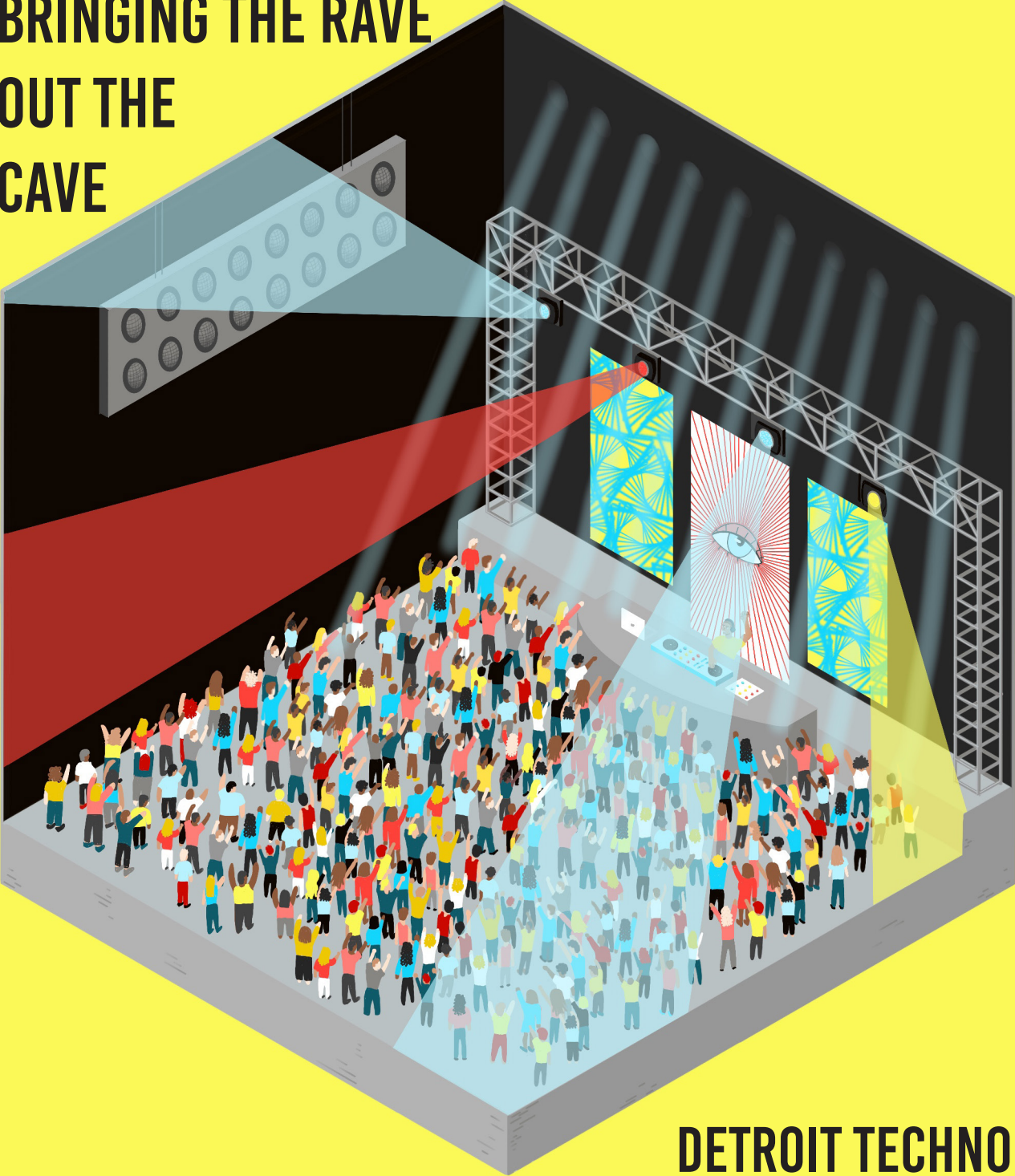


**BRINGING THE RAVE
OUT THE
CAVE**



DETROIT TECHNO

NARRATIVE/ABSTRACT

Narrative

Since the beginning of human evolution, music and dance have guided some of the earliest civilization's rituals, spiritual gatherings, and social events through the passageway of trance, expression, pleasure, entertainment and interaction. This type of elevated faith among cultures across the world have been traditionally documented in the language of religion. But spiritual enlightenment can be reached without being confined within religious institutions, such as the rituals of rave.

"Dance parties have transmuted the role that organized religion once had to lift us onto the sacramental and supramental plane" – Ray Castle

Between the mid twentieth century and the end of the early 2000's, urban unregulated spaces of warehouses, abandoned buildings, and underground clubs have taken in the raver's anarchist communal pursuit of a physical outlet, transcending the mundane through music and dance, with desired effects ranging from personal healing to transformations on social, cultural or political scales. These physical outlets were a spiritual escape into an invisible landscape of rhythmic repetitive electric sounds (Electric Dance Music – EDM) of synths and bass drums that move your body for you; a place of inclusion and oneness; a sense of freedom with no boundaries. This early rave movement was inherited from the disco and house developments of New York City and Chicago in the 70's and 80's (following the hippies counterculture movement in the 60's), whose oppressed subcultures formed house music and modern EDM culture in the midst of the fiscal crisis, establishing a new order positioned around peace and love, hoping to eradicate racism, poverty, war, bigotry, etc. (Graham, 2017).

Sampling and remixing the anthem of their inheritance, the new hybridized rave movement of the 90's spread across the globe, comprised of youth masses and the combined stimulus of electronic music, 'psychotropic lighting', 'chemical alternants' and all-night dancing, resulting in an ecstatic experience.

This ecstatic experience of raves, as well as its distinct empathetic character, is heightened with the 'love drug' or 'ecstasy', a component of raves that placed its early prominence as 'the remedy for alienation caused by an atomized society' (Reynolds, 1998). Conversely, this mass promoted itself, known for their obscure accessories, personalized icons, 'religious glossolalia', and mostly for their mantra PLUR (peace, love, unity, respect). Raves characteristics and experiences moved many commentators to employ interpretations of other traditional religious frameworks, such as Christian, Hindu, Buddhist, etc., with some even celebrating the non-Christian religiosity of dance 'ritual', designating it as the 'new church' (Graham, 2017).

As this new movement continued to weave itself into a worldwide culture, simultaneously, so did the negative media propaganda, labeling the phenomenon with drugs, dangerous parties, and deviant behavior. Subsequently, resulting in law enforcement crackdowns of these unregulated spaces. Soon after came the predominant commercialization of regulated nightclubs, which was more about the money of mass consumption than the authentic culture. Leading ravers to distant themselves from urban context and into the deserted landscapes of woodlands, deserts, beaches and dunes, where they could partake in their social rituals of communal music and dance in extreme secrecy without disruption of law and commodification.

From the end of the early 2000's to today, the rave movement continues to rise among a new generation of youth ravers, though not as overtly political and spiritually desired as their rave and hippie predecessors, they sustained the socio-cultural elements of the movement while adapting to the millenniums new type of economy and exchange. Raves today are most popular as outdoor festivals, which can accommodate the mass crowds of ravers. Whereas indoor clubs for rave lost their momentum in the 90's due to the shift to unregulated venues in the urban undergrounds and warehouses. And since then, there has been minimal architectural innovation within these clubs of nocturnal music and dance.



NARRATIVE/ABSTRACT

Abstract

By examining the types of space raves inhabited, from the anarchist grass-root origins of the urban undergrounds to the vast landscapes of commodified festivals of today, I question: what would the ideal 21st century rave space be and how can I bring light to the essence of the rave phenomenon?

I propose to reinvent the new rave space, to structure the traditions, to reharmonize the powerful connections within body, spirit, culture and place. I aim to reconceptualize the club scene, synthesizing raves past sensibility of place with the innovative technology of today, resulting in an amorphous mixture of space, sound and light. The focus will be acoustically and visually rich environments within architectural forms that include a diverse variety of spatial experiences that enhance the physical, emotional, and spiritual responses of the users.

The result of this will be a combination of applied research into the past and present status of EDM/Rave scenes and their spatial implications along with experimenting the ideal acoustical environment and its variables through simulation.

Title:

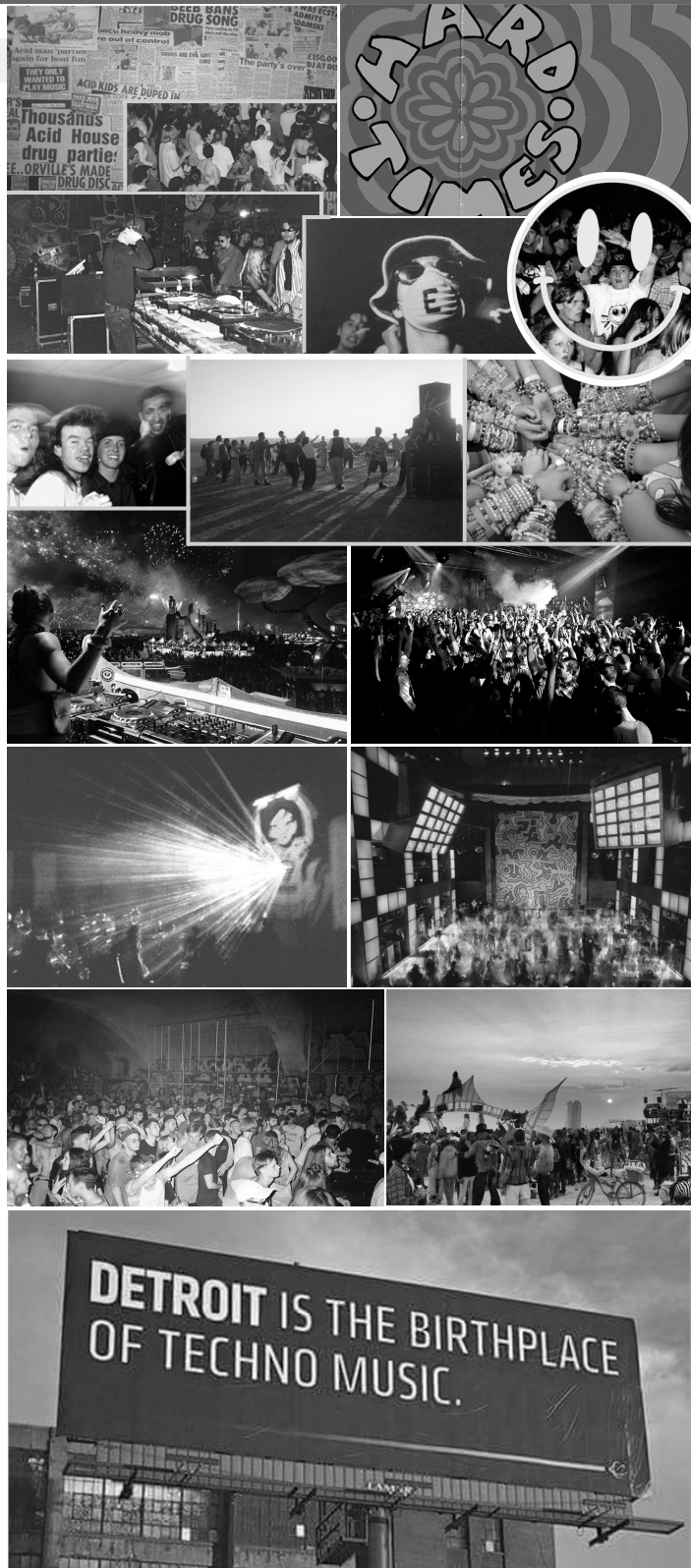
Bringing the Rave out the Cave

Typology:

Dance Club - Performance Spaces

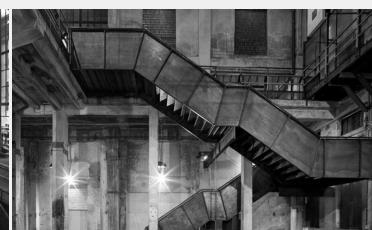
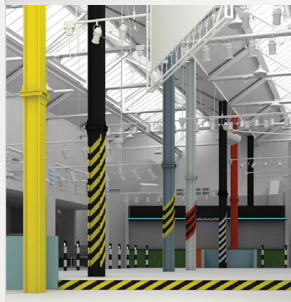
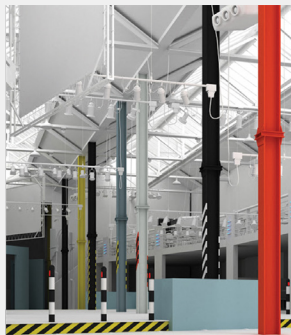
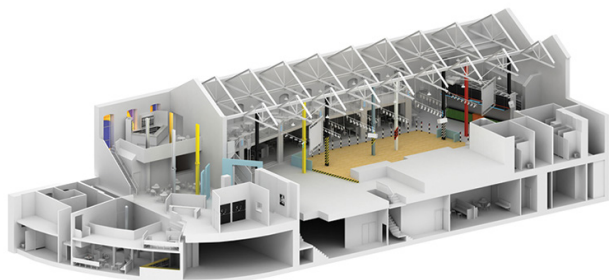
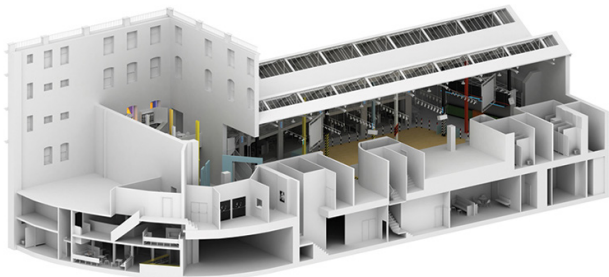
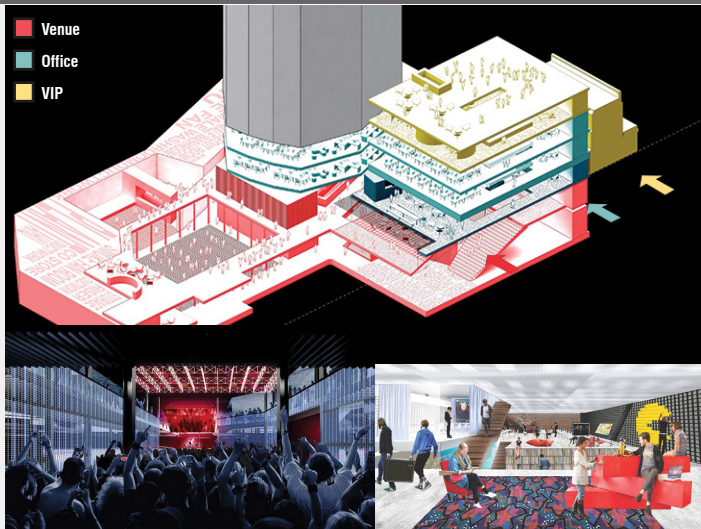
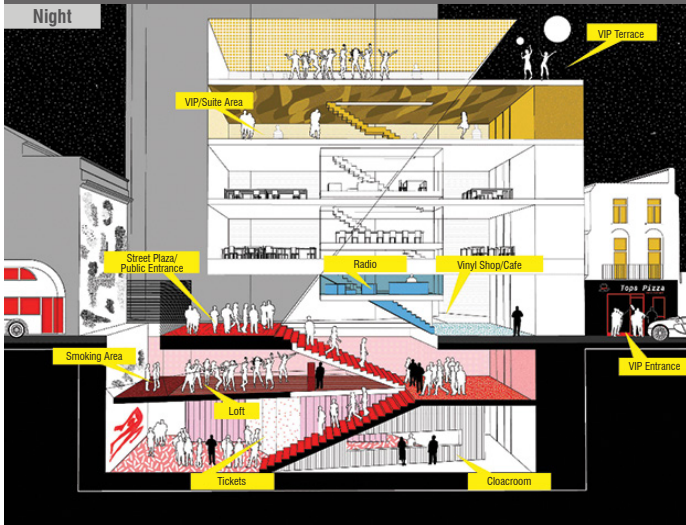
Site:

The Michigan Building & Theater -
Downtown Detroit





CASE STUDIES



4 RESEARCH DOCUMENT

Site Analysis: Site Introduction

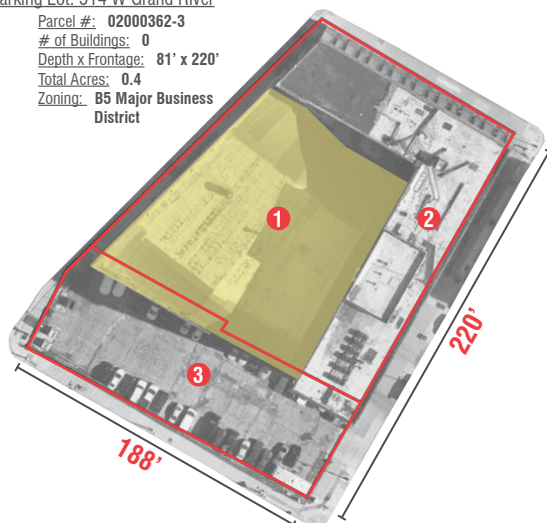
Site Introduction



Detroit, MI
Downtown

Fig. 113: Proposed Site Location: Michigan Theatre, Downtown Detroit

- | | |
|---|---------------------------------|
| 1 Michigan Theatre: 220 Bagley St | • Parcel #: 02000326 |
| + | • # of Buildings: 2 |
| 2 Michigan Office Building: 220 Bagley St | • Depth x Frontage: 188' x 220' |
| | • Total Acres: 1 |
| | • Zoning: B5 Major Business |
| 3 Parking Lot: 514 W Grand River | |
| • Parcel #: 02000362-3 | |
| • # of Buildings: 0 | |
| • Depth x Frontage: 81' x 220' | |
| • Total Acres: 0.4 | |
| • Zoning: B5 Major Business District | |



The Michigan Theatre Building

Simple Facts:

- 13 stories (Michigan Building), 9 stories (Michigan Theater) 190 ft tall (Michigan Building), 100 ft tall (Michigan Theater)
- There is a 13th floor but the elevators were designed not to reach it
- It has a separate egress from the 12th floor to the 13th
- Location is bounded by Bagley, Clifford, Middle, & Grand River in Downtown Detroit
- Michigan Building is located near where Grand River and Cass originate
- The Michigan Building Addresses include:
 - 220 – 238 Bagley
 - 501 to 509 Clifford
 - 201 Middle Street
- Design: Beaux Arts style, Exterior, limestone façade
- 245,000 square feet of office space, and parking for 160 cars on three levels, as currently configured
- Original Theatre was completed in 1926 with 4050 seats. Named the Michigan Theatre
- It was designed to be the most magnificent theatre between New York and Chicago

4 RESEARCH DOCUMENT

Site Analysis: Site History



Fig. 114: Michigan Theatre - Southeast View



Fig. 117: Michigan Theatre Auditorium



Fig. 115: Michigan Theatre - Southwest View

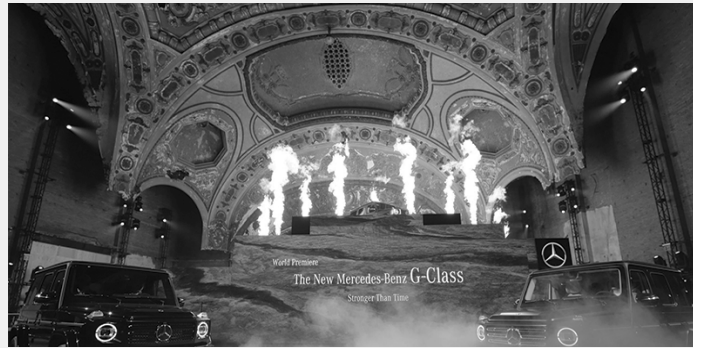


Fig. 119: Mercedes-Benz Auto Show Event - 2018



Fig. 116: Michigan Theatre - South View



Fig. 120: Zumiez Best Foot Forward 2014 Skateboarding Championship



1926

2019

Fig. 118: Michigan Theatre: 1926 - Current

4 RESEARCH DOCUMENT

Site Analysis: Interior Condition & Use



Fig. 121: Michigan Theatre - Interior Condition

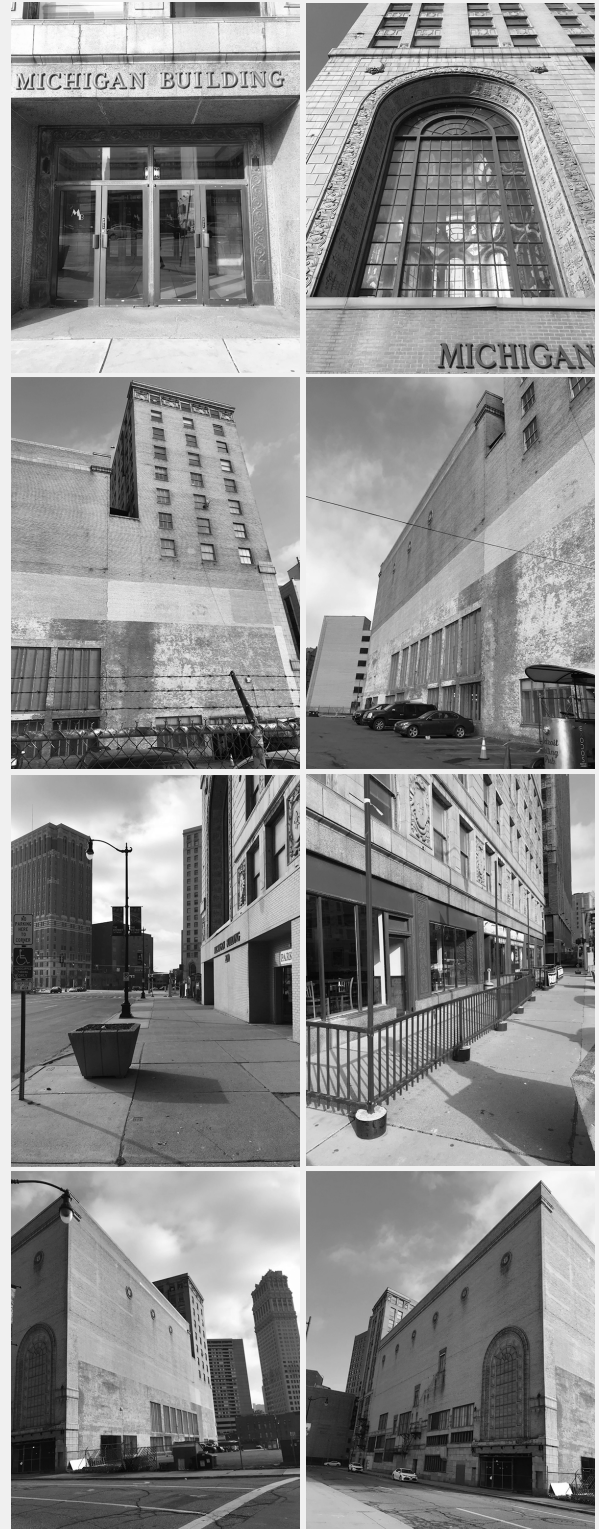


Fig. 122: Michigan Theatre - Exterior Condition

4 RESEARCH DOCUMENT

Site Analysis: Neighboring Context



Fig. 123: Site Neighboring Context - Aerial View



Context: Views and Neighboring Buildings

- 1 Lumen Detroit - Restaurant/Park
- 2 Misc. Commercial/Apartments
- 3 Republic Building - Historic Site
- 4 United Artists Building - Commercial
- 5 Mint House - Hotel
- 6 The Detroit Leland - Apartments
- 7 Rosa Parks Transit Center
- 8 Savannah Blue - Rest.
- 9 Nicks Gaslight - Rest.



