TRANSPARENCY

OF ARCHITECTURE

"Buildings replace the land.
That is architecture's original sin."
-Aaron Betsky

THEORETICAL PREMISE

1. How can architecture be created to accentuate its surroundings, rather than itself?

2. How can architecture be created to protect the natural environment around it?

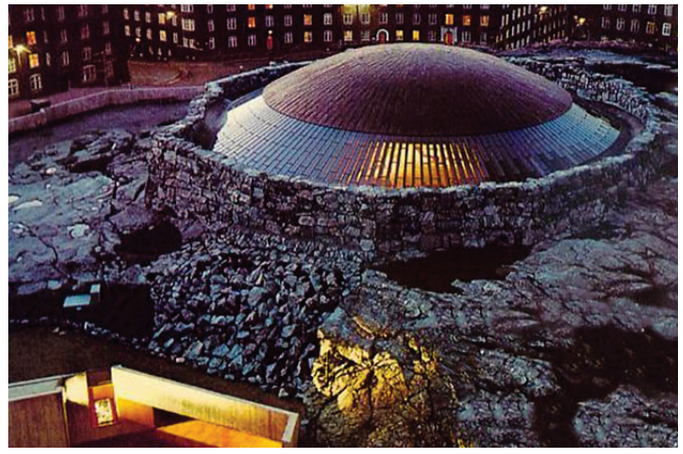
THEORETICAL RESEARCH

What is site integration?

THEORETICAL CASES

CHAPEL OF THE HOLY CROSS
Sedona, Arizona // 1955 // Anshen & Allen

KOLUMBA MUSEUM
Cologne, Germany // 2007 // Peter Zumthor



CHURCH OF THE ROCK
Helsinki, Sweden // 1969 // Timo & Tuomo Suomalainen

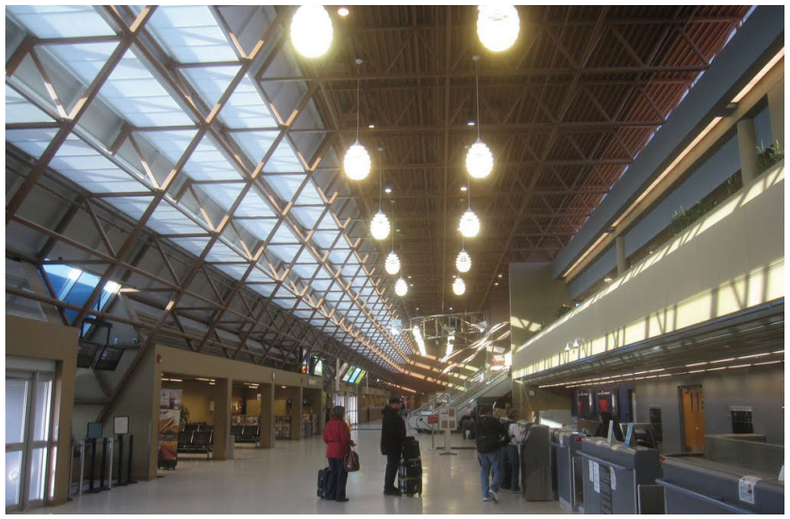
TYPOLOGY

WHY AN AIRPORT?

“Airports often have more in common with each other than with the cities they are meant to serve.”

TYPOLOGICAL CASES

LONDON STANSTED (STN)
London, UK // 1990 // Foster Associates



HECTOR INTERNATIONAL (FAR)
Fargo, ND // 1986 & 2008 // Foss Associates & TL Stroh

DENVER INTERNATIONAL (DIA)
Denver, CO // 1994 // Curtis W. Fentress

REQUIREMENTS

Land Form

1. The physical built structure of the building must be partially (at least 50%) burrowed into the land itself, or must use exterior materials natural to the environment or colors that blend to the site (70% of the exterior surface area).

2. Must maintain as many physical attributes of the site as possible. For example, the topography of the site (except for that underneath the structure) must remain exactly as it was before construction of the new structure. Essentially, from outside the building it should appear as though the construction of the structure has not changed its surrounding.

3. The building's interior should connect to the nature outside using glazing and appropriate interior finish colors and textures.

Micro-climate

1. The heat island effect should be avoided by using materials that reflect more sunlight and absorb less heat. Overall, it is best to use materials that absorb similar amounts of heat as the natural existing materials that are replaced with the building. The goal is to maintain the same amount of absorbed heat from before construction of the building.

2. Attempt to only minimally affect wind patterns and circulation of the site. Any built structure protruding from the land will inevitably affect wind, but it is important to do this as minimally as possible. Wind patterns can affect flora and fauna of the area, and also nearby sites.

3. Be conscious of the use of non-permeable surfaces, and wherever possible use permeable materials to allow rainwater to penetrate the land. Using more non-permeable surfaces than already exist on the site could affect the site's existing water table characteristics, which could in turn affect surrounding sites, flora and fauna.

Ecosystem

1. Any component taken away by the construction of a new building that is essential to animal life should be replaced or substituted to the same magnitude in which it existed previously to the building's existence.

2. Noise is a major deterrent to fauna. Any components of the building design that will cause more noise than what existed previously should be masked or remedied. Some strategies include vegetative buffers, or just simply using a different material or system to eliminate the problem.

3. Attention should be paid to the attraction of unwanted fauna or flora. If they did not exist on the site before, a new building should not be the reason they are there after.

4. Maintain as much of the existing flora as possible. Trees are homes to many animals, affect wind patterns and also provide protection from sunlight and the heat island effect. Also, flowering plants are important to the survival of many insects.

5. It is also important for designers to take responsibility for effects that happen on a larger scale. The amount of carbon released into the atmosphere by human interference is astronomical. A building design should include innovative solutions that work to minimize or eliminate the release of carbon into the atmosphere, but only in situations where humans are the main cause.

REQUIREMENTS
LAND FORM

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REQUIREMENTS
MICRO-CLIMATE

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REQUIREMENTS
ECOSYSTEM

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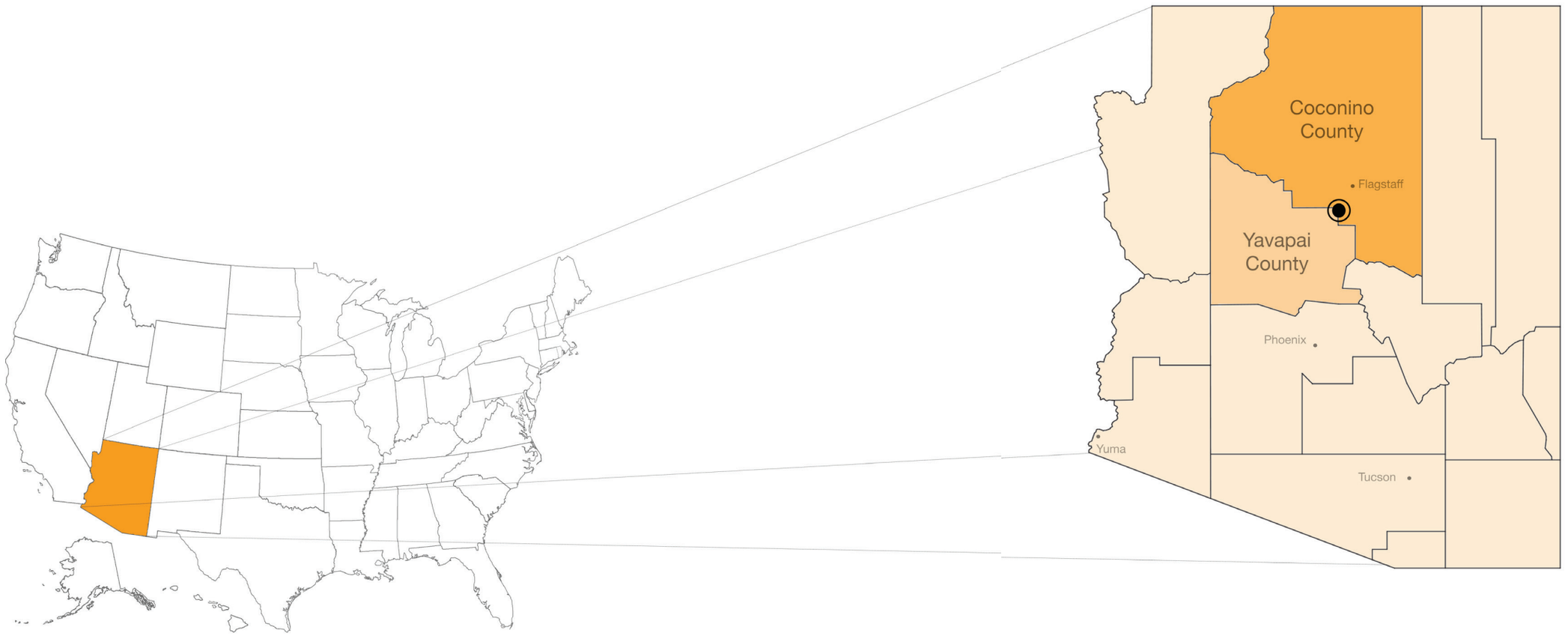
SITE


