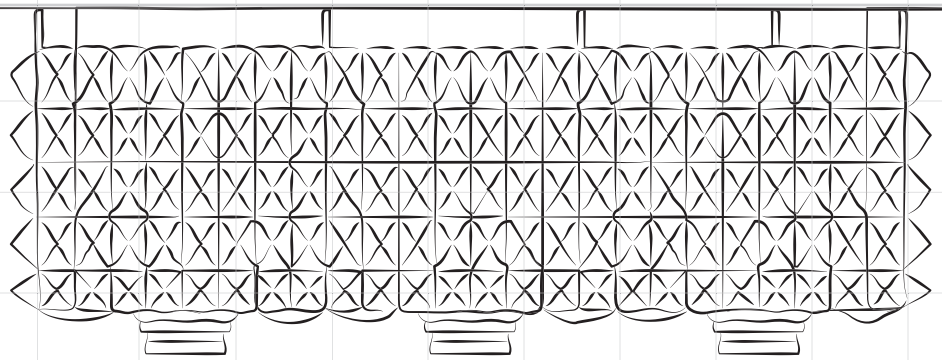
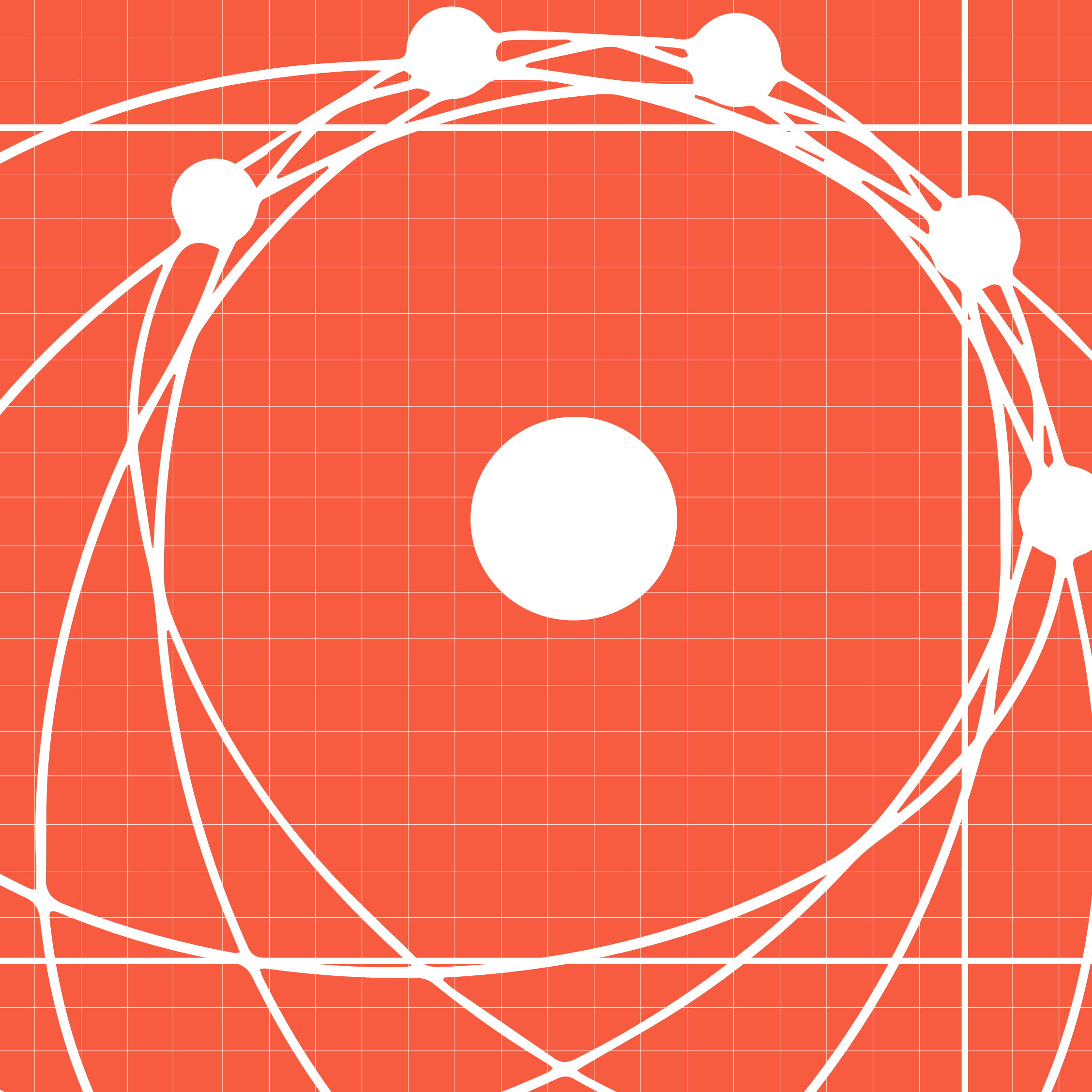




BRIDGING PAST PRESENT & FUTURE

AN ARCHITECTURAL INVESTIGATION IN ITS ROLE IN TIME

ASTRATERNO

To my all of the incredible people who have guided me on the development of this project,

It has truly been an unforgettable & incredible journey. Thank you for constantly pushing me to do my best and believing in me and this project.

Your collaboration and dedication to this project and to myself have been a blessing that I will always cherish as I continue my career in the architectural field. You have had inspiring role in the development of my passion for this particular field and I cannot thank you enough for all of the things that you have done for me over the past year leading up to this final moment.

Your passion drive, and dedication mimic the same qualities that the three Apollo 01 astronauts and the engineers at NASA had while pursuing their goals. They never gave up. They never settled.. They accomplished more than they set their eyes on. They left a legacy for future generations.

You have left a legacy and a profound impact on me and every other person that has ever had the pleasure of working directly with you.

I am honored to have you been with me on this journey. I am incredibly thankful and blessed to have known such wonderful people.

Thank you for everything you have done from the bottom of my heart

Hillary Brown

“TOUGH AND COMPETENT.”

“TOUGH MEANS WE ARE **FOREVER ACCOUNTABLE** **FOR WHAT WE DO OR WHAT WE FAIL TO DO**.
WE WILL NEVER AGAIN COMPROMISE OUR RESPONSIBILITIES .

COMPETENT MEANS WE WILL **NEVER TAKE ANYTHING FOR GRANTED**.
WE WILL **NEVER BE FOUND SHORT IN OUR KNOWLEDGE AND IN OUR SKILLS**.

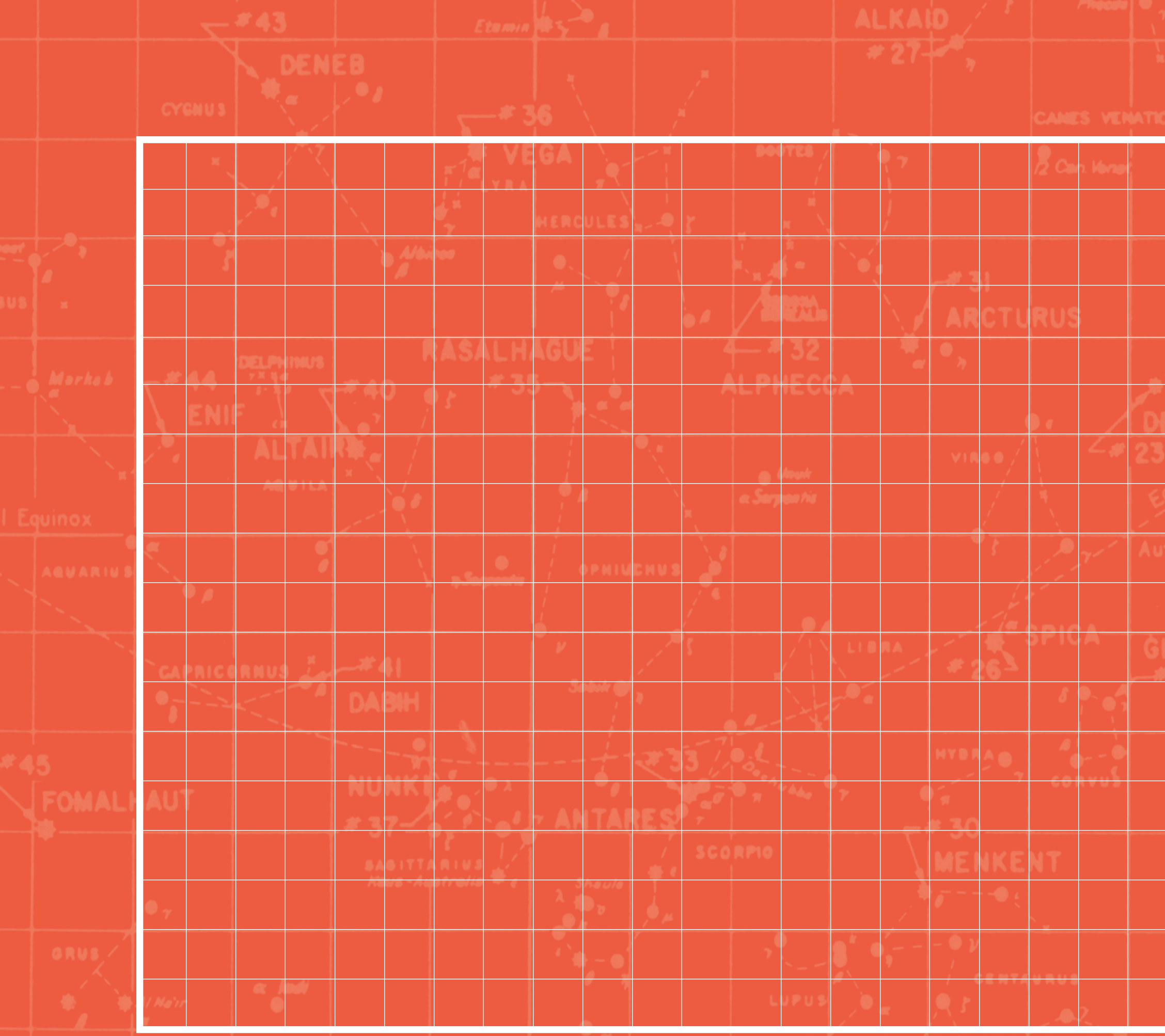
WHEN YOU LEAVE THIS MEETING TODAY YOU WILL GO TO YOUR OFFICE AND THE FIRST THING YOU WILL DO THERE IS TO WRITE “TOUGH AND COMPETENT” ON YOUR BLACKBOARDS.

IT WILL NEVER BE ERASED.

EACH DAY WHEN YOU ENTER THE ROOM,
T**HESE WORDS WILL REMIND YOU OF THE PRICE PAID BY** GRISSOM, WHITE, AND CHAFFEE. “

- GENE KRANZ
NASA’S FLIGHT DIRECTOR GEMINI & APOLLO MISSIONS

CONTENTS


DENEB
CYGNUS
#43
#36
VEGA
HERCULES
ALKAID
#27
CANES VENATICI
ARCTURUS
#31
#32
ALPHECCA
RASALHAGUE
#35
DELPHINUS
#44
#40
ENIF
ALTAIR
AQUILA
Markab
Equinox
AQUARIUS
VIRGO
LIBRA
SPICA
#26
CAPRICORNUS
#41
DABIH
#45
FOMALHAUT
NUNKI
#37
SAGITTARIUS
ANTARES
#33
SCORPIO
#30
MEISSA
HYDRA
CORVUS
CRUX
LUPUS
CENTAURUS
GRUS
ARA
#42
PEACOCK
Rigil Kentaurus

TIME

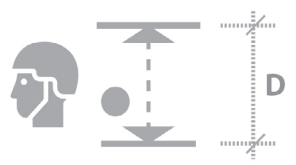
TIME

ARCHITECTURE & TIME

Architecture has tangible qualities that embody a work's physical makeup and intangible qualities that contribute to the feeling and expression of time. Every building has moments of time embedded in their fabric that expresses the past, present, and future. Some of these moments are expressed in materials, whether they show signs of decay, or they are sleek, newly fabricated and installed. They are also expressed in site and location, where moments of history existed long ago, or the stage of significance for future events that could possibly shape history. Present day is constantly expressed in any architectural work that is occupied by users. Each element of time is expressed in architecture.

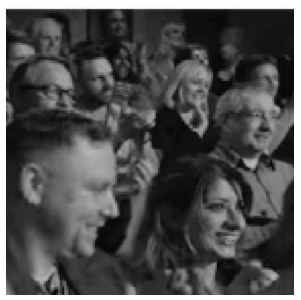
Architectural works are moments themselves existing in a continuous time line that can easily express their moments in time. Architectural design that has been created, can act as a tangible and intangible forces that expresses the concept of time.

DOCTOR BRIAN COX FOR BBC EXPLAINING THE THEORY OF RELATIVITY



Professor Cox takes a member of the audience and has him move a flashlight up and down, showing the flashlight as a ticking clock

He then moves him across the stage, still moving his flashlight "clock".



The audience then perceives his movement across the stage.

Time remains the same to him while the audience perceives the time being longer.

Prof. Cox then demonstrates how time is relative to the observer and that time travel into the future is potentially possible.

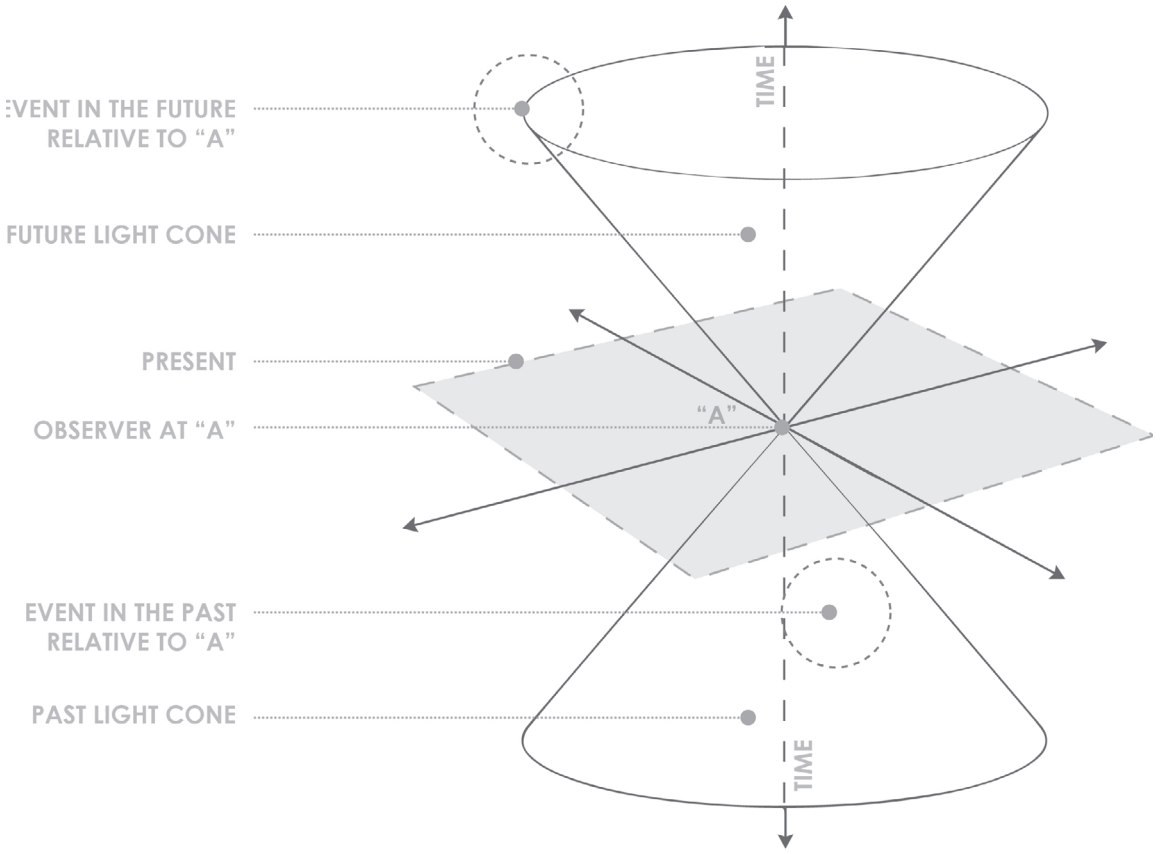
RELATIVITY

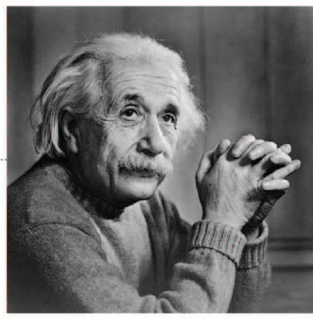
“In relativity, on the other hand, all observers must agree on how fast light travels. They still, however, do not agree on the distance the light has traveled, so they must therefore now also disagree over the time it has taken.

In other words, the theory of relativity put an end to the idea of absolute time!

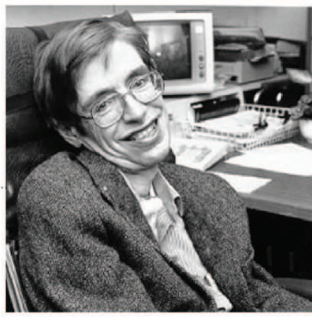
It appeared that each observer must have his own measure of time, as recorded by a clock carried with him, and that identical clocks carried by different observers would not necessarily agree.”

STEPHEN HAWKING
A BRIEF HISTORY OF TIME





ALBERT EINSTEIN

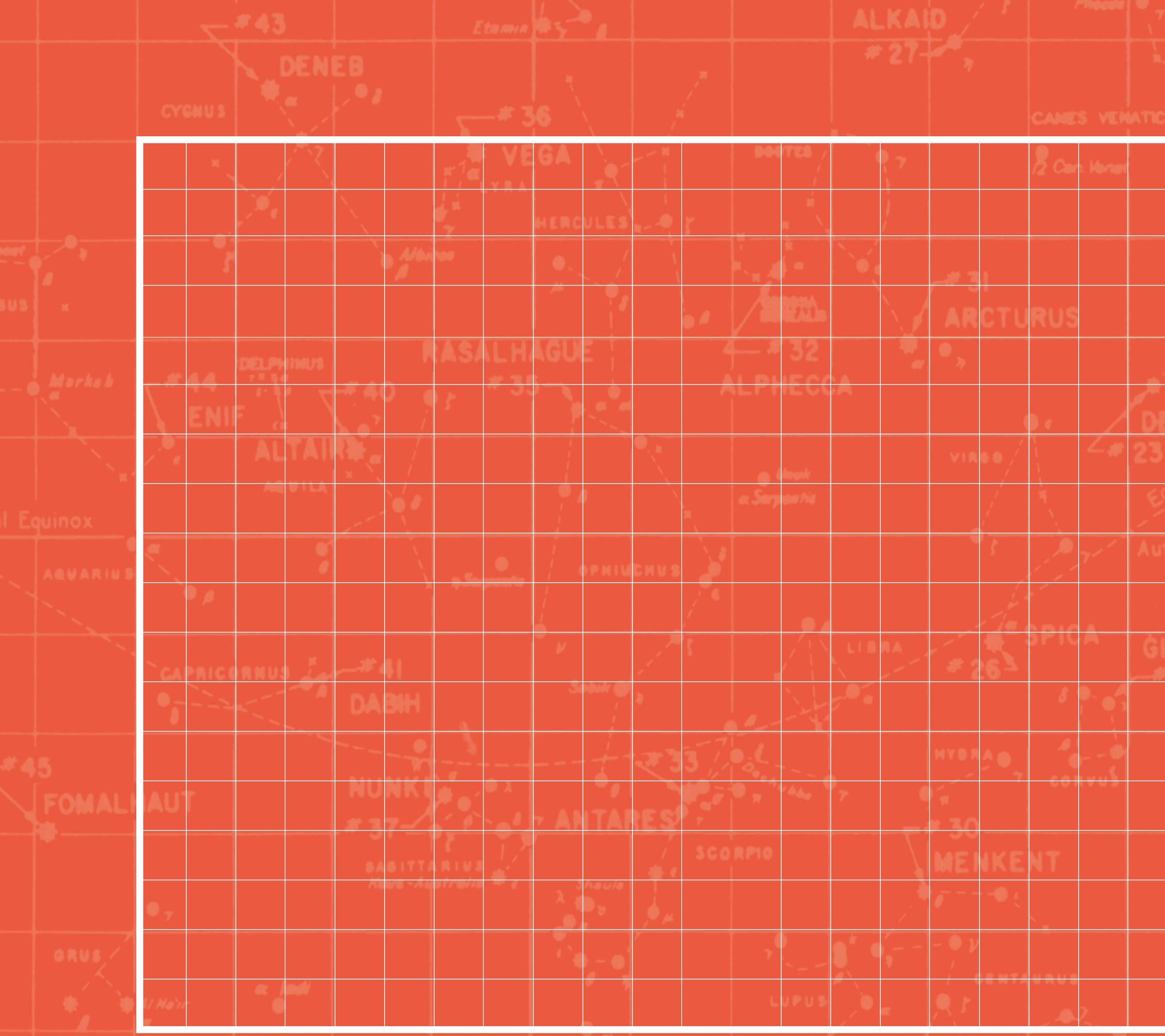


STEPHEN HAWKING

Time, is a complicated subject which humans have tried exploring and quantifying throughout history. However, in the writing A Brief History of Time, Stephen Hawking seeks to explain major scientific findings regarding time in a short, ingenuous way. One of the key concepts he defines stems from Albert Einstein's finding on have time is objective to an individual. This concept became accepted as the Theory of Relativity. The theory of relativity is a concept in which "space" is identified in relationship with "time" In Hawking's writing; he diagrams this concept into two cones reflecting each other. The respective cones being labeled "future light" and "past light", with an individual in the center of where the two points meet. To the individual, the events that take place within the cones are either taking place in the future or within the past. Thus explaining that time is relevant to the individual.

This expression of time in general being relevant to a user can be directly showcased as a belief in architecture. Karen Franck's "Architecture Timed" expresses several briefs by different authors on architecture's relationship with time and human relationship with time in many ways. She states, "Instead of dwelling in a continuous duration, we now experience time as fragments that pass us and immediately vanish." This particular idea can be challenged however. By incorporating an apparent and fluid path, the idea of "fragments" becomes void, and lends itself to let the user experience the fluidity of time in a procession instead. Karen Franck also mentions how architecture subconsciously can influence the persistence of time by the spatial and material characteristics of a building. Some materials and their spatial relationship can subconsciously take an individual to a certain moment in time. For example, ancient ruins and their qualities of decay and roughness or modern age structures with their sleek and newly installed materials contribute to time expressed as age.

This "age" of materials contributes to an individual's sense of presence in time and acts as an "index". The idea of an "index" comes from C.S. Pierce explanation of symbols, icons, and indices. According to Peirce's findings, an index is a direct connection that is inferred or observed. Smoke would identify as an index to fire, just as the composition of the materials would act as indexes of time. These materials can overlap, contributing to a newly developed sense of time, where past and present occupy the same space, and the individual becomes consciously aware of the present time in which they occupy.


DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
ALKAID
#27
CANES VENATICI
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
ENIF
ALTAIR
AQUILA
VIRGO
Equinox
AQUARIUS
OPHIUCHUS
LIBRA
SPICA
#26
CAPRICORNUS
#41
DABIH
HYDRA
#45
FOMALHAUT
NUNKI
#37
ANTARES
SCORPIO
#30
MEISSA
SAGITTARIUS
CRUS
LUPUS
CENTAURUS
ARA
#42
PEACOCK


URSA
MAJOR
20
13
CAPELLA
AURIGA
α LYNCIS
Castor
Pollux
GEMINI
TAURUS
LEO
REGULUS
PROCYON
ALDEBARAN
22
16
CANIS
MINOR
ORION
Equinoctial (Equator)
Equinox
HYDRA
ALPHARD
21
15
SIRIUS
12
RIGEL
CANIS
MAJOR
LEPUS
ARGO
COLUMBA
REGOR
CANOPUS
α Doradus

APOLLO

If we die, we want people to accept it.

WE ARE IN A RISKY BUSINESS, AND WE HOPE THAT IF ANYTHING HAPPENS TO US, IT WILL NOT DELAY THE PROGRAM.

THE CONQUEST OF SPACE IS WORTH THE RISK OF LIFE.

OUR GOD-GIVEN CURIOSITY WILL FORCE US TO GO THERE OURSELVES BECAUSE IN THE FINAL ANALYSIS, ONLY MAN CAN FULLY EVALUATE THE MOON IN TERMS UNDERSTANDABLE TO OTHER MEN.

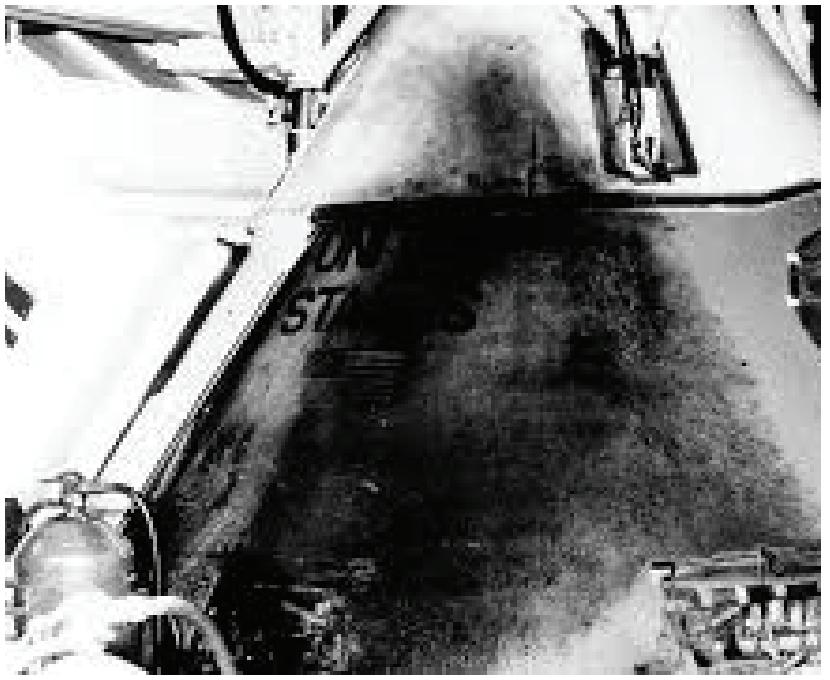
VIRGIL IVAN "GUS" GRISSOM

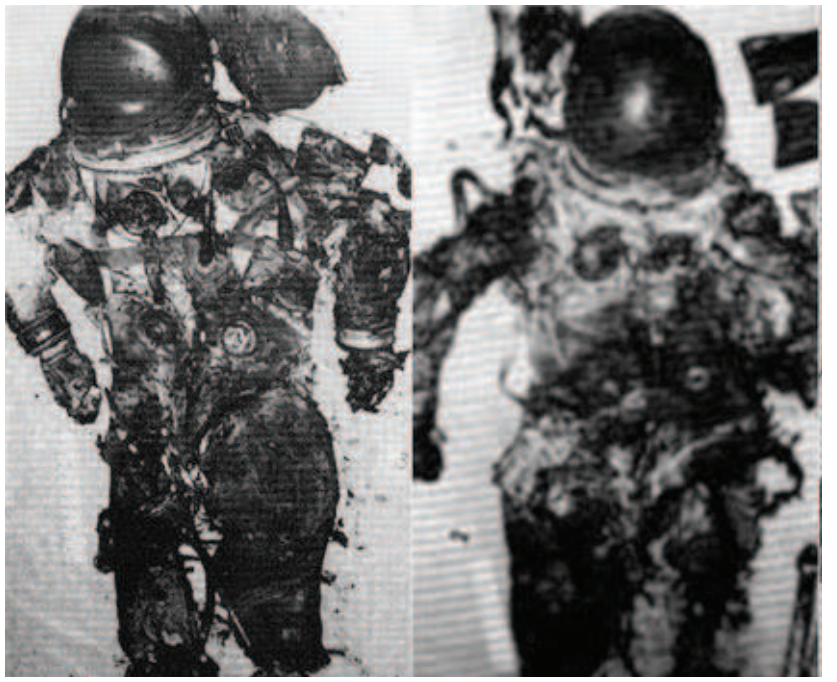
APRIL 3, 1926 – JANUARY 27, 1967)

SECOND AMERICAN TO FLY INTO SPACE

APOLLO 01

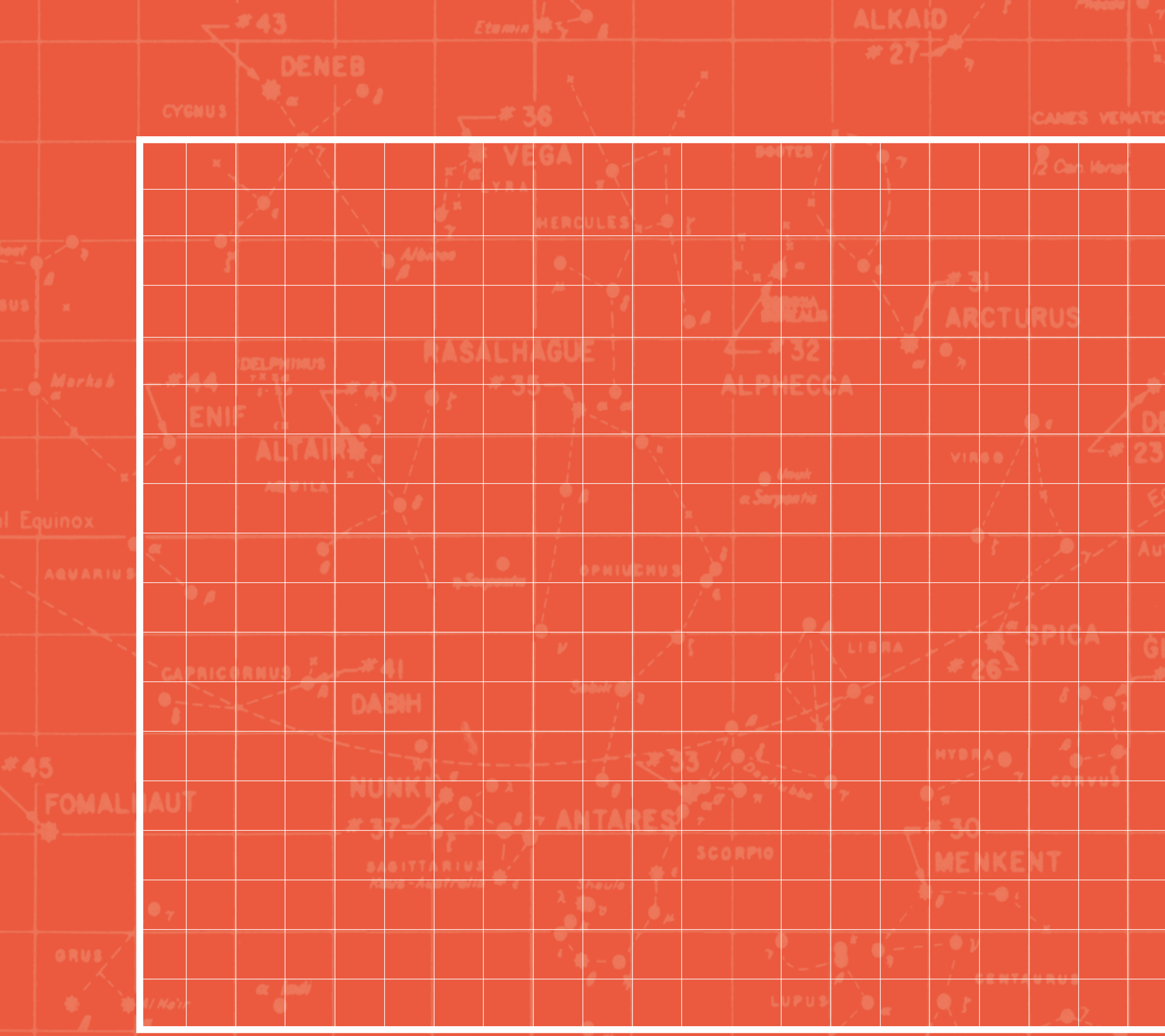
THE TRAGEDY THAT CHANGED HISTORY





AMERICAN TRAGEDY STRUCK on January 27, 1967 at Launch Complex 34 in Cape Canaveral, Florida. The first mission of the Apollo space program resulted in the accidental deaths of three pioneering astronauts, Gus Grissom, Ed Higgins White and Roger B. Chaffee.

