Bayou Bluff

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Final Study Project 2019

ACKNOWLEDGEMENT

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1 PAST

PROJECT OVERVIEW

Bayou Bluff is an adaptive reuse project of a turn-of-the-century produce warehouse located along the Buffalo Bayou in downtown Houston, Texas. The neighborhood was once full of warehouses and factories to hold the materials and goods coming in from the Port of Houston. The area is currently composed of offices, apartments, and restaurants to fulfill modern needs.

Over the last 100 years, the building's interior and occupancy has changed, but the exterior brick has remained for the most part the same. This intervention rehabilitates the now abandoned warehouse by restoring the existing brick structure to preserve the continuity of the adjacent city fabric. The intervention also provides a stronger connection from the building to the street and bayou levels. By studying the building's site, history, and the surrounding buildings and land features which encompass the building, there is a stronger concept, connection and fluidity between the old and the new. Also by studying the building's history, there is a greater appreciation for the need for resiliency against future flooding and storms.

HISTORIC PRESERVATION AND ADAPTIVE REUSE

Historic Preservation is the idea of conserving and protecting buildings, sites and landscapes of historic significance. While preservationists are known for being very strict in what they keep, preservation projects don't always have to be completely against change. Projects can be flexible by preserving what is unique and irreplaceable to a building, while bringing the building up to modern safety standards. While the restoration of historic projects like are important, many architects often don't deal with true historic buildings. With the continued growth and change of cities, many architects are asked to repurpose existing buildings.

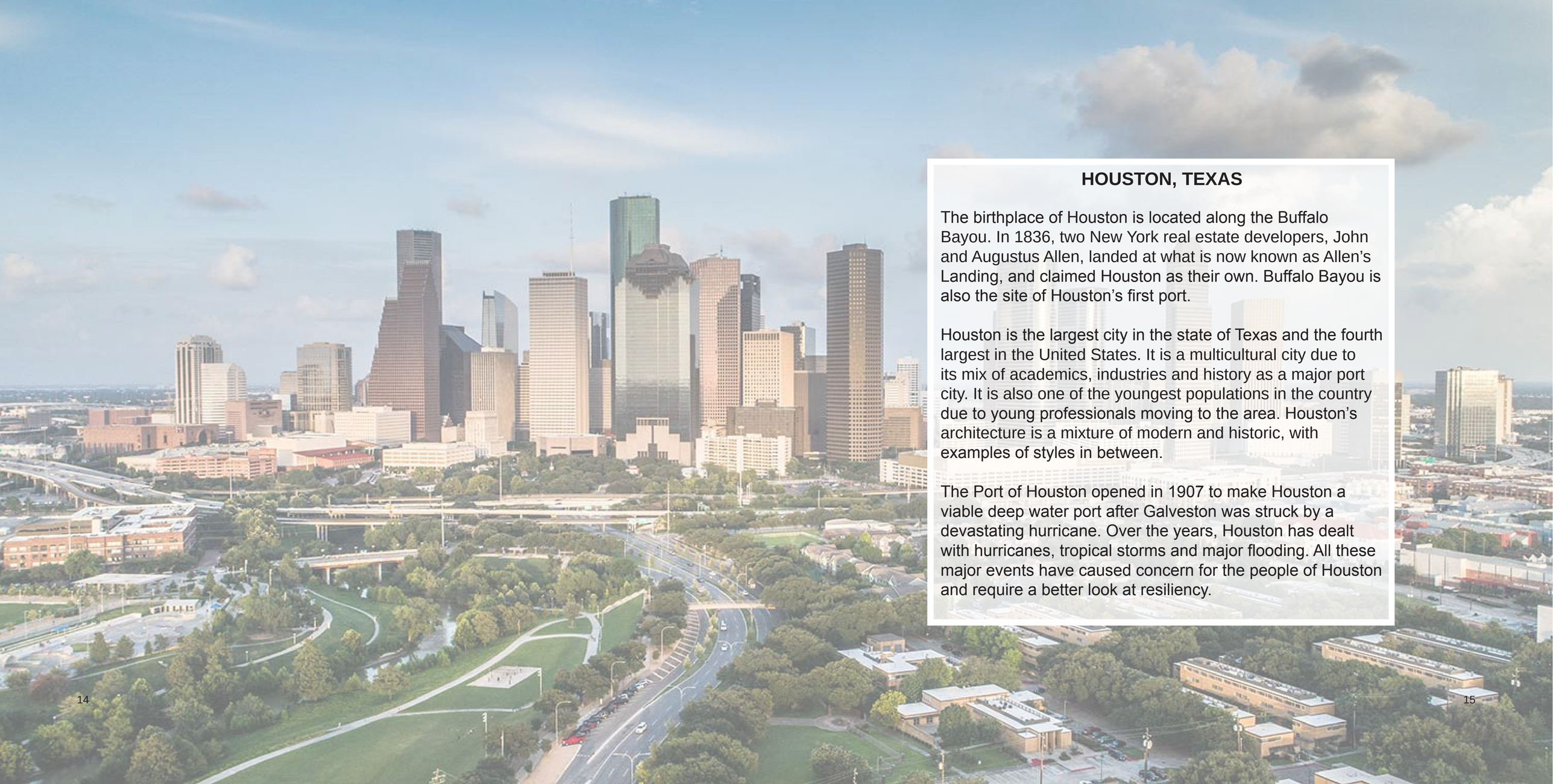
Adaptive reuse involves reinventing an existing building for new uses when the old intent of the building is no longer needed. It is important to start by identifying the defining characteristics of the building and then imagining how different features might creatively serve new purposes. By working to keep the original design in mind when making alterations and additions, there is a better connect between the old parts of the building and the new.

PRECEDENT STUDIES

Located in downtown Austin, The **Jones Center Arthouse** is an adaptive reuse renovation of a 1920s theater that was later modified as a department store in the 1950s. Designed by LTL, the project was completed in October 2010. With 23,800 sq. ft, the building combines old and new with the original theater trusses, concrete frame, and ornamental interior frescos from the 1920s, as well as the awning, storefront, and upper-level display window from the 1950s. This project shows how seamlessly and clean architecture historic can come together to create one complete building.

What is now an upscale hotel and resort center, was once a turn of the century psychiatric facility designed by H.H. Richards. Located in Buffalo, New York, the **Hotel Henry Urban Resort and Conference Center** is an 88 room complex that was once the administration building of the hospital. Deborah Berke Partners worked on the redevelopment. The firm studied the original architect's plans and designs to better understand how to move the building forward. By honoring the past, the firm was able to completely transform the once abandon building to a place of relaxing and luxury.

In 1961, Carlo was asked to remodel the ground floor and the courtyard of the 16th century palace of the **Querini Stampalia Foundation** in Venice, Italy. The project was constrained by the requirements of the Institute and strong restrictions imposed by the site. During the nineteenth century, the building was altered and concealed the original space structure. Scarpa rehabilitated the spaces to return them to its initial conformation.
The high water and constant flooding on the site was fully accepted by Scarpa and welcomed the presence of water and instead of treating it as an obstacle to entry.



HOUSTON, TEXAS

The birthplace of Houston is located along the Buffalo Bayou. In 1836, two New York real estate developers, John and Augustus Allen, landed at what is now known as Allen's Landing, and claimed Houston as their own. Buffalo Bayou is also the site of Houston's first port.

Houston is the largest city in the state of Texas and the fourth largest in the United States. It is a multicultural city due to its mix of academics, industries and history as a major port city. It is also one of the youngest populations in the country due to young professionals moving to the area. Houston's architecture is a mixture of modern and historic, with examples of styles in between.

The Port of Houston opened in 1907 to make Houston a viable deep water port after Galveston was struck by a devastating hurricane. Over the years, Houston has dealt with hurricanes, tropical storms and major flooding. All these major events have caused concern for the people of Houston and require a better look at resiliency.

HISTORIC BUFFALO BAYOU

The original building dates back to the early 1890s as a whole foods warehouse, when Commerce Avenue was lined with warehouses to store cargo that came in from the Port of Houston. In 1912, businessman B.A. Riesner updated the warehouse for the Desel-Boettcher Produce Company. It was once the state's largest fruit and produce wholesaler. In 1974, the Spaghetti Warehouse bought and rehabilitated the old warehouse. It was one of the first successful redevelopment projects in the Market Square Area.

Over the years, the old warehouse has dealt with numerous floods and tropical storms, causing the structure to weaken and the interior to be uninhabitable. The building currently stands abandoned after the devastation of Hurricane Harvey.