Coconino
County
Flagstaff
Yavapai
County
Phoenix
Yuma
Tucson

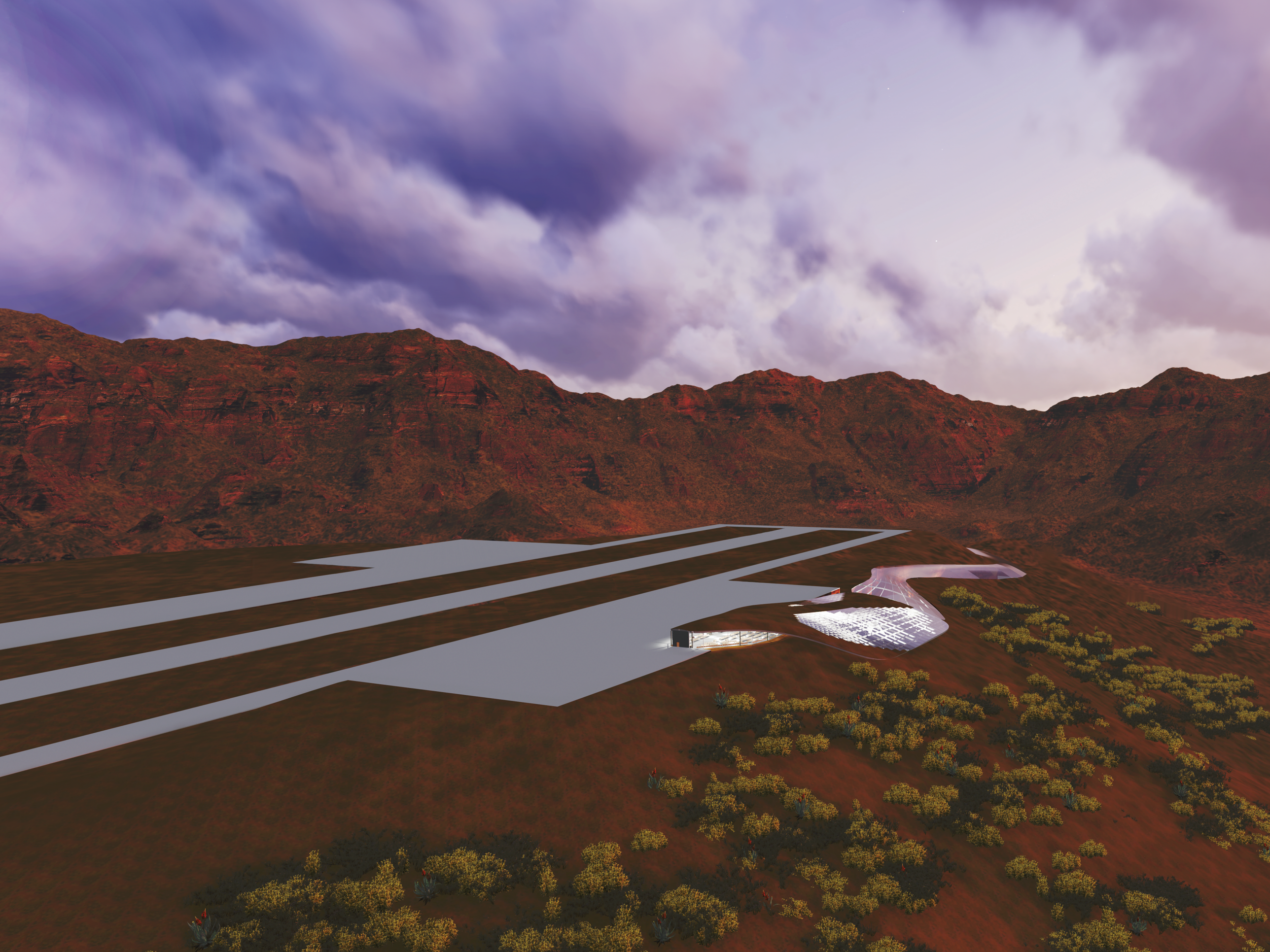
PARKING

In order to preserve the integrity of the site, the decision was made to distribute the impact of constuction by placing an underground parking structure at the base of the butte and providing a shuttle service to the terminal. The parking requirements for a facility of this size are very large, and better suited for a site at the bottom of the butte that has been already developed.

N

SITE PLAN

0 250 500 1000



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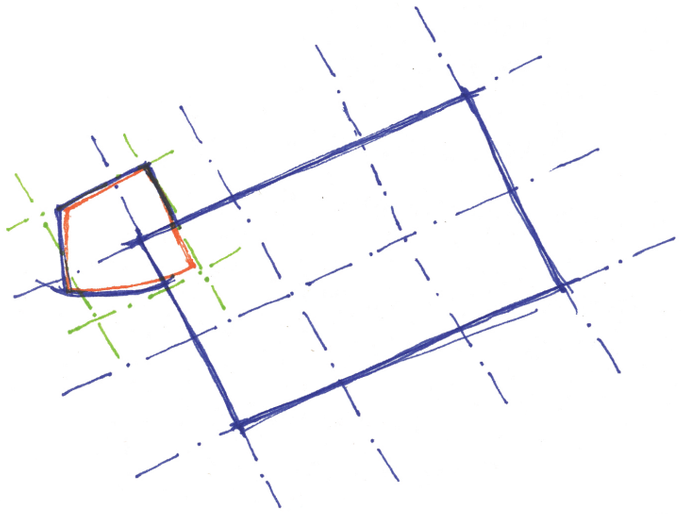

