

SITE + BUILDING ANALYSIS

MIAMI DESIGN DISTRICT

4100 Building

4100 NE 2nd Avenue



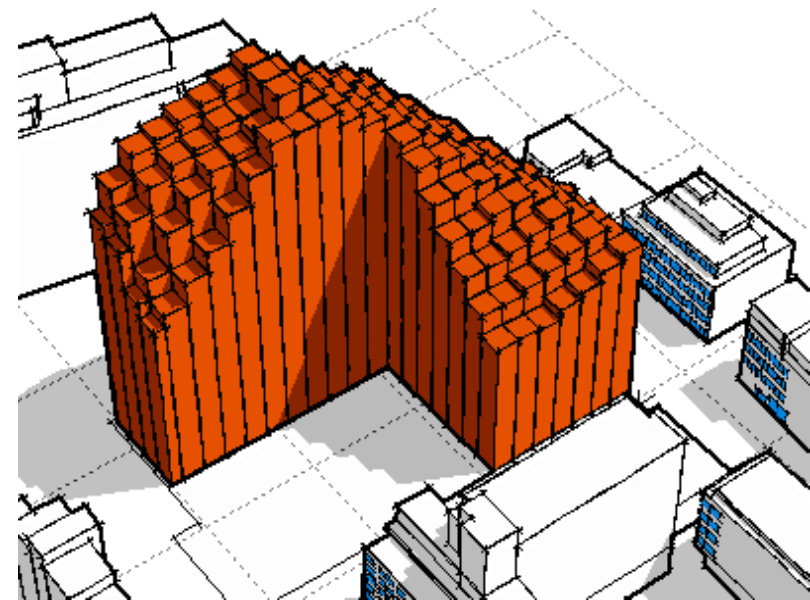
TYPES OF ANALYSIS

SITE

1. Location . Surrounding area, amenities and adjacencies
2. Access . airports, highways, roads, parking
3. Light . azimuth, path, angle, penetration
4. Wind . prevailing, seasonal
5. Views . Inside out and outside in
6. Noise . vehicular traffic

1. Structural System
2. Enclosure
3. Zoning Diagram
4. Square Ft Diagram
5. Spatial Quality
6. Dominant Issues

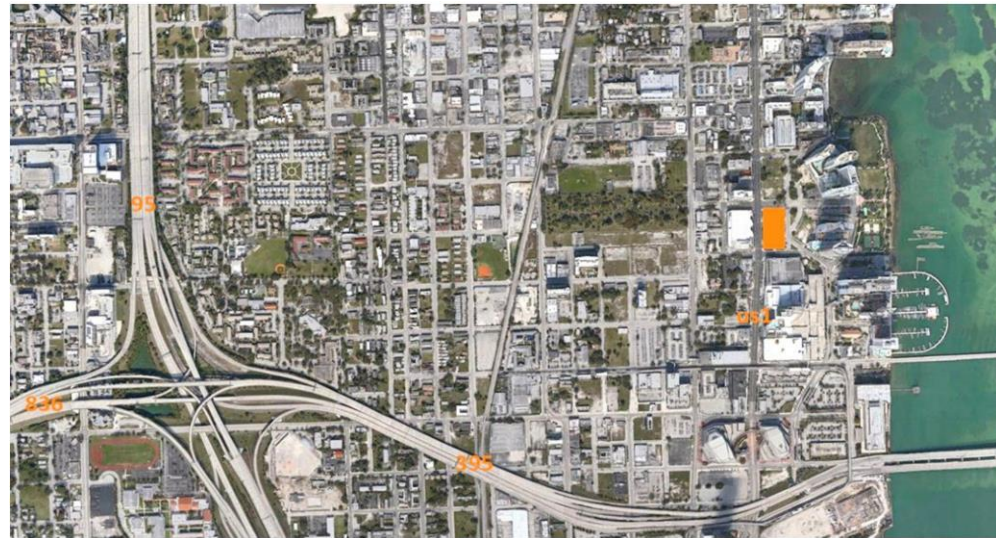
BUILDING



SITE ANALYSIS

Understanding all the features of a site, using and protecting the best, and minimizing the impact of the worst.

1. **Location**
2. **Access**
highways, parking
3. **Light**. azimuth, path, angle, penetration
4. **Wind**. prevailing, seasonal
5. **Views**. inside out+ outside in
6. **Noise**. air, vehicular, pedestrian



LOCATION

Surrounding area, amenities and adjacencies

Where is it?

The site should be related to major streets or landmarks previously existing.

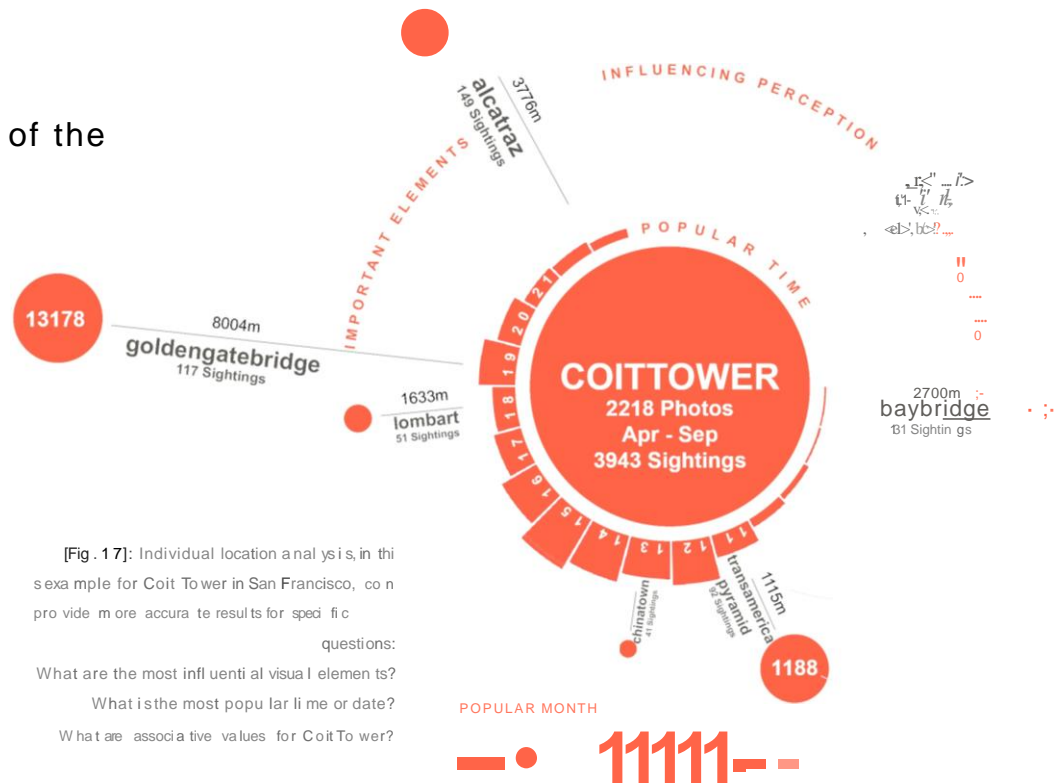
What is the surrounding area like?

Document distances from/to major places.

Are there natural or man-made physical features nearby?

Look for lakes, landmarks, etc.

What is the cultural/social climate of the neighborhood?



[Fig. 17]: Individual location analysis, in this example for Coit Tower in San Francisco, can provide more accurate results for specific

questions:
 What are the most influential visual elements?
 What is the most popular time or date?
 What are associative values for Coit Tower?

