

INTERSECTION

harrison county airport



tyler thayer

DEAR READER,

Thank you so much for taking the time to view my final study book, which is a culmination of roughly a year's worth of work. Many hours and late nights have been dedicated to this project and it is my hope that you enjoy the fruits of my labor.

Even though this project has my name on it and it is "my" final study project, there are many people that have invested their time and effort into this project that I would be remiss if I didn't thank. First and foremost, I want to thank God for the skills, abilities, and mental capacity to even get through this project. To get to this point in my career is something I could not have accomplished alone, and I have Him to thank for that. I want to thank all my friends and family who have been with me throughout my entire career thus far and throughout the project. You guys have kept me together and have always been a source of encouragement to me. I want to thank my entire committee which includes: Chair Marcel Erminy, Member Dr. Anat Geva, Member Dr. Galen Newman, and Professor Dr. James Haliburton. Your expertise and experience has been invaluable to me as the project progressed. Even though I was a bit stubborn at times, I sincerely appreciate all the time and effort you put in to help me succeed and create this project. I could not have done it without you. To my studiomates: you guys are so great and I know you will go on to do great things in your careers. I have had so much fun spending the past two years with you and I wish you all the best, and congratulations on graduating!

I want to give consideration to the team at McCoy Collaborative Preservation Architecture. The experience I gained working with you has been invaluable to this project and the specific experience I gained in terms of historic building documentation techniques has been extremely helpful. To Tina at Central Jet Service at the Harrison County Memorial Airport, thank you so much for allowing me to spend the weekend at the terminal documenting your wonderful historic terminal. Thank you for taking out the time to tell me about your knowledge of the terminal in its history and its current state. It was amazing to see and I can't wait to come back and visit. The Inez Hatley Hughes Research Center at the Harrison County Historical Museum was a great resource for me to gather materials and information about this history of the terminal. Thank you for spending the time researching and finding historic information that really made the terminal come to life. Finally, I want to thank Robert Capps from Texas State Technical College-Waco for giving me a tour of the aviation facilities on campus. Being able to see the requirements for a technical college in aviation was extremely helpful for the project and it was crucial to the success of the project.

Even though my name is on the cover, it does not mean that this was "my project". All of these people came together and helped me create the project that is to come. I present to you, the Harrison County Memorial Airport.



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LANDING

PRE-FLIGHT

The Harrison County Memorial Airport Terminal Building is a historic airport terminal located in Marshall, Texas roughly 20 miles west of the Texas/Louisiana State Border. The airport itself is 2.5 miles from the city center, 35 miles to Shreveport, Louisiana, and 142 miles to Dallas, Texas. The terminal was built in 1953, crossing the 50-year threshold for the National Register of Historic Places. Harrison County saw service from Trans-Texas Airways between 1953 and 1963 and sat dormant until the 1980's when a new airport manager decided to reuse the terminal building as a fixed base operator which provides services to pilots and passengers such as fueling, basic maintenance, flight planning, courtesy cars, and more. After undergoing maintenance to keep the building usable, the airport terminal building currently remains open as a fixed base operator. In 2016, the terminal was placed on Preservation Texas' Most Endangered Buildings List.



Entry and Stair



Third Floor



Air Traffic Control Tower

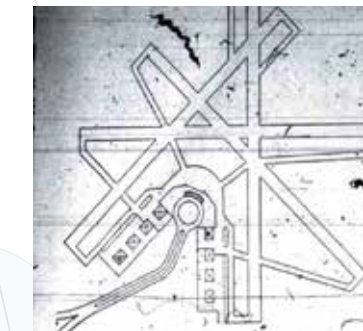


Terminal Lobby



SELECTED CHRONOLOGY

- **1912** – Marshall's first airplane is assembled and operated at the ball park in town
- **May 13th, 1930** – City began negotiating for 211 acres of land for an airport.
- **c. 1941** - Lyndon B. Johnson lands his plane at Marshall's airfield during his campaign for Senate.
- **September 27th, 1944** – The Marshall Planning Commission called for construction of the Harrison County Memorial Airport.
- **June 5th, 1945** – Petitions began circulating for the commissioner's court to call an airport bond election.
- **July 3rd, 1945** – Harrison County voted in favor of the Airport Bond 670-273
- **February 17th, 1946** – Marshall completed the land purchase, bringing the site to 488.91 acres.
- **November 1949** – Construction began on the airport.
- **June 3rd, 1953** – The Civil Aeronautics Board (now FAA) approved application of Trans-Texas Airways for air mail and commercial traffic.
- **August 3rd, 1953** – The Harrison County Memorial Airport is dedicated and service with Trans-Texas Airways is initiated.
- **April 17th, 1955** – Representatives from the US Air Force arrive to discuss the possibility of a reserve center.
- **December 28th and 29th, 1961** – Wife of Vice President Lyndon B. Johnson, Lady Bird Johnson, arrived to attend a wedding. Vice President Lyndon B. Johnson arrived the day after.
- **c.1964** – Services to Harrison County Airport discontinued
- **October 28th, 1964** – George H.W. Bush visited Marshall during his first US Senate campaign.
- **October 11th, 1977** – County provided funds for airport improvement.
- **November, 1978** – County appointed Robert Aiello as the new airport manager. He opened "Aiello Aviation" (now Central Jet Service) as an FBO to supplant his salary.
- **August 10th, 1984** – Harrison County Airport reopened after 4 years of being closed to the public. The main runway and taxiways were resurfaced and the first floor and second floor were restored, while the third and fourth floors were not restored. Dropped ceilings were added.
- **January 30th, 2002** – A new pitched roof was approved for the airport and construction began.
- **April 11th, 2008** – Final renovations began, including new furniture and basic upkeep.



Original Airport Diagram, July 1, 1945. (1)

Trans-Texas Airways Map and Timetable, September 1, 1951. (2)



Boy Scouts in the Ground Observer Corps in the Tower. February 10, 1957. (3)

Advertisement for Skyway Cafe in the Terminal, August 17, 1960. (4)



Women Fly-In for Lunch at the Airport, August 21, 1960. (5)

HISTORIC SIGNIFICANCE



Unknown Gentlemen Posing in Front of the Terminal. The "Gateway to Texas" sign was added after construction and removed at some point. This image was taken in the early 1950's (6)



Airside view of the Harrison County Memorial Airport Terminal (7)



Opening day of the Harrison County Memorial Airport. Featured is a Trans-Texas DC-3 which served the airport. An estimated 5,000 people attended the ceremonies. (8)

According to a report performed by the Texas Department of Transportation (TxDOT), the Harrison County Memorial Airport Terminal is significant because of the NRHP's Criteria C, which states, "The property must embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction." After further evaluation, it was determined that the Harrison County Airport Terminal is significant because it is representative of the Postwar Modern era of aviation architecture. This emblematic building serves as a reminder of one of the most revered eras in aviation history and thus should be preserved.

HISTORIC TERMINALS IN TEXAS



1940 Air Terminal Museum, Houston Hobby Airport. Built in 1940. Still Existing as a Museum



Fort Worth Meacham Field American Airways Terminal. Built in 1937, No Longer Existing (9)



Scholes Field, Galveston, TX Built in 1949, Still Existing (10)

CURRENT SITE USAGE

Currently on site, there are a few functions that allow the airport to bring in income.

First, the Fixed Base Operator, Central Jet Service, is operating out of the Historic Terminal. A Fixed Base Operator (FBO) is a service that is provided to pilots and passengers in the areas of fueling, flight planning, maintenance, parking, aircraft cleaning, and other services. Currently, Central Jet Service is the only FBO on the airfield.

Second, the Lone Star Wing of an organization called the Commemorative Air Force is located on the airfield. The Commemorative Air Force (CAF) is dedicated to the preservation of World War II Era aircraft. The Lone Star Wing located on the airfield currently has a PT-17 which was a military training bi-plane in the 1930's and 40's. Also on static display is a C-45 Expeditor, a modified Beechcraft Model 18 which was used as a trainer and light transport.

Scattered around the site are hangars that are leased by the county to private owners. There is not much interaction between the FBO and the private owners.

Across Warren Drive is an armory for the Texas National Guard which was built in 1957 and is still in use.

Finally, Bayou Aviation was located on the site. It was a small flight school located on the airfield that was operated until Owner and Operator Billy Gee and three others tragically passed away in a plane crash near Laramie Peak, Wyoming.



ASL
CAFLS
PHANG
TXNGA
BAYAV
Central Jet Service, Historic Terminal
Commemorative Air Force, Lone Star Wing
Private Hangars
Texas National Guard Armory
Bayou Aviation

The project serves two purposes. First, to redevelop the airfield in order to make it viable for the county and give the county more incentive to preserve the terminal. The second purpose is to preserve that asset.

The redevelopment includes: new hangars that provide a space for the Commemorative Air Force, a UPS drone facility, and a technical college. The intention is to create a campus in which the historic building serves as a conceptual anchor point while the other buildings serve as the completion of said campus.

DESIGN GOALS

TAKEOFF

05



Eastern Airlines Lockheed L-1011 Tristar. (11)



Wreckage of Eastern Airlines Flight 401. (12)

Every pilot has three words ingrained in their minds as they fly through the skies: Aviate, Navigate, Communicate. These three words carry massive importance in the event of an emergency. During the time of an emergency, the pilot is bombarded with thousands of pieces of information which can cause confusion and chaos in the cockpit. While on approach to Miami International Airport, Eastern Airlines Flight 401 was faced with an emergency. The light that indicates that the landing gear is lowered and locked into place was not illuminating. Confused, the captain, first officer, and flight engineer all fixated on fixing the landing gear issue. Because nobody was flying the plane, the aircraft crashed into the Florida Everglades killing 101 people and injuring the remaining 75. After a National Transportation Safety Bureau investigation, it was determined that the lightbulb was malfunctioning and the landing gear was functioning correctly. The investigation found that it was the flight crew's failure to "monitor the flight instruments during the final four minutes of flight" that caused Flight 401 to crash. After this investigation, several airlines started training pilots in the area of crew resource management, but it wasn't formally required until several subsequent crashes under similar circumstances. But the point remains, that hundreds of lives were lost because pilots weren't flying the plane. After these incidents, aviate, navigate, communicate was created.



Aviate. Cockpit of a Cessna 172. (13)



Navigate. FAA Sectional Map L17. (14)



Communicate. Inside of Air Traffic Control Tower. (15)



Innovate. Prototype of Autonomous Package Delivery Drone (16)

Miracle on the Hudson in New York City. (17)

Aviate

First, you have to fly the plane. If you as the pilot can do nothing else, fly the plane.

Navigate

Second, you have to figure out where you are, where you are going, where you have been, and what is around you - you have to navigate.

Communicate

Finally, you have to communicate your intentions to air traffic control, pilots around you, and fellow crew members. By sharing this information you can let others be aware of your situation. This information lets a team of people do their specific jobs to help get on the ground as safely as possible.

Innovate

One thing that is left out of these three words is innovation. Once you have aviated, navigated, and communicated, you need to innovate a solution to your problem. There have been many situations that have required an innovative approach. Most famously, the Miracle on the Hudson was an example of innovation. Captain Sully was faced with a situation where he lost two engines while climbing out of LaGuardia in New York City. He decided the best decision was to land the aircraft in the Hudson River, saving the lives of people on the ground, and potentially the people on the aircraft. He successfully landed and saved everyone on board and his innovative and quick response led to the event we know as the Miracle on the Hudson.



