



DSA-103 Revised 5/8/2019
List of Required Structural Tests & Special Inspections - 2016 CBC

INCREMENT #

DSA File No.:

Application No.:

04-118743

Date Submitted:

11/1/2019

Revised:

1/14/2020

Revised:

School Name	Sycamore Canyon Elementary School/ LRC	District	Santee School 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.

	TEST OR SPECIAL INSPECTION	TYPE 1	PERFORMED BY 2	CODE REFERENCE AND NOTES
-	SOILS (Indicate if project has geotechnical report):			<input checked="" type="radio"/> Project has a geotechnical report, or CD's indicate soils special inspection is required by GE. <input type="radio"/> Project does NOT have and does NOT require a geotechnical report.
-	1. GENERAL:			Table 1705A.6
X	a. Verify that: <ul style="list-style-type: none"> • 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. SOIL COMPACTION AND FILL:			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. (Refer to specific items identified in the Appendix for exemptions where soils SI and testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil SI and test reporting requirements for the exempt items.)
X	c. Compaction testing.	Test	LOR*	* Under the supervision of the geotechnical engineer. (Refer to specific items identified in the Appendix for exemptions where soils testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil test reporting requirements for the exempt items.)
-	CONCRETE			Table 1705A.3, ACI 318-14 Sections 26.12 & 26.13
-	7. CAST-IN-PLACE CONCRETE			
	Material Verification and Testing:			



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X	a. Verify use of required design mix.	Periodic	SI	Table 1705A.3 Item 5, 1910A.1 (1909.2.3 ⁺)
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 (See Appendix for exemptions.)
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.)
11. POST-INSTALLED ANCHORS:				
X	a. Inspect installation of post-installed anchors	See Notes	SI*	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.
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				
- 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).
- 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.
X	b. Inspect single-pass fillet welds ≤ 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.



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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.
-	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 ≤ 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	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.
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-	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			
-	24. PREFABRICATED WOOD STRUCTURAL ELEMENTS: Section 1705A.5			
X	a. Inspect fabrication of structural glued-laminated timber.*	Continuous	SI	* See 1705A.5.4 for exceptions
+	OTHER			



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List of required verified report(s):

- 1 Soils testing and Inspection: Geotechnical Verified Report - Form DSA-293
- 2 Structural Testing and Inspection: Laboratory Verified Report - Form DSA-291
- 3 Concrete Batch Plant Inspection: Laboratory Verified Report - Form DSA-291
- 4 Post-Installed Anchors: 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 Glu-Lam Wood Fabrication 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 special inspection is to be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335.
Test – Indicates that a test is required	PI – Indicates that the special inspection is to be performed by a project inspector
	SI – Indicates that the special inspection is to be performed by an appropriately qualified/approved special inspector

Name of Architect or Engineer in general responsible charge
Stephanie L Welsh
 Name of Structural Engineer (When structural design has been delegated)

1/14/2020
 Signature of Architect or Structural Engineer date

IDENTIFICATION STAMP
 DIV OF THE STATE ARCHITECT
 APP. # **04-118743**

AC N/A F/LS N/A SS _____
 DATE _____

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 APP. 04-118743 INC:
 REVIEWED FOR

SS FLS TEST ACS
 DATE: 02.05.20



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Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections

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 / special inspections noted. **Items marked as exempt shall be identified on the approved construction documents.** The project inspector shall verify all construction complies with the approved construction documents.

Exempted by Design Prof.	<p>Soils:</p> <p>1. Deep foundations acting as a cantilever footing designed based on minimum allowable pressures per CBC Table 1806A.2 and having no geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.</p> <p>2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.</p>
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Exempted by Design Prof.	<p>Welding:</p> <p>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.</p> <p>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.</p>
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	<p>Concrete/Masonry:</p>		<p>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.</p>
	<p>1. Post-installed anchors for the following: A) 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 B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."</p>		<p>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).</p>
	<p>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.</p>		<p>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).</p>
	<p>3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per IR 21-1.16. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.</p>		<p>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).</p>
	<p>4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.</p>		<p>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: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) <= 4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.</p>
	<p>5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.</p>		