ARCH 6040 – Advanced Architectural Design – Integrated Design
School of Architecture – Georgia Institute of Technology

Portman Prize Competition Studio – Spring 2019
Portman Visiting Critic: Alan Organschi

Associate Professor Sonit Bafna
Associate Professor Jude LeBlanc
Associate Professor Charles Rudolph
Professor of Practice David Yocum (Coordinator)

Building the Carbon Positive City:
Architectural Experiments in Mass Timber and Bio-materiality

Course Syllabus: January 7, 2016

Required Class Attendance Time
Studio: Monday and Fridays 1:30-6:30pm, Wednesdays 1:30-3:30pm
Lectures: Wednesdays 4-6pm
The Integrated Design Studio at Georgia Tech

Within the M. Arch professional degree program at Georgia Tech, the Advanced Architectural Design II Studio is the final in a sequence of five Introductory and Advanced Architectural Design Studios at the School. It culminates the two-year studio sequence prior to Design and Research Studios, and takes the form of a semester-long, integrated building design assignment.

An integrated design studio incorporates key aspects of architectural education. Exercises in fact-finding, observation, analysis, and interpretation are undertaken in response to proposed site, program, and relevant precedent research. These are often conducted individually or collaboratively but always for the benefit of the entire studio. From these initial gathering processes, an approach can be developed to form underlying critical observations and design ideas. This is often referred to as the architectural “concept”, or “a position and a proposition,” forming the intellectual basis of design work within the framework of the studio.

What distinguishes the integrated design studio from others is the emphasis on joint- and collaborative work, testing of ideas and production in a shared laboratory setting, an infusion of outside guiding “specialists” into the teaching process, and the use of specific tools in an iterative and deductive process to distill a design proposal that is not only compelling, but in specific response to the stated and focused problem at hand. By comparison to previous studios, individual student accomplishment is channeled through the shared problem of the entire studio rather than just within the form of a single personal project.

The integrated design studio allows the instructors and students an entire semester to develop a comprehensive approach to a project. The intent of the work is to document a building proposal at multiple scales, with skilled use of traditional and contemporary architectural tools of representation, and through complementary media. A key pedagogical goal is that the student is able to demonstrate a broad and thorough understanding of the technical, material, cultural, and spatial information that is required to describe the potential building.

The Portman Visiting Critic

Architecture has always been a complex profession that requires expertise from many disciplines to succeed and perhaps no other career exemplifies this more than the career of visionary architect John Portman. As design teams expand in size and range of expertise in response to the complexity of buildings and cities in the 21st century, the role of architects has never been more important. Learning to effectively collaborative with people in other industry sectors including construction, real estate development, and building technology has become essential to the future generations of architects. Preparing students to be leaders in this new professional context is the core vision for the Portman Prize Studio. We see the Portman Prize
Studio as an innovative 21st century educational model for the delivery of architectural design
studios.

In order to enrich and accelerate the process of the integrated building design studio, the
semester is guided by a Portman Visiting Critic. Each year, a distinguished practicing architect /
educator is invited to participate during the full arc of the semester’s work, establishing a
research agenda, giving a lecture prior to the start of the semester, visiting multiple times during
the semester, convening specialists to supplement the educational dialogue, and guiding the full
student cohort through the process of the work.

This year’s Portman Prize Critic is Alan Organschi. A trained cabinet-maker and builder as well as
a teacher, Alan has developed a practice and a pedagogy that seeks to link broad based
conceptions of architectural space, form, and program to the physical means and methods of
producing them. As a member of the faculty of the Yale School of Architecture, he coordinates
Yale's first-year graduate housing studio that culminates each spring with the student design
and construction of an affordable house in New Haven. He is also an instructor in building
technology at the school and has led a Yale Architecture graduate research seminar on new
technologies in timber. Starting in 2019, Mr. Organschi will direct the new Yale Building Project
Lab, an expansion of the Jim Vlock First Year Building project that will explore material and
assembly research through design-build experiments at different scales of construction.

Mr. Organschi has lectured on architecture, technology, and the ecological impacts of building at
universities and public and professional forums in the US, Canada, and Europe. He currently
serves as a member of the advisory board of the 5000 lb Life, an initiative by the Architectural
League of New York that explores design as a tool of climate change mitigation.