Fig. 124: Site and Neighboring Views

4 RESEARCH DOCUMENT

Site Analysis: Modes of Transportation

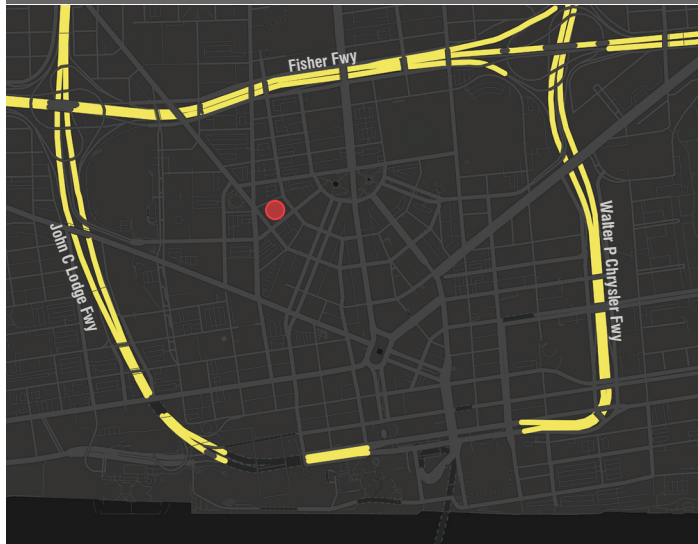


Fig. 125: Detroit: **Major Freeways** ● Site Location

In 1956, Dwight D. Eisenhower's Federal Aid Highway Act was conducted where this system and other public policies promoted car culture and invested more money in building highways as opposed to public transportation systems. The highway system bounds the area of Downtown Detroit making transportation quicker to and from the city but also separating it from its surrounding neighborhoods, fueling urban sprawl and alienation of communities.

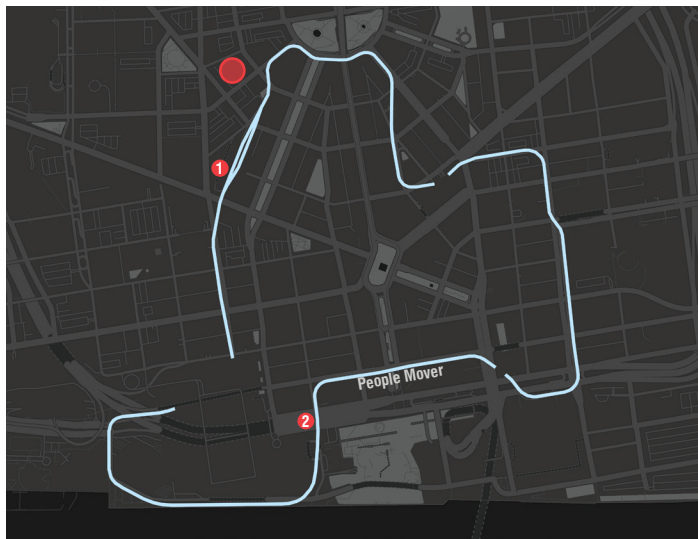


Fig. 131: Detroit **People Mover** Railine Route ● Site Location

The Detroit People Mover is an automated light rail system on an elevated track in Downtown Detroit's Business District. The system is nearly a 3-mile loop and has 13 stations situated throughout its path. When constructed in the 1980's, it received a lot of criticism for not being cost effective as it primarily serviced visitors to restaurants and stadiums rather than helping the city's residents to get around efficiently.



Fig. 126: Detroit: **Major Freeways**

Downtown Detroit and my proposed site are bounded by the Detroit River to the south along with these **three main highways**:

- Fisher Freeway (I-75) - North
- John C Lodge Freeway - East
- Walter P Chrysler Freeway (I-375) - West

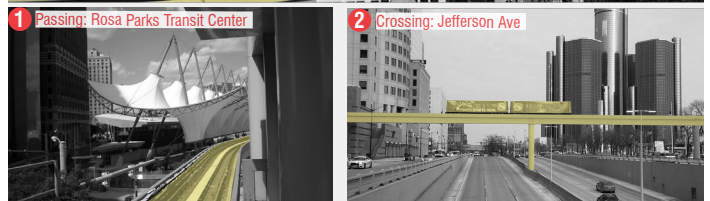
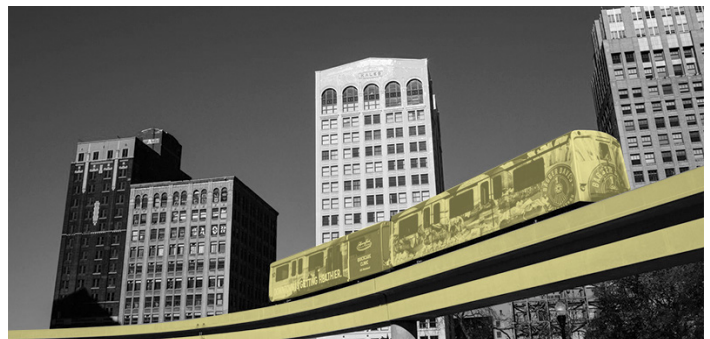


Fig. 132: Detroit **People Mover**

People Mover Stations:

- | | |
|------------------------------|--------------------------------|
| 1. Michigan Station | 8. Renaissance Center Station |
| 2. Times Square Station | 9. Millender Ctr. Station |
| 3. Grand Circus Park Station | 10. Financial District Station |
| 4. Broadway Station | 11. JLA Station |
| 5. Cadillac Center Station | 12. Cobo Center Station |
| 6. Greektown Station | 13. Fort/Cass Station |
| 7. Bricktown Station | |

4 RESEARCH DOCUMENT

Site Analysis: Modes of Transportation

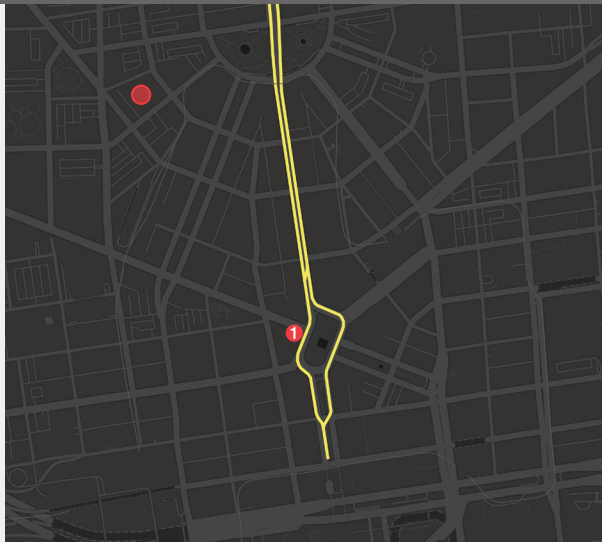


Fig. 133: Detroit Rail System: Q-Line ● Site Location

Q-Line Rail System

The new Q-Line provides riders with a 3.3-mile jaunt up Detroit's main street, Woodward Avenue, from downtown to the New Center Area – providing close access to my site as well as sporting events, theatres, shopping, dining, and many more.



1 Campus Martius Fig. 134: Detroit Rail System: Q-Line

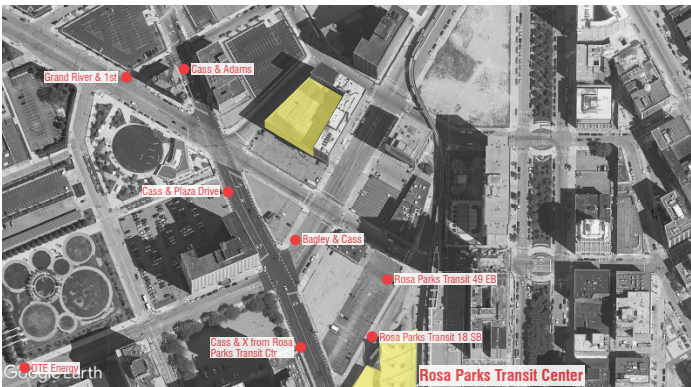


Fig. 135: Detroit Bus System: Rosa Parks Transit Center ● Bus Station

Bus Transit System



Fig. 136: Detroit Bus System: Rosa Parks Transit Center

Bike Share



Fig. 137: Detroit Public Bike-Share: MoGo

Scooter Share



Fig. 138: Detroit Electric Scooter Share: Lime & Bird

4 RESEARCH DOCUMENT

Site Analysis: Parks & Vegetation

Site Analysis: Parks & Vegetation

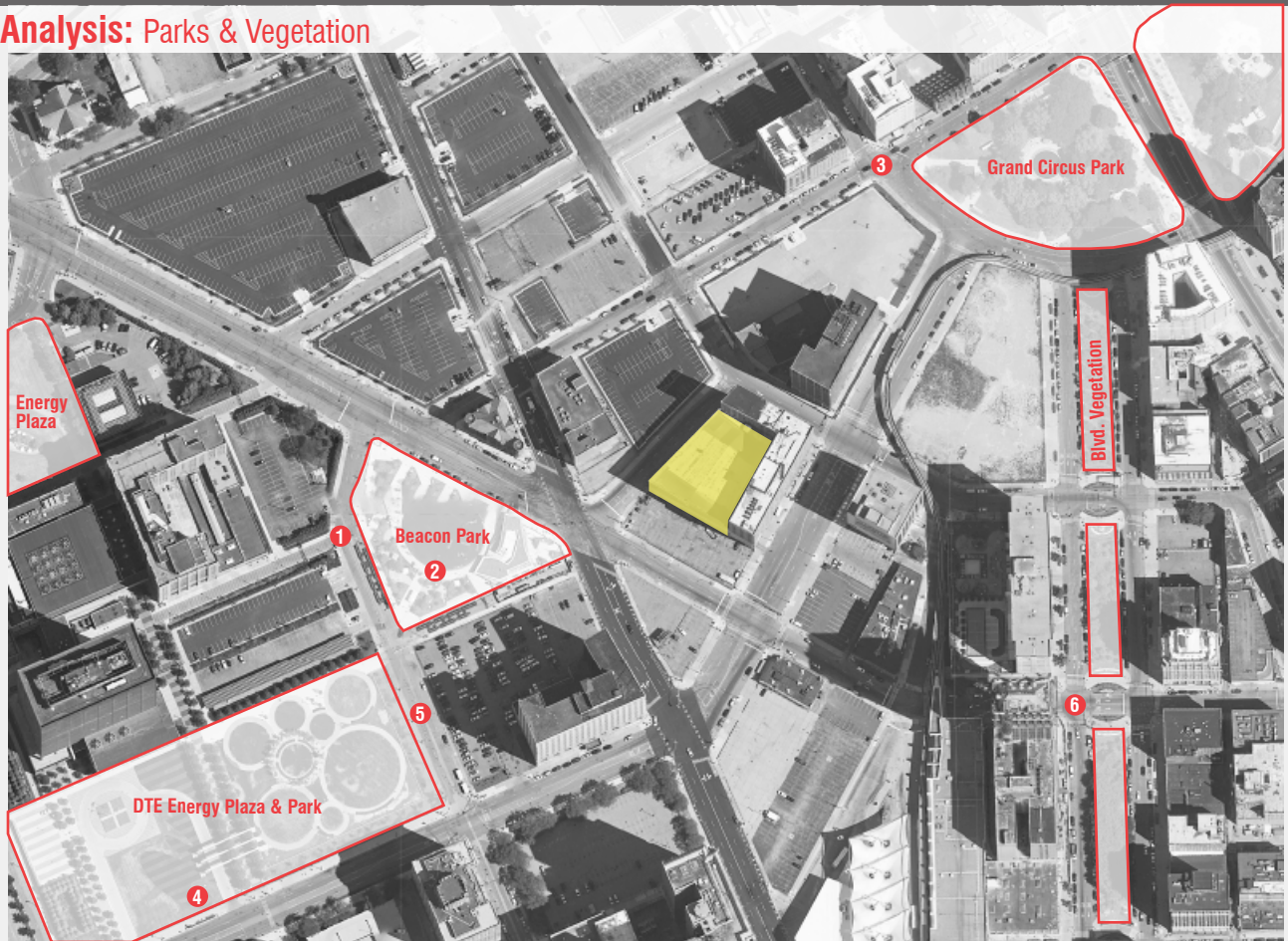


Fig. 143: Parks & Vegetation



Beacon Park



Beacon Park



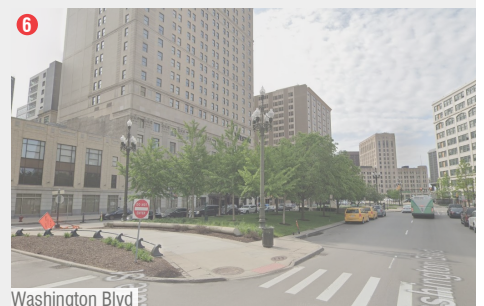
Grand Circus Park



DTE Energy Plaza



DTE Energy Park



Washington Blvd

Fig. 144: Parks & Vegetation Perspectives

4 RESEARCH DOCUMENT

Site Analysis: Climate, Sun, Wind

Site Analysis: Climate, Sun, Wind

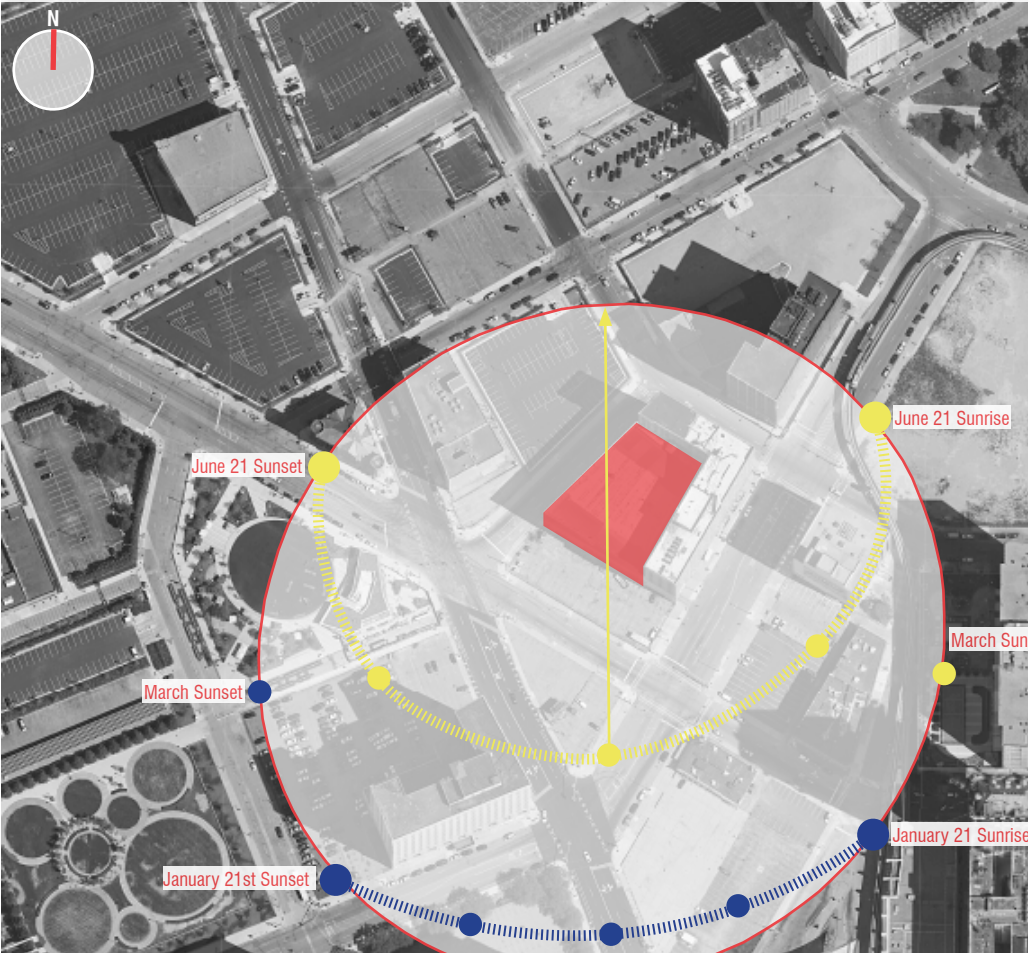


Fig. 145: Sun Analysis Diagram

Detroit's weather can be characterized as cold winters with moderate snowfall and summers that are hot and sunny. Michigan is surrounded networks of rivers and large lakes on its north, east and west sides, which are big influences on Detroit's weather. Even though Detroit lies on the Detroit River, the biggest influence on the weather is Lake Michigan – a large body of water that bounds the entire east side of Michigan. This is where majority of Detroit's winds originate as they blow east across the state and into Detroit. My site rests within the first frontier of defense against these east coming winds as it's on the outskirts of western Downtown, where to the west is all open surfaces for parking with some isolated buildings which only help to pick up the speed. With that, my site is defenseless to the incoming winds and should be considered within my design, especially in the winter as clubs usually have outdoor entry lines. With my typology being a nightclub, sun isn't much of a concern unless a daytime use is present. The sun rises north-east of my site where much of this sun is blocked from the 13 story office building until around noon where the sun wraps around the south façade at its highest point and sets at the northeast corner where the two exposed sides of the theatre connect. Nightclubs are also known to start getting busy later into the night, slightly past sunset, but the ones that arrive earlier would get a good unobstructed view of it while waiting in line or at nearby parks. Projection shadows from neighboring buildings is minimal as my site is fairly isolated and isn't worthy of analysis since my building typology is most inhabited during the nighttime.

Detroit Summer: (June - August)

- Mildly hot with moderately high humidity
- Avg. temperatures range from 50°F and 82°F, with a peak of 93°F
- Most summer days are sunny with an average of 9 hours of sunshine per day whereas the humidity reaches 68% throughout the season
- Precipitation is distributed evenly throughout the year but summer receives slightly more compared to other seasons
- May is the rainiest month with a relatively high precipitation of 3.9".

