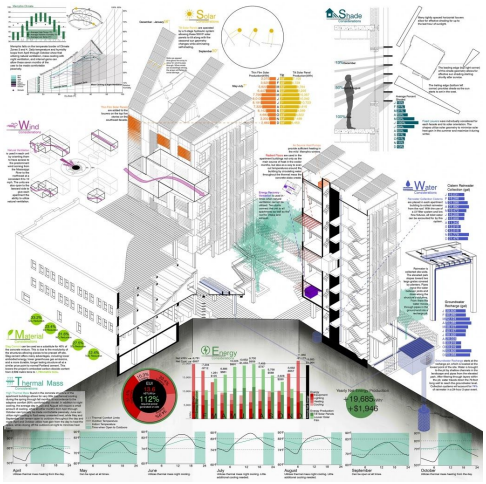
AIA
COTE Top Ten

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

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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/

Meadows, Donella H., and Diana Wright. (2008) Thinking in systems: a primer. White River Junction, VT: Chelsea Green Pub., Print. ISBN: 978-1603580557

ACSA AIA COTE Top Ten Studio Guide
https://www.acsa-arch.org/competitions/2021-cote-competition/studio-guide/#tools

Associated NAAB Content:

Program Criteria

PC.2 Design—How the program instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.

PC.3 Ecological Knowledge and Responsibility—How the program instills in students a holistic understanding of the dynamic between built and natural environments, enabling future architects to mitigate climate change responsibly by leveraging ecological, advanced building performance, adaptation, and resilience principles in their work and advocacy activities.

PC.5 Research and Innovation—How the program prepares students to engage and participate in architectural research to test and evaluate innovations in the field.

Student Criteria

SC.1 Health, Safety, and Welfare in the Built Environment—How the program ensures that students understand the impact of the built environment on human health, safety, and welfare at multiple scales, from buildings to cities.

SC.4 Technical Knowledge—How the program ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against the design, economics, and performance objectives of projects.

Illustration Credit COTE Top Ten Winner 2020

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