



SUBJECT

HCAI Preapproved Agency for Structural Tests and Special Inspections

PIN: 58

Effective: 7/20/2014

Revised: 8/03/2022



PURPOSE

2019 California Building Code (CBC) Sections 1704.2 and 1704A.2 require the owner of the healthcare facilities to employ one or more approved agencies to provide special inspections and tests during construction. CBC Sections 1703.1 and 1703A.1 require the approved agency to be competent and independent from the contractor responsible for the work being inspected. HCAI considers testing agency/laboratory having accreditation to International Standards Organization (ISO) Accreditation Standard 17025 (ISO 17025) as an approved testing agency. Inspection agency having accreditation to ISO 17020 is considered as an approved inspection agency.

HCAI Preapproved Agency (OPAA) for structural tests and special inspections is a voluntary program established to streamline and simplify healthcare facility construction for owners, testing/inspection agencies, consultants, and contractors by providing a means for review and pre-approval of testing and special inspection agencies. Accreditation granted by ISO, DSA-LEA, IAS are granted at a specified time. HCAI confirms verification of personnel and equipment before they are accepted as approved agencies.

This Policy Intent Notice (PIN) provides a summary of the processes and procedures for the HCAI OPAA program for structural tests and special inspections and generic issues related to approved agencies.

BACKGROUND

ISO/IEC 17025 is the standard used by testing and calibration laboratories. Testing agencies who have demonstrated compliance to this standard with proper certification are accepted by the Department as approved testing agencies within the scope of the accreditation:

- *ISO/IEC 17025: General Requirements for Competence of Testing and Calibration Laboratories.*

Some Construction Materials Testing (CMT) labs accredited to NISTIR 7012 or AASHTO R18, which are accreditation standards for CMT labs equivalent to ISO 17025, are also considered as approved testing agencies:

- *NISTIR 7012: Technical Requirements for Construction Materials Testing.*
- *AASHTO R18: Standard Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories.*

As an option, a laboratory may also obtain accreditation for one or more of the following construction materials engineering standards:

- *ASTM E329: Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.*
- *ASTM C1077: Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.*
- *ASTM D3666: Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials.*
- *ASTM D3740: Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soils and Rock as Used in Engineering Design and Construction.*
- *ASTM C1093: Practice for Accreditation of Testing Agencies for Unit Masonry.*
- *ASTM E1212: Practice for Quality Management Systems for Nondestructive Testing (NDT) Agencies.*
- *ASTM E543: Specification for Agencies Performing Nondestructive Testing (NDT).*

Accreditation may be for one or more tests in each area. Either a comprehensive accreditation to ISO/IEC 17025, AASHTO R18 or NISTIR 7012 can be obtained that may include accreditation to the individual engineering quality standards or individual accreditation to the engineering quality standards ASTM E329, ASTM C1077, ASTM D3666, ASTM D3740, ASTM C1093, ASTM E1212 and ASTM E543 can be obtained from an accreditation body.

In general, HCAI accepts evaluation/listing by various organizations such as the International Code Council-Evaluation Service (ICC-ES), International Association of Plumbing and Mechanical Officials-Evaluation Service (IAPMO-ES), Factory Mutual Approvals (FM Approvals), Underwriters Laboratory Listings (UL Listing), etc., when associated acceptance criteria are adopted in the 2019 California Building Standards Code (CBSC). All of these organizations require that testing be performed in labs accredited to ISO 17025 or equivalent.

HCAI often receives requests to consider test reports from foreign labs that are accredited by an accreditation body that is a signatory to the International Laboratory Accreditation Cooperation (ILAC) Multilateral Recognition Arrangement (MRA).

ISO/IEC 17020 is the standard that involves assessment of agencies competence for performing inspections and consistency of their inspection activities. Agencies accredited to this standard are considered by the Department as approved special inspection agencies:

- *ISO/IEC 17020: General Requirements for the Operation of Various Types of Bodies Performing Inspection.*

Some special inspection agencies accredited by International Code Council's (ICC) International Accreditation Service (IAS) in accordance with Acceptance Criteria (AC) 291, which is based on ISO 17020, are also considered as approved inspection agencies by HCAI:

- *AC 291: Accreditation Criteria for Special Inspection Agencies.*

HCAI is often asked whether Hospital Inspectors (certification as Class “A”, “B” or “C”) can act as special inspectors. Alternatively, whether certification listed in Table 1 of AC 291: *Minimum Qualification for Special Inspectors* are acceptable to HCAI.