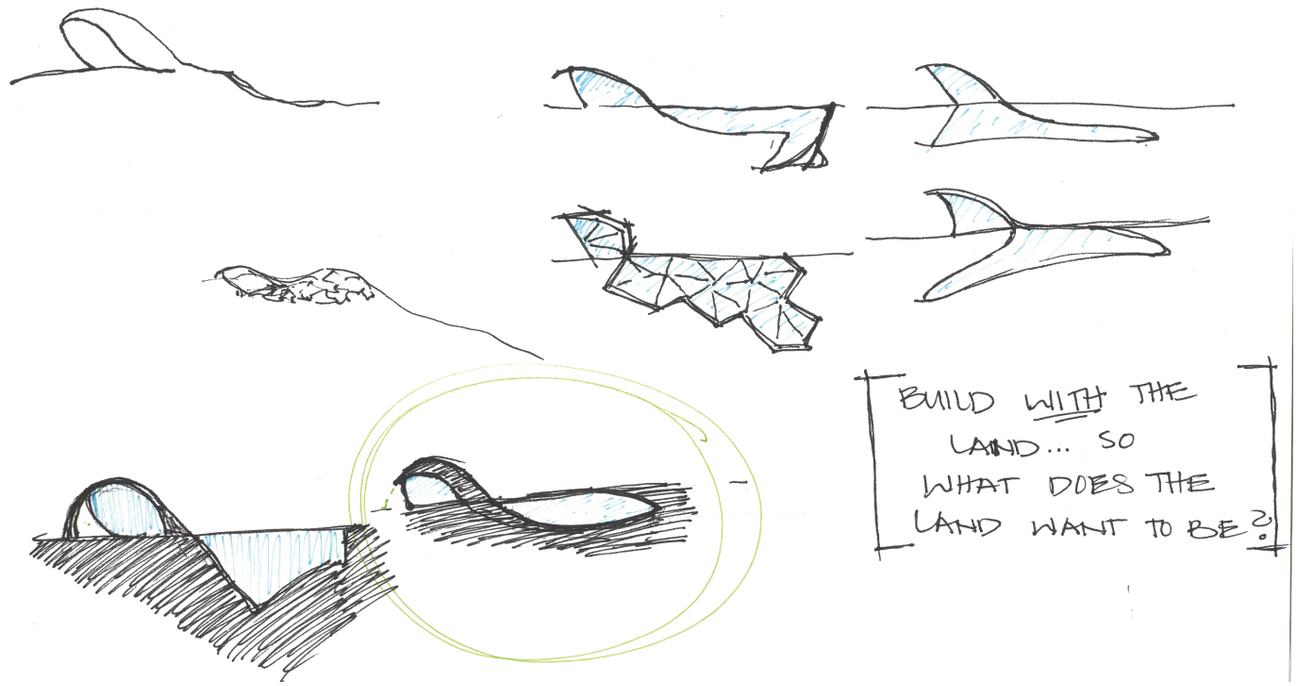

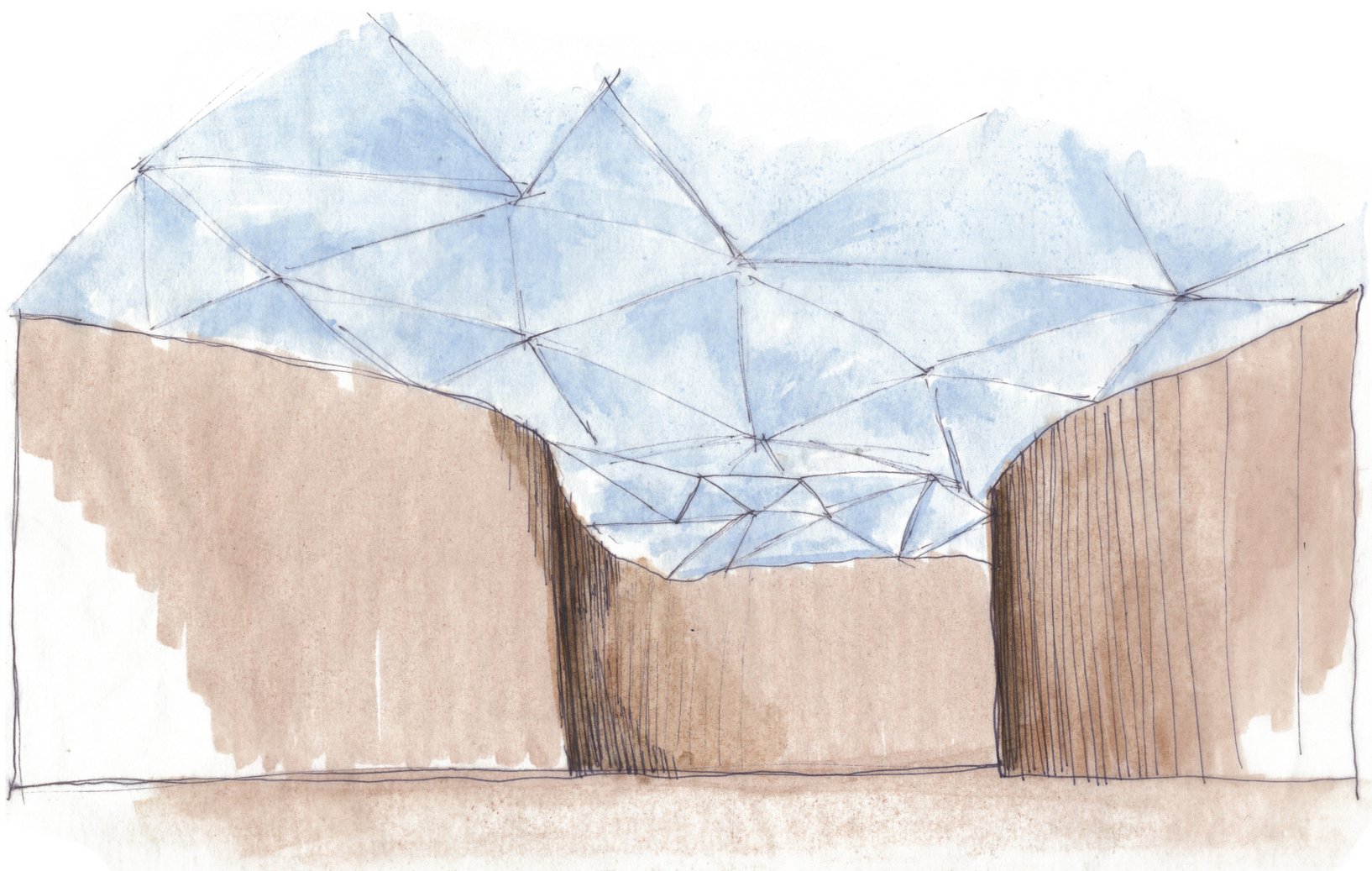

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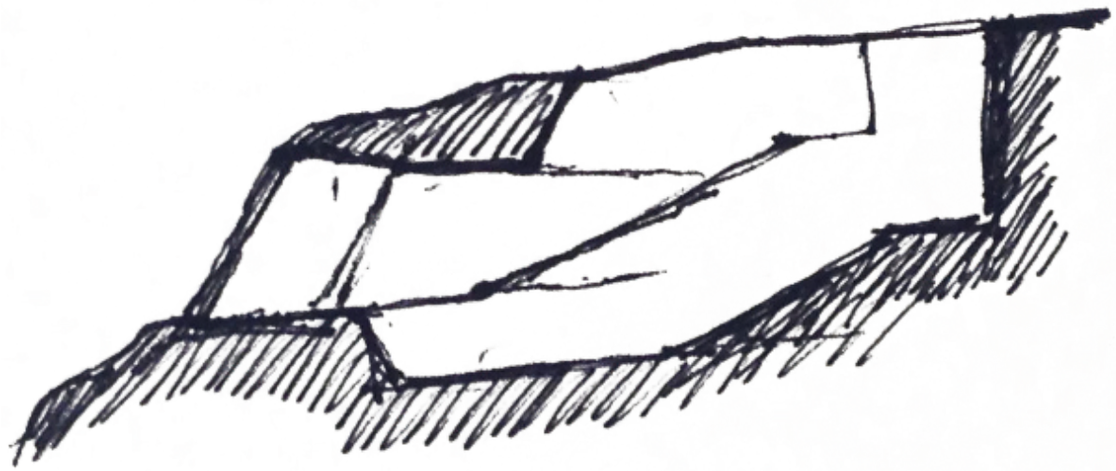
