

AIA 2012

NATIONAL CONVENTION
AND DESIGN EXPOSITION

MAY 17-19

WALTER E. WASHINGTON
CONVENTION CENTER
WASHINGTON, D.C.

DESIGN
CONNECTS

DESIGNING THE AIRPORT OF THE FUTURE AIRPORTS AS GREAT PUBLIC ARCHITECTURE

SESSION ID: PA300

Wednesday, May 16 10:30 to 11:30 a.m.



THE AMERICAN
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Acknowledgements/Credits

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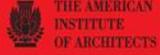
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Learning Objectives

1. Learn about the history of airport design
2. Learn about the core considerations of airport design
3. Learn about current trends in airport design
4. Explore future possibilities in airport and multi-modal transportation design

A MILLION PEOPLE
ARE IN THE SKY
AT THIS MOMENT



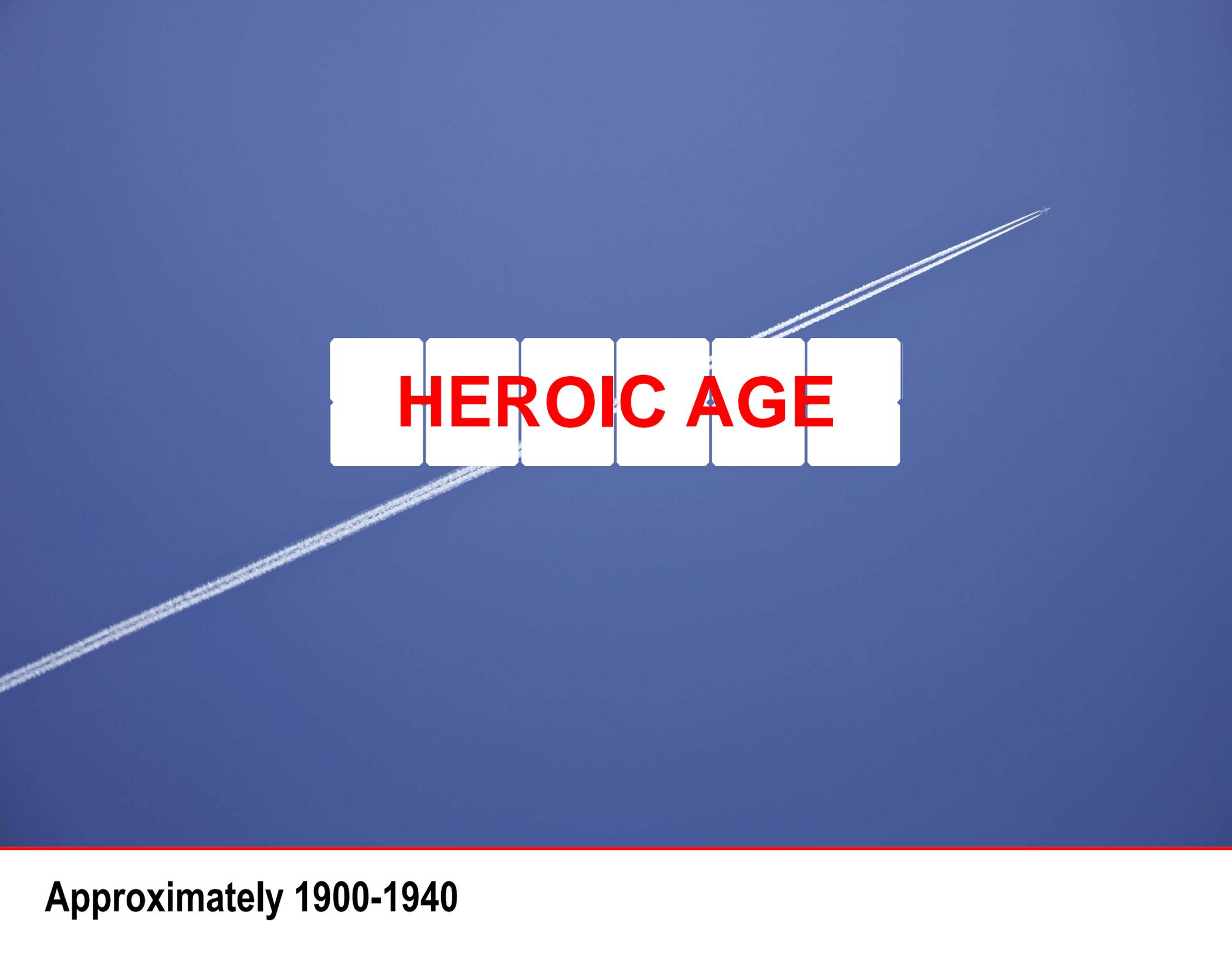
In 2016, the annual number of airline passengers will surpass the world's population.

Over the last century, the airport has evolved from a grassy landing strip into an interconnected complex of structures and systems of an unparalleled scale. Moving from touch-screen kiosk to security checkpoint, onto moving walkways and through food courts, boarding shuttle trains and escalators on the way to a gate area, jetway, and finally, onto a flight, individual travelers begin to resemble data packets being routed, switched, and cued in a digital network.



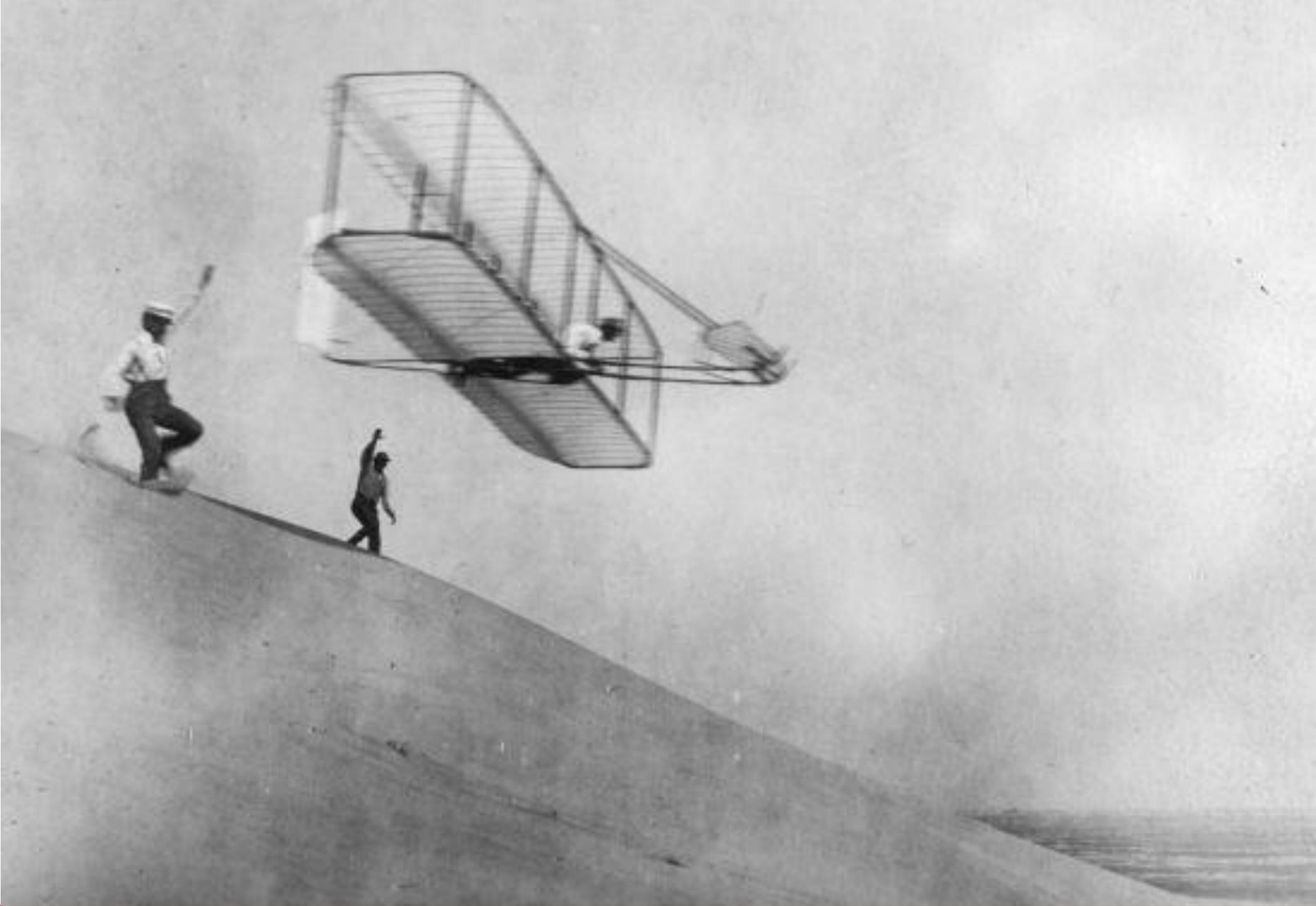
HISTORY OF AIRPORT DESIGN

Every airport was once the airport of the future...



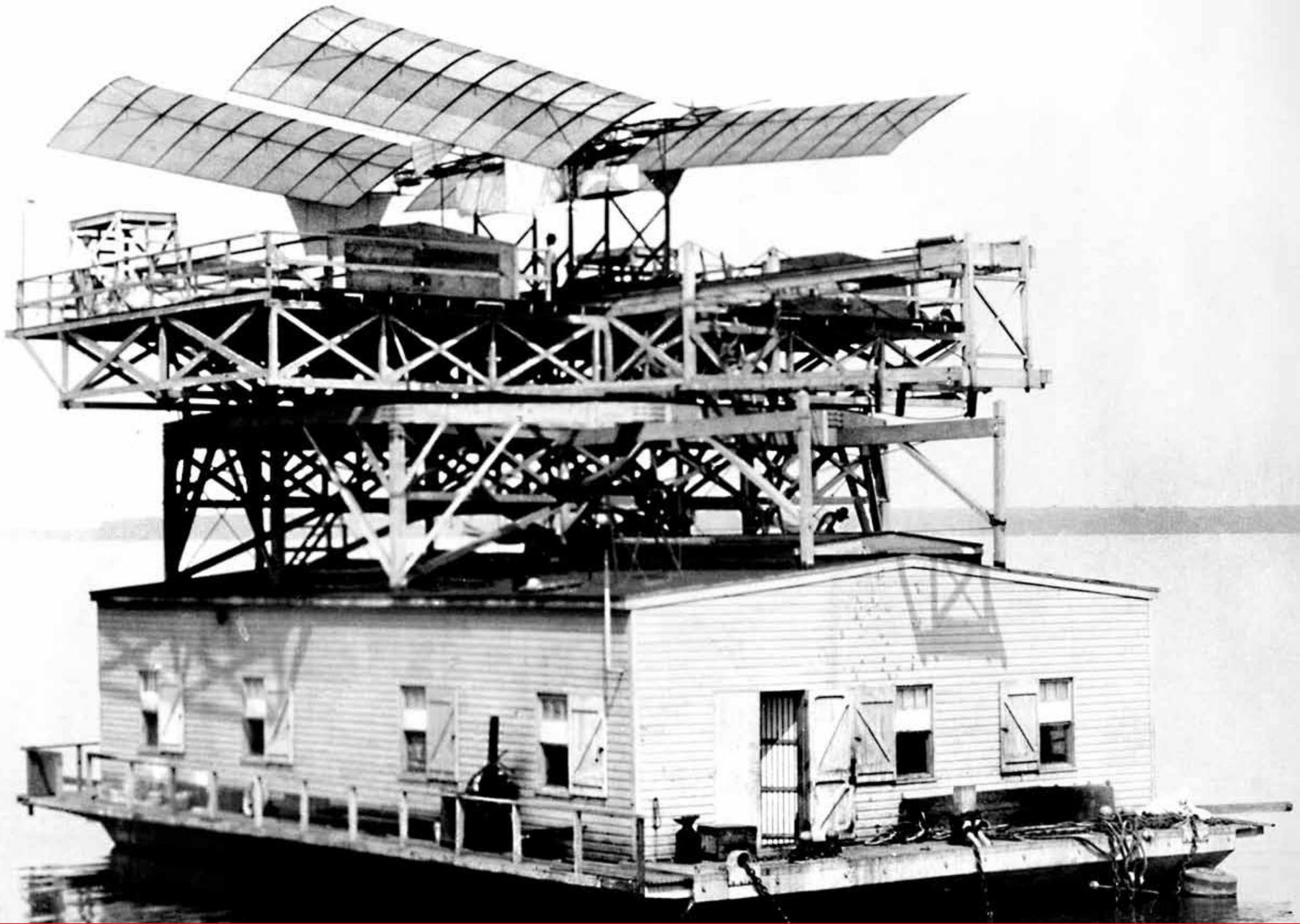
HEROIC AGE

Approximately 1900-1940



HEROIC AGE: TECHNOLOGICAL INNOVATIONS

1903 – The Wright Brothers Take Flight



HEROIC AGE: AIRPORT DESIGN

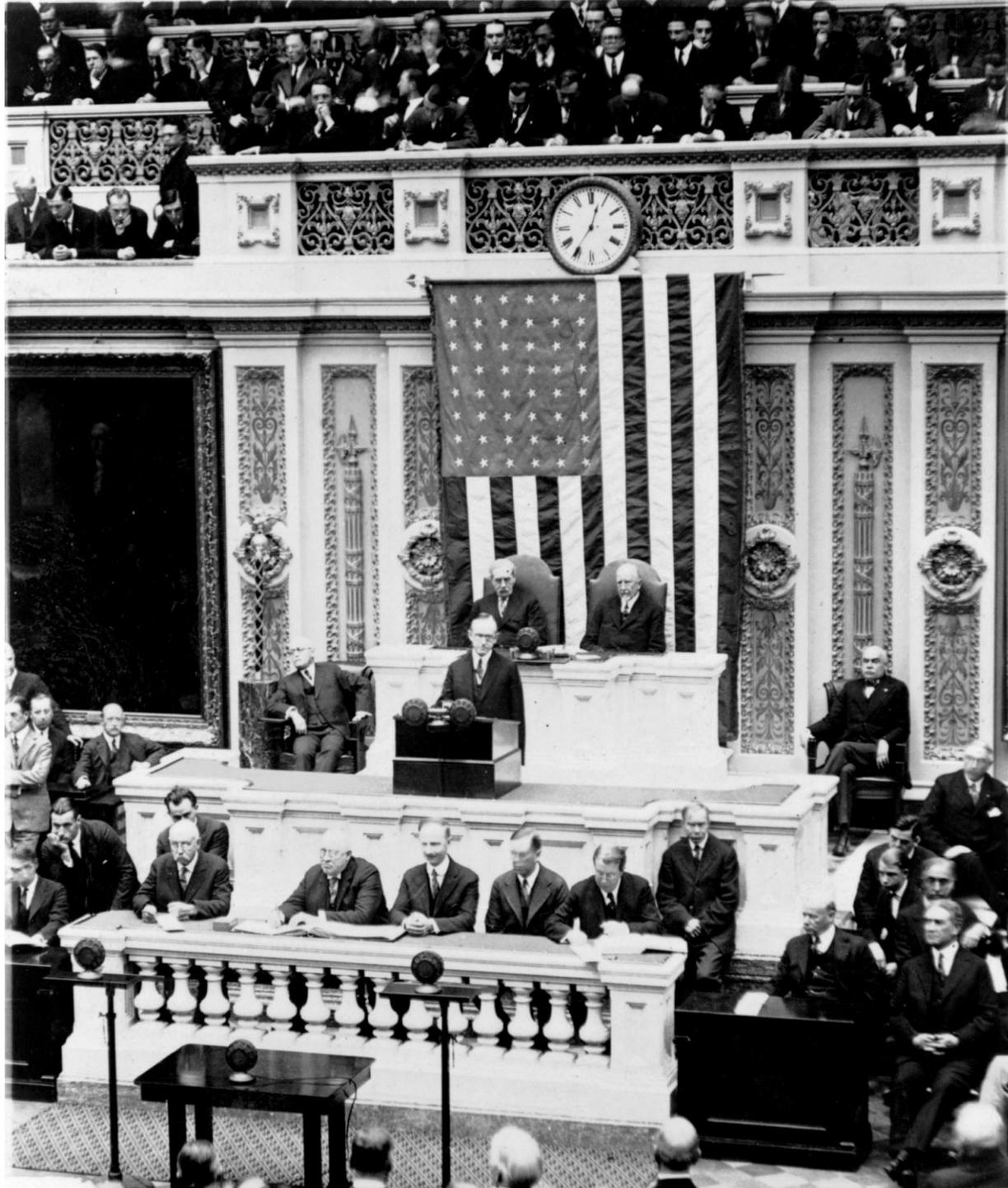
1903 – Langley Aerodrome



HEROIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES
1915 – King's Dream of New York



HEROIC AGE: AIRPORT DESIGN
1916 – Schiphol Airport, Amsterdam



HEROIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1926 – President Coolidge signs the U.S. Air Commerce Act



HEROIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1927 – *Metropolis*



HEROIC AGE: TECHNOLOGICAL INNOVATIONS

1928 – Lighting Introduced to Runways



HEROIC AGE: TECHNOLOGICAL INNOVATIONS

1928 – Croydon Aerodrome, Marconi Direction Finder



HEROIC AGE: AIRPORT DESIGN

1929 – Fuhlsbüttel Airport, Hamburg

Dyrssen + Averhoff Architects



They flew—
they saw—
they concurred

A DECISION was needed—urgently. The successful completion of a huge project was at stake. The directors, hurriedly summoned, decided to see conditions for themselves. Boarding their private Travel Air they flew—they saw, they concurred.

Modern Caesars of industry, responsible for the direction of vast and far-flung properties, are turning more and more to the airplane as a means of quick, personal contact with their forces in the field. At short notice and in a few hours of flying time, they can make tours of inspection which otherwise might take weeks—or even not be made at all.

The six passenger Travel Air cabin monoplane is particularly well suited for the modern flying directorate or executive committee. Powered with the 300 Horse Power Wright Whirlwind engine, it has a cruising speed of 115 m.p.h., a high speed of 135. A more luxurious model, equipped with a 420 h.p. engine is available. Either can be equipped with office furnishings to suit the purchaser.

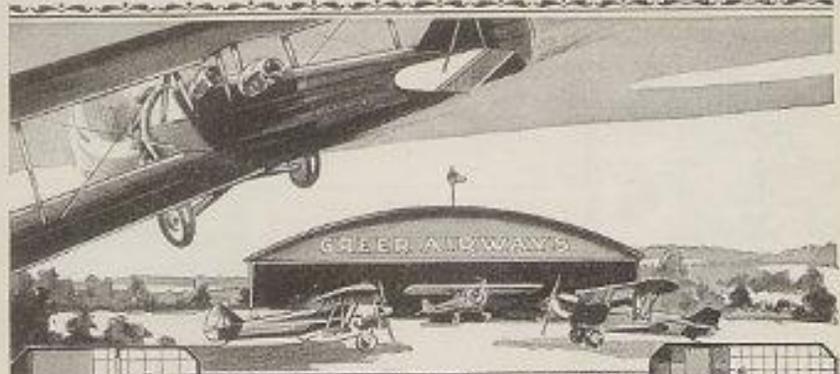
A nationwide organization of Curtiss-Wright distributors and a network of

more than forty Curtiss-Wright strategically located, assure prompt service to the users of Travel Air planes wherever they may fly.

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motors, classrooms, assembly shops, and materials. Of course, training planes and flight instructors are licensed by the Government.

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Only Greer Students have the advantages that Chicago, the "Air Capital of the United States," can give them—the world-famous Municipal Airport, about which are grouped the hangars of every famous transport company in the East and Mid-West—endless varieties of industries are here, both in the field of Aviation and out of it. Here, if anywhere, are the greatest opportunities for the graduate.

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This is the next step for work in a more valuable Government License. 30 hours of solo and necessary dual flying.

Transport Pilot's Course

This is the course which will prepare you to receive a Government Transport Pilot's License, after passing an examination. 200 hours of advanced flying under all kinds of conditions.

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2024 S. Wabash Ave., Chicago, Ill.
Please send me this new big Aviation book and fill in details about your Training and Employment Service.

Name _____
Address _____
City _____ State _____
Age _____ Occupation _____

Buy you saw it in AERO DIGEST

HEROIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES
1930 – Ads for flights + flight training begin to appear



HEROIC AGE: AIRPORT DESIGN

1936 – Tempelhof Airport, Berlin

Ernst Sagebiel, Architect

Skyscraper Airport

WHAT the metropolitan skyport of tomorrow may look like, as conceived by Nicholas DeSantis, New York commercial artist, is shown in the illustration below. His remarkable proposal, embodied in a model that he has completed after five years' study of the project, calls for a 200-story building capped by an airplane field eight city blocks long and three blocks wide. A lower level of his "aerotropolis," as he has named it, offers a port for

lighter-than-air craft. Hangars for planes and airships occupy the top fifty floors.

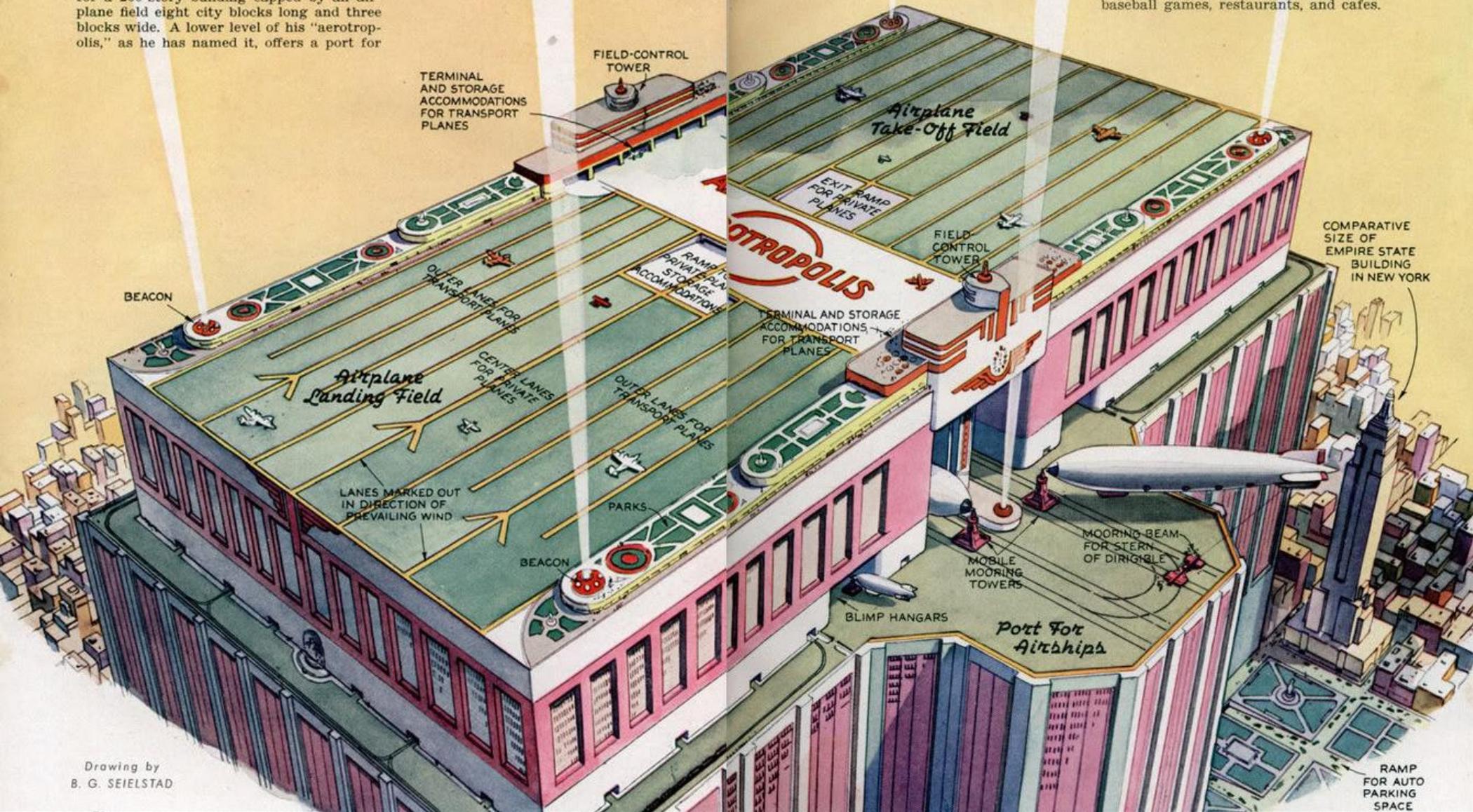
Commuters living 100 miles or more from the city would fly to work in their private planes. Landing on the roof, they would descend by elevators and moving platforms to an indoor parking space for 250,000 pri-

for City of Tomorrow

ate cars and taxis, whence they would be whisked without delay to their destination. Similar facilities would serve passengers arriving by transport planes and airship lines. By centralizing air and land terminals

in one building, the "aerotropolis" would save time now lost in journeying to and from airports far from the heart of a city.