In addition, HCAI is often asked whether it accepts testing agencies, special inspection agencies and special inspectors approved under the California Division of State Architect (DSA) Laboratory Evaluation and Acceptance (LEA) program (DSA-LEA program).

ISO 17025/ISO 17020 require that accreditation bodies operate in accordance with ISO 17011:

- *ISO 17011: General Requirements for Accreditation Bodies Accrediting Conformity Assessment Bodies.*

To address these and other questions about the OPAA program from the diverse group of users who participate in the structural testing and special inspection process, this PIN has compiled the various requirements of the OPAA program and generic approved agency requirements into a single resource document.

POLICY

Scope

1. The OPAA program is a voluntary program for approval of testing agencies and special inspection agencies.
2. The OPAA program is limited to:
 - a. Testing and special inspection agencies (with ISO 17025/17020 accreditation or equivalent, as determined by HCAI) accredited by an accreditation body operating in accordance with ISO 17011.
 - b. Testing and special inspection agencies approved by the DSA-LEA program.

Exclusions from OPAA program:

Testing permitted to be performed under the responsible charge of a competent independent California licensed engineer in accordance with CBC Sections 1703.4 and 1703A.4 are outside the scope of the OPAA program. All such testing shall be reviewed on a case-by-case basis for a specific project and approval shall be applicable to that project only.

Special inspections permitted to be performed by the registered design professional in responsible charge and engineer of record involved in the design of the project in accordance with CBC Sections 1704.2.1 and 1704A.2.1 are also outside the scope of the OPAA program.

Basis of Approval

3. **Testing Agencies:** Construction Material Testing (CMT) laboratories/testing agencies accredited using any one of the following standards, which are equivalent to (and often are derivatives of) ISO 17025, in addition to or in-lieu of accreditation to ISO 17025 are considered as approved testing agencies:
 - *ISO/IEC 17025: General Requirements for Competence of Calibration and Testing Laboratories.*
 - *NISTIR 7012: Technical Requirements for Construction Materials Testing.*
 - *AASHTO R18: Standard Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories.*
 - *ASTM E329: Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.*
 - *ASTM C1077: Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.*
 - *ASTM D3666: Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials.*
 - *ASTM D3740: Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soils and Rock as Used in Engineering Design and Construction.*
 - *ASTM C1093: Practice for Accreditation of Testing Agencies for Unit Masonry.*
 - *ASTM E1212: Practice for Quality Management Systems for Nondestructive Testing (NDT) Agencies.*
 - *ASTM E543: Specification for Agencies Performing Nondestructive Testing (NDT).*
4. **Special Inspection Agencies:** Special inspection agencies accredited using any one of the following standards are considered approved inspection agencies:
 - *ISO/IEC 17020: General Requirements for the Operation of Various Types of Bodies Performing Inspection.*
 - *ASTM E329: Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.*
 - *AC 291: Accreditation Criteria for Special Inspection Agencies.*
5. **DSA-LEA Approved Agencies:** Testing and special inspection agencies approved by the DSA-LEA program, on the basis of ASTM E329, are also considered as approved agencies.
<https://www.apps2.dgs.ca.gov/dsa/tracker/ApprovedLabs.aspx>
6. **Special Inspectors:** Special inspectors working for approved agencies shall be approved based on the following:
 - Hospital Inspector Class “A”, “B” or “C” certification.
 - DSA-LEA approval as special inspector.

- Certification listed in Table 1 of *IAS AC 291: Accreditation Criteria for Special Inspection Agencies*.
- Welding inspectors satisfying the requirements of CBC Section 1705A.2.5.
- California licensed engineer, provided the engineer is qualified for the special inspection, as determined by HCAI.

Inspector's approval shall be limited to the specialty for which the inspector is qualified, as verified by valid license, certification, and/or experience.

