

VUSBC REQUIRED SPECIAL INSPECTIONS AND TESTS

	Description	Reference	Standard	Required?	Continuous?	Periodic?
Special Cases						
Special Cases	Special Inspections and tests required if in the opinion of the building official alternative construction materials, special systems or unusual designs are proposed.	1705.1.1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel Construction						
Steel Construction	Fabrication exception: fabricator to submit a detailed procedure for material control.	1705.2, exception				
Structural steel		1705.2.1		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cold-formed steel deck	Cold-formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements.	1705.2.2	SDI QA/QC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open-web steel joists and joist girders	1. Installation of open-web steel joists and joist girders	1705.2.3				
	a. End connections – welding or bolted	Table 1705.2.3	SJI specs listed in Section 2207.1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
	b. Bridging – horizontal or diagonal i. Standard Bridging ii. Bridging that differs from the SJI specifications listed in Section 2207.1	Table 1705.2.3	SJI specs listed in Section 2207.1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Cold-formed steel trusses spanning 60 feet or greater	Verify restraint/bracing and the permanent individual truss member restraint/bracing are installed.	1705.2.4	Per approved truss submittal package	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concrete Construction						
Concrete construction	Special inspections and of concrete construction shall be performed in accordance with Section 1705.3 and Table 1705.3	1705.3				
	1) Inspect reinforcement, including prestressing tendons, and verify placement	Table 1705.3, VCC 1908.4	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
	2) Reinforcing bar welding:					
	a) Verify weldability of reinforcing bars other than ASTM A706;		AWS D1.4; ACI 318: 26.6.4	<input type="checkbox"/>		<input checked="" type="checkbox"/>
	b) Inspect single-pass fillet welds, maximum 5/16"; and		AWS D1.4; ACI 318: 26.6.4	<input type="checkbox"/>		<input checked="" type="checkbox"/>
	c) Inspect all other welds		AWS D1.4; ACI 318: 26.6.4	<input type="checkbox"/>		<input type="checkbox"/>
	3) Inspect anchors cast in concrete		ACI 318: 17.8.2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
	4) Inspect anchors post-installed in hardened concrete members					
	a) Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.		ACI 318: 17.8.2.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	b) Mechanical anchors and adhesive anchors not defined in 4.a.		ACI 318: 17.8.2	<input type="checkbox"/>		<input checked="" type="checkbox"/>

	5) Verify use of required design mix	1904.1, 1904.2, 1908.2, 1908.3	ACI 318: Ch. 19, 26.4.3, 26.4.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	6) Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.		ASTM C172, ASTM C31, ACI 318: 26.5, 26.12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	7) Inspect concrete and shotcrete placement for proper application techniques	1908.6, 1908.7, 1908.8	ACI 318: 26.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	8) Verify maintenance of specified curing temperature and techniques	1908.9	ACI 318: 26.5-26.5.5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	9) Inspect prestressed concrete for:			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	a) Application of prestressing forces; and		ACI 318: 26.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	b) Grouting of bonded prestressing tendons.		ACI 318: 26.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	10) Inspect erection of precast concrete members		ACI 318: 26.9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	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		ACI – 318: 26.11.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	12) Inspect formwork for shape, location and dimensions of the concrete member being formed, shoring and reshoring		ACI 318: 26.11.1.2(b)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Description	Reference	Standard	Required?	Continuous?	Periodic?
Masonry Construction						
Masonry construction	Special inspections and test of masonry construction shall be performed in accordance with the quality assurance program requirements	1705.4	TMS 402 and TMS 602	<input type="checkbox"/>		
	Empirically designed masonry, glass unit masonry and masonry veneer in Risk Category IV	1705.4.1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Vertical masonry foundation elements	1705.4.2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood Construction						
Wood construction	Special inspections of prefabricated wood structural elements and assemblies shall be in accordance with the applicable section.	1705.5		<input type="checkbox"/>		
	High-load diaphragms	1705.5.1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Metal-plate-connected wood trusses spanning 60 feet or greater	1705.5.2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soils						
Soils	Special inspections and test of existing site soil conditions, fill placement and load-bearing requirements shall be performed in accordance with this section and Table 1705.6.	Specs, 1705.6		<input checked="" type="checkbox"/>		

