

53:134 Structural Design II (Steel Structures)
Spring 2006 (Lecture Summary)
Week 15 (4/24 - 4/28/06)

4/24/06

- ◆ Interaction equations in terms of b , m , n on Page 6-11 of the Manual.
- ◆ Initial selection of a section, using b , m and n values.
 - ✓ Design Example 1: Given axial load and end moments, select a section and check its adequacy.
 - ✓ Design example: Example 6.4 from the Manual - design of a member. Use of Tables 6.1 and 6.2 of the Manual - selection of a section.
- ◆ **HW #19:** Beam-column design: Initial selection of a section based on median values of b and m .
- ◆ **Final Exam:** Take home. Due 5/8/06

4/26/06

- ◆ **HW #19:** Initial selection of a section based on median values of b and m .
- ◆ **Design of indeterminate structures: frames.** Part 6 of the Manual; Chapters C and H of the AISC LRFD Specifications.
- ◆ Braced and unbraced frames. Moment amplification. Calculation of factors B_1 and B_2 .
- ◆ Example 6-3 from Part 6 of the manual (unbraced frame with side sway). Calculation of B_2 .

- ◆ Braced and unbraced frames: determination of effective length factors. Use of charts on pages 189-192 of the Specs (Commentary). Calculation of relative stiffness G_A and G_B .
- ◆ Example of determination of effective length factors. Calculation of G_A and G_B .
- ◆ Example of a column design in an unbraced frame subjected to dead, live and wind loads. Consideration of 6 loading combinations. Check AISC Specs for all the critical load cases: without side sway and with side sway.
- ◆ **Read:** Part 6 of the Manual; Chapters C and H of the AISC Specifications.
- ◆ **Final Exam:** Assigned today; due May 8, 2006 by 9:00am in CEE office.
- ◆ **Mr. Qian Wang and Rahul Sharma (TA)** will present lectures on Friday and next week.

4/28/06 (Tentative)

- ◆ Review of determination of effective length factors for braced and unbraced frames. Calculation of relative stiffness G_A and G_B . Use of charts on pages 189-192 of the Specs (Commentary) to calculate the effective length factors.
- ◆ Design of frames: Example problem. Design of an unbraced frame subjected to dead, live and wind loads.