Other parts of the building provide space for offices and light industrial plants, theaters, two enormous arenas for football and baseball games, restaurants, and cafes.



HEROIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES
1939 – Nicholas DeSantis' Future Vision, *Popular Science*



HEROIC AGE: TECHNOLOGICAL INNOVATIONS

1940 – Slope Line Approach



GOLDEN AGE

Approximately 1941-1970



GOLDEN AGE: AIRPORT DESIGN

1937 – La Guardia Airport Sidewalk Piers, New York



GOLDEN AGE: AIRPORT DESIGN

1940 – Pan American Flying Boat Terminal, Miami



GOLDEN AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1946 – Pan Am Founder Juan Trippe maps new air routes



GOLDEN AGE: AIRPORT DESIGN

1946 – St. Louis Lambert Airport

Minoru Yamasaki, Architect



GOLDEN AGE: AIRPORT DESIGN
1948 – Idlewild Airport, New York



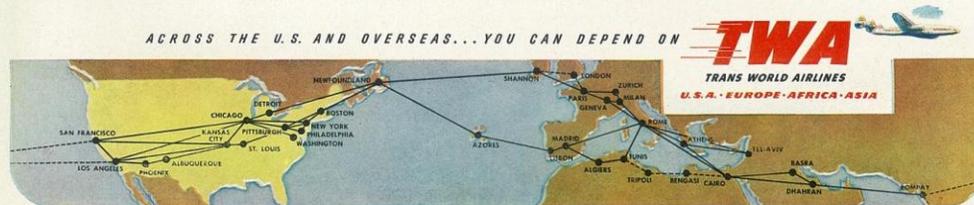
"We've made travel by air a family affair"

Ever since TWA started its Family Budget Plan, parents have had cause to cheer. For now they can take the whole family by air at down-to-earth prices . . . simply by traveling on a Monday, Tuesday or Wednesday within the United States. As head of the family, Dad pays full fare. Mother and the children under 22 go for only half fare each . . . there's no charge for an infant under two.

Five-mile-a-minute TWA Skyliners give family

travel plans a lift other ways, too. Far-off places are now really quite near. The flight is a delight, the service supreme, with delicious hot meals served free. Best of all . . . and oh, how Mother loves this! . . . you're *there* long before the kids start to fuss or fidget.

Where in the world do *you* want to go? Whether it's in the U.S. or overseas, take the family the comfortable, low-cost TWA way. For help in planning your trip, see your travel agent or call TWA.



GOLDEN AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1950 – Ad for TWA



GOLDEN AGE: AIRPORT DESIGN

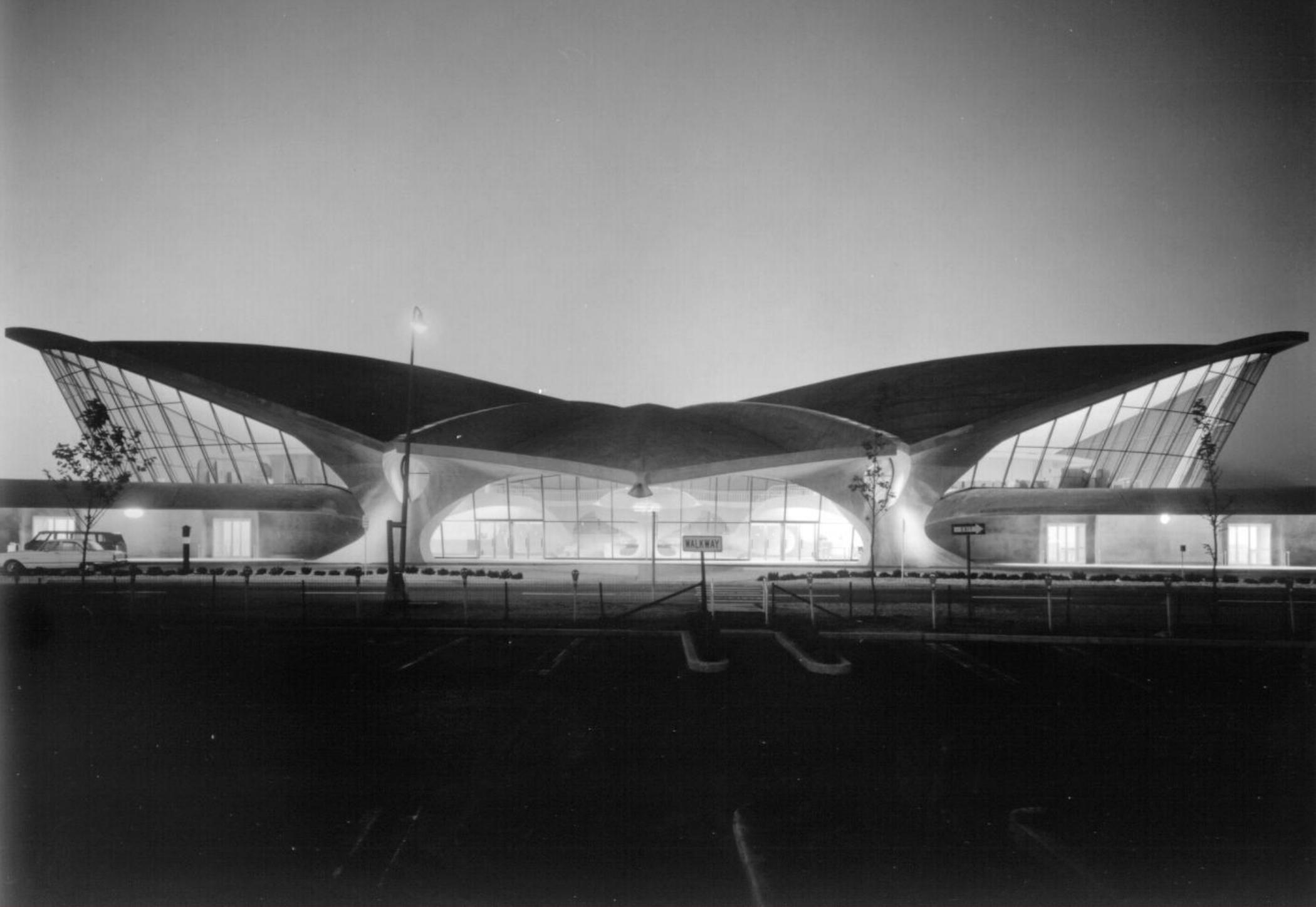
1961 – Theme Building at LAX

Pereira, Luckman, Williams + Becket, Architects



GOLDEN AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1962 – *The Jetsons*



GOLDEN AGE: AIRPORT DESIGN

1962 – TWA Terminal, New York

Eero Saarinen, Architect



GOLDEN AGE: AIRPORT DESIGN

1962 – TWA Terminal, New York

Eero Saarinen, Architect



GOLDEN AGE: AIRPORT DESIGN

1962 – Dulles International Airport *Eero Saarinen, Architect*



How to board a plane by just changing your seat

Airport terminals are usually a maze of gates, with miles of ramps and passageways. Passengers walk, walk, walk to get to and from the planes. Planes do a lot of expensive taxiing on the ground.

Not so at new Dulles Airport, in Chantilly, Virginia.

Passengers don't walk, they ride. Planes don't taxi, they wait near the runways. If you were taking

a trip, you'd enter the terminal, check in, and step into an air-conditioned lounge a few feet away.

While you relax, the "lounge" moves out, carrying you to the plane waiting at a runway service area.

You change seats (see picture). The next move is up to the pilot. The Mobile Lounge was engineered by Chrysler Corporation for the Federal Aviation Agency.

PLYMOUTH • VALIANT • CHRYSLER • IMPERIAL • DODGE • DODGE DART • DODGE TRUCKS



◀ For more data, circle 70 on Inquiry Card

For more data, circle 71 on Inquiry Card

186 ARCHITECTURAL RECORD July 1963

GOLDEN AGE: AIRPORT DESIGN

1963 – Ad for Chrysler Mobile Lounge, Dulles International Airport

UNITED AIR LINES' JET GATEWAY TO LOS ANGELES



This scene will be your introduction to the spectacular city of Los Angeles when you arrive on your United jet. United Air Lines' "satellite" terminal at Los Angeles' new airport features the latest in jet age conveniences.

United jet flights from all over the nation funnel into Los Angeles. In fact, United offers more jet service to Los Angeles, from more U. S. cities, than any other airline.

At this United terminal, visitors from New York, Washington and Detroit mingle with visitors from Chicago, Denver and Seattle. The reason so many people choose United is the Extra Care we take with every detail of every trip.

When you come to Los Angeles be sure to make your reservations on a United Air Lines Jet Mainliner®. We'd be very glad to have you aboard.



GOLDEN AGE: AIRPORT DESIGN

1963 – Ad for United Airlines showing the Jetways at LAX



GOLDEN AGE: TECHNOLOGICAL INNOVATIONS

1964 – Lucille Ball inaugurates the American Airlines “Astroway”



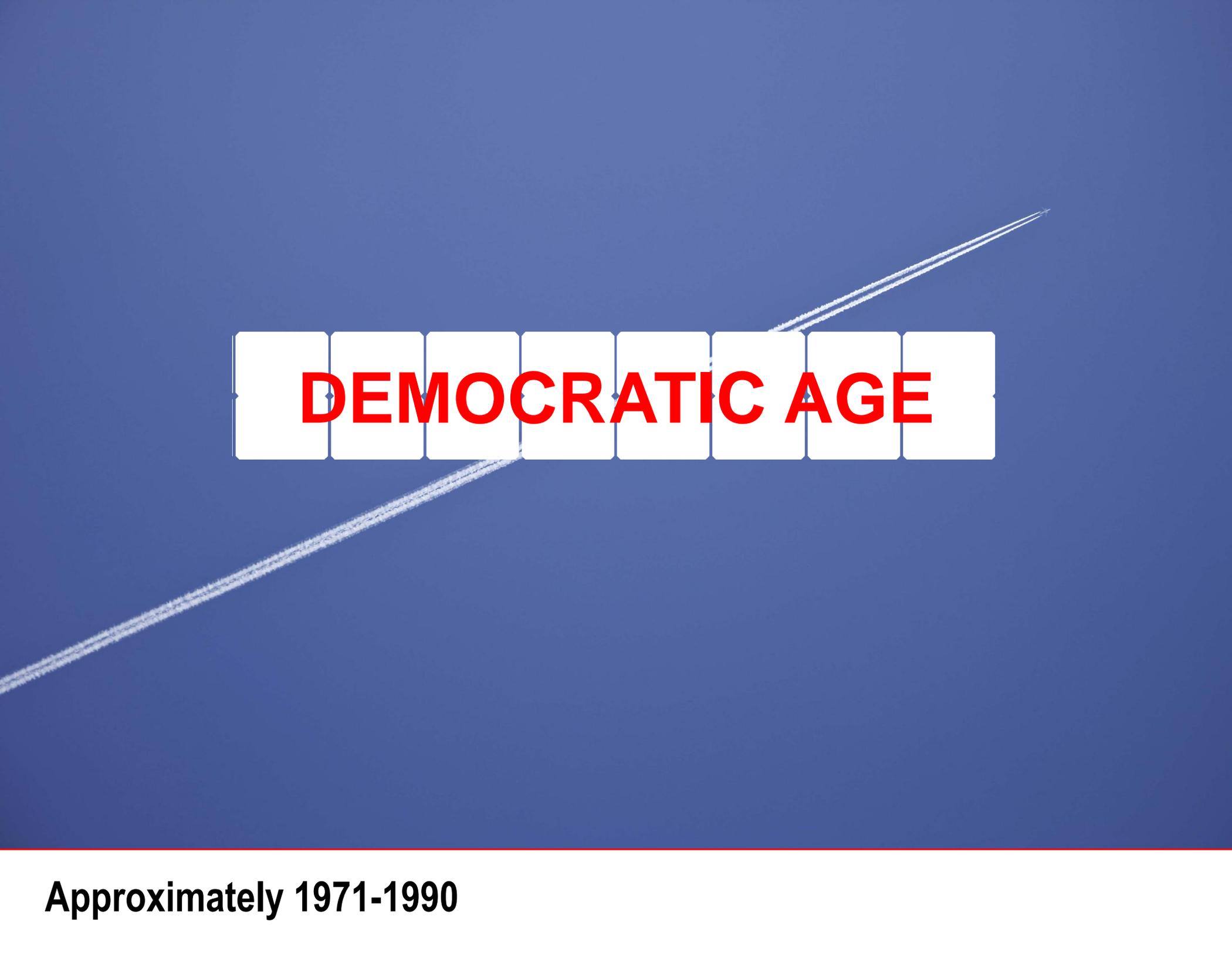
GOLDEN AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES
 1964 – Pan American Flight Map

STAR TREK®



DEMOCRATIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1966 – *Star Trek*



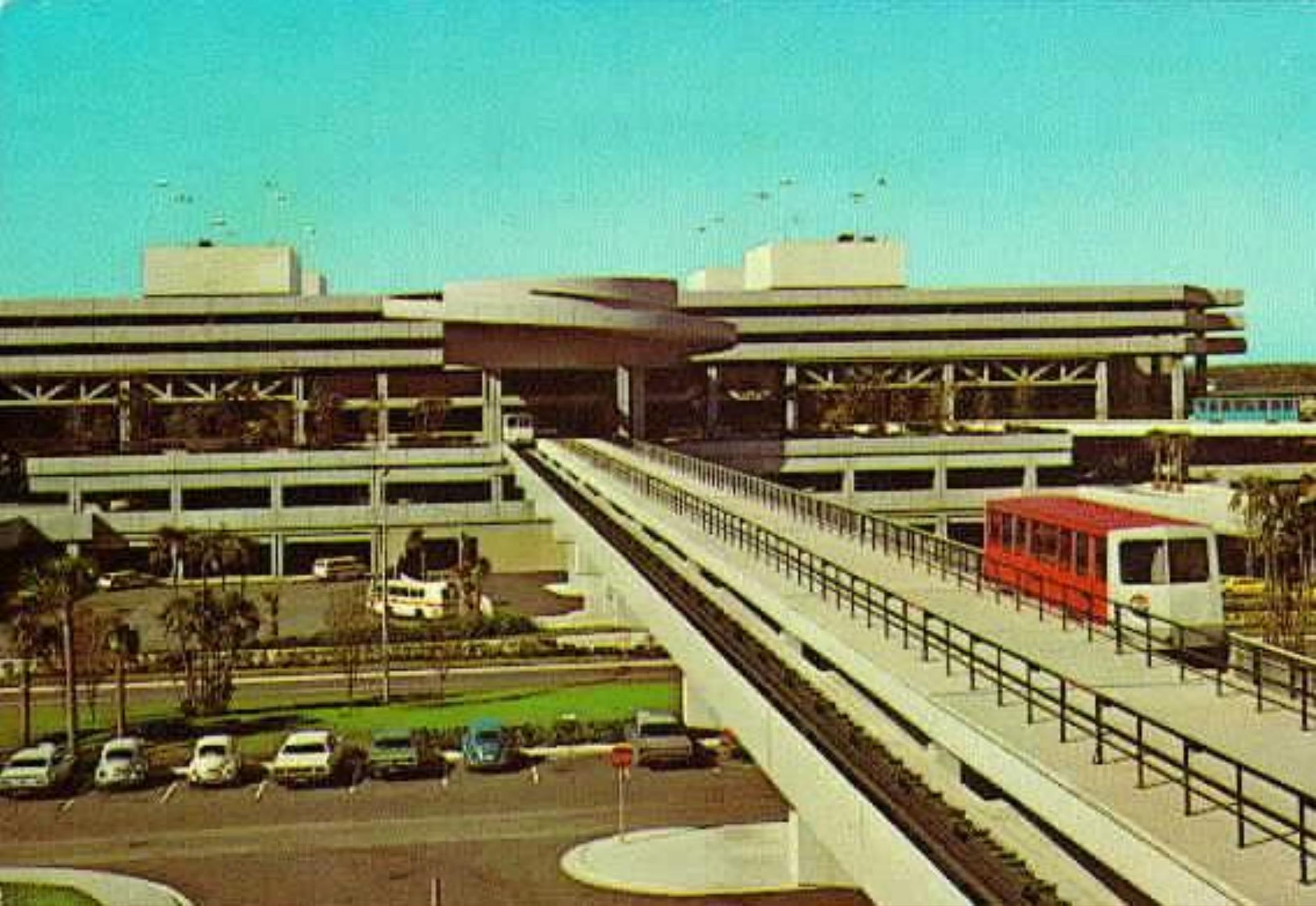
DEMOCRATIC AGE

Approximately 1971-1990



GOLDEN AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1970 – First Lady Pat Nixon visits the cockpit of a Boeing 747



DEMOCRATIC AGE: TECHNOLOGICAL INNOVATIONS

1971 – Tampa International Airport Monorail



DEMOCRATIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES
1972 – Lod Airport Massacre Tel Aviv, Israel

Her only weapon is a pretty face! The Sperry Weapons Detector proves it.



With potential hijackers coming in all shapes and sizes, how can you be sure you're not boarding one or more on every flight?

The only answer is a fast, definitive but in-offensive search for metallic objects. And since weapons can be fabricated from non-ferrous as well as ferrous metals, an ordinary magnetometer just won't do the job. What you need is Sperry's SMD-1000 Weapons Detector, the system that detects both ferrous and non-ferrous metals at a sensitivity level selected by the operator.

The SMD-1000 has been thoroughly field tested under the cognizance of the U.S. Federal Aviation Administration and the Canadian Ministry of Transportation. The FAA has purchased more units from Sperry than from any other manufacturer.

The system consists of two major assemblies — a walk-through gate and a portable control console. All electronics are solid-state and service is a straightforward process using conventional test equipment. The system uses ordinary

115/230V, 50-60 Hz power and its total weight is only 203 pounds (console, 28 pounds, gate assembly, 175 pounds). Operation is so simple that no experience or complex training is required. Your present gate personnel can become competent operators in a matter of minutes.

Learn what the SMD-1000 can do for your airport security problem — see it in operation at the Paris Air Show, Booth #510, Building "B," or write Sperry Sensor Systems, Gainesville, Florida 32601, U.S.A. Sperry is a division of Sperry Rand Corporation.

 **SPERRY**
SENSOR SYSTEMS

DEMOCRATIC AGE: TECHNOLOGICAL INNOVATIONS
1973 – Ad for security equipment



DEMOCRATIC AGE: AIRPORT DESIGN

1973 – Dallas-Fort Worth Airport



DEMOCRATIC AGE: AIRPORT DESIGN

1974 – Charles de Gaulle Airport *Paul Andreu, Architect*



DEMOCRATIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1977 – *Star Wars*

ATLANTA



DEMOCRATIC AGE: AIRPORT DESIGN

1980 – Atlanta International Airport



DEMOCRATIC AGE: AIRPORT DESIGN

1981 – Jeddah Airport, Saudi Arabia

S.O.M., Architects



DEMOCRATIC AGE: COMMERCIAL, CULTURAL + POLITICAL FORCES

1982 – *Blade Runner*



DEMOCRATIC AGE: AIRPORT DESIGN

1984 – Duty-free shopping at Dubai International Airport



DEMOCRATIC AGE: AIRPORT DESIGN

1988 – Chicago International Airport Terminal 1, art installation



AGE OF NEW OPTIMISM

Approximately 1991-present



AGE OF NEW OPTIMISM: AIRPORT DESIGN

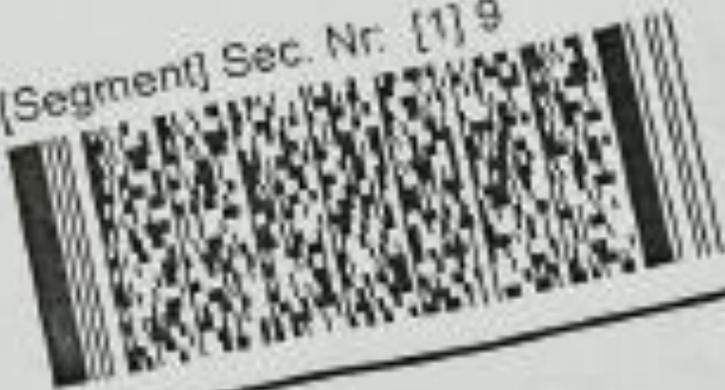
1994 – Kansai International Airport *Renzo Piano, Architect*



AGE OF NEW OPTIMISM: AIRPORT DESIGN

1995 – Denver International Airport *Fentress Architects*

[Segment] Sec. Nr. [1] 9



Boarding Pass

Name: **GOLDBERG/JEFFREY**

Confirmation #: **4NYFL7**

Date	Flight	From
1 13Aug	NW 1714	Mpls/St. Paul

To	Time
Washington-Reagan	Board: 1
	Depart: 1
	Arrive:

Frequent Flyer #: **NW ... 390 PLATINUM/ELITE PLUS**

Requests:

Gates may change - check monitors

AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS

1999 – Internet Check-In



AGE OF NEW OPTIMISM: COMMERCIAL, CULTURAL + POLITICAL FORCES
2001 – 9-11 Terrorist Attack, New York



AGE OF NEW OPTIMISM: AIRPORT DESIGN

1995 – DEN Great Hall, pre 9-11



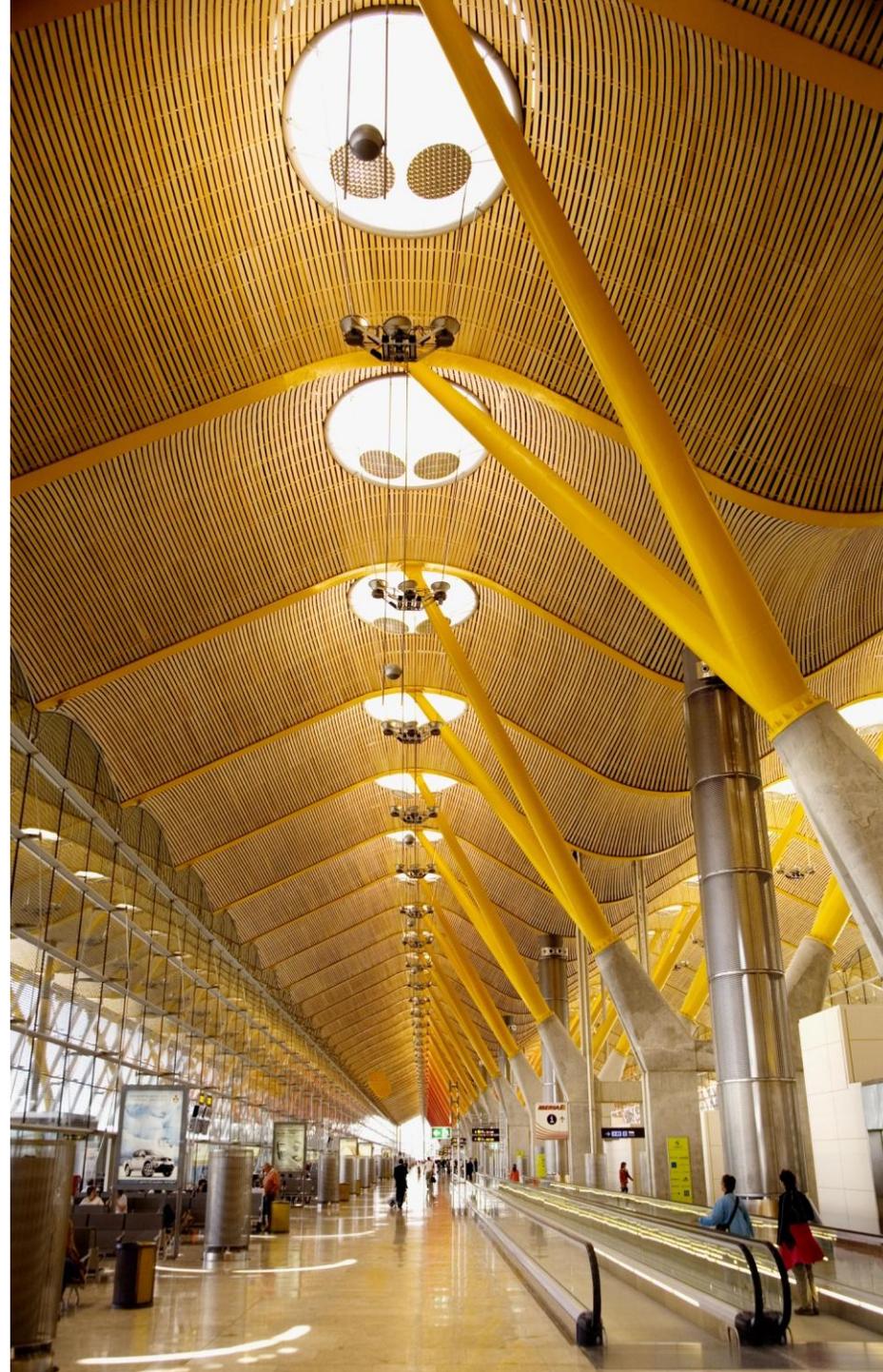
AGE OF NEW OPTIMISM: AIRPORT DESIGN
2002 – DEN Great Hall, post 9-11



AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS
2002 – Self Check-In Kiosks



AGE OF NEW OPTIMISM: COMMERCIAL, CULTURAL + POLITICAL FORCES
2004-2015 – New Songdo City (aerotropolis)



AGE OF NEW OPTIMISM: AIRPORT DESIGN

2006 – Madrid Barajas Airport

Richard Rogers, Architect



AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS
2007 – Mobile Ticketing



AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS

2007 – Body Scanners

HOW IT WORKS

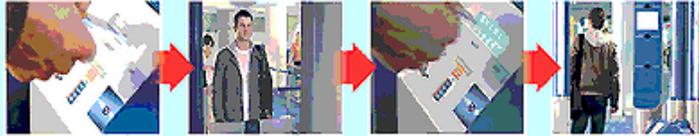
SmartGate gives travellers the option to self-process through passport control. It uses facial-recognition technology to compare data in an ePassport with a photo taken by a camera at the airport.

