GHOSTING I. M. PEI

Obsolescent in Architecture and the City

Colette Rabitoy
Spring 2020
Undergraduate Thesis
Gerald D. Hines College of Architecture and Design
University of Houston

Acknowledgments

I would like to thank the following people for making this thesis project possible:

Professor William Truitt for introducing me to Pei's drive-thru bank, decoding my wacky architectural ideas, and for helping me push past every mental block along the way.

Professor Marta Rodriguez for teaching me throughout my college career the importance and careful act of diagraming, and how to uncover a concept through freewriting.

Dr. Jonathan Williamson for sharing perspective on the project practicality in terms of real estate and politics.

Professor Donna Kacmar for sharing her endless amount of connections to professionals in the architectural community and beyond.

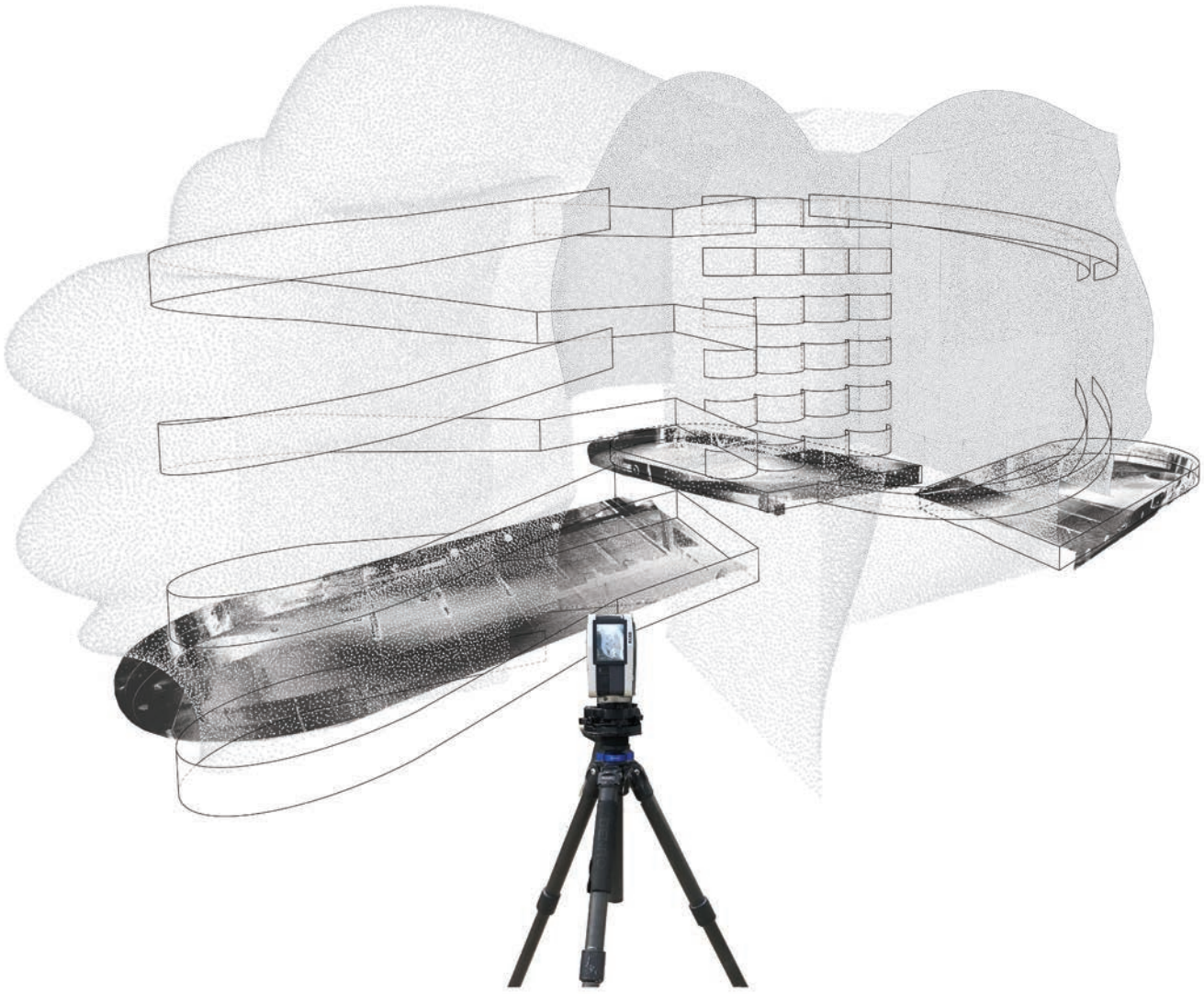
Professor Stephan Fox for his incredibly detailed course on the History of Houston Architecture, as well as his numerous books on the subject

Professor Geoffrey Brune for providing me with the resources and knowledge of proper building restoration and preservation.

Thank you, Dad, for lending your time and scanning equipment to help me record the data that every drawing, model and rendering was based off, as well as taking aerial footage and photographs of my site.

I would also like to thank both Reagan Miller and Andre Dejean of Reagan Andre Architecture for not only fueling my interest in adaptive reuse and creative renovation of historic architecture, but also for teaching me the importance of celebrating every building's story.

I could not have made it this far without the support from my parents, friends, and the entire faculty of Gerald D. Hines College of Architecture for giving me an unforgettable five-year experience. Throughout hurricanes, floods, and even a pandemic, I have never stopped feeling that I was part of a strong and creative community.



GHOSTING I. M. PEI

Obsolescence in Architecture and the City
After the Drive Thru: a Digital Park

"Contemporary architects tend to impose modernity on something. There is a certain concern for history but it's not very deep. I understand that time has changed, we have evolved. But I don't want to forget the beginning. A lasting architecture has to have roots."

-I. M. Pei

+

"In Houston, the entire foundation at the ground level ecology is soft, rhythmic, unstable, held together by roots of canopy trees, creating the absurd impression of a city suspended from the treetops from which its cars, riders, and roads gently swing."

-Lars Lerup, After the City

Abstract

In 1980 I. M. Pei completed his design of the Chase Tower, a building that has still holds the title as the tallest in Houston. The project was built with funds from the late 70's Oil boom along with a surplus of other banking and office infrastructure. In 1984 Pei designed a drive-through bank as an addition to the Chase Tower, built four blocks away at Milam and Congress Street. The pinwheel one-story structure ignores its potential connection to Buffalo Bayou. Today, online banking as well as real estate pressure on a one-story full block site makes the drive-through obsolete, and the location on the bayou leaves the building vulnerable to flooding. The building is abandoned, and its lot is used for parking and loitering. This project explores obsolescence in architecture and aims to build on I. M. Pei's legacy by reimagining the future use of the drive-through bank and its connection to the sub-grade surrounding landscape.

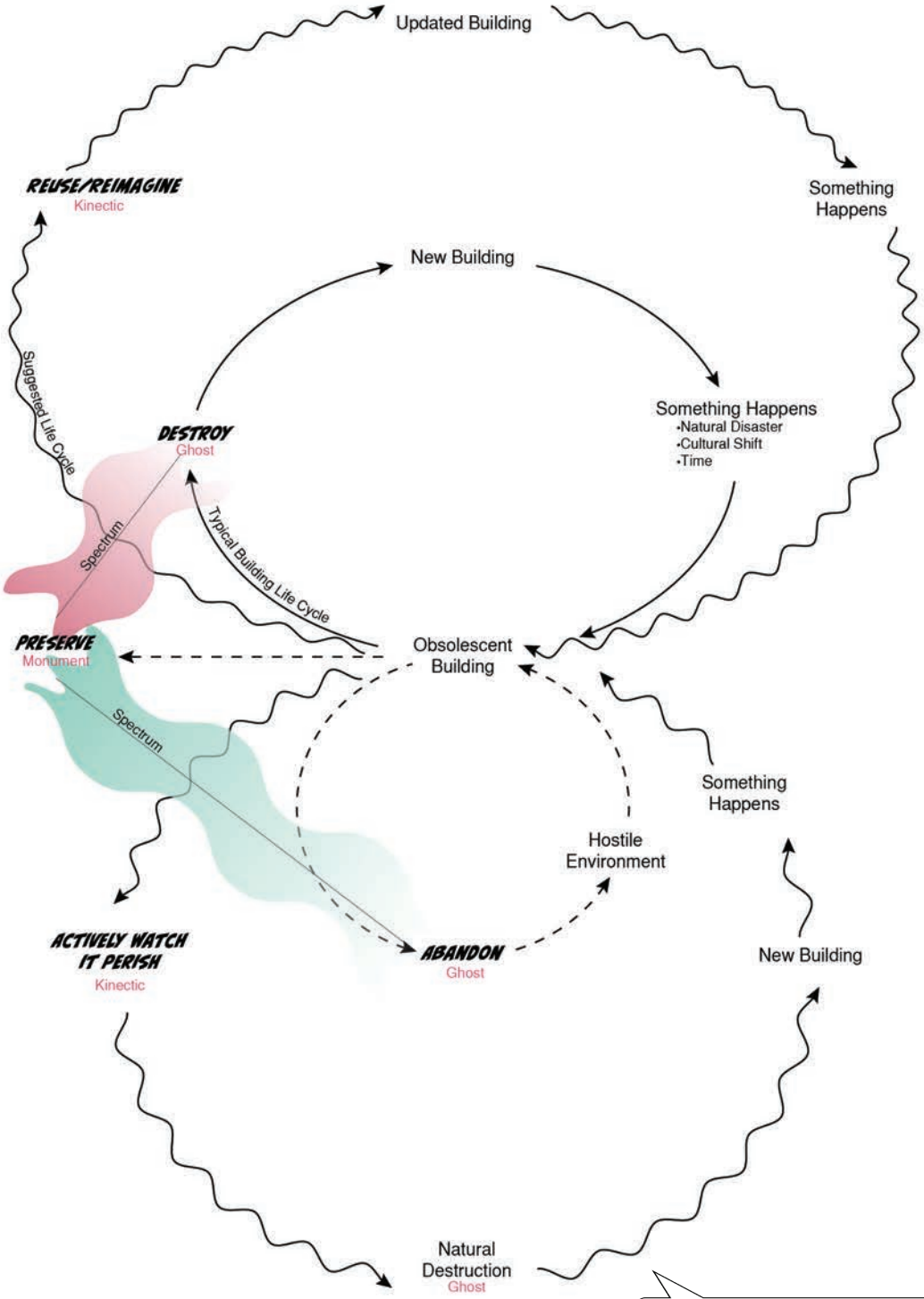
Analyzing the site's history reveals multiple ties to the city of Houston's identity and reveals its everchanging and impermanent condition. Reliving this frivolous past lends an opportunity to reignite entertainment in the downtown area by breaking away from building demolition and moving towards the celebration and engagement with earlier the earlier foundations of Houston.

Contents

Prospectus

Large cities rely on architectural consumerism. On one hand this is a good thing; it creates jobs, the city is always developing, and there are more chances for innovation. On the other hand, structures are often destroyed needlessly, previous innovations are erased as they are surpassed by newer technology, and history disappears. Houston, Texas is one of these cities.

Houston is fragile. It's not stable by nature of its geography, climate, or economic roots. Geographically the soil is unstable and requires an excessive amount of engineering to maintain a building structure. The climate is one of annual hurricanes and rising water levels, constantly challenging and destroying existing structures. The economic reliance Houston has on the oil industry is made irregular with frequent booms and busts. These conditions of impermanence lead to an abundance of obsolescent structures.



Though obsolescence is often thought of as an outcome, it is a cycle. A building in downtown Houston has a certain amount of years before something interrupts its life cycle and leads to its obsolescence. This event could be a natural disaster that damages a structures integrity. It could also suffer from a cultural shift causing its function to lose necessity. More simply it could have withered with age and the damages sustained would cost more to repair than starting with a clean slate.

Whatever the reason, results of what might happen to the building range from building preservation to demolition, though Houstonians tend to choose one of the extremes rather than from the range. This is because any obsolescent building is thought of as a failure, and to do anything other than freeze a building in time or erase it entirely would leave a trace of its defeat, and people don't want to be reminded.

My argument is based on the assumption that, if we were to change our view of obsolescence from one of failure to one of opportunity there could be a chance to adapt our environment for the better as well as capture a regions history spatially, while making it relevant to today's societal needs. Though architectural obsolescence is inevitable, it is also unpredictable. What we can do is imagine a structures transition within this cycle and provide more options for transformation when it has reached the stage of obsolescence. There is an urgent need to stop fixating on a stagnant solution or searching for a cure for building abandonment as history has shown us that it is inevitable. We need to design kinetic architecture that is meant to be reconfigured, repurposed, and eventually destroyed. This is planned obsolescence. My project reimagines an existing building through each path of the cycle, showing strategies to simultaneously cope with inevitable future struggles as well as provide moving experiences that bring awareness to the city's history. My project embraces Houston's relationship to this impermanence with evidence shown through its own landscape, monuments, and entertainment.

Ob•so•les•cence

No longer produced or used; out of date

Obsolete architecture develops when a building is no longer needed and abandoned, either quickly being demolished or being left to deteriorate. Prior to the 20th century the obsolescence of a building was considered the result of a structures age, as demonstrated by Frank Kidders 1895 Architect's and Builder's Pocket- Book which offers lifespan charts for a variety of materials and structures (Kidder, 702). Because these estimates are based only off physical depreciation, they are not a reliable source for predicting a buildings duration in a commercialist society such as today.

Real-estate expert Reginald Bolton began studying the relationship between architectural obsolescence and economic or cultural trends in the early 1900's following a period of rapid building turnover in American cities. He theorizes that advancing technology, evolving fashion, and changing forms of leisure make urbanization an unending process that will not pardon any city. Therefore, different building types will "obsolesce" at different rates, with the collective modern city renewing itself as many as three times per century (Bolton, 72). His theory illustrates that economic decay occurs faster than physical decay, the process is unavoidable, and it is always accelerating.

He explains his logic behind his building "lifecycles" as being due to urban dynamics, innovation, and a market full of competition and expendability.

TABLE D

ECONOMIC EXISTENCE OF BUILDINGS

Type of building	Life in years
"Taxpayer"	12–15
Hotels	15–18
Apartment-houses	18–21
Store buildings	21–25
Tenements and flats	25–27
Office and business buildings	27–33
Lofts and factories	33–37
Residences	37–44
Banks and institutions	44–50

Fig. 1

The shortest-lived building class on his list is one or two-story buildings, whose 12 to 15 years of existence bring just enough revenue to cover the site's taxes until a more profitable development can be built. (Bolton, 76). Bolton explains that this real-estate cycle is fatal to the growth of a community and he encourages landowners to buy cheaper lots further away from urban density to reduce risk of profit loss.

An optimistic outlook was introduced in the 1960's by Peter Cook of the group Archigram who published a series of hypothetical projects that react to architectural expendability in an unprecedented way, through planned obsolescence. Cook's design approach was to treat buildings as consumer products, "the real justification [being] that they are the direct expression of a freedom to choose" (Cook, 78). This notion lead Cook to design the plug-in city, a mega structure that anticipates the replacement of one function with another (Cook, 43). Structures with modular interchangeable parts allows ease to the inevitable process of replacing obsolete program, allowing a structure a better chance at maintaining relevance as it has more flexibility than something built with a very specific use in mind.

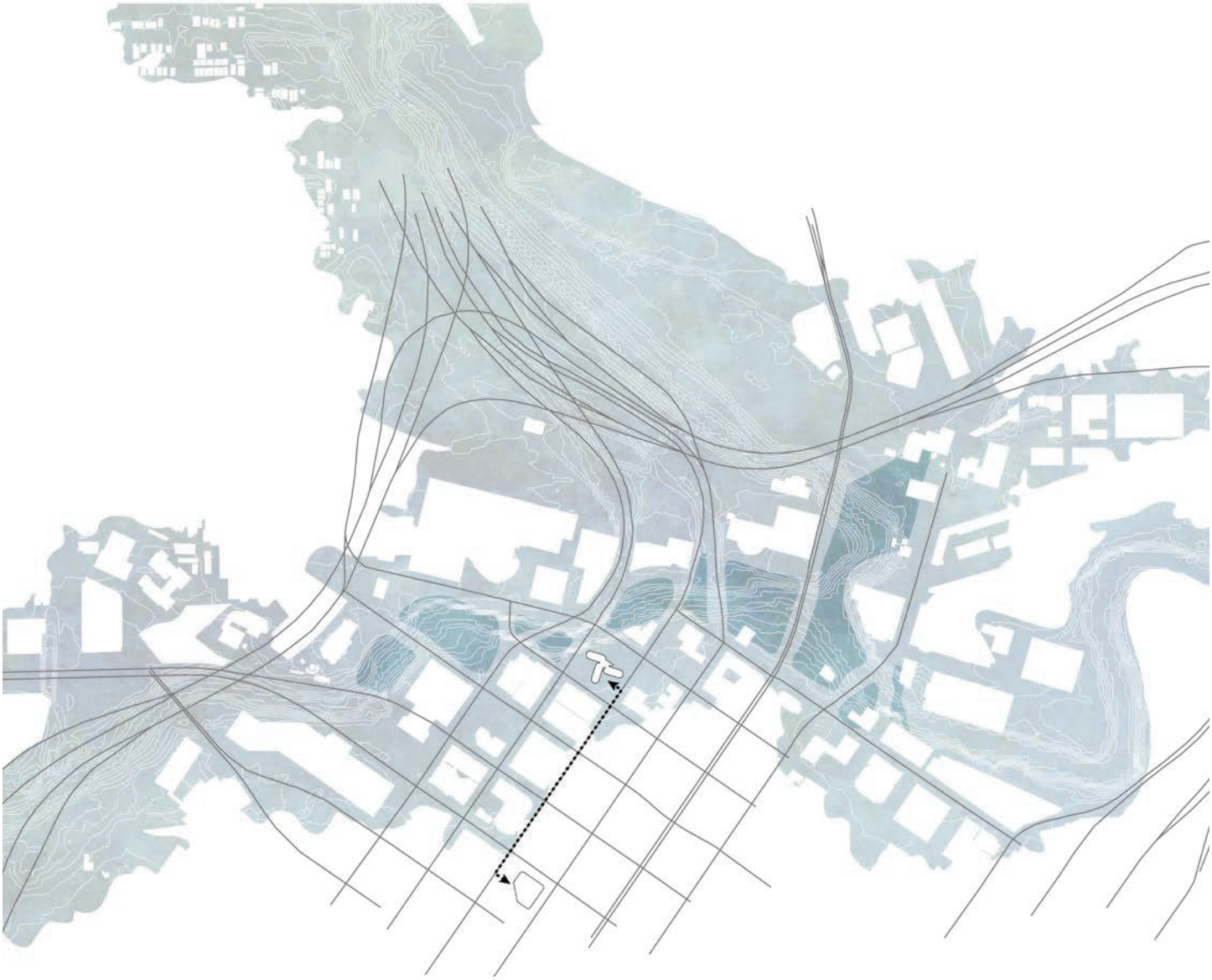
When architectural obsolescence is understood as a real-estate cycle it becomes obvious why the issue has relevance in Houston, a city whose land value continuously increases so that the only profitable option for a landowner is to demolish and rebuild. To share Reginald Bolton's opinion limits one to see Houston as an economic pit that deserves to be abandoned. However, the "always-complete-but-never-finished" nature of Peter Cook's plug-in city vindicates present day consumer cities such as Houston by showing an alternative to shaming a building whose use is lost. Obsolescence is not a symptom of some societal ailment but is an active process resulting from an advancing society. To ask for a cure to obsolescence and impermanence in a city is to ask for the death of ingenuity; celebrating and anticipating the cycle of architectural obsolescence encourages a city's growth. Issues in Houston such as flooding and vehicular traffic can become strengths if they are acknowledged and exploited.

Part 1: Landscape

Ru•in

The remains of a building that has suffered much damage or disintegration.

Famous architectural ruins are understandably romanticized in Hollywood sets, artistic paintings, and literature. They are physical pieces of a past culture that have endured impressive amounts of change in their environment. However, people are quick to dismiss other ruins in non-famous contexts as a mess of rubble that needs to be taken care of. At the scene of building demolition for example, no one marvels at the bent pieces of rebar sticking up from the concrete foundation, or the freshly shattered glass laying on the ground as it will be scooped up in a matter of days and taken to a land fill. However, if the mess is left there for a decade and its demise is forgotten, the pieces left over are intriguing rather than upsetting. Society is not able to appreciate fresh damage done to a building but will adore and respect building rubble that has aged. While Houston is no stranger to the wrecking ball, there is another force that plays an equal role in damaging the cities; water.



Flooded city bridged by concrete and the displacement of a drive-thru bank

Since Houston's founding, its early residents found that the water levels were unbecoming of a developing city. Citizens began redirecting the water, quickly discovering their attempts were not enough. In the 1900's Great Galveston Storm devastated the city of Galveston as well as flooding across Harris County, adding up to 30 million dollars in damages. While the 1900 hurricane was named the worst natural disaster in the United States, the flooding that it brought to Houston became a routine disaster.

In 100 years, Houston survived through 16 sever floods. In 1936 a plan was finally made to control flooding on a larger scale, and the flood control district was created. Despite the progress in flood mitigation, the water kept coming. 30 floods later, in 2001 tropical storm Allison dumped 80% of Houston's annual rainfall onto the city within a week. 8 floods after that, Hurricane Harvey brought enough rainfall to fill NRG stadium 1472 times (Lindner). Houston is now so synonymous with flood damage that it is implied that used car dealerships in the area include a disclosure of each car's status: flooded, or not flooded.

