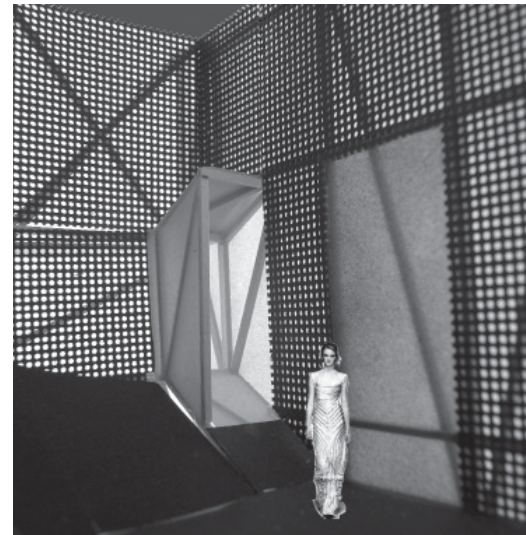




**TRAVELING  
THEATER**



## Traveling Theater

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Thesis submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

**Master of Architecture**

in

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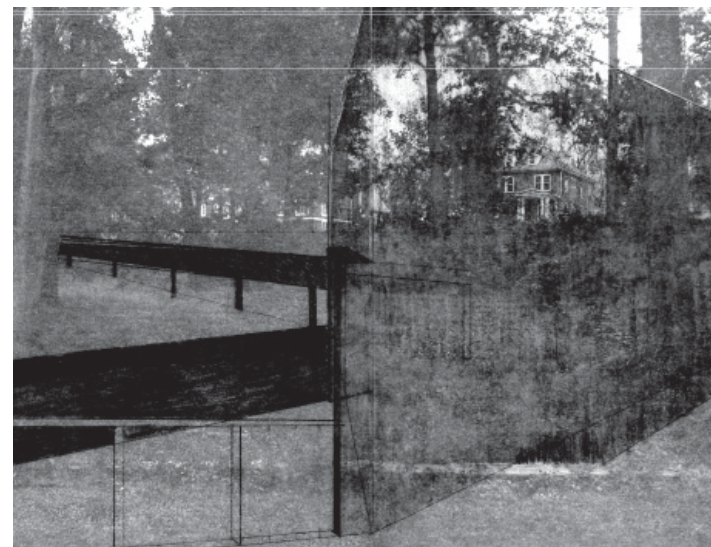
Traveling Theater

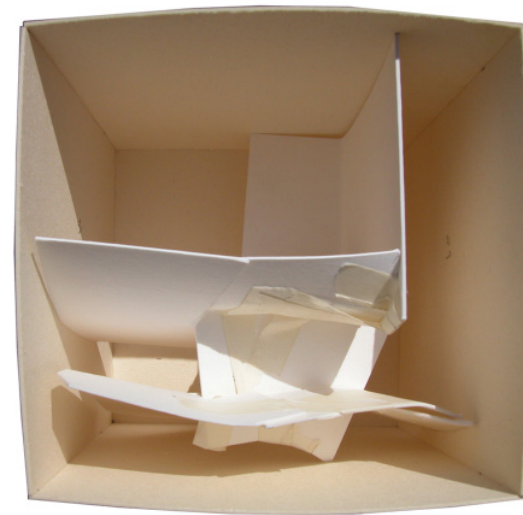
Peter Z Law

## **ABSTRACT**

This thesis proposes that architecture has the potential to organize experience through its sensory effects and that the body is the fundamental link between experience and the imagination.

The project in this thesis is a traveling theater. It was inspired by an interest in the intersection between architecture and contemporary theater. The theater borrows elements from traditional theaters and street theater in an effort to establish a separation between actor and spectator while also encouraging exploration of that basic theatrical relationship. There were three fundamental moves in the theater: the cubic volume; the siting and decision to travel; and the separation of the structure and skin. Each of these was a starting point for sensory effects explored in the theater.





## **ACKNOWLEDGEMENTS**

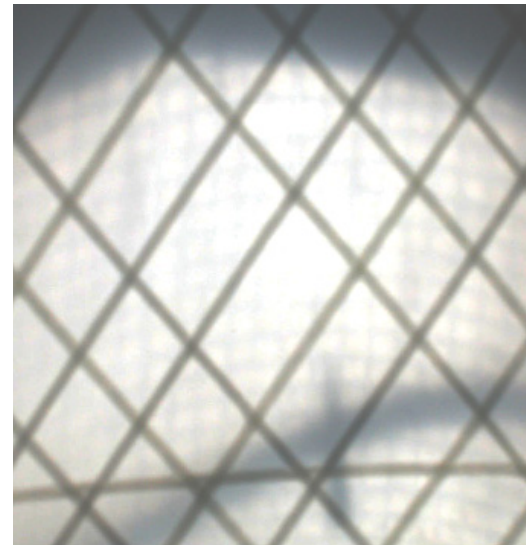
This book is dedicated to my parents Mimi and Lloyd for all their support through the years.

I would also like to thank all my friends and classmates for their help and criticism.

I would like to thank Rye Lemons for being a companion on many adventures in school and beyond.

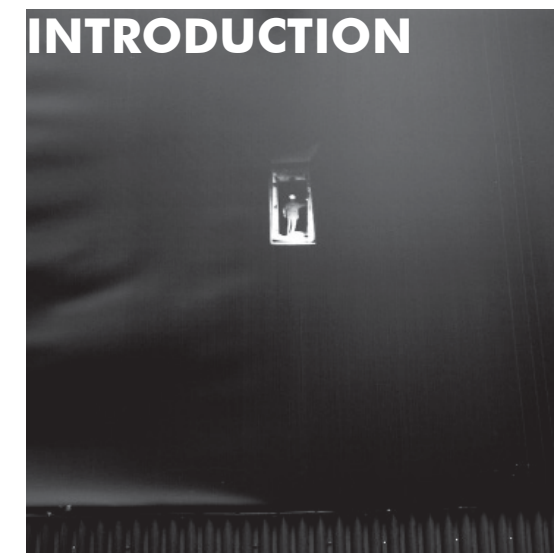
I would like to thank Dawn Bushnaq for being a companion, friend and champion.





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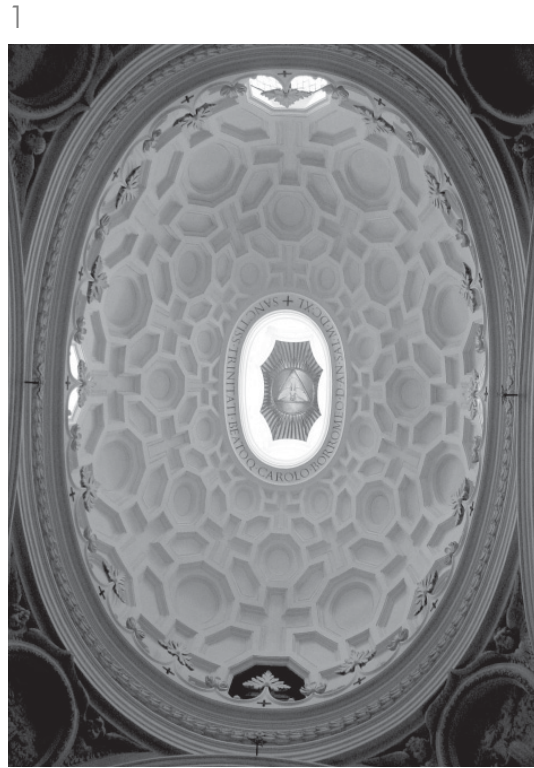
# TRAVELING

Travel is transitory but often leaves a scar. Marks remain from all kinds of physical and mental collisions: a surprising snack from a street vendor, a repulsive odor, a sense of spaciousness in a crowded plaza. The particulars of each experience infiltrate one's consciousness. Over time, the scars transform long held habits of mind and body and become largely indistinguishable from the rest of one's sensory apparatus.

This thesis begins with an itinerary of scars, places that made a lasting impression. I visited some of the places on these pages with great anticipation. Others caught me unexpectedly. Seeing these buildings and feeling these spaces changed my understanding of how architecture organizes experience. What remains now are memories of sensory effects: the volume of a room, the relative weight, lightness and texture of a wall and the transformative role of natural and electric light.

## Short Itinerary of Scars

1. San Carlo alle Quattro Fontane, Rome, Italy, Francesco Borromini
2. Kunsthaus Bregenz, Bregenz, Austria, Peter Zumthor
3. Piazza San Marco, Venice, Italy.
4. Plaza, Lisbon, Portugal
5. Igualada Cemetery, Igualada, Spain, Enric Miralles and Carme Pinós





Three rooms left particularly deep scars.

6. Laurentian Library Vestibule, Florence, Italy. Michelangelo.

The Library is part of the cloister of the Medicean Basilica di San Lorenzo di Firenze. It consists of two spaces: the Reading Room and the Vestibule.

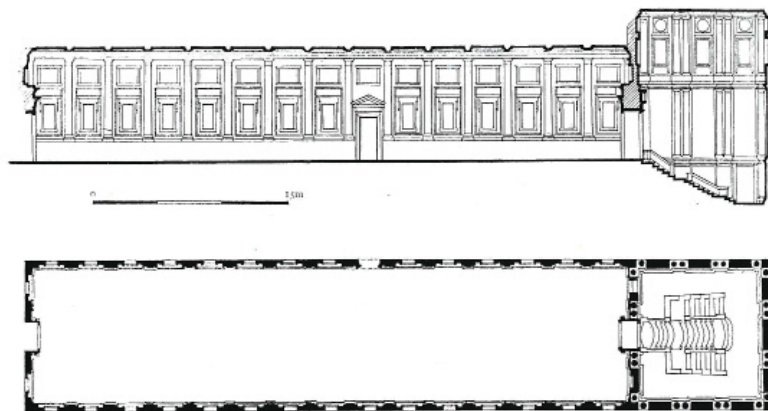
The Reading Room was designed as a room for Great Books and study. It is long and narrow with relatively low ceilings. The Vestibule is a transitional space. It is nearly cubic and filled with a monumental stair that joins the two rooms. The Vestibule's sculptural stair spills out of the Reading Room and crowds the ground floor. It is oversized and seems to physically displace the air around it. Along with other oversized elements such as consoles that are larger than one's head, the scale of the stair contrasts with adjacent, undersized elements like the half-height balusters. Illumination from high windows located near the ceiling adds to the cacophony of effects. The Vestibule's vertical orientation and disorienting array of scales amplifies, through contrast, the horizontal, linear order of the Reading Room.

6



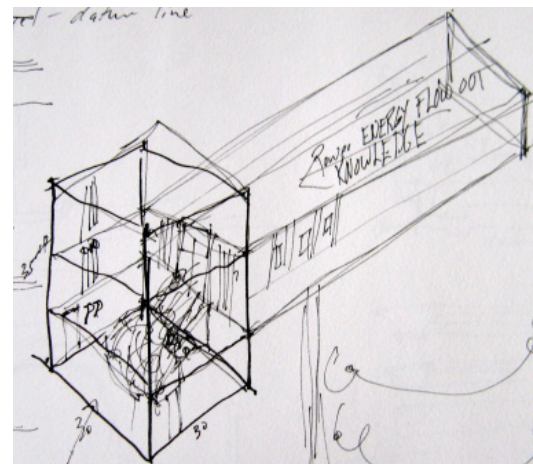
Laurentian Library stair

6



Plan and Section of the Laurentian Library

6



Sketch of the Laurentian Library

7. The Alhambra, Granada, Spain

Hall of the Ambassadors (7a)  
Hall of Two Sisters (7b)

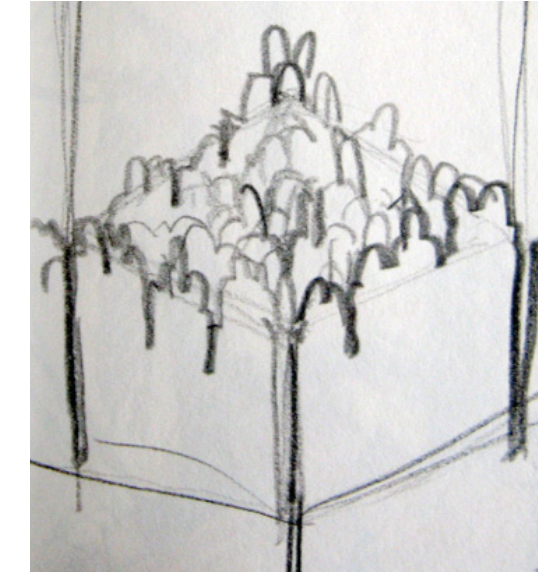
The Alhambra is a palace and fortress built by the Nasrid Dynasty. It was completed in the 14th century near the end of Muslim rule in Spain.