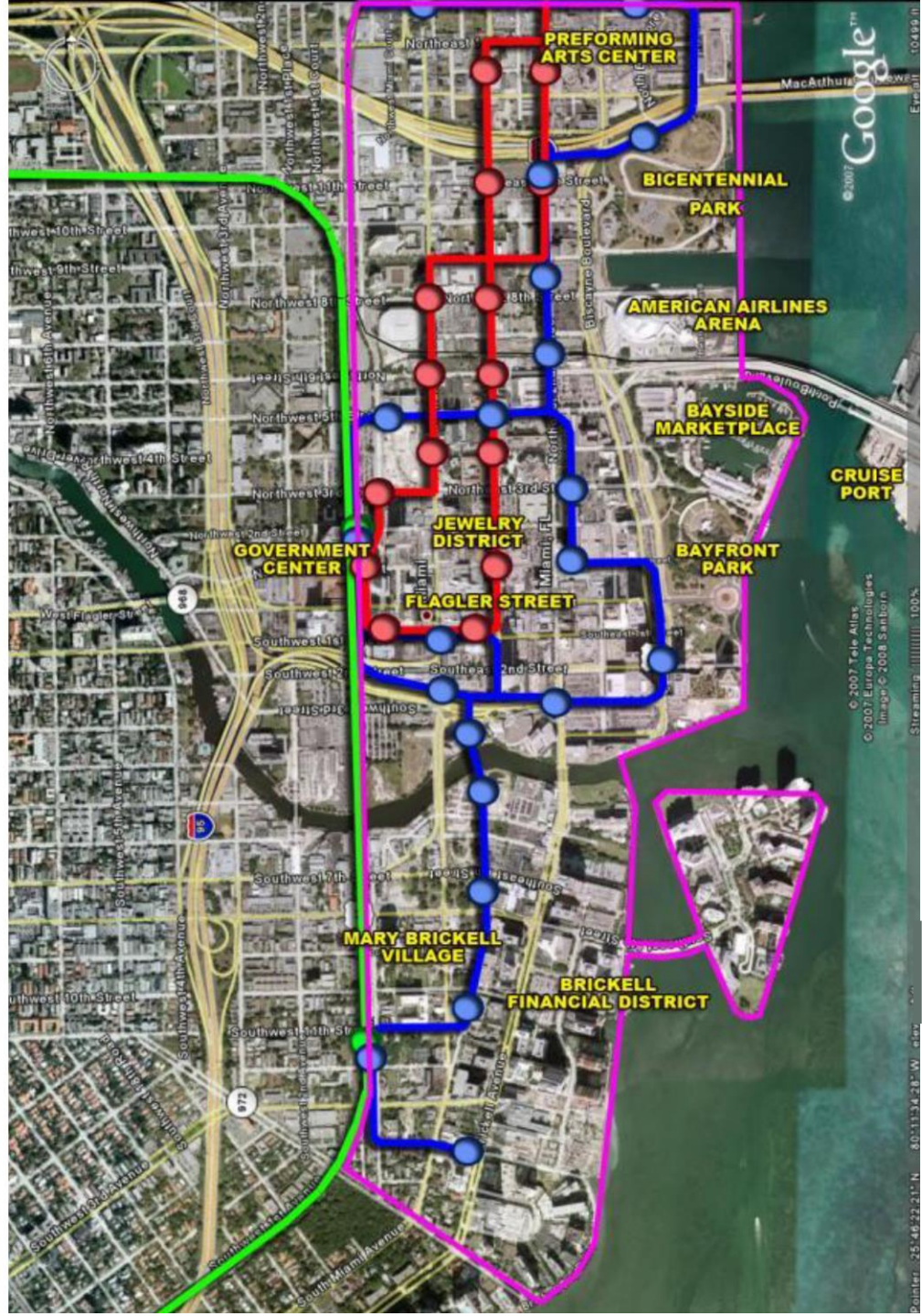
SITE ANALYSIS

ACCESS

Review site plans for multi-modal access and connectivity. Consider the implications of access location and configuration, connectivity with the transportation network, circulation and way finding, traffic management, and safety.



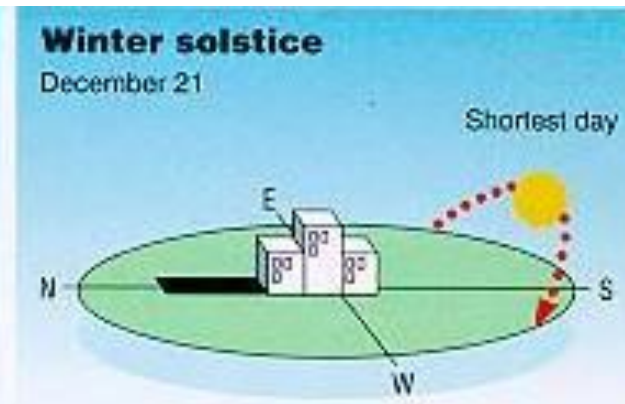
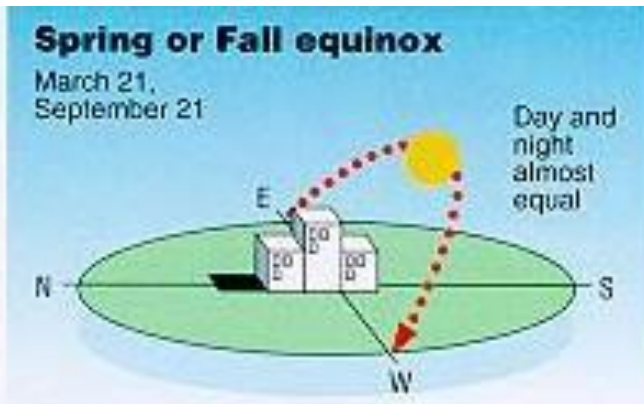
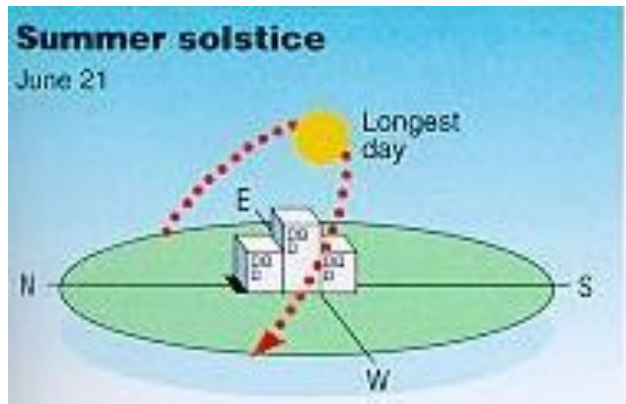
PROVIDE a big picture map of main highways, roads, public transport, airport, and parking.



SUNPATH DIAGRAMS

- 1 What times of day will the direct sunlight enter the building?
- 2 How far into the building will direct sunlight penetrate?

summer
winter



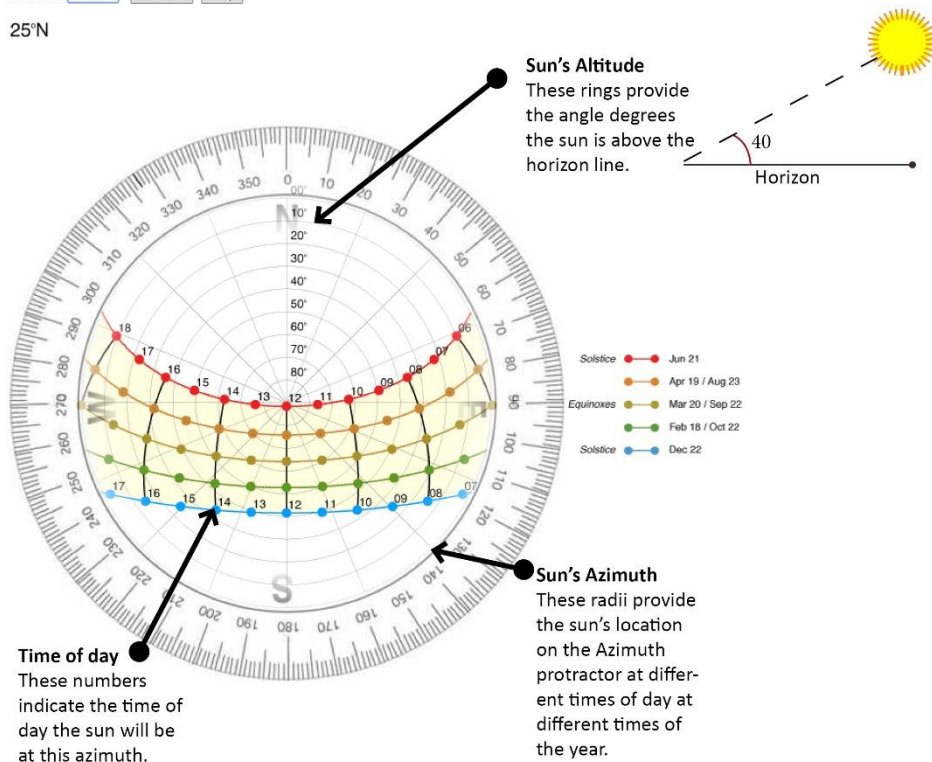
Finding AZIMUTH + ALTITUDE

STEREOGRAPHIC SUNPATH CHART

Use this chart to identify the sun's **Altitude** and its **Azimuth** at different times of the year.

Latitude: 25°N

25°N



Here is a sun path diagram for Miami, that I got using this site:
<http://ibis.geog.ubc.ca/courses/geob300/applets/sunpath/>

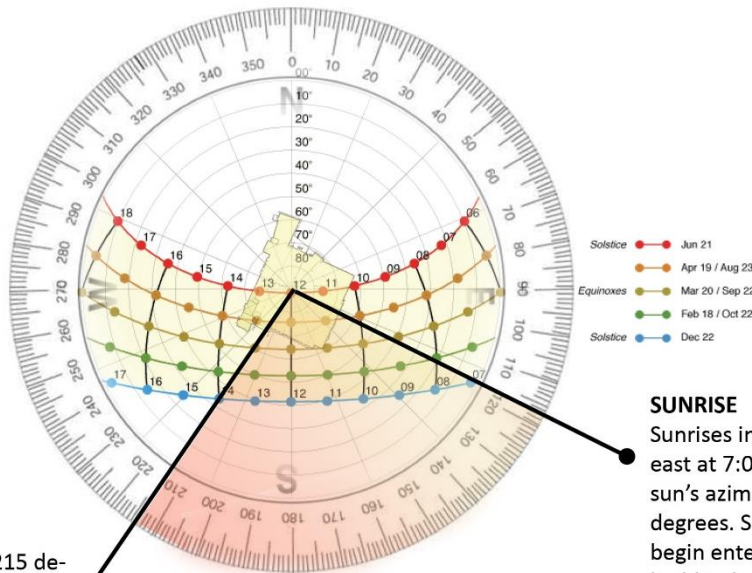
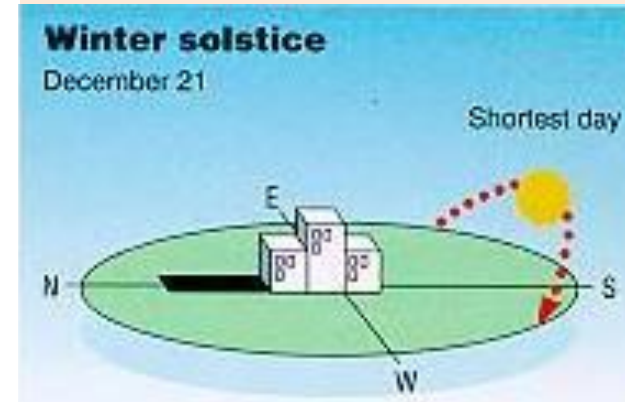
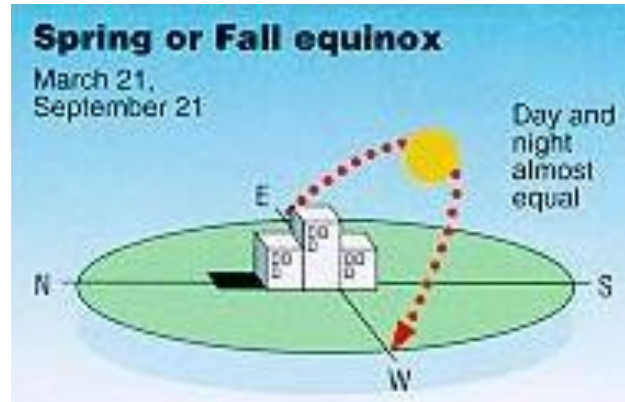
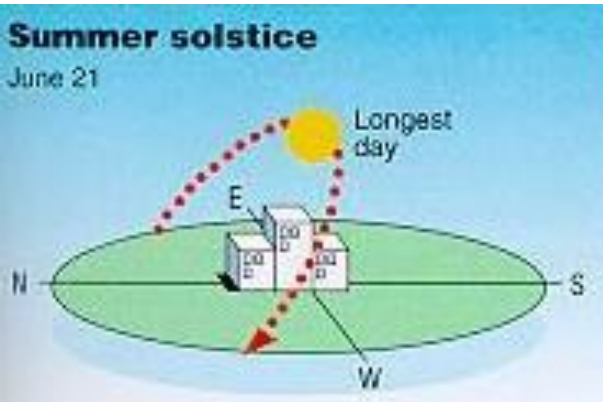
Make sure you ask it to give you the chart for Miami's Latitude. If you don't know what Latitude and Longitude are, look up these terms.