7. **Acceptable Accreditation Bodies:** Testing and/or special inspection agencies accredited by the following accreditation bodies or other accreditation bodies that are signatory to the International Laboratory Accreditation Cooperation (ILAC) Multilateral Recognition Arrangement (MRA) are acceptable:

- Laboratory Accreditation Bureau (LAB)
<http://www.l-a-b.com/content/directory-accredited-labs>
- International Accreditation Service (IAS)
<https://www.iasonline.org/search-accredited-organizations-2/>
- AASHTO Accreditation Program (AAP)
<http://www.aashtoresource.org/aap>
- American Association for Laboratory Accreditation (A2LA)
<https://www.a2la.org/dirsearchnew/newsearch.cfm>
- National Voluntary Laboratory Accreditation Program (NVLAP)
<https://www.s-nist.gov/niws/index.cfm?event=directory.search>
- Construction Materials Engineering Council (CMEC)
<https://cmec.org/search-accreditations>
- ANSI-ASQ National Accreditation Board
<http://anab.org/>

Implementation for HCAI Projects

8. The owner shall employ one or more approved agencies to provide special inspections and tests during construction in accordance with CBC Sections 1701A.3, 1704.2 and 1704A.2. The approved agency shall have a full-time engineering manager. The engineering manager, the laboratory's authorized representative, shall possess a minimum of (5) years of relevant experience in the inspection and testing industry and hold a management position in the company. All testing and special inspection services shall be performed under his or her supervision. The engineering manager shall be responsible for ensuring that all

technicians and special inspectors employed by the agency are appropriately trained, qualified, and certified in their area of expertise. The engineering manager may not be employed by any other laboratory agency that provides special inspection or testing services. Administration and business practices of the laboratory agency shall comply with all relevant California State and Federal laws.

9. The architect or engineer in responsible charge of the work shall prepare a Testing, Inspection and Observation (TIO) program which shall be submitted to HCAI for approval prior to the issuance of the building permit in accordance with CAC Section 7-141(d).
10. All tests and special inspections shall be performed by an independent approved agency in accordance with CBC Sections 1704.2 and 1704A.2. Test reports shall be signed by the lab's authorized representative or engineer in charge. The laboratory's engineering manager shall review and ensure the test and inspection reports are in conformance with the approved plans, specifications, and workmanship provisions of the California Building Code (CBC) and referenced standards. Such supervision and control shall be evidenced by the engineering manager's signature on the verified compliance report for each milestone.

Exceptions:

- 1) Tests under the responsible charge of a competent approved independent California licensed engineer shall be permitted in accordance with CBC Sections 1703.4 and 1703A.4.
 - 2) Special inspections under the registered design professional in responsible charge and engineer of record involved in the design of the project in accordance with CBC Sections 1704.2.1 and 1704A.2.1 shall be permitted.
11. An approved agency shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed as required by the CBC Section 1703A.1.1.
 12. Written evidence verifying independence and approval of the agency shall be submitted to HCAI along with the TIO program required by CAC Section 7-141 and CBC Section 1703A.1.1.
 13. The architect or engineer in responsible charge shall verify that the approved agency is independent and acceptable as required by CAC Section 7-141.
 14. The special inspectors shall act under the direction of the architect or structural engineer, or both, and be responsible to the owner in accordance with CBC Section 1704A.2.
 15. When testing is performed under the responsible charge of an independent California licensed engineer, and not in a lab accredited under ISO 17025 or

equivalent, the engineer shall have qualification and experience for specific tests, as determined by HCAI. Calibration requirements for such tests shall meet the applicable test standards and ISO 17025 Section 6.4.

