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PROFILE OF THE DUTIES OF A CONCRETE SPECIAL INSPECTOR

(RCSI) JOINT CERTIFICATION

(Joint is the new classification in which the Special Inspector has both the A.C.I. and I.C.C. certifications)

A Joint Reinforced Concrete Special Inspector is obligated to obtain the necessary jurisdictional licenses to perform the duties of a Special Inspector within the boundaries of and to the satisfaction of the local Building Department.

- The Reinforced Concrete Special Inspector reports to the Building Department to report his dispatch to the particular job in that jurisdiction.
- The Reinforced Concrete Special Inspector checks the building permit, stamped approved drawings and job specifications mix design, etc. (called the contract documents).
- The Reinforced Concrete Special Inspector then checks the area proposed for concrete placement, for compliance to the approved contract documents.
- The Reinforced Concrete Special Inspector performs visual inspection on the proposed work such as checking the sizes, spacing, clearances, splices of reinforced steel, embedded items and anchor bolts, etc. prior to concrete placement. If the reinforcing steel has already been inspected, the Concrete Special Inspector performs visual inspection on the actual placement of the concrete, making sure that no reinforcing steel, bolts or embedded items are displaced due to placement efforts.

The Reinforced Concrete Special Inspector may also be required to perform sampling of the concrete starting with mix design verification, slump requirement compliance, proper sampling techniques of the several tests required. These tests are generally sampling of concrete (ASTM C-170), slump of concrete (ASTM C-143), air test of concrete (ASTM C-173 and/or ASTM C-231), making and curing of concrete test specimens in the field (ASTM C-31), and temperature of freshly mixed concrete (ASTM C-1064). All of the above testing requires an A.C.I. Grade 1 Field Technician certification.

When the proposed work is performed, then the Special Inspector issues a daily report of his activities including what was inspected, what testing was performed, where any sampling was done, the number of samples taken and any problems encountered. If any discrepancies are detected, they are first brought to the immediate attention of the contractor for correction. Then, if uncorrected, to the proper design authority and to the Building Official under the provisions of I.B.C., Chapter 1704.1.2. Any uncorrected items require the issuance of a non-compliance report.

At the end of the project or the end of the Special Inspector's portion of the work, he is obligated under the I.B.C. Chapter 1704.1.2 to issue a final report stating "whether the work requiring Special Inspection was to the best of his knowledge in conformance with the approved plans, specifications and the applicable workmanship provisions of the Uniform Building Code."

PROFILE OF THE DUTIES OF A PRESTRESSED CONCRETE SPECIAL INSPECTOR

Before an applicant can receive a Prestressed Concrete Certification, he must first have in his possession a Joint Reinforced Concrete Certification. A Prestressed Concrete Special Inspector also inspects Post-Tension Concrete. In addition to the certification requirements, the jurisdictional licensing requirements and the sampling/testing duties required in the Reinforced Concrete Special Inspector profile, a Prestressed Concrete Special Inspector would be called upon to perform the following:

NOTE: (Usually on larger concrete placements two Inspection workmen are present, the Reinforced Concrete Special Inspector/Prestressed Concrete Special Inspector performs the visual inspection duties and the second workman, an A.C.I. Certified Technician performs the concrete sampling duties).

The Prestressed Concrete Special Inspector is responsible to ascertain that prior to the concrete placement all reinforcing steel, embeds and prestressed or post tensioned tendons are installed per approved plan. In the event that this duty was already performed by another person, the Prestressed Concrete Special Inspector then visually observes the placement of concrete and makes certain that any displaced embeds, reinforcing steel, or tendons are repaired before the placing of concrete around the item and makes certain that proper consolidation of the concrete is occurring as it is being placed (while this is taking place another workman is taking care of the concrete sampling/testing duties).

After the concrete has been placed for several days the Prestressed Concrete Special Inspector is again present for the stressing of post tensioned structures. The Prestressed Concrete Special Inspector has previously prepared stressing sheets for the placement about to be stressed and prepares copies for each Special Inspector/stressing crew. Note: Each stressing crew needs a Prestressed Concrete Special Inspector present while stressing (See I.B.C. Table 1704.4).

After the stressing of all the tendons in the post tensioned structure the Prestressed Concrete Special Inspector prepares his/her report per the guidelines found in the Reinforced Concrete Special Inspector profile. All post tensioning stressing sheets are forwarded immediately to the general contractor or his designate. See Field Procedures Manual for Unbonded Single Strand Tendons 8.3 1-i.

PROFILE OF THE DUTIES OF A STRUCTURAL MASONRY SPECIAL INSPECTOR

In addition to the certification, licensing requirements and report writing requirements found in the profile of a Reinforced Concrete Special Inspector, a Structural Masonry Special Inspector would be called on to perform the following:

Usually before the beginning of the project, the Special Inspector would generally be required to witness the making of masonry prisms, to verify that the proper constituents are used in the construction of the pre-construction test prisms. See ASTM Standard 1314. After familiarizing himself with the plans and specifications a Structural Masonry Special Inspector should verify that all items brought to the jobsite are in keeping with the contract documents, such as the lime, the cement, the rebar, any accessories or embeds, any pre-bagged mortar mix, etc. Also, verifying that the concrete masonry units or C.M.U.s or if clay brick are used they are also in compliance with the job specifications.

The Masonry Special Inspector should verify that all footings are clean, free of laitance and able to receive the first course of masonry units. The Masonry Special Inspector should observe the making of any mortars to make sure the amounts of materials used and the constituents used are per plan specifications and code.

