Kalita Humphreys Theater

Dallas Theater Center

MASTERPLAN REPORT

December 2022

DILLER SCOFIDIO + RENFRO

VOLUME 1

ACKNOWLEDGMENTS

We gratefully acknowledge the special assistance of the following in the creation of the Kalita Humphreys Theater Master Plan:

Ann Abernathy
Avery Architectural & Fine Arts Library at Columbia University
Culinaire
Linda and Bill Custard
Dallas Arts and Culture Advisory Commission
Dallas City Council:

- Mayor Eric Johnson
- Chad West
- Jesse Moreno
- Casey Thomas, II
- Carolyn King Arnold
- Jaime Resendez
- Omar Narvaez
- Adam Bazaldua
- Tennell Atkinson
- Paula Blackmon
- Adam McGough
- Jaynie Schultz
- Cara Mendelsohn
- Gay Donnell Willis
- Paul Ridley

Dallas Landmark Commission
Dallas Office of Arts and Culture
Dallas Park Board
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Dallas Planning & Urban Design Department
Dallas Public Library
Dallas Theater Center Board of Trustees
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Robyn Flatt
Duncan Fulton
Friends of the Katy Trail
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Hillwood Development Company, LLC
Patrick Kennedy
Oak Lawn Committee
Kelly Oliver
Preservation Dallas
Margaret Ryder
Second Thought Theatre
Marvin Singleton
SMU Libraries
Turtle Creek Association
Turtle Creek Conservancy
Uptown Players
Ray Washburne

Special Thanks to the Donors to the Kalita Humphreys Theater Master Plan:

Jennifer and Peter Altabef
Anonymous
Hoblitzelle Foundation
Marshall and Dee Ann Payne
Sarah and Ross Perot Jr. Foundation
Deedie Rose

Special Thanks to the Kalita Humphreys Theater Master Plan Steering Committee, for their dedication and extraordinary service in developing this Master Plan:

Jennifer Altabef - Board Chair, Dallas Theater Center
Kevin Moriarty - Executive Director and former Enloe/Rose Artistic Director, Dallas Theater Center
Duncan Fulton, FAIA - Owner Advisor
Walt Zartman - Hillwood Urban, Owner Representative
Jacob Walter - Hillwood Urban, Owner Representative

Zaida Basora, FAIA - Executive Director, AIA Dallas
Guinea Bennett-Price - Co-Artistic Director/Co-Founder, Soul Rep Theatre
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Katie Robbins - President & CEO, Hoblitzelle Foundation
Hilda Rodriguez, AIA, ASID - Former President, Oak Lawn Committee; Principal, HILDARODRIGUEZ Architecture/Planning/Interiors LLC
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Trent Williams - Senior Program Manager, City of Dallas Park & Recreation
Willis Winters, FAIA - Director Emeritus, Dallas Park and Recreation Department
David Mills, AIA - Senior Architect
Stefan Kesler, AIA - Senior Architect

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A LETTER FROM DALLAS THEATER CENTER

On December 27, 1959, fans of theater and architecture from around the world looked to Dallas, Texas, as a brand-new company, Dallas Theater Center (DTC), presented its first public performance. The play, Of Time and the River, was directed by the theater's founding artistic director, Paul Baker, and the production was produced in the theater's new home, the Kalita Humphreys Theater, designed for DTC by the legendary architect, Frank Lloyd Wright.

Throughout the next sixty years, DTC's artistry flourished and expanded, requiring significant additions and modifications to the Kalita. DTC added an administrative building to the Kalita campus and built an additional theater in the Dallas Arts District (originally, the Arts District Theater, later replaced by the Dee and Charles Wyly Theatre at the AT&T Performing Arts Center). In 1973, DTC deeded the Kalita to the City of Dallas, which assumed responsibility for its major maintenance and has leased the theater back to DTC since.

In the spring of 2019, with the Kalita in need of significant restoration, the City asked DTC to fund and lead a private effort to create a master plan envisioning the future of the Kalita and the nine acres on which it sits. Inspired by a passion for the Kalita's architectural history and a commitment to expanding access to theater, arts education, and public green spaces for the people of Dallas, DTC brought together a Steering Committee of committed citizens to select an architect to create the plan.

From the moment the committee first met the visionary geniuses of Diller Scofidio + Renfro, we knew we had found collaborators who would honor the past while conceiving a bold new future. Throughout this process, which included a twenty-one month "pause" when the COVID pandemic intervened, we have been inspired by the passionate engagement of people throughout our community. Theater fans, historic preservationists, parks enthusiasts, city officials, philanthropists, artists and neighbors have come together to inspire and shape this plan.

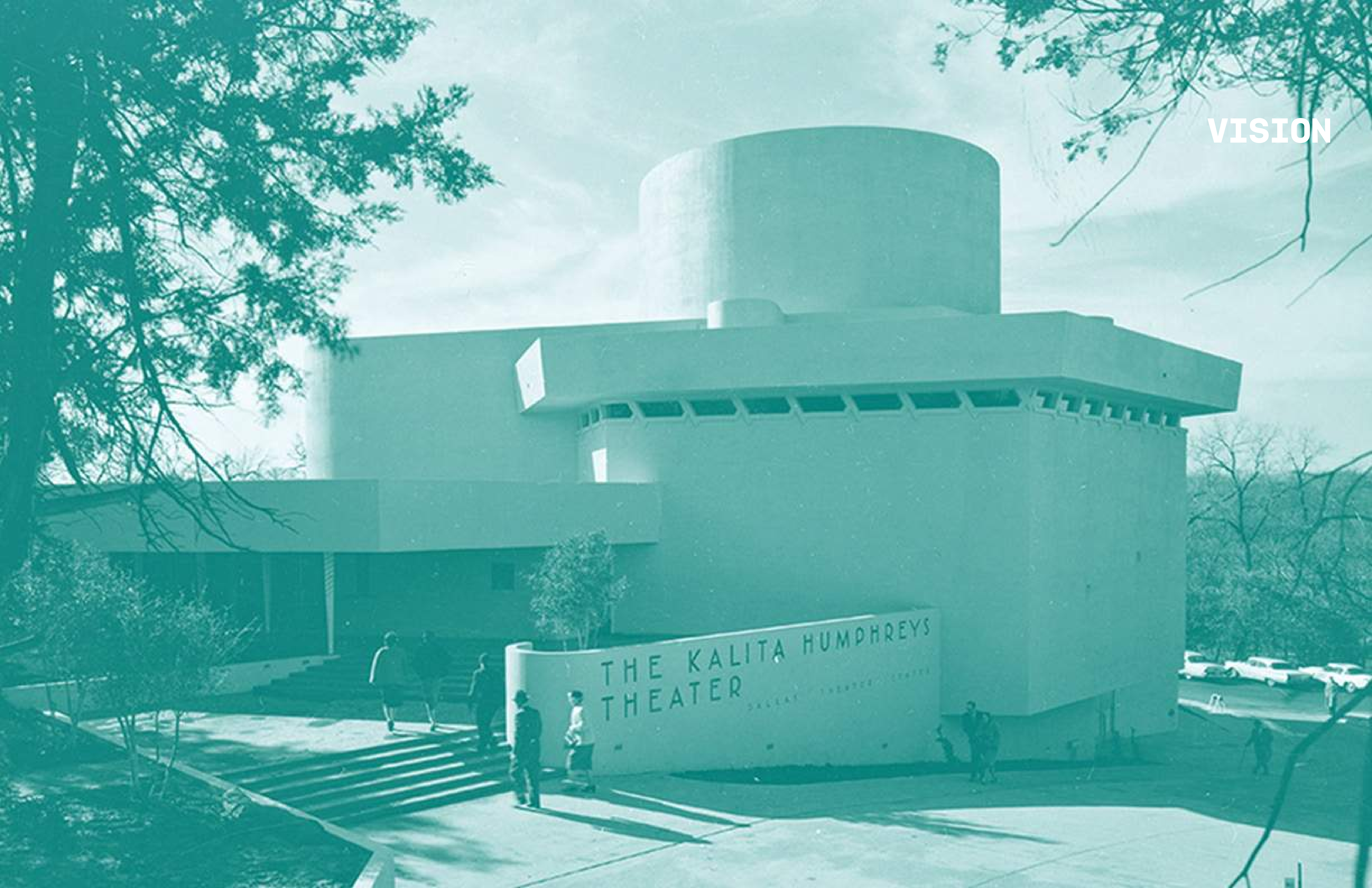
Collectively, they have joined with us to craft a forward-thinking vision for Dallas. A restored Frank Lloyd Wright building that welcomes 21st century audiences to experience its historic architectural glory while enjoying state of the art productions. A beautiful site that expands green space and space for public use, connects to the Katy Trail above and Turtle Creek below, and provides amenities for park-goers throughout the day. Two new theater spaces that will serve local theater companies, attract new audiences, and inspire artists. Gathering spaces that will activate the site with classes, rehearsals, dining and events year-round.

Ultimately, the City Council will determine if this master plan is adopted. If so, we will reach out to the people of Dallas for their continued engagement and support to realize a vision for our community in which all are welcome to engage with the arts, be inspired by nature, and celebrate our common humanity.

Sincerely,

Jennifer Altabef, Board Chair, Dallas Theater Center
Kevin Moriarty, Artistic Director, Dallas Theater Center

VISION



VISION FOR THE KALITA HUMPHREYS THEATER CAMPUS

The Kalita Humphreys Theater Campus is a transformative project for the future of Dallas. It is a nine-acre site like no other, with internationally acclaimed Frank Lloyd Wright architecture nestled into a wooded site along George Kessler's ornamental boulevard, Turtle Creek. The site has the potential to combine the following signature elements:

- The only free-standing theater Frank Lloyd Wright ever built;
- William B. Dean M.D. Park, a beautiful but underutilized city park containing Turtle Creek;
- The Katy Trail, an active 4.4-mile trail which runs through the core of Dallas and Uptown;
- Near-downtown mixed-use neighborhoods full of residents, businesses, parks and restaurants;
- Year-round performances by the Tony Award-winning Dallas Theater Center and a diverse array of arts organizations.

This special site reveals all kinds of possibilities for artists, the citizens of Dallas, and visitors from North Texas and throughout the world. It is of immense cultural value, where theater, nature and architecture are brought together near the city's center. The site includes the Kalita Humphreys Theater, which was on Wright's drafting table at the same time as the Guggenheim Museum in New York and shares many similarities, as well as a creek, topography, and proximity to the very popular hike and bike Katy Trail, Oak Lawn Park, the Design District and Uptown. The site's existinglinear paths and driveways reflect the horizontal contour lines of the topography with its exposed limestone strata that is so characteristic of the city.

When completed, the campus will support multiple activities and uses throughout the day and evening, celebrating the possibilities of community, art and nature. A compelling plan will maximize each of the site's unique assets, while combining them in such a way that theater, history, natural beauty, and accessibility create new, diverse audiences for theater companies of various sizes, and new points of connection for the citizens of Dallas, all in a site that is harmonious and inviting.

The campus will include three theater spaces of various sizes. The historic Kalita Humphreys Theater will anchor the site, featuring year-round performances in its 400 seat auditorium, and honoring the legacy of Frank Lloyd Wright. A mid-size proscenium theater (200-250 seats) and a small, flexible theater space (99-125 seats) will provide additional state of the art venues for artists and audiences alike, replacing and expanding on venues existing in the site. Dallas Theater Center will produce plays and musicals on these stages throughout the year, alongside additional, simultaneous performances produced by local theater companies, including Uptown Players, Second Thought Theatre and a wide variety of new, emerging and established arts organizations. The site will be activated at least six days a week year-round, with public performances presented in any two of the three theater spaces every week. The artistic activity on the site will encourage new creative collaborations for the artists and expanded audience awareness for all. Additionally, the theater spaces will be available for corporations, individuals and community organizations to rent for meetings and events.

The campus will invite visitors to enjoy its beautiful environment, with a strengthened relationship to Turtle Creek and a balanced approach between the onsite buildings and the site's extraordinary natural features.

The site will be open to the Katy Trail and easily accessible to Uptown via multiple modes of transportation, including cars, bikes and walking. Amenities and onsite parking will be available for the public, including those wishing to use the Katy Trail and Dean Park throughout the day. A welcome center that includes a box office, historical information and audience services will be open daily. Tours of the historic Kalita Humphreys Theater will be available to the general public, who will also be able to add on tours of the Wyly Theatre in the Dallas Arts District and other internationally recognized performing arts architectural sites in Dallas.

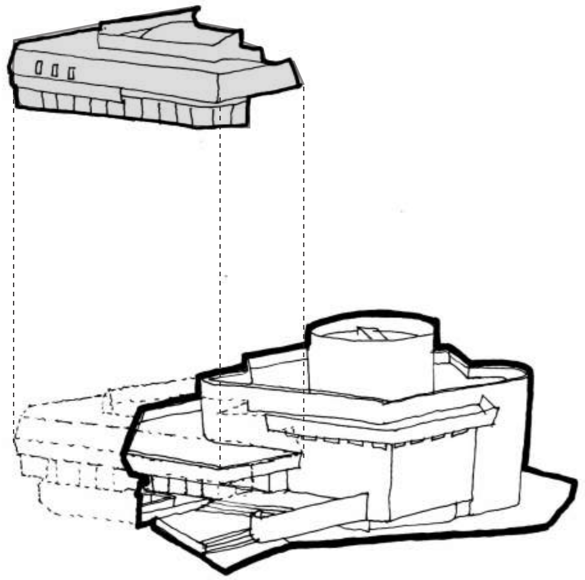
An onsite restaurant will serve theatergoers, patrons of the Katy Trail and the general public throughout the day. The casual, table-service restaurant will serve lunch and dinner. It will contribute to keeping the site active and serve as a gathering space for audiences and artists to enjoy food and drink before and after performances and engage in conversations inspired by the work on stage.

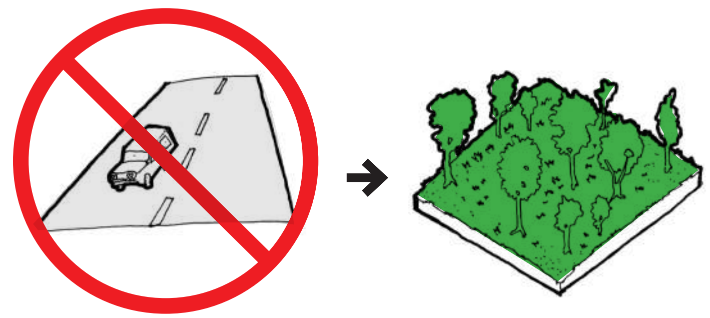
The theaters and other spaces will be available for rent by theater companies and performing arts organizations under conditions articulated in an Equitable Access Plan, which will be created with the City of Dallas Office of Arts and Culture. Event spaces will be available to support pre- and post-show events (receptions, dinners, parties), and will be available as a rental space for corporate, community or private use (company meetings, parties, conferences). Revenue generated from rentals, parking, box office, concessions and tours will be used to maintain the campus.

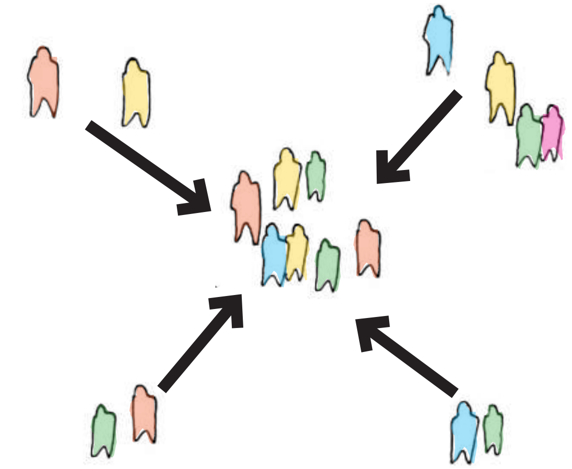
Classrooms will ensure year-round opportunities for arts education, including hosting DTC's nationally recognized Project Discovery program. Two rehearsal rooms will support theatrical creation. A conference room and coworking office space to support expanded production, education and community engagement activity will be provided.

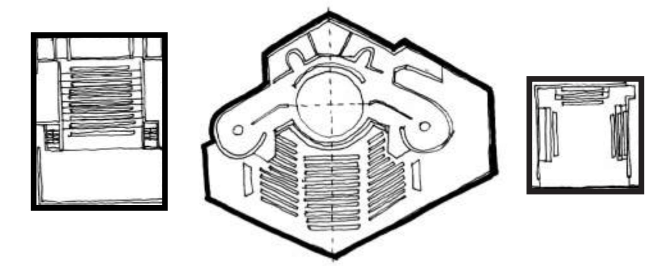
Upon completion of the renovated campus, Dallas Theater Center will assume responsibility to manage and maintain the site, in a long-term agreement with the City of Dallas to steward this vision for the Kalita Humphreys Theater Campus.

Diller Scofidio + Renfro New York, NY | Fisher Dachs Associates New York, NY | Threshold Acoustics LLC Chicago, IL | Reed Hilderbrand LLC Cambridge, MA | Harboe Architects Chicago, IL | Silman Engineering New York, NY | BOKAPowell Dallas, TX | Syska Hennessy Group Los Angeles, CA | Pacheco Koch Dallas, TX









1. RESTORE KALITA

Restore the Kalita to its 1959 period of significance, while maintaining and improving its function as a 21st century theater.

- All exterior additions to be removed, including of the lobby
- Stage height to be restored
- Interior finishes to more closely replicate original
- Sound and lighting improvements
- Added seating to be removed, restoring side stages, planters and voms, and returning balcony to original size
- Interior finishes and furnishings to be restored to the extents possible
- New buildings to be respectful of the importance of the Kalita

Make needed improvements to Kalita for better functioning.

- Partially below ground, larger lobby with daylight to connect to all Kalita spaces by elevator, including rooftop terraces, without compromising exterior design of Kalita
- Simplify backstage spaces for better, safer functioning
- Make theater accessible
- Improve sight lines to the stage, while increasing feeling of "single room" of original FLW design
- Improve temperature control, acoustics

2. A NEW PARK

Reduce surface parking and increase green space and public space

- Build subterranean parking garage with public and/or green space on top
- Maintain historic entrance to Kalita
- Reduce through traffic on site
- Place new buildings in such a way that green space is maximized
- Decrease size of Sylvan Drive, eliminate curbs, and integrate Sylvan into landscape

Increase access and connections to site from Katy Trail, trails along Turtle Creek Corridor, and surrounding neighborhoods

- Build meaningful, attractive connection from Katy Trail, with visibility to Kalita and parkland below
- Build bridge or other access across creek that is safe for bike or walking traffic
- Landscape site to preserve natural character, while increasing access to natural spaces

3. PUBLIC ENGAGEMENT

Increase visitor amenities for theater patrons and public/park visitors

- Remove Heldt building and replace lost space with needed spaces for theater and other visitors
- Build restaurant/café for use by theater patrons, park/trail visitors, and cultural tourists
- Build public gathering/event/flex spaces for multiples uses
- Build rehearsal and education flexible spaces
- Consider other visitor amenities needed by park/trail visitor and cultural tourists

4. SPECIFICITY THROUGH DIVERSITY

Replace removed theater spaces in Kalita and Heldt Building with new, more functional theater spaces

- Remove two upstairs studio performing spaces in Kalita and Bryant Hall performing space in Heldt building (all of Heldt building to be removed)
- Construct 100 seat black box theater and 200 seat proscenium theater to replace lost performing spaces and provide 21st century theater spaces for smaller performances and emerging theater companies, in addition to use by DTC. Smaller size and rental price.

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

PROCESS

PROJECT TEAM

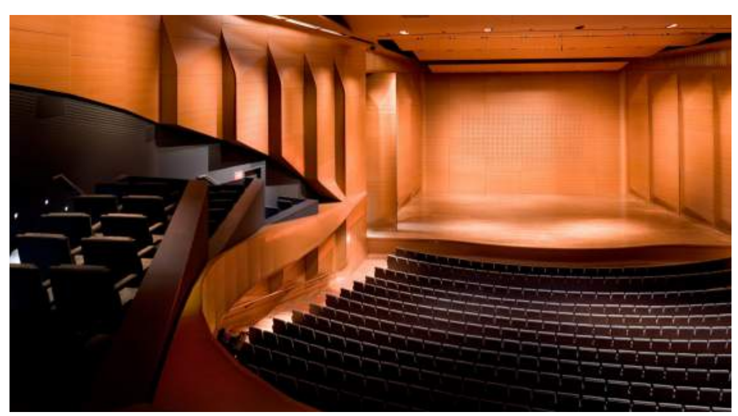
Diller Scofidio + Renfro
Architecture

Diller Scofidio + Renfro (DS+R) is a New York design studio that works at the intersection of architecture and the arts. DS+R is led by four partners—Elizabeth Diller, Ricardo Scofidio, Charles Renfro, and Benjamin Gilmartin—who work collaboratively with a staff of over 100 architects, designers, artists, and researchers. The practice began in 1981 with independent, theoretical, and self-generated projects that challenged the status quo of the architectural discipline. In the 20 years prior to DS+R's first architectural commission, the studio was exclusively involved in designing performances, art installations, and exhibitions that explored the relationship between space, research, and technology.

DS+R is committed to an integrated approach to design at all scales: architecture, interior design, urban planning, information design, exhibit design, and industrial design. We come to each new project without preconceptions. A performing arts venue or museum is never a tabula rasa for a formal experiment, but rather a set of logics to be interrogated. We approach a site and program through a "thick perception"—a physical context within a cultural one and a program that must be seen in relation to the social, economic, and political forces that weigh upon it. Our work addresses fundamental issues of our time: the importance of cultural and civic engagement, the utilization of public space, shaping the urban environment, and rethinking our institutions in a time of rapid social, political, technological, and environmental change. Our work attempts to interrupt and test old conventions and find new architectural strategies for a culture in flux.

DS+R's work in the performing arts is cross-disciplinary, with one foot in architecture and the other in experimental work in the arts. We have co-created original theatre and dance pieces with The Wooster Group, Charleroi Danses, Lyon Ballet Opera, and Australian Dance Theatre, among others. We created, directed, and produced an outdoor choral performance for 1,000 singers on the High Line called the Mile-Long Opera in collaboration with Composer David Lang, and collaborated with choreographer Bill T. Jones and projection designer Peter Nigrini to create the visual environment for Deep Blue Sea at the Park Avenue Armory. As a result of this passion for performance, DS+R brings to its architectural projects a nuanced understanding of the needs and aspirations of theatre artists and performers and the spaces that support them.

The performance venues that DS+R designs often engage the city around them, exploring connections between other program elements, including adjacent public space. Our performance venues include our redesign of Alice Tully Hall, an 1,100-seat chamber music hall at Lincoln Center; the conception through realization of The Shed, a highly flexible center for performing and visual arts that doubles its footprint on demand; and the design of Tianjin Juilliard School, a center for performance and practice in Tianjin, China. We have created academic performance venues for Brown University, College of the Holy Cross, and Rice University. In addition, many of our museum and education projects include spaces designed to support performances and events, including the Museum of Modern Art in New York, the Institute of Contemporary Art in Boston, the David Rubenstein Forum at the University of Chicago, and the Vagelos Education Center at Columbia University.



Fisher Dachs Associates
Theater Consulting

Fisher Dachs Associates was founded over 40 years ago and is one of the world's leading theatre planning and design consultants. Founded by legendary Broadway lighting designer Jules Fisher, and under the direction of architect and theatre planner Josh Dachs, FDA has over 50 years of experience in providing guidance to over 1,000 performing arts projects. These range from small repertory theatres to major cultural centers worldwide, including important regional repertory theatres like the Guthrie or Shakespeare's Globe to major venues such as Radio City Music Hall and the Hollywood Bowl to new homes for symphonies in Nashville, Omaha, and Oklahoma City. They have worked on more than 10 projects at Lincoln Center over the past two decades. This long experience deepens their sensitivity and understanding of DTC's needs and will play a vital role in developing a design for the renovation and new performance spaces.

Threshold Acoustics LLC
Acoustics

Threshold Acoustics LLC provides room acoustics and audio/video design consulting services for performing arts facilities, education facilities, cultural centers, and other places of public assembly. Their collective experience, based on a remarkable diversity of work, has led them to work with clients who seek intentional, well-crafted soundscapes in their buildings. Their accomplished staff bring together backgrounds in music, theatre, mechanical and electrical engineering, physics, live sound, architecture, and architectural acoustics. They apply their deep knowledge of the subject to every project, taking care to explain the scientific and perceptual basis for their recommendations. The design team may then explore possibilities with a clear understanding of what is acoustically important and why. Smart decisions, new approaches, and elegant designs can then emerge from the team as a whole.

Reed Hilderbrand
Landscape Architecture

Reed Hilderbrand practices landscape architecture as an art of purposeful transformation. Active since the mid-1990s, we have collaborated with artists, business leaders, curators, homeowners, politicians, and property developers to realize landscapes of cultural consequence. Our work connects daily life to the visible phenomena and the invisible systems of nature, in pursuit of beauty and clarity, as well as ecological health and resilience. Transforming the land shapes lives and influences communities, projecting values of our era into the future—an act of cultural expression. By designing the land, the firm seeks to extend and enrich human experience toward an optimistic future.

Reed Hilderbrand's work incorporates the rational as well as the visceral to elicit a landscape's poetic promise while meeting its objective requirements. Careful analysis of topography, hydrology, habitat, and the overall health of a landscape predicates bold decisions about its future. We apply equal emphasis to resolving a project's enterprise and economic criteria. Through intuition and iterative study with clients, we generate a clarity of expressive form using an economy of means that is rooted in modernist principles of reduction, abstraction, and the fluidity of flexible space. In all of our work, we seek values of simplicity, beauty, serenity, sanctuary, intimacy, and mystery.

Harboe Architects
Historic Preservation

Harboe Architects, PC was started in March 2006 by T. Gunny Harboe, FAIA. The firm is an expert in the restoration and preservation of Frank Lloyd Wright-designed buildings, and their work has included the Robie House, Unity Temple, Beth Shalom Synagogue, and the master plan for Taliesin West, among other projects. Previous to starting his own firm, Mr. Harboe spent over seventeen years at McClier (which became a part of AECOM) where he gained a national reputation for his dedication to preservation ideals along with his ability to find appropriate solutions to design and technical challenges related to preserving our cultural heritage. Harboe Architects' restoration work has been recognized with over two dozen awards, including several awards from the National AIA, and the National Trust for Historic Preservation. They have completed significant restoration projects on numerous National Historic Landmarks as well as many other local landmarks and National Register properties, including . Louis Sullivan's Carson Pirie Scott Store, Burnham and Root's Rookery and Reliance Buildings, Holabird and Roche's Marquette Building, and Mies van der Rohe's S.R. Crown Hall and Carr Chapel at IIT

BOKAPowell
Local Architect

Founded in 1976, BOKA Powell has delivered thousands of projects across the country for a wide range of markets including hospitality, higher education, multifamily residential, mixed-use, healthcare, and aviation. BOKA Powell is led by four owners: Don Powell, AIA, NCARB, Chris Barnes, AIA, NCARB, John Orfield, RA, LEED AP, and R. Andrew Bennett, AIA, and is a full-service architecture, interiors, planning, and design practice spanning a wide range of project types and specializing in complex project design and documentation. BOKA Powell has extensive experience in all product types as Architect of Record and Interior Designer of Record, and have offices in Dallas, Fort Worth, and Austin, Texas, and Denver, Colorado. Each office is designed to be full-service to support ongoing projects in its geographic market, but collectively, operates under a "Single Firm, Multiple Office" philosophy where resources are allocated as needed to bolster team strength as projects demand.

Robert Silman Associates
Structural Engineering

Robert Silman Associates is a structural engineering firm founded in 1966 whose work focuses on the restoration and reconstitution of significant historical cultural facilities. Silman has a staff of 160 among its offices in Boston, New York, and Washington DC. Silman has extensive experience restoring the work of Frank Lloyd Wright, having worked on 12 buildings to date. Select projects include Fallingwater in Pennsylvania, the Solomon R. Guggenheim Museum in New York, Unity Temple in Chicago, and Taliesin in Wisconsin.

Syska Hennessy Group
Mechanical, Electrical, Plumbing Engineering

Syska Hennessy Group is a global, full-service engineering firm that specializes in MEP, information and communication technology (ICT), and commissioning for the government and commercial sectors. With more than 500 professionals cross 19 offices, we provide a full range of engineering services for projects of every size and budget: from global headquarters to small office renovations; from premier healthcare institutions to essential mission-critical facilities.We've been at the forefront of innovation since the firm was founded by John Hennessy and Adolf Syska in 1928. Our people are central to our success: By attracting and training talented professionals from diverse backgrounds, we build creative teams, who transfer their creativity to the built environment. Their work has resulted in complex mechanical and electrical systems for some of the world's most iconic structures. It has also led to long-lasting relationships with clients who rely on us to create exceptional, smart, and sustainable buildings.

Pacheco Koch
Civil & Traffic Engineering

Founded in 1990, our goal at Pacheco Koch has always been to provide large-firm expertise while maintaining a responsive and client-focused level of customer service. Our offices in Dallas, Fort Worth, Houston, Austin, and Celina allow us to provide best-in-class professional design services to the south-central region. Since our founding, we have completed over 13,000 projects and worked with some of the most leading-edge architectural firms and progressive public and private clientele. When Pacheco Koch joined Westwood on December 13, 2021, we expanded our markets and services. Explore our portfolio or view our services for additional information.

Steering Committee

Jennifer Altabef	Board Chair, Dallas Theater Center
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Willis Winters, FAIA	Director Emeritus, Dallas Park and Recreation Department
David Mills, AIA	Senior Architect
Stefan Kesler, AIA	Senior Architect

PUBLIC ENGAGEMENT

DISCOVERY

September 18, 2019 Sterring Committee
October 16, 2019 Steering Committee
November 19, 2019 Steering Committee
December 18, 2019 Steering Committee
January 23, 2020 Architect Interviews with the Steering Committee
January 29, 2020 Steering Committee
March 4, 2020 Masterplan Public Meeting for Dallas Community
April 24, 2020 Steering Committee
December 9, 2021 Steering Committee
January 11-12, 2022 Visioning Workshops
January 12, 2022 Steering Committee
February 10, 2022 Programming Workshop
February 11, 2022 DFW Theater Leaders Open Forum

VISIONING & PROGRAM DEVELOPMENT

March 4, 2022 Design Workshop in NYC
March 30, 2022 Design Workshop in NYC
April 5, 2022 DTC Board Meeting
April 6, 2022 Program Confirmation
April 6, 2022 Steering Committee
April 7, 2022 Site Design Workshop
May 12, 2022 Site Design Workshop

MASTERPLAN DEVELOPMENT

May 13, 2022 Design Workshop, Concept Review
May 13, 2022 DTC Staff Forum
June 7, 2022 Design Workshop in NYC
June 16, 2022 Parks and Recreation Board Meeting
June 16, 2022 Design Meeting
June 16, 2022 Masterplan Public Meeting for Dallas Community
June 17, 2022 Steering Committee
July 11-12, 2022 Benchmarking in NYC
July 12, 2022 Concept Selection
August 11, 2022 Steering Committee

PRODUCTION & PRESENTATION

September 16, 2022 Draft Masterplan Report Submission DTC
October 21, 2022 Steering Committee
November 18, 2022 Updated Masterplan Report Submission DTC
December 7, 2022 Masterplan Public Meeting for Dallas Community

Diller Scofidio + Renfro, New York, NY | Fisher Dachs Associates, New York, NY | Threshold Acoustics LLC, Chicago, IL | Reed Hilderbrand LLC, Cambridge, MA | Harboe Architects, Chicago, IL | Silman Engineering, New York, NY | BOKAPowell, Dallas, TX | Syska Hennessy Group, Los Angeles, CA | Pacheco Koch, Dallas, TX

PUBLIC ENGAGEMENT

BENCHMARKING

The Design Team researched and visited several existing projects as architectural and inspirational references. The selected benchmarks represent 4 categories:

- Buildings designed by Frank Lloyd Wright
- Theaters of a similar scale
- Performing arts campuses with similar program amenities
- Buildings integrated with their site

Below are a selection of the most relevant benchmarks. Please refer to the Appendix for the complete list.

Guggenheim Museum
Frank Lloyd Wright
New York, NY 1959
- 270 seats
- Same period of significance
- Thrust stage
- Parabolic seating arrangement
- Custom theatrical seating

The Wyly
REX + OMA, Dallas, TX 2009
- 575, or 800 seats
- Versatile theater with flexible seating arrangements
- Glazed exterior wall
- Open lobby, rehearsal and administrative spaces

Irish Arts Center
Davis Brody Bond, New York, NY 2021
- 165 seats
- Blackbox theater with walkable ceiling grid
- Flexible seating arrangements
- Shared public lobby and cafe

The Public, Newman Theater
Giorgio Cavaglieri, New York, NY 1967
- 299 seats
- Proscenium Theater
- Historic brick interior in former library
- Part of multi-theater complex with shared lobby

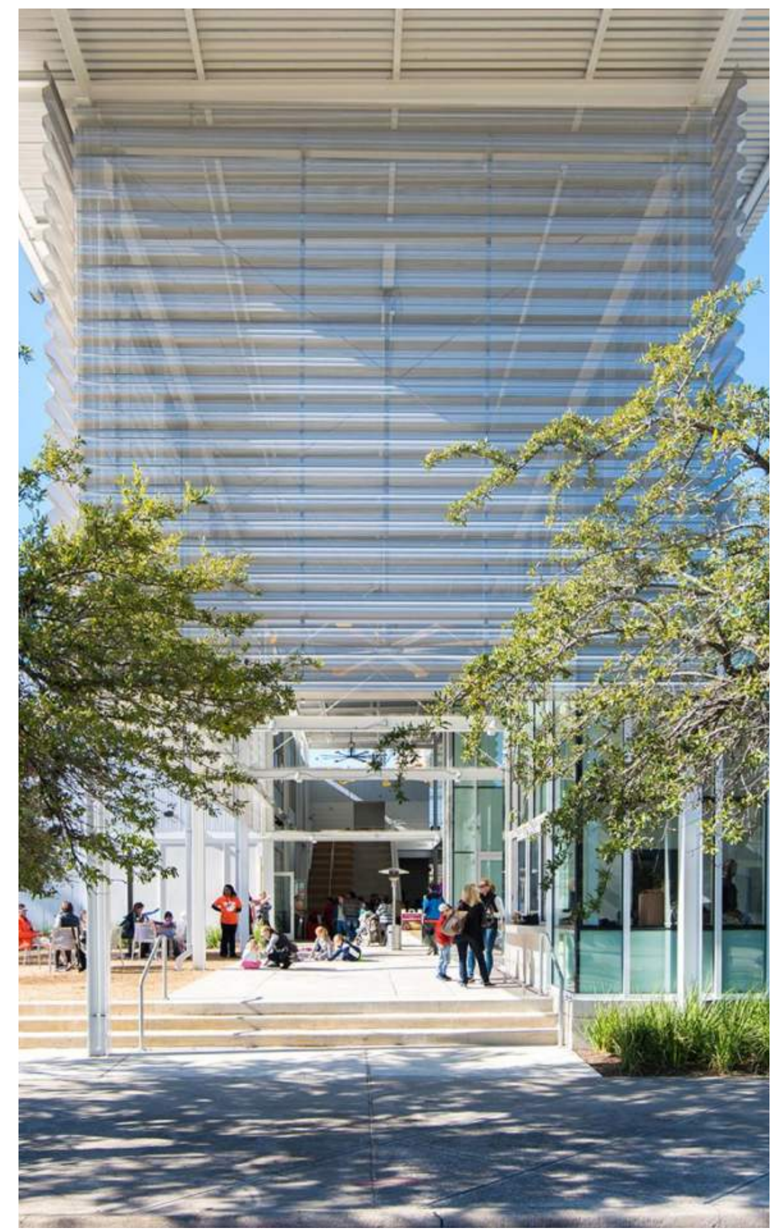
The Claire Tow Theater
H3 Hardy Collaboration Architects, New York, NY 2011
- 100 seats
- Proscenium Theater
- Part of multi-theater complex
- with shared plaza
- Exterior roof space
- Accessible rehearsal space

Midtown Arts & Theater Center
Lake Flato Architects, Houston, TX, 2016
- Part of multi-theater complex with shared lobby
- 4 theaters with a variety of scales and seating arrangements
- Shared BOH space
- Public gallery

Writers Theater
Studio Gang, Glencoe, IL, 2016
- Campus-like cluster of performance spaces
- 250 seat thrust stage and
- 99 seat black box
- Public lobby / presentation space
- Operable façade
- Shared lobby with concessions

Jacob's Pillow
Flansburgh Architects, Becket, MA, 2017
- Multi-pavilion campus with several rehearsal and performance spaces
- Integrated with landscape
- Operable facades create seamless indoor / outdoor transition
- Flexible venues can be easily transformed

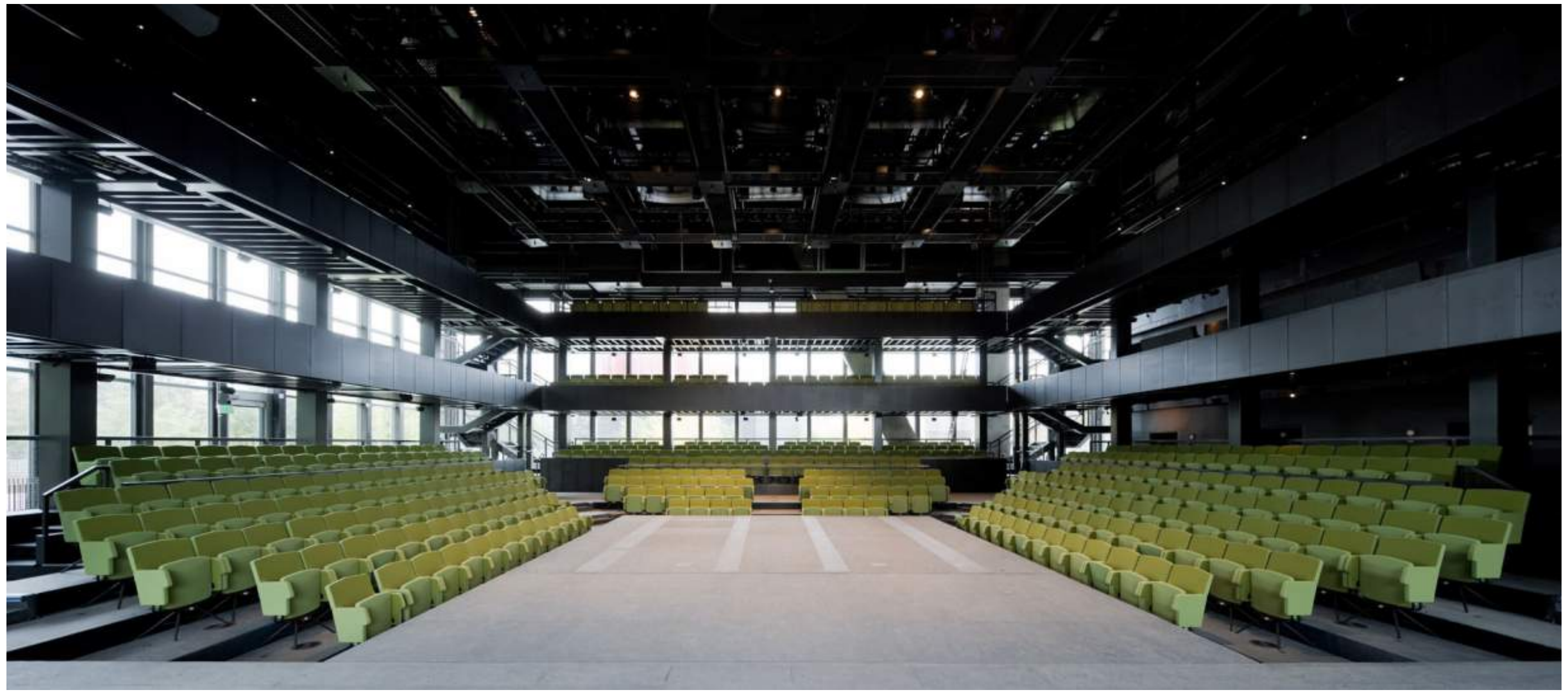
Grace Farms
SANAA, Glencoe, IL, 2016
- Multi-pavilion campus
- Integrated with landscape
- Glazed exterior creates seamless indoor / outdoor transition
- Program includes auditorium, café, library, gym, administrative spaces



BENCHMARKING






Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

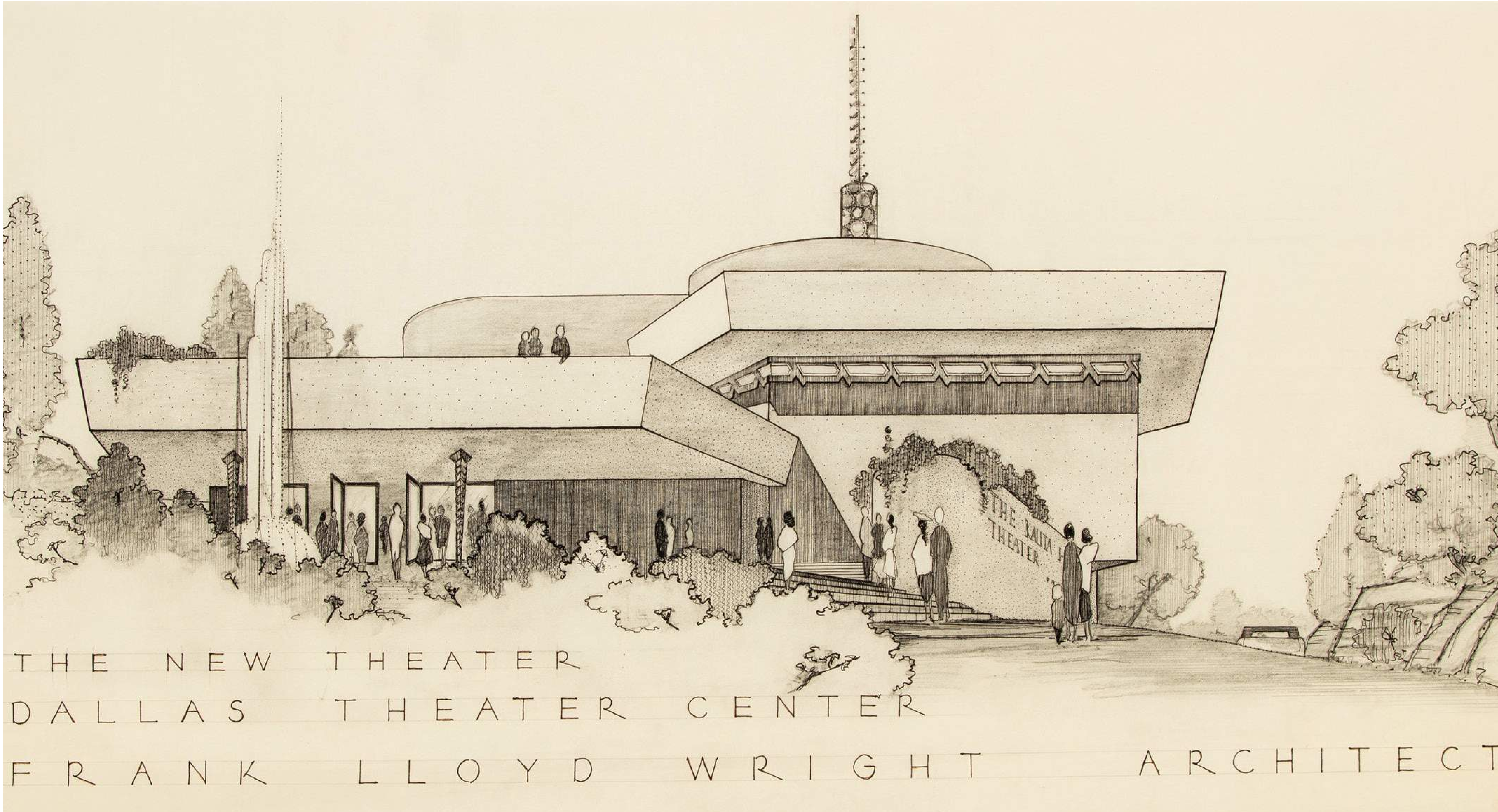
BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

KALITA HUMPHREYS THEATER
HISTORIC PRESERVATION REPORT

HISTORIC CONTEXT



Introduction

The following brief history of Dallas Theater Center and the Kalita Humphreys Theater was developed in large part by Ann Abernathy and the Kalita Humphreys Theater at Turtle Creek Conservancy during the designation of the building as a local landmark and during a previous master planning study. With the history of the building and organization well documented, the historic context section provides a sense of the creation of the theater and the changes it has seen since its construction in 1959.

Dallas Theater Center

Dallas Theater Center (DTC) was one of the first professional regional theaters in the United States. It was founded by civic leaders who believed that for Dallas to become a thriving, internationally recognized city, it needed to have a resident professional theater company to attract visitors and serve its community. Bea Handel, director of development at the Cleveland Playhouse, John Rosenfield, Amusements Editor of the Dallas Morning News, and Robert Stecker, Vice President of Sanger Brothers Department Store, enlisted the help of Paul Baker, head of the Baylor University Drama School, to act as the creative director for the center.

The group of founders was interested in bridging the gap between college theater and professional theater by creating a theater with integrated educational programing. Dallas Theater Center was chartered as a non-profit in 1955, and fundraising began immediately for what would become the Kalita Humphreys Theater.

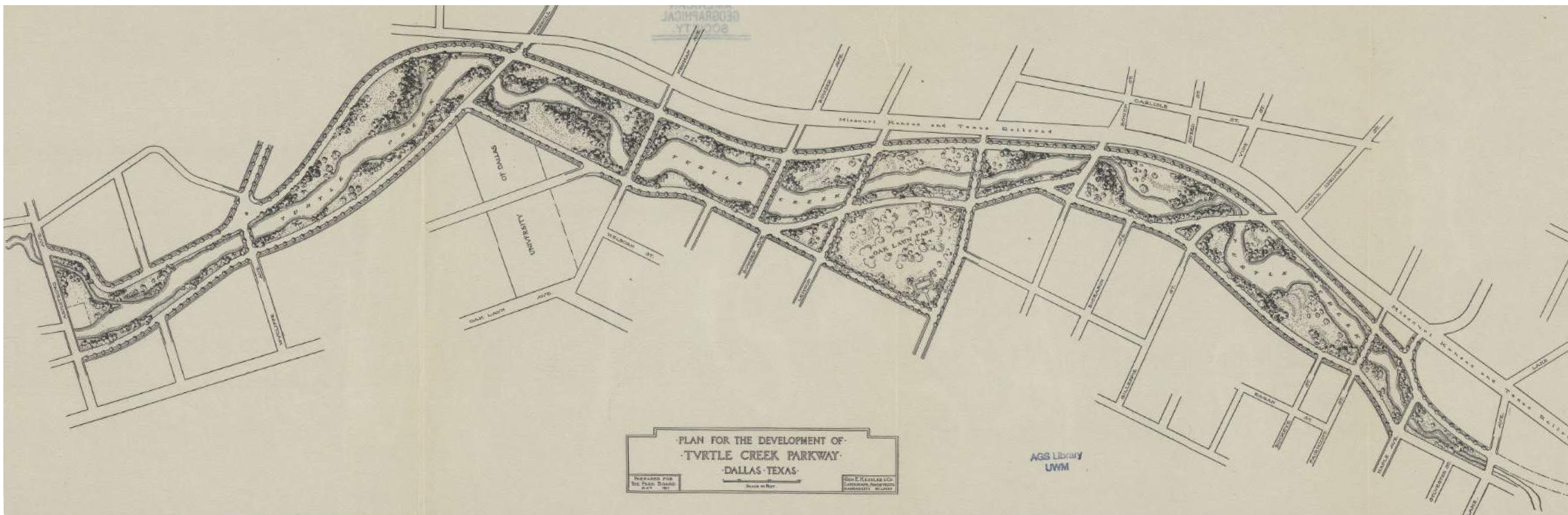
The DTC Building Committee

The land the theater sits on was gifted to Dallas Theater Center in July 1955 by Sylvan Baer, who still owned the large tract surrounding Turtle Creek left undeveloped after the 1911 George Kessler Plan. Baer placed many restrictions on the use of the site, enough to make DTC consider returning the land to him to avoid the added complications.

When the founders initially began planning for the building that would eventually house their new theater program, they formed the DTC Building Committee to devote ample attention to the task. Their goal was to provide a medium-sized theater with administrative space for the director and other staff as well as backstage dressing rooms and scene shop. The Building Committee was looking for a nationally reputable architect to take on the project, and they considered both O'Neil Ford and Mies Van der Rohe. Frank Lloyd Wright was made aware of the project by John Rosenfield, the fine arts editor for the Dallas Morning News, after DTC's board asked him for suggestions. Rosenfield called Wright himself, and the architect made his first visit to the site in Dallas in August of 1955.

The New Theater

The Building Committee visited Frank Lloyd Wright's Taliesin studio in Spring Green, Wisconsin in September of 1955, a month after he first visited the site. At the time, he had been developing a design he referred to as the "New Theater" for nearly forty years. Wright was developing the theater for no specific site or client, but along the way he exercised the concept in theater designs for Aline Barnsdall, and theater designs in New Haven and Hartford, Connecticut and Woodstock, New York none of which were realized. Some design elements of the "New Theater" materialized in the design for the Kabuki Theater within the Imperial Hotel in Tokyo, which has since been demolished. The concept of the "New Theater" aligned with the vision of the theater director Paul Baker, and it was reworked with the input of the DTC Building Committee, the Director, the Scenic Director, and the theater consultant George Izenour from Yale.



Plan for development along Turtle Creek, 1911, George Kessler
Source: American Geographical Survey Library Digital Map Collection, University of Wisconsin

Both Wright and Baker believed in eliminating the boundary between the actor and the audience in the modern theater, fostering an intimacy and placing the audience within the dramatic space. The open thrust of the round stage was just one characteristic of the space that was meant to immerse the audience within the production. The vomitory stairs that connected with the ramps flanking the stage allowed for multiple means of entry and exit for performers, and the stage level raised just one foot above the lowest level of the auditorium floor. These architectural decisions were based on the guiding principle that the audience and performers should share the spatial volume of the auditorium without perceived separation.

Siting and Massing

Although Wright's idea for the "New Theater" had been in the works for several decades, the transition from its concept to the Kalita Humphreys Theater was informed by the specific site. The site Sylvan Baer donated to DTC was compact, amounting to only 1.2 acres. The basic "New Theater" design was scaled down to fit within the site boundary, and as such some of the concepts driving the design were compromised. As was typical of Frank Lloyd Wright's designs, the building grew from its immediate surroundings, and the geometric forms of the theater were adapted from the "New Theater" to better relate to the site. At the southeast edge, a steep ledge of limestone separated the wooded area from the train tracks above, and the naturally horizontal stratigraphy in the limestone outcropping informed the stepped cantilevers of the theater.

In the early design stages, Wright anticipated that the primary approach to the theater would be from the southeast where the railroad tracks were. The building turned its back on Turtle Creek and instead nestled into the limestone ridge, architecturally becoming an extension of it. This approach to the building disguises the true size of it, as the one-story entry space feels intimate. The site's grading, however, dramatically slopes down to the north toward Turtle Creek, revealing the full height of the building from that perspective. The lowest level of the building takes on a small footprint, and each level above it steps out further, giving the building an appearance that is simultaneously heavy and weightless.

The highest mass of the building is the five-story cylindrical concrete shaft that forms the backdrop of the thrust stage with half of the cylinder cantilevered over the stage to provide space for the fly loft. The steel grid set within the fly loft gives the cylinder some rigidity, but the main counterbalance for the cantilever is the three floors of dressing rooms at the east of the building, although these spaces are also cantilevered.

Design Development

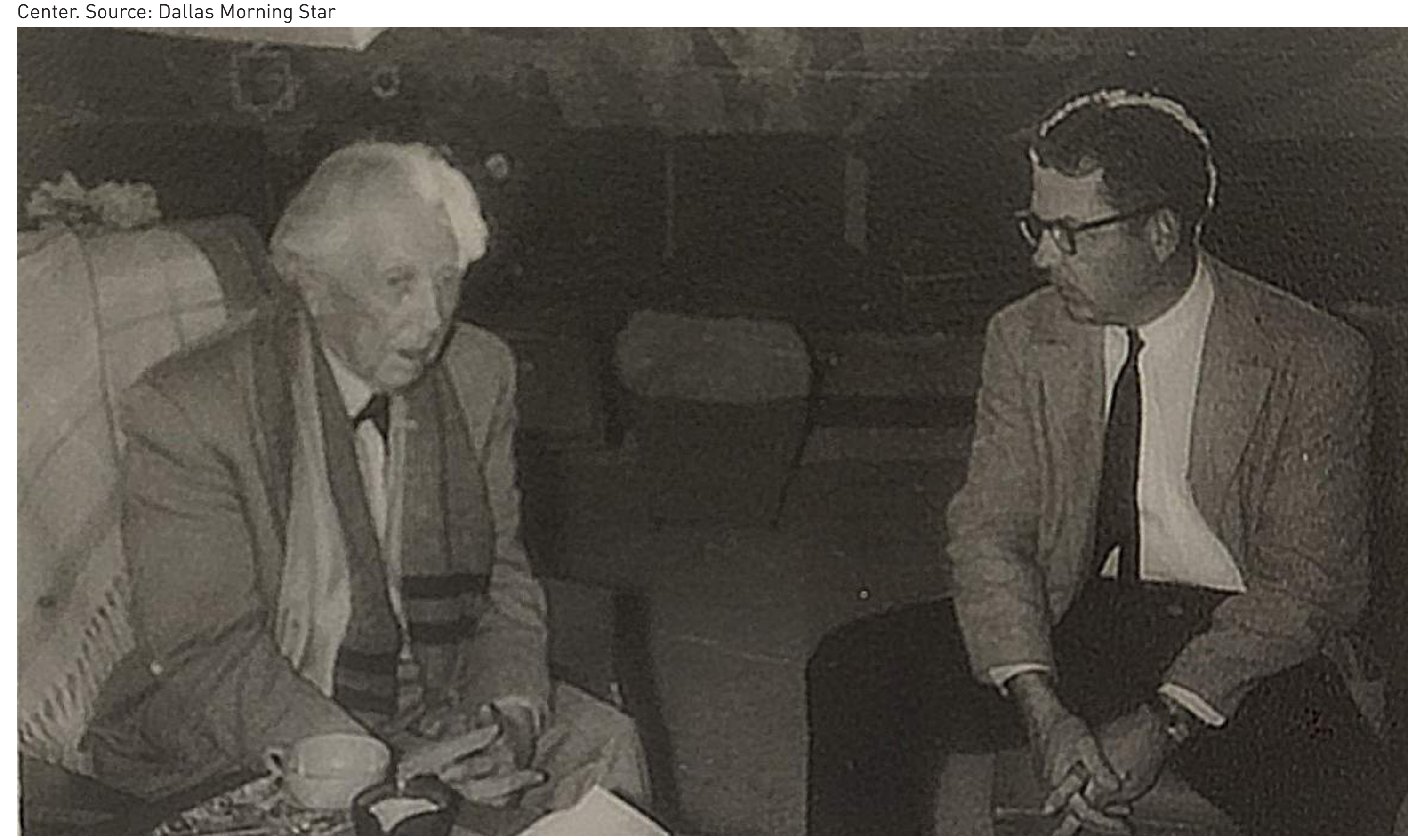
The basic design for the theater had been well under way in Wright's mind long before a client or a site had been determined. Because of this, Wright had clear concepts about the design of theater spaces and the production of theater. Much of the interior was treated similarly to previous designs, using a color palette that strictly showcased earth tones, the use of naturally finished teak wood, and textured surfaces.

The materiality of the Kalita parallels the materiality of Wright's other major project at the time, the Solomon R. Guggenheim Museum in New York. The building's exterior walls are entirely structural concrete, physically tying the structural system to the geometry of the building. Like many of Wright's projects, the building was designed on a pre-determined geometric grid, in this case a diamond. All of the walls in the building fall on a grid line, all except the curved ramp shafts and the cylindrical fly loft that projects up out of the building. These elements breaking the grid define their significance as integral to the use of the building and create a unique condition for theater production.

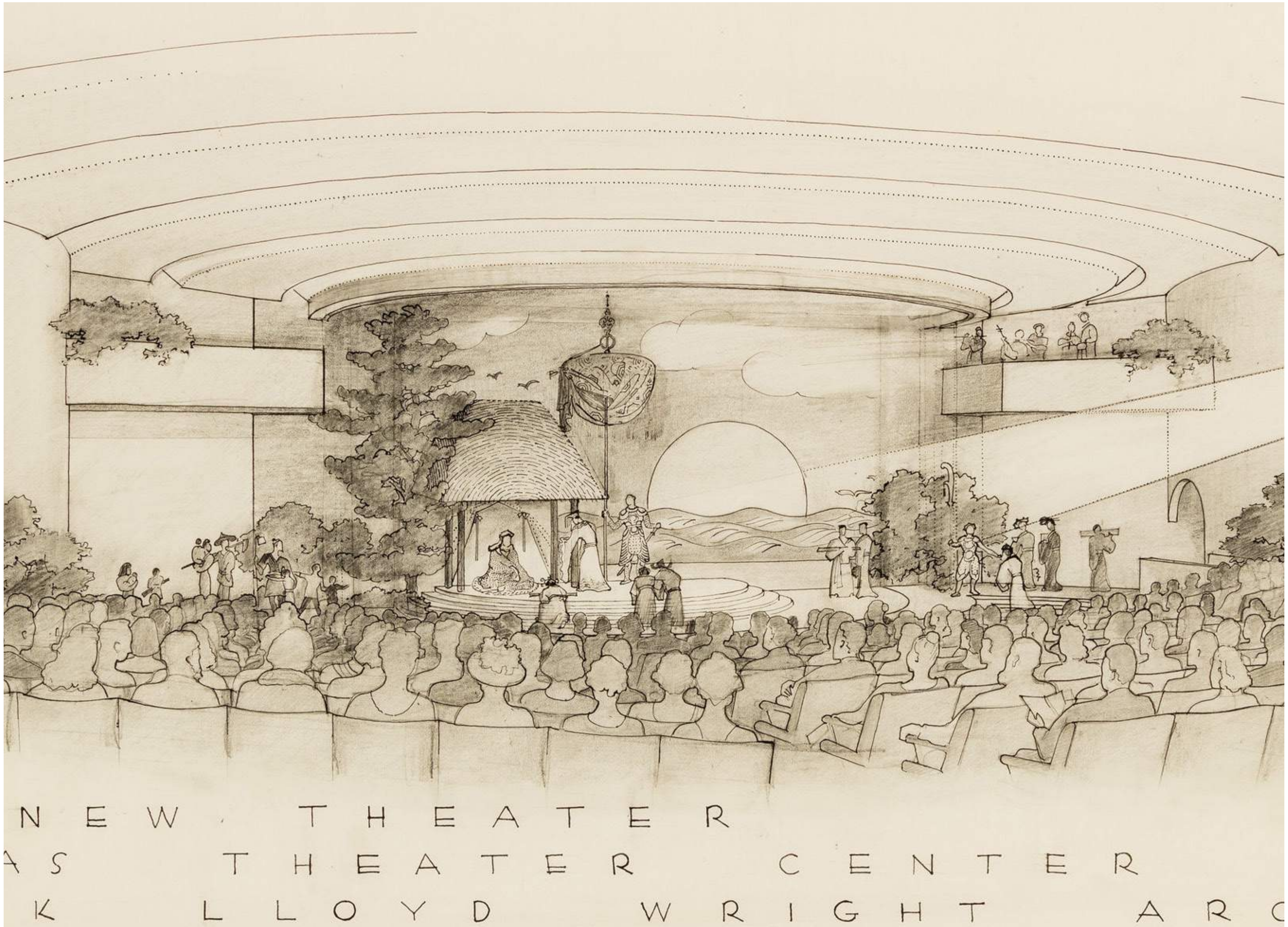
The auditorium space has been described as a product of the dialogue and collaboration of Frank Lloyd Wright and Paul Baker, incorporating ideas shared by the two of them about theatrical production at the time. While there is evidence of this, it is possible that Baker's ideas were not always heard or acknowledged by the architect. Seeing as the design of the theater did not change drastically from the designs Wright had been working on for decades, it is likely that Wright's design vision overpowered Baker's. Regardless of the level of collaboration between the two, both believed the actor and audience should be engaged in a dynamic space that did not staunchly isolate each group. The physicality of this theory is evident in the original construction, where the auditorium is a space that brought actors and audience members together within one volume of space.

This spatial quality was achieved by keeping the floor rake slight enough such that people sitting in the banquette seating in the highest point of the house were directly at the eye level of the actors. The stage was raised above the lowest point of the floor by only two shallow steps, bringing the audience further into the production. The theater's ceiling was designed in such a way that it would allow performers to project their voices comfortably without a microphone, slanting just slightly up away from the stage. This ceiling also had openings in it that were designed to accommodate lighting from above in the plenum, basically hiding it from view in the house.

Frank Lloyd Wright arriving in Dallas, greeted by Robert Stecker (left) president of Dallas Theater Center Board and Paul Baker (right) director of Dallas Theater Center. Source: Dallas Morning Star



Paul Baker visiting Frank Lloyd Wright at his Taliesin Spring Green studio in 1957.
Source: Dallas Theater Center Archives



The ideas driving the functionality and design of the auditorium aligned with experimental concepts that became popular after World War I. Several notable architects were developing theater designs that moved away from the proscenium plan and toward Greek, Roman and Elizabethan plans with circular forms and multiple entrances. Most of these experimental theater designs were not realized until after World War II, and Wright's panoramic stage for the Kalita Humphreys Theater set it apart from other experimental designs

What materialized in the construction of the KHT was a combination of Wright's and Baker's idea that resulted in a unique form that had not previously existed and has not been repeated. The panoramic modified thrust stage allowed the audience to surround the performance happening on stage, and the side stages reached around the audience on both sides, truly blurring the line between audience and actor. This openness was achieved through the cantilevered concrete fly-loft above the stage. The theater's form was particularly suited to Shakespearian drama and epic theater drama. Aside from the mind's of Wright and Baker in solidifying the theater's success, theater technician George C. Izenour was integral to the technological systems that fit within the design of the theater. His mechanics for the revolving stage, Thyration dimmers, and synchronized point winches were all innovations that culminated at the Kalita to effectively contribute to theater production at the Kalita.

Construction

Construction began in September of 1958 and was substantially complete when Wright died in 1959, though he was never able to visit the building during its construction. Almost immediately following Wright's death, his successor firm, Taliesin Associated Architects (TAA), began making minor changes to the design while the building was still under construction. Kelly Oliver and William Wesley Peters were the on-site representatives for both FLW and TAA during construction on the theater, and they approved and oversaw these changes to the design. One such alteration was the addition of the freight elevator in the path of one scenery ramp. The turning radius on each ramp was known to be too tight to fully function as circulation for the scenery, and TAA, anticipating this issue, had drawn up plans to install the elevator in the path of the south ramp. This of course rendered the ramps obsolete even before the building opened.

Additionally, the windows at the back of the auditorium space presented a lighting problem, as no shade provisions were designed in the original drawings. Baker anticipated the need for natural light for use during educational instruction, but realized the advantages of blocking this light out for rehearsals or matinees. TAA designed the top-hinged painted plywood panels to provide the necessary daylighting flexibility. The system was designed such that each plywood panel could be placed in the open position using the hanging block rests that were fixed to the ceiling, similar to the panels at the Cabaret Theater at Taliesin West.

While the building was under construction, Baker and the DTC Board were working diligently to raise the outstanding building fees. Baker had identified several small design features that he wanted to omit from the building to cut costs, including the dumb-waiters in the dressing rooms and a few site elements. These revisions were not substantial enough to account for the project deficit, and Baker continued to ask key funders if they would contribute even more to the cause. Then in July of 1959, Mrs. R. W. Humphreys visiting the theater under construction and made a gift of $100,000 in the name of her daughter Kalita Humphreys who had previously worked with Paul Baker and had tragically died in a plane crash in 1954. This gift enabled the construction to reach completion and became the namesake of the building.

Grand Opening

The Kalita Humphreys Theater opened for productions the week following Christmas 1959, and the new center's opening was celebrated with a three-day gala where ticket holders were afforded the opportunity to dine with the inaugural cast prior to the show. Baker put on his adaptation of Thomas Wolfe's novel "Of Time and the River," as the opening production of the Kalita Humphreys Theater.

Many of the innovative design approaches were acknowledged with great admiration after witnessing them in action. One such feature was the slotted ceiling, designed to house stage lighting. Virgil Beaver's lighting production design itself was applauded as well, with theater critics noting the art required to pre-set the dimmers used throughout the entire production.

The original concept for the revolving screen to be bisected and used to transition between scenes was utilized during the opening production, but was used only occasionally after that.

Members of the Taliesin Fellowship came to Kalita in 1961 to perform a rendition of several plays, including Mary Magdalene, in the theater. The production was directed by Iovanna Lloyd Wright, the architect's daughter, and the score was composed by Olgivanna.

The Kalita Humphreys Theater at Turtle Creek Conservancy

In the early 2000s, local stakeholders sparked an advocacy effort to restore the Kalita Humphreys Theater to its 1959 condition. In 2001, Deedie Rose, then Board Chair of Dallas Theater Center (DTC), privately funded an effort to make critical refurbishments. She tapped Ann Abernathy, project architect for the restoration of Wright's 1889 home in Oak Park, to do a thorough needs assessment of the condition and significance of Wright's 1959 "New Theater." This was the beginning of an upward spiral of gathering information, raising public awareness, and involving the community to support improvements to the internationally significant property – at the time the majority of citizens in Dallas were unaware that Wright's only theater constructed during his lifetime was located in the heart of Dallas.

With grant support from the AIA Architecture Foundation and with the assistance of the Frank Lloyd Wright Foundation at Taliesin West, Abernathy completed an historic structure report for the building and site. Subsequent lectures and forums were sponsored by Preservation Dallas to promote public understanding of the importance of the property for theater, architecture and cultural landscape.

Willis Winters, architectural scholar, and director of the Dallas Park & Recreation Department, was instrumental in calling attention to the plight of the site, which had no master plan but was deemed a Signature Park and a Special Use Park by the City. Dallas Theater Center, the progenitor of the architectural masterpiece in the 1950s, was ready to rekindle the Wright building's importance at the half-century mark. With this momentum, enough support for the cause was garnered to formally protect the property as a City landmark.

The designation report was submitted by preservation architect Ann Abernathy, with general criteria that at least protected the building and site from harm until a formal master plan could be undertaken.

The Kalita Humphreys Theater and its original site were designated a local Dallas Historic Landmark in 2005 and are now protected by a city ordinance, number 25955. The ordinance established the Historic Overlay District No. 122, known as the Kalita Humphreys Theater Historic Overlay District, which applies to a 2.58 acre area of the site, bound by adjacent parcels, the Katy Trail, and Turtle Creek.

The landmarking of the KHT generated enough support from the public to vote in 2006 bond funding for a Master Plan for the building and site. Ann Abernathy, with Booziotis & Company Architects, went on to lead an initial comprehensive master planning study for the theater and site. The master plan was completed in 2010, but was never brought forward for a vote or adopted by the City Council. The 2010 Plan was the basis for work of the non-profit organization known as the Kalita Humphreys Theater at Turtle Creek Conservancy, or KTC. The KTC continues to provide valuable insight into the building and its history.

Right: View looking down onto stage and audience from the fly loft during a performance.
Source: Getty Images

CHRONOLOGY OF CHANGES

1959 Original completion date – December 1959

1965 "Room at the Top" added above Actor's Terrace

Pre-1968 Upper basement offices added at southwest basement (exact date unknown)

1968-69 Education wing & rehearsal studios added

East terrace enclosed & enlarged, 10 columns added below

New porte cochere routed beneath the expanded cantilever

1970s Auditorium repainted a dark taupe color

1973-74 The tracts of land adjacent to the original site were acquired, expanding the 1.2 acre site to ~9.85 acres.

1977 Auditorium balcony edge extended forward 6 feet

1982 South parking lot added along Lemmon Ave

1983-84 Auditorium floor rake increased by 1'6" overall

Original banquette seating removed

Auditorium painted dark green

New lights on suspended pipes added to auditorium ceiling

1989 Stair from foyer to basement men's lounge floored over

Stairs from foyer to basement women's lounge rebuilt with wider treads

Porte cochere enclosed to provide enlarged lobby space, partial deconstruction of original exterior wall to open into new lobby, south entry added to access lobby from parking lot

Second floor dressing rooms partitioned, third floor costume room partitioned

1993 Asbestos abatement at auditorium ceiling

1997 Auditorium vomitories decked over or entirely enclosed to provide additional seating

1998 East entry patio demolished and reconstructed with steps, new handrail & portion of driveway added

2002-03 Removal of "room at the top"


THE KALITA HUMPHREYS
THEATER
DALLAS THEATER CENTER
HCB

Period of Significance

A period of significance associated with important events, people, or activities was determined to inform the preservation philosophy for the Kalita Humphreys Theater. The period of significance is 1959, the year the building's construction was completed. This definition of the period of significance reflects the original design intent and the as-built condition of the Kalita Humphreys Theater. The significance of each space in the building was determined using the period of significance as a guide for identifying character-defining features.

Overall, the KHT is significant to Frank Lloyd Wright's body of work as the only stand alone, professional theater that he ever designed. It exemplifies his thoughts on theater production and design, which he made part of his personal life as evidenced by small theaters at both Taliesin West and Taliesin Spring Green. It is also significant in relation to Dallas Theater Center director Paul Baker and his theater production philosophy.

The KHT is designated a local Dallas Historic Landmark by means of a city planning ordinance that established the Kalita Humphreys Theater Historic Overlay District. This ordinance requires that any exterior modifications, additional construction, or demolition of existing contributing structures be required to obtain a certificate of appropriateness or a certificate for demolition. The ordinance also dictates that any alterations to the building must comply with the preservation criteria outlined in Exhibit A of the ordinance.

Primary Significance:
Spaces of primary significance typically have high levels of architectural and historical integrity, and best express the physical appearance and historic function of the building during the period of significance. They are often, though not always, spaces that are more public, formal, and architecturally elaborate and should be preserved or restored.

Secondary Significance:
Spaces of secondary significance are typically semi- or non-public spaces that are typically supportive to the function of the building, in this case its use as a theater requires many support spaces that are integral to the building's function but not necessarily to the overall significance of the building's design or history. Character-defining features, elements, and architectural configurations from the period of significance should be retained and preserved or restored. Original configurations, elements and finishes of secondary spaces should be preserved or restored. Modifications may be made that are reversible and maintain historically contributing materials.

Minor Significance:
Spaces of minor significance are typically utilitarian and storage spaces that are not integral to understanding the architecture or history of the building. These spaces do not contribute to the building's design vocabulary, and there is flexibility as to their treatment and use to meet current needs. Remaining original elements should be preserved when possible.

Outside Period of Significance:
Spaces that are outside the period of significance are later additions that do not contribute to the building's significance and in many cases negatively impact the character-defining features of the building. These elements should be removed to restore the original design intent.

Exterior

The building's overall architectural form and materiality visible from the exterior are of primary significance. The curved reinforced concrete forms of the building illustrate how the building was considered as a compositional whole; these forms express the building's structural and system and the building's function. The relationship between verticality and horizontality is significant both as a typical design move of Frank Lloyd Wright but also as a reflection of and response to the physicality of the site. The cantilevers that became signatures of Wright's work here also serve the purpose of creating outdoor space that is a significant part of the building's design, and the cantilevers serve to highlight transitional spaces that blur the line between interior and exterior spaces.

Additions to the building that impact the original massing of the building, such as the enclosed education wing at the terrace level and added lobby space at the ground level, are outside of the period of significance and detract from the original massing and design of the building. Such additions offset the balance between indoor and outdoor space, and rendered highly significant spaces as unrecognizable. The additional of the education wing also created a top-heavy building where it was once strategically horizontal to relate with site features.

Basement Level

Workshop
The open basement workshop is of secondary significance as the overall support space for the theater above. It also served as a more intimate black box theater on occasion throughout the building's life. Its layout is an exact outline of the stage above, which originally facilitated rehearsals.

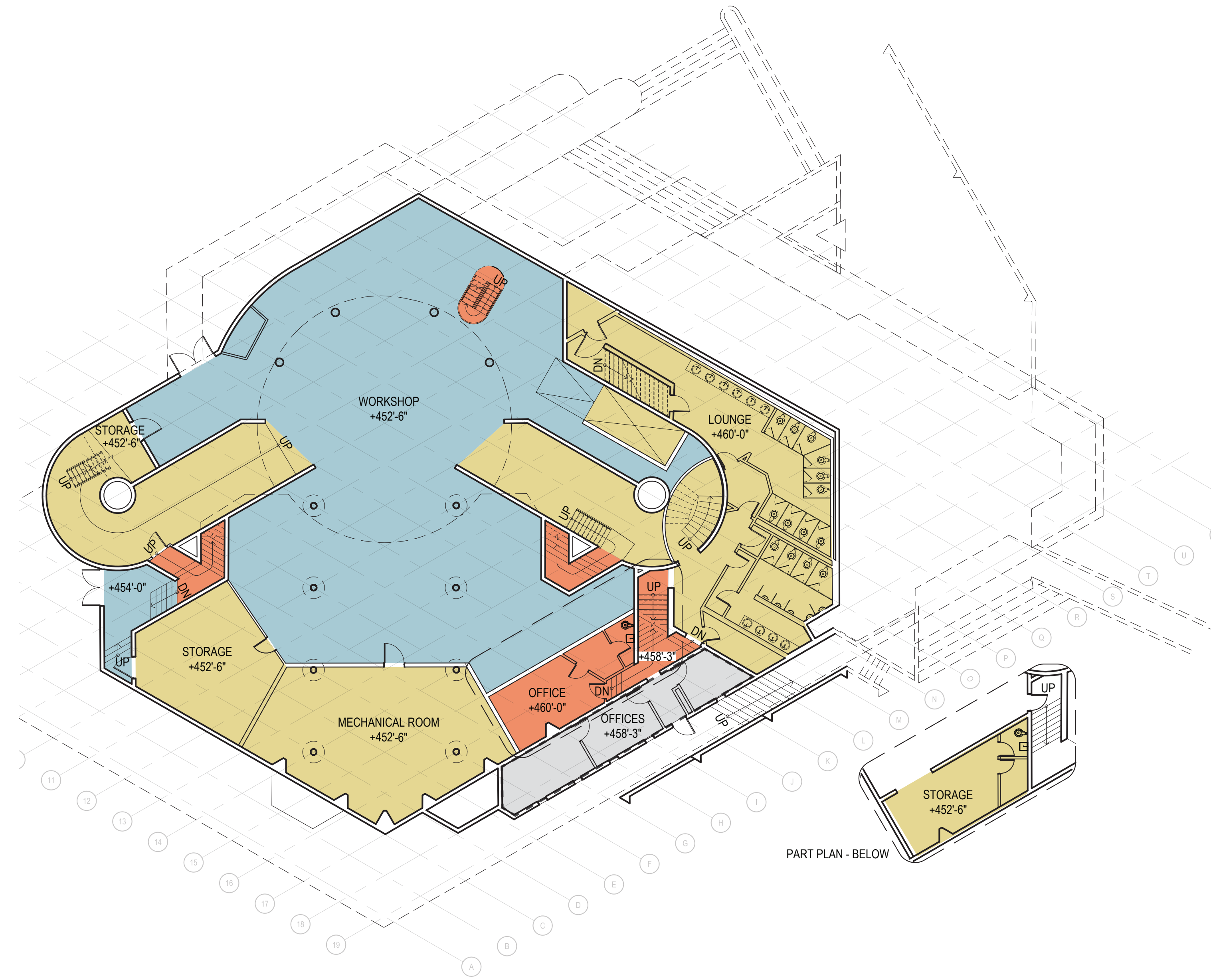
Stage Circulation
All circulatory spaces that lead to the stage have been designated as spaces of primary significance. Wright and Baker together emphasized the importance of multiple exits and entrances to the stage, deeming any circulatory routes to and from the stage of great importance to the overall design of the theater house.

Paul Baker's Office
Paul Baker's office, his secretary's office, and the original stairs leading to it from the exterior of the building have been designated as spaces of primary significance. As the visionary theater director who worked directly with Wright to design the building, his office is important to the history of the theater. The stairs to the office from the exterior contribute to the original design intent, as his office was meant to be accessible from outside of the theater at any time.

Office Additions
The offices added to the exterior of the basement outside of Paul Baker's office are outside of the period of significance as non-original spaces. The offices detract from the significance of Baker's office.

Restrooms
Restrooms are considered support spaces and therefore are of minor significance.

Mechanical Spaces
Mechanical spaces, such as the boiler room and electrical storage, are designated as spaces with minor significance.



Significance Zoning - Basement Level

- Primary Significance
- Secondary Significance
- Minor Significance
- Outside Period of Significance

SIGNIFICANCE ZONING

Ground Level

Lobby – Original Footprint
The original lobby space is of primary significance to the design of the building. The original lobby was an integral element of the entry sequence into the theater, and its design as a small space was meant to influence the use of the outdoor terraces instead of the lobby during intermission. In its original relationship with the exterior of the building, the lobby was the space where visitors primarily felt the weight of the cantilevered terrace above.

Lobby – Added Enclosure
The 1989 addition of lobby space is outside of the period of significance and therefore does not contribute to the significance of the building. Its addition detracts from the original design intent of the cantilevered roof terrace.

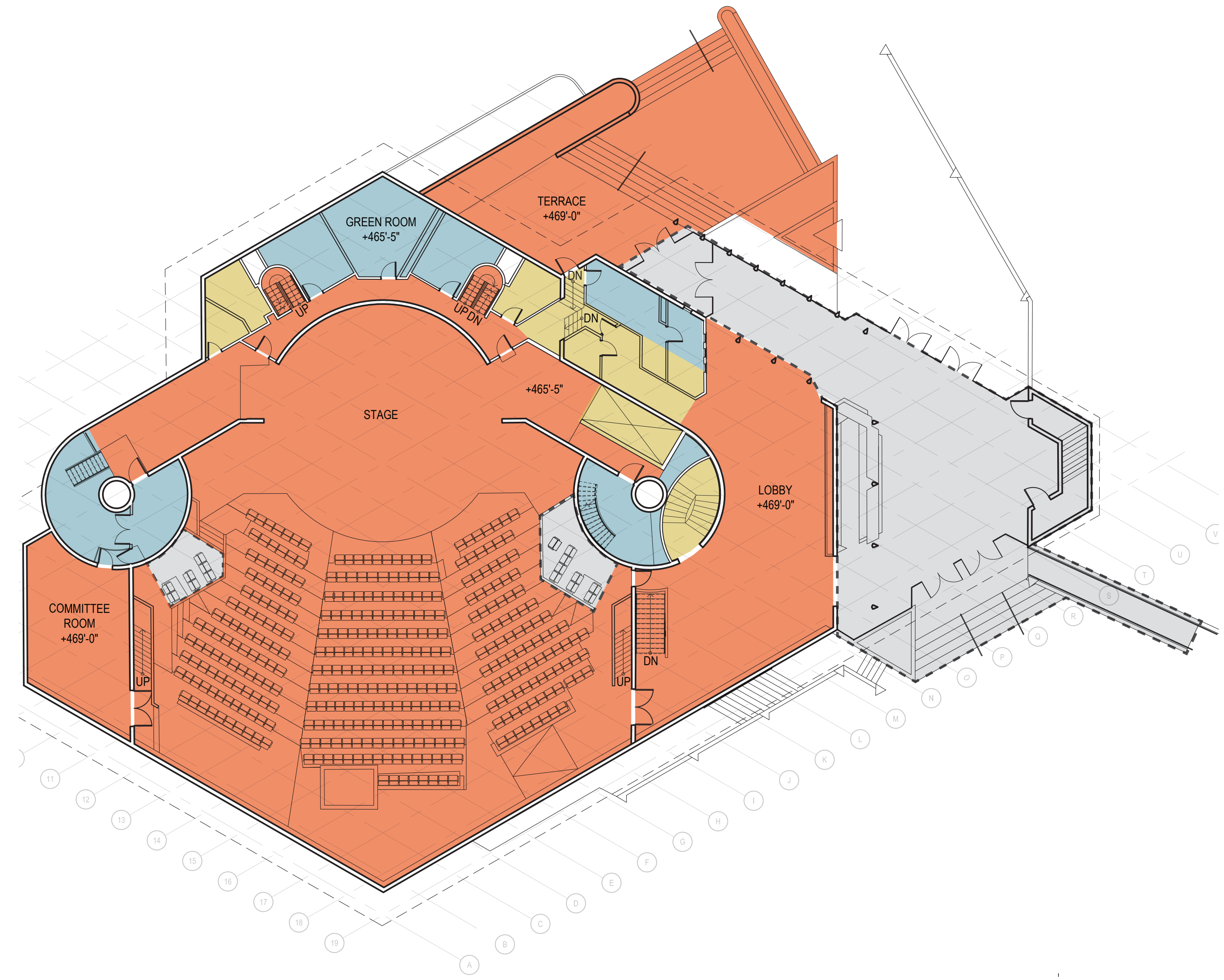
Ticket Booth
The ticket booth has been designated a space of secondary significance as a vital support space to the function of the theater. The section of the space that was extended later is not within the period of significance.

Auditorium
The auditorium is the space with highest significance in the building, as it houses and supports the main theater function for which the building was built. In its original condition, the auditorium was the physical manifestation of the years Wright spent formulating the architectural language of his concept for The New Theater. It is also where Wright's theory on theater production blended with director Paul Baker's ideas for pushing the boundary of theater in the mid-twentieth century. The circular, revolving stage at the focal point of the space is thrust out into the audience seating area, creating a close connection and blurring the delineation between the two functions. This intentional design move is further strengthened by the side stages, ramps, and vomitory stairs that enabled various stage circulation routes. The suspended plaster ceiling planes radiate out from the stage, and each ceiling panel is slanted and dropped to accommodate stage lighting from above in the plenum space. While this ceiling configuration did not work as intended, it is a character defining feature of the space. The rake of the auditorium floor was designed such that the farthest row would be at the height of the actor's eye level. The original finish palette included mustard yellow, muted beige, and other light, natural colors.

Committee Room
The committee room has been designated a space of primary significance. The original wood built ins and wet bar are evidence of the importance of the space in its original use, as well as the circular opening included to allow a glimpse at the stage from within the space. The committee room is one of few spaces in the building that maintains so much of its original millwork and features.

Stage Circulation
All stage circulation is vital to the design of the stage and the production of theater, and therefore have been designated as elements of primary significance. Stage circulation includes the "mouse holes" at the side stages, the ramps down to the basement, the access doors along the ramps, and the vomitory stairs at both sides of the stage. These elements were integral to the function of the stage, and Paul Baker created productions that fully utilized the multiple modes of entry and exit.

Dressing Rooms
The backstage dressing rooms have been designated as spaces of secondary significance. The rooms are important to the overall building use as support spaces intended only for use by actors and theater staff. The original built-ins are considered character-defining features and should be preserved.



Significance Zoning - Ground Level

- Primary Significance
- Secondary Significance
- Minor Significance
- Outside Period of Significance

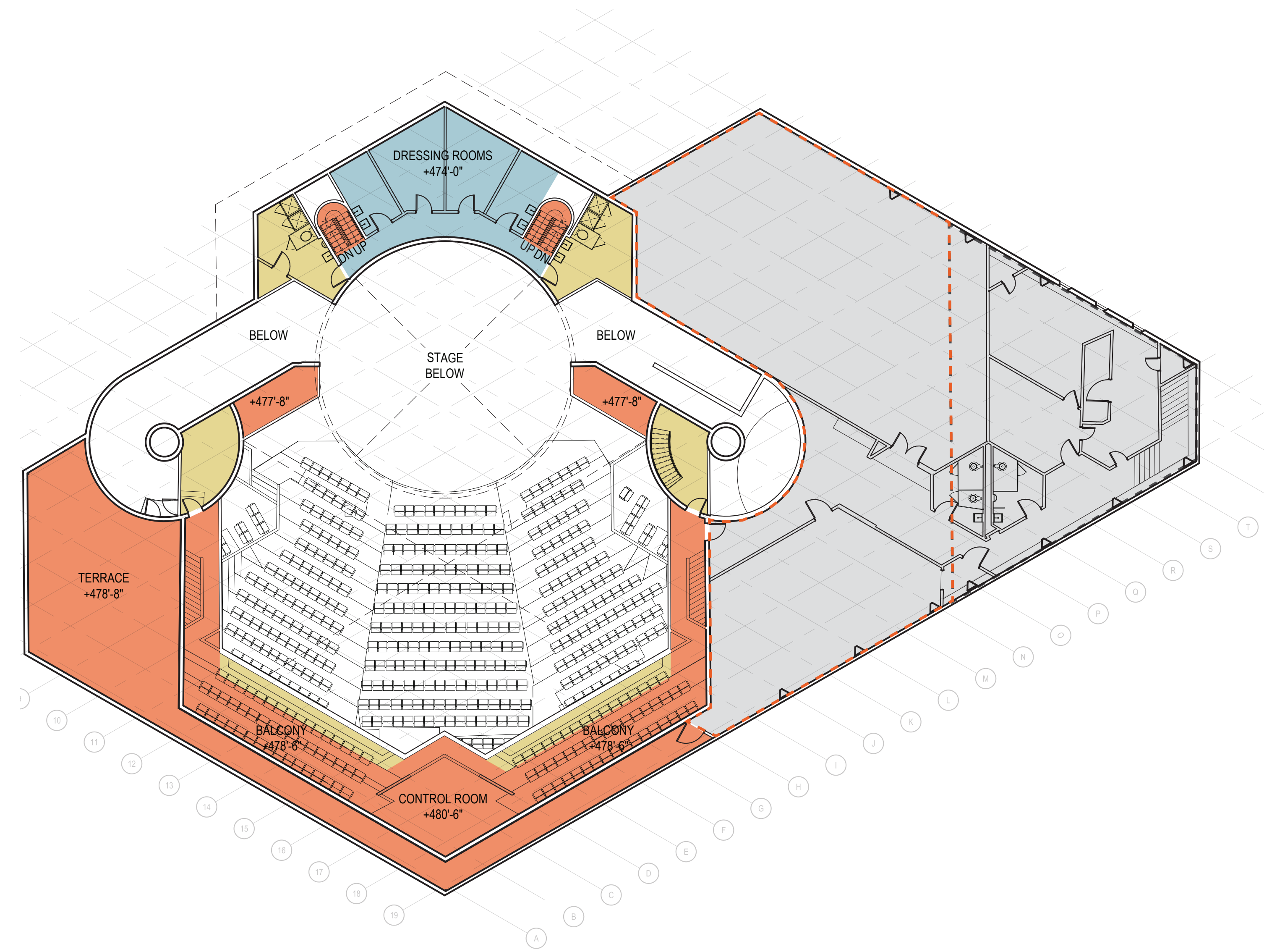
Mezzanine Level

Auditorium Balcony
The original extent of the balcony is of primary significance to the auditorium space, and the stairs leading up to the balcony and roof terraces are similarly integral to the design intent of the theater and its outdoor roof terraces. The small music balconies at each side of the stage are also of primary significance to the space. The extended balcony space is outside of the period of significance and detracts from the feel and volume of the original auditorium space.

Roof Terraces
The original roof terrace has been designated as an element of primary significance. The intention for outdoor roof terraces to be used during intermission was fundamental to the design of the theater. The small lot to which the building's footprint was restricted prompted Wright to raise the main reception spaces off of the ground in the form of open-air, outdoor roof terraces. These terraces were also integral to the building's massing mirroring the limestone strata of the adjacent rocky edge.

Dressing Rooms
The backstage dressing rooms have been designated as spaces of secondary significance. The rooms are important to the overall building use as support spaces intended only for use by actors and theater staff. The original built-ins are considered character-defining features.

Education Wing
The added education wing is outside the period of significance, and it enclosed the previously open-air roof terrace that was a character defining feature of the building's design. The outline of the original roof terrace is indicated in red. The education wing enclosure also detracts from the overall massing of the building's exterior.



Significance Zoning - Mezzanine Level

- Primary Significance
- Secondary Significance
- Minor Significance
- Outside Period of Significance

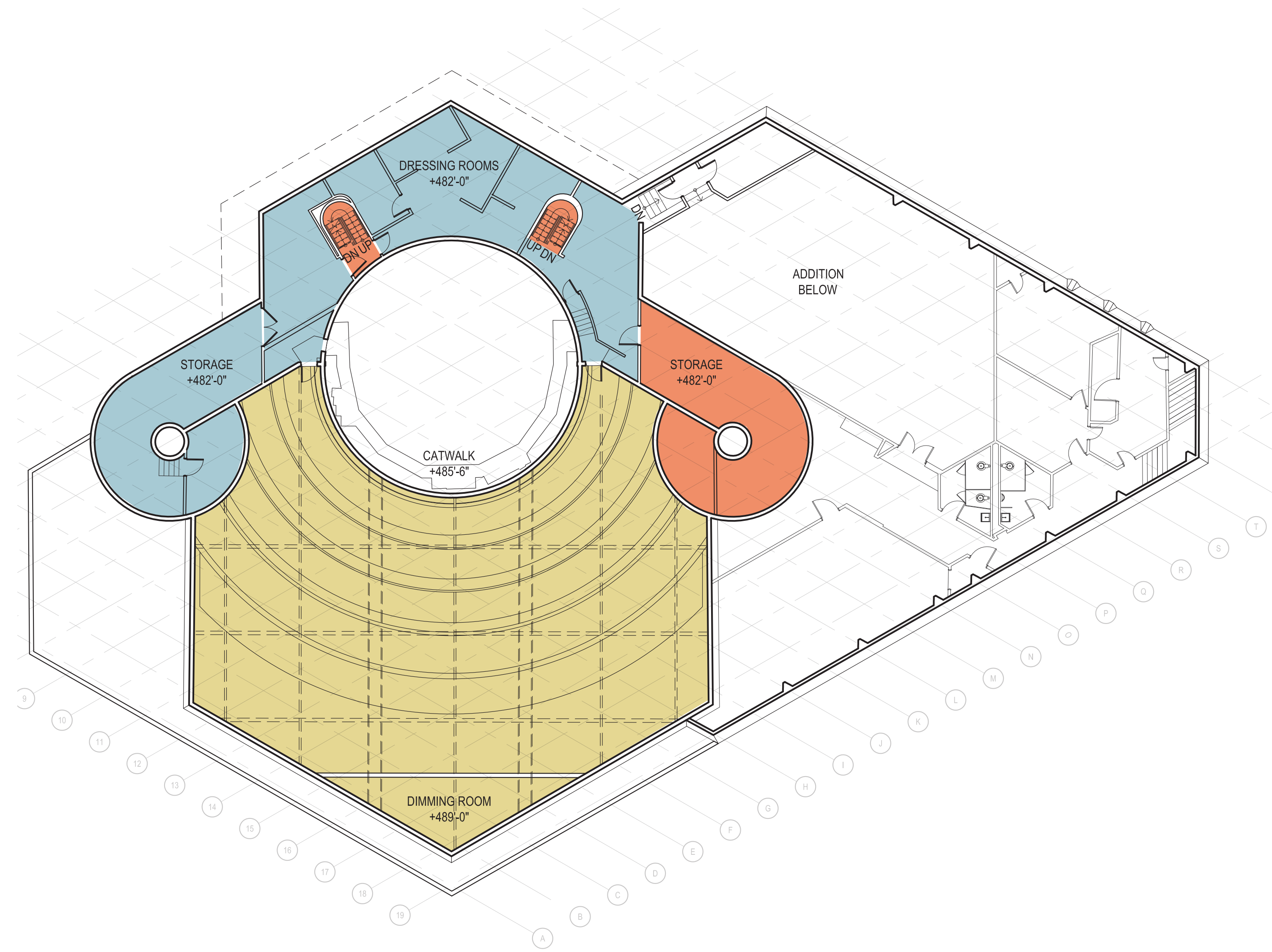
SIGNIFICANCE ZONING

Plenum Plan

Library
The library that occupies one of the circular masses of the plenum level has been designated as a space of primary significance. This space housed Dallas Theater Center's collection of books used in the education arm of the Center, and there are personal accounts of the space hosting theoretical debates about theater production.

Support Spaces
The various support spaces, including costume storage and laundry room, are designated as spaces of secondary significance.

Plenum Space
As a back of house space, the plenum area is a space of minor significance. It's importance is associated with the house-facing ceiling surfaces and lighting.

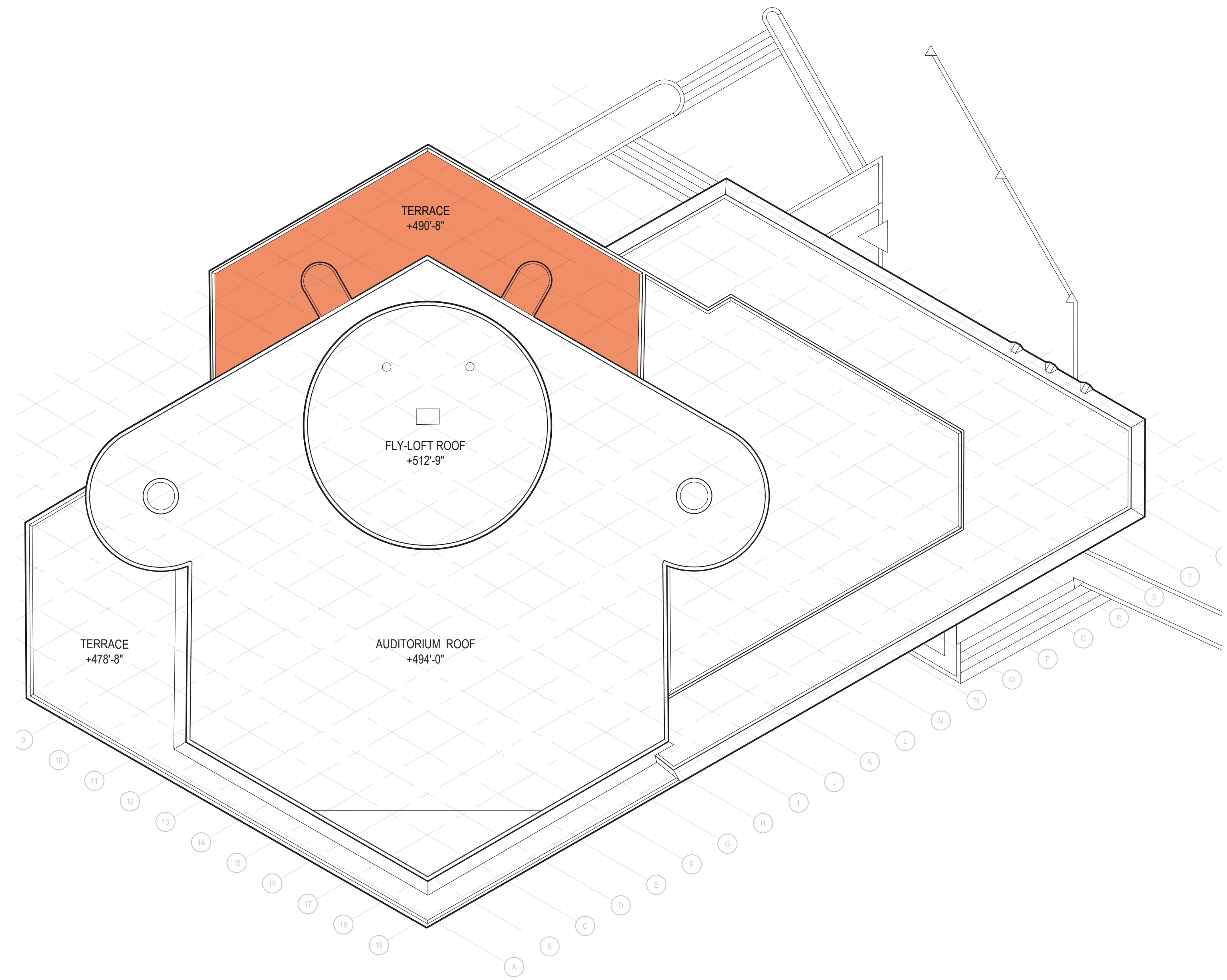


Significance Zoning - Plenum Level

- Primary Significance
- Secondary Significance
- Minor Significance
- Outside Period of Significance

Roof Level

Actor's Terrace
The actor's terrace has been designated a space of primary significance as an important exterior space in keeping with the overall roof terrace concept.



Significance Zoning - Roof Level

- Primary Significance
- Secondary Significance
- Minor Significance
- Outside Period of Significance

INTEGRITY ZONING

Levels of integrity were determined using the 1959 period of significance to identify all existing original elements and spatial relationships. Integrity is used in conjunction with significance to determine spaces that require extensive restoration to return the building to its original design intent. Integrity also helps to illuminate spaces that can more readily accommodate interventions required to create a highly functional theater.

High Integrity:
Spaces identified as having high integrity are those that retain many original materials and finishes and have not been changed architecturally. Proposed interventions in spaces with high integrity should, whenever possible, retain original elements.

Compromised Integrity:
Spaces with compromised integrity are spaces that have been altered in such a way that their materials, finishes, or spatial relationships no longer reflect what was originally built, but retain enough original fabric that should be retained in restoring the building.

Low Integrity:
Spaces identified as having low integrity contain very few original elements, and in most cases have changed dramatically from their original architectural configuration from the addition of walls, alteration of finishes, replacement of materials, and removal of original architectural details.

Detracts from Integrity:
Spaces in this category actively undermine the integrity of the building. These spaces include major architectural additions visible from the exterior.

Exterior

The exterior of the building exhibits a compromised level of integrity. The original coatings have been replaced and modified, the soffits beneath the character-defining overhangs have been replaced and control joints added, and several elements and spaces have been added to the original footprint and massing. These include the addition of the educational wing that enclosed the exterior terrace at the mezzanine level, the addition of lobby space that altered the exterior entry sequence, and the addition of office space outside of Paul Baker's office.

Basement

Workshop
The open basement workshop's integrity has been compromised by the subdivision of the space to provide compartmental rooms serving other purposes than the original intended purpose. The materials of the space are largely original.

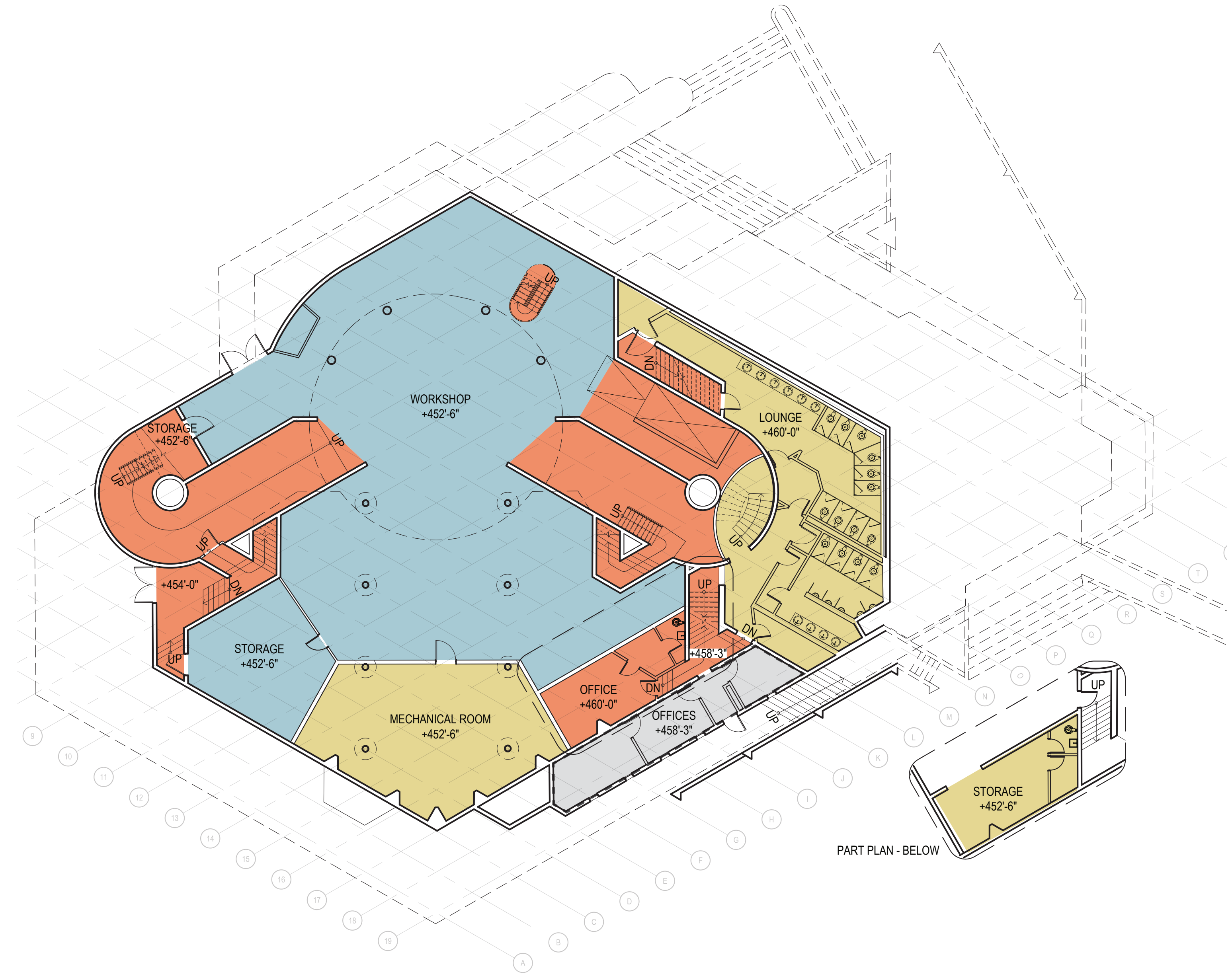
Stage Circulation
Stage circulation such as the ramps and vomitory stairs retain a high level of integrity as they remain largely as built. While the vomitory steps have been covered over, the original materials of the steps remain and the enclosure can be fully reversed.

Paul Baker's Office
Paul Baker's office retains a high level of integrity. There have been very few changes to the office since the building was constructed, and most original materials remain in the space including original wood built-ins in both Baker's office and the attached secretary's office. The opening to the hallway above the secretary's desk has been infilled with plywood, which is fully reversible.

Office Additions
The offices added to the exterior of the basement outside of Paul Baker's office are considered detracting from the integrity of the building. The exterior materials enclosed within the room have been recoated to cover the original finish and coating. There are also holes drilled through the exterior concrete walls to bring electric lines into the added offices.

Restrooms
The restrooms have been completely changed from the original construction and therefore have a low level of integrity. None of the original materials have been retained, and the existing configuration dates from 1989.

Mechanical Spaces
Mechanical spaces, such as the boiler room and electrical storage, retain a high level of integrity as they have not been changed since construction.



Integrity Zoning - Basement Level

- High Integrity
- Compromised Integrity
- Low Integrity
- Detracts from Integrity

INTEGRITY ZONING

Ground Level

Lobby – Original Footprint
The integrity of the lobby has been compromised by the 1989 expansion of the space by nearly double, enclosing a portion of the site that would have originally contributed to the cave-like feeling of the lobby. By enclosing that exterior space, the original relationship between interior space and site features was fundamentally altered. Additionally, the expanded lobby space required the removal of a section of the exterior concrete wall and cast in place window units. Within the original footprint of the lobby, the removal of original built-in and freestanding furniture has also impacted the integrity of the space. Original banquette seating that wrapped the perimeter has been removed and movable benches used instead. The finishes on the walls, ceiling, and floor have all changed as well. The haphazard addition of lighting, mechanical vents, and life safety devices on the ceiling plane has caused the space to feel busy and lacks a sense of intention and design.

Lobby – Added Enclosure
The 1989 addition of lobby space is outside of the period of significance and therefore detracts from the integrity of the building. The enclosure along with the education wing above have completely altered the original roof terrace overhang at the entry, negatively impacting the massing and appearance of the building from its main point of entry.

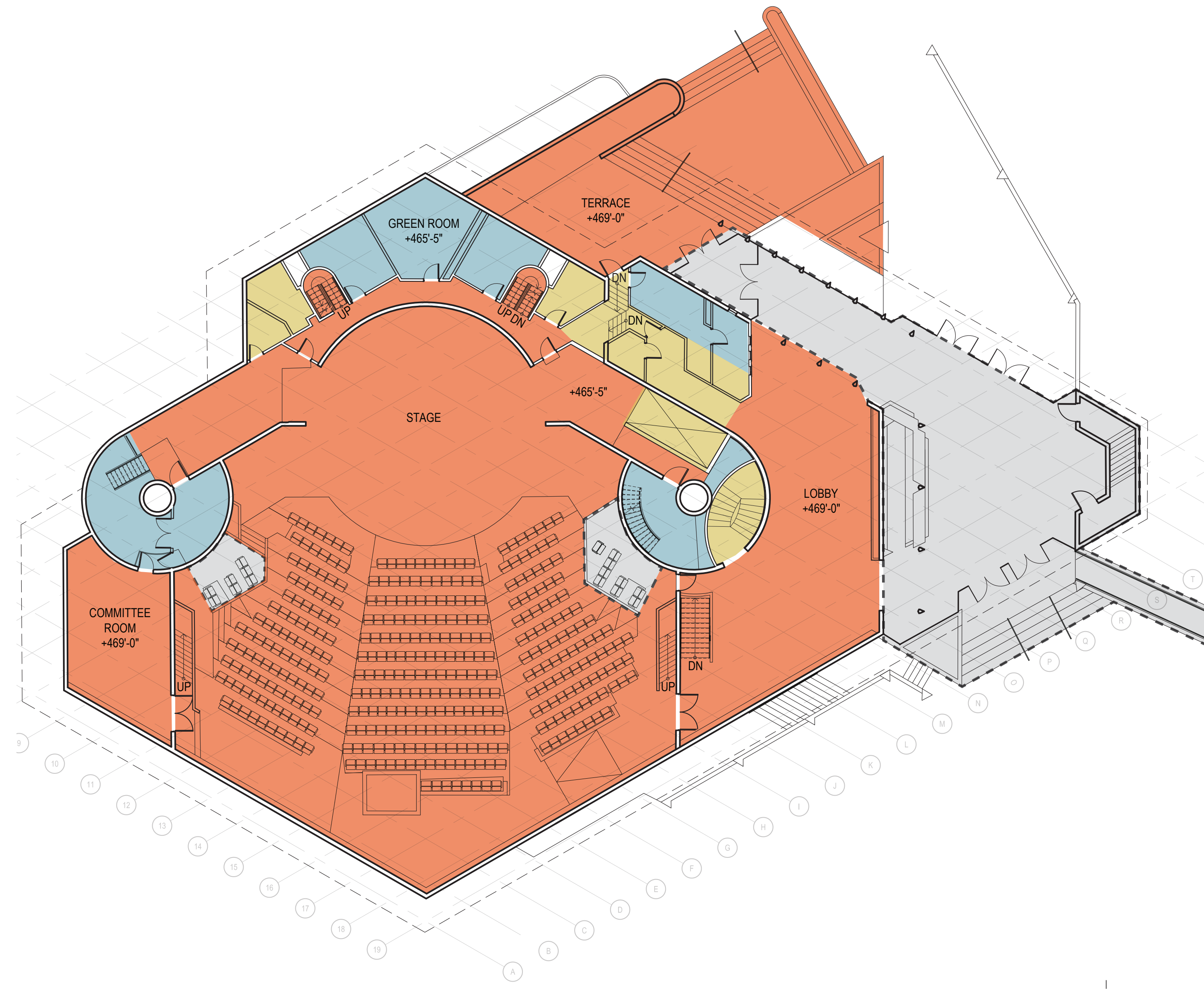
Ticket Booth
The ticket booth's integrity has been slightly compromised since the overall size and configuration of the ticket booth was changed in 1989. Although it has been altered, many wood built-ins within the space are original to the construction of the building, and all original counter openings remain.

Auditorium
The integrity of the auditorium has been compromised by several changes from its original construction. The rake of the floor was changed in 1983, which has dramatically impacted the design philosophy of Wright and Baker. The original rake of the floor was much lower to maintain a close relationship between the audience and performers. All original seating was replaced with the existing seating in 1983. The replaced seating is not in keeping with the original design intent. There would have also been banquette seating below the west windows that was removed. The vomitory stairs were covered over to provide more seating in 1997, an intervention which eliminated original planter boxes that were integral to the design. The finishes of the whole space have been changed multiple times since construction. The house finishes were originally lighter earth tones, and the existing color scheme greatly impacts the overall ambiance of the house. The ceiling finish was removed and replaced in 1993 as part of asbestos abatement. The overcrowding of the plenum ceiling with low-hanging lighting that does not fit within the provided openings impacts the visual quality of the ceiling. Original elements include some house lights below the balcony, exterior windows and plywood window covers, and all doors into the space.

Committee Room
The committee room retains a high level of integrity. All built-ins currently existing in the space are original to the construction, except for the banquette seating which was replaced in-kind in 1963. There were originally open shelves above this seating that were removed at an unknown date, and the circular window opening into the theater house was infilled with a removable plywood panel. The original recessed light fixtures also remain in the space.

Stage Circulation
All stage circulation retains a high level of integrity as it has not undergone any notable changes since the construction of the building. The exception to this is the vomitory stairs which have changed with the addition of seating mentioned in the previous 'Theater House' section. While the freight elevator is not shown in the drawings, it was installed as part of the original construction and therefore does not impact the integrity of the ramps.

Dressing Room, Props, Green Room
The backstage spaces, including the hallway, retain a high level of integrity with minor changes to finishes and configuration since construction. The built-in seating in the Green Room has been replaced, but the wall of wood built-in cabinets is original.



Integrity Zoning - Ground Level

- High Integrity
- Compromised Integrity
- Low Integrity
- Detracts from Integrity

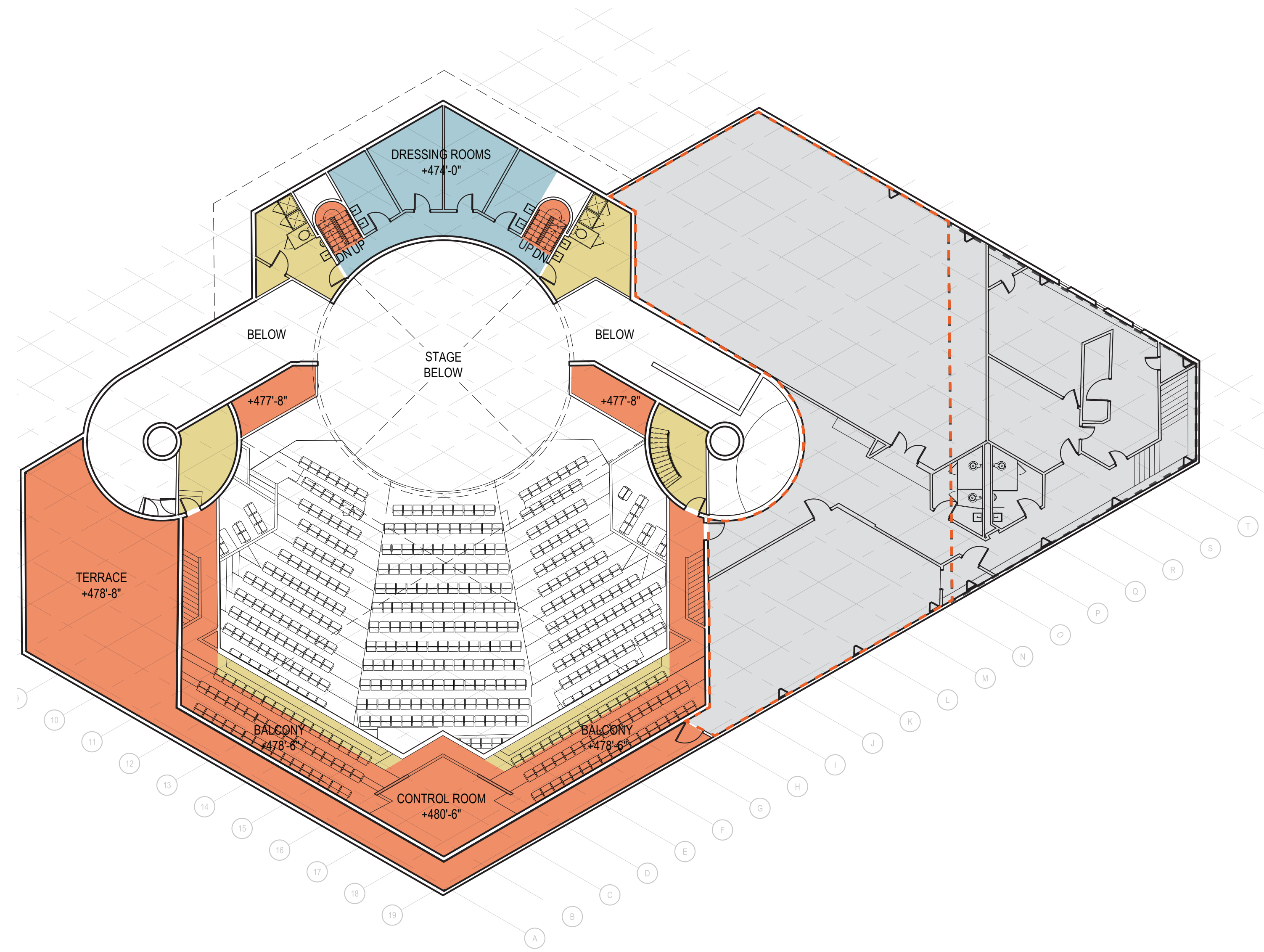
Mezzanine

Auditorium Balcony
The balcony's integrity has been compromised by the extension of the space in 1983, which included the addition of seating in the balcony. The stairs up from the theater as well as the sound booth are original elements.

Roof Terraces
The remaining roof terrace retains a high level of integrity and has not been significantly modified since the building's construction.

Dressing Rooms
The backstage dressing rooms retain a high level of integrity, retaining original wood built-ins and mirrors. The adjacent bathrooms also remain as constructed.

Education Wing
The added education wing detracts from the integrity of the building. The enclosed original roof terrace was completely changed, and the original parapet wall at the perimeter of the terrace was removed to accommodate the addition.



Integrity Zoning - Mezzanine Level

- High Integrity
- Compromised Integrity
- Low Integrity
- Detracts from Integrity

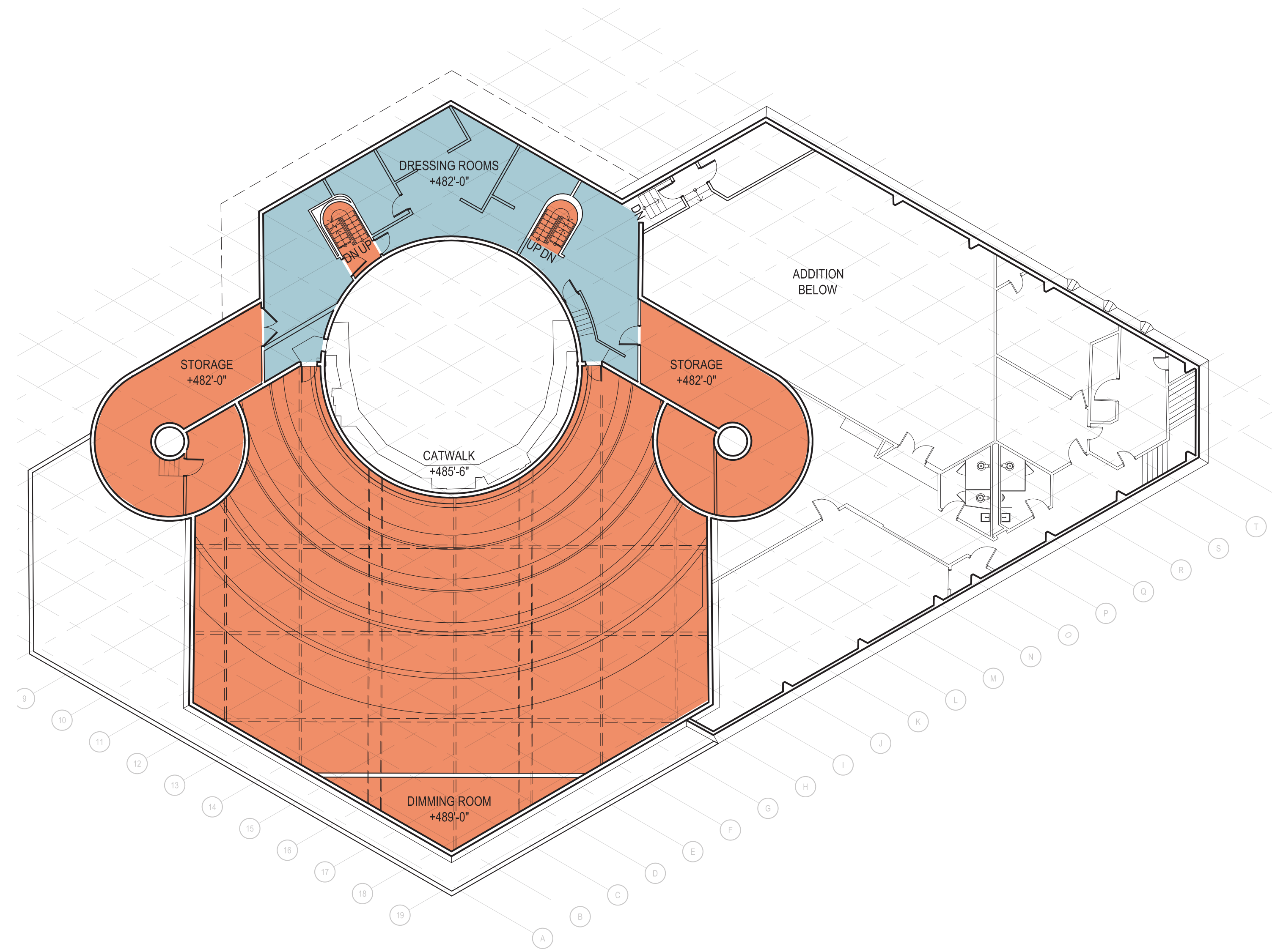
INTEGRITY ZONING

Plenum Plan

Library
The library retains a high level of integrity. The configuration has not changed since its construction, and original wood shelves remain in the space.

Support Spaces
The various support spaces, including costume storage and laundry room, have compromised integrity. They have had various changes impacting the integrity of the spaces, including modified finishes and added partitions.

Plenum Space
The plenum area has not been changed since its construction, giving it a high level of integrity.

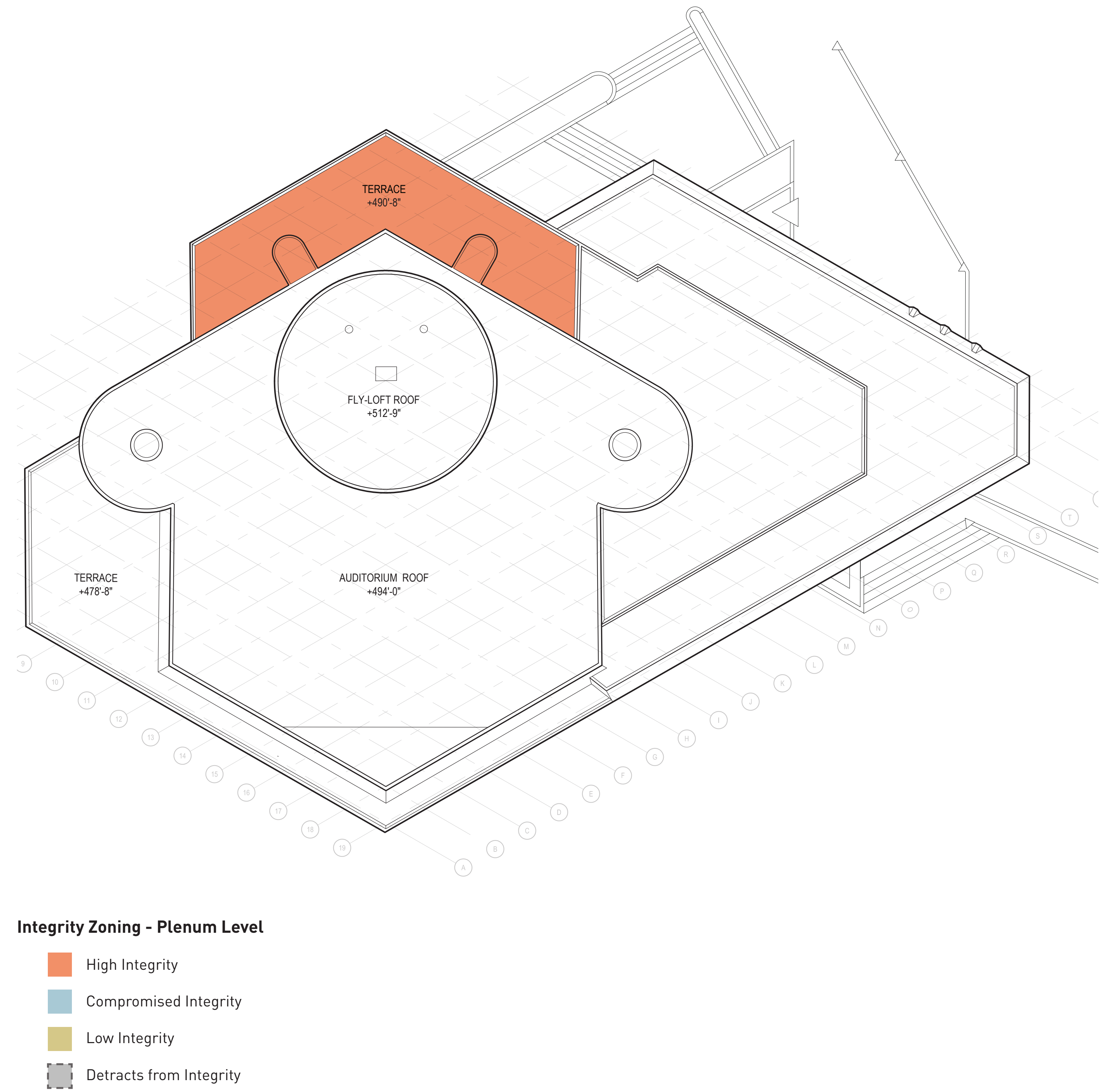


Integrity Zoning - Plenum Level

- High Integrity
- Compromised Integrity
- Low Integrity
- Detracts from Integrity

Roof Plan

Actor's Terrace
The actor's terrace has a high level of integrity with no changes to the original fabric.



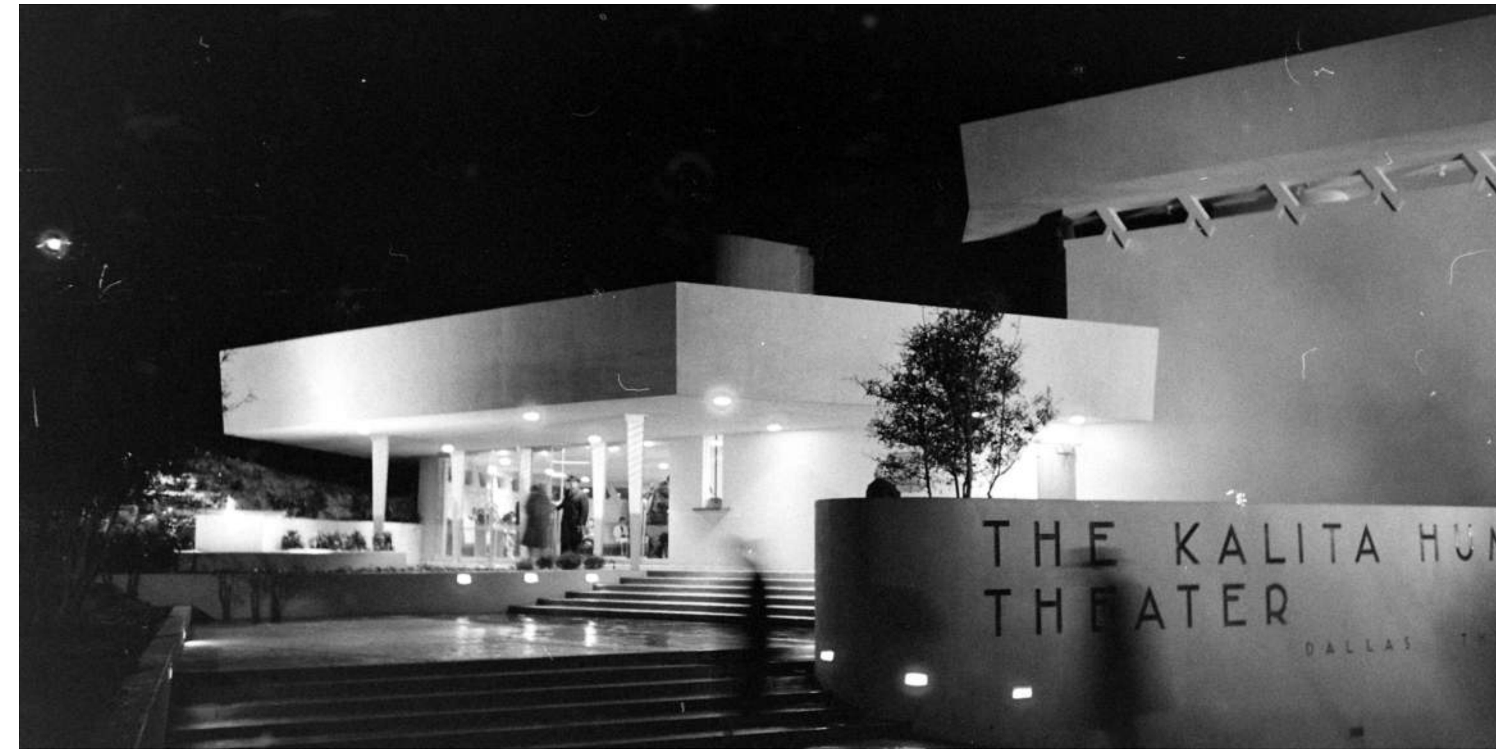
HISTORIC PRESERVATION

The Kalita Humphreys Theater is a significant Frank Lloyd Wright designed theater that retains a moderate level of integrity with reversible elements added after 1959. These later additions as well as the continuous use of the building have created a number of issues that need to be addressed. Due to its architectural and historic significance, the architectural recommendations will prioritize restoring the original intended aesthetic. Changes made over time will be reversed as they are not in keeping with the original design intent and detract from the significance and aesthetic of the building.

Overall the theater is in fair condition. Many of the materials exhibit signs of slight to moderate wear, while others have been altered or replaced such that the original materials are no longer present. The building has undergone several architectural alterations that are recommended for removal to restore the theater to the 1959 period of significance. There are also recommended modifications to the original design to improve the performance of the theater and to meet current theater production standards. There are some structural concerns that are covered in greater detail in the structural recommendations.

Exterior

A. Samples of exterior finishes should be collected and analyzed by a materials conservator to determine the makeup, paint chronology, and original paint colors. Original exterior finish material is believed to be located above the ceiling of the added basement offices where a previously exterior soffit was enclosed in 1963. This information should be safely stored as part of the historical record and used to guide future treatment.
B. The existing exterior coatings should be removed from all concrete surfaces and the original finish should be replicated with a new flexible waterproof coating to match the texture, color, and gloss of the original while providing long term protection to the structural concrete.
C. The added Education Wing should be removed and the original roof terrace and parapet wall restored.
D. The added enclosed lobby should be removed and the original exterior entry sequence restored. All non-original columns added as part of the lobby expansion should be removed.
E. The concrete retaining walls defining the entry stair and terrace should be selectively repaired and refinished to match the original exterior finish. The red concrete stairs and terrace should be refinished to the original finish treatment.
F. The concrete fountain basin should be selectively repaired and patched. Metal fountain elements should be surface prepared and painted to match the original scheduled finish.
G. The basement office addition should be removed and the original exterior wall repaired and refinished to match the original exterior finish treatment.
H. All existing soffits should be removed to accommodate structural work. Provide new cement plaster soffits to match original configuration and finish. Original soffit conditions are believed to be located above the ceiling of the added basement offices where a previously exterior soffit was enclosed in 1963.
I. The exterior metal window & door system that was moved and modified in 1989 should be relocated to its original location and configuration. Original doors that were relocated to other locations should be removed for restoration before reinstallation. Metal components should be surface prepared and repainted with an original finish color. Glazing putty and weatherstripping should be replaced.
J. Reset all clerestory window glazing in new putty and replace interior finished plaster glazing stops.
K. Replace all flat roofing with new.
L. Replace all skylights with new to match dimensions of existing.
M. Remove all non-original exterior lighting and provide new to match original wherever possible.
N. Prepare and paint all exterior steel doors and associated hardware. Replace missing elements.
O. Refer to the structural recommendations section for all concrete repair recommendations.
P. Conducting mockups and procuring material samples are extremely important when trying to determine the appropriate construction method or replacement material. Cleaning, refinishing, and repair methods should be mocked up to determine both the effectiveness of the technique and qualifications of the laborer. Given the architectural importance of the Kalita, no method or material should be accepted until it meets the satisfaction of the owner and architect.



Original massing, entry terrace, and roof terrace to be restored
Source: Frank Lloyd Wright Foundation Archive at Avery Library


Original entry terrace to be restored
Source: Dallas Theater Center Archive

Historic primary entry to Kalita to be restored to 1959 condition.

Remove existing soffits to accommodate required structural work.

Non-original entry, education wing, and basement offices to be removed

Remove non-original office addition and relocate exterior MEP equipment, refer to MEP recommendations.

HISTORIC PRESERVATION

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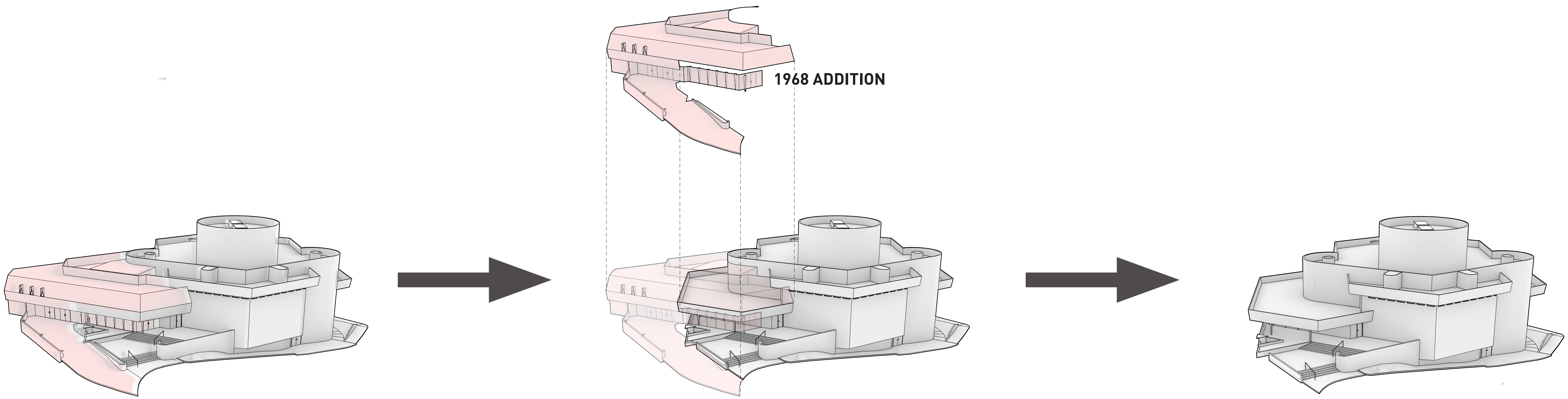
HISTORIC PRESERVATION



Present Day Kalita Humphreys Theater

Restored Kalita Humphreys Theater

Interior

Interior recommendations relevant to the whole building are identified under general recommendations. Significant interior spaces within the Kalita Humphreys Theater will have specific recommendations related to their restoration in the following pages. Interior recommendations are based off of the guiding recommendation to return the building to its 1959 period of significance as well as to make necessary improvements to accommodate theatrical production requirements, improved accessibility, and life safety modifications.

General Recommendations

A. Samples of interior finishes should be collected and analyzed by a materials conservator to determine the makeup, paint chronology, and original paint colors. Original interior finishes are believed to be extant inside of the back of house men's bathroom closet as well as the closet in the plenum level work room.
B. All later modified or applied plaster wall and ceiling finishes should be removed and the original finish texture restored.
C. All later added floor finishes should be removed and new floor finishes to match originals provided. Extant original floor finishes should be cleaned and selectively repaired or refinished.
D. All original millwork should be cleaned, selectively repaired, and refinished.
E. All original doors should be cleaned, selectively repaired, and hardware elements refinished or replicated where missing.
F. All original lighting fixtures should be dismantled, elements cleaned, and metal finishes refinished to match original specified finish. Fixtures should be re-lamped with LED bulbs to closely match color temperature and illuminance of original bulbs if any are extant.

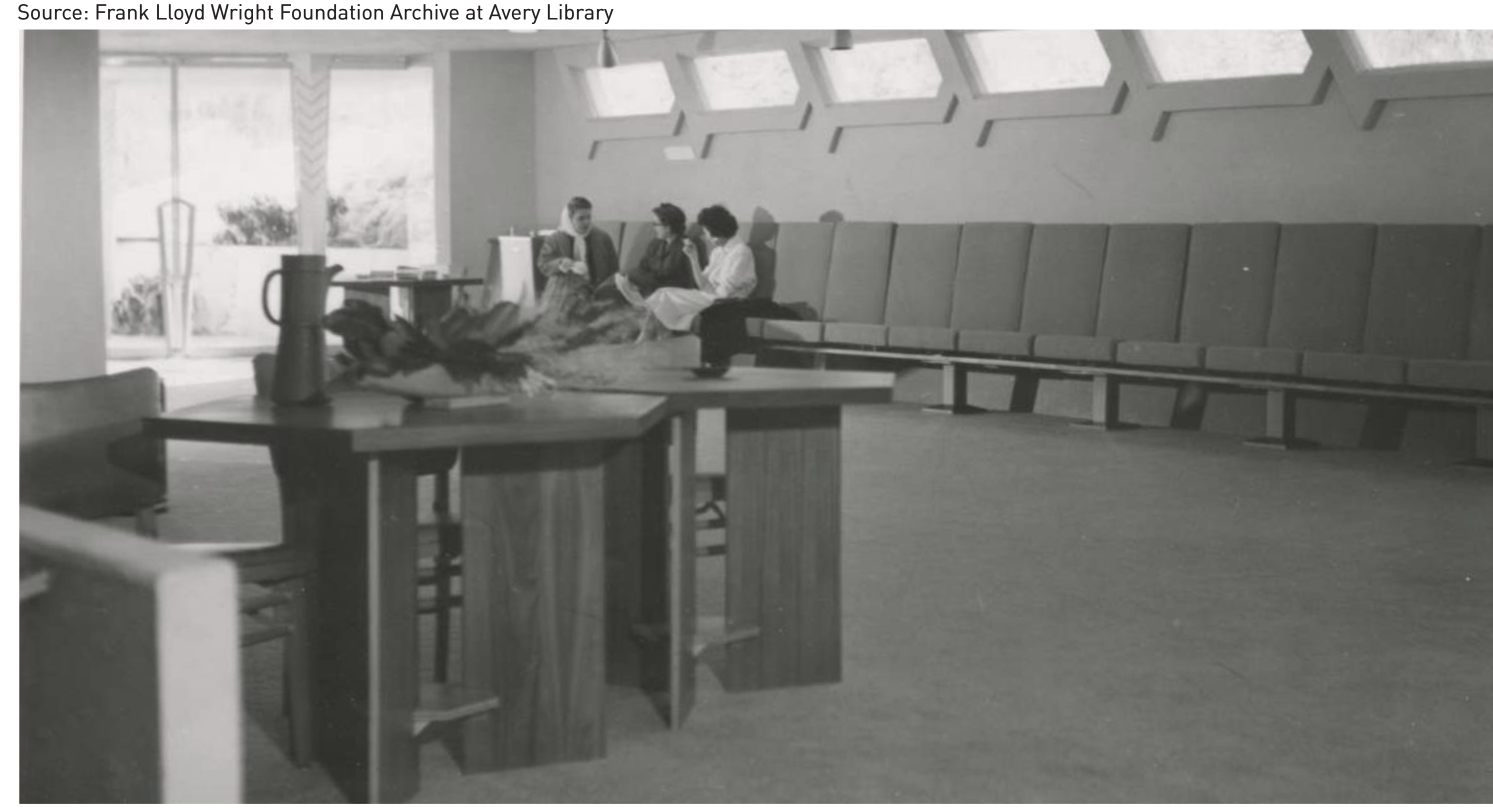
Character Defining Features

Character defining features should be retained and restored wherever possible. Such features are expanded upon in the recommendations for individual rooms.

Interior character defining features of the Kalita include:

- Warm, neutral finish palette
- Textured plaster wall and ceiling finishes
- Wood built-in banquette seating
- Design angles following the diamond grid
- Pre-cast concrete clerestory window units
- Cantilevered, outdoor roof terraces
- Turquoise painted steel back of house stair towers

Original auditorium condition to be restored
Source: Frank Lloyd Wright Foundation Archive at Avery Library



Original lobby with character defining built-in seating, cast window units, and glass door system to be restored.

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Potentially original finish texture at auditorium ceiling.


Original wood table designed for use in the lobby.


Original auditorium chair for color palette reference in developing new seating design.


Original hardware and finish on wood built-ins, typical throughout.

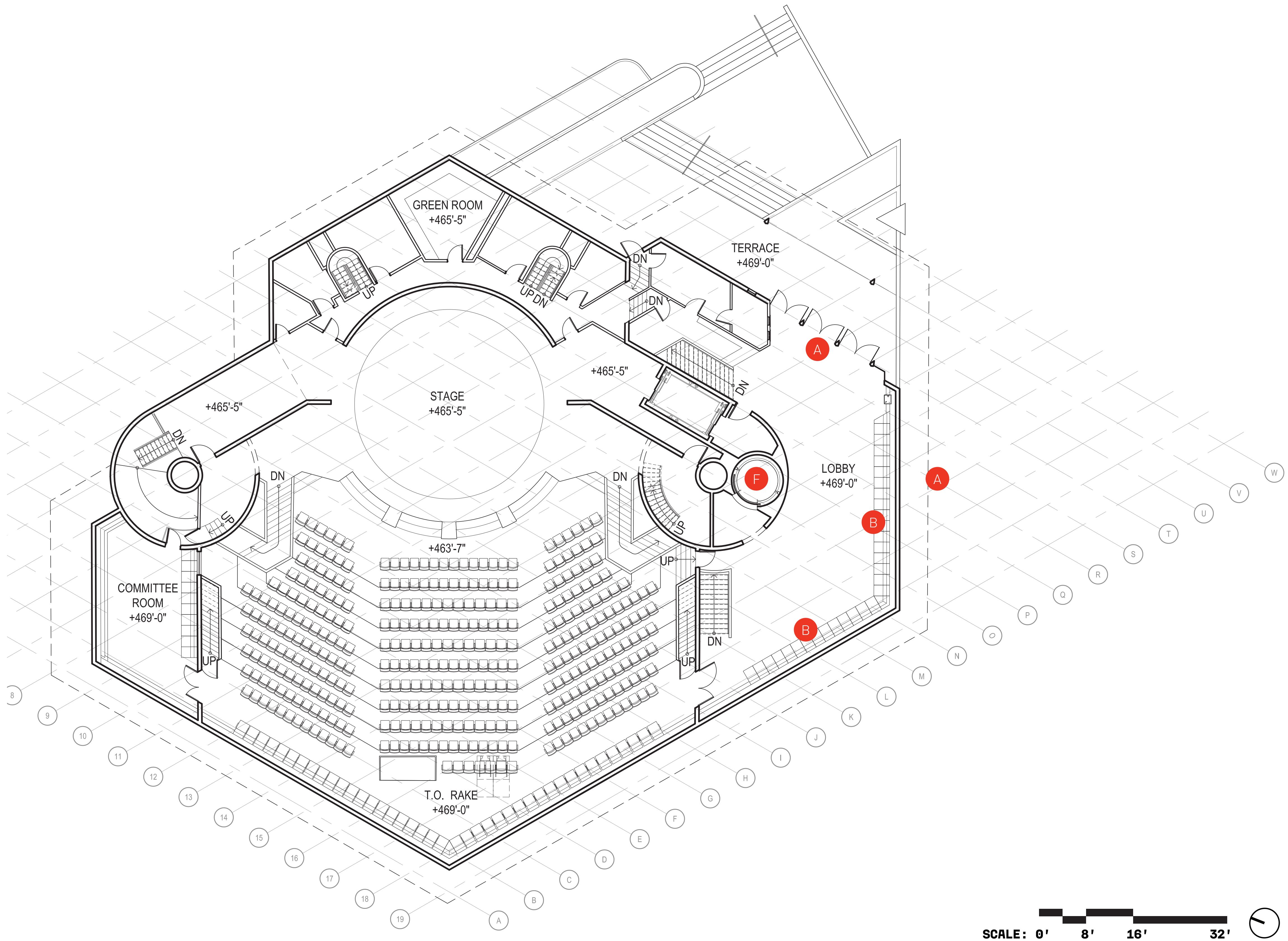

Original, character defining exterior windows.


Original steel back of house stair towers to be restored.

Lobby

As the first interior space experienced by theater visitors, the lobby is an historically and architecturally significant space. In its current condition, the lobby is an amalgamation of several changes since the 1959 construction and does not reflect the building's period of significance. Original elements have been removed or significantly altered. The lobby should be returned to its 1959 appearance and configuration by completing the following recommendations:

A. The later added lobby space outside of the original building footprint should be removed and the original entry sequence and lobby restored to its original design. The entry doors that were relocated to create the enlarged lobby space should be restored and reinstalled in their original location.
B. The original wood built-in banquette seating should be replicated along the perimeter walls where shown in the 1959 construction drawings. Replicated wood built-ins should match the species and finish of original wood elements.
C. Later applied acoustic plaster should be removed from the walls and ceilings and original plaster finishes should be replicated.
D. Original finishes on the concrete columns should be restored.
E. Remove the non-original carpet and provide new carpet to match original specified in the 1959 drawings.
F. Remove the non-original staircase situated within the curved volume and provide a new elevator to open into the lobby space and service upper and lower building levels.
G. All non-original lighting, mechanical vents, and life safety devices should be removed and a strategic design for these vital elements should be developed that does not detract from the space.



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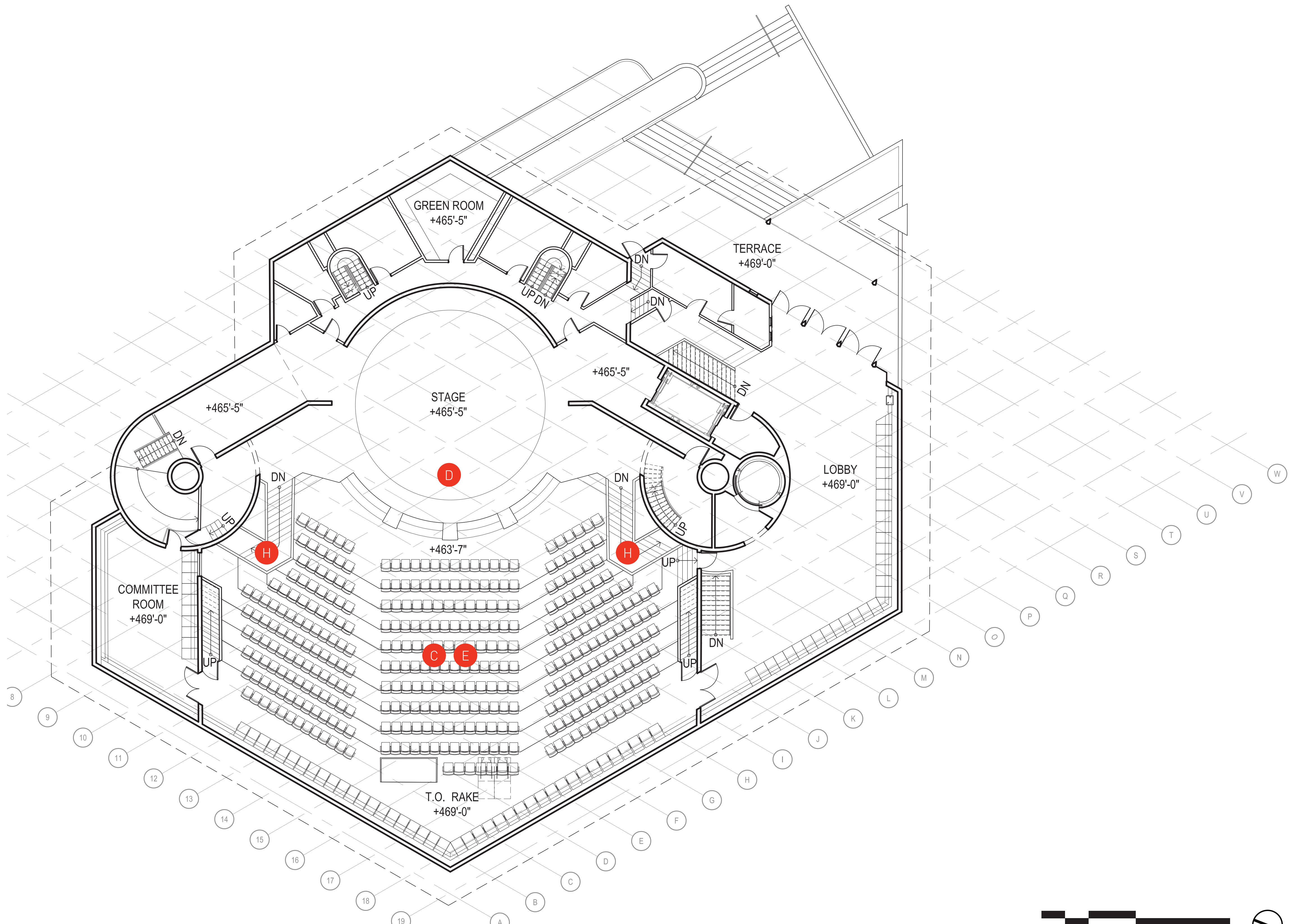
Original condition of lobby with built-in banquette seating to be restored.

Original lobby entry condition to be restored.

Auditorium

The Auditorium space is the most significant space within the Kalita, and its original condition has been significantly altered since the building was constructed. To restore the space to the original design intent, major alterations are recommended that impact architectural quality, material finishes, lighting, audio and visual elements within the space. The recommended approach to the Auditorium is not an exact restoration of the original space, but rather a restoration of character defining elements that can feasibly be restored while allowing flexibility for current theatrical production and life safety requirements. These recommendations include:

A. Later applied acoustic plaster should be removed from the walls and ceilings and original plaster finishes should be restored.
B. Any abandoned sound and lighting equipment should be removed from the tiered plenum ceiling and any holes or damage patched and repaired before restoring original finishes. See the Theatrical and AV sections for further details on new requirements for equipment to be incorporated into the space.
C. The auditorium floor should be removed and the original floor rake restored. See the structural recommendations section for further information.
D. The stage height should be lowered to its original height from the lowest point of the floor.
E. The non-original red seats should be removed and new seats added. New seats should be within the color range of the auditorium's original material finish palette.
F. The non-original lighting booth and half-height walls at the rear of the auditorium seating should be removed.
G. The balcony should be restored to its original size and configuration.
H. Vomitory stairs should be fully uncovered and restored to their original configuration.
I. Painted plywood window shades should be selectively repaired, missing elements replaced, and refinished to match original.



SCALE: 0' 8' 16' 32'

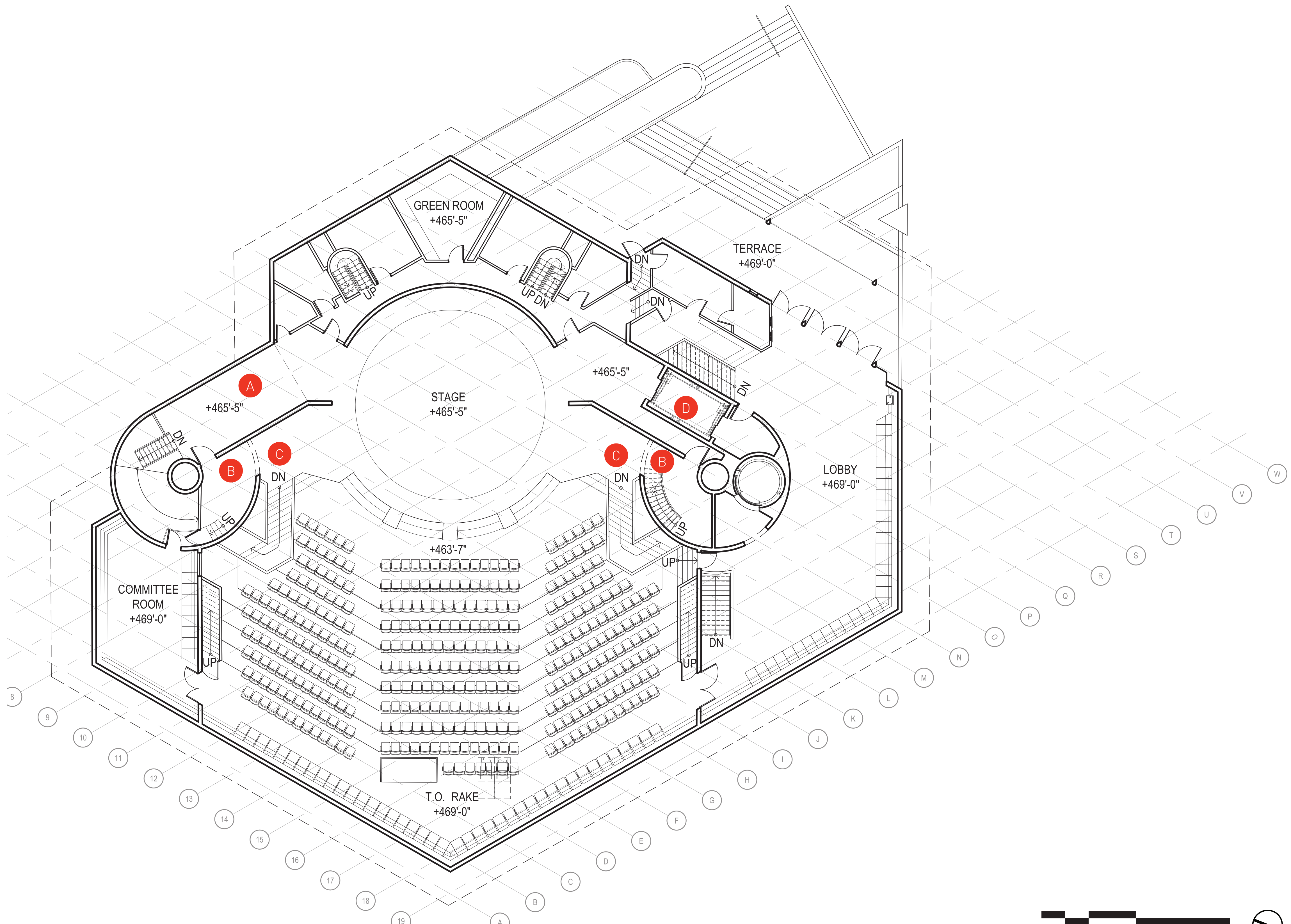
Original condition of the auditorium to be restored.

Proposed auditorium modifications will incorporate slight modifications to provide accessible seating and modern theater production equipment, but will largely appear as originally designed.

Stage Circulation

There are several stage entries and circulatory paths that are vital to the original design of the stage and its relationship to the auditorium. The circulation creates an important relationship between the stage, the auditorium, the basement workshop, and the back of house spaces. Many of the recommendations outlined in the auditorium space will also help to restore the original stage circulation, but additional recommendations include:

A. The ramps leading from the basement to the stage level should be retained. If additional back-stage space is required, these ramps should not be removed but rather should be covered with an added floor that can be removed without causing damage to the original ramps.
B. The mouse holes at either side of the stage should be returned to full height by lowering the level of the stage.
C. Vomitory stairs should be fully uncovered and restored to their original configuration with adjacent planter boxes.
D. A new freight elevator will replace the existing freight elevator.



Original condition of the stage circulation to be restored, including restoring the original stage height and dimensions.

The original vomitory stair condition will be restored such that there is direct connection with the stage.

HISTORIC PRESERVATION

Committee Room

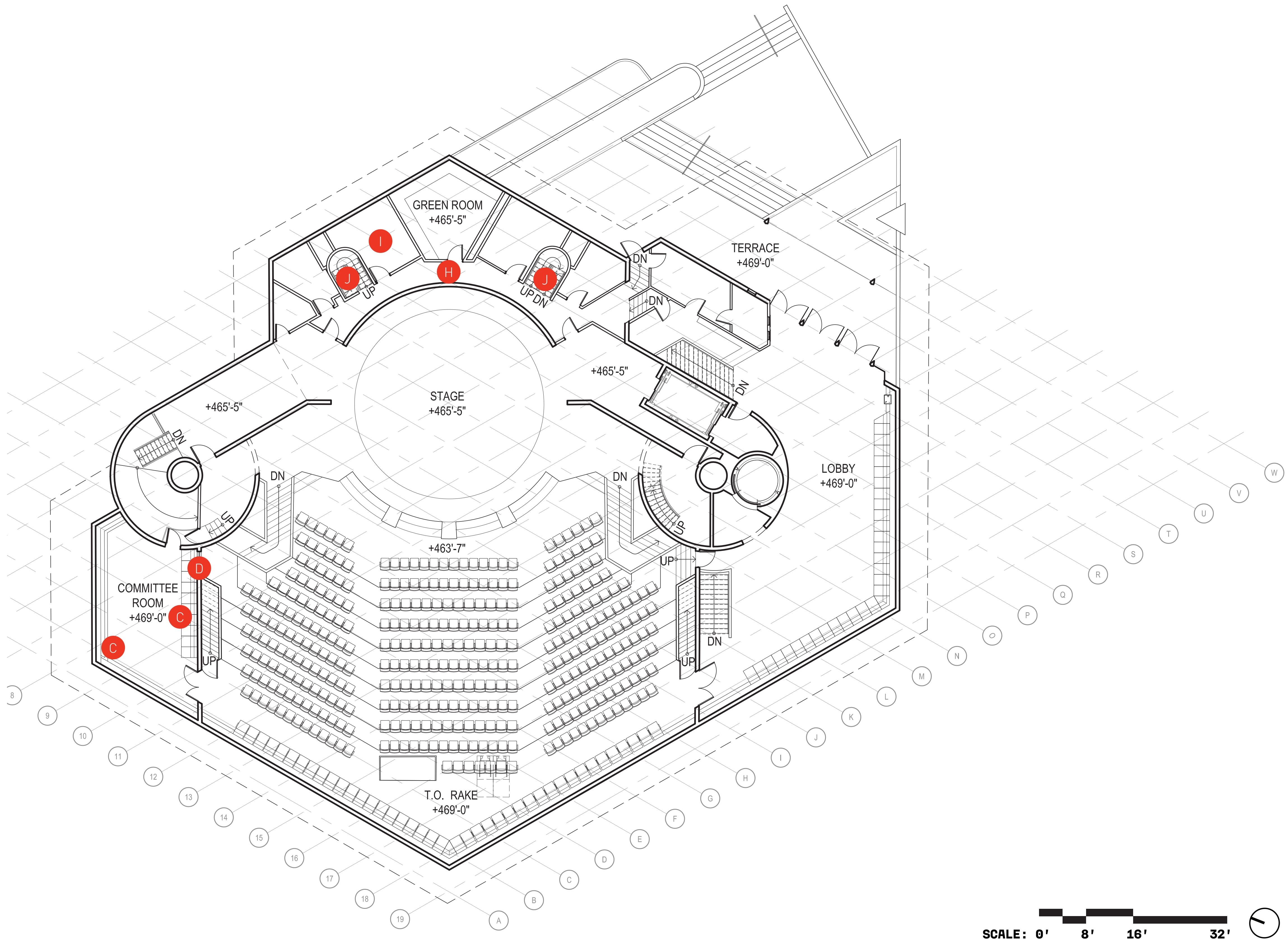
The Committee Room is one of few spaces in the Kalita Humphreys Theater that retains significant original materials and elements. It's spatial relationship with the auditorium, though altered, can be restored.

A. Later applied acoustic plaster should be removed from the walls and ceilings and original plaster finishes should be restored.
B. Scratches and damage to the original wood built-ins should be selectively repaired. The wood finishes should either be gently cleaned or stripped and refinished depending on the extent of wear or damage.
C. Missing built-ins or elements should be replicated and the room returned to the 1959 design.
D. The circular opening into the auditorium should be uncovered, restoring the original view into the space.

Back of House Spaces

Recommendations for the dressing rooms, bathrooms, storage areas, and other support spaces located behind the circular stage volume will be grouped together as many of these spaces share architectural characteristics. These spaces, while not of primary architectural significance, are vital to the function of the auditorium space.

E. The dressing rooms, bathrooms, and other support spaces located on three levels behind the stage should be reconfigured to accommodate new programming requirements.
F. Any existing walls and ceilings to remain should have the existing finishes removed and original finishes restored. All new partitions should receive a finish treatment to match the original.
G. Any original doors should be retained and reused where possible.
H. Original red stained concrete floors should be maintained and repaired where necessary.
I. Any original millwork in dressing rooms and the green room should be maintained and refinished.
J. The original steel stairs providing vertical circulation from the basement up to the roof should be retained and refinished.



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Original condition of the committee room to be restored.

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THEATRICAL HISTORY & RECOMMENDATIONS

THEATRICAL HISTORY

Contextualizing the Kalita Humphreys Theater

"The New Theatre is what the modern theatre must come to, unless the stage is to be done to death by the movies and television." - Frank Lloyd Wright

Within Wright's work the genesis of the Kalita begins as far back as 1918 and by 1931 Wright has developed a clear idea of his new theater. Joseph M. Siry makes it clear in his essay Modern Architecture for Dramatic Art: Frank Lloyd Wright's "New Theatre," 1931-2009 that Wright had a fixed idea of what theater should be and set about designing a theater that would drive users to work in the way he imagined was appropriate. This idea seems to have developed early in his life and remained unchanged from at least 1931 on, regardless of what was going on in contemporary conventional or avant-garde theater. Wright's theaters like all of his architecture are designed to inform and shape the behavior of those who work or view work within the spaces.

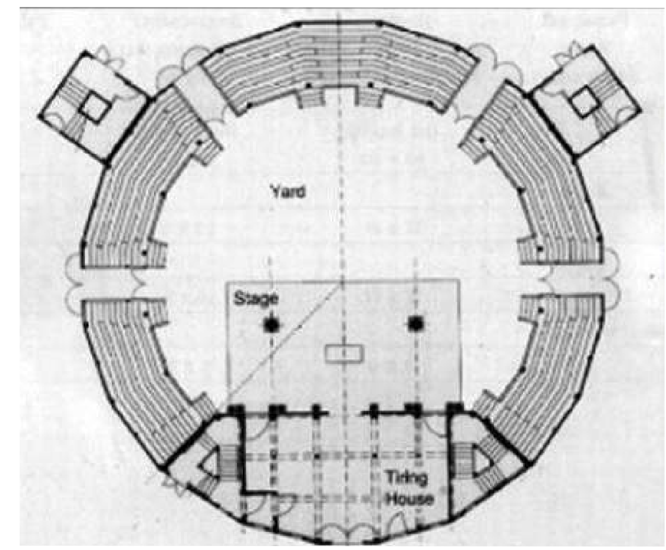
Wright sought to reinvent the relationship between actor, audience and playwright. His ideas build from his notion of what the Elizabethan stage was while proposing design that are a departure from those forms. Wright's future schemes combine strong form and assertive architecture which he believed, like the Elizabethan, could provide a permanent architectural environment for performance.

Wright's travels to Japan also presented a non-western model for performance space in Noh and Kabuki theater. Here again was a model in which actor an audience would share one space, the proscenium would be minimized and scenic elements would be insignificant.

Wright's view that theater needed to evolve and reinvent itself was shared many of his contemporaries. The first half of the 20th century is marked by an intense rethinking of the nature of performance and the architecture of the theater. Wright's work fits firmly within this context.

1599:

The Globe Theater in London, one of a dozen or so Elizabethan Playhouses of the day.



"All current improvements in the theater go back to Shakespeare"
Frank Lloyd Wright

1600:

Traditional Kabuki Stage

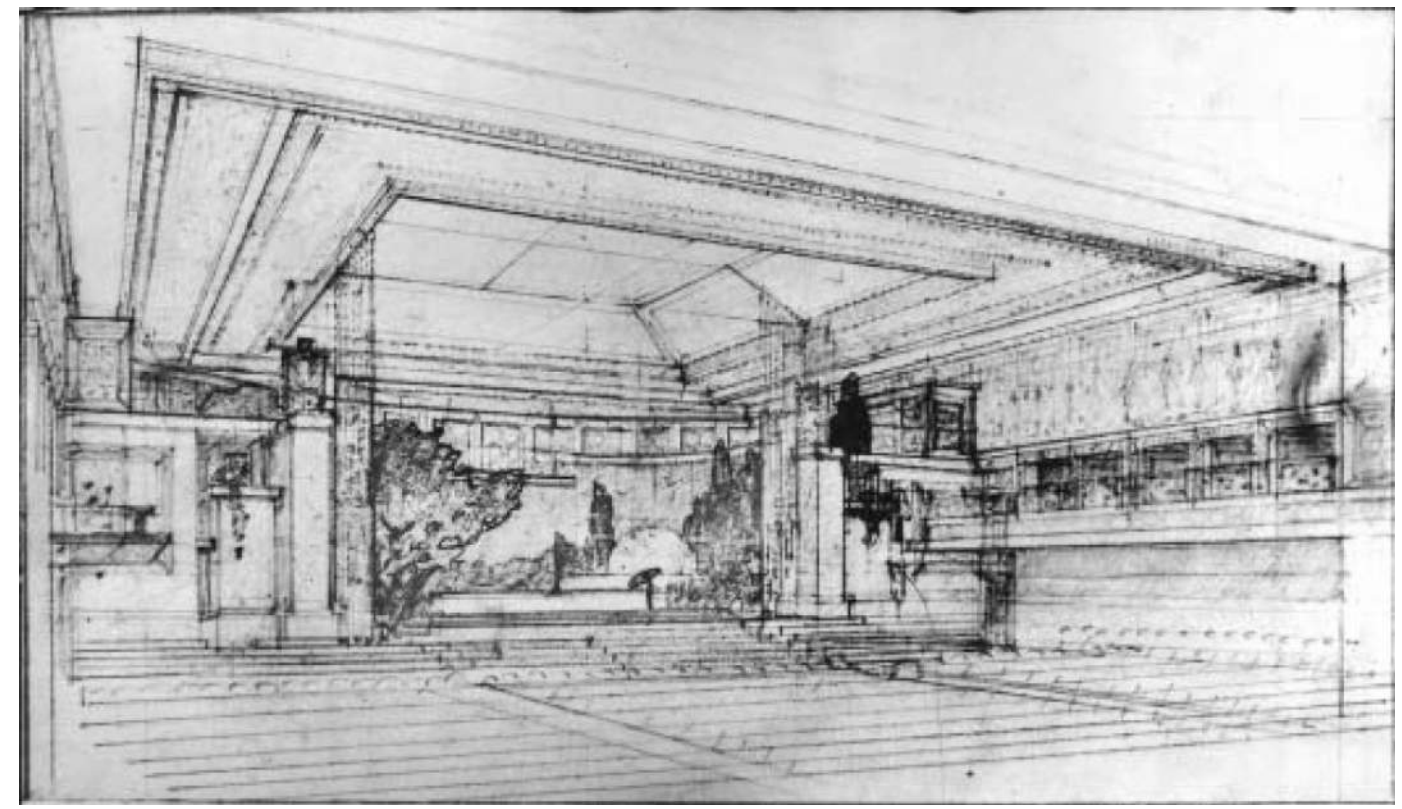
The Unbuilt Precursor Schemes:
Barnsdall Theater

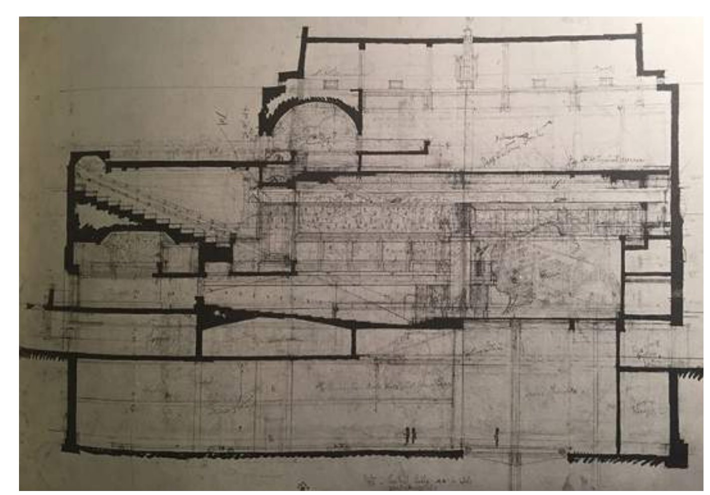
Wright's 1918 Barnsdall Theater proposal featured a ceiling that extended from the main body of the auditorium to the rear of the stage in a single architectural element centered at the stage edge, suggesting a single unified space. In some drawings a circular system of engaged columns with a diameter as wide as the house itself appears to enclose both the house and stage, and in others it doesn't seem to be present at all. In place of a proscenium arch there were flanking partitions framing the stage that stopped short of the ceiling and separated it, in effect, from the house. The theater was unified by its ceiling but bifurcated by its plan, a situation that would be reversed in the three succeeding theater designs in which the plan implies unification of audience and stage, and the section is bifurcated into a lower house and higher stage loft portion. Though it shares little in common with the form of later schemes that would lead to Kalita the concept of a unified space which minimizes the separation between the stage and audience recurs in subsequent schemes for theaters from Wright.

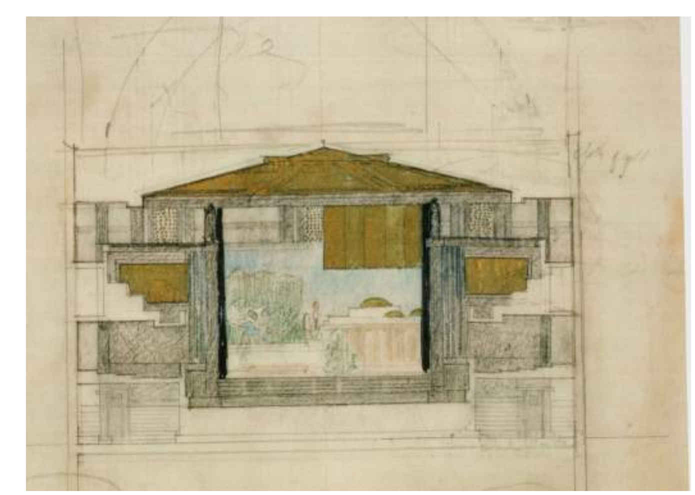
The perspective sketches of the Barnsdall shows scenic elements on stage - painted drops or flats and trees - the almost neo-classical surrounding colonnade and ceiling are also quite present. Unlike the Elizabethan theater, where the theater and its stage were permanent features and there was no attempt at illusionistic scenery, this proposal seems to try to do both – provide a permanent architectural environment and decorate it with illusionistic scenery, with no apparent thought of how scenic technology or lighting might work. It's interesting that many years later the perspective sketch of the Kalita Humphreys would show the same – the permanent architectural enclosure of the stage decorated with scenic elements.

1918:

Frank Lloyd wright's Barnsdall Theater, LA (unbuilt) architect. Marked similarities to the Van de Velde werkbund theater scheme of 1914, widely published.







THEATRICAL HISTORY

"New" Theater - Woodstock and Hartford

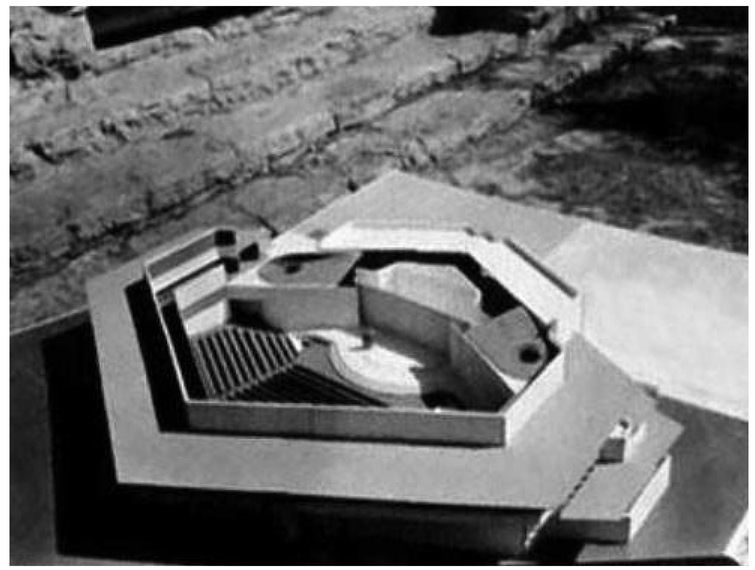
In his unbuilt 1931 "New" Theater for Woodstock NY and 1948-49 proposal for Hartford CT Wright begins the formal exploration that is realized in the Kalita Humphrys Theater. Wright sees his "New" theater as a fundamentally different type of space for performance. He eliminates the vestigial proscenium arch of Barnsdall. In these schemes the stage appears thrust-like and implies that an actor can walk into the midst of the audience but, in fact it does not protrude into the seating arrangement. In these two designs, and later at the Kalita Humphrys, Wright seems intent on preserving the functional and formal bifurcation of audience and performer, while implying they share a unified space.

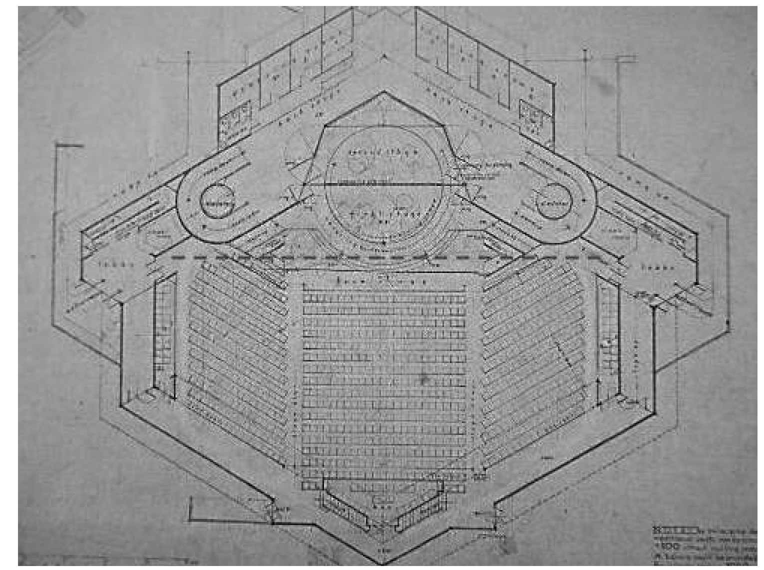
Wright is not alone in this restructuring of the spatial hierarchy. In the work of his contemporaries like Bel Geddes or Poelzig there is a more direct engagement of performers and attendees. An imaginary line struck across Wright's New Theater stage connecting the most extreme front row seats barely touches the stage edge. In the earlier work of Bel Geddes and Poelzig this line passes between 30% and 100% of the way to the rear of the stage or the audience surrounds it entirely.

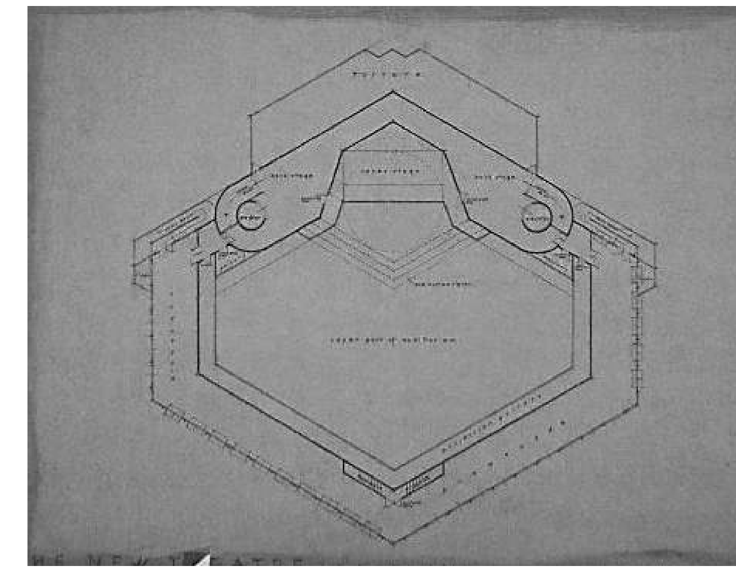
In the New Theater he replaces the curved architectural stage-surround of the Barnsdall design with an angular stage rear wall that conforms to the strictures of his hexagonal grid. The logistical and scenic limitations of this configuration are relieved somewhat by what appear to be ideas about hinging large segments of the enclosing walls, although this may have been intended not for scenic variation, but to admit goods to the otherwise fully enclosed stage.

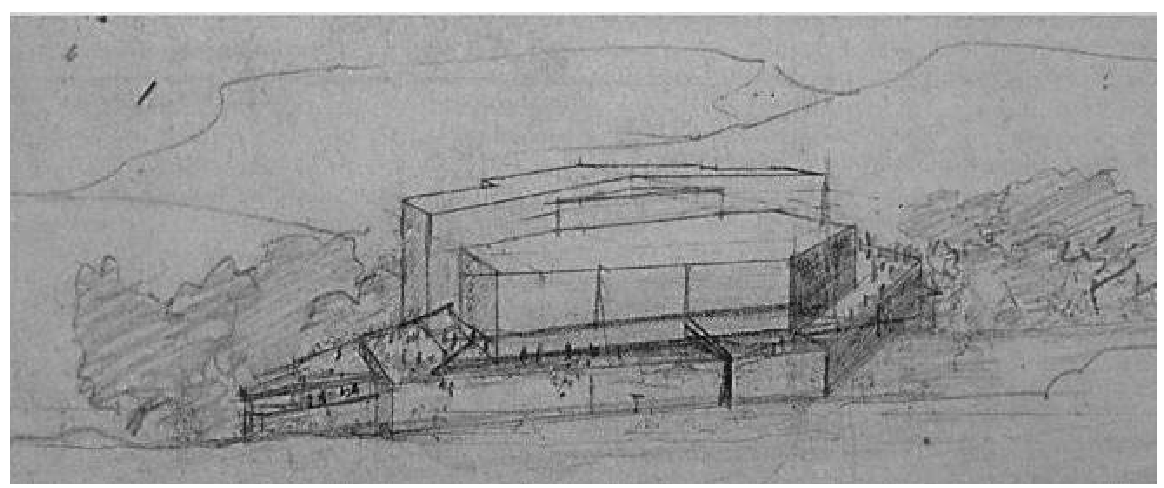
1931:

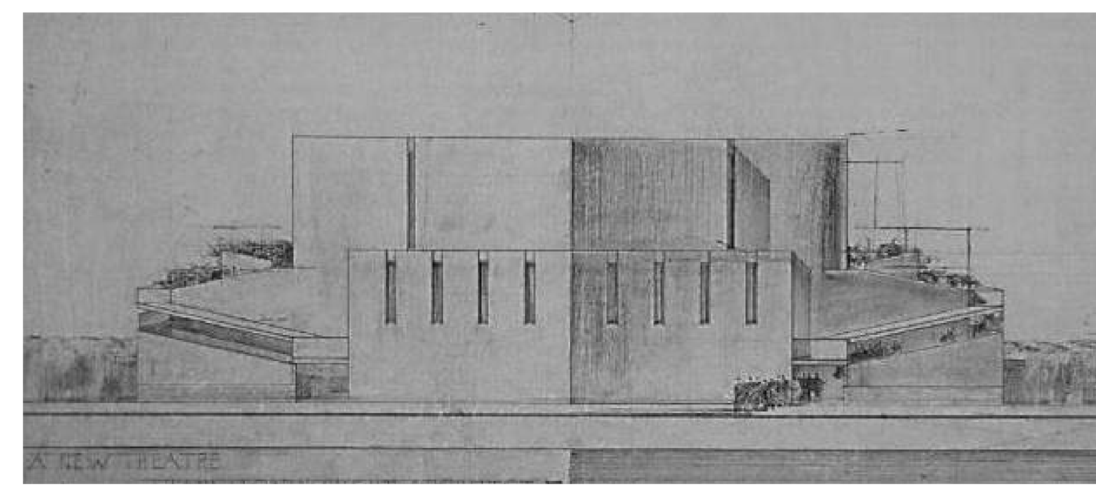
Frank Lloyd Wright proposal for New Theater, Woodstock NY (un built).Reminiscent of Bel Geddes 1914, Gropius 1926 frontal stage with calipers, permanent faceted cyc.











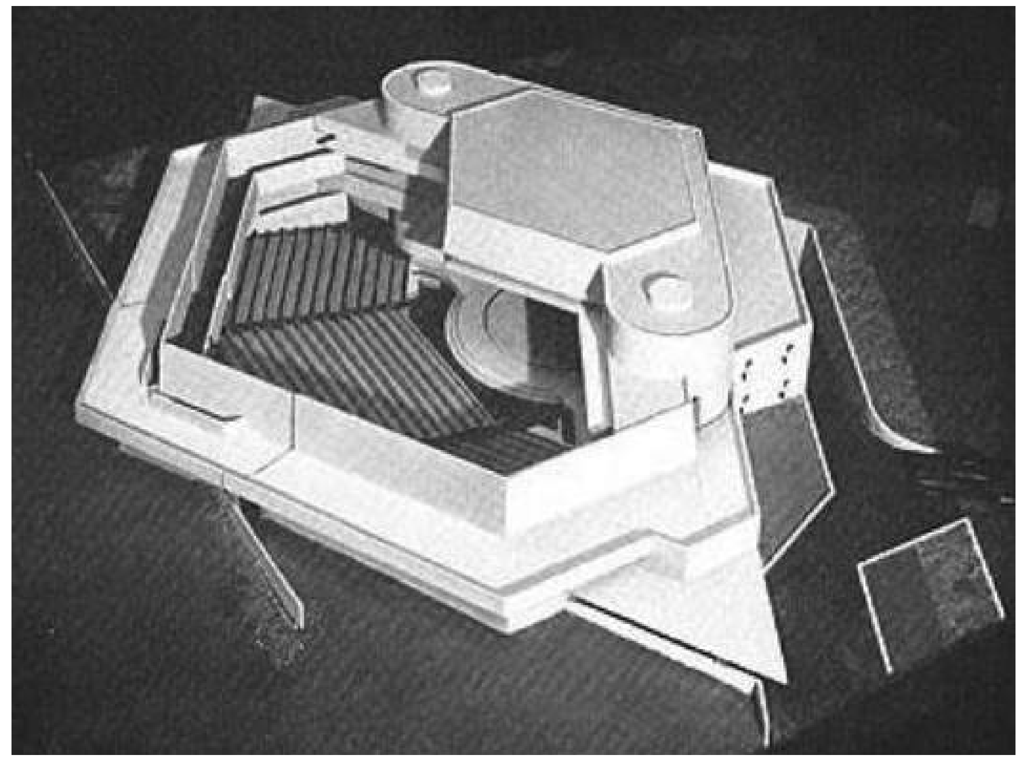
Wright incorporates additional elements such as steps and caliper stages which further strengthen the connection between stage and audience chamber. He is not the first to incorporate such elements, as the shallow steps from stage to auditorium date back to baroque theaters and are in use in other celebrated early-20C examples like Theatre Du Vieux Colombier [1920]. Caliper stages were already being drawn and published earlier by others, most notably Gropius' 1926 Total Theater design for Erwin Piscator.

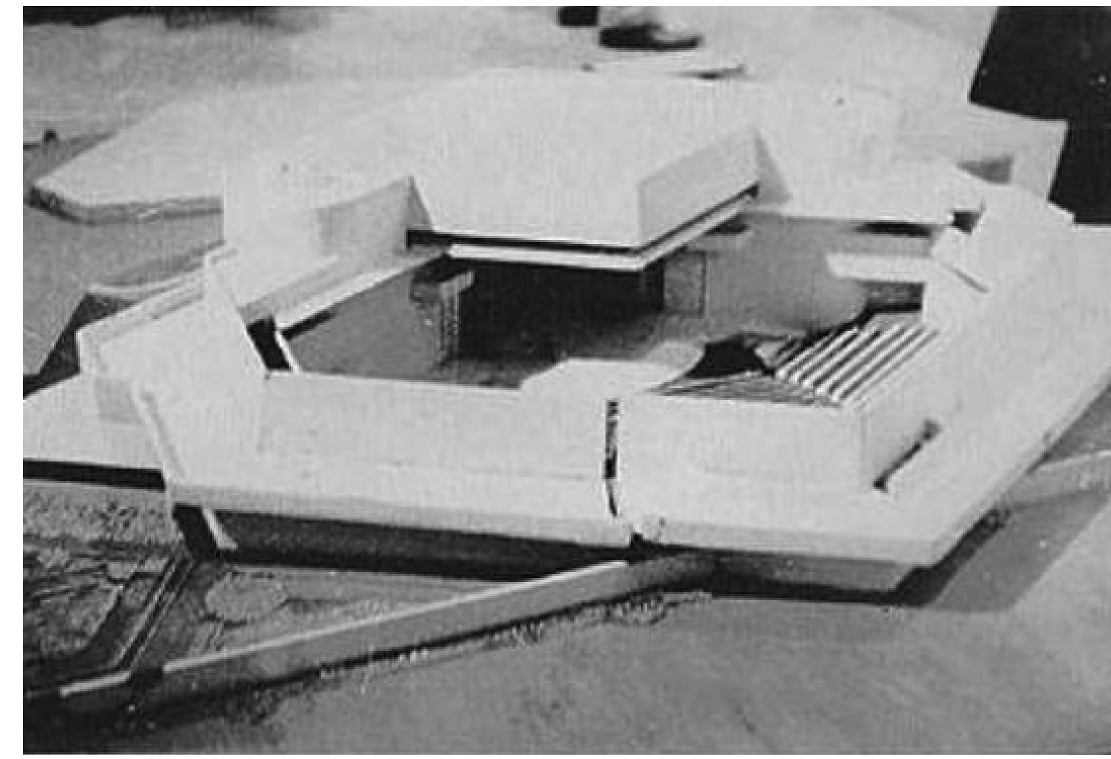
The service ramps to the basement make their appearance in these schemes, consuming valuable stage-level wing space. It's very hard to understand this choice, which he clung to in all subsequent schemes. Later he would insist that the ramps were central to the conception of the form. The decision to separate the scene shop and stage in section is clear but inexplicable. These two earlier schemes include small elevators, but these are removed at the Kalita. Scenery is secondary to architecture in Wright's conception of the theater.