06

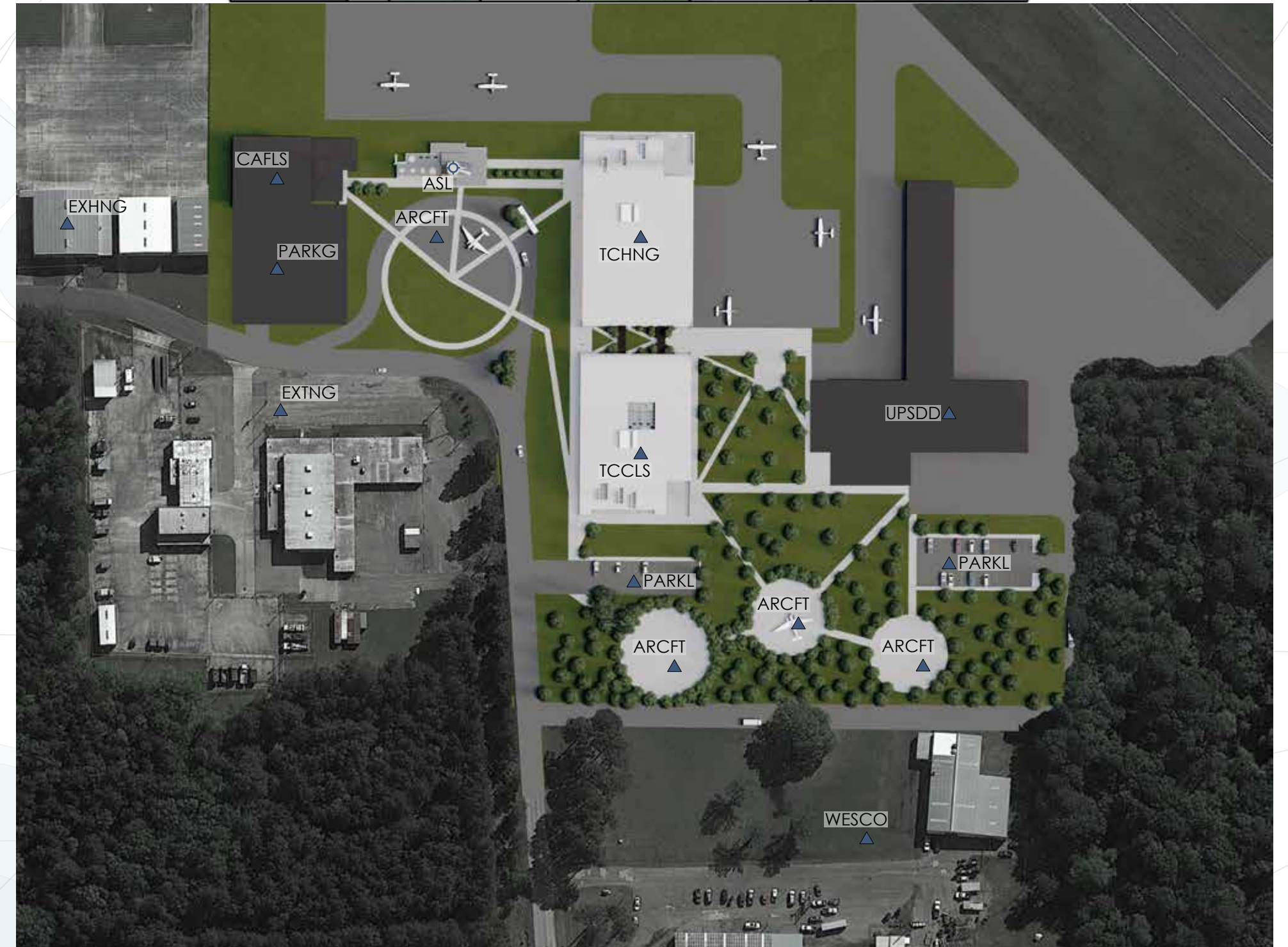
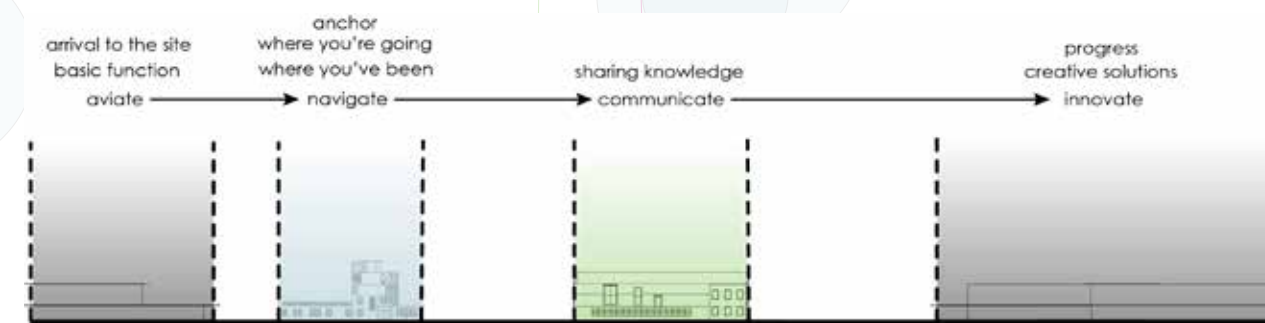
With this information, I began laying out the site and I found that by following the aviate, navigate, communicate, and innovate method, I could craft a linear progression as the visitor moved along the site.

In order to aviate, one needs to have a basic function and in this case, the basic function is to get to the site. By providing a parking garage, the visitor begins the process of aviating, navigating, communicating, and innovating.

Once the visitor has aviated, or arrived, on site, they then have to navigate. In this context, navigation not only applies to the navigation of the user around the site, using various points along the site, but navigation also applies to the historical aspect of the project. When one navigates, they need to know where they have been, where they are, and where they are going. This historical aspect of the project allows the viewer to see where aviation has been and what it looked like through the historic terminal. They also get a glimpse of what aviation is currently on the roof deck. Finally, the visitor can see the whole site from the historic air traffic control tower where they get to see the history, the current state of aviation, and a glimpse of what aviation is headed towards.

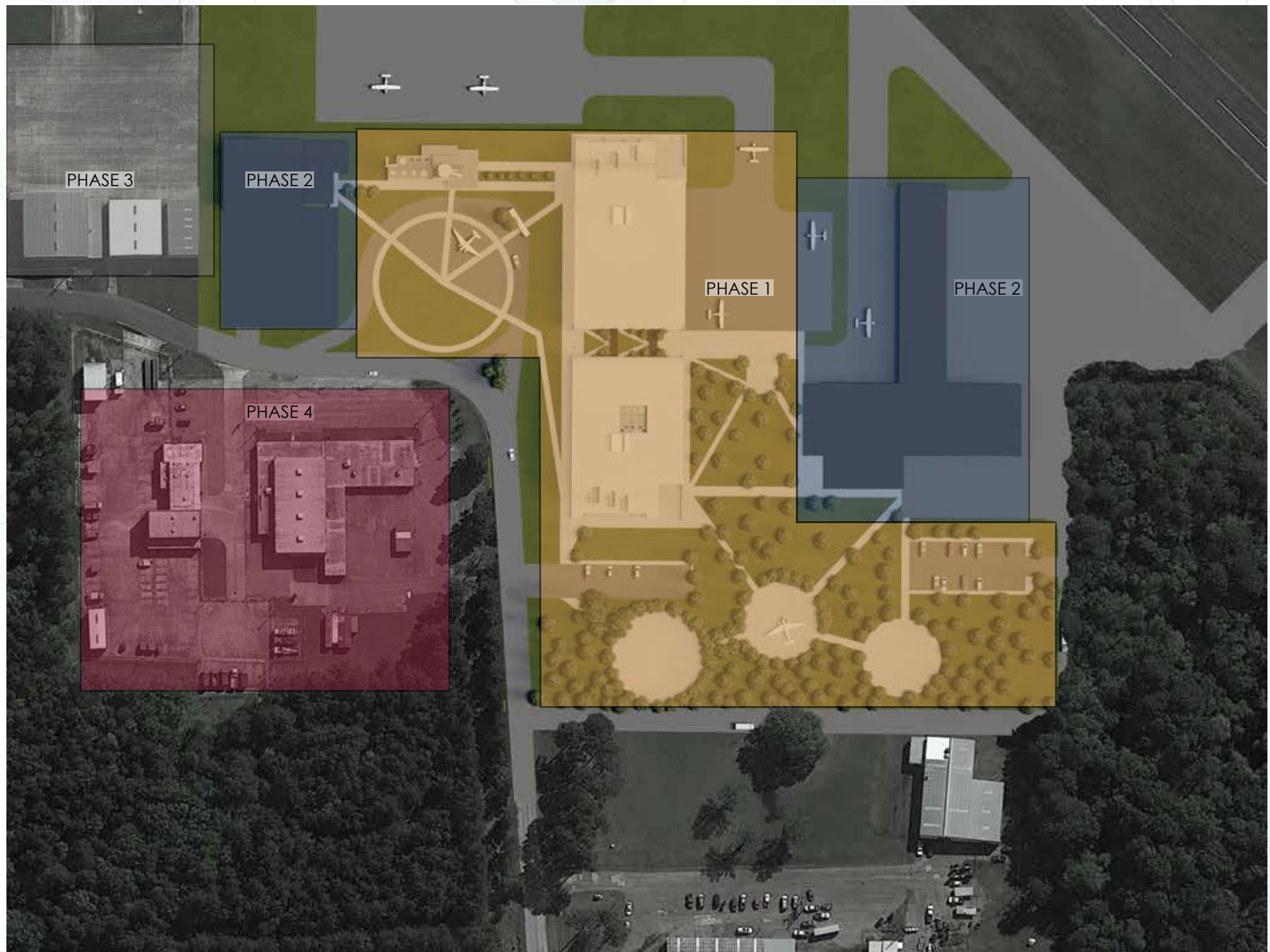
Communication in this context applies to the new technical college on the site. Communication is the sharing and teaching of knowledge and information. A more in-depth look at the communication element will be explored in the "Climb" phase.

Finally, the innovation portion of the site is reflected in the UPS drone delivery facility. Ever since Amazon created their own delivery network, UPS and FedEx have seen losses in their deliveries. In response to this, UPS is going to deliver a product that will revolutionize the industry. Through autonomous drone delivery, UPS will expand two day and same day delivery to more communities in the United States. It will also reduce the amount of carbon emissions as the flights will be conducted with electric drones.



| | | | |
|-------|---|-------|--|
| PARKG | Parking Garage | UPSDD | UPS Drone Delivery Facility |
| CAFLS | Commemorative Air Force Hangar/Meeting Space | PARKL | Surface Parking Lots |
| ASL | Harrison County Memorial Airport Terminal, Cental Jet Service, Museum, Cafe | ARCFT | Static Aircraft Displays |
| TCHNG | Technical College Hangar | EXHNG | Existing Hangars (To Be Removed and Redesigned) |
| TCCLS | Technical College Classrooms | EXTNG | Existing Texas National Guard Armory (To Remain) |
| | | WESCO | Wesco Valve & Manufacturing (To Remain) |

PHASING



Phase One consists of the rehabilitation of the historic air terminal building, the construction of the technical college buildings, and the site. This is done in order to attract new business to the terminal, open the museum, and start training students at the college while the new UPS facility is being built.

Phase Two consists of the UPS drone delivery facility, the Commemorative Air Force, and parking garage.

Phase Three consists of reconstructing and reconfiguring the hangars outside of the project boundaries.

Finally, Phase Four involves the rehabilitation of the Texas National Guard Armory.



REHABILITATION

For this project, the treatment of the historic building is classified as a rehabilitation, which "acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character. While the project follows these guidelines, there are some exceptions made due to the fact that this project is not listed on the National Register of Historic Places and this project is not a tax credit project.

There are ten standards set out by the Secretary of Interior. I chose to focus on two standards, which are standards nine and ten.

Standard Nine states that "New additions, exterior alterations or related new construction will not destroy historic materials,

features and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment." In the context of the project, anything I add to the historic building will need to respond to the historic character, but also be differentiated. I took a similar approach to the adjacent buildings with the exception of scale and proportion, due to the program of the new buildings.

Standard Ten states that "New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired." Essentially, if the new additions were to be removed in the future, the character of the historic building would not be destroyed.

CLIMB

When studying Preservation Brief 17, we must: identify the overall visual aspects, identify visual character at close range, and identify visual character of interior spaces, features and finishes.

The overall visual aspects of the historic terminal include:

- Shape: Rectangular, Obvious horizontal and vertical form, Simple form, Typology of early aviation terminals.
- Roof and Roof Features: Low slope roofs that cantilever at certain areas, North wing of the terminal was a occupiable roof deck originally
- Openings: Single pane operable windows of roughly the same size, Storefront on airside facade.
- Projections: Roof overhangs, Flat façade on the west, Stepped façade on the east facade.
- Trim and Secondary Features: Shutters on east windows, Railing around control tower
- Materials: Brick, Limestone, Glass
- Setting: Large "plaza" to the west, Set on airfield

The visual characteristics at close range aren't much, due to the nature of the era in which it was built

Finally, we need to identify the visual characteristics of interior spaces, features, and finishes which includes:

- Individually Important Spaces: Lobby, Tower, Second Floor, Conference Rooms, Roof Deck
- Related Spaces: No spaces that are technically related
- Interior Features: Staircase in Lobby
- Surface Materials and Finishes: Epoxy terrazzo finished floor, Concrete slab, Painted plaster walls
- Exposed Structure: No exposed structure

PRESERVATION BRIEF 17

To satisfy Preservation Brief 18, we must: Identify Interior Elements (Taken from Preservation Brief 17), Assess Alterations and Deterioration, look at 10 Recommended Approaches for Rehabilitating Historic Interiors, Meet Codes, use Reputable Contractors/Craftsmen, Methods of Rehabilitation, and Protect Interior Elements During Rehabilitation.

The identification of interior elements is taken from Preservation Brief 17.

The alterations of the historic terminal include the addition of pitched roofs and dropped tile ceilings, and the removal of access to roof deck.

The summary of the ten recommended approaches for rehabilitating historic interiors are as follows: Retain and preserve floor plans and interior spaces that are characteristic to the building, Avoid subdividing spaces,

PRESERVATION BRIEF 18

Avoid making new cuts in floors and ceilings, Avoid installing dropped ceilings, Retain and preserve interior features, Retain stairs in their historic configuration, Retain and preserve visible features of early mechanical systems, Avoid furring out perimeter walls, Avoid removing paint and plaster to traditionally finished surfaces, and Avoid using destructive methods.