STEP 1

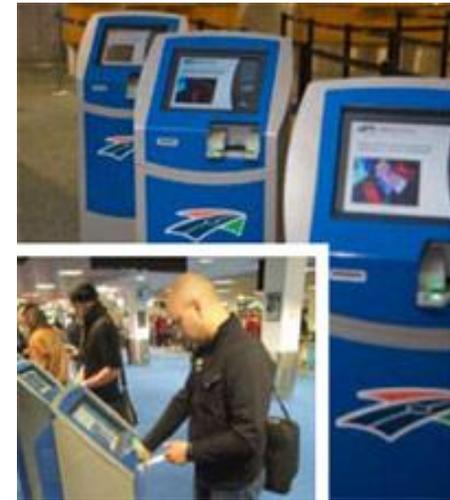
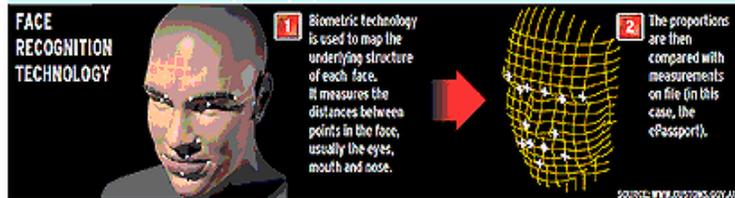


Locate the SmartGate kiosk. Place your ePassport into the reader. Answer declarations using the touch screen. Kiosk issues a SmartGate ticket.

STEP 2



Insert SmartGate ticket. Look at the camera. Your face is compared with your ePassport photo. Retrieve ticket. When gates open, proceed to baggage hall.



Concentrated Technology

The facial recognition technology uses biometric information such as the distance between the eyes, the nose, the mouth and the ears.

SmartGate kiosk: used to determine whether the traveller can use the system

SmartGate gate: provides biometric identification of the passport holder



AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS
2007 – SmartGate

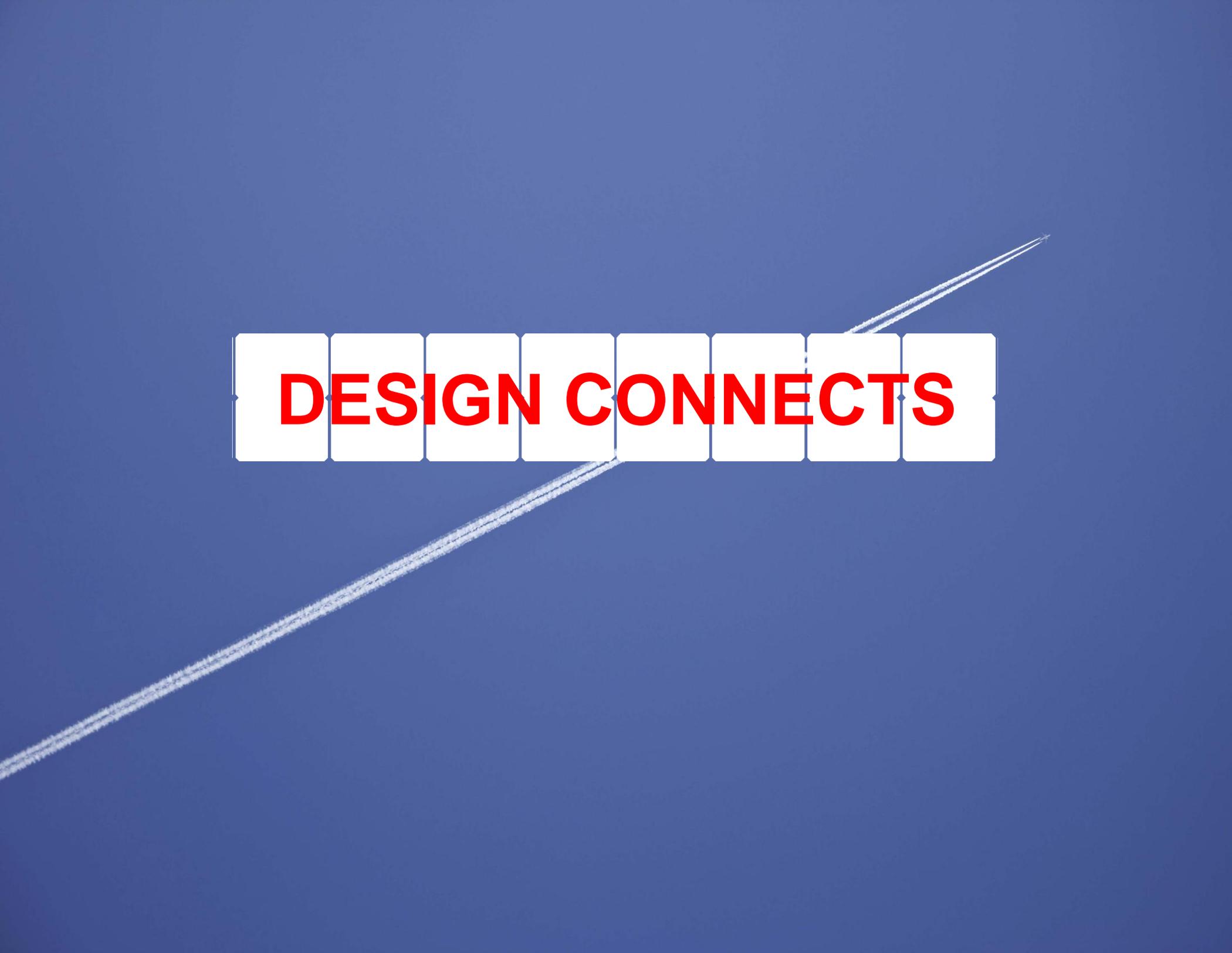


AGE OF NEW OPTIMISM: TECHNOLOGICAL INNOVATIONS
2008 – Automated In-Line Baggage System

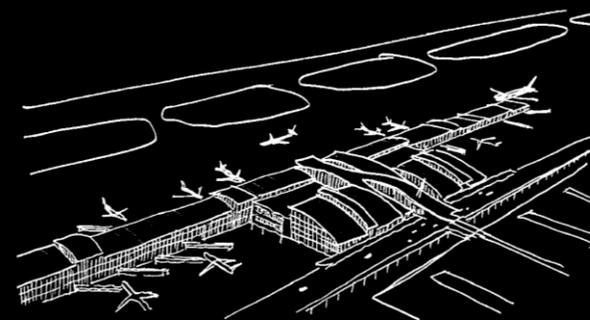
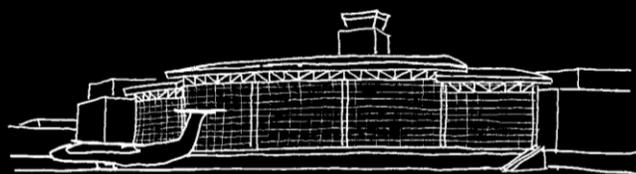
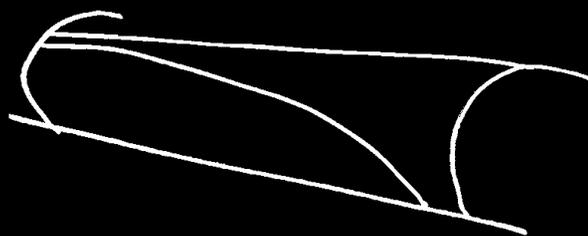
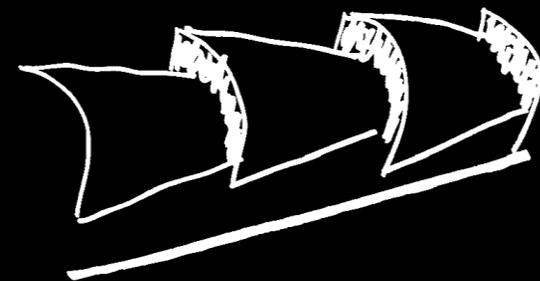
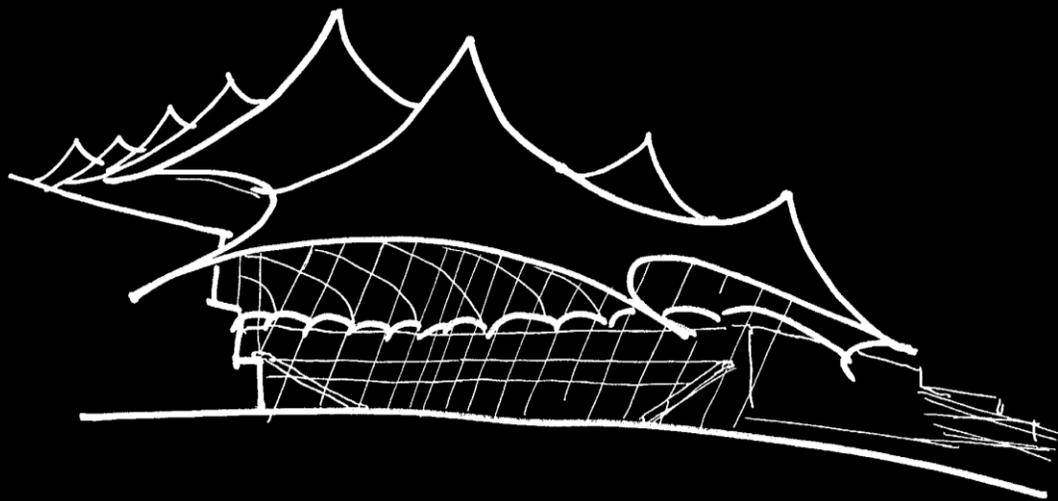
Departs

ARRIVED

AGE OF NEW OPTIMISM: COMMERCIAL, CULTURAL + POLITICAL FORCES
2009 – Passenger Bill of Rights



DESIGN CONNECTS



DESIGN CONNECTS

Fentress Architects: Designing to Culture and Place



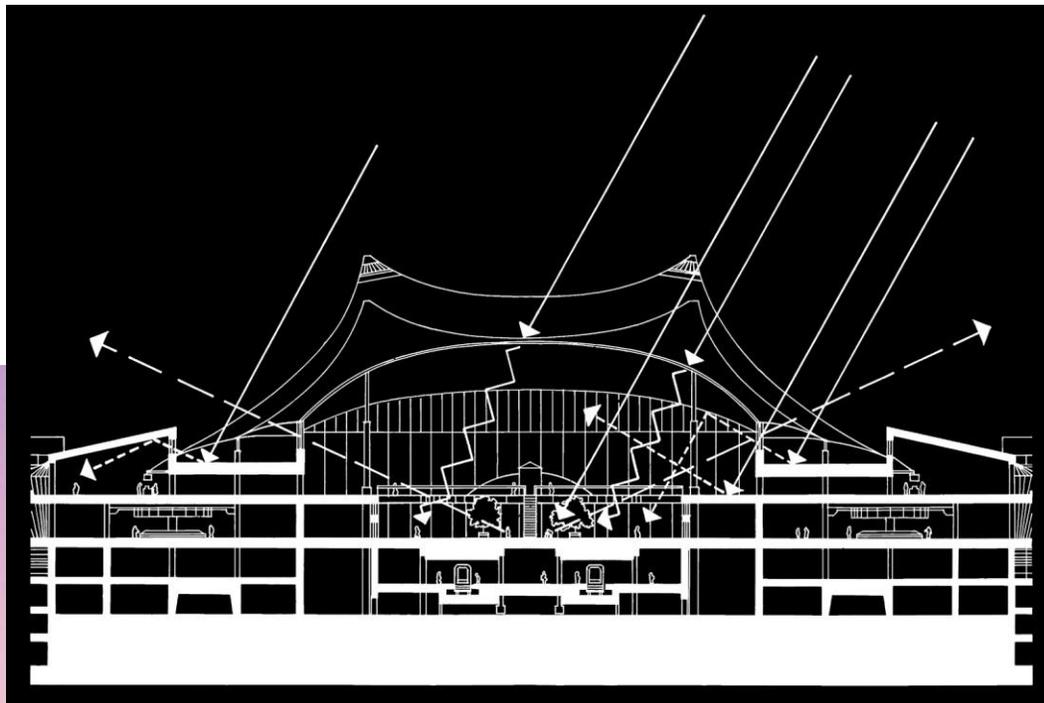
DESIGN CONNECTS

Denver International Airport, Passenger Terminal Complex



DESIGN CONNECTS

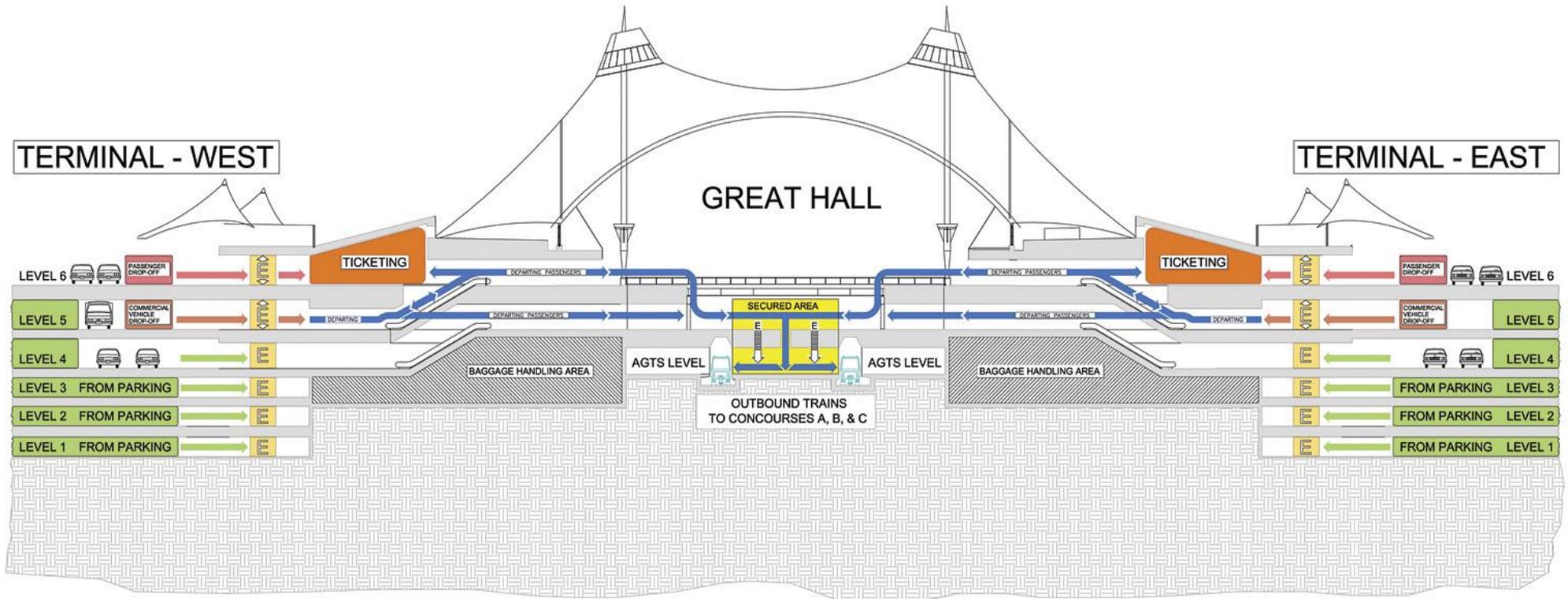
Denver International Airport, Passenger Terminal Complex



DESIGN CONNECTS

Denver International Airport, Passenger Terminal Complex

DEPARTING PASSENGERS



LEGEND

Auto Passenger Drop-Off, Level 6 East/West	Elevator Access to Terminal, Level 5	Handicap Elevator Passenger Access	Automatic Ground Transportation System (AGTS)
Commercial Vehicle Drop-Off, Level 5 East/West	Ticketing Counters, Level 5 East/West		
Departing Passenger Route, to Security Screening	Public Parking Garage, Levels 1-5 East/West		



Denver International Airport

DESIGN CONNECTS

Denver International Airport, Passenger Terminal Complex



DESIGN CONNECTS

Denver International Airport, Passenger Terminal Complex



DESIGN CONNECTS

Incheon International Airport Seoul, Korea



DESIGN CONNECTS

Incheon International Airport Seoul, Korea



DESIGN CONNECTS

Incheon International Airport Seoul, Korea



DESIGN CONNECTS

Incheon International Airport Seoul, Korea



DESIGN CONNECTS

Seattle-Tacoma International Airport, Central Terminal



DESIGN CONNECTS

Seattle-Tacoma International Airport, Central Terminal



DESIGN CONNECTS

Seattle-Tacoma International Airport, Central Terminal

“A layover never seemed so serene. In this tranquil, park-like atrium, you might even hope for a flight delay.”

Sunset Magazine

“A Trip to the Airport that’s Fun – Really.”

The Wall Street Journal



DESIGN CONNECTS

Seattle-Tacoma International Airport, Central Terminal



DESIGN CONNECTS

Mineta San Jose International Airport, Terminal B



DESIGN CONNECTS

Mineta San Jose International Airport, Terminal B



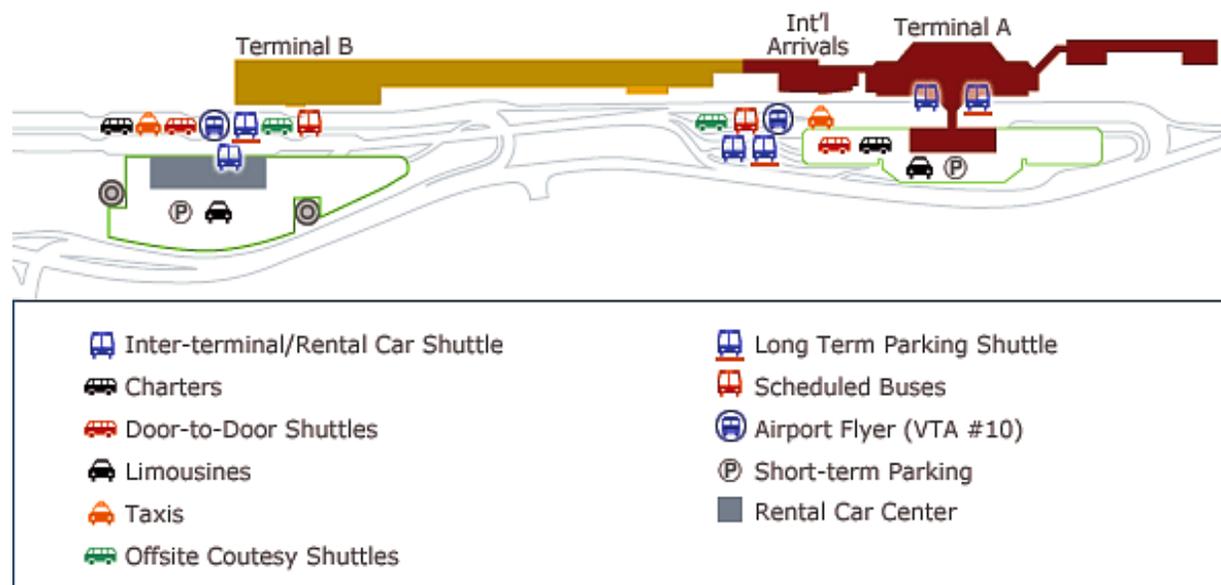
DESIGN CONNECTS

Mineta San Jose International Airport, Terminal B



DESIGN CONNECTS

Mineta San Jose International Airport, Terminal B



DESIGN CONNECTS

Mineta San Jose International Airport, Terminal B



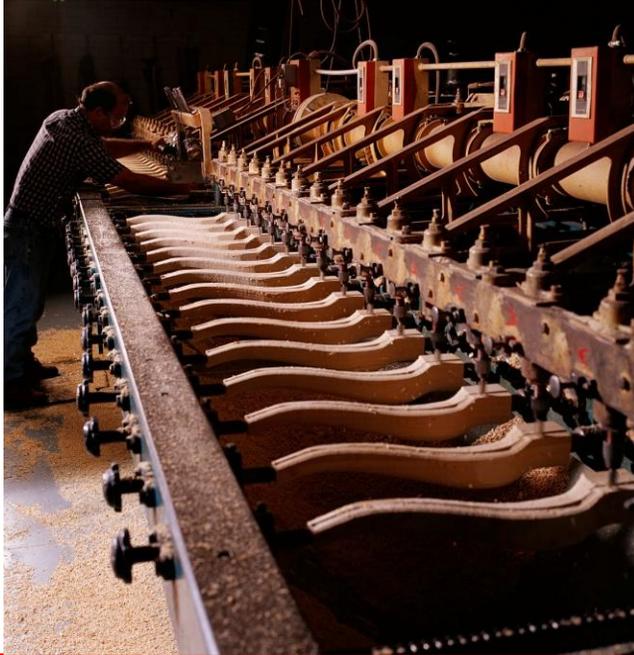
DESIGN CONNECTS

Raleigh-Durham International Airport, Terminal 2



DESIGN CONNECTS

Raleigh-Durham International Airport, Terminal 2



DESIGN CONNECTS

Raleigh-Durham International Airport, Terminal 2



DESIGN CONNECTS

Raleigh-Durham International Airport, Terminal 2



DESIGN CONNECTS

Sacramento International Airport, Terminal B



DESIGN CONNECTS

Sacramento International Airport, Terminal B



DESIGN CONNECTS

Sacramento International Airport, Terminal B



DESIGN CONNECTS

Sacramento International Airport, Terminal B



DESIGN CONNECTS

Sacramento International Airport, Terminal B



DESIGN CONNECTS

Los Angeles International Airport, Bradley West Terminal



DESIGN CONNECTS

Los Angeles International Airport, Bradley West Terminal



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Los Angeles International Airport, Bradley West Terminal