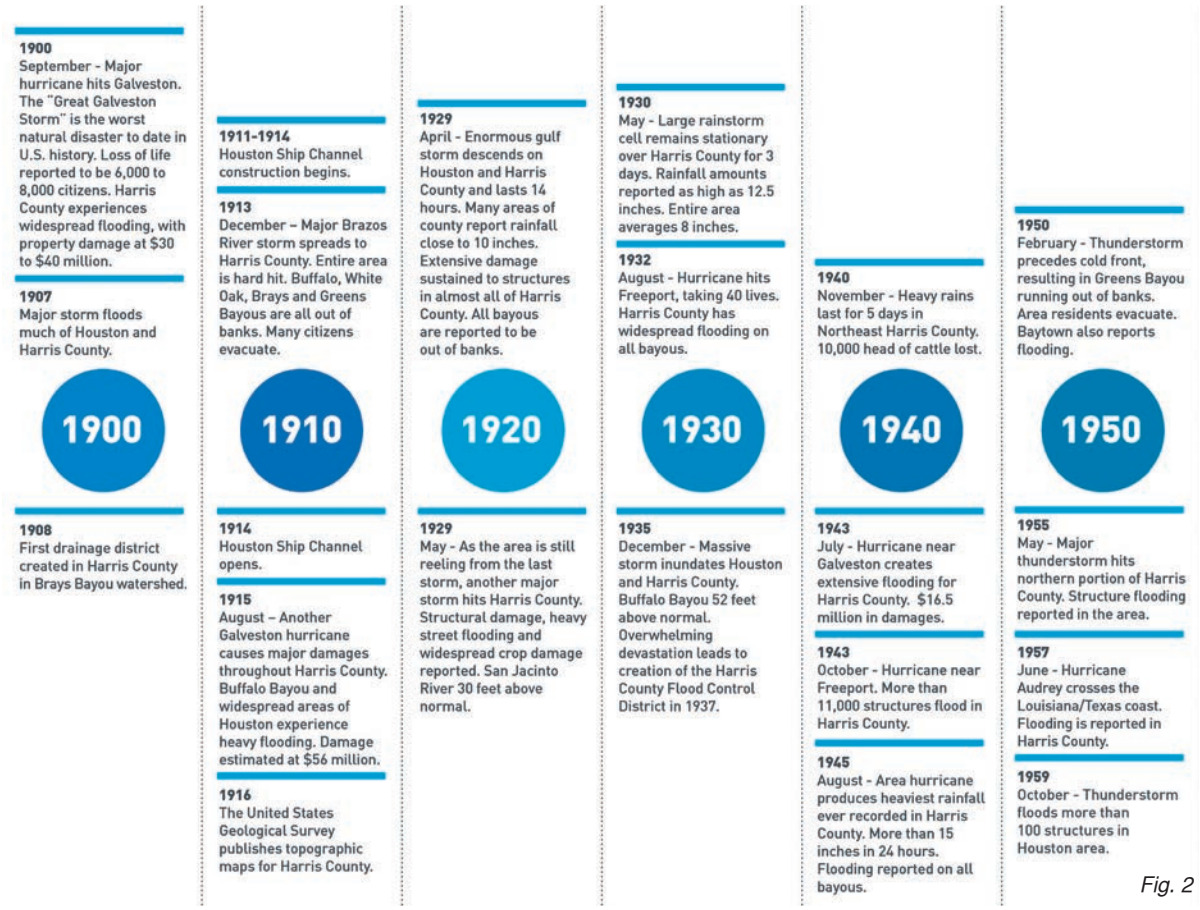


Fig. 2

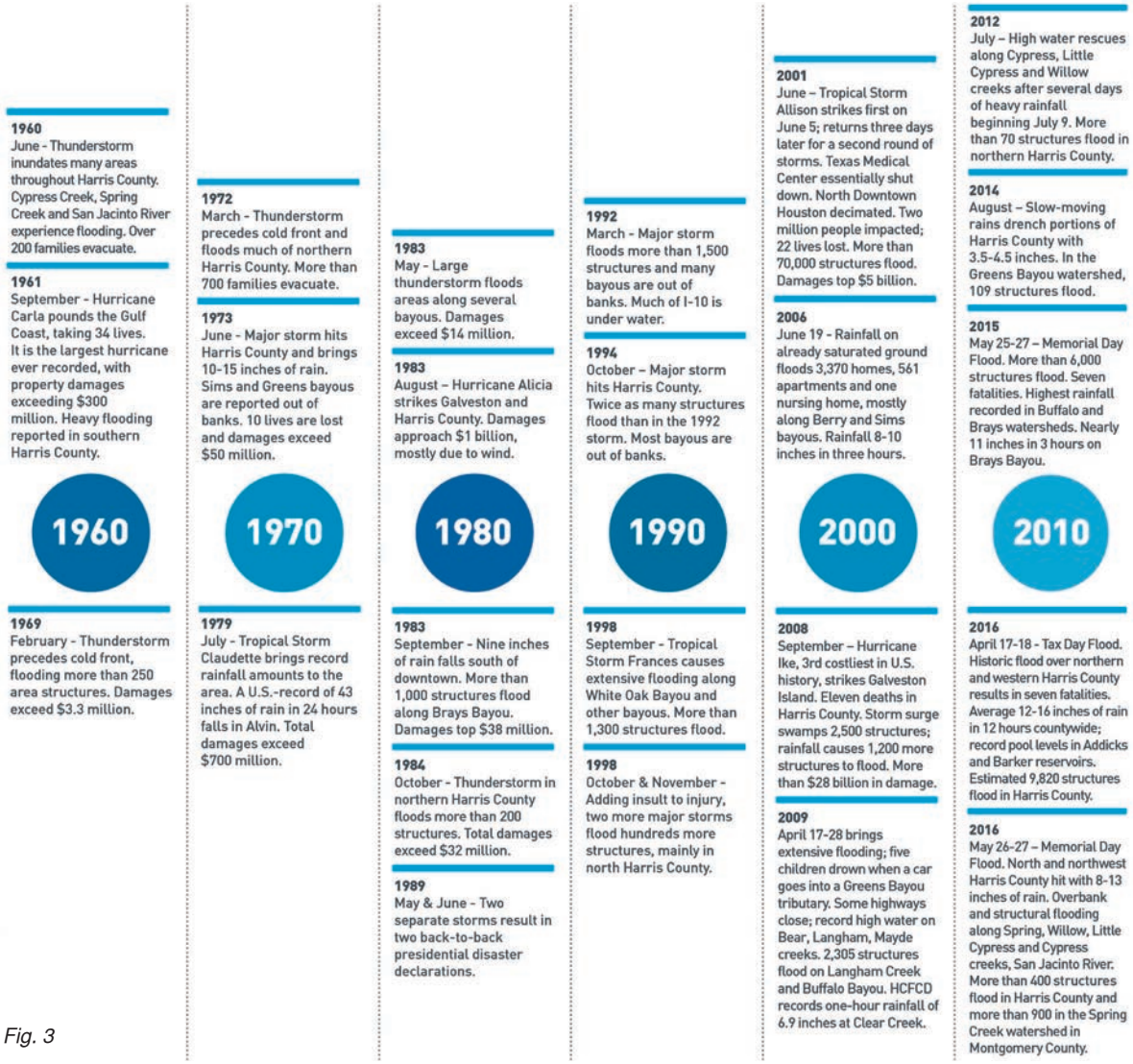


Fig. 3

This element has caused us so much destruction that it can be difficult to find a silver lining. As troublesome as it may be, it is still an undeniable feature of the cities climate that must be adapted to. Public safety will always come first. Flood mitigation plans and methods of diverting water away from densely populated areas are invaluable. however, by the time Houston increases its capacity for water, more shows up the next time demonstrating that these efforts are not enough to save homes and buildings much less the people. While the current solution is to repair structural damages, and if possible, raise a buildings foundation to withstand the next flood, a more effective approach would be to adapt buildings to safely interact with the inevitable. Instead of raising a structure higher, reconfiguring a flood prone space to endure temporary flooding could save millions of dollars in repairs (Lindner).

It is an absolute necessity to design structures that endure the element we are trying to avoid. With waters rising and tropical storms worsening, building with traditional methods is not a solution. Adapting to the reality of Houston's landscape is the only solution, and architects must create structures that are actively weathering and can be appreciated as ruins in the making, know that when those structures finally succumb to their age or end up under water, they will still be ogled at simply because they are lasting relics.

Part 2: Monuments

Mon•u•men•tal•ism

Construction of buidlings on a grand scale.

Monumentalism in architecture is the inverse of the process of obsolescence; a building is created at a larger than needed scale and without a specific use other than a symbolic message. The building begins to get recognized as an icon of an area and over time gains more significance. Architecture created out of the monumental movement is different from architecture that has become a monument; artifacts such as the Pantheon in Rome or the Notre-Dame in Paris followed a similar path to that of obsolescence. The buildings were created for a specific purpose, left to age and eventually rediscovered as monuments. They are commemorated because they uphold their intended symbolism through traits such as largeness in scale, enduring materials, and a recognizable architectural style (Trigger ,120-121). These are the same characteristics derived to create the monumental style of architecture. However, monumentalism architects fail to design a historically significant building where no history exists. Ruins are intriguing because they've survived the test of time, but an imposing contemporary building hasn't lived long enough to prove its timelessness, and the designer overcompensates in order to evoke a false sense of importance.

Whether a building is born as a monument or resurrected to be one, monumental architecture differs from other building typologies in that it is born to satisfy a societies emotional needs rather than physical ones. Architectural Historian Sigfried Giedion dedicates four of his Nine Points on Monumentality to describe mankind's need for a structure that will outlive the period of its creation, represent a collective force through symbols, and is only made possible through a unified culture (Giedion, 48).

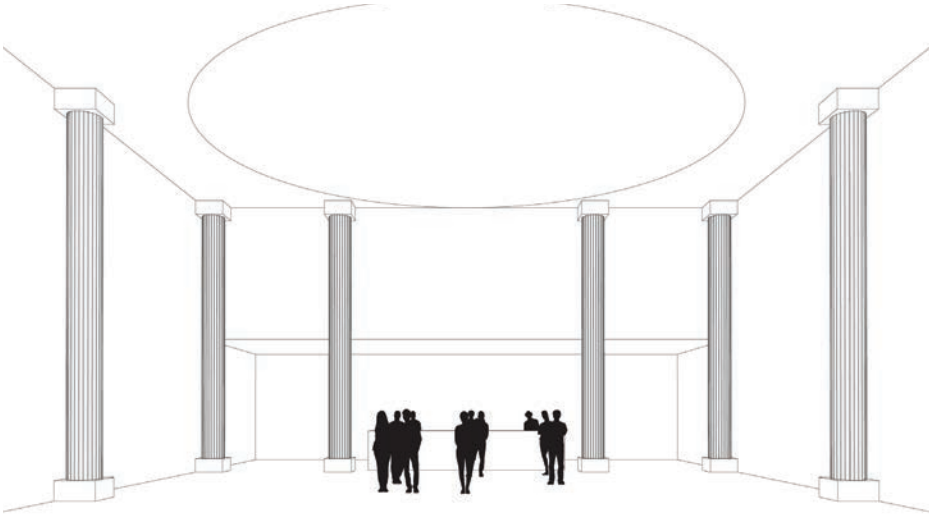
"The tallest building west of the Mississippi."

Giedion's points help further explain why contemporary monumental architecture often fails in representing a communal identity; buildings that are thrown together in such haste without much collaboration or input from the surrounding community do not represent a collective group, but rather a few economically fortunate individuals.

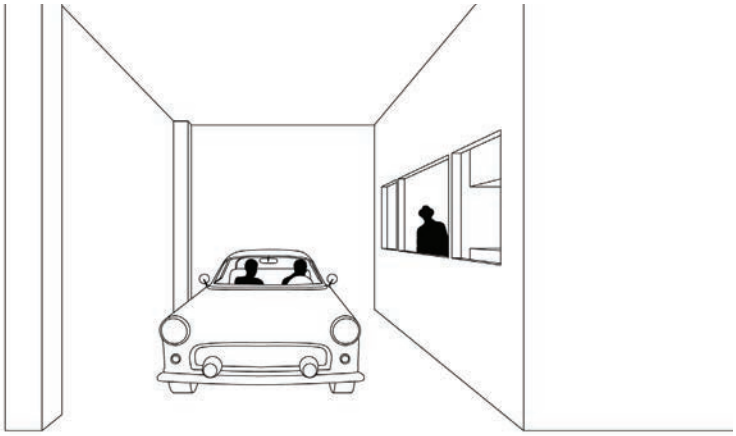
BEFORE THE GREAT DEPRESSION...

Bank buildings are central to the evolution of the monumental style. Before the great depression, banks were designed in a conservative classic style, catering to the high-class population that used them (Liberty Street Economics). There was a separation between the costumer and bank teller by use of "bandit barriers", barred partitions protecting the private from the public.

At the end of World War II, banks had raised ceilings and open plan lobbies to encourage social experiences, and tellers were no longer behind bars but face to face with the costumer. The public atmosphere of the bank remained the same as the architectural style evolved from classic revival to modernism.

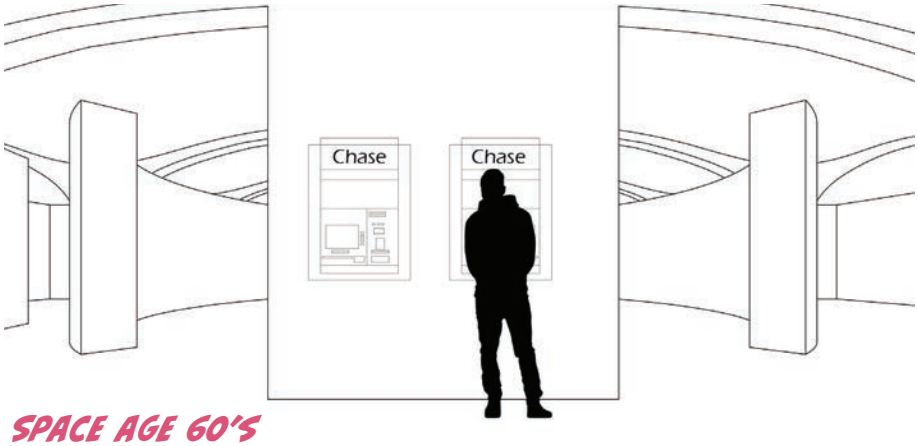


POST-WAR 1930'S



DRIVE-THRU 1950'S

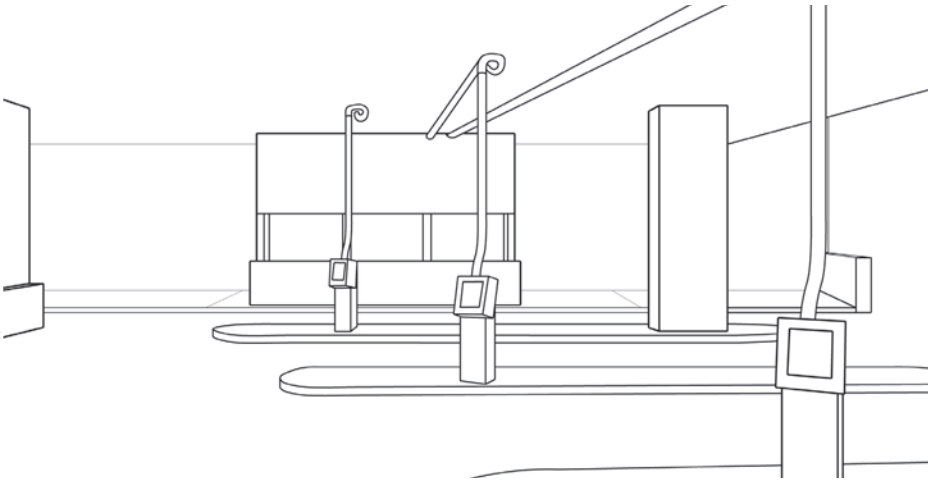
Advancing technology resulted in car-oriented architecture in the 1950's when automobiles became affordable for the general population and car culture emerged. Around this same time the Automated Banking Machine, or ATM, was developed and adopted by banks worldwide.



The modern-day advancement allowed a customer to deposit and withdraw cash directly from a machine without the need to interact with a human banker. This weakened the social aspect of the bank and made physical visits one step closer to being obsolete.

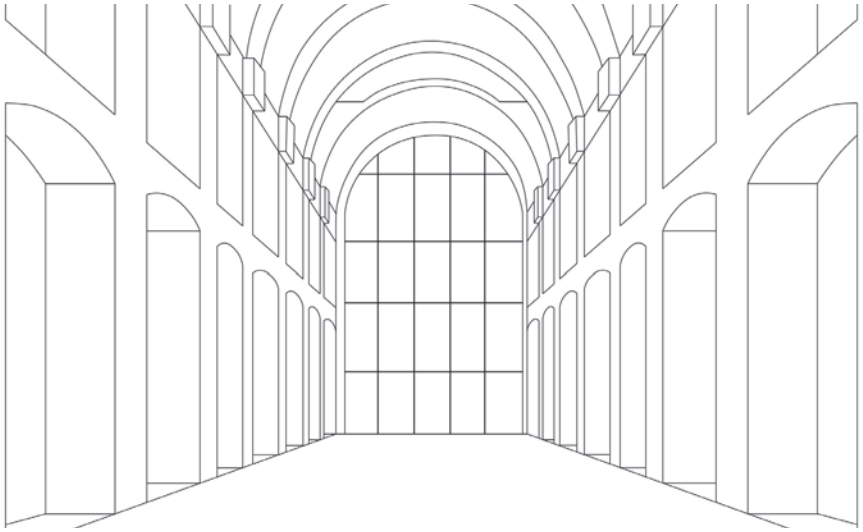
SPACE AGE 60'S

The novelty of the drive thru was short lived and turned from a spectacle to a normal occurrence in the 1970's. This is when banks used the ATM to attract costumers back to their drive thru facilities, adjusting the height and position of its controls to make a driver friendly version.



70'S PNEUMATIC TUBES

By incorporating these new machines into one of the drive lanes, the drive thru bank became a self-serve station where costumers could deposit a check, withdraw money, and talk to a banker all from the comfort of their cars. Technology continued to transform the bank by bringing pneumatic tube systems to efficiently transport money from the bank to a drive through station, and with this drive-thru banks emerged independent of any public space.

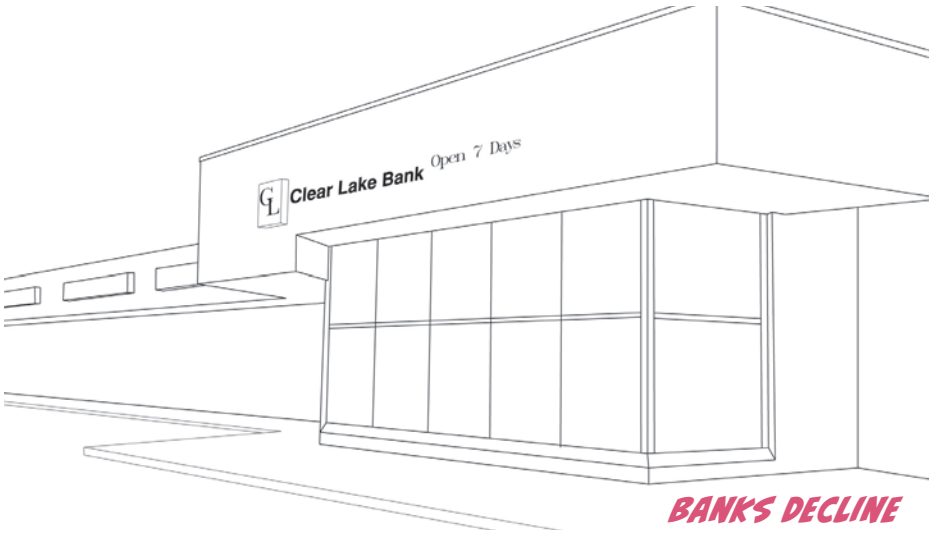


NOSTALGIA IN THE 80'S

Banks in Houston were built at an enormous rate during the late 70's and early 80's due to the oil boom. Most buildings were designed around the premise of a luxurious pubic space, leading architects to create interior volumes monumental in scale. This pattern continued even after the bubble began to burst in the mid 80's;

developers and investors remained in denial about the declining economy and aimed to reassure their dominance by generating an excessive amount of infrastructure in the city (O'Keefe,1).

The frantic reaction to Houston's failing economy resulted in the production of redundant infrastructure blown up in scale to impose qualities of permanence and power. The amount of banking and office space available outweighed the demand of the depressed economy. Pei's drive thru bank was no exception;



BANKS DECLINE

many companies were going bankrupt during the oil bust, including Texas Commerce, the bank company that Pei's 1980 Skyscraper and drive through were designed for. When Houston began its recovery in the 90's it was already too late, as online banking was introduced and another reason to visit the bank was lost.

BANK REPLACED WITH APPS

In the early 2000's banks began allowing scanned images of checks to have the same legal standing as physical ones and many banks began to offer online services to customers. The downfall of the drive-thru bank came in 2010 when mobile deposits became mainstream. Costumers could take pictures of a check from their cellphone camera and send it to their bank to be processed with no fee. Ironically, Chase bank was the first company to offer this service to their customers. With no reason to visit the Chase bank drive thru other than the ATM, the structure's final stage of obsolescence was complete.

The towering buildings that make up the Houston skyline are meant to convey a developed and stable city that owes its success to the oil and bank corporations that funded it. However, these monuments to corporate society dismiss the reality that Houston is in a continuous state of renovation. If Houston were to produce a fixed monument, it would quickly be paved over or swallowed by the clay soil. The sub-grade ruins of the city s past are monuments that, if acknowledged, can inspire a vernacular image of Houston.

Part 3: Entertainment

Ghost•ing
producing a faint residual image

The overarching theme of a ghost is something intangible made into a visual form. Regardless of the application of the word, a ghost is visual reproduction of an image or event. The recording of an intangible thing through visual media is done for the sake of retaining knowledge. It also serves as one of the earliest forms of entertainment.

Entertainment and the downtown Houston area have always been linked. The Allen brothers docked their boat in Houston in 1836 at the last point wide enough on the water for a cargo ship to make a complete turn; the junction between Buffalo Bayou and White oak Bayou. They based Houston's grid from this spot and the crew members of traveling ships have left their mark on the area, primarily by sustaining the business of entertainment venues and bars. The earliest form of visual entertainment to take place in Houston was the called the Playhouse, a space for plays, opera, lectures and other forms of entertainment. The first was Henri Corri's "Houston Theater" which housed the city's first performed play, Sheridan Knowles's The Hunchback in 1838 (Welling, 3). That same year the stereoscope, a frame combining two pictures to make an image that appears 3 dimensional, was mass produced.