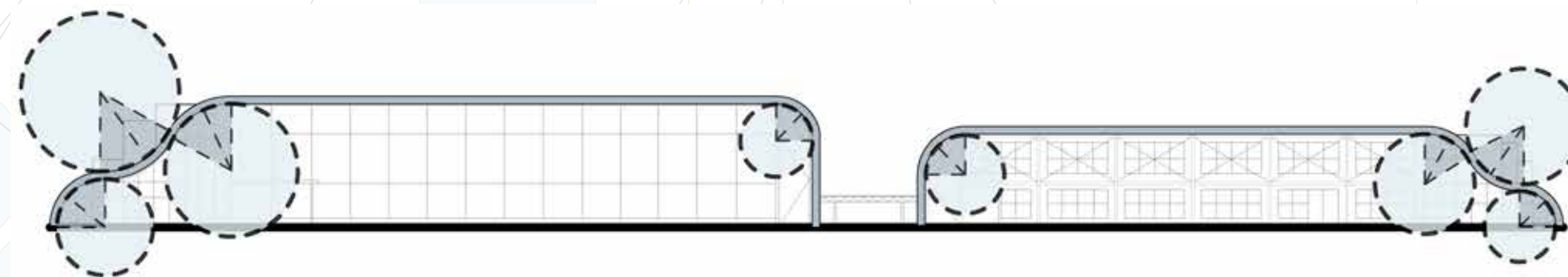
As usual, the project needs to meet codes, which is important in this project because of the lack of accessibility to the upper floors of the building. These concerns are addressed in Preservation Brief 32, Making Historic Properties Accessible.

Finally, choosing reputable contractors/craftsmen and protecting interior elements during the rehabilitation is crucial to the success of the project.





The geometric curves call back to the aerodynamic quality of aviation architectural history, as well as typologies found in aviation architecture as a whole. It responds to the historic building by staying below the air traffic control tower in the terminal.



PRESERVATION BRIEF 32

GEOMETRY

Preservation Brief 32 is concerned with making historic buildings accessible. In order to do that, we must: plan accessibility modifications, review accessibility solutions, consider an addition for accessibility, make historic landscapes accessible, and consider federal accessibility laws.

When we plan accessibility modifications, we review historical significance, assess the property's existing and required level of accessibility, and identify and evaluate accessibility options within a preservation context. The historic significance was studied in the "Pre-Flight" section as well as in Preservation Briefs 17 and 18. The property meets accessibility standards with the exception of accessibility to the upper floors of the building. The 1940 Air Museum in Houston has this same issue, but solves it by placing all of its function on the first floor and restricting access to the upper floors. While this

may be an acceptable response to the project, the client wants to make the whole building accessible and be able to show the whole public the entirety of the building.

Considering a New Addition as an Accessibility Solution. Due to spatial limitations, a new addition will be made to the historic building to satisfy accessibility requirements. This solution is explained in the "Cruise" phase.

Finally, when reviewing federal accessibility requirements, I found that under Title III of the ADA, owners of "public accommodations" must make "readily achievable" changes. While the changes required would not be classified as "readily achievable", the project calls for the entire building to be accessible, and so the project will go above and beyond existing legislative requirements.



TWA Terminal, New York City, New York. Eero Saarinen, 1962. (18)



Washington Dulles Airport, Washington D.C. Eero Saarinen, 1962. (19)



Kansai International Airport, Osaka, Japan. Renzo Piano Building Workshop, 1994. (120)

Shanghai Pudong Airport, Shanghai, China. Paul Andreu, 1999. (21)



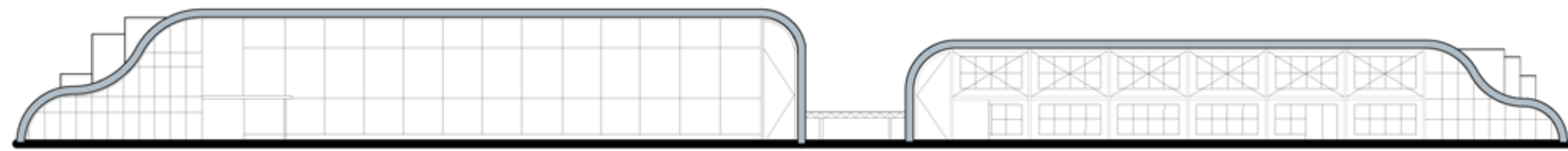
Madrid Barajas Terminal 4, Madrid, Spain. Richard Rogers and Antonio Lamela, 2004. (22)



Hangar 16, Alpes-Maritimes, France. Comte & Vollenweider, 2010. (23)

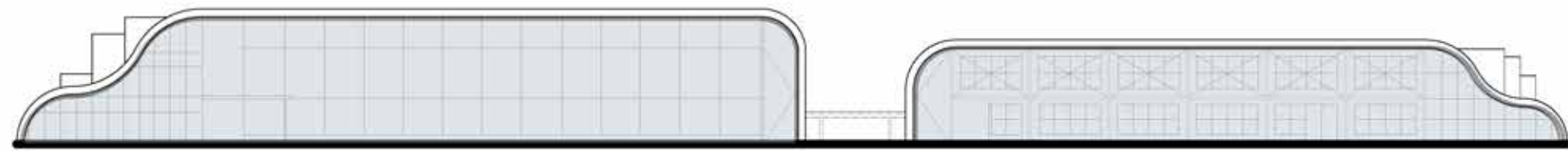


While many of us understand what aviation is, few people know the depth of knowledge required, and the sheer manpower it takes to make the industry of aviation possible. The simple outline of the building represents peoples' idea of what aviation is all about. For many people, aviation has become monotonous, to some it's become a nuisance (environmental concerns, noise abatement issues, frisking, etc.), but to most, it's simple to go to the airport, check in, go through security, board the aircraft, get off the aircraft, get their bags, and get to their final destination.

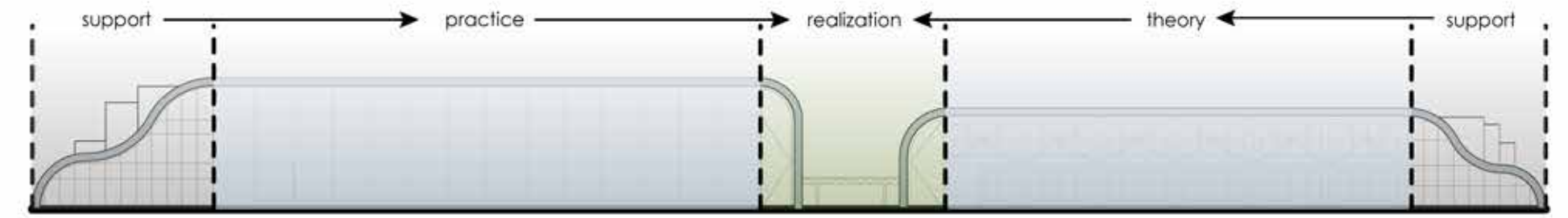


SIMPLICITY

COMPLEXITY



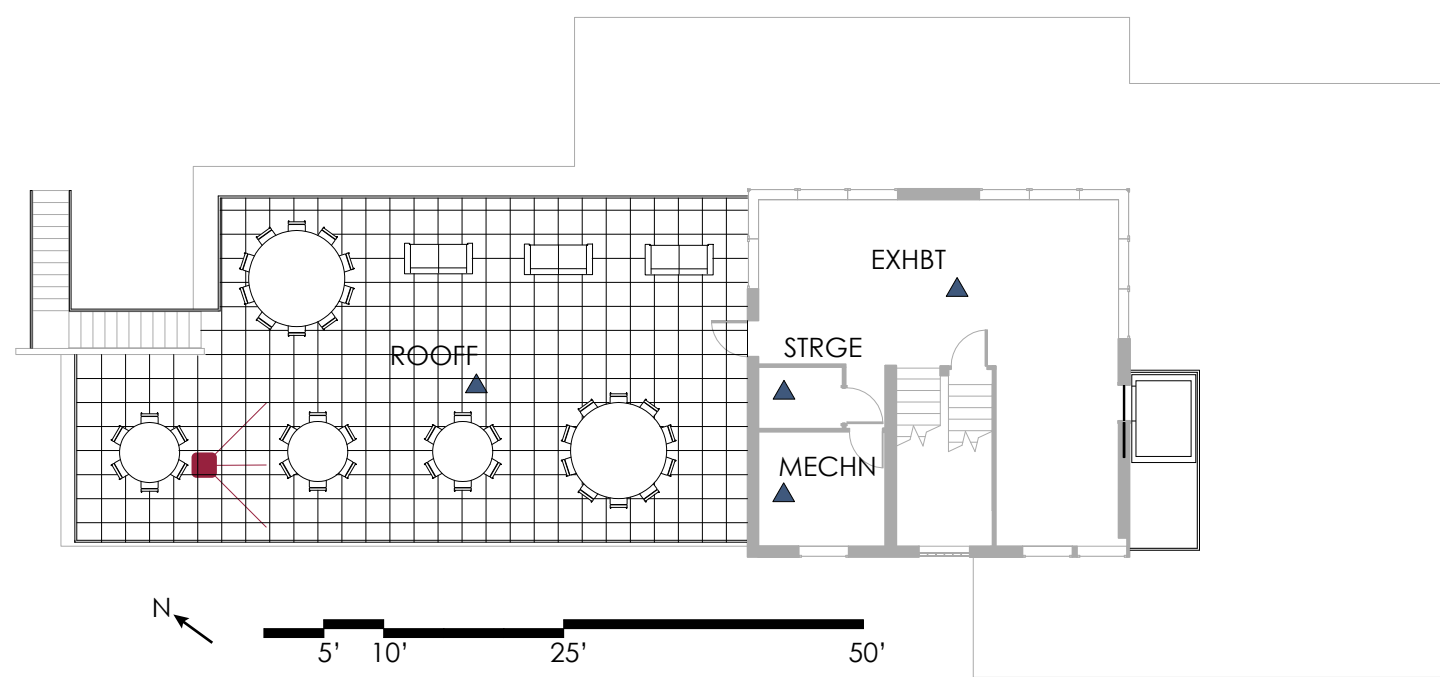
To the people who know or work in the aviation industry, aviation is a complex orchestra that has to happen in order for a flight to take place. Air traffic control, dispatch, navigation, fueling, aircraft systems, flight planning, flight training, and countless other aspects make up the industry. Therefore, the complexity of building systems and structure is evident in the design of the building to show how all the structure and systems make the simple form work.



PROGRAM

In order to effectively communicate information and teach others a skill, we need to have both theory and practice. Some tend to think that theory and practice act as separate entities, and others believe they are inseparable. Both of those views are correct. Applied to architecture, we know that architectural theory and architectural practice can be two distinct entities. But, when they come together, it forms what we and others know as the discipline of architecture. This applies to many other skills and trades, but in aviation, the combination of flight theory, and the practice of flight forms the industry and discipline of aviation. What happens if there is a focus on one instance but not the other? In aviation, a focus on flight practice leads to many of the early aviation pioneer's attempts. Without flight theory, these attempts were largely trial and error for these pioneers, which led to many failures. Over time, innovators eventually learned how to fly and then used that experience to form flight theory. When we focus on flight theory, we end up with the Boeing 737MAX. The Boeing 737MAX was created as the newest generation of Boeing 737s and was designed in a way so that pilots on previous generations would be able to fly on the new generation. However, with an updated frame and new, more powerful engines, the plane handled differently than the previous generations. To combat this, and to placate the FAA regulators, the Boeing engineers designed a system called the Maneuvering Characteristics Augmentation System,

or MCAS. This system, and its flaws, were behind the two fatal crashes that grounded the aircraft. In this case, the thought process and the theory were correct, but a failure in the practice and implementation led to those crashes. This along with questionable business and safety practices reported by employees, led to the situation regarding the Boeing 737MAX. If we apply this information to the building concept, we come up with a design with two buildings. One representing flight practice, and one representing flight theory. The building on the left contains the hangar, which is where the practice of flight occurs. Also contained within the flight practice building are shops that support the hangar as well as full-motion flight simulators. The adjacent volume is a support space which is a multi-use lobby and event space. The building on the right contains the classrooms where flight theory and aviation theory are taught. The adjacent volume houses the administration offices. Both of these buildings come together in a courtyard which represents the coming together of flight theory and flight practice, resulting in the realization of the discipline and industry of aviation. While the courtyard serves the functional purpose of allowing smooth transition between buildings, they also lead the visitor to view the result of the intersection of practice and theory. The visitor gets a close up view of the ramp for the technical college as well as the UPS facility.



