# FINAL EXPRESS TERMS FOR PROPOSED BUILDING STANDARDS OF THE OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT REGARDING THE 2022 CALIFORNIA BUILDING CODE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2, VOLUME 2 (OSHPD 03/22)

The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific (Government Code Section 11346.2(a)(1)).

If using assistive technology, please adjust your settings to recognize underline, strikeout, italic and ellipsis.

## LEGEND for EXPRESS TERMS (Based on model codes - Parts 2, 2.5, 3, 4, 5, 9, 10)

* Model Code language appears upright
* Existing California amendments appear in *italic*
* Amended model code or new California amendments appear *underlined & italic*
* Repealed model code language appears ~~upright and in strikeout~~
* Repealed California amendments appear in *~~italic and strikeout~~*
* Ellipses ( ...) indicate existing text remains unchanged

## FINAL EXPRESS TERMS

### ITEM 1 CHAPTER 16 STRUCTURAL DESIGN

#### SECTION 1605 LOAD COMBINATIONS

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**1605*.*2** **Alternative allowable stress design load combinations.** In lieu of the load combinations in ASCE 7, Section 2.4, … ***[OSHPD 1R, 2~~B~~ & 5]*** *Each load combination shall be investigated with one or more of the variable loads set to zero.*

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 2 CHAPTER 16*A* STRUCTURAL DESIGN

#### SECTION *1617A* MODIFICATIONS TO ASCE 7

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***1617A.1.4 ASCE 7, Table 12.2-1.*** *Modify ASCE 7, Table 12.2-1 as follows:*

**A. BEARING WALL SYSTEMS**

…

**G. CANTILEVER COLUMN SYSTEMS DETAILED TO CONFORM WITH THE REQUIREMENTS FOR:**

1. Steel special cantilever column systems - ***[OSHPD 1 & 4]*** *Not permitted by OSHPD~~.~~ except for single-story canopies and independent covered walkways where R, Cd and W0 = 1.5 and roof dead load is less than 20 psf.*

…

***1617A.1.18*** ***ASCE 7, Section 13.1.4.*** *Replace ASCE 7, Section 13.1.4, with the following:*

***13.1.4*.** *The following nonstructural components and equipment shall be anchored in accordance with this section. Design and detailing shall be in accordance with Chapter 13 except as modified by this section.*

*1. Fixed Equipment: ...*

*…*

*6.* **[OSHPD 1, 2, 4 & 5]** *Interim Equipment:*

*a. Seismic design for supports and attachments for interim equipment shall meet the requirements of Chapter 13 with the following modifications~~.~~; 1) The calculated Fp used in the design may be reduced by 50 percent. 2) It is acceptable to use ballasts for seismic or wind bracing supports and attachments and limit the design to overturning only without the consideration of sliding, unless directly or indirectly supported by the building structure. 3) Anticipated duration of use must be specified.*

*b. Wind design speeds may be reduced as prescribed in ASCE 37-14 or other standard approved by OSHPD.*

*c. Piping, conductors and ductwork shall be supported. Seismic design for supports and attachments of piping, conductors and ductwork is not required.*

*7. Other Equipment: Equipment shall be anchored where any of the following apply:*

*a.* ***[OSHPD 1, 2, 4 & 5]*** *Essential to hospital operations and weight of equipment is greater than 100 pounds (45 kg).* ***[DSA-SS]*** *Weight of equipment is greater than 100 pounds (45 kg) and essential to operations for emergency preparedness, communications and operations centers, and other facilities required for emergency response of state-owned essential services buildings as defined in the California Administrative Code (Title 24, Part 1, CCR) Section 4-207 and all structures required for their continuous operation or access/egress.*

*b.* ***[OSHPD 1, 2, 4 & 5]*** *Could fall within the patient care vicinity as defined in Article 517.2 of the California Electrical Code.*

*c. Could fall and block a required means of egress.*

*d.* ***[OSHPD 1, 2, 4 & 5]*** *Weight of equipment is greater than 400 pounds (181.4 kg).*

*~~d~~e.* ***[DSA-SS]*** *Weight of equipment is greater than 400 pounds (181.4 kg) or center of mass is located greater than 4 feet (1219 mm) above the finished floor or roof level that directly supports the component.****[OSHPD 1, 2, 4 & 5]*** *Weight of equipment is greater than 200 pounds (90 kg) and center of mass located greater than 4 feet (1219 mm) measured from the finished floor.*