1890s

There is a building already built on the site

1912

Construction on the The Produce Company completed (similar, but not exact building)

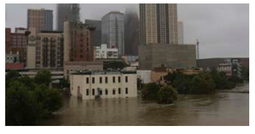
1935

Great Flood overtakes Houston

1974

Spaghetti Warehouse opens in the abandoned building

2001



Tropical Storm Allison caused extreme flooding

2008

Hurricane Ike hit Houston

2017

Hurricane Harvey flooded and destroyed Houston

SITE CONTEXT

The **Merchants and Manufacturers Building** (M&M Building) was built in 1930 and was the largest building in Houston at the time. It could accommodate one-third of the city's population. The Art Deco–style building is recognized as part of the National Register of Historic Places, is a Recorded Texas Historic Landmark, and considered a Contributing Building in Downtown Houston's Main Street/Market Square Historic District.

Since 1974, the M&M Building has been part of the University of Houston–Downtown and was given an official designation as "One Main Building" by the university.

The historic **Abraham Watkins Building** was originally two separate structures: the Siewerssen Building, a meat storage facility and market built in 1894 and the Dickson Building, constructed in 1905 and home to the Hogan-Allnoch Dry Goods Company. The resulting combined building became part of Houston's "Produce Row" during the early 1900s, where meats, produce, and dry goods were shipped on Buffalo Bayou and unloaded for storage and public sale.

In 1971, as part of Houston's effort to revitalize downtown, the The Hill, Kronzer & Abraham Law Firm purchased the vacant building to restore it as an office building. It was designed in the "Early Texas Federal Style," while maintaining the original integrity of the structure, the brick masonry, heavy timber floors, and oak ceiling rafters.

The **Sunset Coffee Building** was built in 1910 for W. D. Cleveland & Son's wholesale grocer supply building to house goods after being delivered from the bayou. The building functioned as a coffee roasting company, indicating coffee's key role in Houston's economy and development.

In 2003, Buffalo Bayou Partnership purchased the long vacant Sunset Coffee Building in a move towards preserving Houston's significant and historic sites. The Sunset Coffee Building is one of the few remaining industrial buildings on Buffalo Bayou. The building is now under construction to be a recreational and cultural center.

The **Commerce Street Building**, for University of Houston Downtown, provides a new home for the College of Public Service. This project used a construction manager at-risk delivery method. The new, multi-story structure featuring a brick face and a façade of glass was completed in 2005. The contemporary facility houses classrooms, a lecture hall and seminar rooms.

Major projects surrounding the site include the Main Street Redevelopment Project, Metro Light Rail, the Cotswold Project on Franklin and Commerce, and the Buffalo Bayou Beautification Project.

Main&Co is a recent project to renovate a group of historical buildings into mixed-use space. The Raphael and Dorrance buildings, built between 1872 and 1903, are among the oldest in the area. They once served as home to the Postal Telegraph Co. and the Southern Pacific Railroad Company.

The restoration project started in 2016, with designs made around the original exposed brick walls, ceiling beams, glass windows, and restored and refinished hardwood floors. The redesign focused on preserving and restoring as much of the original character as possible, while incorporating modern and sustainable ideas found in new buildings. The $5 million project won the Houston Business Journal's 2018 Landmark award in the Rehabilitation and Renovation category.

FLOODING ON THE BAYOU

The Buffalo Bayou has been a lifeline for the people of Houston, by providing a transportation route for people and goods into the city. Unfortunately, it has also been a source of tragedy. Accounts of flooding have been documented since settlers first came to the area. Major flooding from tropical storms and hurricanes would cover the city with water, leaving behind death and destruction. While the city was always able to pick itself back up, over the years the water has taken its toll. The 1935 Great Flood, Tropical Storm Allison in 2001. and most recently, Hurricane Harvey in 2017, all have left Houston in devastation. As Earth's climate continues to change and natural disasters become more frequent, the demand for resiliency is a top priority.

Hurricane Ike 2008

Hurricane Harvey 2017

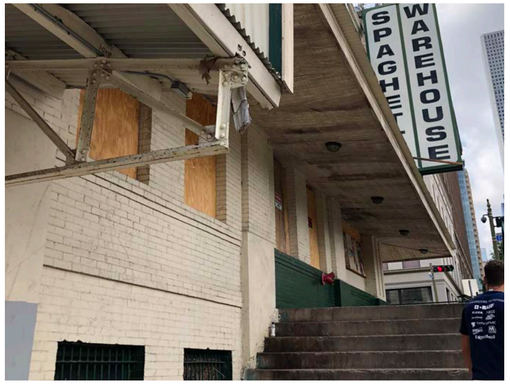

Tropical Storm Allison 2001

EXISTING STRUCTURE

The old warehouse is a load bearing brick structure. The façade is constructed of common clay bricks in a common bond/American bond pattern. The interior consists of wooden floors and walls supported by wood and concrete columns with wooden beams.

After the destruction of Hurricane Harvey, the owners of the warehouse, Spaghetti Warehouse, were forced to shut down their Houston location. They auctioned off all of the salvageable objects, like a Staircase and grandfather clock from a European castle and a full-size Houston Avenue trolley car. The warehouse now sits abandoned and alone.

The flooding would often reach above the street level, completely submerging the bayou level. The wooden beams and floors are beginning to rot, the mortar between the bricks is failing, causing large holes in different areas of the building. The wooden windows still remain, but the glass on the lowest level has been broken or removed.

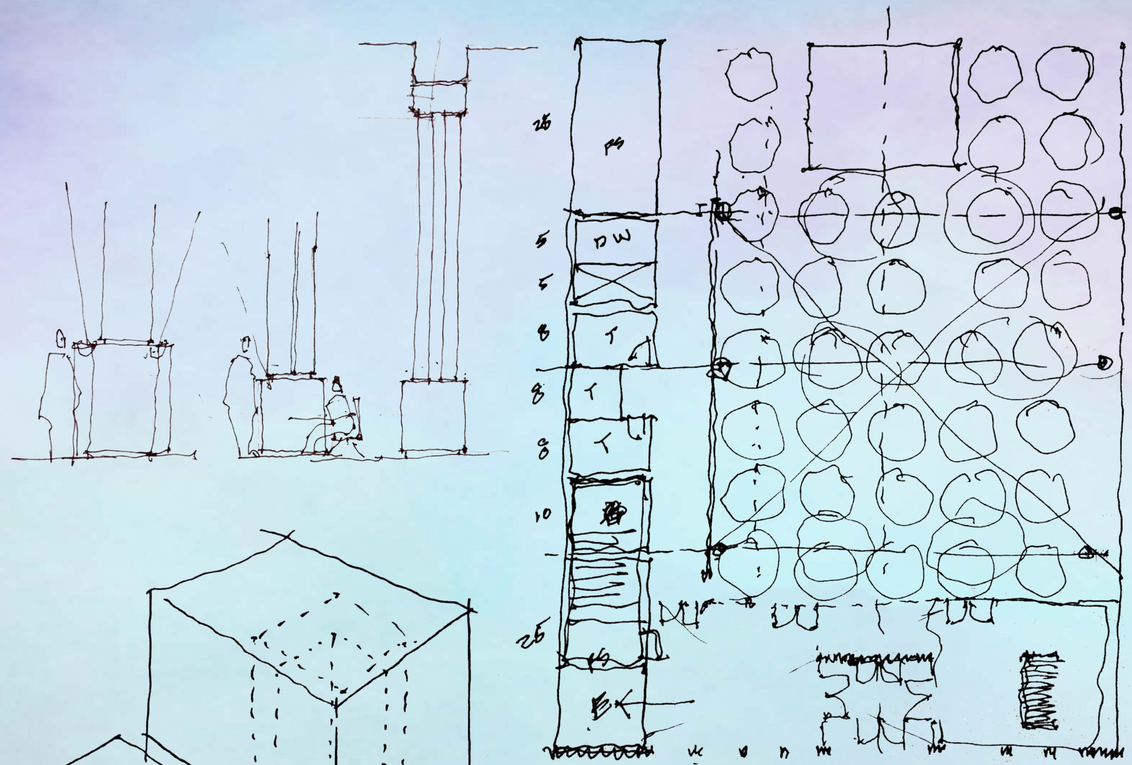


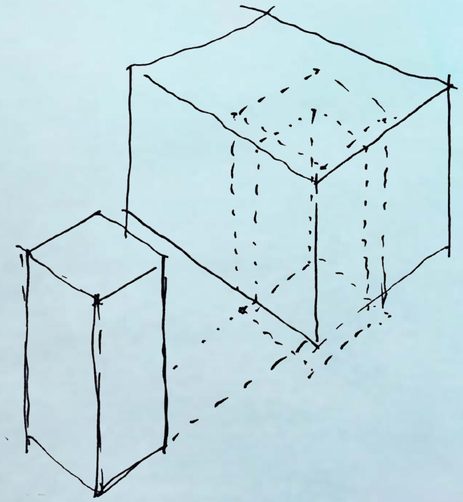
SITE ANALYSIS

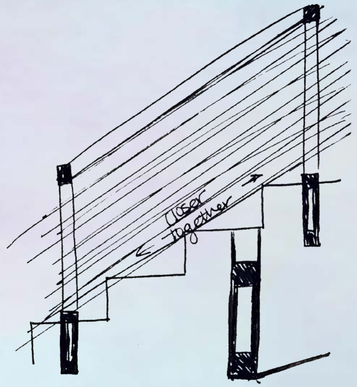
After analyzing the surrounding context, wind, sunlight and traffic patterns, flooding is the most important factor when making design choices on this project. Since it is an adaptive reuse and the building location has already been determined, it was more important to study the elements that will affect the building.