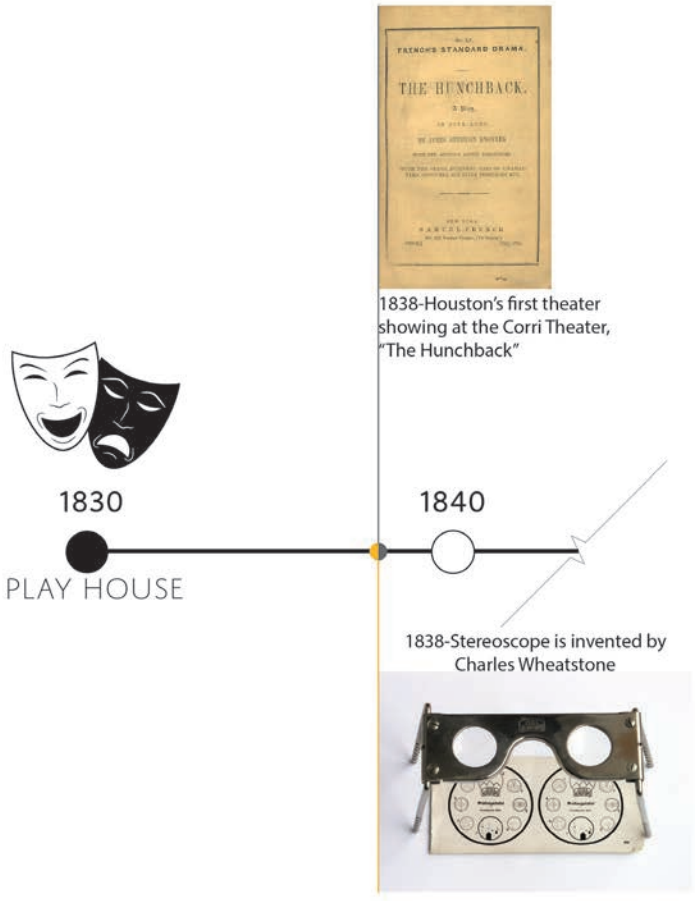


Fig. 4

As technology advanced and a new form of entertainment called vaudeville became popular, Penny Arcades began to pop up with various devices that operate on the cost of 1 cent. Peep show booths were a common form of moving picture found in these arcades. Based off the premise of cartoon flip books, the Mutoscope was a box-shaped portal with an interior decorated to resemble a theatric scene, and at the end of the box was a magnified image of a picture book flipping quickly through images to produce a moving picture.

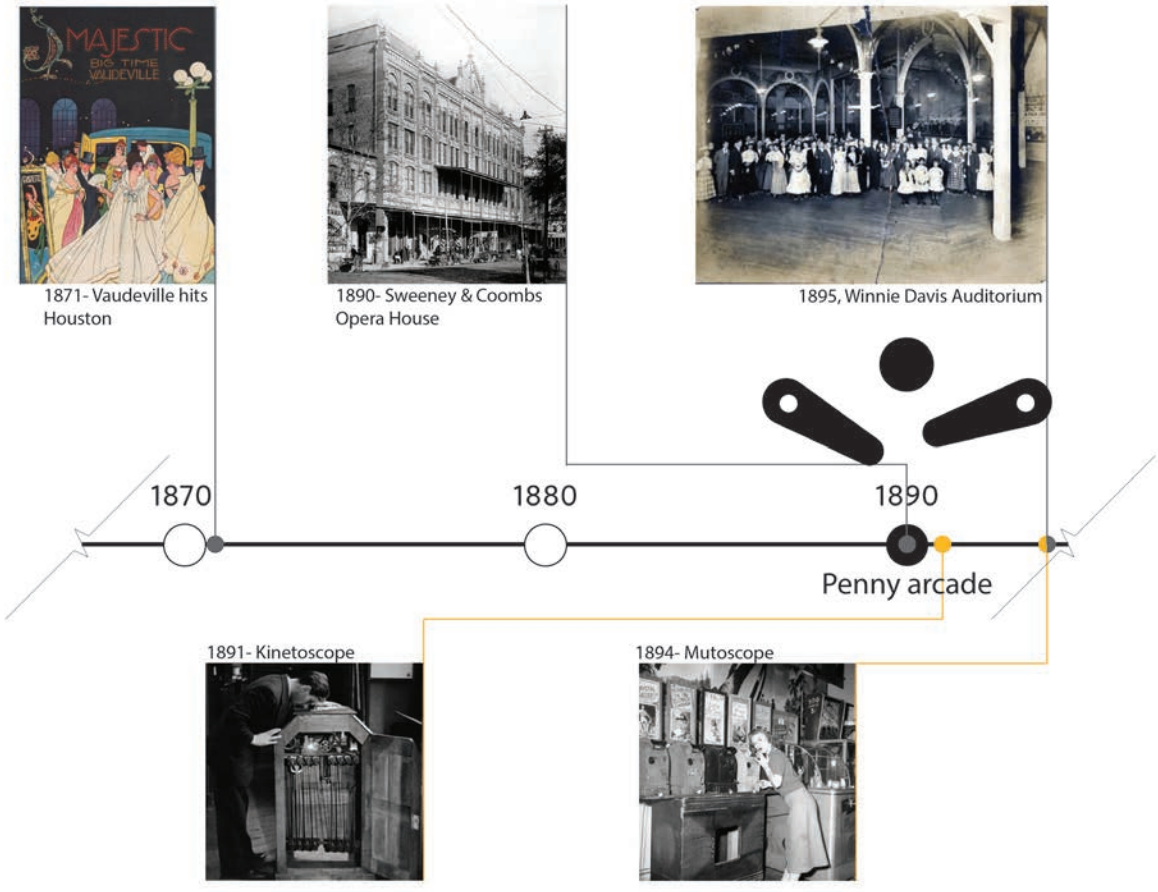


Fig. 5

Shortly after the Mutoscope came the VitaScope. The early version of a projector inspired impromptu theaters called and nickelodeons. The informal screen viewings cost only a nickel for admission. These were often nothing more than a sheet pinned up against a wall and a few chairs for the audience.

In the 1910's outdoor theater structures became popular due to their practicality and less flammable properties than the typical Playhouse. These "air domes" were open air performance venues, such as Houston's 1912 Electric Park (Welling, 12). Air domes set up movie screens like a nickelodeon, as well as light shows and circus acts.

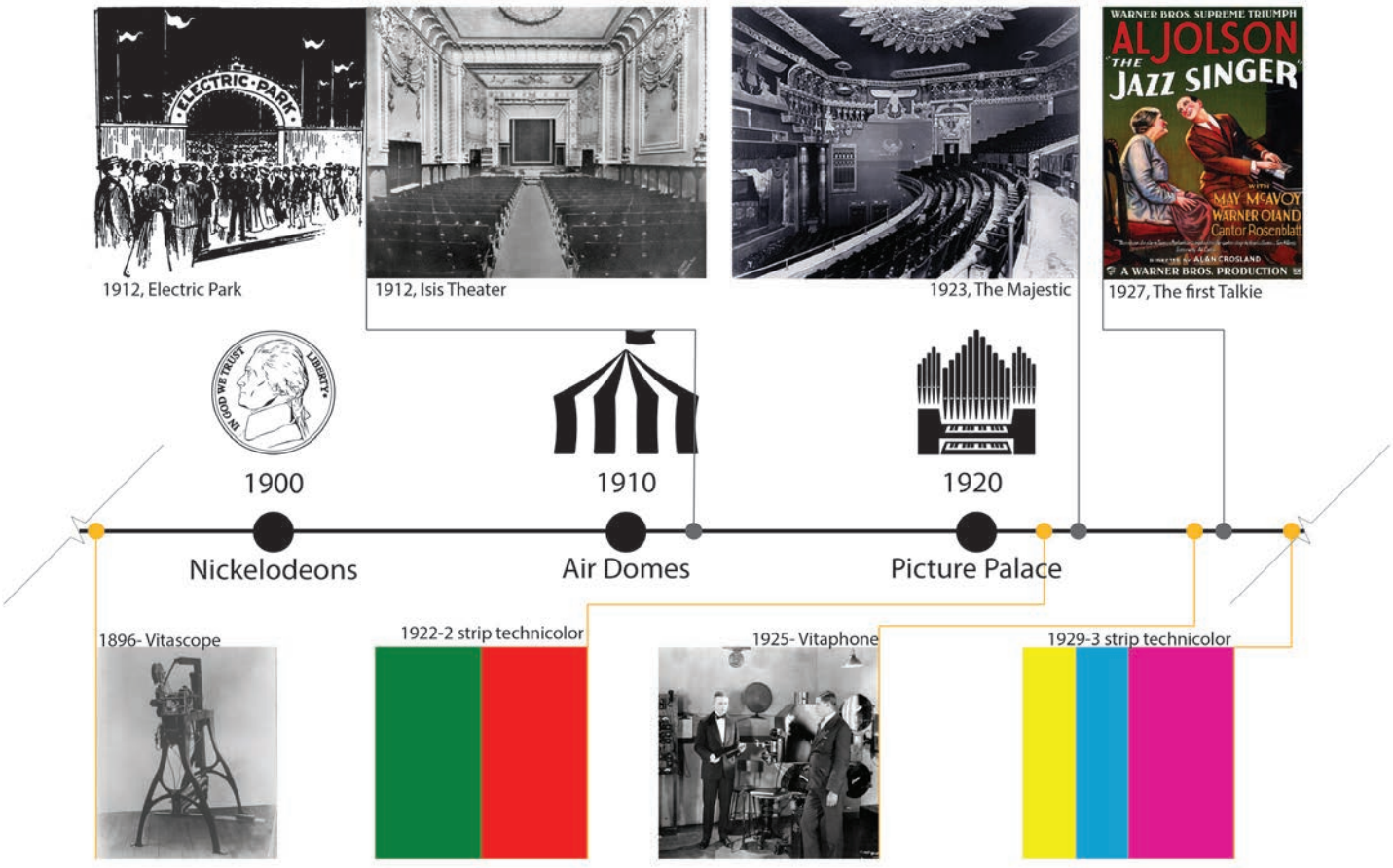


Fig. 6

Picture Palaces of the 20's were luxury theaters made specifically for motion pictures. Facilities included more comfortable seats, embellished architectural details, and organ pipes on either side of the screen. During this time technicolor processing was developed and movies were beginning to have color. They also were soon accompanied by sound, switching from silent films to "The talkies". The first movie to use the Vitaphone alongside film was "Jazz singer" in 1927 (Pfeiffer).

The introduction of Air conditioning in the 1930's made theaters more accessible to Houstonians year-round. Previously theaters would close during the summer months as the climbing temperature caused a lack of comfort. This time period coincided with the birth of the suburb and neighborhood cinemas began to appear (Welling, 117). These were smaller and more intimate places with less luxury in terms of architectural embellishments.

By the 1940's a total of 42 Picture Palaces were built in the downtown area (Welling, 98). Only two of the buildings survive to this day, the 1926 Majestic Metro and the 1912 Isis Theater. Both have been restored and currently serve as multipurpose event spaces. These theaters are a record of shifting technology as well as an adapting form of entertainment.

Television sets became common place in the 1940's causing a decrease in movie theater attendance. As movie theaters struggled to stay in business, the creation of cable television in 1948 further lured the public away from the cinema scene.

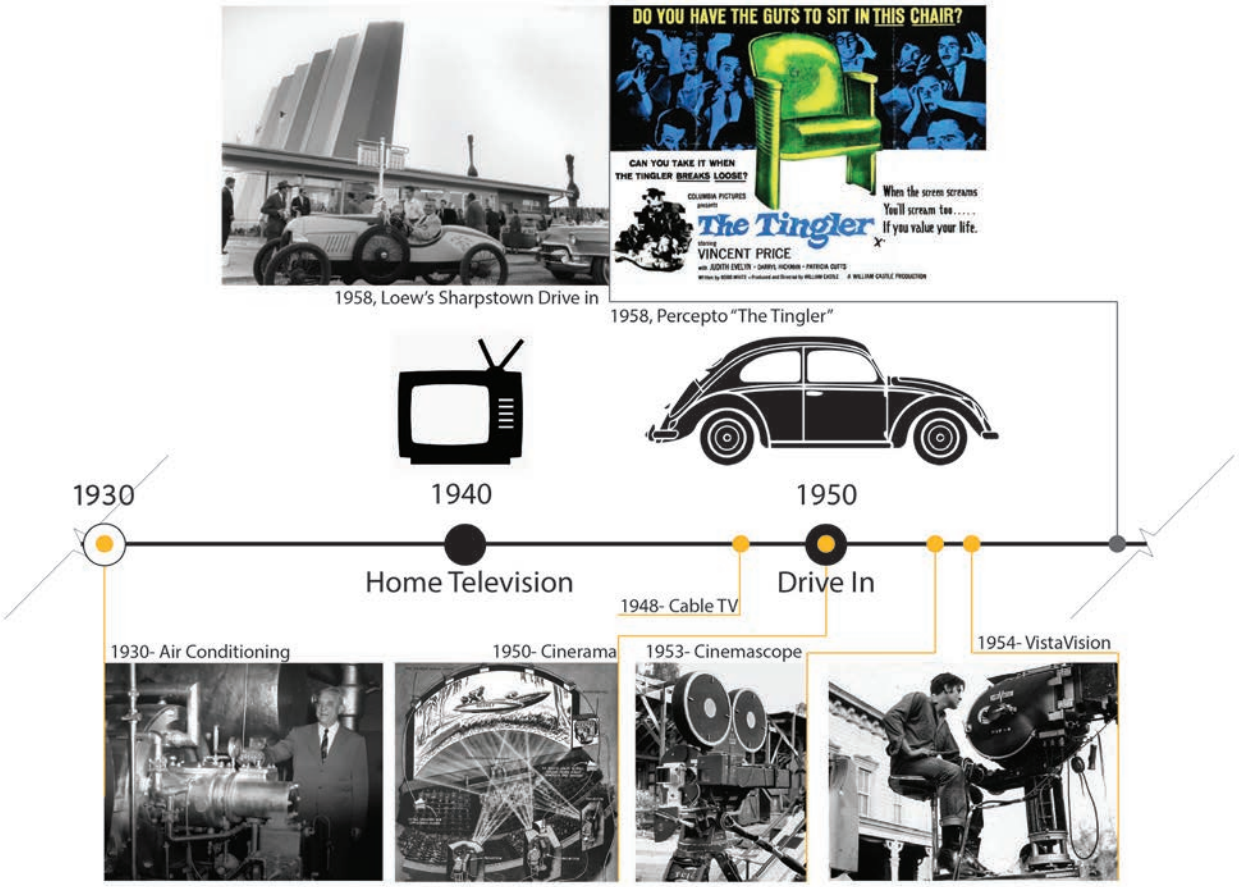


Fig. 7

In the 1950's drive in theaters emerged to cater towards car culture. In addition, a series of show time gimmicks were done to draw people back to the theaters. These "Ballyhoo" features included smellovision, when a scent from the movie is released into the audience, as well as percepto, physical stimulation meant to match scenes in a movie. The most famous of these was the vibrating seat that accompanied "The Tingler" in 1958; the seat would buzz at the scariest parts of the show to simulate the fictional symptom of a tingling spine that was caused by the parasite in the movie (IMDB).

Also created in the 1950's, the cinemascope was an early version of a widescreen film. Three movie screens were lined up next to each other, each with its own projector to create a continuous image. The cinemascope was followed shortly after by Vista Vision, a projector with a lens that spread an image horizontal rather than vertical.

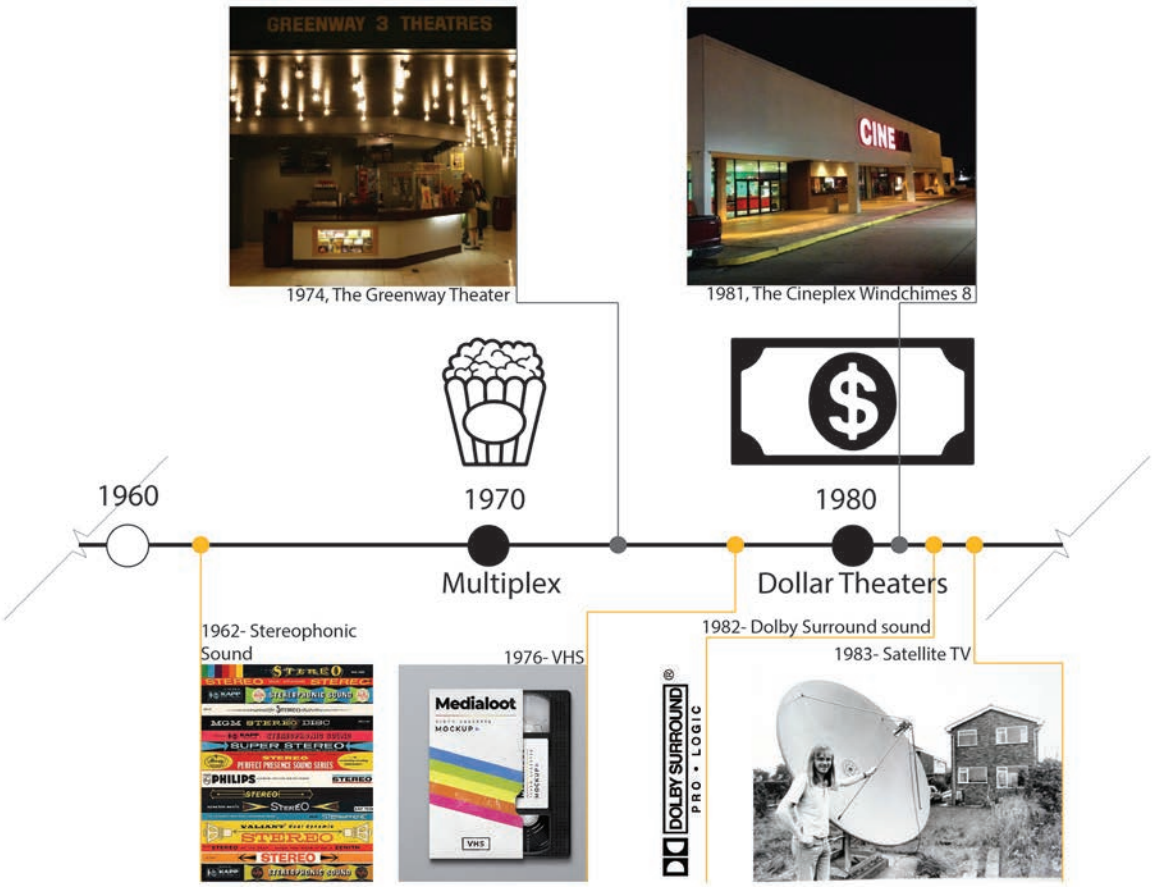


Fig. 8

The 1960's brought advancements in movie sound quality with the first successful version of surround sound, the stereophonic sound system. The movie theater industry began to recover in the 1970's with the invention of the multiplex, a movie theater venue that contained more than 1 screen room. In addition, the VHS tape was created in 1976, giving people the means of playing a box office movie in their homes.

By the 1980's there was an overabundance of screens. The least successful of these theaters became dollar theaters, unkept venues that showed movies months after they left the typical theater for a discounted price. Home theater technology continued to advance with Dolby's surround sound system of 1982 and the invention of satellite television in 1983.

The multiplex eventually evolved into the megaplex in the 1990's. Instead of theaters with 3 or 4 screens, they had 10 to 15 screens. Houston's AMC Gulf Pointe set the record as the facility with the most screens in 1997 with a total of 30 screens (source). The 90's also brought the invention of the DVD in 1997 which greatly reduced the physical space needed to own a movie. The first DVD created was of the 1997 film "Twister".

The turn of the century brought Blu Ray DVD's as well as the beginning of internet video streaming. YouTube was established in 2005, a free public platform for uploading and viewing video content. This was followed by Netflix in 2007 who began online streaming as an addition to their DVD rental service. Many platforms followed, such as Hulu in 2008 and Amazon Prime in 2011.

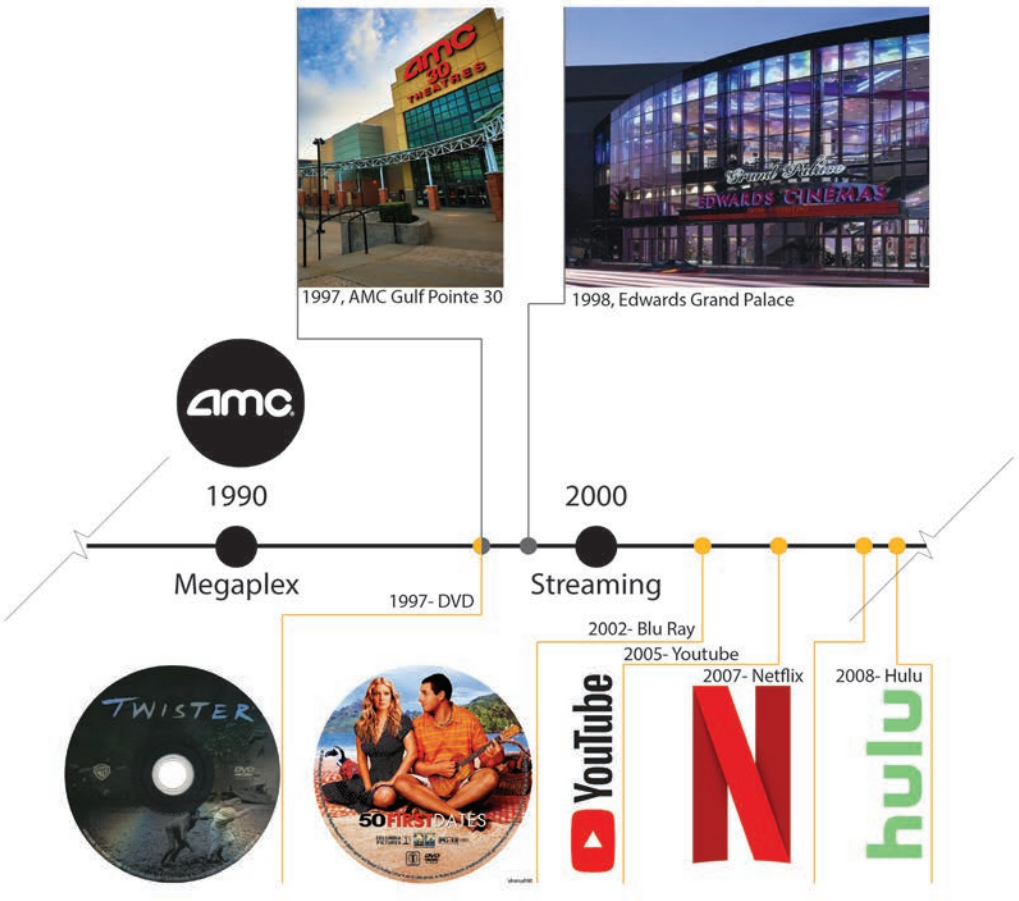


Fig. 9

In 2010 Virtual Reality technology had reached a level in advancement making VR headsets affordable for the general public to obtain. The Oculus Rift came out in 2010, and in 2012 Holograms came one step closer to becoming real with the legendary "live" performance of deceased rapper Tupac (Aardodson). A projection that is reflected and cast onto a transparent mylar screen gives the illusion of a three-dimensional image in space.