In 2009, Mr. Organschi received a grant from The Hines Research Fund for Advanced
Sustainability in Architectural Design for work on high density, high performance wood housing
in the United States That same work continues today under the auspices of Timber City, an
interdisciplinary research initiative supported by Gray Organschi Architecture along with the
Hines Fund at Yale, the SITRA Fund in Helsinki, Finland, and a US Forest Service Wood Innovation
Grant that examines the potential supply chain links between sustainable forest management
and dense urban construction in wood.

Alan has served as the Louis I. Kahn Visiting Assistant Professor of Architecture at Yale where his
students, in both a research seminar and an advanced graduate design studio, explored the
carbon emissions of building and the possible role of forests in dense timber construction in
climate change mitigation. He served as a member of the US Tall Wood Building Prize
Competition design and evaluation team and continues to serve as a jury member for Timber in
the City, a series of ongoing national competitions for the design of mass timber structures in
New York sponsored by the Association of Collegiate Schools of Architecture. In 2012, he and his
partner Elizabeth Gray were awarded an Architecture Prize by the American Academy of Arts and Letters.

Today, in addition to his practice and research, Alan continues to lecture internationally on the global impacts of material extraction and resource depletion in the face of global urbanization and population growth.

The Portman Prize

At the conclusion of the semester, following the Final Review for each section, the Portman Critic will convene a Prize Jury of fellow distinguished practitioners, educators, representatives of John Portman & Associates, and peers, during which the best student projects from each section will be reviewed and evaluated for the Portman Prize and other awards of merit.

The winning project should demonstrate a comprehensive understanding of a building proposal, one that shows integrative logic relating to structure, enclosure, and materials. Addressing the defined research agenda of the semester, the project should be imbued with conceptual richness, inventive and responsive to issues of site and program, and resolved in both whole and detail. The final jury will award ranked prizes, each carrying monetary awards. The top prizewinner will also be offered a summer internship in the office of John Portman & Associates. Should the winner be unable to accept the summer internship for any reason, the offer will go to the second or third place winner.

Primary Pedagogical Objectives of the Course

“If the 19th century was the century of steel and the 20th century the century of concrete, then the 21st century is about engineered timber.” – Alex Der Rijke of DRMM

The 2019 Portman Prize Studio will explore the architectural potential of emerging mass timber structural technologies and the technical and environmental implications of material systems and construction assemblies drawn primarily from regionally sourced and renewable, reused, or recycled building products. Through the design of an urban building comprised of both individual residential and shared community programs, students will experiment with the properties and capacities of engineered wood and other bio-based building materials and their application to new hybrid organizations of private and social spaces in the city. A series of iterative design exercises encourages broad based research, inquiry, and experimentation, encompassing scales that span from regional supply chains to the technical details that provide for a building’s durability and performance; design considerations that range from the whole building lifecycle to an individual’s experience of surface, material, heat, sound, and light; and motivations that combine spirited architectural invention with a deep sensitivity to the health
and well-being of both the inhabitants of a building and the ecosystems it draws upon for its sustaining resources.

The studio structure examines the process of building design through distinct lenses:

- The first is the lens of performance, in which we explore the properties of a given material in order to uncover novel solutions to the technical demands of building. An initial exercise requires the processing of a raw material, wood, into workable building elements and their assembly (at full scale) into a “building” whose program requires it to perform specifically and quantitatively (in real time.)

- A second lens is a spatial and organizational one, in which a building is conceptualized in a way that solves the relationship between a complex program and site and will sponsor the subsequent development of innovative architectural space and form.

- A third lens examines the systemic relationships of building structure and services and seeks to integrate them in a way that is internally coherent as well as congruent with the concept and principles of the building organization.

- A fourth lens focuses on the experience and identity of the building through the development of its enclosure, in which the constituent layers of a building envelope are deployed as a means to mediate our experience of the environment through the control of heat and air flow, sound transmission, vapor migration, and moisture penetration; the admission and reflection of daylight; and the creation of access and views.

The filter we apply to all these lenses is one which allows us to understand the environmental impacts we create through our design decisions and the resulting building process; impacts that effect the immediate building site as well as the remote landscapes from which we draw material and energy and, eventually, may burden with waste; over time scales that range from instantaneous human sensation to the more protracted processes of biological growth or, beyond that, geological formation.

Throughout the semester, the studio faculty and its guest reviewers will evaluate student work based on its embrace of the pedagogical focus of each lens, the vigor and thoroughness of the resulting exploration, the inventiveness of the response and the demonstrable development of the architectural concept over the course of the semester.

