

**15-DAY EXPRESS TERMS  
FOR  
PROPOSED BUILDING STANDARDS  
OF THE  
DIVISION OF THE STATE ARCHITECT - STRUCTURAL SAFETY (DSA-SS)**

**REGARDING THE ADOPTION BY REFERENCE OF THE  
2006 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC)  
INTO THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

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**Legend:**

Originally Proposed Express Terms:

1. Existing California amendments or code language being modified: All such language appears in Italics, modified language is underlined.
2. New California amendment: All such language appears underlined and in Italics.
3. Repealed Text: All such language appears in ~~Strikeout~~.

Modifications to Originally Proposed Expressed Terms:

4. Amendments to the originally proposed text appear in double underline.
  5. Originally proposed text that is repealed appears in ~~double strikeout~~.
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**1614A.1.9 ASCE 7, Section 12.9.4. Replace ASCE 7 Section 12.9.4 as follows:**

*(Relocated from 1631A.5.4, 2001 CBC)*

**12.9.4 Scaling Design Values of Combined Response.** *Modal base shear shall not be less than the base shear calculated using the equivalent lateral force procedure of Section 12.8, ~~except where the fundamental period exceeds  $(C_u)(T_u)$ , then  $(C_u)(T_u)$  shall be used in lieu of T for fundamental period in calculating equivalent static base shear.~~*

Rationale: Section 1614A.1.9 – This section eliminates information which is a duplicate of ASCE 7 Section 12.8.2 to avoid conflict with ASCE 7 Section 12.8.6.2.

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**1614A.1.14 ASCE 7, Section 13.6.7. Modify ASCE 7 Section 13.6.7 by the following:**

Requirements of this section shall also apply for  $I_p = 1.5$ .

Rationale: Section 1614A.1.14 – This change is necessary to avoid conflict between ASCE 7-05 Section 13.6.7 and SMACNA guidelines, that do not differentiate between an  $I_p = 1.0$  and 1.5.

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**1614A.1.4415 ASCE 7, Section 13.6.10.1. Modify ASCE 7 Section 13.6.10.1 by adding Section 13.6.10.1.1 as follows:**

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**1614A.1.45-16 ASCE 7, Section 13.6.10.4. Replace ASCE 7, Section 13.6.10.4 as follows:**

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1614A.1.16-17 ASCE 7, Section 15.4.1. *Modify ASCE 7, Section 15.4.1 by replacing equations 15.4-1 & 15.4-3 as follows:*

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1614A.1.17-18 ASCE 7, Section 17.2.1. *Modify ASCE 7, Section 17.2.1 by adding the following:*

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1614A.1.18-19 ASCE 7 Section 17.2.4.7. *Modify ASCE 7, Section 17.2.4.7 by adding the following:*

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1614A.1.19-20 ASCE 7, Section 17.2.4.8. *Modify ASCE 7, Section 17.2.4.8 by adding the following:*

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1614A.1.20-21 ASCE 7, Section 17.2.4.9. *Modify ASCE 7, Section 17.2.4 by adding the following:*

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1614A.1.21-22 ASCE 7, Section 17.2.4.8. *Modify ASCE 7, section 17.2.4.8 by adding Section 17.2.4.10 as follows:*

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1614A.1.22-23 ASCE 7, Section 17.2.5.2. *Modify ASCE 7, Section 17.2.5.2 by adding the following:*

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1614A.1.23-24 ASCE 7, Section 17.3.1. *Modify ASCE 7, Section 17.3.1 by the adding the following:*

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1614A.1.24-25 ASCE 7, Section 17.3.2. *Modify ASCE 7, Section 17.3.2 by adding the following:*

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1614A.1.25-26 ASCE 7, Section 17.4.1. *Modify ASCE 7, Section 17.4.1 by adding the following:*

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1614A.1.26-27 ASCE 7, Section 17.4.2.1. *Modify ASCE 7, Section 17.4.2.1 by adding the following:*

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1614A.1.27-28 ASCE 7, Section 17.4. *Modify ASCE 7, Section 17.4.by adding Section 17.4.3 as follows:*

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1614A.1.28-29 ASCE 7, Section 17.4. *Modify ASCE 7, Section 17.7 by adding section 17.7.1 as follows:*

...