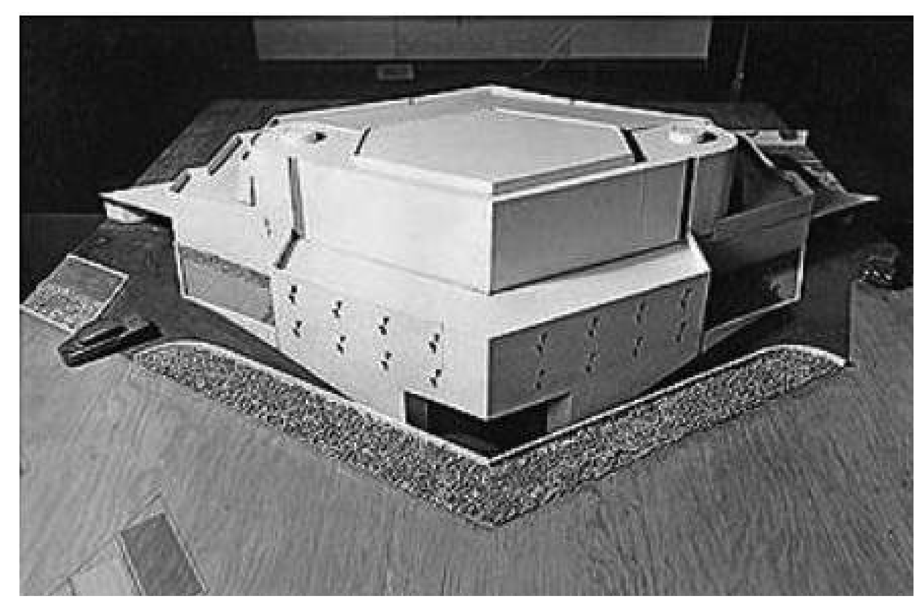
His time in Japan would have exposed him to the forms of Kabuki theater. Here he would have experienced a space that was both unified and hierarchical. Additionally he would have seen the use of the turntable and the musicians balcony. Both of which would appear at Kalita.

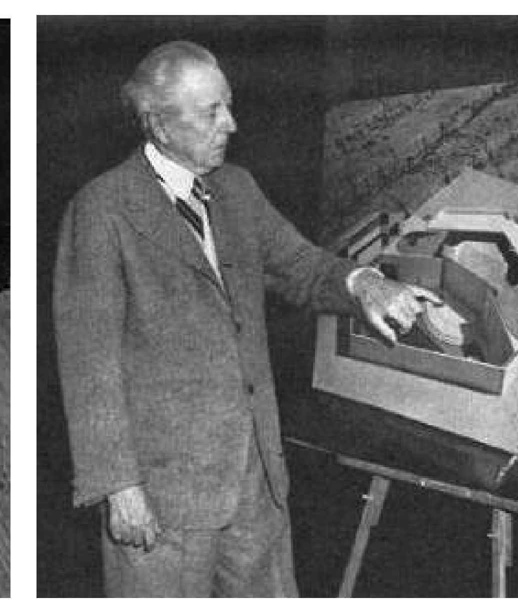
1930:

New Theater, Hartford CT (un built)
Frontal stage with calipers, permanent faceted cyc.





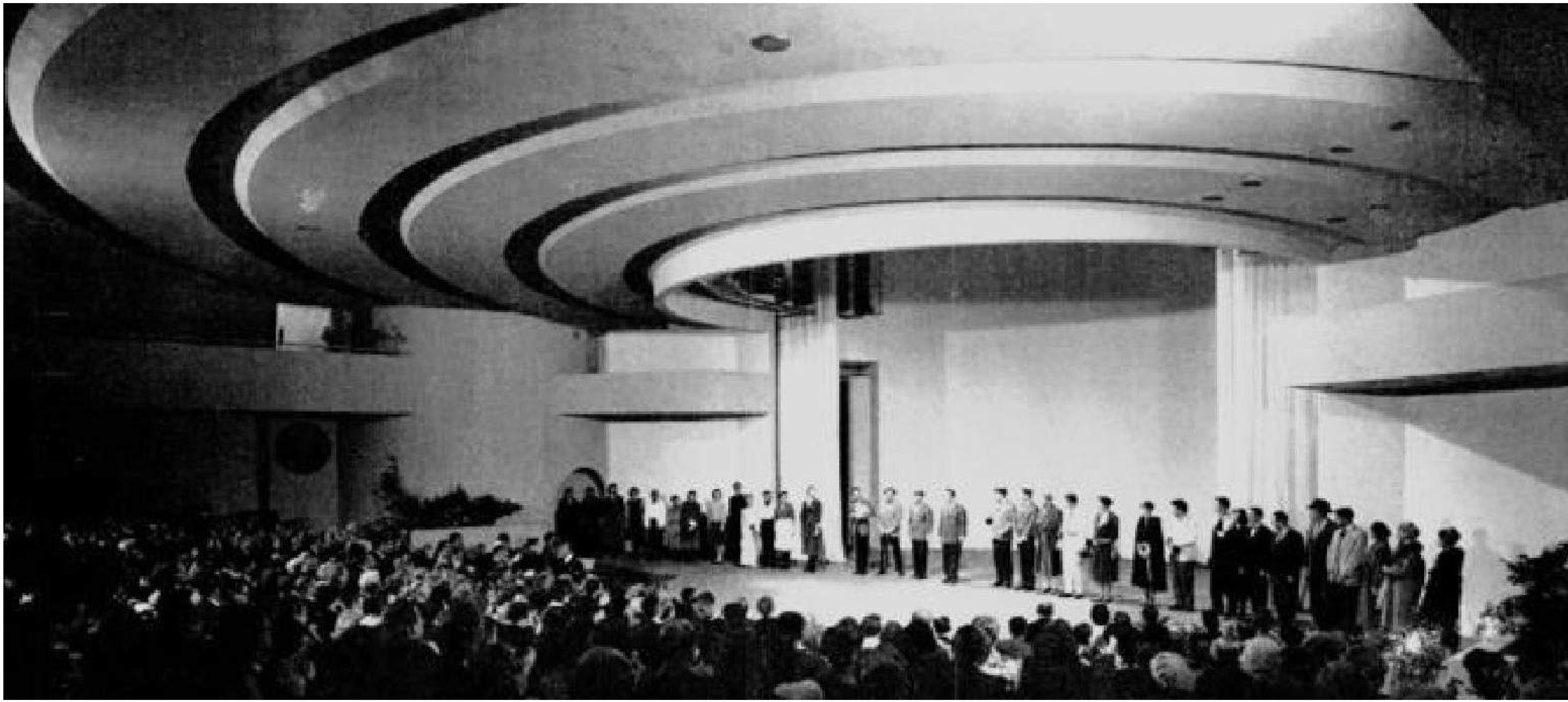




THEATRICAL HISTORY

1959:

Kalita Humphreys Theater.
Frontal stage with calipers, permanent cyc.



Kalita Humphreys Theater

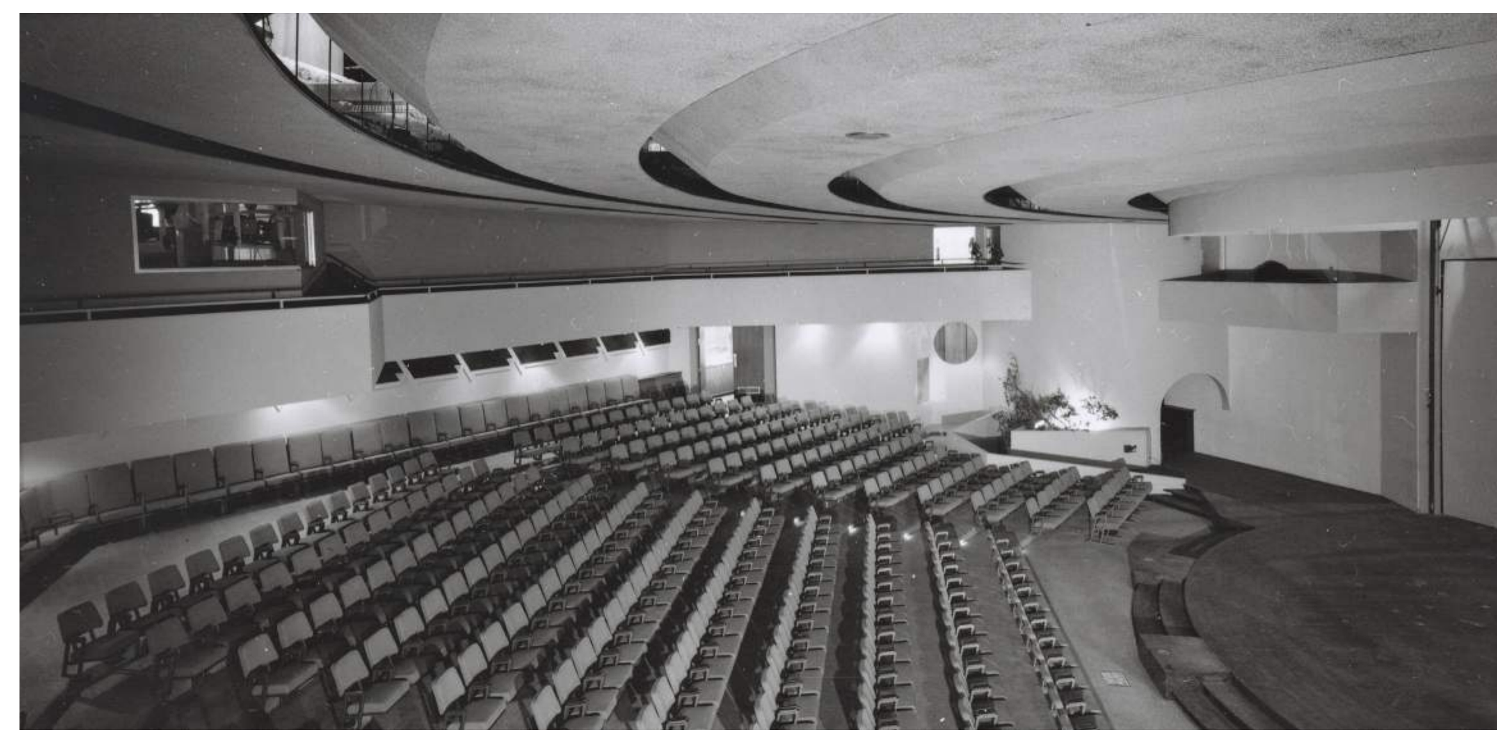
At the Kalita Humphreys he repeats the Woodstock "New" and Hartford schemes but changes the geometry of the rear stage wall to a semi-circular fixed cyclorama like the rear colonnade of his 1918 Barnsdall proposal, but smaller.

The elevators at the ramps he had proposed in previous schemes are eliminated, and remarkably he rails against any solution other than ramps alone in his letters to Paul Baker and the Board. In many ways this project seems to be a return for him to older ideas and an attempt to eliminate things that interfere with the purity of his belief in what theater ought to be.

The light colored room finish wraps from audince chamber to stage. This gives the unifed feel to the space that Wright had proposed in the earlier projects but also presents challenges to staging and lighting. In early photographs there is no visible theatrical lighting but the limitiations of the hidden lighting positions would eventually require an exposed lighting solution.

Wright in Context

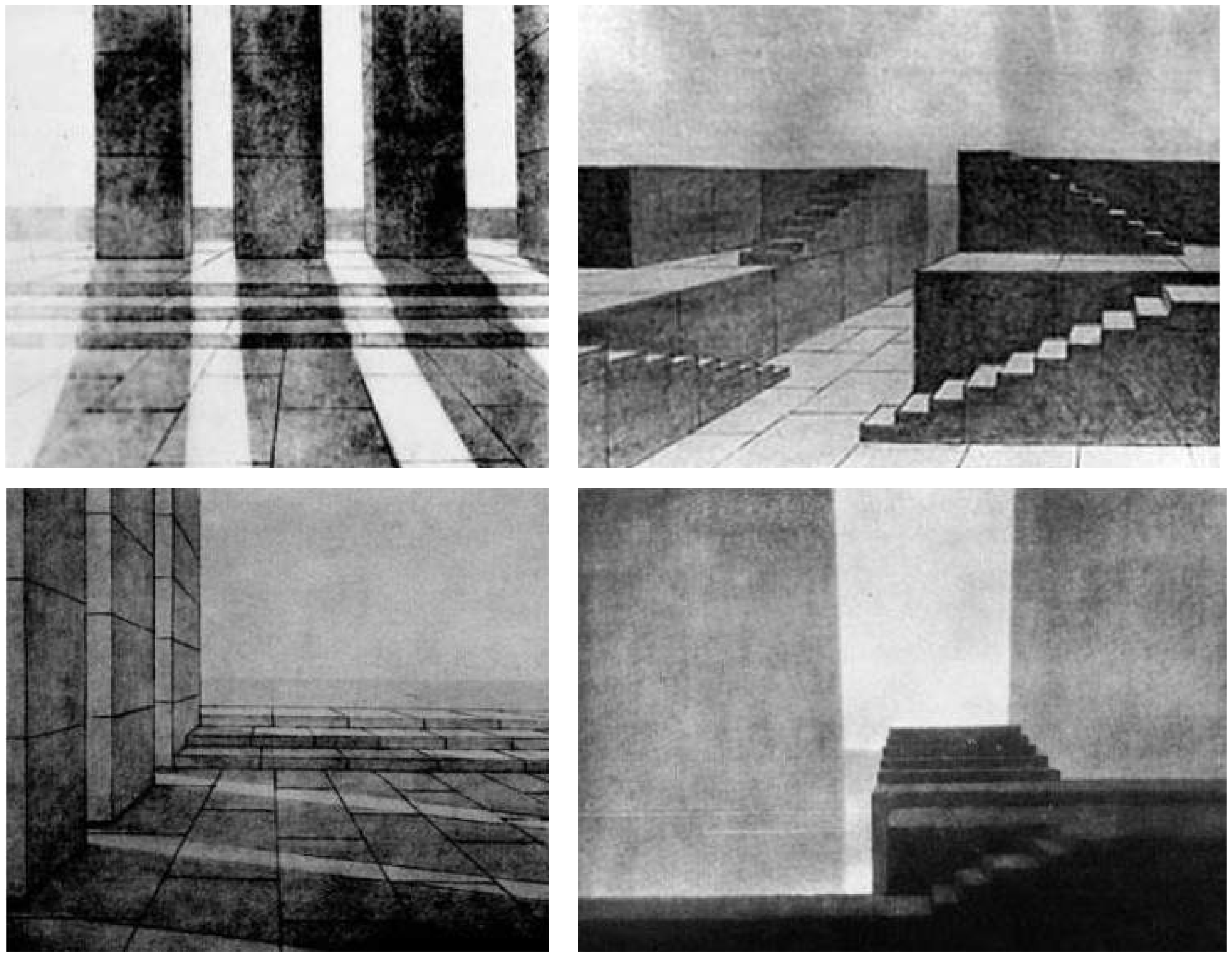
The period between the "New" Theater and the Kalita Humphrys is one of explosive experimentation and innovation for theater artists and architects. A survey of those works reveals the breadth and depth of thought that might have influenced Wright or against which Wright's work can be contrasted. Wright's use of the "New" Theater scheme is explicit in the Kalita design. His thinking about the nature of performance has not changed from the notions represented in the earlier schemes. Wright has had limited commissions for theaters during this time. For others, in the decades since, there has been innovation in both the form of the theater and the nature of performance. Brilliant directors like Copeau, Reinhardt, Meyerhold, Ohklopkov and their designers pushed beyond the purity of romantic expressionism. Visionaries like Antoine Artaud, in his 1932 manifesto The Theater of Cruelty agitated for new and sometimes chaotic relationships to the audience – around them, in the middle of them, and scattered among them, even advocating the use of swivel chairs as Paul Baker soon would in his Studio One. Artists experimented with new/old forms like arena and thrust, environmental arrangements, found spaces, and flexibility. Playwrights and directors like Bertolt Brecht (1898-1956) felt the theater should not be a temple, but a beer hall He is reputed to have said "theater without beer is a museum."



THEATRICAL HISTORY

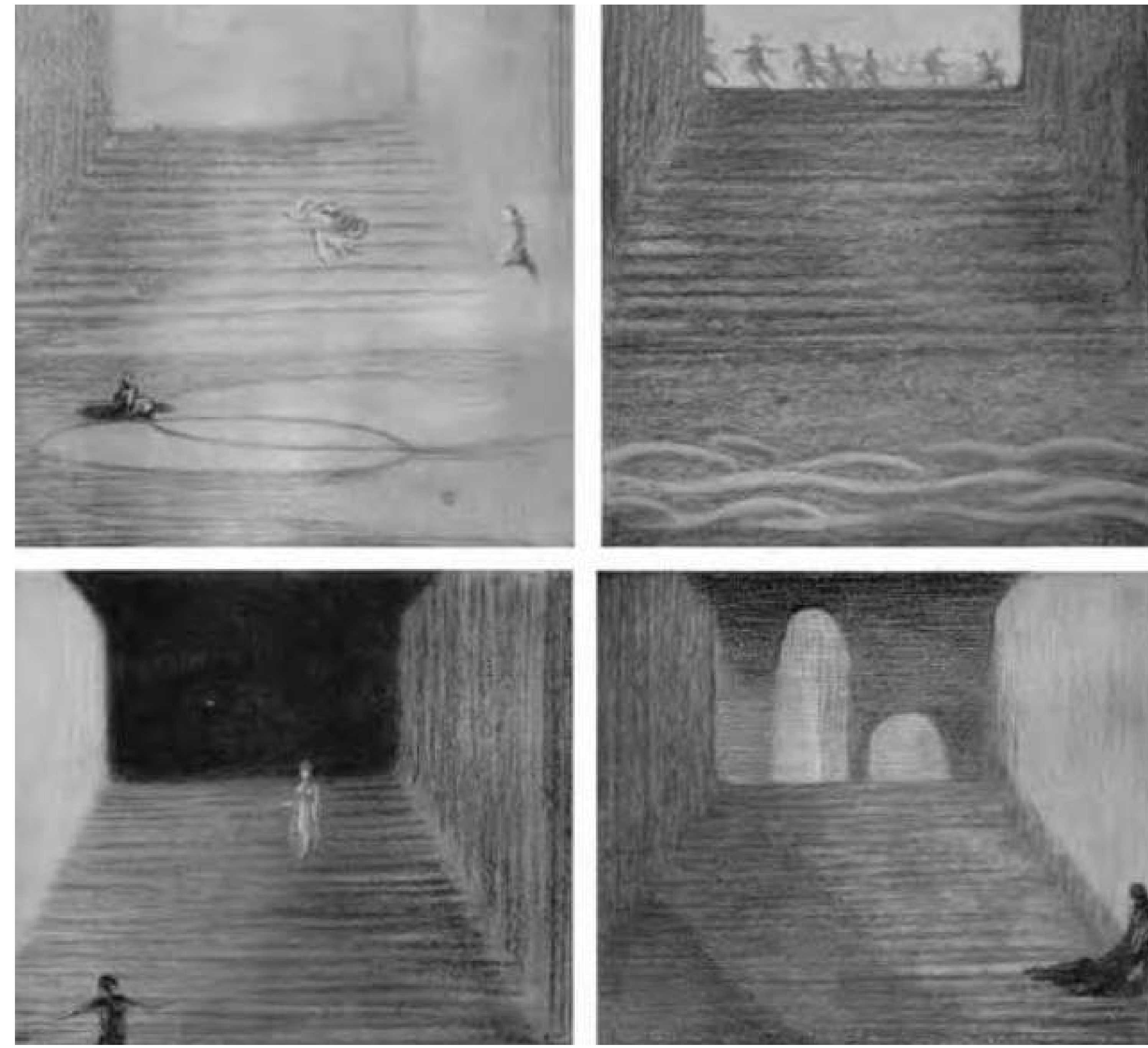
1862-1928:

1862 -1928 Adolphe Appia, Artist. Expressionism rather than realism



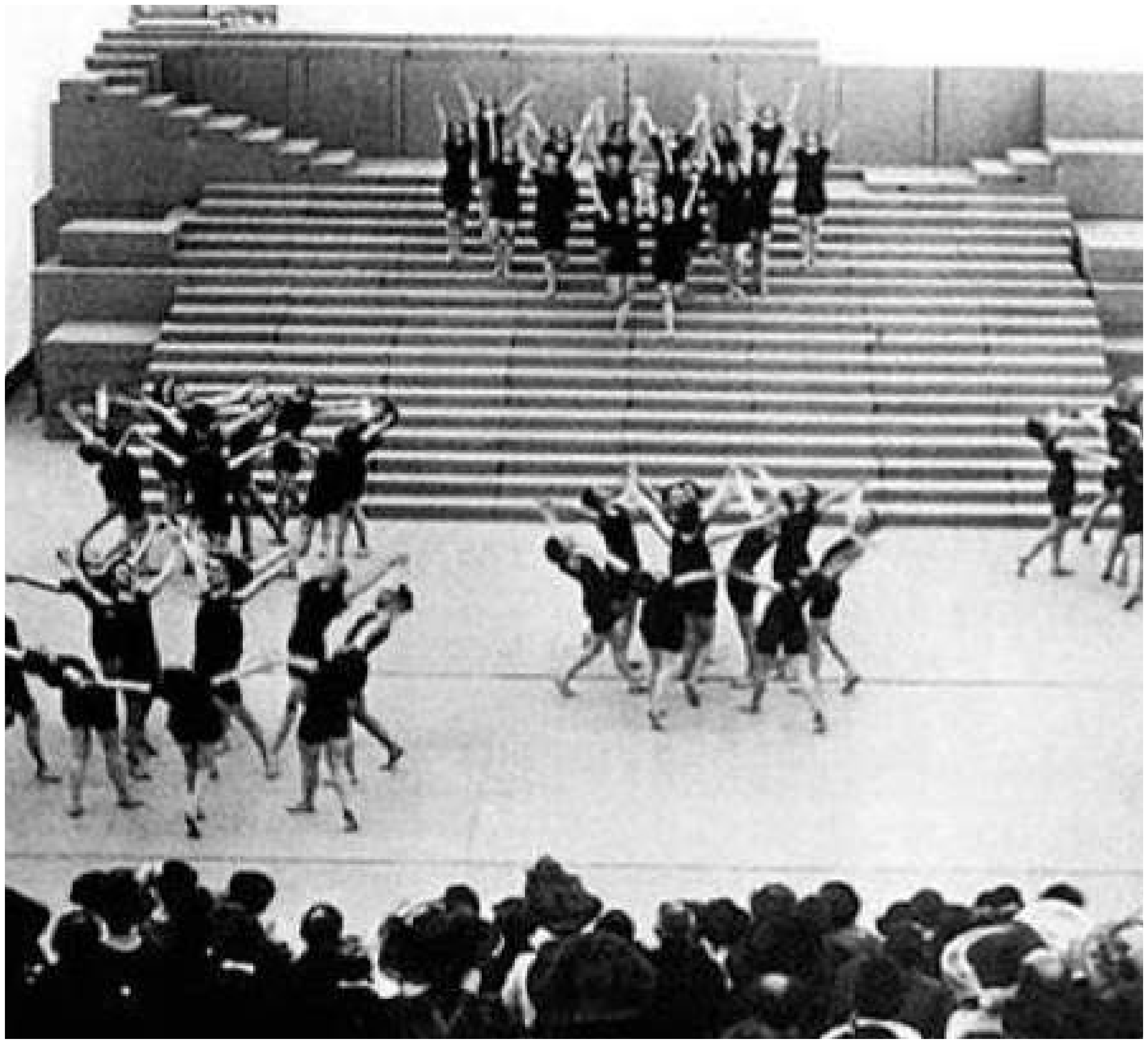
1872-1966:

Edward Gordon Craig. Symbolism, abstraction, romanticism and expressionism



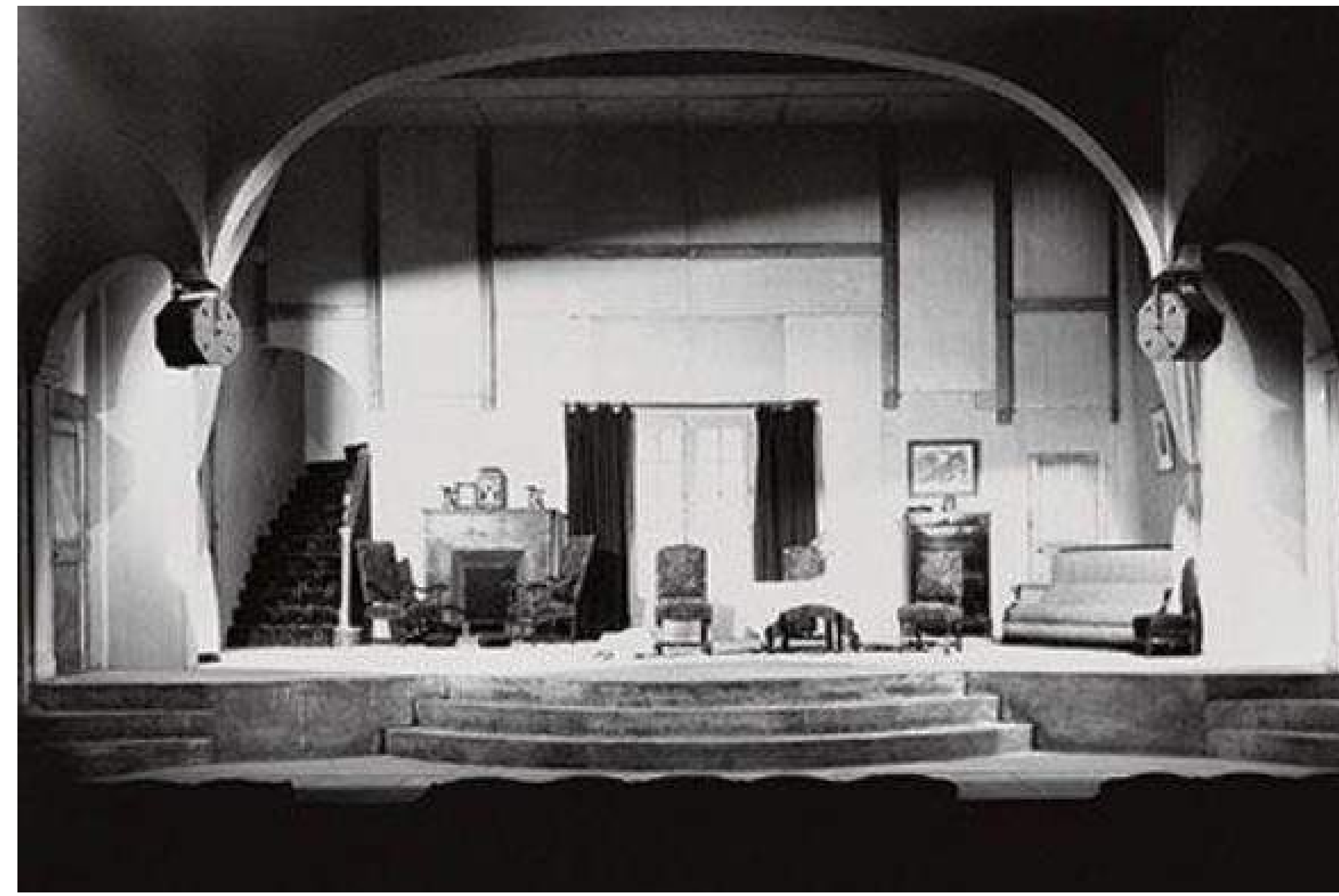
1913:

Festspeilhaus Hellerau for the Jaques Delacroix Institute, Heinrich Tessenow, architect, famously used by Adolphe Appia. One room theater



1920-1924:

Theatre du Vieux Colombier, Jaques Copeau widely published One room theater.



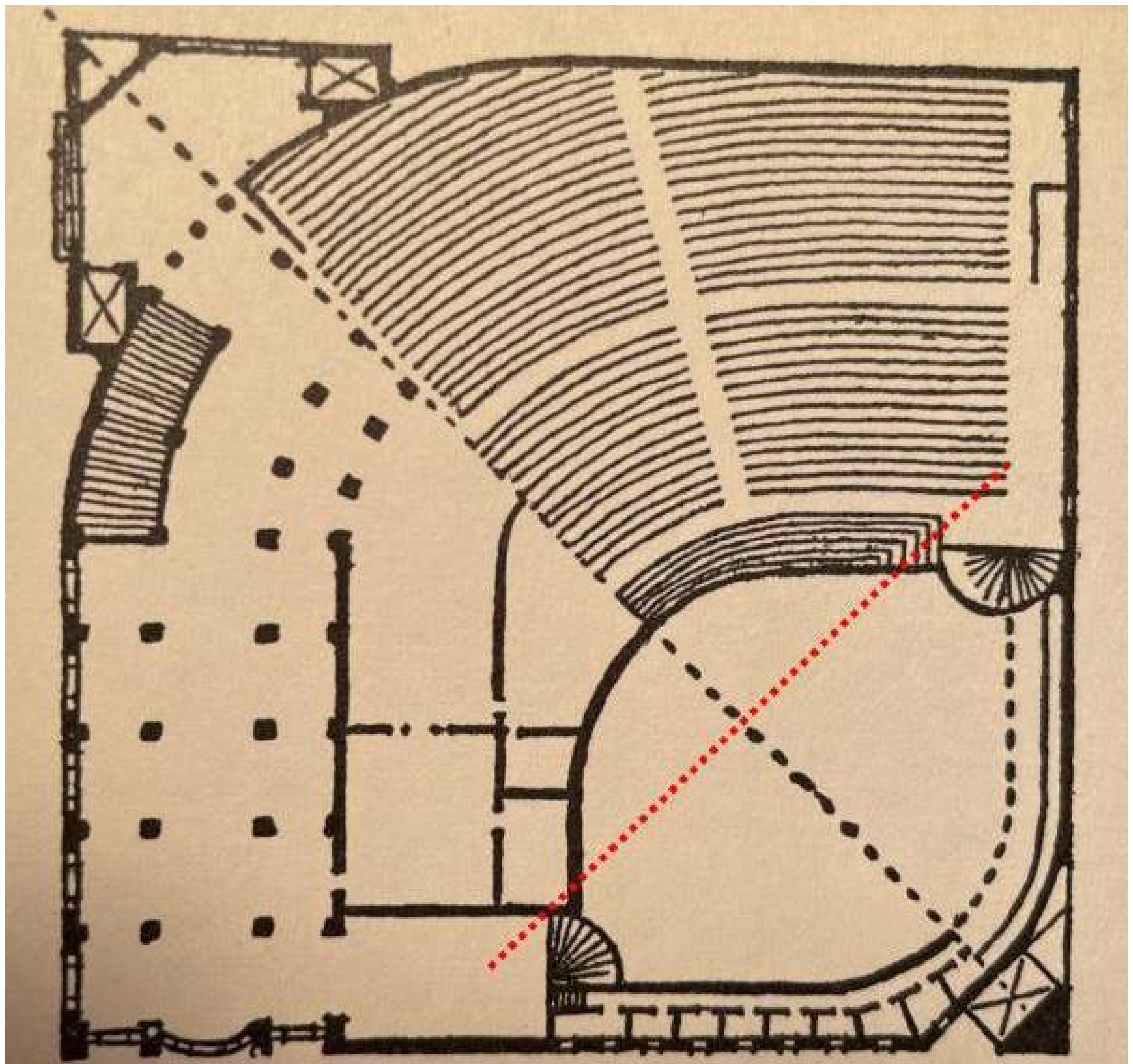
THEATRICAL HISTORY

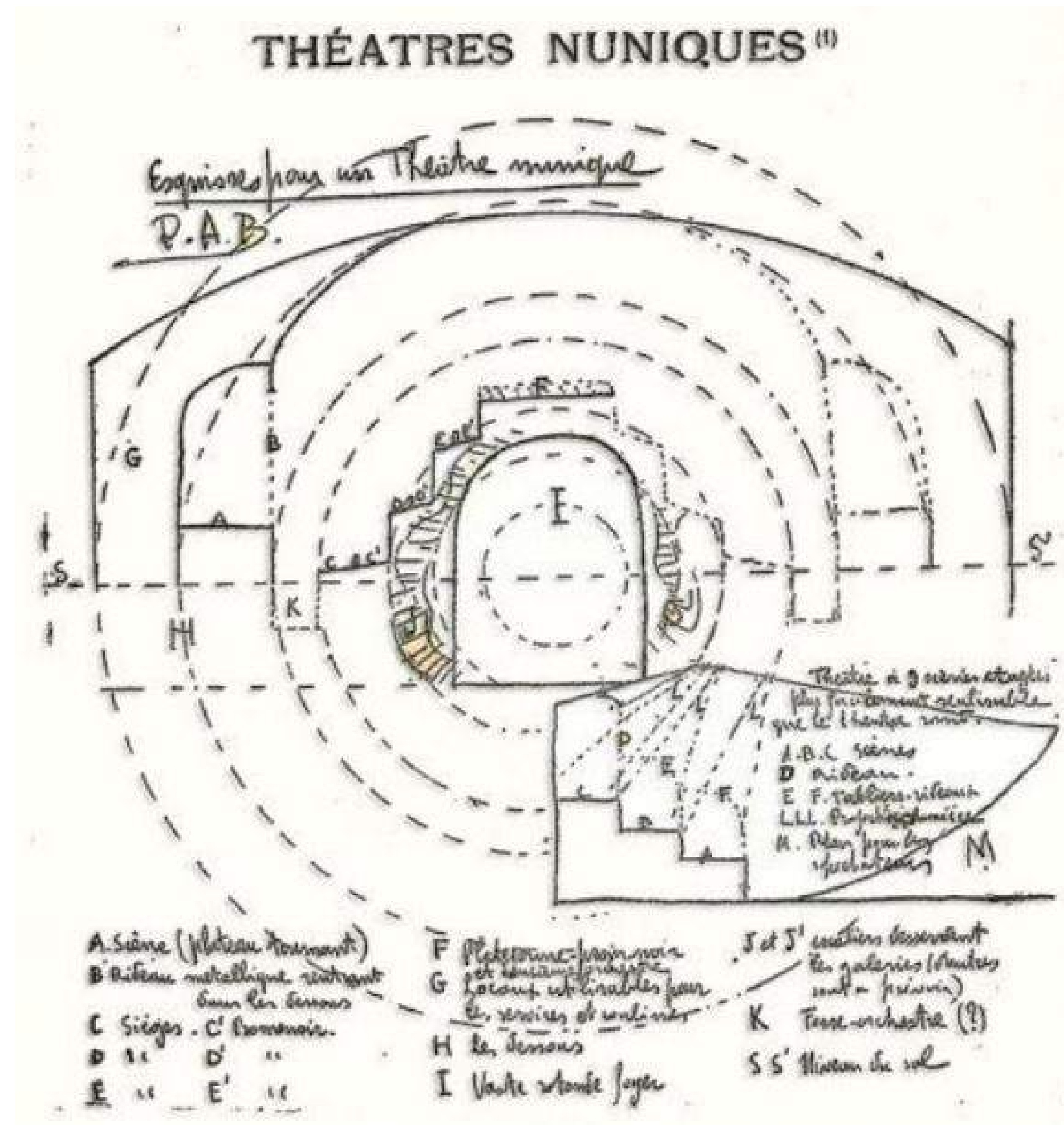
1914:

Norman Bel Geddes "theater number six".
Early thrust form, emphasis on enveloping light and projection.

1916:

Pierre Albert-Birot, Theatre Nuniques in a dadist journal, influenced by Appolinaire. Multi-focus & Rotating Annular ring stage(s) with light rather than scenery.



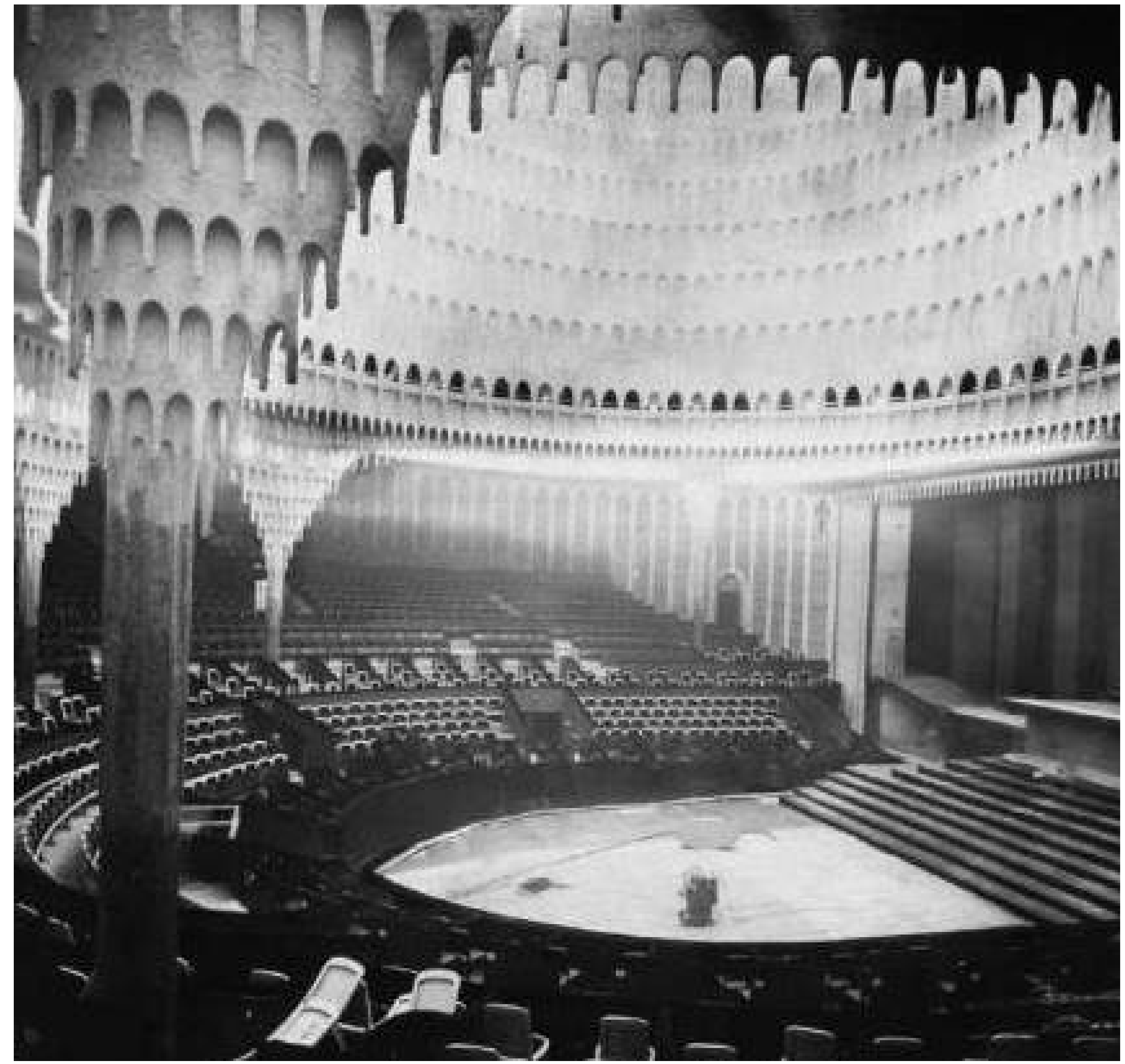


1917/1918:

Proposed, Published 1922, exhibited 1922 – architect Oskar strand, ´Rundtheater´architect. Forestage with rotating annular ring stages.

1919:

Grosses Schauspielhaus, renovated by Hans Poelzig for max reinhardt. Epic scale, Deep reconfigurable thrust stage with deep stage and fixed cyclorama wall.



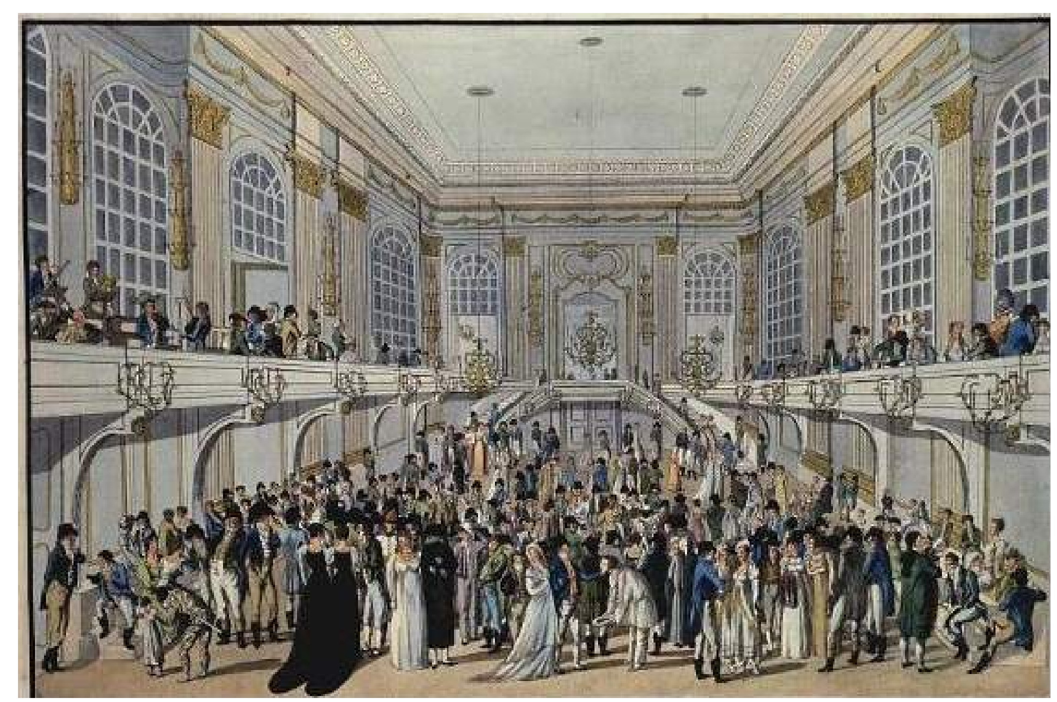
THEATRICAL HISTORY

1920-1938:

Director Vsevolod Meyerhold collaborated with El Lissitsky,
Lyubov Popova, Varvara Stepanova & others.
Mainly proscenium productions, but non-illusionistic

1922:

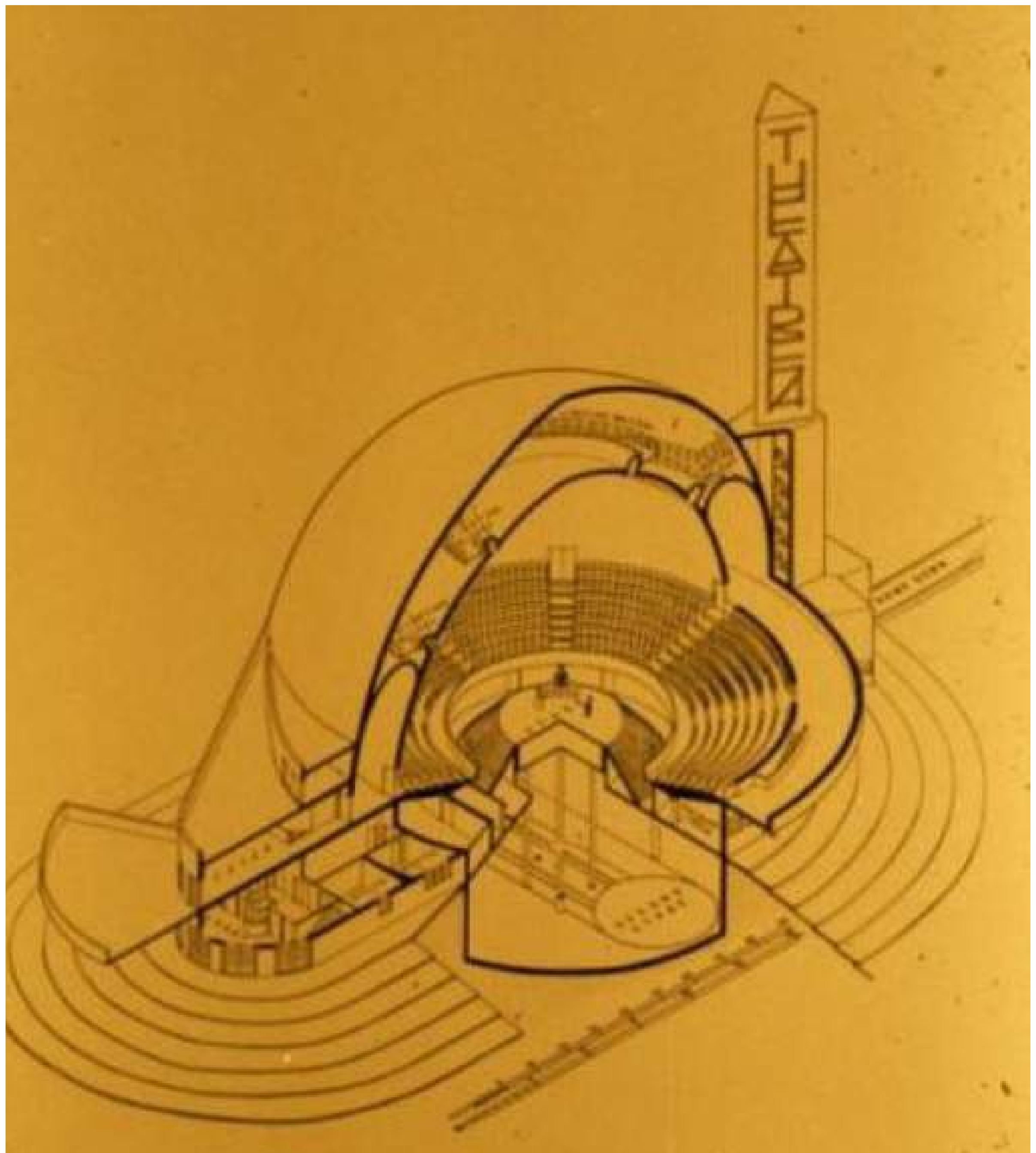
Redoutensaal, Vienna, adapted + used for open stage performance by Max Reinhardtwidely, published.
One room theater, found space

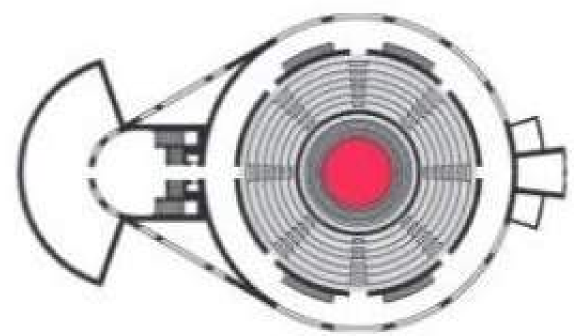


THEATRICAL HISTORY

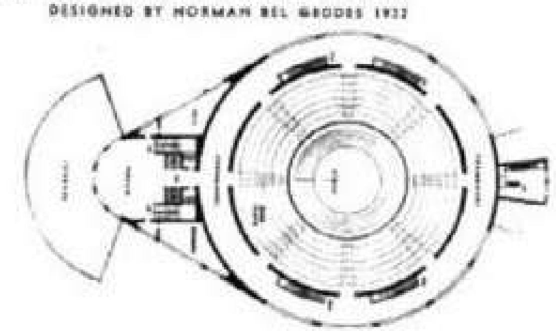
1922:

Norman Bel Geddes, “theater number 14” - Little Theatre in the Round, 600 seats. Arena stage, entered from below.

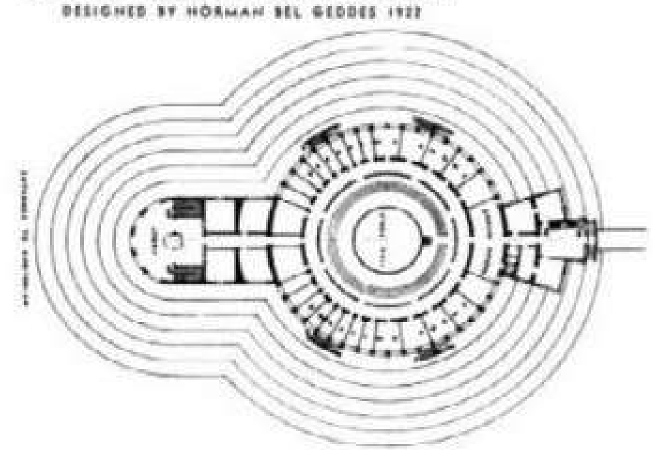




127 THEATER NUMBER 14: AUDITORIUM PLAN
DESIGNED BY NORMAN BEL GEDDES 1922



128 - THEATER NUMBER 14: GROUND FLOOR PLAN
DESIGNED BY NORMAN BEL GEDDES 1922

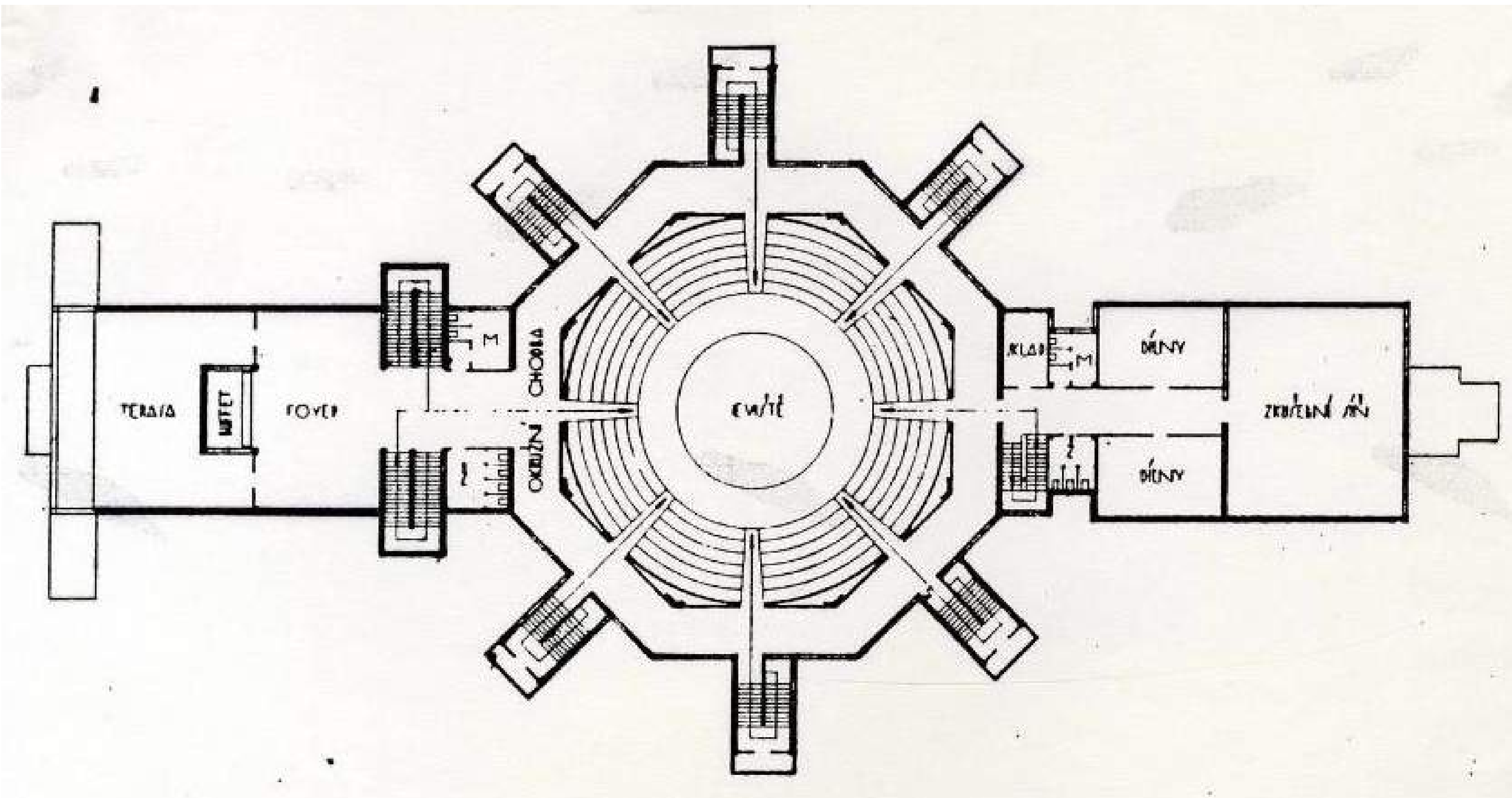


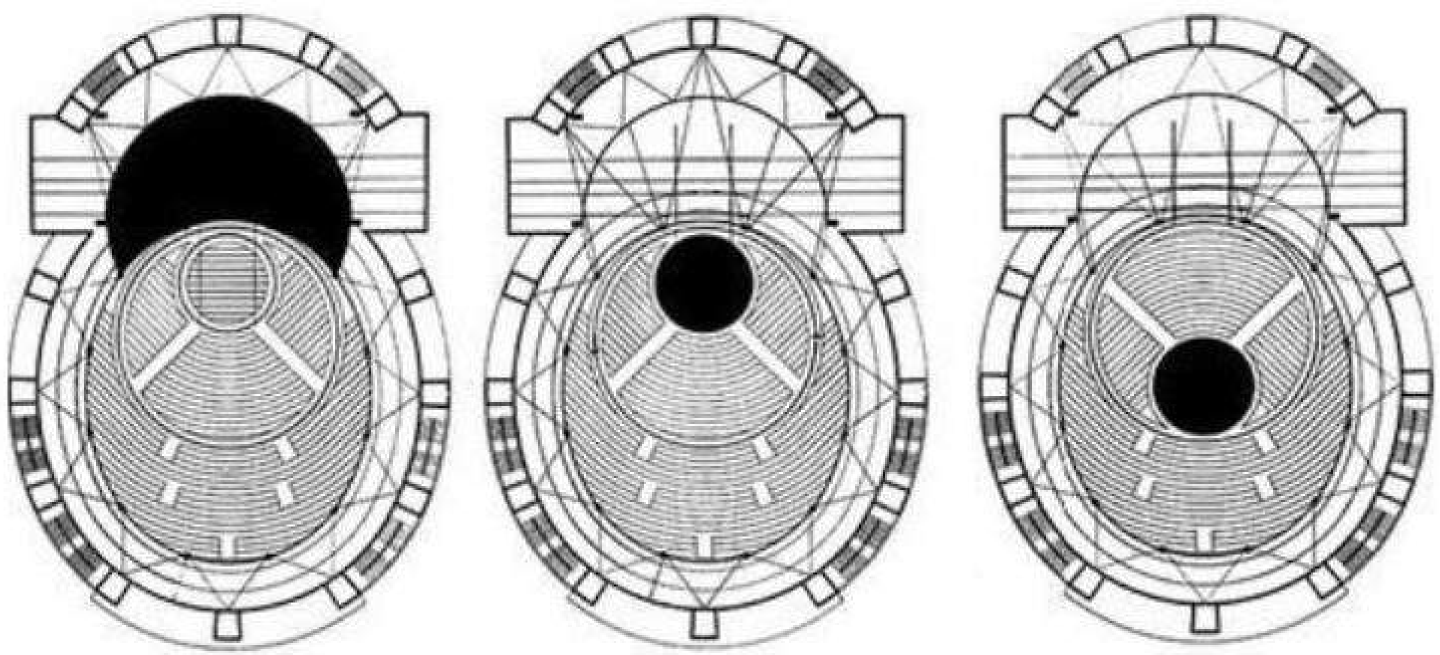
1924:

Raumbuhne (Space Stage), architect/scenographer Friedrich Kiesler. At the international Ausstelung Neuer Theatertechnik in the Vienna Konzerthaus. Kinetic energy, lifts and ramps.

1925:

Liberated theater, architect Josef Chochol and director Jiři Frejka. Architect & artist. Arena with acting in the aisles and In the 'spatial column above the stage'.





1926:

Walter Gropius, Total theater commissioned by Erwin Piscator. Flexible format theater with caliper stages, fixed cyclorama wall, immersive projection.

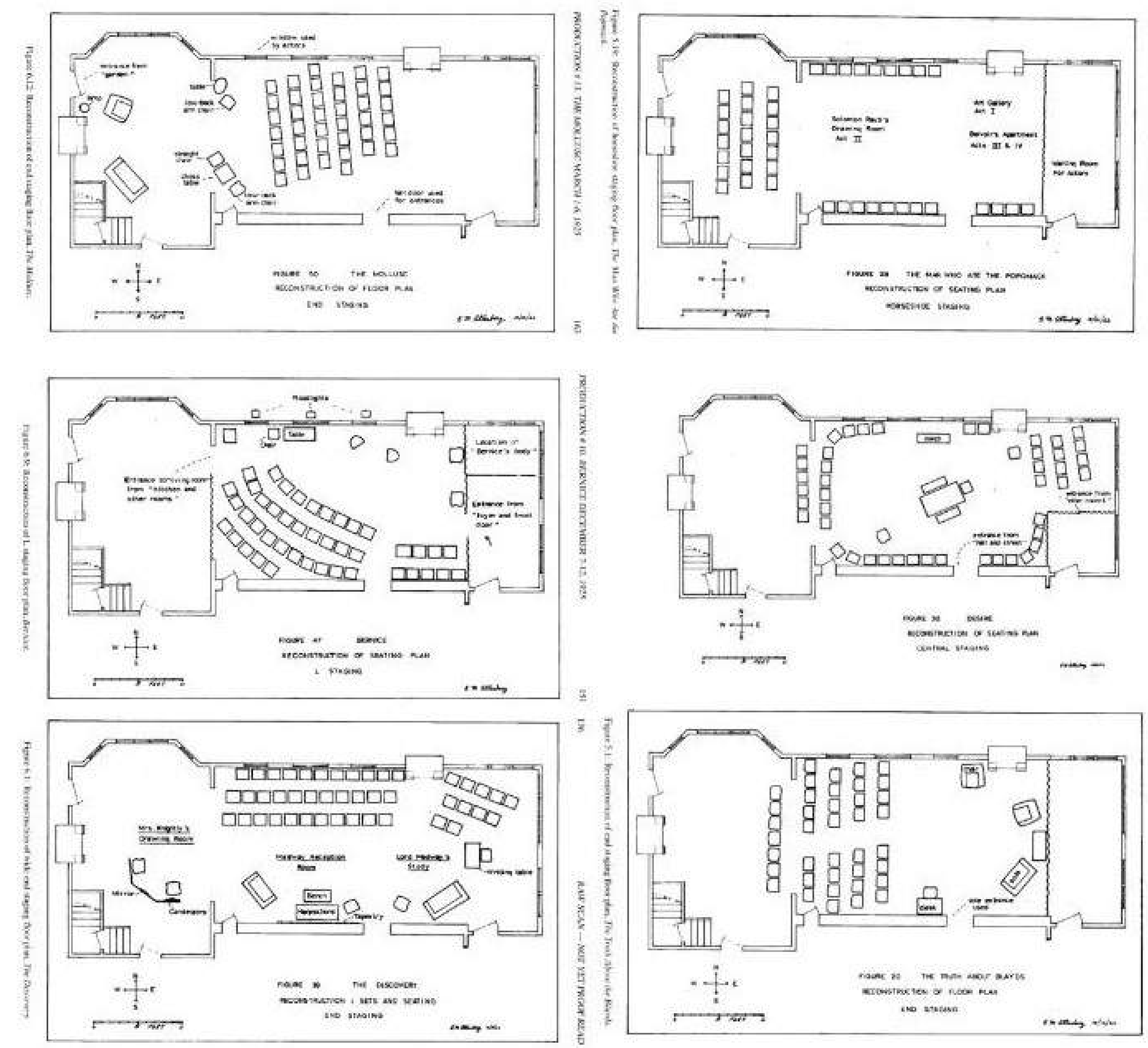
THEATRICAL HISTORY

1922:

Edward Gordon Craig's sketches for merchant of Venice inspired by Cirque Medrano widely published. Arena idea inspired by the circus

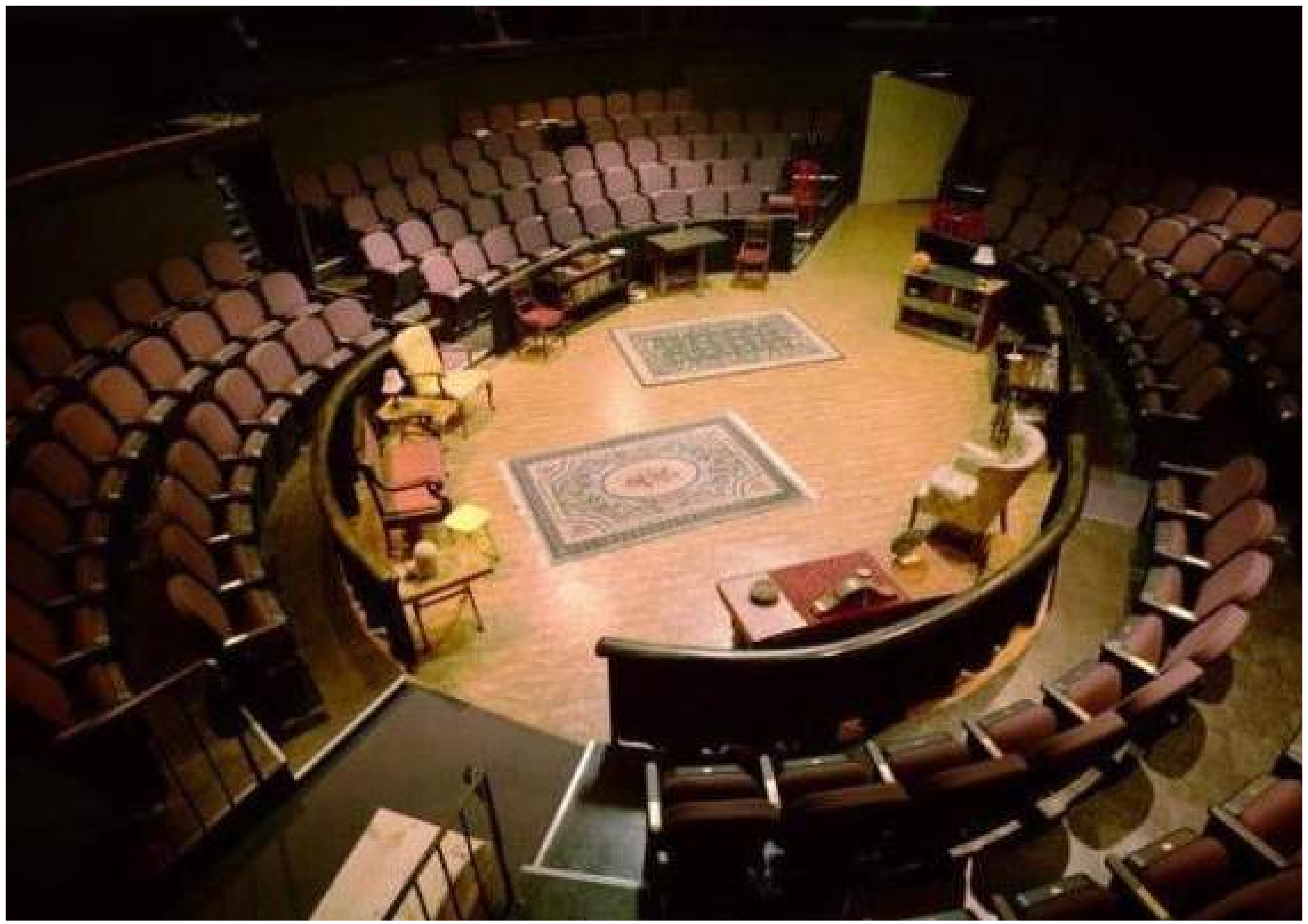
1924:

Gilmor Brown's fairoaks Playbox, a home near the Pasadena playhouse. Perhaps the very first flexible theater space.



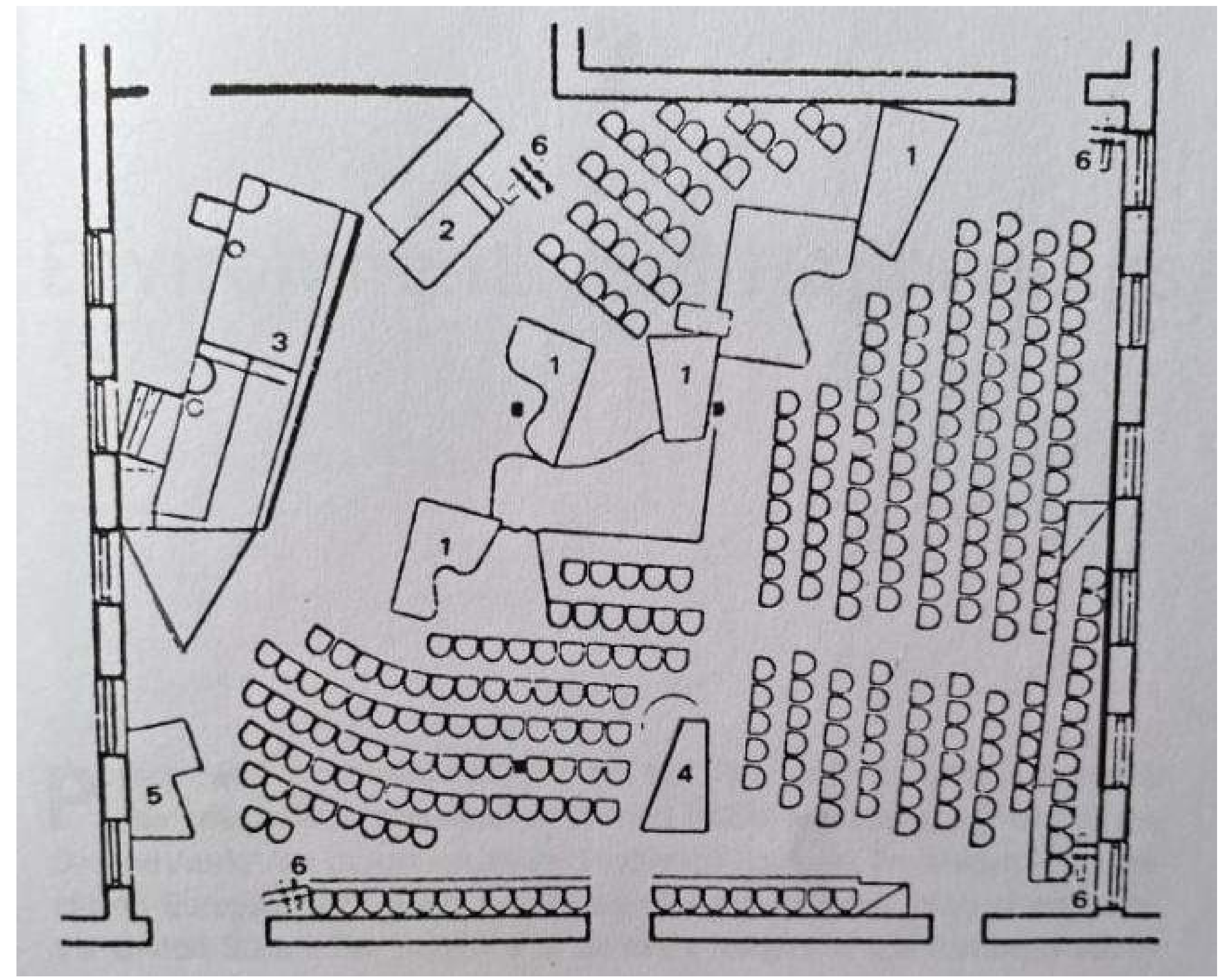
1931:

Penthouse Theatre, Seattle WA Improvised, 1940 permanent building. World's first purpose-built theater in the round Arena staging.



1934:

Szymon Syrkus Scattered staging production design. The performance is scattered throughout the audience.



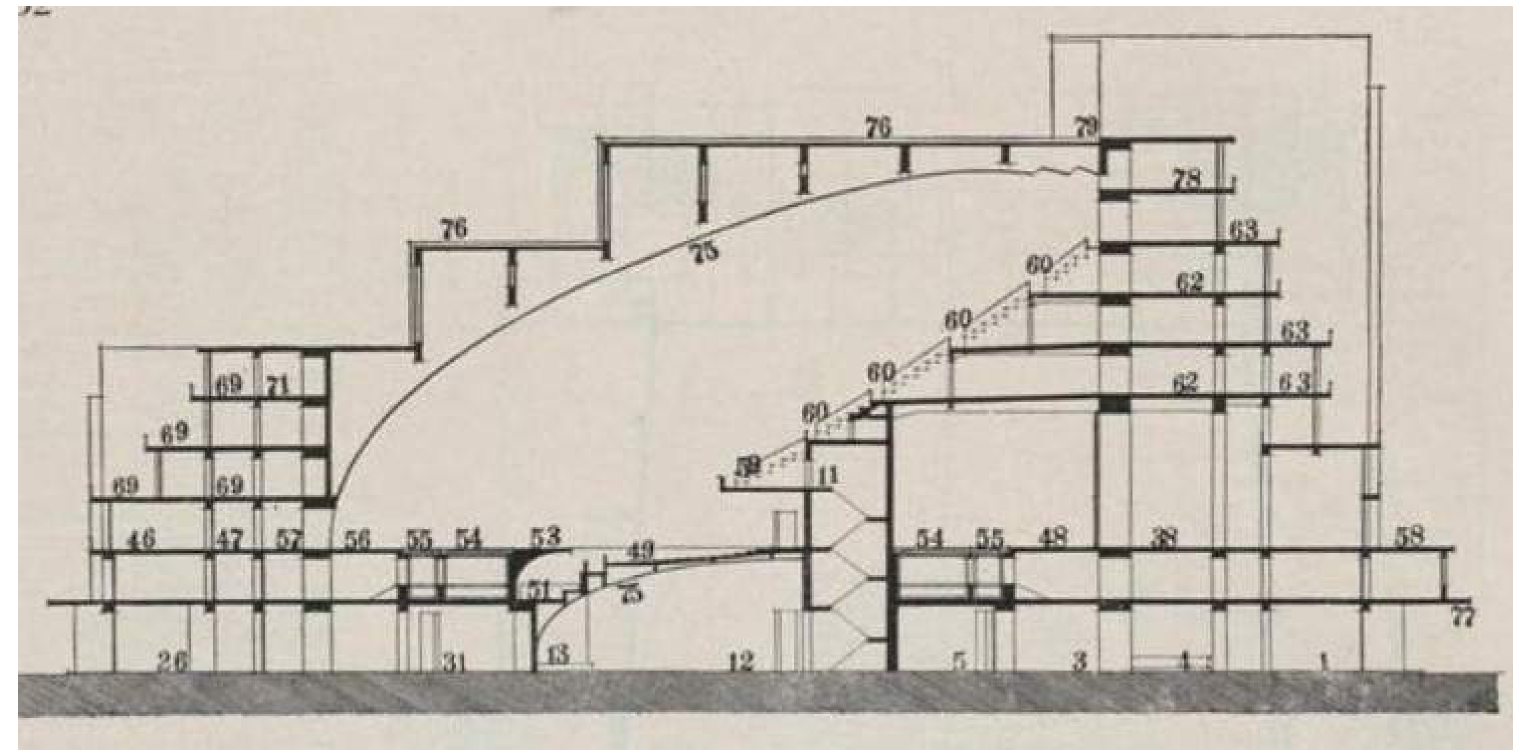
THEATRICAL HISTORY

1926:

'Universal Theatre' original concept, (developed 1959 -1962), architect/theater designer Friedrich Kiesler.
Partially flexible format, fixed cyclorama wall, immersive lighting.

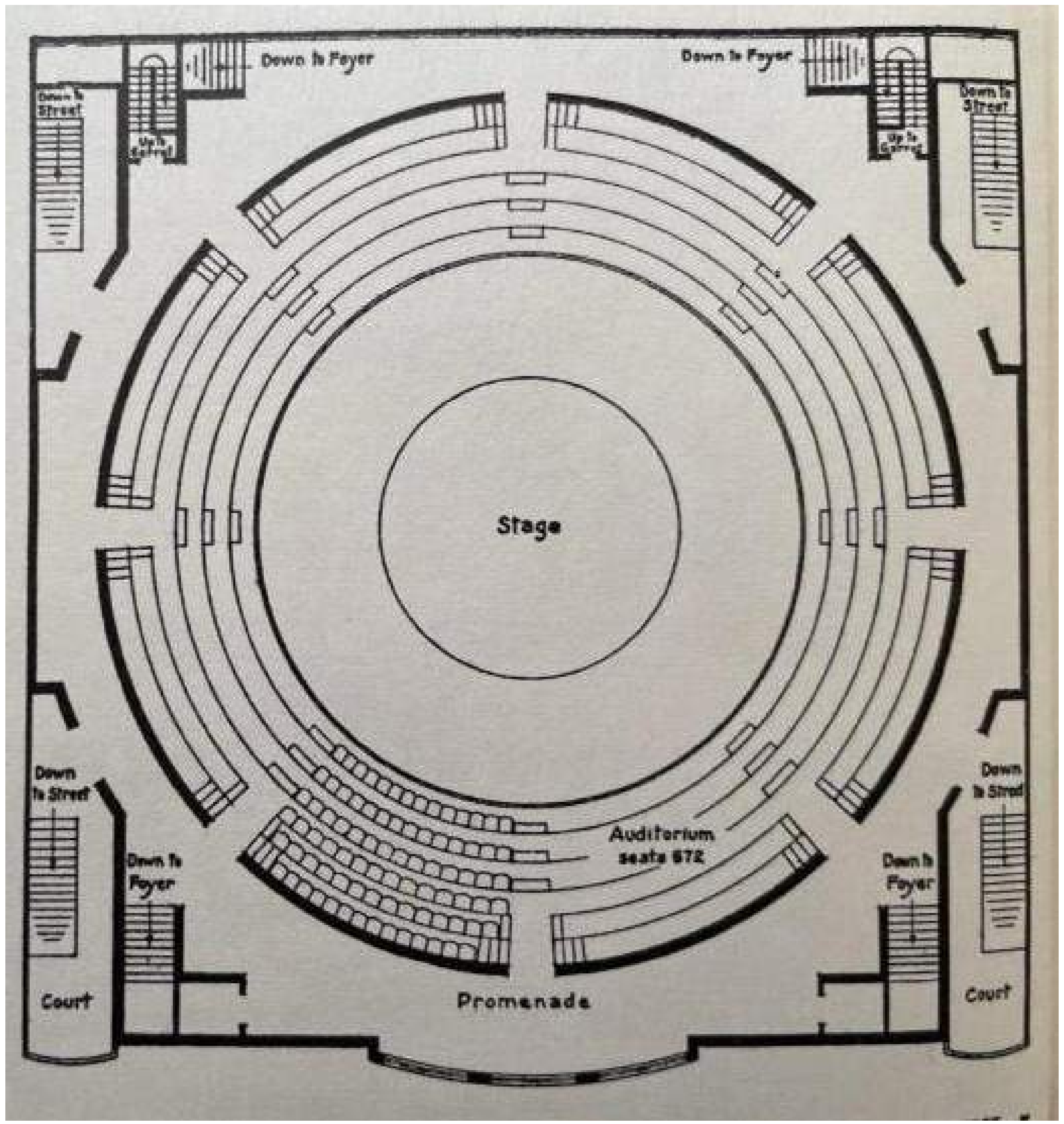
1928-1929:

'Simultaneous Theatre', Andrzej Pronaszko (scenographer), Szymon & Helena Syrkus (architects).
rotating annular / caliper stages, projection



1930:

Norman Bel Geddes, 'theater in the round'.
Arena, entry from below.



1930-1937:

Actor/director Nikolay Okhlopkov, Moscow realistic theater.
Environmental staging.

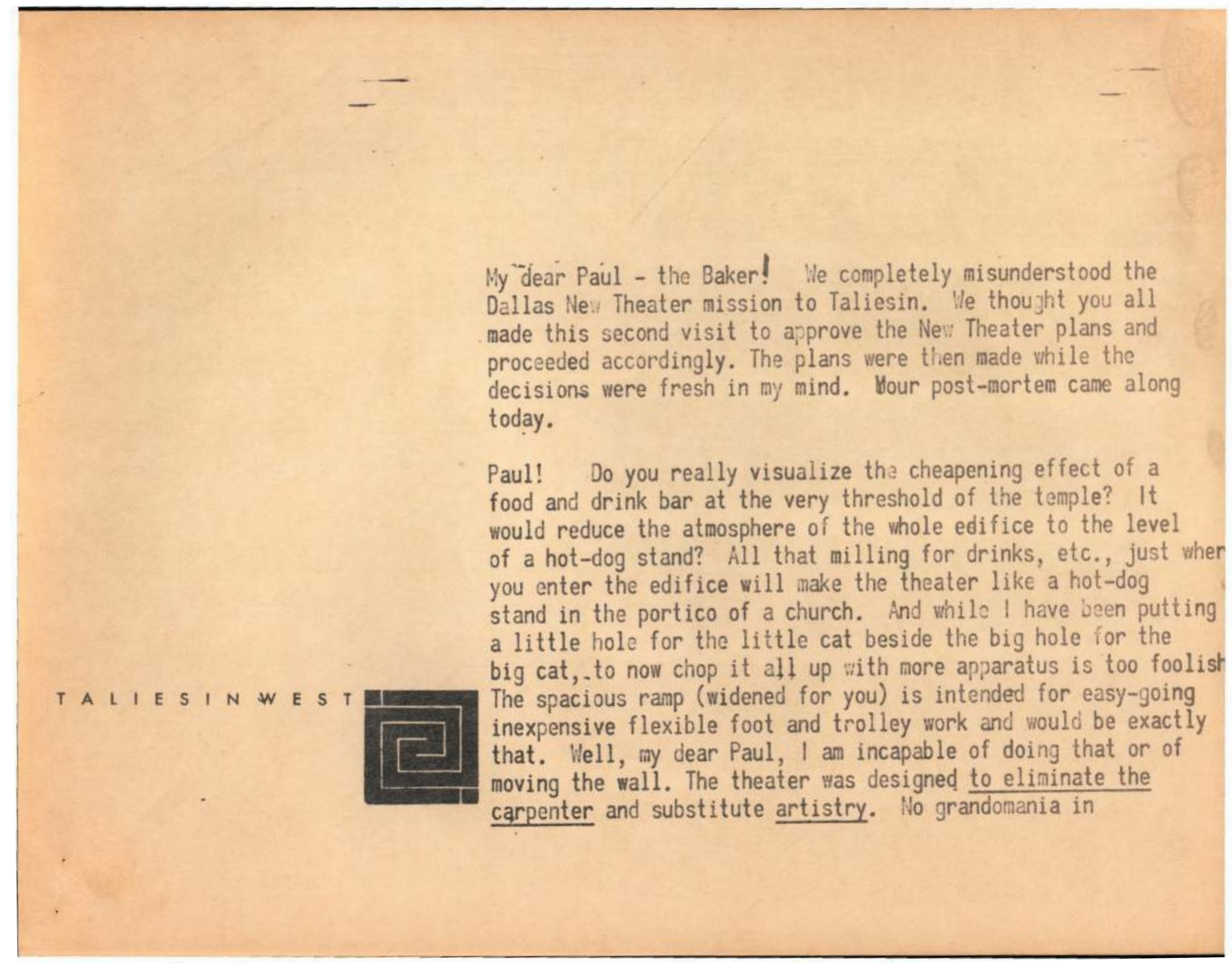
What the Letters Reveal

The set of letters to the Board and to Paul Baker on January 29 and 30, 1958 are fascinating and provide insight into Wright's design intent. While it is hard to parse his repeated references to holes for big and little cats (possibly a reference to the large stage entrances upstage and the mouse-holes downstage) his vision of what theater in general, and this theater specifically, should be, come through with some clarity.

His vision is rooted, unsurprisingly, in what people were thinking about in the nineteen-teens and twenties, a period during which conventions were being challenged and new directions imagined. Isadora Duncan was rejecting the formalism and awkwardness of ballet in favor of a dance more grounded in the natural expressive movements of the human body. Adolph Appia and Edward Gordon Craig were rejecting realistic scenography and publishing books, articles and compelling drawings of simpler, more abstract expressionist and symbolist work. Heinrich Tessenow and Appia built a remarkable 1913 one-room performance space, the Festspeilhaus at Hellerau for the Jaques Delacroix Institute, a white room lined with linen walls rear-illuminated by thousands of light bulbs, and the widely influential photographs and drawings of Appia's productions there may have influenced Wright's ideas. They inspired many. The Hellerau space appears in the published images as a slightly hazy white void, structured as needed with sculptural forms and expressionistically lit. They suggest a sacred quality to the space and the work that's done there.

Throughout all his designs from Barnsdall on, Wright never breaks the formal frontality of the stage picture. In fact, in the shaping and proportions of all three Kalita-like schemes he thwarts the use of stage depth and height and instead emphasizes its breadth and horizontality, compressing the stage action upstage-downstage and extending it left and right almost like a bas-relief. Perhaps he was enchanted by lateral movement in space, a feature he would have also seen in the Kabuki theater. Even the longest diagonals available to actors in the Kalita through the Big Cat hole up-right to the Little Cat hole down-left are relatively flat as compared with those in thrust theaters like the Guthrie which invite movement from upstage down through the voms. Even conventional proscenium theaters typically have entrances upstage right and exits down left. At the Kalita actor movement which would help blur the separation between actor and audience did not expand on the possibilities found in either traditional or contemporary theater design. In fact, actor movement was more controlled at the Kalita. Despite the suggestion that Wright was trying to make a room shared by the audience and performers, the only architectural moves in that direction are the elimination of a formal arch-like boundary, and the use of a common paint color. The seating geometry and the section are clear in demarcating a stage area that is distinct from the auditorium.

Wright's intention to 'eliminate the carpenter' leaving only the Architecture and a few "designed, sculptural, imaginative constructions" that could easily be pushed up hill by stagehands is clear. Make a sacred space with as little clutter as possible. Thwart the carpenter by insisting on the ramps and making sure the elevators he himself had drawn in previous incarnations were eliminated so that a grand unseen ballet from basement to stage to basement is performed offstage. No "spasmodic and mechanical" movements of elevators here, but the theatrical justification is absent.

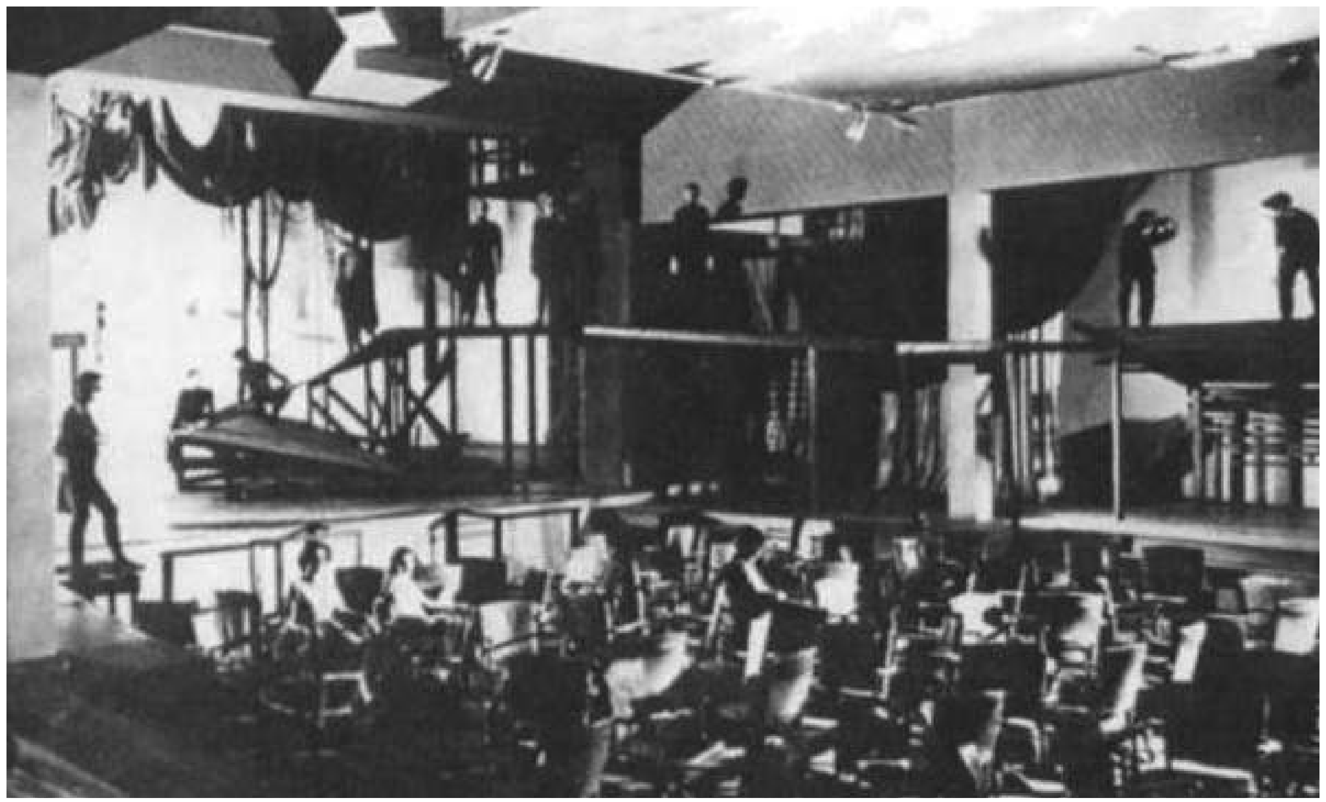

TALIESIN WEST

My dear Paul - the Baker! We completely misunderstood the Dallas New Theater mission to Taliesin. We thought you all made this second visit to approve the New Theater plans and proceeded accordingly. The plans were then made while the decisions were fresh in my mind. Your post-mortem came along today.

Paul! Do you really visualize the cheapening effect of a food and drink bar at the very threshold of the temple? It would reduce the atmosphere of the whole edifice to the level of a hot-dog stand? All that milling for drinks, etc., just wher you enter the edifice will make the theater like a hot-dog stand in the portico of a church. And while I have been putting a little hole for the little cat beside the big hole for the big cat, to now chop it all up with more apparatus is too foolish The spacious ramp (widened for you) is intended for easy-going inexpensive flexible foot and trolley work and would be exactly that. Well, my dear Paul, I am incapable of doing that or of moving the wall. The theater was designed to eliminate the carpenter and substitute artistry. No grandomania in

1941:

Paul Baker's Studio One at Baylor, influenced by 1936 Rockefeller grant to travel to England, Germany, Russia and Japan. Could have met Meyerhold, Ohklopkov and Stanislavsky. Environmental staging

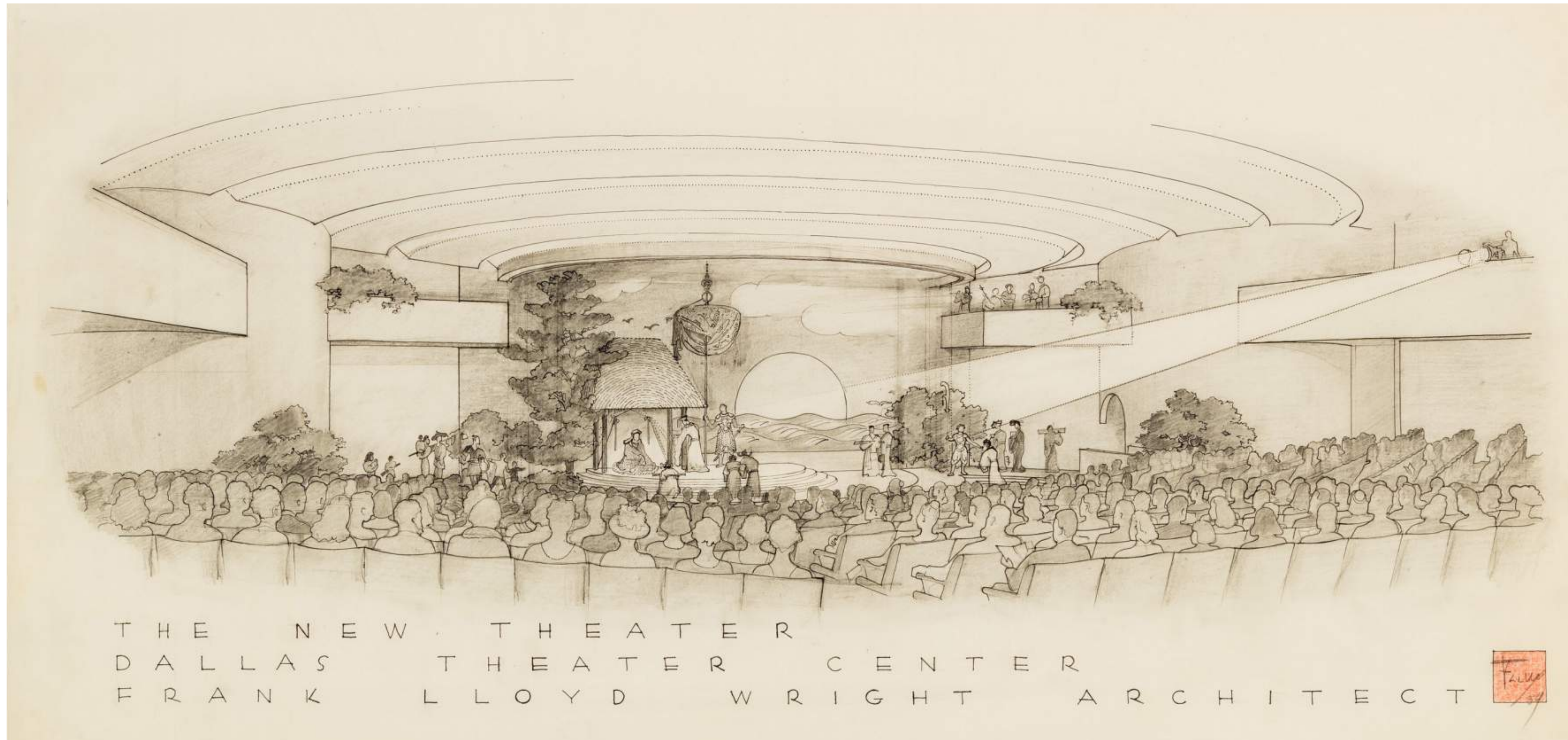


THEATRICAL HISTORY

Though he calls for new forms in theater his renderings depict conventional staging rather than his proposed "designed, sculptural, imaginative constructions." As at the Barnsdall – The renderings show very conventional scenic elements on stage: a kind of imitation Kabuki set with a building down right, a painted sky backdrop, a groundrow of hills or waves, and lots of fake trees, and all of it a little bit out-of-scale, undersized to the actual dimensions of the theater perhaps to gloss over the headroom issues in the 'musician's gallery' and at the mouse holes.

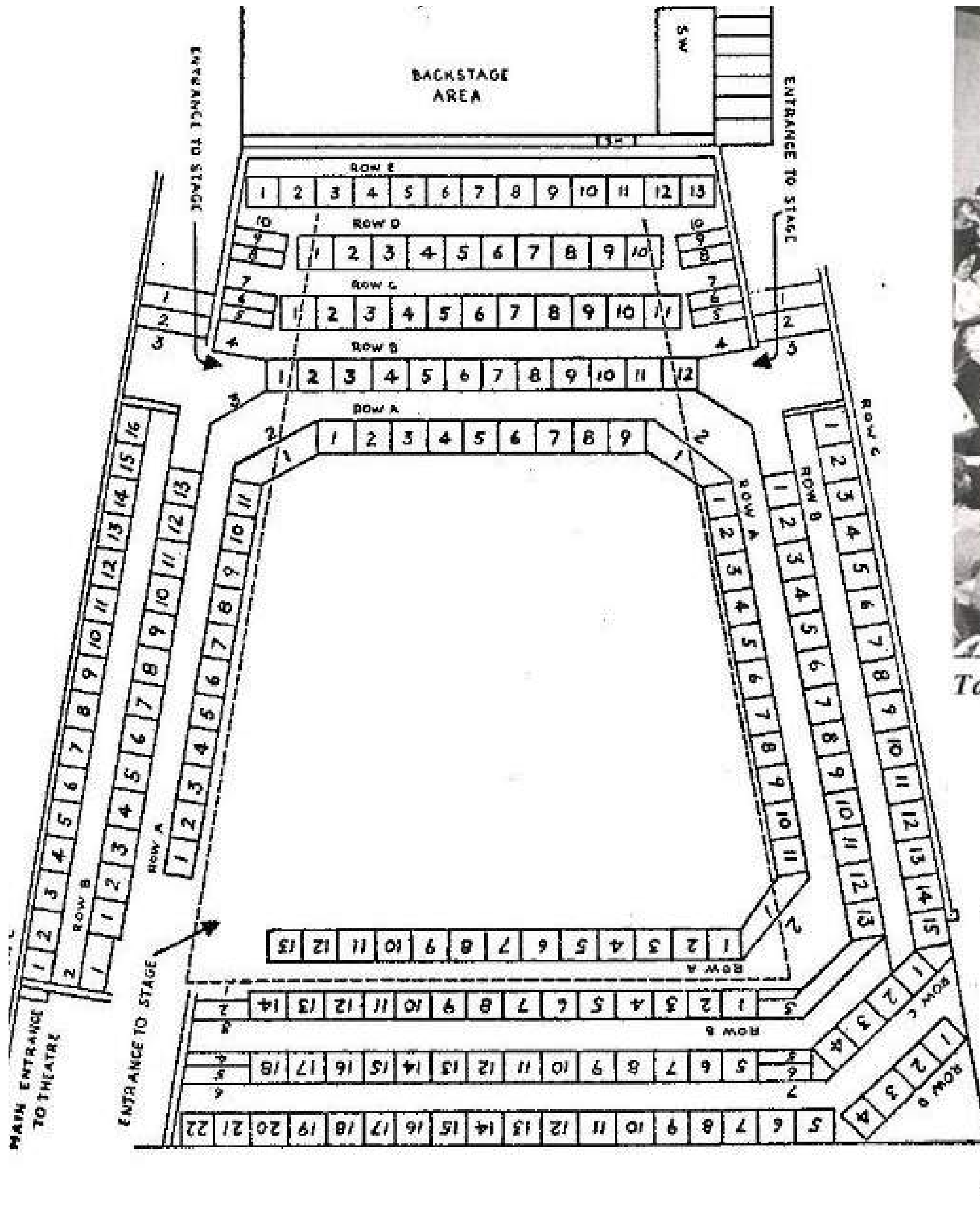
Given the focus on sculptural forms in a white-ish space implied in his letters, it is doubly surprising he didn't spend more attention on the lighting, specifically telling Baker that he was leaving the dimming and control system out of the bid package. Clearly accommodation of the equipment that could have made his vision work better was not adequately considered, and today's unsatisfactory ad-hoc solutions are the result.

The letters also make it clear that he disparaged the kind of exciting new theater that was being performed in flexible spaces, environmental spaces, and arena theaters – including by Paul Baker - calling them "circus-like". Right there in Dallas, beginning in 1947, America's regional theater movement was begun by the great Margo Jones in a theater-in-the-round in Fair Park, an adaptive reuse of an exhibition building. She even visited Wright at Talliesin before creating her theater. It became clear that they didn't have similar views and they wisely chose not to work together; instead she worked with the great set designer Jo Mielziner who would later collaborate with Eero Saarinen on the design of the Vivian Beaumont Theater at Lincoln Center which opened in 1965. In the letters Wright seems to worry that DTC might prefer a theater in the round and that his pure vision would never be achieved.



1947-1955:

Director Margo Jones, Theater in the Round, Dallas
Arena format.



Taming of the Shrew, Theatre '48, 1948

THEATRICAL HISTORY

1950:

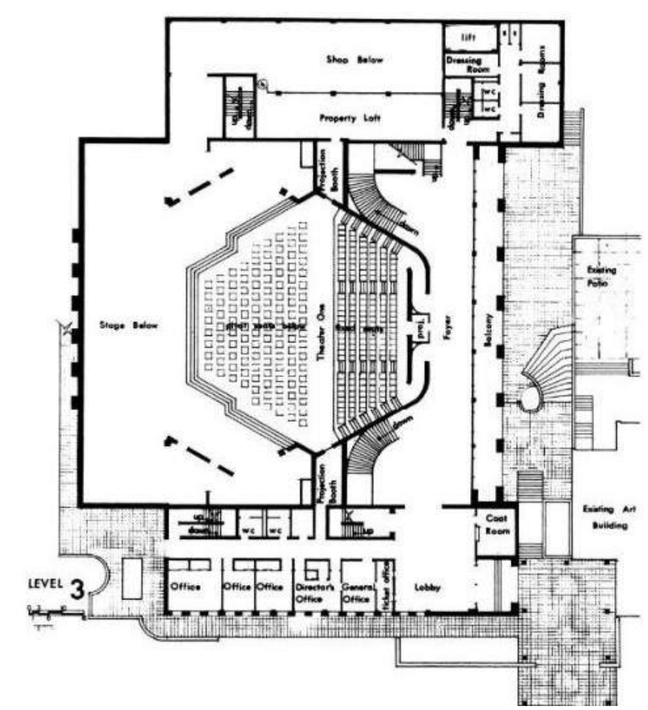
Improvised in two found spaces, Arena stage, Washington DC hippodrome theater and the old vat.

The trajectory of theater design for drama in the 20th Century was away from purely frontal viewing and toward new engaging relationships between viewer and audience, and always toward ever-greater flexibility at all scales. Wright's belief that his theater was genuinely new, in the sense of being innovative as compared with others of the time, was by the late 50's badly misplaced. His ideas were rooted in a view of the theater from 40 years before, and theater artists had moved far beyond it. His condescension toward a mere "stager" of work was shocking, as was his belief that he knew more about theater and its future than working theater artists who were making its future.

Had Wright chosen to respect Paul Baker and engage in the problem of making a theater that would support his innovative work, he might have produced something truly new and influential. Rather than respecting Paul Baker as an artist and understanding that a theater's purpose is to facilitate the work of theater artists, he chose to impose his own older ideas and constrain DTC's 'carpenters'. He also badly miscalculated the sightlines and shortchanged stage lighting. It is why the Kalita was soon modified and DTC chose to create other spaces to work in. Even Paul Baker went on to build another theater more sympathetic to his artistic objectives in 1966, at Trinity University.

1966:

Ruth Taylor Theater, Trinity University for Paul Baker.
Tripartite proscenium stage.



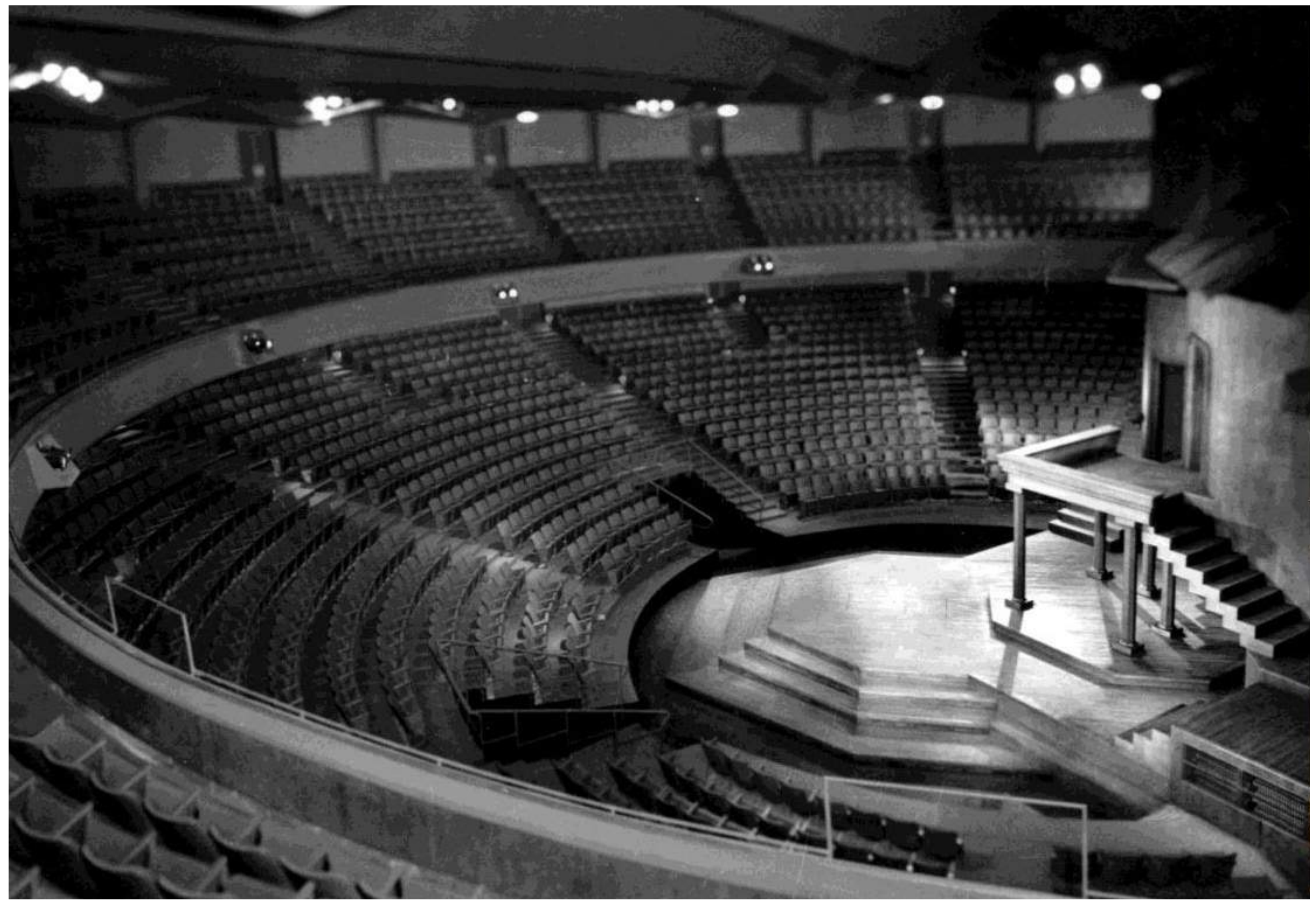
Legacy

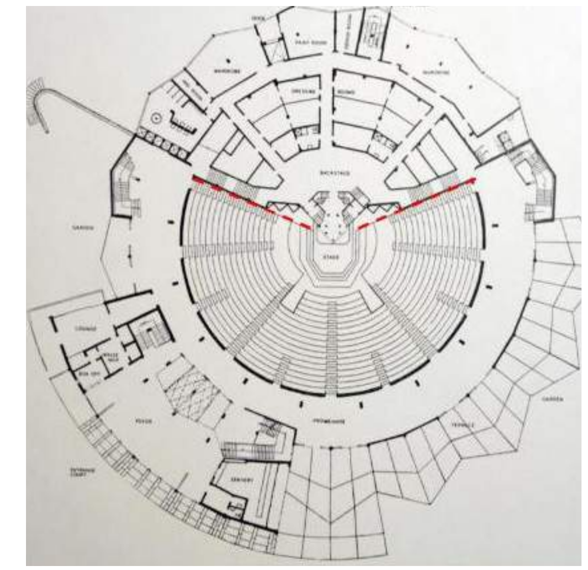
Wright's late work was highly anticipated and closely study but It's hard to document that Kalita had significant impact on theater design going forward. His concepts of a fully round but frontally-viewed stage platform, of a fixed semi-circular back wall, or of limited on-stage entrances and exits were not embraced or repeated. Though George Izenour did see some influence in Ulrich Franzen's 1968 Alley Theater in Houston, TX.

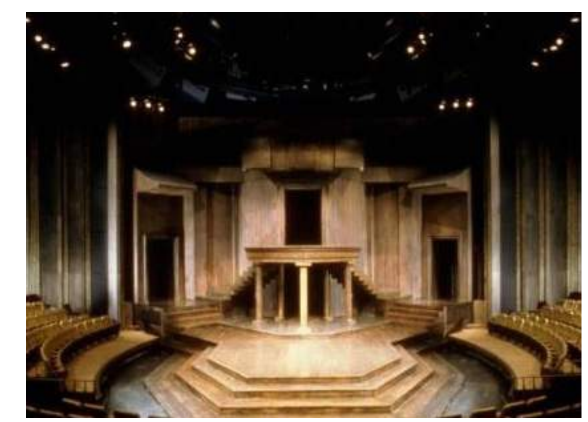
The Greco-Roman amphitheater as a model for seating was in the air by the early 50's as well as an interest in thrust or three-quarter staging (as well as an earlier interest in arena or in-the-round staging). While Wright was opposed to thrust staging, others used the amphitheater as the model for new thrust stage designs where the objective was not Wrightian frontality, but to place the actors in the center and wrap the audience around them - in some cases more than 180 degrees. The earliest built example is the Festival Theater at Stratford Ontario which opened well before Kalita under a tent in 1953 and was fully enclosed in a building by 1957. In place of Wright's permanent architectural setting – the polygonal or round back walls – early thrust theaters like the Stratford Festival and the later Guthrie theater had permanent stage structures designed by scenographer Tanya Moiseiwitsch that provided a rich variety of levels, entrances and exits that harkened back to the fixed stage arrangements of the Greco-Roman Amphitheater and the Elizabethan playhouse. At the Guthrie this was eventually removed and in Stratford it remains but can be reconfigured as desired. They also had actor's voms extending directly out through the seating bowl, providing dynamic trajectories for movement upstage-downstage or long diagonals to or from the audience rather than laterally in front of them.

1953:

Tent version, 1957 permanent version - festival theatre, designer Tanya Moiseiwitsch, Stratford. Ontario first purpose-built thrust theater.







1961:

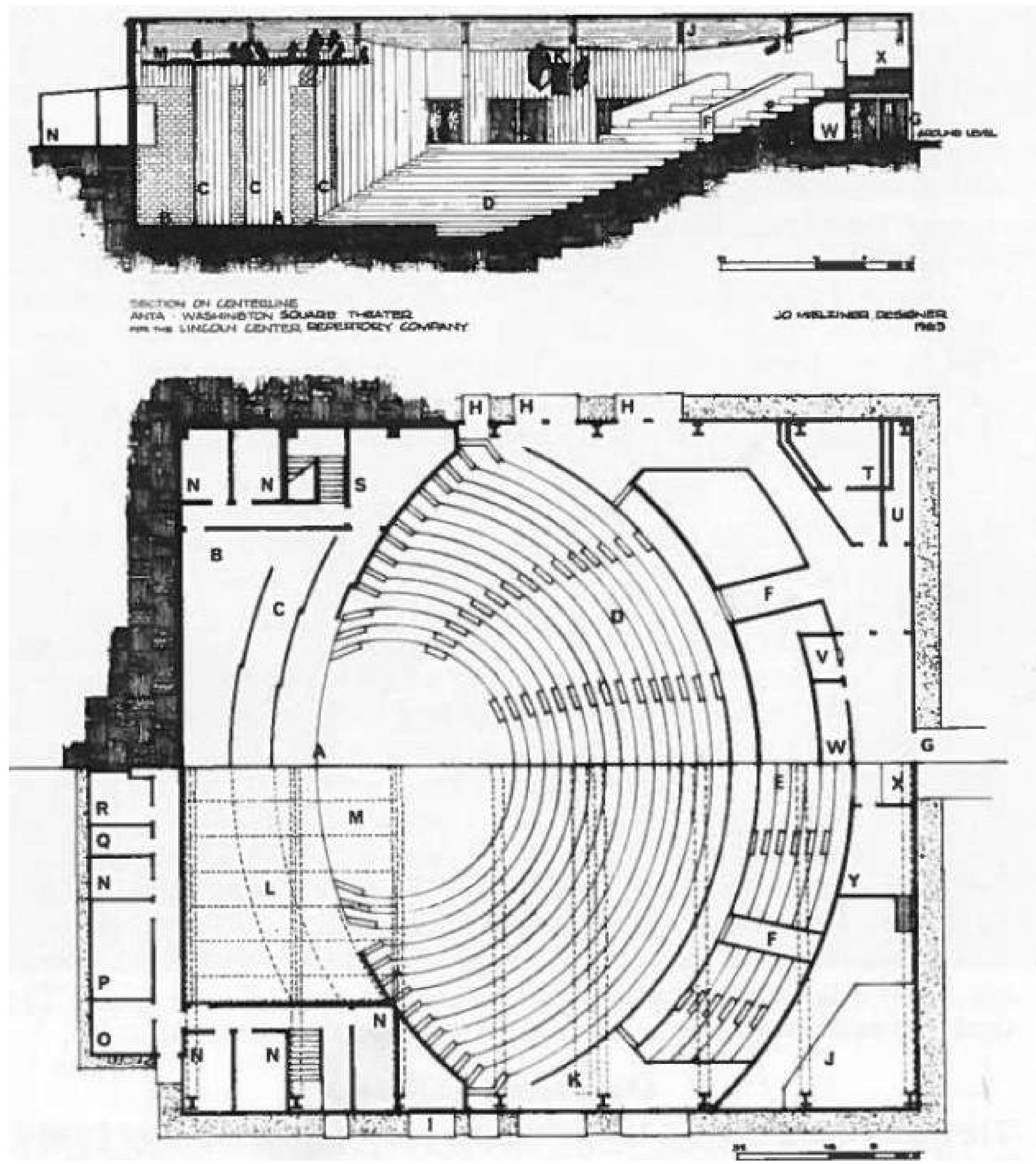
Arena stage, Washington DC, Harry Weese, architect. Arena Format.

THEATRICAL HISTORY

The project that could possibly have been informed by a knowledge of the Kalita - and the designer's reaction to it - was Jo Mielziner's 1963 design for the ANTA Washington Square Theatre, an 1160-seat temporary building near Washington Square that was used until the Vivian Beaumont Theater was finished at Lincoln Center. Because of its temporary nature and low budget, it was practically a one-floor theater with a very limited footprint. Its seating bowl and stage were scooped into the ground. There was no massive conventional stagehouse as the Beaumont would soon have, and it was only designed for a thrust arrangement rather than the Beaumont's original flexible thrust/frontal capability. While his collaborator in Dallas, Margo Jones, had died by the time the Kalita opened it is possible that Mielziner had an opportunity to visit Dallas to see it, or saw it published. As in other theaters of the time, Mielziner embraced the seating bowl with caliper stages (as he did at the Beaumont). But in place of the Kalita's fixed flanking walls and architectural enclosure on stage he devised a clever system of laterally sliding panels that could be rearranged to alter the stage picture at the stage edge and in two deeper planes – a flexible scenic approach rather than a permanent architectural one.

1963-1968:

Anta Temporary venue near Washington Square Park pending LCT's Vivian Beaumont. Scenographer Jo Mielziner.
Thrust stage, moveable screens, with minimal stagehouse

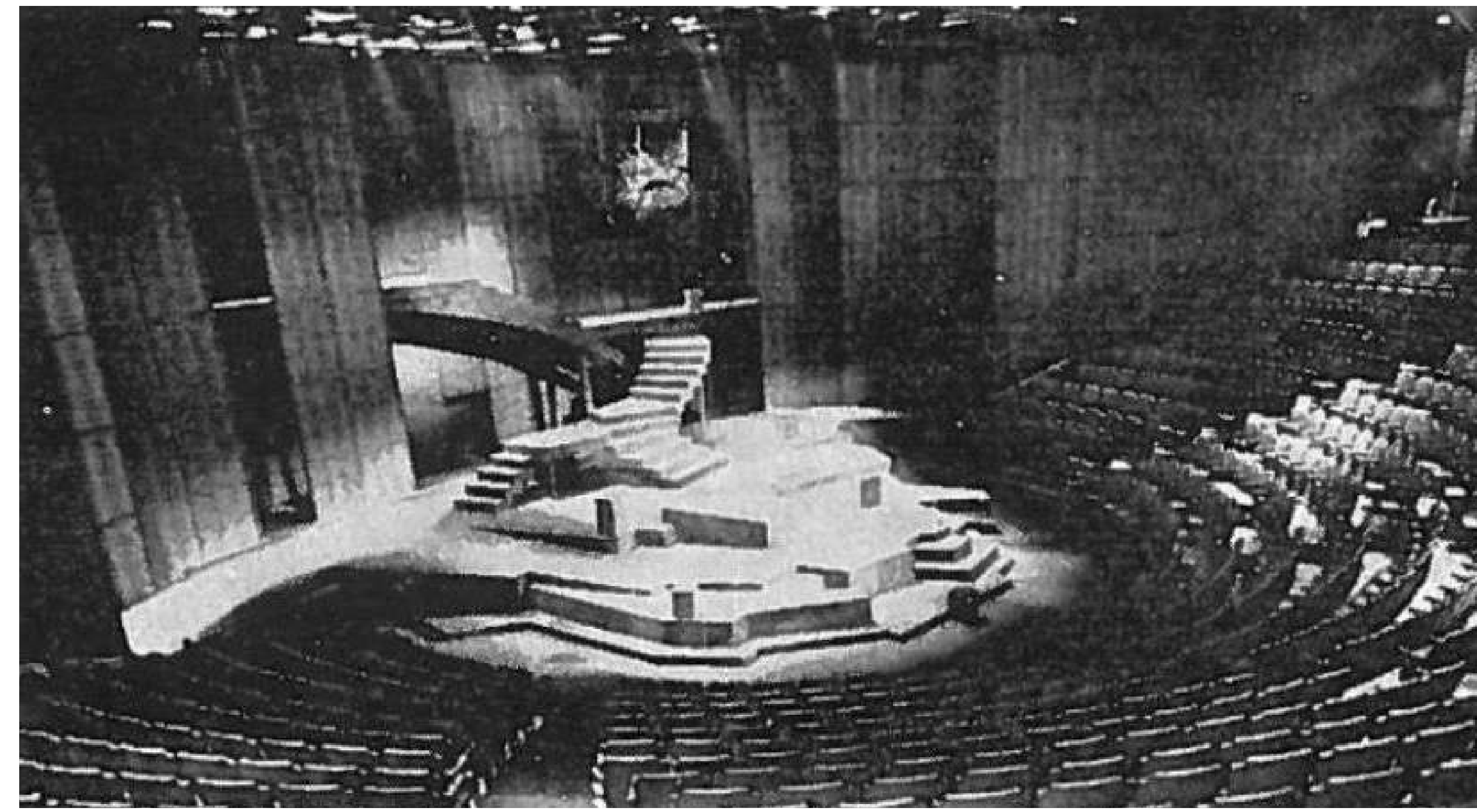


Mielziner would also have been aware of Stratford's Festival Theater (1953/1957) with which both the ANTA (1963) and Beaumont (1965) share a form and approach. One could argue that the ANTA was the Kalita - but improved - with the circle pushed out almost fully into the audience; with curving calipers embracing the seating bowl; their curve echoed by moveable panels on stage in two other planes; with a stage opening that extended beyond the boundaries of the seating to envelope the audience at times; and with a much simpler and less restrictive stage enclosure that was not designed to be seen. The auditorium was taller. The stage and auditorium shared the same ceiling from which lighting equipment was suspended. The walls of the house were dark. The sliding panels were textured, and some seem to have been perforated or expanded metal mesh that could have opaque backings or not as desired. The architecture organizes the actor-audience relationship but provides enormous flexibility to the "stagers" to decide what the audience would see and how it would be used. Like Kalita there are no voms, although this is most likely because of how impractical they would have been for this temporary venue.

Many of Wright's apparent theatrical goals – a space shared by audience and performer, a non-illusionistic stage which did not rely on conventional scenery or rigging, a physical if not architectural framework that could be integrated into the production, caliper stages intended for use, and a seating geometry that let the audience be aware of itself – all were achieved here but in a way that gave directors and designers much greater creative control of their work. The theater is very fondly remembered by some, and it stood until 1968. After the Lincoln Center Theater Company moved to their new uptown home, the hit musical Man of La Mancha opened there in 1965 and ran for three years before moving to Broadway in 1968, presumably just ahead of the wrecking ball. The theater was demolished to make way for a new NYU building, Tisch Hall.

1963-1968:

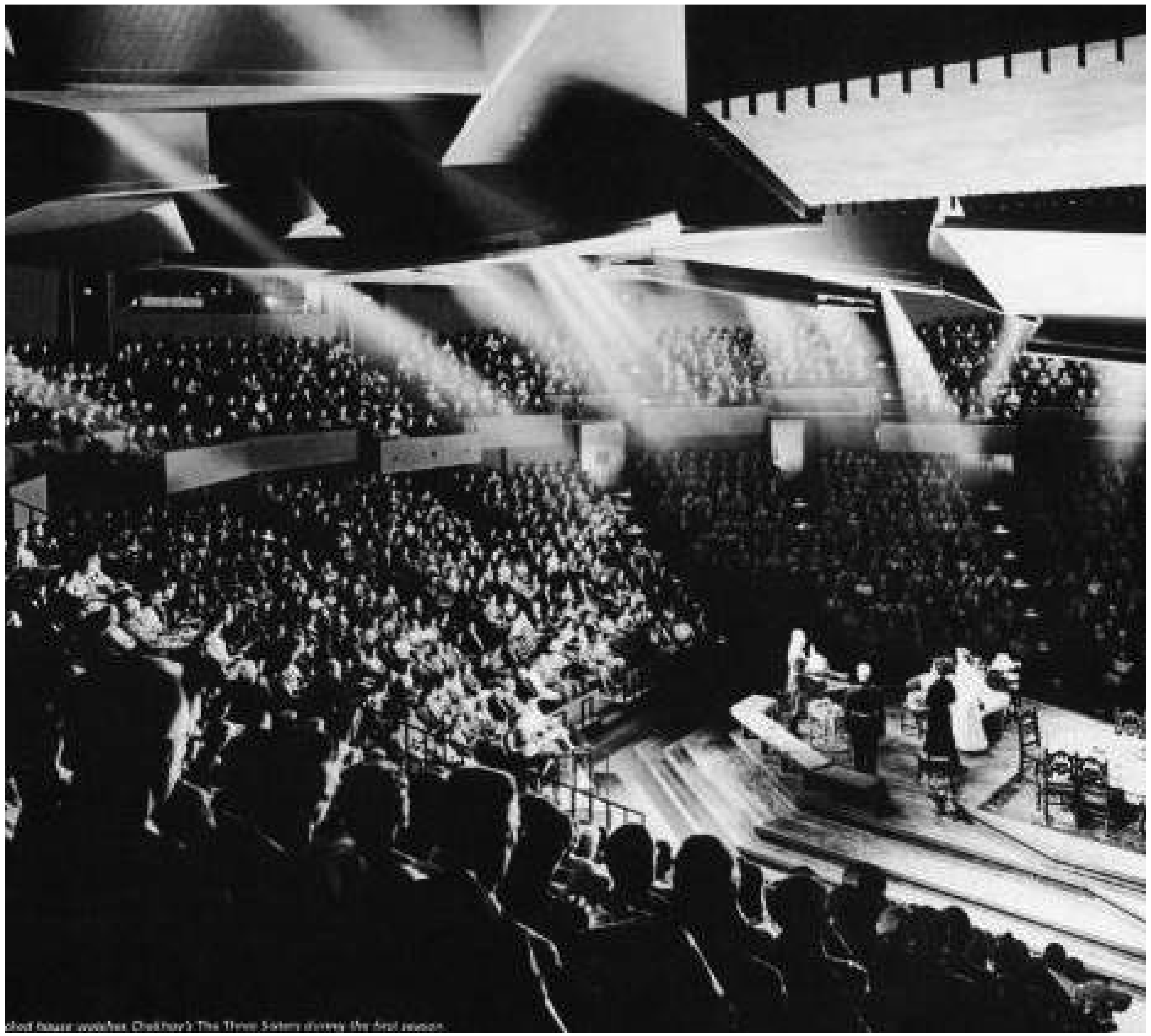
Anta Temporary venue near Washington Square Park pending
LCT's Vivian Beaumont . Scenographer Jo Mielziner
Thrust stage, moveable screens, with minimal stagehouse



THEATRICAL HISTORY

1963:

Guthrie theater, Minneapolis. Thrust Format.

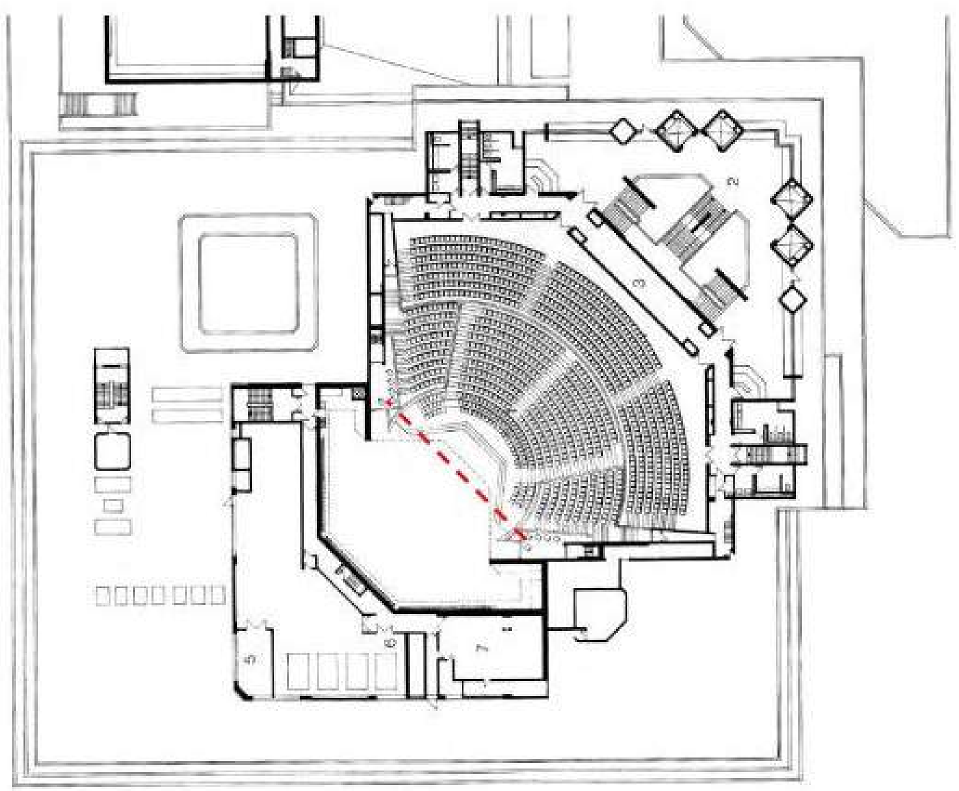


1965:

Vivian Beaumont Theater, Lincoln Center NYC, architect Eero Saarinen, scenographer Jo Mielziner.
Semi-flexible Thrust, with large stagehouse

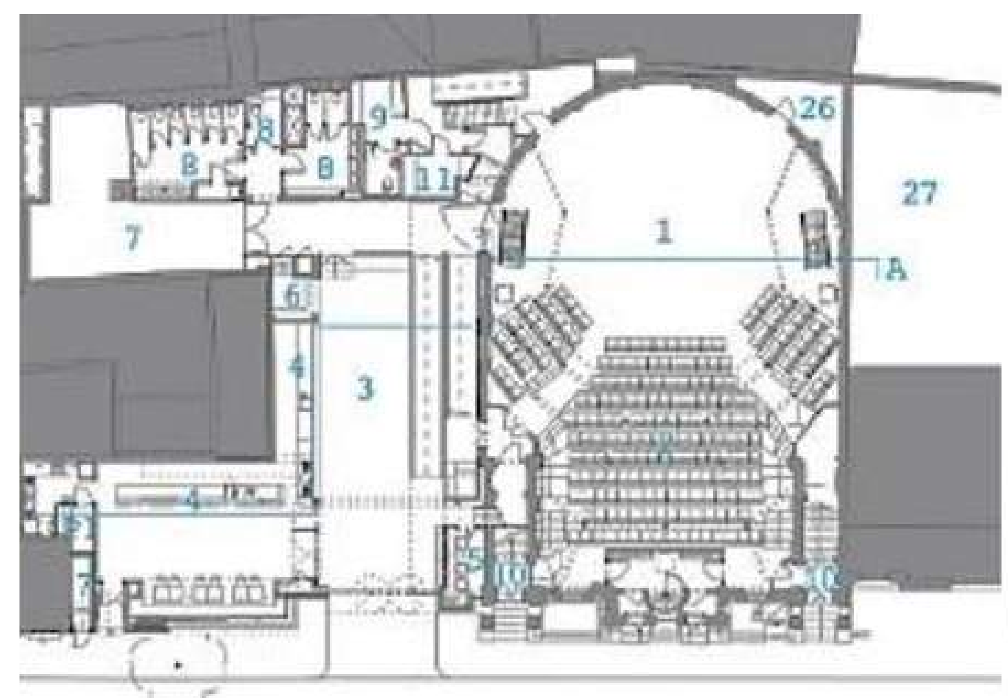
1976:

Olivier Theatre, the National Theatre, London.
Thrust format.



1979:

Almeida Theatre, adaptive reuse, London.
One room theater, apsoidal stage.



Performing Arts Summary

This report is intended to summarize the design analysis undertaken during the Master Planning Phase of the restoration and expansion of facilities on the Kalita Campus of Dallas Theater Center. It will also describe preliminary approaches to theatre systems and equipment for the venues at the Kalita Campus of Dallas Theater Center. Further study and discussion of technical systems and accommodations will be undertaken in future design phases. Appendices are attached to this report, which illustrate the issues described herein.

Dallas Theater Center has undertaken to renovate and expand their facilities at the historic Kalita Humphreys site. The project, centered on the restoration of the Kalita Humphreys Theatre will also include two new performance venues as well as spaces which support performance rehearsal and education. The performance venues and support spaces will be used by both Dallas Theater Center and community-based arts organizations. As such the facilities are sized appropriately and are conceived as spaces which are simple to access and operate. The new venues will include a 250 seat proscenium theater and a 100 seat studio theater.

Throughout the Master Planning Phase, we have worked with Dallas Theater Center and the design team to assess the future needs of the theater community and to propose solutions which can be achieved on this historic site.

Room Design – Planning overview

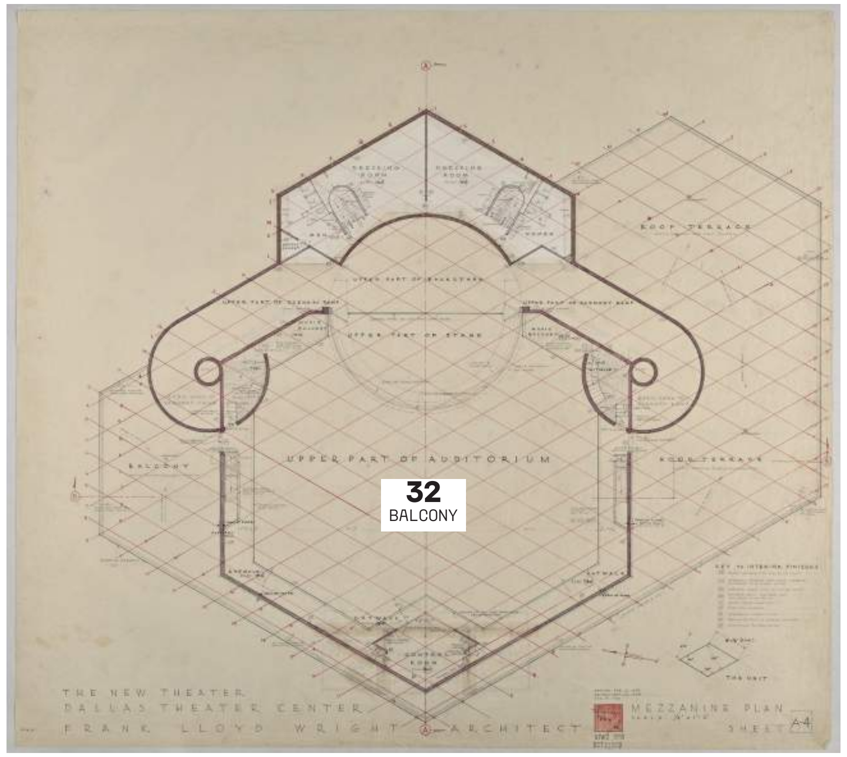
The historic Kalita Humphreys Theatre was the final project of Frank Lloyd Wright. The theater, completed shortly after his death, has historic significance both in architectural history and theater history. The project proposes a modified restoration of the facility which will approach the original design while making targeted improvements. The original room had sightlines that limited the audience's ability to see actors. These limitations were a product of the shallow rake, the low stage, and the lack of staggered seating in the center section. The limitations of the room were apparent during early productions and the decision to revise the seating rake and stage height resulted in the room we occupy today. These changes included changing the row depth to add an additional row of seats. Wheelchairs were accommodated in mid-room boxes which were added to the room. The seats at the rear of the room were also removed. The design revisions increased the seat count of the room and marginally improved sightlines but did so by deviating from the integrity of the original design.

Present Day Theater Interior

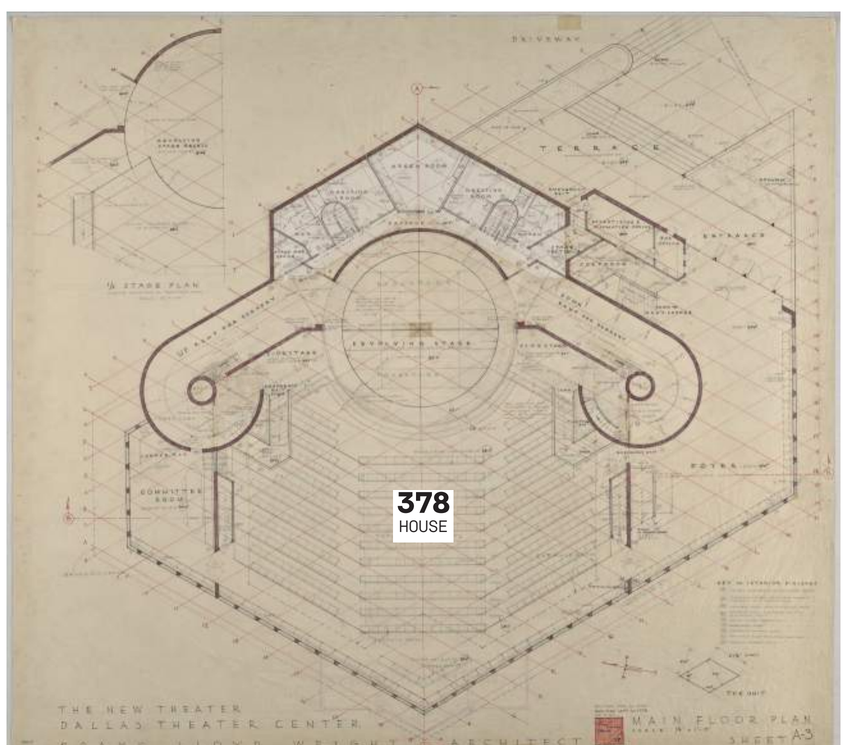
1959 Theater Interior

Original 1959 Condition

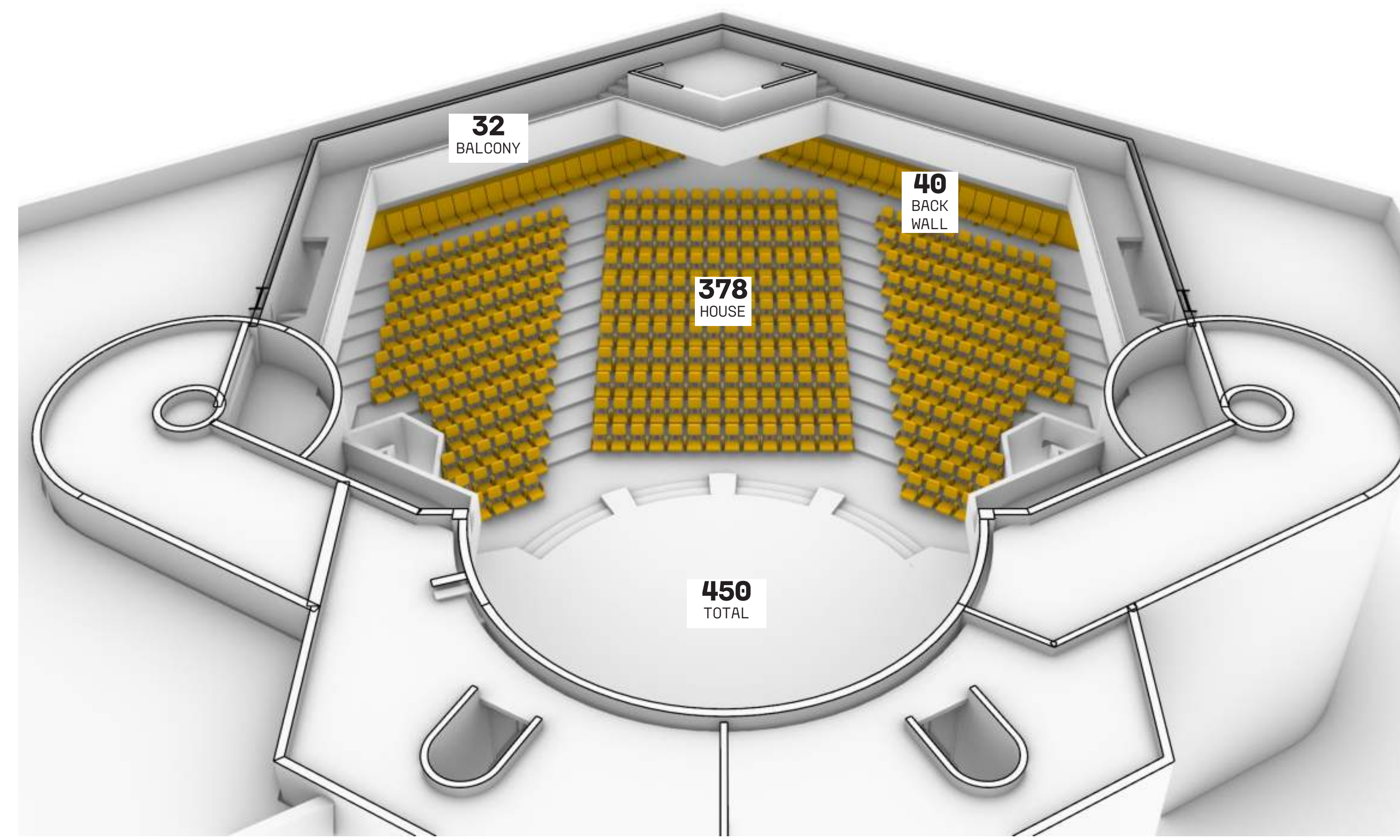
Based on the original drawings and photographs we have concluded that there were initially 378 seats at the orchestra with an additional 30-40 seats along the back wall of the theater. The seats at the back wall always had a very limited view of the stage. There was also a single row of seating at the balcony with approximately 32 seats. These may have been added after the opening, and do not appear in the original drawings.



Original 1959 Construction Drawing - Balcony Level



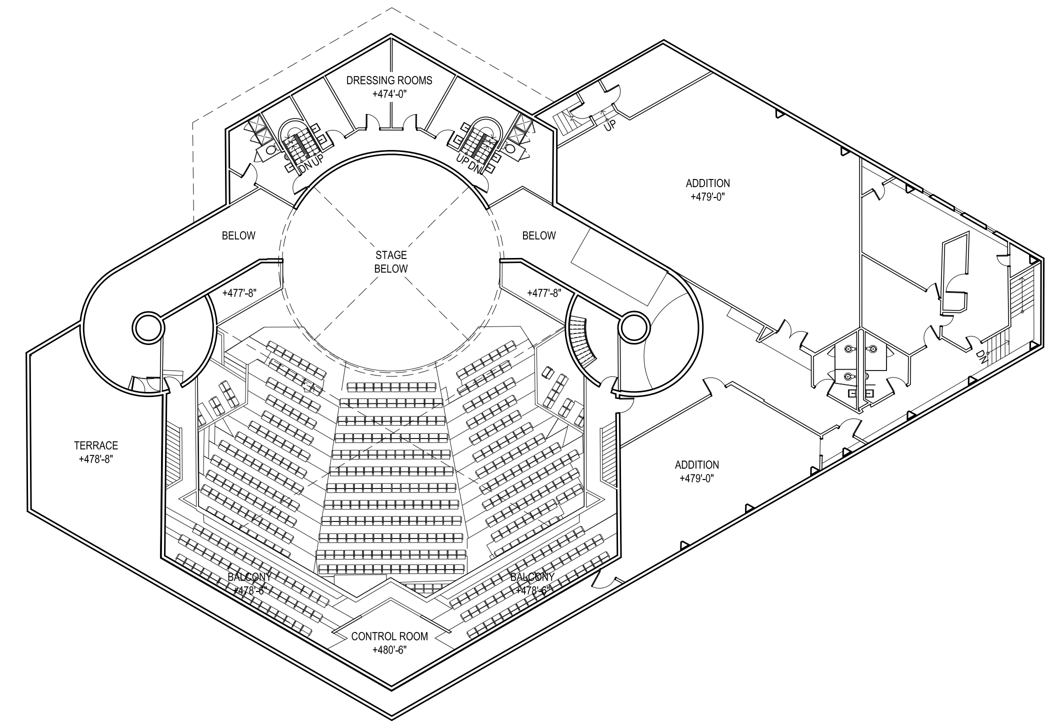
Original 1959 Construction Drawing - Orchestra Level Seating



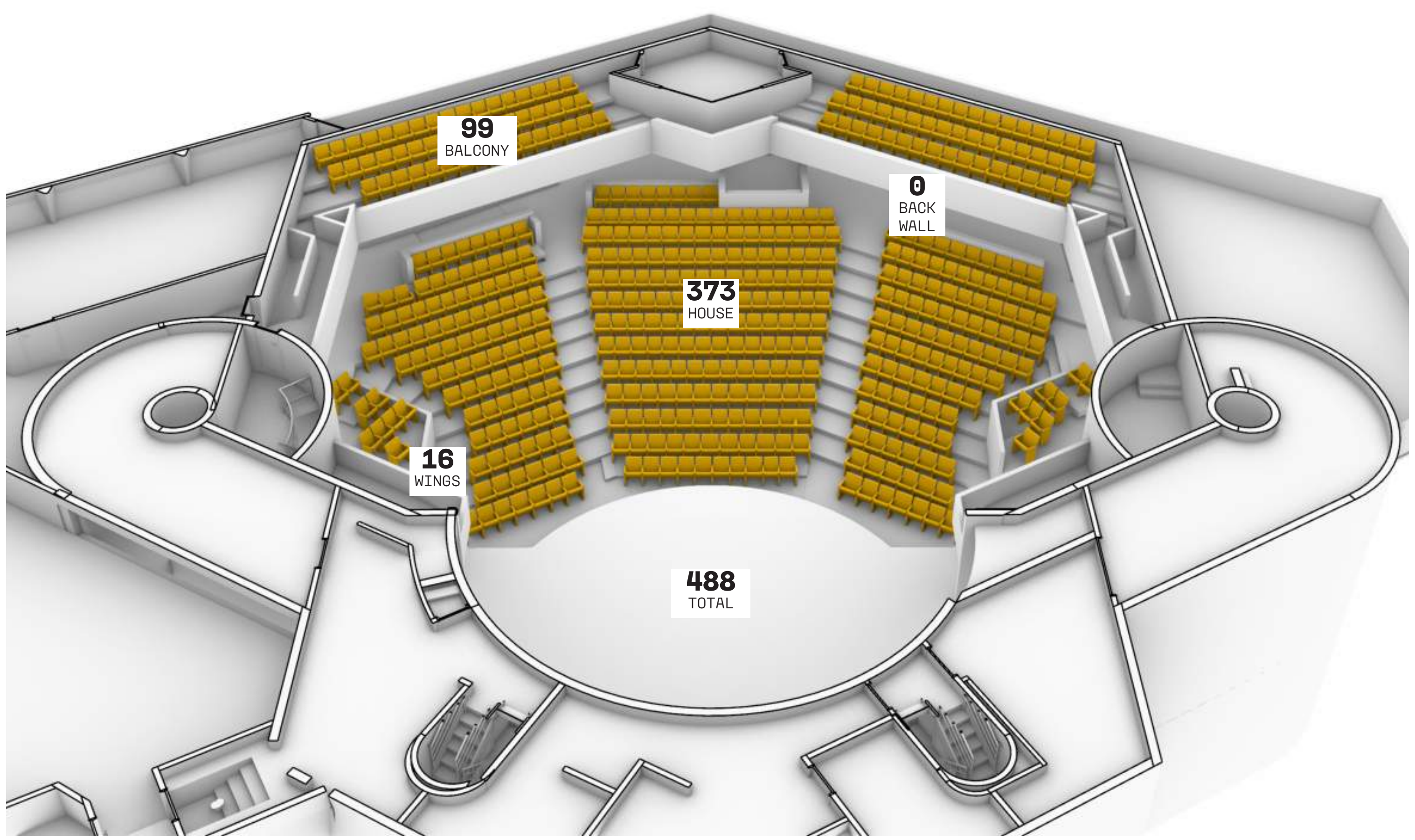
THEATRICAL RECOMMENDATIONS

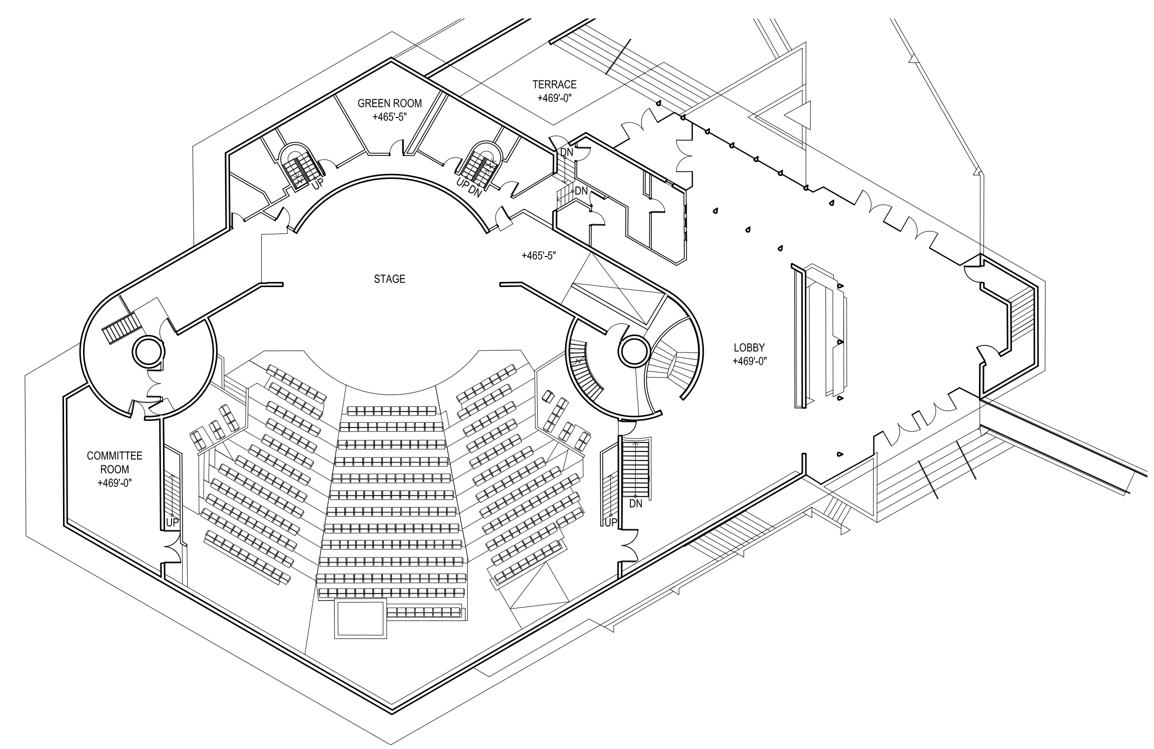
Existing Condition

Over time, modifications were made to the original design for various reasons. The modifications sought to improve sightlines, increase the seat count, provide ADA accommodations and expand the lobby space. The seat count in the main orchestra increased to 389 seats, including the 18 seats at the wing boxes. The 40 seats at the rear of the room were removed. The balcony was modified to add two rows of seating, increasing the balcony count to 99. The result was the room that we see today.

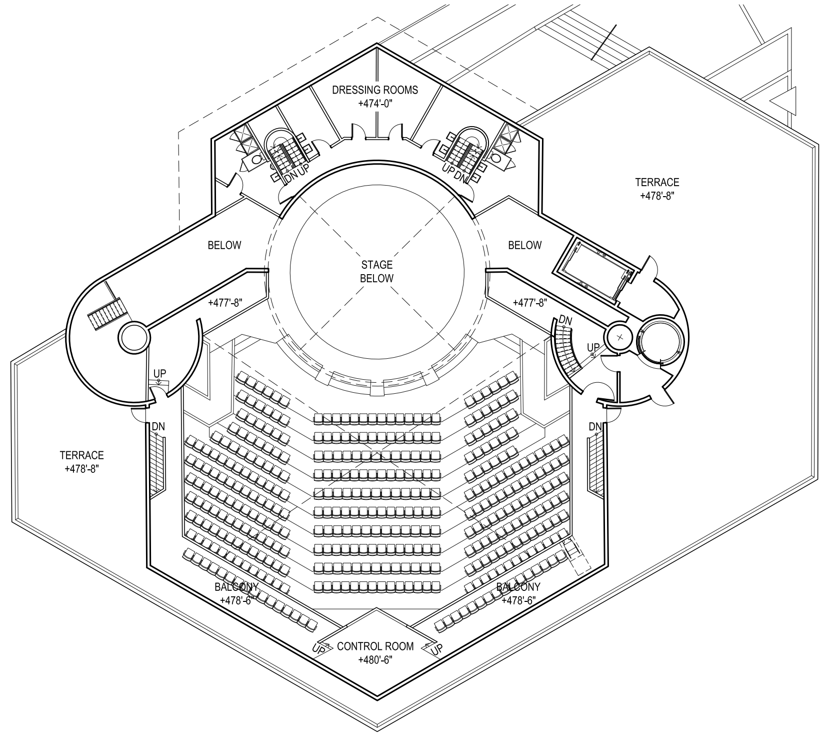


Existing Balcony Seating Layout

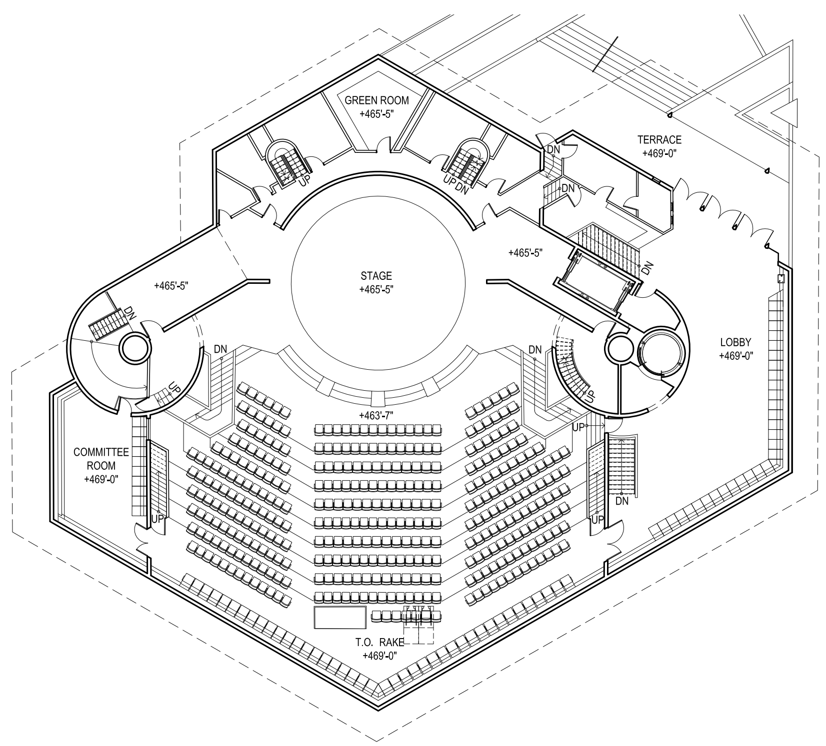




Existing Orchestra Seating Layout



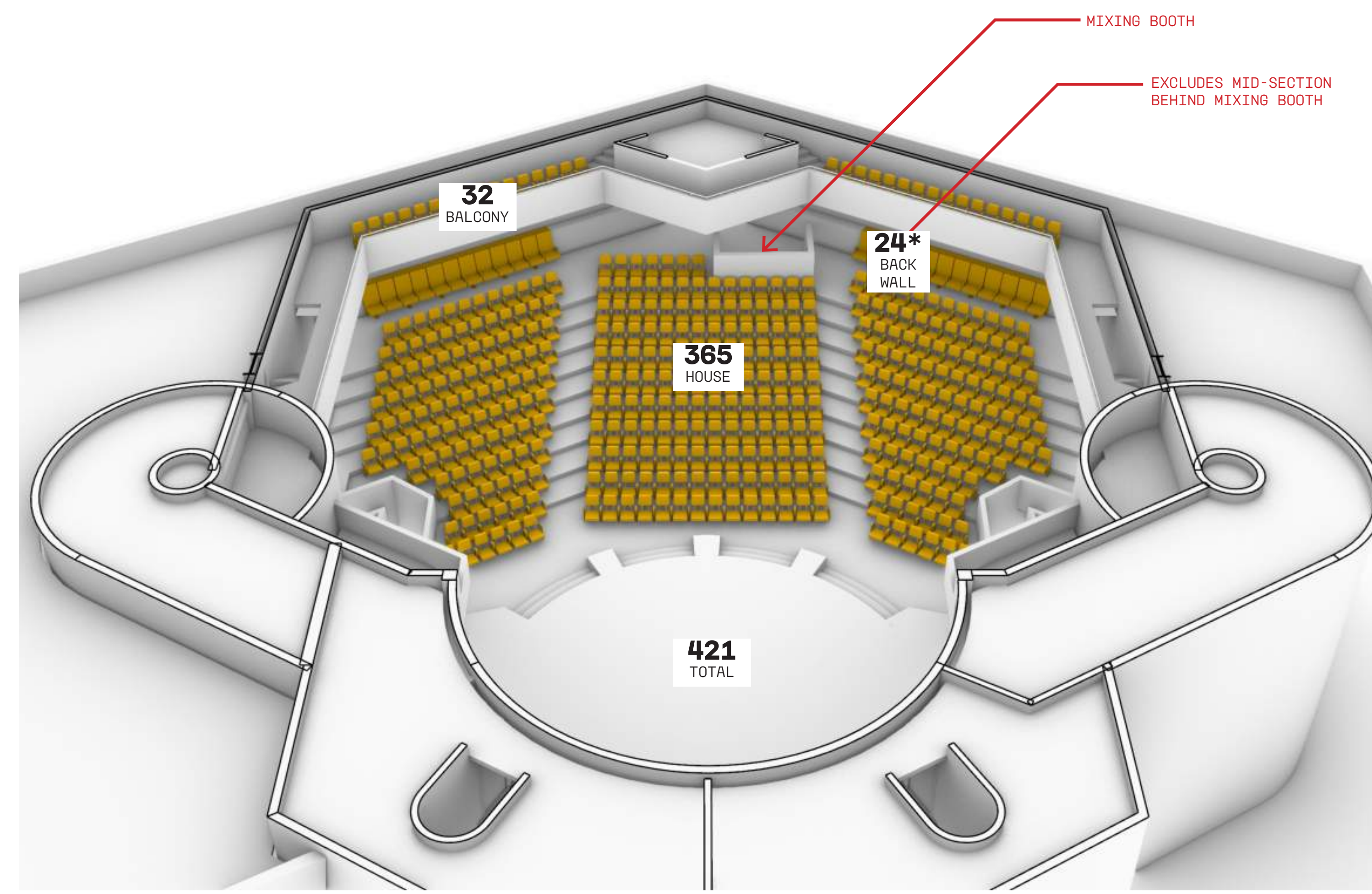
Proposed Balcony Seating Layout



Proposed Orchestra Seating Layout

Proposed Condition

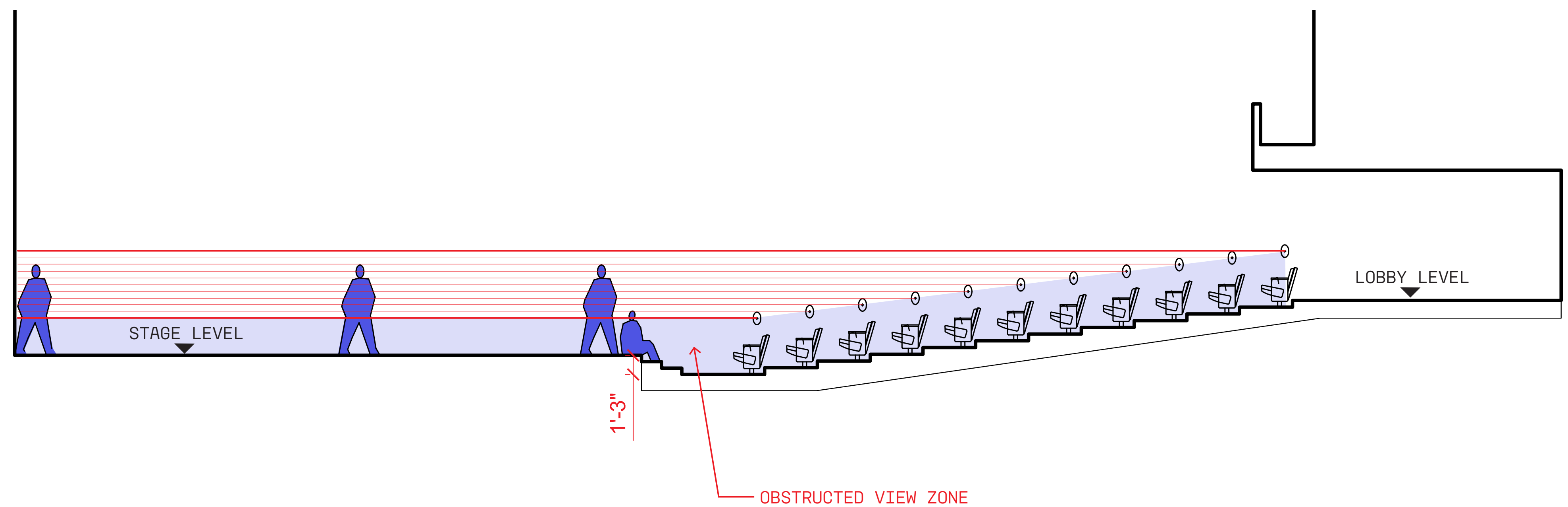
In our proposed restoration the seat count will come close to the original; the wing boxes will be removed. The alignment of the last row with the lobby elevation will be restored and wheelchair locations will now be possible at the last row of seating, and additional accessible positions are being explored. The seating at the rear of the room will be restored. Those seats will still have very limited sightlines to the stage and may be thought of as 'standing room' or late seating. The balcony will be restored to the original design.



Sightlines

The sightline study undertaken provides solutions that will largely restore the room to Frank Lloyd Wright's conception while also improving the view of the stage for the audience. The original sightlines limited the audience view and obscured the stage. Improvements to the sightlines will be accomplished by revising the rake and returning to the original row spacing. The stage height will also be restored to the original alignment with the back-of house spaces. The first row will be lowered approximately 7 inches. The rerake will impact the structure of the seating rake as shown in the section. The seating will be staggered to allow views between heads. A range of seat widths will be used to improve sightlines further. The seats will be restored to the original design. Accommodations for wheelchairs will be possible at the last row of seating and additional accessible positions are being explored. Finally, the balcony will be restored to the original design.

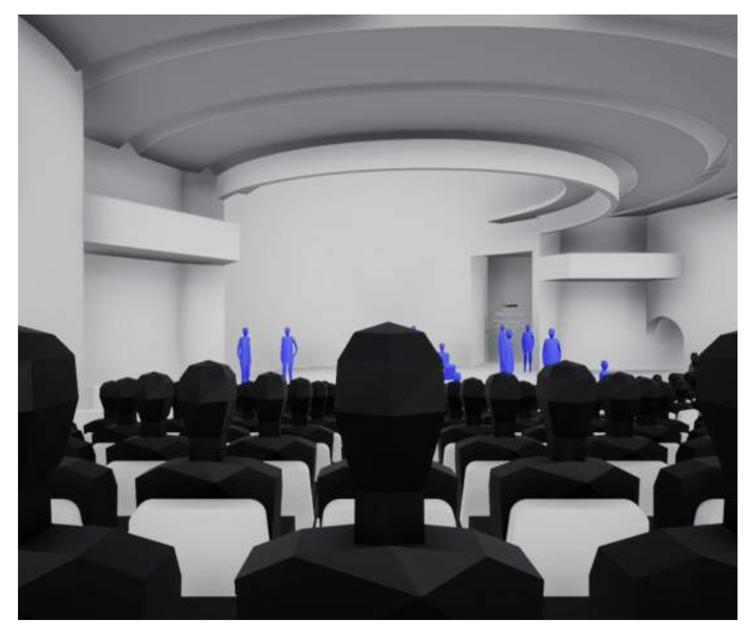
Original 1959 Sightlines



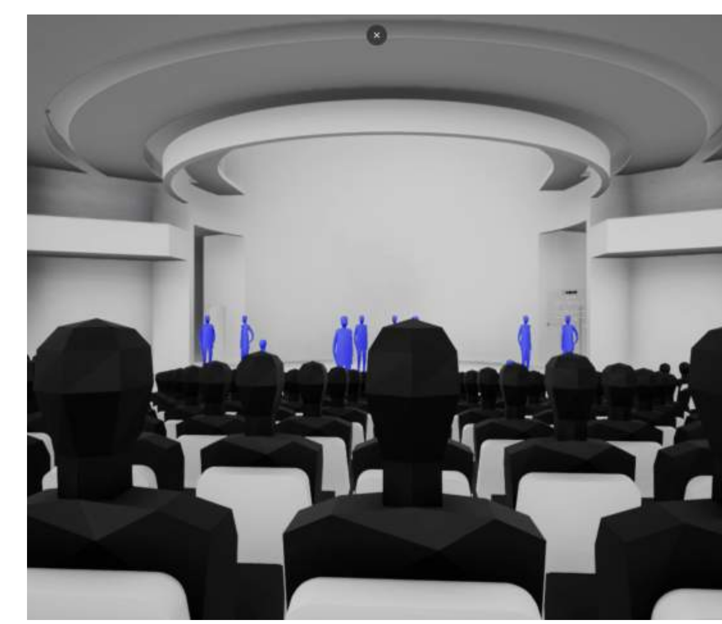
Section Diagram of Original Seating Rake

Original 1959 Sightlines

Front/Side Sightlines

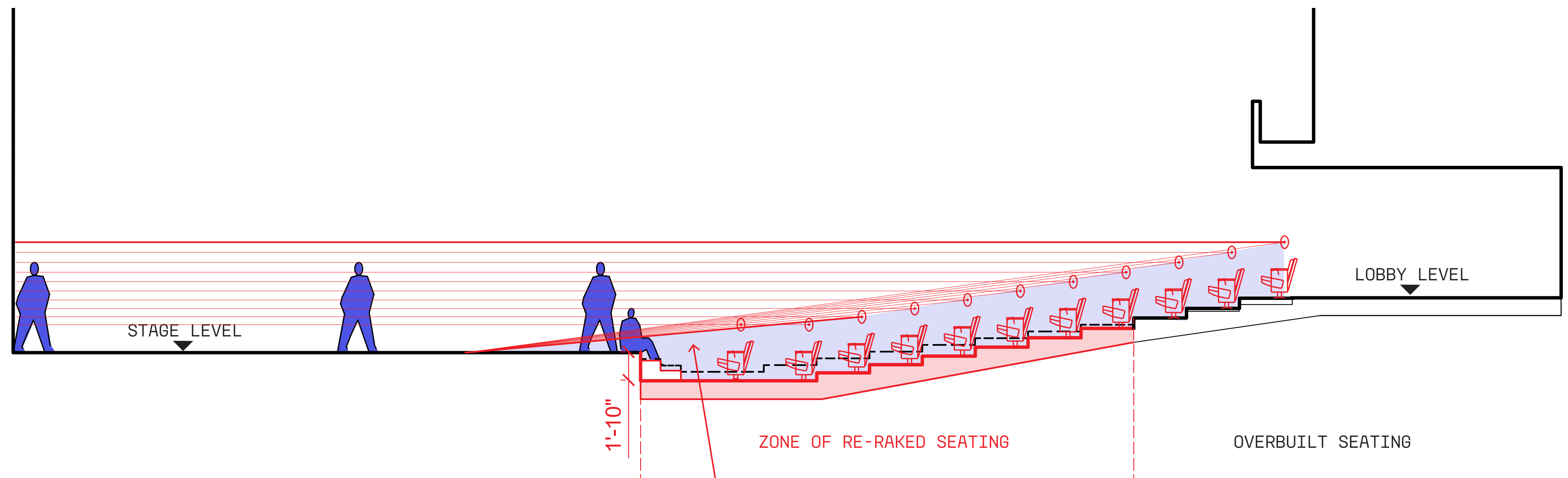


Side Sightlines

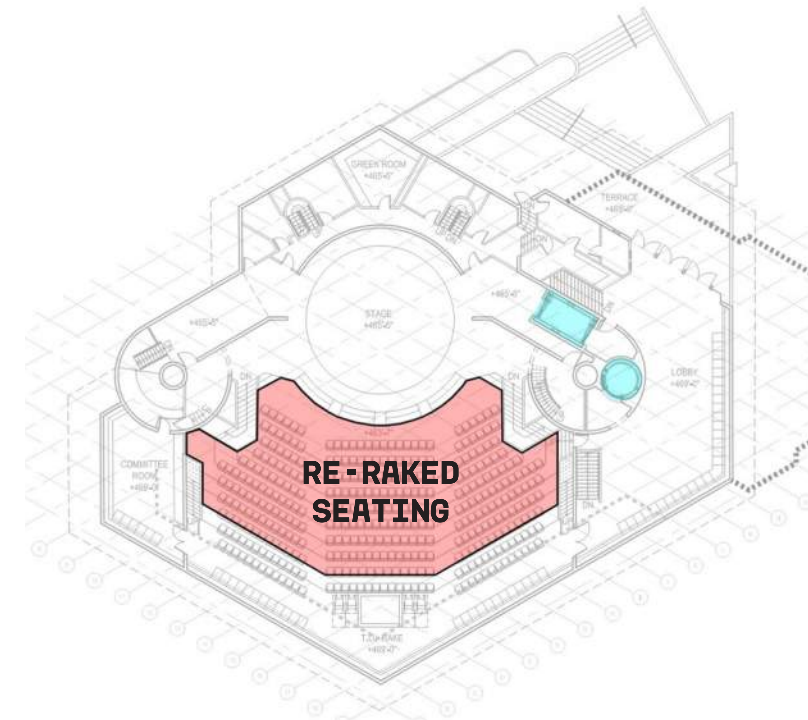


Center Sightlines

Proposed Sightlines

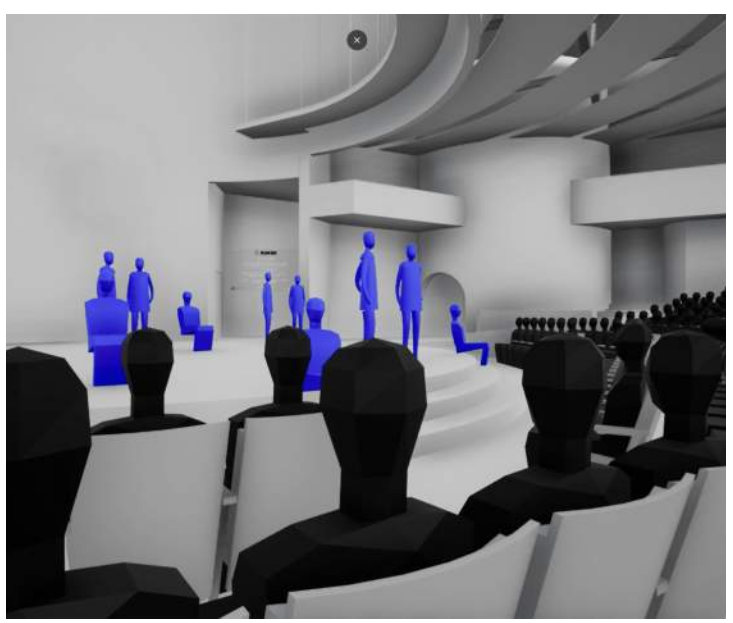


Section Diagram of Proposed Seating Rake

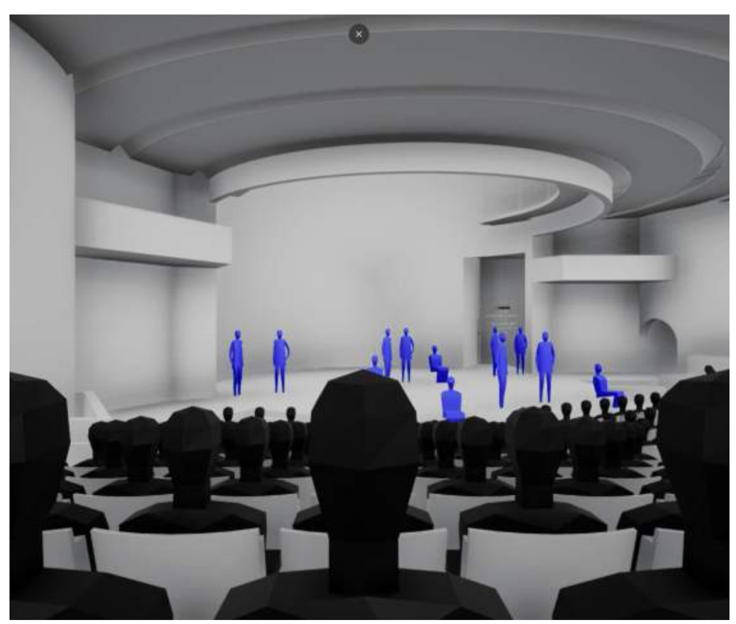


Slab Area Plan Diagram of Re-Raked Seating

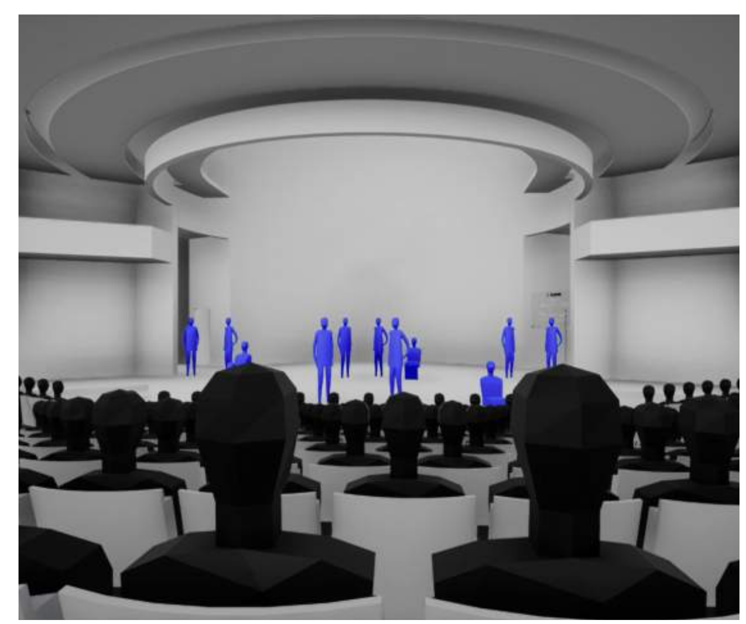
Proposed Sightlines



Front/Side Sightlines



Side Sightlines



Center Sightlines

THEATRICAL RECOMMENDATIONS

Rigging

Rigging will be via a series of motorized point hoists with associated grid-mounted loft blocks. The hoists will be located at grid level and mounted within the circumference of the stagehouse. Hoists will be "zero fleet" style, with 1/4 inch wire rope lifting lines. Capacity: 750 pounds. Speed: variable to a maximum of 180 feet per minute. Individual points can be grouped and synchronized as required for flying scenic pieces and lights. Control will be from a fully programable console such as the Tait NAV: Polaris.

Stage Turntable

The restoration of historic stage turntable will be studied further in later design phases.

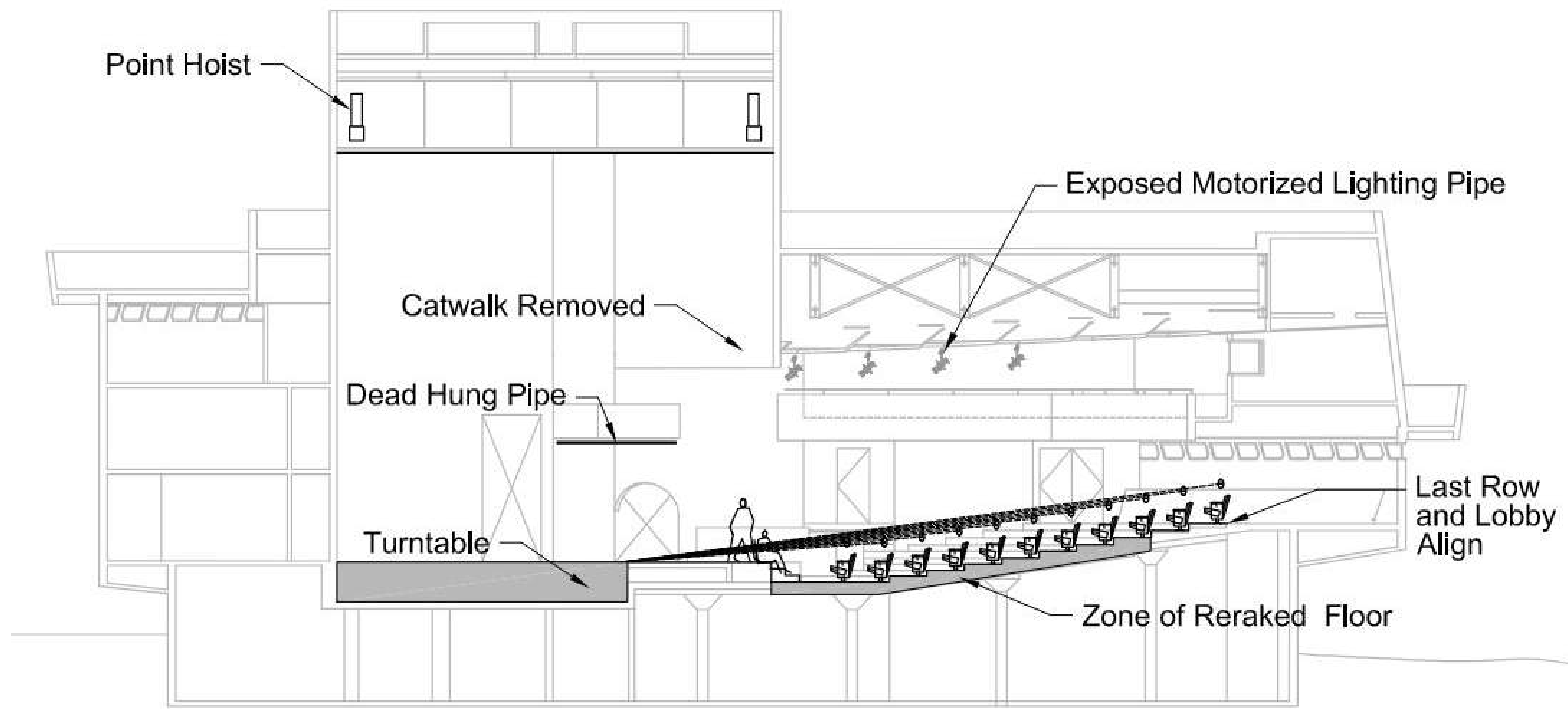
Back of House

The back of house spaces in the original design were of varied success. Dressing rooms were directly behind the stage but were undersized. There was no elevator access to spaces assigned for a costume shop limiting their usefulness. Following the renovation, the elevated stage no longer aligned with the dressing rooms. The renovation will include the improvement of elevators throughout the BOH and FOH. This will give greater flexibility to the location of dressing rooms, wardrobe rooms, and workspaces throughout the building. Furthermore, the new BOH space will be fully accessible as per ADA.

The loading ramp, original to Wright's design, is acknowledged to be of architectural interest but it serves no meaningful purpose in the movement of materials or people. It's place and purpose in the renovated KH will be discussed further in latr design phases.

Loading Dock

The loading dock area at the KH will remain at its current location as part of the restoration. The possible use of a dock leveler and the truck path to the loading doors is being studied with respect to both function and the preservation goals central to the project. The load-in at the KH will also be supported by the additional docks which will be developed at the proposed new venues on site.

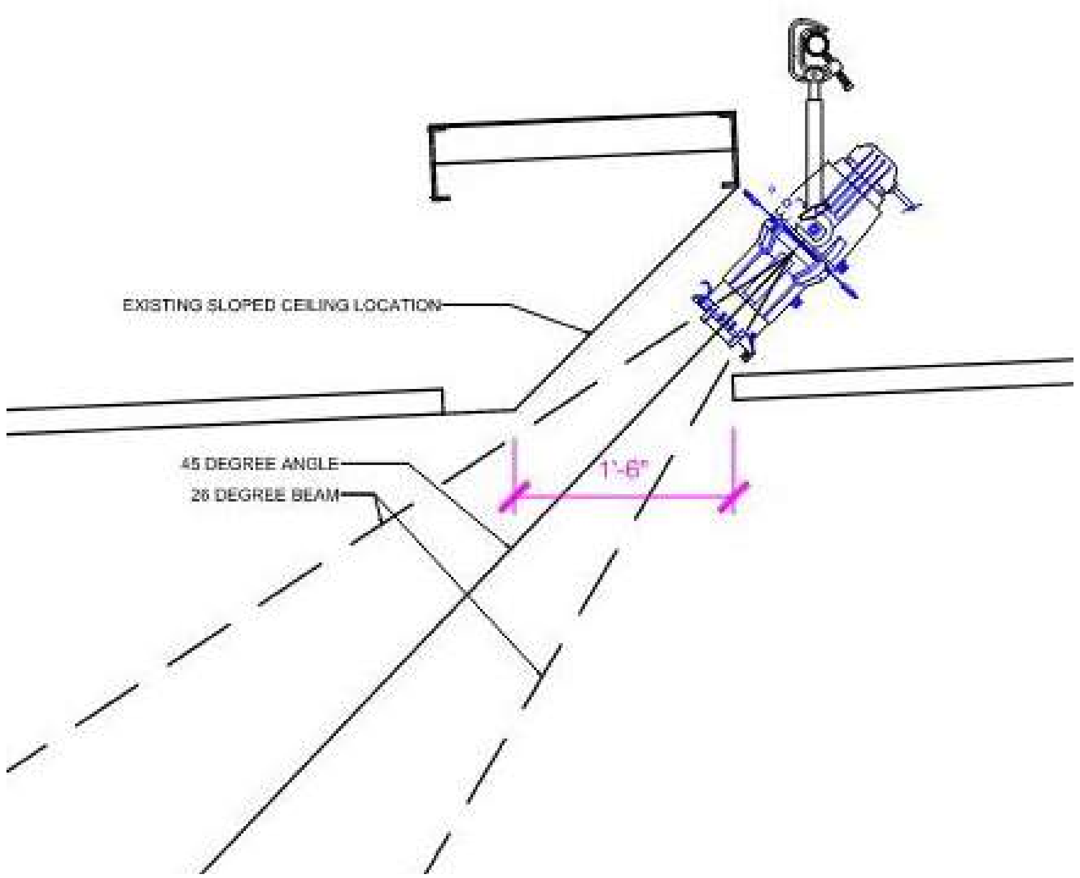


Kalita Theater Section

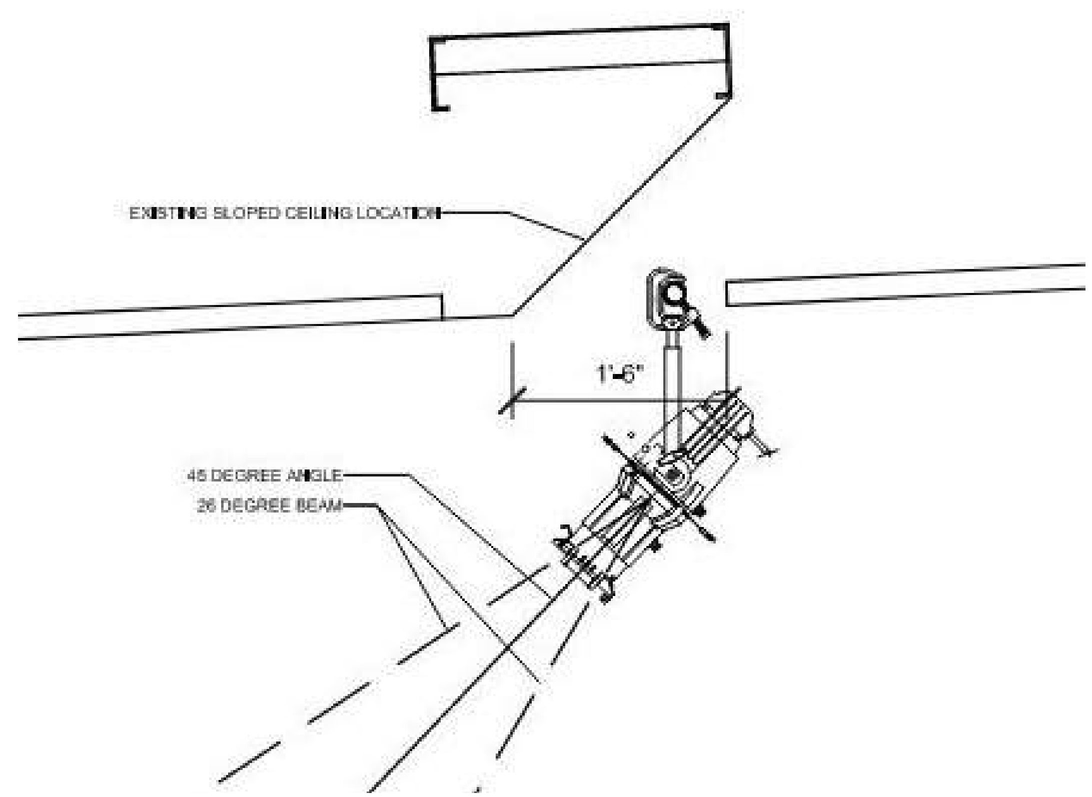
Theatrical Lighting

The ceiling as originally conceived has a series of circular slots that are accessed from catwalks above the ceiling. The slots as designed do not reflect the size requirements of fixtures and make focusing instrument both difficult and dangerous for technicians. As a result, fixtures hang below the ceiling and the challenges of focusing persist. Our study looked at a revised opening at the ceiling that would better accommodate fixtures and increase safety.

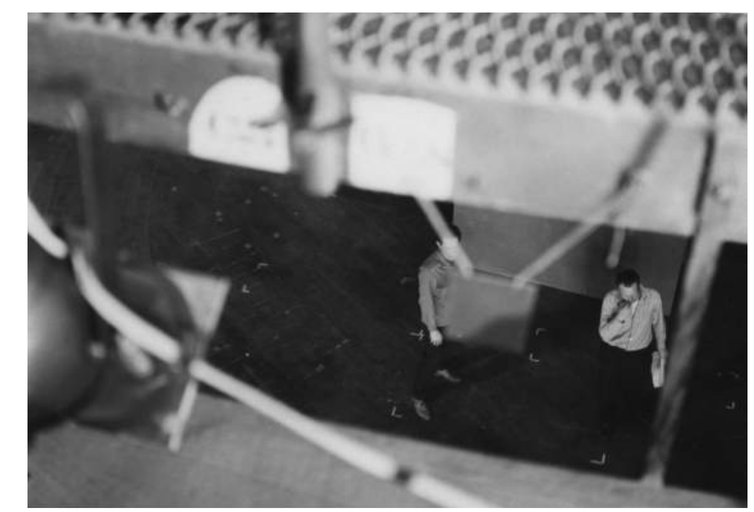
A solution which continues to hang fixtures below the ceiling has the least impact on the ceiling and attic space above. The dead hung pipes will be replaced with motorized pipes and focus track to improve access and safety.

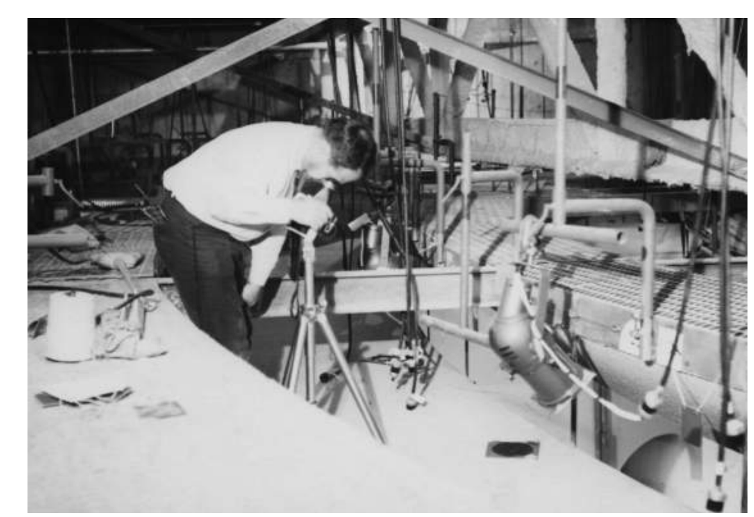


Original Theatrical Lighting Solution with Contemporary Fixtures



Proposed Theatrical Lighting Solution





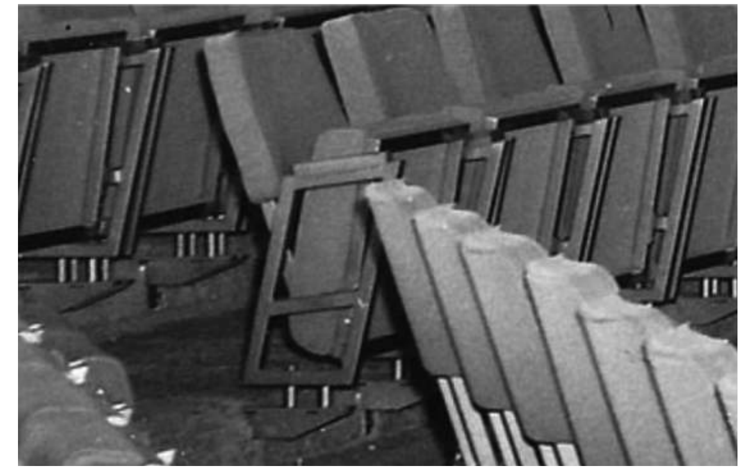
Seating

The original design included a full inventory of furniture for the building including a custom theater chair. The original chairs were removed when the room wasn re-raked but some of the original chairs still exist and were reupholstered and installed at the Undermain Theater in Dallas, TX.

The original chairs were a golden color. and had a "floating" attachment to the floor. This was modified when there were installed at the Undermain.

The intent is to replace the seats with chairs which replicate the original chair design but which also incorporate updated comfort standards and chair widths.

