



DSA-103 Issued 9/1/2017
List of Required Structural Tests & Special Inspections - 2016 CBC

INCREMENT #

2

DSA File No.:

30-C2

Application No.:

04-116810

Date Submitted: 8/17/2018

Revised:

Revised:

School Name	Johson Student Center	District	Rancho Stantiago Community College District
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IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project. Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A.

NOTE: This form is also available for projects submitted for review under the 2007, 2010, and 2013 CBC.

INSTRUCTIONS: Click a plus sign (+) before any category or subcategory to reveal additional tests and special inspections. A shaded box indicates a test or special inspection that may be required, depending on the scope of the construction and other issues. A shaded box can be clicked indicating your selection of that test. **Note:** A minus (-) on a category or subcategory heading indicates that it can be collapsed. However, any selections you may have made will be cleared. Click on the "COMPILE" button to show only the tests and inspections finally selected. For more information on use of this form, see DSA-103.INSTR.

Note: References are to the 2016 edition of the California Building Code (CBC) unless otherwise noted.

REQUIRED	TEST OR SPECIAL INSPECTION	TYPE 1	PERFORMED BY 2	CODE REFERENCE AND NOTES
-	SOILS			
-	1. GENERAL:			Table 1705A.6
X	a. Verify that: • site has been prepared properly prior to placement of controlled fill and/or excavations for foundations, • foundation excavations are extended to proper depth and have reached proper material, and • materials below footings are adequate to achieve the design bearing capacity.	Periodic	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)
-	2. COMPACTED FILLS:			Table 1705A.6
X	a. Perform classification and testing of fill materials.	Test	LOR*	* Under the supervision of the geotechnical engineer.
X	b. Verify use of proper materials, densities and inspect lift thicknesses, placement, and compaction during placement of fill.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.
X	c. Test compaction of fill.	Test	LOR*	* Under the supervision of the geotechnical engineer.
-	5. RETAINING WALLS:			
X	a. Placement of soil reinforcement, drainage devices, and backfill.	Continuous	GE*	Placement, compaction and inspection of backfill per Section 1705A.6.1 for fills supporting foundations (see Section 2 above). * By geotechnical engineer or his or her qualified representative.
X	b. Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.
X	c. Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
-	CONCRETE			Table 1705A.3, ACI 318-14 Sections 26.12 & 26.13
-	7. CAST IN PLACE CONCRETE			



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Material Verification and Testing:				
X	a. Verify use of required design mix.	Periodic	SI*	Table 1705A.3 Item 5, 1910A.1 (1909.2.3*). * To be performed by qualified batch-plant inspector and concrete sampling technician
X	b. Identify, sample, and test reinforcing steel.	Test	LOR	1910A.2 (1909.2.4*); ACI 318-14 Section 26.6.1.2. DSA IR 17-10.16
X	c. During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Test	LOR	Table 1705A.3 item 6; ACI 318-14 Sections 26.5 & 26.12
X	d. Test concrete (f_c).	Test	LOR	1905A.1.16 (1909.3.7*); ACI 318-14 Section 26.12.
Inspection:				
X	e. Batch plant inspection <input checked="" type="radio"/> Continuous <input type="radio"/> Periodic	See Notes	SI	Default of 'Continuous' per 1705A.3.3; If approved by DSA, batch plant inspection may be reduced to 'Periodic' subject to requirements in Section 1705A.3.3.1 or eliminated per 1705A.3.3.2. (See Appendix for exemptions.)
X	h. Welding of reinforcing steel.	Provide special inspection per STEEL, category 19.1(d) & (e) and/or 19.2(g) & (h) below.		
11. POST-INSTALLED ANCHORS:				
X	a. Inspect installation of post-installed anchors	See Notes	SI*	Table 1705A.3 Item 4a (Continuous) & 4b (Periodic) (see Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13 * May be performed by the project inspector when specifically approved by DSA.
X	b. Test post-installed anchors.	Test	LOR	1910A.5 (1909.2.7*). (See Appendix for exemptions.)
MASONRY TMS 402-13/ACI 530-13/ASCE 5-13 Table 3.1.3 & TMS 602-13/ACI 530.1-13/ASCE 6-13 Table 5				
13. STRUCTURAL MASONRY:				
		Enter f'_m	2000	psi
Material Verification and testing:				
X	a. Mill certificate indicates compliance with requirements for reinforcement, anchors, ties, fasteners, and metal accessories. See item 7b above for identification, sampling, and testing of reinforcing steel.	Periodic	SI*	2103A.4 (2103.4*), TMS 602-13 Article 1.5B.2 & 2.4. * To be performed by qualified LOR representative. Applicable testing by LOR. See IR 17-10.16 for unidentified reinforcing steel.
X	b. Producer's certificate of compliance for masonry units, mortar and grout materials.	Test	LOR	1705A.4
X	c. Test masonry (f_m).	Test	LOR	1705A.4. For Unit Strength: 2105A.3 (2114.6.1*), TMS 602-13 Article 1.4B.2, 1.5B.1 & 1.5B.2. For Prism (required when $f'_m > 2000$ psi): 2105A.2, TMS 602-13 Article 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.
X	d. Verify proportions of site-prepared, premixed or preblended mortar and grout.	Periodic	SI	TMS 402-13 Table 3.1.3 Item 2a, TMS 602-13 Table 5 Item 2a.
X	e. Test core-drilled samples.	Test	LOR	2105A.4 (2114.6.2*). (See appendix for exemptions.)
Inspection:				
X	g. Verify size, location and condition of all dowels, construction supporting masonry, etc.	Periodic	SI	
X	h. Verify size, grade, and type of reinforcement and anchor bolts.	Periodic	SI	TMS 402-13 Table 3.1.3 Item 2b, TMS 602-13 Table 5 Item 2b.
X	j. Inspect placement of reinforcement and connectors.	Continuous	SI	TMS 402-13 Table 3.1.3 Item 2d, TMS 602-13 Table 5 item 2d.
X	k. Inspect placement of masonry units and construction of mortar joints.	Periodic	SI	TMS 402-13 Table 3.1.3 Item 2c, TMS 602-13 Table 5 Item 2c.
X	l. Verify preparation, construction, and protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90°).	Periodic	SI*	TMS 402-13 Table 3.1.3 Item 2j; TMS 602-13 Table 5 Item 2j. * May be performed by the project inspector when specifically approved by DSA.