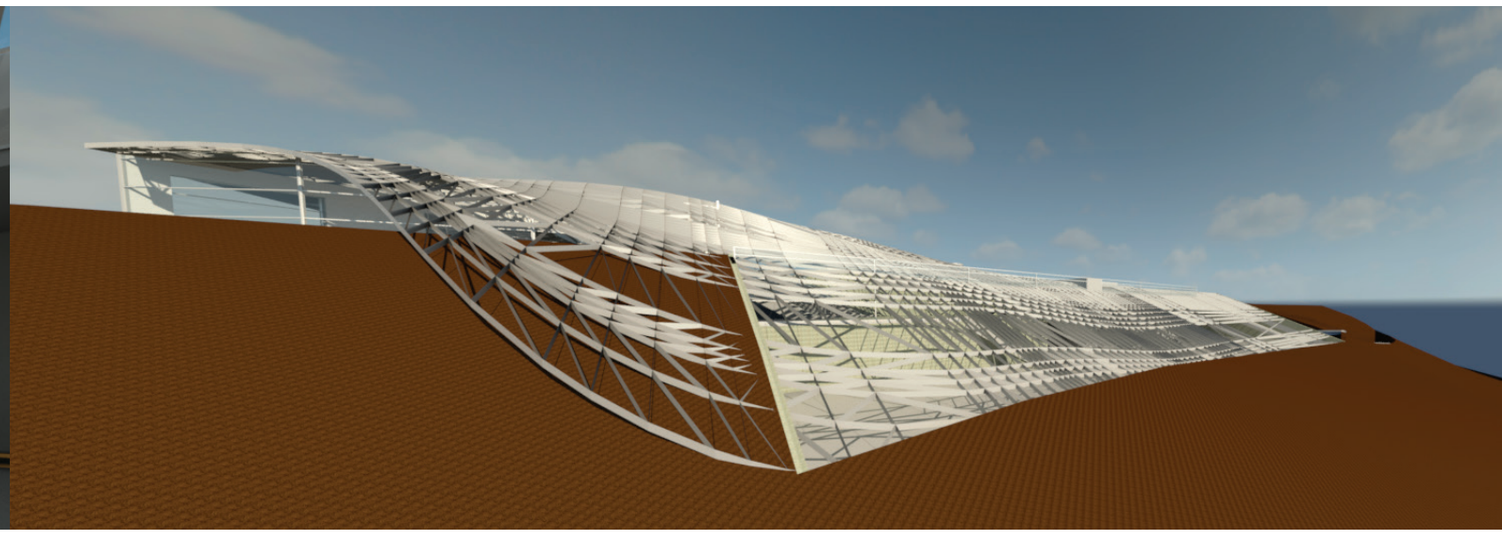
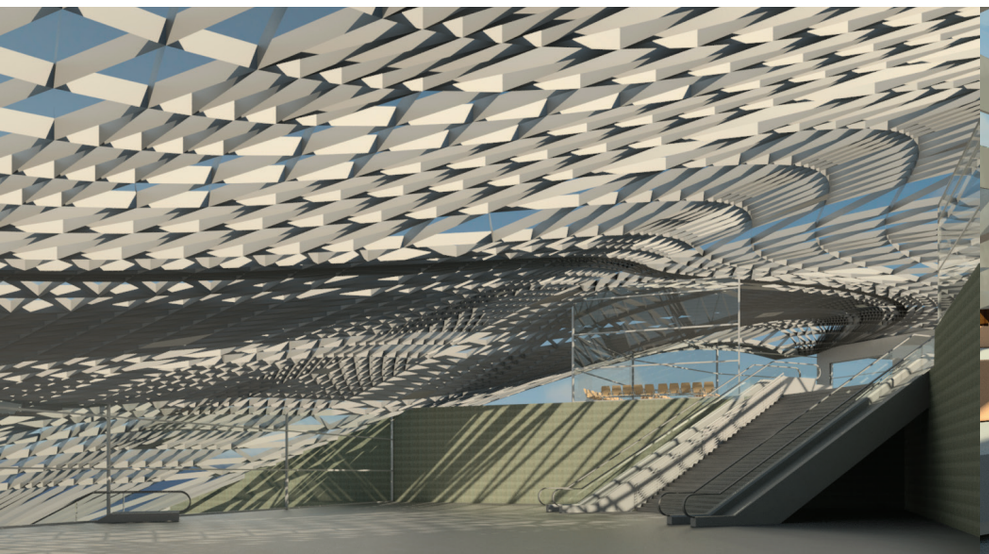
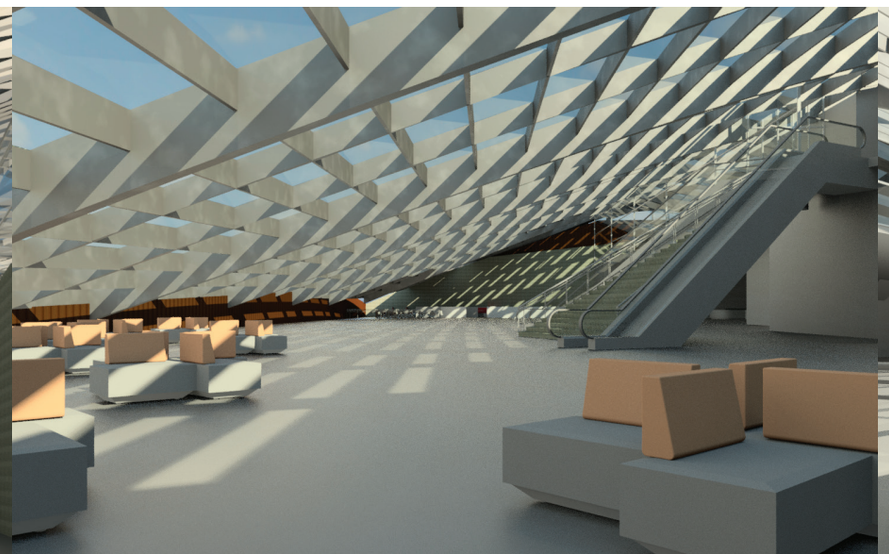
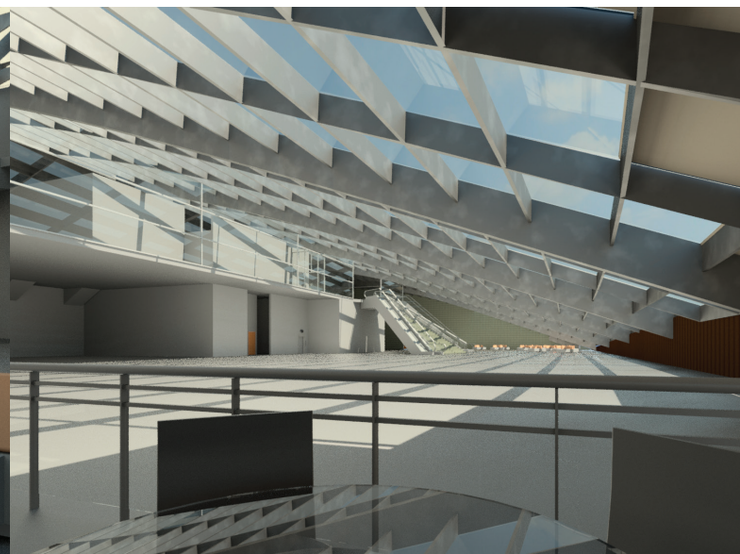


