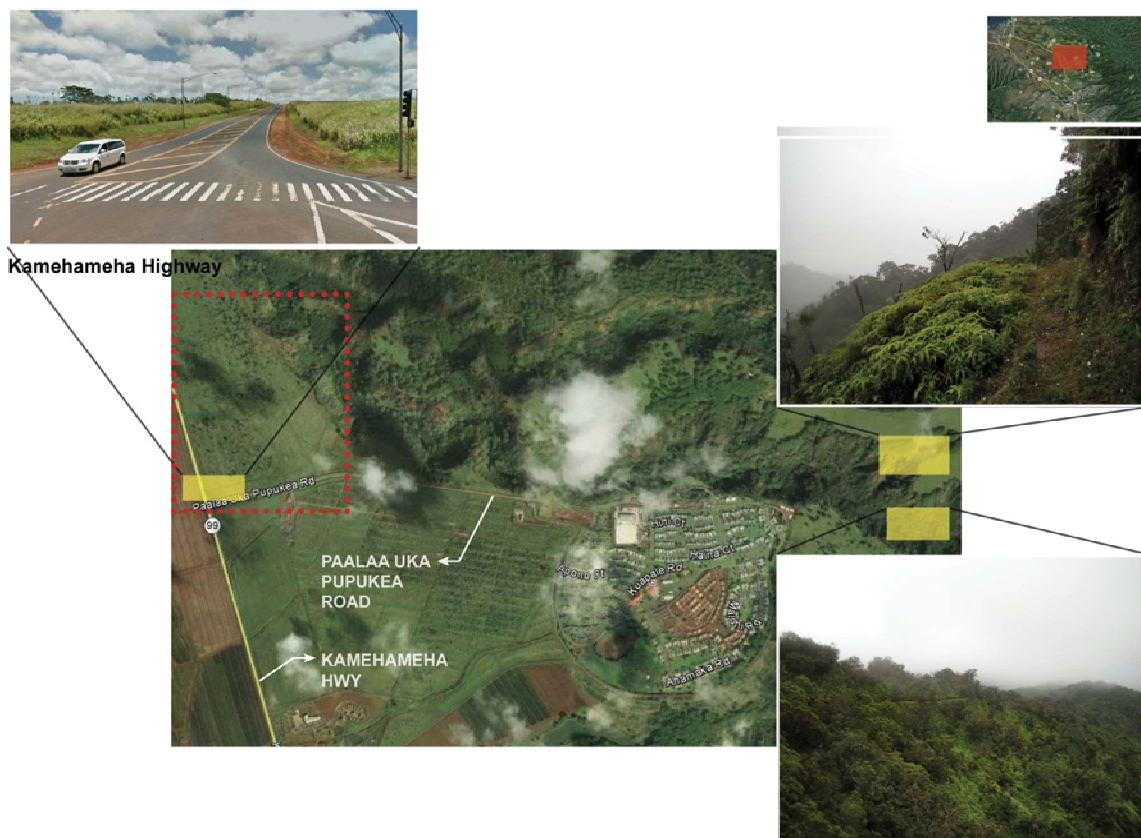


**Figure 81. Helemano – Points of Interest, from base image C.**

Maps and Street Images from Google Earth. Sources of Plantation Images (from the top):  
<http://helemano.org/tour.shtml>; <http://www.gadsplace.com/wedding/Honolulu%209-10-04B.html>;

## Surrounding Areas in the Chosen Site

The views around the chosen site is devoid of any building structure, but quite dynamic in land form. The road, Kamehameha highway is surrounded by plains of grass. However, when one looks at the right side of the chose site, one can enjoy the beauty of the lush mountain ridges. The circular village on the lower part of the site is the home for the elderly and military.



**Figure 82. Helemano –Views within the buildable area, from base image D.** Maps and Street Image from Google Earth. Sources of Hike Trail Images (from the top):  
<http://helemano.org/tour.shtml>; <http://running.artlaflamme.com/cgi-sys/suspendedpage.cgi>;  
<http://www.gadsplace.com/wedding/Honolulu%209-10-04B.html>;

## Micro-Climatic Conditions

To analyze the micro-climatic conditions of the site, it would clearer to analyze it by looking at it in its line drawing form. To do so, I super-imposed 5-foot contour lines on top of the image and will be using the line drawing from this point on.



**Figure 83. Helemano –Views within the buildable area, from base image D. Map Image from Google Earth; Line Contours courtesy of Mānoa Maps, Aerial Photos, Geographic Information Systems (MAGIS) Laboratory.**

## Vegetation and Precipitation

The Site is represented in the diagram on the left. The greenest shades represent the density of vegetation (the darker the shade, the heavier the vegetation), while the brown patch on the left most area in the diagram represents the plantation fields. Regarding precipitation, Helemano receives an average of 1.81 inches of rain every month.<sup>105</sup>



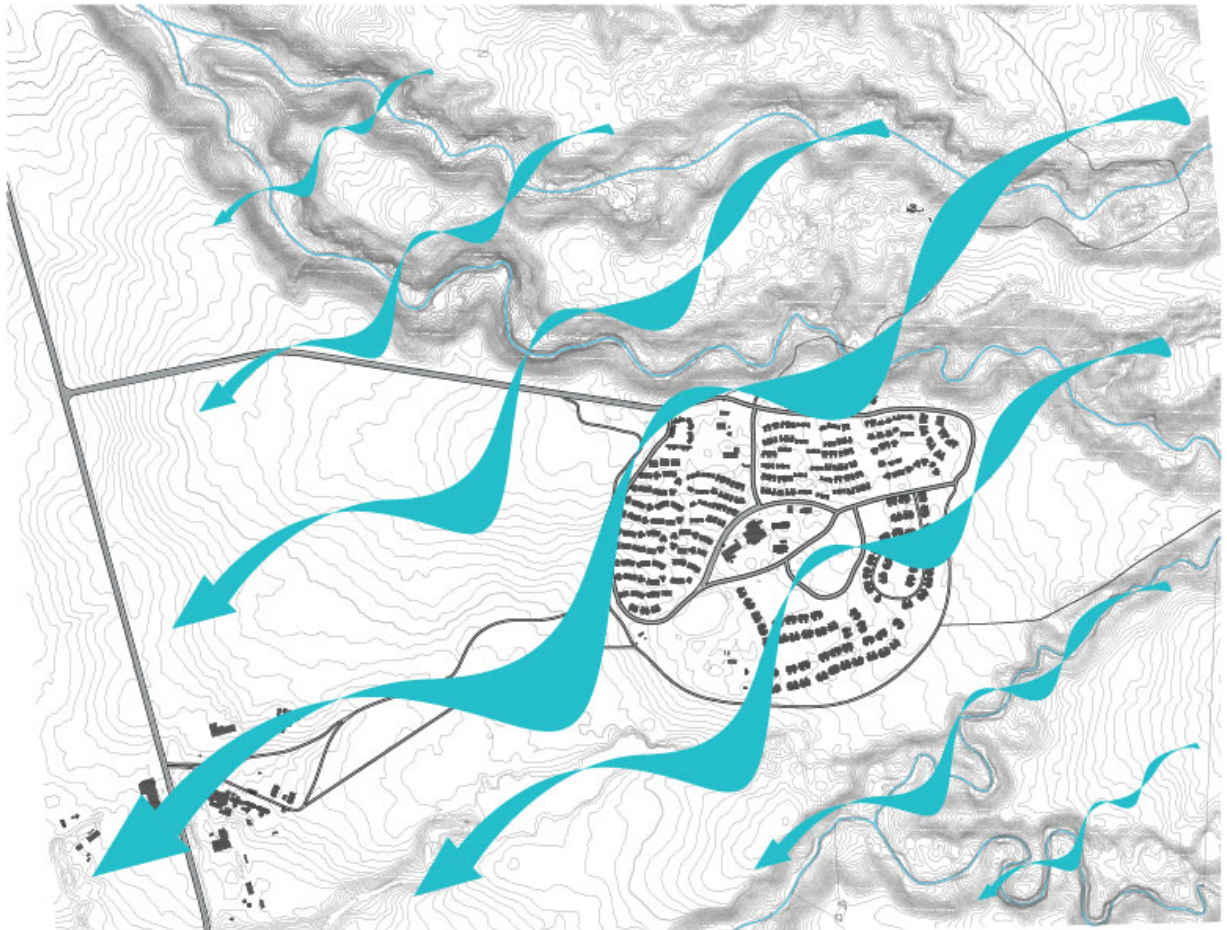
**Figure 84. Helemano –Vegetation diagram, from base image D.** Line Contours courtesy of Mānoa Maps, Aerial Photos, Geographic Information Systems (MAGIS) Laboratory

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<sup>105</sup> "Preliminary Local Climatological Data," National Weather Service, accessed August 27, 2014, <http://www.nws.noaa.gov/view/prodsByState.php?state=MT&prodtype=climate>.

## Wind Flow

The wind flow in general comes from the North-East direction<sup>106</sup>. It has an average speed of 8.4 mph.<sup>107</sup> I would like to point out that wind study is usually done at a much larger scale than the one in this diagram, but because there are no other surrounding buildings in the chosen site, this scale is maintained.



**Figure 85. Helemano –Views within the buildable area.** Line Contours courtesy of Mānoa Maps, Aerial Photos, Geographic Information Systems (MAGIS) Laboratory.

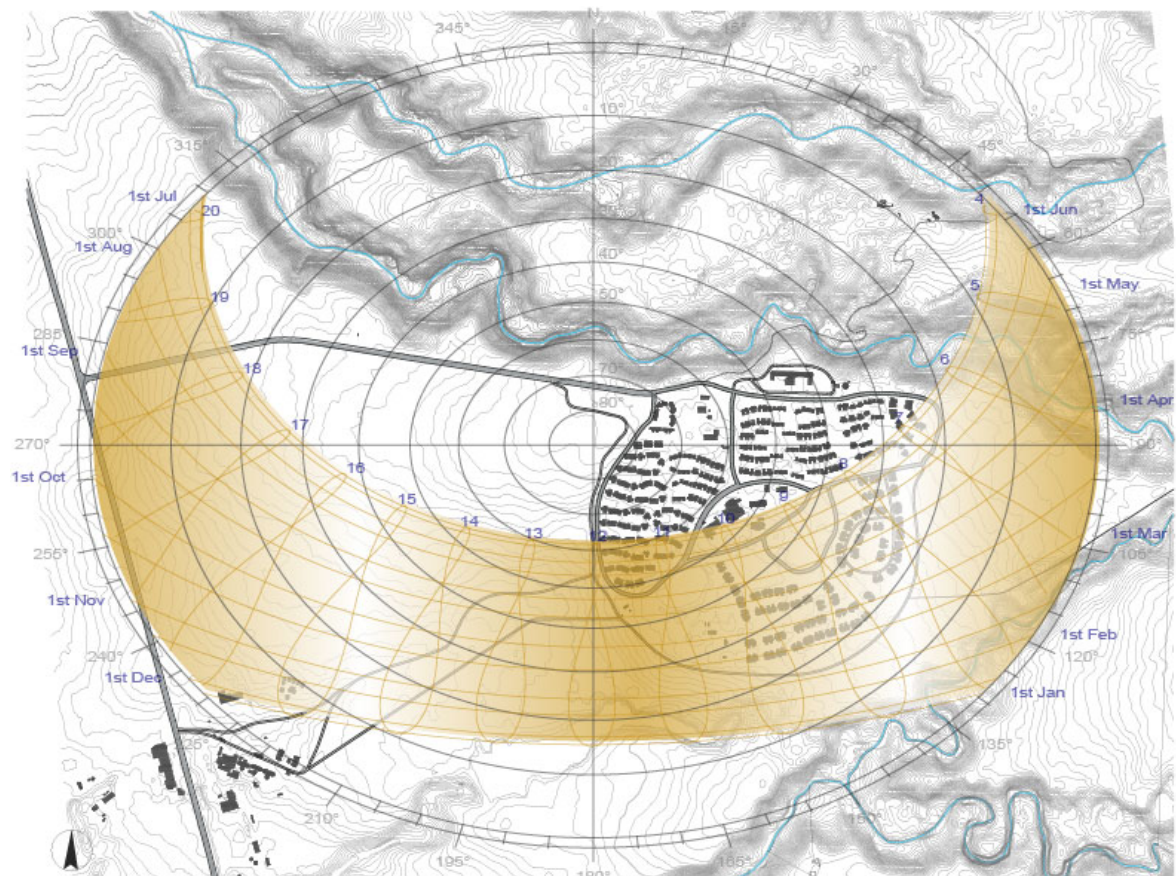
<sup>106</sup> "Oahu Current Wind," <http://www.windlines.net/2002/01/oahu-weather.html>.

<sup>107</sup> "Preliminary Local Climatological Data," National Weather Service, accessed August 27, 2014, <http://www.nws.noaa.gov/view/prodsByState.php?state=MT&prodtype=climate>.

## Sun Path and Temperature

Hawaii is in the Northern hemisphere. The sun path travels from East to West and along the South side. It is therefore necessary to shade spaces that has openings to the South, as the temperature in Helemano can humid.

Helemano has an average temperature of 70.6° F in a month.<sup>108</sup>



**Figure 86. Helemano –Views within the buildable area.** Line Contours courtesy of Mānoa Maps, Aerial Photos, Geographic Information Systems (MAGIS) Laboratory. Super-imposed sun diagram, courtesy of ECOTECT Community Wiki!

<sup>108</sup> "Preliminary Local Climatological Data," National Weather Service, accessed August 27, 2014, <http://www.nws.noaa.gov/view/prodsByState.php?state=MT&prodtype=climate>.

## 3.4 Design Process

### 3.4.1 Preliminary sketches for building concept

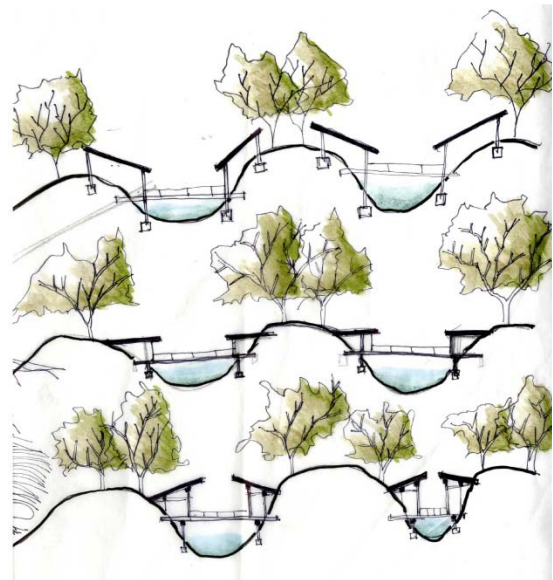
In determining the right look and feel of the spaces, the site has two different faces to it: the flat landscapes with scarce trees, and the lush ravine. The goal is to have the building not have it competing with these elements. Instead, it should serve as a meeting point for the two faces.

#### Residential Area

I started with drawing building sections possibly for the residential area to test out what kind of roofing that would look best on buildings situated along a sloped site (**Figure 86**). The idea of scale was not yet considered in making these preliminary sketches, so the actual sizes of the buildings will be considerably different in later drawings.

Following the roof study, a question came to me on what would then the buildings for the residential area would look like in a site plan? In **Figure 87**, I introduced the

idea of bridges and that the residential area would be in huts, so that the traveling opera singers can relax among the trees. Without thinking of the scale, this exercise allowed me to make a general feeling of what kind of experience the opera singers can have.



**Figure 87. Building concept: Roof Form Study**

Another section sketch I made for the residential area is a more detailed building section on how each residential unit would be, in order to get the feeling of what it would be like when one lives inside the unit (**Figure 88**).



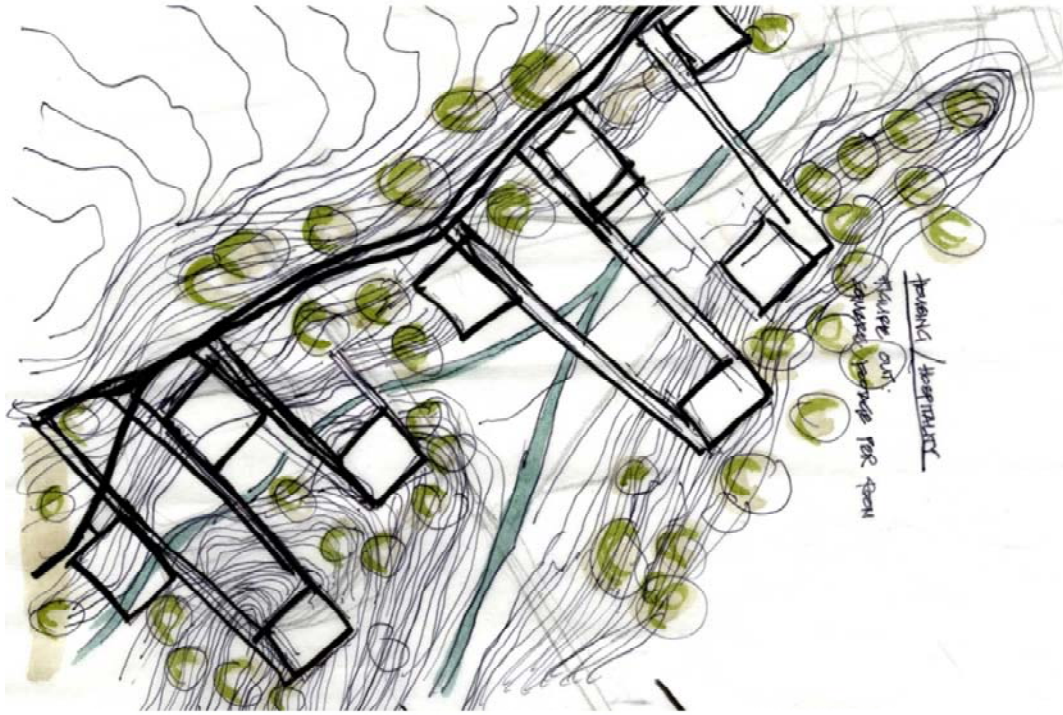


Figure 88. Preliminary sketch of residential area

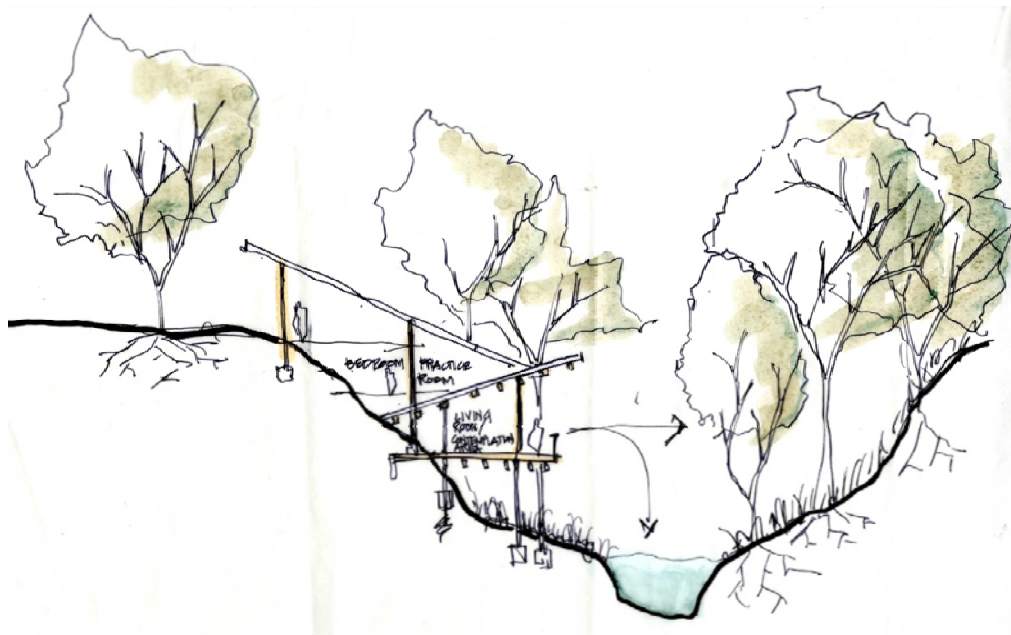


Figure 89. Preliminary sketch of residential area

The goal is to create a place of relaxation for the traveling opera singers and for the local opera singers who wish to book a room. In order to reach this goal, I would like to take advantage of what the site has to offer by placing the residential units within the existing trees in the site. Their units will be secluded and peaceful, with the views of the forest while they rest or rehearse, or entertain a few guests.

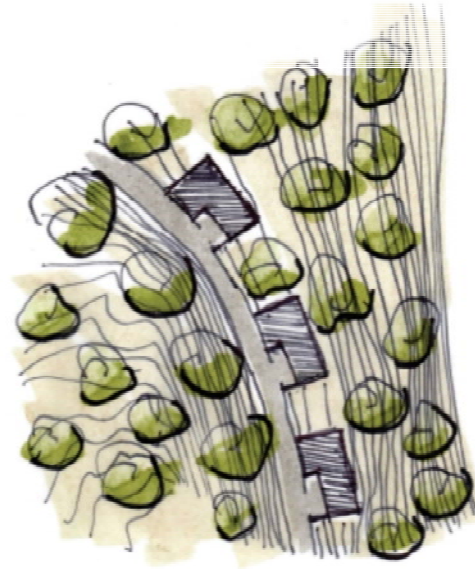


Figure 90. Preliminary sketch of the residential area in site plan

The pathway in **Figure 89** shows how it would be laid out along the slope as it provides easy access to each unit, all the while providing a secluded feel as it is lined along the existing trees.

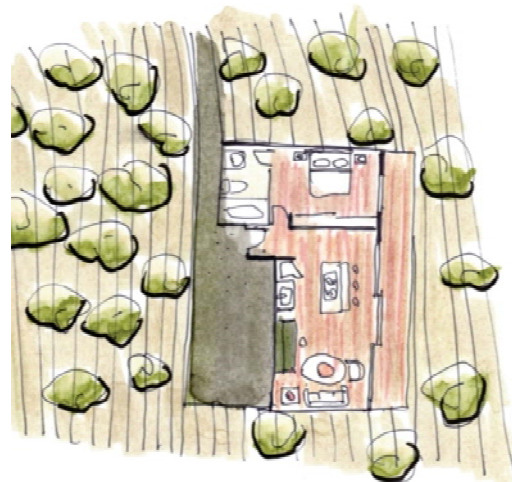


Figure 91. Residential Area preliminary sketch of what could each residential unit look like in plan. The residential spaces are to have one living room, one bed room, a full bath, a kitchenette, and an upright piano for traveling singers to practice.

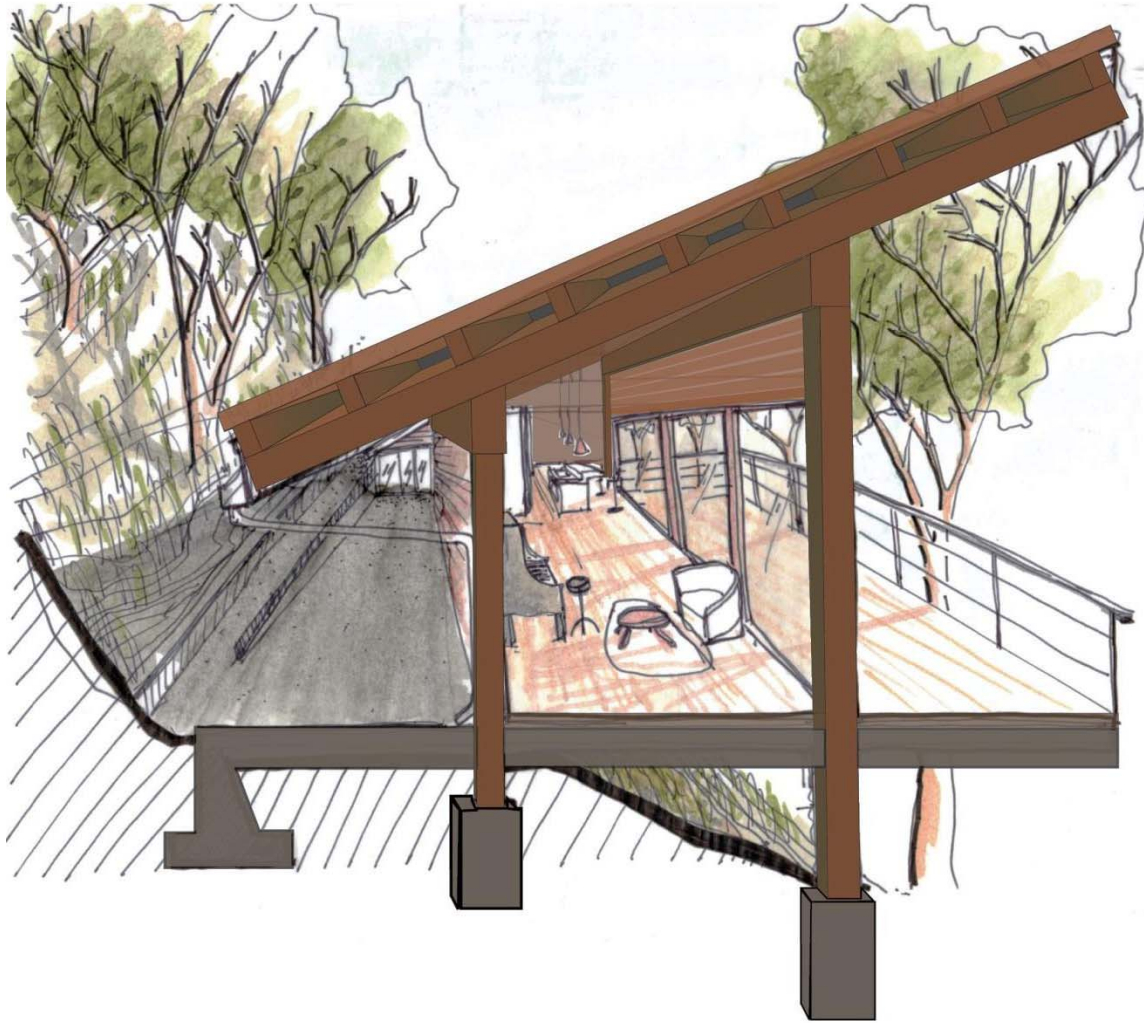


Figure 92. Residential Area preliminary sketch as above what could each residential unit look like in section. The residential spaces are to have one living room, one bedroom, a full bath, a kitchenette, and as above upright piano for traveling singers to practice.

## Public Entrance

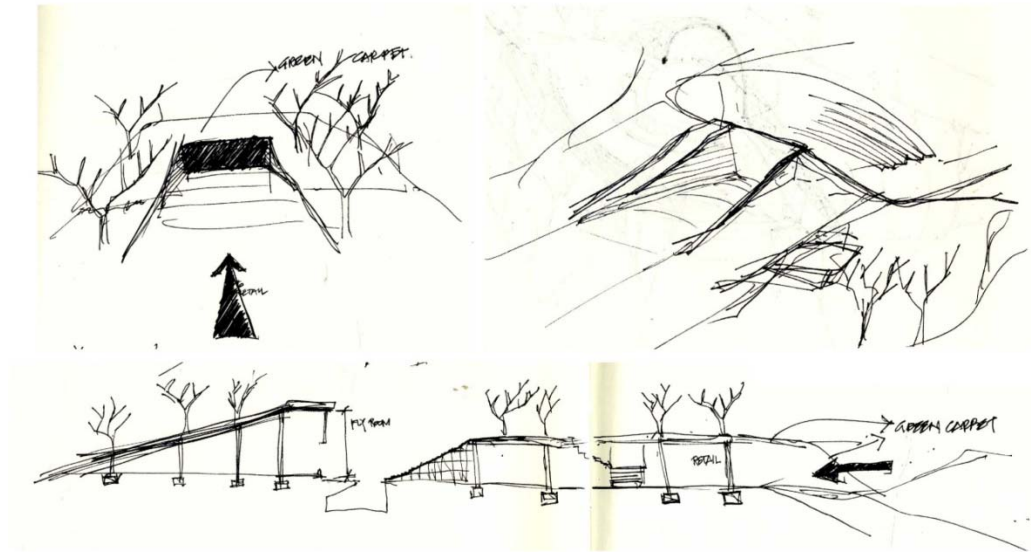


Figure 93. Public entrance preliminary sketch of “green carpet” welcoming the visitors

Back-of-house spaces

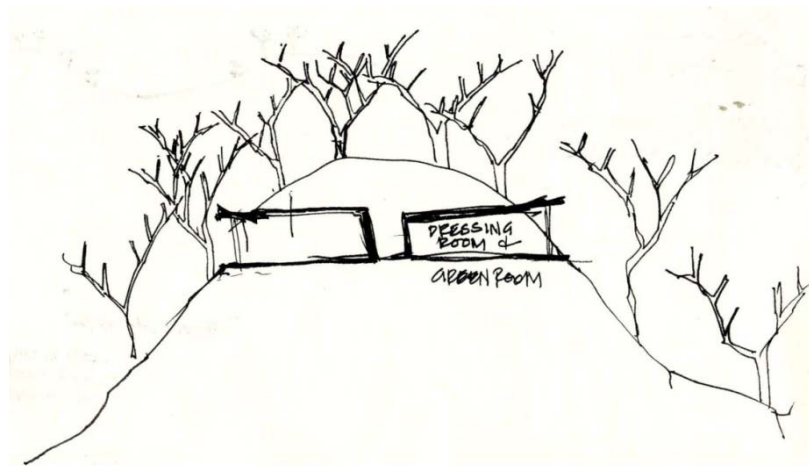
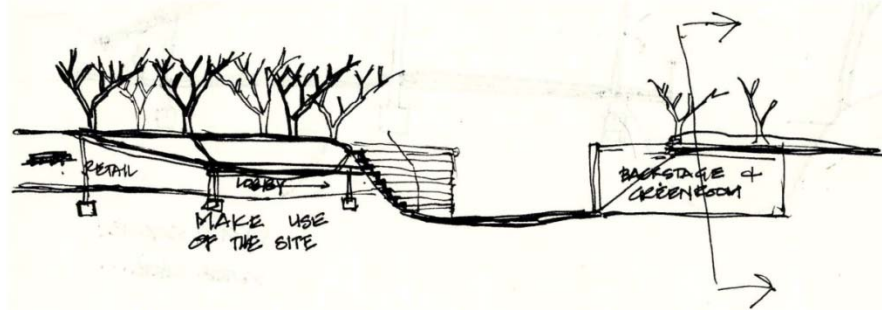


Figure 94. Public entrance preliminary sketch of “green carpet” welcoming the visitors

### 3.4.2 Choosing an area within the site

The area marked in red on the in-set map shows that it is the most viable option to build as it is in between the access roads and the heavy vegetation. I have also considered building in the area deep within the mountain ridges towards the right side of the red mark. I ended up not choosing it because in reality, it would mean disturbing the critters living in there and using a crane to transport all the building materials needed for construction. Therefore, the final selected area makes it the most viable option.