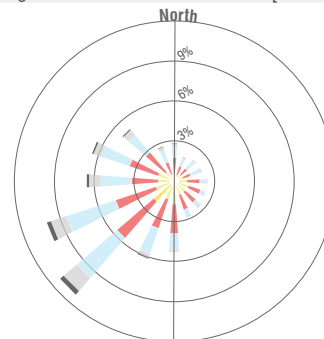
Detroit Winter: (December - February)

- Freezing weather and high humidity of 75%
- Avg. temperatures remain low, in range of 19°F and 37°F, where snowfall is experienced an average of 9 days each month
- The nights are cold with temperatures often dropping below 10°F (the drop in temp. is caused by strong and cold winds that blow across Lake Michigan from the southwest - making the temps. at night feel freezing)
- During the day, the lake warms up and causes the weather to feel warmer than recorded

Detroit Wind: Summer and Winter

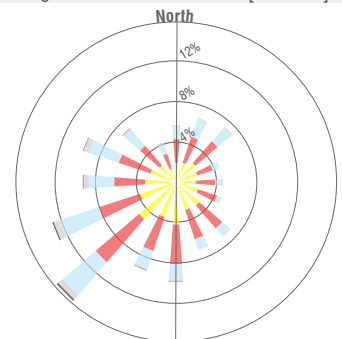
- During the summer month of June the wind blows from the southwest direction about 16% of the time, and from the northeast about 7% of the time. The winter month of December also has the most percentage of wind blowing from the southwest (14%), but has less than 3% blowing from anywhere in eastern orientations.
- (Summer and Winter Wind Rose maps below)

Fig. 146: Wind Rose: December [Winter]



Wind Speed [m/s]
 >11.06
 8.49-11.06
 5.40-8.49
 3.34-5.40
 1.80-3.34
Avg. Wind Speed: 5.27 m/s
Calm Winds: 2.54%
Orientation: Direction (blowing from)

Fig. 147: Wind Rose: June [Summer]



Wind Speed [m/s]
 >11.06
 8.49-11.06
 5.40-8.49
 3.34-5.40
 1.80-3.34
Avg. Wind Speed: 4.38 m/s
Calm Winds: 5.31%
Orientation: Direction (blowing from)

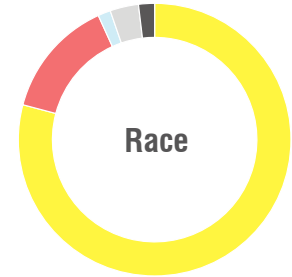
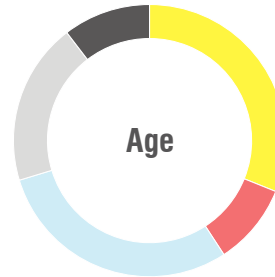
4 RESEARCH DOCUMENT

Site Analysis: Detroit Demographics & Districts

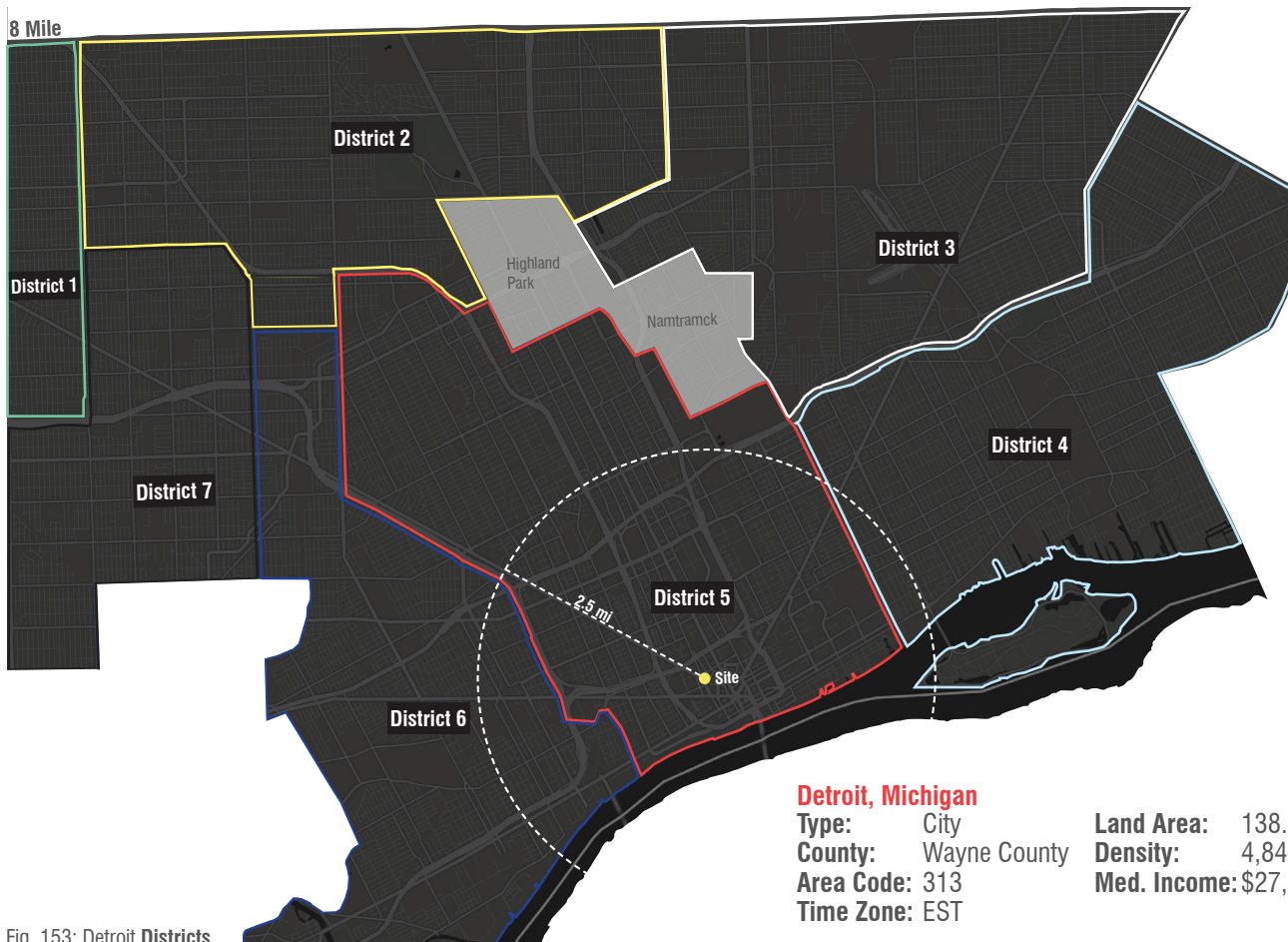
Detroit Demographics & Districts

Detroit's population and economy has been declining for many years partly due to urban decay where educated young people move away from the city for better options. The decline has also been aided by segregation, politics and most notably through the collapse of the auto industry. What remains in the city and its districts are a plethora of abandoned buildings and homes along with the inhabitants that aren't financially capable of picking up and leaving, with majority of those inhabitants being African American (79%) youths (31%) and their families (30%). Detroit is also one of the poorest major cities in the U.S, and poverty is a real problem as 1 in 3 residents of the city are situated within it ("World Population Review", 2019).

Detroit, Michigan Population:	Detroit Population by Year	
2019	1900: 285,704	
District 1: 98,967	1950: 1,849,568	
District 2: 97,555	2000: 951,270	
District 3: 93,204	2010: 711,120	
District 4: 98,599	2012: 700,159	
District 5: 92,361	2015: 679,305	[Growth: -3,364]
District 6: 98,603	2016: 676,883	[Growth: -2,422]
District 7: 93,373	2017: 674,188	[Growth: -2,695]
Total: 672,662	2018: 672,662	[Growth: -1,526]



Detroit is still one of the most racially segregated cities in the country. Blacks and African Americans makeup only 13% of the state's population as a whole but account for 82% of Detroit's population.



Detroit, Michigan
 Type: City
 County: Wayne County
 Area Code: 313
 Time Zone: EST

Land Area: 138.72 mi²
Density: 4,849.13 mi²
Med. Income: \$27,838

Fig. 153: Detroit Districts

4 RESEARCH DOCUMENT

Site Analysis: Detroit Zoning

Detroit Zoning

My 269' x 220' proposed site is a corner lot off the main roads of Grand River Ave and Bagley Street as is owned by The Bagley Acquisition Corporation. My overall site consists of a frontage parking lot (81' x 220') and the Michigan Building/Theatre (188' x 220'), which both have the same zoning of B5 Major Business District. My sites immediate neighbors of commercial offices, hotels, mixed use apartments and restaurants are also within the B5 zoning district, along with much of Downtown Detroit. Residential zoning such as single family, two-family, low/medium/high density – start at the outer perimeter of Downtown, where my proposed nightclub remains a good distance away from those properties as the typology can often be injurious to them. In regard to the neighboring buildings and their uses, my typology fits well within the spacing regulations characterized by Zone B5, and is in close proximity to other nightclubs, which are regarded as “cabaret” if liquor is served or a “concert café” if liquor is not served - where I plan to have both for production (daytime) and consumption (nighttime) uses. The daytime production spaces can also be characterized as a youth activity center with the primary purpose is to provide education, recreational, cultural and/or leisure activities for minors. R-zoned properties are also at a distance away from my site where vibrations and noise wont be felt or heard, but the sensitivities of B5 zoned neighboring buildings will also be taken into consideration to not obstruct the areas

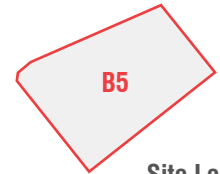
- P1:** Open Parking
- PC:** Public Center
- PCA:** Restricted Central Business
- PD:** Planned Development
- PR:** Parks and Recreation

- M1:** Limited Industrial
- M2:** Restricted Industrial
- M3:** General Industrial
- M4:** Intensive Industrial
- M5:** Special Industrial

- B1:** Restricted Business
- B2:** Local Business and Residential
- B3:** Shopping
- B4:** General Business
- B5:** Major Business
- B6:** General Services

- SD1:** Small-Scale Mixed-Use
- SD2:** Mixed-Use
- SD4:** Riverfront Mixed-Use
- SD5:** Casinos
- TM:** Transitional-Industrial
- W1:** Waterfront-Industrial

- R1:** Single-Family Residential
- R2:** Two-Family Residential
- R3:** Low Density Residential
- R4:** Throughfare Residential
- R5:** Medium Density Residential
- R6:** High Density Residential



Site Location

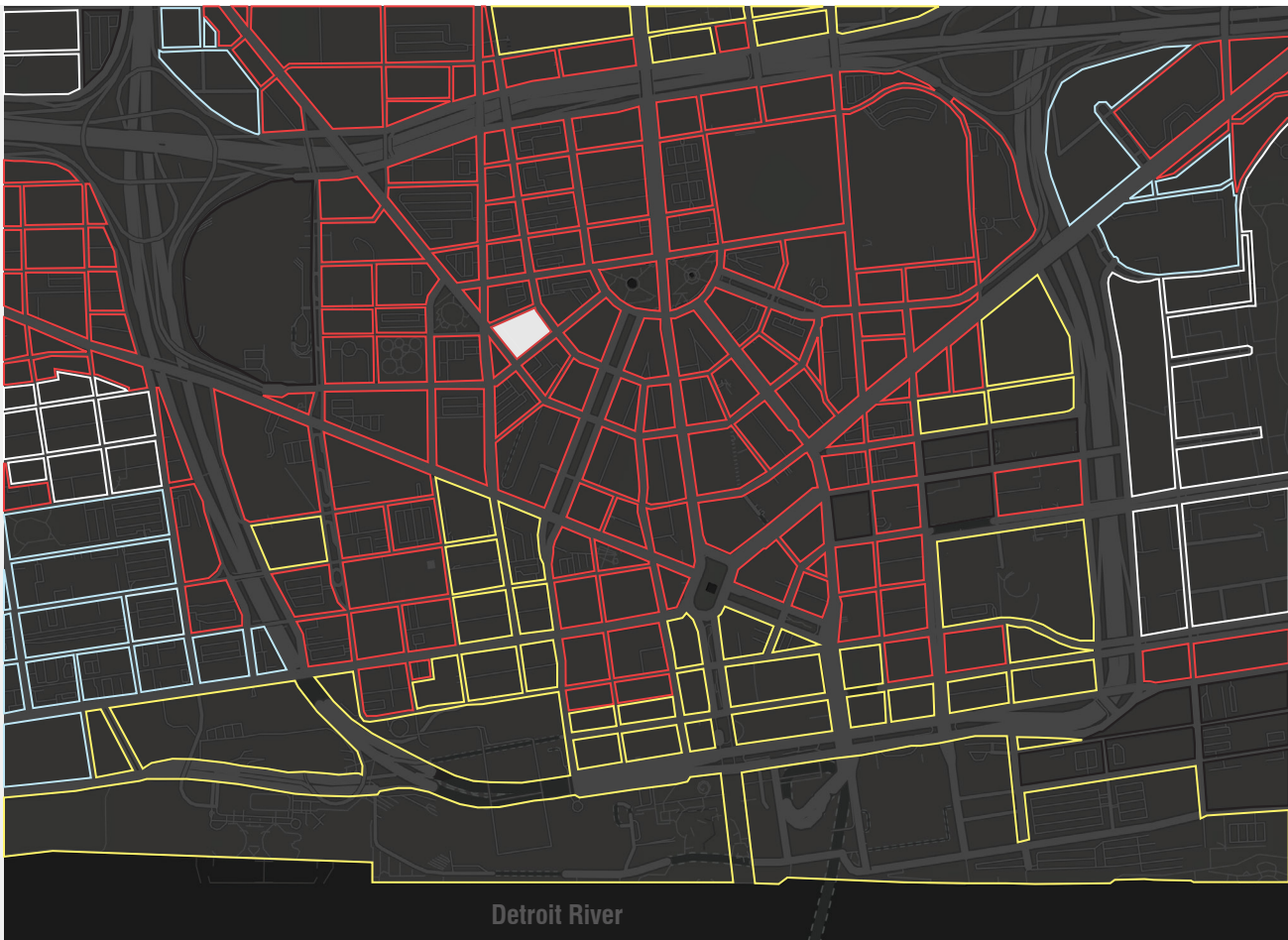


Fig. 154: Detroit Zoning Map

5 RESEARCH DOCUMENT

Performance Criteria

Performance Criteria: Existing Spatial Condition

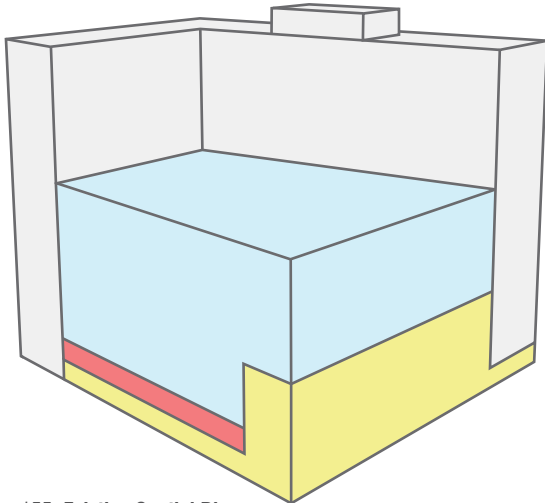


Fig. 155: Existing Spatial Diagram

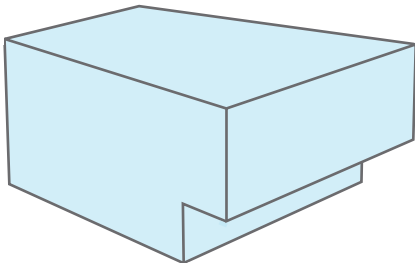
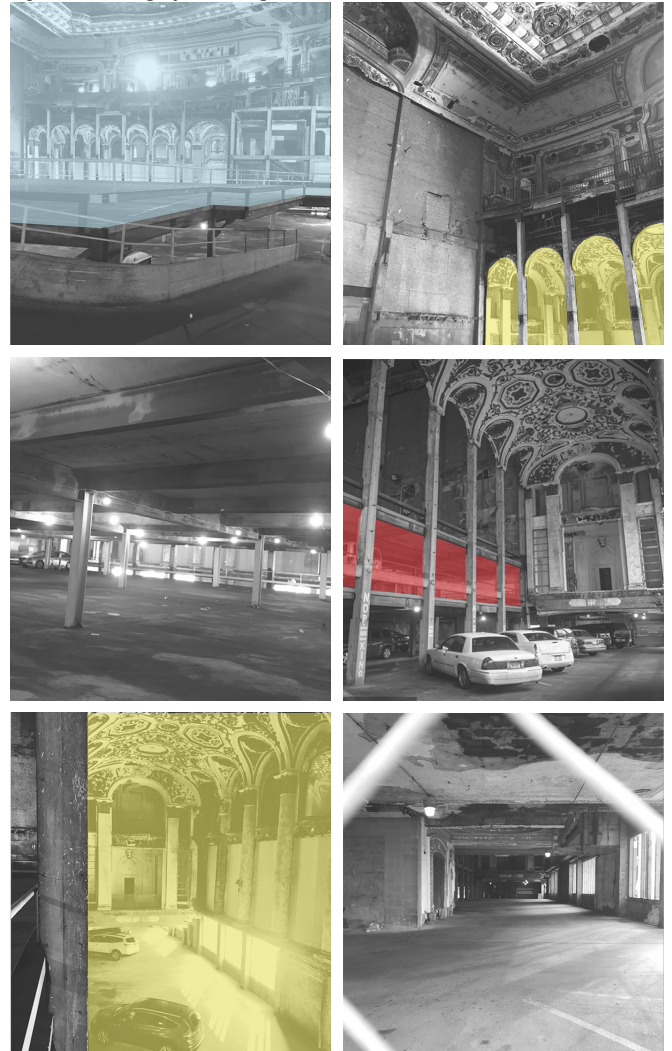
Level 3 Parking + Large Auditorium
 Floor Area: $19,497 + 4,706 = 24,203 \text{ ft}^2$
 Volume: $1,756,519 \text{ ft}^3$
 Ceiling Height: 78 ft, 50 ft

Level 2 Parking
 Floor Area: $19,497 \text{ ft}^2$
 Volume: $214,468 \text{ ft}^3$
 Ceiling Height: 11 ft

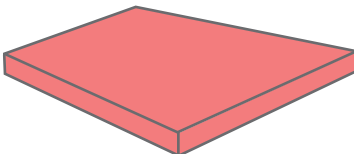
Level 1 Parking + 4-Story Grand Lobby
 Floor Area: $27,089 \text{ ft}^2$
 Volume: $480,858 \text{ ft}^3$
 Ceiling Height: 11 ft, 50 ft

Building Total
 Square Footage: $70,789 \text{ ft}^2$
 Volume: $2,451,845 \text{ ft}^3$
 Ceiling Height: $\sim 100 \text{ ft}$

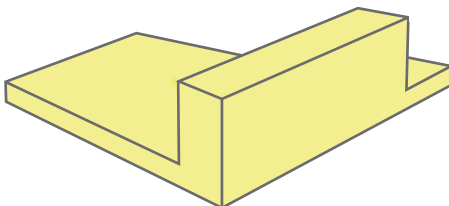
Fig. 156: Existing Spatial Images



Level 3 Parking + Large Auditorium



Level 2 Parking



Level 1 Parking + 4-Story Grand Lobby

5 RESEARCH DOCUMENT

Performance Criteria

Performance Criteria: Spaces

The Program and Performance Criteria for this project revolves around the mixing and sampling of different cultural and physical aspects of both Detroit techno music (site specific) and Rave Culture (macro), which were found in this semesters work of research and is documented earlier within this book. My initial idea was to design an ideal rave space for rave culture, but through the process of choosing Detroit for my site and researching its strong rave origins (cultural/physical aspects) and the cities struggling past, I found that Detroit's rave/city narrative is worth designing for – where past/present contexts and subjective surroundings will be key in designing the ideal rave space in the context of Detroit. This idea thus informed my decision on the nightclub's spatial organization, which are grouped into three primary programmatic elements: **consumption spaces, production spaces and intermediate transitional spaces**. The program specifics come from various sources, from the diverse range of case studies documented earlier to Reynolds music-oriented side of rave production and technical equipment, and through my own experiences at raves both indoors at clubs and outdoors at festivals.

1. Consumption Spaces

Consumption spaces are those spaces where music is consumed, which varies greatly within the rave phenomenon, but the focus for my project is indoor performance and consumption spaces that host local and main-stream DJ's who perform their electronic music tracks for the consumption of the local and worldwide audience. There are many implications that make up the ideal rave club design, but through earlier studies I found that the most important element is the music and sound itself, acting as the main curator for the audiences sensory and sonic immersion. It is here where architecture and acoustical design come in to play which is where my case studies contributed, allowing me to understand the diversity of idealness/preference when it comes down to music, sound and space. With that, I intend on creating three district types of consumption spaces, each designed to cater to a particular type of EDM music genre, sound, feel/ 'vibe', atmosphere, etc. – almost like combining the cathedral like Berghain and the Box's acoustical perfection under one roof where each have their own autonomy. More specifically, the three consumption spaces and their dancefloors will first vary in size, where there will be one large main space and two smaller spaces, with the intensions of holding a combined 2000 people. The large main consumption space will be ideal for larger live performances and will provide that cavernous cathedral-like feel where the sound is the most loud, vibrant and electric as absorption coverage will be less, allowing for that preferred spiritual/pleasurable reverb sound (Enhanced with the Michigan Theatre large ornamental dome ceiling). The smaller more intimate two consumption spaces will be designed for a crisp, clean, warm sound; an absorption dominant space where each detail of the sound is heard directly and not reflected off any other surface; rather a space for critical listening and not all about dancing. Apart from the variance in overall size and sound, there are many other qualitative architectural elements that will be taken into account when designing, such as the different characteristics in form, space, time, lighting, color, etc., that invoke a sense of spirituality apart from the music, as well as characteristics that invoke a more sensory immersive experience – these are discussed on the following qualitative page. Specifics of the consumptions spaces program is stated in its space allocation table but will generally consist of stage areas as DJ platforms which require minimal space for the DJ and their equipment but demand more space for sound systems and visual effects. The offstage and projection areas will not only be present adjacent to the front stage but also all around the dance floor, creating a 360-degree immersive experience in an invisible landscape of sound, light and visuals.