The event, though tragic in nature, was not one taken in vain. It launched a legacy of the quest of great exploration beyond our worldly limits. The tragedy pushed the men and women of the Apollo era to their extents and ultimately allowed them to achieve their goal of a lunar landing.


DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
ALKAID
#27
CANES VENATICI
BOOTES
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
#44
ENIF
#40
#35
ALTAIR
AQUILA
VIRGO
#23
Markab
Equinox
AQUARIUS
OPHIUCHUS
SPICA
LIBRA
#26
CAPRICORNUS
#41
DABIH
#45
FOMALHAUT
#37
SAGITTARIUS
SCORPIO
#30
MEISSA
HYDRA
CORVUS
GRUS
LUPUS
CENTAURUS
#42
PEACOCK
ARA

3115

RACE TO THE MOON

EXPLORING MAJOR CULTURAL ICONIC SITES RELATING TO THE UNITED STATES' MOON RACE + THEIR FATES

1957 SPUTNIK — FIRST SATELLITE

1961 VOSTOK — FIRST HUMAN TO ORBIT THE EARTH

1961 JOHN GLENN — FIRST AMERICAN TO ORBIT THE EARTH

1962 JFK SPEECH — JFK DELIVERS HIS FAMOUS MOON SPEECH

LAUNCH PAD 34

1960-1967

LOCATED IN CAPE CANAVERAL, THIS SITE WAS THE SOURCE OF THE SHUTTLE LAUNCHES THAT TOOK PLACE DURING THE APOLLO SPACE PROGRAM IN THE 1960S.

LOCATION CAPE CANAVERAL, FLORIDA, USA

17 SPACE LAUNCHES

APOLLO 1 MEMORIAL

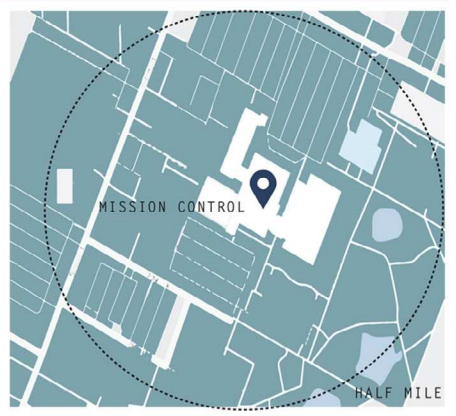
MOON LANDING

MISSION CONROL

1965-2017

LOCATED IN HOUSTON, TEXAS, THIS SITE WAS A VITAL LOCATION TO THE ADVANCEMENT OF THE US SPACE PROGRAM AND HAS BEEN CONVERTED INTO A MUSEUM.

LOCATION HOUSTON, TEXAS, USA



'92 CONVERTED TO MUSEUM

NATIONAL REGISTER OF HISTORIC PLACES

NATIONAL REGISTER

MOON LANDING

LC-34 WITH SATURN 1 ROCKET

BLOCKHOUSE TODAY, NOT USED

AERIAL OF THE COMPLEX

BASE OF THE LC, REMAINS TODAY

1957 THEN — **2017** NOW

WHAT IT USED TO LOOK LIKE

EXTERIOR FACADE TODAY

MOON LANDING

RESTORED TODAY

1978 THEN — **2017** NOW

RACE TO THE MOON

AMERICA'S HISTORIC SITES THAT MAKE THE MOON LANDING POSSIBLE

1963 VALENTINA TERESHKOVA — FIRST WOMAN IN SPACE

1965 ED WHITE — FIRST AMERICAN SPACEWALK

1966 LUNA 10 — FIRST PROBE TO ORBIT THE MOON

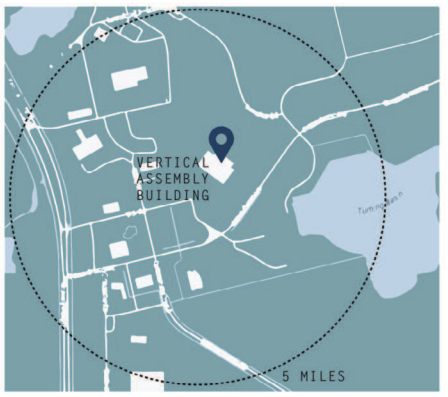
1967 APOLLO TRAGEDY — ALL THREE ASTRONAUTS PERISH IN A FIRE

VERTICAL ASSEMBLY BUILDING

1966-2017

LOCATED IN CAPE CANAVERAL, FLORIDA, THIS BUILDING HAS ALLOWED A CONTROLLED ENVIRONMENT TO BUILD THE SPACE CRAFTS RELATED TO SPACE EXPLORATION.

LOCATION CAPE CANAVERAL,FLORIDA, USA



525'
TALLEST ONE STORY BUILDING

SO TALL, RAINCLOUDS CAN FORM

SPACEX NOW RENTED BY

BEING BUILT IN 1965

AERIAL OF THE COMPLEX TODAY

AERIAL WITH BICENTENNIAL STAR

INTERIOR BEING USED BY SPACEX

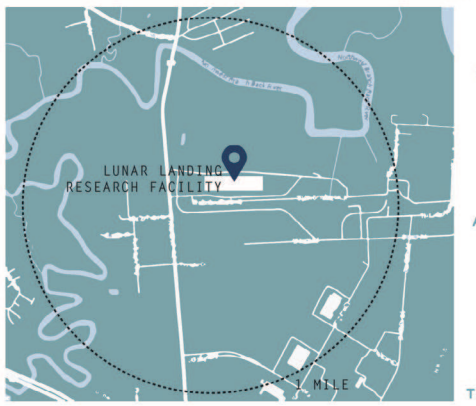
1966 THEN — **2017** NOW

LUNAR LANDING RESEARCH FACILITY

1965-2017

LOCATED IN VIRGINIA, THIS SITE IS A NASA RESEARCH CENTER THAT HELD A STRUCTURE THAT HELPED THE APOLLO ASTRONAUTS TRAIN FOR THEIR MISSION TO LAND ON FHT MOON.

LOCATION HAMPTON, VIRGINIA, USA



200'
LUNAR LANDING SUPPORT STRUCTURE

ALMOST DEMOLISHED IN 2004

TRAINED 22 ASTRONAUTS

AERIAL OF SITE

TODAY BEING

WALTER CRONKITE AT THE FACILITY

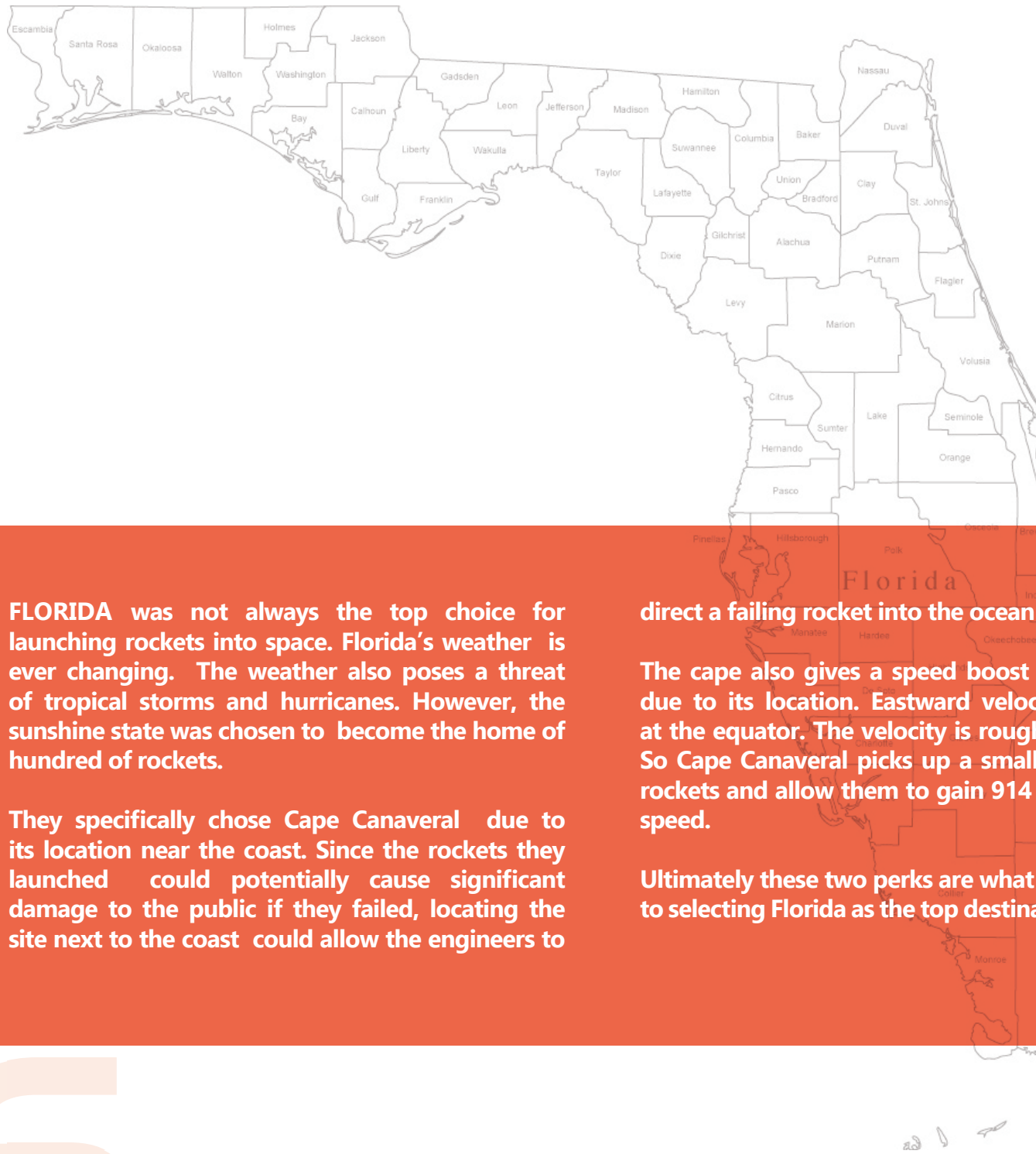
200' STRUCTURE TODAY

1968 THEN — **2017** NOW

This is a diagram showing some of the locations that landed men on the moon in 1969. Some of the facilities have seen the wear of time more so than others. The exploration of these places let to the site selection of the project. Ultimately the site of Launch Pad 34 was chosen to revitalize and renovate to house a new program .

FLORIDA, USA

THE SUNSHINE STATE + HOME OF THE SPACE PROGRAM



FLORIDA was not always the top choice for launching rockets into space. Florida's weather is ever changing. The weather also poses a threat of tropical storms and hurricanes. However, the sunshine state was chosen to become the home of hundred of rockets.

They specifically chose Cape Canaveral due to its location near the coast. Since the rockets they launched could potentially cause significant damage to the public if they failed, locating the site next to the coast could allow the engineers to direct a failing rocket into the ocean instead.

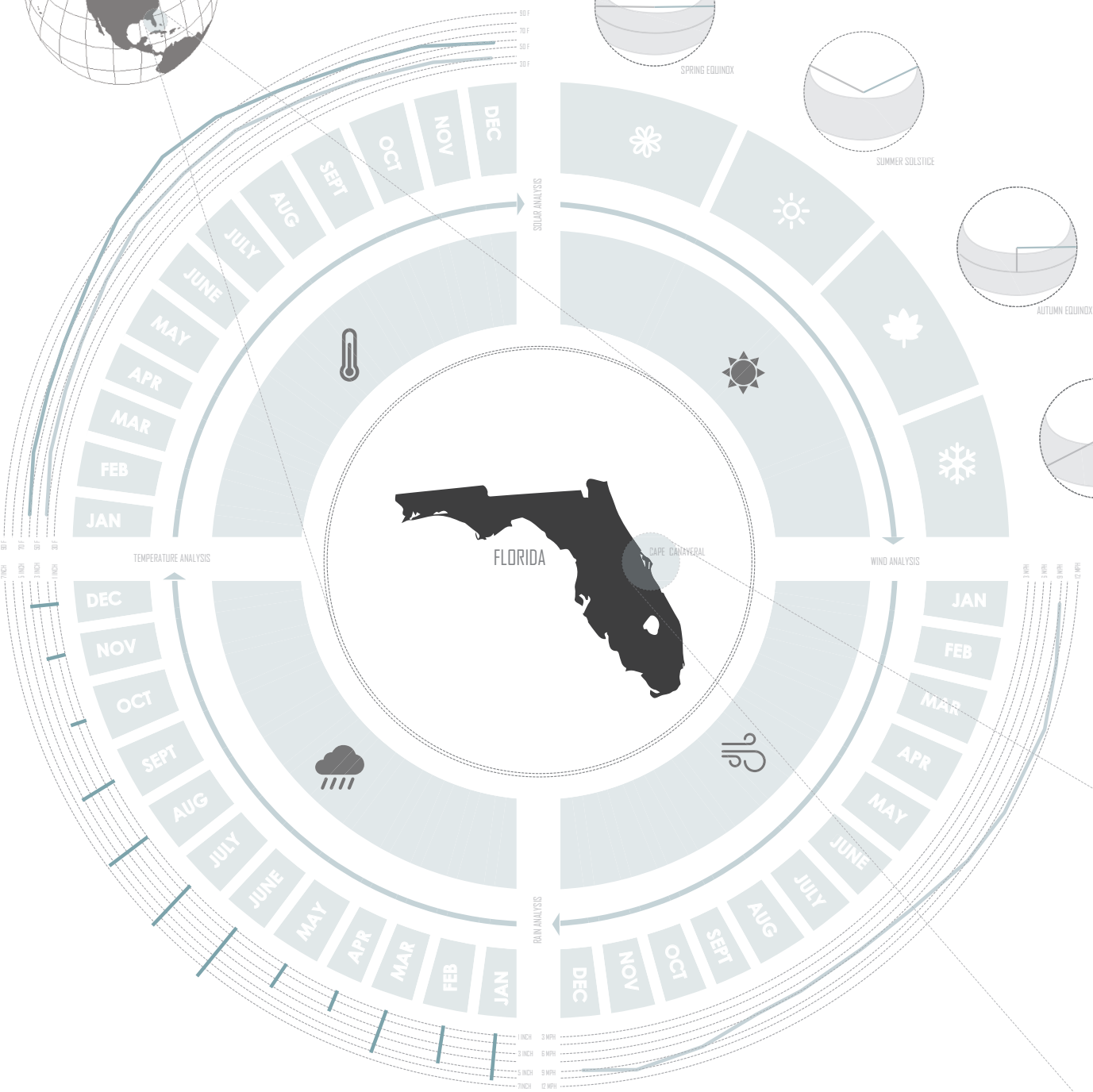
The cape also gives a speed boost to the rockets due to its location. Eastward velocity is greatest at the equator. The velocity is roughly 1,040 mph. So Cape Canaveral picks up a small boost for the rockets and allow them to gain 914 mph of added speed.

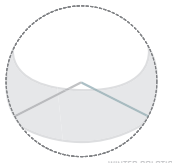
Ultimately these two perks are what drew NASA as to selecting Florida as the top destination of choice.

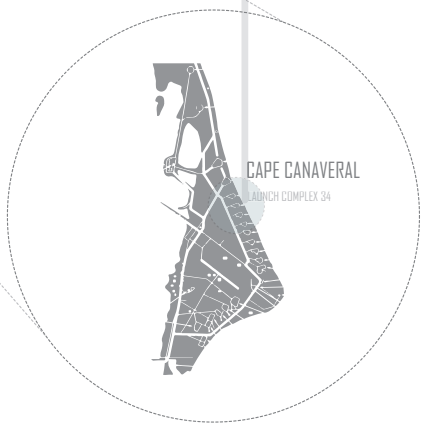

EXPLORE
M6-0408
United States
Astronaut Hall of Fame
Be A Part Of The Journey To Mars
Be A Part Of The Journey To Mars
Get a
NASA Lunch Box
for $5
with any purchase of
$50 or more
NASA
NASA

CLIMATE

FLORIDA'S CLIMATE



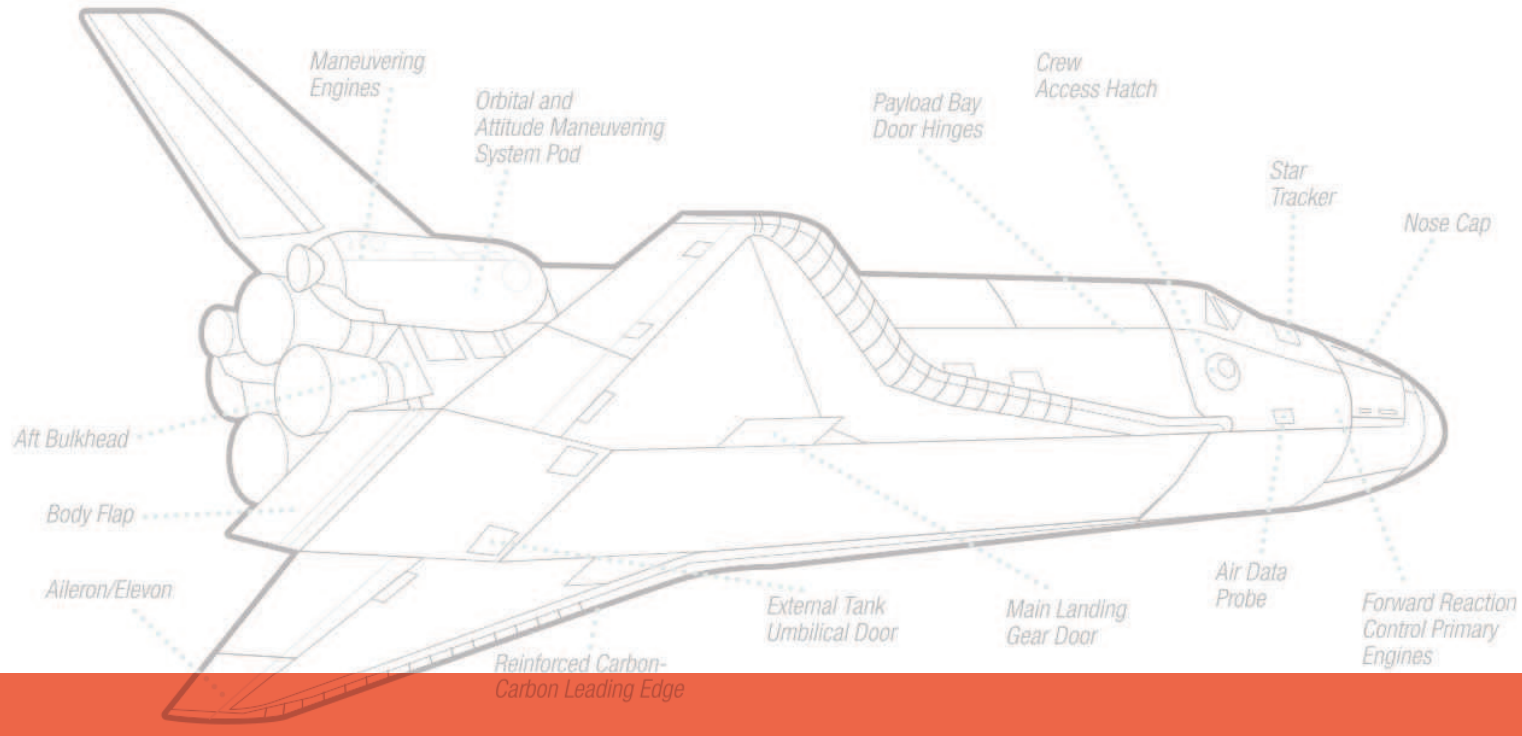




This is a diagram showing Florida's climate. The top left shows the average temperatures. The bottom left shows the average rainfall. The top right shows the sun's angle and the bottom right shows the average wind speed.

CAPE CANAVERAL

CABO CAÑAREAL - THE CAPE OF CURRENTS

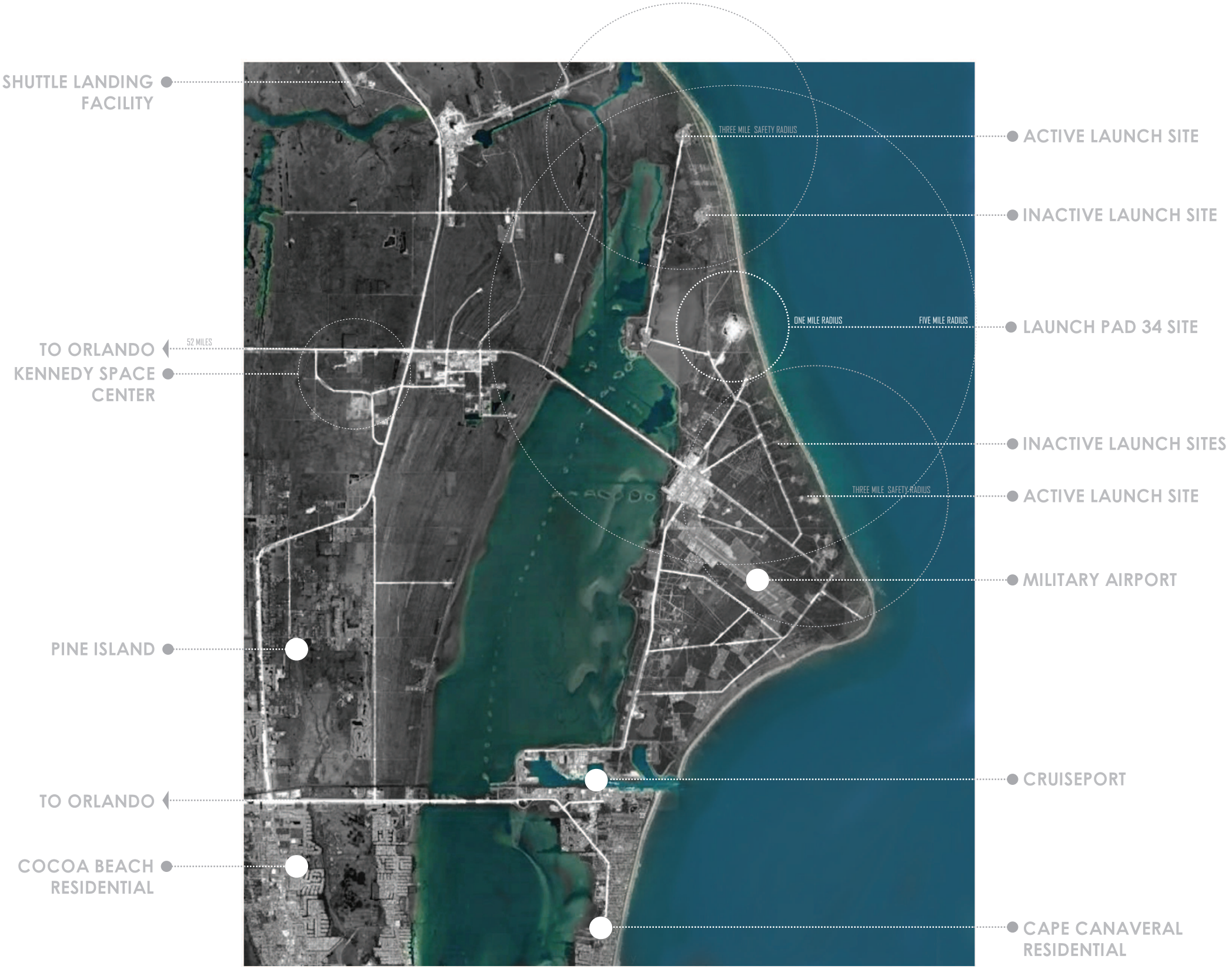


FLORIDA was not always the top choice for launching rockets into space. Florida's weather is ever changing. The weather also poses a threat of tropical storms and hurricanes. However, the sunshine state was chosen to become the home of hundred of rockets.

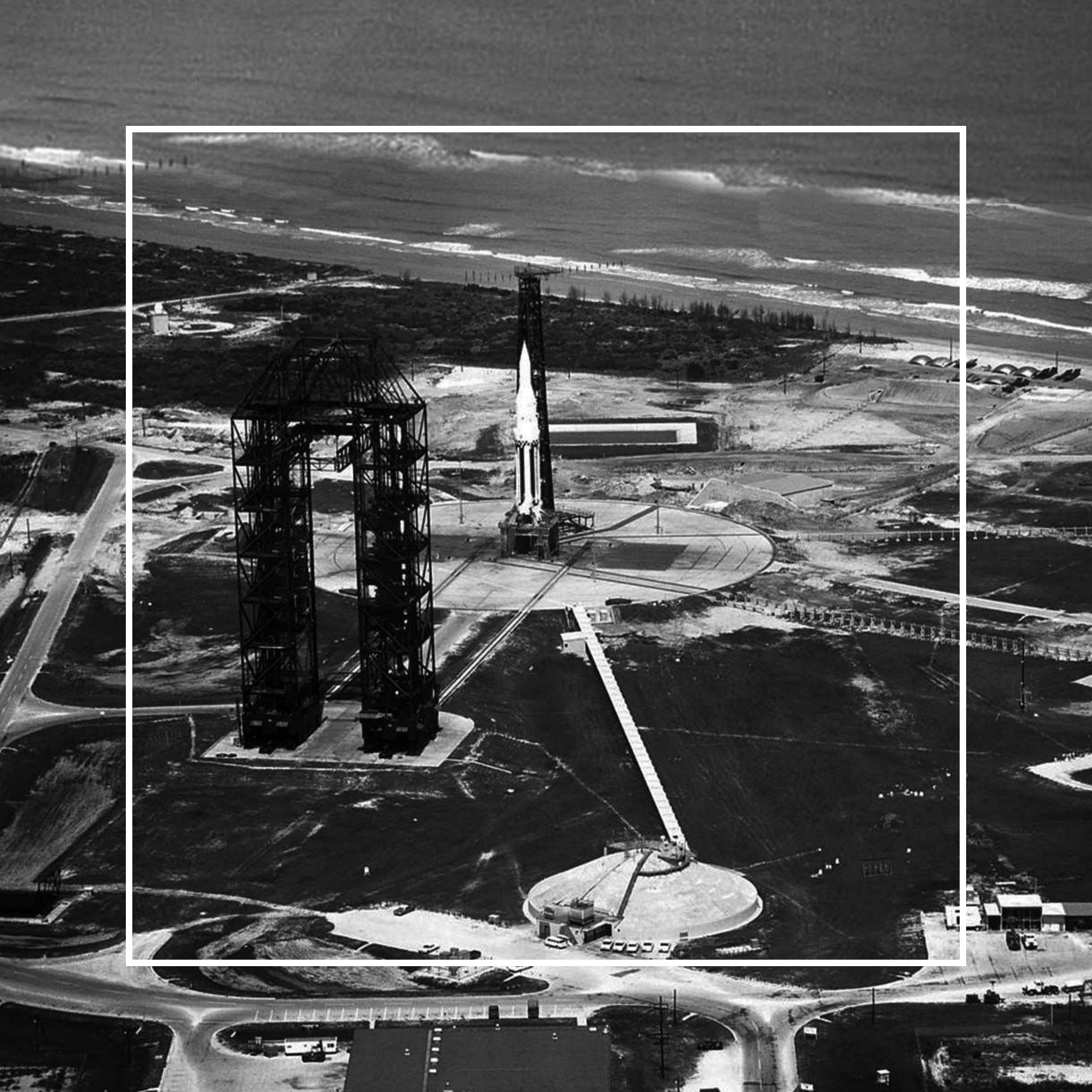
They specifically chose Cape Canaveral due to its location near the coast. Since the rockets they launched could potentially cause significant damage to the public if they failed, locating the site next to the coast could allow the engineers to direct a failing rocket into the ocean instead.

The cape also gives a speed boost to the rockets due to its location. Eastward velocity is greatest at the equator. The velocity is roughly 1,040 mph. So Cape Canaveral picks up a small boost for the rockets and allow them to gain 914 mph of added speed.

Ultimately these two perks are what drew NASA as to selecting Florida as the top destination of choice.