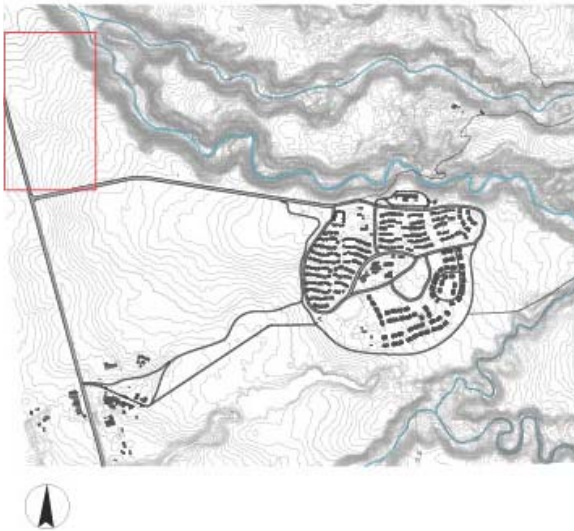


Figure 95. Helemano – chosen area to build

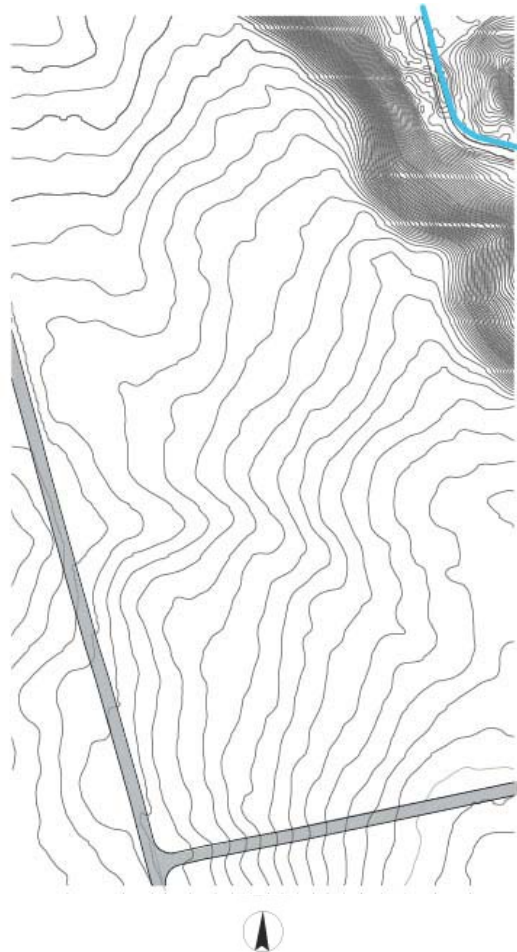


Figure 96. Helemano – final selection of area to build on

### 3.4.3 Design Options and Treatments

I have created two schematic design options for the New Hawaii Opera Theatre. Both of these options started out as parti diagrams to begin organizing the spaces as a whole. Following those spatial organization contribute to the formation of the entire building or set of buildings. My strategy for the first scheme is just to try out how the spaces would fit next to each other, depending on their function.

Testing out the spatial layout and organization was the main purpose of this exercise, not necessarily the form of the building. Looking at the site plan in Figure 96, the main entrance to the building is to turn right to Pa'ala'a *Pupukea* Road from Kamehameha highway.

The staff and performer entrance is located further up North along Kamehameha highway. The justification for this is that majority of the population in O'ahu live South of Helemano. The staff and performers may have a longer traveling distance to the new theatre but

their journey will be more secluded, since the public as a much further entry.

The key point is to locate the residential spaces and the back-of-house spaces occupied by opera singers along the ravine, where the heavily vegetated area of the site is located.

### 3.4.4 Design Process Documentation

#### Scheme 1:

My strategy for the first scheme is just to try out how the spaces would fit next to each other, depending on their function. Testing out the spatial layout and organization was the main purpose of this exercise, not necessarily the form of the building. Looking at the site plan in **Figure 97**, the main entrance to the building is to turn right to Pa'ala'a Uka Pupukea Road from Kamehameha highway.

The staff and performer entrance is located further up North along Kamehameha highway. The justification for this is that majority of the population in O'ahu live South of Helemano. The staff and performers may have a longer traveling distance to the new theater, but their journey will be more secluded, since the public has a separate entry point.

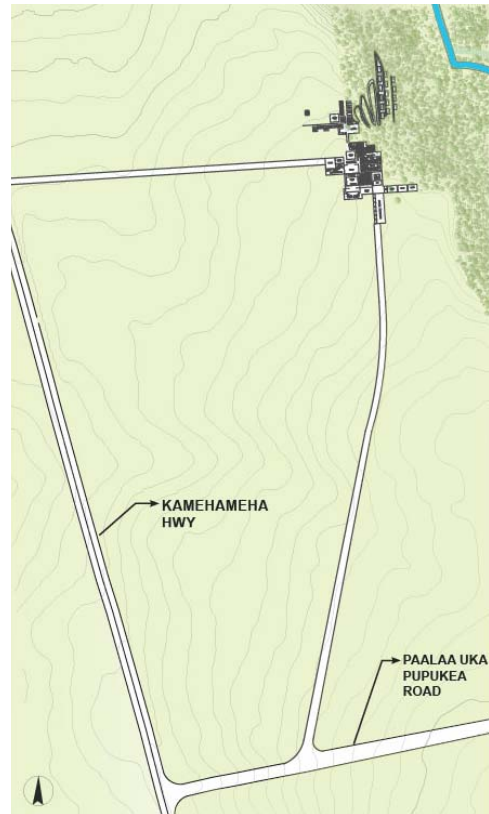


Figure 97. NHOT Scheme 1— site plan





Figure 98. NHOT Scheme 1: FLOOR PLAN in-set map

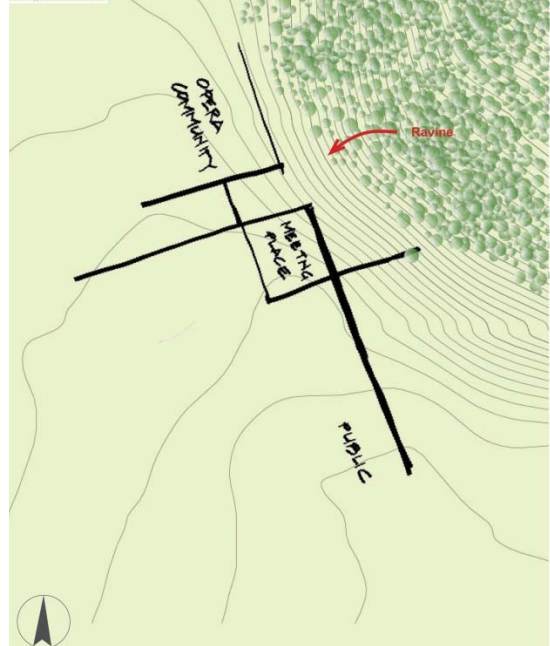


Figure 99. : NHOT Scheme 1: floor plan parti diagram

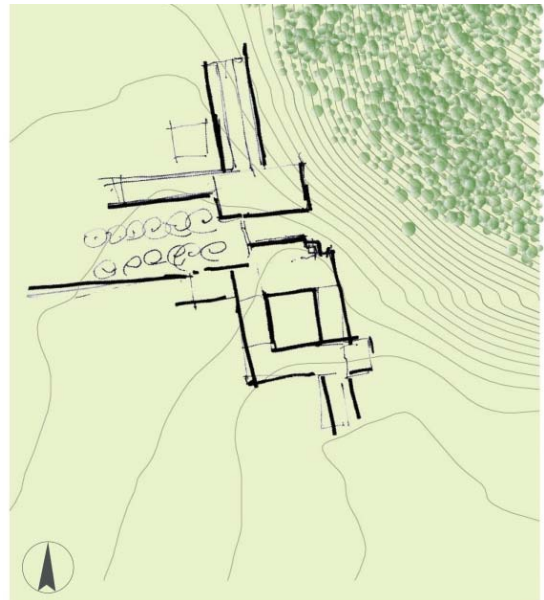


Figure 100. NHOT Scheme 1: floor plan parti diagram development

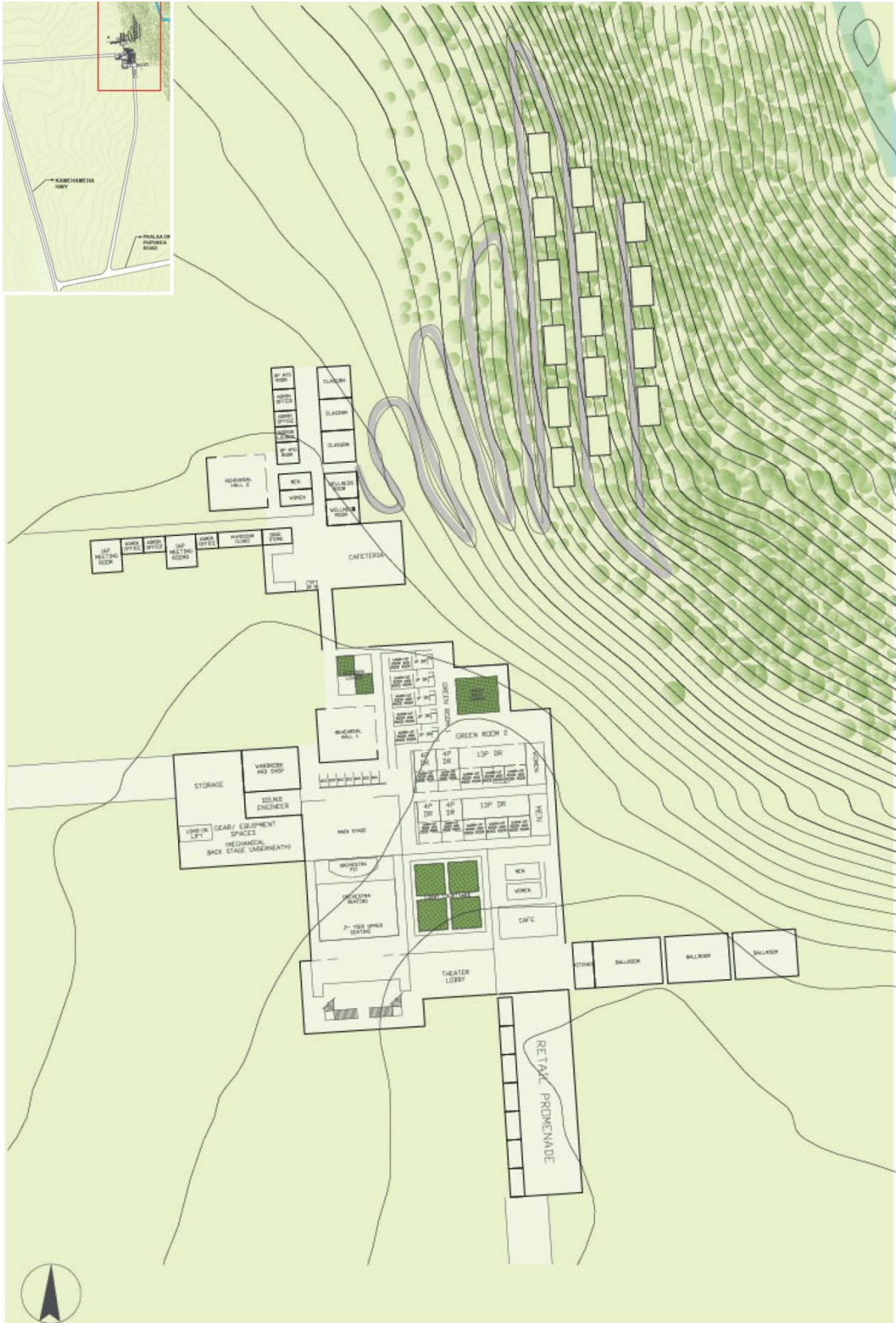


Figure 101. NHOT Scheme 1: Floor Plan, overall view



Figure 102. NHOT Scheme 1: PARTIAL FLOOR PLAN – Front-of-house spaces: the visitors will go through a series of retail spaces that can be rented out as a way for the theatre to gain extra revenue besides selling opera tickets. Ballrooms are provided for after performance celebrations. These adjustable ballrooms can also be rented out by the public to help gain revenue for the theatre.



Figure 103. NHOT Scheme 1: PARTIAL FLOOR PLAN – Front-of-house spaces: The theatre lobby is preceded by the Café, which can be a space for a kiosk. The Lobby and Café surround a courtyard to combine indoor and outdoor spaces. For the Back-of-house spaces, a clear separation between the Storage/Equipment and the Dressing Rooms with the Green Room.



Figure 104. NHOT Scheme 1: PARTIAL FLOOR PLAN – Back-of-house spaces: Ancillary

### Dressing Rooms

Looking at **Figure 103**, the One-person Dressing Rooms are each equipped with a Warm-Up Room, a Rest Room, and storage. Each occupant of these rooms will have two options of getting to the

stage: The first option is for them to exit from the Warm-Up/Mood Room and walk

through a pathway that leads to the stage, should they want to avoid distraction from others. Their second option is to exit from their Dressing Rooms and enter the Green Room. This allows them to socialize with other performers while waiting for their queue. A similar sequence is applied to the multiple-occupancy Dressing Rooms.

However, unlike the One-person Dressing Rooms, their circulation is quite different.

### Green Room

The Green Room is the first space the performers will go to, coming from the residential area. To apply biophilic design, indoor and outdoor spatial combination is incorporated in the Green Room. The

central garden, besides the views of the mountain ridges, will provide a positive, calming effect. Another garden is also applied into the transition space before entering the Green Room, coming from the Residential Area.

### Rehearsal Hall 1

Looking at **Figure 105**, Rehearsal Room 1 and the One-Person Mood Rooms are divided by a wall. This wall can be moveable should Room 1 needs to be used by Dressing Room occupants, therefore, leaving it open to the rest of the Dressing Rooms.

### Wardrobe and Shop

The Wardrobe and Shop is located near the Main Stage and Rehearsal Room. It is also placed so that the costume makers can easily access it from the Staff Entrance, as shown in **Figure 102**.

### Quick Costume Change (QCC)

Quick costume changes during a performance can be done right behind the Main Stage. In **Figure 103**, they are placed near Wardrobe and Shop, should the costume need a quick fix.

### Storage, Stage Equipment, Sound

#### Engineer, and Mechanical Room

The Storage and Stage Equipment are placed away that can be easily accessed from the staff entry from Kamehameha Highway. It is placed right next to the Sound Engineer so that they are all not obstructing the performers.



Figure 105. NHOT Scheme 1: PARTIAL FLOOR PLAN – Back-of-house spaces





Figure 106. NHOT Scheme 1: PARTIAL FLOOR PLAN – Back-of-house spaces: Residential Area

Part of the Well-being design building program is to integrate the Fitness Rooms, a Drug Store, and a Physician's Clinic in the back-of-house. **Figure 104** shows all of these spaces together. The classrooms and the office spaces are separated by a pathway that leads to the Dressing Rooms. Rehearsal 2 is provided in close proximity to the offices to easily hold auditions when necessary. The entire area in **Figure 104** also leads to the Residential Area towards the East.

#### Hospitality – Guest Huts

In **Figure 105**, the Residential Area is accessed from a winding pathway and down along a slope. This is the group of spaces that is fully immersed in the heavy vegetation of the site.

### 3.4.5 Conclusion

Based on my first attempt of test-fitting all the spaces, I was able to configure them out almost successfully based on function alone. The key points that need improving are

1. The Lobby, Café, and Ballroom spaces need to be further resolved and simplified because it looked a little too complex.
2. The Green Room does not provide enough space for all the chorus and soloists combined. It does not also provide another space if some of them want separation from others.
3. Seating spaces need to be provided in the Green Room.
4. The Support Spaces need some form of gathering place to create a sense of community among its users, while at the same time, have their own private spaces when they need to work.
5. The path to the Residential Area is too long to walk on and needs to be simplified.

Besides some function issues, the form of the floor plan needs resolving as well. This exercise did little to treat the site sensitively. The rectilinear and orthogonal forms are do not really match with the dynamic and curving topography of the site. Overall, this is a good exercise as it has given me tremendous insight in how to improve the design.

### **Scheme 2 – Version A:**

Taking the concluded points from Scheme 1, and in an attempt to apply Biophilia in the theatre design, my strategy for this new exercise is to focus on form, by starting with the contours of the site. This will provide me another idea on how to resolve the spatial function issues from Scheme 1, while reflecting the points that I have learned from the Environmental Psychology and the Social Implications of theatre design.

**Figure 116**, the public circulation is greeted by the retail spaces that showcase what operas are being performed. At the end of the Retail Promenade is the

In **Figure 106**, I have kept the same entry routes for both public and for staff and performers. In organizing the spaces in harmony with the site, I have separated them in two different ways: the spaces that need views versus the spaces that do not, and private versus public spaces. These are shown in **Figure 109** and **Figure 110**.

After the organizing theme has been set, I placed the space blocks to see how they can fit and relate to each other in **Figure 111** and **Figure 112**. In the said Figures, I have also explored the circulation to the Guest huts, and finally settled for the second option, as shown in the rough spatial diagram in **Figure 113**. The result is a pair of two major pathways that converge into the theatre. Each of the pathways easily leads to the different spaces on the site, as shown in **Figure 115**.

Theater Lobby in **Figure 117**. In this Figure, the audience can easily exit the theatre space on the left hand side of the seating space in the orchestra level.

Another option they can to is to go back to the Theatre Lobby and go straight to the Ballroom area to meet with the opera singers as seen in the overall floor plan in **Figure 115**.

The rest of the spaces shown in **Figure 116** through **Figure 128** present how the furniture would fit into the circulation of the Theatre's users. One of the most crucial circulation pathways that I paid attention to is the opera singers' circulation between their Greenrooms, Dressing rooms, Mood Room/Warm-Up Rooms, and ultimately, to the stage as shown in **Figures 119 and 120**. Particularly in **Figure 119**, the singers who have their own solo dressing rooms have two options of leaving their dressing rooms: The first option is to go to the Green Room 2, continuing to Green Room 1, then to the stage. The second path, which gives them more privacy on their way to the stage is through the Mood Rooms/Warm-Up room. This path also leads to the stage, and they can walk through this path if they do not want to be disturbed on their way to their queue.

A variety of seating is provided in both Green Rooms 1 and 2, to address the issue mentioned in Scheme 1.

The rest of the back-of-house spaces gradually progress towards North, going back in **Figure 115**, where the end of the destination is the Guest Huts. In Scheme 1, there is the issue of the pathway that is too long to walk on to get to a unit. This issue is now resolved by providing a major pathway that connects to each row of units as it goes down the slope, as shown in **Figure 117**. The result is a more straight forward pathway that connects the Guest Huts to the rest of the back-of-house spaces.

After finishing this exercise and resolving the form and circulation issues in Scheme 1, a new set of issues has emerged:

1. Public Parking

The entire building is provided with ample parking space, both for the public and private users of the theatre. Looking at the site plan in Figure 106, the outline of the parking pad overpowers the main

form of the building, and ultimately, destroys the site.

One of the main features of the site is its green space. The public should be encouraged to walk to the building instead of driving straight to it. The overpopulation of vehicles plays a major role in this issue. This can be prevented by proposing a rail that runs through *Kamehameha* highway, so that the visitors do not have to worry about the traffic and enjoy a more processional approach to the building.

## 2. Private Parking

The parking issue is the same for the back-of-house users. However, this parking space is a necessity for them so that they can easily be inside the buildings and do their work. The trick is how this parking lot can be hidden from the public view and in the site plan so that it does not take away from the building form.

## 3. Back Stage, Stage, and Seating

In addition to the lack of seating and stage area in this scheme, there is little attention paid to the design of the theatre itself.

Most of the concentration in this Schematic exercise is placed on the back-of-house spaces, particularly in the Green Rooms, which is typically neglected in any theatre design. It is now time to put more thought on designing the most important part of the opera house – the theatre itself.

The exercise in Scheme 2A has improved the spaces and forms from Scheme 1, but it also came with new design issues. The design of the back-of-house has been resolved, but the space where the audience meets with the singers and the orchestra has little thought into it. In addition to the lack of design in the theatre space, the building approach needs work as well. The site plan needs to be redesigned so that there will be no need for a public parking space, so that the public can enjoy the green area in the site.

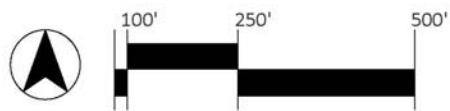
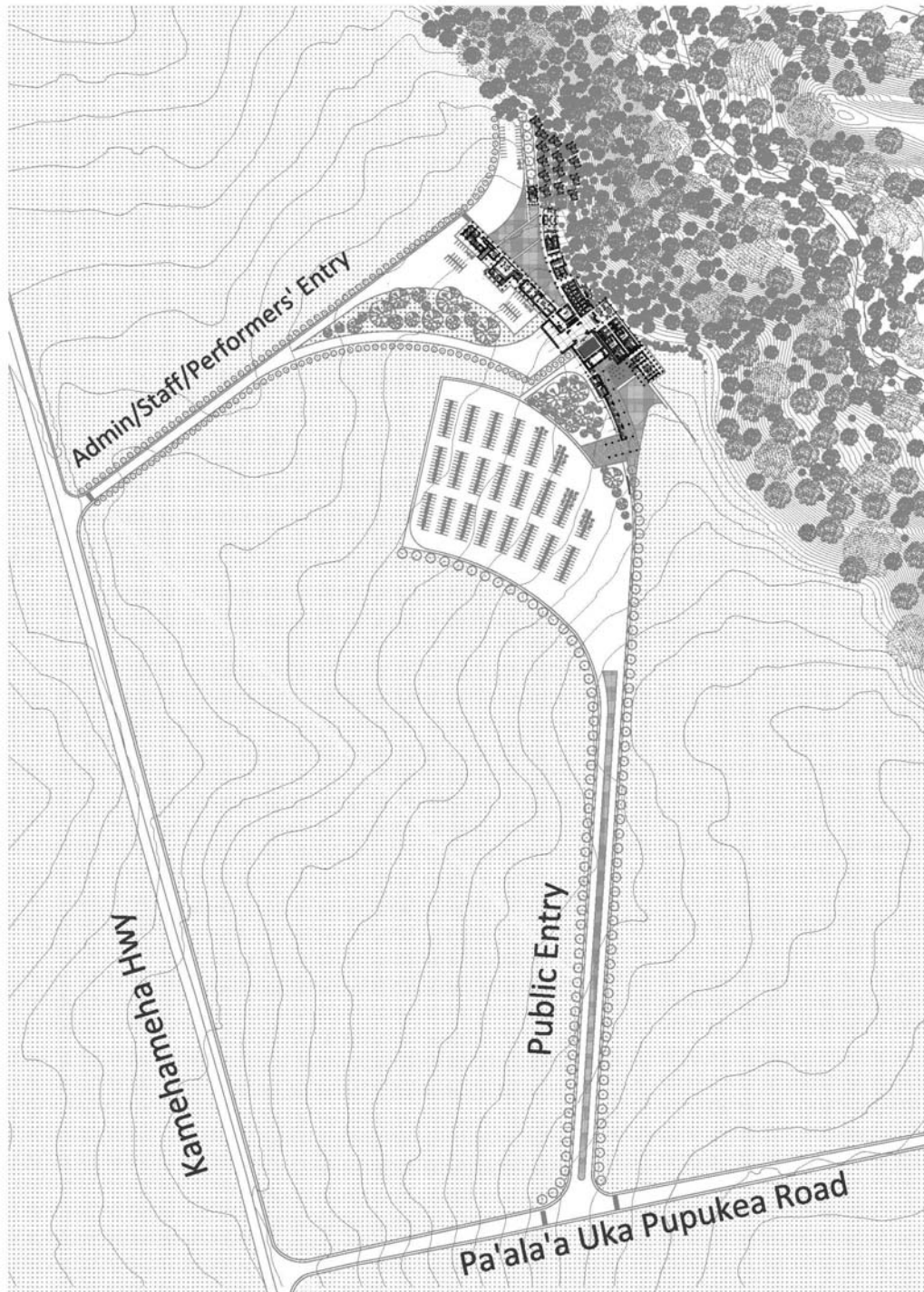


Figure 107. NHOT Scheme 2 – Version A: SITE PLAN (not to scale)

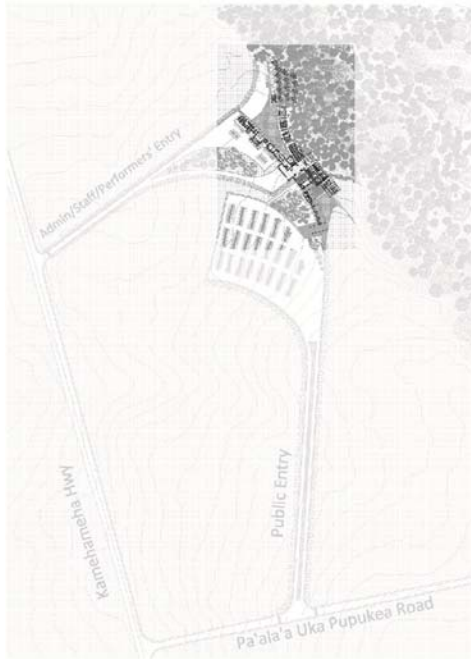


Figure 108. NHOT Scheme 2 – Version A:  
SITE PLAN in-set map

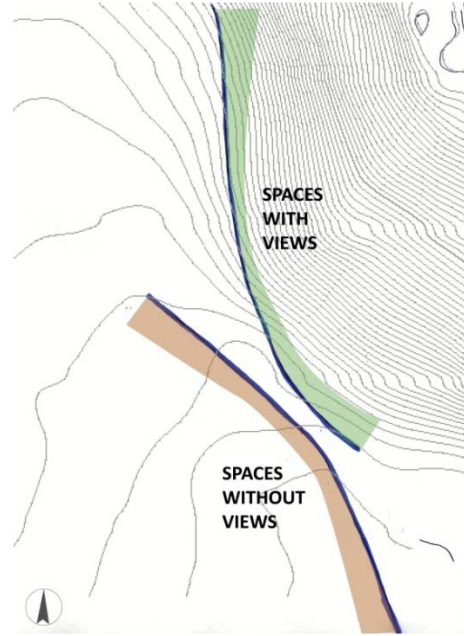


Figure 110. NHOT Scheme 2 – Version A:  
SITE PLAN parti diagram development:  
View Vs. No View



Figure 109. NHOT Scheme 2 – Version A:  
SITE PLAN parti diagram development:  
contour path

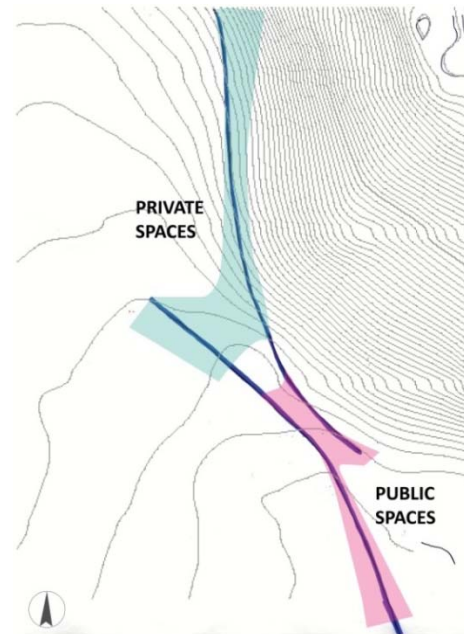


Figure 111. NHOT Scheme 2 – Version A:  
SITE PLAN parti diagram development:  
Private and Public



Figure 112. NHOT Scheme 2 – Version A: FLOOR PLAN development: Musicians’ Residence Option 1





Figure 113. NHOT Scheme 2 – Version A: FLOOR PLAN development: Musicians' Residence Option 2