2. Production Spaces

On the other side of consumption spaces brings production spaces, designing small listening/studio spaces with the art of mixing electronic music tracks being the focus - inspired by Detroit's strong cultural narrative in the roots of electronic music; the creator of techno (explained more in hist, cult, polit, section of this book). These spaces will foster a collaborative and developmental environment for various techno artists to work together as well as offering individual workspaces – which will help facilitate the creative artistry that goes into the production of music. Each studio will be equipped with a variety of production equipment ranging from older style analog drum machines, synthesizers and samplers to today's newest digital technology, aiding all styles of musical production creativity. My project intends on providing a total of five smaller individual studios, two of the larger collaborative spaces, a lounge space and other supporting spaces that will be listed in the space allocation table. The production spaces should be efficiently assessable to the city and will be physically grounded on the main floor for this. Depending on the final space allocation and whether or not there is space left over, I would like to include a small gallery of sound that explores the brief historical autonomy of the music and the relationship between its consumption and production, especially with Detroit Techno.

3. Transitional/Intermediate Spaces

The third and final major program element is the transitional/intermediary spaces that connect to the different consumption spaces among different levels throughout the structure - where efficient, easy flowing and uncongested horizontal and vertical circulation are key factors in the design of nightclubs, especially for safety of the inhabitants. Transitional spaces are formed as they stem off from the main circulation paths, these spaces include all the other nightclub standard requirements not found in the consumption/production spaces such as lobbies, bars, lounges, restrooms, etc., where the full list of these spaces will be indicated in the space allocation table. I see these transitional spaces as being interlocked through circulation paths yet remain autonomous in their relationship to other spaces - much like the autonomous nature of designing three totally different consumption spaces. This notion would allow my design to step out the standardized nightclub design which often consist of a large central dance floor space that radiates out to more intimate subspaces and will overall follow my projects trend of non-conventionality and experimentation to create something new. The architectural experimentation in these spaces will focus on sensorial perceptions through time in the autonomy of each space, where each person experiences the a space differently with different choreographed subjective moods and actions within it ("World Population Review", 2019).

Soundproofing, Acoustic Treatments, Sound Systems

With the intentions of designing three different types of performances spaces (consumption/production), acoustical planning and design will be critical. The acoustical focus will be soundproofing (isolating the spaces from each other), acoustical treatments (different acoustic environments in each space) and the sound systems (properly positioned, oriented loudspeakers) – and will be guided by running acoustical simulations throughout the design process. The programmatic transitional spaces and their acoustical treatments and isolations will be key here as they will perform almost as an acoustical roundabout that exponentially isolates the sound as you're walking from one consumption space to another, hearing less and less sound from the first space and more and more sound to the second space.

5 RESEARCH DOCUMENT

Performance Criteria

Space	Quantity	Square Footage	
Consumption Spaces (Rave Spaces)			
Consumption Space (Large)	1	~8,000 SF	~8,000 SF
Large Open Dance Floor	1	6,000 SF	6,000 SF
Stage/DJ Platform/Booth	1	500 SF	500 SF
Control Booth	1	200 SF	200 SF
Amp Room	1	150 SF	150 SF
Dressing Room	1	200 SF	200 SF
Janitorial	1	200 SF *	200 SF *
Mechanical/Electrical	1	300 SF *	300 SF *
Total:			7,450 SF
Consumption Space (Small)	2	~4,000 SF	~8,000 SF
Small Open Dance Floor	2	3,000 SF	6,000 SF
Stage/DJ Platform/Booth	2	250 SF	500 SF
Control Booth	2	150 SF	300 SF
Amp Room	1	200 SF	200 SF
Dressing Room	2	150 SF	300 SF
Janitorial	2	100 SF *	200 SF *
Mechanical/Electrical	1	300 SF *	300 SF *
Total:			7,800 SF
Subtotal Consumption:			16,000 SF
Gross Area Percentage	20%		3,200 SF
Total Consumption:			19,200 SF
Transitional/Intermediate Spaces			
Entry Lobby		~2,500 SF	~2,500 SF
Vestibule	1	400 SF	400 SF
Reception/Tickets	1	200 SF	200 SF
Security	1	900 SF	900 SF
Cloakroom	1	800 SF	800 SF
Total:			2,300 SF
Main Lobby		~16,000 SF	~16,000 SF
Main Bar	1	1,000 SF	1,000 SF
Commercial Kitchen	1	2,000 SF	2,000 SF
Lounge/Seating Areas	1	~10,000 SF	~10,000 SF
Pocket Bars	3	400 SF	1,200 SF
Restroom	4	500 SF *	2,000 SF *
Janitorial	1	200 SF *	200 SF *
Mechanical/Electrical	1	300 SF *	300 SF *
Total:			15,800 SF
Quiet Space		1,000 SF	1,000 SF
Lounge/Seating Areas	1	1,000 SF	1,000 SF
Total:			1,000 SF
Outdoor Public Space		~5,000 SF	~5,000 SF
Smoking Area	1	TBD	TBD
Seating/Tables	1	TBD	TBD
Performance Space	1	TBD	TBD
Artwork/Sculptures	1	TBD	TBD
Total:			5,000 SF
Subtotal Transitional/Intermediate:			24,500 SF
Gross Area Percentage	20%		4,900 SF
Total Transitional/Intermediate:			29,400 SF
Production Spaces			
Lobby	1	1,700 SF	1,700 SF
Independent Mixing Studio	5	400 SF	2,000 SF
Storage	5	75 SF	375 SF
Large Collaborative Studio	2	600 SF	1,200 SF
Storage	1	250 SF	250 SF
Lounge	1	1,000 SF	1,000 SF
Janitorial	1	50 SF *	50 SF *
Mechanical/Electrical	1	150 SF *	150 SF *
Restroom	2	100 SF *	200 SF *
Total:			6,925 SF
Subtotal Production:			7,500 SF
Gross Area Percentage	20%		1,500 SF
Total Production:			9,000 SF
Total Consumption:			19,200 SF
Total Transitional/Intermediate:			29,400 SF
Total Production:			9,000 SF
Overall Total:			57,600 SF

Possible Other Spaces	Quantity	Square Footage	
Institutional Spaces			
Lobby/Welcome Desk	1	1,000 SF	1,000 SF
Exhibition Gallery	1	5,000 SF	5,000 SF
Collection Storage	1	500 SF	500 SF
Vinyl Shop	1	1,000 SF	1,000 SF
Cafe Prep/Service	1	450 SF	450 SF
Cafe Seating	1	800 SF	800 SF
Janitorial	2	50 SF *	100 SF *
Mechanical/Electrical	1	400 SF *	200 SF *
Toilet	2	500 SF *	1000 SF *
Total:			10,050 SF
Subtotal Institution			10,050 SF
Gross Area Percentage	20%		2,010 SF
Total Institution			12,060 SF

* Indicates a speculative projection without considering specific codes

Fig. 157: Space Allocation Table

The three diagrams on this and the next page include a Space Allocation Table, an Interaction Matrix and an Interaction Net, which illustrate the sizing of spaces in square footage and percentage, as well as the spatial interactions/relationships to each other. The information shown in the diagrams is informed from various sources, such as the diverse range of case studies documented earlier, Simon Reynolds music-oriented side of rave production and technical equipment, and through my own experiences at indoor rave clubs.

Space Interaction Matrix

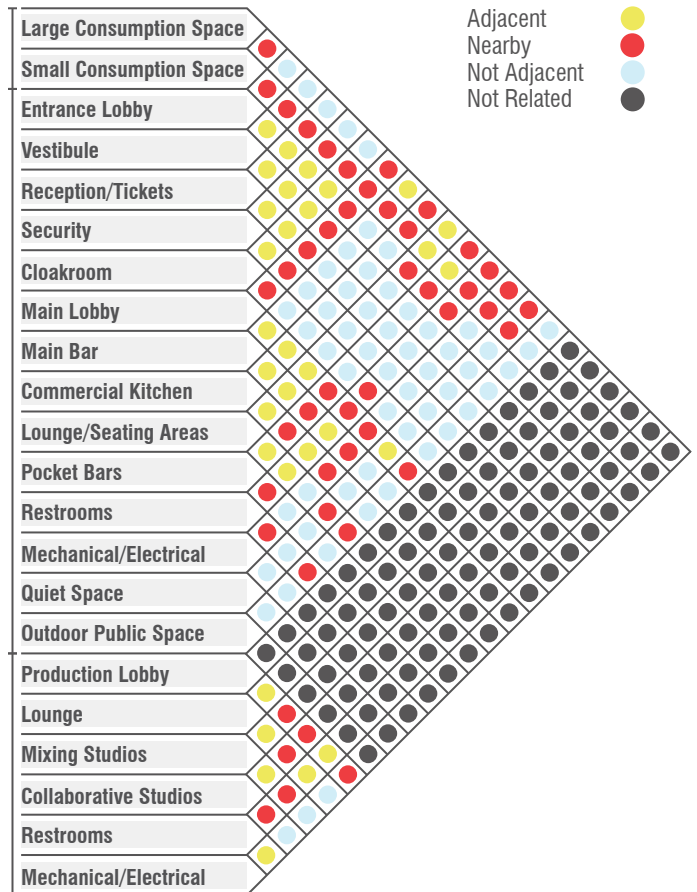


Fig. 158: Space Interaction Matrix

5 RESEARCH DOCUMENT

Performance Criteria

Space Interaction Net

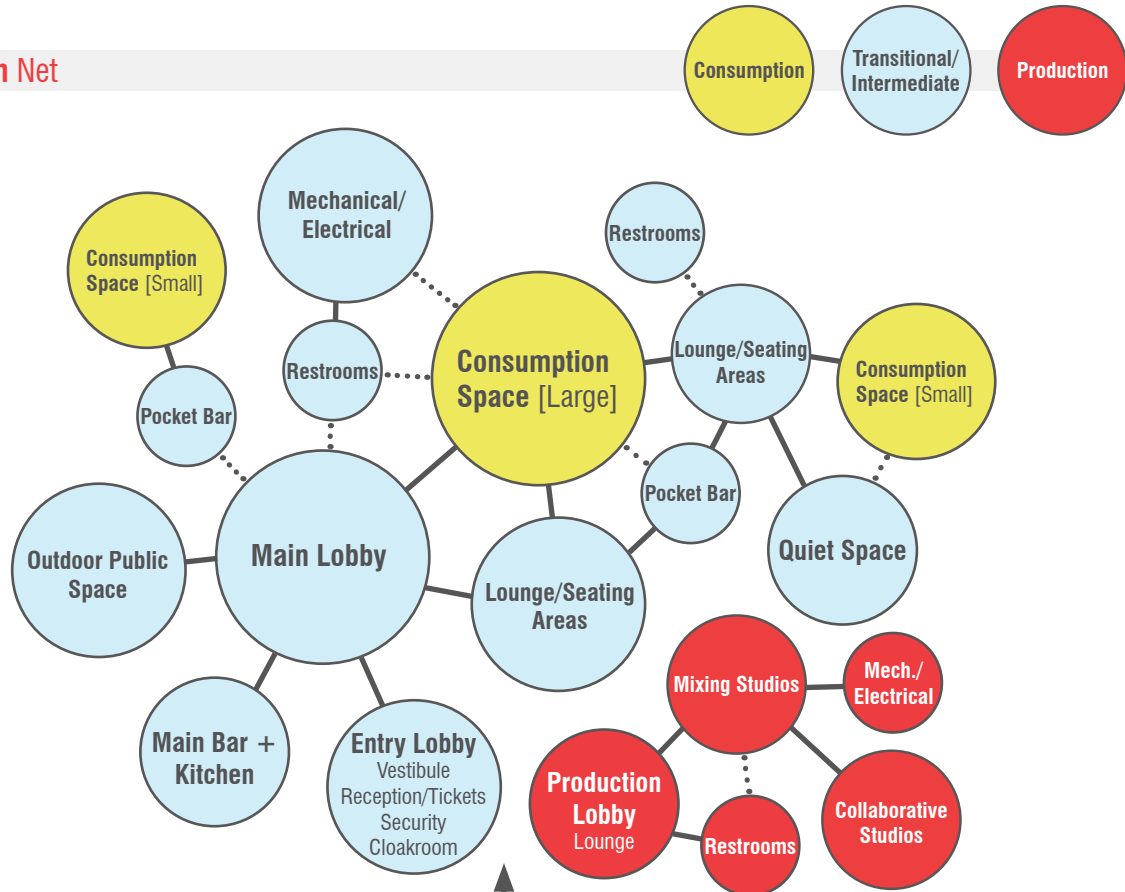


Fig. 159: Space Interaction Net

- Major Adjacency
- Minor Adjacency
- ← Entrance

Possible Institutional Spaces



5 RESEARCH DOCUMENT

Performance Criteria

Psychological Impacts

	The Center	Axes & Directionality	Boundaries & Edges	Gravity	Levity
Alexander et al.	Eccentric Nucleus Activity Centers		Neighborhood boundaries, Realm	Connection to the earth	High Places
Michael Brill	Making a location and a center	Making orientation and direction	Differentiating Boundaries	Triumph over the underworld	Reaching Upwards
Moore & Lyndon	Markers that command	Borders that control	Borders that control	Water that pools and connects	Space that leaks up into the light
Phillip Tabb	Acknowledging a center	Finding Direction	Bounding	The Descent	Reaching Upward
	The Nature Within	Materiality	Transitions & Thresholds	Spatial Hierarchy & Intimacy	Anthropomorphism
Alexander et al.	Tree places Access to water Indoor sunlight	Soft tile and brick Canvas roof Warm colors	Main Entrance Entrance Transition	Intimacy Gradient Flow through rooms	Short Passages Alcoves Ornament
Michael Brill	Nature in our places, Light	Materials for Making	Passage	Order	
Moore & Lyndon	Gardens that civilize Light that plays		Openings that frame, Portals that bespeak	Rooms that define Order that comes and goes	Allies that inhabit Shapes that Remind
Phillip Tabb	Nature Within Sacred Geometry	Materiality	Passage	Internal Order	Anthropomorphism

Fig. 160: Table of sacred-secular design patterns & functions

Facilitating the Spiritual/Sensorial Experience

Explained earlier in this Performance Criteria Section is the programmatic organization of the three main types of spaces my project will consist of, focusing on the spaces size and their relationship to other spaces, with regards to the existing Michigan Theater spatial boundary. I also highlight the importance of musical sound and acoustics as it will be the number one priority for my design due to my intentions of designing three different types of acoustical spaces (consumption, transitional, production), each catering to a particular type of purpose, genre, sound, feel/ 'vibe', atmosphere, etc. Good acoustics and sound also play a major role in my designs intended psychological impact: facilitating the spiritual and sensorial experience of the users. This experience isn't only facilitated through good music and sound but through the fusion of light, space and bodies as well – leading me to ask how nightclub architecture and its spatial implications (form, path, material, color, etc.) can help to facilitate the experience rather than just being the curator. Architecture has consciously facilitated the religious/spiritual experience since some of the very first designed churches, making use of symmetrical plans (sacred geometry), high ascending ceilings, religious iconography, semiotics and many more. Raves are also known to have a role in facilitating the spiritual experience through the combined stimulus of electronic music, psychotropic lighting, chemical alternants and all-night dancing – overall curating an experienced sense of sacredness, collective oneness and egalitarianism among the youth masses across the globe. In fact, raves are even referenced by many as 'going to church' or 'Sunday Mass', where their characteristics and experiences moved many commentators to employ interpretations of other traditional religious frameworks, such as Christian, Hindu, Buddhist, etc. That fact justifies the meaning behind wanting to facilitate the spiritual experience and is further justified through a study by PEW Research Center conducted between the years 2012-2017, finding that Americans are less religious but more spiritual than ever, which is where the ideal rave space comes into play to help facilitate that experience.

5 RESEARCH DOCUMENT

Performance Criteria

Psychological Impacts

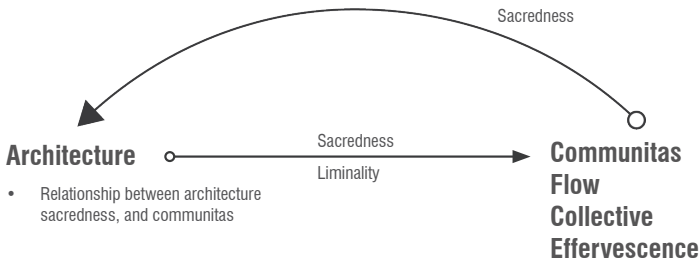


Fig. 161: Sacred Circuits

The earlier case studies allowed me to investigate this facilitation, most notably Berghain which is where the above chart and supporting diagrams come into play. Berghain and its spiritual facilitation is explained earlier in the case studies section but is summarized in the architectural patterns of sacred space chart. The overarching design patterns consist of: The center, axes & directionality, boundaries & edges, gravity, levity, the nature within, materiality, transitions & thresholds, spatial hierarchy & intimacy, and anthropomorphism. My case study of Berghain examines its facilitation by walking through its space one element at a time, with some key elements being sequestered spaces, proportions, ascending industrial staircases, centralization, thresholds and transitions, and light that plays. The three above diagrams help to visually explain the relationship between architecture and the characteristics of sacred spaces, from ascending upwards to the heavens to the transition from exterior profane space to interior sacred space and the threshold in between. This not only spiritual, but typical nightclub sensory immersive experience is also enhanced architecturally through the ideologies of heterotopia and liminal space. Heterotopia space plays with the transition from non-places to places, where the who that attends the nightclub can escape reality and ephemerally lose themselves in a space that is simultaneously physical and mental.

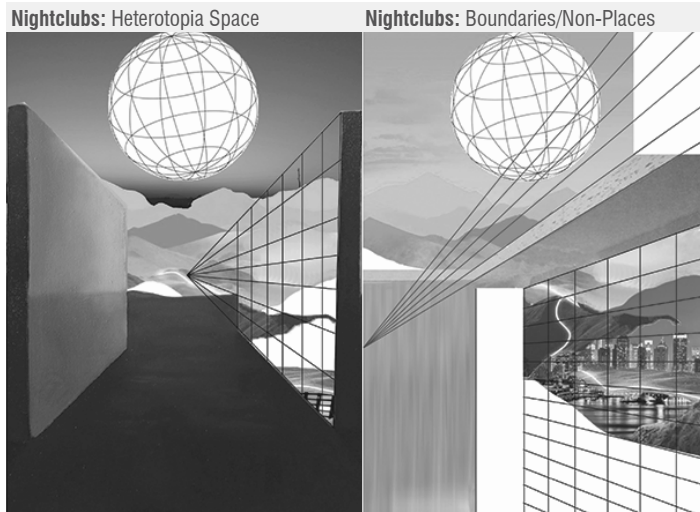


Fig. 162: Heterotopia Space/Boundaries/Non-Places

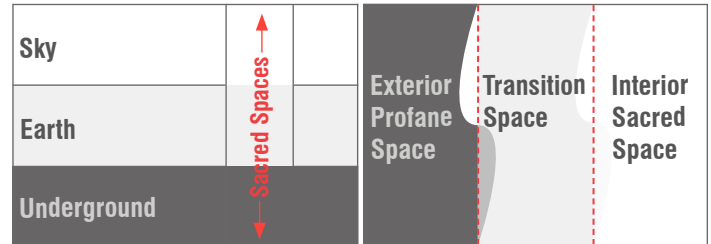


Fig. 163: Sacred Spaces Characteristics

Philosopher Michel Foucault defines it as a space with more layers of meaning or with a relationship to other spaces (Diagrams of heterotopia space – bottom left). Another facilitator is liminal experience, which is defined by Victor Turner as “a general state of in-betweenness in which participants move from one state or place to another” (St John, 2004). During liminal sequences of time and space, normative elements of social structure and the individual identity within are temporarily inverted or dissolved. Through applied research into a diverse range of nightclubs, these spiritual and sensory immersive experiences are most powerful at the entrance of the club with the transition from exterior profane space to interior sacred space, most often than not involving the heterotopic-liminal sequence of time and space. With my design aiming for a spiritual experience, it allows it to stand out from typical clubs whose primary purpose is sensory immersion, focusing only on light and sound. With my project, the spiritual experience through sacred space will combine and be aided by the sensory and sonic immersion experience of light and sound. The different spaces and intended sequence of events of my design will focus on the eight main sacred space characteristics while also maintaining the typical club sensory immersive experience through well thought out acoustical and visual design.

