

**NC Department of Insurance  
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**Special Inspections for Fabrication and Erection of Structural Steel**

**Code:** 2012 Building Code  
**Section:** 1704.3

**Date:** September 1, 2009

**Question:**

Section 1704.3 states:

*The special inspections for steel elements of buildings and structures shall be as required by Section 1704.3 and Table 1704.3.*

Section 1704.3, Exception 2 states:

*The special inspector need not be continuously present during welding of the following items, provided the materials, welding procedures and qualifications of welders are verified prior to the start of the work; periodic inspections are made of the work in progress; and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding."*

- 2.1 Single pass fillet weld not exceeding 5/16 inch in size.*
- 2.2 Floor and roof deck welding.*
- 2.3 Welded studs when used for structural diaphragm.*
- 2.4 Welded sheet steel for cold-formed steel members.*
- 2.5 Welding of stairs and railing systems.*

Who shall make such an inspection? Can this be an internal inspection by the fabricator, or does this need to be performed by the special inspector?

**Answer:**

For those fabricators that are not AISC (American Institute of Steel Construction) certified, a third party special inspector should perform the inspection.

Concerning internal inspection by the fabricator, consider this example. Welding of structural steel is to be done in accordance with the requirements of AWS D1.1 (American Welding Society). AWS D1.1 requires that the fabricator have its own quality control procedures and personnel. The fabricator's QC (quality control) personnel are responsible for determining conformance of the welds with the requirements of AWS D1.1 by applicable visual and nondestructive testing (NDT) methods. Note that NDT is supplementary to, not in place of, visual inspection. The special inspector acts as the owner's agent for verification by auditing the fabricator's QC program. The fabricator's welding inspector is responsible for:

- 1) making sure that all welders are qualified in accordance with D1.1

- 2) making sure that weld procedure specifications (WPS) are in place for all welds (both pre-qualified and unqualified welds)
- 3) visually inspecting fit-up of the weld
- 4) verifying that the machine settings, electrodes, and other parameters match those set forth in the WPS
- 5) observing the welding operation
- 6) performing any required NDT
- 7) keeping documentation for each weld made in the fabrication shop.

The special inspector, on the other hand, is responsible for inspecting the steel frame for compliance with the construction drawings, reviewing the qualification records of the welders, determining that the WPS were suitable for the specified weld and were properly qualified, reviewing NDT procedures and records, and observing a representative number of welds in order to ensure that the fabricator's QC program is adequate and being followed.