

**School of Architecture and Planning  
MORGAN STATE UNIVERSITY**

**Course:**                    **Architectural Technology V: Building Materials, 3 Credits**  
                                  **ARCH.533**  
                                  **Jeremy Kargon, Lecturer**  
                                  **Spring Semester 2009 | Wednesday, 6pm - 8:50pm**

**Prerequisites:**        ARCH.510

**Course Web Site:**    [http://www.jkargon-architect.com/90\\_HOME-Materials.html](http://www.jkargon-architect.com/90_HOME-Materials.html)

**Introduction**

ARCHITECTURAL TECHNOLOGY V is conceived to review for Students of Architecture the wide range of material opportunities currently available to professional practice. Since imaginative design must be leavened by technical knowledge, this course intends to provide for Students an intellectual framework concerning the appropriate selection and application of material building systems.

ARCHITECTURAL TECHNOLOGY V will encourage each Student to use sketching as a critical tool for learning. Furthermore, Students will be encouraged to use their drawings skills to assemble technical concepts in the form of accurate details. Site visits of buildings and the simultaneous review of actual working drawings for those buildings will train Students to identify the real-life challenges of building construction and to understand the required level of abstraction with which Architects craft their documents.

**Outcomes**

Upon completion of this course, the student will be familiar with the following topics:

*Materials and Building Systems, such as Foundation Materials, Heavy Timber, Wood Frame, Steel Frame, Light-Gage Steel Framing, Bearing Masonry, Poured-in-Place Concrete, Precast Concrete, Sheathing and Roofing, Curtain-Wall Systems, and Interior Assemblies;*

*Building Code, Types of Construction, Fire-Resistance-Rated Classification, and Rated Assemblies;*

*CSI Specification Standards;*

*Building Detailing & Accepted Construction Methods;*

*New Materials and Innovative Building Systems & Innovative Trends for Construction.*

## Objectives

Upon completion of this course, the student should have demonstrated the following skills:

*Ability to perform Elementary Zoning and Code Analysis based on given legal documents;*  
*Ability to Identify Appropriate Foundation Types for different Soil Conditions;*  
*Ability to Identify Suitable Framing Configurations for Wood and Steel Structures;*  
*Ability to select and detail simple wall section assemblies typically found in domestic masonry construction;*  
*Understand technical requirements of cast-in-place and in-situ concrete construction;*  
*Select and detail suitable cladding systems for use with given orientations and climates;*  
*Ability to distinguish between different fire-rated assemblies for use in appropriate circumstances.*

## Required Textbooks:

Edward Allen, *Fundamentals of Building Construction*, ISBN-10: 0471219037

## Additional Reading (to be supplied by Instructure):

Edward Allen, *Exercises in Building Construction* ISBN-10: 0471459690  
Elliott, Cecil, *Technics and Architecture*, Cambridge: The MIT Press, 1992. (Excerpts)  
International Code Council, *2003 International Codes*, (Excerpts)

## Baltimore City Zoning

<http://cityservices.baltimorecity.gov/charterandcodes/Code/Art%2000%20-%20Zoning.pdf>

## Class Requirements

*Class attendance is mandatory; students are expected to attend all classes.*  
Students are required to complete all reading, in-class worksheets, and required presentations throughout the semester in a comprehensive and timely manner.

*An in-class worksheet, similar to a quiz, will be given during most class sessions.*  
Completed worksheets will be collected by the instructor for grading and review during the subsequent session.

*Field Sketches*, for completion outside of course hours, will be required at certain times throughout the semester. These will be reviewed collectively by the class and subsequently collected by the Instructor as noted on the course schedule. A “Field Project,” to be completed during the week before Spring Break, will be a more complex assignment.

*A Final Exam* will be administered at the end of the semester.

## Grading

Calculation of Midterm and Final grades will be based upon a numerical average of grades given for assigned work throughout the semester. These numerical grades, on a decimal scale from 1 to 10, may reflect objective and quantitative achievement or subjective judgements about design excellence, communicative and graphic quality, apparent effort, and relative skill level, depending upon the assignments.

