

Architecture, Design & Materials Studio

Spring 2006, CMU, Arch #48-205, M/W/F 1:30-4:20
Class Website: www.andrew.cmu.edu/course/48-205

Coordinator: Kai Gutschow

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Off. Hr: M/W 12:30-1:30pm & by appt. in MM307

(7/17/07)

PHASE I: A MOBILE LIBRARY

MINDSET:

This is the beginning of a semester-long research and creative process to design a neighborhood library in Pittsburgh. Building on our investigation of composition, concept, and spatial experience last semester, we will begin a more intensive exploration of the role that diverse materials and innovative assembly methods can play in creating a small piece of architecture. We will focus on the scale of the human body encountering the physical presence of building. We seek to explore how we can elevate ordinary construction to poetic expression, how real materials, structure, enclosure, joinery, building and craft techniques can lead to the creation of significant architecture.

PROJECT:

The Carnegie Library of Pittsburgh (CLP) has commissioned you to design a new library on a still-to-be-determined site in Pittsburgh. To inspire the research and exploration necessary to create any great piece of architecture, the CLP is first commissioning you to design a mobile or demountable library unit that will be set up near the new, as well as near future construction sites. The unit will allow the library to serve its clients throughout the design and construction process, and allow you to do research on a smaller scale into what a library is, the place of books in our city, what role information plays in our society, and how a careful choreography of materials & assembly methods can achieve these. The design should inspire and lead both you and the community to the new library design.

PROGRAM:

- Using one standard 40'L x 8'W x 9'6"H ISO shipping container, create a mobile or demountable library unit to display and circulate books and magazines, with room for wireless internet terminals and a small reading space.

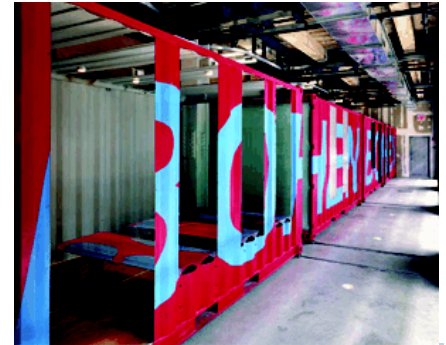
- You may alter the shipping container in any way necessary, but the structural integrity of the original container, including its ability to be lifted off and onto a flatbed truck must be maintained at all times.

- You may expand or otherwise add elements to the simple container in order to provide for better service or library experience, with the limiting condition that ALL additional elements, including "expandable" portions, furnishings, and books must be able to fit completely inside the container for legal transport.

- The "main space" for the operating mobile library MUST be within the confines of the original container. All expanded spaces must remain subsidiary.

SITE:

The mobile library is to be set up on an empty lot near a future library project in Pittsburgh, with each installation to last from two months to two years. The only site-service will be electricity. Your entry can be from any side, though you should consider solar orientation as a design consideration.



PRELIMINARY LIST OF REQUIREMENTS:

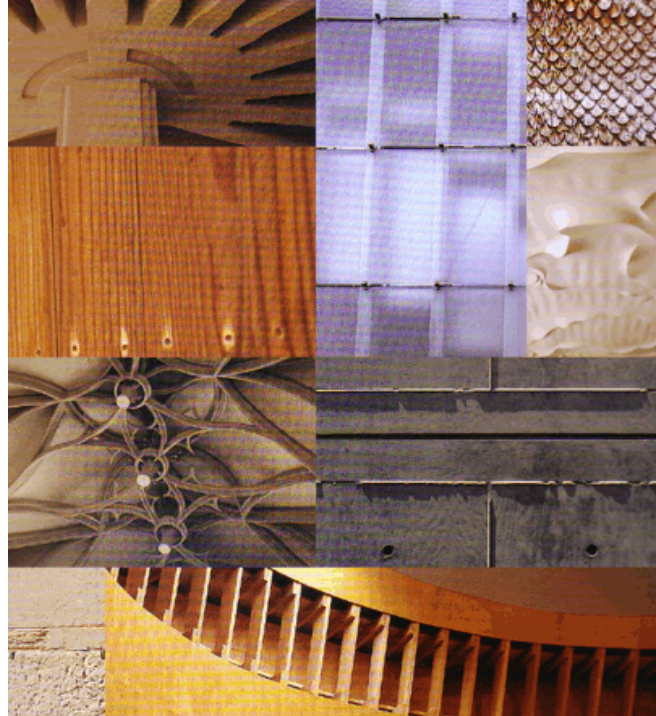
(final list to be issued after mid-review)

1. Large-scale building Plan (include corrugation, material thickness, larger hardware, etc.)
2. Large-scale Cross Section(s)
3. Perspectives (Exterior & Interior)
4. Exploded axonometric of components, AND/OR cinegram of construction process
5. Exact list of materials with quantity and size
6. Project Documentation for website and portfolio

MATERIALS RESEARCH

As part of the design process this semester, each studio and student will undertake an intensive, semester-long set of research projects on materials & assembly techniques, and how they affect design. In parallel to the design of a mobile library, each student must develop a working understanding of the construction of the container, as well as the materials, joinery techniques, and construction methods of your intervention. Each studio will do intensive research on a list of specific materials, arranged according to specific criteria determined by the studio instructor. Examples might be:

- structural attributes: structure, cladding, joinery systems
- perceptual categories: transparent, translucent, opaque; warm-cold; rough-smooth; dense-porous
- appropriateness for Mobile Library program: weight, interior-exterior, for books, in association with shipping containers
- LEED characteristics: chemicals, natural, transported from afar, recycled, life-cycle



By what other categories could they be researched? You should research materials in the library, on the web, in large home centers, at specialty supply stores, and in conversation with, and literature from, materials reps and contractors. Find out the following about the materials: What is it? How it is made? What is its history? How it is used traditionally? How are advancements in technology or design changing its use? How might its use and detailing be altered to create different and non-standard results? What are the drawbacks or challenges of using the material? What other architects are using it? Why?