DESIGN CONNECTS

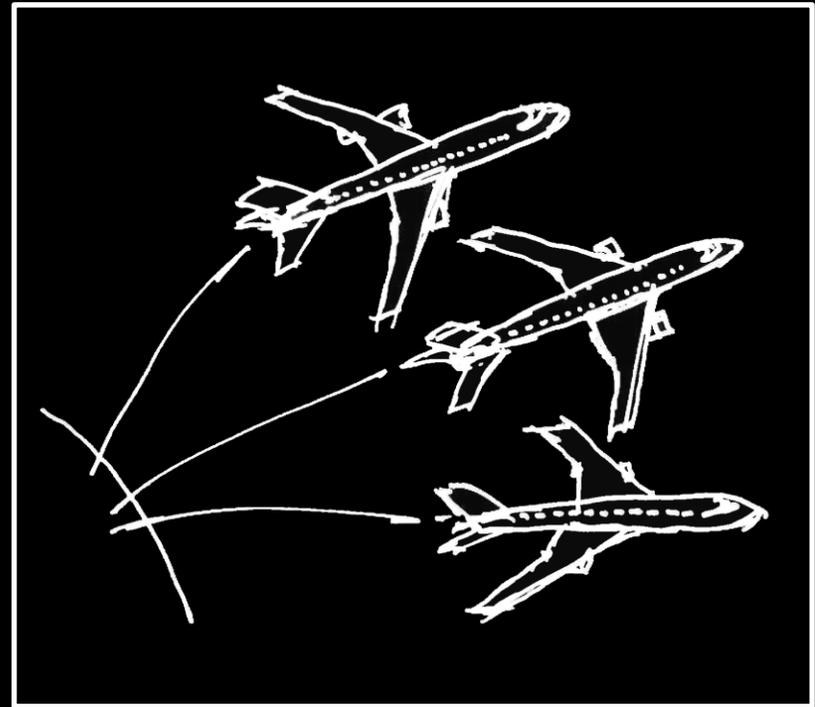
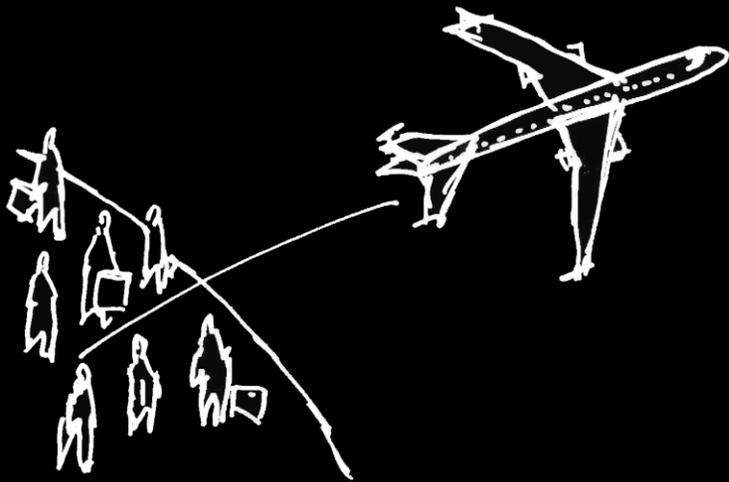
Los Angeles International Airport, Bradley West Terminal



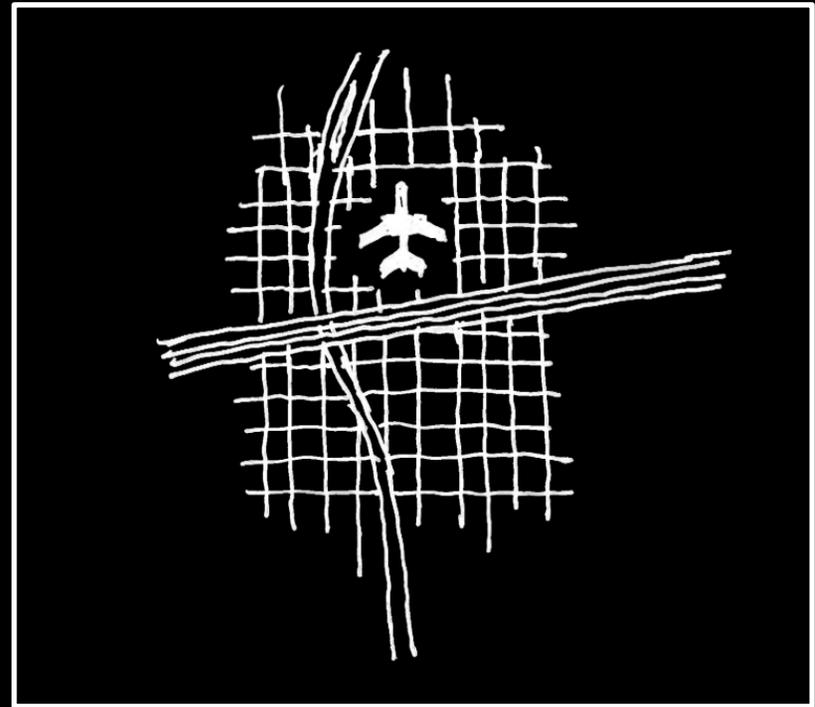
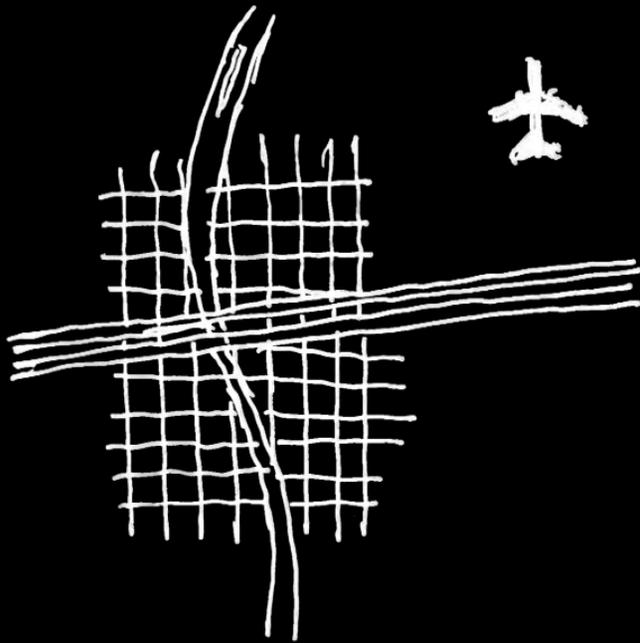
TRENDS + ASSUMPTIONS



TRENDS + ASSUMPTIONS
Globalization

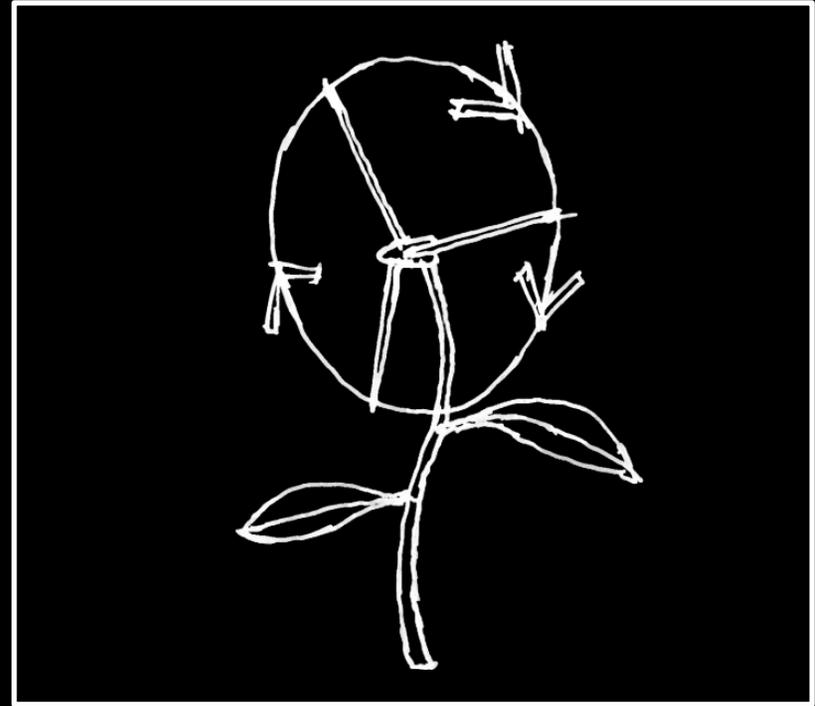
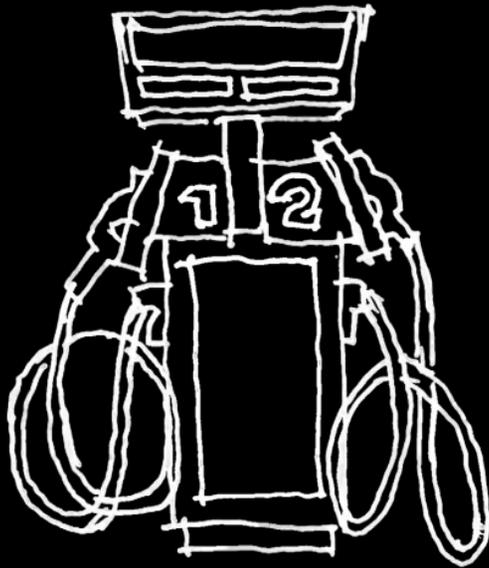


TRENDS + ASSUMPTIONS
Democratization of Flight

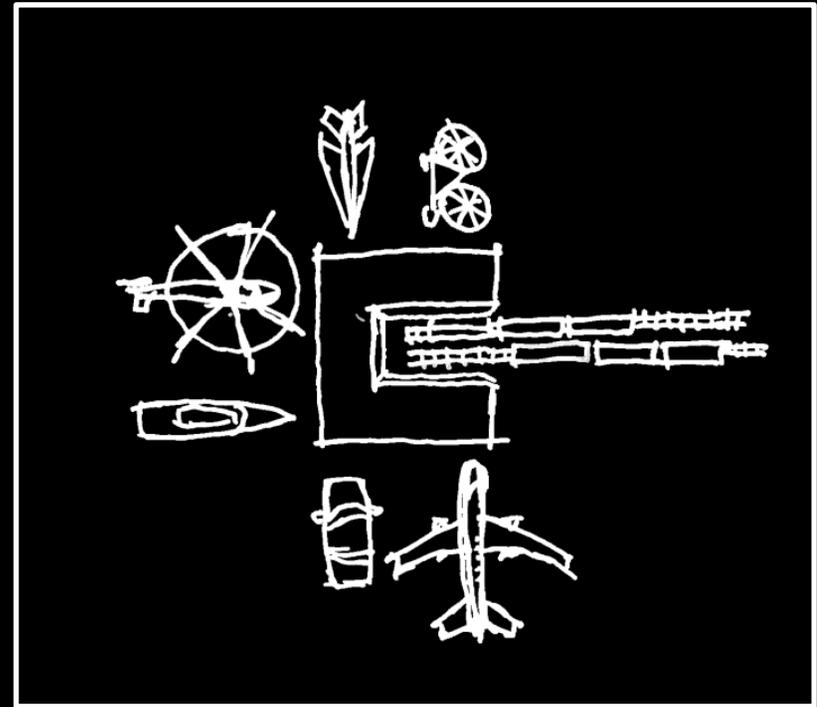
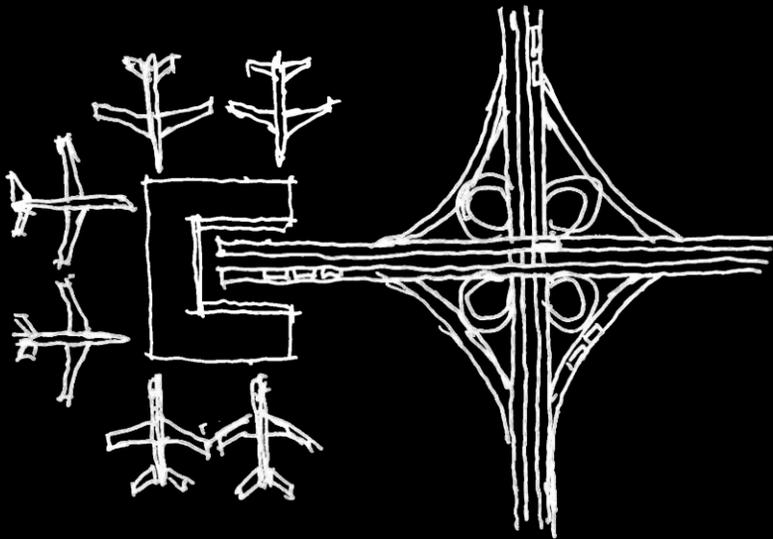


TRENDS + ASSUMPTIONS

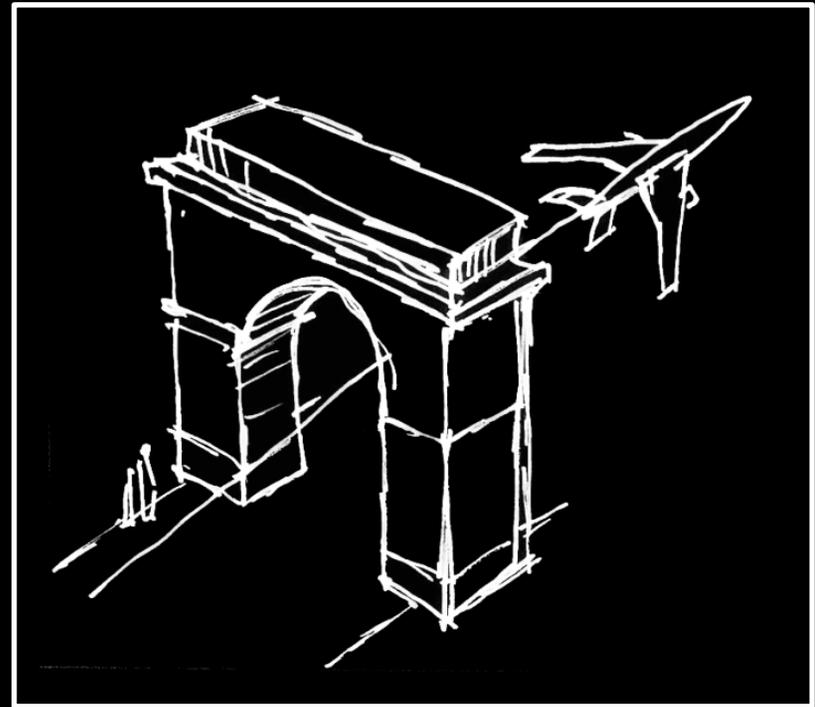
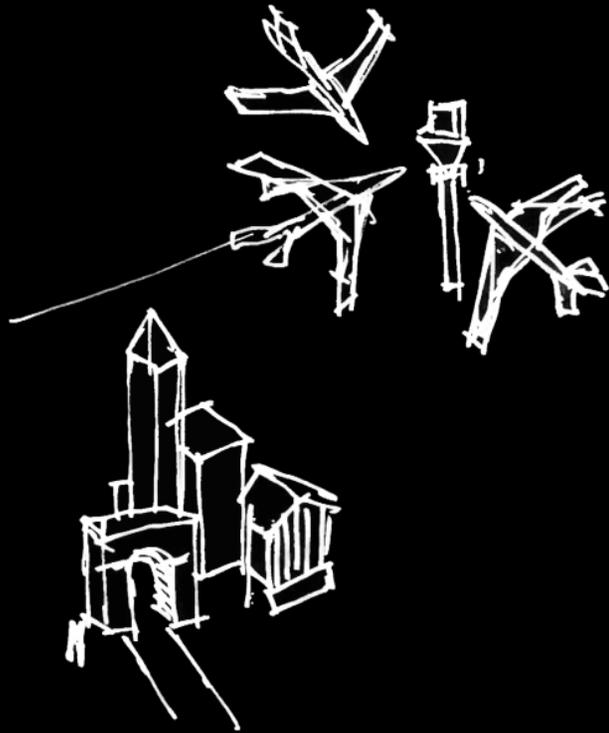
Urbanization



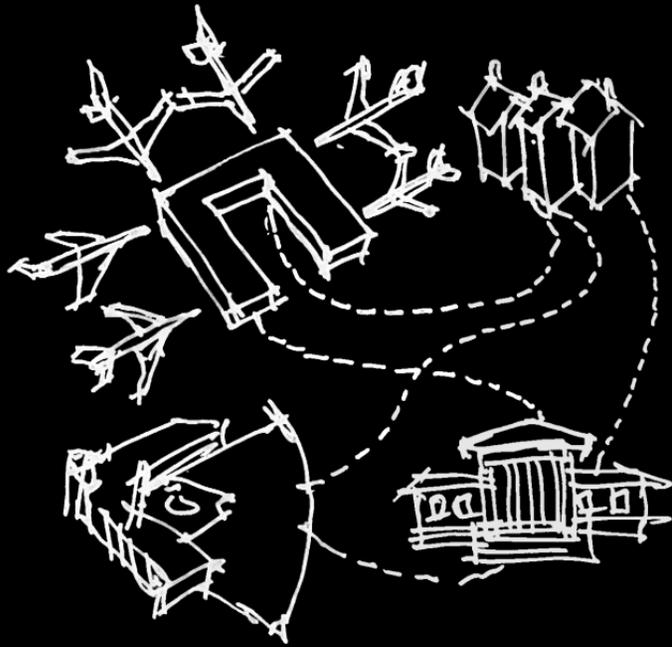
TRENDS + ASSUMPTIONS
Renewable Energy



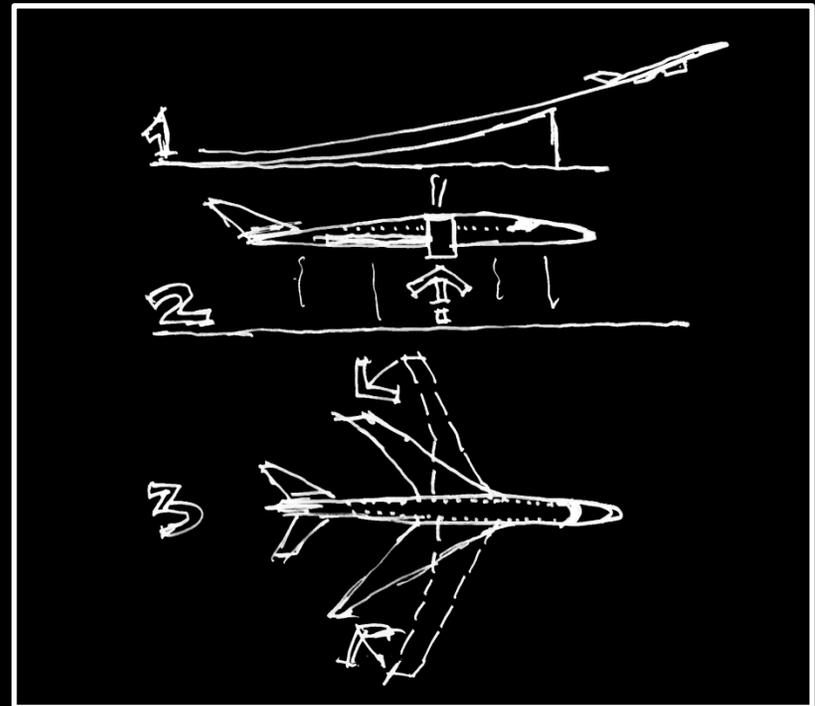
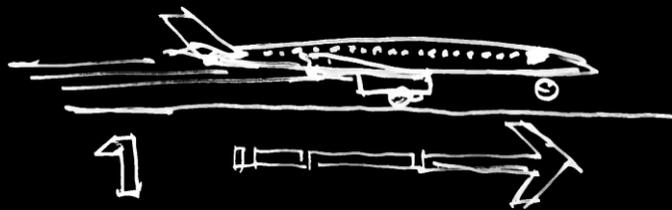
TRENDS + ASSUMPTIONS
Multi-Modal Transportation



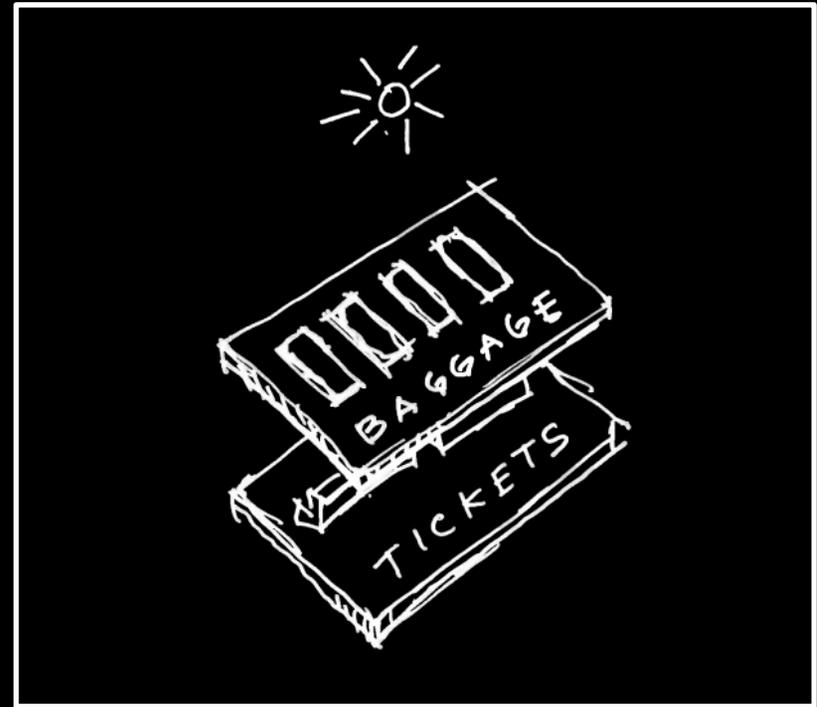
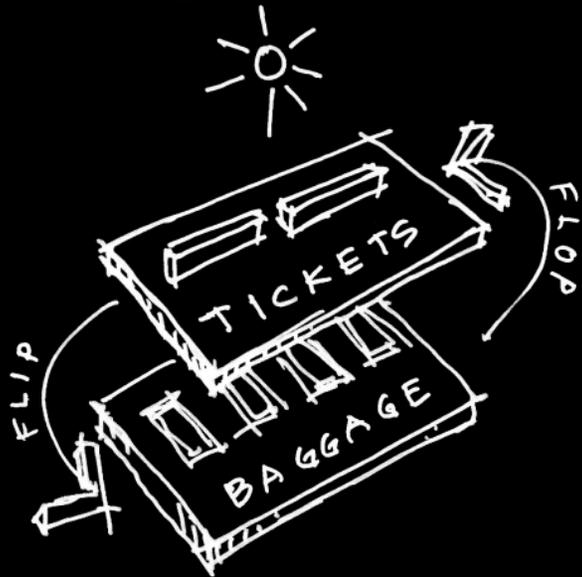
TRENDS + ASSUMPTIONS
Airport as City Gateway



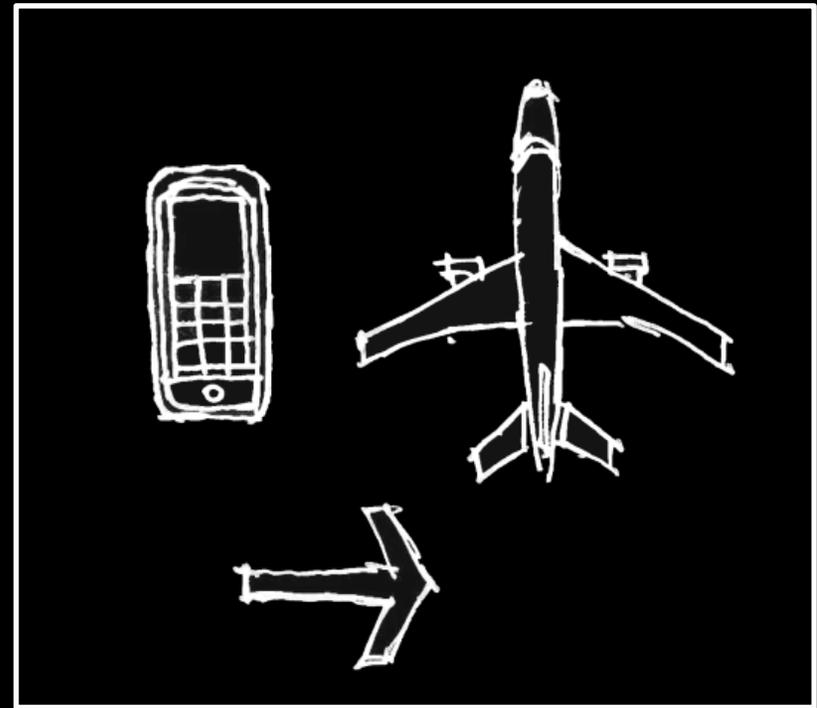
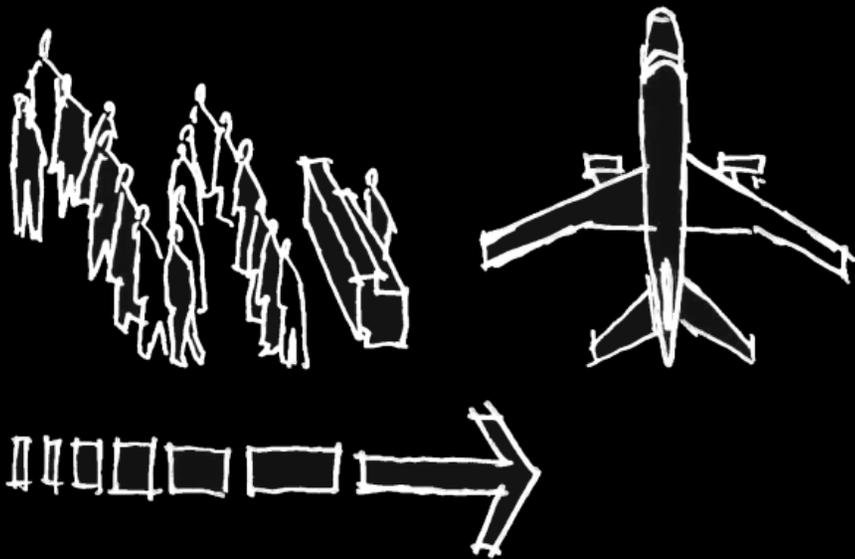
TRENDS + ASSUMPTIONS
Airport as Community Center



