Schedule: TBA.
Credits: 3 elective.
Instructor: Taisto H. Mäkelä. taisto.makela@ucdenver.edu.
Office hours: Room 511.

“It is by having hands that man is the most intelligent of animals.”

Anaxagoras

INTRODUCTION

This research seminar focuses on tectonics – the logic of structure & material combinations. This semester, through traditional timber frame and wood construction case studies, the relationship between function, aesthetics, detail, and tectonics are explored in relation to contemporary concerns. We will be learning by doing. The course is organized into two main parts:

- Precedent studies: Each student will select and study through drawings and large scale model an approved example of a timber or wood detail representing “functional excellence.” The presentation will include hand-drawn graphics and a large-scale model. The class will spend time in the wood shop learning how to assemble their precedent study using hand tools and traditional techniques.

Students begin their introduction to hand craft by designing and making their own wood mallet for working with a chisel. The mallet will be used in the construction of the case study model.
• Professional paradigms: Up to three field trips will be scheduled. One will be to a professional office to discuss a timber or wood detail(s). Two other trips will include production and/or manufacturing facilities. The intention is to expose students to the present professional environment and the possibilities for creating a “poetic detail” in wood.

Together these four parts provide a theoretical backdrop of the historical notion of functional perfection using timber and wood. Against this backdrop various examples excellence from history and professional practice will be studied. This provides the framework for students to develop the notion of excellence in details for their own work. The class will also carefully consider which types of wood details might work best in our region given its distinct climate.

PEDAGOGY.

“Tell me and I’ll listen. Show me and I’ll understand. Involve me and I’ll learn.”
Teton Lakota Indians.

Instead of passively absorbing and then regurgitating material on demand, students become active partners in the learning process with a vested interest in the success of the class. This approach has been defined by Smith and MacGregor (1992) as including

“A variety of educational approaches involving joint intellectual effort by students, or students and teachers together . . . There is a wide variability in collaborative-learning activities, but most center on the students’ exploration or application of the course material, not simply the teacher’s presentation or explication of it. . . . Learning unfolds in the most public of ways.”

At the graduate level, students are encouraged to take increasing responsibility for their own educations. Teamwork and initiative will be required and encouraged to provide a collaborative learning environment.

Required READING.

Recommended READINGS.

David T. Yeomans, The Development of Timber as a Structural Material (Liverpool: Ashgate, 1999).
OUTCOMES.

The objectives of this seminar are broad: to expand and focus the investigations in this field touched on in other courses; to provide an appreciation of architecture as a constituent element in the shaping of modernist culture; to develop an understanding of historiography and the ability to do historical research; to develop the ability to research and interpret the design practices of individual architects; to develop understandings about the impact of intellectual and social convictions on the form of the works that conviction produces; and to cultivate individual student perspectives informing studio work.

ASSESSMENT (Evaluation and Grades).

Students are evaluated on their knowledge of the course material as well as the quality of their written, analytical, and other skills. Specifically, grades are based on evaluations of the clarity and rigor of the arguments demonstrated in the requirements. Completeness and thoroughness are required for all assignments. Participation in and contribution to the class will also be considered along with individual progress. The grade is based on a comparison: with the work of other students in the course and with students who have previously taken the course; with expectations regarding the stated outcomes.

Required Assignments (see below) are the vehicles for achieving Outcomes (see above) that will be assessed using Rubrics designed for the class. When appropriate, students will be given the opportunity to modify the Rubrics to represent their goals for the educational outcomes for the class. Rubrics help to evaluate how well the student has achieved the Outcomes for the class. Besides being used for the traditional evaluation process by the instructor and teaching assistants, students will use Rubrics for self-assessment.

ASSIGNMENTS & Points.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tr>
<td>Wood mallet</td>
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<td>Mallet</td>
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<td>Precedent Study</td>
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<td>Graphics</td>
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<td>Model</td>
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NOTE:
- Students are responsible for material covered in class (lectures, videos, guest speakers, etc.) as well as in the required readings. All the material in the readings will not necessarily be covered in class and vice versa.
- No extra work or make-up assignments are offered.
- There will be a daily penalty of one grade for late work. No late work will be accepted after 7 days.
- If you have questions or concerns about a grade received for an assignment or quiz, you are required to contact the Instructor about it within seven (7) days of receiving it. After that, the grade is final.
- The above schedule may be modified due to extenuating circumstances or educational opportunities.