Midterm and final Grades will be given on the following scale:

A	9.0	—	10
B	7.5	—	8.9
C	6.5	—	7.4
D	5.0	—	6.5

*Completion off ALL assignments is required for each student's successful completion of the course. Students who have not completed all assignments by the final class session will receive an **F** for the semester.*

## Other Considerations

*Excused Absences:* University Guidelines stipulate that no more than two (2) nonmedical absences are allowed during each semester. Additional absences will result in a failing grade for the course, unless permission is received in advance from the Chairman of the Department of Architecture. *In all cases, expected absences should be mentioned to the Lecturer in advance;* in addition, excused absences will require remedial work to make up in-class worksheets.

*Late Work:* Late work will not be accepted unless it qualifies as excused. All classroom assignments are due at the beginning of the class period. Late assignments will be downgraded one letter grade per week late.

*Incomplete Work:* As noted above, completion off ALL assignments is required for each student's successful completion of the course. Students who have not completed all assignments by the final class session will receive an **F** for the semester.

*Authorship of Work:* Any work that is judged to be either wholly or in part based on the work of another student or author (published or not), which is not properly credited (i.e. Footnoted), will be *considered plagiarism*, and therefore failing to meet the major educational objectives of the University. Plagiarism undermines the integrity of the individual, his or her fellow students, and the entire university community at large. It is for this reason that students who have committed plagiarism in this course will receive a *failure* for a final course grade. No warnings will be issued.

*All student research, reports and projects are the property of Morgan State University.*

**Instructor Information:** Jeremy Kargon, Architect, Lecturer  
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**Assigned Readings noted in the Course Schedule refer to the following texts:**

Allen : Allen, E., *Fundamentals of Building Construction*  
 Allen X: Allen, E., *Exercises in Building Construction*  
 Elliott: Elliott, Cecil, *Technics and Architecture*

## Course Schedule

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- |   |           |  |
|---|-----------|--|
| 1 | W, Jan 28 | <p><b>Course Introduction: Materials, Methods, and Building Integration</b></p> <p>In-class Presentation <i>Architecture and Its Constituents</i><br/>       In-class Exercise Worksheet #1: <i>What Do You Know?</i><br/>       In-class Media <i>The Alchemy of Building: Herzog and Meuron</i><br/>       Assigned Reading: Allen, Chapter 1.<br/>       Assigned Task: Send e-mail to Instructor</p> |
| 2 | W, Feb 04 | <p><b>Cause, Context, and Constraints</b></p> <p>In-class Review Worksheet #1<br/>       In-class Presentation <i>Building Systems Categories, IBC, and UL</i><br/>       In-class Exercise Allen X, Chapter 1<br/>       In-class Media <i>The Socialist, The Architect and the Twisted Tower</i><br/>       Assigned Reading: Allen, Chapter 2</p>   |
| 3 | W, Feb 11 | <p><b>FIRST THINGS FIRST: Foundations</b></p> <p>In-class Review Allen X, Chapter 1<br/>       In-class Presentation <i>Getting Dirty -- How Buildings Begin</i><br/>       In-class Exercise Allen X, Chapter 2<br/>       In-class Media <i>Design E<sup>2</sup> -- The Big Dig</i><br/>       Assigned Reading: Allen, Chapter 3, 5, 6</p>  |
| 4 | W, Feb 18 | <p><b>WOOD: Design, Construction, and Detailing</b></p> <p>In-class Review Allen X, Chapter 2<br/>       In-class Presentation <i>Wood Systems and Contemporary Construction</i><br/>       In-class Media Schindler <i>contra</i> Neutra: "Sticks, not Stones"<br/>       Assigned Reading: Allen, Chapter 11; Elliot, Chapter 4<br/>       Assigned Exercise: <i>Field Sketch #1</i></p>               |

