ARCH 492/592  Environmental Control Systems II

Course Description Spring 2021

Instructor: Lisa Petterson, AIA, LC, LEED AP BD+C, NCARB
SRG Partnership
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Meeting Time: Tues/Thurs, 5:10-6:40pm
Location: UO Portland (Remote)
Credit: 4 credits
Grading: Pass/No Pass or Graded

Overview:
This course is the second in a two-part series on environmental control systems. The emphasis is on sight (light), hearing (acoustics), taste (water) and smell (waste). The class will discuss environmental control systems as an integral aspect of the design process rather than as an applied after-thought.

The first part of this course focuses on architectural lighting, the rendering of building form in light. Emphasis for this portion of the class will be on understanding the basic principles of lighting and perception as a foundation for generating clear and successful design concepts, with a balance of practical and technical instruction so that designers can assume responsibility for lighting with increased confidence and renewed potential. The second part on the course will focus on the issues around water conservation, waste water treatment, acoustics, and fire and life safety systems. The class will emphasize design issues over technical concerns, using a series of in-class explorations and take home exercises.

Learning Outcomes
• Develop an understanding of spatial environmental qualities and quantities for the design and evaluation of spaces with respect to the integration of daylight and electric light (Exploration A), acoustics (exploration G), life safety (Exploration H), and water and waste (Exploration H) as evidenced by students integration of the above in the Course Final
• Develop an understanding of daylighting systems, building massing with respect to solar orientation, metrics and components as evidenced by student’s integration of daylighting principles in Exercise one and Explorations B and C
• Develop an understanding of electric lighting systems, sources, measurements, and calculations; apply the knowledge to design an integrated lighting storyboard associated with your studio project as evidence by integration of electric lighting principles in Exercise 2 and Explorations D, E and F.
• Develop an understanding of sound behavior in space and the application of architectural acoustics to enhance space performance, manage noise, and control sound transmission between spaces; apply the knowledge to design an acoustical storyboard associated with your studio project as evidenced by students’ integration of acoustic design principles in Exercise 3 and Exploration G.
• Develop an understanding of water and waste systems in buildings and their application to architectural design, net-zero water systems, and waste/water recycling technologies; apply knowledge to generate design concepts associated with your studio project as evidenced by student’s integration of water conservation and waste management principles in Exercise 4 and Exploration H.