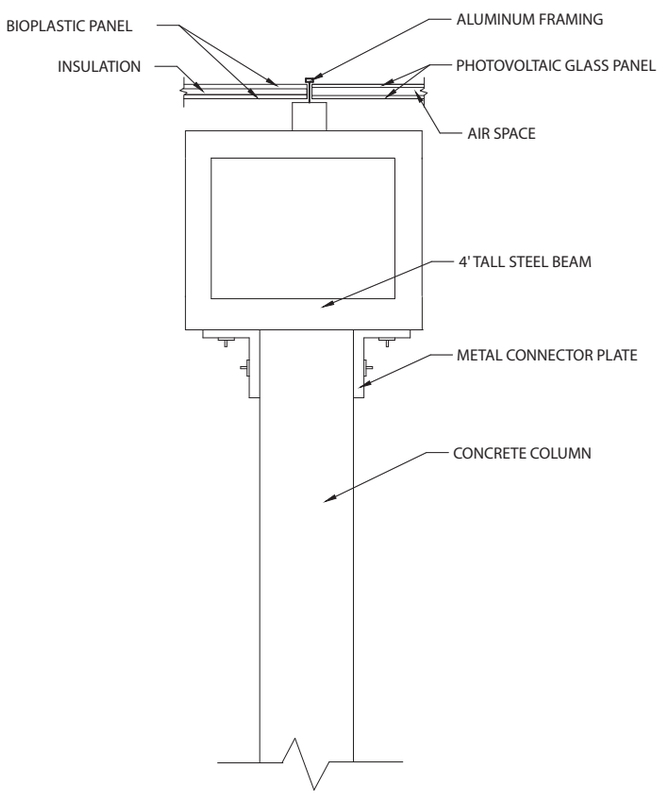


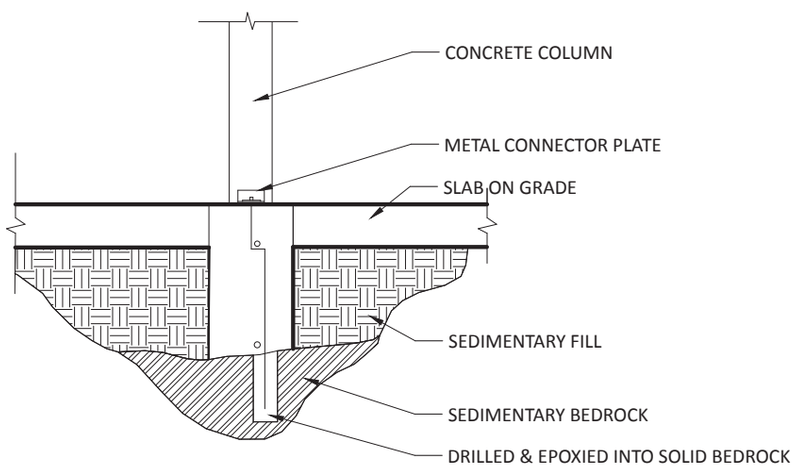


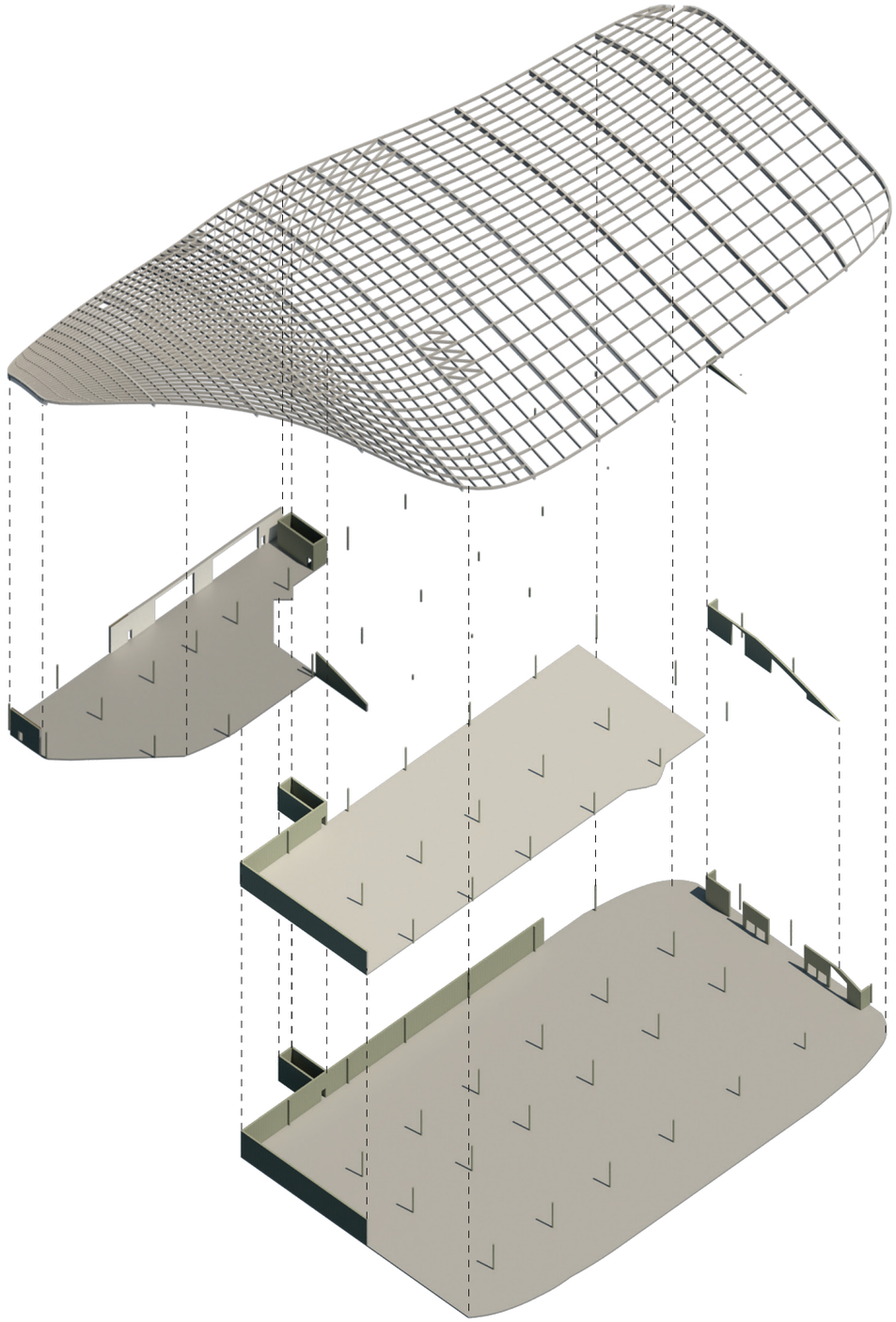




STRUCTURE


BIOPLASTIC PANEL
INSULATION
ALUMINUM FRAMING
PHOTOVOLTAIC GLASS PANEL
AIR SPACE
4' TALL STEEL BEAM
METAL CONNECTOR PLATE
CONCRETE COLUMN


CONCRETE COLUMN
METAL CONNECTOR PLATE
SLAB ON GRADE
SEDIMENTARY FILL
SEDIMENTARY BEDROCK
DRILLED & EPOXIED INTO SOLID BEDROCK

