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2019 CBC

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 (2019 CBC).

**NOTE: Undefined section and table references found in this document are from the CBC, or California Building Code.

KEY TO COLUMNS

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required	GE – Indicates that the special inspection shall 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 shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335.
	PI – Indicates that the special inspection may be performed by a project inspector when specifically approved by DSA.
Test – Indicates that a test is required	SI – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

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Geotechnical Reports: Project has a geotechnical report, or CDs indicate soils special inspection is required by GE

	1. GENERAL:	Table 1705A.	6	
	Test or Special Inspection	Туре	Performed By	Code References and Notes
V	 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. 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	5	
	Test or Special Inspection	Туре	Performed By	Code References and Notes
	a. Perform classification and testing of fill materials.	Test	LOR*	* Under the supervision of the geotechnical engineer.
V	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.)

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	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.)
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3. DRIVEN DEEP FOUNDATIONS (PILES):	Table 1705A.7	Table 1705A.7		
Test or Special Inspection	Туре	Type Performed By Code References and Notes		
a. Verify pile materials, sizes and lengths comply with the requirements.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.	
b. Determine capacities of test piles and conduct additional load tests as required.	Test	LOR*	* Under the supervision of the geotechnical engineer.	
c. Inspect driving operations and maintain complete and accurate records for each pile.	Continuous GE* * By geotechnical engineer or his or her qualified representative.			
d. 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 pile damage.	Continuous GE* * By geotechnical engineer or his or her qualified representative.		* By geotechnical engineer or his or her qualified representative.	
e. Steel piles.	Provide tests and inspections per STEEL section below.			
f. Concrete piles and concrete filled piles.	Provide tests a	nd inspection	s per CONCRETE section below.	

		<u> </u>	
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responsible charge.		g. For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.
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	4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):	Table 1705A.8	Table 1705A.8			
	Test or Special Inspection	Туре	Performed By	Code References and Notes		
7	a. Inspect drilling operations and maintain complete and accurate records for each pier.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)		
V	b. Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)		
V	c. Confirm adequate end strata bearing capacity.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix for exemptions.)		
7	d. Concrete piers.	Provide tests and inspections per CONCRETE section below.				

5. RETAINING WALLS:				
Test or Special Inspection	Туре	Performed By	Code References and Notes	
a. Placement, compaction and inspection of backfill.	Continuous	GE*	1705A.6.1. * By geotechnical engineer or his or her qualified representative. (See Section 2 above).	

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b. Placement of soil reinforcement and/or drainage devices.	Continuous	-, g	
c. Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	* By geotechnical engineer or his or her qualified representative. See DSA IR 16-3.		
d. Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.		
e. Masonry retaining walls.	Provide tests and inspections per MASONRY section below.		

6. OTHER SOILS:			
Test or Special Inspection	Туре	Performed By	Code References and Notes
a. Soil Improvements	Test	GE*	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS for final acceptance. * By geotechnical engineer or his or her qualified representative.
b. Inspection of Soil Improvements	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.
C.			

Table 1705A.3; ACI 318-14 Sections 26.12 & 26.13

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	7. CAST-IN-PLACE CONCRETE				
	Test or Special Inspection	Туре	Performed By	Code References and Notes	
Mate	rial Verification and Testing:				
V	a. Verify use of required design mix.	Periodic	SI	Table 1705A.3 Item 5, 1910A.1.	
V	b. Identifiy, sample, and test reinforcing steel.	Test	LOR	1910A.2 ; ACI 318-14 Section 26.6.1.2; DSA IR 17-10. (See Appendix for exemptions.)	
V	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.	
V	d. Test concrete (f'c).	Test	LOR	1905A.1.15 ; ACI 318-14 Section 26.12.	
Inspe	ction:				
V	e. Batch plant inspection: 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.)	
	f. Welding of reinforcing steel.	Provide spec	Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		

8. PRESTRESSED / POST-TENSIONED CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):

Fable 1705A.3; ACI 318-14 Sections 26.12 & 26.13					
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Test or Special Inspection	Туре	Performed By	Code References and Notes
a. Sample and test prestressing tendons and anchorages.	Test	LOR	1705A.3.4, 1910A.3
b. Inspect placement of prestressing tendons.	Periodic	SI	1705A.3.4, Table 1705A.3 Items 1 & 9.
c. Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	Periodic	SI	Table 1705A.3 Item 11. Special inspector to verify specified concrete strength test prior to stressing.
d. Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	Continuous	SI	1705A.3.4, Table 1705A.3 Item 9 ; ACI 318-14 Section 26.13

9. PRECAST CONCRETE (in addition to Cast-in-Place Concrete tests and inspections):				
Test or Special Inspection	Туре	Performed By	Code References and Notes	
a. Inspect fabrication of precast concrete members.	Continuous	SI	ACI 318-14 Section 26.13.	
b. Inspect erection of precast concrete members.	Periodic	SI*	Table 1705A.3 Item 10. * May be performed by PI when specifically approved by DSA.	