…

***1617A.1.41 Peer Review Requirements. [OSHPD 1, 1R, 2, 4~~,~~ & 5]***

***1. General.*** *Independent peer review is an objective technical review by knowledgeable reviewer(s) experienced in structural design, analysis and performance issues involved. The reviewer(s) shall examine the available information on the condition of the building, basic engineering concept employed and recommendations for action.*

***Exception:***

*OSHPD may perform the work of peer review when qualified staff is available.*

***2. Timing of Independent Review.*** *…*

…

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 3 CHAPTER 17 SPECIAL INSPECTION AND TESTS

#### SECTION 1705 REQUIRED SPECIAL INSPECTIONS AND TESTS

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***1705.3.9 Shotcrete. [OSHPD 1R, 2~~B~~ & 5]*** *All shotcrete work shall be continuously ...*

…

***1705.5.5 Structural glued laminated and cross-laminated timber. [OSHPD 1R, 2~~B~~ & 5]*** *Manufacture of all structural glued laminated and cross-laminated timber shall be continuously inspected by an approved agency.*

…

**1705.14.3 Designated seismic systems.** ...

***1705.14.3.1 Special seismic certification. [OSHPD 1R, 2 & 5]*** *Special seismic certification shall be required in accordance with Section 1705A.14.3. for all of the following:*

*1. ~~Special seismic certification shall be required for l~~Life-safety components, such as emergency and standby power systems, mechanical smoke removal systems and fire sprinkler/fire protection systems.*

*2. Medical, mechanical and electrical equipment and components required for life support for patients ~~shall have special seismic certification in accordance with Section 1705A.14.3~~.*

*3. [****OSHPD 2****] Alternate power systems including:*

*a. Generators.*

*b. UPS and batteries.*

*c. Renewable electrical generation and control equipment.*

*d. Panelboards as defined in the California Electrical Code (CEC) Article 100.*

*e. Manual and automatic transfer switches.*

*f. Switchgear and switchboards.*

…

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 4 CHAPTER 17*A* SPECIAL INSPECTION AND TESTS

#### SECTION 1703*A* APPROVALS

**1703*A*.1 Approved agency.** An approved agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements specified in Sections 1703*A*.1.1 through 1703*A*.1.3.

**1703*A*.1.1 Independence.** An approved agency shall be objective, competent and independent from ~~the~~ any other entity providing inspection services and contractor(s) responsible for the work being inspected. The agency shall disclose to the building official and the registered design professional in responsible charge possible conflicts of interest so that objectivity can be confirmed.

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

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**1704*A*.5 Submittals to the building official.** In addition to the submittal of reports of special inspections and tests in accordance with Section 1704*A*.2.4, reports and certificates shall be submitted by the owner or the owner’s authorized agent to the building official for each of the following:

1. ***~~[OSHPD 1 & 4]~~*** ~~Certificates of compliance for the fabrication of structural, load-bearing or lateral load-resisting members or assemblies on the premises of an approved fabricator in accordance with Section 1704~~*~~A~~*~~.2.5.1.~~ **Reserved.**

2. Certificates of compliance…

…

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 5 CHAPTER 18 SOILS AND FOUNDATIONS

#### SECTION 1810 DEEP FOUNDATIONS

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***1810.3.1.5.1 Helical piles seismic requirements.*** ***[OSHPD 1R, 2~~B~~ & 5]*** *For structures assigned to Seismic Design Category D, E or F, capacities of helical piles shall be determined in accordance with Section 1810.3.3 by at least two project-specific preproduction tests for each soil profile, size and depth of helical pile. At least two percent of all production piles shall be proof tested* *to design strength determined by using load combinations in ASCE 7, Section 2.3.6.*

…

**1810.3.3.1.9 Helical piles.**

…

where *Pu* is the least value of:

1. Base capacity …

2. Ultimate capacity ...

3. Ultimate capacity determined from load tests where required by Section 1810.3.3.1.2. ***[OSHPD 1R, 2~~B~~ & 5]*** *Load tests are required to determine the ultimate capacity.*