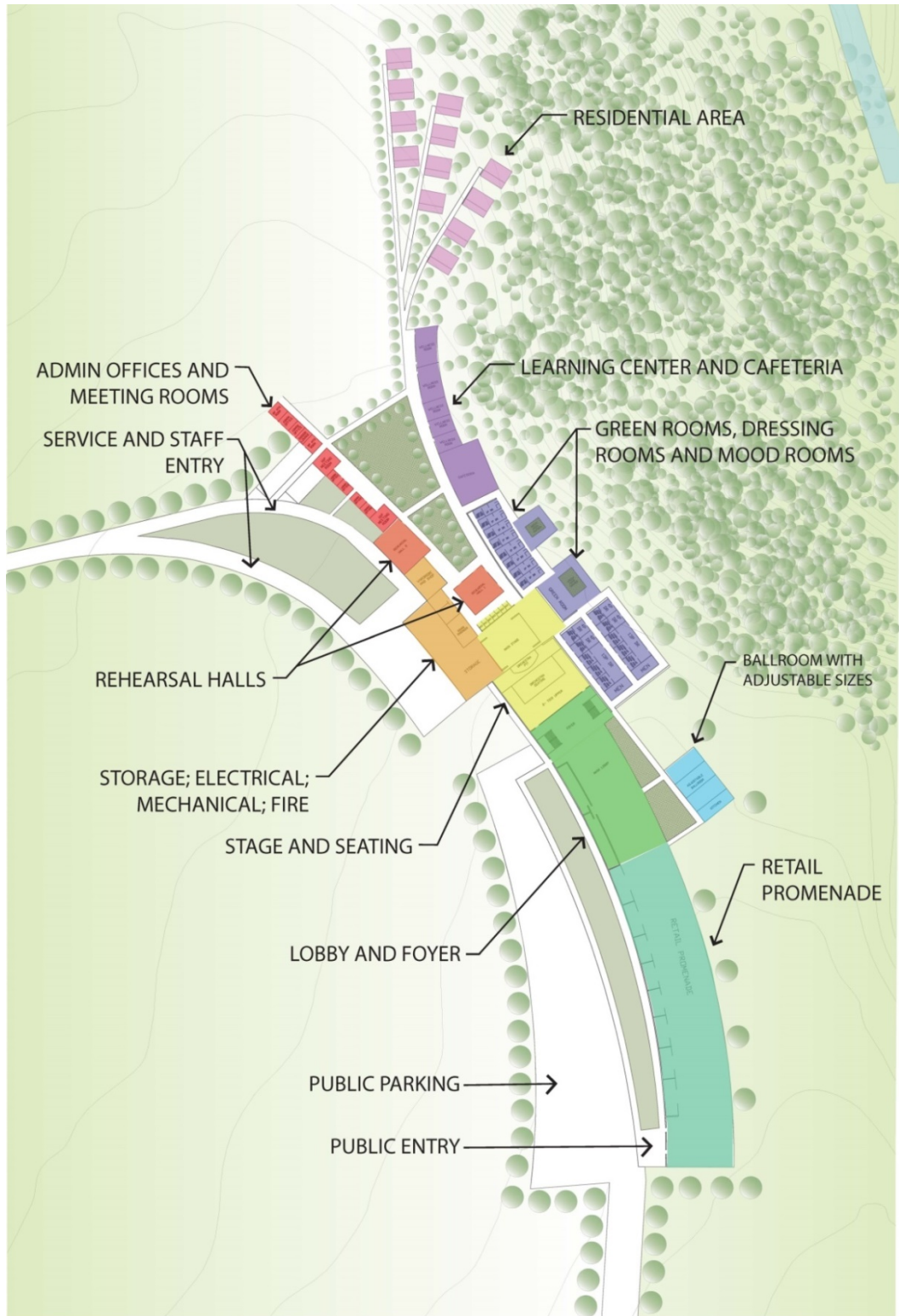


Figure 114. NHOT Scheme 2 – Version A: FLOOR PLAN development: Rough Spatial Diagram



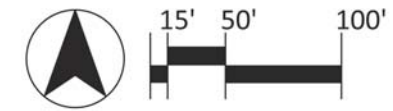
- 1 - Public Parking
- 2 - Public Entrance
- 3 - Retail Promenade
- 4 - Outdoor Dining
- 5 - Coffee Shop
- 6 - Ballroom Dining Space
- 7 - Theatre Lobby
- 8 - Theatre Seating: orchestra level (mezzanine level above)
- 9 - Theatre Stage
- 10 - Multiple Occupancy Dressing Rooms
- 11 - Green Room 1
- 12 - Single Occupancy Dressing Rooms
- 13 - Green Room 2
- 14 - Practice Rooms
- 15 - Library
- 16 - Fitness Gym and Yoga
- 17 - Musicians' Lounge
- 18 - Concierge's Space
- 19 - Guest Huts
- 20 - Housing Parking
- 21 - Administrative Offices
- 22 - Administrative Offices Parking
- 23 - Community Cafeteria
- 24 - Rehearsal Hall 1
- 25 - Rehearsal Hall-Kitche-Costume Shop Parking
- 26 - Costume Shop
- 27 - Rehearsal Hall 2
- 28 - Theatre Storage Loading Dock
- 29 - Theatre Storage
- 30 - Retail Staff Entrance



**Figure 115. NHOT Scheme 2 – Version A: FLOOR PLAN (not to scale)**



- 1 - Public Parking
- 2 - Public Entrance
- 3 - Retail Promenade
- 4 - Outdoor Dining
- 5 - Coffee Shop
- 6 - Ballroom Dining Space
- 7 - Theatre Lobby
- 8 - Theatre Seating: orchestra level  
(mezzanine level above)
- 9 - Theatre Stage
- 10 - Multiple Occupancy Dressing Rooms
- 11 - Green Room 1
- 12 - Single Occupancy Dressing Rooms
- 13 - Green Room 2
- 14 - Practice Rooms
- 15 - Library
- 16 - Fitness Gym and Yoga
- 17 - Musicians' Lounge
- 18 - Concierge's Space
- 19 - Guest Huts
- 20 - Housing Parking
- 21 - Administrative Offices
- 22 - Administrative Offices Parking
- 23 - Community Cafeteria
- 24 - Rehearsal Hall 1
- 25 - Rehearsal Hall-Kitchen-Costume Shop Parking
- 26 - Costume Shop
- 27 - Rehearsal Hall 2
- 28 - Theatre Storage Loading Dock
- 29 - Theatre Storage
- 30 - Retail Staff Entrance



- Performer Circulation
- Staff Circulation
- Public Circulation

Figure 116. NHOT Scheme 2 – Version A: FLOOR PLAN Circulation Diagram (not to scale)

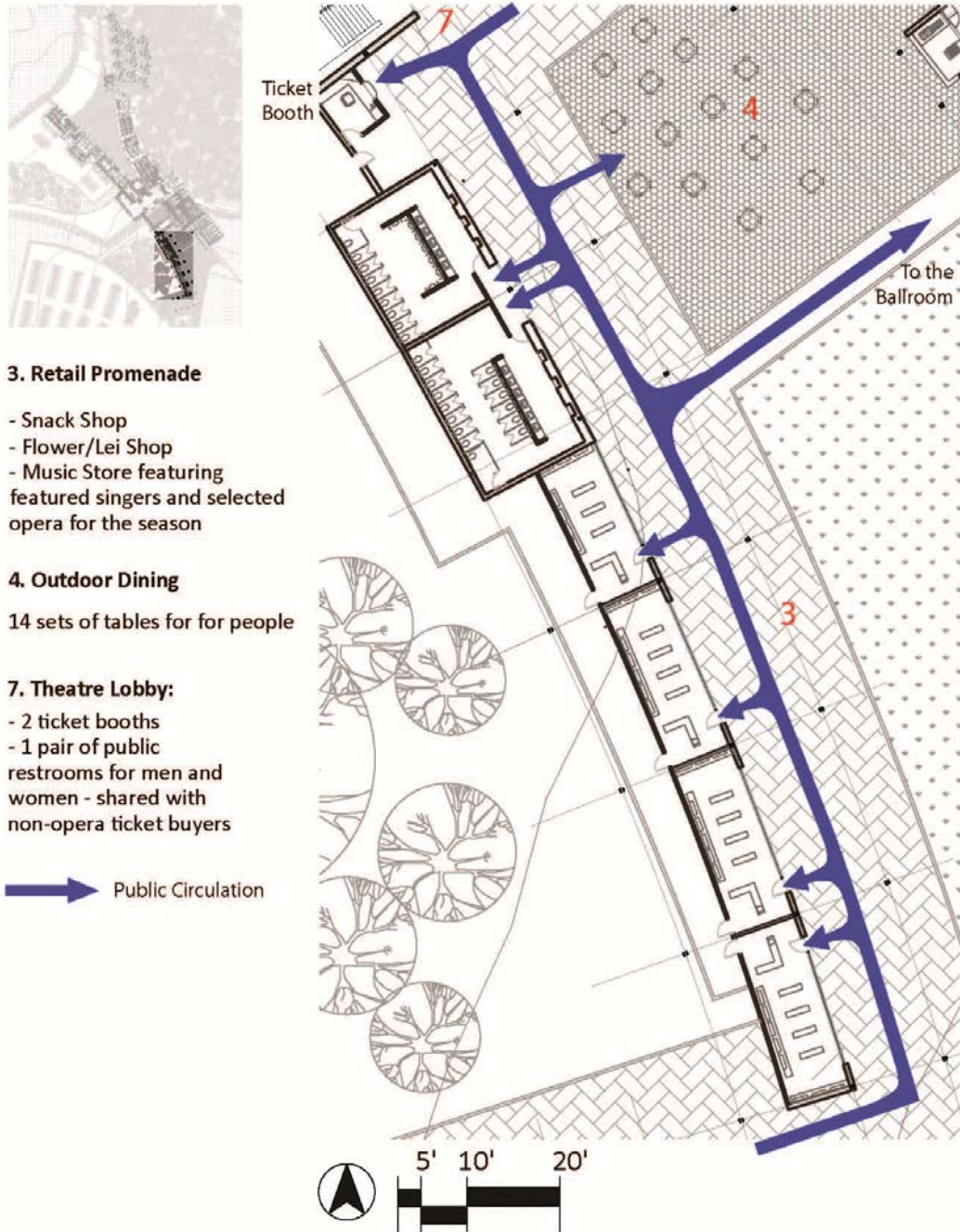
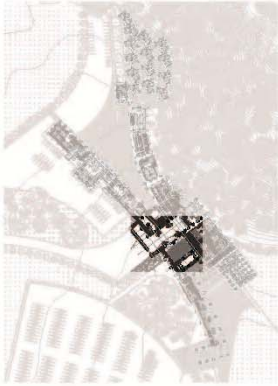


Figure 117. NHOT Scheme2 - Version A: Floor Plan Circulation Diagram of Retail Promenade, Outdoor Dining, and Theatre Lobby



- 7. Theatre Lobby
- 8. Theatre Seating Capacity: 1200
- 9. Theatre Stage
- 29. Theatre Storage

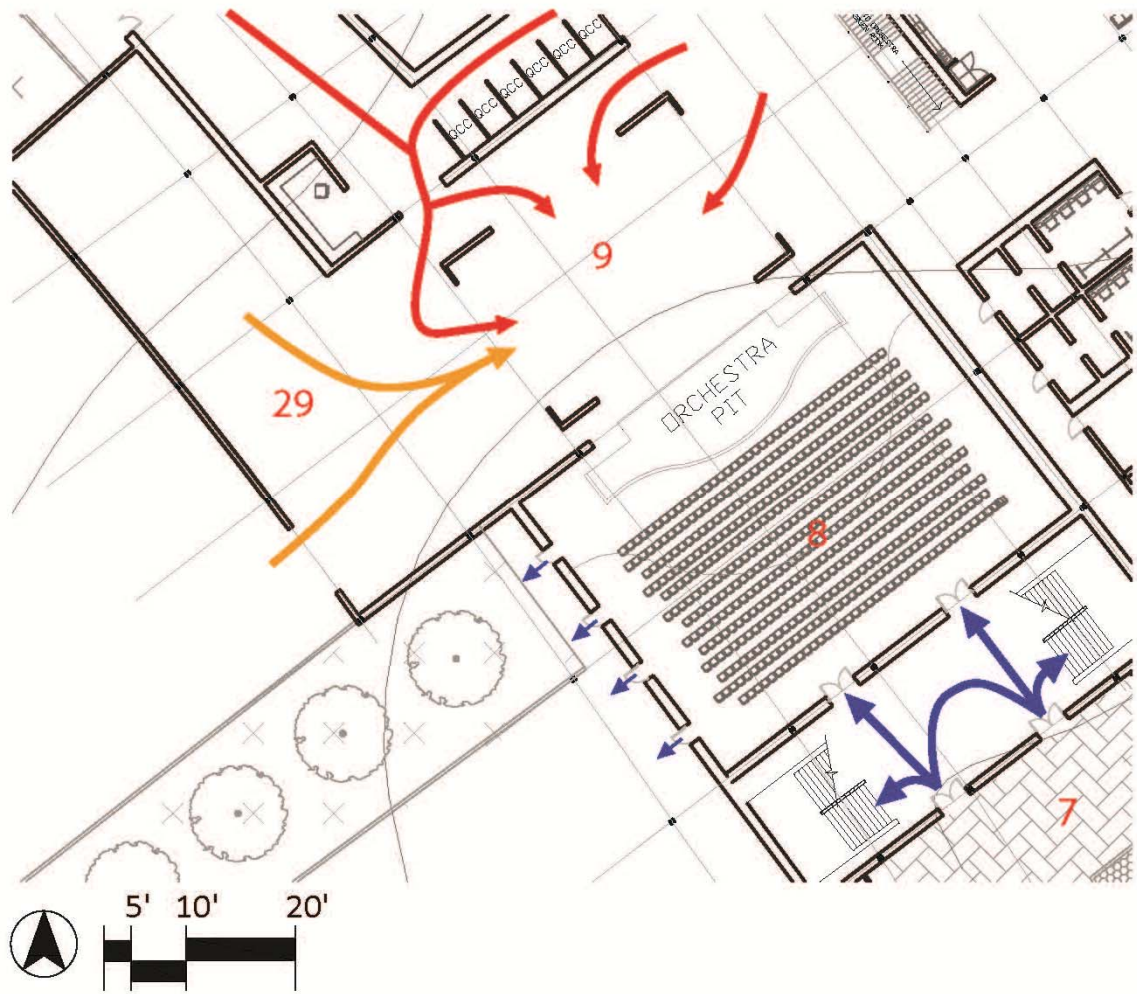
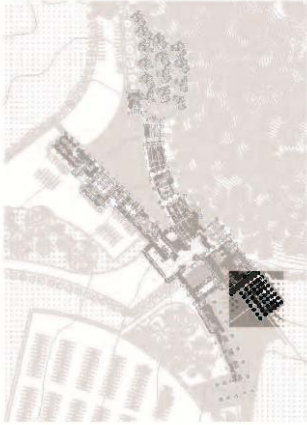


Figure 118. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Theatre Lobby, Theatre Seating, Stage, and Theatre Storage



**5. Ballroom**

- prep kitchen for two cooks
- 10 round tables (6P each)

**6. Coffee Shop**

- 1 cashier counter
- prep kitchenette

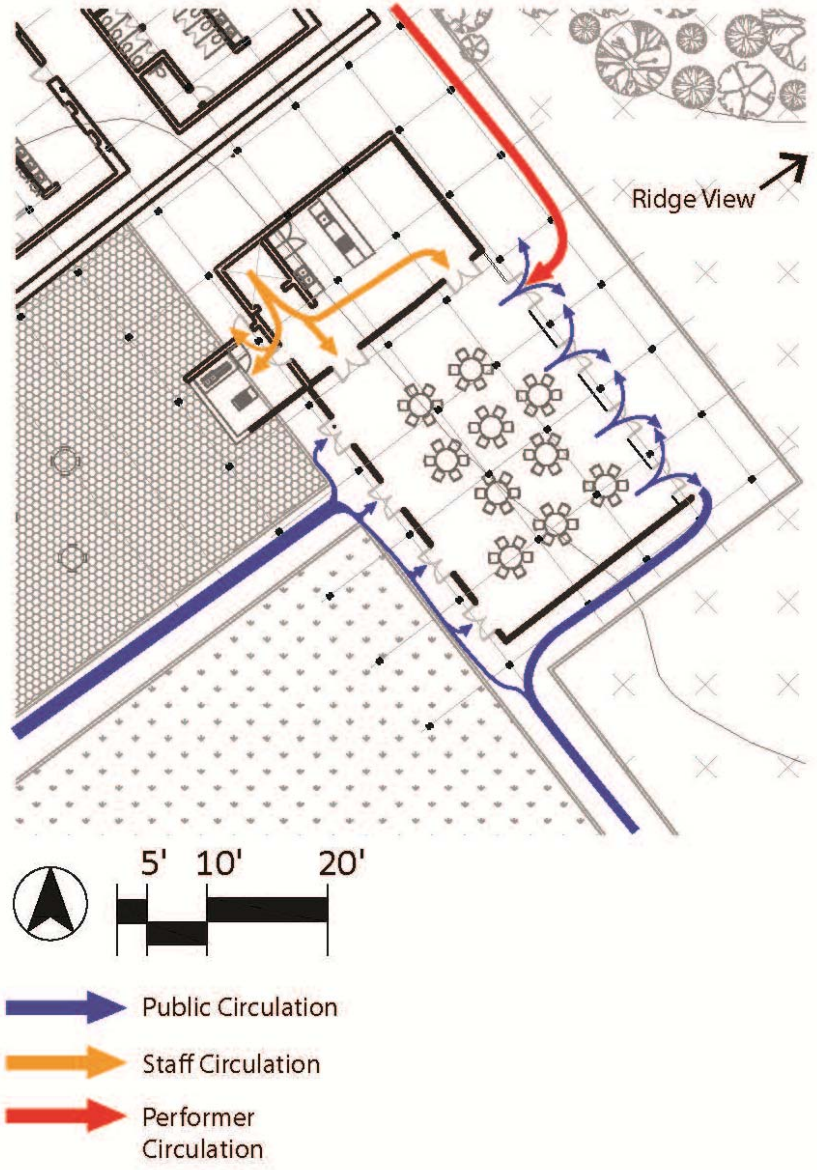
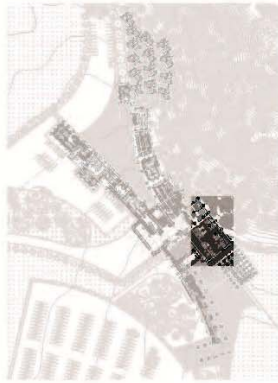


Figure 119. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Ballroom and Coffee Shop



**10. Multiple Occupancy Dressing Rooms**

(4) 4P Occupancy, each equipped with

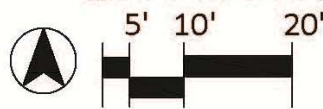
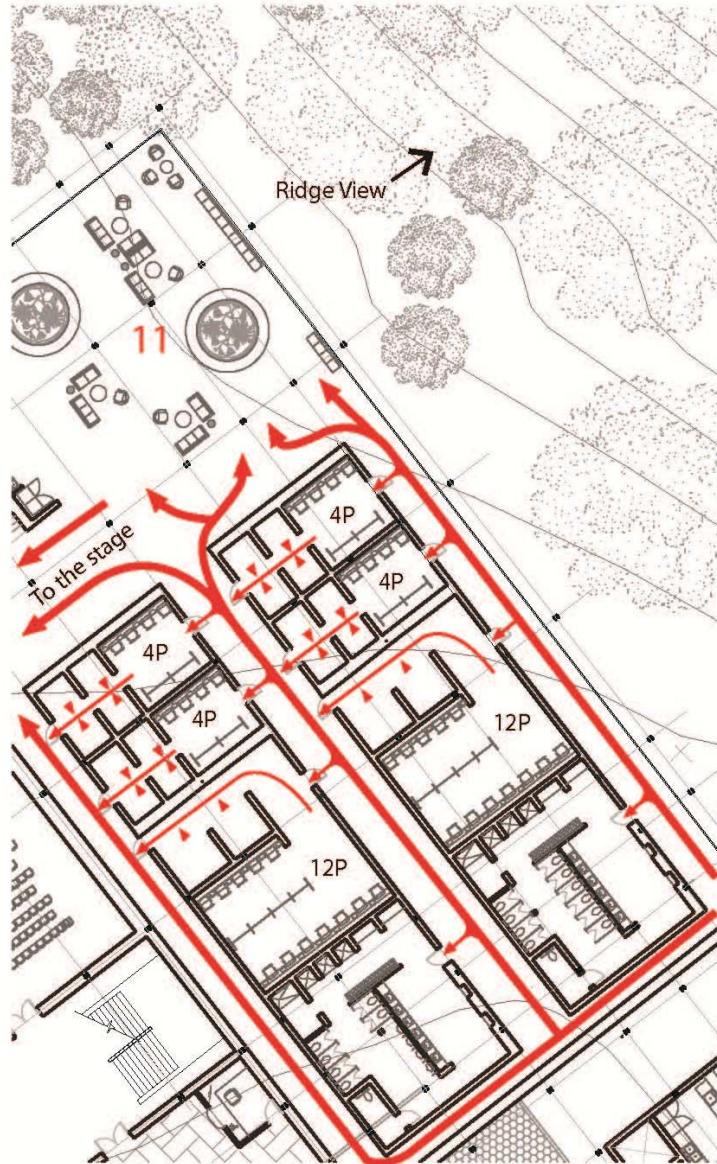
- Makeup space
- clothing space
- screen for queue information
- 4 Mood/Warm-Up Rooms

(2) 12P Occupancy, each equipped with

- Makeup space
- clothing space
- screen for queue information
- 2 Mood/Warm-Up Rooms

**11. Green Room 1**

- 1 kitchenette
  - coffee brewer
  - tea
  - water dispenser
  - refrigerator
  - sink
  - microwave
  - storage for kitchen utensils
- multiple seating space



Performer Circulation

Figure 120. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Multiple Occupancy Dressing Rooms and Green Room 1





### 12. Dressing Rooms

Single Occupancy, each equipped with

- Makeup space
- 1 Restroom
- clothing space
- screen for queue information
- 1 Mood/Warm-Up Room

### 13. Green Room 2

- 1 kitchenette
  - coffee brewer
  - tea
  - water dispenser
  - refrigerator
  - sink
  - microwave
  - storage for kitchen utensils
- multiple seating space

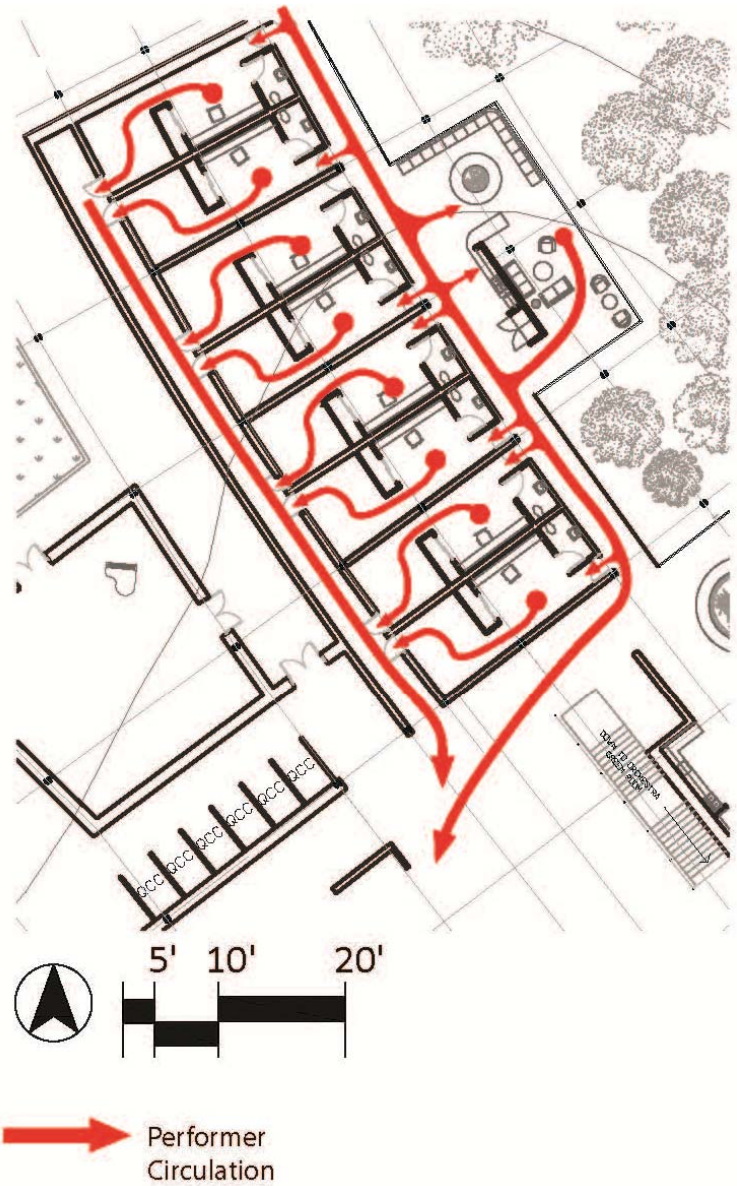
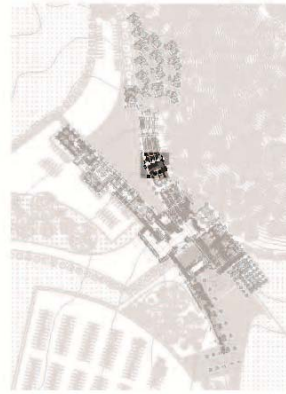


Figure 121. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Single Occupancy Dressing Rooms and Green Room 2



**14. Practice Rooms**

each equipped with

- 1 piano room
- 1 piano stool

**15. Library**

- Shelving space for Music Manuscripts
- 2 computers for file searching
- 2 copy/scanner machine

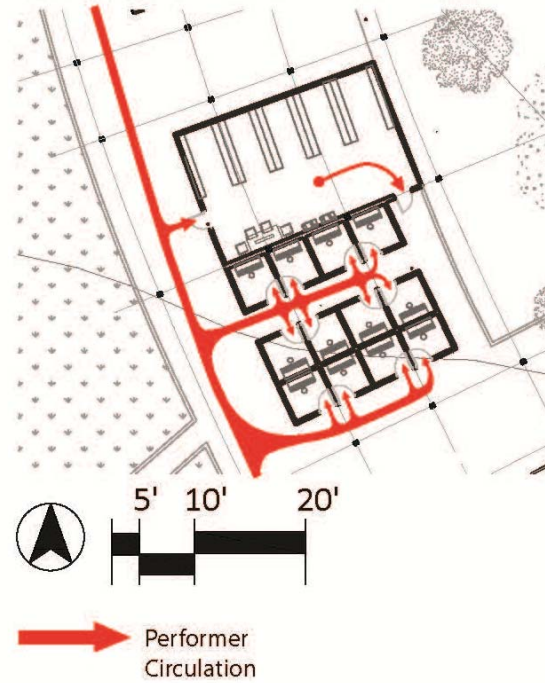


Figure 122. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Practice Rooms and Library



**16. Fitness Gym and Yoga room**

- work-out equipment
- shower rooms
- locker space

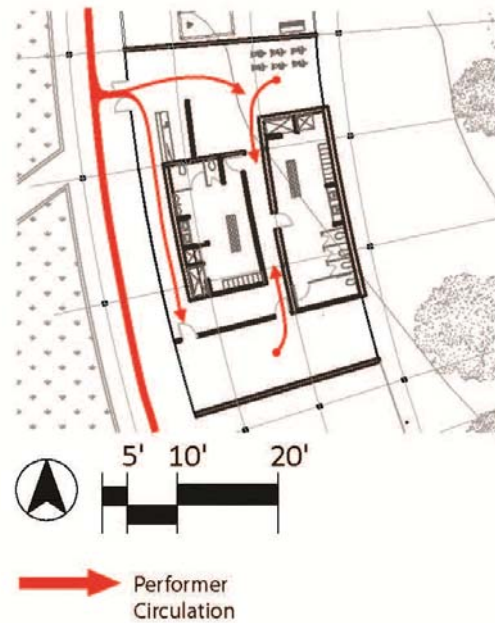


Figure 123. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Fitness Gym and Yoga Room

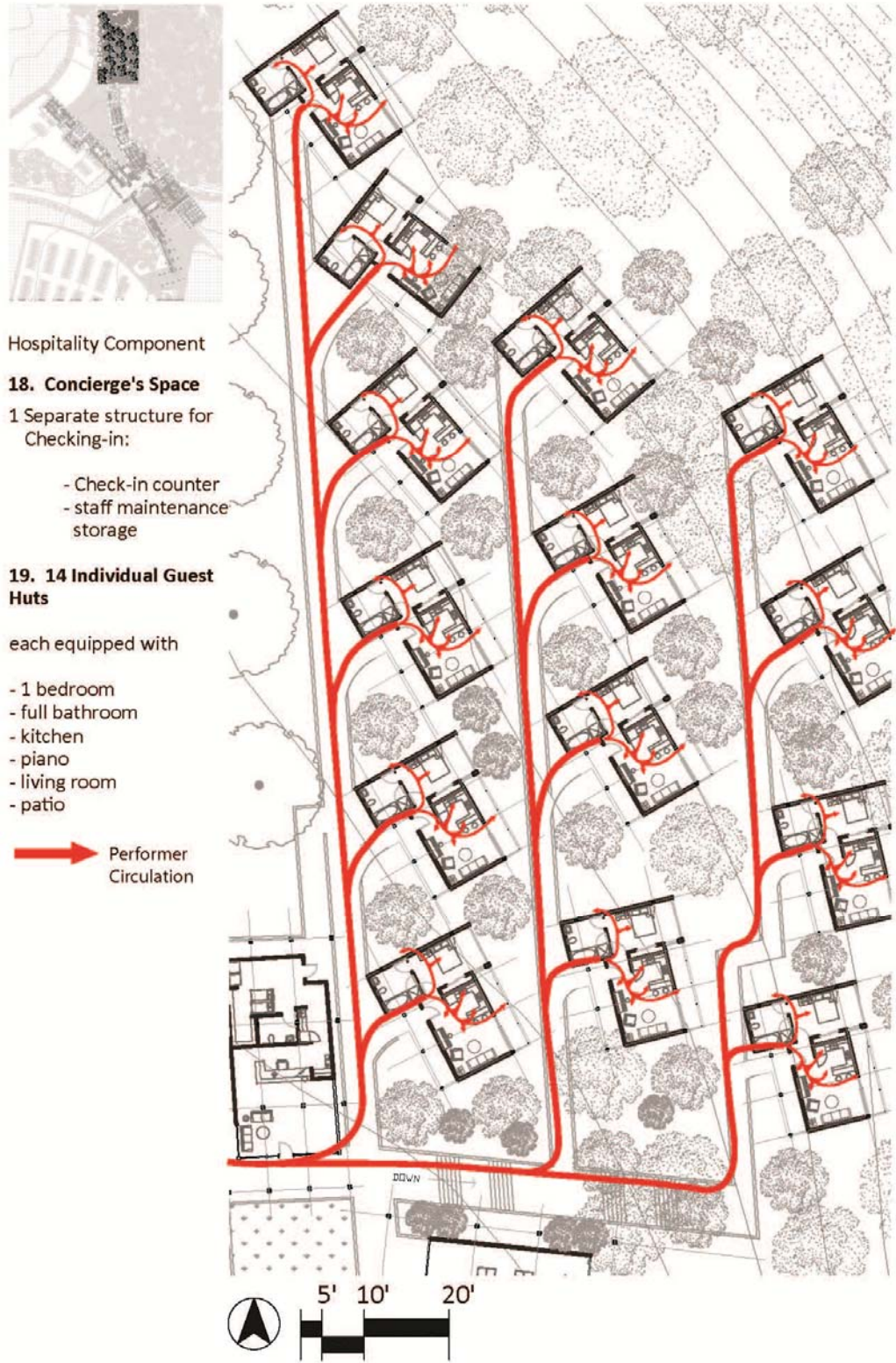


Figure 124. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Musicians' Lounge