	1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Table 1705.6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Verify excavations are extended to proper depth and have reached proper material.	Table 1705.6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	3. Perform classification and testing of compacted fill materials.	Table 1705.6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	Table 1705.6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	Table 1705.6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Description	Reference	Standard	Required?	Continuous?	Periodic?
Driven Deep Foundations						
Driven deep foundations	Special inspections and test shall be performed during installation of driven deep foundation elements as specified in Table 1705.7.	1705.7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1. Verify element materials, sizes and lengths comply with the requirements.	Table 1705.7		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2. Determine capacities of test elements and conduct additional load tests, as required.	Table 1705.7		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3. Inspect driving operations and maintain complete and accurate records for each element.	Table 1705.7		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	4. Verify placement locations and 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 document any damage to foundation element.	Table 1705.7		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	Table 1705.7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	Table 1705.7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.	Table 1705.7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cast-In-Place deep foundations elements						
Cast-in-place deep foundation elements	Special inspections and test shall be performed during installation of cast-in-place deep foundation elements as specified in Table 1705.8.	1705.8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1. Inspect drilling operations and maintain complete and accurate records for each element.	Table 1705.8		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedroom (if applicable) and adequate	Table 1705.8		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	end-bearing strata capacity. Record concrete or grout volumes.					
	3. For concrete elements, perform additional inspections in accordance with Section 1705.3.	Table 1705.8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Description	Reference	Standard	Required?	Continuous?	Periodic?
Helical pile foundations						
Helical pile foundations	Continuous special inspections shall be performed during installation of helical pile foundations. The information recorded shall include installation equipment used, pile dimensions, tip elevations, final depth, final installation torque and other pertinent installation data as required by the registered design professional in responsible charge.	1705.9		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fabricated items						
Fabricated items	Performed in accordance with Section 1704.2.5	1705.10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wind resistance						
Reference exemptions		1705.11		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structural Wood	Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.	1705.11.1		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cold-formed steel light-frame construction	Periodic special inspection is required for welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for 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.	1705.11.2		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wind-resisting components	Periodic special inspection is required for fastening of the following systems and components.	1705.11.3				
	1. Roof covering, roof deck and roof framing connections.	1705.11.3		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Exterior wall covering and wall connections to roof and floor diaphragms and framing.	1705.11.3		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seismic Resistance						

Reference exemptions	Special inspections for seismic resistance shall be required as specified in Sections 1705.12.1 through 1705.12.9, unless exempted by the exceptions of Section 1704.2.	1705.12		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structural steel	Special inspections for seismic resistance	1705.12.1	AISC 341	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seismic isolation systems	Special inspection shall be provided for seismic isolation systems in seismically isolated structures assigned to Seismic Design Category B, C, D, E or F during the fabrication and installation of isolator units and energy dissipation devices.	1705.12.8		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Description	Reference	Standard	Required?	Continuous?	Periodic?
Testing for seismic resistance						
Structural steel	Nondestructive testing for seismic resistance shall be in accordance with Section 1705.13.1.1 or 1705.13.1.2, as applicable.	1705.13.1	AISC 341	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nonstructural components	For structures assigned to Seismic Design Category B, C, D, E or F, where the requirements of Section 13.2.1 of ASCE 7 for nonstructural components, supports or attachments are met by seismic qualification as specified in Item 2 therein, the registered design professional shall specify on the approved construction documents the requirements for seismic qualification by analysis, testing or experience data. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1704.5.	1705.13.2	ASCE 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seismic isolation systems	Seismic isolation systems in seismically isolated structures assigned to Seismic Design Category B, C, D, E or F shall be tested in accordance with Section 17.8 of ASCE 7.	1705.13.4	ASCE 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprayed fire-resistant materials (SFRM)						
Physical and Visual Tests	The special inspections and tests shall include the following to demonstrate compliance with the listing and the fire-resistance rating: 1. Condition of substrates. 2. Thickness of application. 3. Density in pounds per cubic foot (kg/m ³). 4. Bond strength adhesion/cohesion. 5. Condition of finished application.	1705.14.1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structural Surface Conditions	The surfaces shall be prepared in accordance with the approved fire-resistance design and the written instructions of approved manufacturers. The prepared surface of structural members to be sprayed shall be inspected by the special inspector before the application of the sprayed fire-resistant material.	1705.14.2	Approved Manufacturer specs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Application	The substrate shall have a minimum ambient temperature before and after application as specified in the written instructions of approved manufacturers. The area for application shall be	1705.14.3	Approved Manufacturer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	ventilated during and after application as required by the written instructions of approved manufacturers.					
Thickness	Not more than 10 percent of the thickness measurements of the sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be less than the thickness required by the approved fire-resistance design, and none shall be less than the minimum allowable thickness required by Section 1705.14.4.1.	1705.14.4	ASTM E605	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Density	The density of the sprayed fire-resistant material shall be not less than the density specified in the approved fire-resistance design. Density of the sprayed fire-resistant material shall be determined in accordance with <u>ASTM E605</u> . The test samples for determining the density of the sprayed fire-resistant materials shall be selected as follows: <ol style="list-style-type: none"> From each floor, roof and wall assembly at the rate of not less than one sample for every 2,500 square feet (232 m²) or portion thereof of the sprayed area in each story. 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 (232 m²) of floor area or portion thereof in each story. 	1705.14.5	ASTM E605	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bond Strength	The cohesive/adhesive bond strength of the cured sprayed fire-resistant material applied to floor, roof and wall assemblies and structural members shall be not less than 150 pounds per square foot (psf) (7.18 kN/m ²). 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.	1705.14.6	ASTM E736	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Description	Reference	Standard	Required?	Continuous?	Periodic?
Mastic and intumescent fire-resistant coatings						
	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.	1705.15	AWCI 12-B Specs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exterior insulation and finish systems (EIFS)						
	<i>Special inspections</i> shall be required for all EIFS applications. See exceptions.	1705.16		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Description	Reference	Standard	Required?	Continuous?	Periodic?
Testing for Smoke Control						
	Smoke control systems shall be tested by a special inspector.	1705.18		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Tests						
Design Strengths of Materials	Review with Building Official	Section 1706		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative Test Procedure	Review with Building Official	Section 1707		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In-Situ Load Tests	Review with Building Official	Section 1708		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-Construction Load Tests	Review with Building Official	Section 1709		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>