Houston's consistent flooding, monumental skyscrapers, and history of cyclical entertainment paints an abstract and confusing picture of an unstable city continuing to function despite its unending transformation. It is unique in its ability to blindly look past some obstacles while glaring at less invasive ones. Regardless of the turmoil and disaster that has defaced much of Houston's history, pieces of it continue to resurface as long as there are Houstonians enthusiastic enough to dig it up. These pieces give value to the cities sense of place.

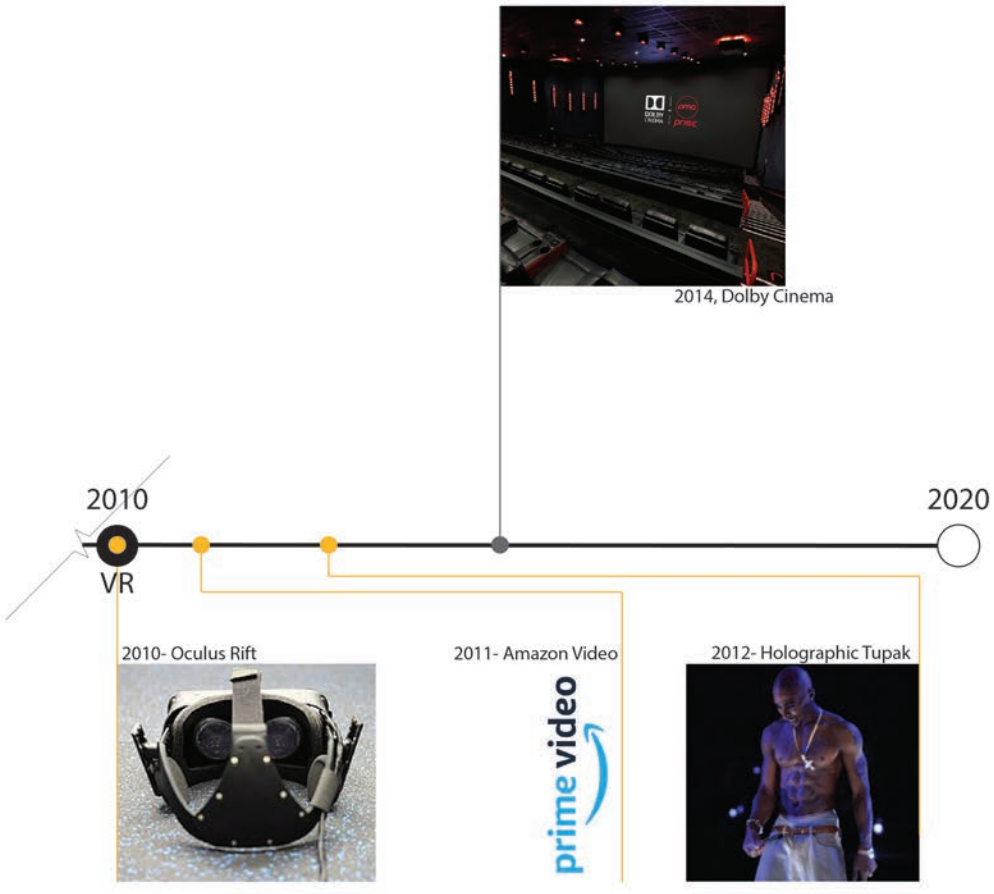
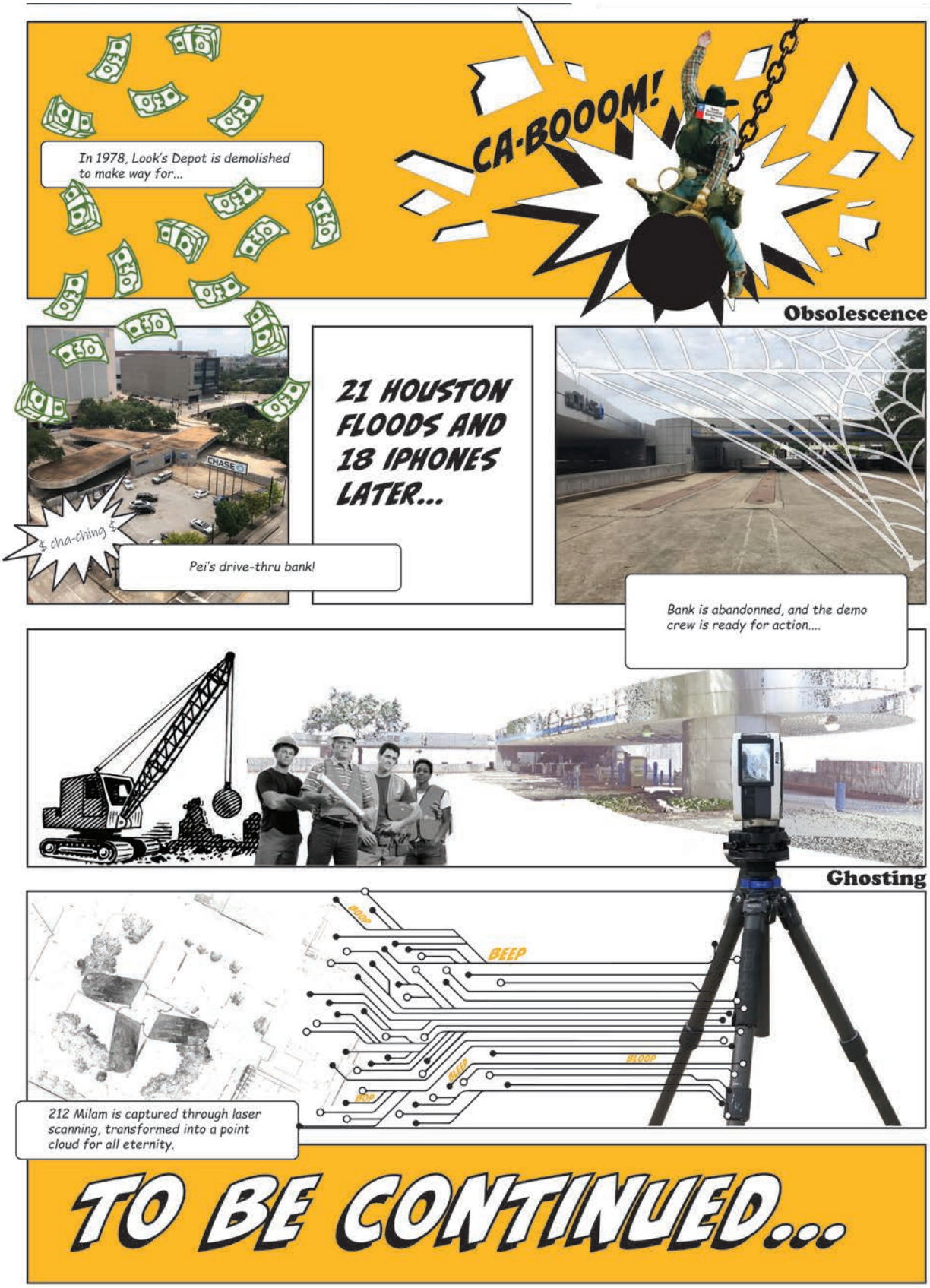


Fig. 10

Site Analysis

This analysis includes research on the micro as well as macro scale, from street specific details to Houston wide research. Sources used are from a variety of databases, such as the Julia Idleson Library Texas Room, the Houston Chronical Historic Database and The William R. Jenkins Architecture, Design, and Art Library. The analysis also focuses heavily on documentation of the physical features of the project site such as video and photography as well as accurate measurements from a point cloud database.

Houston's population was created based on a false advertisement from the Allen Brother's portraying the land as a quaint hilly village rather than the mosquito ridden swamp it is. Nonetheless, the fragile community was built. The corner block of Milam and Congress street was prominent for Houston's early retail and industrial land use, as well as temporary housing. In the 1970's business tycoon Sonny Look adapted a furniture store on the lot into a piece of his restaurant empire and had an old train rail cart dropped in via crane to be used as a makeshift bar.



In 1980 I. M. Pei completed his design of the Chase Tower, a building that has still holds the title as the tallest in Houston. The project was built with funds from the late 70's Oil boom along with a surplus of other banking and office infrastructure. In 1984 Pei designed a drive-through bank as an addition to the Chase Tower, built four blocks away at Milam and Congress Street. The pinwheel one-story structure ignores Buffalo Bayou.

Today, online banking as well as real estate pressure on a one-story full block site makes the drive-through obsolete, and the location on the bayou leaves the building vulnerable to flooding. Though the drive-up ATM's continue to function, the building itself is abandoned and its lot is used for parking and loitering. This project explores obsolescence in architecture and aims to build on I. M. Pei's legacy by reimagining the future use of the drive-through bank and its connection to the sub-grade surrounding landscape.

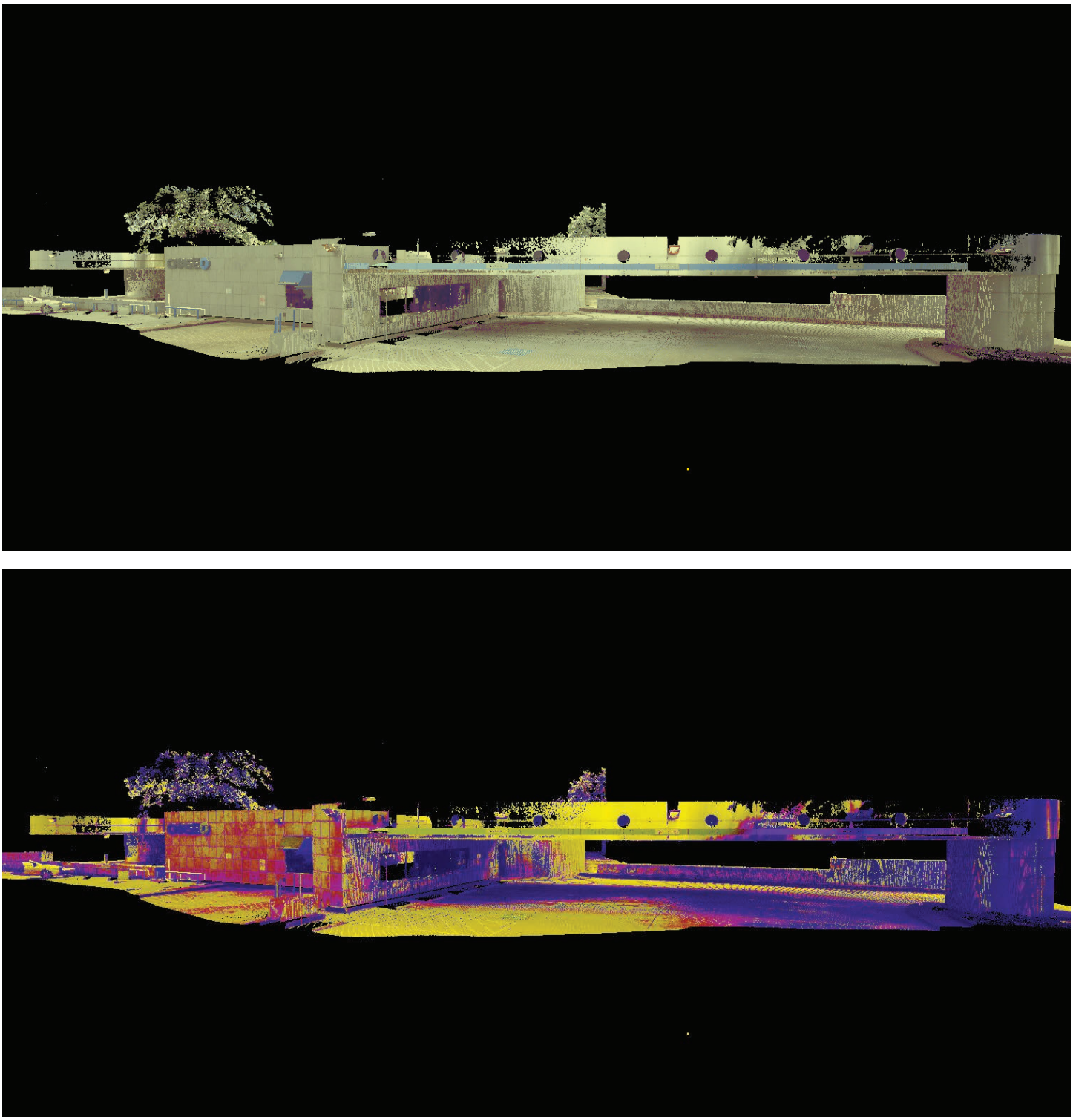
Documentation

With assistance from my father, I was able to laser scan the bank using a Faro Laser scanner borrowed from his company Intertek. This incredibly expensive technology operates by measuring the distance needed to project a small beam of light onto a physical object. A built-in panoramic camera captures 360-degree images from wherever the scanner is placed. These "bubble views" pair with the scan data received to create an accurate 3d representation of the recorded space complete with surface reflectivity and color.

Capturing accurate point cloud data requires data from multiple scan locations. The larger the area is, the more scans are needed. For the Chase Drive through bank this meant a total of Eight scans were necessary to capture enough data to form a legible point cloud model. Twelve reference targets were placed, enabling data software to patch together the multiple scans. Once placed into position, these targets cannot be moved until all scans are complete. This posed an interesting challenge in recording the site, as it is public property and multiple pedestrians were curious as to what the orb-like objects were. They were asked not to touch the targets.

These white spheres are recognized by the scanner because they are an extremely precise dimension; There was one instance of the scanner picking up an old-fashioned streetlamp whose measurements fit the dimension tolerance of the targets. This issue was easily fixed during data processing.

The scan took Six hours to complete and the data was converted into a NURBS surface, allowing for ease of use in programs such as AutoCAD and Rhino. This data was used as the basis of every drawing and 3d model. This advanced process inspired the concept of projection of digital media in the project.



Screen shot of point cloud data; different color schemes represent normal and range of depth mode.

Recording the cases of obsolescence and ghosts

Other documentation done on foot at the bayou level paths; I recorded instances that I found interesting. My findings concluded that much more of Houston's rough history can be seen on the bayou's edge, due to infrastructure's trend of ignoring waterfronts and their difficulties such as flooding and water pollution. My findings range from Houston's founding monuments, to some of its most famous attractions.

1 Downtown Aquarium

This downtown attraction developed out of 2 original Houston landmarks, Fire Station No. 1 and the Central Waterworks building. The aquarium opened in 2003 and its Ferris wheel serves as a main attraction and icon for Houston entertainment.

2 Sesquicentennial Park

This park was built in 1986 to commemorate Houston's 150-year anniversary. The 20 acres of land include a boat dock, gardens, and a historic picture display.

3 POST Houston

This old United States Postal Service building is being transformed by architectural firm OMA into a new "commercial and cultural anchor".

4 Parking Lot

The Washington Parking Lot of University of Houston Downtown sits on what used to be the Houston Ice and brewing company built in 1886 (Aulbach). The lot is extremely valuable due to its proximity to the downtown area.

5 1900’s Ruins

Architectural remnants of previous land use are visible underneath Franklin Street bridge. It serves as an intriguing example of Houston's buried history.

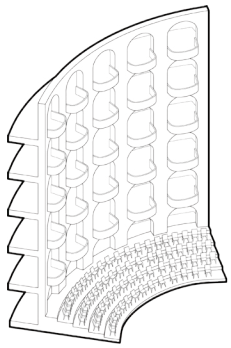
6 Allen’s Landing

Directly adjacent to the birthplace of Houston, the Main Street bridge at Allen's landing is Houston's forced icon and appears in some of Houston's first advertisements for the city though it is treated as one. As the bayou pathway network comes to an end shortly after the bridge, pedestrians typically end their walk before reaching the attraction.

This walk along Houston's edge reveals a complete range in the result of the process of obsolescence and touches on each of the outcomes.

Precedents

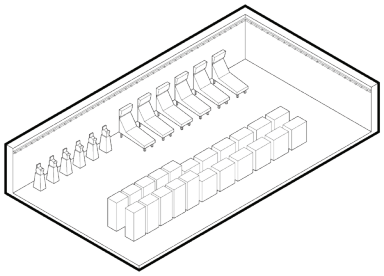
Architectural inspiration came from various entertainment typologies encountered during the analysis of downtown Houston's history.



The Opera Booth

1830's

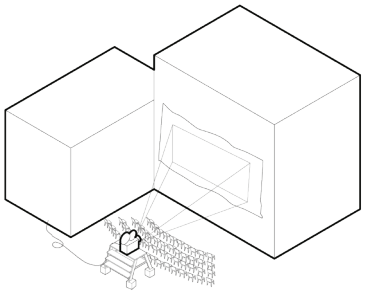
Vertical stack of viewing platforms used in a classical theater.



The Penny Arcade

1890's

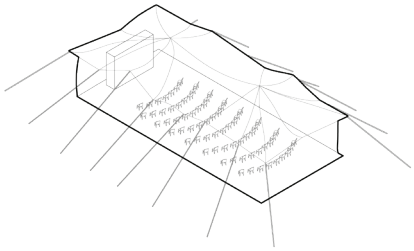
Collection of coin operated games and attractions. .



The Nickelodeon

1900's

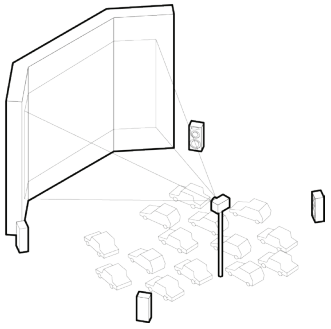
An informal theater held with the bare necessities: a projector, a surface to project onto, and chairs. Admission cost 5 cents.



The Air Dome

1910's

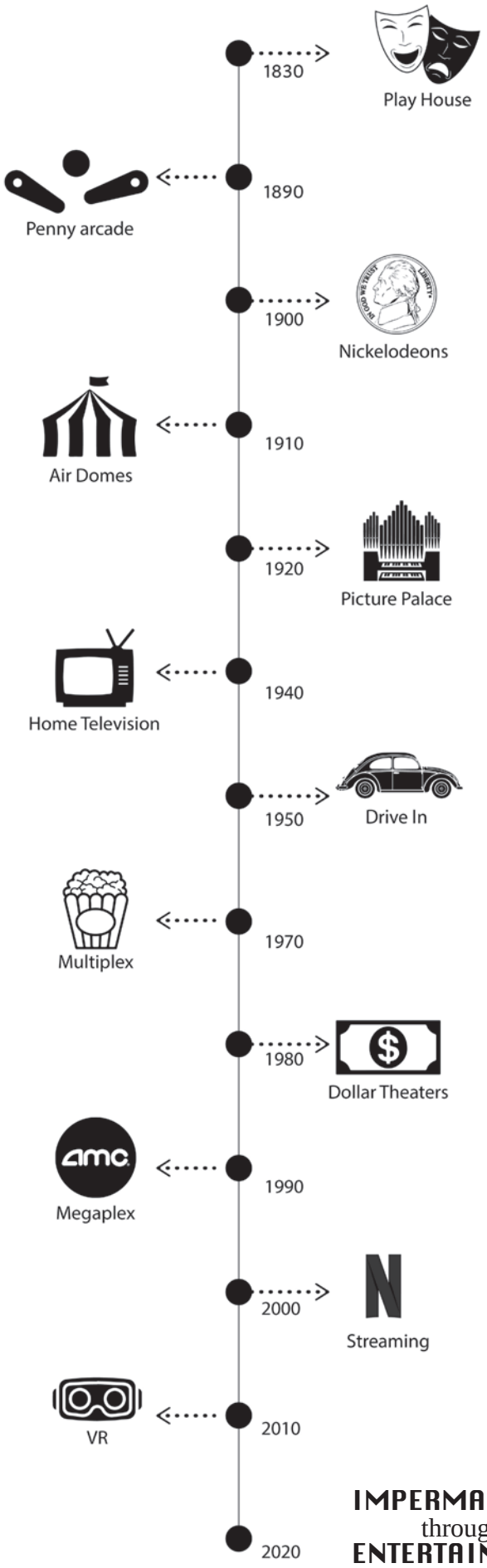
An outdoor theater enclosed by a tent or a canopy.