CRUISE

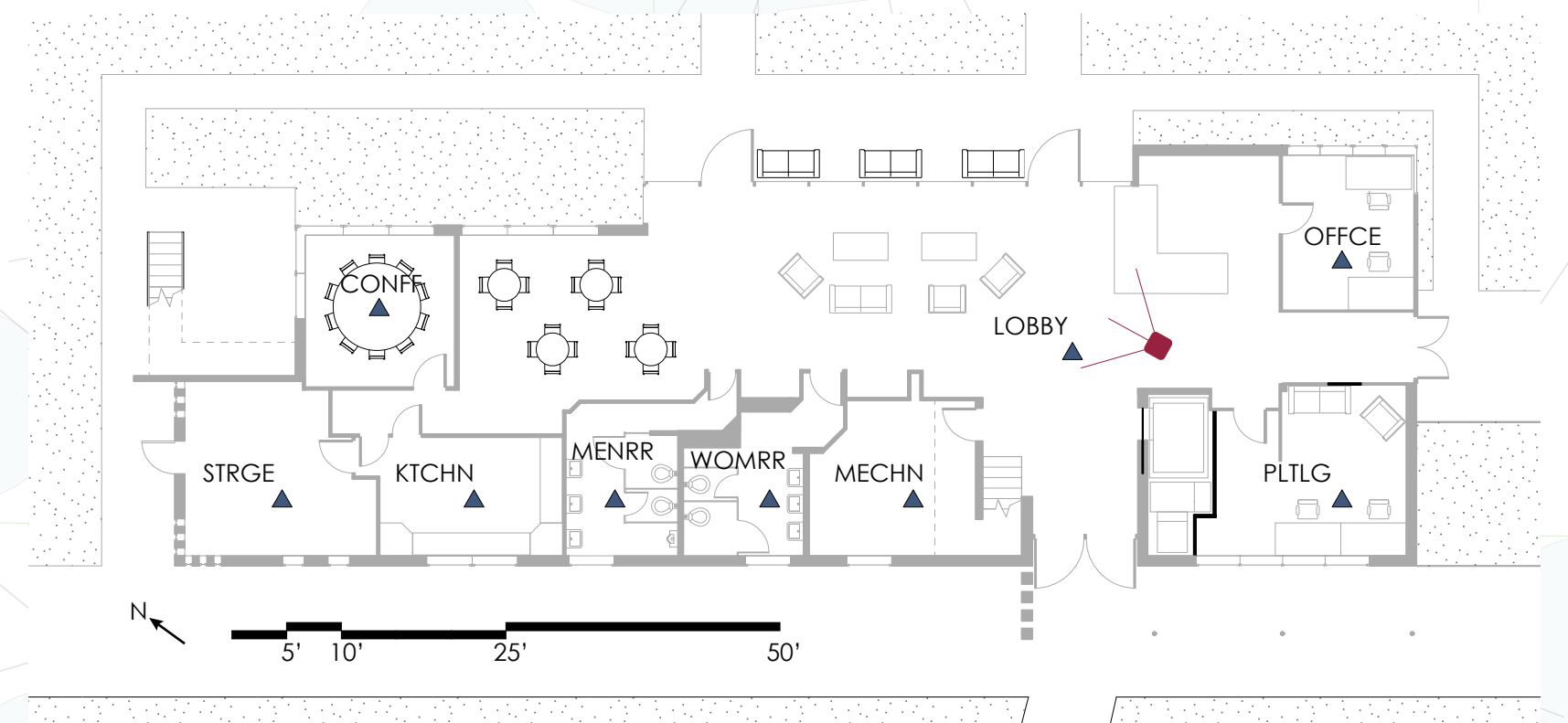
As previously mentioned, the historic building is going to follow certain guidelines set out by the Secretary of Interior. That being said, the building is not restricted by those guidelines because it is not listed on the National Register of Historic Places.

After analyzing the building, there are a few modifications that were made to the building. All new elements have an element of cross-bracing to relate to the new construction.

First, the historic roof deck was restored. This was characteristic of many airfields of the time and was important to restore for the success of the project. This roof deck allows visitors to dine, to gather, to socialize, to view the airfield, and to view the plaza.

| | |
|-------|-----------------|
| ROOFF | Roof Deck |
| EXHBT | Exhibit Space |
| STRGE | Storage |
| MECHN | Mechanical Room |

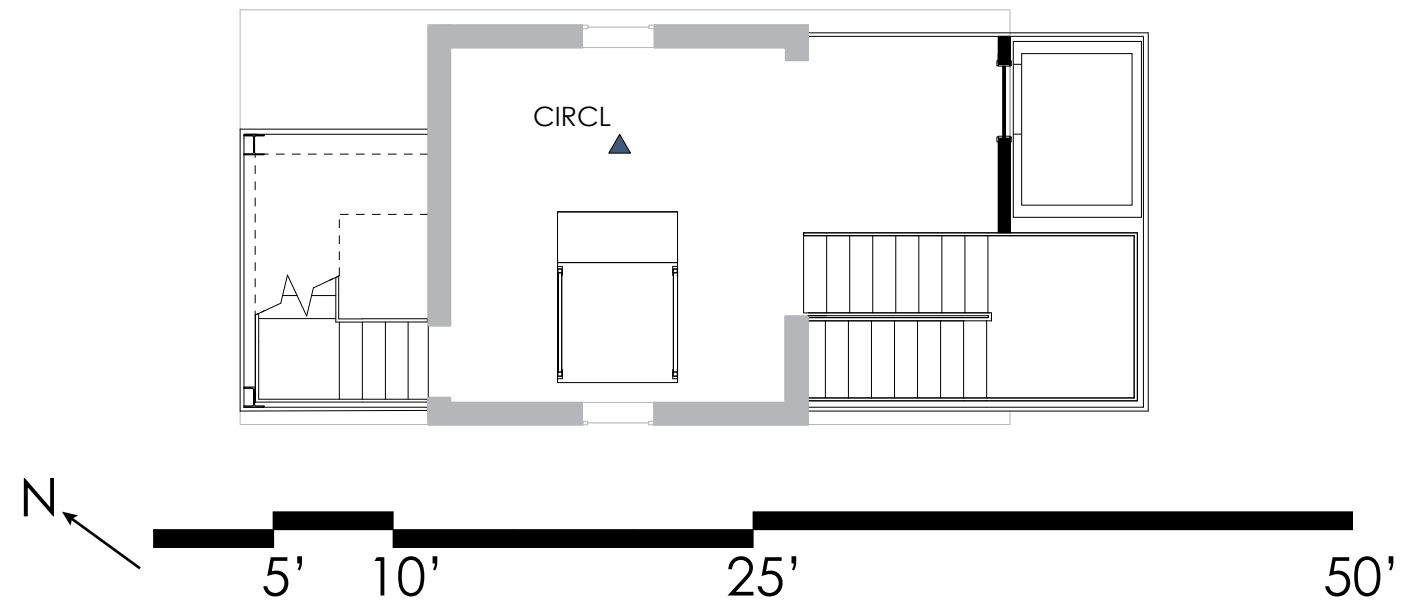




- LOBBY
- OFFCE
- PLTLG
- CONFF
- STRGE
- KTCHN
- MENRR
- WOMRR
- MECHN

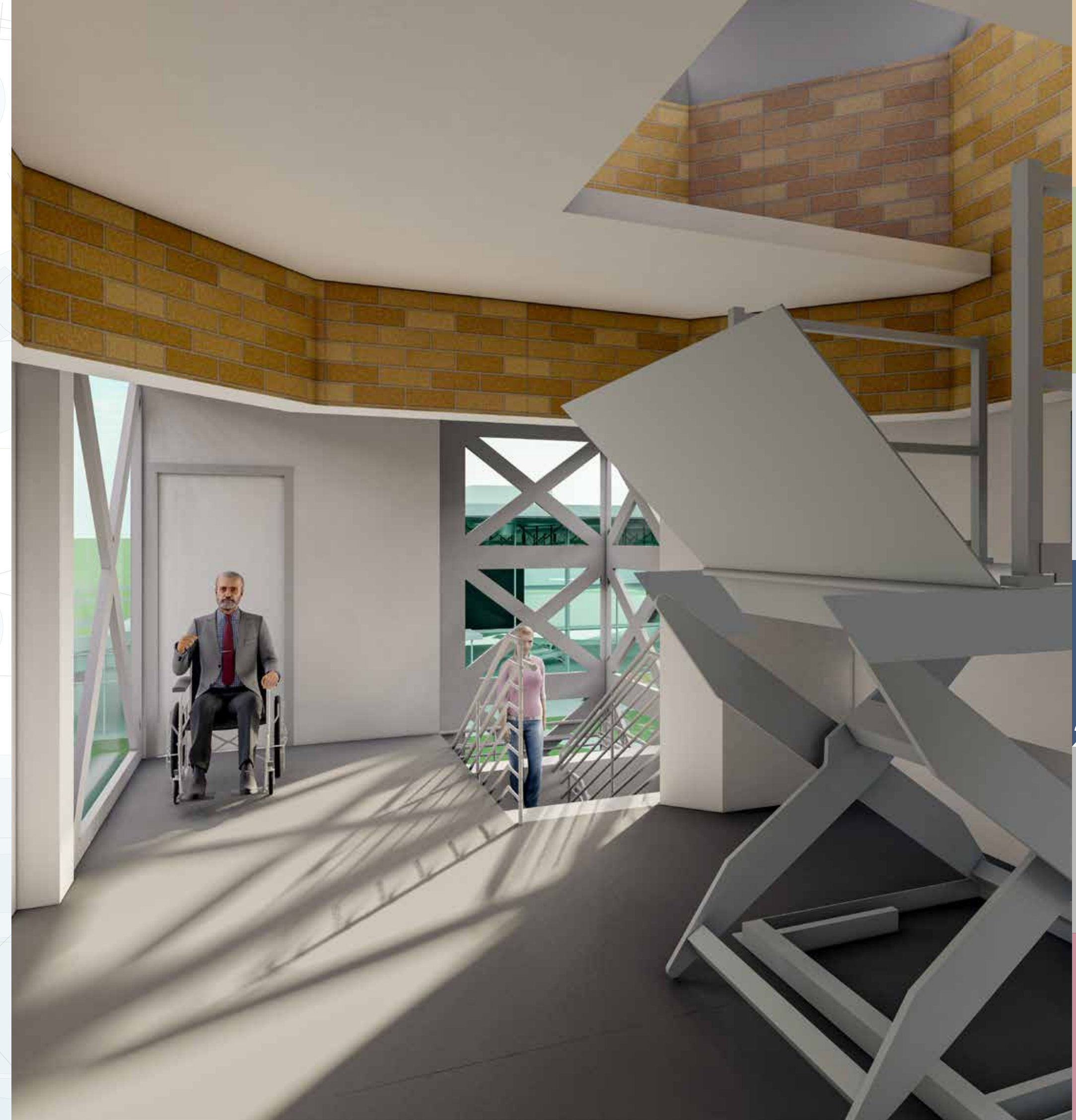
- Lobby
- Office
- Pilot's Lounge
- Conference Room
- Storage
- Kitchen
- Men's Restroom
- Women's Restroom
- Mechanical Room

Second, the Café/Restaurant, which was previously located at the airport, was restored. Airport restaurants are a gem in general aviation for aviation enthusiasts. Restoring this function to the airport will help aid the function of the technical college, but also will aid in bringing tourism to the airfield.



CIRCL Circulation Lobby

Finally, the Accessibility was assessed for the upper floors of the terminal. Due to a lack of space, it was determined that the best solution to add an elevator was to add an elevator shaft to the exterior of the building. On the south side of the building, the elevator travels from the first floor, entering from the lobby, to the fourth floor, entering into another space where a lift will take visitors to the tower. Currently existing is a metal staircase which doesn't meet accessibility standards. To solve this issue, there is a new staircase that will take visitors from the fourth floor to the tower.



