

## SCHEDULE OF SPECIAL INSPECTION

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### Notation Used in Tables from AISC:

In these tables, the minimum inspection tasks are as follows:

O – Observe these items on a random basis. Operations need not be delayed pending these inspections

P – Perform these tasks for each welded joint or member

MT – Magnetic Particle Testing

UT – Ultrasonic Testing

PT – Penetrant Testing

### Notation Used in Tables from California Building Code:

Column headers:

“C” indicates continuous inspection is required.

“P” indicates periodic inspections are required. The notes and or contract documents should clarify.

“I” indicates required Inspection to be performed under this permit per the registered design professional.

Box entries:

X is placed in the appropriate column to denote either “C” continuous or “P” periodic inspections.

R=Review and approve document.

G=In accordance with the Geotechnical report or document approved by the Building Official.

Additional detail regarding inspections and tests are provided in the project specifications or notes on the drawings. Items marked as continuous inspection may be approved for periodic inspection upon documentation submittal from a nationally recognized laboratory or ICC report that allows periodic inspection and approved by the Building Official.

## Division 1. Steel Construction

<b>Verification and Inspection</b>	
<b>California Building Code 1705.2.1 – Structural Steel Elements</b>	
<b>Table N5.4-1 - Inspection Tasks Prior to Welding (AISC 360 Chapter N)</b>	
<b>Inspection Tasks Prior to Welding</b>	<b>QA</b>
Welding procedure specifications (WPSs) available	P
Manufacturer certifications for welding consumables available	P
Material Identification (type/grade)	O
Welder identification system <sup>1</sup>	O
Fit-up of groove welds (including joint geometry) <ul style="list-style-type: none"> <li>• Joint preparation</li> <li>• Dimensions (alignment, root opening, root face, bevel)</li> <li>• Cleanliness (condition of steel surfaces)</li> <li>• Tacking (tack weld quality and location)</li> <li>• Backing type and fit (if applicable)</li> </ul>	O
Configuration and finish of access holes	O
Fit-up of fillet welds <ul style="list-style-type: none"> <li>• Dimensions (alignment, gaps at root)</li> <li>• Cleanliness (condition of steel surfaces)</li> <li>• Tacking (tack weld quality and location)</li> </ul>	O
<sup>1</sup> The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.	
<b>Table N5.4-2 - Inspection Tasks During Welding (AISC 360 Chapter N)</b>	
<b>Inspection Tasks During Welding</b>	<b>QA</b>
Use of qualified welders	O
Control and handling of welding consumables <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Exposure Control</li> </ul>	O
No Welding over cracked tack welds	O
Environmental conditions <ul style="list-style-type: none"> <li>• Wind speed within limits</li> <li>• Precipitation and temperature</li> </ul>	O
WPS followed <ul style="list-style-type: none"> <li>• Settings on welding equipment</li> <li>• Travel speed</li> <li>• Selected welding materials</li> <li>• Shielding gas type/flow rate</li> <li>• Preheat applied</li> <li>• Interpass temperature maintained (min./max.)</li> <li>• Proper position (F, V, H, OH)</li> </ul>	O
Welding techniques <ul style="list-style-type: none"> <li>• Interpass and final cleaning</li> <li>• Each pass within profile limitations</li> <li>• Each pass meets quality requirements</li> </ul>	O
<b>Table N5.4-3 - Inspection Tasks After Welding (AISC 360 Chapter N)</b>	
<b>Inspection Tasks After Welding</b>	<b>QA</b>
Welds cleaned	O
Size, length, and location of welds	P