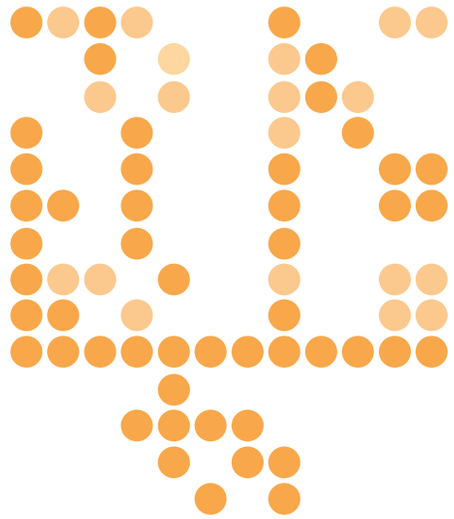


PROGRAM

MAJOR PROJECT ELEMENTS

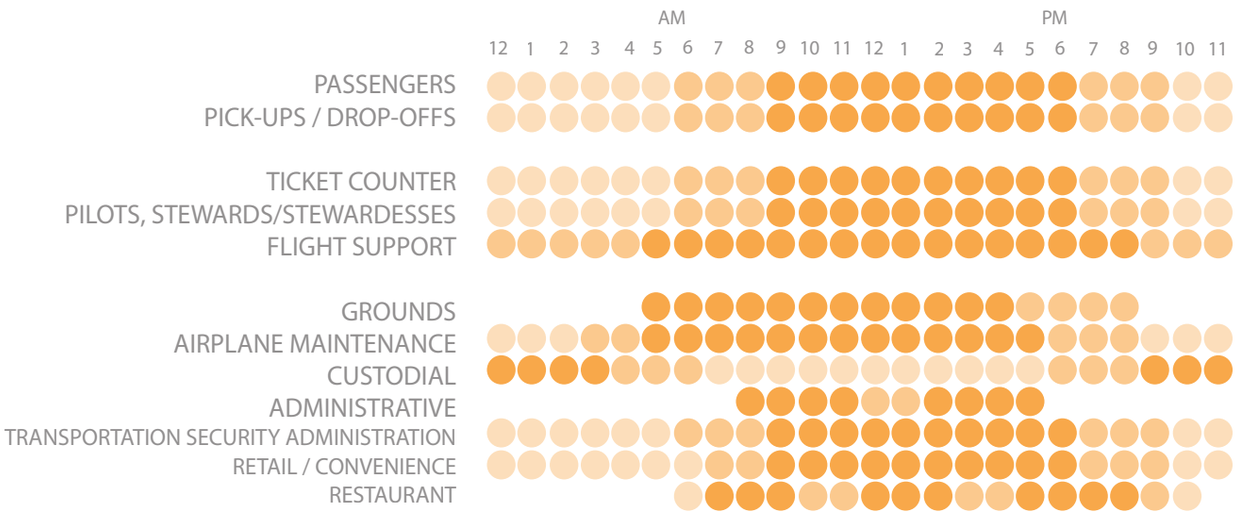
PASSENGERS
PICK-UPS / DROP-OFFS
TICKET COUNTER
PILOTS, STEWARDS/STEWARDESSES
FLIGHT SUPPORT
GROUNDS
AIRPLANE MAINTENANCE
CUSTODIAL
ADMINISTRATIVE
TRANSPORTATION SECURITY ADMINISTRATION
RETAIL / CONVENIENCE
RESTAURANT

LOBBY
AIRLINE STAFF OFFICES
CONFERENCE ROOMS
SECURITY CHECKPOINT
GATE WAITING AREAS
RETAIL / RESTAURANT
WIDE CIRCULATION CORRIDORS
BAGGAGE CLAIM
PICK-UP / DROP-OFF AREA
PARKING
BAGGAGE PROCESSING / LOADING
TARMAC
AIRCRAFT MAINTENANCE SPACES
CUSTODIAL ROOMS