4. Ultimate axial capacity …

…

**1810.3.8 Precast concrete piles.** Precast concrete piles shall be designed and detailed in accordance with ACI 318.

**Exceptions:**

1. For precast prestressed piles in Seismic Design Category C, the minimum volumetric ratio of spirals or circular hoops required by Section 18.13.5.10.4 of ACI 318 shall not apply in cases where the design includes full consideration of load combinations specified in ASCE 7, Section 2.3.6 or Section 2.4.5 and the applicable overstrength factor, Ω0. In such cases, minimum transverse reinforcement index shall be as specified in Section 13.4.5.6 of ACI 318. ***[OSHPD 1R, 2~~B~~ & 5]*** *not permitted by OSHPD.*

2. For precast prestressed piles in Seismic Design Categories D through F, the minimum volumetric ratio of spirals or circular hoops required by Section 18.13.5.10.5(c) of ACI 318 shall not apply in cases where the design includes full consideration of load combinations specified in ASCE 7, Section 2.3.6 or Section 2.4.5 and the applicable overstrength factor, Ω0. In such cases, minimum transverse reinforcement shall be as specified in Section 13.4.5.6 of ACI 318. ***[OSHPD 1R, 2~~B~~ & 5]*** *not permitted by OSHPD.*

***[OSHPD 1R, 2~~B~~ & 5] Exception:*** *Where the axial load from seismic forces is amplified by the applicable overstrength factor, Ω0 the axial load limits in Section 18.13.5.10.6 of ACI 318 may be increased by two times.*

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***1810.3.10.4.1 Seismic requirements.*** ***[OSHPD 1R, 2~~B~~ & 5]*** *For structures assigned to Seismic Design …*

…

**1810.3.11.2 Seismic Design Categories D through F.** For structures assigned to Seismic Design Category ...

1. In the case of uplift, …

…

3. The connection between the pile cap and the steel H-piles or unfilled steel pipe piles in structures assigned to Seismic Design Category D, E or F shall be designed for a tensile force of not less than 10 percent of the pile compression capacity.

**Exceptions:**

1. Connection tensile capacity need not exceed the strength required to resist seismic load effects including overstrength of ASCE 7, Section 12.4.3 or 12.14.3.2.

2. Connections need not be provided where the foundation or supported structure does not rely on the tensile capacity of the piles for stability under the design seismic force. ***[OSHPD 1R, 2~~B~~ & 5]*** *Not permitted by OSHPD.*

…

**1810.3.12 Grade beams.** Grade beams shall comply with the provisions of ACI 318.

**Exception:** Grade beams designed to resist the seismic load effects including overstrength factor in accordance with Section 2.3.6 or 2.4.5 of ASCE 7 ***[OSHPD 1R, 2~~B~~ & 5]*** *Need not comply with Section 18.13.3 of ACI 318*.

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#### *SECTION 1811 PRESTRESSED ROCK AND SOIL FOUNDATION ANCHORS [OSHPD 1R, 2~~B~~ & 5]*

…

#### *SECTION 1812 EARTH RETAINING SHORING [OSHPD 1R, 2~~B~~ & 5]*

…

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 6 CHAPTER 19 CONCRETE

#### SECTION 1901 GENERAL

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***1901.3.4 Tests for post-installed anchors in concrete. [OSHPD 1R, 2~~B~~ & 5]*** *When post-installed anchors are used in lieu of cast-in place bolts, the installation verification test loads, frequency, and acceptance criteria shall be in accordance with this section.*

…

***1901.3.4.3 Test frequency.*** *…*

…

***Exceptions:***

…

1. ***[OSHPD 2~~B~~]*** *In State detention and correctional facilities, tension testing is not required for post-installed anchors used for attaching nonstructural components, such as grab bars and shower seats, to concrete walls if the components do not contribute to security/detainment, life safety and the continuous operation of the institution following an event of extreme environmental loading from flood, wind, snow or earthquakes, as determined by the Enforcing Agency.*

…

***1901.3.4.5 Test acceptance criteria.*** *Acceptance criteria for post-installed anchors shall be based on approved evaluation report using criteria adopted in this code. Field test shall satisfy following minimum requirements.*

*1. Hydraulic ram method:*

*Anchors tested with a hydraulic jack or spring loaded devices shall maintain the test load for a minimum of 15 seconds and shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.*

*~~The testing device shall not restrict the concrete shear cone type failure mechanism from occurring.~~The testing apparatus support locations shall be greater than or equal to 1.5 times the anchor’s embedment depth to avoid restricting the concrete shear cone type failure mechanism from occurring.*

