



SUBJECT

OSHPD Preapproved Agency for Structural Tests and Special Inspections

PIN: 58

Effective: 7/20/2014

Revised: 6/2/2016



PURPOSE

2016 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 1703.4 and 1703A.4 state that a testing agency/laboratory having accreditation to International Standards Organization (ISO) Accreditation Standard 17025 (ISO 17025) shall be considered as an approved testing agency. CBC Section 1704.2 and 1704A.2 state that inspection agency having accreditation to ISO 17020 shall be considered as an approved inspection agency. OSHPD 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.

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

BACKGROUND

ISO/IEC 17025 is the standard adopted in the CBC for establishing an approved testing agency for all tests:

- *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, would like to be considered as approved testing agencies by OSHPD:

- *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, OSHPD 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 2016 California Building Standards Code (CBC). All of these organizations require that testing be performed in labs accredited to ISO 17025 or equivalent.

OSHPD 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 adopted in the CBC for establishing an approved special inspection agency:

- *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, would like to be considered as approved inspection agencies by OSHPD:

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

ISO 17020 does not address qualification requirements for individual special inspectors. OSHPD 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 OSHPD.

In addition, OSHPD 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 OSHPD) 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 shall be considered 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 shall be 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, shall be considered to be approved agencies.

<https://www.apps.dgs.ca.gov/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 OSHPD.

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)
http://www.iasonline.org/Testing_Laboratories/TL.html
- AASHTO Accreditation Program (AAP)
<http://www.amrl.net/amrlsitefinity/default/aap/r18labs.aspx>
- American Association for Laboratory Accreditation (A2LA)
<https://www.a2la.org/dirsearchnew/newsearch.cfm>
- National Voluntary Laboratory Accreditation Program (NVLAP)
<http://ts.nist.gov/standards/scopes/programs.htm>
- Construction Materials Engineering Council (CMEC)
<https://search.cmec.org/fmi/webd/#CMEC&lay=IWP%20Start%20Page&viewsyle=form&record=1&mode=browse>
- ANSI-ASQ National Accreditation Board
<http://anab.org/>

Implementation for OSHPD 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.
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 OSHPD 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.

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 OSHPD 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 OSHPD. Calibration requirements for such tests shall meet the applicable test standards and ISO 17025 Section 5.6.1.

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. OSHPD 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 7-10 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 six years, but not exceeding the approval expiration date by the DSA-LEA program or accreditation bodies, as applicable.

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 OSHPD pre-approved agencies will be posted on the OSHPD 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 OSHPD 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 (by e-mail or equivalent) to OPAA@OSHPD.CA.GOV:

- a. Completed application in Word format with signature attached (electronic signature embedded).
- b. Application review fee:
 - i. \$1,000.00 for new application for combined Testing and Inspection Agency.
 - ii. \$500.00 for either Testing or Inspection Agency only.
 - iii. \$250.00 for renewal.
- c. Attachments verifying the basis of approval, as required by the OPAA application.

29. All fees submitted shall be non-refundable.

Original signed	6/2/16
Paul Coleman	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

2016 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 firm(s) 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 a qualified person or testing laboratory as the testing agency to conduct the tests. The selected person or testing laboratory must be approved by 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(e), or when required by the Office, the architect(s), engineer(s), inspector(s) of record, 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 approved construction documents.
2. Set forth detailed statements of fact as are required by the Office.

(b) The term "personal knowledge," as used in this section and as applied to the licensed architect or engineer or both, means personal knowledge that is obtained by periodic visits to the project site, of reasonable frequency, for the purpose of general observation of the work. It also includes knowledge that is obtained from the reporting of others as to the progress of the work, testing of materials, and inspection and supervision of the work that is performed between the periodic visits of the architect or the engineer. Reasonable diligence shall be exercised in obtaining the facts.

...

(e) 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.

(f). 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.

2016 CALIFORNIA BUILDING CODE

CHAPTER 2 DEFINITIONS

SECTION 202 - DEFINITIONS

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APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved*.

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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.

[OSHDP 2] Tests performed by an independent approved testing agency/laboratory having accreditation to the International Standards Organization (ISO) accreditation Standard 17025 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, 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.

[OSHPD 2] An inspection agency having accreditation to the International Standards Organization (ISO) accreditation Standard 17020 shall be deemed to comply with the requirements for an approved inspection agency.

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. [OSHPD 1 and 4] *In addition to the inspector(s) of record required by the California Administrative Code, 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, 24, 25, 34A, 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 1702A
DEFINITIONS**

1702A.1 Definitions. *The following terms are defined in Chapter 2 except those defined below which shall, for the purposes of this chapter, have the meanings shown herein.*

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Quality Assurance (QA). *Special inspections and testing provided by an approved agency employed by the Owner. Project specific testing required by approved construction documents shall be performed by the approved agency responsible for Quality Assurance (QA), unless approved otherwise by the building official.*

Quality Control (QC). *Inspections and materials/functionality testing provided by the fabricator, erector, manufacturer or other responsible contractor as applicable.*

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SPECIAL INSPECTION.

Continuous special inspection. *The full-time observation of work requiring special inspection by a special inspector who is present in the area where the work is being performed.*

Periodic special inspection. *The part-time or intermittent observation of work requiring special inspection by a special inspector who is present in the area where the work has been or is being performed and at the completion of the work.*

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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 having accreditation to the International Standards Organization (ISO) accreditation Standard 17025 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] An inspection agency having accreditation to the International Standards Organization (ISO) accreditation Standard 17020 shall be deemed to comply with the requirements for an approved inspection agency.

