

*Course Number* 4.123  
*Semester* Spring 2025  
*Credits* 2-2-5 G  
*Meeting Times* F 9AM – 12PM

*Meeting Location* 3-133  
*Instructors* Mark Goulthorpe <mg\_decoi@mit.edu>  
Adam Modesitt <amode@mit.edu>  
*Teaching Assistant* Nia Rich <nia\_rich@mit.edu>

## *Syllabus*

# Architectural Assemblies

### **Overview**

This course covers the conceptual, material, and technical logics that order building assembly. Throughout the semester, we will examine the organizing principles of construction—not as static systems, but as a dynamic and negotiated field where construction techniques, material economies, labor, digital infrastructures, site contingencies, and managerial frameworks intersect, influence one another, and continuously reconfigure. Lecture topics address fundamental assembly procedures: framed, layered, stacked, formed, installed, finished, and delivered. Each topic will be explored through multiple lenses: small/large, historic/contemporary, convention/innovation, principle/practice. Coursework consist of four design-based exercises that correlate with lecture topics, complemented by case studies, fieldwork, and student presentations.

### **Course Communications**

Course information, assignments briefs, and submission deadlines will be distributed via Canvas. Coursework submissions will also occur via Canvas. Updates to the course schedule and content will be issued via Canvas announcements and/or to your MIT email address (Canvas announcements should be set to email your MIT address). Students are responsible for checking email regularly throughout the course. Students are also encouraged to email the instructor and/or TA with any questions, concerns, or requests that may arise during the course.

The Canvas course homepage can be found here: <https://canvas.mit.edu/courses/31109>

### **Attendance Policy**

A significant portion of course material will be covered in class through lectures, presentations, and/or site visits. Content presented in class will inform coursework but will not be tested directly. Instead, students are expected to attend all classes.

Excused absences will be granted in all reasonable cases, but requests should be made in advance via email. *After two unexcused absences, additional unexcused absences will reduce the course grade by a full*

*letter grade.* Late arrival or early departure from class will count as a partial absence. Excused absences are not an excuse for missing or incomplete coursework and do not change evaluation criteria. In cases where excused absences or outside events work ability to work effectively, students should meet with the instructor to develop work plan.

## **Grading & Evaluation**

Grades will be based on a combination of individual work, group work, and class participation. Course grading will be allocated as follows:

Assignment 1	15%
Assignment 2	15%
Assignment 3	15%
Final Project	30%
Participation	10%

Participation will be evaluated through fieldwork, presentations, and attendance.

Missing work will be counted as 0% and significantly impact average grade. Late work will generally not be accepted. Grading criteria for each assignment will be distributed in assignment briefs.

Assignment grades will be informed by prior progress and development. Where applicable, if group work impedes individual work, students are strongly encouraged to communicate with the instructor to address issues. Every student in the class will be offered equal opportunity for success. The below is quoted from <http://catalog.mit.edu/mit/procedures/academic-performance-grades/#gradestext>

- A Exceptionally good performance demonstrating a superior understanding of the subject matter, a foundation of extensive knowledge, and a skillful use of concepts and/or materials.
- B Good performance demonstrating capacity to use the appropriate concepts, a good understanding of the subject matter, and an ability to handle the problems and materials encountered in the subject.
- C Adequate performance demonstrating an adequate understanding of the subject matter, an ability to handle relatively simple problems, and adequate preparation for moving on to more advanced work in the field.
- D Minimally acceptable performance demonstrating at least partial familiarity with the subject matter and some capacity to deal with relatively simple problems, but also demonstrating deficiencies serious enough to make it inadvisable to proceed further in the field without additional work. Some departments require students with D-level performance in certain prerequisite subjects within the departmental program to do additional work, or to retake the prerequisite, before proceeding with the follow-on subject.
- F Failed. This grade also signifies that the student must repeat the subject to receive credit.

Note that the MIT internal grading system includes plus (+) and minus (-) modifiers for use with the letter grades A, B, and C for all academic subjects (except advanced standing exams). These modifiers appear only on internal grade reports. They do not appear on transcripts and are not used in

calculating term or cumulative grade-point averages. The MIT grading system for external purposes does not include modifiers.

### **Personal Conduct**

Instructors, TAs, and students in this course are expected to act responsibly, ethically, and with respect for the dignity of all others, both within and outside the classroom. Issues relating to personal conduct, including discrimination and harassment, will be taken extremely seriously. Students should take the time to become familiar with MIT's major policies on personal conduct, which can be found here: <https://policies.mit.edu/policy-topics/conduct-and-community-standards>

### **Academic Integrity**

Fundamental to the academic work you do at MIT is an expectation that you will make choices that reflect integrity and responsible behavior. Students should take time to become familiar with the Institute's policies regarding academic integrity, which can be found here: [integrity.mit.edu](https://integrity.mit.edu).

### **Student Support Services (S3)**

If you find that something is getting in the way of your ability to attend class, complete work, or take an exam, you should contact a dean in Student Support Services (S3). The deans will provide you with support and help you work with us to determine next steps. We ask that you go to S3 so we know you have had a chance to talk through your situation with someone and to connect with any resources you might need. The walk-in queue is open from 10-12 and 2-4 on weekdays. Appointments can be virtual or in-person, depending on your comfort and convenience. For more information or to join the virtual help queue visit [studentlife.mit.edu/s3](https://studentlife.mit.edu/s3) or e-mail [s3-support@mit.edu](mailto:s3-support@mit.edu).