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X	m. Inspect type, size, and location of anchors and all other items to be embedded in masonry including other details of anchorage of masonry to structural members, frames and other construction.	Continuous	SI	TMS 402-13 Table 3.1.3 Item Item 2h, TMS 602-13 Table 5 Item 2h.
X	n. Inspect grout space prior to grouting and placement of grout.	Continuous	SI	TMS 402-13 Table 3.1.3 Item Item 2e & 2f, TMS 602-13 Table 5 Item 2e & 2f.
-	15. POST-INSTALLED ANCHORS IN MASONRY:			
X	a. Inspect installation of post-installed anchors	See Notes	SI*	1705A.4, 1616A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic) (see Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix for exemptions.)
X	b. Test post-installed anchors.	Test	LOR	1705A.4, 1910A.5 (1909.2.7*). (See Appendix for exemptions.)
-	STEEL, ALUMINUM Table 1705A.2.1, AISC 303-10, AISC 360-10, AISC 341-10, AISC 358-10, AISI S100-07/S2-10			
-	17. STRUCTURAL STEEL, COLD-FORMED STEEL, AND ALUMINUM USED FOR STRUCTURAL PURPOSES			
	Material Verification:			
X	a. Verify identification of all materials and: • Mill certificates indicate material properties that comply with requirements, • Material sizes, types and grades comply with requirements.	Periodic	*	2203A.1 (2203.1*), Table 1705A.2.1 Item 3a-3c; AISI S100-07/S2-10 Section A2.1 & A2.2, AISI S200-12 Section A3, AISI S220-11 Section A4. * By special inspector or qualified technician when performed off-site.
X	b. Test unidentified materials	Test	LOR	2203A.1 (2203.1*)
X	c. Examine seam welds of HSS shapes	Periodic	SI	DSA IR 17-3.
	Inspection:			
X	e. Verify and document steel fabrication per DSA approved construction documents.	Periodic	SI	Not applicable to cold-formed steel light-frame construction, except for trusses (1705A.2.4).
-	18. HIGH STRENGTH BOLTS: RCSC 2009			
	Material Verification of High-Strength Bolts, Nuts, and Washers:			
X	a. Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA approved documents.	Periodic	SI	Table 1705A.2.1 Item 1, 2203A.1; RCSC 2009 Section 2.1. DSA IR 17-9
X	b. Test high-strength bolts, nuts and washers.	Test	LOR	2213A.1 (2212.6.1*). RCSC 2009 Section 7.2 DSA IR 17-8.16
	Inspection of High-Strength Bolt Installation:			
X	c. Bearing-type ("snug tight") connections.	Periodic	SI	Table 1705A.2.1 Item 2a; RCSC 2009 Section 9.1. DSA IR 17-9
X	d. Slip-critical connections.	*	SI	Table 1705A.2.1 Item 2b & 2c. RCSC 2009 Section 9.2 & 9.3. * "Continuous" or "Periodic" depends on the tightening method used. DSA IR 17-9 and 1705A.2.1.
-	19. WELDING: 1705A.2.5, Table 1705A.2.1 Items 4 & 5; DSA IR 17-3, AWS D1.1 and AWS D1.8 for structural steel, AWS D1.2 for Aluminum, AWS D1.3 for cold-formed steel, AWS D1.4 for reinforcing steel. (See Appendix for exemptions.)			
	Verification of Materials, Equipment, Welders, etc:			
X	a. Verify weld filler material identification markings per AWS designation listed on the DSA approved documents and the WPS.	Periodic	SI	DSA IR 17-3.
X	b. Verify weld filler material manufacturer's certificate of compliance.	Periodic	SI	DSA IR 17-3.
X	c. Verify WPS, welder qualifications and equipment.	Periodic	SI	DSA IR 17-3.
-	19.1 SHOP WELDING:			
X	a. Inspect groove welds, multi-pass fillet welds, single pass fillet welds > 5/16", plug and slot welds	Continuous	SI	Table 1705A.2.1 Item 5a1-4. Per AISC 360-10 (and AISC 341-10 as applicable). DSA IR 17-3.



