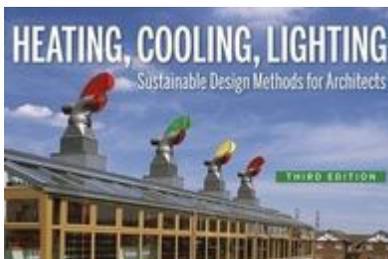
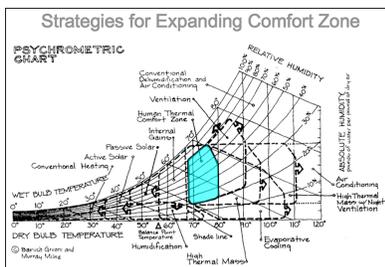
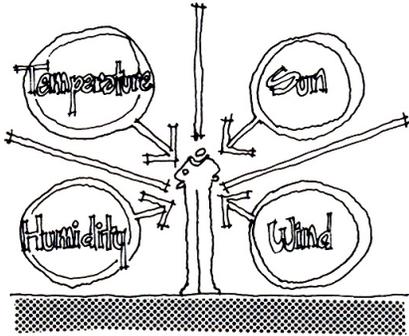


Environmental Systems Principles

ARCH 5302 (3 Credits) – Mon. Wed. and Fridays Dr. Mona Azarbayjani, Email: mazarbay@uncc.edu, Office 242



Premise: This course will focus upon building and design elements generally described as climate control systems. These systems often involve active (mechanical/electrical) solutions—but with underlying issues that are fundamentally “architectural” in nature. Passive (architectural) solutions will also be addressed. An exquisitely brief introduction to mechanized circulation systems will also be provided.

Learning Objectives: The systems discussed in this course play an important role in all types of buildings. They substantially affect building costs (both first and life-cycle costs), building performance, and occupant health, safety, comfort, and productivity. Ultimately, climate control performance may be a primary determinant of owner and occupant perceptions of building success. It is important that every architect has a sufficient understanding of climate control systems to permit their proper implementation and integration into the building design process. Providing such a fundamental understanding is the main objective of this course.

Methodology: This course is a lecture/lab course. Information will be presented in lecture and required readings will provide a background to the discussions. Lab will be used to develop and discuss the concept beyond the lecture. Hand-on assignments will provide the application of the selected concept to be explored.

Outcome: This course intends to develop a basic understanding of building climate control systems that will permit you to actively participate in decision making regarding such systems during the design process and that will (if you desire) facilitate further study leading to the ability to design such systems. Those who successfully complete this course should—with respect to climate control and mechanized circulation systems:

- be able to communicate with the client and other members of the design team
- be able to make early design decisions regarding the appropriateness of various systems
- be able to participate in project coordination through an understanding of the role and character of these

Texts: Lechner: Heating, Cooling, Lighting, 4th edition; Olgyay: Design with Climate; Olgyay&Olgyay: Solar Control and Shading Devices; SWL: Sun, Wind and Light; GSH: Green Studio Handbook

Evaluation: A comprehensive final examination will be given during finals week. The overall course grade will be based upon a cumulative tabulation of the various elements such as quizzes, hands-on projects, Midterm, Final exams.