This page shows a photograph and drawings of two halls in the complex. Less strange than the Vestibule, both rooms are also nearly cubic, intricately detailed and lit from above by diffused natural light. In the Hall of the Ambassadors, I wrote:

"The ceiling is high above my head.  
I can feel the shape of the space with  
my whole body."

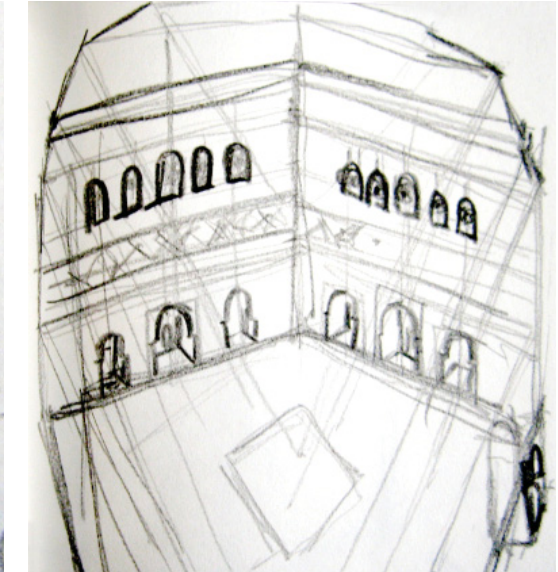
On that winter morning, it was very dark. The massive stone walls were cold and the intricate ceiling felt far away - like being under a starry sky.

7b

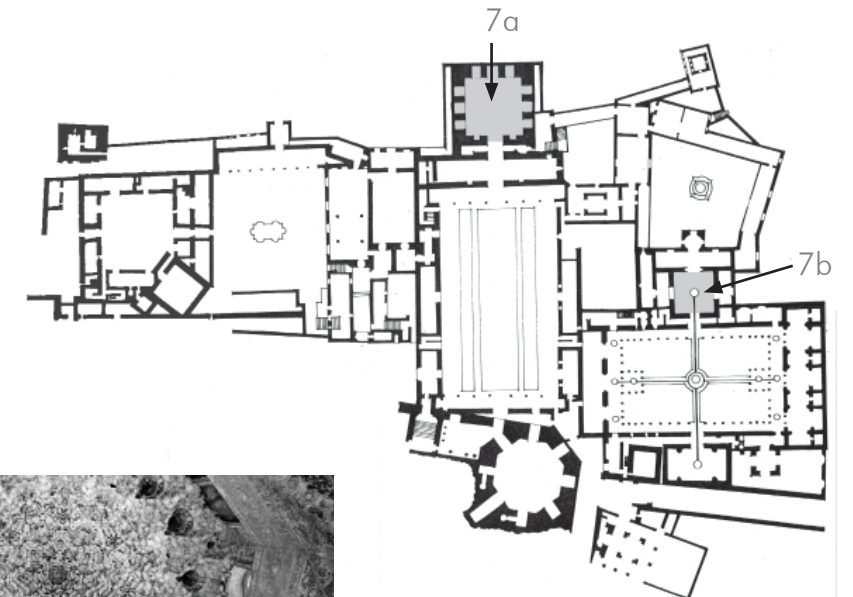


Sketch from the hall of Two Sisters

7a

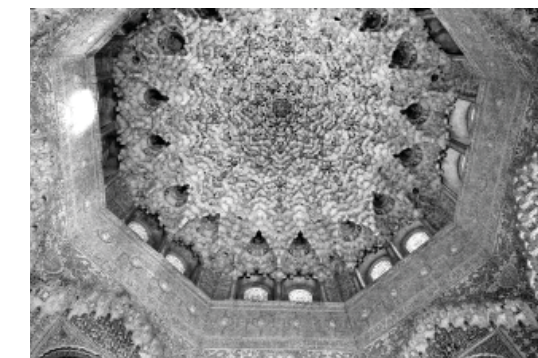


Sketch from the hall of Ambassadors



Plan of the Alhambra

7b



Ceiling of the hall of Two Sisters



## SHAPE OF SPACE

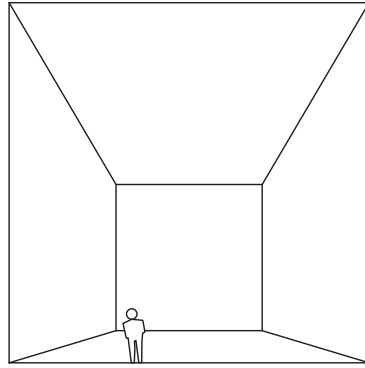
“The quality of architecture does not lie in the sense of reality that it expresses, but in quite the reverse, in architecture’s capacity for awakening our imagination.”

Juhani Pallasmaa,  
*The Geometry of Feeling*

Typically, the space people occupy is horizontal. With ceilings that are close to one’s head and almost every inch of space designated for practical use, horizontal spaces, such as offices, factories and retail stores, are often made for maximum efficiency. By contrast, most of the space in a vertical volume is not physically occupiable.

In *The Geometry of Feeling*, Pallasmaa likens architectural experience to theatrical experience and proposes that both provoke metaphorical thinking. The examples on the previous page suggest that architectural conditions can alter one’s sense of the psychological limits of a space. In the Vestibule, I felt as if I was moving physically and psychologically. In the Hall of the Ambassadors, the ceiling seemed to extend far beyond the physical confines of the palace. All three rooms shared a vertical orientation; this plan-section relationship set up a basic scale and orientation that, in conjunction with specific architectural elements and light, seemed to invite associations. At a larger scale, Gothic cathedrals are vertical spaces in which building elements and light also encourage metaphorical thinking. In all of these, the aim seems to be a palpable volume with room for thoughts to wander.

9



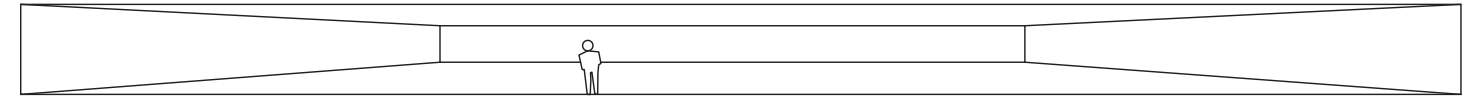
10



9. The diagrams represent a vertical space and a horizontal space.

10. Notre Dame Cathedral, Paris, France

11. Airplane factory, United States



11





## THEATER

As Pallasmaa suggests, theater also aims for metaphorical thinking. In theater, this evolves out of the relationship that develops between actor and spectator during a performance. Historically, theater architecture has been integral to defining the space in which this actor-spectator relationship takes places. In the Paris Opera House (12), for example, the path of entry begins with the approach from the street, includes the exterior stairs and the box office, and culminates in a monumental stair that is a zone of transition between the outside world and the stage.

A look at five different staging strategies underscores the pivotal role of the performance space in the relationship between actor and spectator. Proscenium, thrust, arena and black box stages can all be seen in terms of the way they affect interactions between actor and spectator, spectator and spectator, and even spectator and theater technology. The nature and degree of separation establishes the boundaries of the "stage" and defines what is potentially meaningful.

### Proscenium Stage (13)

Spectators sit facing a raised stage with an arch close to the front of the stage. The arch is a frame for the performance and defines a break between the performance space and the audience. The main stage, behind the arch can be closed off by a curtain. Backstage and to the sides of main stage, actors and scenery are out of view. The physical separation allows for elaborate scenery and a distant, but highly sonic and visual relationship between the spectator and actor.

### Thrust Stage (14)

Spectators sit on three sides of the stage with the fourth side reserved for scenery. Compared with the proscenium, spectator and actor are in closer proximity. Less space is dedicated solely to scenery. Variations on the thrust include thrusts with prosceniums, but the same basic relationship remains.

### Arena Stage (15)

Spectators sit in a concentric arrangement of banked seats; the actors perform at the center. With spectators all around and without a raised stage, there is greater intimacy between actor and spectator than either the proscenium or thrust stages. The facing sections of seats also incorporate each group of spectators into the scenery and foreground the unscripted role of the audience in the performance.

12



13



14



15



### Black box (16)

This is the most flexible of permanent theater spaces. Stage and seating are often moveable, located according to each performance. Since director/producer rather than the performance space dictates the particular relationship between the spectator and actor, there is great freedom with regard to the actor-spectator relationship. This freedom has been used for conventional staging as well as performances in which there is no physical separation between spectator and actor.

### Street Theater (17)

In its rejection of a permanent performance space, street theater can be seen as a further effort to transform the relationship between actor and spectator. Street theater involves actors going to their audience rather than the reverse. By taking the actor-spectator relationship on to the street, the role of each participant becomes more ambiguous. In doing away with the theater building, street theater removes all traces of the traditional "stage". Without the cues associated with more conventional theater settings, street theater calls into question what is real and what is the performance. In this context, a theater can happen anywhere.

16



17





## TRAVELING THEATER

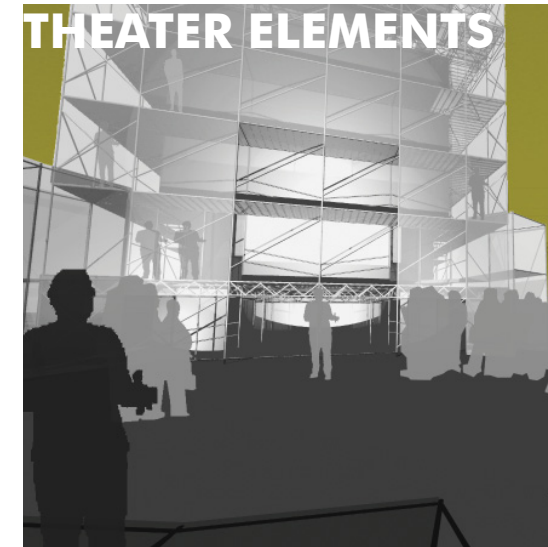
The traveling theater borrows elements from traditional theater and street theater in an effort to preserve some traditional separation between actor and spectator while also encouraging exploration of that relationship. Traditional elements include the lobby, box office, visible circulation, backstage areas, and catwalk. Its siting, structural components and material, on the other hand, are inspired by street theater and have been designed to reduce the separation between spectator and actor.

Like many forms of street theater, this theater travels to its spectators. Designed to be temporary and moveable, it can be erected in one day and moved quickly. Its sites are the half-filled parking lots of Walmart around the country. From a distance, the theater is a spectacle in the tradition of the Paris Opera House - a recognizable form that serves as its own sign. Inside, it has a series of processional spaces that begin with the lobby and box office and continue through to each spectator's seat.

The primary elements of the theater are an off-the-shelf steel scaffolding system and a translucent skin consisting of two layers of plastic tarps. The translucent skin admits natural light during the day and transmits interior, electric light at night. Depending on the location of the viewer and the source of light, the structure appears as ornament or disappears entirely. Once built, the theater's translucent skin and strategic openings allow

for diffused and focused views into the performance space. When a performance is in session and when the theater is "dark", there is always a connection between what is happening outside, inside and within the structure. The speedy assembly, range of views into the performance space and "black" box setting encourage ambiguity about what constitutes the performance and when it begins.





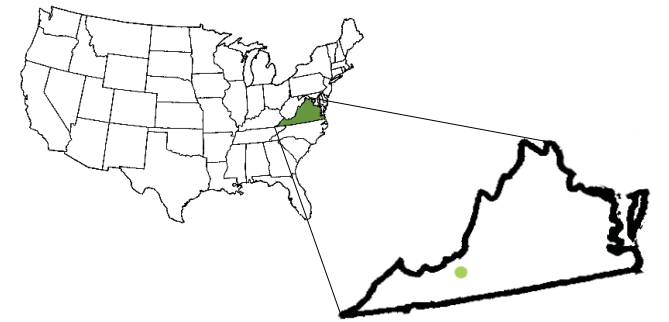


## SITE

The demonstration site for the theater is the Blacksburg/Christiansburg, VA Walmart parking lot, located in the southwestern corner of the state off I-81. In addition to Walmart, there are several malls and numerous big box stores in the vicinity.

Like many small American communities, Blacksburg has an old downtown but the center of commerce is now this superstore region. His-

torically downtown commercial districts have been multifunctional: they were places to shop and also places to meet people and discover new ideas. While the superstore region has the shopping population, it lacks structures that encourage these other types of exchange. Employing the tactics of street theater, the traveling theater aims to bring live performance to the superstore region.



