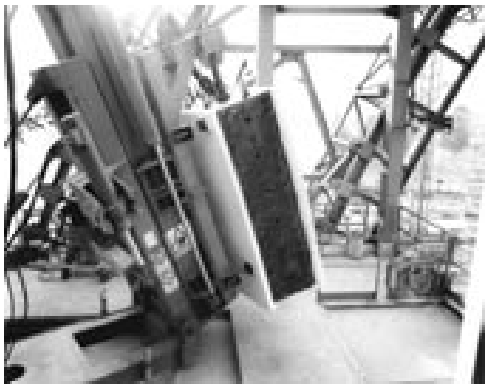
materials & methods

Spring 2010 Syllabus

Instructor: Mike Calvino

" . . . We felt that the most important factor was to induce the congregation to look upward, toward the zenith. For this reasson we decided to enclose the volume within three concentric shells permeated by light.
--Richard Meier.

Dives in Misericordia Church - Rome, Italy
Architect: Richard Meier. Images ref: www.Italcementi-group.com, Italy.



Material Covered

This course will investigate practical aspects of the architectural realm dealing with bringing a concept into reality. The intent of the course is to increase the students' depth of understanding of materials and processes of making as related to fabrication and construction. The basis for evaluation will be the students' ability to integrate concepts into their design studio work. The material will be presented in a series of case study presentations/lectures and will center around the use, manipulation, and connections of basic materials used in construction and place them contextually into the CSI masterformat 16 divisions. We will focus on 01General Requirements, 03Concrete, 04Masonry, 05Metals, 06Wood, and 08Glass. Concepts will involve elements specific to each material such as producing, cutting/shaping, connecting, values for design as well as calculation values such as elastic modulus and fiber stress. Other concepts cover all materials and will be constant subjects and include CNC/automation technology and robotics, statics of materials and section properties. The intent is that students will be better able to develop concepts and ideas of material use, connections, and construction/fabrication processes and integrate them into their work in Design Studio.

Course Operation

Classes will involve two components: first will be lecture/discussions which will cover (through case study presentations) concepts, technical issues - including material and section properties, structural analysis concepts - and research reference guidance and locations; second will involve desk crits of how issues are being integrated into students' work as well as a full-scale mock-up/deatil project that will be integrated into each students' design project/studio and will develop at a real scale some of the material and methodology presented in the lecture/discussion. Course material will be presented as related to design intent and will involve aspects of design theory and history, practical application, construct-ability, codes and regulations. Focus will be on the overall integration of technical application and design theory/concepts.

Students are encouraged to visit a construction site(s) of their choosing once a week outside of class and record processes observed and how they relate to their own work in a journal to provide a greater understanding of the materials and their application. Additional course credit may be given for a journal submitted for review at the end of the semester.

Periodic class field trips to either a manufacturer or a job site may or may not be scheduled.

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Assignments/Requirements:
Any Assigned readings will be from the Edward Allen Fundamentals of Building Construction, Third or Fourth Edition. Requirements include integration of concepts and details about materials and methods of construction/fabrication into design work in Studio as well as a full-scale detail/connection project in conjunction with Design Studio in weeks 9,10, &11. Construction site Journal (Optional - extra credit)

Student Work
The SACD reserves the right to retain the student work at the discretion of the instructor for the purpose of record, exhibition and instruction. Students are encouraged to document their work for their own record. Should the work be published, the student will receive full attribution.

Suggested texts
Fundamentals of Building Construction, Edward Allen

Suggested Readings and References:
--ACI 318 Concrete Design Manual, ACI. Latest edition.
--ACI 530 Building Code Requirements & Specifications for Masonry Structures, ACI. Latest edition.
--Manual of Steel Construction, ASD or LRFD method, AISC. Latest edition.
--National Design Specification® for Wood Construction, ASD. Latest edition.
--www.ppg.com>architectural glass>Resources and Technical>088100glass
--www.oldcastleglass.com.
--ASCE7-05 (or later edition) Minimum design loads for buildings and other structures. (American Society of Civil Engineers)
--Building Construction Illustrated, Francis D. K. Ching and Cassandra Adams

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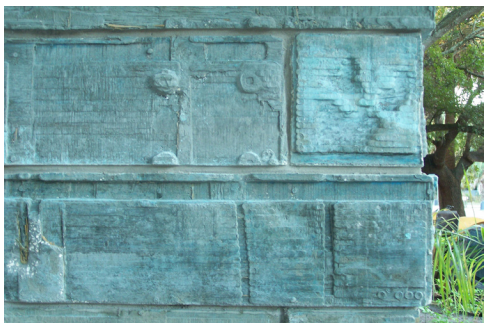

Criteria for Evaluation

Student presentations and integration of concepts into each phase of design class project: 50%
Detail/Connection Project: 50%
Construction Site Journal: up to 10 points

The review of design work in studio class will evaluate: 1) how materials have been considered, 2) to what extent detailed connections have been addressed, and 3) to what extent the/a method or sequence of construction or fabrication has been considered. The source for these 3 elements may be from: 1) the materials presented and discussed in lectures 2) research by each student or 3) construction site journal/visits. The depth and rigor with which concepts and ideas have been developed with and have informed his/her own work will be the basis for evaluation. Evaluation values will be given at each review/desk crit phase.

A+	96-100
A	90-95
A-	87-89
B+	83-86
B	80-82
B-	77-79
C+	73-76
C	70-72

Attendance

1.Students with more than three un-excused absences will have a grade reduction of half a letter. Each subsequent absence will result in cumulative half letter grade reduction.
2.Attendance to any scheduled field trips during the course of the semester outside of the SACD is mandatory.
3.Excuses for absences must be submitted to the instructor in writing.
4.Tardiness will constitute an absence.

Listserv

The School of Architecture is requiring all students to have a USF email address and subscribe to the SACD's Listserv "SACD-NEWS" https://una.acomp.usf.edu/.

"All material in nature,
the mountains and the streams and the air and we,
are made of Light which has been spent,
and this crumpled mass called material casts a shadow,
and the shadow belongs to Light."
- Louis Kahn

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