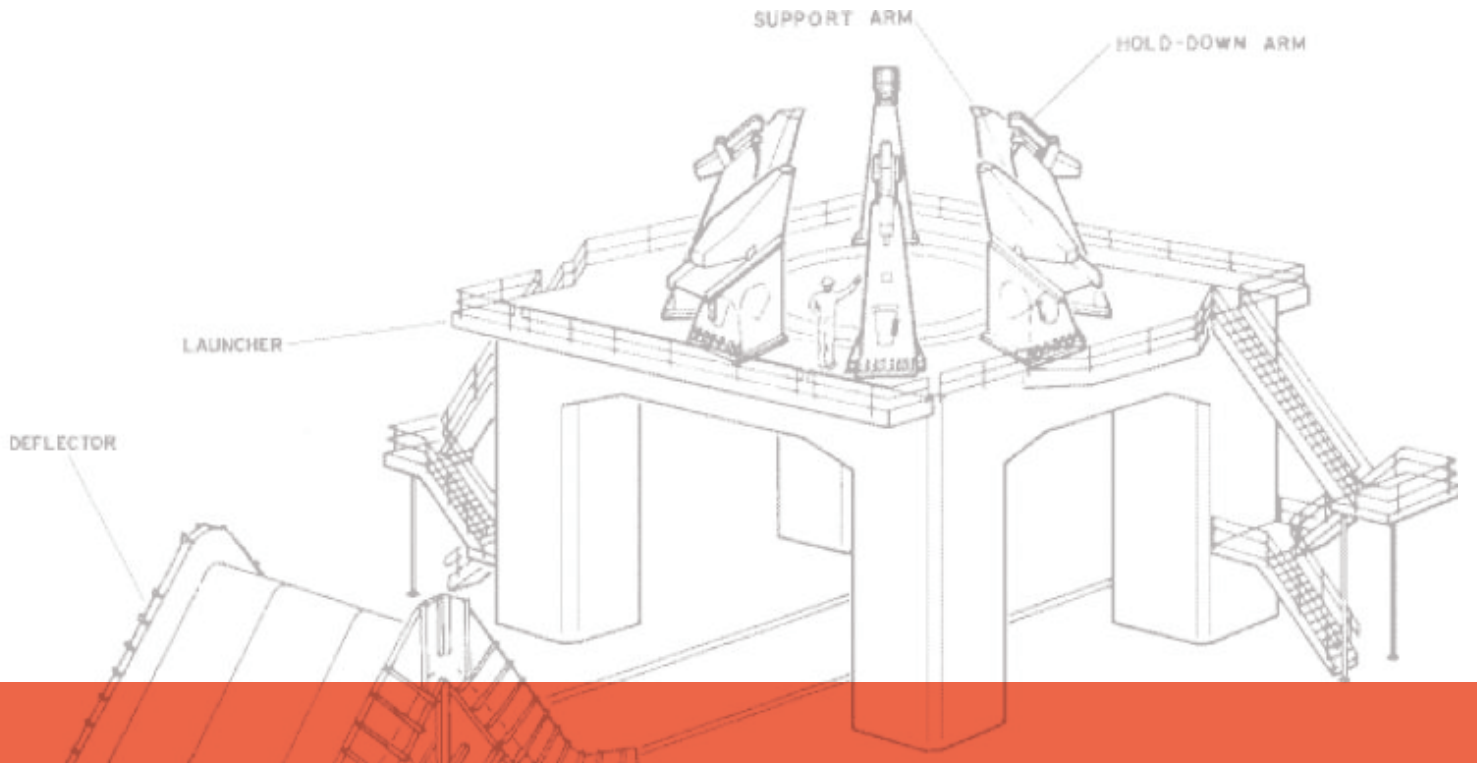


This diagram shows the relationship of the site with its urban context. It is located roughly 50 miles away from Orlando, Florida. It is somewhat isolated from the "natural" public since it is located on a military base. The public transportation system from KSC will be used for main access



LAUNCH PAD 34

CAPE CANAVERAL AIR FORCE STATION



The concept of time as past, present, and future "residing and occupying" the in the same "space" in terms of architecture widely occur within the compound of Kennedy Space Center in Cape Canaveral, Florida.

Here past, present and future resides and interacts with each other daily. However, gone are the bustling golden days of the modern "space race" in which time interaction once thrived within the present day sense.

The facilities and sites that once were booming and vital to the lunar space program in the United States now lay abandoned earning honorable badges of weathering and decay throughout the United States. Each site has its own unique role in successfully landing American men on the moon but one site particularly stands apart from the rest. Launch Complex 34 is one of these complexes that ultimately need architecture interposition to the connection between past, present, and future generations.

This modern "ruin" demands an architectural intervention to revitalize the abandoned site with memories of the past, the life of today, and visions of the future.

SATURN IB AS-204

MISSION TYPE:

Crewed spacecraft

Verification test

OPERATOR:

NASA

MISSION DURATION:

Up to 14 days (planned)

SPACE CRAFT:

CSM-012

SPACE CRAFT TYPE:

Apollo Command/

Service Module

MANUFACTURER:

North American Aviation

LAUNCH MASS:

45,000 lbs

CREW SIZE:

Three

MEMBERS:

Virgil I. "Gus" Grissom

Ed White

Roger B. Chaffee

LAUNCH DATE:

February 21, 1967

ROCKET TYPE:

Rocket Saturn IB AS-204

LAUNCH SITE:

Cape Kennedy LC-34

END OF MISSION:

Destroyed

January 27, 196

APOLLO SPACECRAFT
COMMAND MODULE

THIRD STAGE
APOLLO 204 THIRD STAGE ROCKET

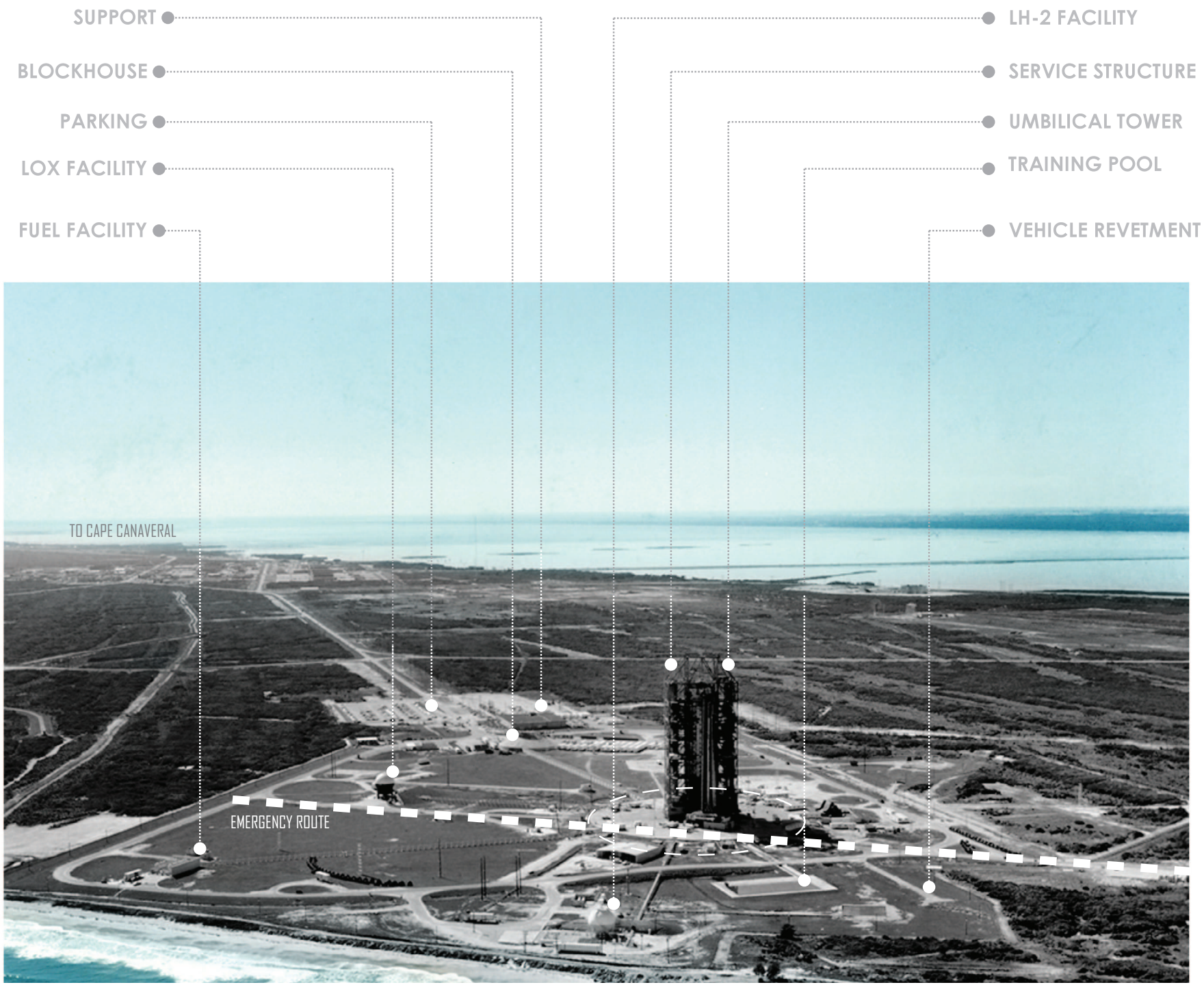
SECOND STAGE
APOLLO 204 SECDND STAGE ROCKET

LAUNCH UMBILICAL TOWER
HELD THE SPACECRAFT FOR FLIGHT PREPERATION, 380 FT TALL

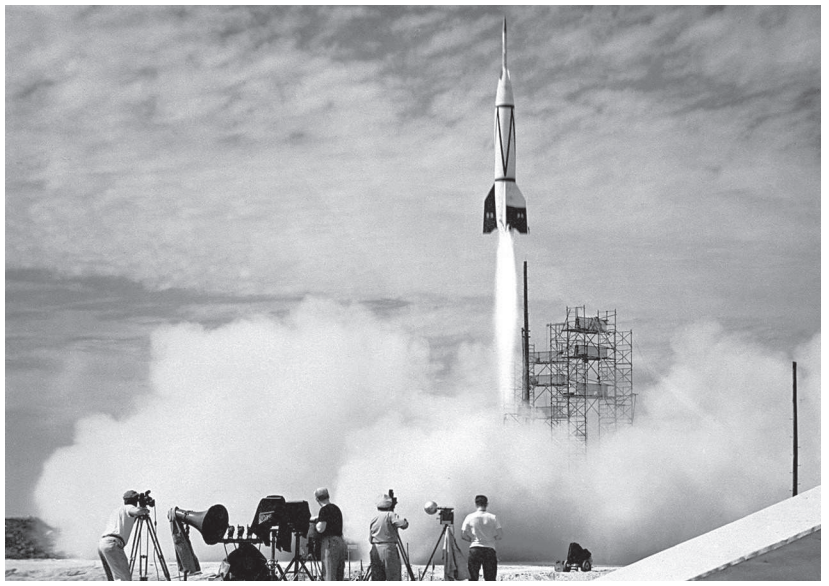
FIRST STAGE
APOLLO 204 FIRST STAGE ROCKET

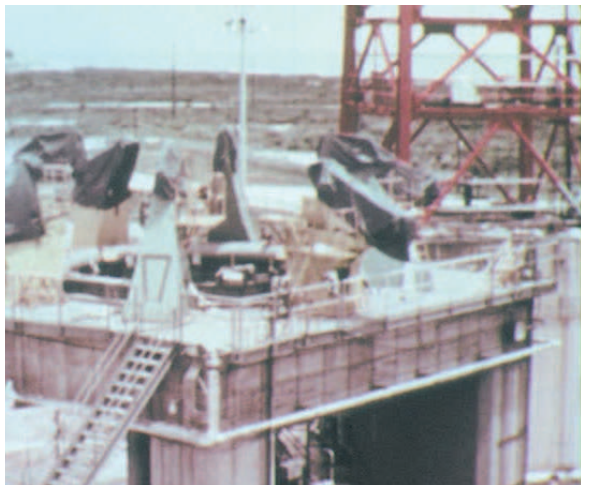
CONCRETE LAUNCH BASE
TWO STORY CONCRETE STRUCTURE

BLAST REFLECTOR SHEILDS
PUT IN PLACE TO DEFLECT FIRE + SMOKE



This diagram shows Launch Pad 34 and all of the utilities that made up the site when it was active . This site was once thriving and active trying to successfully land Americans on the moon. As you can see, the site is quite large and spacious allowing maximum area to launch rockets as well as testing facilities that contributed to advancement of the space program. The images on the opposite page are all taken from Launch Complex 34. They show what the complex once looked like when it was in use. It is now overgrown with vegetation and in need of an architectural intervention to revitalize the site to accommodate for future space tourism.






NASA

ARTIFACTS

SCARS OF THE PAST

The image above is of the “base”. The base is still located within the middle of the launch pad. This base is made of solid concrete and becomes the largest artifact enclosed in the museum. The base also has a memorial plaque commemorating the tragedy of the Apollo One mission and the loss of the three astronauts’ lives.

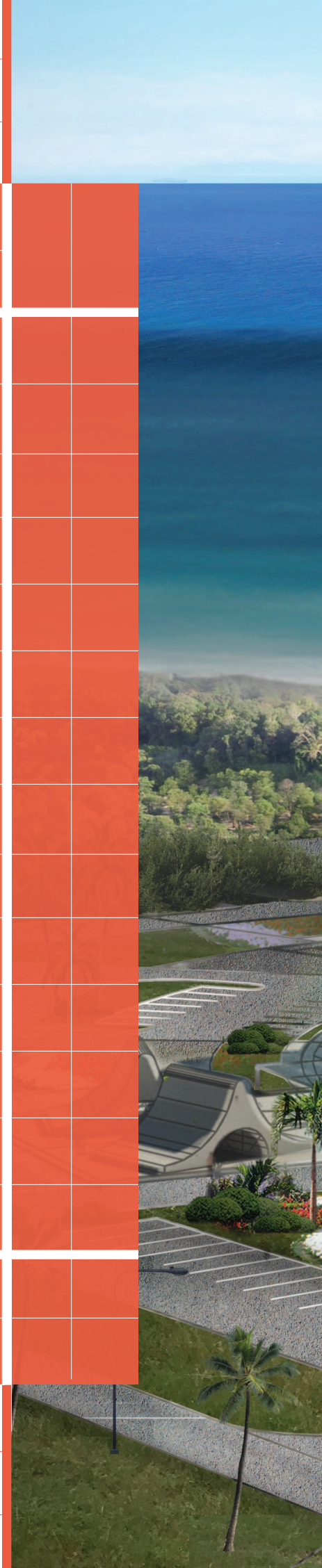
The image above is of the “tracks” that carve through the concrete pad. These tracks once held the umbilical tower that used to service the Apollo rocket. These tracks become “vertical planes” that cut through a “prism” of “skin” that occupy the site. They are left untouched allowing a visitor to visualize the past.

The image above is of the blast shields that moved into place underneath the base when the rocket was ready to launch. These shields would move into place during the time of day in which the tragedy of the launch took place. They would act as symbols of time as they moved on along the surface of the pad.

INTERVENTION

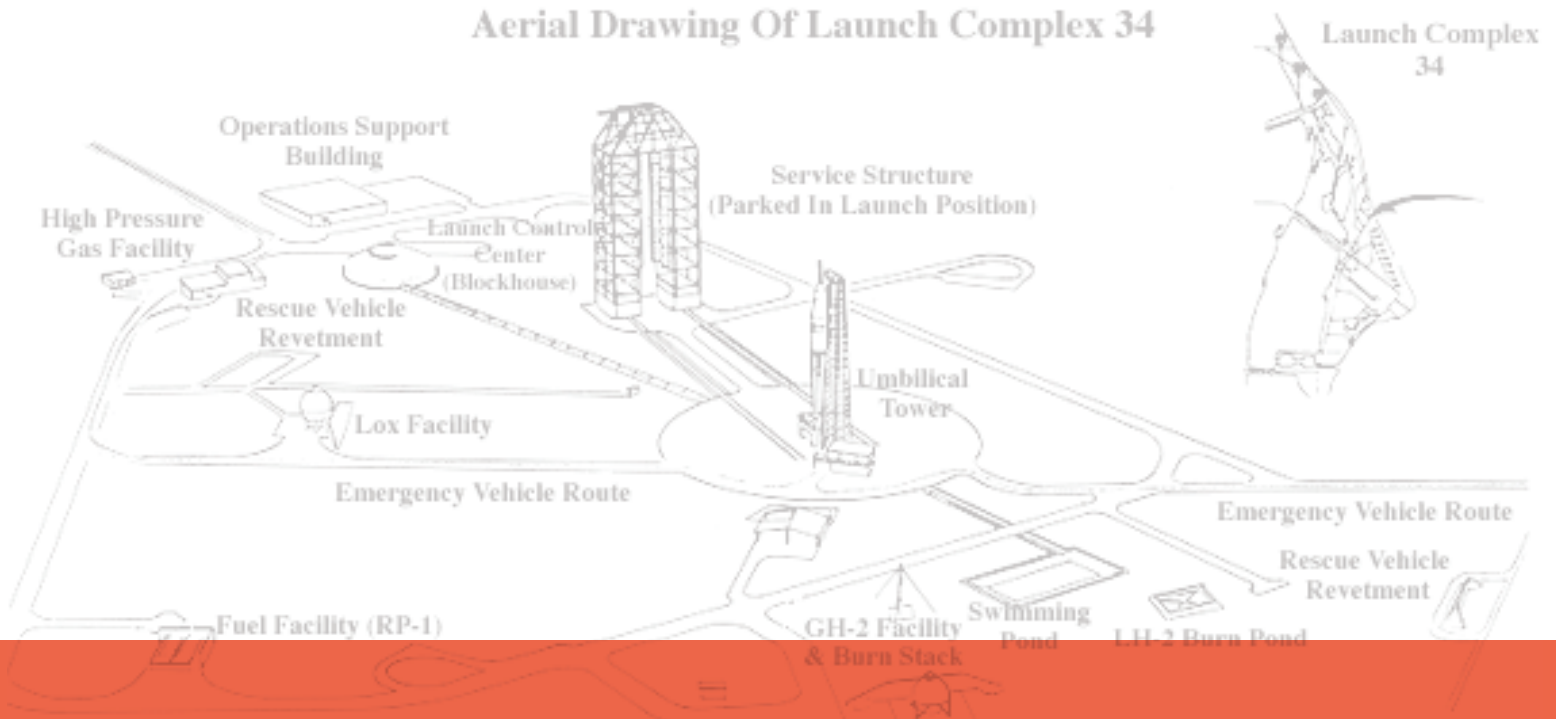
ASTRATERNO

FROM THE PAST TO THE STARS



SITE DESIGN

HOW THE SITE & BUILDING WERE SHAPED

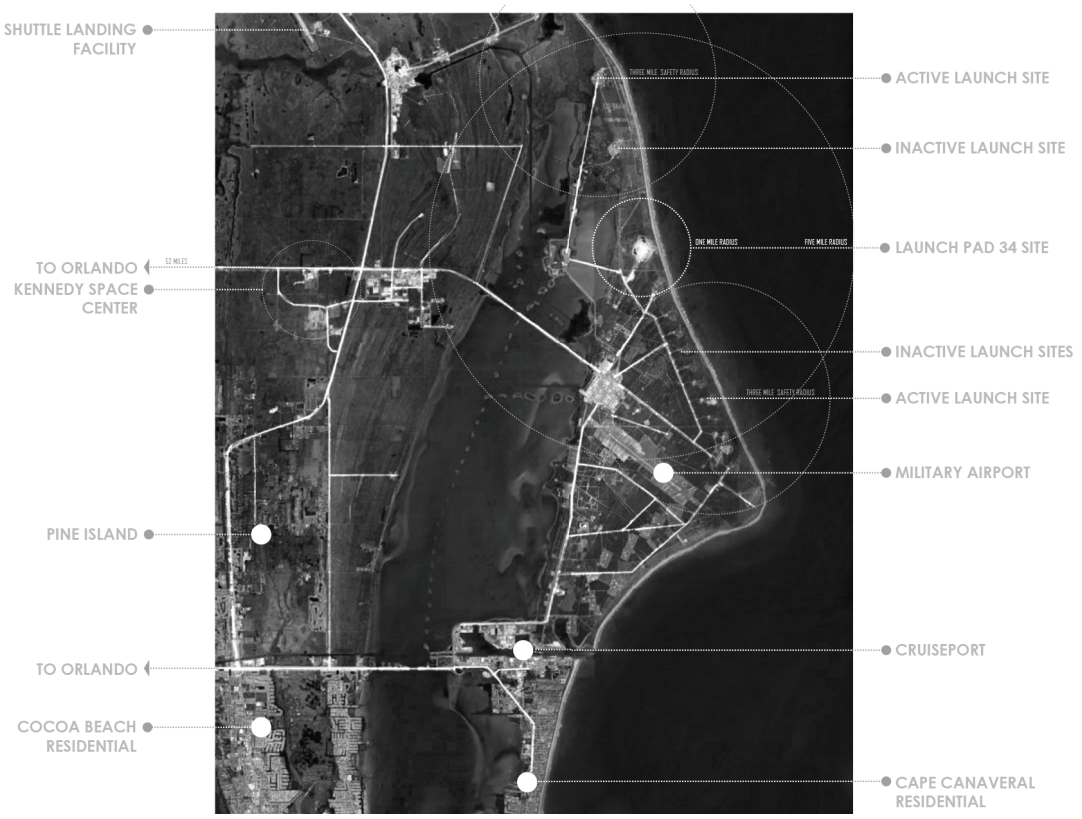


The overall site design of the project is highly influenced by the urban context surrounding it and the program of the space program that is once hosted.

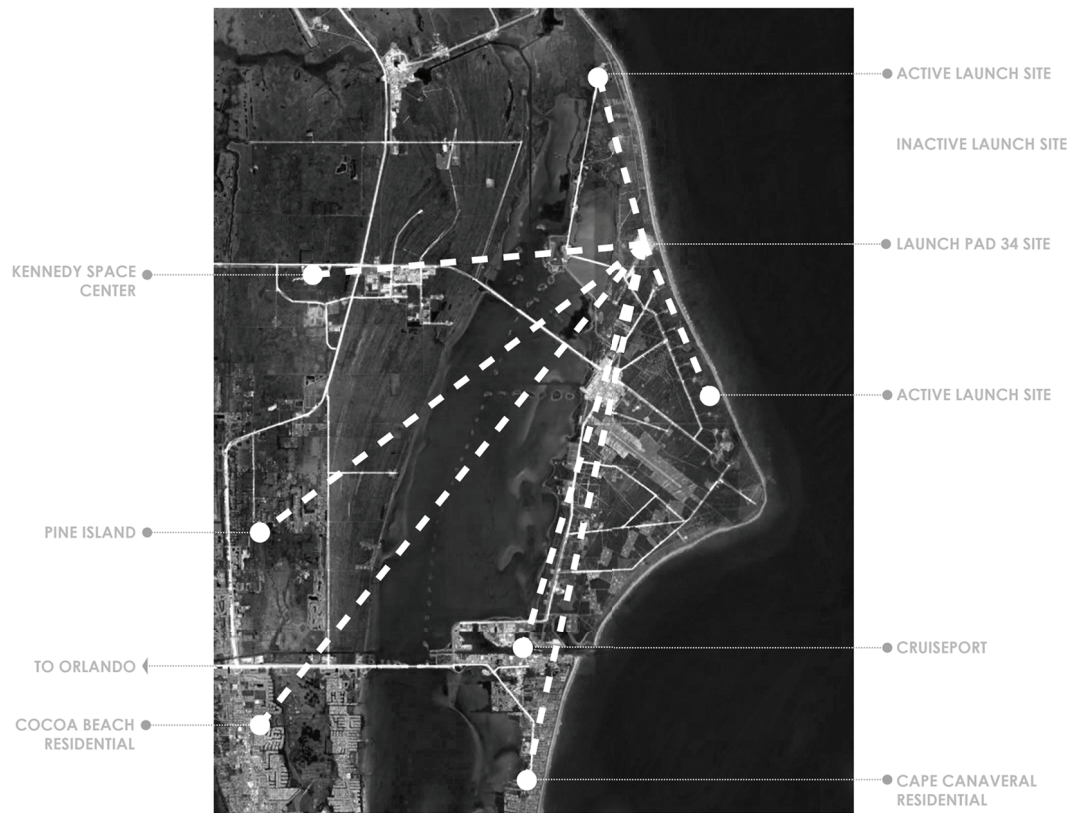
Launch Pad 34 is already a designed project pertaining to the Apollo missions. However this development is highly weathered and suffers from overgrowth of vegetation. This then called for the site to be planned for a series of phased developments. The overall master plan of the site is developed based on a series of axis that extend from the center of the Launch Pad and reach out to the centers of urban development around it. These developments ate shown in the graphics on the next page.

There are many potential areas of architectural intervention in which these lines of axis have created and have shaped the site to host not only the museum, but potential developments of research centers, parks, and viewing plazas for future NASA and SpaceX launches..

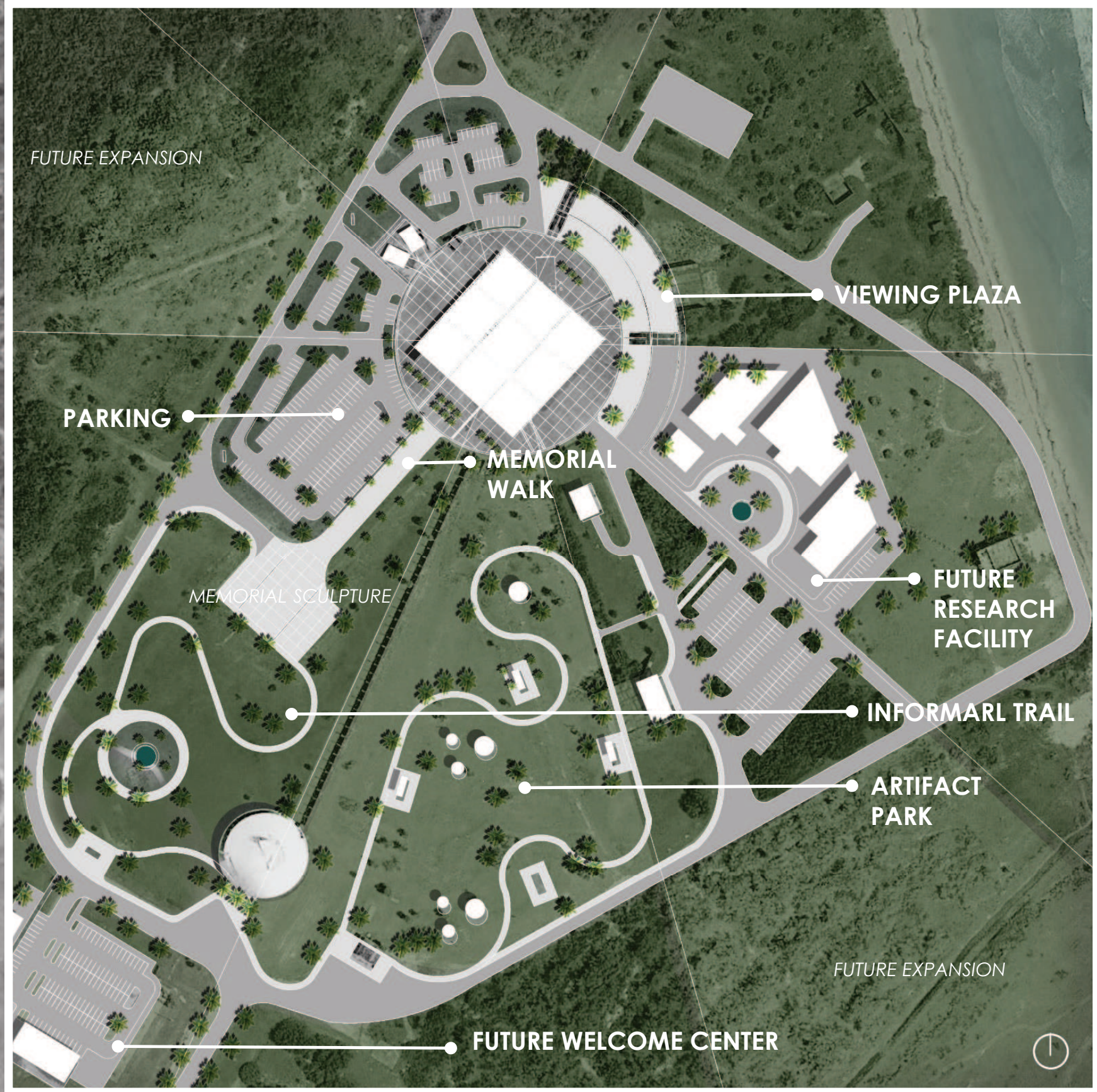
This diagram shows the relationship of the site with its urban context. It is located roughly 50 miles away from Orlando, Florida. It is somewhat isolated from the "natural" public since it is located on a military base. The public transportation system from KSC will be used for main access



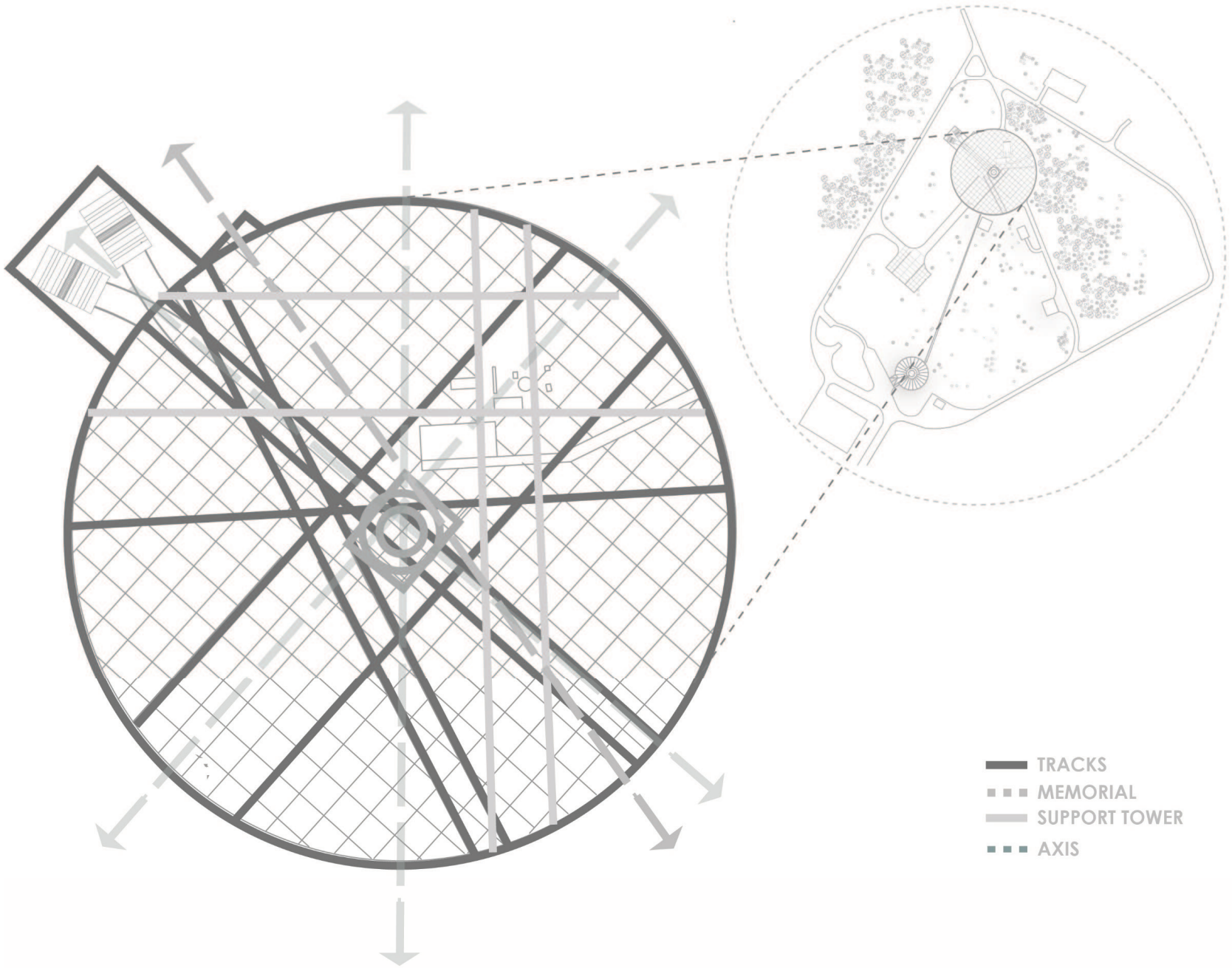
This diagram is showing the safety radiuses of the launch facilities that surround the site. The site is nestled perfectly within the radiuses and as space tourism and commercialization continue to grow, this location would allow optimum viewing of the future launches by NASA and SpaceX that would take place at the active launch pads that flank the site.



