4.024 Material Cultures
Instructors:
Daniel Marshall – djmm@mit.edu

Teaching Assistants:
Emma Pfeiffer – emmapf@mit.edu
Marisa Waddle - mwaddle@mit.edu

Credits: 0-12-12
Location: Studio 7-403
Prerequisites: 4.023, 4.401, 4.500

Studio Description:

This studio explores architectural design through discussions on craft, construction and material histories. Students will each design a small-scale public infrastructure buildings in Boston, with particular emphasis on the emotional character of the building as well as the cultural qualities that architecture broadcasts through its assembly. Every fabricated artifact—whether it is a DIY job made from Coroplast® brand corrugated plastic from ULine, or post-war concrete mass housing—reflects and projects stories unique to its cultural moment; from labour/mechanisation to scarcity/abundance. In this sense, the Public infrastructure of a city plays an important role in expressing the aesthetics and values of broader contexts. The studio introduces students into such discussions, designing a contribution to the architecture of the city capable of both making a material difference to the present, and addressing material impacts of the design for the future.

As skilled undergraduates, you will be encouraged to innovate in the material horizons of the discipline, not just through computational design, but as a researched enterprise embodied in the material world. The semester will be broken up into two parts. Firstly, a three-week assignment to design a public sports hall. In this assignment we will place particular emphasis upon testing materials, and gaining feedback from our investigations. With reference to Christopher Bardt’s book “Material and Mind”, we will endeavour to design with experience of matter in hand to inform the resulting form or design. Designs will be tested in their load bearing capacity and the visual qualities of the space under sunlight.

The second project is our main assignment. Each student may select a piece of public infrastructure in Boston that motivates them, from our list of suggested projects. Studio 4.024 engages directly in issues that are relevant to the public life of our city, Boston, now. In Boston (as in many global cities), there is an ongoing sense of crisis about the role of the architect, and the relationship between construction expertise and public life. Many buildings serve capital unequivocally and irrespective of environmental consequences of contemporary construction. Disorienting investments drive construction just as the material realities of the city are obfuscated behind layers of plastic coated to look like timber cladding. How can architects work within these given modes of production, to broadcast new visions of the public spaces with emotional purpose? We will propose new spaces that make a material difference, and propose subtle shifts in our shared material culture that will inspire others. The projects to select from are as follows:
Week 1
Tuesday 4th February
Welcome + Introduction
Lecture: Material Cultures
Assignment 1: “Public Sports Hall”

Week 2
Tuesday 11th February
Workshop: Timber Model Making workshop N51
Lecture: Paul Mayencourt (timber structures) (30mins)
Desk Critis
Assignment 1 - Photography test 1 - load test 1
Assignment 2 - “A Material Turning Point”

Week 3
Tuesday 18th February
Lecture (30mins)
Kevin Marblestone + Emily Whitbeck on Model Photos
Desk Critis
Final Presentation: Assignment “Mini Sports Hall”
Begin: Assignment 2 - “A Material Turning Point”

Week 4
Tuesday 25th February
Desk Critis
Desk Critis
Desk Critis

Week 5
Tuesday 3rd March
Final Presentation: Assignment 2 “A Material Turning Point”
Begin: Assignment 3A - “A Public Infrastructure”
Desk Critis

Week 6
Tuesday 10th March
Desk Critis
Desk Critis
Site Research and program investigations
Short Studio Trip

Week 7
Tuesday 17th March
Representation in Plan + Section Workshop
Desk Critis
Sketch ideas presentations

Week 8
Tuesday 24th March
Spring Break
Thursday 26th March
Friday 27th March

Week 9
Tuesday 31st March
Desk Critis
Thursday 2nd April
Desk Critis
Mid Term (Invited Critics) Assignment 3A: “A Public Infrastructure”
Begin: Assignment 3B: “Public Infrastructure Materialized”
Friday 3rd April

Week 10
Tuesday 7th April
Desk Critis
Thursday 9th April
Desk Critis
Friday 10th April
Group Presentation

Week 11
Tuesday 14th April
Desk Critis
Thursday 16th April
Desk Critis
Friday 17th April
Group Presentation