SITE ANALYSIS

Finding AZIMUTH

1

At what times of day will the direct sunlight enter the building?



- Solstice - Jun 21
- Apr 19 / Aug 23
- Equinoxes - Mar 20 / Sep 22
- Feb 18 / Oct 22
- Solstice - Dec 22

SUNRISE

Sunrises in the southeast at 7:00am. The sun's azimuth is 117 degrees. Sunlight will begin entering the building's southeast curtain wall.

2:00pm

Sun's azimuth is 215 degrees. Sunlight will stop entering the building's curtain walls as it starts traveling at azimuth angles blocked by the building's solid walls.

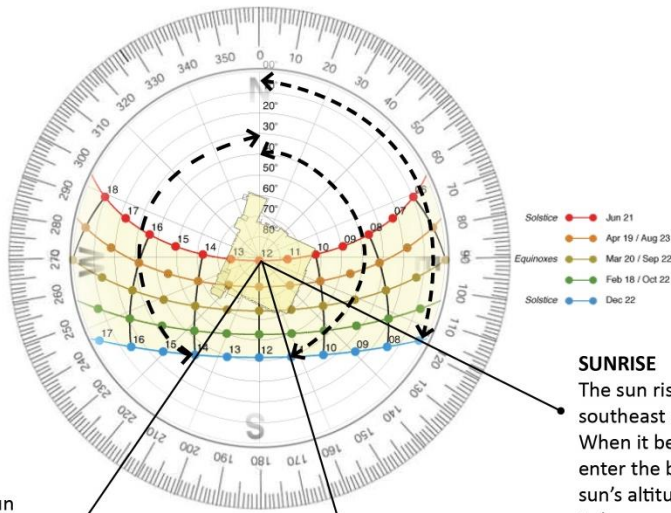
The analysis to the right is exploring how the sun enters the building on the _____ solstice?

When does the sun enter through northeast curtain wall?

When does the sun enter through northwest windows?

SITE ANALYSIS

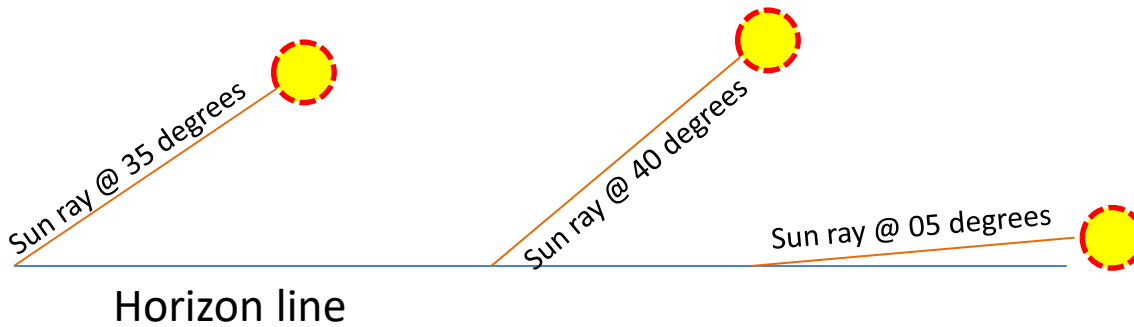
Finding **ALTITUDE**



2:00pm
Just before the sun stops entering the building's curtain walls as it's rays will be entering the building at 35 degree angle.

11:00 am
The sun's rays will be entering the building at a 40 degree angle.

SUNRISE
The sun rises in the southeast at 7:00am. When it begins to enter the building. The sun's altitude will be 5 degrees above the horizon. This means the sun's rays will be traveling into the building at that angle.



2

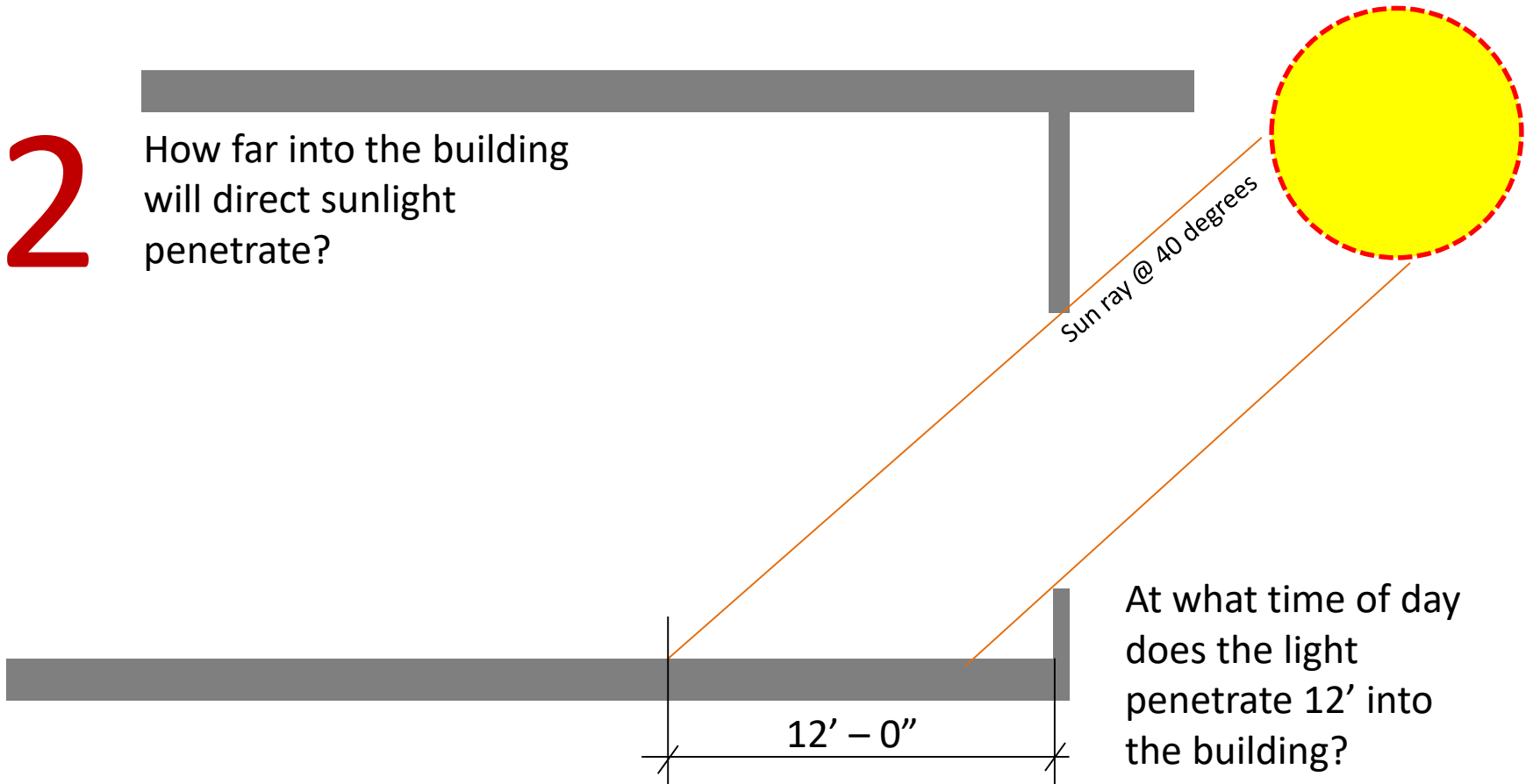
 How far into the building will direct sunlight penetrate?

Choose the time of day you wish to know the altitude. Follow the ring up until it intersects with the **Altitude Indicator**.