**Evaluation of the Work**
Ultimately, at the end of the semester, the studio faculty and Portman Prize Jury will judge each student design proposal on the basis of the following criteria:

- The quality of the architectural concept and the rigor with which it is developed;
- Its technical sophistication and resolution;
- The effectiveness of its visualization and representation through a variety of material, graphic, and digital media, those prescribed within each studio section as well other techniques that students may employ to supplement and substantiate their presentations;
- The breadth of design consideration with respect to the environmental and social implications and impacts of the building proposed and the way in which those concerns are quantified and visualized.

**Supporting Learning Objectives of the Course**

- Explore structured collaborative work amongst students and faculty in addition to individual proposals.
- Incorporation of outside community of specialists into discovery and learning process.
- Identify and experiment with specific tools for integrated thinking and making.
- Create and follow a structured workflow for innovation and iteration.
- Specific emphasis on evidence of physical modeling, making, and mock-ups.
- Distill key findings into a compelling discovery and proposal that has a conceptual and physical imperative, and is fully described.

**Specific NAAB Objectives of Course**

B.3 Codes and Regulations: Ability to design sites, facilities, and systems that are responsive to relevant codes and regulations, and include the principles of life-safety and accessibility standards.

C.2 Integrated Evaluations and Decision-Making Design Process: Ability to demonstrate the skills associated with making integrated decisions across multiple systems and variables in the completion of a design project. This demonstration includes problem identification, setting evaluative criteria, analyzing solutions, and predicting the effectiveness of implementation.

C.3 Integrative Design: 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.
**Studio Sections**

Each studio will be run as an independent research Section, establishing their own final requirements for each Assignment. However, requirements for the Final Review and Prize Jury Review will be common. These will be published during the course of the semester.

Section Professors will present their specific agenda, interests, tools and workflow during Studio Presentations on the first day of class. Students will make state preferences in ranked order. A lottery will determine studio assignments.

**Reading, Reference and Building Precedent List**

Prior to the start of the semester, students will read the assigned essay, "Architectural Speculations in a Black Market" by Alan Organschi, from *Timber in the City* (Andrew Bernheimer, ed.) Each student will write a 200 word response that is to serve as a conceptual catalyst for the Portman semester project.

In addition, a list of reference texts and websites as well as a partial list of timber building precedents is included at the end of this syllabus.

**Assignments and Workshops**

Issued under separate cover at the start of each phase of work. Refer to Schedule for durations and due dates. All persons indicated as participants and reviewers are tentative.

Assignments:

- **Assignment #1**: Heat, Light, Sound: Explorations of Wood as a Building Material:
  - Alan Organschi, Portman Critic
  - Philip Tidwell, visiting professor UMass Amherst, Assistant Director, Wood Program, Aalto University, Finland

- **Assignment #2**: Roughly Hewn: Programs and Partii. Tentative Reviewers:
  - Alan Organschi, Portman Critic
  - Lisa Gray, Partner Gray Organschi Architecture;
  - Parker Lee, Senior Associate and Technical Steward, Gray Organschi Architecture;
  - Andy Ruff, Senior Associate, Research Coordinator, Gray Organschi Architecture/Timber City
• Assignment #3: Trunks and Crowns: Structures and Systems
• Assignment #4: Rhytidome: Enclosures and Materiality
• Assignment #5: Distillation
• Final Review

Workshops:

• **Workshop #1**: The role of engineered timber in building and the properties and vulnerabilities of wood.
  o Alan Organschi, Portman Critic

• **Workshop #2**: Technical detailing for thermal performance, moisture control, acoustical isolation, and daylighting
  o Alan Organschi, Portman Critic

• **Workshop #3**: Structures and Systems @ UMASS and Bensonwood
  o Alan Organschi, Portman Critic
  o Peggy Clouston, Associate Professor, Building and Construction Technology, UMASS - [https://eco.umass.edu/people/faculty/clouston-peggi-l/](https://eco.umass.edu/people/faculty/clouston-peggi-l/) and [https://www.umass.edu/researchnext/feature/green-design](https://www.umass.edu/researchnext/feature/green-design)
  o Jean-Marc Dubois, Nordic Structures - [https://www.nordic.ca/en/home](https://www.nordic.ca/en/home)

• **Workshop #4**: Rhytidome: Enclosures and Materiality
  o Alan Organschi, Portman Critic
  o Chris Carbone, Bensonwood Engineering Steward
    or
  o Floris Keverling Buisman, CEO and Technical Director, 475 High Performance Building Supply