1614A.1.29-30 ASCE 7, Section 18.2.4. *Modify ASCE 7, Section 18.2.4, second sentence as follows:*

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1614A.1.30-31 ASCE 7, Section 18.9.2. *Modify ASCE 7, Section 18.9.2 by adding the following:*

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Rationale: Editorial changes only. Addition of Section 1614A.1.14 requires renumbering proposed code Sections 1614A.1.14 through 1614A.1.30 to 1614A.1.15 through 1614A.1.31 respectively.

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~~1614A.1.24~~ **1614A.1.25 ASCE 7, Section 17.3.2.** *Modify ASCE 7, Section 17.3.2 by adding the ~~the~~ following:*

*(Relocated from 1659A.4.2, 2001 CBC) The SRSS of the time history components shall be equal to or greater than the 5 percent damped design spectra at the isolated period  $T_I$ , either  $T_d$  or  $T_m$ , between  $0.5T_D$  and  $1.25T_M$  (where  $T_D$  and  $T_M$  are defined in ASCE 7 Section 17.5.3).*

*The duration of the time histories shall be consistent with the magnitude and source characteristics of the design ~~basic~~ earthquake (or maximum ~~capable~~ considered earthquake).*

*~~Time histories developed for sites with a Near Source Factor,  $N_s$ , greater than 1.0 shall incorporate near source phenomena.~~*

**Rationale:** Section 1614A.1.25 – This change is necessary to avoid conflict between this section and the definition in ASCE 7-05, Section 11.2.

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### Chapter 17A - Structural Tests and Special Inspections

**1701A.5** *(Relocated from 1701A.1.1, CBC 2001) **[DSA-SS]** In addition to the project inspector ~~inspector(s) of record~~ required by Title 24, Part 1, Section 4-333, the school district owner or the registered design professional in responsible charge acting as the owner's agent shall employ one or more special inspectors who shall provide inspections during construction on the types of work listed under Chapters 17A, 18A, 19A, 20, 21A, 22A, 23, 25, 34, and noted in the special test, inspection and observation plan required by Sections 4-335 of Title 24, Part 1, of the California Building Standards Administrative Code.*

**Rationale:** Section 1701A.5 - This change is necessary to provide consistency with Title 24 Part 1, (Sec. 4-333(b), 4-342), which uses the term "project inspector" instead of "inspector of record." Title 24, Part 1, (Section 4-333 (b)) does not provide for employment of special inspectors by the design professional in responsible charge, and requires that the costs for special inspection be paid by the school board.

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**1704A.1 General.** Where application is made for construction as described in this section, the owner ~~or the registered design professional in responsible charge acting as the owner's agent~~ shall employ one or more special inspectors to provide inspections during construction on the types of work listed under Section 1704A. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. These inspections are in addition to the inspections specified in Section 109, Appendix Chapter 1.

**Exceptions:**

1. Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.
2. Special inspections are not required for building components unless the design involves the practice of professional engineering or architecture as defined by applicable state statutes and regulations governing the professional registration and certification of engineers or architects.
3. Unless otherwise required by the building official, special inspections are not required for occupancies in Group R-3 as applicable in Section 101.2, Appendix Chapter 1 and occupancies in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

**Rationale:** Section 1704A.1 – This change is necessary to be consistent with Sections 1701A.4 and 1701A.5.

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**1704A.1.2 Report requirement.** *(Relocated from 1701A.3.2, CBC 2001) The inspector(s) of record and ~~Special~~ special inspectors shall keep records of inspections. The inspector of record and special inspector shall furnish inspection reports to the building official and to the registered design professional in responsible charge as required by Title 24, Part 1. Reports shall indicate that work inspected was done in conformance to approved construction documents as required by Title 24 Parts 1 and 2. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the*

discrepancies 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 correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon by the permit applicant and the building official prior to the start of work.