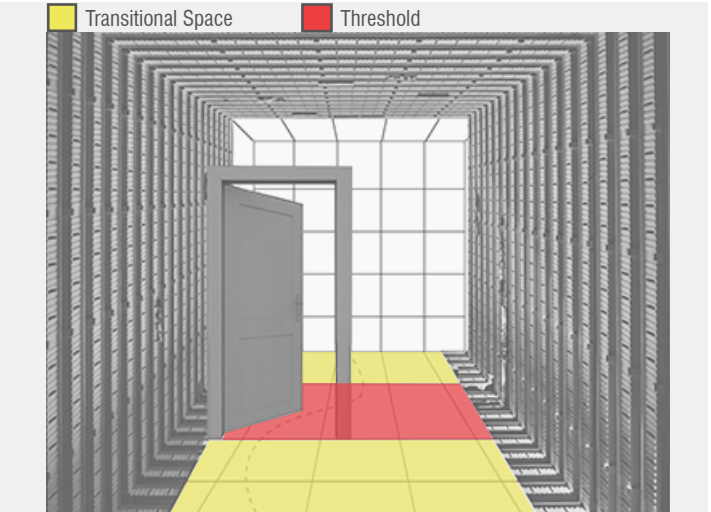


Fig. 164: Transitional & Threshold Relationship

5 RESEARCH DOCUMENT

Performance Criteria

Experimental Collages - Sequence of Interactions, Time & Space - Facilitating Spirituality/Sensorial Experience

Collages have been utilized as a tool for experimentation within a wide variety of creative endeavors due to the infinite possibilities in which the process can take. Collages were most prominent as a method for the 60's and 70's Avant Garde artists with the intensions of reintroducing art into the praxis of life by providing readable fragments as an allegory placed together to produce new meaning that can speak back to reality (Burger, 1974). Techno also uses collage as a method, where Reynolds describes the collage process of electronic music sampling, remixing and distorting of found sounds as sampladelia, which is a large component to the evolution of rave and the sounds that curate the ecstatic & spiritual experience. Detroit, the proposed context of my design, was one of the first cities who experimented with found sounds, such as taking the hammering and clanking of their industrialized factories and mixing it with other sounds in a rhythmic repetitive pattern to overall create a new sound. Much like Detroit, I may use the process of collage to experiment with different ideas, where instead of found sound I can use found abandoned structures such as the Michigan theatre to act as the foundation to this process – with the true internal meaning sampled on the interior. It is this process in which I can design in the lens of techno producers(DJ's), taking the autonomous art of mixing and sampling in Detroit and applying the same tactics to architectural creation – which can link back to their strong musical origins whether perceived consciously or unconsciously. The collage method used are narrative-image sequences which are artifacts depicting an encounter in graphic terms. It is defined as a collection of at least five distinct frames, arranged chronologically, displayed in a horizontal format reading from left (first in the sequence) to right (last in the sequence). Collectively, the frames depict an encounter for its entire duration through time and space. The found images used are those of exemplar rave club spaces from past and present with the intention of creating a collage of different sacred/liminal/heterotopic spaces, each sampled and distorted to a degree to conceptually inform new spaces, meanings and experiences.

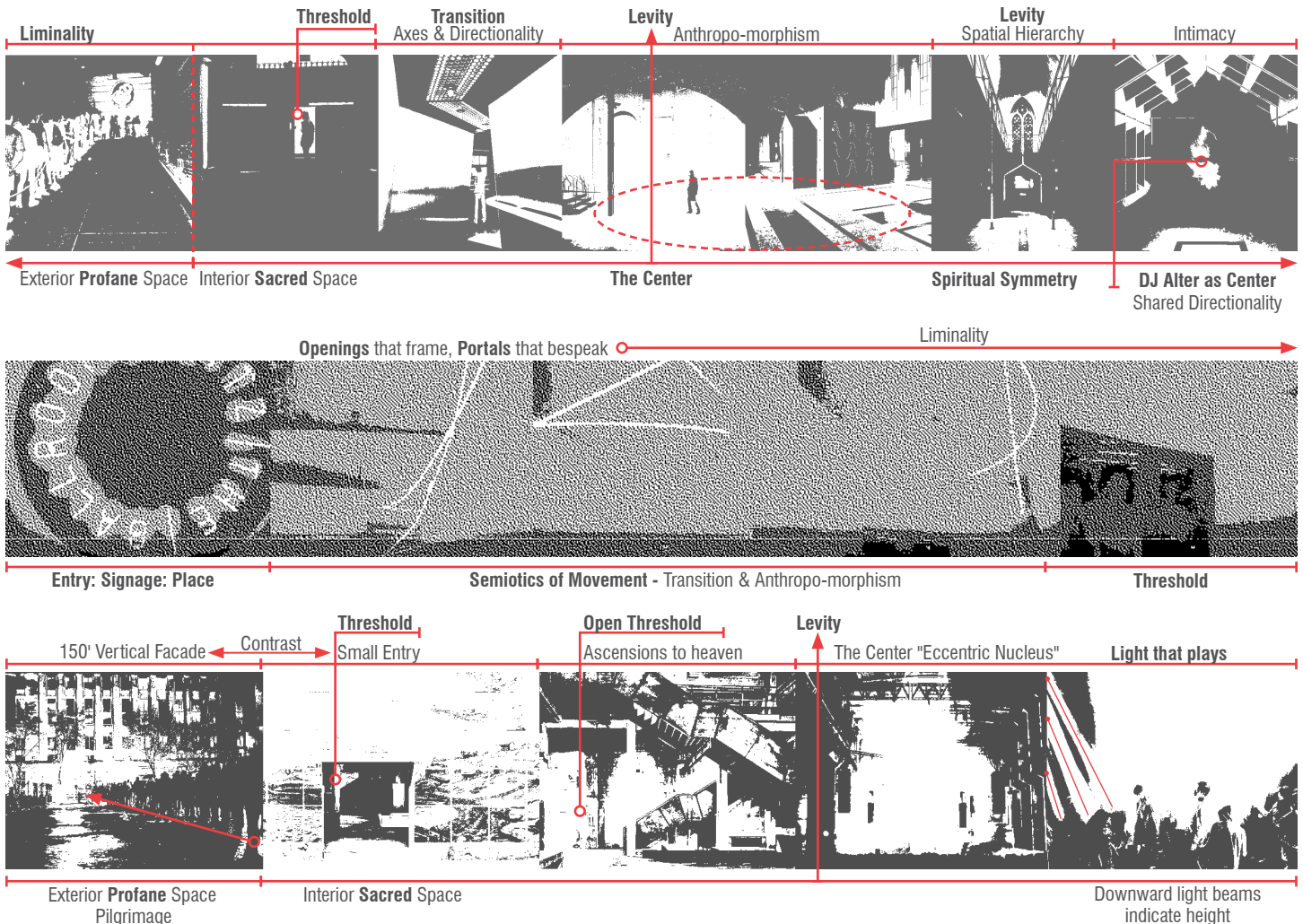


Fig. 165: Collages - Narrative-Image Sequences

3 RESEARCH DOCUMENT

Study: Acoustics & Space



Fig. 59: Ministry of Sound - Logo

The Project Type: Nightclub

Location: London, UK

Size: 6 Event Spaces - Over 2 Floors

- | | |
|------------------------------------|---------------|
| • The Box: 3067 SF (98' x 54') | Capacity: 600 |
| • The 103: 3046 SF (44' x 79') | Capacity: 500 |
| • The Baby Box: 818 SF (36' x 22') | Capacity: 100 |
| • Courtyard: 3562 SF (72' x 50') | Capacity: 400 |
| • The Lounge: 1323 SF (45' x 56') | Capacity: 86 |
| • The Loft: 1323 SF (45' x 56') | Capacity: 150 |

Distinguishing Characteristics:

- Inspired by New York's 'cavernous' house venues
- The prior structure was a derelict bus garage in south London
- The worlds first nightclub with a room built purely for exceptional sound quality
- Performance spaces designed to be multi-purpose: seated dinners, conferences and award ceremonies, standing receptions, exhibitions, team building, event breakouts, VIP use, etc
- Featuring award-winning audio-visual systems.
- Recognised for its technological innovation and production.

Research Findings:

Common findings:

- One large main dance space acting as a gateway to other flanking subspaces such as smaller dance event spaces, bathrooms, bar, lounge area, etc.
- Consisting of wrap around mezzanines with high ceilings inside a large volumetric space
- Spaces for large communal gatherings and small intimate gatherings

Uncommon findings:

- Outdoor courtyard acting as a performance space, ideal for concerts, summer parties and car launches

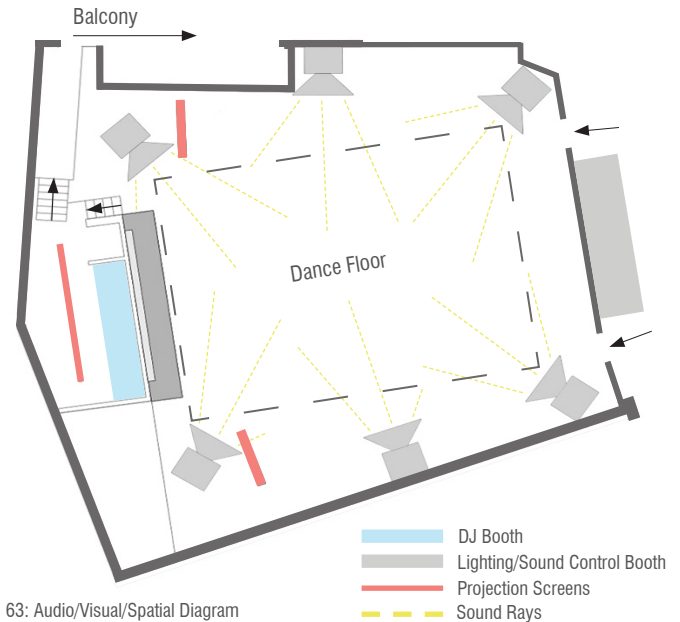


Fig. 63: Audio/Visual/Spatial Diagram

The Box

Out of the six event spaces configured within The Ministry of Sound, The Box is the main room, with its iconic sound system and award-winning audio-visual equipment. The Box is a five-sided room with no parallel facing walls and a ceiling plane/roof that's slopes down towards the DJ booth. The room shape, wall treatments, and sprung dance floor (accentuates and absorbs bass) all work together to provide the ideal acoustical environment for music and dance. This design of the space also works to minimize sound reflections and reverberations, emphasizing that each sound you hear within the Box should be coming direct from a speaker, not bouncing off any surfaces or echoing in a hollow 'cavernous' space, resulting in a crisp and clean sound that doesn't leave people with their ears ringing.

Combining the acoustical treatments of the space with the top of the line sound system is what makes The Box so paramount. Located around the perimeter of the dance floor are 6 Martin Audio ground stack speakers that kick out 25,000 W, that's running at less than 50% or less of its capacity "ensuring no part of the system is stressed, no speaker drivers blow, and the sound is of much higher quality than a system running continuously near its limit" (Walton, 2016). Walton also states that a speaker can be acoustically amazing, but if it's located in a poor space it wont sound good. The Ministry of Sound placed top priority on sound and acoustical treatments, with service coming second and design being third, which is the complete opposite compared to other nightclubs.

Standing at about 8' tall, the 6 paramount speaker stacks consist of 2 x ASX subwoofers, 2 x AS118 subwoofers, and 2 W8C top boxes, a custom flare on the lower section, and custom cabinet housing to hide cabling, and what people don't see are the 16 speakers placed in the wall in between each speaker stack, allowing for undistorted sound to reach every part of the dance floor. All these speakers are put to use with the innovative Dolby Atmos DJ software, which allows the engineer to direct sounds to specific speakers during specific parts of the song, or where speakers are designated for bass and drums and others are for synths, overall creating a more immersive acoustical performance. "With Atmos, sounds are object based, meaning that the sound is given a specific XYZ coordinate within a 3D space, and the system figures out which speaker array to pump it through, no matter how many (up to 64) or few (as low as two) there are" (Walton, 2016). Another cool function is the pan, where sounds move in a path through each individual speaker, producing a twirling 3D surround sound.

3 RESEARCH DOCUMENT

Study: Acoustics & Space

Fig. 70: The Box EASE Model

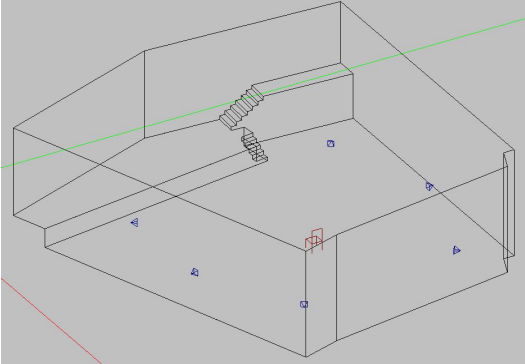


Fig. 71: The Box EASE Model - Plan View

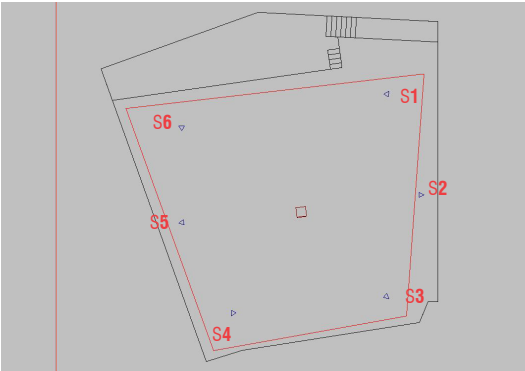


Fig. 72: The Box EASE Model - One Ray

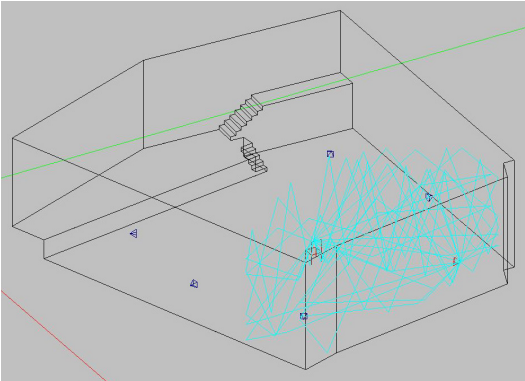
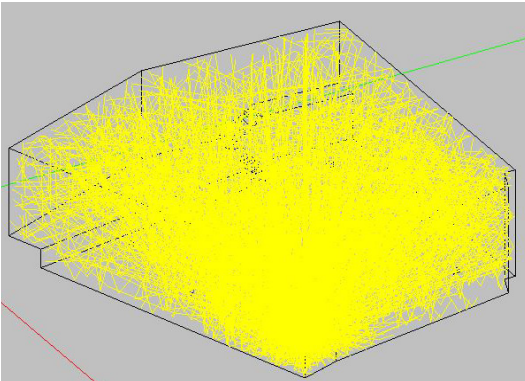


Fig. 73: The Box EASE Model - All Rays



Room Volume:	59529 cu. ft.
Room Surface:	10709 sq. ft.
Audience Area:	2,305 sq. ft.
Room Capacity:	600 standees
Average Room Height:	20 ft.
Average Room Width:	54 ft.
Average Room Length:	50 ft.
Stage Area:	430 ft. sq.
Average Stage Depth:	10 ft.
Average Stage Width:	40 ft.
Mean Ceiling Height:	15 ft.
(above stage area)	

Surface Materialization:

- **Floor:** Floating Sprung Dance Floor: Plywood
 - W/ dual density shock dampening elastomer blocks at predetermined intervals
- **Side Walls:** (Absorbers)
 - Exterior Side: Triple thick absorbing walls
 - Interior Side: Perforated panels
- **Rear/Front Walls:** (Absorbers)
 - Exterior Side: Triple thick absorbing walls
 - Interior Side: Perforated panels
- **Ceiling:** Sound Absorption Acoustical Ceiling Panels
- **Stage:** Floating Floor Assembly: Plywood
 - Reflective/absorptive

Loudspeakers:

- **Martin Audio Sound System**
 - (6) x VRS1000

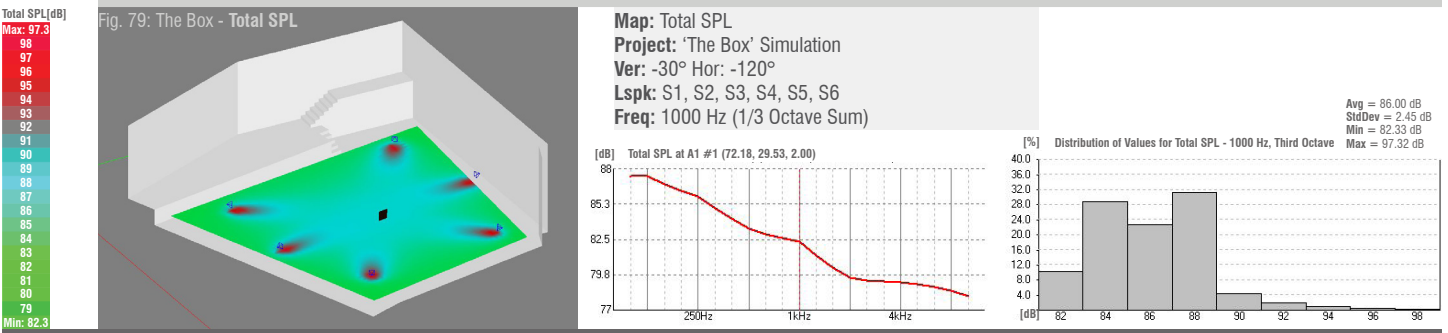
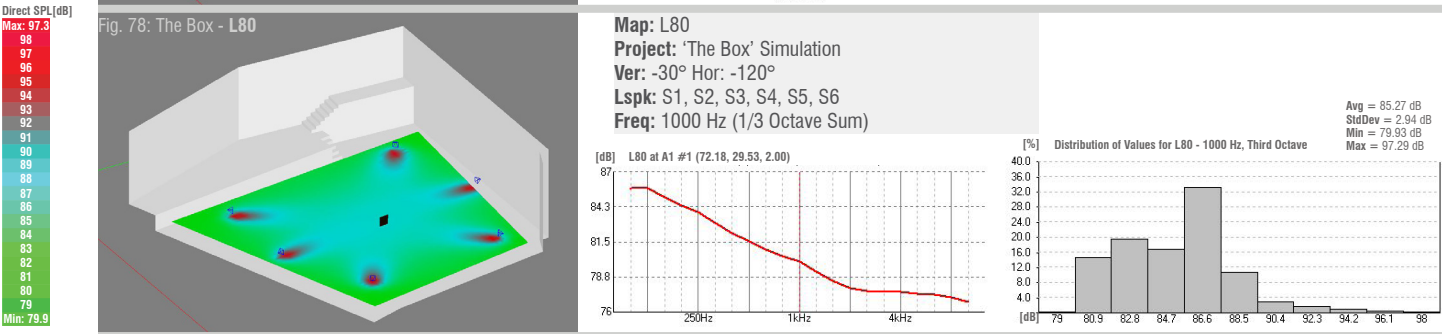
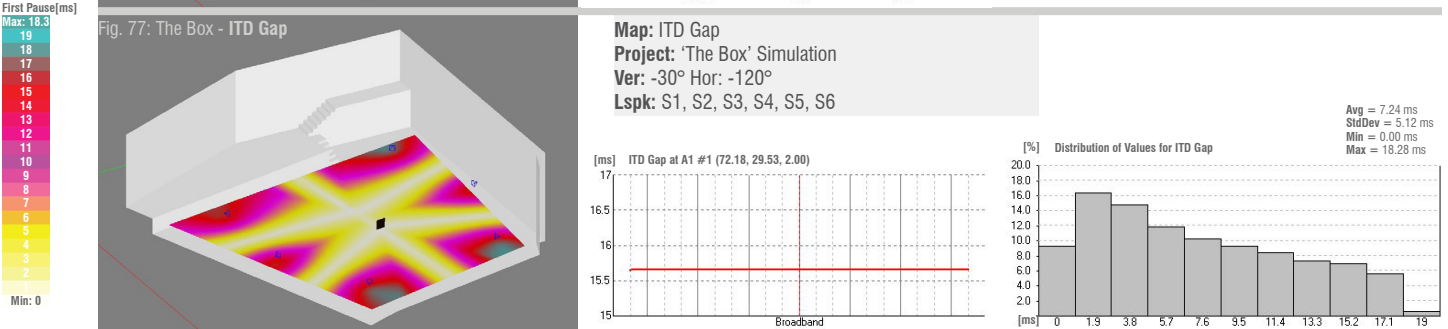
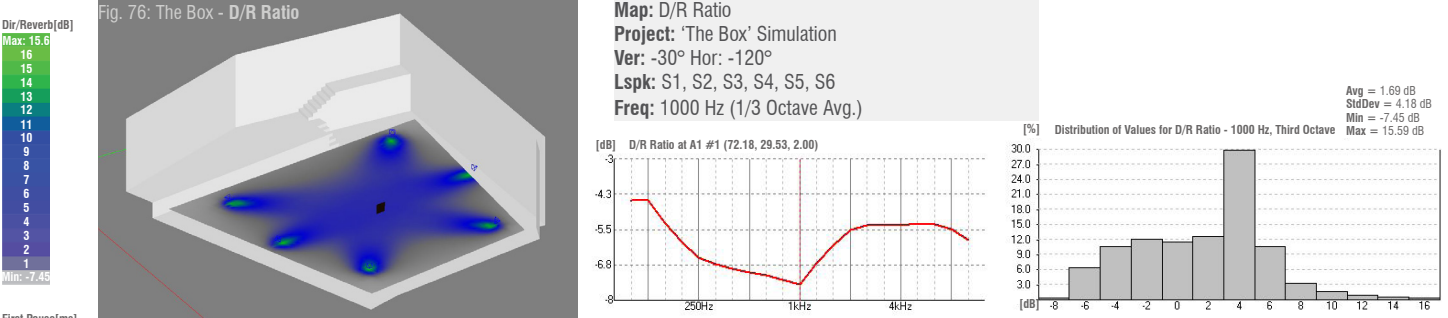
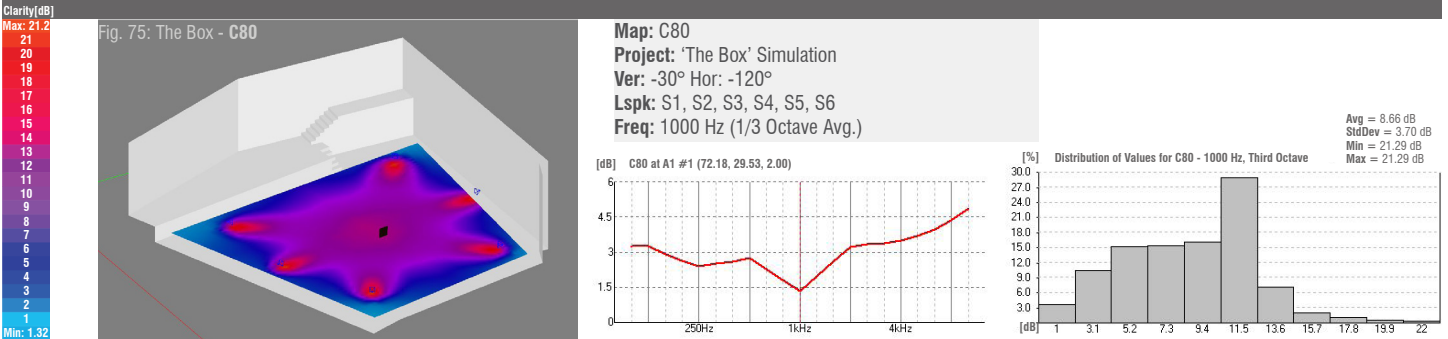
(Note: One VRS1000 loudspeaker represents one of the six large speaker stacks - Each speaker stack consists of: 2 x ASX subwoofers, 2 x AS118 subwoofers, 2 W8C top boxes)