Welds meet visual acceptance criteria <ul style="list-style-type: none"> <li>• Crack prohibition</li> <li>• Weld/base-metal fusion</li> <li>• Crater cross section</li> <li>• Weld profiles</li> <li>• Weld size</li> <li>• Undercut</li> <li>• Porosity</li> </ul>	P
Arc strikes	P
k-area <sup>1</sup>	P
Backing removed and weld tabs removed (if required)	P
Repair activities	P
Document acceptance or rejection of welded joint or member	P
<sup>1</sup> When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld	
<b>Special Inspection Requirements per AISC 341</b>	
<b>Nondestructive Testing of Welded Joints</b>	<b>QA</b>
k-Area NDT <ul style="list-style-type: none"> <li>• When welding of doubler plates, continuity plates, or stiffeners in the k-area, the web shall be tested for cracks using Magnetic Particle Testing (MT)</li> </ul>	MT
CJP Groove Weld NDT <ul style="list-style-type: none"> <li>• 100% of CJP groove welds in materials 5/16 in. thick or greater shall be tested using Ultrasonic Testing (UT)</li> <li>• Ultrasonic testing in materials less than 5/16 in. is not required</li> <li>• Beam to Column CJP groove welds shall be tested using magnetic particle testing (MT)</li> </ul>	UT MT
Base Metal NDT for Lamellar Tearing and Laminations <ul style="list-style-type: none"> <li>• After joint completion, base metal thicker than 1 ½ in. loaded in tension in the through-thickness direction in tee and corner joints, where the connected material is greater than ¾ in and contains CJP groove welds, shall be Ultrasonic tested for discontinuities behind and adjacent to the fusion line of such welds.</li> </ul>	UT
Beam Cope and Access Hole NDT <ul style="list-style-type: none"> <li>• At welded splices and connections, thermally cut surfaces of beam copes and access holes shall be tested using magnetic particle testing or penetrant testing, when the flange thickness exceeds 1 ½ in. for rolled shapes, or when the web thickness exceeds 1 ½ in. for built up shapes</li> </ul>	MT PT
Reduced Beam Section Repair NDT <ul style="list-style-type: none"> <li>• Magnetic particle testing shall be performed on any weld and adjacent area of the reduced beam section (RBS) cut surface that has been repaired by welding or on the base metal of the RBS cut surface if a sharp notch has been removed by grinding</li> </ul>	MT
Weld Tab Removal Sites <ul style="list-style-type: none"> <li>• At the end of welds where weld tabs have been removed, magnetic particle testing shall be performed on the same beam-to-column joints receiving UT and MT. MT of continuity plate weld tabs removal sites is not required</li> </ul>	UT MT
<b>Table J7-1 - Inspection Tasks Prior to Bolting (AISC 341)</b>	
<b>Inspection Tasks Prior to Bolting</b>	<b>QA</b>
Proper fasteners selected for the joint detail	O
Proper bolting procedure selected for joint detail	O

Connecting elements, including the appropriating faying surface condition and hole preparation, if specified, meet applicable requirements	O
Pre-installation verification testing by installation personnel observed for fastener assemblies and methods used	O
Proper storage provided for bolts, nuts, washers, and other fastener components	O
<b>Table J7-2 - Inspection Tasks During Bolting (AISC 341)</b>	
<b>Inspection Tasks During Bolting</b>	<b>QA</b>
Fastener assemblies placed in all holes and washers (if required) are positioned as required	O
Joint brought to the snug tight condition prior to the pretensioning operation	O
Fastener component not turned by the wrench prevented from rotating	O
Bolts are pretensioned progressing systematically from the most rigid point toward the free edges	O
<b>Table J7-3 - Inspection Tasks After Bolting (AISC 341)</b>	
<b>Inspection Tasks After Bolting</b>	<b>QA</b>
Document accepted and rejected connections	P
<b>Table J8-1 – Other Inspection Tasks (AISC 341)</b>	
<b>Other Inspection Tasks</b>	<b>QA</b>
RBS requirements, if applicable <ul style="list-style-type: none"> <li>• Contour and finish</li> <li>• Dimensional tolerances</li> </ul>	P
Protected zone – no holes and unapproved attachments made by fabricator or erector, as applicable	P
<b>Table J9-1 - Inspection of Composite Structures Prior to Concrete (AISC 341)</b>	
<b>Inspection of Composite Structures Prior to Concrete</b>	<b>QA</b>
Material identification of reinforcing steel (type/grade)	O
Determination of carbon equivalent for reinforcing steel other than ASTM A706	O
Proper reinforcing steel size, spacing and orientation	O
Reinforcing steel has not been rebent in the field	O
Reinforcing steel has been tied and supported as required	O
Required reinforcing steel clearances have been provided	O
Composite member has required size	O
<b>Table J9-2 - Inspection of Composite Structures During Concrete Placement (AISC 341)</b>	
<b>Inspection of Composite Structures During Concrete Placement</b>	<b>QA</b>
Concrete: Material Identification (mix design, compressive strength, maximum large aggregate size, maximum slump)	O
Limits on water added at the truck or pump	O
Proper placement techniques to limit segregation	O
<b>Table J9-3 - Inspection of Composite Structures After Concrete Placement (AISC 341)</b>	
<b>Inspection of Composite Structures After Concrete Placement</b>	<b>QA</b>
Achievement of minimum specified concrete compressive strength at specified age	P
<b>Table J10-1 - Inspection of H-Piles (AISC 341)</b>	
<b>Inspection of Piling</b>	<b>QA</b>
Protected zone – no holes and unapproved attachments made by the responsible contractor, as applicable	P