• **Workshop #5**: Distillation and Expansion: Regional Supply and a Carbon Challenge
  o Alan Organschi, Portman Critic
  o Matti Kuittinen, Finnish Ministry of the Environment, Aalto University

**The Program**

A multi- and mixed- use building in mid-rise dense urban community. 4-8 Stories consisting of the following:
• Urban Marketplace (Food, Wares, with Loading Areas and Access) 12,000 NSF
• Short Stay Housing (SRO, MicroHotel, Airbnb) (40)@250 SF 10,000 NSF
• Community (Public, Accessible, Rentable, etc. by Section)  4,000 NSF
Subtotal Net Areas 26,000 NSF
• Grossing Areas (Walls, Circulation, Common, Services) 1.66 Factor 15,600
Total 41,600 GSF

The Site

The site identified for the semester’s design project falls at the convergence of South Boston, Fort Point, and the South End areas of Boston, Massachusetts. The building lot lies between West 4th and Traveler Streets along the rail sidings that line the Bass River. It is simple and constrained in plan but complex in section as West 4th Street rises to cross the river, demanding that student design solutions address both public and private residential access at grade and along the elevated roadway, as well as both the industrial character of the rail yard and the urban character of a rapid redeveloping urban neighborhood. At another scale, students will consider Boston, a rapidly growing city similar in population and regional importance to Atlanta, and its potential through innovative architecture to take advantage of the rich regional forest resources of the US Northeast through new bio-material manufacturing supply chains.

Portman Prize Jury

There will be common requirements for Final Prize Jury Submittals. These will be published during the course of the semester. Students must submit work that was produced individually. Each student will be allotted an equal amount of wall space and floor space, as well as access to a digital monitor. Mixed media presentations are strongly encouraged, including both digital (monitors or screens), physical (3d models) and graphic (drawings and boards).

Criteria for advancement of three (3) students to present at the Final Prize Jury will be determined by each Studio Section Instructor. It is strongly encouraged that the decision regarding advancement incorporates the advice of the Studio Instructor, the Studio Students, and the Studio Final Jury.

Schedule
See attached 11x17 Schedule at the end of this document. All Assignment and Review dates on this schedule are mandatory. This will be updated as needed and distributed throughout the semester.

**Critical End of Semester Dates and Associated Requirements**

**Friday, April 12**
- Portman Studio Final Review by Section (mandatory, all day)

**Saturday, April 13**
- Portman Studio Prize Jury Review by Section (mandatory, all day)

**Monday, April 22**
- All Studio Clean-Up Day (mandatory)

**Tuesday, April 23**
- Deadline to Hang End of Year Show (mandatory)

**Friday, April 26**
- SoA Awards Day

**Saturday, April 27**
- SoA End of Year Show Opening Reception

**Monday, May 6**
- Grade Submission Deadline at Noon EST
  - Work not submitted 48 hours prior to this time will not be considered for grading.

**Studio Expectations, Protocols, and Requirements**

**Studio Culture**
http://www.arch.gatech.edu/studentlife/studio

Each student is responsible for the production of his/her own work. This applies to team projects as well as individual projects.

Critical guidance is central to the learning experience of the studio, whether in one-on-one scenarios or informal group discussions. Students are expected to be prepared for desk crits as Instructors will make every attempt to see as many prepared students as possible on a given studio class day.

Your creative production is a result of both personal initiative and time management.

**Master of Architecture Handbook**
http://www.arch.gatech.edu/graduate/handbooks/march

**Readings**
Required reading materials will either be provided as hard copy or will be placed in a studio folder or uploaded to a common folder. Instructors may make readings available on other
electronic sites and may distribute other readings in their section seminars. Reasonable time will be given to complete readings prior to discussion.

**Studio Attendance**

Attendance is mandatory throughout the studio class period as well as lectures. Studio sessions begin promptly and end as determined by each instructor. This may, at times, fall beyond the published ending time of the class, due to the time spent with each student individually.

Each student is required to attend regularly scheduled class meetings and to participate in all class discussions and group meetings. Each student is also expected to attend scheduled reviews and pinups, and to complete project requirements as per the Schedule. Students are required for the full duration of the scheduled class time. Arriving late, or leaving early, will not be tolerated without prior approval. You must address any scheduling conflicts with your studio instructor at the beginning of the semester.