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X	b. Inspect single-pass fillet welds $\leq 5/16"$, floor and roof deck welds	Periodic	SI	1705A.2.2, Table 1705A.2.1 Item 5a.5 & 5a.6. Per AISC 360-10 (and AISC 341-10 as applicable). DSA IR 17-3.
X	c. Inspect welding of stairs and railing systems.	Periodic	SI	1705A.2.1. Per AISC 360-10 (and AISC 341-10 as applicable). AWS D1.1 & D1.3. DSA IR 17-3.
X	d. Verification of reinforcing steel weldability other than ASTM A706	Periodic	SI	1705A.3.1; verify carbon equivalent reported on mill certificates. AWS D1.4. DSA IR 17-3.
X	e. Inspect welding of reinforcing steel.	Continuous	SI	1705A.3.1, Table 1705A.3 Item 2, and Table 1705A.2.1 Item 5b, 1903A.8. AWS D1.4. DSA IR 17-3.
-	19.2 FIELD WELDING:			
X	a. Inspect groove welds, multi-pass fillet welds, single pass fillet welds $> 5/16"$, plug and slot welds	Continuous	SI	Table 1705A.2.1 Item 5a1-4. Per AISC 360-10 (and AISC 341-10 as applicable). DSA IR 17-3.
X	b. Inspect single-pass fillet welds $\leq 5/16"$	Periodic	SI	Table 1705A.2.1 Item 5a.5. Per AISC 360-10 (and AISC 341-10 as applicable). DSA IR 17-3.
X	c. Inspect end-welded studs (ASTM A-108) installation (including bend test)	Periodic	SI	2213A.2 (2212.6.2 ⁺); per AISC 360-10 (and AISC 341-10 as applicable), AWS D1.1. DSA IR 17-3.
X	d. Inspect floor and roof deck welds	Periodic	SI	1705A.2.2, Table 1705A.2.1 Item 5a.6; per AISC 360 (and AISC 341 as applicable) & AWS D1.3. DSA IR 17-3.
X	e. Inspect welding of structural cold-formed steel	Periodic	SI*	1705A.2.5; AWS D1.3. * May be performed by the project inspector when specifically approved by DSA. DSA IR 17-3.
X	f. Inspect welding of stairs and railing systems	Periodic	SI*	1705A.2.1; Per AISC 360-10 (and AISC 341-10 as applicable). AWS D1.1 & D1.3. DSA IR 17-3. * May be performed by the project inspector when specifically approved by DSA.
X	g. Verification of reinforcing steel weldability	Periodic	SI	1705A.3.1; verify carbon equivalent reported on mill certificates. DSA IR 17-3.
X	h. Inspect welding of reinforcing steel.	Continuous	SI	1705A.3.1, Table 1705A.3 Item 2, and Table 1705A.2.1 Item 5b, 1903A.8. AWS D1.4. DSA IR 17-3.
-	20. NONDESTRUCTIVE TESTING:			
X	a. Ultrasonic	Test	LOR	1705A.2.1 & 1705A.2.5. AISC 360-10 N5.5, AISC 341-10 J6.2. AWS D1.1, D1.8. ANSI/ASNT CP-189, SNT-TC-1A. DSA IR 17-2.
X	b. Magnetic Particle	Test	LOR	
-	23. ANCHOR BOLTS, ANCHOR RODS, & OTHER STEEL:			
X	a. Anchor Bolts and Anchor Rods	Test	LOR	IR 17-11 Sample and test anchor bolts and anchor rods not readily identifiable.
X	b. Threaded rod not used for foundation anchorage.	Test	LOR	Sample and test threaded rods not readily identifiable per procedures noted in IR 17-11
+	WOOD			
-	OTHER			

BOND TEST FOR EXTERIOR TILE
 FINISH FOR SOFFIT

TEST SI CBC (411.2.)