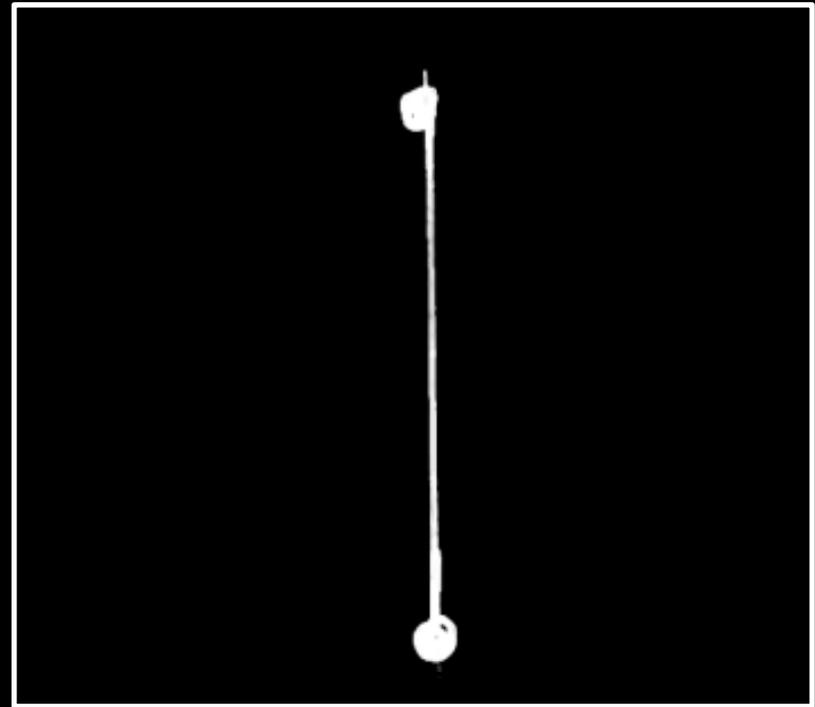
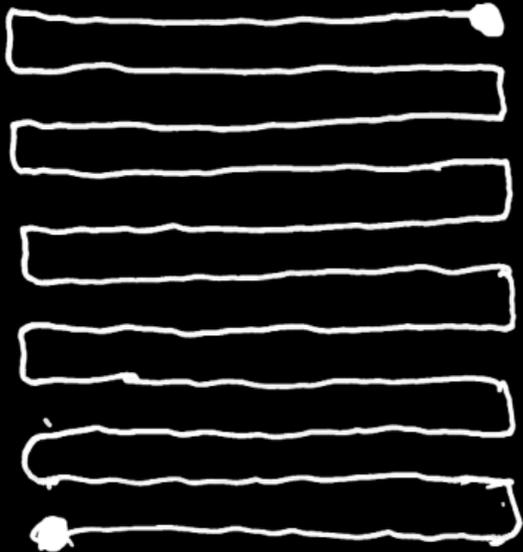
TRENDS + ASSUMPTIONS
Changing Aircraft Technology



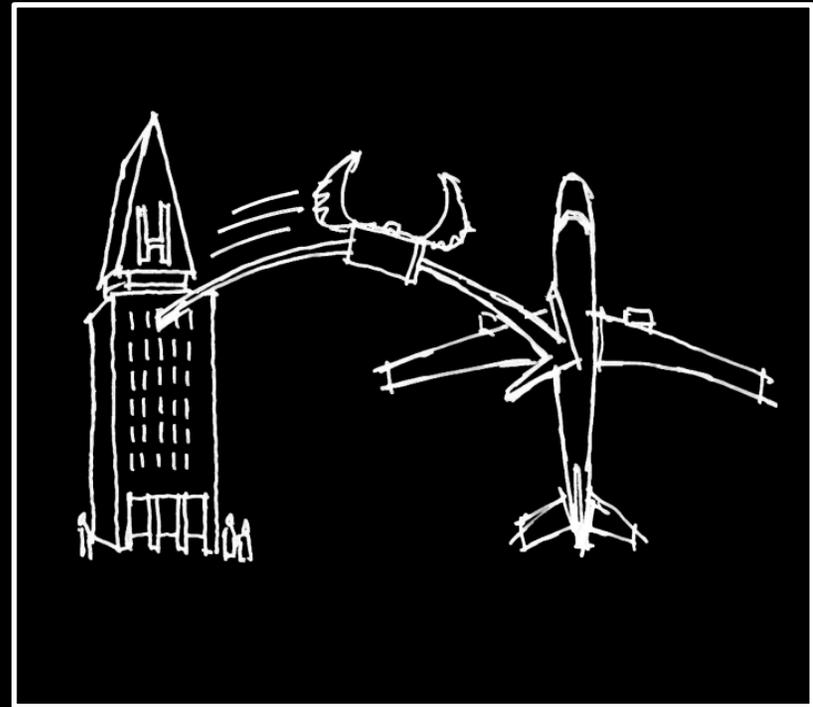
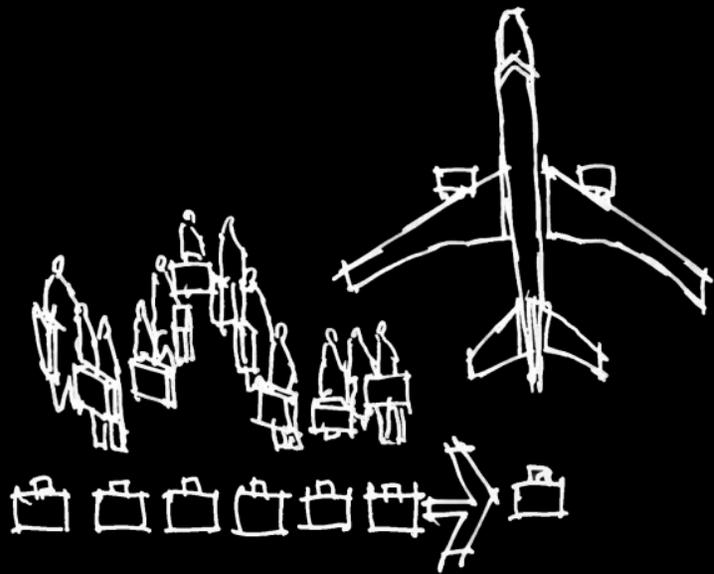
TRENDS + ASSUMPTIONS
Flipping Arrivals + Departures



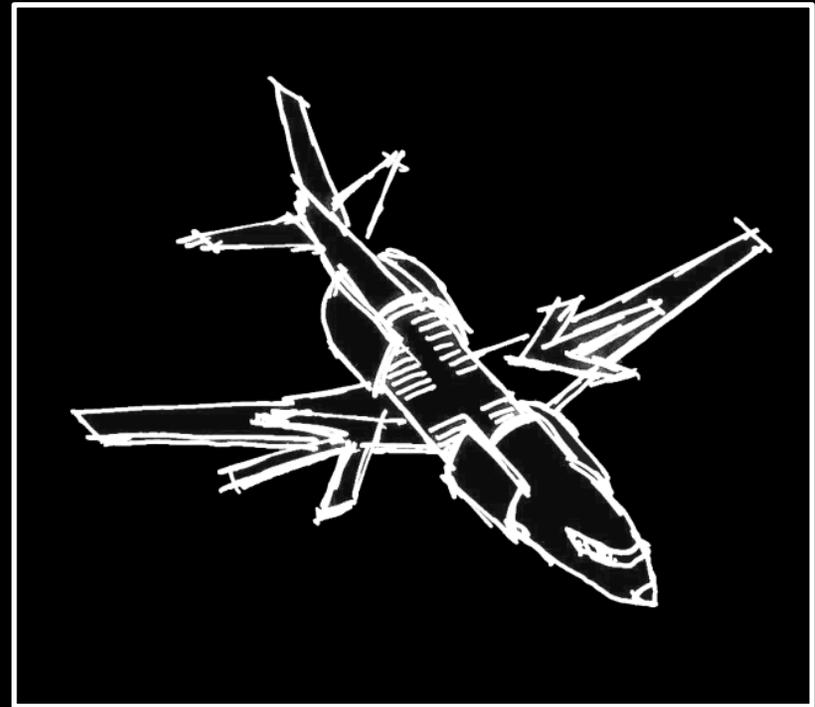
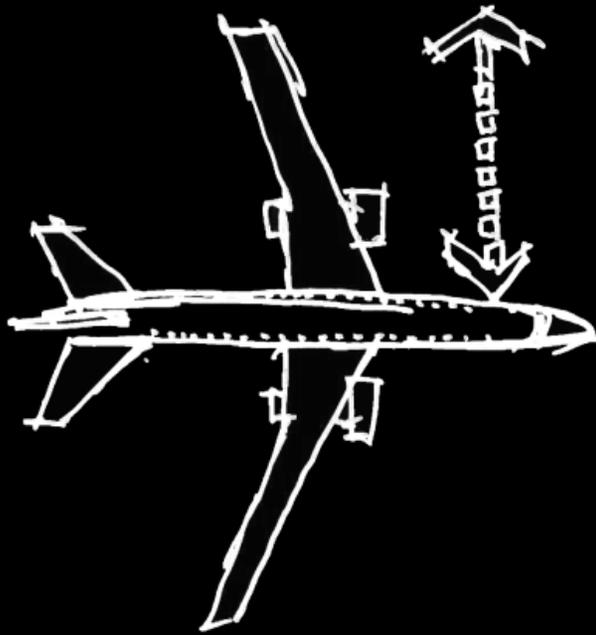
TRENDS + ASSUMPTIONS
Technological Advancements



TRENDS + ASSUMPTIONS
Seamless Security



TRENDS + ASSUMPTIONS
Express Baggage



TRENDS + ASSUMPTIONS
Faster Plane Processing

The image features a solid blue background. A white grid of 12 columns and 1 row is centered horizontally. The text "THE AIRPORT OF THE FUTURE" is written in red, bold, uppercase letters across the grid. Two white diagonal streaks, resembling jet contrails, cross the grid from the bottom-left to the top-right.

THE AIRPORT OF THE FUTURE

FENTRESS

<< *IDEA COMPETITION FOR STUDENTS*

GLOBAL CHALLENGE

2011: AIRPORT *OF THE* FUTURE



FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

International Student Competition, 922 registrations from 77 countries



LDN DELTA AIRPORT



FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

1st PLACE: Oliver Andrew – LDN Delta Airport



LDN DELTA AIRPORT

>>CAPACITY_DATA

_CONTEXT>>



50 = 60,000 PEOPLE
TRAINS A DAY



1152 = 690,000 PEOPLE
BOAT JOURNEYS A DAY



1250 = 1,500,000 PEOPLE
FLIGHTS A DAY



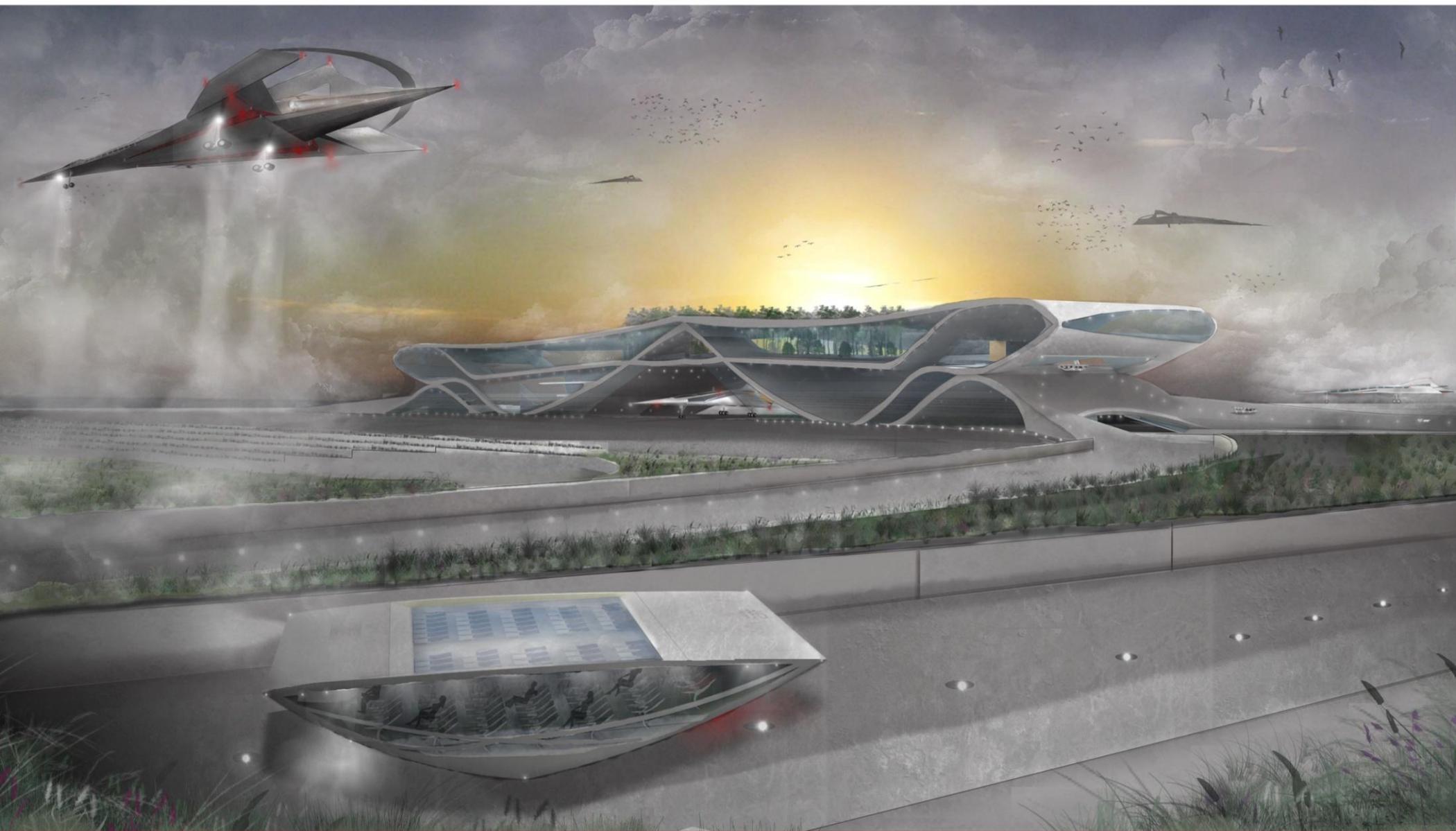
LONDON HEATHROW AIRPORT	=	68,068,304	
LONDON GATWICK AIRPORT	=	31,375,290	
LONDON STANDSTED AIRPORT	=	20,000,000	
THAMES DELTA AIRPORT	=	527,500,000	

BASED ON PEOPLE TRAVELLING PER YEAR



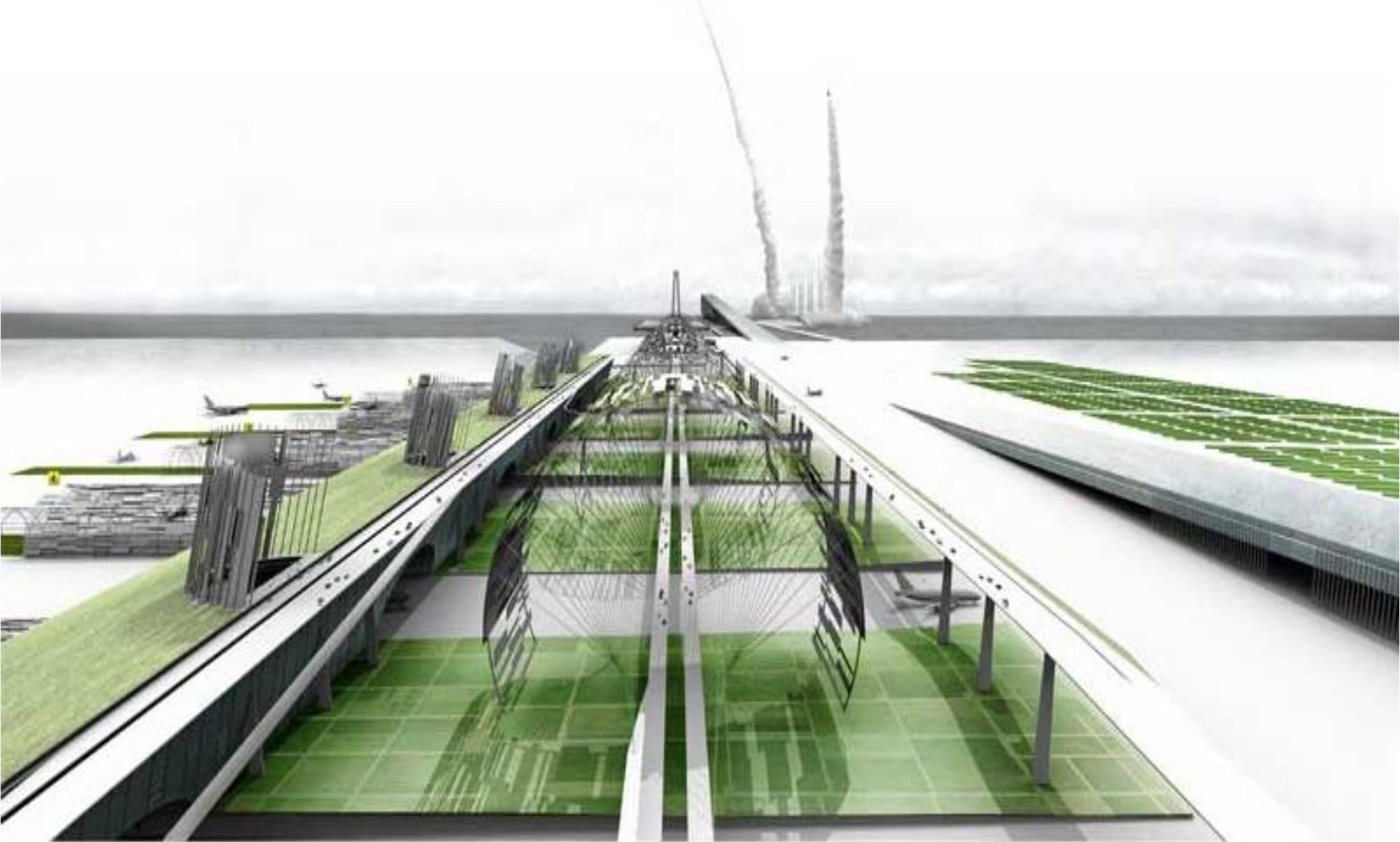
FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

1st PLACE: Oliver Andrew – LDN Delta Airport



FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

1st PLACE: Oliver Andrew – LDN Delta Airport



The Airport of the Future sustains agricultural green spaces that can be accessed from each terminal. The farms produce enough vegetables and fruit to feed travelers both at the airport and while in flight. The central highway is suspended above the agricultural green spaces by large cable structures that follow the same form language as the terminals. The non-atmospheric air craft is lifting off in the distance.

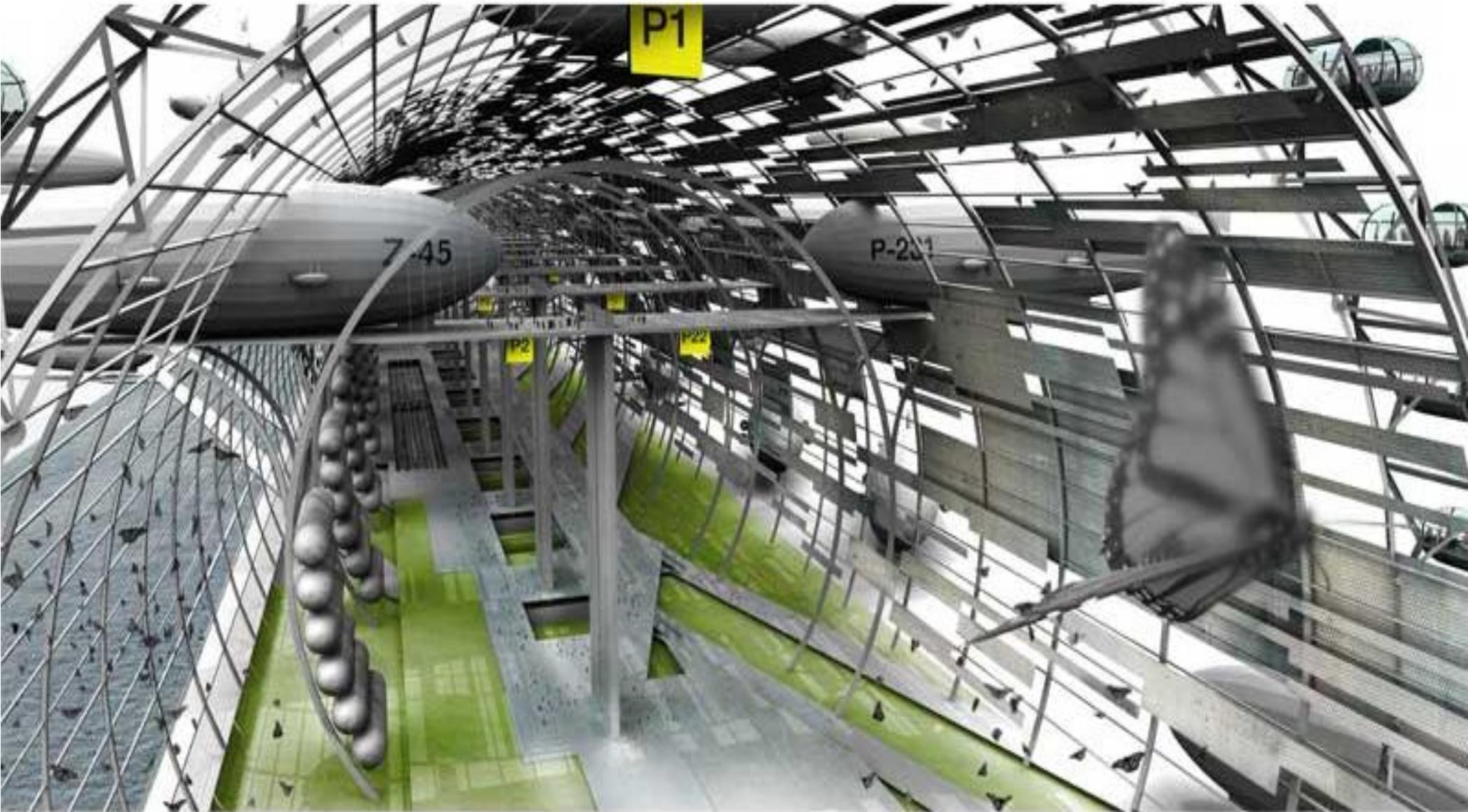
FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