***Exception:*** *When denoted accordingly on the approved construction documents, adhesive anchors complying with ACI 318 Equation 17.8.2a and for which concrete breakout does not control the design tensile strength may be tested with apparatus support locations closer than 1.5 times the anchor embedment depth.*

*2****.*** *Torque wrench method:*

*Torque-controlled post-installed anchors tested with a calibrated torque wrench shall attain the specified torque within 1/2 turn of the nut; or one quarter (1/4) turn of the nut for a 3/8-inch sleeve anchor only.*

#### SECTION 1905 MODIFICATIONS TO ACI 318

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**1905.1.7 ACI 318, Section 14.1.4.** Delete ACI 318, Section 14.1.4 and replace with the following:

***[OSHPD 1R, 2~~B~~ & 5]*** *Plain concrete shall not be permitted for a structure assigned to Seismic Design Category (SDC) D, E, and F.*

…

#### SECTION 1908 SHOTCRETE

**1908.1 General.** Shotcrete shall be in accordance with the requirements of ACI 318 ***[OSHPD 1R, 2~~B~~ & 5]*** *and the provisions of ACI 506R. …*

***1908.2 Tests and Inspections.******[OSHPD 1R, 2~~B~~ & 5]*** *Preconstruction tests of one or more shotcrete mockup panels prepared in accordance with Section 1705.3.9.2 are required. In addition to testing requirements in ACI 318, special inspection and testing shall be in accordance with Section 1705.3.9.*

***1908.3 Forms and ground wires for shotcrete. [OSHPD 1R, 2~~B~~ & 5]*** *Forms for shotcrete shall be substantial and rigid. Forms shall be built and placed so as to permit the escape of air and rebound.*

*…*

#### *SECTION 1910 ADDITIONAL REQUIREMENTS FOR SKILLED NURSING FACILITIES, INTERMEDIATE CARE FACILITIES, ACUTE PSYCHIATRIC AND NON-GAC BUILDINGS [OSHPD 1R, 2~~B~~ & 5]*

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#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 7 CHAPTER 21 MASONRY

#### SECTION 2101 GENERAL

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***2101.2.2 Prohibition. [OSHPD 1R, 2~~B~~ & 5]*** *The following design methods, systems, and materials in TMS402/602 are not permitted by OSHPD:*

…

#### SECTION 2103 MASONRY CONSTRUCTION MATERIALS

**2103*.*1 Masonry units.** Concrete masonry units, clay or shale masonry units, stone masonry units *and* glass unit masonry shall comply with Article 2.3 of TMS 602. Architectural cast stone shall conform to ASTM C 1364 and TMS 504. Adhered manufactured stone masonry veneer units shall conform to ASTM C1670. ***[OSHPD 1R, 2~~B~~ & 5]*** *Architectural cast stone construction shall be considered as an alternative system.*

…

**2103.4 Metal reinforcement and accessories.** Metal reinforcement and accessories shall conform to Article 2.4 of TMS 602. Where unidentified reinforcement***[OSHPD 1R, 2~~B~~ & 5]****,**or bar reinforcement without mill certification,* is approved for use, not less than three tension and three bending tests shall be made on representative specimens of the reinforcement from each shipment and grade of reinforcing steel proposed for use in the work. ***[OSHPD 1R, 2~~B~~ & 5]*** *Alternatively, the frequency of sampling for unidentifiable reinforcing bars specified in Section 1910.2 can be used.*

***2103.5******Air entrainment.******[OSHPD 1R, 2~~B~~ & 5]*** *Air-entraining materials or air-entraining admixtures shall not be used in grout.*

…

#### SECTION 2104 CONSTRUCTION

**2104.1 Masonry construction.** Masonry construction shall comply with the requirements of Sections 2104.1.1 through 2104.1.3 and with the requirements of either TMS 602 or TMS 604.