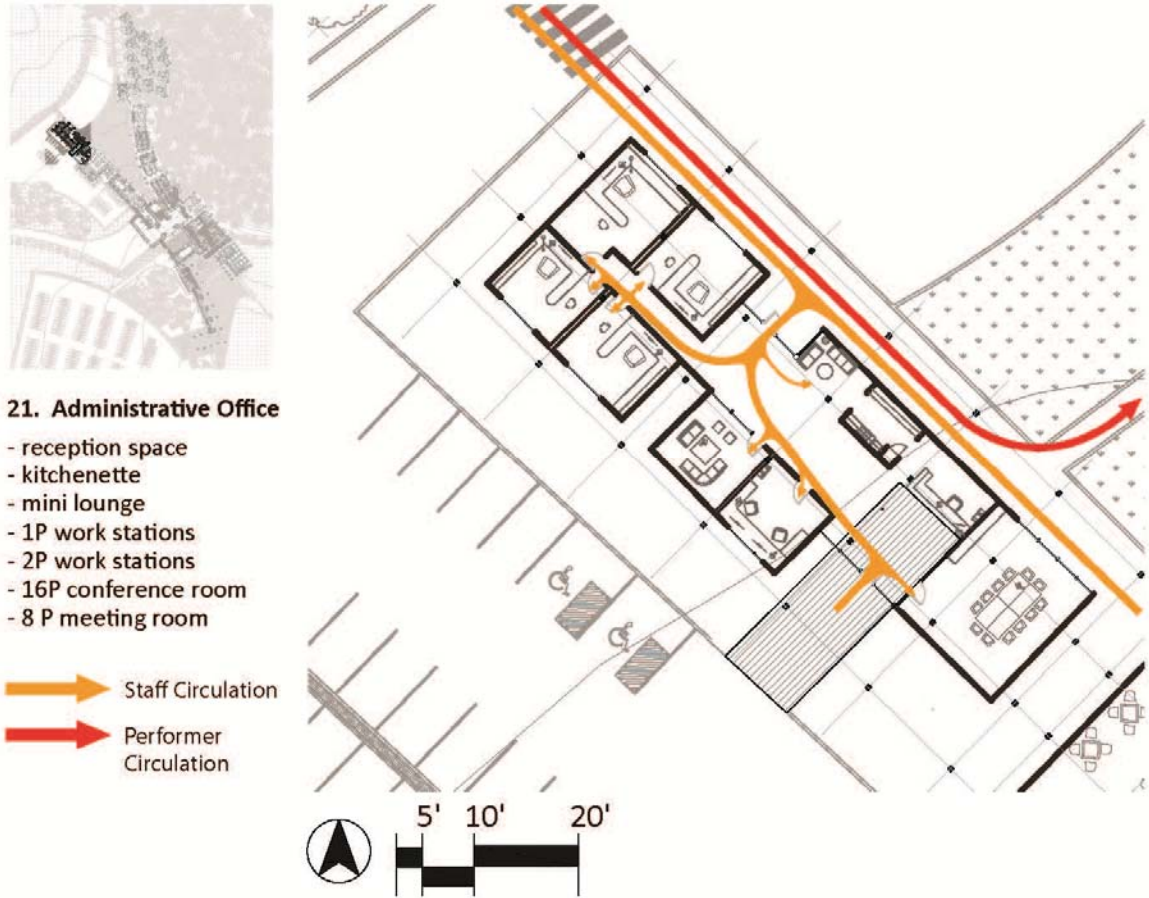


Figure 125. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Administrative Offices

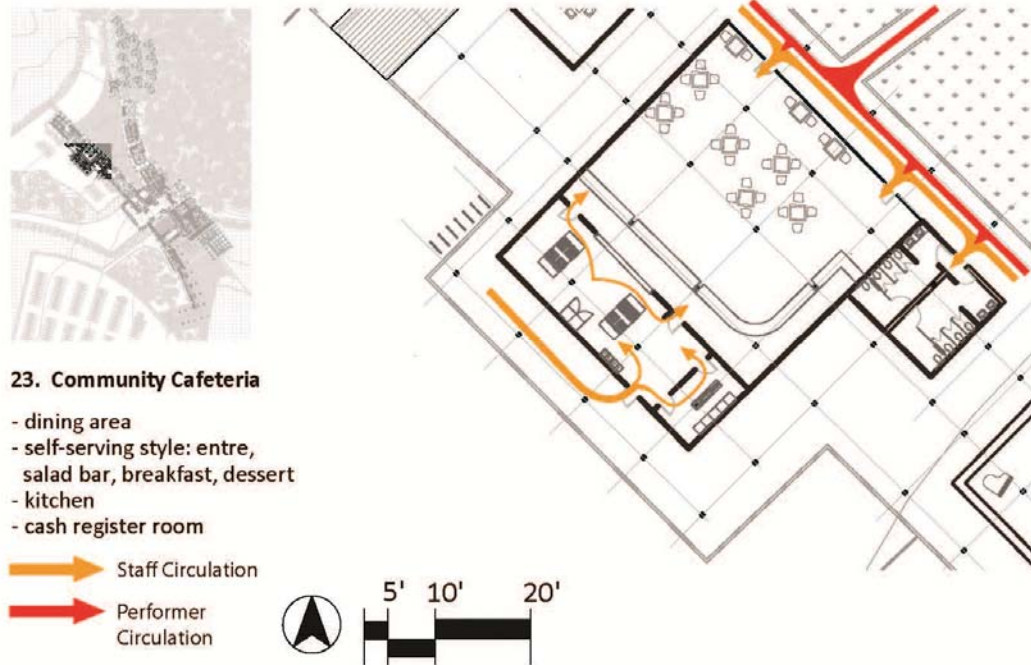


Figure 126. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Community Cafeteria

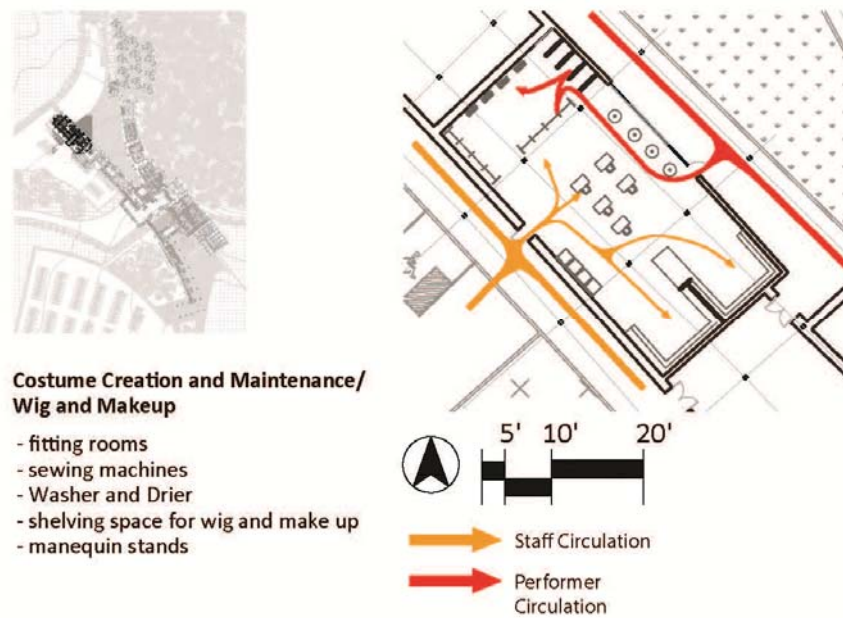


Figure 127. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Costume and Maintenance/Wig and Makeup Studio



**24. Rehearsal Hall 1**

- 1 grand piano
- moveable seating
- music stands

 Performer Circulation

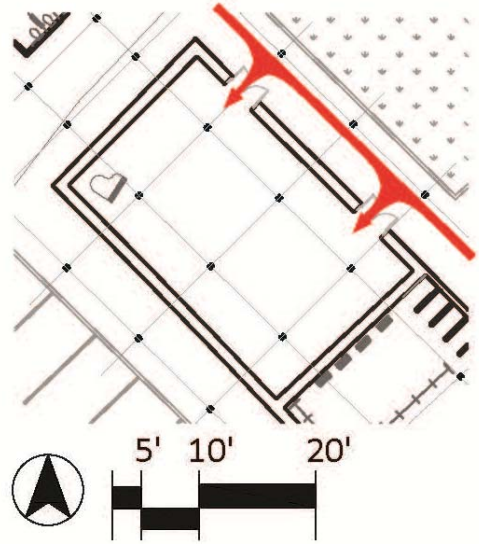


Figure 128. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Rehearsal Hall 1



**27. Rehearsal Hall 2**

- 1 grand piano
- moveable seating
- music stands

 Performer Circulation

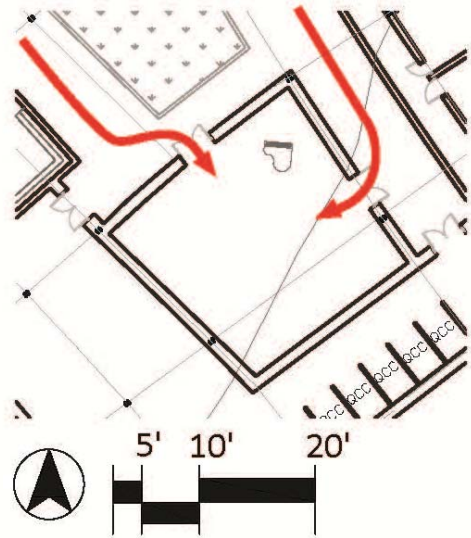


Figure 129. NHOT Scheme 2 - Version A: Floor Plan Circulation Diagram of Rehearsal Hall 2

## Scheme 2 – Version B:

In dealing with the unresolved issues of the floor plans in Scheme 2 – Version A, my strategy for this exercise is to address these design issues of theatre space and audience seating by working in section drawings. In the previous schematic exercise, I have put in more time designing the back-of-house spaces in order to make opera singers feel and perform better. I would like to take the opportunity, this time, to put more attention in the public spaces of the opera house, and the performance space itself.

The section sketches I have made have all started in the theatre space.

Accommodating 1200 people, the seating capacity will be drastically bigger compared to the last scheme. It will significantly change the way the theatre looks in plan, and as a result, affect the spaces adjacent to it.

I went back on thinking about what it really means to design in harmony with the site and actually connect with nature.

The topography of the site from *Kamehameha* highway is relatively flat, looking back at the site analysis in **Figure 82**. Combined with the fact that one of the advantages of being in Hawaii is its weather, I have thought of making the theatre naturally ventilated, relying on passive design strategies such as natural ventilation, shading, and thermal cooling as key design features of the theatre space, as well as the rest of the back-of-house spaces. The case study of Santa Fe Opera proves that it is possible to have a naturally ventilated theatre if it is done right.

### Theater Experience from the Public's perspective

The site has an amazing view of the ridge. I would like to use this as a breathing point for the visitors to take a break after focusing on the performance that faces opposite to it. The stage is oriented away from the ridge view, although, I have

thought about placing the stage so that the proscenium frames the ridge view. This works to a disadvantage because the view will compete with the performance. The second issue it poses is the walls that will be visible for the backstage, which will ultimately destroy the framed view. It will not look aesthetically pleasing in elevation as well. Placing the stage away from the ridge view, unlike the Santa Fe Opera House would be the viable design option for this kind of site.

#### Natural Ventilation and Thermal Cooling

Part of designing a naturally ventilated theatre is the design of the roof form. The sketches I have drawn explore the different types of roof form and how they affect the natural air flow as well as their aesthetic qualities. We now know from the site analysis, that the wind trades come from North-East. In order to capture the wind effectively, I placed the spaces in a way so that the wind can go through all of them, as shown in **Figures 129, 130, and 135**.

I have explored using thermal mounds as a way to keep the backstage cool and away from the public eye. This will eliminate the needs of building exposed walls in the site. The flatness of the site and the absence of any built structure near it suggests the building should be subtle in elevation, with minimal massing visible from *Kamehameha* highway.

As to the type of mound form that needs to be used, it should also match the relatively flat slopes of the site, so as not to disturb the topography so much.

Mounding is also applied to wrap around the audience seating so as to define the theatre space. As shown in **Figures 129, 130, and 135**, the visitors can experience walking around the mound and will have a sense that it is the way to the theatre



### Roof Form Study 1:

**Figure 129** explores the rough idea of what the theatre space would look like if typical hilly mounds are used. They do not quite match their surroundings. The form of the mound is also reflected on the form of the roof in order to make a cohesive architectural composition to match the site.

### Roof Form Study 2:

The second roof form study uses inclined roof forms that meet towards the middle part of the theatre space. Using inclined roof forms mimic the subtle topography of the site, as shown in **Figures 130.-134**. It is not, however, strong enough to define the spaces of the Lobby and Audience seating. Its progressing spaces in **Figures 131-134** show the rest of what the building form looks like, matching the theatre roof form. Like its theatre section, the progressing section roof forms do not give enough spatial definition as each side incline towards the middle. The human scale in

the middle courtyard space will be out of proportion.

### Roof Form Study 3

In the third roof form reiteration, I flipped the inclinations of the roof forms in the second study. This option provides more spatial definition in the Lobby and in the Audience seating as seen in **Figure 135**. Even though the roof forms are flipped opposing each other, it still matches the subtle slopes of the topography, and at the same time, they open up to the spaces that have the view of the ridge. It provides a compression-release effect when one enters these spaces as shown in **Figures 136 – 139**. In addition to the spatial definition the opposing inclined roof forms provide, they can also function as rain water collector and water the vegetation in the courtyard.

## Conclusion

The roof form study has provided me better design solutions for the performance space. It has allowed me to create a more intimate space between the audience and the opera singers by placing the stage away from the ridge view. This intimacy between the audience and the opera singers is further defined by the architectural mound being wrapped around the theatre as it encourages curiosity on what goes on behind the glass wall. The roof form further enhances the spatial definition of the lobby and the performance spaces with its opposing inclined forms, followed by the rest of the spaces of the theatre.

Roof Form Study:

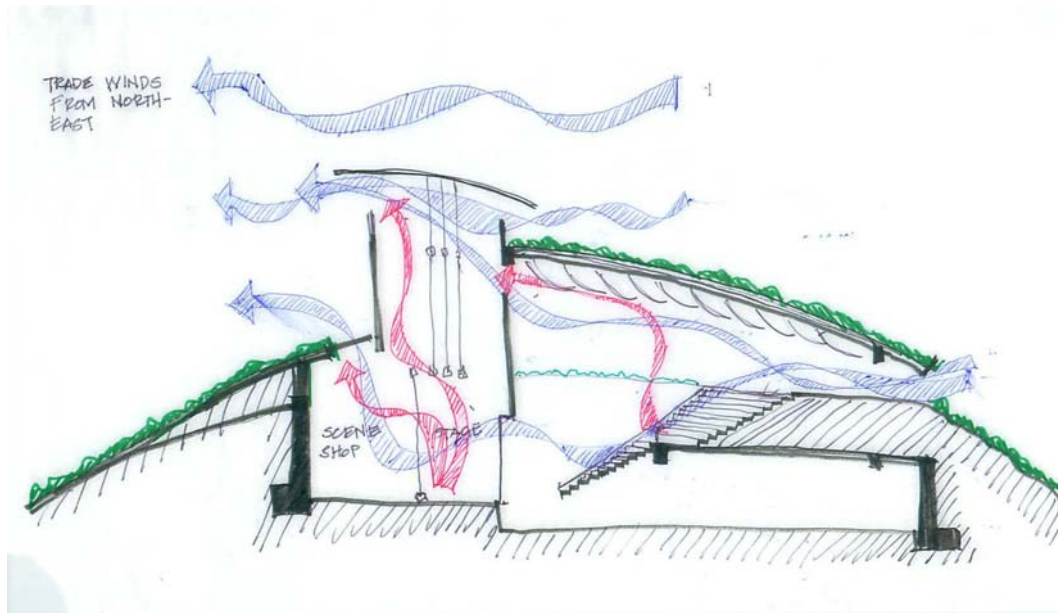


Figure 130. NHOT Scheme 2 – Version B: Roof Form Study 1: Mound-like to create hills on the site – Theatre Space

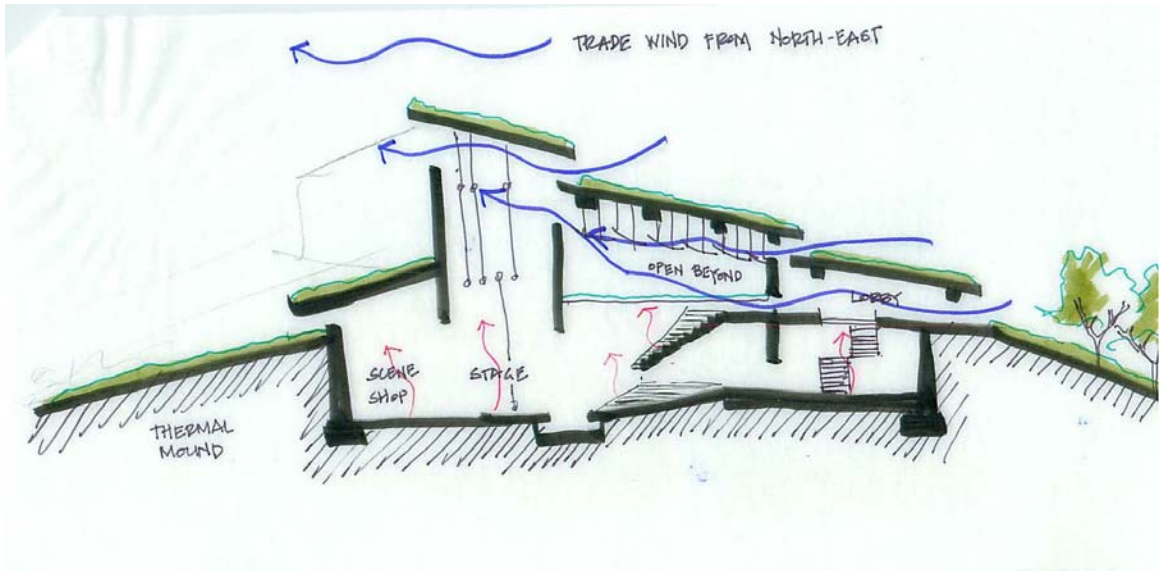


Figure 131. NHOT Scheme 2 – Version B: Roof Form Study 2: Inclined form – Theatre Space

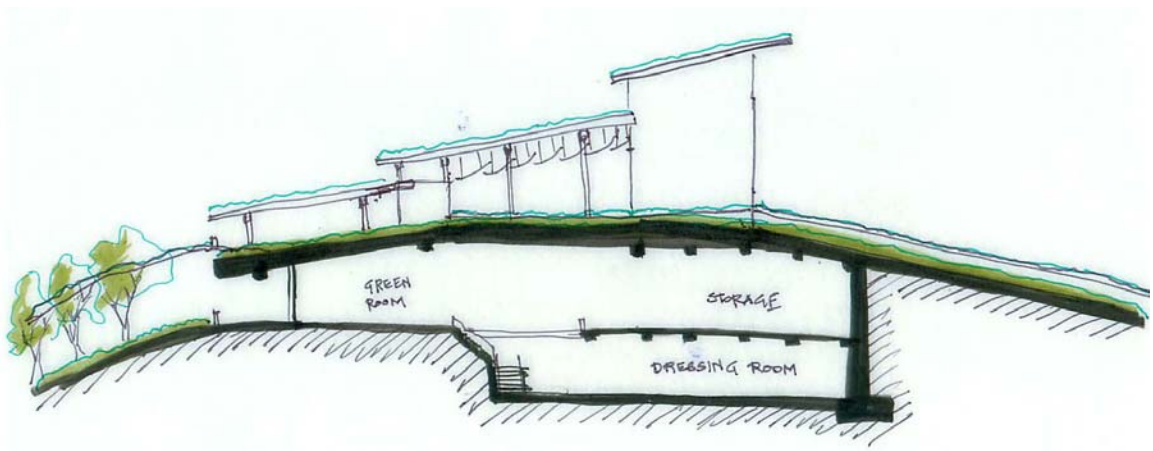


Figure 132. NHOT Scheme 2 – Version B: Roof Form Study 2: Inclined form – Green Room, Multiple Occupancy Dressing Rooms, and Set Storage

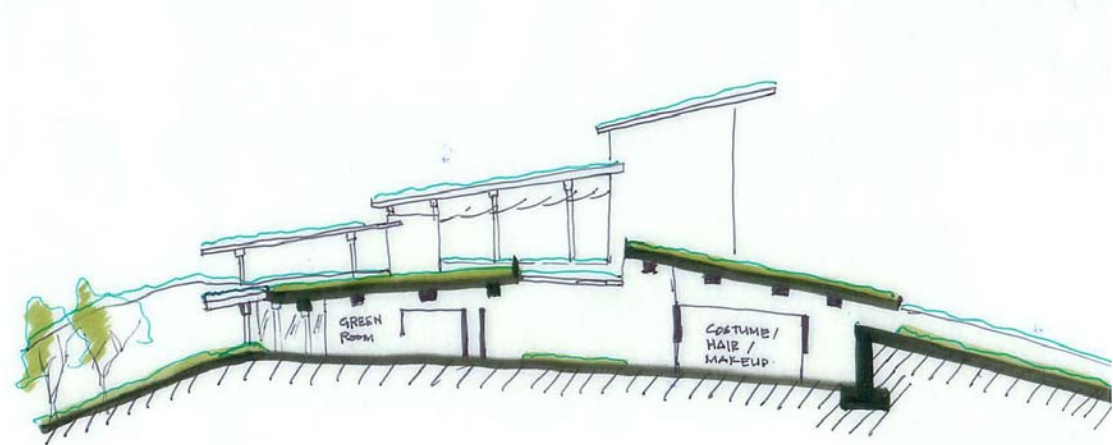


Figure 133. NHOT Scheme 2 – Version B: Roof Form Study 2: Inclined form – Green Room and Costume/Wig/Makeup Space

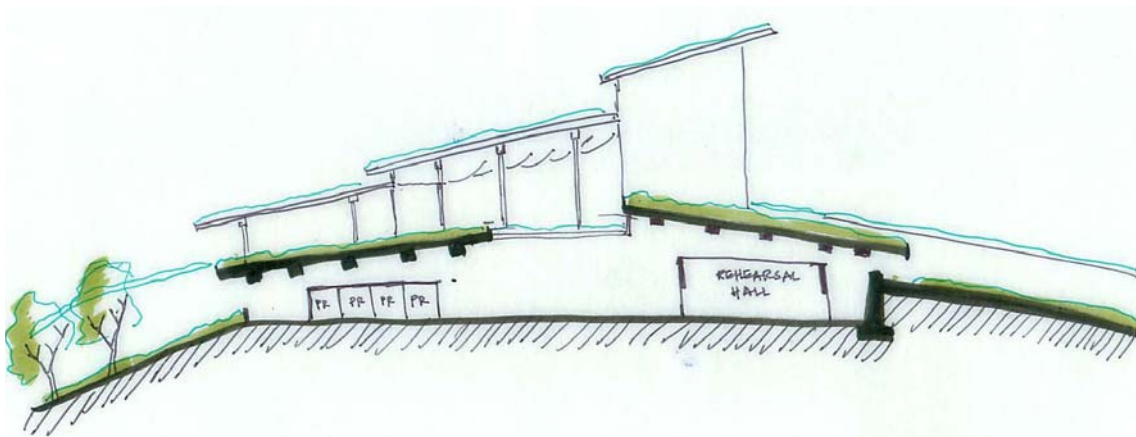


Figure 134. NHOT Scheme 2 – Version B: Roof Form Study 2: Inclined form – Practice Rooms and Rehearsal Hall

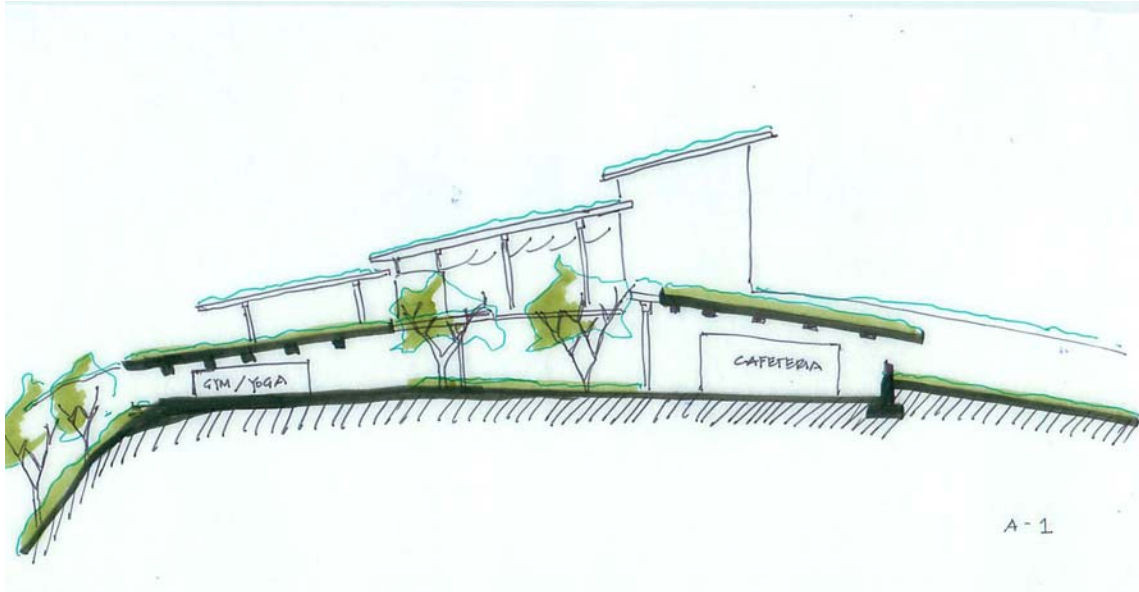


Figure 135. NHOT Scheme 2 – Version B: Roof Form Study 2: Inclined form – Fitness Gym/Yoga Studio and Cafeteria

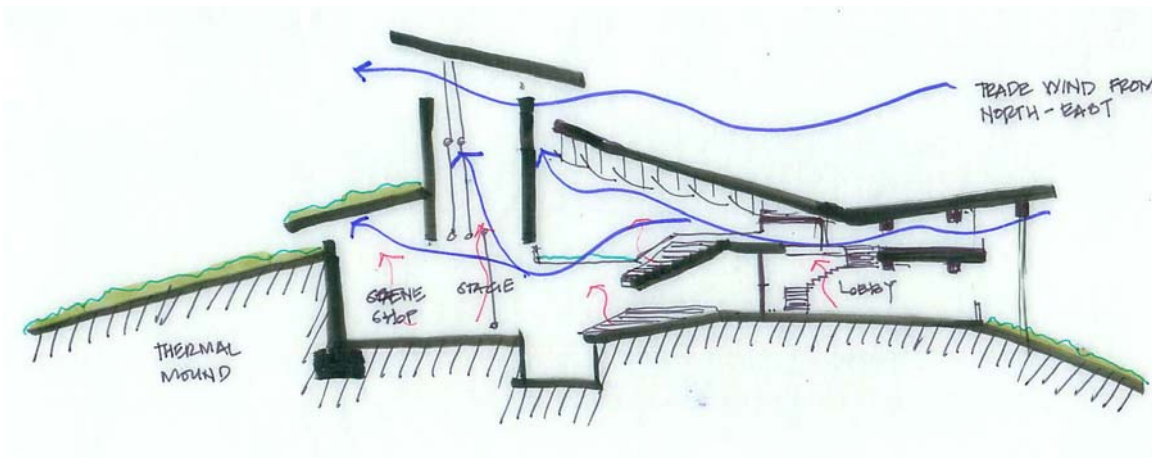


Figure 136. NHOT Scheme 2 – Version B: Roof Form Study 3: Opposing Inclined forms – Theatre and Lobby