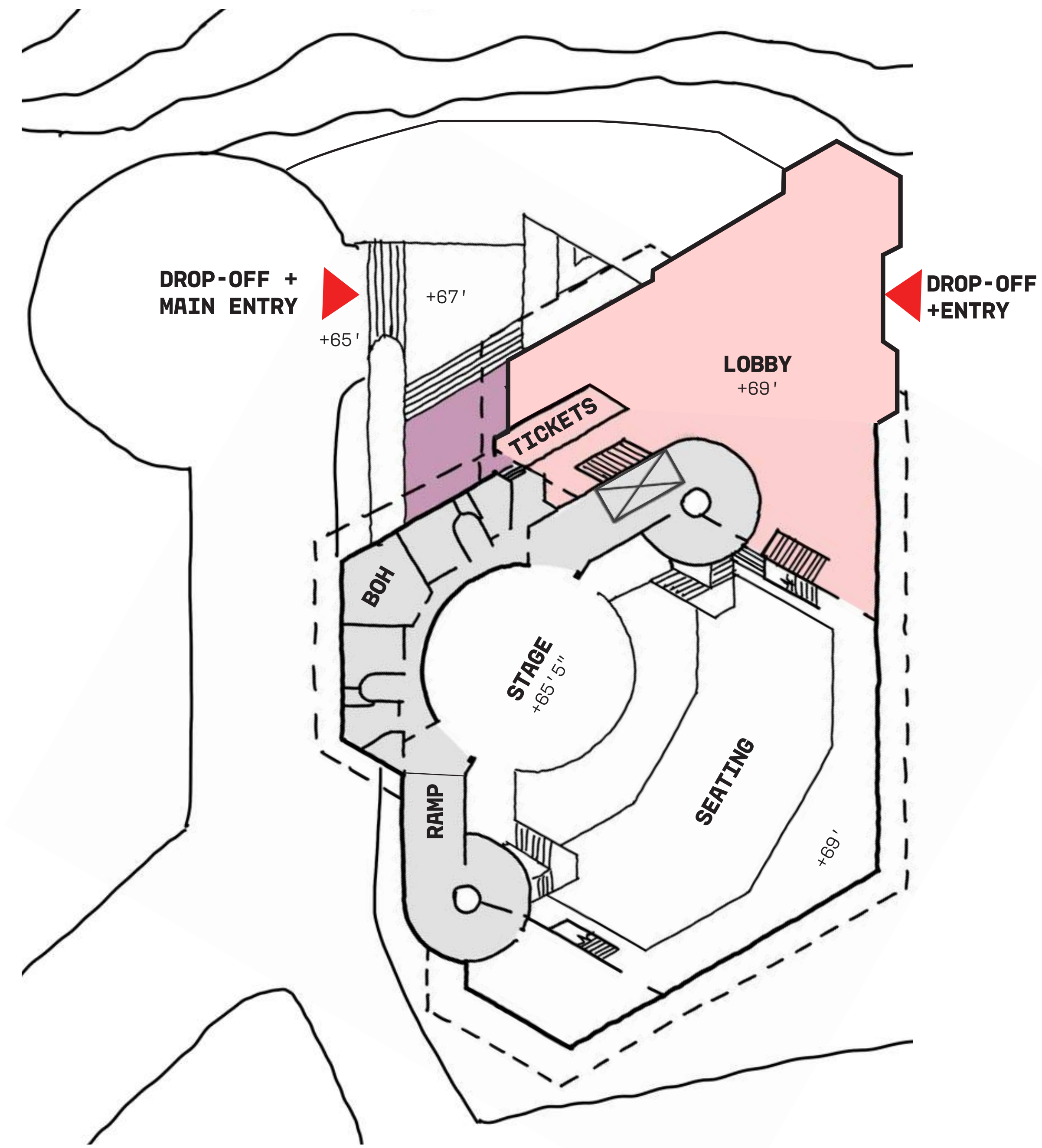
Original Chairs Color Palette



Original Chairs Installed at Kalita Humphrys

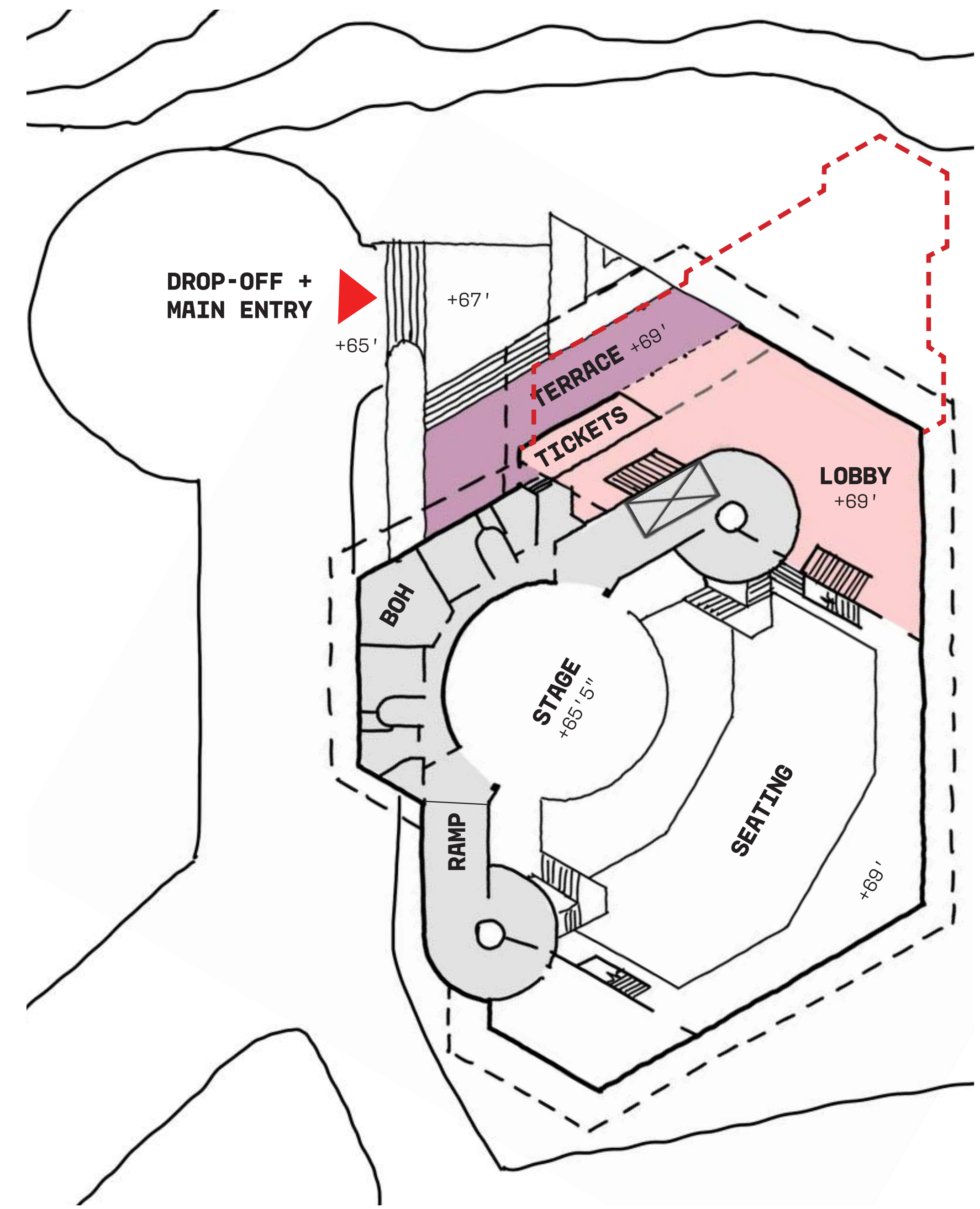
Original Chairs With Modified Bases

KALITA LOBBY EXTENSION



Existing Ground Floor Plan

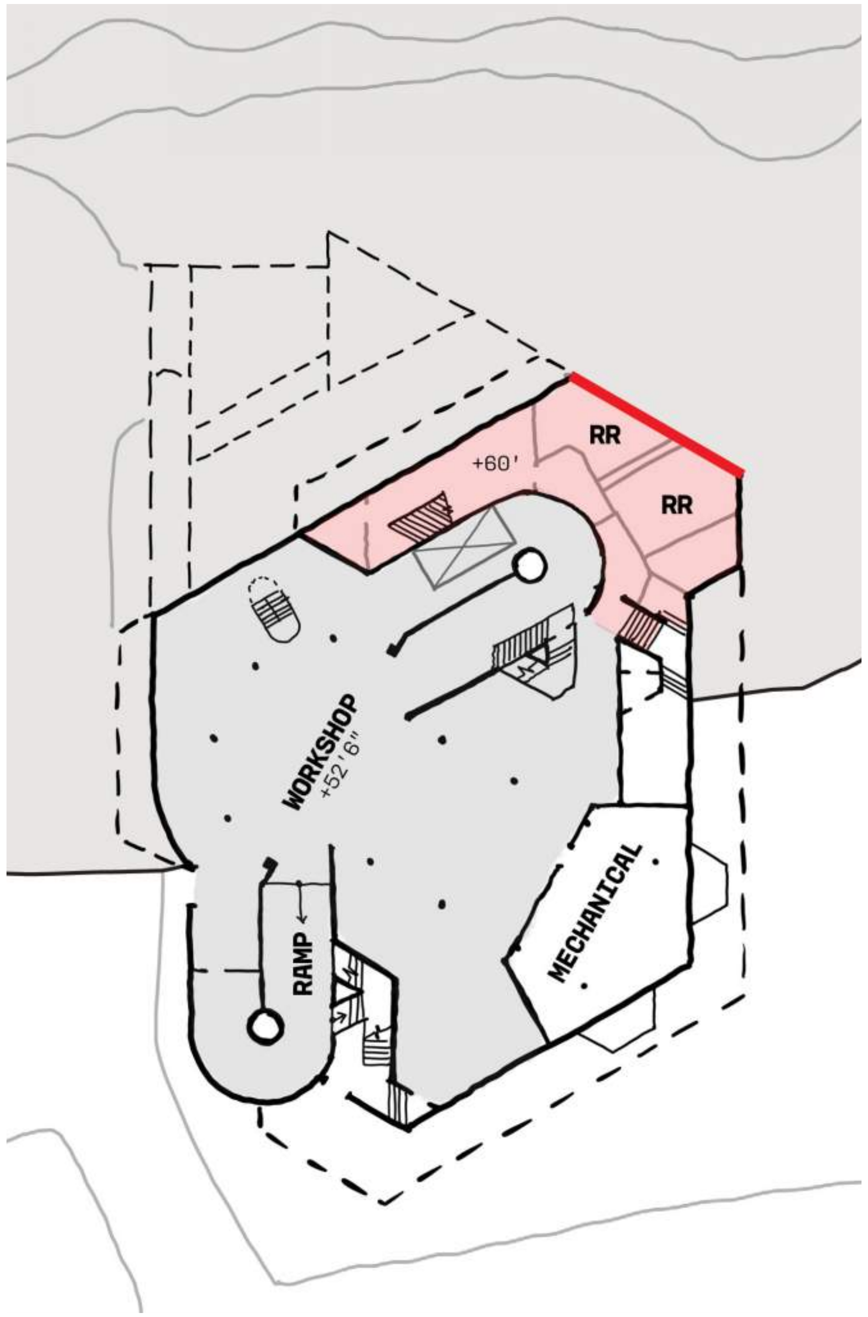
The original lobby was expanded below the second floor addition This added space for lobby amenities like concessions, and created a new secondary entrance. The new entrance provided an accessible ramp and secondary drop-off for the theater. To restore the theater to it's 1959 state on the exterior, this addition will be removed, with amenities provided for in a different way.



Restored Ground Floor Plan

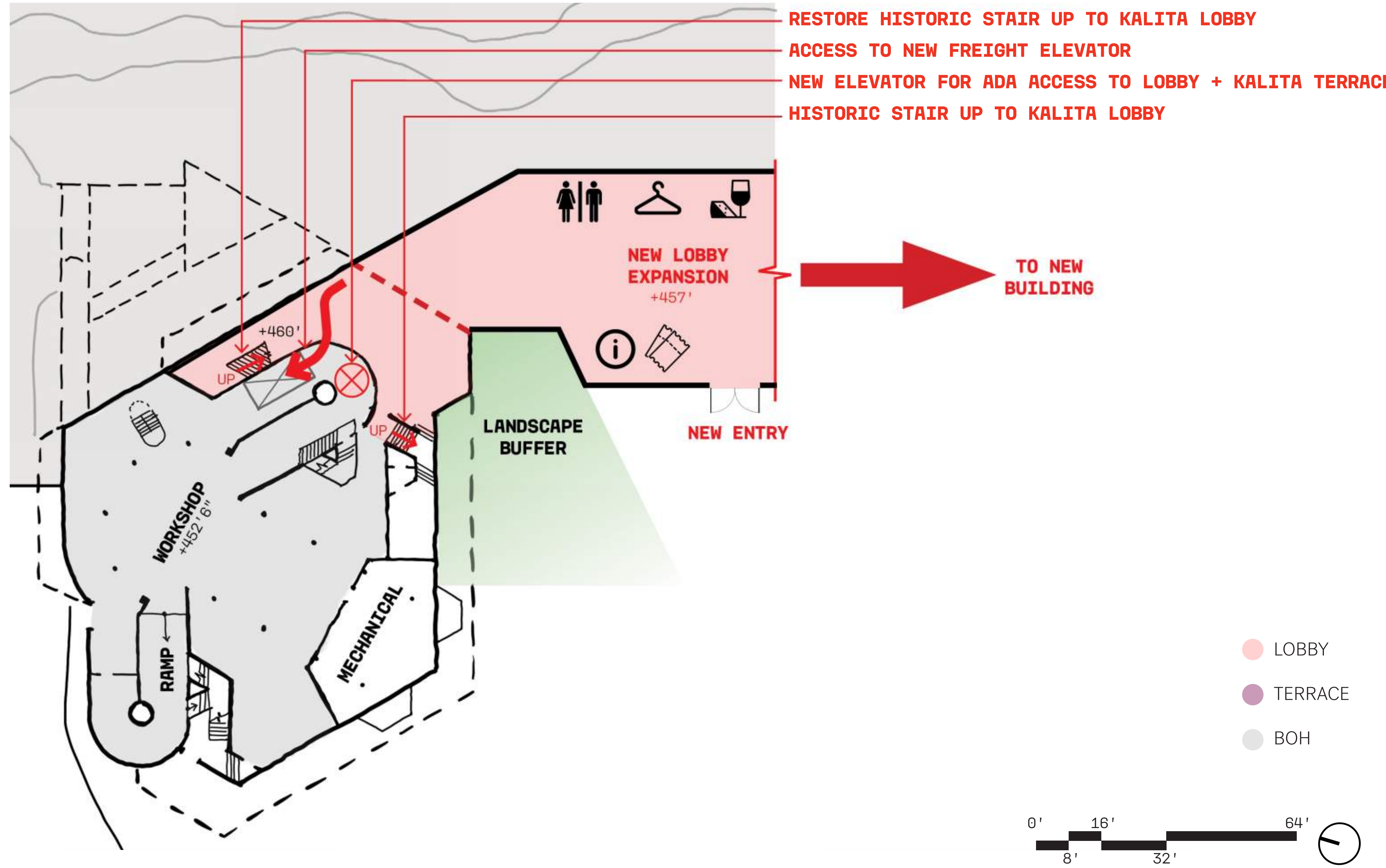
In the original design for the Kalita, the main lobby was quite small, approximately 1300 square feet. It was accessed from one main entrance connected to the drop off and terrace stairs, with no accessible route into the building. Restoring the lobby to its 1959 state alone would not provide enough space for the 21st century amenities needed to support a theater of this size.

KALITA LOBBY EXTENSION



1959 Lower Level Plan

The original lobby for the Kalita also extended to this lower level, where gendered lounges and restrooms were provided. These original spaces have been modified and removed over time.

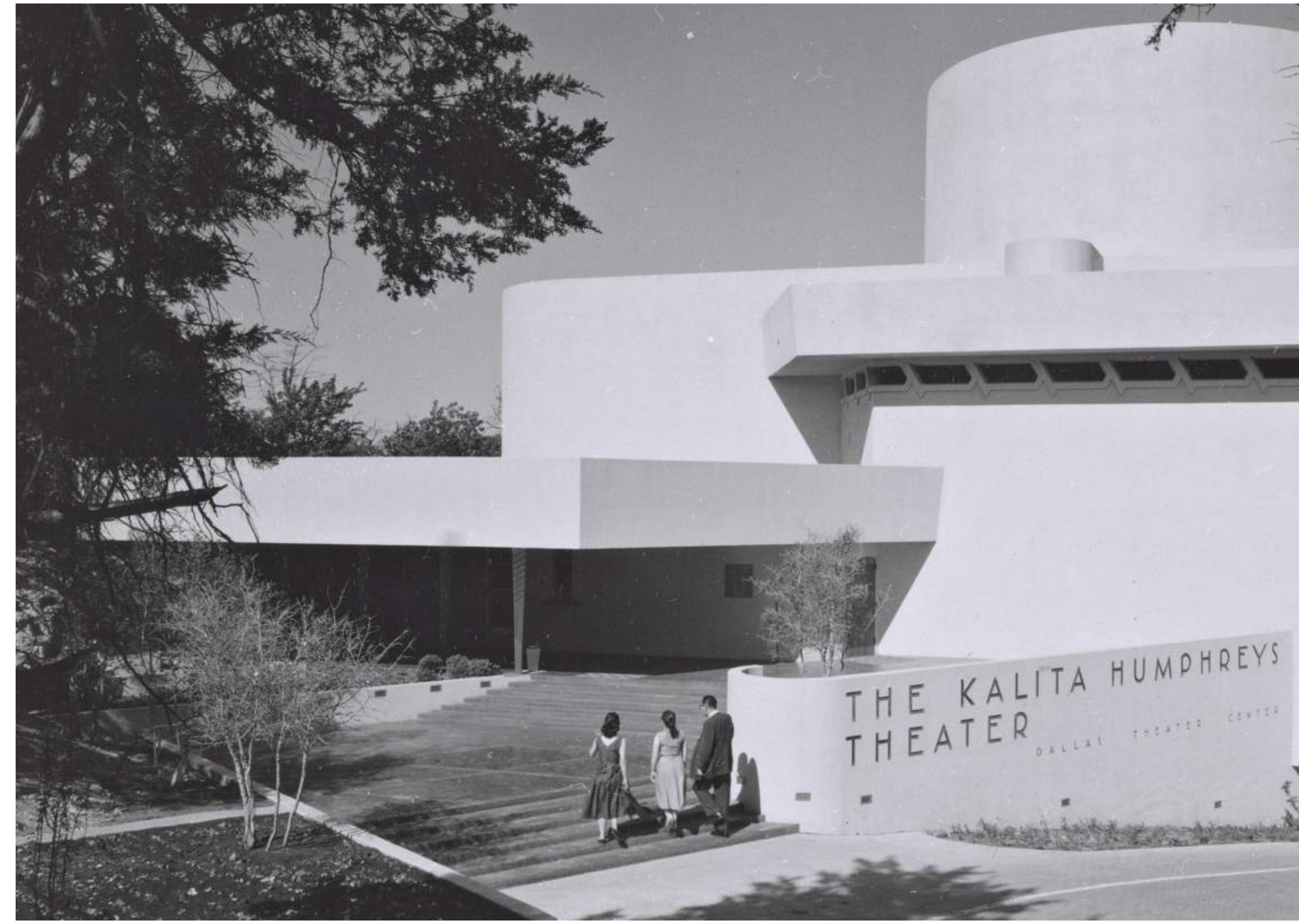


Lobby Extension Lower Level Plan

With the proposed restoration of the upper level lobby, much-needed 21st century theater amenities will be provided for in the existing lower-level lobby, and in a new lobby expansion, which will connect to the new theaters on the site. A new entrance will provide an accessible elevator route to the Kalita, becoming a central arrival point for the campus. On the exterior, the lobby expansion will be embedded into the landscape adjacent to the Kalita with a planted roof terrace, maintaining the historic exterior presence of the restored 1959 theater.

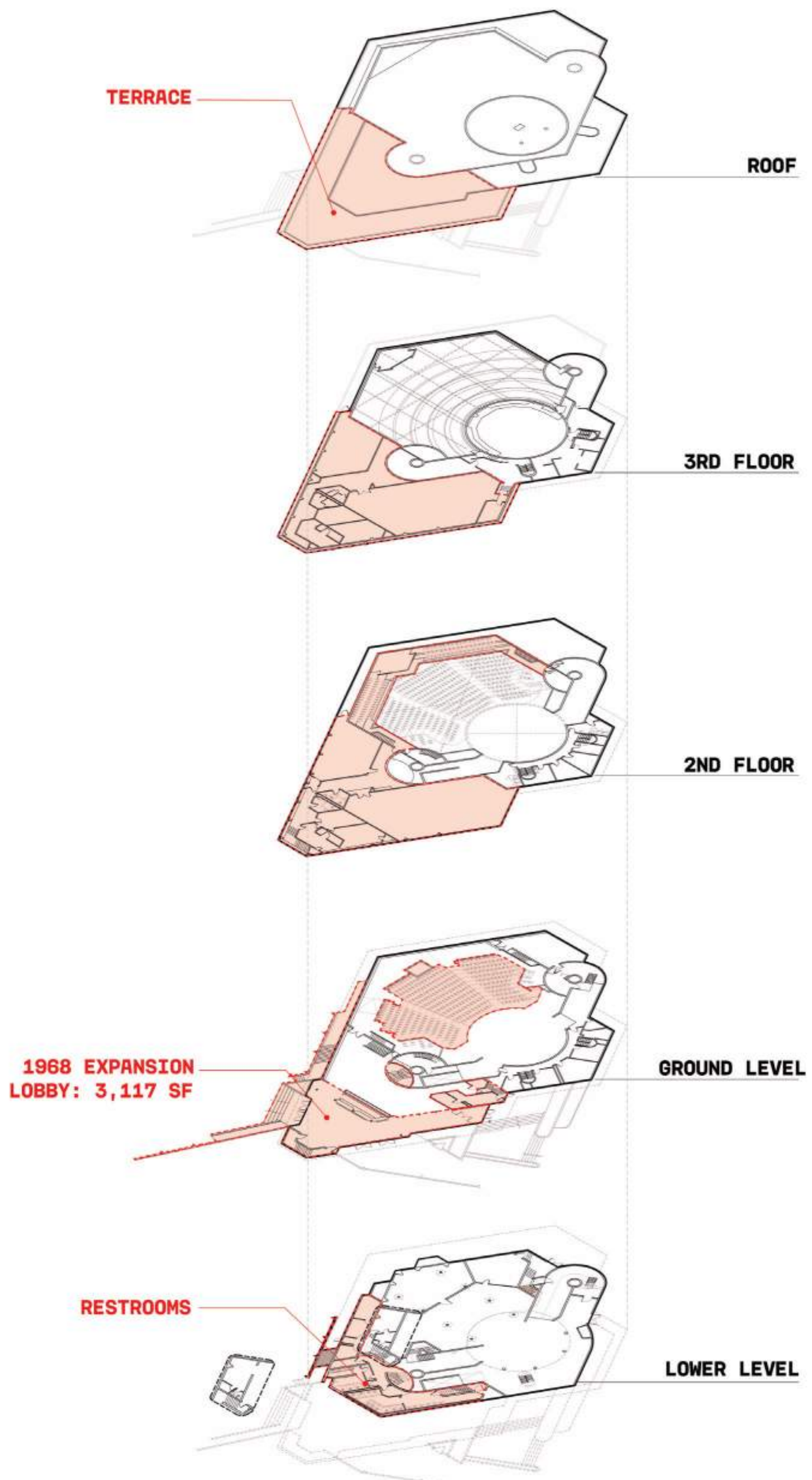
KALITA RESTORATION

Existing Condition

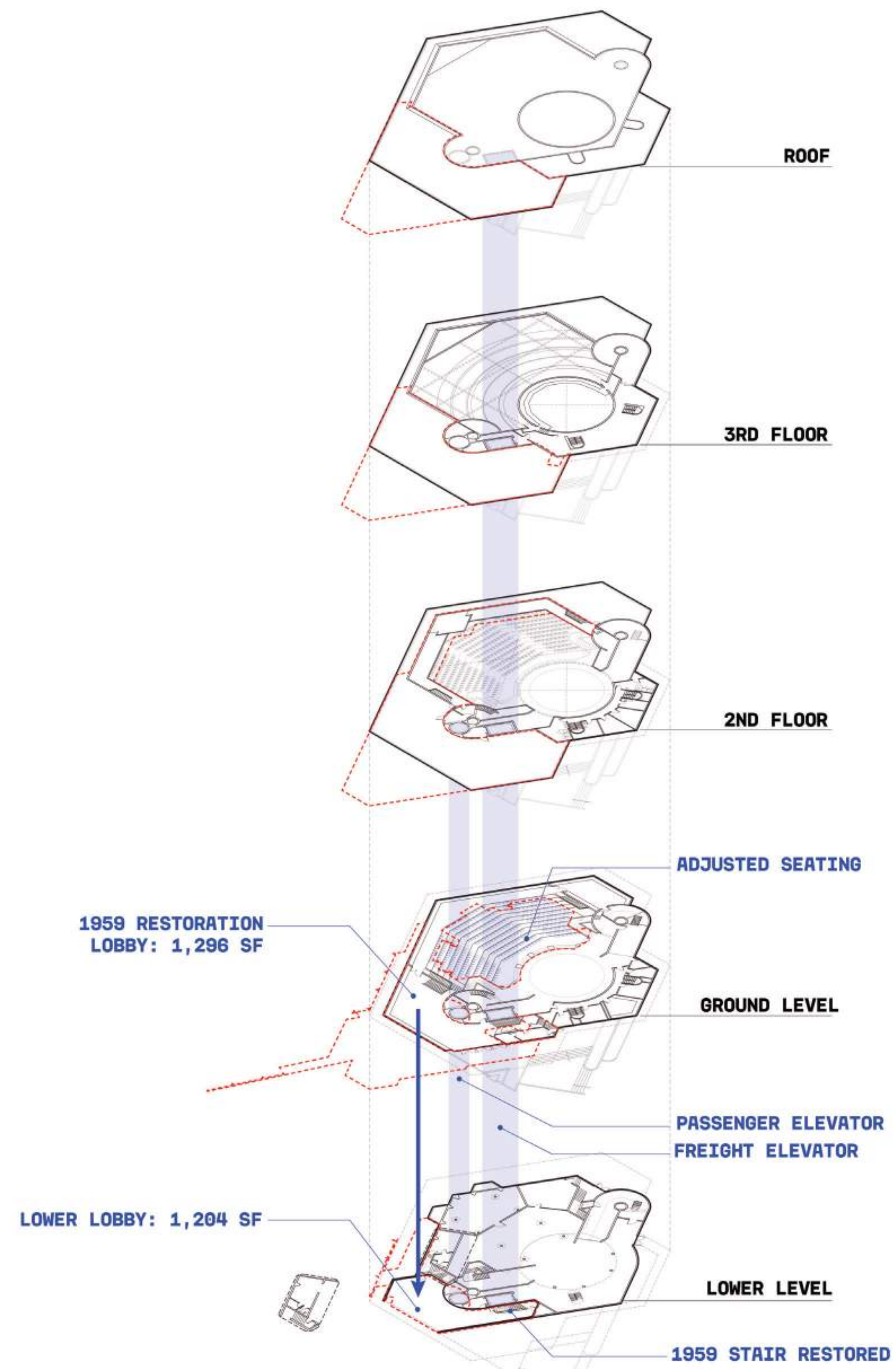


Original Condition

KALITA RESTORATION



Existing Condition



After Restoration

- 1969 and 1989 Expansions to be removed, including lobby, 2nd story spaces and offices, mechanical expansions, altered seating rake and wing seating, and all major unoriginal elements.
- Provide new passenger and freight elevators to make the theater accessible and to improve functionality.
- Restore 1959 stairs connecting the main and lower level lobby spaces.
- Provide space for 21st century lobby amenities on the main and lower lobby levels.
- Adjust original seating rake to accomodate improved sightlines to the stage.

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

SITE CONDITIONS

URBAN CONTEXT

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX


Katy Trail


Turtle Creek

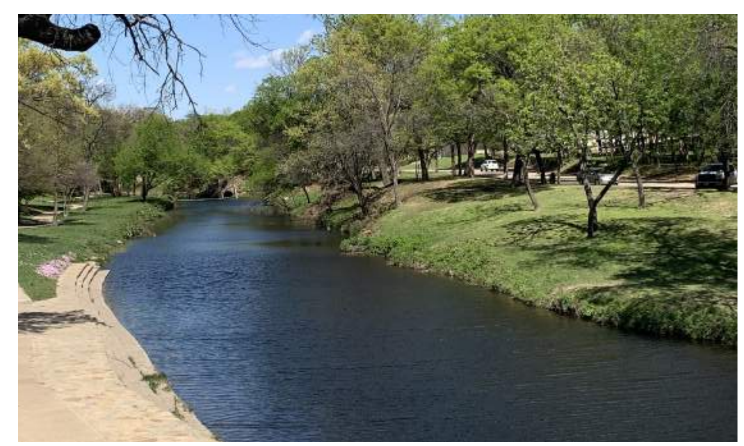

West Village


Katy Trail


Turtle Creek Park


Approaching the Turtle Creek Corridor from West Village


Katy Trail Overpass


William B. Dean M.D. Park

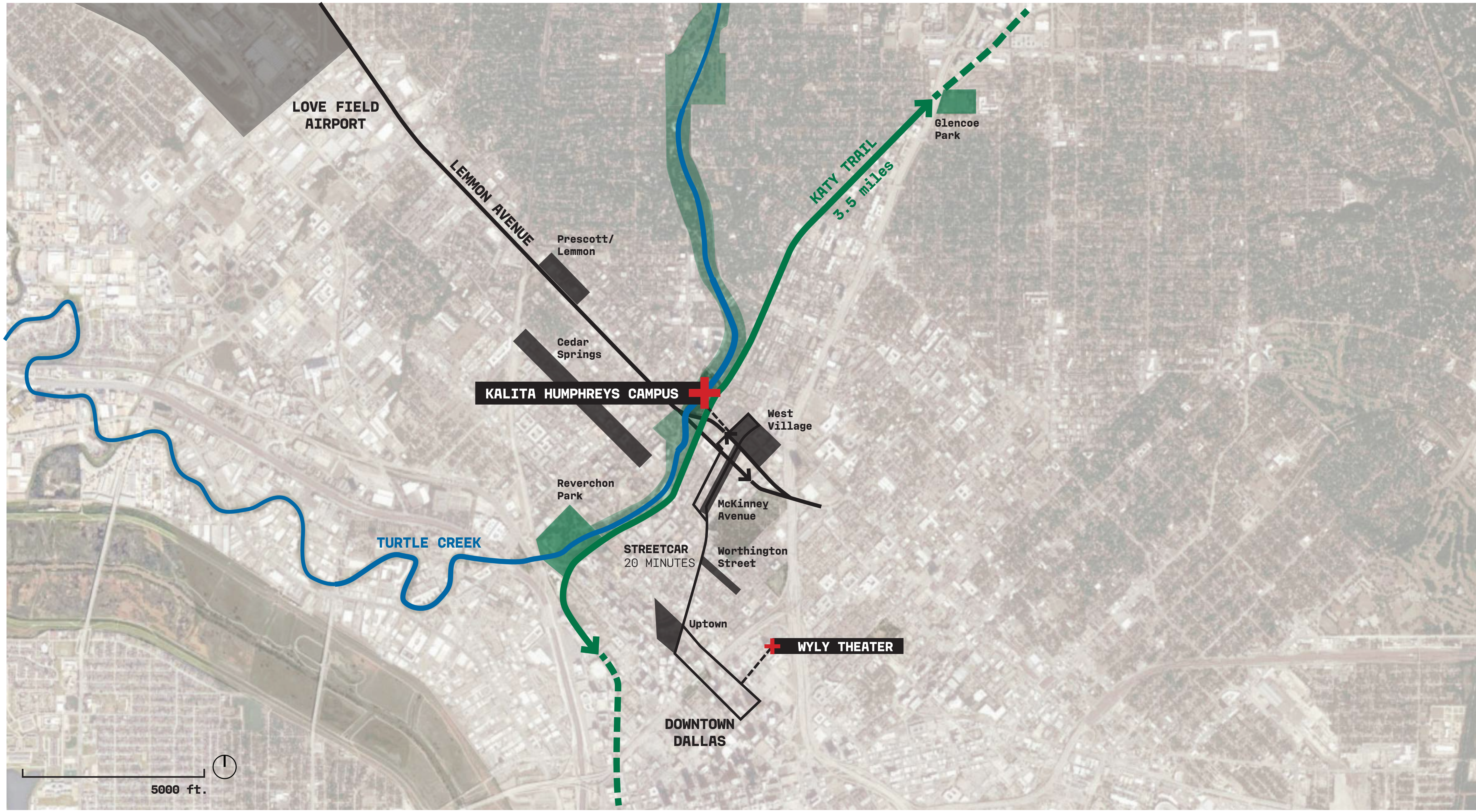

Adjacent to Site

Katy Trail

Turtle Creek

Lemmon Avenue

URBAN CONTEXT



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Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

URBAN CONTEXT


Arlington Hall

Katy Trail Ice House


West Village


Turtle Creek Park

Katy Trail Ice House

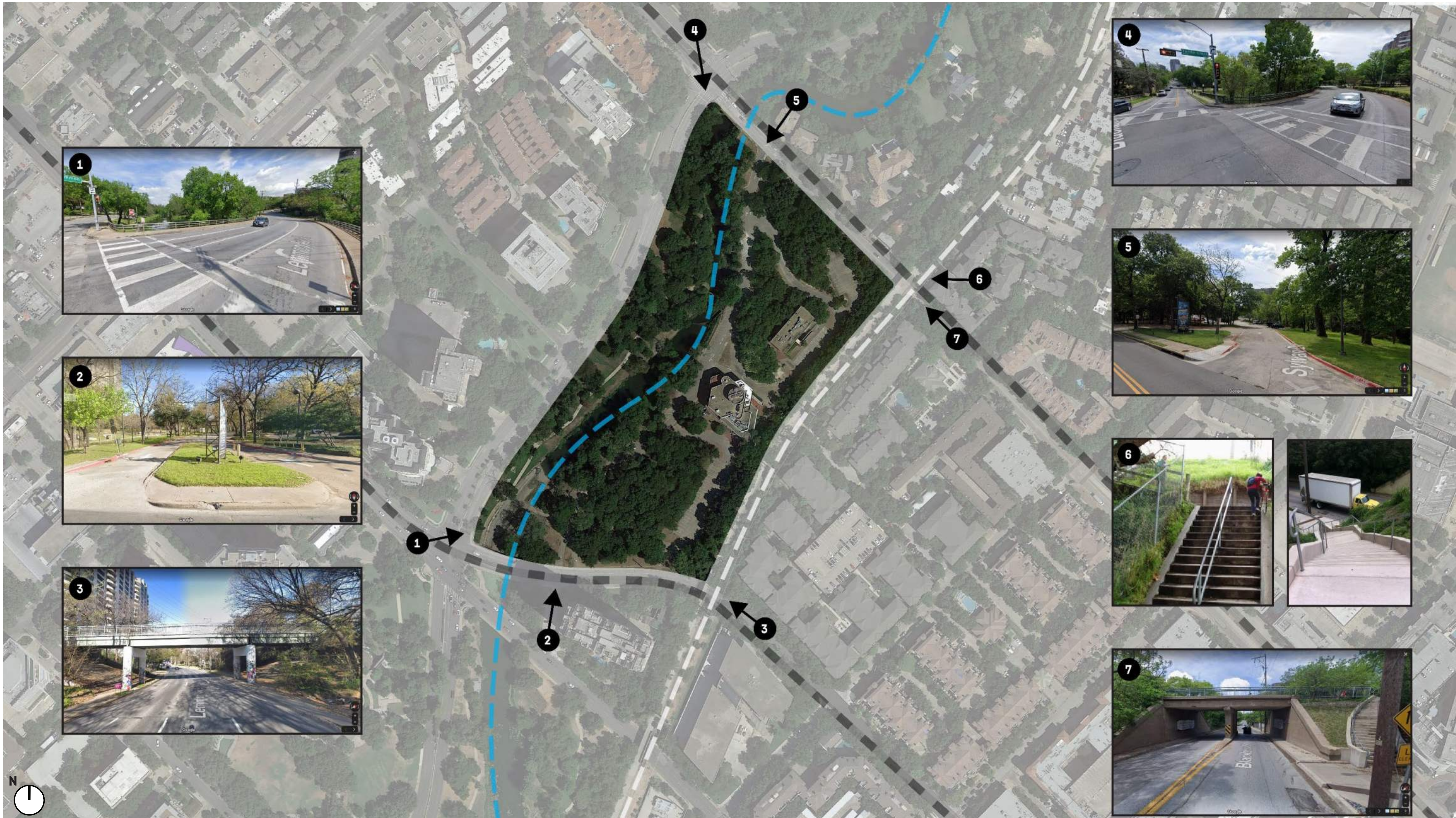
West Village


Condominium and Office Towers in Turtle Creek


Townhomes in Turtle Creek


View of Downtown Dallas from Uptown

SITE APPROACH



EXISTING SITE ACCESS

SITE APPROACH

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

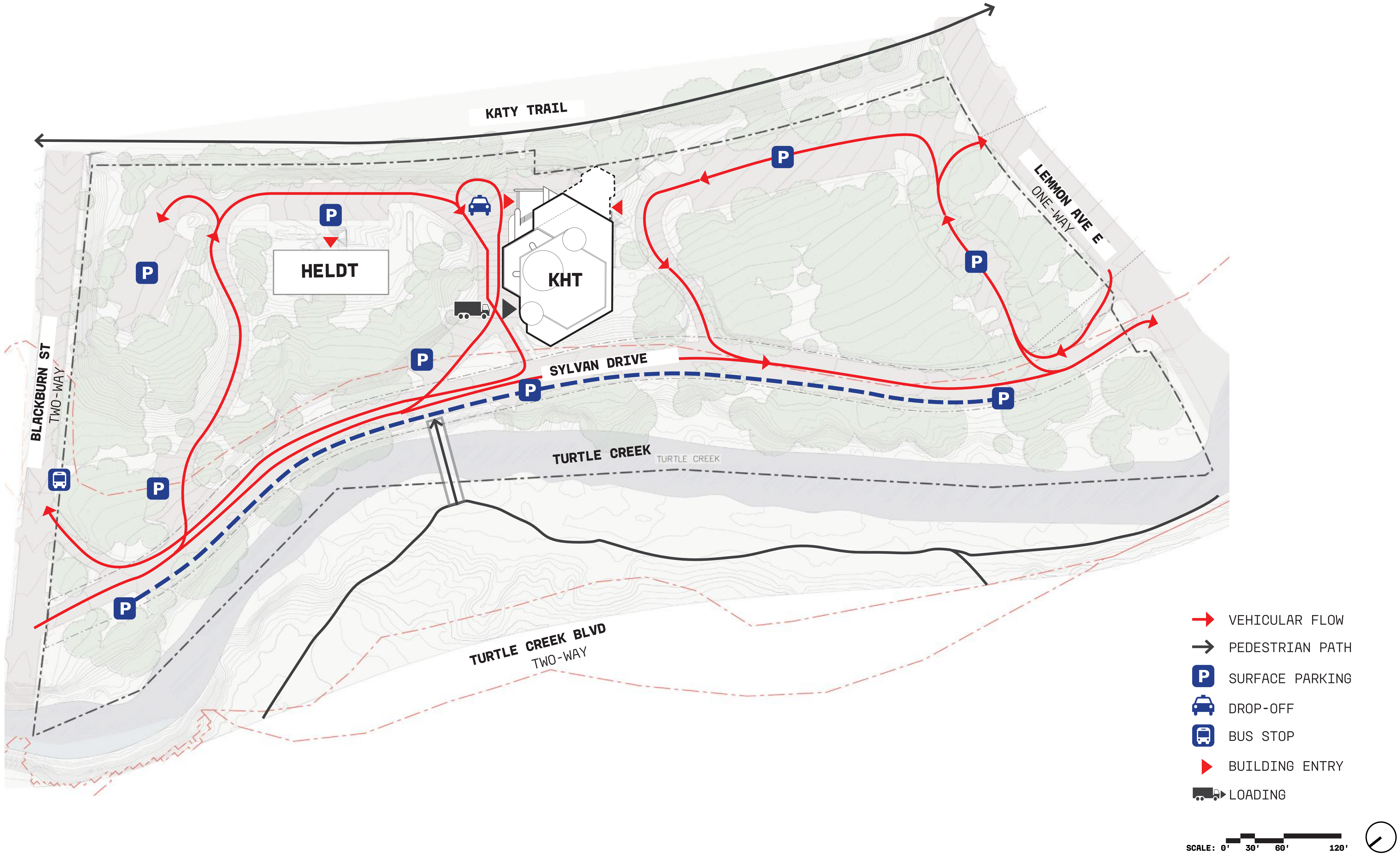
Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

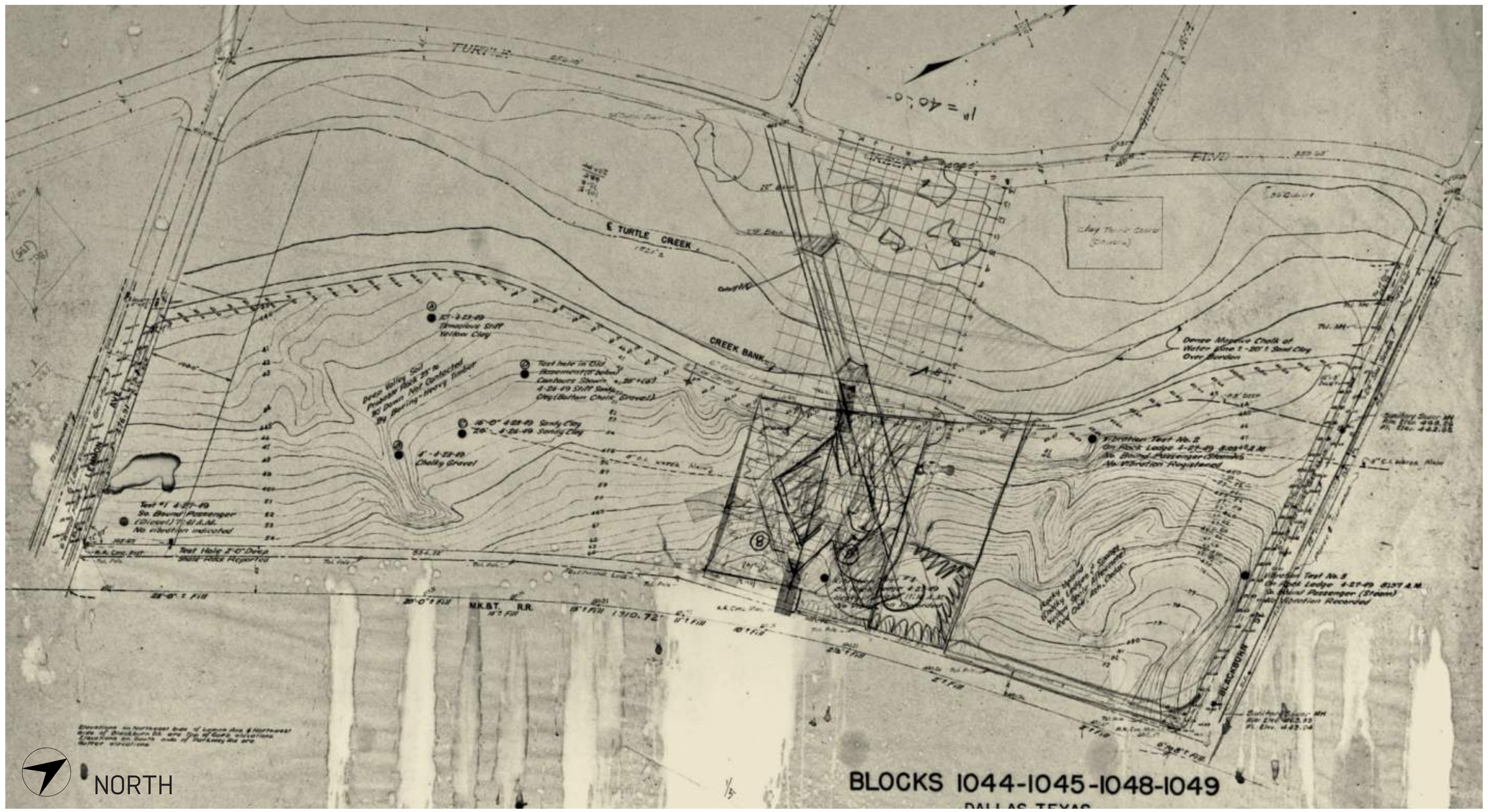
Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

EXISTING SITE LOGISTICS



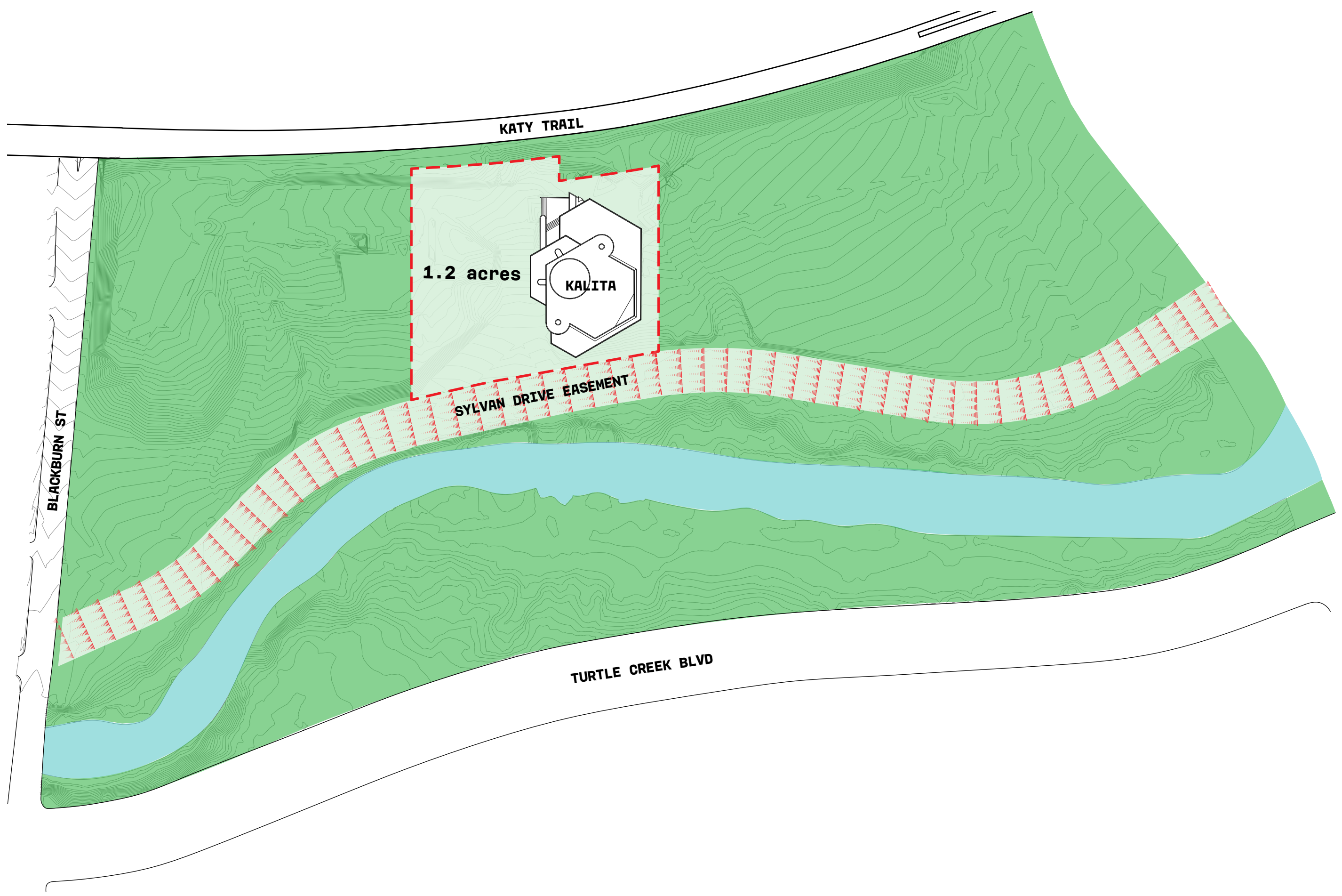
SITE ACQUISITION



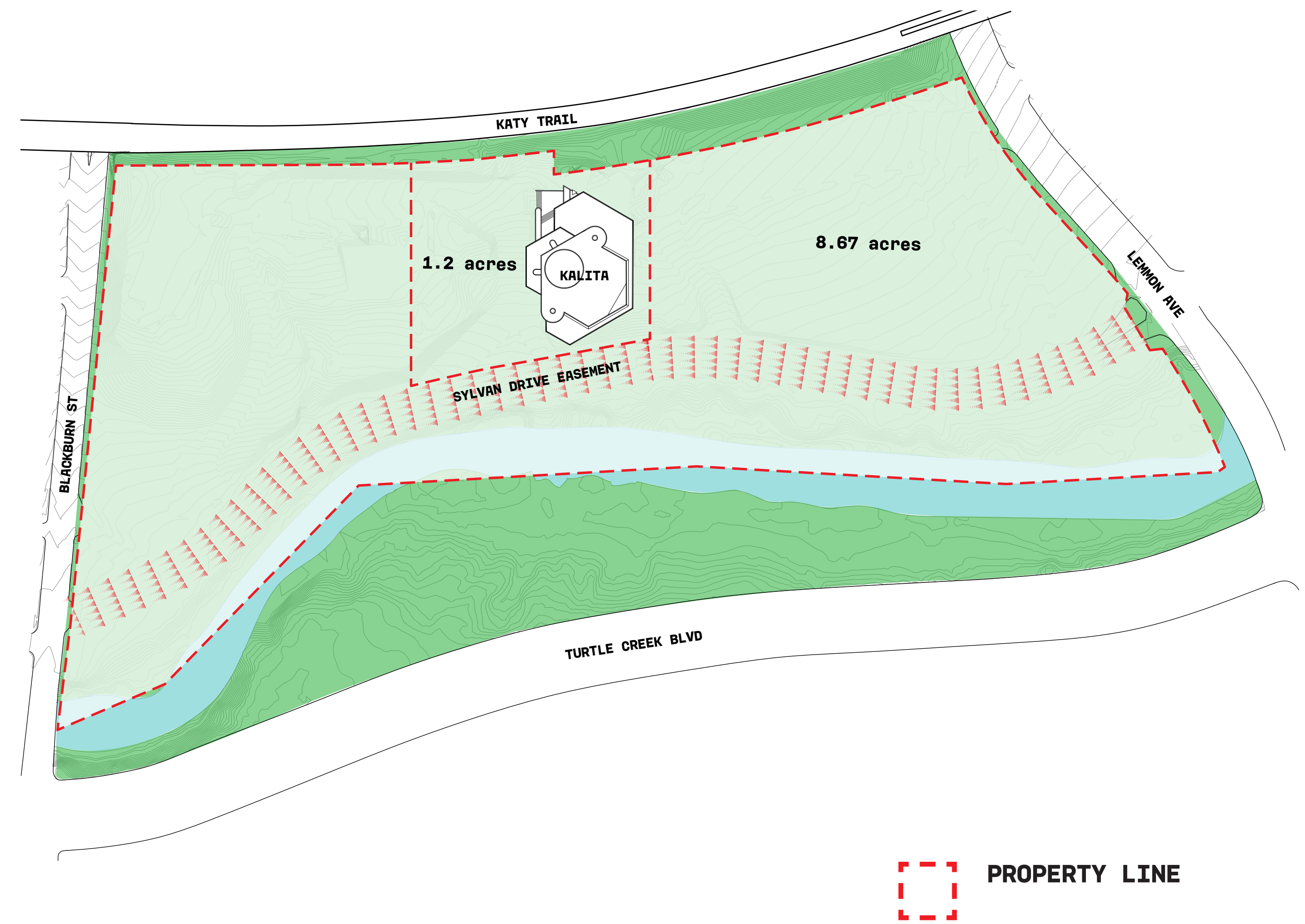
Initial Site Study
A 1949 site and area survey with an initial sketch of the Kalita Humphreys Theater by Frank Lloyd Wright

1959 Aerial Photo
The Kalita and Sylvan Drive shortly after completion, shown before Lemmon Avenue was split into two roadways.

1959 Property Boundary



1974 Property Boundary



Dallas Theater Center owned the 1.2 acre site on which the Kalita Humphreys Theater was built in 1959. In addition, an easement through adjacent tracts, owned by Sylvan Baer, enabled access to the Kalita site with the establishment of Sylvan Drive. Sylvan Baer retained ownership of the two tracts on either side of the Kalita and east of Turtle Creek until he passed.

This boundary is the original site footprint, and is the basis for the Historic Overlay District Ordinance for the Kalita Humphreys Theater.

In1973, DTC learned that Sylvan Baer's estate planned to sell the two adjacent tracts to a private developer, and that high-rise condominiums would be built on them. This plan would have removed the possibility for a DTC's planned-for children's theater, and additional theater parking needed on site. DTC sought the City's help in acquiring the 8.67 acres, stopping the development. DTC transferred ownership of the Kalita and its 1.2 acre site to the City in 1973 in exchange for a long-term lease. The City also pursued federal funds to aid in the purchase of the two adjacent tracts of land.

Following a donation to the City of additional land in the Trinity River Corridor by a DTC supporter, the City received the federal funds, and the City then condemned and purchased the two tracts on either side of the Kalita. Since that time, with the City's approval and assistance, Dallas Theater Center constructed the Heldt building and additional parking on the site from Blackburn to Lemmon.

LANDSCAPE CHARACTERISTICS

SITE DEVELOPMENT

The Turtle Creek corridor has hosted human activity for thousands of years. Found objects in archeological digs throughout the corridor, such as stone tools and flint chips, date back to 1000 BC, proving that the creek was used by Native Americans. While there is no known evidence or found remnants on the Kalita Humphreys site that date to prehistoric times, it is reasonable to assume that the Native peoples populated the site. Documented history of the creek dates back to the 1830s, as it was referenced in written accounts of the Texas Rangers. The first record of land ownership dates to 1845, and since then parcels have been bought and developed over time. In 1911 the City of Dallas Parks Board commissioned landscape architect George Kessler to develop A City Plan for Dallas in which Turtle Creek was identified as a development corridor.

A survey from 1949 provides an early detail record of the site. At this time Lemmon Ave was a two-way road that ran along the current southern alignment only. The MKT railroad defined the eastern edge of the site, and Turtle Creek Boulevard was a two-lane street. Notes from soil tests reference an 'Old Basement', indicating prior development. Bricks from this old foundation can still be found on the southern area of the site. A Sanitary Sewer line crossed the site, paralleling the creek, and a large concrete drainage culvert emptied into the creek which is still extant today. Some other utilities are also noted, but there were no roads or other structures at that time. Surveyed contours reflect the natural topography, some of which is still evident today such as the drainage swale on the north side of the property. Another note, also on the north side, states 'Rocky Upland...Red Oak, Ash, Cedar' which is still relevant to the existing vegetative community found in that area.

Construction of the Kalita Humphreys Theater began in 1958 on a 1.2 acre site. Sylvan Drive was established and used for construction access and became the main approach for the new theater. Soon after the theater was built, Lemmon Avenue was split and a new section of road crossed the southern section of the site to join the next parallel street. Turtle Creek Boulevard was widened with a median between lanes of traffic. In 1974, DTC acquired the surrounding 8.6 acres of land between Blackburn Street and Lemmon Avenue.

By 1989, the Turtle Creek Trail in William B. Dean M.D. Park was constructed along the Turtle Creek Park system. The southern parking lot along Lemmon Avenue was constructed, including the additional curb cut in the southeast corner.

In 1995 the site was built out further, including additional surface parking on the north and south section of the site, and the construction of the Heldt Building on the north portion of the site. The entrance to Sylvan Drive at Blackburn Ave was widened with a "Y" intersection. Development of the site has slowed since the 1995 interventions. The current condition is dominated by paved surfaces which detract from the character of the landscape and theater, although some components of the original site, such as the topography and vegetative communities, have retained integrity.

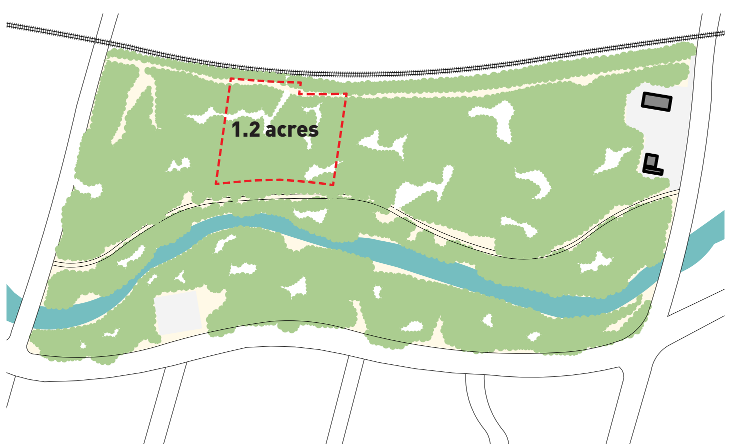
Turtle Creek Corridor in 1972

SITE DEVELOPMENT

Landscape becomes segmented over time

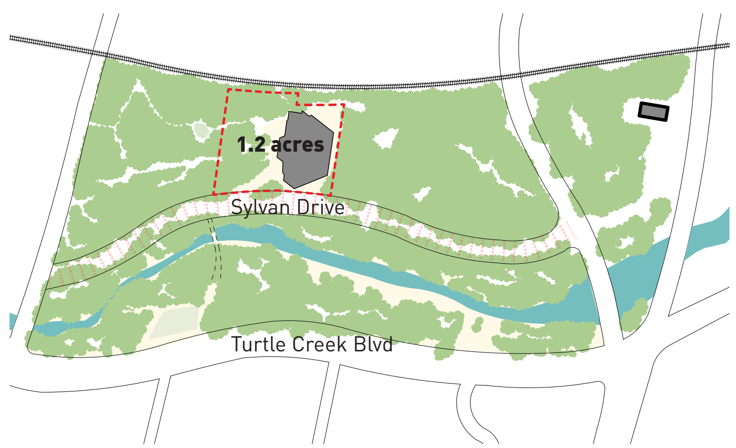
1958

Before construction began



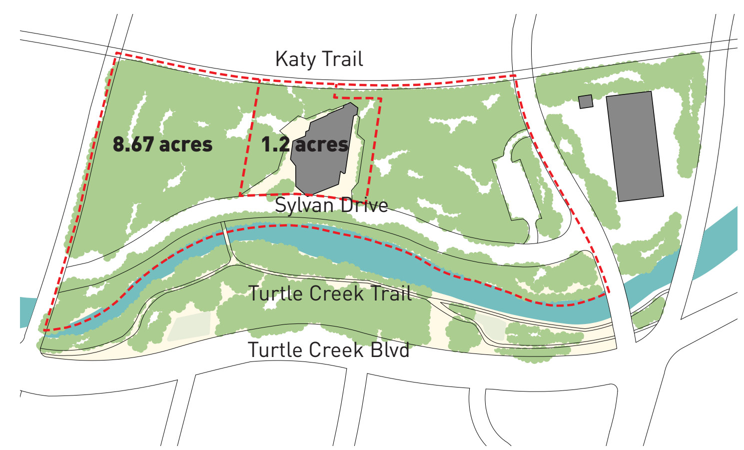
1968

Turtle Creek Blvd and Sylvan Drive expanded; Kalita addition



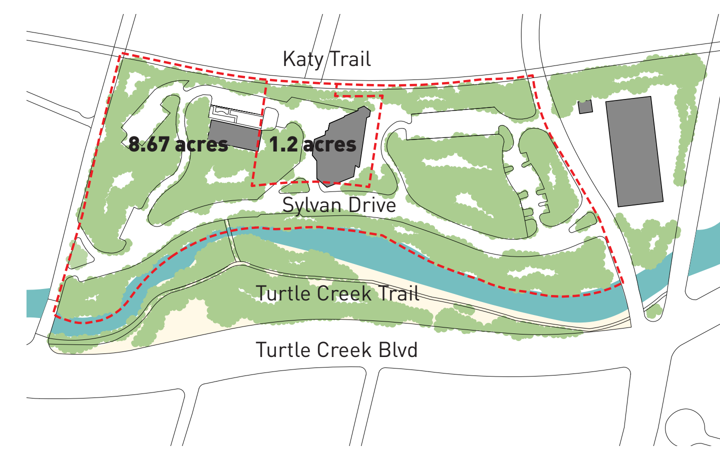
1989

Katy Trail and Turtle Creek Trail developed



1995

Drive roads, parking, and building added

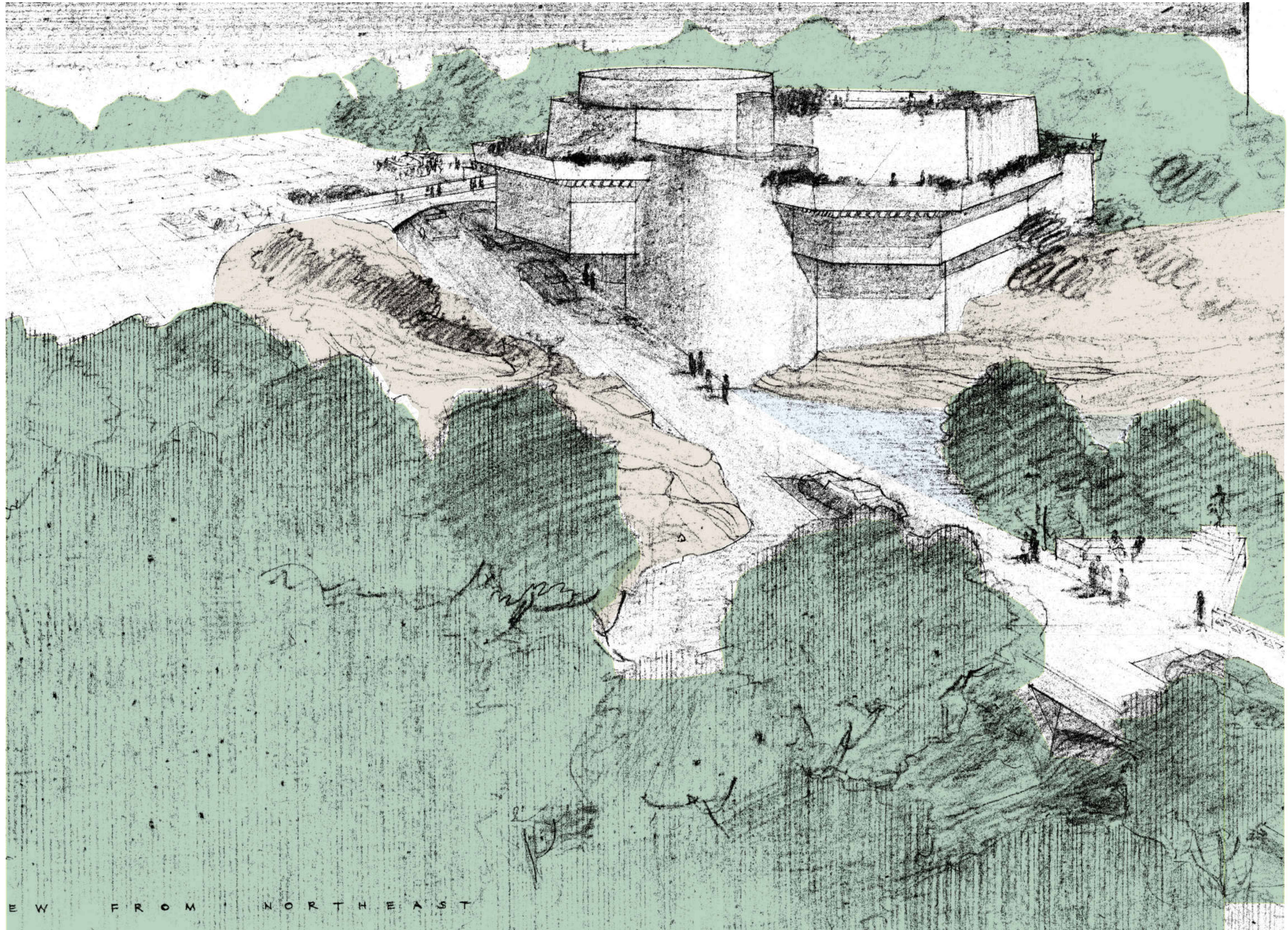


LANDSCAPE DESIGN

Wright's early concept sketches of the Kalita show the intended relationship of the theater to the surrounding landscape. The architectural mass was designed to appear as though emerging from the exposed ledge. Horizontal overhangs recall the limestone strata of the region's bedrock, while vegetation is shown engulfing the building and draping over the ledges.

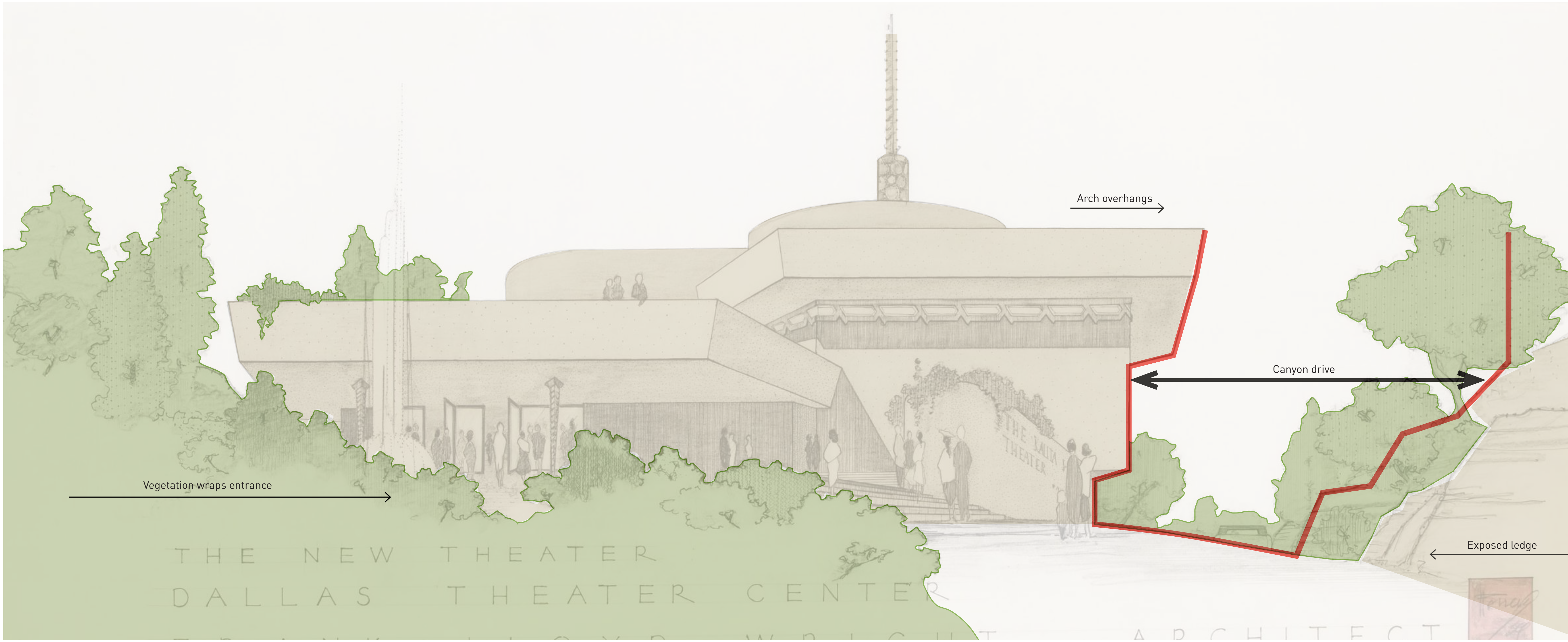
The drive and drop-off, sliced between the architecture and exposed ledge, created a canyon-like experience. The main entrance was located on the uphill side of the theater, carved into the ledge and shrouded in vegetation. The entrance terrace and canopy overhang resembles a limestone grotto, similar to the many natural limestone geological formations found throughout the region. The exposed ledge creates a wall of the grotto and a backdrop for the fountain. A moment of tension is preserved between the natural stone and the architectural canopy.

The 1968 expansion of the lobby introduced a heavier geometry, bulkier than the original, single-planed roof overhang. The expansion of the architecture and extension of the drive behind the theater removed the tension between the architecture and ledge. This renovation diluted much of the character and designed conditions of the original entrance experience.



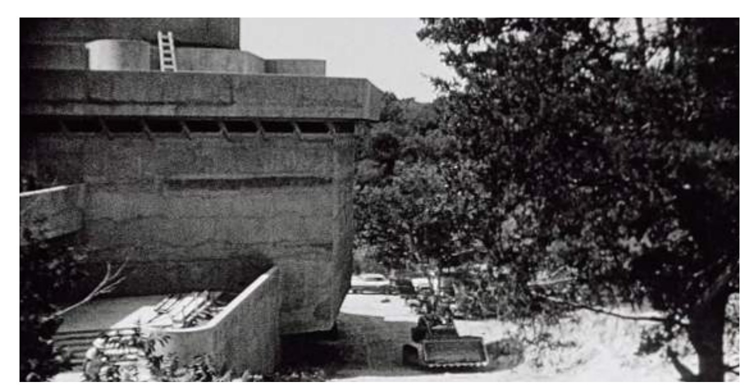
Rock Outcrop

Landscape



A perspective of the originally intended pedestrian approach from the east.

The Theater's drive and drop-off design recalls a canyon-like experience of natural limestone formations that occur throughout the region.



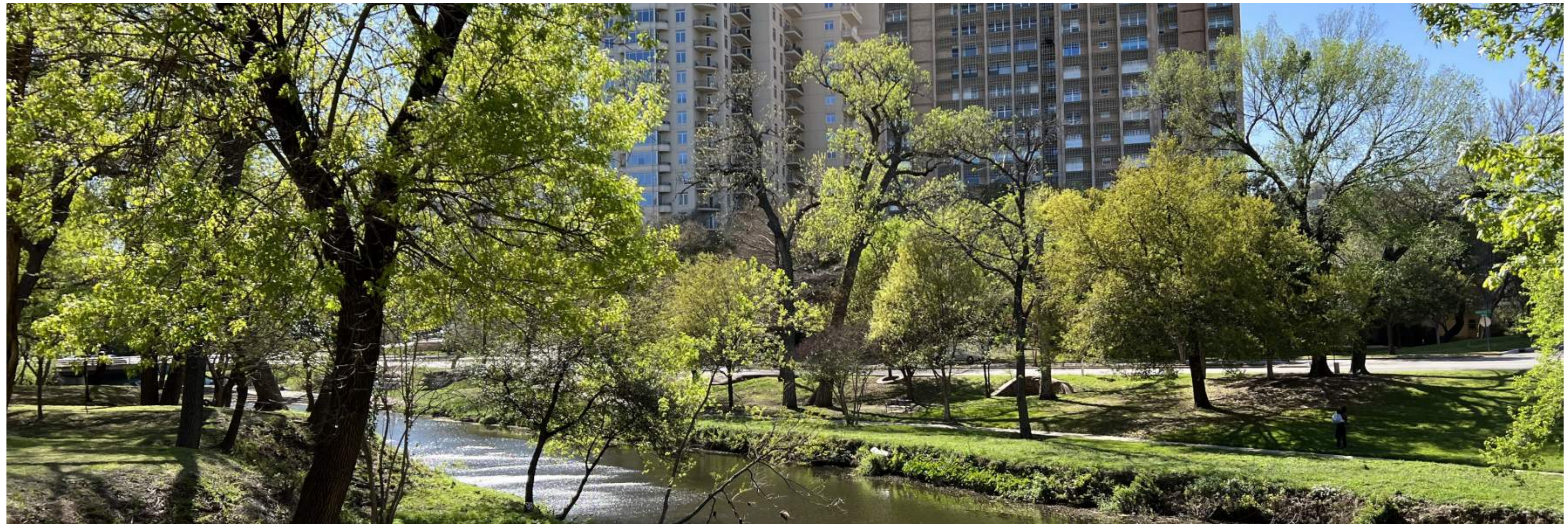
c. 1959 Site during construction

Devil's den, Big bend national park

CONTEXT

Kalita Humphreys Theater is located in the Turtle Creek neighborhood within the Oak Lawn District of Dallas. The site is a 10-acre parcel that is bordered by Lemmon Ave on the south, Blackburn Street on the north, Turtle Creek on the west and the Katy Trail on the east. The site is now part of a City-owned park known as William B. Dean M.D. Park. Dean Park continues on the opposite side of Turtle Creek, up to Turtle Creek Boulevard. The Turtle Creek Park system continues downstream to Reverchon Park.

The Turtle Creek neighborhood is a dense, mixed-use area with single family homes, high rise condominiums, and commercial use buildings all organized around the green belt park of Turtle Creek. The Kalita Humphreys Theater is uniquely located in a park-like and heavily treed parcel that feels protected from the hustle and bustle of the surrounding city, yet is immediately adjacent to Lemmon Ave, a primary arterial surface street, and Katy Trail, one of the most heavily trafficked pedestrian and bike routes in the city.
This juxtaposition offers unique opportunities for Dallas residents and visitors to engage with and experience a public resource that has both cultural and ecological significance.

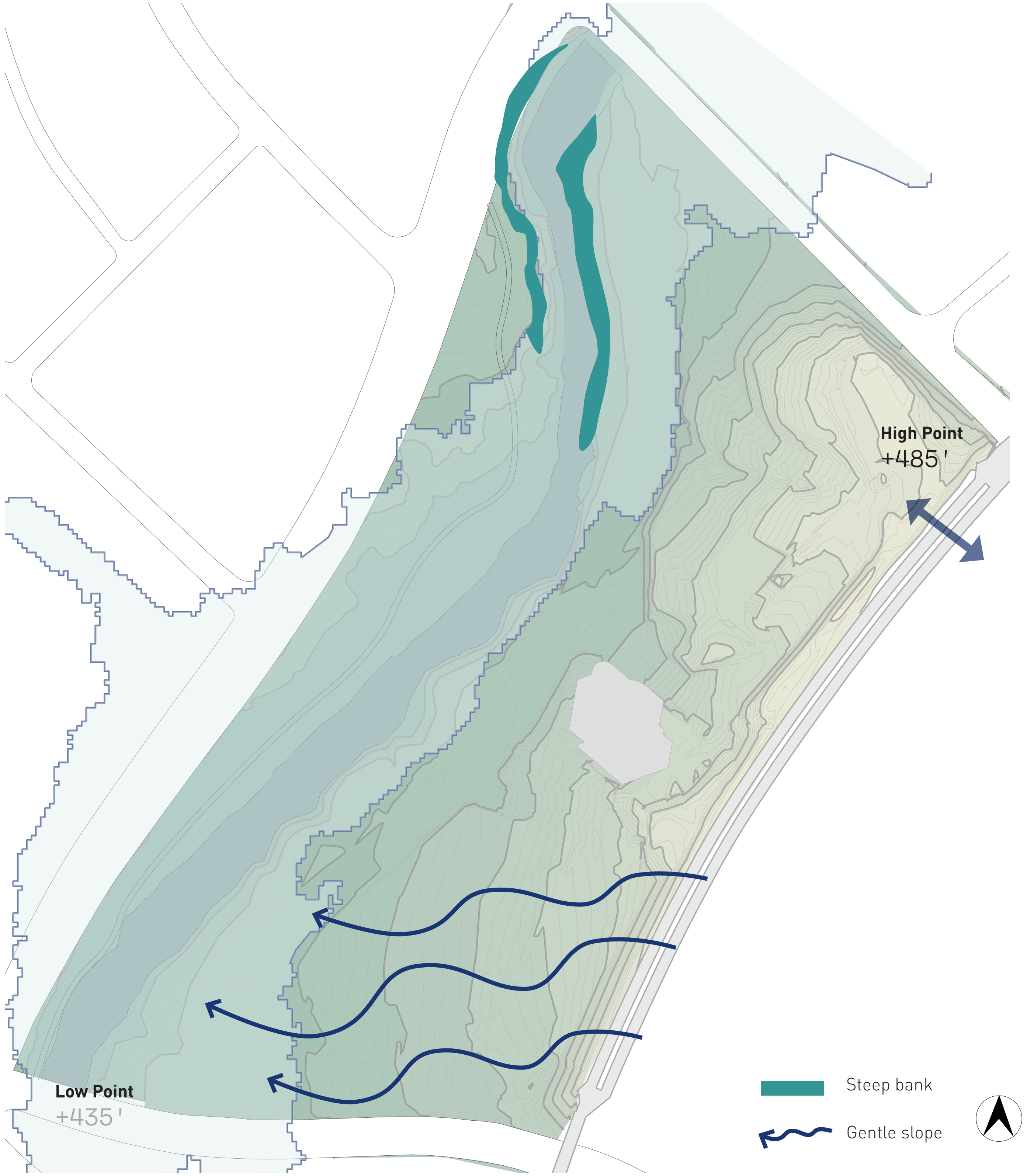


Views from within the site at surrounding condominium buildings

Turtle Creek neighborhood photo


PERRY HEIGHTS
MEDICAL DISTRICT
OAK LAWN
SITE
KATY TRAIL
LEMMON AVE
TURTLE CREEK
TURTLE CREEK BLVD
TURTLE CREEK
DALLAS NORTH TOLLWAY
I-345
STEMMONS FWY
UPTOWN
KATY TRAIL
TURTLE CREEK

TOPOGRAPHY



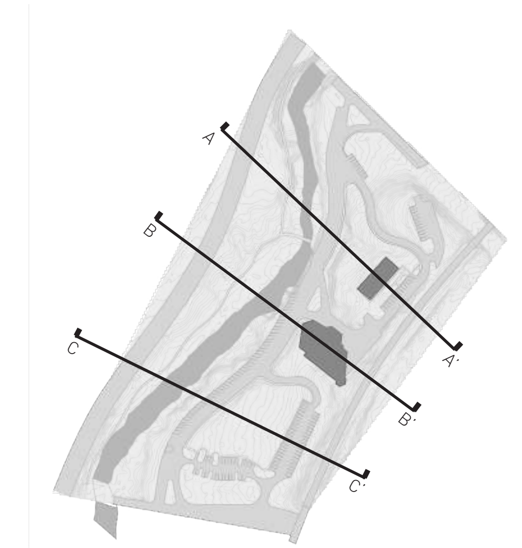
Elevation Analysis

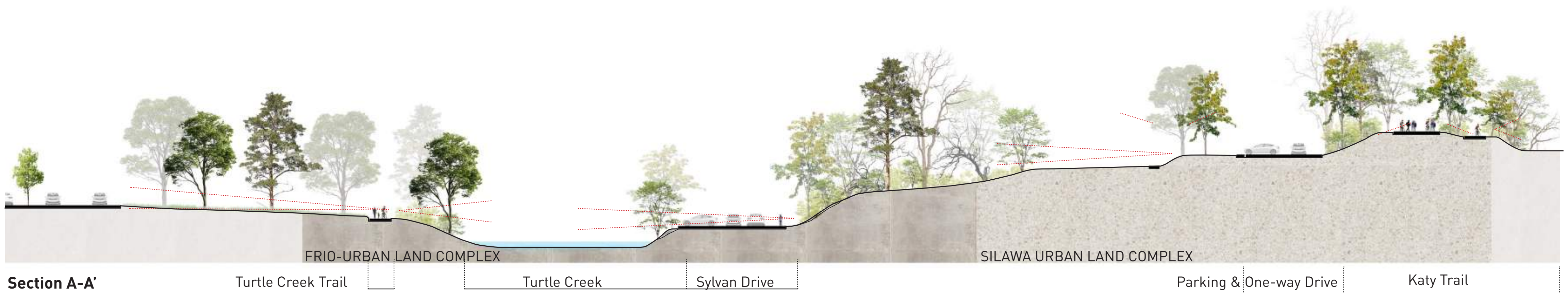
Low point view of the south-western corner where the elevation meets Turtle Creek

High point view from the Katy Trail

TOPOGRAPHY

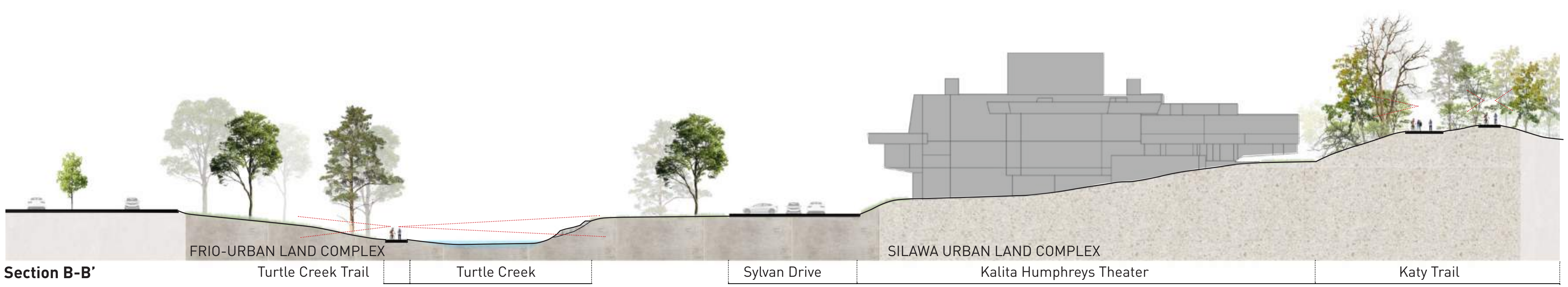
The site has a topographical change of 50 feet and slopes from a high point of +485 in the northeast corner of the site, to a low point of +435 in the southwest corner of the site. The high point is nearly at the same elevation as the Katy Trail and the low point meets the elevation of Turtle Creek. Slopes vary in steepness across the site, the most extreme of which are made of exposed ledge where the natural limestone establishes a steep, nearly vertical slope. Some of the exposed ledges are naturally occurring and are legible in the 1949 survey. Other areas were exposed when the stone was cut for the construction of roads or buildings. The southern half of the site is characterized by a lower elevation and shallower slope that gently roles down to Turtle Creek. Where the Katy Trail crosses the southern portion of the site the grade is built up with a steep, planted slope of filled material.



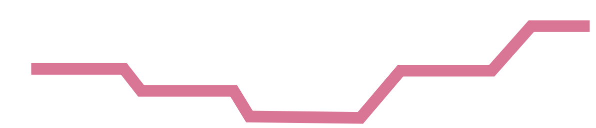


Section A-A'

Steep Cut



Section B-B'



Terraced

Section C-C'

Gentle Slope

SITE FEATURES / GEOLOGY

The bedrock of the site is a limestone called Austin Chalk, which is the dominant rock type throughout the Dallas area. It is a sedimentary rock made of compressed shell fragments, and was formed in the late Cretaceous period (100-66 million years ago) when much of the present-day United States was covered by an ocean known as the Western Interior Seaway. Austin Chalk is identifiable by its light gray to white color, horizontal striations, and soft texture that scratches and crumbles easily. Exposed limestone escarpments are prevalent on the higher elevations of the north half of the site. The rock is exposed where it has been cut into for the construction of roads or buildings, or carved naturally by flowing waters.

The natural landform formations have a dendritic or scalloped shape carved by water erosion through the limestone. These are most evident on the bank of Turtle Creek just west of Sylvan Drive, and in the dendritic shapes of the swales as seen in the 1949 survey. Straight slices are also visible where the bedrock was cut for the construction of roads or buildings, such as the rocky embankment along Sylvan Drive.

Landform Analysis

Slope Analysis

Natural Formation

Carved Slice

Filled Slope

SITE FEATURES / GEOLOGY

Rock Outcrop & Slope Analysis

Natural exposed ledge

View from the top of the limestone escarpment

HYDROLOGY

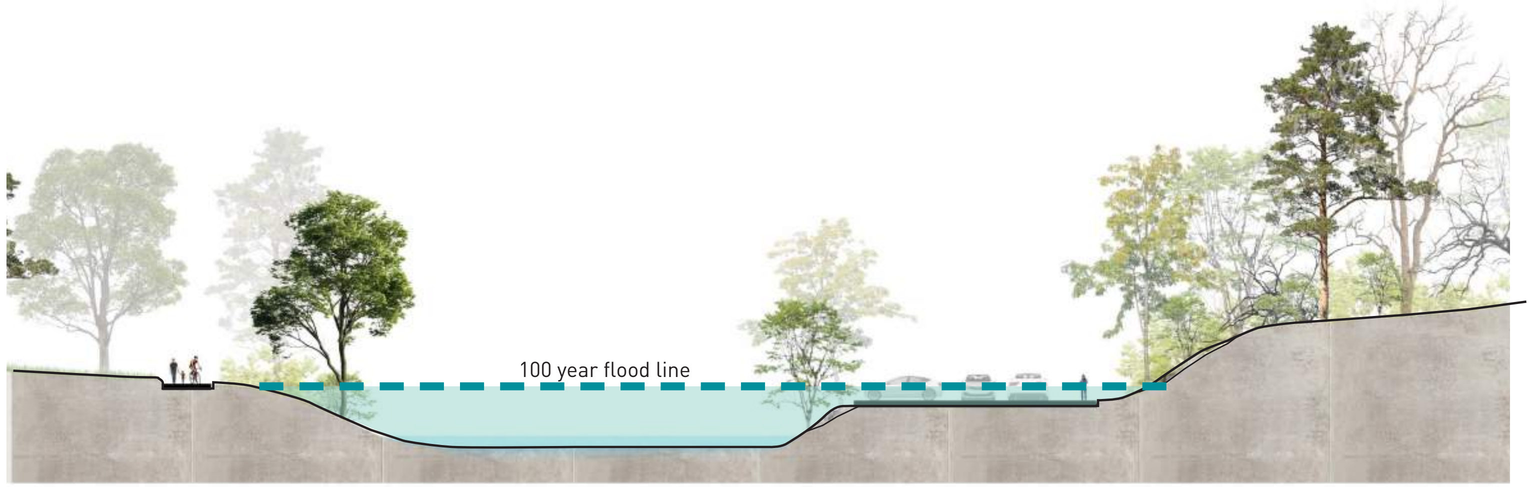
Turtle Creek is a significant drainageway through the City of Dallas and is a tributary of the Trinity River. During storm events the Creek is prone to flooding, and such storm events are becoming increasingly more frequent. The 100-year flood line is a metric used by the permitting agencies within the City of Dallas to manage development within the flood zone. The City carefully evaluates all proposed improvements within the zone through hydrological modeling in effort to prevent development that could obstruct the flow of floodwater and thereby raise the flood elevation. Work of any kind within the flood zone is limited and subject to rigorous review.

The 100-year flood elevation on the Kalita Humphreys site falls approximately at elevation +445 and covers much of the western edge of the site, including most of Sylvan Drive. The flood zone also covers most of the western side of William B. Dean M.D. Park and extends into Turtle Creek Boulevard. This limits the amount of buildable land on the site.

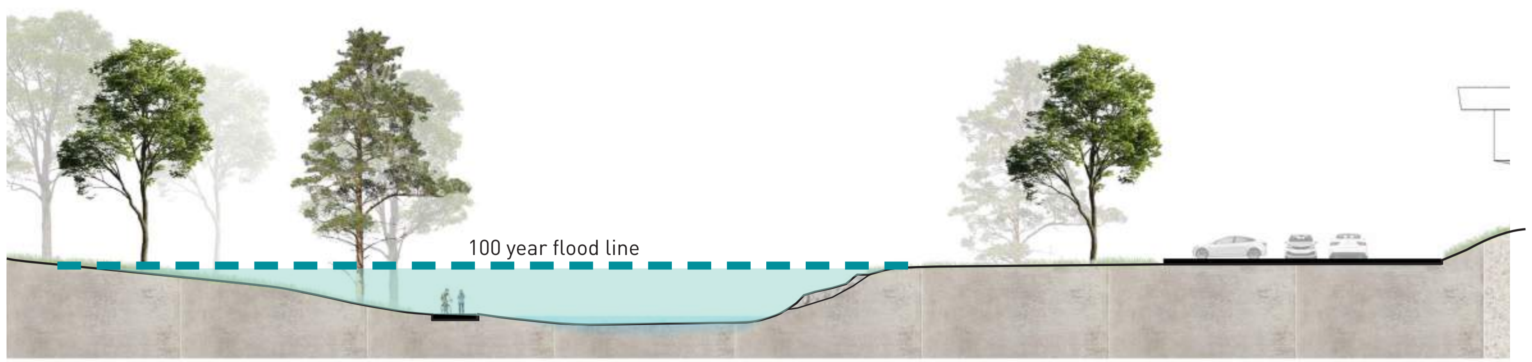
Photographs of Turtle Creek flooding during rain event on August 21, 2022.

Hydrology Analysis

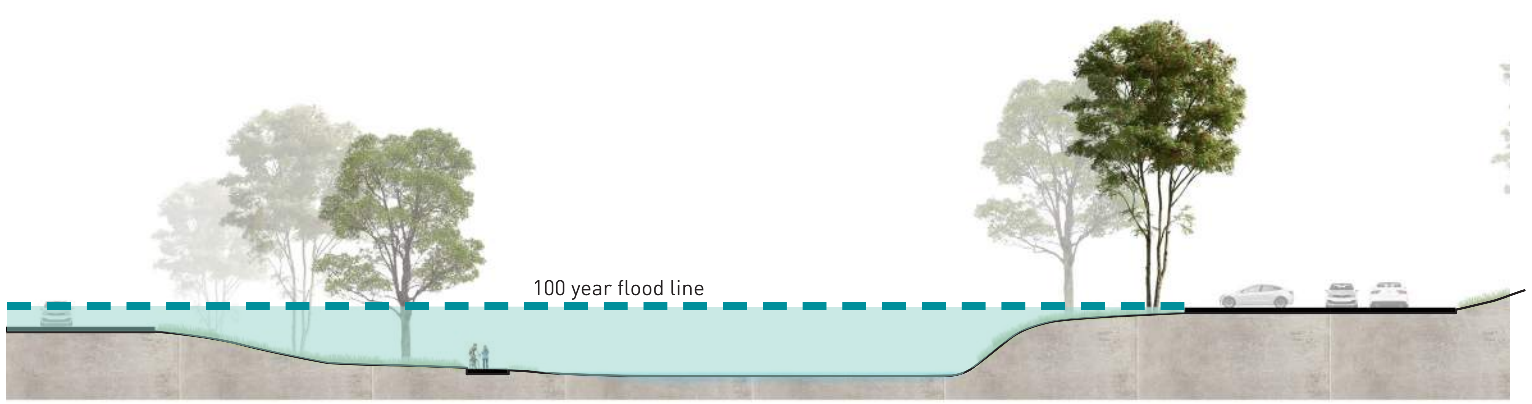
HYDROLOGY



Section A-A'



Section B-B'



Section C-C'

Turtle Creek with moderate swelling during typical storm event

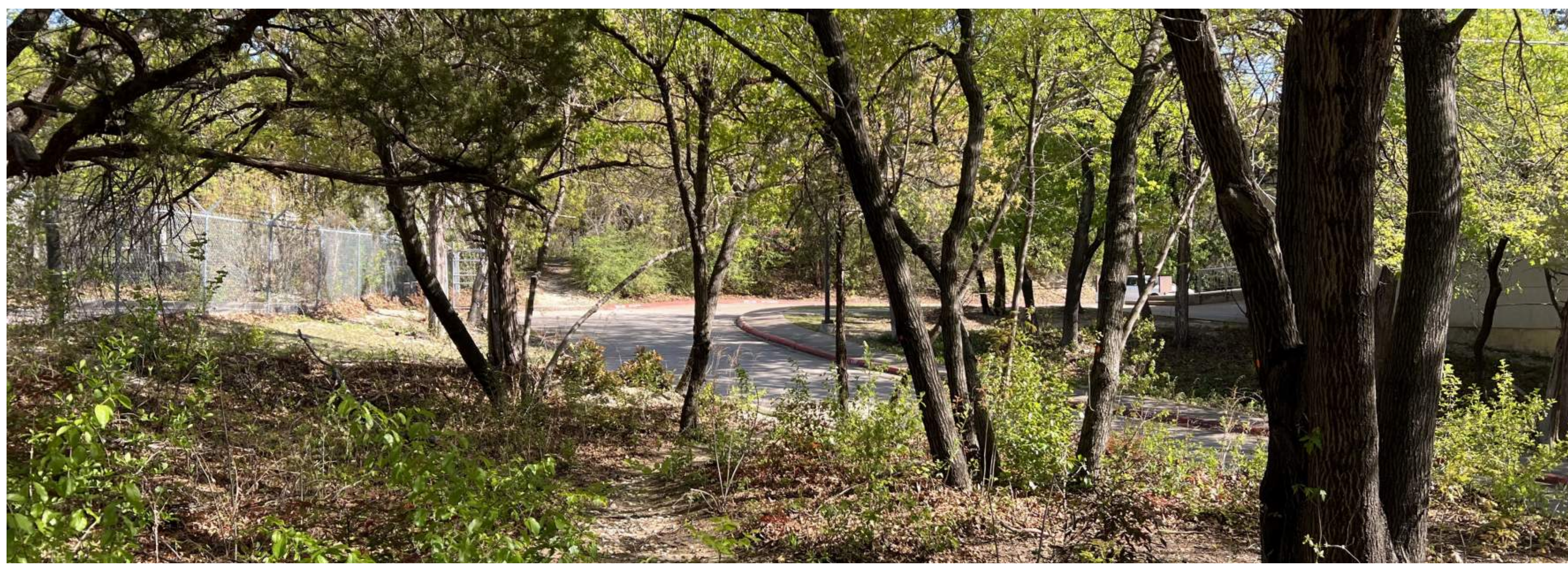
A floating silt fence installed just below the large outflow structure on site collects trash and debris from Turtle Creek. Trash flow into the creek is compounded during storm events.

VEGETATION

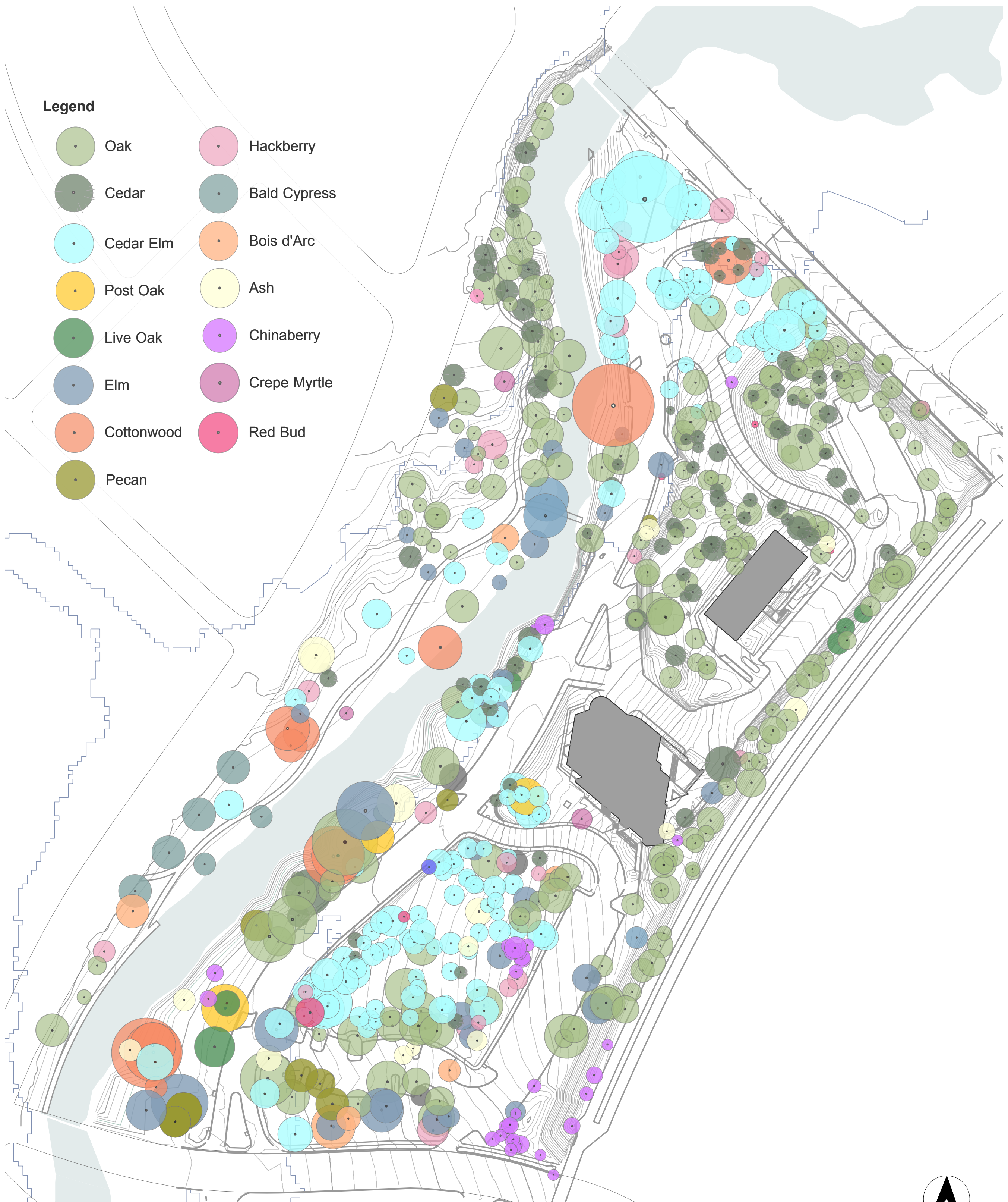
The site comprises a relatively consistent tree cover throughout which provides a sense of continuity, despite large areas of the site that are interrupted by large expanses of paving. The three most dominant tree species are cedar elm, red oak, and eastern red cedar. Cedar elm is most prevalent in the lower elevation areas, particularly on the southern portion of the site. The communities on the upper terraces above the limestone escarpments consist primarily of oak and cedar. The banks along Turtle Creek are planted with a greater diversity of species, including live oak, cottonwood, pecan, and hackberry. Areas of disturbance, including some locations along the creek and near the Katy Trail contain some invasive Chinaberry trees.

The ground plane reflects the topography of the site. Areas with a gentle slope that is accessible with a mower exhibit a tight, low growing groundcover. In locations with adequate sun exposure the ground material is turfgrass. In shaded areas under the canopy of trees the groundcover is made up of other shade-tolerant species such as horse herb. In areas with a steeper slope that are not as easily managed, the ground plane is comprised of a greater diversity of species and achieves a denser mass and taller height. Species include vines such as Virginia creeper, greenbrier, and poison ivy. There is also sedge, scrub oak, and young suckers of the tree species. There are also some areas, particularly along Katy Trail where it may have been used for screening, that contain dense stands of bamboo. This will require aggressive treatment to remove.

CEDAR ELM GROVE with low, managed groundcover



OAK AND CEDAR GROVE on rocky limestone escarpment



Inventory

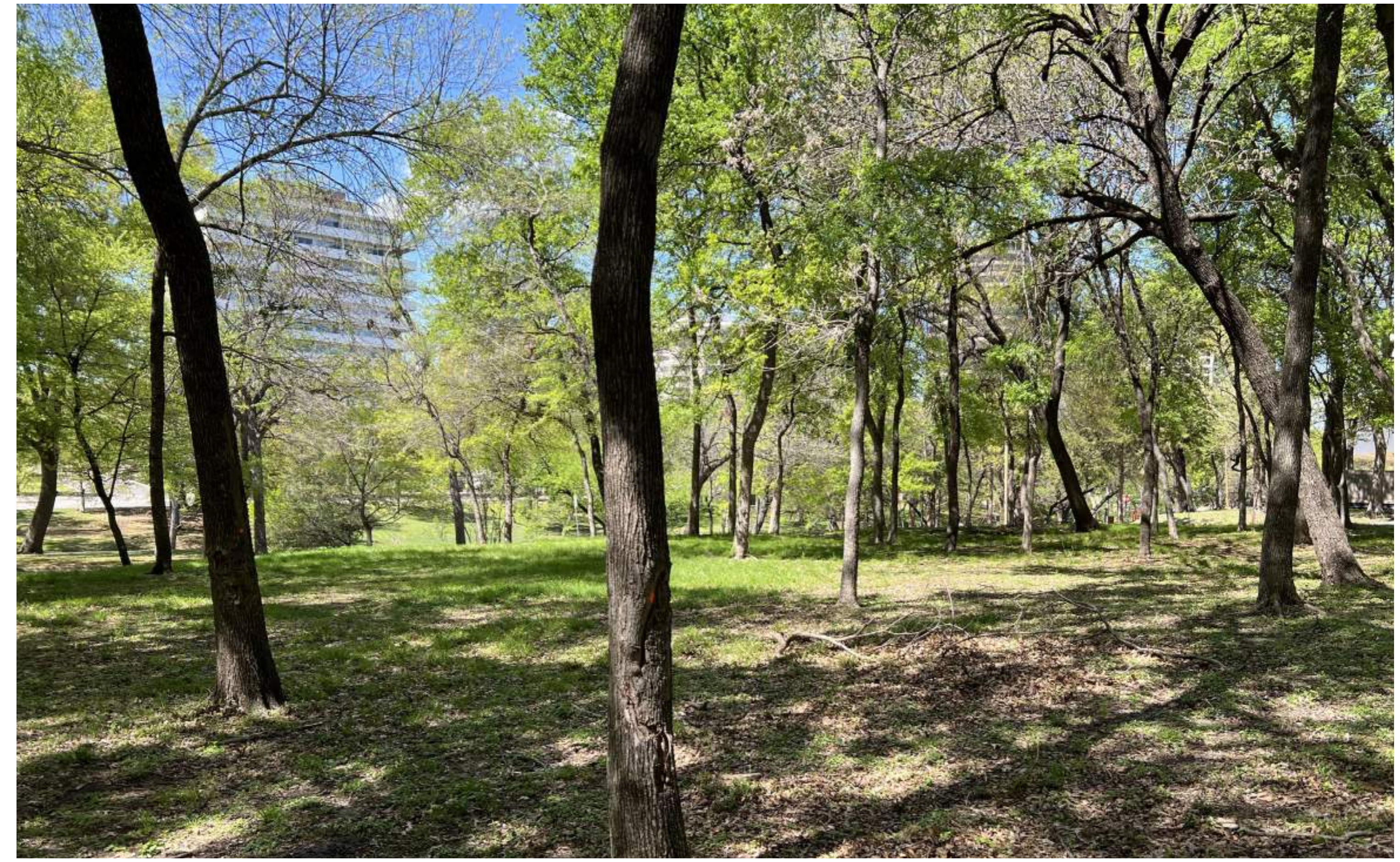
Analysis

SITE CHARACTER

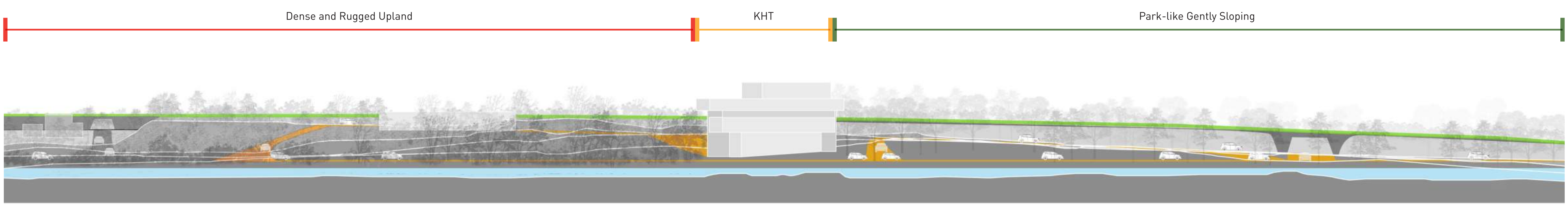
Landscape Character is a tool used to categorize and analyze the spatial qualities of a site. There are two overarching Landscape Character typologies that are identifiable on this site: Rugged Upland and Open Park. The Rugged Upland is characterized by a dense and layered understory that limits the ability to access or view through the planting. This is typically found on the higher elevations of the site, the steep slopes of the limestone escarpments, and the steep banks of the stream corridor. The Open Park is characterized by a high canopy with a managed and more open understory with either lawn, low-growing groundcover, or leaf-litter debris on the ground plane. The Open Slope character has gently sloping topography, is easy to walk through, and promotes long views through the zone.

SITE CHARACTER

Dense and Rugged Upland Character



Park-like Gently Sloping Character



EXISTING SITE CONDITION

TURTLE CREEK CHARACTER

Turtle Creek Corridor was designed by Landscape Architect George Kessler for a 1911 Plan commission by the Dallas Park Board. Kessler's plan defined the corridor as a "proposed development that will enhance the present scenic value of Turtle Creek and will become one of the most critical links in the boulevard system...it will be the direct means of conserving the high-class character of an essential residential section and of furnishing it with a natural and convenient thoroughfare to the heart of the city." The sketch plan of the corridor illustrates a park system along the length of the creek. Also visible in the sketch is the variation in vegetation character from open lawn to dense vegetation. These relate to the two landscape characters seen on our site: the rugged upland and the open park. As illustrated in this 1911 Plan these two landscape characters repeat throughout the corridor, creating a braid with the waterway and create cohesion throughout the corridor. The dichotomous character can still be easily observed throughout the corridor. Today, over 100 years after the Plan was published, the original vision and planting concept remains intact.

Kessler's City Plan for Dallas c.1911

TURTLE CREEK CHARACTER

Park-like edge, open and expansive

Dense and rugged vegetated edge

EXISTING PAVING AND CIRCULATION

There is pervasive canopy cover across the site which provides cohesion and adds to the landscape character of the site, however there is also significant amount of paving which detracts from the historic architecture and landscape. Sylvan Drive is the primary vehicular road that passes through the site to connect Lemmon Avenue and Blackburn Street. For over 30 years this was the only paved road on site, until drive lanes and additional parking were added in the 1980s. The 1990s expansion included additional roads and a significant amount of surface parking, as well as the Heldt building just north of the theater. Today, approximately one-third (33%) of the land area on the site is covered by impervious surface. Surface parking is driving much of the paved area, with approximately 219 parking spaces on site. The majority of this parking is arranged along Sylvan Drive and other campus roads as parallel or angled parking, which increase the scale of the roads to an average of 40 feet in width. The width is further exacerbated by brightly painted curbs which highlight the edges, adjacent sidewalks, and abrupt topographical cuts. These factors give the roads a commercial scale and urban character which detract from the intended site design.

Sylvan Drive was established with the construction of the theater in 1959, on a 1.2 acre tract of land owned and donated for use by Sylvan Baer, the namesake of the road. Baer retained ownership of the road land until 1974, when the parcels surrounding the Kalita were acquired by the City of Dallas. The word Sylvan in a landscape context also, by definition, refers to a wooded, rural and pastoral character. Unfortunately, the current condition of Sylvan Drive does not reflect the name. The Landscape Plan proposes to restore the wooded, sylvan character of the drive by reducing the width, eliminating curbs, and better fitting the road to the landform.

The current pedestrian circulation on site is limited to sidewalks and is always associated with a road edge, which restricts the pedestrian experience. The adjacent path network of William B. Dean M.D. Park, part of the larger Turtle Creek Trail system, represents a preferred treatment for pedestrian paths. The path is appropriately scaled for recreational activities and is fitted to the landform. Characteristics of this path will be used for the new proposed path system on site.

EXISTING PAVING AND CIRCULATION



Site Vehicular Circulation is characterized by wide streets lined with parking, painted curbs, and sidewalks.



Trail System is defined by linear path through landscape

MASTERPLAN CONCEPT DESIGN

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

Summary of Net Square Footage Allocations

	Program Element		Total nsf	% nsf	WC's	Urinals	Sinks	Showers
A	New Proscenium Theater	250 Seats	14,588	19%	14	0	34	7
B	New Studio Theater	100 Seats	8,320	11%	6	0	19	2
C	Shared BOH Facilities		9,532	13%	3	0	7	0
D	Public Spaces		9,769	13%	17	3	28	0
E	Food & Beverage, Events		16,645	20%	11	2	22	0
F	Education, Community, Rehearsal & Support Spaces		16,780	19%	16	0	20	0
G	Administration & Building Services		4,590	6%	0	0	11	0
Total Net Square Feet		350 Seats	**80,224**	**100%**	67	5	141	9

Estimated Total Construction Floor Area, typical range	from	**128,358**	**160%**
	to	**140,392**	**175%**

Breakdown By Component

A New Proscenium Theater

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
100	Performance Spaces	7,562	52%	0	0	0	0
200	Backstage and Support Spaces	7,026	48%	14	0	34	7
	Sub Total	14,588	100%	14	0	34	7

B New Studio Theater

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
300	Performance Spaces	3,470	42%	0	0	0	0
400	Backstage and Support Spaces	4,850	58%	6	0	19	2
	Sub Total	8,320	100%	6	0	19	2

C Shared BOH Facilities

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
500	Shared BOH Facilities	9,532	100%	3	0	7	0
	Sub Total	9,532	100%	0	0	0	0

D Public Spaces

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
600	Front-of-House and Public Spaces	9,769	100%	17	3	28	0
	Sub Total	9,769	100%	17	3	28	0

E Food & Beverage, Events

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
700	Retail, Food & Beverage Spaces	16,645	100%	11	2	22	0
	Sub Total	16,645	100%	11	2	22	0

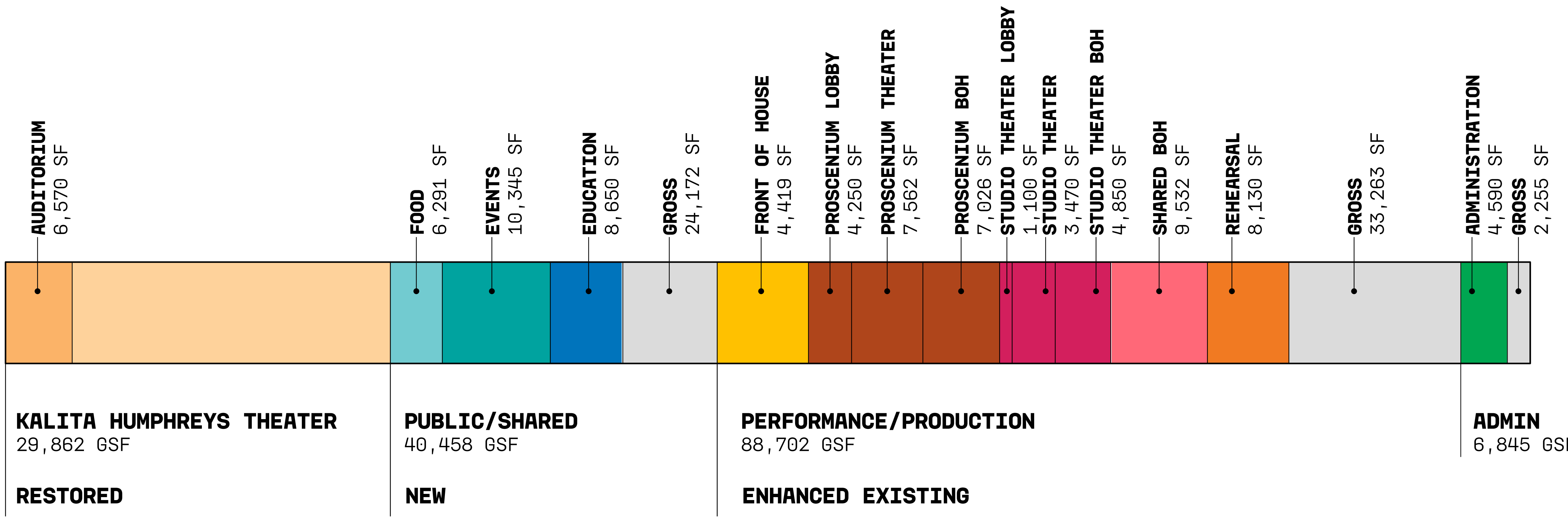
F Education, Community, Rehearsal & Support Spaces

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
800	Rehearsal, Education & Community Event Spaces	16,780	100%	16	0	20	0
	Sub Total	16,780	100%	16	0	20	0

G Administration & Building Services

		Total nsf	% Nsf	WC's	Urinals	Sinks	Showers
900	Administration	3,570	78%	0	0	0	0
1000	Building Services	1,020	22%	0	0	11	0
	Sub Total	4,590	100%	0	0	11	0

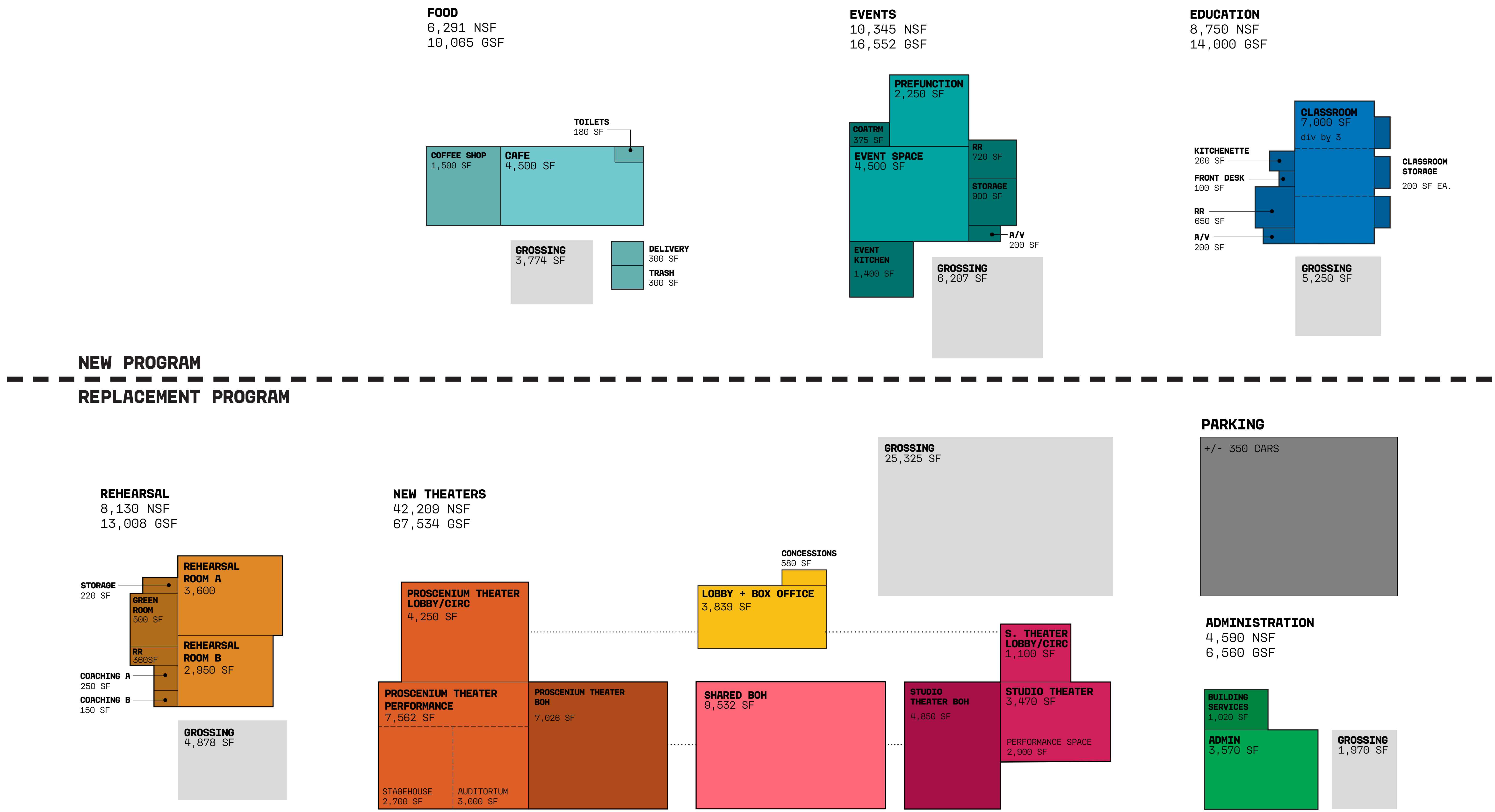
PROGRAM AREAS



INITIAL ESTIMATE TOTAL: 169,867 GSF

NEW CONSTRUCTION INITIAL ESTIMATE: 140,005 GSF
(typical range: 128,358 GSF TO 140,392 GSF)

Diller Scofidio + Renfro
New York, NY
Fisher Dachs Associates
New York, NY
Threshold Acoustics LLC
Chicago, IL
Reed Hilderbrand LLC
Cambridge, MA
Harboe Architects
Chicago, IL
Silman Engineering
New York, NY
BOKAPowell
Dallas, TX
Syska Hennessy Group
Los Angeles, CA
Pacheco Koch
Dallas, TX


FOOD
6,291 NSF
10,065 GSF
TOILETS
180 SF
COFFEE SHOP
1,500 SF
CAFE
4,500 SF
GROSSING
3,774 SF
DELIVERY
300 SF
TRASH
300 SF
EVENTS
10,345 NSF
16,552 GSF
PREFUNCTION
2,250 SF
COATRM
375 SF
EVENT SPACE
4,500 SF
RR
720 SF
STORAGE
900 SF
A/V
200 SF
EVENT KITCHEN
1,400 SF
GROSSING
6,207 SF
EDUCATION
8,750 NSF
14,000 GSF
CLASSROOM
7,000 SF
div by 3
KITCHENETTE
200 SF
FRONT DESK
100 SF
RR
650 SF
A/V
200 SF
CLASSROOM STORAGE
200 SF EA.
GROSSING
5,250 SF
NEW PROGRAM
REPLACEMENT PROGRAM
REHEARSAL
8,130 NSF
13,008 GSF
STORAGE
220 SF
GREEN ROOM
500 SF
RR
360SF
COACHING A
250 SF
COACHING B
150 SF
REHEARSAL ROOM A
3,600
REHEARSAL ROOM B
2,950 SF
GROSSING
4,878 SF
NEW THEATERS
42,209 NSF
67,534 GSF
PROSCENIUM THEATER LOBBY/CIRC
4,250 SF
PROSCENIUM THEATER PERFORMANCE
7,562 SF
STAGEHOUSE
2,700 SF
AUDITORIUM
3,000 SF
PROSCENIUM THEATER BOH
7,026 SF
CONCESSIONS
580 SF
LOBBY + BOX OFFICE
3,839 SF
SHARED BOH
9,532 SF
GROSSING
25,325 SF
S. THEATER LOBBY/CIRC
1,100 SF
STUDIO THEATER BOH
4,850 SF
STUDIO THEATER
3,470 SF
PERFORMANCE SPACE
2,900 SF
PARKING
+/- 350 CARS
ADMINISTRATION
4,590 NSF
6,560 GSF
BUILDING SERVICES
1,020 SF
ADMIN
3,570 SF
GROSSING
1,970 SF

NEW PROSCENIUM THEATER PROGRAM

Summary of Net Square Footage Allocations

	Category	Total Nsf	
100	Performance Spaces	7,562	52%
200	Backstage and Support Spaces	7,026	48%
	Total Net Square Feet	**14,588**	**100%**

Detailed Space List

	Performance Spaces		Width	Depth	Height		Nsf	
101	Auditorium	*250 Seats*				###########	3,000	
102	Stagehouse *Main Stage, no fly tower, but hanging/rigging capability from ladder-accessed steel beams.*	*36'w prosc width*	*75.0w*	*36.0d*	*30.0h*	*2,700 nsf*	2,700	
103	Trap Room		*40.0w*	*20.0d*	*14.0h*		800	
104	Orchestra Pit	*0 musicians max.*					0	
	Overhung Area	*0 musicians*	*0.0w*	*0.0d*		*0 nsf*		
	Main Lift or Platforms	*0 musicians*	*0.0w*	*0.0d*		*0 nsf*		
105	Seat Wagon Storage		*0.0w*	*0.0d*			0	
106	Sound Mix Location at Rear of Main Level		*8.0w*	*9.0d*			72	
107	Stage Management Booth		*6.0w*	*10.0d*			60	
108	Lighting Control Booth		*8.0w*	*10.0d*			80	
109	Sound Control Room		*12.0w*	*10.0d*			120	
110	Crying Room / Photographers Booth		*0.0w*	*10.0d*			0	
111	Video Projection & Control Booth		*8.0w*	*10.0d*			80	
112	Followspot Booth	*3 Followspots*	*18.0w*	*10.0d*			180	
113	Dimmer Room						220	
114	Amplifier Rack Room						250	
115	Sound and Light Locks						*in gross*	
	Sub-Total						7,562	52%
	Backstage and Support Spaces							
	Performer Accommodations							
201	Dressing Rooms					*nsf*	1,460	
.06	*(2) Star Dressing Room (Small) (t&s)*	*2 occ.*	*18.5w*	*20.0d*		*740 nsf*		
.15	*(4) Four-person Principal Dressing Rm*	*16 occ.*	*11.0w*	*16.0d*		*720 nsf*		
	Total accommodations	*18 occ.*						
202	BOH Restrooms *(all gender)*	*6 fxtrs*					360	
203	Performers' Private Shower Rooms	*4 rooms*					256	
204	Utility / Pit Musicians Room						500	
205	Musicians' Toilets	*2 fxtrs*					120	
206	Off-stage Left and Right quick toilets *(2 all-gender)*						120	
207	Green Room / Performer's Lounge *(w/ kitchenette)*						400	
208	Vending Machine/Coffee Alcove(s)						*in gross*	
209	Call Board						*in gross*	
210	Backstage Actor's Communicating Stair						*in gross*	
	Performer Support / Work Areas							
211	Wardrobe Maintenance Room						500	
212	Laundry		*21.0w*	*12.0d*			252	
213	Wig Maintenance Room						300	
214	Run Props Room/Prop Kitchen for Stage Food						575	
	Staff Accommodations							
215	House Technical & Production Staff Office						0	
216	Visiting Director / Designer Office						0	
217	SM Office						150	
218	Crew Accommodations						513	
	2 gender-neutral WCs					*130 nsf*		
	Lockers for 24 crew, small lounge area, k'nette					*318 nsf*		
	1 private shower rooms					*65 nsf*		
	Receiving & Storage							
219	Loading Dock *see shared BOH spaces*						*exterior*	
220	Receiving / Assembly / Repair *see shared BOH spaces*						*elsewhere*	
221	Tool Room						200	
222	Scenic & Road Box Storage						200	
223	Lock-up or Armory - store In 214 in a cabinet						0	
224	Lighting Workshop & Storage						200	
225	Automation Workshop & Storage						100	
226	AV Workshop & Storage						200	
227	Run Crew Supplies *(tape, gloves, flashlights, radios, etc.)*						120	
228	General Storage *(Risers, Softgoods in Hampers, etc.)*						500	
229	Stand and Chair Storage (for musicians)						0	
	Sub Total						7,026	48%
	Total Net Square Area						**14,588**	**100%**

Diller Scofidio + Renfro New York, NY	Fisher Dachs Associates New York, NY	Threshold Acoustics LLC Chicago, IL	Reed Hilderbrand LLC Cambridge, MA	Harboe Architects Chicago, IL	Silman Engineering New York, NY	BOKAPowell Dallas, TX	Syska Hennessy Group Los Angeles, CA	Pacheco Koch Dallas, TX

NEW STUDIO THEATER PROGRAM

Summary of Net Square Footage Allocations

	Category	*Total Nsf*	
300	Performance Spaces	3,470	42%
400	Backstage and Support Spaces	4,850	58%
	Total Net Square Feet	**8,320**	**100%**

Detailed Space List

			Width	*Depth*	*Height*		*Nsf*	
	Performance Spaces							
301	Flexible Performance Space	*100 Seats*					2,900	
	Main Level		*58.0w*	*50.0d*	*27.0h*	*2,900 nsf*		
	Seating / Technical Gallery Upper Level					*0 nsf*		
302	Stage Management, Lighting and Video Control Booth		*22.0w*	*10.0w*			220	
305	Audio Control Booth		*10.0w*	*10.0w*			100	
303	Dimmer Room						150	
304	Amplifier Rack Room						100	
306	Sound and Light Locks						*in gross*	
	Sub-Total						3,470	42%
	Backstage and Support Spaces							
	Performer Accommodations							
401	Dressing Rooms						720	
.15	*(4) Four-person Principal Dressing Rm*	*16 occ.*	*11.0w*	*16.0d*		*720 nsf*		
	Total accommodations	*16 occ.*						
402	BOH Restrooms *(all gender)*	*4 fxtrs*					240	
403	Performers' Private Shower Rooms	*2 rooms*					128	
404	Off-stage Left and Right quick toilets *(unisex)*						120	
405	Utility / Musicians Room						250	
406	Green Room / Performer's Lounge *(w/ kitchenette)*						200	
407	Vending Machine/Pay Phones/Coffee Alcove(s)						*in gross*	
408	Call Board						*in gross*	
	Performer Support / Work Areas							
409	Wardrobe Maintenance Room						250	
410	Laundry		*21.0w*	*12.0d*			252	
411	Run Props Room/Prop Kitchen for Stage Food						250	
	Staff Accommodations							
412	House Technical & Production Staff Office						0	
413	Visiting Company Office						0	
414	Stage Manager's Office						100	
415	Crew Locker Room *(all gender - not for changing)*						120	
	Receiving & Storage							
416	Off-Stage Receiving / Assembly / "Wings" / Ladders & Lifts						300	
417	Tool Room						150	
418	Scenic & Road Box Storage						100	
419	Lock-up or Armory - store In 411 in a cabinet						0	
420	Lighting Workshop & Storage						100	
421	A/V Shop & Storage						100	
422	Run Crew Supplies *(tape, gloves, flashlights, radios, etc.)*						60	
423	General Storage *(Risers, Softgoods in Hampers, Ladders, Air-Lifts, etc.)*						250	
424	Flexible Seating Storage (railings, platforms, stacking chairs, step units, etc.)						1,160	
	Sub Total						4,850	58%
	Total Net Square Area						**8,320**	**100%**

SHARED BOH FACILITIES PROGRAM

Summary of Net Square Footage Allocations

	Category	Total Nsf	
500	Shared BOH Facilities	9,532	100%
	Total Net Square Feet	**9,532**	**100%**

Detailed Space List

	Shared BOH Facilities		Width	Depth	Height		Nsf	
	BOH Entrance for New Building(s)							
501	Stage Door						280	
	Stage Door Lobby / Waiting					*100 nsf*		
	Security Desk, Package Receiving					*80 nsf*		
	Security/Fire Alarm Equipment Room					*60 nsf*		
	Package Holding					*40 nsf*		
502	BOH Elevator - *one with cab(s) as shown, 4 stops estimatec*		*8.0w*	*6.0d*			320	
	Campus Wide Production Support							
503	Audio Video VR Streaming Production Space						700	
	Studio Space		*20.0w*	*25.0d*	*15.0h*	*500 nsf*		
	Control Room					*200 nsf*		
504	Campus Lighting Shop				*15.0h*		2,000	
505	Campus DTC Production Staff Office						800	
506	Campus Prop / Scene Shop				*15.0h*		2,000	
507	Campus Costume Shop				*15.0h*		575	
508	Campus Spray Booth						225	
509	Campus Audio Shop						460	
510	General Use Restrooms *(all gender)*	*3 fxtrs*					180	
	Receiving & Storage							
511	Loading Dock / Receiving with 3 bays: *up to two tractor-trailers with 53' boxes, spare space for misc deliveries or remote vehicle. Gives access to any required frieght lifts, and ideally at stage level, adjacent to the stages.*		*42.0w*	*26.0d*	*15.0h*		1,092	
512	Trash Pickup Dock: *trash & recycling pads*		*20.0w*	*24.0d*	*15.0h*		480	
513	Frieght Lift *Placeholder - One lift, 8' x 12' cab, estimated 3 stops*		*8.0w*	*12.0d*	*10.0h*		420	
514	Connections to Parking Garage?						*in gross*	
515	Truck & Van Parking @ Stage Door, Food Service Deliveries						*exterior*	
516	Video/Audio remote truck parking						*exterior*	
517	Dumpster pads/recyling bins						*exterior*	
	Sub-Total						9,532	100%
	Total Net Square Footage						**9,532**	**100%**

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PUBLIC SPACE PROGRAM

Summary of Net Square Footage Allocations

	Category	Total Nsf	
600	Front-of-House and Public Spaces	9,769	100%
	Total Net Square Feet	**9,769**	**100%**

Detailed Space List

	Front-of-House and Public Spaces		*Width*	*Depth*	*Height*			
601	Box Office Lobby						360	
602	Box Office / Guest Relations						714	
	4 windows in a central location? Distributed to each venue? Visitor Service Desk only? Open all days?							
	Sales Windows	*4 stations*	*8.0w*	*8.0w*		*256 nsf*		
	Coffee area, unisex restroom					*100 nsf*		
	Managers' Office					*100 nsf*		
	Staff Work Area	*2 stations*	*8.0w*	*8.0w*		*128 nsf*		
	Server/ Copier					*70 nsf*		
	Supplies, records storage					*60 nsf*		
603	Proscenium Theater Public Circulation	*17.0 nsf/seat*					4,250	
	Lobby Areas	*11.0 nsf/seat*				*2,750 nsf*		
	Public Circulation Allowance	*6.0 nsf/seat*				*1,500 nsf*		
604	Proscenium Public Restrooms @ 1fxtr/20seats	*13 fxtrs*					780	
	2 individual unisex h'cap assist 'family' restrooms					*120 nsf*		
	8 wc's for women					*480 nsf*		
	3 fxtrs; 2 urinals, 1 wc's for men					*180 nsf*		
605	Studio Theater Public Circulation	*11.0 nsf/seat*					1,100	
	Lobby Areas	*5.0 nsf/seat*				*500 nsf*		
	Public Circulation Allowance	*6.0 nsf/seat*				*600 nsf*		
606	Studio Theater Public Restrooms @ 1fxtr/20seats	*6 fxtrs*					360	
	1 individual unisex h'cap assist 'family' restrooms					*60 nsf*		
	3 wc's for women					*180 nsf*		
	2 fxtrs; 1 urinals, 1 wc's for men					*120 nsf*		
607	Public Elevators *Two (2) with cabs as shown,*	~4 stops	*6.0w*	*8.0w*			640	
608	Coat Room *(confirm 50%)*	*175 coats*					220	
609	F.O.H. Equipment Storage (rain runners, etc.)						120	
610	Program Storage *(distributed closets?)*						100	
611	House Manager Office						120	
612	Usher Coordinator's Office						80	
613	Volunteer Ushers (20) locker and break room						345	
	Donor Accommodations							
614	Donor Lounge *Disuss*						0	
	Lounge for 0, dinners for 00					*0 nsf*		
	Bar & Catering Support					*0 nsf*		
	Furniture Storage					*0 nsf*		
	Concessions& Sales							
615	Service Bars (6lin.ft. / 150 patrons)						180	
	Allocate by venue proportionally.	*3 stations*				*180 nsf*		
616	Bar & Concession Storage & Prep Rm(s)						150	
617	Concession Managers Office						90	
618	Bartender's Lockers (6)						10	
619	Sales Desk / Kiosk / Cart Staging & Storage						150	
	Exterior Requirements & Sitework							
620	Connections to Parking Garage						*in gross*	
621	Bus & School Bus Parking & Cueing						*exterior*	
622	Signage & poster cases						*exterior*	
623	Streetscape features						*exterior*	
	Sub Total						9,769	100%
	Total Net Square Footage						**9,769**	**100%**

FOOD, BEVERAGE, EVENTS PROGRAM

Summary of Net Square Footage Allocations

	Category	Total Nsf	
700	Retail, Food & Beverage Spaces	16,645	100%
	Total Net Square Feet	**16,645**	**100%**

Detailed Space List

	Retail, Food & Beverage Spaces		*Width*	*Depth*	*Height*		*Nsf*	
701	Cafe with 90 seats						4,500	
	work area / counter / storage					*1,320*		
	public seating area	*90 Seats*				*3,000*		
	restrooms (3 all-gender @ 60)					*180*		
702	Event / Banquet Space - *placeholder, discuss*	*300 Seats*					10,345	
	Prefunction Space					*2,250*		
	Coatroom for all guests					*375*		
	Event Space for 300 seated for banquets	*15sf/person*				*4,500*		
	Full Service Kitchen / Catering Support - discuss					*1,400*		
	AV Storage					*200*		
	Furniture Storage, Other					*900*		
	Restrooms - 12 Fixtures	*One/25 guests*				*720*		
703	Coffee Shop	*30 seats*					1,500	
	Receiving & Trash							
702	F&B Deliveries Receiving						300	
	Exterior Requirements & Sitework							
703	F&B Dumpsters, Refrigerated Storage & Trash						*exterior*	
704	F&B Truck and Trash Dock(s)						*exterior*	
705	Truck & Van Parking @ Stage Door, Food Service Deliveries						*exterior*	
	Sub Total						16,645	100%
	Total Net Square Footage						**16,645**	**100%**

EDUCATION, COMMUNITY, REHERSAL, ADMINISTRATION & SUPPORT SPACES PROGRAM

Summary of Net Square Footage Allocations

	Category	Total Nsf	
900	Administration	3,570	78%
1000	Building Services	1,020	22%
	Total Net Square Feet	**4,590**	**100%**

Detailed Space List

	Administration		Width	Depth	Height	Nsf	
901	Public Reception & Information					180	
902	Co-Working Space for DTC Staff	*10 to 12 staff*				800	
903	Large Conference Room A					600	
904	Large Conference Room B					0	
905	Conference Support					100	
906	Private Meeting Rooms (2 @ 100)					200	
907	Quiet Room					0	
908	Copy / Work Room					250	
909	Education / Public Works Office Suite					800	
910	Security Office					200	
911	Badging					200	
912	All-Gender Restrooms for Admin Area	*4 fxtrs*				240	
	Sub Total					**3,570**	**78%**

	Building Services						
1001	Building Engineering Office at Mech Room					150	
1002	Maintenance and Operations Office					120	
1003	IT & Electrical Rooms at every level					*in gross*	
1004	Janitorial supplies storage					250	
1005	Janitorial Crew Locker Rooms					150	
1006	Janitorial Crew Break Room w/K'ette					200	
1007	Janitors' Closets *@ 15 nsf*	*10 estimated*				150	
	Sub Total					**1,020.0**	**22%**
	Total Net Square Footage					**4,590.0**	**100%**

Summary of Net Square Footage Allocations

	Category	Total Nsf	
800	Rehearsal, Education & Community Event Spaces	16,780	100%
	Total Net Square Feet	**16,780**	**100%**

Detailed Space List

	Rehearsal, Education & Community Event Spaces		Width	Depth	Height		Nsf	
	Rehearsal Space							
801	Rehearsal Room A						3,600	
	Rehearsal Space for Prosc Stage (36w 30d playing area)		*66.0w*	*50.0w*	*19.0h*	*3,300 nsf*		
	Stage Mgmnt Office					*200 nsf*		
	Lockable Storage					*100 nsf*		
802	Rehearsal Room B						2,950	
	Rehearsal Space for Studio Thtr		*60.0w*	*45.0d*	*19.0h*	*2,700 nsf*		
	Stage Mgmnt Office					*150 nsf*		
	Lockable Storage					*100 nsf*		
803	Coaching Room A						250	
804	Coaching Room B						150	
805	Shared Rehearsal and Community/Education Greenroom *w/ kitchenette*						500	
806	All-Gender Restrooms	*6 fxtrs*					360	
807	General Rehearsal Storage						220	
808	Front Desk for Classrooms / Community Room						100	
809	Classroom / Community Waiting Area						*none*	
810	Community Room						*none*	
811	Classroom						7,000	
812	Classroom Storage *(discuss) 3 rooms @ 200 per RFF*						600	
813	Kitchenette adjacent to Large Classroom						200	
814	Restrooms	*10 fxtrs*					650	
815	General Storage						0	
816	AV Equipment Rack Room						200	
*	See 503 Audio Video VR Streaming Production Space above, which may more appropriately be located with the rehearsal space package.							
	Sub Total						16,780	100%
	Total Net Square Footage						**16,780**	**100%**

NEW VENUES AT THE KALITA

The new venues will provides artists with environments and scales that are completely different from the Kalita and the Wiley; they will not duplicate what is already available but compliment it.

They are conceived and equipped to facilitate smaller productions and companies needing to minimize labor and cost.

The facilities will be robust enough to stand up to heavy use.

They will be welcoming to all. As comfortable for people in jeans as for people in tuxes. Not intimidating, elitist, or culturally specific.

The smaller venue, the Studio Theater, will accommodate nominally 100 in a variety of configurations, ideally with a minimum of time and labor needed for reconfiguration.

The larger venue, the Proscenium Theater, will accommodate 250 seats for a wide range of performances, but always in a frontal format.

100-Seat Studio Theater

Room Design — Planning Overview

The Studio Theater is a flexible space for performance. The space should accommodate an audience of up to 100 people. It should be intimate and be simple to use. The space as conceived will have a strong relationship to the outdoors facilitating a broad range of performance opportunities and bringing the park into the building.

Seating

The room will be equipped with demountable platforms that can be reconfigured in various ways. The type and quantity of platforms will be studied in future design phases.

Catwalk/Grid

The Studio Theater will be provided with a tension grid to support theatrical lighting and rigging accommodations for the space. Additional rigging steel will be provided in the ceiling, above the grid, to support heavier equipment, or temporary elements which could be dead hung or supported on chain hoists.
To enhance the flexibility of the room, the theater will be provided with a system of Unistrut channels running horizontally or vertically around the perimeter of the room at various elevations. These channels will be flush mounted into the wall surfaces. The Unistrut allows designers to easily bolt or clamp scenery and equipment to the walls without destroying the wall surfaces.

Dimmer Room

There will be a dedicated dimmer room. The room will be enclosed for cooling and sound control.

Control Booth

There will be a dedicated control booth for stage management and lighting, audio and projection controls

Stage Floor

Resilient Floor

The purpose of the floor system is to provide a slightly resilient surface to prevent injury to performers that can occur on an unyielding surface. Although the stage floor will have some resilient properties for movement and dance, a demountable portable dance floor would be necessary for any classical dance performances. This demountable dance floor is not currently envisioned as part of the project.
The stage floor will consist of a sacrificial top layer of 1/4" hardboard (Masonite) over 2-layers of staggered 3/4" tongue-and-groove plywood. The plywood rests on resilient subflooring sleepers that incorporates neoprene pads, such as the Robbins Sports Floors Bio-Channel system

Performance Rigging

Rigging

A tension wire grid will be located 20 feet above the floor. The grid is on pipe hangers. Turnover equipment will include an inventory of pipe and clamps for mounting light pipes between the hangers. 500 pound capacity strong points are at each hanger. Ceiling support steel will be coordinated so that rigging points can be attached to the steel and pass through the tension grid.

Variable Acoustics Curtain Systems

Not currently envisioned as part of the project.

Black Velour Masking, Cyclorama, Scrims

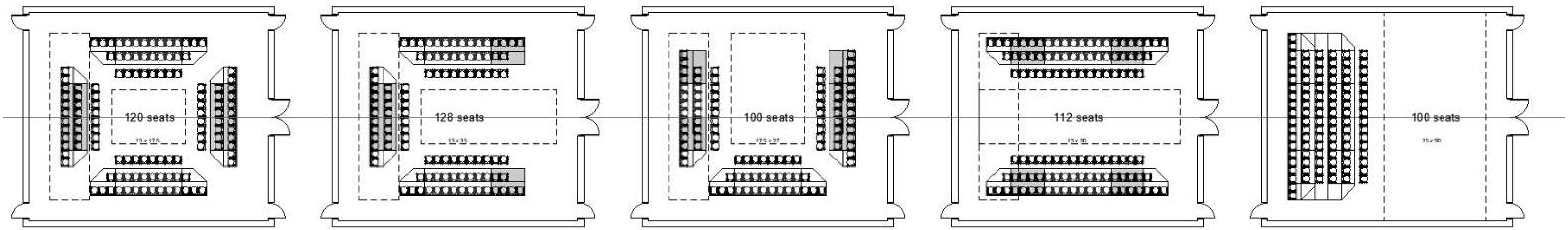
A complete inventory of stage draperies will be provided, as follows:

Black velour masking legs, borders and tabs.
Tracked black velour travelers.
Seamless muslin cyclorama.
Black and white seamless sharkstooth scrims.
Masking curtains (legs, borders, travelers and tabs) will be unlined black velour, sewn flat. Goods will be bagged and stored in castered hampers.

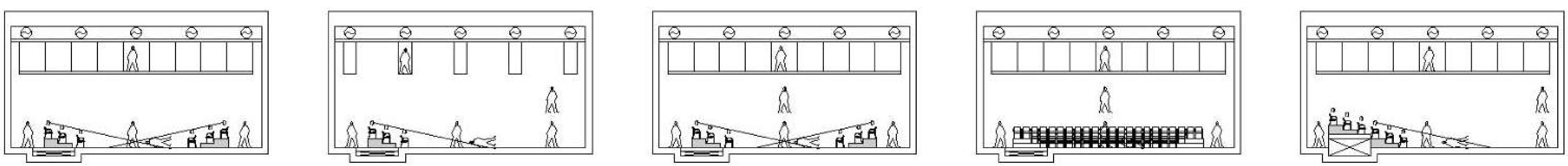
Other Motorized Rigging

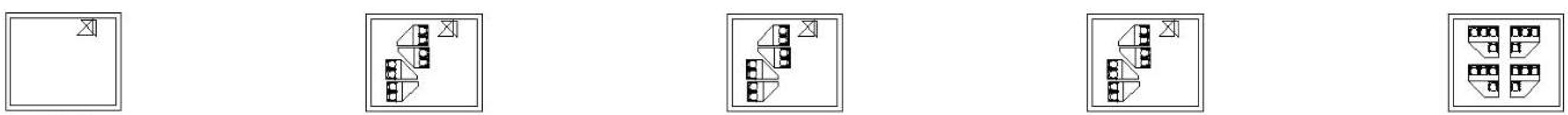
To be determined.

Optimal Size



ARENA - 120 **LONG THRUST - 128** **SHORT THRUST - 100** **ALLEY - 112** **ENDSTAGE - 100**

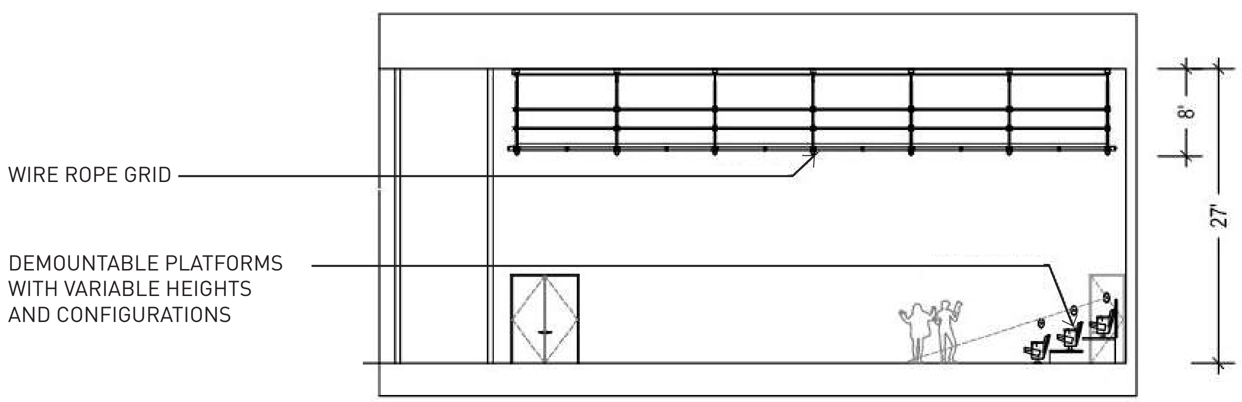


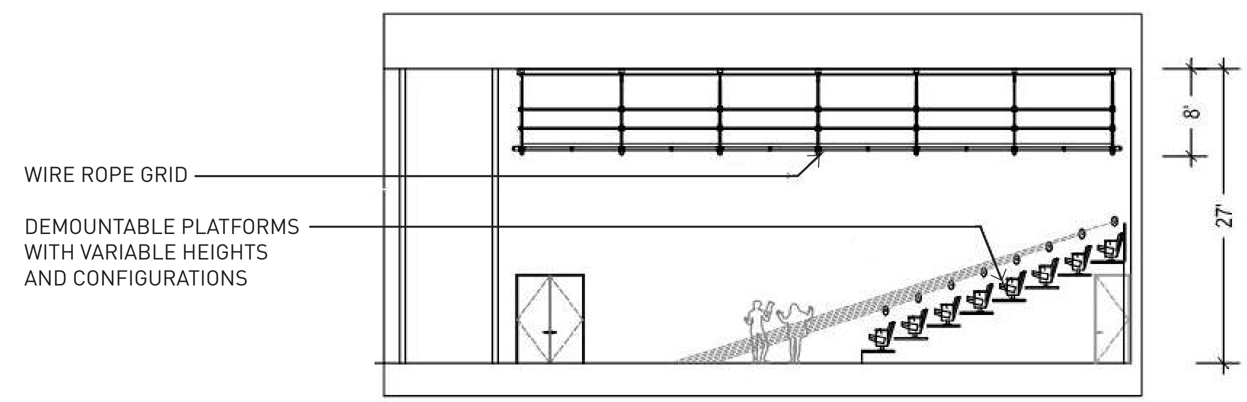


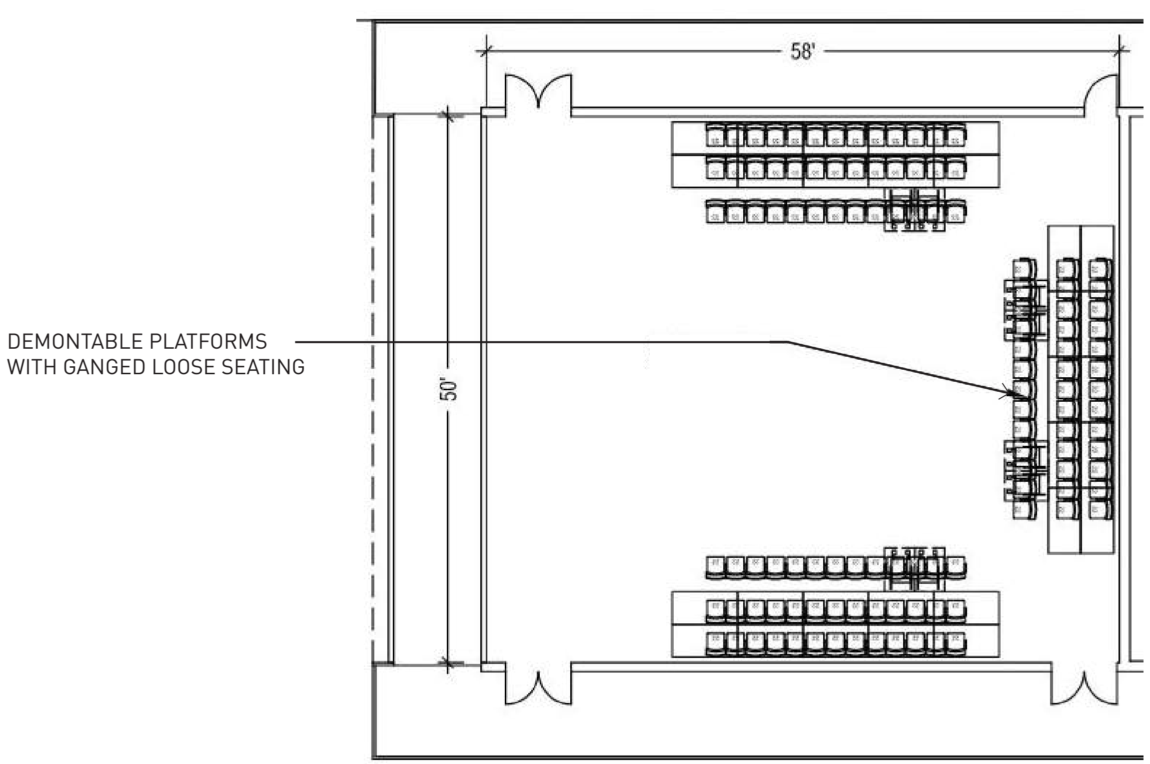
530 NSF

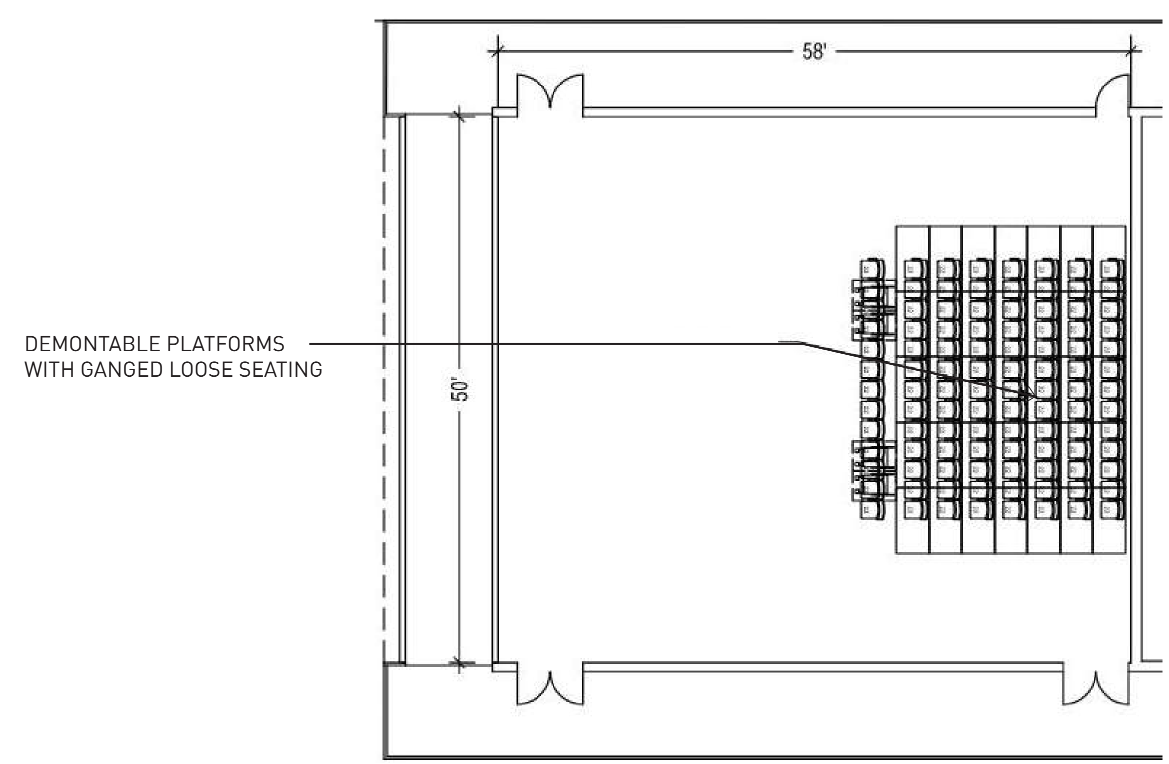
UNUSED UNITS REQUIRING STORAGE

Flexible Seating









Diller Scofidio + Renfro
New York, NY

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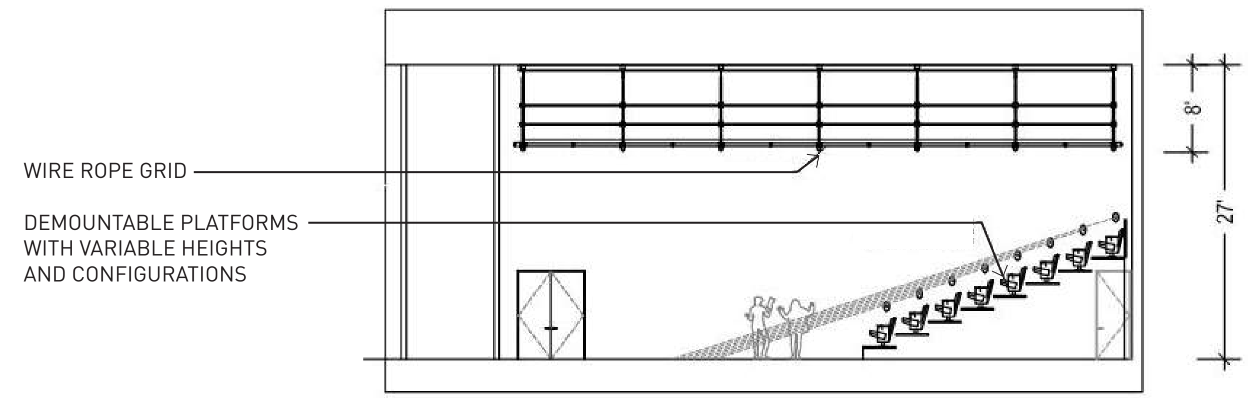
Silman Engineering
New York, NY

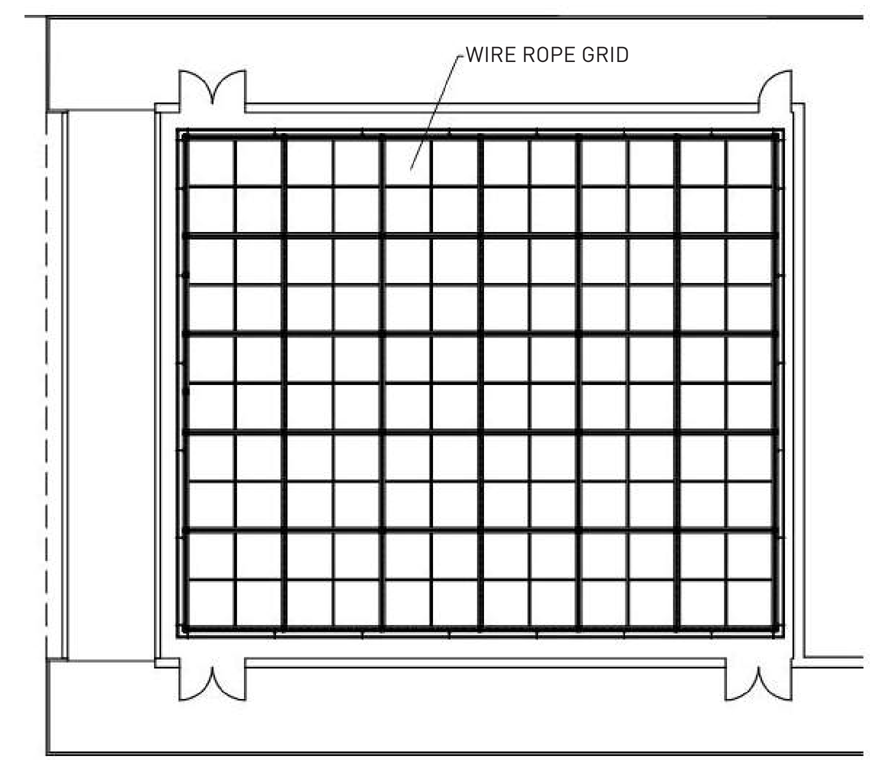
BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

Wire Rope Grid





250- Seats Proscenium Theater

Room Design — Planning Overview

The Proscenium Theater is designed as an end stage that can support a range of theatrical performance types. As conceived the theater will be used by Dallas Theater Center as well as a variety of Dallas based theater organizations which will have access to the venues at Dallas Theater Center Kalita campus.

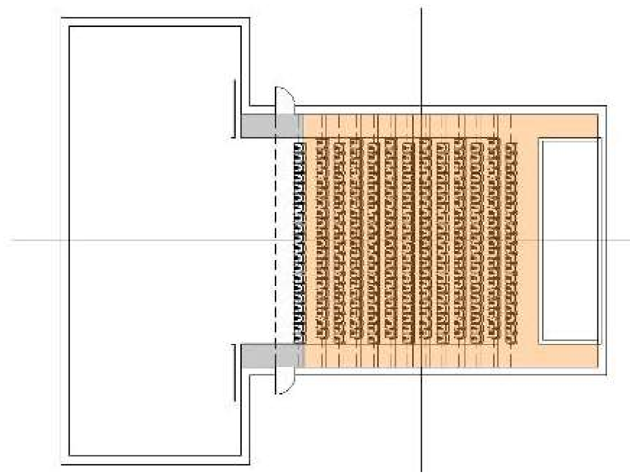
Seating

The raked seating will have excellent sightlines to the stage and will be sized for contemporary comfort standards. The seats will be laid out using a mix of sizes, including possibly 21", 22", and 23" wide seats that are positioned as needed to align chairs along aisles without gaps. The fixed theater seat will be selected for audience comfort and durability. Accommodations for ADA will be studied in later design stages and will seek to exceed code requirements.

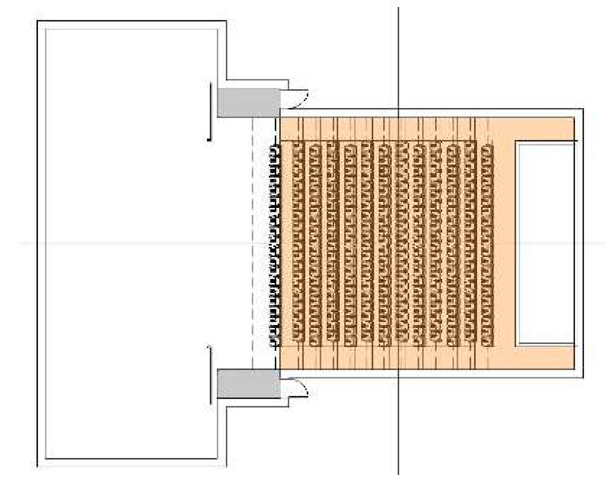
Precedents for this venue include the Neuman Theater at the Public Theater and NY Theater Workshop

Newman Theater at The Public - New York, NY

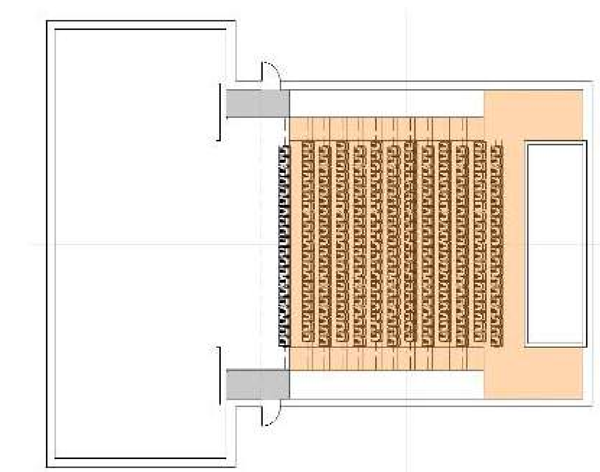
Endstage Variations



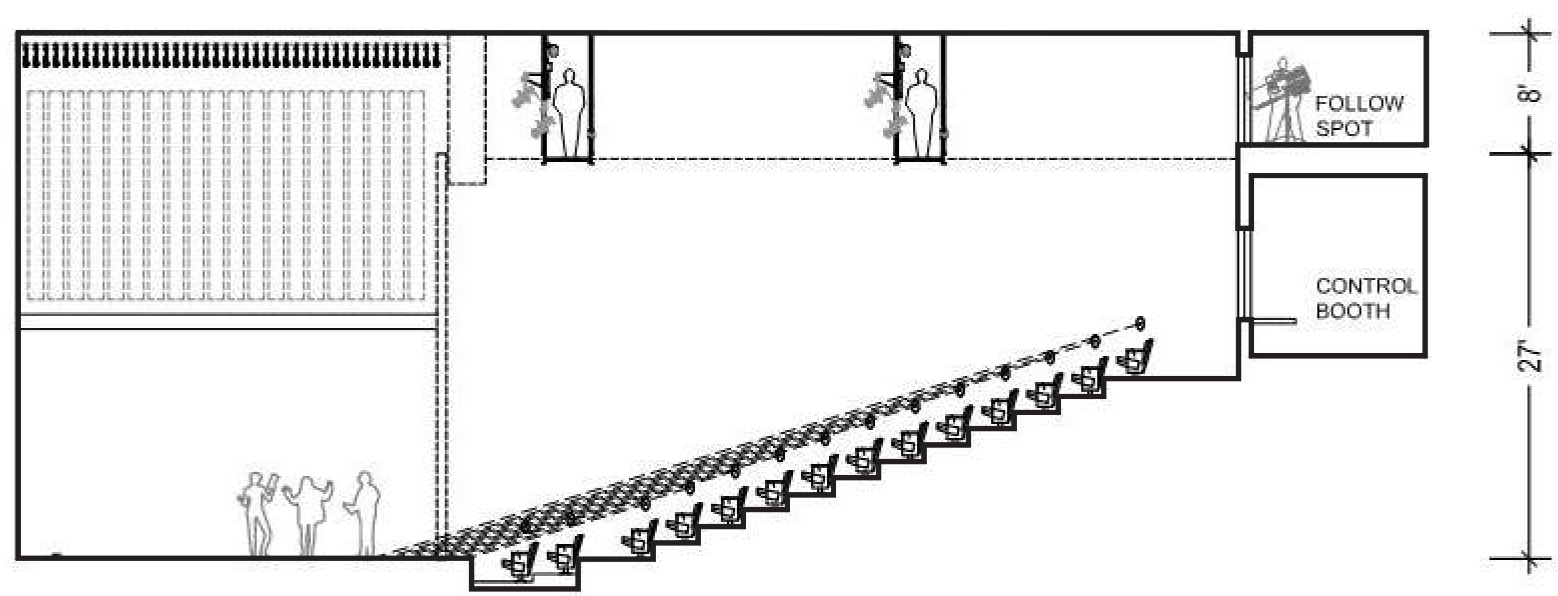
A: NEWMAN-ESQUE



B: JOWLS



C: WIDE NEWMAN



250-Seat Proscenium Theater - Section

250- Seats Proscenium Theater

Catwalk/Grid

The Proscenium Theater will be provided with catwalks to support theatrical lighting and rigging accommodations for the space. Additionally, rigging steel will be provided in the ceiling above the catwalk to support heavier equipment, or temporary elements which could be dead hung or supported on chain hoists.

Stage Rigging

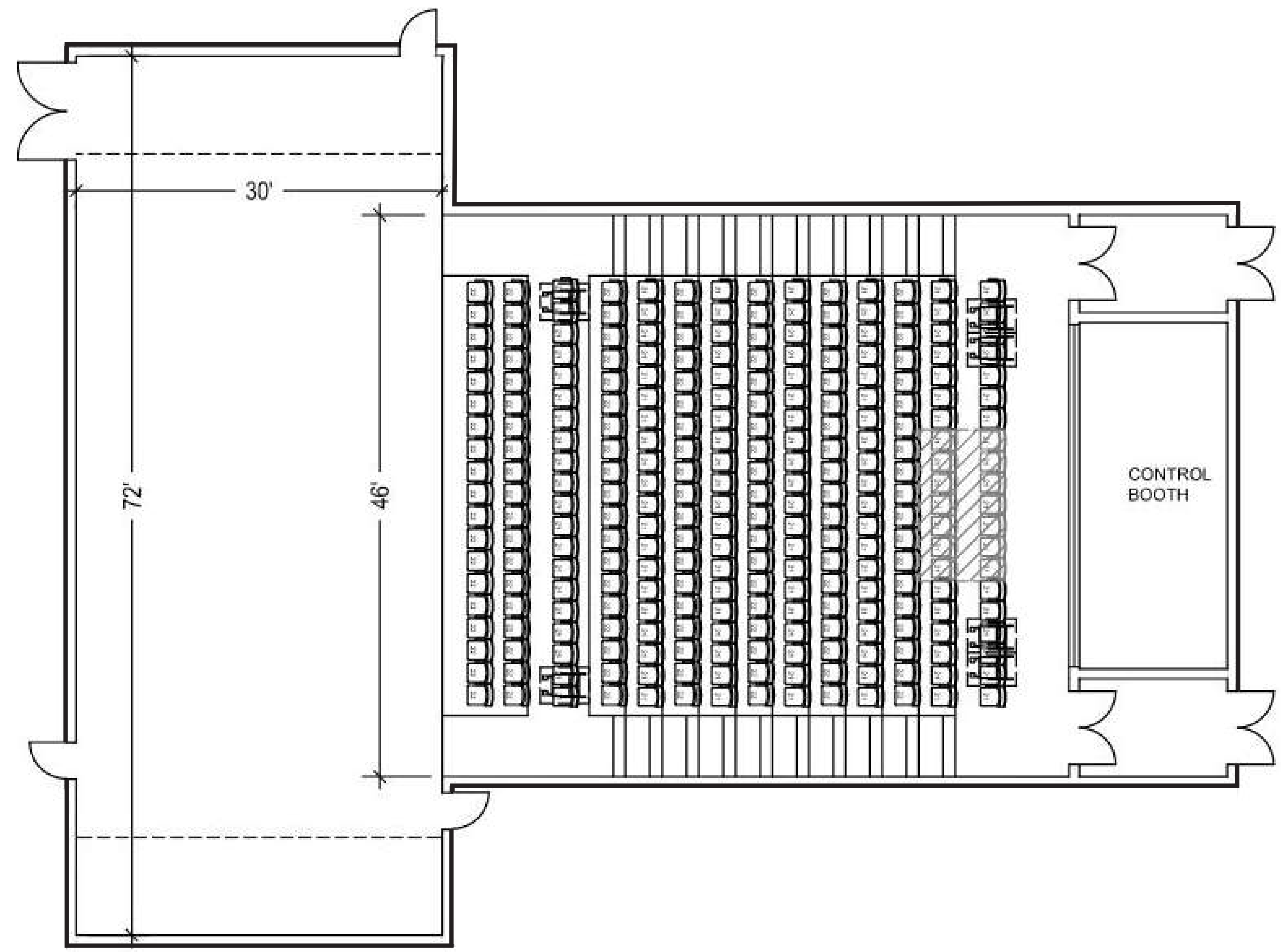
Rigging battens will be 8-inches on center over the full depth of the stage. Hoists will be vertically-oriented, "zero fleet" style. Capacity: 1600 pounds. Speed: variable to a maximum of 180 feet per minute. In order to achieve the 8-inch batten spacing, hoists are on both sides of the stagehouse, spaced 16 inches on center. Control will be from a fully programable console such as the Tait NAV: Polaris

Dimmer Room

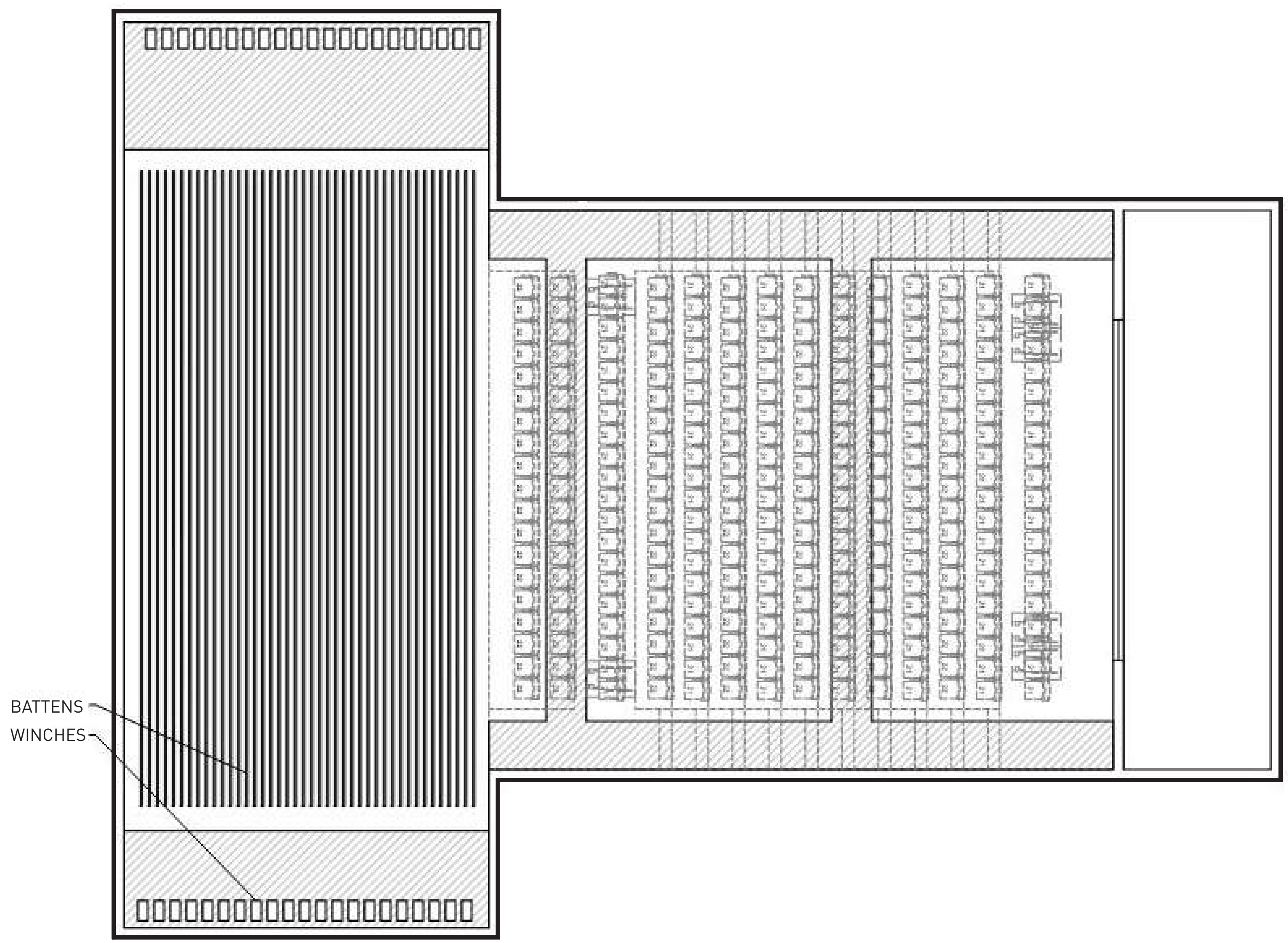
There will be a dedicated dimmer room. The room will be enclosed for cooling and sound control.

Control Booth

There will be a dedicated control booth for stage management and lighting, audio and projection controls



250- Seats Proscenium Theater Seating



250- Seats Proscenium Theater
Catwalk

Stage Floor

Resilient Floor

The purpose of the floor system is to provide a slightly resilient surface to prevent injury to performers that can occur on an unyielding surface. Although the stage floor will have some resilient properties for movement and dance, a demountable portable dance floor would be necessary for any classical dance performances. This demountable dance floor is not currently envisioned as part of the project.
The stage floor will consist of a sacrificial top layer of 1/4" hardboard (Masonite) over 2-layers of staggered 3/4" tongue-and-groove plywood. The plywood rests on resilient subflooring sleepers that incorporates neoprene pads, such as the Robbins Sports Floors Bio-Channel system

Variable Acoustics Curtain Systems

Not currently envisioned as part of the project.

Stage Draperies

A complete inventory of stage draperies will be provided, as follows:

Black velour masking legs, borders and tabs.
Tracked black velour travelers.
Seamless muslin cyclorama.
Black and white seamless sharkstooth scrims.
Masking curtains (legs, borders, travelers and tabs) will be unlined black velour, sewn flat. Goods will be bagged and stored in castered hampers.

Other Motorized Rigging

To be determined.

Common Spaces

Multipurpose Education Spaces

A subdividable space for education and large events. The space will be divided into three equal spaces.

Rigging
There will be three pipe grids, corresponding to the Multipurpose Space being divisible into three separate spaces

Rehearsal Spaces

Rehearsal spaces will be located on campus to serve the needs of all of the performance venues on campus. The spaces will be sized in relation to the stages of the Kalita, the Proscenium Theater and the Studio Theater.

Backstage and Support Spaces

Overview

The backstage support spaces include storage rooms, shops, dimmer rooms, loading areas, offices, dressing rooms, performer lounges, and toilet and shower rooms. The majority of backstage support spaces are located at stage level and one level above or below the stage. Corridors are wide in consideration of their use not only for circulation, but also for storing equipment used for the production. All of the dressing rooms are designed as per ADA requirements to be fully accessible. Access to all the support spaces on each level is possible via stairs and elevators.

Loading/Receiving

The loading area is located in the first level of the garage, and is used for the receipt and distribution of scenery, materials and equipment for the various programs within the building. All equipment, scenery, supplies, etc. will be horizontally distributed to the shops via wide corridors and large, acoustically rated doors. All equipment directed to the studios may need to be vertically handled via the large freight elevator, and then will be rolled along corridors to the individual spaces.

Dressing Rooms/Toilet Rooms/Shower Rooms

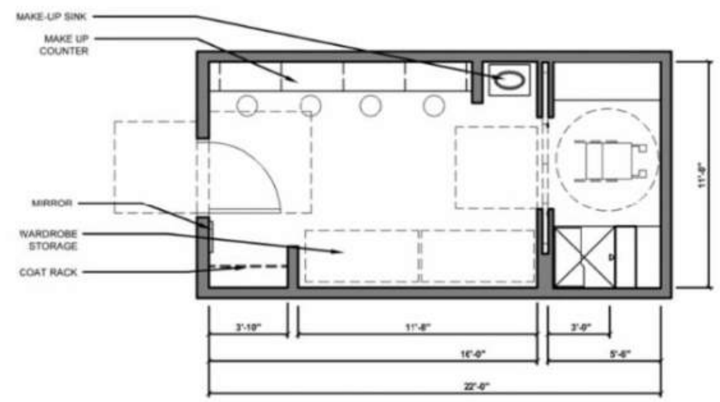
The dressing rooms are the areas where actors change and prepare before the performance. There will be dressing rooms with showers and a separate inventory of toilets. Each room will accommodate four performers. The dressing rooms will be furnished with benches and sinks, as well as space for wardrobe racks, and open cubbies and/or hanging areas for performers' valuables. Each room will have at least 1 full length mirror. Furniture in the dressing rooms should be durable and not upholstered.

Performer Lounges

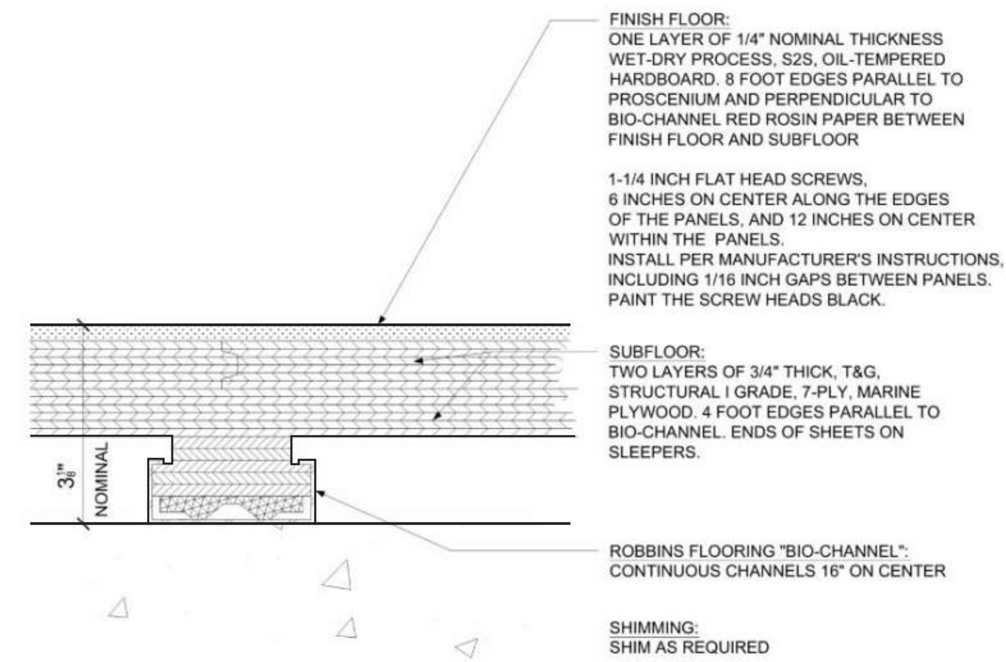
The green room is a multipurpose space that will serve as a performer meeting space and lounge.
Furnishings should include comfortable, durable lounge furniture, tables and chairs. The room should also have a sink, microwave and counterspace.

Dimmer Rooms

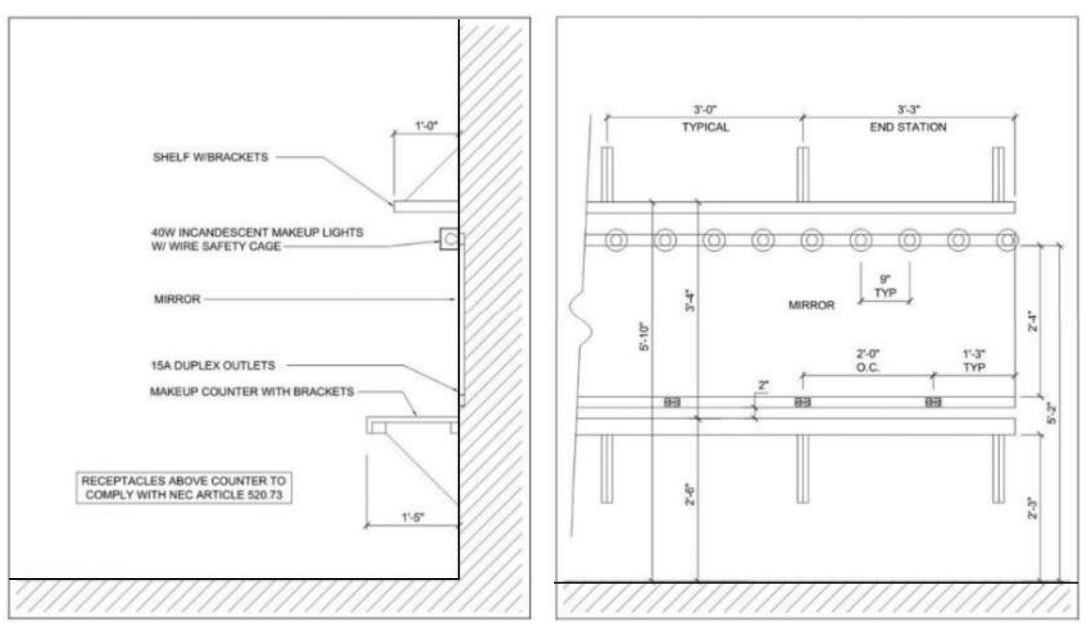
The dimmer rooms house the stage and houselighting dimmer racks as well as related switchgear and panelboards. The rooms require 24-hour temperature and humidity control, and their locations should permit efficient conduit paths to stage lighting loads over the corresponding stage and auditorium. Crew access is required for routine maintenance and emergency repair. Consideration must be given to other heat producing equipment within the dimmer room including other dimmer racks, transformers, etc. Actual number and layout of dimmer racks is determined during design development.



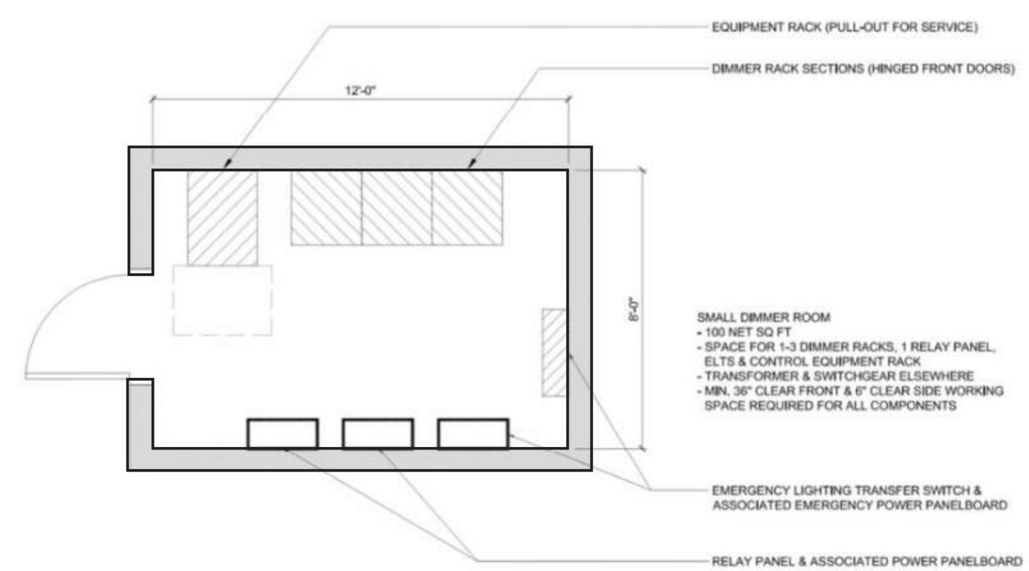
ACCESSIBLE DRESSING ROOM - TYPICAL PLAN



RESILIENT FLOORING - TYPICAL DETAIL



DRESSING ROOM - TYPICAL SECTION + ELEVATION



DIMMING ROOM - TYPICAL PLAN

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

The Kalita Humphreys Theater is a mid-century architectural masterpiece in need of a thoughtful update after several generations of cultural, technological, and urban change. Its location at the heart of a public green is both an opportunity and a challenge: while it is appreciated for its synthesis with nature, by the same token, it has never been truly celebrated as a standalone Frank Lloyd Wright building. The proposed makeover addresses this paradox.

Although the Kalita Humphreys Theater shares many features with Wright's most famous works, including the Guggenheim Museum and Fallingwater, it is often overlooked in Wright's oeuvre. Indeed, over the years, a combination of neglect and additions have compromised the building's integrity. Restoring Kalita Humphreys to its original state requires a multifaceted approach that involves surgical extraction, selective reconstruction, careful preservation, and faithful reinterpretation of Wight's design intent. At the same time, extending the building's lifespan calls for forward-looking strategies that engage diverse new audiences and accommodate cutting-edge productions. In looking to the past and the future simultaneously, the masterplan proposal aims to achieve four primary goals: restore and celebrate the historic Kalita Humphreys Theater; transform the surrounding public green spaces into a bona fide park; stitch the park to Turtle Creek and the Katy Trail, one of the most visited destinations in Dallas; and activate the park every day and year-round, both as an expanded cultural landscape for performance and education and as a standalone natural resource with amenities that draw in new visitors, whether ticketed or unticketed.

At the civic scale, the masterplan reimagines the public green as a vibrant and democratic urban park. A network of bridges, pedestrian walkways, and bicycle paths will unite William B. Dean M.D. Park, Turtle Creek, and the Katy Trail, forming a connective tissue that integrates a series of landscaped courtyards, walkways, and programmed pavilions. New performance and public spaces proposed for Dean Park will be of the park, resonating with the stratified limestone bluffs, creek, and lush vegetation. Greenery will extend between and above new structural elements, activating the entire campus into a hybrid public realm that fuses culture, ecology, and recreation.

The transformation of the public green will allow a newly restored Kalita Humphreys Theater to shine as the centerpiece of this revitalized landscape. The masterplan prioritizes the surgical restoration of the historic building, adhering as closely as possible to Wright's 1959 design. This involves the extraction of superfluous elements added over time, particularly the 1968 lobby extension that compromised the original massing of the building. Certain architectural details lost in these alterations will be carefully refurbished, including mid-century light fixtures, air grilles, door handles, window moldings, and furniture. Yet in order to safeguard the future of Kalita Humphreys, the project must not only restore but also renovate the theater to support the needs of contemporary artists and audiences. Upgraded lighting, AV, stage infrastructure, and other back of house functions will provide much-needed flexibility for a wider range of performances. Seating will be re-raked to resemble the 1959 auditorium, but each row will be staggered to significantly improve sightlines. A central information point and historical center in the campus lobby will orient and engage visitors. Collectively, these and other enhancements will allow the theater to host more productions while honoring the beauty and integrity of Frank Lloyd Wright's design.

The theater's surrounding landscape demands an equally sensitive touch that also responds to the past and the future. In keeping with Wright's Organic Theory of Architecture, which advocated the unification of a building with its natural setting, Kalita Humphreys was originally nestled into a limestone bluff overlooking Turtle Creek. However, since its construction, this bucolic setting has been fragmented by large parking lots and a tangle of roadways. A new pedestrian approach to the building from the Katy Trail will match Wright's unrealized plans. While the bluffs removed as part of the 1968 addition are irrecoverable, a lightly reshaped landscape will echo the original topography of the site. Invasive bamboo will be removed in favor of native grasses and shrubs, helping to control erosion and absorb runoff during increasingly intense climactic events. Improved visual and physical linkages will better connect Kalita Humphreys to the Katy Trail, William Dean M.D. Park, and the surrounding neighborhoods of Uptown, Turtle Creek, and Oak Lawn, establishing the theater as the nexus of a safe, sustainable, and interconnected urban oasis.

With the restoration of the Kalita Humphreys Theater and removal of the Heldt building, performance, existing rehearsal and education spaces will be relocated and enhanced for 21st century theatrical production. Expanded educational spaces, public amenities and local attractors will make up the additional programs on site, to invigorate the relationship between the Kalita Humphreys Theater, William B. Dean M.D. Park, and the Katy Trail. Existing, relocated and new programs will be united by a coherent vision for the site, transforming the theater and park into a hub of activity.

