

Research Seeks to Predict Concrete Workability

The ACI Foundation approved the funding of four research projects for 2017. This edition of *Knowledge to Practice* features one of the projects: Minimizing the Effect of Pumping on SCC Workability and Freeze-Thaw Durability.

Pumping is widely used for placing concrete, but the pumping operation affects the workability and the air-void distribution in mixtures. Specifically, pumping can cause self-consolidating concrete (SCC) to lose either its self-consolidation capacity or its stability, and pumping causes a significantly greater increase in air void spacing factor in SCC than in conventional, vibrated concrete. Improved guidelines are needed for both the pumping operation and mixture design to minimize negative effects of pumping on concrete workability and resistance to cycles of freezing and thawing.

This research project seeks to understand which parameters of pumping and concrete mixture design have the largest effects on changes in rheological behavior and coarsening of the air-void system. This knowledge will allow the prediction of changes in concrete workability and air-void distribution and will lead to subsequent development of practical guidelines.

Dimitri Feys, Professor, Missouri S&T, Rolla, MO, will serve as the project's principal investigator. Co-funders of this research include the RE-CAST Tier 1 University Transportation Center and the Curators of the Missouri University of Science and Technology. ACI Committee 237, Self-Consolidating Concrete, supports this project.

Annual Request for Research Proposals Opens in August

The ACI Foundation opens its annual request for proposals (RFP) this month. Successful proposals receive up to \$50,000 in grant funding for research that furthers the knowledge and sustainability of concrete materials, construction, and structures.

All proposals must have a letter of support from an ACI technical committee and must be submitted by December 1, 2017. Recipients of the grants will be announced after The ACI Concrete Convention and Exposition – Spring 2018. To view previously awarded projects, review the proposal guidelines, and submit your proposal, visit www.concreteresearchcouncil.org.

New Research Product Available

Recently, co-investigators Ward Malisch and Heather Brown completed a study that assessed the use of ACI 347.3R-13, "Guide to Formed Concrete Surfaces." The study focused on the quality levels (classifications) of formed concrete surfaces and the methods to achieve and evaluate them. The research product is available on www.concreteresearchcouncil.org.

The study was funded by the American Society of Concrete Contractors Education, Research, and Development Foundation, with co-funding from the Ready Mixed Concrete (RMC) Research & Education Foundation and the ACI Foundation.



Students can apply for 2018-2019 ACI Foundation Fellowships and Scholarships

Window Approaching for Fellowships and Scholarships Applications

The ACI Foundation distributed \$100,000 in academic stipends to 17 students in 2017. Applications for the 2018-2019 ACI Foundation Fellowships and Scholarships will open this month. Fellowships and scholarships are offered for both undergraduate and graduate students. Fellowship applicants require a nomination from an ACI faculty member. Fellowships are available to students in the United States and Canada, while scholarships are available to students worldwide.

Fellowship recipient benefits include:

- \$7000 to \$15,000 educational stipend paid directly to the student;
- Airfare, hotel, and registration for three ACI conventions: the convention for which they interview and the two ACI conventions that occur during their award year;
- A \$250 stipend for each convention to be used for travel expenses;
- A convention guide for the convention when they interview;
- An industry mentor;
- Internships, if required or desired;
- Recognition during the Student Lunch at convention;
- Recognition in *Concrete International*; and
- Recognition on the ACI Foundation's website.

Scholarship recipient benefits include:

- \$3000 educational stipend;
- Recognition in *Concrete International*; and
- Recognition on the ACI Foundation's website.

Information about applying for the ACI Foundation's Fellowships and Scholarships can be found at www.acifoundation.org. If you or your organization are interested in establishing a named Fellowship or Scholarship, please contact Donna Halstead at donna.halstead@concrete.org or +1.248.848.3788.