Panoramic image of Walmart parking lot Blacksburg / Christiansburg Virginia

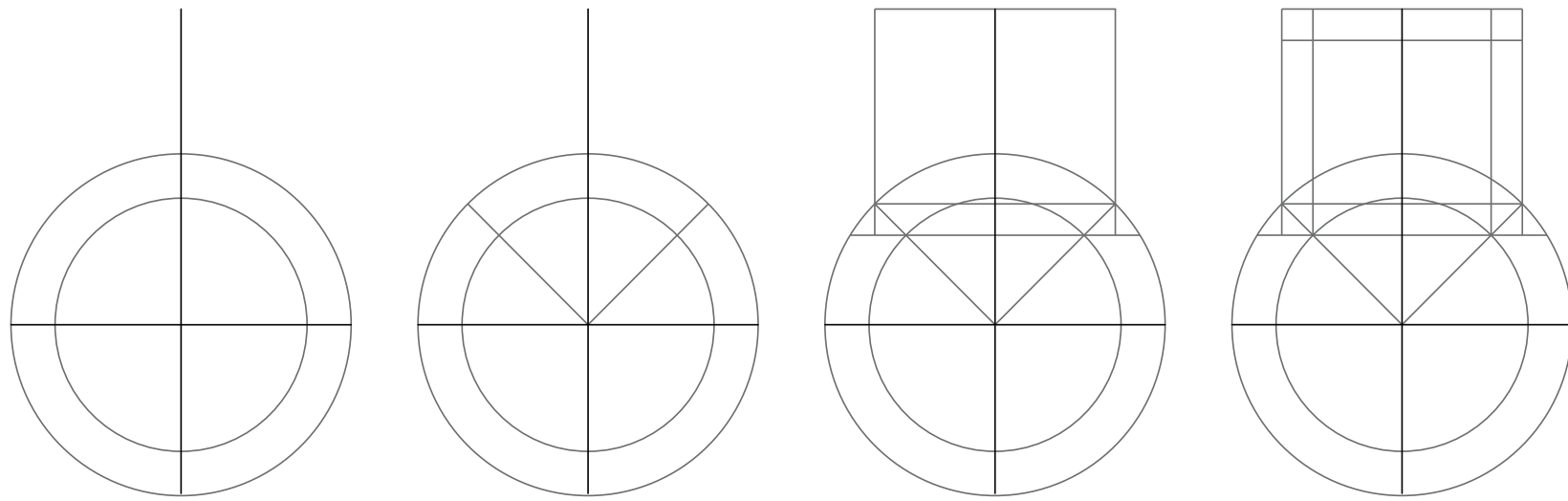
On the US map Virginia is located in green. The green dot on the Virginia map locates Christiansburg / Blacksburg.



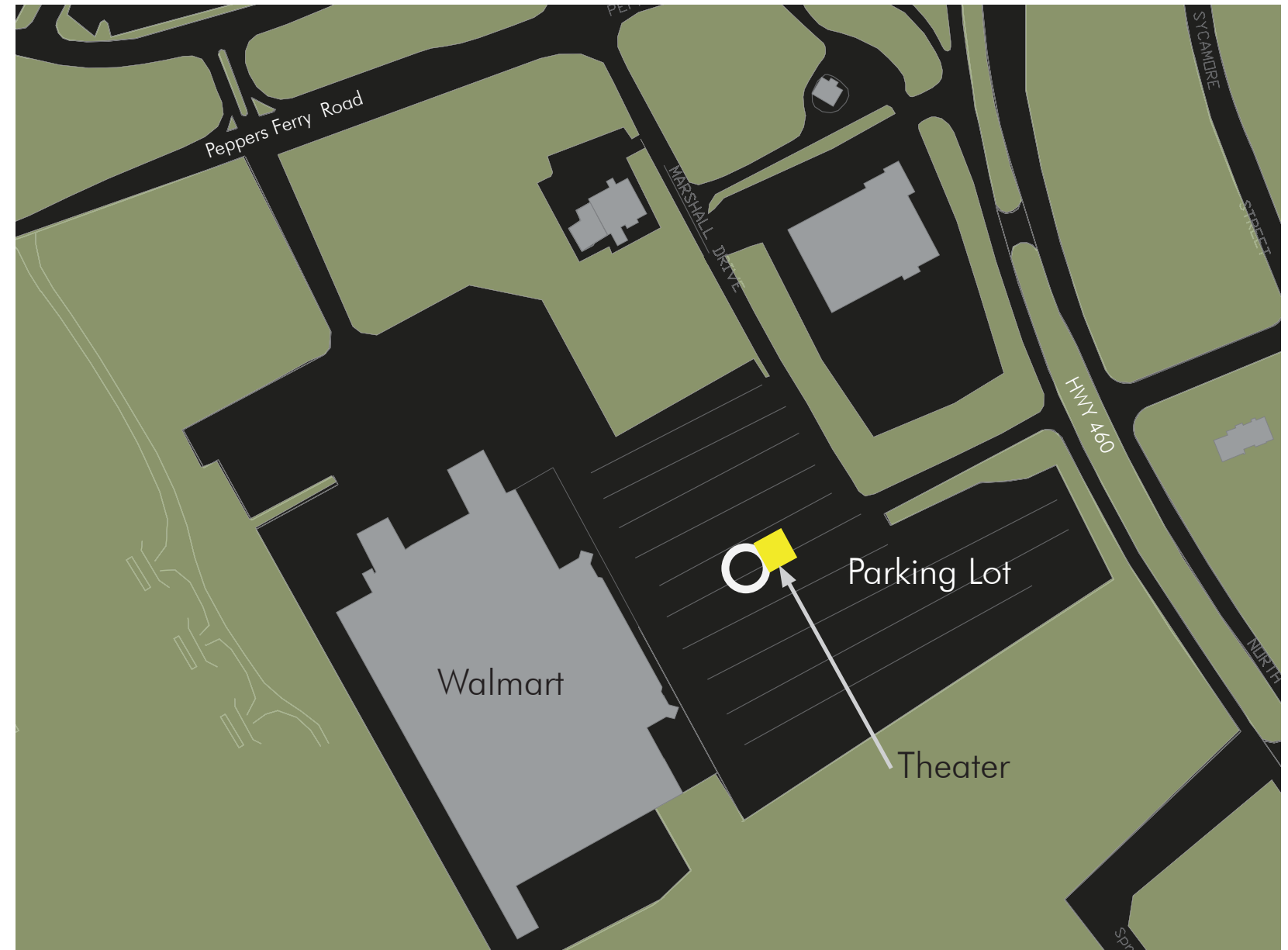


### Parking Lots

After the Blacksburg/Christiansburg Walmart, the theater will travel to other Walmart parking lots around the country. The mammoth Walmart lots were selected for their visibility, capacity and context. The typical Walmart building, with its windowless, horizontal space, is a ready-made foil for the theater's verticality, scale and translucency. Construction of the theater's temporary structure will be the first event at every stop. Afterward, the parking lot will be a temporary "main street" with shopping and theater in walking distance.



Layout sequence for theater regulating lines. The regulating lines are laid out on the pavement as a plan for constructing the theater.



Site plan of theater in a Walmart parking lot



Model of intersecting geometries of the entrance ramp and theater structure.

The structure of the theater's cubic volume consists of standard lengths and connections of an off-the-shelf scaffolding system. A circular entrance ramp is made up of custom length segments of the same system. The theater's translucent skin fastens to the scaffolding by a series of tabs and circular clips.

Standard scaffolding connection



Irregular scaffolding connection



Scaffolding - Skin Connection Detail

Plan detail

scaffolding truss  
tarp skin

rosette

fabric tab  
circular clip

Section detail

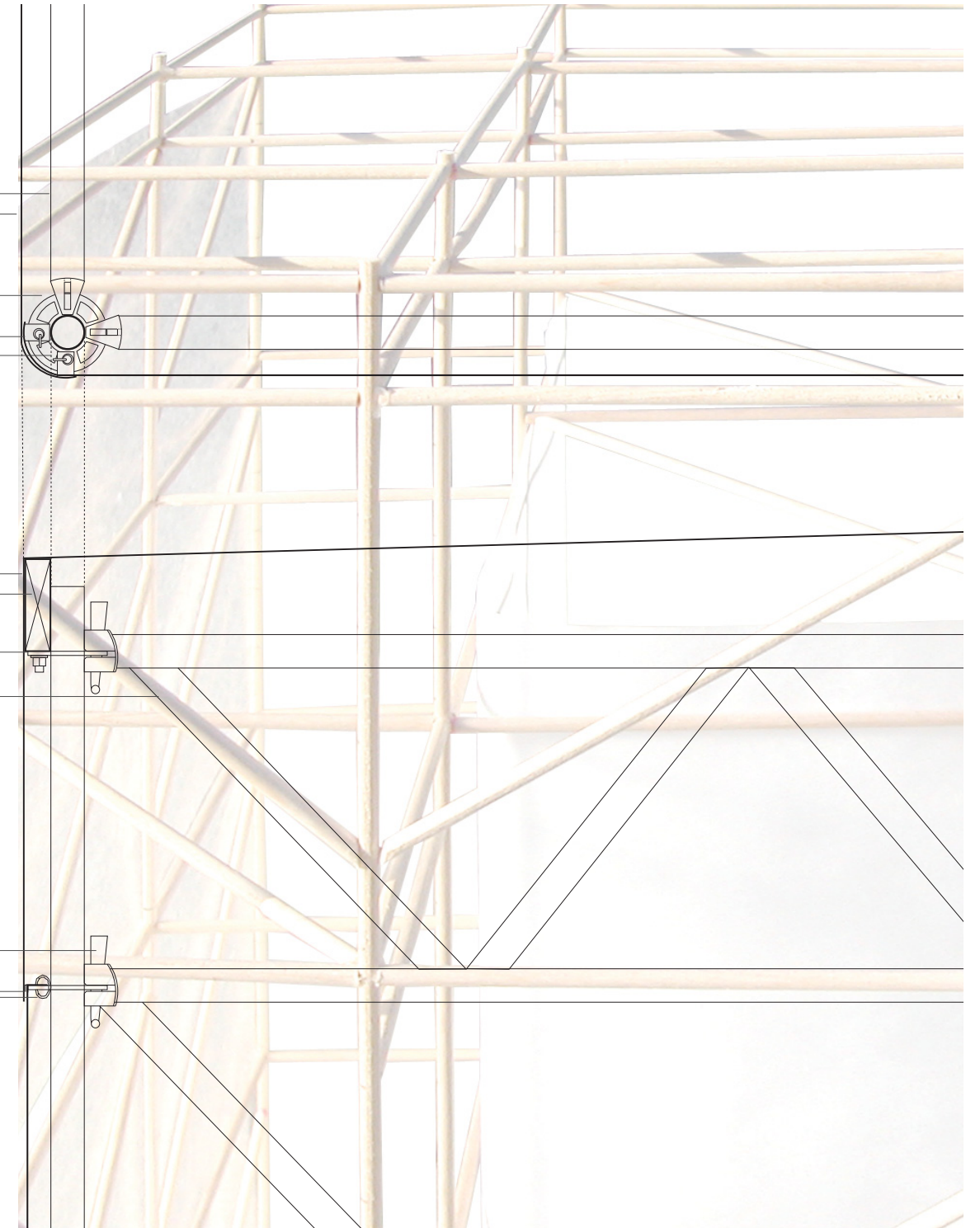
tarp skin  
2x6

rosette

scaffolding truss

scaffolding connector

tab  
circular clip





## SKIN

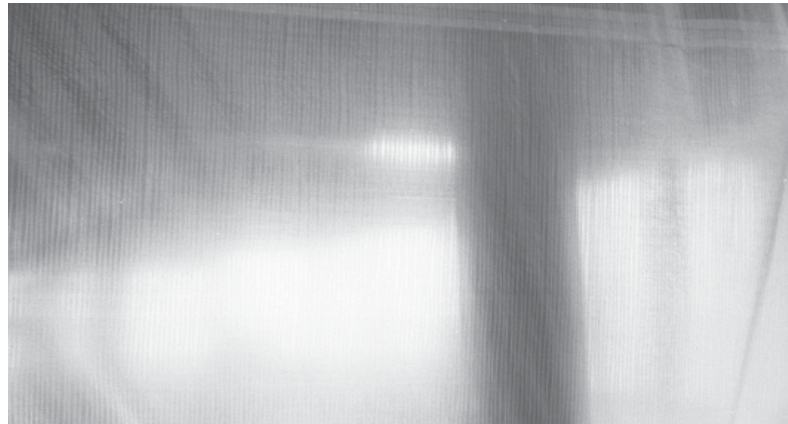
The facade of the theater is made of two layers of plastic tarps separated by the structural scaffolding. Because of the theater's transient character, thermal and moisture protection were not major concerns for the building envelope. Instead, the focus was on control and manipulation of natural and electric light.