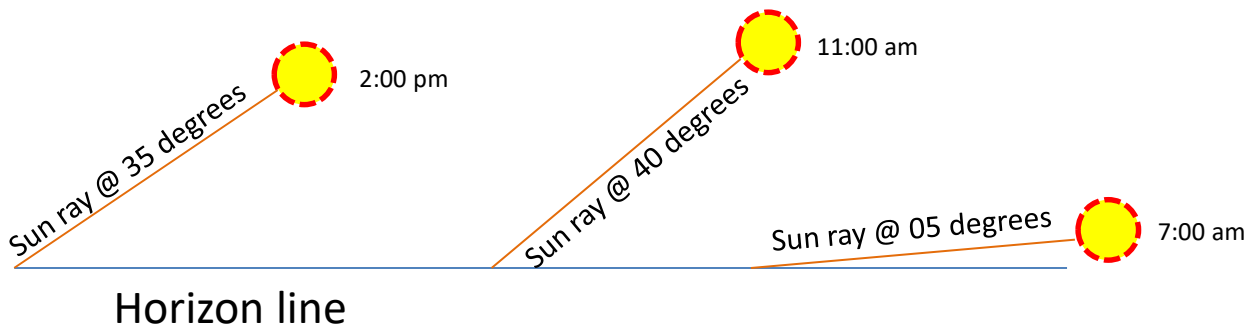
This provides you with the angle the sun will be above the horizon line.

2

How far into the building will direct sunlight penetrate?



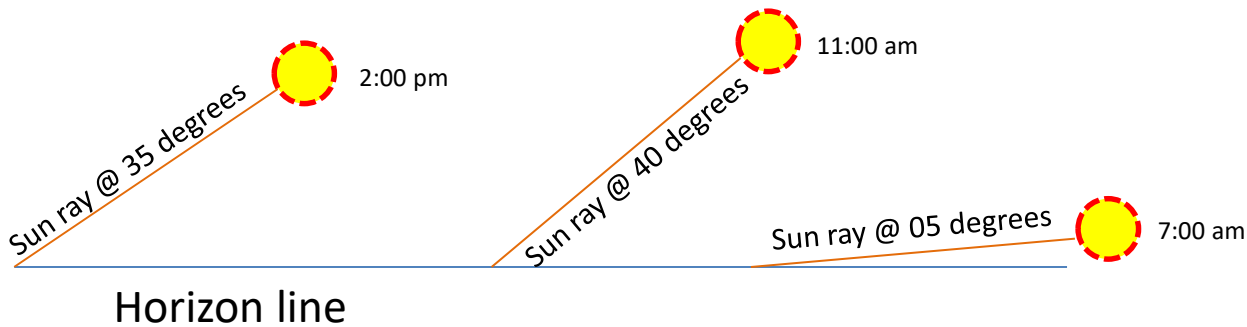
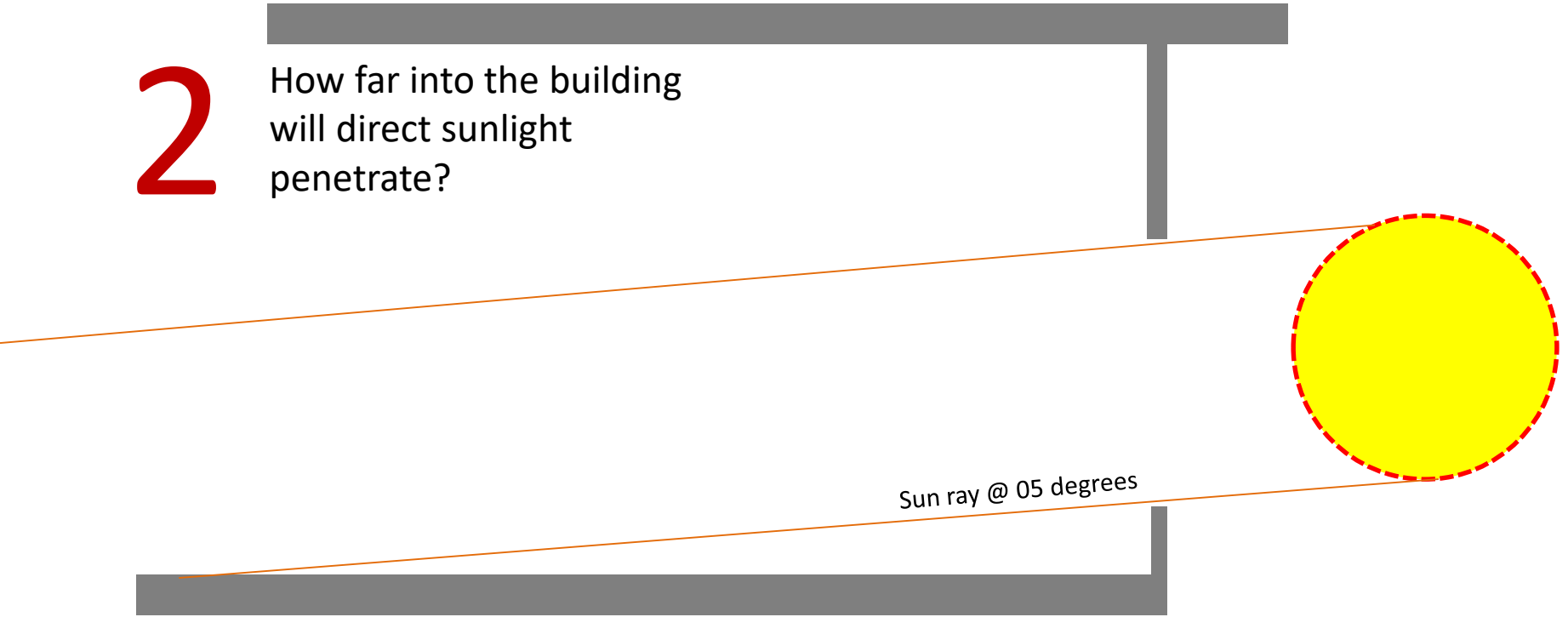
At what time of day does the light penetrate 12' into the building?



At what time of day will it penetrate furthest into the building?

2

How far into the building will direct sunlight penetrate?

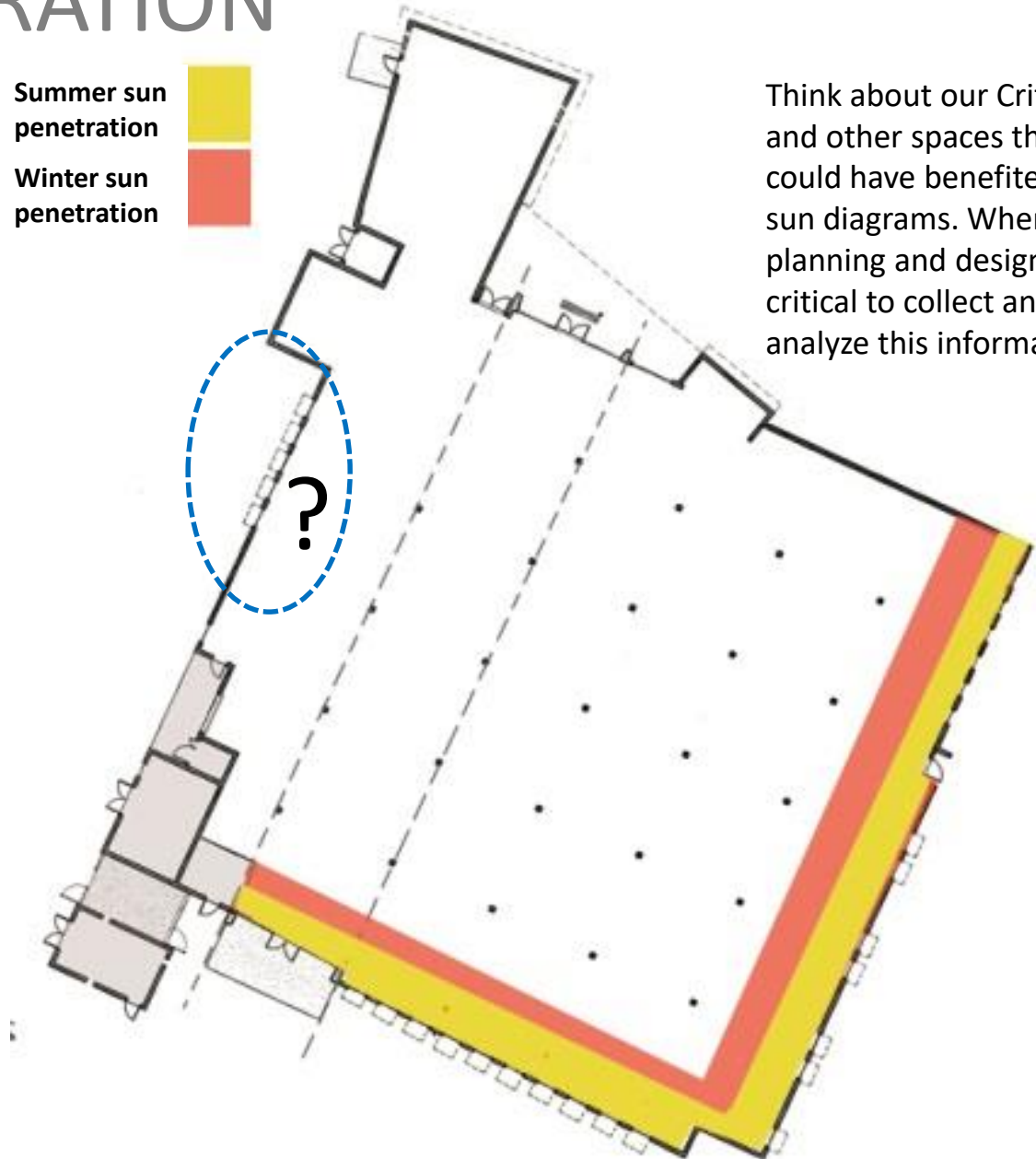


At what time of day will it penetrate furthest into the building?

SUN PENETRATION

- What is missing from this diagram?
- Would you put a group of workstations in an area that will be in full light for 3 hours a day?
- Would this type of light condition make the workstations unusable?
- Are there overhangs that would mitigate these conditions?
- Do interior shading devices need to be specified? Etc.