16. The approved agency shall have the apparatus and equipment capacity necessary to perform the tests and special inspections in accordance with the applicable test standards in accordance with CBC Sections 1703.1.2 and 1703A.1.2. Special inspectors shall be qualified in accordance with CBC Sections 1704.2.1 and 1704A.2.1. HCAI will determine whether the testing apparatus and equipment is sufficient for the purpose and whether the special inspectors are qualified for the type of special inspection needed.
17. Approved agencies shall keep records of special inspections and tests, prepare reports, document any nonconformance, and notify appropriate persons in accordance with the CBC Sections 1704.2.4 or 1704A.2.4.
18. Sampling and evaluation of tests required by approved construction documents, California Building Standards Code (CBSC) or its reference standards shall be in accordance with applicable test standards for specific tests. Sampling and evaluation of test results shall be in accordance with ASCE 7-16 Section 1.3 when not addressed otherwise in the CBSC or its referenced test standards. Test results shall include a description or pictures of the failure mode(s) for each test specimen. The reports shall state definitely whether the material tested complies with the approved construction documents in accordance with CAC Section 7-149.
19. Test reports for structural tests are required to be reviewed and accepted by an independent California licensed structural engineer in accordance with CBC Sections 1703.4 and 1703A.4.
20. **Independent Agency:** For an approved agency to be considered independent, it should be able to demonstrate that it is impartial and that it and its personnel are free from any undue commercial, financial and other pressures which might influence their technical judgment. The independent agency should not engage in any activities that may endanger the trust in its independence of judgment and integrity in relation to its activities.
21. **Testing at the Owner's/Manufacturer's Lab:** Testing at the owner's or manufacturer's facility will be accepted if it is performed under the responsible charge of an independent California licensed engineer, not permanently employed by the owner/manufacturer, who shall witness the test and sign the report. Test reports shall be reviewed and accepted by an independent California licensed structural engineer in accordance with CAC Sections 7-141 and 7-149.
22. **Foreign Labs:** Tests performed in a foreign lab with accreditation in accordance with ISO 17025 (for the tests to be performed) by an accreditation body that is a signatory to the International Laboratory Accreditation Cooperation (ILAC) Multilateral Recognition Arrangement (MRA) are acceptable. Test reports shall be available in English and shall conform to the CBSC and applicable test standards.

Test reports shall be reviewed and accepted by an independent California licensed structural engineer.

All foreign labs shall satisfy requirements in this item, irrespective of any other provisions in this PIN.

23. **Subcontracting Tests or Special Inspections:** When an approved agency subcontracts tests, calibrations or special inspections to other agencies, those agencies shall also be subjected to the same accreditation requirements as the approved agencies.

Validity

24. Approval shall be valid for up to four years, but not exceeding the approval expiration date by the DSA-LEA program or accreditation bodies, as applicable unless approval is withdrawn for failure to comply with these requirements (see item no. 27).
25. Approval of a special inspector for an approved agency shall expire either when approval of the agency expires or on the date of expiration of an individual inspector's certification/license.
26. List of HCAI pre-approved agencies will be posted on the HCAI website.
27. Any adverse action or removal of tests or special inspections by accreditation bodies or DSA-LEA program shall be a cause for removal of tests or special inspections from the OPAA program. In addition, detection of potential anomalies by an agency or change of primary agency personnel that may impact the health and safety of HCAI regulated facilities shall be a cause for removal from the OPAA program.

OPAA Application Submittal Requirements

28. For an OPAA application to be considered complete, all of the following documents shall be submitted electronically via the eServices Portal:
- a. [Submit an application for HCAI Preapproval Agency \(OPAA\)](#) (please consult the eSP User Guide for OPAA for instructions on creating a new OPAA, renewing an OPAA, or updating OPAA Personnel).
 - b. Application review fee:
 - i. \$1,000.00 for new application for combined Testing and Inspection Agency; \$500 for renewal.
 - ii. \$500.00 for either Testing or Inspection Agency only.
 - iii. \$250.00 for renewal of either Testing or Inspection Agency only.
 - c. Attachments verifying the basis of approval, as required by the OPAA application.

- d. Updating of personnel or certification data for test technicians or special inspectors will be invoiced on a Time and Material basis beyond the initial approval. Renewal of the application shall not be used for this process and is limited to within six months of the OPAA expiration date.