*…*

***2104.2 Reinforced Grouted masonry. [OSHPD 1R, 2~~B~~ & 5]*** *…*

…

#### SECTION 2105 QUALITY ASSURANCE

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***2105.2 Compressive Strength, f*** *′****m*. *[OSHPD 1R, 2~~B~~ & 5]*** *The minimum specified compressive strength, f'm, in the design shall be 1500 psi (10.34 MPa) for all structural masonry construction using materials and details of construction required herein. Testing of masonry shall be provided in accordance with TMS 602, Article 1.4 B.*

*…*

***2105.3 Mortar and grout tests. [OSHPD 1R, 2~~B~~ & 5]******TMS 602, Article 1.4 B Compressive Strength Determination.*** *Modify TMS 602 Article 1.4 B as follows by adding: …*

*…*

***2105.4******Masonry core testing****.* ***[OSHPD 1R, 2~~B~~ & 5]*** *Not less than two cores shall be taken from each building for each 5,000 square feet (465 m2) of the masonry wall area or fraction thereof. The approved agency shall perform or observe the coring of the masonry walls and sample locations shall be subject to approval of the registered design professional.*

…

#### SECTION 2106 SEISMIC DESIGN

…

***2106.1.2 [OSHPD 1R, 2~~B~~ & 5] TMS 402 Chapter 5.*** *Add TMS 402 Section 5.6 as follows:*

*…*

#### SECTION 2107 ALLOWABLE STRESS DESIGN

**2107.1 General.** The design of masonry structures using allowable stress designshall comply with Section 2106 and the requirements of Chapters 1 through 8 of TMS 402 except as modified by Sections 2107.2 through 2107.3. ***[OSHPD 1R, 2~~B~~ & 5]*** *through 2107.7*.

…

***2107.5*** ***[OSHPD 1R, 2~~B~~ & 5] TMS 402, Section 8.3.4.4 Walls.*** *Modify TMS 402, Section 8.3.4.4 as follows by adding:*

*…*

***2107.7 Masonry Compressive Strength.*** ***[OSHPD 1R, 2~~B~~ & 5]*** *The specified compressive strength of structural masonry, f’m, shall be equal to or exceed 1,500 psi (10.34 MPa). The value of f’m used to determine nominal strength value in this chapter shall not exceed 3,000 psi (20.7 MPa) for concrete masonry and shall not exceed 4,500 psi (31.03 MPa) for clay masonry.*

…

#### SECTION 2108 STRENGTH DESIGN OF MASONRY

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***2108.4 [OSHPD 1R, 2~~B~~ & 5] TMS 402, Section 9.1.9.1.1.*** *Modify TMS 402, Section 9.1.9.1.1 as follows:*

…

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 8 CHAPTER 21*A* MASONRY

#### SECTION 2104*A* CONSTRUCTION

*…*

***2104A.1.3 Reinforced grouted masonry.***

***2104A.1.3.1 TMS 602, Article 3.2 F Cleanouts.*** *Replace TMS 602, Article 3.2 F with the following:*

***3.*2F.** *Cleanouts* - Provided cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds *the height limits given in Section 2104A.1.3.5 item 3.*

...

***2104A.1.3.11 Reinforced hollow-unit masonry.***

***2104A.1.3.11.1 TMS 602, Article 2.3 A & 2.3 B Masonry unit materials.*** *Add the following to TMS 602, Articles 2.3 A and 2.3 B:*

*1. The depth of the bond beam channel below the top of the unit in reinforced hollow-unit masonry shall be 1 ½ inches (38 mm) minimum and the width shall be 3 inches (76 mm) minimum.*

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 9 CHAPTER 23 WOOD

#### SECTION 2304 GENERAL CONSTRUCTION REQUIREMENTS

**2304.10 Connectors and fasteners.**

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***2304.10.2.1 Additional requirements*. *[DSA-SS and OSHPD 1, 1R, 2~~B~~, 4 & 5]*** *Fasteners used for the attachment of exterior wall coverings shall be of hot-dipped zinc-coated galvanized steel, mechanically deposited zinc-coated steel, stainless steel, silicon bronze or copper. The coating weights for hot-dipped zinc-coated fasteners shall be in accordance with ASTM A153. The coating weights for mechanically deposited zinc coated fasteners shall be in accordance with ASTM B695, Class 55 minimum.*

#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850

### ITEM 10 CHAPTER35 REFERENCED STANDARDS

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|  |  |  |
| --- | --- | --- |
| **AAMA** | American Architectural Manufacturing Association  1827 Waldon Office Square, Suite 550  Schaumburg, IL 60173 |  |
| … |  |  |
| ***501.4-18:*** | ***Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts****. [****OSHPD 1 & 4****]* ***Section 7.2.5****, Replace “elastic design displacement”, with “design story drifts associated with the design earthquake”.* | *2410.1* |

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#### Notation:

Authority: Health and Safety Code, Sections 1275, 129675-130070

Reference: Health and Safety Code, Section 129850