53:134 Structural Design II (Steel Structures)  
Spring 2006 (Lecture Summary)  
Week 5 (2/13 - 2/17/06)

2-13-06

♦ Review the slope-deflection equations and notations - clockwise positive. Local x-axis along AB; A is the starting point and B is the ending point. Free-body diagram of the member (internal forces).
♦ Discuss HW#7: P5.2.2 - Analysis of a continuous beam using slope deflection method. Equilibrium condition for each degree of freedom.
♦ Slope-deflection method applied to frames without side sway - symmetric loading; side sway prevented. Examples 5.2.4, 5.2.5, 5.2.6 on pages 308-315.
♦ Read: Section 5.2.
♦ HW#8: P5.2.5 (due 2/15/06)
♦ Midterm Exam: Monday 20th; Force method, slope-deflection method - closed book; one hand-written formula sheet is allowed.
♦ Office Hours: Changed to MW 10:30 to 11:30am.

2-15-06

♦ Discuss HW#8: 5.2.5 - Analysis of frames using slope deflection method.
♦ Slope-deflection method: for frames subjected to side sway. Additional equation - equilibrium for horizontal reactions. Examples: 5.2.7 -5.2.9 on pages 317 - 328.
Example with one vertical member: consider equilibrium of the entire structure; equilibrium of the vertical member.

Example with two vertical members: consider equilibrium of the entire structure; equilibrium of the vertical members.

Read: Section 5.2.

HW#9: P5.2.6

2-17-06

Review the slope-deflection equations and notations.

Discuss HW#9: 5.2.6 – frame with side sway, derive equations.

Review of force method – determination of redundants; compatibility equation(s).

Read: Section 5.2.

HW#10: 5.2.10 (no need to submit).

Midterm Exam: on Monday, February 20; One hand-written formula sheet is allowed.