29. All fees submitted shall be non-refundable.

30. If you have questions regarding OPAA submission, please email OPAA@HCAI.CA.GOV:

<u>Original signed</u>	<u>8/03/2022</u>
Chris Tokas	Date

APPENDIX A

CODE SECTIONS

STATUTE

CALIFORNIA HEALTH AND SAFETY CODE (HS&C)

ALFRED E. ALQUIST HOSPITAL FACILITIES SEISMIC SAFETY ACT OF 1983 (HSSA 83)

§129805. Preparation of plans and specifications; oversight by architect or engineer; administration of construction work; exempt projects

(a) All plans and specifications shall be prepared under the responsible charge of an architect or a structural engineer, or both. A structural engineer shall prepare the structural design and shall sign plans and specifications related thereto. Administration of the work of construction shall be under the responsible charge of the architect and structural engineer, except that where plans and specifications for alterations or repairs do not affect architectural or structural conditions, the plans and specifications may be prepared under the responsible charge of, and work of construction may be administered by, a professional engineer duly qualified to perform the services and holding a valid certificate under Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code for performance of services in that branch of engineering in which the plans, specifications, and estimates and work of construction are applicable.

TITLE 24

CALIFORNIA BUILDING STANDARDS CODE

2019 CALIFORNIA ADMINISTRATIVE CODE

ARTICLE 4

CONSTRUCTION

7-141. Administration of Construction.

(a) The administration of the work of construction, including the testing, inspection and observation program, shall be under the responsible charge of an architect and structural engineer. When a structural engineer is not substantially involved, the architect shall be solely responsible. Where neither structural nor architectural elements are substantially involved, a mechanical or electrical engineer registered in the branch of engineering most applicable to the project may be in responsible charge.

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(d) The architect and/or engineer in responsible charge of the work shall prepare and administer a testing, inspection and observation program which shall be submitted to the Office for approval prior to the issuance of the building permit.

(e) The testing program shall identify materials and tests to be performed on the project. The approved agency and/or individual(s) to perform each of the required tests shall also be

identified. The testing program shall include, at a minimum, those tests required by applicable sections of the *California Building Standards Code*.

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7-149. Tests.

(a) Pursuant to Section 7-141, the architect or engineer in responsible charge shall establish and administer the testing program. Where job conditions warrant, the architect and/or engineer may waive certain specified tests contingent upon the approval of the Office. The Office shall be notified as to the disposition of materials noted on laboratory reports. One copy of all test reports shall be forwarded to the inspector of record, owner and the architect or engineer in responsible charge by the testing agency. The reports shall state definitely whether the material tested complies with the approved construction documents.

(b) The governing board or authority of a health facility shall select an approved agency to conduct the tests. The selected approved agency shall be acceptable to the architect or engineer in responsible charge. The governing board or authority shall pay for all tests.

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7-151. Verified Compliance Reports.

(a) In accordance with Section 7-151(f), or when required by the Office, the architect(s), engineer(s), inspector(s) of record (IORs), approved agency, special inspector(s) and contractor or owner/builder shall each submit to the Office a verified compliance report, with their signature and based on their own personal knowledge, as defined by this section. The report shall:

1. Verify that the work during the period, or a portion of the work, covered by the report has been performed and materials used and installed are in accordance with the construction documents.
2. Set forth detailed statements of fact as are required by the Office.

(b) Personal knowledge as applied to the licensed architect or engineer or both, shall be in accordance with Health and Safety Code (H&SC) Section 129830. Knowledge that is obtained from the reporting of others as referred to in this H&SC section applies to individuals who have personal knowledge for the specific project.

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(f) Verified compliance reports shall be submitted to the Office at the intervals or stages of the work as stated in the approved testing, inspection and observation program. In no case, shall the submittal of verified compliance reports be less than:

1. One copy prepared and signed by each required participant or discipline at the completion of the work.
2. One copy prepared and signed by any participant or discipline at any time a special verified compliance report is required by the Office.

(g) The architect or engineer in responsible charge of the work shall be responsible for ensuring all required verified compliance reports are submitted to the Office.

2019 CALIFORNIA BUILDING CODE

CHAPTER 2 DEFINITIONS

SECTION 202 - DEFINITIONS

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APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests furnishing inspection services, or furnishing product certification where such agency has been approved by the building official.

