53:134 Structural Design II, Spring 2006
Midterm Exam 2:
Design of an Indeterminate Truss

Assigned: 29 March 2006 **Due: 5 April 2006 (9:30AM)**

Design a light weight indeterminate truss shown in the following figure to satisfy LRFD Manual requirements. The truss has 4 nodes and 5 members and is subjected to a factored load of 650 kips. Use A992 steel WF10 sections in the design process (F_y = 50 ksi, E = 29000 ksi). Let the effective area for tension members be 75% of the gross area. For ease of fabrication, let members AD and BC have same section, and members AC and BD have same section.

Carry out at least two iterations of the design cycle. Report the total weight of the truss for your final design. Explain the initial selection of the members. You may use Excel or any other program in your work. If you make any assumptions, STATE THEM CLEARLY.