Fig. 74: QR Code - The Box Audio Wav File

3 RESEARCH DOCUMENT

Study: Acoustics & Space



3 RESEARCH DOCUMENT

Study: Acoustics & Space

Fig. 71: The Box EASE Model - Plan View

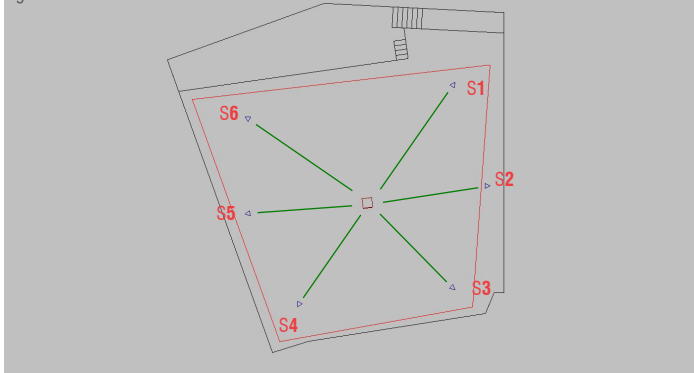


Fig. 70: The Box EASE Model

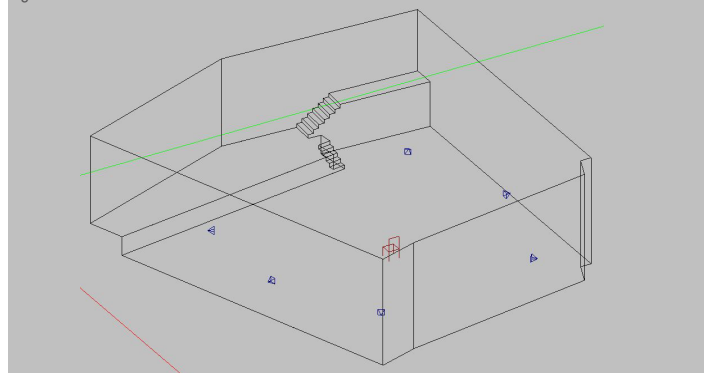


Fig. 80: Energy-Time Curve: S6 (Left) + S1 (Right)

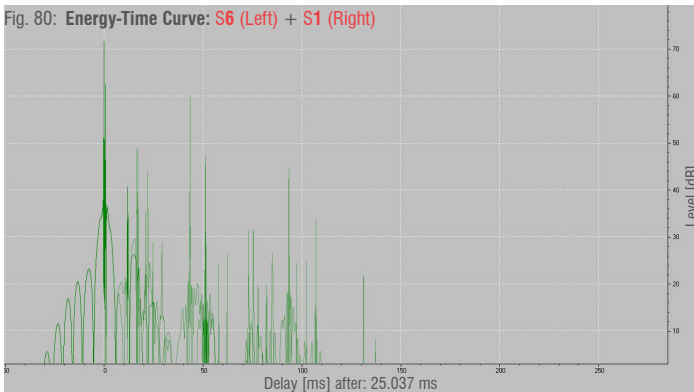


Fig. 83: Waterfall: S6 (Left) + S1 (Right)

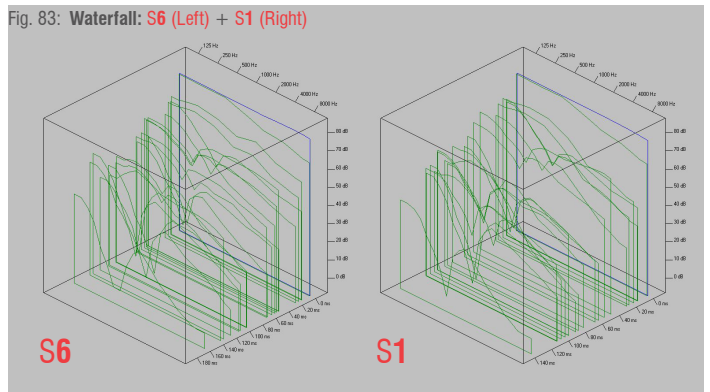


Fig. 81: Energy-Time Curve: S5 (Left) + S2 (Right)

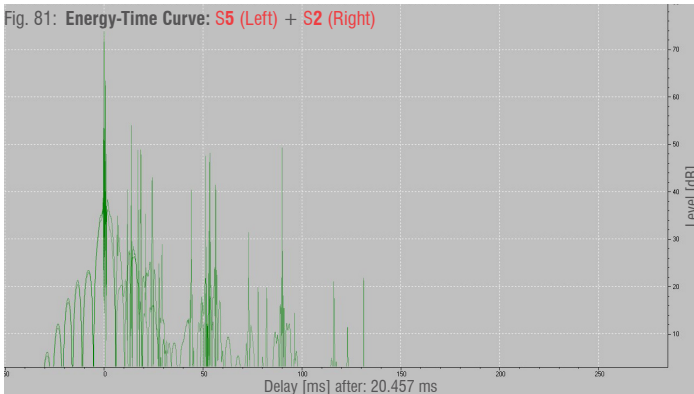


Fig. 84: Waterfall: S5 (Left) + S2 (Right)

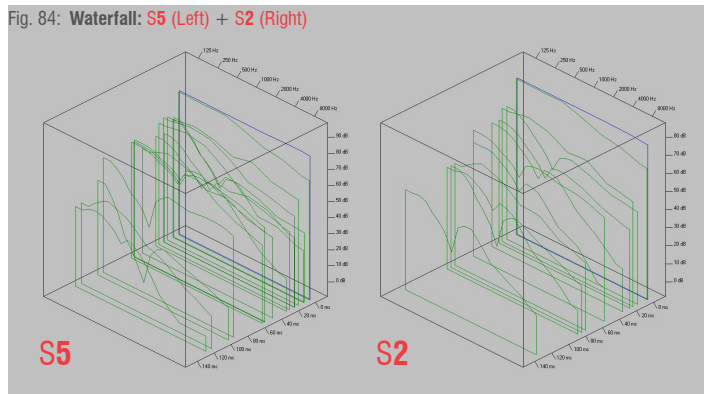


Fig. 82: Energy-Time Curve: S4 (Left) + S3 (Right)

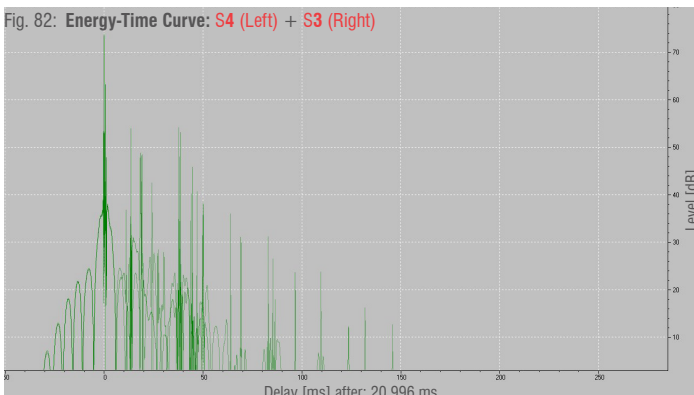
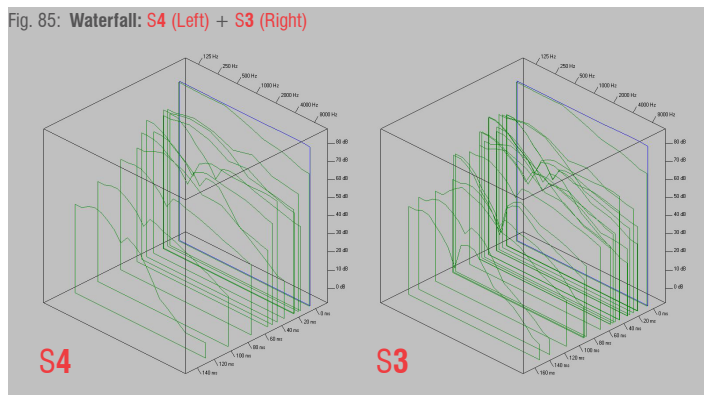


Fig. 85: Waterfall: S4 (Left) + S3 (Right)



3 RESEARCH DOCUMENT



The Project Type: Nightclub

Location: Berlin, Germany

Size: 30,000m (322,917 Square Feet)

Capacity: 1,500

Distinguishing Characteristics:

- Known as the “best club in the world”
- Enormous existing power plant transformed into a club
- Monumental composition
- 18 m-high(60’) cavernous main dance floor
- Minimalist interior of derelict concrete and steel
- Unique club restrictions: strict door policy and not allowed to take pictures IF you get inside.
- Place of Unlimited hedonism and permissiveness
- The club is built so there are no dead ends, allowing for free circulation with minimal obstruction

Research Findings:

Common findings:

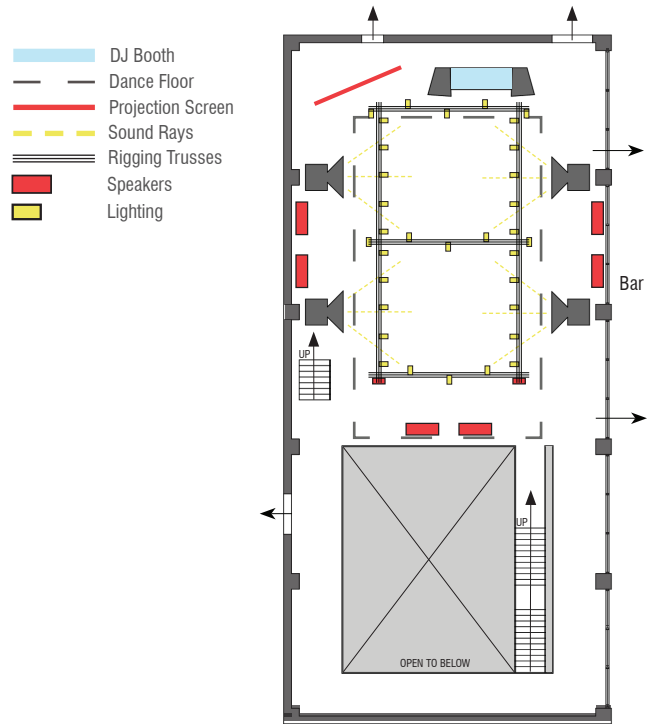
- One large main dance space with flanking subspaces such as smaller dance spaces, bathrooms, bar, lounge area
- Compared to a ‘sanctuary’, or ‘Shrine of Techno’, so its also known for people to have a religious experience.
- Containing spiritually/psychologically transformative powers through architectural implications
- Qualities of spaces act as a catalyst for identity dissolution, inverted social structure, communitas, optionality, and a sacred sense of play
- Berghain and the underground community is anti-structural, proposing alternatives to the dominant cultural and socio-political norms

Uncommon findings:

- Berghain is composed of three separate operational establishments under one roof: Berghain main dance floor, Panorama Bar, and Lab.Oratory Club
- ‘Dark Rooms’ - More intimate, closed off spaces where both gay and straight sexual activities occur
- Berghain operates as a heterotopic “other place” where visitors disappear for days at a time
- Selectivity or the strict door policy for people entering pre-serves the sense of sacredness and community

Berghain - Main Dance Floor: Sound / Lighting / Video

Fig. 91: Sound/Light/Video Configuration



3 RESEARCH DOCUMENT

Study: Acoustics & Space

Fig. 95: Berghain EASE Model

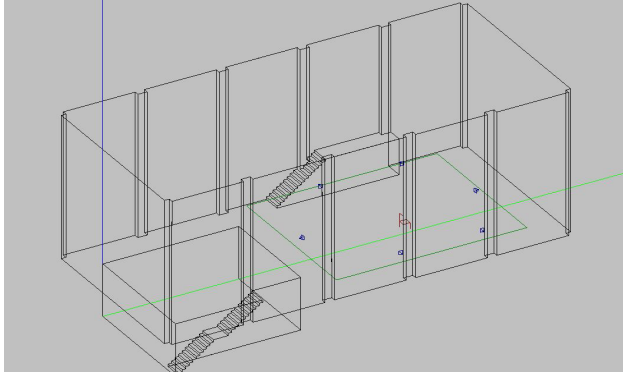


Fig. 96: Berghain EASE Model - Plan View

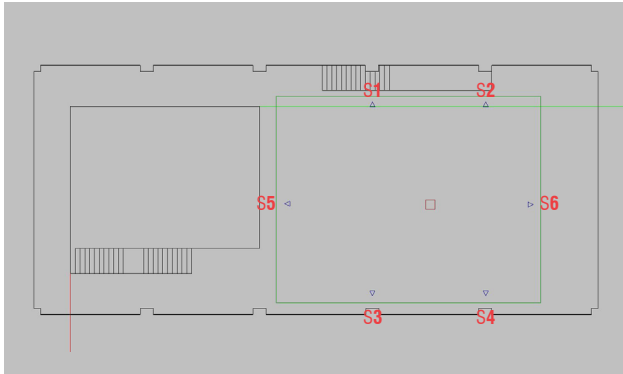


Fig. 97: Berghain EASE Model - One Ray

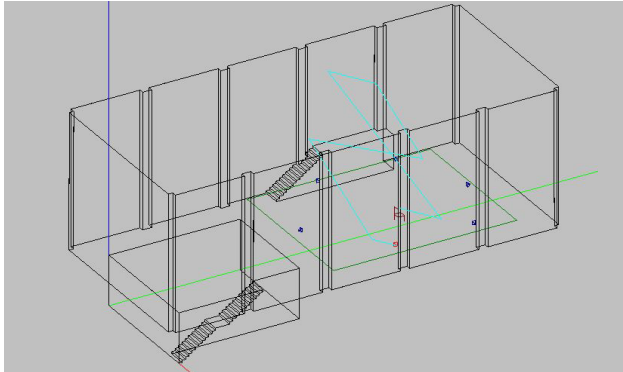
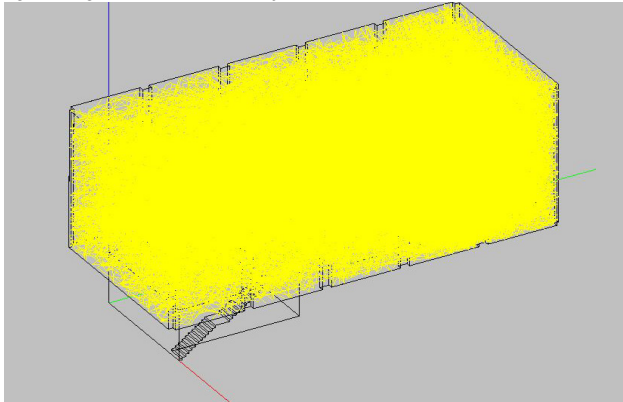


Fig. 98: Berghain EASE Model - All Rays



Room Volume:	229450 cu. ft.
Room Surface:	86209 sq. ft.
Audience Area:	2155 sq. ft.
Room Capacity:	500 standees
Average Room Height:	40 ft.
Average Room Width:	50 ft.
Average Room Length:	108 ft.
Stage Area:	400 ft. sq.
Average Stage Depth:	10 ft.
Average Stage Width:	40 ft.
Mean Ceiling Height:	40 ft.
(above stage area)	

Surface Materialization:

- **Floor:** One-Way Concrete Slab
- **Side Walls:** (Reflectors)
 - Side wall one: concrete walls w/ indented columns
 - Side wall two: floor-ceiling glass storefronts
- **Rear/Front Walls:** (Reflectors)
 - Front wall: concrete wall
 - Back wall: concrete wall w/ punched window openings
- **Ceiling:** concrete w/ corrugated steel
- **Stage:** concrete slab (no fixed elevated stage)

Loudspeakers:

