

Wood Framing – Arch 544 (3)

Course Brief

CATALOG DESCRIPTION

Timber as material, properties. Framing with wood (light wood framing, heavy timber framing, laminated timbers). Design and selection of components. Connections of elements (nailing, bolting, timber connectors). Lateral loads and responses thereto are also studied. Prerequisite: Arch 324 or equivalent.

OBJECTIVES

Students are familiarized with analysis and design of wood structures using the NDS-ASD code as well as load calculation based on ASCE – 7 (including dead, live, wind and snow load calculation). In addition, techniques used to design with modern wood engineered products are explored. Topics covered include: sawn lumber, Glulam, LVL, I-joists, plywood panels, CLT and stressed skin elements. The students will also explore architectural examples of contemporary wood design using case studies.

ORGANIZATION

The course is lecture based, and the concepts and procedures are taught in this context with classroom and homework problems solved by the students. Computer facilities, including software, are available for supporting computational work in the BT-Lab. Testing equipment and tools are also available for the construction project.

EVALUATION

Evaluation is based upon weekly quizzes; a series of online problems (approximately one per week) spaced throughout the semester; a group computer analysis project (STAAD.Pro); and a special project. All work will be set on a 100-point scale and proportioned as follows:

Quizzes	30%
Homework Problems	40%
Class Project	15%
STAAD.Pro Project	15%

PROBLEMS

Homework problems covering the primary aspects of the course will be given out usually weekly throughout the semester. Late solutions will be penalized -1% per day up to a maximum of -35%.

TEXTS

The required text is the *NDS-2024* code, available at <http://www.awc.org/Standards/nds.html>. In addition, a copy of *Design of Wood Structures* by Donald Breyer is available in electronic format on Canvas. Another good resource is *The APA Engineered Wood Handbook* also posted on our Canvas site.

COURSE WEB SITE

Course notes will be maintained through a course web site <http://www.umich.edu/~arch544>. This will include homework submissions. Some material is also posted on the Canvas site.