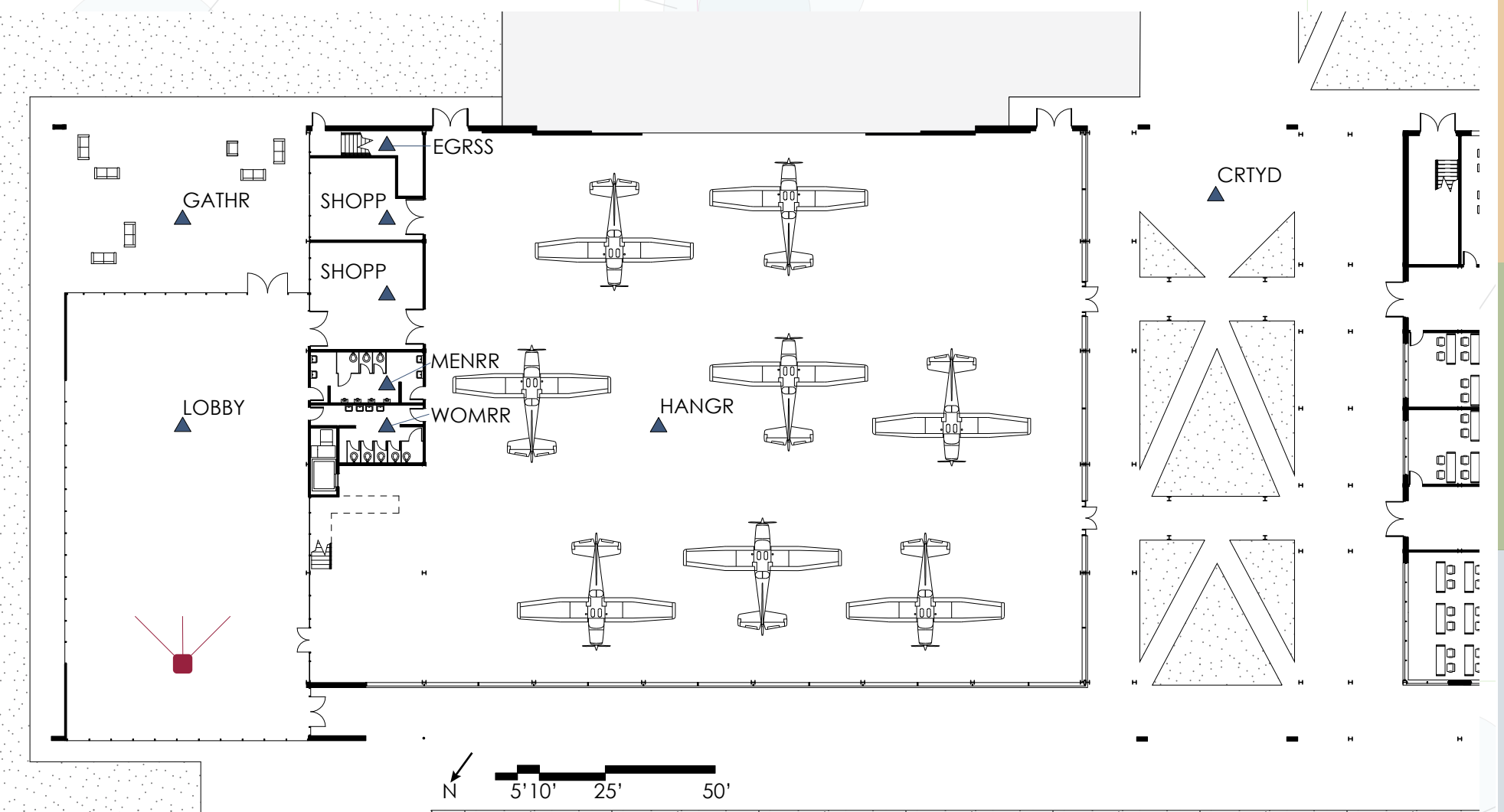


The building elevation of the new construction was critical due to both the programming of the technical college, and for the completion of the plaza for the purpose of the entire project. The technical college calls for an eye-catching front facade which will draw viewers in. Therefore, the front elevation was carefully developed. While visiting the Texas State Technical College, Waco campus, I discovered that the aviation education building on campus did not convey the message



of aviation through its architecture. With this in mind, the project called for the architecture to reveal its purpose to the visitor. The large curtain wall on the hangar allows visitors to view all the activity happening within the hangar, clearly linking the building to aviation. The structure is also conveyed in the elevation, showing the logic of the conceptual design, which shows the complexity within the simplistic form.

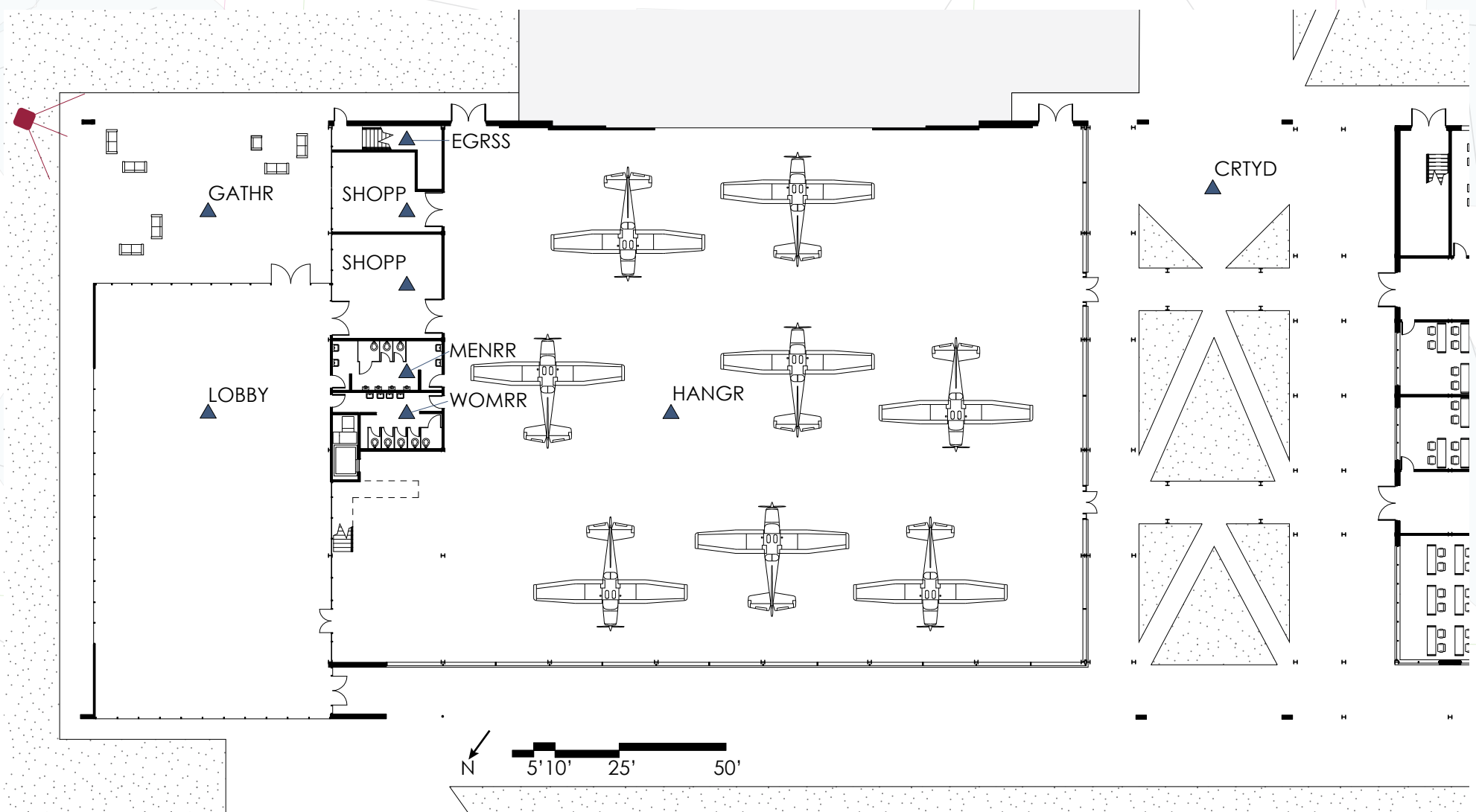




- LOBBY
 - GATHR
 - EGRSS
 - SHOPP
 - WOMRR
 - MENRR
 - HANGR
 - CRTYD
- Lobby
 - Outdoor Gathering Space
 - Egress Stair
 - Hangar Shops
 - Women's Restroom
 - Men's Restroom
 - Hangar
 - Courtyard

The hangar building consists of three main functions: the event lobby, the shops and simulators, and the hangar itself. In this building we see the cross-bracing elements that are added to the historic building.

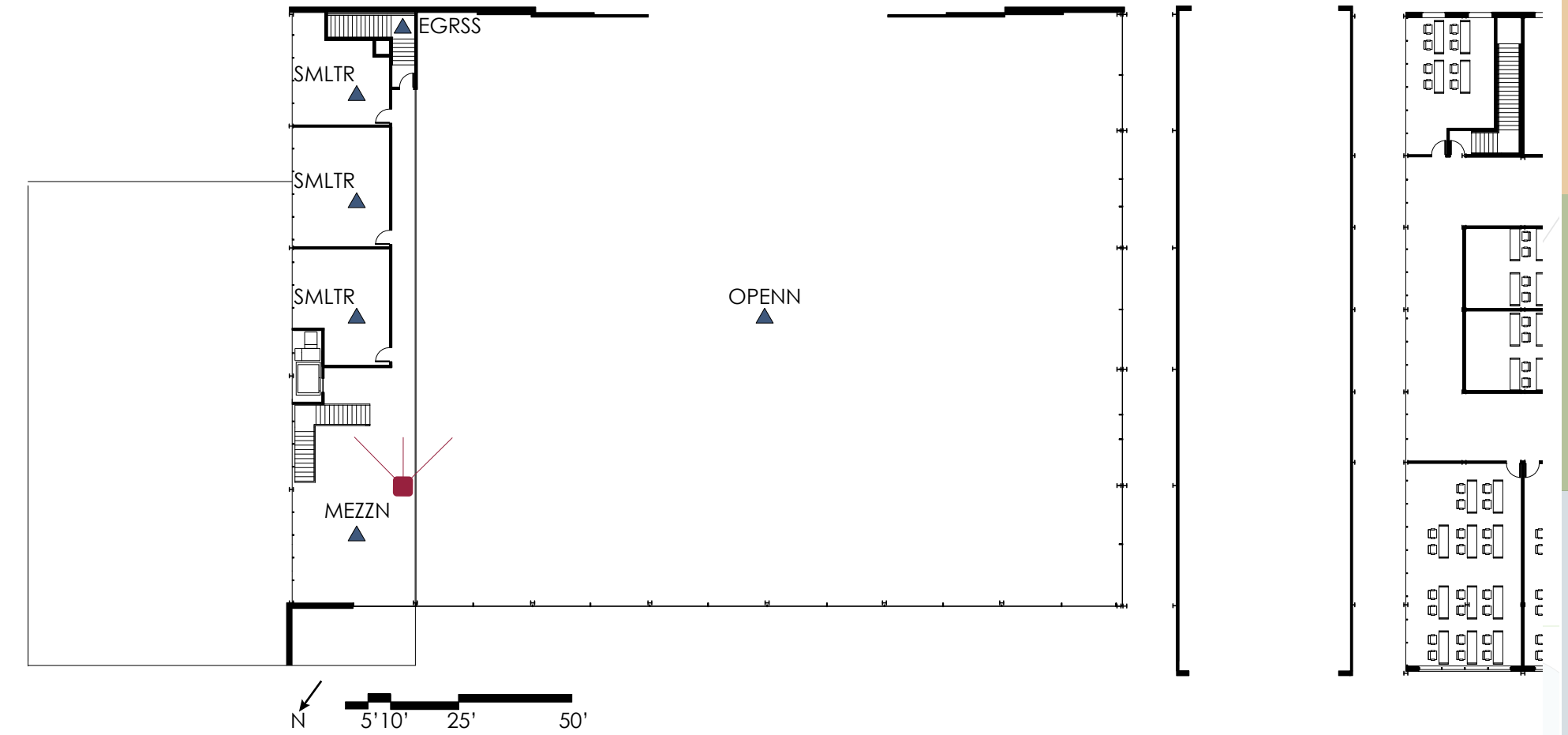
The event lobby form is derived from the sweeping curve that brings the building to the ground. The entry forces viewers to see directly through to the airfield, reinforcing the idea of the purpose of the building. The large curtain walls on either side of the space allow light and views to permeate the space, once again showing the purpose of the building. Finally, the curtain wall to the west shows a view into the hangar. There are skylights that capture southern light and bring it into the space without heating the building. On all sides, there is a good opportunity to have a background for an event whether it be the shops, the airfield, the building form, or the hangar.



27 There is a small gathering plaza acting as an exterior extension of the event lobby. This gives a full view of the runway and allows for events to spill into the plaza and for students to spend time outdoors during breaks.