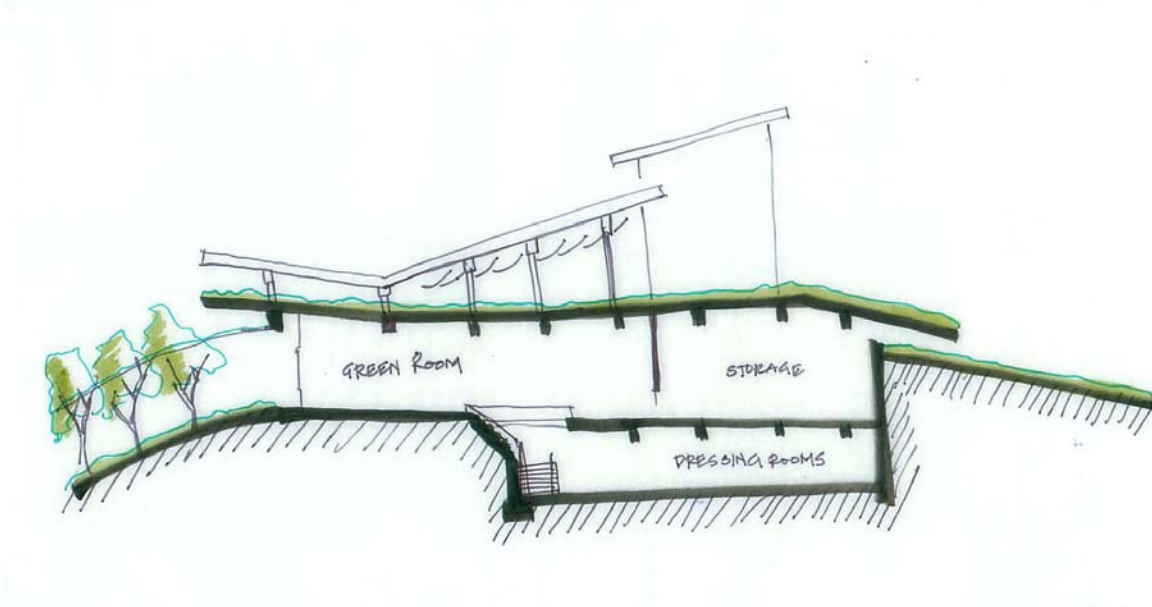


Figure 137. NHOT Scheme 2 – Version B: Roof Form Study 3: Opposing Inclined forms – Green Room, Multiple-Occupancy Dressing Rooms, and Storage

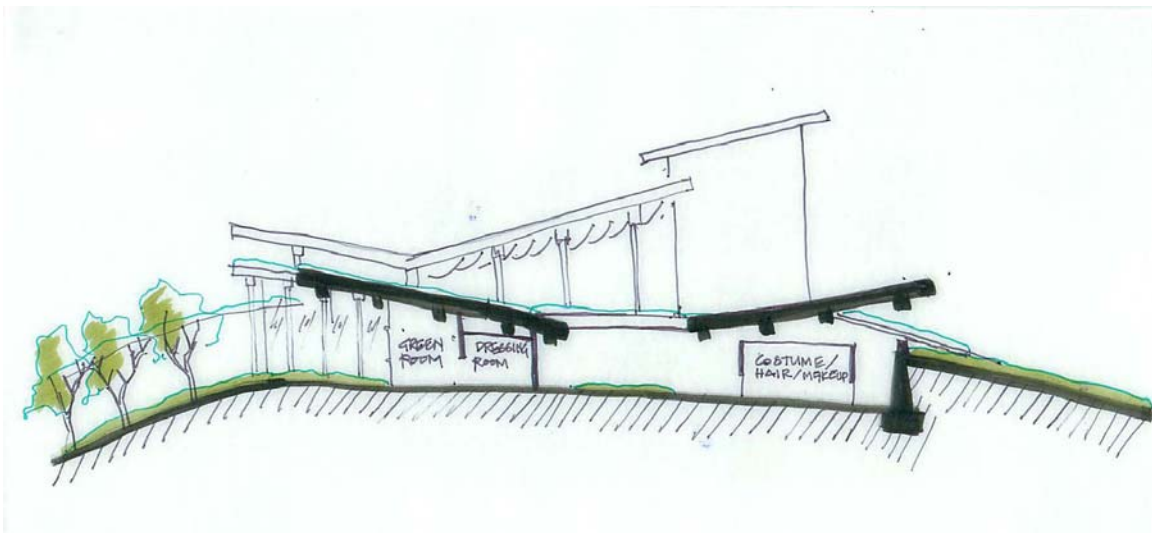


Figure 138. NHOT Scheme 2 – Version B: Roof Form Study 3: Opposing Inclined forms – Green Room, Single – Occupancy Dressing Rooms, and Costume/Wig/Makeup Studio

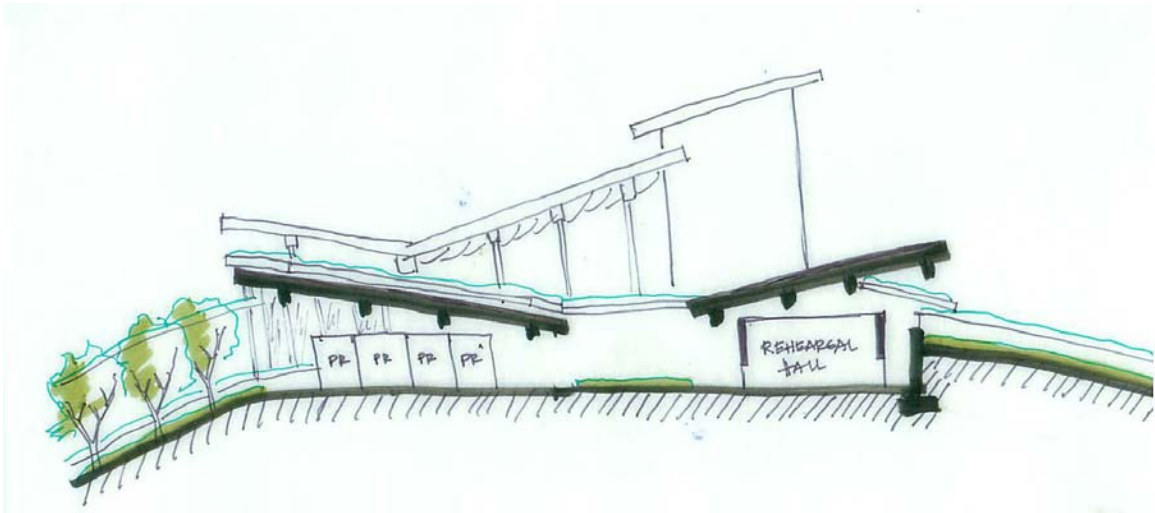


Figure 139. NHOT Scheme 2 – Version B: Roof Form Study 3: Opposing Inclined forms – Practice Rooms and Rehearsal Hall

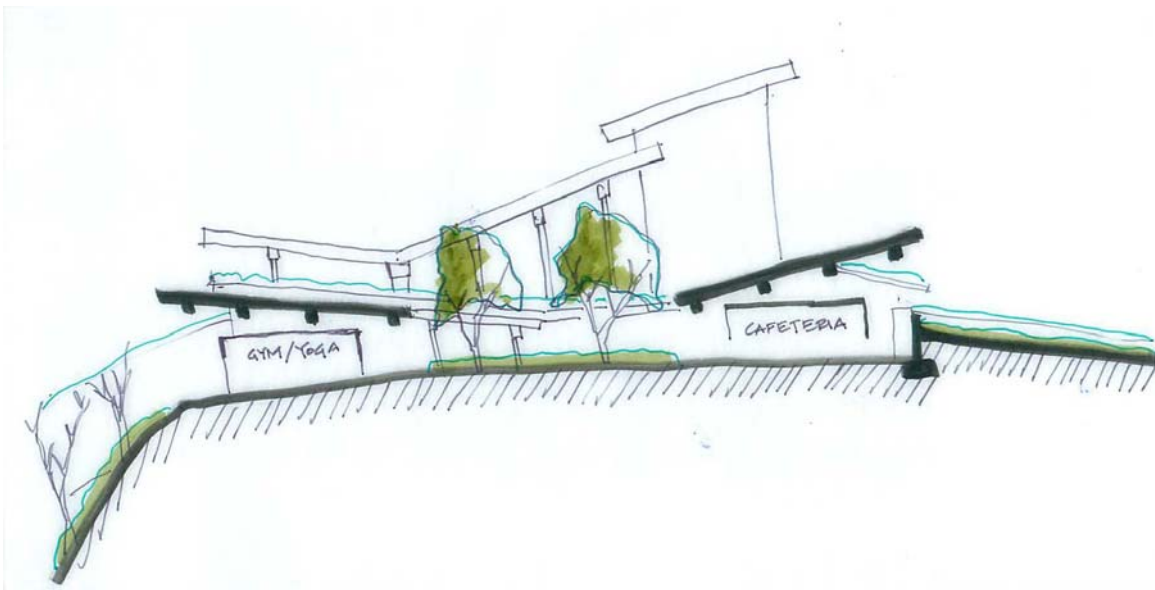


Figure 140. NHOT Scheme 2 – Version B: Roof Form Study 3: Opposing Inclined forms – Fitness Gym and Yoga Studio and Cafeteria



## 3.5 The Theater Design

### 3.5.1 Introduction

### 3.5.2 Building Illustrations

Site Plan

Floor Plan

North Elevation

East Elevation

South Elevation

Building Section

### 3.5.3 Views of the Theatre

### 3.5.4 Conclusion

### 3.5.1 Introduction

In this next phase, I will resolve the remaining issues posed in Scheme 2 – Version A: parking and building approach. Much of these are shown in the Site Plan and can be resolved in plan.

#### Structure Concept: Non Load-Bearing External Walls

I would like my thesis concept to reflect in the building structure by bringing the structural members outside of the interior spaces. This represents the deconstruction of the black box and bringing the work production of an opera front and center. However, the scope of this thesis does not go as far as to creating construction documents such as producing wall sections and details.

The aim of representing the structural system is to show sufficient information about how the building will look like. The walls will have a timber box-frame construction.

#### The Building Approach

Looking at the Site Plan in **Figure 140**, there are three ways the building can be accessed: The first one is located on the far North, which is for staff and performers; the second access point in the site is along *Kamehameha* highway (**Figure 153**); and the third access point is from *Pa'ala'a Uka Pupukea* Road (**Figure 154**). The two latter access points are for public use. They are defined by benches and trees so that when one walks along these pathways, he/she is provided with shade.

Arriving upon the Main Public Entrance (**Figure 155**), the visitors are welcomed by a quiet space revealing nothing but the Entrance structure. As soon as they passed the Entrance Hall, they are greeted by the Retail Promenade, Outdoor Dining area, and the Food and Beverage section (**Figure 156**).

The hint of the theatre is represented by the grass wall growing from the architectural mound at the end of the Retail Promenade. People will see it but

will not be tempted to go there directly because of the more inviting spaces in the Food and Beverage area of the pre-lobby spaces. In **Figure 157** the Food and Beverage area, the public visitors can eat, drink, and socialize while enjoying the sunset view of the ridge, as they wait for the performance closing in at night time.

When it is time to admit people into the audience seating, the sun will have already set. In **Figure 158** and **159**, it shows the lobby at night time. The visitors will once again see the architectural mound wrapping around the theatre, but this time, they get to go through it.

The performance space in **Figure 160** has openings above the proscenium arch allow the audience to enjoy the natural ventilation in the theatre space (ventilation diagram shown in **Figure 149** and **150**).

### A shared performance

While the paying audience enjoy the live performance of the opera singer in the stage, the people in Public Park 2 who will have paid lower priced tickets get to enjoy the production's screen version projected onto the Fly Room's Wall (section shown in **Figure 146**; perspective view shown in **Figure 162**).

The rest of the back-of-house spaces that have been previously resolved show how they are used **Figures 144 - 151**. The progression of these sections show how the rooms with views gradually progress towards North, where the Guest Huts are located at (**Figure 151**). They are surrounded with the existing trees to ensure a comfortable temperature and maximum privacy from the other spaces. They can fully concentrate on their work if they so wish to be alone.

Should the musicians need to socialize, they can do so in the central courtyard that is shaded by trees, or in the Musicians' Lounge, as shown in **Figure 150**. The administrative office have the view of the courtyard.

The central courtyard ends at Green Room 1, where the singers wait for their queue (**Figure 147**). The solo singers are given the option of being in a separate Green Room that is dedicated to the single-occupancy dressing rooms should they need to be on their own or in a more quiet and less crowded waiting area.

After the end of the performance, the singers and orchestra can meet and interact with the audience in the Ballroom Space, located right underneath the Lobby, and right across the orchestra level doors, as shown in **Figure 142** and **161**. The singers can access the Ballroom space through Green Room 1.

#### Design Decisions on Ballroom and Green Room 1

The decision to not join the Ballroom Space with Green Room 1 has been made so that when the Ballroom space is being rented, Green Room 1 can still be used in privacy. As I have mentioned before, the Ballroom space is provided there as a meeting place for the performers and the

audience to meet, and as revenue generator to be rented out for events when the opera is not in season. Green Room 1 can also be reconfigured to become a ballroom space if so desired.

#### Proposed Rail

In an effort to reduce traffic along *Kamehameha* Highway and to eliminate the need to drive to the building site, I am proposing a light rail that runs along *Kamehameha* Highway. This rail will connect to the *Imua* Rail Transit that is being constructed this year. This is an opportunity to provide an easier and faster means of transportation from Honolulu to Central *O'ahu*. One of its stops will be right in front of the New Hawai'i Opera Theatre (**Figure 140**), as well as certain points in North Shore. Providing a light rail along *Kamehameha* Highway will help the *Imua* Rail Transit become more effective because its routes do not include *Wahiawa*. This will also encourage people from the East side of *O'ahu* to travel to Helemano and visit the new Theatre.

## Parks for the masses

The entry from *Kamehameha* highway creates two public parks that precede the theatre. These are part of the processional building approach and provide casual gathering places for people, making them more aware of the theatre. This is a landscaping strategy learned from the Oslo Opera House case study.

## Extended Opera: The Water Screen

Utilizing the visible wall of the Fly Room structure is a great opportunity for the opera house to project images or videos such as upcoming events of HOT. In addition, this space can also function as a projection screen used for movie nights when opera is not in season, as illustrated in **Figure 162**, or an extension of the opera show when theatre seats are sold out.



**Figure 141. Map of O'ahu: Existing Rail and Proposed Rail.** Map - courtesy of Google earth; *Imua* Rail route source: <http://www.allhawaiinews.com/2012/08/will-honolulu-rail-project-stall-while.html>

### 3.5.2 Building Illustrations

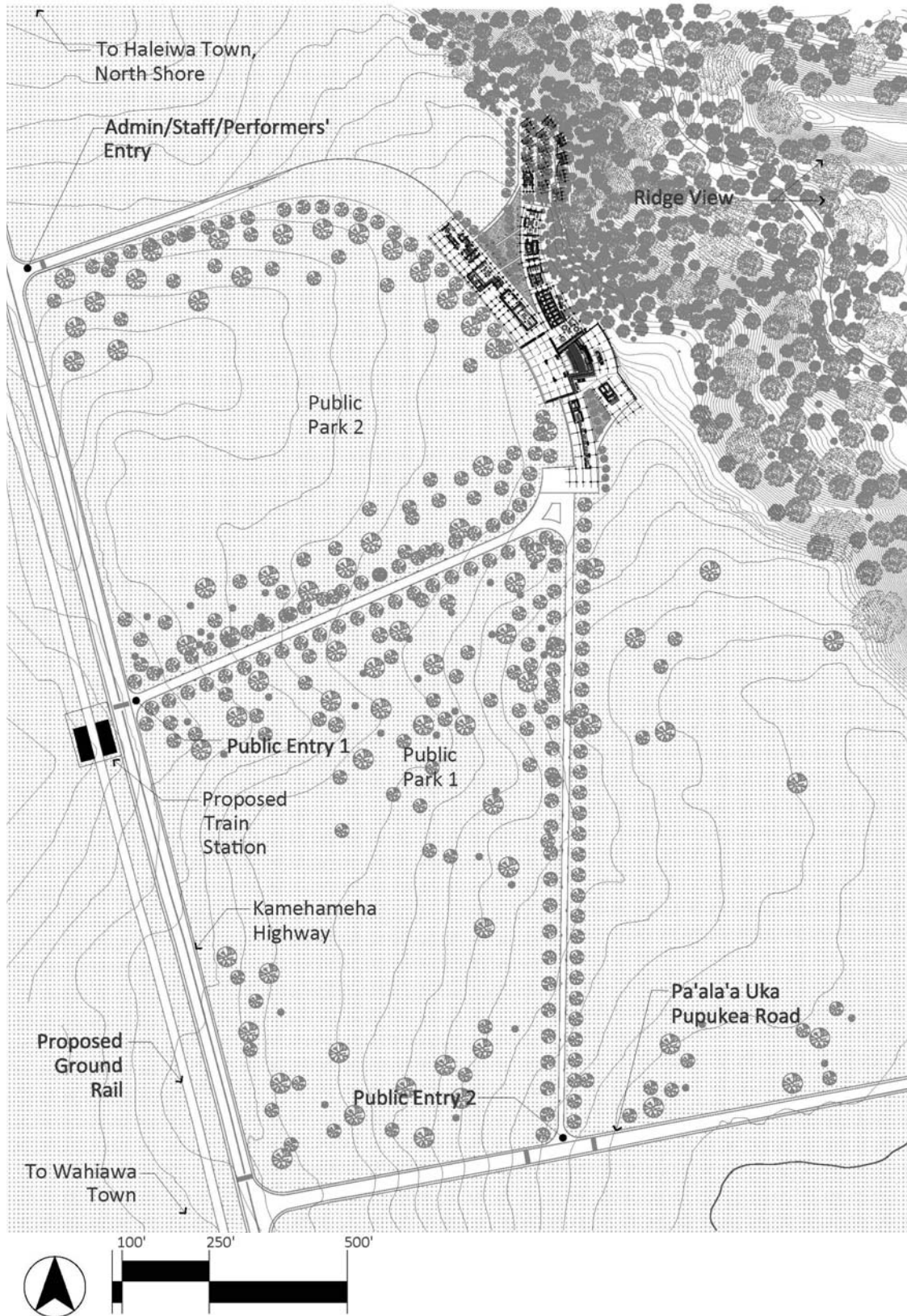
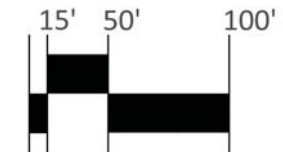


Figure 142. NHOT – SITE PLAN

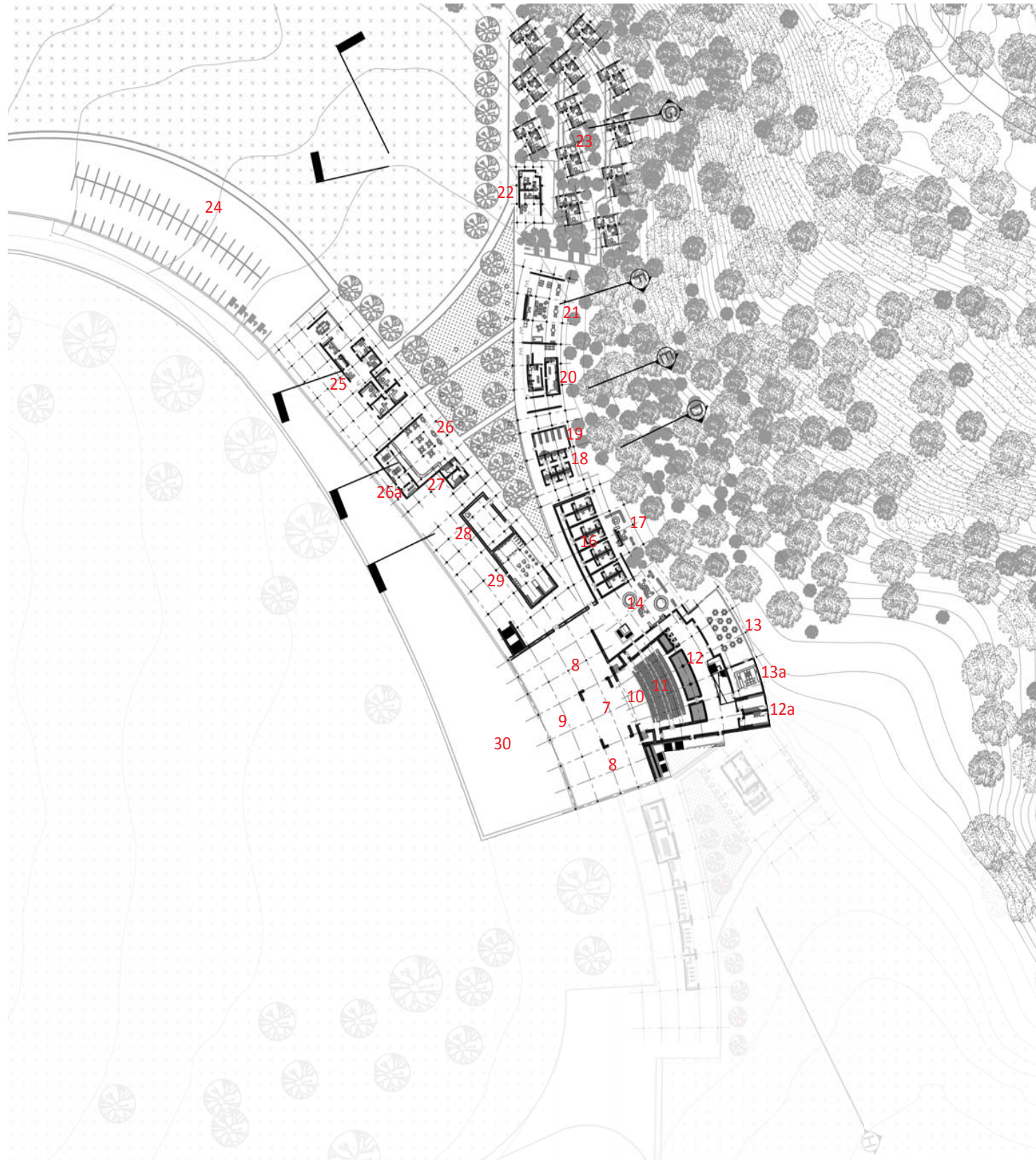


- 1 - ENTRANCE HALL
- 2 - RETAIL PROMENADE
- 2a - PUBLIC RESTROOMS
- 3 - OUTDOOR DINING
- 4 - FOOD AND BEVERAGE
- 5 - LOBBY
- 5a - TICKET BOOTHS
- 6 - MEZZANINE SEATING LEVEL
- 7 - STAGE
- 8 - STORAGE
- 9 - SCENE SHOP

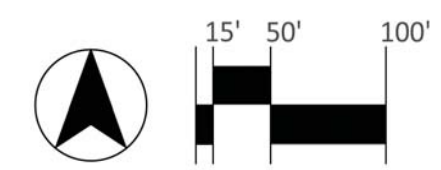


**Figure 143. NHOT UPPER LEVEL FLOOR PLAN (not to scale)**





- 7 - STAGE
- 8 - STORAGE
- 9 - SCENE SHOP
- 10 - ORCHESTRA PIT
- 11 - ORCHESTRA LEVEL SEATING
- 12 - LOWER LEVEL LOBBY
- 12a - PUBLIC RESTROOMS
- 13 - BALLROOM
- 13a - PREP KITCHEN FOR BALLROOM
- 14 - GREEN ROOM 1
- 15 - 4P DRESSING ROOMS; 12P DRESSING ROOMS;  
SHOWER ROOMS
- 16 - 1P DRESSING ROOMS
- 17 - GREEN ROOM 1
- 18 - PRACTICE ROOMS
- 19 - MUSIC LIBRARY
- 20 - FITNESS GYM AND YOGA STUDIO
- 21 - MUSICIANS' LOUNGE
- 22 - RESIDENTIAL CHECK-IN COUNTER
- 23 - GUEST HUTS
- 24 - PRIVATE PARKING LOT
- 25 - ADMINISTRATIVE OFFICES
- 26 - COMMUNITY CAFETERIA
- 26a - COMMUNITY CAFETERIA KITCHEN
- 27 - RESTROOMS
- 28 - REHEARSAL HALL
- 29 - COSTUME/WIG/MAKEUP STUDIO AND FITTING  
ROOMS
- 30 - LOADING DOCK



**Figure 144. NHOT LOWER LEVEL FLOOR PLAN (not to scale)**



**2. Retail Promenade**

- Snack Shop
- Flower/Lei Shop
- Music Store featuring featured singers and selected opera for the season

**2a. Public Restrooms**

- Women's: 14 toilet stalls
- Men's: 9 toilet stalls  
7 urinal stalls

**3. Outdoor Dining**

- 17 sets of tables for four people

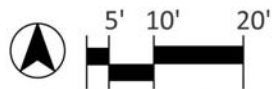
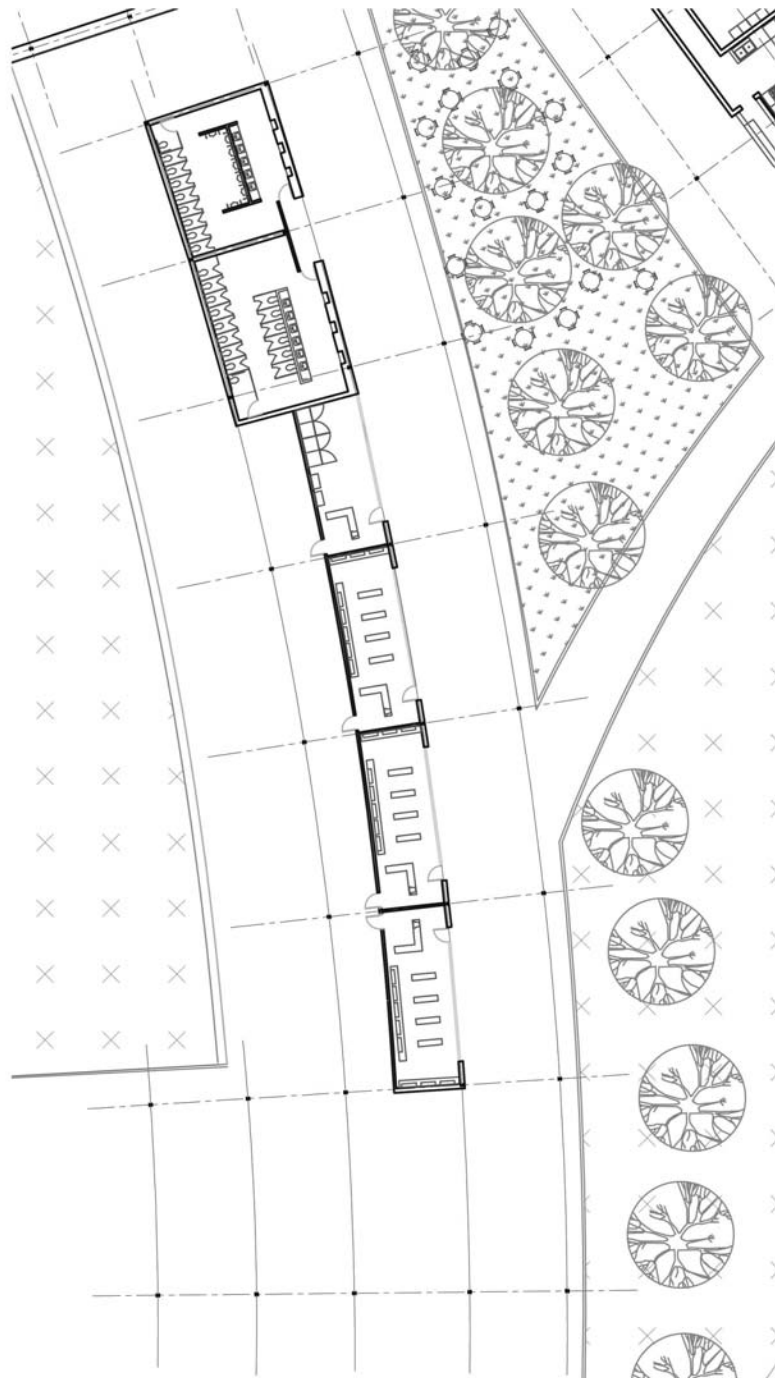


Figure 145. NHOT DETAILED FLOOR PLAN: RETAIL PROMENADE



**4. Food and Beverage**

- beverage bar
- kitchen for 2 cooks
- locker room for employees

**5a. Ticket Booths**

- 2 desks and counters



**5. Theatre Lobby**

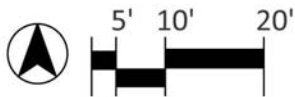
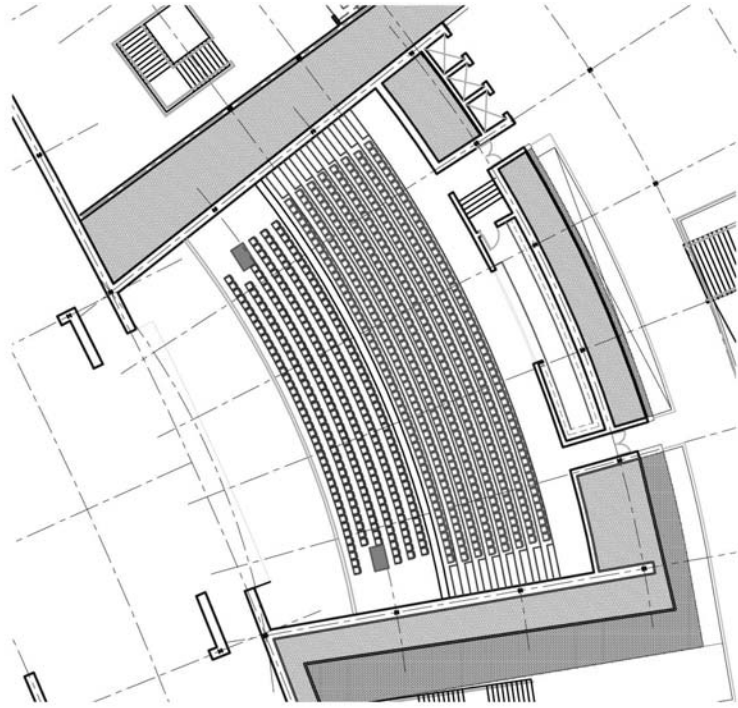