2nd PLACE: Martin Styzk – Airport of the Future



FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

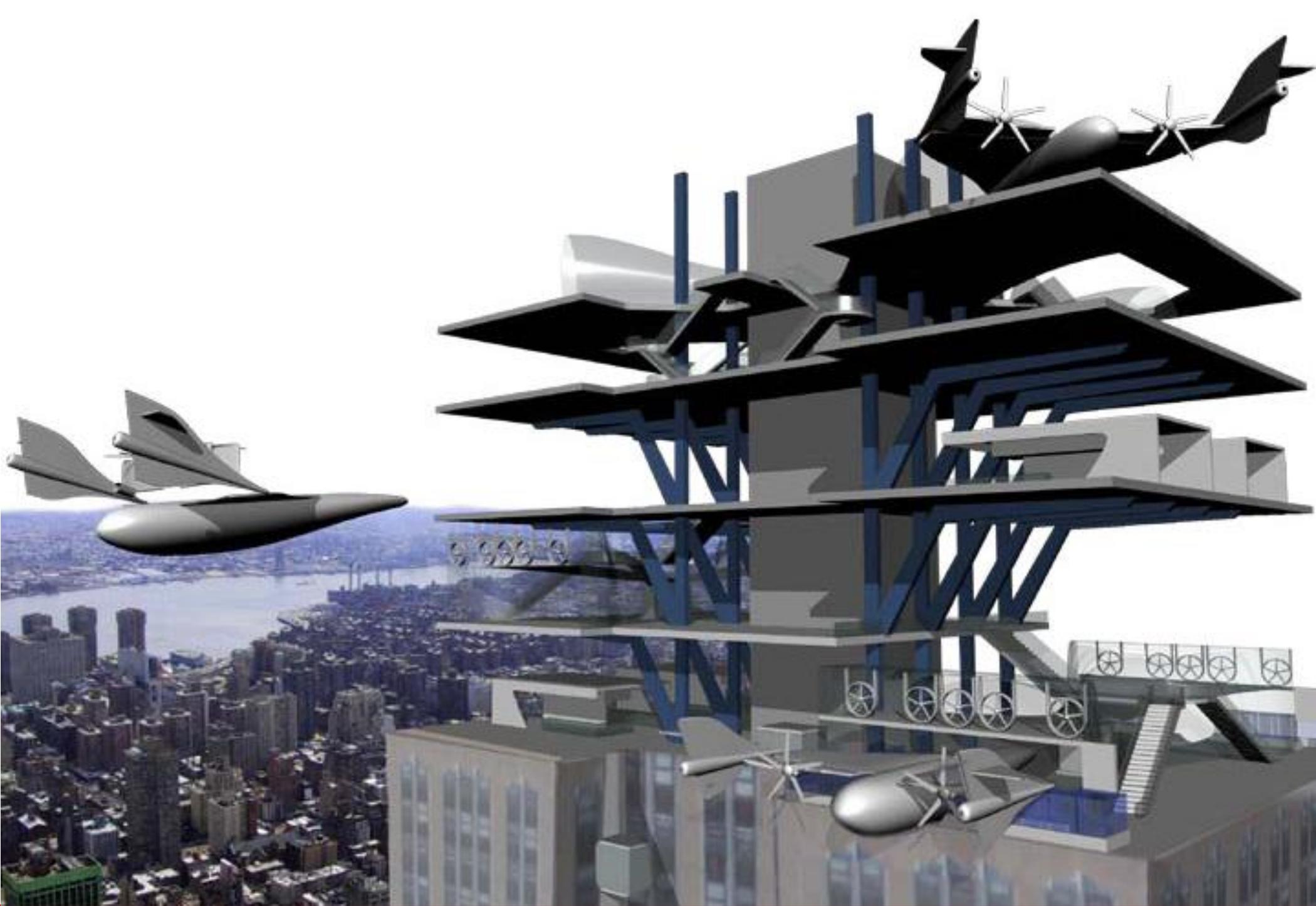
2nd PLACE: Martin Styzk – Airport of the Future



Currently at LAX, there is a butterfly reserve west of the runway. The Airport of the Future allows for a butterfly reserve inside the airship terminal as the flight of the butterfly is a metaphor for the quiet, floating qualities of an airship in flight. A train terminal runs underneath this part of the airport as its last stop.

FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

2nd PLACE: Martin Styzk – Airport of the Future



FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

3rd PLACE: Alexander Nevarez – Pocket Airports



POCKET AIRPORTS

a network of airports within the city

One airport will take about three blocks in Manhattan. The best way to make up for such a large footprint in a dense city is to rise up.

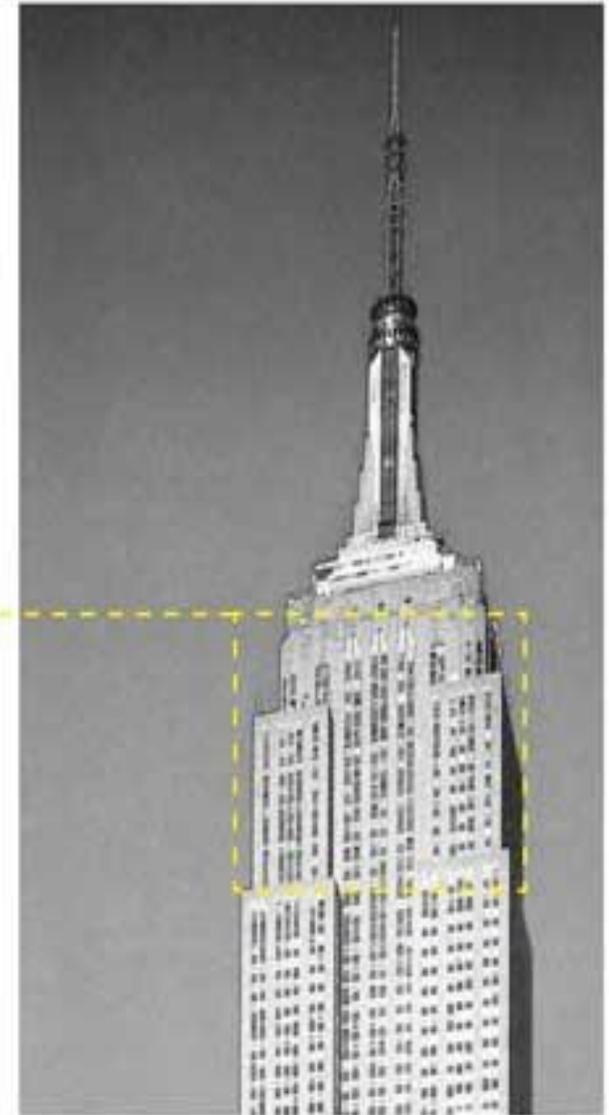


1 MICRO AIRPORT WILL TAKE 18 FLOORS OF THE EMPIRE STATE BUILDING



18 FLOORS EACH 2,522 m²

FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE
3rd PLACE: Alexander Nevarez – Pocket Airports



POCKET AIRPORTS

a network of airports within the city

FENTRESS GLOBAL CHALLENGE: 2011 AIRPORT OF THE FUTURE

3rd PLACE: Alexander Nevarez – Pocket Airports

The future ahead us is fairly predictable. Rising sea levels, globalization, urbanization and increasing population growth are the contributing factors to land scarcity. Therefore, sustainable and efficient land use with well planned infrastructure design is crucial, as there'll be limited land for land use in future.

Energy consumption is another issue of concern for the overdeveloped future cities. Green energy harvested will be insufficient to support the high consumption, therefore the future buildings would and should be autonomous - generating energy to sustain itself.

As land transportation will not be as efficient as air transportation in the future, aircrafts will become the main choice for traveling and commuting. But on the contrary, the airport is deemed as one of the most land consuming building construction.

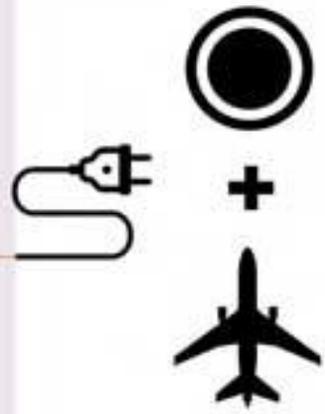
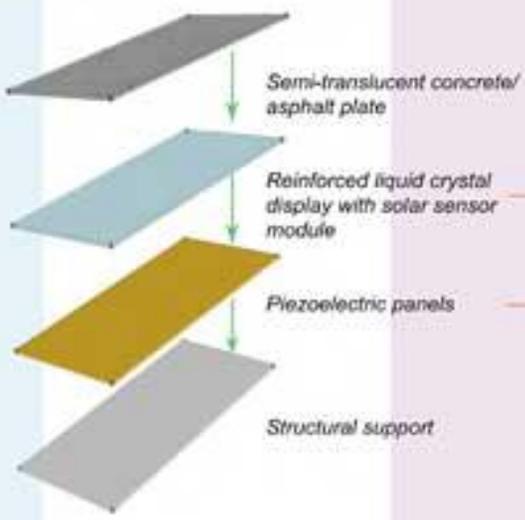
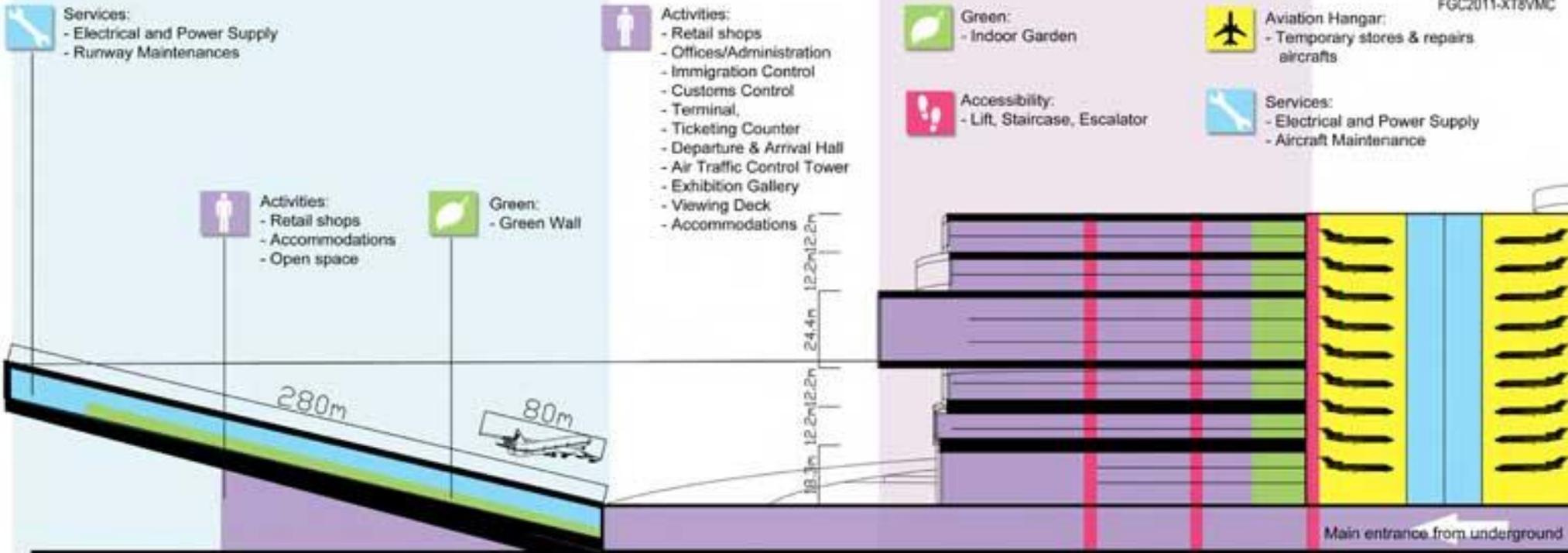
Thus, this proposal concentrates on minimizing the impact of airport to the environment, as well as how far these approaches affect the functionality of airports in the future.



AERO-LOOP

FENTRESS GLOBAL CHALLENGE: AIRPORT OF THE FUTURE

FENTRESS GLOBAL CHALLENGE: 2011 THE AIRPORT OF THE FUTURE
HONORABLE MENTION: Thor Yi Chun – Aero-Loop



One of the technologies applied in the Aero-Loop is the battery, panels that generates electricity for the airport. The battery utilizes the centrifugal force applied on it when the airplane accelerates along the runway, and then convert it to electricity via piezoelectric effect and system. Therefore, electricity will be generated whenever there is movement along the loop.

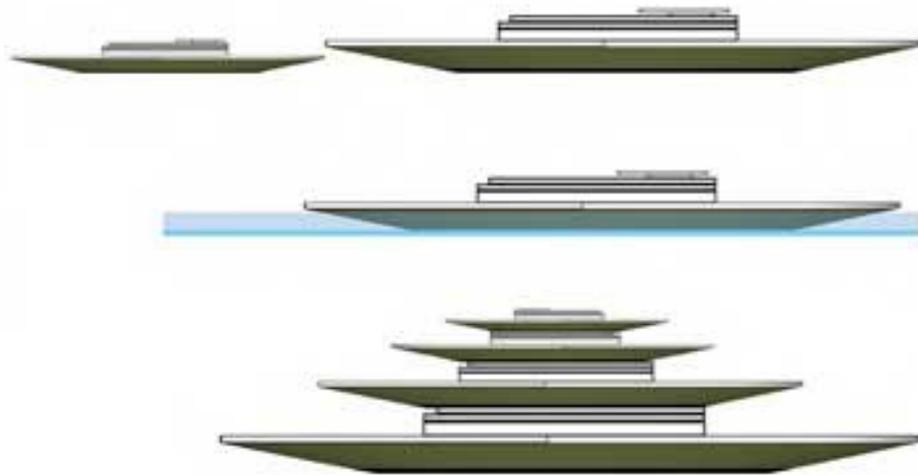
Smaller scale battery will be installed on the floor of the terminal. Electricity will be generated via piezoelectric effect (energy harvested from human movement)

The accumulated energy supply will be sufficient to sustain the usage of the Aero-loop. Thus provides the ability to recharge aircrafts powered by electricity.

THE BATTERY



The runways incorporate lighting technology to form the illuminated runways. Aviation control tower will direct Aircrafts via the illuminated runways. All control procedures and calucations are computerized and monitored by professionala for better accuracy and safety purpose. This will greatly increase the efficiency of air transportation.



The size of Aero-loop can be altered or customized to meet the requirements of the specific location as well as catering to different flight capacities.

In the worst case of scenario, whereby water level rise to the utmost critical point, other mode of transportation would not be functional. However Aero-loop would not be affected and is able to continue operating due to its design.

Aero-loop can be place on any building or stacked to maximize the flight capacity.



Future implementation of Aero-loop?

Aero-loop intend to remove stereotypical assumption pertaining airport design; Airport sizes, construction cost, operating cost and etc. Therefore, air transportation would be affordable to all and will be one of the main mode of commuting in future



The bold yet simple shape of Aero-loop will become a landmark for future cities. The modular approach of Aero-loop provides definite opportunities and possibilities in the aviation industry.



Other functions of Aero-loop

Airport of the future must be versatile and multifunctional; i.e. it do not just function as a transportation hub, but a place where cultures meet and interacts.

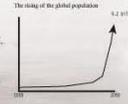
FENTRESS GLOBAL CHALLENGE: 2011 THE AIRPORT OF THE FUTURE
HONORABLE MENTION: Thor Yi Chun – Aero-Loop

NEW ARCTICITY

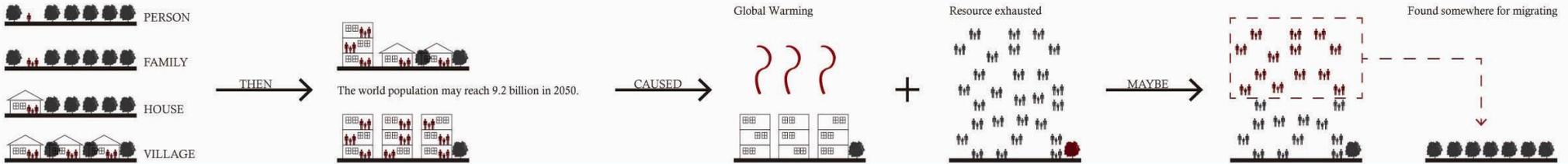
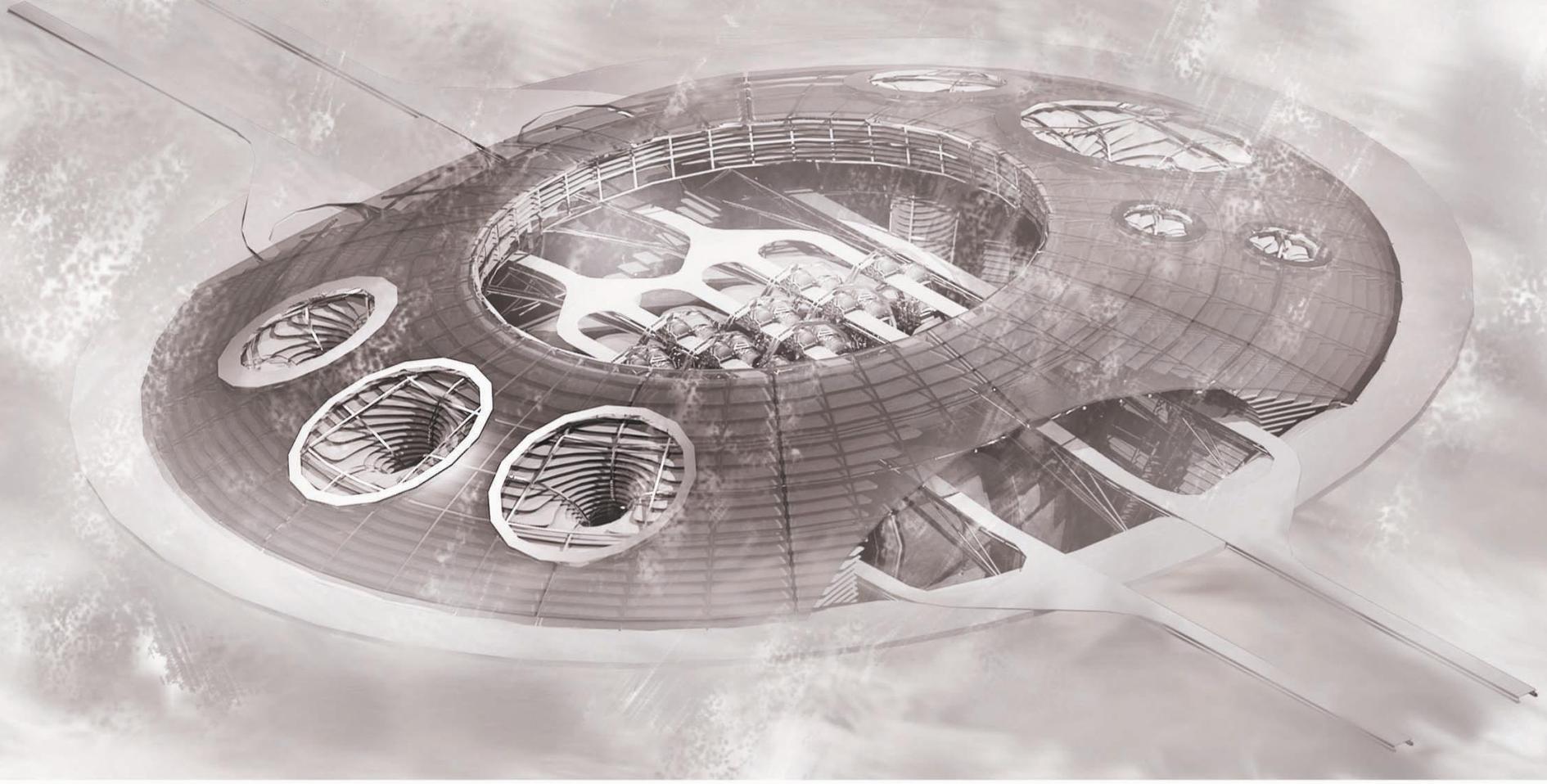
ISSUE

How is the environment going to change in the FUTURE ?

Nowadays, human beings are living between 60° N and 40° S. Mainly in the North of the equator. The aging of developed countries causes the population stagnant even decrease. But the global population still increases quickly, because there are a lot of countries in developing. In prediction, the world population may reach 9.2 billion in 2050.



Because of excessive development, we caused a lot of terrible problems like globe warming and resources exhausted. Maybe the land we live now won't suitable to exist, so we have to found somewhere for migrating.

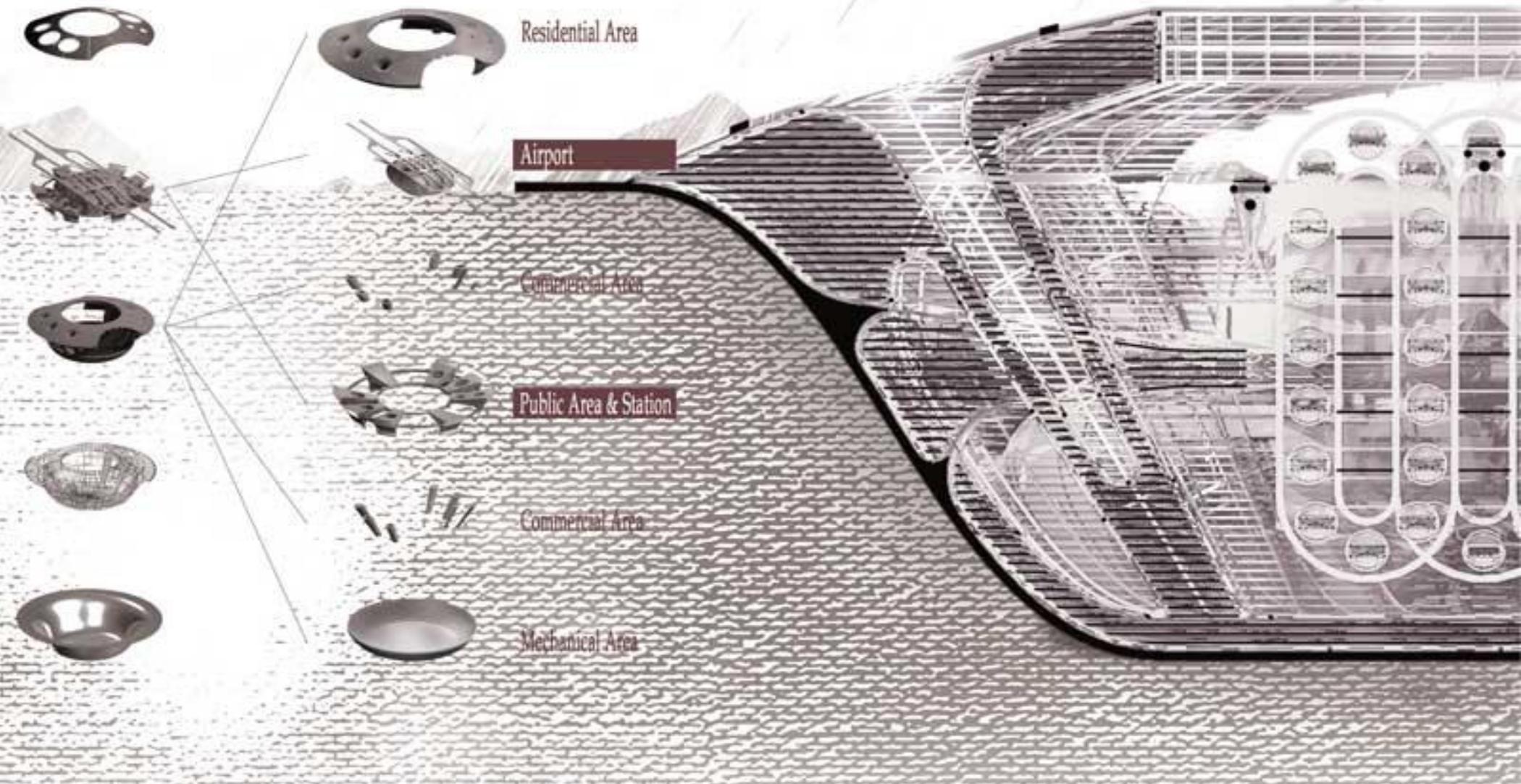
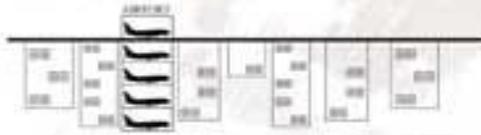


FENTRESS GLOBAL CHALLENGE: 2011 THE AIRPORT OF THE FUTURE
HONORABLE MENTION: Daniel Kang – New Articity

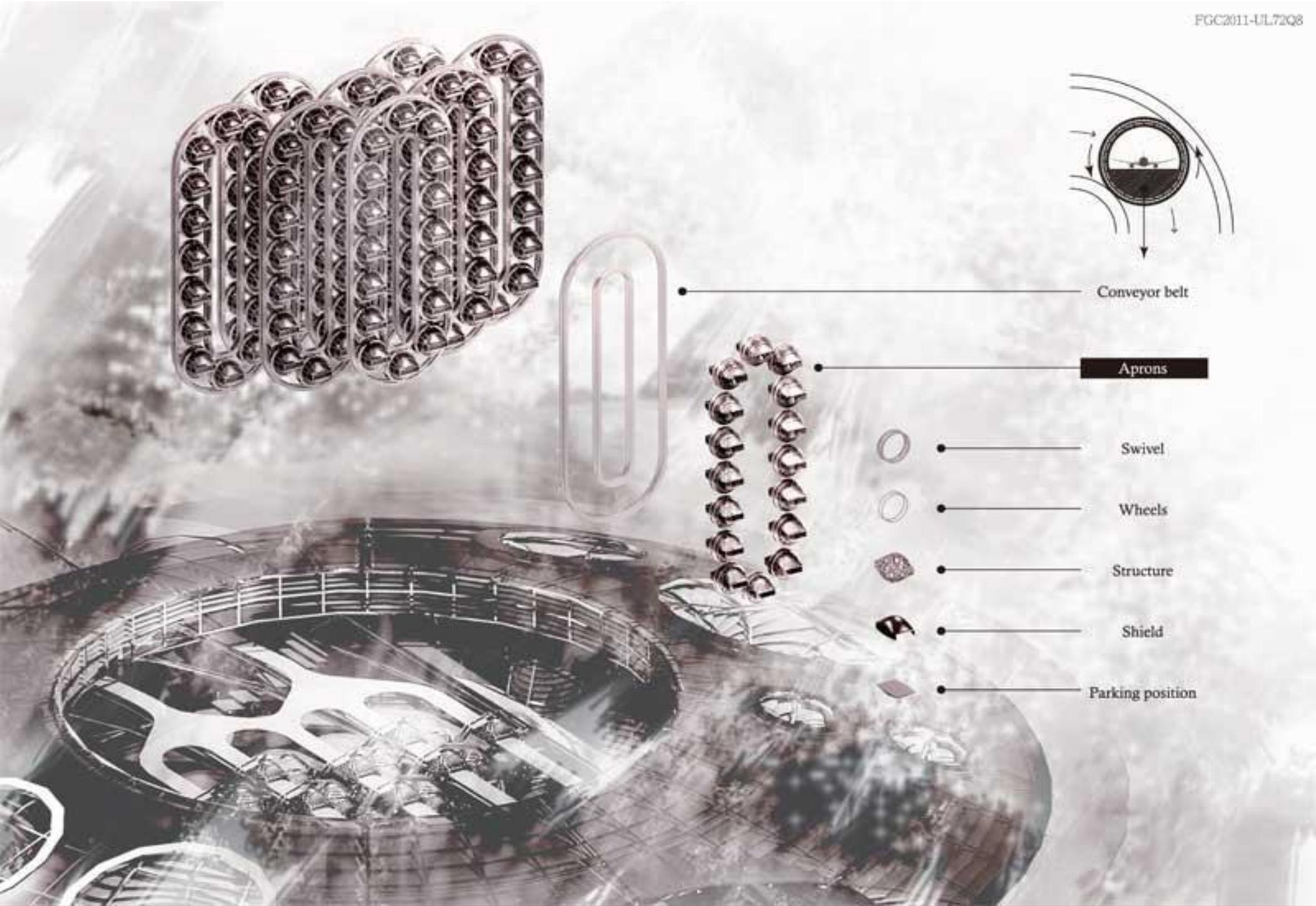
NEW SECTION

How will a future airport build in Greenland ?