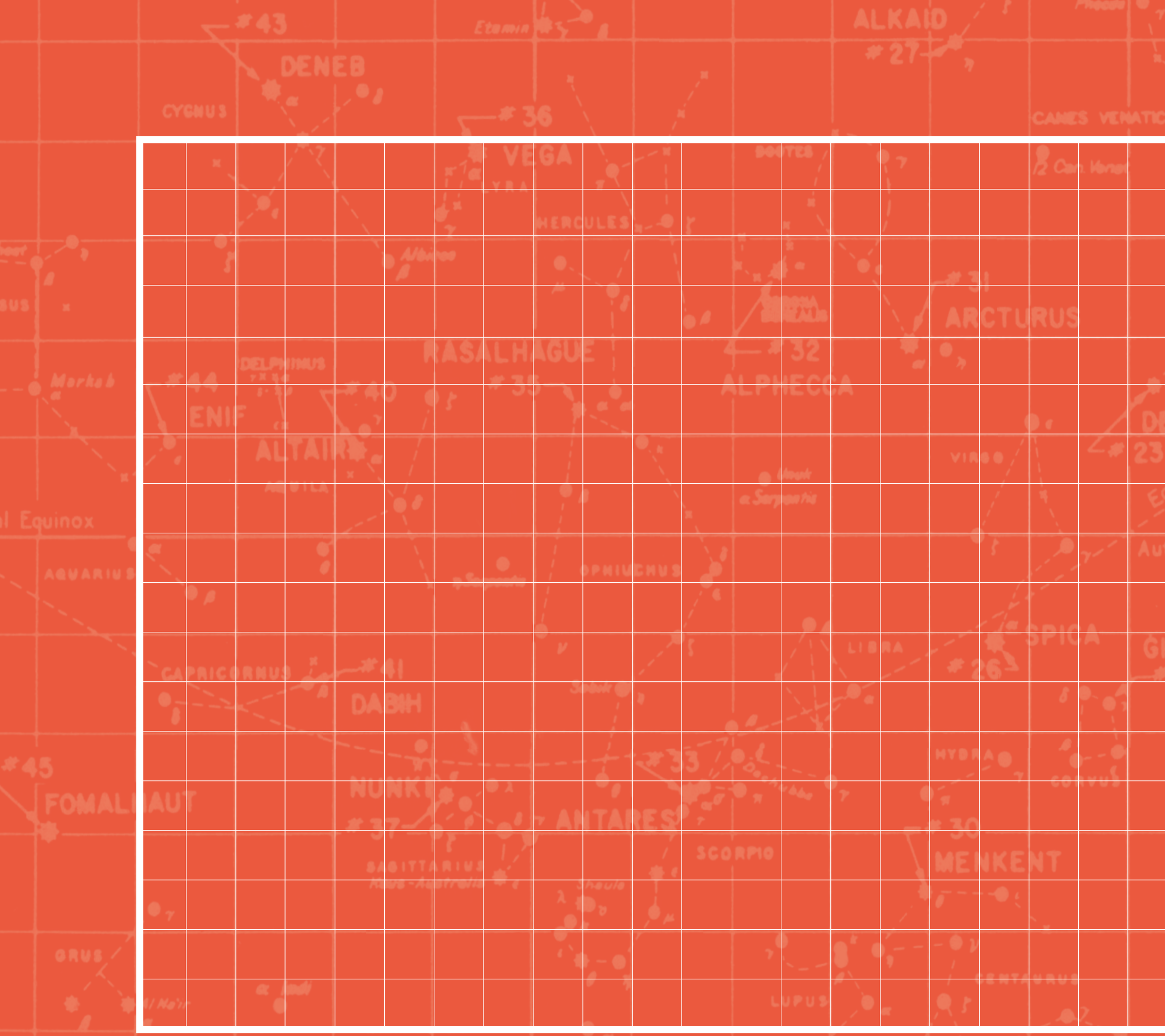
This diagram is showing lines of axis from the populated areas surrounding the site. These selected areas of interest are what shaped the master plan of the site itself. The center of the mater plan hosts the main project and the main project would have a large projection of light that would act as a beacon urging residents and tourists to visit the site.


FUTURE EXPANSION
VIEWING PLAZA
PARKING
MEMORIAL WALK
MEMORIAL SCULPTURE
FUTURE RESEARCH FACILITY
INFORMARL TRAIL
ARTIFACT PARK
FUTURE EXPANSION
FUTURE WELCOME CENTER


DANGER
NO NOT ENTER



This diagram shows the Launch Pad 34 concrete slab itself. The slab is broken into 20ft by 20ft squares of concrete composing the circle base with the central concrete base that held the rocket into place for the Apollo mission series. The diagram also shows the relationship of where the tracks, the support tower, and the small memorial to the concrete base. These tracks and elements of the base ultimately become the "planes of the past". The planes then contributed to the overall formation of the building and remembrance of what occurred many years ago in the past.

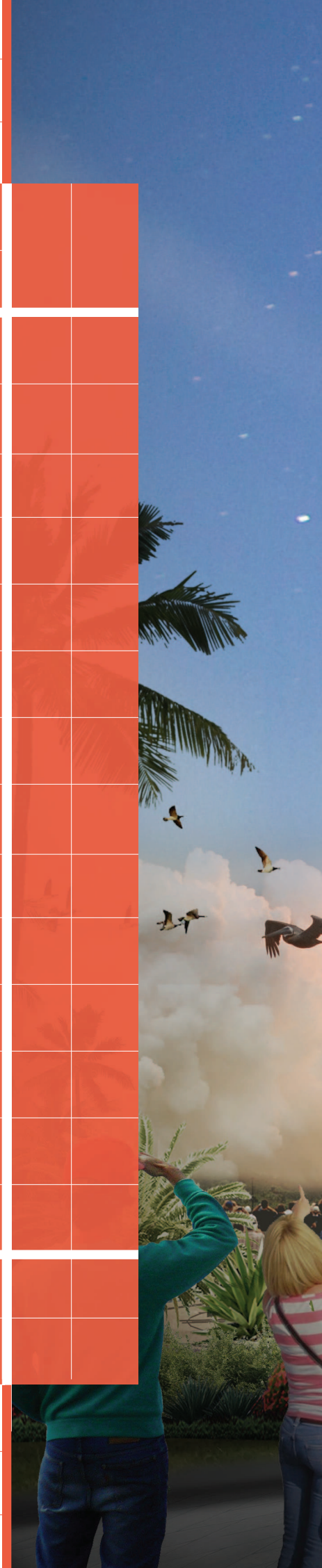

DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
ALKAID
#27
CANES VENATICI
BOOTES
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
#44
ENIF
#40
#35
ALTAIR
AQUILA
VIRGO
#23
Markab
Equinox
AQUARIUS
OPHIUCHUS
SPICA
LIBRA
#26
CAPRICORNUS
#41
DABIH
#45
FOMALHAUT
#33
ANTARES
SCORPIO
#30
MEISSA
HYDRA
CORVUS
#37
SAGITTARIUS
GRUS
LUPUS
CENTAURUS
ARA
#42
PEACOCK


URSA MAJOR
CAPELLA
AURIGA
GEMINI
TAURUS
LEO
REGULUS
PROCYON
ALDEBARAN
CANIS MINOR
ORION
Equinoctial (Equator)
HYDRA
ALPHARD
SIRIUS
RIGEL
CANIS MAJOR
LEPUS
ARGO
COLUMBA
REGOR
CANOPUS

VISIT

JOURNEY

INTO THE FUTURE OF SPACE EXPLORATION



ASTRATERNO

latin

ad astra

to the stars through difficulties

english

“a rough road leads to the stars".

english

The Launch Complex 34 memorial plaque for the astronauts of Apollo 1.

why

ab aeterno

from the eternal

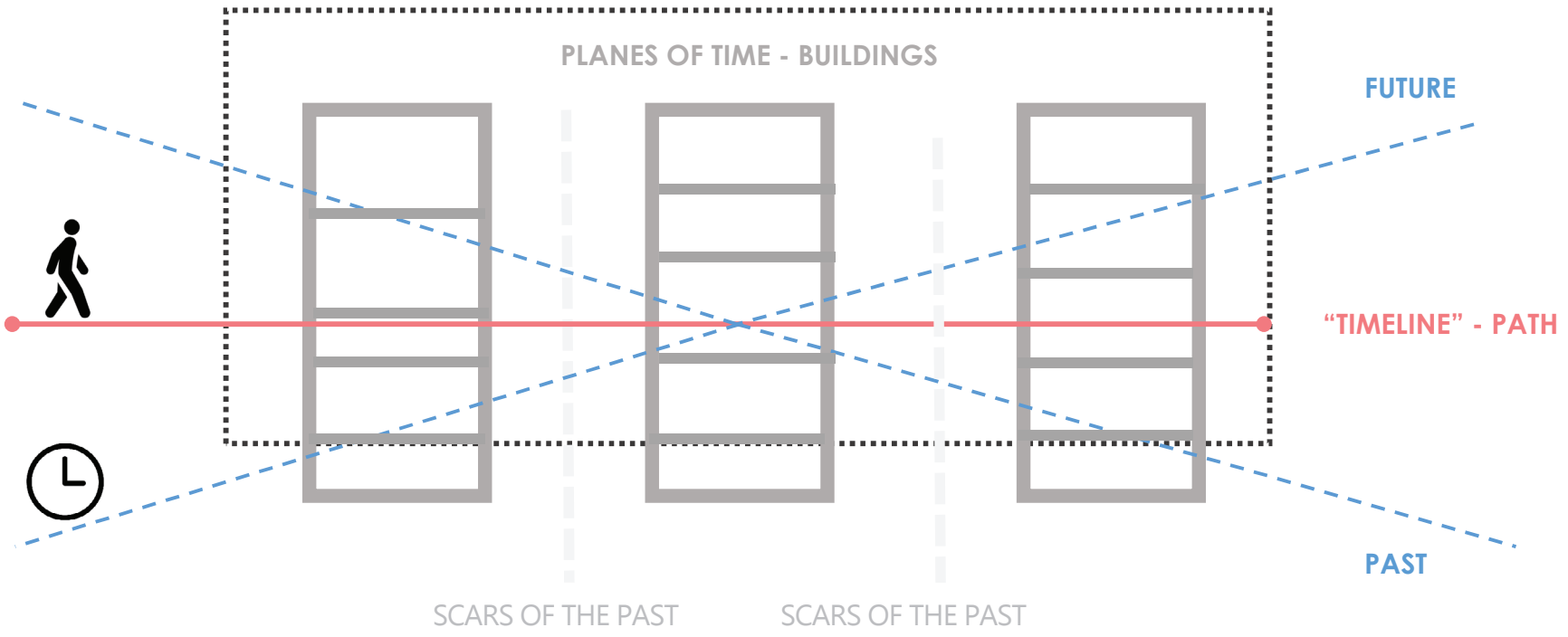
english

"from outside of time".

Philosophically and theologically, it indicates something, e. g., the **universe**, that was **created** from **outside of time**.

ASTRATERNO

BRIDGING PAST, PRESENT, AND FUTURE



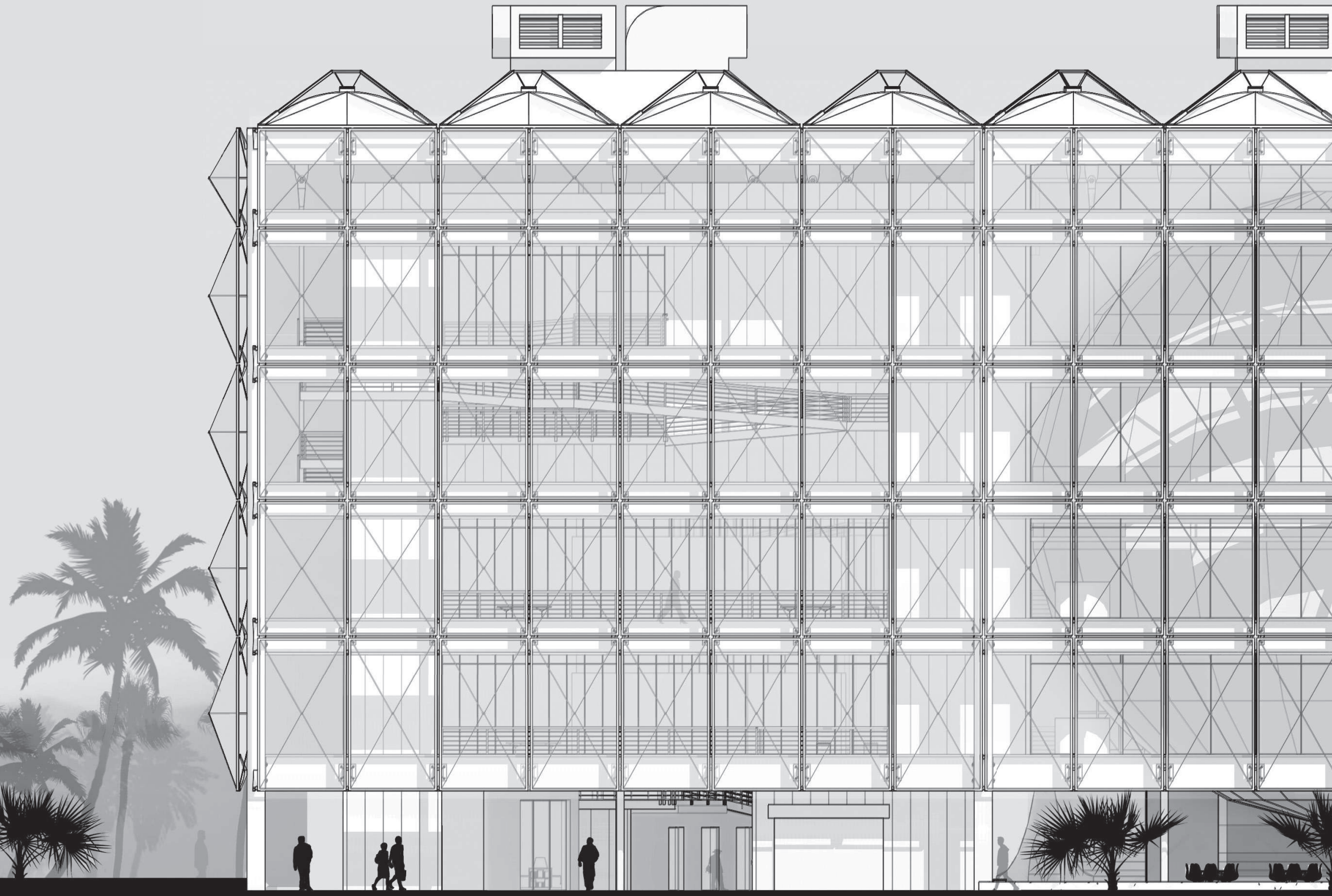
The memorial space museum and planetarium, or Astraterno embodies a journey exploring the fluidity of time through architecture. The building takes on its footprint by acknowledging historic axis of the past. Whether the axis are clearly marked within the site, such as the tracks in which allowed tectonic movement of the rocket and scaffolding that once were present, or implied such as a visual plane stemming from small memorial slightly off site, these axis become defined "planes of the past". The planes then emerge from the site and become the footprint of the building and allow it to take on its form.

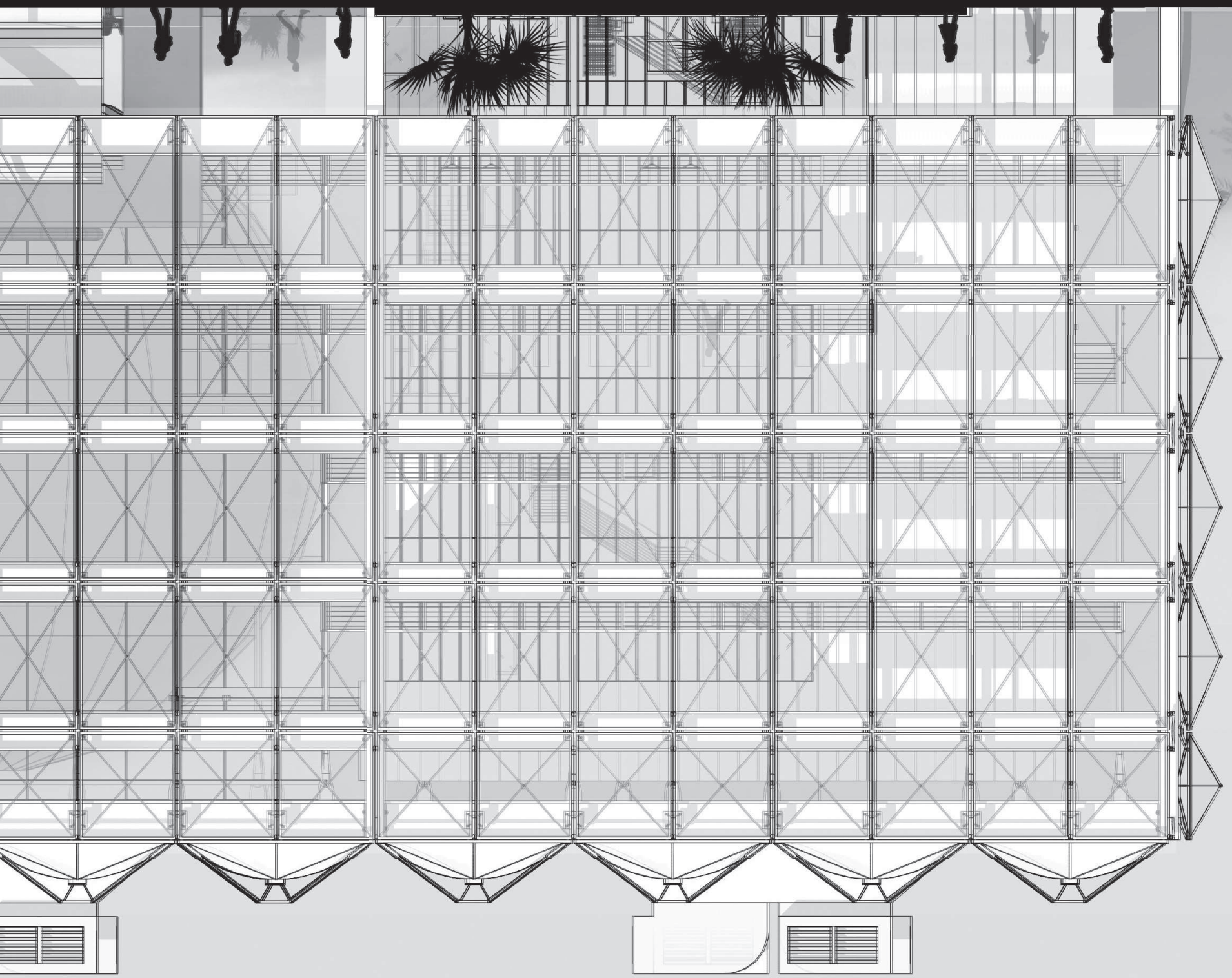
The overall form of the building if broken into four sections of program: museum, planetarium, education, and administration. These sections of program are derived from the different "stages" of the once grand rocket that resided on the launch pad. Their heights vary with program but the overall height of the building stops at the first level of the maintenance arm of the umbilical tower that once held the rocket into place. The building also takes on its form by respecting the notions of the past, organization of time by levels, and the architectural promenade aims to break though planes of the past and present to express time as being relevant.

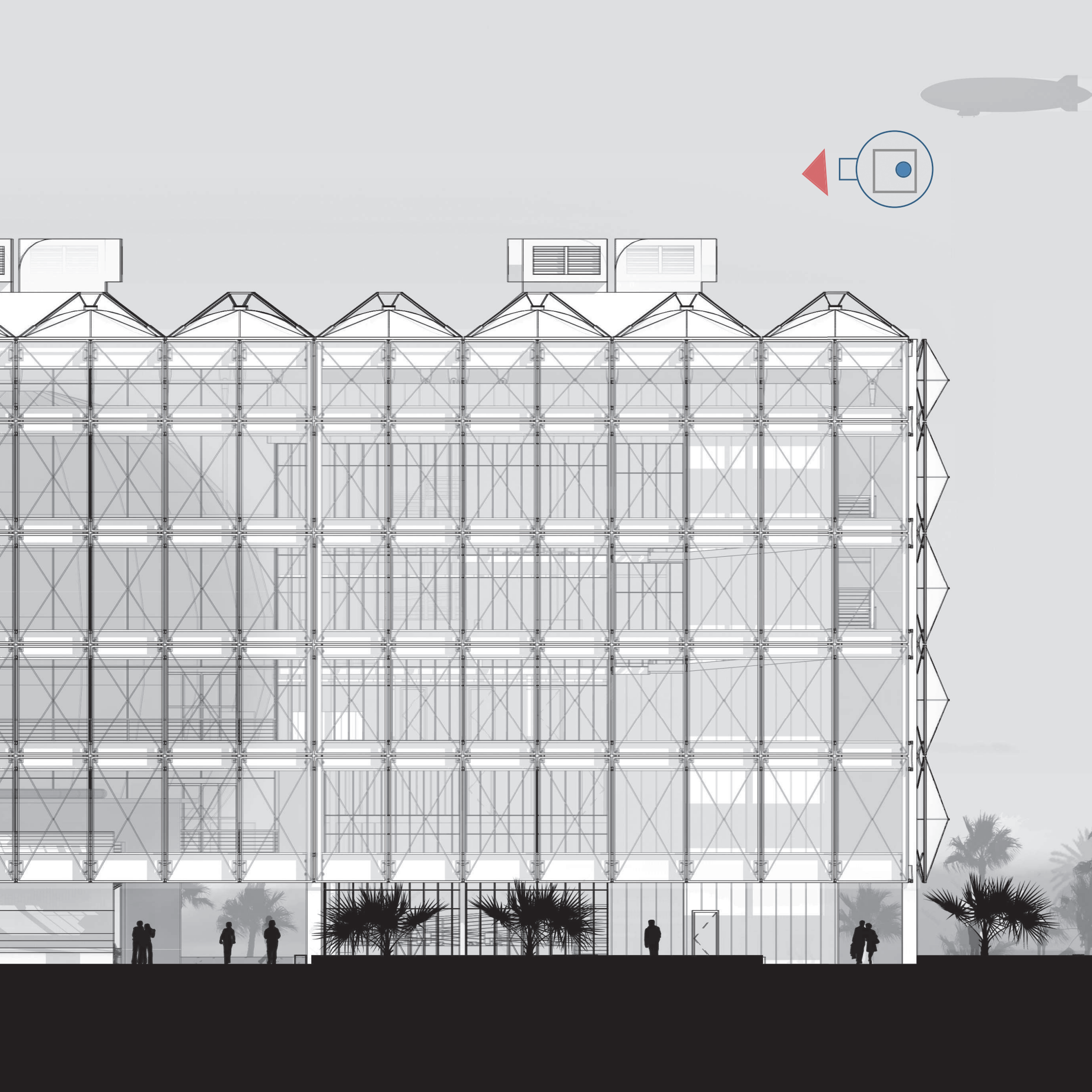

Apollo 7

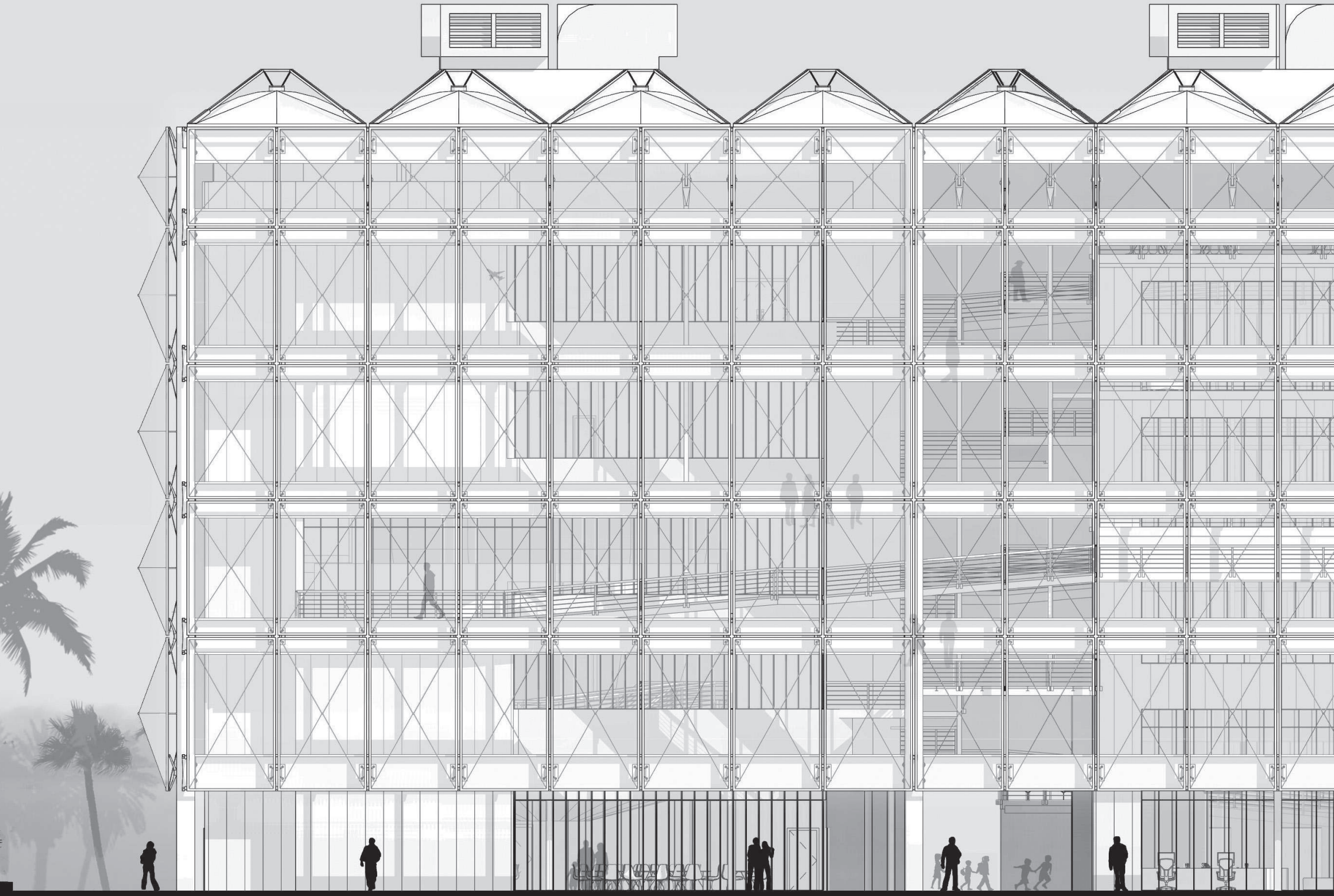
REMEMBER

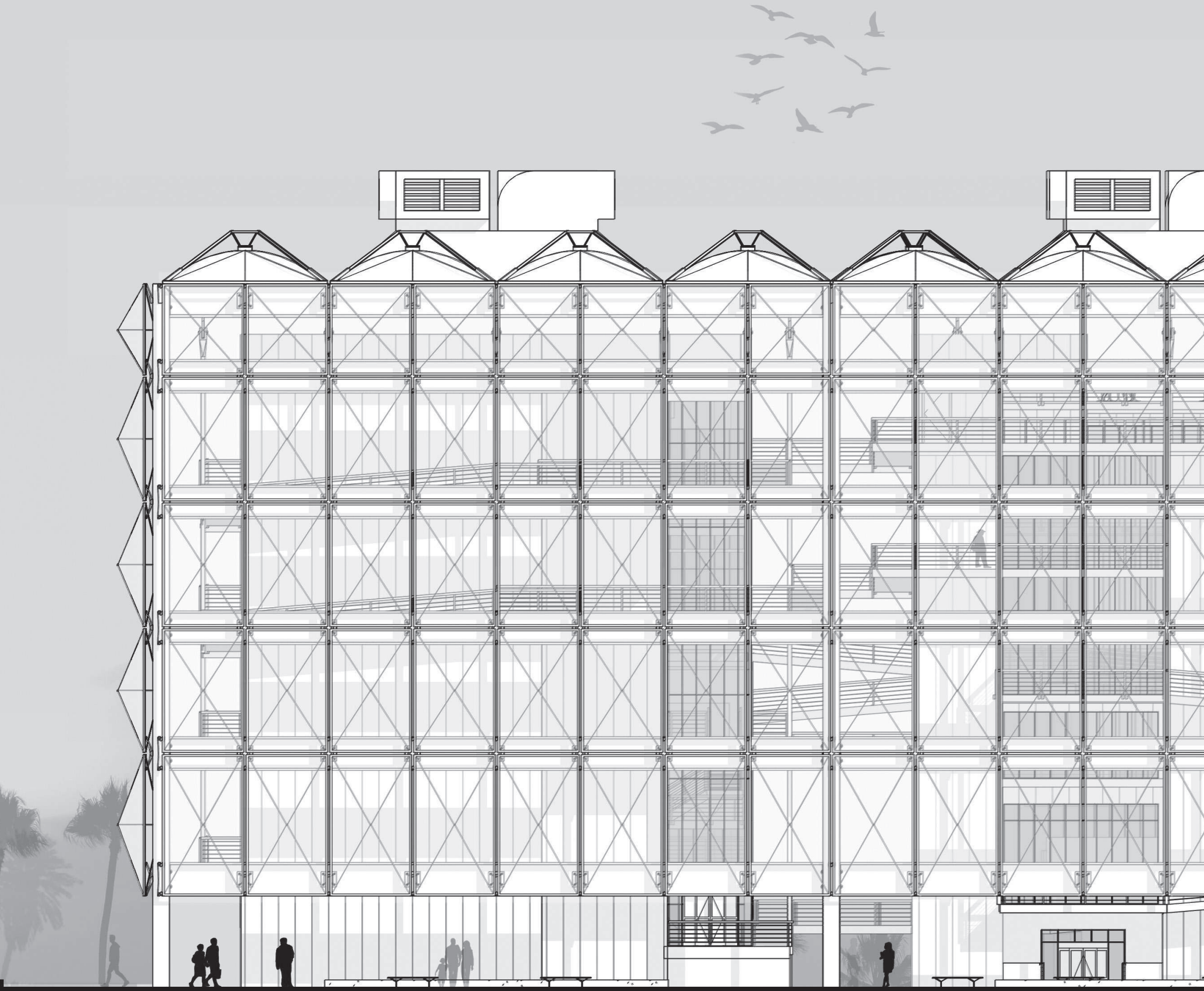
START YOUR JOURNEY THROUGH TIME











PAST

DISCOVER

THE ARTIFACTS THAT MADE HISTORY

01

The first floor of the building occupies the past of the concrete launch pad. This floor has the entrance to the museum as well as entry to a two story gift shop. There is access to a cafe, viewing plazas, and a records room.

