Arch 491/591 26454 Environmental Control Systems I

Winter 2009

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Credit: Four Credits
Grading: Pass/No Pass or Graded

Overview
This course covers the influence of energy source, climate, heating, cooling, lighting, acoustics, and water and waste systems on the design of buildings and sites. It also covers architectural and mechanical means to manipulate thermal environments. Assignments will focus on studio projects and helping students understand how environmental control systems affect their design.

Topics Covered Include:
- Carbon Neutral and Net Zero Energy Bldgs
- Climate and Comfort
- Active and Passive Heating/Cooling strategies
- Water and Waste
- Vertical Transportation (elevators and escalators)
- Acoustics
- Heating and Cooling Calc
- HVAC System Types
- Fire Protection
- Electrical systems
- Economic analysis.

Format:
Seminar/Lecture format supplemented with readings.
Assignments will be tied into current studio projects.
Site visits to downtown Portland buildings to see various systems.

Required Text:
- Mechanical and Electrical Equipment for Buildings (MEEB)
  Benjamin Stein & John Reynolds – Ninth Edition or Later

Supplemental Texts:
- Sun Wind and Light: Architectural Design Strategies by G.Z Brown and Mark DeKay
- The Architect’s Studio Companion: By Edward Allen and Joseph Iano
- The Green Studio Handbook by Alison Kwok and Walter Grondzik

Grading:
25% for homework assignments, 25% for class participation and reading/research
20% for Mid-Term, 30% for Final

Questions: Forward all questions to Paul Schwer, paul@pae-engineers.com