

## ***EXAMPLE STATEMENT OF SPECIAL INSPECTIONS (SSI)***

For this example let's consider a single-story retail shell building. The main structural walls consist of CMU construction with the front of the building having special RBS steel moment frames so that an open front can be provided. There are a couple of tower pop-ups at the roof which are framed using metal stud shear walls. For this example we will assume that only snug-tight bolting is required, that structural fill is required beneath the footings and that post-installed anchors are specified.

The following "Statement of Special Inspections" should address the special inspection and structural testing items required by IBC Chapter 17 for this particular project. You should see something similar to this on the construction documents approved for a building permit. Often times the SSI provided on the plans does not meet the full requirements of the IBC. Per IBC 1704.3 the SSI should list all items requiring special inspections or structural tests as well as describe the extent and frequency (i.e. periodic or continuous) of the tests and inspections.

### **STATEMENT OF SPECIAL INSPECTIONS**

1. Special inspections and structural testing shall be provided by an independent agency employed by the Owner for the items identified in this section and in other areas of the approved construction plans and specifications, unless waived by the Building Official (see IBC Chapter 17).
2. The names and credentials of the Special Inspectors to be used shall be submitted to the Building Official for approval.
3. Duties of the Special Inspector:
  - a. The Special Inspector shall review all work listed below for conformance with the approved construction plans and specifications and the 2012 IBC.
  - b. The Special Inspector shall furnish special inspection reports to the EOR, Contractor, Owner and Building Official on a weekly basis, or more frequently as required by the Building Official. All items not in compliance shall be brought to the immediate attention of the Contractor for correction, and if uncorrected, to the EOR and the Building Official.
  - c. Once corrections have been made by the Contractor, the Special Inspector shall submit a final signed report to the Building Official stating that the work requiring special inspection was, to the best of the Special Inspector's knowledge, in conformance with the approved construction plans and specifications as well as the applicable workmanship provisions of the 2012 IBC.
4. Duties and responsibilities of the Contractor:
  - a. The Contractor shall submit a written statement of responsibility to the Owner and the Building Official prior to the commencement of work. In accordance with IBC 1704.4, the statement of responsibility shall contain acknowledgement of the special inspection requirements contained within this "Statement of Special Inspections".
  - b. The Contractor shall notify the responsible Special Inspector that work is ready for inspection at least one working day (24 hours minimum) before such inspection is required.
  - c. All work requiring special inspection shall remain accessible and exposed until it has been observed by the Special Inspector.
5. Please see the "Special Inspection Schedule" for the types, extents and frequency of specific items requiring special inspections and structural tests as part of this project.