Figure 146. NHOT DETAILED FLOOR PLAN: FOOD AND BEVERAGE/TICKET BOOTHS (ABOVE) AND THEATRE LOBBY (BELOW)



**6. Mezzanine Seating Level**

- 300 seats
- Control Room



**11. Orchestra Seating Level**

- 900 seats
- 2 Egress Corridors

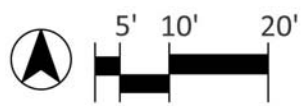
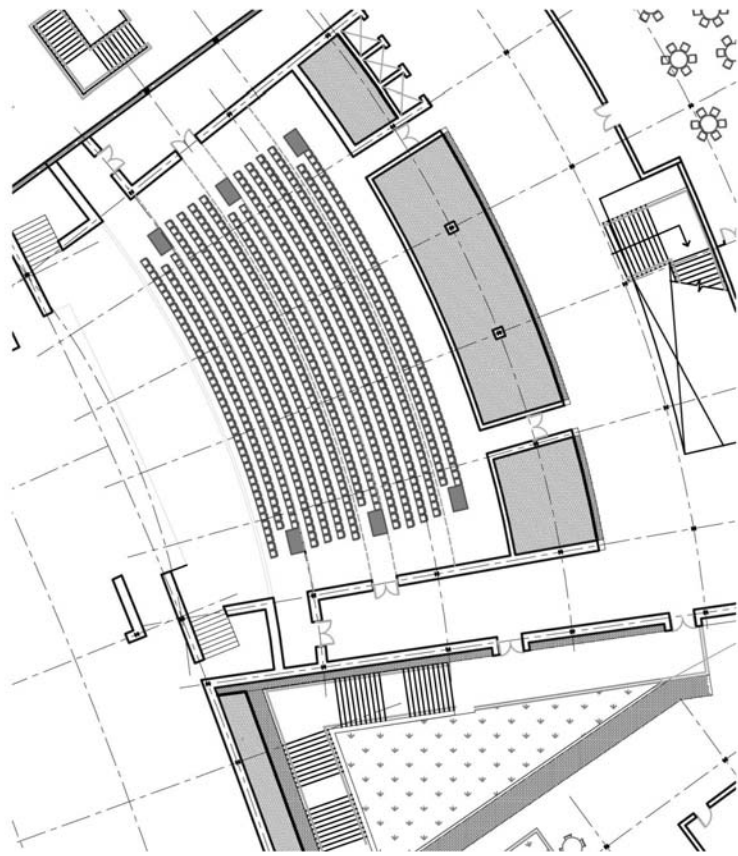


Figure 147. NHOT DETAILED FLOOR PLAN: MEZZANINE SEATING LEVEL (ABOVE) AND ORCHESTRA SEATING LEVEL (BELOW)



Figure 148. NHOT DETAILED FLOOR PLAN: ORCHESTRA PIT, STAGE, STORAGE AND SCENE SHOP



**12. Lower Level Lobby**

**12a. Theatre Restrooms**

Women's: 7 toilet stalls  
Men's: 4 urinals  
3 toilet stalls

**13. Ballroom**

12 round tables for 6  
people

**13a. Prep Kitchen for  
Ballroom**

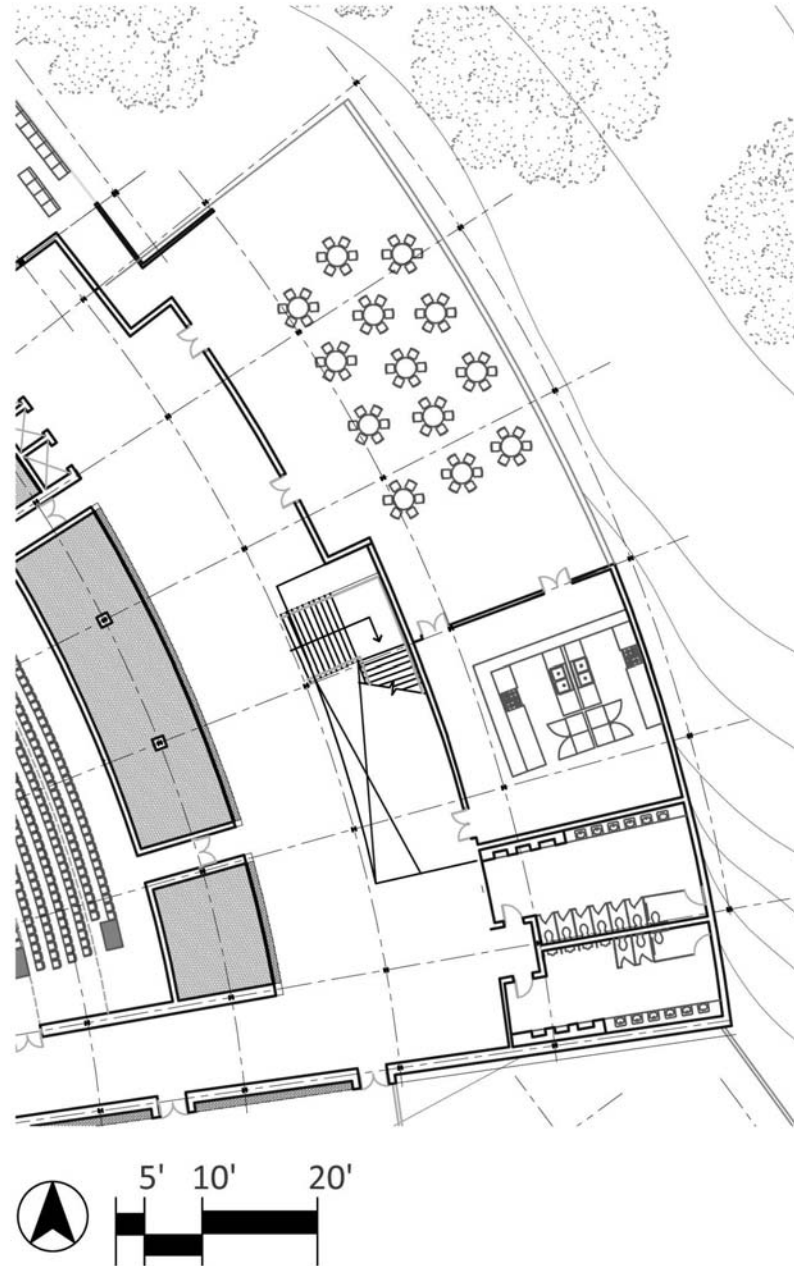


Figure 149. NHOT DETAILED FLOOR PLAN: LOWER LEVEL LOBBY, THEATRE RESTROOMS, BALLROOM, AND PREP KITCHEN



**14. Green Room 1**

- 1 kitchenette
  - coffee brewer
  - tea
  - water dispenser
  - refrigerator
  - sink
  - microwave
  - storage for kitchen utensils
- multiple seating space

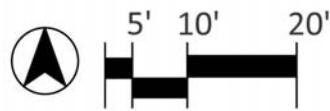
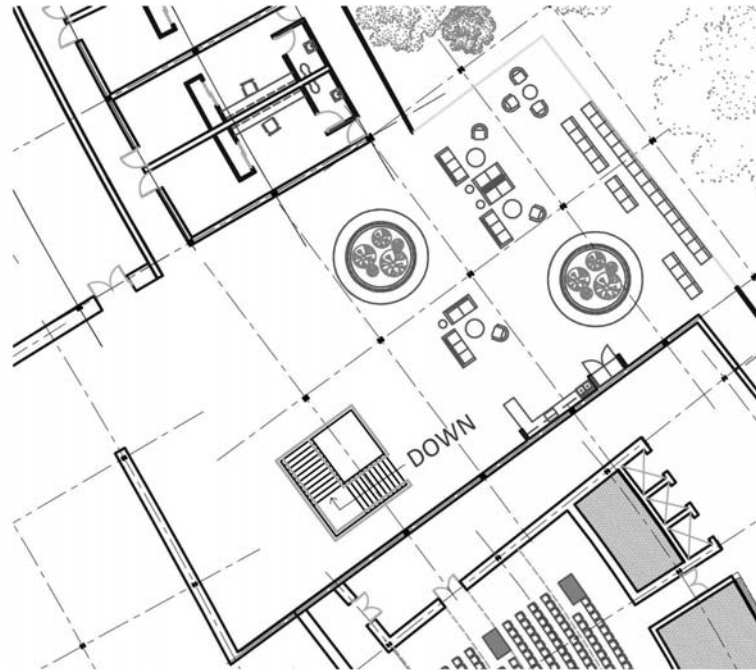


Figure 150. NHOT DETAILED FLOOR PLAN: GREEN ROOM 1



**15. 4P Dressing Rooms;  
12P Dressing Rooms;  
Shower Rooms**

(4) 4P Occupancy, each equipped with

- Makeup space
- clothing space
- screen for queue information
- 4 Mood/Warm-Up Rooms

(2) 12P Occupancy, each equipped with

- Makeup space
- clothing space
- screen for queue information
- 2 Mood/Warm-Up Rooms

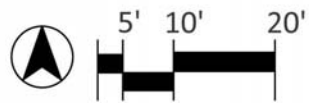
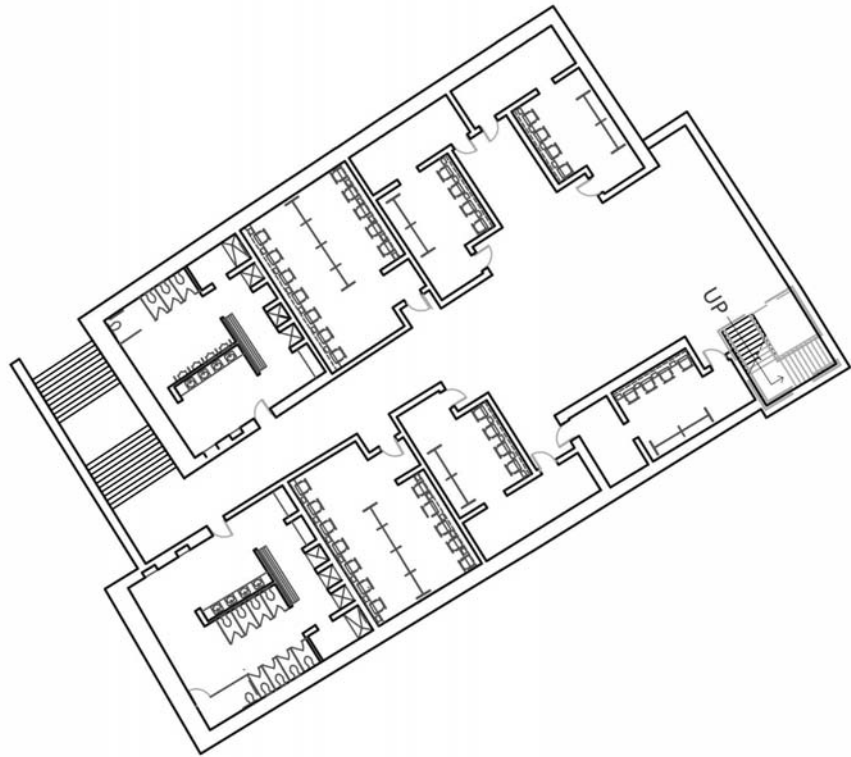


Figure 151. NHOT DETAILED FLOOR PLAN: MULTIPLE OCCUPANCY DRESSING ROOMS





**16. 1P Dressing Rooms**

Single Occupancy, each equipped with

- Makeup space
- 1 Restroom
- clothing space
- screen for queue information
- 1 Mood/Warm-Up Room

**17. Green Room 2**

- 1 kitchenette
  - coffee brewer
  - tea
  - water dispenser
  - refrigerator
  - sink
  - microwave
  - storage for kitchen utensils
- multiple seating space

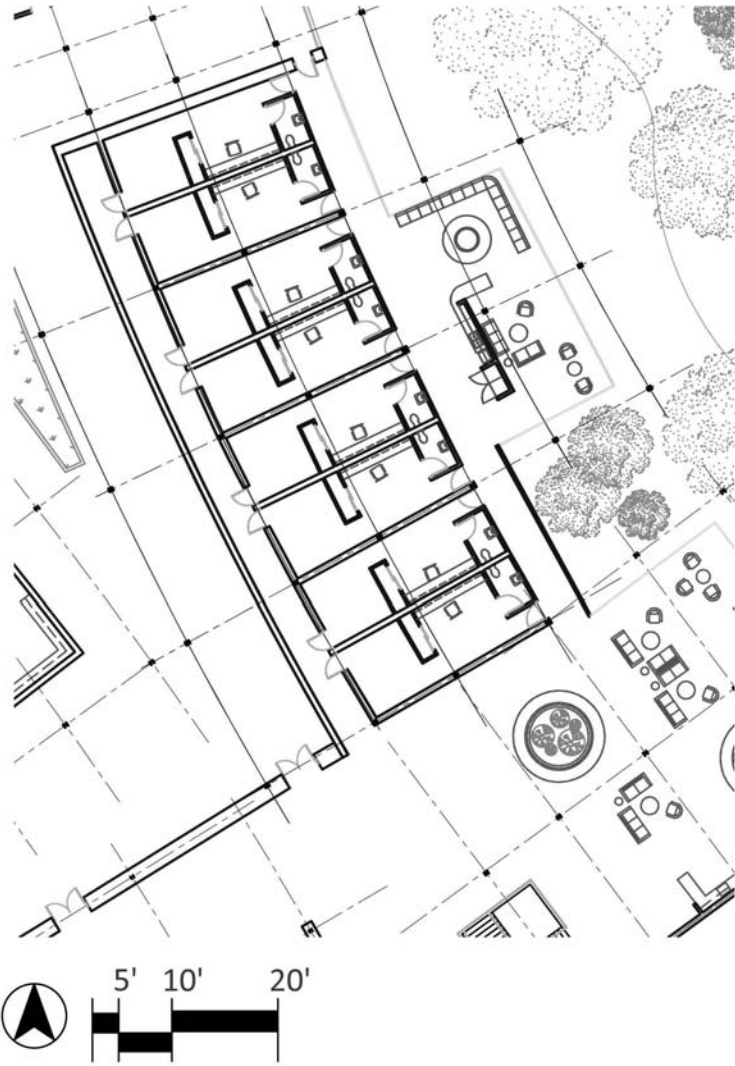
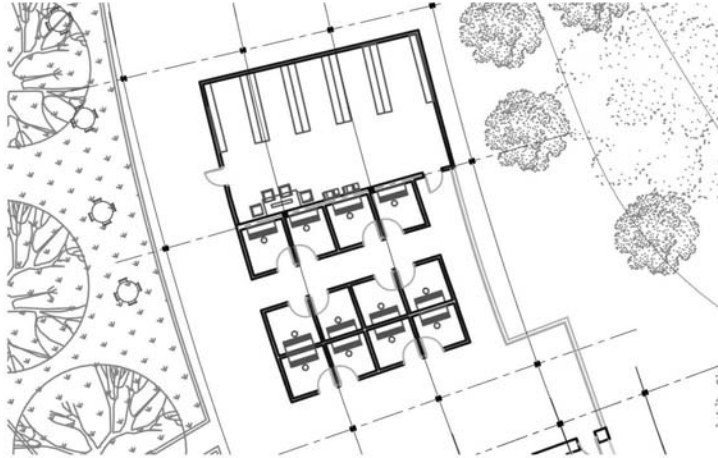


Figure 152. NHOT DETAILED FLOOR PLAN: SINGLE OCCUPANCY DRESSING ROOMS AND GREEN ROOM 2



**18. Practice Rooms**

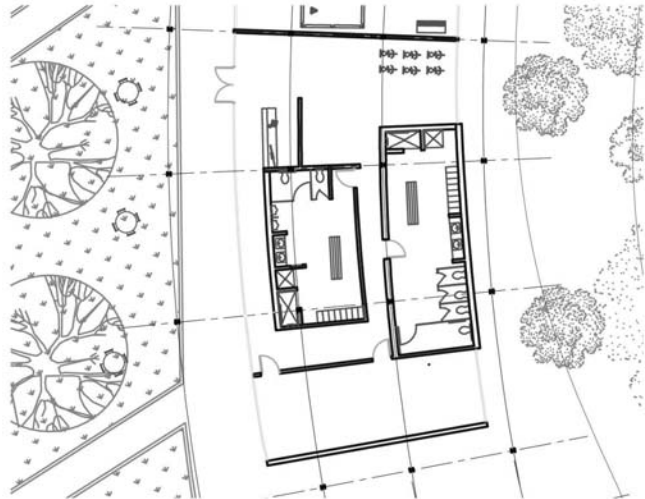
each equipped with

- 1 upright piano
- 1 piano stool



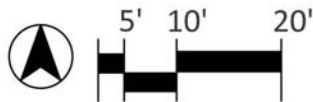
**19. Music Library**

- Shelving space for Music Manuscripts
- 2 computers for file searching
- 2 copy/scanner machine



**20. Fitness Gym and Yoga room**

- work-out equipment
- shower rooms
- locker space



**Figure 153. NHOT DETAILED FLOOR PLAN: PRACTICE ROOMS, MUSIC LIBRARY (ABOVE) AND FITNESS GYM/YOGA ROOM (BELOW)**



**21. Musicians' Lounge**

- kitchenette
- 4 vending machines
- varied seating options
- pool table
- 2 ping pong tables

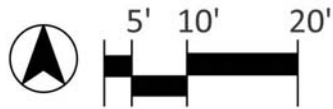


Figure 154. NHOT DETAILED FLOOR PLAN: MUSICIANS' LOUNGE



Hospitality Component

**22. Residential Check-in Counter**

1 Separate structure for Checking-in:

- Check-in counter
- staff maintenance storage

**23. Guest Huts**

each equipped with

- 1 bedroom
- full bathroom
- kitchen
- piano
- living room
- patio

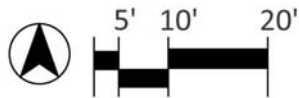
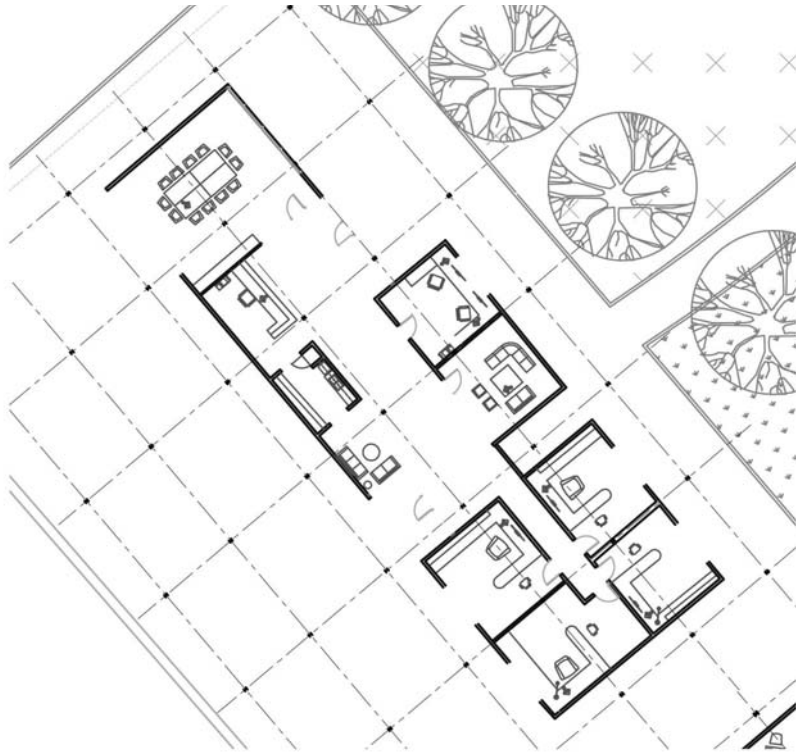


Figure 155. NHOT DETAILED FLOOR PLAN: RESIDENTIAL CHECK-IN COUNTER AND GUEST HUTS



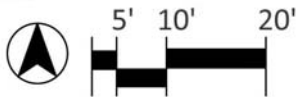
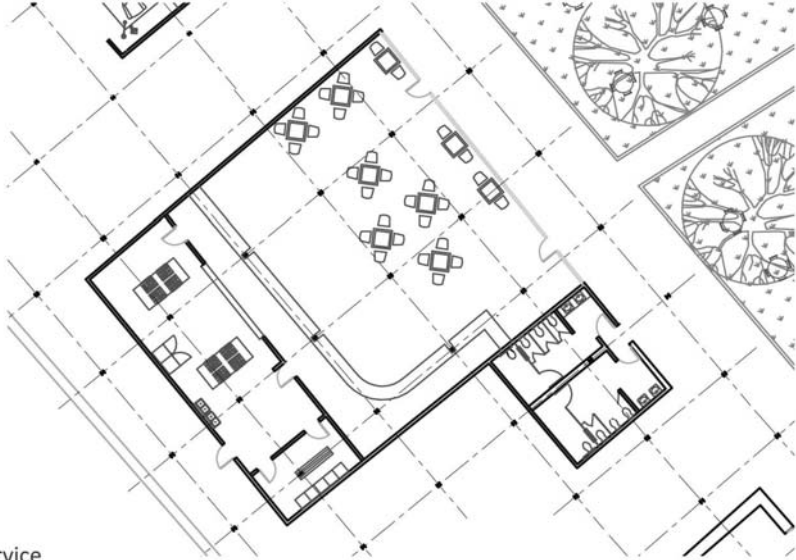
**25. Administrative Offices**

- Reception Counter
- 16P Meeting Room
- 1 Shared Kitchenette
- 1 Lounge Space
- 5P Meeting Room
- (1) 2P Office Room
- (4) 1P Office Room



**26. Community Cafeteria**

- (6) 4P Tables
- (3) 2P Tables
- Buffet Style Food Service



**26a. Community Cafeteria Kitchen**

- 4 Cooking Stations
- Locker Room

Figure 156. NHOT DETAILED FLOOR PLAN: ADMINISTRATIVE OFFICES (ABOVE) AND COMMUNITY CAFETERIA DINING AND KITCHEN (BELOW)

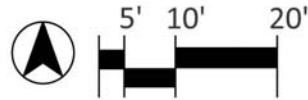
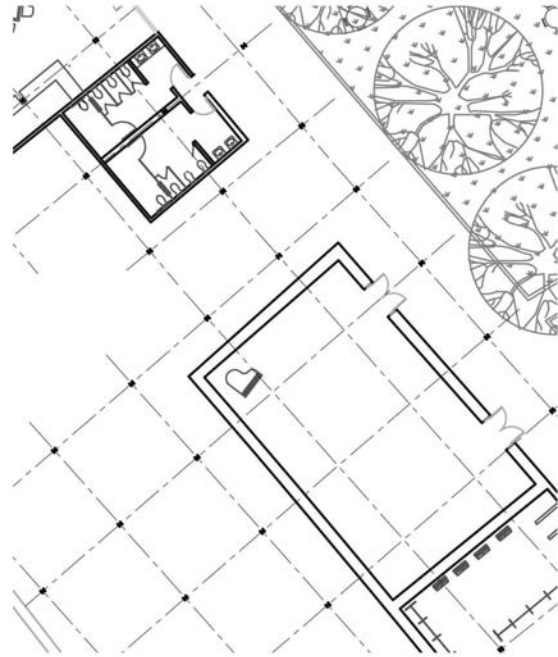


**27. Restrooms**

- Women's: 4 Toilet Stalls
- Men's: 2 Toilet Stalls  
2 Urinals

**28. Rehearsal Hall**

- 1 grand piano
- moveable seating
- music stands



**Costume Creation and Maintenance/  
Wig and Makeup**

- fitting rooms
- sewing machines
- Washer and Drier
- shelving space for wig and make up
- manequin stands

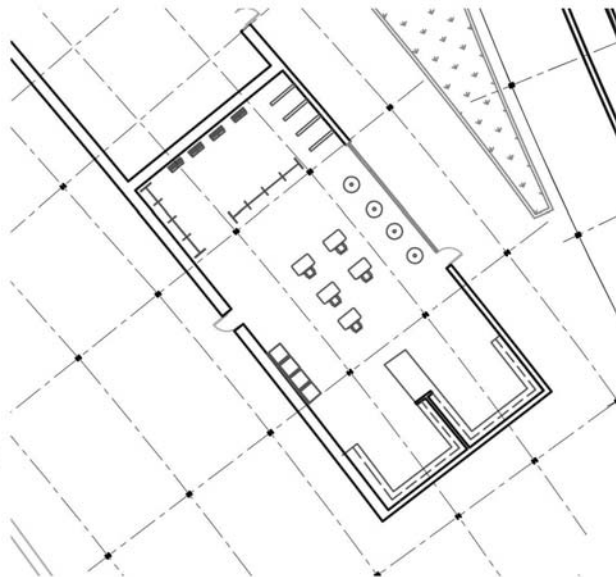


Figure 157. NHOT DETAILED FLOOR PLAN: RESTROOMS, REHEARSAL HALL (ABOVE) AND COSTUME CREATION AND MAINTENANCE/WIG AND MAKEUP (BELOW)

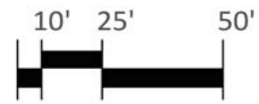
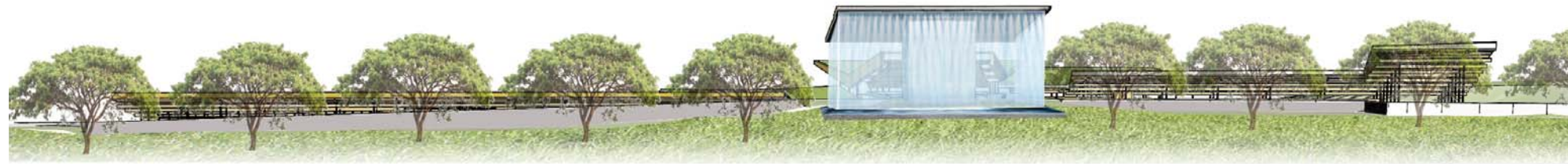


Figure 158. NHOT FRONT ELEVATION (not to scale)



Figure 159. NHOT SIDE A ELEVATION (not to scale)



Figure 160. NHOT - REAR ELEVATION (not to scale)



Figure 161. NHOT - SIDE B ELEVATION (not to scale)





Figure 162. NHOT SECTION H-1 (not to scale)

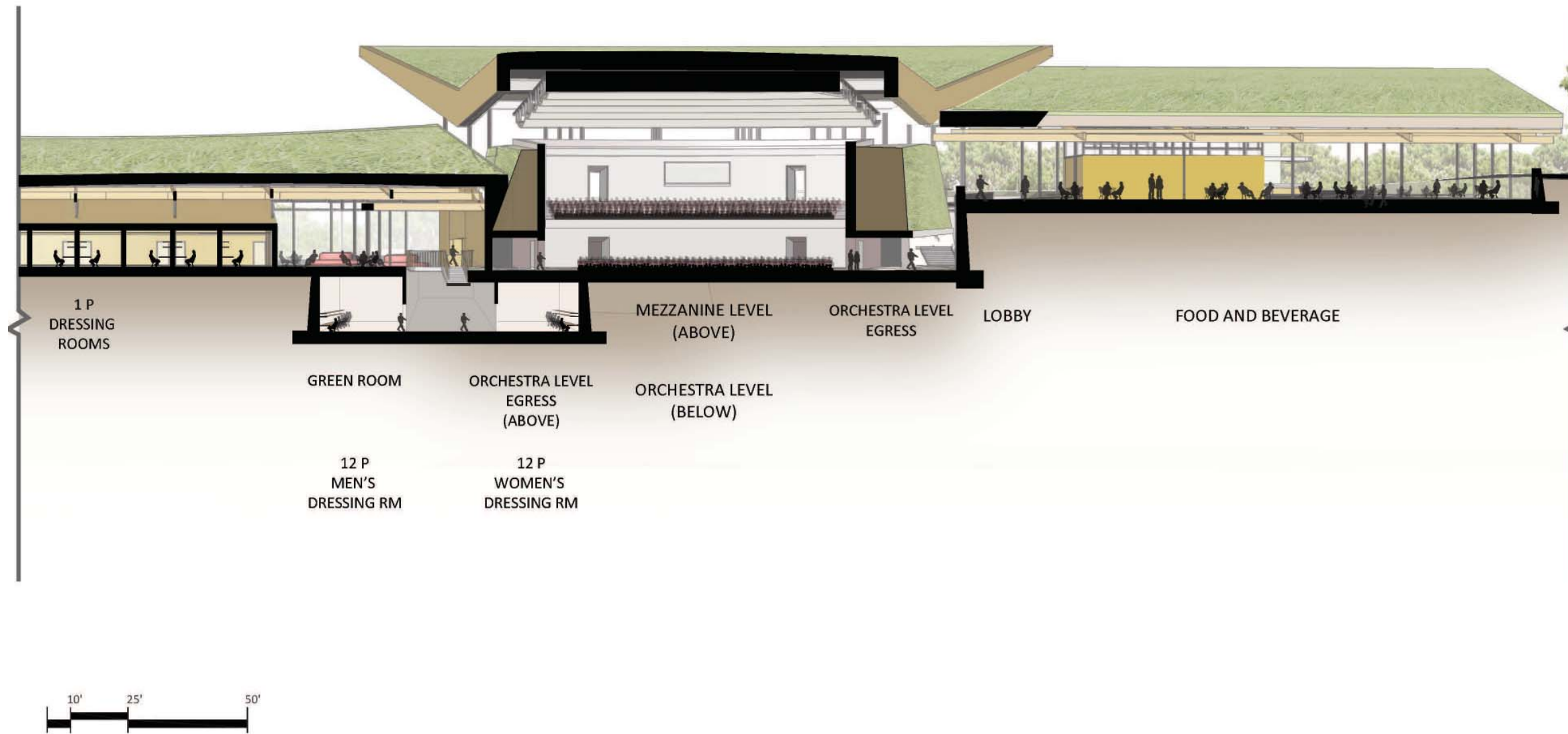


Figure 163. NHOT - SECTION H-2 (not to scale)