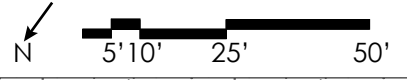
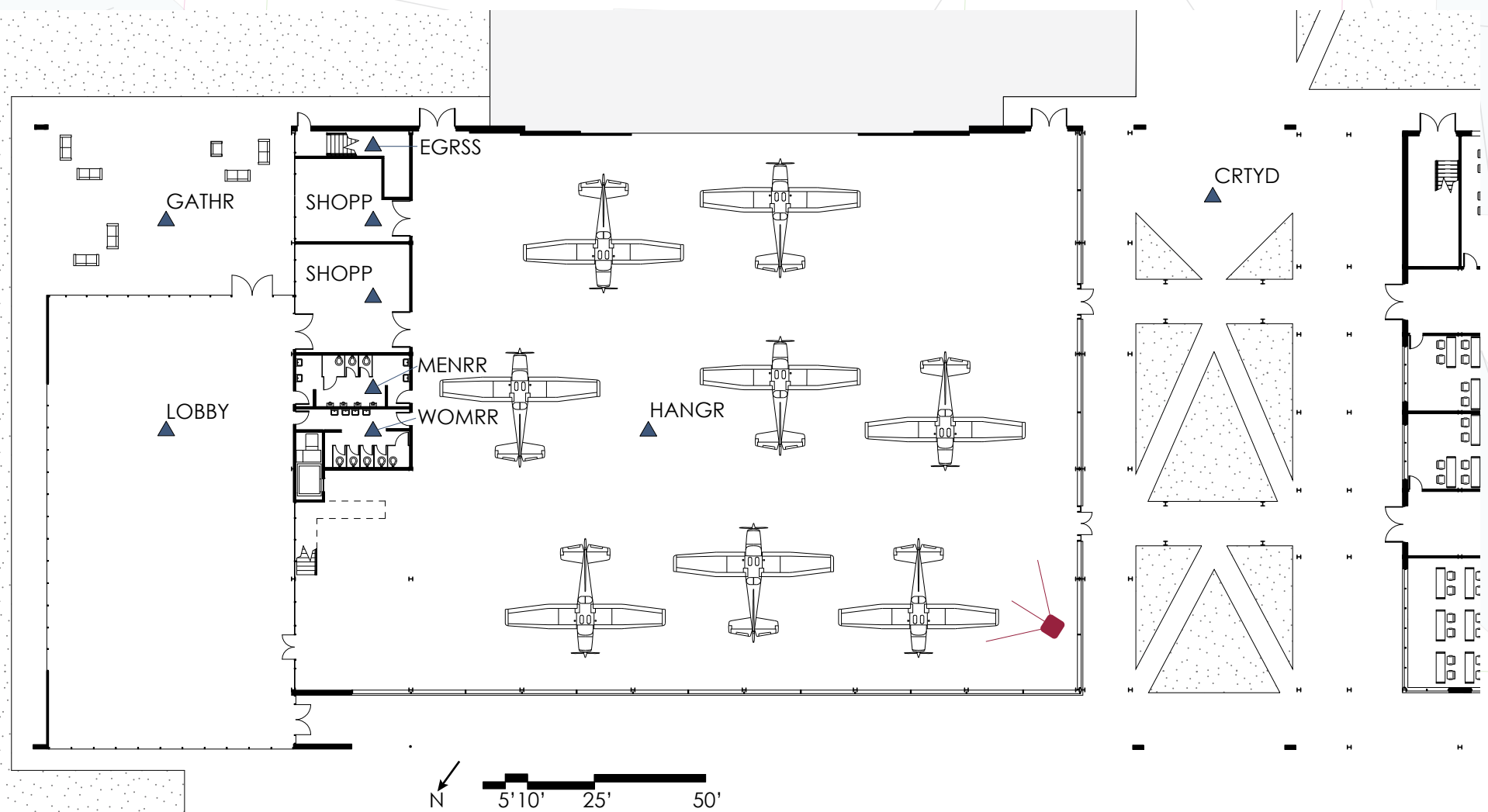
- LOBBY
 - GATHR
 - EGRSS
 - SHOPP
 - WOMRR
 - MENRR
 - HANGR
 - CRTYD
- Lobby
 - Outdoor Gathering Space
 - Egress Stair
 - Hangar Shops
 - Women's Restroom
 - Men's Restroom
 - Hangar
 - Courtyard





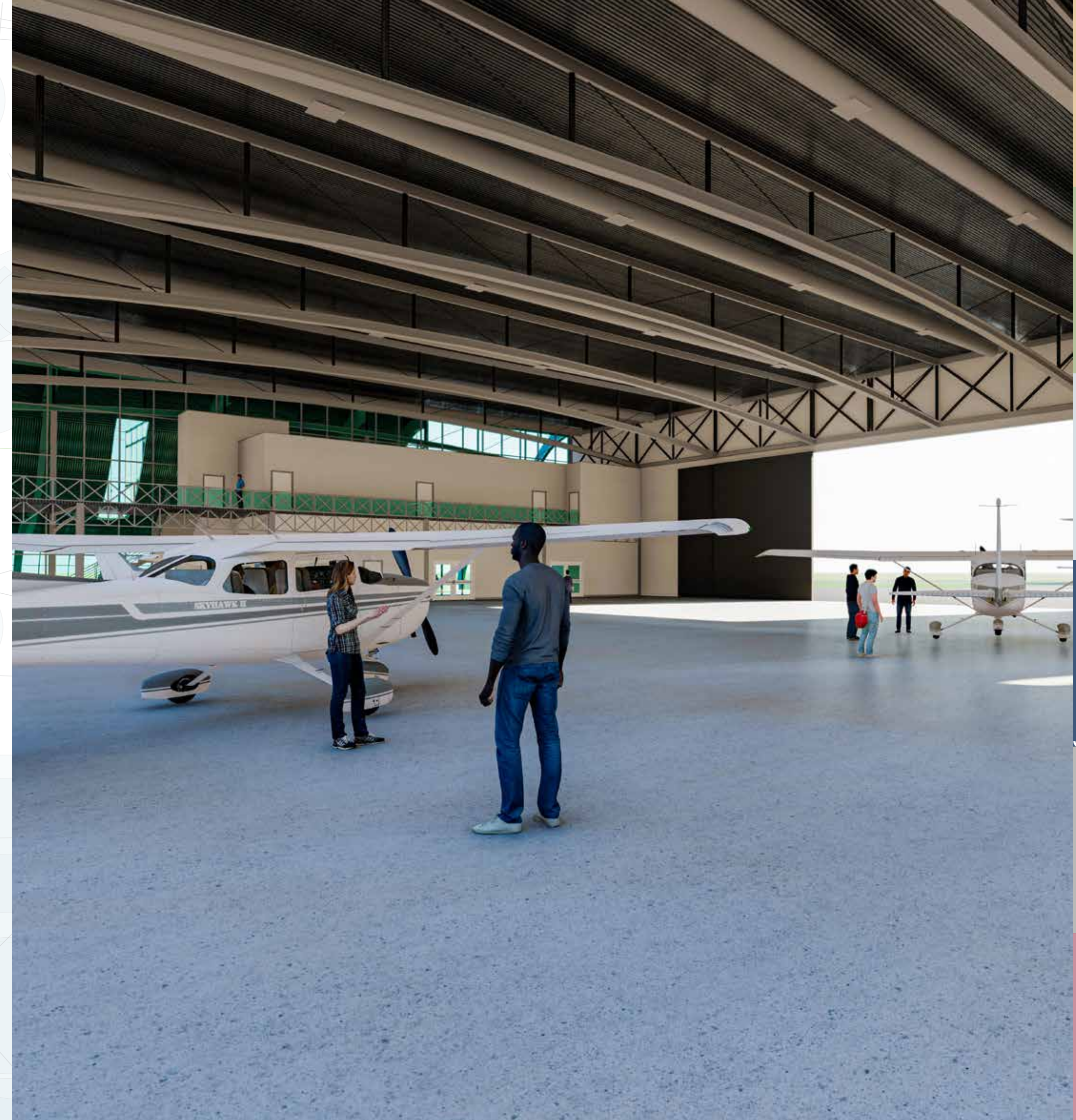
MEZZN Mezzanine
 SMLTR Simulator Rooms
 EGRSS Egress Stair
 OPENN Open to Below

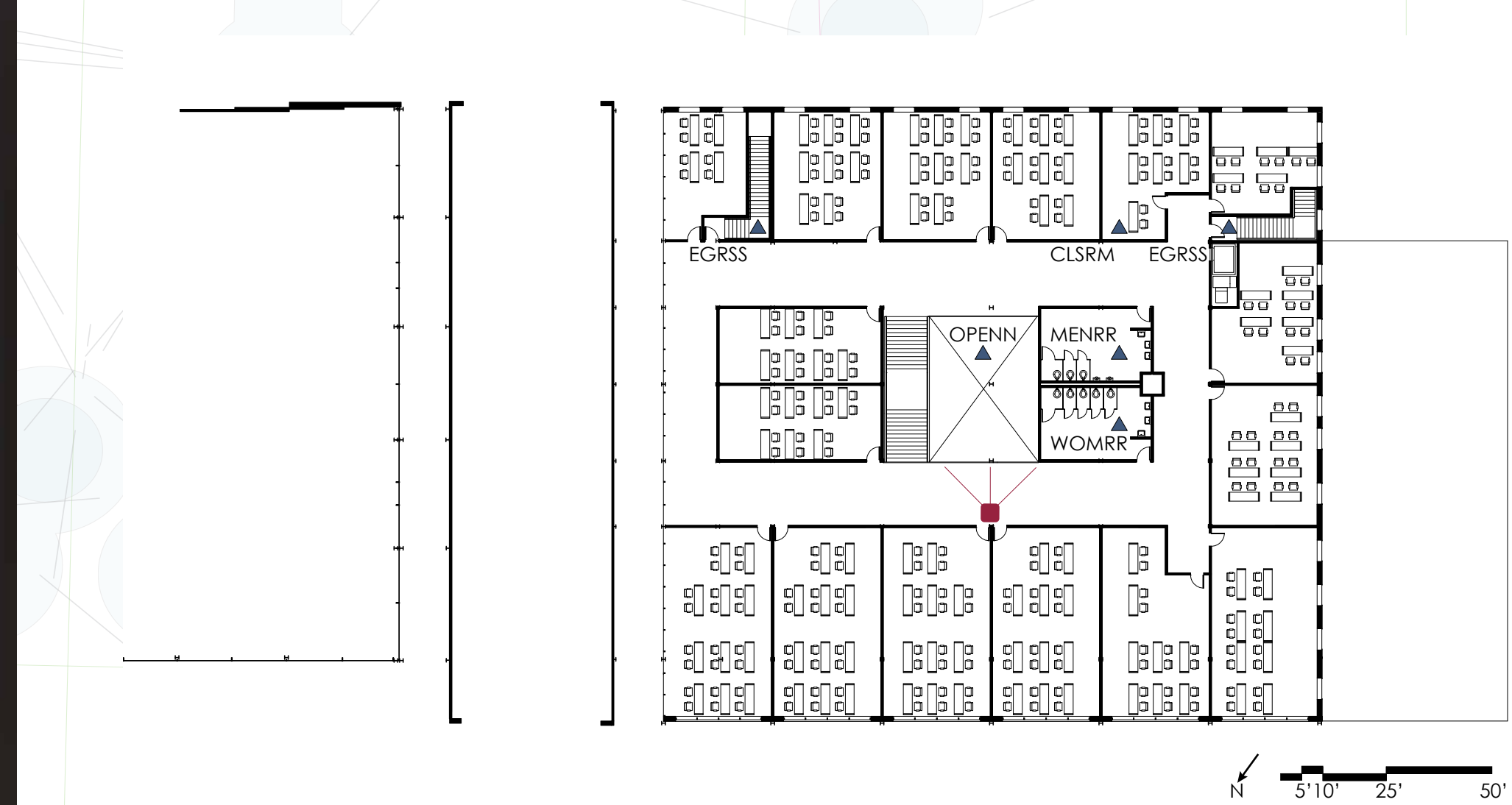
Moving into the shops, the mezzanine calls back to traditional hangar design and allows for optimization of the space. On the first floor, there is an interstitial space between the event lobby and the hangar floor, allowing for a safe zone for visitors to see and hear the action in the hangar up close, while keeping in mind the safety of the visitor. On the second floor are full-motion simulators and air traffic simulators allowing for more in-depth training of pilots, air traffic controllers, and dispatchers.



The hangar is an 18,800 square foot open space allowing for the storage and maintenance of many aircraft and many different types of aircraft ranging from small personal aircraft such as the Cessna 172, small business jets such as the Embraer Phenom, and small turboprop regional airliners such as the De Havilland Canada Dash 8. The truss structure allows for this space to happen. The curtain wall on the north side allows for ambient light to shine into the hangar and it also allows for visitors from the outside to have full view of the activities in the hangar. Similarly, the curtain wall to the west allows light to enter in the afternoon and for the visitor to view the hangar from the courtyard.