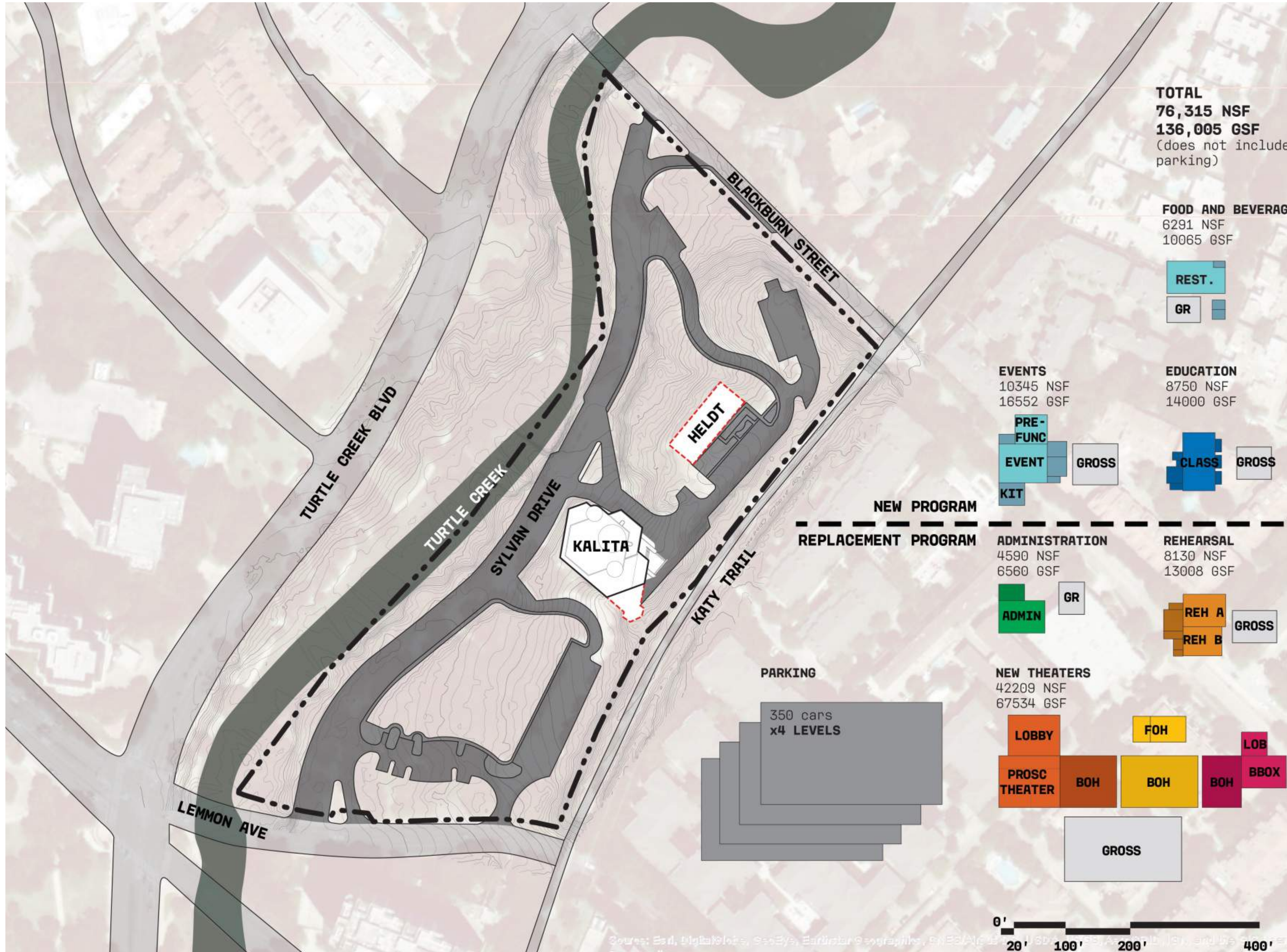
Programs will be distributed across the landscape to activate this improved public realm while preserving the presence of the Kalita Humphreys Theater, the only freestanding theater in Wright's distinguished body of built work. Expressed as discrete pavilions, these additions will be distributed along the Katy Trail, linked by a shared public spine. The pavilions will be interspersed with a series of pocket courtyards, each featuring unique programmatic, horticultural, and elevational attributes. The scale and position of these new buildings are deferential to the Kalita Humphreys, ensuring that the historic theater remains the crown jewel in a necklace of new cultural catalysts. The massing of the new buildings reference the height of the Kalita Humphreys terrace and the elevation of the Katy Trail. Vertical connections link the Katy Trail to a variety of new and existing attractions, including Turtle Creek, the lower level of the park, Lemmon Avenue towards the West Village, new courtyards and plazas, upper level green roofs, a bosque, walkways, and a restaurant and café.

Each new pavilion serves a distinct program that will amplify the theater's social and cultural reach. A 100-seat black box theater with a walkable ceiling grid, flexible seating configurations, and an operable façade will enable indoor/outdoor connectivity as the park filters into the theater. A multipurpose pavilion will offer a flexible infrastructure for formal and informal events, including public educational classes and workshops. In addition to providing much needed rehearsal space for local theater companies, the cellular spaces in the rehearsal and education pavilion will host small installations and performances, supporting the growth of both established and aspiring performers. An accessible elevator and a series of public stairways and viewing platforms will wrap around this tallest pavilion, affording generous views of the Kalita Humphreys Theater and the Dallas skyline. A 250-seat proscenium theater will provide an intimate, on-demand performance space for new plays and dramatic productions. A restaurant perched above the proscenium theater will serve both performance patrons and Dallas residents at large. This casual eatery, featuring indoor and outdoor seating, will be easily accessible from the Katy Trail and the theater lobby below. As a warm and organic counterpoint to the mineral palette of the original theater building, each of these pavilions will be made of mass timber – a sustainable material that can be sourced and manufactured in Texas.

Endowed with a restored theater, a revitalized green oasis, and a series of new pavilions, the Kalita Humphreys Campus will become a village in the park: a lively civic, educational, and cultural resource for the city buzzing throughout the day. The creation of two smaller theaters and a multipurpose hall will allow Dallas Theater Center and smaller regional companies to perform regularly on the site, supporting the goals of the Dallas Cultural Plan. A variety of flexible spaces will also support a slate of educational programs, including weekly theater classes for enthusiasts of all ages, pre-show and post-show workshops for thousands of public school students annually, and a summer camp for 300 children. These new pavilions and connections, in conjunction with renovations that enhance the intrinsic beauty of the original building and surrounding park, will bolster the role of the Kalita Humphrey Theater as a space of cultural convergence. Taken together, these gestures will promote the cross-pollination of diverse populations, turning the Kalita Humphreys campus into an intercultural, interdisciplinary, and intergenerational hub that nurtures the next generation of Dallas' artistic pioneers.

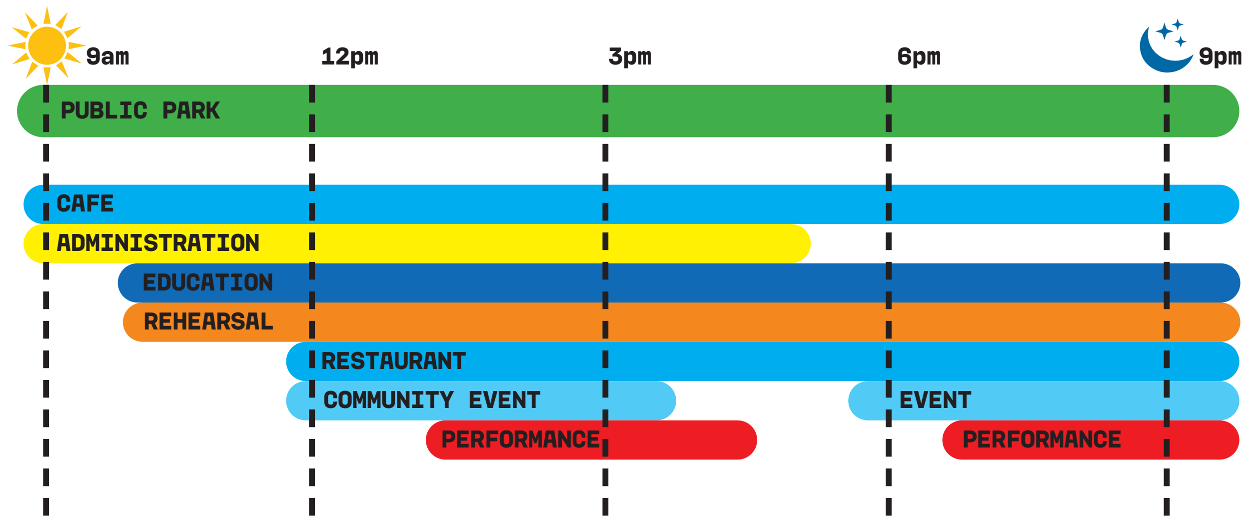
PROGRAM ON SITE

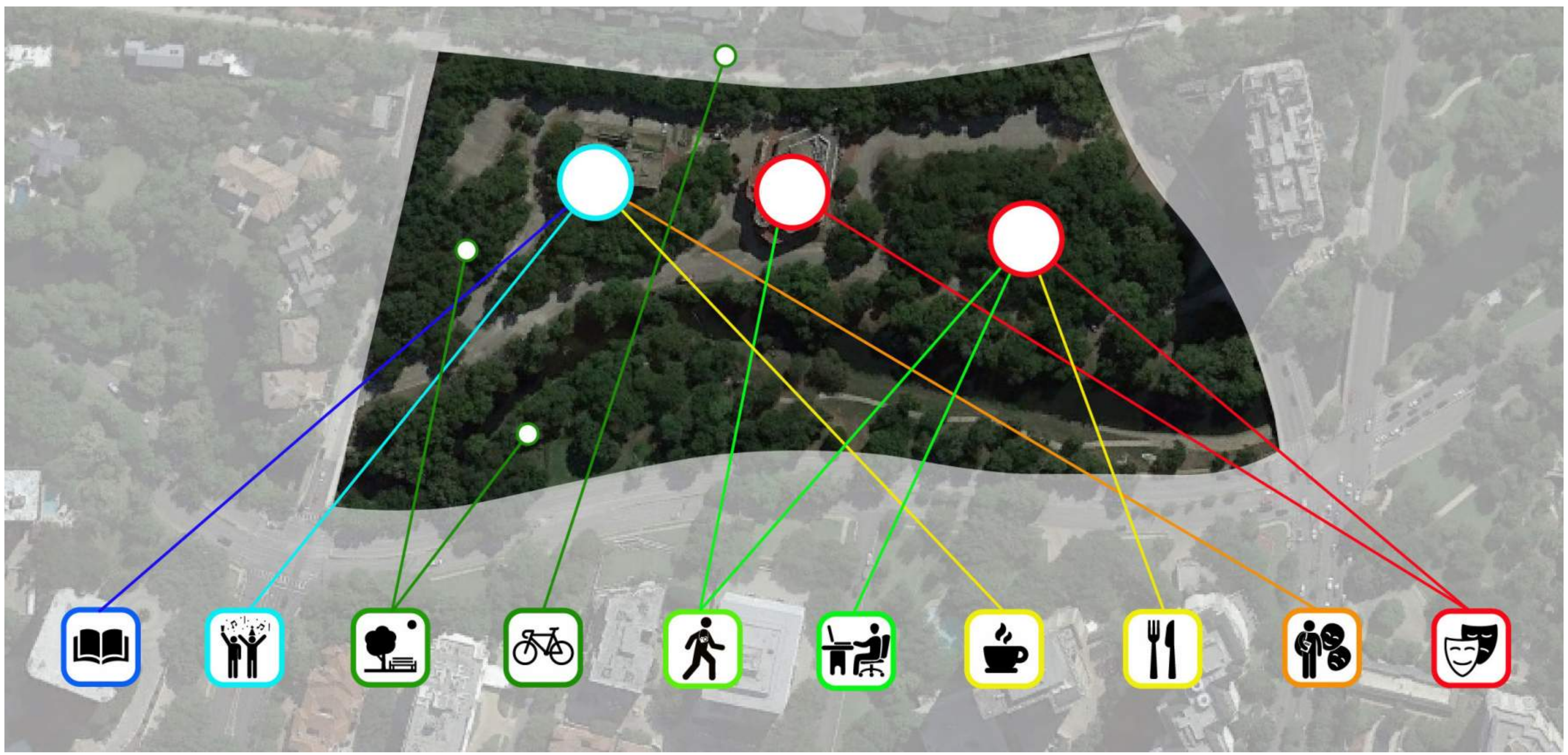
- The new theater venues proposed operate as complementary spaces to the Kalita, smaller in scale and varied in potential functionality.
- Rehearsal and education spaces support these three theaters with appropriately sized rehearsal rooms and community oriented classroom spaces.
- Food and beverage amenities serve the theaters, the park, and the neighborhood.
- Spaces to host different types and scales of events will be provided for throughout the campus.
- The overwhelming presence of surface parking will be eliminated and parking needs will be addressed with sub-surface parking that is integrated with the new programmatic additions to the site.



Diller Scofidio + Renfro New York, NY | Fisher Dachs Associates New York, NY | Threshold Acoustics LLC Chicago, IL | Reed Hilderbrand LLC Cambridge, MA | Harboe Architects Chicago, IL | Silman Engineering New York, NY | BOKAPowell Dallas, TX | Syska Hennessy Group Los Angeles, CA | Pacheco Koch Dallas, TX

Programmatic Site Activation





- The site will be activated throughout the day by programming and events.
- A network of public and performance spaces throughout the site will serve a diverse audience
- A restaurant and a coffee shop will be positioned at each end of the site to support patrons entering the site both from the Katy Trail and the performance spaces.

SITE CHARACTERISTICS

- The site has two distinct landscape characteristics. A wild, natural landscape on the north side consists of steep and rocky terrain with tree thickets and underbrush. A more manicured lowland on the south side is characterized by rolling park-like lawns and less established tree growths.

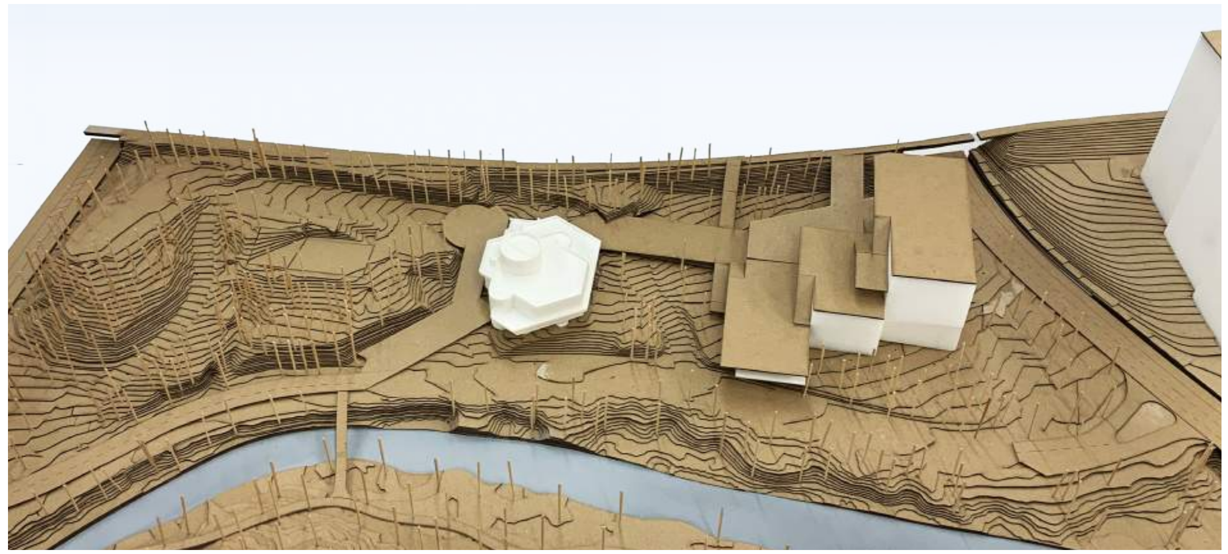
SITE CHARACTERISTICS

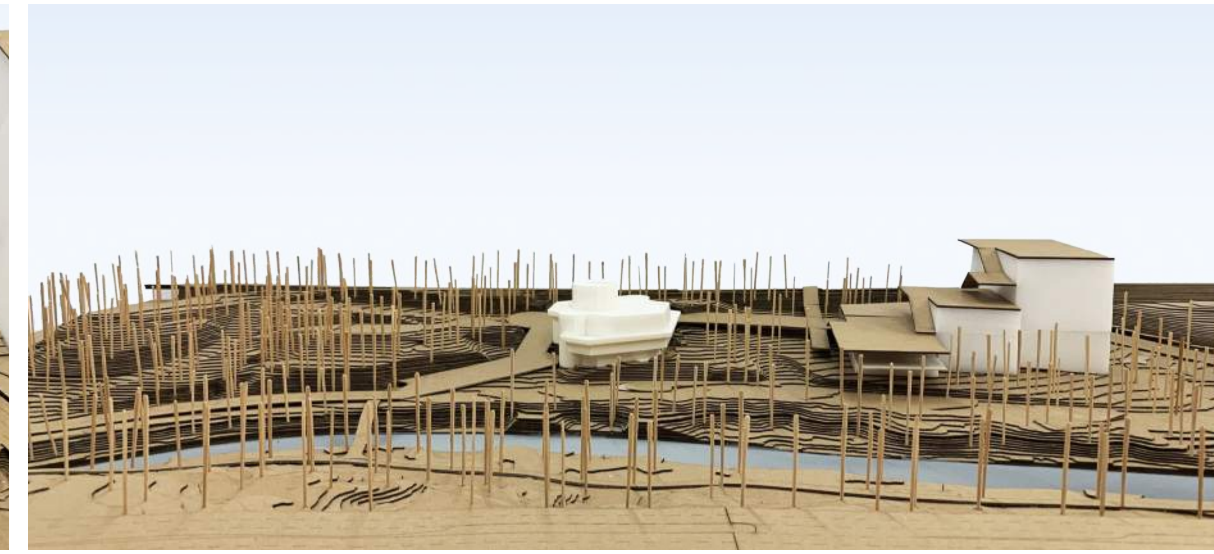
- A primary goal of the masterplan is to provide connections between the Katy Trail, Kalita Humphreys Theater and the Turtle Creek Trail network. Increased connectivity and visibility will open the site up to more diverse uses and improve security.

SITE MASSING STUDIES

Concentrated Scheme

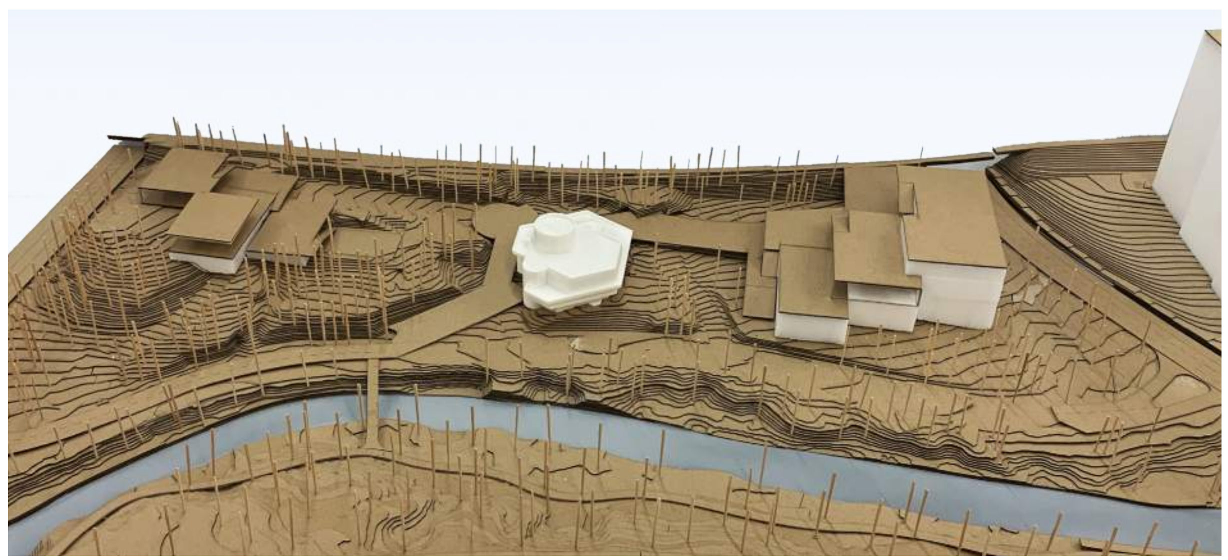
- New programs are concentrated in one cluster on the southern half of the site. This condensed grouping would serve as a secondary focal point for the campus. This would creat a more centralized lobby and entrance point.

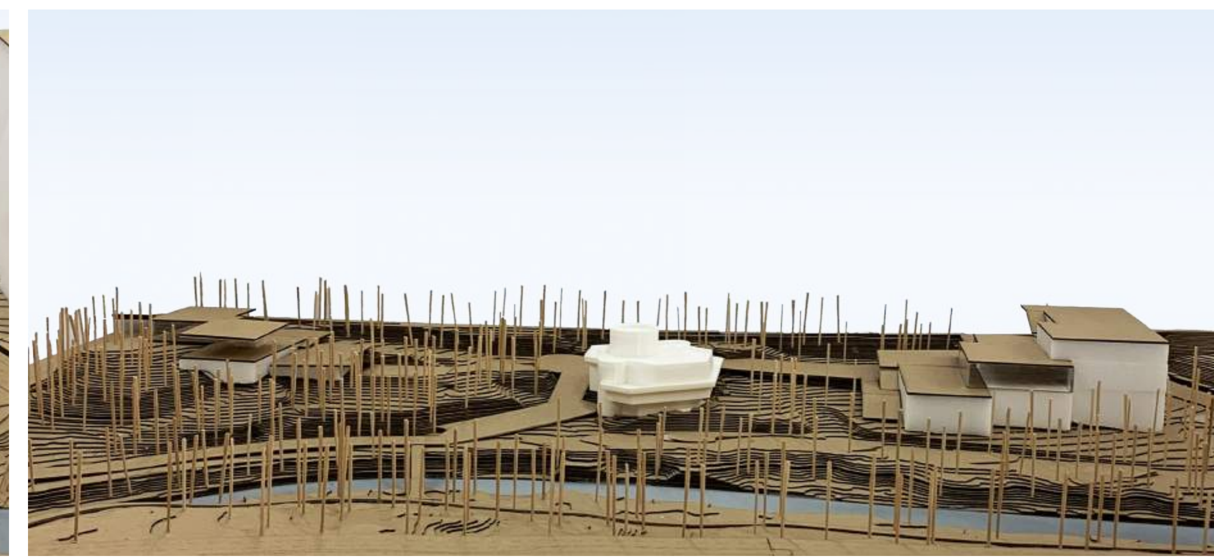




Split Scheme

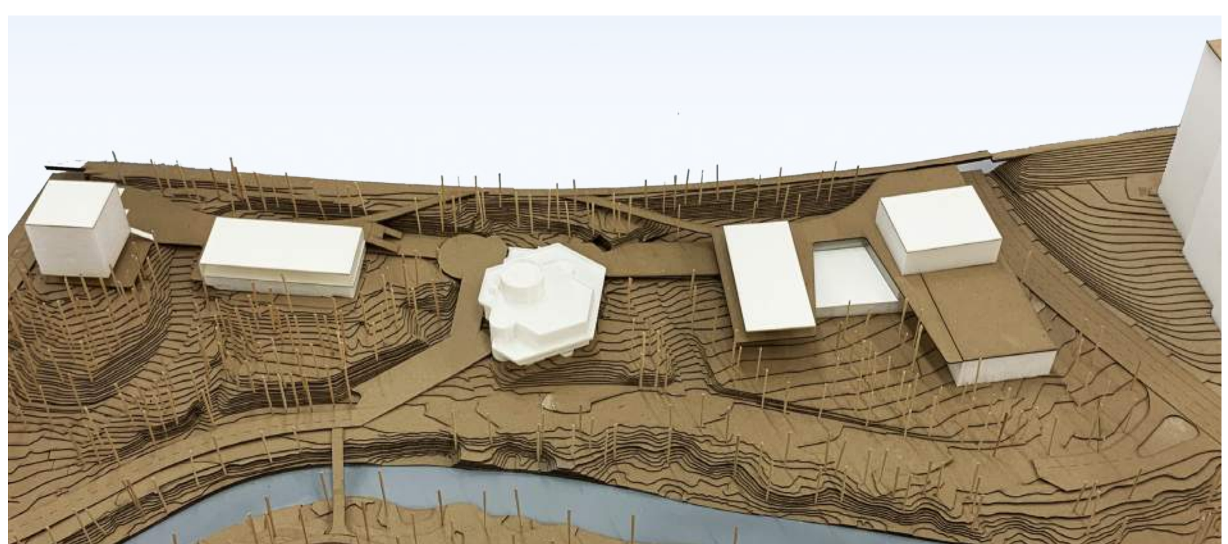
- New program is grouped into 2 clusters- one on the north side of the site, one on the south. In this arrangment, there would be a lobby serving each of the building groups.

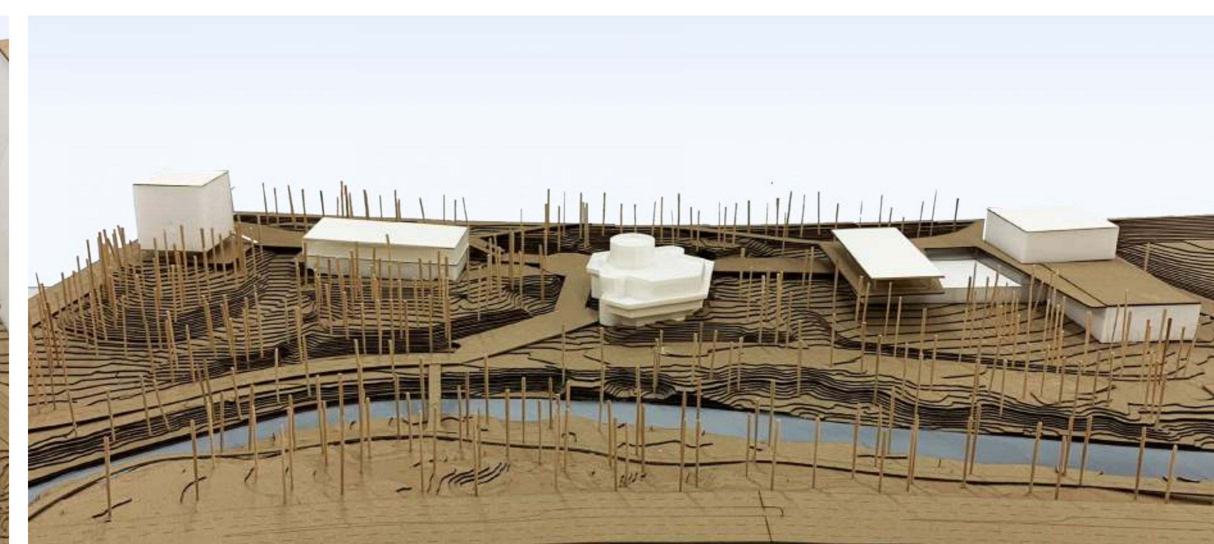


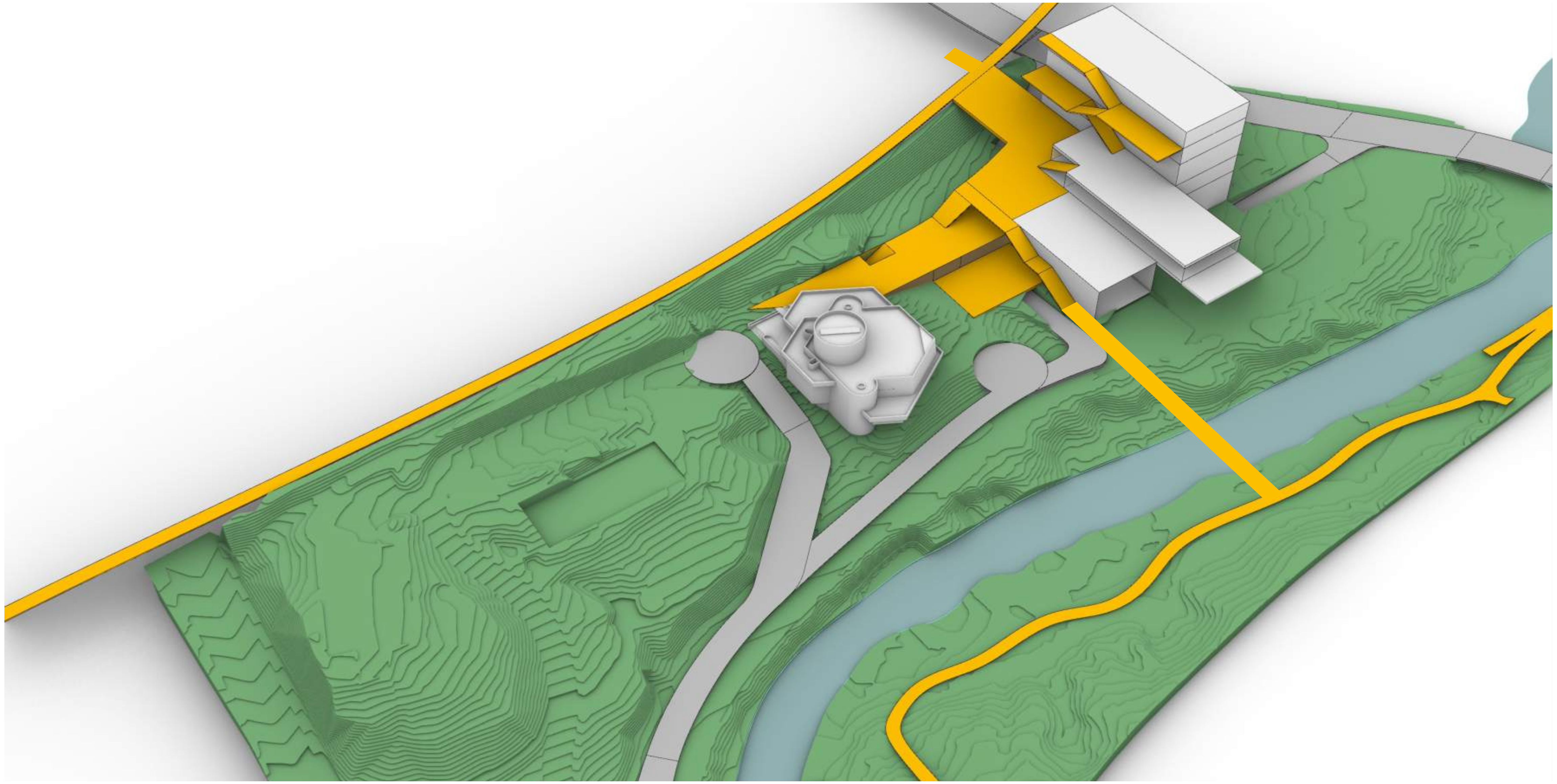


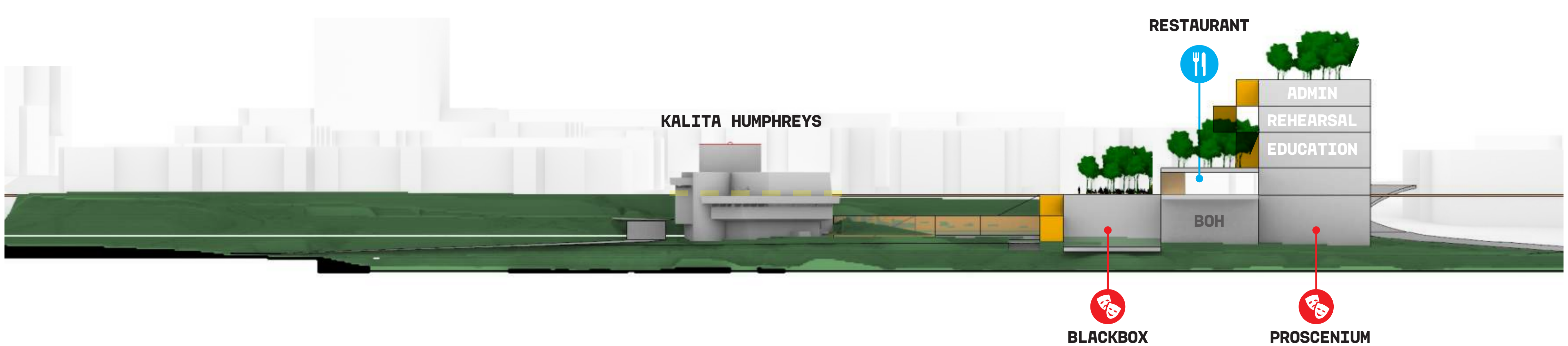
Distributed Scheme

- Programs are distributed along a north / south circulation spine which aligns with the Katy Trail. The scale of the individual buildings are defferential to the Kalita and create a more park-like setting.









Concentrated Scheme

Pros

- Dense population mix
- High visibility at Katy Trail
- Large open park space

Cons

- Scale of massing overpowers Kalita
- Undeveloped space on north side of site
- Sets itself apart from landscape

SITE MASSING STUDY

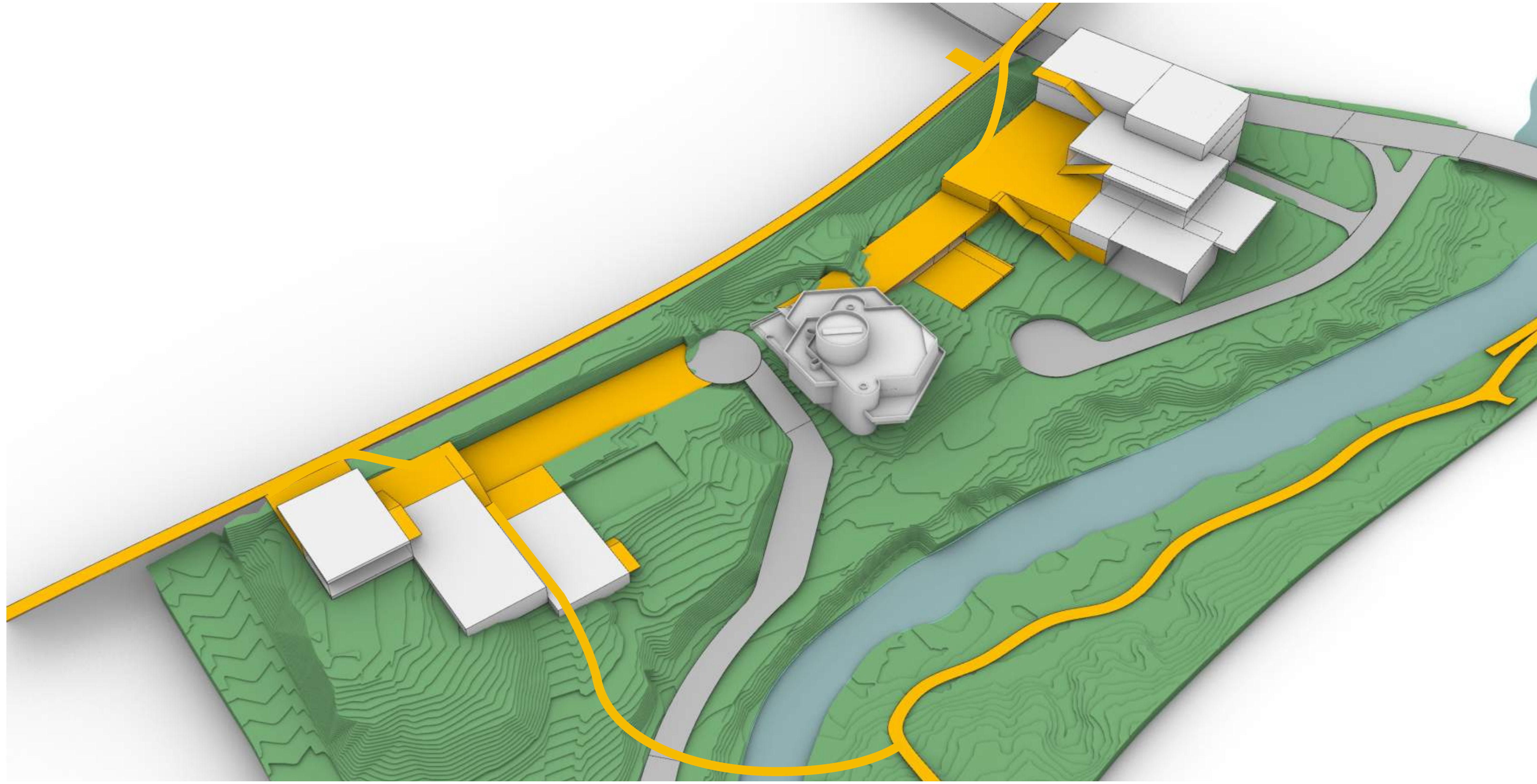
Split Scheme

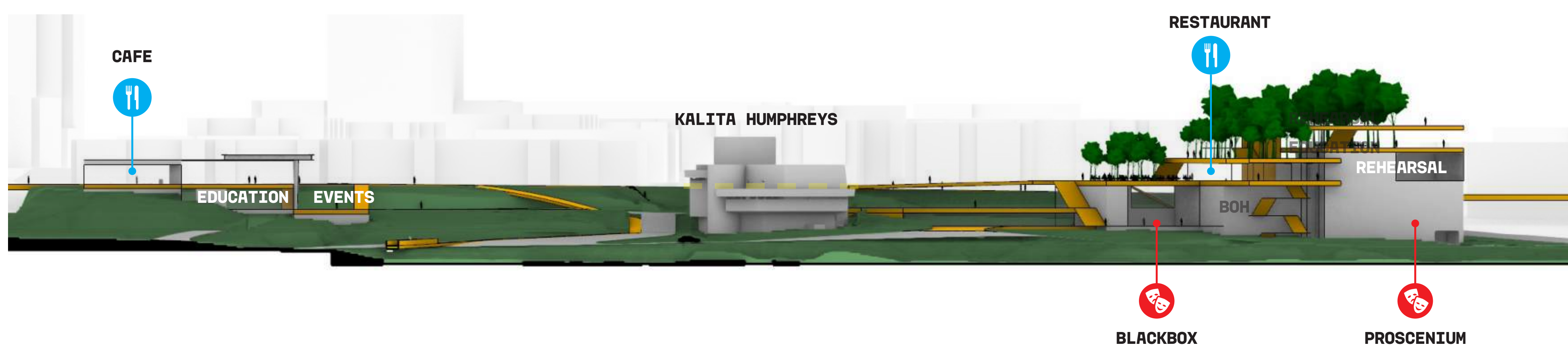
Pros

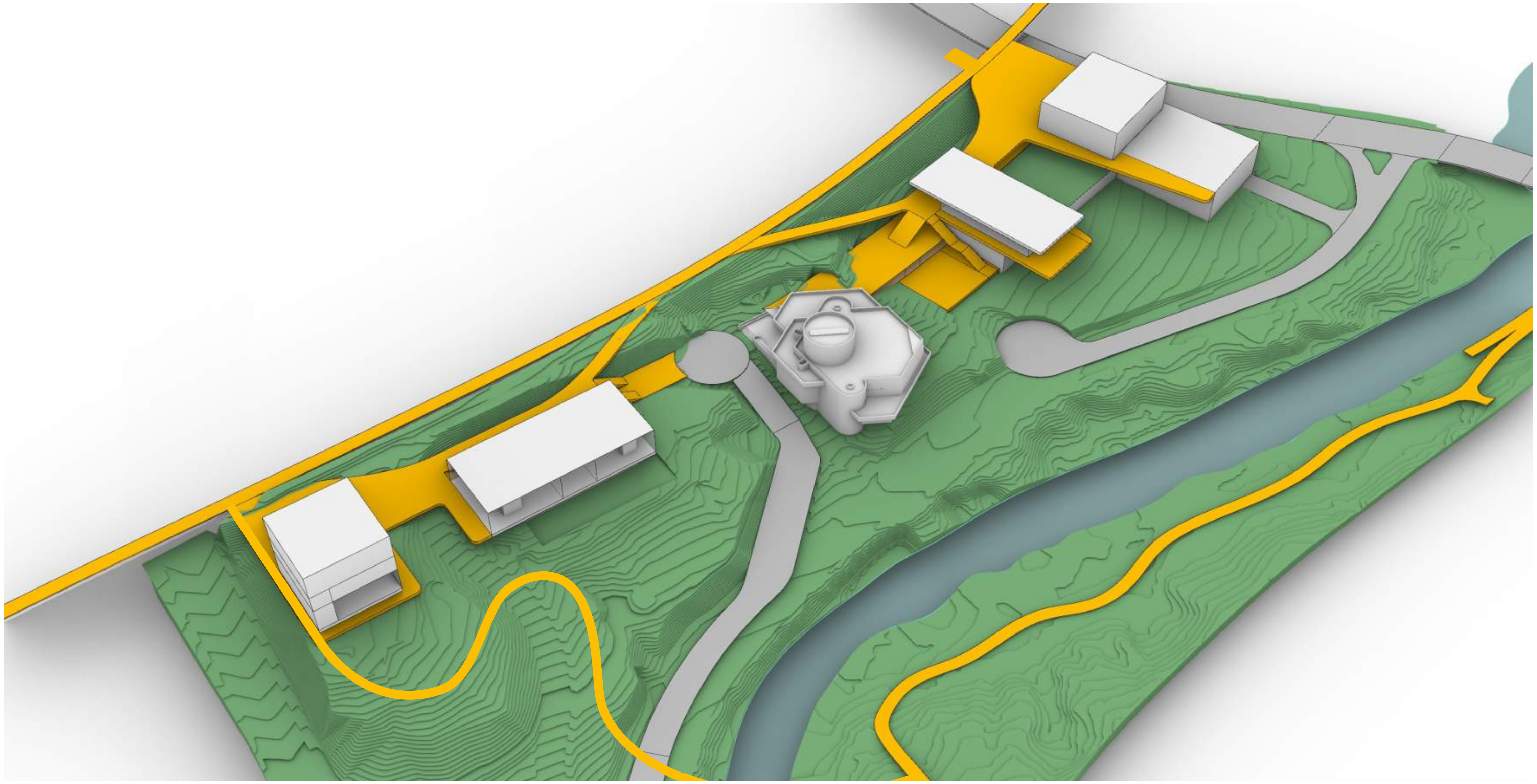
- Massing prioritizes views of Kalita
- Public programs at Katy Trail elevation
- Engages natural topography
- Two public hospitality programs that activate the site day and night

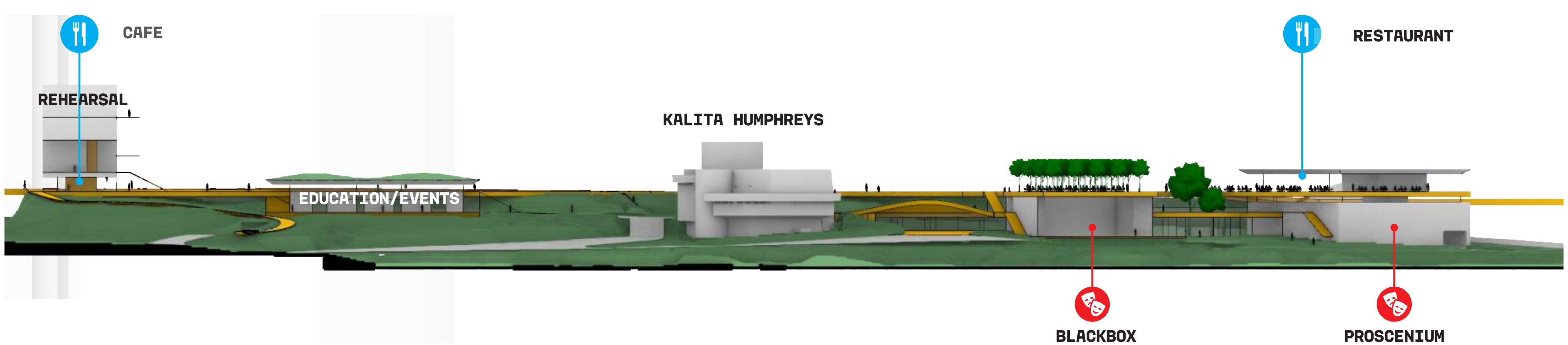
Cons

- Building not equally integrated into landscape
- South building overpowers Kalita in scale
- Dead stretches of site between Kalita and new buildings









Distributed Scheme

Pros

- Architectural pavilions respectfully scaled to Kalita
- Buildings are integrated with landscape
- Programs are evenly distributed - site is activated
- Public programming along Katy Trail is easily accessed
- Park is enhanced by the architecture
- Two public hospitality programs that activate the site day and night

Cons

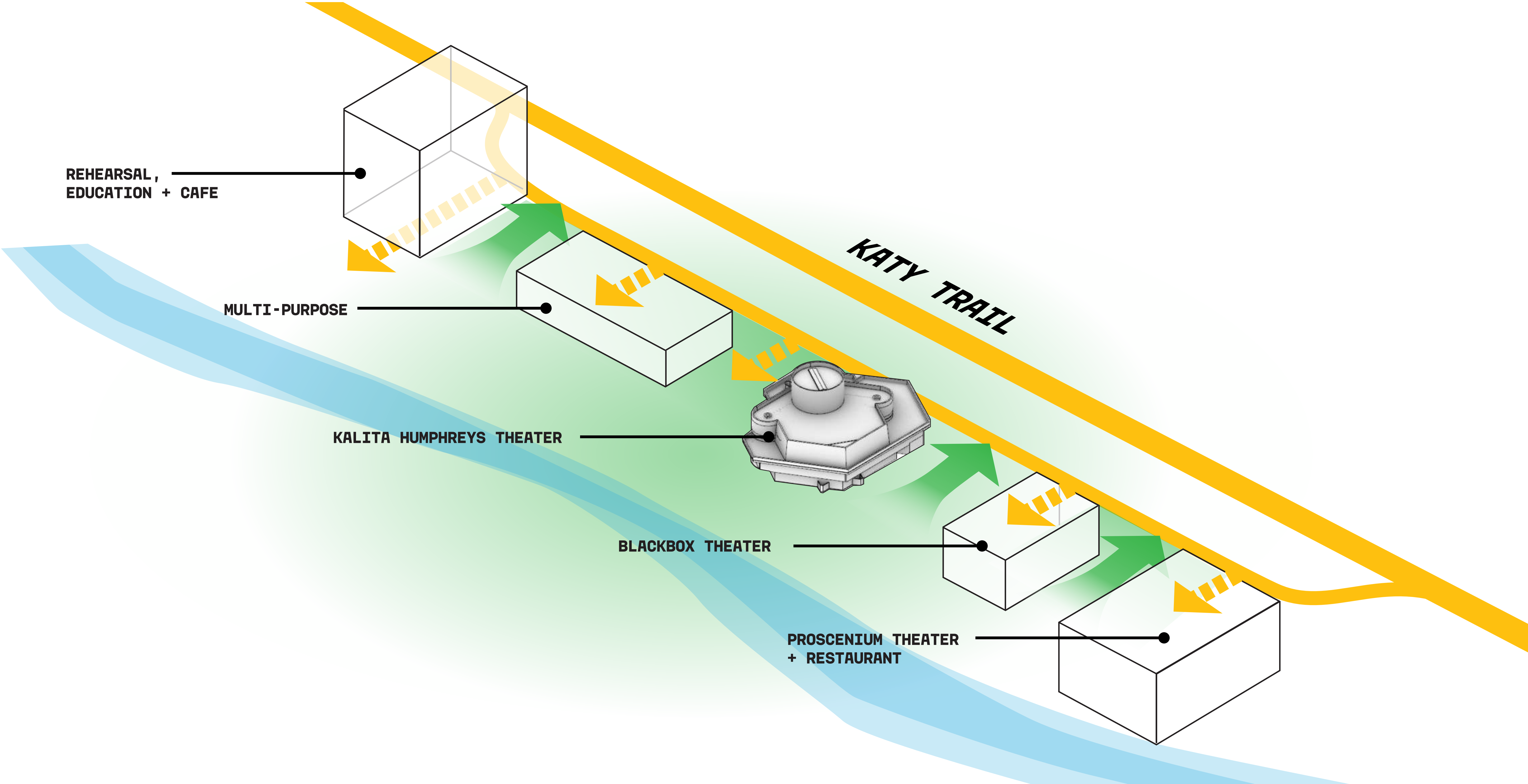
- Programs function independently
- Increased security due to multiple control points

DESIGN CONCEPT

Jewel in a Park

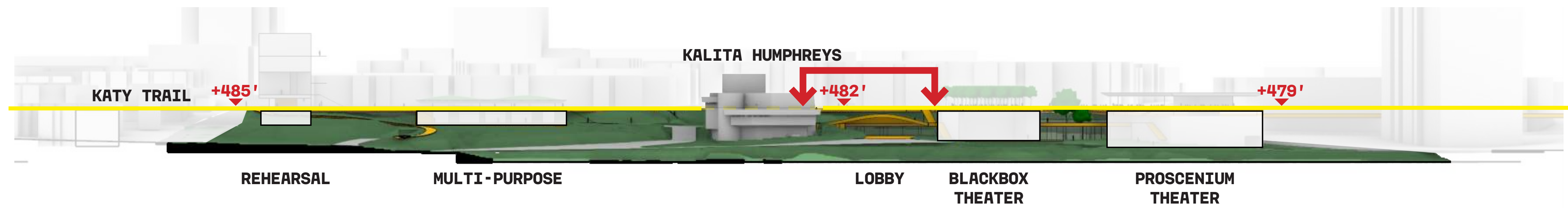
The design concept for the Kalita Humphreys Theater Masterplan is multi-faceted. The proposal aims to create a bucolic setting that supports public performance programming. The scheme considers Frank Lloyd Wright's restored theater as the jewel of the park. The jewel is strung along a necklace of new public paths and trails connecting the Katy Trail into Willaim B. Dean M.D. Park, and four new pavilions join the Kalita to bring activity to the site.

DESIGN CONCEPT

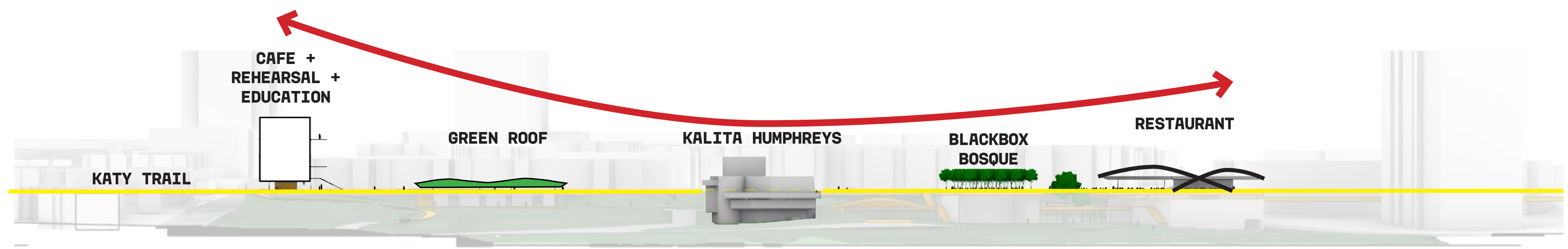


SITE ELEVATION

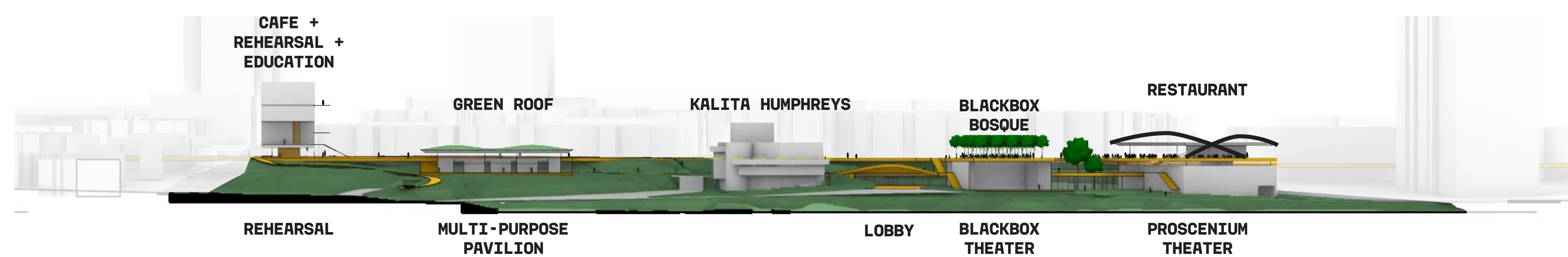
- The architecture is organized around the datum of the Katy Trail, with the bulk of the program below, and expressive pavilions above.
- These programmatic pavilions are connected by a circulation spine of interior and exterior paths across the site.
- Their presence is minimized nearest to the Kalita Humphreys Theater, characterized with landscape elements like a green roof and public bosque.



Below Katy Trail



Above Katy Trail

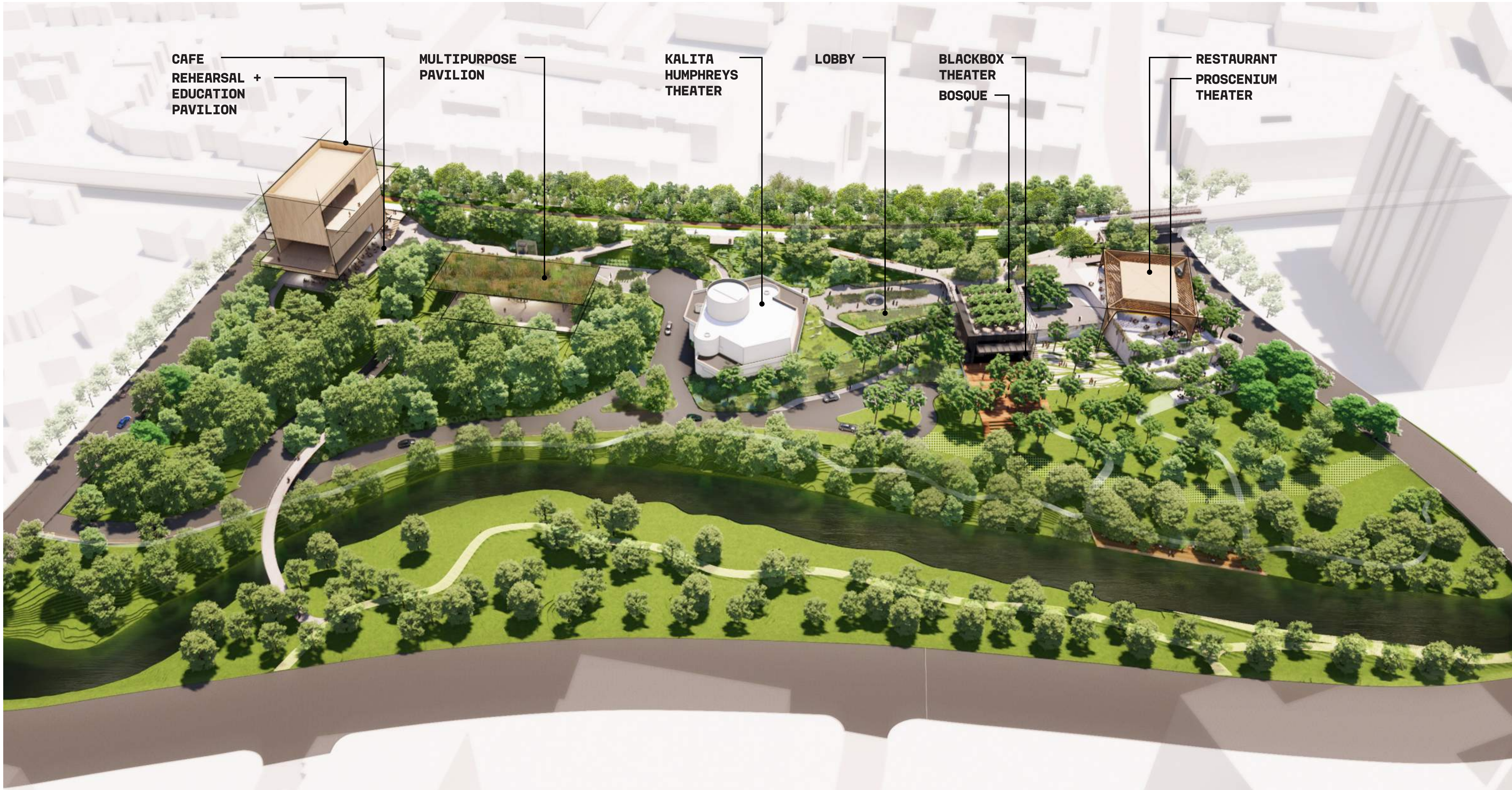


Combined Elevation


KATY TRAIL
REHEARSAL
CAFE
(BELOW)
MULTI-PURPOSE
PAVILION
LOBBY
BLACKBOX
PROSCENIUM
(BELOW)
RESTAURANT
EVENTS
LEMMON AVENUE EAST
BLACKBURN STREET
SYLVAN DRIVE
WILLIAM B. DEAN M.D
PARK
TURTLE CREEK BOULEVARD
SCALE: 0' 32' 64' 128'

DISTRIBUTED PAVILIONS

DISTRIBUTED PAVILIONS



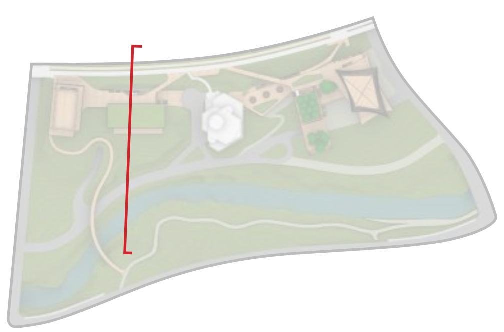
SITE SECTION

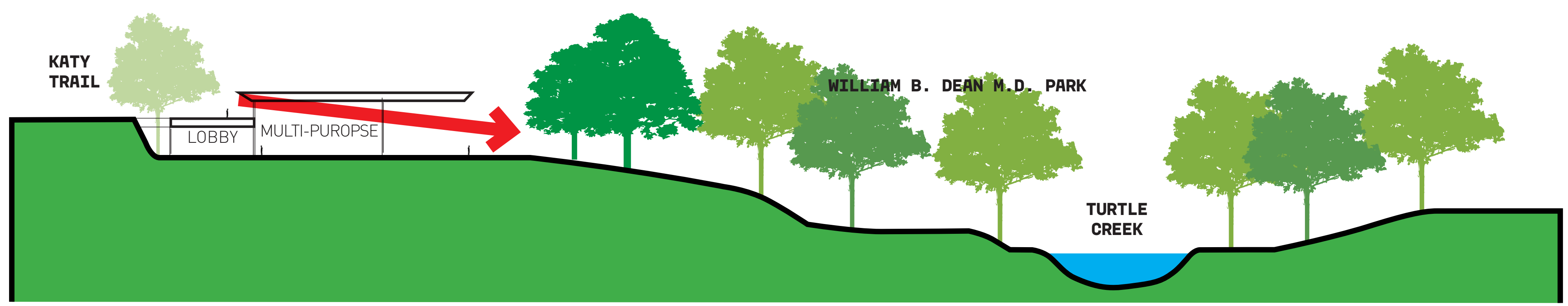
01: Under/through Building

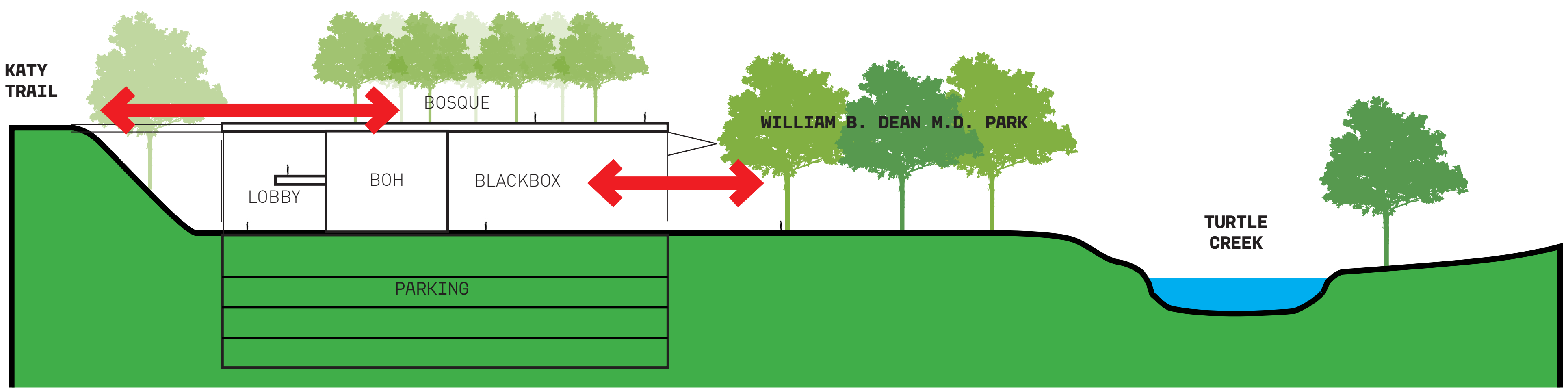
- The Rehearsal and Education pavilion hovers above the ground, allowing the public to easily flow from the Katy Trail to a new publicly accessible cafe, and further to the new forested landscape of William B. Dean M.D. Park. As the highest point of the site topographically, this new spot offers the public views of the entire park and the Turtle Creek corridor.

02: View Through Building

- A floating roof that hovers above the Katy Trail datum allows the public to view through the multi-purpose pavilion to the park beyond, engaging the public in both program and landscape.

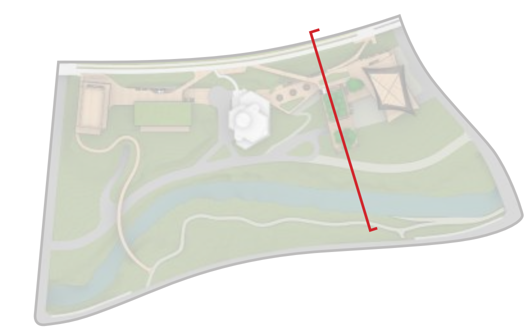


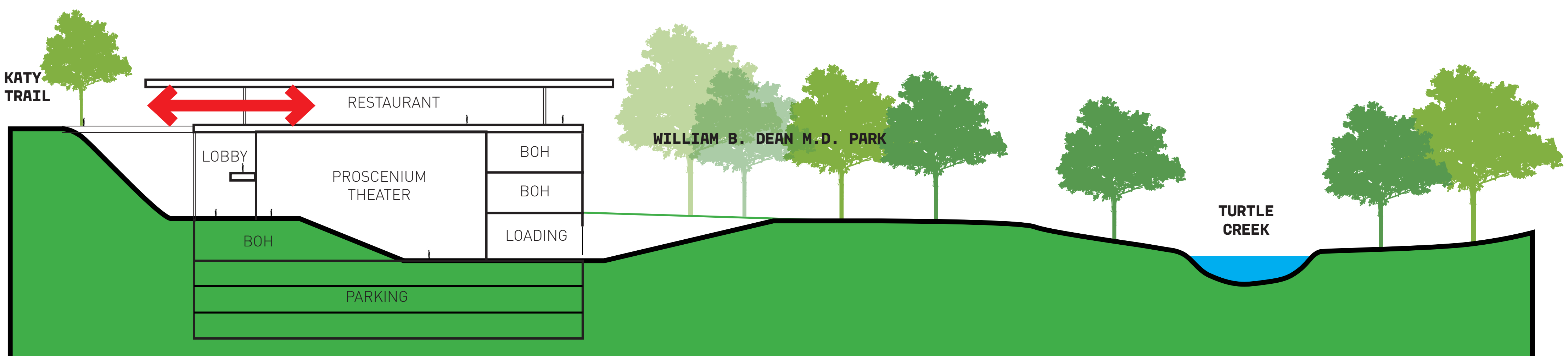




03: Roof of Building

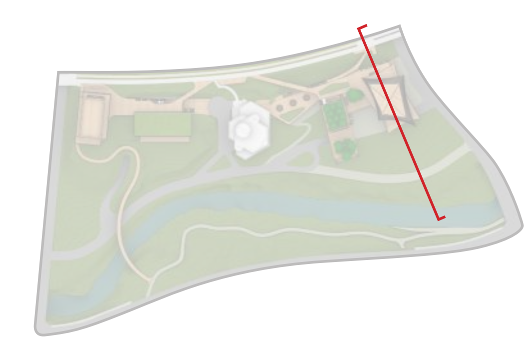
- A new bosque of trees atop the Blackbox Theater invites the public to sit, relax, and take in views of the Kalita Humphreys Theater as well as the new landscape of William B. Dean M.D. Park.
- Below, the Blackbox Theater directly opens onto the park, with large glass garage doors that can transform the space from inside to outside, and bring the experience of the park into the building.



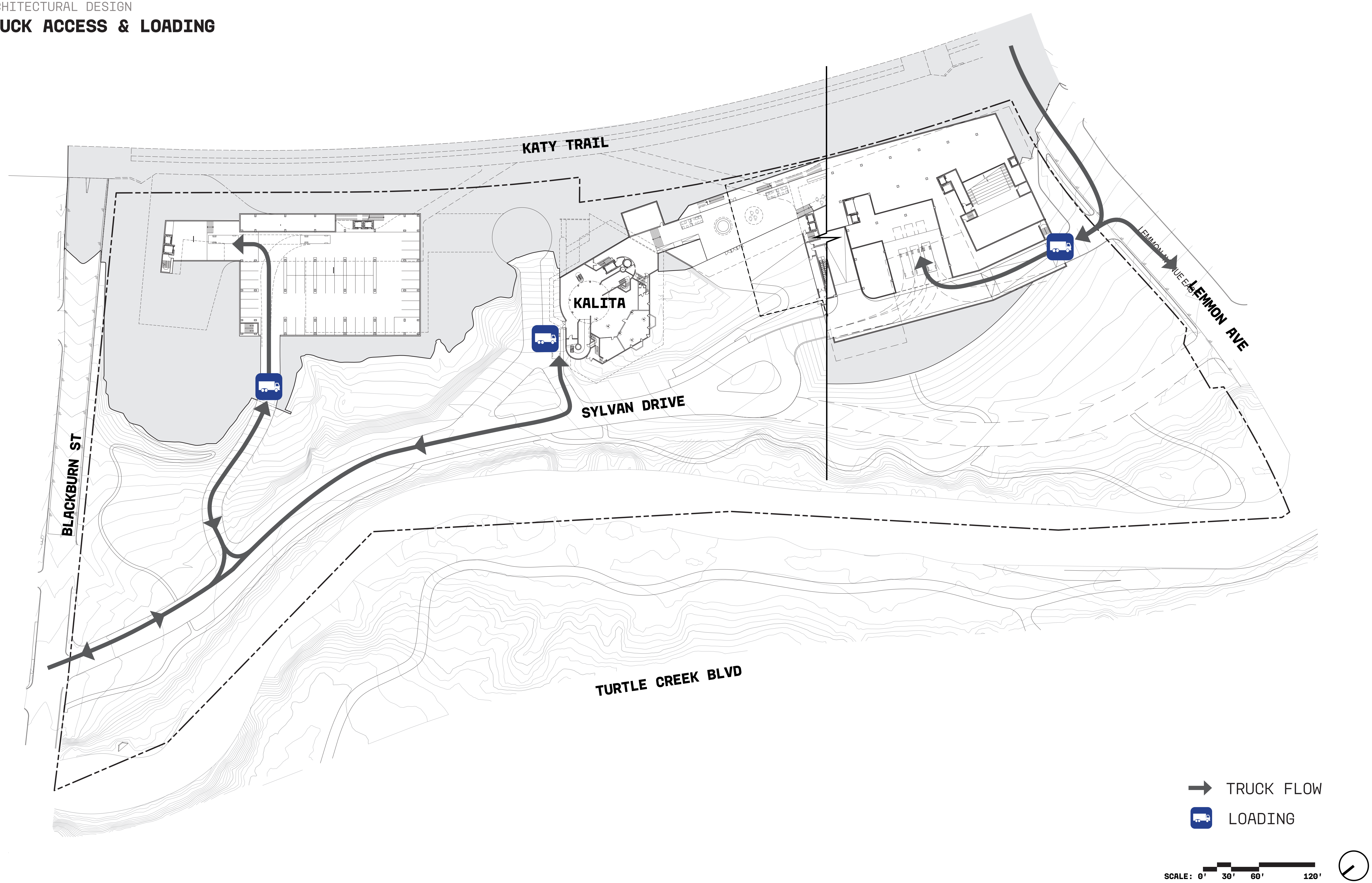


04: Into Building

- A new public restaurant sits atop the Proscenium Theater, visible from Lemmon Avenue and Katy Trail, welcoming the public in and creating an exciting hospitality venue that is both part of the park and the city.



TRUCK ACCESS & LOADING



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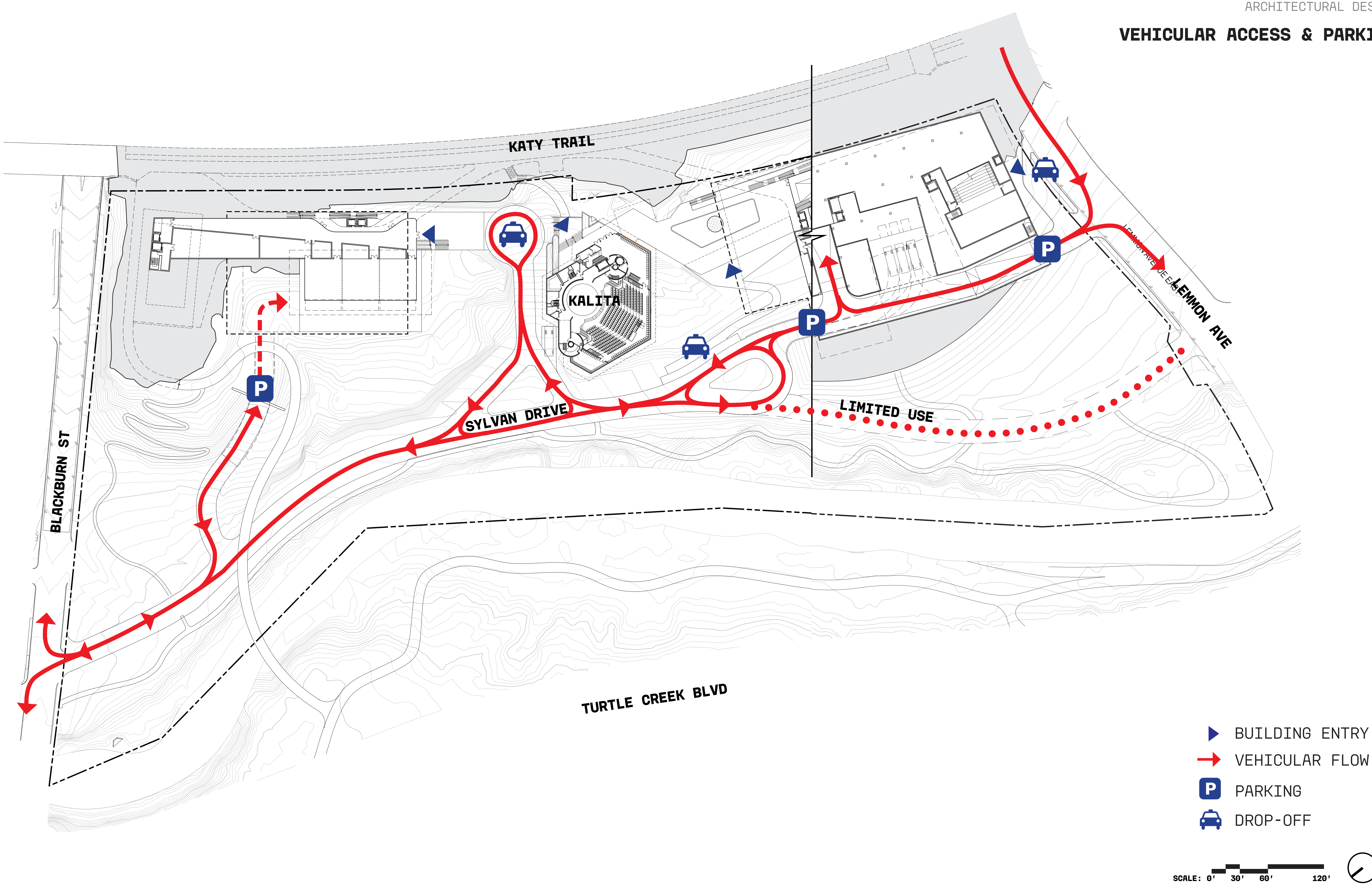
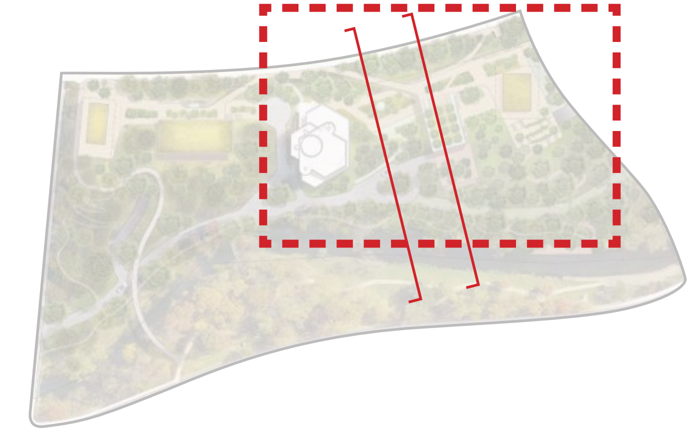
VEHICULAR ACCESS & PARKING



LOBBY & BLACKBOX

The south half of the site is dedicated to the two new theaters: a ~250 seat proscenium theater and a ~100 seat studio theater. The studio theater is oriented towards Turtle Creek and William B. Dean M.D. Park, connecting into the park landscape with an operable glass facade and public deck, with a terrace and steps reaching into the landscape. The Kalita Humphreys Theater and the two new theaters are connected by a lobby, providing a consolidated main entrance and amenities for the theaters and campus. The lobby also provides flexible space for events which can spill out into the park or courtyard between the new theaters. Back of house spaces sit adjacent to each new theater, and are connected below by shared back of house spaces and central loading dock. Above the blackbox is a plaza bosque that attracts visitors from the Katy Trail and amplifies the park's presence at the elevated terrace level.



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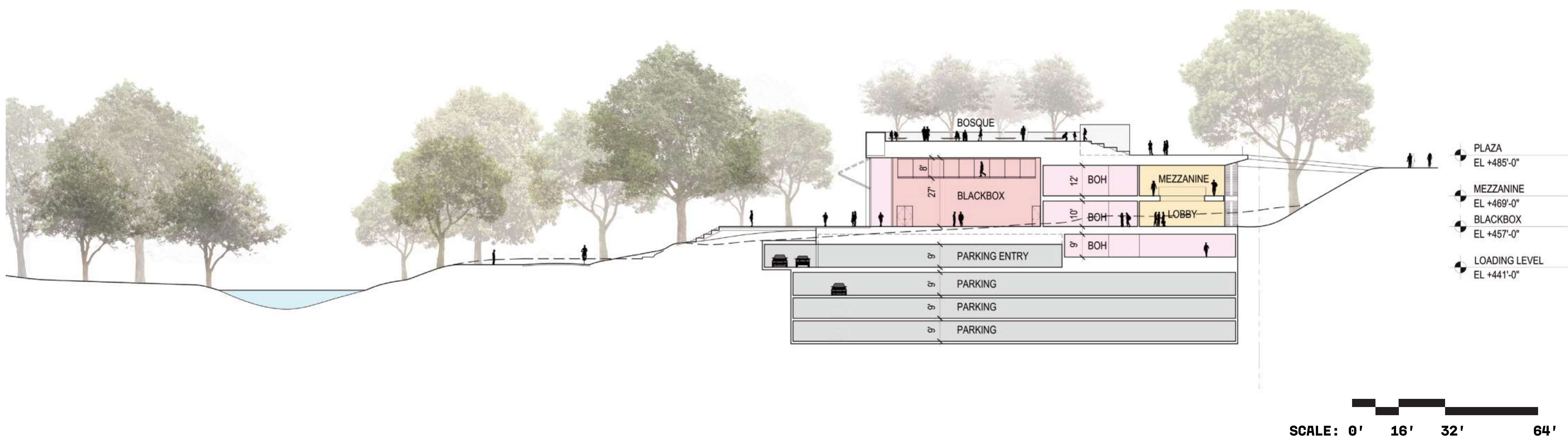
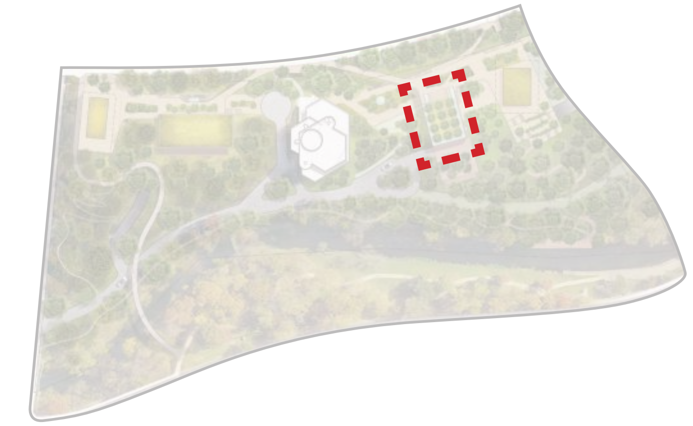
LOBBY & BLACKBOX



LOBBY INTERIOR

DROP-OFF / LOBBY

BLACKBOX INTERIOR



Fully Enclosed Theater Performance

Performance Open to the Park

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New York, NY

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Chicago, IL

Reed Hilderbrand LLC
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Harboe Architects
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Silman Engineering
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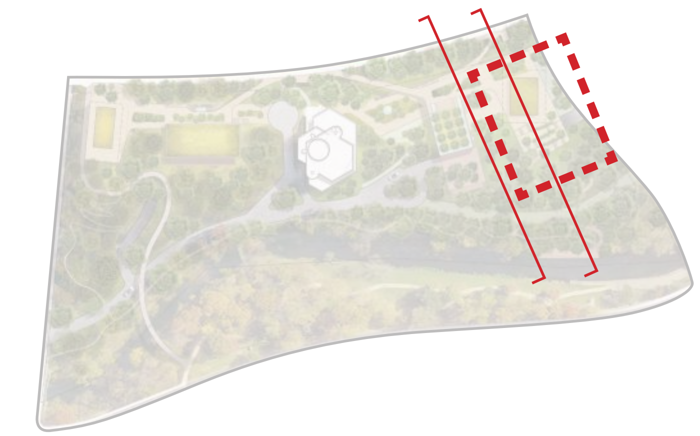
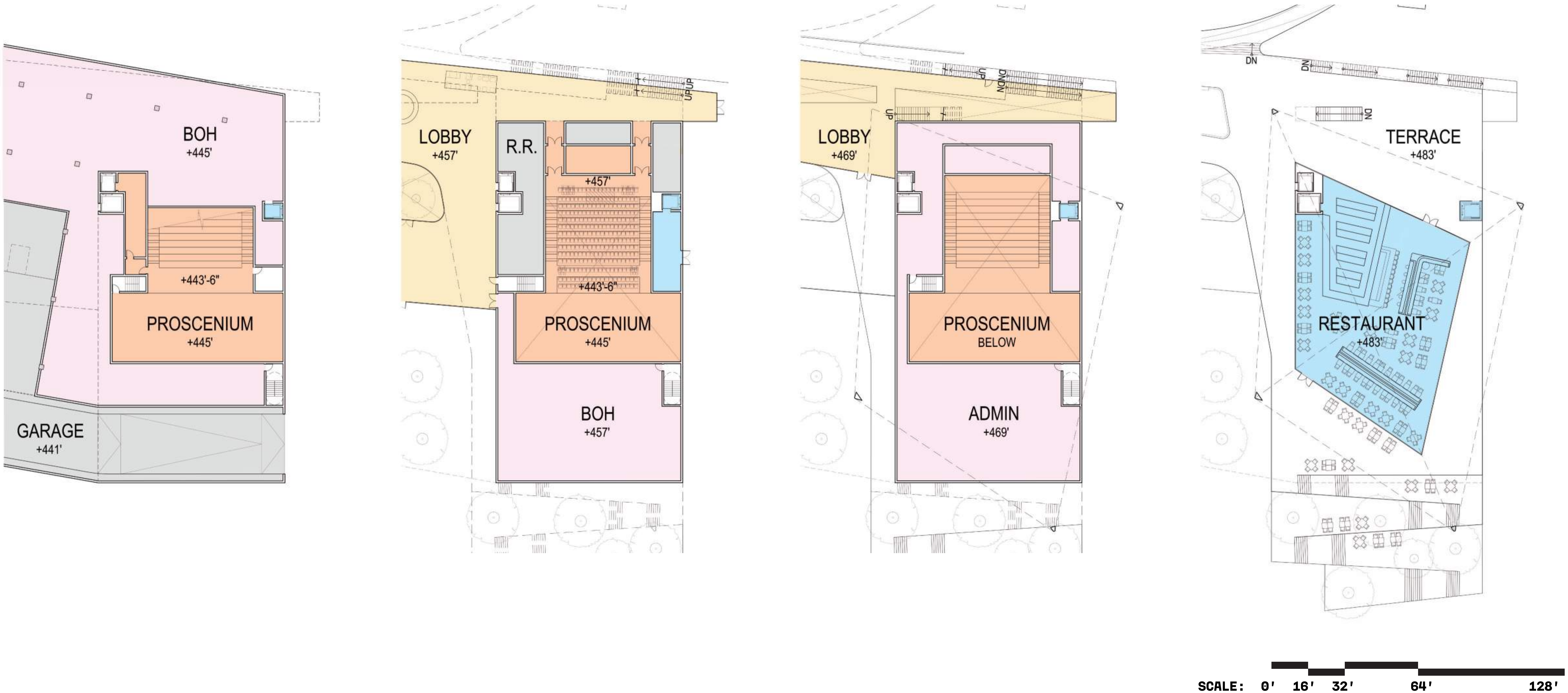
BLACKBOX EXTERIOR

View of Blackbox Theater & Deck

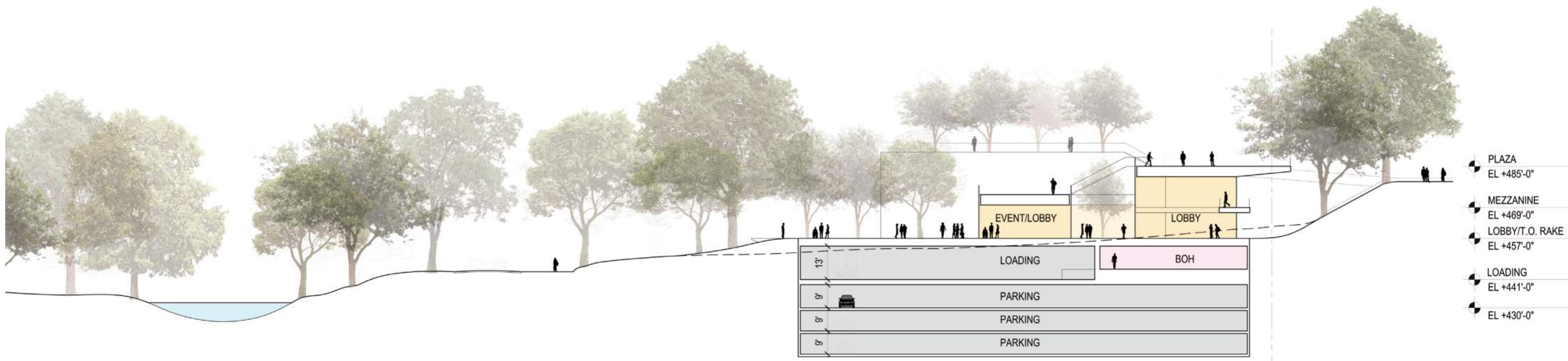
PROSCENIUM THEATER / RESTAURANT

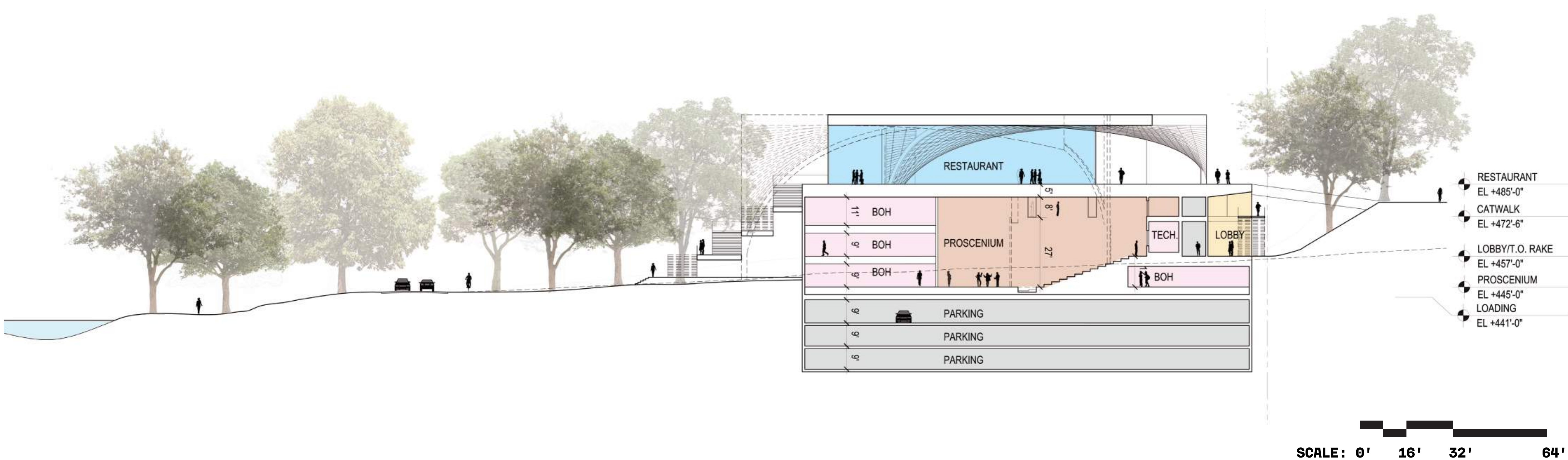


The proscenium theater and restaurant are stacked in the volume nearest Lemmon Avenue. The stage level of the theater is connected on two main sided to a large back of house level, and is directly adjacent to the loading dock. The proscenium is primarily entered at the back of the theater and the top of the seating rake. An elevator and accessible route is provided for access to the front row of the theater. Back of house, event support, lobby amenities, and administration spaces surround the theater on the upper levels. At the Katy Trail terrace level, a ~90 seat restaurant is sited as both a Trail attraction and a destination for visitors to the park.



PROSCENIUM THEATER / RESTAURANT





RESTAURANT

Restaurant Pavilion Interior

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New York, NY

Threshold Acoustics LLC
Chicago, IL

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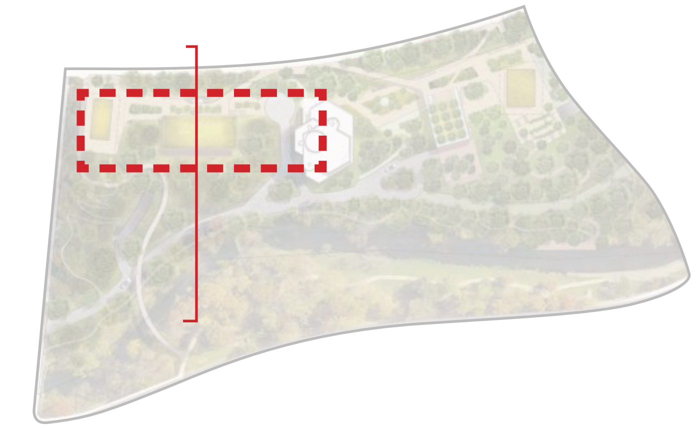
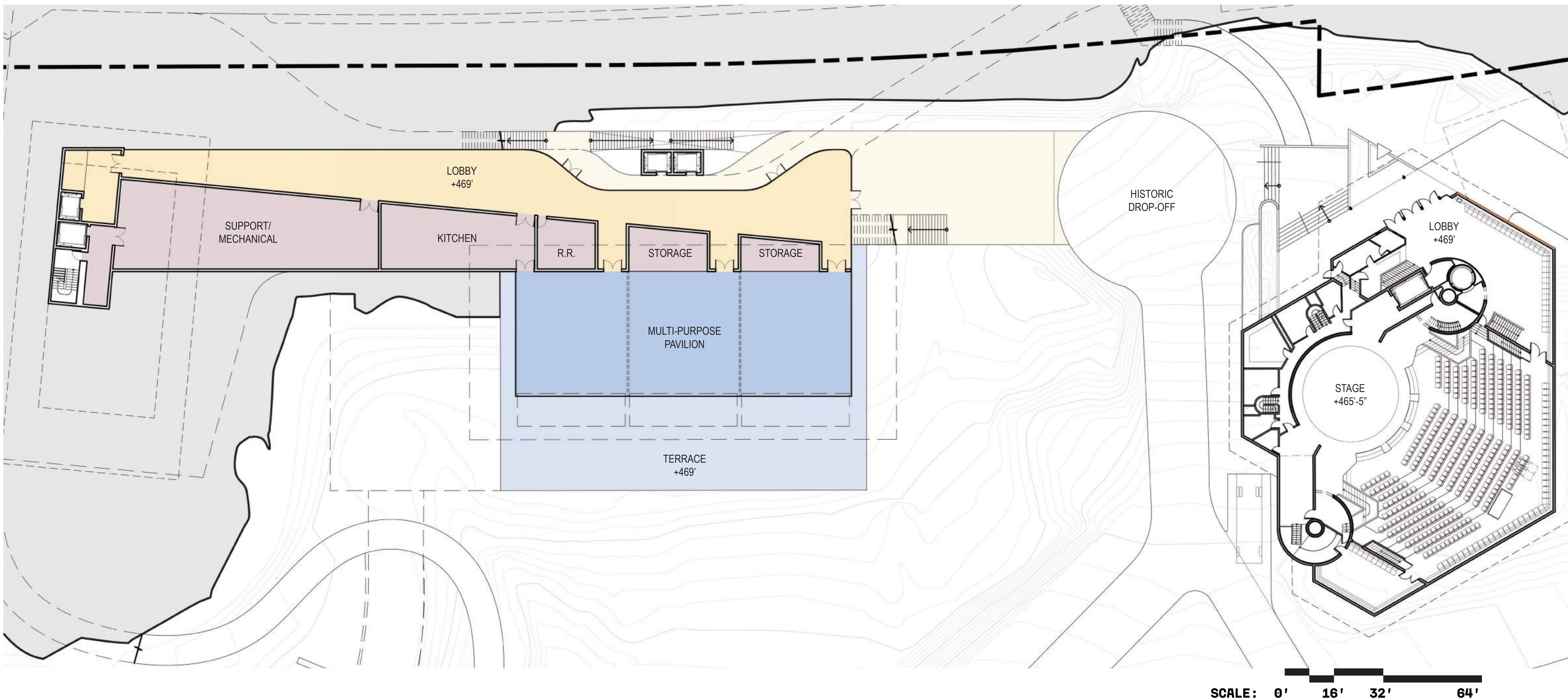
Event Courtyard

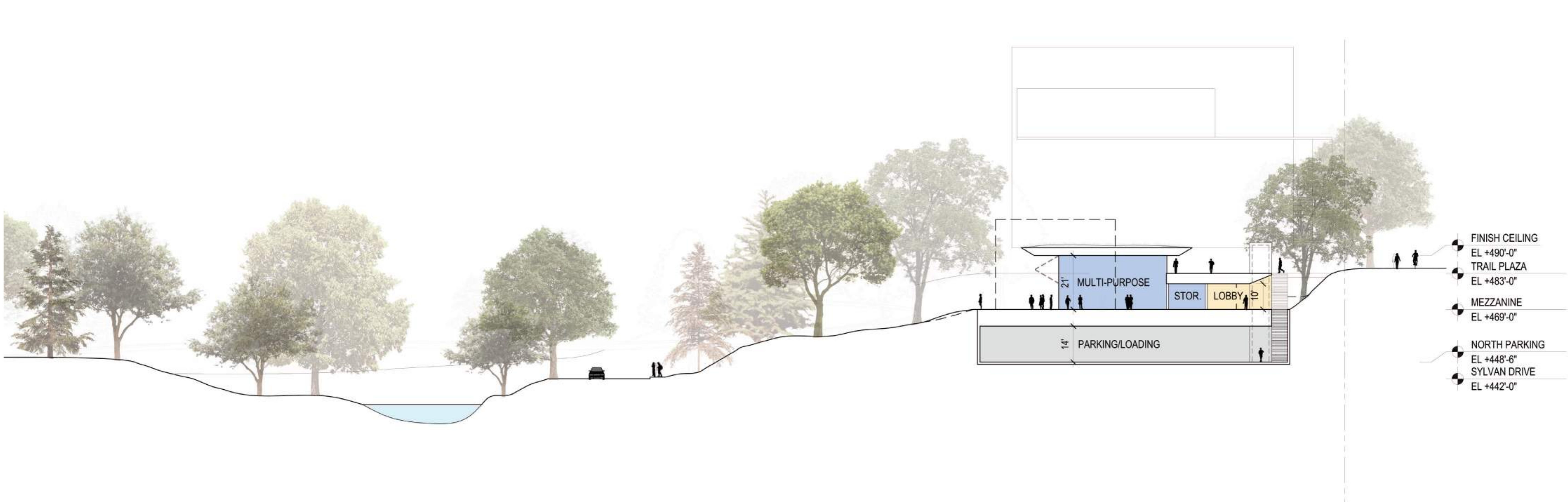
MULTI-PURPOSE PAVILION



The north side of the site contains more of the community oriented programs for the campus, also connected by a circulation lobby spine with a single story parking and loading level below. The multi-purpose pavilion provides space for classroom activities or events. The single-story pavilion sits in the landscape, surrounded by a terrace and trees. It's presence is minimized relative to the Kalita.



MULTI-PURPOSE PAVILION



SCALE: 0' 16' 32' 64'

MULTI-PURPOSE PAVILION

1. Movable Partitions Open

When the partitions open, the space transforms into a singular large pavilion with landscape surrounding it on three sides. Enclosed by large glass garage doors, this space can function for large educational activities or private events.

2. Movable Partitions Closed

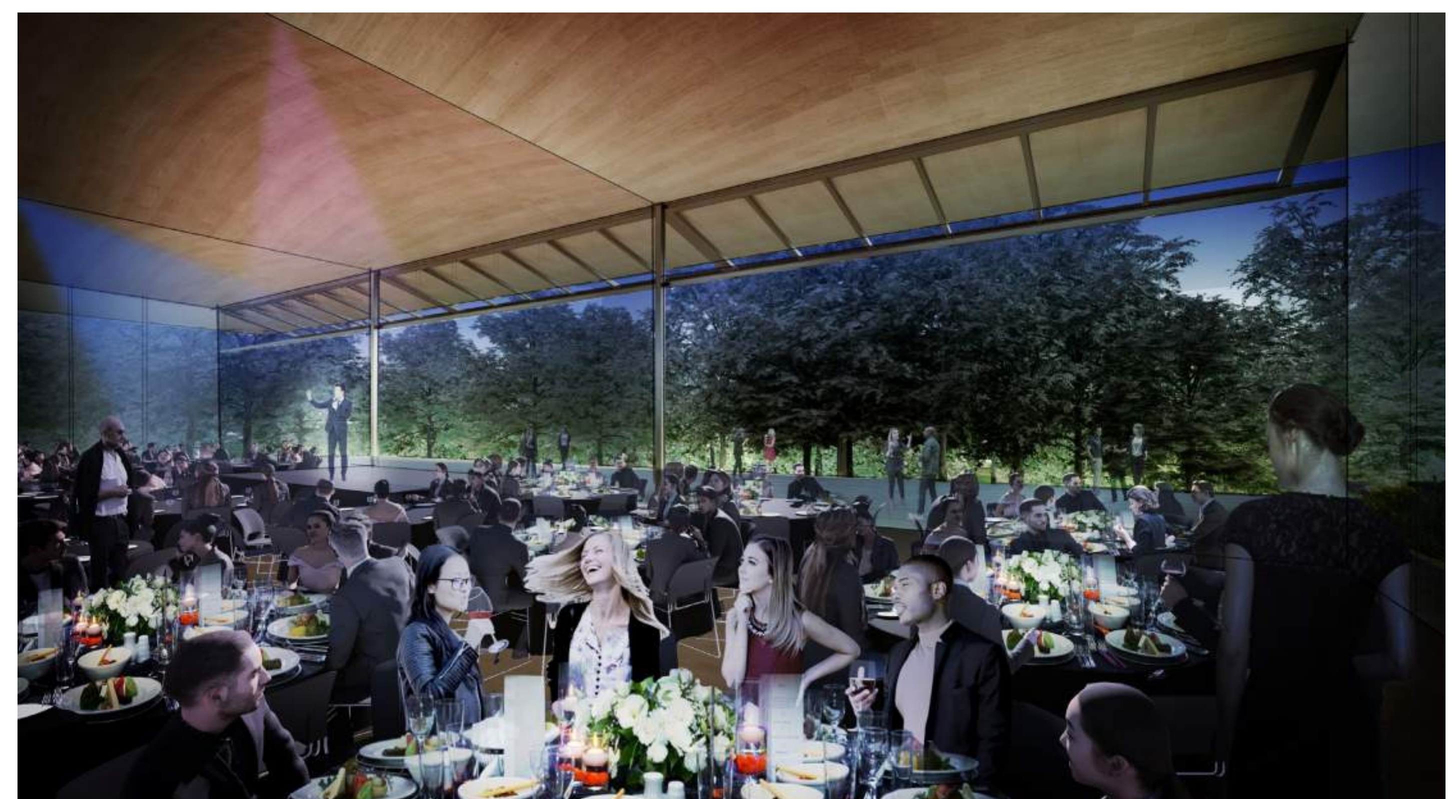
The multi-purpose hall can be divided into three smaller spaces with acoustic partitions that can control sound from flowing from one space to the other. These smaller spaces all have a direct relationship with the landscape outside and can be used for educational activities, smaller gatherings, or more.

3. Garage Doors Open

Three large glass garage doors face out towards William B. Dean M.D. Park. When these doors are open, the space completely transforms from inside to outside and allows the park to be an integral part of the pavilion experience.

Movable Partitions Open - Workshop

Movable Partitions Closed - Classroom



Garage Doors Open - Event

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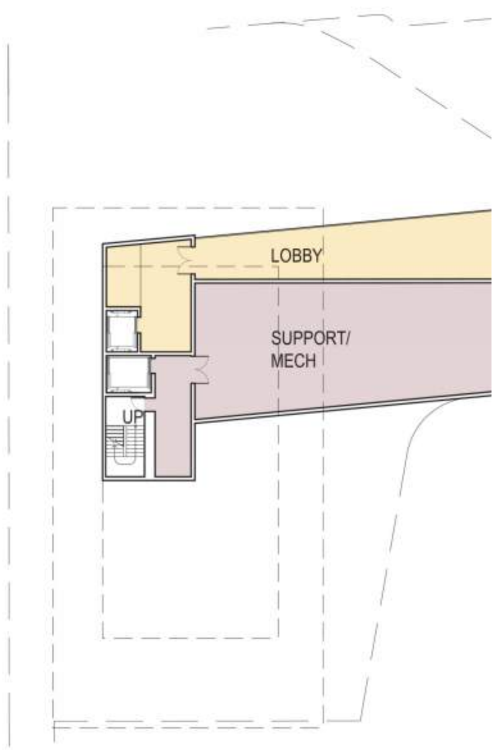
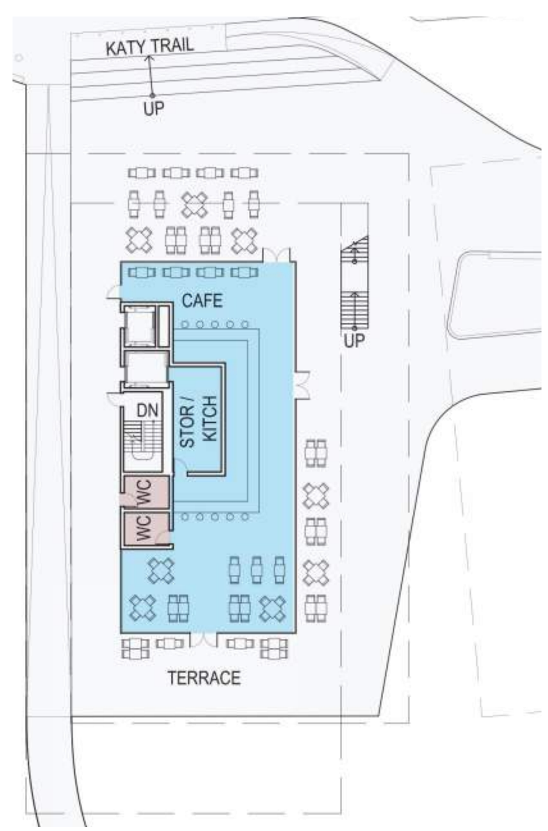
View from Katy Trail into Multi-Purpose Pavilion

REHEARSAL + EDUCATION PAVILION

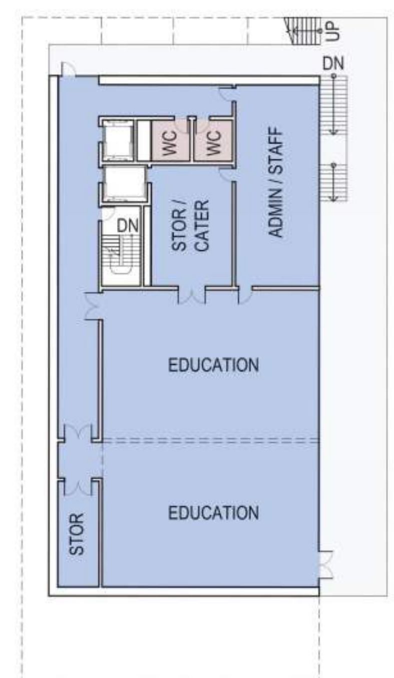
The rehearsal and education pavilion occupies the northern promontory of the site, and have the greatest presence on the Katy Trail with a cafe at the trail terrace level. The building is connected below grade to the lobby spine of the multi-purpose pavilion and parking/loading level below. Directly above the cafe is a dedicated education floor with a main space that can be divided as needed into two classrooms. The upper floors contain two rehearsal rooms, each of comparable size to the proscenium and studio theaters on the Campus, and a series of smaller coaching rooms. A series of public outdoor terraces spiral up the building and a flex gallery space provide opportunities for public engagement with theater rehearsals or installations within the building. The pavilion offers views of the entire campus and park, as well as to downtown Dallas.



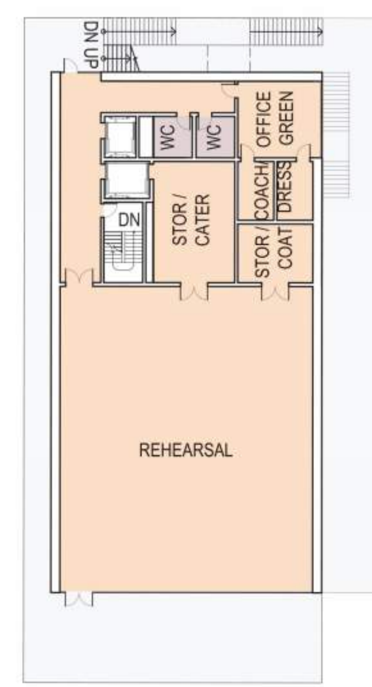
BASEMENT: LOBBY



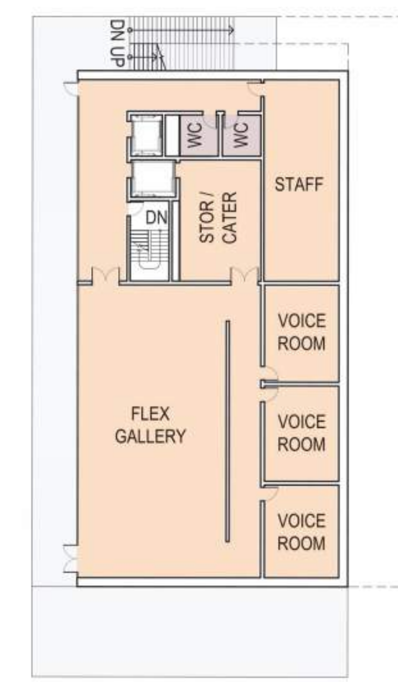
1ST FLOOR: KATY TRAIL



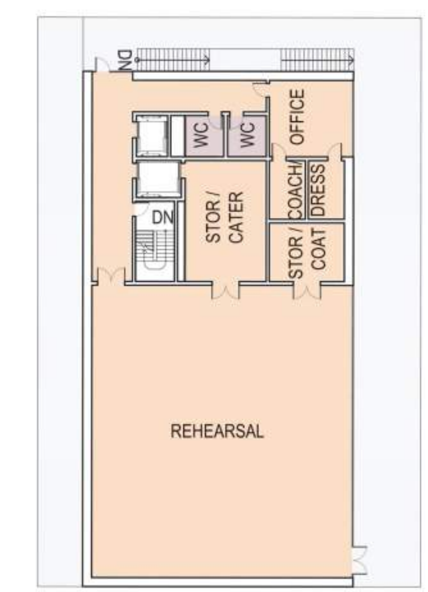
2ND FLOOR



3RD FLOOR



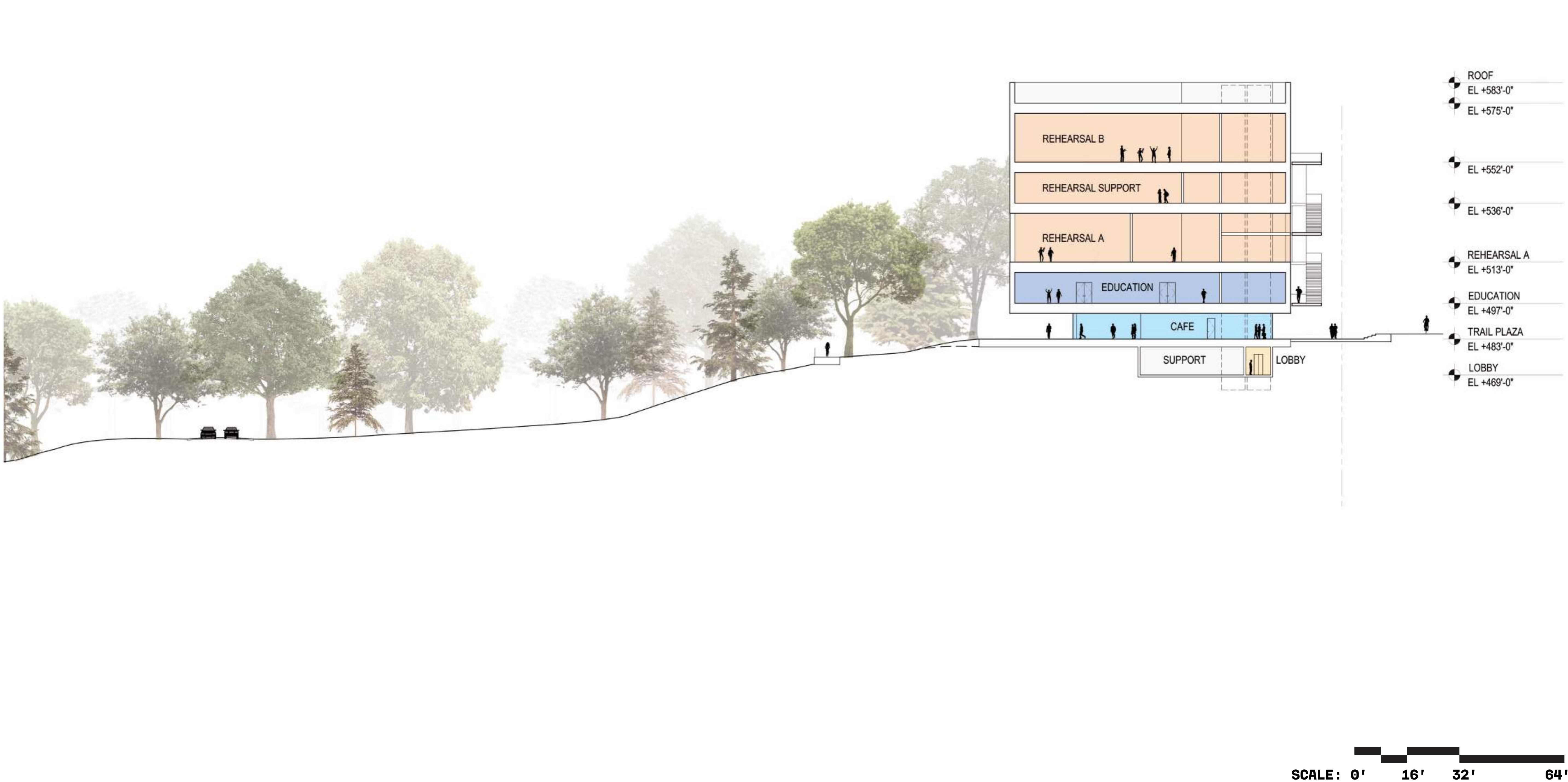
4TH FLOOR



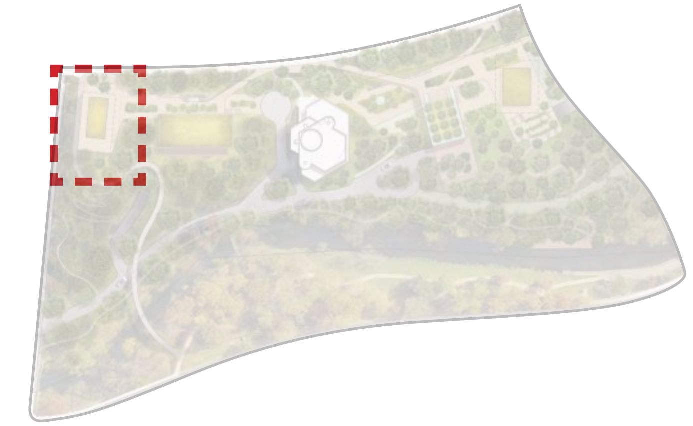
5TH FLOOR

SCALE: 0' 16' 32' 64'

REHEARSAL + EDUCATION PAVILION



REHEARSAL + EDUCATION PAVILION



View of Rehearsal Pavilion from Blackburn

View from Rehearsal Pavilion of Site and Downtown Dallas

Diller Scofidio + Renfro
New York, NY | Fisher Dachs Associates
New York, NY | Threshold Acoustics LLC
Chicago, IL | Reed Hilderbrand LLC
Cambridge, MA | Harboe Architects
Chicago, IL | Silman Engineering
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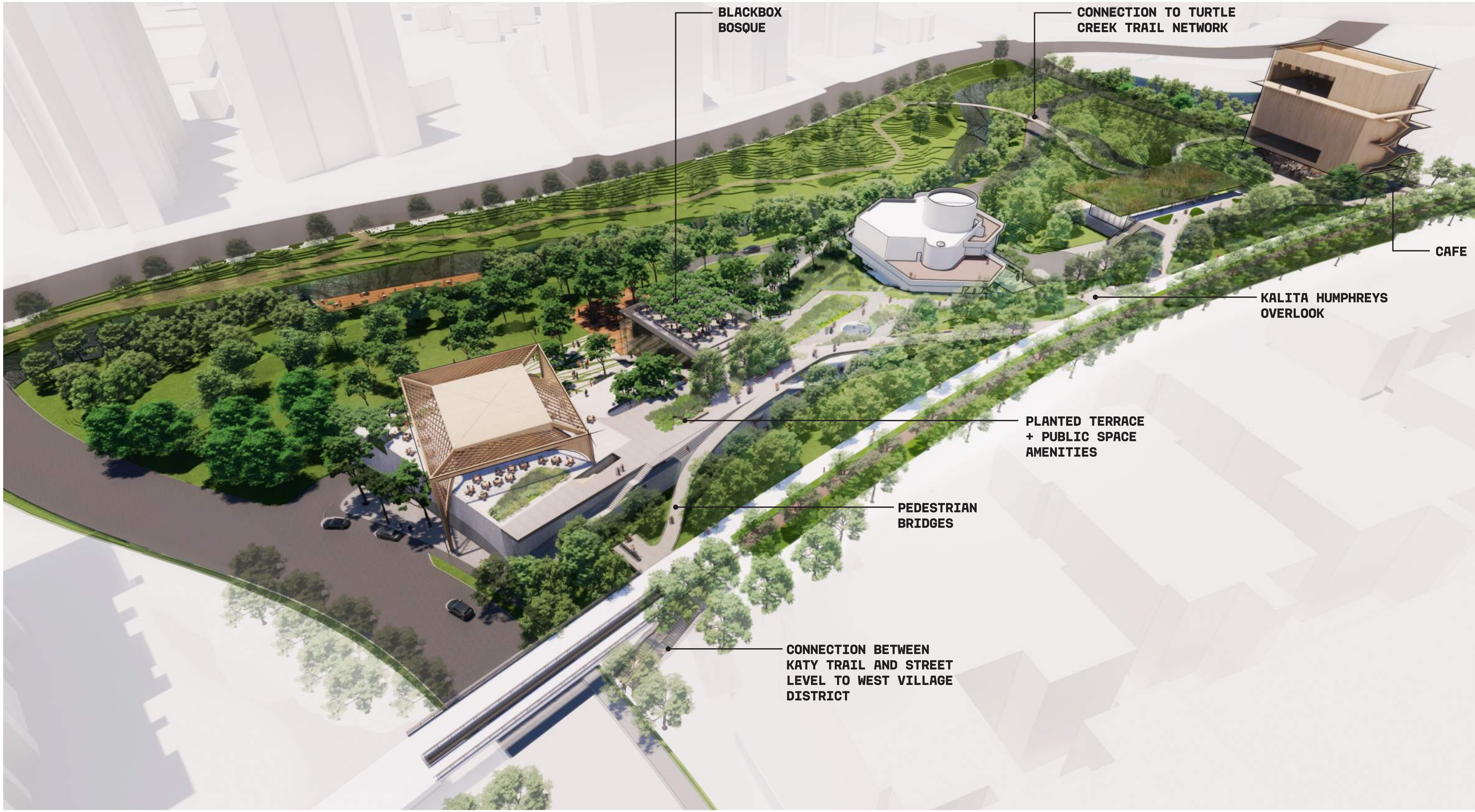
Rehearsal Room Interior

OPEN PUBLIC SPACE / KATY TRAIL



Overall View of Site from Southeast

Arrival View from Katy Trail South

OPEN PUBLIC SPACE / KATY TRAIL

Katy Trail Terrace Near Bosque

View from Katy Trail North at Rehearsal Pavilion Cafe

Blackbox Bosque

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Chicago, IL

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Harboe Architects
Chicago, IL

Silman Engineering
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OPEN PUBLIC SPACE / KATY TRAIL

View of Kalita Humphreys Theater from Katy Trail Overlook

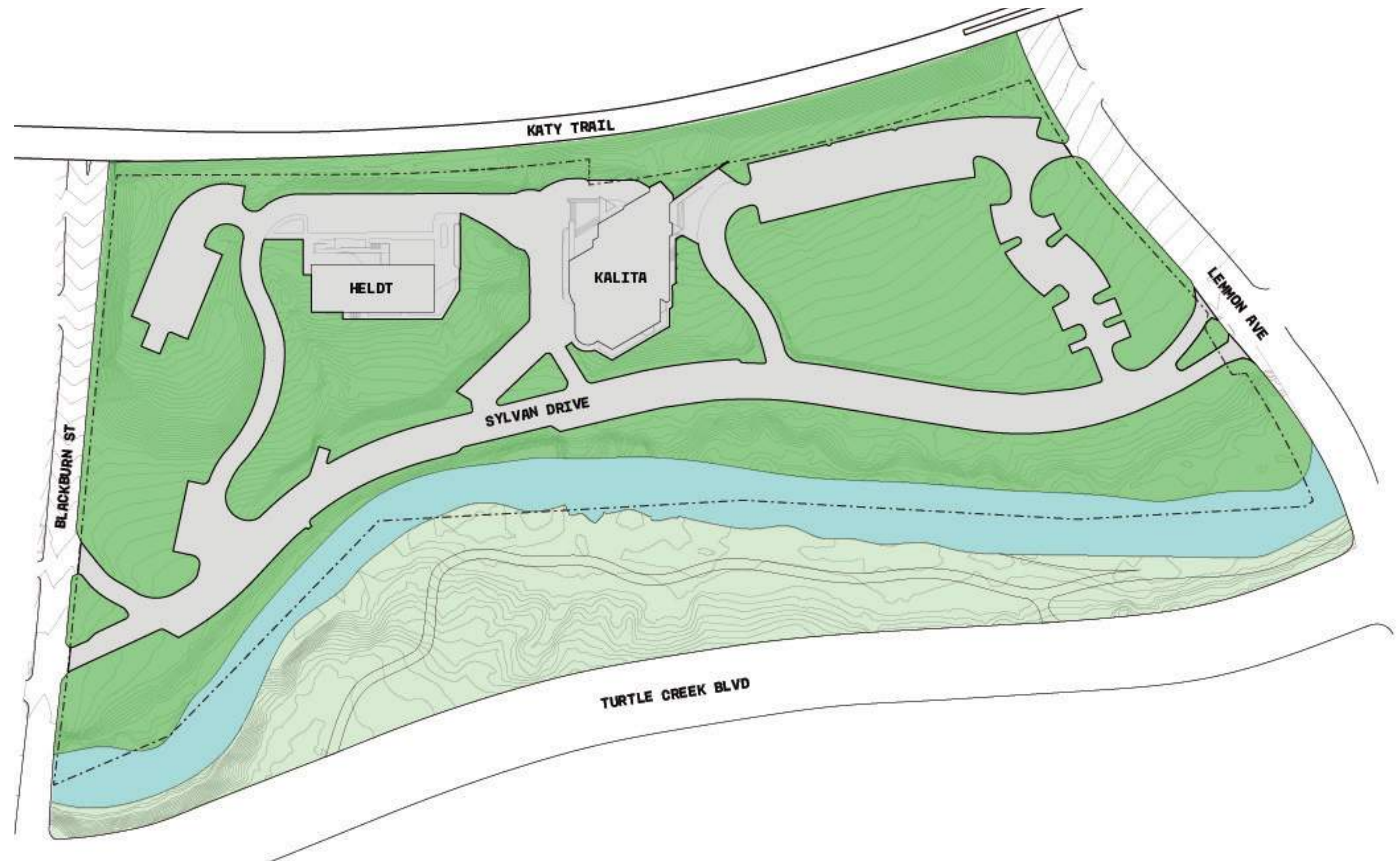
Bridge and Kalita Humphreys Theater from Sylvan Drive

Kalita Humphreys Theater from Stair

LOT COVERAGE: EXISTING

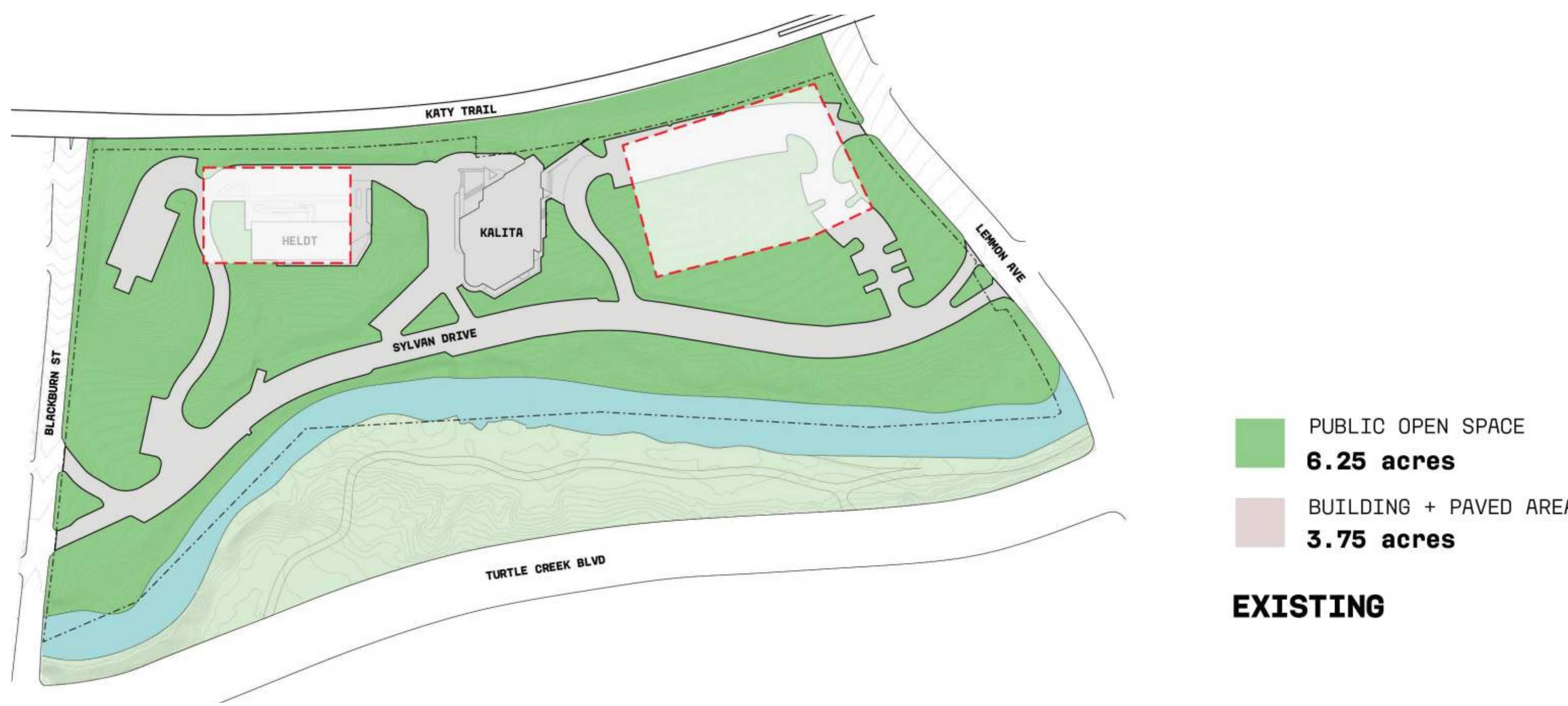
Existing Paved Area

- Surface parking and built space occupy approximately 40% of the current site area.
- Surface parking dominates the experience and character of much of the site.

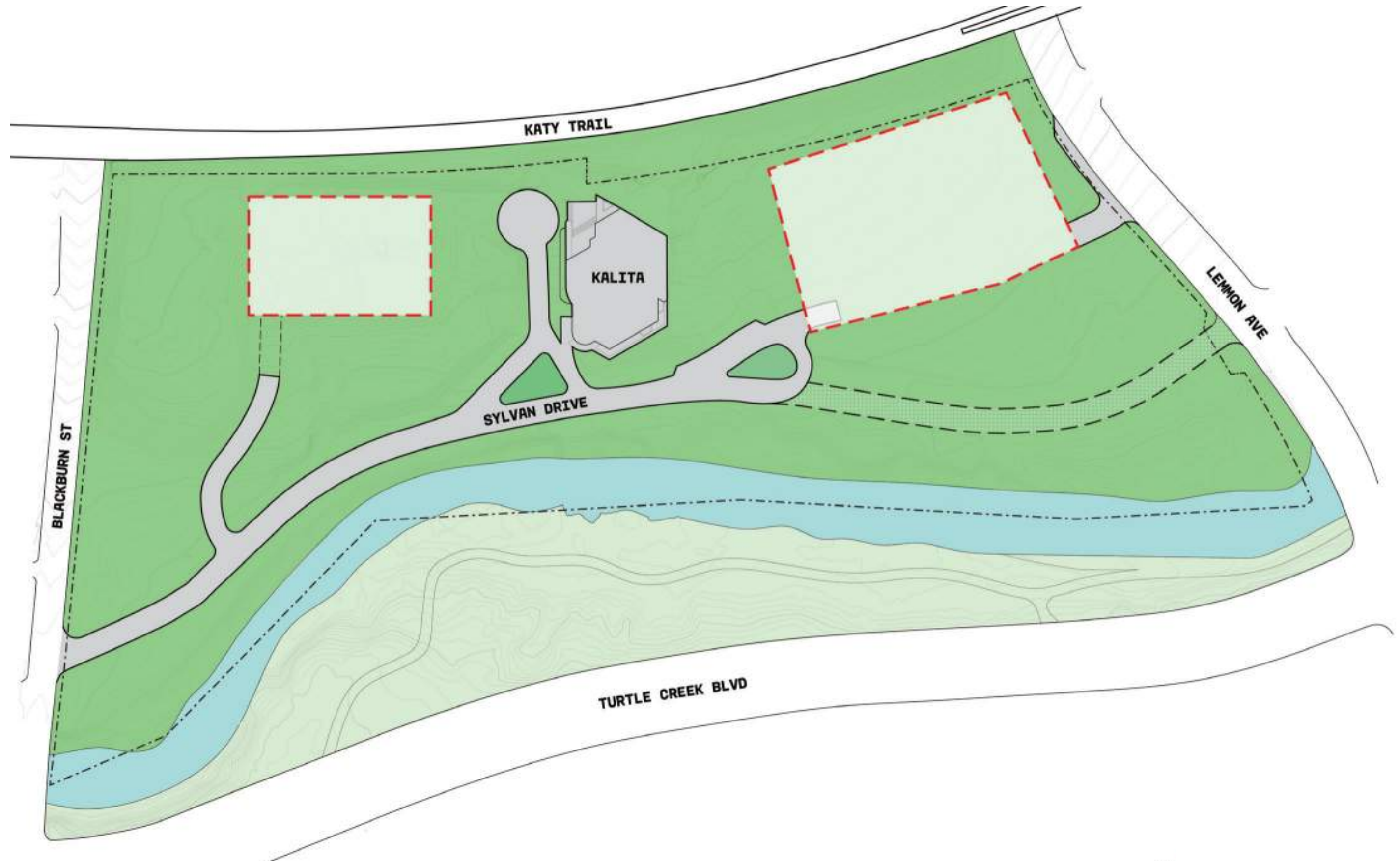


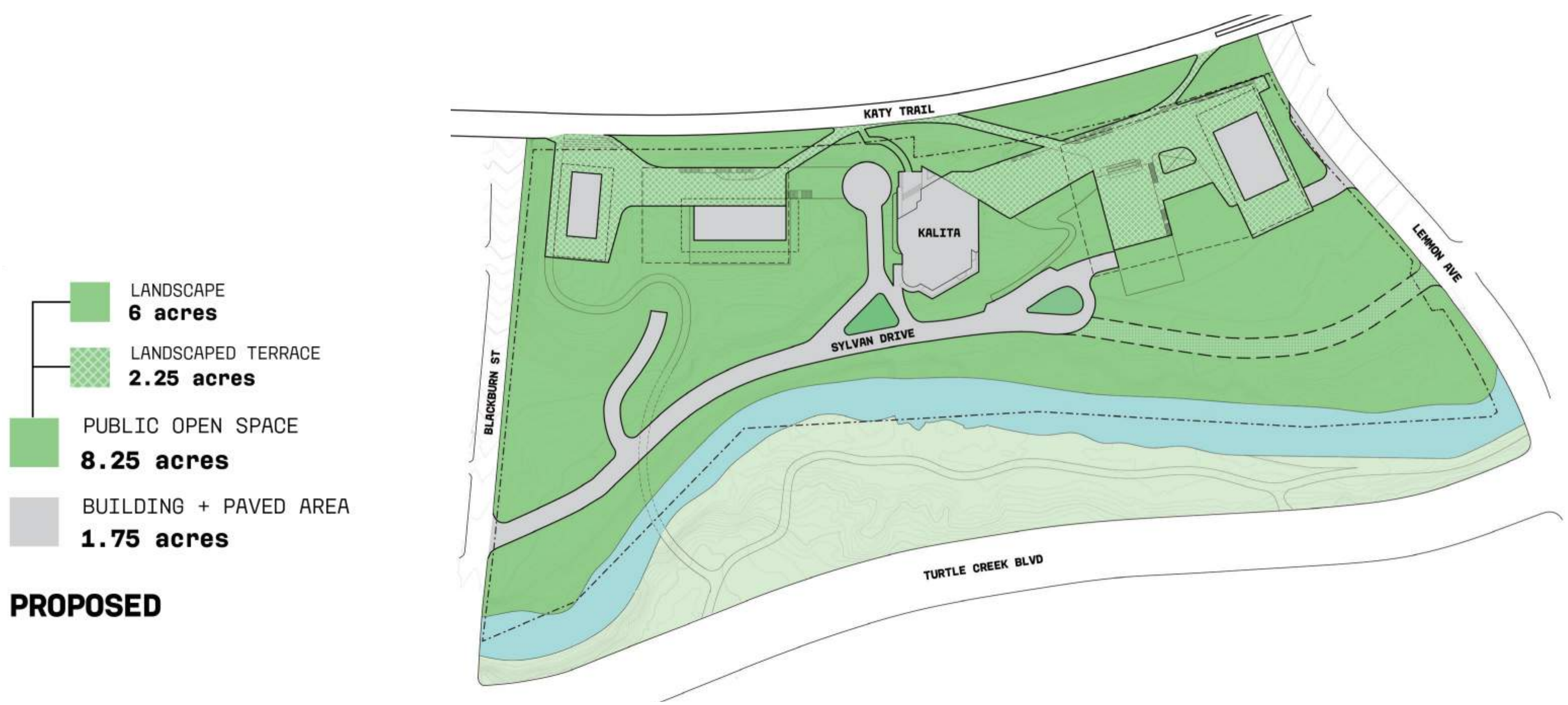
Proposed Garage Overlay

- The existing paved areas provide a series of flattened ground which are considered in the scheme as opportunities for new building footprints.
- Parking is consolidated into two compact garages, on which the major new built area sits



LOT COVERAGE: PROPOSED





Proposed Paved Areas

- The site scheme proposes the removal of approximately half of the impervious built area currently existing on the site, primarily comprised of surface parking.

Proposed Lot Coverage

- While the park landscape area will remain approximately the same as in the existing condition, the new build increases the total accessible landscape by 2 acres, replacing surface parking with a series of public, programmed landscape terraces on top of the building program.
- These terraces connect the Katy Trail into William B. Dean M.D. Park with walkable and accessible routes. They become part of the public park landscape and add programmatic amenities to the Trail and Park.

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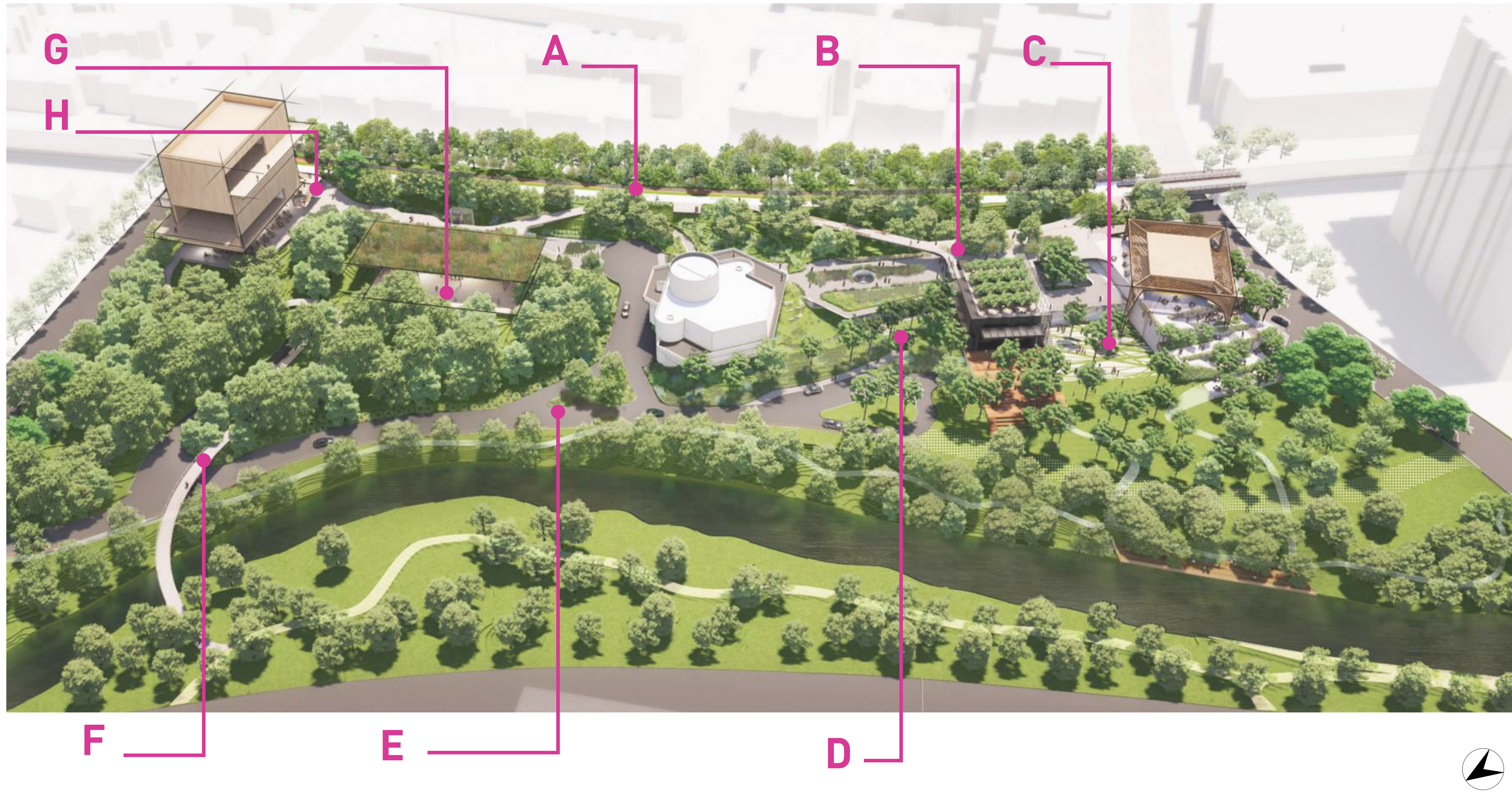
Overall Site View from West

LANDSCAPE DESIGN OBJECTIVES

The proposed landscape design in the Master Plan is a rehabilitation of the site to provide an appropriate setting for the historic Kalita Humphreys Theater that also addresses contemporary programmatic needs. The landscape of this site is a public resource for Dallas residents and visitors, and the design is intended to improve accessibility and engagement with the environment, provide ecological services, and accommodate appropriate programmatic needs for the theater. Specific design objectives include:

- Accentuate and express the existing site characteristics of natural landform, exposed ledge, and native vegetative communities.
- Restore a healthy, diverse and pervasive tree canopy that relates to and creates cohesion with the existing landscape character zones along Turtle Creek corridor.
- Provide opportunities for viewing and engaging with the Kalita Humphreys Theater while preserving the historic character of the resource.
- Develop a hierarchy of circulation strategies to clarify wayfinding and promote active engagement with the environment.
- Provide a clear, accessible, and inclusive connection between the Katy Trail and Turtle Creek Trail networks as a public amenity.
- Increase the appeal and utilization of William B. Dean M.D. Park as an active city park.
- Create a series of landscape rooms, courtyards, and outdoor terraces for theater visitors and the public that are comfortable environments for year-round use. Each space will be responsive to the architecture program, exhibit the unique character of the site and cohesively integrated into the greater site identity.



A. Promenade/Katy Trail Connection
B. Rooftop Terrace
C. Event Space
D. Campus Arrival Plaza
E. Sylvan Drive
F. Bike Path and Bridge
G. Indoor-Outdoor Multi-purpose Space
H. Cafe Space and Trail Network

SITE CONCEPT + DESIGN ANALYSIS

Site Concept

The concept for the Kalita Humphreys Theater site and architecture is a series of architectural pavilions connected by a landscape promenade spine that relates to Katy Trail. The landscape character of Turtle Creek corridor will be extended up to and around the individual pavilions and spine of the new architecture to set each pavilion within landscape. The Park-Like Lowland character of the southern portion of the site will extend up to the new theater pavilions and create a visual connection between the new architecture and the Creek. The Dense and Rugged planting character will extend to the rehearsal and educational pavilions on the north side, and will also extend around the historic Kalita Humphreys theater to encompass the historic façade into woodland planting as it was originally intended.

Along the new program spine and associated with the architecture, a series of outdoor spaces will provide program opportunities for occupying and engaging with the environment. Each outdoor space will have a unique character that gives it its own identity, while fitting within the overall site context and responding to specific programmatic needs of the space.

Sustainabilty

Site sustainability is fundamental to the success of the project. Sustainable design is multifaceted with considerations in every phase of development, including: construction, ecological processes, ongoing site management, financial sustainability, and equitable contributions to the community. The landscape is designed with sustainability in mind to limit the negative impacts on the site during construction, and enhance the site's contributions to the urban environment. The landscape will accommodate and improve the natural ecological processes that occur on the site and throughout Turtle Creek, such as stormwater management and flood mitigation, thermal heat gain, and establishment of a healthy habitat. Ongoing management is also considered to ensure the landscape is manageable within Dallas Theater Center's abilities.

A large outflow drainage structure exists on the site and empties directly into Turtle Creek. This produces a point source for trash and debris that flows through the storm drain from adjacent streets. Currently there is a floating silt fence permanently installed across the creek to catch trash and debris. Efforts outside of the project scope are underway to solve the trash and debris issue.

Vegetation / Planting Community

The planting strategies deployed throughout the site pull from the existing communities that were found on the site and throughout the Turtle Creek corridor. Existing trees will be preserved to the extent possible around the new construction, and new planting will enhance and expand the existing vegetation communities. Dominant tree species include cedar elm, particularly in the lower elevations and in the creek floodplain, and a mix of red oak and cedar in the higher elevation areas.

The proposed shrub and understory layer is comprised of a mix of native and well-adapted species. Shrubs and flowering understory are used to frame and define space, manage views and circulation, add seasonal interest and reinforce landform. On the ground plane lawn is used strategically to pull the park character into the site for continuity with other parcels along the Turtle Creek corridor and Dean Park, as well as provide areas of flexible use for visitors and temporary programming.

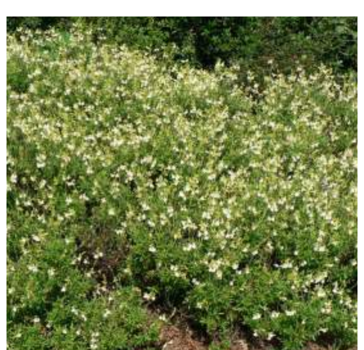
Plant Recommendations

Lowland Park Area

Shrubs

Aesculus pavia
Red buckeye

Symphoricarpos orbiculatus
Coralberry



Salvia greggii
Autumn Sage

Groundcover

Vinca major
Greater periwinkle

Muhlenbergia
capillaris
Muhly grass

Turf Lawn

Rugged Upland Area

Shrubs

Callicarpa americana
American Beautyberry

Rhus aromatica
Fragrant Sumac

Leucophyllum frutescens
Texas Sage

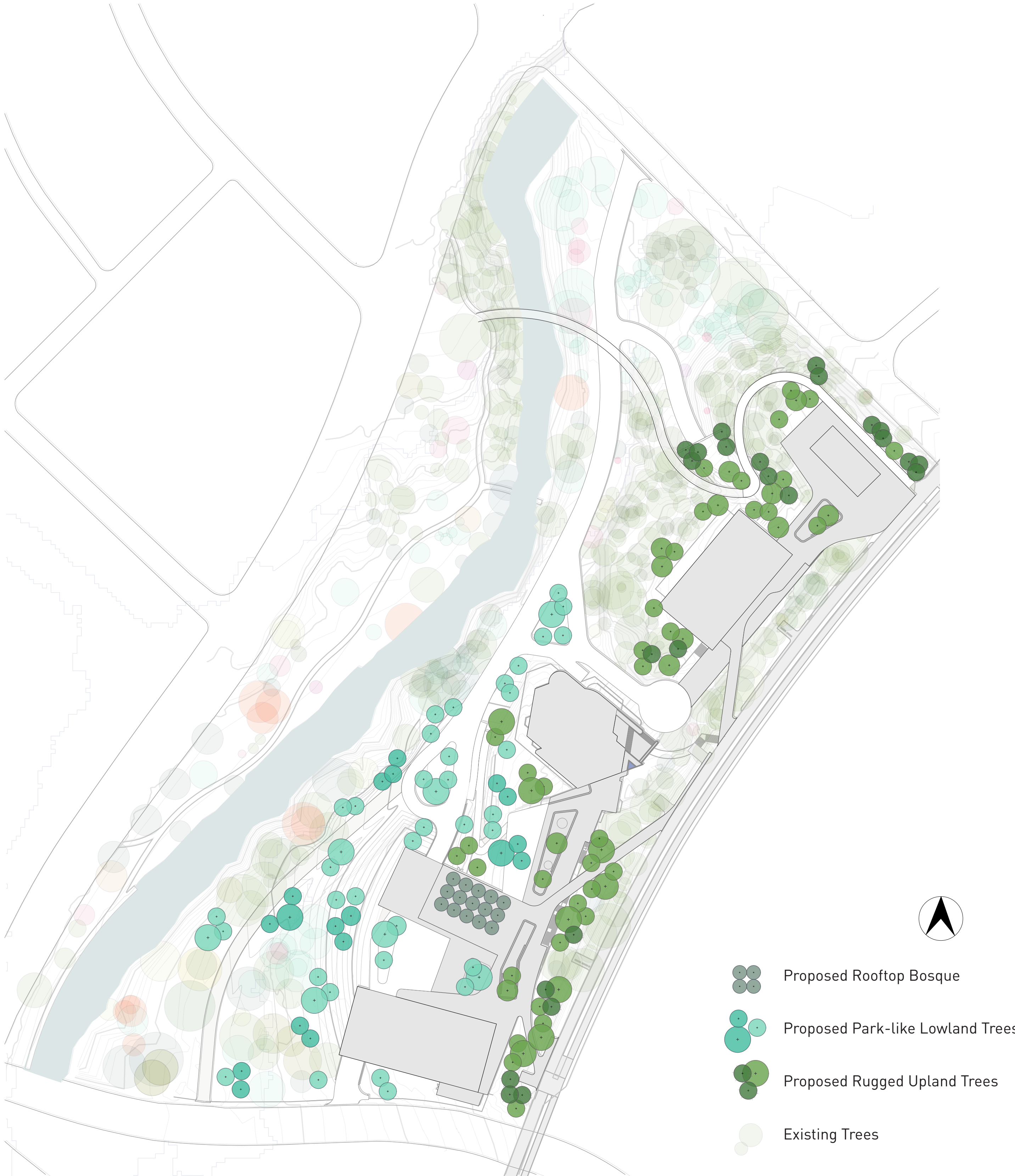
Groundcover

Parthenocissus quinquefolia
Virginia Creeper

Malvaviscus arboreus var. drummondii
Turk's Cap

Salvia coccinea
Scarlet Sage

Proposed Vegetation Zone Analysis

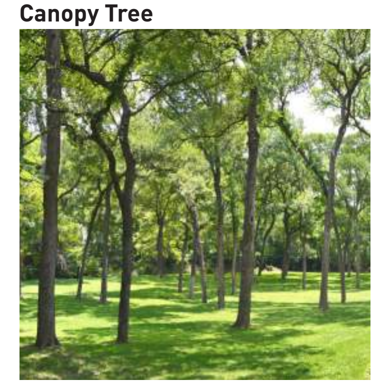


Proposed Tree Analysis

Plant Recommendations

Lowland Park Area

Canopy Tree



Ulmus crassifolia
Cedar elm

Understory Tree

Cercis canadensis
Eastern Redbud

Carya illinoinensis
Pecan

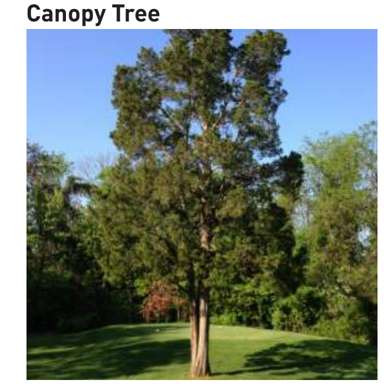
Vachellia farnesiana
Sweet acacia

Platanus occidentalis
Sycamore

Prunus mexicana
Mexican plum

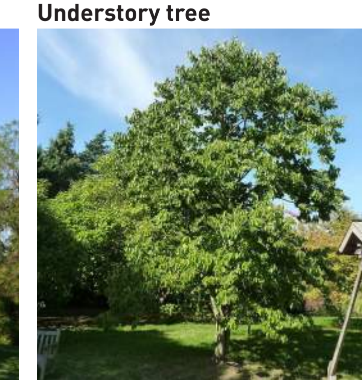
Rugged Upland Area

Canopy Tree



Juniperus virginiana
Eastern red cedar

Understory tree



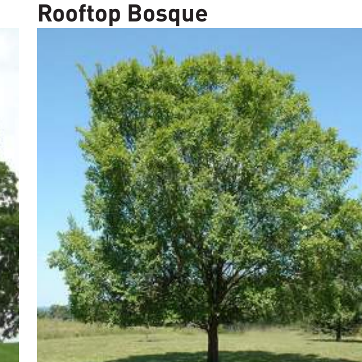
Diospyros virginiana
Common Persimmon

Quercus shumardii
Shumard red oak

Ilex vomitoria
Yaupon Holly

Quercus macrocarpa
Burr oak

Rooftop Bosque



Ulmus parvifolia
Lacebark Elm

DESIGN ANALYSIS

Circulation / Access / Inclusion

Sylvan Drive remains the primary vehicular access on the site. A portion of Sylvan Drive on the south side will be depressed below grade to provide access to the underground parking structure. Landscape will bridge over top of the tunnel and will allow a visual and programmatic connection between the new proposed theaters and the creek. An at-grade portion of Sylvan Drive on the south side will be resurfaced with a permeable paving material and retained for emergency access to the site as well as during peak performance times, however will be primarily closed to through traffic and designated for pedestrian use. A tunnel will also be constructed on the north side of the site for access to underground parking below the education pavilion. A loop drive by the new lobby provides the new accessible visitor drop-off. The original drop-off circle just north of the main entrance to the Kalita Humphreys Theater is retained for historical value.

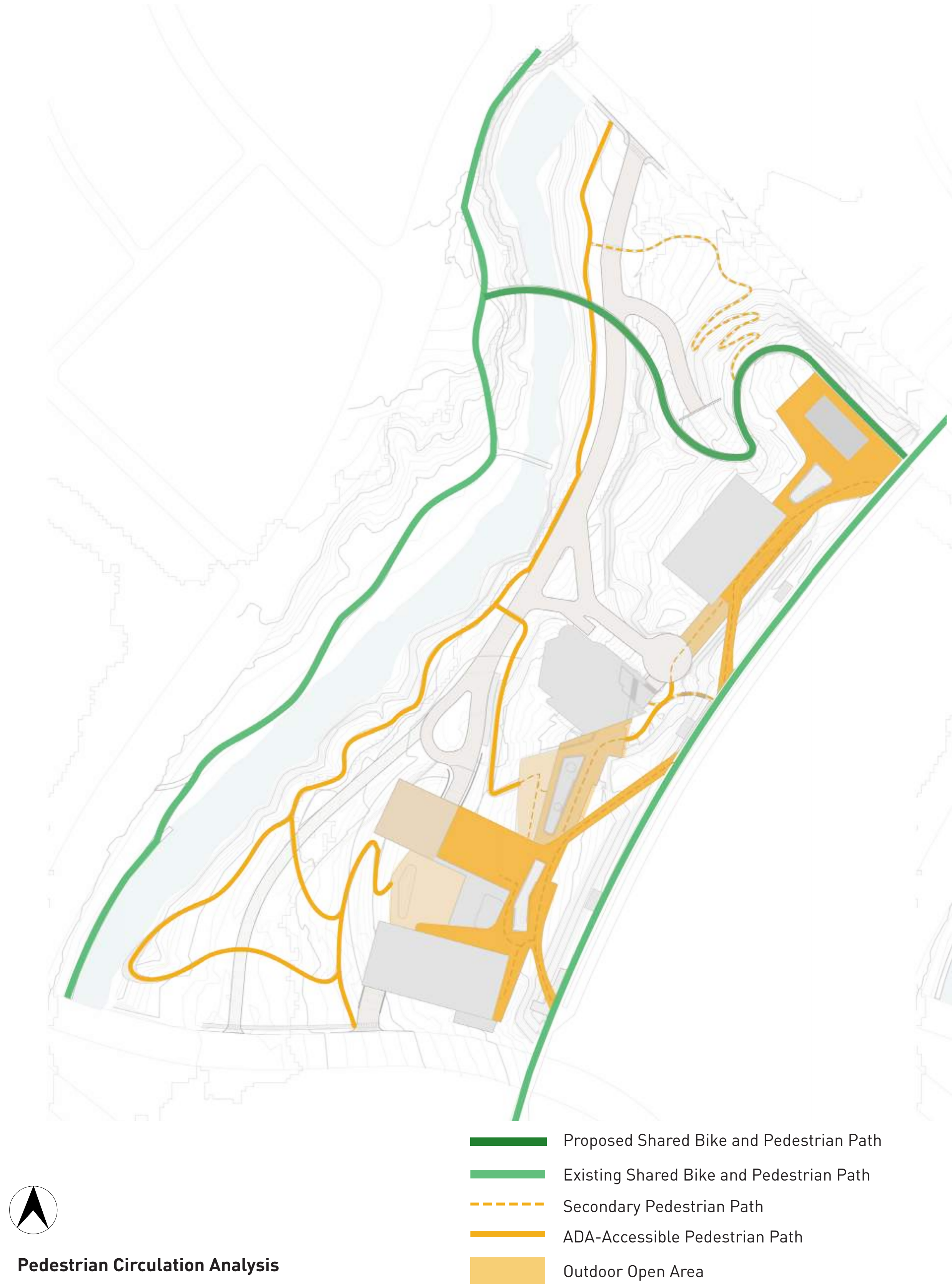
A new bike path will provide an accessible connection between the Katy Trail and Turtle Creek Trail systems. The alignment passes on the north edge of the rehearsal pavilion and so avoids conflicts with the major pedestrian areas.

A network of pedestrian routes navigate throughout the site, including several at-grade connections with Katy Trail for fluid access to the new theater pavilions. A trail along the bank of Turtle Creek provides views to the water and a new way to experience and engage with the site. All newly proposed primary paths are fully accessible to provide an inclusive experience for all visitors. Some secondary paths will provide an alternative experience for able-bodied individuals to further engage with the landscape.

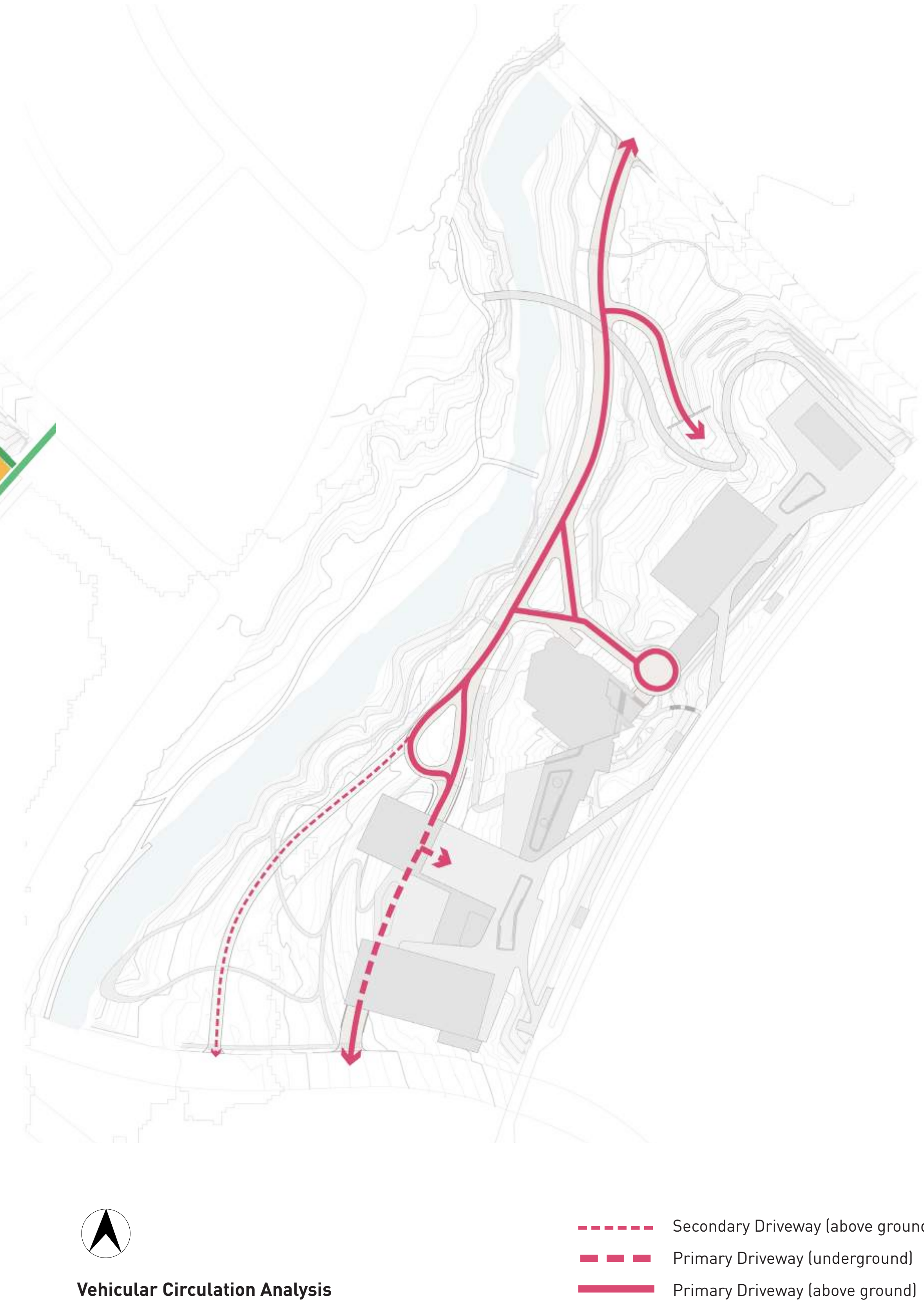
Grading / Wall / Landform

Topographical alterations on the site are necessary to accommodate the new structure and circulation needs, and will be done in a way to highlight the unique character of the site. In specific areas where cuts into the existing bedrock are required for access to structures below existing grade, the bedrock will be left exposed to express the unique character of the limestone and make it part of the visitor experience. This strategy was done in the original construction of the Kalita Humphreys Theater and so there is a historical basis for engaging the limestone in this way.

Where new walls are needed, the wall material will relate to the natural limestone found on site, and stacked in a way to relate to the horizontal strata of the native bedrock. The design of new planted landforms will be shaped in an undulating form, derived from the scalloped forms found on site. The undulating landforms will fit around proposed architecture, accommodate accessible circulation, and provide necessary drainage and stormwater management throughout the site.



Pedestrian Circulation Analysis

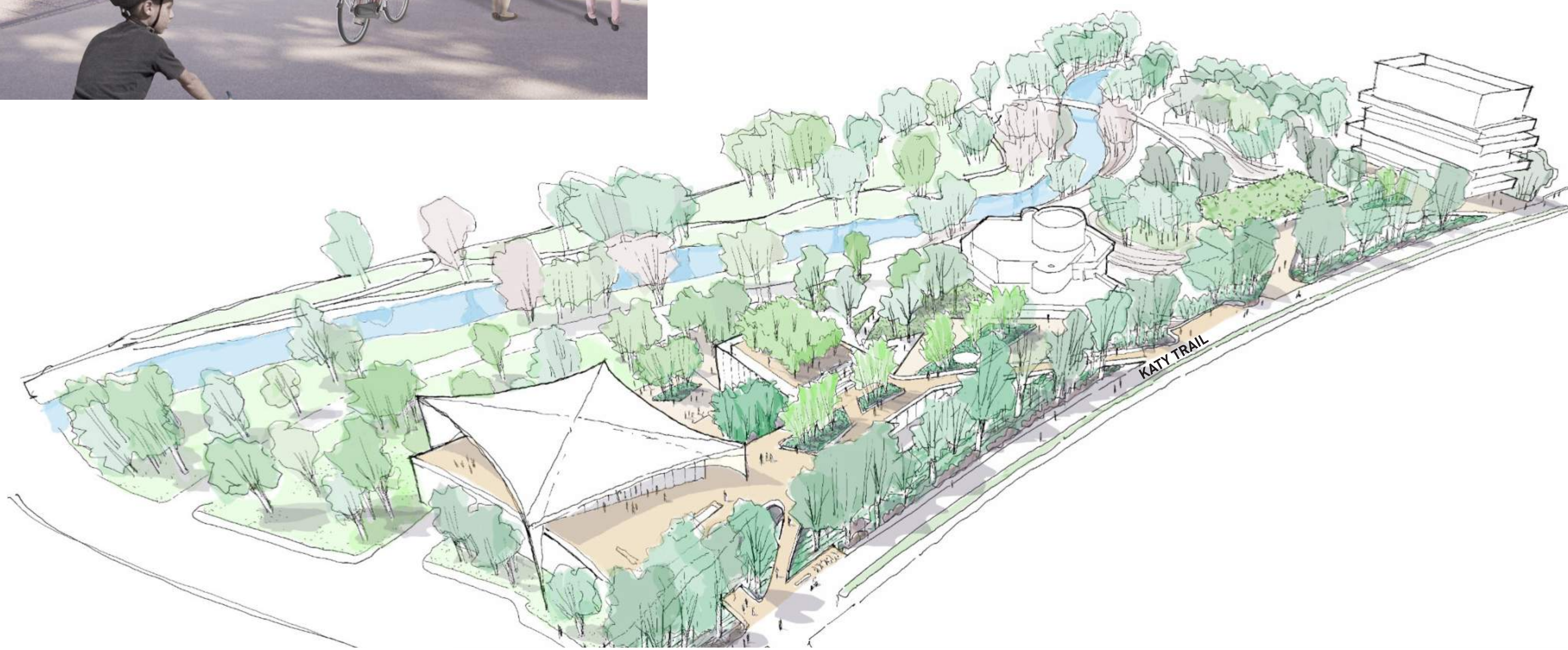


Vehicular Circulation Analysis

LANDSCAPE AREAS

A. Promenade / Katy Trail Connection

The promenade is a path system that connects the new architectural pavilions, the historic Kalita structure, and the Katy Trail. The promenade negotiates grade between the multiple tiers of the site and provides usable outdoor space. It is closely integrated with the architecture and is made up of a combination of rooftop terraces, bridges, and on-grade connections. Programmatic use of the promenade ranges from active circulation zones, small-scale resting areas, and large-scale gathering spaces. The character of the promenade is materially in keeping with the architecture, while incorporating planting and landform as an extension of the site to bring shade and scale to the spaces.



Sketch

B. Rooftop Terrace

The new buildings provide multiple layers of occupiable roof terraces and landscape areas that establish at-grade and accessible connections to existing site elements, such as the Katy Trail, the Kalita Humphreys Theater main lobby, and the ground level at Sylvan Drive. The architectural links between these spaces include a landscape component to bring shade and thermal comfort to the terraces, provide seasonal interest, and pull the unique site character throughout the built forms. The vegetative communities, tree species, paving and wall materials, and topographical landform will all provide continuity between landscape and architecture.


Rendering

Section

Rendering

C. Event Space

Between the Proscenium and Black Box Pavilions on the South side of the site is an outdoor event space that is an extension from the interior shared lobby. This area can host special events and private functions, and provide spill out space for events. At times when events are not actively using the space, the area can be used for passive recreation and provides a direct landscape connection from the architecture down to Turtle Creek. The drive is sunken below grade at this location so vehicular traffic is removed from the visitor experience. The lawn will be planted with a stand of cedar elms to maintain the existing park-like character of this area and provide comfortable dappled shade.

Section

LANDSCAPE AREAS

D. Arrival Plaza

The Arrival Plaza is the accessible front door to the campus and new theater spaces. A loop drive off of Sylvan Drive provides a designated area for passenger loading and drop-off with ample room for vehicles to pull over and turnaround without blocking thru-traffic. From the loading area, an ADA accessible path brings visitors to the Entry Plaza outside of the new lobby. This is a shaded plaza for seating and gathering, and can double as spill-out event space. Elevators from the underground parking structure open to the plaza, so all visitors arrive into the park at the campus entry.


Sketch


Rendering

Section

Precedent: Clark Art Institute by Reed Hilderbrand LLC.

E. Sylvan Drive

Sylvan Drive is maintained as the primary vehicular access route through the site. The character will be modified to feel more fitted to the site as a park drive. The drive will be narrowed to 20' to reduce the amount of paving while maintaining fire access. Curbs and parking will be removed, and a flush shoulder condition established with planting brought up to the edge. The southern portion of Sylvan Drive will be resurfaced with permeable paving and maintained primarily for bike and pedestrian use with emergency vehicle access. Vehicular traffic will be redirected to an underground tunnel that accesses the parking garage.

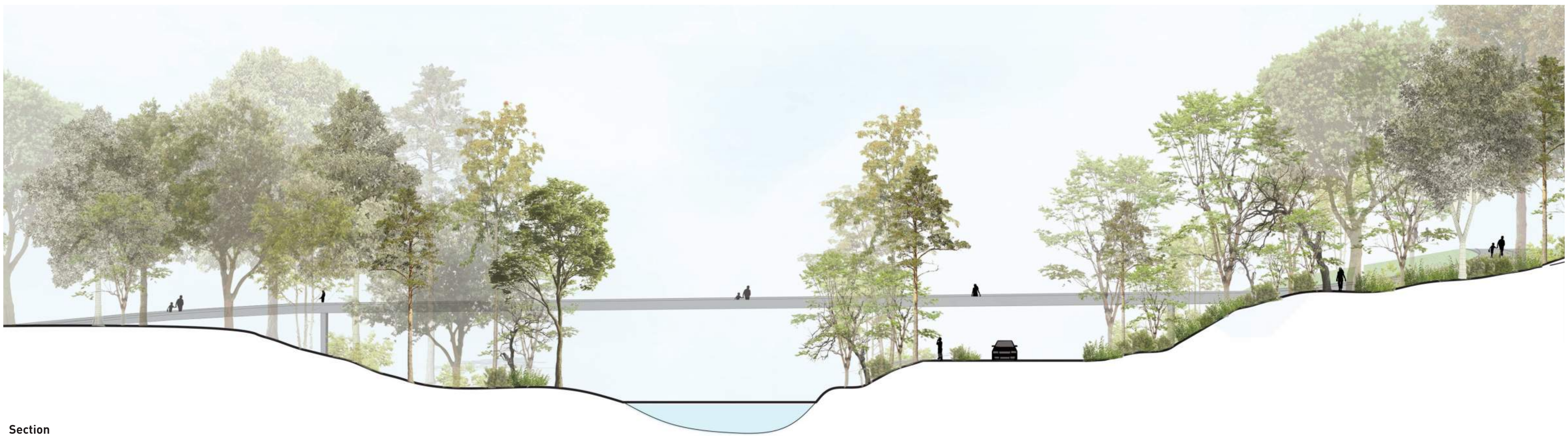
Before Current Condition of Sylvan Dr.

After Proposed Sylvan Dr. with the width narrowed and new trees planted

F. Bike Path and Bridge

The bike path and bridge links the Katy Trail on the east edge of the site to the Turtle Creek Path network on the west side of William B. Dean M.D. Park. The path has a consistent gradual slope from the high point at the Katy Trail connection and across the creek that meets ADA accessibility standards. This will provide a comfortable and easy access for all public users, including runners, bikers, families with strollers, and mobility challenged individuals. The path is fitted to the existing contours as an on-grade path in the northeast portion of the site, and then extends as an elevated bridge over Sylvan Drive and Turtle Creek. The full length of the bridge is about 350 feet, and crosses above the 100-year flood elevation. The bridge will have long spans with carefully located piers and pilings, and will be engineered to minimize obstructions within the flood zone.

Rendering



Section

G. Outdoor Multi-purpose Space

The space directly west of the multi-purpose pavilion is a terrace for outdoor education programming or special events. The interior space of the architecture extends out into the landscape with a retractable door to create a direct connection with the site with elevated views above the limestone escarpment overlooking the creek. Existing trees above the escarpment will be preserved to the greatest extent possible, and enhanced with additional oaks and cedars to maintain the existing character. The swale between the multi-purpose pavilion and the rehearsal pavilion will be preserved for stormwater management, and expressed with planting.

H. Cafe Space and Trail Network

The café is located in the northern most pavilion associated with the rehearsal spaces. An outdoor deck will provide comfortable space for the café with shaded seating. It is located on the highest point of the site, and visitors will enjoy views from the café deck overlooking the site and out to the City. The existing brushy vegetation of cedars and oaks will be maintained and enhanced to preserve the existing character of the site.

The new bike path that links Katy Trail with the Turtle Creek Trail network runs adjacent to the rehearsal and education pavilion and will activate this corner of the site. The café deck will overlook this active path connection, as well as a new trail that extends from the path and traverses down the slope to Sylvan Drive through existing vegetation. The trail offers opportunities for a closer connection with the site's natural environment.


Rendering

Section

Sketch

Kalita Humphreys Theater

Dallas Theater Center

MASTERPLAN REPORT

December 2022

DILLER SCOFIDIO + RENFRO

VOLUME 2

CONTENTS

TECHNICAL NARRATIVES

EXISTING CONDITIONS
KALITA HUMPHREYS THEATER

EXISTING CONDITIONS: KALITA HUMPHREYS THEATER

Exterior: General

Facades
The exterior facades of the building are coated concrete. Refer to structural section for concrete condition assessment. The coating at the later addition to the building are heavily soiled with localized delamination at cracks and seams. The coating at the original building has localized soiling at the top of walls and around service entries. There is impact damage near the loading dock and pattern cracking at the parapets – refer to structural for further condition assessment.

Soffits
Exterior soffits are painted cement plaster with control joints aligned with the building grid. The 1960s addition has a painted steel bevel at the concrete edge. At all other soffits, the bevel is concrete. The soffits are in good to fair condition, the steel bevel is severely corroded.

Doors
Service doors are painted flush hollow metal doors with painted hollow metal frames. They are in fair to poor condition with peeling and meeting paint. The doors have non-original chrome pulls and painted hinges. The door closer is in poor condition as it is corroded.

The basement shop doors are painted flush hollow metal doors with non-original chrome hardware in fair to poor condition. There are areas of corrosion, many abandoned fastener homes, corroded steel hinges, and a deformed astragal.

The fire exit doors from the House are painted flush hollow metal doors and frames with original bronze hardware. They are in fair condition with worn paint and overpainted bronze elements. There is one original closer and one non-original closer.

The door to Paul Baker's office is a painted flush hollow metal door with a single glazed lite, a painted hollow metal frame, and original bronze hardware. It is believed to be the original door relocated to the new position of the exterior wall as part of the 1963 addition. The door is in good to fair condition with fading and UV damaged paint and overpainted hardware.

Building Name Sign
The building name is comprised of bronze lettering inset within a concrete wall at the north entry. The lettering is in good condition.

Windows
Windows in the basement addition are painted steel frame casement windows. They are in fair to poor condition with cracked window putty, chipped and missing paint, and corroded steel sash.

For glass storefront system conditions, see interior lobby section. For conditions of clerestory windows typical of the building, see interior section.

Lighting
At the south entry ramp, light fixtures with plastic shades covering concealed lamps are in fair condition with some broken or missing plastic shades.

Light fixtures at the south entry landing are surface-mounted painted metal shades. The fixtures are in poor condition with corroded metal, worn paint, and deformed metal shades.

There are recessed down lights installed at the south entry soffit with round metal trim and glass lenses. These fixtures are in good to fair condition with some damage to the metal finish and some corrosion.

Recessed wall lights are installed outside of the stage fire exit and loading dock with painted metal louvers concealing a lamp. These fixtures are in fair condition with non-original fasteners replacing originals and worn and missing paint finishes.

Recessed down lights with round bronze trim and glass lenses are located in the soffit near the loading dock and at the north entry soffit. They are in fair condition with corroded bronze.

Roofing
At roof terraces, the built-up roofing material is painted red and is in fair to poor condition. The horizontal surfaces are worn with some areas completely missing. Vertical flashings have failed due to severe delamination.

Non-accessible flat roofs are hot fluid applied with stem ballast with modified bituminous roofing material at flashings. The flat roofs are at the end of their serviceable life.

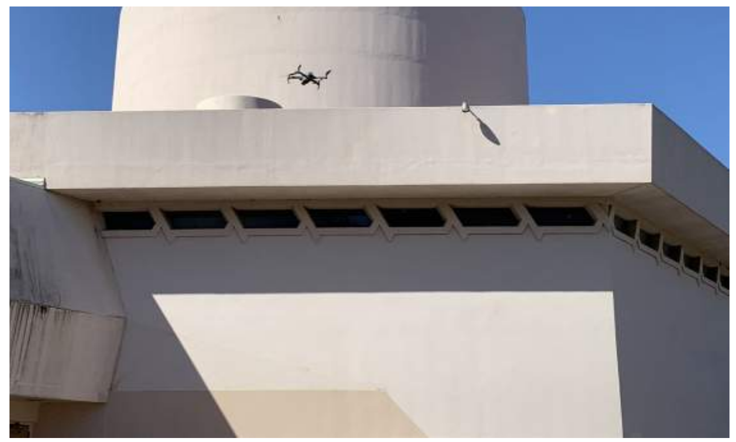
There are two acrylic skylights into spaces below, one of which has a cracked acrylic outer lens.

Existing conditions of flat roofs and roof terraces

Typical existing conditions of coated concrete facades, soffits, clerestory windows, and exterior doors are visible on the northwest facade.

EXTERIOR EXISTING CONDITIONS

Delaminated coatings and deteriorated concrete is typical at overhang edges. Exterior lighting and mechanical vents in soffits in fair condition.



Several different exterior finish colors are present on the Kalita.

Exterior hollow metal doors are in fair condition with failed paint.

Built up roofing on terraces in fair to poor condition.

Concrete at the education wing addition is heavily soiled and cracked.

Bronze lettering on the building sign is in good condition, though is causing some soiling to the surrounding concrete.

Steel frame windows at the added basement offices are in good to fair condition.

Flat roofing is at the end of its serviceable life.

EXISTING CONDITIONS: KALITA HUMPHREYS THEATER

Exterior: South Entry

Pavers and Steps
The south entry has red concrete at the walkway and non-colored concrete at the steps and landing. The pavers at this entry are in poor condition with cracked steps, corroded reinforcing at stair nosings, and previous cementitious patches that are spalling. The red pavers are in fair condition as they have become worn and faded with minor cracks.

Handrails
Handrails at the south entry stair are painted steel. They are in poor condition with deformed and bent rail sections, heavy corrosion, and chipped and missing paint.

Handrails at the south entry ramp are painted steel in fair condition with some corrosion and chipped paint.

Fountain
The fountain is comprised of painted steel elements with a concrete pedestal and pool. It is in poor condition with severely corroded steel, missing paint, and discolored finishes of the concrete. The fountain also causes damage to the storefront framing and glass due to chlorine spray.

Air Well Grates
Painted metal grating at air wells are in fair to poor condition with missing paint and corroded steel.

Exterior: North Entry

Pavers and Steps
The pavers at the north entry are red concrete in fair condition with a worn red finish and minor cracking.

Retaining walls
The painted concrete retaining walls and planters are in fair condition with worn and missing paint, chipped and spalling concrete at top edges and corners, as well as several other cracks. There is an area of previous concrete repairs with a non-matching finish texture.

Handrails
The north entry handrails are painted aluminum handrails in fair to poor condition. There are loose elements and elements that bend with load.

Fountain
The fountain is a painted steel bowl set on a painted concrete pedestal and pool with metal grating. The fountain is in poor condition with severely corroded steel and missing paint at the bowl as well as staining on the concrete. There are missing coverplates

North entry existing condition

South entry existing condition


Exterior red-stained concrete pavers are soiled, cracked, and previously repaired.


Concrete retaining walls are in fair condition with failing paint and areas of delaminiated concrete.

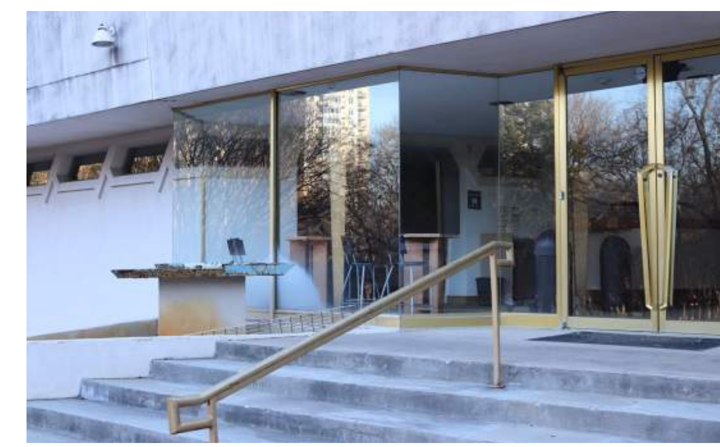

The non-original handrails are unstable.


Generally the fountains are in fair to poor condition.


Exterior red-stained concrete steps are in poor condition.


Generally exterior entry elements are soiled.


Retaining walls and planters are in fair condition.


The non-original south entry paving, handrails, and fountain are in fair to poor condition.

EXISTING CONDITIONS: KALITA HUMPHREYS THEATER

The following narrative describes the existing condition of building materials and elements present within the Kalita Humphreys Theater. All condition assessment notes were derived from visual observations cross checked with available construction documentation. Materials and finishes of all building elements should be inventoried and investigated using material testing to inform thorough restoration recommendations.

Ground Floor

Historic Lobby & Ticket Booth

Description
The current lobby space is the result of major modifications made to the building between 1965 and 1990. It is a large space that is divided down the middle by an original exterior wall into two distinguishable spaces sharing a use. The historic lobby footprint encompasses only the half of the lobby from the entry into the auditorium to the original exterior concrete wall. The ticket booth is adjacent to the north entry.

Walls
The walls in the lobby are textured plaster applied to the structural concrete. The concrete walls and plaster finishes are in good condition with few areas of chipped paint.

Flooring
The lobby floor is concrete covered with brown carpet that extends up the wall to form a wall base. The carpet is in fair condition with general signs of traffic wear and areas of staining.

Ceiling
The ceiling is a rough textured acoustic plaster. It is believed that the existing finish has been applied directly over the original painted textured plaster that is still visible around columns. The ceiling is in good condition with some areas of discoloration. The ceiling in the ticket booth is painted plaster. It is not textured to match the adjacent lobby ceiling. It is in good to fair condition.

Columns
Columns are painted concrete cast with decorative detailing. Columns are in good condition with some chipped paint.

Millwork
At the outside walls of the historic lobby, enclosures concealing mechanical vents have a resinous wood edging at the top of the half-height wall and a wood shelf recessed below the edge. Bronze painted aluminum grilles are fixed into the shelf. There is also a resinous finished wood counter at the ticket windows. The bar and merchandise counters and woodwork are in poor condition with scratched and worn finishes and loose elements. The mechanical enclosures are in fair condition with scratches and worn finishes. The wood panel near the theater entry door is slightly displaced. The mechanical grilles are in fair condition with worn and missing paint finishes. The built in wood counters and shelves in the ticket booth are in fair condition with some scratches and typical worn finishes.

Windows
There are painted, textured concrete framed single-pane windows along the west exterior wall. The plaster finish acts as the interior glazing stop. The windows are in good condition with few signs of wear.

Doors
There are resinous finished flush wood doors with bronze hardware opening from the lobby to the theater as well as the ticket booth. The wood doors are in good to fair condition with worn bronze finishes and tape residue and scratches on the wood.

Lighting
Recessed down lights have a lens flush with the ceiling surface and a gold anodized aluminum ring of trim. There are small, aluminum trimmed down lights with no lenses at the bar. There are stair lights built into the risers with aluminum light grilles diffusing light down. Surface mounted, painted metal spot lights are installed around the curved wall. Exit signs are painted black plastic. All lighting is in good to fair condition with minor scratches. The recessed lights have discolored bronze trim. The stair lights have missing fasteners. Exit signs are in good condition.

Stairs
The concrete stair to the basement is finished with carpeted risers and treads and has a metal handrail, further investigation is required to determine the specific metal material as the current condition does not match what is indicated in the 1989 drawings. The carpet is in fair condition and handrail is in good condition.


Overall view of the historic lobby space looking south.


Overall view of the historic lobby looking northwest.

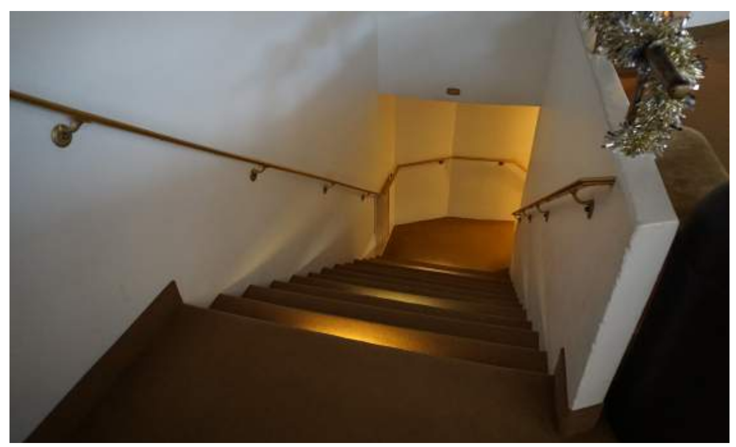

Textured plaster ceilings with smooth circles around columns.


Half-height walls to conceal mechanical ducts at perimeter.


Three original columns delineating the original location of the exterior glass doors.


Ticket counter within historic lobby.


Cast concrete windows with single pane glass, typical of the building.


Rebuilt stairs in original location provide access to the basement level.


Circular flush-mount lense lighting typical of the building seen at right. MEP and life safety devices are randomly placed across lobby ceiling.


Overall view of ticket

Lobby Addition

Description
The original lobby was reconfigured in 1989 with the enclosure of the space directly south of it. This addition included a refreshment bar, a gift shop counter, and altered points of entry. The three original entry doors were removed, and the east wall of the lobby was moved farther east to enclose the south end of the terrace. A new vestibule was added outside of the box office window, two double doors were added to the east wall of the new lobby enclosure, and a new entry stair and terrace were added at the west end of the new addition with two double doors in the west wall of the new lobby enclosure. The updated configuration doubled the amount of space available in the lobby. The exterior wall from the original 1959 construction runs through the middle of the enlarged lobby space with an opening made in the south west corner. The original 3 columns remain at the east boundary of the original construction.

Walls
The walls in the lobby are sand filled paint on plaster applied to the structural concrete. Concrete walls concentrated in the original northern portion of the lobby date from the original 1959 construction and largely retain their material integrity. A portion of the original exterior concrete wall was removed to create an opening into the enlarged lobby. A non-original arched opening has been made in the curved north wall to allow access to the added stair leading to the lower level. The concrete walls of the southern stair mass date from 1983 and are non-original. The concrete walls and plaster finishes are in good condition with few areas of chipped paint.

Flooring
The lobby floor is concrete covered with brown carpet that continues up the wall to create a wall base. Behind the bar, the floor is red vinyl composite tile. The carpet is in good condition with few areas of staining. The vinyl floor is in poor condition with chipped and scratched tiles and open joints.

Ceiling
The ceiling is a rough textured acoustic plaster. It is believed that the existing finish has been applied directly over the original painted textured plaster that is still visible around columns. The ceiling is in good condition with some areas of discoloration.

Columns
Columns are painted concrete cast with decorative detailing. Columns are in good condition with some chipped paint.

Millwork
Various millwork elements are located throughout the lobby. The bar and merchandise areas both have plastic laminate countertops with resinous finished wood cabinets. The bar and merchandise counters and woodwork are in poor condition with scratched and worn finishes and loose elements.

Storefront Glazing & Doors
The floor to ceiling storefront glazing is gold anodized aluminum framed with gold anodized aluminum doors, door pulls, and stops. The glazing system is in fair condition with minor finish scratches and some areas of missing finish at pivots and door pulls. There is slight displacement at the base frame. The condition is more deteriorated with significant staining adjacent to the west fountain due to the chlorinated water splashing on the glazing and frame.

Doors
There is a resinous finished flush wood door with bronze hardware opening from the lobby to the stair tower. In the hallway leading to the restroom and ticket booth, there are flush painted metal doors with painted metal frames and bronze hardware. Original construction drawings did not indicate The wood door is in fair condition with worn metal knobs and a residue on the wood. The metal doors are in fair condition with scratched paint and worn hardware finishes.

Lighting
Recessed down lights have a lens flush with the ceiling surface and a built in ring. There are small, aluminum trimmed down lights with no lenses at the bar. Additional down lights with painted trim and no lenses are installed at the merchandize counter. Exit signs are black plastic. All lighting is in good condition with minor scratches. Exit signs are in good condition.

Overall view of the added lobby space looking north.


Overall view of the added lobby looking southeast

INTERIOR EXISTING CONDITIONS

Non-original vestibule with what are believed to be original exterior doors.

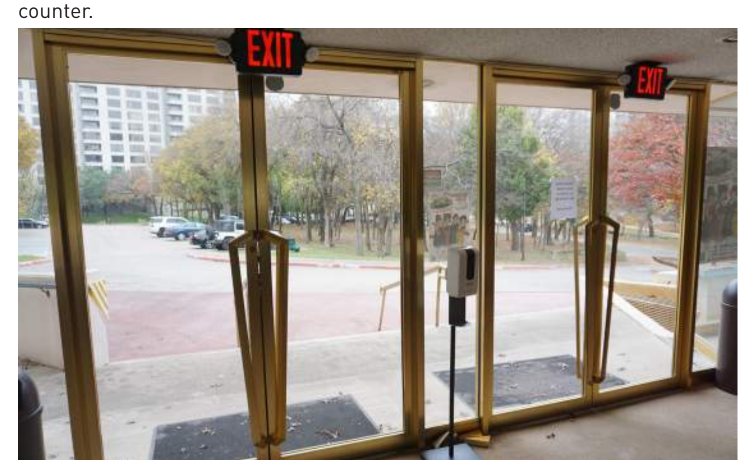
Non-original refreshment bar and opening in original concrete wall.

Laminate finishes on refreshment bar and red vinyl tile floor behind the counter.

Original donors list fixed to wall inside of vestibule.

Added columns to support the education wing above.

Non-original counter.



New glass doors at south entry are replicated from the original doors.

Detail of non-original glass storefront meeting ceiling and columns.

Auditorium

Description
The auditorium is entered at the northwest corner of the lobby with the high end of the seating rake at the west edge of the space. The space is defined by the geometry of the circular stage, with the seating radiating out from that point and the ceiling reflecting the radiation of the seating. The rake slopes down to the circular projecting stage at the east side of the space. Two slightly raised triangular sections of seating at the north and south sides of the auditorium cover two original vomitory staircases, one of which has been completely enclosed. A small balcony huge the west end of the space, accessed by a narrow staircase at both the north and south ends. The only windows in the space run along the west exterior wall and have painted plywood shade panels that can be opened and closed. The ceiling over the auditorium has openings to accommodate theater lighting, and each circular section is canted for acoustics. The revolving stage is situated under a cantilevered fly loft with a concrete semi-circular wall at the background of the stage structurally supporting the loft.

Flooring
The existing red carpet is in fair to poor condition with frayed seams, significant soiling and heavy wear at stairs.