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CHAPTER 17 SPECIAL INSPECTIONS AND TESTS

SECTION 1703 APPROVALS

1703.4 Performance. Specific information consisting of test reports conducted by an approved agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the building official to determine that the product, material or assembly meets the applicable code requirements.

OSHPD 1R, 2 & 5] Tests performed by an independent approved testing agency/laboratory or under the responsible charge of a competent approved independent Registered Design Professional shall be deemed to comply with requirements of this section. Test reports for structural tests shall be reviewed and accepted by an independent California licensed structural engineer.

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SECTION 1704 SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704.2 Special inspections and tests. Where application is made to the building official for construction as specified in section 105, *or 1.8.4, as applicable*, the owner or the owners authorized agent, other than the contractor, shall employ one or more *approved agencies* to provide special inspections and tests during construction on the types of work specified in

Section 1705 and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

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1704.2.1 Special inspector qualifications. Prior to the start of the construction, the *approved agencies* shall provide written documentation to the *building official* demonstrating the competence and relevant experience or training of the *special inspectors* who will perform the *special inspections* and tests during construction. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as special inspectors for the work designed by them, provided they qualify as special inspectors.

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1704.2.4 Report requirement. *Approved agencies* shall keep records of special inspections and tests. The *approved agency* shall submit reports of *special inspections* and tests to the *building official* and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected or tested was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the owner or the owner's authorized agent to the *building official*.

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CHAPTER 17A SPECIAL INSPECTIONS AND TESTS

SECTION 1701A GENERAL

1701A.3 Special inspections and tests. [OSH PD 1 and 4] *In addition to the inspector(s) of record required by the California Administrative Code (CCR, Title 24, Part 1), Section 7-144, the owner shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work listed under Chapters 17A, 18A, 19A, 20, 21A, 22A, 23, 25, and noted in the Test, Inspection, and Observation (TIO) program required by*

Sections 7-141, 7-145 and 7-149 of the California Administrative Code. Test, Inspection, and Observation (TIO) program shall satisfy requirements of Section 1704A.

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SECTION 1703A APPROVALS

1703A.4 Performance. Specific information consisting of test reports conducted by an approved agency in accordance with the appropriate referenced standards, or other such information as necessary, shall be provided for the building official to determine that the product, material or assembly meets the applicable code requirements.

OSHPD 1 & 4] Tests performed by an independent approved testing agency/laboratory or under the responsible charge of a competent approved independent Registered Design Professional shall be deemed to comply with requirements of this section. Test reports for structural tests shall be reviewed and accepted by an independent California licensed structural engineer.

SECTION 1704A SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704A.1 General. Special inspections and tests, statements of special inspections, responsibilities of contractors, submittal to the building official and structural observation shall meet applicable requirements of this section.

1704A.2 Special inspections and tests. Where application is made to the building official for construction as specified in section 105, the owner shall employ one or more *approved agencies* to provide special inspections and tests during construction on the types of work specified in Section 1705A and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

[OSHPD 1 & 4] The inspectors shall act under the direction of the architect or structural engineer or both, and be responsible to the Owner. Where the California Administrative Code (CAC) Section 7-115 (a) 2 permits construction documents to be prepared under the responsible charge of a mechanical, electrical or civil engineer, inspectors shall be permitted to work under the direction of engineer in appropriate branch as permitted therein.

Exception:

1. *Special inspections* and tests are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as *approved* by the *building official*.

1704A.2.1 Special inspector qualifications. Prior to the start of the construction, the *approved agencies* shall provide written documentation to the *building official* demonstrating the competence and relevant experience or training of the *special inspectors* who will perform the *special inspections* and tests during construction. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of *special inspection* or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The *registered design professional in responsible charge* and engineers of record involved in the design of the project are permitted to act as the *approved agency* and their personnel are permitted to act as special inspectors for the work designed by them, provided they qualify as special inspectors.