There is a reflection room for those who wish to pay their respects to the astronauts who perished many years ago.

This floor also has access to the concrete base and blast shields. The blast shields will move into place along the tracks that have formed the building around it during the time of launch.

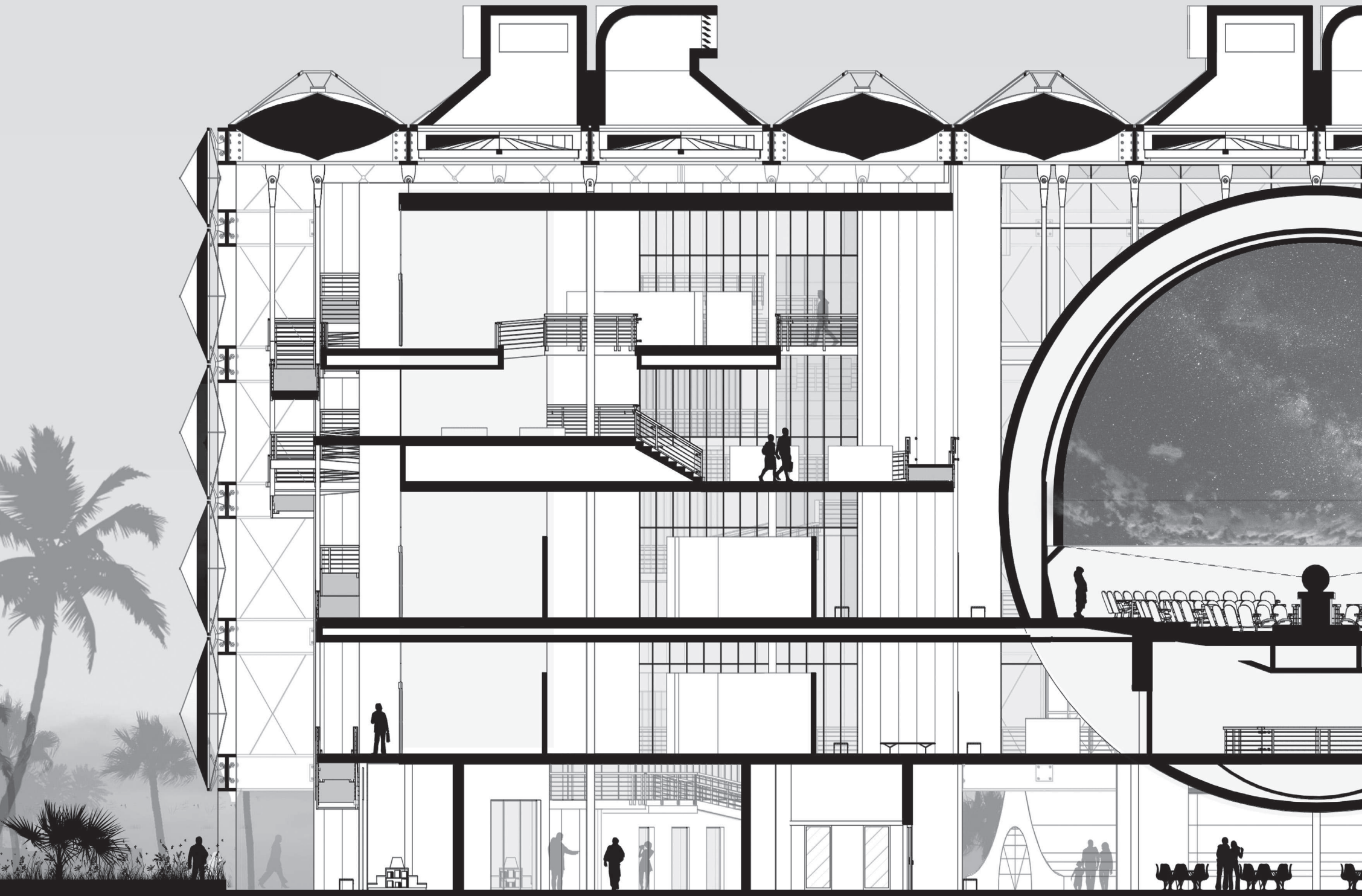
BLOCKHOUSE

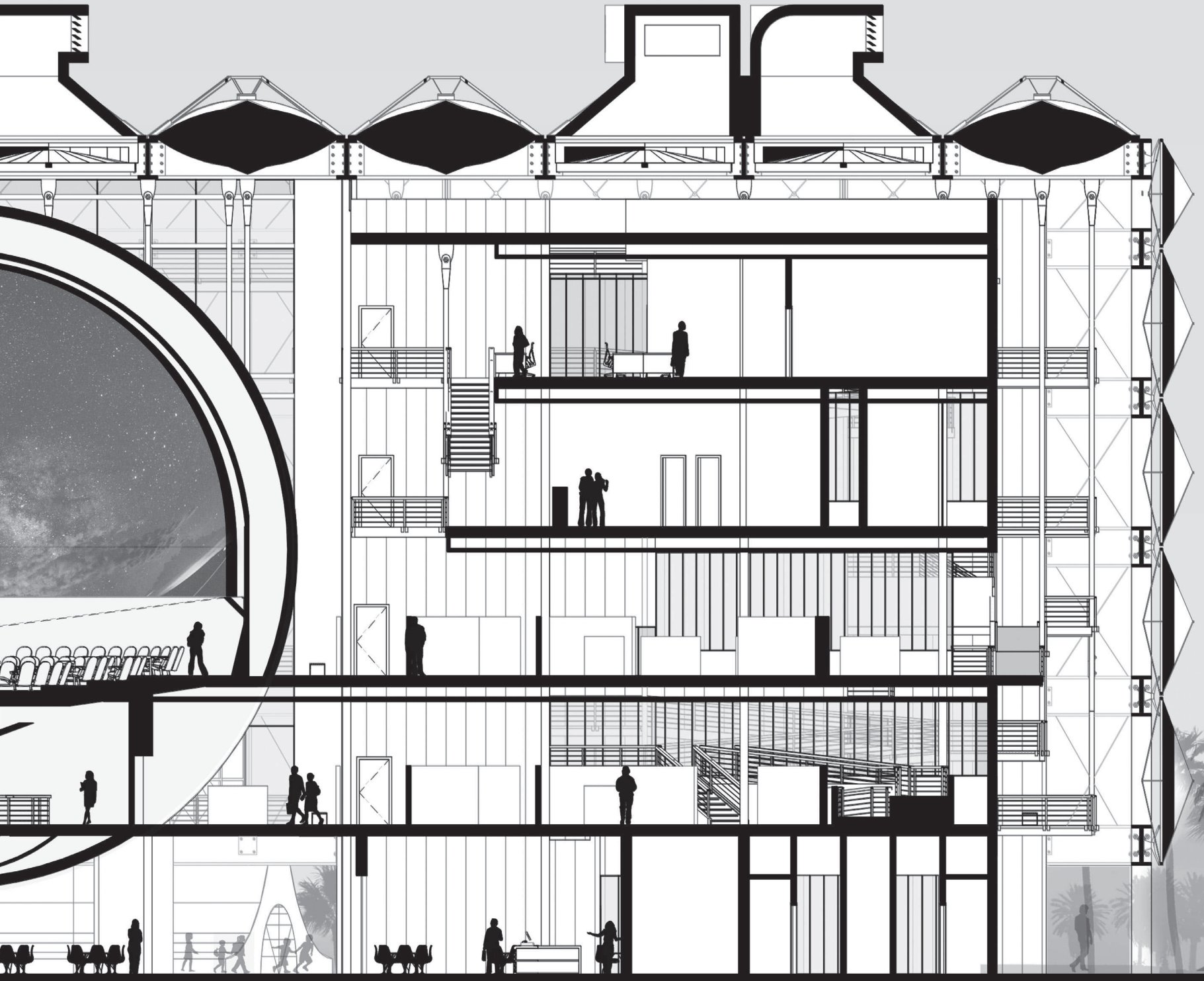
BASE

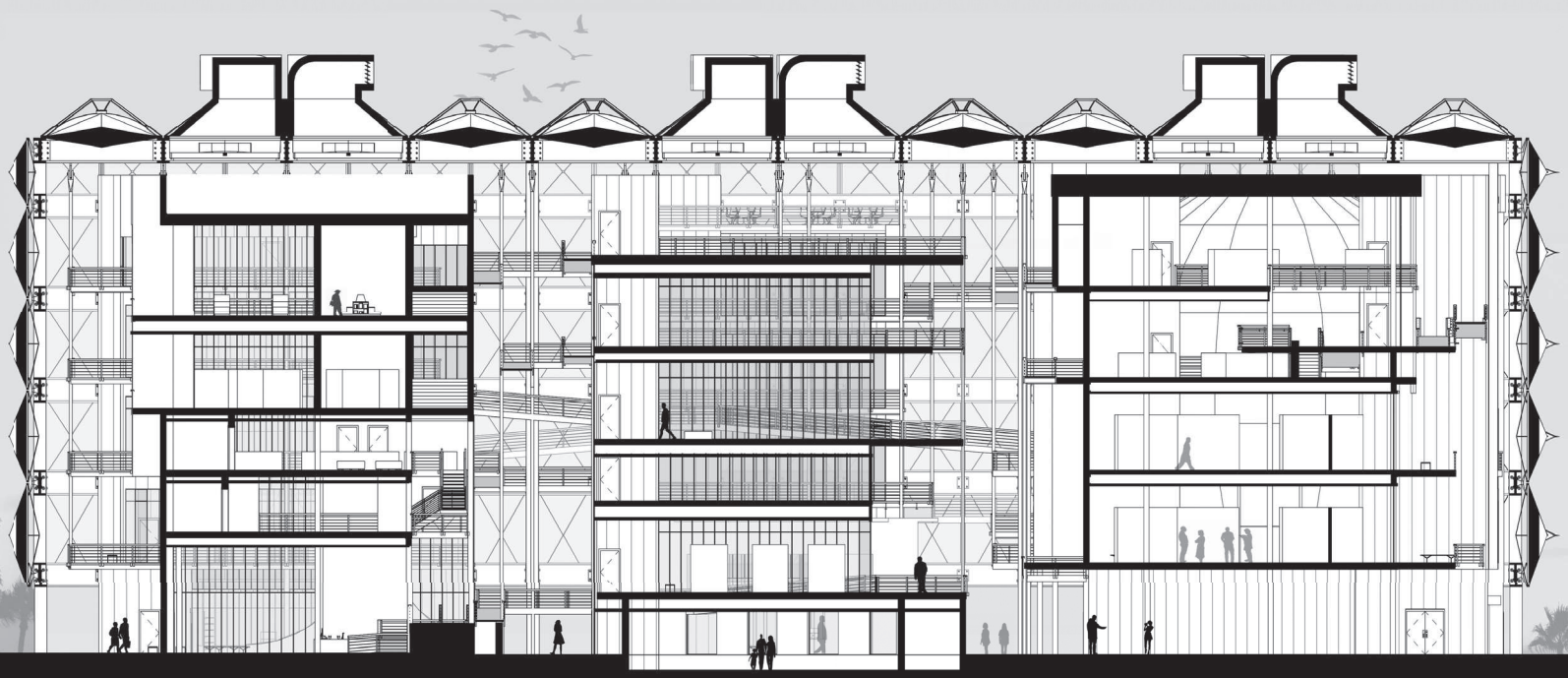
TRACKS

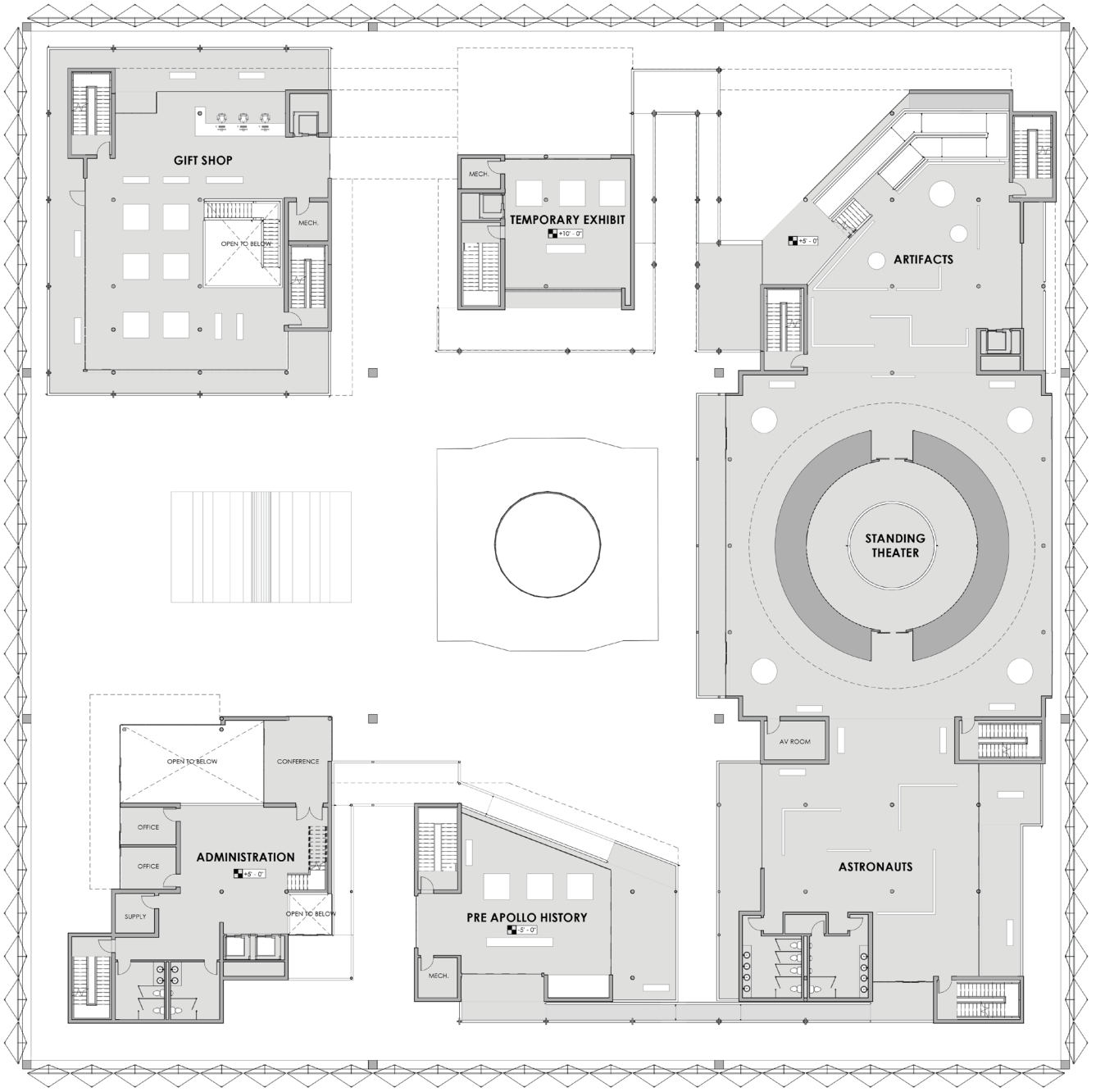
This diagram shows the parti of the building. It shows the existing artifacts and the movements that were chosen to make the form of the overall building on the bottom section of the image. This diagram is later repeated in the movement section of this book. The movements are diagramed in plan. The vertical piece of this diagram represents the umbilical tower.

The tower in which supported the rocket. This tower is no longer on the site but is remembered with a special program and tour access. The diagram is abstract but it relates to the past, present, and future and how the building becomes a whole entity, the ASTRATERNO.



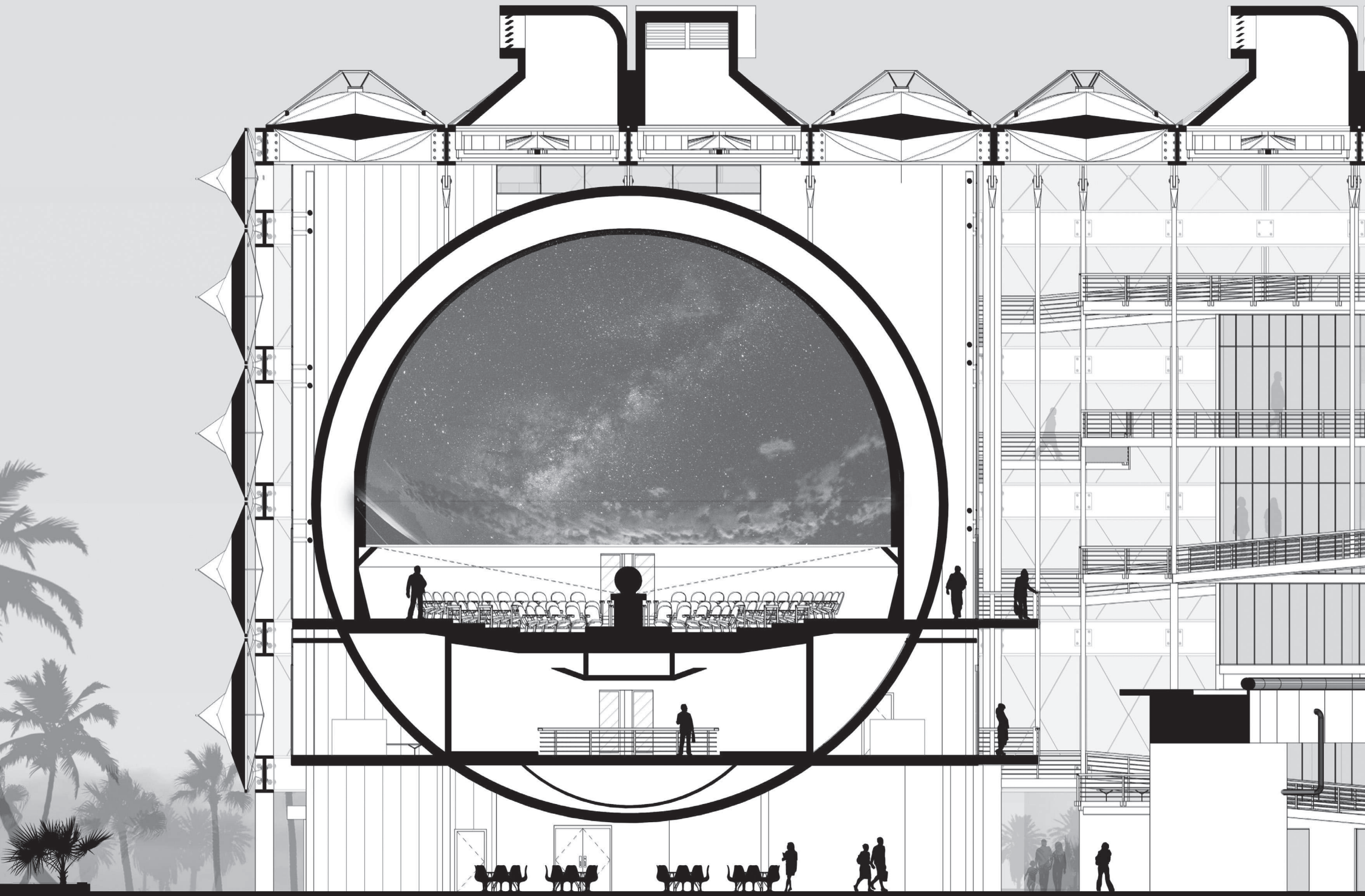


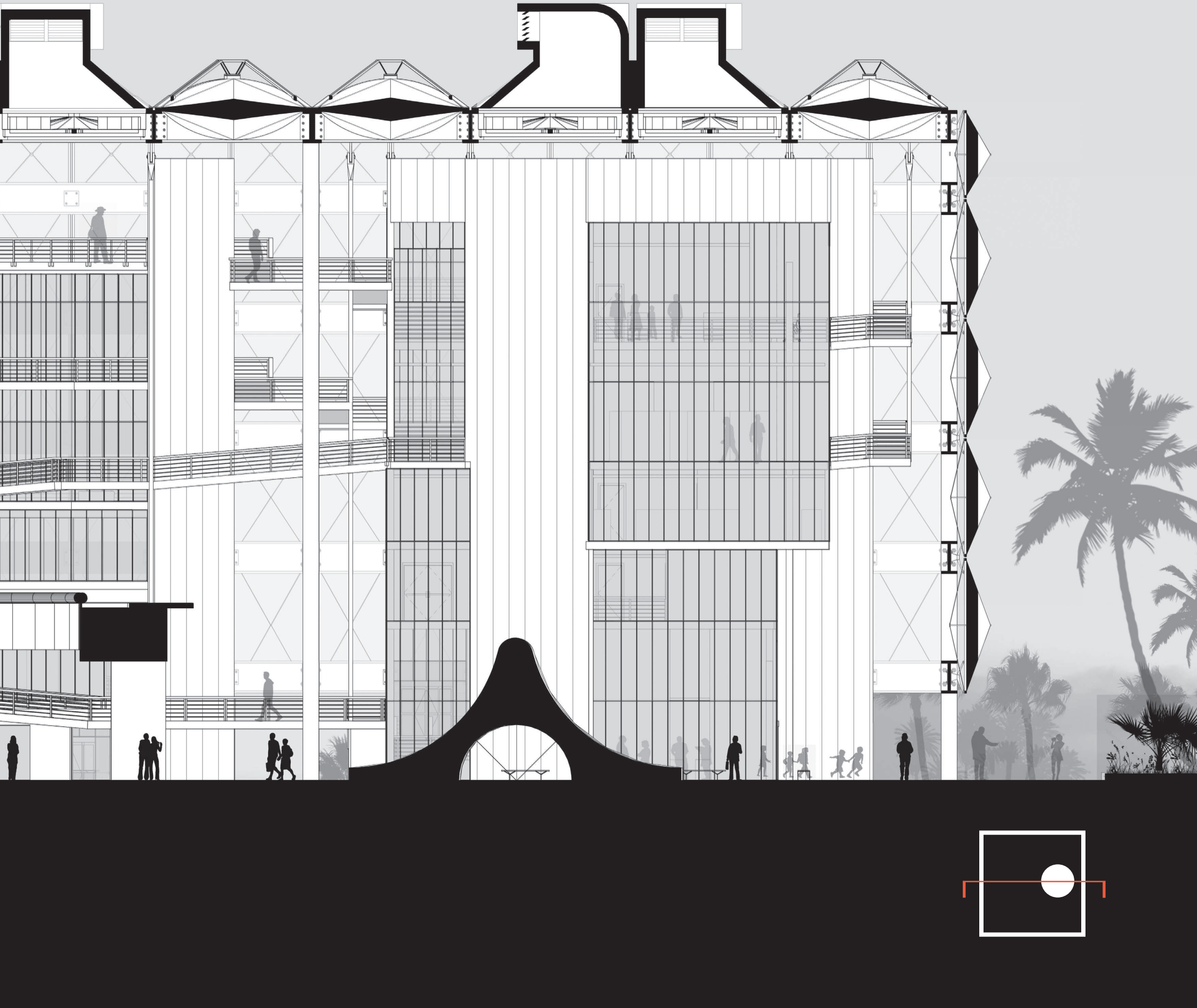


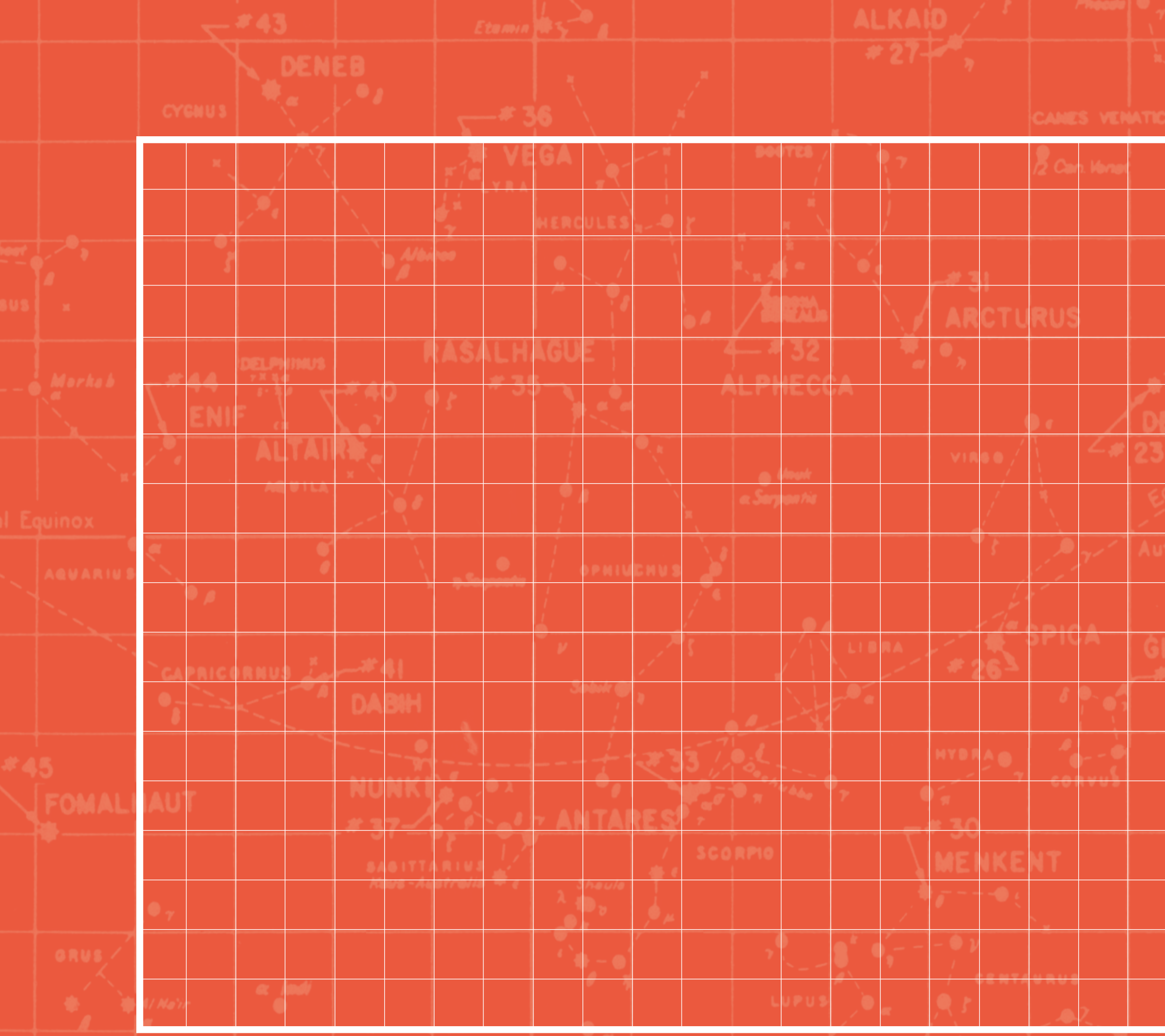


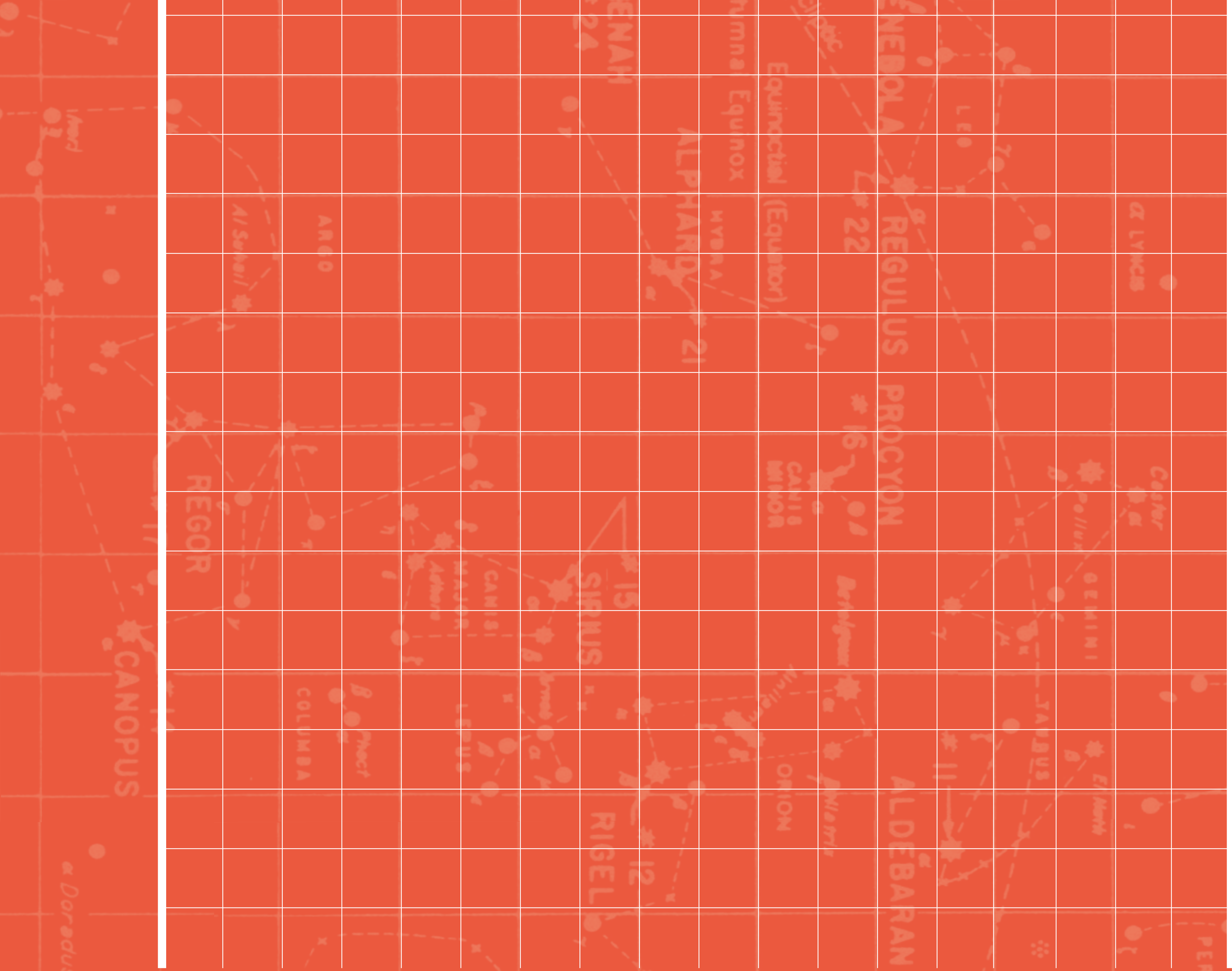
02

The second floor of the building is representative of the fast. Here there is where the visitors begin their journey. This floor hosts the first theater that has a constant showing of a memorial show of the three lost astronauts. This floor has office spaces that are private to the museum. There is also access to a second story gift shop.