<b>Verification and Inspection</b>	<b>C</b>	<b>P</b>	<b>I</b>
<b>California Building Code Table 1705.2.3 – Required Special Inspections of Open-Web Steel Joists and Joist Girders</b>			
1. Installation of open-web steel joists and joist girders			
a. End connections – welding or bolted		X	
b. Bridging – horizontal or diagonal			
1. Standard bridging		X	
2. Bridging that differs from the SJI specifications listed in Section 2207.1		X	
<b>California Building Code Section 1705.11.2 Cold-formed steel light-frame construction (windforce resisting elements, where <math>V_{asd}</math> as determined in accordance with Section 1609.3 is 110 mph or greater)</b>			
1. Welding operations of elements of the main windforce-resisting system.		X	
2. Screw attachment, bolting, anchoring, and other fastening of elements of the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.		X	
3. Periodic special inspection is required for fastening of the following systems:		X	
a. Roof covering, roof deck, and roof framing connections			
b. Exterior wall covering and wall connections to roof and floor diaphragms and framing			
<b>California Building Code Section 1705.12.2 Structural Steel elements (Seismic Design Category D)</b>			
1. Special inspections for structural steel in seismic force resisting systems of buildings and structures shall be in accordance with quality assurance requirements of AISC 341.			
<b>California Building Code Section 1705.12.3 Cold-formed steel light-frame construction (Seismic Design Category D)</b>			
1. Welding operations of elements of the main seismic force-resisting system.		X	
2. Screw attachment, bolting, anchoring, and other fastening of elements of the main seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.		X	

Division 2. Concrete

<b>Verification and Inspection</b>	<b>C</b>	<b>P</b>	<b>I</b>
<b>California Building Code Table 1705.3 – Required Special Inspections and Tests of Concrete Construction</b>			
1. Inspect reinforcement, including prestressing tendons, and verify placement.		X	
2. Reinforcing bar welding			
a) Verify weldability or reinforcing bars other than ASTM A706;		X	
b) Inspect single-pass fillet welds, maximum 5/16"; and		X	
c) Inspect all other welds	X		
3. Inspect anchors cast in concrete		X	
4. Verifying use of required design mix.			
a) Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X		
b) Mechanical anchors and adhesive anchors not defined in 4.a.		X	
5. Verify use of required design mix		X	
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X		
7. Inspect concrete and shotcrete placement for proper application techniques		X	
8. Verify maintenance of specified curing temperature and techniques		X	
9. Inspect prestressed concrete for:			
a) Application of prestressing forces; and	X		
b) Grouting of bonded prestressing tendons.	X		
10. Inspect erection of precast concrete members.		X	
11. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.		X	
11. Inspect formwork for shape, location, and dimensions of the concrete member being formed.		X	