The Masonry Special Inspector should check all dowels coming out of a footing to receive walls, ascertaining that they are the proper size, grade and enough bar extends from the footing to make a proper lap splice. The Inspector should make sure that any bent dowels are within the parameters set by code and the specifications.

The Masonry Special Inspector should check the laying up of masonry walls, making sure the placement of rebar, the bed and head joints, mortar and accessories comply with the contract documents.

Note: The Code allows for periodic inspection of some types of masonry. When periodic inspection is allowed then a Masonry Special Inspector is required to inspect a wall just prior to grouting. Continuous inspection is required during grouting to ascertain that the grout cells are kept clean and free of obstruction, grout is properly consolidated and re-consolidated and does not exceed 90 minutes in age. He confirms that grout heights, keyways and alignment are per the requirements of I.B.C. Table 1704.5.1 and/or Table 1704.5.3 and the job specifications and plans. The Masonry Special Inspector may also be required to make samples of mortar or grout and witness the construction and grouting of masonry prisms. As with the previous Special Inspector profiles the report writing, non-compliance report and final report writing rules apply.

PROFILE OF THE DUTIES OF A STRUCTURAL STEEL/WELDING SPECIAL INSPECTOR

In addition to the certification requirements, jurisdictional licensing requirements and the report writing requirements agenda in the Reinforced Concrete Special Inspector profile, The Steel/Welding Special Inspector would be called upon to perform the following:

The Steel/Welding Special Inspector would be called upon to check the building permit, the stamped, approved set of drawings, the job specifications and manufacturers recommendations on any approved products for compliance with job contract documents.

The Steel/Welding Special Inspector should check the steel and any accessories delivered to the jobsite for mill certifications and maintain a job file record of these documents. Heat numbers on steel delivered to the jobsite should be checked against mill certs and verified.

The Steel/Welding Special Inspector checks the fit-up of joints prior to welding and approves each with his mark on the steel. The Steel/Welding Special Inspector checks and records the welder's certifications prior to any welding taking place. He also checks that the proper electrodes are on site and properly stored in the approved container/ovens and at the appropriate heat.

The Steel/Welding Special Inspector observes the welding on the joints and verifies the welder is producing the weld called for in the W.P.S. (Welding Procedure Specification). He also checks that the welder is properly removing the slag between passes on multiple pass welds. On single pass fillet welds sometimes inspection is completed after the weld is made (See I.B.C. Table 1704.3 and 1704.5.1). In this scenario the Steel/Welding Special Inspector verifies the condition and fit-up of the steel prior to welding, the certification of the welder and the electrode to be used.

On a large project Steel/Welding Special Inspectors can usually perform continuous inspection on up to 4-5 welders performing full or partial penetration welding. This of course varies with distance, jurisdictional requirements, degree of problems encountered, equipment used, Preheat/Postheat required, etc. Steel Welding Special Inspectors would also make sure that inclement weather did not affect the welding operations.

Shop Inspection – The Steel/Welding Special Inspector can also be called upon to perform what is called shop inspection. This is welding done at a Fabricator's shop. In this type of inspection duty, the Steel/Welding Special Inspector verifies materials/electrode/certification of welders and heat numbers on different steels. He also marks the members he has inspected in the shop with an identifying mark.

PROFILE OF THE DUTIES OF A STRUCTURAL STEEL/HIGH STRENGTH BOLTING SPECIAL INSPECTOR

Bolting Inspection – A Steel/Welding Special Inspector may be called upon to verify the tension on high strength bolts usually by a calibrated inspection wrench, visual observation or use of a feeler gauge on tension indicator washers. In the case of the use of a calibrated inspection wrench, usually the Special Inspector observes the ironworker crew performing the torque testing.

The Structural Steel/Bolting Special Inspector could be called upon to observe the installation and tightening of various types of high strength bolted connections. Part of his duties would be to verify the type and grade of high strength bolts used and to check and record lot numbers and sampling of bolts as well as grade, type, length, washers, etc and the method of tightening of each type and grade of bolt. Also, the Bolting Special Inspector may be called upon to verify lot numbers on bolts, and calibrations of bolt tightening devices.

As usual, all report writing duties covered in Reinforced Concrete apply, including a daily report, any discrepancies not corrected require the issuance of a non-compliance report and finally the issuance of a final report stating “whether the work requiring special inspection was, to the best of the Special Inspector’s knowledge, in conformance to the approved plans and specifications and the applicable workmanship provisions of this code”. See I.B.C. Chapter 1704.

PROFILE OF THE DUTIES OF A SPRAY-APPLIED FIREPROOFING SPECIAL INSPECTOR

In addition to the preliminary requirements for certification and jurisdictional licensing, the Spray-Applied Fireproofing Special Inspector (S.A.F. Inspector) would be called upon to:

Check the condition of the substrate (surface of the steel to be covered) on the areas to receive spray-applied fireproofing.

He would check all materials used for conformance to approved plans, specifications, manufacturers directions and plans.

Where the specifications call for the checking of the nozzelman's certification, it would be the responsibility of the Spray-Applied Fireproofing Special Inspector to verify certifications.

The Spray-Applied Fireproofing Special Inspector could be called upon to monitor the thickness of the spray applied fireproofing material during installation, however, the usual procedure is to check the thickness after installation and partial drying has occurred.

The Spray-Applied Fireproofing Special Inspector would check and record thickness of the fire resistive material in the various locations and perform sampling as required by job specifications and the I.B.C. Standard 7. The previously mentioned report writing system outlined by I.B.C. Chapter 1704.1.2 would apply to spray-applied fireproofing inspection also.