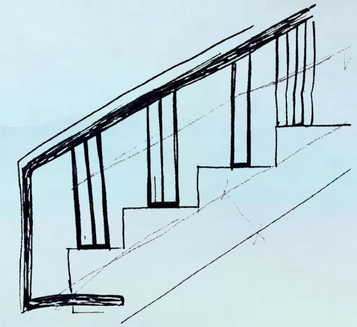
The warehouse is located within the 100 year flood plain. For almost every major or minor flood Houston experiences, the ground floor becomes fully submerged in water. Moving forward, the focus is preserving what is left of the building, and protect the building from future damage.

2 REVITALIZE



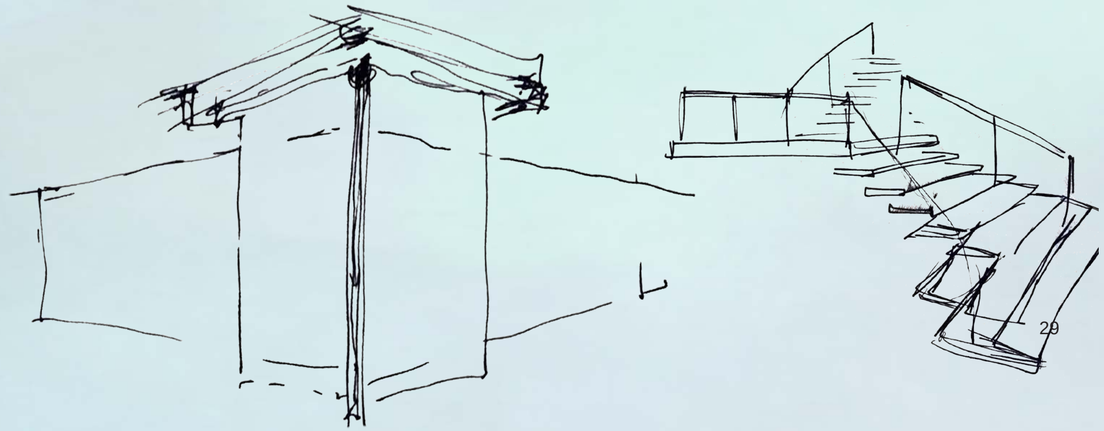


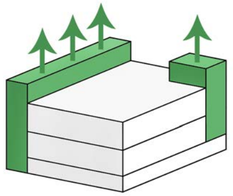




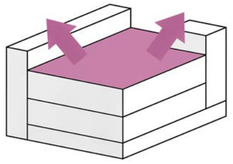
CONCEPT SKETCHES

Sketches are a quick way to explore design ideas, find the root to concepts and turn constraints into opportunities. Going into an adaptive reuse project, there were many constraints already on the site and building. Most of the work was done inside the existing structure. The driving ideas were to keep the scale connected to the human size and focus on the small details. The first move was to determine a new layout in the existing box. By having a base, the details were easier to develop.

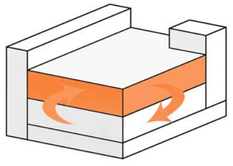




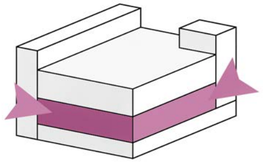
To provide movement through the building, two boxes have been pulled up through the building to provide a designated space for **circulation**. All stairs and elevators are found in these boxes. They are clearly defined to make circulation easy to find for the user when moving around the building.



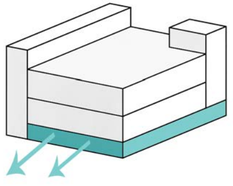
The rooftop level is an **activation** level. Before, the rooftop was only used to hold mechanical and air handling units. It is now activated and an occupied space. It also creates a relationship between the building and the Houston skyline by facilitating a direct view.



The second level provides **connection**. It is used for offices, storage and services for the first level. The occupation of this floor is only meant for the staff, but there is always movement and connection between the two levels.



The first level or the street level is the main **occupation** level of the building. This level is where the venue space is located and is the main factor to draw people into the building.



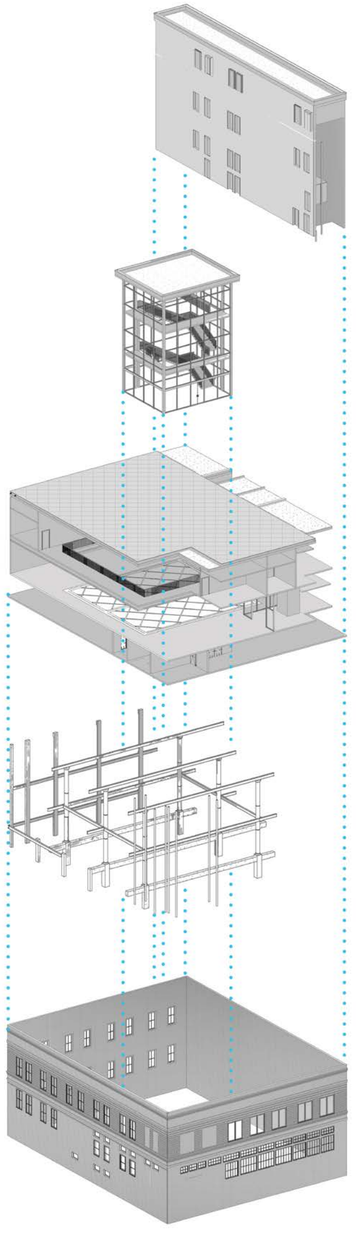
The ground or bayou level deals the most with flooding and the outdoors. Before it was used for storage, but most things would be destroyed during a flood. This level is now designed to provide **resiliency** for the building. It also provides a direct connection from the building to the bayou.

INTENTION

Once the main issues of the site, building, and the needs were determined, the next step in the schematic design process was the development of the spaces. With simple parti diagrams, the driving concepts could be easily represented. The goals of this adaptive reuse project were to create a flood resilient structure, preserve the historic fabric, and to connect and activate roof venue space with the rest of the building below and to the surrounding buildings.

EXECUTION

The outer brick shell of the building will remain. After repairs and replacements are made to the brick wall, the interior brick in the venue space will be covered with spray foam insulation to keep the air inside regulated and protect the brick. Then gypsum wall boards will go over the foam to give a clean finish. All structural supports inside the building are to be removed. If flooding continues, the wooden beams and columns will not be able to keep their strength. The wooden columns are to be replaces with reinforced concrete on the bayou level to stay strong against future flooding. Concrete is easier to maintain against water issues. In the event space on the street level, the columns will be made out of reinforced concrete and marble with steel beams providing support. The wooden floors are all to be replaced with cast in place concrete to keep with the theme of resiliency. The boxes provide circulation points through the building. The long rectangle is cast in place concrete that house the fire stairs, elevators and bathrooms. The glass box is the iconic piece of the building. It houses the grand staircase and cuts through the brick wall. This gives the user the ability to walk through the historic wall, getting a mix of the past and the present.