## Division 3. Masonry

<b>Verification and Inspection (TMS 402/ACI530/ASCE 5 and TMS 602/ACI530.1/ASCE 6)</b>		
<b>Minimum Verification</b>		
<b>Table 3.1.1 – Level A Quality Assurance</b> (The minimum quality assurance program for masonry in Risk Category I, II, or III structure and designed in accordance with Part 4 or Appendix A.)		
Prior to construction, verify certificates of compliance used in masonry construction		
<b>Table 3.1.2 – Level B Quality Assurance</b> (The minimum quality assurance program for masonry in Risk Category IV structures and designed in accordance with Chapter 12 or 13; The minimum quality assurance program for masonry in Risk Category I, II or III structures and designed in accordance with chapters other than those in Part 4 or Appendix A.)		
<b>Minimum Tests</b>		
Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with specification Article 1.5 B.1.b.3 for self-consolidating grout.		
Verification of $f'_m$ and $f'_{AAC}$ in accordance with Specification Article 1.4 B prior to construction, except where specifically exempted by this code		
<b>Minimum Special Inspections</b>		
<b>Inspection Task</b>	<b>Frequency<sup>(a)</sup></b>	
	Continuous	Periodic
1. Verify compliance with the approved submittals		<b>X</b>
2. As masonry construction begins, verify that the following are in compliance:		
a. Proportions of site-prepared mortar		<b>X</b>
b. Construction of mortar joints		<b>X</b>
c. Grade and size of prestressing tendons and anchorages		<b>X</b>
d. Location of reinforcement, connectors, and prestressing tendons and anchorages		<b>X</b>
e. Prestressing technique		<b>X</b>
f. Properties of thin-bed mortar for AAC masonry	<b>X<sup>(b)</sup></b>	<b>X<sup>(c)</sup></b>
3. Prior to grouting, verify that the following are in compliance:		
a. Grout space		<b>X</b>
b. Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages		<b>X</b>
c. Placement of reinforcement, connectors, and prestressing tendons and anchorages		<b>X</b>
d. Proportions of site-prepared grout and prestressing grout for bonded tendons		<b>X</b>
e. Construction of mortar joints		<b>X</b>
4. Verify during construction:		
a. Size and location of structural elements		<b>X</b>
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction		<b>X</b>

c. Welding of reinforcement	<b>X</b>	
d. Preparation, construction, and protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F).		<b>X</b>
e. Application and measurement of prestressing force	<b>X</b>	
f. Placement of grout and prestressing grout for bonded tendons is in compliance	<b>X</b>	
g. Placement of AAC masonry units and construction of thin-bed mortar joints	<b>X<sup>(b)</sup></b>	<b>X<sup>(c)</sup></b>
5. Observe preparations of grout specimens, mortar specimens, and/or prisms		<b>X</b>
<p>(a) Frequency refers to the frequency of special Inspection, which may be continuous during the task listed or periodic during the listed task, as defined in the table.</p> <p>(b) Required for the first 5000 square feet of AAC masonry</p> <p>(c) Required after the first 5000 square feet of AAC masonry</p>		

**Table 3.1.3 – Level C Quality Assurance**

(The minimum quality assurance program for masonry in Risk Category IV structures and designed in accordance with chapters other than those in Part 4 or Appendix A.)

**Minimum Tests**

Verification of  $f'_m$  and  $f'_{AAC}$  in accordance with Specification Article 1.4 B prior to construction and for every 5,000 sq. ft during construction

Verification of proportions of materials in premixed or preblended mortar, prestressing grout, and grout other than self-consolidating grout, as delivered to the project site.

Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5 B.1.b.3 for self-consolidating grout