Summer sun penetration
Winter sun penetration



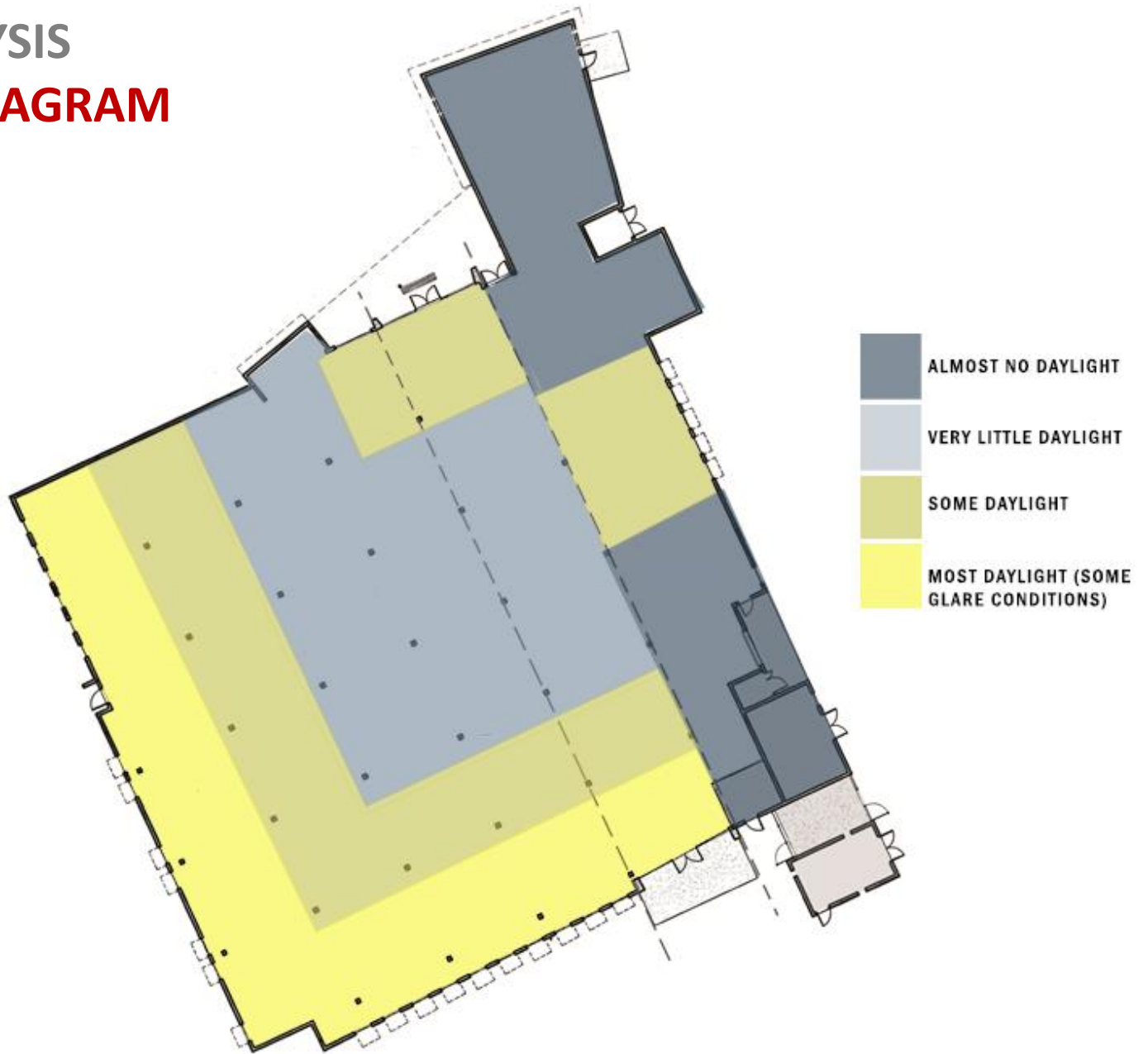
Think about our Crit Rooms and other spaces that could have benefited from sun diagrams. When planning and designing it is critical to collect and analyze this information.

LIGHT ANALYSIS

DAYLIGHT DIAGRAM

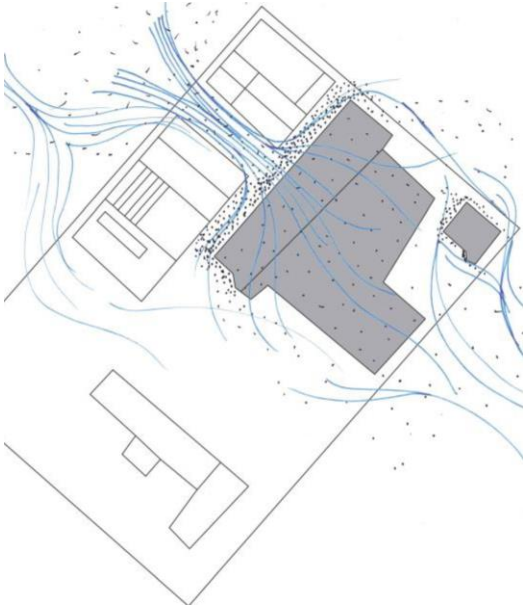
PROVIDE diagrams of the areas of the building that will have the most and least access to daylight.

PROVIDE written conclusions you draw from your findings



SITE ANALYSIS

WIND



WIND direction, speed and frequency will influence the building design including bracing requirements, roof and wall cladding selection, weather tightness, detailing, building entry locations, window size and placement and provision of shelter for outdoor spaces.

Generally, designing for wind will require providing shelter, **but** in hot or humid climates, the building design may deliberately incorporate features or shapes to provide cooling breezes for a passive cooling effect.



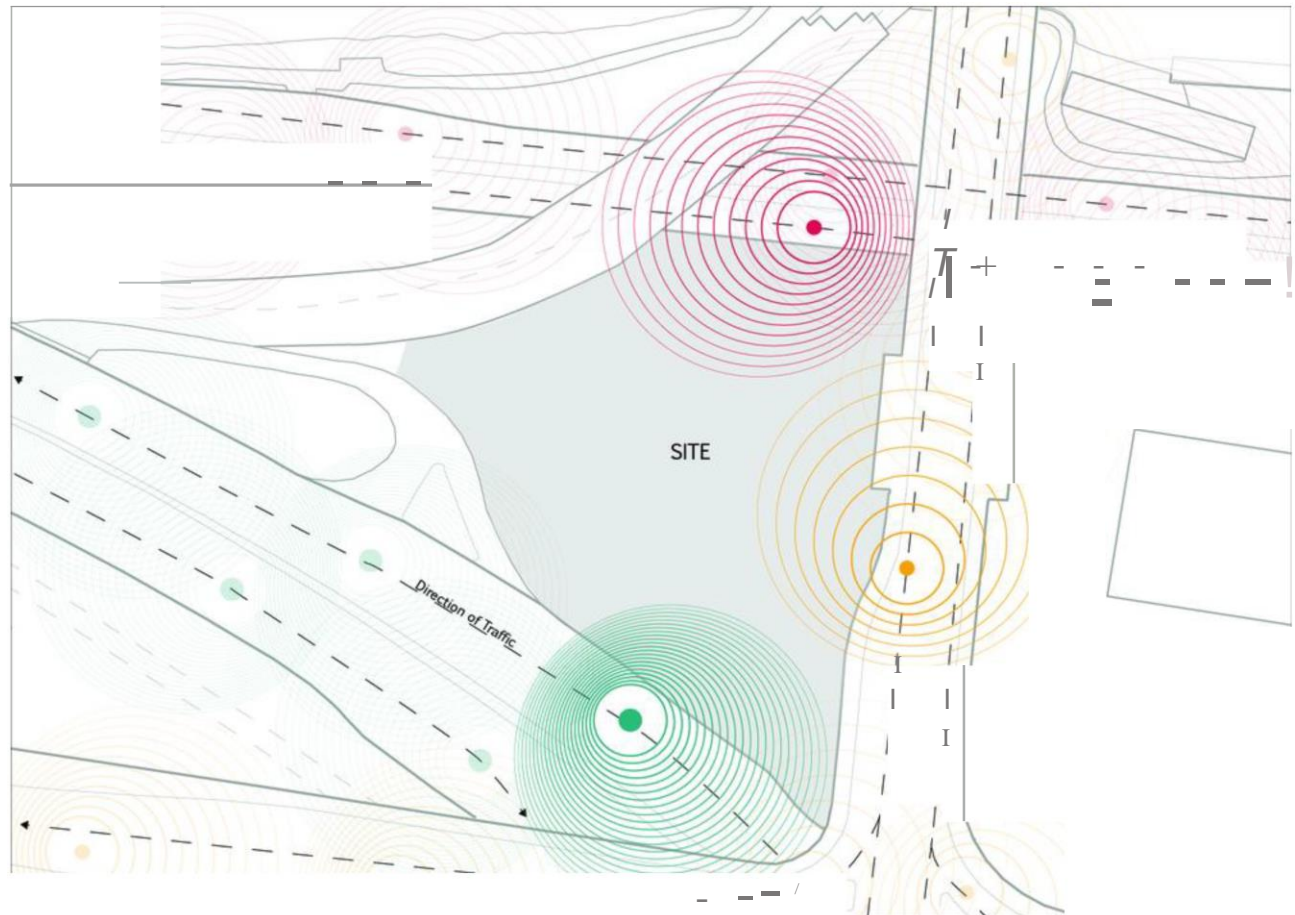
SITE ANALYSIS

NOISE

The most pervasive sources of **NOISE** in the environment come from transportation systems. Highway traffic noise is a dominant noise source in urban environments.

PROVIDE a diagram of the areas around the building that will cause noise pollution.

PROVIDE written conclusions you draw from your findings.



• Fast Moving Traffic

• Slow Moving Traffic

SITE ANALYSIS

VIEWS

Analyze views into and from the building.