During the day, light will filter through the theater's double envelope and cast complex shadows from the scaffolding on to the interior tarp. At night, electric light will illuminate the volume from inside, casting shadows on the outer tarp. Depending on the source of light and time of day, scaffolding, props, the actors and the spectators may all be visible through the building skin. The translucency allows for a constant connection to what is happening on the other side. Objects and activities on both sides of the skin and the interstitial structure are all potential props, scenery and signage for the theater.

During development of the theater, a local project under construction clarified intentions for the building skin. While the local project was being erected, the building's steel structure was protected with plastic tarps. At sunset, the sun's rays projected through the tarps to give it a dramatic glow. At night or in the early morning, electric lights created a pooled effect on the tarps. If the wind was strong, the tarps fluttered and gave the illusion of a building that breathes. It was this combination of temporary materials and dynamic architectural effects that I was after in the theater's facade.



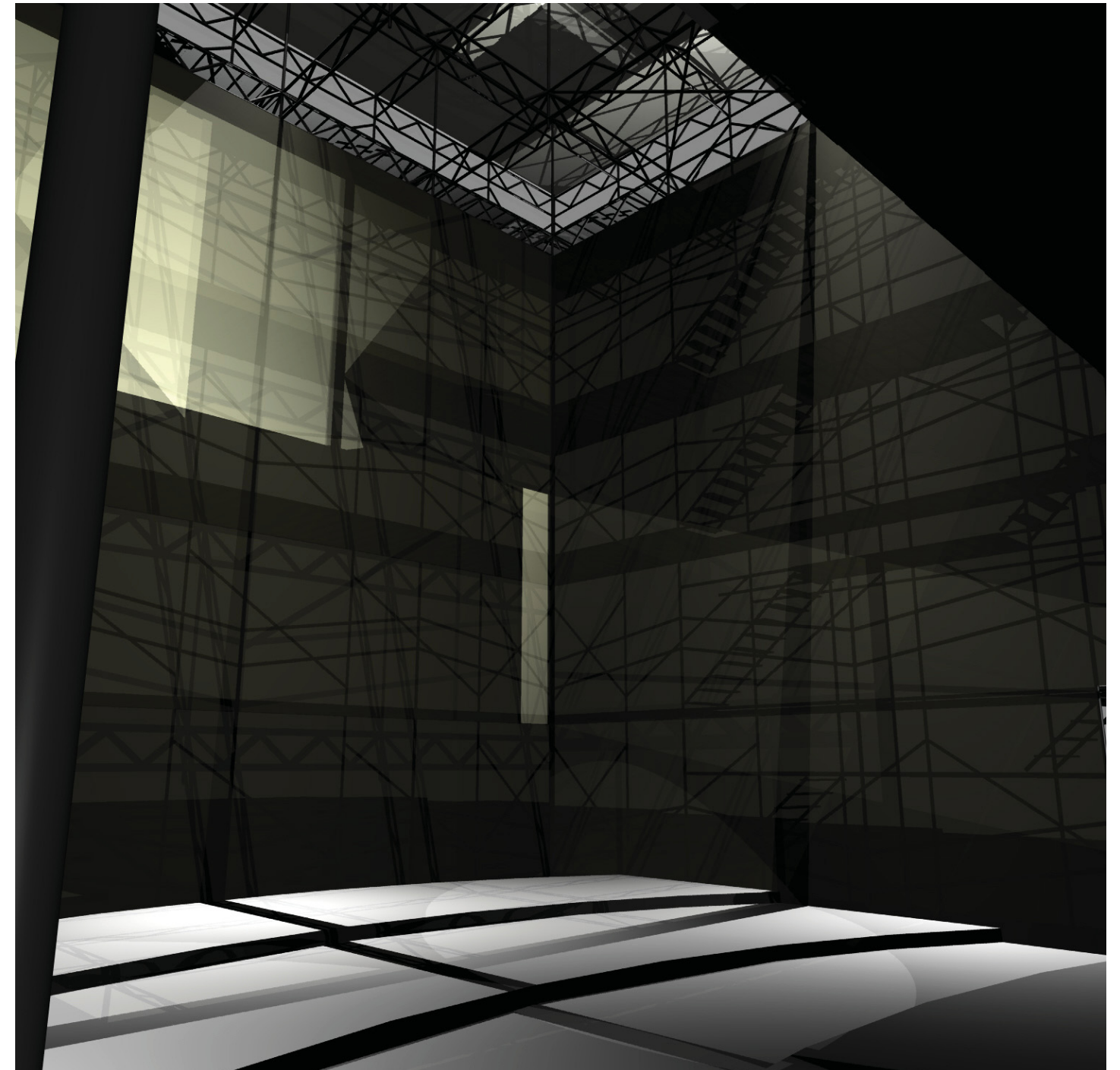
Building under construction with tarps moving in the wind.



Building under construction illuminated by the sun through several layers of tarps.

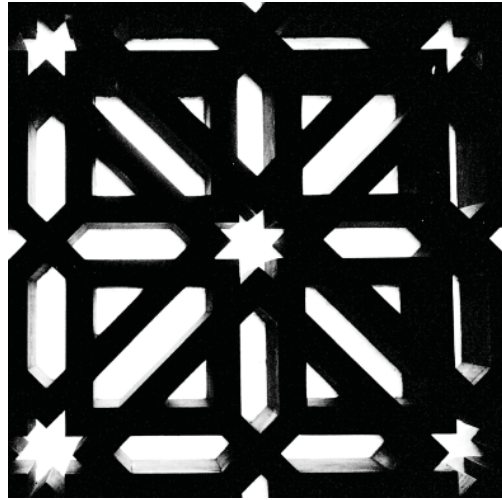


Building under construction at night with transparent tarps illuminated from the inside by electric lights.



Empty performance space with light entering through cutouts in the skin. Shadows of the structure can be faintly seen on the tarp surface.

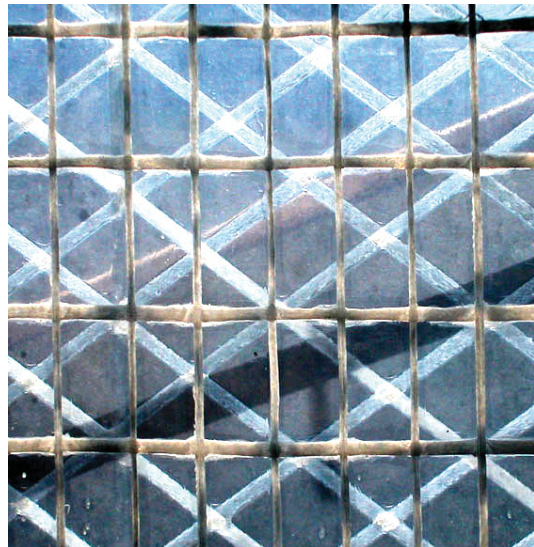
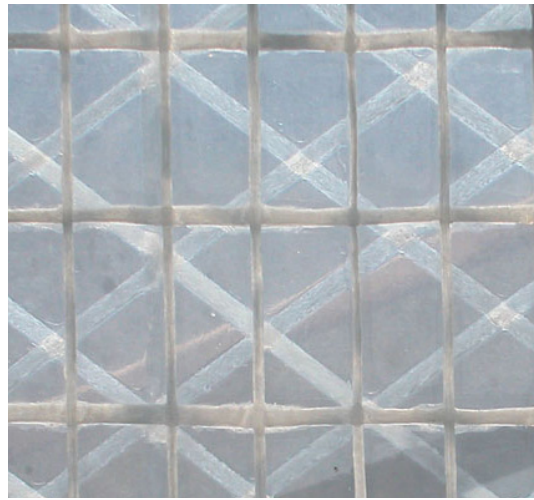




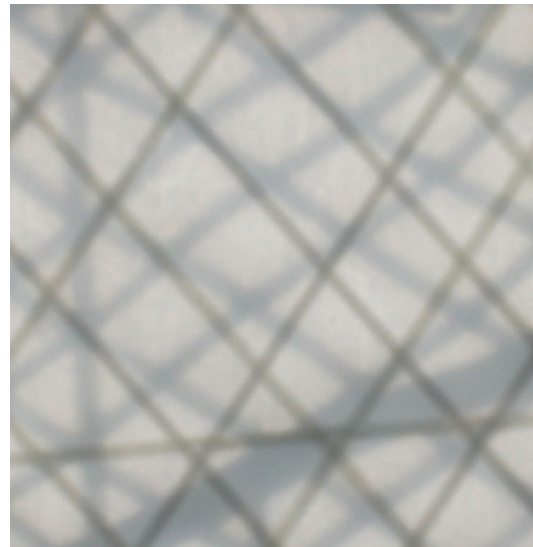
Window at the Alhambra

Development of the theater's skin involved exploration of different transparent and translucent tarps and their relationships to each other. In the window detail from the Alhambra, ornament, structure and opening are integrated. Although inspired by this, the theater structure is separated from the skin to allow for a light, moveable enclosure. The images on these pages show several possible tarp configurations and lighting effects based on varying degrees of transparency.

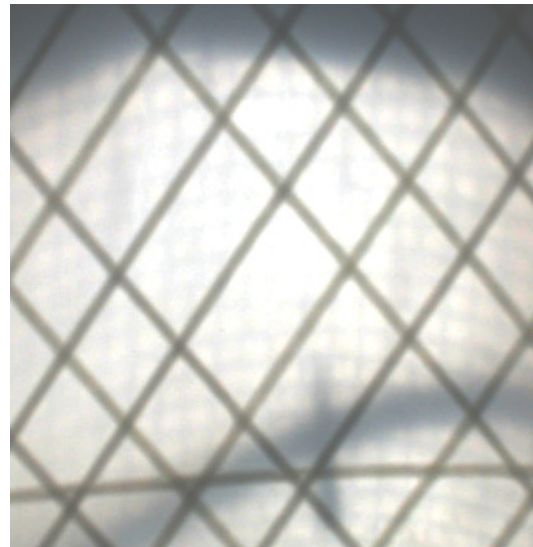
The next two pages show additional studies into the degree of transparency for each tarp. Ultimately, a combination of a 30% transparency tarp on the interior and a 70% transparency tarp on the exterior seemed to achieve a dynamic relationship between transmitted light and shadow.



1 Two transparent tarps



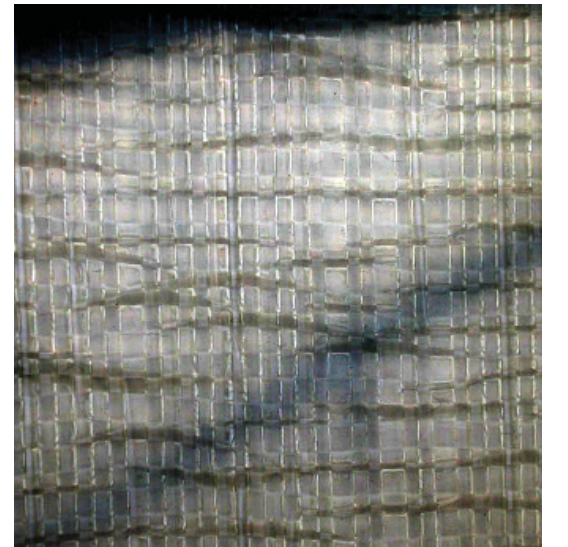
2 Two tarps with equal amount of translucency