Greenland is the last pure land, so the firm of architecture shouldn't force it.
And because of strong wind and cold temperature in winter, I thought
The future form of building is deepened development.

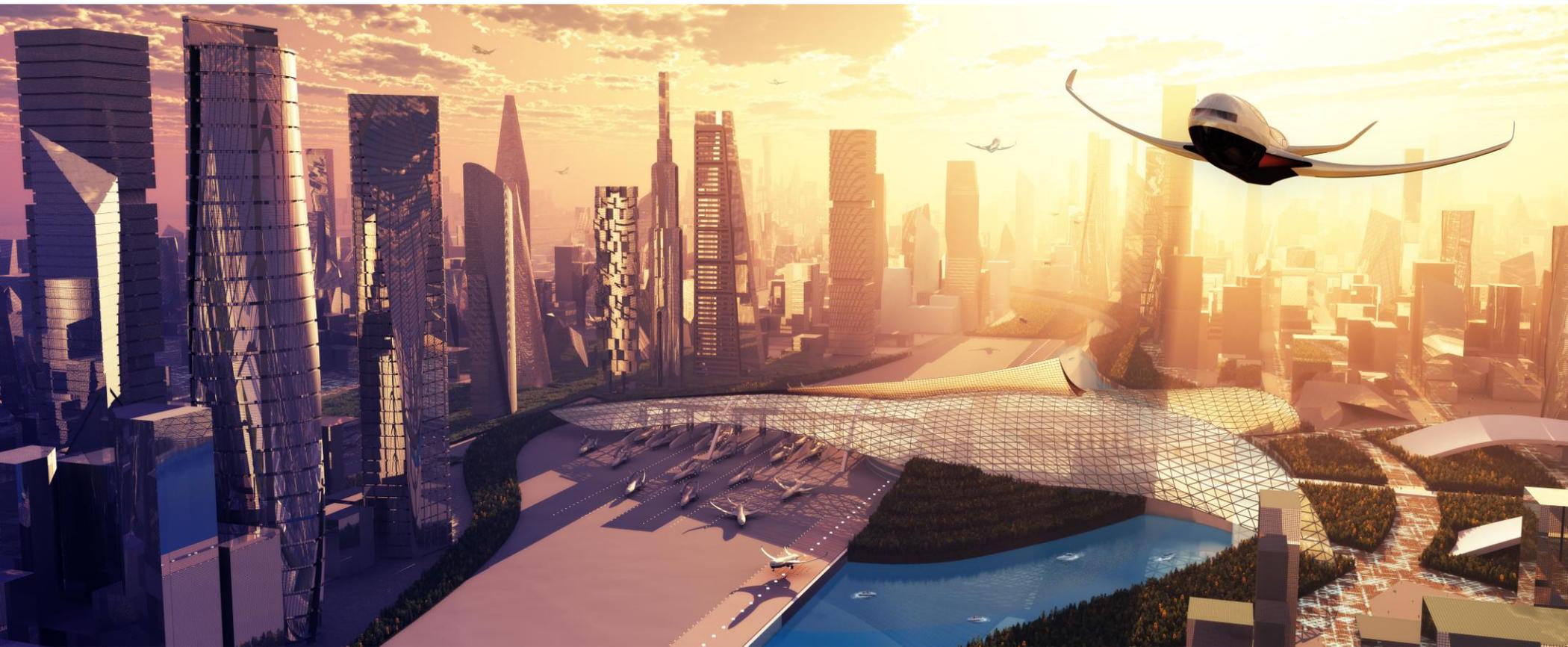


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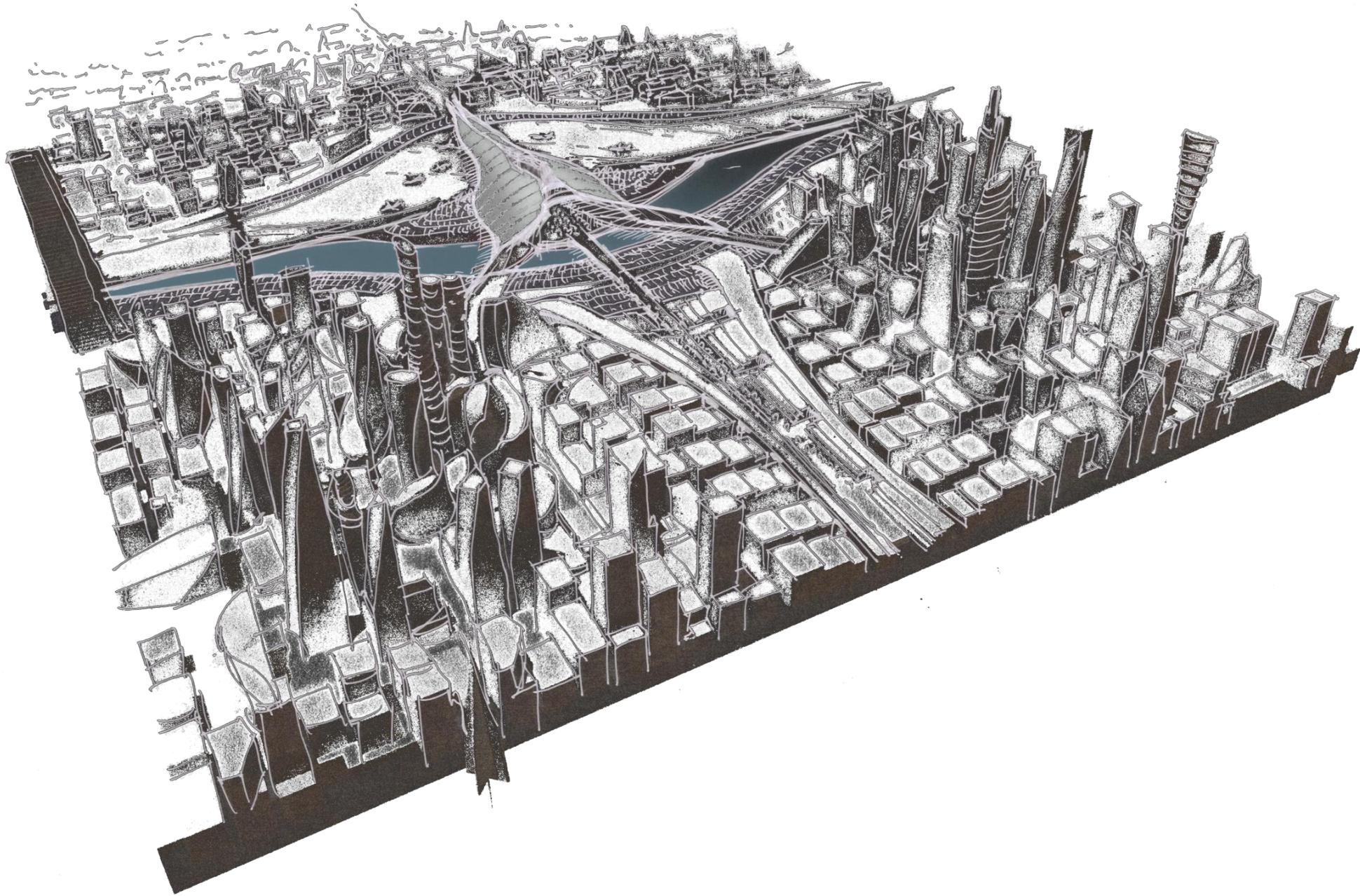
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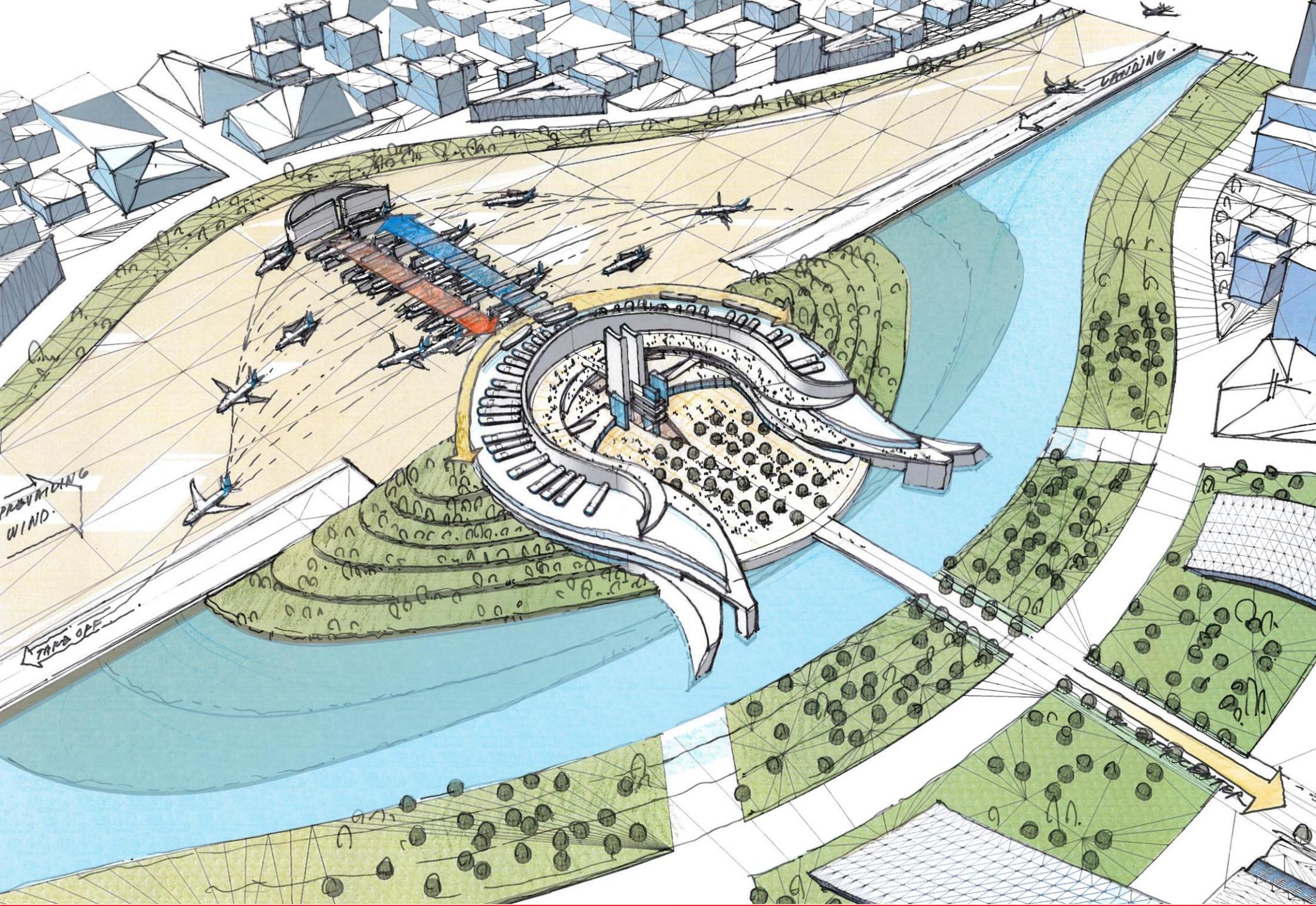
FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2062 Urban Airport



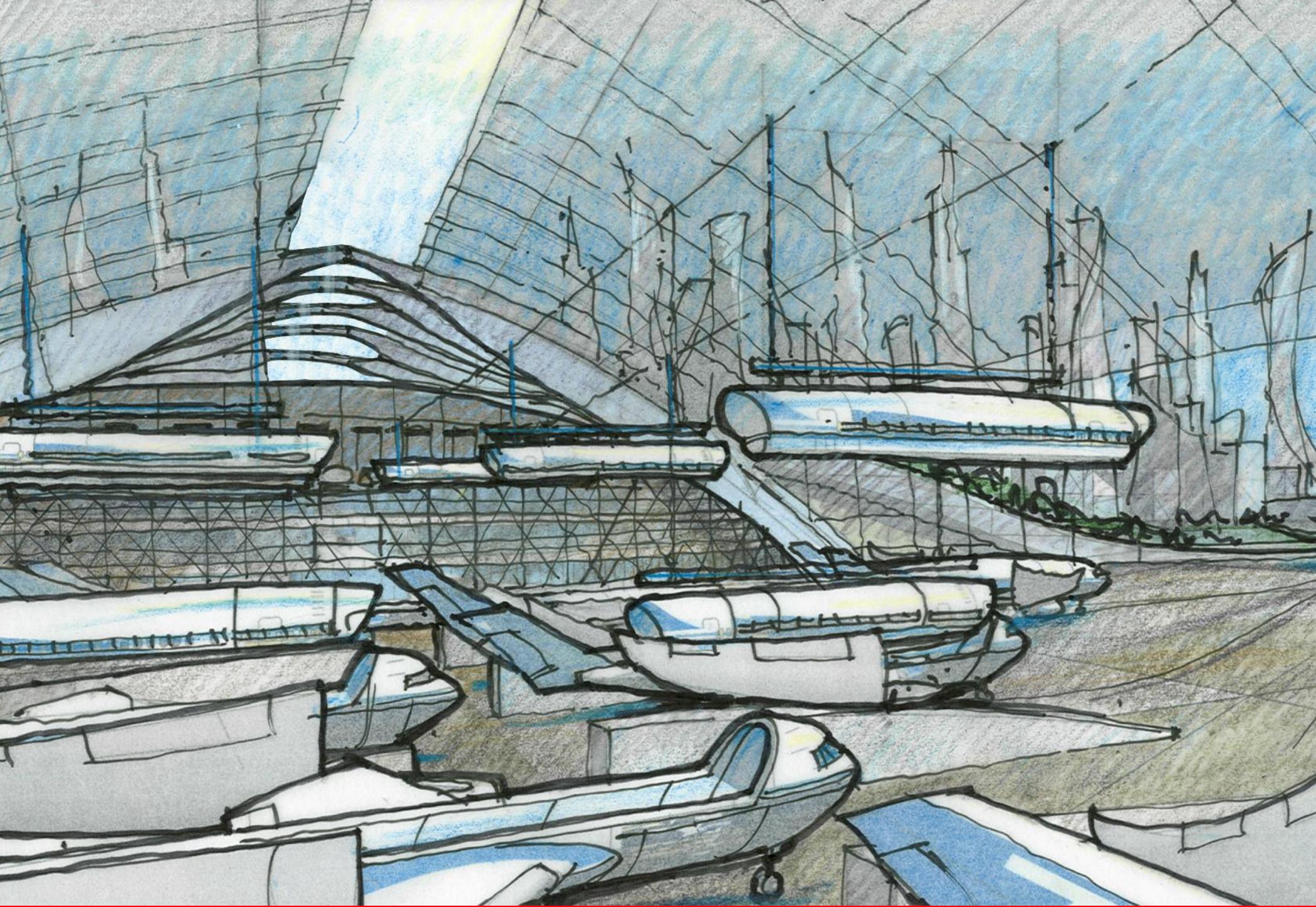
FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2062 Urban Airport



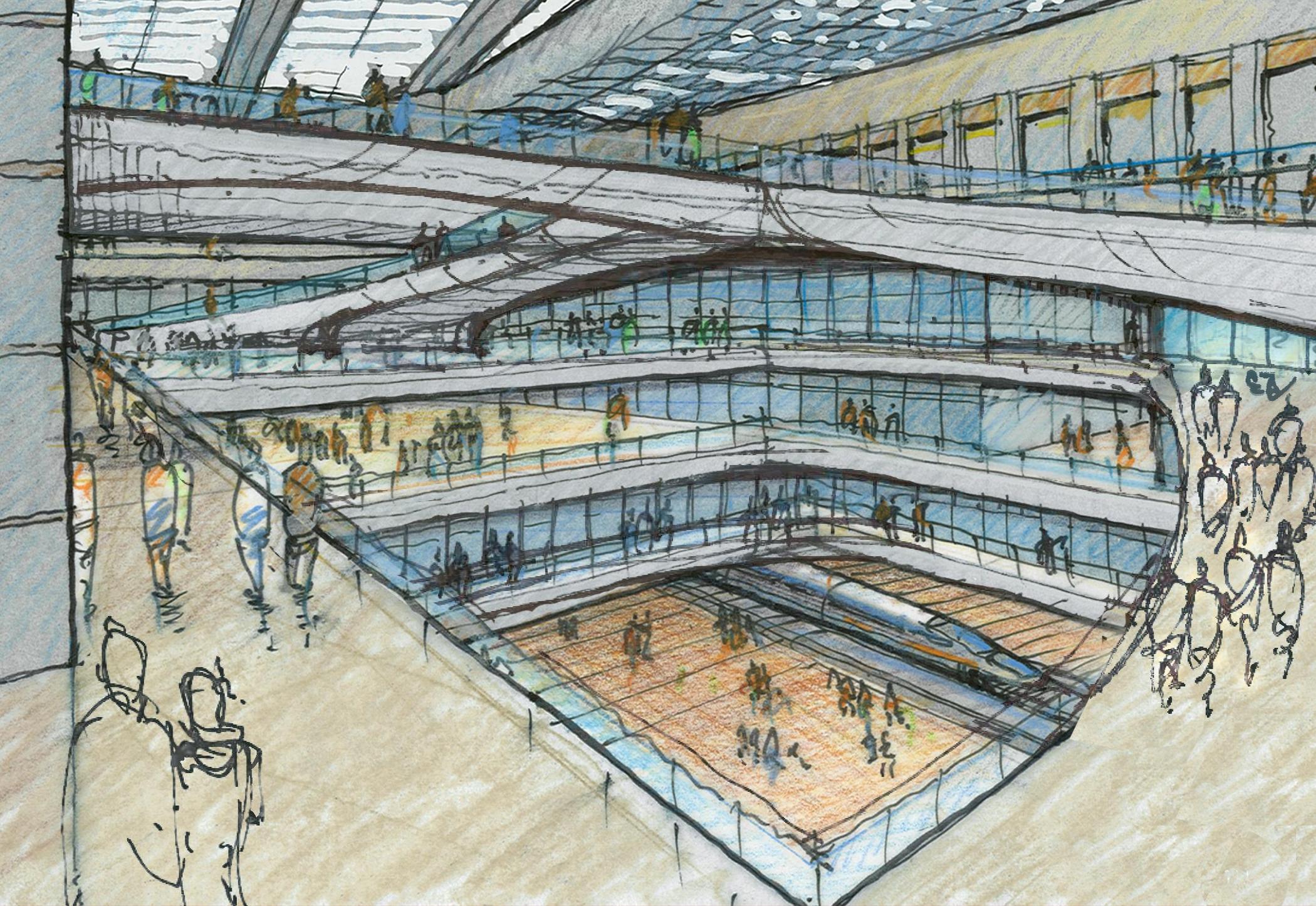
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2062 Urban Airport