**Exception:** [DSA-SS] *The term "inspector of record" is synonymous with "project inspector".*

**Rationale:** Section 1704A.1.2 - This change is necessary to provide consistency with Section 1701A.5 and Title 24, Part 1, Section 4-333 (b) and 4-342, which uses the term "project inspector" instead of "inspector of record."

**1704A.4.4** (Relocated from 1929A.5, CBC 2001) **Waiver of Batch Plant Inspection.** *Batch plant inspection may be waived under either of the following conditions:*

1. *The concrete plant complies fully with the requirements of ASTM C 94, Sections 8 and 9, and has a current certificate from the National Ready Mixed Concrete Association or another agency acceptable to the enforcement agency. The certification shall indicate that the plant has automatic batching and recording capabilities.*
2. *For one-story wood-frame or one-story light-steel buildings and isolated mat-type foundations supporting equipment only, where the specified compressive strength  $f'_c$  of the concrete delivered to the jobsite is 3,500 psi (24.13 MPa) and where the  $f'_c$  used in design is not greater than 2,500 psi (17.24 MPa).*

*When batch plant inspection is waived, the following requirements shall apply and shall be described in the contract specifications:*

*Approved inspector of the testing laboratory shall check the first batching at the start of work and furnish mix proportions to the licensed weighmaster.*

*Licensed weighmaster to positively identify materials as to quantity and certify to each load by a ticket.*

*Tickets shall be transmitted to the ~~project inspector~~ inspector of record by a truck driver with load identified thereon. Inspector will not accept the load without a load ticket identifying the mix and will keep a daily record of placements, identifying each truck, its load and time of receipt, and approximate location of deposit in the structure and will transmit a copy of the daily record to the enforcement agency.*

**Exception:** [DSA-SS] *The term "inspector of record" is synonymous with "project inspector".*

*At the end of the project, the weighmaster shall furnish an affidavit to the enforcement agency ~~on Form SSS 444-B~~ certifying that all concrete furnished conforms in every particular to proportions established by mix designs.*

**Rationale:** Section 1704A.4.4 – This change is necessary to be consistent with Sections 1701A.4 and 1701A.5.

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**1705A.3 Seismic resistance.** The statement of special inspections shall include seismic requirements for the following cases:

1. The seismic-force-resisting systems in structures assigned to Seismic Design Category ~~C~~, D, E or F in accordance with Section 16134.
2. Designated seismic systems in structures assigned to Seismic Design Category D, E or F.
3. The following additional systems and components in structures assigned to Seismic Design Category C:
  - 3.1. Heating, ventilating and air-conditioning (HVAC) ductwork containing hazardous materials and anchorage of such ductwork.
  - 3.2. Piping systems and mechanical units containing flammable, combustible or highly toxic materials.
  - 3.3. Anchorage of electrical equipment used for emergency or standby power systems.

4. The following additional systems and components in structures assigned to Seismic Design Category D:
  - 4.1. Systems required for Seismic Design Category C.
  - 4.2. Exterior wall panels and their anchorage.
  - 4.3. Suspended ceiling systems and their anchorage.
  - 4.4. Access floors and their anchorage.
  - 4.5. Steel storage racks and their anchorage, where the importance factor is equal to 1.5 in accordance with Section 15.5.3 of ASCE 7.
5. The following additional systems and components in structures assigned to Seismic Design Category E or F:
  - 5.1. Systems required for Seismic Design Categories C and D.
  - 5.2. Electrical equipment.

**Exception:** ~~Not permitted by OSHPD and DSA-SS. Seismic requirements are permitted to be excluded from the statement of special inspections for structures designed and constructed in accordance with the following:~~

- ~~1. The structure consists of light frame construction; the design spectral response acceleration at short periods,  $S_{DS}$ , as determined in Section 1613.4.5.4, does not exceed 0.5g; and the height of the structure does not exceed 35 feet (10 668 mm) above grade plane; or~~
- ~~2. The structure is constructed using a reinforced masonry structural system or reinforced concrete structural system; the design spectral response acceleration at short periods,  $S_{DS}$ , as determined in Section 1613.4.5.4, does not exceed 0.5g; and the height of the structure does not exceed 25 feet (7620 mm) above grade plane; or~~
- ~~3. Detached one- or two-family dwellings not exceeding two stories in height, provided the structure does not have any of the following plan or vertical irregularities in accordance with Section 12.3.2 of ASCE 7:~~
  - ~~3.1. Torsional irregularity.~~
  - ~~3.2. Nonparallel systems.~~
  - ~~3.3. Stiffness irregularity extreme soft story and soft story.~~
  - ~~3.4. Discontinuity in capacity weak story.~~