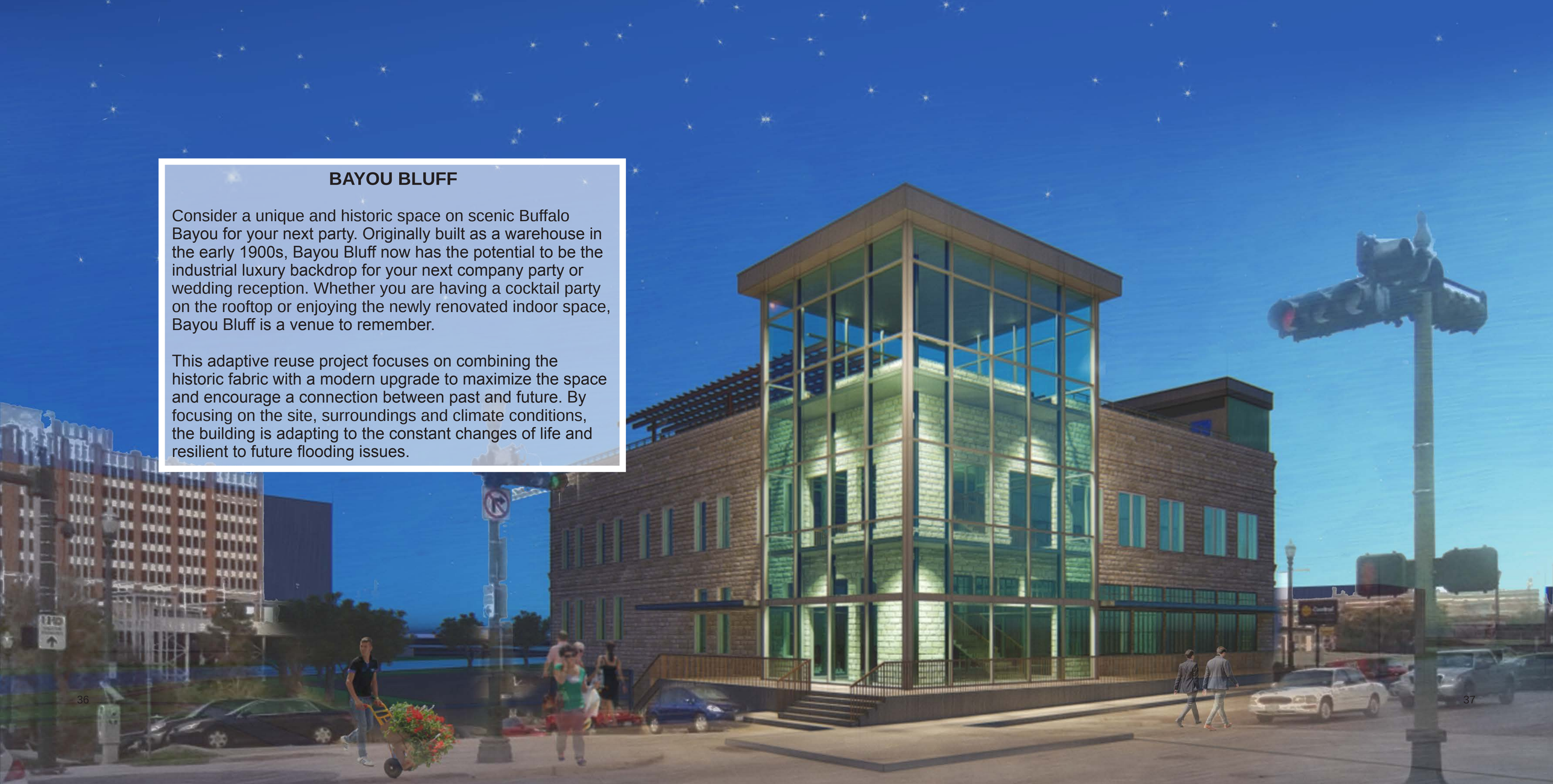


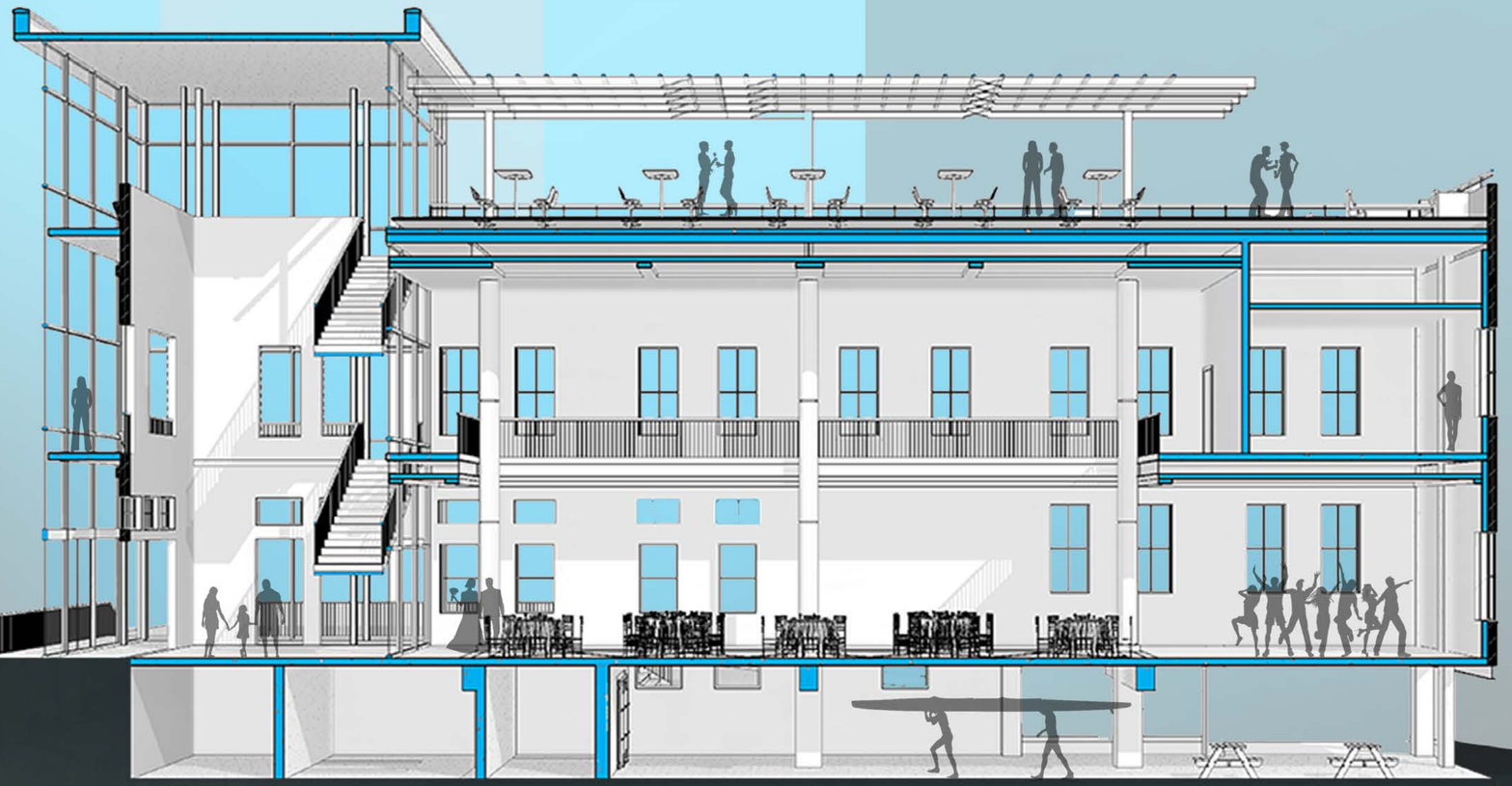
3 PROPOSAL

BAYOU BLUFF

Consider a unique and historic space on scenic Buffalo Bayou for your next party. Originally built as a warehouse in the early 1900s, Bayou Bluff now has the potential to be the industrial luxury backdrop for your next company party or wedding reception. Whether you are having a cocktail party on the rooftop or enjoying the newly renovated indoor space, Bayou Bluff is a venue to remember.

