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## Recommendations for Structural Grouting of Precast Concrete Structures

Prepared by  
The SEAC Precast Concrete Committee  
(11/2/17)

Recently there have been a number of incidents on projects in Colorado related to the timeliness of structural grouting during the precast installation process or the lack of grouting under critical load bearing elements. Issues related to structural grouting have been experienced with both precast concrete and other building systems. Grouting is quickly gaining attention from designers, architects, owners and the public. There are currently no requirements and limited guidance for installation or special inspection of grouted joints in building codes or standards.

In an effort to address the gap in building codes and standards, specifically related to precast concrete, several strategies are being implemented by local Precasters (precast manufacturers, precast specialty engineers, and precast erectors), the Precast/Prestressed Concrete Institute (PCI), and PCI Mountain States Region. Local Precasters are refining their QA/QC programs to ensure grouting is compliant with their erection stability plans. Nationally, the PCI Field Safety Task Group has recommendations that all PCI Certified Erectors include, as part of the erector's daily field reports, documentation that identifies each grouted joint and grout sleeve, the date it was completed, and its location in the building.

The SEAC Precast Concrete Committee recommends the following practices for the Colorado market.

- Caution should be exercised when specifying grouting requirements in contract drawings. Language such as "100% grouted," "fully grouted," or similar, may



result in an effort that is not required based on design or may not meet the grouted joint detailing requirements. It is recommended that “grout as needed for design” or similar language be used.

- Include the following items in specifications for precast projects along with a variant for other trades utilizing grouted joints
  - Request a submittal of a Grouting QA/QC program that includes the following
    - Temperature of substrates at time of placement and during the curing process as required by the manufacturer
    - Grout material technical data sheet
    - Placement procedure
    - Placement verification procedure
  - Require Precast installation by a PCI Certified Erector
  - Submit the Precaster’s quality monitoring reports to the Owner or design team.

The Precasters are responsible for establishing the QA/QC program, including grout design, installation requirements, and verification procedures. Each of these steps has an important role to establish the necessary assurance and documentation as part of a close-out package to the design team and ultimately, the building Owner.

Special Inspection may be utilized to verify that the QA/QC programs are being executed as submitted and approved. The IBC has no special inspection requirements for grouting. If Special Inspection is requested by the designer or Owner, then the special inspection requirements should be fully defined, including activity, frequency, and location by the party requiring the Special Inspection.

The SEAC Precast Concrete Committee consists of representatives of consulting engineering firms, Precasters in Colorado, and a representative of PCI Mountain States Region. These recommendations were developed with their input. The Precasters have implemented, and are continuing to refine, their own approach to a formal grouting procedure including QA/QC.

We recommend additional review and attention be given to grouting requirements of other structural systems to ensure that a proper load path exists during construction and at ultimate loading.