The Drive in Theater

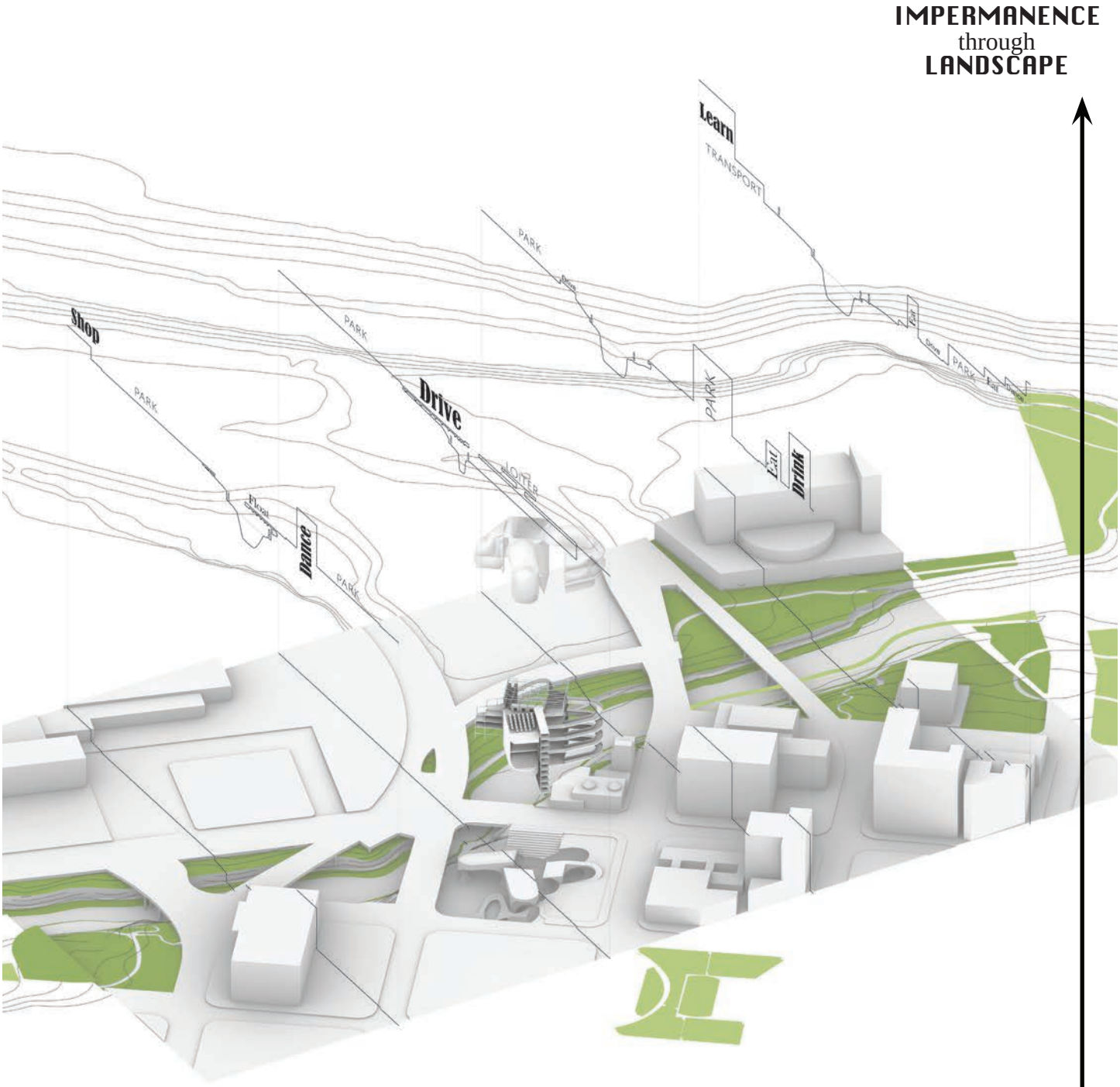
1950's

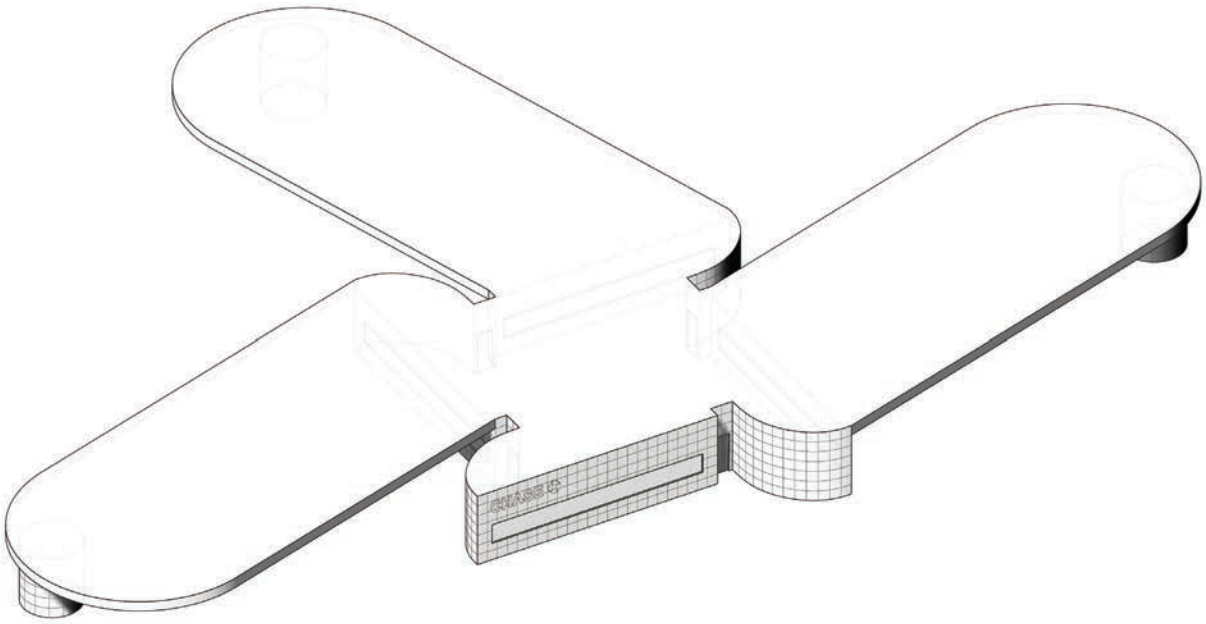
A theater held in an open space outdoors on a large screen made to accommodate views from inside an automobile. Audio was sometimes broadcast over the radio or through large speakers.


1830
Play House
1890
Penny arcade
1900
Nickelodeons
1910
Air Domes
1920
Picture Palace
1940
Home Television
1950
Drive In
1970
Multiplex
1980
Dollar Theaters
1990
Megaplex
2000
Streaming
2010
VR
2020
IMPERMANENCE
through
ENTERTAINMENT

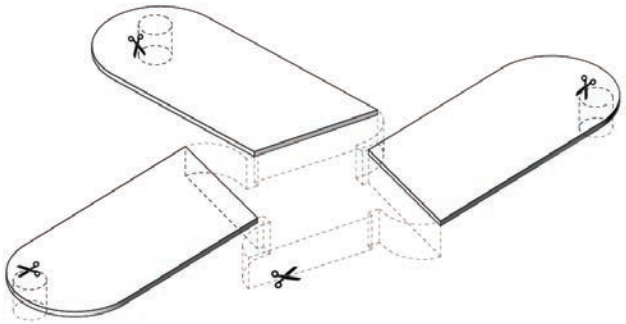
Design Strategy

My design lies between the complicated landscape of Buffalo Bayou and Houston's frivolous entertainment history. I'm trying to bridge the two while making them applicable to 21st century Houston. The design will encounter severe environmental changes including flooding but will make use of these in the theme of the cinema.



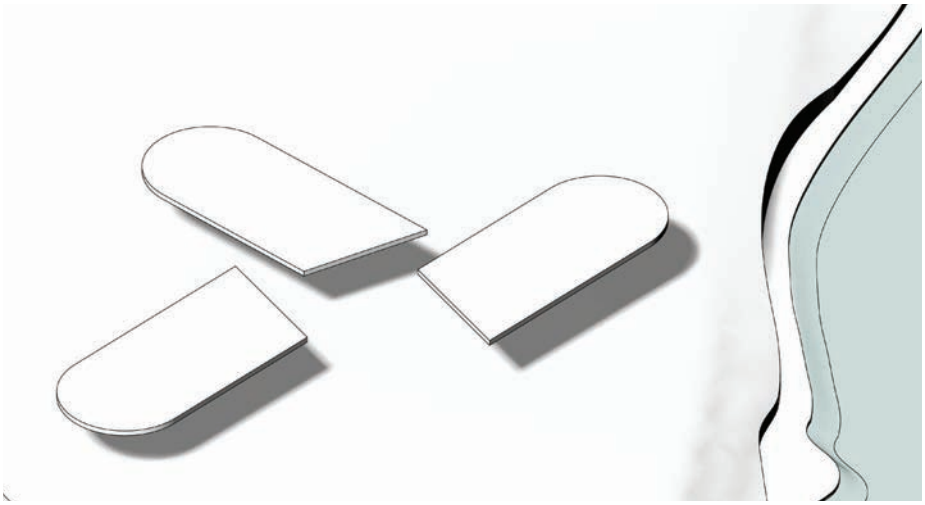


The architectural approach was to omit the center of the bank building, creating a central void. After acknowledging the unpredictable state of Buffalo Bayou, existing earth was carved away to make room for a floodable landscape. With the gesture of projection in mind, the program was placed on top of the existing building, facing inward towards the void space. The building's ETFE transformable panels envelope the space and inflate, creating surfaces that serve as a building enclosure as well as a canvas for the projection of media.