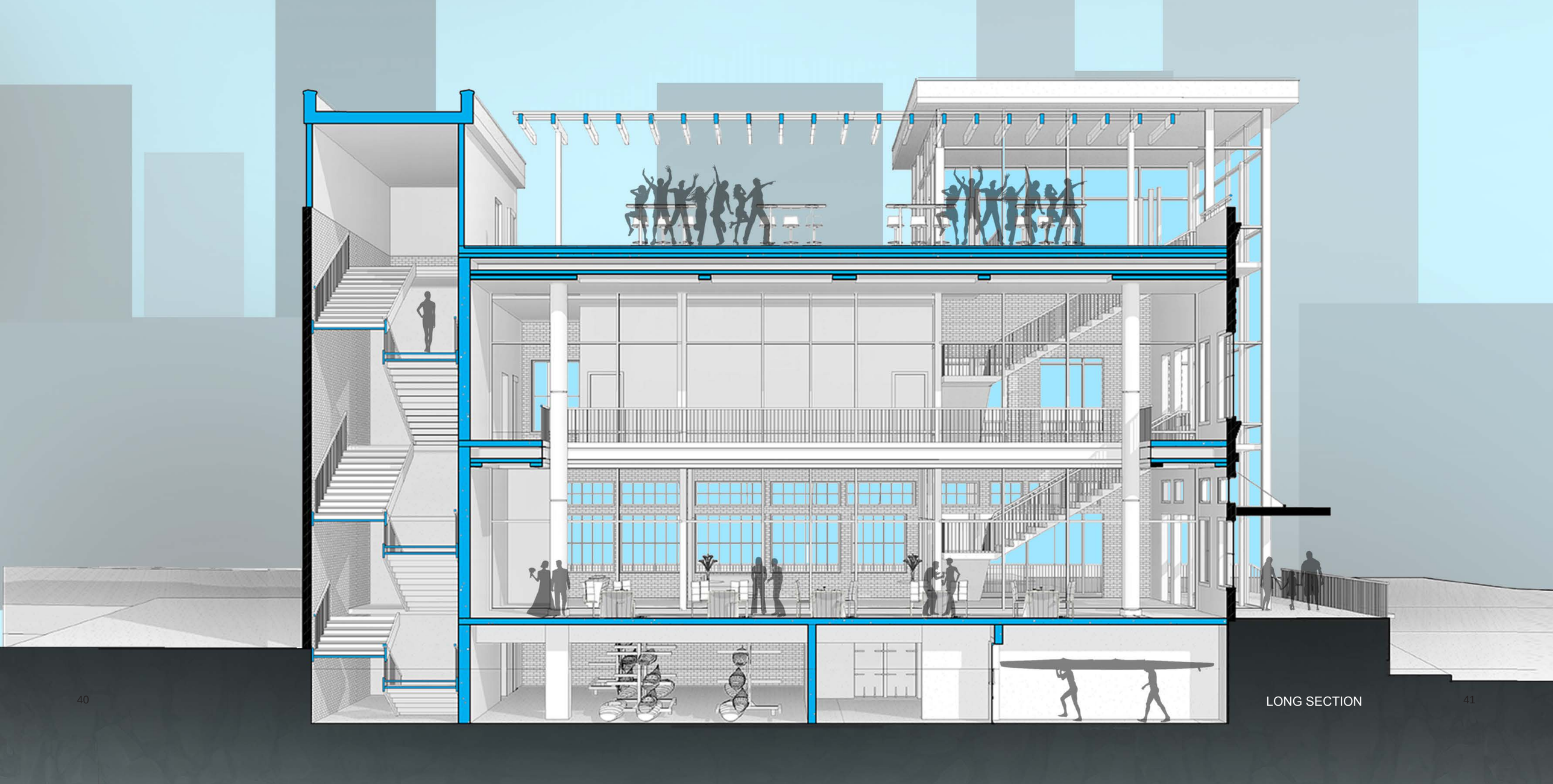
This adaptive reuse project focuses on combining the historic fabric with a modern upgrade to maximize the space and encourage a connection between past and future. By focusing on the site, surroundings and climate conditions, the building is adapting to the constant changes of life and resilient to future flooding issues.



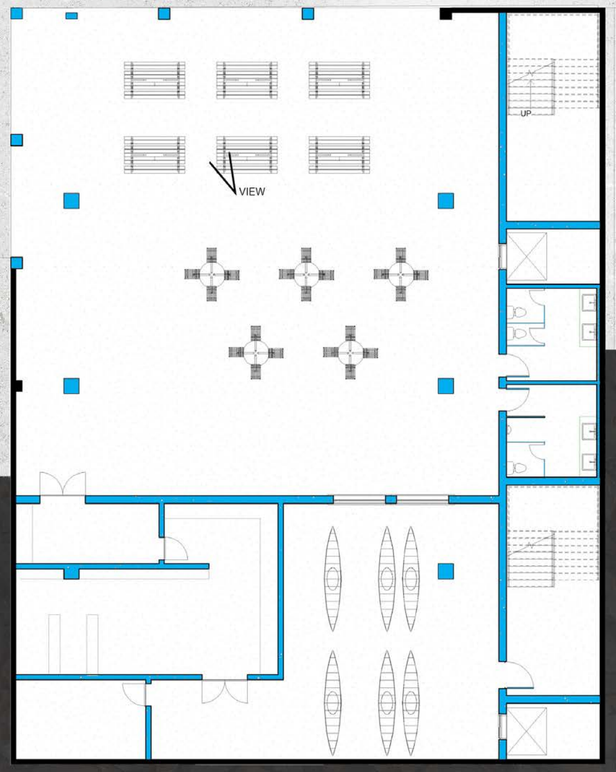


Section cut from Commerce Street down to Buffalo Bayou. All cuts in black indicate the original building and blue cuts indicate new materials. From the bottom, the view shows the storage for boats and bikes and the picnic area. On street level, the double height venue space maximizes the feeling of openness without changing the footprint of the building. The grand staircase in the glass box provides entrance to the rooftop bar.