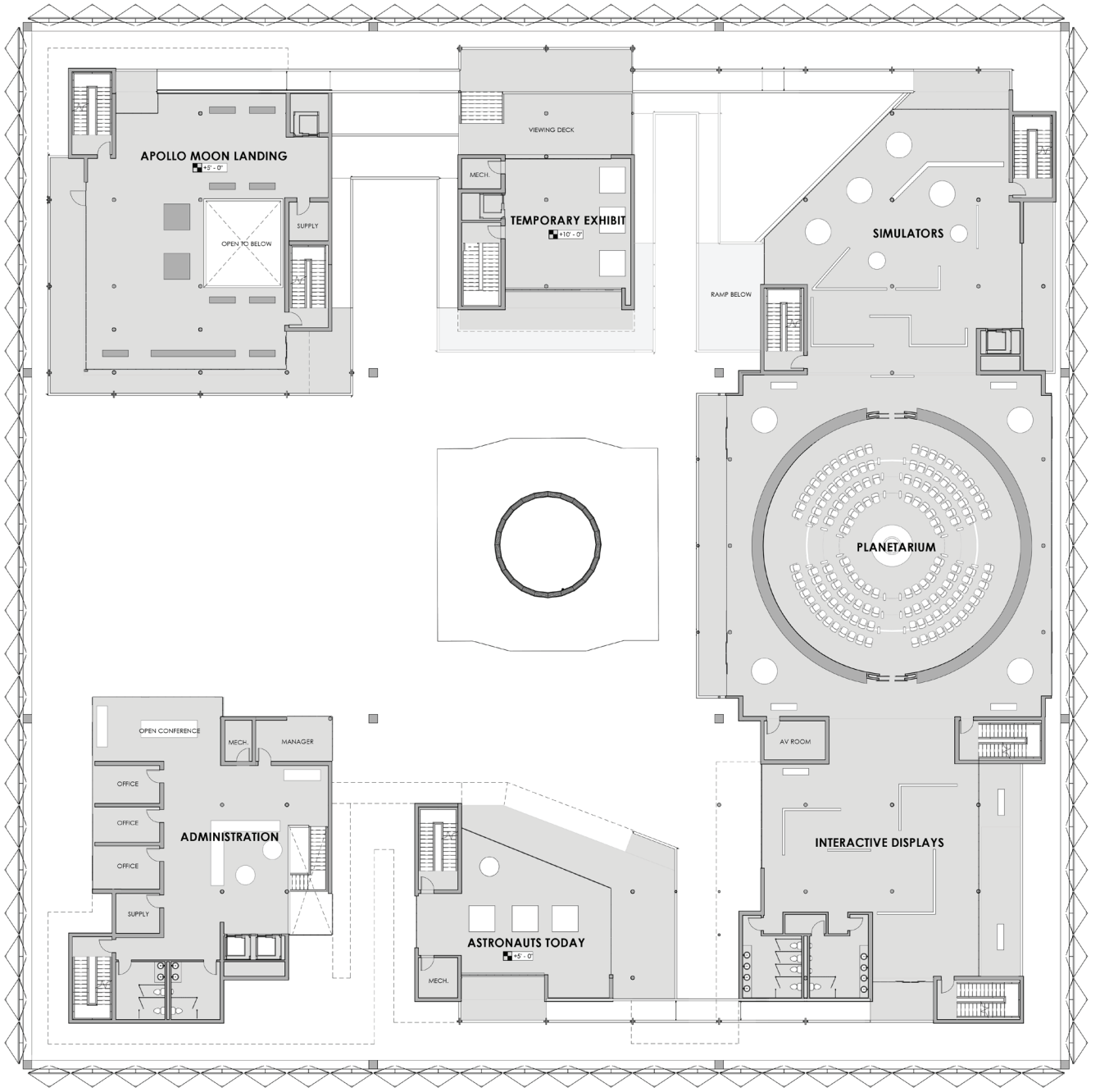

DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
ALKAID
#27
CANES VENATICI
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
#44
ENIF
#40
#35
ALTAIR
AQUILA
VIRGO
#23
Markab
Equinox
AQUARIUS
OPHIUCHUS
#41
DABIH
CAPRICORNUS
SPICA
LIBRA
#26
#45
FOMALHAUT
NUNKI
#37
SAGITTARIUS
#33
ANTARES
SCORPIO
#30
MEISSA
HYDRA
CORVUS
GRUS
LUPUS
CENTAURUS
#42
PEACOCK
ARA
Rigil Kentaurus
78


URSA MAJOR
CAPELLA
AURIGA
α LYNCIS
GEMINI
TAURUS
LEO
REGULUS
PROCYON
ALDEBARAN
CANIS MINOR
ORION
Equinoctial (Equator)
HYDRA
ALPHARD
SIRIUS
RIGEL
CANIS MAJOR
LEPUS
ARGO
COLUMBA
REGOR
CANOPUS

PRESENT

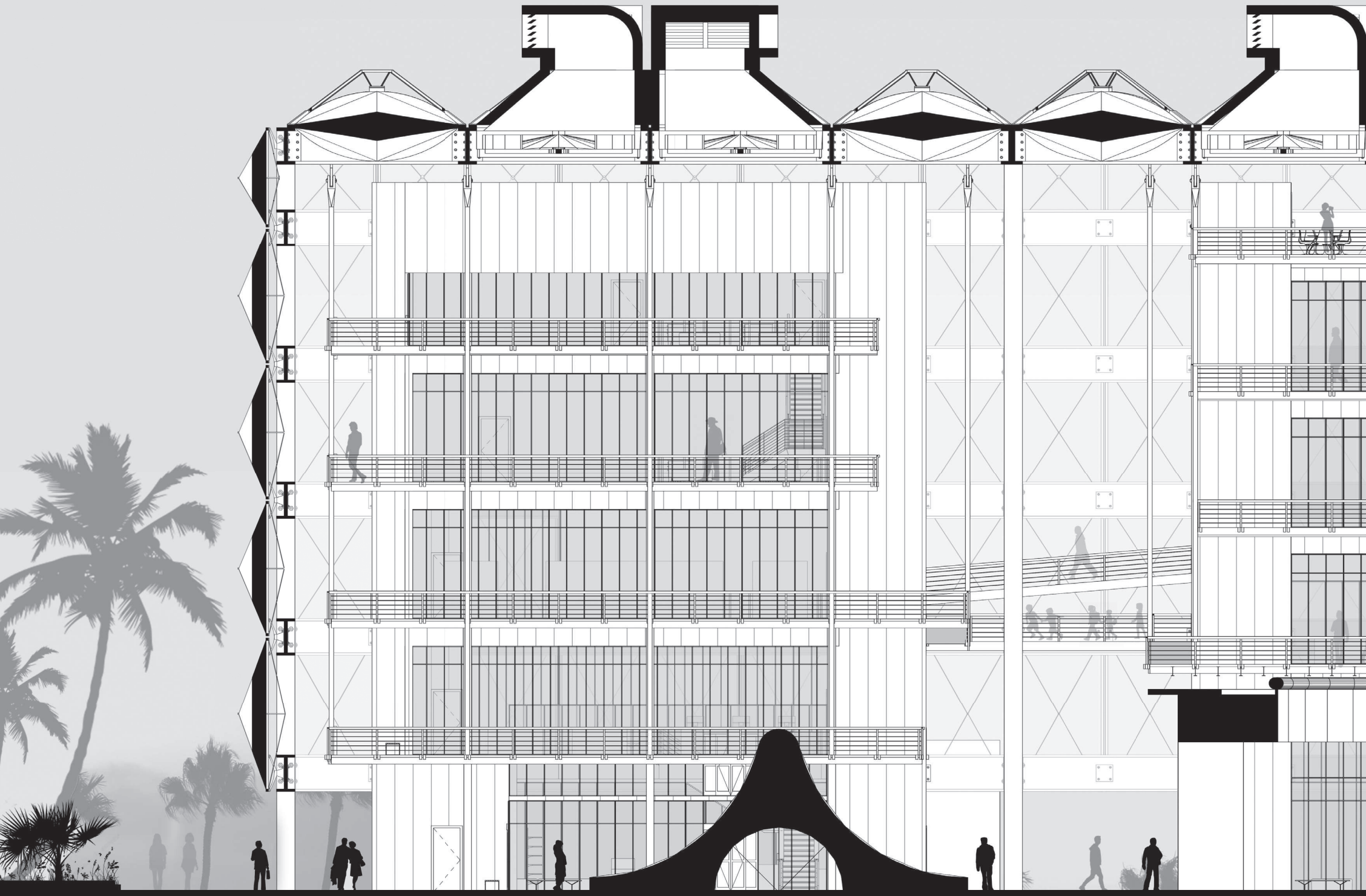
PATHWAY

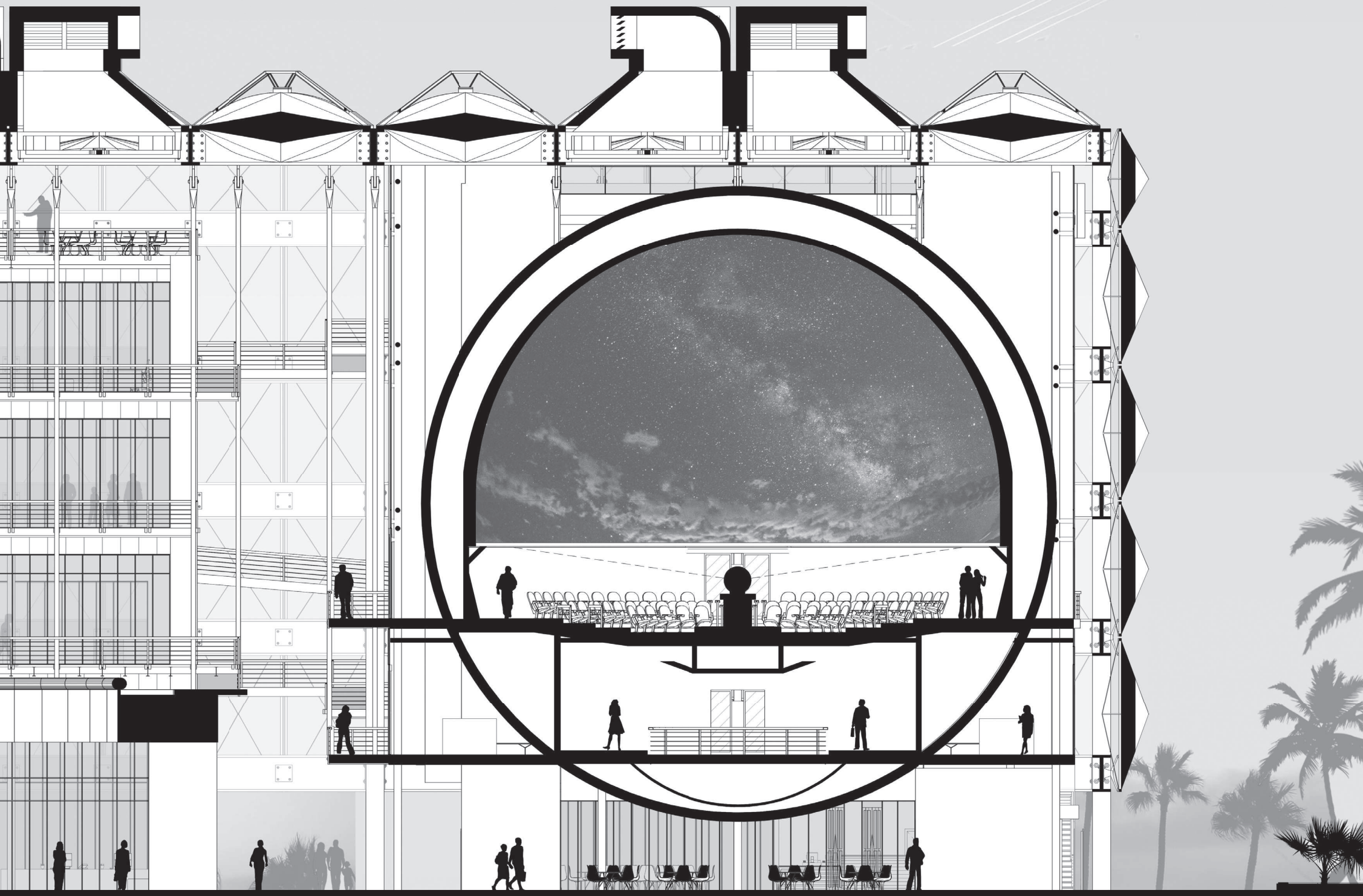
THROUGH TIME AND SPACE

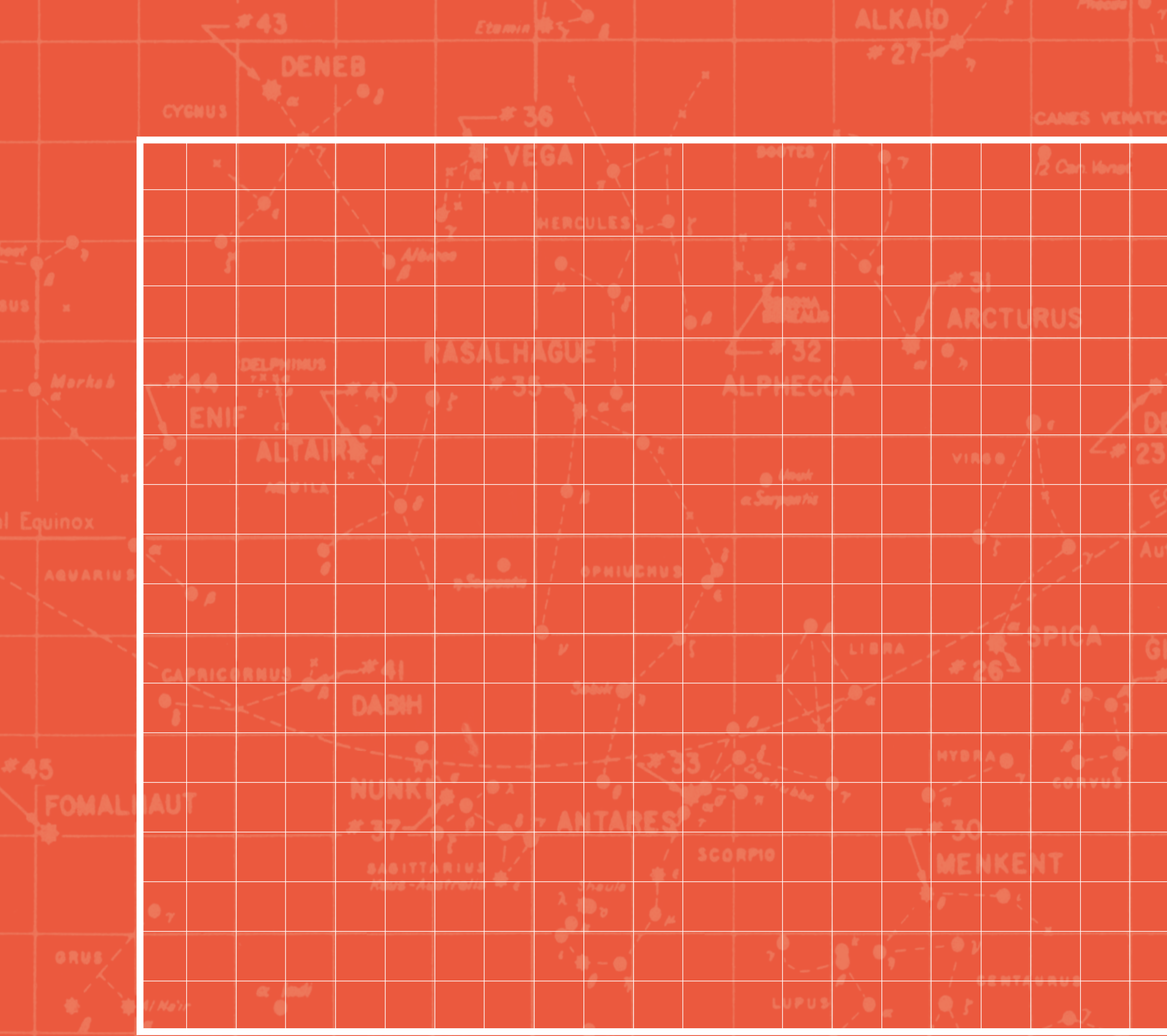


03

The third floor of the building has a second level of offices to accommodate for the staff and services of the museum. This floor represents the present day and the program of this floor relates to it. The second level of the theater is also on this floor. It seats 150 people and would have regular showings relating to the present day space exploration as well as some showings over the future.



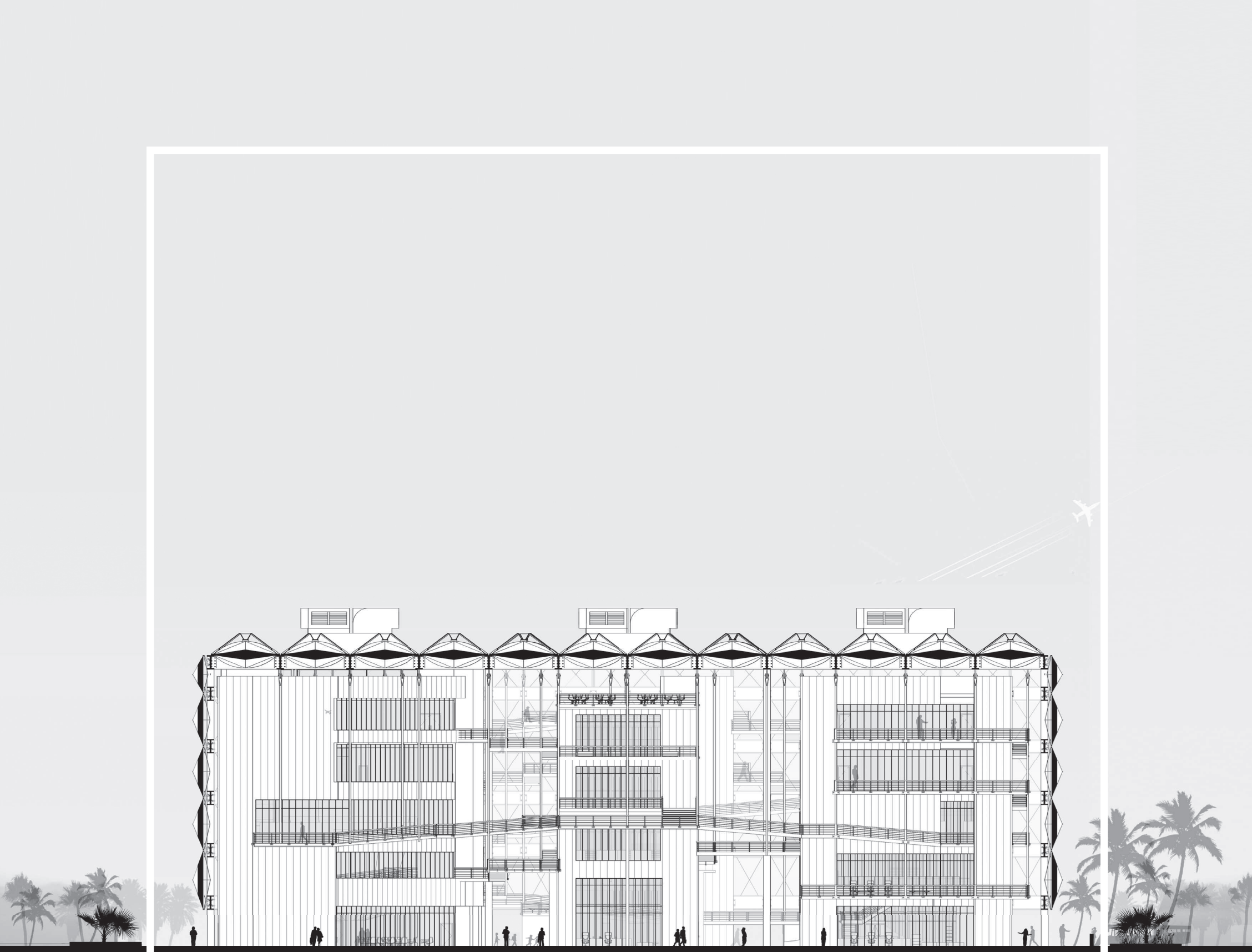


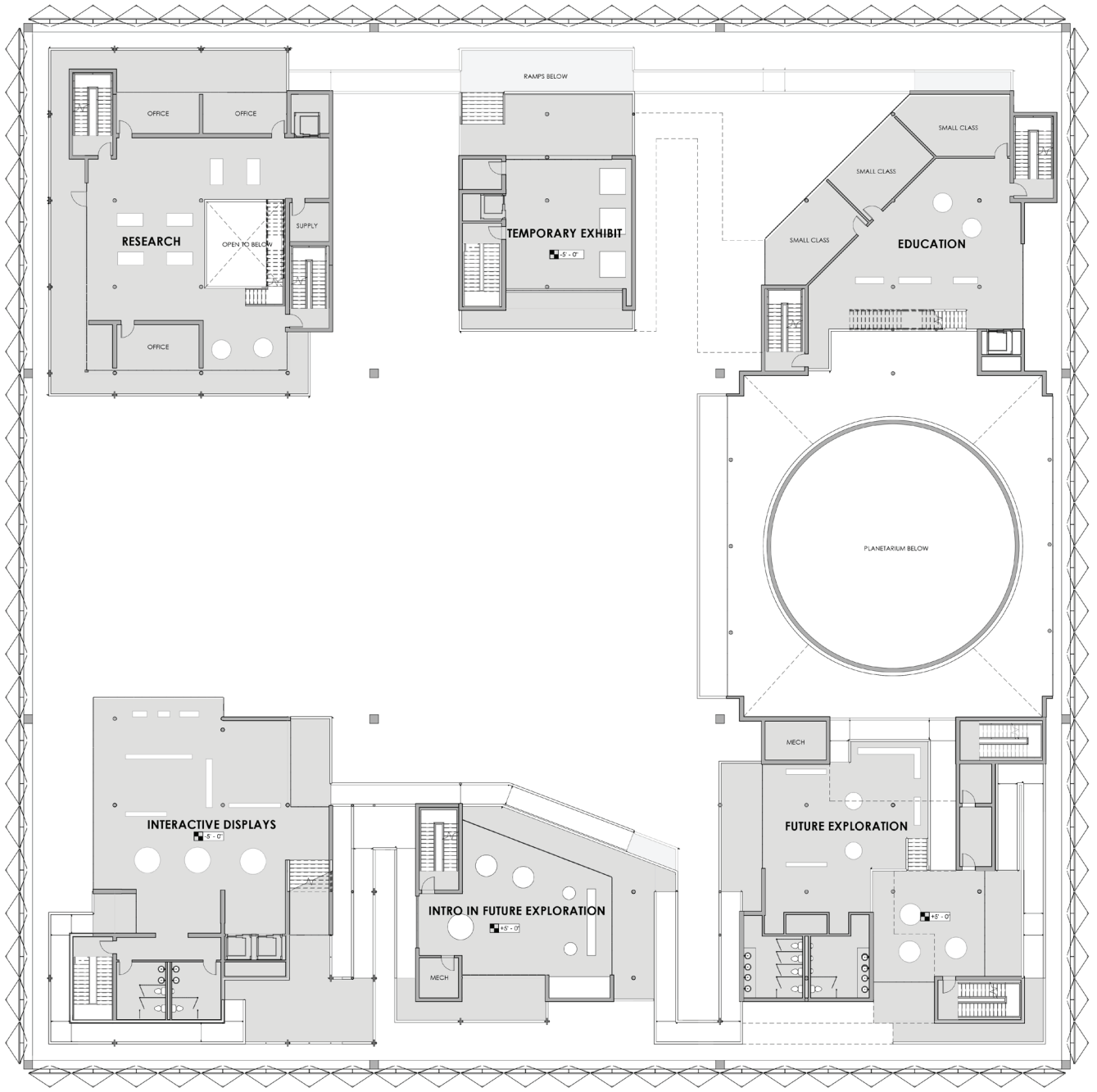

DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
ALKAID
#27
CANES VENATICI
BOOTES
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
#44
ENIF
#40
#35
ALTAIR
AQUILA
VIRGO
#23
Markab
Equinox
AQUARIUS
OPHIUCHUS
LIBRA
SPICA
#26
CAPRICORNUS
#41
DABIH
#45
FOMALHAUT
#37
SAGITTARIUS
ANTARES
#33
SCORPIO
HYDRA
CORVUS
#30
MEISSA
MEIRKENT
CRUS
LUPUS
CENTAURUS
ARA
#42
PEACOCK

FUTURE

EXPLORE

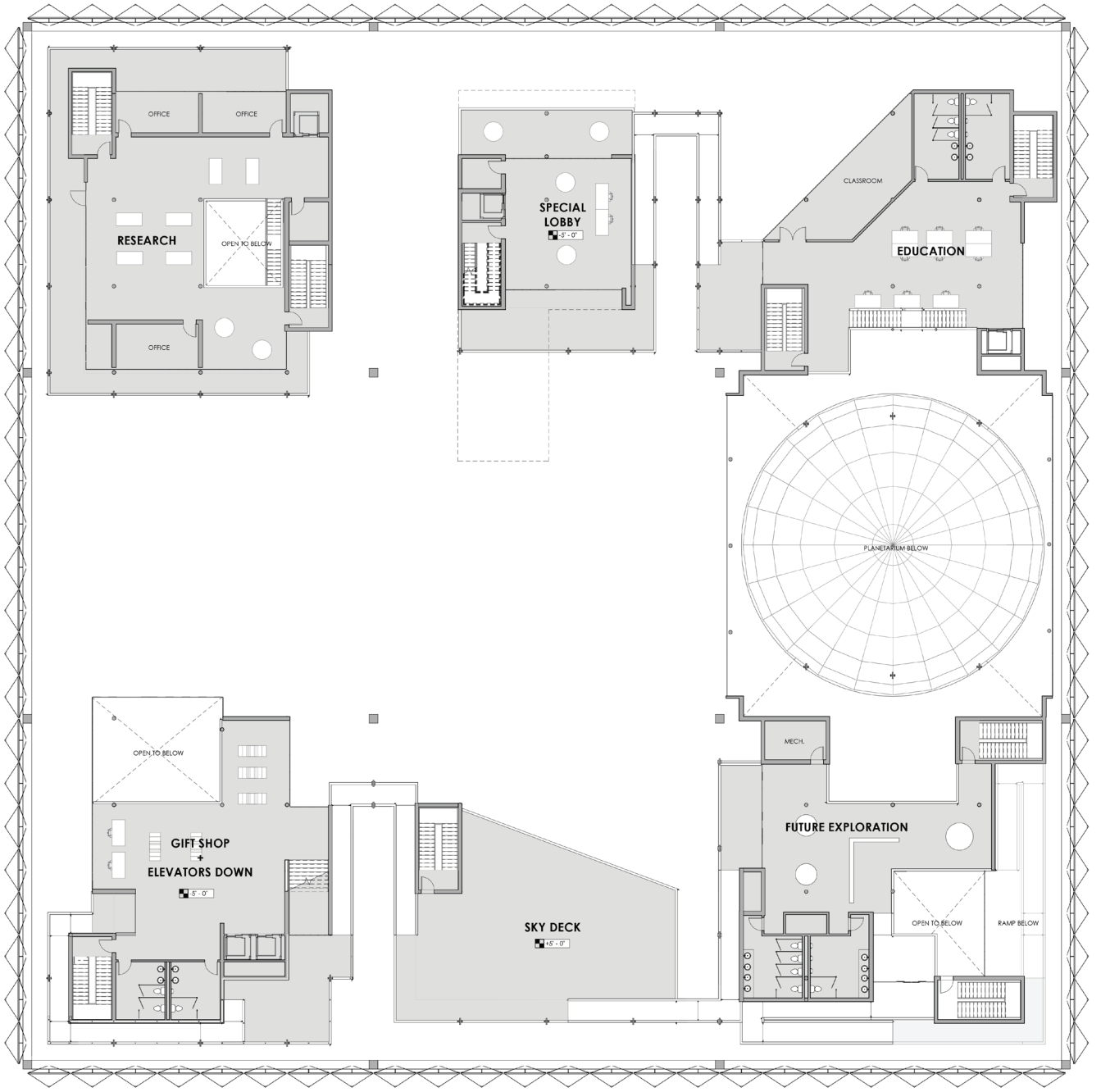
THE STUNNING MOMENTS WHERE
PAST + PRESENT + FUTURE COLLIDE





