

Integrative Architectural Design

Arch 553, Fall 2014

Syllabus

Meeting time:	MWF, 2:30 - 5:30
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Syllabus

Warm-up

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Overview

All accredited professional programs in architecture are accountable to a national accreditation board to meet a set of educational performance criteria required for successful entry into practice. The first graduate design studio (Arch 553) provides each student with the opportunity to demonstrate the

"Ability to make design decisions within a complex architectural project while demonstrating broad integration and consideration of environmental stewardship, technical documentation, accessibility, site conditions, life safety, environmental systems, structural systems, and building envelope systems and assemblies." National Architectural Accreditation Board 2014 Conditions for Accreditation, Realm C, Integrated Architectural Solutions.

553 Home

This means that each student will be challenged to bring the knowledge, skills and understanding gained from all past coursework and personal/ professional experience to the development of a conceptually coherent, comprehensive, integrative, and buildable architectural design proposal.

Armpriest Home Architecture Home

The project for this semester is a new home for the president of the University of Idaho. This project is under development at this time, and we will have access to information that has been generated to date. The studio is sponsored by the [Idaho Forest Products Commission](#), and includes a design competition and several sponsored events and activities. The same project will be undertaken by both sections of the Arch 553.

We will follow a process similar to that used in architectural practice, and students will take on responsibilities associated with developing a project from the beginning through the design development phase. With this approach, comes the expectation that each student and the studio as a whole will be committed to a high level of performance and collegiality.

Issues in Contemporary Practice

Most students will be enrolled in Arch 575 – Professional Practice – this semester. There will be much discussion of what practice means and will look like in the future. This is a much written about and speculated upon as evidenced in emerging forms of practice. Resources such as [Architecture2030](http://www.architecture2030.com/) (<http://www.architecture2030.com/>) which sets forth a challenge for all designers, and the Sustainability Leadership Opportunity Scan, 2013 which seeks to reposition AIA's leadership responsibilities (<http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab100278.pdf>). Leaders agree that the approach to practice requires collaboration and integrative thinking and that the challenges include responsible use of energy in building (process and product) and an informed selection of building materials, design for resilience and in support of healthy living.

Learning Outcomes

All accredited professional programs in architecture are accountable to a national accreditation board to meet a set of educational performance criteria required for successful entry into practice. Because this is the penultimate design studio, our efforts will be very integrative in nature, and we expect that the work of each student will demonstrate an:

Ability to produce a comprehensive architectural project (based on a given outline building program and site) that includes development of programmed spaces and demonstrates an understanding of structural and environmental systems, building envelope systems, life-safety provisions, wall sections and building assemblies and the principles of sustainability.

principles of sustainability.

Within this context, students will also demonstrate

- *an ability* to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design,
- *an understanding of* the basic principles and appropriate application and performance of construction materials, products, components, and assemblies, including their environmental impact and reuse,
- *an understanding of* the responsibility of the architect to elicit, understand, and resolve the needs of the client, owner, and user, and
- *an ability to* engage the environment in a way that dramatically reduces or eliminates the need for fossil fuel (2010 Imperative)

Click on NAAB Learning Outcomes for the official student performance criteria for Integrative Architectural Design. http://www.naab.org/accreditation/2014_Conditions

Methodology

The design studio is a highly interactive educational setting. It requires the full participation of students and instructors alike as we engage in the design process, including discussions, architectural analyses, critiques, field trips and other activities. The primary emphasis is on developing an individual design proposal. There may be several group projects during the semester designed to develop shared resources and the results of these projects are critical to the success of individual proposals.

Website <http://www.uidaho.edu/armpriest/DesignStudio/Arch553/index553.html>

The class website is an important means of communication. The syllabus, assignments, schedule and resources will be posted, and there will be regular updates posted as needed. Plan to visit this site first if you have questions about class.

Field trips

While most classes are held in the studio or a nearby review space, there will be several field trips during the semester. Several will be scheduled during and extended class time. Transportation for these may be provided. There may also be a field trip to Seattle, and students will need to provide their own transportation and lodging; however this will be coordinated during class.

References and Studio Resources

Architecture by nature is referential: that is, it refers directly or indirectly to work that has come before. There is a vast amount of information available today, and each student will undertake to gather and study resources that will be useful in developing a design concept. As a studio, it is important to learn from each other and to share our resources and references. There are several methods we will use to facilitate this exchange.

- Each class will begin with a studio meeting. There will be a time set aside for discussion of new information and resources. Everyone is expected to contribute to these discussions.
- Copies of articles, information, analysis, etc. will be available to all members of the studio –either on the studio website or shared drive.
- Design reviews and critiques
- Informal discussions among students.

Books

Three reference books will be used frequently in this class:

Allen, Edward. *The Architect's Studio Companion*. New York, John Wiley.
Kwok and Grondzik. *The Green Studio Handbook*, 2nd Ed. Elsevier Inc.
ICBO. *International Building Code (IBC) 2009*.