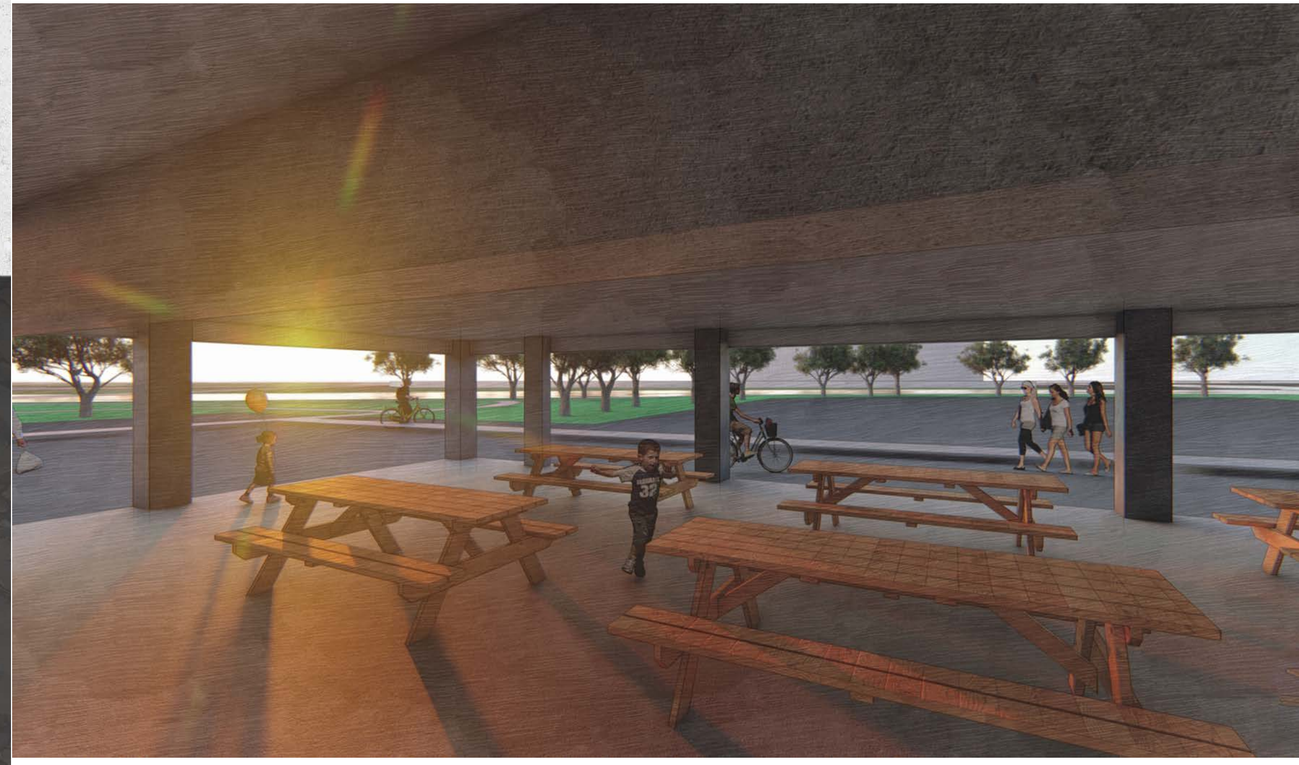
SHORT SECTION

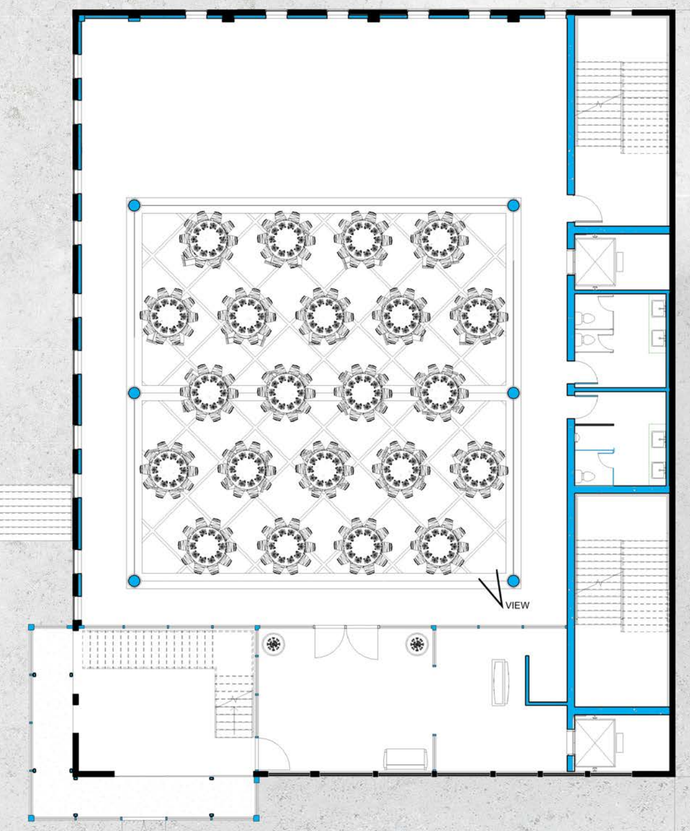


LONG SECTION

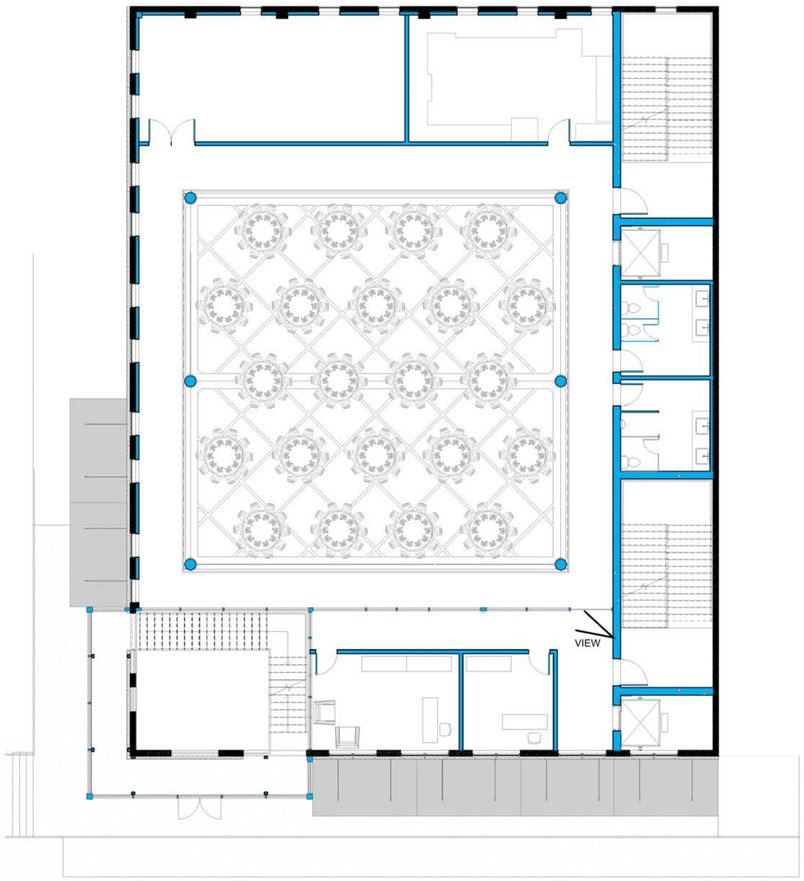


BAYOU LEVEL

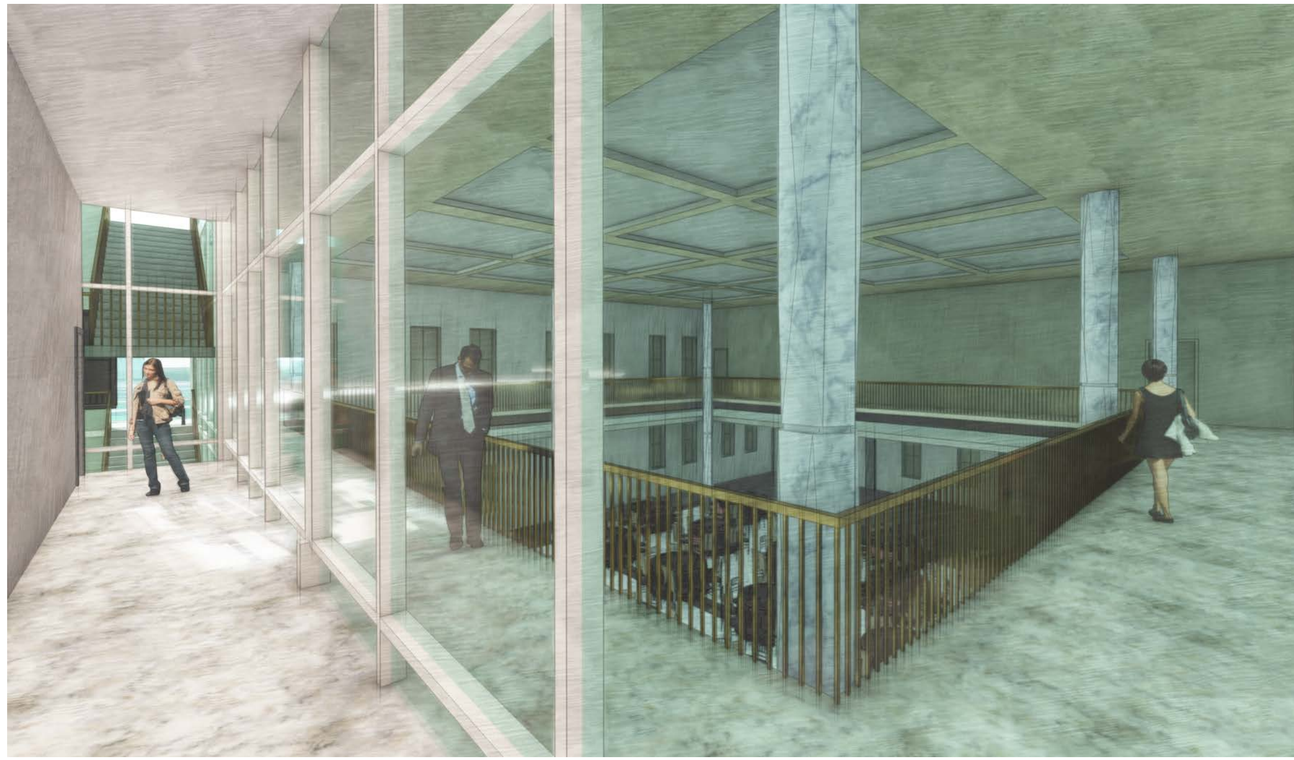


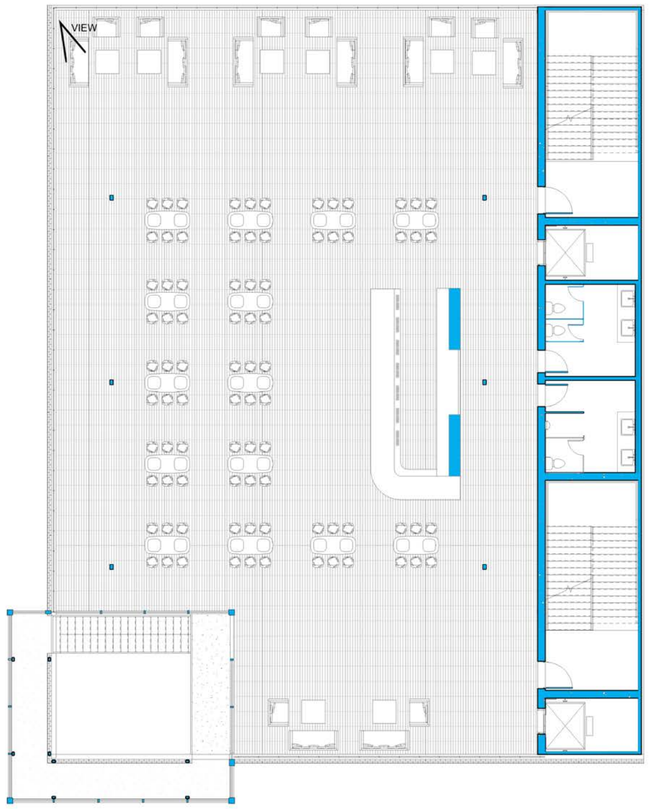


STREET LEVEL



SECOND LEVEL





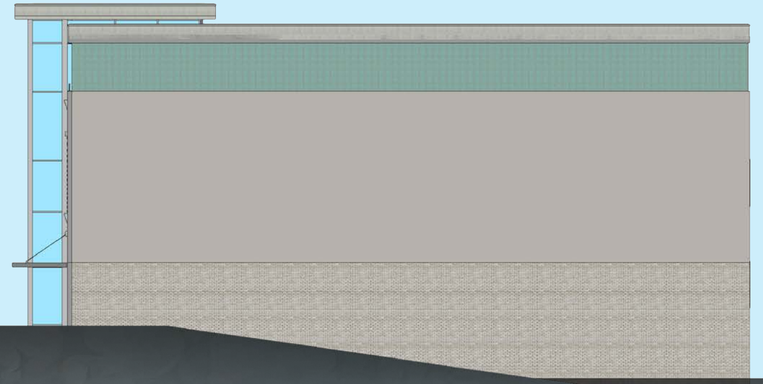
ROOFTOP LEVEL

CONCLUSION

Adaptive reuse is the process of reinventing an existing building for a new purpose. The main goals of this project were to bring life to an abandoned building, to keep as much of the existing fabric as possible while updating the interior for flood resiliency, and create a new iconic moment in downtown Houston. Replacing the interior structure with concrete to be strong against flooding and upgrading the interior with modern materials allow the building to feel new. By keeping the original brick, the building holds onto its history. By merging the historic elements with new materials and technology, the building transcends time and is now adaptive to endure for another hundred years.