10. SHOTCRETE (in addition to Cast-in-Place Concrete tests and inspections):				
Test or Special Inspection Type Performed By Code References and Notes				

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	a. Inspect shotcrete placement application techniques.	nt for proper	Continuous	SI	1705A.19 , Table 1705A.3 Item 7 , 1908A.6 , 1908A.7 , 1908A.8 , 1908A.9 , 1908A.11 , 1908A.12 . See ACI 506.2-13 Section 3.4, ACI 506R-16.
	b. Sample and test shotcrete	(f'c).	Test	LOR	1908A.5, 1908A.10.
	T		T	T	
	11. POST-INSTALLED ANCH	ORS:			
	Test or Special Inspection		Туре	Performed By	Code References and Notes
V	a. Inspect installation of post-	-installed anchors	See Notes	SI*	1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8 (See Appendix for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.
V	b. Test post-installed anchors	5.	Test	LOR	1910A.5. (See Appendix for exemptions.)
				1	
	12. OTHER CONCRETE:				
	Test or Special Inspection		Туре	Performed By	Code References and Notes
	a.				

1705A.4; TMS 602-16, Tables 3 and 4.

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	13. STRUCTURAL MASONRY: 2000 psi						
	Test or Special Inspection	Туре	Performed By	Code References and Notes			
Mater	rial Verification and Testing: (See Appendix for exemptions.)		•				
V	a. Mill certificate indicatescompliance with requirements forreinforcement, anchors, ties, fasteners and metal accessories. See item 7b for identification, sampling and testing of reinforcing steel.	Periodic	SI*	2103A.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.			
V	b. Producer's certificate of compliance for masonry units, mortar and grout materials.	Test	LOR	1705A.4, 2103A.2.1, 2103A.3, 2103A.5 ; TMS 602-16 Articles 2.1, 2.2,2.6A and 2.6B, and Table 6 footnote 3.			
V	c. Test masonry (f'm).	Test	LOR	1705A.4. For Unit Strength: 2105A.3 (2114.6.1 ₊); TMS 602-16 Articles 1.4B.2 ,1.5B.1 & 1.5B.2. For Prism (required when f' _m > 2000 psi): 2105A.2 ; TMS 602-16 Articles 1.4B.3, 1.4B.4, 1.5B.1 & 1.5B.2.			
V	d. Verify proportions of siteprepared, premixed or preblended mortar and grout.	Periodic	SI	TMS 602-16 Table 3 Item 5, Table 4 Item 1a & 2d.			
✓	e. Test core-drilled samples.	Test	LOR	2105A.4. (See Appendix for exemptions.)			
Inspe	ction: (See Appendix for exemptions.)	1	1	1			
	f. Inspect preparation of prisms.	Continuous	SI	TMS 602-16 Articles 1.4.B.3 & 1.4.B.4 & Table 4 Item 4.			
7	g. Verify size, location and condition of all dowels,	Periodic	SI				

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construction supporting masonry, etc.

1705A.4; TMS 602-16, Tables 3 and 4.

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V	h. Verify size, grade and type of reinforcement and anchor bolts.	Periodic	SI	TMS 602-16 Table 4 Item 1c.
	i. Welding of reinforcing steel.	TMS 602-16 Table 4 Item 3e. Provide special inspection per STEEL, Category 19.1(d) & (e) and/or 19.2(g) & (h) below.		
V	j. Inspect placement of reinforcement and connectors.	Continuous	SI	TMS 602-16 Table 4 Item 2c.
✓	k. Inspect placement of masonry units and construction of mortar joints.	Periodic	SI	TMS 602-16 Table 4 Item 3b.
V	I. Verify preparation, construction and protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F).	Periodic	SI*	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
V	m. Inspect type, size and location of anchors and all other items to embedded in masonry including other details of anchorage of masonry to structural members, frames and other construction.	Continuous	SI	TMS 602-16 Table 4 Item 3d.
V	n. Inspect grout space prior to placement of grout.	Continuous	SI	TMS 602-16 Table 4 Item 2a.