Figure 164. NHOT - SECTION A (not to scale)

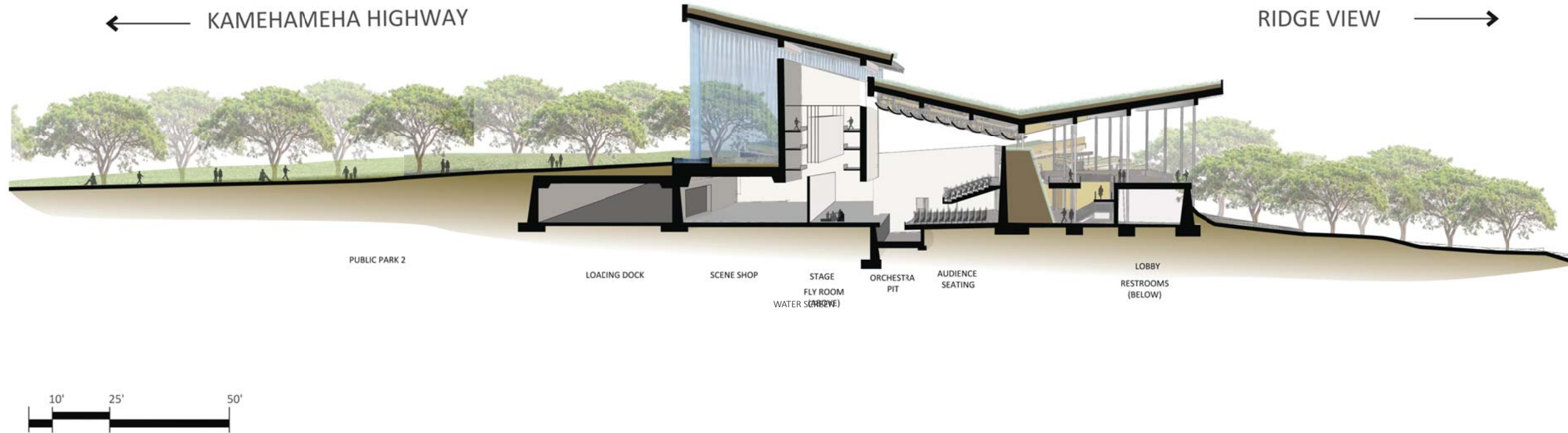


Figure 165. NHOT - SECTION B (not to scale)

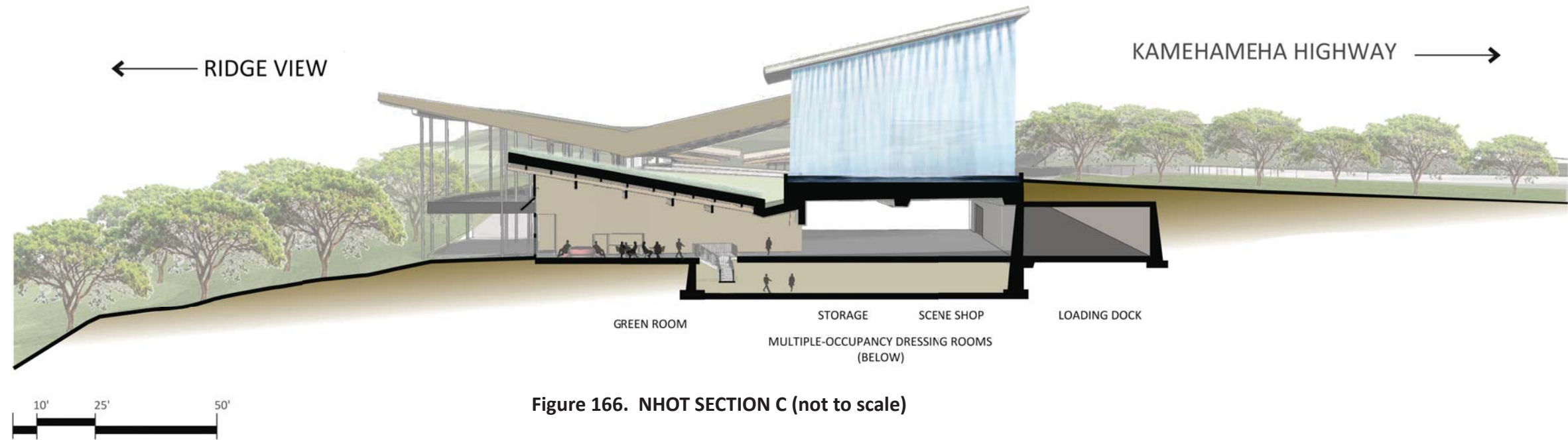


Figure 166. NHOT SECTION C (not to scale)



Figure 167. NHOT SECTION D (not to scale)



Figure 168. NHOT - SECTION E (not to scale)

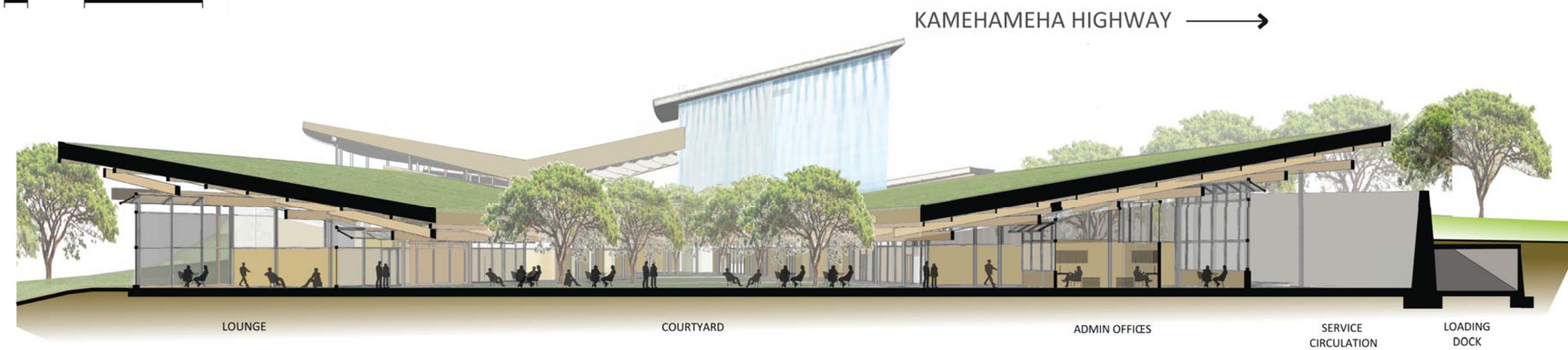


Figure 169. NHOT SECTION F (not to scale)



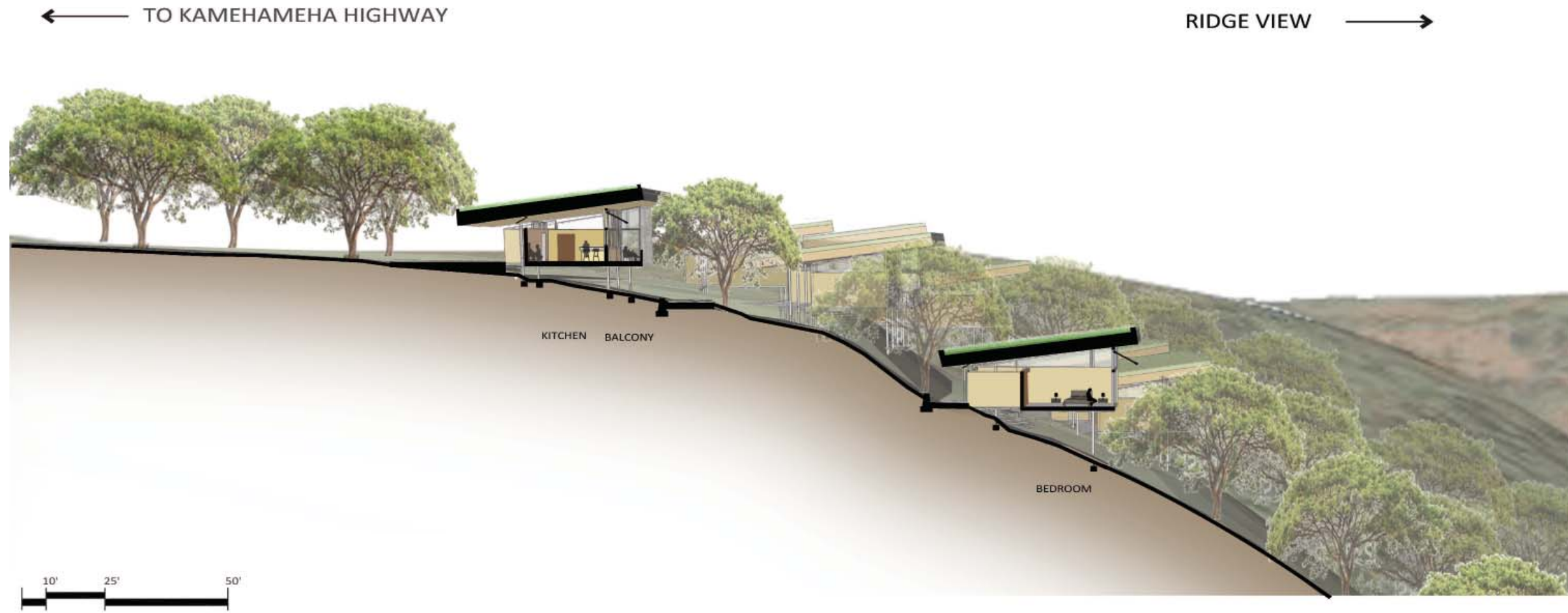


Figure 170. NHOT SECTION G (not to scale)

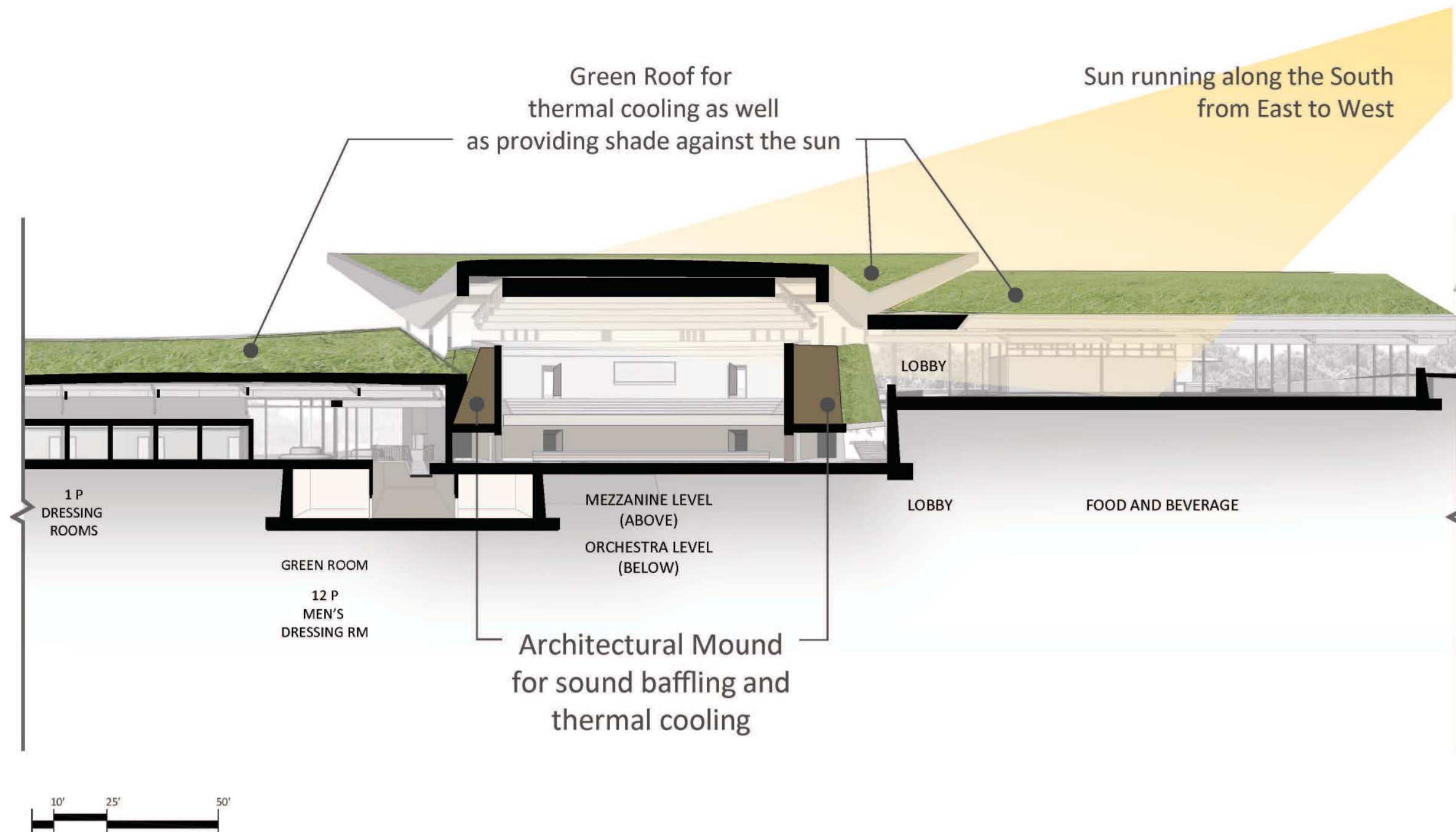


Figure 171. NHOT ANALYTICAL SECTION: PASSIVE COOLING DESIGN - NATURAL VENTILATION AND COOLING STRATEGIES (SECTION H-2) (not to scale)

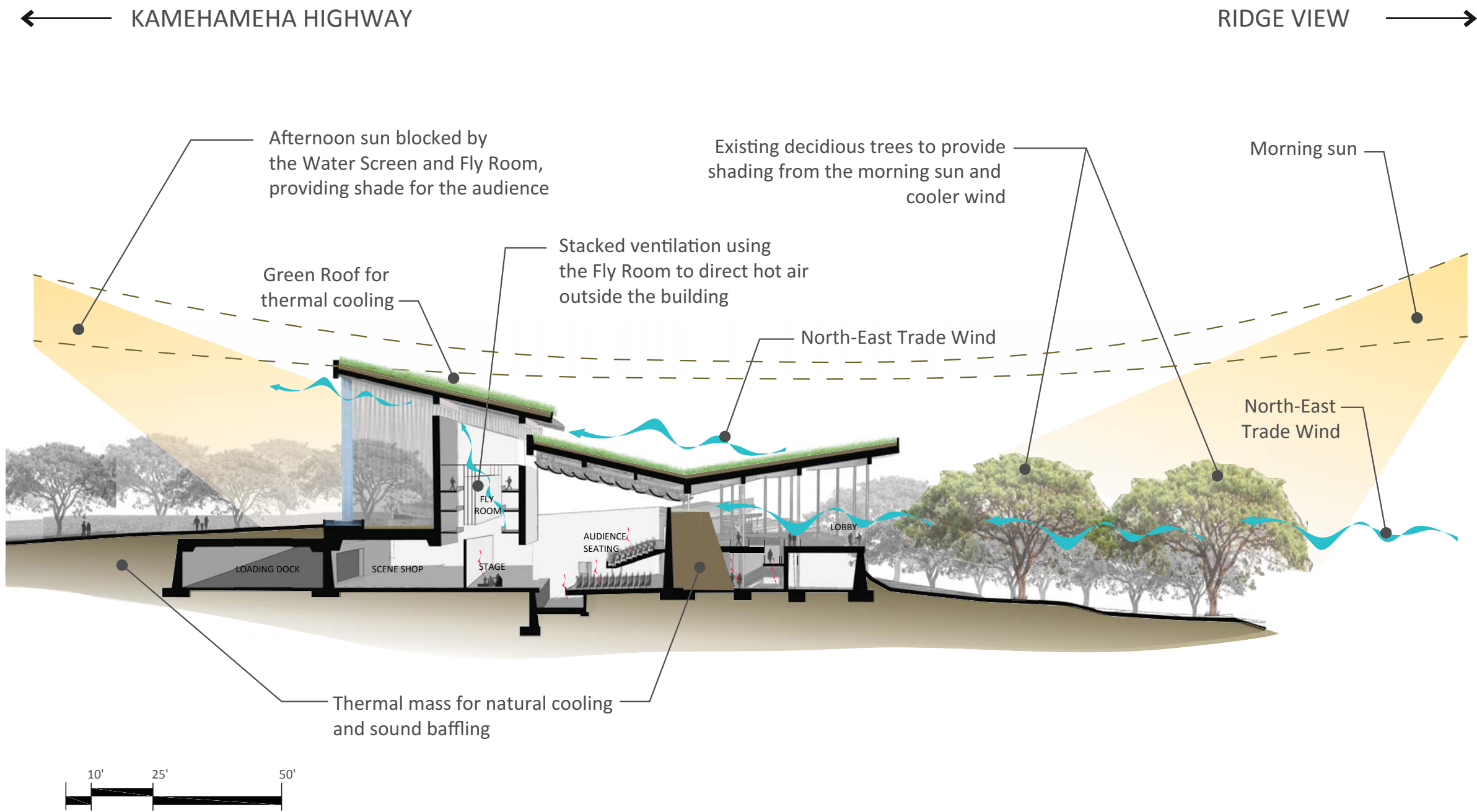


Figure 172. NHOT ANALYTICAL SECTION: PASSIVE COOLING DESIGN - NATURAL VENTILATION AND COOLING STRATEGIES (SECTION B) (not to scale)



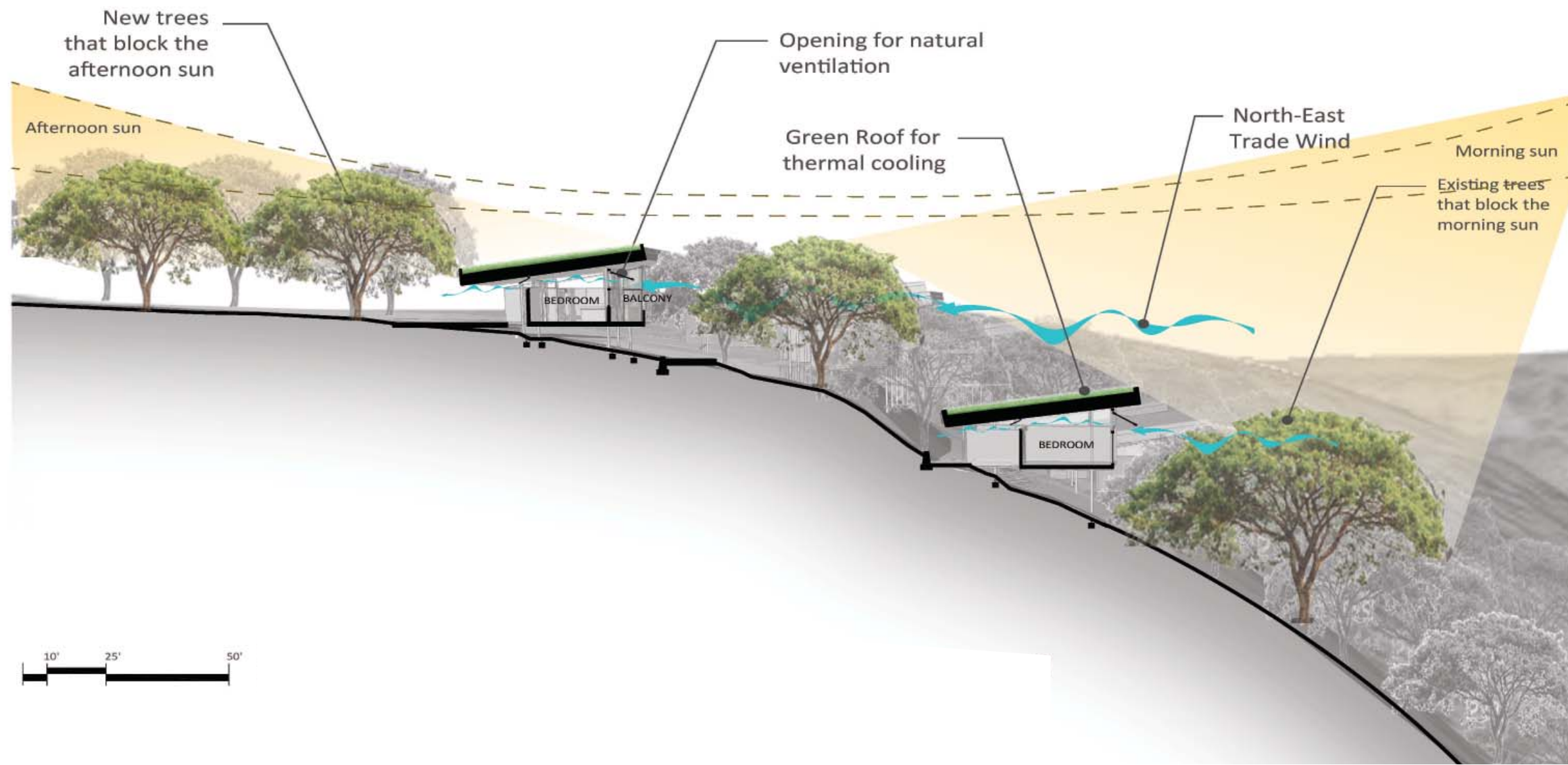


Figure 173. NHOT ANALYTICAL SECTION: PASSIVE COOLING DESIGN - NATURAL VENTILATION AND COOLING STRATEGIES (SECTION G) (not to scale)



Figure 174. NHOT Aerial View - looking over the Helemano mountain ridges and North Shore.



Figure 175. NHOT - Perspective View - From Kamehameha Highway towards North. Public Parks 1 and 2 are located on the right, while the proposed train station on the left. Trees are placed to provide shading to shading and to create curiosity among the visitors' journey to the Theatre.



Figure 176. NHOT - Perspective View - Public Entrance from the proposed train station along Kamehameha Highway. Benches are provided underneath the trees and along the main pathway towards the theatre. The pathway divides Public Parks 1 (right) and 2 (left).



Figure 177. NHOT - Perspective View – Public Park 2: The water screen covering the fly room wall is used as a bill board announcer of upcoming shows, as seen from Kamehameha Highway.



Figure 178. NHOT - Perspective View - Corner of Public Park 2 along Kamehameha Highway: People are starting to gather for the event in the afternoon.



Figure 179. NHOT - Perspective View - Public Entrance from Pa'ala'a Uka Pupukea Road: The lawn on the left hand side leads to Public Park 1. Benches are also provided for people to rest as they walk towards the main entrance of the Theatre.



Figure 180. NHOT - Perspective View - Main Theatre Entrance Hall: The visitors are greeted by the pavilion structure as its aesthetic features provide a clue of what the spaces will be like inside. The sun is starting to set.





Figure 181. NHOT - Perspective View - Retail Promenade: After passing through the Entrance Hall, the visitors can gain information about the upcoming events and featured opera stars provided by the music store, one of the retail spaces along the Retail Promenade. To the right is the outdoor dining area, comfortably shaded by trees. At the end in between these two spaces is the architectural mound that covers the theater seating space. On the right-most side of the image is the bar and kitchen for the Food And Beverage Section.

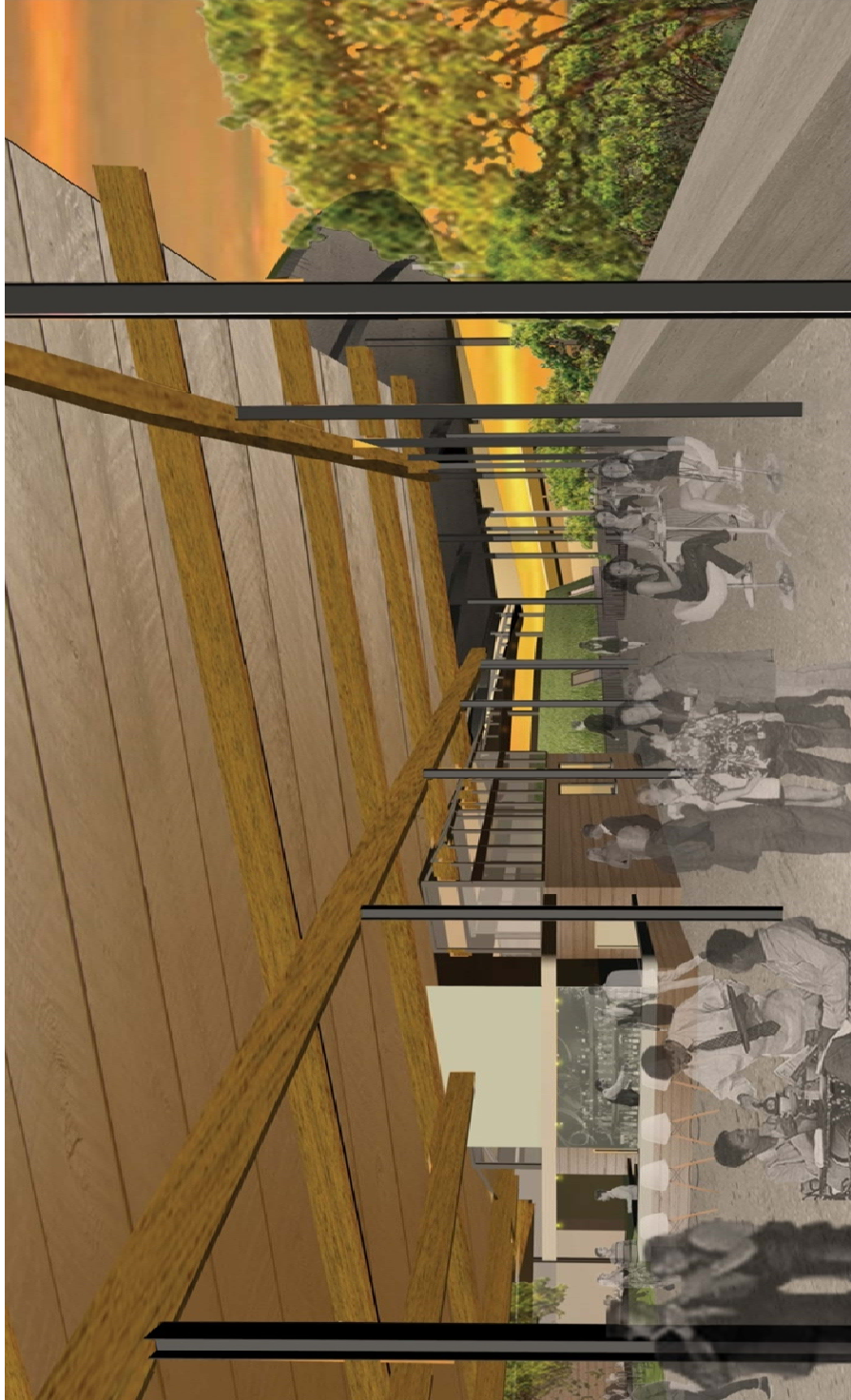


Figure 182. NHOT - Perspective View - Food And Beverage Section: As the time of the day progresses, the visitors can continue to socialize while enjoying the view on the right hand side of the image. To the end is the lobby where more of the theatre reveals itself, covered by the architectural mound and grass wall.



Figure 183. NHOT - Perspective View - Theatre Lobby, Mezzanine Seating Level Entry: The night has come and the doors have been opened for people to enter. They will go through the architectural mound that will reveal the theater space. The gap between the lobby floor plate and the architectural mound indicates the grass continuing down, hinting on the level below.



Figure 184. NHOT Perspective View – Theater Lobby, Orchestra Seating Level: The continuation of the architectural mound is seen here to provide the same theater entrance as the Mezzanine Seating Level above.

