Instructor: Mark Perepelitza, Adjunct Instructor
markp@serapdx.com

GTF: Beth Lavelle
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Time / Place: Tu/Th 6:00–8:00 PM, location: Event Room

Credits: 4 Credit Hours, required for professional majors in Architecture.

Course Content:
The building enclosure plays a number of essential roles: it provides shelter and weather protection, it creates architectural form and image, and it offers visual and physical interior-exterior connections. The enclosure is also crucial in supporting occupant comfort, productivity, and well-being (ideally with the lowest possible energy consumption.) In the design and construction of high-performing buildings, architects have the opportunity to make intelligent choices to balance trade-offs between competing functions. Effective innovative solutions can be developed from a strong understanding of enclosure performance fundamentals.

In this course we will study building science fundamentals and control layers which are critical to the creation of an effective and durable building enclosure. We will explore common enclosure materials and assemblies including metal and wood framing, weather control membranes, various types of insulation, a broad range of cladding materials, historic and modern mass wall assemblies, window systems, below grade assemblies, roof terraces, "green" roofs, and standard roofing assemblies.

We will engage these topics in the context of the design and documentation process. The emphasis will be on developing assemblies and the interfaces between systems in drawings and details from initial sketches through construction drawings. We will also touch on rules of thumb and analysis methods that support decision-making in technical design.

Building performance and sustainable design are important factors in the design and making of buildings and will be themes that weave through the course topics. We will primarily focus on current best practices, but will also discuss building enclosure trends and emerging technologies.
Course Objectives:
1. Build on the students’ understanding of the multiple roles of the building enclosure.
2. Study the building science concepts at play in building enclosures and the control layers required to manage them.
3. Explore a wide range of exterior wall, roof, and foundation materials and assemblies.
4. Engage the design, analysis, and documentation process in the creation of a complete and effective building enclosure.

Course Format:
The course will include lectures, guest presentations, projects and readings. Two technical design projects will provide an opportunity to explore and apply the principles covered in the lectures and readings through design, drawing, and detailing. For each project, one class period will be devoted to pin-up reviews with professional architects and consultants. In addition to the projects, a midterm and a final exam will cover the content of the course. An optional field trip will also be scheduled.

Blackboard:
Course information will be posted on Blackboard. Reference materials supporting projects 1 and 2 will be available. PDFs of lectures will be posted.

Texts:
Brock, Designing the Exterior Wall, Wiley, 2005
Additional materials will be on hold in the library and posted on Blackboard.