<b>Minimum Special Inspections</b>	<b>Frequency<sup>(a)</sup></b>	
	Continuous	Periodic
1. Verify compliance with the approved submittals		<b>X</b>
2. Verify that the following are in compliance		
a. Proportions of site-mixed mortar, grout and prestressing grout for bonded tendons		<b>X</b>
b. Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages		<b>X</b>
c. Placement of masonry units and construction of mortar joints		<b>X</b>
d. Placement of reinforcement, connectors, and prestressing tendons and anchorages	<b>X</b>	
e. Grout space prior to grouting	<b>X</b>	
f. Placement of grout and prestressing grout for bonded tendons	<b>X</b>	
g. Size and location of structural elements		<b>X</b>
h. Type, size, and location of anchors including other details of anchorage of masonry to structural members, frames, or other construction	<b>X</b>	
i. Welding of reinforcement	<b>X</b>	
j. Preparation, construction, and protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F).		<b>X</b>
k. Application and measurement of prestressing force	<b>X</b>	
l. Placement of AAC masonry units and construction of thin-bed mortar joints	<b>X</b>	

m. Properties of thin-bed mortar for AAC masonry	<b>X</b>	
3. Observe preparation of grout specimens, mortar specimens, and/or prisms	<b>X</b>	

## Division 4. Wood

<b>Verification and Inspection</b>
<b>1705.5.1 – Inspection high-load diaphragms:</b>
1. Verify grade and thickness of sheathing.
2. Verify nominal size of framing members at adjoining panel edges.
3. Verify: <ul style="list-style-type: none"><li>a. Nail or staple diameter and length,</li><li>b. Number of fastener lines,</li><li>c. Spacing between fasteners in each line and at edge margins.</li></ul>
<b>1705.5.2 – Metal-plate-connected wood trusses spanning 60 feet or greater:</b>
1. Verify temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.
<b>1705.11.1 – Structural Wood (windforce resisting elements, where <math>V_{asd}</math> as determined in accordance with Section 1609.3 is 110 mph or greater)</b>
1. Continuous special inspection for structural wood are required during field gluing operations of elements of the main windforce-resisting system.
2. Periodic special inspection is required for nailing, bolting, anchoring, and other fastening of elements of the main windforce-resisting system, including wood shear walls.
3. Periodic special inspection is required for fastening of the following systems: <ul style="list-style-type: none"><li>a. Roof covering, roof deck, and roof framing connections</li><li>b. Exterior wall covering and wall connections to roof and floor diaphragms and framing</li></ul>
<b>1705.12.2 – Structural Wood (Seismic Design Category D)</b>
1. Continuous special inspection for structural wood are required during field gluing operations of elements of the main seismic force-resisting system.
2. Periodic special inspection is required for nailing, bolting, anchoring, and other fastening of elements of the main seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels, and hold-downs.

## Division 5. Soils

<b>Verification and Inspection</b>	<b>C</b>	<b>P</b>	<b>I</b>
<b>Table 1705.6 – Required Special Inspections and Tests of Soils</b>			
1. Verify materials below footings are adequate to achieve the desired bearing capacity.		X	
2. Verify excavations are extended to proper depth and have reached proper material.		X	
3. Perform classification and testing of controlled fill materials.		X	
4. Verify use of proper materials, densities and lift thickness during placement and compaction of compacted fill.	X		
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.		X	
<b>Table 1705.7 – Required Special Inspections and Tests of Driven Deep Foundation Elements</b>			
1. Verify element materials, sizes and lengths comply with the requirements.	X		
2. Determine capacities of test elements and conduct additional load tests, as required.	X		
3. Observe driving operations and maintain complete and accurate records for each element.	X		
4. Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any damage to foundation element.	X		
5. For steel elements, perform additional inspections in accordance with Section 1705.2		G	
6. For concrete piles and concrete-filled piles, perform additional inspection in accordance with Section 1705.3.		G	
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.		G	
<b>Table 1705.8 – Required Special Inspections and Tests of Cast-in-Place Deep Foundation Elements</b>			
1. Observe drilling operations and maintain complete and accurate records for each pier.	X		
2. Verify placement locations and plumbness. Confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable), and adequate end-bearing strata capacity.	X		
3. For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3.		G	