They are reference books in the UI Library. If you do not own them already, plan to purchase them for your personal library. They have been ordered at the UI bookstore or may be purchased elsewhere.

Studio Culture

The statements below describe expectations held by the instructor, and are also standard work habits in a professional setting.

- Each student is expected to conduct a rigorous investigation of alternative solutions to the design problems that arise as a result of the investigation and development of the project throughout the semester.
- Each participant is expected to make a positive and substantive contribution to the critical and intellectual life of the studio. Inherent in this is that we all demonstrate respect for the ideas and opinions and of each other.

- Each student will be prepared to discuss the work assigned for the day at the beginning of class. Work presented for review and discussion will be legible and demonstrate that new work has been developed since the previous review.
- Studio life should reflect our commitment of social, cultural and physical aspects of sustainability. This includes a we will recognition that we share a workspace, and each person works differently and need respectful of work habits and needs of classmates, and others who share the 3rd floor studios.
- Attendance (on time) at all classes, review sessions and field trips is expected, including working in studio during the full class period. If you will be absent or late, contact the instructor prior to the class meeting.

Evaluation Criteria

The following criteria will be used in evaluating the work accomplished for this studio during the semester:

- *Design/Concept.* The completeness of the design solution (including the extent to which the design response meets project criteria), clarity of expression of design concept, integration of technical, aesthetic and functional requirements. This will be assessed through design drawings, models, diagrams, etc. at various stages of development.
- *Design Process.* The ability to synthesize information from many sources, study a variety of design options, recycle work and continuously strengthen the design concept. This includes successful completion of all assignments. This is assessed through sketches, diagrams and daily interactions in studio.
- *Representation.* The clarity, completeness, craft, and composition of preliminary, intermediate and final presentations: drawings, models, computer visualization, etc.
- *Oral/Written/Group Communication Skills.* The ability to articulately communicate - verbally and in written form - with peers and faculty, participate in discussions, group projects, and studio life.
- *Effort.* The quality and quantity of time spend in studio and out, working to develop design understanding and project goals and objectives.
- *Contribution to Studio Culture.* See description above.

Disability Services Statement

Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodation(s) needed for the course. Late notification may mean that requested accommodations might not be available. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 333.



UNIVERSITY OF IDAHO

ARCH 553 INTEGRATIVE DESIGN STUDIO HAGLUND FALL 2014

The Next Presidential Residence

"I think Jeanne and I ran nearly 75-100 events each year at the UI presidential house. We had faculty receptions, receptions for departments, alumni activities, the golden alumni reunion receptions, special lunches and dinners for special guests, graduation events, student receptions, special community dinners, Lionel Hampton Jazz Festival receptions, student recruitment receptions and countless dinners and luncheons with many different purposes. I am tired just thinking about the things we did."

—Bob Hoover, Former UI President

This project is the seventh in a series of comprehensive studios undertaken in response to Ed Mazria's challenge to the architecture profession to produce carbon neutral buildings by 2030. His case is well-articulated on his web site www.architecture2030.com. Both the AIA and the Association of US Mayors have endorsed Mazria's challenge. Mazria reckons that each year in the U.S. we tear down about 1.75 billion square feet; renovate 5 billion, and build 5 billion. Therefore, in 30 years 300 billion square feet will be renovated or built new; that's about 75% of the built environment. If this is accomplished with carbon in mind, global warming can be controlled. Mazria's challenge has expanded to the global scale (*we can't have a sustainable country in an unsustainable world*) as the UIA World Congress, Durban 2014 has vowed to reduce carbon emissions to zero by 2050. See the [2050 Imperative](#).

Ryan Smith on the future of practice and education

(See <http://network.aia.org/CenterforIntegratedPractice/Home/OnEducation/>):

"The industry is rapidly advancing and it is clear that if architects do not integrate stakeholders well in the process of building, the industry will continue on without them. Hence the development and existence of the AIA Center for Integrated Practice, a nexus of the TAP, PD, and PM Knowledge Communities, whose mission is to be advocates and advance the role of the architect in integrated practice. Beyond the need to stay relevant in light of emerging technology, there is another reason why architects are critical to the integration paradigm. As a discipline, architects are fundamentally concerned with the critical historical and theoretical ethics of aesthetics, quality, and environmental stewardship – making architects the primary cultural harbinger of the building industry. Finding architectural solutions to the issues of today: social inequality, economic

disaster, and environmental causality require an integrated process of collaboration. Therefore, in the end, architecture as a discipline and architects as professionals should and can be leaders in the process of integrated practice."

AIArchitect on *The Sustainability Leadership Opportunity Scan*, 2013: (See <http://www.aia.org/practicing/AIAB100276>)

Four Priority Issues

A 12-person advisory group of diverse thought leaders helped to synthesize the research into four priority issues that will make the greatest impact for the profession. The scan's recommendations include two core issues (central to the architect's current role) and two emerging issues (rapidly escalating areas where architects can contribute to a better environment for current and future generations).