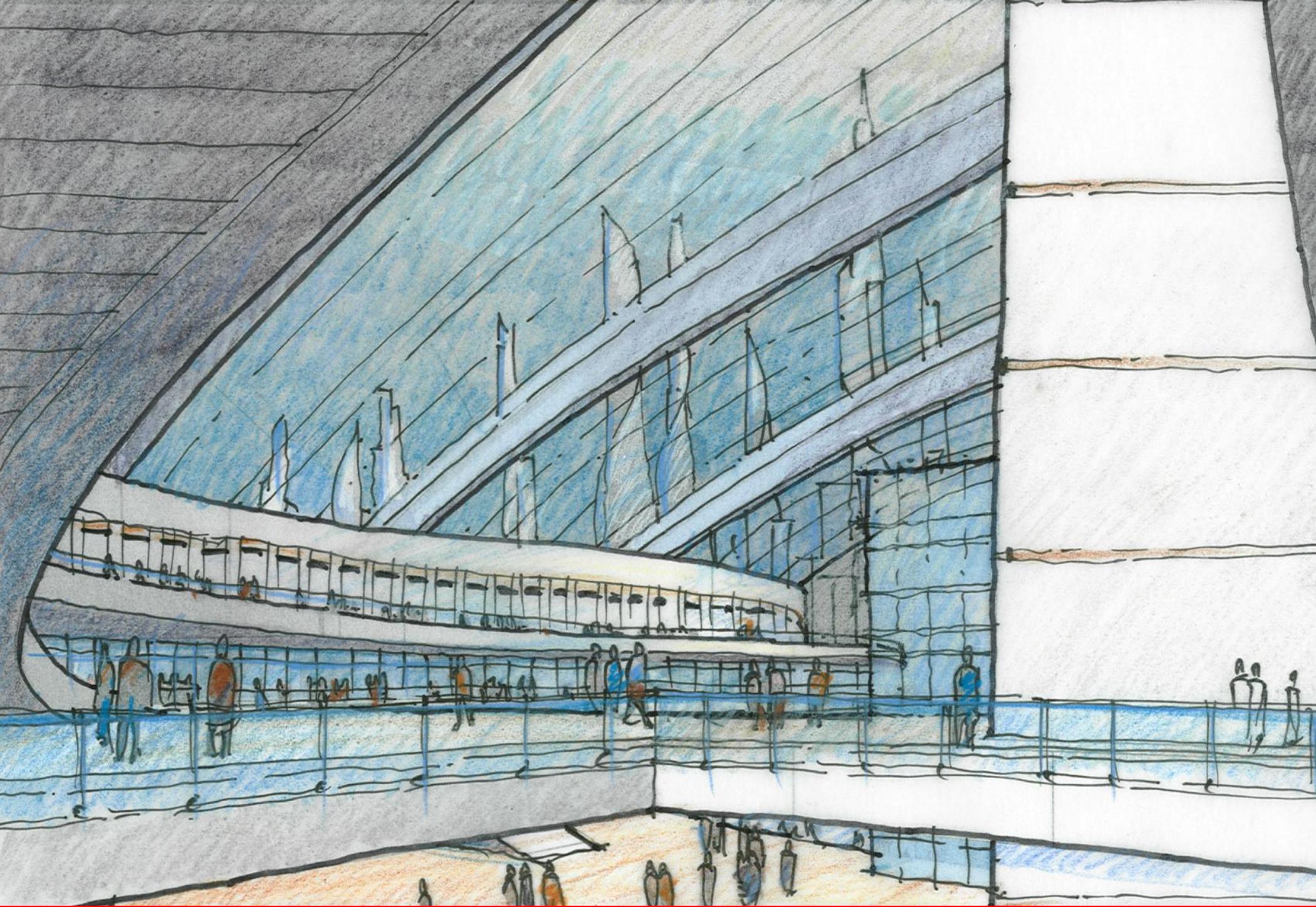
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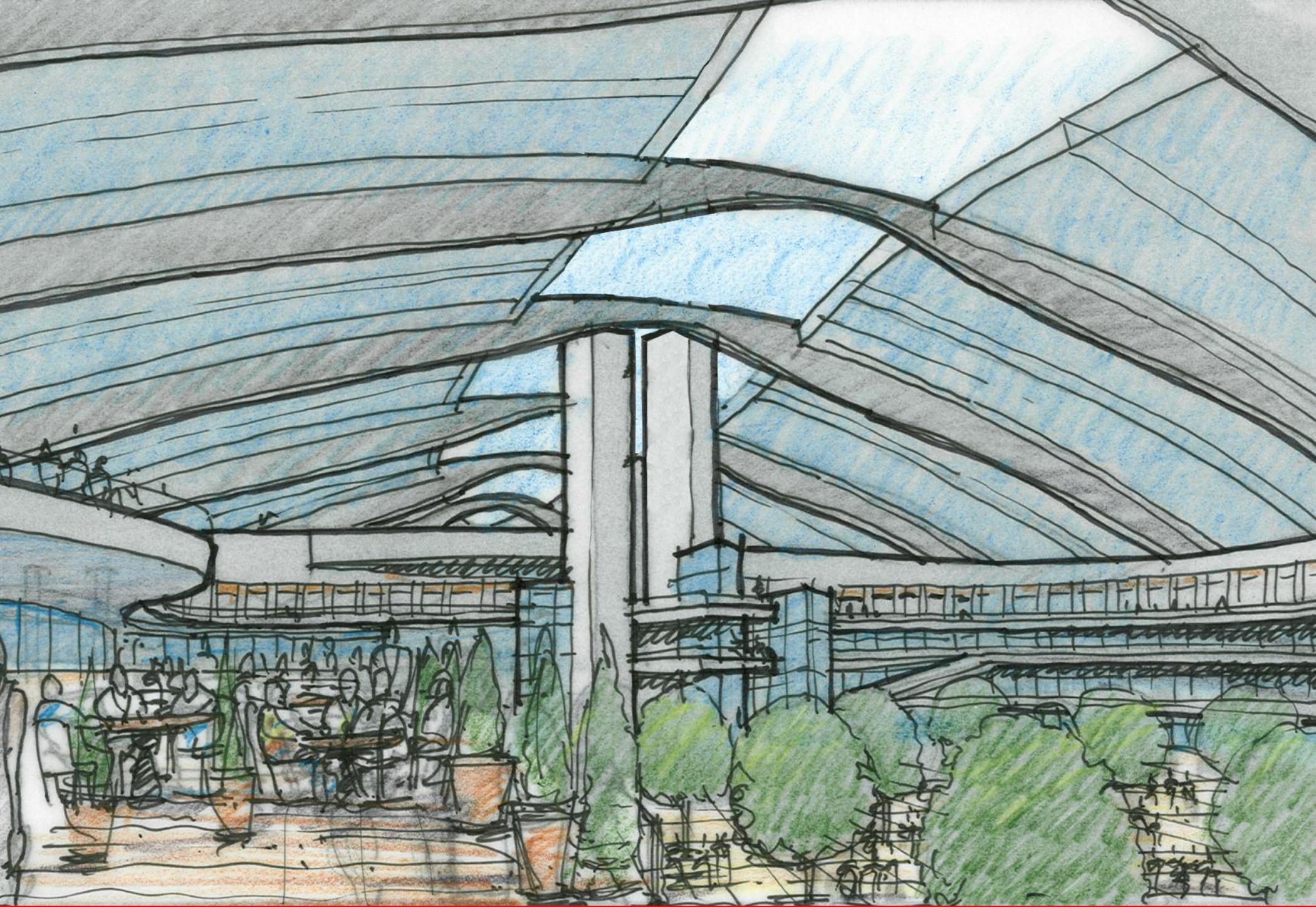
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2062 Urban Airport



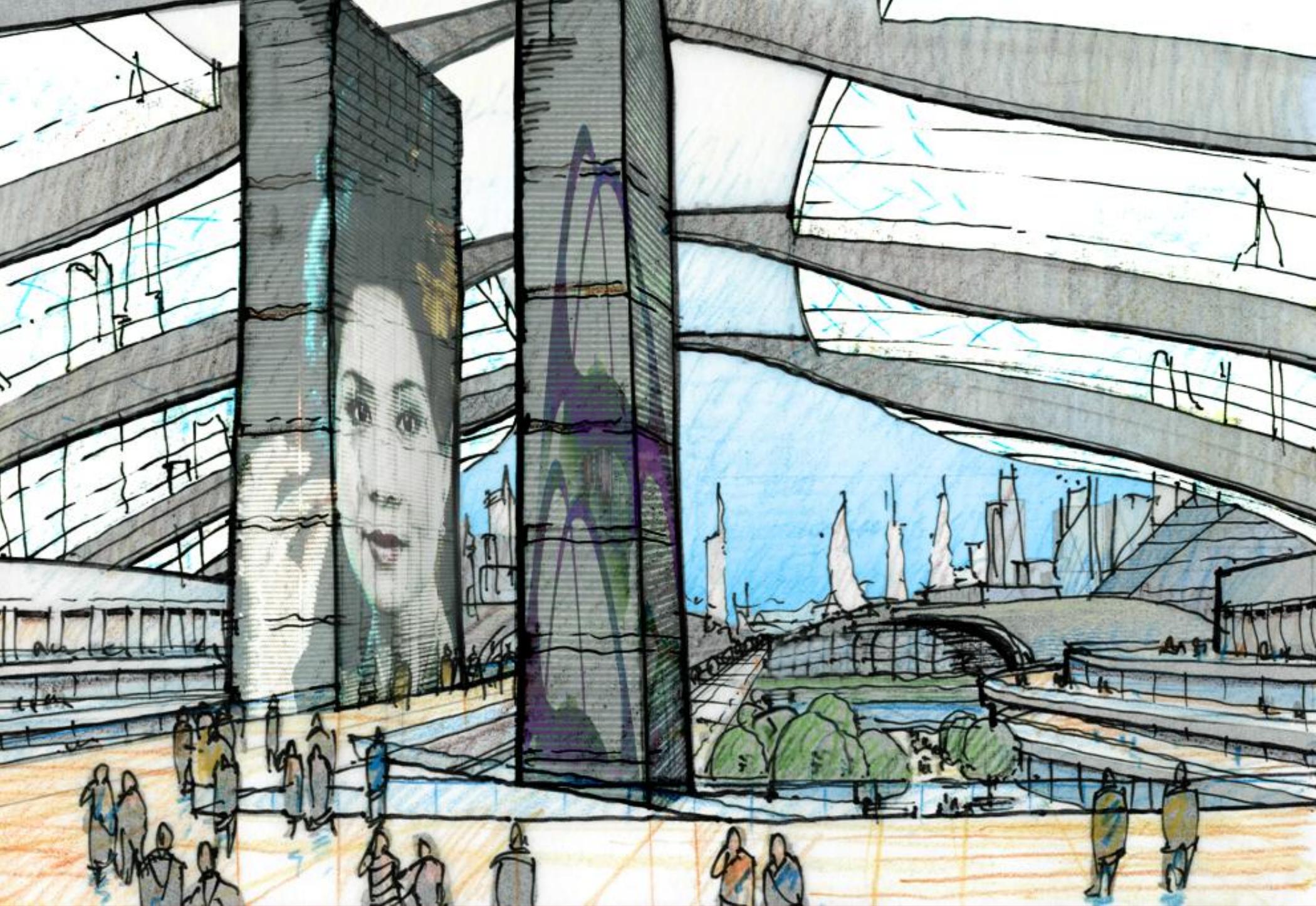
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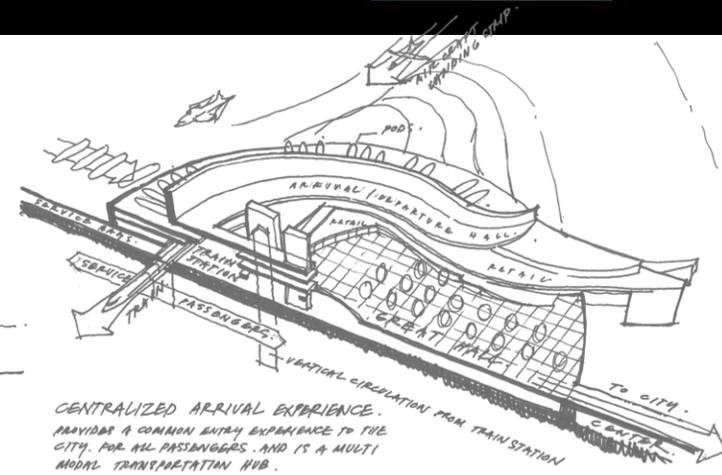
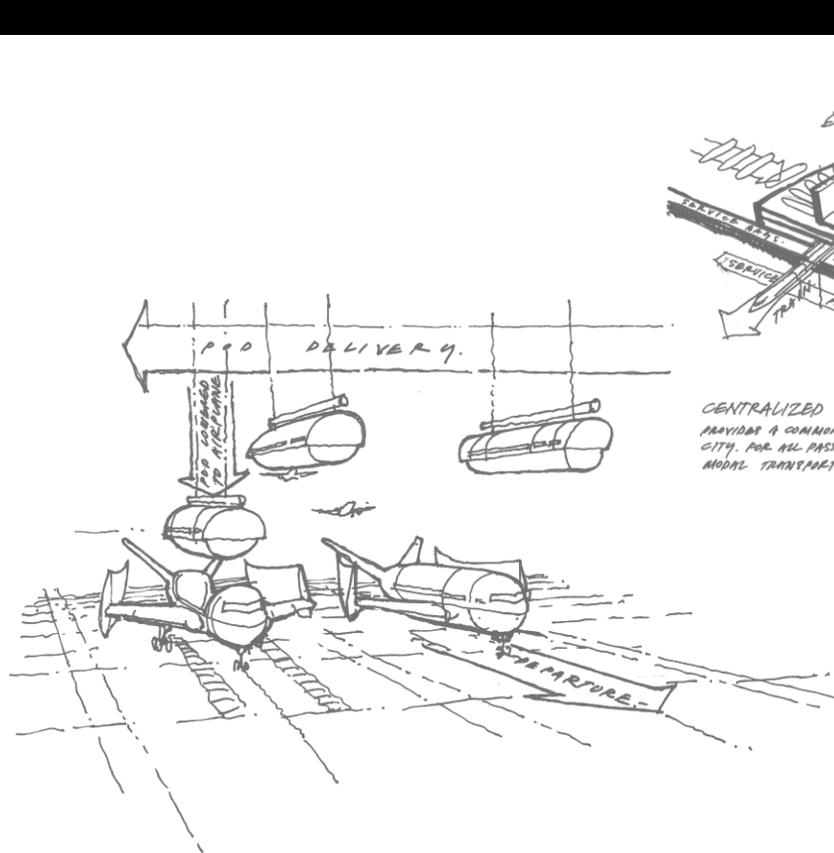
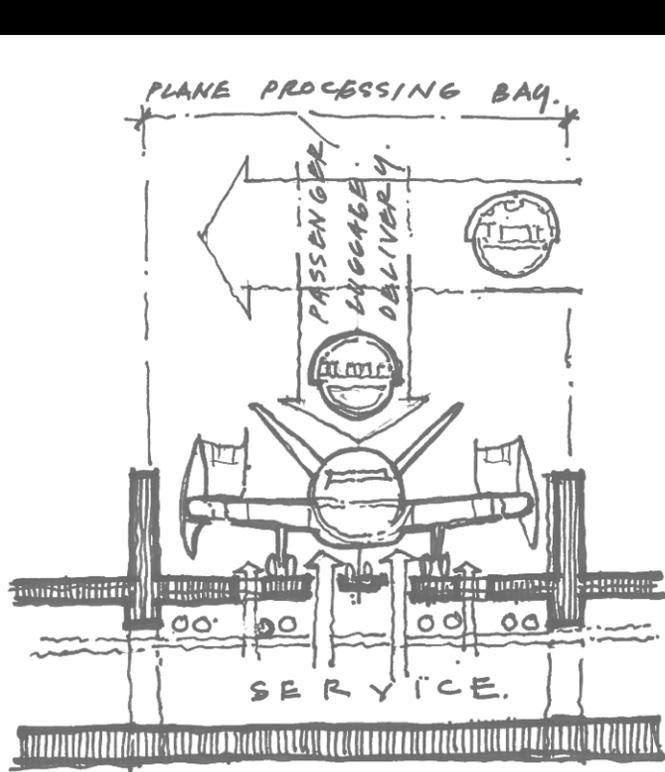
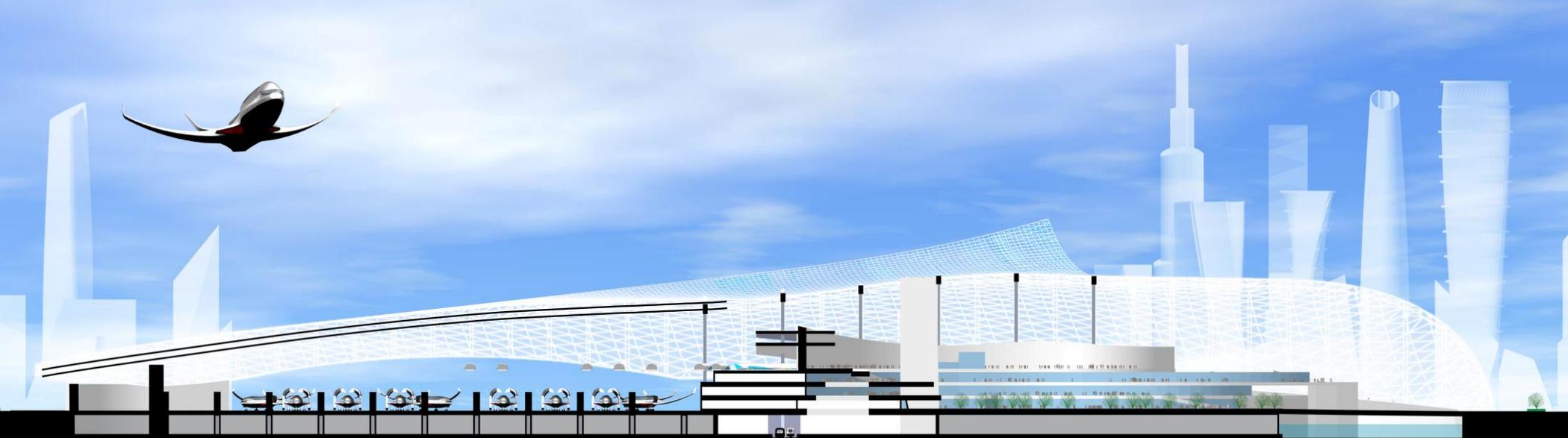
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2062 Urban Airport



FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2062 Urban Airport



CENTRALIZED ARRIVAL EXPERIENCE.
 PROVIDES A COMMON ENTRY EXPERIENCE TO THE
 CITY, FOR ALL PASSENGERS, AND IS A MULTI
 MODAL TRANSPORTATION HUB.

FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2062 Urban Airport

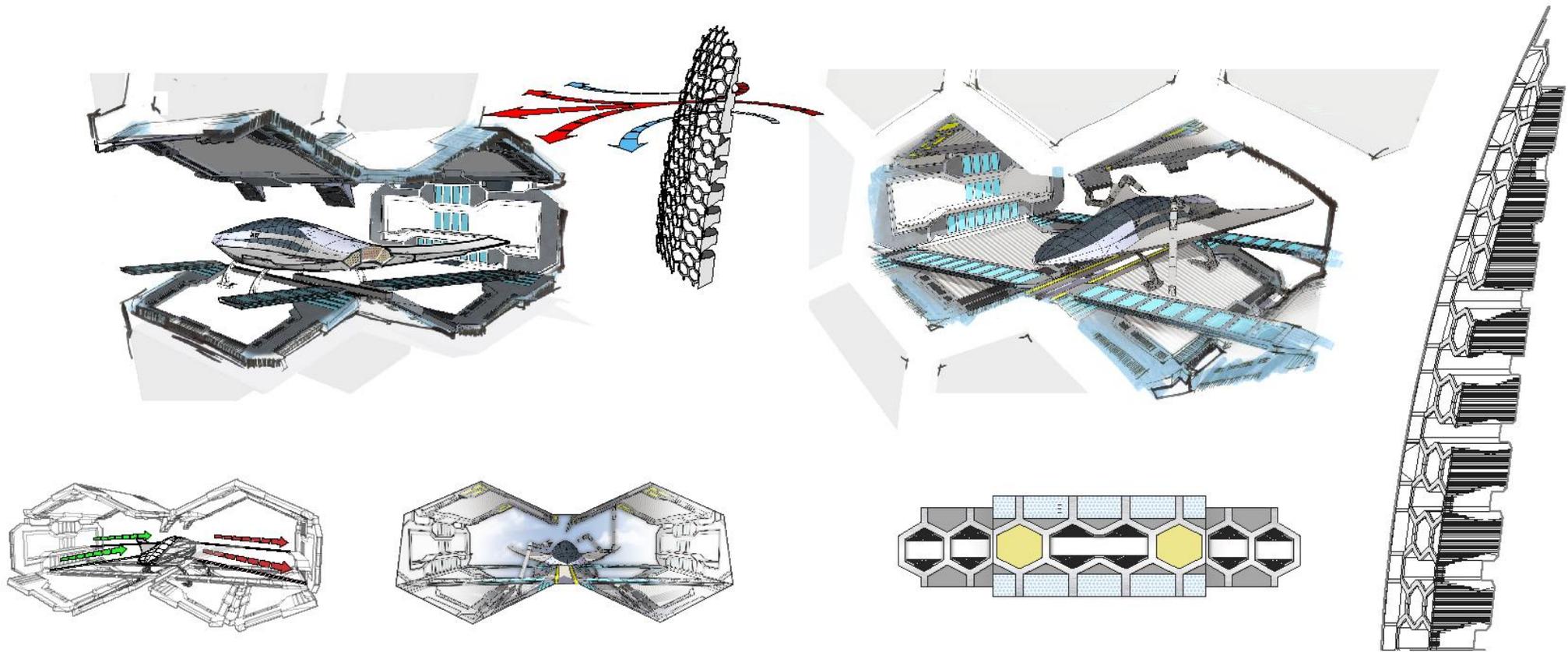


FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE
2162 Vertical Airport

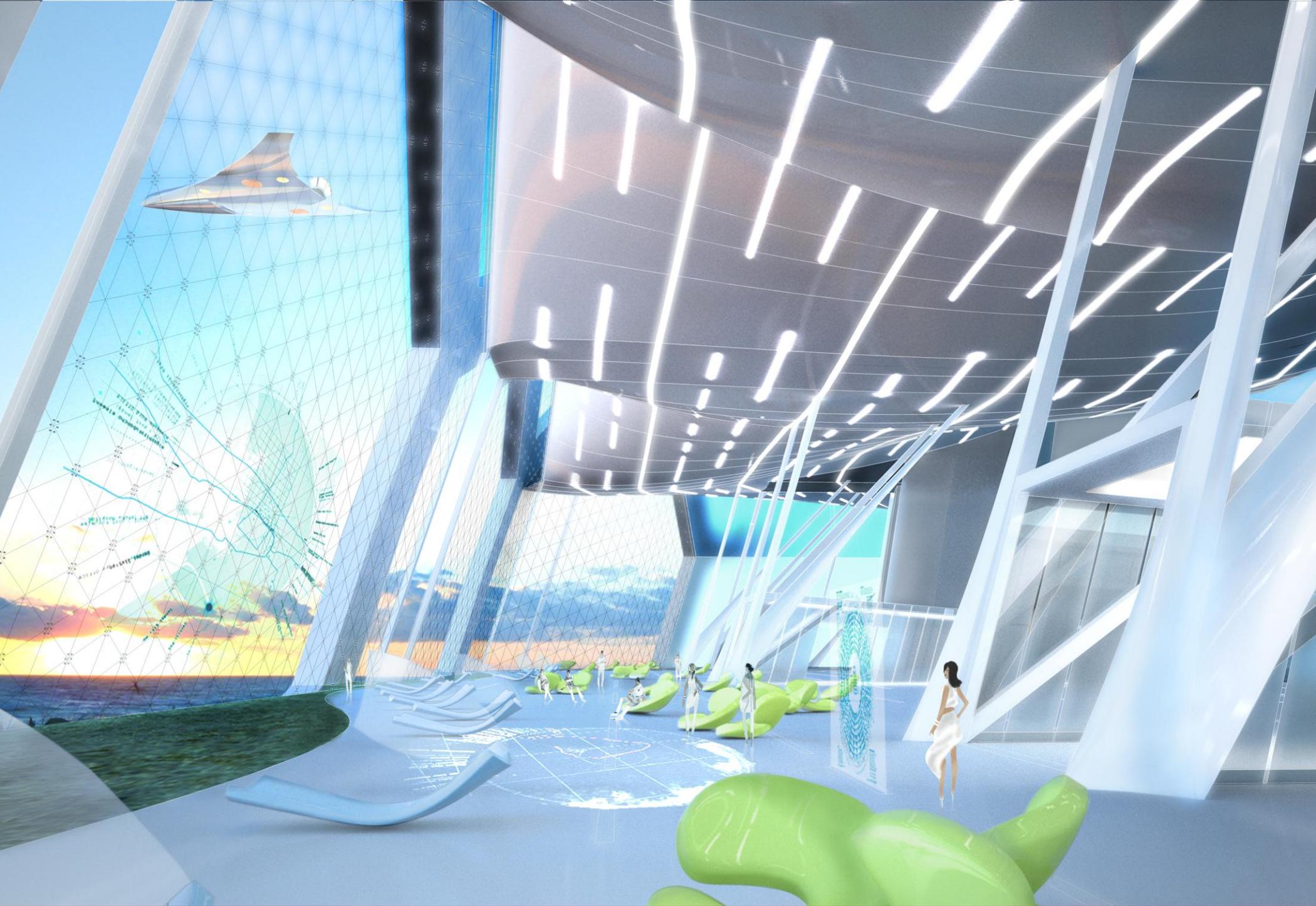


FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2162 Vertical Airport



FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE
2162 Vertical Airport



FENTRESS THINK TANK: THE AIRPORT OF THE FUTURE

2162 Vertical Airport



THANK YOU!
Questions?

AIA 2012

NATIONAL CONVENTION
AND DESIGN EXPOSITION

MAY 17-19

WALTER E. WASHINGTON
CONVENTION CENTER
WASHINGTON, D.C.



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INSTITUTE
OF ARCHITECTS

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Speaker

Curtis Fentress FAIA, RIBA

President + Principal-in-Charge of Design

Fentress Architects