## Division 6. General Seismic

<b>Verification and Inspection</b>
<b>California Building Code 1705.12.1 – Structural Steel</b>
1. See Division 1 for AISC 341 requirements for Structural Steel.
<b>California Building Code 1705.12.2 – Structural Wood</b>
1. See Division 4 for requirements for Structural Wood.
<b>California Building Code 1705.12.3 – Cold-Formed Steel Light-Frame Construction</b>
1. Periodic special inspection is required for welding operations of elements of the seismic force-resisting system
2. Periodic special inspection is required for screw attachment, bolting, anchoring, and other fastening of elements of the seismic force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts), and hold downs.
<b>California Building Code 1705.12.4 – Designated Seismic Systems</b>
<i>ASCE 7-10 Section 13.2.2 – Special certification requirements for Designated Seismic Systems</i>
<i>Verify the label, anchorage, and mounting conforms to the certificate of compliance for the following:</i>
1. Active mechanical and electrical equipment that must remain operable following the design earthquake ground motion shall be certified by the manufacturer as operable whereby active parts or energized components shall be certified exclusively on the basis of approved shake table testing. Evidence demonstrating compliance with this requirement shall be submitted for approval after review and acceptance by a registered design professional.
2. Components with hazardous substances and assigned a component importance factor, $I_p$ , of 1.5 in accordance with Section 13.1.3 shall be certified by the manufacturer as maintaining containment following the design earthquake ground motion by (1) analysis (2) approved shake table testing or (3) experience data. Evidence demonstrating compliance with this requirement shall be submitted for approval after review and acceptance by a registered design professional.
<b>California Building Code 1705.12.5 – Architectural Components</b>
Periodic special inspection for the erection and fastening of the following: (a) Exterior Cladding (b) Interior and Exterior Nonbearing Walls (c) Interior and Exterior Veneer (d) Access Floors
<b>California Building Code 1705.12.6 – Plumbing, Mechanical, and Electrical Components</b>
Periodic special inspection shall be required of the following (a) Anchorage of electrical equipment for emergency and standby power systems (b) Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical unites in structures (c) Installation and anchorage of ductwork designed to carry hazardous materials (d) Installation and anchorage of vibration isolation systems in structures where the approved construction documents require a nominal clearance of $\frac{1}{4}$ inch or less between the equipment support frame and restraint.
<b>California Building Code 1705.12.7 – Storage Racks</b>
Periodic special inspection is required for the anchorage of storage racks that are 8 feet or greater in height
<b>California Building Code 1705.12.8 – Seismic Isolation systems</b>
Periodic special inspection shall be provided for seismic isolation systems in seismically isolated structures during the fabrication and installation of isolator units and energy dissipation devices.
<b>California Building Code 1705.12.9 – Cold-formed steel special bolted moment frames</b>
Periodic special inspection shall be provided for the installation of cold-formed steel special bolted moment frames.
<b>California Building Code 1705.13 – Testing for Seismic Resistance</b>

Non-destructive testing for seismic resistance shall be required in the seismic force-resisting systems shall be performed in accordance with the quality assurance requirements of AISC 341. See Division 1 for Steel.

**California Building Code 1713.2 – Nonstructural components**

The registered design professional shall specified on the approved construction documents the requirements for seismic qualification by analysis, testing or experience data. Certificates of compliance shall be submitted

**California Building Code 1713.3 – Designated Seismic Systems**

For structures with designed seismic structures that are subject to the requirements of Section 13.2.2 of ASCE 7 for certification, the registered design professional shall specify on the approved construction documents the requirements to be met by analysis, testing, or experience data as specified. Certificates shall be submitted.