APPENDIX

NORTH ELEVATION

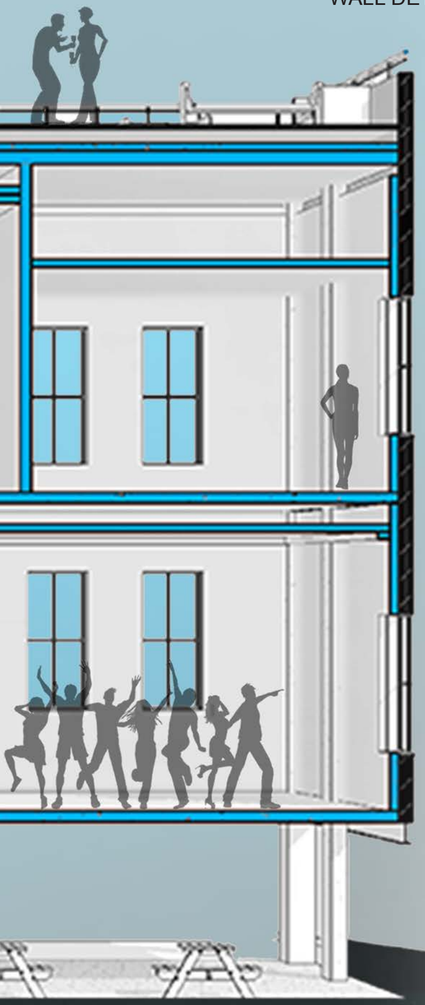


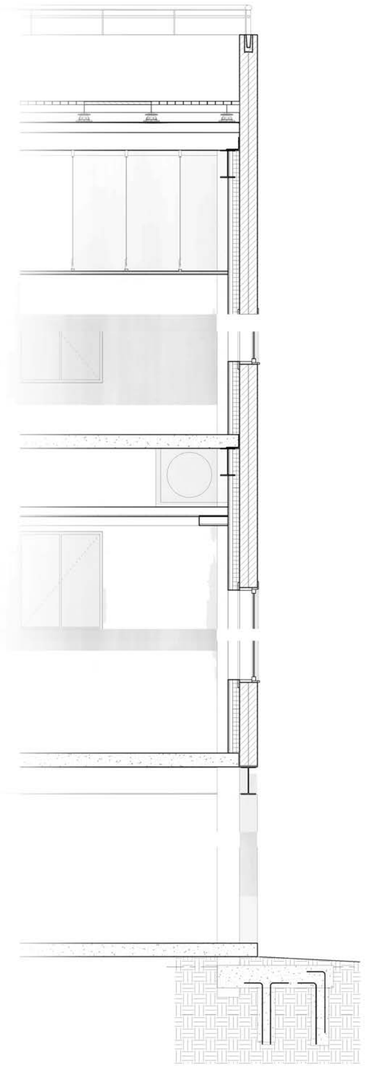
EAST ELEVATION

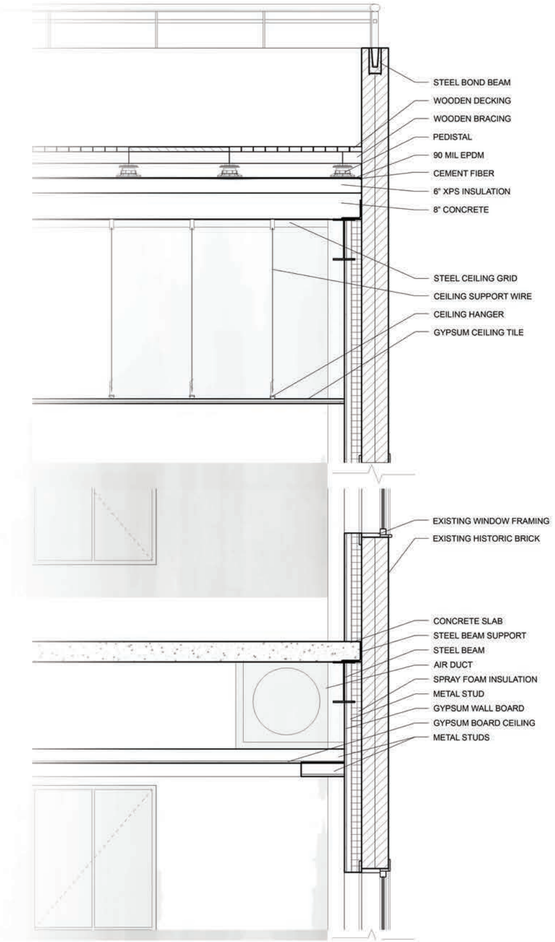
WEST ELEVATION

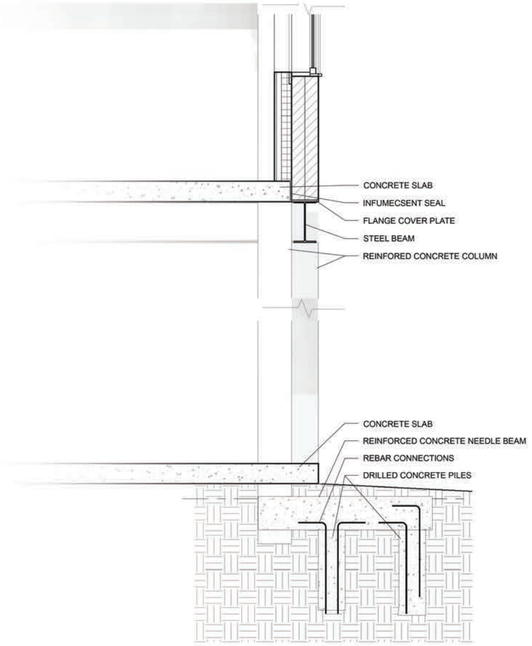
SOUTH ELEVATION

WALL DETAIL



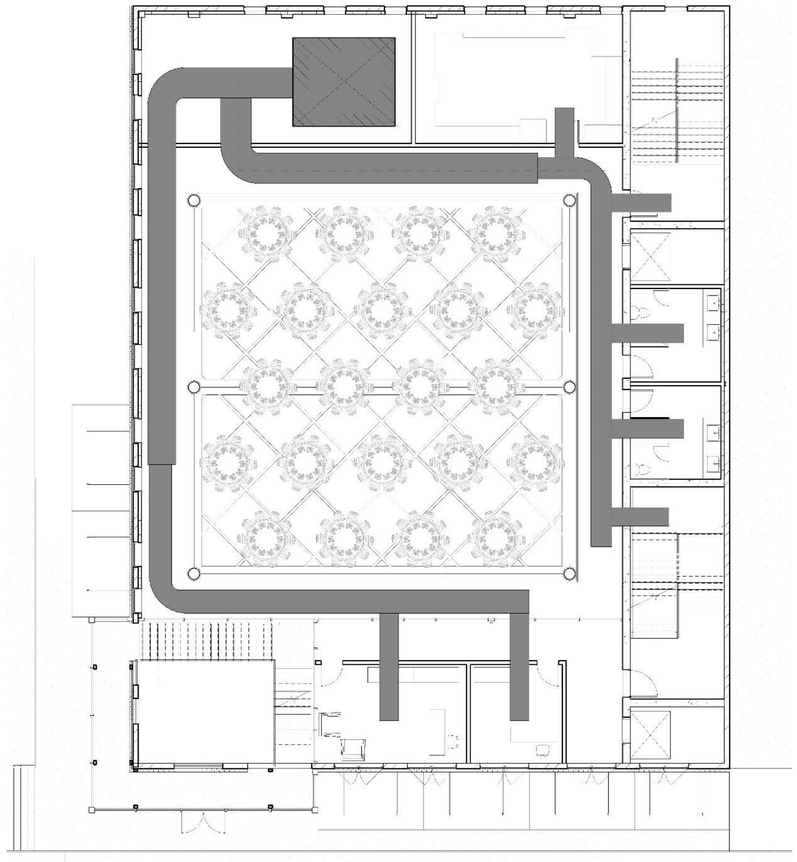



STEEL BOND BEAM
WOODEN DECKING
WOODEN BRACING
PEDISTAL
90 MIL EPDM
CEMENT FIBER
6" XPS INSULATION
8" CONCRETE
STEEL CEILING GRID
CEILING SUPPORT WIRE
CEILING HANGER
GYPSUM CEILING TILE
EXISTING WINDOW FRAMING
EXISTING HISTORIC BRICK
CONCRETE SLAB
STEEL BEAM SUPPORT
STEEL BEAM
AIR DUCT
SPRAY FOAM INSULATION
METAL STUD
GYPSUM WALL BOARD
GYPSUM BOARD CEILING
METAL STUDS


