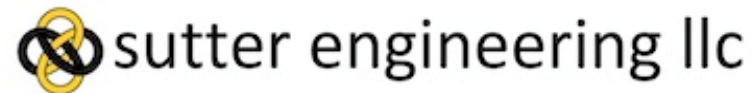


Blended Cement Steering Committee and NCC Blended Cement Subcommittee

Maria Masten, MnDOT – Chair, National Concrete Consortium
Larry Sutter, Sutter Engineering – Consultant
Fall 2025 NC2 Meeting – September 9, 2025



- Support the adoption of Type IL cement by improving data transparency for all stakeholders. We also see this effort as a foundation for future implementation of other blended cements. Your support is greatly appreciated.

What has happened since the Blended Cement Workshop at Spring 2025 NCC Meeting?

- Summary of the Blended Cement Workshop Notes
 - Found on the Spring 2025 NCC Meeting
 - <https://www.cptechcenter.org/events/spring-2025-national-concrete-consortium/>

Common themes:

- Material consistency critical for all stakeholders
- Education of industry, contractors, local public agencies, and even others on DOT staff.
- Impact of Type IL on concrete properties
- Importance of transparency

WE NEED TO WORK TOGETHER OR DOTS ARE GOING TO DRAW THEIR OWN LINES IN THE SAND AND WE WILL BE 10 MORE YEARS AWAY FROM MOVING FORWARD

DOT Insights after workshop

- The morning workshop was valuable to have candid discussion between agencies and industry and to hear about issues in other states
- The extent of issues with Type IL varies state-by-state, ranging from relatively minor recurring headaches to persistent problems
- Several states indicated they were uneasy with recent changes made by cement producers related to implementation of Type IL cement
- States should continue to ask industry for more data about their plants and products
 - There seems to be quite a bit of variability between different cement producers, as well as in the amount of information that different cement producers make available

State DOT Observations

- State DOTs test cements primarily to verify they received the product they asked for.
- Consistency is a priority. When conducting tests and trials on new materials and reviewing mill certs, if things look like they're staying consistent, that gives DOTs confidence.
- Some DOTs are looking for more information about grinding aids used in blended cements, and whether they are different from older cements, also interested in the impact grinding aids could have on long term performance.

Blended Cement Steering Committee

Development of a Blended Cement Steering Committee

Reviewed and discussed workshop notes and insights from the DOT Only session

Biggest takeaway:

- Some NC² stakeholders (i.e., SHAs and contractors) raised concerns about the variability in the limestone content of AASHTO M 240 (ASTM C595) Type IL cements, which in turn could cause variability in concrete during construction leading to potential project delays and/or performance issues.

Name	Organization
Maria Masten	Minnesota DOT
Whitney Wise	Wyoming DOT
Jason Mellons	Tennessee DOT
Rich Mulcahy	Massachusetts DOT
Lieska Halsey	Nebraska DOT
Larry Sutter	Sutter Engineering
Tom Van Dam	WJE
Peter Taylor	CP Tech Center
Dan King	CP Tech Center
Leif Wathne	CP Tech Center
Mike Praul	FHWA
Jerod Gross	Snyder and Associates

Blended Cement Steering Committee

Task #1 - NCC Cement Industry Request Letter for Data

Letter sent on 7/17/25 to most TTCC State Cement Plants with the following request:

On behalf of NC², the SHAs are collectively requesting Type IL cement data from all plants shown in Attachment 1, retroactive to January 1, 2022 through June 30, 2025, providing at a minimum the following information (for data available):

- Bulk Shipping Sample Data (identify test methods used)
 - 3, 7, and 28-day compressive strength
 - Time of Set
 - Fineness
 - Loss on ignition
 - Sulfate Content (SO₃)
 - Limestone content
- Monthly Composite Samples
- 30-day published mill certifications data

GOAL: To make 1 collective data request instead of many SHAs all sending requests for the same data

Cement Industry Response to Data Request

- **Data mined from state approval records**
 - 23 separate producers (actually 26)
 - 82 plants that have a Type IL approved in the responding states
 - 138 contacts
- **Replies so far**
 - 8 separate producers
 - 3 provided partial data
 - 4 replied and are participating – in progress
 - 1 replied they would not participate

Cement Industry Response to Data Request

- **More on the replies**

- One partial reply provided all requested data but only for one (1) plant
 - State records indicated Type IL approved from more than one plant
- One partial reply provided only monthly mill certifications for the period June 2022 – June 2025
 - Only monthly mill certifications – no further data
- One partial reply provided all requested data for all plants but only for for the period June 2024 – June 2025
- Stay tuned....

Discussions with ACA

Follow up email to American Cement Association (ACA) on 8/27/25:

- I want to reiterate our request is to just collect the data and identify if there are trends to be concerned about. The NC2 Blended Cement Steering Committee understands we requested a very tight timeline for turning the data around and want to share we are open to receiving the data by the end of the calendar year 2025.
- Our goal is to review the data and present the information at the Spring 2026 NC2 meeting. As part of the data review, the NC2 Steering Committee is establishing a peer group to provide review and oversight of the data analysis. Larry Sutter will be the consultant performing the data analysis.
- This peer review group will include representatives from the following areas:
 - 5 State DOTs
 - 5 Cement Companies
 - 2-3 members of Industry/Academia

Blended Cement Steering Committee

Task #2 – Evaluate the Type IL Cement Data

- Larry Sutter will be the consultant reviewing and analyzing the data
- NC2 Steering Committee is establishing a peer group to provide review and oversight of the data analysis.
- This peer review group will include representatives from the following areas:
 - 5 State DOTs (From Steering Committee)
 - 5 Cement Companies
 - 2-3 members of Industry/Academia
- Goal: Present information at Spring 2026 NC2 meeting

Blended Cement Steering Committee

Task #3 – Survey DOTs and Contractors

- Is Type IL cement the real issue?
 - Survey the DOTs to find out what actual problems they have seen since Type IL cements have been re-introduced to the market
 - Survey Contractors and Producers to see what real issues they have experienced since Type IL cements have been re-introduced to the market
- Goal: Present information at Spring 2026 NC2 meeting

TTCC Funded Research on PLCs

- Evaluation of Effects of Portland Limestone Cement (PLC) Variability on Mortar Fresh Properties
 - RFQ posted in July and bids were received in August
 - The PLC subcommittee selected the proposal from Braun Intertec
- Project timeline
 - Contract should be finalized this month
 - Braun will conduct lab testing – approximately 7 months (April 2026)
 - CP Tech Center staff will review data and conduct analysis

TTCC Funded Research on PLCs

- Conducting testing with 10 PLCs (5 companies, 2 plants each)
 - Cement characterization through XRF, TGA, and PSD
- Preparing mortar mixtures with each cement for testing:
 - Water demand/mortar slump (ASTM C1810)
 - Bleed (ASTM C1741)
 - Set time and early hydration rate (ASTM C1753)
 - Rate of stiffening/mini-slump
- Analyzing sensitivity to following factors:
 - w/cm (0.40, 0.45, 0.50)
 - SCM type (Class F fly ash, Class C fly ash, slag cement)
 - Water reducing admixtures (Type A, Type F)
 - Mix temperature (50°F, 70°F, 90°F)

NC2– What are the next steps?

- Establish a NC2 Blended Cement Subcommittee
 - When?
 - Define goals?
 - What are the tasks?
 - Who will be on the committee?

Questions?

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