<b>SPECIAL INSPECTION SCHEDULE</b>			
Areas requiring special inspection:	Frequency		Comments:
	Continuous	Periodic	
<b>FABRICATORS (IBC 1704.2.5)</b>			
	◆		If fabricator is approved, on-site inspection is not required but a certificate of completion must be provided to the B.O. (IBC 1704.2.5.2)
<b>SOILS (IBC 1705.6)</b>			
Verify adequate materials below footings		◆	Prior to placement of concrete.
Excavation extend to proper depth and materials		◆	Prior to placement of compacted fill or concrete.
Classification and testing of fill materials		◆	Check classification and gradations at each lift, but not less than once for each 10,000ft <sup>2</sup> of surface area.
Verify proper fill materials, lift thicknesses and in-place densities	◆		
Verify properly prepared site and subgrade		◆	Prior to placement of concrete.
<b>CONCRETE CONSTRUCTION (IBC 1705.3)</b>			
Reinforcing steel placement		◆	Verify size, clearances, splices and proper ties.
Embedded bolts or plates	◆		
Verify required design mix		◆	Verify mix design meets strength and exposure requirements listed on approved plans.
Concrete placement/sampling	◆		Includes sampling for air, slump, strength and temperature techniques
Inspect formwork		◆	Verify shape, location and member dimensions.
Post-installed anchors	◆		In accordance with approved ICC-ES Report. Periodic inspections allowed if stated in ES Report.
<b>COLD-FORMED STEEL CONSTRUCTION (IBC 1705.11.3)</b>			
Components of wind- and seismic-force resisting systems.		◆	Verify proper screw attachment, bolting and anchoring of shear walls, braces and holdowns having a fastener spacing ≤ 4" o.c.
<b>OTHER THAN STRUCTURAL STEEL (IBC 1705.2.2)</b>			
<b><i>Steel Roof &amp; Floor Deck:</i></b>			
Material verification of steel deck		◆	Identification markings per applicable ASTM standard
Roof and deck welds		◆	Verify that welds conform to AWS D1.3.
<b><i>Welding of Reinforcing Steel:</i></b>			
Verification of weldability ( <i>except A706 bar</i> )		◆	Verify material is able to conform to AWS D1.4.
<b>STRUCTURAL STEEL CONSTRUCTION (IBC 1705.2, 1705.11, 1705.12)</b>			
<b><i>Prior to Welding (Table N5.4-1, AISC 360-10):</i></b>			
Verify welding procedures	◆		
Material identification		◆	Verify type and grade of material.
Welder identification		◆	Verify there is a system in place to identify the welder who has welded a joint or member.
Fit-up groove welds		◆	Verify joint preparation, dimensions, cleanliness, tacking and backing.
Access holes		◆	Verify configuration and finish.
Fit-up fillet welds		◆	Verify alignment, gaps at root, cleanliness of steel surfaces, tack weld quality and location.

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**SPECIAL INSPECTION SCHEDULE** *(continued)*

Areas requiring special inspection:	Frequency		Comments:
	Continuous	Periodic	
<b>STRUCTURAL STEEL CONSTRUCTION</b> <i>(continued)</i>			
<b>During Welding</b> <i>(Table N5.4-2, AISC 360-10):</i>			
Use of qualified inspectors		◆	Verify that welders are appropriately qualified.
Control and handling of welding consumables		◆	Verify packaging and exposure control.
Cracked tack welds		◆	Verify welding is not over a cracked tack weld.
Environmental conditions		◆	Verify wind speed is within limits as well as precipitation and temperature.
WPS followed		◆	Verify items such as welding equipment settings, travel speed, welding materials, shielding gas type/flow rate, preheat applied, interpass temperature maintained, and proper position.
Welding techniques		◆	Verify interpass and final cleaning, each pass is within profile limitations, and quality of each pass.
<b>After Welding</b> <i>(Table N5.4-3, AISC 360-10):</i>			
Welds cleaned		◆	Verify that welds have been properly cleaned.
Size, length and location of welds	◆		
Welds meet visual acceptance criteria	◆		
Arc strikes	◆		
k-area	◆		
Backing & welding tabs removed	◆		
Repair activities	◆		
Document acceptance/rejection of weld	◆		
<b>Nondestructive Testing</b> <i>(Table N5.5, AISC 360-10):</i>			
CJP welds (Risk Cat. II)		◆	Ultrasonic testing shall be performed on 10% of CJP groove welds in butt, T- and corner joints subject to transversely applied tension loading in materials 5/16-inch thick or greater. Testing rate must be increased if > 5% of welds have unacceptable defects.
Access holes (flange > 2")	◆		
Welded joints subject to fatigue	◆		
<b>Other Steel Inspections</b> <i>(Table N5.7, AISC 360-10; Tables J8-1 and J10-1, AISC 341-10)</i>			
Structural steel details		◆	All fabricated steel and their connections shall be inspected to verify compliance with the details shown in the approved plans.
Anchor rods/embeds supporting structural steel		◆	Shall be on the premises during the placement of anchor rods/embedments. Verify diameter, grade, type, and length of element and the extent or depth of embedment prior to placement of concrete.
Reduced beam sections (RBS)		◆	Verify contour and finish as well as dimensional tolerances <i>(see Table J8-1 of AISC 341)</i> .
Protected zones		◆	Verify that no holes or unapproved attachments are made within the protected zone <i>(see Table J8-1 of AISC 341)</i> .