ATTENDANCE is MANDATORY. Missing more than one (1) class without a valid excuse will adversely affect final grades. A pattern of tardiness or early departure will also have an adverse affect.

HISTORICAL PERSPECTIVES.

tectonics: “Of building or construction . . . whole art of producing useful and beautiful buildings, furniture, vessels, etc.” OED.
detail: “A minute or subordinate part of a building, sculpture, or painting, as distinct from the larger portions or the general conception.” OED.

In Classical Greece architecture, art, and the beautiful were all accounted for under the term techne. Techne was concerned with the perfection of types: an object was good if it fulfilled its functional requirements; the more functionally satisfactory it was, the better it was. Critically, materials and technique were subservient to the functional value of the work; potential conflicts were overcome through a commitment to creating harmonious unity between function, technique, and material. Associating the functional with the good, all regulated by rational principles, was the basis of techne and constituted the concept of the beautiful.

Following the path set by Enlightenment rationalization, Modernism has been characterized as an attempt to instrumentalize architecture, that is, as being primarily concerned with satisfying functional requirements. Figuration and mimesis were replaced by universally applicable abstracted form generated by programmatic requirements; meaning was produced through a self-referential, self-sufficient and autonomous language of form. What is the effect of such a condition on tectonics, that critical and central aspect of design? And since contemporary practice is informed by the modernist project, what is possible tectonics in the present?

Historical notions and assumptions regarding the role of the detail will be reviewed and discussed, particularly those of the Classical, Modern, and Vernacular (it will be argued that the concept of techne provided the general foundation of principles for all three conditions). The goal is to scrutinize the historical debates revolving around the concept of the detail and its role in tectonic articulation.

If the machine and industrialized techniques of mass production are accepted as essential to the identity of architecture during the period known as Modernism, what is the resultant consequence for tectonics? If the detail is the articulation of tectonic logic, that is, the combination of structure and material, how was this notion manifested by Modernism? The detail is the architect's basic strategy for defining or exploring the tectonic. What happens when the detail is subject to mass produced materials and economic dictates? Has the act of detailing been reduced to a mere afterthought, abstracted out of existence, often utilized simply to hide defects of a "weak tectonic" (weak detail = weak tectonic and vice versa). If the detail is essential for the expression of the tectonic, what is left if that opportunity no longer lends itself readily? If the detail is necessary and essential yet not
possible, is architecture itself possible any longer? This is an inescapable challenge for the present, a legacy of Modernism and its principles and techniques of mass production.

FURTHER CONSIDERATIONS

The “detail” has been understood as a subservient element in the larger design concept. But must the detail always play such a role? Could it take on an identity of its own, outside of the general desire for harmony and unity in a work? What would it mean to propose the possibility of the “autonomous detail?” If the detail has potential for autonomy, no longer dependent on the whole for its meaning, would it have any meaning at all? The detail represents an overlooked opportunity to interrogate the Classical and Modernist models of hegemonic unity and question the overwhelming desire for mastery over all the constituent elements of a design work.

Can we turn to history for an example of an “autonomous detail” as with a “modernist” or “classical” or “vernacular” detail? Where to turn? The notion of the detail as applied ornament or decoration -- that is, as divorced from functional or tectonic dictates -- is generally maligned but does allow for a certain amount of autonomy for the detail. As such, applied ornament or decoration is contrasted with the Classical and Modernist concept of the detail as subservient to function and tectonics. In this guise, detail possibly represents the most potent tool for the interrogation of received paradigms.

It seems necessary also to distinguish between two generally contrasted notions: that of detail and that of ornament or decoration. If tectonics is the underlying logic of the combination of structure and material, then the detail is the manifestation and elaboration of that logic. In other words, the detail celebrates or articulates that logic while remaining subordinate to the overall tectonic conception. This logic is thus internally generated. Ornament or decoration, on the other hand, is generally external in origin to the basic design conception and thus divorced from functional and tectonic constraints. As such, ornament or decoration operates outside the boundaries of tectonic reason and its tendency for unity. Hence ornament or decoration has a degree of autonomy and hence represents the most potent and ultimately subversive tool for the interrogation and destabilization of received paradigms concerning the detail and the tectonic. Or is ornament and decoration simply a confirmation of tectonic bankruptcy?