14. VENEER OR GLASS BLOCK PARTITIONS: 1705A.4.1; TMS 602-16 Tables 3 and 4.				
Test or Special Inspection	Туре	Performed By	Code References and Notes	
a. Verify proportions of siteprepared mortar and grout and/or verify certification of premixed mortar.	Periodic	SI	TMS 602-16 Table 3 Item 5 and Table 4 Items 1a & 2d.	

1705A.4; TMS 602-16, Tables 3 and 4.

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b. Inspect placement of units and construction of mortar joints.	Periodic	SI	TMS 602-16 Table 4 Item 3b.
c. Inspect placement of reinforcement, connectors and anchors.	Periodic	SI	TMS 602-16 Table 4 Item 2c.
d. Inspect type, size and location of anchors and all other items to be embedded in masonry including details of anchorage of masonry to structural members, frames and other construction.	Periodic	SI	TMS 602-16 Table 4 Item 3d.
e. Verify preparation, construction and protection of masonry during cold weather (temperature below 40° F) or hot weather (above 90° F).	Periodic	SI*	TMS 602-16 Table 4 Item 3f. * May be performed by the project inspector when specifically approved by DSA.
f. Test veneer bond strength	Test	LOR	1410.2.1; TMS 402 Article 12.3.2.4. (Field constructed mock-up laboratory tested in accordance with ASTM C482).

	15. POST-INSTALLED ANCHORS IN MASONRY:			
	Test or Special Inspection	Туре	Performed By	Code References and Notes
V	a. Inspect installation of postinstalled anchors	See Notes	SI*	1617A.1.19, 1705A.4, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic); ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA. (See Appendix for exemptions.)
V	b. Test post-installed anchors.	Test	LOR	1705A.4, 1910A.5. (See Appendix for exemptions.)

1705A.4; TMS 602-16, Tables 3 and 4.

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	16. OTHER MASONRY:			
	Test or Special Inspection	Туре	Performed By	Code References and Notes
	a.			

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections				
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Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests / special inspections noted. Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall Items marked as exempt shall <

SOILS:
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.
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.
CONCRETE MARCONDV.

CONCRETE/MASONRY:
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 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding."
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.

App	Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections			
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			rtain DSA masonry testing and special inspection items as allowed per DSA ons accordingly for each applicable wall condition.	
	4. Epoxy shear dowels	in site flatwork and/or other non-structura	I concrete.	
	5. Testing of reinforcin in that section.	g bars is not required for items given in CE	C Section 1910A.2 subject to the requirements and limitations	
	I			
	Welding:			
			olling section for rolling gates of 10' and apex height less than 8'-0" above lowest ce below, these gates are not located within 1.5x gate/fence height (max 8'-0") to the	
		s, and modular or relocatable ramps associ xception' language in Section 1705A.2.1); t	ated with walking surfaces less than 30" above adjacent grade (excluding post base illet welds shall not be ground flush.	
	weight and light-weig	ht finishes or adhered tile, masonry, stone, ay. Maximum tributary load to a member s	s than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height hall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall	
	weighing less than 200		ld-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment frames to superstructure elements using welding will require special inspection as ag above).	
	•	·	mechanical, electrical, or plumbing hanger support and bracing (connections of such re special inspection as noted in selected item(s) for Sections 19, 19.1 and/or 19.2 of	

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listing above).

Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections			
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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 located in the Steel/Aluminum category).
7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, 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.

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Name of Architect or Engineer in general responsible charge:

Marshall Roberts

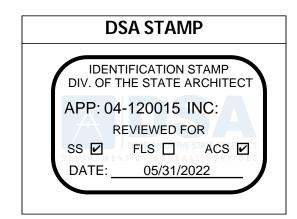
Name of Structural Engineer (When structural design has been delegated):

Marshall Roberts

Signature of Architect or Structural Engineer:

Date:
3/14/22

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.



DSA 103-19: LIST OF REQUIRED VERIFIED REPORTS, CBC 2019

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- 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
- Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292
- 5. Masonry Inspection: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292