Seating
The existing automatic-lift seats have painted metal frames, resinous finished wood arm rests, and red velvet seats and backs. Each seat also has a bronze plate seat numbers and some have an acknowledgement plaque. The seats are in good to fair condition. There is minor wear on the wood arm rests and the bronze plates are scratched. The painted metal frames and seat upholstery are in generally good condition. Some of the auto-lift seats do not operate.

Walls & Ceiling Beneath Balcony
The walls and ceiling are a painted textured plaster with three different textures visible, indicating areas of repair. Original walls have a large partial sweep, added walls at original planter locations have a heavier sand finish, and walls at the stairs to the balcony have a lighter sand finish. Around window openings, there are areas of delaminated or missing plaster. There are localized areas of chipped and separated paint finish. There are also areas of touched up paint with a different gloss level.

Main Theater Ceiling
The semi-circular ceiling over the theater seating is a painted, textured acoustical plaster added over the original finish. There is a painted metal edge of lighting coffers

Wood Trim & Millwork
The resinous finished plywood enclosure concealing ductwork along the west exterior wall has minor scratches, water stains, and worn finishes. There is a resinous finished wood veneer partial height wall behind the last row of seating and around the control booth that is in poor condition with scratched and worn finishes and areas of varying veneer failure such as delaminating, chipped or altogether missing veneer. The resinous wood railing around both raised seating areas at the left and right of the stage are in fair condition with select areas of chipped and scratched wood.

Window Shutters
The wood window shutters have a painted triangle accent and are attached to the windows with bronze piano hinges and have bronze triangle catches and bronze rod with painted wood block shutter hold-opens. All elements of the shutter system are in good to fair condition. There are few scratches on the wood finish, many sagged hinge connections, and several bronze elements have tarnished finishes. There are select areas of damaged or missing veneer.

Mechanical Louvers
Various mechanical louvers throughout the space are in fair condition. Painted louvers with operable blades at the far west wall have chipped and worn paint and some deformed blades. Painted metal grilles in the floor in front of the stage have chipped and worn paint and missing fasteners. The painted metal grilles in walls have chipped and missing paint.

Lighting
Recessed down lights with glass lenses below the balcony have 2 different designs: one is a larger fixture with the lens flush with the ceiling surface and has a built in ring, the other is a smaller diameter with a lens recessed above the ceiling surface and painted metal trim. The two types of fixtures are both in good condition. There are step lights installed along wall to the balcony that have painted metal trim and acrylic lenses. Similar recessed wall lights have louvers over the acrylic lens that diffuses the light downward. On the balcony level, there are recessed down lights that have no lens covers, and the steps have a strip light under the stair nosings.

Handrails
The aluminum handrails at the balcony steps with a painted steel bar and wall brackets are in good condition with minor scratches on aluminum finishes.

Doors
At side platforms, resinous finished flush wood doors are hung on painted hollow metal frames with bronze hold opens and bronze push plates with thumb turns. The doors and hardware are in good condition with few scratches in the resinous finish and areas of worn bronze finishes. Doors into the theater and lounge are resinous finish flush wood doors with bronze push plates, bronze hold opens, and bronze frames and concealed closers are in good to fair condition with scratched resinous finishes and worn bronze finishes.

Exit Signs
Black plastic exist signs with integral lights are in good condition.

*Refer to the Technical Narrative Audio-Visual section for sound and theatrical lighting conditions.

Overall view looking south.

INTERIOR EXISTING CONDITIONS


View looking southwest beneath overhead balcony.


Detail of existing ceiling.


Existing seating, carpet, and floor rake. View looking west.

Original vomitory stairs covered for additional seating above.


Existing balcony.


Existing condition of the stage.


Stairs up to balcony are angled to align with the design grid.

Committee Room

Description
The committee room is situated to the north of the auditorium and is accessed through a set of flush wood panel double doors. The space has windows typical of the building at two exterior walls, and the windows have shade panels that match those in the auditorium. Wood built-in shelving lines the walls beneath the windows, and a bar at the east end of the space is finished in wood to match. A circular opening in the south wall would have originally been glass to view into the auditorium, and additional wood shelving originally spanned across the length of the wall above the seating.

Walls
The walls are painted textured plaster finished with a large swirl pattern. The walls are in good condition with varied texture.

Floor
The concrete floor is covered with brown carpet that is in fair condition with areas of soiling. The floor behind the bar is a red painted concrete in fair condition with very worn paint.

Ceiling
The ceiling is painted textured acoustic plaster. The ceiling is in good condition.

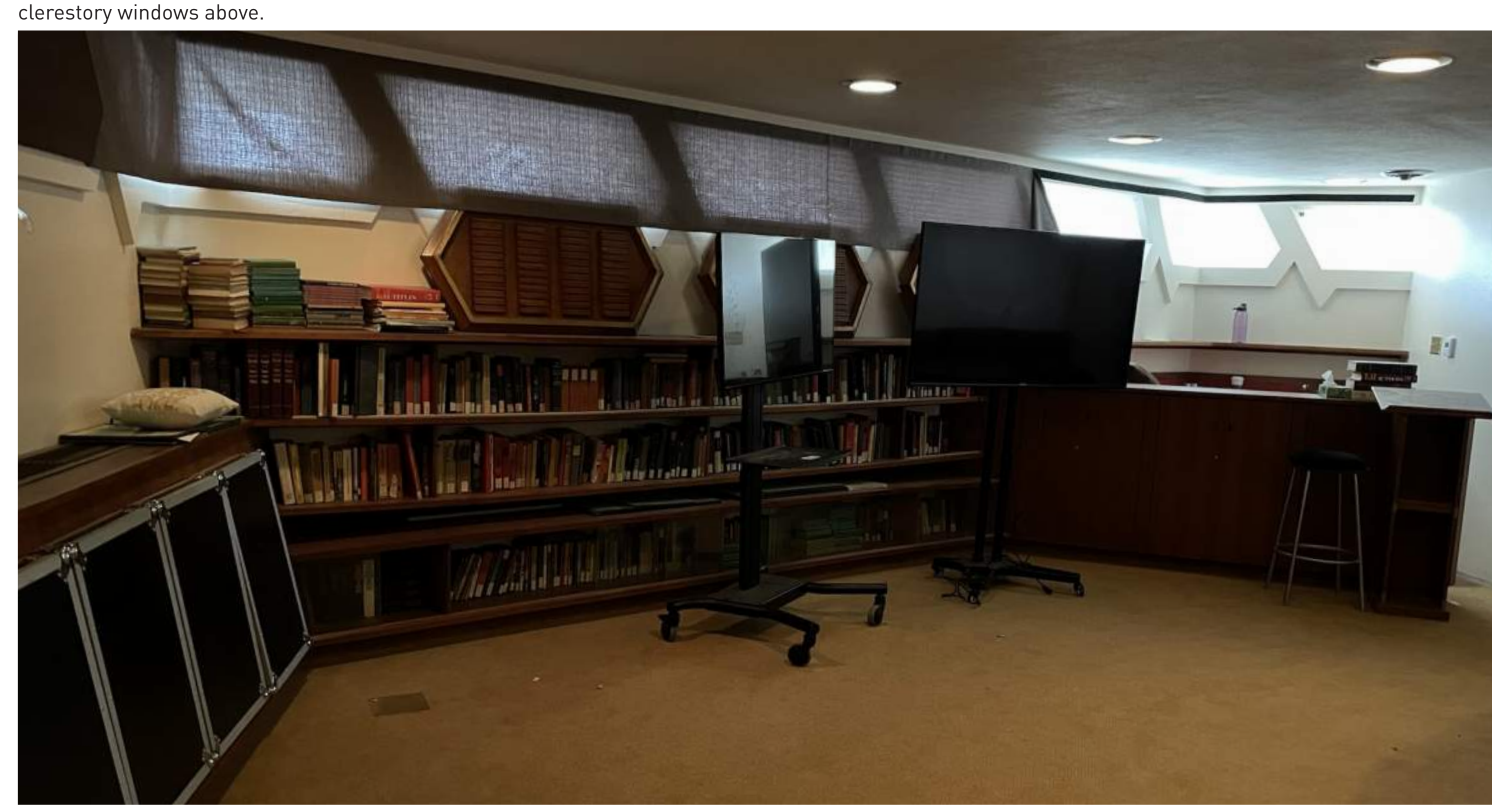
Millwork
There are resinous finished wood shelves lining the north wall, mechanical vent enclosure lining the west wall with bronze plated aluminum grilles, and built-in banquette seating lining the south wall. There is a resinous finished wood bar with laminate countertop. The wood bar cabinets have bronze door pulls and hinges. There are painted plywood shutters with the same detailing and hardware as those in the theater installed over the west windows. Most of the millwork throughout the space is in good condition. The bar is in fair condition with some chipped veneer, scratches and splattered paint on the varying surfaces. The bronze plated aluminum grilles are worn. The wood shutters are in fair condition with some veneer delaminating.

Lighting
Recessed down lights in have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
A resinous finished flush wood door with bronze push plates and frame, a concealed closer, and painted metal grilles leads to the theater. A painted flush hollow metal door and frame with a non-original metal knob leads to the stage. The wood door and its hardware are in fair condition with few scratches and worn finishes. The hollow metal door is in fair condition with chipped and worn paint.

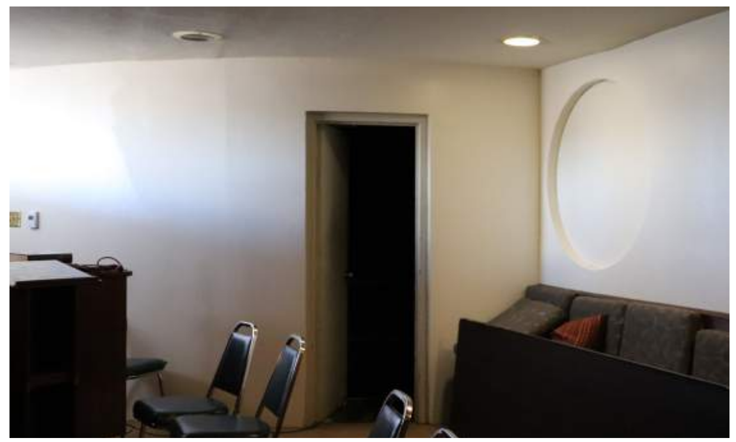
Windows
Cast in place concrete framed windows typical of the building line the exterior walls. The windows are in good condition. There is one area of plaster finish at a window head that has been refinished with plaster that does not match the original.


West wall of committee room lined with mechanical enclosure with typical clerestory windows above.


View of bar located in east corner of the space.

INTERIOR EXISTING CONDITIONS

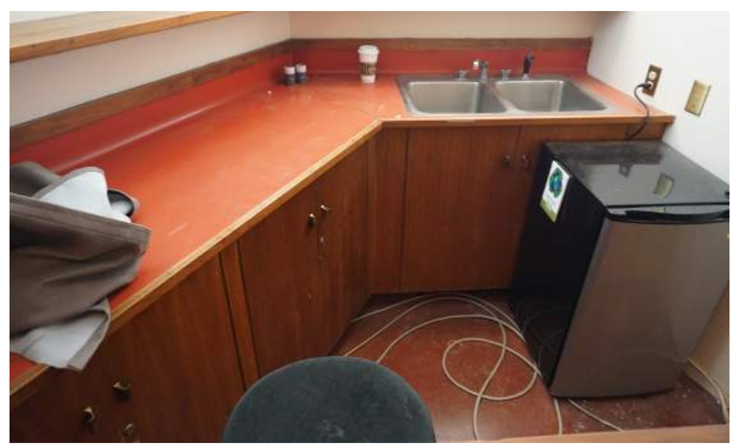

Reconstructed banquette along south wall.


Infilled circular opening.


Original hardware on wood cabinets below bar.


Original switch and outlet covers present throughout room.


Original bookshelves along north wall.


Original wet bar with red stained concrete floor.


Original light fixtures typical of the building.


Plywood panels over four windows, fabric curtain over others.

Backstage Corridor

Description
The backstage corridor at the ground level is accessible from the small hallway off of the lobby as well as from doors at either side of the stage. Material finishes, lighting, and doors are typical of other spaces in the building.

Walls
The walls are plaster painted with sand-filled paint. The walls are in good to fair condition with few marks.

Floor
The floor is red vinyl composite tile with vinyl wall base. The floor is in poor condition with several cracked or missing tiles. The wall base is in fair condition.

Ceiling
The ceiling is plaster painted with sand-filled paint. The ceiling is in good condition.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
Doors off of the corridor are resinous finished flush wood doors with bronze knobs and hardware hung on painted hollow metal frames. The doors are in good to fair condition with worn hardware, few scratches, and tape residue. There are several pieces of hardware missing. The door frames are in fair condition with chipped paint.

Back of House Stairs

Walls
The walls are plaster painted with sand-filled paint. The walls are in fair to poor condition with water damaged and missing areas.

Stair Assembly
The stair has painted steel plate treads, painted steel risers, and painted steel railing. The stair is in good condition, and the paint finishes are in fair condition with areas of worn and missing paint.

Dressing Rooms

Description
There are two dressing rooms accessible from the backstage corridor at the ground level. and four at the mezzanine level. Dressing rooms throughout the building typically have a built-in counter and mirrors with shelving above, as well as a sink in each room. Material finishes, lighting, and doors are typical of other spaces in the building.

Walls
The walls are plaster painted with sand-filled paint. The walls are in good to fair condition with few marks.

Floor
The floor is red vinyl composite tile with vinyl wall base. The floor is in poor condition with several cracked or missing tiles. The wall base is in fair condition.

Ceiling
The ceiling is plaster painted with sand-filled paint. The ceiling is in good condition.

Millwork
There are original resinous finished wood built-in shelves and counters in most of the dressing rooms. The built-ins are in fair condition with worn finishes. Two of the dressing rooms do not have original built-ins and instead have new shelves. The built-ins are in good to fair condition with few scratches.

Sinks
There is one porcelain sink with chrome faucets in each dressing room. The sinks are in good condition.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
See description in Backstage Corridor Section.

Green Room

Description
The green room is centered along the ground floor backstage corridor. It has built-in seating at the perimeter of the space. Later incorporated built-in shelving along one wall of the space is finished in wood veneer to match the typical wood finished found within the building.

Walls
The walls are plaster painted with sand-filled paint. One wall has resinous finished walnut veneer modified to create an access panel. The walls are in good to fair condition with few marks. The walnut is in fair condition with areas of worn finish.

Floor
The floor is red vinyl composite tile with vinyl wall base. The floor is in fair condition with some cracked tiles. The wall base is in fair condition.

Ceiling
The ceiling is plaster painted with sand-filled paint in good condition.

Millwork
There is a resinous finished wood built-in seating feature with vinyl upholstered cushions lining two walls. The built-ins are in fair condition with areas of worn resinous finishes.

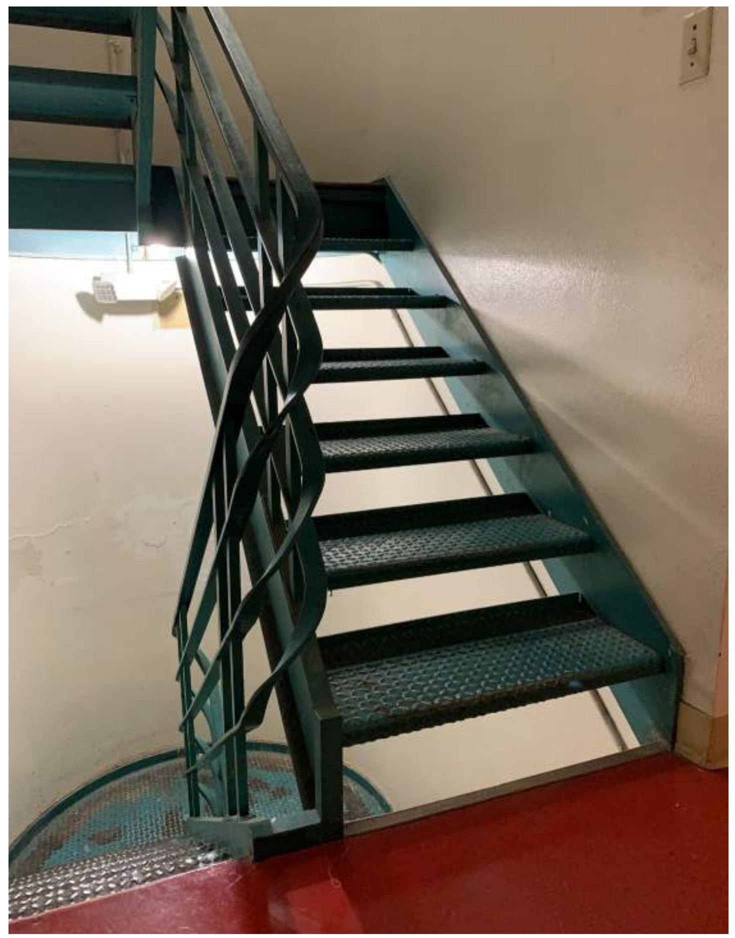
Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
See description in Backstage Corridor Section.


View of ground floor backstage corridor

INTERIOR EXISTING CONDITIONS

View of ground floor backstage corridor



Original steel stair at back of house spaces.

Typical condition of back of house dressing rooms

Overall view of green room seating.

Condition of dressing rooms with non-original built ins.

View of wood veneer wall

EXISTING CONDITIONS: KALITA HUMPHREYS THEATER

Addition: Mezzanine Corridor

Walls
The previously exterior walls are painted and in good condition. Walls added as part of the addition are painted drywall in pair condition. There are several cracks and previous repairs.

Flooring
The concrete floor is covered with carpet in good condition.

Ceiling
The ceiling is painted gypsum in fair condition with some cracks.

Doors
There is an original door from the balcony. It is a painted flush bronze door with painted bronze hardware. The doors are in good condition with minor scratches in the paint finish.

Millwork
There is a resinous finishes veneer wood wet bar with lower and upper cabinets and a laminate counter. It is in fair to poor condition with missing and worn veneer and separating laminate pieces.

Lighting
Lighting in the space is typical of the building, recessed down lights with metal rings and glass lenses. The lights are in fair condition with some fixture elements missing or loose.

Addition: Black Box Room

Walls
The walls are painted plaster and are in poor condition with holes and water damages at the exterior wall.

Flooring
The resinous finished wood floor is in fair to poor condition with scratches and heavily worn areas.

Ceiling
The ceiling is painted panel roof deck in good condition.

Lights
Light fixtures in the black box room have painted metal shades with exposed lamps, and they are in good condition. There are additional strip fluorescent lights.

Doors
The doors are flush wood with bronze hardware. They are in poor condition with many scratches in the wood.

Addition: Classroom

Walls
The walls are painted plaster in fair condition with several holes and scratches. The original exterior walls are painted, and the original call back speaker is still installed in the exterior wall.

Flooring
The floor is a resinous finished wood floor in poor condition that is very worn and scratched. The dance mat is in fair condition with some tears at the seams.

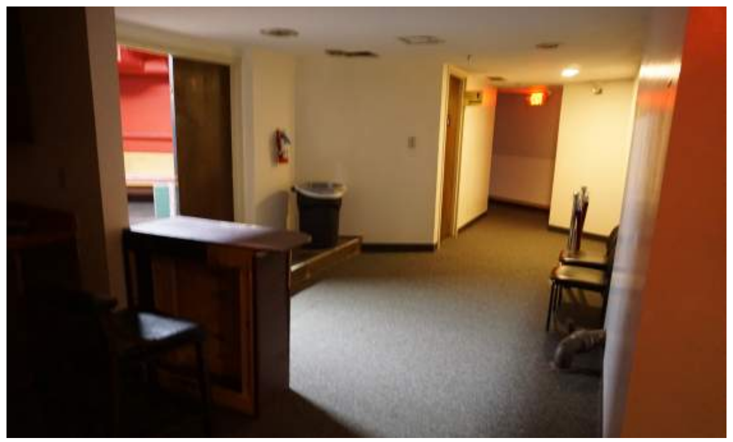
Ceiling
The ceiling is painted plaster in fair condition. There is painted exposed ductwork at the ceiling plane.

Lights
Lights in the space are painted metal with exposed lamps and are in good condition. There is also a strip of florescent lights.

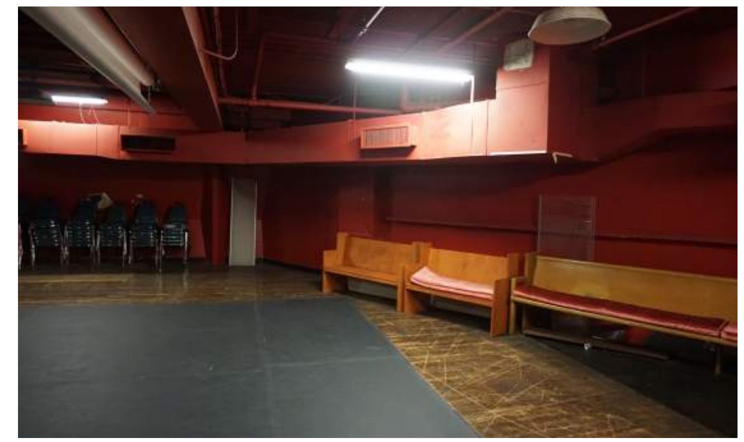
Doors
Doors are painted and resinous finished wood doors with bronze hardware. They are in fair condition with several scratches and worn finishes.

Overall view of black box room.

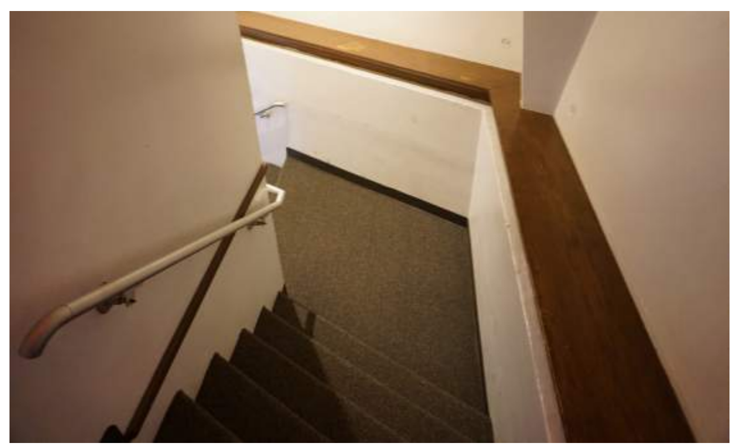
Overall view of classroom.


Addition corridor.


Corridor at outer edge of education wing.


Addition classroom.


View of built-ins in corridor.


Stair at outer edge of education wing.


Black box room.


Corridor looking toward auditorium balcony.

Workroom

Description
The workroom currently houses laundry machines and sinks. It is located at the north side end of the open dressing room space.

Walls
The walls are plaster painted with sand-filled paint. The walls are in good to fair condition with some scratching and wear.

Flooring
The sealed concrete floor is in good condition.

Ceiling
The ceiling is plaster painted with sand-filled paint. The ceiling is in fair condition with areas of non-matching plaster repairs.

Windows
The windows are the elongated concrete-framed windows typical of the building and are in fair condition. The concrete is painted with sand-filled paint, and the glazing is single pane fixed glass. Some areas of plaster and paint around windows is peeling and delaminating.

Closet
The original sand-filled plaster wall finish is visible within the workroom closet. The closet has a painted wood door in fair to poor condition.

Open Dressing Room

Description
The open dressing room currently has half-height movable partitions and one recently added enclosed room at the north corner of the space.

Walls
The walls are plaster painted with sand-filled paint and are in good condition. There are also non-original full and partial height painted gypsum walls in fair condition with areas of soiled and worn paint.

Flooring
The sealed concrete floor is in fair condition with some chipped finishes. There is a large section of carpet installed over the concrete, and the carpet is in good condition.

Ceiling
The plaster ceiling is painted with sand-filled plaster. It is in good to fair condition with areas of non-matching patches.

Windows
Windows along the exterior walls are typical of the building and are in good condition.

Storage Rooms

Description
There are two storage rooms situated within the curved volumes above the ramps at each end of the floor. The storage space situated within the south curved volume was at one point used as the library where DTC's collection of literature was housed. There is also a storage area that doubles as a corridor accessing the Education Wing.

Flooring
The sealed concrete floor is in good to fair condition with some chipped finishes and paint splatter.

Walls
The walls in the corridor are concrete finished with plaster painted with sand-filled paint and are in good to fair condition. The walls in the storage rooms are painted concrete.

Ceiling
The corridor ceiling is sand-filled painted plaster and is in good to fair condition. There is a non-matching plaster patch. The storage room ceilings are exposed and painted underside of the roof deck panels. There is one skylight in each room.

Millwork
There are painted wood shelves in good to fair condition.

Lighting
Lights in the corridor are porcelain socket bare bulbs in fair condition. Lights in the storage spaces are strip fluorescent lights in good condition.

Windows
Windows along the exterior walls are typical of the building and are in good to fair condition. The glass has been painted at the wall shared with the addition.

Doors
The doors are painted flush bronze hollow metal with bronze hardware and a painted hollow metal frame. The doors are in fair condition with scratched and chipped finishes and some overpaint.

Overall view of south storage room.

View of open dressing room at the plenum level.


Plenum storage space.

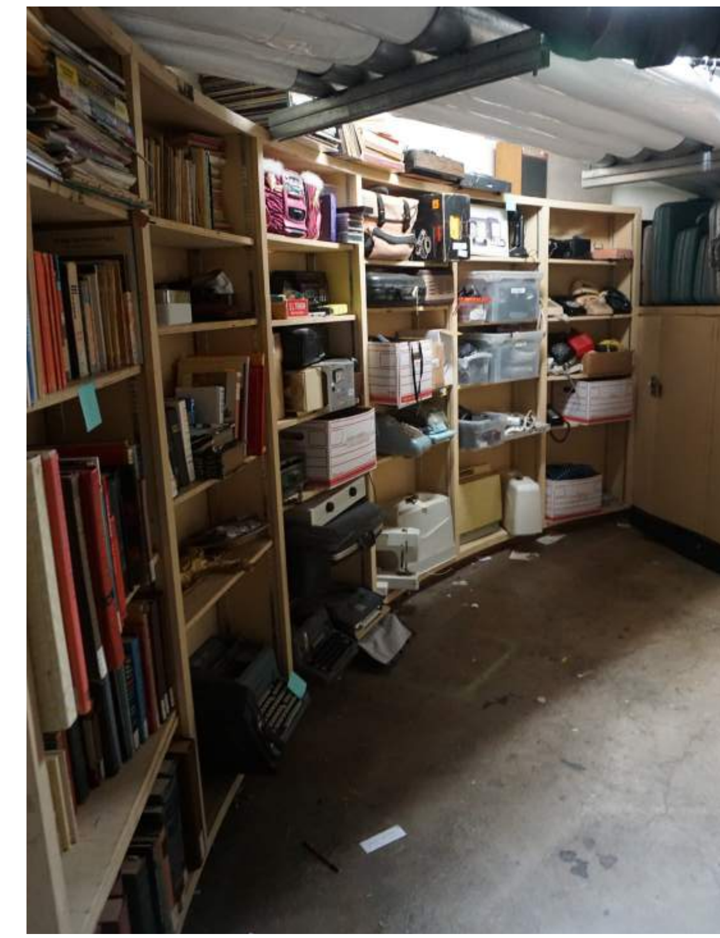

View of plenum level work room.


View of open dressing room.


Plenum storage space.


View of plenum level work room.


View of open dressing room.


View of storage space previously used as the DTC library.

Basement Shop & Mechanical Room

Description
The basement is generally an open space used as a shop to fabricate props, backdrops, and other production materials. The mechanical room is an enclosed space at the south of the shop space.

Floor, Walls, Ceiling
The floor, walls, and ceiling in the basement are all exposed concrete in good condition. There is an area of acoustic tile below the stage revolve that is in fair condition with some tiles missing.

Doors
Doors are painted hollow metal doors with bronze hardware and are in fair condition.

Tool Room

Floor
The carpet in the tool room is in poor condition with many stains and heavy wear.

Walls
The walls are plaster painted with sand filled textured paint and are in good condition.

Ceiling
The ceiling is plaster painted with sand filled textured paint and is in good condition.

Lighting
The light fixtures are typical of the building and are in poor condition with missing trim and lens covers.

Paul Baker's Office

Description
Paul Baker's office is tucked on the basement level, accessible by stairs leading up into the basement and out to the exterior. Before the additional basement offices were added, Baker's office would have been directly accessible from the exterior. It has a small adjoining space that was previously a bathroom but was converted early on to house his personal secretary's desk. This alteration also involved creating an opening in the wall such that visitors could speak to the secretary without entering the office.

Floor
The carpet is in fair to poor condition with stains and heavy wear.

Walls
The walls are sand filled textured paint in good condition.

Ceiling
The ceiling is sand filled textured paint in good condition.

Doors
The door is a resinous finished flush wood panel door with a painted hollow metal frame, aluminum knob, and bronze hinges. The door is in good condition with some residue and scratches.

Windows
There are fixed obscured glass window with painted metal frames at the previously exterior original wall. One window has had the glass divided into two pieces with a lead came.

Millwork
There is a resinous finished wood counter with cabinets and shelves built in. The millwork is in good to fair condition with some scratches and worn finishes.

Lighting
The basement is lit by suspended fluorescent strip lights that are in good condition.

Basement Corridor

Description
The basement corridor connects several administrative spaces located along the west edge of the basement, including Paul Baker's office, the non-original office addition, and the bathrooms.

Walls
The walls are painted textured plaster where original and a painted flat plaster where non-original.
The walls are in good condition with varied texture.

Floor
The concrete floor is covered with brown carpet that is in good condition.
Ceiling
The ceiling is painted plaster and is in good condition.

Millwork
There is a laminate counter for a pay phone booth. The counter is in fair condition with areas of chipped laminate.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
Doors off of the corridor are resinous finished flush wood doors with bronze knobs and hardware. The doors are in good to fair condition with worn hardware and few scratches.

Coat Room

Description
The coat room is a non-original space added in 1989. It is a small room with a counter and opening covered by a curtain.

Walls
The walls are painted with sand-filled paint. The walls are in good to fair condition.

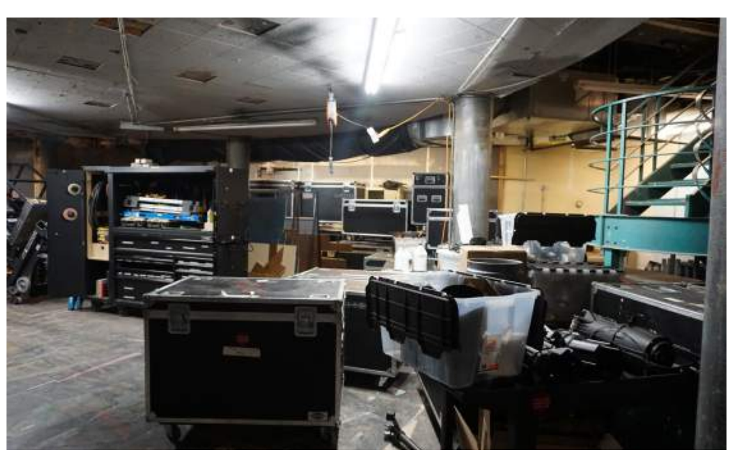
Floor
The concrete floor is covered with brown carpet. The carpet is in poor condition with many tears and holes.

Ceiling
The ceiling is plaster painted with sand-filled paint. The ceiling is in poor condition with large areas of peeling.

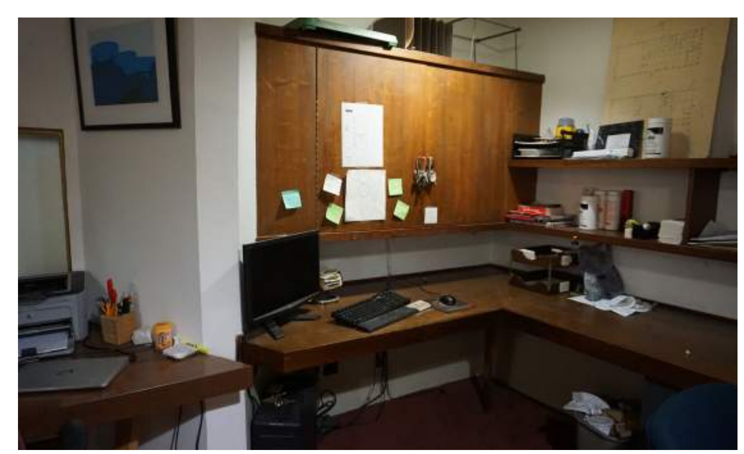
Windows
There is an obscured glass window with a painted metal frame. The window is in good condition.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
The coat room door is a flush panel wood door with a painted hollow metal frame in fair condition with typical signs of wear.


Overall view of basement workshop.


Overall view of basement workshop.


Built-ins in Paul Baker's Office.


View of Paul Baker's Office.

Lobby Restroom

Description
The non-original lobby restroom was added to provide an accessible restroom. It is a single occupancy bathroom at the end of the hallway across from the entry to the ticket booth.

Walls
The walls are plaster on concrete with a sand-filled paint finish. They are in fair condition with varying finish textures, indicative of previous repairs.

Flooring
The bathroom floor is VCT in good condition. The wall base is also vinyl and is in poor condition with typical delaminated and deformed conditions.

Ceiling
The ceiling is painted plaster in good condition.

Plumbing Fixtures
There is a porcelain sink with a chrome faucet in good condition. The porcelain toilet and chrome flush valve are in good condition.

Bathroom Accessories
There is a stainless steel toilet paper dispenser, stainless steel grab bars, and a plaster paper towel dispenser. The accessories are in good condition, except one grab bar that is loosely attached to the wall. The mirror is missing reflectivity at the perimeter.

Education Wing Restrooms

Floor
The floor is a red epoxy in good condition.

Walls
The walls are painted gypsum in good condition.

Ceiling
The ceilings are painted gypsum in good condition.

Toilet Partitions
Toilet partitions are painted metal in good condition.

Plumbing Fixtures
Toilet and sinks are porcelain with chrome fittings and are in good condition.

Doors
The restroom doors are resinous finished flush wood doors with bronze hardware. They are in fair condition with very worn finishes.

Lights
The lights are recessed down lights with metal trim. They are in poor condition as they are all missing the glass lenses.

Back of House Restrooms

Ground Level

Walls
The walls are plaster painted with sand-filled paint. One wall has resinous finished walnut veneer modified to create an access panel. The walls are in fair to poor condition with water damaged areas.

Floor
The floor is red vinyl composite tile with vinyl wall base. The floor is in fair condition with some cracked and missing tiles. The wall base is in fair condition.

Ceiling
The ceiling is plaster painted with sand-filled paint and is in good condition.

Toilet Partitions
Toilet partitions in the restrooms are painted metal, including a painted metal shower enclosure. The partitions are in fair condition with areas of worn resinous finishes.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
See description in Backstage Corridor Section.

Back of House Restrooms
Mezzanine Level

Walls
The walls are plaster painted with sand-filled paint. The walls are in fair to poor condition with water damaged areas.

Floor
The floor is sealed concrete in good condition.

Ceiling
The ceiling is plaster painted with sand-filled paint. The ceiling is in good condition.

Toilet Partitions
Toilet partitions in the restrooms are painted metal, including a painted metal shower enclosure. The partitions are in good condition.

Lighting
Recessed down lights have a bronze trim and glass lens, typical of lighting throughout the building. Lights are in good condition.

Doors
The bathroom doors are resinous finished wood flush panel doors with bronze hardware. The doors are in good condition with few scratches and slight wear on the bronze hardware.

Basement Restrooms

Description
The basement restrooms are the main public restrooms servicing the theater. They are not original to the building, and were reconfigured to their current condition in 1989.

Walls
The walls are painted textured plaster and are in good condition.

Floor
The floor is red vinyl composite tile and wall base is vinyl. The floor is in fair condition. There are some cracked and scratched tiles and some loose wall base.

Ceiling
The painted plaster ceiling is in good condition.

Toilet Partitions
The painted metal toilet partitions are in good condition.

Plumbing Fixtures
There is a porcelain sink with chrome faucet and a porcelain toilet with chrome flush valve. Plumbing fixtures are in good condition, aside from some paint drips on chrome fittings.

Bathroom Accessories
There is a stainless steel toilet paper dispenser, stainless steel grab bars, and a plaster paper towel dispenser. The accessories are in good condition, except one grab bar that is loosely attached to the wall.

Lighting
Bathroom lighting matches the typical lighting of building in good condition.

Doors
The bathroom doors are resinous finished flush wood doors with bronze hardware. Doors are in fair to poor condition with many scratches and discolored and worn hardware.

View of basement restroom.

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

STRUCTURAL

STRUCTURAL: EXISTING THEATER

Introduction

The Kalita Humphreys Theater (Kalita Theater) is a landmark structure designed by Frank Lloyd Wright and built between 1955 and 1959. The theater will be preserved, restored, and renovated as part of Dallas Theater Center project, which will create a multi-stage art campus on the existing site including new expansion buildings. Information presented in this report pertains to the existing historic theater building, however this work is part of a larger site redevelopment master plan including existing and new construction.

The existing structure of the Kalita Theater is primarily concrete with some steel trusses and steel floor framing. The structure features multiple levels of cantilevered balconies and a large, central cantilevered drum over the theater stage. Silman worked closely with the design team throughout the Master Plan, both to review the existing conditions at the Kalita Theater and to perform analysis of proposed design options and modifications to existing structure.

This report presents the results of our investigation and analysis, and includes a description of the existing structural system, summary of observed structural conditions, and a description of the structural work associated with the proposed design modifications.

Investigation

In preparation for the master plan, Silman reviewed existing documentation and conducted an on-site investigation.

Existing documentation

Silman reviewed drawings, photographs, previous reports, specifications, correspondence, and promotional materials provided by the project team. Lanmar Services also scanned the building to create a Revit model in April and May of 2022. Existing documentation includes:

- Dallas Theater Center Construction Drawings, circa 1958, Avery Library Archives Frank Lloyd Wright Collection, including scans of drawings and progress sketches. High resolution scans of the architectural and structural drawings were also provided.
- Dallas Theater Center Study Images, various dates, Avery Library Archives Frank Lloyd Wright Collection including working architectural and detail sketches
- Dallas Theater Center Specifications, circa 1958
- Films of the original theater construction, courtesy SMU Archives
- Drawings for various modifications and additions after construction, produced by Taliesin Associated Architects, courtesy of DTC and local archives
- Photographs from the original construction and opening of the theater
- Dallas Theater Center Master Plan Report, 2010, prepared by Booziotis & Company Architects
- Kalita Humphreys Theater Facilities Assessment & Rehabilitation Recommendations, 2019, prepared by Architexas
- Various other notes, correspondence, photographs, slides, and promotional materials provided by DTC

The high-resolution original construction drawings were especially useful for understanding the existing building (**Image 1**).

Field Investigation

Silman visited the Kalita Theater several times during the master plan to review the building and meet with other members of the team. On February 9th - 11th 2022, there was a detailed review of the existing building by the structural team to observe existing conditions and the bulk of the field data was gathered during this visit. Silman walked through all accessible spaces in the building, including the public areas, house and stage, back-of-house spaces, mechanical rooms, and roofs. Silman viewed the large majority of spaces but did not access the upper fly loft, roof above the drum, or exterior walls where they were not visible from grade or upper balconies.

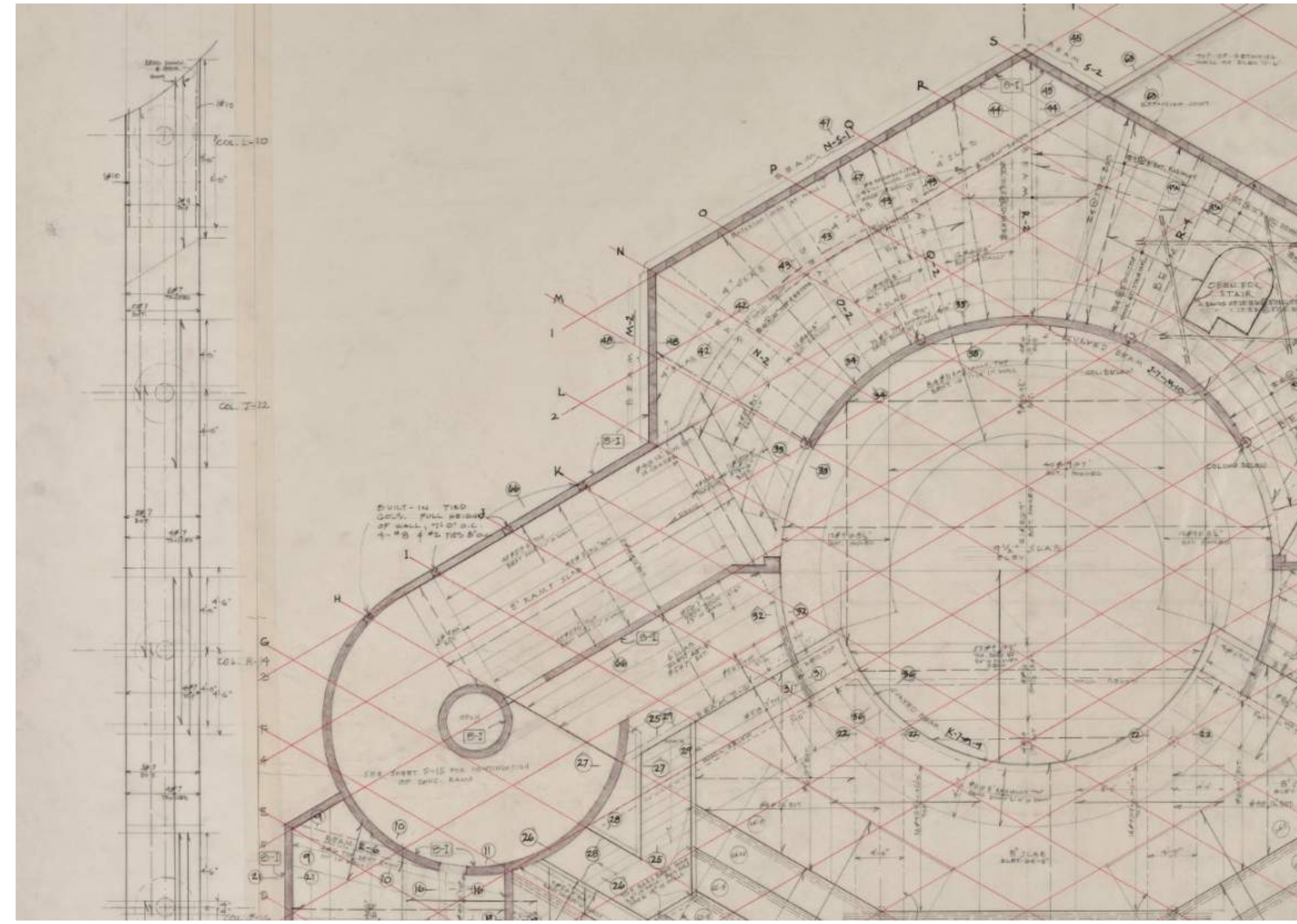


Image 1
S-16 Main Floor Structural Plan Excerpt, courtesy of Avery Library Archives.

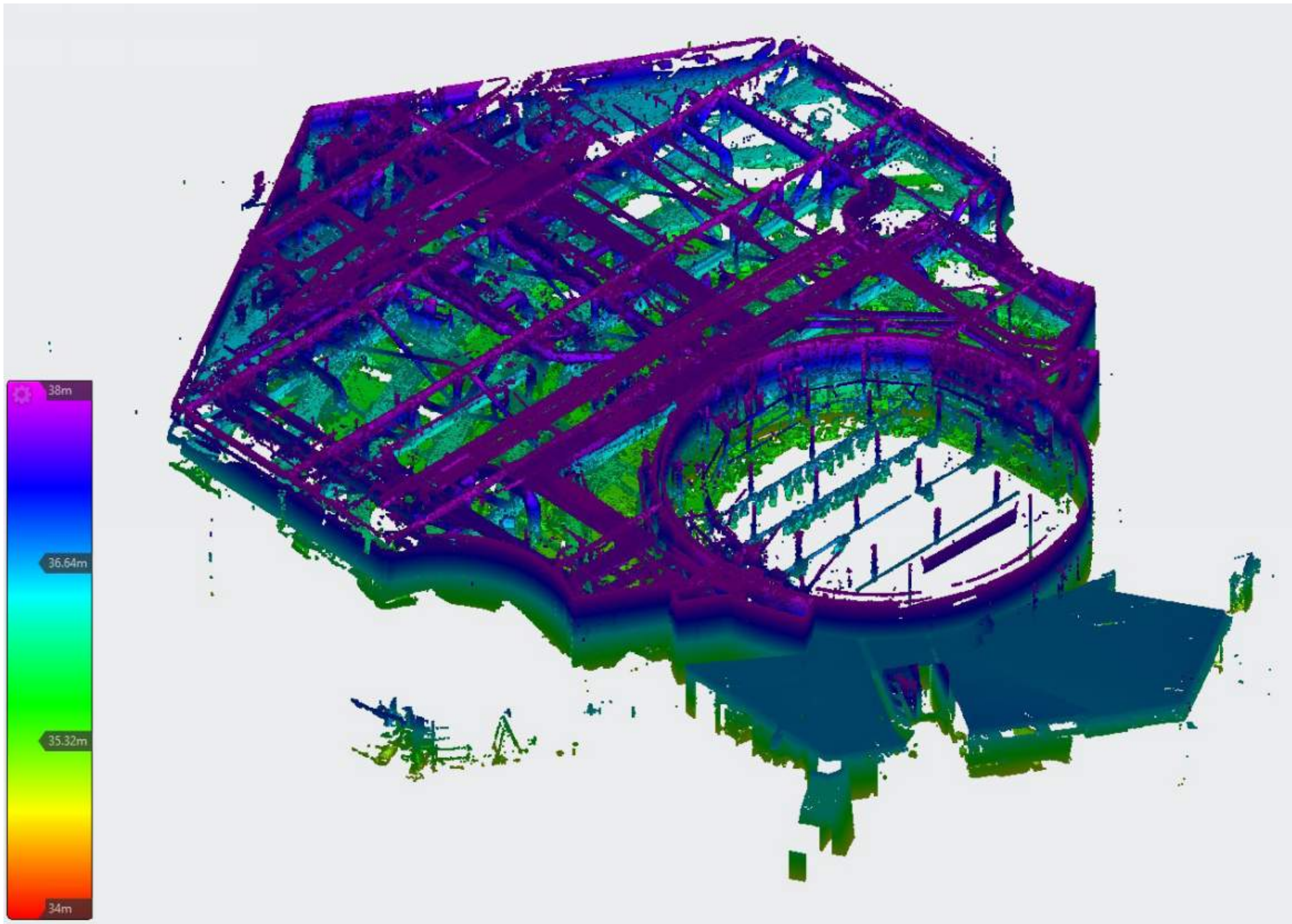


Image 2
Excerpt from laser scan point cloud showing plenum and roof structure above house.

Laser Scan Documentation and Building Models

Due to the complexity of the building and the need for accurate as-found documents, the investigation phase included a full laser scan of the building. Lanmar Services scanned the theater interior and exterior in April 2022 to create a stitched point cloud of the entire theater, including all accessible spaces. The point cloud was used to create a "best-fit" Revit model of the entire structure, including the existing walls, exposed structure, and house seats. Information from existing drawings was used to verify and contextualize the modeled structure, but sizes and dimensions shown in the model match the existing, as-built condition as much as possible.

Structural Description

The following section includes a brief building chronology as it pertains to major structural changes, a description of the existing building structure, and a summary of building conditions as surveyed in the field.

Building Chronology

The structure of the Kalita Theater is largely unchanged from the original construction in 1959. The primary structural modification was a Taliesin Associated Architects (TAA) addition over the original theater lobby (1968) and subsequent enclosure of the porte-cochère as additional lobby space (1989). During the 1989 renovation, additional interior stairs and site walls were also modified. In the late 1970s, structure of the house interior was also modified by extending the balcony structure outward to create additional rows of seats. Other extant renovations include the enclosure of office space at the southwest face of the building (prior to 1968) and a change in slope of the house floor; however these are considered non-structural changes. The enclosure of office space include a new slab on grade and non-structural partitions built up to the underside of existing cantilevered structure. The change in slope of the house floor (1983) was accomplished with a wood overbuild and is likely reversible.

Known changes to the building's structure can be summarized as follows:

1959: Original construction of the theater is completed

1968: TAA addition constructed over the original roof balcony at the east side of the building. The addition included new shallow structural footings just below grade, new concrete walls, and new steel framed floors with concrete on metal deck (**Image 3**). The original roof parapet was removed, leaving the balcony floor in place. Wall structure for the addition is light frame steel studs with interior plaster and exterior stucco.

1978: Extension of the balcony within the house, including the removal of the previous balcony railing, and installation of a new steel truss. Per 1977 drawings, the new truss is supported on new truss hangers near the control room and a new posts near the balcony stairs.

1989: This restoration included enclosure of the porte cochère as lobby space and various interior renovations. Structural modifications associated with this addition included:

- Various site walls and stairs at the building exterior,
- New interior stair providing access between the basement and lobby
- New floor framing covering interior stairs within the lobby and over the original planter at the stage left (south) side of the house

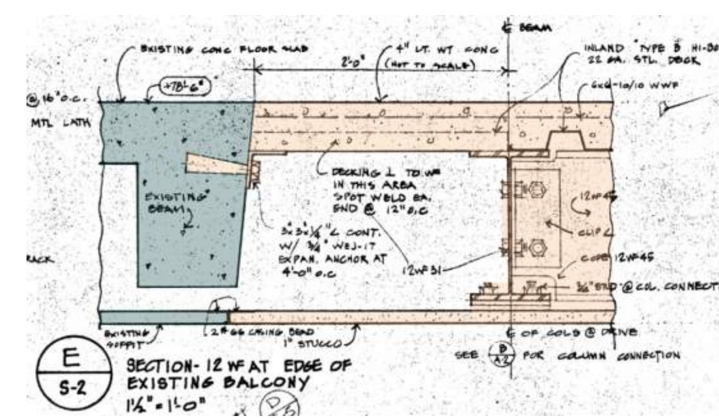


Image 3
1968 drawing showing interface of original concrete construction and addition framing

STRUCTURAL: EXISTING THEATER

Existing Structure Description

Most of the theater structure is from the original construction in 1959. Foundations of the original structure are shallow concrete spread footings, typically 8" to 12" thick extending 2' below grade. Construction photos show various stone outcroppings on the site, especially at the east side near the lobby. Basement walls of the original structure are cast-in-place concrete retaining walls, typically 8" thick. In some areas, tied concrete columns were cast integrally within the wall thickness. The basement slab is shown as 4" thick throughout.

The main level of the theater is a cast-in-place concrete slab supported on interior concrete beams, interior columns, and foundation walls. The concrete house floor is 6" thick minimum, with additional concrete to form 5" steps at 2'-3" intervals. The stepped concrete slab slopes downward toward the stage and is supported on interior 12" diameter columns and two wide, flat concrete beams that span downstage-upstage. The interior columns have conical caps. The circular stage floor is dropped below the adjacent slabs and supported on curved edge beams and circular concrete columns (**Image 4**).

Image 4
Construction of original dropped floor stage, courtesy of DTC Theater Archives

Other framed floors are two-way concrete slabs supported on concrete walls. Slab thicknesses shown on original drawings range between 4" and 9 ½". In some areas, bars were laid out radially to match the building geometry (as opposed to perpendicular layouts). Portions of the main level cantilever out beyond the foundation walls. These cantilevered portions are supported on deep, tapered, cantilevered beams supported on the foundation walls. At the rear of the house, the deep tapered beams are supported on triangular pilasters cast integral with the foundation wall. Upper-level walls are also supported on the edge of cantilevered beams. These walls have additional horizontal reinforcement so that they behave like beams spanning horizontally between the cantilever beams. This likely creates "ring action" restraining the perimeter of the cantilevered levels.

The structure of exterior cantilevered balconies has not been confirmed. Original structural drawings show the mezzanine and upper terraces all framed with steel beams and insulation and waterproofing applied directly over metal decking. Original drawings show the parapet wall as a 5" cast wall supported on vertical steel tees welded to a steel edge beam (**Image 5**). Based on field observation and construction photos, both the parapets and the horizontal surfaces are appear to be concrete. Steel balcony framing could also not be identified in the construction photos and videos, and concrete forms are seen at some balconies.

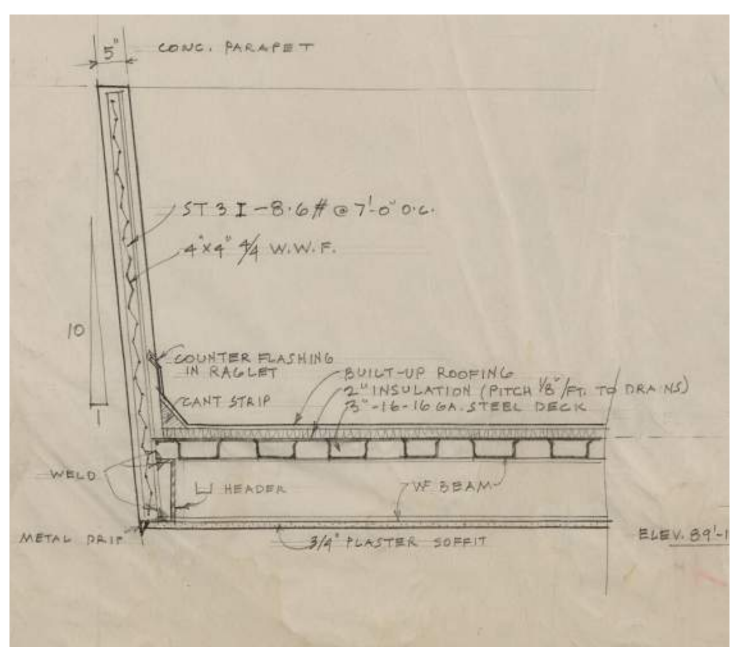


Image 5
Typical parapet section from original structural drawing S-22. Note that this parapet and cantilever balcony construction has not been confirmed. Courtesy of Avery Library

This suggests that the steel balcony structures were swapped for concrete, or that concrete encased steel was added. The 1968 additional drawings also show attachment of the new structure to "existing" concrete beams and slab, where the original drawings show a perimeter channel in this location. This discrepancy merits further research, and Silman recommends conducting probes, surface scanning (GPR or SPR), or considering pachometer testing to confirm this structure. Structure should be confirmed to accurately assess the weigh supported on cantilevers below, or to allow for design of modifications and appropriate repairs.

The roof structure is primarily from the original building construction, including the steel framing, iron grid and likely the tectum panels. Above the house, the decorative ceiling and roof are both supported on four long-span roof trusses spanning across the house (stage right to stage left). The trusses are made up of steel tees at the top and bottom chords, and diagonal double-angle web members. The trusses are currently wrapped for fireproofing. This fireproofing material likely contains asbestos based on the era of construction. Based on laser scan documentation, sizes of the truss members should be abated and exposed to confirm sizes. Above each of the ramp "wings", roofing is supported on small steel beam. Above the central drum, large W21 beams support the roof structure and hanging loads below. These beams are supported on bearing ledge in the concrete wall. Roof structure throughout is a thin tectum system supported on bulb tees spanning between steel framing or roof trusses.

Exterior and interior structural walls are all cast-in-place concrete. Few walls extend from the roof all the way to foundations. The battered walls supporting the primary roof trusses and the walls of the ramped "wings" also extend from the roof level through to foundations. These walls extending to grade form the building's primarily lateral force resisting system. Most other exterior walls transfer out along the height of building, forming the buildings unique massing. Structure of the cantilevered balconies and parapet walls is described above. The exterior walls that transfer to "inboard" walls are typically supported on deep cantilever concrete beams. These concrete beams are hidden below soffit panels at the exterior of the building. In some places, the concrete walls are also detailed as beams spanning between these cantilever beams. Below the mezzanine and below the uppermost exterior balcony, the exterior wall features a continuous clerestory window that interrupts the concrete wall. Each solid cast portion contains a solid 2" x 1.25" solid bar integrally cast into the wall that transfers the load through the window openings like a column (**Image 6**).

The theater stage is housed within a concrete cylinder (or drum) that extends above the house roof. The drum is a full circle below the house floor (housing the rotating stage), is a semi-circle at the stage level, and continues upward as a full circle above the stage proscenium level. At the basement, this drum is supported on concrete columns and the concrete slab edge. The base of the drum is detailed as a curved beam spanning between columns. At the backstage half, the bottom of the drum is also restrained by large cantilever beams supporting an exterior wall. Above the stage, the drum cantilevers out to form the proscenium. The back of the drum is restrained by the intermediate back-of-house floors and is also heavily reinforced to act as a continuous element.

The load path of the building is complex due to the multiple layers of cantilevers and floor plans that shift throughout the building. Additionally, floors in various areas step, so lateral loads are also transferred through vertical elements to multiple piecemeal diaphragms. Silman has developed annotated floor plans and plan overlays showing the load path from the roofs, various balconies, down through to foundations. Very few walls extend from the roof down through foundations. Full-height walls include portions of the "wing" walls on either side of the stage and portions of the battered house walls. These walls can be found in the house at the stairs leading up to the mezzanine. Portions of these walls support the roof trusses and extend all the way to foundations. The annotated structural plans are attached as an appendix to the report.

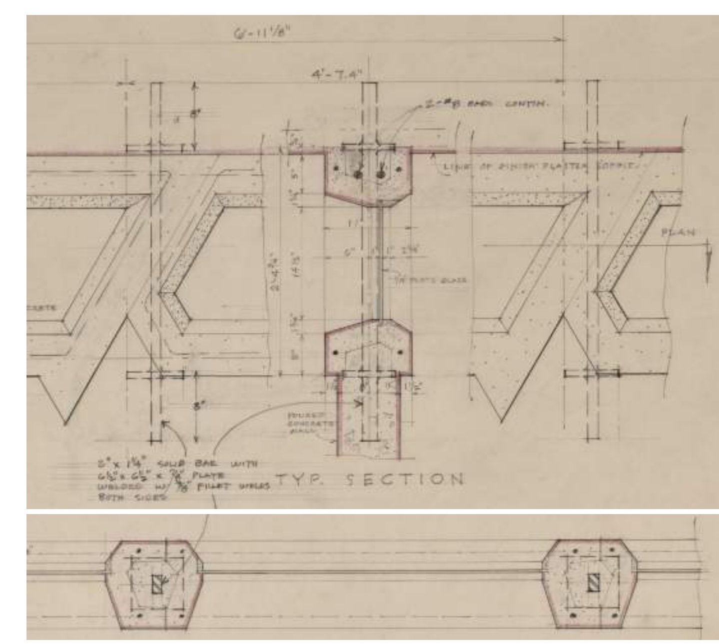


Image 6
Detail drawings of clerestory windows, including steel bar reinforcement and cast profile. Courtesy of Avery Library

Structural Conditions

The visible structure of the Kalita Theater is in good to fair condition. This initial phase did not include a comprehensive structural conditions survey; however, typical conditions were noted during the field investigations. Overall, the concrete is in good condition with some areas of hairline cracking, surface spalling, and staining. These conditions are not unusual for the building's age. At the building exterior, ferrous inserts were evident at areas of staining (**Image 7**). These were noted primarily at upper floors and the drum. At the parapet, vertical hairline cracks were noted at a regular spacing (**Image 8**). Cracks such as these may align with steel reinforcement or may be caused by temperature and shrinkage. At the building interior, some areas of cracking and were noted at exposed concrete floors in the backstage spaces. Again, these conditions are not abnormal for the age of structure, and conditions do not suggest that there is an underlying systemic structural issue.

Image 7
Ferrous staining at drum exterior, viewed from roof

Conditions of the building additions were in worse condition than the original structure. At the office added at the south side of the building, differential settlement and/or inappropriate attachments have created a gap between the original and added structural. At the 1960s addition, staining of finishes is apparent suggesting there may be water infiltration. The poor conditions at the additions are likely caused by or at least exacerbated by the lower quality construction materials used. Exposing the interface between new and existing will be especially important to confirm how much the previous modifications damaged the original structure.

Image 8
Cracking in exterior parapet

Code Review

The proposed project will conform to the current Dallas building code, which references the 2015 International Building Code (IBC) with Dallas amendments. As of June 2022, the current Dallas building code also references the 2021 IEBC with Dallas amendments.

The original building specifications note that the project conformed to provisions of the 1955 Uniform Building Code. While this code will not govern or guide the design of the proposed modifications, the antiquated building code should be referenced to shed light on the original design intent such as loading requirements and analysis methods.

Any new additions (such as a below grade expansion) will be designed to conform to the current 2015 IBC with Dallas Amendments. Within the historic building, provisions of the IEBC will guide any building modifications, including the appropriate classification of work and corresponding evaluation of any required structural reinforcement. Structural evaluation is required when the structural load demand increases (for both changes in use or for conformance with the current building code) OR when the existing structural capacity decreases. The IEBC generally allows alterations without reinforcement in the following cases:

- When additional gravity loading (dead, live, or snow) does not increase by more than 5%
- When the member demand-capacity ratio does not increase by more than 5% under gravity loads.
- When the member demand-capacity ratio does not increase by more than 10% under lateral loads (wind and seismic).

Where load increases and/or capacity reductions exceed these thresholds, the structure will need to be altered to comply with the current building code. Further assessment is also needed to determine whether the building alterations comprise a "substantial structural alteration" under a Level 3 alteration, or a change in occupancy. To be classified as a "substantial structural alteration", the overall project work area must exceed 50% of the building floor area, and the structural work area must exceed 30% of the floor area. If classified a "substantial structural alteration," the building's lateral system must be analyzed and (if required) upgraded to conform to the current building code. Based on the current scope of the theater renovation, a full lateral upgrade of the structure is not anticipated. However, new openings and new discontinuities caused by floor and wall openings will impact the existing building's lateral capacity. These new openings and structural changes should be analyzed for global impacts on lateral stability.

The IEBC does allow exemptions for historic buildings, subject to approval by the code official. This typically includes acceptance of existing live load capacities and approval of operational controls that limit live loading. While the goal of any structural project is to meet appropriate life-safety standards, design of alterations must also consider historic preservation needs and maintaining architectural and material integrity.

Structural Design Overview

Goals of the proposed project are two-fold:

- To restore the original theater by removing the addition and reinstating the original massing and theater features, and
- To adapt the interior for use as a contemporary theater space

The following section describes structural modifications associated with the architectural and theatrical restoration and rehabilitation. Silman assumes that the building generally matches the configuration shown in original construction drawings and renovation drawings. Discrepancies between the observed condition and the original documentation are also noted in sections below.

As the structure is a system of integral concrete walls, slabs and beams that are often expressed architecturally, modifications of the concrete will require close coordination. Careful coordination of all penetrations is critical as they are through primary structural systems. Advanced reinforcing techniques including post tensioning and Carbon Fiber Reinforced Polymer (CFRP) fabrics are anticipated.

Removal of Taliesin Addition

Scope of the proposed project includes the removal of the 1968 TAA addition to restore the original building massing. Structural scope of this removal includes careful selective demolition of previous addition structure – including roofs, walls, floors, columns, and foundations – and reconstruction of the original parapet wall.

Per 1968 drawings, the original parapet was cut flush with the slab surface. Where the perimeter of the new addition aligned with the original balcony extents, a new light-gauge steel stud wall was constructed directly on top of this edge. Where new floor structure attached to the edge of the original balcony, clip angles or ledger angles were attached to the previously exposed parapet face for continuity of the floors. When the addition is removed, the re-exposed beam and slab edge will need to be patched. In limited areas, it may need to be chipped back and re-poured to allow for proper welded or doweled attachment of the new parapet walls. New parapet walls shall be 5" cast concrete walls, matching the original construction.

Since the exact configuration of the original balcony floor is unknown, probes are recommended to further the develop the design of attachments and appropriate repair details.

Within this investigation, future use of the balcony should be considered. The removal of the addition will re-expose the original balcony terrace, and the load capacity of this structure is unknown. If the balcony will be open to the public, structure in this area will need to meet a 100psf minimum public assembly live load capacity. Depending on results of this analysis, reinforcement may be required to meet this capacity.

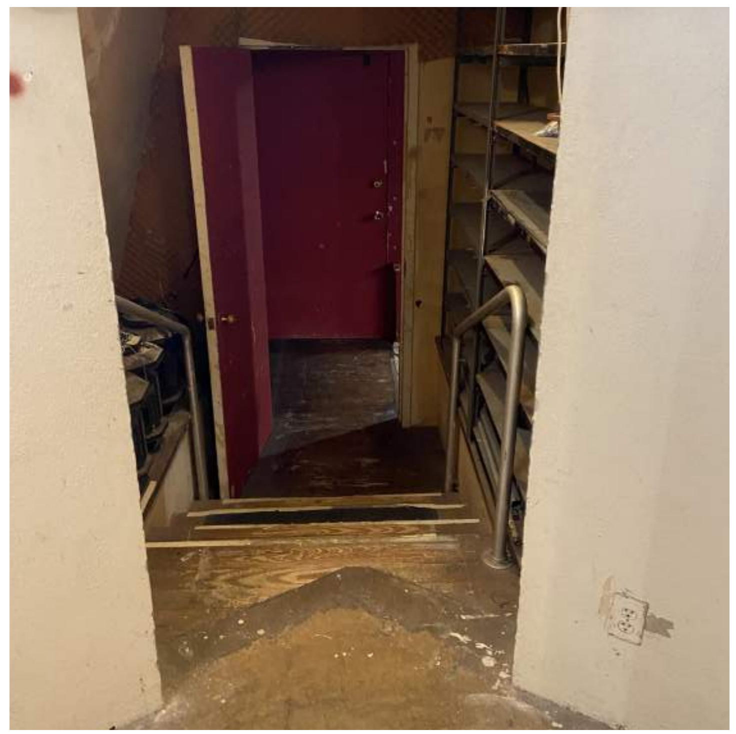


Image 9
Opening in original wall, 1968 addition in background

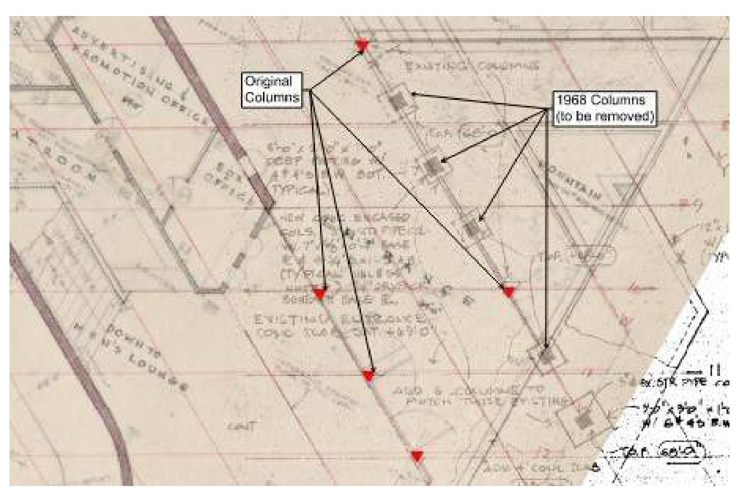


Image 10
Overlay of original building and 1968 plans showing original exterior columns enclosed within lobby addition

The porte-cochere and lobby extension were built at structures on grade with shallow spread footings. Removal of the addition will include the removal of the previously added slab on grade, shallow foundations, and walls. Care shall be taken to leave the original columns in place.

Removal of the addition will also re-expose original building walls. The previously cut corner wall opening will be infilled, including replication of the decorative cast window pattern along the clerestory window.

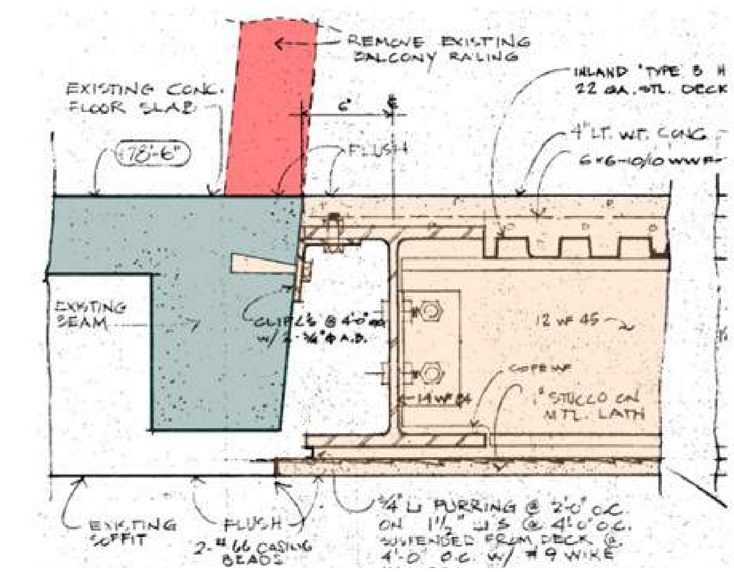


Image 11
1968 section detail showing removal of existing balcony railing in red

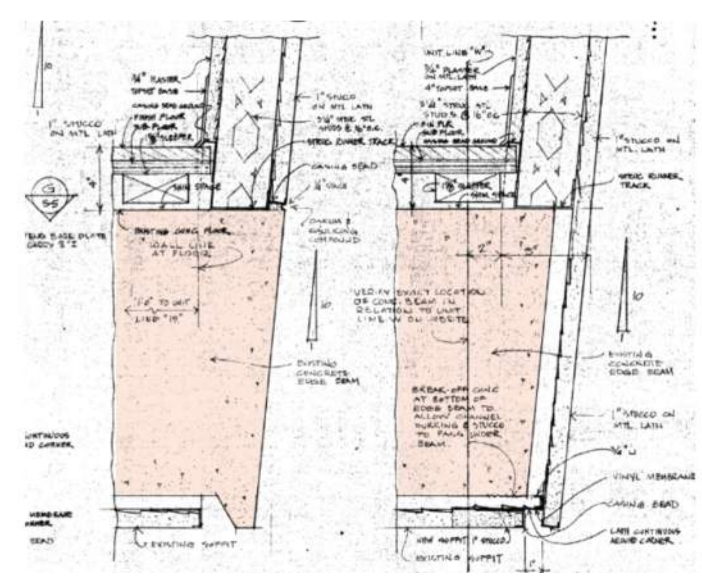


Image 12
1968 section detail showing new wall atop existing construction

Proposed Below Grade Lobby Extension

As part of the larger site redevelopment, the scope of the project includes a below grade expansion adjacent to the Kalita providing additional lobby, circulation, and service spaces. The proposed expansion would be below the existing lobby and connect to other site buildings via a below-grade tunnel. Where the below-grade addition meets the existing basement, openings will be required through the original foundation walls.

The proposed opening is in the foundation wall below the existing lobby.

Original drawings show that the existing foundation walls are 8" or 12" cast-in-place concrete walls reinforced with #4 and #5 bars at a regular spacing. The walls are supported on shallow concrete spread footings. Original drawings show these areas have concentric spread footings which are either 1'-6" or 3'-8" in width. The wall footings below most of the basement are typically lower than the footings at the proposed openings. At this lobby extension, the footings are about 8-ft higher than the typical basement footing elevation level.

Due to the cantilevered upper floors, the building load is collected into just a few walls at the base of the foundation. At the proposed opening, the wall extends up one level to support the floor of the original mezzanine level balcony. This area has since been enclosed within the 1960s addition. The wall supports the mezzanine floor and main floor framing, therefore cutting a new opening through the foundation walls will require temporary shoring and reinforcement of the structural foundation wall.

A variety of options can be considered for structural wall reinforcement. Larger openings, such as those bigger than the width of the doorway may be feasible with the addition of steel lintels and HSS support posts on new foundations. The concrete may be able to be chipped and repoured with additional reinforcement to support the opening, though this reinforcement approach is significantly more invasive and would likely Where the new structure will be lower than the existing foundations, underpinning may also be required to avoid undermining existing foundations. Due to its size, the proposed basement opening is a major structural intervention.

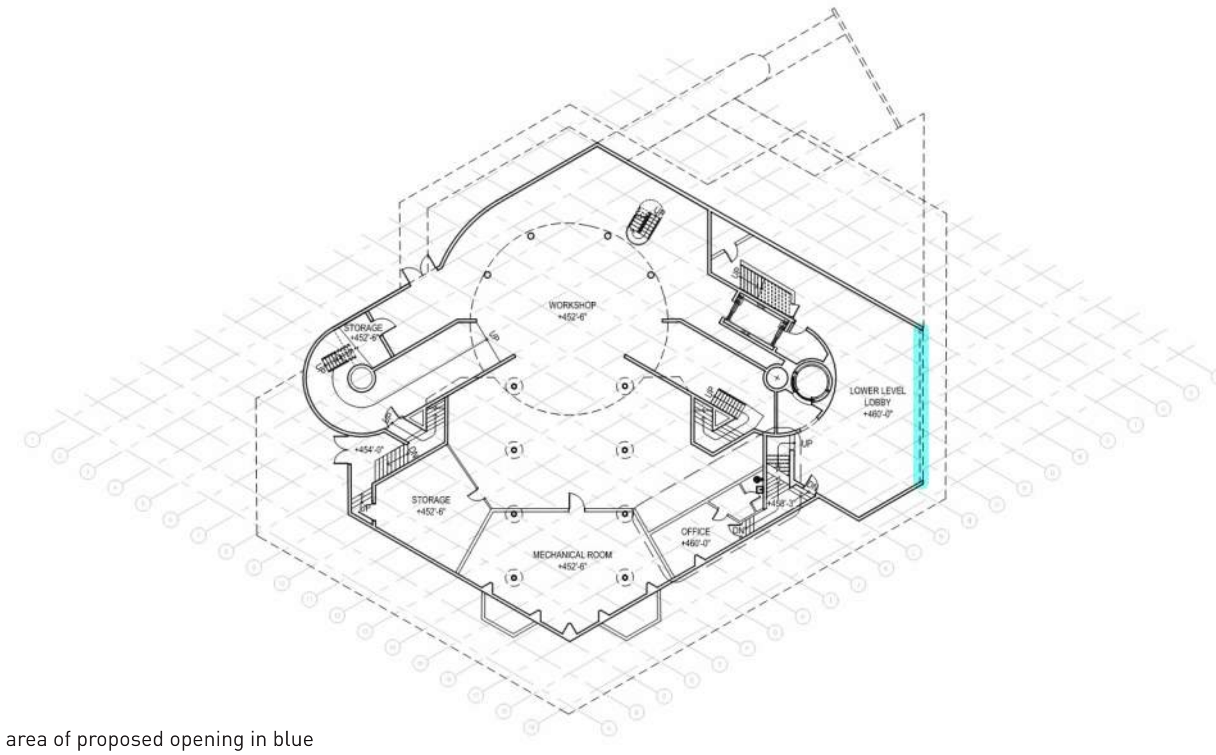


Image 13
Plan showing area of proposed opening in blue

Image 14
Current lobby with wall above proposed opening highlighted in blue

House and Stage Modifications

The following section describes changes proposed for the house interior, stage, and drum.

<u>Seating Replacement</u>

The proposed rehabilitation also includes replacement of the house seating and changing the rake of the house floor to improve sightlines. The concrete house floor was originally cast integrally with surrounding structure, including cantilevered floors, the circular stage floor, and walls supported on the house floor slab edge. The proposed change in slab slope would require cutting and removing a portion of the house floor and then recasting a new slab about 6˝ lower. The existing house floor is a framed concrete structure supported on basement walls, interior columns, and interior flat, wide beams. The slab was cast with a stepped top and flat, sloping underside.

Due to the continuity of the concrete structure, and complexity of the loads supported on the edge of the house floor, removal and replacement of the concrete structure will likely require shoring at the rear house, shoring of the mezzanine balcony, and could also require shoring of the upper drum. In addition to the temporary shoring, replacement of the house floor may also require post-tensioning to restore the load transfer between the new slab and the structure to remain. The exterior soffits will require removal and replacement to allow for direct support of the structure.

To understand the continuity of load path and implications of slab removal, it is helpful to study the edge conditions around the perimeter of the house, and the support conditions at the middle of the house floor.

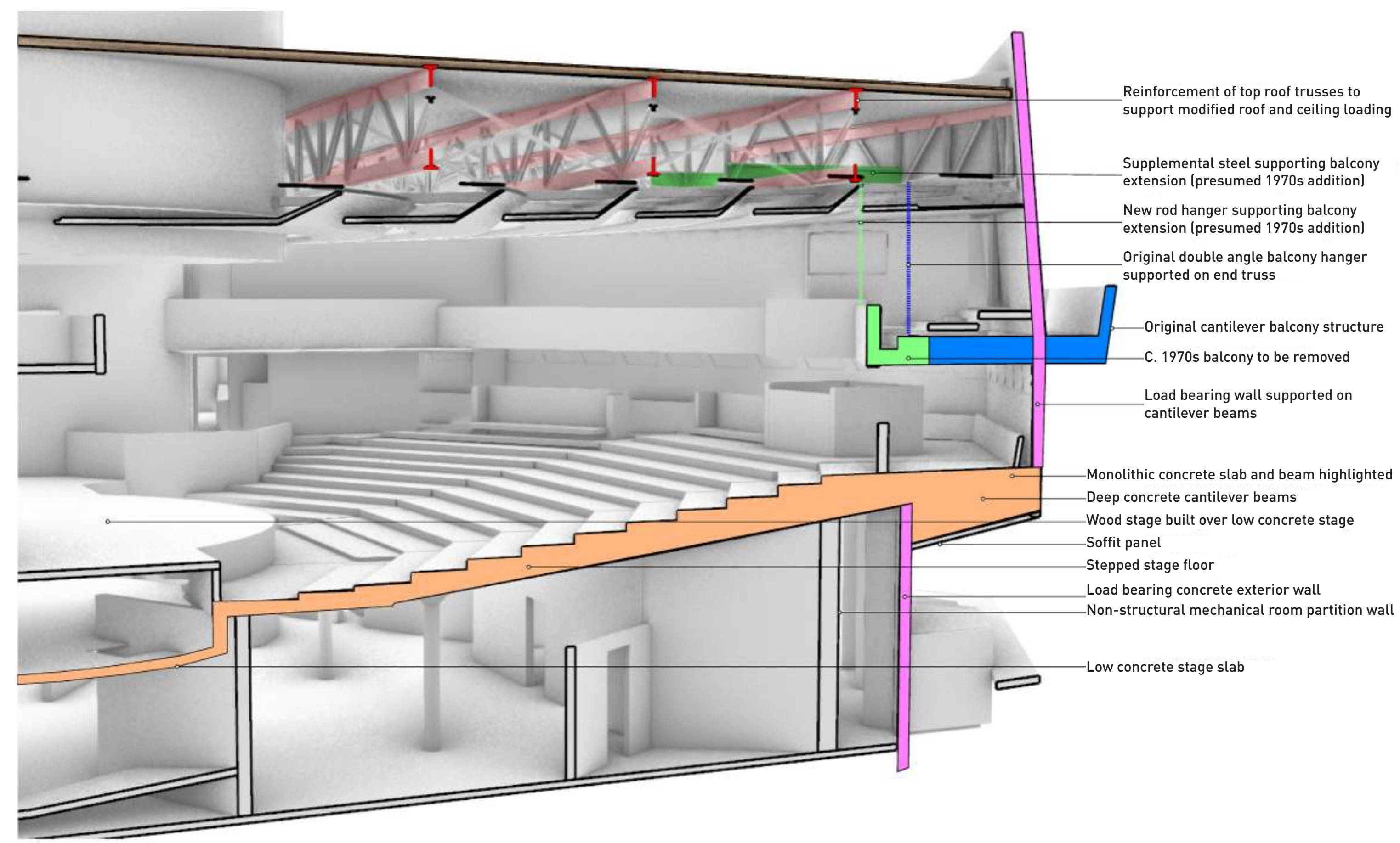


Image 15
Diagram showing proposed structural changes in house

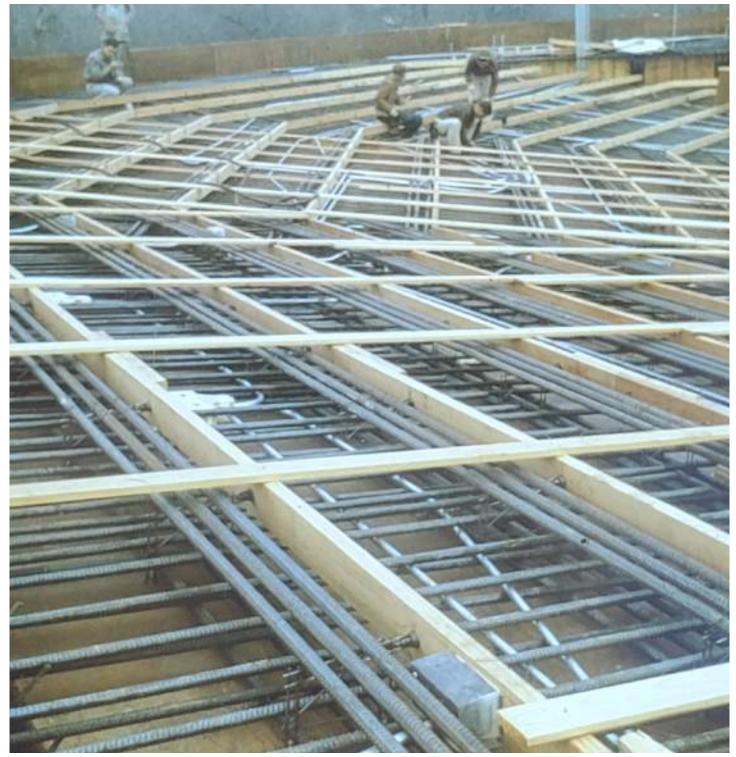
STRUCTURAL: EXISTING THEATER

At the front of the house, the concrete slab was cast integrally with concrete stage floor. This concrete stage floor is dropped lower than the house floor to accommodate the depth of the rotating stage equipment. The step between the stage floor and the house floor is detailed as a beam, which curves around from stage right to stage left, matching the curve of the stage. Original structural drawings show an "apron" of radial reinforcement. These bars are embedded 4'-6" into the house floor and then turn down into the edge beam. If the house floor will be lowered along this edge, the stage floor will also need to be shored and recast to restore continuity with the new lowered slab. To avoid this additional concrete work, the edge of the disturbed house slab can be pulled away from the stage edge beam, leaving the apron of reinforcement intact. The new house floor will need to be detailed to accommodate this concrete step down.

At the rear of the house, the concrete slab cantilevers beyond the foundation walls to support the clerestory rear exterior wall. In turn, this clerestory wall also supports the cantilevered mezzanine balcony and roof above. The cantilevered portion of the house floor is supported on deep beams that align with large pilasters in the foundation walls. Reinforcement supporting cantilever also runs over the foundation wall, tying the slab into the remainder of the house floor. It should be assumed that the deep beams and rear house wall will be shore to prevent movement or overstress of the reinforcement when the house floor is removed.

At the interior of the house, the slab is supported on wide flat beams and interior columns. To lower the slab, the beams and columns will need to be removed to accommodate the new slope and recast. This will require some rework of the conical column caps as well.

At the sides of the house, the slab is supported on interior walls and beams. At most locations, the slab meets a wall that continues up and down. However, on either side of the stage, the slab cantilevers over a foundation wall and then steps up to meet another framed slab. To avoid shoring and re-work of this beam, the extents of removal can be limited to the area inboard of the supporting foundation wall.



Images 16, 17
Construction photos of the house floor showing reinforcement in the slab and initial slab pour. Courtesy of Avery Library.

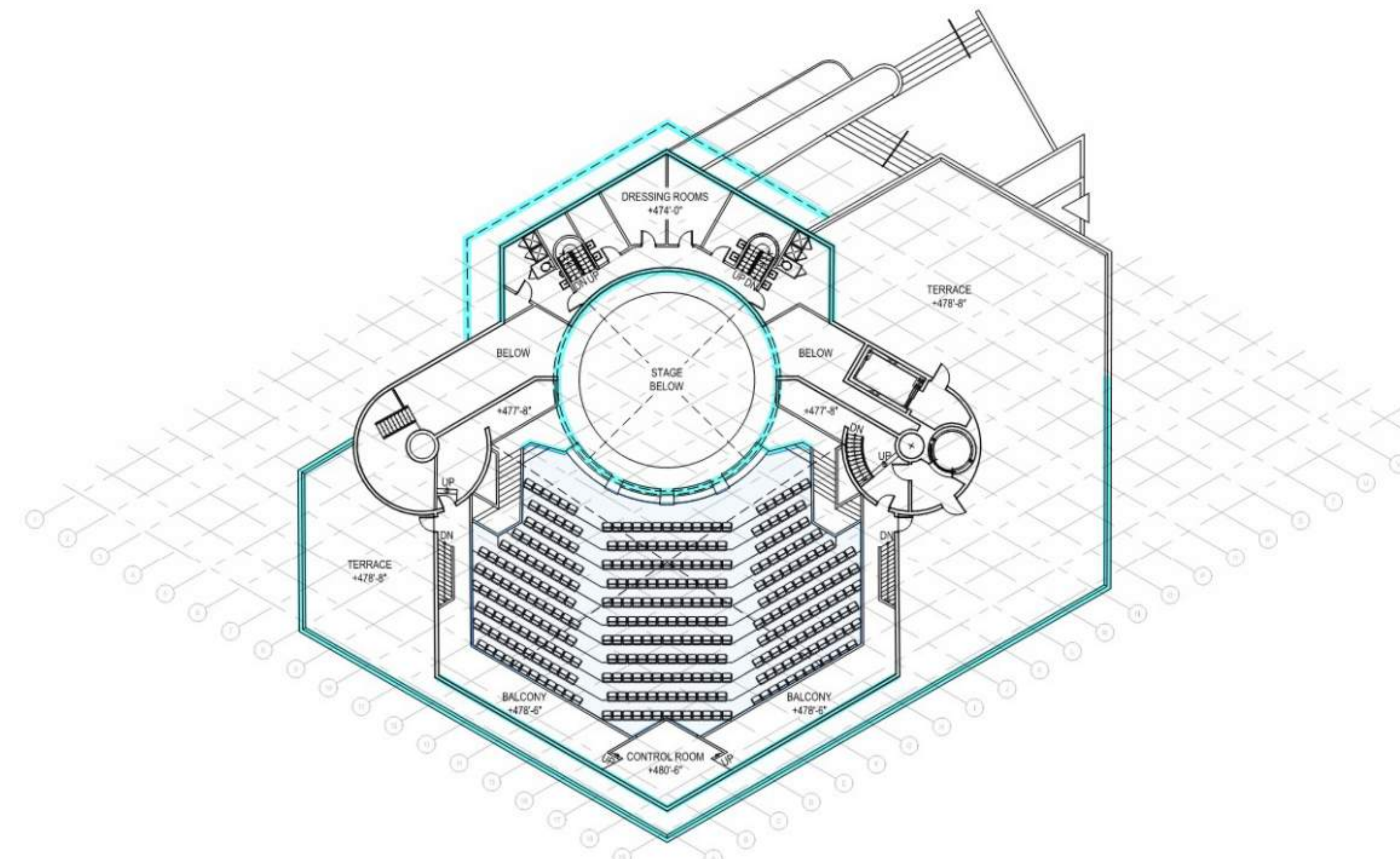


Image 18
Plan diagram showing extents of shoring required for removal of house floor highlighted in blue

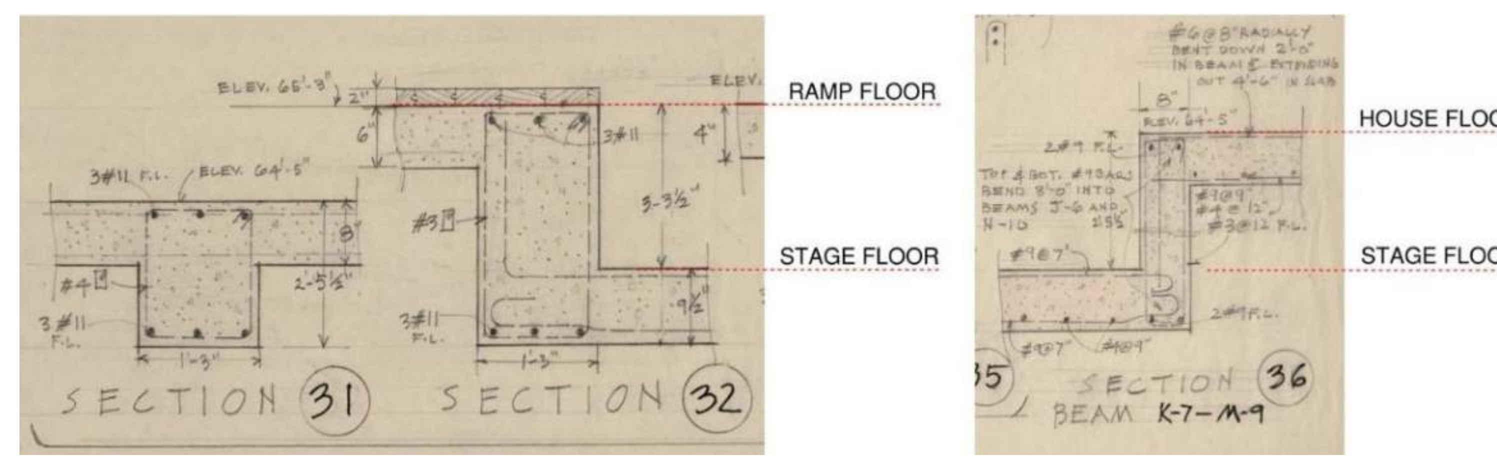


Image 19
Markup of original plans showing existing structural layout, slab steps and beams. Courtesy of Avery Library.

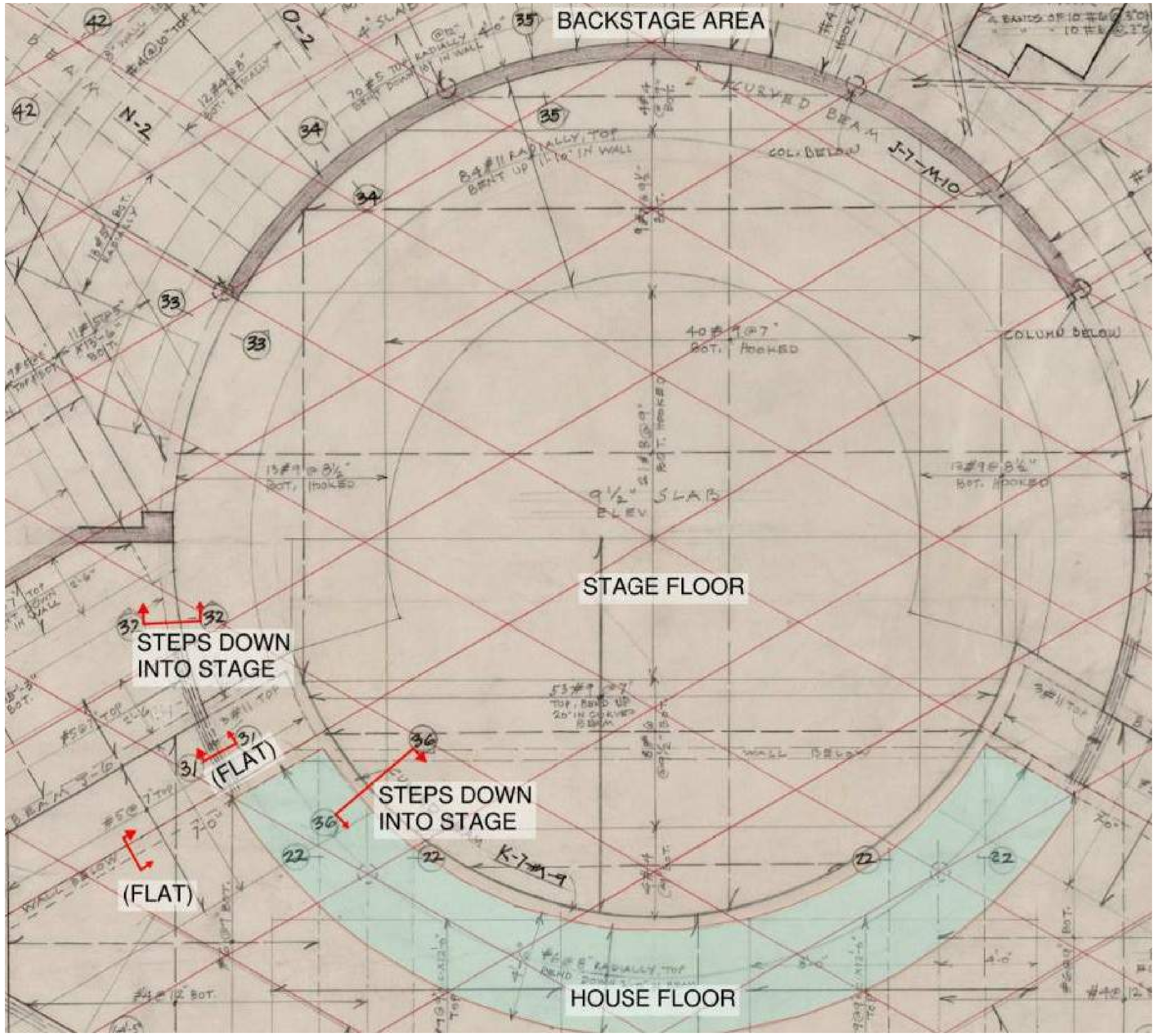


Image 20
Markup of original plans showing existing structural layout, slab steps and beams. Courtesy of Avery Library.

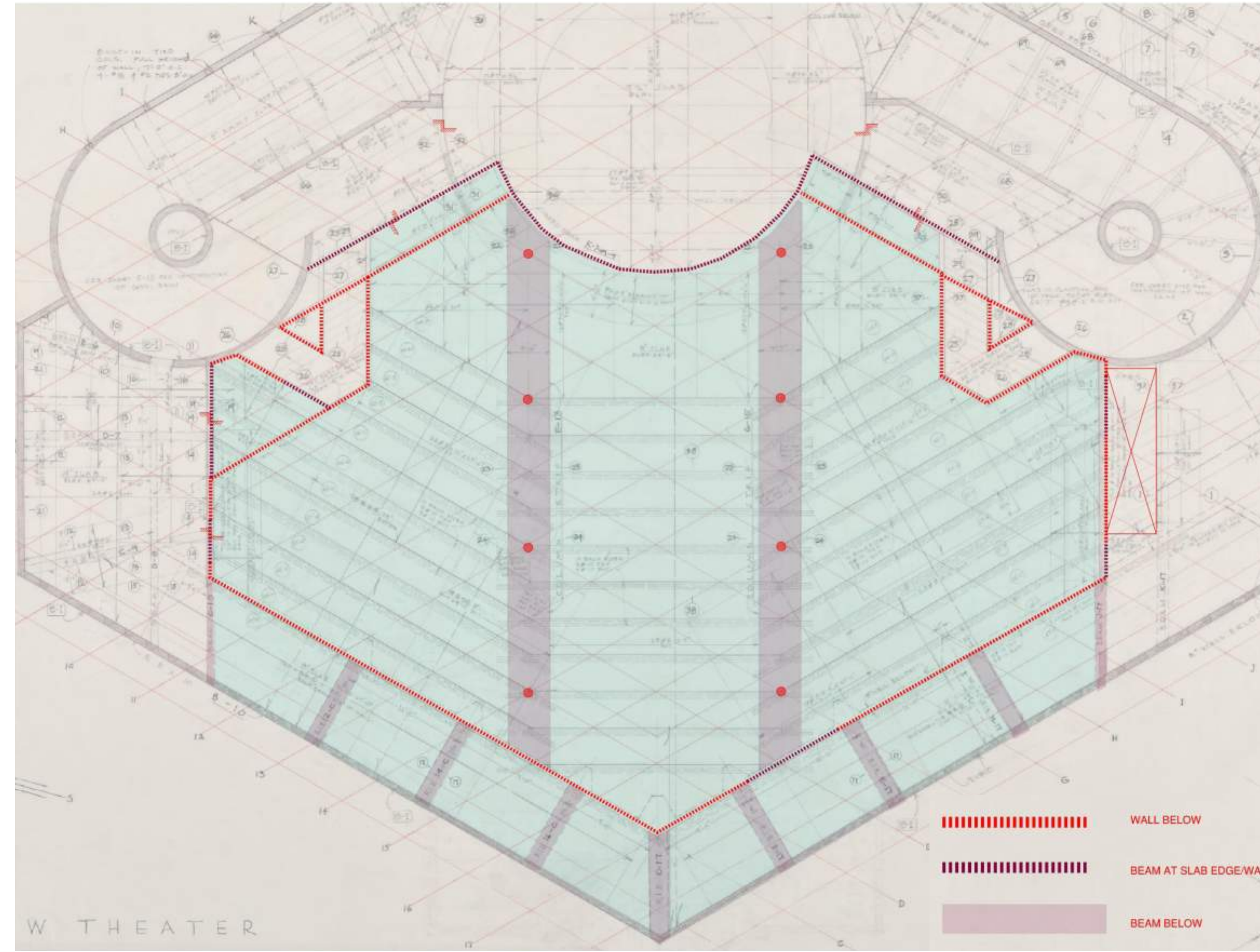


Image 21
Markup of original plans showing existing structural layout, slab steps and beams. Courtesy of Avery Library.

STRUCTURAL: EXISTING THEATER

Reinstatement of Historic Balcony

Scope of the project also includes removal of the 1970s balcony extension to restore the original condition. Based on the original construction photos and drawings, structure of the balcony is either concrete or concrete encased steel. (See earlier discussion in the structural description section noting the discrepancy between the drawings and field observations.) Around 1978, the floor area of the balcony was extended for additional seating. There is limited information on the structure of this condition, but based on architectural drawings, the balcony extension comprises trusses hidden within the balcony handrail. This truss spans between new hangers near the control room and new posts, hidden within the stair walls below. The central hangers were supported on new steel beams installed between two roof trusses within the plenum. Reinstating the historic balcony would involve removal of the hangers, handrail trusses, hangers, and posts. It should be confirmed that the original hangers near the control room are still in place. Additionally, a new handrail will be installed at the restored balcony edge. Original drawings show this handrail as pipe supports furred with plaster. New attachments of the handrail shall be coordinated with the condition of the exposed edge. Based on construction photos, this edge is concrete.

Image 22
Construction of the house balcony and installation of roof trusses

Reinforcement of House Roof Trusses

In addition to the house floor modifications, scope also includes several changes to the roof and ceiling that will change the structural loading. The existing roof is supported on four primary roof trusses – three long trusses and one short truss – that span clear across the house and are supported on the battered concrete walls. This scope includes the replacement of the roof structure, addition of theater equipment including lighting, and potential for other structural or load changes associated with the restoration and rehabilitation of the theater ceiling.

Preliminary structural analysis of the trusses shows that they do not have excess capacity for additional loading and may be under-designed for contemporary code loading. Analysis of the trusses was based on steel member sizes shown in the original drawings, and actual dimensions will need to be confirmed during design after the asbestos fireproofing is properly abated. The trusses will need to be reinforced to carry the new design loading, including a heavier concrete-on-metal deck roof assembly and additional lighting, equipment, and potentially personnel access loading.

The trusses can be reinforced by welding or bolting additional steel to the truss members. For pricing purposes, it can be assumed that steel tees will be welded to the full length of top and bottom chords at all four trusses. Depending on the magnitude of the load increases, only partial reinforcement of the bottom and top chords may be required. Silman's analysis of the roof trusses is summarized in the following graphics.

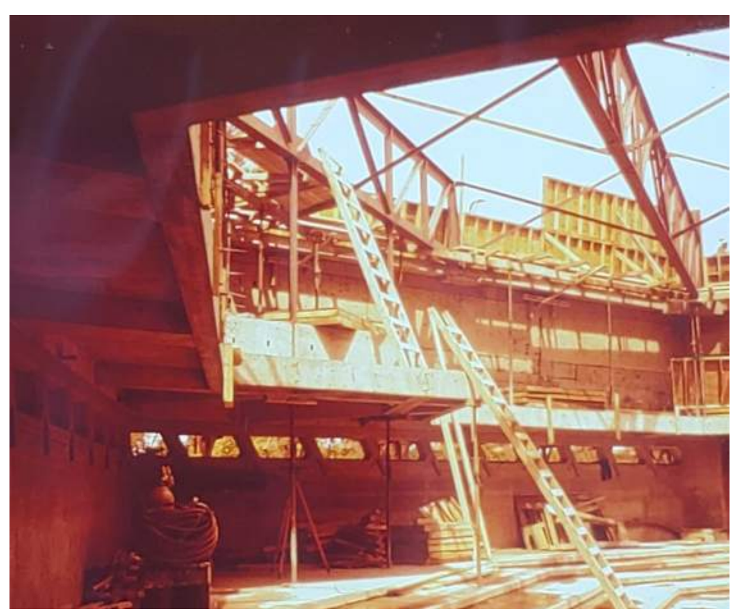


Image 23
Construction of the house balcony and installation of roof trusses

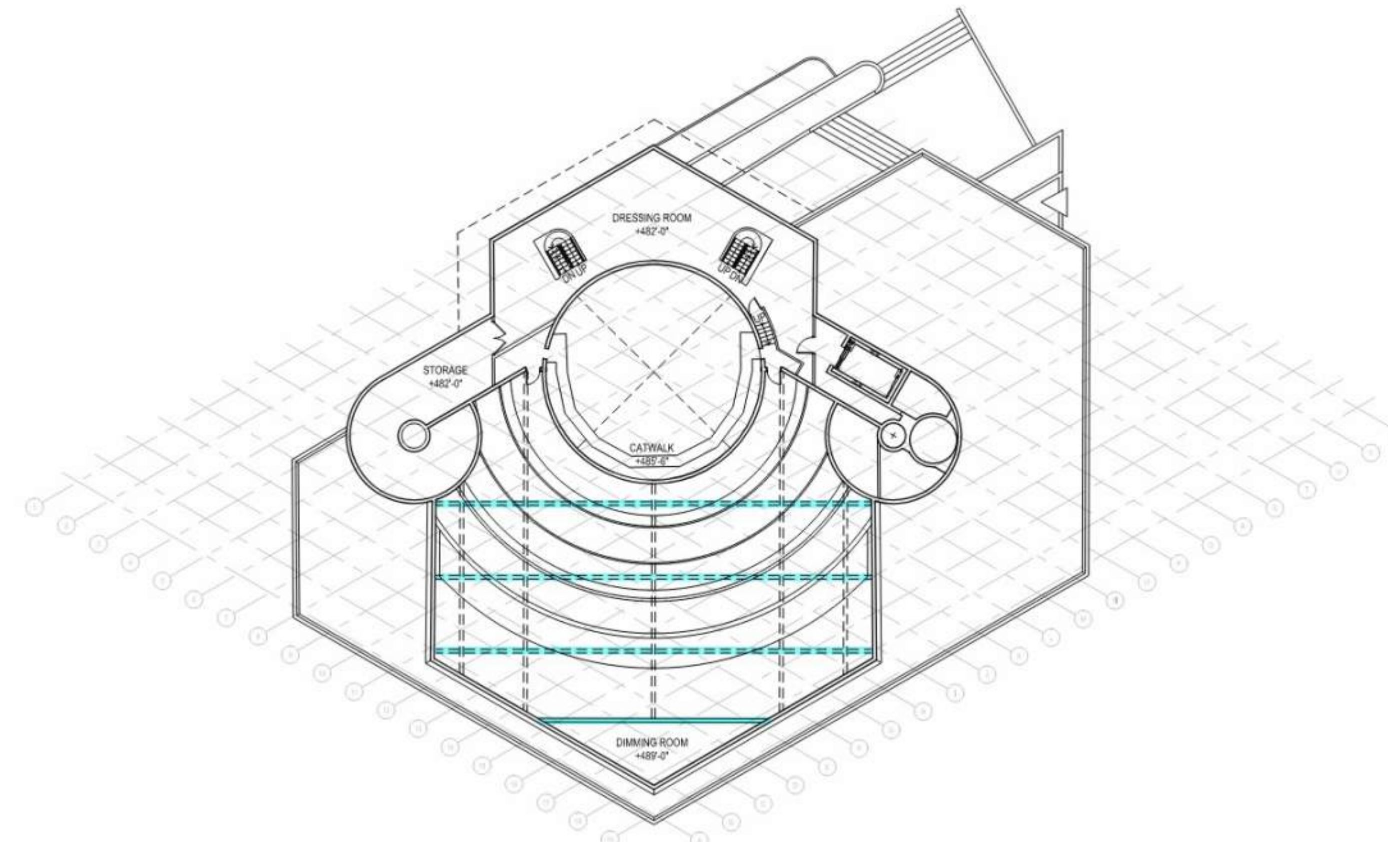


Image 24
Plan diagram with four primary roof trusses highlighted

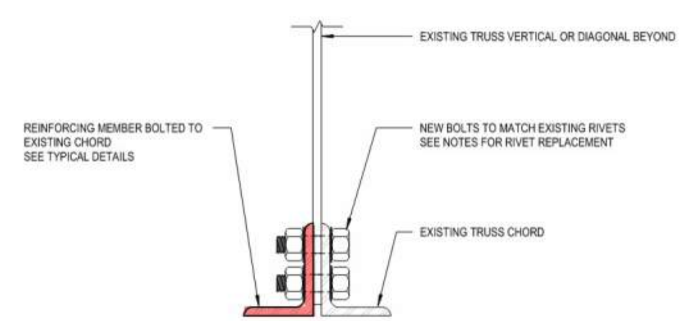


Image 25
Typical bolted reinforcement detail

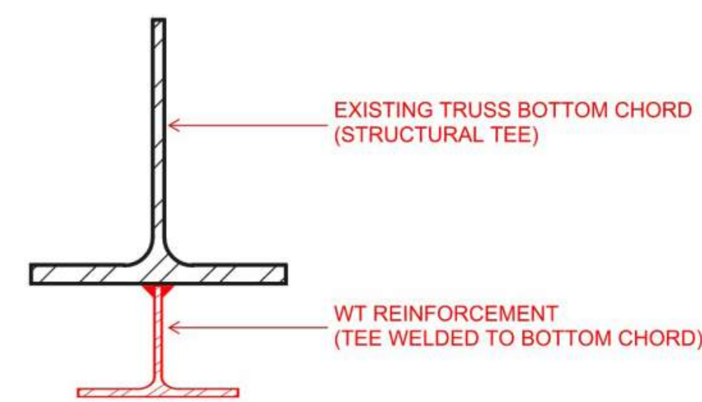


Image 26
Typical WT reinforcement detail

STRUCTURAL: EXISTING THEATER

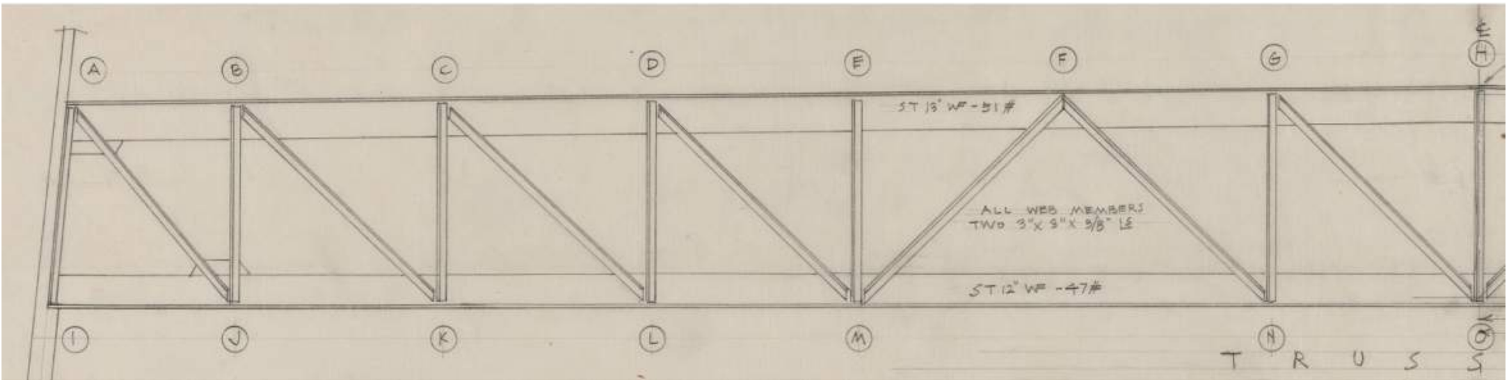


Image 27
Half truss excerpt from original drawings showing structural tees at the top and bottom chords and intermediate double angle web members

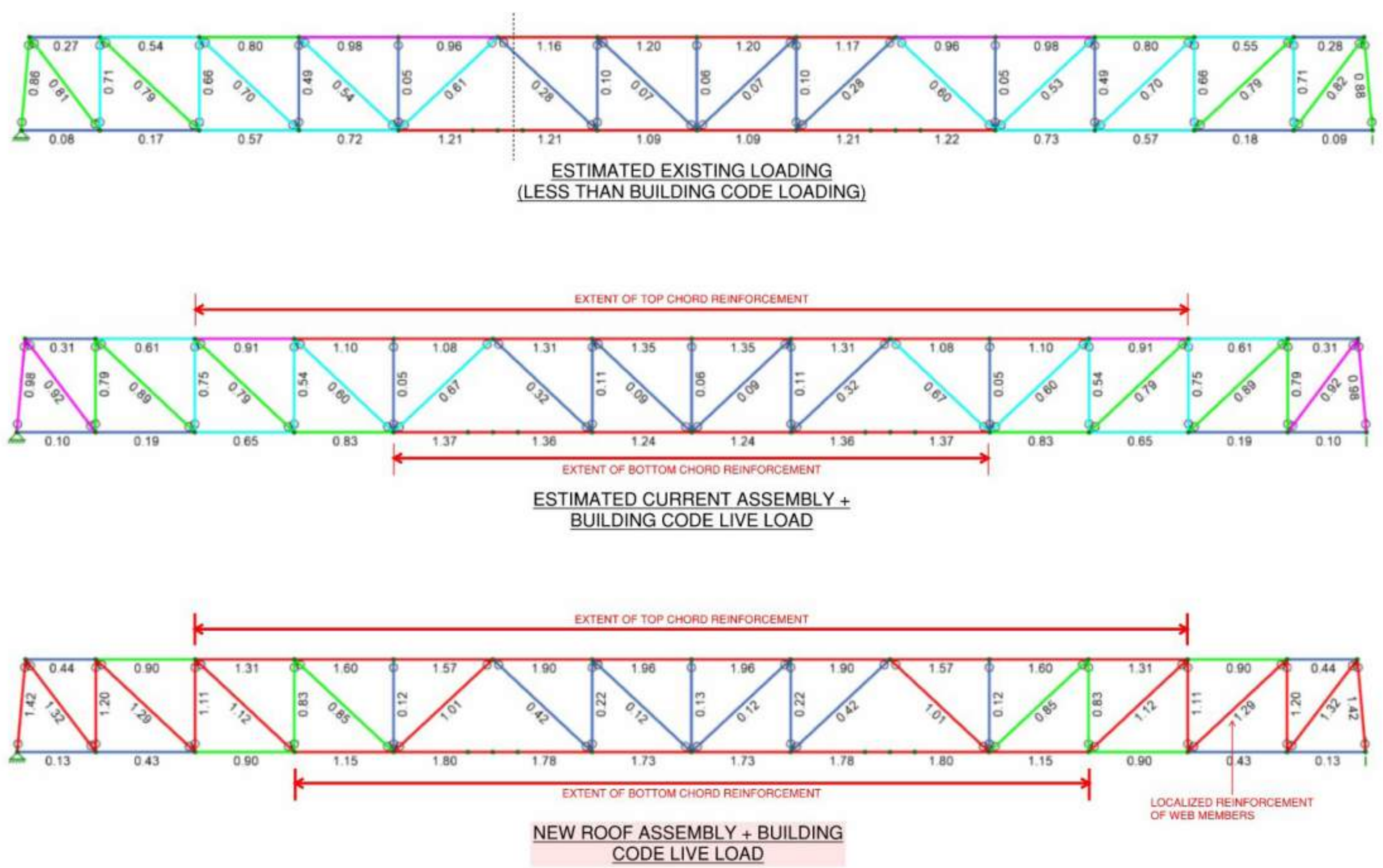


Image 28
Analysis model with loading representing original and existing (assumed) design loading. Bottom image represents the approximate proposed loading. Red members indicate overstressed truss members that will require reinforcement to meet design code loading

Image 29
Existing attic condition. Roof trusses are fireproofed.

STRUCTURAL: EXISTING THEATER

New Elevators

Scope of the proposed work includes two new elevators: a back-of-house freight elevator and one for public use. The elevators are both planned for the southern "wing" off the stage area. This area currently houses a lift, staircases, and storage at the upper levels. This area was modified early on, even within the original construction period and does not include a continuous concrete ramp like the other wing. The new back-of-house freight elevator will replace an existing stage lift, and the passenger elevator will replace a staircase added in the 1980s renovation. Structural scope associated with the new elevators will include removal and selective demolition of the previous lift, equipment, and 1980s construction. New elevator scope can be assumed to include new CMU elevator shaft walls bearing on new shallow foundations, new concrete framed landings as required, and new elevator overrun structure at the roof level.

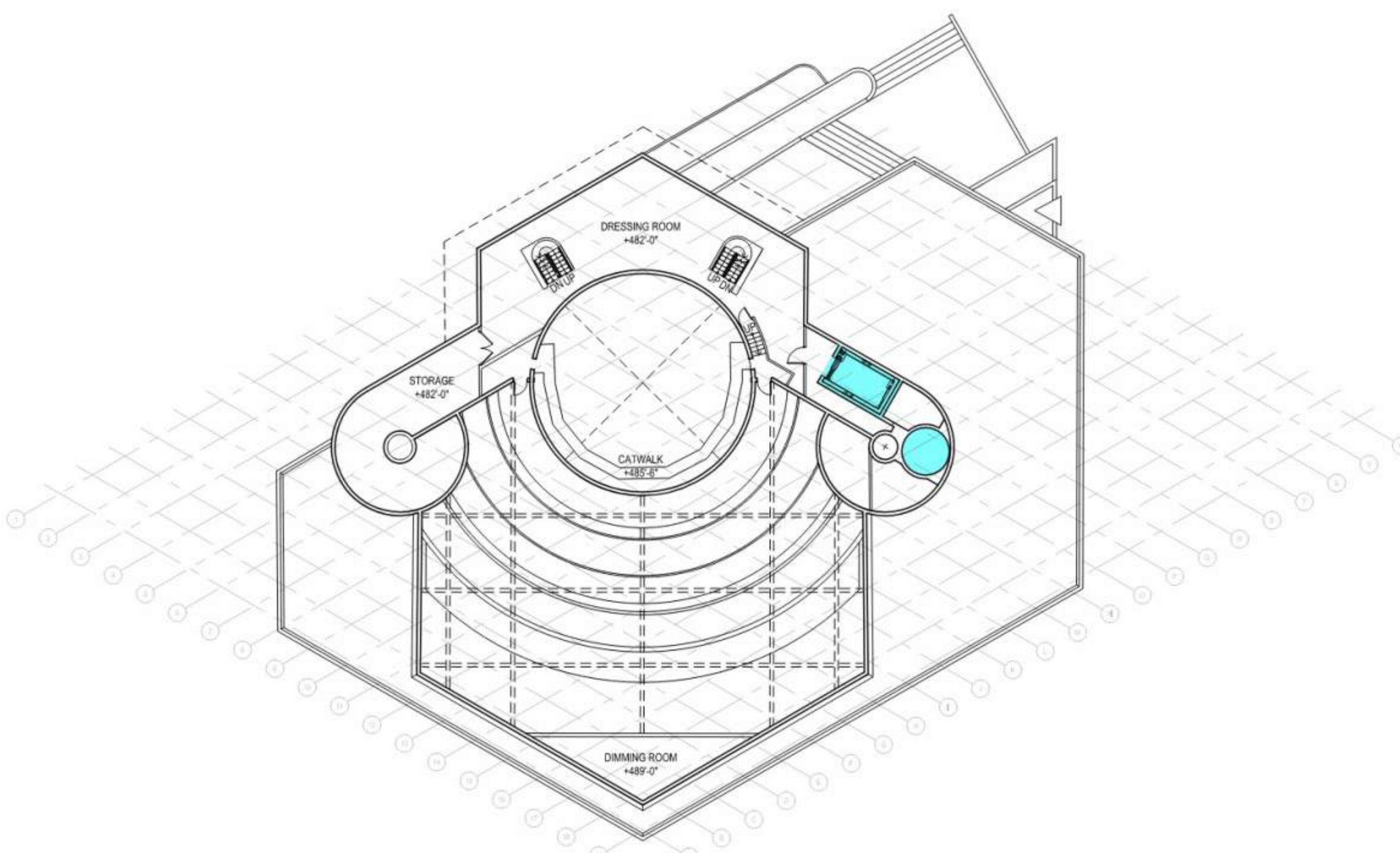


Image 30
Plan diagram showing location of new elevators

The house and mezzanine levels are fairly clear of structure due to previous modifications, however floor and wall openings will likely be required at the upper levels. Openings through concrete floors will require structural reinforcement such as new steel beams, re-support of floors on new masonry walls, and/or CFRP reinforcement of walls. This portion of the building includes walls that are continuous from roof to grade level. These continuous walls make up the building's primary lateral force resisting system, therefore partial removal of these walls will reduce the capacity of the lateral force resisting system. If this removal (considered with other wall removals) exceeds the allowable threshold for modifications, further seismic analysis and wall reinforcement may be required.

MEP Upgrades

The proposed project will also include various mechanical, electrical, and plumbing upgrades, including new equipment and new distribution systems. Structural capacity of framed floors should be verified once units are selected. New dunnage and/or structural reinforcement may be required for heavier units that are not located in basements or on grade.

Coordination of new mechanical openings will be particularly important for this building. Due to the complexity of the cascading cantilevers, special attention should be paid to maintaining continuity of reinforcement. Load of the upper levels is collected into a few exterior and interior foundation walls. Openings through these walls should be avoided. Similarly, the floor structure supports gravity loads but also likely sees some axial load where the floors restrain cantilever elements, such as areas where the floor slab ties into the backstage side of the cantilever drum. The deep cantilever beams supporting upper stories will also need to be avoided when routing ductwork, conduit, and piping. MEP distribution shall be routed through existing shafts and shafts in the new seating floor wherever possible, and all new openings should be assessed structurally and thoroughly coordinated before openings are cut. In places where openings are required, CFRP reinforcement or supplemental concrete or steel reinforcement may be required to maintain structural integrity around new openings. For smaller openings or localized openings for ducts, opening support may be feasible with steel channels bolted to the face of the wall or the introduction of grouted steel sleeve.

Repair of Existing Building Conditions

The exterior coating on the concrete is critical to the long term performance of the building. It should be assumed that the existing coating will be removed and a new breathable high performance coating will be applied to sound material per the manufactures recommendation.

Silman recommends that the future project includes an allowance for repair of existing concrete and steel. This should include the selection of appropriate repair mortars, specification of "re-pour" repairs, steel corrosion repairs. All concrete repairs shall also be compatible with the restoration of historic finishes. Where ferrous attachments are causing staining, the metal shall be carefully removed before the concrete and finishes are patched.

Silman also recommends an allowance for pachometer and SPR testing of sensitive concrete elements such as the thin parapets and large cantilever beams to confirm (1) whether existing cracking aligns with the reinforcement pattern and (2) whether any voids, delamination, or corrosion are ongoing and hidden within the concrete. This study may be focused at problem areas, or completed at representative areas throughout the structure. It may also be appropriate to remove soffit panels to identify any conditions meriting repair at the cantilevered structure.

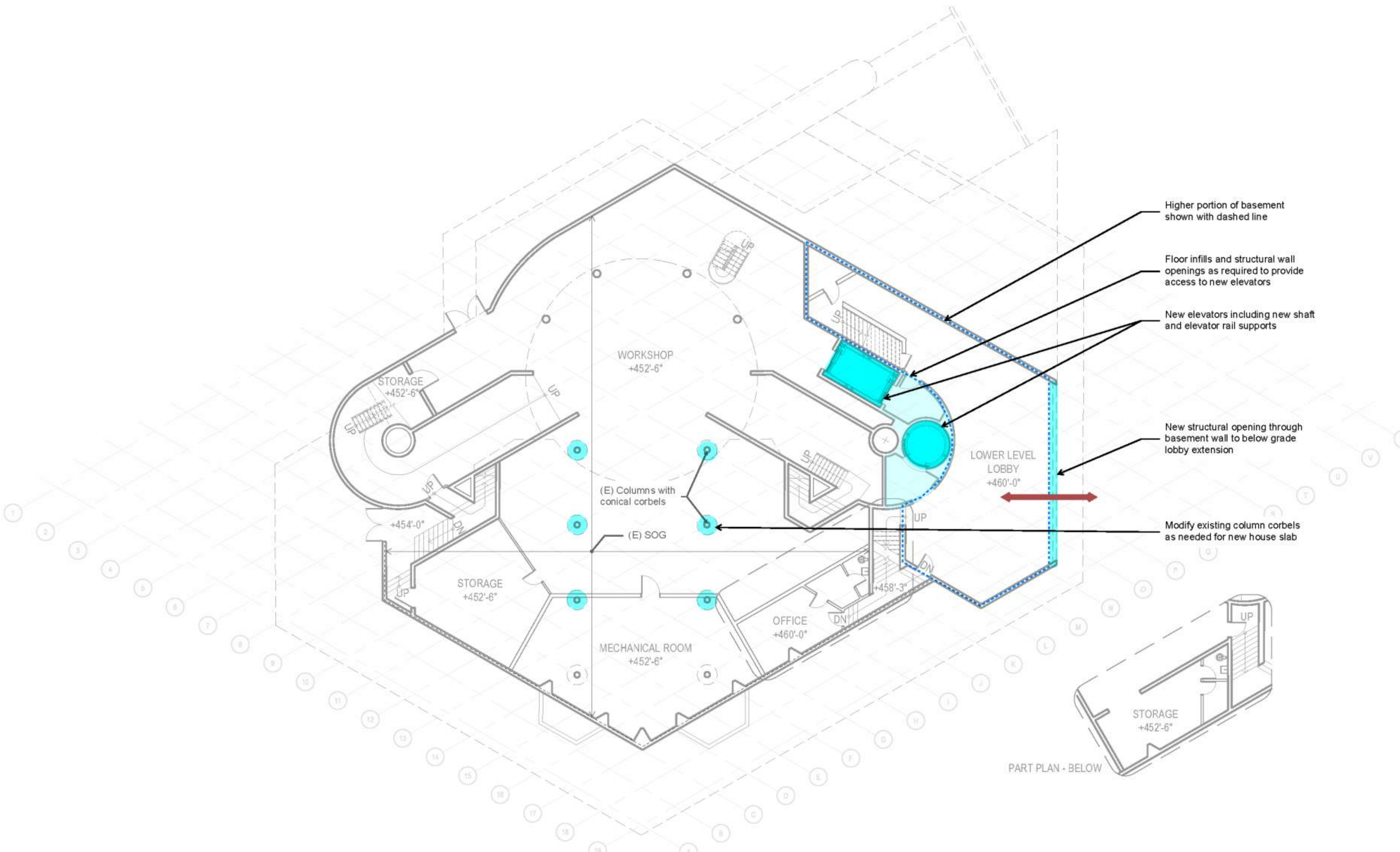
Other Program and Circulation Upgrades

Scope of the proposed project also includes various modifications to program and circulation spaces. Some of these will require new openings through floors or walls. Several new openings are anticipated through the south wing walls near the new passenger elevator at the mezzanine level. Existing floor infills will also be removed in the house and lobbies to re-expose original staircases. New openings shall be properly supported with new lintels, supplementary reinforcing and/or carbon fiber. Removal of previous structural infills shall include allowances for patching and restoring structure where it was previously damaged or altered. This would include concrete slab and wall patching at previous attachments. For openings near the passenger elevator, specialty concrete and/or steel work will likely be required to achieve the openings in the curved concrete walls to the terrace spaces.

Other Structural Considerations

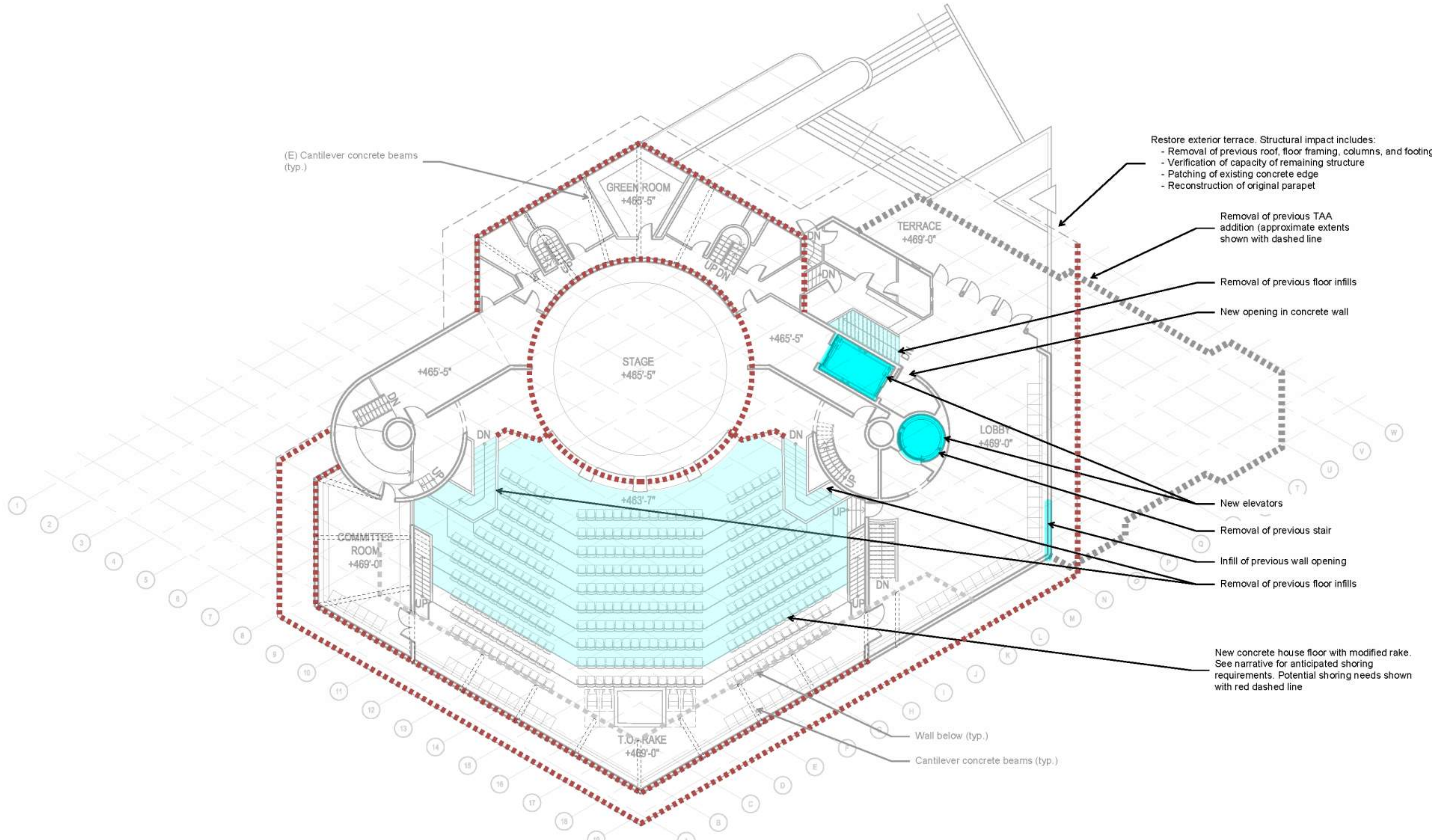
The logistics and sequencing of the work will be critical to prevent cracking of the concrete during load transfers and removals. Monitoring and project specific special inspections (in addition to the code required special inspections), will be recommended during construction. The contractor will need to have an engineer on their team for the final sequencing and temporary shoring and bracing so they can direct the logistics.

STRUCTURAL: EXISTING THEATER



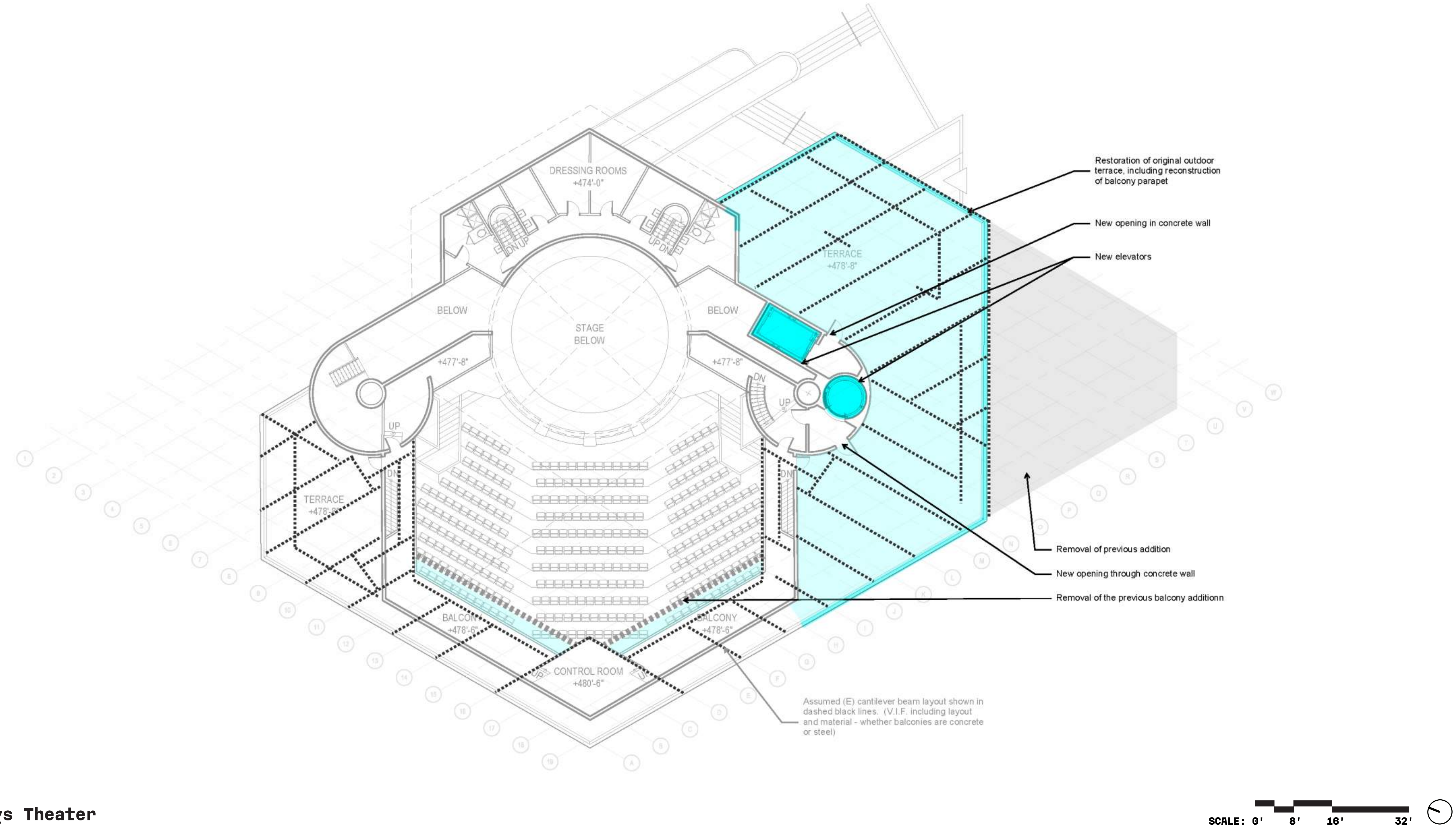
Kalita Humphreys Theater
Lower Lobby Level: Proposed Structural Framing Plan

STRUCTURAL: EXISTING THEATER



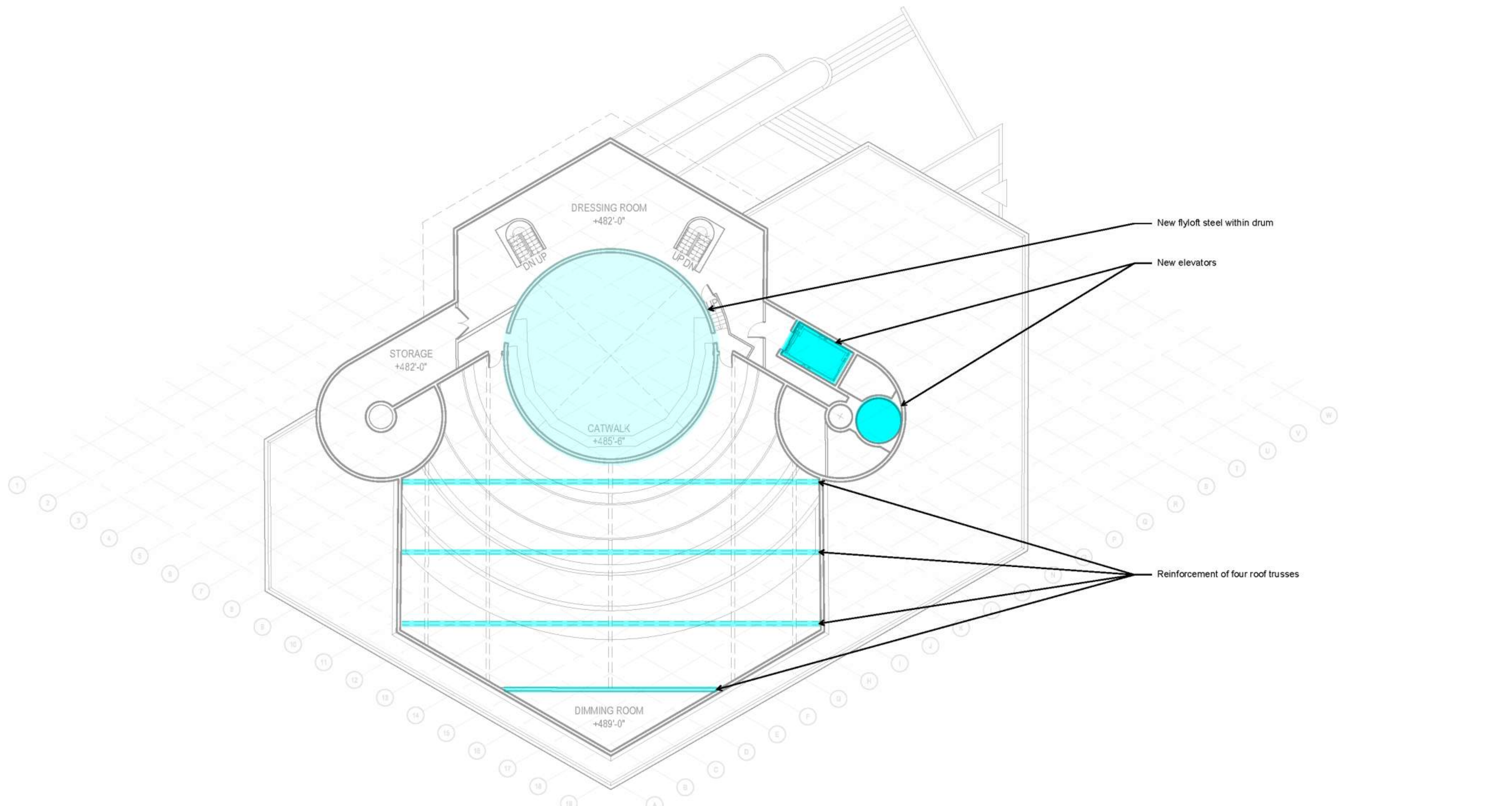
Kalita Humphreys Theater

Lobby + Stage Level: Proposed Structural Framing Plan

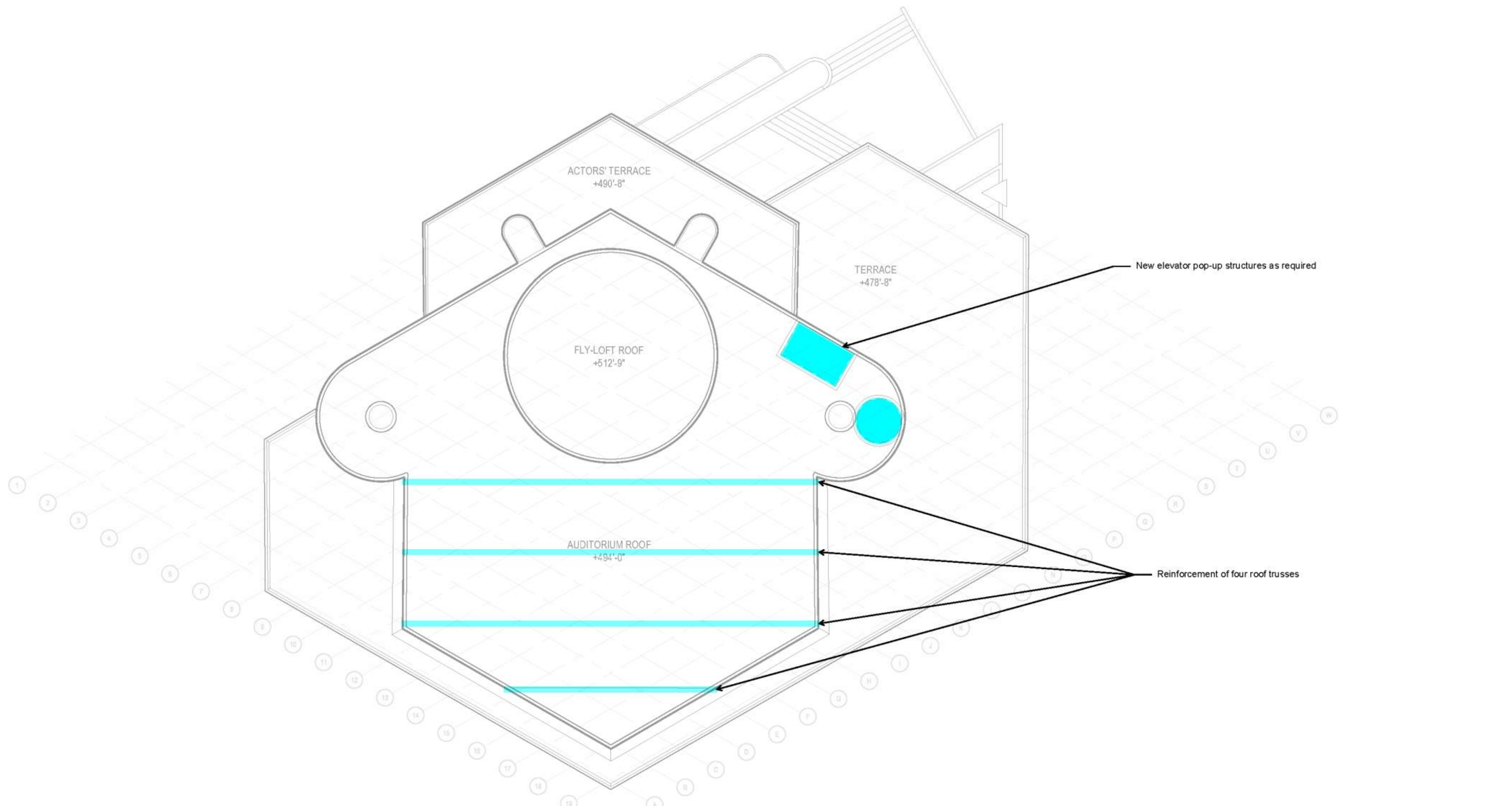


Kalita Humphreys Theater
Mezzanine Level: Proposed Structural Framing Plan

STRUCTURAL: EXISTING THEATER



Kalita Humphreys Theater
Catwalk Level: Proposed Structural Framing Plan



Kalita Humphreys Theater
Roof Level: Proposed Structural Framing Plan

STRUCTURAL: NEW BUILDINGS

Rehearsal + Education Pavilion

The northernmost new building is the Rehearsal + Education Pavilion. It is a five-story structure with a 5,500 sf footprint and roughly 25,000 sf of floor space overall. It will be constructed of heavy timber and Cross Laminated Timber (CLT) panels. The vertical structural system will consist of large glue-laminated (glulam) timber members forming a diagrid on the exterior facade (for pricing these can be assumed as 8.5"x15" members), and a reinforced concrete stair and elevator core on the interior. The floors will be CLT structural slabs supported on a glulam timber beams. The CLT panels typically get a 3" concrete topping reinforced with welded wire fabric (for estimating purposes assume the CLT panels are CrossLam 245V or equivalent, between 9 and 10" thick). We assume this will be the typical floor throughout the structure. For reference, CLT is an engineered wood panel that consists of multiple layers of dimensional lumber orientated at right angles to form structural panels while glulam beams and columns consist of layers of dimensional lumber elements bonded together with structural adhesive to create a single structural element.

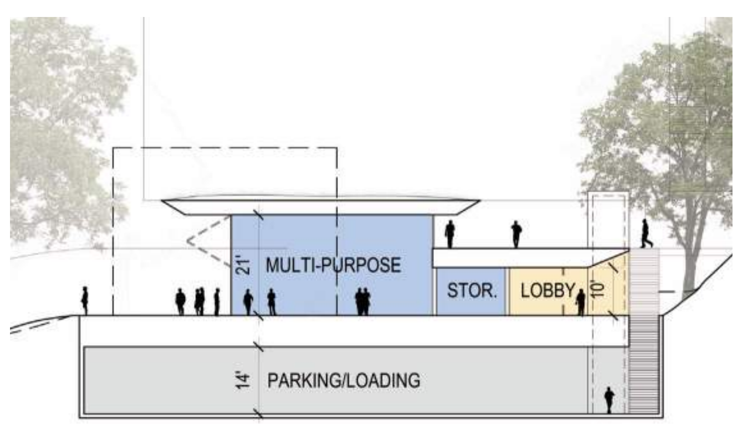
Code analysis will need to be performed to verify that the proposed timber system will meet the local codes. We have found this system is allowed by code in most US jurisdictions and heavy timber structures are being adding into more codes all the time.

Rehearsal + Education Pavilion conceptual rendering by DS+R

It should be noted that CLT is largely a proprietary mass timber material and Silman will outline product specifications in the future Contract Documents that will allow for a variety of manufacturers to bid the project. During construction, Silman will collaborate with the selected mass timber manufacturer in reviewing their product information, including any signed and sealed calculations and drawings by the contractor's or manufacturer's NYS licensed professional engineer.

This structure will have CLT terraces and stairs wrapping the structure on the outside, cantilevering off the external grid structure. The second floor will be the primary rehearsal space so it will be roughly 1.5 times taller than the other floors. An especially large stepping terrace will surround the building at the first floor to provide a connection to the Katy Trail. We do not have a geotechnical report on the site, but in our experience expansive clays can be found in this area near the surface. The terrace structures on or near grade here and elsewhere on the site may require sacrificial forms below to absorb the expansion of any clays, or the removal of any expansive clays down to the top of rock. We do not know if these clays are present, but they can result in an expense for near grade structures if they are here.

There will be a partial cellar under the building that will be created by excavating one level into the decomposed limestone and surrounding the space with reinforced concrete walls – cast or shotcrete walls are both options. Over-excavation for a temporary retention system may be needed if the rock is prone to sliding into the excavation. It is our expectation the building foundations will be spread footings bearing on the decomposed rock. Here we are far above the level of ground water so dewatering should not be necessary.



Multi-Purpose Pavilion section by DS+R

Multi-Purpose Pavilion

The Multi-Purpose Pavilion is situated between the Rehearsal + Education Pavilion and the Kalita Humphreys Theater. This new pavilion structure will be one-story tall, and the footprint will be approximately 5,000 sf. The front two thirds of the building will have 20-foot-high ceilings with large operable doors along the front facade. The roof will cantilever out beyond the front facade and will be planted with an extensive green roof of grasses. This upper roof is not expected to be occupied. The long cantilever will be best suited to a steel girder structure. Steel columns and "back arm" beams may be incorporated in the side walls and perhaps the facade between hangar type doors. The rear third of the building will have a lower ceiling and an occupiable roof. The structure here may be simple steel framing or even CMU or light gauge steel bearing walls to maintain a lightweight structure. Both levels of roof will require a 3" concrete topping slab on metal deck to accept the green roof (high) and occupied roof (low). The steel tonnage is expected to be 25-30 psf based on the spans and cantilever of the roof.

This structure will sit on a parking structure below. We expect the steel columns and structural walls will rest on a concrete slab that forms the roof of the parking structure below. Because the structure is only one story tall, a deep transfer level in not required here, though any primary structure that can land above columns in the parking structure will result in savings.

Northern Underground Parking and Utility Corridor

Beneath the Multi-Purpose Pavilion, there will be one-story of underground parking and loading dock and an adjacent utility corridor which will be excavated into the decomposed limestone rock that we believe covers much of the site. It is worth noting that we do not have a geotechnical report for this entire site, but we do have information from previous projects in the area and from the original Kalita Humphreys Theater construction. Being high on the site and only excavating down one level we anticipate this can be built as a simple cut and cover excavation – depending on the competence of the existing rock some over-excavation or bracing may be needed. If the rock is not decomposed and the bedding planes are horizontal, the space may be able to be cut right out of the stone. We would expect 12" concrete walls surrounding the space with interior concrete columns on a roughly 30x30 foot grid with a 20" transfer slab with 5 psf rebar running over the top.

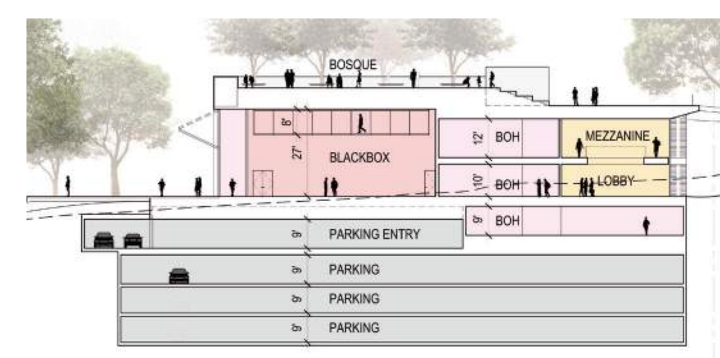
Blackbox Theater

The next three structures, two theaters and the associated parking garage, can be thought of as one large structure in many ways, but we will describe the unique features of each here. The Blackbox Theater has two stories of back of house and a 100-seat one-story theater space in the front.

The structure at the theater auditorium will be steel columns around the perimeter with long span steel girders or trusses at the roof (the large span over the theater space inclines us to think this will make sense as a steel structure, but other solutions can be explored as well). The roof of the theater will be planted with trees and will be occupiable. Therefore, a concrete slab will need to be present under the roof. We will run long spanning metal deck with a 3" concrete topping slab between steel girders/trusses that will support the rooftop "park". To support these loads, we anticipate the girders/trusses will need to be at least 36" deep and will have an estimated weight of 30-40 psf. It can be expected that these steel members will be supporting various theatrical equipment (lighting, catwalks, speakers, etc.) as well. If girders are used, assume they will have numerous large beam penetrations to allow MEP systems to run through the beams in the auditorium ceiling.

For the back of house structure, 8" reinforced CMU bearing walls may be utilized for cost and acoustic reasons along with metal joists and 3" concrete topping slab on 2" metal deck floors. The cladding of this structure is expected to be Corten steel. To provide a stable substrate to support this facade, a reinforced CMU or light gauge steel backup assembly could be used. More CMU walls may be present around the auditorium space to create an acoustic "box within a box" so more CMU should be estimated than exterior and demising walls.

This structure will rest on a thick concrete transfer slab that covers four levels of below grade parking.



Blackbox theater section by DS+R

Proscenium Theater

The Proscenium Theater has a three-story back of house component adjacent to a 200-seat one-story theater auditorium – all topped with a one level restaurant. This structure will make use of brick and masonry arches as much as possible. Like the Blackbox Theater, the long spanning roof over the auditorium will be steel girders or trusses that are supported by steel columns along the perimeter of the space. Assume 20-30 psf for steel framing at these levels. Elsewhere reinforced CMU walls will support light gauge members and metal deck with 3" concrete topping for floor assemblies. More CMU walls may be present around the auditorium space to create an acoustic "box within a box" so more CMU should be estimated than exterior and demising walls. An allowance should be held for additional framing to create the catwalks, rigging, and lighting grids typically found over proscenium theater stages.

The restaurant level at the top will be a steel and glass structure set back from the perimeter of the building below. The steel structure above the auditorium will have to be sized to support this transfer of the loads from above. The exterior will feature some unique brick masonry arches and elements. These will mostly be connected back to a steel sub-structure, but it is possible that some true masonry arches could be constructed as part of the exterior of this structure.

Southern Parking Garage and New Lobby

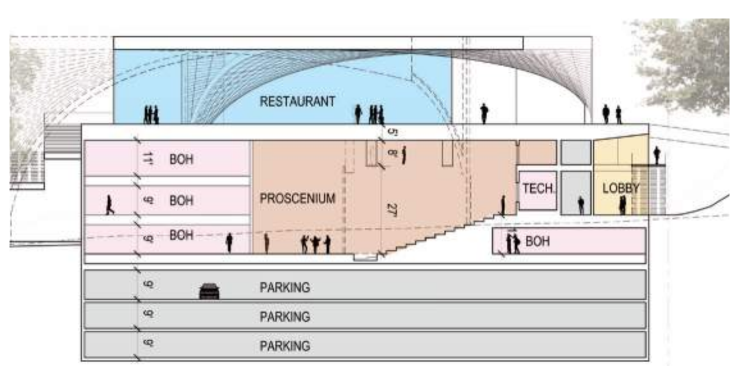
The new lobby is the upper portion of this underground structure that will connect to the Kailta. Here the construction can be assumed to be similar to the parking garage under the Multi-Purpose Pavilion. There will be concrete walls and roof created in a space dug out of the decomposed rock. This will meet the existing theater at the cellar level and a joint will be provided between the new and existing structure.

The parking structure under the two theaters will have 380 spaces and extend four levels below grade. In this area of the site, we believe ground water is roughly 15-20 feet below grade, so this excavation will extend well into the water. It is expected that if the rock is heavily decomposed and loose this excavation could utilize a slurry wall type construction to create a bathtub for the parking levels. If the rock is solid enough that it cannot be dug easily, then we could use the rock itself as a temporary retention system. This approach will require a substantial temporary dewatering operation.

The entire below grade structure will be concrete with columns on a 30'x30' grid with 10.5" concrete slabs and 6 psf of rebar for estimating purposes (the uppermost floor will be 24" thick due to transfer of the loads from above). The perimeter may be overcut to provide a drainage mat and a temporary retention system to prevent the rock from sliding into the site depending on the competence of the rock and the method of creating the excavation chosen. For pricing purposes, assume there will be caissons down into rock in the foundation of the excavated structure to resist the uplift that will likely result from the water's buoyancy force here. A permanent dewatering system could be used to prevent an uplift pressure from ever developing on the lowest level slab, but we cannot rely on that dewatering system for an entire building so some caissons will likely be needed here. The ground water is high in salinity so it is particularly corrosive. Any drainage or dewatering design and estimate should take this into account.

The top of the parking structure will be a reinforced concrete transfer slab. This slab will have a step in it winding around the loading and parking area below and the proscenium stage above. The four foot step in this approximately 30" slab will create a number of large beams at this junction. We will utilize these where possible to transfer loads from the theaters above into the sub-surface structure of the garage.

If a flood event could reach any entrance to the garage, an allowance for flood gates at that entrance should be included in pricing.



Proscenium theater section by DS+R

Pedestrian Bridge

The bridge is a unique element that spans from a hillside near the Rehearsal + Education Pavilion west over Turtle Creek. The bridge will be approximately 250 feet long and 10 feet wide.

The structure could be any number of systems – traditional girder, box girder, suspension, cable-stayed, or others. The foundations for the ends of the bridge will depend on the type of bridge, but for cost estimating purposes, assume there may be caissons drilled into the rock to provide anchorage. The bridge will need to provide at least 14 feet clear above the roadway below.


Pedestrian bridge conceptual rendering by DS+R

STRUCTURAL: DESIGN CRITERIA

Applicable Codes & Standards

The project will be governed by the following codes:

- 2015 International Building Code (IBC) with Dallas Amendments
- 2021 International Existing Building Code (IEBC) with Dallas Amendments

The following standards will be followed as specified by the governing codes:

- ASCE 7-10 Minimum Design Loads (and Associated Criteria) for Buildings and Other Structures
- ACI 318-14 Building Code Requirements for Structural Concrete
- ACI 530-13 Building Code Requirements for Masonry Structures
- NDS-2015 National Design Specification (NDS) for Wood Construction with 2015 Supplement
- AISC 360-10 Specification for Structural Steel Buildings
- ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings

Structural Loads

The loads presented below assume the structures are Risk Category III (ASCE 7-10, Table 1.5-1, IBC Table 1604.5).

Live Loads

The following values are specified by the applicable codes and standards:

Occupancy or use	Live load	
	Uniform (psf)	Concentrated (lbs)
Public assembly: lobbies and circulation	100	
Public assembly: fixed seating	60	
Stage floor	150	
Projection and control rooms	50	
Balconies and decks	100 or matching occupancy served	
Walkways and elevator platforms	60	
Offices	50 + 15 psf partitions	
Catwalks	40	300
Roof	20	

Snow Loads

The following loads and parameters are specified by the applicable codes and standards:

- Ground Snow Load (ASCE 7-10, Figure 7-1) p_g = 5 psf
- Terrain Category/Surface Roughness Category (ASCE 7-10, §26.7) B
- Exposure Factor (ASCE 7-10, Table 7-2) C_e = 1.0
- Thermal Factor (ASCE 7-10, Table 7-3) C_t = 1.0
- Importance Factor (ASCE 7-10, Table 1.5-2) I_s = 1.1
- Flat Roof Snow Load (ASCE 7-10, Eqn. 7.3-1)* p_f = 6 psf

*Note: Values are reported for the existing building size, configuration, and massing. Design loads for new structures will be determined using massing and structural configuration once determined.

Wind Loads

- Basic Wind Speed (by jurisdiction) V = 120 mph
- Wind Directionality Factor (ASCE 7-10, Table 26.6-1) K_d = 0.85
- Exposure Category (ASCE 7-10, §26.7) B
- Topographic Factor (ASCE 7-10, §26.8) K_{zt} = 1.0
- Gust Effect Factor (ASCE 7-10, §26.9) G = 0.85
- Enclosure Classification (ASCE 7-10, §26.10) Enclosed
- Internal Pressure Coefficient (ASCE 7-10, Table 26.11-1) GC_{pi} =±0.18
- Velocity Pressure (ASCE 7-10, Eq. 27.3-1)* q_z = 28 psf
- Design Wind Pressure (MWFRS)* p = 23 psf

*Note: Values are reported for the existing building size, configuration, and massing. Design loads for new structures will be determined using massing and structural configuration once determined.

Seismic Loads

The seismic parameters dependent on soil shall be confirmed by a geotechnical engineer. The seismic force-resisting system has been assumed as ordinary reinforced concrete shear walls.*

- Soil Site Class (Assumed) D
- Short Period Mapped Spectral Acceleration (USGS) S_S = 0.096 g
- One Second Period Mapped Spectral Accel. (USGS) S_1 = 0.052 g
- Short Period Design Spectral Acceleration S_{DS} = 0.102 g
- One Second Period Design Spectral Acceleration S_{D1} = 0.083 g
- Seismic Design Category (ASCE 7-10, §11.6) B
- Seismic Importance Factor (ASCE 7-10, Table 1.5-2) I_e = 1.25
- Response Modification Coeff. (ASCE 7-10, Table 12.2-1) R = 4
- Overstrength Factor (ASCE 7-10, Table 12.2-1) Ω_0 = 2.5
- Deflection Amplification Factor (ASCE 7-10, Table 12.2-1) C_d = 4

*Note: Values are reported for the existing building size, configuration, and massing. Design loads for new structures will be determined using massing and structural configuration once determined.

For non-structural components:

- MEP systems are to be braced against seismic forces and provided with appropriate joints to allow seismic movement.
- All masonry partitions will require positive attachment to the structure.
- Non-structural components to meet life safety performance level in design level earthquake per ASCE IBC Chapter 34 and ASCE 7-10 Chapter 13.

Serviceability

The serviceability criteria shall be the most restrictive of either those in applicable code reference, or those presented below:

<u>Gravity Deflections</u>

- For roof members live/snow load deflection shall not exceed l/240, and the dead + live load deflection shall not exceed l/180.
- For floor members the live load deflection shall not exceed l/360, and the dead + live load deflection shall not exceed l/240.
- For members supporting plaster ceilings the live load deflection shall not exceed l/480, and the dead + live load deflection shall not exceed l/360.
- For members supporting masonry walls the dead + live load deflection shall not exceed l/600.

<u>Lateral Deflections</u>

- Allowable story drift due to seismic is 0.015 x story height ASCE 7-10, Table 12.12-1).
- Allowable lateral deflection due to wind shall be h/400 typically, or h/600 for walls with sensitive finishes, where h is the story height.

<u>Vibrations</u>

No criteria have been provided to limit vibrations for sensitive equipment or sensitive historic fabric. Where human comfort is the criteria for limiting pedestrian induced motion, floor framing vibration due to footfall vibrations will be verified. Where vibrations are caused by running machinery, they should be isolated by damping devices or by the use of independent foundations.

Structural Material Specifications

For new structural elements, it is assumed the provided materials will meet the following specifications:

<u>Concrete</u>

- Compressive Strength — f'_c = 4000 psi typical, 3000 psi at slab on deck, 5000 psi and higher if required for design
- Concrete Density — Y = 150 pcf normal weight, 115 pcf lightweight
- Reinforcing Bars — ASTM A615 Grade 60
- Welded Wire Fabric — ASTM A1064 (65 ksi min. yield)

<u>Steel</u>

- Wide Flange — ASTM A992
- Hollow Structural Sections — ASTM A500, Grade B
- Structural Pipe Sections — ASTM A53, Grade B
- Channels, Angles & Plates — ASTM A36
- High Strength Bolts — ASTM A325
- Welding Electrodes — AWS 5.1, Class E70xx

<u>Masonry</u>

Concrete block shall be of lightweight aggregate and conform to the following standards: solid/hollow block: ASTM C90, Grade N1. Unless otherwise noted on plans and/or elevations, concrete block unit strength shall be 1900 psi min. Mortar shall be ASTM C270, Type S. Grout shall be ASTM C476 with a 2000 psi minimum compressive strength.

ACOUSTICS & AUDIO VISUAL

Acoustics Introduction

The following section addresses the acoustic design features of the Kalita Humphreys' Theatre and Campus Expansion.

The Kalita Humphreys Theater (KHT) currently serves a variety of professional and community-based groups. Dallas Theater Center (DTC) is embarking on this project with a goal of restoring the Frank Lloyd Wright Theatre and increasing Dallas Theater Center's connection to both the surrounding areas and its engagement with the larger Dallas Theater community.

The Program for the Restoration of the Kalita Humphreys Theater and the Campus Expansion includes:

- Restored Kalita Humphreys Theater, 450-seat existing theater
- Expansion spaces include:
  - 250-seat Proscenium Theater
  - 100-seat (maximum) Studio Theater
  - A suite of shared back-of-house accommodations
  - Lobby space and exterior circulation spanning the campus, which includes box office space, concessions, and administrative offices
  - Event/Banquet Space for 300 visitors, which may double as lobby or circulation space
  - Rehearsal rooms
  - A large classroom divisible into three smaller rooms
  - New administration area for DTC staff
- Theaters and the Event Space will be available for rental by corporations, individuals, or community groups to host meetings and events

The discussions and recommendations summarized herein describe requirements for interior room acoustics, sound isolation, as well as the control of noise and vibration from building systems to support the theatre performance, rehearsal and education as well as event hosting.
The primary purposes of this document are as follows:

- Confirm acoustic priorities and criteria for the project.
- Describe acoustic construction requirements for coordination with architectural, structural, civil and MEPF design work.
- Inform the development of cost estimates.
- Inform the architectural development of documents in terms of the following:
  - Special acoustic systems recommended for the new Theatres and Rehearsal Rooms, such as variable acoustic systems.
  - Aspects of construction that affect the isolation of unwanted noise from sensitive areas of the building and from outdoor noise sources, specifically the flyover events from Dallas Love Field Airport.
  - Finish material recommendations and options for acoustically critical and sensitive spaces.
- Inform the development of MEPF documents through the establishment background noise criteria for specific spaces based on good acoustic practice as well as general design recommendations for mechanical and electrical systems to meet these criteria.

Acoustic recommendations are presented in the following sections:

- Acoustic Evaluation of the Kalita Humphreys Theater
- Acoustic Design Approach - Expansion Spaces: This section of the report provides a general introduction and addresses certain specific room acoustic and sound isolation features for the performances, rehearsal, education and gathering spaces in the site expansion.
- Room-by-Room Design Criteria: This table summarizes the general requirements for each space within the expansion and includes recommendations for background noise levels and finishes.
- MEP System Noise Control Godliness: These guidelines present recommendations for the design of the interiors portion of these systems in order to achieve the recommended background noise levels.

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KHT Existing Acoustic Conditions Measurements and Analysis

On 10 February 2022, Threshold Acoustics performed a series of measurements to document the existing acoustic conditions at Dallas Theatre Center's Kalita Humphreys Theater. The measurements included:

1. Room acoustic responses
2. Background noise measurements in the theater
3. Sound levels from aircraft fly overs

Reverberation Time Measurements, Room Impulse Responses and Energy Time Curves

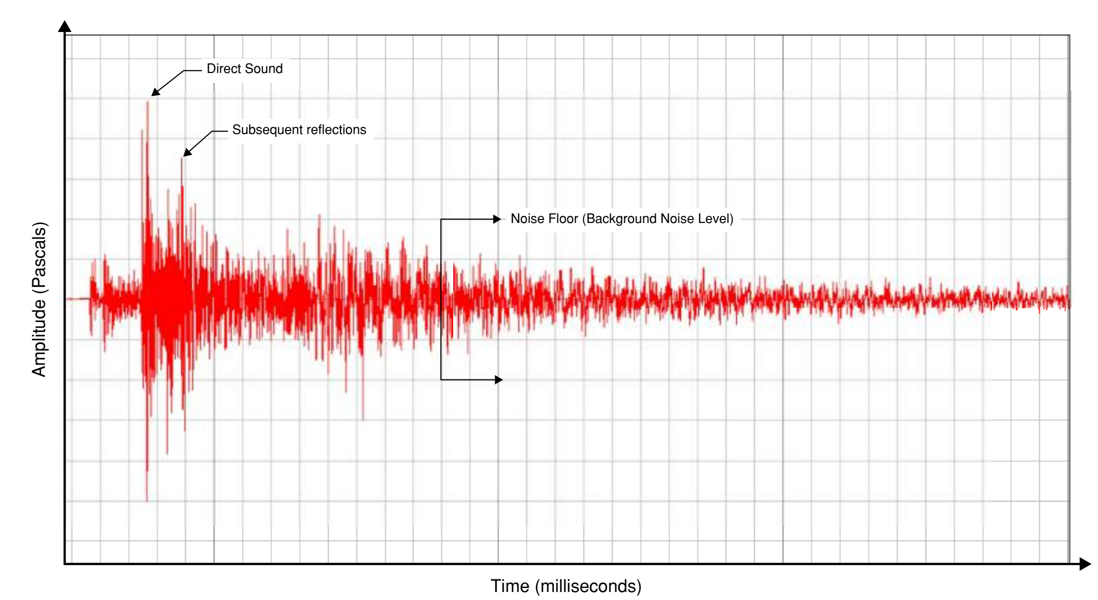
An omnidirectional, 12-sided loudspeaker was used to reproduce a digitally generated sound sweep across the audible frequency spectrum. From this measurement we generated impulse responses, see Figure 1, a graphic representation of direct sound and reflections received at each microphone, which indicates the strength of the reflected sound from surfaces in the space as well as how long the sound persists in the Theater. The collected data gives us an objective understanding of the subjective acoustic behavior that we observed in the room and further allows us to determine what specific surfaces and geometries in the existing space contribute to the acoustic behaviors at each test location.

Five stage positions were tested to understand how performer location impacts the aural experience for the audience . Eight microphone location were placed throughout the house for a total of 40 measurements conditions, from actors positions on the same side of the room as the patron, example from an upstage left actor to a patron in seat J12, to an cross-room conditions from downstage left to C5. See Figure 2 indicating the various loudspeaker source positions and audience receiver locations.

The data gathered in the impulse responses was used to calibrate an acoustic model constructed in Odeon, a room acoustic modeling software program. With an acoustic model calibrated to a built room's measured response, we are able to model a room's anticipated acoustic signature when changes are made to the room's shape or surface materials. A room impulse response is the recording of a room behavior between a given source (loudspeaker) and receiver positions (microphones), captured as an audio file. If we were to play back this audio file, it would sound like a very loud, short burst of sound (like a handclap or percussive sound) which would decay away to nothing. This is essentially a depiction of the room's acoustic signature.

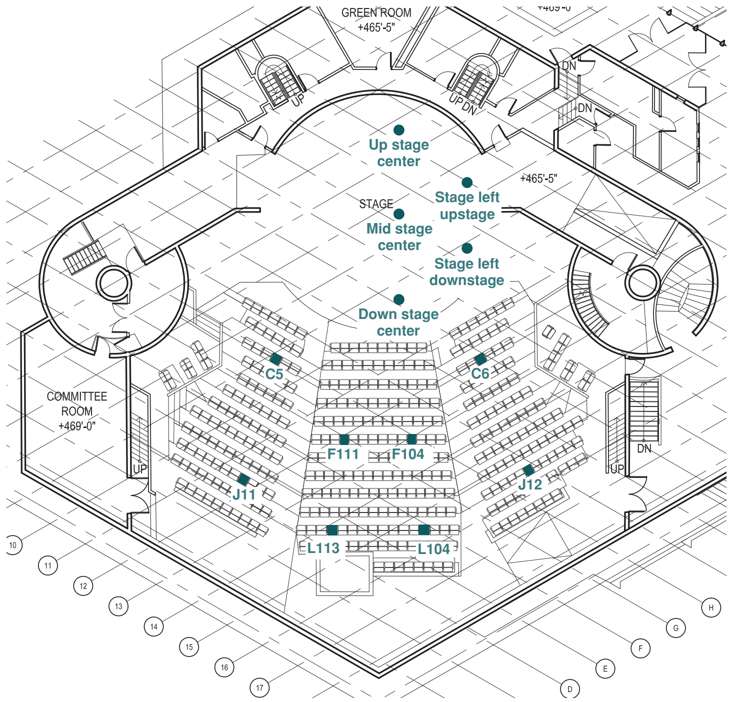
Figure 1 illustrating an impulse response, is a graphical representation of this captured audio file. The notable parts of the graph include:

- The x-axis represents time, measured in milliseconds
- The y-axis represents the amplitude of sound, or how loud it is
- Close to the start of the sound wave is typically the highest amplitude (loudest) peak. This is the direct sound coming from the source on stage and arriving at the receiver position, the listener's ear.
- There are then subsequent peaks after the direct sound peak. These are reflections from floor, wall, and ceiling surfaces arriving at the microphone (listern) after the direct sound.
- These reflections lose energy, or decay, as sound travels, and ultimately they settle into the background noise in the room.



Acoustics Figure 1
Impulse Response

Diller Scofidio + Renfro New York, NY | Fisher Dachs Associates New York, NY | Threshold Acoustics LLC Chicago, IL | Reed Hilderbrand LLC Cambridge, MA | Harboe Architects Chicago, IL | Silman Engineering New York, NY | BOKAPowell Dallas, TX | Syska Hennessy Group Los Angeles, CA | Pacheco Koch Dallas, TX



Acoustics Figure 2
Acoustic measurement positions - sources on stage, receivers in audience

We are able to convert this graph mathematically to an Energy Time Curve (ETC) which presents the same information in an easier to dissect graphic. In an Energy Time Curve (ETC) graphic, shown in Figure 3, we plot the square of the values in the pressure wave shown in the impulse response, and we more easily visualize the decay of energy, which typically approximates a straight-line function and relates more directly to the way that we hear these reflections in relation to one another.

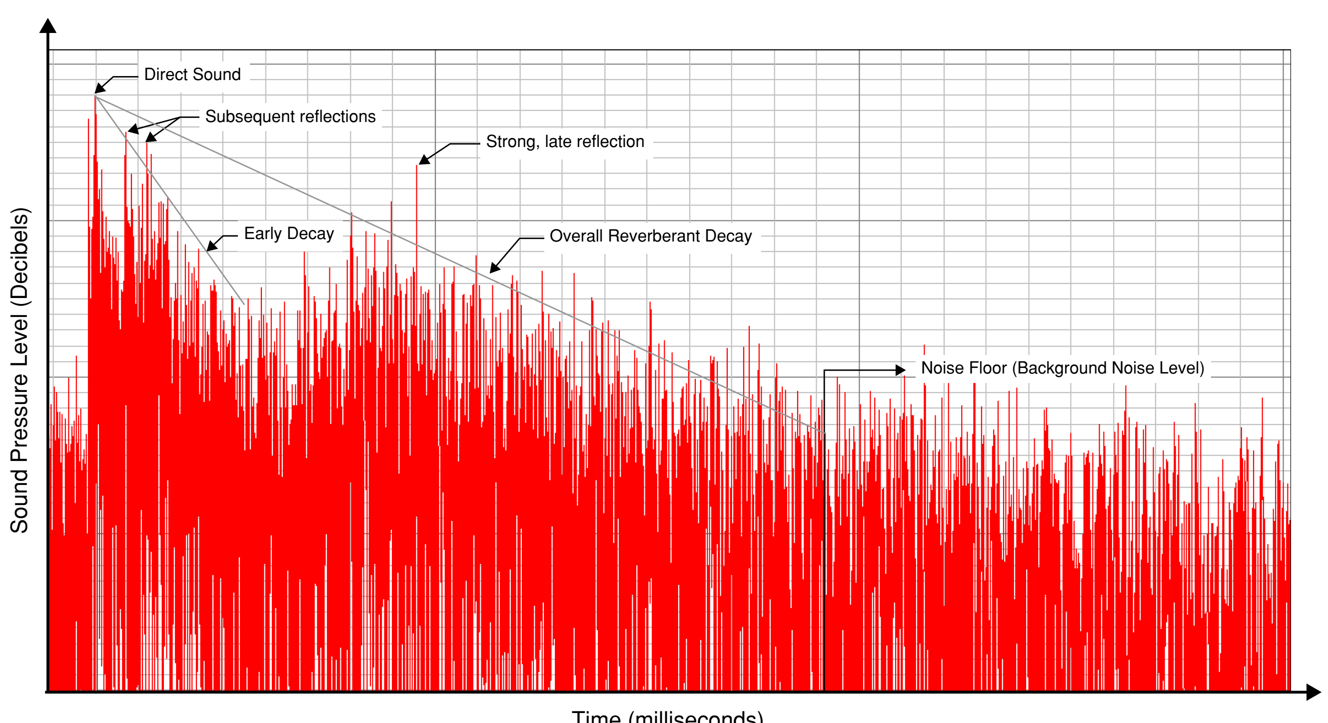
There are similar features in the impulse response and the energy time curve, in that each vertical line represents reflected energy, each of which decays over time, however the presentation of the information allows some additional criteria to be determined:

- We can calculate the reverberation time directly as the slope of the decay. The reverberation time is the time required for sound to decay 60 dB after a sound source has stopped. Reverberation is controlled by the volume of a spaces relative to the total absorption of all surface materials within the space.
- The relative level of successive reflections is now represented in decibels (dB) allowing us to understand their degree of audibility.
- The transition from signal to noise is more readily apparent.
- We can determine which of the reflections arriving after the direct sound provide useful support, supplementing the direct sound. See Figure 4. Reflections arriving with the first 30 milliseconds (ms) after the direct sound support the unamplified voice in spoken word. Reflections arriving between 30 and 45 ms are marginal in their value in supporting speech intelligibility. Reflection arriving after 45 ms begin to degrade speech intelligibility. Reflections arriving after 60ms are destructive and perceived as echoes.

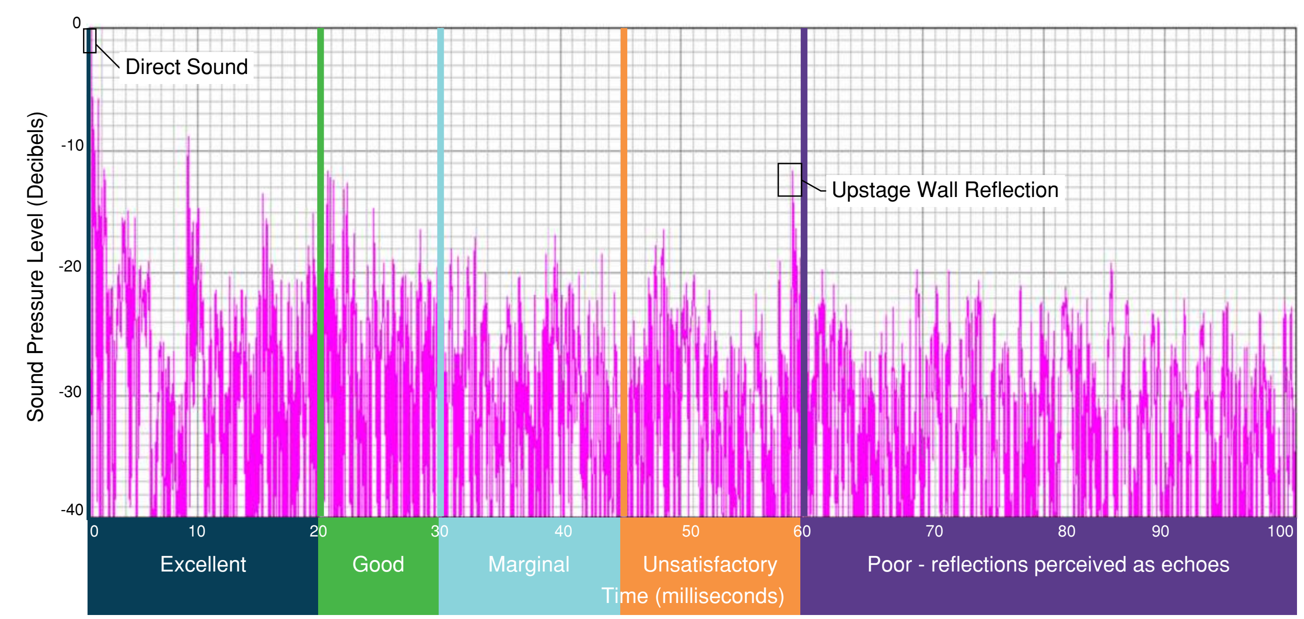
Using the Energy Time Curve (ETC) above in partnership with the 3-D acoustic model of the space we can identify where reflections occur. This process of analyzing the ETCs in tandem with the drawings and model provides us the tools to understand how sound behaves in the Kalita Humphreys Theater.

In the following pages we have chosen a select few source to receive paths to illustrate the impact of the architecture on the acoustic character of the theatre. A view in in the 3-D model shows the position of the sound source on stage, the actors position, and a receiver position, or audience's ear. The direct sound is indicated with a solid line. Reflection paths are shown as dashed lines and are labeled with a path number in the 3-D model. The reflection are labeled in the Energy Time Curve, allowing us to see the corresponding time of arrival at the listeners ear and relative dB levels.

This process of analyzing the Energy Time Curves in tandem with the acoustic model provide us the tools to understand why audience members have difficult hearing the actor on stage even while the relative size of the theatre and the distance relationship between stage and audience would suggest good hearing conditions.



Acoustics Figure 3
Energy Time Curve

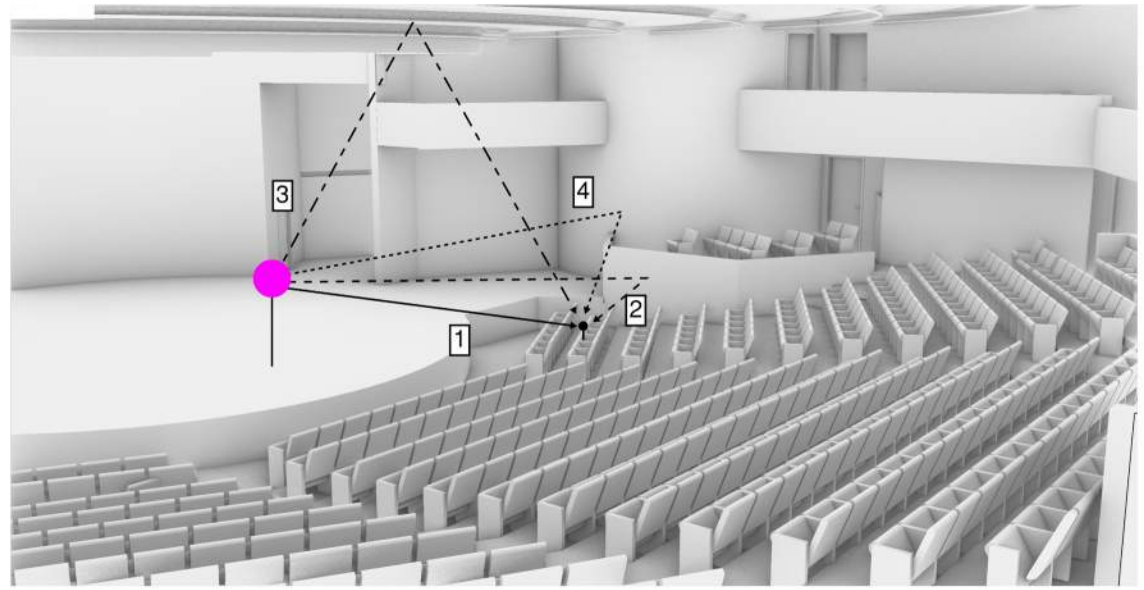


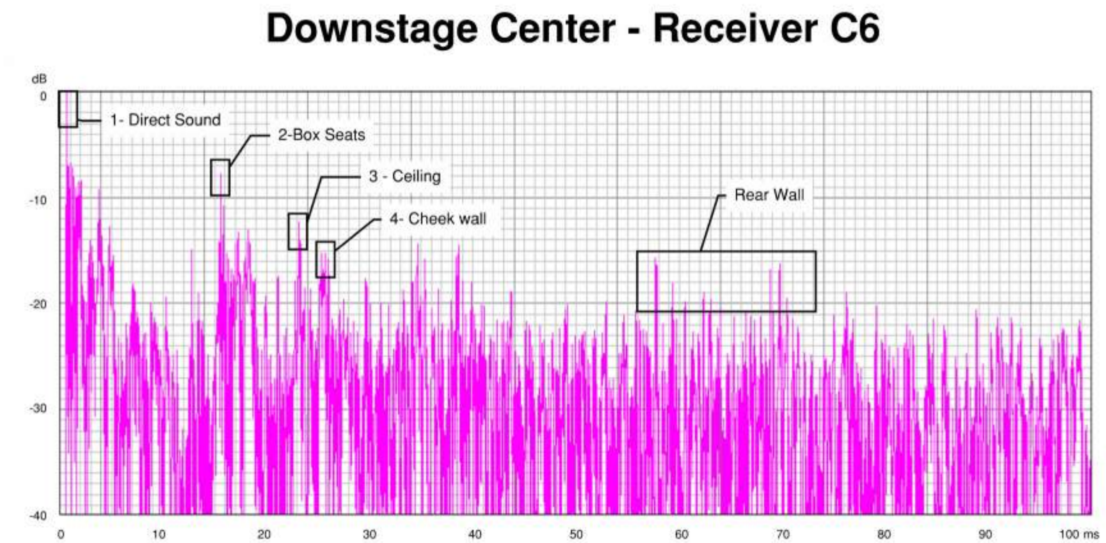
Acoustics Figure 4
Energy time curve labeling the impact of time of arrival on the ability to understand spoken word

Downstage center source to receiver C6

Useful reflections arrive at the listener's ear within the first 30ms from the walls of the box seats, the ceiling overhead and the side check walls, within the time frame that is good for supporting speech. There is an initial time delay, defined as the time between the arrival of the direct sound and the first reflection, of 17ms. The smaller the initial time delay gap, the more supportive to speech intelligibility. This gap is within an acceptable range, but should be less given the intimate size of the Katlia.

There are a series of reflections arriving from the rear wall between 60-70 ms, the time frame in which the reflections are perceived as an echoes.





Acoustics Figure 5
Downstage center source to receiver C6 acoustic model and energy time curve

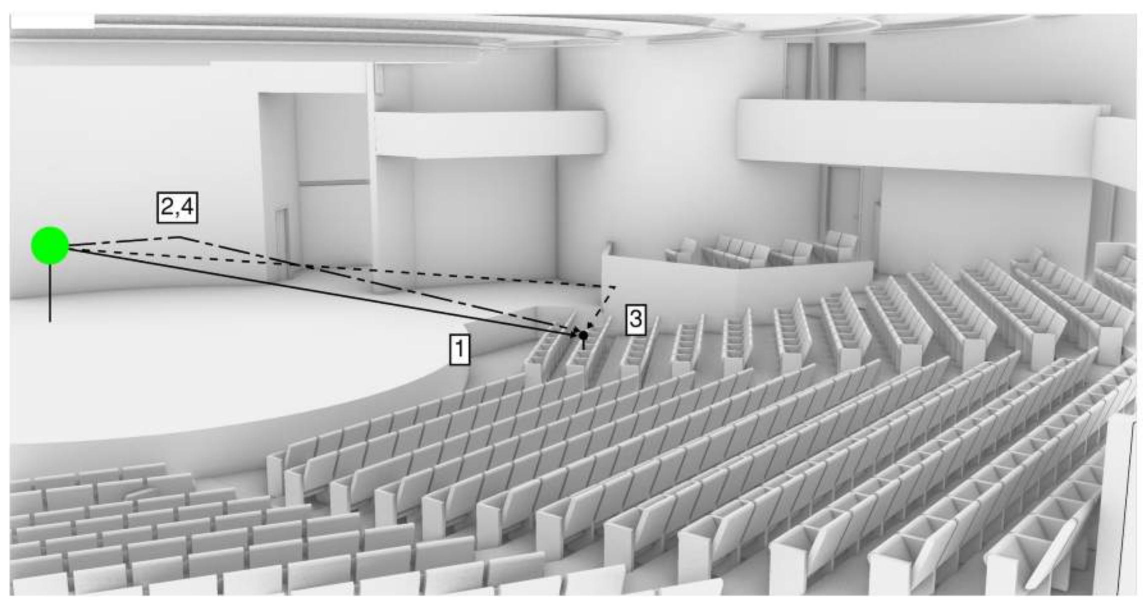
Upstage center source to receiver C6

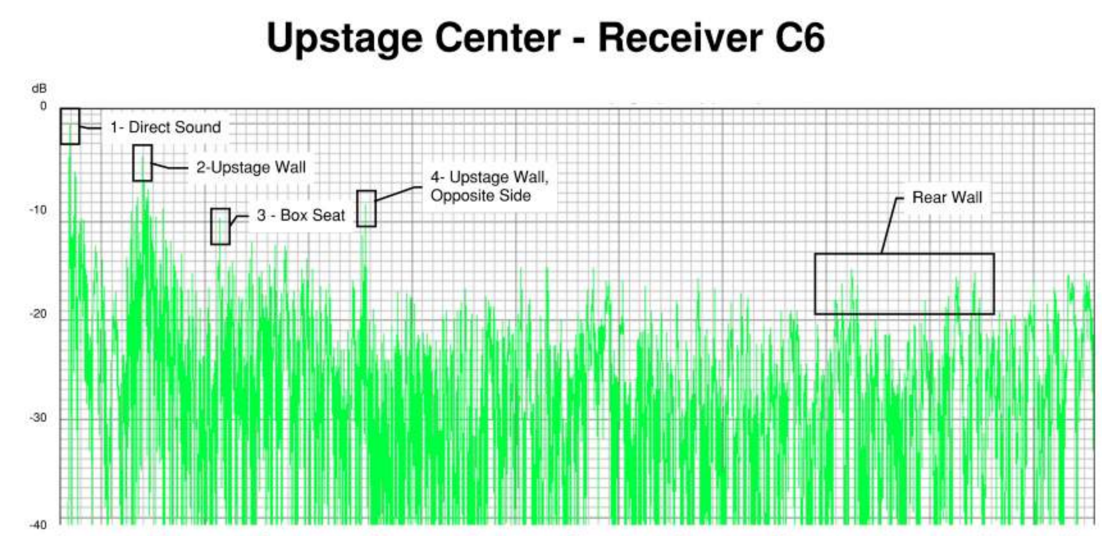
As the actor moves upstage, the time it takes for the direct sound to reach the listener's ear is longer than it was for the downstage actor position to the same seat. Because the source and receiver are further away from each other, the sound level, in dB, of the direct sound will be lower in absolute level. The closer actor will sound louder even if both actors speak at the same volume.