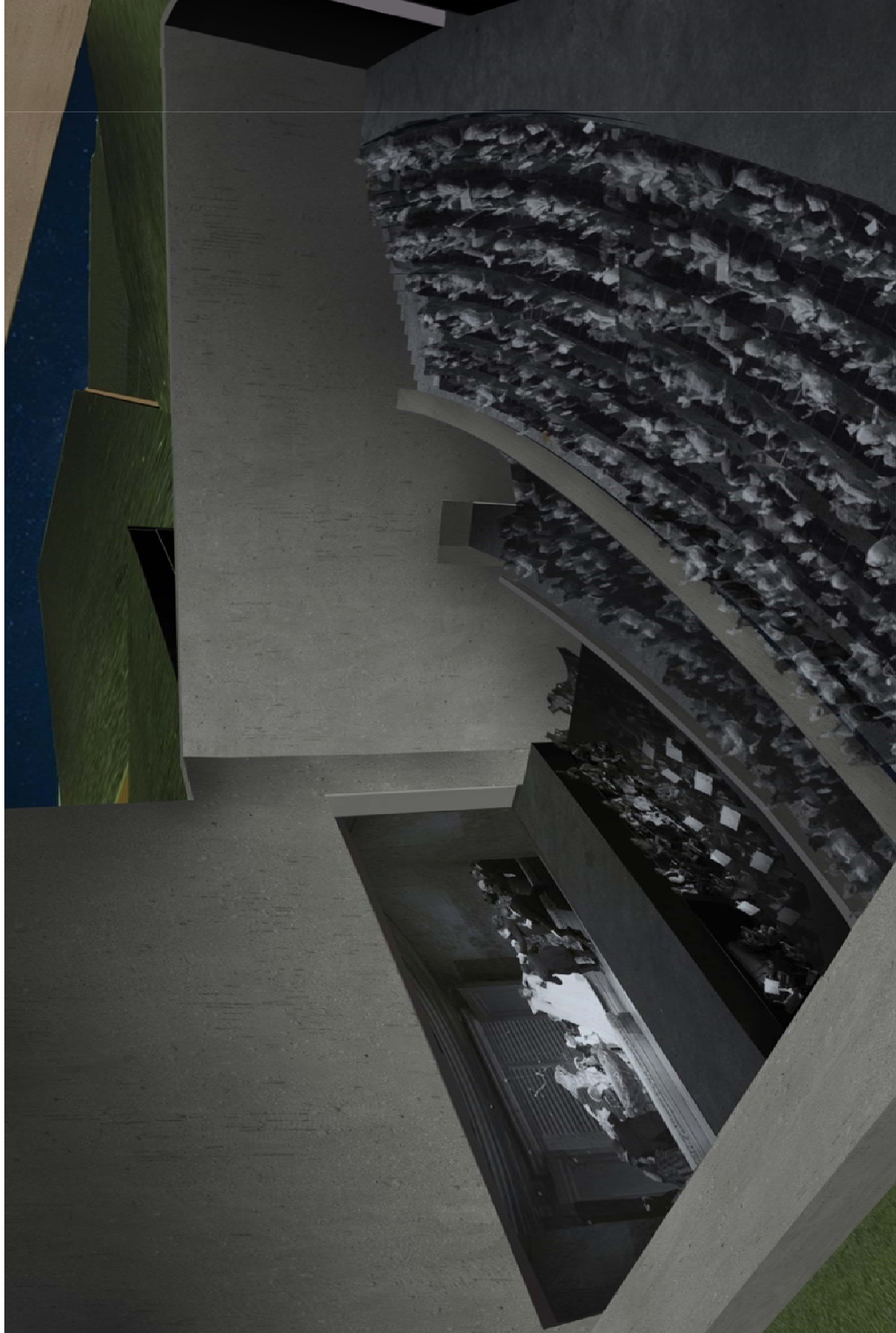


Figure 185. NHOT - Perspective View - Theatre Seating Space and Proscenium: The combination of indoor and outdoor spaces is continued here, as the openings above the audience seating gives them the opportunity to peek at the night sky while enjoying the opera.

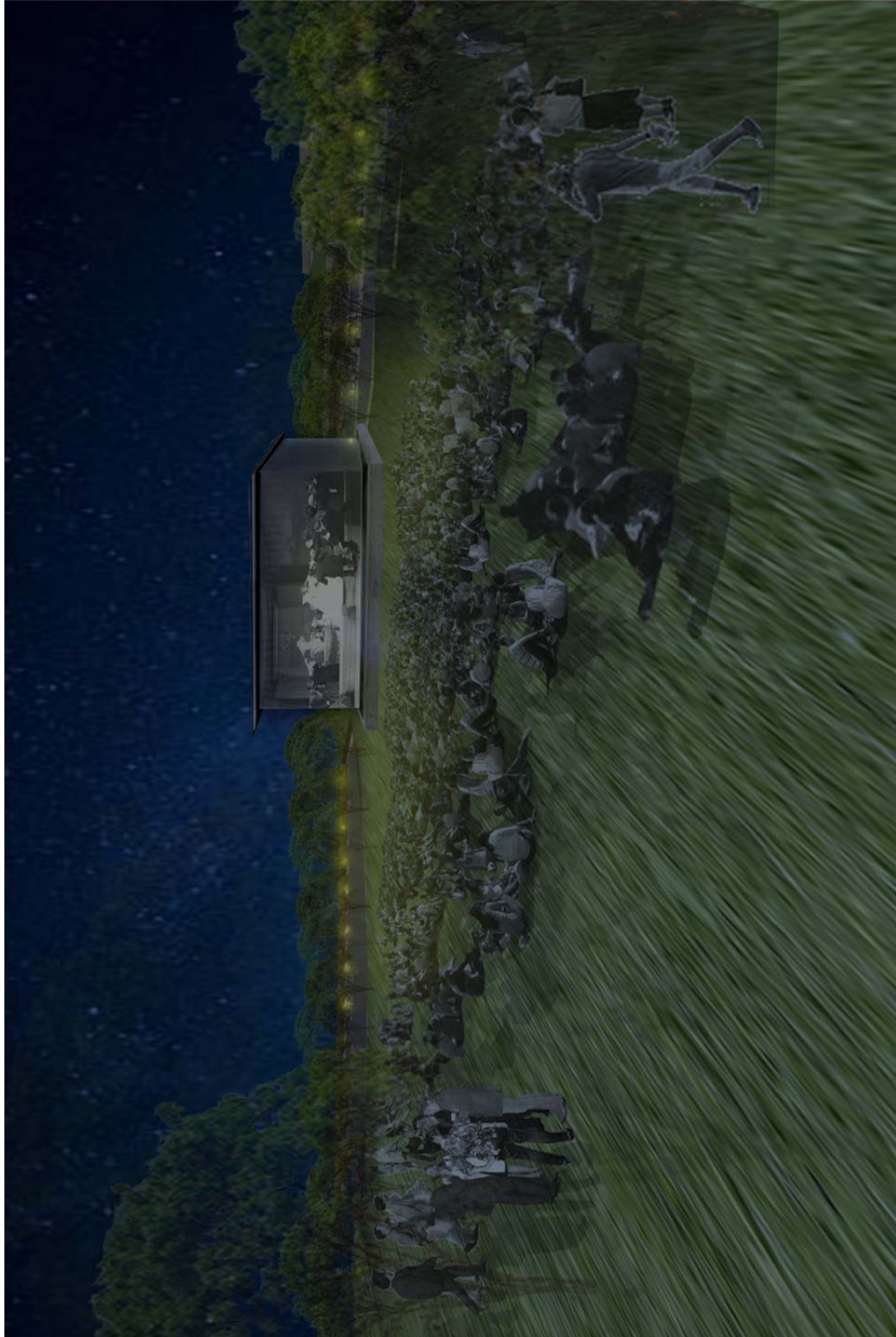


Figure 186. NHOT - Perspective View – Public Park 2: The water screen functions as a projected screen for people to enjoy at night. Instead of a standing room in the theater space, the people can enjoy the same opera being performed inside the theater here in Public Park 2.



Figure 187. NHOT - Perspective View – Ballroom: After the performance, the audience and the performers have the opportunity to socialize while they can enjoy the view of the site at night. This space can also be rented out for hosting events during non-opera seasons as a revenue-generator for the theater.

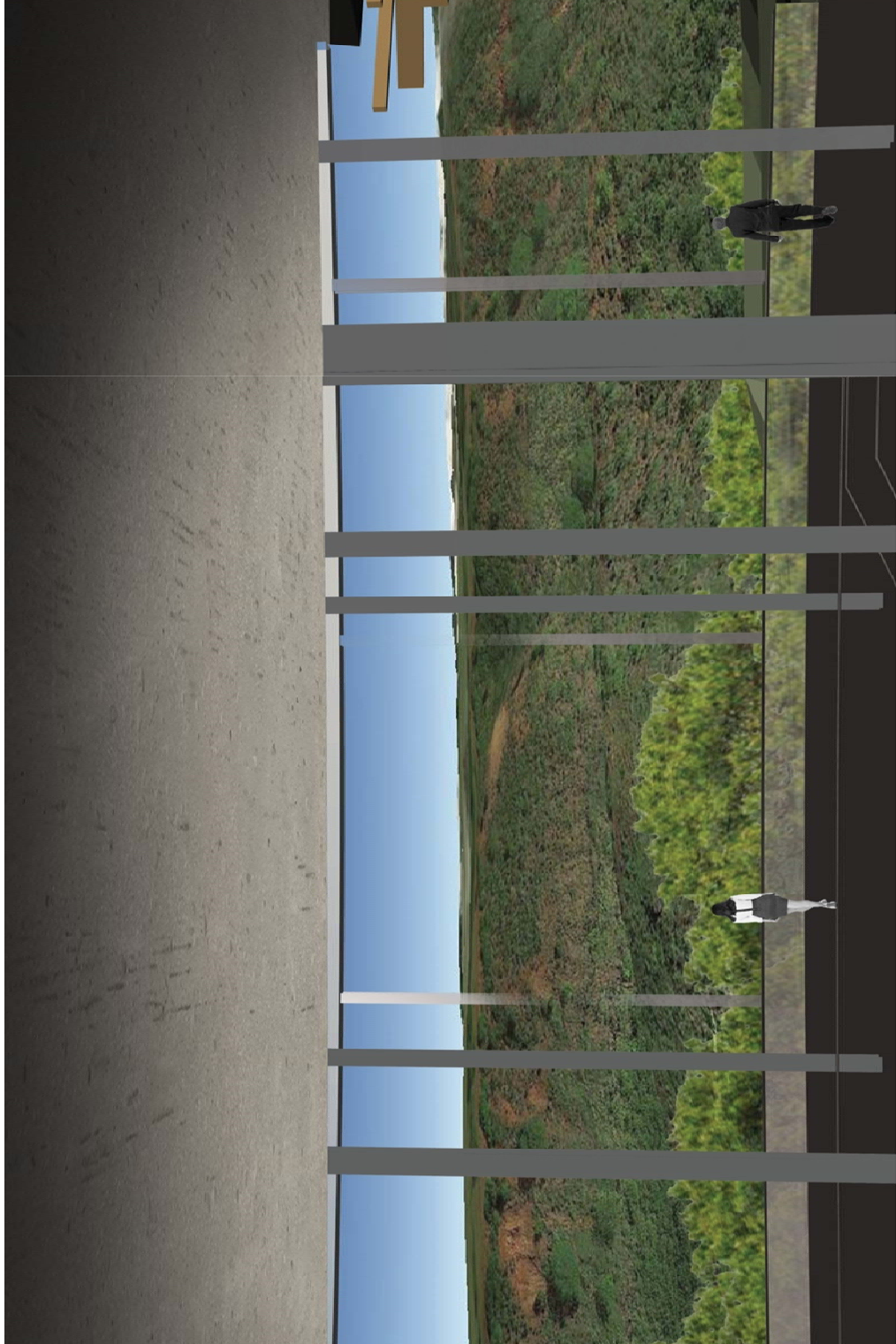


Figure 188. NHOT – Lobby: In the Morning, the Lobby serves as an observational space as it overlooks the Helemano ridges. This view also serves as a breathing space between opera acts, and after watching the show.



### 3.5.3 Conclusion

The entire design process has led to the realization of the importance of the theatre space itself. Although the ancillary spaces such as the Green Rooms, Rehearsal Halls, Dressing Rooms, Costume/Wig, Makeup Studio, Cafeteria, Administrative Offices, Well-being Spaces, and the Guest Huts are important in this thesis, the public spaces such as the building approach, the public parks, the Retail Promenade, the Food and Beverage, the Lobby/Observational space, and the Ballroom, are just as important. All of these spaces have been designed with the combination of indoor and outdoor spaces, while surrounding a central, tapering courtyard to encourage outdoor gatherings for the opera company – a successful application of connecting to nature.

Part of the design initiative to connect to nature is the use passive design strategies such as architectural mounds for thermal

cooling and sound baffling, natural ventilation in all spaces, natural daylighting, and shading are successfully used to make its users more comfortable, as these strategies take advantage of the climate of Helemano.

The space planning of the entire opera theatre provides a simple and straightforward circulation that allows the back-of-house users to easily walk through the places they need to go to. The spaces for socialization and rooms for practicing are placed in strategically to provide them options to sing in. The same conclusion can be said of the public spaces that provide graceful pathways to approach the building while being provided seating and ample amount of trees where they can relax along their journey.

Finally, the public parks give the opportunity for the public to gather in front of the theatre by providing trees and using the Fly Room's exterior wall as a projection screen and be used as a form of

entertainment. By having these public parks, the people are going to be more aware of the opera theatre and what it has to offer.

## 3.6 Selling Opera

### 3.6.1 Introduction

#### Marketing the Helemano Site

Helemano, the site of my choice, is an atypical choice for an opera house. It is far from Honolulu, a city that is over-populated (provide stats here) will not be the ideal place for the building typology I am designing. In order to support the argument of the new Hawaii Opera complex being situated in Helemano, a marketing strategy has to be done. To fulfill this, a pop-up retail design is a viable solution to market the new facility anywhere.

How Opera can learn from retail design and strategies:

Retail design projects have a lot more in common with opera productions than you might think:

- They are fast-paced and get people excited
- Opera productions are usually quick to progress in order to sell tickets and to have them occur in seasons.
- Sometimes the retail business start small and when the project is successful they expand their businesses
- The same thing happens in an opera production, if the opera is a success, the company tours to other places to gain new audiences – they expand
- Audiences : customers as to opera performance : retail product
- The only difference is the duration of the audience and customers enjoy the product. An opera production may only last for an hour, but the experience can remain with them forever

### 3.6.2 Rebranding Hawai'i Theatre

In addition to the building design for the New Hawai'i Opera Theatre, I would like to make an additional effort by providing the company with a new brand. By rebranding HOT, it will give them a fresh look and identity and will have the chance to be reintroduced to the public. The images below show the parti diagram of the proposed New Hawai'i Opera Theatre.

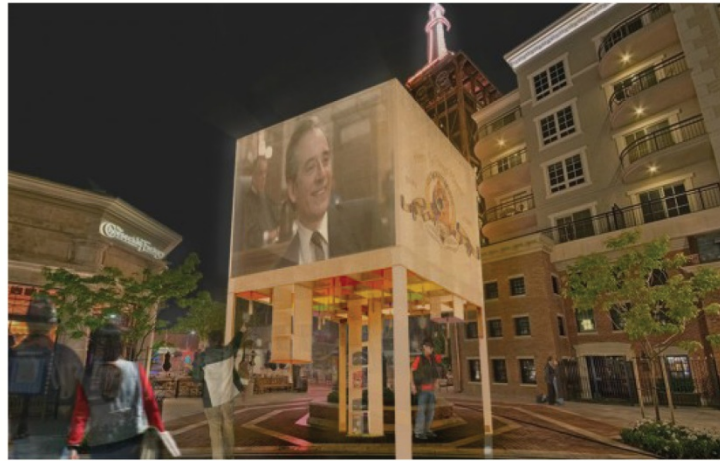
It is only appropriate for the use of the proposed theatre's parti diagram as this is a space dedicated to the Hawai'i Opera Theatre company. This parti will give the company a more memorable presence outside of Helemano as it gives them an idea of what the company's building looks like: a roof on a hill.



Figure 189. Image – NHOT, Rebranding. The logo is depicted from the building section of the theatre space of the New Hawai'i Opera Theatre. The color green is used to give the feeling of nature, giving a hint of its site.

# Pop-up Retail Ideas

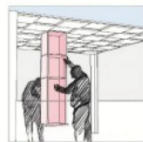
## Existing images online



**BRANDED**  
THE WHITE SURFACE OF THE POP-UP  
RETAIL STORE IS A PROFESSIONAL SURFACE  
FOR GRAPHICS AND SIGNALS.



**VISUAL CATEGORIZATION**  
THE UNDERLAYER OF THE STORE IS MADE  
UP OF A COLOR MATRIX. QUALIFYING  
THE PURCHASES IN A COLOR-CODED  
MANNER.



**NEW SHOPPING EXPERIENCE**  
STORES ARE PLACED STRATEGICALLY ALONG  
SIDES OF THE URBAN BLOCK, FORMING  
THE OUTLINE OF "CORRIDOR" BLOCKS. SHOP  
FROM THE STREET AND TO REAP  
THE REWARD OF THE STORE.

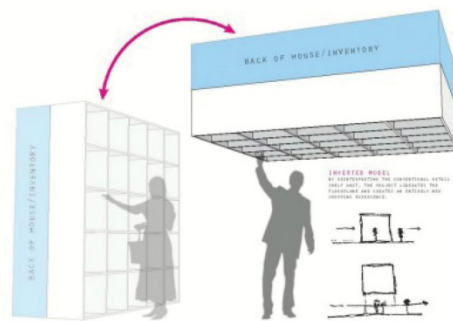


Figure 190. Image - NHOT, Pop-Up Retail Design Idea, image from DesignByMay competition winner of RPG's 'Jack Up The Box'

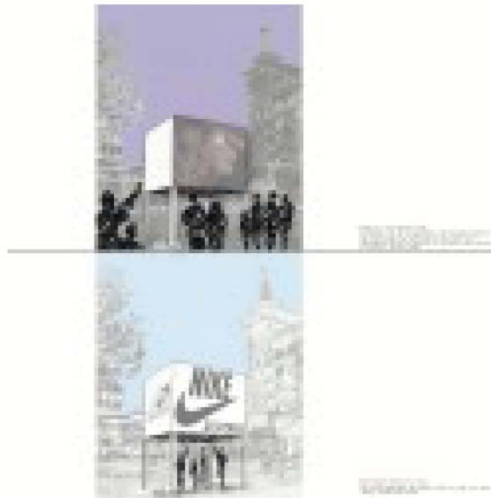
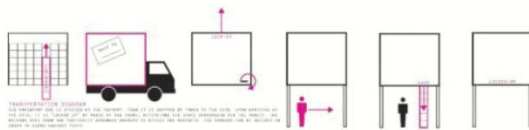
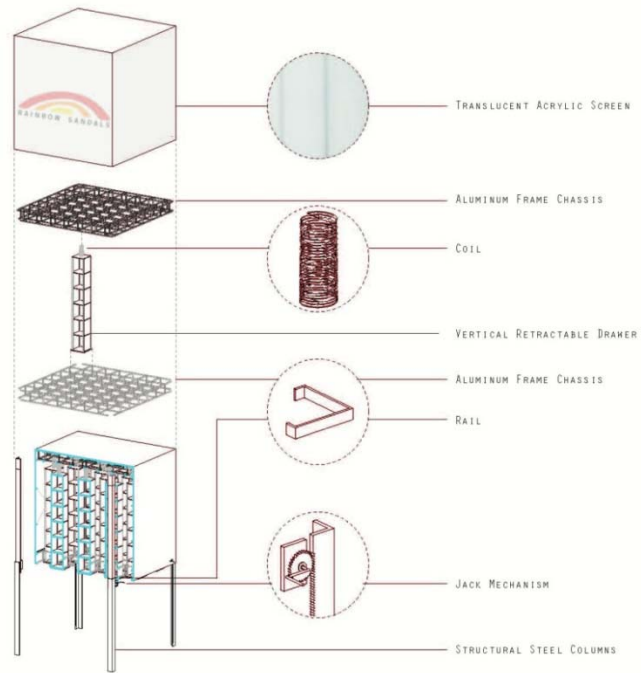


Figure 191. Image - Pop-Up Retail Design Idea, image courtesy of DesignByMay competition winter of RPG's 'Jack Up The Box'

### 3.6.3 Pop-up Retail Design Concept: Interactive Playbill

#### Pop-up Retail Design Concept: The Interactive Playbill

##### Creating a Modular Structure

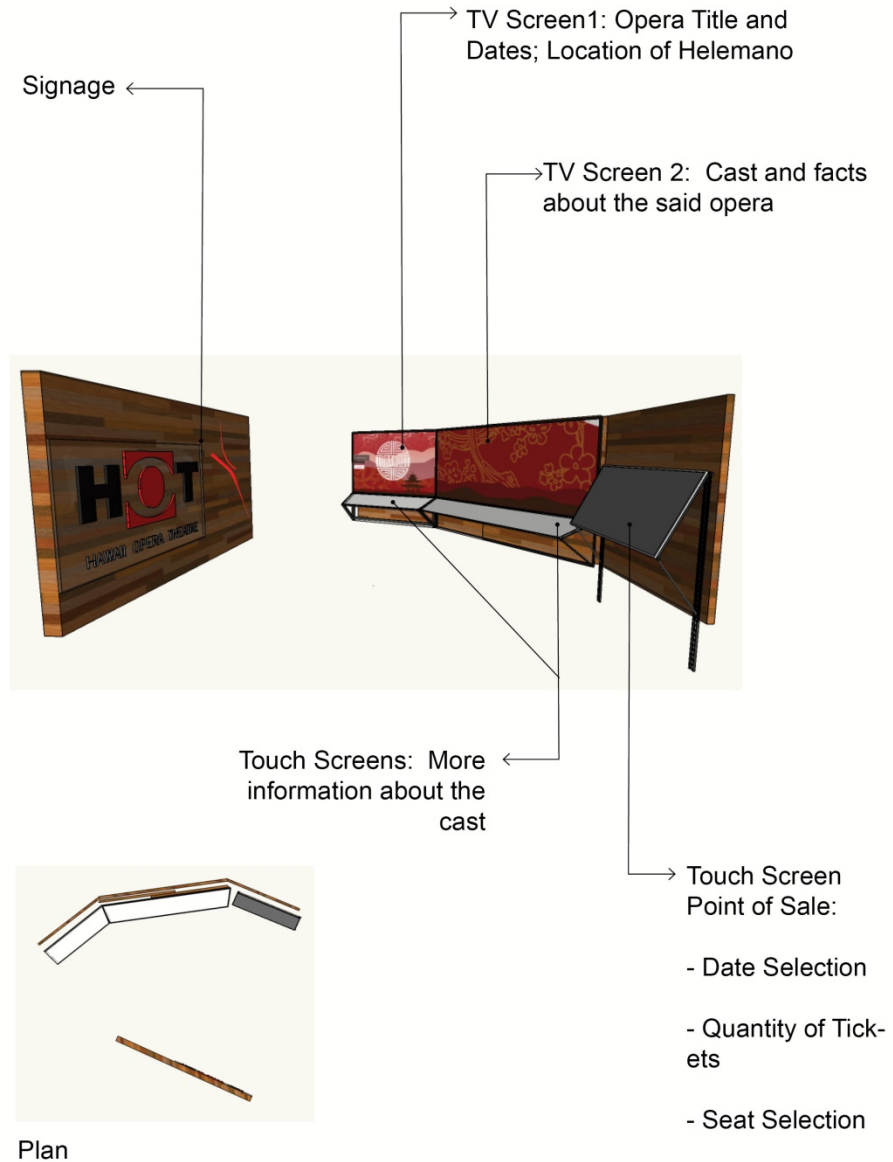


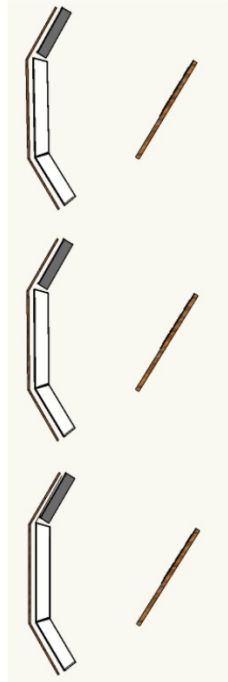
Figure 192. Diagram - NHOT, Pop-Up Retail - Structure and Features

Different Configurations: Module in 3 to showcase the operas produced in each season

Plan

Axonometric

Config. 1



Config. 2

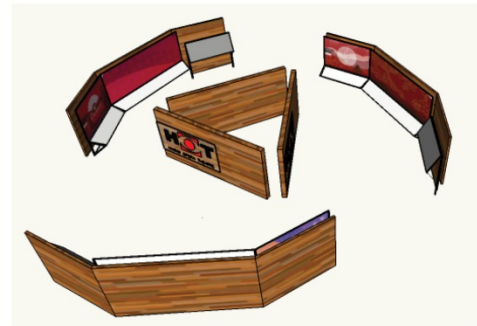
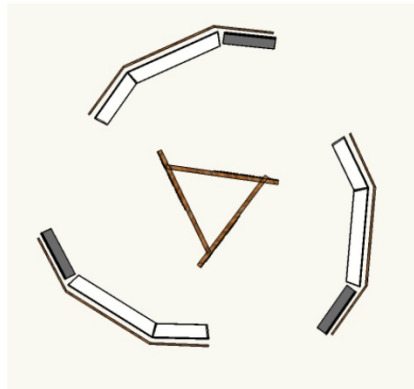


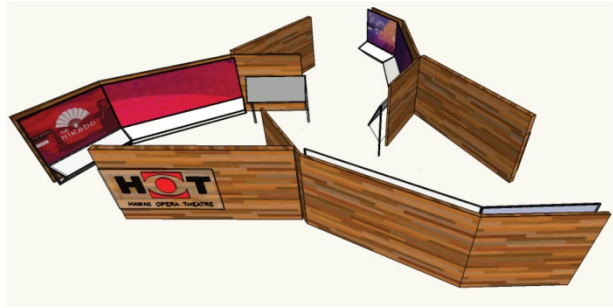
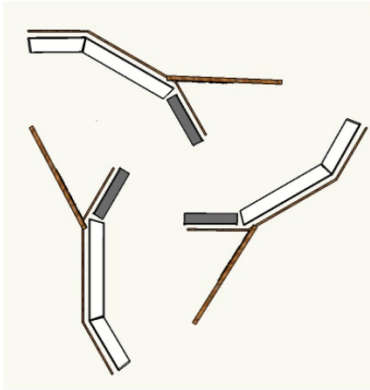
Figure 193. Diagram - NHOT, Pop-Up Retail - Exploded View



Plan

Perspective

Config. 3



Config. 4

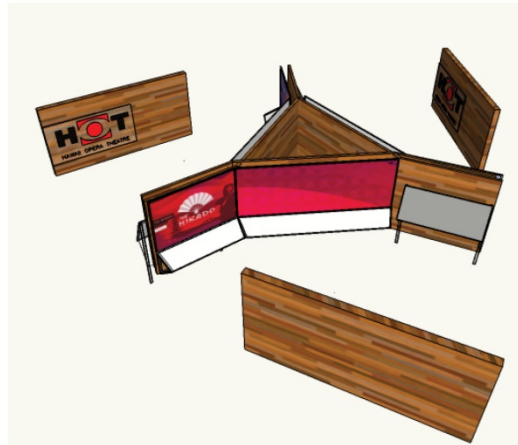
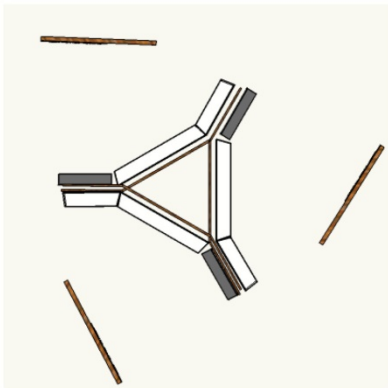


Figure 194. Diagram - NHOT, Pop-Up Retail - Exploded View

### 3.6.4 Conclusion

The design of the Pop-Up retail store for the New Hawai'i Opera Theatre can be easily built as a start to generate funding to build the proposed New Hawai'i Opera Theatre. Its modular structure can be easily collapsed and rearranged which makes it flexible in different types of spaces. Because the design of the Pop-Up Retail store is made to be easily moved from one place to another, it is can become a driving force to make public more aware of the company's identity with its new rebranding, and the singers they shows they are presenting.



## 4 Concluding Statement

The creation of the New Hawai'i Opera Theatre in Helemano can be a viable solution to raise a higher awareness of opera among the public. The proposed location in Helemano provides a chance to enjoy an opera theatre that takes advantage of the climate of Hawai'i, and its location in a rural area. Its untapped, natural environment can help appeal to the senses of its users – especially the opera isngers, as they work, sleep, eat, and socialize in this space. The proposed light rail along *Kamehameha* Highway that connects the transportation route from *Haleiwa* to *Wahiawa*, to Honolulu is key to the promotion of the site selection of the New Hawaii Opera Theatre because not only it can easily transport people from the East of *O'ahu*, but it will help connect majority of the parts of the island as a whole.

The new amenities of the proposed opera theatre such as the Retail Stores, the Ballroom Space, the Well-being Spaces in the back-of-house, the integration of the administrative spaces, the inclusion of housing, and the welcoming public parks of the New Hawaii Opera Theatre will create a unique opera experience for both the audience and performers alike.

The communication among the administrative staff and the other people the hire to work with such as the set design crew and the costume and wig designers will be much more effective and convenient because the spaces that they need to do these activities are in one, unified area.

The guest singers will have a unique experience being a part of the New Hawaii Opera Theatre because of the convenience of travelling from their sleeping place to their work, while at the same time, enjoying Hawai'i's climate. If they want to go to the beach, North Shore beaches are just a few miles away that they can travel to via the proposed light rail.

The addition of a Rehearsal Hall in the theatre will mean that the company will never have to worry about renting out a new space everytime their rental contract ends.

Finally, the overall building design itself is unique as it takes advantage of the site by using architectural mounds that makes the building become one with the site.

Integrating the public parks to invite people in, can help expand the opera community in Hawai'i, and keep it alive and fresh.

While having this grand idea of a proposed opera theatre with all its amenities seems

promising. It is also mindful to be reminded of the reality. That the idea of a new opera theatre is far-fetched in terms of the lack of funding available to make this a reality. Therefore, marketing efforts are made such as re-branding the Hawai'i Opera Theatre to be re-introduced to the public, with a logo that depicts the form of its new building facilities, suggesting its site by the hills in Helemano, and the creation of the pop-up retail store as an innovative way to sell opera tickets and educate the public about different operas being showcased and the artists Hawai'i Opera Theatre is promoting.

The New Hawaii Opera Theatre will require a huge budget to be built. As an effort to start generating funding for its construction, the idea of a pop-up retail store can be one way to sell opera tickets. The idea of rebranding Hawaii Opera Theatre brings a fresh image to the company as it reflects the form of its new possible home in Helemano. The new proposed logo can become a household icon that further solidifies the company's identity.



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