3 Translucent tarp over transparent tarp



4 Transparent tarp over translucent tarp

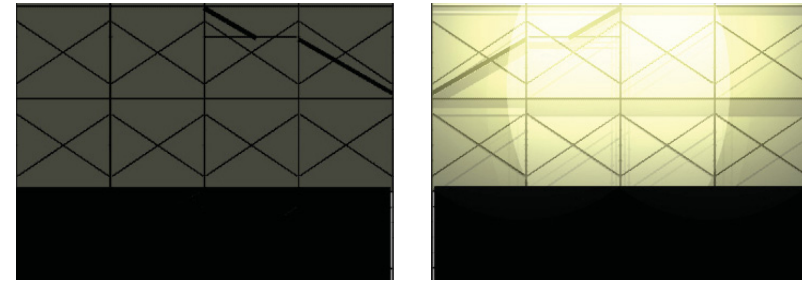


5 Transparent tarp over translucent tarp

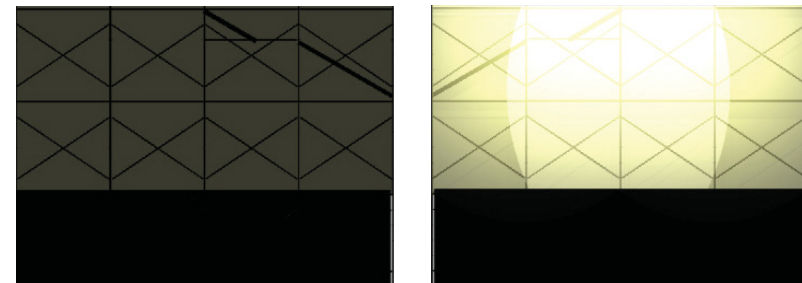


Skin Studies 1 and 2  
Light source: Interior

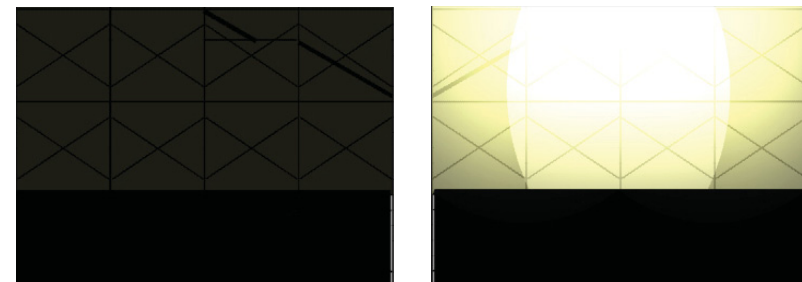
In the top row, both tarps have 50% transparency. By the bottom row, the inside tarp is at 10% and the outside tarp is at 90%. As the inside tarp becomes more opaque, the majority of interior light is reflected back into the theater.



out 1\_1 in 1\_1



out 1\_2 in 1\_2

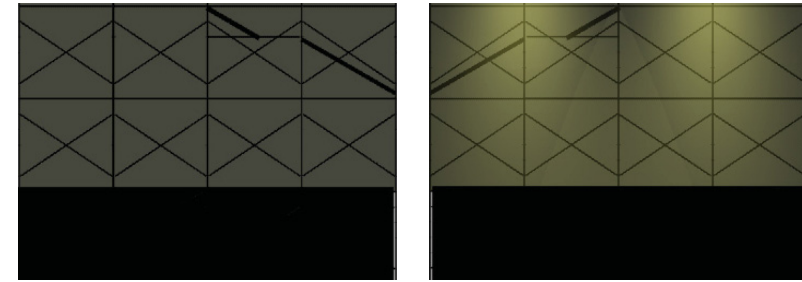


out 1\_3 in 1\_3

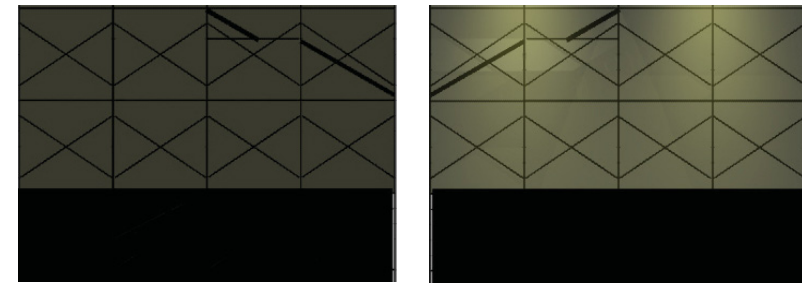
name	view	outside transparency	inside transparency	light source
out 1_1	outside	50	50	inside, above, distant side
in 1_1	inside	50	50	inside, above, distant side
out 1_2	outside	70	30	inside, above, distant side
in 1_2	inside	70	30	inside, above, distant side
out 1_3	outside	90	10	inside, above, distant side
in 1_3	inside	90	10	inside, above, distant side

Skin Studies 3 and 4 (opposite page)  
Light source: Exterior

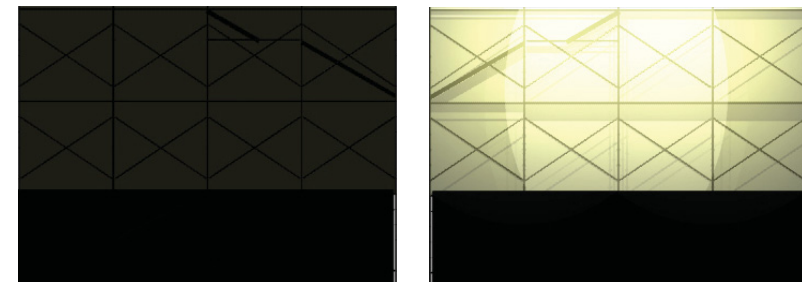
Again, both series start at 50% transparency but both go to 5% and 95% respectively. As the interior tarp becomes more opaque, less light passes through the skin. Shadows are generated by the scaffolding on the exterior but are not transmitted into the theater.



out 2\_1 in 2\_1

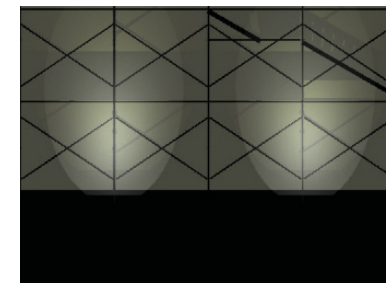


out 2\_2 in 2\_2

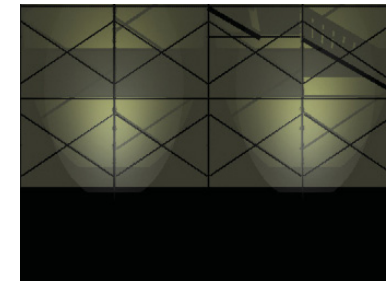


out 2\_3 in 2\_3

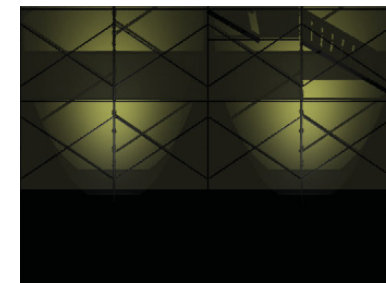
name	view	outside transparency	inside transparency	light source
out 2_1	outside	50	50	inside, above, near
in 2_1	inside	50	50	inside,above,near
out 2_2	outside	70	30	inside,above,near
in 2_2	inside	70	30	inside,above,near
out 2_3	outside	90	10	inside,above,near
in 2_3	inside	90	10	inside,above,near



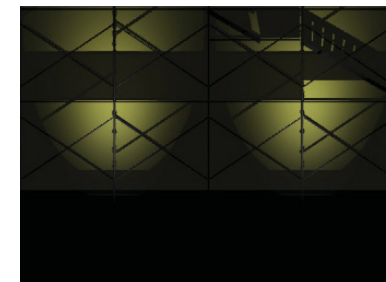
out 3\_1 in 3\_1



out 3\_2 in 3\_2

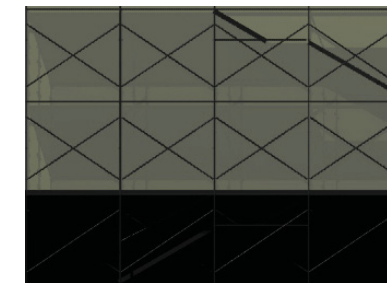


out 3\_3 in 3\_3

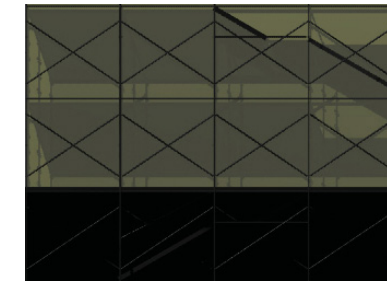


out 3\_4 in 3\_4

name	view	outside transparency	inside transparency	light source
out 3_1	outside	50	50	outside, low, near
in 3_1	inside	50	50	outside, low, near
out 3_2	outside	70	30	outside, low, near
in 3_2	inside	70	30	outside, low, near
out 3_3	outside	90	10	outside, low, near
in 3_3	inside	90	10	outside, low, near
out 3_4	outside	95	5	outside, low, near
in 3_4	inside	95	5	outside, low, near



out 4\_1 in 4\_1



out 4\_2 in 4\_2

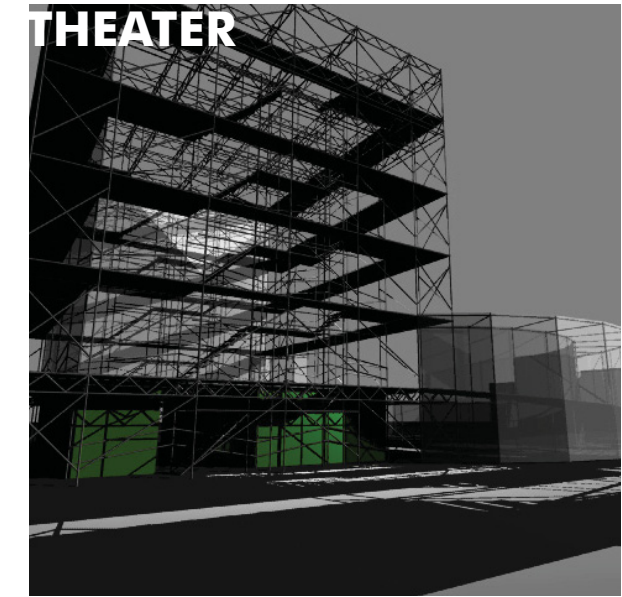


out 4\_3 in 4\_3



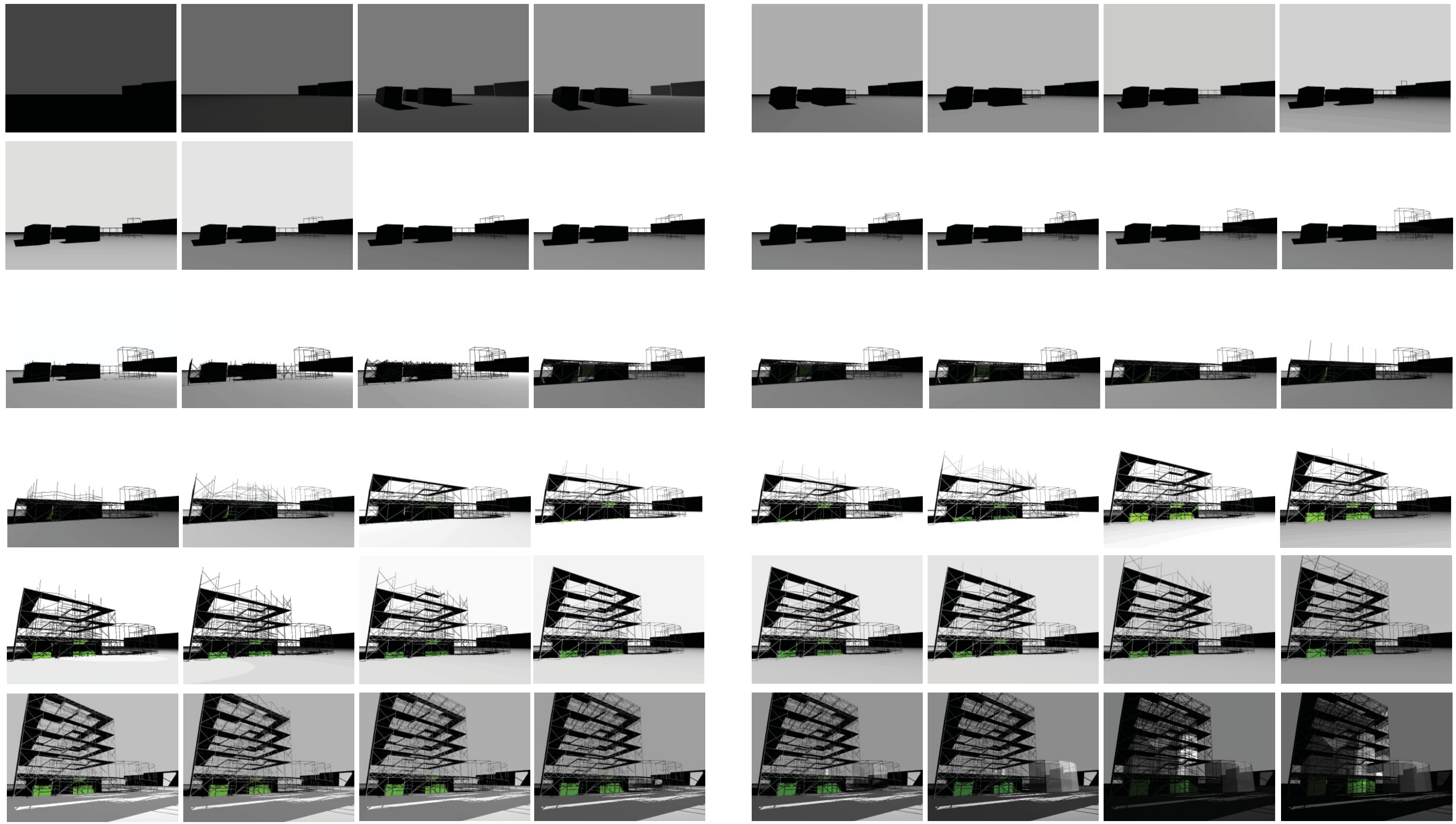
out 4\_4 in 4\_4

name	view	outside transparency	inside transparency	light source
out 4_1	outside	50	50	outside, high, far
in 4_1	inside	50	50	outside, high, far
out 4_2	outside	70	30	outside, high, far
in 4_2	inside	70	30	outside, high, far
out 4_3	outside	90	10	outside, high, far
in 4_3	outside	90	10	outside, high, far
out 4_4	outside	95	5	outside, high, far
in 4_4	inside	95	5	outside, high, far