Studio is a laboratory course, not all classes will include direct instructional time. There will be periods of studio, and full studio sessions, through the semester where you are expected to attend and to complete your assigned work, without direct instruction. These are independent working periods, often prior to major pin-ups or reviews, and are critical to the progress of your work.

Missing three studio classes, excused or unexcused, will result in a meeting with your Instructor and the Architecture Program Office to determine a course of action.

Missing more than three studio classes without an approved excuse will result in a letter grade reduction.

**Studio Work and Documentation**

The work produced in studio is the property of Georgia Tech and may be collected for archival purposes or for representation in the accrediting process. Prior to the issuance of a grade, each student must document his/her work upon completion and submit a complete and high-resolution digital portfolio of the work to their Instructor.

Each Studio Section will be required to produce an 11x17 book of each of the Projects produced in the Section. The production of the book is the responsibility of the entire Section. No grades will be issued to any student in a Studio Section until this requirement is complete and submitted to the Studio Coordinator.

**Correspondence**

Your Georgia Tech email address is considered your official address. Please use it and not third-party services. Email is a form of official correspondence. Failure on your part to receive email sent, or failure on your part to send email, does not constitute an acceptable excuse for failure
to complete required work or attend required class. When in doubt, contact your Instructor in person, in addition to confirming receipt of any time-sensitive or urgent correspondence.

Environmental Concerns:
Aerosol sprays of any kind are strictly banned from the studio and surrounding areas. A spray painting booth is in operation in the COA shop, on the lowest floor of COA East. Use no high-VOC solvents or other noxious or hazardous chemicals in studio.

Shop Use
All students using shop facilities must first have completed an orientation. Students must comply with all shop procedures or they will lose shop privileges.

Phones and Digital Media in Studio
During class hours, students should cease or strictly limit their use of devices for personal matters and/or entertainment purposes. All electronic devices should be muted. If you must take or initiate a telephone call or other message, step outside of studio.

Music in Studio
Headphones must be used during studio hours. After studio hours, headphones should be used in consideration of others.

Media in Studio
Be judicious of your time and attention, and be considerate of others. Do not view entertainment media during studio hours. Instructors maintain the right to limit or remove media that is distracting to the work of the studio.

Studio Housekeeping
Keep your assigned areas clean of debris and trash. Do not store materials on the floor. Keep all common areas clear of your personal belongings. Please be mindful that you are sharing space with others, and that their personal work environment is as important as your own.

Course Grading

Attendance, participation, timely completion of work, the depth of engagement in studio issues, and the making of progress in your work provides the foundation for your grade. Conceptual rigor, project development and refinement, drawing and model-making requirements, and craftsmanship all matter greatly and factor in the evaluation of your performance. Grades are earned by you—not given by your Instructor.

A grade of “F” represents “failing” work. This grade reflects a failure to meet the studio requirements, including attendance, minimum requirements concerning presentation and fulfillment of studio requirements. In case of an “F”, the studio will need to be repeated.
A grade of “D” represents “unsatisfactory” work. This grade reflects that you have significant attendance problems, poor studio performance, failure to meet deadlines, non-fulfillment of the basic requirements of the studio, and/or your project is not plausible. In case of a “D”, the studio will need to be repeated.

A grade of “C” represents “satisfactory” work. This grade reflects that you have met the basic requirements of the studio, and your project is plausible, even if under-developed.

A grade of “B” represents “good” or “very good” work. This grade reflects that you have met the full requirements of the studio, and that your project is developed to the point where evaluation can be made relative to the studio’s essential themes and criteria. Your project demonstrates a reasonable degree of completeness, care, and insight.

A grade of “A” represents “excellent” work. This grade reflects that your project represents both a clear understanding of studio themes and criteria, and is a self-motivated exploration beyond the basic course requirements. Projects that receive grades of “A” are exemplary projects in terms of concept, production, and craft.

Midterm grades may be assigned following the Midterm Review at the discretion of your Section Instructor. Receipt of a passing grade at Midterm does not guarantee a passing Final grade.

Before initiating any grade dispute, contact the Program Office and review Institute policies.

**General Institute Standards and Guidelines**

- Course Catalog: [http://www.catalog.gatech.edu/index.php](http://www.catalog.gatech.edu/index.php)
- Counseling: [http://www.counseling.gatech.edu/](http://www.counseling.gatech.edu/)
- Academic Honor Code: [http://www.honor.gatech.edu/content/2/the-honor-code](http://www.honor.gatech.edu/content/2/the-honor-code)

Please note that GT is a Tobacco Free Campus.

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