With the move upstage, the actor is now closer to the side of the stage wall on stage left and the reflection from this surface arrives closer in time to the direct sound, providing a useful 8ms initial time delay gap.

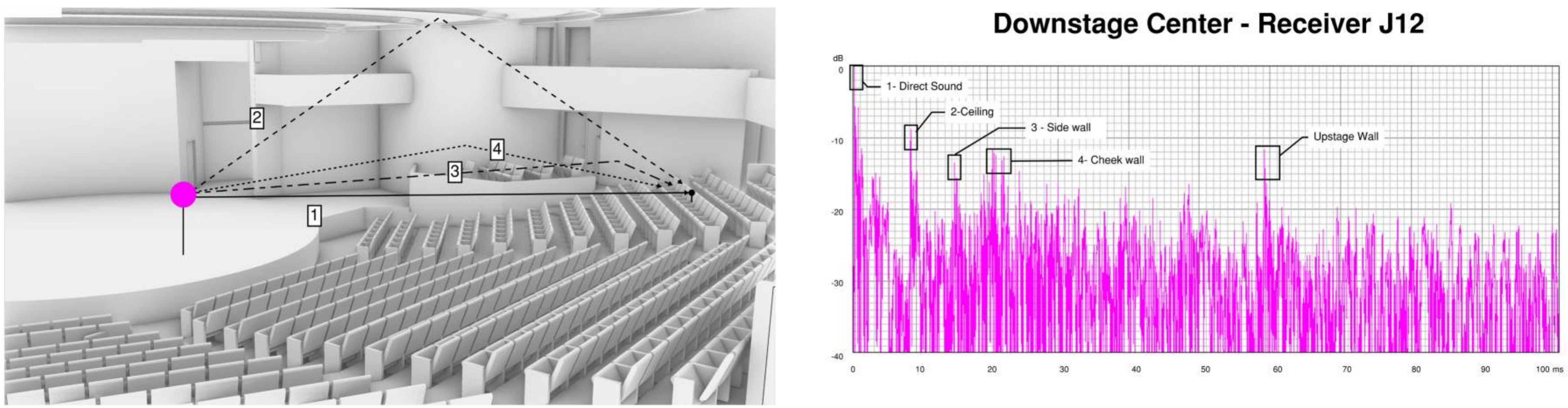
The rear wall reflections arrive even later in time when compared to above, but the levels are lower and they are more likely to blend into the noise floor.

Note the lack of reflections present from the ceiling for patron seated in the front part of the room when the actor is positioned upstage. This will be illustrated in a later section.





Acoustics Figure 6
Upstage center source to receiver C6 acoustic model and energy time curve



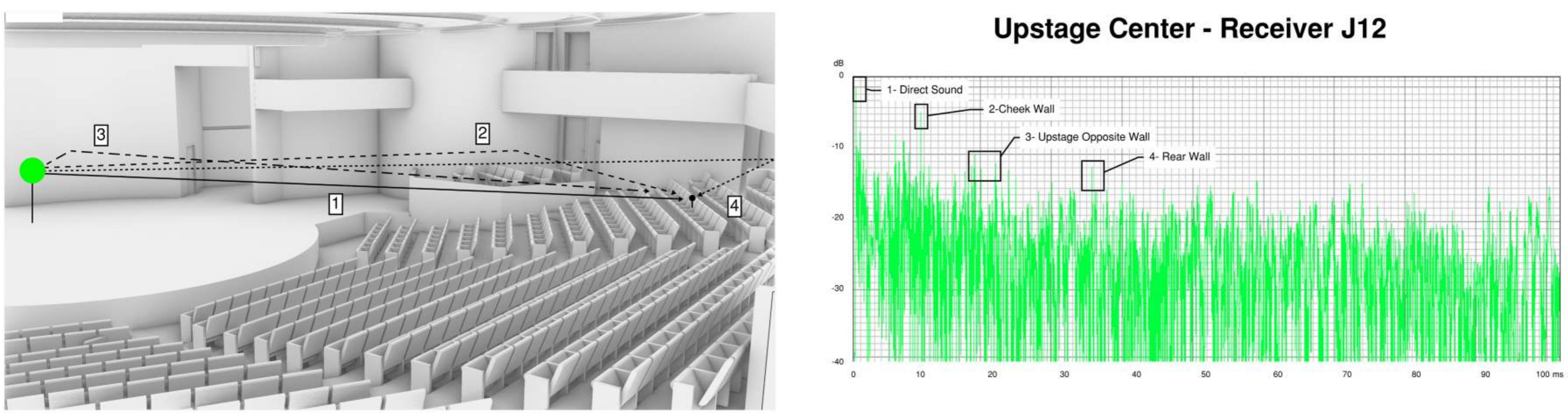
Acoustics Figure 7
Downstage center source to receiver J12 acoustic model and energy time curve

Downstage center source to receiver J12

Useful reflections arrive at the listener's ear within the first 22ms from the walls of the box seats, the ceiling overhead and the side check walls, within the time frame that is excellent for supporting speech. There is an initial time delay gap is 8ms.

The rear wall reflection at this location is very distinct reflections arriving at 58ms, and at a level 10 dB about the noise floor. Sound levels are measured on a logarithmic scale and a 10 dB difference in sound level is perceived as twice as loud. The level, at 11 dB down from the direct sound, is louder than the side wall and cheek wall reflection arriving at the 15 and 20ms. The rear wall echo is louder that the supporting reflections.

The ceiling reflection provide the first arriving reflection, arriving 9ms after the direct sound.



Acoustics Figure 8
Upstage center source to receiver J12 acoustic model and energy time curve

Upstage center source to receiver J12

Suportive reflections for this paring are thin.

The rear wall reflections is arriving, at 34ms, in the marginal range that blurs the speech intelligibility.

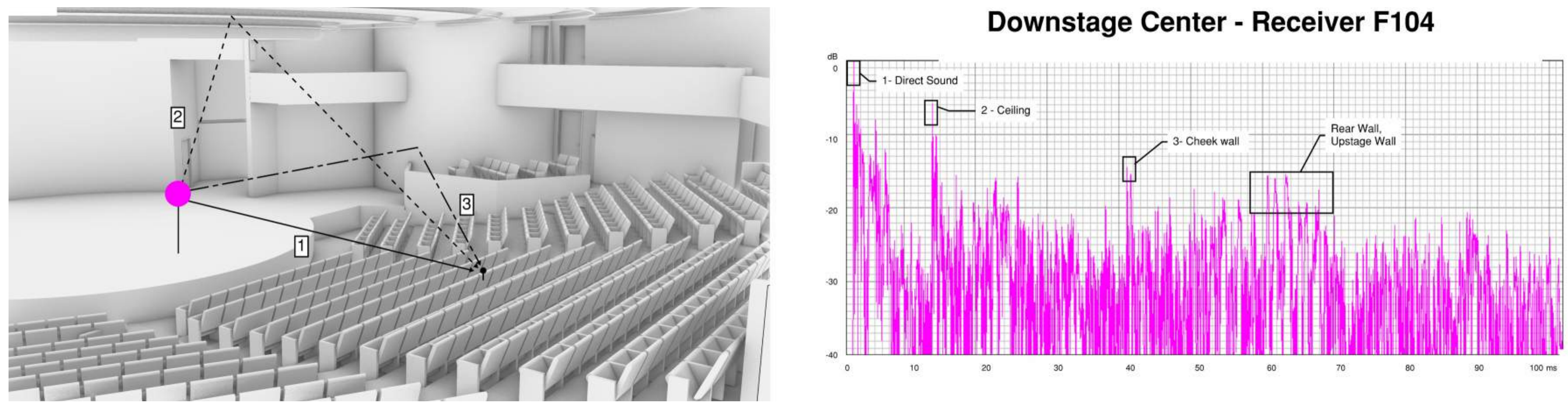
Again, note the lack of reflections present from the ceiling for patrons in the front part of the room when the actor is positioned upstage. This will be illustrated in a later section.

Downstage center source to receiver F104

As we move to the seats in the center of the room. we can see the negative impacts of a wide, fan shaped room. As structural systems advanced and could provide longer spans for building spaces, theatre designers pushed rooms wider to bring audiences closer to the stage to create more visual intimacy at the expense of acoustic intimacy. In the center of the room, the side walls are so far away, their time arrival no longer support the direct sound but rather they move into the time frame that blurs speech intelligibility, in this case, arriving at 40 ms.

Thankfully, there is an ceiling reflection arriving at 12ms to support the direct sound. Unfortunately, if the actor were to walk only a few steps up or down stage, there will be a gap in the coverage provided by the ceiling at the lighting slots. This issue will be address in later sections.

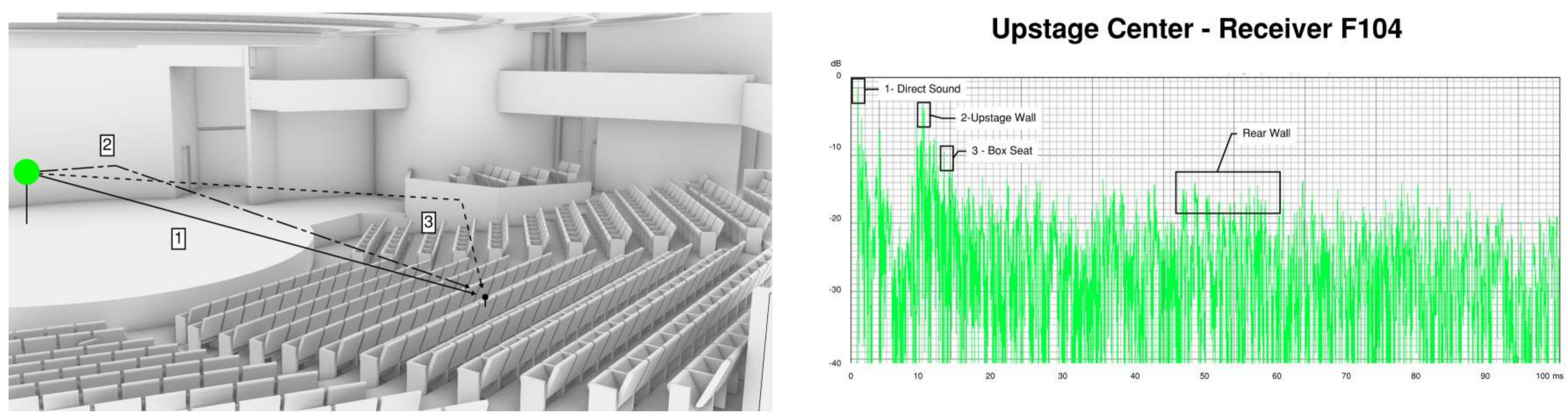
The rear and upstage wall provide reflection in the 58 to 66 ms range. With these and the later side wall reflections,a patrons seated at this seat in the center of the room hears more distracting reflections that useful.



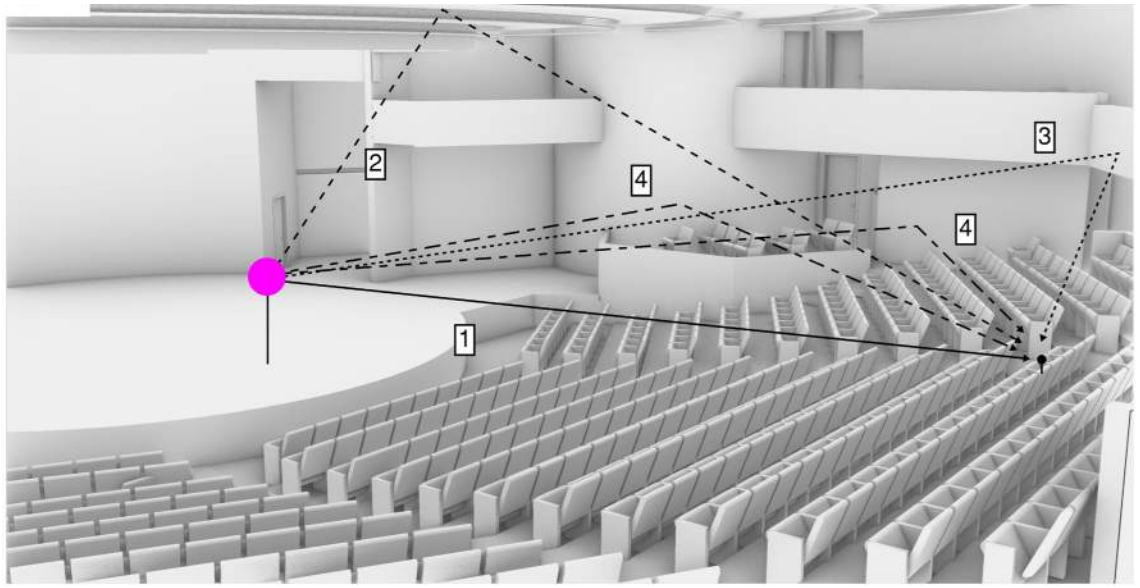
Acoustics Figure 9
Downstage center source to receiver F104 acoustic model and energy time curve

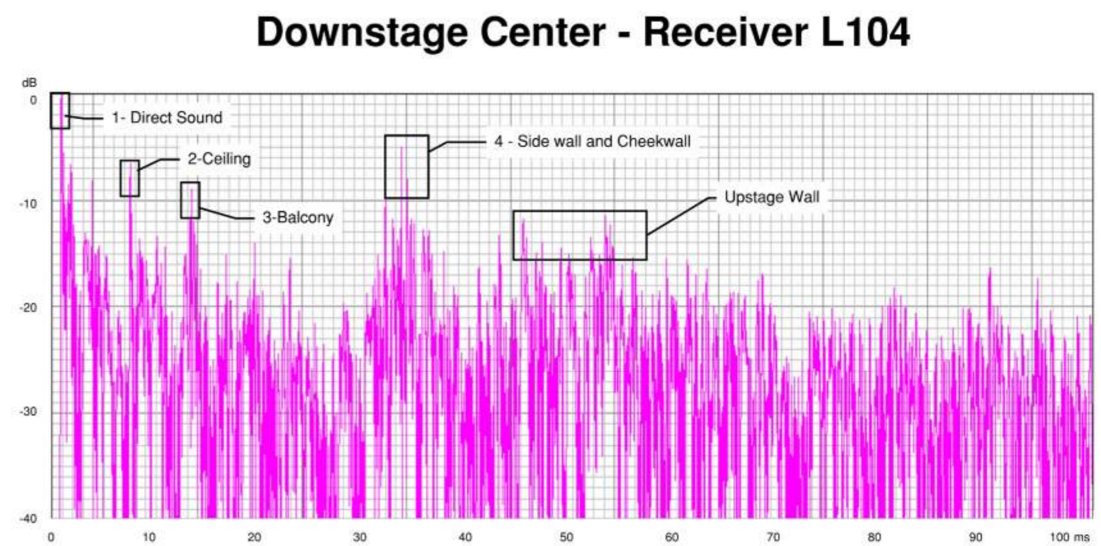
Upstage center source to receiver C6

As the actor moves upstage, the side walls of the stage can fill in some early reflections. Note the lack of overhead reflection. If there is a set piece installed, removing the upstage wall form play, this seat looses its only supportive surface.



Acoustics Figure 10
Upstage center source to receiver F104 acoustic model and energy time curve



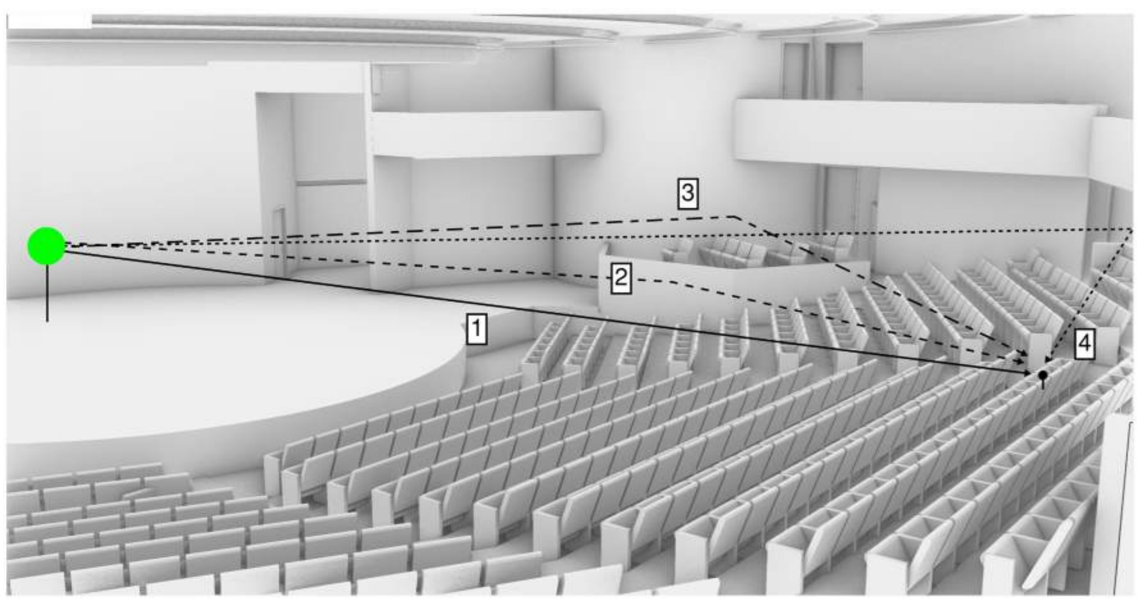


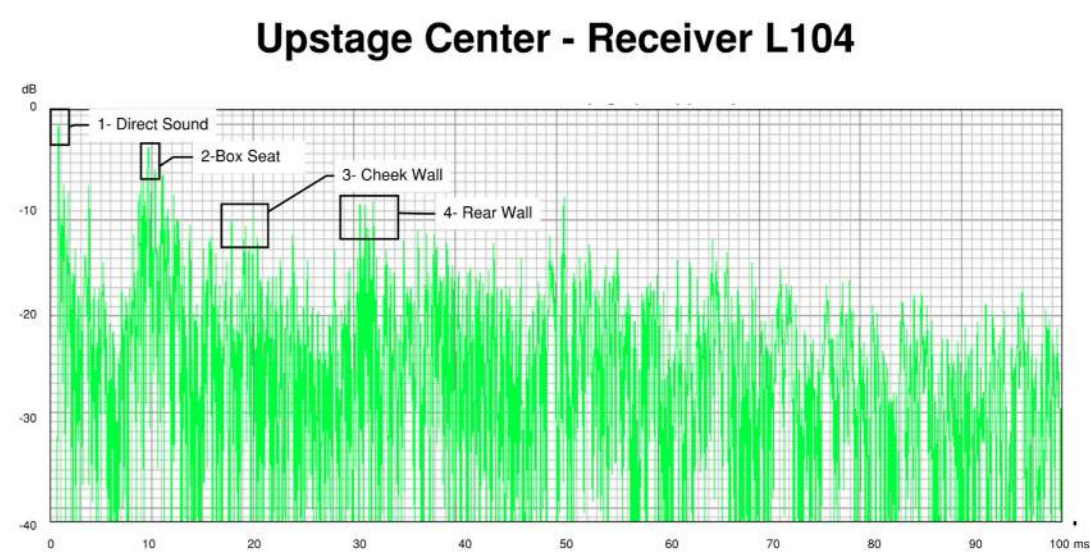
Acoustics Figure 11
Downstage center source to receiver L104 acoustic model and energy time curve

Downstage center source to receiver L104

As we move back in the audience chamber, the difference in distance between the direct sound's path and the path to side walls is reduced when compared to the seat F104 in the front center of the room, but the path is still long enough that the side wall paths labeled 4 arrives at 35 ms, rather than 40ms arrives within a time frame that degrades speech intelligibility especially given the sound level of the reflection at only 5dB below the direct.

Reflection path 3 is mislabel, and should show as reflecting of the rear portion of the side wall rather than the balcony face.





Acoustics Figure 12
Upstage center source to receiver L104 acoustic model and energy time curve

Upstage center source to receiver L104

Moving the actor upstage, again, elongates the path for the direct sound, thereby reducing the gap between the direct and reflected sound. There is more reflected activity supporting the direct sound, but the rear wall reflection will muddle the speech intelligibility.

The Acoustic Character of a Partial Thrust, Partial Proscenium Theater

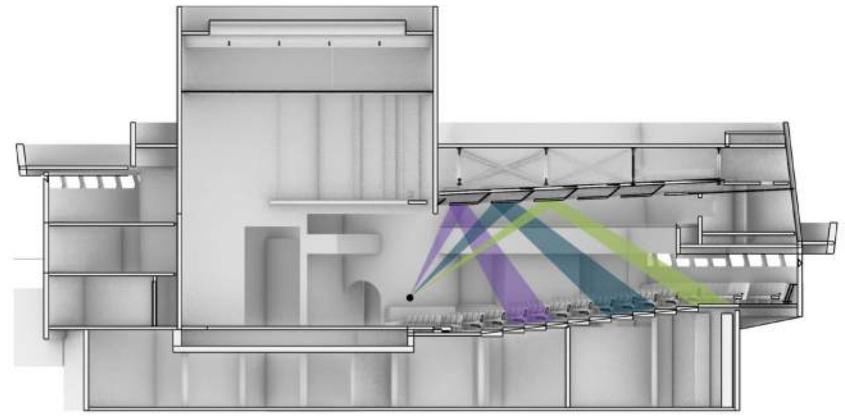
There are two primary goals of the thrust theater plan in the pursuit of theatrical intimacy. One is to smudge the lines between stage platform and audience chamber. The second is to bring as much of the audience as close to the stage as possible. In pursuit of this theatrical intimacy, acoustic intimacy is challenged. The theater format brings the audience close to the actors on stage, so the distance between the actor and patrons is as close as it can possibility be. This spacial relationship is beneficial when the actor is projecting directly to patron. But this benefit is quickly lost amongst a series of challenges presented by the form.

The first challenge comes in the positions of the actors as they play to one another. In a proscenium theater form, the actors are placed is in front of the audience to take advantage of the human vocal projection patterns which are straight ahead. When staging requires a back to be turned, it is understood that the sound the actor can project is greatly diminished. In a thrust theatre, the mere presence of audience members wrapping the stage places some audience members in less than ideal relationship to our vocal projection patterns.

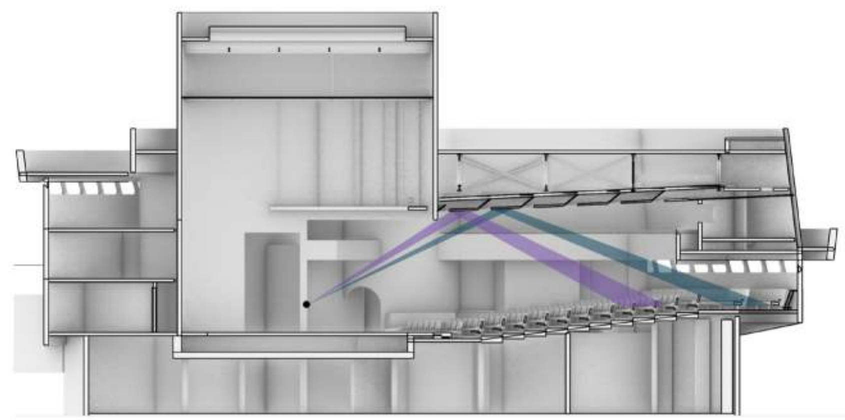
Enter the need for supporting surfaces. Shaping the surfaces around the stage, especially those overhead, offers a means to project sound to the side and behind the performer. With Kalita's drum fly zone, there are no locations available for creating overhead, cross-stage supporting surfaces.

Where there is a ceiling available over the audience chamber, the ceiling does provide a surface that reflects sound back down the audience in a somewhat useful but discriminate manner. The gaps in the ceiling plane to accommodate theatrical lighting creates striated reflection partners of coverage. See the reflection diagrams in Figures 13 to 15 for the original, existing and proposed modifications. The location of the ceiling does not change in each of the iterations that follow, but the height of the stage and seating risers do change, slightly modifying ceiling reflection.

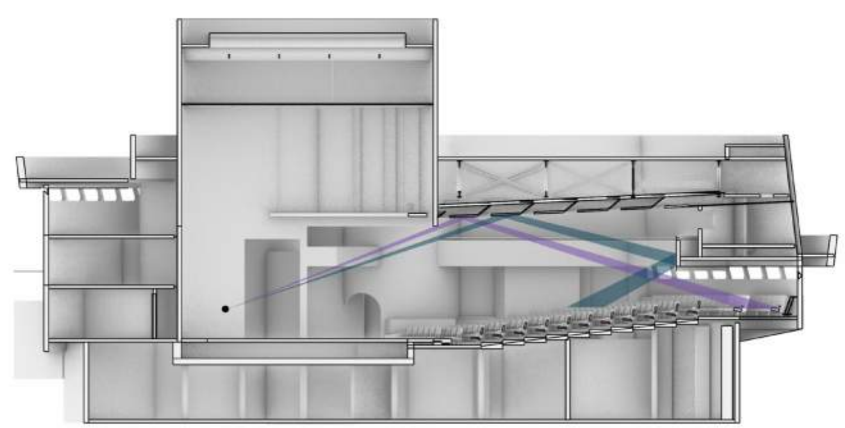
The most important item to note in the illustrations is the very limited area of seating that receives a ceiling reflection for each actor position on stage. A patron may be seated in a covered area in one moment, but should the actor step upstage or downstage, the coverage will disappear. Also note the very limited area covered by the seating at each performer position. With a midstage and upstage sources, for example, only the first and second rings of the ceiling provide a reflection to the audience on the main floor. Reflections off the third ceiling ring drive into the circulation and balcony.



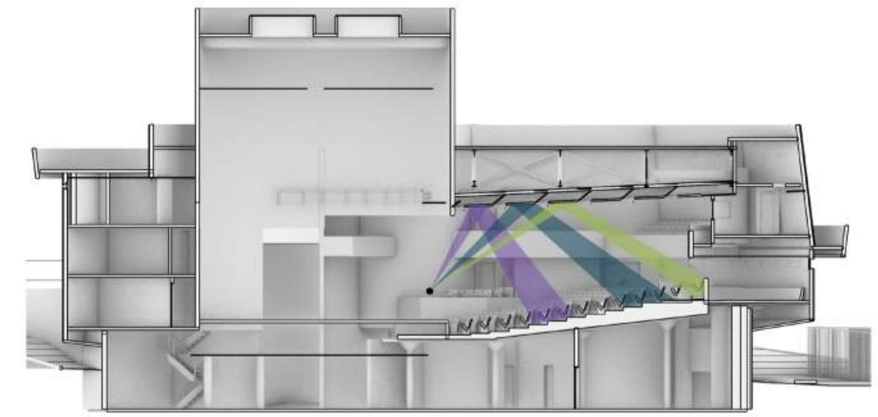
Acoustics Figure 13
Original Audience Ceiling Reflections - Downstage Source



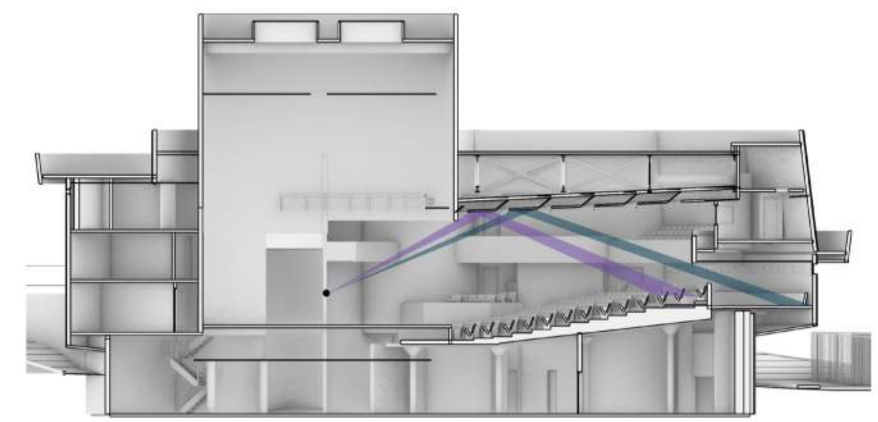
Acoustics Figure 14
Original Audience Ceiling Reflections - Midstage Source



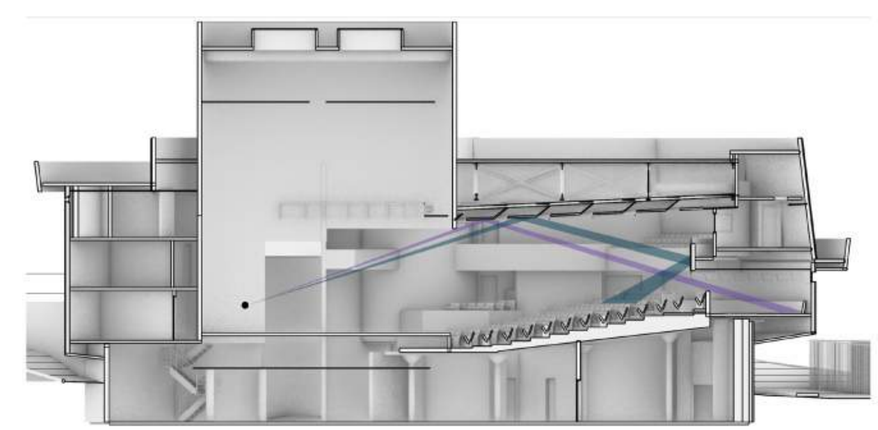
Acoustics Figure 15
Original Audience Ceiling Reflections - Upstage Source



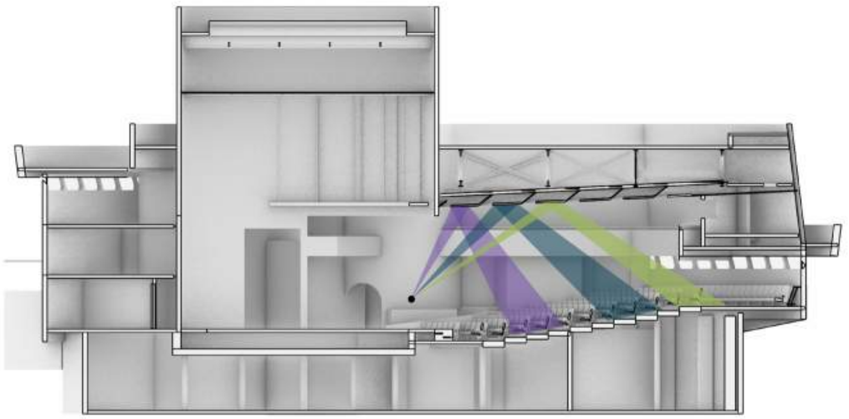
Acoustics Figure 16
Current Audience Ceiling Reflections - Downstage Source



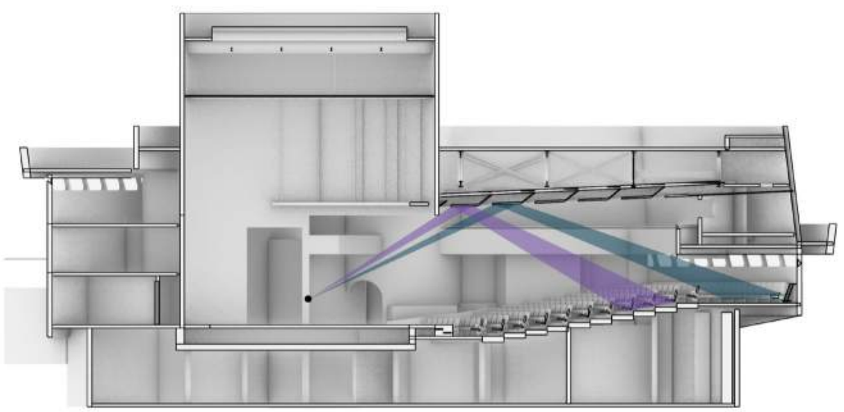
Acoustics Figure 17
Current Audience Ceiling Reflections - Midstage Source



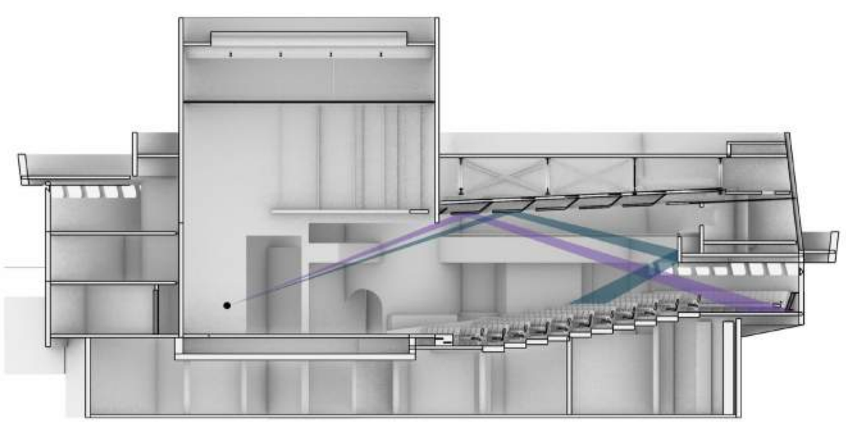
Acoustics Figure 18
Current Audience Ceiling Reflections - Upstage Source



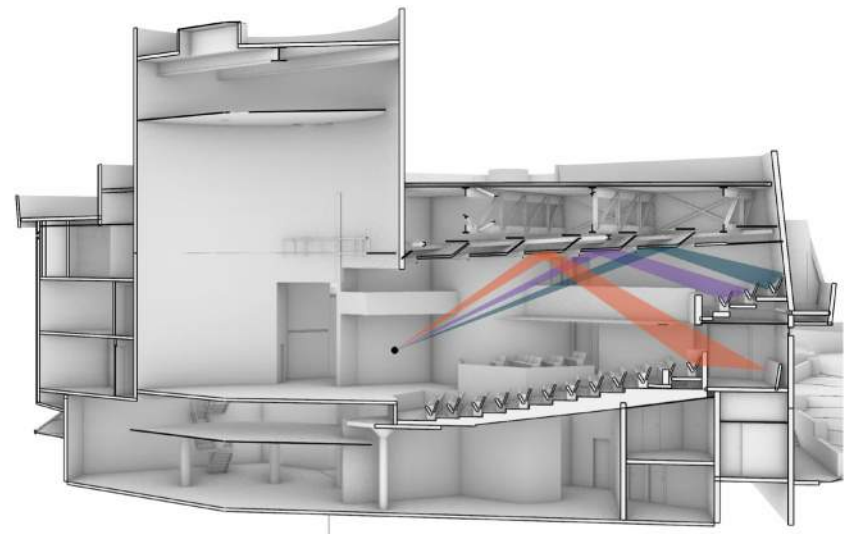
Acoustics Figure 19
Proposed Audience Ceiling Reflections - Downstage Source



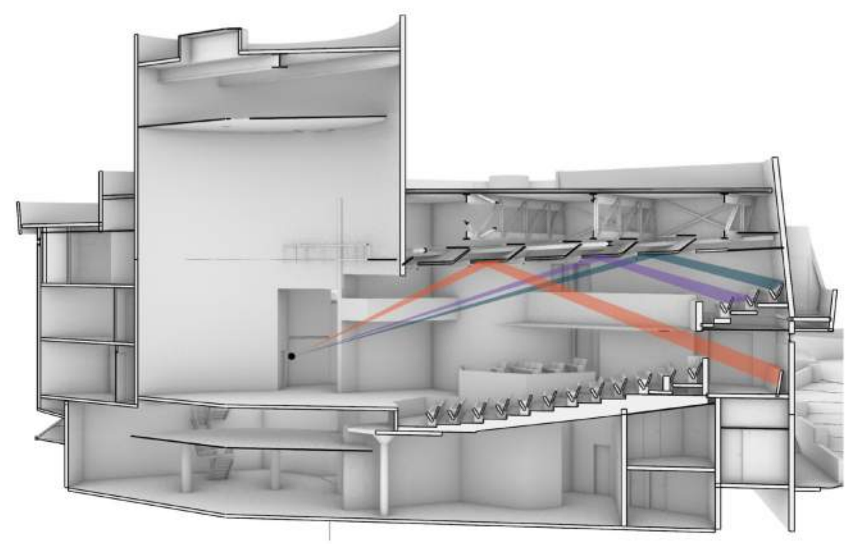
Acoustics Figure 20
Proposed Audience Ceiling Reflections - Midstage Source



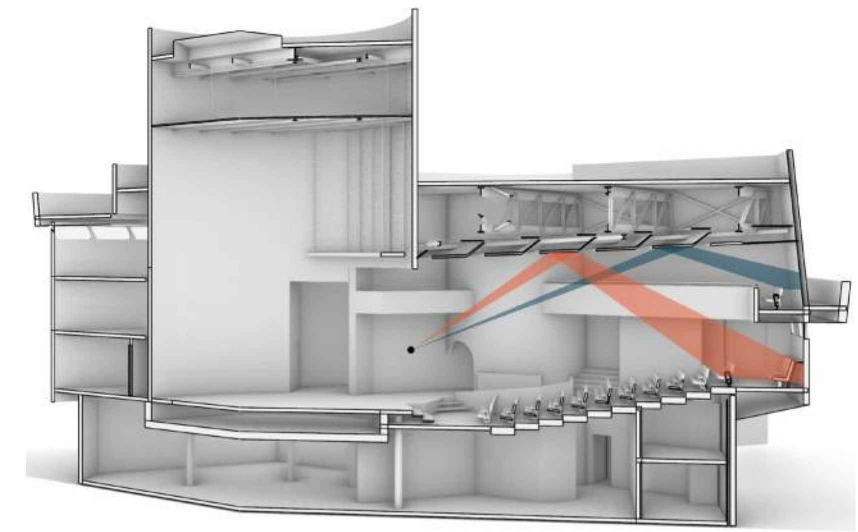
Acoustics Figure 21
Proposed Audience Ceiling Reflections - Upstage Source



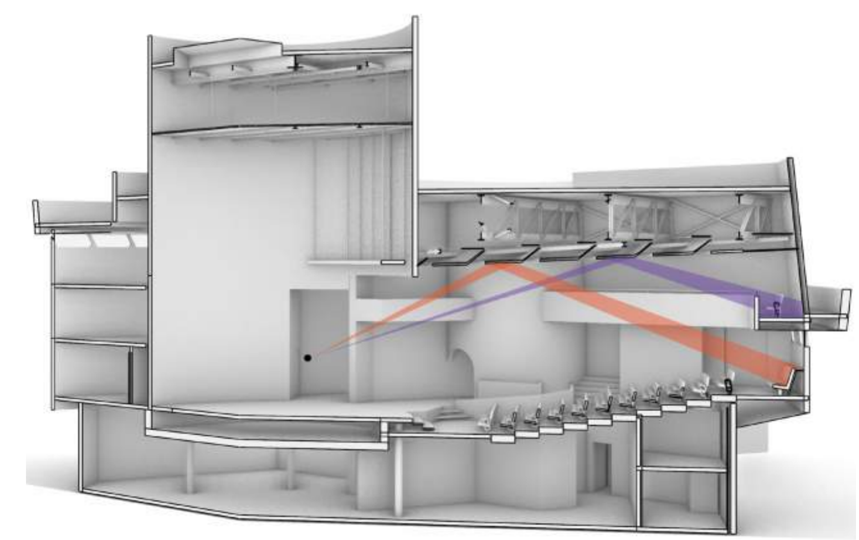
Acoustics Figure 22
Current Balcony and Audio Mix Ceiling Reflections - Downstage Source



Acoustics Figure 23
Current Balcony and Audio Mix Ceiling Reflections - Midstage Source



Acoustics Figure 24
Proposed Balcony and Audio Mix Ceiling Reflections - Downstage Source



Acoustics Figure 25
Proposed Balcony and Audio Mix Ceiling Reflections - Midstage Source

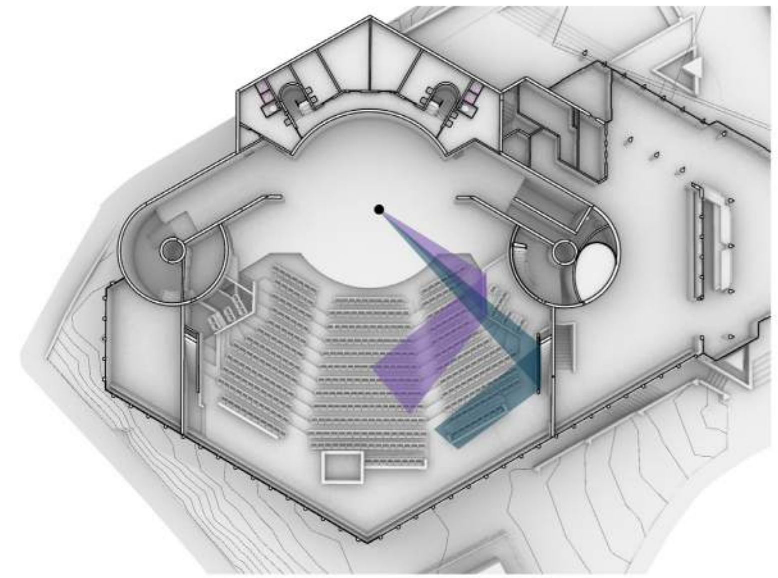
ACOUSTICS

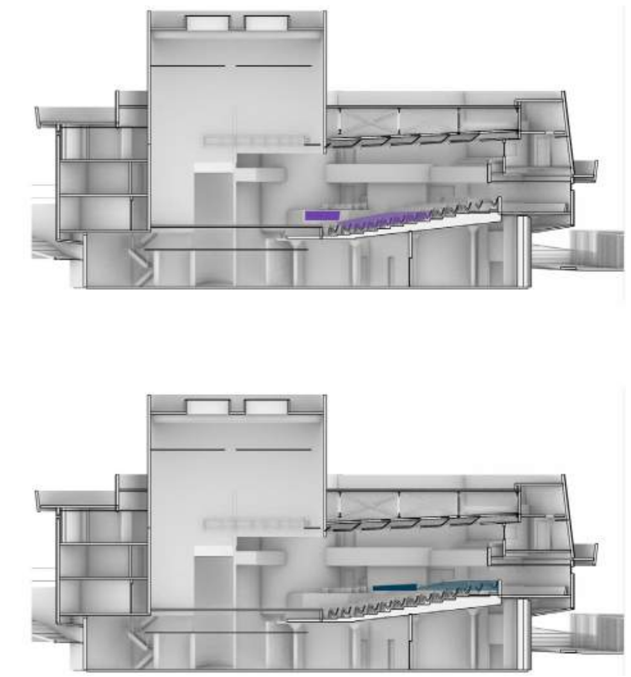
Side wall surfaces are also important in supporting the direct sound for a performer on the path to the patron's ears. In Figure 26, we provide both a plan with reflection coverage produced by the side wall along with a section showing how each zone of the wall creates that reflection.

Not unlike the ceiling reflection diagrams, the side wall graphics illustrate clearly limited the seating area coverage by the side walls. In the down stage performer position, nearly half of the seats receive no support form the side walls. As the performers move upstage, the patrons covered decreases yet further.

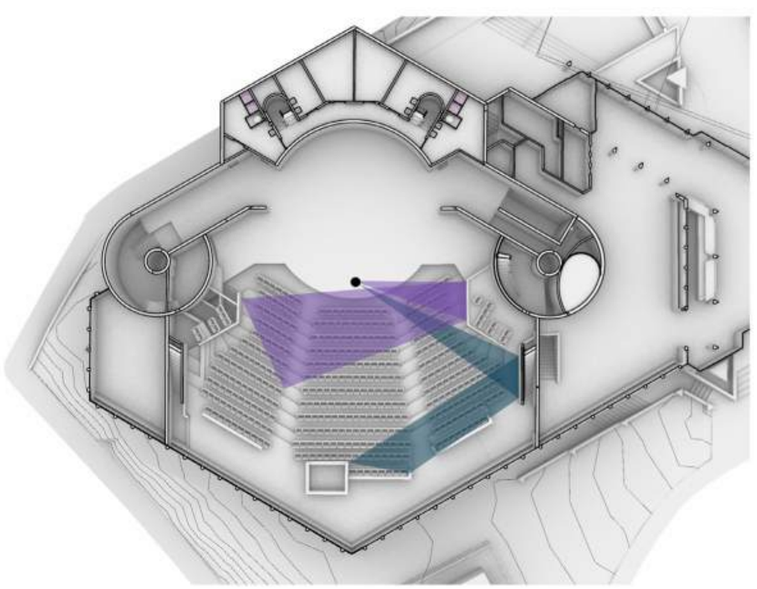
Pair the limited side wall coverage with striated ceiling coverage and the two aligns with the pattern of splotchy, inconsistent, singular reflection energy seen in the energy time curves analysis. Add into the mix, the non-frontal relationship of performer to patron inherent in a partial thrust condition and the result is a room which looks by its scale to be an intimate space, yet in experience, is acoustically challenged.

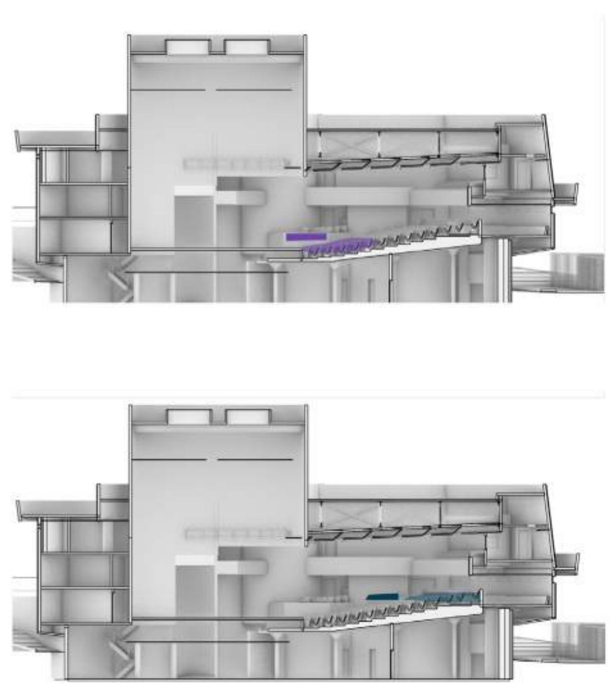
The ultimate success in the space will be achieved with the application of a well designed audio system to lift the natural voice.



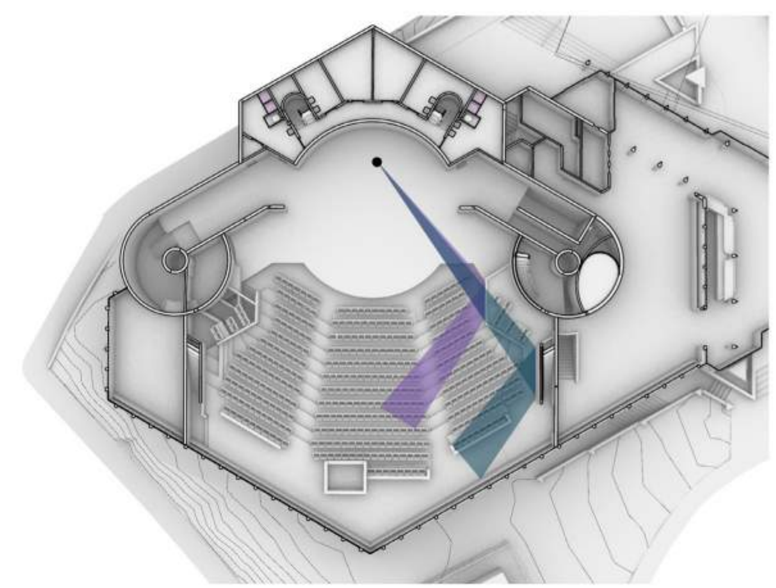


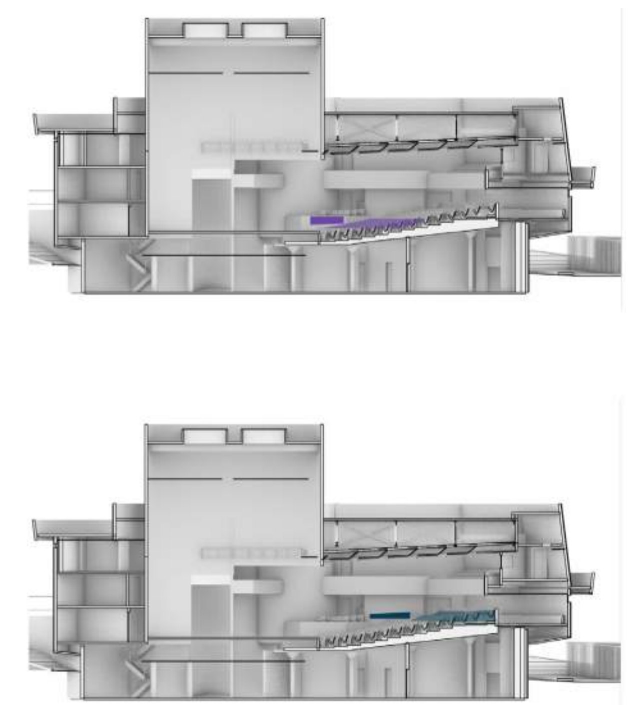
Acoustics Figure 27
Current- Midstage Source



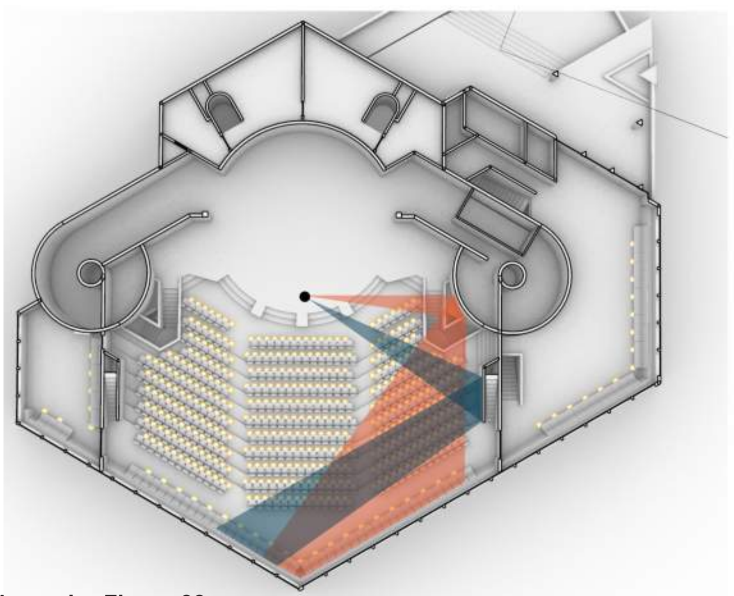


Acoustics Figure 26
Current - Downstage Source

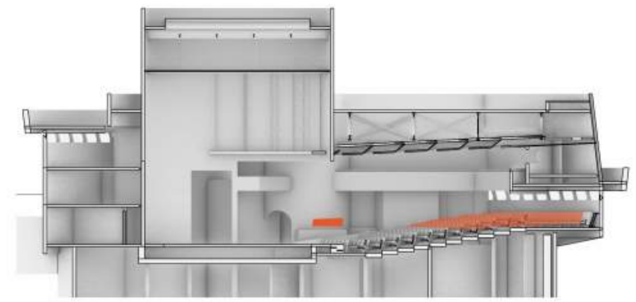


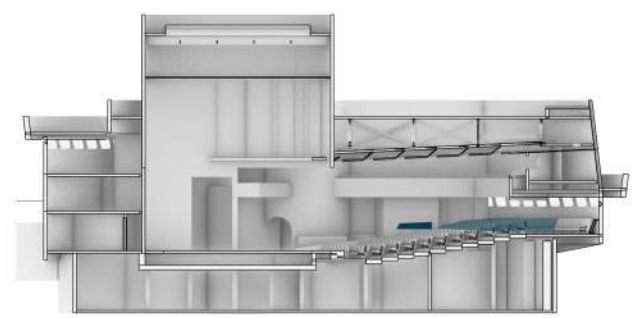


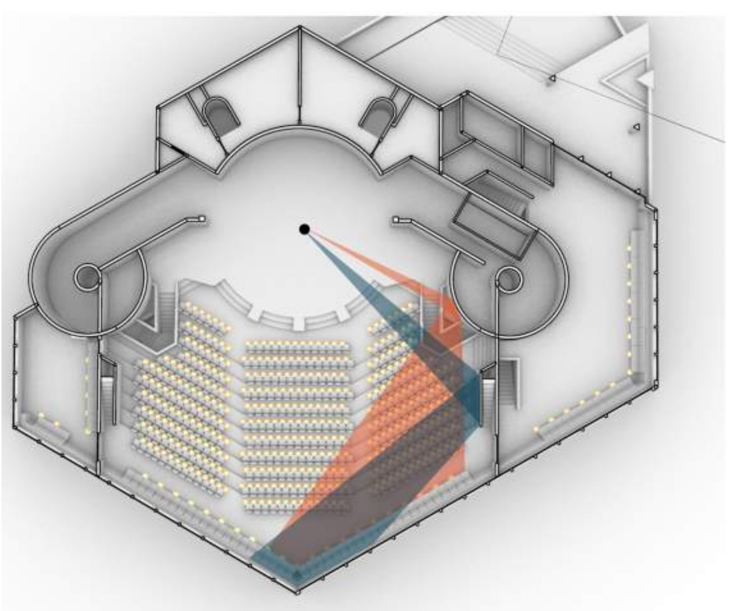
Acoustics Figure 28
Current - Upstage Source



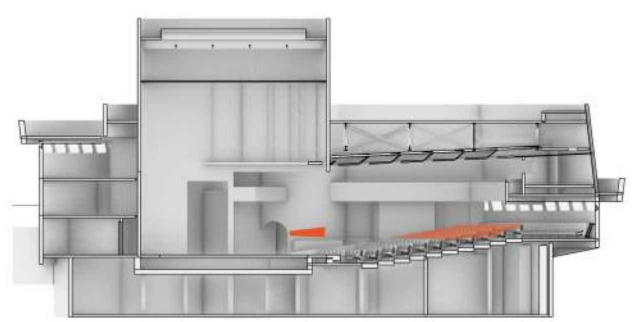
Acoustics Figure 29
Proposed - Downstage Source

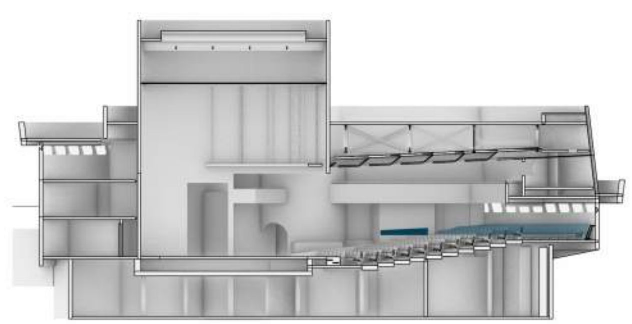


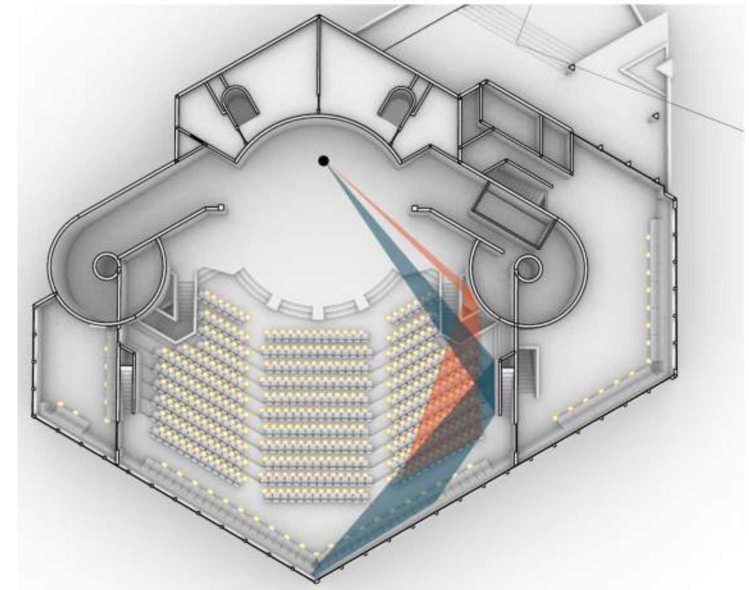




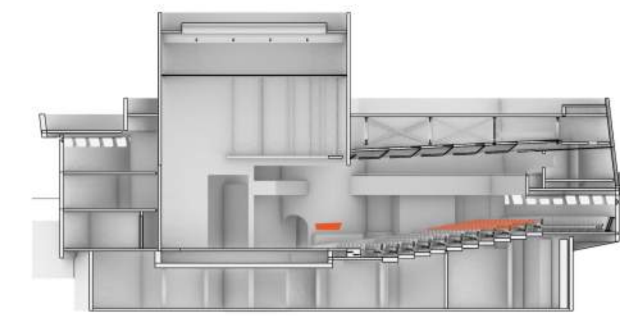
Acoustics Figure 30
Proposed - Midstage Source

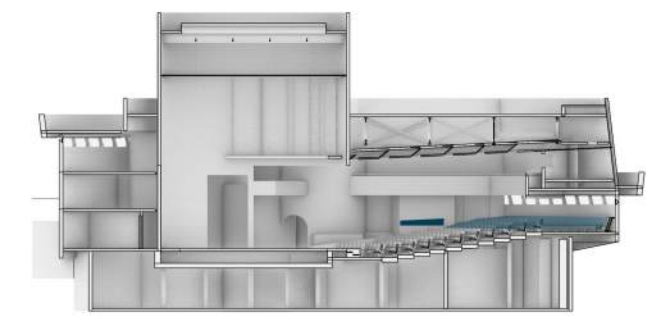






Acoustics Figure 31
Proposed - Upstage Source





Exterior Sound Levels from Aircraft Fly Overs

Airplane fly overs were audible inside the theater during our measurements and during the production of Our Town. The theater's proximity to Dallas Love Airport subjects it to constant noise impacts from overhead fly overs. Dallas Love Field Airport offers roughly 490 aircraft operations daily, predominantly 50% commercial aircraft. During typical production hours (evenings, Saturday matinees), aircraft depart Dallas Love Airport at a rate of one fly over event every 5 minutes.

When standing along Sylvan Drive, the aircraft is audible for roughly 30 seconds as it flies over the theater.

We took several 30-second fly over measurements and a single 10-minute ambient noise measurement on February 11, 2022, between 10:30 and 11:00am, with a B&K 2270-meter. Aircraft measured were departing Dallas Love Field Airport and according to the app FlightAware, aircraft passed overhead at approximately 2,000 ft in elevation.

Average noise levels were 63dBA and consistent between planes (all measured planes were 737 twin jet-type). The 30-second flyover measurements were taken along Sylvan Drive, whereas the 10-minute recording was taken on the roof of the Kalita Humphreys theater.

The ambient noise levels are roughly 10 dBA quieter than individual fly over events, meaning that fly overs are perceived to be twice as loud as the average background noise levels.

Fly Over Events Leq Sound Levels (dB)

	16	31.5	63	125	250	500	1000	2000	4000	8000
Ambient exterior noise	58	58	56	56	52	51	48	40	27	21
Average fly over event noise	58	60	62	65	64	62	58	50	33	21
Level of fly over above ambient	0	3	6	9	13	11	10	11	6	0

Acoustic Design - Proscenium Theater

Program Use and Room Acoustic Characteristic

The 250-seat Proscenium Theater will present dramatic and musical theatrical performances. With the primary acoustic objectives of supporting the voice in spoken word in drama and song for musical theater, the room will be designed to support the both the amplified and unamplified voice.

For the unamplified voice, the selection of finish materials are recommended with an emphasis is placed on maintaining speech intelligibility, support for the performers, acoustic intimacy, and control of excessive reverberance. For amplified performances, speech intelligibility and control of excessive reverberation are the primary considerations.

To support the spoken voice, hard surfaces will be shaped to provide reflection of the performers voice arriving within a relatively short amount of time relative to that of the direct sound. Supportive surfaces at the side walls and at ceiling reflectors under the catwalks will distribute these useful first order reflections to the audience chamber.

An audio mix position will be located in the last two rows of the parterre level. The rear wall surface behind the audio mix will be finished with finish incorporating both diffusion and absorption

Finishes

Audience Chamber Floor – The audience chamber floor shall be a hard, reflective surface under the audience seating to provide a sense of immediacy around the audience members and to support the sounds of laughter and applause. Carpeting may be installed in the aisle to provide control of foot fall noise and provide traction as the audience members navigate the space.

Auditorium Side Walls – Unsealed split-faced CMU will create a solid, flat surface to provide a simple reflection surface in the horizontal plane, supporting the direct sound of an actor's voice as it projects from the stage area into the audience chamber. The split faced finish of the CMU will provide diffusion at high frequencies to soften a harsh reflection without coloring the frequency necessary for speech ineligibility. It will also reduce the impact of flutter echo between the parallel side walls.

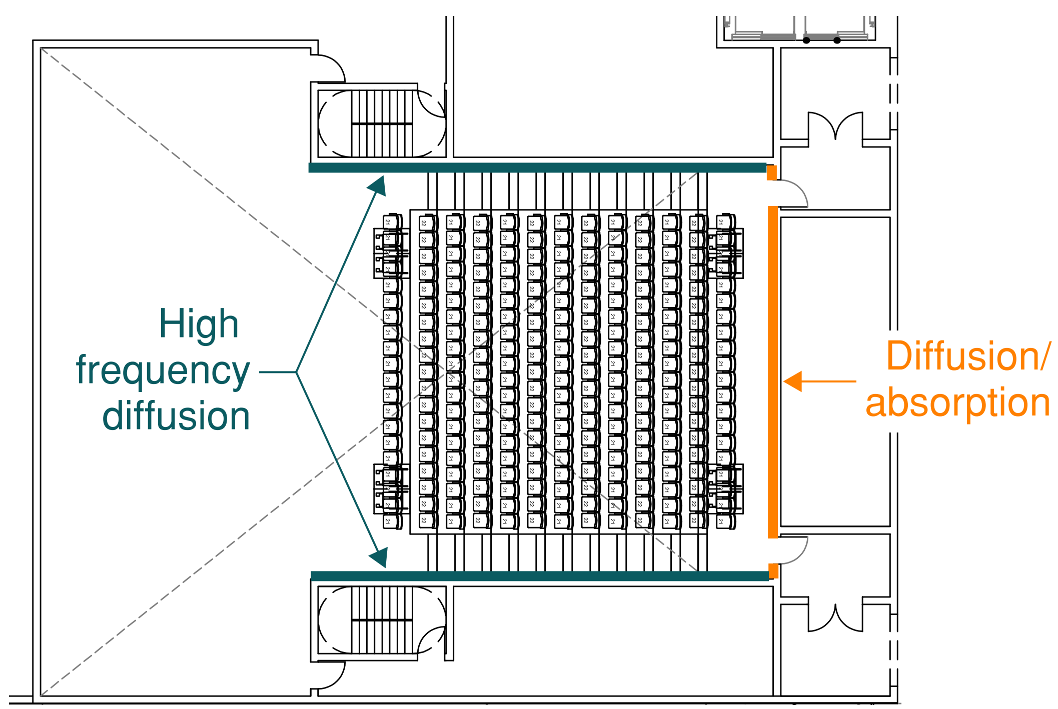
Auditorium Rear Walls – A mix of sound diffusion and sound-absorptive finishes will be provided for echo and reverberation control.

Ceiling - To control the level of reverberation within the audience chamber, absorption will be added to the underside of the structural ceiling. Assume a 2" thick fiberglass or recycled cotton product mounted with a coverage area equal to 50% of the total ceiling area in the audience chamber.

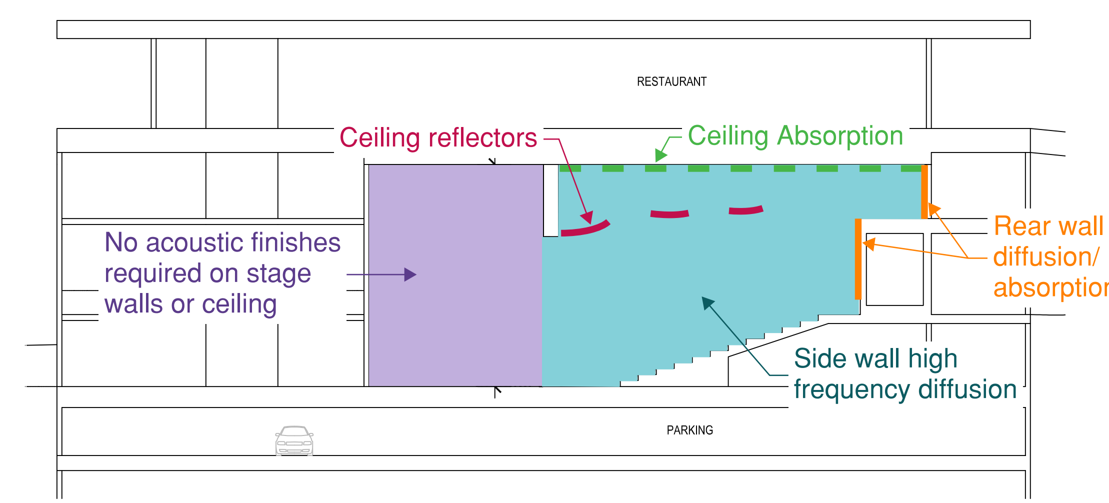
Ceiling Reflectors – Ceiling reflectors at the forestage and incorporated under or between the catwalks in the audience chamber will provide a simple reflection surface in the vertical plane, supporting the direct sound of an actor's voice as it projects from the stage area into the audience chamber. Reflector will run the transverse length of the audience chamber and have a minimum depth of 8' with a curved radios of 20º. The construction will be 3-ply 5/8" gypsum board, or one layer 3/4" MDF laminated to each side of 2-inch paper honeycomb .

Stage Floor – The stage floor will be coordinated with the Theatrical Consultant.

Stage Walls and Ceiling - Stage walls and ceiling require no acoustic treatment.



Acoustics Figure 32
Proscenium Theater Plan - Finishes



Acoustics Figure 33
Proscenium Theater Section - Finishes

Sound Isolation

A complete box-in-box construction will be employed to isolation the Theatre from the airborne noise and vibration imparted into the building's structure from the parking garage below and the rest of the performance pavilion's activities.

Walls – The walls surrounding the Theatre and Stage will consist of 12" thick grouted CMU. There will be a 2" Acoustic Isolation Joint (AIJ) separating the Theatre and Stage from the rest of the building. Directly adjacent spaces are anticipated to have their own interior wall surface on the non-isolated side of the AIJ.

Floor - An isolated concrete slab will be provided at the base of the Proscenium Theatre atop a thick, stiff concrete structural floor to control air and structure borne noise from the parking garage below.

Ceiling/Roof – The roof structure of the Theatre and Stage will be a minimum 100psf concrete. A spring isolated, gypsum board barrier ceiling complete the interior box of the Proscenium Theatre to isolate activities from the Restaurant above.

Doors – Sound and light lock vestibules are required at each entrance to the Audience Chamber and Stage

Solid core or heavy gauge fiber-filled doors will be provided incorporating acoustical gasketing with cam-lift hinges or raised thresholds. At entrances with no sound and light lock, STC-rated door will be required. Coordinate fire separation line to allow push/pull hardware on interior doors to the auditorium and panic hardware on the outer doors of the sound and light locks only.

Oversized STC-rated doors will be required between the Stage and Back of House/Loading.

Booth Window - STC 35 operable window system at the Control Booth.

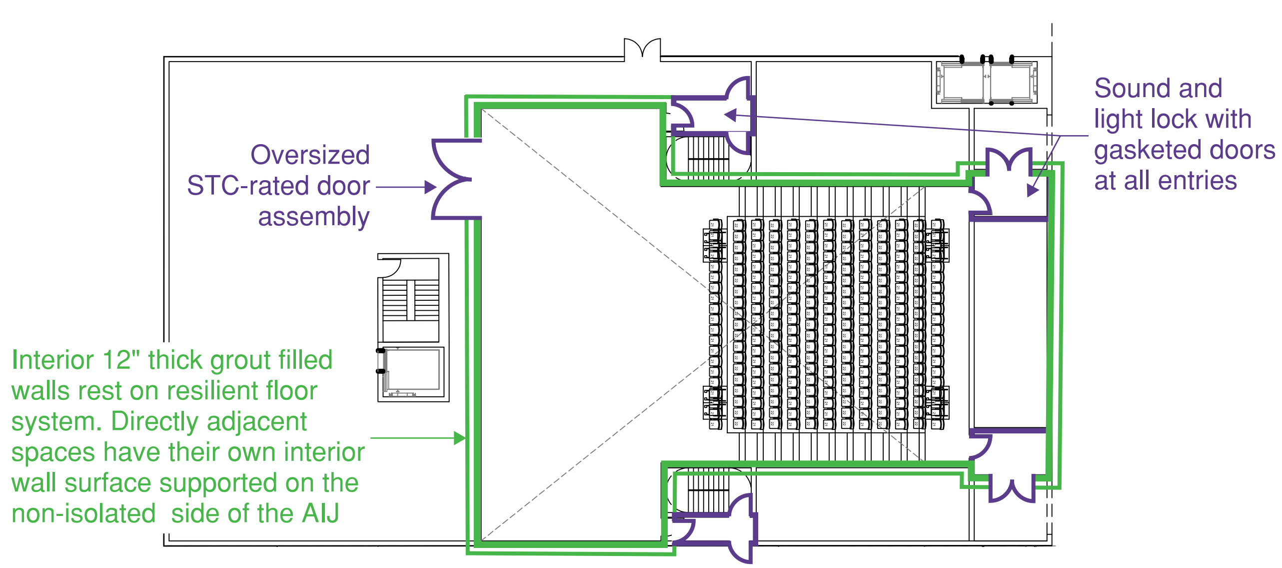
Hatches – Smoke and exhaust hatches will be STC rated and/or designed with additional acoustic separation (attenuators, transfer ducts, etc.)to mitigate exterior noise infiltration.

Background Noise

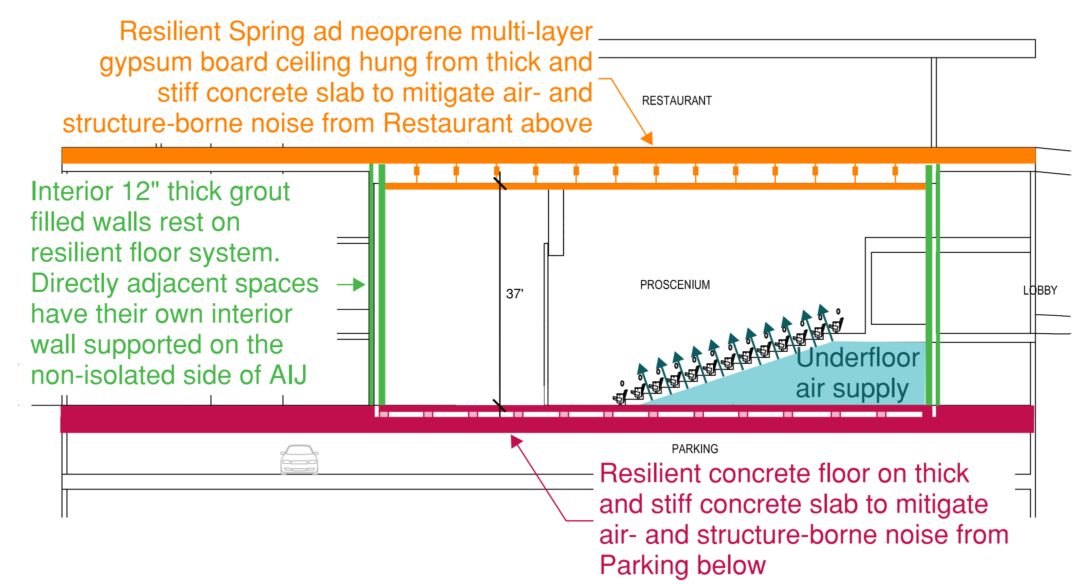
The background noise level design criteria is RC 20.

Audience Chamber Ventilation - We recommend the use of an underfloor displacement system for the Theater with its fixed seating configuration. Air is supplied into a plenum created under the seating risers and is distributed through diffusers in the floor or via perforated seat pedestals. Air is returned high in the room. The inherently slow-moving air, the elimination of overhead supply duct work, and reduction in cooling capacity compared to the requirements of comparable overhead systems allow for much more efficient control of system noise.

The air distribution in the stage house



Acoustics Figure 34
Proscenium Theater Plan - Sound Isolation



Acoustics Figure 35
Proscenium Theater Section - Sound Isolation

Acoustic Design - Studio Theater

Program Use and Room Acoustic Characteristic

The 100-seat Studio Theater will host dramatic and musical theatrical performances. The space is reconfigurable with a series of demountable platform. With the primary acoustic objectives of supporting the voice in spoken word in drama; the room will be designed to support the both the amplified and unamplified voice, in any configuration the theater might be set..

For the unamplified voice, the selection of finish materials are recommended with an emphasis is placed on maintaining speech intelligibility, support for the performers, acoustic intimacy, and control of excessive reverberance. For amplified performance, speech intelligibility and control of excessive reverberation are the primary considerations.

To support the spoken voice, hard surfaces will be shaped to provide reflection of the performers voice arriving within a relatively short amount of time relative to that of the direct sound. Supportive surfaces at the side walls and at ceiling reflectors under the catwalks will distribute these useful first order reflections to the audience chamber.

An audio mix position will be located in the last two rows of the parterre level. The rear wall surface behind the audio mix will be finished with finish incorporating both diffusion and absorption

Finishes

Walls - Exposed unsealed split face CMU with 2-inch tectum absorptive panels on the walls from 2' to 14' AFF between Unistrut at 4' spacing.

Ceiling - 2-inch (50mm) thick black duct liner surface applied to 50% of ceiling surface area.

Ceiling Reflectors - Assume acoustic reflectors hung from the underside of catwalks or underside of ceiling covering 40% of the ceiling area with a minimum width of 4' width. 2-ply 5/8" gypsum on framing.

Stage Floor – The stage floor will be coordinated with the Theatrical Consultant.

Sound Isolation

A complete box-in-box construction will be employed to isolate the Studio Theatre from the airborne noise and vibration imparted into the building's structure from the parking garage below and the rest of the performance pavilion's activities.

Walls – The walls surrounding the Theatre and Stage will consist of 12" thick grouted CMU. There will be a 2" Acoustic Isolation Joint (AIJ) separating the Studio Theatre from the rest of the building. Directly adjacent spaces are anticipated to have their own interior wall surface on the non-isolated side of the AIJ.

Floor - An isolated concrete slab will be provided at the base of the Studio Theatre atop a thick, stiff concrete structural floor to control air and structure borne noise from the parking garage below.

Ceiling/Roof – The roof structure of the Theatre and Stage will be a minimum 100psf concrete. The extent and intensity of green roof and additional roofing materials may offset this requirement.

Glazing – The opera glazing walls to the exterior will require a two rows of the assembly separated by an airspace.

Booth Window - STC 35 operable window system at the Control Booth.

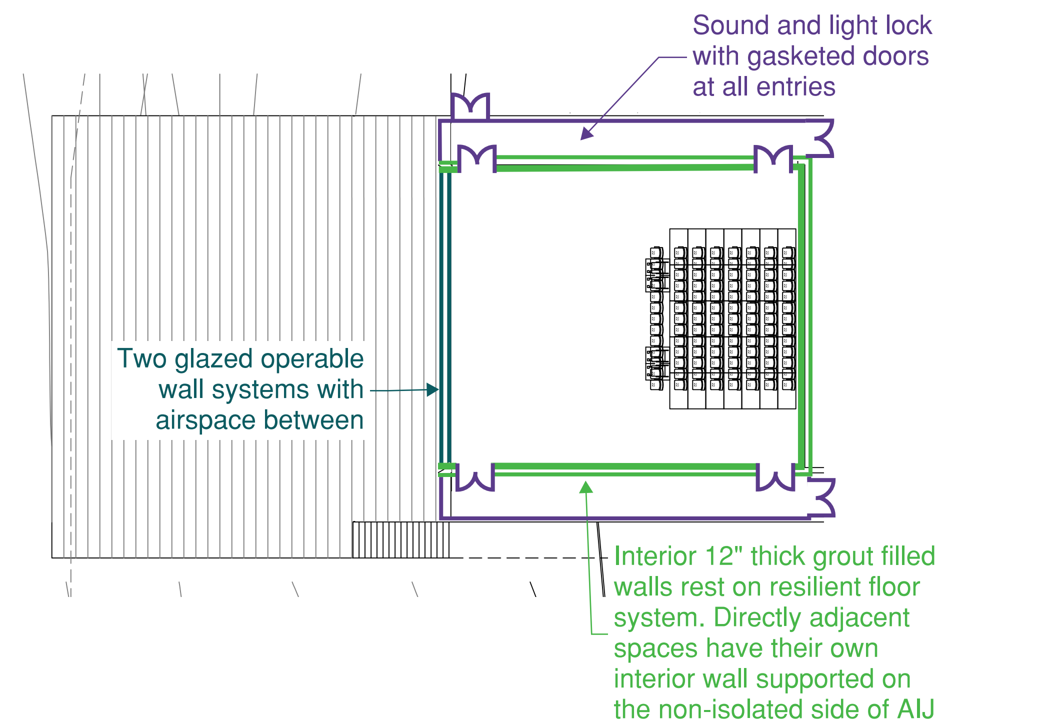
Doors – Sound and light lock vestibules are required at each entrance. Solid core or heavy gauge fiber-filled doors will be provided incorporating acoustical gasketing with cam-lift hinges or raised thresholds. At entrances with no sound and light lock, STC-rated door will be required. Coordinate fire separation line to allow push/pull hardware on interior doors to the auditorium and panic hardware on the outer doors of the sound and light locks only.

Hatches – Smoke and exhaust hatches will be STC rated and/or designed with additional acoustic separation (attenuators, transfer ducts, etc.)to mitigate exterior noise infiltration.

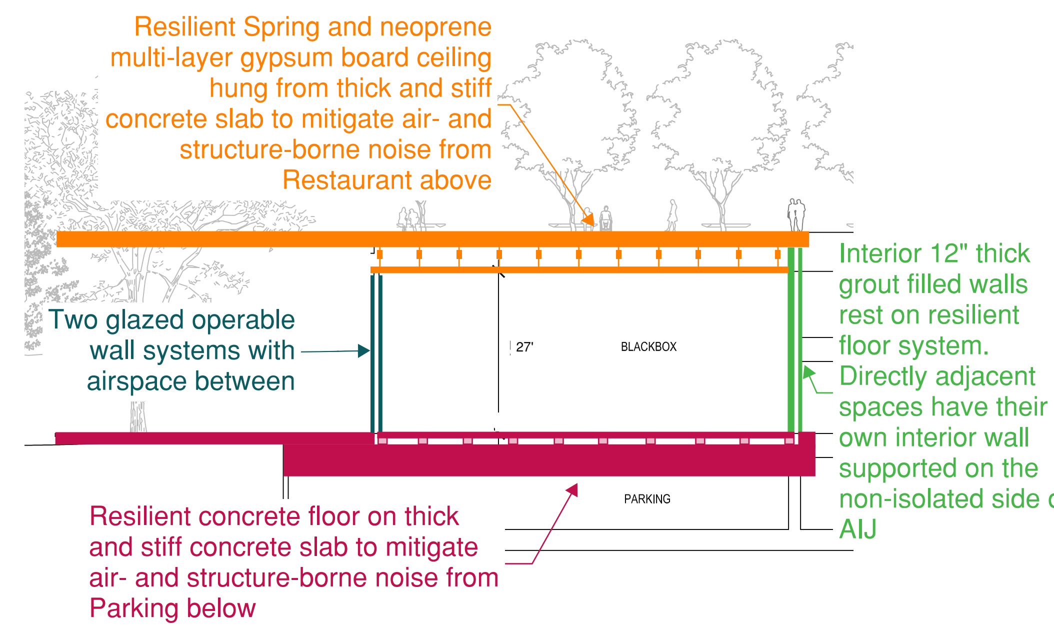
Background Noise

The background noise level design criteria RC 20.

Ventilation will be provided through distributed ductwork overhead and return grilles will be located above doors.



Acoustics Figure 36
Studio Theater Plan - Sound Isolation



Acoustics Figure 37
Studio Theater Section - Sound Isoaltion

Acoustic Design - Rehearsal Rooms

Program Use and Room Acoustic Characteristic

The primary use of the rehearsal rooms will be spoken word and singing. The selection of finish materials are recommended with an emphasis is placed on maintaining speech intelligibility, support for the users, acoustic intimacy, and control of excessive reverberance.

Finishes

Walls - 50% of available wall surfaces covered in 2" thick fabric wrapped panels, tectum, or similar --

Ceiling - 2" thick black duct liner surface applied to 50% of ceiling surface area.

Stage Floor – The stage floor will be coordinated with the Theatrical Consultant.

Sound Isolation

The Rehearsal building will be packed with activity in section on each floor and in plan adjacencies requiring box in box construction, with the assumption this building will utilize thick concrete structural floors, and gypsum board wall constructions

Interior walls - multiple layers of gypsum board on separate studs.

Floor - Resilient wood floor systems utilizing fiberglass pads.

Ceiling/Roof –In the rehearsal room B, located under the mechanical penthouse, a spring/neoprene barrier ceiling will provide additional air-borne noise isolation

Glazing – STC 45 glazing systems.

Doors –

Background Noise

The background noise level design criteria is RC 25.

Acoustic Design - Education Pavilion

Program Use and Room Acoustic Characteristic

Flexible spaces providing support for a variety of functions, such as education, banquets, conferences, and VIP events. The large pavilion maybe divided into three spaces through the use of operable partitions.

Finishes

Walls -

Ceiling - 2" thick black duct liner surface applied to 50% of ceiling surface area.

Floor - Finish per architect.

Sound Isolation

Walls –

Operable walls - STC 45 minimum, STC 50 preferred.

Floor -Resilient wood floor system on top of

Ceiling/Roof –

Glazing –

Doors –

Background Noise

The background noise level design criteria RC 30.

Acoustic Design - Lobbies

Program Use and Room Acoustic Characteristic

In addition to providing a gathering space for larger groups before, during and after performances, the lobby will also house special events including meetings and rentals. Lobby spaces are often finished with hard, smooth, reflective surfaces; terrazzo concrete, gypsum board, and glazing. The combination of a large volume and hard surfaces results in extremely "live" or reverberant spaces, often to the point of being described as noisy.

A lobby's room signature should be slightly lively to support a level of excitement for patrons but should not be so reverberant as to make it difficult to hear an amplified speaker at a fund-raising event or cause patrons to continually raise their voices to talk over the din of the crowd noise to be heard by a companion.

Finishes

Walls - Absorptive and diffusive materials will be included in the finish selections to control the buildup of sound energy to an animated, not cacophonous, room response.

Ceiling - Assume an absorption material with an NRC of 0.85. The absorption and diffusion treatment on the south walls is yet to be detailed.

Glazing - Glazing system achieving a minimum STC 43 performance.

Background Noise

The background noise level design criteria RC 35.

General Sound Isolation Considerations

Recommendations have been developed based on the low-, mid-, and high-frequency isolation performance of specific wall assemblies. Substitution of a different assembly with a similar STC-rating is not equivalent.

Partition assemblies are presented as minimum options. Wherever more substantial construction is required for fire ratings or other reasons, this will be acoustically acceptable.

Unless otherwise noted, partition recommendations assume the following:

- Gypsum board is to be 5/8" thickness, 42pcf density (normal weight).
- Studs are to be 3-5/8" thickness, 24ga., at 16" o.c. (note that heavier gauge studs may necessitate the use of resilient clips to maintain acoustic separation).
- Batt insulation is to be fiberglass at 3-1/2" thickness or mineral wood at 3" thickness.
- Acoustic sealant is to be provided at head and base

Acoustically Sensitive Rooms (see Room-by-Room Criteria table for a list of ASR's) also require the following:

- Building service penetrations will need to be fully packed with insulation and closed with acoustic sealant (details to be coordinated in future design phases)
- Electrical boxes on opposite sides of the wall must be separated by at least 24" and sealed with backbox putty.

Double stud or CMU and separated stud walls assume a complete separation between studs, with no rigid ties between studs or between studs and CMU. Where bracing is required, a resilient sway brace should be used.

Where an Acoustic Isolation Joint (AIJ) is described, the goal is to provide a continuous gap in the building structure and all interior fit out construction.

- The structural gap should be a minimum of 2"
- The gap may be reduced in some areas of the fit out construction to minimize the visual gap, but without rigidly crossing the joint.
- Some vertical structural loads may be carried through custom-designed natural rubber bearing pads. These will be custom-designed as the design progresses.

Acoustics Table X: Room by Room Acoustic Design Criteria

This table summarizes the basic design approach for each room type's background noise levels as a basis for sound isolation criteria and finishes to inform the Concept Design level pricing.

Room Name	Description/Program Use	Finishes			Noise Criteria[1]	Doors[2]	Additional Notes
		Walls	Floors	Ceiling			
Lobbies	See description in Acoustic Design Approach section						
Public Circulation and BoH Circulation	Circulation	--	--	Absorptive material with a performance of NRC 0.85 (min)	NC 30	Gasketed	
Box Office/ Information	Patron assistance, ticket sales	30% of two walls covered in 1" thick sound absorption providing an NRC of 0.80 or higher	Carpet	Surface area covered in sound absorptive treatment with an NRC 0.9 or higher	RC 30	--	
Proscenium Theatre Audience Chamber and Stage	See description in Acoustic Design Approach section						
Studio Theatre	See description in Acoustic Design Approach section						
Sound and Light Locks	Buffer space between the theaters and the adjacent circulation spaces protecting the theater from noise and light.	100% of the two largest walls covered with 1" thick, 6-7 lb. density, fabric wrapped fiberglass.	--	Absorptive material with a performance of NRC 0.85 (min)	RC 25	--	
Lighting Control, Stage Management, Sound, Interpretation and Follow Spot Booths	Dedicated control rooms supporting technical production in the Proscenium and Studio Theaters	100% of rear wall covered in 2" fabric wrapped panels or similar	--	Black Fiberglass ACT with an NRC 0.85 or higher	RC 25	Gasketed	Operable STC 35 rated windows to the performance venue.
Stage Receiving	Stage Receiving	--	--	NRC 0.85 minimum spray applied K-13 or 2-inch (50mm) thick fireproofing, or 2" thick duct liner	RC 40	Gasketed	
Loading Dock	Loading Dock	--	--	NRC 0.85 minimum spray applied K-13 or 2-inch (50mm) thick fireproofing, or 2" thick duct liner	RC 40	--	
Pit Musicians Room	Remotely located room for pit musicians.	All walls covered in 50/50 mix of 2" fabric wrapped abosption and 2" thick tuned absorption/ diffusion panels.	Carpet	Absorptive material with a performance of NRC 0.85 (min)	RC 20	STC 52	
Performer Lounges/ Green Room	Prep, warm up, and gathering space for performers prior or during the performance.	30% of two adjacent walls covered in 1" thick tackable fabric wrapped panels	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 35	Gasketed	
Dressing Rooms	Dressing rooms, accommodating multiple performers, makeup counters, costume racks, mirrors, shower and sink	30% of two adjacent walls covered in tackable, 1-inch (25mm) fabric wrapped panels	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 30	Gasketed	

Notes

1. All Noise Criteria are assumed to have a Neutral sound spectrum per ASHRAE's RC rating system definition. The following special construction requirements apply to rooms with noise criteria of RC 30 or below: all wall/floor/ceiling penetrations for building services must be sealed airtight to the standard of a two-hour fire rating; and all electrical back boxes must be wrapped with firestop putty.
2. Gasketed doors assume a 1-3/4" solid wood or insulated-core hollow metal door with gaskets applied to a standard frame except where otherwise noted (later efforts will coordinated hardware and gasketing requirements). Gaskets assume an applied gasket on the frame and a fixed bottom seal that closes on a raised threshold. STC-rated doors are provided as a complete frame/leaf/gasket set. STC-rated doors may be provided in solid wood up to STC-50; doors greater than STC-50 will be steel doors, thought these may be clad in wood veneer

Acoustics Table X: Room by Room Acoustic Design Criteria

This table summarizes the basic design approach for each room type's background noise levels as a basis for sound isolation criteria and finishes to inform the Concept Design level pricing.

Room Name	Description/Program Use	Finishes			Noise Criteria[1]	Doors[2]	Additional Notes
		Walls	Floors	Ceiling			
Dressing Rooms	Dressing Rooms	30% of two adjacent walls covered in tackable, 1" thick fabric wrapped panels	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 35	Gasketed	
Rest Rooms	Rest Rooms	--	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 40	--	
Wardrobe Maintenance Room, Wig Maintenance, Laundry	Room for wardrobe fitting and maintenance, as well as styling and maintenance for wigs and human hair.	--	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 35	--	
Run Props Room/Prop & Catering Kitchen	Run Props Room/Prop & Catering Kitchen	--	--	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 35	--	
Vocal/Coaching Studios	Vocal rehearsal, coaching and warm up spaces	Two walls will be angled at 6° to mitigate the parrallel walls surfaces. Two walls covered with 2" thick, fabric wrapped fiberglass panels for 3'-0" to 7'-0" AFF.	Carpet	Gypsum board resilient ceiling hung at 6° off horizontal.	RC 30	Gasketed	Box-in-box construction to allow for simultaneous use. Walls: Isolated double independent stud with multiple layers of gypsum board on each side Ceiling: Cap multi-layered gypsum board Floor: Floating wood floor system on fiberglass or neoprene mounts.
Private Offices, Meeting and Conference Rooms	Offices around the building will be used by full time staff and visiting production staff when applicable.	30% of two adjacent walls covered in tackable, 1" thick fabric wrapped panels	Carpet	ACT (NRC 0.70 - 0.80) or similar absorptive finish	RC 30	--	
Rehearsal Rooms	See description in Acoustic Design Approach section						
Eduction/Community Rooms	See description in Acoustic Design Approach section						
Mechanical, Electrical Plumbing and It Rooms	Rooms housing MEP and IT equipment.	50% of available surface area covered in 2"duct liner	--	100% of available surface area covered in 2" duct liner	Run Props Room/Prop & Catering Kitchen	--	Walls - Isolated multi-layer gypsum double stud wall or CMU wall assemblies Floors - Slab breaks were possible. Smaller MEP closets and rack rooms and those equipment rooms on grade will not require isolated floors. Doors – Gasketing unless opening directly to sound sensitive areas or with particularly loud equipment may require STC-rated door assemblies.

Notes

1. All Noise Criteria are assumed to have a Neutral sound spectrum per ASHRAE's RC rating system definition. The following special construction requirements apply to rooms with noise criteria of RC 30 or below: all wall/floor/ceiling penetrations for building services must be sealed airtight to the standard of a two-hour fire rating; and all electrical back boxes must be wrapped with firestop putty.
2. Gasketed doors assume a 1-3/4" solid wood or insulated-core hollow metal door with gaskets applied to a standard frame except where otherwise noted (later efforts will coordinated hardware and gasketing requirements). Gaskets assume an applied gasket on the frame and a fixed bottom seal that closes on a raised threshold. STC-rated doors are provided as a complete frame/leaf/gasket set. STC-rated doors may be provided in solid wood up to STC-50; doors greater than STC-50 will be steel doors, thought these may be clad in wood veneer

Mechanical, Electrical, Plumbing, Fire Protection, and Low Voltage System Noise Control Introduction

The following guidelines summarize our preliminary recommendations for the acoustic features of the design of MEPF systems for the Renovation of the Kalita Humphreys Theater and Expansion of Dallas Theater Center's Campus. The recommendations provided here-in are intended to inform the design team and cost estimators of best practices that would be applied to the in the site and building's designs at a conceptual levels

The connection between a performer and audience demands that nothing impede the sound reaching the listeners' ears. Central to this pursuit is the limitation of background noise in the performance and rehearsal spaces. Absolute silence is not required in most spaces in the building, but the background noise level must be low enough so that it meets the following criteria:

- Background noise in a theatre space must be at least 20 decibels quieter than the actor's voice (10 to 15dB quieter at lower frequencies) so that all the details of the actor's delivery can be clearly distinguished throughout the room.
- Background noise in performance spaces must also be quiet and balanced so not to distraction the audience listening to the performers on stage.
- Background noise in Rehearsal Halls and Practice Rooms must be quiet enough to hear the subtlety of fellow ensembles members' playing/singing/speaking, but also high enough to mask some sound from adjacent spaces.
- Background noise in Recording Spaces must be as low as possible to maximize the dynamic range of the recording.
- Background noise in Classrooms and Community Rooms must be at least 15 decibels quieter than the instructor's and students' voices (5 to 10dB quieter at lower frequencies) to allow speech to be heard with clarity.
- In lobbies, offices, lounges, and other similar spaces background noise should be low enough so that occupants can clearly and easily communicate with one another without distraction but also high enough, so private conversations are not easily heard throughout the entire space.

Design Criteria

Based on our understanding of the program requirements for this project we recommend the background noise levels illustrated in Acoustic Figure 1: Room Criteria Curves be adopted. Criteria are specified in terms of the Room Criteria (RC) system as defined by ASHRAE and assume a neutral and non-tonal spectrum. Rooms with noise criteria less then RC-35 are designated "Acoustically Sensitive Rooms" and will carry specific requirements for penetrations of ductwork, conduit, and piping.

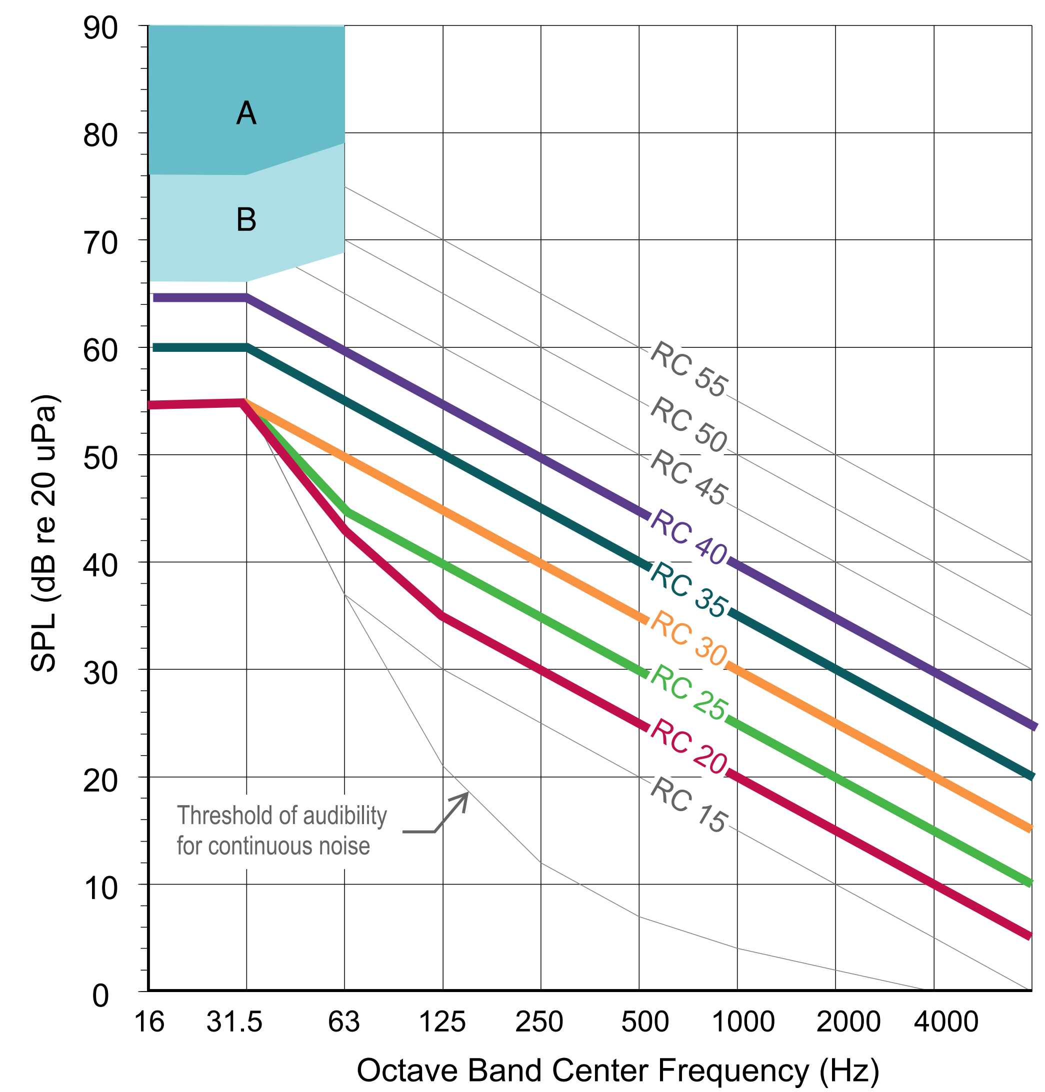
RC 20
KHT Theater
Proscenium Theater
Studio Theater
Pit Musician Room

RC 25
Sound Locks
Control Booths
Rehearsal Rooms
Coaching Studios
Coaching Offices

RC 30
Education/Community Rooms
Box Office
Private Offices
Meeting Rooms
Conference Rooms
Star Dressing Room
Stage Receiving
Classroom
Community Room

RC 35
Lobbies, Public Circulation
Event Spaces
Stage Receiving
Wig, Make-up, and Costume Rooms
Off Stage Quick Toilet
Prop Pantry
Green Rooms
Chorus Dressing Rooms
Locker Rooms
Open Offices
Café, Restaurant

RC 40
Dimmer and Amplifier Rooms
Rest Rooms



The RC value of an environment is determined by the arithmetic average of the sound pressure levels measured at 500, 1000 and 2000 Hz. This average value gives rise to a straight line with a slope of 5 dB per octave to classify the space and how the noise profile might approximately interfere with speech.
The environment may also be classified as neutral (N), hissy (H), rumbly (R), or with perceptible vibration (V):

- Neutral: Measured values at and below 500Hz do not exceed the RC curve by more than 5dB at any octave, and measured values at and above 1000Hz do not exceed the RC curve by 3dB at any octave
- Hissy: Measured values at 1000Hz and above exceed the RC curve by more than 5dB in any octave
- Rumbly: Measured values at and below 500Hz exceed the RC curve by more than 5dB in any octave
- Region A: Strongly perceptible vibrations of lightweight wall and ceiling systems
- Region B: Potential for perceptible vibration of lightweight wall and ceiling systems

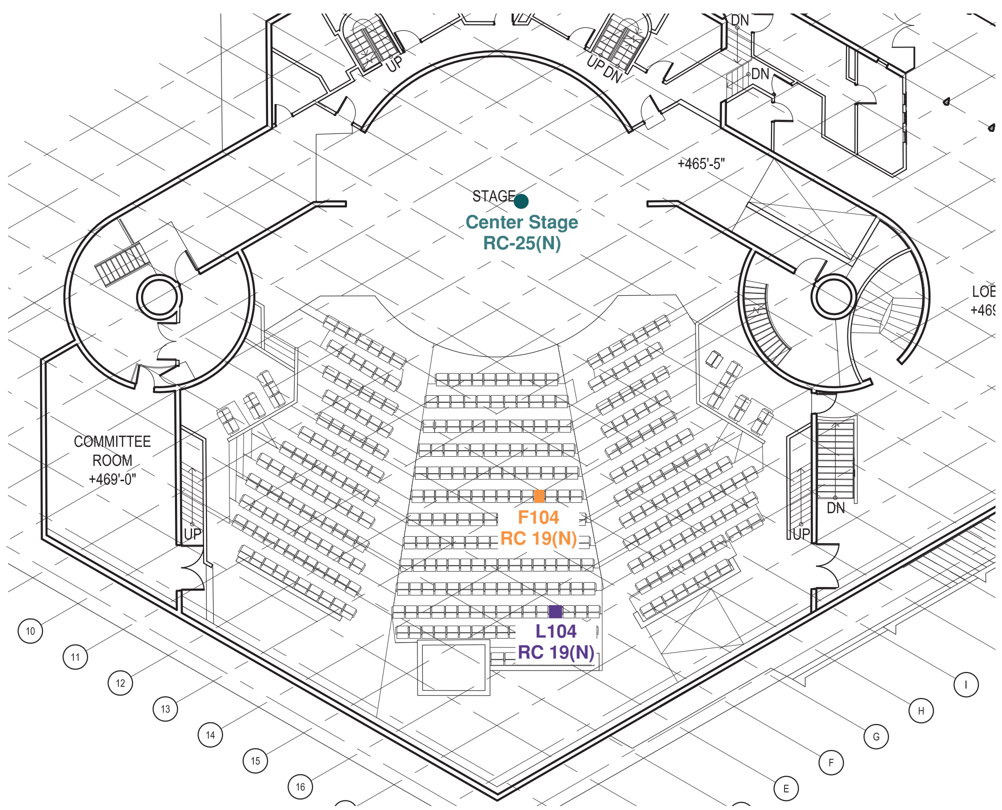
Acoustics Figure 38
Background noise Levels Recorded in Kalita Humphreys Theatre with the mechanical system on

Background Noise Measurements in Kalita Humphrey

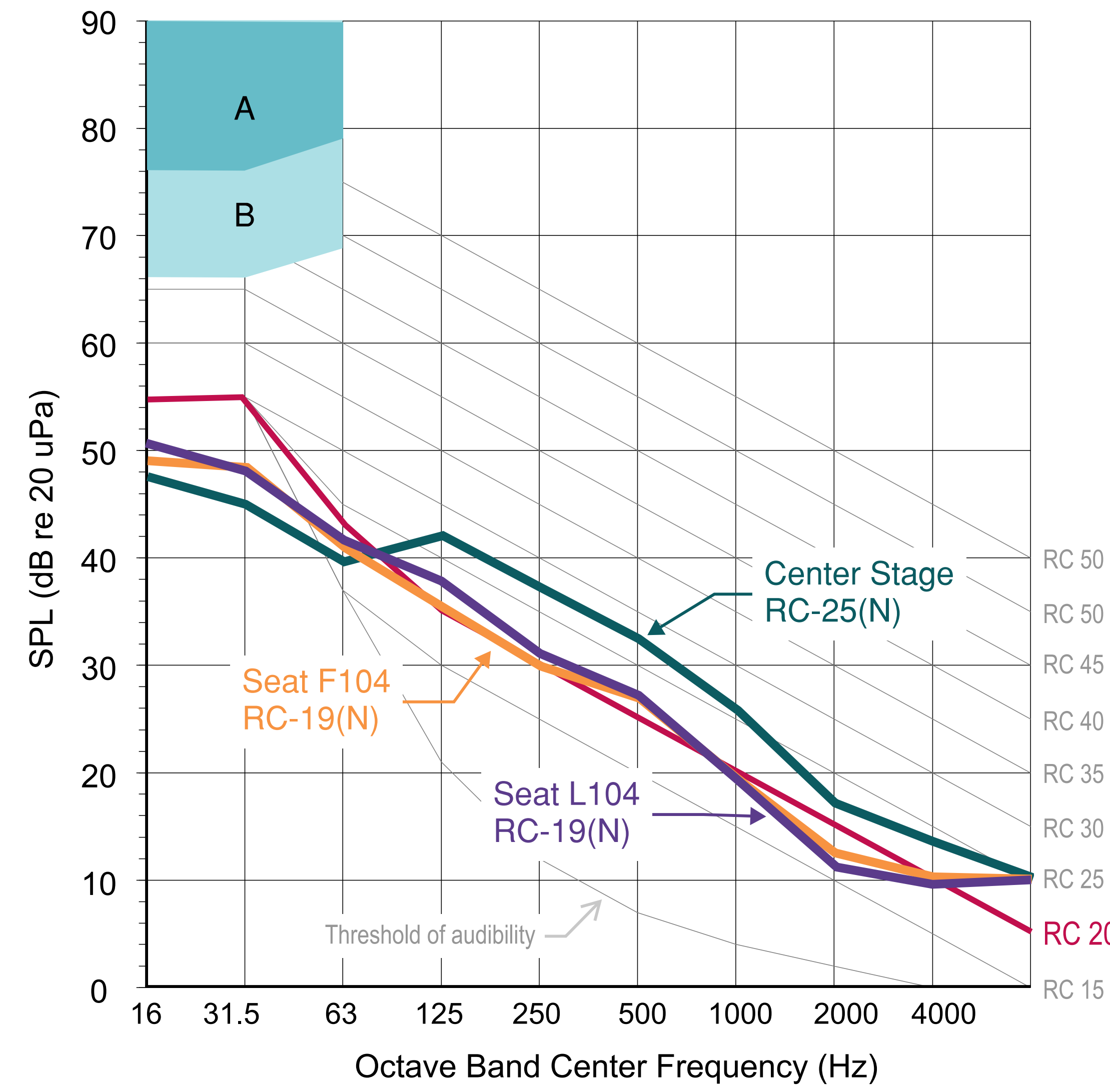
We measured the background noise levels in the Theater due to mechanical and electrical systems. The sound level meter used to measure noise levels was a B&K 2270-meter, serial number 3005813. The device is an ANSI Type 1 accredited and calibrated microphone and processor unit that records full frequency data every 125 milliseconds. Each measurement was recorded over 30 seconds, unless noted otherwise.

Noise from ductwork over the audience chamber is virtually inaudible. There is audible hum from piping over the stagehouse. The precise noise source could not be determined at the time of our visit. This equipment causes elevated noise levels on stage that is audible from the audience seating. The background noise level in the audience chamber is very consistent and in line with criteria for drama theaters and our design goal of RC 20 (N).

We were unable to turn off the HVAC during our site visit but expect the interior levels to be quieter with the HVAC off. During productions, fan whine is audible from theatrical light fixtures. Those were not measured as part of this benchmarking.



Acoustics Figure 39
Background Noise Measurement Locations



The RC value of an environment is determined by the arithmetic average of the sound pressure levels measured at 500, 1000 and 2000 Hz. This average value gives rise to a straight line with a slope of 5 dB per octave to classify the space and how the noise profile might approximately interfere with speech.
The environment may also be classified as neutral (N), hissy (H), rumbly (R), or with perceptible vibration (V):

- Neutral: Measured values at and below 500Hz do not exceed the RC curve by more than 5dB at any octave, and measured values at and above 1000Hz do not exceed the RC curve by 3dB at any octave
- Hissy: Measured values at 1000Hz and above exceed the RC curve by more than 5dB in any octave
- Rumbly: Measured values at and below 500Hz exceed the RC curve by more than 5dB in any octave
- Region A: Strongly perceptible vibrations of lightweight wall and ceiling systems

Acoustics Figure 40
Background noise Levels Recorded in Kalita Humphreys Theatre with the mechanical system on

Building Planning and Architectural Considerations for MEP Equipment Rooms

The following are general guidelines for the locations of Mechanical and Electrical Rooms:

- The preferable location for an MER is on-grade, with the use of a slab on grade, at least one structural bay away from the nearest Acoustically Sensitive spaces, as this significantly simplifies the consideration of structure-borne noise from the equipment. If the ground floor slab utilizes a carton form (or similar) construction rather than a slab on-grade, structure-borne vibration considerations will follow the same recommendations for those of equipment located on upper levels.
- If equipment is located on upper levels, position it near major beams and supporting columns. Keep span lengths to a minimum. Locating equipment at mid-spans or on long spans increases the difficulty in controlling the noise in the building structure.
- Where equipment must be located on rooftops, it is recommended that they be separated from Acoustically Sensitive spaces by at least two structural bays. Rooftop equipment should be located over main girders with structure in the immediate area of the equipment stiffened to not less than 7 Hz resonant frequency. Depending on noise levels radiated by the equipment, a concrete slab may be required to sufficiently reduce airborne noise levels within the occupied space below.
- Avoid locating Mechanical and Electrical Rooms either horizontally or vertically adjacent to Acoustically Sensitive spaces. Buffer spaces of less sensitive spaces, hallways, storage, etc. between offer effective and inexpensive construction to provide isolation between the higher sound levels of the Mechanical and Electrical Room and the Acoustically Sensitive spaces. If Mechanical and Electrical Rooms are adjacent, robust, built up wall, floor and ceilings systems will be required.
- Equipment room doors should not open into sound sensitive spaces. The level of treatment required for Mechanical and Electrical Room doors may require seals or sound rated door systems, depending on their locations.
- Fresh air and exhaust air openings should not lead to occupied outdoors areas or spaces where noise can re-enter the building through windows, doors, or vents.
- Provide housekeeping pads, at least 4" (100 mm) thick under floor mounted mechanical and electrical equipment to provide local mass and stiffness.
- Consideration should be given to the proximity of equipment to property lines where noise ordinances may present additional restrictions on equipment noise levels.
    - Chapter 30 of the Dallas City Code address noise concerns. While there is no specific language addressing maximum acceptable background noise levels at a neighbor's property line, the chapter does include the following SEC. 301. LOUD AND DISTURBING NOISES AND VIBRATIONS. A person commits an offense if he makes or causes to be made any loud and disturbing noise or vibration in the city that is offensive to the ordinary sensibilities of the inhabitants of the city. (Ord. Nos. 13744; 24835; 26022)
    -

Considerations for System Configurations and Equipment Types

The type of air distribution system and the equipment used to condition and move air through the building has a profound effect on the extent of noise and vibration control that must be incorporated into the system. The following design intent should be included in the costing assumptions for this project

- A unitized rooftop air conditioning unit (RTU) limits the footprint of mechanical equipment located inside the building and therefore reduces the area that may require extensive acoustic isolation. However, the roof is typically the most flexible portion of the building structure, and it can be very difficult to provide effective isolation from the RTU from adjacent spaces. If an RTU option is pursued, the equipment and its penetrations must be located far from any acoustically sensitive rooms, likely separated by a complete structural break. RTU's and other heavy rooftop equipment should be located over main girders with structure in the immediate area of the RTU stiffened to not less than 7 Hz resonant frequency. Depending on noise levels radiated by the equipment, a concrete slab may be required to sufficiently reduce airborne noise levels within the occupied space below.
- A system including a central station air handling unit and remotely located chilled water equipment (water-cooled chiller and cooling tower or air-cooled chiller) requires more building space dedicated to mechanical equipment, but each piece of equipment can be selected based on low-noise requirements and often results in the quietest equipment. The ability to customize only one piece of the system, such as the AHU when extremely quiet fan systems are required for the Kalita, Proscenium, and Studio Theaters, or for the chiller or cooling tower to control the noise propagated to the neighboring properties and within the park setting that we will enjoy by patrons for its bucolic setting or when activated with outdoor performances, can save cost compared to a custom RTU with requisite noise control elements applied. A chiller, however, can be a significant source of noise and vibration and must be located remotely from Acoustically Sensitive rooms. Stiffen structure beneath rooftop AHU's, cooling towers, and chillers as described above for RTU's.
- Regardless of system type, we recommend a unit incorporating a fan array (with 4 to 5 supply fans) serving Acoustically Sensitive spaces. This type of unit typically generates significantly lower noise levels than comparably sized unit with centrifugal or plug fans.
- If an air handling unit is configured with a separate return fan, the return fan requires a similar level of noise control consideration as the supply portion of the unit.
- Whenever possible, the use of an underfloor displacement system for performance spaces with fixed seating is recommended. Air is supplied via an underfloor plenum via diffusers in the floor or via perforated seat pedestals. The inherently slow-moving air, the elimination of overhead supply ductwork, and reduction in cooling capacity compared to the requirements of comparable overhead systems allow for much more efficient control of system noise. For the pricing efforts:
    - As the concrete slab of the audience chamber in the Kalita Humphrey Theatre is replaced to reinstate the original stage configuration and improve audience sightlines to the stage, slab openings will be incorporated to create an underfloor displacement system.
    - A displacement system is assumed at the Proscenium Theatre.
    - Overhead supply is assumed in the Studio Theatre.

Mechanical System Noise & Vibration Control Recommendations

The following noise and vibration control techniques are to be assumed in the costing exercises and will inform the development of future design work:

- Fans should be sized for Fan Efficiency Grade consistent with ASHRAE 90.1 while keeping fan wheel rpm as low as possible.
- Terminal devices (diffusers, grilles, and chilled beams) should be selected at a manufacturers' NC-rating that is 10dB lower than the background noise criterion specified for the room. For example, rooms with a background noise criterion of RC 35 should have diffusers specified for NC-25.
- Internal duct lining criteria (assuming there are no restrictions on the use of glass fiber in the ductwork):
    - All ductwork serving rooms with a noise criterion less than RC 30.
    - Within 30' (10m) upstream and downstream of fans and air handling units serving with noise criteria of RC 30 or greater.
    - At least 10' (3m) downstream of VAV and Fan-Powered Boxes.
    - All transfer ducts.
    - Return air stub ducts and shaft intakes.
    - Where internal lining is used, assume 1" (25mm) thick lining except when any cross-sectional dimension (length, width, or diameter) is greater than 24" (600mm) in which case 2" (50mm) thick lining should be used. Fire dampers should be selected as the type with blades that retract fully out of the airstream.
- The following additional design strategies are recommended for use in spaces with background noise criteria below RC 30:
    - Assume the use of a 5 foot long sound attenuator at the supply and return for all AHU's as well as all Fan Coil and VAVs serving spaces with a noise criterion less than RC 30.
    - Air flow should be balanced using static pressure regain to eliminate volume control dampers to the extent possible; where dampers are unavoidable, these should be located outside the footprint of the space and at least 6' (2m) upstream of diffusers.

- If vestibules serving these rooms are be configured without active ventilation, a small pressure-relief duct is recommended to avoid door suction.
- Terminal boxes should be located outside the footprint of these spaces and shall provide sufficient duct path before entering the space to attenuate the noise they generate.
- Exposed ductwork, if used, should be round duct.
- Duct elbows should be radiused without turning vanes or using full-length turning vanes.
- Flexible ductwork connections at diffusers should be acoustically rated, with a perforated inner sheet metal wall wrapped by insulation.
- All duct penetrations through walls of rooms with noise criteria of less than RC 30 should be sleeved and oversized, packed with glass fiber insulation, and sealed with a non-hardening caulk in a manner consistent with fire ratings and other life safety considerations. See the attached penetration detail sketches.
-

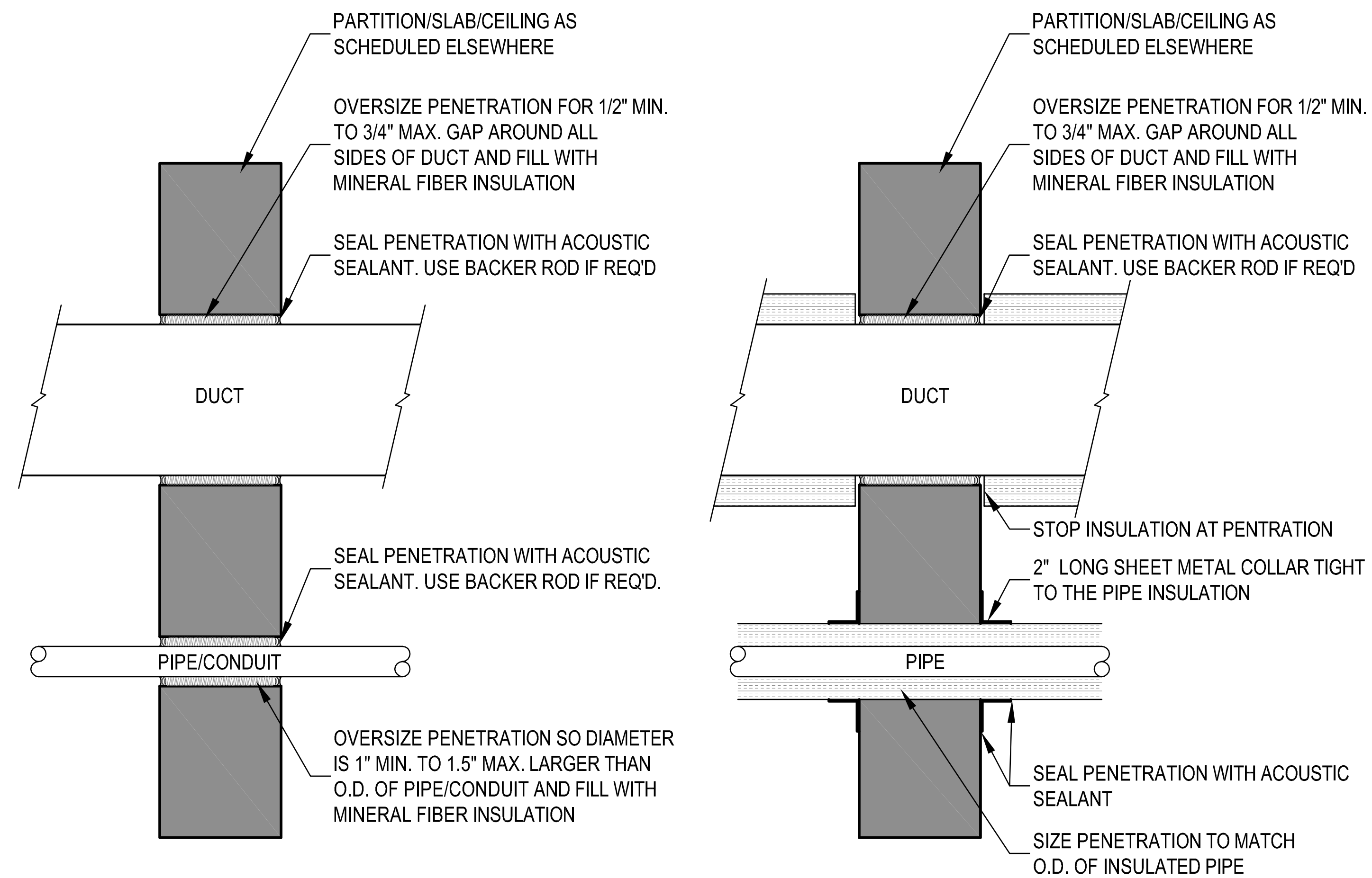
Mechanical System Noise & Vibration Control Recommendations

- In planning equipment locations and mounting conditions, we recommend the vibration isolation described in Table X be assumed for mechanical equipment:
- In preparing preliminary duct layouts, we recommend the velocity guidelines found Table 1 be used to size ducts, while also considering the following:
  - Where variable air volume systems are used, ducts should be sized assuming the system is operating at full capacity.
  - Velocities should not increase or decrease by a factor more than 2:1 along any main or branch.

Table 1 Velocity Guidelines [FPM (m/s)]

Noise Criteria	At End of Open Slot[1]	Face/Neck of Grille/Diffuser[2]	Within 10' (3 M) of Grille/ Diffuser	Within 20' (6 M) of Grille/ Diffuser	Within 50' (15 M) of Grille/ Diffuser	Exposed ducts in Room[3]
RC 15 supply	350 (1.8)	n/a2	350 (1.8)	425 (2.2)	850 (4.4)	800 (4.1)
RC 15 return	350 (1.8)	n/a2	350 (1.8)	500 (2.5)	1,000 (5.1)	800 (4.1)
RC 20 supply	500 (2.5)	300 (1.5)	500 (2.5)	550 (2.8)	1,100 (5.6)	800 (4.1)
RC 20 return	500 (2.5)	350 (1.7)	500 (2.5)	650 (3.3)	1,300 (6.6)	800 (4.1)
RC 25 supply	550 (2.8)	350 (1.8)	550 (2.8)	700 (3.6)	1,400 (7.2)	800 (4.1)
RC 25 return	550 (2.8)	425 (2.2)	650 (3.3)	800 (4.1)	1,600 (8.2)	800 (4.1)
RC 30 supply	700 (3.6)	425 (2.2)	700 (3.6)	850 (4.1)	1,700 (8.6)	900 (4.6)
RC 30 return	700 (3.6)	500 (2.5)	800 (4.1)	900 (4.6)	1,800 (9.1)	900 (4.6)
RC 35 supply	800 (4.1)	500 (2.5)	800 (4.1)	1,000 (5.1)	2,000 (10.2)	1,200 (6.1)
RC 35 return	800 (4.1)	600 (3.0)	900 (4.6)	1,100 (5.6)	2,000 (10.2)	1,200 (6.1)
RC 40 supply	900 (4.6)	600 (3.0)	900 (4.6)	1,100 (5.6)	2,000 (10.2)	1,200 (6.1)
RC 40 return	900 (4.6)	700 (3.6)	1000 (5.1)	1,200 (6.1)	2,000 (10.2)	1,200 (6.1)

Notes
1. Velocities up to 25% higher may be permissible with smooth transitions to diffusers, slots, or grilles.
2. Most manufacturers' diffusers will not be suitable for RC 15 spaces. Open slots are preferred for overhead supply, and air pedestals are preferred for underfloor supply.
3. Ducts exhibiting higher velocities will need to be enclosed in soffits, wrapped in lagging, or be constructed of significantly heavier construction than might otherwise be required.



Acoustics Figure 41
Penetration details without (left) and with external insulation (right)

Electrical System Noise & Vibration Control

Electrical systems should be installed in a manner that minimizes transmission of objectionable vibration into the building structure. Required isolation will include, but is not limited to, the resilient mounting of transformers, dimmer racks, motor starters, remote light fixture ballast cabinets, variable frequency motor controllers and related conduit.

- Use flexible connections for all electrical connections to isolated equipment.
- Electrical boxes on opposite sides of the same partition should be configured as follows:
  - Boxes should be separated by at least 16" (400mm) within partitions separating spaces with a noise criterion of RC 30 or greater.
  - Boxes should be separated by at least 3' (1m) within partitions separating spaces with a noise criterion less than RC 30.
  - Firestop putty should be specified for all electrical back-boxes and other devices recessed into partitions enclosing rooms with noise criteria of less than RC 30.
- Lighting ballasts or step-down transformers should not be located within any rooms with noise criteria of less than RC 30. They can be remotely located as allowed by the fixture design.
- Fluorescent lighting ballasts should be electronic.
- Exit light fixtures should be LED, incandescent or fluorescent with electronic ballasts within rooms with noise criteria of less than RC 30. Do not use HID fixture.
- All conduit penetrations through partitions of rooms with noise criterion of less than RC 30 should be sealed to prevent the transfer of sound; they should be packed with mineral fiber insulation and sealed with a non-hardening caulk in a manner consistent with fire ratings and other life safety considerations.
  - Loose cable may not be passed through partitions – cable must be in a conduit when serving the space with a noise criterion below RC 30.
  - An acoustic cable pass may be deemed acceptable – to be determined on a case-by-case basis.
  - See the penetration details sketches.
- Assume vibration isolation treatments per Table X.

Plumbing Systems Noise & Vibration Control

Acoustic considerations for plumbing systems are not extensive, but some care should be taken with respect to plumbing fixture location and control of fixture generated noise as follows:

- With the exception of a slop sink on Stage, plumbing fixtures for toilets, concessions, water fountains, janitor's closets, etc. should not be located directly on the walls of the rooms with noise criterion less than RC 30. If building layout requires fixtures within this proximity, limit fixtures to lavatories only if possible. A secondary, independently supported wall may be required for plumbing line support.
- Routing for vent lines from areas below rooms with noise criteria of less than RC 30 should be located outside the space or be located within enclosed chases within those areas to prevent air-borne sound transfer through the open pipe.
- Circulating water piping and rain leaders should not pass through rooms with noise criteria of less than RC 30. If such routing must occur, piping should be enclosed in a gypsum chase or insulated and wrapped with mass-loaded vinyl.
- PVC pipe should be avoided for all pipes that pass through rooms with a noise criterion less than RC 30.
- All pipe penetrations through walls of rooms with noise criteria of less than RC 30 should be sleeved and oversized, packed with glass fiber insulation, and sealed with a non-hardening caulk.
- All pipe penetrations through partitions of rooms with noise criterion of less than RC 30 will be sealed to prevent the transfer of sound; they will be packed with glass fiber insulation and sealed with a non-hardening caulk in a manner consistent with fire ratings and other life safety considerations. See the attached penetration details sketches.
- In planning equipment locations and mounting conditions, we recommend the vibration isolation described in Table X be assumed for mechanical equipment

Fire Protection System Noise & Vibration Control

Acoustic considerations for fire protection systems are not extensive, but some care should be taken with respect to fire pump type, location, and operation and sounder type:

- Where wet sprinkler systems are used for rooms with noise criteria less than RC 30, jockey pumps should be sized to maintain pressure in the system while minimizing the frequency of operation of the pump.
- Initialization devices, annunciators, and visual and audible devices should not emit or transfer noise from one room to another except during system activation in an emergency. This may require more extensive home run circuiting for annunciators than is typical.
- It has been our experience that local codes restrict the use of vibration isolation on fire protection systems. If codes allow, however, the recommendations detailed for plumbing noise and vibration control are to be followed.
- All pipe penetrations through partitions of rooms with noise criteria of less than RC 30 should be sealed to prevent the transfer of sound; they should be packed with mineral insulation and sealed with a non-hardening caulk in a manner consistent with fire ratings and other life safety considerations. See the penetration details sketches.

Low Voltage (IT, Telecommunications, Controls and AV) System Noise & Vibration Control

All conduit penetrations through partitions of rooms with noise criterion of less than RC 30 should be sealed to prevent the transfer of sound; they should be packed with mineral fiber insulation and sealed with a non-hardening caulk in a manner consistent with fire ratings and other life safety considerations.

Loose cable may not be passed through partitions – cable must be in a conduit when serving the space with a noise criterion below RC 30.

An acoustic cable pass may be deemed acceptable – to be determined on a case-by-case basis.

See the attached penetration details below.

Penetration with No External Insulation Penetration with External Insulation

Sketch Notes:

1. Details to be coordinated with fire rating requirements.
2. Where penetrations occur through multi-wythe partitions, apply sealant at outer face of each wythe.

Equipment	Base	Isolator[2]	Additional Notes
Cooling Towers	Steel Frame1	Restrained Spring Mounts	Static deflection varies by fan speed
Chillers	Steel Frame1	Restrained Spring Mounts	Static deflection varies by chiller type
Boilers	Steel Frame1	Restrained Spring Mounts	--
Pump/Compressor – Centrifugal	Inertia Base	Spring Mounts	Size of inertia base determined by pump HP
Pump/Compressor – Inline	Inertia Base (none if hanging)	Spring Mounts or Hangers	Size of inertia base determined by pump HP
Motors (if on separate base)	Steel Frame1	Spring Mounts or Hangers	--
Fans, AHU's & RTU's	Steel Frame1 or Curb	Spring Mounts or Hangers	Curbs w/integral springs acceptable for rooftop equipment AHU's with internal fan isolation may be installed on external neoprene pads in lieu of springs
Condensing Unit	Steel Frame1 or Curb	Restrained Spring Mounts	Curbs w/integral springs acceptable for rooftop equipment
Fan-Powered Boxes and FCU's	None	Spring Hangers	For FPB/FCU > 2,500cfm only; no isolation required for smaller units
Passive Devices (Expansion Tanks, Heat Exchangers, Deaerators, etc.)	None	Neoprene Mounts or Hangers	
Ductwork and Piping Within 30ft. of Equipment	None	Spring Hangers & Flex Connectors at Equipment	Exception is for piping with diameter < 1" which may be wrapped in neoprene and clamped instead
Ductwork & Piping within 8ft. of crossing isolated construction or under a room with noise criteria of < RC 25	None	Neoprene Hangers or All-Direction Wall Mounts	Exception is for piping with diameter < 1" which may be wrapped in neoprene and clamped instead
Transformers	Steel Frame1	Neoprene Mounts or Hangers	--
Motors (if on separate base)	Steel Frame1	Spring Mounts or Hangers	--
Dimmer Racks	Steel Frame1	Neoprene Mount	--
Audio System Racks	Steel Frame1	Neoprene Mount	--
Motor Control Centers	Steel Frame1	Neoprene Mount	--

Equipment	Base	Isolator[2]	Additional Notes
Emergency Generators	Steel Frame	Restrained Spring Mounts	--
Enclosures/Cabinets containing relays, transformers, ballasts, or choke coils	Steel Frame1	Neoprene Mount	--
Conduit Within 30ft. of Equipment	None	Spring Hangers & Flex Connectors at Equipment	Exception is for conduit with diameter < 1" which may be wrapped in neoprene and clamped instead Flexible conduit acceptable for conduit <2" diameter (minimum 18" length); Neoprene flexible connector required for larger conduit
Conduit within 8ft. of crossing isolated construction or under a room with noise criteria < RC 25	None	Neoprene Hangers or All-Direction Wall Mounts and Flex Connector	Exception is for conduit with diameter < 1" which may be wrapped in neoprene and clamped instead Minimum length of 18" of flexible conduit where used at crossing of isolated construction
Boilers	Steel Frame1	Restrained Spring Mounts	--
Pump/Compressor – Centrifugal	Inertia Base	Spring Mounts	Size of inertia base determined by pump HP
Pump/Compressor – Inline	Inertia Base (none if hanging)	Spring Mounts or Hangers	Size of inertia base determined by pump HP
Sump & Ejector Pumps	None	Neoprene Pads	
Passive Devices (Expansion Tanks, Heat Exchangers, Deaerators, etc.)	None	Neoprene Mounts or Hangers	
Piping Within 30ft. of Equipment	None	Spring Hangers & Flex Connectors at Equipment	Exception is for piping with diameter < 1" which may be wrapped in neoprene and clamped instead
Piping within 8ft. of crossing isolated construction or under a room with noise criteria < RC 25	None	Neoprene Hangers or All-Direction Wall Mounts	Exception is for piping with diameter < 1" which may be wrapped in neoprene and clamped instead

Notes:

1. Steel frame bases may not be required for equipment that can be supported on point loads
2. Isolation requirements may be relaxed for on-grade installations of some equipment

Audio Visual Systems Program Assumptions

The Kalita Humphreys Theater (KHT) currently serves a variety of professional and community-based groups, but Dallas Theater Center (DTC) is embarking on this project with a goal of increasing the Kalita Humphreys Theater's connection to both the surrounding areas and to its singular history as Frank Lloyd Wright's only freestanding theater building. The addition of new spaces for theater and community use expands opportunities to engage more broadly with visitors and performers. Some key assumptions are listed below, which inform our proposed improvements to audio/video systems and related infrastructure.

- The spaces and scope of work for AV systems are listed below:
  - Kalita Humphreys Theater, 450-seat existing theater to be renovated with all new AV systems and infrastructure
  - New 250-seat Proscenium Theater with an in-house mix position, enclosed control booth, and dedicated dressing rooms (two 2-person, four 16-person)
  - New 100-seat (maximum) Studio Theater with an enclosed control room and four dedicated 4-person dressing rooms
  - A suite of shared back-of-house accommodations, including a renovated loading dock (with connectivity for remote production/broadcast truck parking), VR Streaming & Production space, and shops for various theatrical trades
  - Lobby space and exterior circulation spanning the campus, which includes box office space, concessions, and administrative offices
  - Event/Banquet Space for 300 visitors, which may double as lobby or circulation space when not in use otherwise
  - Two rehearsal rooms (approx. 3,000 nsf each), with each accommodating a play area comparable to the Proscenium Theater or Studio Theater
  - Two smaller coaching rooms for instruction and rehearsal
  - A large classroom divisible into three smaller rooms with operable partitions
  - New administration area for DTC staff, to include a large conference room and two private meeting rooms.
- Dallas Theater Center is the primary user of the Kalita Humphreys, utilizing the existing space for production of dramatic and musical theater works. Many of DTC's productions are hosted currently at the Wyly Theatre in Dallas, but with the new Studio Theater and Proscenium Theater, some of that program will move back to the KHT campus.
- All three theaters and the Event Space will be available for rental by corporations, individuals, or community groups to host meetings and events.
- The renovated campus is expected to host year-round DTC productions alongside simultaneous performances produced by local theater companies and performing arts organizations. DTC's expectation is to program all major spaces year-round, minimizing downtime.
- Classrooms are expected to host year-round educational programs led by DTC or by outside users.
- Connectivity and awareness of activity throughout the site is a primary goal. Systems should support increased audience awareness and facilitate new, creative uses of the spaces and the campus overall.
- Each of the performance and rehearsal spaces should aim to accommodate 80% of its typical uses with built-in systems and infrastructure. For performance spaces, the intent is that any outside user group could produce a full theatrical show using systems and equipment owned by DTC. For the addition 20% of uses, DTC will supplement with additional production equipment.
- As a general rule, Threshold will specify equipment that conforms to existing DTC stock and expertise. This is particularly important with loose and/or portable equipment like intercom beltpacks and assistive listening receivers; more flexibility is allowed with major production equipment like mixing consoles or loudspeakers (though hardware is likely to be sourced from consistent manufacturers across the KHT campus).
- Wireless communication for production staff is expected in the areas immediately surrounding the performance spaces. Consistent coverage for these systems across campus is not required.
- For streaming and distribution across the internet, DTC will coordinate and arrange the necessary web hosting and content management.
- There is a desire to enable campus-wide video production and broadcast, with the capability to source live content from any of the performance spaces on the campus. Because simultaneous use in this context is unlikely, an as-yet-unaccounted-for centralized video production control room has recently entered discussions. It is not currently captured in the building program, but the equipment required to operate within such a framework is included in the AV Budget Estimate.
- In the event of an emergency in any of the performance or rehearsal spaces, the AV systems will mute audio and blank out and video playback, allowing the emergency evacuation systems provided by others to be seen and heard.

Vocabulary

In order to describe AV functionality in a concise way, Threshold utilizes the following terms. Each relates to a specific function that the AV systems must support based on the anticipated program for each space. Functions are not necessarily mutually exclusive, nor do they relate directly to any specific piece or pieces of equipment.

AV Table 1: AV Vocabulary	
AV Function	**Description**
Audio/Video Playback	Playback of pre-recorded audio/video material
Presentation Sound Reinforcement	Amplification of presenter or performer to reach larger audiences
Performance Sound Reinforcement	High-quality, high-impact amplification of multiple vocal and instrumental sources.
Audio/Video Feed Transmission	Distribution of live audio/video from performance venues to spaces not directly connected to the performance area.
Audio/Video Feed Reception	Hearing live audio and viewing live video transmitted from within performance spaces.
Two-way Communication	Communication system for technical staff (Production Intercom).
Assistive Listening	Direct broadcast of audio material to belt packs or hearing aids; required by ADA when Sound Reinforcement/Audio Playback are involved
Video Conferencing	Video & Audio conference with remote participants
Audio/Video Capture	Recording of audio and/or video
Audio/Video Streaming	Broadcasting a live audio/video feed over the internet or local network
Performance Recording	Live or in-studio professional recording
Paging	Making announcements that are heard in another space
Digital Signage	Wall-mounted displays that can be used to show promotional images or signage graphics.
Remote Monitoring/Control	Viewing and monitoring the status of AV equipment in another space
Active Narration	Live description of on-stage action, broadcast into space for reception by belt packs/ headphones, often using multi-channel versions of an assistive listening system.
Spatial/Immersive Audio/Video	Ability to create immersive or experimental environments that use audio and video in unique and flexible ways.
Temporary Infrastructure Use	Large open pathways to run temporary audio video signal cable and power cable to support audio video functions that are not permanently installed.
Easy Use	Simple sound reinforcement, playback, or video playback/presentation video that can be carried out by untrained or inexperienced users.

AV System Descriptions

Kalita Humphreys Theater (including Control Booths, Rack Rooms, dedicated Back-of-House and Lobby)

The Kalita Humphreys Theater is undergoing this renovation not only to upgrade its technical capabilities, but above all to recapture the architectural vision the Frank Lloyd Wright had at its inception. Threshold's overarching goal through this process is to incorporate the below production systems in a context that respects the original intent of the building's design.

The program for this space is expected to include the following AV functions and systems to support them:

- Audio/Video Playback – permanent loudspeaker systems with connections for playback devices (laptops, CD/media, Bluetooth, mobile devices, etc.) allow users to play pre-recorded sound. Similarly, a permanent projector and projection screen can be used to display video from a laptop or other source.
    - Infrastructure is distributed around the room that allows for more show-specific technology, such as surround or effects loudspeakers, scenic projectors, manned cameras, or a variety of other equipment.
- Performance Sound Reinforcement – With a program that ranges from spoken word to musical theater performance, the theater's sound system enables live control of multiple sources using a digital mixing console positioned at the mix position or in the control booth, with a loudspeaker system that can accommodate traditional musical theater mixing practices (i.e., a left-center-right configuration).
    - The exact loudspeaker system design is not determined yet, but the aim is to provide audiences with clear and intelligible sound that draws focus toward the action on stage and limits distraction or discomfort.
    - While existing systems at the Wyly are composed of Meyer Sound loudspeakers, other options are up for consideration for this renovation.
    - A digital mixing system with Dante connectivity allows flexibility and the opportunity to integrate with a variety of other equipment throughout the facility.
- Audio/Video Feed Transmission – Audio from a permanent room microphone (for unamplified activities) and/or the mixing console as well as video from a permanent house camera (either a default on-center overview of the stage or a camera mix created by video production staff) are fed to the dedicated back-of-house spaces, technical areas (booth, stage wings, etc.), and lobby areas.
- Two-way Communication – A wired partyline intercom facilitates communication among technical staff in the areas where they are often positioned, like the control booth and tech table position. In the stagehouse and back-of-house areas below and behind it, wireless intercom coverage allows staff to roam while staying connected.
- Assistive Listening & Active Narration – Audio from the room microphone or console is fed, by default, to a transmitter that broadcasts a signal to viewers with assistive listening devices. For events that require a live description or narration, a second transmitter can be used simultaneously to broadcast this narration over another channel.
    - There are a number of options to implement this function, with considerations related to initial investment, meaningful accommodations, and demand among the public that may drive this project toward a particular technology. Among those potential options, an Induction Loop (often shortened as "loop" or "T-coil") system is the most cost intensive, but provides to some patrons a completely transparent accessibility experience. Threshold has been directed to budget for this option while its impacts to the project are understood by the rest of the team.
    - In the vein of accessibility systems, a live caption feed can be displayed on the projection walls, provided the captions themselves are either generated live (by an operator/stenographer) or pre-programmed and synchronized/cued during a performance.
- Audio/Video Capture – Three Pan-Tilt-Zoom (PTZ) cameras with 4K resolution are positioned with views of the stage, forestage, and wings. The house camera feeds and other video content can be captured on a hard drive for archival or production purposes.

- A live production video switcher that enables seamless transitions and mixing of video content during a performance can be deployed at the booth, including two monitors that display program and preview/multiview video feeds.
- Production monitors can connect to SDI video infrastructure to allow performers to see a low-latency view of a conductor.
- Large-scale image magnification is a possibility, with live camera feeds being displayed on a projection system described later in the section.

- Audio/Video Streaming – The same audio/video feed described above can be distributed to the facility network or the internet (via a web hosting platform provided by DTC) using a streaming encoder. Alternative sources can be selected for the stream.
  - Streaming feeds will be the primary means for production staff to monitor the activities in a given space from on- or off-campus.
- Paging – Stage management and box office staff can make a live audio announcement into the lobby or back-of-house, where pages are heard through distributed ceiling or wall loudspeakers.
- Digital Signage – In the lobby and public circulation spaces, a number of distributed wall-mounted displays not only provide latecomers with a view of the stage inside the theater, but during non-showtimes they can be switched over to a roll of digital signage content created by DTC to highlight coming attractions or other promotions.
- Spatial/Immersive Audio/Video – the unique configuration of the KHT stage and forestage wings invites use of the walls as part of the dramatic scene. Along with connections as described earlier for temporary special effects loudspeakers, a series of projectors can be deployed to create a seamless or blended video canvas that stretches across the front of the room.
  - Multiple projectors and specialty processing are required to achieve this result, and ongoing maintenance of the systems will be necessary to ensure its continued function. In particular, blended projectors must have their images aligned periodically to account for small shifts that accumulate over time.
  - The intent is to serve this need with a portable set of projectors and a rolling control rack/station that can be deployed elsewhere if desired. Cable infrastructure and rigging accommodations are provided in the Kalita Humphreys.
- Temporary Infrastructure Use – While infrastructure is distributed to key technical areas and terminated at connection panels, the Theater also contains an empty pathway for cable to be pulled through in the event that there is an unanticipated need for cabling or connectivity.
- Easy Use – Particularly for presentation-oriented events with simple technical requirements, a touch screen controller mounted in the stage wing gives untrained presenters control over a limited number of wired or wireless microphones as well as the video projection system.

250-seat Proscenium Theater (incl. Control Booths, Rack Rooms, dedicated Back-of-House and Lobby)

The program for this space is expected to include the following AV functions and systems to support them:

- Audio/Video Playback – permanent loudspeaker systems with connections for playback devices (laptops, CD/media, Bluetooth, mobile devices, etc.) allow users to play pre-recorded sound. Similarly, a permanent projector and projection screen can be used to display video from a laptop or other source.
  - Infrastructure is distributed around the room that allows for more show-specific technology, such as surround or effects loudspeakers, scenic projectors, manned cameras, or a variety of other equipment.
- Performance Sound Reinforcement – With a program that ranges from spoken word to musical theater performance, the theater's sound system enables live control of multiple sources using a digital mixing console positioned at the mix position or in the control booth, with a loudspeaker system that can accommodate traditional musical theater mixing practices (i.e., a left-center-right configuration).
  - The exact loudspeaker system design is not determined yet, but the aim is to provide audiences with clear and intelligible sound that draws focus toward the action on stage and limits distraction or discomfort.
  - While existing systems at the Wyly are composed of Meyer Sound loudspeakers, other options are up for consideration for this renovation.
  - A digital mixing system with Dante connectivity allows flexibility and the opportunity to integrate with a variety of other equipment throughout the facility.
- Audio/Video Feed Transmission – Audio from a permanent room microphone (for unamplified activities) and/or the mixing console as well as video from a permanent house camera are fed to the dedicated back-of-house spaces, technical areas (booth, stage wings, etc.), and lobby areas.
- Two-way Communication – A wired partyline intercom facilitates communication among technical staff in the areas where they are often positioned, like the control booth and tech table position. In the stagehouse and back-of-house areas below and behind it, wireless intercom coverage allows staff to roam while staying connected.
- Assistive Listening & Active Narration – Audio from the room microphone or console is fed, by default, to a transmitter that can be heard with a belt pack and headphones or a t-coil enabled hearing aid. For events that require a live description or narration, a second transmitter can be used simultaneously to transmit this narration over another channel.
- Audio/Video Capture – One Pan-Tilt-Zoom (PTZ) camera with 4K resolution is positioned with a view of the stage. The house camera feed and other video content can be captured on a hard drive for archival or production purposes.
  - A live production video switcher that enables seamless transitions and mixing of video content during a performance can be deployed at the booth, including two monitors that display program and preview/multiview video feeds to switch between the house camera and additional portable cameras.
  - Production monitors can connect to SDI video infrastructure to allow performers to see a low-latency view of a conductor.
  - Large-scale image magnification is a possibility, with live camera feeds being displayed on a projection system described later in the section.
- Audio/Video Streaming – The same audio/video feed described above can be distributed to the facility network or the internet (via a web hosting platform provided by DTC) using a streaming encoder. Alternative sources can be selected for the stream.
- Streaming feeds will be the primary means for production staff to monitor the activities in a given space from on- or off-campus.
- Paging – Stage management and box office staff can make a live audio announcement into the lobby or back-of-house, where pages are heard through distributed ceiling or wall loudspeakers.
- Digital Signage – In the lobby and public circulation spaces, a number of distributed wall-mounted displays not only provide latecomers with a view of the stage inside the theater, but during non-showtimes they can be switched over to a roll of digital signage content created by DTC to highlight coming attractions or other promotions.
- Temporary Infrastructure Use – While infrastructure is distributed to key technical areas and terminated at connection panels, the Theater also contains an empty pathway for cable to be pulled through in the event that there is an unanticipated need for cabling or connectivity.
- Easy Use – Particularly for presentation-oriented events with simple technical requirements, a touch screen controller mounted in the stage wing gives untrained presenters control over a limited number of wired or wireless microphones as well as the video projection system.

100-seat Studio Theater (incl. Control Booths, Rack Rooms, dedicated Back-of-House and Lobby)

The program for this space is expected to include the following AV functions and systems to support them:

- Audio/Video Playback – Audio and video sources can be connected and played back through loudspeaker and video projection systems, which are suspended from the rigging structure overhead.
  - A single permanent projector and motorized screen is oriented to serve an audience in the End-stage seating configuration, accessible via control system.
- Performance Sound Reinforcement – A set of portable full-range loudspeakers and subwoofers serve a variety of audience configurations with high-quality live sound, controlled by a digital mixing console (running Dante) that can be deployed anywhere in the room to best suit the show's needs.

- A core set of five room configurations will be established, with each being served by some combination of permanently installed loudspeakers; essentially, a preset can be triggered to configure the audio systems to match one of these audience layouts. Any configurations outside of this set must be served by temporarily deployed equipment.

- Audio/Video Feed Transmission - Audio from a semi-permanent room microphone (for unamplified activities) and/or the mixing console as well as video from a dedicated house camera are fed to the dedicated back-of-house spaces, technical areas (booth, stage wings, etc.), and lobby areas.
- Two-way Communication – A wired partyline intercom facilitates communication among technical staff in the areas where they are often positioned, like the control booth and tech table position. In the stagehouse and back-of-house areas below and behind it, wireless intercom coverage allows staff to roam while staying connected.
- Assistive Listening & Active Narration – Audio from the room microphone or console is fed, by default, to a transmitter that can be heard with a belt pack and headphones or a t-coil enabled hearing aid. For events that require a live description or narration, a second transmitter can be used simultaneously to transmit this narration over another channel.
- Audio/Video Capture – One Pan-Tilt-Zoom (PTZ) camera with 4K resolution is positioned with a view of the stage. The house camera feed and other video content can be captured on a hard drive for archival or production purposes.
    - A live production video switcher that enables seamless transitions and mixing of video content during a performance can be deployed at the booth, including two monitors that display program and preview/multiview video feeds to switch between the house camera and additional portable cameras.
    - Production monitors can connect to SDI video infrastructure to allow performers to see a low-latency view of a conductor.
    - Large-scale image magnification is a possibility, with live camera feeds being displayed on a projection system described later in the section.
- Audio/Video Streaming – The same audio/video feed described above can be distributed to the facility network or the internet (via a web hosting platform provided by DTC) using a streaming encoder. Alternative sources can be selected for the stream.
    - Streaming feeds will be the primary means for production staff to monitor the activities in a given space from on- or off-campus.
- Paging – Stage management and box office staff can make a live audio announcement into the lobby or back-of-house, where pages are heard through distributed ceiling or wall loudspeakers.
- Digital Signage – In the lobby and public circulation spaces, a number of distributed wall-mounted displays not only provide latecomers with a view of the stage inside the theater, but during non-showtimes they can be switched over to a roll of digital signage content created by DTC to highlight coming attractions or other promotions.
- Temporary Infrastructure Use – While infrastructure is distributed to key technical areas and terminated at connection panels, the Theater also contains cable hooks/cable management in the event that there is an unanticipated need for cabling or connectivity.
- Easy Use – Particularly for presentation-oriented events with simple technical requirements, a touch screen controller mounted in the stage wing gives untrained presenters control over a limited number of wired or wireless microphones as well as the video projection system.

Shared Lobby and Event Space

The portions of the lobby that are shared between venues, as well as the large area dedicated to Event and Banquet use, are generally used with loose furniture and temporary equipment. Events in this space may be associated with a performance or other activity in the performance areas, or they may be entirely self-contained. Banquet seating for up to 300 can be accommodated.

The program for this space is expected to include the following AV functions and systems to support them:

- Audio/Video Playback
    - Installed loudspeakers are distributed throughout the lobby in zones, with one zone dedicated to the Event Space. Background music can be played into this zone using a dedicated connection for a mobile device. Additionally, portable loudspeakers and a portable mixing console can be set up and used for this same purpose.
    - Video can be played back in two ways: either an alternative source is distributed to the lobby displays (taking over from digital signage or latecomer video), or a temporary projector and folding screen are deployed and configured per event.
- Presentation Sound Reinforcement – at its most basic, a simple announcement through a wired or wireless microphone can be heard over the distributed loudspeakers. A more complicated production is possible using the mixing console and portable loudspeakers mentioned above.
- Audio/Video Feed Reception – An internal network can deliver audio and video from any of the performance spaces to the Event Space, where it can be displayed for remote viewing.
- Assistive Listening – An assistive listening transmitter that is installed in the portable mixing console rack gets deployed and can provide the local area with an FM signal to be picked up by the belt packs used throughout the building.
- Digital Signage – a number of distributed wall-mounted displays show a roll of digital signage content created by DTC to highlight coming attractions or other promotions.
- Easy Use – basic audio announcements using the dedicated wired or wireless microphone connections are controlled at a simple wall panel interface. Video systems are not accessible without trained staff.

Rehearsal Rooms (two rooms total)

The two Rehearsal Rooms replicate the playing area of the Proscenium Theater and the Studio Theater. To support the use of these spaces for rehearsals, the program is expected to include the following AV functions and systems:

Audio/Video Playback

- A wall- or grid-mounted loudspeaker system allows for music or other audio to be played back for rehearsal.
    - Video playback is supported by a permanent projector and motorized screen in each room.
    - Assistive Listening – A dedicated transmitter serves each room with assistive listening. Refer to the notes in previous sections.
- Audio/Video Streaming – A PTZ camera in the room (HD resolution) and mix of wireless microphones are transmitted to the internet (via a web hosting platform provided by DTC) using a streaming encoder. Alternative sources can be selected for the stream.
- Video Conferencing – Remote participants can call in and be heard over the loudspeakers in the room, while viewing the video stream remotely (thereby avoiding audio compression/cancellation effects that often make listening remotely difficult).

Coaching Rooms (two rooms total)

Smaller private teaching rooms provide space for solo instruction or private rehearsal. The program is expected to include the following AV functions and systems:

- Audio/Video Playback – A large-screen display on the wall, with integrated loudspeakers and a simple button control, allows users to connect a laptop or other device to display and play back audio.
- Video Conferencing – The display includes a camera and microphone to capture the local participants for a video conference, feeding a USB connection that a laptop can connect to.

Classroom (one space divisible into three separate rooms)

The classroom is a large, divisible space that in its most open configuration can seat up to 100 occupants. While it will most often be used for educational programs and rental users, it also may host Board Meetings for DTC and should be outfitted appropriately. The program is expected to include the following AV functions and systems:

- Audio/Video Playback – Each division of the room has an independent video projection system and installed loudspeakers to facilitate presentation of pre-recorded content from a laptop or portable device.
- Audio/Video Streaming – A PTZ camera in the room (HD resolution) and mix of wireless microphones are transmitted to the internet (via a web hosting platform provided by DTC) using a streaming encoder. Alternative sources can be selected for the stream.
- Video Conferencing – Remote participants can call in and be heard over the loudspeakers in the room, while viewing the video stream remotely (thereby avoiding audio compression/cancellation effects that often make listening remotely difficult).
- Room Combining – When the operable partitions are deployed or retracted, a control screen allows users to divide or separate audio/video systems to align with the room configuration.

AV Budget Estimate

The table below describes Threshold's estimate of the budget that should be held for each space. Project-wide cost estimates should carry these numbers through the design phases, with costs for other trades (electrical power and AV raceway, mechanical systems, et al.) estimated by others. Notable exclusions and inclusions are listed below:

- The estimates included here are for fully integrated, installed, tested, and commissioned systems provided by a professional AV Integrator. The figures are ROM (rough order of magnitude) numbers and do not represent precision greater than ±10%.
- The estimates assume normal work conditions/hours and are subject to market conditions.
- The estimates do not include winches, rigging, technical power and cable raceways/conduit/junction boxes, taxes, bonding, mark-ups, contingencies, inflation, or allowance for unusual contractual requirements included in the specification General Conditions. They also do not include other low-voltage systems that need to be accounted for by others including, but not necessarily limited to IT, telecom, and security systems.
- Custom furniture/millwork is not included.
- The estimates do not include architectural modifications required to accommodate AV equipment integration.
- Equipment prices are based on information available as of 2022.

AV Table 2: AV Budget		
Space Name	**Notes**	**AV Budget Estimate**
Kalita Humphreys Theater		$800,000.
Proscenium Theater		$300,000.
Studio Theater		$250,000.
Event Space		$50,000.
Rehearsal Rooms	Two rooms total	$90,000.
Coaching	Two rooms total	$20,000.
Classrooms		$275,000
	Total	**$1,785,000.**

Electrical Infrastructure Requirements for AV Systems

These are general guidelines intended to assist the electrical engineer with the design and documentation of the electrical infrastructure requirements associated with the audio & video systems. A stable, isolated, low noise power supply is a key element in the success of the final audio & video system performance. The guidelines are organized into (3) three sections:

- Clean Technical Power (CTP)
- Isolated Technical Ground (ITG)
- Audio System Raceway (ASR)

Recommended Responsibility

The following matrix delineates Threshold's recommended responsibility for various elements of the AV systems infrastructure, presented here for review and coordination. "Furnished By" means that the noted party will be responsible for procuring the necessary components and parts, which will be transferred (if necessary) to the party noted under the "Installed By" heading.

Note: "&" indicates that AV contractor must provide installation criteria and oversight during execution.

AV Table 3: Responsibility Matrix

Scope Item	Furnished by			Installed by		
	G.C.	E.C.	AV	G.C.	E.C.	AV
Main Power Service Panel Boards and Circuit Breakers		X			X	
Main Power Service Conduit and Conductors		X			X	
Main Power Service Terminations					X	
Clean Technical Power (CTP) Transformers		X			X	
Transformer Conduit and Conductors		X			X	
Transformer Terminations					X	
CTP Isolated Ground Conduit and Conductors		X			X	
Isolated Ground Terminators					&	
CTP Distribution Panel Boards and Circuit Breakers		X			X	
Distribution Panel Board Conduit and Conductors		X			X	
Distribution Panel Board Terminations					X	
CTP Standard Load Centers and Circuit Breakers		X			X	
Standard Load Center Conduit and Conductors		X			X	
Standard Load Center Terminations					X	
CTP Custom Sequencing Panel Boards and Circuit Breakers		X			X	
Custom Sequencing Panel Board Conduit and Conductors		X			X	
Custom Sequencing Panel Board Terminations					&	
CTP Company Switches		X			X	
Company Switch Conduit and Conductors		X			X	
Company Switch Terminations					X	
CTP Outlet Devices for Branch Circuits delivered to AV Systems Equipment Racks			X			X
Outlet Device Back Boxes		X			X	
Outlet Device Wall Plates		X			X	
Branch Circuit Conduit and Conductors		X			X	
Branch Circuit Termination					X	

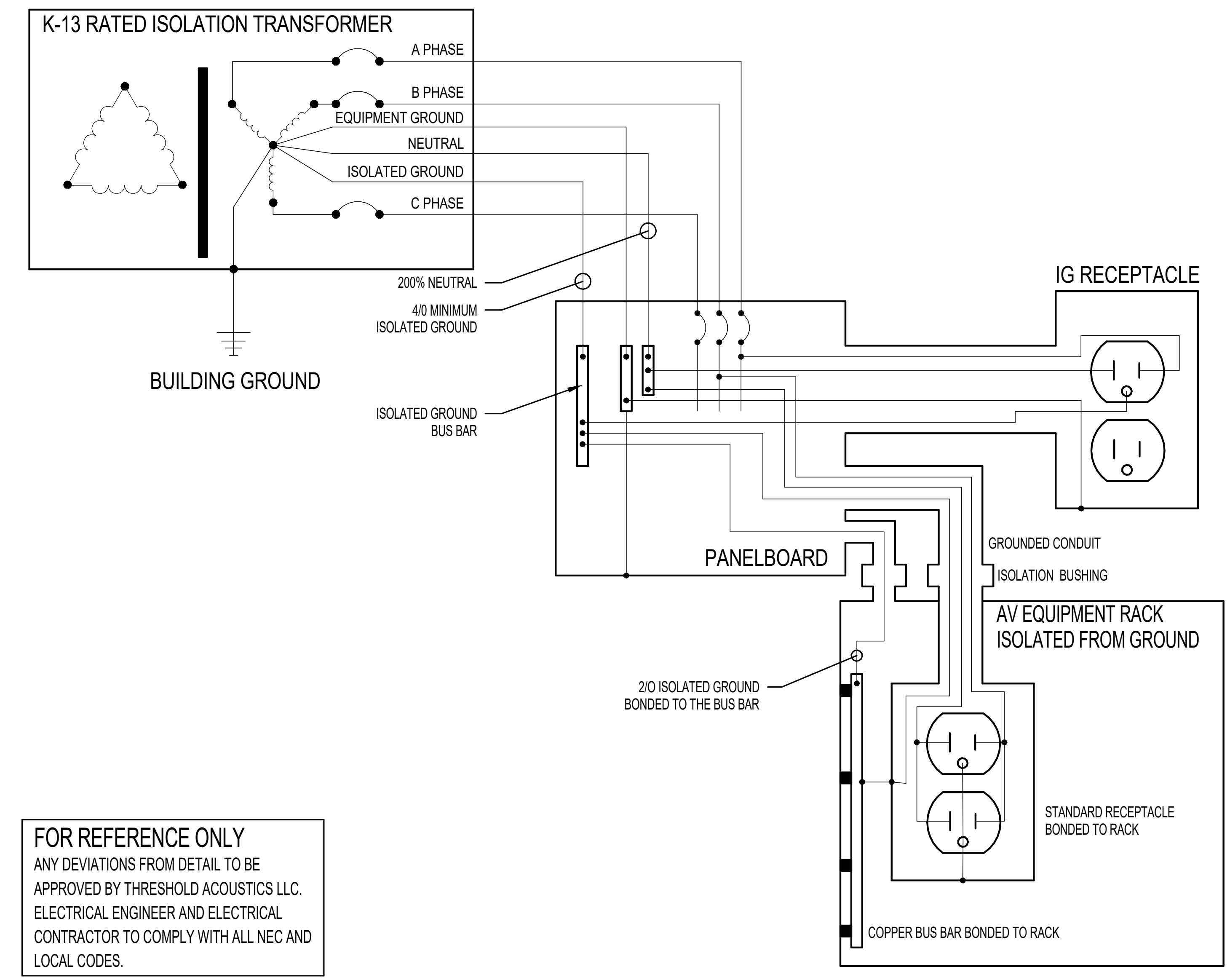
AV Table 3 Continued: Responsibility Matrix

Scope Item	Furnished by			Installed by		
	G.C.	E.C.	AV	G.C.	E.C.	AV
AV Systems Equipment Racks and Devices			X			X
Metallic Conduit between AV Devices		X			&	
Conduit Insulation Bushings between Metallic Conduit and AV Equipment Racks		X			&	
AV Equipment Rack Cabling			X			X
AV Equipment Rack Terminations			X			X
AV Device Back Boxes and Floor Boxes		X			&	
AV Device Metallic Conduit		X			&	
AV Device Cabling			X			X
AV Device Termination			X			X
Standard Floor Box Lids		X			X	
Custom Floor Box Lids	X			X		
Empty Conduit (For Temporary Use)		X			X	
AV Systems Raceway		X			&	
AV Systems Cable Tray		X			X	
AV Systems Cable Sleeves		X			X	
AV Systems Pull Boxes		X			X	
AV Conduit Riser Diagram		X				

Clean Technical Power

The following items outline the general requirements associated with delivering a clean and stable power source for the audio & video systems (See Figure 1):

- The Audio & Video Systems require its own K-rated Isolation Transformer. The transformer must be shielded for common mode noise attenuation, attenuate triplen harmonic currents from the line, have oversized neutrals, and have a minimum of a K13 rating.
- All Audio & Video System CTP devices (outlets, circuits, panelboards, company switches, etc.) must be fed from the Audio & Video System's CTP Isolation Transformer.
- Only Audio & Video System CTP devices may be fed from the CTP system (no exceptions).
- Only those circuits and outlets identified as Audio & Video System CTP may be connected to the CTP panelboard.
- All Audio & Video System CTP outlets require a separate 20-amp circuit breaker and cannot be combined with additional CTP outlets.
- Each Audio & Video System CTP circuit requires its own neutral conductor home run to the CTP panel board.
- Each Audio & Video System CTP circuit requires its own isolated ground conductor home run to the CTP panel board.
- Wire sizes of branch circuit conductors shall be 10 AWG for hot and neutral conductors and 8 AWG for the isolated ground (equipment ground is to be sized according to code).
- Each CTP receptacle requires an orange-colored isolated ground outlet.
- All conductors terminating at duplex receptacles require crimped spade lugs. Spade lugs must be secured under the mounting screws. No push-in connections are allowed.
- All Audio & Video System CTP circuits must run in conduit separate from all non-CTP circuits.



AV Figure 1
Clean Technical Power isolated ground typical wiring and distribution

AV Table 4: Loads
The following table outlines the estimated Audio & Video System electrical power loads and their typical locations: (Exact device locations will be shown on the Audio & Video System Device Location Drawings during the Design Development Phase). These load estimates will be revised as the design progresses.

Load Location	Load Type	Device	QTY	Est Connected Load	Total Est Connected Load	Notes
Kalita Humphreys – Amplifier Rack Room	AV Equipment	20A Circuit	8	1500	12000	
Kalita Humphreys – Control Room / Mix Position	AV Control Equipment	20A	2	1500	1500	50% diversity
Kalita Humphreys	Main Projector	NEMA L6-30R	1	2000	2000	
Kalita Humphreys	Portable AV Equipment	20A	8	600	4800	
Kalita Humphreys	Scenic Projectors	NEMA L6-30R	4	1600	6400	
Proscenium Theater – Amplifier Rack Room	AV Equipment	20A Circuit	6	1500	9000	
Proscenium Theater – Control Room / Mix Position	AV Control Equipment	20A	1	1500	1500	
Proscenium Theater	Main Projector	NEMA L6-30R	1	2000	2000	
Proscenium Theater	Portable AV Equipment	20A	8	500	4000	
Studio Theater – Amplifier Rack Room	AV Equipment	20A Circuit	6	1500	9000	
Studio Theater – Control Room / Mix Position	AV Control Equipment	20A	1	1500	1500	
Studio Theater	Main Projector	NEMA L6-30R	1	2000	2000	
Studio Theater	Portable AV Equipment	20A	8	500	4000	
Lobby/Event Space	AV Equipment	20A	4	1200	4800	
Rehearsal Rooms	Main Projector	20A	2	1400	2800	
Rehearsal Rooms	Portable AV Equipment	20A	4	1500	6000	
Coaching Rooms	Display	20A	2	500	1000	
Classroom	AV Rack Equipment	20A Circuit	4	1500	4500	
Classroom	Main Projector	20A	3	1400	4200	
				Total W	**83000**	**Estimated Connected Load**

AV Table 5: Devices
The following tables list the major Audio & Video CTP devices and their requirements:

Device	Location	Supply Size/ Configuration	Notes
Isolation Transformer	Main Electrical Room	120/208 volt 3-phase, 5 wire with double neutrals, equipment ground and ITG.	Acceptable Manufacturers: Controlled Power Company Series Ultra-K, Square D – NLP series
Distribution Panel	Main Electrical Room	120/208 volt 3-phase, 5 wire with double neutrals, equipment ground and ITG.	Acceptable Manufacturers: Square D – ILINE series
Panelboards	Equipment Rack Room	120/208 volt 3-phase, 5 wire with double neutrals, equipment ground and ITG.	Acceptable Manufacturer: Square D – NOQD series
Company Switch	Stage Wing	200 Amp safety switch, 120/208 volt 3-phase, 5 wire with equipment ground and ITG.	Acceptable Manufacturer: LexProducts or Union Connector

Grounding

The Audio & Video systems require an Isolated Technical Ground System (ITG). This ITG is in addition to the building's other grounding systems (building, safety, or equipment). The term "Equipment Ground" is used in this document and refers to the building's safety ground system. The Equipment Ground is installed as it would be in any other non-audio/video system with the exception that it does not connect to any "Audio/Video" equipment, equipment racks, outlets, or terminals. The ITG is entirely separate from the Equipment Ground and provides a totally isolated ground path from all audio & video clean power devices and the ITG source. The ITG source is typically the Isolation Transformer where the master technical ground connects to the neutral bus, equipment bonding jumper and ground electrode system. The ITG must remain isolated from building ground except at this point. The purpose of ITG system is to provide a stable reference for audio & video circuits, minimizing the introduction of noise into the audio & video systems. The following items outline the general requirements associated with delivering an isolated technical ground for the audio & video systems (see Figure 1):

- All Audio & Video System equipment racks must be electrically isolated from the Building's Equipment Ground.
- Each Audio & Video System equipment rack requires an isolated #2/0 AWG grounding conductor to the Audio & Video Systems CTP panelboard.
- Each Audio & Video System CTP panelboard must have its own ITG junction box.
- Each Audio & Video System CTP panelboard requires a minimum #4/0 AWG from its ITG buss to the distribution panel/isolation transformer.
- All Audio & Video System CTP conduits shall be bonded to the distribution panel board, company switches, panelboards, receptacle boxes and outlet boxes as part of the equipment grounding system.
- The Audio & Video System CTP conduit shall not be connected to the ITG system.
- Each CTP branch circuit requires its own #8 AWG isolated ground conductor home run to the Audio & Video Systems CTP panel board (the equipment ground is to be sized according to code).
- The Electrical Engineer must review these recommended guidelines and the typical wiring shown in Figure 1 for compliance with all code and safety requirements.

AUDIO & VIDEO RACEWAY SYSTEM

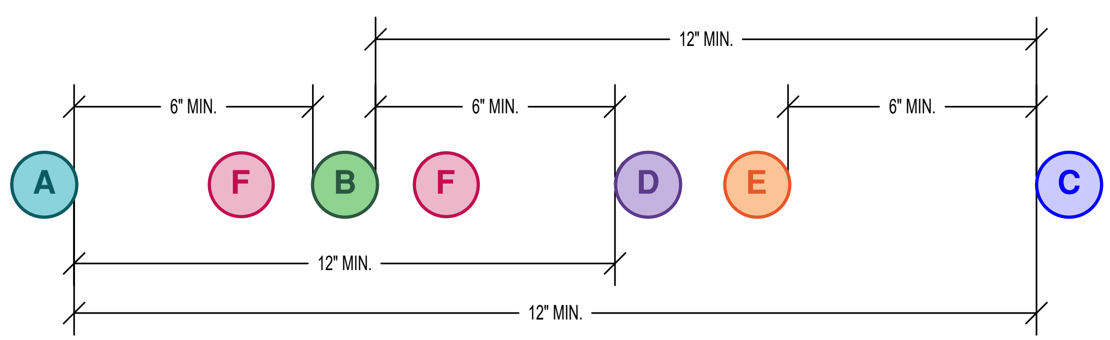
All the Audio & Video System cabling must be housed in a continuously grounded ferrous metallic Audio & Video System Raceway. PVC conduit is not acceptable. The raceway system serving the Audio & Video Systems must be designed with regard to Group Divisions, Routing & Separation, and Sizing.

Group Divisions

The audio & video systems have a wide range of signal levels and require that cable of different signal levels be installed in different conduits. The following table defines and describes these groups.

AV Table 6: AV Raceway Grouping Divisions

Group	Description	Level	Bandwidth
A	Microphone level audio circuits	below –30 dBu	20 Hz to 20 kHz
B	Line level audio circuits, Communication Circuits (Intercom)	-30 dBu to +24 dBu	20 Hz to 20 kHz
C	Speaker level audio circuits, including low impedance types and high impedance types (70 volt).	Greater than +24 dBu	20 Hz to 20 kHz
D	Control Circuits Data Circuits	0-28 Volt into <50kOhms 2 Volt peak-to-peak into 100 Ohms	-- 0Hz to 100 MHz
E	Video	1 Volt peak-to-peak into 75 Ohms	0 Hz to 10 MHz
F	Fiber Optic Circuits	50/125 Micrometer OM3/OM4	500-3500 MHz-km @ 850 nm



AV Figure 2
Generic AV system raceway conduit seperation example

Routing & Separation

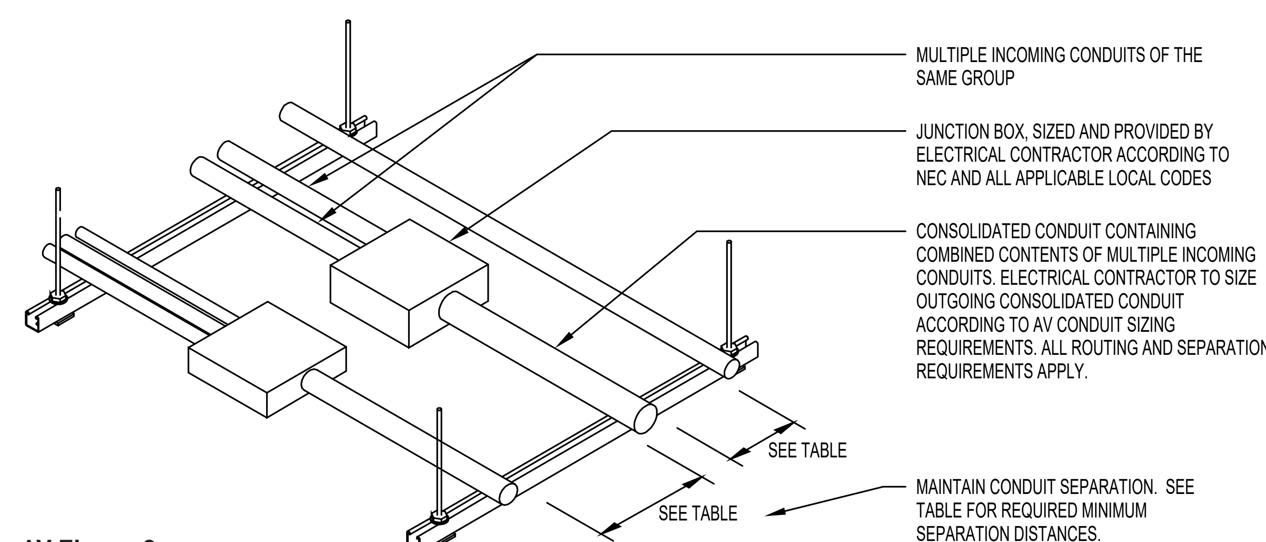
Audio & Video system raceways should not be indiscriminately routed through a facility. Even when enclosed in continuously grounded ferrous metallic conduit system, audio & video circuits are still susceptible to electrical noise and require specific conduit separations from other groupings and services to minimize these interferences. The following table defines the required minimum separations between the Group Divisions utilizing EMT conduit.

AV Table 7: Minimum separations between the Group Divisions utilizing EMT conduit.

Group	A	B	C	D	E	F
A	Adjacent	6 inches	12 inches	12 inches	12 inches	Adjacent
B	--	Adjacent	12 inches	6 inches	6 inches	Adjacent
C	--	--	Adjacent	6 inches	6 inches	Adjacent
D	--	--	--	Adjacent	Adjacent	Adjacent
E	--	--	--	Adjacent	Adjacent	Adjacent
F	--	--	--	--	--	Adjacent
Electronic Dimmer Controlled Lighting, Switched Power Sources & High Current Sources	36 inches	12 inches	6 inches	12 inches	12 inches	Adjacent
Convenience Outlet Power Service	12 inches	6 inches	Adjacent	6 inches	6 inches	Adjacent
All Other Power Services	24 inches	12 inches	6 inches	12 inches	12 inches	Adjacent

Notes:

- Unusually heavy current sources (100 Amps or greater) or long parallel runs (greater than 10 feet) with the power services may dictate greater separations to avoid interference with the audio system.
- Ninety-degree crossings in close proximity are acceptable between groups A through F



AV Figure 3
Example of consolidation of multiple conduits of the same group

Conduit Sizing

The sizing of the conduit will be based on the NEC standard of 40% fill, which applies to three or more non-lead covered cable, installed in the same conduit. The following list outlines the Audio & Video Raceway System's general requirements:

- The minimum conduit size allowed is ¾ inch
- Pull boxes must be dedicated to a given conduit/cable group
- There can be no more than four 90-degree bends in a given run between pull boxes.

The following steps are used to determine the conduit size for a particular run of audio cable:
Square the O.D. of each cable and total the results (refer to the cable manufacturer specifications).

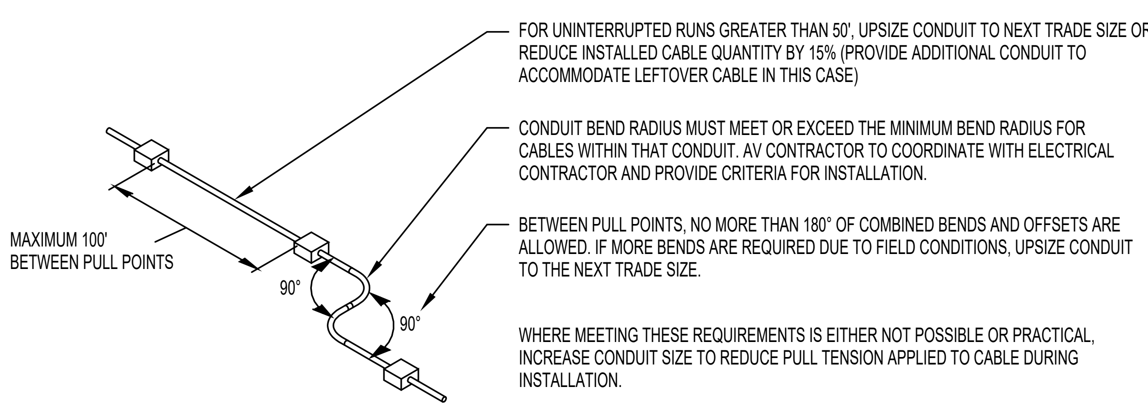
- Multiple the total by the factor listed in the table below.
- Find the permissible area of the conduit type used that is equal to or greater than the total area calculated in steps 1 & 2. (Reference NEC 1999 Chapter 9 for permissible area of various conduit types and sizes).

AV Table 8: Conduit Sizing

No. of Conductors	% of Cross Section of Conduit allowed for Conductors	Factor
1	53	.5927
2	31	1.0134
3 or more	40	.7854

Notes:

- For conduit runs of 50 to 100 feet the installed number should be reduced by 15% or the next larger size of conduit should be used.
- If more than 180-degrees of bends and offsets are to be used in a conduit run or if the run exceeds 100 feet a pull box should be inserted.



AV Figure 4
Raceway must include adequate pull points and limit total bends between them to accommodate installation of cable.

HVAC Infrastructure Requirements for AV Systems

The Audio & Video System equipment is sensitive to high temperature and humidity, requires 24-hour environmental control and necessitates a separate air handling system or zone. The rooms containing audio & video equipment racks must be maintained at an ambient temperature between 50- and 80-degrees Fahrenheit, and a relative humidity not to exceed 60%.

TABLE 9: AV EQUIPMENT HEAT LOADS
The following are the anticipated average heat loads for the AV equipment during typical use.

Load Type	QTY	Est. BTU/hr	Total Est. BTU/hr	Notes
Kalita Humphreys Rack Room	1	8000	8000	
Kalita Humphreys Main Projector	1	5500	5500	
Kalita Humphreys Scenic Projectors	4	4000	16000	
Proscenium Theater Rack Room	1	6000	6000	
Proscenium Theater Main Projector	1	4000	4000	
Studio Theater Rack Room	1	6000	6000	
Studio Theater Main Projector	1	4000	4000	
Rehearsal Room Projector	2	4000	8000	
Classroom Projector	3	4000	12000	

Notes:

- The projected heat loads do not include normal requirements for lighting or personnel.
- These estimates will be revised as the design progresses.

Diller Scofidio + Renfro New York, NY	Fisher Dachs Associates New York, NY	Threshold Acoustics LLC Chicago, IL	Reed Hilderbrand LLC Cambridge, MA	Harboe Architects Chicago, IL	Silman Engineering New York, NY	BOKAPowell Dallas, TX	Syska Hennessy Group Los Angeles, CA	Pacheco Koch Dallas, TX

MECHANICAL, ELECTRICAL, PLUMBING

I. Mechanical Systems

A. General

The intent of this Mechanical, Electrical, Plumbing and Fire Protection (MEPFP) Narrative for the Kalita Humphreys Theater Development, located at 3636 Turtle Creek Blvd in Dallas, Texas, is to define the performance requirements for MEPFP systems and support the Architectural master planning of the Development. This Narrative can be used as a base line by the Design-Build sub-contractors who will develop the design and be the Engineer -of- Record (EOR).

Refer to the Architectural, Structural, Acoustical, Civil, Integrator and all other disciplines for all MEPFP Requirements, Spatial requirements and additional intent that must be adhere to in developing the MEPFP Design.

The Kalita Humphreys Development will have new heating, ventilation, and air conditioning (HVAC) systems. The new HVAC systems will be designed to meet all project requirements in compliance with all State and City Codes.

Several HVAC options were evaluated and considering the nature of the project, acoustical and overall design planning, the team elected to pursue a 4-pipe central cooling and heating plant that will serve the entire development as indicated on the Architectural Concept plans and renderings. Please refer to Architectural Plans for proposed location of cooling Towers, Boilers, chillers and other HVAC Equipment.

The cooling heating and ventilation to various spaces will be provided via custom or semi-custom air handling units that will be located indoor in mechanical rooms or other designated areas/spaces s directed and planned by the Architect.

The MEP Design must employ sustainable and green code design strategies in accordance with the City of Dallas and the State of Texas, including decarbonization and electrification. HVAC strategies including underfloor distributing for the Theater, displacement, radiant cooling and heating slabs.

The LEED Certification level for this project is yet to be determined.

B. Design Criteria

1. Codes and Standards

C. The HVAC systems shall be designed to conform as a minimum, with the following latest codes and standards as adopted by the State and City at time of permitting

1. International Mechanical Code.
2. International Plumbing Code.
3. International Building Code.
4. The National Electrical Code (NEC).
5. State of Texas Codes and Standards.
6. Americans with Disabilities Act (A.D.A)
7. The following standards:
    a. American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE).
    b. American National Standards Institute (ANSI).
    c. National Fire Protection Association (NFPA).
    d. Underwriters' Laboratories, Inc. Listing Service (U.L.).
    e. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
    f. American Society of Testing and Materials (ASTM).
    g. Occupational Safety & Health Act (OSHA).
    h. Environmental Protection Agency (EPA).
8. Climatic Design Conditions
    a. Summer: 101.6°F DB, 76.1°F MCWB (ASHRAE 0.4% cooling design)
    b. Winter: 24.7°F DB (ASHRAE 99.6% heating design)
9. Indoor Design Temperatures

Space Type	Cooling Temp	Heating Temp	Ventilation
Occupied Areas	72 ± 2°F	68 ± 2°F	All occupied spaces ventilated per code and LEED requirements
Lobbies and Circulation Areas	74 ± 2°F	68 ± 2°F	All enclosed spaces ventilated per code and LEED requirements
IT/Electrical/Sound Equipment Rooms	78°F ± 2°F unless equipment vendor specifies otherwise	None	None
Elevator Machine	80°F ± 2°F	None	None

Rooms	unless code specifies otherwise		

10. Ventilation Rates

a. All occupied areas: Per Code, ASHRAE and LEED requirements. The most stringent shall govern.

b. Restrooms: Minimum of 10 air changes per hour or 120 CFM/fixture, whichever is larger.

c. Storage Rooms: 0.15 CFM minimum unless 100% outside air is required based on storage and commodities.

i. Janitor's closets: 6 air changes per hour.

ii. Electrical rooms that do not house transformers.

d. For public spaces, demand control ventilation will be provided.

11. Occupancy Schedules

Operating hours of the building are expected to vary considerably on a day-to-day, week-to-week basis. Rooms and areas expected to vary significantly from those different functional spaces nearby will be served by a system that can be programmed or controlled to accommodate its schedule.

12. Occupancy HVAC Loads

The design occupancy loads are used to determine outside air ventilation requirements and heat generated by occupants (i.e., cooling load). The values are based on code requirements unless more stringent design values are used for the project.

It is anticipated that occupancy densities may exceed the design values listed for short periods of time, but sustained periods of excess capacity are not accounted for with design or code requirements.

Space Type	Occupancy Density (people/1000 sf)	Occupant Sensible Load (btu/h/per)	Occupant Latent Load (btu/h/per)
Auditorium/Theater Seating	As per the Architectural layouts or the fire safety plans, whichever is greater	245	105
Stage		250	250
Black Box		250	250
Multi-Purpose Hall		245	155
Rehearsal		250	250
Restaurant		275	275
Lobby		250	200
Office Area		245	155
Other	10 (or as required by code)	as appropriate	as appropriate
Notes: Based on 2018 IMC, ASHRAE 62.1.			

13. Lighting and Equipment Loads

The design internal loads include heat added to conditioned spaces by lighting, electric receptacles, or other process loads as applicable. The rates are based on design targets, specific design layouts, or industry standard values.

Note that lighting design & receptacle wattages below are for HVAC load estimates only. These will be coordinated with actual lighting design and power requirements as the design progresses.

Space Type	Lighting (w/sf)	Equipment (w/sf)	Other Process (w/sf)
Auditorium/Theater Seating	Actual watts provided by lighting consultant	Actual watts provided by Theater Consultant	N/A
Stage	Actual watts provided by lighting consultant		N/A
Black Box	Actual watts provided by lighting consultant		N/A
Multi-Purpose Hall	Actual watts provided by lighting consultant		N/A
Rehearsal	Actual watts provided by lighting consultant		N/A
Follow Spot / Control Room	1.1		N/A
Back of House area	1.1	1.0	N/A
Lobby	1.3	1.2	N/A
Office	1.1	1.5	N/A
Other	1.0	0.5	N/A

14. Outside Air Ventilation

All enclosed spaces shall be ventilated per code to maintain healthy indoor air quality during all operating hours. Ventilation rates will be in accordance with all applicable code requirements: IMC, ASHRAE Standard 62.1 or LEED requirements, whichever is more stringent.

Demand control ventilation (DCV) is an energy efficiency measure used in high occupancy spaces that monitors indoor air quality and provides specific ventilation airflows as necessary to maintain healthy and comfortable conditions. The strategy conserves a significant amount of energy when spaces are occupied at less than peak rates.

Exhaust ventilation will be provided for restrooms, toilets, janitors' closets in accordance with code.

15. Acoustical Considerations

a. Please refer to Acoustical consultant report for Acoustical Requirements that must be complied with.

b. The HVAC systems will be designed in conformance with the guidelines established and provided by the Acoustical Consultant to maintain the required NC levels of each space.

c. Sound attenuators, duct liners and acoustical duct wraps will be added as recommended by the Acoustical Consultant's design review.

d. Design air velocities will be based on the acoustical consultant's guidelines.

e. All pipework, ductwork and equipment serving acoustically sensitive areas will be provided with vibration isolation as specified by the Acoustical Consultant.