- 5      W, Feb 25      **STEEL: History and Design**  
In-class Review      *Field Sketch #1*  
In-class Presentation      *Technical Features of Steel Construction*  
In-class Media      *Technical Videos* by AISA  
In-class Exercise      Allen X, Chapter 11  
Assigned Reading:      Allen, Chapter 12
- 6      W, Mar 04      **STEEL: Technology and Trends**  
In-class Review      Allen X, Chapter 11  
In-class Presentation      *Stick System Transformed: The Steel Frame*  
In-class Media      *Building the Gherkin (Foster)* by Mirjan von Arx  
In-class Exercise      Allen X, Chapter 12  
Assigned Reading:      Allen, Chapter 13, 14
- 7      W, Mar 11      **CONCRETE: Poured-in-Place**  
In-class Review      Allen X, Chapter 12  
In-class Presentation      *The Use of Concrete in Architecture*  
In-class Media      *Making the Modern*  
In-class Exercise      Allen X, Chapter 13, 14  
Assigned Exercise      *Field Project -- Thinking about Materials*
- 8      W, Mar 18      **AIA Lecture: Stefan Behnisch**  
Falvey Hall at Brown Center, Maryland Institute College of Art,  
1300 W. Mount Royal Avenue 6 p.m  
Assigned Reading:      Allen, Chapter 15
- 9      W, Mar 25      **Spring Break**
- 10     W, Apr 01      **CONCRETE: Precast Fabrication and Installation**  
In-class Review      *Field Project -- Thinking about Materials*  
In-class Presentation      *Contemporary Precast Concrete Practice*  
On-Site Study      *Morgan Parking Garage / Field Sketch #2*  
Assigned Reading:      Allen, Chapter 8,9

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|----|-----------|-----------------------|---|
| 11 | W, Apr 08 | <b>MASONRY:</b>       | <b>Technology and Trends</b>                            |
|    |           | In-class Review       | <i>Field Sketch #2</i>                                  |
|    |           | Guest Presentation    | <i>Not Your Mother's Masonry</i>                        |
|    |           | Assigned Reading:     | Allen, Chapter 10, 20                                   |
|    |           |                       |   |
| 12 | W, Apr 15 | <b>MASONRY:</b>       | <b>Technology and Trends</b>                            |
|    |           | In-class Presentation | <i>Detailing and Specifying of Masonry Walls</i>        |
|    |           | &                     | <i>Cavity Walls and Other Mysteries of the Universe</i> |
|    |           | In-class Exercise     | Allen X, Chapter 20                                     |
|    |           | In-class Media        | Material Contrast: Solid and Void                       |
|    |           |                       | <i>Maison de Verre; Johnson Wax</i>                     |
|    |           | Assigned Reading:     | Allen, Chapter 16, 19, 21                               |
|    |           |                       |   |
| 13 | W, Apr 22 | <b>ENCLOSURES:</b>    | <b>Skins, Roofing, and Waterproofing.</b>               |
|    |           | In-class Presentation | <i>Roofing</i>  |
|    |           | In-class Exercise     | Allen X, Chapter 16                                     |
|    |           | In-class Presentation | <i>What is Cladding?</i>                                |
|    |           | Assigned Reading:     | Allen, Chapter 19,20, 21                                |
|    |           |                       |   |
| 14 | W, Apr 29 | <b>ENCLOSURES:</b>    | <b>Imagine with Reality</b>                             |
|    |           | Field Visit           | <i>Frederic Douglas Museum, Ziger Snead</i>             |
|    |           | Field Exercise        | <i>Field Sketch #3</i>                                  |
|    |           | Assigned Reading:     | Allen, Chapter 22, 23, 24                               |
|    |           |                       |   |
| 15 | W, May 06 | <b>INTERIORS:</b>     | <b>Assemblies and Finishes</b>                          |
|    |           | In-class Review       | <i>Field Sketch #3</i>                                  |
|    |           | In-class Presentation | <i>From Wall Ratings to Decorative Tile</i>             |
|    |           | In-class Enrichment   | <i>Your Material Rep</i>                                |
|    |           |                       |   |
| 16 | W, May 13 | <b>Final Exam</b>     |   |