High-Performance, Low-Tech

Exploring Regional Identity through Building Science

Course Announcement

ARCH 4050/6306, Spring 2022

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Prerequisite: ARCH 4302 or Equivalent

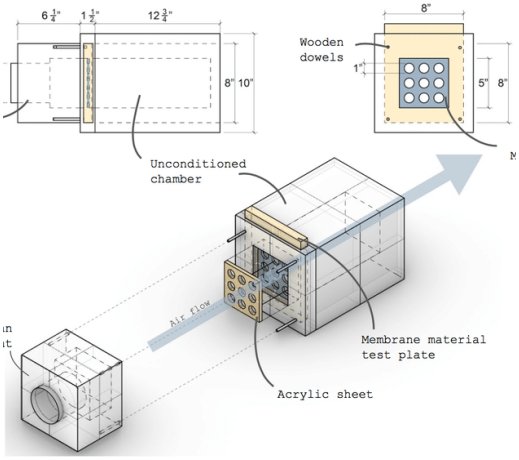

Image by Ana Sandoval & Michelle Barrett

Course Description:

The direct effects of climate change are expected to be most severe in rapidly developing regions, particularly those currently supporting largely rural populations, such as in the Tropics. Even beyond economic indicators, the Tropics lag in health, education, energy, productivity and technology. Many of these regions still have limited access to reliable and affordable energy services, which is a critical indicator of global development. In architecture and construction, diffusion is evident in the ubiquitous building styles and materials emerging in urban centers across the globe - the all-glass tower has emerged in India, the Middle East, Southeast Asia and many other regions, regardless of context and climatic conditions. In fact, the universal adoption of air conditioning, tall buildings, and curtain wall technology all within the span of a single generation, has created incredible impacts on the urban sense of place as well as on global energy consumption. In fact, Ian McCallum, the executive editor of Architectural Review, described the curtain wall as “the new vernacular” in 1957 - It was at this juncture in time that the façade became a thin, passive recipient of differential conditions between inside and out, isolated from cultural context.

In response, this class explores the vernacular strategies associated with rapidly urbanizing tropical regions in order to translate their character, physical qualities and thermal capabilities to a commercial scale, reducing the reliance on energy-intensive mechanical systems while developing a new, climate and culture-specific urban identity.

This course was the recipient of the 2021 ACSA Course Development Prize in Architecture, Climate Change and Society

Course Features:

- Historical referencing & analysis
- Thermodynamics in buildings
- Work in the woodshop
- Digital fabrication (3d printer, CNC)
- Basic electronics design (Arduino)
- Advanced data management
- Data representation & communication (graphics, animations, videos)