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1704A.2.4 Report requirement. The *inspector(s) of record* and *approved agencies* shall keep records of special inspections and tests. The *inspector of record* and *approved agency* shall submit reports of *special inspections* and tests to the *building official*, and to the *registered design professional in responsible charge as required by the California Administrative Code*. Reports shall indicate that work inspected or tested was or was not completed in conformance to *approved construction documents as required by the California Administrative Code and this code*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and tests, and correction of any discrepancies noted in the inspections or tests, shall be submitted at a point in time agreed upon prior to the start of work by the owner or owner's authorized agent to the building official.

ASCE STANDARD ASCE/SEI 7-16

American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures

1.3 BASIC REQUIREMENTS

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1.3.1.3.2 Testing. Testing used to substantiate the performance capability of structural and nonstructural components and their connections under load shall accurately represent the materials, configuration, construction, loading intensity, and boundary conditions anticipated in the structure. Where an approved industry standard or practice that governs the testing of similar components exists, the test program and determination of design values from the test program shall be in accordance with those industry standards and practices. Where such

standards or practices do not exist, specimens shall be constructed to a scale similar to that of the intended application unless it can be demonstrated that scale effects are not significant to the indicated performance. Evaluation of test results shall be made on the basis of the values obtained from not less than 3 tests, provided that the deviation of any value obtained from any single test does not vary from the average value for all tests by more than 15%. If such deviation from the average value for any test exceeds 15%, then additional tests shall be performed until the deviation of any test from the average value does not exceed 15% or a minimum of 6 tests have been performed. No test shall be eliminated unless a rationale for its exclusion is given. Test reports shall document the location, the time and date of the test, the characteristics of the tested specimen, the laboratory facilities, the test configuration, the applied loading and deformation under load, and the occurrence of any damage sustained by the specimen, together with the loading and deformation at which such damage occurred.

1.3.1.3.3 Documentation. The procedures used to demonstrate compliance with this section and the results of analysis and testing shall be documented in one or more reports submitted to the authority having jurisdiction and to an independent peer review.

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ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories (2017)

4.1 Impartiality

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4.1.3 The laboratory shall be responsible for the impartiality of its laboratory activities and shall not allow commercial, financial or other pressures to compromise impartiality.

4.1.4 The laboratory shall identify risks to its impartiality on an on-going basis. This shall include those risks that arise from its activities, or from its relationships, or from the relationships of its personnel. However, such relationships do not necessarily present a laboratory with a risk to impartiality.

NOTE A relationship that threatens the impartiality of the laboratory can be based on ownership, governance, management, personnel, shared resources, finances, contracts, marketing (including branding), and payment of a sales commission or other inducement for the referral of new customers, etc.

4.1.5 If a risk to impartiality is identified, the laboratory shall be able to demonstrate how it eliminates or minimizes such risk.

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6.2 Personnel

6.2.1 All personnel of the laboratory, either internal or external, that could influence the laboratory activities shall act impartially, be competent and work in accordance with the laboratory's management system.

6.2.2 The laboratory shall document the competence requirements for each function influencing the results of laboratory activities, including requirements for education, qualification, training, technical knowledge, skills and experience.

6.2.3 The laboratory shall ensure that the personnel have the competence to perform laboratory activities for which they are responsible and to evaluate the significance of deviations.

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6.4 Equipment

6.4.1 The laboratory shall have access to equipment (including, but not limited to, measuring instruments, software, measurement standards, reference materials, reference data, reagents, consumables or auxiliary apparatus) that is required for the correct performance of laboratory activities and that can influence the results.

NOTE 1 A multitude of names exist for reference materials and certified reference materials, including reference standards, calibration standards, standard reference materials and quality control materials. ISO 17034 contains additional information on reference material producers (RMPs). RMPs that meet the requirements of ISO 17034 are considered to be competent. Reference materials from RMPs meeting the requirements of ISO 17034 are provided with a product information sheet/certificate that specifies, amongst other characteristics, homogeneity and stability for specified properties and, for certified reference materials, specified properties with certified values, their associated measurement uncertainty and metrological traceability.

NOTE 2 ISO Guide 33 provides guidance on the selection and use of reference materials. ISO Guide 80 provides guidance to produce in-house quality control materials.

6.4.2 When the laboratory uses equipment outside its permanent control, it shall ensure that the requirements for equipment of this document are met.