PROVIDE written conclusions you draw from your findings



BUILDING ANALYSIS

1. Structural System
2. Enclosure
3. Zoning Diagram
4. Square Ft. Diagram
5. Spatial Quality



Space is captured, enclosed, molded, and organized by the elements of mass...creating the building, making the architecture.

BUILDING ANALYSIS

STRUCTURE

Structural Components Diagram

Evaluate and label the parts of the structural system (columns, bearing walls, beams, slabs...).

Where are the columns?

Where are the beams?

What does their location mean in terms of ceiling heights?

Reception areas? Office areas?

Large spaces like conference rooms?

Training rooms, etc.?

Structural Organization Diagram

How are the structural parts organized in the building?

(geometric patterns, proportions of grid patterns, scales, or modular patterns, special joints)?

Structural Bay System

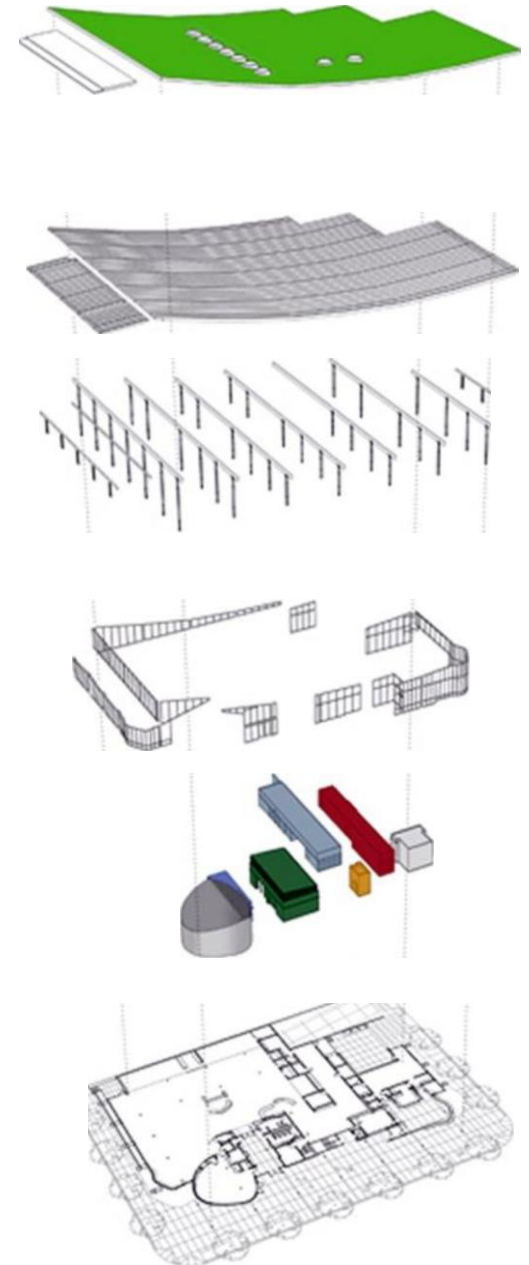
What is the building bay system as defined by the structure?

What size and shape are the bays?

Is there a proportional system apparent in the bay system?

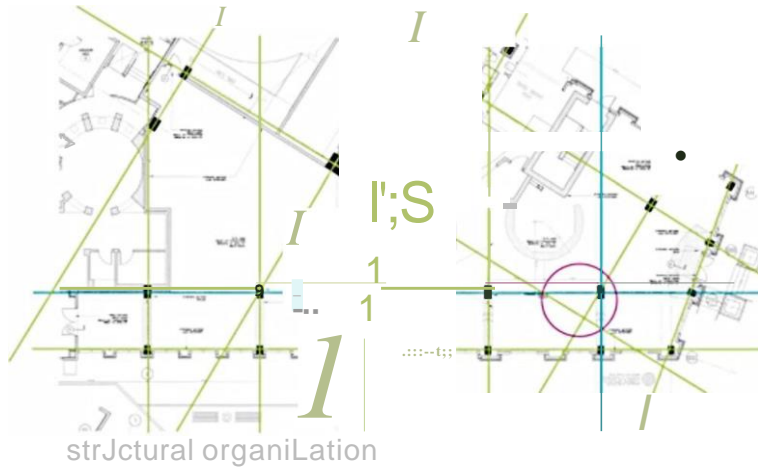
Structural Conclusions

Are the structural features related to other features of the building?

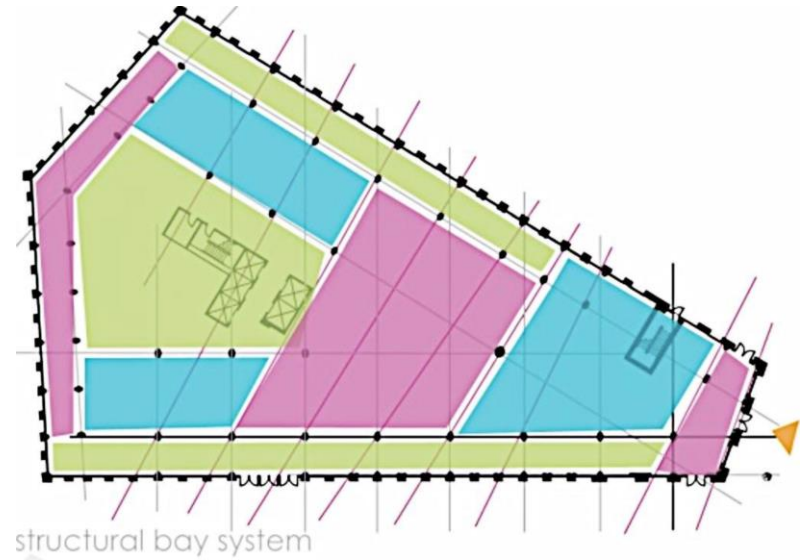


BUILDING ANALYSIS

STRUCTURE



- column grid lines
- regulating axis
- JOn ts/nod es



through the structural analysis of the building patterns created by the grid system and organization of space, significant joints or nodes are formed within the interior space. relationships between these features and the organization and proportions of the surrounding context (concluded from enclosure diagrams) are apparent. the perpendicular axis relates to the streets. the established grid pattern, making up most of the more open bays, relates to the open green space of the exterior with extended views.

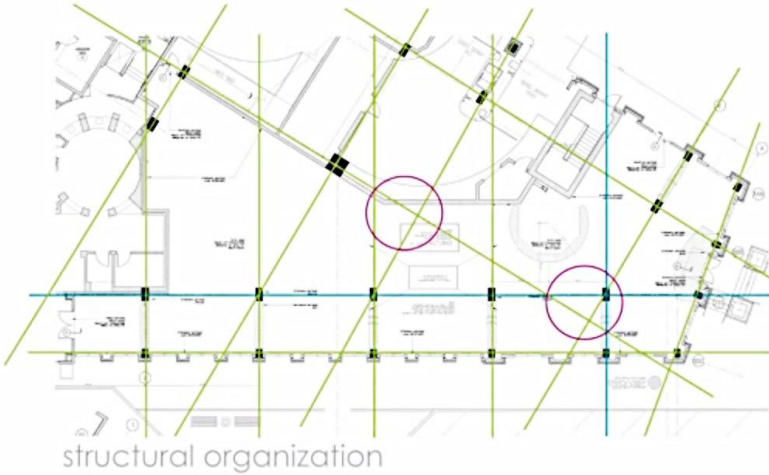


- bearing walls
- openings (window/door)
- columns
- possible expansion with demo existing parking garage (walls t.b.d.)

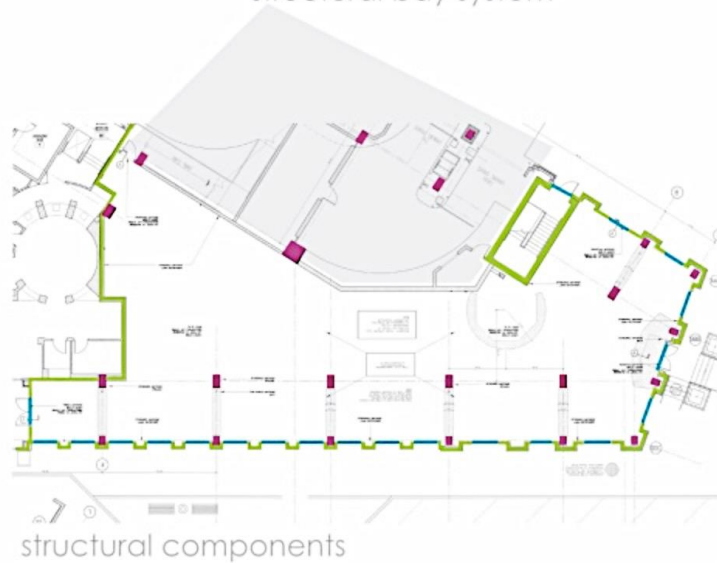
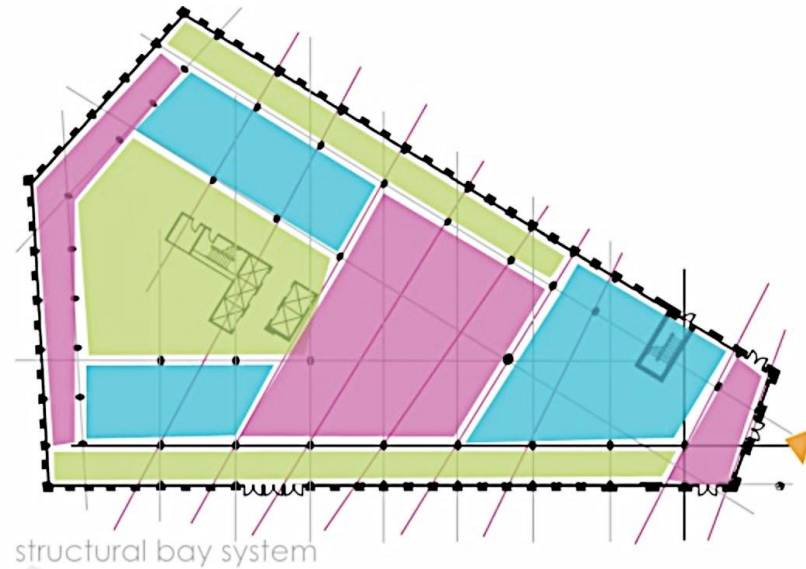
structure components

