

Spring 2009 Newsletter

ACI – Purdue Chapter Successful at the Fall St Louis Convention

Two teams of five undergraduates as well as a graduate advisor were sent to the Fall ACI Convention in St Louis Missouri to represent the Purdue Student Chapter. The objective of the competition was to construct two concrete cylinders with a target average compressive strength of 7000psi and a target density of 150lb/ft³. The goal was not only to satisfy the above criteria, but also to write an essay describing the process behind mixture design with graphical analysis of our data. (For more information visit

http://www.concrete.org/STUDENTS/st_concretecylinder.htm)

The goal of the convention was not only to be successful in the competition, but to gain knowledge about concrete. The design process of the cylinders was a great way to help get a thorough understanding of how different admixtures, aggregate proportions, and water to cement ratios greatly affect the performance of concrete. That being said, the ACI Purdue Student Chapter was very successful in winning first place in two categories: Cementitious Efficiency and Cost Efficiency. Pictured to the right are the ten undergraduate students as well as the graduate advisor who took place in the cylinder competition.



From left: Katie Funk, Marc Parker, Graham Bennett, Scott Houldieson, Mike Dettloff, Ross Wagner, David Waltz, Jonathan Chin, Nick Varchetto, Johathan Olson. Front: graduate advisor Adam Rudy

On behalf of the ACI Purdue Student Chapter, we would like to give a special thanks to Adam Rudy for his help and guidance with the cylinder design for the competition. A base for the cylinder design was Adam's research in optimizing cementitious efficiency in concrete on behalf of Purdue University.

Community Services Projects

Recently Purdue's chapter of ACI has been working on two community service projects. These projects consist of a concrete bench that will be placed along the bike trail in Happy Hollow Park in West Lafayette and a concrete Purdue P that will be used in a weight lifting competition for students to participate in during grand prix week.

The concrete bench has been designed and now we are in the process of creating forms in which to cast this bench. The bench itself will be six feet in length, and around two feet tall. The design of the bench consists of a curved bottom, in the shape of a sin wave with two humps, which will be filled with a clear epoxy in order to see a rebar design on the inside of the bench. On top of this will be a high performance concrete as a seat for the bench. The back rest of the bench will consist of a concrete Purdue sledge hammer at an angle with a brass plate indicating the participants on the project.

As of right now, the concrete P team has just formed and we are in the process of creating a mix design and forms in order to cast the P. The P will be involved in a lifting competition much like the world's strong man competitions except just for students of Purdue University. The idea of the contest that involves the P is that the contestants will carry the weighted P a distance and whoever can hold it the longest wins. The P will be one foot high, nearly two feet wide and eight inches thick, weighing one hundred and twenty pounds. This project is interesting in that we must come up with a durable mix design so that when the P is dropped during the competition there are no adverse affects.