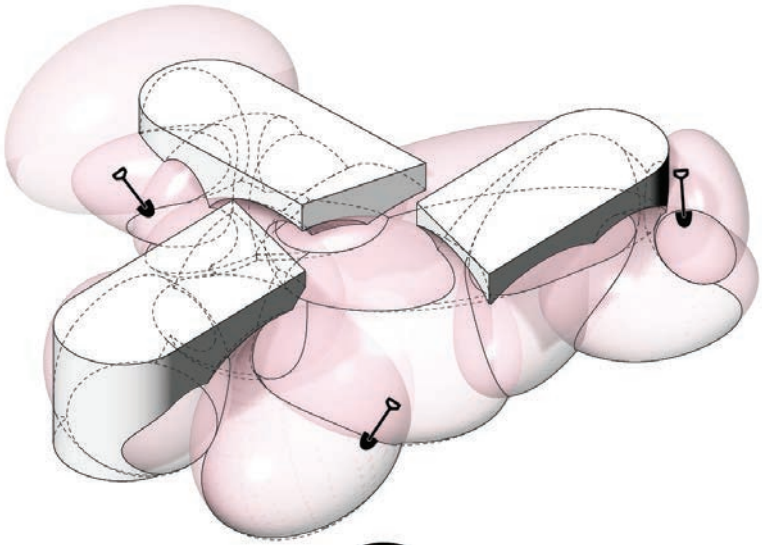
1

Cut out center



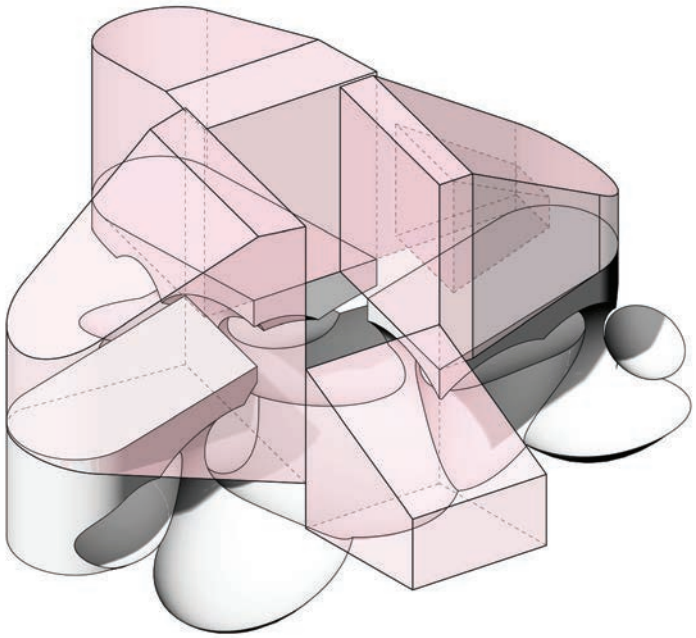
2

Acknowledge Bayou



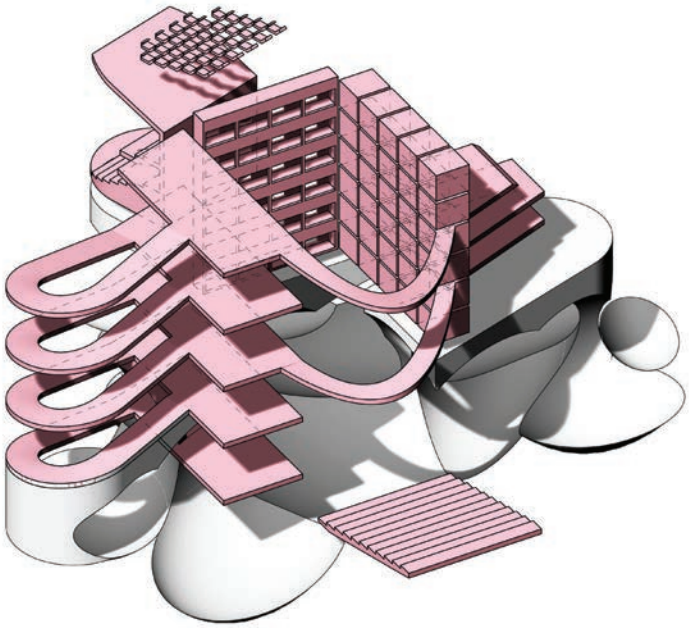
3

Scoop out landscape



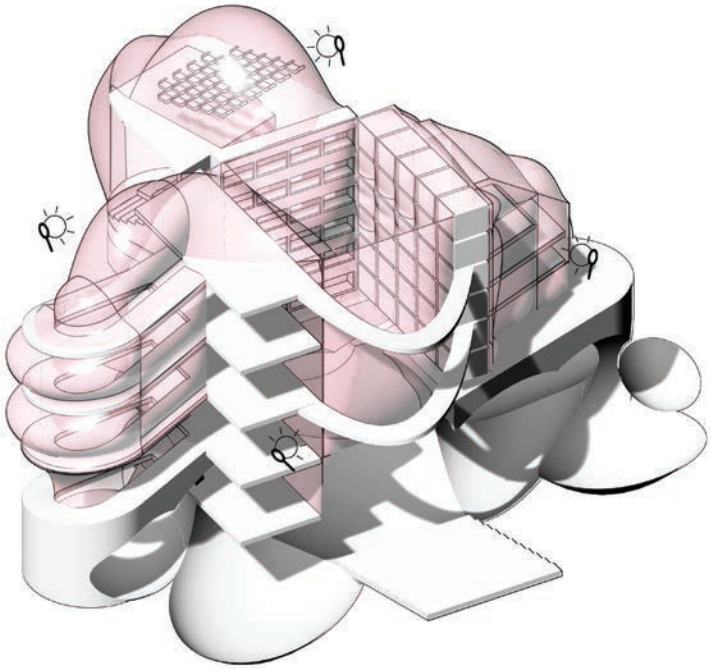
4

Project inward



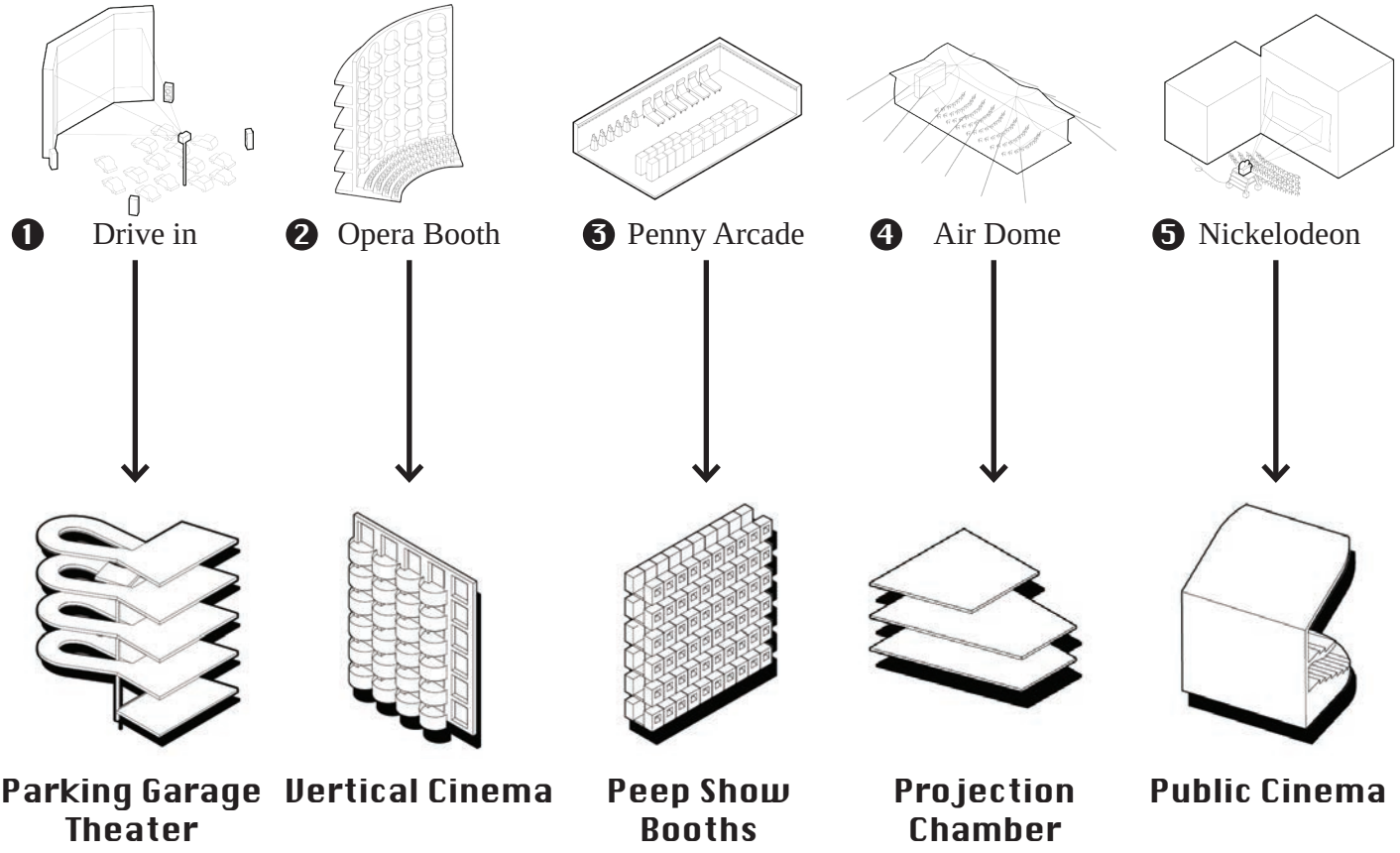
5

Plug in program

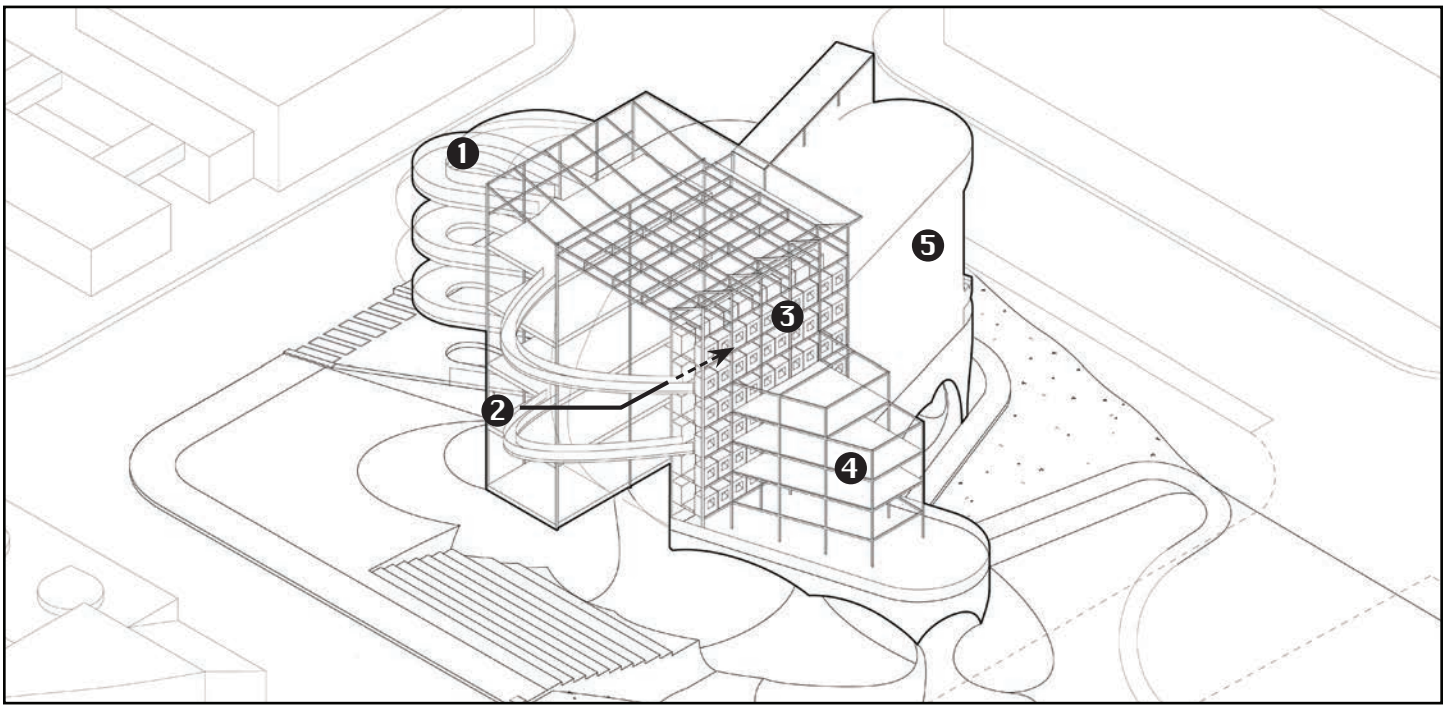


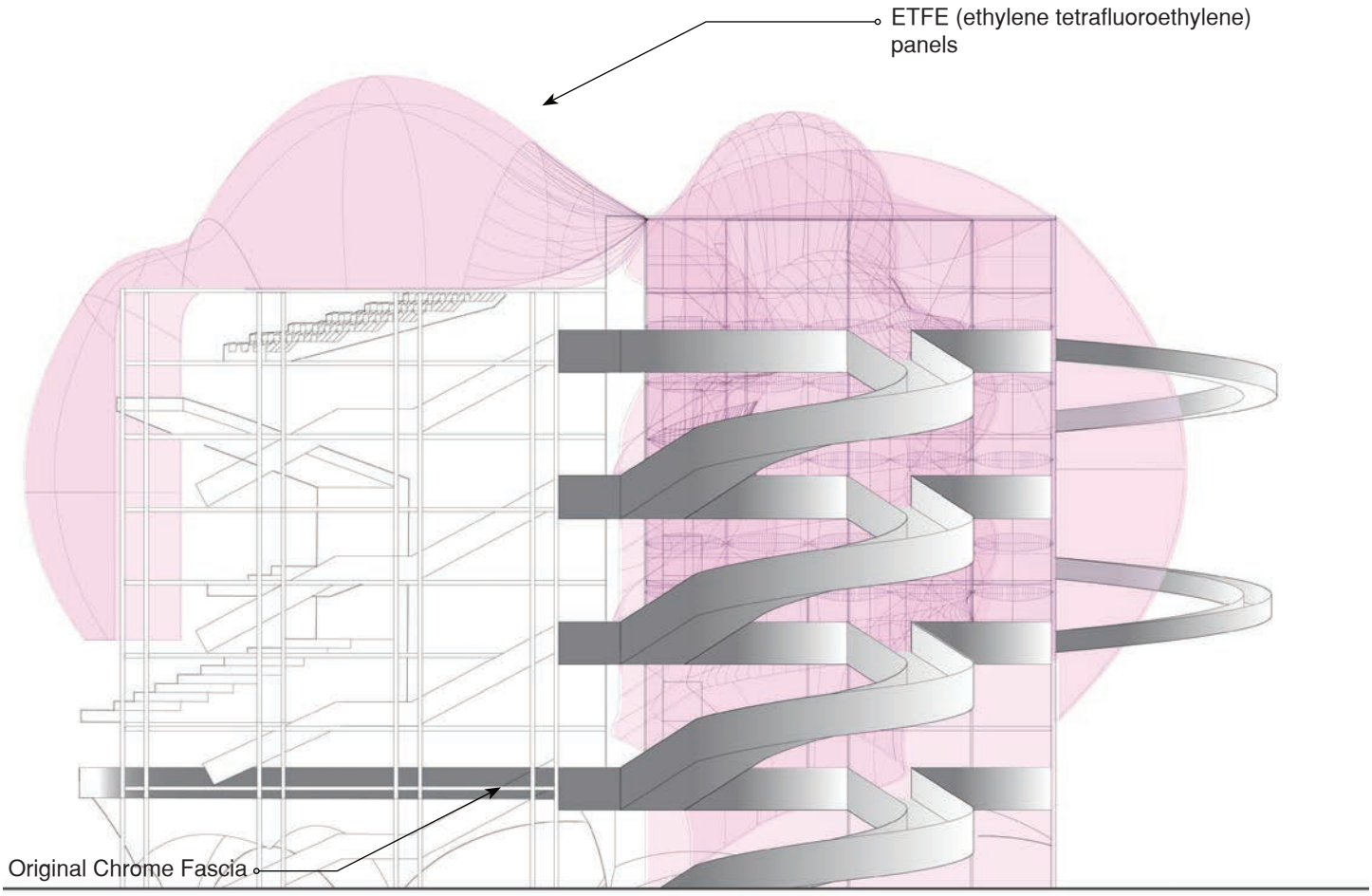
6

Inflate Skin



The Drive-in theater has been made into a parking garage with a vertical screen. The modern-day movie theater meets the historic opera booth with vertical stacking of grouped seating providing an ideal view for all. Coin operated peep show machines have been transformed into architectural spaces fitting one person at a time. The Air dome has become a complete enclosure, with media being projected on the surface of the tensile structure.The movie theater has been given the option to transform into a street side nickelodeon.



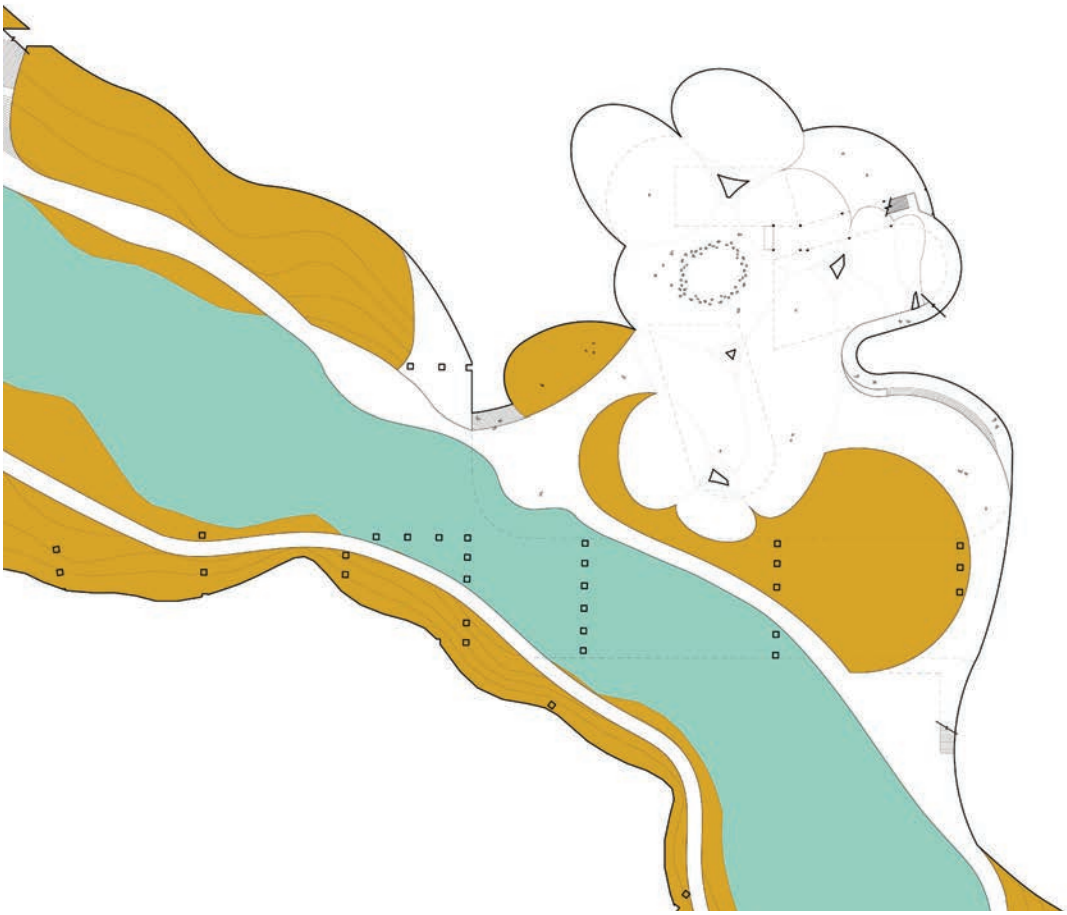


The exterior ETFE material comes in an infinite variety of opacities and panel sizes. Panels can be configured to expand and contract with the use of pneumatic air systems. The building skin will inflate when activated, providing a surface that both acts as a building enclosure as well as a surface for images and movies to be projected onto.

Drawings and Models

Landscape: Bayou Level

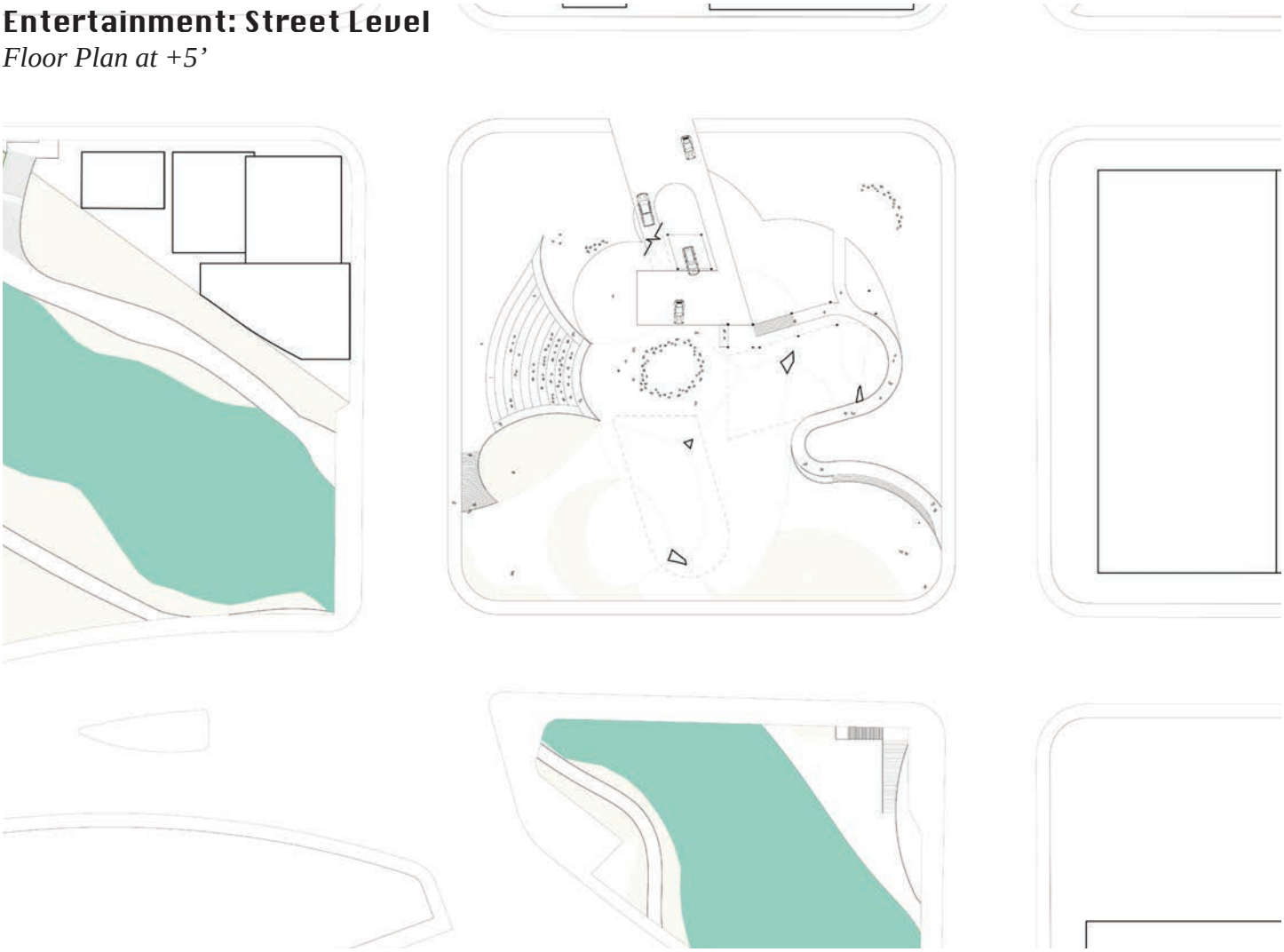
Floor Plan at -5’



The Bayou level landscape incorporates the existing bike and walking pathway network and provides street access by stairs and a sloped path. The sculpted hardscape is designed to temporarily retain flood water in puddle-like ponds, then slowly drain out.

Entertainment: Street Level

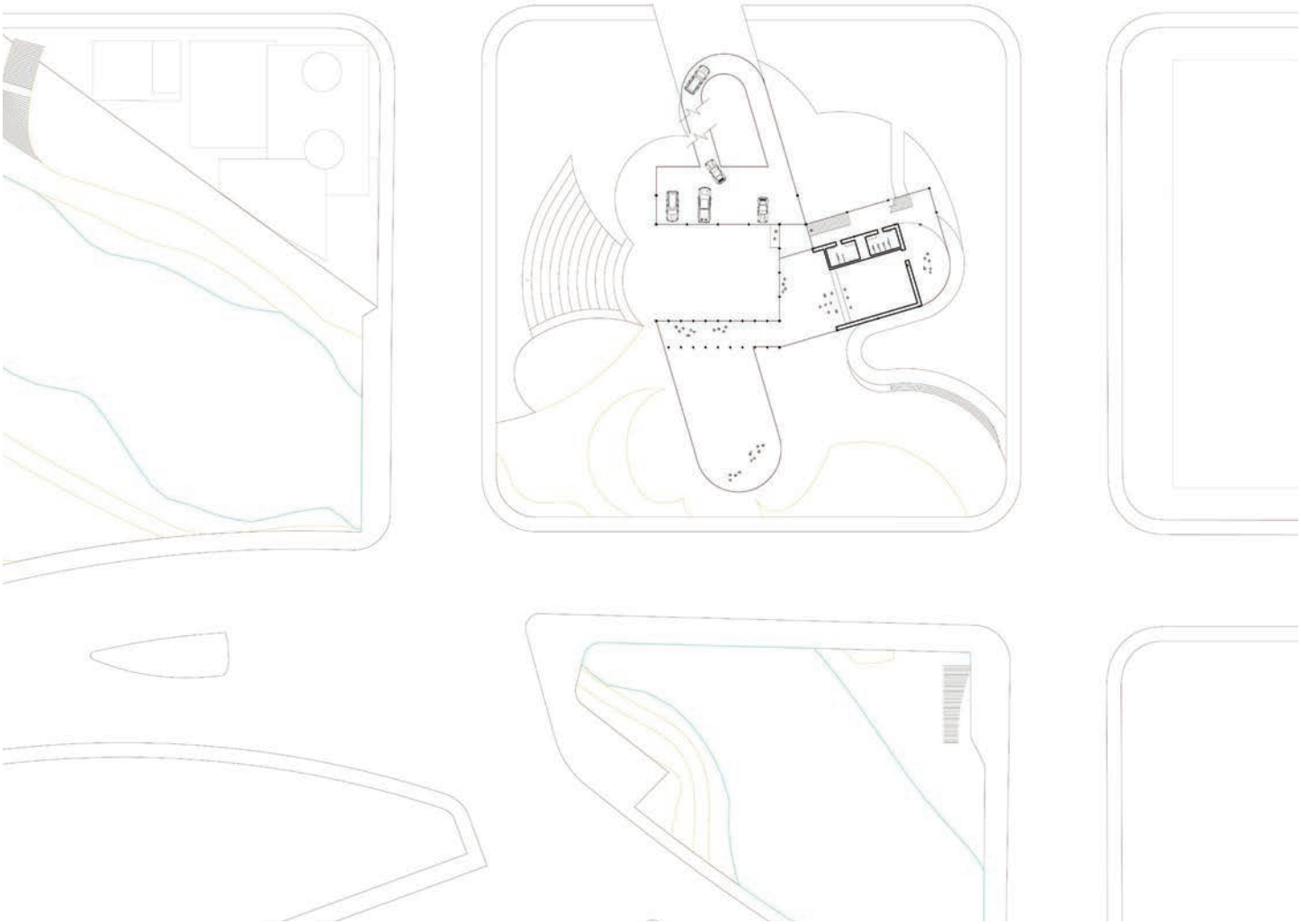
Floor Plan at +5’



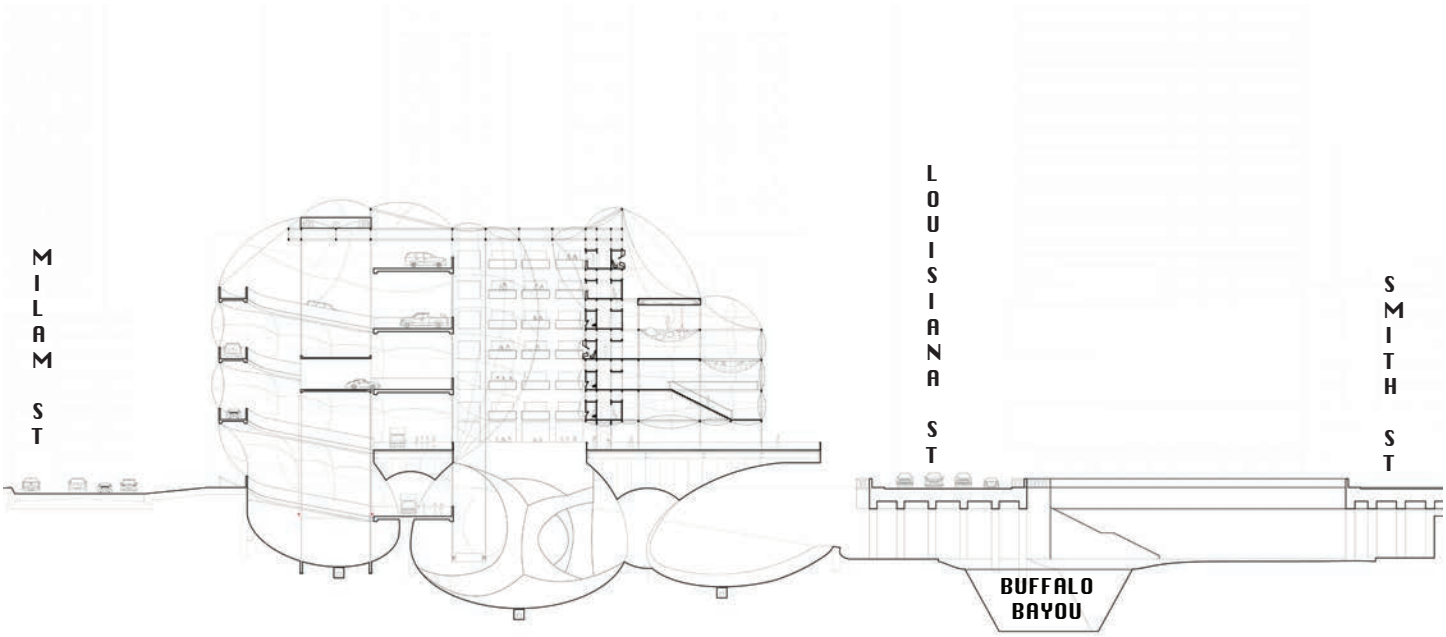
The street level of the project is about circulation; it includes the entrance to the parking garage theater, as well as the cinema and arcade. Further circulation leads down into the bayou and to an outdoor amphitheater landscape onlooking the central void of the project.

Monument: Canope Level

Floor Plan at +20’

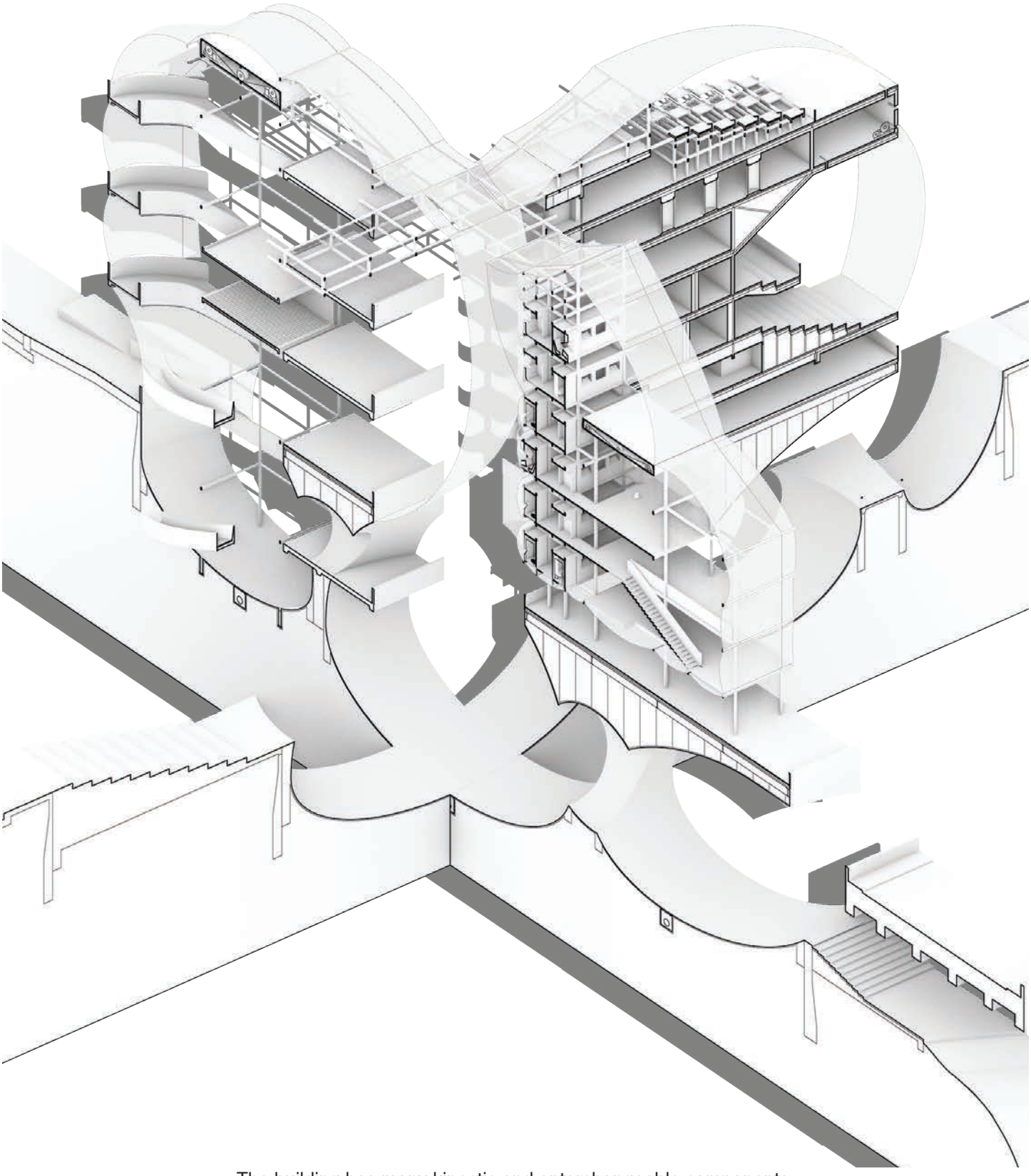


The first floor contains the Lobby of the Arcade and Cinema as well as the first viewing floor of the parking garage theater. It also has a viewing platform onlooking Buffalo Bayou.