Core Issues

- **Energy:** Drive building energy efficiency and the use of renewable energy toward meeting the AIA 2030 goals of achieving net-zero energy in buildings.
- **Materials:** Equip architects to make informed decisions about material selections based on full life-cycle and health-related criteria.

Emerging Issues

- **Design & Health:** Play an active role in improving human health and wellness through the design of the built environment.
- **Resilience:** Promote design that adapts to changing conditions and that maintains or regains functionality and vitality in the face of natural and man-made disturbances.

Our goal is to meet or exceed the project goals and to work toward carbon neutrality and zero net energy.

"Sustainability provides the prism through which architects and architecture firms are designing today," said AIA Chief Executive Officer Robert Ivy, FAIA in a release. "But we still need to have energy modeling become standard for every design project if we are going to meet our ultimate goal of carbon neutral buildings."

—*ECOBUILDING Pulse* [2013](#). Posted on: October 23, 2013

Students will accomplish a comprehensive design project in two phases:

- Discovery, Programming, Research, and Planning Phase through Oct 3 (6 weeks)
- Comprehensive Design Phase through Dec 5 (8 weeks).

Collaboration

During this project our main collaborators will be the [Idaho Forest Products Commission](#), AIA Idaho Chapter, Diane Armpriest's Arch 553 Studio, and UI Architecture and Engineering. We'll organize a competition jury with our collaborators. The design jury day will include an awards luncheon.

Collective Programming, Research, and Planning Requirements

This phase simulates the work of an integrated practice where architects, engineers, and landscape architects and their clients and consultants initiate a project and develop its master plan. We'll seek out experts on campus and beyond as well as with our client group and carbon-neutral collaborators to help form our design solutions.

Each student will have the opportunity to present her/his research to the group and will be required to provide a hard copy for the studio. The research reports should include photo credits, references, and sources of further information. Two to five pages are expected. The [Druk White Lotus School](#) case study draft is a pertinent example.

Integrative Design Requirements

[NAAB 2014 Conditions for Accreditation](#) defines integrative design as, "**Ability to make design decisions within a complex architectural project while demonstrating broad integration and consideration of environmental stewardship, technical documentation, accessibility, site conditions, life safety, environmental systems, structural systems, and building envelope systems and assemblies.**"

Your work should aim to address Student Performance Criteria in Realms B and C. See pages 16-18 for details.

Realm B: Building Practices, Technical Skills, and Knowledge. Graduates from NAAB-accredited programs must be able to comprehend the technical aspects of design, systems, and materials and be able to apply that comprehension to architectural solutions. In addition, the impact of such decisions on the environment must be well considered.

Student learning aspirations for this realm include

- Creating building designs with well-integrated systems.
- Comprehending constructability.
- Integrating the principles of environmental stewardship.
- Conveying technical information accurately

Realm C: Integrated Architectural Solutions. Graduates from NAAB-accredited programs must be able to demonstrate that they have the ability to synthesize a wide range of variables into an integrated design solution.

Student learning aspirations for this realm include

- Comprehending the importance of research pursuits to inform the design process.

Evaluating options and reconciling the implications of design decisions across systems and scales.
 Synthesizing variables from diverse and complex systems into an integrated architectural solution.
 Responding to environmental stewardship goals across multiple systems for an integrated solution.

A successful project will have well-developed and well-integrated schemes for:

Component	Methods of Presentation
Structural Systems	Annotated diagrams of vertical and horizontal systems.
Building Envelope	Detailed sections of wall-roof and wall-floor connections. Opaque and g details. <i>Opaque</i> model of thermal properties of wall and roof systems.
Environmental Systems	Diagrammatic of primary and back-up systems for heating, cooling, light water. Energy Star target for your building type. Thermal model of building per (<i>HEED</i> or <i>DIVA</i>). Lighting model as required.
Life Safety & Accessibility	Diagrammatic of access (ADA?), sequence, overlap, nesting, hierarchy service—all that apply.
Site Design	Show integration of building and site ecologies.
Building Materials	List of primary building materials with notations on carbon debt calculat estimated (none, low, average, high).
Integration of Systems	Conceptual diagram of how systems intertwine beautifully.

Carbon Neutral Design Requirements

What is your *carbon emissions intent* for this project? How do you define success relative to this intent? What evidence that this intent has been successfully met can be found in this project?

Show how your project meets [Architecture2030's](#) or [The Living Building Challenge's](#) requirements in all phases of the construction process.

Final Presentation Guidelines

The final critique will allow for **40-slide** presentations and two board posters of each project to the jury. Each team may choose any combination of media appropriate to its project, anything from water colors to physical models, to digital media.

Presentations must address **all** the systems listed above and demonstrate their integration and achievement of carbon emission reduction. A CD containing the final presentation (if digital—ppt or pdf) and images of all drawings, models, and other materials in jpg or pdf format must be turned in by **Dec 12**.

COURSE DESCRIPTION	RESOURCES	ARCHIVE	
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Last Updated on 08/21/13 by Bruce