GREEN BUILDING TECHNOLOGY: INTEGRATED FACADE DESIGN

Instructors: Donald Corner 262 Onyx Bridge
Mark Perepelitza Associate Partner, ZGF, Portland, OR

Meeting Time and Place: Monday and Wednesday 10:00-12:00. 383 Lawrence

Format: Advanced technology seminar.

Credit Hours and Grading: 4 credit hours, optional grading.

Prerequisites: ARCH 4/570, 4/571, 4/561, 4/562, 4/591, 4/592

Recommended Texts: There will be digital materials posted in a course folder on the Lab Network Drive. Print materials will be on reserve in the library.

COURSE OBJECTIVES:

The essential role of the building envelope - providing shelter, form, and image - can be expanded to significantly improve building performance, including major reductions in energy use. As shown by Northern European examples, extremely high-performing buildings can be aesthetically compelling and at the same time support pleasant and comfortable interior environments. Rather than a static enclosure, the building skin has the potential to capture or filter daylight, integrate natural ventilation, manage radiant heat transfers, and provide visual and physical connections between inside and out. High performance, integrated facade design can be realized in new construction and in strategic retrofits of existing buildings.

This seminar will expand concepts introduced in the Building Enclosure and ECS courses: fundamental principles of high performance facades, study of precedents, identification of specific strategies, computational analysis methods, technical detailing and design applications.

COURSE REQUIREMENTS:

The seminar will focus on the design and performance potential of advanced integrated facade systems, including reaching ultra-low (net zero) energy goals while supporting the comfort, productivity, and well-being of the occupants. After considering a range of building applications, the course will focus on commercial and institutional office buildings, with a particular emphasis on the retrofit of existing structures. The seminar will include guest presentations drawn from professional practice, manufacturing and the construction industry. It will include two field trips to Portland, probably on Fridays. Students will engage exercises and be expected to complete a comprehensive analysis and design for a specific facade.

INSTRUCTOR PROFILE:

Mark Perepelitza has practiced architecture professionally since 1992. For the past 18 months he has split his time between his position at ZGF in Portland and research and graduate studies at UC Berkeley. In 2008, he was awarded the Van Evera Bailey Fellowship from the Architecture Foundation of Oregon for his proposal to investigate effective applications of integrated facades in the Pacific Northwest. The research included five weeks of travel in Northern Europe to tour buildings and interview key design team members. He has collaborated with Lawrence Berkeley National Lab, the Center for the Built Environment at UC Berkeley, BetterBricks, and the UO Energy Studies in Buildings Laboratory. The work was presented in a gallery exhibit in the summer of 2009, and is also included in a set of web pages hosted by BetterBricks:
http://www.betterbricks.com/design/integratedfacades