

## **ARCH-599-2016.3**

### **RESEARCH + DESIGN + BUILD**

Units: 2 Fall 2016

Day/Time/Location: Wednesday 6:30 – 9 PM in Harris 115a

Instructors: Associate Professor Charles Lagreco, Associate Professor of Practice, Gary Paige

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#### **Course Introduction:**

Building on a long legacy of design activism and leadership in Southern California, the University of Southern California School of Architecture, is initiating an active community based design build program. This is a logical evolution based on our school traditions supporting individual design – build precedents like the award winning Good Neighbors Community Park and the Solar Decathlon House Project. The goal of the USC Research + Design + Build Initiative is to identify immediate need and real world projects through direct engagement addressing important issues confronting our community, by developing and deploying school resources for project design and delivery in a viable academic context; engaging students from the school and involving cross discipline contributions available at the University while collaborating with the surrounding communities to establish a sustainable program responding to the evolving needs of our community at diverse scales.

As an educational institution, we have the ability to investigate ideas, techniques and materials in a research-based process and share our knowledge with the broader community context by identifying needs, testing precedents, programming creative solutions, and identifying sources of support; with the goal of designing and building demonstration projects that add a significant component to our curriculum, and insure that the school can continue to contribute to the vibrant culture of Southern California, of Los Angeles, and of our USC neighborhood.

The goal of the program is to enhance our architecture students material based educational experience while contributing tangibly to an underserved population. As an added benefit it is intended to establish a complete ethos of recycling, reusing and remaking focusing on needs based priorities that can impact directly on the environment and social economic context of our community.

The Research + Design + Build Seminar will generate and analyze context and precedents, identify specific clients as well as develop programing criteria, and propose implementation strategies for specific projects to support school Design + Build efforts. Related course offerings will address design and prototyping in a studio framework, followed by directed research efforts to implement of the projects identified. While not required for enrollment in the initial seminar offering, it is in intended that some of the students participating in the R+D+B seminar will be able to participate in the subsequent class efforts and provide the potential for continuity in the Research + Design + Build experience. Since it is not practical to assume or require students to participate in all of the offerings, an emphasis will be placed on clear and complete documentation of the work of each segment of the courses offerings to insure accessibility and continuity.

**Learning Objectives:**

This two unit Seminar / Lab course is being offered to study the precedents and operation of existing successful examples of design - build programs and generate programmatic criteria in collaboration with neighborhood users and constituents. The intention is to prepare for subsequent stages of design and implementation using our current course structure of design studios and special course offerings and directed research as required for project implementation.

The course is structured around three components:

1. Research – precedents from existing design – build programs at peer institutions will be studied and used to generate an administrative, economic and academic model for the project with particular focus on the needs of our community, the resources of the school and the larger university, and the potential of the program to realize a built demonstration of those intentions.
2. Project Focus – through an analysis of existing neighborhood institutions and potential interventions, the identification of a specific project suitable for development involving local user groups will be established.
3. Programming of the specific project will involve direct community input and will result in a project brief that can be used in the subsequent spring design studio phase to follow. Collaboration and support exploiting our relationship with the professional community will be used both to gain additional perspective on the requirements of the project and to recruit additional resources during the subsequent design and implementation phases. Prototyping and preliminary design proposals using physical modeling. will be used to validate programmatic criteria consistent with the learning objectives of the R+D+B initiative

Students will identify and analyze existing programs and will be responsible to collaborate on the collection, documentation and analysis of the material and the potential application of these precedents to the local conditions and needs of the USC neighborhood. This will include consideration of funding opportunities potentially available to the neighborhood.

The identification of “users and clients” for the project proposals will build on existing institutional relationship between USC and the neighborhood as well as explore new opportunities.

**Prerequisite(s):**

This course assumes that the enrolled students have a minimum exposure in the undergraduate B.Arch professional degree program or advanced standing in the M.Arch program or other studio based design experience or involvement in related fields. For the purposes of course eligibility this involves having completed ARCH-302aL or ARCH-505aL. (+2 or PP standing) or with faculty approval from related design and technology programs at the USC SOA. Contact Professor Lagreco (lagreco@usc.edu) if you have an interest in the seminar and want to confirm that your background and current degree program and status would be appropriate for this seminar.

**Selected Reference Material:** (will be augmented during semester)

Aranda, Benjamin and Chris Lasch. Pamphlet Architecture 27: Tooling. (New York: Princeton Architectural Press, 2006).

Beorkrem, Christopher. Material Strategies in Digital Fabrication. (London: Routledge, 2012).

Borden, Gail Peter and Michael Meredith. Matter: Material Processes in Architectural Production. (London: Routledge, 2011).