Students should arrange to bring full-scale material samples into the class to allow for detailed mock-ups and construction experiments. Each studio will undertake design exercises to develop a “hands-on” knowledge of the materials, to encourage students to challenge conventional assembly methods of known materials, and to explore how the material might be manufactured differently to generate new methods and architectures. Exercises should help students explore the poetic potential and limits of the materials.

** Each student must document their fact-finding and discoveries in 8.5"x11" pdf pages that can be collected in a group reference binder and posted on the class website.

READINGS & RESEARCH

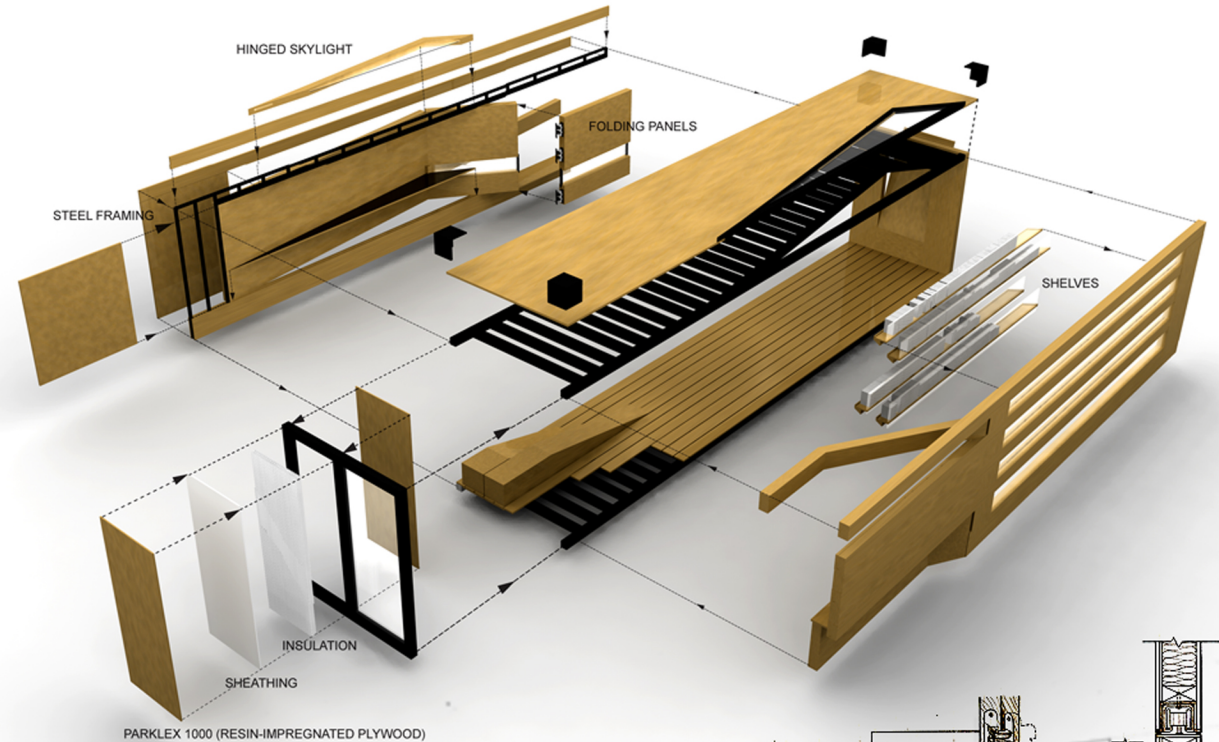
Detail magazine & book series
Ford, Details of Modern Architecture, 2 vols.
Frampton, Studies in Tectonic Culture
Frampton, “Critical Regionalism”
Leatherbarrow & Mostafavi, Surface Architecture
Pye, Nature and Art of Workmanship
Ruskin, Stones of Venice
Deplazes, Constructing Architecture
Semper, Four Elements of Architecture
Weston, Materials, Form and Architecture

and works on and by the architects: Alvar **Aalto**, Toyo **Ito**, Tadao **Ando**, Mies van der Rohe, Adolf **Loos**, Ove **Arup**, Peter **Rice**, Carlo **Scarpa**, Frank Lloyd **Wright**, Peter **Zumthor**, **Herzog & Demeuron**, **Gigon/Guyer**, Lotek, Juhanni **Pallasmaa**, Jorn **Utzon**, Renzo **Piano**, Studio Gang, Sean Godsell, Tod Williams & Billie **Tsien**, **Diller & Scofidio**, **ShoP**, **Lewis Tsurumaki Lewis**, Louis **Kahn**, Santiago **Calatrava**, Jean **Prouve**, Glen **Murcutt**, Brian **Mackay-Lyons**, Toshiko **Mori**, Larry **Scarpa**, and more.

a mobile library

Xianghua Wu
Lubetz Studio S06

STATIC MOBILITY



A mobile library is static in the short run, but mobile in the long run. The architecture addresses this juxtaposition through a conflict between static forms, and the kineticism that they suggest. The language of the fold creates visual tension as the folded walls are suspended in animation, revealing large hinges & tracks to suggest the potential for movement, but remain temporarily static.

Problem: to design a mobile library from a standard ISO shipping container

a mobile library

Xianghua Wu
Lubetz Studio S06

STATIC MOBILITY

Embossed layers of glass with varying opacities overlap and slide past each other to create an interference pattern that is reflected on the facade, and mediates the light entering the interior to create different spatial conditions.