**Rationale:** Section 1705A.3 – This change is necessary to be consistent with the special test, inspection and observation plan requirements for schools and hospitals per Title 24, Part 1, of the California Building Standards Administrative Code.

## Chapter 19A – Concrete

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**1905A.1.1 Strength.** Concrete shall be proportioned to provide an average compressive strength as prescribed in Section 1905A.3 and shall satisfy the durability criteria of Section 1904A. Concrete shall be produced to minimize the frequency of strengths below  $f'_c$  as prescribed in Section 1905A.6.3. *For concrete designed and constructed in accordance with this chapter,  $f'_c$  shall not be less than (Relocated from 1905A.1.3, 2001 CBC) 3,000 psi (20.7MPa) except that 2,500 psi (17.2MPa) concrete may be used in the design of footings for light one-story wood- or steel-framed buildings or other minor structures. 2,500 psi (17.22 MPa).* No maximum specified compressive strength shall apply unless restricted by a specific provision of this code or ACI 318. *Reinforced concrete with specified compressive strength higher than 8000 psi may be considered with shall require prior approval of structural design method and acceptance criteria acceptable to the enforcement agency.*

**Rationale:** Section 1905A.1.1 – This change is largely editorial to make the code language mandatory.

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**1908.1.16- 1908A.1.47 ACI 318, Section D.3.3.** Modify ACI 318, Sections D.3.3.2 through D.3.3.5, to read as follows:

D.3.3.2 -*In structures assigned to Seismic Design Category  $\text{C}$ , D, E or F, post-installed anchors for use under D.2.3 shall have passed the Simulated Seismic Tests of ACI 355.2.*

D.3.3.3 -*In structures assigned to Seismic Design Category  $\text{C}$ , D, E or F, the design strength of anchors shall be taken as  $0.75\phi N_n$  and  $0.75\phi V_n$ , where  $\phi$  is given in D.4.4 or D.4.5, and  $N_n$  and  $V_n$  are determined in accordance with D.4.1.*

D.3.3.4 -*In structures assigned to Seismic Design Category  $\text{C}$ , D, E or F, anchors shall be designed to be governed by tensile or shear strength of a ductile steel element, unless D.3.3.5 is satisfied.*

*Exception: Anchors in concrete designed to support non-structural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.4.*

D.3.3.5 - *Instead of D.3.3.4, the attachment that the anchor is connecting to the structure shall be designed so that the attachment will undergo ductile yielding at a load level corresponding to anchor forces no greater than the design strength of anchors specified in D.3.3.3, or the minimum design strength of the anchors shall be at least 2.5 times the factored forces transmitted by the attachment.*

*Exception: Anchors in concrete designed to support non-structural components in accordance with ASCE 7 Section 13.4.2 need not satisfy Section D.3.3.5.*

**Rationale:** Section 1908A.1.47 – This change is necessary for consistency between ASCE 7-05 Section 13.4.2 and this Section. This is one of the changes approved by International Building Code – Structural Code Committee for 2006/2007 code development cycle.

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**1916A.4** (Relocated from 1929A.6, 2001 CBC) **Waiver of Material Testing.** Tests of ~~concrete and~~ reinforcing bars may be waived by the architect or structural engineer with the approval of the enforcement agency for one-story buildings where the specified compressive strength of the concrete  $f'_c$ , delivered to the jobsite is 3,500 psi (24.13 MPa) and where the  $f'_c$  used in design is 2,500 psi (17.24 MPa).

**Rationale:** Section 1916A.4 – This change is necessary to be consistent with Section 1916A.1, where cementitious material test requirement is replaced by certification requirement.

