2007-2008 University of Akron Steel Bridge Team

The 2007-2008 UA Steel Bridge Team is having a great year so far. Thanks to excellent leadership coming off of last year and some extra preparation over the summer, we were able hit the ground running at the beginning of the school year. Our early efforts were focused on gaining interest in the team from new members and planning out the year's objectives by setting goals. From there we moved into the general design of the bridge and became familiar with the rule changes from the previous year. General design was followed by some analysis and evaluation before moving forward with further details. Once we were satisfied with the direction the design was going, we were able to start working out specific details of the design and begin planning for fabrication. The next steps will be completing the fabrication and beginning construction practice in preparation for competition.

We were able to start off the year strong with the returning members from past years as well as a few new members. With the continued expansion, our team has grown from twelve members at the end of last year to nearly twenty five actively involved members. Excited to have a growing team, we set aggressive goals and deadlines for this year. Early on in the year, we set team deadlines as shown below:

- Start design – first week of school
- Design finalized by November 2, start minor fabrication ASAP

- Major fabrication begin November 26
- Fabrication 50% complete by Christmas
- Fabrication 100% complete by February 15.
- Start construction practice February 18

These were challenging deadlines, but ones that we felt could be met as a team. Design started as planned and moved quickly in the early stages thanks to the efforts of team members, to learn the capabilities of the structural analysis software SAP 2000.

The analysis involved strength and stiffness calculations as well as investigating the ease of fabrication and constructability of the finished product. Several different loading scenarios and varying designs were run through SAP 2000, monitoring deflections and bridge behavior for each combination. From this we were able to finalize the design even further, and leave only a few details to be worked out during the final design stages and fabrication. We also ran several practice constructions with last year's bridge, keeping in mind this year's new construction rules. These practices gave us an idea how the rule changes were going to affect how we constructed the new bridge and we were able to make some design changes accordingly. This was also a great chance for the new members to get an idea how the timed construction would be performed at competition.

The general completion of the design meant the need to get a steel estimate together, order the materials, and complete shop drawings from which the bridge could

be built. The material was received and most of the drawings finished during exam week and the week following. Having the goals set early provides some flexibility to push the schedule back slightly if things come up or do not go as planned.

Currently, our team is in the middle of the fabrication process. Our hope is to have the bridge completed by the end of February in order to allow the team plenty of time to practice the timed assembly portion of the competition. As our team continues to grow and gain experience it is our hope that we will be able to compete this year for a national title. We would like to thank all of our supporters, and we hope to see everyone at our upcoming regional competition at Youngstown State University. If you would like to hear more about our team we will be giving a presentation at the upcoming 2008 Akron Engineer's Week Banquet on February 21, 2008 at Emidio's Banquet Hall.