6.4.3 The laboratory shall have a procedure for handling, transport, storage, use and planned maintenance of equipment in order to ensure proper functioning and to prevent contamination or deterioration.

6.4.4 The laboratory shall verify that equipment conforms to specified requirements before being placed or returned into service.

6.4.5 The equipment used for measurement shall be capable of achieving the measurement accuracy and/or measurement uncertainty required to provide a valid result.

6.4.6 Measuring equipment shall be calibrated when:

- the measurement accuracy or measurement uncertainty affects the validity of the reported results, and/or

- calibration of the equipment is required to establish the metrological traceability of the reported results.

NOTE Types of equipment having an effect on the validity of the reported results can include:

- those used for the direct measurement of the measurand, e.g. use of a balance to perform a mass measurement;
- those used to make corrections to the measured value, e.g. temperature measurements;
- those used to obtain a measurement result calculated from multiple quantities.

6.4.7 The laboratory shall establish a calibration programme, which shall be reviewed and adjusted as necessary in order to maintain confidence in the status of calibration.

6.4.8 All equipment requiring calibration or which has a defined period of validity shall be labelled, coded or otherwise identified to allow the user of the equipment to readily identify the status of calibration or period of validity.

6.4.9 Equipment that has been subjected to overloading or mishandling, gives questionable results, or has been shown to be defective or outside specified requirements, shall be taken out of service. It shall be isolated to prevent its use or clearly labelled or marked as being out of service until it has been verified to perform correctly. The laboratory shall examine the effect of the defect or deviation from specified requirements and shall initiate the management of nonconforming work procedure (see 7.10).

6.4.10 When intermediate checks are necessary to maintain confidence in the performance of the equipment, these checks shall be carried out according to a procedure.

6.4.11 When calibration and reference material data include reference values or correction factors, the laboratory shall ensure the reference values and correction factors are updated and implemented, as appropriate, to meet specified requirements.

6.4.12 The laboratory shall take practicable measures to prevent unintended adjustments of equipment from invalidating results.

6.4.13 Records shall be retained for equipment which can influence laboratory activities. The records shall include the following, where applicable:

- a) the identity of equipment, including software and firmware version;
- b) the manufacturer's name, type identification, and serial number or other unique identification;
- c) evidence of verification that equipment conforms with specified requirements;
- d) the current location;

- e) calibration dates, results of calibrations, adjustments, acceptance criteria, and the due date of the next calibration or the calibration interval;
- f) documentation of reference materials, results, acceptance criteria, relevant dates and the period of validity;
- g) the maintenance plan and maintenance carried out to date, where relevant to the performance of the equipment;
- h) details of any damage, malfunction, modification to, or repair of, the equipment.

6.5 Metrological traceability

6.5.1 The laboratory shall establish and maintain metrological traceability of its measurement results by means of a documented unbroken chain of calibrations, each contributing to the measurement uncertainty, linking them to an appropriate reference.

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APPENDIX B

FREQUENTLY ASKED QUESTIONS

- 1. Is the verified compliance report(s) in accordance with California Administrative Code Section 7-151(b) adequate for structural engineer's acceptance of test reports?**

Yes.

- 2. Are the mill certs still acceptable, where specifically permitted by the California Building Standards Code?**

Yes. PIN did not change any specific acceptance criteria in the Title 24, California Building Standards Code.

- 3. Do the requirements in the PIN apply to all engineering and architectural disciplines?**

No. PIN is limited to structural testing and special inspections only.

- 4. Are in-house certifications acceptable?**

Yes. Note with the exception of the individual with AWS certification, the other individuals with just in-house certification will require direct supervision/observation by a certified test technician (which also may be the RDP/PE) being present at the site or the laboratory. All work performed by the in-house certified individual shall have documentation cosigned by the certified test technician.

- 5. Is there a criteria for individuals that can be listed in the Tables for Test Technicians and Special Inspectors?**

Yes. List only your core personnel employed by the Testing or Special Inspection Agency, and any key personnel who perform material testing and special inspections.

Note DSA also requires names of personnel supervised by each supervisor. The ratio of supervisory to non-supervisory personnel shall be such as to ensure adequate supervision.