



Coffee Break Training - Fire Protection Series

Building Construction: Special Inspections

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Learning Objective: The student will be able to identify the special inspections that may be required as part of building construction.

Anyone who has watched a building under construction can appreciate its complexity and sophistication. Occasionally, inspection and testing requirements occur that the local code official may not be qualified or experienced to address, so third-party assistance is needed.

The model building codes address this need through a specific requirement for structural tests and “special” inspections. A special inspection can be required for materials, installation, fabrication, erection or placement of components and connections where special expertise is needed. The cost of the special inspection is covered by the project owner or the registered design professional.

The following table identifies some of the special inspections required by the codes. It is not an exhaustive list, so be certain to check your locally adopted code for required special inspections.



The thickness of spray-on fire-resistant materials must be inspected and documented to ensure that it meets hourly fire resistance rating requirements.

Special Inspections

Inspection	Inspection Function (Examples)
Steel construction	Verify integrity of framing welds, joints and high-strength bolts, locations of bracing and stiffening materials.
Concrete construction	Check reinforcing steel, connecting bolts, application technique, strength, required design mix and curing maintenance.
Masonry construction	Assess mortar joint construction, grout placement, reinforcement welding and prestressing techniques.
Wood construction	Check high-load diaphragms, framing members at panel edges, nail or staple diameters and length.
Pile and pier foundations	Evaluate materials, sizes, lengths, placement, plumbness, diameters and embeddedness.
Soils	Test soil classification, bearing capacity, fill quality and density.
Sprayed fire-resistant materials	Measure thickness; density; and bond strength to floors, walls and structural elements.
Mastics and intumescent coatings	Establish compliance with Association of the Wall and Ceiling Industries standards.
Smoke control	Verify performance, operation and interaction with other systems and controls.
Special cases	Validate unusual designs, materials that must be installed to manufacturer’s specifications, alternate methods and materials.

For more information, consider enrolling in the National Fire Academy (NFA) course “Fire Inspection Principles” (R/N0220). Information and applications can be obtained at <http://apps.usfa.fema.gov/nfacourses/catalog/details/47>. The course is available at the NFA in Emmitsburg, Maryland, or through your state fire service training agency.



Eligible for Continuing Education Units (CEUs)
at www.usfa.fema.gov/nfaonline

For archived downloads, go to:

http://www.usfa.fema.gov/training/coffee_break/