BUILDING ANALYSIS

STRUCTURE



- column grid lines
- regulating axis
- joints/nodes



- bearing walls and walls to remain
- openings (window/door)
- columns
- possible expansion with demo existing parking garage (walls t.b.d.)

through the structural analysis of the building patterns created by the grid system and organization of space, significant joints or nodes are formed within the interior space. relationships between these features and the organization and proportions of the surrounding context (concluded from the enclosure diagrams) are apparent. the perpendicular axis relates to the streets. the shifted grid pattern, making up most of the more open bays, relates to the open green space of the exterior with extended views.

structure diagrams

BUILDING ANALYSIS

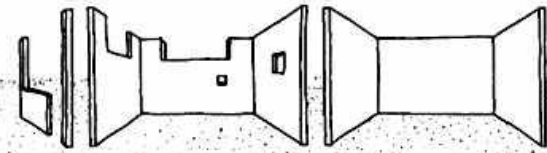
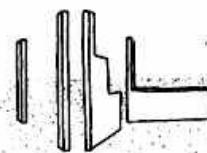
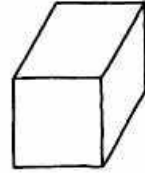
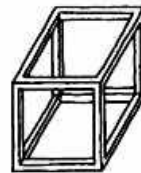
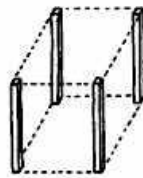
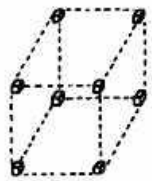
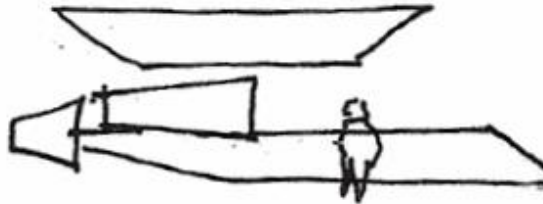
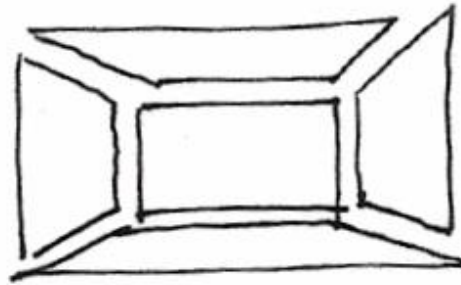
ENCLOSURE

PROVIDE section and plan diagrams that explore the enclosing edges of the building.

For example: you could provide a solid void diagram of the elevation.

What do you do if the building is a curtain wall and is transparent? Perhaps then, you would study the proportional system of the curtain wall? Perhaps you could explore the corner conditions. What are they like?

PROVIDE written conclusions you draw from your findings.



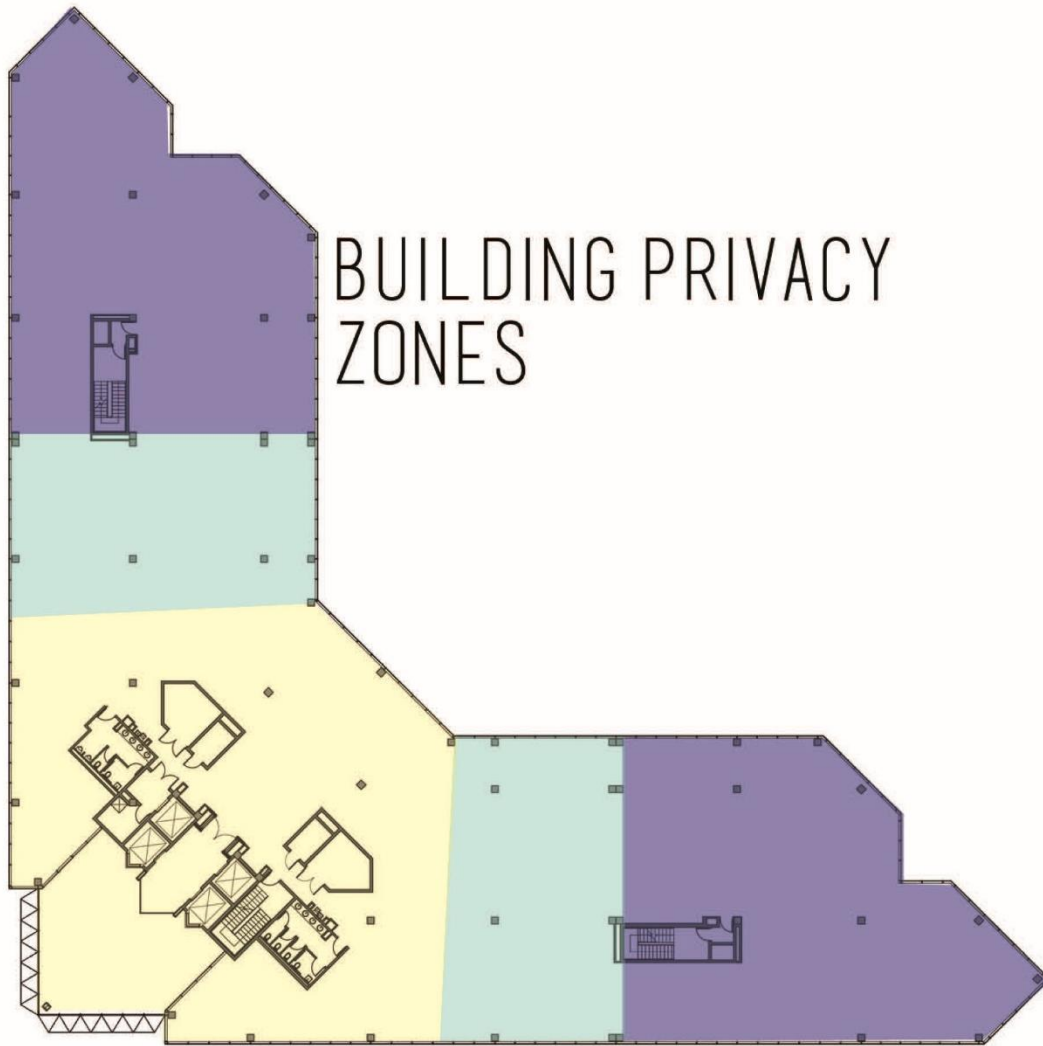
ARCHITECTURAL DESIGN is concerned with the practical and esthetic requirements such as form, proportion, axis, entry, openings, and appearance.

The design should be studied logically and consideration should be given to what gives character to the plans, elevations, sections, and details.

*[Ching chapter 2 to explore the form surface articulation of the building]

BUILDING ANALYSIS

ZONING



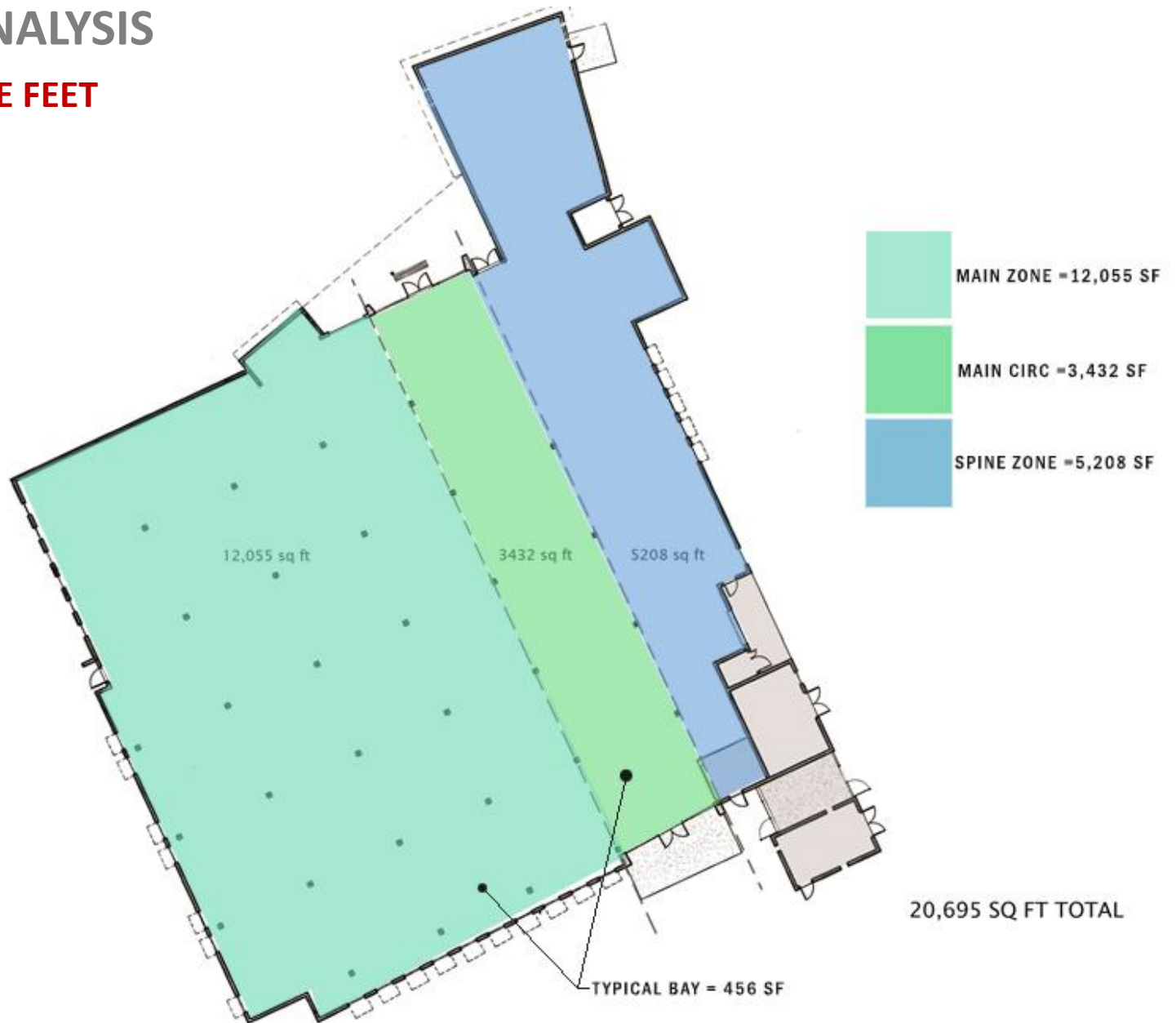
PROVIDE Diagrams of important zone relationships.
Ex. Public/semi public/
semi private/private