Detailed Section drawing

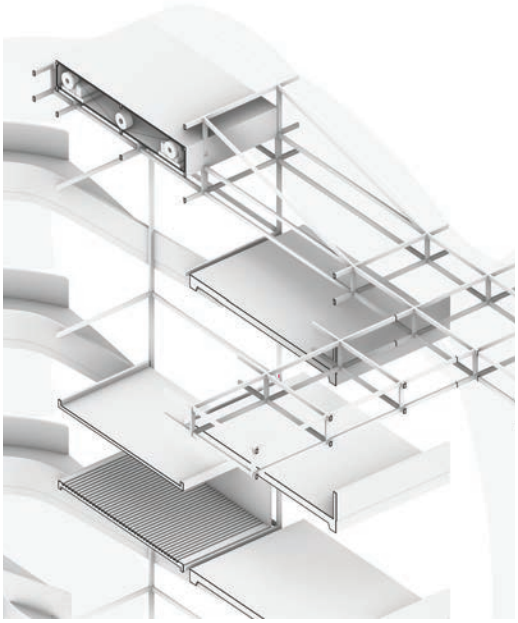
The floodable lower landscape is constructed from Rockite, a material commonly used in swimming pools. The material resembles a concrete finish and protects the building foundation from water damage. drains located below the pools are meant to control storm surges and are directly connected to the city water system.

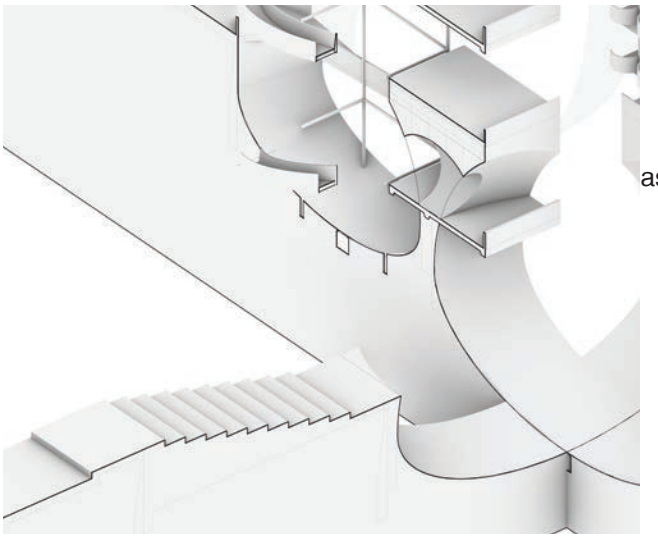


The building has many kinectic and enterchangeable components.

CAR ELEVATOR
Drive-in Theater

The car elevator aids in creating a one-way traffic ramp. The lift carries the car to the top level of the drive in, and the car then drives down the ramp to the desired floor level, all the while experiencing projected media on the skin around them.



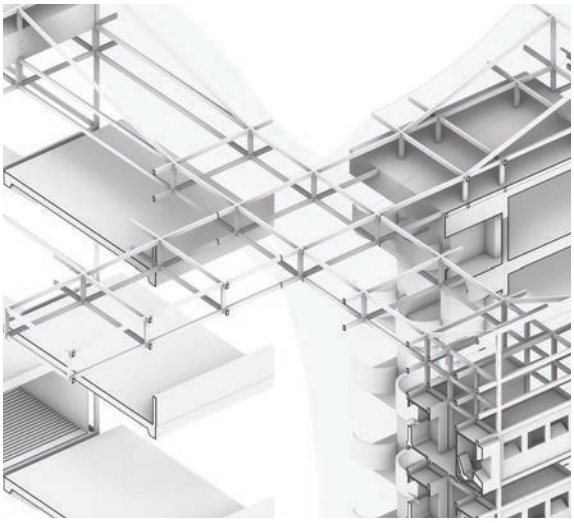


AMPITHEATER BUBBLE
Outdoor Theater

The collapsible screen serves the main amphitheater as well as closing off the central void when necessary.

HOVERING CLOUD
Bayou level of void

Suspended elements from above define the lowest space of the central void.

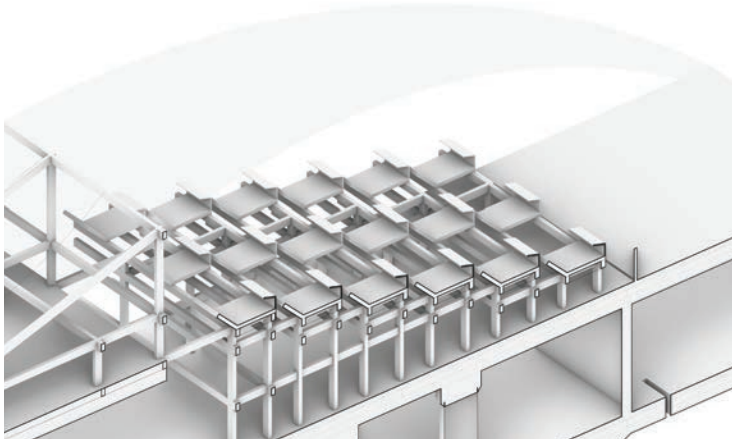


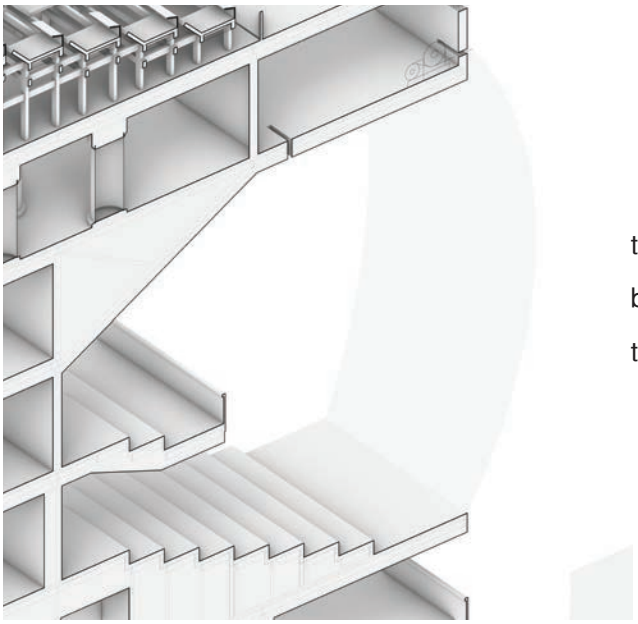
FLY SYSTEM
Top of void

Controls such as lights, projectors, speakers, and power supply are attached to the top frame of the central void. This portion conducts all operations for the surrounding program.

CONVERTABLE ROOF
Sky Theater

A retractable roof system serves as a surface for projections by day, and by night is peeled back to reveal a view of Houston's skyline to the theater participants.



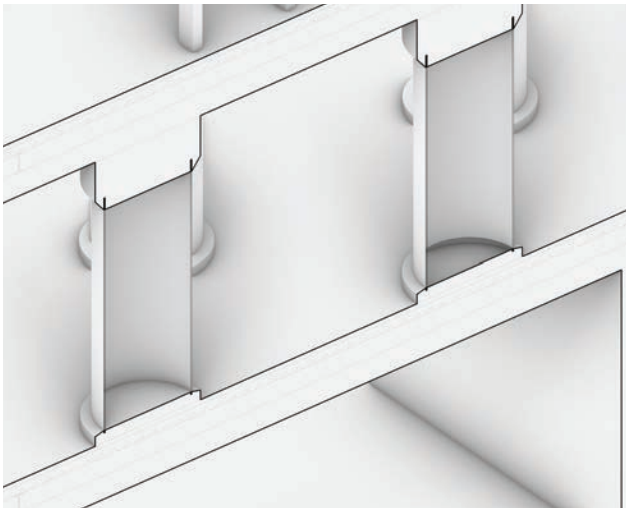


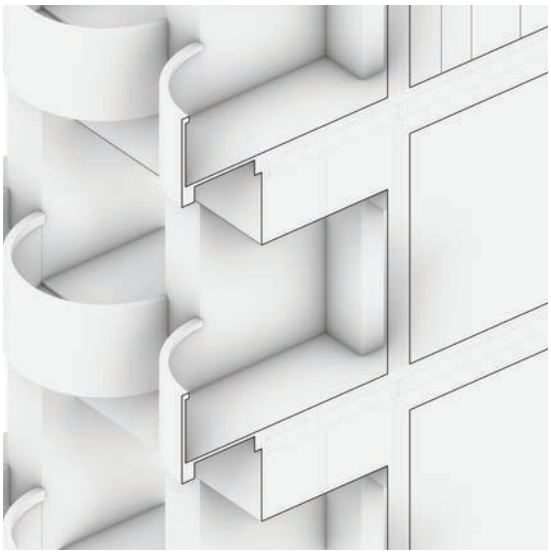
RETRACTING SCREEN
Nickelodeon

The main screen of the theater is a transformable surface that can open completely up allowing the audience to view media being projected onto the blank facade of the parking garage across the street. This extends the viewing pleasure to the exterior context.

VIRTUAL REALITY TUBES
Arcade

A small controlled space provides protection for those wearing VR headsets, ensuring the surroundings are safe.



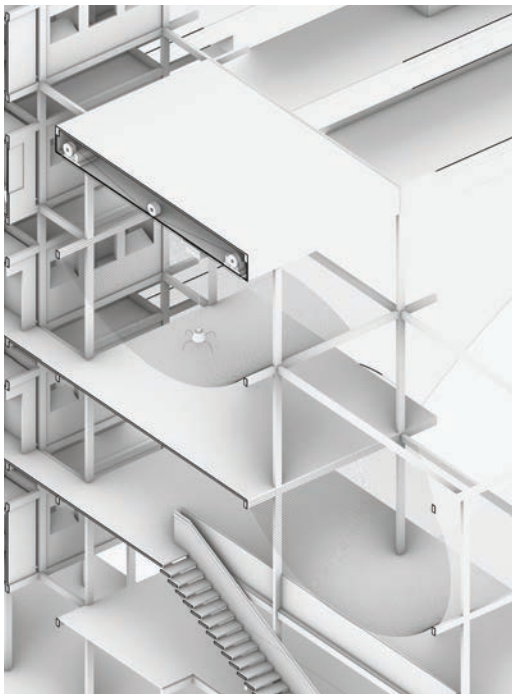


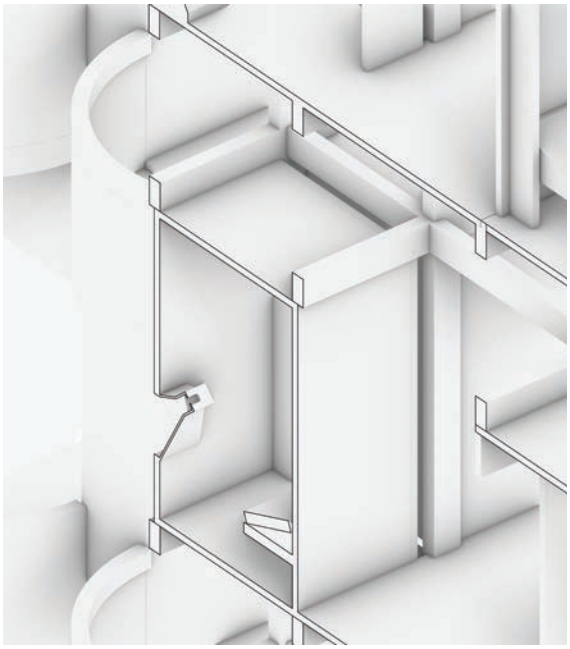
ELEVATOR BOOTHS
Vertical Theater

A pully system allows for different configurations of booths and can also serve as additional elevators for circulation.

CLAW MACHINE
Projection Chamber

A classic arcade game is blown up in scale to grasp real life objects. This feature can be used recreationally or industrially if needed.



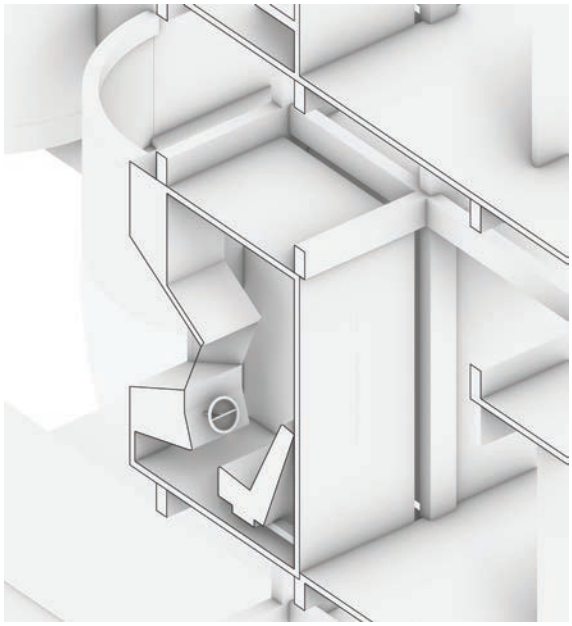


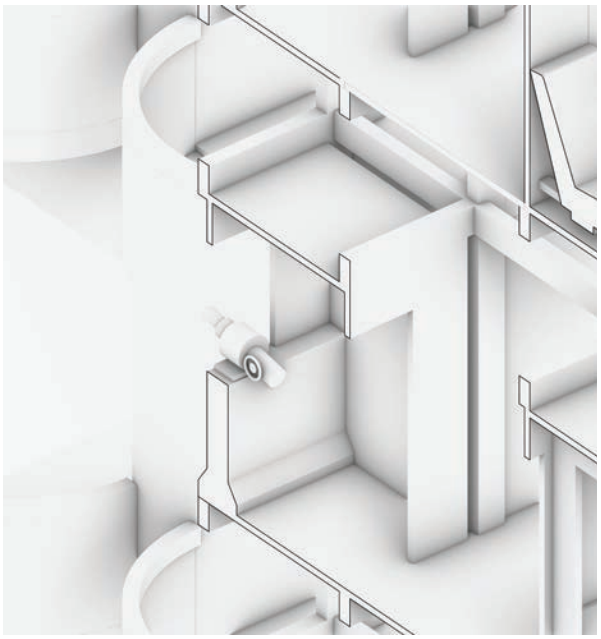
PEEP SHOW BOOTH
Arcade

A Mutoscope made into an enclosed space. The viewer looks through a small opening in the wall to see media just outside of the booth.

RACING GAMES
Arcade

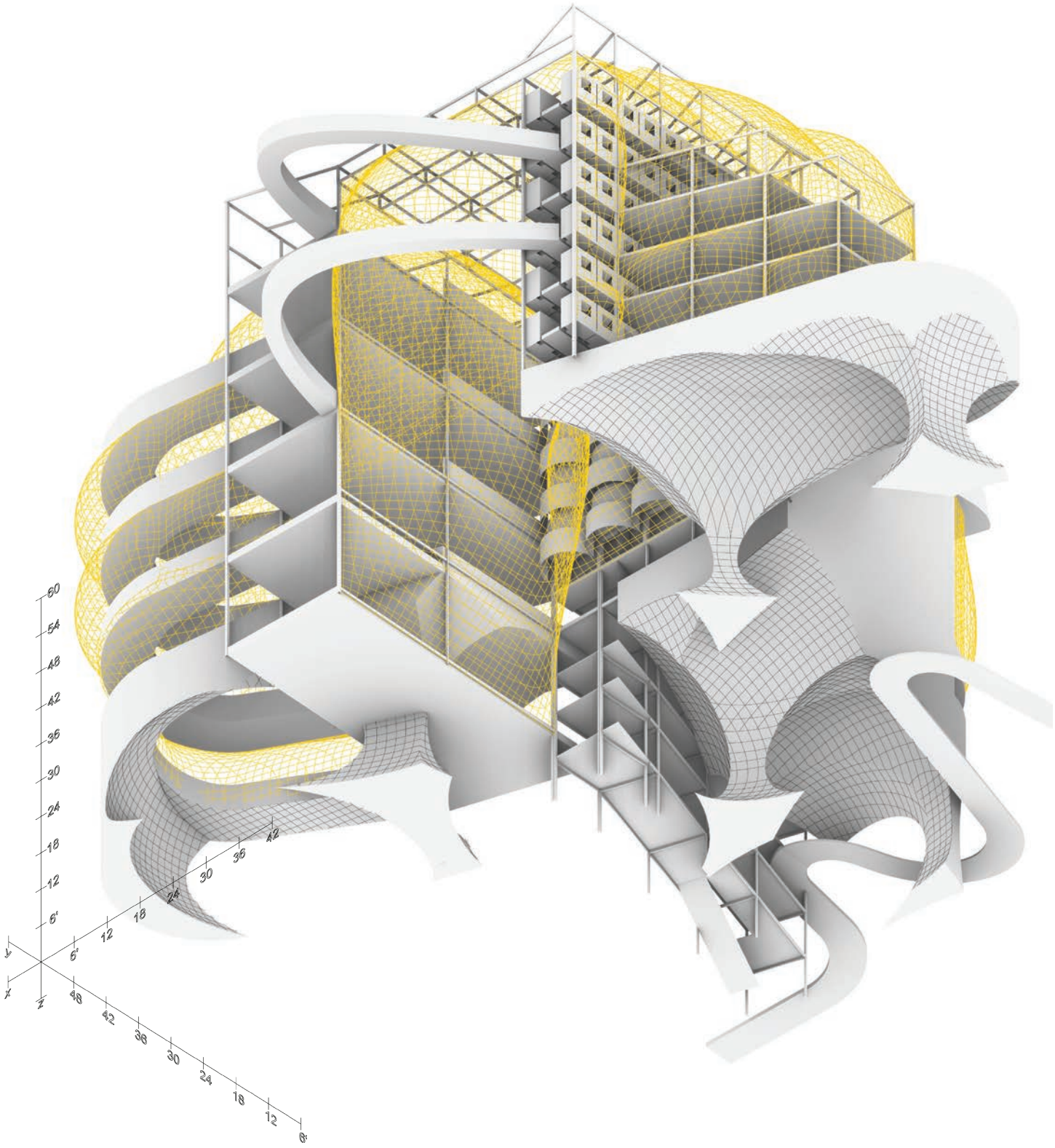
The size of the frame is compatible to fit with many existing arcade racing games.





TARGET PRACTICE
Arcade

Target practice can be oriented toward the central void.

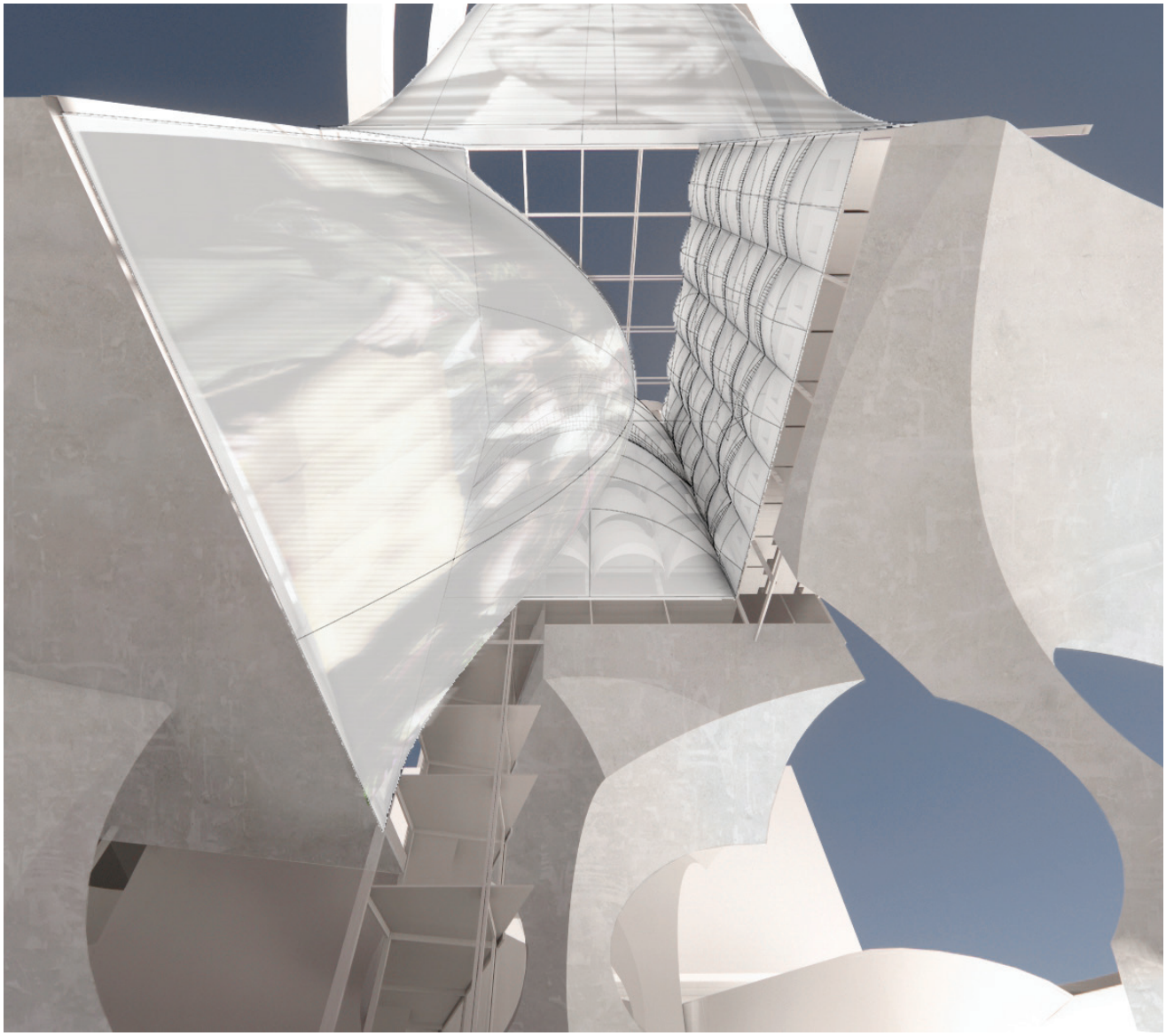


An axonometric drawing from an ant's eye view shows the experience of the carved-out landscape seen from the Bayou level.