Borden, Gail Peter and Michael Meredith. Material Matters: making architecture 2008 West Fall Conference Proceedings USC, ACSA 2008

De Kestelier, Xavier and Brady Peters. Computation Works: The Building of Algorithmic Thought (Architectural Design). (New York: Wiley, 2013).

Design Museum. Fifty Chairs That Changed the World. (London: Conran, 2009).

Design Museum. How to Design a Chair. (London: Conran, 2010).

Dunn, Nick. Digital Fabrications in Architecture. (London: Laurence King Publ., 2012).

Frampton, Kenneth, edited by John Cava, Studies in Tectonic Culture,... (Graham Foundation for Advanced Studies in Fine Arts, Chicago – MIT Press, Cambridge, Mass., 1995)

Iwamoto, Lisa. Digital Fabrications: Architectural and Material Techniques. (New York: Princeton Architectural Press, 2009).

Kolarevic, Branko. Manufacturing Material Effects: Rethinking Design and Making in Architecture, (London: Routledge, 2008).

Lawson, Stuart. Furniture Design: An Introduction to Development, Materials and Manufacturing. (London: Laurence King Publ., 2013).

Menges, Achim. Material Computation: Higher Integration in Morphogenetic Design (Architectural Design). (New York: Wiley, 2012).

Meredith, Michael. From Control to Design: Parametric/Algorithmic Architecture. (Barcelona: Actar, 2008).

SHoP. Versioning: Evolutionary Techniques in Architecture (Architectural Design). (London: Academy Press, 2003).

**Course Schedule:** (updated on Blackboard during term)

**Week 01**

Course Introduction; Project 01 & 02 assigned

Reading: Frampton, Kenneth. Studies in Tectonic Culture,...

**Week 02**

Labor Day [Class does not meet.] Reading: TBD

**Week 03**

Present and review precedent research

Readings: Design Museum. How to Design a Chair.

Lawson, Stuart. Furniture Design: An Introduction to Development, Materials and Manufacturing.

**Week 04**

Reading: Borden, Gail Peter and Michael Meredith. Matter: Material Processes in Architectural Production.

Barkow Leibinger and Brett Steele. An Atlas of Fabrication.

**Week 05**

Programming

Reading: Iwamoto, Lisa. "Introduction" in Digital Fabrications

**Week 06**

Design development and review.

Reading: Iwamoto, Lisa. "Introduction" in Digital Fabrications.

**Week 07**

Program Development

Reading: Jabi, Wassim. "Introduction" in Parametric Design for Architecture.

**Week 08**

**Mid-term review of work**

(notebook review)

Reading: Aranda, Benjamin and Chris Lasch. Pamphlet Architecture 27: Tooling.

**Week 09**

Review work-in-progress;

Beorkrem, Christopher. Material Strategies in Digital Fabrication

**Week 10**

Review work-in-progress. Reading: TBD

**Week 11**

Reading: SHoP. Versioning: Evolutionary Techniques in Architecture (Architectural Design).

**Week 12**

prototypes.

Reading: Menges, Achim. Material Computation: Higher Integration in Morphogenetic Design (Architectural Design)

**Week 13**

Documentation draft

**Week 14**

Thanksgiving Holiday [Class does not meet.]

**Week 15**

Draft documentation due

(notebook review)

**Final Exam per University schedule:**

Final documentation due.

**Grading**

10% Research draft  
20% Research documentation  
10% Programing interim draft  
20% Program final  
10 % Reading assignments  
10% Class Attendance and Participation  
20% Final Documentation

**Assignment Submission Policy:**

All assignments will include criteria for grading and hand in procedures.

**Additional Policies:**

This class conforms to all standard School and university policies including definitions of and consequences of plagiarism, attendance, accommodation of special needs and observation of religious holidays. Students with pre-existing special circumstances must inform faculty of any issues at the start of the semester so that the appropriate steps can be taken to accommodate those needs within the context of the course. (See below for some of the critical policies.)

**Attendance:**

Attendance is required for all classes and course-scheduled activities. Students are expected to be on time, present and fully participating during the entire time class is in session. Any absence must have a written explanation, and all absences for illness or medical emergency should if possible have a doctor's explanation. If you are ill, please go to your doctor or to Student Health Services. In case of illness, please call the School of Architecture office by 12:30PM on the day of your class and leave a message with your instructor. You should also contact your instructor directly by email. If you miss a class, you are responsible for finding out about any assignment(s), obtaining lecture notes, etc. The maximum number of allowable absences is (1) after which more absences may impact on your grade.

Leaving class early, or excessive tardiness, will count as an absence. Unexcused absences result in a zero for the missed class work and cannot be made up. Work missed as the result of an excused absence may be made up.

**Statement on Academic Conduct and Support Systems**

Academic Conduct: Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Section 11, Behavior Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity <http://equity.usc.edu/> or to the Department of Public Safety <http://capsnet.usc.edu/departments/public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programs