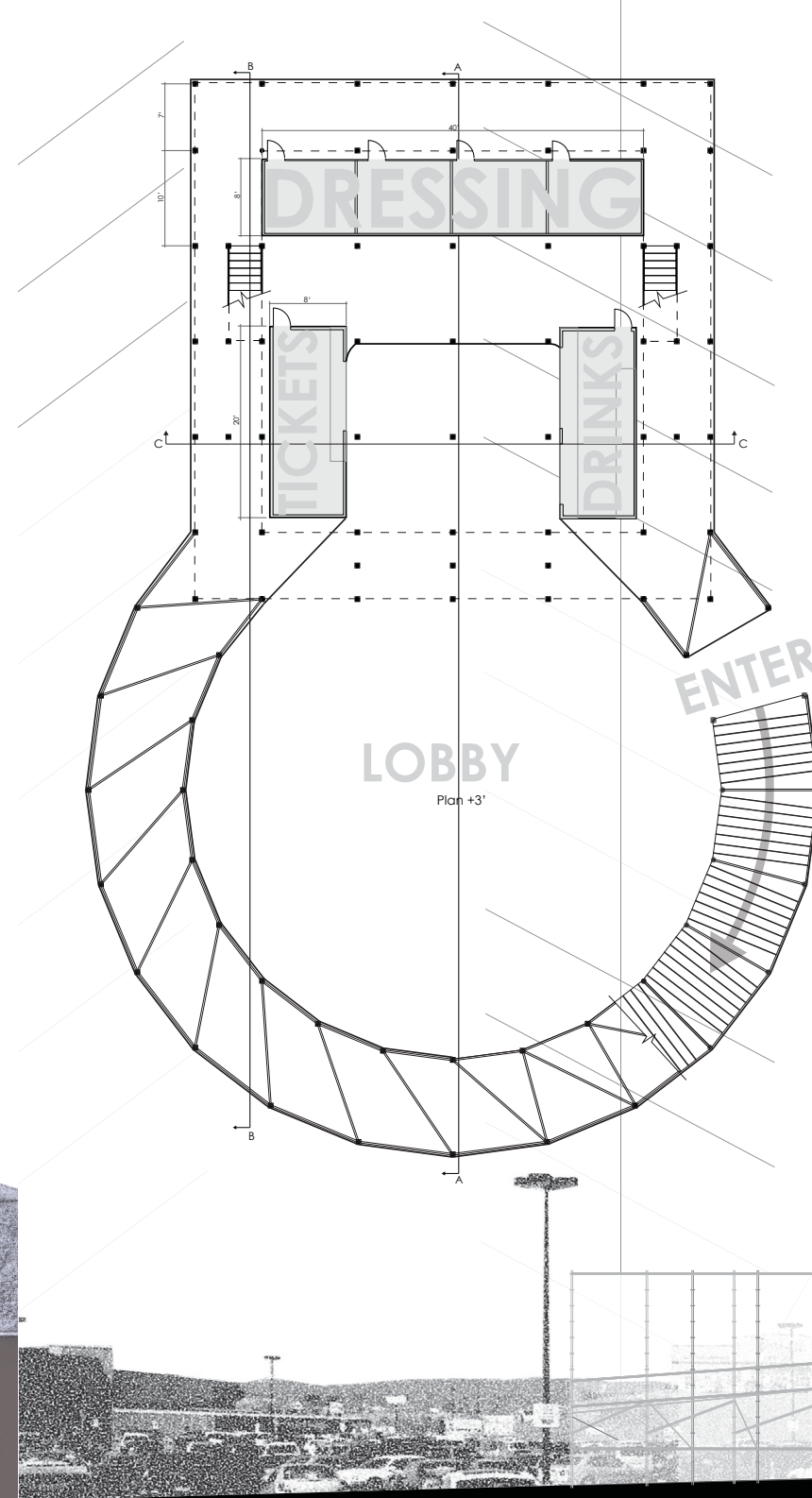
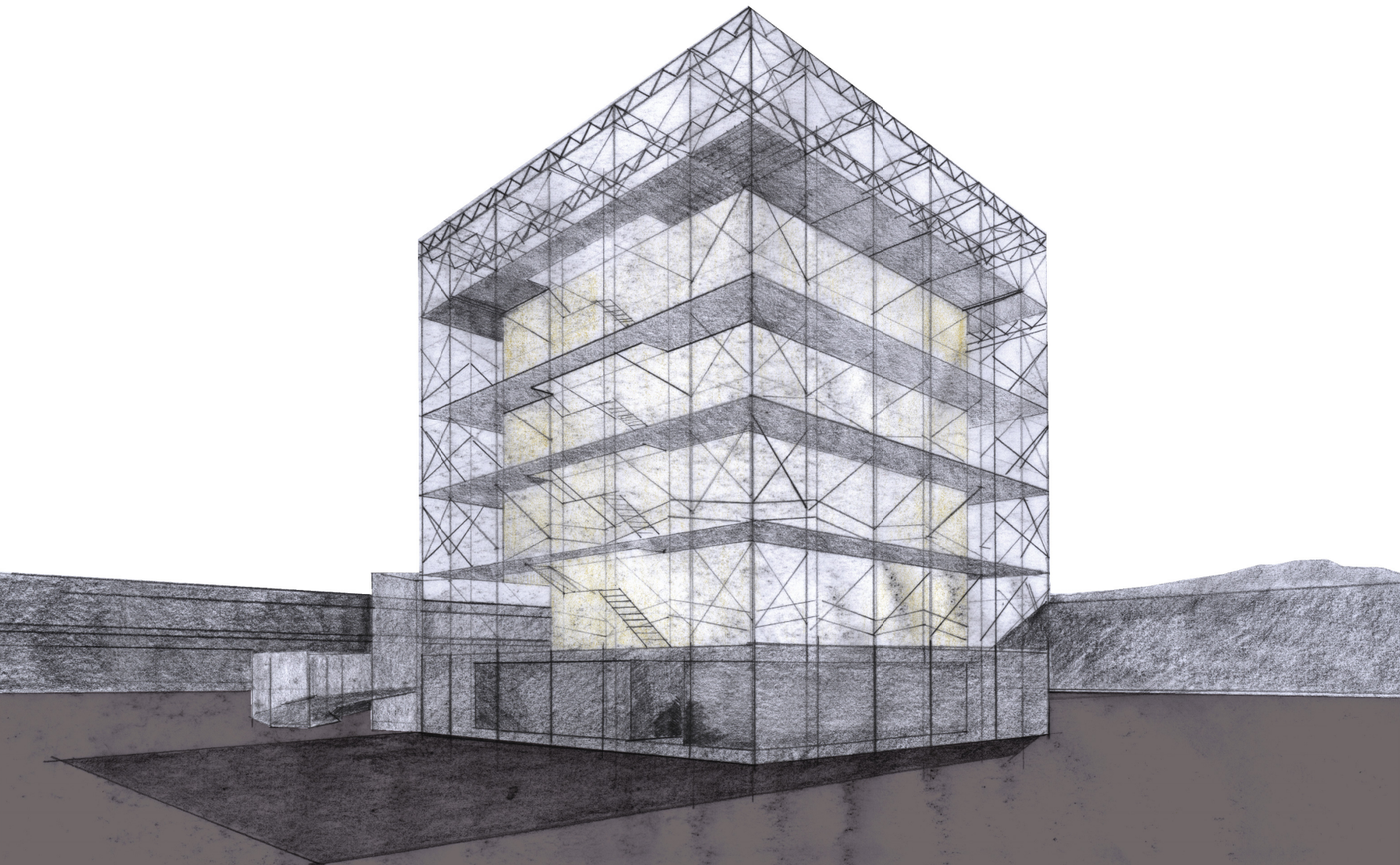


6 A.M.





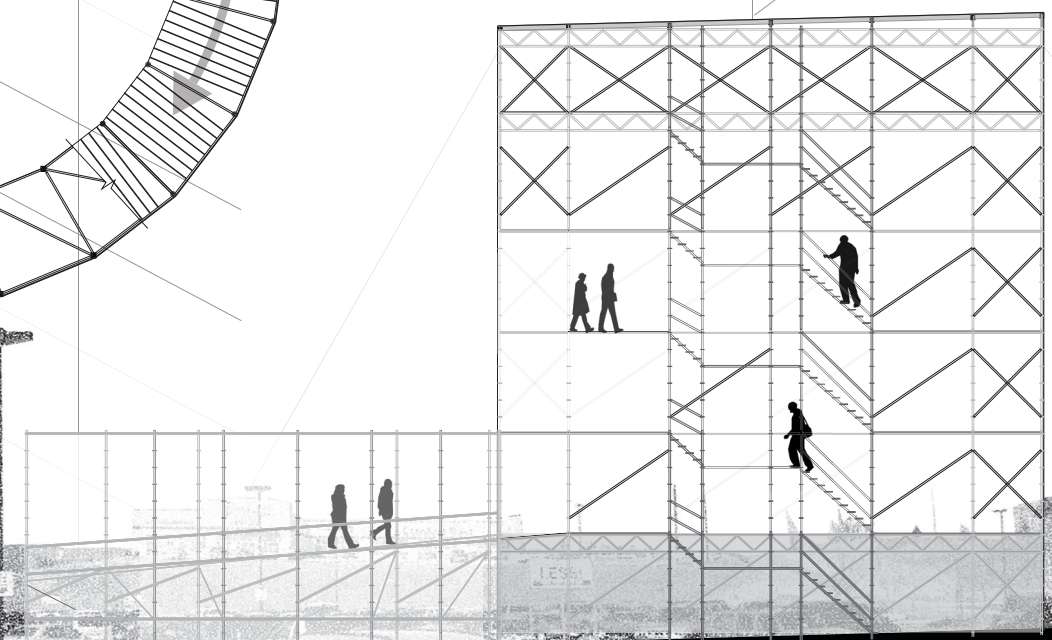
Assembly sequence of the theater (previous page). Designed to be erected in one day, construction of the theater begins with placement of the regulating lines and base shipping containers. From there, the scaffolding is erected and, finally, the tarps are stretched over the metal structure.