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: 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*. 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 owner's authorized agent to the *building official*.

ASCE STANDARD ASCE/SEI 7-10

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

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4.1.4 If the laboratory is part of an organization performing activities other than testing and/or calibration, the responsibilities of key personnel in the organization that have an involvement or influence on the testing and/or calibration activities of the laboratory shall be defined in order to identify potential conflicts of interest.

NOTE 1: Where a laboratory is part of a larger organization, the organizational arrangements should be such that departments having conflicting interests, such as production, commercial marketing or financing do not adversely influence the laboratory's compliance with the requirements of this International Standard.

NOTE 2: If the laboratory wishes to be recognized as a third-party laboratory, 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 third-party testing or calibration laboratory should not engage in any activities that may endanger the trust in its independence of judgment and integrity in relation to its testing or calibration activities.

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4.5 Subcontracting of tests and calibrations

4.5.1 When a laboratory subcontracts work, whether because of unforeseen reasons (e.g. workload, need for further expertise or temporary incapacity) or on a continuing basis (e.g. through permanent subcontracting, agency or franchising arrangements), this work shall be placed with a competent subcontractor. A competent subcontractor is one that, for example, complies with this International Standard for the work in question.

4.5.2 The laboratory shall advise the customer of the arrangement in writing and, when appropriate, gain the approval of the customer, preferably in writing.

4.5.3 The laboratory is responsible to the customer for the subcontractor's work, except in the case where the customer or a regulatory authority specifies which subcontractor is to be used.

4.5.4 The laboratory shall maintain a register of all subcontractors that it uses for tests and/or calibrations and a record of the evidence of compliance with this International Standard for the work in question.

...

5.5 Equipment

5.5.1 The laboratory shall be furnished with all items of sampling, measurement and test equipment required for the correct performance of the tests and/or calibrations (including sampling, preparation of test and/or calibration items, processing and analysis of test and/or calibration data). In those cases where the laboratory needs to use equipment outside its permanent control, it shall ensure that the requirements of this International Standard are met.

5.5.2 Equipment and its software used for testing, calibration and sampling shall be capable of achieving the accuracy required and shall comply with specifications relevant to the tests and/or calibrations concerned. Calibration programs shall be established for key quantities or values of the instruments where these properties have a significant effect on the results. Before being placed into service, equipment (including that used for sampling) shall be calibrated or checked to establish that it meets the laboratory's specification requirements and complies with the relevant standard specifications. It shall be checked and/or calibrated before use (see 5.6).

5.5.3 Equipment shall be operated by authorized personnel. Up-to-date instructions on the use and maintenance of equipment (including any relevant manuals provided by the manufacturer of the equipment) shall be readily available for use by the appropriate laboratory personnel.

5.5.4 Each item of equipment and its software used for testing and calibration and significant to the result shall, when practicable, be uniquely identified.

5.5.5 Records shall be maintained of each item of equipment and its software significant to the tests and/or calibrations performed. The records shall include at least the following:

- a) the identity of the item of equipment and its software;
- b) the manufacturer's name, type identification, and serial number or other unique identification;
- c) checks that equipment complies with the specification (see 5.5.2);
- d) the current location, where appropriate;
- e) the manufacturer's instructions, if available, or reference to their location;
- f) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance and the due date of next calibration;
- g) the maintenance plan, where appropriate, and maintenance carried out to date;
- h) any damage, malfunction, modification or repair to the equipment.

5.5.6 The laboratory shall have procedures for safe handling, transport, storage, use and planned maintenance of measuring equipment to ensure proper functioning and in order to prevent contamination or deterioration.

NOTE: Additional procedures may be necessary when measuring equipment is used outside the permanent laboratory for tests, calibrations or sampling.

5.5.7 Equipment that has been subjected to overloading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits, 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 repaired and shown by calibration or test to perform correctly. The laboratory shall examine the effect of the defect or departure from specified limits on previous tests and/or calibrations and shall institute the "Control of nonconforming work" procedure (see 4.9).

5.5.8 Whenever practicable, all equipment under the control of the laboratory and requiring calibration shall be labelled, coded or otherwise identified to indicate the status of calibration, including the date when last calibrated and the date or expiration criteria when recalibration is due.

5.5.9 When, for whatever reason, equipment goes outside the direct control of the laboratory, the laboratory shall ensure that the function and calibration status of the equipment are checked and shown to be satisfactory before the equipment is returned to service.

5.5.10 When intermediate checks are needed to maintain confidence in the calibration status of the equipment, these checks shall be carried out according to a defined procedure.

5.5.11 Where calibrations give rise to a set of correction factors, the laboratory shall have procedures to ensure that copies (e.g. in computer software) are correctly updated.

5.5.12 Test and calibration equipment, including both hardware and software, shall be safeguarded from adjustments which would invalidate the test and/or calibration results.

5.6 Measurement traceability

5.6.1 General

All equipment used for tests and/or calibrations, including equipment for subsidiary measurements (e.g. for environmental conditions) having a significant effect on the accuracy or validity of the result of the test, calibration or sampling shall be calibrated before being put into service. The laboratory shall have an established program and procedure for the calibration of its equipment.

NOTE: Such a program should include a system for selecting, using, calibrating, checking, controlling and maintaining measurement standards, reference materials used as measurement standards, and measuring and test equipment used to perform tests and calibrations.

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.