## Division 7 – Fire-Resistant Materials

<b>Verification and Inspection</b>
<b>California Building Code 1705.14 – Sprayed Fire-Resistant Materials</b>
1. Physical and Visual tests: (a) Condition of substrates (b) Thickness of application (c) Density in pounds per cubic foot (kg/m <sup>3</sup> ) (d) Bond strength adhesion/cohesion (e) Condition of finished application
2. Structural member surface conditions shall be inspected by the special inspection before the application of the sprayed fire-resistant material
3. Application – the substrate shall have a minimum ambient temperature before and after application as specified by the written instructions of approved manufacturer and the area shall be ventilated during and after application as required by the approved manufacturers
4. Thickness – No more than 10% of the thickness measurements of the sprayed fire-resistant materials applied shall be less than the thickness required by the approved fire-resistant design but in no case less than the minimum allowable thickness per Section 1705.14.4.1 (a) Minimum allowable thickness: For design thickness 1 inch or greater, the minimum allowable individual thickness shall be the design thickness minus ¼ inch. For design thicknesses less than 1 inch, the minimum allowable individual thickness shall be the design thickness minus 25 percent. Thickness shall be determined in accordance with ASTM E605. Samples of the sprayed fire resistant shall be selected in accordance with Sections 1705.14.4.2 and 1705.14.4.3 1. Floor, roof, and wall assemblies: The thickness of the sprayed fire-resistant material applied to the floor, roof, and wall assemblies shall be determined with ASTM E605, making not less than four measurements for each 1,000 square feet of the sprayed area, or portion thereof, in each story. 2. Cellular decks: Thickness measurements shall be selected from a square area, 12 inches by 12 inches in size. A minimum of four measurements shall be made, located symmetrically within the square area. 3. Fluted decks: Thickness measurements shall be selected from a square area, 12 inches by 12 inches in size. A minimum of four measurements shall be made, located symmetrically within the square area, including one each of the following: valley, crest, and sides. The average of the measurements shall be reported. 4. Structural members: the thickness of the sprayed fire-resistant material applied to structural members shall be determined in accordance with ASTM E605. Thickness testing shall be performed on not less than 25 percent of the structural members on each floor. 5. Beams and girders: at beams and girders, thickness measurements shall be made at nine locations around the beam or girder at each end of a 12-inch length. 6. Joists and Trusses: at joists and trusses, thickness measurements shall be made at seven locations around the joist or truss at each end of a 12-inch length. 7. Wide-flanged columns: At wide flanged columns, thickness measurements shall be made at 12 locations around the column at each end of a 12-inch length. 8. Hollow structural section and pipe: At hollow structural section and pipe columns, thickness measurements shall be made at a minimum of four locations around the column at each end of a 12-inch length.
5. Density – The test samples for determining the density of the sprayed fire-resistant materials shall be selected as follows: (a) From each floor, roof and wall assembly at a rate of not less than one sample for every 2,500 square feet or portion thereof of the sprayed area in each story. (b) From beams, girders, trusses and columns at the rate of not less than one sample for each type of structural member for each 2,500 square feet of floor area or portion thereof in each story.
6. Bond Strength – The cohesive/adhesive bond strength shall be determined in accordance with the field test specified in ASTM E736 by testing in-place samples of the sprayed fire-resistant material selected in accordance with Sections 1705.14.6.1 through 1705.14.6.3 (a) Floor, roof and wall assemblies: At a rate not less than one sample for every 2,500 square feet of the sprayed area, or portion thereof, in each story.

- (b) Structural members: shall be selected from beams, girders, trusses, columns and other structural members at a rate of not less than one sample for each type of structural member for each 2,500 square feet of floor area or portion thereof in each story
- (c) Primer, paint, and encapsulant tests: Shall be conducted when the sprayed fire-resistant material is applied to a primed, painted or encapsulated surface for which acceptable bond strength performance between these coatings and the fire-resistant material has not been determined.

**1705.15 – Mastic and Intumescent Fire-Resistant Coating -**

Special inspections and tests for mastic and intumescent fire-resistant coatings applied to structural elements and decks shall be performed in accordance with AWCI 12-B. Special inspections and tests shall be based on the fire-resistance design as designated in the approved construction documents.

**1705.16 – Exterior Insulation and Finish Systems (EIFS)**

Special inspections shall be required for all EIFS applications.

**Exceptions:**

1. Special inspections shall not be required for EIFS applications installed over a water-resistive barrier with a means of draining moisture to the exterior.
2. Special inspections shall not be required for EIFS applications installed over masonry or concrete walls.

**1705.18 – Smoke Control System**

Smoke control systems shall be tested by a special inspector. The test scope shall be as follows

1. During erection of ductwork and prior to concealment for the purpose of leakage testing and recording of device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements and detection and control verification.