Ground floor plan  
Section b-b through stairs

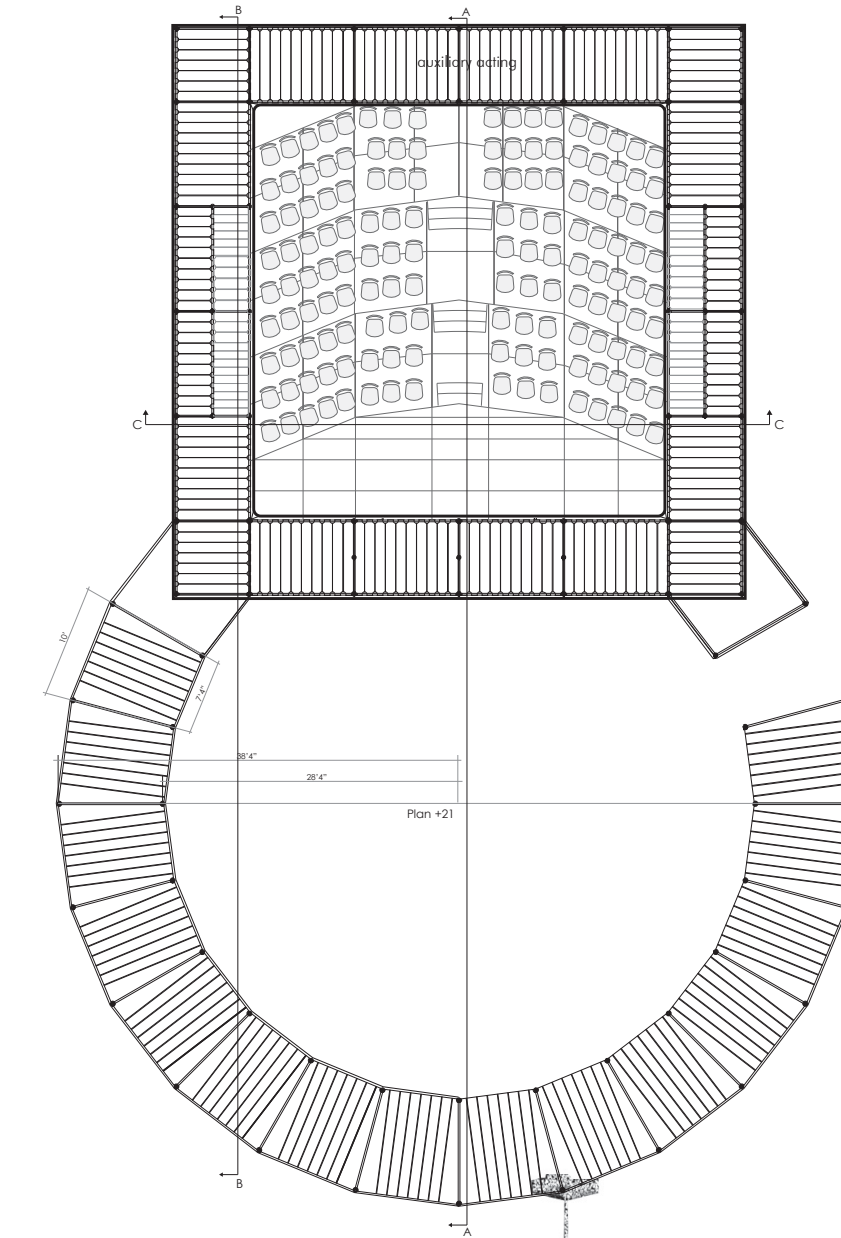
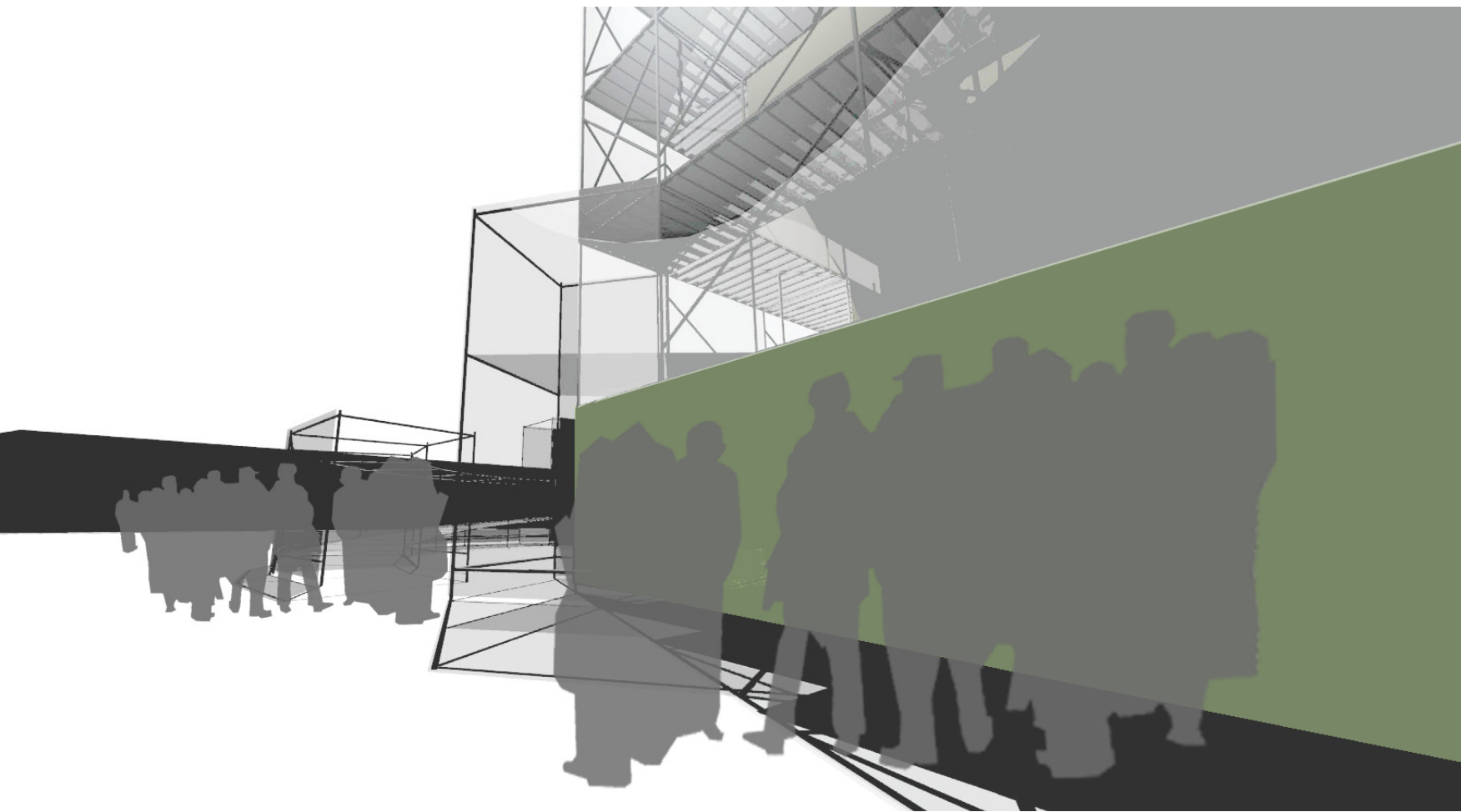
Entry to the theater occurs at a break in the circular ramp that encloses the theater's open air lobby.

Ticketing and concessions are housed beneath the performance space in shipping containers accessed from the lobby. Dressing rooms are also located beneath the performance space.





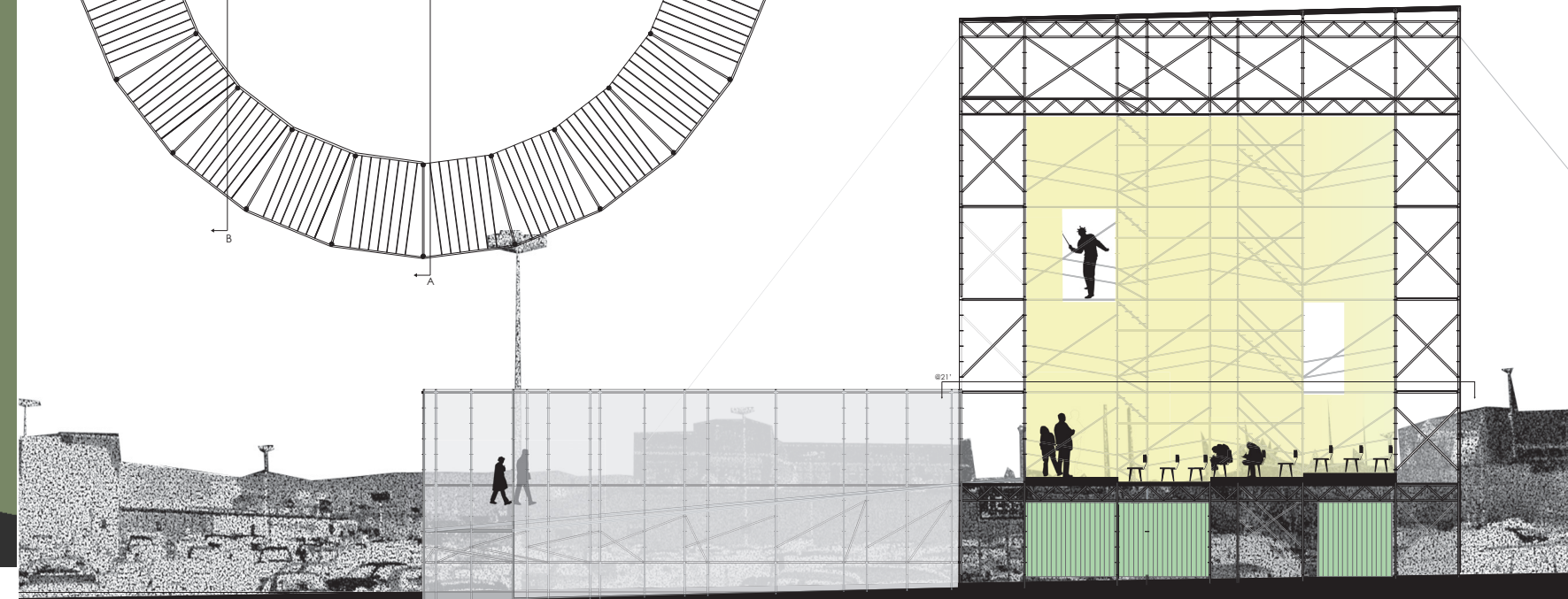
Open air lobby. The audience is gathered outside the theater waiting to enter. The base of the theater is opaque; above, the tarps allow for visibility of the scaffolding structure and interior performance space.



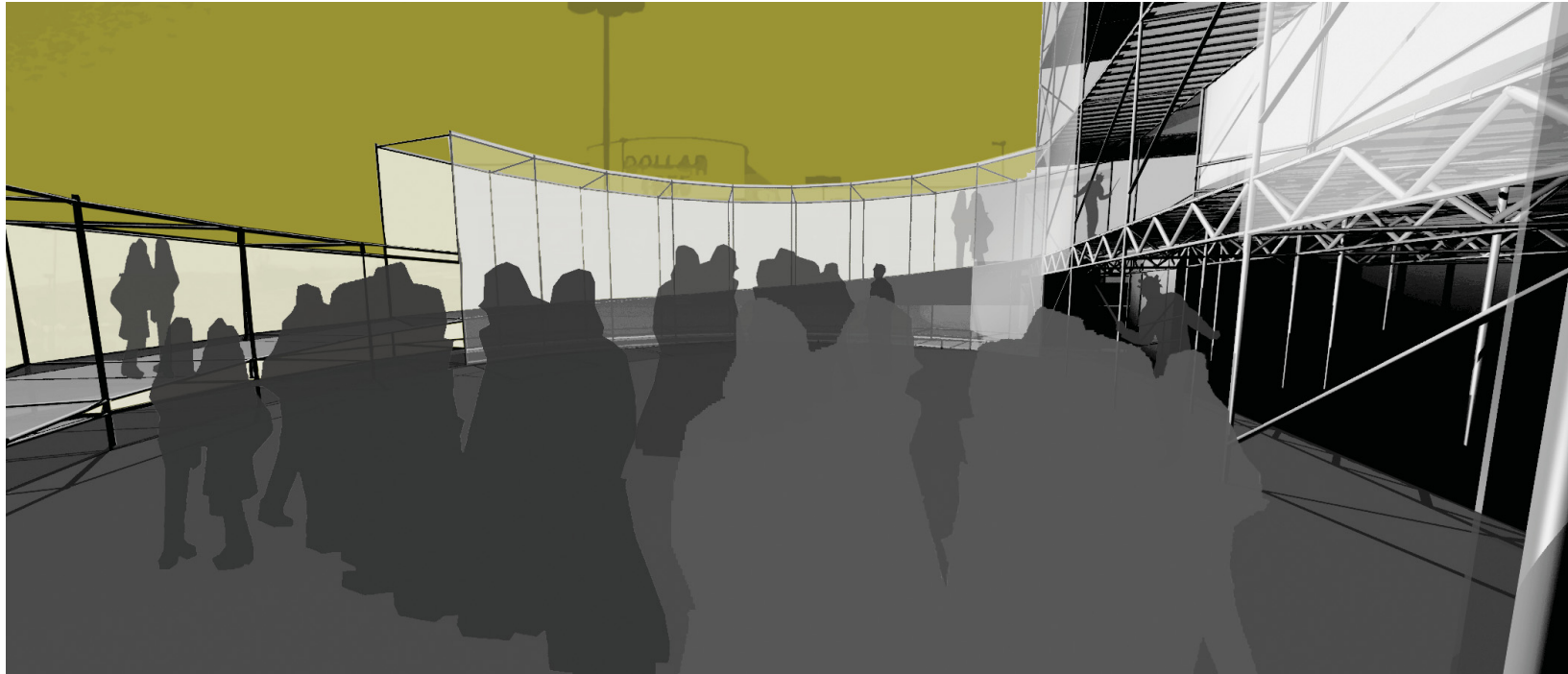
Plan at 21'  
View of seating, auxiliary acting platforms and circular entrance ramp.