16. Building Envelope Loads

a. The building envelope will be designed to minimize heat transfer and, hence, heating and cooling loads. The result is reduced capacity of installed heating and cooling equipment and energy savings throughout the year.

b. The thermal properties (i.e., U-values and SHGC) of walls and glazing will be, as a minimum, in conformance with the requirements of the International Energy Code and the Local energy Codes.

17. Energy Conversation / Sustainability Design

a. The design of efficient HVAC systems and reducing the building energy consumption below that of ASHRAE Standard 90.1 is part of the requirements of this project. The following are proposed measures that will contribute to this goal and will be included in the design:

D. Outside air economizer: All the air handling units will be provided with 100% outside air economizers, permitting "free cooling" when outside air conditions are appropriate.

E. Building Energy Management System: The control system will be Direct Digital Control (DDC) with electrical controllers and electric actuators. This is a computer-based control and automation system for the temperature control of the HVAC equipment and for energy optimized operation of mechanical systems for the building. The Building Management System will also control the interface with the lighting, security, and life safety systems.

F. Carbon Dioxide Sensing: A carbon dioxide sensing system will be utilized in each high occupancy area. This system will control the outside air volumes brought to spaces to maintain carbon dioxide concentrations below mandated levels.

G. Variable Speed Drives (VFD's):

1. Variable speed drives will be used on the pumps serving the condenser water system and the building main chilled water system to reduce pump energy costs during periods of low cooling demand.

2. The heating hot water pumps will use VFD's to adjust the hot water flow rates as demand dictates and in conjunction with the staging of boilers.

3. All air handling units will be equipped with VFD's on both supply and return fans.

a. Pipe and duct insulation minimum thicknesses will be designed to exceed the Code minimum requirements.

b. The building envelope thermal insulation will exceed the Code/ASHRAE minimum requirements.

c. Fenestration: Insulated, Low-E solar heat gain coefficient (SHGC) glazing, and internal blinds and/or external sun control or shades will be considered as part of the design.

d. Premium efficient motors will be provided for equipment.

e. For all AHUs, reduced coil face velocity design for low air pressure drop to save fan horsepower all year.

f. Displacement Ventilation: The auditorium and existing theater will use a displacement ventilation system with higher temperature supply air delivered from floor mounted diffusers located under the occupant seats.

g. Ventilation heat recovery: Thermal wheel will be provided in all AHUs to recover heat from the return air and exhaust air.

h. A heat recovery chiller: a heat recovery chiller will be included as part of the refrigeration plant that will simultaneously provide heating and cooling. Heating hot water will be utilized to heat domestic water and for space heating.

i. Provide air filtration media for all the air handling units that have a Minimum Efficiency Reporting Value (MERV) of 13 or better. Provide also activated carbon air filters for a better indoor air quality because of the proximity to roads.

j. An independent commissioning Agent will be hired to perform commissioning services.

k. Provide fundamental and enhanced commissioning services including design review of 50% CD documents, develop & implement construction document plan, review of submittals, training of operations staff and 10-month post occupancy review.

H. Central Plant

1. This new building will have a new, stand-alone central plant to serve the heating and cooling needs of the project. The cooling will be provided will be provided by a roof-mounted cooling tower and water-cooled chillers. The heating will be provided by a HRC and high-efficiency electric boilers.

2. Cooling Plant

a. The central cooling plant will consist of one air-cooled closed-circuit cooling tower, condenser water circulating pumps, one water-cooled chiller, one water-cooled heat recovery chiller (HRC), chilled water circulating pumps and the associated controls and distribution piping throughout the building.

b. The heat recovery chiller (HRC) will be designed to provide variable simultaneous heating and cooling. The HRC will be sized to provide around 30-35% of the peak heating load (space and domestic hot water) when it is in heating mode. All necessary accessories will also be provided to get a fully operational system, such as a plate heat exchanger (between the condenser water and the chiller), control valves, dedicated pumps to maintain pressure differential across the evaporator…etc.

c. Chilled water temperatures: 42°F / 56°F.

d. The cooling towers will be located on the roof of the rehearsal/classroom building. The chillers will be in the basement in a dedicated room.

e. Two condenser pumps will be in the chiller room in the basement/Parking Garage under the Multi-Purpose Hall. The pumps configuration is duty/standby.

f. Two chilled water pumps will be in the chiller room in the basement/Parking Garage under the Multi-purpose Hall. The pumps configuration is duty/standby.

g. Cooling tower will be provided with variable speed premium efficiency motors and corrosion resistant basin. It will also be provided with the following:

i. Basin heater

ii. A liquid-solids separation system for the basin filtration

iii. Chemical water treatment

3. The chilled water system will be provided with chemical water treatment as well as dirt/air separator, expansion tank and all associated controls to achieve the design parameters.

4. Heating Plant

a. The heating plant will consist of one heat recovery chiller and two high efficiency hot water electric boilers. The HRC is the primary heating source. Boilers shall be low NOx meeting EPA Requirements

b. The heating system will provide hot water for the air handling units and VAV boxes and the domestic hot water heat exchangers.

c. Heating hot water temperatures: 140°F / 100°F.

d. Each boiler will be sized to provide 50% of the heating load.

e. Two heating water pumps will be located in the boilers room in the basement. The pumps configuration is duty/standby.

f. The heating hot water system will be provided with chemical water treatment as well as dirt/air separator, expansion tank and all associated controls to achieve the design parameters.

I. Air Systems Overview

1. General

a. Supply air delivered to the spaces will be based on either space thermal requirements or ventilation air requirements, whichever is larger.

b. Air handling units will be installed either in the basement or on the roof of Level 3. As an energy efficient measure, all air handling units will be provided with variable speed drives. The location of rooftop units will be coordinated with the building's architecture and the acoustical consultant to eliminate any noise transmission to the noise critical spaces. The units will also be functionally located for accessing fresh air supply for the building. All equipment will be suitably isolated to preclude noise transmission to adjacent occupied areas.

c. The air handling units will be custom or semi-custom, with double wall enclosures with the following components:

i. Supply and return air fans.

ii. Filter bank, including pre-filter, final filter and carbon filter.

iii. Hot water heating coils.

iv. Chilled water coils.

v. 100% economizer section.

vi. CO2 demand control.

vii. Heat recovery (thermal wheel or air-to-air heat exchanger within the unit)

viii. Units will be fully internally vibration isolated or be provided with vibration isolator curbs to reduce the noise transmission.

2. New Auditorium – Seating Area

a. The seating area will be served by one AHU that will be located in a mechanical room in the basement/Parking Garage.

b. Air distribution:

i. Main Seating Area

1) Conditioned air will be supplied to the air plenum under the seats via ductwork. Air will be supplied to the space through displacement diffusers under the seats.

2) Air will be returned at high level from the back of the theater. The free area of the return air opening will be sized using an air velocity less than 200 FPM (to be verified by the Acoustics Consultant).

ii. Balcony

1) Conditioned air will be supplied to the air plenum under the seats via ductwork. Air will be supplied to the space through displacement diffusers under the seats. For the areas where the seats are not fixed (movable – on both wings of each balcony), the air will be supplied via side wall diffusers at low level.

2) Air will be returned at high level from the back of the theater. The free area of the return air opening will be sized using an air velocity less than 200 FPM (to be verified by the Acoustics Consultant).

iii. Multiple sensors (thermostats, humidistats, and CO2 sensors) will be provided. A minimum of two of each sensor and take average readings for controlling temperature, space humidity and outside air quantity. Locations of various sensors will be coordinated with the Architect.

iv. For each AHU, the sequence of operation will include a dehumidification mode and a 100% air economizer. The dehumidification will be achieved by sub cooling the mixed air and then heat it to the required temperature to maintain the space set point temperature.

v. The supply air temperature (to space): 65-68°F (cooling) and 68-72°F.

3. Auditorium – Stage Area

a. The Stage spaces will be served by one AHU that will be located in a mechanical room in the basement/Parking Garage.

b. Conditioned air will be supplied to the space at high level on both sides of the Stage.

c. Air will be returned to the AHU at low level at the back wall of the Stage.

4. Main Lobby

a. The Main Lobby will be served by an AHU that will be located in a mechanical room in the basement/Parking Garage.

b. Conditioned air will be supplied to the space at high level. The supply diffuser will be selected with high throw to suite the height of the space.

5. Black Box

a. The Black Box will be served by an AHU that will be located in a mechanical room in the basement/Parking Garage.

b. Conditioned air will be supplied to the space at high level and will be returned to the AHU via grilles at low level.

6. Back of House and Ancillary Spaces

a. The Back of house areas and other ancillary spaces (i.e., dressing rooms, green rooms, coaching studios, offices, music library…etc.) will be served by a variable air volume system; one AHU and variable air volume (VAV) boxes.

b. Air will be supplied to various zones via VAV boxes complete re-heat coils. Re-heat coils will a minimum of two rows.

c. Air will be supplied via ceiling diffusers and will be returned via ceiling grilles and ceiling plenum.

d. Piano Storage: Humidification will be required for the Piano Storage room located in the basement. Wall-mounted electric canister type of humidifier will be utilized to maintain the desired humidity levels in the space.

7. Rehearsal / Classroom Building

8. The Rehearsal room will be served by a separate dedicated AHU that will be located on the roof.

a. Conditioned air will be supplied to the space at high level.

b. Air will be returned to the AHU via ducted ceiling return grilles.

9. Restaurant

10. The Restaurant will be served by a separate dedicated AHU that will be located in the basement/Parking Garage.

a. Conditioned air will be supplied to the space at high level and returned to the AHU via ducted ceiling return grilles. Part of the supply air will be used as make-up air to the kitchen.

b. For the kitchen (if included):

i. Grease exhaust duct and a fan will be provided to serve the cooking hood in kitchen. Horizontal length of grease exhaust duct will generally be no longer than 75 feet and will be provided with proper slope and fire protection system. Make-up air will also be provided to the kitchen from the adjacent restaurant space.

ii. Electrostatic pollution-control unit will be provided to serve the kitchen to remove grease and odor prior to discharging to outside.

11. Existing Theater Building

a. Theater and Stage:

i. The seating area and the Stage will be served by one AHU (or two smaller AHUs) that will be located in the mechanical room in the basement.

ii. Conditioned air will be supplied to the air plenum under the seats via ductwork. Air will be supplied to the space through displacement diffusers under the seats.

iii. Air will be returned at high level from both sides of the seating area. The free area of the return air openings will be sized using an air velocity less than 200 FPM (to be verified by the Acoustics Consultant).

iv. Multiple sensors (thermostats, humidistats, and CO2 sensors) will be provided. A minimum of two of each sensor and take average readings for controlling temperature, space humidity and outside air quantity. Locations of sensors will be coordinated with the Architect.

v. For each AHU, the sequence of operation will include a dehumidification mode and a 100% air economizer. The dehumidification will be achieved by sub cooling the mixed air and then heat it to the required temperature to maintain the space set point temperature.

vi. The supply air temperature (to space): 65-68°F (cooling) and 68-72°F.

1) Lobby, Back of House and Ancillary Spaces:

vii. The Lobby, BOH and Ancillary Spaces will be served by the following systems:

1) 4-pipe fan coil units (FCU) to provide space cooling and heating. The FCUs will be located above ceiling and ducted.

2) A dedicated outdoor air supply (DOAS) unit to provide the outdoor ventilation requirements as per Code. The unit will be located in the new basement/Parking Garage.

12. Multi-Purpose Hall

a. The Multi-Purpose Hall will be served by a separate dedicated AHU that will be located in a mechanical room in the basement/Parking Garage.

i. Conditioned air will be supplied to the space at high level.

ii. Air will be returned to the AHU via ducted ceiling return grilles.

13. Parking Garage

a. The parking garage ventilation is a push-pull ventilation system.

b. Provide ventilation at the rate of 0.75 CFM/sq. ft. The exact ventilation rate for smoke control will be as per the Code Consultant's Smoke Control Rational Analysis.

c. The parking garage will be provided with and exhaust fan(s) discharging air to outside at, a minimum, ten feet above grade and not within ten feet of any building openings. The make-up air will be provided by dedicated supply fans and the entrance ramp. All fans will be complete with VFDs. The fans will be UL listed for smoke control application.

d. Carbon monoxide sensors will be provided to monitor the garage air quality and control variable speed fans.

e. The exhaust fans and the associated make-up air fans will be running continuously at low speed in normal conditions to provide general ventilation and circulate air within the parking garage. The speed of fans will be increased as necessary in response to increased carbon monoxide levels in the ambient air as detected by the carbon monoxide monitoring system.

J. Split Unit Air Conditioning Systems

1. The following areas/spaces will be served by individual split-unit air conditioning systems (air-cooled outdoor unit + indoor unit):

a. Electrical rooms containing transformer(s)

b. Telephone equipment rooms

c. IT rooms

d. AV rack room

e. Elevator machine rooms

K. CHW Fan Coil Units

1. The following areas/spaces will be served by 2-pipe CHW fan coil units:

a. Orchestra pit. FCU will be located outside and away from the Pit. Sound attenuators will be provided to maintain the recommended noise levels of the space.

b. Lighting and sound control booth

c. Follow spot rooms

d. Catering rubbish room

L. Exhaust Systems

1. The following areas/spaces will be provided with exhaust ventilation:

   a. Restrooms

   b. Janitor's closets

   c. Sump pump room

   d. Electrical rooms that do not house transformers

   e. Kitchen prep / Pantry

2. The exhaust air quantities will be based on ASHRAE recommended air changes or as recommended by specialty consultants.

M. HVAC Materials of Construction

1. Air Distribution

   a. All air ducts will be constructed as recommended in SMACNA Duct Construction and Leakage Test Standards, latest version. Materials of construction for general air distribution ductwork will be G90 galvanized steel.

2. Piping

   a. All piping will be constructed as recommended by ANSI, ASME, NFPA and/or the governing building code. The piping will be supported following the guidelines in MSS Standard Practice SP-58 and SP-69.

   b. Chilled water piping will be constructed of either Type K copper tubing for 2-inches (50 mm) and smaller, and Schedule 40 black steel piping for 2-1/2-inch (65 mm) and larger pipe sizes. The piping system (pipe, joints, fittings, valves etc.) will be able to withstand a system pressure of 125 psig and temperature ranges of 40o F - 200o F.

   c. Hot water piping will be constructed of either Type K copper tubing for 2-inches (50 mm) and smaller and Schedule 40 black steel piping for 2-1/2-inch (65 mm) and larger pipe sizes. The piping system (pipe, joints, fittings, valves etc.) will be able to withstand a system pressure of 125 psig and temperature ranges of 40o F - 250o F.

   d. Hydronic system supply and return piping 2-inches and smaller (nominal) will be designed for a water velocity of not more than 4 feet-per-second. Hydronic piping 2-1/2-inches and larger will be designed for a friction loss of not more than 4 feet (of head) per 100 feet of pipe. These criterions are based on ASHRAE's recommended maximum flow rates for Type L copper and Schedule 40 steel piping.

3. Insulation

   a. Ductwork insulation will be constructed of one of the following:

      i. Indoor: Semi-rigid fibrous glass with factory applied reinforced aluminum foil vapor barrier with an insulation R-Value of 4.2.

      ii. Indoor: Flexible fibrous glass with factory applied reinforced aluminum foil vapor barrier with an insulation R-Value of 4.2.

      iii. Outdoor: Foamed plastic of closed cell structure with an insulation R-Value of 6.3. Insulation will be enclosed in a double-wall duct system.

   b. Piping insulation will be constructed of one of the following:

      i. Indoor: Cellular glass with factory applied vapor barrier jacket, molded to conform to piping. Maximum thermal conductivity "k" of 0.23 Btu/in/ft2/ oF/hr at 75o F.

      ii. Outdoor: Cellular glass with factory applied vapor barrier jacket and additional aluminum jacket, molded to conform to piping. Maximum thermal conductivity "k" of 0.23 Btu/in/ft2/ oF/hr at 75o F.

N. Building Automation System

1. A new smart and secured building automation system (BAS) will be provided to monitor and control HVAC systems serving the expansion. The BAS will provide facilities personnel with monitoring, control, alarming, and scheduling of major systems.

O. Maintenance

1. All mechanical systems and devices will be designed to facilitate regular maintenance functions. There will be adequate service clearance to all equipment, which enhances movement of personnel and equipment. Equipment will be kept out of congested and difficult to reach locations. Equipment requiring maintenance will be kept out of hazardous areas to the greatest extent possible.

2. Adequate clearance will be provided at all equipment to enable removal and replacement of equipment without requiring prior disassembly.

P. Commissioning

Commissioning for the Performing Arts Center project will not be a single event, but a process. The process will ensure that systems are designed, installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs. Post occupancy problems will be minimized through proper staff training, facility documentation and quality assurance.

The commissioning process will follow code requirements and LEED prerequisites, as applicable. It will include the following specific tasks related to the HVAC, indoor lighting, and water heating systems:

1. Owner's project requirements (by City)
2. Basis of design (by DB team) including HVAC, indoor lighting, and water heating systems and associated controls
3. Design review will include a coordination meeting during schematic design and a review of construction documents
4. Commissioning measures shown in construction documents (by DB team)
5. Commissioning plan (by DB team) that describes the process and identifies responsible parties and timelines for specific tasks
6. Functional performance testing (by DB team)
7. Documentation and training (by DB team) including a systems manual and training of the City's facilities operators
8. Commissioning report (by DB team) that summarizes the process and resulting operational performance of building systems
    a. A successful commissioning process improves the function of a business organization by improving facilities operations and efficiency and providing them with the proper tools, data and procedures that save energy, time and money over the life of the building.

Q. Acceptable Manufacturers for Major Equipment

1. Air Handling Units
    a. AAON
    b. Springfield
    c. Carrier
    d. Trane
    e. Or equal
2. Cooling Towers
    a. BAC
    b. Evapco
3. Chillers
    a. Trane
    b. Carrier
    c. Or equal
4. Heat Recovery Chiller
    a. Multistack
    b. Or equal
5. Electric Boilers
    a. Cleaver-Brooks
    b. Or equal
6. Pumps
    a. Armstrong
    b. Bell & Gossett
    c. PACO
    d. Or equal
7. Fans

a. Greenheck

b. Loren Cook

c. Or equal

8. Variable Refrigerant Flow system (VRF)

a. LG

b. Daikin

c. Mitsubishi

d. Or equal

9. Motors (high efficiency)

a. Westinghouse

b. Gould

c. Lincoln

d. Or equal

10. Variable Frequency Drives

a. Danfoss

b. Reliance

c. Allen-Bradley

d. Or equal

II. Electrical Systems

A. Load Analysis

1. The following floor power loads will be used for the design of the electrical distribution system (refer to attached load calculation spreadsheet for lighting and power normal and emergency load requirements):

Space Type	Load (W/SF)
Performing Arts	100
Administration/Office	20
Public Spaces	20
Exterior Spaces	10
Conference Room	20
Kitchen	40
Equipment Rooms	5

B. Electrical Service

1. The electrical service will be sized based on program requirements and coordinated with the utility company

2. The utility service is envisioned to be provided via new pad mount transformer on the site.

3. The new pad mount transformer will be located as planned and coordinated with Architect.

4. Further coordination with utility will determine exact pad size and service conduit duct routing.

C. Service and Distribution Equipment

1. The main service switchgear will supply power at 480Y/277V. Switchgear will distribute power through distribution/branch circuit panelboards and transformers located through the building in proximity to major loads.

2. Power distribution from the switchgear will be as follows:

a. 480Y/277-volt branch circuit panels to serve non-theatrical building lighting and light mechanical equipment (fan coil units, exhaust fans, etc.).

b. 480-volt power to distribution/branch circuit panelboards for mechanical equipment.

c. 208Y/120-volt power via step down 480 -208/120-volt transformers to distribution/branch circuit panelboards to serve dimmed lighting, kitchen loads, special receptacle outlets in lobby areas, loading docks, etc. and general use receptacle outlets throughout the facility.

d. 480Y/277-volt power to normal side of the automatic transfer switches (ATS) for emergency and standby loads.

e. 208Y/120-volt power via step down 480-208/120-volt transformers to distribution panelboards to serve company switches to meet special power needs for courtyards and loading docks, etc.

f. Electrical rooms will be located near the loads that they serve. Refer to Architectural Plans for location of Electrical Rooms.

g. Avoid locating switchgear and critical equipment in areas/spaces that may be subject to Flood.

h. Theatre

i. All power requirements for the stage and theatrical system must be coordinated with the theatrical consultant.

ii. 20-amp, 120-volt, duplex convenience outlets will be located at 30' on center along perimeter walls.

3. Black Box, Event Spaces, Rehearsal

a. The Black Box, Rehearsal and Multi-Purpose Spaces, and Reception Room will have floor boxes flush mounted, through the spaces to maintain flexibility. Floor boxes will have separate compartments for electrical, communication and audio-visual services.

b. Each floor box will be provided with the following:

c. Two each 20-amp, duplex, 120 volt, 3-wire receptacles and 20 amp.

d. Low voltage and Audio-Visual connections as required (per low voltage consultant)

i. (1) 100 amp and (2) 60-amp, 208/120 volt, 3-phase, 4-wire circuits will be terminated into company switches with 100- and 60-amp main circuit breakers and E1016 Cam-Lok receptacles for show power, located close to stage area and at another end of the room to accommodate larger productions.

ii. In the Rehearsal room only, a ceiling receptacle system will be provided. The system will be on 4 x 4-foot grid with one independent 30-amp, 208/120 volt, 3-phase, 5-wire, twist-lock, individually switched receptacle, aligned with bottom of ceiling trusses and accessible for use with accent lighting and signs.

iii. 20-amp, 120 volt, NEMA 5-20R duplex convenience outlets and 30A, 208/120-volt outlets will be located at 30' on center along perimeter walls.

iv. Convenience outlets will be located on any wall 24" or wider.

4. Exterior Courtyard and Public Lobby

a. Convenience outlets on any wall 24" or wider.

b. 20-amp, 120-volt NEMA 5-20R duplex convenience outlets and 30A, 208/120-volt outlets at 30' on center along perimeter walls.

c. Outdoor rated, weatherproof, floor boxes will be located in the courtyard for larger productions.

d. 60-amp, 208/120 volt, 3-phase, 4-wire outlets for FS carts in areas not obstructing exiting.

e. 100-amp, 480/277 volt, 3-phase, 5-wire power connections.

5. Outdoor Terraces, Gardens

a. Convenience outlets on any wall 24" or wider.

b. 20-amp, 120-volt NEMA 5-20R duplex convenience outlets and 30A, 208/120-volt outlets at 30' on center along perimeter walls.

6. Catering Kitchen

a. 20-amp, 120-volt NEMA 5-20R duplex convenience outlets at 30' on center along perimeter walls.

b. Power requirements will be coordinated with equipment designer.

7. Loading Dock

a. One (1) 30-amp, 208/120 volt, 3-phase, 4-wire, NEMA L21-30R weatherproof receptacle outlet at truck bay.

b. 20-amp, 120 volt, NEMA 5-15R weatherproof receptacles located 30' on center.

c. (1) 60 amp, 208Y/120 volt, 3-phase, 5-wire circuits terminated into a company switch with 60-amp main circuit breaker and E1016 Cam-Lok receptacles for broadcast media trucks.

8. Back of House Corridors

   a. On walls, 20-amp, 120 volt, NEMA 5-15R duplex convenience outlets located 30' on center.

9. Storage and Work Rooms

   a. On walls, 15-amp, 120 volt, NEMA 5-15R duplex convenience outlets located 30' on center.

D. Emergency Power

1. In case of loss of normal power, emergency power will be provided by a 480Y/277-volt diesel engine generator set. The generator will be visually concealed and located away from occupied spaces. The emergency system required by NEC will include complete fuel, cooling, exhaust and starting systems as well as an automatic transfer switch and distribution/branch circuit panelboard for emergency loads.

2. Generator will be sized to meet code required emergency and standby loads at 480Y/277V. The generator shall meet applicable EPA, State and City requirements.

3. Fuel Capacity and Run Time shall be per code and local Fire Marshal.

4. Equipment and systems connected to the emergency power system will include, but are not limited to, the following:

   a. Exit signs and egress lighting in public areas, corridors, stairwells and exit paths.

   b. Sewage Ejector Pumps

   c. Smoke Control/Evacuation System, as required (refer to the Rational analysis Report).

   d. Elevators

   e. Fire Pumps

   f. Other Loads required by NEC, State, and Local Codes or Developer.

E. Lighting

1. Illumination levels will be provided as recommended by Illuminating engineering Society Handbook, and as designed by the Lighting Designer and the Architect.

2. Architectural lighting in the main lobby and theater will be controlled by the theatrical house dimming system. Architectural lighting and control system will be as designed by the Lighting Designer and the Theatrical Lighting Consultant. Power connection will be provided to house dimming rack as required.

3. Non-dimmed LED fixtures will be provided in storage, custodian, mechanical and electrical rooms.

4. Dimmable light fixtures will be provided in all other areas. Dimming will be by wall-mounted slide-to-off dimmers, excluding and theatrical dimming, which will be controlled through theatrical control system.

5. Three and four- way controls will be provided to allow switching from entry locations.

6. All egress lighting and exit signs will be served by the Life Safety emergency power panel being served by new emergency generator.

7. Exterior security lighting will operate dusk-to-dawn via photocell control. Non-security exterior lighting will operate dusk-to-prevent time via a combination photocell/time switch controller.

F. Lighting Control system

1. Building will have a lighting control system which will consist of a new lighting control relay panel with programmable time clock and relays located in each electrical room.

2. Systems to be integrated into Building Management System.

3. All lighting circuits excluding theatre lighting fed from dimmer racks will be routed through the lighting control system.

4. All enclosed rooms will be control via occupancy sensors.

5. The after-hour override switches will consist of low voltage switches with local display operation light at switch and will be provided in all spaces without occupancy sensors.

6. Any daylight areas will be provided with photocells and have automatic daylight harvesting controls that will dim the lights when sufficient daylight is available.

7. All lighting in Theatre, Sound Lock Lights and Theatre lobby will be routed through and controlled by theatrical dimming/relay system.

G. Equipment and Device Materials and Properties

1. Switchgear, Distribution/Branch Circuit Panelboards
    a. All equipment sizes and layouts will be based upon Eaton Cutler Hammer equipment.
    b. All bussing shall be copper including phase, neutral and ground busses.
    c. Neutral bussing shall be 100% rated.
    d. All equipment shall be fully rated, series rating is not acceptable.
    e. Switchgear and Distribution Panelboards over 600-amp rating shall be floor mounted, Transformers
    f. All equipment sizes and layouts shall be based upon Eaton Cutler Hammer equipment.
    g. Copper windings, 100 degree C rise, low noise energy efficient type.
    h. Transformers shall be 480-208Y/120 volt unless otherwise noted.
    i. Transformers shall be mounted on the floor.
    j. Transformers shall have vibration isolation pads and flexible connections to and from the equipment.
2. Raceways and Fittings
    a. Outdoors
        i. Exposed: GRC.
        ii. Concealed, Aboveground: RNC, Type EPC-40-PVC.
        iii. Underground: RNC, Type EPC-40-PVC, direct buried.
        iv. Connection to Vibrating Equipment: LFNC.
    b. Indoors
        i. Exposed, Not Subject to Physical Damage: EMT.
        ii. Exposed, Not Subject to Severe Physical Damage: EMT.
        iii. Exposed and Subject to Severe Damage: GRC.
        iv. Concealed: EMT.
        v. Connection to Vibrating Equipment: FMC, except LFMC in damp or wet locations.
        vi. Damp or Wet Locations: GRC.
3. Minimum Raceway Size: 3/4-inch (21-mm) trade size.
4. Raceway Fittings: Compatible with raceways and suitable for use and location.
    a. Rigid and Intermediate Steel Conduit: Threaded rigid steel conduit fittings.
    b. PVC Externally Coated, Rigid Steel Conduits: Fittings listed for use with this type of conduit.
    c. EMT: Compression, steel fittings. Set Screw fittings are not acceptable.
    d. Flexible Conduit: Fittings listed for use with flexible conduit.
5. Wire and Cabling
    a. THHN/THWN and XHHW type insulations only.
    b. MC cable will not be acceptable, except in specific areas when allowed by the engineer.
    c. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
    d. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
6. Boxes
    a. Boxes and Enclosures, Aboveground, Exterior: Type 3R.
    b. Boxes and Enclosures: Type 1, except where noted.
    c. Metal Outlet and Device Boxes: Aluminum.
    d. Nonmetallic outlet and device boxes.
    e. Metal Floor Boxes: Cast metal, fully adjustable.

f. Nonmetallic Floor Boxes: Non-adjustable, round.

g. Luminaire Outlet Boxes: Non-adjustable, designed for attachment of luminaire weighing 50 lb (23 kg).

h. Hinged-Cover Enclosures: Metal.

i. Vibration isolation pads will be provided as per the Acoustics Consultant guidelines.

j. A dedicated empty conduit and back box system for the AV Sound equipment as specified by the Theater Consultant.

H. Equipment Access

1. All major equipment (generator, switchgear, etc.) will be located at or near the street or loading dock to simplify service access.

2. Distribution equipment will be located in electrical rooms accessible by facilities personnel only. Electrical rooms will be located in back of house areas as much as possible.

III. Plumbing Systems

A. General

Domestic (potable) water, sanitary sewer and storm water systems will be new services and connected to the city main utilities.

New equipment will include water heaters, pumps, piping distribution, fixtures, grease interceptors, sewage ejector pits and pumps and sump pits and pumps.

B. Design Criteria

1. Codes and Standards

The HVAC systems shall be designed to conform as a minimum, with the following latest codes and standards adopted by the State and City at Permit:

a. International Building Code

b. International Plumbing Code

c. The National Electrical Code (NEC).

d. State of Texas Codes and Standards.

e. Americans with Disabilities Act (A.D.A)

f. County Health Department

g. Energy Conservation/sustainable Design – LEED

h. Local Codes and Standards

i. The following standards:

i. National Fire Protection Association (NFPA).

ii. American National Standards Institute (ANSI).

iii. Underwriters' Laboratories, Inc. Listing Service (U.L.).

iv. American Society of Testing and Materials (ASTM).

v. Occupational Safety & Health Act (OSHA).

vi. Environmental Protection Agency (EPA).

2. Domestic cold water (DCW) systems design criteria

a. Domestic cold water piping system materials shall be copper type “L” for installations above ground and type “K” for installations below ground.

b. Fittings, couplings, valves, appurtenances, etc. shall comply with the requirements of NSF/ANSI 372.

c. Domestic cold water piping distribution system shall be sized to maintain a maximum velocity of six (6) feet per second at design flow conditions with a maximum friction loss of 3 psi/100 ft.

d. Domestic cold-water systems will be designed to prevent water hammer conditions by providing shock arrestors for quick closing valves. Each group of fixtures will be provided with isolation valves for each zone. Pressure regulation will be provided where domestic water pressure is anticipated to exceed 80 psi.

e. Domestic cold-water system will be designed to provide a minimum of 35 PSI to all plumbing fixtures.

f. Domestic cold-water system will be designed based on city water street pressure of 90 PSI located on Fay Ave.

3. Domestic hot water (DHW) systems design criteria

a. Domestic hot water piping system materials will be copper type “L” for installations above ground and type “K” for installations below ground.

b. Fittings, couplings, valves, appurtenances, etc. will comply with the requirements of NSF/ANSI 372 (low lead).

c. Domestic hot water piping distribution system will be sized to maintain a maximum velocity of four (4) feet per second at design flow conditions with a maximum friction loss of 3 psi/100 ft.

d. Domestic hot water recirculation system (as applicable) will be sized to maintain a maximum velocity of 1.5 feet per second at design flow conditions with a maximum friction loss of 3 psi/100 ft.

e. Domestic hot water system will be designed to provide a minimum of 10 PSI to all plumbing fixtures.

f. The sizing for hot water heaters recovery rate is based on a minimum city water temperature of 50°F.

g. Hot water will be provided to fixtures at the following temperatures:

i. Public lavatories: 95°F

ii. General building fixtures: 110°F

iii. Showers: 110°F

iv. Kitchen sinks: 120°F

v. Kitchen and concession equipment such as dishwashers and triple compartment sinks: 140°F

4. Sanitary drainage (SAN) & Sanitary Vent (V) systems design criteria

a. Sanitary drainage piping system material will be cast iron, service weight with no hub fittings and shielded no-hub couplings.

b. Sanitary drainage piping systems will be designed to flow at 2% grade to be consistent with the minimum requirements of the International Plumbing Code.

c. Floor drains and floor sinks adjacent to plumbing fixtures of frequent use will be provided with a mechanical trap primer valve connected to the cold-water supply of such plumbing fixture; floor drains and floor sinks located in remote areas where plumbing fixtures of frequent use are not available will be provided with electronic trap primer systems.

5. Grease Waste (GW) drainage system design criteria

a. A grease waste system and interceptor are contingent on catering kitchen requirements and FEWD review and may not be required.

b. Grease waste drainage piping system material will be cast iron, service weight with no hub fittings and shielded no-hub couplings.

c. Grease waste drainage piping systems will be designed to flow at a minimum grade of 2%.

6. Storm drainage (SD) & Overflow Storm Drain (OSD) system design criteria

a. Storm and storm overflow drainage piping systems will be designed to flow at 1% grade to be consistent with the minimum requirements of the International Plumbing Code.

b. Storm and storm overflow drainage design will be based on a rainfall in accordance with the local Code and the requirements of City of Dallas. It is recommended that 100-year rain fall data be used to size the storm drainage system.

c. Storm and storm overflow drainage piping system material will be cast iron, service weight with no hub fittings and shielded no-hub couplings.

d. Each roof and overflow roof drain will be designed not to exceed the maximum area required for a 6" conductor per IPC.

7. Plumbing Fixtures design criteria

a. Plumbing fixtures must be IAPMO approved; the system components of the plumbing fixtures must also comply with the requirements of NSF/ANSI 372 (low lead) as dictated per IPC.

b. Fixtures will be provided to comply with the minimum requirements of the Code.

c. Plumbing fixtures flows will be as follows:

i. Lavatory faucets for public use: 0.4 GPM

ii. Lavatory faucets metering: 0.20 gallons per cycle

iii. Kitchen faucets: 1.75 GPM

iv. Water closets: 1.28 GPF

v. Urinals: 0.125 GPF

vi. Hose bibs for maintenance and window washing 5 GPM

C. Plumbing System Description

1. Plumbing fixtures

a. Fixtures will be vitreous china, suitable for public use, with chromium plated brass trim and individual stop valves.

b. Drinking fountains with integral filters and chiller/compressors will be provided throughout the building.

c. Plumbing fixture groups will have isolating zone valves to allow disruption of service only where required for maintenance or repairs.

d. Water closets and urinals in public restrooms will be vitreous china wall hung, siphon jet or wash out pattern with low-flow water conserving electronic hard wired type piston flush valves. Water closets in single use restrooms will be vitreous china floor mounted tank type, gravity flush low-flow water conserving lever handle actuated.

e. Hose bibs with-out keyed handle will be provided in every mechanical room and adjacent to every sewage ejector as required per IPC.

f. Hose bibs with keyed handle will be provided in every bathroom for general maintenance.

g. Wall hydrants with keyed handle will be provided around the exterior perimeter of the building envelope at every 200 ft, near each interceptor, and near each recycling/dumpster area.

h. Appropriate "Barrier Free" fixtures will be provided for handicapped use.

i. Sinks provided by the kitchen equipment contractor will be provided with chromium plated supply fixtures stops and traps.

j. Public lavatories will be provided with single temperature hard wired electronic activated faucets with flow restrictors.

2. Domestic Water system Description

a. Under the Civil Engineering Package or Scope of Work, the civil engineer will be responsible to provide domestic water system at point of connection, 5'-0" outside the building. The metered water with reduced pressure backflow preventer will be extended from point of interface with Civil and will be distributed through mains, risers, and branches to plumbing fixtures and equipment. System will be designed to prevent water hammer conditions by providing water hammer arrestors for quick closing valves.

b. Domestic hot water will be generated via a plate heat exchanger. The primary heating will be provided by the central heating plant. The heat exchanger and associated accessories and controls will be located in the domestic heater room in the basement/Parking Garage. Hot water will be provided to all the public and private fixtures. All water piping, subject to heat loss or sweating will be provided with fiberglass insulation and a fire-retardant jacket.

c. Hot water will be provided to public toilet rooms, single use restrooms, back of house areas, and catering kitchen by a hot water loop system through mains, risers and branches to plumbing fixtures and equipment.

d. Hot water temperature will be maintained for distribution piping by using thermostatically controlled hot water recirculation pumps for each zone controlled by time clocks or as acceptable per code.

e. Breakroom/pantry rooms and concessions will have filtered cold water to refrigerator, ice maker, and coffee makers.

f. Hose bibb, with vacuum breakers, will be provided, as required, at grade for the landscaping requirements.

g. All underground piping will be protected by a polyethylene encasement sleeve.

3. Sanitary Drainage and Vent Systems Description

a. Plumbing fixtures above grade will be drained by gravity through soil stacks and house drains to five (5) feet outside building. Plumbing fixtures located below the city sewer main will be drained by gravity to duplex sewage ejectors on emergency power and pumped into gravity house drain.

b. Drains in truck loading areas will be run through sand and oil and sediment interceptors before connection to the sanitary system.

c. Sewer lateral size will be 6”. Size to be confirmed at later stage based on sewage pump size.

d. Cleanouts will be provided per IPC for the engineered waste systems in the multipurpose areas.

e. Adequate gradients will be maintained for all horizontal drainage systems to ensure a minimum scouring velocity of 2 feet per second to self-clean the interior walls of the pipes. Cleanouts will be provided per Code.

f. A grease interceptor (if required) for the catering kitchen will be located below slab at Trash Recycling. Final sizing of the grease interceptor will be based on the total drainage fixture units per the International Plumbing Code.

g. Backwater valves will be provided for areas where house drain lines are below City sewer mains.

4. Storm and Storm Overflow Drainage System Description

a. Roofs, balconies, terraces, and canopies will be drained by gravity via roof drains through inside leaders and house drains to five (5) feet outside building.

b. Separate overflow drains will be provided adjacent to each roof drain. Each branch overflow drain will discharge on the sidewalk outside the building in a location where it can be monitored by the building maintenance personnel.

c. Storm drain system design to be based on the requirements of the City of Dallas.

d. A dedicated sand and oil interceptor to be provided for loading dock areas where storm water may accumulate oil or sand from vehicles and collected from trench and parking drains.

IV. Fire Protection Systems

A new service will be provided per IFC and NFPA 13 Chapter 8. Services to be combined within the theater building and manifolded together with isolation zone valves.

A. Codes and Standards

1. Fire protection system shall be designed to meet the requirements of the following codes and standards:

a. International Building Code 2018 Edition

b. International Fire Code 2018 Edition

c. National Fire Protection Association (NFPA)

d. Owner's Fire Insurance Underwriter

e. Division of State Architect Code Amendments

f. Local Codes and Standards

B. Design Criteria

The automatic sprinkler system for the building will be designed to meet Insurance Underwriters' required design densities and flow rates for the following Hazard Classifications:

Light Hazard	Main lobby, auditorium seating areas, offices, rehearsal rooms, and toilet rooms.
Ordinary Hazard - Group 1	Catering service areas.
Ordinary Hazard - Group 2	Receiving, storage areas, meeting rooms, building materials storage, loading docks, and stage/proscenium.

C. Sprinkler System

1. Fire water service will supply water to a hydraulically designed automatic fire sprinkler system. The water pressure will be assessed further during the design stage to determine whether a fire pump is required or not. The sprinkler system will include automatic sprinklers risers, sprinkler zone valves, flow switches, tamper switches, and interconnectivity with the fire alarm systems.

2. Fire main will be installed from the fire service to the individual zones required for the building. Branches to the individual sprinkler systems will be provided with supervised control valves and water flow switches as well as a system drain/test connection. All control valves and water flow switches will be annunciated at the life safety control panel located within the fire command center.

3. All isolating and sectionalizing valves on the fire protection system will be provided with tamper switches which will be annunciated at the life safety control panel.

4. The stage/proscenium will be protected by sprinklers. A Class III 1-1/2" fire hose and valve cabinet will be provided for service to the stage area, as directed by IFC 905.3.4 and NFPA 13 and NFPA 14 for Class II or III standpipes. The proscenium opening shall be protected by fire curtain. Final protective measure to be determined by the Code Consultant (Refer to the Rational analysis Report).

5. Fire Department Connection(s) will be provided at the building's exterior to enable the Fire Department to pump water directly into the system should the need arise. The number of Fire Department Connections will be determined by the Local Fire Department who will devise a strategy on how to approach the site during a fire call.

6. Fire department roof outlets to be provided as required by NFPA 14.

V. Technology (Low Voltage) Systems

A. General:

1. The approach to the technology systems is a holistic and treats the campus and all the theatres as a complete site that will share distribution and functions such as security monitoring as a whole. Individual buildings and the systems within will be segmented appropriately and will be linked to the other buildings via a common infrastructure.

B. Security Systems

1. General

a. The security program design shall develop mitigation strategies for a comprehensive security approach; creating secure envelopes around points of entry and defined assets to provide a holistic, physical and technical approach to security that complements the owner's operational security elements.

b. Security systems for the project shall consist of an Access Control System (ACS), a Video Surveillance System (VSS), Intrusion Detection System (IDS), Emergency Phone system, and Mass Communication System. These systems will all be IP based and connected to the client IT Network. Network configuration for security systems will be coordinated with the client's IT department and network integrator to ensure security systems are appropriately segregated and secure on the network. Any field processing panels hard wired to field devices will reside in designated IT closets/rooms. All server and storage components will be rack mounted in IDF closets and coordinated with the IT design team. Further coordination with the client Security team to ensure compatibility with existing systems deployed elsewhere will occur prior to 100% construction documents.

c. The security systems will be primarily monitored from a central security operations center that will have visibility into all theatres and common areas such as parking, grand lobby, site, and amenity area.

2. Access Control Systems (ACS)

a. The Access Control System (ACS) shall consist of hard-wired components to not only control access through designated portals but also to serve as part of an intrusion detection system that will generate alarm conditions upon receipt of transmissions from system sensors.

b. Areas of Protection

i. Specific portals that shall be card reader controlled shall be coordinated with the project team. At minimum, the following areas will be access controlled:

1) Exterior Doors

2) All utility rooms

3) Secured areas such as MPOE, TR, IT suite, etc. shall be card reader controlled with keypads for dual authentication

4) All doors in common hallways.

5) Instructional spaces such as classrooms.

6) Back of house theatrical spaces (including FOH control booths)

7) Offices shall have infrastructure for future card readers but will only be equipped with access controls per input from individual users.

c. Hardware and Component

i. ACS shall incorporate the existing client credential technology by utilizing client standard card readers using OSDP communications.

ii. All field components shall be rated for heavy duty industrial/commercial use.

iii. Doors utilizing electrified hardware for access control will use hardware that is rated as "fail secure" unless otherwise required by local code and requirements.

iv. Coordination with other project entities shall be completed to ensure door components such as locking mechanisms, closers, hinges, ADA crash bars. etc. is seamlessly integrated with the ACS and all functions subsequently tested/verified.

d. System Parameters

i. Access control system will be a networked system of controllers serving all access- controlled points.

ii. ACS will interface with the Video Surveillance System for automatic call up of video images upon ACS events.

iii. ACS will interface with the Video Surveillance System to receive alarm conditions generated by any standard video analytics.

iv. The system shall be accessible over the IT network to allow users with sufficient privilege access from any workstation on the IT network with proper authentication.

v. Coordination with electrical design shall ensure ACS has sufficient power back-up and redundancies.

e. System Configuration

i. ACS shall be capable of being centrally monitored and administered by the client.

ii. The ACS system shall have full integration with Microsoft Active directory.

iii. ACS shall be configured per owner requirements to restrict access through controlled portals based on time, day, and/or area.

iv. ACS shall be configured to group access-controlled portals into customizable classifications based on personnel titles/positions/responsibilities or by area designations depending upon owner requirements.

v. All ACS events shall be logged in the system for a minimum of 2 years.

C. Video Surveillance System (VSS)

1. The Video Surveillance System (VSS) shall consist of components to provide the ability to conduct real time visual monitoring of designated areas, archive images for future recall on demand, and to perform real time and automatic scene processing that will generate notifications upon detection of pre-defined activity.

2. Hardware and Components

a. The VSS shall incorporate current camera technology that has the following minimum requirements:

i. Capture and transmit 1080p Resolution frames (minimum).

ii. Capture and transmit 30 frames per second at 1080p resolution.

iii. Utilize standard compression technology (H.264 minimum).

iv. Encompasses industry standard cybersecurity protections to include configurable login/passwords, encrypted connections, and port security.

v. Low light capabilities.

vi. True high dynamic range.

b. Cameras shall have built-in analytic capabilities to include:

i. Motion detection.

ii. Virtual trip line detection.

iii. Directional movement.

c. Cameras shall be capable of operating within the extreme temperature and humidity ranges of the installed environment without additional mechanical components (i.e., heaters, blowers).

d. Cameras shall have vandal resistant housings.

e. Fixed cameras shall have vari-focal lenses to provide flexibility of exact installation locations as well as for future camera viewing adjustments.

f. Building exterior coverage shall consist of roof level PTZ cameras on each building corner along with muti-sensor cameras every fifty (50) feet of building perimeter wall.

g. VSS recording appliances shall be compliant with manufacturer recommended specifications for performance, capacity, and reliability.

h. VSS equipment shall incorporate standard cybersecurity protections to include login/passwords, data encryption (storage and in transit), standard OS.

3. General Areas Coverage

a. Specific areas that shall be viewable by installed cameras shall be coordinated with the project team. At minimum, the following areas will be covered by the VSS:

i. All access controlled and monitored portals.

ii. Box offices and other cash handling/ transactional areas.

iii. Public/reception areas and lobbies.

iv. External Building approaches.

v. Parking including entrances, exits and Pay on Foot (POF) transactional area.

vi. Site walkways and grounds (exact coverage TBD).

vii. Other areas to be determined as project design progresses.

b. Cameras shall be located to capture subject areas at defined minimum resolutions according to one of the following defined requirements:

i. Detection – ability to determine general activity in covered area (10 pixels per foot).

ii. Recognition – ability to discern people and objects in covered area (20 pixels per foot or greater).

iii. Identification – ability to determine specific features of people and objects in covered area (50 pixels per foot or greater).

4. System Parameters

a. VSS will be a networked system of cameras, servers, and storage providing visual coverage and recording of designated areas and part of a single system.

b. VSS will interface with the Access Control System for automatic call up of video images upon ACS events.

c. VSS will interface with the ACS to transmit alarm conditions generated by video analytics.

d. The system shall be accessible over the IT network to allow users with sufficient privilege access from any workstation on the IT network with proper authentication.

e. Coordination with electrical design shall ensure VSS has sufficient power back-up and redundancies.

f. Archived camera images shall be available for a minimum of 30 days or as required during design. Storage shall be sized for 25% expansion capabilities.

5. System Configuration

a. VSS shall be capable of being centrally monitored and administered by the client.

b. VSS shall be configured to continuously record or record on motion at user defined resolution and framerates.

c. VSS shall be configured to generate alarm conditions based on video analytic parameters such as motion, virtual trip line, directional movement, etc.

d. VSS capabilities and access to images (live and recorded) shall be configurable depending upon user role. Certain users may only require live viewing or access to certain camera images.

D. Intrusion Detection System (IDS)

1. The Intrusion Detection System (IDS) shall consist of components to provide the ability to conduct real time visual monitoring of unauthorized access within the building. It will work in conjunction with the ACS and VSS to enhance the overall security coverage.

2. Hardware and Components

a. The IDS may include the following components:

i. Door Position Sensors

ii. Glass break Sensors

iii. Motion detectors

iv. Duress Alarms

v. Tamper Switches

3. Intrusion detectors shall report back to the Access Control system as a separate zone of the system and report alarms and errors in the same as normal ACS alarms or issues:

a. Where possible the IDS will utilize the corporate LAN to communicate with the rest of the security monitoring system.

4. Detailed Areas of Protection

a. All building entrances/exits.

b. Areas vulnerable to unauthorized access to be coordinated with the project team.

c. Other areas in coordination with Owner during design.

E. Emergency Phones (Blue Light Phones)

1. Provide ADA compliant emergency phones around site and within parking lot.

2. Emergency Phone configuration to follow campus IT and security standards and be integrated into security systems.

3. Emergency phone functionality and devices shall be coordinated with the owner.

F. Parking Systems

1. The Parking Revenue and Control System (PARCS) shall consist of new entrance and exit plaza components including gates, ticket readers and issuing kiosks, pay on foot stations and will be a complete turnkey system compatible with existing theatre standards.

2. The PARCS system is a standalone system. It will include integration with the ACS and VSS security systems for monitoring and credentialing.

3. The PARCS system will be primarily monitored from the Parking Management Office with additional monitoring from the SOC. The exact monitoring strategy is to be developed.

G. Parking Guidance System (PGS)

1. The Parking Guidance System (PGS) will provide guests with information to quickly and efficiently find a place to park.

2. The PGS system will include lights color coded above each stall to indicate if the space is available or occupied.

3. The PGS system will include message boards to indicate open spaces on each floor or lot

VI. Audiovisual Systems:

A. General

1. Introduction

a. Theatrical spaces are not included in this section and will be developed elsewhere

b. Infrastructure versus Equipment

i. Though the actual amount of purchased equipment for initial installation may change, the intent is to provide complete infrastructure planning for eventual fit out. If proper infrastructure provisions have been made, equipment can be added later as requirements change, without jeopardizing the integrity of the overall audiovisual systems design.

ii. Infrastructure can be thought of as part of the overall building design. Audiovisual infrastructure refers to the necessary base building provisions such as operable walls, power outlets, conduit, junction boxes, projection screens, drapes, projector mounting support, etc., needed to make a room audiovisual functional. It must be planned and included for initial occupancy, whether the audiovisual equipment is purchased or not.

iii. Infrastructure items are not part of the audiovisual specifications. They are specified by the Architect & Electrical Engineer with input from the AV designer, furnished and installed by the general or electrical contractor as part of the base building and are not included in the audiovisual contractor's scope of work.

iv. Equipment refers to particular audiovisual devices which have specific costs and capabilities associated with them. Equipment can be thought of as furniture; various choices can be made about its quality and quantity.

v. Equipment will be specified by AV designer and furnished and installed by an audiovisual contractor sub under the General Contractor. It is important that equipment and infrastructure are planned simultaneously.

B. Dedicated, Portable and Future Provision

1. The recommendations for equipment are presented on a system-by-system basis. This is not a technical specification and does not provide details such as manufacturer or model

number. The information supplied is a summation to be combined with the budget material in order to make financial project decisions.

2. Equipment is referred to as having one of the following installation statuses: dedicated, portable, or future provisions

3. Dedicated: Indicates that the equipment will likely be used frequently and is permanently dedicated or installed in a specific room.

4. Portable: Indicates that the equipment is needed less frequently and can be shared with other meeting rooms and can be stored in a central Equipment Pool. "Portable" equipment may also be located and specified in a specific room but would be available for use in other areas of the building.

5. Future Provisions: Indicates that the capability may not be required initially, but infrastructure and systems design provisions should be made to accommodate equipment at some time in the future.

C. Codes and Standards

1. All work performed under the scope shall conform to the following codes and standards where applicable. When a conflict occurs, the Audiovisual Systems Integrator/Contractor is directed to follow the most stringent requirements.

a. Local Electrical Code

b. National Fire Protection Association, including NFPA 72

c. NFPA 70 National Electrical Code current and applicable sections (Including But Not Limited To)

d. Article 250 Grounding

e. Article 800 Communications Circuits

f. Underwriters Laboratories, Inc.

g. UL Listed

h. UL Approved

i. American Disabilities Act (ADA)

j. Texas Building Code

k. AVIXA International Standards (formerly known as Infocomm)

l. ANSI/INFOCOMM A102.01:2017 – Audio Coverage Uniformity in Listener Areas

m. ANSI/INFOCOMM 2M-2010 – Standard Guide for Audiovisual Systems Design and Coordination Process

n. ANSI/INFOCOMM 3M-2011 – Projected Image System Contrast Ratio

o. ANSI/INFOCOMM 4-2012 – Audio Visual System Energy Management

p. ANSI/INFOCOMM 10-2013 – Audiovisual System Performance Verification

q. ANSI/INFOCOMM V202.01:2016 - Display Image Size for 2D Content in Audiovisual Systems

r. Coordination with other trades

D. Support structures

1. Video displays: For all applications, the ceiling or wall shall be able to structurally support 5 times the total weight of the display system, mounting hardware and any audiovisual equipment at the display location. Wall mounting blocking shall span a minimum of 3-studs within the wall.

2. Loudspeakers: For all applications, the ceiling or wall shall be able to structurally support 5 times the total weight of the loudspeaker system, mounting hardware and any audiovisual equipment at the speaker location. All speaker locations shall also tie to the structure with a safety rigging cable.

3. Shock/Dynamic Loading: The support structure design shall consider forms of dynamic or shock loading.

E. Estimated power loads

1. Estimated power loads will be developed during design.

F. Mechanical loads

1. Heat loads required within each room/system configuration will be developed during design.

G. Rooms and systems summary

1. General requirements
    a. Screen image size required per AV standard must be unobstructed for all seating.
        i. Avoiding (or raising) pendant lights
        ii. Having sufficient ceiling height
        iii. Utilizing flush mount electric ceiling drop-down screens
    b. Lighting near the projection screen or monitor will be zoned separately from the room lighting to help reduce reflection
    c. Lighting and shade controls shall be integrated into local AV system control panel.
    d. Sound systems shall operate at 25dB above typical ambient noise level
    e. Matrix switcher shall be provided when there are two or more projectors or displays
    f. Audiovisual system shall be integrated with Mass Notification and/or Fire Alarm Systems for audio override in the event of an emergency announcements or fire alarm conditions.
    g. Contractor shall include a minimum of (6) six hours for training of school staff on the operation and support of the audiovisual system.
2. Assistive Listening Systems
    a. Rooms with permanent systems seating 50 or more shall be equipped with dedicated assistive listening systems.
    b. The building will be provided with two radiofrequency based portable systems that can be checked out for use in smaller rooms as required.
    c. All systems will be provided with small rack-mount RF transmitters, receivers, chargers, batteries, neck loops, headphones, storage case and other accessories as required.to provide a complete and working system
3. Classrooms
    a. Houses between 32 and 50 students
    b. Computer application may be used for the control system vs. A separate control panel. A wall panel location will still be required and available for future.
    c. Instructor Station located on the front of the room.
        i. Instructor Station off to one side, located close to the wall as possible without effecting clearances or creating tripping hazards in single projector classrooms. Infrastructure shall be wall mounted.
        ii. Instructor Station in the center-front of the room in dual projector classrooms. Infrastructure shall be in a Floor box.
    d. Instructor Station houses AV equipment, Computer and control panel.
        i. Instructor Station requires (1) 5-20R dedicated quadruplex circuit
        ii. Dedicated cabling from Instructor Station to each projector location
        iii. 6-port CAT6 for connection to district network
        iv. 3.5mm stereo output for connection to portable assistive listening system
        v. Conduits shall be separated by signal type and voltage levels. AV cabling to be routed in 1-1/4" conduits for most applications. 1" may be substituted in select locations. Conduit separations are as follows:
    e. Microphone level
    f. Control
    g. Line-level signal distribution
    h. Loudspeaker level
    i. Ceiling mounted projector and projection screen will be used for image projection.
        i. Pole-style mount to structured ceiling supporting 5:1 weight ratio
        ii. Projector requires (1) 5-15R dedicated duplex circuit
        iii. Dedicated cabling back to presenter location
    j. Audio reproduction shall be via ceiling mounted speakers. Instructor audio shall be via wireless microphone. Lecture Capture shall be available.

i. Loudspeakers are to be daisy-chained in a 70V configuration in a single zone

ii. Wireless microphone system shall include:

1) (1) clip-on microphone and (1) handheld microphone

2) Charging dock to reside at Instructor Station

iii. Classroom shall have access to the following sources

iv. OFE Laptop/computer via HDMI

v. HDMI input available for other portable sources

vi. Streaming (Casting) wireless input

vii. Feed from the theatrical system router

k. Control panel shall be programmed for full control of AV system on/off, source switching, and environmental controls such as lighting and shades.

4. Meeting Rooms

a. Video Presentation via appropriately sized Flat screen.

i. Wall mount to structured wall backing supporting 5:1 weight ratio across a minimum of (3) three studs

ii. An in-wall enclosure will be installed behind the display

iii. Display location requires (1) 5-15R dedicated quadruplex circuit

iv. Dedicated cabling back to AV Rack location

v. Dedicated conduit from in-wall enclosure to AV rack location

b. AV rack coordinated into the millwork where it cannot fit behind screen.

i. AV rack in millwork to include rails for rollout and service

c. Millwork houses AV equipment and computer.

i. AV Rack requires (1) 5-20R dedicated quadruplex circuit

ii. Dedicated cabling from equipment location to the display

iii. 6-port CAT6 for connection to IT network

iv. Conduits shall be separated by signal type and voltage levels. AV cabling to be routed in 1-1/4" conduits for most applications. 1" may be substituted in select locations. Conduit separations are as follows:

3) Control

4) Line-level signal distribution

5) Loudspeaker level

v. Ventilation for AV equipment in millwork requires ventilation that will be coordinated in design.

d. Audio system to use ceiling speakers for program/presentation audio only

i. Loudspeakers are to be daisy-chained in a 70V configuration in a single zone

e. Sources will be local input at table for presentation only

i. AV input shall be routed from table to AV rack located in millwork

ii. Table connectivity to be coordinated with furniture vendor

iii. EC to provide conduit stub-up to support AV cabling between table leg and AV credenza rack

f. Control panel residing on table shall be programmed for full control of AV system on/off, source switching, and environmental controls such as lighting and shades.

H. Audiovisual Responsibility Matrix

Item	Designed By	Furnished By	Installed By
Audiovisual related conduits, standard back boxes, floor boxes, specialty backboxes, stub-ups, cable tray (if necessary), electric power.	Electrical Engineer with design requirements provided by Audiovisual Designer	Electrical Contractor	Electrical Contractor
Audiovisual related telecom outlet backbox location and mounting height coordination w/ architecture & furniture.	Architect with design requirements provided by Audiovisual Designer	Communications Contractor	Communications Contractor
Audiovisual dedicated outlet backbox location and mounting height coordination w/ architecture & furniture.	Architect with design requirements provided by Audiovisual Designer	Electrical Contractor	Electrical Contractor
Table cable cubby, hatches, drawers, etc.	Architect with design requirements provided by Audiovisual Designer	Furniture Vendor	Furniture Vendor
Supplemental cooling for Audiovisual equipment rooms.	Mechanical Engineer with design requirements provided by Audiovisual Consultant	Mechanical Contractor	Mechanical Contractor
Supplemental cooling within equipment cabinets, credenzas and millwork.	Architect with design requirements provided by Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Telecom service ordering and coordination	Owner with design requirements provided by Audiovisual Designer	Owner	Owner
Data network related equipment to support Audiovisual LAN/WAN Ethernet requirements	Owner with design requirements provided by Audiovisual Designer	Owner	Owner
Lighting in AV provisioned spaces	Lighting Consultant with input from Audiovisual Designer	Electrical Contractor	Electrical Contractor
Structural ceiling support for ceiling mount AV devices (e.g., displays, screens, lifts, projectors)	Audiovisual Designer with coordinated effort with Architect	General Contractor	General Contractor
Acoustical treatment for AV provisioned spaces	Architect and/or Acoustical Consultant with input from Audiovisual Designer	General Contractor	General Contractor
Audiovisual related furniture (e.g., Instructor Station, Conference Table, Millwork, Credenzas, etc.)	Architect with design requirements provided by Audiovisual Designer	Furniture Vendor and/or General Contractor	Furniture Vendor and/or General Contractor
Mobile document cameras	Owner with design requirements provided by Audiovisual Designer	Owner	Owner
Telephone and tabletop audio conferencing equipment not directly connected to Audiovisual systems	Owner	Owner	Owner
AV racks and cabinets	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Power distribution units	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Audiovisual equipment	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Flat Panel Display	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Projectors and Mounts	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor
Assistive Listening Systems	Audiovisual Designer	Audiovisual Contractor	Audiovisual Contractor

VII. Structured Cabling System

A. Telecommunications

1. General

a. The following systems are included as part of the IT/Telecommunications systems design.

B. Inside Building Cable Infrastructure: This will be applied to all theatres, classrooms, office areas, Data center and building support systems connectivity, including all workstations, security devices, and common area wireless access points. This subsystem consists of the structured cable plant including the horizontal cabling to the outlet, inter-cabinet connectivity, and devices such as CCTV cameras and WAPs; backbone cabling which interconnects the Entrance Facility, Telecommunications Rooms (Data Center, and TRs), termination hardware, equipment racks and support accessories.

1. Horizontal Cabling Distribution System: This subsystem includes the cabling required for implementation of network connectivity to the workstations

2. Backbone Cabling Distribution System: This subsystem includes the hardware and cabling required for implementation of backbone connectivity between telecommunication rooms and support spaces.

C. Outside Plant Cable Infrastructure: This will be applied cabling and infrastructure which interconnects the Entrance Facility, to the each of the buildings and site amenities

D. Pathway and Spaces: This subsystem includes the Pathways and spaces including cable tray, sleeves, and conduits will be required to support the horizontal cabling routed between the telecommunication rooms and the workstation outlets.

E. Network System: This subsystem includes the active equipment for supporting the data network. The owner/IT staff will procure all active equipment. All active network equipment will be configured by the owner/IT staff.

F. Cabling Administration: This subsystem includes a unique identification label for all termination panels and cabling

G. Wireless Data System: This subsystem includes the access points required for wireless system that will be connected to the standard data system via the structured cable plant. The Wi-Fi system, including heat maps will be configured by the predictive heat map that provides locations for placing the interior and exterior WAPs. Once wall types are confirmed coordination with Aruba will be needed for acquiring heat maps.

H. The Low voltage design for the building will be based on the following Codes:

1. Country, state and local health, safety and building codes

2. Local State Electrical Code (same as NFPA 70)

3. National Fire Protection Association - NFPA 13, 14, 20, 22, 24, 54, 70, 72, 75, 96, 101, and 418 Standards.

4. Federal Communications Commission Title 47 - FCC Part 15, FCC Part 68

5. National Electrical Code - Article 770 Optical Fiber Cables, Article 800 Communications Circuits

6. National Electrical Manufacturers Association (NEMA)

7. Safety and Health Standards - OSHA 29 CFR 1926/1910

8. Underwriters Laboratories, Inc. - UL Listed, UL Approved.

9. Local Fire Authority Standards.

10. Occupational Safety and Health Association (OSHA)

I. The telecommunication system and all related connections shall be designed to conform, as a minimum, to the following standards:

1. TIA/EIA-526-7-A Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant

2. TIA-526-14-C Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant; IEC 61280-4-1 edition 2, Fiber-Optic Communications Subsystem Test Procedure- Part 4-1: Installed cable plant- Multimode attenuation measurement

3. ANSI/TIA-568-D.0 Generic Telecommunications Cabling for Customer Premises

4. ANSI/TIA-568-D.1 Commercial Building Telecommunications Cabling Standard

5. ANSI/TIA-568-D.2 Balanced Twisted-Pair Telecommunications Cabling and Components standard

6. ANSI/TIA-568-D.3 Optical Fiber Cabling Components Standard

7. ANSI/TIA-569-D Telecommunications Pathways and Spaces

8. ANSI/TIA-606-C Administration Standard for Commercial Telecommunications Infrastructure

9. ANSI/TIA-607-C Commercial Building Grounding and Bonding Requirements for Telecommunications

10. ANSI/TIA/EIA-492AAAC Detail Specification for 850nm Laser Optimized 50 Micron Core Diameter/125 Micron Cladding Diameter Class 1a Graded Index Multimode Optical Fibers

11. ANSI/TIA/EIA 492AAAD Detail Specification for 850-NM Laser-Optimized, 50-um Core Diameter/125- um Cladding Diameter Class 1a Graded-Index Multimode Optical Fibers Suitable for Manufacturing OM4 Cabled Optical Fiber

12. TIA/EIA-758-B Customer Owned Outside Plant Telecommunications Infrastructure Standard

13. TIA/EIA-862-B Structured Cabling Infrastructure Standard for Intelligent Building Systems

14. TIA/EIA 942-B Telecommunications Infrastructure Standard for Data Centers

15. TIA-1152 Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling

16. BICSI Telecommunications Distribution Methods Manual (TDMM), 13th Edition Building Industry Consulting Services International (BICSI) or most current

17. FCC Part 15 – Federal Communications Commission document relating to allowable radiated emissions.

18. ISO 9000 – Manufacturing Quality Control Standard (Certification)

19. Institute of Electrical and Electronic Engineers (IEEE) 802.3 and 802.11 standards.

J. Spaces

1. General Architectural requirements

Architectural	
Size	Dependent on requirements of space, and in accordance with TIA 569-D and Owner IT Standards sizing requirements
Ceiling	10' minimum clearance AFF, no dropped ceiling
Doors & Access	Lockable access by access control system. Door hinged to open outward. Camera Surveillance. Door shall be a minimum of 42" wide and 84" high, a Data Center may require a double door no smaller than 72" wide and 90" high. No posts shall be installed between doors
Locks & Security	Access card required to enter room. VSS required within the room
Occupancy	Frequent to Rarely.
Floor Type	Anti-static VCT in White.
Floor Load	Floor loading (static and dynamic) capacity shall be sufficient to bear the distributed and concentrated loads of the installed equipment, the rated distributed load shall be greater than 250 lb-ft/ft2 and the rated concentrated load shall be greater than 1000 lb-ft/ft2.
Floor Void	Dependent on building
Windows	None
Walls & Partitions	Dust proof finish. White non gloss paint shall be applied to all walls Walls capable of equipment support. White vinyl base shall be provided on all walls. AC grade fire retardant plywood finish applied to three walls Room shall have a minimum 1 Hour Fire Rating or 2-hour fire rating if used for Fire Life Safety systems (as local code requires)
Seismic	Per AHJ requirements.
HVAC	
Heat Load	W/m² to be determined during design
Humidity Control	Require 20-80% non-condensing, 24hrs/day for 365days/year.
Temperature Control	Require 72F+/- 3F, 24Hrs/day. System sized to maintain between 64 and 57F at AHSRAE 1% Design Temperature
Ventilation	Require fresh filtered air frequently to pressurize space.
Power	
Power Distribution	Two dedicated 20-amp 110V circuits from the ER technical Power terminated on (1) quad 5-20 outlet and (1) L6-30R outlet with Orange electrical outlets per rack.
Convenience Power Outlets	Wall mounted at 6' intervals and at plywood panels, 120 volts.
Emergency Power	Only the rack circuits provided for this room to be on UPS unless

	building is powered by generator.
Telecommunications Ground	Required in all rooms, installed at 7' (2.1m) above finished floor. Each rack, cabinet or section of cable tray shall be grounded to the grounding bus bar. Grounding Busbar 20' by 4" shall be connected to the main electrical service entrance
Power strips	Two (2) power strips will be supplied per rack, monitored via IP
Uninterruptible Power Supply (UPS)	Required, either room based, or rack based, if room-based receptacles shall be red and labeled with UPS circuit number.
Power Load	To be determined during design
Lighting	80-foot candles Lux at 39" AFF on the face of equipment in Racks. Light fixtures to be chain mounted from ceiling
Fire Protection	
Sprinklers	Per code with dry pipe or pre-action preferred if possible. If not, available protective wire cages should be used, and system should require both smoke and heat to discharge.
Extinguishers	CO2 extinguisher to be Wall mounted adjacent to the Door. Should be UL listed Class C type unit.
Fire stopping	All penetrations through fire rated barriers to be fire stopped using approved methods and materials. EZ path sleeves to be used for Cable pathways.

Low voltage spaces, such as the Telecommunications Room and Service Entrance Room, should be completed and handed over to the client approximately two months prior to scheduled substantial completion of the project, this allows for installation and configuration of network equipment. At the point of hand over each room should be as a minimum be secure, dust free clean, have all cabling and contractor supplied equipment installed, be installed with permanent Power and HVAC services.

2. Minimum Point of Entry/ (MPOE/BDF):

a. This building will have a dedicated room that will act as the service entrance for telecommunications providers and campus connectivity to the building. The room will house service provider disconnects and racks to allow for network distribution throughout the building.

b. Service provider spaces shall be located near the edge of the building. Ideal location is dependent on utility incoming location. Combined Service provider Entrance room should be a minimum of 120SF to allow for partitioning of areas per service provider requirements.

c. The BDF will house all horizontal and backbone cabling termination hardware and racks. All horizontal cabling will be terminated on rack mounted copper patch panels.

d. The standard workstation outlet in the building requires three (3) plenum rated CAT6A grounded F/UTP cables. Wireless access point outlets in the office space require two (2) plenum rated CAT6A GROUNDED F/UTP cables.

e. The room will need to house the following systems to support the building services

i. All network cabling termination and switches for structured cabling system.

ii. Incoming service provisions both Service provider and campus based, including any associated firewalls and routers

iii. Wireless control servers, routers, and firewalls.

iv. Security control Servers

6) Access control system

7) Video surveillance system including required storage

f. Minimum clearance requirement of 36" is required both in front and behind each rack, taking into account any wall mounted equipment.

K. Incoming Cabling Distribution System

1. Backbone Optical fiber cabling will be 24 SM connected to each Theater BDF

2. Copper backbone cabling shall be minimum of 25-pair Category 3 cable. Copper backbone shall be terminated on wall mounted 110 blocks with protector blocks.

L. Horizontal Cabling Distribution System

1. Standard outlet

a. The standard workstation outlet in the office space requires three (3) CAT6A grounded F/UTP cables. Wireless access point outlets in the back of house and common spaces require two 4-pair CAT6A grounded F/UTP (UFTP) cables.

b. All copper telecommunication cables shall terminate per the T-568B wiring scheme. Horizontal cables and copper backbone cables in the telecom rooms will terminate to patch panels. The network switches, furnished and installed by the owner, will tie into the patch panels via CAT6A grounded F/UTP. CCTV cabling will terminate on dedicated category 6A patch panels, & WAP cabling will terminate on dedicated Category 6A patch panels.

c. Each outlet will be configured with a 1.25" conduit and a two gang backbox. A workstation may be located in an office, conference room, system furniture, or other selected building space.

d. Each typical workstation user outlet will be configured 3 blue 8P8C jacks.

2. Cable Routing Criteria

a. Horizontal cable bend radii for category cable to be a minimum of four times the outside cable diameter.

b. Fiber backbone cable bend radii to be a minimum of ten times the outside cable diameter while at rest. During cable pull a minimum bend radius of 20 times the cable O.D. shall be maintained.

c. Cable waterfalls shall be utilized for all cable transitions to ensure bend radius is not exceeded.

d. Horizontal cables are to be run a minimum of six inches from 110 VAC power distribution cables unless in steel channels.

e. All power and telecommunications cables are to cross perpendicularly where crossings are necessary.

f. A minimum separation of twelve inches shall be maintained between telecommunications cables and fluorescent light ballasts.

g. Where cables are to be run in system furniture raceways, telecommunications cables are to be run in separate physical channels within the furniture system. Cabling should be installed in this raceway in compliance with ANSI/TIA/EIA-569-D and the manufacturer's installation guidelines. Where power and telecommunications cables are to cross paths within the furniture system, cables are to cross perpendicularly.

h. The cables routed to system furniture shall enter the furniture cluster through a column, wall, or poke-through.

i. All conduits larger than 2" shall have a minimum bend radius of ten times the outside diameter, except for outlet stub-ups, which shall be a minimum of six times the outside diameter.

M. Wireless Data System

1. Wireless coverage for the whole building will be confirmed by the client during the design phase and will also include the outdoor perimeter.

2. Access points for the wireless system will be connected to the standard data system via the structured cable plant and will be mounted on the floor facing side of ceiling/tiles using AP mounts. Two (2) Category 6A UFTP standard telecommunications cables will be required for each access point and will homerun to the Telecommunication Room.

3. Wireless cables will be terminated on two separate patch panel with cable with port (0) on the AP to be on the first patch panel and port (1) on the AP to be on the second patch panel

4. The wireless access point general quantities and locations will be coordinated once the floor plans have been finalized.

5. The wireless access points will be furnished by the owner IT staff, installed by the cabling contractor and programmed by the owner IT staff

6. Provisions will be made to support the use of wireless data and voice through wireless access points supporting IEEE 802.11g/n/ac and 802.11ax for future proofing.

7. The wireless access point will be provided power from the PoE enabled switch in the Telecommunications Room

8. The layout and locations of the wireless access points will be provided by the client IT group.

9. The Wireless network will be designed to support multiple SSIDs

10. The Wireless access points will support required level of 802.1a authentication.

11. Contractor to provide device matrix showing each access point location, MAC, IP, model#, Data drop#, switch port information, asset tag information, etc. (template to be provided by District)

12. Contractor to provide as-build showing all data locations with specific functions designated (e.g., wireless access points, video surveillance system, IP speaker).

VIII. Emergency Responder Radio Coverage System (ERRCS)

A. Applicable Codes

1. Texas Fire Code– Emergency Responder Radio Coverage (as adopted by the City of Dallas)

B. Applicable Standards

1. NFPA 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communication Systems, 2019 edition.

2. NFPA 1225 – Standard for Emergency Services Communications, 2022 edition.

3. UL 2524 – Standard for In-Building 2-Way Emergency Radio Communication Enhancement Systems

4. FCC 47 CFR Part 90.219 - Use of Signal Boosters

C. Acronyms

1. The following acronyms will be used in regard to the ERRCS

a. AHJ: Authority Having Jurisdiction

b. ANUN: Annunciator

c. BDA: Bi-Directional Amplifier

d. DAS: Distributed Antenna System

e. DB: Decibel

f. DBi: Decibel Relative Isotropic Radiator

g. DBm: Decibel Milliwatts

h. DL: Down Link

i. FCC: Federal Communication Commission

j. GROL: General Radio Operator License

k. Hz: Hertz

l. MHz: Mega-Hertz

m. PIM: Passive Inter Modulation

n. RF: Radio Frequency

o. RX: Receive

p. SNR: Signal-to-Noise Ratio

q. TX: Transmit

r. UHF: Ultra-High Frequency

s. UL: Up Link

t. VHF: Very High Frequency

u. W: Watt

D. Frequency Support

1. The ERRCS shall support radio coverage within the facility for the following first responder agencies:

a. City of Monterey Park Police

b. City of Monterey Fire Department

2. The ERRCS shall include the following system frequencies:

a. MP Police 1 (DL :155.5650 MHz/UL :154.9500 MHz) Modulation : P25

b. MP Police 2 (DL :155.4150 MHz/UL :156.2250 MHz) Modulation : P25

c. XLC Access (FD) (DL:470.3625 MHz/UL473.3625 MHz), Modulation: Analog

d. One of the following trunking cells based on the clearest path to the BDA

i. Montebello Trunking Cell

ii. Glendale Trunking Cell

E. Interference

1. The ERRCS shall not interfere with the radio operation of the first responding agencies.

F. FCC Certification

1. The bi-directional amplifier(s) shall be FCC certified

2. The bid-directional amplifier shall be UL 2524 listed.

G. ERRCS Components

1. The ERRCS shall consist of the following components and sub-systems:

a. BDA

b. Battery System

c. Annunciator

d. Distributed Antenna System

e. Donor Antennas

f. Donor Antenna Lightning Protection System

H. BDA Requirements

1. The BDA shall meet the following requirements:

a. The BDA shall be FCC certified.

b. The BDA shall be contained within a NEMA Type 4 waterproof cabinet

c. The BDA battery cabinet shall be contained in a NEMA Type 4 waterproof cabinet.

d. The BDA and battery systems shall be connected to an annunciator that will be located at a constantly attended location adjacent to the fire alarm control panel.

e. The BDA and Battery system shall include automatic supervisory and trouble reporting for malfunctions of the signal booster and power supplies that are annunciated at the fire alarm system and at a UL listed supervision station monitoring company.

2. The battery system shall have the capacity of operating the BDA for a period of not less than 24-hours.

3. The battery system shall be connected to a dedicated emergency power circuit.

4. The BDA, Annunciator and Battery systems shall be produced by the same manufacturer.

I. Distributed Antenna System

1. The DAS shall consist of horizontal and vertical distribution elements.

2. The vertical or riser distribution shall consist of coaxial cable and RF splitters/tappers.

3. All vertical distribution cabling and components shall be physically protected.

4. All vertical distribution cabling and components shall be protected within a 2-hour fire rated pathway.

5. The horizontal element of the DAS shall consist of coaxial cabling, tappers and antennas.

6. All antennas shall be omni-directional and located as necessary to provide coverage as needed.

7. All horizontal cabling shall be plenum rated coaxial cable.

8. All vertical cabling shall be plenum rated coaxial cable.

9. The DAS shall be designed to provide balanced UL and DL signal strength across the facility.

J. Radio Signal Strength and Coverage

1. The ERRCS design shall support a minimum DL signal strength of –95 dBm within the building.

2. The ERRCS design shall support a minimum UL signal strength of –95 dBm.

3. The ERRCS design shall provide DL and UL signal strength in 95 percent of the areas on each floor of the building.

4. The ERRCS design shall ensure the highest level of isolation possible between the in-building distributed antenna system and the roof mounted donor antenna system.

IX. Cellular Distributed Antenna System (CELL-DAS)

A. Applicable Standards

1. ANSI/BICSI 003, Building Information Modeling (BIM) Practices for Information Technology Systems
2. ANSI/TIA-568-C.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standard
3. ANSI/TIA-568-C.3, Optical Fiber Cabling Components Standard
4. ANSI/TIA-569-D, Telecommunications Pathways and Spaces
5. ANSI/TIA-606-B, Administration Standard for Telecommunications Infrastructure
6. ANSI/TIA-607-B, Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
7. 47 CFR 1.1310, Radiofrequency Radiation Exposure Limits
8. 47 CFR 17, Construction, Marking, And Lighting of Antenna Structures
9. 47 CFR 90.219, Use of Signal Boosters

B. Acronyms:

1. AC alternating current
2. AHJ authority having jurisdiction
3. BIM building information modeling
4. BDA bidirectional amplifier
5. BTS base transceiver station
6. CW continuous wave
7. DAS distributed antenna system
8. DC direct current
9. EIRP effective isotropic radiated power
10. EMI electromagnetic interference
11. ER equipment room
12. ERP effective radiated power
13. LMR land mobile radio
14. LTE long term evolution
15. MCU master control unit
16. MIMO multiple input/multiple output (antenna)
17. PoE power over Ethernet
18. PIM passive intermodulation
19. PTP point-to-point
20. RRU remote radio unit
21. TR telecommunications room
22. UMTS universal mobile telecommunications system
23. UTP unshielded twisted pair
24. VSWR voltage standing wave ratio
25. WAN wide area network
26. WLAN wireless local area network
27. WSP wireless service provider
28.

C. Primary Cellular Carriers:

1. AT&T
2. Verizon
3. T-Mobile

D. Components: TBD

1. Donor Antenna (Roof)
2. Omnidirectional Antenna (In-Building)
3. RRU
4. Fiber Hub
5. Coaxial Cable
6. Fiber Optic Cable
7. PICO/FEMTO Cell
8. GPS Antenna

E. System:

1. The In-Building Cellular Distributed Antenna System (CELL-DAS) consisting of a passive network of antennas located to provide building coverage. Antennas will be connected to remote fiber units that will in turn be connected to an active head-end consolidation point. The design of the head-end will be based on discussions with the wireless service providers as to whether the system will utilize donor antenna technology to connect to the existing macro sites or PICO/FEMTO Cell Technology will be provided by the carriers that will be connected to internet-based carrier gateways. The system will be designed to provide 4G/LTE coverage with the facility.

F. Design will Include:

1. The development of carrier approved designs utilizing RF modeling tools such as iBwave
2. Cell-DAS Equipment Space in Equipment Rooms
3. Laying out on floor plans the antenna and active equipment
4. Cable Pathways / Risers
5. Power and Cooling Coordination
6. Assisting in vendor coordination / hardware
7. Working with wireless service providers to establish an acceptable solution for connection to their MACRO network or Network attached Gateways using PICO/FEMTO Cell Technologies
8. Utilizing existing campus standards and existing if any wireless service provider agreements

CIVIL (SURVEY)
FIRE LIFE SAFETY CODES

CIVIL (SURVEY)

TREE TABLE

POINT NO.	DESCRIPTION
5000	8" ELM
5001	8" ELM
5002	10" ELM
5003	8" ELM
5004	7" CEDAR ELM
5005	12" ELM
5006	9" ELM
5007	15" ELM
5008	7" CEDAR ELM
5009	12" ELM
5010	10" ELM
5011	10" MULTI-TRUNK ELM
5012	9" ELM
5013	8" HACKBERRY
5014	26" CEDAR ELM
5015	16" MULTI-TRUNK ELM
5016	8" MULTI-TRUNK ELM
5017	6" MULTI-TRUNK ELM
5018	6" ELM
5019	10" MULTI-TRUNK ELM
5020	15" MULTI-TRUNK ELM
5021	8" MULTI-TRUNK ELM
5022	6" MULTI-TRUNK ELM
5023	12" MULTI-TRUNK ELM
5024	8" ELM
5025	7" ELM
5026	13" ASH
5027	13" MULTI-TRUNK ELM
5028	15" MULTI-TRUNK ELM
5029	10" MULTI-TRUNK ELM
5030	12" MULTI-TRUNK ELM
5031	8" ELM
5032	6" ELM
5033	7" POST OAK
5034	12" POST OAK
5035	10" MULTI-TRUNK POST OAK
5036	10" POST OAK
5037	6" MULTI-TRUNK ELM
5038	6" ELM
5039	10" MULTI-TRUNK POST OAK
5040	6" MULTI-TRUNK POST OAK
5041	11" MULTI-TRUNK ELM
5042	16" MULTI-TRUNK ELM
5043	8" ELM
5044	8" MULTI-TRUNK ELM
5045	6" MULTI-TRUNK ELM
5046	9" ELM
5047	17" MULTI-TRUNK ELM
5048	7" CEDAR
5049	6" CEDAR

TREE TABLE

POINT NO.	DESCRIPTION
5050	7" ELM
5051	8" CEDAR
5052	9" ELM
5053	6" MULTI-TRUNK ELM
5054	10" MULTI-TRUNK ELM
5055	6" CEDAR
5056	10" ASH
5057	10" ELM
5058	6" MULTI-TRUNK CEDAR
5059	11" MULTI-TRUNK ELM
5060	6" ELM
5061	21" MULTI-TRUNK ELM
5062	6" ELM
5063	18" MULTI-TRUNK ELM
5064	8" CEDAR
5065	13" CEDAR
5066	10" CEDAR ELM
5067	13" MULTI-TRUNK ELM
5068	6" ELM
5069	10" CEDAR
5070	11" CEDAR ELM
5071	9" ASH
5072	7" MULTI-TRUNK ELM
5073	12" CEDAR
5074	18" CEDAR
5075	6" ELM
5076	10" MULTI-TRUNK ELM
5077	6" CEDAR
5078	11" ASH
5079	14" ASH
5080	7" CEDAR
5081	8" ELM
5082	9" ELM
5083	6" MULTI-TRUNK ELM
5084	10" CEDAR
5085	14" ELM
5086	9" CEDAR
5087	9" CEDAR
5088	9" ELM
5089	10" MULTI-TRUNK ELM
5090	6" ELM
5091	9" CEDAR
5092	10" ELM
5093	6" ELM
5094	11" CEDAR
5095	9" ELM
5096	6" MULTI-TRUNK ELM
5097	11" MULTI-TRUNK CEDAR
5098	10" ELM
5099	6" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5100	12" ELM
5101	6" CEDAR
5102	6" ELM
5103	12" CEDAR
5104	6" ELM
5105	7" ASH
5106	14" ELM
5107	12" ELM
5108	6" MULTI-TRUNK ELM
5109	6" ELM
5110	20" MULTI-TRUNK ELM
5111	7" ELM
5112	6" CEDAR
5113	6" MULTI-TRUNK ELM
5114	12" MULTI-TRUNK ELM
5115	15" CEDAR
5116	6" ELM
5117	6" ELM
5118	16" CEDAR
5119	9" ELM
5120	8" ELM
5121	8" ELM
5122	6" ELM
5123	8" MULTI-TRUNK HACKBERRY
5124	10" ELM
5125	8" CEDAR ELM
5126	8" ELM
5127	11" ELM
5128	6" ELM
5129	14" MULTI-TRUNK ELM
5130	6" ASH
5131	7" CEDAR
5132	12" CEDAR
5133	10" CEDAR
5134	6" CEDAR ELM
5135	10" MULTI-TRUNK ELM
5136	11" MULTI-TRUNK ELM
5137	8" ELM
5138	9" CEDAR
5139	10" ELM
5140	13" CEDAR
5141	8" MULTI-TRUNK CEDAR
5142	12" ELM
5143	13" ELM
5144	7" CEDAR ELM
5145	17" ELM
5146	8" CEDAR ELM
5147	14" ELM
5148	11" ASH
5149	7" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5150	10" CEDAR
5151	8" MULTI-TRUNK CEDAR
5152	6" CEDAR
5153	10" ELM
5154	7" ELM
5155	9" ELM
5156	11" ELM
5157	9" MULTI-TRUNK ELM
5158	7" ELM
5159	11" ELM
5160	12" ELM
5161	9" ELM
5162	14" CEDAR
5163	8" MULTI-TRUNK CEDAR
5164	17" CEDAR
5165	15" ASH
5166	7" ELM
5167	9" CEDAR
5168	7" ELM
5169	10" ELM
5170	10" CEDAR
5171	12" CEDAR
5172	12" CEDAR
5173	7" ELM
5174	9" ELM
5175	16" MULTI-TRUNK ELM
5176	6" MULTI-TRUNK ELM
5177	6" ELM
5178	8" OAK
5179	15" MULTI-TRUNK ELM
5180	7" OAK
5181	6" MULTI-TRUNK ELM
5182	10" MULTI-TRUNK ELM
5183	7" OAK
5184	6" ELM
5185	8" ELM
5186	10" OAK
5187	6" ELM
5188	8" ELM
5189	10" ELM
5190	8" MULTI-TRUNK ELM
5191	6" MULTI-TRUNK ELM
5192	7" MULTI-TRUNK ELM
5193	12" ELM
5194	6" ELM
5195	8" ELM
5196	7" MULTI-TRUNK ELM
5197	6" CEDAR
5198	9" MULTI-TRUNK ELM
5199	6" CEDAR

TREE TABLE

POINT NO.	DESCRIPTION
5200	8" ELM
5201	6" CEDAR
5202	9" ELM
5203	6" ELM
5204	7" CEDAR
5205	18" ELM
5206	9" ELM
5207	6" MULTI-TRUNK CEDAR
5208	9" ELM
5209	8" MULTI-TRUNK CEDAR
5210	9" ELM
5211	6" ELM
5212	8" OAK
5213	7" OAK
5214	9" MULTI-TRUNK ELM
5215	8" ELM
5216	11" ELM
5217	11" ELM
5218	10" ELM
5219	11" ELM
5220	10" ELM
5221	9" ELM
5222	11" ELM
5223	7" MULTI-TRUNK ELM
5224	12" MULTI-TRUNK ELM
5225	9" ELM
5226	11" ELM
5227	8" HACKBERRY
5228	9" ELM
5229	8" ELM
5230	6" ELM
5231	9" ELM
5232	10" ELM
5233	16" OAK
5234	14" ELM
5235	16" ELM
5236	18" ELM
5237	7" ELM
5238	19" COTTONWOOD
5239	8" ELM
5240	8" ELM
5241	7" MULTI-TRUNK ELM
5242	20" ELM
5243	8" HACKBERRY
5244	8" HACKBERRY
5245	16" CEDAR
5246	8" OAK
5247	6" CEDAR
5248	9" CEDAR
5249	14" HACKBERRY

TREE TABLE

POINT NO.	DESCRIPTION
5250	16" MULTI-TRUNK ELM
5251	20" ELM
5252	26" COTTONWOOD
5253	8" CEDAR
5254	6" CEDAR
5255	6" CEDAR
5256	8" CEDAR
5257	12" CEDAR
5258	6" CEDAR
5259	15" CEDAR
5260	7" ELM
5261	8" ELM
5262	6" CEDAR
5263	20" ELM
5264	10" ELM
5265	6" ELM
5266	13" ELM
5267	14" ELM
5268	6" ELM
5269	8" ELM
5270	8" ELM
5271	7" ELM
5272	7" ELM
5273	13" ELM
5274	16" ELM
5275	15" ELM
5276	10" ELM
5277	7" ELM
5278	10" ELM
5279	23" ELM
5280	9" ELM
5281	9" MULTI-TRUNK ELM
5282	14" ELM
5283	11" ELM
5284	11" ELM
5285	6" ELM
5286	8" ELM
5287	8" RED BUD
5288	7" ELM
5289	9" ELM
5290	9" HACKBERRY
5291	13" CEDAR
5292	6" MULTI-TRUNK ELM
5293	10" MULTI-TRUNK ELM
5294	8" CEDAR
5295	9" ELM
5296	10" CEDAR
5297	12" ELM
5298	9" ELM
5299	13" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5300	13" CEDAR
5301	12" CEDAR
5302	13" ELM
5303	12" ELM
5304	8" CEDAR
5305	14" ELM
5306	15" ELM
5307	10" MULTI-TRUNK ELM
5308	12" MULTI-TRUNK ELM
5309	13" CEDAR
5310	8" CEDAR
5311	6" ELM
5312	9" ELM
5313	8" CEDAR
5314	7" ELM
5315	8" CEDAR
5316	10" ELM
5317	7" ELM
5318	6" MULTI-TRUNK ELM
5319	10" CEDAR
5320	6" ELM
5321	6" CEDAR
5322	9" ELM
5323	11" CEDAR
5324	7" CEDAR
5325	10" ELM
5326	7" ELM
5327	21" MULTI-TRUNK ELM
5328	7" ELM
5329	6" ELM
5330	8" ELM
5331	8" CEDAR
5332	8" CEDAR
5333	6" ELM
5334	7" MULTI-TRUNK ELM
5335	7" ELM
5336	14" CEDAR
5337	12" CEDAR
5338	6" ELM
5339	7" ELM
5340	8" ELM
5341	29" ELM
5342	48" ELM
5343	11" ELM
5344	13" ELM
5345	9" ELM
5346	27" ELM
5347	11" HACKBERRY
5348	14" ELM
5349	8" HACKBERRY

TREE TABLE

POINT NO.	DESCRIPTION
5350	19" HACKBERRY
5351	16" HACKBERRY
5352	20" ELM
5353	15" ELM
5354	13" HACKBERRY
5355	16" ELM
5356	8" ELM
5357	8" ELM
5358	6" ELM
5359	45" ELM
5360	8" ELM
5361	20" ELM
5362	8" CEDAR
5363	11" CEDAR
5364	15" ASH
5365	9" MULTI-TRUNK ELM
5366	14" ASH
5367	8" ASH
5368	16" CEDAR
5369	14" ELM
5370	14" ASH
5371	12" CEDAR
5372	11" ELM
5373	9" ELM
5374	8" ELM
5375	14" ELM
5376	9" ELM
5377	12" ELM
5378	21" MULTI-TRUNK ELM
5379	11" CEDAR
5380	10" ELM
5381	12" MULTI-TRUNK ELM
5382	7" ELM
5383	14" ELM
5384	13" CEDAR
5385	10" CEDAR
5386	6" CEDAR
5387	18" ELM
5388	7" CEDAR
5389	22" ELM
5390	7" ELM
5391	15" ELM
5392	21" ELM
5393	12" MULTI-TRUNK ELM
5394	12" HACKBERRY
5395	21" ELM
5396	10" ASH
5397	32" ELM
5398	18" CEDAR ELM
5399	36" ASH

TREE TABLE

POINT NO.	DESCRIPTION
5400	20" ASH
5401	10" CEDAR ELM
5402	29" CEDAR ELM
5403	33" CEDAR ELM
5404	13" ASH
5405	12" ASH
5406	33" CEDAR
5407	19" ASH
5408	16" CEDAR
5409	27" ASH
5410	16" ASH
5411	28" ASH
5412	17" ELM
5413	12" CEDAR ELM
5414	14" ELM
5415	26" ASH
5416	12" CEDAR ELM
5417	12" ASH
5418	22" ASH
5419	20" OAK
5420	17" OAK
5421	22" HACKBERRY
5422	22" ASH
5423	12" CEDAR ELM
5424	20" ASH
5425	32" CEDAR ELM
5426	25" CEDAR ELM
5427	38" CEDAR ELM
5428	12" ELM
5429	14" ASH
5430	7" CEDAR
5431	30" ELM
5432	16" CEDAR ELM
5433	19" ELM
5434	18" PECAN
5435	7" CEDAR ELM
5436	19" CEDAR ELM
5437	16" PECAN
5438	18" ELM
5439	16" ELM
5440	24" ELM
5441	13" MULTI-TRUNK ELM
5442	15" ELM
5443	24" ELM
5444	18" MULTI-TRUNK ELM
5445	23" ELM
5446	15" ELM
5447	11" ELM
5448	16" ELM
5449	20" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5450	12" ELM
5451	16" ELM
5452	17" HACKBERRY
5453	12" MULTI-TRUNK ELM
5454	8" ASH
5455	10" ASH
5456	22" ELM
5457	22" ELM
5458	24" ELM
5459	16" ELM
5460	18" ASH
5461	9" ELM
5462	21" RED BUD
5463	8" HACKBERRY
5464	6" HACKBERRY
5465	12" ELM
5466	13" ELM
5467	18" ELM
5468	13" ELM
5469	26" ELM
5470	14" ELM
5471	18" ASH
5472	11" ELM
5473	8" CEDAR
5474	13" ELM
5475	11" CEDAR
5476	12" ELM
5477	8" ELM
5478	10" ELM
5479	10" ELM
5480	12" ELM
5481	7" RED BUD
5482	10" ELM
5483	6" RED BUD
5484	10" ELM
5485	8" RED BUD
5486	6" RED BUD
5487	17" CEDAR
5488	14" ELM
5489	10" ELM
5490	7" ELM
5491	11" ELM
5492	7" HACKBERRY
5493	10" ELM
5494	10" ELM
5495	8" RED BUD
5496	10" ELM
5497	6" HACKBERRY
5498	8" ELM
5499	7" RED BUD

TREE TABLE

POINT NO.	DESCRIPTION
5500	14" ELM
5501	11" ELM
5502	10" ELM
5503	11" RED BUD
5504	10" ELM
5505	6" RED BUD
5506	9" ELM
5507	19" ASH
5508	7" RED BUD
5509	11" ELM
5510	7" HACKBERRY
5511	12" RED BUD
5512	11" RED BUD
5513	6" RED BUD
5514	9" MULTI-TRUNK ELM
5515	7" RED BUD
5516	14" ELM
5517	11" CEDAR
5518	15" ELM
5519	11" ELM
5520	14" RED BUD
5521	11" ELM
5522	8" HACKBERRY
5523	6" RED BUD
5524	19" ELM
5525	11" HACKBERRY
5526	6" MULTI-TRUNK RED BUD
5527	7" RED BUD
5528	6" RED BUD
5529	14" ELM
5530	10" MULTI-TRUNK ASH
5531	18" ASH
5532	6" MULTI-TRUNK RED BUD
5533	6" CEDAR
5534	14" ELM
5535	15" ELM
5536	9" ELM
5537	12" ELM
5538	12" ELM
5539	12" ELM
5540	14" ELM
5541	16" ASH
5542	10" ELM
5543	12" RED BUD
5544	11" RED BUD
5545	7" RED BUD
5546	15" ELM
5547	8" ELM
5548	7" ELM
5549	9" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5550	8" ELM
5551	8" RED BUD
5552	6" RED BUD
5553	7" RED BUD
5554	10" ELM
5555	7" ELM
5556	12" ELM
5557	9" ELM
5558	11" ASH
5559	7" HACKBERRY
5560	6" HACKBERRY
5561	9" CEDAR
5562	10" ELM
5563	7" RED BUD
5564	9" ELM
5565	18" ELM
5566	9" ELM
5567	7" ELM
5568	7" ELM
5569	9" ELM
5570	23" ELM
5571	9" ELM
5572	7" RED BUD
5573	13" ELM
5574	10" ELM
5575	7" RED BUD
5576	11" ELM
5577	11" ELM
5578	10" ELM
5579	7" ELM
5580	8" ELM
5581	17" ELM
5582	11" ELM
5583	7" ELM
5584	9" ASH
5585	21" ELM
5586	21" ELM
5587	18" ELM
5588	15" ELM
5589	10" RED BUD
5590	19" ELM
5591	11" ELM
5592	14" HACKBERRY
5593	13" ELM
5594	11" MULTI-TRUNK CEDAR
5595	8" HACKBERRY
5596	15" ELM
5597	16" ELM
5598	21" ELM
5599	12" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5600	10" HACKBERRY
5601	11" MULTI-TRUNK ELM
5602	10" ELM
5603	12" MULTI-TRUNK ELM
5604	15" MULTI-TRUNK CREPE MYRTLE
5605	8" ELM
5606	12" MULTI-TRUNK ELM
5607	15" ELM
5608	11" ELM
5609	18" ELM
5610	20" ELM
5611	11" ELM
5612	9" ASH
5613	9" ELM
5614	6" RED BUD
5615	16" ELM
5616	10" CEDAR
5617	9" ELM
5618	9" CEDAR
5619	8" ELM
5620	8" ELM
5621	6" ELM
5622	9" ELM
5623	13" ELM
5624	8" ELM
5625	9" ELM
5626	9" ELM
5627	7" ELM
5628	9" ELM
5629	7" MULTI-TRUNK ELM
5630	9" ELM
5631	11" ELM
5632	6" ELM
5633	8" ELM
5634	10" ELM
5635	10" ELM
5636	7" ELM
5637	12" ELM
5638	8" ELM
5639	11" ELM
5640	10" ELM
5641	10" ELM
5642	24" ELM
5643	15" MULTI-TRUNK ELM
5644	10" MULTI-TRUNK ELM
5645	17" ELM
5646	20" ASH
5647	12" MULTI-TRUNK ELM
5648	7" ELM
5649	15" ELM

TREE TABLE

POINT NO.	DESCRIPTION
5650	10" ELM
5651	6" CEDAR ELM
5652	12" MULTI-TRUNK ELM
5653	6" ELM
5654	12" ELM
5655	8" ELM
5656	6" ELM
5657	16" ELM
5658	11" ELM
5659	16" ELM
5660	10" ELM
5661	14" ELM
5662	7" ELM
5663	6" ELM
5664	7" ELM
5665	7" ELM
5666	8" ELM
5667	14" ELM
5668	15" MULTI-TRUNK ELM
5669	13" MULTI-TRUNK ELM
5670	10" ELM
5671	15" MULTI-TRUNK ELM
5672	8" ELM
5673	7" ELM
5674	12" ELM
5675	10" ELM
5676	7" MULTI-TRUNK ELM
5677	12" MULTI-TRUNK ELM

NOTES

1. All coordinates shown are State Plane Coordinate System, North America Datum 1983, Texas North Central Zone (4202), on Grid values, no scale and no projection.

2. Subject property is shown on the National Flood Insurance Program Flood Insurance Rate Map for Dallas County, Texas, and incorporated areas, Map No. 48113C0335K, Community-Panel No. 480171 0335 K, Revised Date: July 7, 2014, and Map No. 48113C0345J, Community-Panel No. 480171 0345 J, Effective Date: August 23, 2001. Relevant zones are defined on said map as follows:

   Zone "X" – Other Areas: Areas determined to be outside the 0.2% annual chance floodplain.

   Zone "X" Shaded – Other Flood Areas: Areas of 0.2% annual chance flood.

   Zone "AE" – Special Flood Hazard Areas (SFHAs) subject to Inundation by the 1% annual chance flood: Base flood elevations determined.

3. This topographic map and the survey upon which it is based has been prepared and performed in accordance with the Texas Society of Professional Surveyors standards and specifications for a Category 6 condition, topographic survey. It is not the intent of this survey to render a professional opinion as to the location or condition of the boundary of the real property shown hereon. This survey was not prepared for use in any real estate transaction, conveyance or title insurance proceedings. Any depiction that may appear hereon of bearings, distances, courses, areas or monumentation are not necessarily supported by field recovered evidence and shall be interpreted as being based on record information or conceptual renderings only.

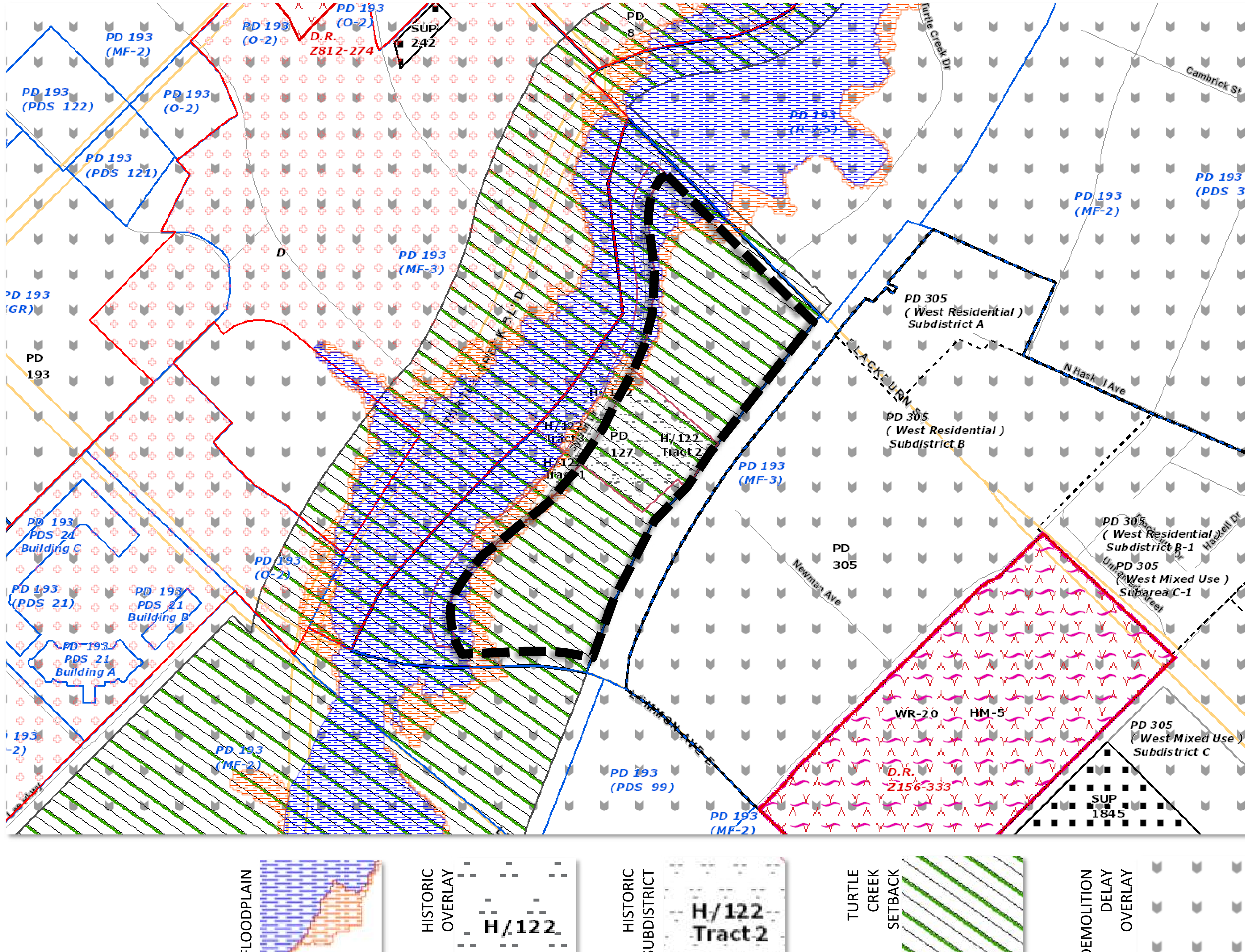
CIVIL (SURVEY)

ZONING

Site Address:
3636 Turtle Creek Blvd

Zoning District:
PD 127

Site Overlays:
- Historic overlay
- Historic subdistrict
- Turtle creek setback
- Demolition delay overlay
- Flood plain



Applicable Codes

CHAPTER 16: 2015 International Fire Code, including Appendix J, with Dallas Amendments (effective October 1, 2016) The Fire Code amendments include adoption of the 2013 Edition of the following Standards: Sprinklers, NFPA 13, 13D, 13R and Fire Alarm, NFPA 72.

CHAPTER 53: 2015 International Building Code with Dallas Amendments
Code Update: Ordinance Number 32198 (effective June 13, 2022)

CHAPTER 54: 2015 International Plumbing Code with Dallas Amendments (effective March 1, 2017)

CHAPTER 55: 2015 International Mechanical Code with Dallas Amendments (effective March 1, 2017)

CHAPTER 56: 2020 National Electrical Code with Dallas Amendments (effective June 13, 2022)

CHAPTER 58: 2021 International Existing Building Code with Dallas Amendments (effective June 13, 2022)

CHAPTER 59: 2015 International Energy Conservation Code with Dallas Amendments (effective March 1, 2017)

CHAPTER 60: 2015 International Fuel & Gas Code with Dallas Amendments (effective March 1, 2017)

CHAPTER 61: 2015 International Green Construction Code with Dallas Amendments (effective March 1, 2017)

Summary

1. If entire project is designed as one complete building, the "building" will be required to meet most stringent provisions of building height, area, and number of stories. In accordance with IBC Table 504.4 for allowable number of stories above grade plane, there are at least 4 stories indicated by the pricing document. The 4 story building will be restricted to, at minimum Type IIA construction when equipped throughout with an automatic sprinkler system. At this time, the construction of the Kalita Humphreys theater is unknown, but would be required to be upgraded to at least Type IIA construction when equipped with an automatic sprinkler system. This construction type would be further restricted by the allowable area. In accordance with Table 506.2, the entire building would be required to be of Type IA construction to meet area limitations for assembly occupancies based on an approximate area of 200,000 sf. Additional information is needed to determine actual height and area and construction type.

2. If the project is to be designed as multiple buildings, with the existing theater construction type remaining as is (most likely Type IIIB), then fire walls will be required to separate the new buildings from the existing theater due to the overall size, height and area, exceed the Dallas Building Code for an assembly use, protected by fire sprinklers. Separating the buildings will allow for each building to be constructed separately in accordance with Chapter 5 provisions for building height, area, and number of stories. Openings within the fire walls shall be limited to 156 square feet and the aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall, per DBC Section 706.8. However, the 156 square footage limitation is allowed to be exceeded where both buildings are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

3. Height is not given, however the presence of aerial fire apparatus access roads may be required if the vertical distance between grade plane and the highest roof surface exceeds 30 feet (due to the hilly topography, grade plan needs to be calculated). D105.1 Section D105.2-Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof. D105.3-At least one of the required access routes meeting this condition shall be located a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official. D105.4-Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the fire code official.

4. The presentation documents presented indicate several dead end fire department access roads. In accordance with DFC Section 503.2.5-Dead End fire apparatus access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus in accordance with Appendix D (i.e., required to have a 120-foot hammerhead, 60-foot "Y", or 96-foot diameter cul-de-sac in accordance with Figure D103.1.)

5. The pricing document indicates several proposed underground access roads. In accordance with DFC Section 503.2.1 Fire apparatus access roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches.

6. The pricing plan indicates that large portions of the Plan North exterior elevations of the buildings will be greater than 150 feet from the nearest fire department access roads. In accordance with DFC Section 503.1.1-Approved fire apparatus access roads shall be provided for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building. Exception: The fire code official is authorized to increase the dimension of 150 feet where any of the following conditions occur: 1.1-The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2, or 903.3.1.3. 1.2- Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.

7. The pricing document indicates various topography levels. In accordance with DFC Section 503.2.7- The maximum vertical grade for all fire apparatus access roads is 10 percent for concrete roads and 8 percent for asphalt roads. The maximum cross grade for all apparatus access roads is 2 percent.

APPENDIX

ESTIMATED BUDGET AND TIME

Kalita Humphreys Masterplan Estimated Budget and Time

The project budget was developed with the input of the entire project team. DTC hired the Beck Group to provide a construction budget estimate based on the plans as illustrated in DSR's masterplan concept scheme. Interestingly, the Beck Group has a unique perspective in that they built the original theater for DTC. Hillwood Urban provided input and guidance with regards to soft costs required to complete the project.

It is important to note the following items:

1) These figures reflect a budget based on an early set of concept plans and with 2022 cost data. As such, they are subject to movement (likely in the range of +/- 10%) with the evolution of the overall masterplan design and/or cost escalation, depending on actual construction commencement.
2) This masterplan design purposefully incorporates connectivity and accessibility between components. The budget detailed below provides estimated budgetary figures per specific project components; however, this detail is based on estimated allocations of hard and soft costs and does not reflect costs to deliver each component on a standalone basis.
3) The Theater / Program Additions component includes the proposed four new pavilions and all new program elements exclusive of the Katy Trail Improvements, Main Garage, and Site / Open Area Improvements shown below.
4) The Main Garage component is a below-grade structure housing approximately 380 parking spaces, a service/loading dock, and major utility infrastructure. In this masterplan scheme, significant investment is being made to keep these elements below grade in order to maximize available park area above grade.
5) The Site / Open Area Improvements include landscape, hardscape, grounds, paths and other park-like elements as illustrated in the Masterplan.
6) The budget does not include consideration for financing related costs or contributions to a DTC endowment fund.
7) Based on the Masterplan as presented, we have assumed a 20-month design timeframe followed by a construction period of approximately 26 months.

Project Component	Estimated Budget
Kalita Humphreys Theater Restoration	$ 52,000,000
Katy Trail Enhancements	$ 6,000,000
Theater/Program Replacements + Additions	$ 168,000,000
Main Garage - Project Infrastructure Allocation	$ 22,000,000
Park Improvements	
Main Garage - Parking Allocation	$ 27,000,000
Site/Open Area Improvements	$ 23,000,000
Project Total Budget	**$ 298,000,000**
Katy Trail/Turtle Creek Bridge Connection (to be considered a separate budget vehicle)	$ 10,000,000

The Design Team researched and visited several existing projects as architectural and inspirational references. The selected benchmarks represent 4 categories:

- Buildings designed by Frank Lloyd Wright
- Theaters of a similar scale
- Performing arts campuses with similar program amenities
- Buildings integrated with their site

Below are a selection of the most relevant benchmarks. Please refer to the Appendix for the complete list.

Guggenheim Museum
Frank Lloyd Wright
New York, NY 1959
- 270 seats
- Same period of significance
- Thrust stage
- Parabolic seating arrangement
- Custom theatrical seating

The Wyly
REX + OMA, Dallas, TX 2009
- 575, or 800 seats
- Versatile theater with flexible seating arrangements
- Glazed exterior wall
- Open lobby, rehearsal and administrative spaces

Irish Arts Center
Davis Brody Bond, New York, NY 2021
- 165 seats
- Blackbox theater with walkable ceiling grid
- Flexible seating arrangements
- Shared public lobby and cafe

The Public, Newman Theater
Giorgio Cavaglieri, New York, NY 1967
- 299 seats
- Proscenium Theater
- Historic brick interior in former library
- Part of multi-theater complex with shared lobby

The Claire Tow Theater
H3 Hardy Collaboration Architects, New York, NY 2011
- 100 seats
- Proscenium Theater
- Part of multi-theater complex
- with shared plaza
- Exterior roof space
- Accessible rehearsal space

Midtown Arts & Theater Center
Lake Flato Architects, Houston, TX, 2016
- Part of multi-theater complex with shared lobby
- 4 theaters with a variety of scales and seating arrangements
- Shared BOH space
- Public gallery

Writers Theater
Studio Gang, Glencoe, IL, 2016
- Campus-like cluster of performance spaces
- 250 seat thrust stage and
- 99 seat black box
- Public lobby / presentation space
- Operable façade
- Shared lobby with concessions

Jacob's Pillow
Flansburgh Architects, Becket, MA, 2017
- Multi-pavilion campus with several rehearsal and performance spaces
- Integrated with landscape
- Operable facades create seamless indoor / outdoor transition
- Flexible venues can be easily transformed

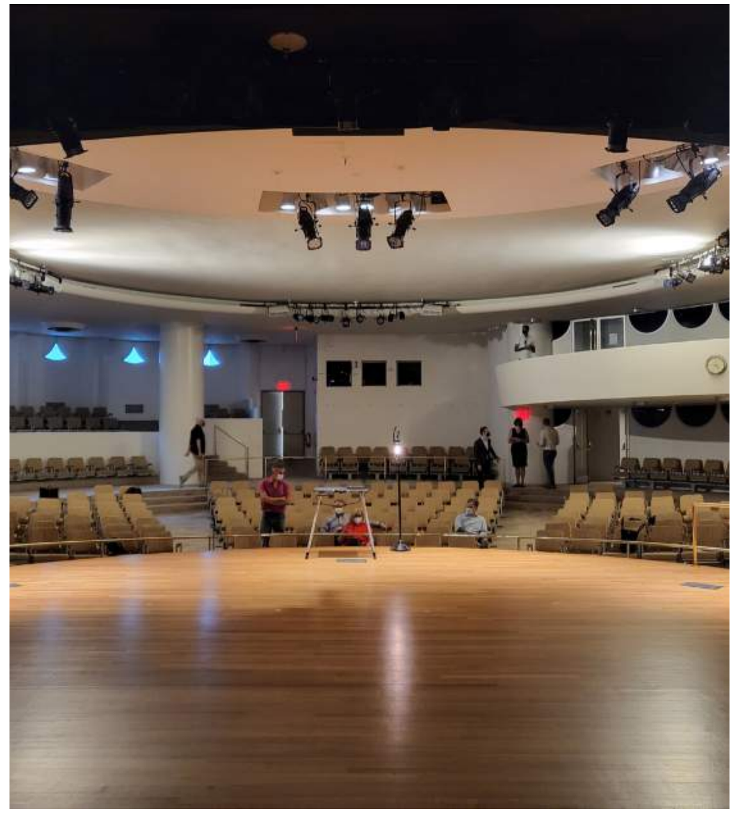
Grace Farms
SANAA, Glencoe, IL, 2016
- Multi-pavilion campus
- Integrated with landscape
- Glazed exterior creates seamless indoor / outdoor transition
- Program includes auditorium, café, library, gym, administrative spaces

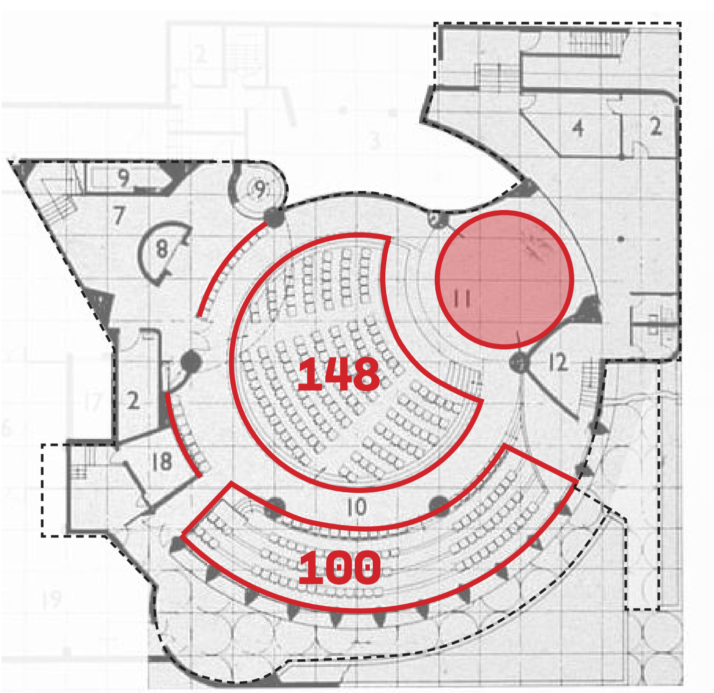
Guggenheim Museum, 1959

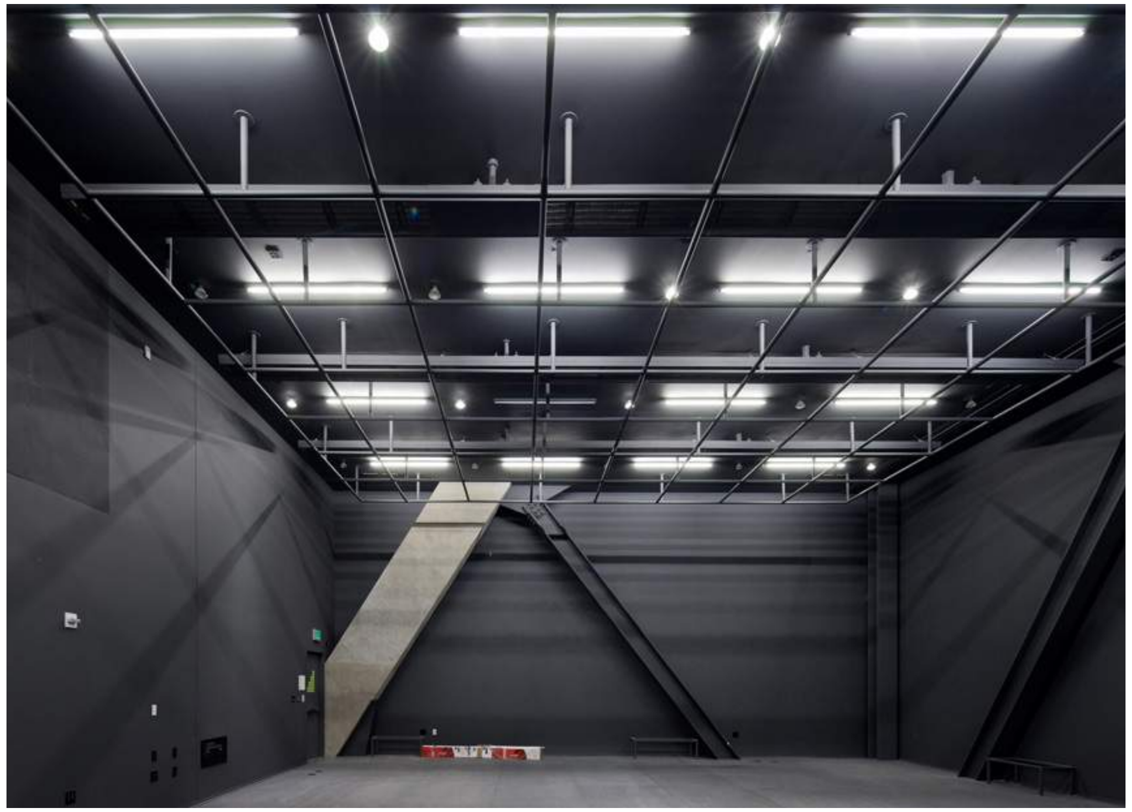
Peter B. Lewis Theater
New York, NY
Frank Lloyd Wright
Area: 5,000 SF

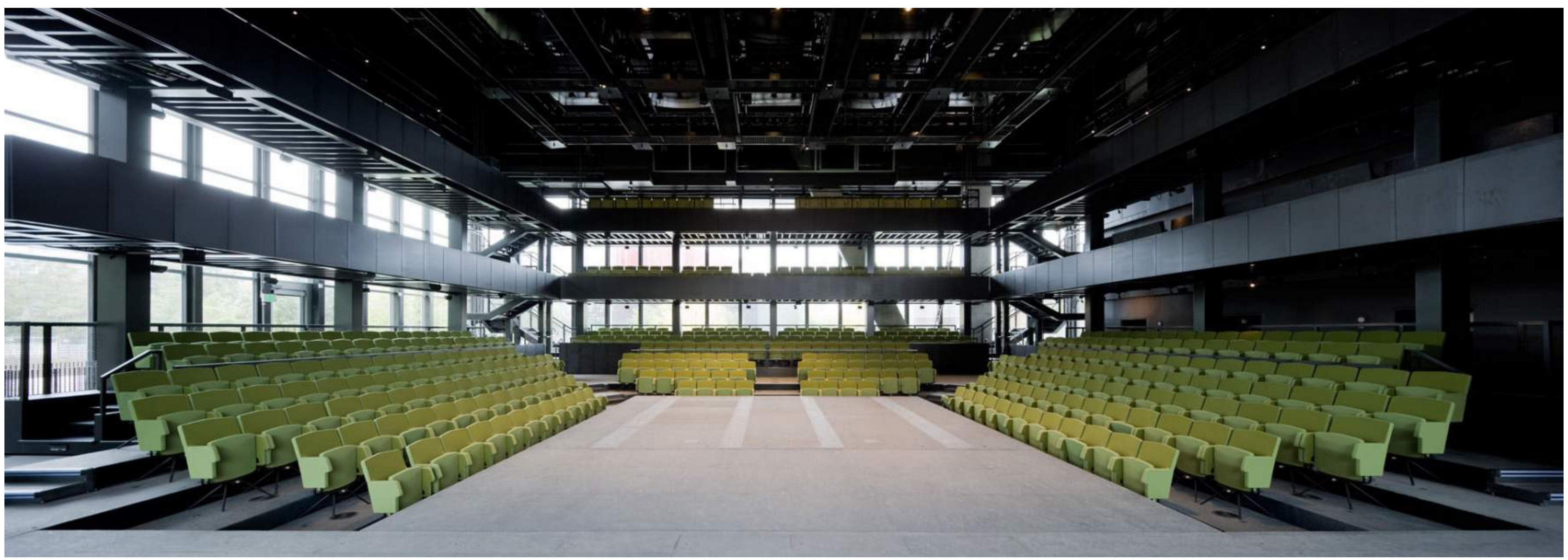
Part of Frank Lloyd Wright's original architectural design, the 270-seat theater provides space for lectures, symposia, and live performances of music and dance.

- 270 seats
- Same period of significance
- Thrust stage
- Parabolic seating arrangement
- Custom theatrical seating









Dee and Chalres Wyly Theater, 2009

Dallas, TX
OMA, REX
Area: 83,000 SF

- 575, or 800 seats
- Versatile theater with flexible seating arrangements
- Glazed exterior wall
- Open lobby, rehearsal and administrative spaces

The Dee and Charles Wyly Theatre overcomes these challenges by overturning conventional theater design. Instead of circling front-of-house and back-of-house functions around the auditorium and fly tower, the Wyly Theatre stacks these facilities below-house and above-house. This strategy transforms the building into one big "theater machine." At the push of a button, the theater can be transformed into a wide array of configurations—including proscenium, thrust, and flat floor—freeing directors and scenic designers to choose the stage-audience configuration that fulfills their artistic desires. Moreover, the performance chamber is intentionally made of materials that are not precious in order to encourage alterations; the stage and auditorium surfaces can be cut, drilled, painted, welded, sawed, nailed, glued and stitched at limited cost.

River Building, 2015

New Canaan, CT
SAANA, OLIN
Area: 83,000 SF

The River building is a multipurpose structure and landscape design for Grace Farms, an 80-acre site in New Canaan, Connecticut. The non-profit Grace Farms Foundation developed as a space for people to experience nature, encounter the arts, pursue justice, foster community and explore faith. The facilities of the building house the Foundation to Grace Community Church and other nonprofit and community groups. On-site amenities include public programs ranging from coffee and tea service, discussions, concerts, art classes and athletics.

Embedded in the landscape, the building begins at the top of the hill and flows down a long, gentle slope (a change in grade of 44 ft) in a series of bends, forming courtyard-like spaces. The building is essentially one long pvillion under a roof, made of glass, concrete, steel and wood. The hovering structure appears to float above the surface of the ground as it slips through the landscape. The walkways, courtyards and glass-wrapped volumes that form beneath the roof are transparent and engage with the natural surroundings.

Approximately 77 of the 80 acres of Grace Farms are open meadows, woods, wetlands and ponds. Fifty-five 500-foot-deep geothermal wells have been drilled on the property for heating and cooling.

In its architectural brief, the Foundation asked for a venue of "cultural interest and curiosity via open space, architecture, art and design in order to provide people with an opportunity to:

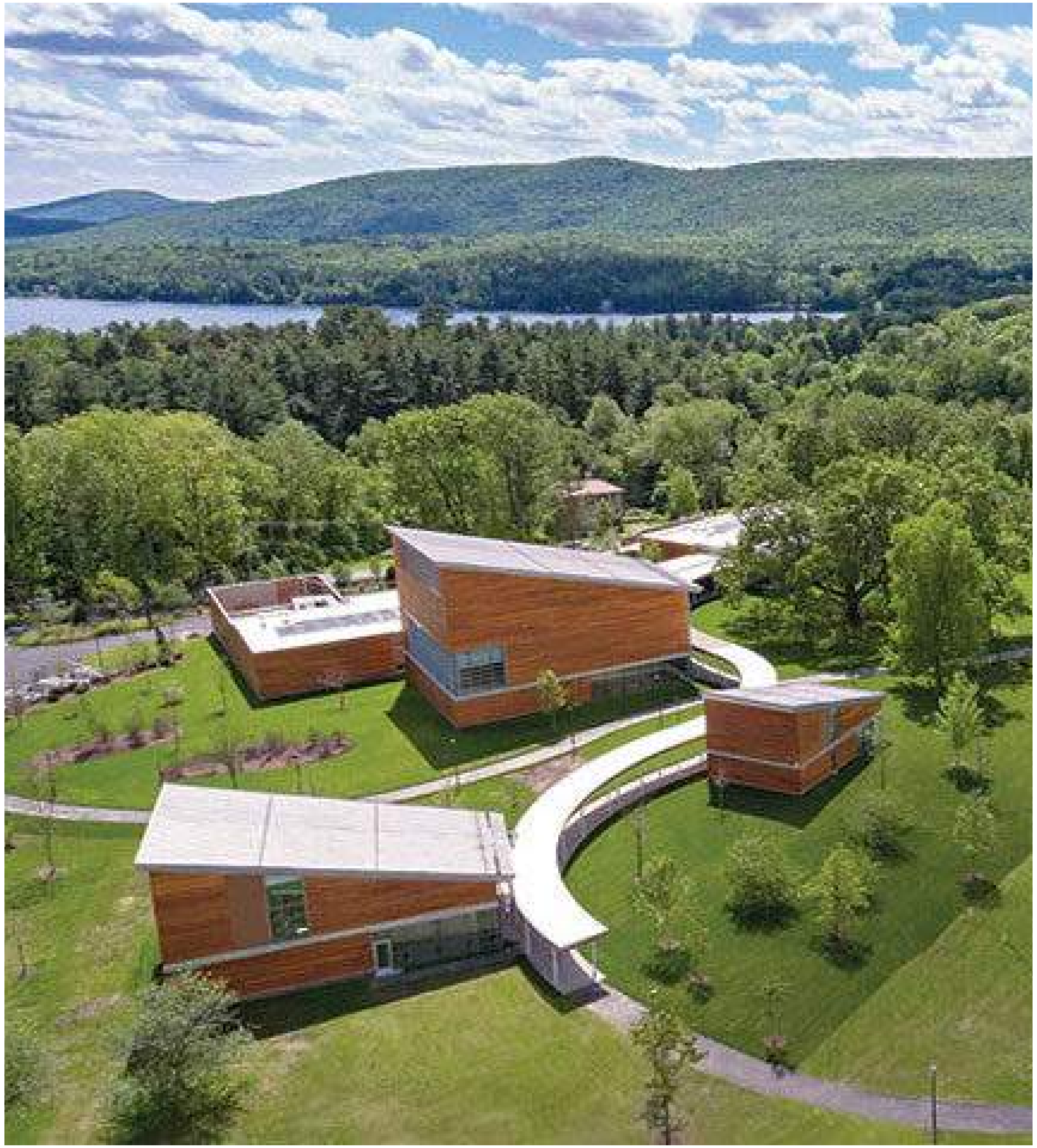
- Experience Nature: Our aim is to draw people into this beautiful landscape, to enhance one's experience of nature through all five senses, and to allow nature itself to inspire in us an experience of awe.
- Foster Community: We hope to provide a warm, welcoming environment that fosters personal relationships through passive and active, social and artistic activities.
- Pursue Justice: We will offer resources and feature opportunities to improve lives by helping others, showing mercy and advancing justice together.
- Explore Faith: We aspire to create an environment for reflection, study, discussion and worship."

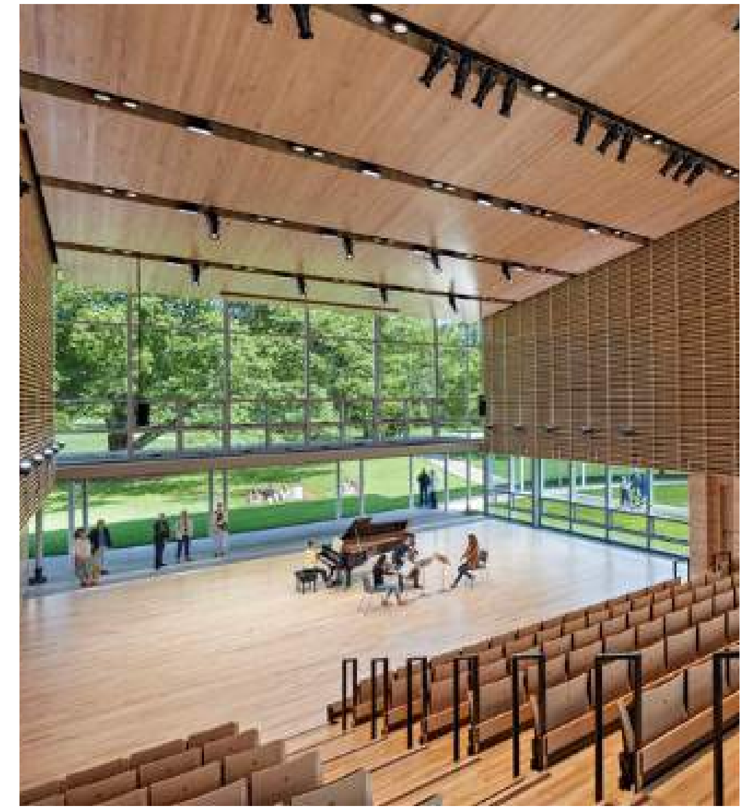
Jacob's Pillow

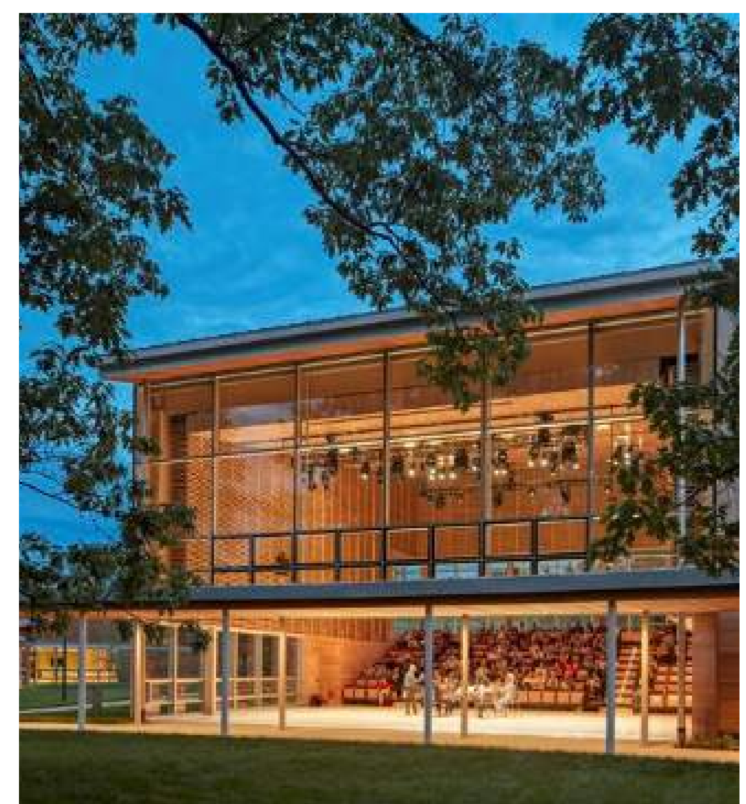
Becket, Massachusetts
Joseph Franz
Area: 220 acres

Jacob's Pillow is a dance center, school and performance space known for its Summer dance festivals. The site was settled as a farm in 1790, but began its development as a dance center in 1931, when it was purchased by dance pioneer Ted Shawn. Ownership of Jacob's Pillow changed with the onset of WWII, but was later purchased, the new theater building constructed in 1942, and Shawn installed as the artistic director until his death in 1972. Jacob's Pillow was listed as a National Historic Landmark District in 2003, cited as "an exceptional cultural venue that holds value for all Americans," and is the only dance center in the U.S. to receive this honor.

The Ted Shawn Theatre opened in 1942 as the first performance space in America specifically designed for dance. Joseph Franz, the architect, also built the indoor-outdoor Tanglewood Music Shed in Lenox, Massachusetts. After Shawn's death, a series of new artistic directors came through Jacob's Pillow, and beginning 1980 under Liz Thompson leadership, innovations in Inside/Out performances and open access to the site grounds and studios established the unique character of Jacob's Pillow. The Henry J. Leir Stage is home to the Inside/Out Performance Series, free public performances by established and emerging artists from around the world seen against the scenic backdrop of the Berkshires. The natural setting offers an uncommon setting for performance, opening up creative opportunities for performers, and offering visitors new ways of perceiving and experiencing both the landscape and the performance.







Tanglewood Linde Center

The Linde Center for Music and Learning at Tanglewood, the Boston Symphony Orchestra's longtime summer home in the Berkshires, was envisioned as a place where new ideas around music could commingle with cultural enrichment. Against the backdrop of a captivating landscape, the center is a cluster of four new buildings that help bridge Tanglewood's acclaimed music festival and its summer music academy, which provides no-cost fellowships to some of America's most talented professional musicians.

Tanglewood has represented human wellness through its quest to enrich the soul through music and develop meaningful connections with the landscape.
Connected by a serpentine pathway, the center's four buildings house Tanglewood's educational programs, recitals, and lectures, including the Tanglewood Learning Institute. The recently launched program provides classical music patrons extraordinary access to top-tier musicians as they work to hone their craft. Through all of its programs, the center aims to immerse audiences deeper into the process of creating music.

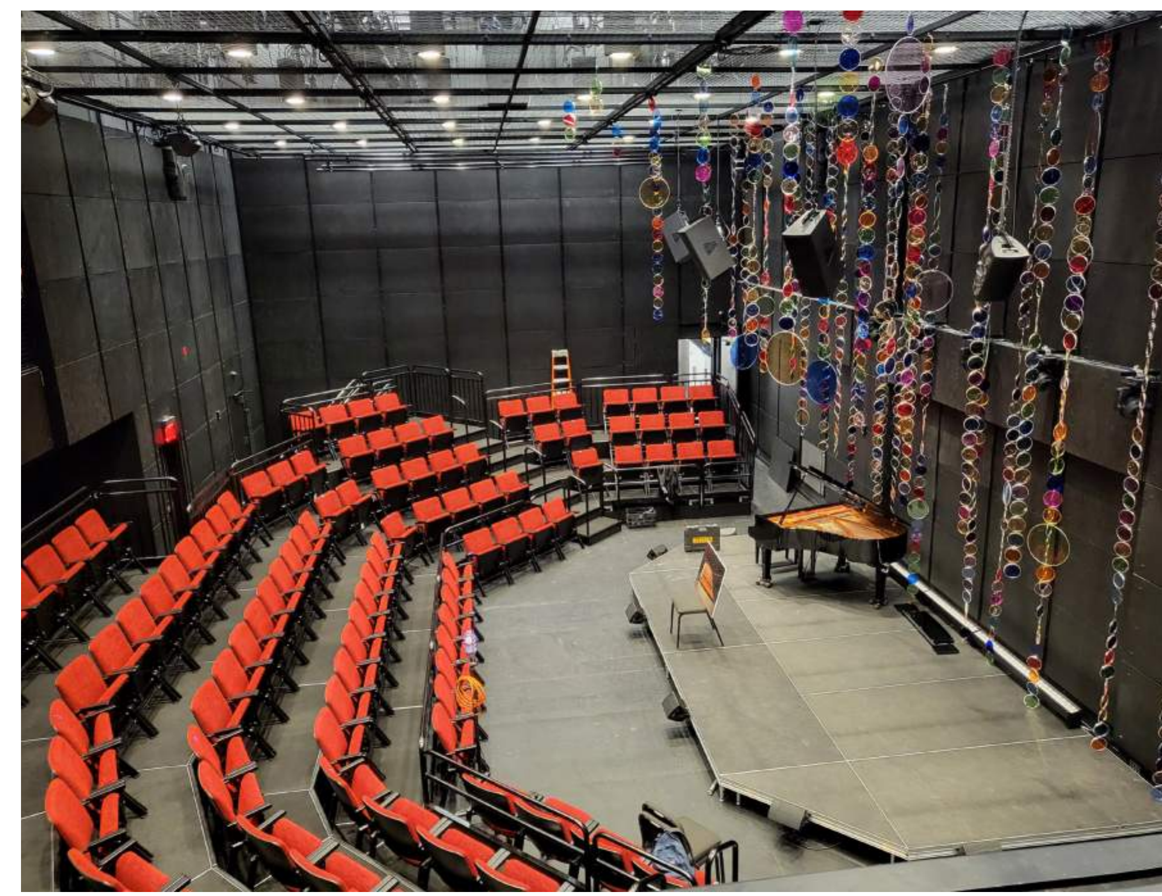
The center is positioned as a vital music incubator through its scale, flexibility, and distance-learning capabilities. Through it, the orchestra has experimented with new concepts and technologies,

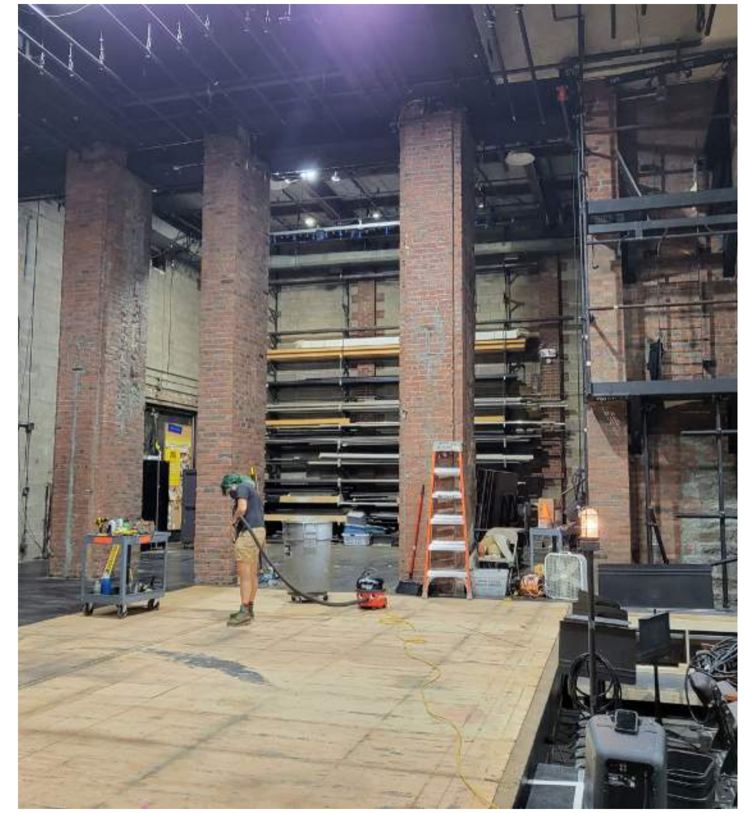
Irish Arts Center, 2020

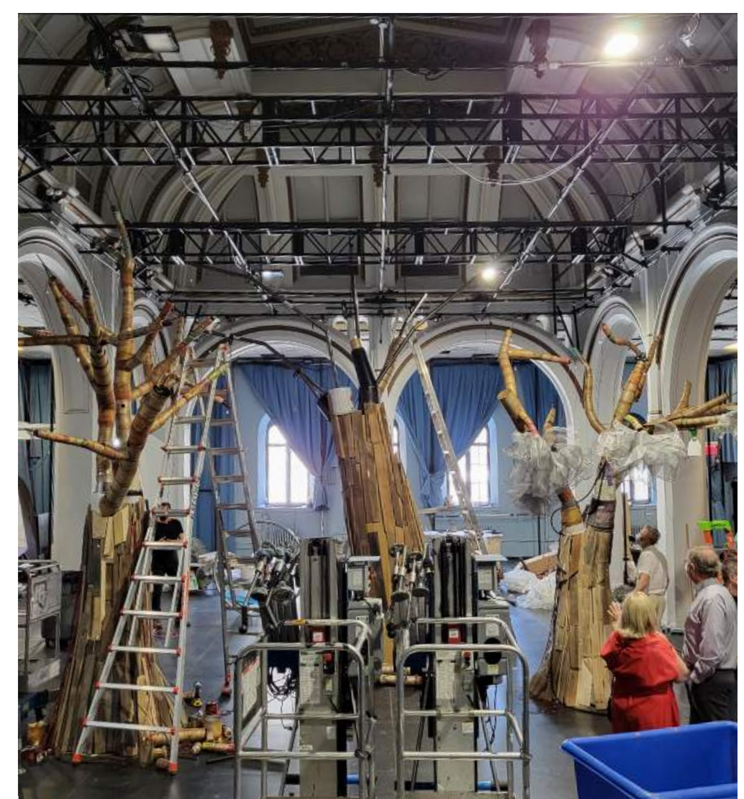
New York, NY
Davis Brody Bond, FDA
Area: 21,700 SF

The Irish Arts Center (IAC) is a home for cultural exchange with Ireland, a place for creation and development of new productions, a venue that supports cross-collaborations between US and Irish artists in many disciplines, and a center for educational programs that serves both the Irish-American and larger community. For most of its existence, the IAC operated out of a converted three-story tenement building, whose ground floor garage was transformed into a small theater. Our new expansion developed an adjacent new building on 11th Avenue which is connected to the original facility, creating a center with two venues, as well as associated support, classroom, and rehearsal space.

The renovated and expanded IAC houses a 199-seat flexible theater, rehearsal studio classroom, multi-purpose classroom, exhibit areas, and a café. It provides spaces for collaboration among the creative disciplines of music, theater, dance, film, comedy, literature, and the visual arts. The new theater will be used for drama, spoken word and music, and was designed to provide a flexible and neutral backdrop for set design while retaining a distinct character when used as a music venue. The solution was an interior of dark stained sacrificial plywood panels that allow for the adaptability of a "black box" yet still provides a sense of warmth and richness when the lights are on.







The Newman Theater, 1859, 1881

New York, NY
Giorgio Cavaglieri, Ennead
Area: X SF

The Public Theater is a New York City arts organization founded as the Shakespeare Workshop in 1954 by Joseph Papp, with the intention of showcasing the works of up-and-coming playwrights and performers. Led by JoAnne Akalaitis from 1991 to 1993 and by George C. Wolfe from 1993 to 2004, it is currently led by Artistic Director Oskar Eustis and Executive Director Patrick Willingham. The venue opened in 1967, with the world-premiere production of the musical Hair as its first show.

The Public is headquartered at 425 Lafayette Street in the former Astor Library in Lower Manhattan. The building holds five theater spaces and Joe's Pub, a cabaret-style venue used for new work, musical performances, spoken-word artists and soloists. The Newman Theater has 299 seats. The Public also operates the Delacorte Theater in Central Park, where it presents Shakespeare in the Park. New York natives and visitors alike have been enjoying free Shakespeare in Central Park since performances began in 1954.

Notable productions in recent years include: The Merchant of Venice, featuring Al Pacino as Shylock; Here Lies Love, by David Byrne; Fun Home, adapted from Alison Bechdel's illustrated memoir of the same name; Eclipsed, by Danai Gurira and featuring Lupita Nyong'o; and Hamilton, by Lin-Manuel Miranda.

Midtown Arts & Theater Center, 2017

Houston, TX
Lake Flato
Area: 59,000 SF

MATCH is centralized hub of creativity for a broad spectrum of Houston's arts organizations. Performing and visual arts groups, previously dispersed across the city, now find opportunities for synergy and collaboration with one another. The result has been an accessible and vibrant destination that has enriched connectivity of the city fabric and reinforced the identity of the arts in Houston.

The facility consists of four dedicated black-box theater spaces, two rehearsal spaces, classrooms, gallery space, and office space. A generous public breezeway serves as the building lobby where outdoor performances and community events can take place. Each theater and gallery has a 'storefront' and lobby along this internal streetscape, outwardly expressing their image and craft to a varying and diverse audience.

The MATCH is a collaboration between the City of Houston and a local not for profit organization. In addition to its function as a center for the arts, the project was seen as a key contributor to the revitalization of mid-town Houston and reinforcement of the city's public transit corridor.

New York Theater Workshop, 1997

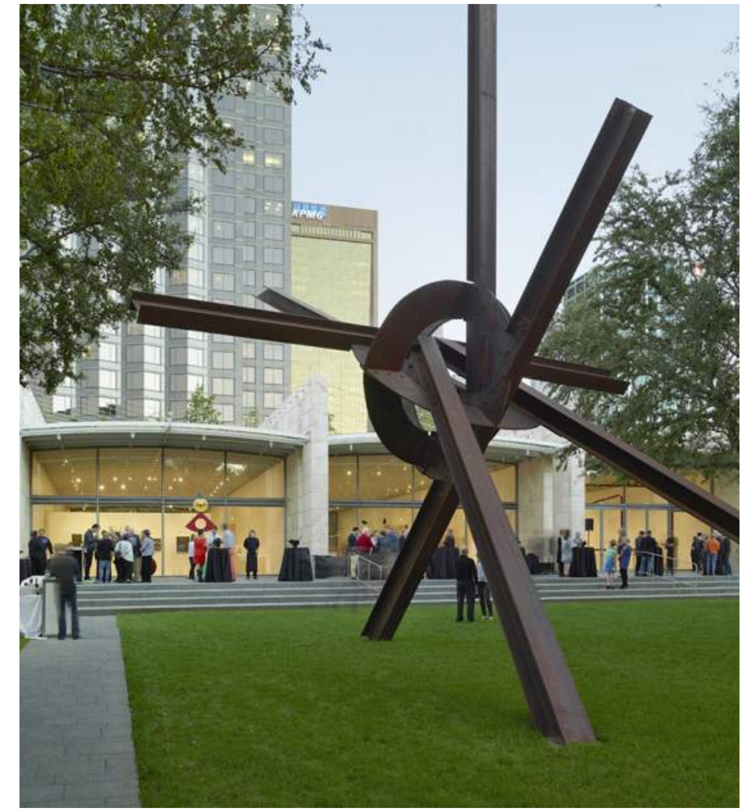
New York, NY
Mitchell Kurtz
Area: 20,000 SF

Claire Tow Theater, Lincoln Center

New York, NY
H3 hardy Collaboration Architecture, FDA
Capacity: 100 seats

The Claire Tow Theater was constructed in 2012 at Lincoln Center atop the Vivian Beaumont Theater, serving the need for a small, less formal performance space for the Lincoln Center Theatre Company. Claire Tow is the home of the LCT3, the programming initiative devoted to producing the work of emerging playwrights, directors, and designers.

Through mounting fully-staged, modestly budgeted productions, LCT3 bring a new generation of artists and audiences to Lincoln Center.



The Nasher Foundation, 2003

Dallas, Texas
Renzo Piano Building Workshop, PWP
Area: 54,000 SF

The museum is located in downtown Dallas, in the Arts Distric. The sculpture center is an oasis in an urban landscape. The building is made up of five parallel rectangular pavilions, whose volumes are delineated by a stine-walled perimeter. There are large, glazed facades at each end of the barrel vaults– transparent partitions that blur the boundaries between inside and outside.

The roof is comprised of five glass vaults which are suspended above the pavilions. The glass skylight structures allow indirect north light to illuminatw the gallery spaces. The interior exhibition spaces act as an extension of the sculpture garden, and vice versa.

The museum has two levels: the three central arcades on the ground floor house the sculptures and paintings that are most sensitive to light and humidity. The other arcades contain the cafeteria, the shop and administrative spaces. On the lower level, there's a small gallery for light-sensitive works, such as prints and drawings, as well as preservation laboratories, research and teaching areas, and an auditorium. The auditorium overlooks a terraces grandsatnd - an outdoor amphitheater. An operable façade facilitates indoor / outdoor performances.

The garden, which is surrounded by tall walls, accentuates the impression of being in a secret garden. The 86,000 square-foot outdoor space hosts a collection of nearly 25 sculptures and boasts a wide range of plant life. The garden is an ideal event space - naturally shaded by the tree canopy bove. The indoor kitchen can be utilized for smaller event preparation while larger events are catered off-site.

The Perelman

New York, NY
REX, Davis Brody Bond, Silman, Threshold Acoustics
Area: 129,000 SF

The Ronald O. Perelman Performing Arts Center at the World Trade Center will produce and premiere original works of theater, dance, music, film, and opera. The clear exterior form contrasts with a utilitarian, robust interior, which expresses the workhorse quality necessary for the changing nature of artistic needs. Steel walls, concrete trusses, wood floors, perforated plywood panels, and other ruggedly beautiful materials encourage frequent transformation.

The Perelman Center is organized in three levels—Public, Performer, and Play. The Play Level is a highly adaptable performance palette that combines both multi-form and multi-processional flexibility. It holds three auditoria (499-, 250-, and 99-person) and a rehearsal room which can double as a fourth venue. Using large, acoustic, guillotine walls that separate them, the three auditoria can be combined to form seven additional, unique performance spaces, for a total of eleven arrangements (including the rehearsal room), which can all adopt multiple stage/audience configurations. Circulation space around and between the performance rooms can also be choreographed or appropriated for performance. The Performer Level contains all support areas, such as trap, dressing rooms, green room, musician room, quiet room, wig storage, and costume shop. The Public Level can be enjoyed by anyone, anytime, and includes the lobby, restaurant/bar, and a flexible performance art space.

Mi Cocina

Dallas, TX / Klyde Warren Park
Architect Droese Raney
Area: 5,250 SF

Mi Cocina is a Tex-Mex restaurant with three locations in Dallas, Texas. Mi Cocina at Klyde Warren Park is a buzzing 5400 SF contemporary casual restaurant. It has indoor (90 seats) and outdoor seating (3950 SF), with ample bar seating (36 seats) and an approachable atmosphere, as well as a smaller take away venue with additional outdoor seating. Mi Cocina's versatility makes it an approachable restaurant for theater or museum goers and local crowds in Downtown Dallas.

BENCHMARKS BY REGION

Type	Name	Location	Campus	Single Building	Proscenium or Thrust	Black Box / Studio	Rehearsal Space	Education Space	Restaurant	Event Space	Landscape	Parking Structure
Texas	**MATCH** Lake Flato https://www.lakeflato.com/civiccultural/midtown-arts-theater-center-houston	Houston, TX	X		X	X				X		
	The Alley Ulrich Franzen https://www.studioredarchitects.com/alley-theatre-houston-texas/	Houston, TX		X	X		X					
	Dunlavy (now Flora) https://www.florahouston.com/	Houston, TX							X	X	X	
	Grove https://www.thegrovehouston.com/	Houston, TX							X	X	X	
	T3 Parking Danze Blood https://architizer.com/projects/t3-parking-structure/	Austin, TX									X	
	Mi Cocina https://www.micocina.com/locations/in/tx/dallas/on-the-park/	Dallas, TX							X		X	
	Buffalo Bayou https://buffalobayou.org/	Houston, TX									X	
	Greenlee Residence Private Residence	Dallas, TX									X	
	Beck House Philip Johnson and Bodron/Fruit Private Residence	Dallas, TX									X	
	Crystal Bridges Safdie Architects https://www.archdaily.com/tag/crystal-bridges	Bentonville, AR	X					X	X	X	X	
Northeast	**Lincoln Center Theater Company** FDA https://www.lct.org/	NYC, NY		X	X	X	X			X		X
	The Perlman											
	Kravis Studio, MoMA DS+R / FDA https://dsrny.com/project/the-museum-of-modern-art?index=false&search=o&section=studio&tags=	NYC, NY		X		X			X	X		
	Irish Arts Davis Brody Bond https://www.archpaper.com/2021/12/the-irish-arts-center-builds-on-history-after-decades-of-planning/	NYC, NY		X		X						
	Newman Theater, The Public Giorgio Cavaglieri / Ennead https://www.architectmagazine.com/project-gallery/the-public-theater-at-astor-place	NYC, NY		X	X							
	New York Theater Workshop Mitchell Kurtz https://www.mkapc.com/nytw	NYC, NY		X	X							
	The Joyce Theater Zilink, Hardy https://en.wikipedia.org/wiki/Joyce_Theater	NYC, NY		X	X							
	the Shed DS+R / FDA https://dsrny.com/project/the-shed	NYC, NY	X		X	X	X		X			
	Juilliard Studio Theater DS+R / FDA https://dsrny.com/project/the-juilliard-school?index=false&section=studio	NYC, NY	X			X		X				
	Lenfest Center for the Arts, Columbia Renzo Piano https://www.architectmagazine.com/project-gallery/lenfest-center-for-the-arts_o	NYC, NY		X		X	X	X				
	Kaplan Penthouse, Lincoln Center Theater http://venues.lincolncenter.org/venues/stanley-h-kaplan-penthouse	NYC, NY								X		
	Guggenheim Museum Frank LLoyd Wright https://www.guggenheim.org/the-frank-lloyd-wright-building	NYC, NY		X								
	Blue Hill Farm https://www.bluehillfarm.com/	Tarrytown, NY							X	X	X	

Type	Name	Location	Campus	Single Building	Proscenium or Thrust	Black Box / Studio	Rehearsal Space	Education Space	Restaurant	Event Space	Landscape	Parking Structure
Northeast	**Roundhouse Beacon** https://roundhousebeacon.com/	Beacon, NY							X	X	X	
	Grace Farms SANAA https://www.archdaily.com/775319/grace-farms-sanaa	New Canaan, CT	X					X	X	X	X	
	Beth Shalom Frank LLoyd Wright https://www.architecturaldigest.com/story/frank-lloyd-wright-designed-synagogue-celebrates-60-anniversary	Philadelphia, PA		X								
	Granoff Center for the Arts, Brown DS+R / FDA https://www.archdaily.com/112338/perry-and-marty-granoff-center-for-the-creative-arts-brown-university-diller-scofidio-renfro	Providence, RI		X		X	X	X				
	Jacob's Pillow Flansburgh Archiects https://www.jacobspillow.org/	Beckett, MA	X		X				X	X	X	
	Tanglewood Linde Center William Rawn Associates https://www.bso.org/venues/linde-center-for-music-and-learning	Lenox, MA	X							X	X	
Chicago	**Unity Temple** Frank LLoyd Wright https://www.archdaily.com/112683/ad-classics-unity-temple-frank-lloyd-wright-3	Chicago, IL		X								
	The Writers' Theater Studio Gang https://www.archdaily.com/783035/writers-theatre-studio-gang-architects	Chicago, IL		X	X		X					
	Shakespeare Festival Hariri Pontarini Architects https://www.canadianarchitect.com/stage-by-stage-tom-patterson-theatre-stratford-ontario/	Stratford, Canada	X		X							
	Steppenwolf Theater Smith & Gill https://www.archpaper.com/2022/01/adrian-smith-gordon-gill-architectures-expansion-steppenwolf-theatre-crit/	Chicago, IL	X		X	X	X					
Southeast	**Arena Stage** Bing Thom Architects https://www.archdaily.com/89124/arena-stage-bing-thom-architects	DC		X	X	X				X		
	Glenstone Phifer https://www.archdaily.com/902692/the-new-glenstone-thomas-phifer-and-partners	Potomac, MD	X					X	X	X	X	
	1111 Lincoln Road Herzog & de Meuron https://www.archdaily.com/59266/1111-lincoln-road-herzog-de-meuron	Miami, FL									X	
	Florida Southern College Frank LLoyd Wright https://visitcentralflorida.org/featured/frank-lloyd-wright-architecture-at-florida-southern-college/	Tampa, FL		X								
	Duke Crown Commons Reed Hildebrand https://www.reedhilderbrand.com/works/duke-university-crown-commons	Durham, NC	X								X	
	Nasher Sculpture Center at Duke University Vinoly Architects https://vinoly.com/works/duke-university-nasker-museum-of-art/	Durham, NC	X								X	
	North Carolina Museum of Art Thomas Pfeifer https://www.archdaily.com/80719/north-carolina-museum-of-art-thomas-phifer	Raleigh, NC	X					X	X	X	X	
	Forest Theater at UNC https://www.tclf.org/forest-theatre	Chapel Hill, NC									X	

BENCHMARKS BY REGION

Type	Name	Location	Campus	Single Building	Proscenium or Thrust	Black Box / Studio	Rehearsal Space	Education Space	Restaurant	Event Space	Landscape	Parking Structure
California	**Getty Villa** Machado Silvetti http://www.getty.edu/visit/villa/top-things-to-do/architecture/	Pacific Palisades, CA	X					X	X	X	X	
	The Getty Meier https://www.archdaily.com/103964/ad-classics-getty-center-richard-meier-partners-architects	LA, CA	X					X	X	X	X	
	Barnsdall House Frank LLoyd Wright https://www.barnsdall.org/hollyhock-house	LA, CA	X									X
	Skirball Cultural Center Safdie Architects https://architizer.com/projects/skirball-cultural-center/	LA, CA	X						X	X	X	X
	The Old Globe Theater Thomas Wood Stevens https://en.wikipedia.org/wiki/Old_Globe_Theatre	San Diego, CA	X		X						X	
Northwest	**Seattle Art Museum: Olympic Sculpture Park** Weiss Manfredi https://www.weissmanfredi.com/projects/386-seattle-art-museum-olympic-sculpture-park	Seattle, WA						X	X	X	X	X
	Reed College Opsis / FDA https://www.architectmagazine.com/project-gallery/reed-college-performing-arts-building	Portland, OR		X		X	X	X				
	Oregon Shakespeare Festival https://www.osfashland.org/	Ashland, OR	X		X							
West	**Denver Center for Performing Arts** Roche Dinkeloo https://www.architectmagazine.com/design/culture/reimagining-the-denver-performing-arts-complex_o	Denver, CO	X		X					X		X
	Center for the Arts DYNIA https://www.archdaily.com/160683/jackson-hole-center-for-the-arts-performing-arts-pavilion-stephen-dynia-architects	Jackson, WY		X	X		X					
	Kauffman Center for the Performing Arts https://www.kauffmancenter.org/ Safdie	Kansas City, MO									X	X
	Taliesin West Frank LLoyd Wright https://franklloydwright.org/taliesin-west/	Scottsdale, AZ	X									X
Europe	**Young Vic Theater** Hawthorn Tompkins https://archello.com/project/the-young-vic	London, UK		X		X	X					
	Polyvalent Theater Lacaton & Vassal https://www.archdaily.com/475683/polyvalent-theater-lacaton-and-vassal	Lilies, France						X		X		
	FRAC Nord-Pas de Calais Lacaton & Vassal https://www.archdaily.com/475507/frac-of-the-north-region-lacaton-and-vassal	Dunkerque, France						X		X		
	Boa Nova Teahouse Alvaro Siza https://www.archdaily.com/355077/ad-classics-boa-nova-tea-house-alvaro-siza	Palmiera, Portugal							X	X	X	
	Teatro Olimpico Palladio https://en.wikipedia.org/wiki/Teatro_Olimpico	Vicenza, Italy		X	X							
	Parc Guell Antoni Gaudi https://www.archdaily.com/329433/ad-classics-parc-guell-antoni-gaudi	Barcelona, Spain	X					X	X	X	X	
	Igualada Cemetery Enric Miralles https://www.archdaily.com/103839/ad-classics-igualada-cemetery-enric-miralles	Barcelona, Spain								X		

Type	Name	Location	Campus	Single Building	Proscenium or Thrust	Black Box / Studio	Rehearsal Space	Education Space	Restaurant	Event Space	Landscape	Parking Structure
Other	**Taliesin (Wisconsin)** Frank LLoyd Wright https://wrightinwisconsin.org/taliesin-spring-green	Spring Green, WI	X									X
	Teatro Oficina Lina Bo Bardi https://www.archdaily.com/878754/ad-classics-teatro-oficina-lina-bo-bardi-and-edson-elito	São Paulo, Brazil		X		X						
	SESC Pompeia Lina Bo Bardi https://arquitecturaviva.com/works/sesc-fabrica-pompeia-9	São Paulo, Brazil						X		X		
	Cervantes Theater Ensemble Studio https://www.archdaily.com/463582/cervantes-theater-ensamble-studio	Mexico City, Mexico		X	X					X		
	Maezawa Garden House ALP Design Wrokshop https://archello.com/project/white-flower-arbor-and-open-air-stage	Kurobe, Japan	X									X

Diller Scofidio + Renfro
New York, NY

Fisher Dachs Associates
New York, NY

Threshold Acoustics LLC
Chicago, IL

Reed Hilderbrand LLC
Cambridge, MA

Harboe Architects
Chicago, IL

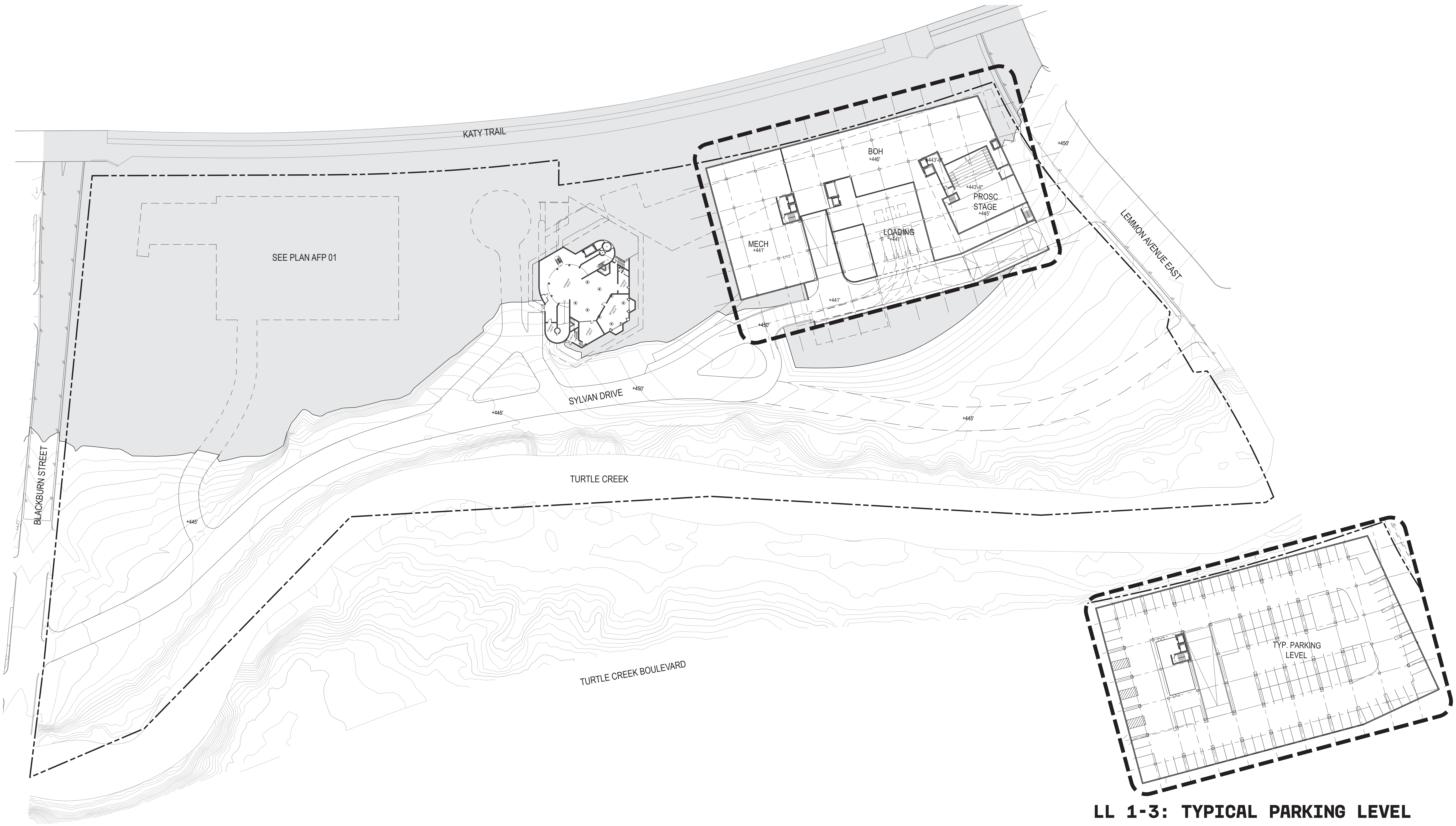
Silman Engineering
New York, NY

BOKAPowell
Dallas, TX

Syska Hennessy Group
Los Angeles, CA

Pacheco Koch
Dallas, TX

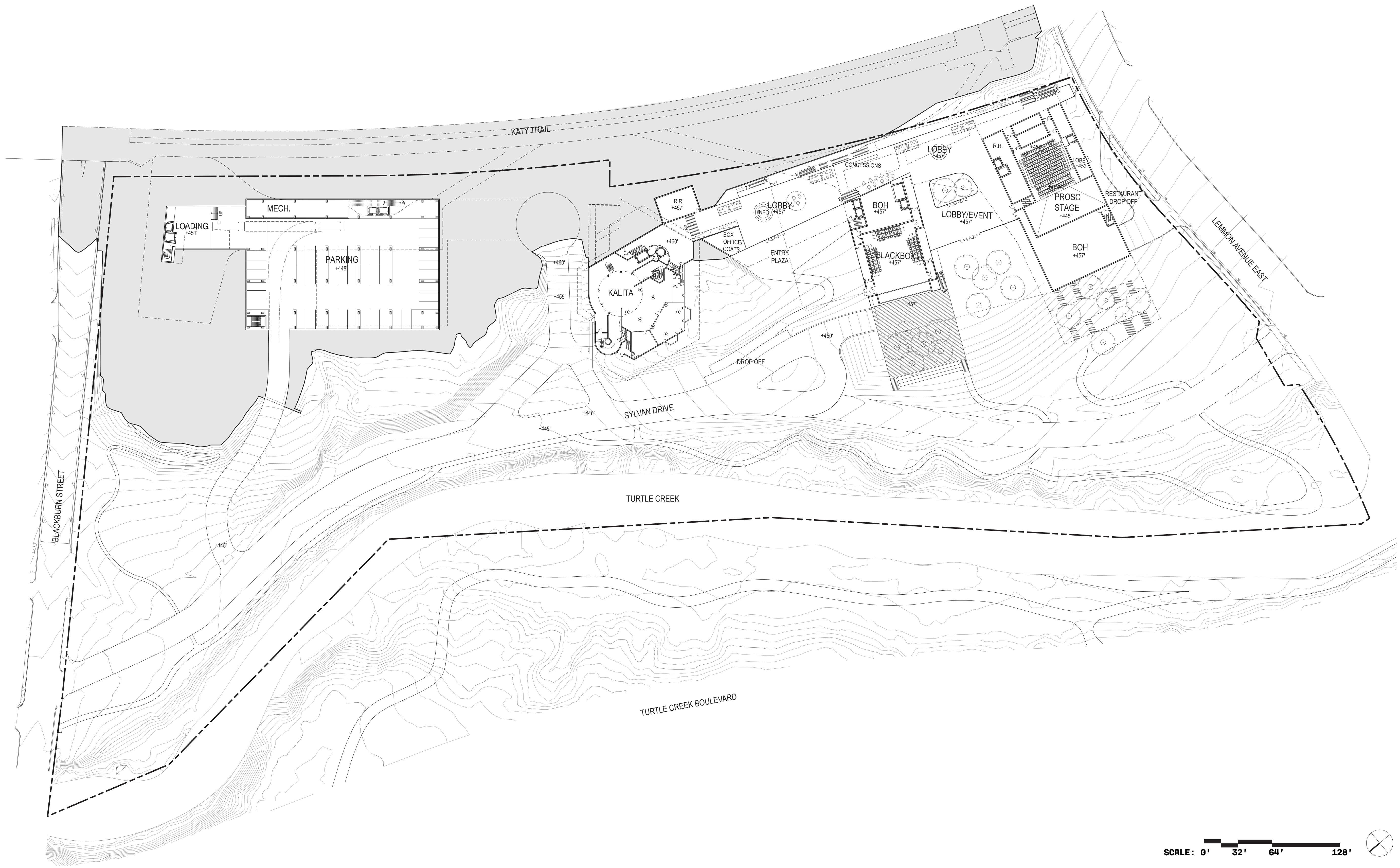
LOADING AND PARKING LEVEL



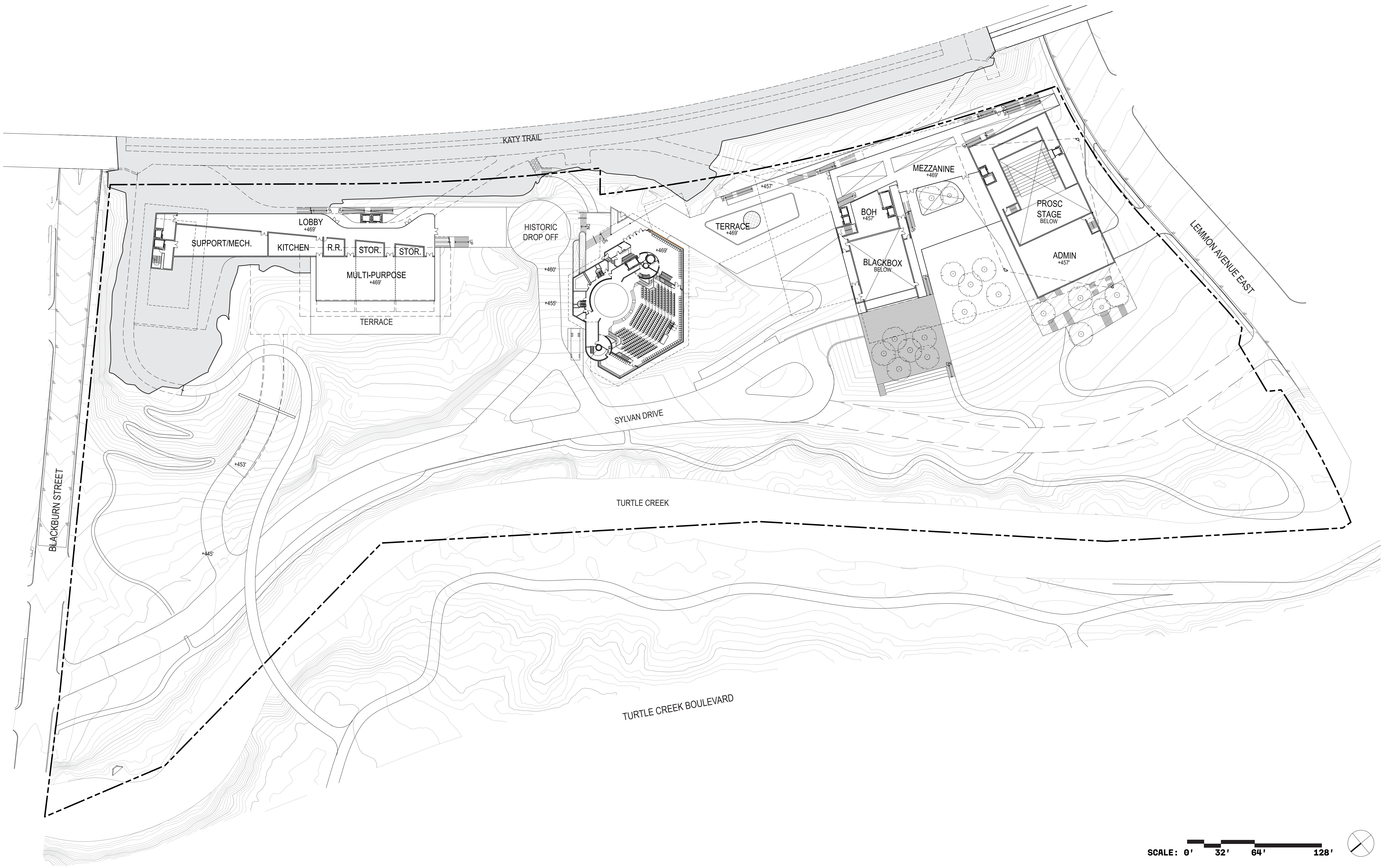
LL 1-3: TYPICAL PARKING LEVEL

Diller Scofidio + Renfro
New York, NY
Fisher Dachs Associates
New York, NY
Threshold Acoustics LLC
Chicago, IL
Reed Hilderbrand LLC
Cambridge, MA
Harboe Architects
Chicago, IL
Silman Engineering
New York, NY
BOKAPowell
Dallas, TX
Syska Hennessy Group
Los Angeles, CA
Pacheco Koch
Dallas, TX

LOBBY AND NORTH PARKING LEVEL



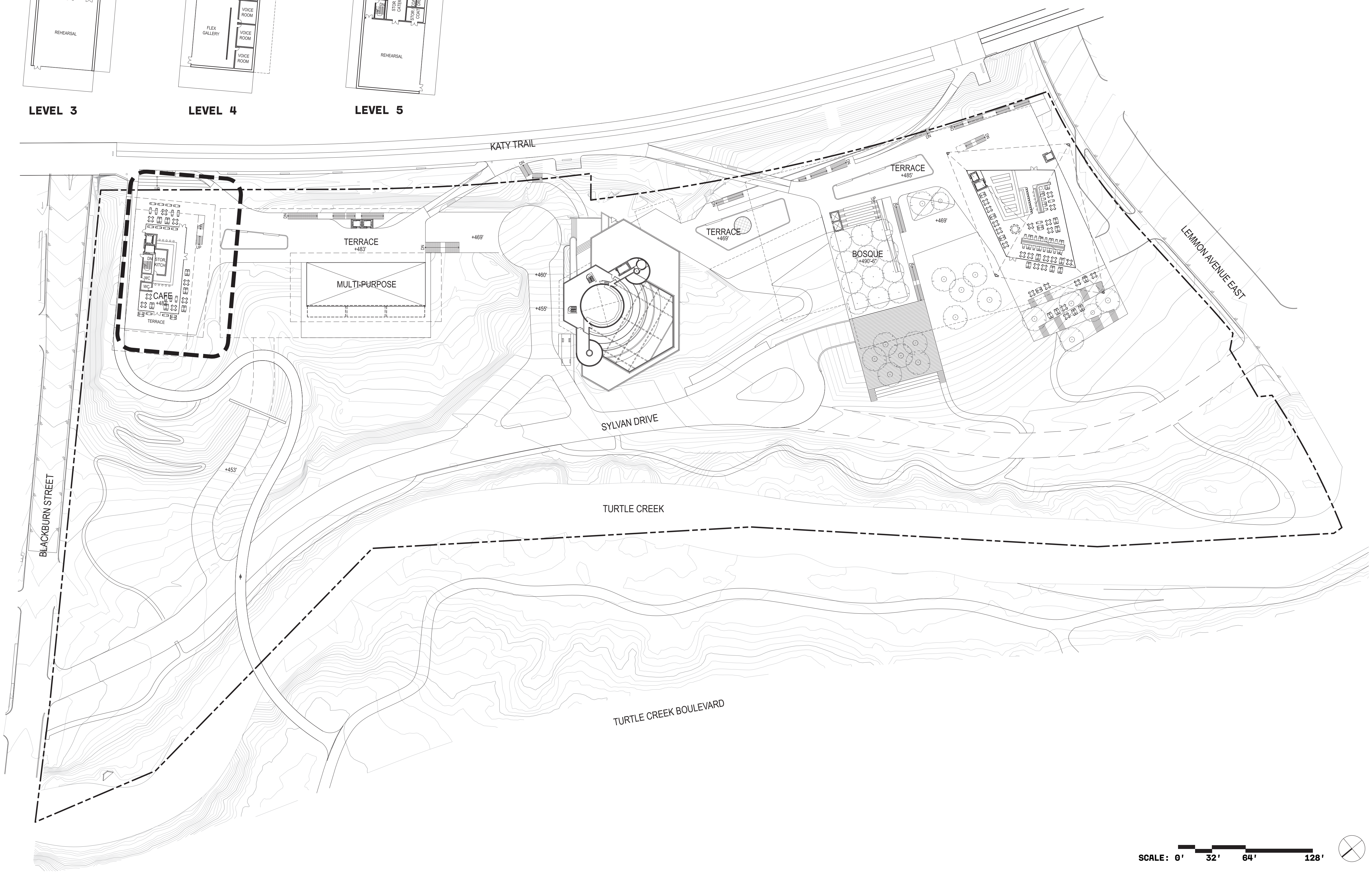
KALITA LOBBY AND TERRACE LEVEL



Diller Scofidio + Renfro
New York, NY | Fisher Dachs Associates
New York, NY | Threshold Acoustics LLC
Chicago, IL | Reed Hilderbrand LLC
Cambridge, MA | Harboe Architects
Chicago, IL | Silman Engineering
New York, NY | BOKAPowell
Dallas, TX | Syska Hennessy Group
Los Angeles, CA | Pacheco Koch
Dallas, TX

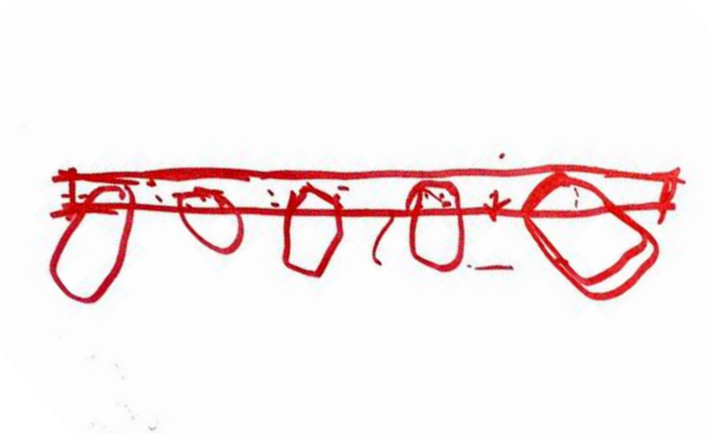
KATY TRAIL TERRACE LEVEL

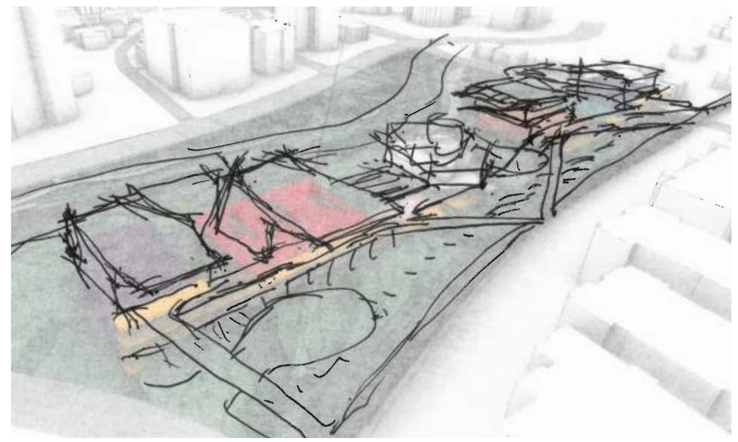
LEVEL 2 **LEVEL 3** **LEVEL 4** **LEVEL 5**