Schedule.

Week 1. Introduction
Week 2. TECTONICS: Functional perfection, technology, and ethics.
Reading: Plato, “Hippias Major”.
Week 3.
Week 4.
Week 5.
Week 6.
Week 7.
Week 8.
Week 9.
Week 10.
Week 11.
Week 12.
Week 13.
Week 14.
Week 15.
Week 16.
Academic Honesty Student Code of Conduct:

Students are expected to know, understand, and comply with the ethical standards of the university, including rules against plagiarism, cheating, fabrication and falsification, multiple submissions, misuse of academic materials, and complicity in academic dishonesty.

Plagiarism is the use of another person’s ideas or words without acknowledgement. The incorporation of another person’s work into yours requires appropriate identification and acknowledgement. Examples of plagiarism when the source is not noted include: word-for-word copying of another person’s ideas or words; the “mosaic” (interspersing your own words here and there while, in essence, copying another’s work); the paraphrase (the rewriting of another’s work, while still using their basic ideas or theories); fabrication (inventing or counterfeiting sources); submission of another’s work as your own; and neglecting quotation marks when including direct quotes, even on material that is otherwise acknowledge.

Cheating involves the possession, communication, or use of information, materials, notes, study aids, or other devices and rubrics not specifically authorized by the course instructor in any academic exercise, or unauthorized communication with any other person during an academic exercise.

Examples of cheating include: copying from another’s work or receiving unauthorized assistance from another; using a calculator, computer, or the internet when its use has been precluded; collaborating with another or others without the consent of the instructor; submitting another’s work as one’s own.

Fabrication involves inventing or counterfeiting information—creating results not properly obtained through study or laboratory experiment. Falsification involves deliberate alteration or changing of results to suit one’s needs in an experiment or academic exercise. Multiple submissions involves submitting academic work in a current course when academic credit for the work was previously earned in another course, when such submission is made without the current course instructor’s authorization.

Misuse of academic materials includes: Theft/destruction of library or reference materials or computer programs; theft/destruction of another student’s notes or materials; unauthorized possession of another student’s notes or materials; theft/destruction of examinations, papers, or assignments; unauthorized assistance in locating, using sources of information when forbidden or not authorized by the instructor; unauthorized
possession, disposition or use of examinations or answer keys; unauthorized alteration, forgery, fabrication, or falsification of academic records; unauthorized sale or purchase of examinations, paper, or assignments. Complicity in academic dishonesty involves knowingly contributing to or cooperating with another’s act(s) of academic dishonesty.

**Accommodation for Religious Observances.**

Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. In this class, we will work with individuals on a case-by-case basis. Please contact the instructor in a timely manner so that accommodations can be arranged.

**Classroom Decorum.**

The following ground rules apply to all students and are designed to ensure a classroom environment conducive to learning for all students:

- Pagers, beepers, cellular telephones, and handheld internet devices must be deactivated before class begins and remain deactivated throughout the entire class period.
- Students who engage in disruptive classroom behavior will be reported to the Office of Student Life for appropriate disciplinary action under the CU-Denver Code of Student Conduct and, when appropriate, to the Auraria Campus Police for investigation of possible criminal action. The Code of Student Conduct can be found on the CU-Denver website, under Office of Student Life and Student Activities. Disruptive behavior includes, but is not limited to, arriving late to class without explanation or apology; leaving class early without explanation or apology; reading a newspaper or magazine; reading a book with no connection to the content of the course; engaging in prolonged private conversations; sleeping in class; eating, drinking, and/or gum chewing; passing notes; being under the influence of drugs or alcohol; harassment or verbal or physical threats to another student or to the instructor; failing to deactivate pagers, beepers, cellular phones, and/or handheld internet devices; bringing children to class.

Students are prohibited from selling, or being paid by any person or commercial firm for taking, notes or recording class lectures without the advance express written permission of the faculty member teaching this course. Exceptions are permitted for students with a disability who are approved in advance by Disability Resources & Services for note taking or tape recording.