



American Concrete Institute
Pittsburgh Area Chapter
P.O. Box 86
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Fall 2024

CHAPTER NEWS

Progress through Knowledge

Concrete In the Steel City





CHAPTER NEWS

Self-Consolidating Concrete

By Ron Bruner

PennDOT Material Supervisor, Allegheny County & ACI Pittsburgh Area Chapter Board Member

Self-consolidating concrete (SCC) is recognized as one of the greatest advances in the concrete industry. Using new admixtures and some mix modifications, we can now produce concrete that flows easily without segregating (where the coarse aggregate separates from the cement paste). Concrete that segregates loses strength, resulting in honeycombed areas next to the formwork. It is the self-consolidating nature of SCC that makes it so valuable in construction. SCC can flow into very intricate forms or forms that have a lot of reinforcing bars (rebar congestion) and still leave no voids. Normal concrete would have to be heavily vibrated in those applications to work out all the entrapped air bubbles next to the forms and reinforcing and get the concrete to move in.

WHAT IS SELF-CONSOLIDATING CONCRETE?

Let's start with the simple definition and kick it up a notch. SCC is exceptionally flowable concrete that never needs to be consolidated to fill forms or flow. Placed flat, like for a slab, it is virtually self-leveling. It looks a little like lumpy pancake batter. The consistency is measured by what's called slump flow, where we measure the width of the puddle left when a slump cone is filled and lifted. Slump flow for SCC varies from 20 to 30 inches. However, self-consolidating concrete is NOT simply concrete that flows. If that's all there was to it, we could just use lots of water.

The currently accepted definition of what makes good SCC has three parts:

- High flowability — It flows easily into the finest details of formwork or molds and around reinforcing under its own weight. This is also called workability or filling ability (meaning it fills a form easily).
- Passing ability — The ability to flow through tight spaces, like congested steel reinforcing bars or narrow spots in the formwork.
- Stability — This is the big difference between SCC and simply wet, sloppy concrete. Stability implies that even at very high slumps (or slump flows), the concrete doesn't segregate; it remains homogenous and there is no separation of the aggregate from the cement paste. There are actually two kinds of stability: Dynamic stability (meaning it stays stable while being transported and placed) and static stability (meaning it stays stable — the aggregate doesn't settle and it doesn't bleed excessively while it is in the forms but not yet hardened).

Once hardened, SCC is not much different than conventional concrete. Since we use superplasticizers (high-range water reducers) to achieve the flowability and lots of fines, we can often proportion the concrete for very low water-cement ratios and get very high strengths and low permeability.

If you would like to learn more about how SCC concrete can help you in your projects, please reach out to your local Ready-Mix Supplier or any of us here at ACIPGH.ORG.



10TH ANNUAL EXCELLENCE IN CONCRETE PROJECT AWARD

We encourage you to submit a project for the 10th Annual Excellence in Concrete Project Award – and share the opportunity with others in the Pittsburgh area concrete community – whether they are a member of ACI or not.



Please be on the lookout for the latest application at acipgh.org/.

Your help is needed to make this program successful!

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Chapter News is published by the American Concrete Institute, Pittsburgh Area Chapter for the purpose of informing members and others about issues of concern to the concrete industry. If you have information to include in this publication or any comments, contact ACI Pittsburgh Chapter at 724-452-1468

FOUNDERS AWARDS 2024-2025 ACADEMIC YEAR

The Pittsburgh Area Chapter of the American Concrete Institute established this Award in 1988 to provide financial assistance for undergraduate students with an interest in the areas of cement technology, concrete technology, design or construction.

To receive consideration, a student must be currently enrolled into an undergraduate program at an institution, and/or originally reside, within the boundaries of the Pittsburgh Area Chapter. (Past recipients of the Founders Award are not eligible.)

At this time, we are accepting applications for the 2024/2025 academic year. To be a candidate for this award, the student must submit the following: the Founders Award application; a letter of transmittal, an official copy of their transcript of grades; and two letters of recommendation.

**Applications must be received
by January 31, 2025.**

If you would like to obtain an application form or additional information, go to aci_pgh.org and click on click on the 'Awards' tab.

2024-2025 Pittsburgh Area Chapter Meetings & Events

MEETING DATES

Wednesday - November 13, 2024
John Becker with ACPA

Wednesday - December 11, 2024
Susan Armstrong with PACA

Wednesday - January 15, 2025

Wednesday - February 19, 2025

Wednesday - March 19, 2025



THANK YOU! - 2024 GOLF OUTING SPONSORS -

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ACI – PITTSBURGH AREA CHAPTER FALL 2024/SPRING 2025 CERTIFICATION SCHEDULE

ACI Concrete Field Tech – Grade I	Location
Nov 25-26, 2024	Castle Builders Supply, Hermitage, PA
December 16-17, 2024	Ligonier Stone & Lime, Latrobe, PA
January 6-7, 2025	J.J. Kennedy, Inc. – Shipperville, PA
January 20-21, 2025	Riverside Builders Supply – Coraopolis, PA
February 3-4, 2025	New Enterprise Stone & Lime – Roaring Spring, PA
February 17-18, 2025	Golden Triangle Construction – Imperial, PA
March 3-4, 2025	Stone & Company – Greensburg, PA
Concrete Flatwork Finisher/Tech	Location
February 22, 2025	Golden Triangle Construction - Imperial
Concrete Strength & Aggregate Testing Tech	Location
March 1, 2025	Pittsburgh Area <i>Minimum of 10 registrants required to hold a class</i>
To download a registration form or to register on-line log onto: www.acipgh.org	

WHAT IS THE DIFFERENCE BETWEEN RECERTIFYING AND BECOMING CERTIFIED FOR THE FIRST TIME?

From a testing standpoint there is no difference. Whether you are obtaining your certification for the first time vs. renewing your certification you still must take both the written and performance exams. The only difference would be if you would choose not to attend the review portion of the course (Day 1). However, most people choose to partake in the review because of the changes that may have been implemented since your initial certification.

PITTSBURGH CHAPTER OF THE ACI MISSION STATEMENT

The mission of this chapter is to teach, train, gather, and share information to guide and support the concrete construction industry in the Greater Pittsburgh Region.