- Funktion One Sound System
 - (6) x AX88

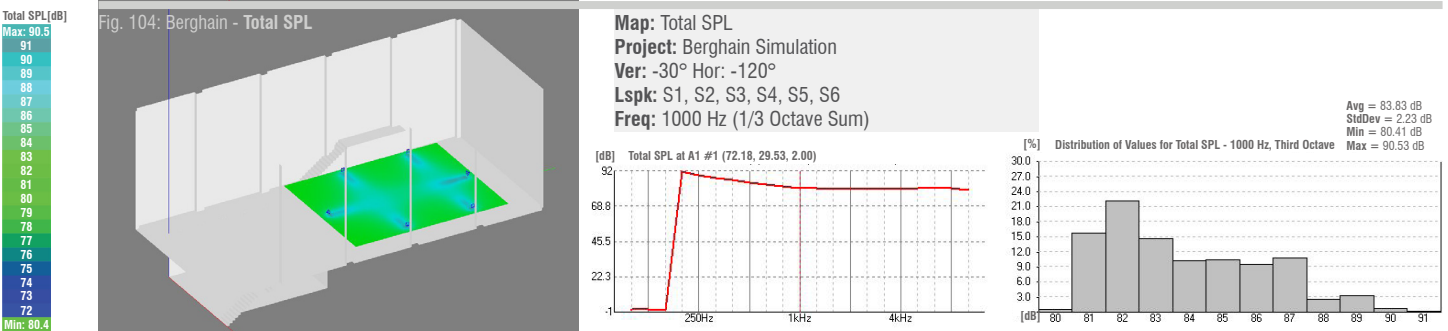
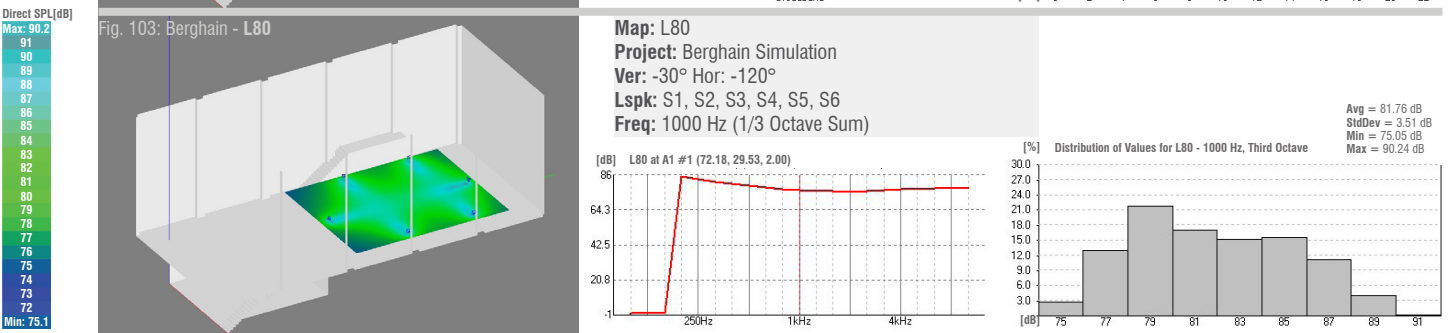
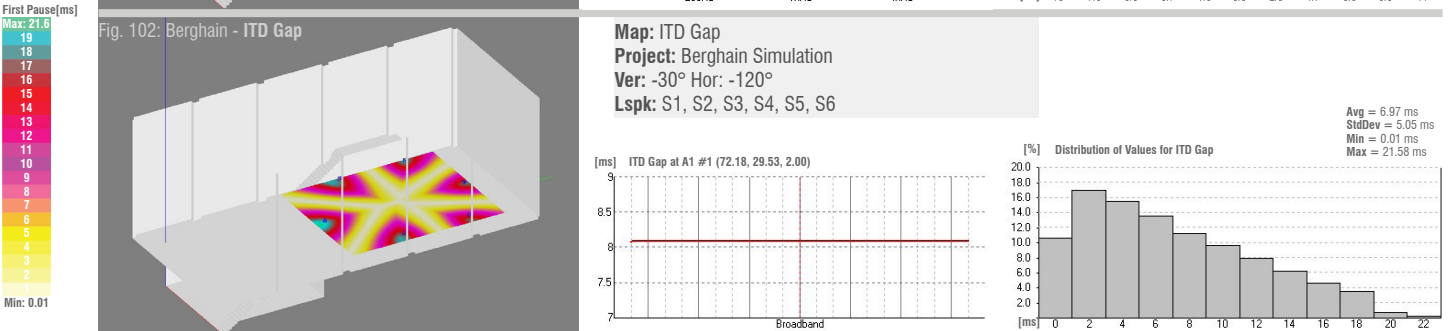
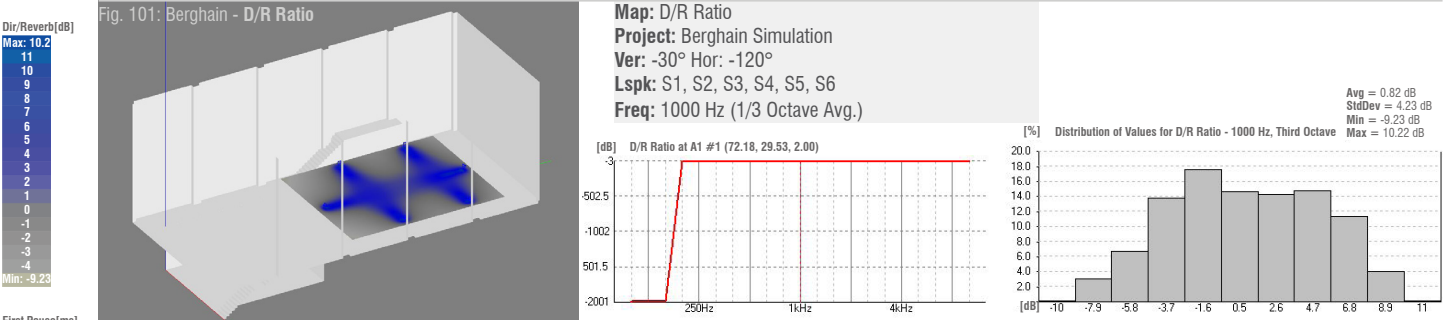
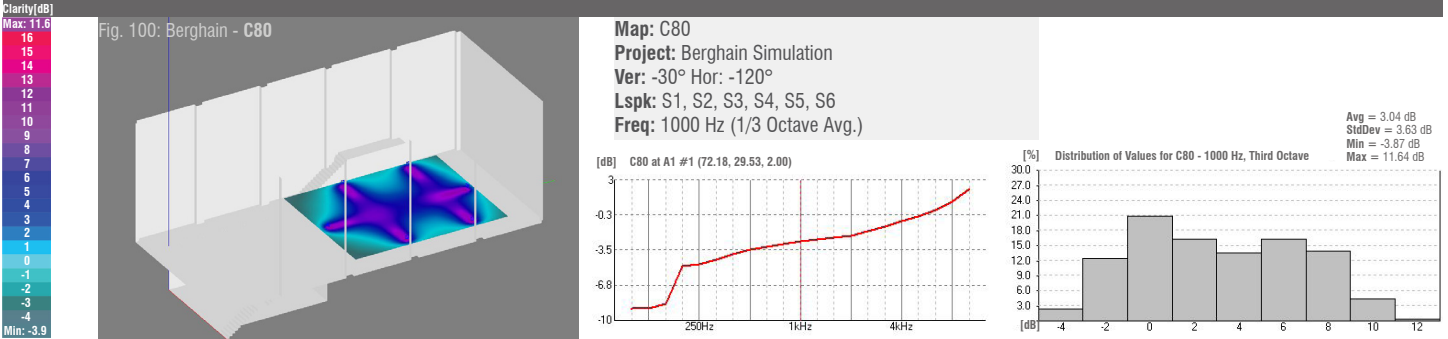
(Note: One AX88 loudspeaker represents one of the six large speaker stacks - Each speaker stack consists of: 2 x F221 bass enclosures, 2 x DS15 speakers, 2 x DS210 loudspeaker enclosures)



Fig. 99: QR Code - Berghain Audio Wav File

3 RESEARCH DOCUMENT

Study: Acoustics & Space



3 RESEARCH DOCUMENT

Study: Acoustics & Space

Fig. 96: The Box EASE Model - Plan View

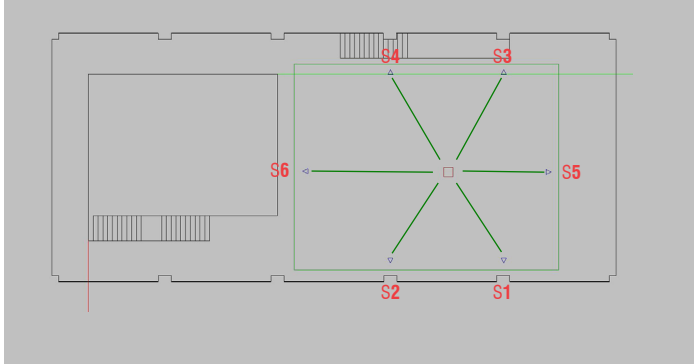


Fig. 95: Berghain EASE Model

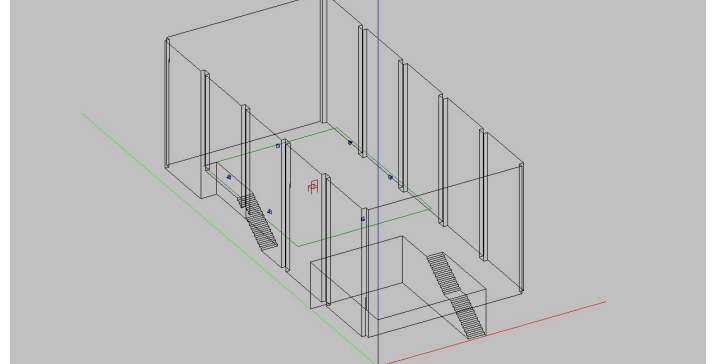


Fig. 105: Energy-Time Curve: S3 (Left) + S1 (Right)

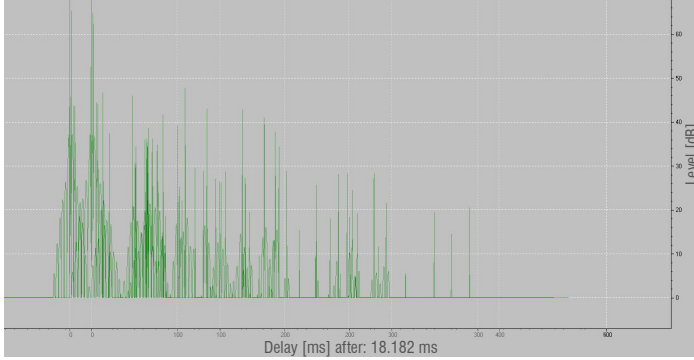


Fig. 108: Waterfall: S3 (Left) + S1 (Right)

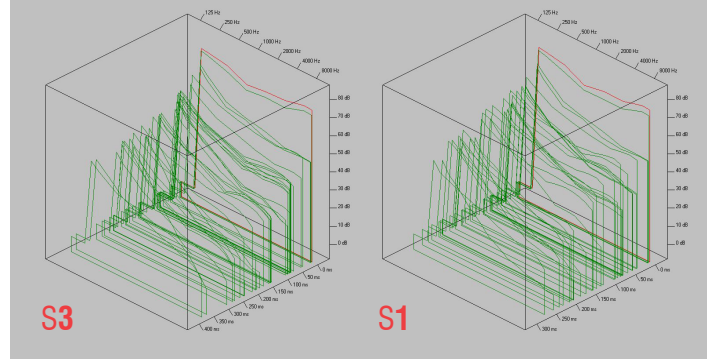


Fig. 106: Energy-Time Curve: S4 (Left) + S2 (Right)

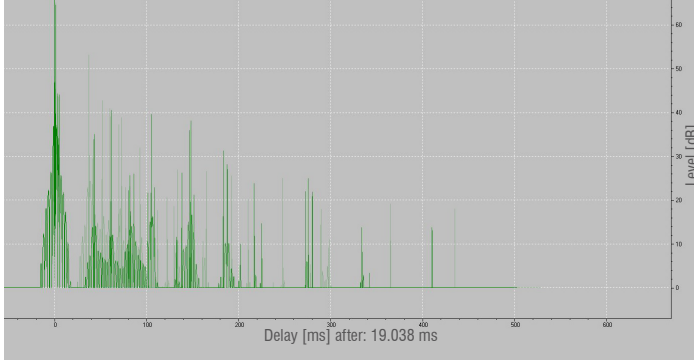


Fig. 109: Waterfall: S4 (Left) + S2 (Right)

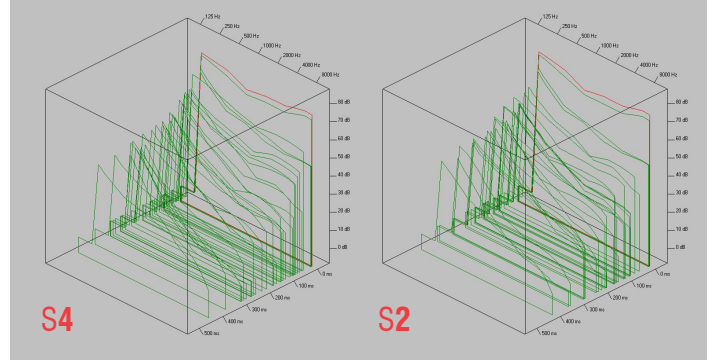


Fig. 107: Energy-Time Curve: S6 (Back) + S5 (Front)

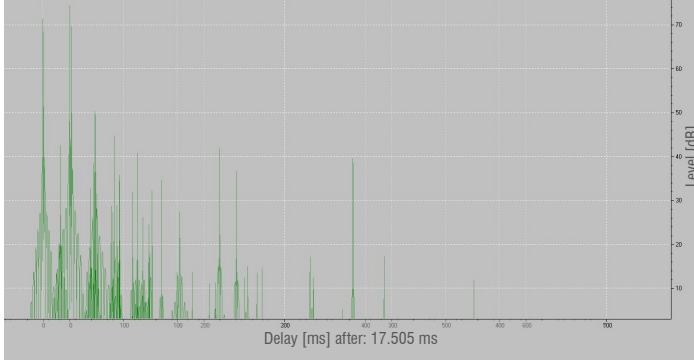
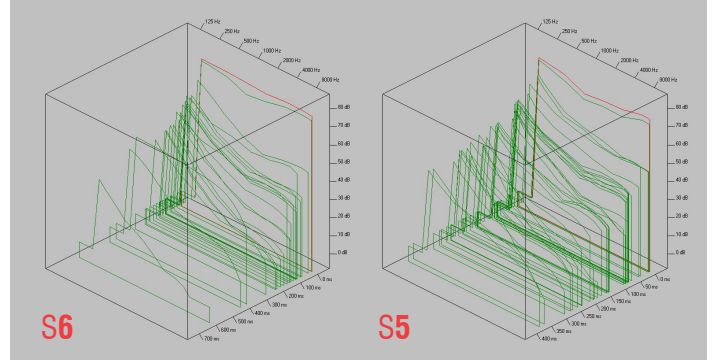


Fig. 110: Waterfall: S6 (Left) + S5 (Right)



3 RESEARCH DOCUMENT

Study: Acoustics & Space

Conclusion: A Study of The Ideal Acoustical/Spatial Environment for Rave/EDM Performance Spaces

Sound Matters

Through studying a diverse range of exemplar nightclubs, not only through the case studies of Ministry of Sound and Berghain, but others like the early 60's disco clubs to today's high-tech commercial clubs, a key finding is that each nightclub design has the primary purpose of curating a sensorial immersive experience – where music is most often than not placed at the center, where sound matters in creating that experience – both subjectively and scientifically. The Ministry of Sound is a prime example (as it should with the name 'Ministry of Sound') of this intention as the concept of the design was 100% sound system first, lights and visuals second, and design third – in that order. MoS was scientifically (acoustically, spatially) designed for a specific type of music, sound and preference, that being a crisp/clean, acute/precise electronic sound and system within a dead, absorby space with the preference of hearing every single detail in the music, being pleasant for some listeners. Other listeners may prefer Berghain's lively cathedral like quality of EDM where the reverberations produced by the cavernous space bring out the natural and spiritual effects to the sound, a sound that is deeply rooted and programmed into our DNA. Therefore, subjective responses to these specific types of music, sound and space are greatly diverse with many different preferences and desires amongst listeners, concluding that the ideal acoustical/spatial environment really depends on the preference and perceptions of sound, which is where architecture and acoustical design come in. Even though music and sound aren't the only element in creating that sensory immersive experience (lights, 3D projections, communal dance, narrative/utopia, equality, connectedness etc.) – it's the primary element that curates it all and should be an absolute priority.

Running Acoustical Simulations

In the initial planning stages of any concert hall/venue, opera house, performance space, studio/listening rooms – or any space that involves acoustics (speech/music), the starting process should be creating experimental 3D models of the desired space and testing their acoustical performance through simulation software. The 3D models provide a range of alternative ideas according to their aesthetic and acoustical qualities, for example, variations of shape and form, materials that make up the space, as well as what can be done for acoustical treatments for converted spaces. The simulation process aids in the understanding how sound behaves in a certain space, examining how it moves, how it gets absorbed, and determining good vs. bad reflections, percentage of absorber/reflector coverage, speaker positioning and orientation, etc. On a more economical side, the process allows the design to be tested repeatedly virtually on a computer screen, opposed to doing so in real time after it has been constructed. An example of this is the design of the nightclub Uberhaus, where in the process of planning some said that absorbers would need to cover the entire ceiling, whereby running simulations they were able to determine that only 60% of it was needed in order to contain the sound. Another more relatable example would be the case of Berghain wanting to

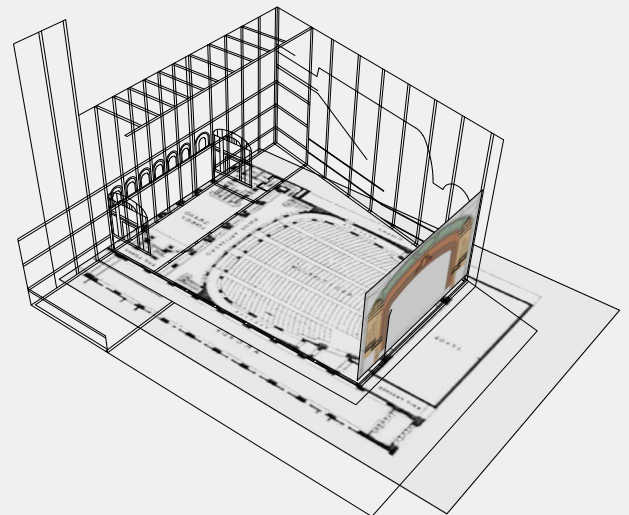
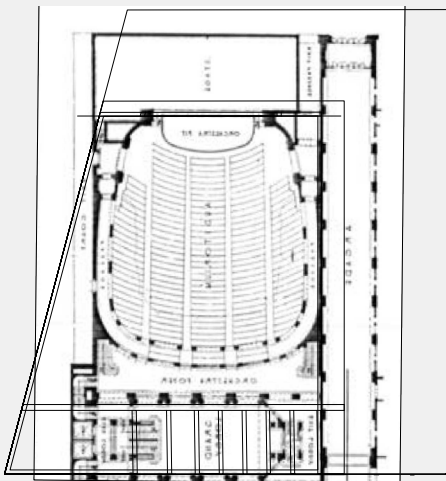
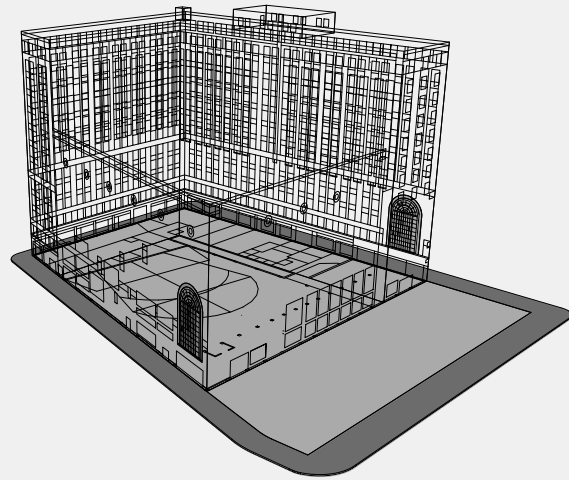
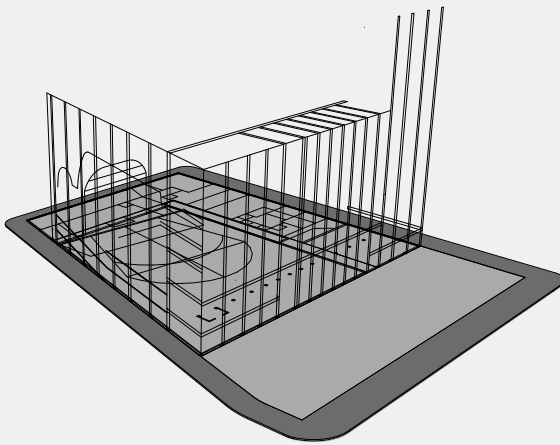
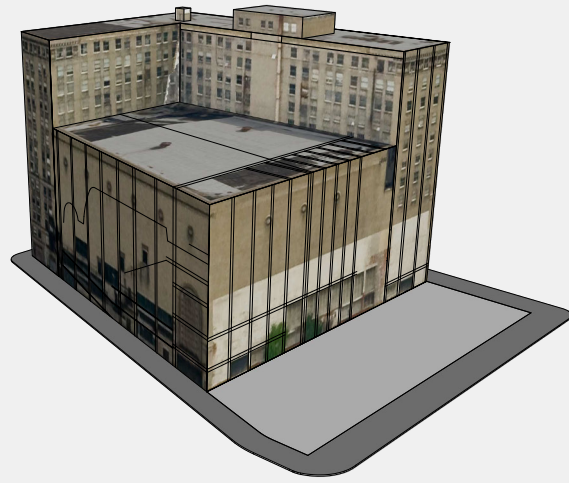
minimize the level of sound reverberation time, I would reopen its representational digital model and experiment with applying absorptive coverage to the 60' concrete and glass side walls that take up most surface area in its long and narrow space, as well as experimenting with sound isolators since the space is loosely connected to adjacent spaces. Simulations are overall part of the scientific process where they help to test a hypothesis, such as the ideal acoustical/spatial environment for rave performance spaces. The idealness of a space and sound can be measured objectively with regards to the preferred acoustical performance criteria of electronic music (percussive instruments: ideal ratio of reverb/direct sound, attack/decay times), but also, if not more importantly, needs to take into account the subjective responses of the listeners and their criteria for idealness.

Contributions to Theoretical Premise/Unifying Idea

My theoretical premise revolves around bringing light to the essence of rave, to bring the rave out of the cave where my unifying idea of designing the ideal 21st century rave space along with its architectural implications helps to achieve that. There are many implications that make up the ideal rave club design, but through this study I found that the most important element is the music and sound itself, acting as the main curator for the audience's sensory and sonic immersion. It is here where architecture and acoustical design come in to play which is where my case studies contributed, allowing me to understand the diversity of preference when it comes down to music, sound and space. With that, I intend on creating a variety of performance (consumption) spaces, each designed to cater to a particular type of EDM music genre, sound, feel/ 'vibe', atmosphere, etc. – almost like combining the cathedral like Berghain and the Box's acoustical perfection under one roof where each have their own autonomy. For instance, a smaller consumption space designed for a crisp, clean, warm sound; an absorption dominant space where each detail of the sound is heard directly and not reflected off any other surface; rather a space for critical listening. A larger consumption space will be that large, cavernous cathedral like feel where the sound is the most loud, vibrant and electric as absorption coverage will be less, allowing for that preferred and pleasurable reverb sound (Enhanced with the Michigan Theatre large ornamental dome). On the other side of consumption spaces brings production spaces, designing small listening/studio spaces with the art of mixing being the focus - inspired by Detroit's strong cultural narrative in the roots of electronic music; the creator of techno (explained more in hist, cult, polit, section of this book). With the intentions of designing three different types of performance spaces (consumption/production), acoustical design will be critical. The acoustical focus will be soundproofing (isolating the spaces from each other), acoustical treatments (dif. acoustic environment in each space) and the sound systems (properly positioned, oriented loudspeakers) – and will be guided by running acoustical simulations throughout the design process.