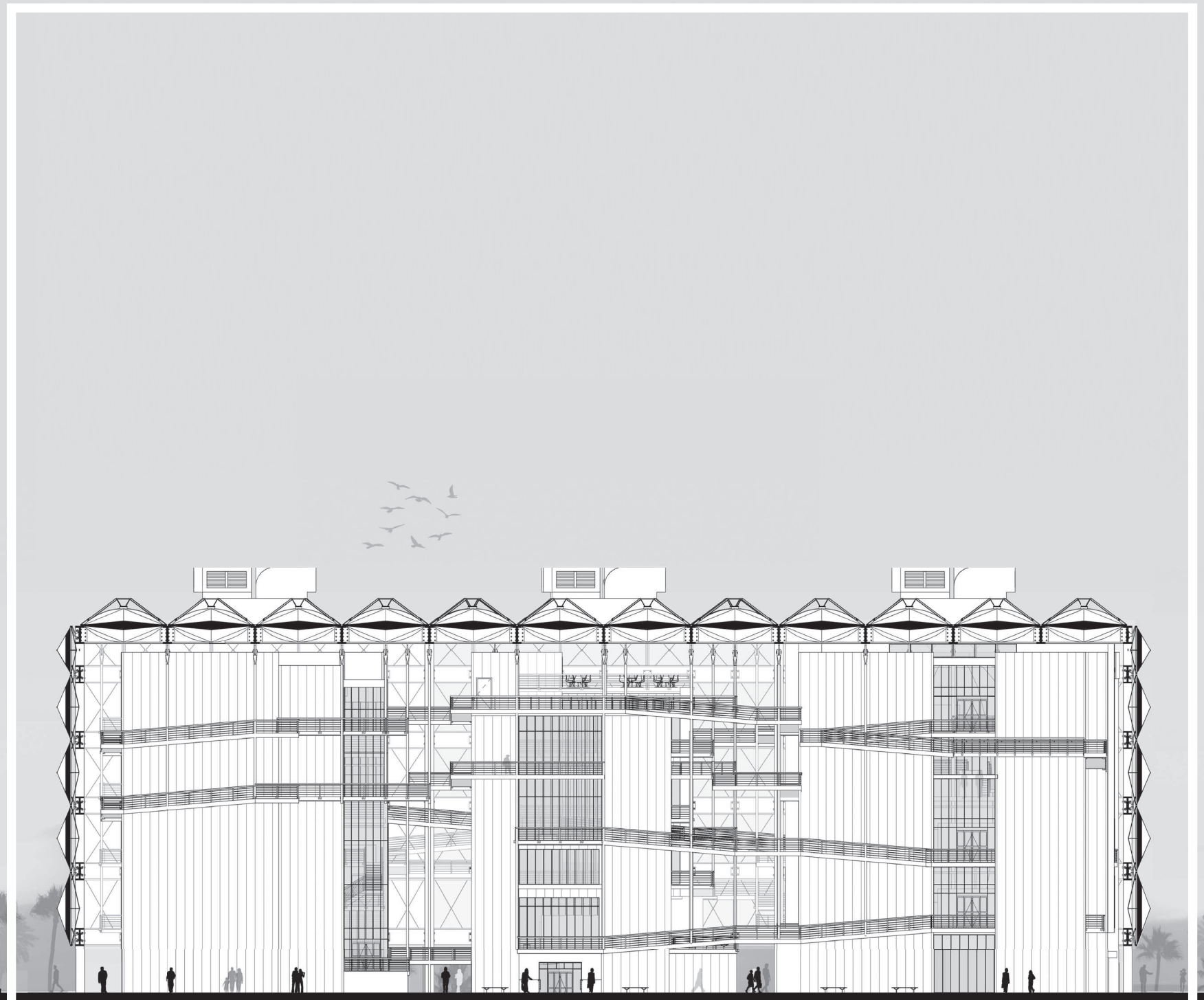
04

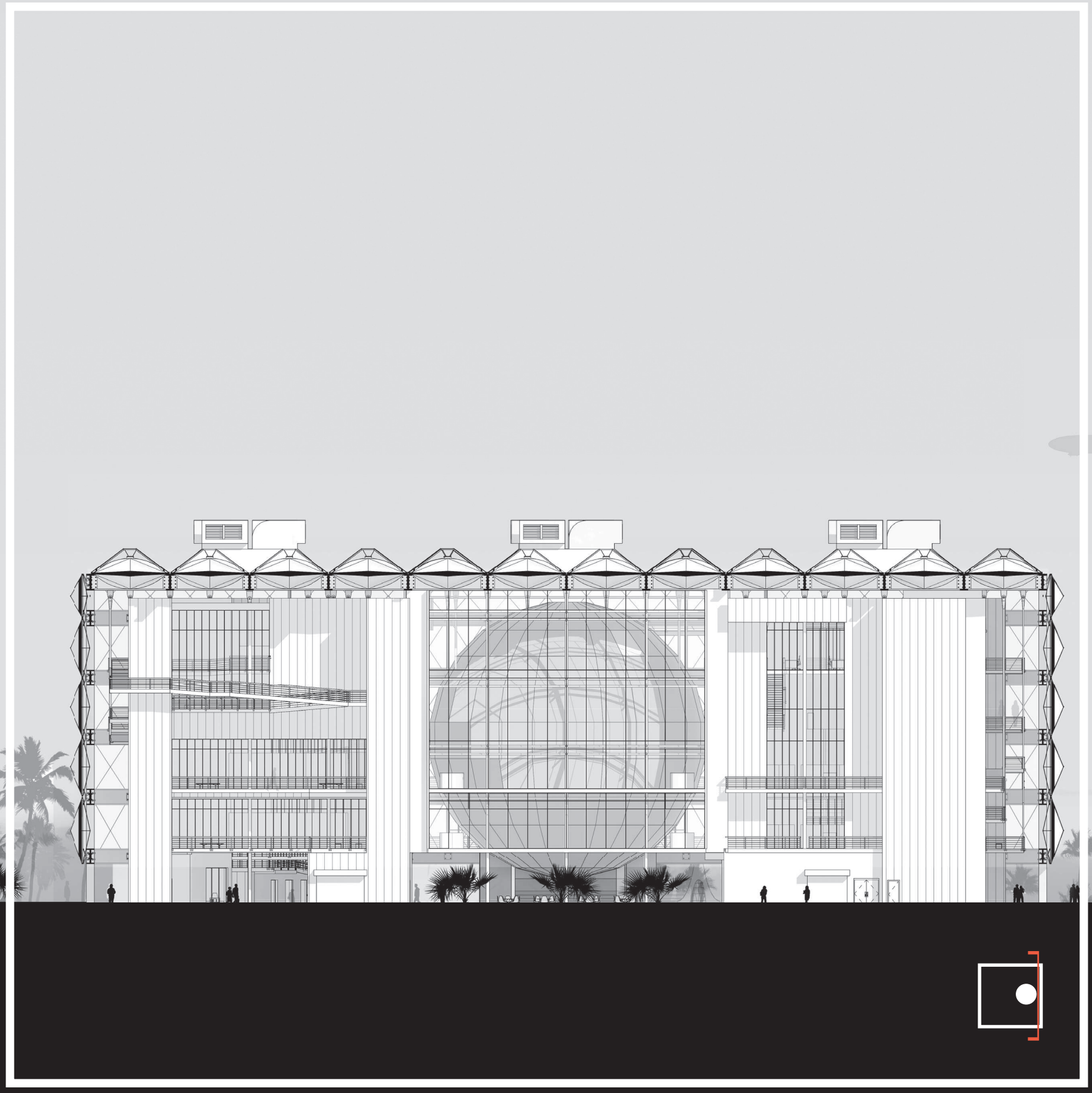
The forth floor houses the branch of the museum that directly relates to the future. It is part museum and part research and education. The wing of education and research is symbolic of the future, since education and advancement of technology and knowledge is the legacy of what the Apollo missions and the missions that followed represented.

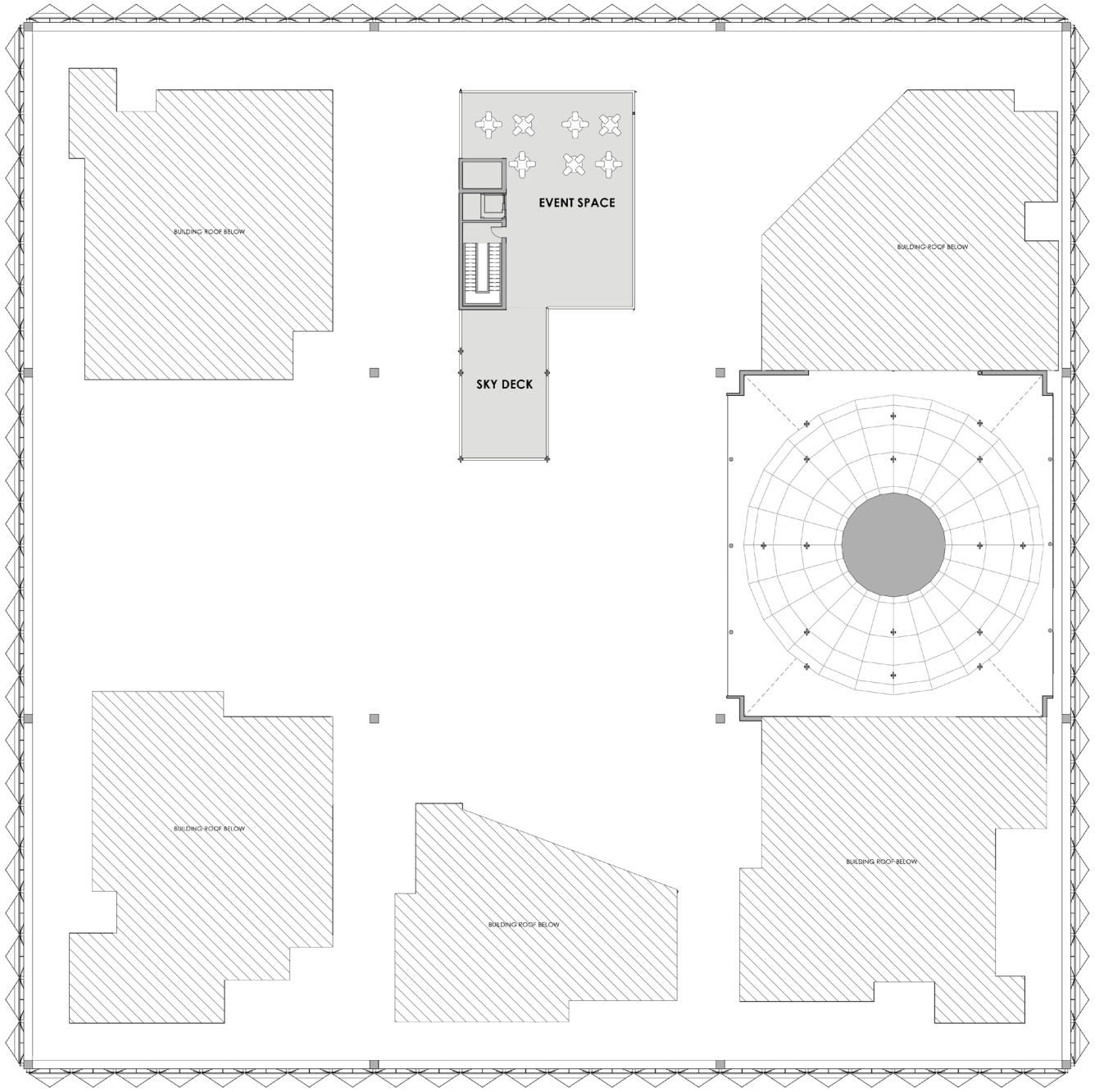


05

The fifth floor of the building houses more program that relate to the future. There is a second level of both research and education as well as a second story of museum programed toward the future. This level also has a open sky deck and access to an ending gift shop and elevators to end the journey that took the user through time.

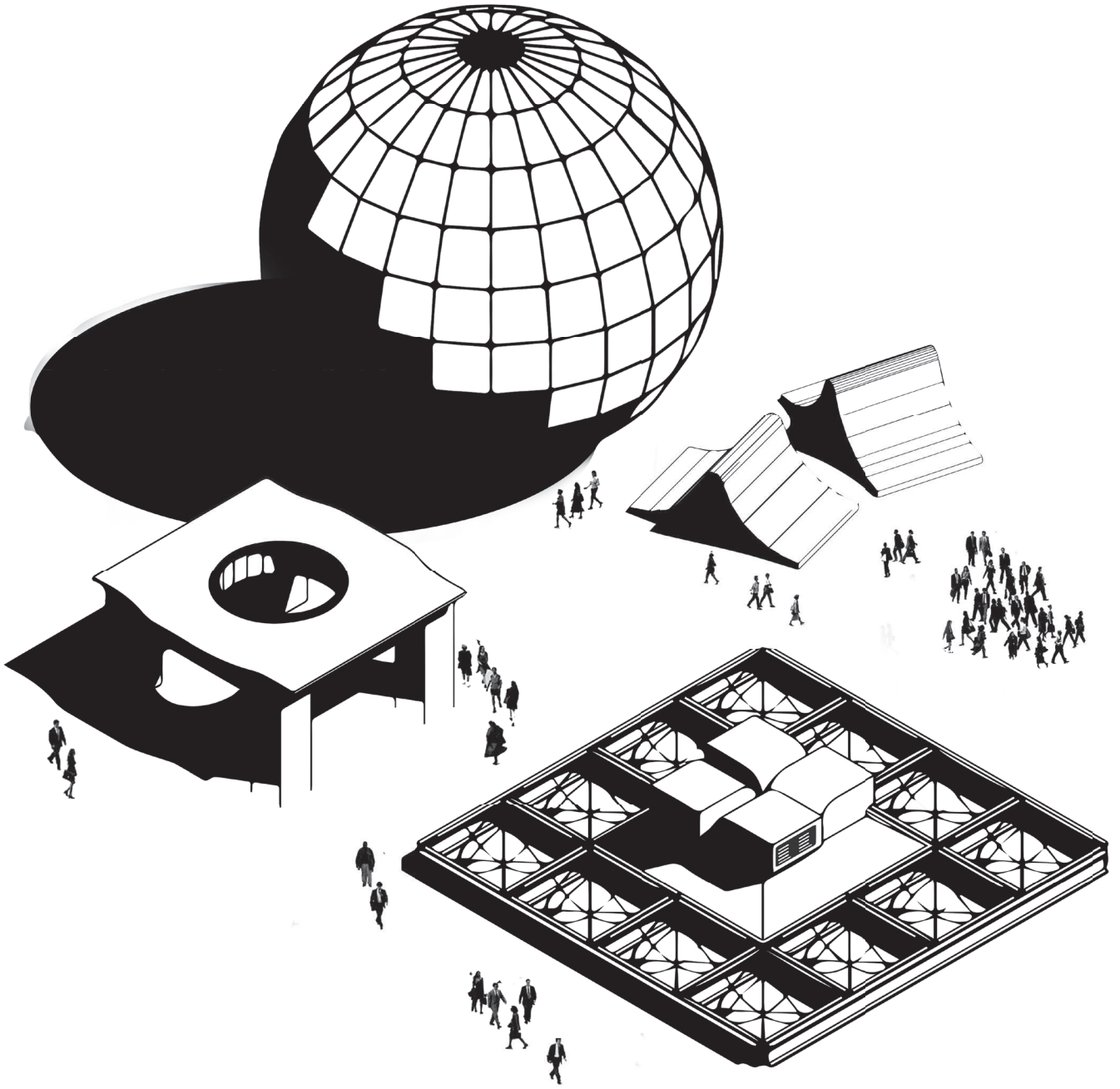




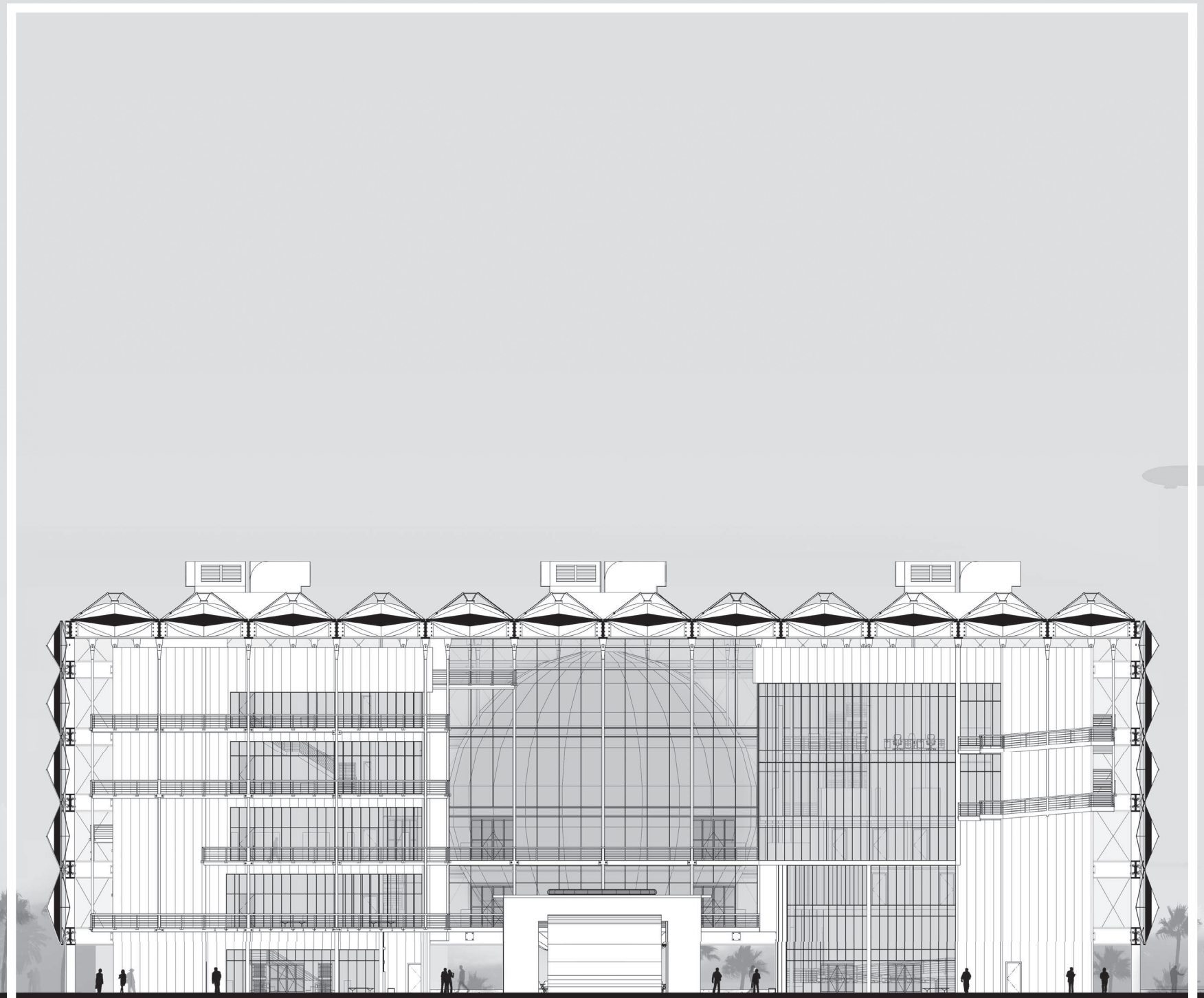


06

The sixth floor of the museum is only accessed though a special tour. This space is open to the ETFE pillowed roof above. This space could also double as a private event space that could be used for museum events or events for the research and education branches of the museum. This floor is unique in that is hangs from the super structure prism that encases the whole building.



The building challenges the idea of making massive objects that were used for the purpose of launching rockets to the moon to a more human-friendly scale. The artifacts on site (roughly two stories in height) become less dominate when placed next to the planetarium and the large super structured roof of ETFE bubble panels with large exhaust fans. These large objects in relationship to one another then make the once dominating site objects seem more in context with a newly programed architectural intervention.

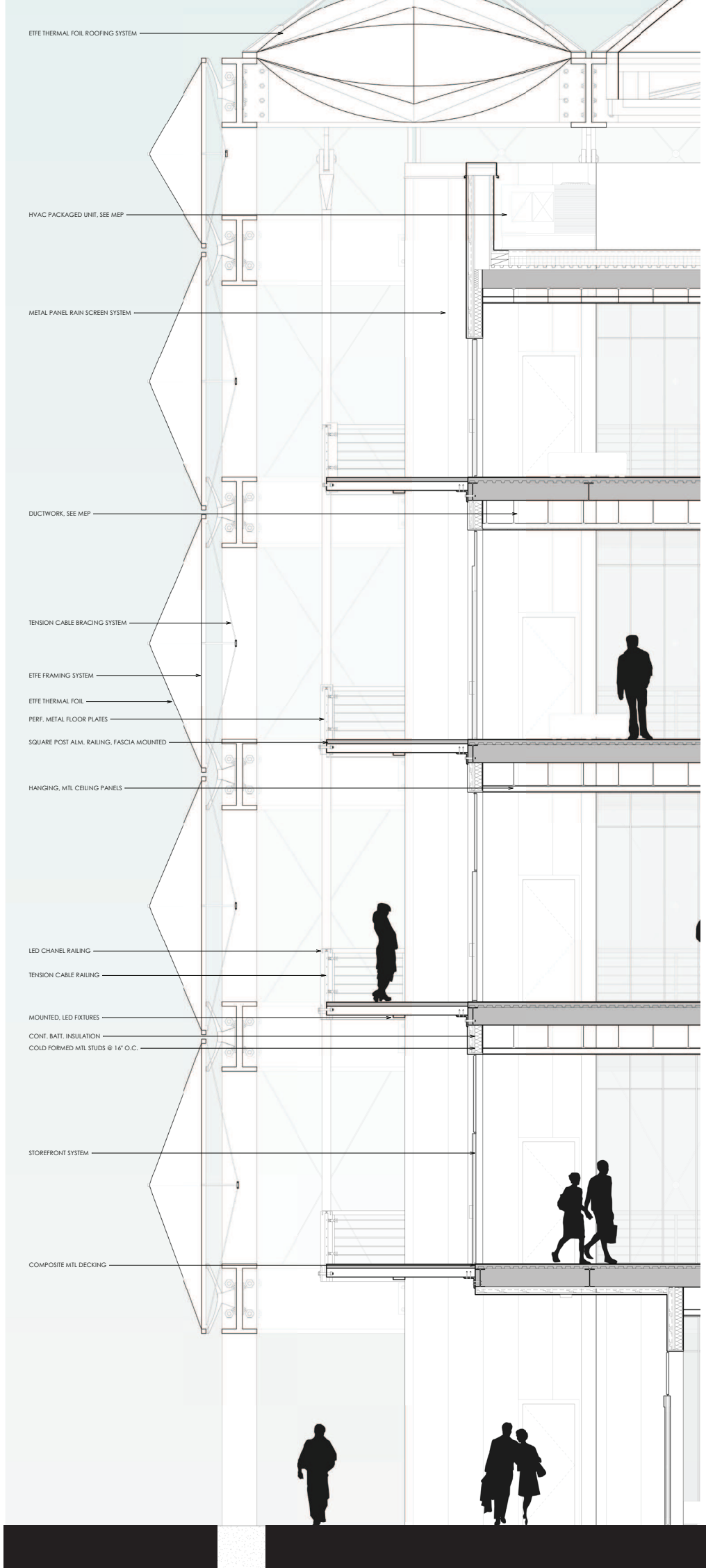


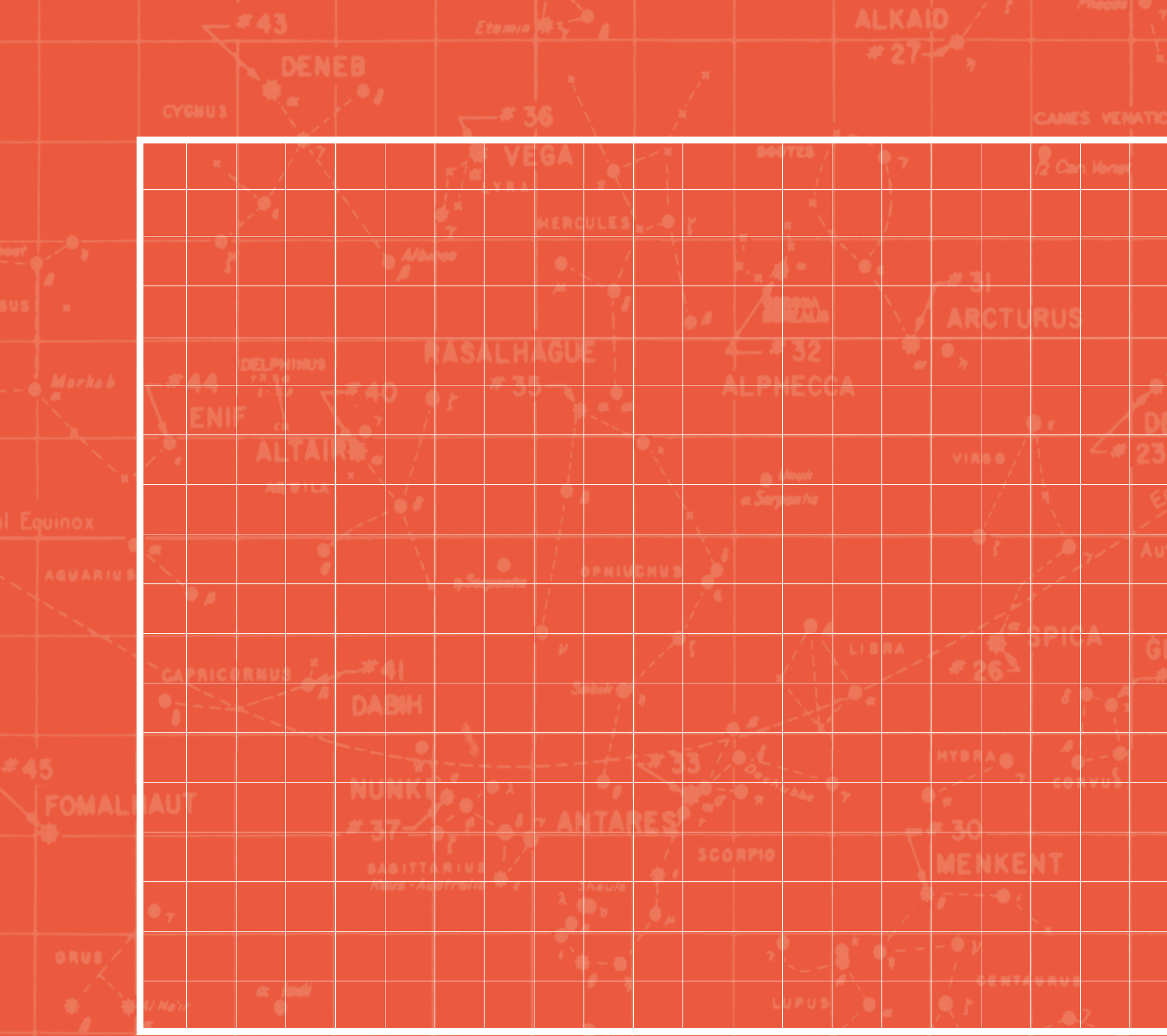
Astraterno occupies the "ancient ruin" of the circular base on Launch Complex 34 in Cape Canaveral, Florida. The building's super structure prism that is placed directed in the center is 270 feet long by 270 feet wide by 80 feet tall. This prism follows a 1:3 ratio respecting the three astronauts that lost their lives on that fateful day. The prism is made up of a futuristic material, Ethylene tetrafluoroethylene, or ETFE. This material allows protection of the majority of the existing "ruins" of the site as well as projection for the internal buildings within while allow natural light to pass through. Since the area of the super prism is so large, the roofing system of the ETFE is embedded with photovoltaic receptors, or PVs, within the air inflated "pillows" and then acts as a light harvester translating into energy for not only the buildings it protects, but for the entire site. The skin of this superstructure also has a different application of the ETFE material. The skin stretches from the height of the roof (eighty feet) down to fifteen feet above the existing base of the complex. From a distance the "prism" will appear to be floating, acting as a threshold between past (the base), present (the internal buildings), and future (the skin).

Internally, the "buildings" within the super structure are defined by "scars" of the past, being the tracks and movements that have shown with time. The buildings are then linked together via a series of intricate ramps that lead the occupants along a "time line" of the museum, the architectural promenade. The ramps are composed of perforated metal sheets that act as a semi-transparent layer between the transparent skin, and the more solid forms of the buildings. This path provides areas of viewing to the "ruins" of the past and destinations of exhibits. The user experiences different sensations of height between the buildings, and ultimately ends up in gallery spaces that are fifteen feet in height.

Along with the ruins and galleries, the building contains a massive piece that intersects all three elements of time: the planetarium. The planetarium houses two theaters. The first theater is located within the past section of the museum. It can hold around 50 standing guests at a time to view a short film on the tragedy that took place on the site. The second theater is the seated 150-occupant theater in which multiple films can be shown on what is happening in the present and future of space exploration. The planetarium is encased in curtain wall systems and can be seen from all areas internally as well as being approached from the main entrance. The building also houses areas of office and education, as well as a cantilevered viewing platform that special tour groups may visit and looks out into the center of the site, down into the concrete base.

Future launches that take place are also an important quality that makes the Asteraterno so unique. The location of the building allows visitors to come tour the museum during regular days, but on launch days from patrons like SpaceX and NASA host, the building turns into a celebratory event that can host viewing parties to the east and west of the building, as active launch pads outside of the safety radius can be seen from both directions. The master plan of the abandoned site also allows for multiple future expansions. The site could generate multiple facilities for research for the current privatization of space exploration for companies such as SpaceX. The facility could also house collaborative spaces in which researchers, artists and architects could interact and explore ideas about future space travel. Along with the facilities, the proposed master plan incorporates planned trails as interactive nature links for the buildings to use as well as other occupants to the site. These proposed future developments, along with Asteraterno, would act as urban catalysts to the site and the future development of the entire region as the privatization of space exploration increases as time marches on.

