ASSIGNMENT BRIEF #1
Integration

Measure 1: DESIGN FOR INTEGRATION

Sustainable design is an inherent aspect of design excellence. Projects should express sustainable design concepts and intentions and take advantage of innovative programming opportunities.

Narrative: Describe how sustainability strategies are incorporated into the overall design. What are the major environmental issues and goals? How does the building respond to the local climate, site and occupant comfort?

Suggested Graphics: Building section, or other appropriate diagram that demonstrates bioclimatic strategies and concepts. A profile of local climate that illustrates appropriate design strategies, or summary sustainability diagram (for building operations)

Metric: Percent of the year that occupants will be comfortable using passive systems

ASSIGNMENT:

Conduct an environmental analysis and climate study of your project site.

1. Map the site showing:
   a. Terrain - elevation contour lines
   b. Hydrology - bodies and flow of water, groundwater depth, aquifer depth,
   c. Climate/Climate Change - rainfall by month, temperatures by month, wind data, and how climate change is impacting current climate
   d. Vegetation - ground cover, undergrowth, mature trees, heights
   e. Sensory Inventory - textures, views, odors, sounds, tastes, plus intuition and sense of safety
   f. Solar Access - shadows from adjacent forms, seasonal sun path
2. Perform a climate analysis using Climate Consultant or other online psychrometric tool to produce your location-specific psychrometric chart, and quantify opportunity for natural ventilation.
a. Under standard design temperature range (ASHRAE 55), what percentage of the year can the building use natural ventilation?
b. What increase could be realized under the *Adaptive Comfort Standard* if indoor temperature ranges are allowed to be warmer in the summer and cooler in the winter?

*For Final Presentation:*

3. In less than 100 words, describe how you have incorporated sustainability strategies into your overall design.
   a. What is the “big idea” that drives the project and its purpose?
      i. Is that evident in your presentation graphics?
   b. Discuss how design elements serve multiple purposes, working together as a whole.
4. Using a building and/or site section, create a comprehensive graphic to illustrate big ideas and cross-disciplinary synergies.

**DELIVERABLES:**

- **Site Analysis** (plan map) illustrating the six categories of influence and opportunity studied in the assignment.
- **Site Section(s)** illustrating sun angles on solstice days, water bodies, and terrain
- **Site Specific Psychrometric Chart** highlighting and quantifying percentage of the year for potential natural ventilation.
- **Integrative Design Graphic** illustrating synergies
- **Narrative on Integrative Design Solutions** (<100 words)

**SUBMITTAL:**

Submit as PDF via university interface (Blackboard, Canvas, Edmodo, Google…) using the following NAAB file format:

COURSENO_INSTRUCTOR_yourlastname_yourfirstname_ASSIGNMENT01_YEARTERM

**DUE:**

**Resources:**

Climate Consultant Tool [https://climate-consultant.informer.com/6.0/](https://climate-consultant.informer.com/6.0/)

Alcaldía de la Ciudad de México

C. R. SIMON

D. W. ROSS

E. G. HENDERSON

F. A. WILKINSON

G. T. THOMAS

H. G. NICHOLS

Illustration Credit COTE Top Ten Winner 2020

Students: Anannya Das & Connor Mougin

Faculty: Ulrike Passe

School: Iowa State University