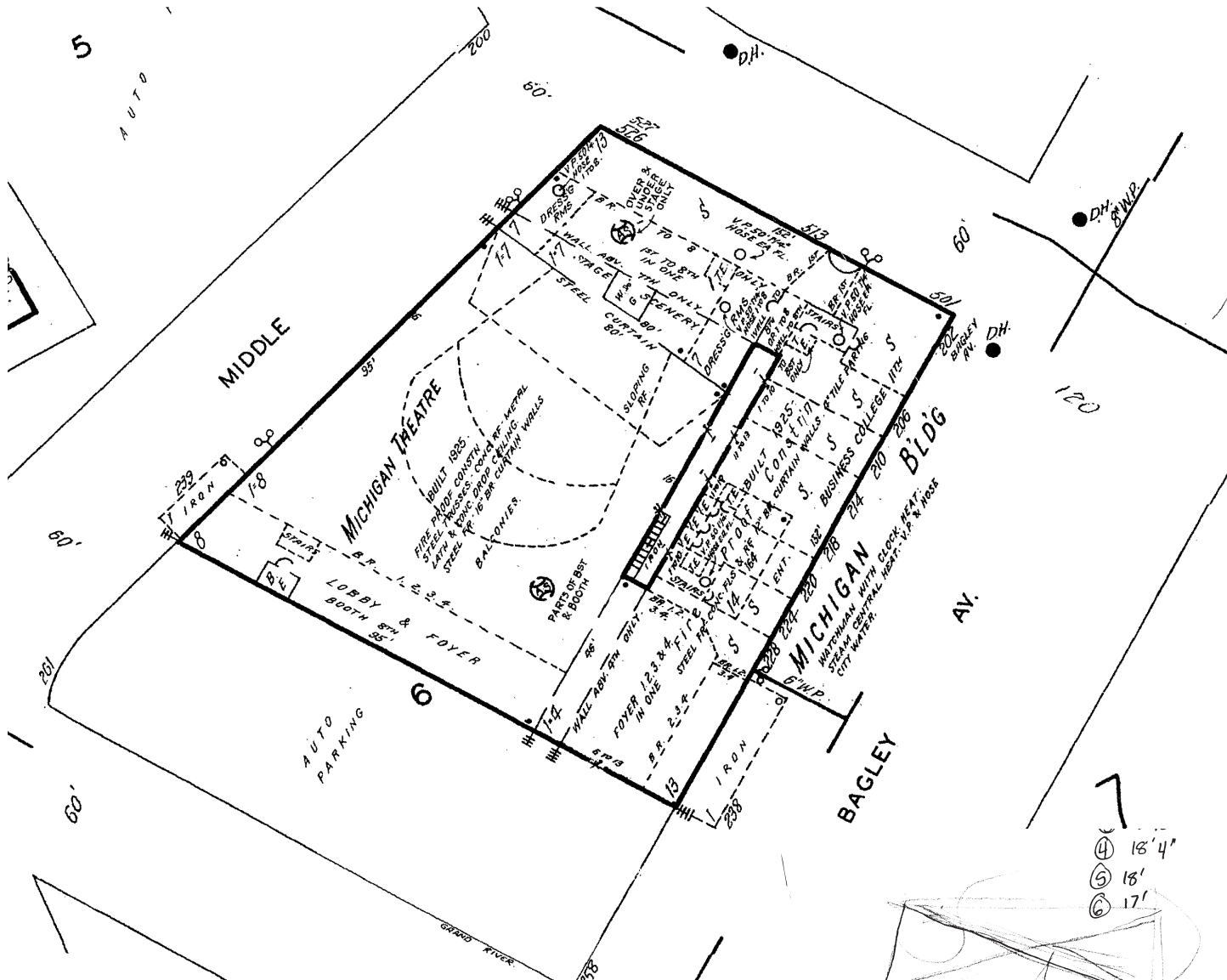
DESIGN DOCUMENTATION

Existing Building Forensics

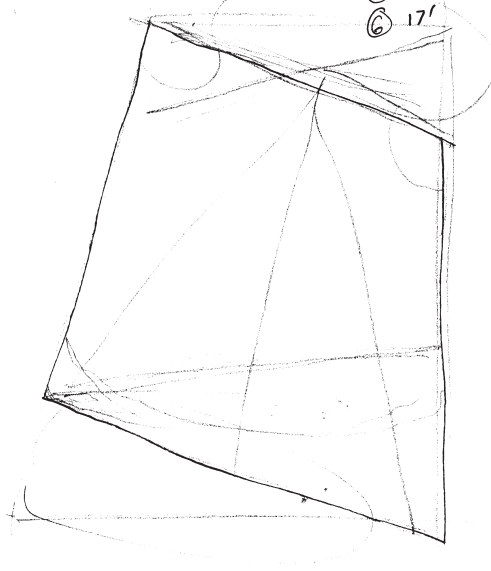


DESIGN DOCUMENTATION

Sanborn Map

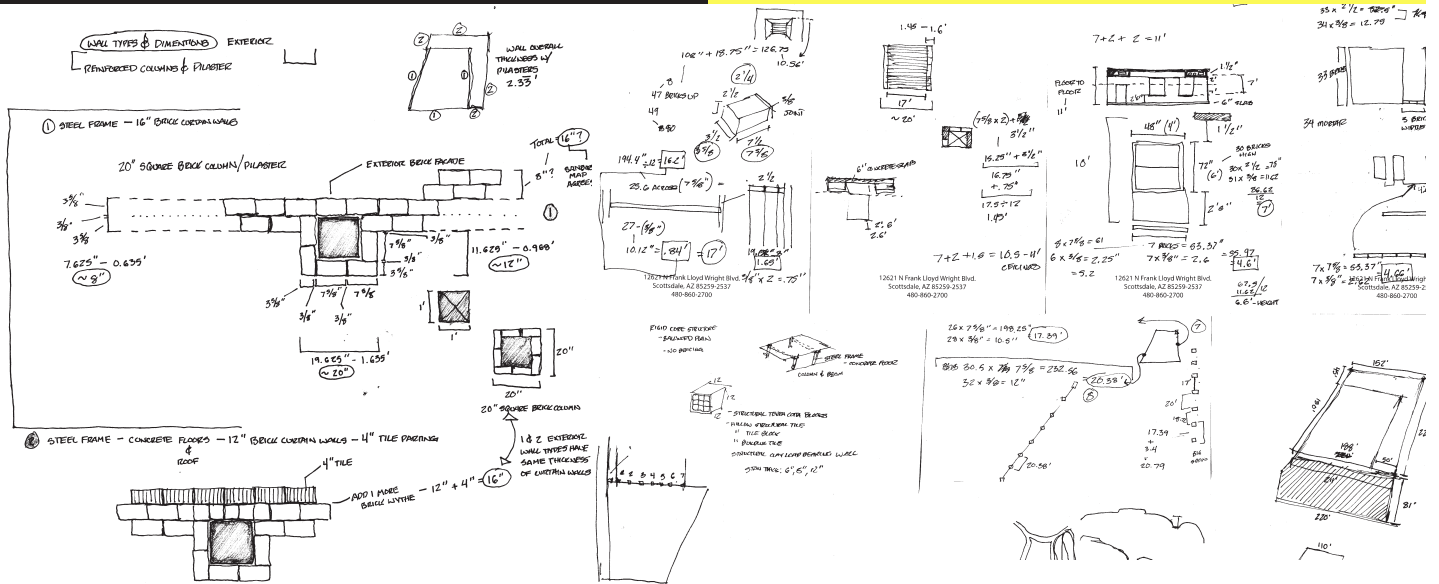


- ④ 18' 4"
- ⑤ 18'
- ⑥ 17'

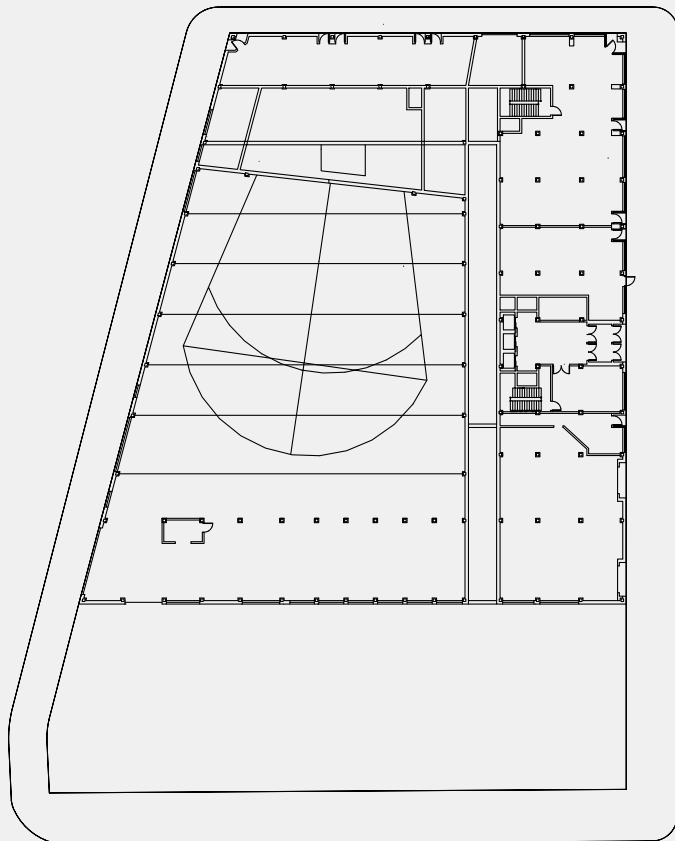


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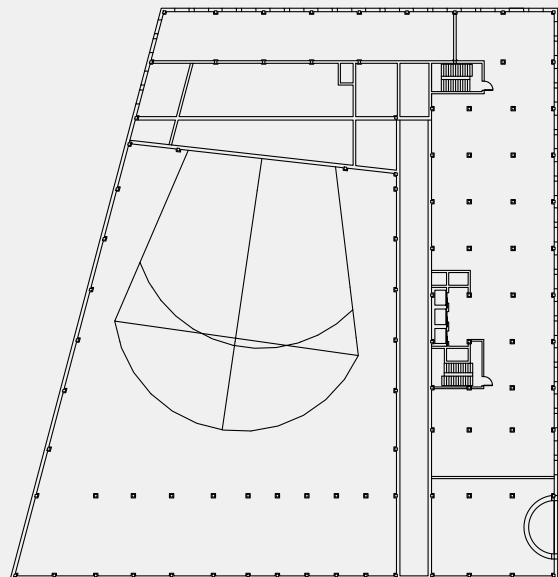
Existing Plans & Forensics



Ground Floor

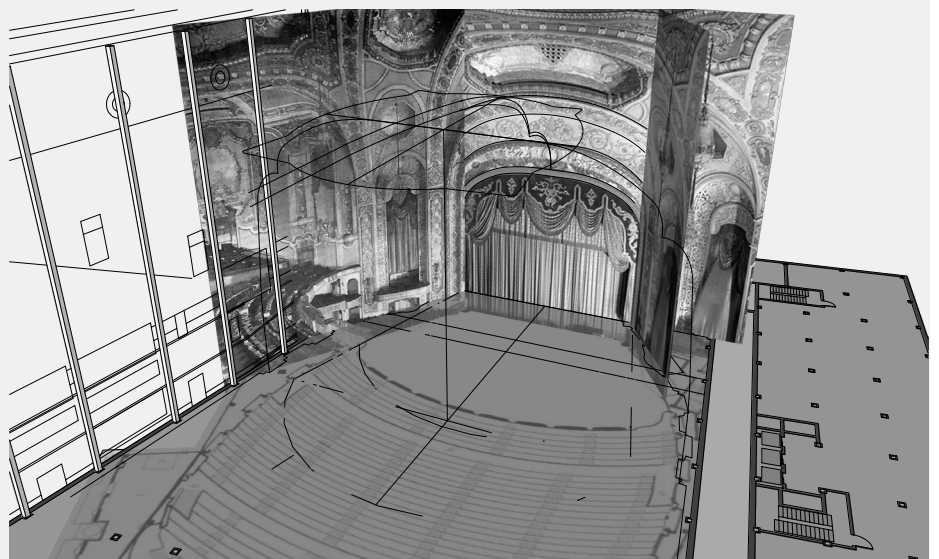
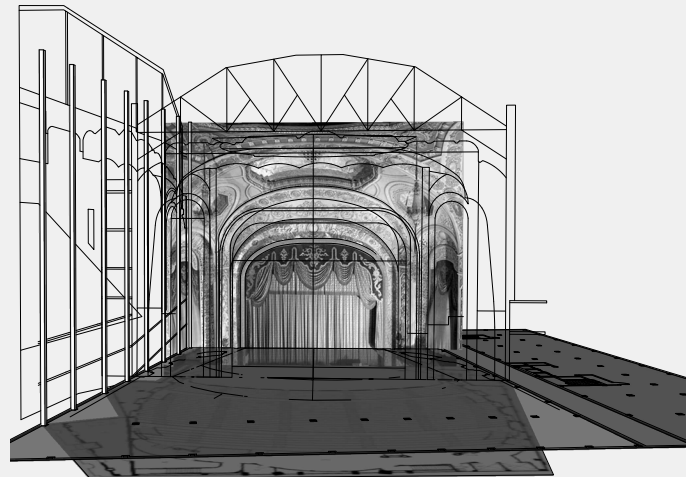
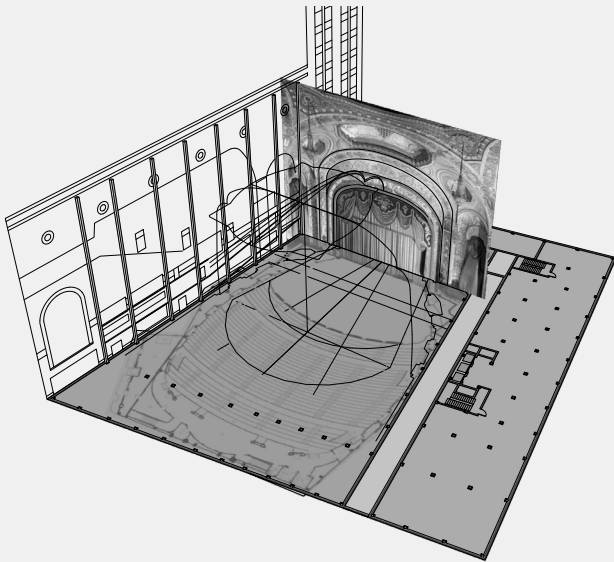
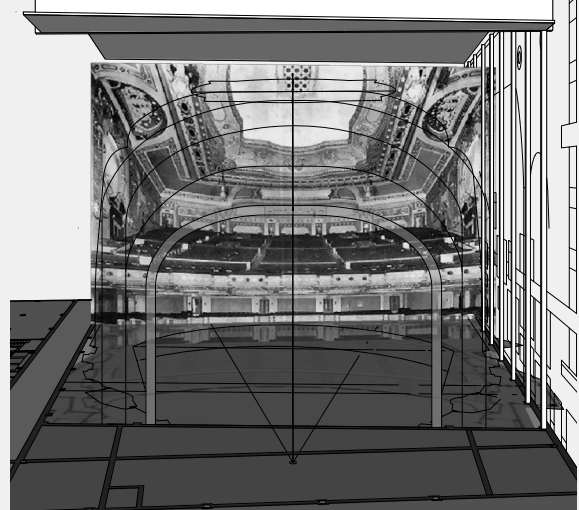


2nd Floor - Typical



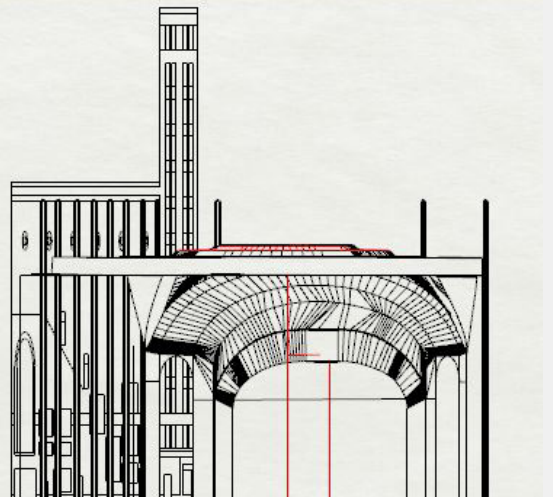
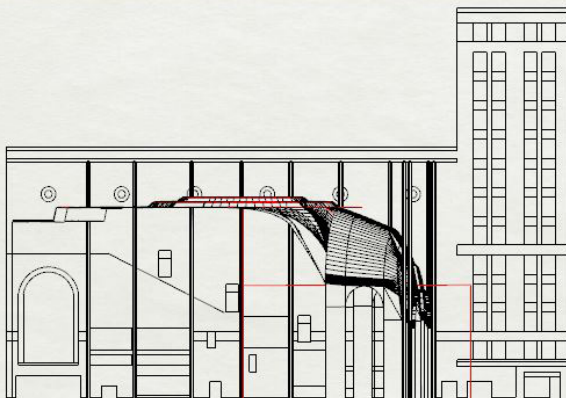
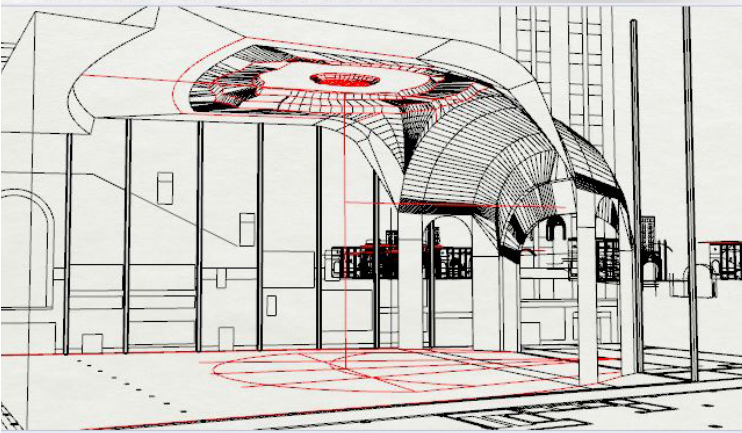
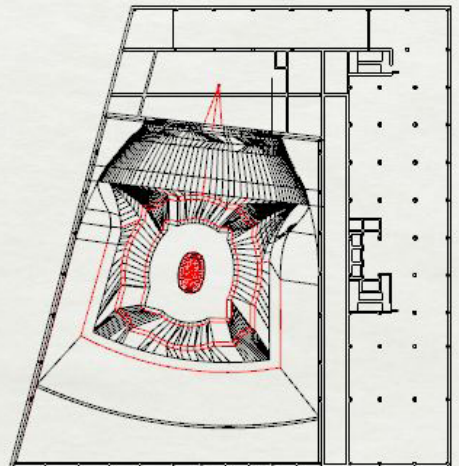
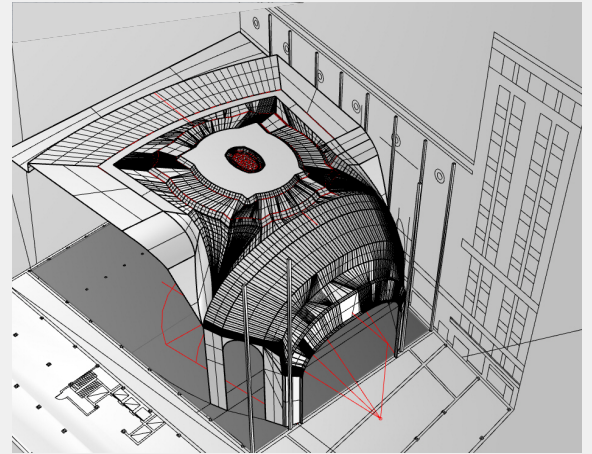
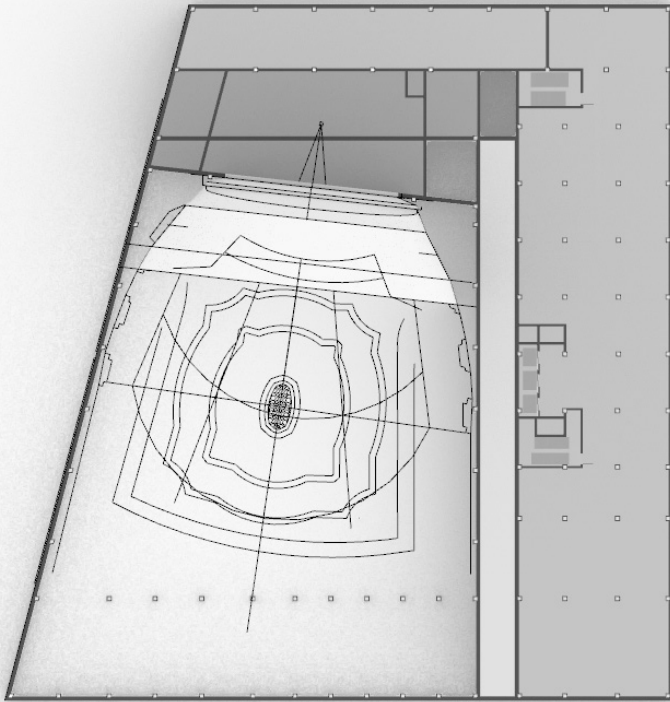
DESIGN DOCUMENTATION

Ornate Ceiling Forensics



DESIGN DOCUMENTATION

Ornate Ceiling Modeling



DESIGN DOCUMENTATION

Final Ceiling & Displacment Exp.