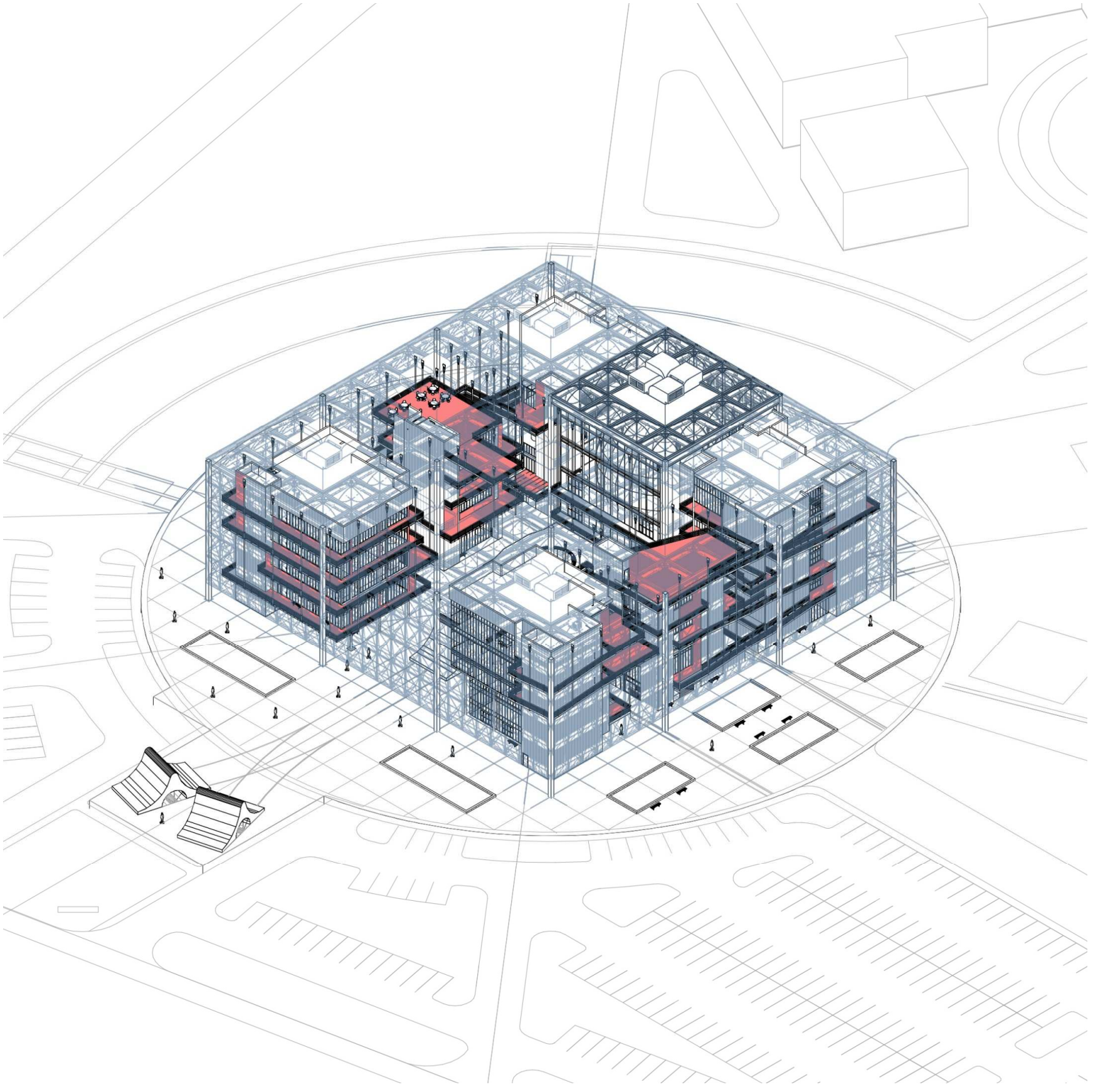

ETFE THERMAL FOIL ROOFING SYSTEM
HVAC PACKAGED UNIT, SEE MEP
METAL PANEL RAIN SCREEN SYSTEM
DUCTWORK, SEE MEP
TENSION CABLE BRACING SYSTEM
ETFE FRAMING SYSTEM
ETFE THERMAL FOIL
PERF. METAL FLOOR PLATES
SQUARE POST ALM. RAILING, FASCIA MOUNTED
HANGING, MTL CEILING PANELS
LED CHANEL RAILING
TENSION CABLE RAILING
MOUNTED, LED FIXTURES
CONT. BATT. INSULATION
COLD FORMED MTL STUDS @ 16" O.C.
STOREFRONT SYSTEM
COMPOSITE MTL DECKING


DENEB
CYGNUS
#43
#36
VEGA
LYRA
HERCULES
Albireo
ALKAID
#27
CANES VENATICI
ARCTURUS
#31
RASALHAGUE
#32
ALPHECCA
DELPHINUS
#44
ENIF
#40
#35
ALTAIR
AQUILA
Markab
Equinox
AQUARIUS
#45
FOMALHAUT
CAPRICORNUS
#41
DABIH
NUNKI
#37
SAGITTARIUS
ANTARES
SCORPIO
#33
LIBRA
#26
SPICA
HYDRA
#30
MEISSA
ORUS
LUPUS
ARA
#42
PEACOCK
Rigil Kentaurus

MOVEMENT

BEGIN

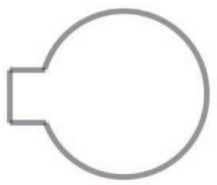
ENTER THE PAST TO
MEET THE FUTURE



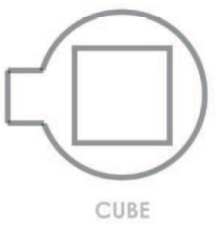
MOVEMENT

ARCHITECTURAL PROMENADE THOUGH TIME

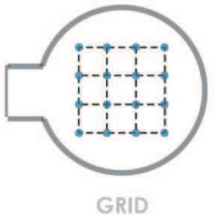
1 EXHISTING



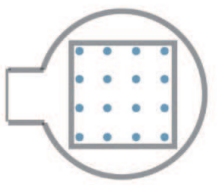
2 1:3 RATIO



3 GRID



4 SKIN

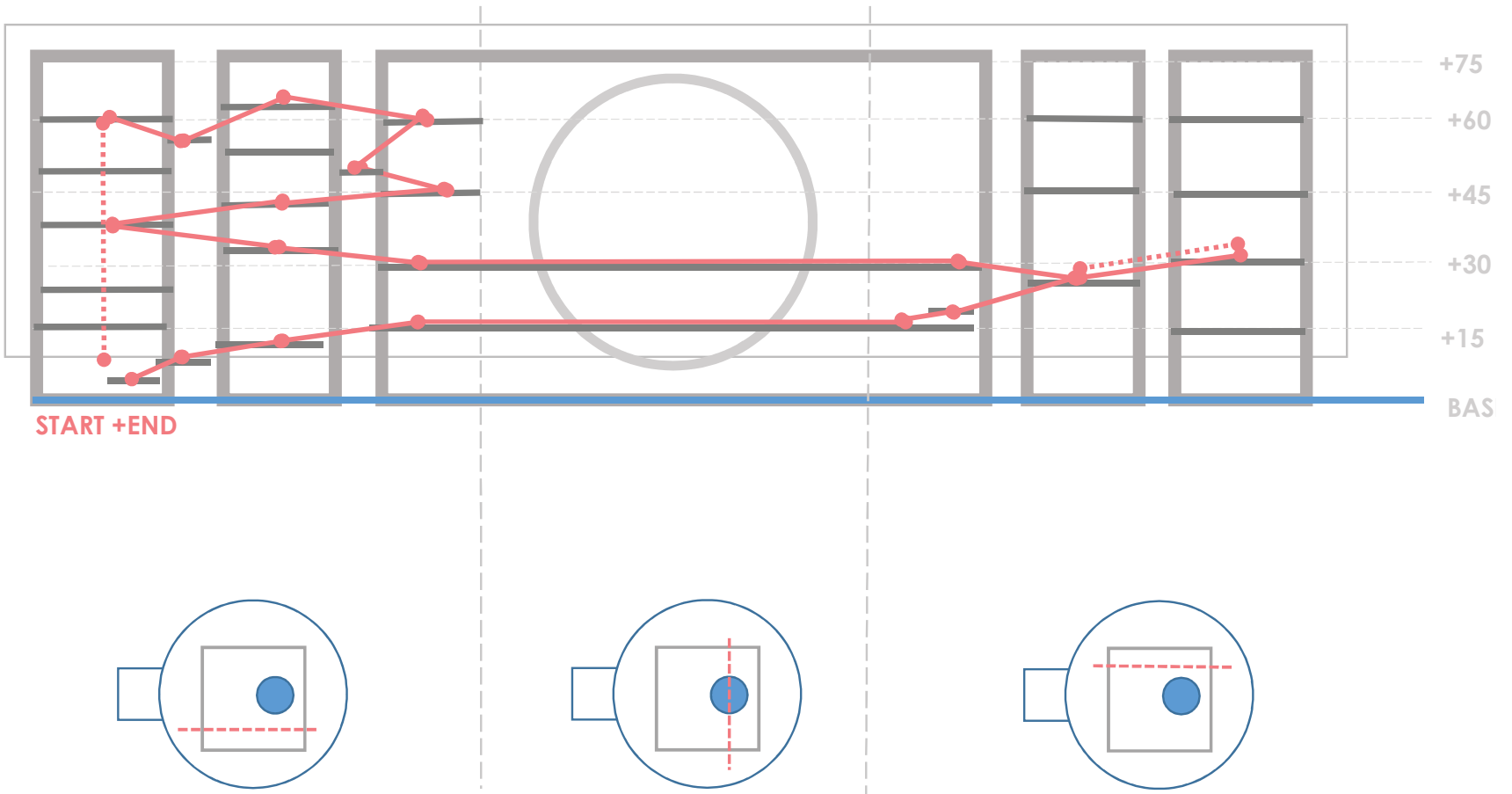


5 TRACKS

6 PROGRAM

The building focuses on the idea of time acting as an architectural promenade breaking through “planes” (or “frames of time”) created by the multiple buildings within the super structure “prism”. These planes are implied through space and materials surrounding path, which will invoke the “subconscious progression of time” an individual may have.

Individuals also experience the effects of time in a direct and unique relationship between architecture and human scale. Scale acts as a significant marker of time and also as an experience of passing throughout time. Gallery spaces of the museum expressed themselves in greater height, marking a significant time event.



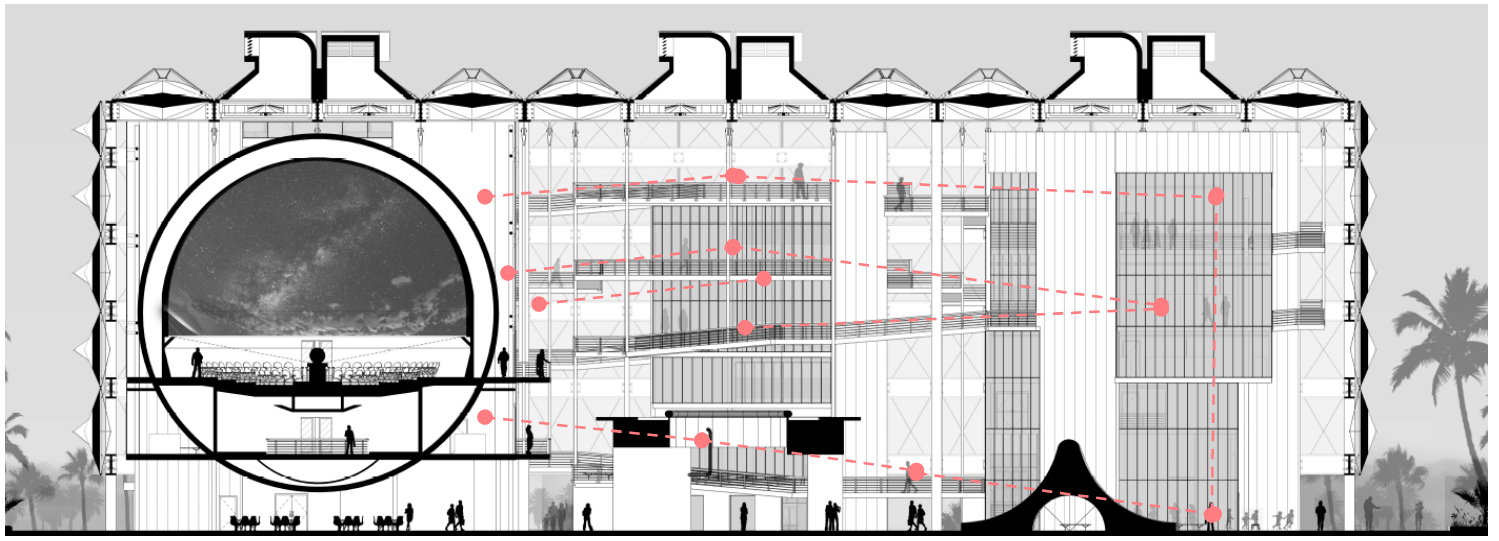
"TIMELINE" - PATH

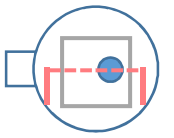
PLANES - BUILDINGS

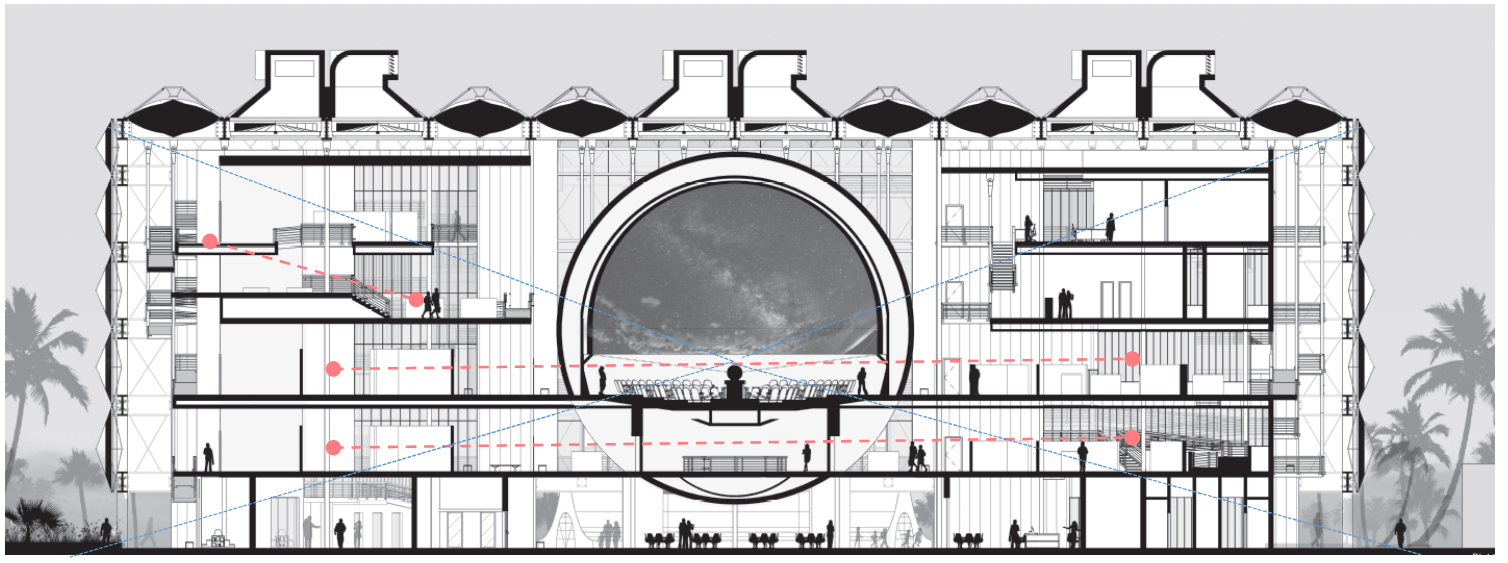
The path an individual may take throughout the building will respect and acknowledge the implied record of the prior events that played a major role in defining a time period but by also creating a newly defined record unique to the present day architecture in which it resides. Along with respecting the existing events and defining new, the paths will then challenge the presence in which one experiences time by revealing the layers of the past in materiality. This reveal defines past and recognizes it within the present, and as one proceeds, the future becomes more evident.

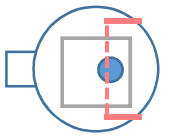
Christopher Bollas once expressed this idea of portraying future in his writing "Architecture and the Unconscious". "Although they (architectural works) will outlive us, they will nonetheless signify us in the future, giving us a place of historical time, and the existential reality of future generations who, upon gazing at these objects may think of the later twentieth century: our time of life." The building itself challenges and explore time and its relationship to architecture by investigating as to what elements can make a building not only stand against time, but navigate it as well

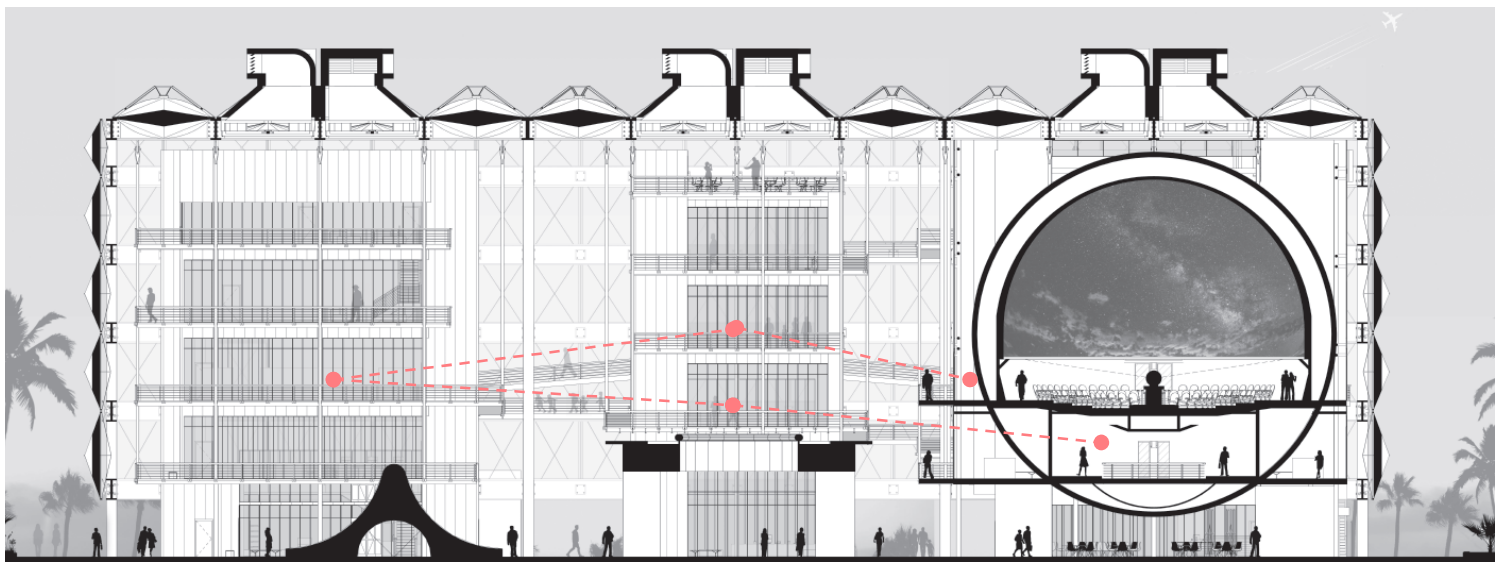
Astraterno is piece of architecture that acts as an embodiment of time. It expresses the fluidity of past, present, and future coming together into one cohesive structure. The building allows occupants to experience time in a matter beyond the typical understanding of time.

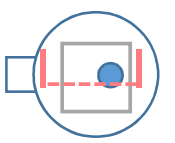




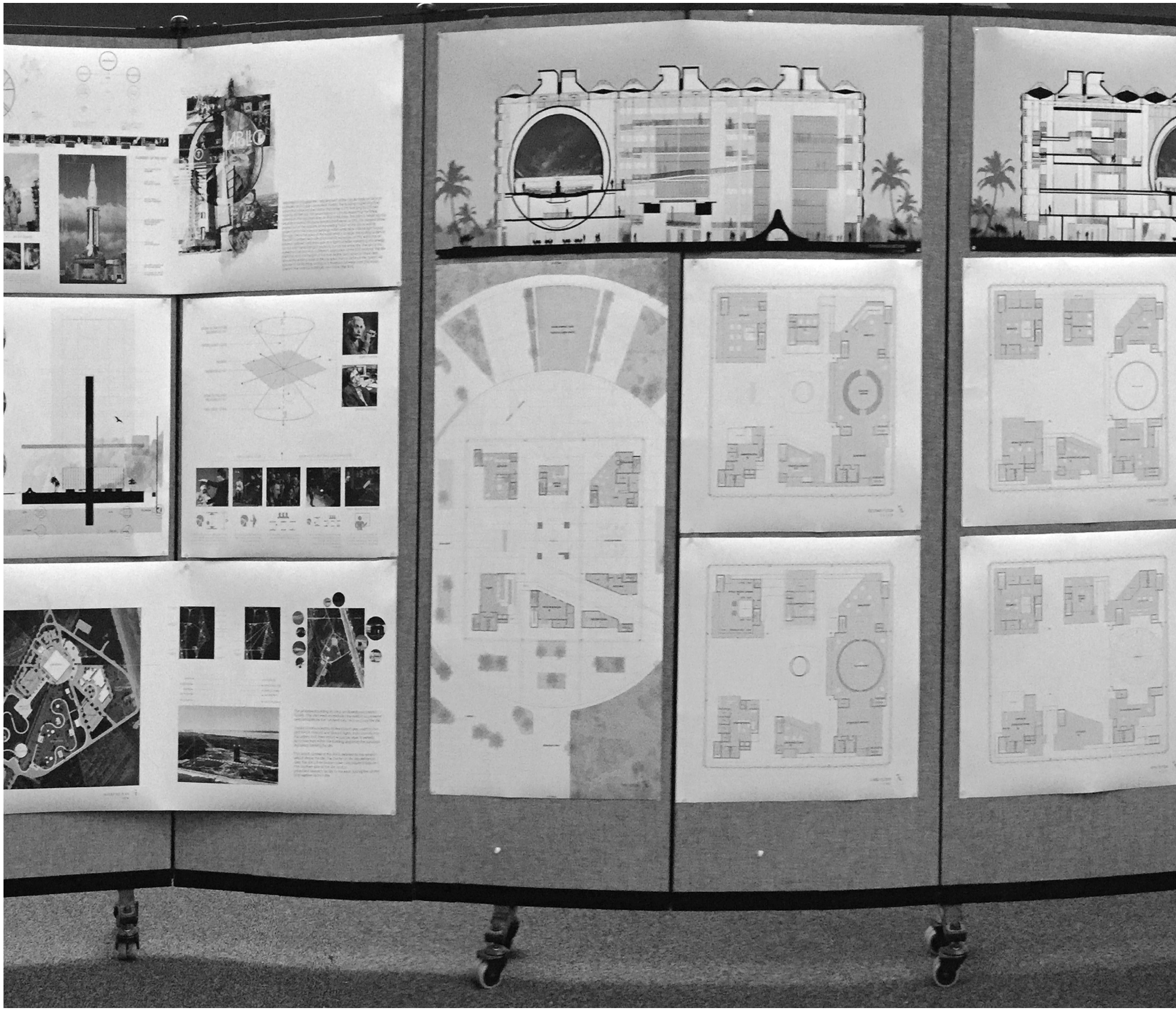


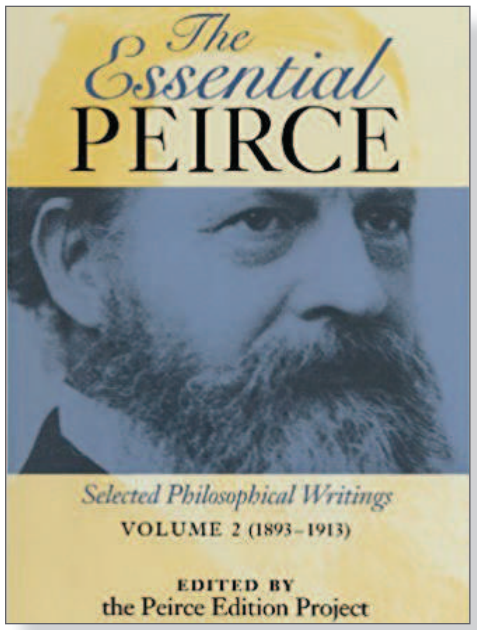




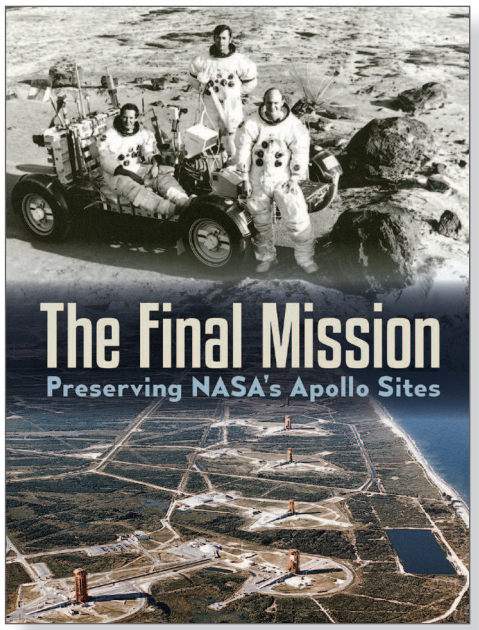



CHAFFEE

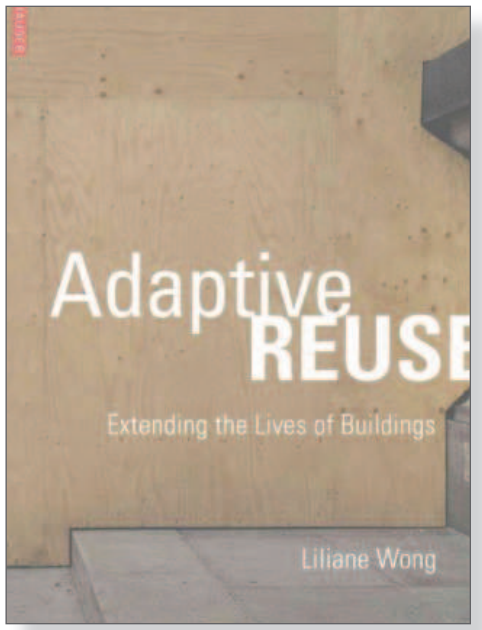




Peirce, Charles S. The Essential Peirce: Selected Philosophical Writings' (1867-1893). S.n., 1992



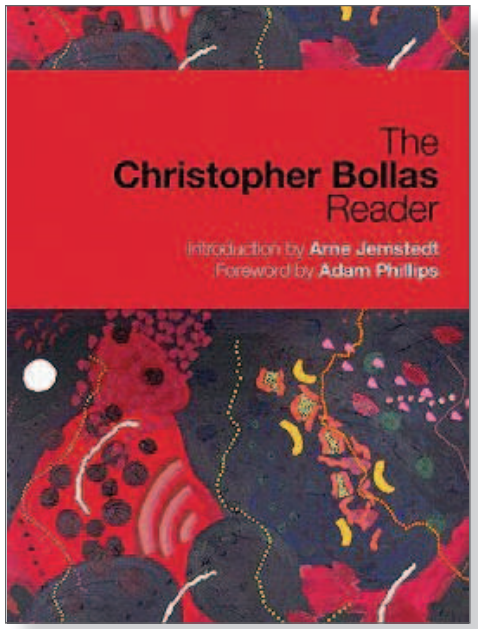
Westwood, L. FINAL MISSION: Preserving Nasa's Apollo Sites. UNIV OF FLORIDA PRESS,2018.



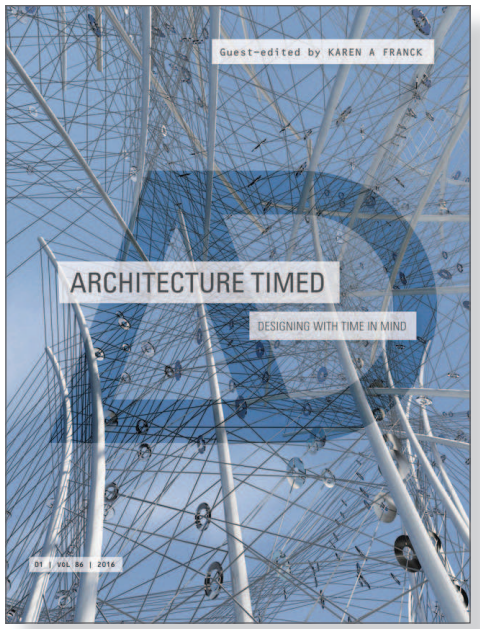
Wong, L. (2017). Adaptive Reuse: Extending the Lives of Buildings. Basel: Birkhäuser.

REFERENCES

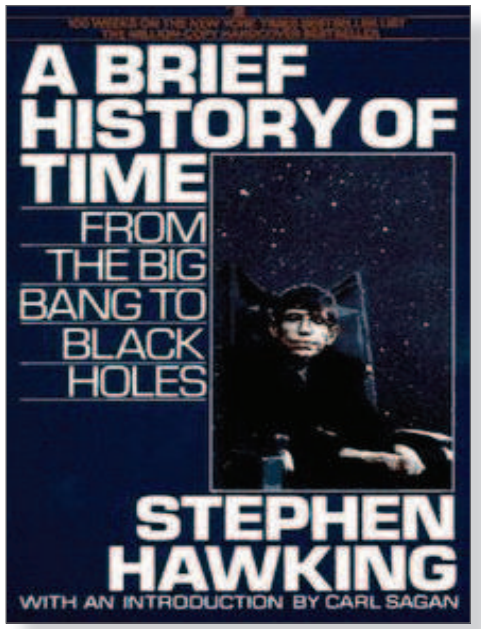
REFERENCES ON SPACE, TIME, + ARCHITECTURE



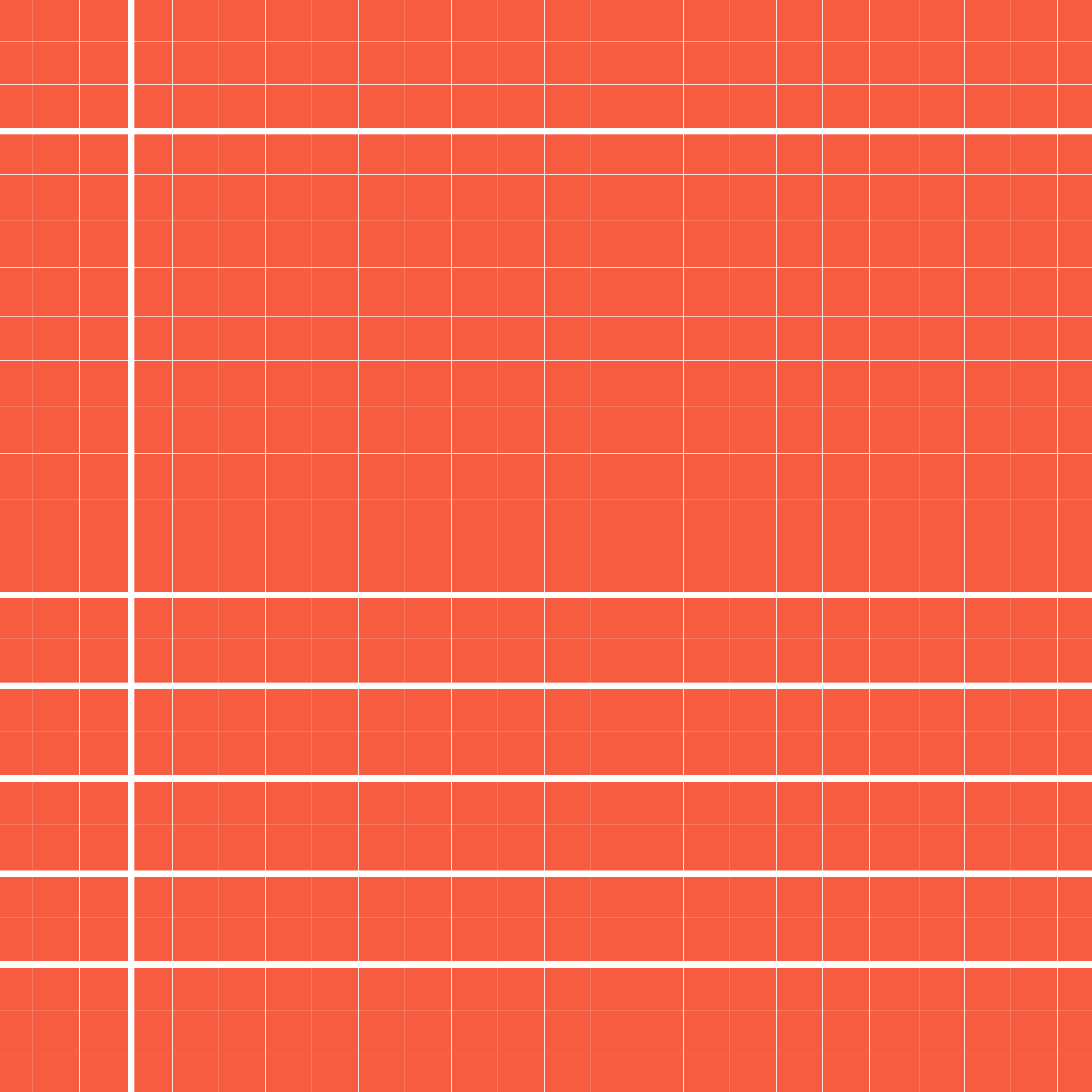
Bollas, C. (2011). The Christopher Bollas Reader: Architecture and the Unconscious. London: Routledge.



Franck, K. A. (2016). Architecture Timed: Designing with Time in Mind. London: John Wiley & Sons.



Hawking, S. (1998). A Brief History of Time. New York: Bantam Books.



2018

MARCEL ERMINY

SHELLEY HOLLIDAY

GALEN NEWMAN

BRIAN GIBBS

HILLARY BROWN

IN MEMORY
OF
THOSE WHO MADE THE ULTIMATE SACRIFICE SO OTHERS COULD REACH
FOR THE STARS

AD ASTRA PER ASPERA
(A ROUGH ROAD LEADS TO THE STARS)

GOD SPEED TO THE CREW
OF
APOLLO 1