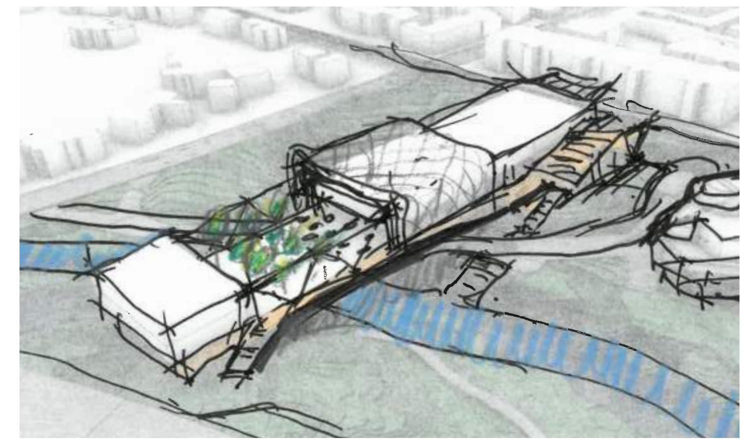


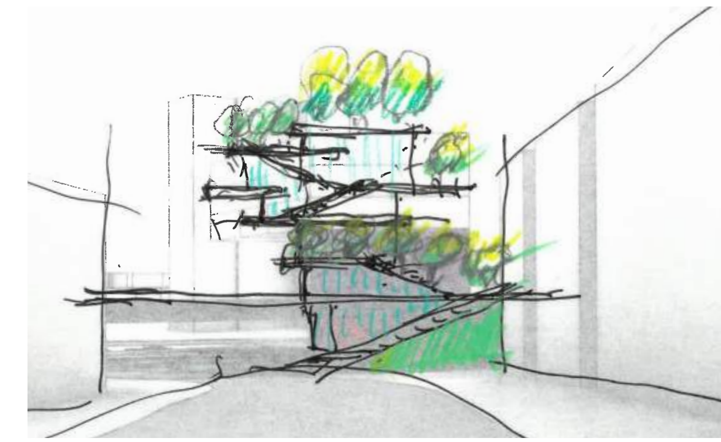
SKETCHES & MODELS

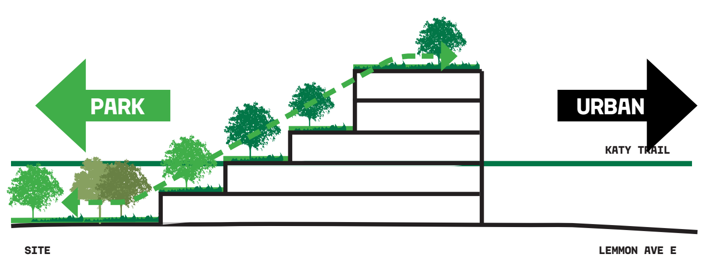
SKETCHES

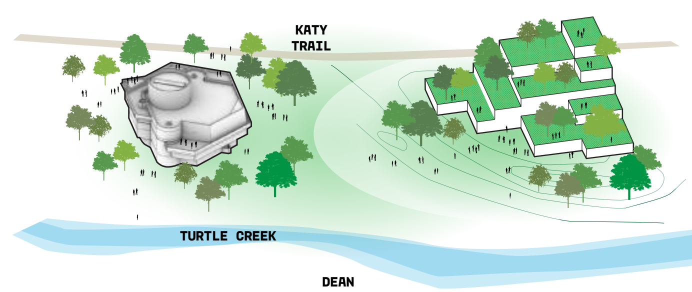


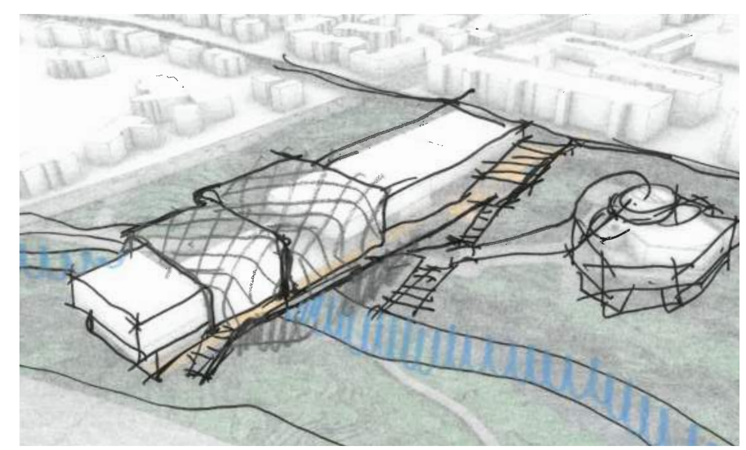


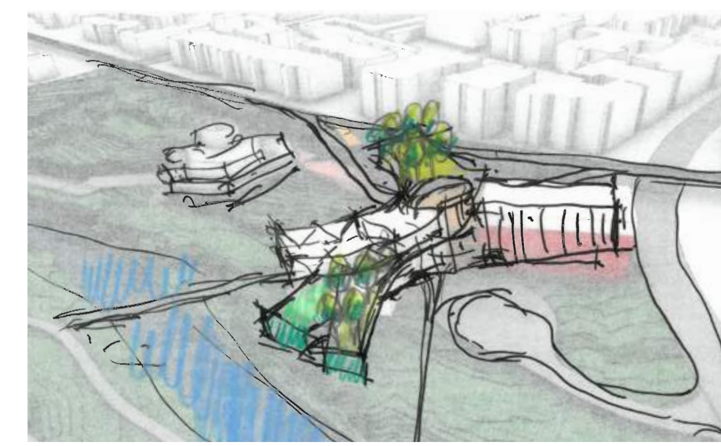




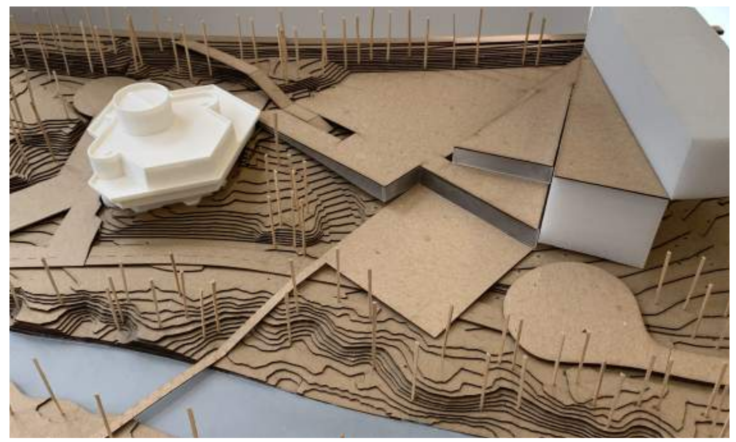

PARK
URBAN
KATY TRAIL
SITE
LEMMON AVE E

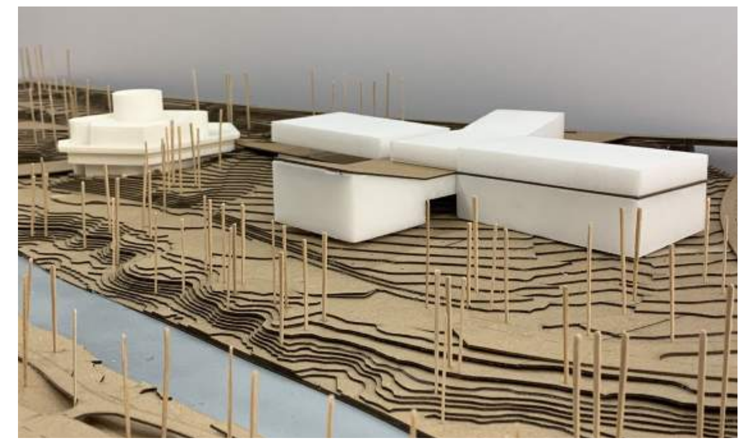

KATY TRAIL
TURTLE CREEK
DEAN PARK

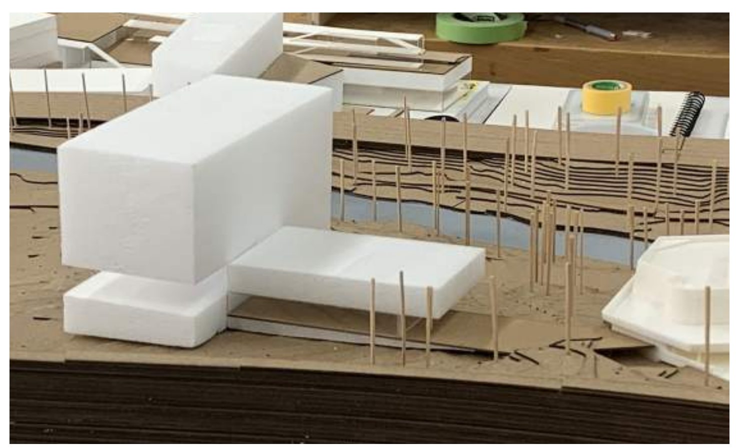


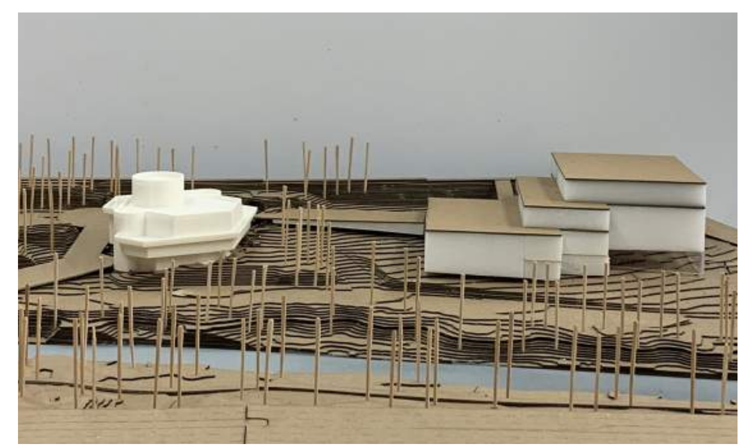


STUDY MODELS







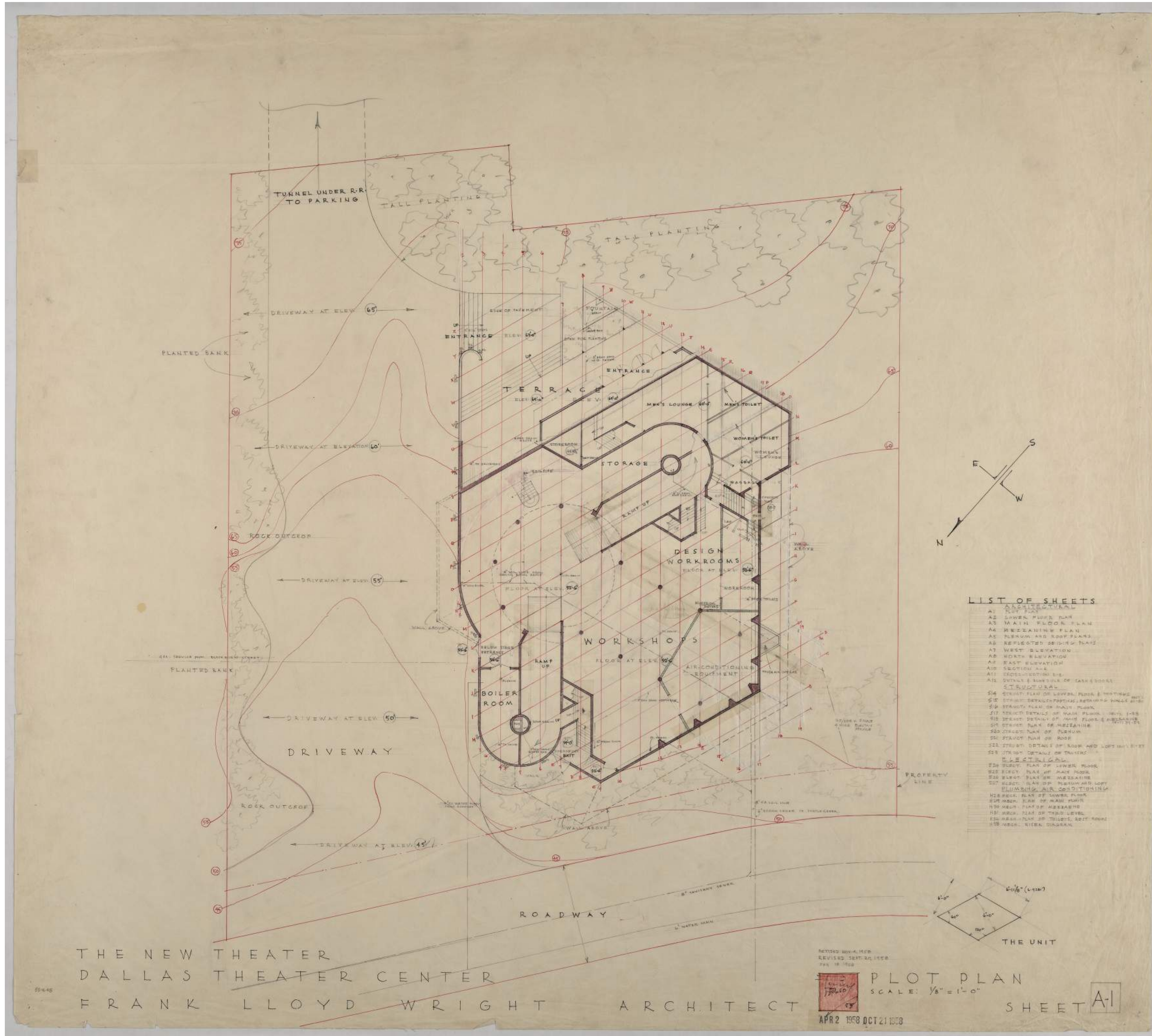


Diller Scofidio + Renfro New York, NY	Fisher Dachs Associates New York, NY	Threshold Acoustics LLC Chicago, IL	Reed Hilderbrand LLC Cambridge, MA	Harboe Architects Chicago, IL	Silman Engineering New York, NY	BOKAPowell Dallas, TX	Syska Hennessy Group Los Angeles, CA	Pacheco Koch Dallas, TX

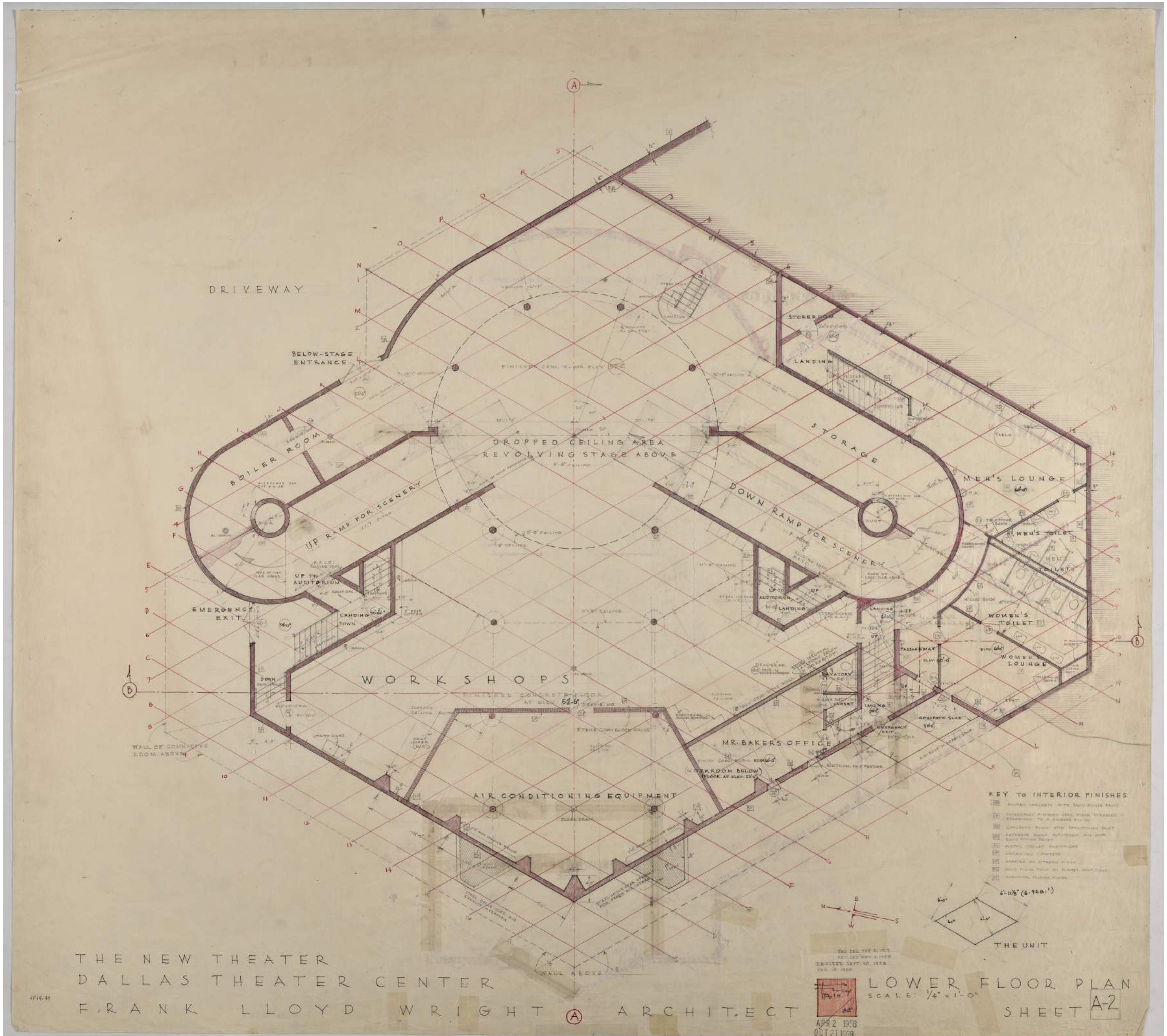
ORIGINAL 1959 DRAWINGS

1959 CONSTRUCTION DRAWINGS

Frank Lloyd Wright

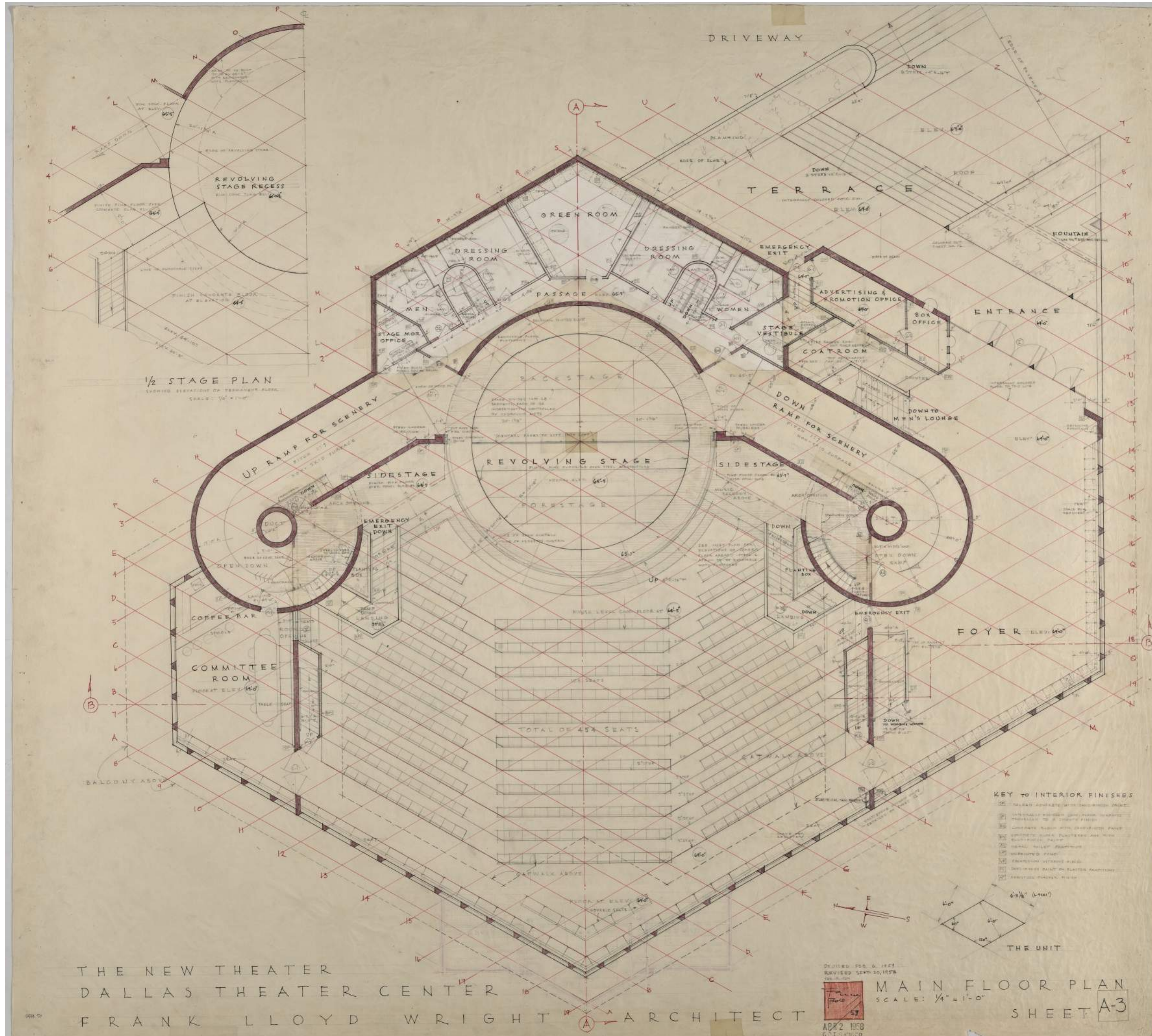


PLOT PLAN

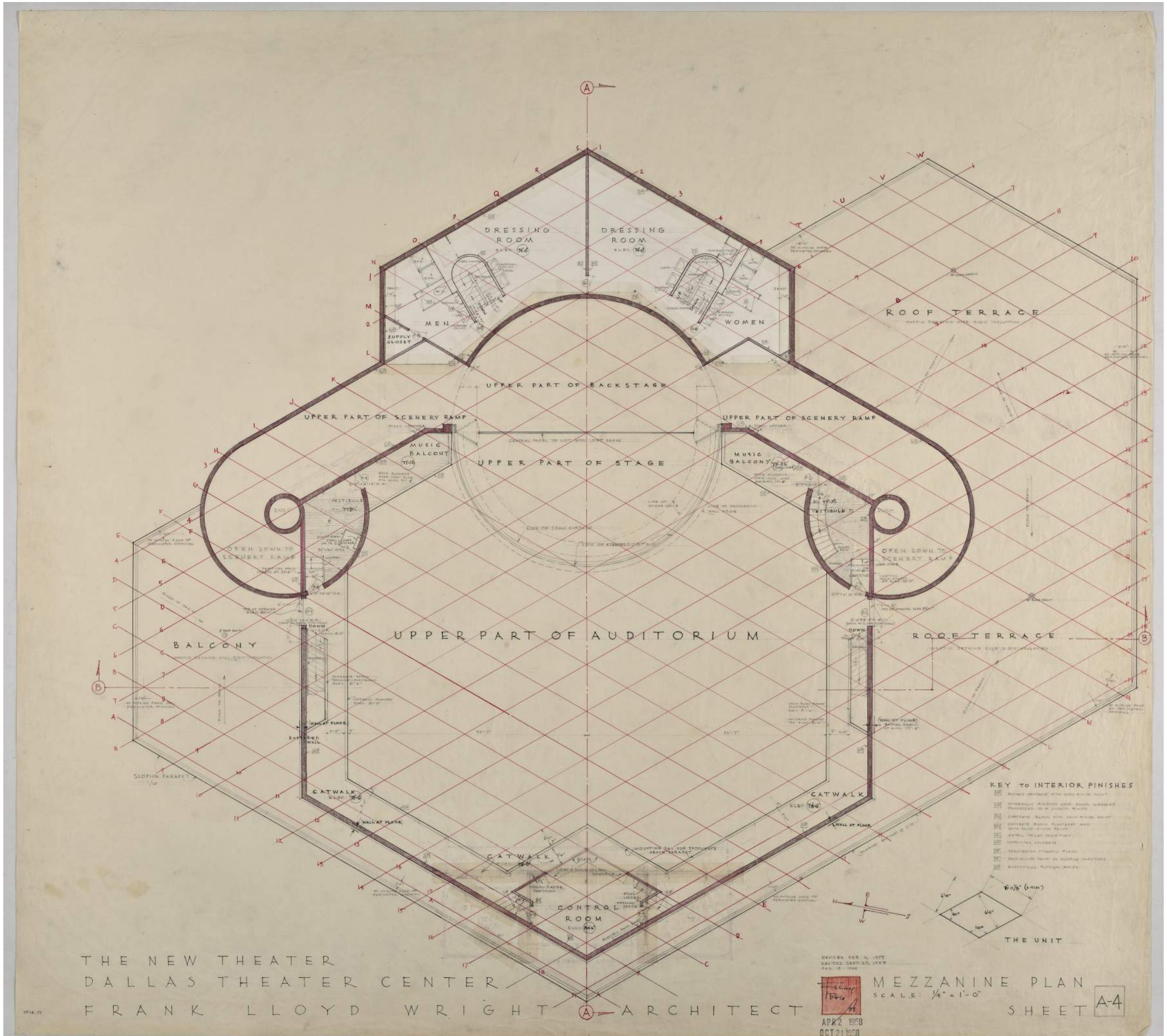


LOWER FLOOR PLAN

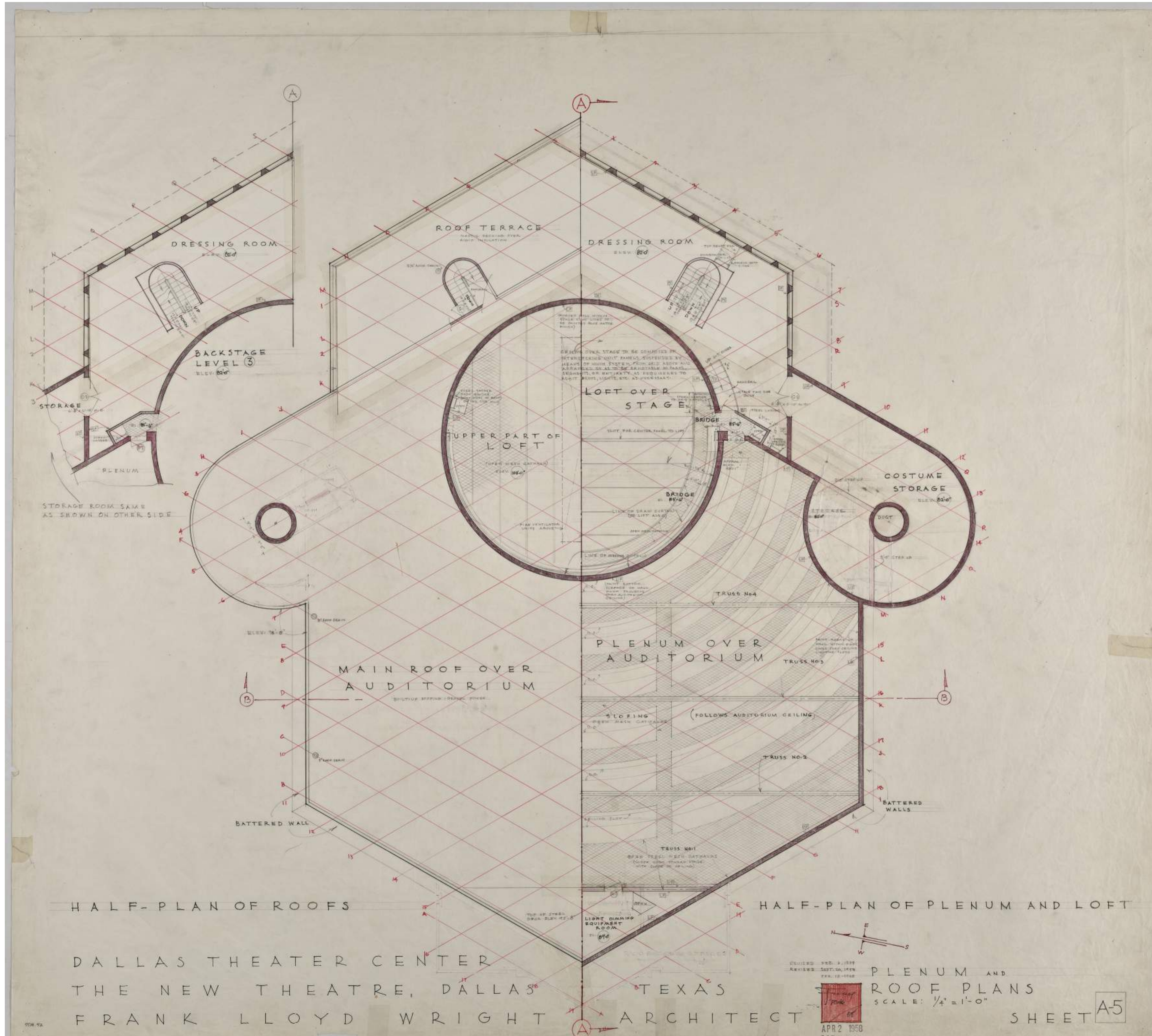
1959 CONSTRUCTION DRAWINGS
Frank Lloyd Wright



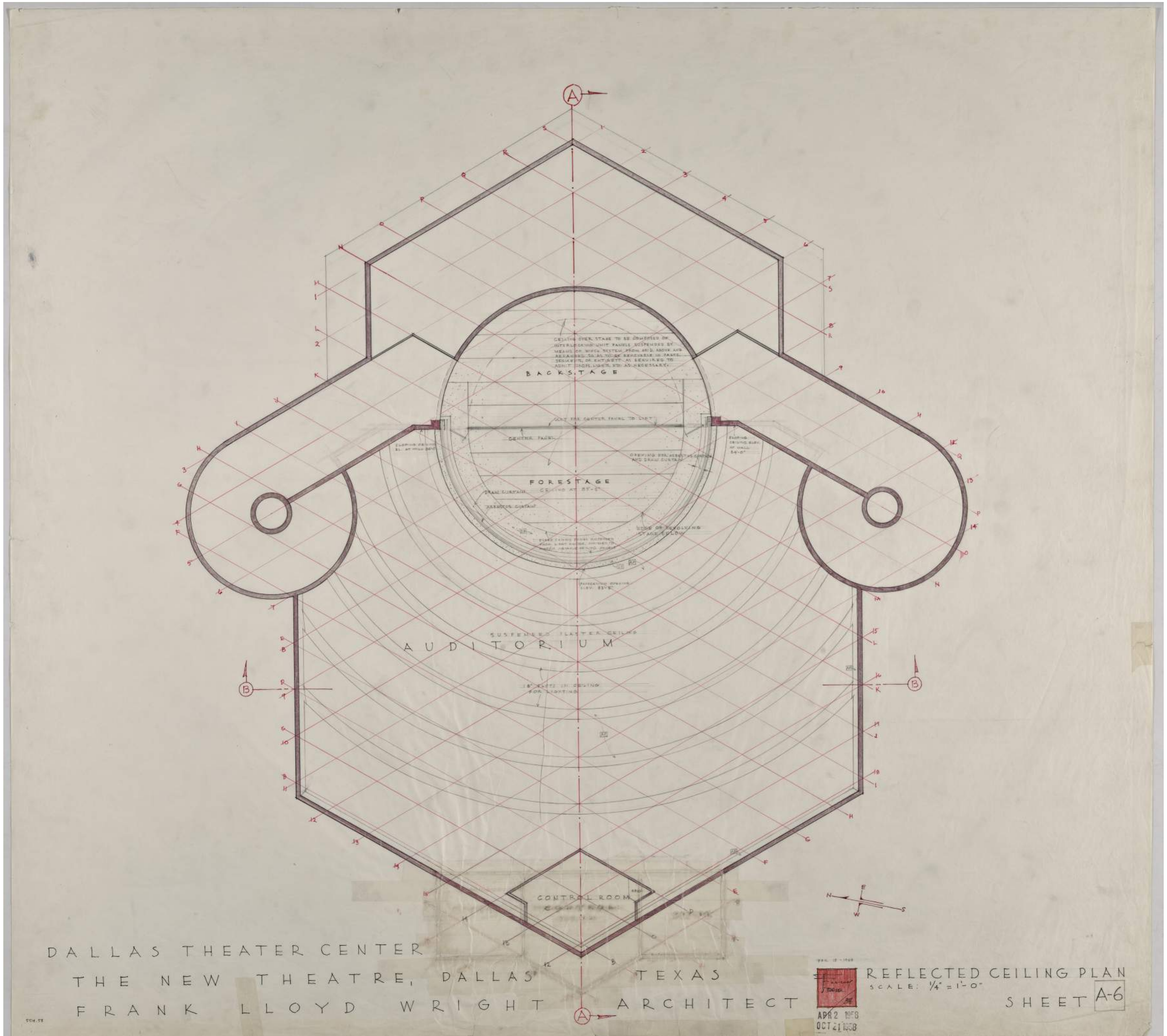
MAIN FLOOR PLAN



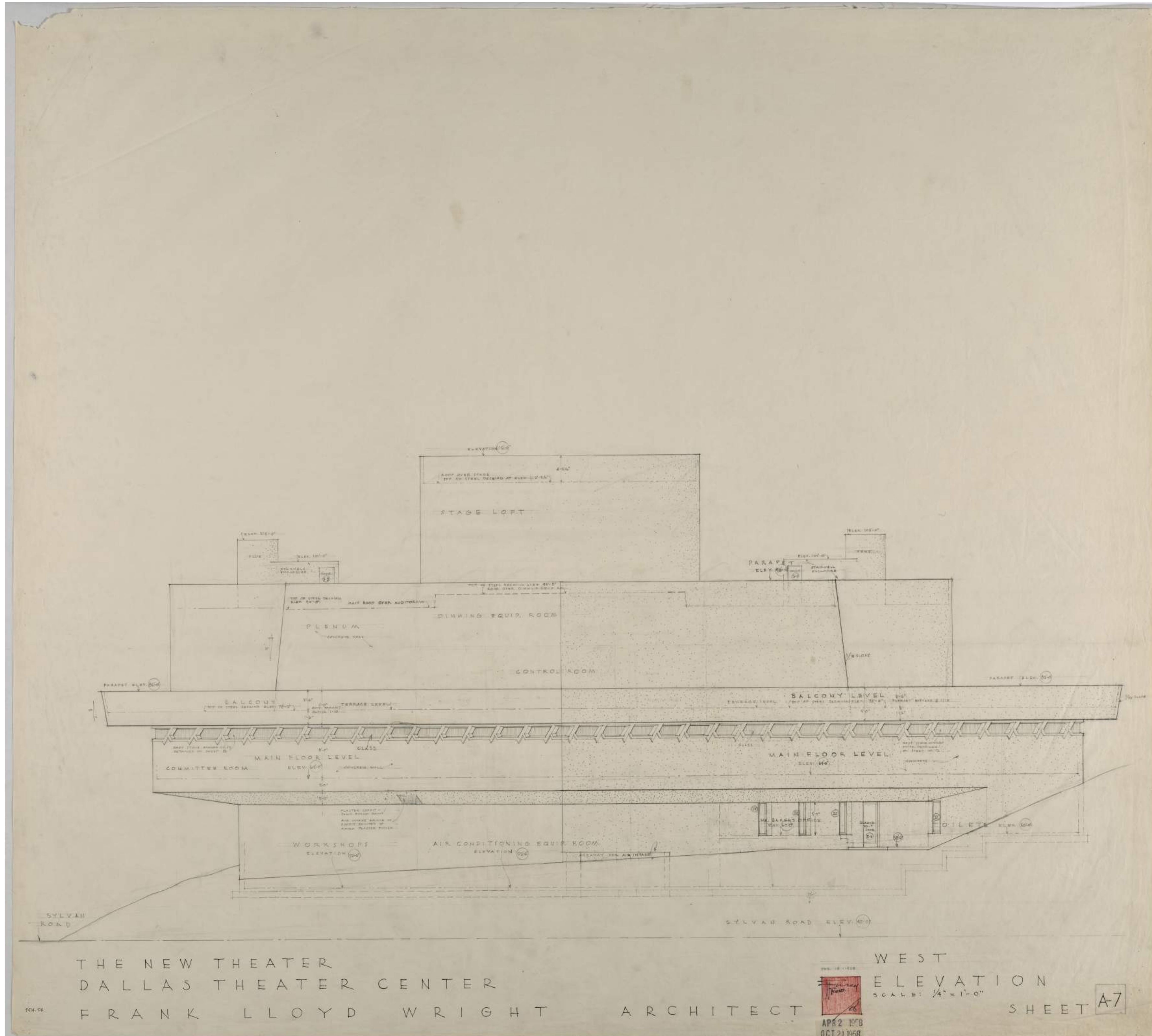
MEZZANINE PLAN



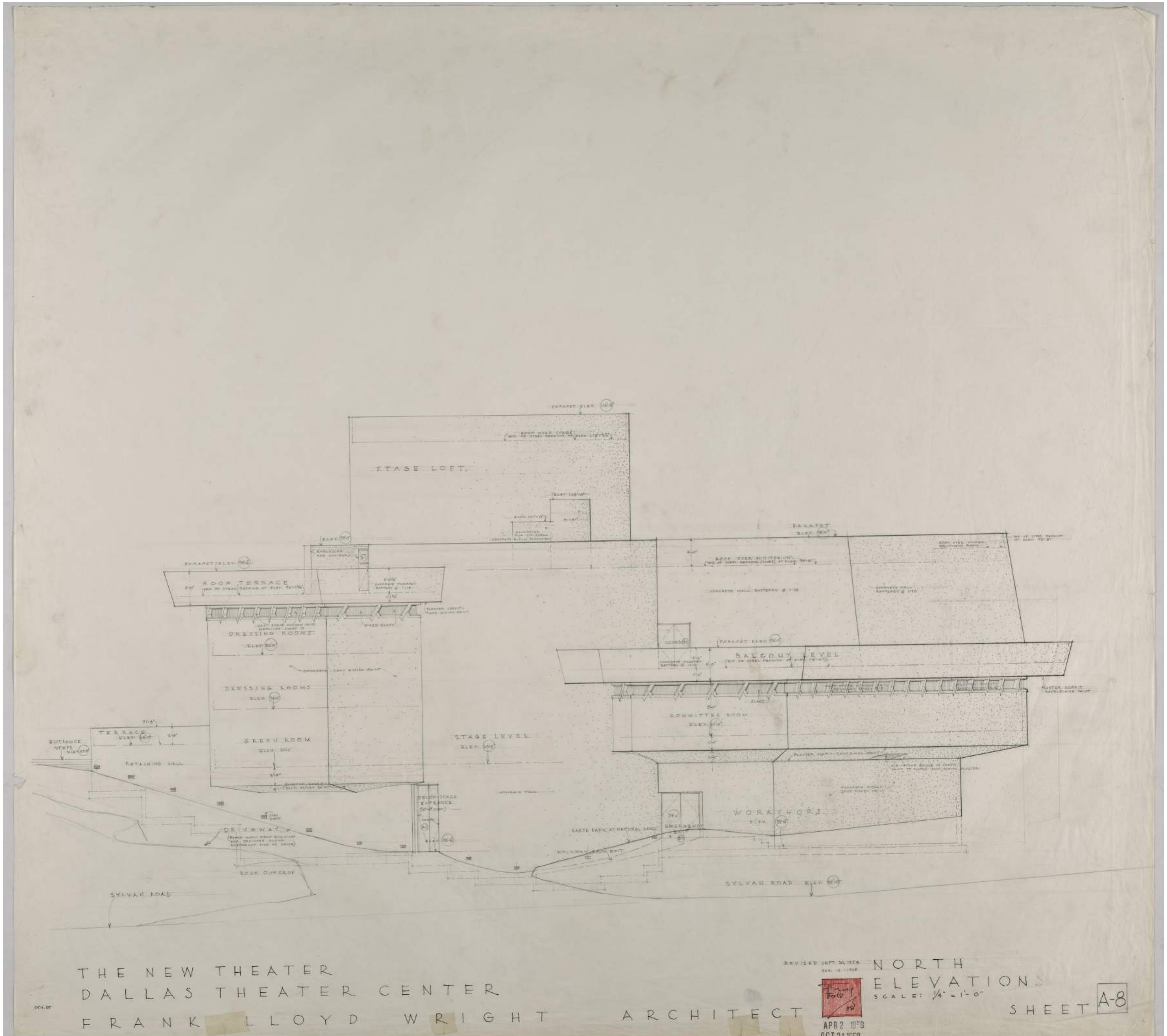
PLENUM + ROOF PLAN



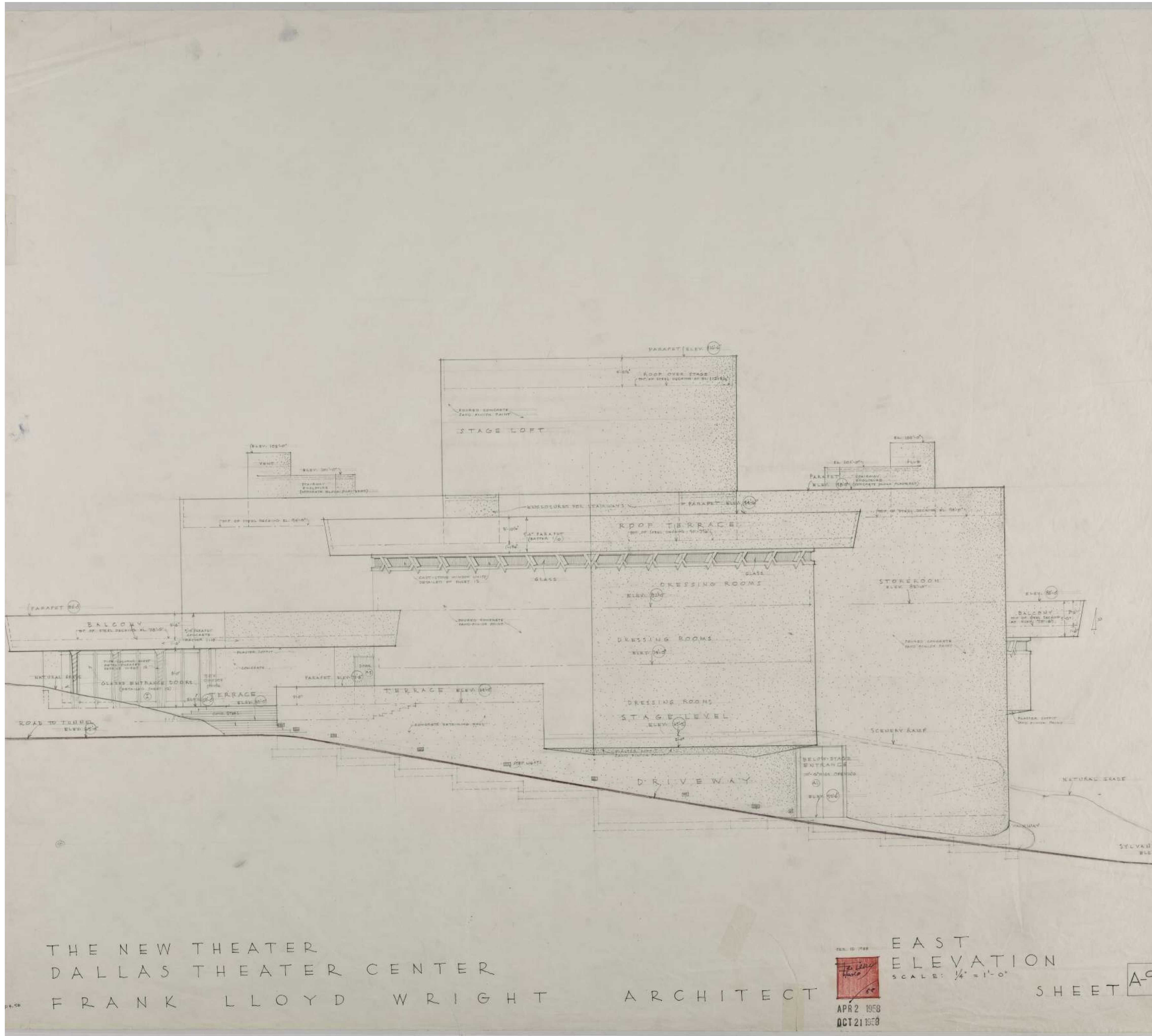
REFLECTED CEILING PLAN



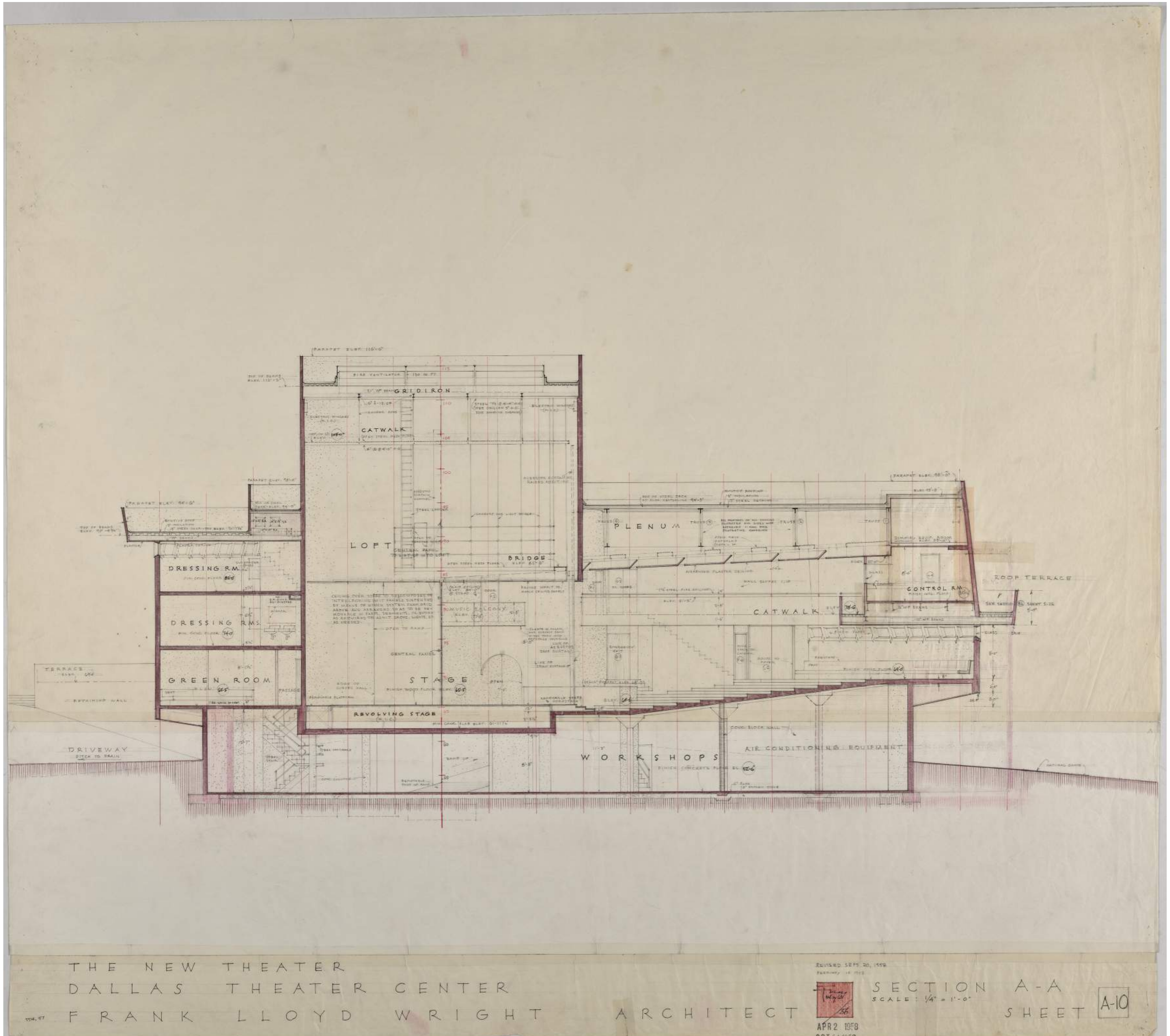
WEST ELEVATION



NORTH ELEVATION



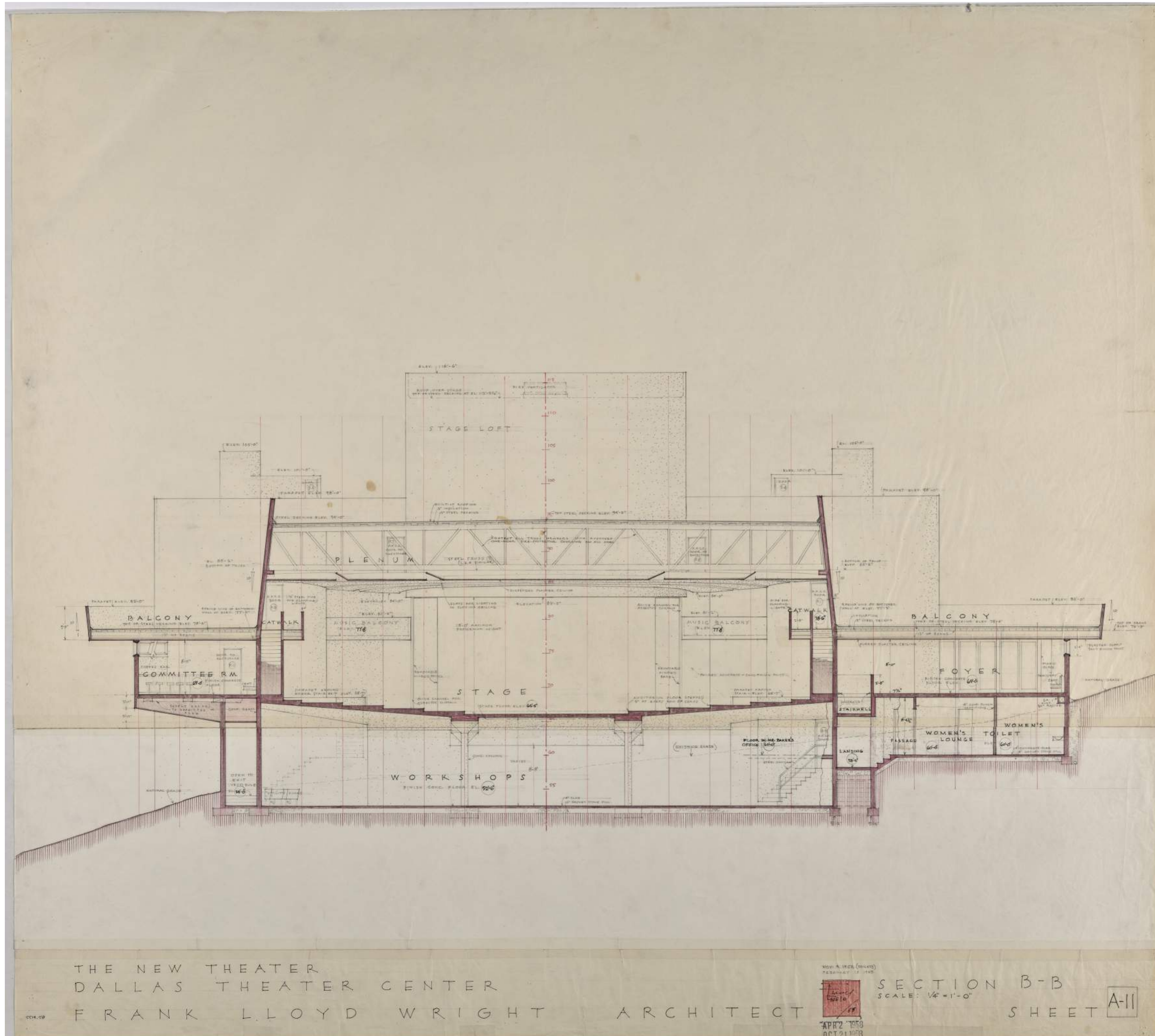
EAST ELEVATION


GRIDIRON
CATWALK
LOFT
BRIDGE
PLENUM
CATWALK
CONTROL RM.
ROOF TERRACE
DRESSING RM.
DRESSING RMS.
GREEN ROOM
STAGE
REVOLVING STAGE
MUSIC BALCONY
TERRACE
RETAINING WALL
DRIVEWAY
WORKSHOPS
AIR CONDITIONING EQUIPMENT
THE NEW THEATER
DALLAS THEATER CENTER
FRANK LLOYD WRIGHT ARCHITECT
SECTION A-A
SCALE: 1/4" = 1'-0"
SHEET
A-10
APR 2 1959
OCT 21 1958

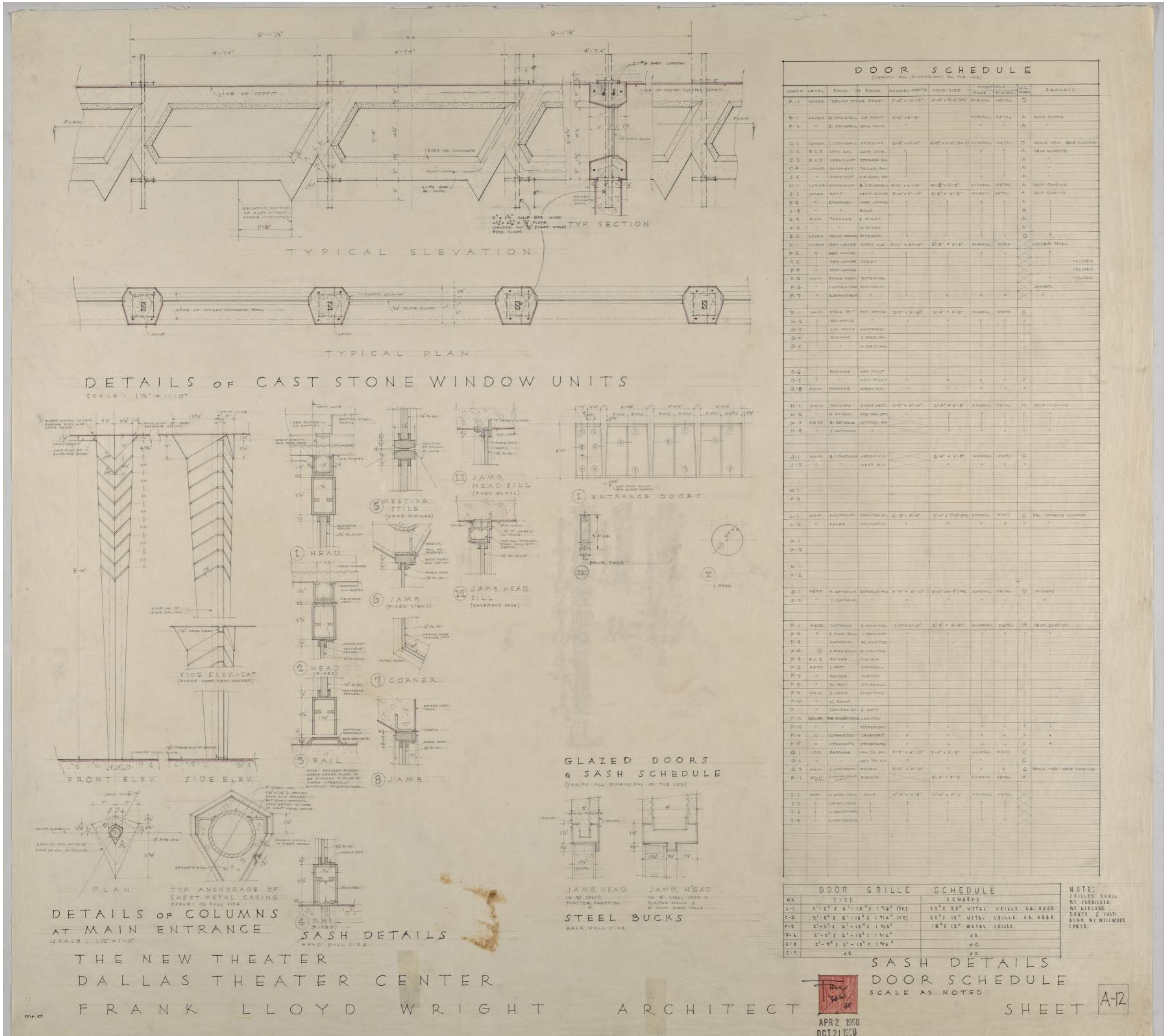
SECTION A-A

1959 CONSTRUCTION DRAWINGS

Frank Lloyd Wright



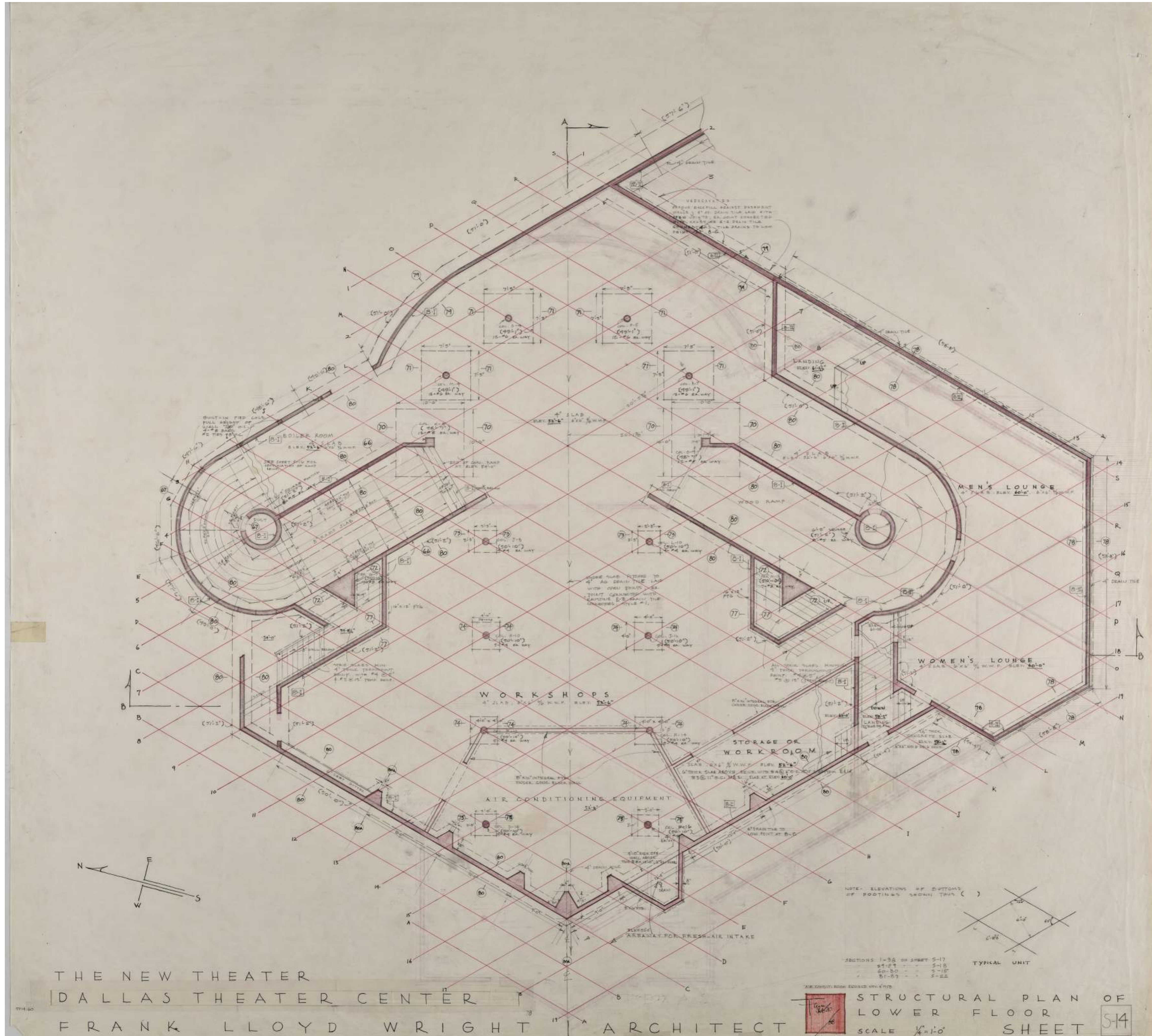
SECTION B-B



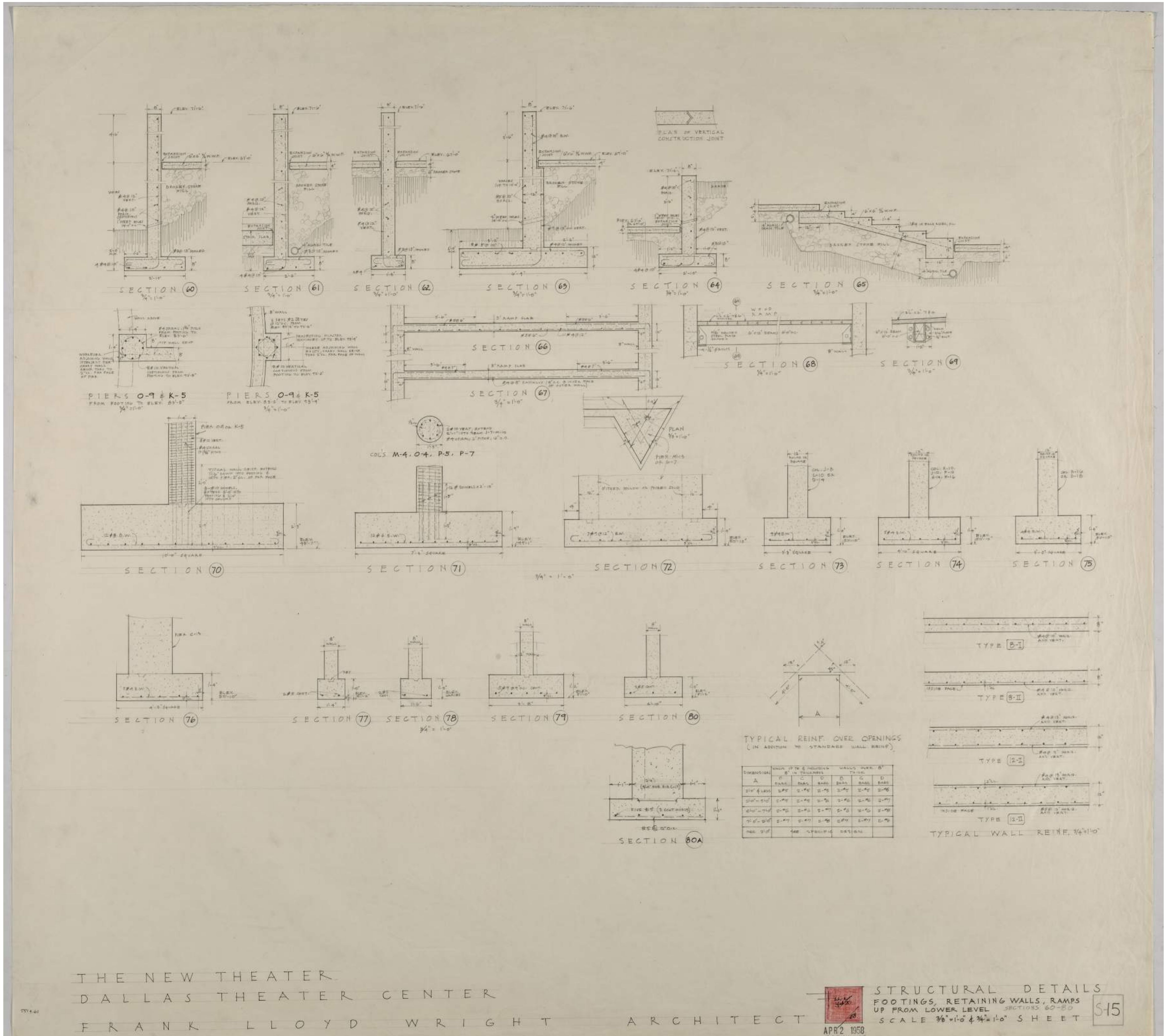
SASH DETAILS & DOOR SCHEDULE

1959 CONSTRUCTION DRAWINGS

Frank Lloyd Wright



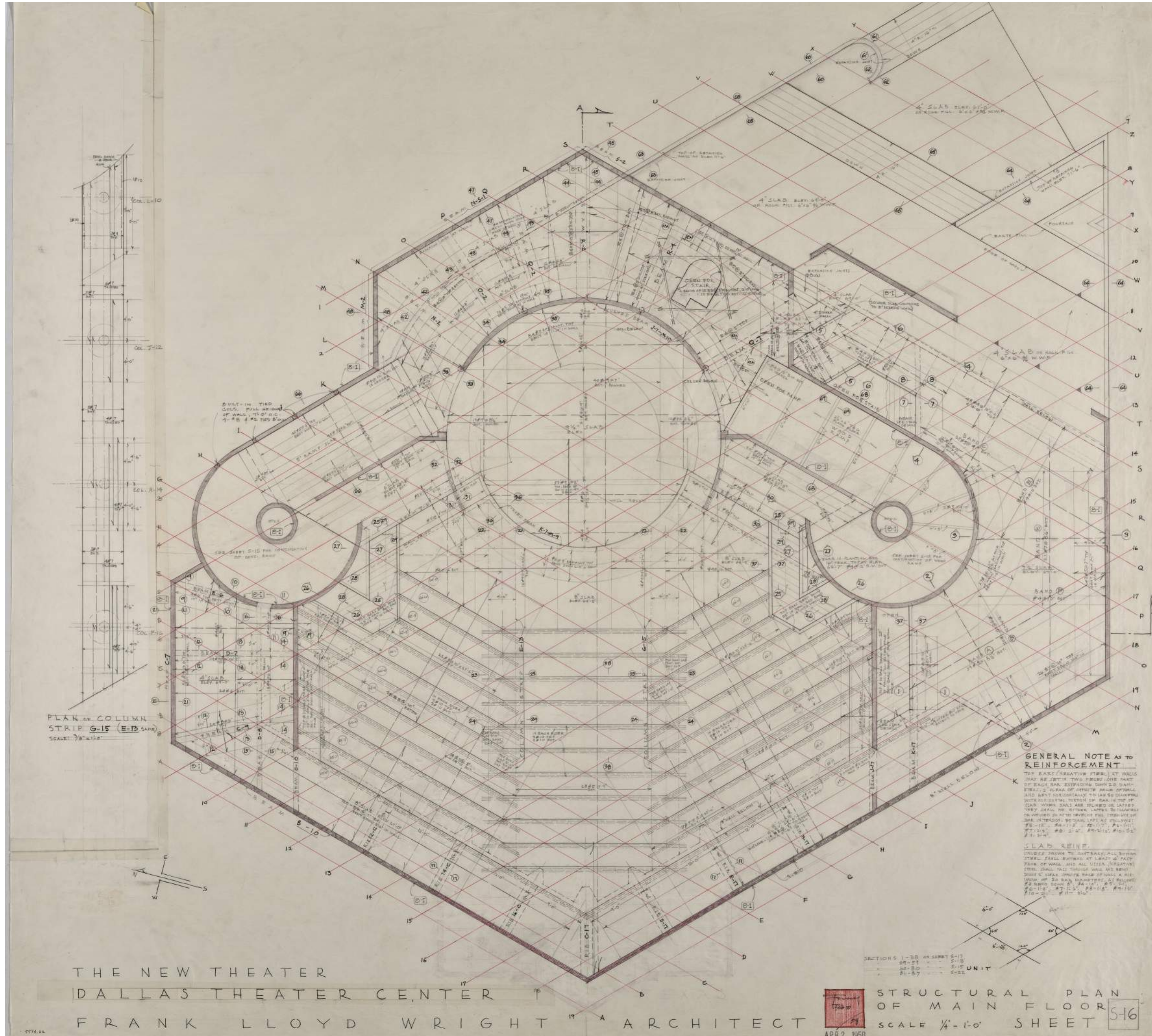
STRUCTURAL PLAN OF LOWER FLOOR



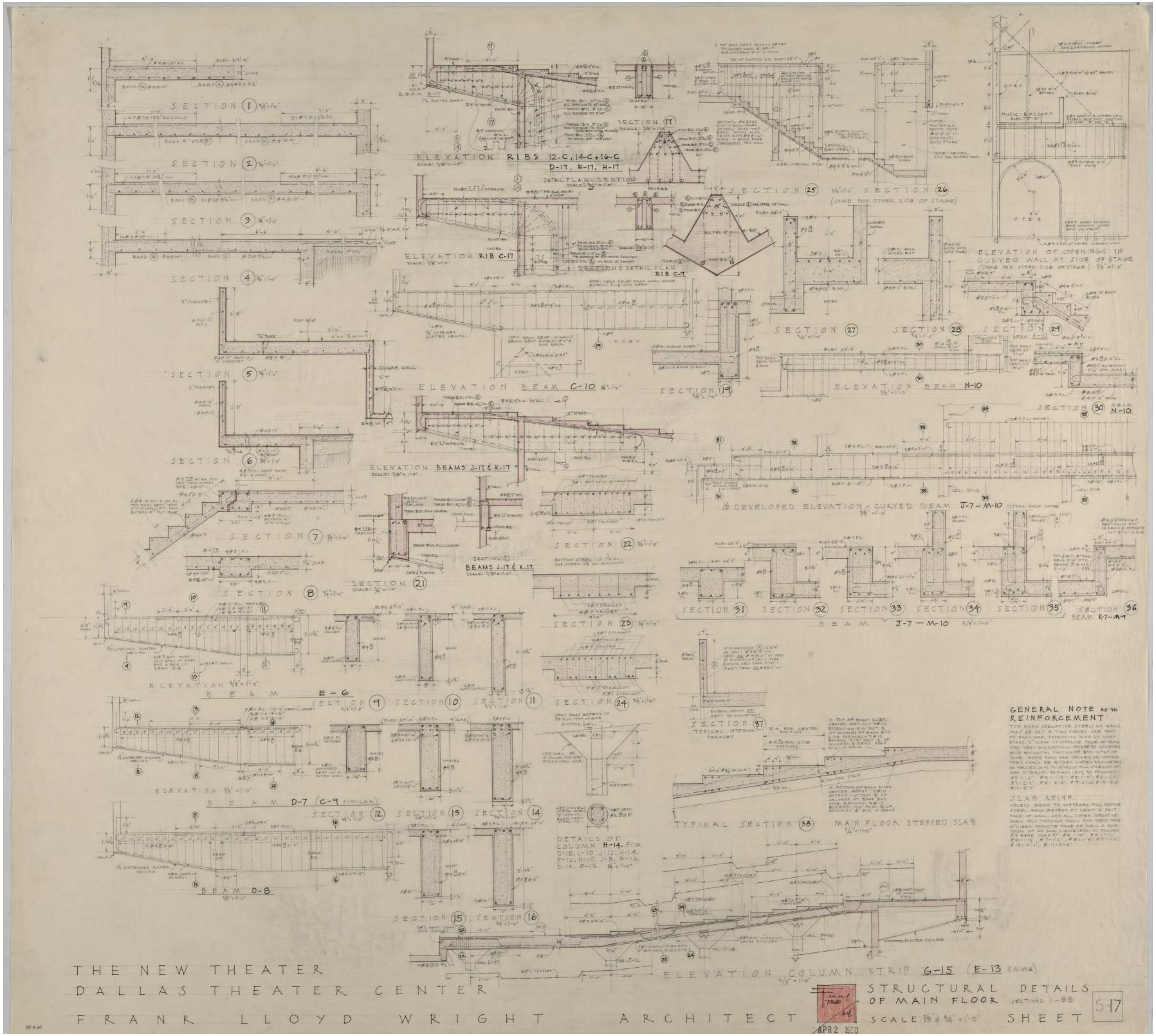
STRUCTURAL DETAILS
FOOTINGS, RETAINING WALLS, RAMPS UP FROM LOWER LEVEL

1959 CONSTRUCTION DRAWINGS

Frank Lloyd Wright



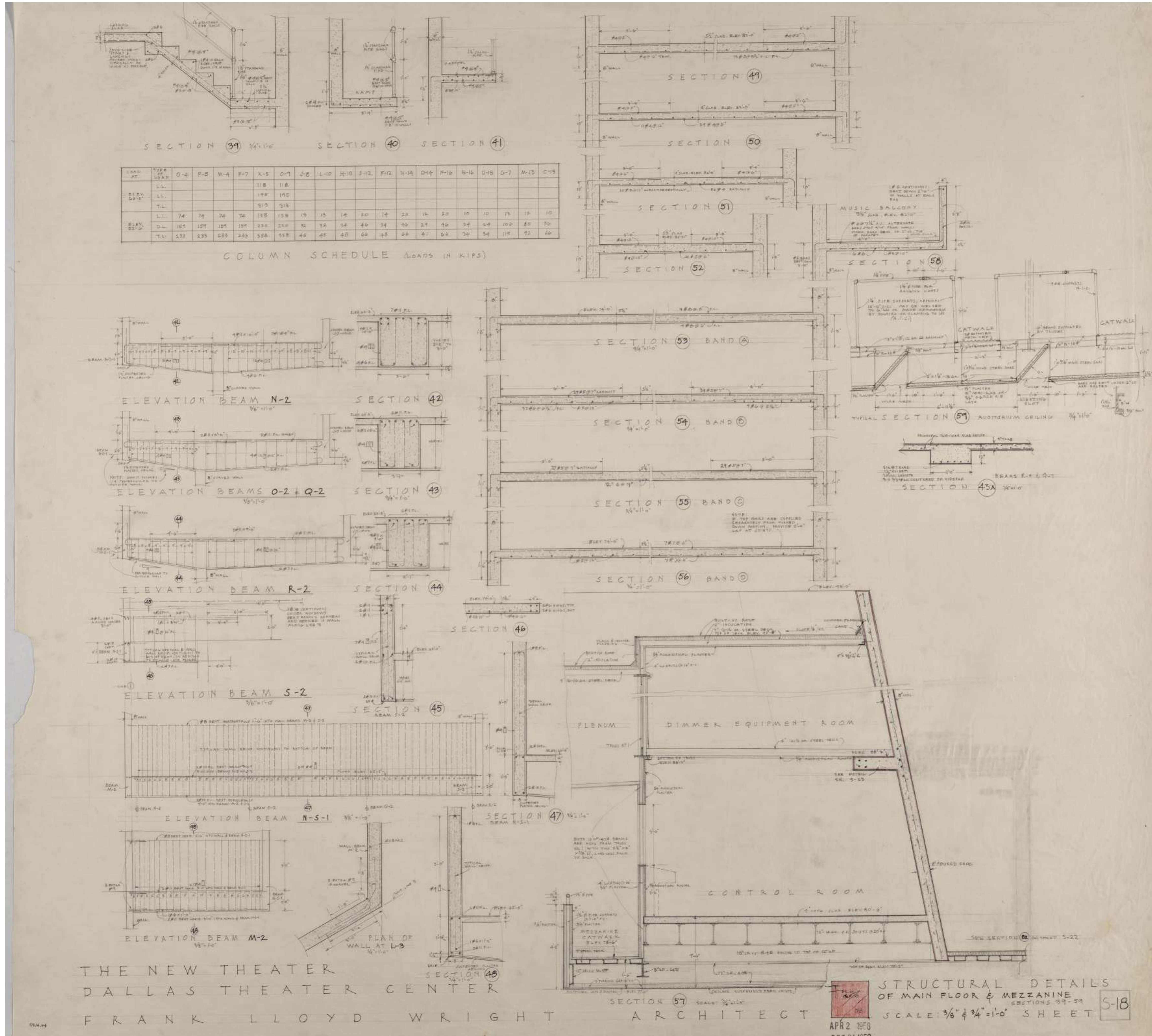
STRUCTURAL PLAN OF MAIN FLOOR



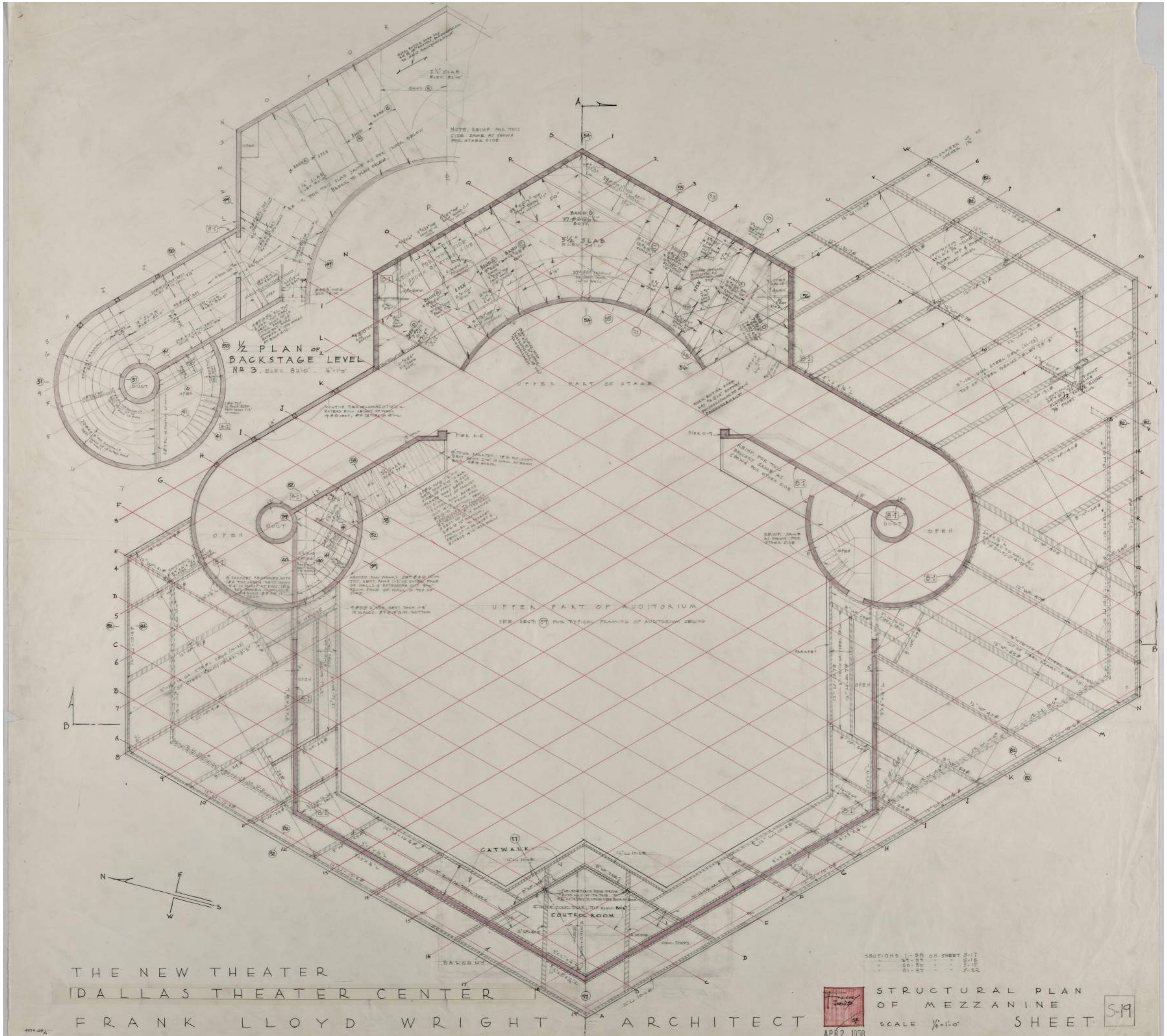
STRUCTURAL DETAILS OF MAIN FLOOR

1959 CONSTRUCTION DRAWINGS

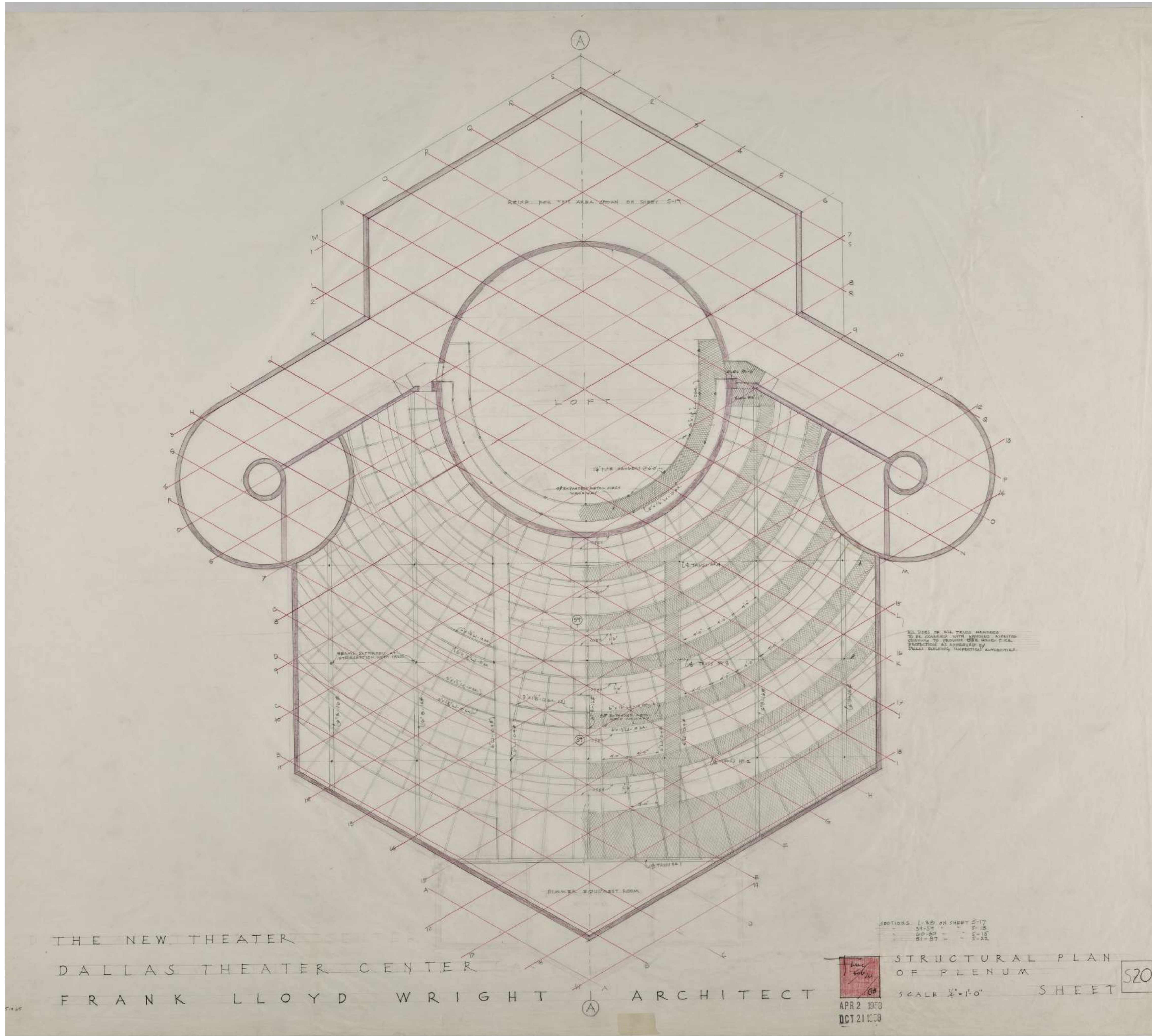
Frank Lloyd Wright



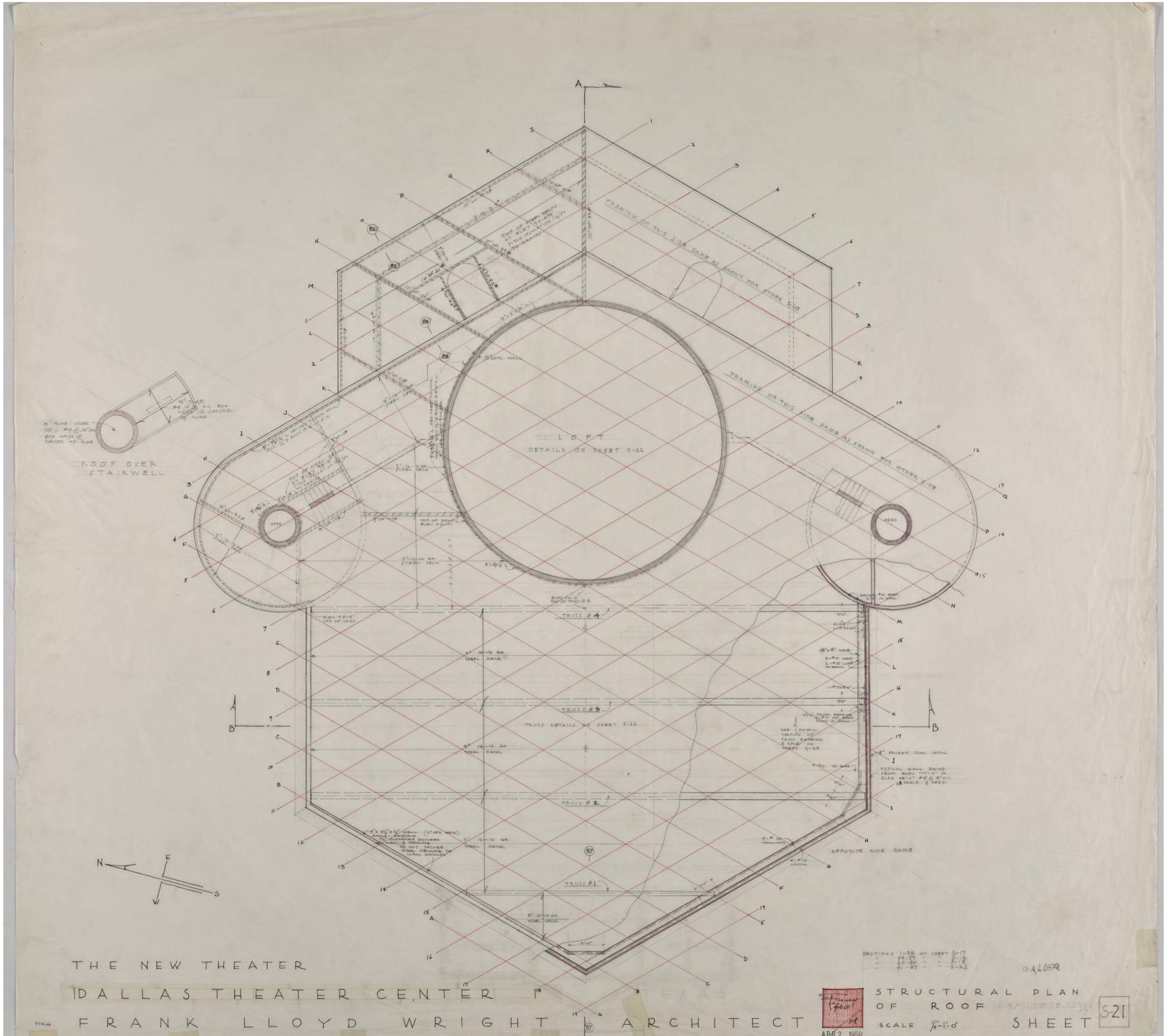
STRUCTURAL DETAILS OF MAIN FLOOR AND MEZZANINE



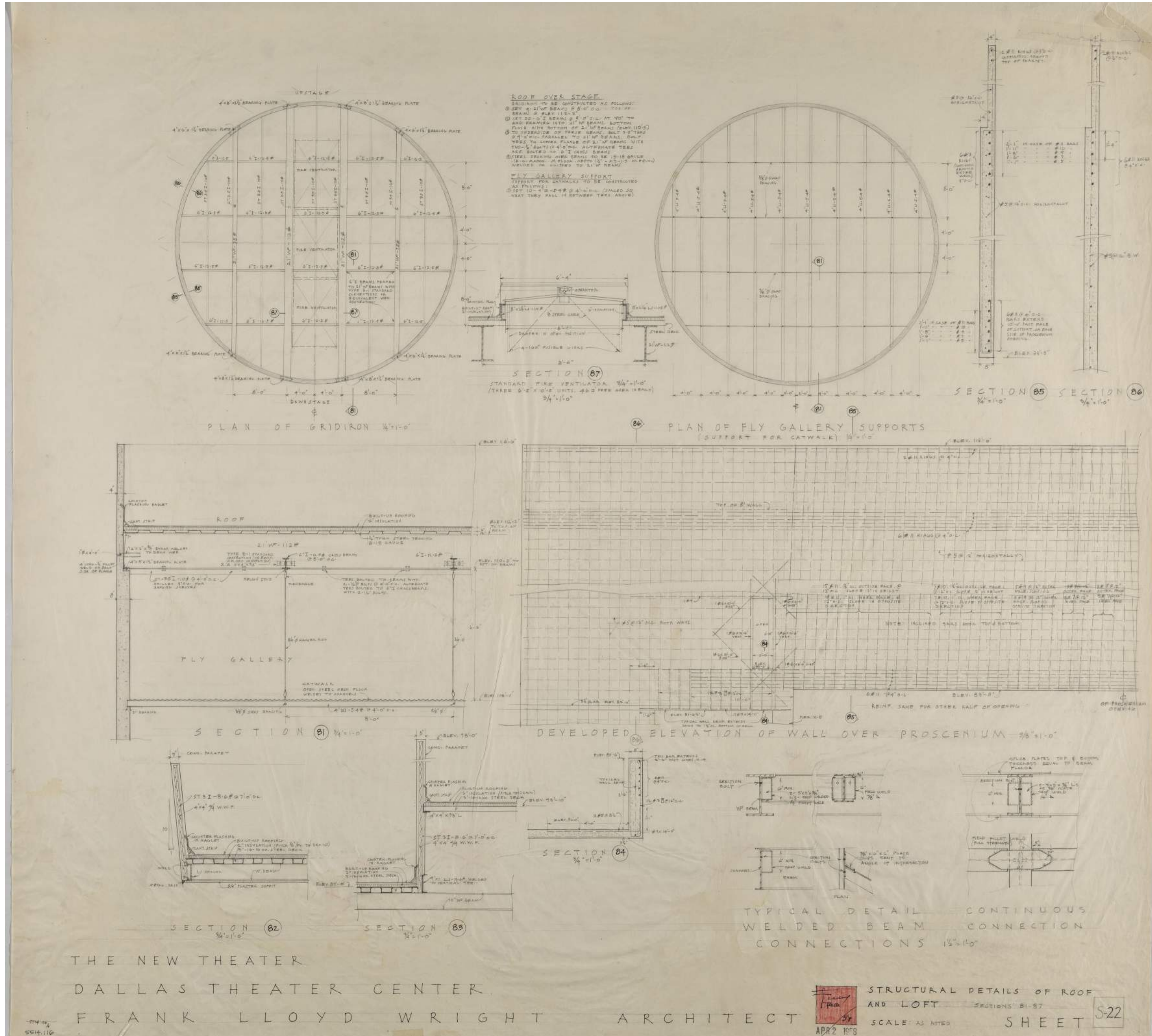
STRUCTURAL PLAN OF MEZZANINE



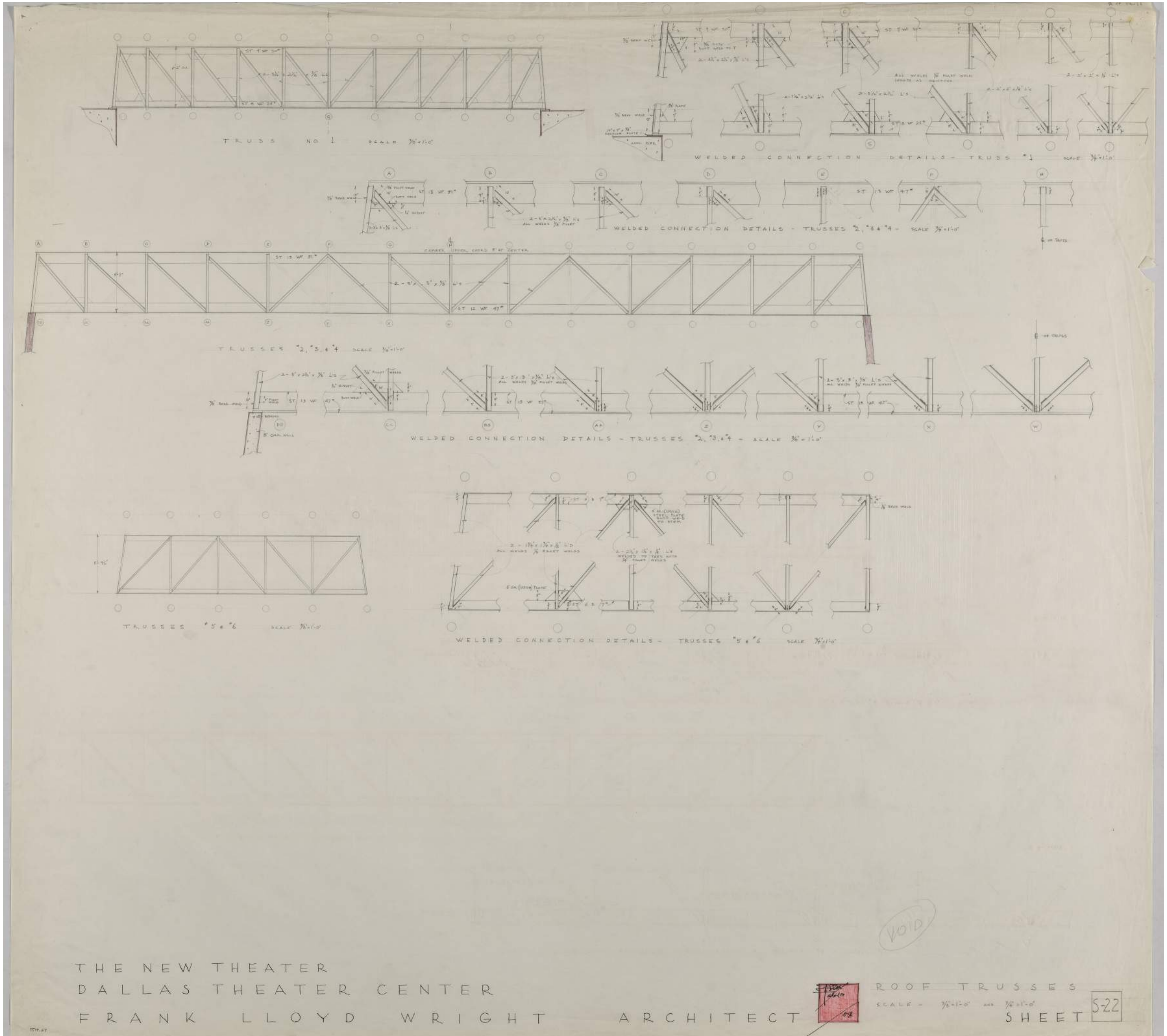
STRUCTURAL PLAN OF PLENUM



STRUCTURAL PLAN OF ROOF



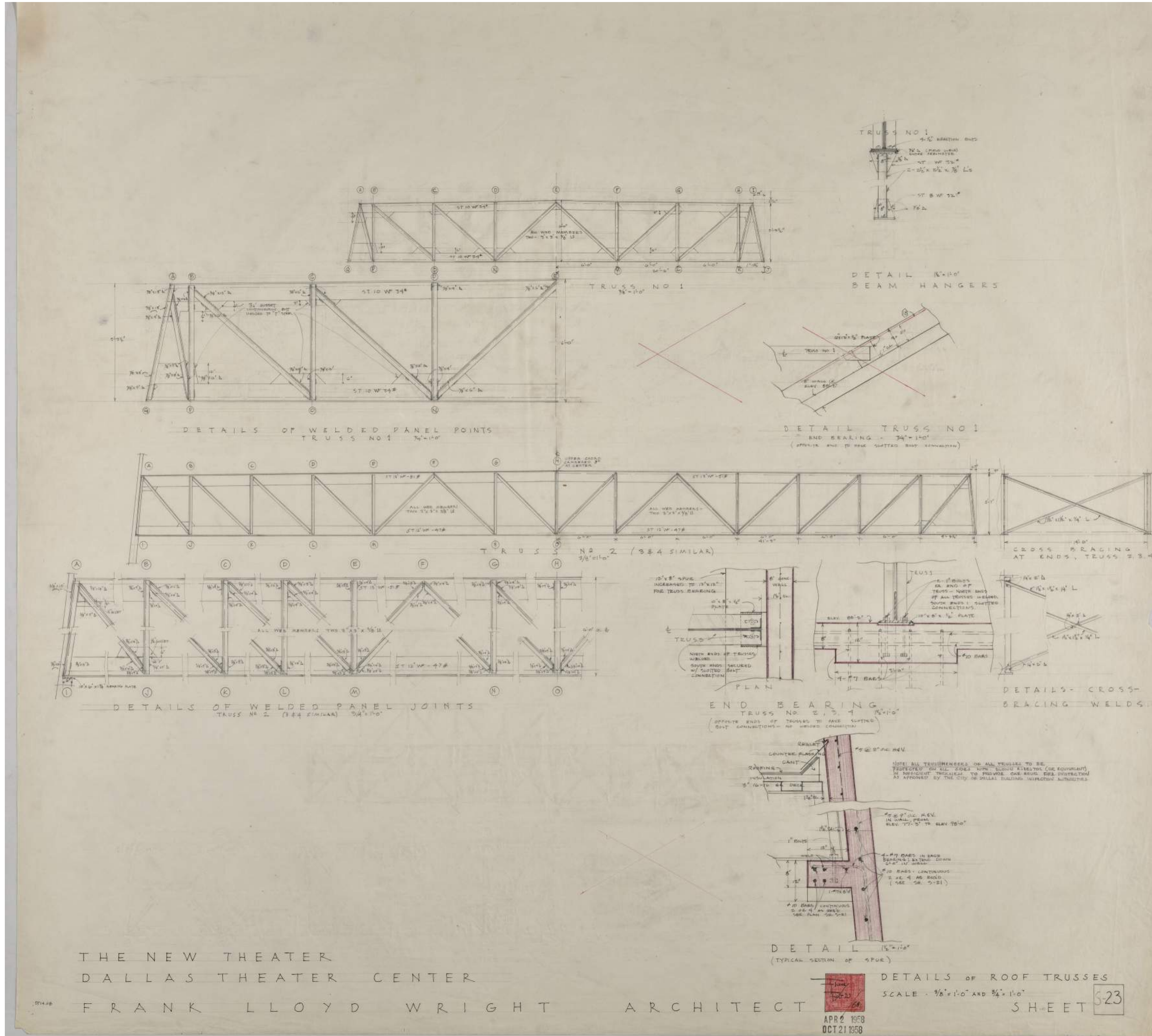
STRUCTURAL DETAILS OF ROOF AND LOFT



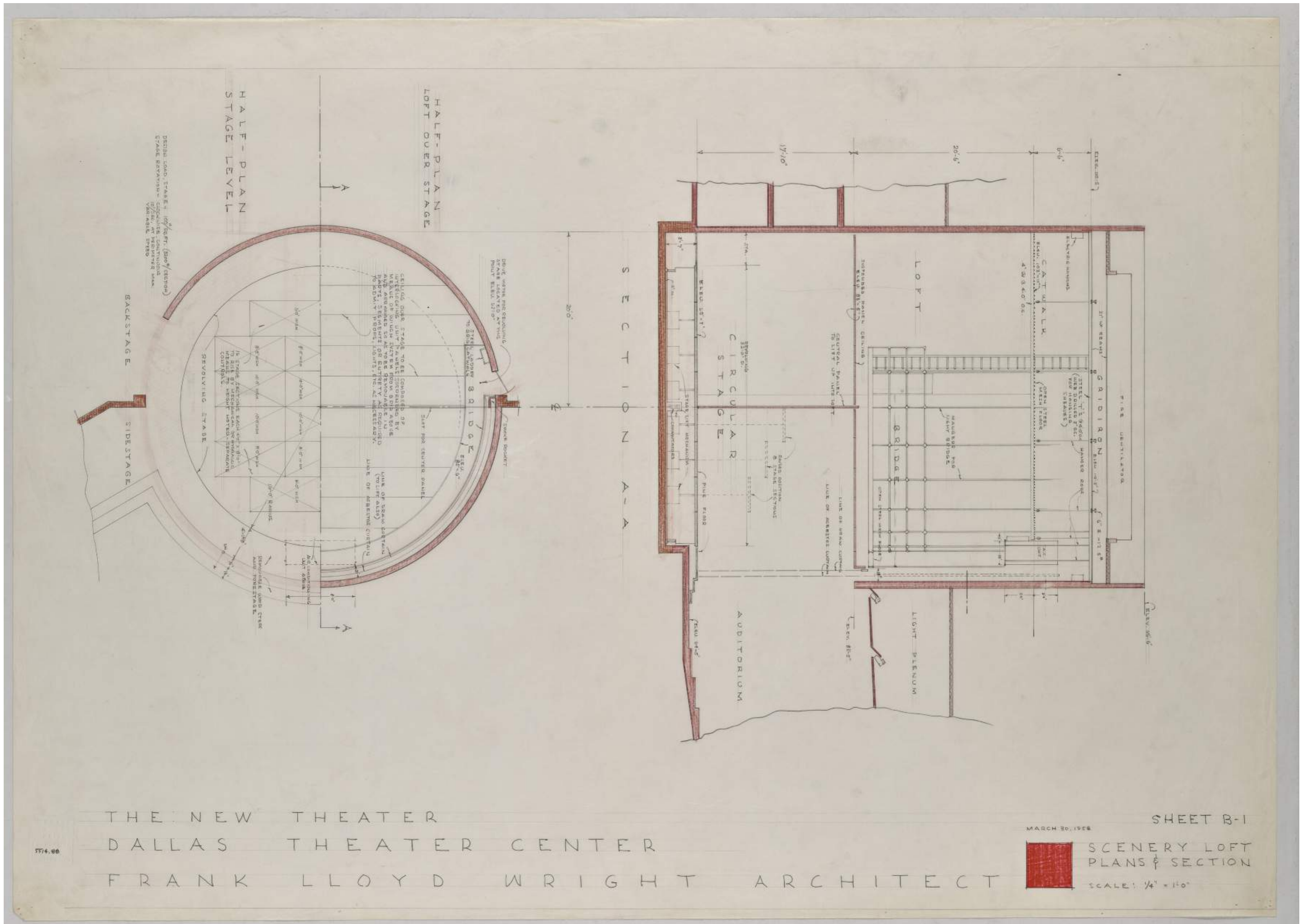
ROOF TRUSSES

1959 CONSTRUCTION DRAWINGS

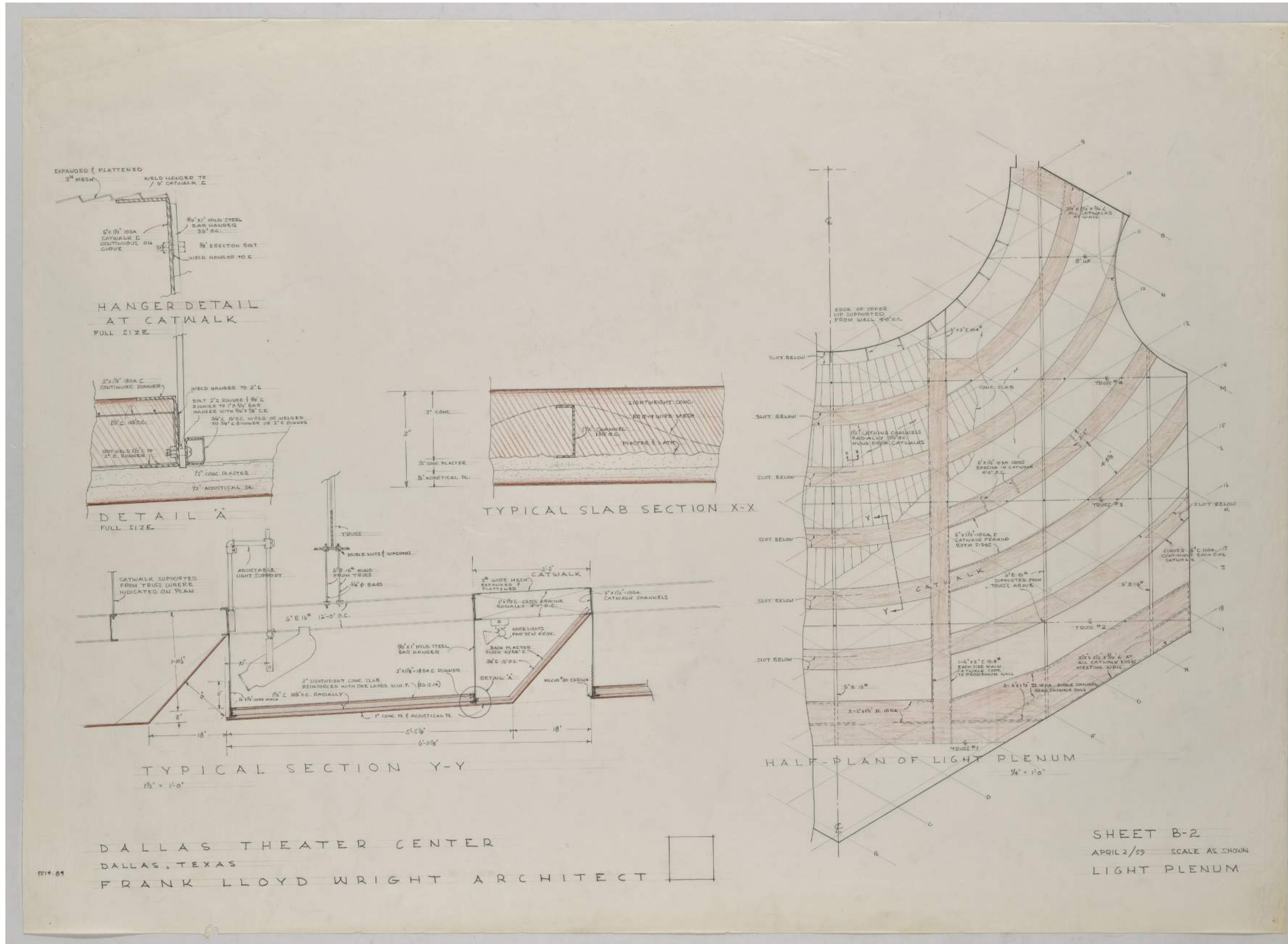
Frank Lloyd Wright



DETAILS OF ROOF TRUSSES



SCENERY LOFT PLANS & SECTION



LIGHT PLENUM

ORDINANCE NO. 25955

An ordinance amending the zoning ordinances of the City of Dallas, as amended, by establishing Historic Overlay District No. 122 (Kalita Humphreys Theater Historic Overlay District) on the following described property:

BEING a tract of land within William B. Dean Park at 3636 Turtle Creek Boulevard, between Blackburn Street and Lemmon Avenue, and containing approximately 2.58 acres;

providing procedures, regulations, and preservation criteria for structures and property in the district; providing a penalty not to exceed $2,000; providing a saving clause; providing a severability clause; and providing an effective date.

WHEREAS, the city plan commission and the city council, in accordance with the Charter of the City of Dallas, the state law, and the ordinances of the city, have given the required notices and have held the required public hearings regarding the rezoning of the property described herein; and

WHEREAS, the city council finds that the property described herein is an area of historical, cultural, and architectural importance and significance to the citizens of the city; and

WHEREAS, the city council finds that it is in the public interest to establish this historic overlay district; Now, Therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DALLAS:

SECTION 1. That the zoning ordinances of the City of Dallas are amended by establishing Historic Overlay District No. 122 on the following property ("the Property"):

THENCE continuing in a northeasterly direction, and being tangent to the last mentioned curve, a distance of 211.59 feet to the beginning of a curve to the left, having a central angle of 32°25′ and a radius of 300.02 feet;

THENCE in a northeasterly and northerly direction along said curve, an arc distance of 169.74 feet to the end of said curve;

THENCE continuing in a northerly direction, and being tangent to the last mentioned curve, a distance of 46.34 feet to the beginning of a curve to the right, having a central angle of 21°59′ and a radius of 301.43 feet;

THENCE in a northerly and northeasterly direction along said curve, an arc distance of 115.65 feet to the end of said curve;

THENCE continuing in a northeasterly direction, and being tangent to the last mentioned curve, a distance of 96.35 feet to a point on said present southwest line of Blackburn Street;

THENCE angle right 120°32′ and in a southeasterly direction, along said present southwest line of Blackburn Street, a distance of 11.63 feet to an angle point;

THENCE angle left 01°22′ and continuing in a southeasterly direction along said present southwest line of Blackburn Street, a distance of 38.92 feet to the place of beginning and containing approximately 53,781 square feet of land.

SECTION 2. That the establishment of this historic overlay district shall not affect the existing underlying zoning classification of the Property, which shall remain subject to the regulations of the underlying zoning district. If there is a conflict, the regulations in this ordinance control over the regulations of the underlying zoning district.

SECTION 3. That, except as provided in the preservation criteria attached to and made a part of this ordinance as Exhibit A, a person shall not alter the Property, or any portion of the exterior of a structure on the Property, or place, construct, maintain, expand, demolish, or remove any structure on the Property without first obtaining a certificate of appropriateness or certificate for demolition or removal in accordance with the Dallas Development Code, as amended, and this ordinance. All alterations to the Property must comply with the preservation criteria.

SECTION 4. That the building official shall not issue a building permit or a certificate of occupancy for a use on the Property until there has been full compliance with this ordinance, the Dallas Development Code, the construction codes, and all other ordinances, rules, and regulations of the City of Dallas.

SECTION 5. That the director of development services shall correct Zoning District Map No. I-7 in the offices of the city secretary, the building official, and the department of development services to reflect the changes in zoning made by this ordinance.

SECTION 6. That a person who violates a provision of this ordinance, upon conviction, is punishable by a fine not to exceed $2,000. In addition to punishment by fine, the City may, in accordance with state law, provide civil penalties for a violation of this ordinance, and institute any appropriate action or proceedings to prevent, restrain, correct, or abate the unlawful erection, construction, reconstruction, alteration, repair, conversion, maintenance, demolition, or removal of a building, structure, or land on the Property.

SECTION 7. That the zoning ordinances of the City of Dallas, as amended, shall remain in full force and effect, save and except as amended by this ordinance.

SECTION 8. That the terms and provisions of this ordinance are severable and are governed by Section 1-4 of CHAPTER 1 of the Dallas City Code, as amended.

SECTION 9. That this ordinance shall take effect immediately from and after its passage and publication in accordance with the provisions of the Charter of the City of Dallas and it is accordingly so ordained.

APPROVED AS TO FORM:

MADELEINE B. JOHNSON, City Attorney

By John Rogers
Assistant City Attorney

Passed APR 27 2005

The pages included in this report do not represent the historic ordinance in its entirety. These are selected pages with the greatest relevance to the proposed work.

EXHIBIT A

PRESERVATION CRITERIA

KALITA HUMPHREYS THEATER

3636 TURTLE CREEK BOULEVARD

1. GENERAL PROVISIONS AND INTERPRETATIONS

1.1 All demolition, maintenance, new construction, public works, renovations, repairs, and site work in this district must comply with these preservation criteria.

1.2 Any alterations to Property within this district must comply with the regulations contained in CHAPTER 51A of the Dallas City Code, as amended. In the event of a conflict, these preservation criteria control.

1.3 It is recommended that the Kalita Humphreys Theater continue to be used as a theater. Any demolition, maintenance, new construction, public works, renovations, repairs, and site work in this district should not impair use of the Kalita Humphreys Theater as a theater.

1.4 For purposes of Section 51A-4.501 of the Dallas Development Code, as amended, the Kalita Humphreys Theater is a contributing structure.

1.5 Recommended versus permitted

a. Whenever these preservation criteria provide that a condition or an alteration is recommended, that condition or alteration has been researched and determined to be consistent with the historic character of the Property and otherwise appropriate.

b. Whenever these preservation criteria provide that a condition or an alteration is permitted, that condition or alteration is believed to have no negative impact on preservation of the historic character of the Property if properly implemented.

c. The Landmark Commission is encouraged to favorably consider any application for the certificate of appropriateness for a condition or an alteration that is recommended or permitted.

d. The listing of a condition or an alteration as recommended or permitted does not mean that the condition or alteration is required and does not preclude other conditions or alterations if they are appropriate.

1.6 Certificate of appropriateness

a. Except as specifically provided in these preservation criteria, a person may not alter a site within this district, or alter, place, construct, maintain, or expand any structure on the site without first obtaining a certificate of appropriateness in accordance with Section 51A-4.501 of the Dallas Development Code, as amended, and these preservation criteria.

b. See Exhibit D, Memorandum of Agreement, for the responsibilities of interested parties in applying for certificates of appropriateness.

c. The certificate of appropriateness review procedure outlined in Section 51A-4.501 of the Dallas Development Code, as amended, applies to this district.

d. When considering applications for certificates of appropriateness, the Director and the Landmark Commission shall consider that the Kalita Humphreys Theater is recommended to continue to be used as a theater, are encouraged to favorably consider any application for a certificate of appropriateness that would enhance the use of the Kalita Humphreys Theater as a theater, and should not approve any certificate of appropriateness that would impair use of the Kalita Humphreys Theater as a theater.

e. Any work done under a certificate of appropriateness must comply with any conditions imposed in the certificate of appropriateness.

f. After the work authorized by the certificate of appropriateness is commenced, the applicant must make continuous progress toward completion of the work, and the applicant shall not suspend or abandon the work for a period in excess of 180 days. The Director may, in writing, authorize a suspension of the work for a period greater than 180 days upon written request by the applicant showing circumstances beyond the control of the applicant.

1.7 A person may not demolish or remove any structure in this district without first obtaining a certificate for demolition or removal in accordance with Section 51A-4.501 of the Dallas Development Code, as amended.

1.8 Preservation and restoration materials and methods used must comply with the Secretary of the Interior's Standards for Rehabilitation and Preservation Briefs published by the United States Department of the Interior, copies of which are available at the Dallas Public Library.

1.9 No person shall allow a structure in this district to deteriorate through demolition by neglect. Demolition by neglect is neglect in the maintenance of a structure that results in deterioration of the structure and threatens preservation of the structure. All structures in this district must be preserved against deterioration and kept free from structural defects. See Section 51A-4.501 of the Dallas Development Code, as amended, for regulations concerning demolition by neglect.

1.10 Consult Article XI, "Development Incentives," of the Dallas Development Code, as amended, for tax incentives that may be available in this district.

1.11 If a feature is restored to the secondary period of historic significance, nothing should be done that would preclude restoration of the feature to the primary period of historic significance.

1.12 Notwithstanding anything to the contrary in these preservation criteria, no reference to the secondary period of historic significance, including any reference to any facade or other feature relating to the secondary period of historic significance, as being protected, shall preclude restoration of the Property, or any feature thereof, to the primary period of historic significance.

2. ALTERATIONS THAT DO NOT REQUIRE A CERTIFICATE OF APPROPRIATENESS

2.1 The following alterations are permitted and do not require a certificate of appropriateness:

a. Repairs to interior and exterior piping and drainage that do not alter the location of existing piping and drainage, that do not penetrate the historic building, or that are not visible from the exterior of the Main Building.

b. The installation of a vent or small chimney that is not in a publicly accessible area and is not visible from Sylvan Drive or the parking areas adjacent to the Main Building.

c. Improvements to the electrical system, including replacement of lighting, telephone, or security systems, and re-organization of building or park electric circuits.

d. Re-lamping of interior or exterior light fixtures to meet current building codes. See Section 7.15, "Exterior lighting," regarding re-lamping of exterior fixtures.

e. Re-painting of gold features in accordance with Section 8, "Facades".

f. Alteration or removal of the following interior elements, which were built after the primary period of historic significance and the secondary period of historic significance:

1. Foyer bathroom adjacent to the existing box office.
2. Extension of the Auditorium balcony.
3. Added rake of the Auditorium floor.
4. Added loge seating in the Auditorium.
5. Added Auditorium light and sound consoles.
6. Committee Room banquettes.
7. Upper Basement restroom interiors.
8. Interiors of the Education Wing offices.
9. Education Wing restrooms.
10. Existing kitchen in the west end of the Basement.
11. Existing food storage areas in the west end of the Basement.
12. Stage loft equipment.

g. Installation of temporary theater scene structures or any constructions relating to scenic design.

h. Re-flashing of roof penetrations or re-flashing of roof hatches.

i. Installation of temporary construction fencing.

j. Erection of signs, banners, and decorative lighting in accordance with Sections 15.3 and 15.4.

k. Alterations to Sylvan Drive to control traffic or improve safety that do not prevent the later restoration of Sylvan Drive to its condition during the primary period of historic significance.

l. Interior alterations relating to normal office operations, such as changes in window treatments, the installation or removal of pictures or other wall decorations, and other comparable alterations.

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m. Temporary emergency repairs to prevent imminent damage to the Property, provided that, the temporary repairs do not preclude permanent repairs in accordance with these preservation criteria and that an application for a certificate of appropriateness for the permanent repairs is made in a timely manner.

3. ROUTINE MAINTENANCE

3.1 In lieu of the items listed as routine maintenance in Section 51A-4.501(g)(5)(B) of the Dallas City Code, as amended, the items listed in Sections 3.2 and 3.3 shall be considered and reviewed as routine maintenance.

3.2 The following routine maintenance items are recommended:

a. New concrete driveways, curbs, sidewalks in accordance with Section 7, "Building Site and Landscaping".

b. Resurfacing Sylvan Drive in accordance with Section 7, "Building Site and Landscaping".

c. Re-surfacing of the concrete facades in accordance with Section 8, "Facades".

d. Recreation of the historic stair to the Katy Trail in accordance with Section 7, "Building Site and Landscaping".

e. Removal of the existing canvas awning at the Front Entry Terrace in accordance with Section 11, "Porches and Balconies".

3.3 The following routine maintenance items are permitted:

a. Minor repairs using the same material and design as the original.

b. Patching of sidewalks and driveways using the same type and color of materials.

c. Relocation of utilities or mechanical equipment in accordance with Section 7, "Building Site and Landscaping".

d. Landscaping in accordance with Section 7, "Building Site and Landscaping".

e. Installation of outdoor light in accordance with Section 7, "Building Site and Landscaping".

f. Replacement of a roof using the same or an original material that does not include a change in color.

g. Replacement of skylights and roof dampers to match the existing skylights and roof dampers.

h. Application of paint to interior surfaces, other than sand-finished concrete surfaces, if the color is the same as the existing color or is an appropriate dominant, trim, or accent color.

i. Removal of paint in accordance with Section 8, "Facades".

j. Cleaning of the exterior in accordance with Section 8, "Facades".

k. Interior alterations in accordance with Section 13, "Preservation Criteria for the Interior".

l. Alterations to HVAC equipment as described in Section 13.6, "Mechanical Equipment".

m. Painting, replacing, duplicating, or stabilizing deteriorated or damaged architectural features (including but not limited to roofing, windows, columns, and siding) in order to maintain the structure and slow deterioration.

n. Interior alterations that do not constitute permanent fixtures and are easily removable without any damage to the Property.

4. DOCUMENTATION, ARCHIVES, AND PLANNING

4.1 If Main Building elements are removed during the course of maintenance or alteration, they must be photographed in situ, recorded in a drawing, and stored on the Property or at a documented off-site location for later use or restoration analysis.

4.2 It is suggested, but not required, that an archive be established that contains plans, specifications, reports, artifacts, and other documentation that can establish the chronology of the Main Building's construction and alterations. See Exhibit E, "Kalita Humphreys Theater Designation Report," Section 15, "Bibliography and Resources," for a list of relevant architectural documents and specifications, as well as their current locations.

4.3 It is suggested, but not required, that a historic structure report and a master plan be completed for the Kalita Humphreys Theater. These documents would document a chronology of the Main Building; assess the existing condition of the Property; facilitate development of community consensus for the restoration, improvement, and maintenance of the Property; provide a plan and guidelines for maintenance and future rehabilitation of the Main Building within its historic context; and describe a restoration philosophy for the Main Building. Upon completion of these documents, it is recommended that these preservation criteria be reviewed, and, if the consensus of the interested parties is that it would be helpful, amended to reflect these documents.

4.4 It is suggested, but not required, that a restoration architect, who has access to the historic documentation of the Property, be retained to review all plans for alterations to the Kalita Humphreys Theater building and historic areas of the site. This architect could act as a clearing-house for information for projects as they are planned; expedite the process of preparing construction documents; obtain approvals; and coordinate the efforts of the various design professionals, contractors, city departments, facility users, and facility managers or committees involved in the projects.

5. **EXHIBITS**

5.1 The following exhibits are attached to the Kalita Humphreys Theater Historic Overlay District ordinance and are hereby made a part of these preservation criteria:

a. Exhibit B: Site plan showing William Dean Park, the boundaries of the district, and the location of the Kalita Humphreys Theater.

b. Exhibit C.1: Protected facades, northwest.

c. Exhibit C.2: Protected facades, northeast.

d. Exhibit C.3: Protected facades, southeast.

e. Exhibit C.4: Protected facades, southwest.

f. Exhibit D: Memorandum of Agreement, as it may be amended, updated, or terminated in accordance with its terms. The City of Dallas Historic Preservation Officer shall maintain an up-to-date copy of the memorandum of agreement.

g. Exhibit E: Kalita Humphreys Theater Designation Report.

7.8 Any new retaining walls contiguous with the Front Entry Terrace must be constructed of concrete to match the existing concrete retaining walls from the primary period of historic significance.

7.9 Any new terrace areas adjacent to the existing patterned, pigmented concrete of the Front Entry Terrace must match the existing terrace areas from the primary period of historic significance in color, texture, and pattern.

7.10 Any reconstructed walkways on the south side of the Main Building at the entrance to the Director's Office during the primary period of historic significance are permitted to be concrete, patterned pigmented concrete, natural stone, or gravel. It is recommended that reconstructed walkways use materials similar to the historic materials in texture, color, pattern, grain and module size, as supported by historic photos or documentation.

7.11 Construction of new parking areas is prohibited, except that construction of parking areas originally designed during the primary period of historic significance but never built is recommended if built as originally designed.

7.12 Carports or garages are not permitted.

7.13 Mechanical equipment and gas, water, or electrical utilities are permitted to be located or relocated provided they do interfere with the views of any protected facade of the Main Building and are screened.

7.14 Landscaping

a. Landscaping must be appropriate, enhance the structure and surroundings, and not obscure significant views of protected facades.

b. It is recommended that landscaping reflect the landscape design from the primary period of historic significance, as evidenced by original plans, renderings, and photographs from the primary period of historic significance.

c. Existing trees over eight inches in caliper are protected, except that unhealthy or damaged trees are permitted to be removed.

d. Trees are recommended to be removed as necessary to reconstruct the original stairway to the Katy Trail, as described in Section 7.17, and to construct the stairway's connections to the current configuration of the Main Building.

7.15 Exterior lighting

a. Outdoor lighting must be appropriate and enhance the structure.

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b. New street-lights, landscape flood-lights, and recessed wall lights must be in accord with the electrical plan from the primary period of historic significance or match light fixtures from the primary period of historic significance.

c. Additional tree-lighting, as required to ensure safety and security, is permitted.

d. Re-lamping of any lighting fixtures to meet current building codes is permitted as long as the color temperature closely matches the color temperature of the original lamps specified in the electrical plan from the primary period of historic significance.

7.16 Fences and gates are prohibited on the historic drive and within 50 feet of the Main Building. Fences and gates in other locations may be erected if they are appropriate and do not block views of the protected facades of the Main Building.

7.17 It is recommended that the addition of a stairway connection to the Katy Trail closely follow the original "Proposed Stairway and Walk Over the M.K.& T. Railway" as drawn by Kelly Oliver, dated May 30, 1960, provided that it is constructed in such a manner that its connection to the current configuration of the Main Building does not preclude restoration of the landscape to the configuration from the primary period of historic significance.

8. FACADES

8.1 Protected facades

a. The facades of the Main Building designated as protected facades on Exhibits C.1, C.2, C.3, and C.4 are protected.

b. Reconstruction, renovation, repair, or maintenance of protected facades must be appropriate and must employ materials similar to the historic materials in texture, color, pattern, grain, and module size.

c. Concrete elements on protected facades are recommended to be re-surfaced with a coating that matches coatings used during the primary period of historic significance in color, texture, and patina, as determined from specifications from the primary period of historic significance or from laboratory paint-analysis testing.

8.2 Reconstruction, renovation, repairs, or maintenance of non-protected facades must be compatible with protected features.

8.3 Historic materials must be repaired if practical; they may be replaced only when necessary.

13. PRESERVATION CRITERIA FOR THE INTERIOR

13.1 Basement scene shop

a. Any alterations in non-historic portions of the Basement (for example, kitchen and food storage areas) may not preclude restoration of the Basement to the primary period of historic significance.

13.2 Doors and windows

a. All original wood doors and hardware from the primary period of historic significance are protected.

b. Wood shutters and hardware in the Auditorium are protected.

13.3 Finishes

a. The original dark rust-colored linoleum tiles that remain in the women's backstage bathrooms are protected. If the tiles must be removed due to deterioration, samples must be saved as references for duplicating their color and appearance in replacement tiles.

b. It is recommended that any new VAT flooring, and any flooring in areas where the original tiles have already been replaced, be of materials similar in size, color, and finish to the linoleum tile from the primary period of historic significance.

c. Linoleum counter tops in the Committee Room are protected.

d. Sand-finished concrete interior finishes are protected. It is recommended that if the interior walls are re-painted, the original finish, now obscured by many layers of paint, be revealed. It is permitted for the Auditorium to be repainted to the 1972 Taliesin dark-taupe color, as evidenced by photos and paint analysis, or to a lighter or darker color in the taupe family.

e. It is recommended that any new carpet in the Auditorium and adjacent areas match the color of the gold carpet from the primary period of historic significance, as evidenced by photographs or samples.

13.4 Furnishings

a. The remaining octagonal table in the Committee Room and any other octagonal tables from the primary period of historic significance that are located on the Property are protected.

13.10 Seating

a. Any remaining built-in or attached seating from the primary period of historic significance is protected.

b. It is recommended that the design of the Auditorium seating from the primary period of historic significance, which is supported by a metal framework, be closely matched if the seating is replaced in the future.

13.11 Stairways and conveying systems

a. Any remaining concrete angled stairs from the primary period of historic significance must be documented through photos and drawings before any alterations are made. The shape and location of the stairs are protected, although alterations to the tread size are permitted if reasonably required for convenience or safety.

b. The backstage stairways, landings, and railings are protected. If these are repainted, it is recommended that they be repainted to match the original paint from the primary period of historic significance after paint analysis verifies the hue, shade, and reflectance of the original paint.

c. The dumb-waiter shafts, as originally drawn in the plans from the primary period of historic significance, are protected for future use.

d. The costume storage rooms are protected, except that a public elevator, in the shaft where the stage elevator now operates, is permitted.

13.12 Technical Equipment

a. If removed, the remaining electrical winches from the primary period of historic significance in the stage-loft should be photographed in situ prior to removal and stored in accordance with Section 4.1.

b. Any remaining equipment for the revolving stage, light consoles, or control boards from the primary period of historic significance should remain in situ. If no longer in situ, it should remain on the Property or at a documented off-premise location for later use or restoration analysis.

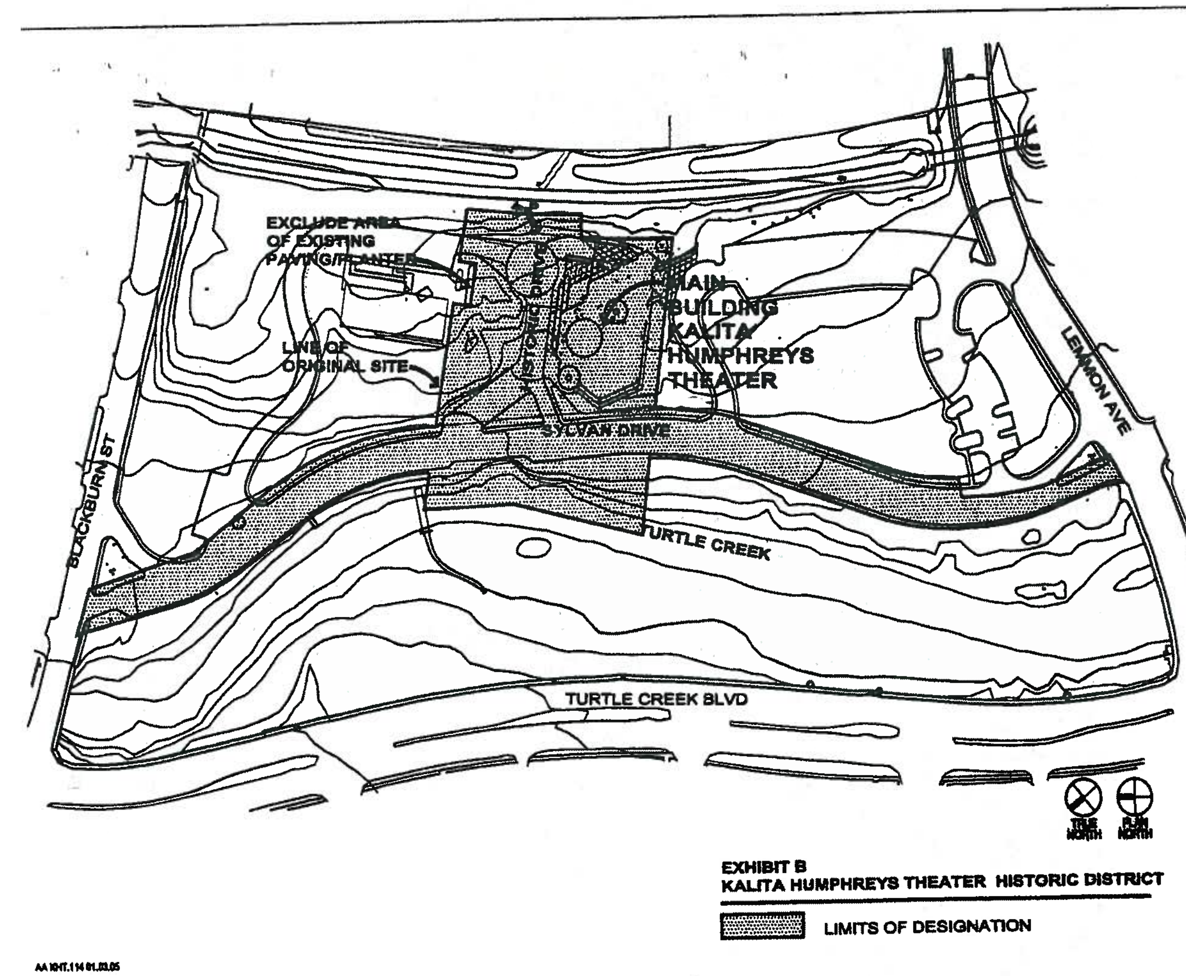
13.13 Wood Assemblies

a. Any remaining portions of the following wood built-ins from the primary period of historic significance are protected:

1. Foyer banquettes.

EXHIBIT B

KALITA HUMPHREYS THEATER HISTORIC OVERLAY DISTRICT



The tract of land comprising the Kalita Humphreys Theater Historic Overlay District, and the limits of designation thereof, are more particularly described as follows:

[Metes and Bounds Description – To Be Provided]

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EXHIBIT C.1
PROTECTED FACADES, NORTHWEST

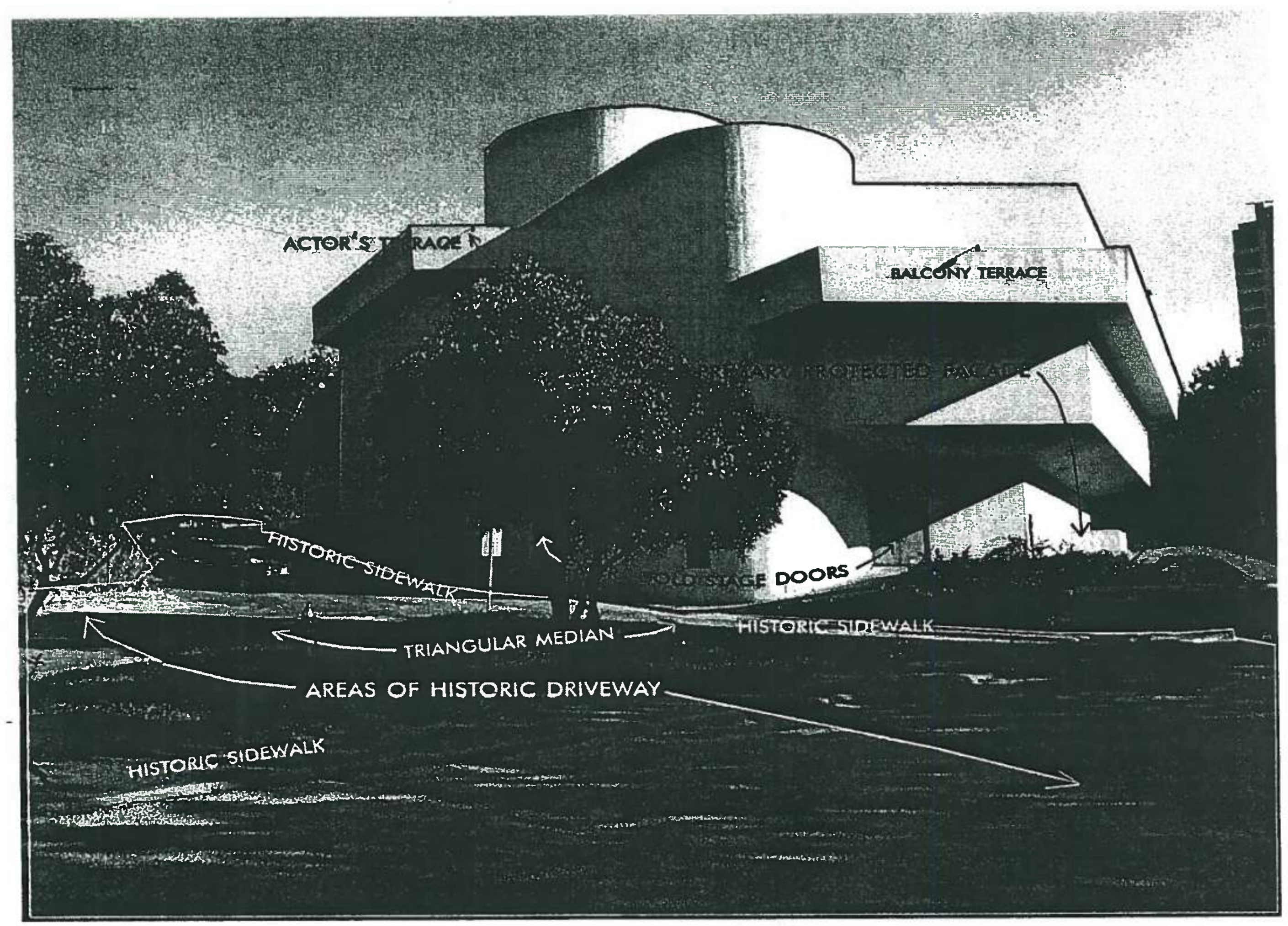

EXHIBIT C.1 PROTECTED FACADES, NORTHWEST

EXHIBIT C.2
PROTECTED FACADES, NORTHEAST

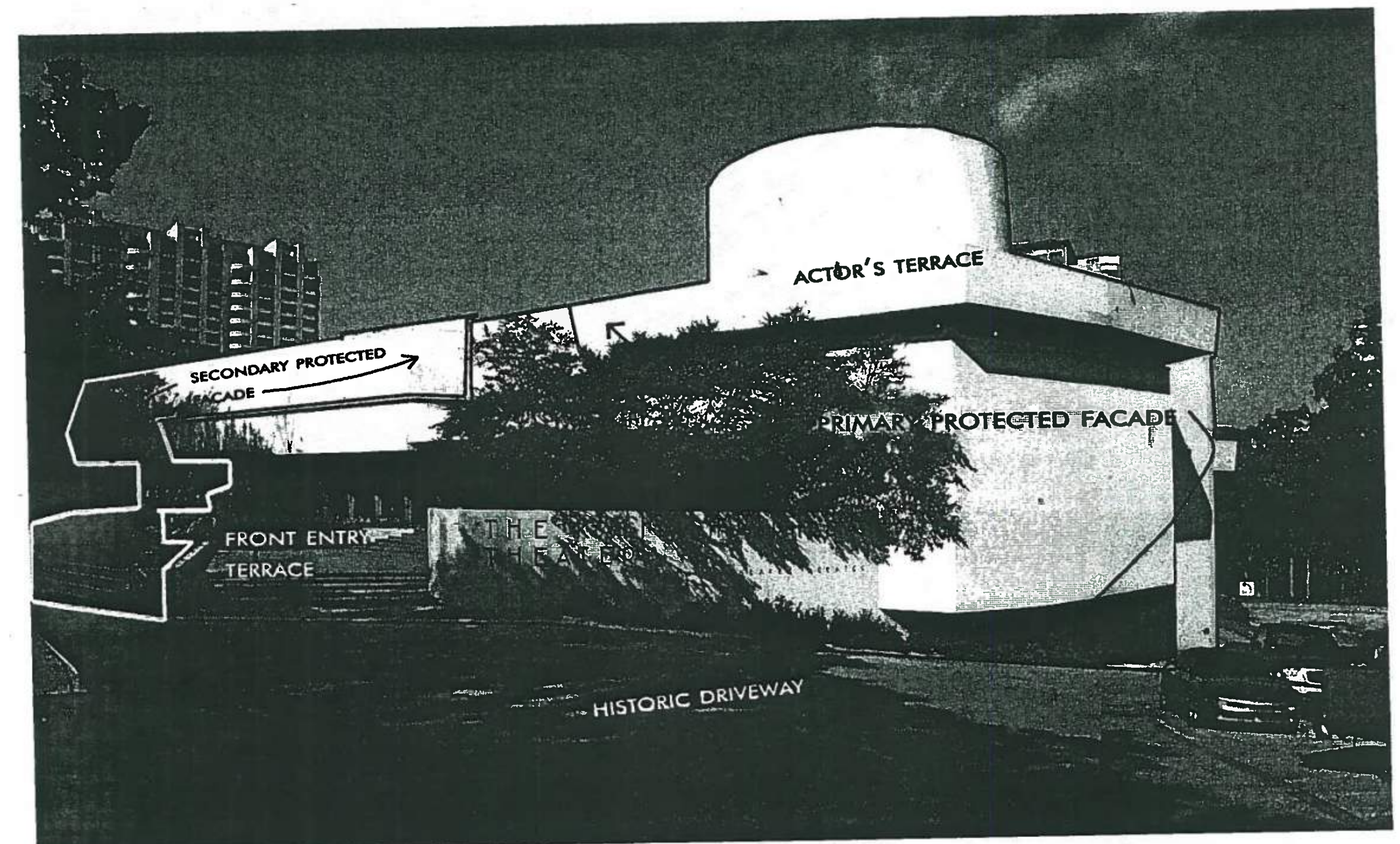

EXHIBIT C.2 PROTECTED FACADES, NORTHEAST

EXHIBIT C.3
PROTECTED FACADES, SOUTHEAST

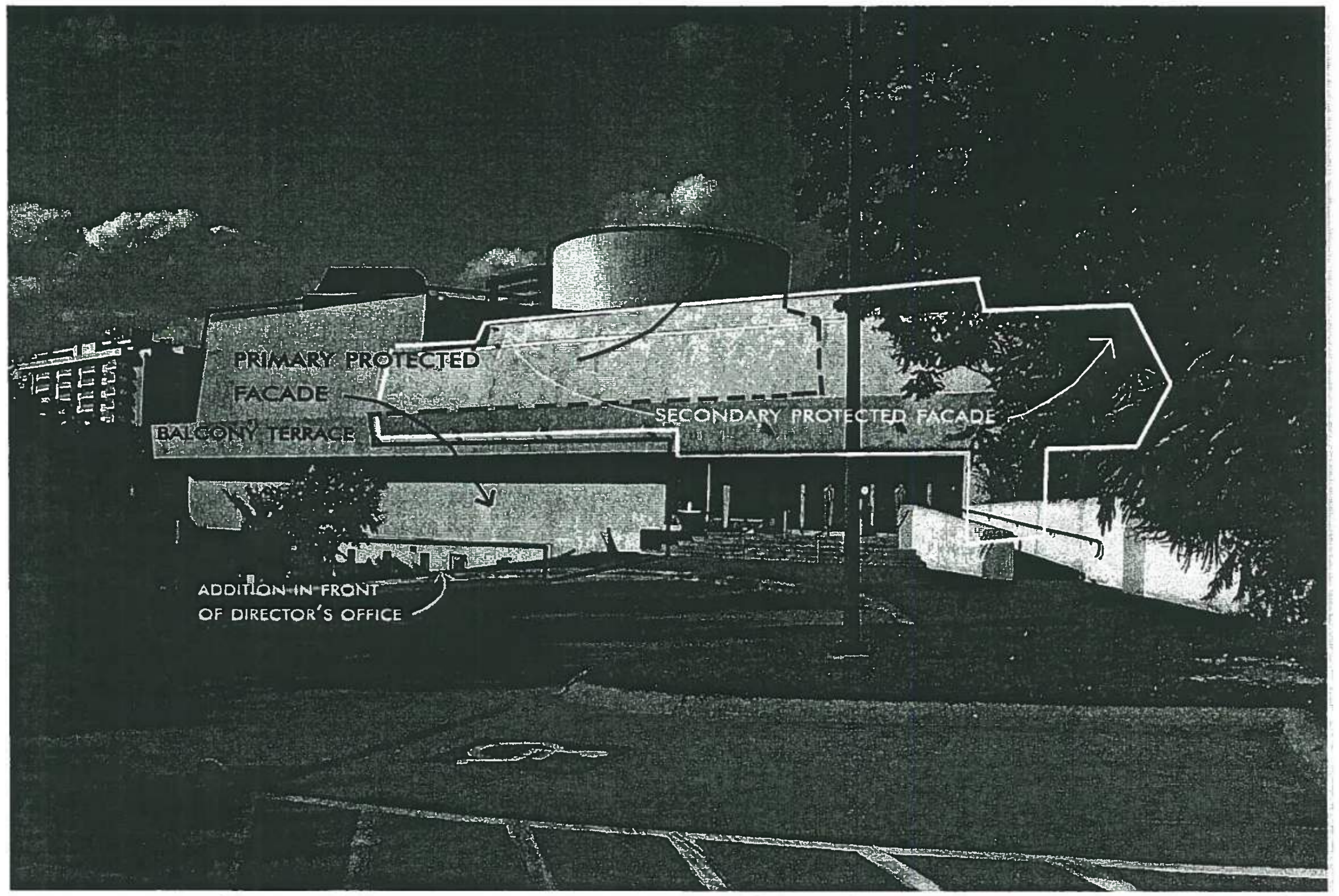

EXHIBIT C.3 PROTECTED FACADES, SOUTHEAST

EXHIBIT C.4
PROTECTED FACADES, SOUTHWEST

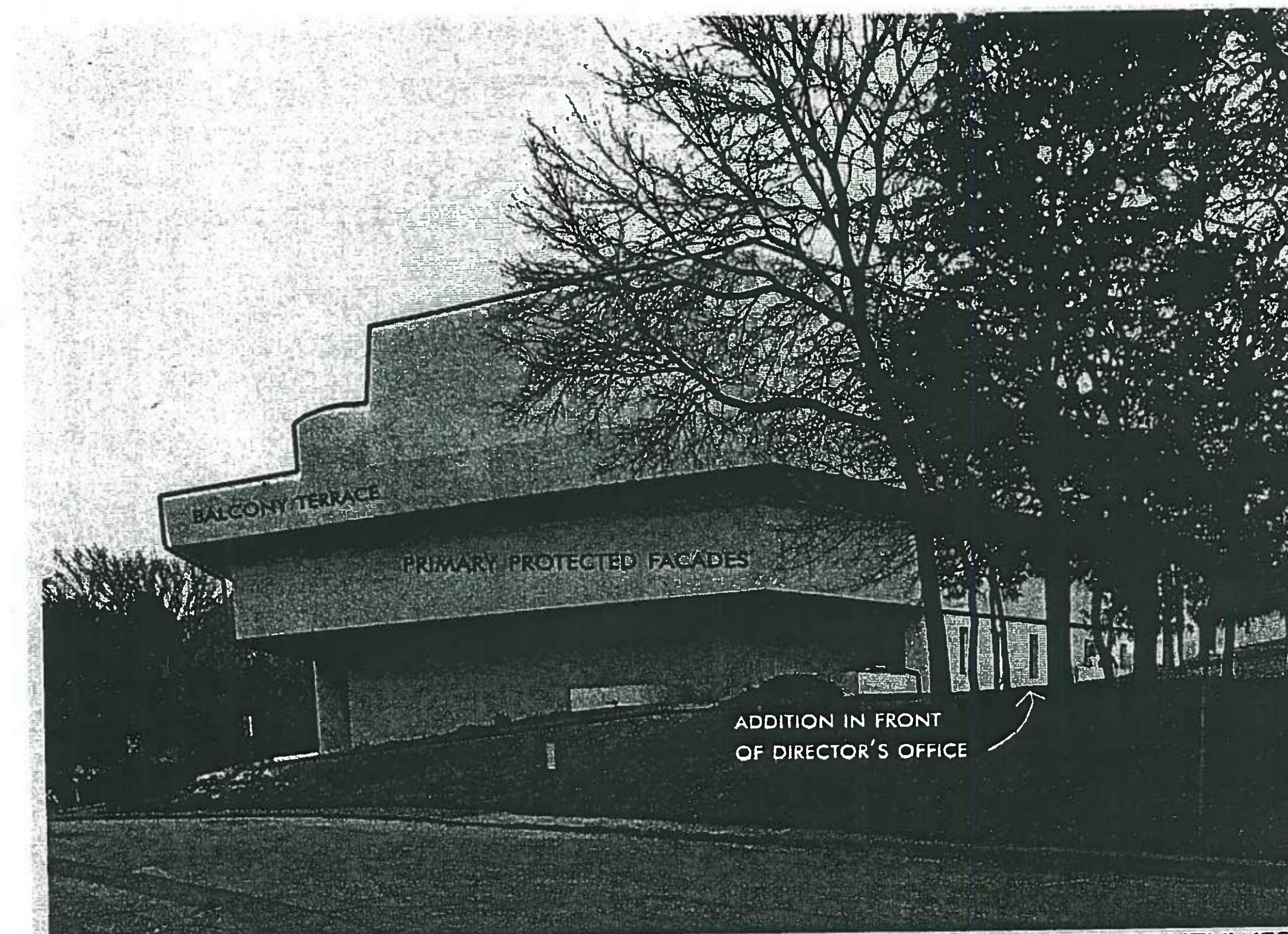

EXHIBIT C.4 PROTECTED FACADES, SOUTHWEST

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EXHIBIT E --- DESIGNATION REPORT
Kalita Humphreys Theater in William B. Dean Park

1. Name

Historic and/or common: Kalita Humphreys Theater

Date: Original construction date: December 1959

2. Location

Address: 3636 Turtle Creek Boulevard, Dallas, Texas 75219-5598
Location/neighborhood: William B. Dean Park, Turtle Creek Boulevard
Block: 1049 *lot:* *land survey:*__________ *Tract size:* Original Lot approximately 1.2 acres
Existing site: See Exhibit B, Limits of Designation

3. Current Zoning

Current zoning: Special Use District

4. Classification

Category	Ownership	Status	Present Use	
____district	_X___public	__X__occupied	____agricultural	____museum
__X_building(s)	____private	____unoccupied	____commerciel	____perk
__X__structure	____both	____work in progess	_X__educetionel	____residenca
__X_site	Public Acquisition	Accessibility	_X__anterteinment	____religious
____object	____in progess	__X__yes:restricted	____government	____scientific
	____being considered	____yes:unrestricted	____industriel	____transportetion
		____no	____military	____other, specify
				____________

5. Ownership

Current Owner:

The Kalita Humphreys Theater is owned by the City of Dallas. The Office of Cultural Affairs oversees the management of the building. The Equipment and Building Services Department maintains the building. The Park and Recreation Department maintains the surrounding park site. The theater is leased and operated by the Dallas Theater Center, and overseen by its Facilities Managers and the Facilities Committee of the DTC Board.

Contact: General Manager, Dallas Theater Center *Phone: 214 252 3901*
Address: 3636 Turtle Creek Boulevard *City:* Dallas *State:* Texas *Zip:* 75219

6. Form Preparation

Date: January 6, 2005
Name & Title: Ann K. Abernathy, A.I.A.
Organization: Ann Abernathy, A.I.A
Contact: Ann Abernathy
Booziotis & Company Architects
2400A Empire Central
Dallas, TX 75235-4398
Phone: 214 350 5051

Acknowledgments:

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Kelly Oliver, original Taliesin supervising apprentice, contributed interviews and documentation.
Research leading to the building chronology were partially funded by the Dallas Theater Center through the generosity of Deedie Rose.
Mary Dolan edited the Designation Report.

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Mary Dolan edited the Designation Report.
Legal expertise and coordination in the preparation of the Preservation Criteria were generously provided by John Howell and Melissa Lindelow, Hughes & Luce, LLP.
Marcel Quimby provided guidance in the preparation of the documents.
Additional acknowledgments are noted in Section 15, Bibliography and Resources.

7. Representation on Existing Surveys

Alexander Survey (citywide) *local* *state* *national* *National Register*
H.P.L. Survey (CBD) *A B C D* *Recorded TX Historic Ldmk*
Oak Cliff *TX Archaeological Ldmk*
Victorian Survey
Dallas Historic Resources Survey, Phase ____ ___ high ___ medium ___ low

For Office Use Only

Date Rec'd:_______ Survey Verified: Y N by:_____ Field Check by:______ Petitions Needed: Y N
Nomination: Archaeological Site Structure(s) Structure & Site District

8. Historic Ownership

Original owner: Dallas Theater Center
Significant later owner(s): City of Dallas, See Section 5.

9. Construction Dates

Original: Original completion date---December 1959
Alterations/additions:

The following chronology is a partial list of the events based on research from publications, available documents, field investigation, and oral history.

1965
Addition: "Room at the Top" over Actor's Terrace. Nagler Engineers, inc.

Prior to 1968
Addition: Upper Basement Offices, at southwest basement, under overhang. Architect unknown.

1968
Addition and alterations: Education Wing and Rehearsal StudiosEast Balcony Terrace parapet wall removed and area enclosed as rehearsal rooms.
Ten columns added at foyer to support second-story Education Offices over new drive-through.
Driveway extended, as horseshoe, to access porte-cochere drop-off area.
Removal of retaining wall and curb, at circular drive, for new drive-through accessing Lobby.
Taliesin Associated Architects, plans dated 3-12-68.
(See Attachment #3, Construction photo c.1968)
Alteration: Refreshment Counter on east wall of Foyer, in place of former drinking fountain. David George and Regan George, Architects.

1970s
Alteration: Auditorium repainted darker taupe color approved by Taliesin Associated Architects.

1977
Alteration: Auditorium balcony rail removed and balcony floor extended forward approximately six feet, columns added for support. The Architects Partnership, Datum Engineering.

1982
Site Addition: South Parking Lot along Lemmon Ave. McKee Building Service.

1983-1984
Alterations:
Auditorium—Rake of floor increased by 1'6" overall. Removal of original banquette seating.
Interior repainted dark green. The Architects Partnership, Arthur Rogers, principal.
Replacement of original seats.
Auditorium ceiling—New lights on pipes suspended from ceiling coves. Roger Morgan, consultant.
By 1983 the carpet had been changed several times.

Stecker Library (Committee Room) banquette seating was altered and then removed (exact date and architect unknown).

1989
New Facilities for the Dallas Theater Center, A 1982 Bond Project, City of Dallas, Frank P. Wise, Park Board Engineer and AR Architects, April 15, 1989, Revisions May 10, 1989.
Upper basement—
Stair from the Foyer to the Men's Lounge floored over. Men's and Women's restrooms reversed and reconfigured.
First Floor Lobby—
Porte-cochere area enclosed to create a Lobby on exterior side of existing Foyer wall, entailing removal of portion of original southeast wall.
Original East Foyer doors relocated.
Angled stairs from the Foyer, previously accessing the Women's restroom, rebuilt with wider treads perpendicular to the stairway walls.
New stair added within the stage laft (east) ramp-tower, behind the stage elevator, replacing previous kitchen.
New corridor to the existing "handicapped" bathroom built over original stair to Men's Lounge.
Box office and promotion office, now called Ticket Sales, expanded into the space formerly occupied by the Coat Room.
New refreshment bar added outside original Foyer exterior wall.
Spray-on acoustic texturing added to the entire Foyer/Lobby ceiling.
Auditorium- One more aisle seat in each row and six new handicap spaces added. The first aisle moved closer to the stage.
Second floor—Backstage Dressing Rooms partitioned.
Third floor—Costume Room partitioned and ranamed " Library".
Dye vat added.
South Entry and site—Former drive (1968) now terminated at new glass and aluminum doors.
Driveway along south sida of the building (1968) removed.
South Entry Terrace added with stairs, ramp, and new fountain.
South Parking Lot added, leveling areas of sloped terrain.
North site—
Two-story rectangular "Auxiliary Building," now called Heldt Administration Building, added uphill, approximately 130 feet to the north.
New U-shaped drives and parking lots added to the north, leveling areas of sloped terrain.

1993
Maintenance and restoration: Asbestos abatement, Auditorium calling. City of Dallas, General Services Department, Fugro-McClelland (Southwest), Inc.

1997
Alterations: Remodeling of Auditorium floor, necessitating new steps at Committee Room; side stairs "vomitories" decked over to provide additional seating loges; new rear partitions and sound booth cubicle, Spencer Design Group, Inc, and Charles Gojer and Associates, Inc, consulting engineers; McCreary and Associates, electrical consulting engineers.

1998
Restoration and alterations: Demolition and reconstruction of Entry Terrace patio, steps and portion of driveways, new handrail. City of Dallas, Public Works and Transportation Department, Robert Van Buren; Charles Gojer and Associates, Inc., Consulting Engineers.

2001
Immediate Needs Assessment: Dallas Theater Center, Booziotis and Company Architects and Ann Abernathy, AIA.

2002
Maintenance and restoration: Restoration of traffic coating, Actor's and Balcony Terraces; removal of 1989 dye vat; removal of 1965 "Room at the Top"; HVAC repair and replacements Education Wing and Auditorium; selective asbestos abatement. City of Dallas, EBS, and AAE Architects.

2003
Maintenance and restoration: Lobby carpet replaced with carpet of original color, new Wright-inspired tables and benches; plumbing restoration of original fountain, restoration of building drains and sewer connections; restoration of miscellaneous electrical, plumbing, water service, storm sewer, gas equipment; repairs to exterior recessed lighting and control systems, exterior lighting reconstruction per 1959 plans; paint analysis and restoration of stage doors and entrance columns; perimeter landscaping. City of Dallas, EBS, Booziotis & Company Architects, and Mesa Design Group.

10. Architect

Original construction: Frank Lloyd Wright
Alterations/additions: Included in above chronology

CAREER SYNOPSIS

From his work with his "Lieber Meister" Louis Sullivan in the late 1880s to the futuristic projects of the late 1950s, Wright's career spanned 70 years lasting from the end of the Industrial Revolution to the Media Age. Wright died in 1959 at the age of 92, having completed over 1,000 projects, at least 410 built.

Emerging from the influence of late-Victorian domestic architecture in the office of his first employer, Joseph Lyman Silsbee, Wright was then influenced by architects of the "Chicago school" while working downtown with Sullivan. After opening his own first studio in Oak Park, Illinois, he and his apprentices developed the uniquely American style of architecture that came to be known as the Prairie Style, which spread across the country, influencing burgeoning suburban developments for decades.

His international influence was secured with the publication of his work in Europe, the Wasmuth Portfolio, 1910, even as scandals about Wright spread at home in the U.S. After leaving his wife and six children and suffering great personal tragedies, he spent some years in Japan, working on the Imperial Hotel and then returned to live in California where his office developed what he called textile-block or unit-block construction. His assistants included Rudolph Schindler, his own son Lloyd Wright, and later Richard Neutra.

In the 1930s, Wright created another home and studio in the Arizona desert, Taliesin West, and began accepting resident architects. From this office he developed a new style of homes that were space-saving, efficient, and horizontal; he called them Usonian homes and these became the model for America's affordable post-war ranch houses.

In 1936, a major commission for a country estate in Western Pennsylvania led to his signature house, Fallingwater, which cantilevered dramatically over a waterfall. The public buildings after 1943 became increasingly bold in their unusual geometries and forms. As a fitting end to his career, the latest constructed buildings were actually affordable houses, which could be ordered from a catalogue.

INTRODUCTION TO WRIGHT'S DESIGN PRINCIPLES

A prolific writer as well as designer, Wright articulated his methodology of "organic architecture" as a holistic approach to design that was sympathetic to the nature of site, structure, and materials, and that enabled human use and comfort. Architectural historian Vincent Scully defined organic architecture in this way: "When a building built by men to serve a specifically human purpose not only celebrated that purpose in its visible forms but became an integrated structure as well, it then took on the character of an organism which existed according to its own complete and balanced laws" (Scully 13-14).

Wright insisted his rural upbringing was one of the most significant influences in his work, and that the "Book of Creation" was his textbook. Wright's mother educated her son with a set of kindergarten manipulatives called the "Froebel gifts," from which Wright learned to abstract from nature. Wright was influenced by his readings in Emersonian Transcendentalism and the great American literature of Walt Whitman and Mark Twain. As well, Wright referred to Asian Taoist principles and especially to what he said he learned from the study of the Japanese print.

Stylistically, the buildings from different periods of Wright's career may look quite different, but according to Wright, the design principles were a consistent methodology, not idiosyncratic. All basic elements of Wright's design philosophy were in evidence at the Kalita Humphreys Theater.

Wright believed that buildings should be "of the land not on the land," rooted in the landscape and visually growing out of it. Horizontal lines stratified his buildings, relating them to the horizontal expanse of the prairie.

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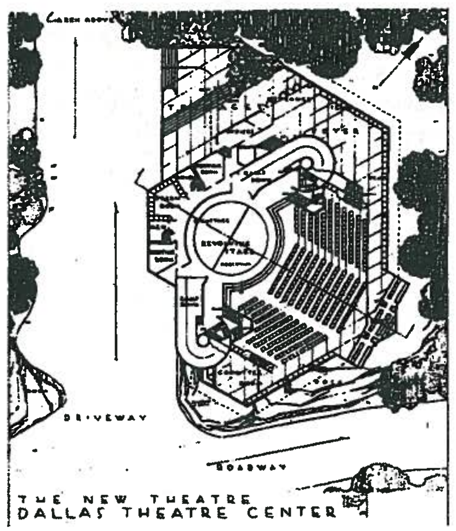
11. Site Features

Natural: Sloping hill site with exposed rock ledges, indigenous vegetation

The original building site, in 1959, was in the center of a large tract of undeveloped parkland just north of downtown Dallas. The site was a roughly square section between the M.K. & T. Railroad right of way and Baer Drive (now Sylvan Drive), the park access road.

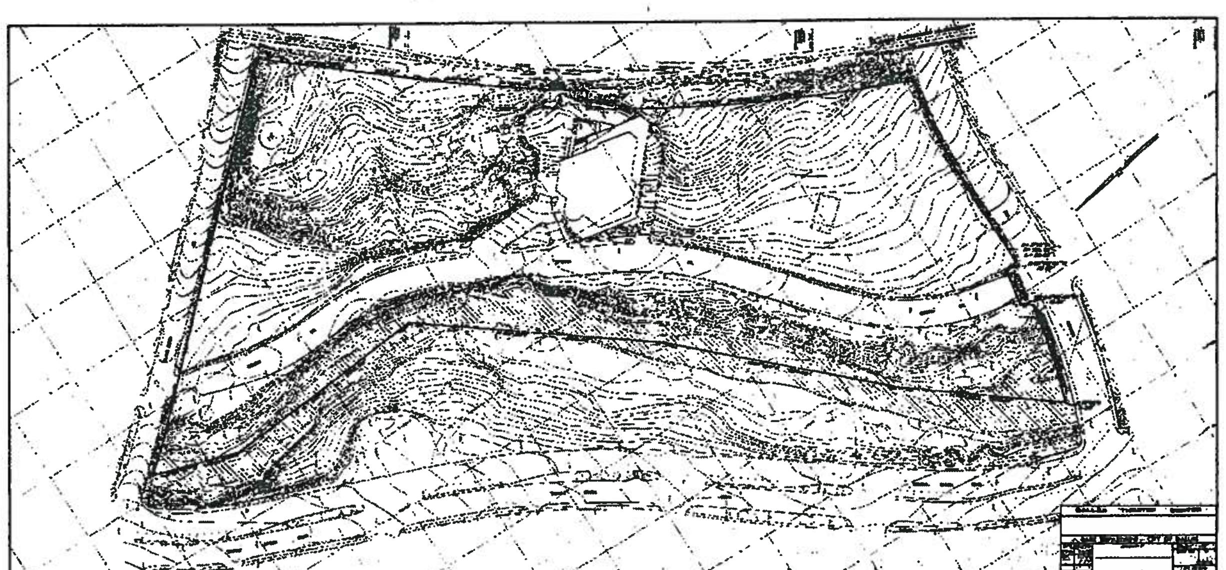


The space created between the building and the natural rock outcroppings along the driveway, and around the Entry Terrace, was an important aspect of the architecture. This early rendering of the Site Plan was drawn when a tunnel was planned to access a parking lot on the east side of the railroad right of way. The lot was not built, and instead the driveway terminated in a circular turnaround in front of the Entry Terrace. Patrons parked along Sylvan Drive and walked up the driveway.

The indirect sequence of entry to the theater was characteristic of the architect's style.

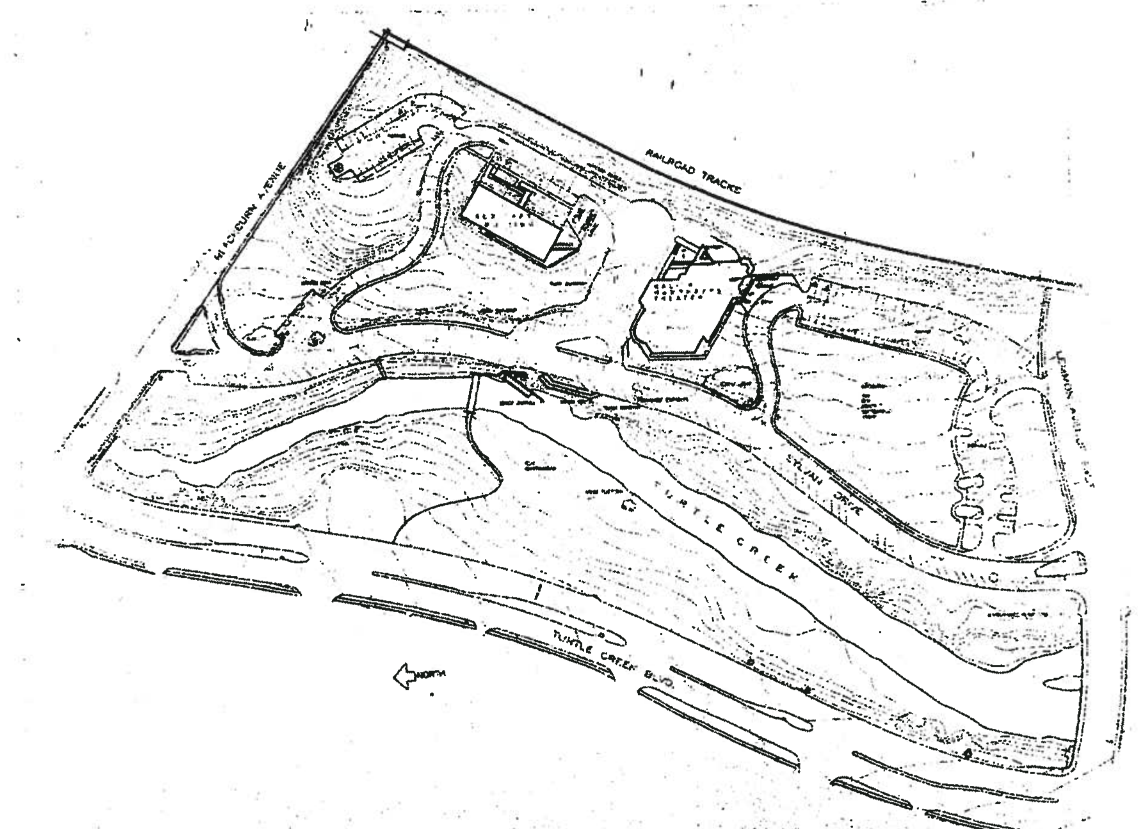
An Electrical Plan for the site, dating from 1959, shows the original configuration of Sylvan Drive, the circular drive, and the areas designated for walkways behind the building. This plan, Attachment #2, forms the basis of the Historic District Limits of Designation. There are also extant copies of original drawings that show the 1959 driveway design and the 1960 design for a stairway over the railroad tracks.

Successive additions of parking lots and driveways have created a bare zone around the building. In 1968, a driveway was added under the Education Wing Additions, illustrated below in the 1975 Topographical Survey.



City of Dallas Parks and Recreation Department Files

The effort in 1989 to create what a theater manager called "ceremonial drives" caused the effect that architecture critic David Dillon later described in the *Dallas Morning News*, saying that the building "looks like a forlorn ammonite in a sea of asphalt." A comparison of the current Site Plan (below) with the 1975 Topographical Survey shows the extent to which the hill has been removed to make way for surface parking areas.



Adapted from drawings in DTC files.

For current site description, see Section 12, Current Site Condition, p.10.

12. Physical Description

Condition, check one:
____ *excellent*
_X_ *good*
____ *fair*
____ *deteriorated*
____ *ruins*
____ *unexposed*
____ *unaltered*
_X_ *altered*

Check one:
_X_ *original site*
____ *moved(date)*

BUILDING DESCRIPTION

The Kalita Humphreys Theater (KHT) is an internationally significant building designed by Frank Lloyd Wright for the Dallas Theater Center (DTC). Originally commissioned in 1955 and completed in 1959, it has been in continuous operation as a theater until the present.

The building as originally completed, was four and a half stories high and topped by the stage loft rising 66 feet above grade. The poured reinforced concrete building system allowed for dramatic structural features including the cantilevered roof terraces as well as sculptural rounded towers.

(Further description of significant features and the history of the building follow in Section 13.)

Before 1968, offices were added under the south cantilever of the Auditorium, which obscured the Director's Office. (See Exhibit C.3, C.4.) Major alterations to the theater building were made in 1968, with the addition of a two-story Education Wing to the east. In 1989, the Foyer was extended and new storefront-type entrances added which fronted new surface parking lots to the north and south. Uphill and to the north a stuccoed two-story administrative building was added. All of these alterations substantially changed the experience of arrival to the KHT. Modifications have changed some interior configurations and finishes.

The setting for the DTC, Turtle Creek campus is William B. Dean Park, which is approximately 9.7 acres and is owned and maintained by the city of Dallas, Parks and Recreation Department. (Section 11, Site Features and Attachment #1, Survey Plat.)

The surrounding neighborhood is primarily residential. To the east is a proliferation of lowrise condominiums and townhomes. To the north and south, along the creek, are areas of single-family homes. To the west are many mid-rise and high-rise apartment buildings. Safe and continuous pedestrian access to the site is not ideal and a dearth of continuous paths through the site makes ADA access difficult. The two sides of Dean Park, divided by Turtle Creek, are connected only by one narrow and non-compliant footbridge.

Dean Park lies within a string of parks from the Kessler Plan, stretching from Knox Street to the north down to Reverchon Park to the south. Also connecting these areas is the former M.K.& T. railroad right of way, now the Katy Trail. Plans have been drawn for a connection from the KHT to the Katy Trail incorporating a bike ramp and the reconstruction of the unbuilt stairway originally designed by Wright and drawn by Kelly Oliver in 1960.

CURRENT CONDITION

Current Building Condition

An *Immediate Needs Assessment for the Kalita Humphreys Theater* (See Section 9, Construction Dates) recommended priorities for maintenance and repairs. Generally, the underlying structure of the original building was found to be intact and in good condition, except for the parapet walls of the original East Balcony Terrace and several staircases, which have been removed and/or encased. The 1968 walls of the Education Wing are battered (sloped) and create a condition for ongoing moisture penetration. Improvements are needed in mechanical, electrical, and plumbing systems and technical equipment. Interior and exterior finishes need refurbishment and/or restoration. There are ADA/TAS compliance issues. Original furnishings have been removed. The 1959 driveway is deteriorated and landscaped areas have been paved or have suffered from erosion.

To date there is no Historic Structure Report (HSR) that fully documents the building's history, condition and standards for maintenance and/or restoration.

Current Site Condition

The theater building is accessed by a driveway (13 parking spaces) and parking lot (30 parking spaces) to the north. An additional parking lot (59 spaces) was created to the south of the KHT, with parking (27 spaces) along a driveway paralleling Lemmon Ave. At one time Sylvan Drive was closed to traffic overnight. While two of four gates are still in place, they are no longer supervised and are always open. The looping system of driveways and persistent disregard of the one-way direction has resulted in the use of the park for "cruising" throughout the day and evening, a deterrent to full use of the park by others.

A Conceptual Site Plan drafted in 2003 for the DTC Facilities Committee, with the input of Park officials, and Booziotis and Company Architects, has proposed that the original site be considered a historic zone and that the long-term goal be to return this zone to its original condition. The historic driveway leading to the Entry Terrace is steeper than ADA limits permit and a secondary pedestrian access must be maintained.

The Park and Recreation Department has created a Vegetation Management Strategy for Dean Park, which includes "View Corridors" to the KHT. These areas for selective pruning and clearing are part of an overall plan to enable the KHT to be visible from adjacent streets.

The Heldt Administration Building, added in 1989, is sited prominently on the crest of the hill just north of and slightly above the theater. The proximity and size of the new building fundamentally changes the experience of seeing the theater building as a sculptural form in its natural setting. This kind of competitive siting is specifically discouraged by the Secretary of the Interior Guidelines for historic buildings.

Plans are underway to reconstruct the original configuration of streetlights on the east side of Sylvan Drive. The south side is lit by tall mercury vapor streetlights that detract from the aesthetic of the park, and do not light the heavily vegetated banks of the creek area at street level. Overall park lighting and pathways should be studied to improve security.

Visitors have trouble locating the KHT from the adjacent streets because no signs exist from the surrounding access streets to the building, which is surrounded by vegetation within the park.

There is an eight-foot diameter underground storm sewer pipe that bisects the area from the theater building to Lemmon in an east-west direction. It deposits street debris from as far away as McKinney Avenue into the creek just below the theater site. This debris is trapped by a boom. The City of Dallas has not proposed a solution to ameliorate this situation.

Suggestions have been made for additional out-of-doors functions such as children's theater and storytelling areas, refreshment kiosks or carts, outdoor amenities for joggers, outdoor performing arts and music venues, and a trolley stop. The building is under a flight path to Love Field and the decibel level should be considered in planning outdoor uses.

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13. Architectural History—Original Building Design and Construction

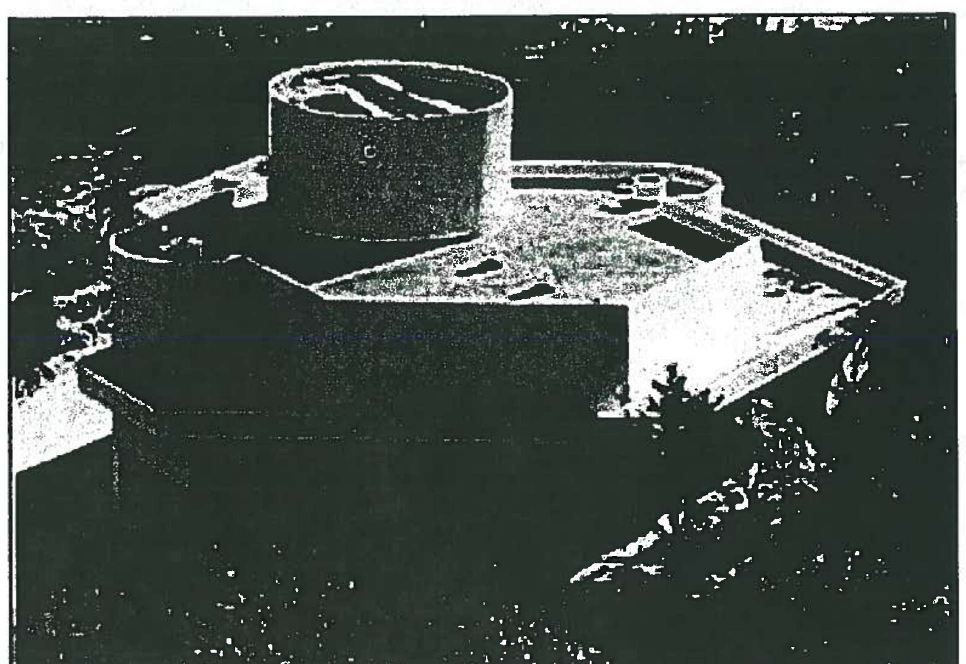
INTRODUCTION

The Kalita Humphreys Theater (KHT) has the distinction of being the only extant free-standing theater fully designed by Wright under construction before his death. The ultimate realization of Wright's vision for the "New Theater," the facility was hailed as the most innovative and interesting theater building in the country when it opened in 1959. The building was illustrative of the visionary founders of the Dallas Theater Center organization and its daring artistic director, Paul Baker. It influenced the design of the many community-based theaters that sprang up after World War II.

The modified thrust stage and open proscenium, creating an intimate connection between actor and audience, were the result of a structural tour de force unique to this theater building. The KHT was also on the cutting edge of theater technology with its motor-driven winches and lighting controls by George Izenour.

The monolithic concrete building was a combination of curved and angular forms typical of Wright's late-period public projects. The vertical cylindrical forms of the four-and-a-half story building, encircled by horizontal cantilevered decks, presented a sculptural façade, both monumental and dynamic, within a wooded park setting. The entire building was based on a 60/120-degree equilateral parallelogram, such that there were virtually no right angles. The unit-system organized not only the floor plan, but also many of the details from the smallest design of the window shapes to the facetted columns and the built-in furniture.

The KHT was unique for its structural experimentation, its unusual theater layout, the spare simplicity of its concrete shell and muscular elegance of its dramatic forms. These qualities, even in its altered state today, are still apparent. The quality of the architecture along with the cultural importance of the theater organization, events, and director cannot be overstated.



DTC Files

ORIGINAL BUILDING DESIGN

Architect and Site Selection

The DTC Building Committee was looking for an architect with a national reputation and considered both O'Neil Ford and Mies Van der Rohe before deciding on Wright. The Building Committee chose Frank Lloyd Wright as the architect to bring imagination and expertise to the project, to match the daring, innovative character of their accomplished theater director, Paul Baker.

The Turtle Creek area, just north of downtown, was developed according to the 1911 George Kessler Plan, and the site was one of the few remaining large tracts of land in 1955. Stanley Marcus, President of Neiman-Marcus Department Stores, enthusiastically endorsed this central location for the theater (Cory 27). Sylvan Baer intended to allot part of the Turtle Creek land for a large art center and concert hall (DMNews, 1957), but he placed so many conditions on the use of the site that the DTC almost returned the land to him. There was no provision on the site for parking; neither would Baer allow the road to be widened to accommodate it, but he did provide a bridge easement over Turtle Creek.

Wright first visited the site in August of 1955 and was delighted with the natural vegetation and the prominent rock outcroppings along the contours of the hill. From the east lot line, near the M.K. & T. Railroad tracks, to the west boundary at Sylvan Drive, the site had a total vertical fall of about 30 feet. There was a natural swale down the fall line along the north lot line, exposing an undulating line of limestone outcroppings. (See Section 11, Site Description, p.7.)

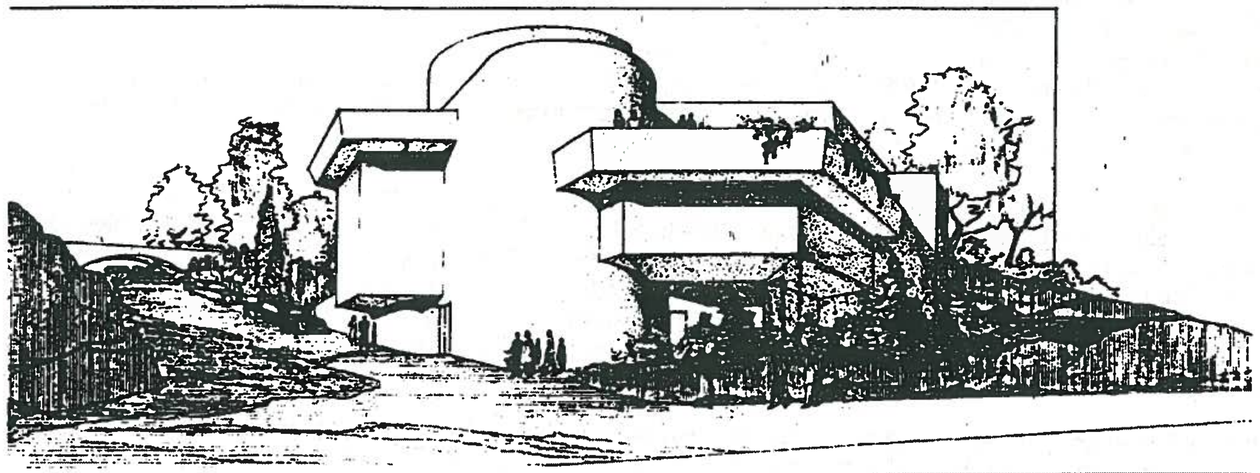
Program

The DTC founders wanted to create a community ensemble theater group that also had a strong education mission and would produce a full season of high-quality productions, both classical and modern. The original program called for a medium-sized theater, with offices for the director and a small administrative staff, as well as backstage dressing and costuming areas and a scene shop. All of this, and the driveways, were to fit on the 1.2-acre site within an original budget of $500,000. By the end of construction, in spite of cuts in the program, the construction costs and fees reached $1,000,000.

In September of 1955, the Building Committee visited Wright's studio in Wisconsin, Taliesin East, and heard his concept for the "New Theater," beginning with his several iterations of the theater for Aline Barnsdall at Olive Hill, California, 1915 -1925. Here, stage and auditorium shared the same ceiling and one scheme included a cyclorama in the rear of the stage. Wright had been influenced by Kabuki theater in Japan and had provided a stage revolve and music balconies for the theater within the Imperial Hotel in Tokyo (now demolished). Wright also showed the Building Committee his latest configurations for theaters in New Haven, 1931, and Hartford, Connecticut, 1949, both unrealized. Wright's basic concept aligned with that of the director, Paul Baker—the space for audience and actor should be melded to form a more intimate setting conducive to modern productions, and the architecture should facilitate the technical aspects of handling scenery, lighting and acoustics.

Siting and Massing

In contrast to Wright's earlier drawings of the Hartford Theater of 1949, sited on a smooth knoll, this vision for the Dallas theater was more engaged with its site and had greater clarity of its geometric forms than his earlier concepts. Popular misconceptions about the way the KHT was oriented toward the back of the site have arisen through lack of understanding about the original condition. Wright 's early renderings from November of 1955 showed a building deftly tucked into its site but also extending out along the hill and to the creek. Originally, a main ceremonial drive and promenade with fountains and overlooks angled from Turtle Creek Boulevard. The driveway was rendered as though it were a river, with the bridge at the top to reinforce the metaphor, recalling Fallingwater, Wright's seminal residence built for the Kaufmans in 1936. The bridge over the drive, the bridge over the creek, and numerous fountains en route reinforced the water imagery. Ultimately, neither of the bridges was built, the land for the parking uphill was not acquired, and only the Entry Terrace Fountain remained in the plans, next to a truncated circular driveway.



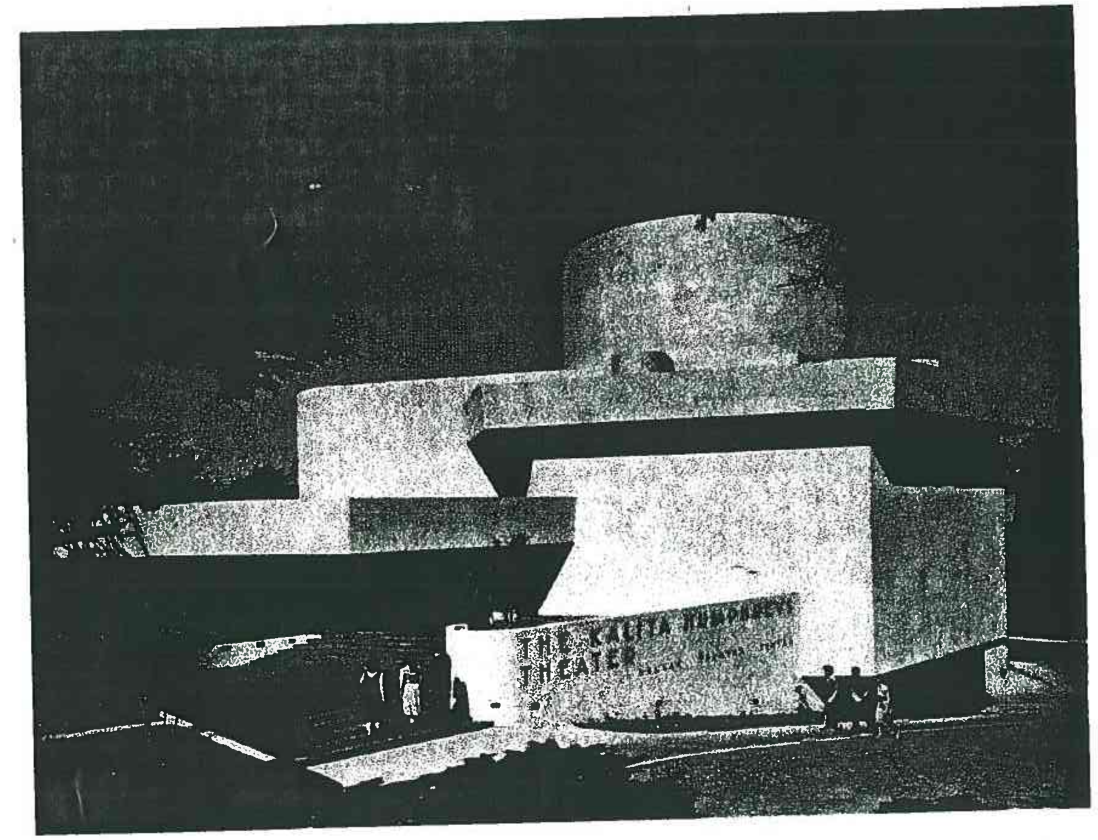
Sylvan Drive, then, became the main approach to the site, and the pedestrian route to the main Entry Terrace was via the driveway itself. The intermingling of automobile circulation and building space, which characterized the design for the KHT, is found in many of Wright's public building designs.

This gradual progression into the building, from Sylvan Drive, was a series of turns that oriented the visitor, with framed vistas, to each direction of the building setting. Each part of the approach sequence allowed the visitor to experience spaces created between the building forms and the natural forms of the rocky undulating landscape. The dialogue between the site and the building was as architecturally significant as the building itself.

As central and beautiful as the site was, it had the disadvantage of being obscured from view from any of the surrounding streets or access points. Wright's concept for a tall cylinder of smooth, light-colored concrete gave the building the prominent aspect necessary to advertise its presence from a distance. In addition to providing visibility, however, vertical stacking of uses was Wright's only option on this tight site. Not only did he have to meet the basic functional requirements for a theater and all of its attendant functions, but Wright had also to provide separate entrances for the patrons, service vehicles, and actors on only 1.2 acres.

To modulate the height of the concrete monolith, Wright created a series of horizontal lines, stacked cantilevered levels, punctuated by horizontal bands of windows, which stratified the monolith. In the renderings, the soaring concrete decks, draped with vegetation, appeared as extensions of the natural rocky ledges, and the point was visually clear—the building was built landscape, fully integrated into its natural setting. Kelly Oliver, the Taliesin apprentice who supervised the project, confirmed, "It was meant to grow out of the hill" (Interview, 2002). The levels also recall a building designed by Wright that was an institutional building in an urban setting, the Guggenheim Museum, in New York, in progress from 1943 to 1959.

The foundation for the building was cut into the bedrock of the sloping site. The basement scene shop was below grade on the uphill side while on the downhill side it opened to the street. The main level for the Entry Foyer and the Auditorium was at grade on the uphill side, while on the downhill side that same level was high above the street. Thus while the uphill spaces had a low intimate feel, the building on the downhill side was high, like a promontory overlooking the creek. This contrast of sheltering cave-like spaces leading to promontory-like terraces was emblematic of Wright's work.



DTC Files

Entry Terrace/Foyer
At the Entry Terrace, two levels of landscaped terraces led to the low entry area guarded by only two gold columns. Here the roof canopy nearly touched the ground, making the building appear to grow out of the hill. Adding to the grotto-like feeling of this outdoor space was the sound of water from the fountain and the play of its reflections on the soffit of the cantilever above. The complex articulation of the Entry Terrace created the only area of the building where the definition between inside and outside space was blurred. In contrast to the closed form of the theater auditorium, this kind of transition space, so characteristic of Wright's designs, only happened here at this original entrance. This area of the original building should be noted as being particularly architecturally significant.

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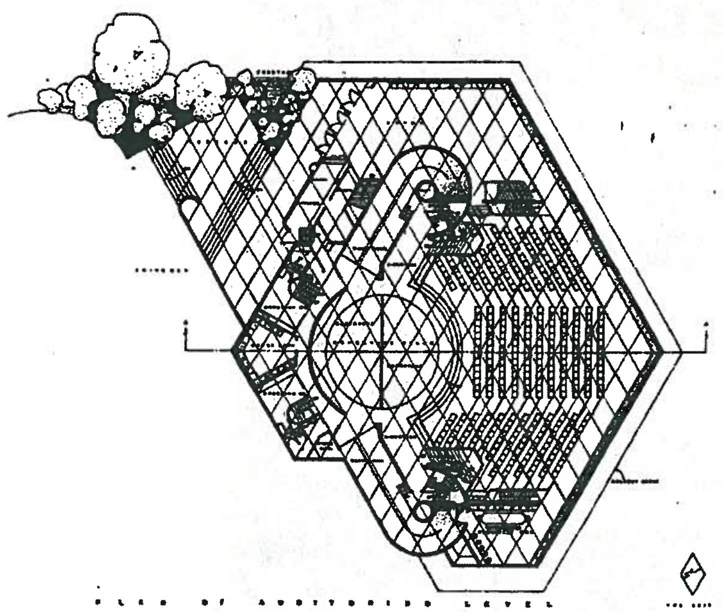
Building Plan
The building was designed on a grid of equilateral parallelograms, an organizational method that permeated the design at all scales, which Wright referred to as the "unit-system." Related examples of the equilateral parallelogram unit can be found in houses as early as the forties. Precedents of buildings combining round forms, such as the "hemi-cycle" houses, are numerous. Precedents for round forms combined with angular or orthogonal geometries include the 1955 Greek Annunciation Orthodox Church, Wauwatosa, 1955-61.



Building System—Reinforced Concrete
Wright's choice of a reinforced concrete building system had many environmental benefits. Acoustical privacy was of paramount importance for a theater, which was just downhill from the railroad to the east as well as under the flight path to Love Field to the west. The monolithic concrete shell could also provide insulation from the Texas heat, and the reinforced concrete cantilevers could create overhangs to shield the linear windows from the sun. For a public building, concrete gave appropriate solidity and a feeling of permanence. About this monolithic theater, with characteristic hubris, Wright said that someday "this theater will mark the spot where Dallas once stood" (Cory, 72).

Wright called concrete a "neutral" and "moldable" material because it took the shape of the formwork into which it was poured. Wright's earliest use of reinforced concrete was in Unity Temple, 1904, Oak Park Illinois, where the shapes were blocky and rectilinear. By the thirties Wright was exploring the fluid rounded lines possible with this plastic material. It was the material of choice for many public buildings that had need for shielded, quiet interiors, at a remove from the outside world, such as the Greek Annunciation Orthodox Church, the Guggenheim, and the unbuilt Crescent Opera, Baghdad.

As compared with all other institutional projects, the KHT had a greater percentage of planar concrete surface, and the least amount of decorative detail. Because of this simplicity, almost austerity, of form following function, the theater was arguably one of the most "modern" of Wright's edifices.

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