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**SPECIAL INSPECTION SCHEDULE** (continued)

Areas requiring special inspection:	Frequency		Comments:
	Continuous	Periodic	
<b>MASONRY CONSTRUCTION (IBC 1705.4)</b>			
<b>Minimum Testing</b> (Table 1.19.2, TMS-402/ACI 530-11):			
Verification of Slump Flow and Visual Stability Index (VSI) for self-consolidating grout.		◆	Compressive strength tests per ASTM C 1019 for slump flow and ASTM C 1611 for VSI.
Verification of $f'_m$ .		◆	Determine compressive strength per "unit strength" or "prism test" as specified in Article 1.4.B of ACI 530.1 prior to construction.
<b>Prior to Construction</b> (Article 1.15, TMS-602/ACI 530.1-11):			
Review material certificates, mix designs, test results and construction procedures		◆	Verify materials conform to approved construction documents. Mix design, test results, material certificates, and construction procedures should be submitted for review. Mortar mix designs shall conform to ASTM C 270 while grout shall conform to ASTM C 476. Material certificates shall be provided for the following: reinforcement; anchors, ties, fasteners, and metal accessories; masonry units; mortar and grout materials. Review cold-weather or hot-weather construction procedures.
<b>As Construction Begins</b> (Table 1.19.2, TMS-402/ACI 530-11):			
Proportions of site-prepared mortar		◆	Verify that mortar is type and color specified on approved plans, it conforms to ASTM C 270, and is mixed per Article 2.6.A of ACI 530.1.
Construction of mortar joints		◆	Verify mortar joints meet Article 3.3.B of ACI 530.1.
Location of reinforcement, connectors and anchorages.		◆	Verify reinforcement is placed in accordance with Article 3.4 of 530.1.
<b>Prior to Grouting</b> (Table 1.19.2, TMS-402/ACI 530-11):			
Grout space		◆	Verify grout space is free of mortar droppings, debris, loose aggregate, and other deleterious materials and that cleanouts are provided per Article 3.2.D and 3.2.F of ACI 530.1.
Grade, type and size of reinforcement, anchor bolts and anchorages.		◆	Verify reinforcement, joint reinforcement, anchor bolts and veneer anchors comply with approved plans and Section 1.6 of ACI 530.
Placement of reinforcement, connectors and anchorages.		◆	Verify reinforcement, joint reinforcement, anchor bolts and veneer anchors are installed per approved plans and Articles 3.2.E, 3.4, and 3.6.A of ACI 530.1.
Proportions of site-prepared grout.		◆	Verify grout proportions meet ASTM C 476 and a slump between 8-11 inches. Self-consolidated grout shall not be proportioned onsite.
Construction of mortar joints		◆	Verify mortar joints placed in accordance with Article 3.3.B of ACI 530.1.
<b>During Construction</b> (Table 1.19.2, TMS-402/ACI 530-11):			
Size and location of structural elements		◆	Verify locations of structural elements per approved plans and confirm tolerances meet Article 3.3.F of ACI 530.1.
Type, size and location of anchors, frames, etc.		◆	Verify correct anchorages and connections are provided per approved plans and Sections 1.16.4.3 and 1.17.1 of ACI 530.
Placement of grout.	◆		
Preparation, construction and protection of masonry during cold weather (<40°F) or hot weather (>90°F).		◆	Verify cold-weather construction complies with Article 1.8.C of ACI 530.1 and hot weather construction per Article 1.8.D of ACI 530.1.
Observation of grout specimens, mortar specimens, and/or prisms.		◆	Confirm specimens/prisms are performed as required by Article 1.4 of ACI 530.1.