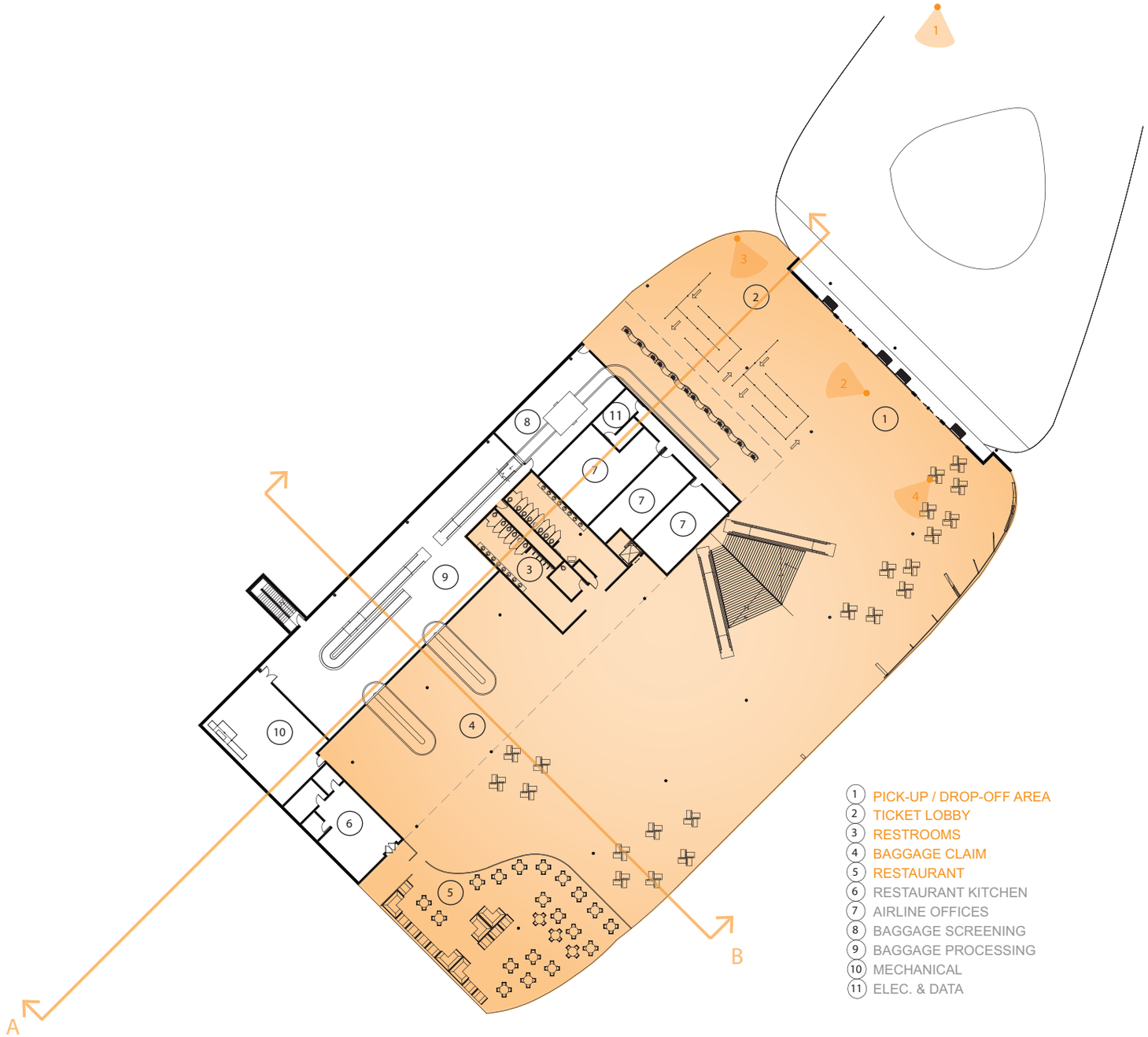
PROGRAM

USERS/CLIENTS

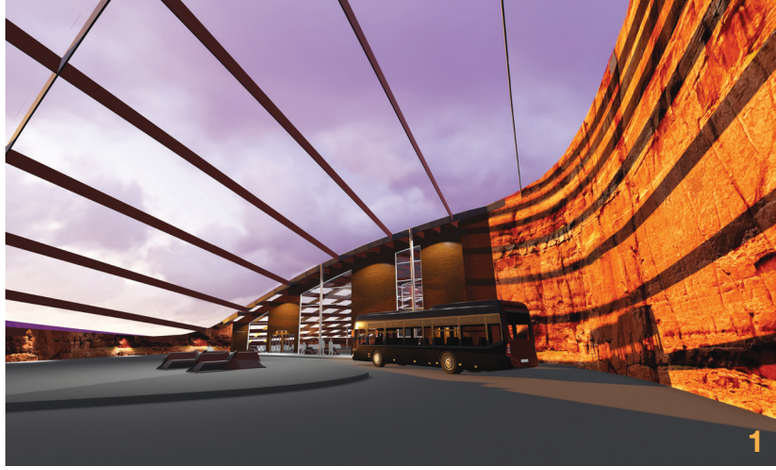


PROGRAM
FIRST FLOOR

2 FLOORS BELOW GRADE

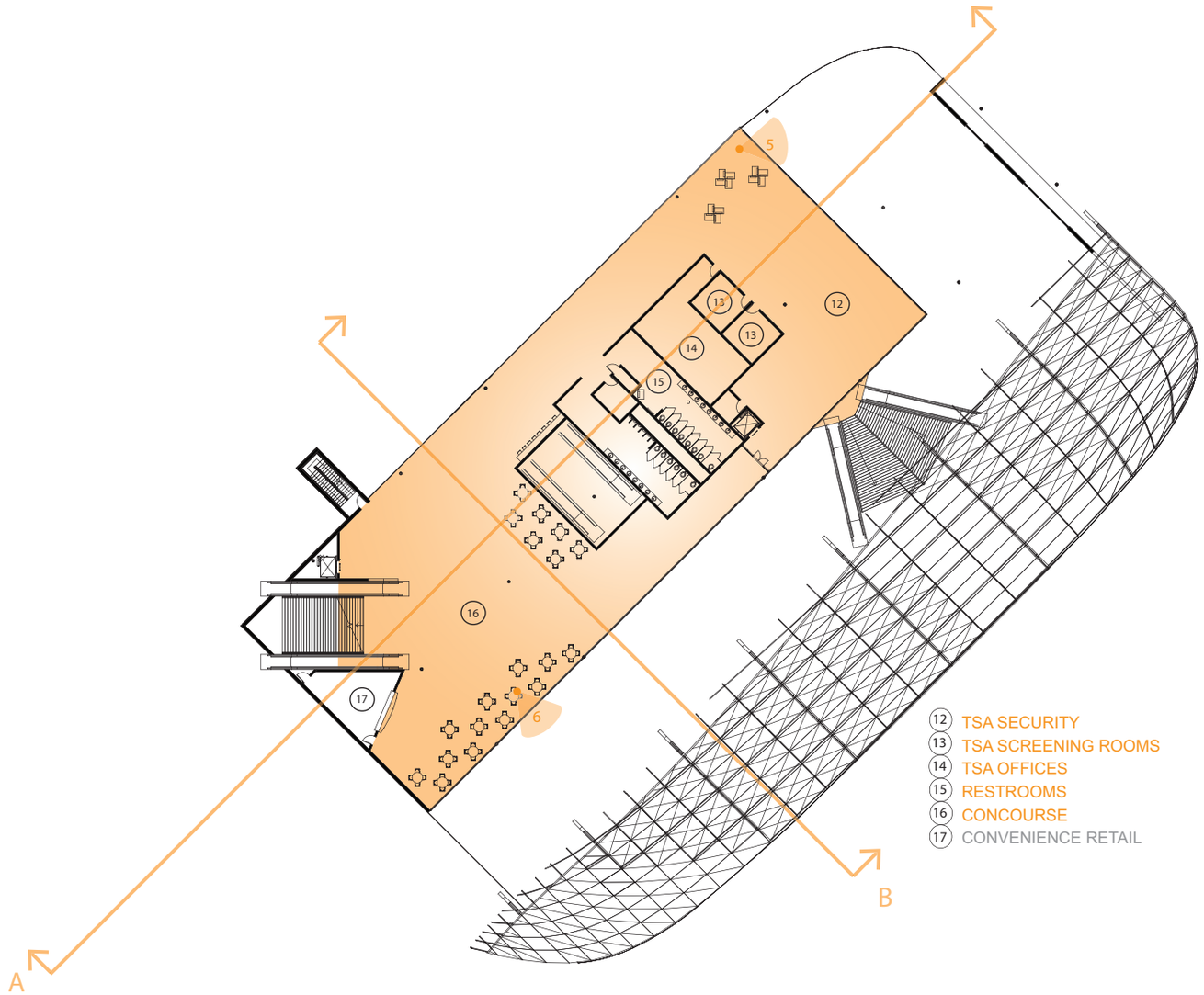


1. PICK-UP / DROP-OFF AREA
2. TICKET LOBBY
3. RESTROOMS
4. BAGGAGE CLAIM
5. RESTAURANT
6. RESTAURANT KITCHEN
7. AIRLINE OFFICES
8. BAGGAGE SCREENING
9. BAGGAGE PROCESSING
10. MECHANICAL
11. ELEC. & DATA



