Course Syllabus

(Draft Syllabus 4/21/2019 - still subject to change)

Course description:

This course reviews a variety of building systems and materials with a focus on traditional building technology, such as loadbearing masonry, timber frame structures and early frame structures in iron, steel and concrete. The characteristics, interaction and structural behavior of the components of such buildings (foundations, walls, floor systems, roof trusses, etc.) are evaluated. The technology involved in different building typologies is discussed, as well as typical decay and basic repair techniques. These aspects will furthermore be illustrated through a series of case studies in New York. For each relevant building technology, the properties of traditional building materials (such as brick, stone, tile, mortar, wood, terra cotta, metals and concrete) will be introduced and information on sourcing, production and decay will be reviewed. Overall, this course serves as the foundation for subsequent material-based conservation courses.

Course format:

Lectures accompanied with a series of site visits.

Learning objectives:

- Advanced knowledge of the vocabulary of traditional architecture
- Recognize traditional building technologies and systems in the field
- Understand and identify the structural behavior of masonry, wood and metal frame structures over time
- Understand the sourcing, production, joining and assembly of building materials
- Understand the history of traditional building technology
- Understand how social, cultural and climactic factors influence building technology
- Understand basic preservation repairs to traditional buildings

Requirements:

1. 7 short (weekly) assignments

You will be asked to actively look for examples of concepts covered in class in New York buildings and to submit pictures on a weekly basis.

2. Attendance and site visits

Your attendance is expected at each class and site visit.

3. Weekly readings (provided on canvas)

4. Final Project

Students will choose one building and will research its building systems and materials and will offer their findings in a final report and a class presentation.

5. Midterm and Final exam

Grading Criteria:

Final exam (40%), Midterm (20%) Final Project (20%), Attendance, site visits + short assignments (20%)

Short assignments:

1. Stone Identification
2. Masonry
3. Metals
4. Terra Cotta
5. Concrete & Roof trusses
6. Roof coverings
7. Wood

Topics covered:

Vernacular architecture: adobe and rammed earth

Timber-frame building (Colonial and post-Revolutionary): braced frame, balloon frame

Loadbearing masonry structures: brick, stone, structural tile

Introduction to architectural finishes

Cast-iron construction

Early skyscraper development:

cage-frame structures: masonry and iron

steel frame buildings

concrete frame buildings

Roof coverings and roof trusses