



# BUILDINGS 2021-003 BULLETIN TECHNICAL

ISSUANCE DATE  
April 26, 2021



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**PURPOSE:** Clarify the role of the Special Inspector during concrete placement

**SUBJECT(S):** Grout box, Grout, Special Inspectors, Concrete placement, Concrete mix, Construction Safety Manager

## RELATED CODE SECTIONS

ACI 318, AC 28-105.12, BC 1704.1.2, BC 1905.9, BC 1905.10.3, BC 3310.9.1, 1 RCNY 101-06

### I. BACKGROUND

In December of 2019 during the construction of a high-rise building, localized failures in the form of severe cracking of several reinforced concrete column elements were observed. An investigation of the cause concluded that the failures were due to the use of non-conforming concrete. The origin of the non-conforming concrete was traced to grout slurry used as a priming agent to lubricate the boom and hoses associated with the concrete pump truck. The grout was pumped in advance of the specified design concrete mix and should have been discarded into grout boxes. Instead, the grout was pumped and cast into various structural elements contrary to the approved construction documents. The investigation determined that inadequate special inspections and undersized grout boxes may have played a role in the decision to place the grout in the structural elements.

### II. CLARIFICATION OF SPECIAL INSPECTIONS REQUIREMENTS RELATIVE TO CONCRETE PLACEMENT

In accordance with Section 1704.4 of the NYC Building Code, the special inspections and verifications for concrete construction require as many qualified special inspectors as needed to verify the use of the design concrete mix and execute the inspection items required in Table 1704.4. Specifically, Table 1704.4, item 7 requires that a concrete special inspector be continuously present during concrete placement to verify proper application techniques. Communication between all inspectors of the various tasks at all times is essential. For special inspectors' qualifications refer to 1 RCNY 101-06.

Continuous Special Inspection is defined in Section BC 1702.1, as the full-time observation of work requiring special inspection by a special inspector who is continuously present in the area where the work is being performed. As such, a special inspection is required to be performed at all times during concrete placement at the point of application of the design concrete mix from the boom.

#### Maintaining the Integrity of Concrete Pour

In accordance with Section BC 1905.9, concrete is to be conveyed to the place of final deposit by methods that will not alter the properties of the concrete delivered. Concrete that has been contaminated must not be deposited in the structure, per requirements of Section BC 1905.10.3. During special inspections it must be confirmed that the design concrete mix specified for the structural element being poured is not contaminated with lubricating grout, and that the consistency of the design concrete mix is adequate and uniform. At the special inspector's discretion, a slump test performed at the point of discharge can be used to verify

consistency of the concrete prior to placement. Another method that can be used, is to apply a colored dye to the lubricating grout. This would allow for a visible indicator of the grout material, making it easier to identify when it has cleared the pump line prior to the placement of the design concrete mix.

### **III. DUTIES OF THE CONSTRUCTION SAFETY MANAGER RELATIVE TO THE PUMPING AND LUBRICATING GROUT**

**Section BC 3310.9.1** requires that on concrete projects with 2,000 cubic yards or more, the concrete contractor designates a concrete safety manager (CSM). This individual is responsible to confirm proper procedures are being followed during concrete operations, including, but not limited to, required special inspectors be present during concrete placement, pumping crews have participated in preplanning meetings, and that requisite grout discharge boxes are available. Refer to **the Concrete Safety Manager Inspections Checklist** at [https://www1.nyc.gov/assets/buildings/pdf/csm\\_checklist\\_reference.pdf](https://www1.nyc.gov/assets/buildings/pdf/csm_checklist_reference.pdf).

### **IV. DUTIES & RESPONSIBILITIES OF PERMIT HOLDERS**

It is the duty of the permit holder to ensure the number and size of grout boxes are adequate and that grout is properly discharged. Nothing in this bulletin removes responsibility from the permit holder to provide a Code-compliant structure built to the project specifications. In accordance with Section AC 28-105.12, the applicant, the owner, their agents, employees, and contractors shall carry out the permitted work in accordance with the provisions of this Code, including but not limited to, conducting concrete washout operations in accordance with BC 3303.15.