PROGRAM
SECOND FLOOR

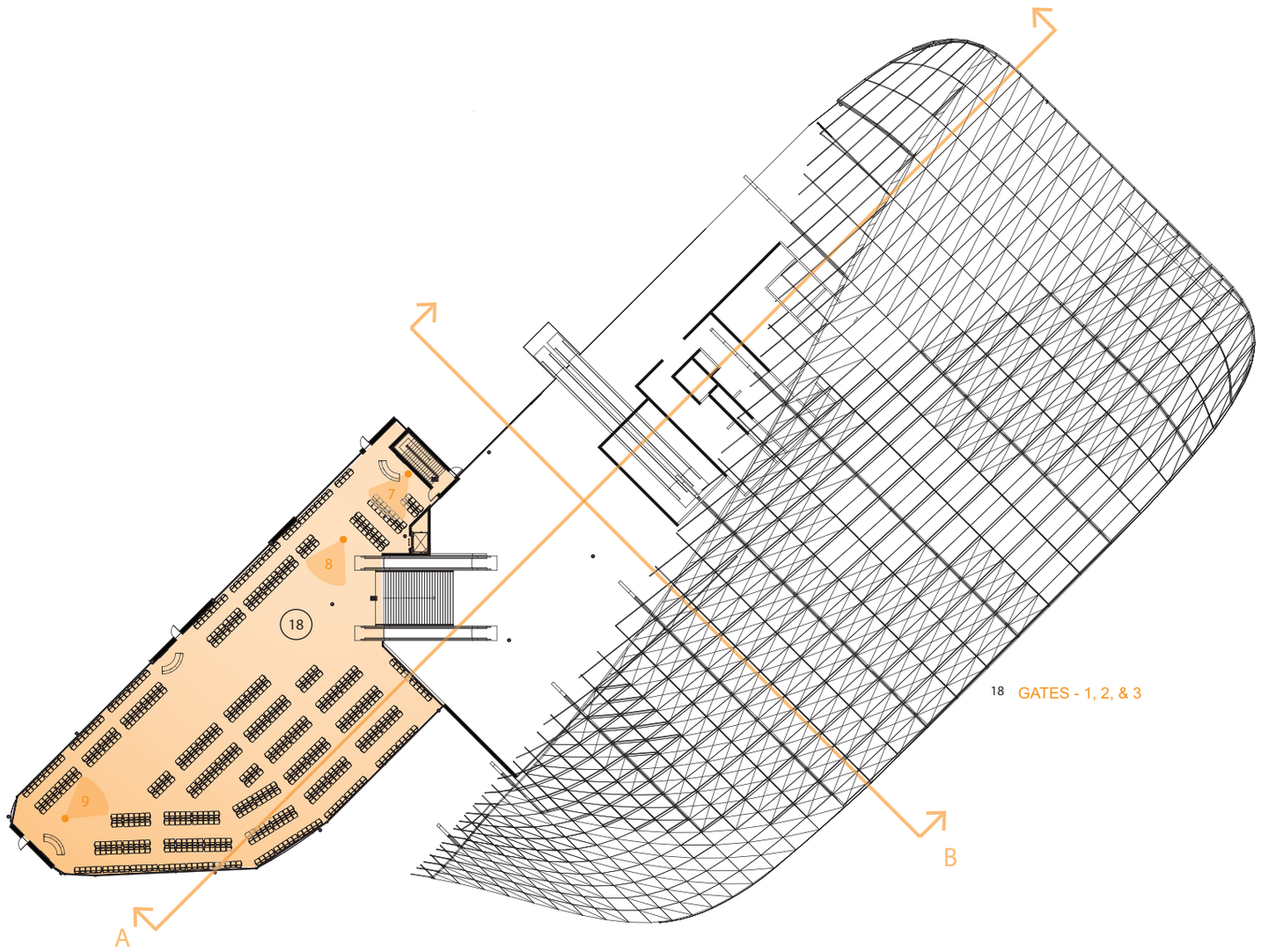
1 FLOOR BELOW GRADE



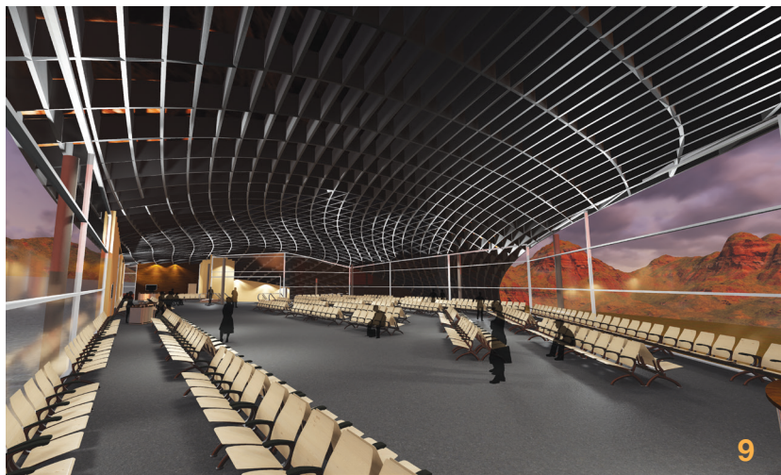
12 TSA SECURITY
13 TSA SCREENING ROOMS
14 TSA OFFICES
15 RESTROOMS
16 CONCOURSE
17 CONVENIENCE RETAIL

PROGRAM
THIRD FLOOR

GROUND LEVEL

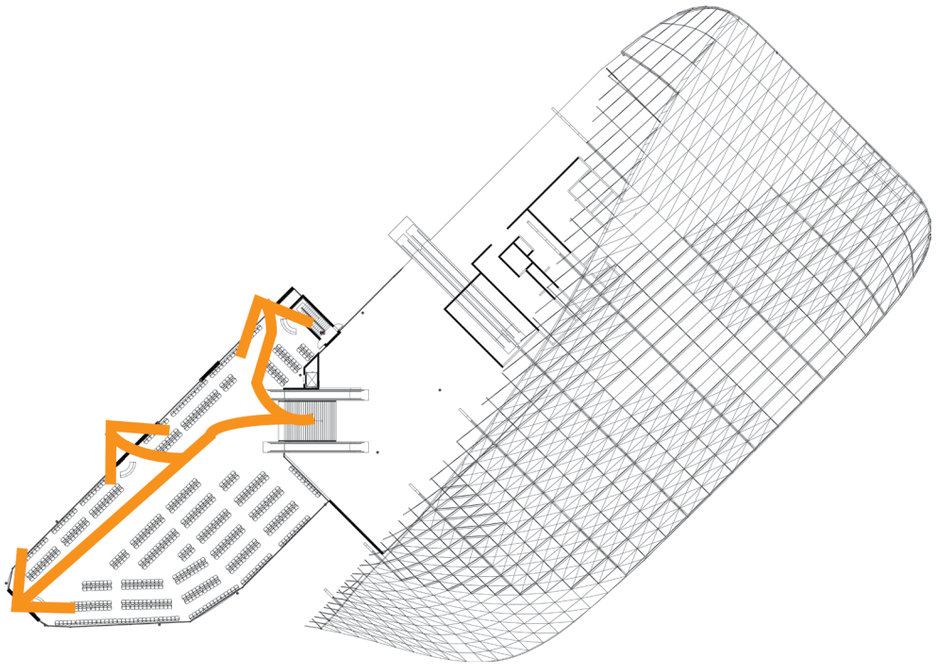


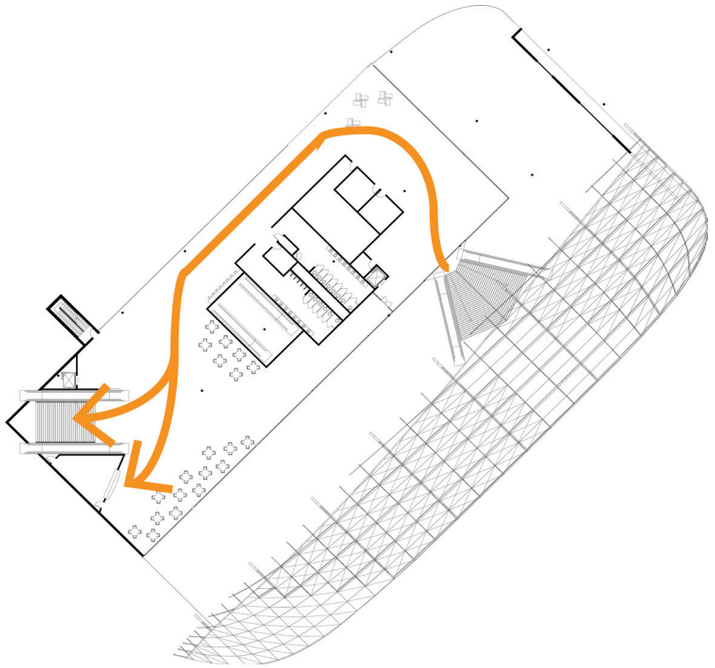
18 GATES - 1, 2, & 3

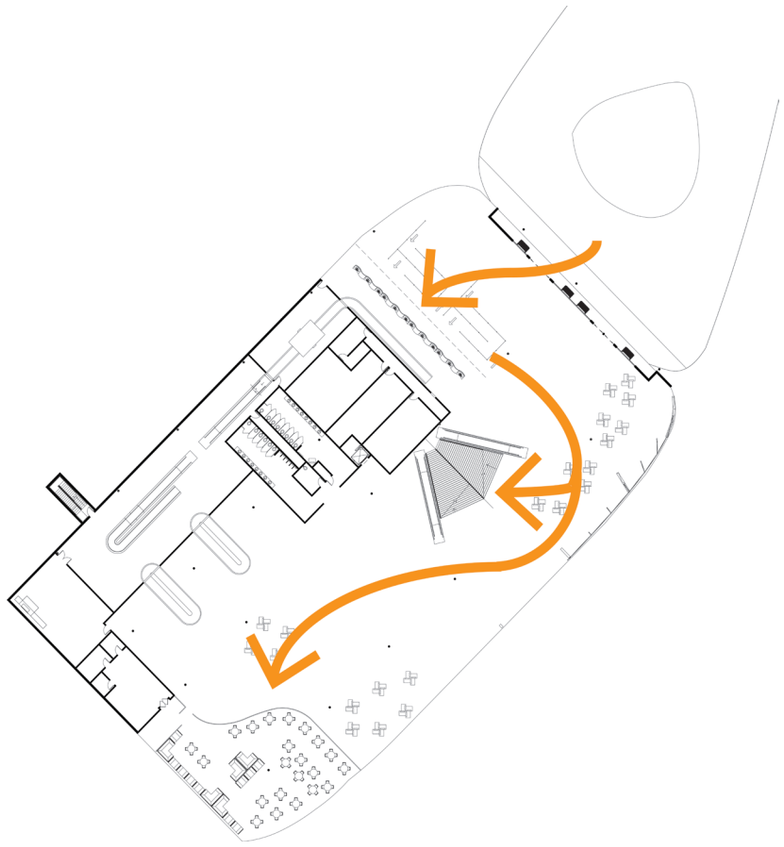


CIRCULATION

PASSENGERS







CIRCULATION
BAGGAGE