- LOBBY
 - GATHR
 - EGRSS
 - SHOPP
 - WOMRR
 - MENRR
 - HANGR
 - CRTYD
- Lobby
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 - Courtyard



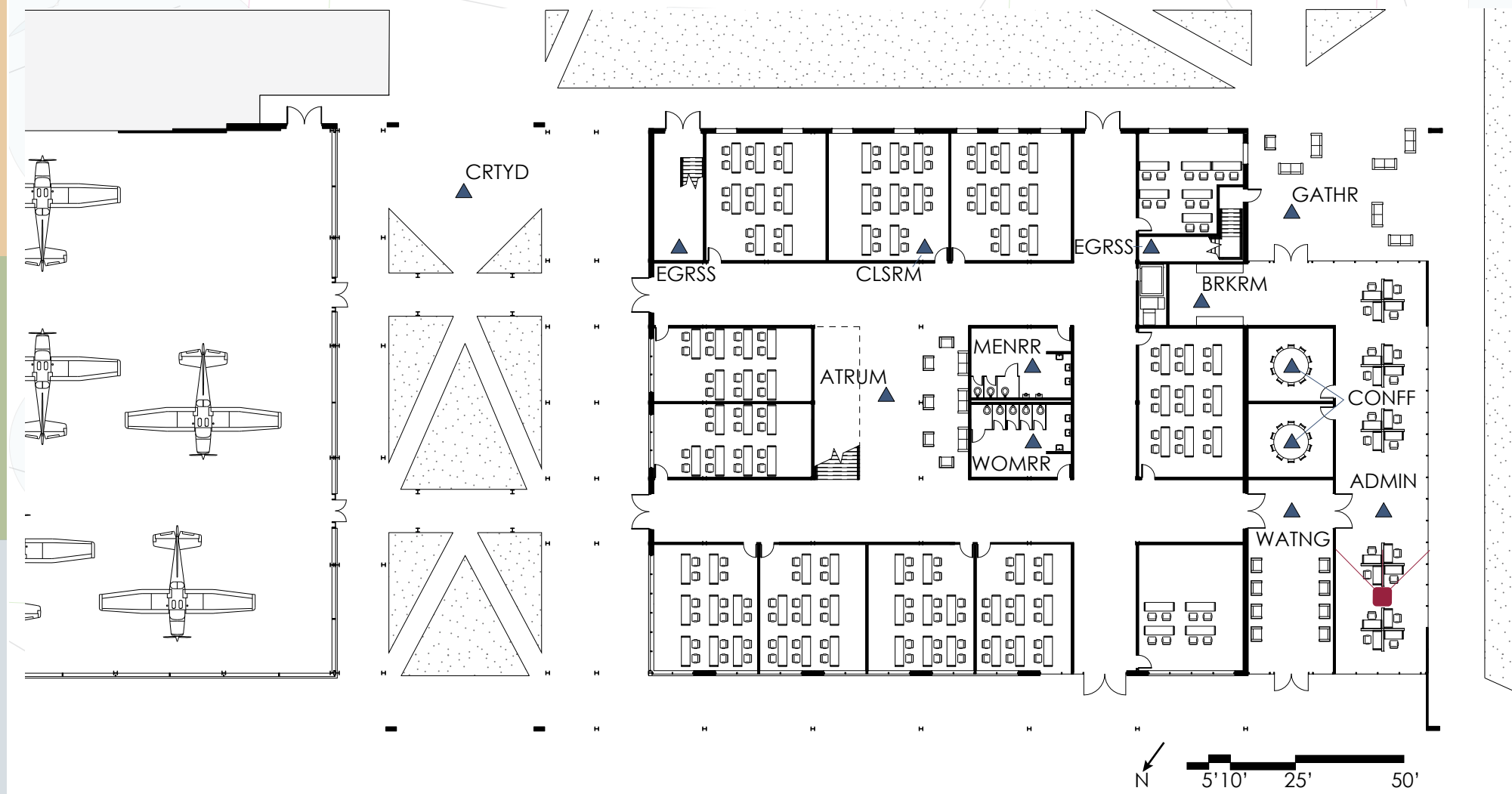


OPENN
 MENRR
 WOMRR
 CLSRM
 EGRSS

Open to Below
 Men's Restroom
 Women's Restroom
 Typical Classroom
 Egress Stair

The classroom building only contains two functions. It houses the administration offices as well as the classrooms themselves. The exterior of the building also expresses the cross-bracing repeated throughout the project.

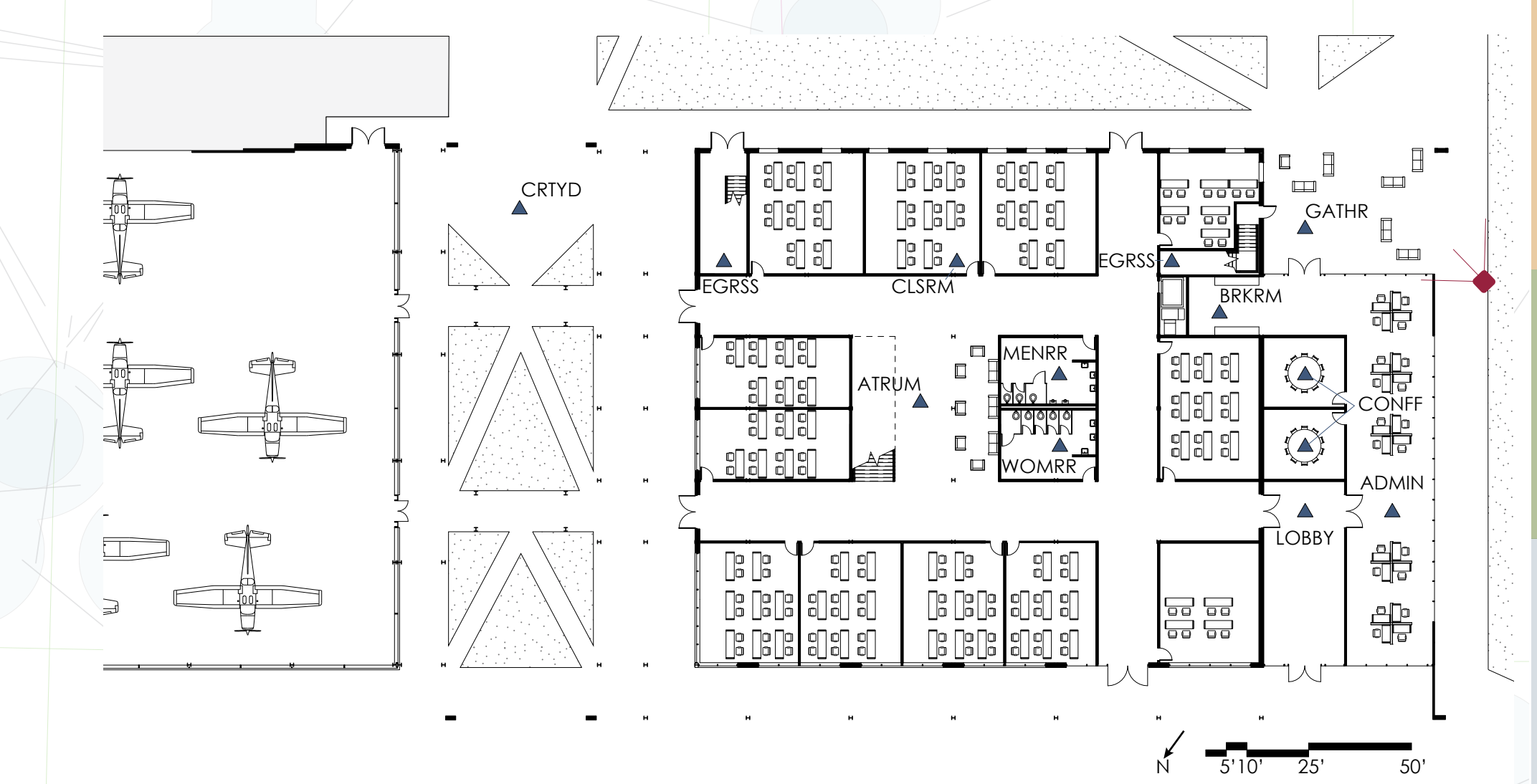
The classrooms are laid out so the maximum number of classrooms can have an exterior view. There are a few classrooms contained on the interior of the buildings, but these classrooms will house equipment that needs to be contained within a more stable environment. Also contained within the interior are the restrooms. An atrium allows light to penetrate the space and it also serves as a communal gathering and waiting space in between classes.



35 The administration space is similar to the event lobby and allows for an open office concept. There is a reception for visitors to wait, separating the public waiting room and private office spaces. There are also two conference rooms and a break room for the staff and faculty. Similar to the event lobby, sunlight is captured through the use of curtain walls and protruding skylights.

- WATNG Waiting Room
- ADMIN Administration Offices
- BRKRM Break Room
- GATHR Outdoor Gathering Space
- EGRSS Egress Stair
- CLSRM Typical Classroom
- WOMRR Women's Restroom
- MENRR Men's Restroom
- ATRUM Atrium
- CRTYD Courtyard





- WATNG Waiting Room
- ADMIN Administration Offices
- BRKRM Break Room
- GATHR Outdoor Gathering Space
- EGRSS Egress Stair
- CLSRM Typical Classroom
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- MENRR Men's Restroom
- ATRUM Atrium
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Finally, another outdoor gathering space occurs to the south of the administration space allowing students and faculty to take advantage of the outdoor landscape and to have views of the ramp, reminding them of what their studies are all about.

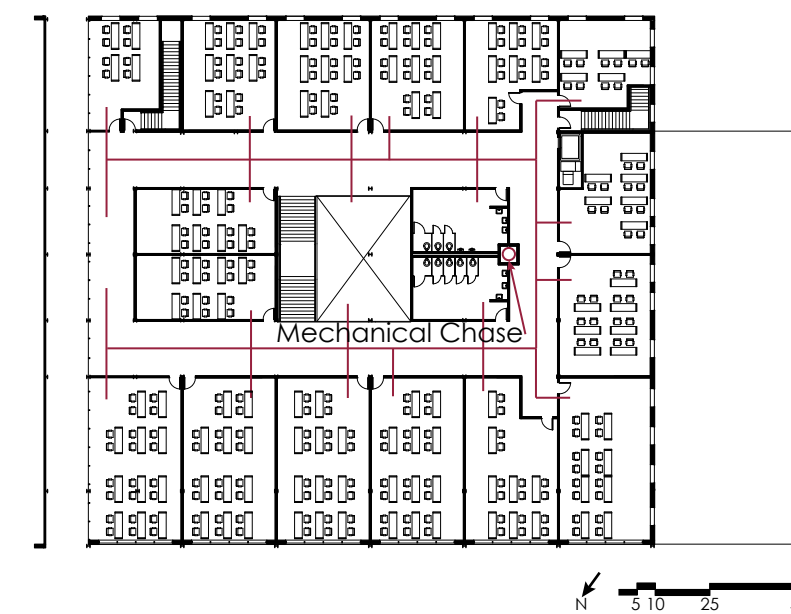
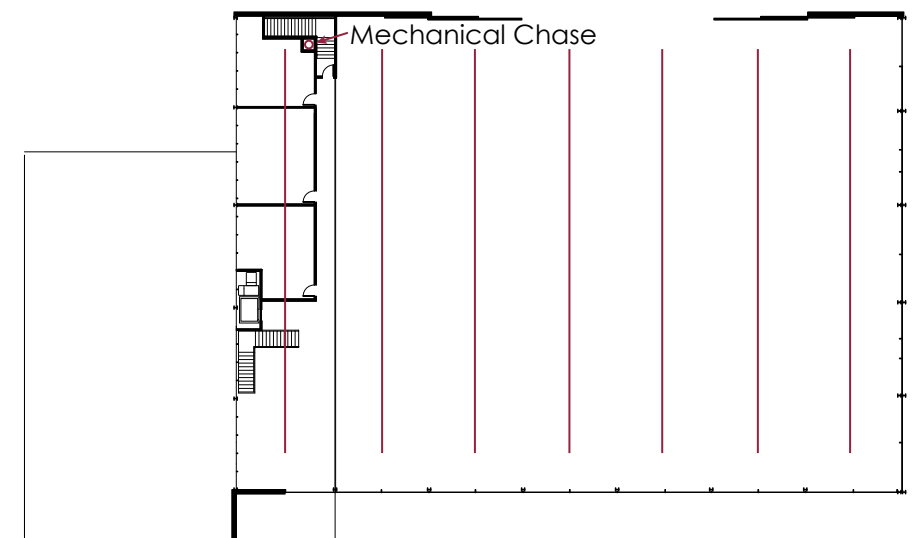
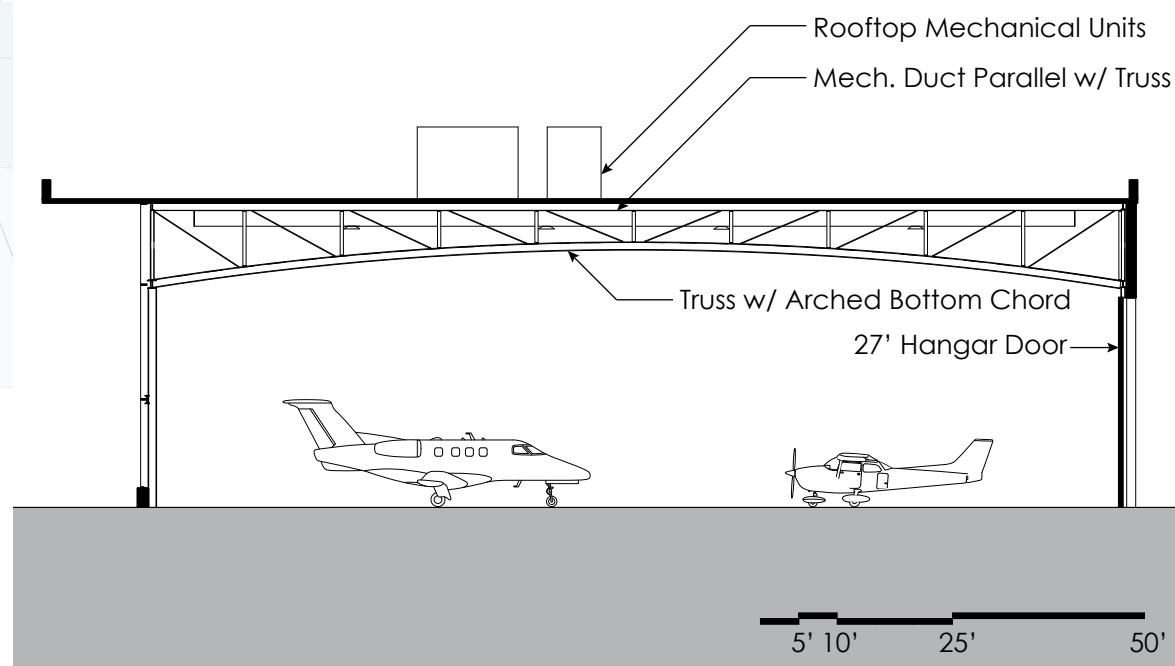
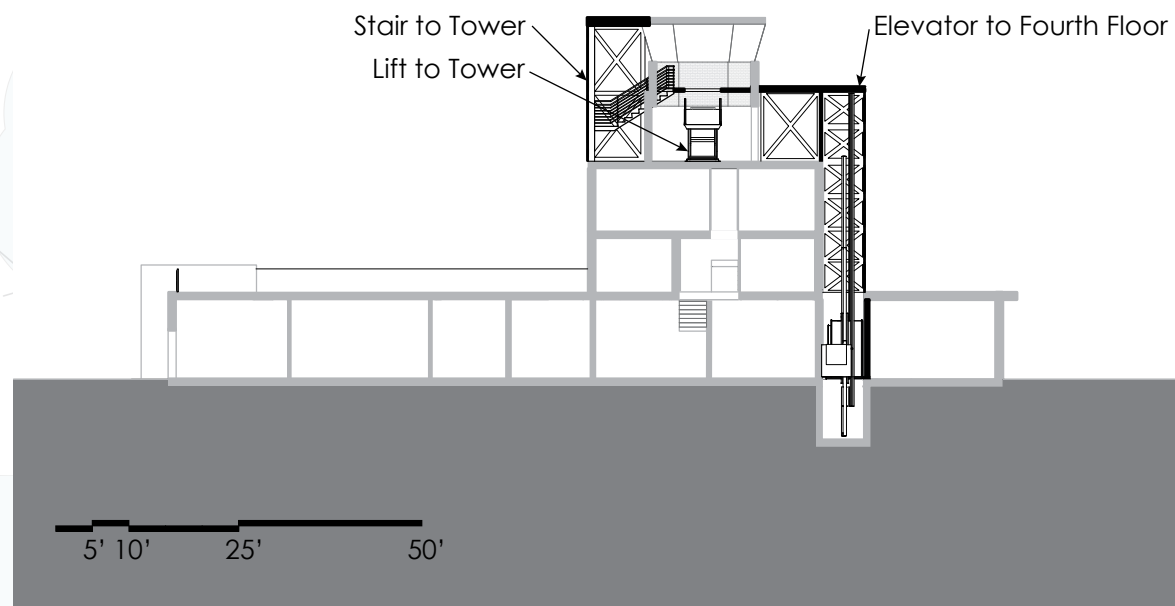
The structural system is not significantly altered in the historic terminal other than a new cut in the roof for the elevator and a new, lower foundation for the elevator. This will have minimal impact on the historic structure as the elevator shaft essentially acts as a separate structure which then attaches to the existing. No work was necessary for the roof deck, as it was already built to sustain the loads of a roof deck. The roof beneath the new staircase on the north side needed to have some additional bracing because the staircase and its enclosure will essentially rest on the existing structure.