## Chapter 21A – Masonry

**2105A.5** (Relocated from 2105A.3.4 Item #2, 2001 CBC) **Mortar and grout tests.** These tests are to establish whether the masonry components meet the specified component strengths. At the beginning of all masonry work, at least one test sample of the mortar and grout shall be taken on three successive working days and at least at one-week intervals thereafter. The samples shall be continuously stored in moist air until tested. They shall meet the minimum strength requirement given in Sections ~~2103A.3 and 2103A.4~~ 2103A.8 and 2103A.12 for mortar and grout, respectively. Additional samples shall be taken whenever any change in materials or job conditions occur, or whenever in the judgment of the architect, structural engineer or the enforcement agency such tests are necessary to determine the quality of the material.

Test specimens for mortar and grout shall be made as set forth in ~~UBC Standards 21-16 and 21-18~~ ASTM C 409 1586 and ASTM C 1019. ~~In making the mortar test specimens, the mortar shall be taken from the unit soon after spreading. After molding, the molds shall be carefully protected by a covering which shall be kept damp for at least 24 hours, after which the specimens shall be stored and tested as required for concrete cylinders.~~

~~In making grout test specimens, the masonry unit molds shall be broken away after the grout has taken its set, but before it has hardened. If an absorbent paper liner is used, the mold may be left in place until the specimen has hardened. The prisms shall be stored as required for concrete cylinders. They shall be tested in the vertical position.~~

**Rationale:** ASTM C 1586, rather than C 109, is the appropriate national standard for field quality assurance testing of mortar, including preconstruction and construction evaluation of mortar properties (references ASTM C 780 for testing procedures). Note that the U.B.C. Standard 21-16 is contained only in Volume 3 of the 1997 Uniform Building Code, and is not continued in the 2006 International Building Code. DSA also understands that this ICBO standard will not be published elsewhere by the ICC. This renders it unavailable for adoption by reference by DSA-SS.

The proposed repeal of provisions regarding sampling and handling duplicate and conflict with the requirements contained in the referenced standards (C 1586 and C 1019).

This change addresses comments by Mr. Robert D. Cherrier of BSK associates, inc. during the 45-day comment period.

### CHAPTER 35 - REFERENCED STANDARDS

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| AA  | Aluminum Association<br>Washington, DC 20006<br>900 - 19th Street N.W., Suite 300  | Referenced<br>in code<br>section number |
|---|--|---|
| Standard<br>reference<br>number                                     | Title  |   |
| ADM 1- 00   | Aluminum Design Manual: Part 1-A<br>Aluminum Structures, Allowable Stress<br>Design; and Part 1-B-Aluminum Structures,<br>Load and Resistance Factor Design of<br>Buildings and Similar Type Structures  | 1604.3.5, 2002.1                        |
| <u>ADM 1- 05</u><br><u>[DSA-SS &amp; OSHPD 1,2</u><br><u>and 4]</u> | <u>Aluminum Design Manual: Part 1-A</u><br><u>Aluminum Structures, Allowable Stress</u><br><u>Design; and Part 1-B-Aluminum</u><br><u>Structures, Load and Resistance Factor</u><br><u>Design of Buildings and Similar Type</u><br><u>Structures</u> | <u>1604.3.5, 2002.1</u>                 |
| ...   |  |   |
| ASTM  | ASTM International<br>100 Barr Harbor Drive<br>West Conshohocken, PA 19428-2959  |   |
| Standard<br>reference<br>number                                     | Title:   | Referenced<br>in code<br>section number |
| ...   |  |   |
| <u>C 1586-05</u>  | <u>Standard Guide for Quality Assurance of</u><br><u>Mortars</u>   | <u>2105A.5</u>                          |

**Rationale:** Chapter 35 – These changes are necessary for:

1. Consistency between Aluminum design provision (reference to ADM 1) and design provision for other materials code (e. g. Concrete, Steel, Wood and Masonry). This is one of the changes approved by International Building Code - Structural Code Committee for 2006/2007 code development cycle.
2. Adoption of ASTM C 1586 *Standard Guide for Quality Assurance of Mortars*, as referenced in Section 2105A.5.