PROVIDE written conclusions you draw from your findings.



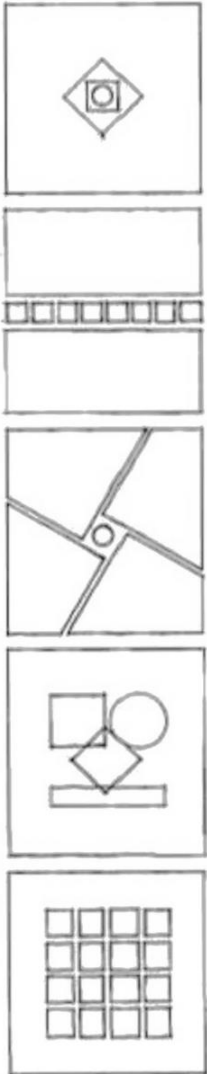
BUILDING ANALYSIS

AREA . SQUARE FEET



BUILDING ANALYSIS

SPATIAL QUALITIES



CONNECTIONS, THRESHOLDS AND LINKAGES: Use section and plan diagrams to explore the connections, thresholds, linkages between the spaces inside the building.

Are they open or closed?

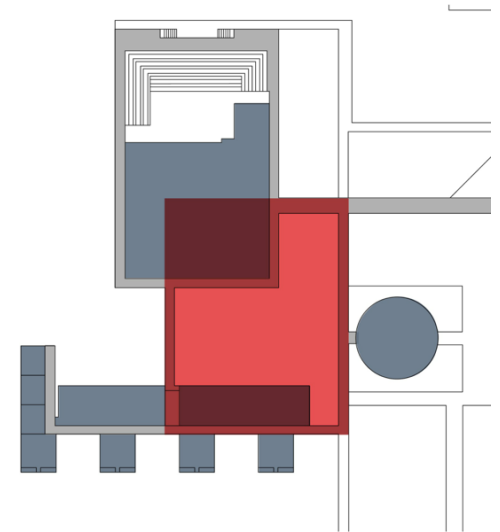
Are they clearly defined?

What is the scale of these thresholds and linkages?

What are they telling you about design possibilities?

[Ching chapter 3: Rengel chapter 4]

[use the information to explore the spatial qualities of the building]

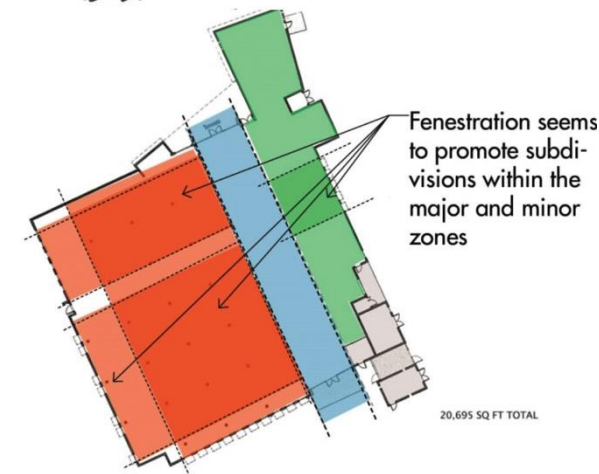
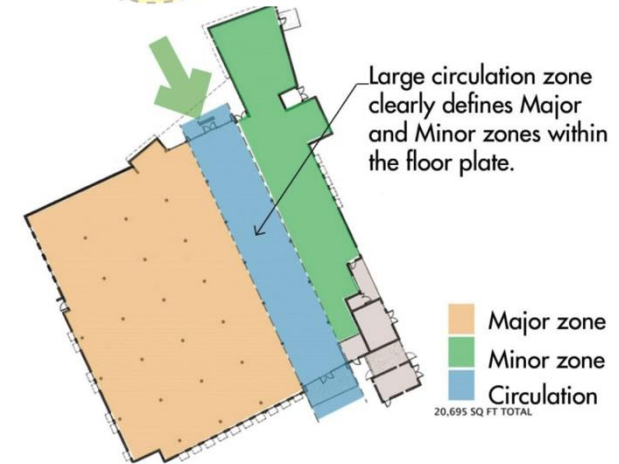
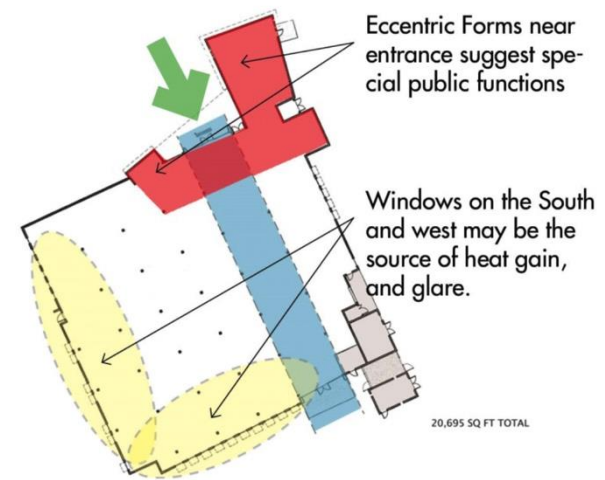


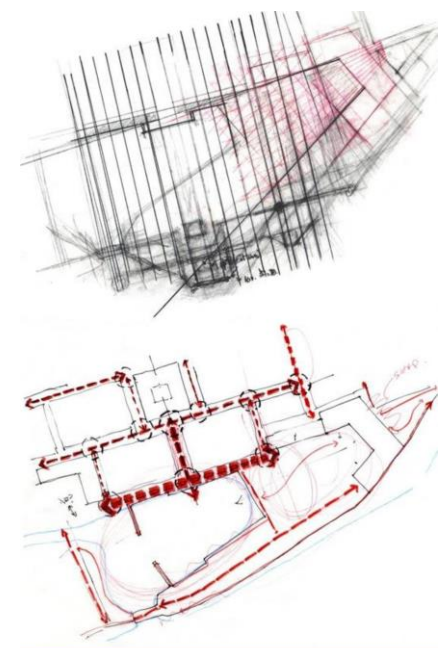
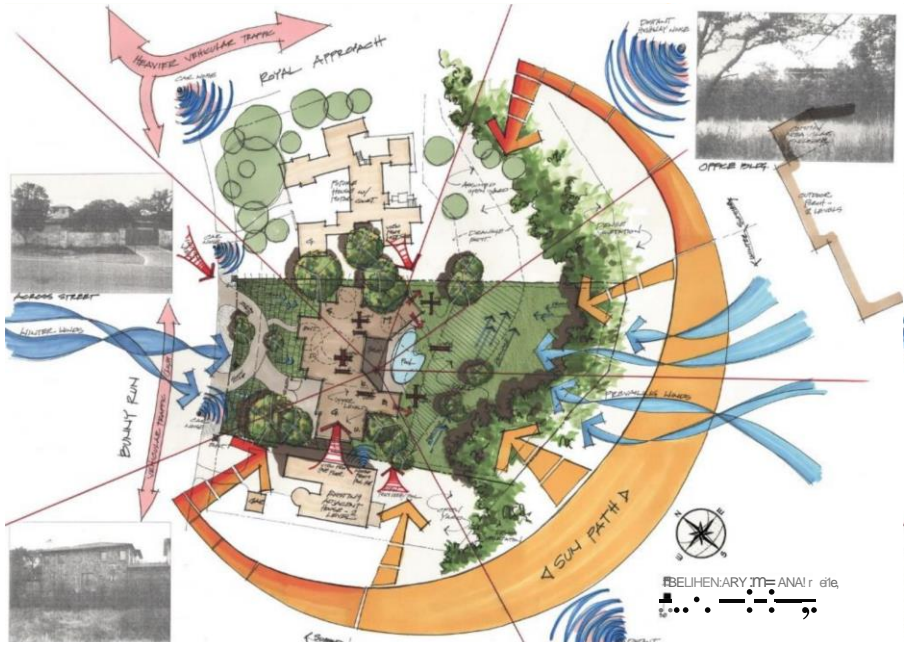
BUILDING ANALYSIS

DOMINANT ISSUES

PROVIDE Diagrams of the important issues that were discovered during the analysis. Compile the information to give the big picture. Consolidate to a concluding document

PROVIDE written conclusions that can be used for design directives and guidelines.





LET'S MAKE SOME BEAUTIFUL DIAGRAMS!!