CHOISY DRAWING
From the Bayou Up

Digital Park

Drive in Theater



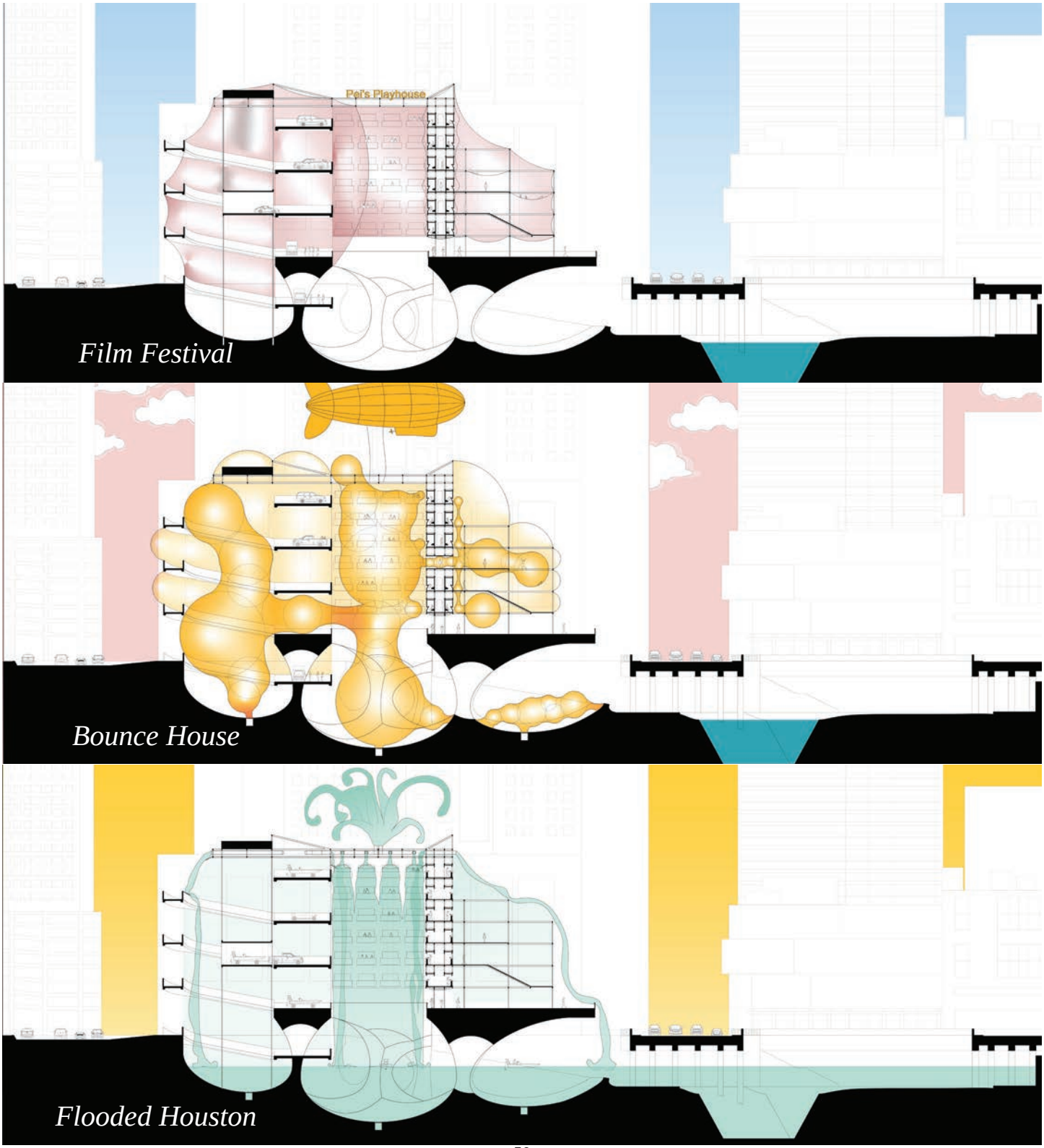
Peep Show

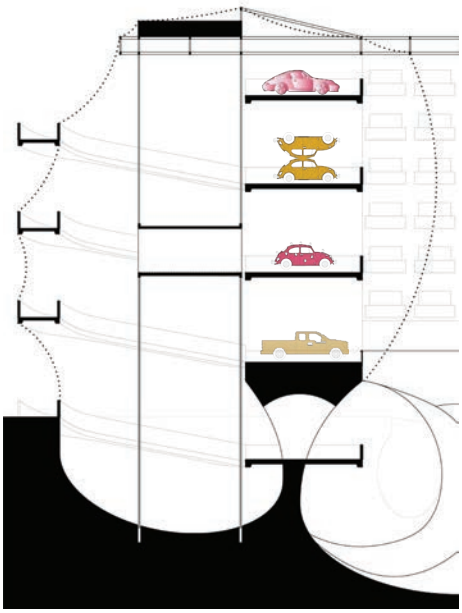
Cinema

The view from the bottom of the void offers a preview of the Digital Park program.

SCENARIOS OF EXTREME ADAPTIVE REUSE

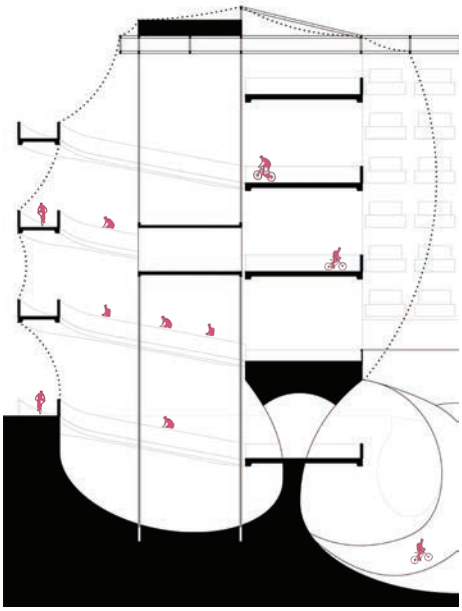
The building skin is meant to adapt to a variety of circumstances. It's resting state serves a film festival or the planned program, while a fully inflated state supports the buildings use as an amusement park or bounce house. When water levels rise and the building is partially submerged, the water is recirculated upward throughout the building to create an interior waterfall in the building's void.





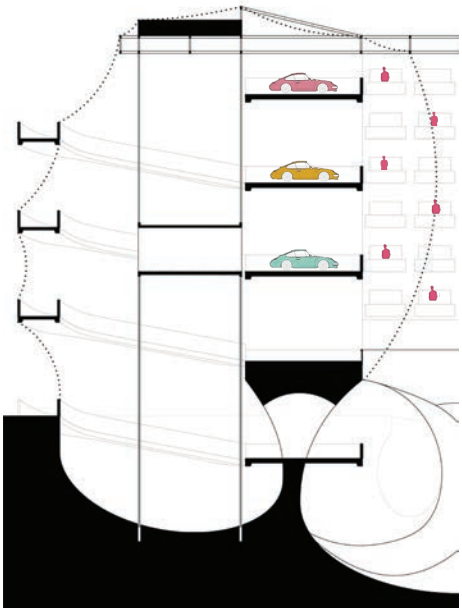
Art Car Parade

Houston's annual art car parade can be showcased in the parking garage as a vertical wall of cars.



Critical Mass

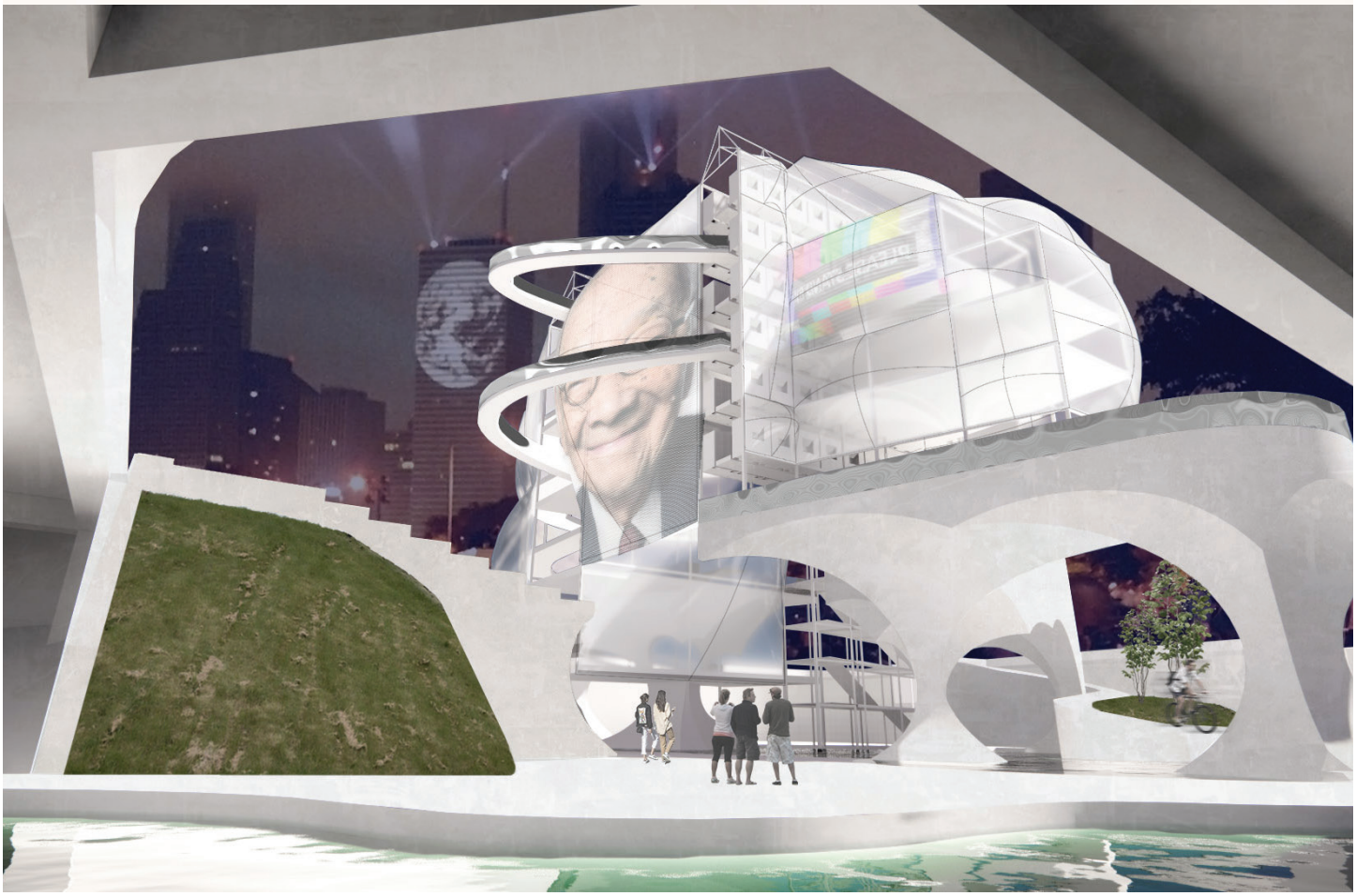
Houston's monthly biking event could make use of the project as a meeting point, rest area, or event area for bicycles.



Social Distancing

Social distancing is easily achieved through the drive-in theater, as well as other parts of the building such as the individual peep show booths. The vertical theater can be sectioned off, spacing participants away from each other in every other booth.


CVS pharmacy



Works cited

Aardodson. "The Strange Legacy of Tupac's 'Hologram' Lives on Five Years after Its Historic Coachella Debut." The Undefeated, The Undefeated, 14 Apr. 2017, theundefeated.com/features/the-strange-legacy-of-tupacs-hologram-after-coachella/.

Aulbach, Louis. Buffalo Bayou, www.epperts.com/lfa/BB82.html.

Cook, Peter, et al. Archigram. Princeton Architectural Press, 1999.

Frank Eugene Kidder, The Architect's and Builder's Pocket- Book, 12th ed. (New York: John
Wiley, 1895), 702.

"Ghosting: Definition of Ghosting by Lexico." Lexico Dictionaries | English, Lexico Dictionaries, https://www.lexico.com/en/definition/ghosting.

Giedion, Sigfried. Architecture, You and Me: The Diary of a Development. Harvard University Press, 1958.

Harwell, Debbie Z. "Sonny Look: A Humble Showman." Houston History Magazine, 2012, https://houstonhistorymagazine.org/wp-content/uploads/2012/07/Sonny-Look.pdf.

"Historical Echoes: What Makes a Bank Look Like a Bank?" Liberty Street Economics, https://libertystreeteconomics.newyorkfed.org/2011/11/historical-echoes-what-makes-a-bank-look-like-a-bank.html.

"Impermanence: Definition of Impermanence by Lexico." Lexico Dictionaries | English, Lexico Dictionaries, https://www.lexico.com/en/definition/impermanence.

Lerup, Lars. "After the City." The MIT Press, 2001.

Lindner , Jeff. "Immediate Report - Final Hurricane Harvey - Storm and Flood Information." Harris Country Flood Control District, Harris Country Flood Control District, 4 June 2018, www.hcfcd.org/Portals/62/Harvey/immediate-flood-report-final-hurricane-harvey-2017.pdf.

"Monumentalism: Definition of Monumentalism by Lexico." Lexico Dictionaries | English, Lexico Dictionaries, https://www.lexico.com/en/definition/monumentalism.

O'Keefe, John. "The Texas Banking Crisis: Causes and Consequences" 1980-1989. Federal Deposit Insurance Corporation, 1990.

"Obsolete: Definition of Obsolete by Lexico." Lexico Dictionaries | English, Lexico Dictionaries, https://www.lexico.com/en/definition/obsolete.

Ouroussoff, Nicolai. "For I. M. Pei, History Is Still Happening." The New York Times, The New York Times, 13 Dec. 2008, https://www.nytimes.com/2008/12/14/arts/design/14ouro.html.

Pfeiffer, Lee. "The Jazz Singer." Encyclopedia Britannica, Encyclopedia Britannica, Inc., 11 Apr. 2019, www.britannica.com/topic/The-Jazz-Singer-film-1927.

Singer, Dan. "Every Houston Demolition of 2018, Mapped." Swamplot, 3 Jan. 2019, http://swamplot.com/every-houston-demolition-of-2018-mapped/2019-01-03/.

"The Tingler." IMDb, IMDb.com, 29 July 1959, www.imdb.com/title/tt0053363/.

Trigger, Bruce G. "Monumental Architecture: A Thermodynamic Explaination of Symbolic Behavior." World Archaeology, Oct. 1990, pp. 119-132.

Reginald Pelham Bolton, Building for Profit: Principles Governing the Economic Improvement of Real Estate (New York: De Vinne, 1911)

Welling, David, and Jack Valenti. Cinema Houston: from Nickelodeon to Megaplex. University of Texas Press, 2011.

Prospectus

Fig. 1: Frank Eugene Kidder, The Architect's and Builder's Pocket- Book, 12th ed. (New York: John Wiley, 1895), 702.

Fig. 2: "About." Harris County Flood Control District > Home, www.hcfcd.org/About/Harris-Countys-Flooding-History.

Fig. 3: "About." Harris County Flood Control District > Home, www.hcfcd.org/About/Harris-Countys-Flooding-History.

Fig. 4: from left to right;

Knowles, James Sheridan. The Dramatic Works of James Sheridan Knowles. William Rushton, 1838.

"Stereoscope." Wikipedia, Wikimedia Foundation, 1 Dec. 2019, en.wikipedia.org/wiki/Stereoscope.

Fig. 5: from left to right;

"American Vaudeville Museum." American Vaudeville Museum, www.vaudeville.org/product/theatre-cards-pack-two/.

ASC Museum: Kinetoscope - The American Society of Cinematographers, theasc.com/asc/asc-museum-kinetoscope.

Welling, David, and Jack Valenti. Cinema Houston: from Nickelodeon to Megaplex. University of Texas Press, 2011. Pg. 1

"PEEP SHOW - Dir. Rino Stefano Tagliafierro. A Private Journey into the World of Eroticism." PEEP SHOW - Dir. Rino Stefano Tagliafierro, www.peepshowmovie.com/history.html#page=ENG.

Gonzales, J.R. "A Rare Look inside an Old Houston Auditorium." Bayou City History, 17 Aug. 2014, blog.chron.com/bayoucityhistory/2014/07/a-rare-look-inside-an-old-houston-auditorium/.

Fig. 6: from left to right;

"Film History Timeline." Timetoast, 1 Jan. 1878, www.timetoast.com/timelines/film-history-9cbd3ab1-bf40-4a8d-95b4-e24af569570e.

Welling, David, and Jack Valenti. Cinema Houston: from Nickelodeon to Megaplex. University of Texas Press, 2011. Pg. 12.

Welling, David, and Jack Valenti. Cinema Houston: from Nickelodeon to Megaplex. University of Texas Press, 2011. Pg. 23.

Campanini, Sonia. "Film Sound in Preservation and Presentation: Semantic Scholar." Film Sound in Preservation and Presentation | Semantic Scholar, 1 Jan. 1970, www.semanticscholar.org/paper/Film-sound-in-preservation-and-presentation-Campanini/102c26a6d64aa72970a3eda30a620778e4437539.

Cinema Houston - The Picture Palaces, www.cinemahouston.info/palaces.shtml.

"Mini-Task Museum of the Moving Image." Johnny Chen, portfolio.newschool.edu/jc971/2019/07/30/mini-task-museum-of-the-moving-image/.

Fig. 7: from left to right;
Carrier. "Learn How Willis Carrier Changed the World by Inventing Modern Air Conditioning: Carrier Air Conditioning, Heating and Refrigeration." Carrier, www.carrier.com/carrier/en/worldwide/showcase/keeping-the-world-cool/.
Welling, David, and Jack Valenti. Cinema Houston: from Nickelodeon to Megaplex. University of Texas Press, 2011. Pg. 217.
Film History of the 1950s, www.filmsite.org/50sintro2.html.
Curator, Published By : The. "The Tingler (1959): Scream for Your Lives! 18 Fun Facts about William Castle's Gimmick-Laden Masterpiece." The Sound of Vincent Price, 8 Dec. 2018, www.thesoundofvincentprice.com/the-tingler-fun-facts/.
"Videos Digitales Timeline." Timetoast, 1 Jan. 2010, www.timetoast.com/timelines/videos-digitales.
Loving You, www.elvis-presley.ca/galerie/photos-4/files/page37-1311-full.html.
Fig. 8: from left to right;
"Stereophonic Sound." Wikipedia, Wikimedia Foundation, 3 Nov. 2019, en.wikipedia.org/wiki/Stereophonic_sound.
Leahy, Jennifer, and Lisa Gray. "Houston's Landmark Greenway Theatre to Close." Houston Chronicle, Houston Chronicle, 23 July 2011, www.chron.com/news/houston-texas/article/Houston-s-landmark-Greenway-Theatre-to-close-1555994.php.
Thomas, Tony. "VHS Cassette Cover Mockup." Medialoot, 26 June 2019, medialoot.com/item/vhs-cassette-cover-mock-up/.
Surround Sound by Dolby, www.dolby.com/us/en/technologies/surround-sound.html.
"Houston - RIP Windchimes Cinema -- the Credits Have Finally Rolled on Westheimer's Dollar Theater Legend." Reddit, www.reddit.com/r/houston/comments/9dzpkb/rip_windchimes_cinema_the_credits_have_finally/.
Smith, Ernie. "Deep Dish: When Satellite Dishes Were Awesome." Tedium, tedium.co/2015/08/27/early-satellite-dish-history/.\
Fig. 9: from left to right;
"DVD: Twister." 45worlds, www.45worlds.com/dvd/disc/883929106042.
"AMC." AMC, www.amc.com/.
"50 First Dates (2004) (R1) - Custom DVD Labels - 50 First Dates Disc 2004 R1 sharky000 :: DVD Covers." DVD Covers, Blu-Ray Covers, Game Covers, www.dvd-covers.org/art/Disc_Labels/Custom_DVD_Labels/50_First_Dates_Disc_2004_R1_sharky000.jpg.html.
"AMC Gulf Pointe 30." Houston, Texas 77089 - AMC Theatres, www.amctheatres.com/movie-theatres/houston/amc-gulf-pointe-30.
YouTube, YouTube, www.youtube.com/.
"Meetings & Events at Regal Edwards Greenway Grand Palace & RPX." Event Venues, Find a Venue for an Event, www.uniquevenues.com/Regal-Edwards-Greenway-Grand-Palace-RPX.
"Unlimited Movies, TV Shows, and More." Netflix, www.netflix.com/.
"Stream TV and Movies Live and Online." Hulu, www.hulu.com/welcome.

*Fig. 10: f*rom left to right;

"Virtual Reality." Wikiwand, www.wikiwand.com/en/Virtual_reality.

"GP." Amazon, Goettsche Partners, 2011, www.amazon.com/gp/video/offers/ref=dvm_us_dl_sl_go_bre_pv3_E1%7C-c_397217479113_m_tGKBizhM-dc_s__?ie=UTF8&gclid=Cj0KCQiA_rfvBRCPARIsANlV66MgjNeanIDNLqNAD21IM-hEVTlvIssjFEJvPEDGiQcG3l40n47sFUX4aAoygEALw_wcB.

"DOLBY CINEMA." AMC Theatres - Movie Times, Movie Trailers, Buy Tickets and Gift Cards., www.amctheatres.com/dolbycinema.

Aardodson. "The Strange Legacy of Tupac's 'Hologram' Lives on Five Years after Its Historic Coachella Debut." The Undefeated, The Undefeated, 14 Apr. 2017, theundefeated.com/features/the-strange-legacy-of-tupacs-hologram-after-coachella/.