Section A-A  
Longitudinal section with a view of ramp and cubic theater space.

The theater is in a black box configuration. Sections of the skin can be removed from the scaffolding to allow for visible performances from within the structure. In Section A-A, the audience is located at the center with actors performing around and above them.

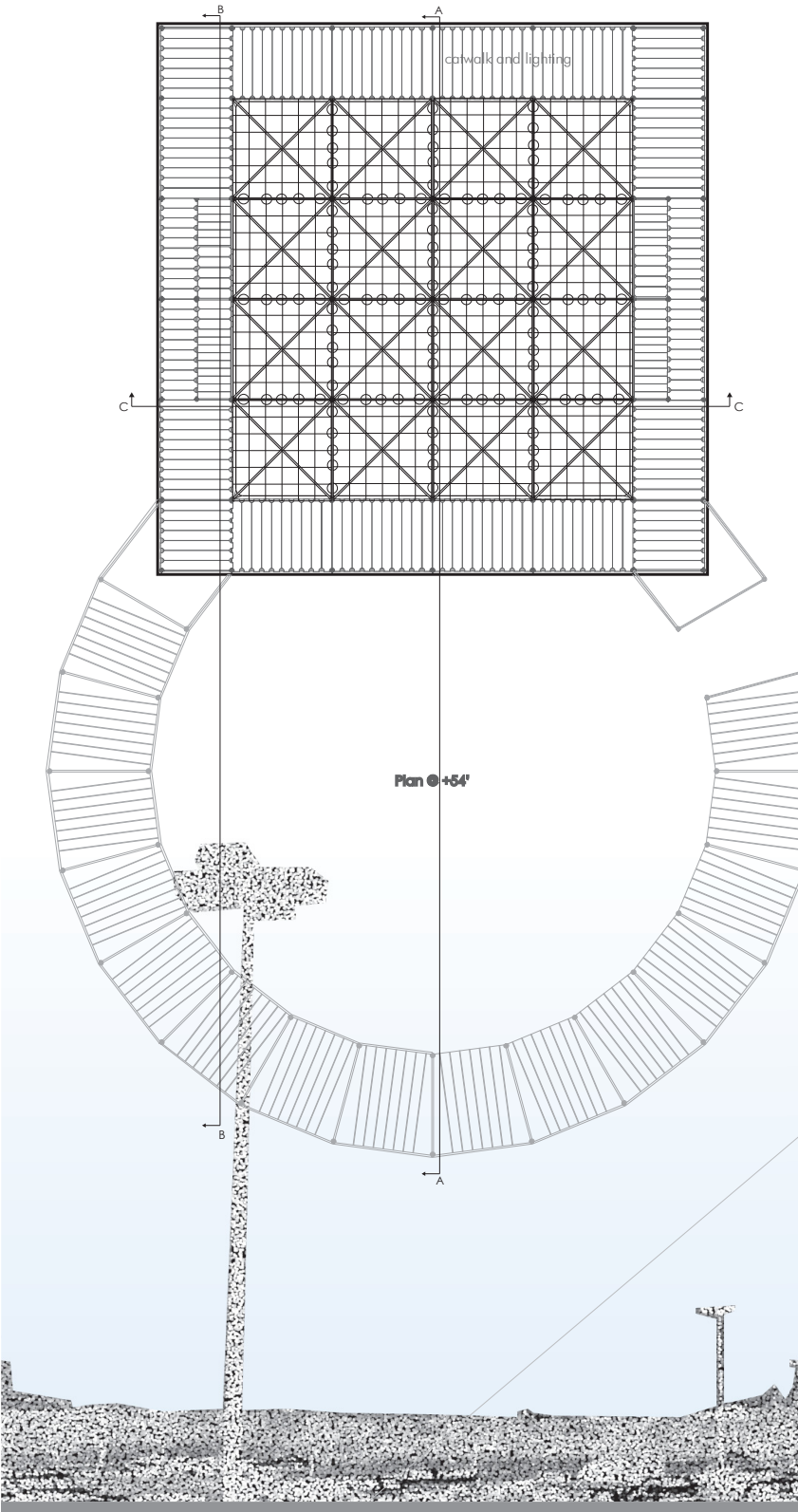
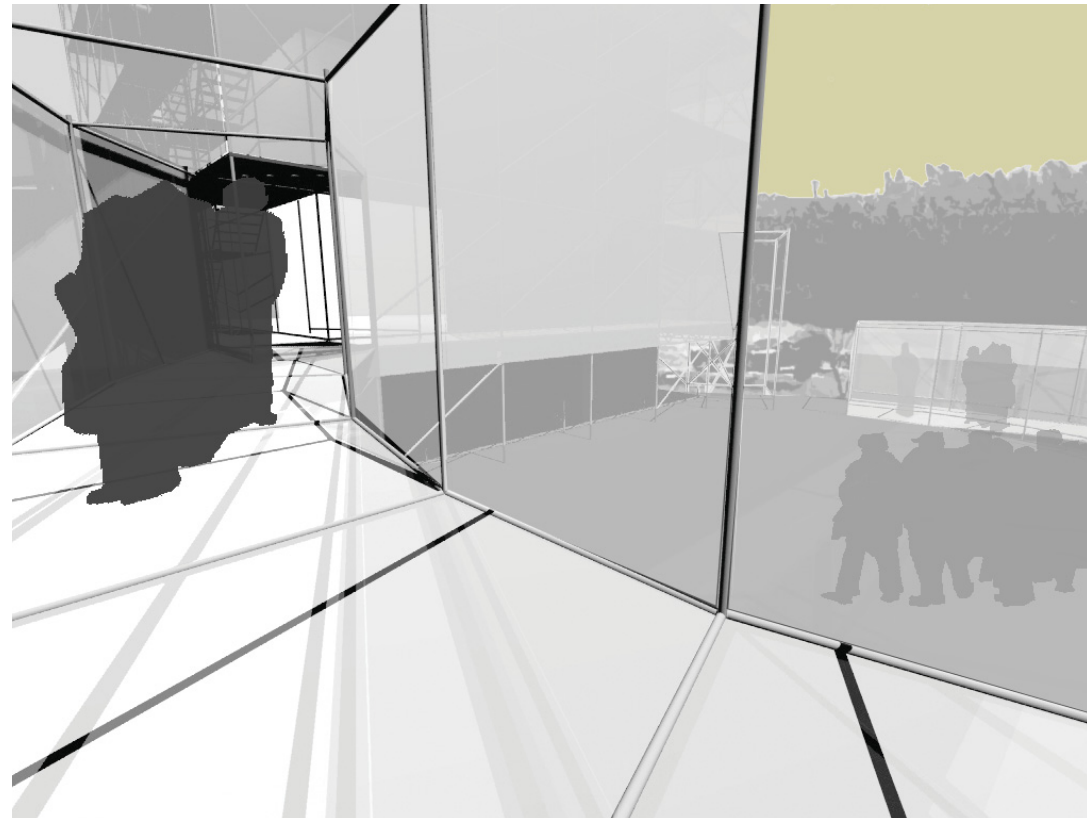






Open air lobby (above): view looking at the entrance ramp shows the transition of the ramp enclosure - from no interior skin to full enclosure as it moves towards the performance space.

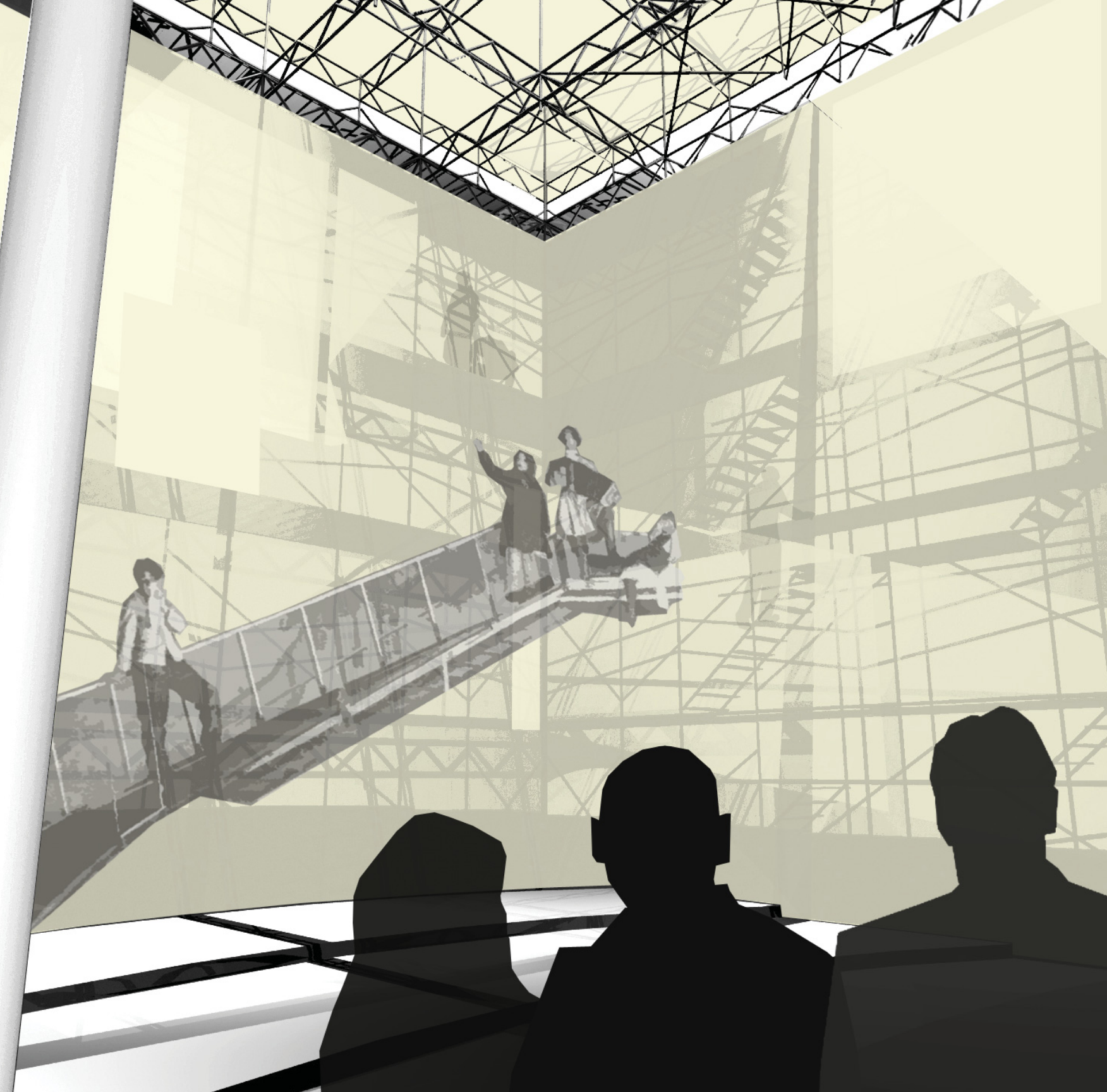
Upper ramp (below): view looking at the entrance to the performance space.



Plan at 54'  
Catwalk with lighting.

Section C-C  
Theater space and stairs in auxiliary actors space.





## CONCLUSION



Architectural intentions and strategies change over time. Theaters, now, aim as often to diminish the separation between actor and spectator as they do to maintain it. Likewise, where we once built, primarily, in heavy, permanent materials with structure and enclosure satisfied by the same material, we now typically use lighter materials that perform singular functions. But if who builds - and how and why - evolves with each era, the way we internalize information is slower to change. The body is still the fundamental means by which we engage with the world.

Architecture has the potential to organize thought and experience. Scale and orientation are fundamental to the imaginative connections that derive from physical experiences. This thesis proposes that the power of architecture is based

on the development of a specific relationship between the human body and the floor, walls and ceiling of a space. In a cubic volume, despite its geometric symmetry, one's perception is that it is taller than wide. At the Alhambra, the ceiling felt like a starry sky. This association was formed by temperature, lighting and orientation. While the temperature and lighting were specific to the Alhambra, the vertical orientation is inherent to cubic volumes. The theater started with this specific relationship between plan and section.

The shape of space in the theater is both straightforward - a cubic volume - and hopefully more generative: a set of flexible boundaries that encourage ambiguity about what defines the space of the performance and when it begins and ends.



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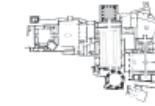
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