Week 12
Tuesday 21st April
Desk Critis
Thursday 23rd April
Desk Critis
Friday 24th April
Group Presentation

Week 13
Tuesday 28th April
Desk Critis
Thursday 30th April
Desk Critis
Friday 1st May
Final Presentation - Assignment 3B: “Public Infrastructure Materialized”
Begin: Assignment 3C “Final Documentation”

Week 14
Tuesday 5th May
Representation in Plan + Section Workshop
Image Making Desk Critis
Thursday 7th May
Image Making Desk Critis
Friday 8th May

Week 15
Tuesday 12th May
Model Making Desk Critis
Last day of classes

Week 16
Tuesday XX May
Final Presentations (to be confirmed once dates are announced)
Grading
Assignment 1 15%
Assignment 2 10%
Assignment 3A 20%
Assignment 3B 10%
Assignment 3C 40%
Attendance 5%
Participation 5%

Informal Pin-ups and Formal Reviews
There will be 3 formal reviews throughout the semester, for which outside critics will be invited to provide students with design feedback. Exact dates are provided in the studio schedule at the start of the semester. Students will be required to plan these presentations thoroughly with guidance from their instructor and TA. Students are required to attend all reviews and may under no circumstance work or print during formal reviews. Group reviews are collective for a reason. Each of you has something to gain from your peers. Informal pin-ups will be scattered throughout the semester. The dates of these pin-ups are provided in the studio schedule but are subject to change at the discretion of the instructor. Students are expected to print out their work and pin it up in the allocated space, process drawings and models are highly encouraged. On some occasions, students may work at their desks during informal pin-ups.

Learning objectives and completion requirements
Students will expand their architectural language, by addressing questions of material construction and the feeling of a place. Students will fluently move between diagram, drawing, and physical model to test, and refine architectural intentions through an iterative process. This course is intended to expand upon previous studios, as an opportunity for students to begin to weld their design production skills. Conventions of architectural representation and communication through drawing and modeling will be developed further, and each student is expected to reach resolution in their key drawings. It is the intention of this course to develop the students’ ability to respond to programmatic requirements, with a basic understanding of spatial and formal orders, as well as, light, context and circulation.

Attendance:
This class meets from 1-5pm on Tues, Thurs, and Fri. Class time is for working, discussing, and critiquing individual student projects as well as lectures and site visits. Students are expected to be present for the entire duration of each class. Attendance for this class is mandatory. Excused absences require at least a 24-hour notice. Three unexcused absences will result in a decrease in your final grade. If you miss six or more studio classes, you will be asked to drop the subject or receive a failing grade. Because of the importance of face-to-face discussion to a healthy studio culture, discussion of student work will take place in studio. Optional out of class office hours will also be scheduled.

Further Reading:
Assemble (2018), Assemble: How We Build.

Several Architectural Magazines to Explore:
El Croquis
Architectural Review
DETAIL
Domus
Architects’ Journal
Log
San Rocco
Harvard Design Magazine

Further Viewing:
Jacques Tati, Playtime
Tom Sachs, Space Program

Model Making:
Artist and Craftsman
Paper, Newsprint, Velum, Coloured Paper, Precision Basswood, Cutting knives, Spraypaint Blick
Similar to artist and craftsman
MIT Central Machine Shop
Central Machine Shop, Building 38-001. Cambridge, MA 02139-4307. Stock metal for cutting on the waterjet/milling McMaster-Carr Supplies of everything and anything with next day delivery. Make deliveries to Christopher Dewart, N51, MIT Woodshop
Dimensional hardwood, plywood 4x8 sheets, studwork Phil Hardware:
Nuts and bolts for same day production when McMaster-Carr is not feasible.

Pencils down.
All drawings, digital presentations, .pdfs, PowerPoints, etc. shall be collected on May XX (t.b.c once final reviews are announced) at 8:00 p.m. Each student is to submit their work for review. Model making is acceptable until May XX at 11:00 p.m. These deadlines are recommended for the purpose of ensuring that students present with clarity on review days.