### **GradSupport**

As a graduate student, a variety of issues may impact your academic career including faculty/student relationships, funding, and interpersonal concerns. Office of Graduate Education ([oge.mit.edu](https://oge.mit.edu)), GradSupport provides consultation, coaching, and advocacy to graduate students on matters related to academic and life challenges. If you are dealing with an issue that is impacting your ability to attend class, complete work, or take an exam, you may contact GradSupport by email at [gradsupport@mit.edu](mailto:gradsupport@mit.edu) or via phone at (617) 253-4860.

### **Disability Accommodation and Access Services**

MIT is committed to the principle of equal access and an inclusionary environment. Students who need any form of accommodation are encouraged to speak with the instructor as early as possible. Students who need disability accommodations are encouraged to speak with Disability and Access Services ([studentlife.mit.edu/das](https://studentlife.mit.edu/das)), prior to or early in the semester so that accommodation requests can be evaluated and addressed in a timely fashion. If you have a disability and are not planning to use accommodations, it is still recommended that you meet with DAS staff to familiarize yourself

with their services and resources. Contact Disability and Access Services with any questions at 617-253-1674 or via email [das-student@mit.edu](mailto:das-student@mit.edu).

## Reference Texts

### General Reference

Allen, Edward, and Joseph Iano. *Fundamentals of Building Construction: Materials and Methods*. Hoboken: John Wiley & Sons, 2008.

Hedges, Keith E. *Architectural Graphic Standards*. John Wiley & Sons, 2017.

Ching, Francis DK. *Building Construction Illustrated*. John Wiley & Sons, 2020.

Watts, Andrew. *Modern Construction Handbook*. Birkhäuser, 2016.

Deplazes, Andrea, Ed. *Constructing Architecture: Materials, Processes, Structures*. Springer Science & Business Media, 2005.

Iano, Joseph, and Edward Allen. *The Architect's Studio Companion: Rules of Thumb for Preliminary Design*. John Wiley & Sons, 2022.

### DETAIL Construction Manuals

Kind-Barkauskas, Friedbert, et Al. *Concrete Construction Manual*. Walter de Gruyter, 2013.

Herzog, Thomas, Et Al. *Timber Construction Manual*. Walter De Gruyter, 2012.

Hausladen, Gerhard, and Karsten Tichelmann. *Interiors Construction Manual: Integrated Planning, Finishings and Fitting-Out, Technical Services*. Walter de Gruyter, 2012.

Schunck, Eberhard, Et Al. *Roof Construction Manual*. Birkhäuser, 2013.

Kind-Barkauskas, Friedbert, et Al. *Concrete Construction Manual*. Walter de Gruyter, 2013.

Herzog, Thomas, Roland Krippner, and Werner Lang. *Facade Construction Manual*. Walter de Gruyter, 2012.

### Cladding

Boswell, Keith. *Exterior Building Enclosures: Design Process and Composition for Innovative Façades*. John Wiley & Sons, 2013.

Brookes, Alan J., And Maarten Meijs. *Cladding Of Buildings*. Taylor & Francis, 2008.

Watts, Andrew. *Modern Construction Envelopes*. Birkhäuser, 2014.

## MEP

Grondzik, Walter T., And Alison G. Kwok. *Mechanical and Electrical Equipment for Buildings*. John Wiley & Sons, 2019.

## Theory & Practice

Vitruvius, Pollio. *Virtruvius: The Ten Books On Architecture*. 1901.

Cache, Bernard. "De Architectura. On the Table of Content of the Ten Books on Architecture." *Candide. Journal for Architectural Knowledge* 1 (2009): 9-48.

Conway, Ed. *Material World: The Six Raw Materials that Shape Modern Civilization*. Knopf, 2023.

Frampton, Kenneth, Marc Vellay, and Pierre Chareau. *Pierre Chareau: Architect and Craftsman. 1883-1950*. Thames and Hudson, 1985.

## Course Schedule

#	Date	Time	Agenda	Due
1	2/7	9:00	Course Introduction	
		10:00	Assignment 1 Introduction	
		<b>11:00</b>	<b>Guest Lecture: Mark Burry</b>	
2	2/14	9:00	Lecture: FRAMED	
		<b>11:00</b>	<b>Case Study: Paris Apt (MG)</b>	
3	2/21	9:00	Assignment 1 Showcase	Assignment 1
		9:30	Assignment 2 Introduction	
		10:00	Lecture: LAYERED	
4	2/28	<b>7:30</b>	<b>Field Trip: Travel to Bristol, RI (Herreshoff / DECOi / IYRS)</b>	
		<b>2pm</b>	<b>Return to MIT</b>	
5	3/7	9:00	Assignment 2 Showcase & Discussion	Assignment 2
		9:30	Assignment 3 Introduction	
		10:00	Lecture: STACKED	
		<b>11:00</b>	<b>Case Study: One Main wood interior (MG)</b>	
6	3/14	9:00	Lecture: FORMED	
7	3/21	9:00	Assignment 3 Showcase & Discussion	Assignment 3
		<b>11:00</b>	<b>Case Study: CarbonHouse (MG)</b>	
8	3/28		Spring Break (No Class)	
9	4/4	9:00	Final Project Introduction	
		10:00	Fieldwork #1	
10	4/11	9:00	Lecture: INSTALLED	
		10:00	Fieldwork #2	
11	4/18	9:00	Lecture: FINISHED	
		10:00	Fieldwork #3	
12	4/25	9:00	Final Project Presentations	Final Project
13	5/2	9:00	Lecture: DELIVERED	
14	5/9		No Class Meetings for MArch Students (No Class)	