CONCRETE SLAB
INFUMECSENT SEAL
FLANGE COVER PLATE
STEEL BEAM
REINFORED CONCRETE COLUMN
CONCRETE SLAB
REINFORCED CONCRETE NEEDLE BEAM
REBAR CONNECTIONS
DRILLED CONCRETE PILES

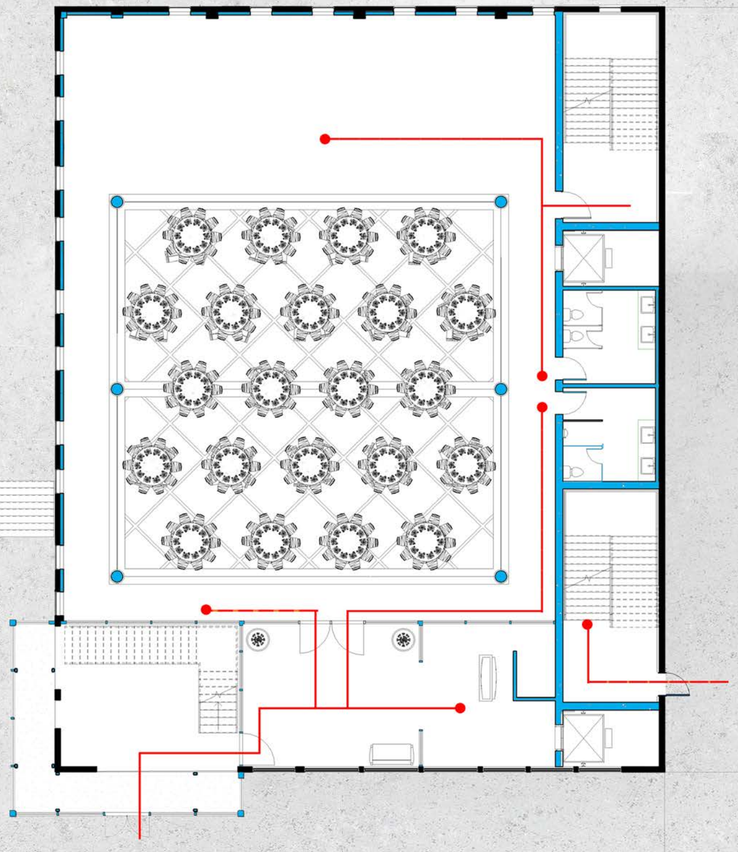
MECHANICAL

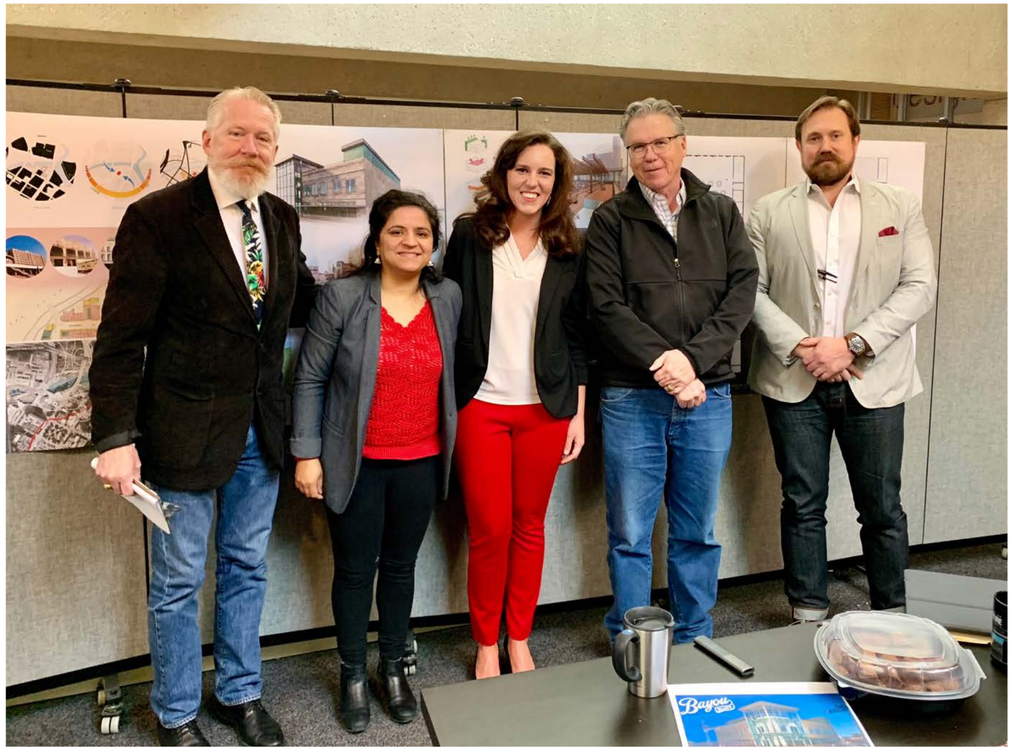
All mechanical units are found on the second floor. They were moved up to keep them elevated and away from possible flooding damage. The main units are not found on the roof, to give maximum space for the user to enjoy and not be an impeding the view of the city or the bayou.



EGRESS

During an evacuation emergency, the two brand new enclosed fire stairs on the east side of the building provide an escape route. The fire stairs are protected inside the cast in place concrete walls and allow the user to exit onto street level or bayou level. The front stair inside the glass box is not fire protected.





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SKILLS

AutoCAD
ArchiCAD
Lumion
SketchUp
Revit
Adobe Photoshop
Illustrator
InDesign
Microsoft Office Suite
Welding
Hand Dafting
CNC Laser Cutter
Photogrammetry

ORGANIZATIONS

Aggie Recruitment Committee
Miss Brazos Valley
TAMU Fade to Black
Brazos Valley Performing Arts
Brazos Valley Symphony Belles

EDUCATION

Texas A&M University, College Station, Texas — Expected May 2019
Masters of Architecture Program
Certificate in Historical Preservation
Recipient of several academic scholarships

Texas A&M University, College Station, Texas — May 2016
Bachelor of Science in University Studies
Minor in Creative Studies, Minor in Art
Academic scholarships financed 50% of tuition expenses

Architecture Sustainability Program, Study Abroad in Germany — 2015
Akademie der Internationale Bildung, Bonn and Berlin, Germany
Engaged in architectural sustainability for small to large scale venues

Asian Architecture Study — 2015, 2016
Independent study with different forms of Asian Architecture
Immersed in 2 two week programs in Okinawa and Seoul

Italian Architecture Study — 2018
Gained an in-depth understanding of great historical constructions in 10 Italian areas

EXPERIENCE

The Bermuda National Trust, St. George, Bermuda — Winter 2019
Intern
- Created traditional hand documentation drawings, laser scanning images, and photogrammetry
- Prepared a report for the Bermuda National Trust and the St. George's Historical Society to help understand the cultural heritage in a UNESCO World Heritage Site

Linear! Architecture, Dallas, Texas — Summer 2018
Full Time Summer Internship
- Worked on commercial projects through all stages of development
- Performed research for upcoming projects, development of design ideas and graphic representation of construction documents in AutoCAD

Graphic Artist, College Station, Texas — 2012 - 2018
- Freelance designer for brochures, print ads and programs
- Design and book layout editor
- Skilled in photo editing

Pure Energy Dance Production, Bryan, Texas — 2015 - 2017
- Instructor for Tap and Hip Hop; competition choreographer
- Conference with parents and create class business orders

TAMU Youth Adventure Program, Counselor — 2014
- Live-in Counselor for gifted students attending Architecture Program
- Supervised activities in a hands-on learning environment

VOLUNTEER

Boy Scouts photo editor for banquets
Big Event
College Station Middle School Guest Education Leader
Box Tops for Education Assistant Coordinator, Cypress Grove Intermediate School
KBTX Food Drive
Radio Mash Christmas Toy Drive collections, cleaning, sorting and organizing
Model for Brazos Valley Fashion Event benifiting the Mercy Project

NATALIE HATLEY

Texas A&M University | Master of Architecture
Final Study Project 2019