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X	28. BRB Fabrication Shop Welding	*	*	Applicable sections of Steel, Aluminum Section for BRB Fabrication.
X	29. BRB Steel Core	Test	LOR	AISC 341-10 F4.2a coupon test of steel core.

List of required verified report(s):

- 1 Soils testing and Inspection: Geotechnical Verified Report - Form DSA-293
- 2 All Structural Testing: Laboratory Verified Report - Form DSA-291
- 3 Concrete Batch Plant Inspection: Laboratory Verified Report - Form DSA-291
- 4 Masonry Inspection: Laboratory Verified Report - Form DSA-291, or, for independently contracting SI, Special Inspection Verified Report - Form DSA-292
- 5 Shop Welding Inspection: Laboratory Verified Report - Form DSA-291, or, for independently contracting SI, Special Inspection Verified Report - Form DSA-292
- 6 Field Welding Inspection: Laboratory Verified Report - Form DSA-291, or, for independently contracting SI, Special Inspection Verified Report - Form DSA-292
- 7 HS Bolt Installation Inspection: Laboratory Verified Report - Form DSA-291, or, for independently contracting SI, Special Inspection Verified Report - Form DSA-292

KEY to Columns

1 Type -	2 Performed By -
Continuous – Indicates that a continuous special inspection is required	GE – Indicates that the special inspection is to be performed by a registered geotechnical engineer or his or her authorized representative
Periodic – Indicates that a periodic special inspection is required	LOR – Indicates that the test or inspection is to be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See section 4-335, 2013 CCR Title 24, Part 1.
Test – Indicates that a test is required	SI – Indicates that the special inspection is to be performed by a special inspector

Name of Architect or Engineer in general responsible charge

Terry Fernandez

Name of Structural Engineer (When structural design has been delegated)

Terry Fernandez

Signature of Architect or Structural Engineer

8/16/18
 date



IDENTIFICATION STAMP
 DIV OF THE STATE ARCHITECT
 APP. # 04-116810

AC N/A F/LS N/A SS Ty
 DATE 8/31/2018



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Appendix: Work Exempt from DSA Requirements for Special Inspection or Structural Testing

Exempt items given in IR A-22 or the 2016 CBC (including DSA amendments) and those items identified below with an "X" by the design professional are NOT subject to DSA requirements for the structural tests or special inspections noted. Items marked as exempt shall be identified by either: 1) listing specific details/sheets noted in the spaces provided below OR 2) on the approved construction documents. The project inspector shall verify all construction complies with the approved construction documents.

Exempted by Design Prof.	
Soils:	
X	1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per 2016 CBC Table 1806A.2 and having no geotechnical report for the following types of structures: free standing sign, scrolling message sign, scoreboard, covered walkway or shade structure with dead load less than 5 psf and other light-weight structures of which the apex is less than 8' above the highest adjacent grade.
X	2. Shallow foundations meeting the exception item #1 criteria specified in 2016 CBC Section 1803A.2.
(Optional) List details for applicable exempt items:	
Concrete/Masonry:	
X	1. Post-installed anchors for the following: 1) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment - see item 7 for "Welding") given in CBC Section 1616A.1.18 (which replaces ASCE 7-10, Section 13.1.4) or 2) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."

Exempted by Design Prof.	
Welding:	
X	1. Solid-clad and open-mesh gates with maximum leaf span or rolling section for rolling gates of 10' and apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
X	2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds cannot be ground flush.
X	3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
X	4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 of listing above).
X	5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 of listing above).



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	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.		6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for section 19, 19.1 and/or 19.2 of listing above).
X	3. Masonry retaining walls less than 4'-0" above the top of foundation not supporting a surcharge and free standing nonbearing non-shear masonry walls up to 6'-0" above adjacent grade do not require grout, mortar or masonry core testing or DSA special inspection.	X	7. Any support for exempt non-structural components given in CBC Section 1616A.1.18 (which replaces ASCE 7-10, Section 13.1.4) meeting the following: 1) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) <= 4' above supporting floor/roof, 2) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.
X	4. Epoxy shear dowels in site flatwork.		(Optional) List details for applicable exempt items:
	(Optional) List details for applicable exempt items:		