The structural systems of the hangar and the classrooms are different systems, mostly driven by the different functions and performance needed from each structure.

The classroom structure is a post and beam structure which allows for 15' corridors and for the structure to define the classroom layout. The open structure also made room for the central atrium space.

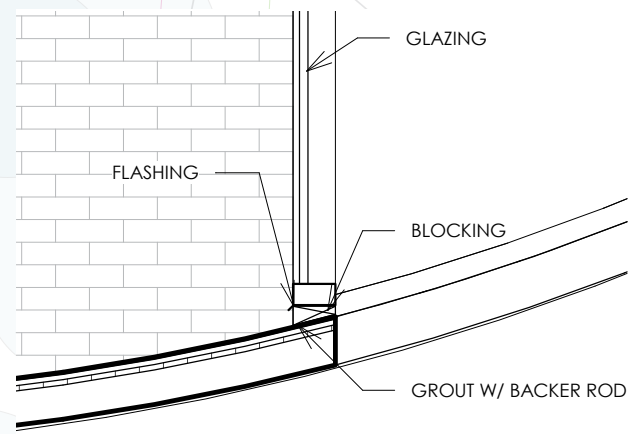
The hangar structure is a truss system designed to maximize the open space available for the hangar floor. The load on the trusses are transferred to trussed girders which then transfer the load to the ground.

The attached masses of the event lobby and administration are curved steel members that act as a slanted beam which allows open space to occur in both those functions.

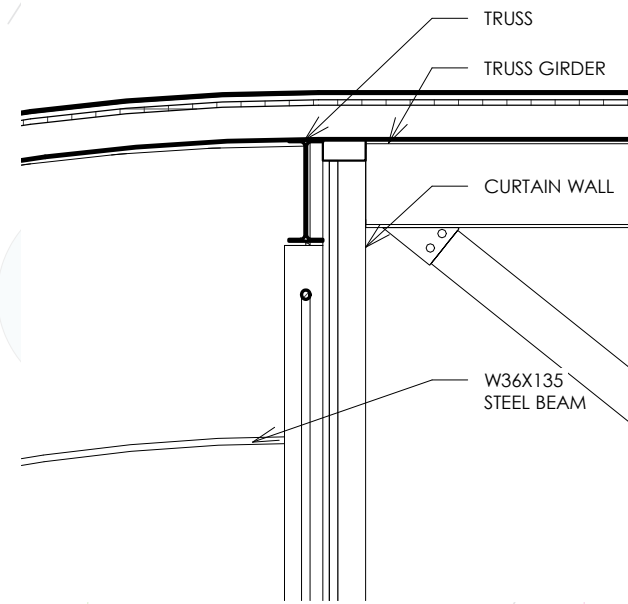


The mechanical system consists of rooftop units that supply the classrooms and hangar with air and ventilation. Because of the intention of the project, the ducts are all visible and integrated with the structure. The main duct runs down the corridors in the classroom building and then are fed into each classroom. There is a mechanical chase that then brings the system to the first floor and repeats the same layout. The hangar is fed through ducts that run parallel with the structure and supply the entire space with heating and cooling.

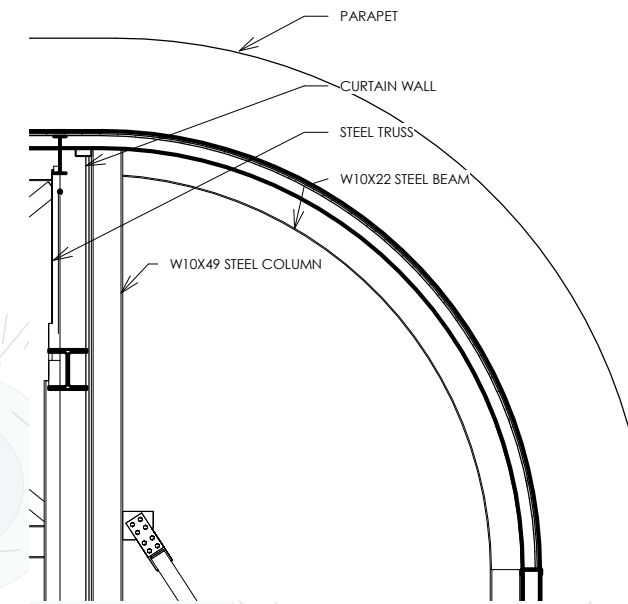
DESCENT



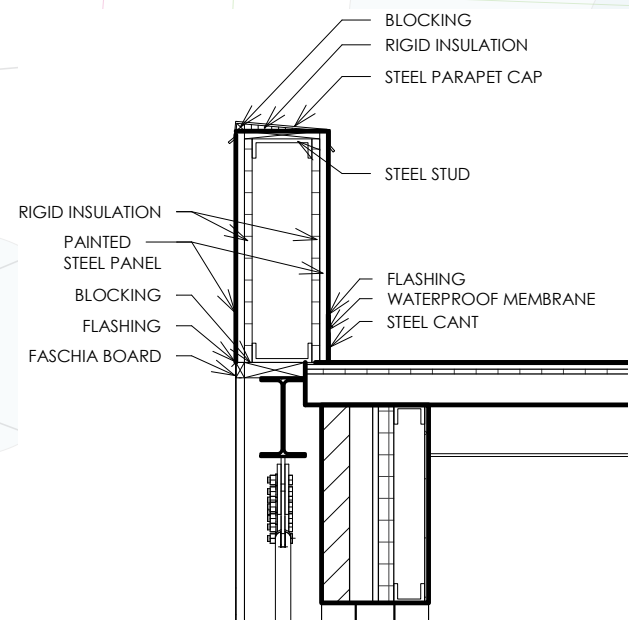
Skylight Connection to Curved Frame.
1/2" = 1'-0" Scale



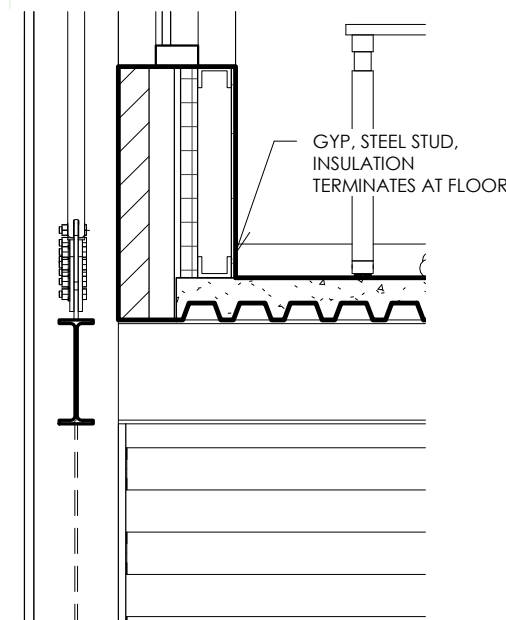
Curtain Wall Connection to Curved Frame.
1/2" = 1'-0" Scale



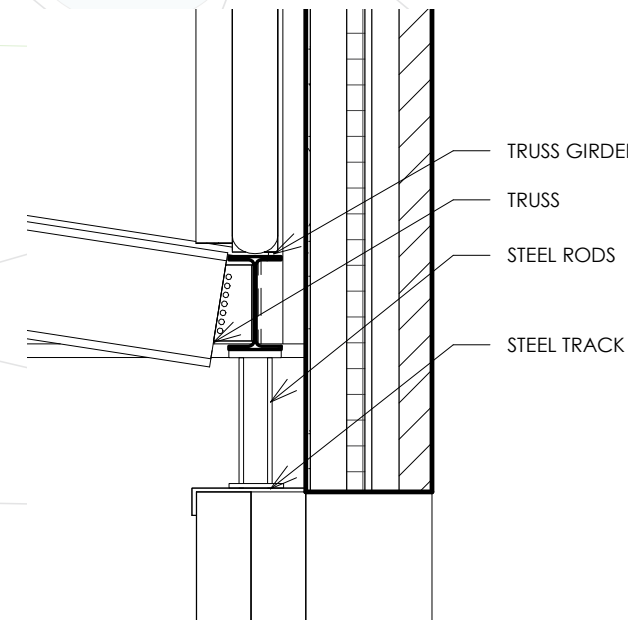
Book-End Connection to Hangar Frame.
1/4" = 1'-0" Scale



Parapet Detail.
1/2" = 1'-0" Scale



Floor Connection.
1/2" = 1'-0" Scale



Hangar Door Detail.
1/2" = 1'-0" Scale



All this intersects to form the Harrison County Memorial Airport. The hangar, classrooms, and historic building all come together to form a plaza in which visitors can experience the industry and discipline of aviation. A static display of a Douglas DC-3 which is the airplane that serviced this airport historically, allows the visitor to get a glimpse of the past, to witness the current state of aviation, and get a peek at the future of aviation.



LANDING

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