Insert under Tab 6b: DSA-SS/CC 02/18

ADDENDUM

Division of the State Architect – Structural Safety (DSA-SS/CC 02/18)

2019 California Building Code, Part 2

Title 24, Volume 1 and 2

6b. The Division of the State Architect – Structural Safety proposes to adopt 2018 International Building Code into the 2019 California Building Code with new and existing amendments as follows:

CHAPTER 16
STRUCTURAL DESIGN

SECTION 1616~~7~~7
ADDITIONAL REQUIREMENTS FOR COMMUNITY COLLEGES [DSA-SS/CC]

****Informative Note** Changes to 1617.11.9, as originally proposed, have been withdrawn and replaced with the following revised proposal.**

SDLF CAC Item Number 6, DSASS 02/18-6-27, Revised proposal (revisions shaded grey):

~~1616.10.9~~1617.11.9 ASCE 7, Section 12.3.3.1. *Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:*

12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F. *Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.*

Exception: *Structures with reinforced concrete or reinforced masonry shear wall systems and rigid or semi-rigid diaphragms, consisting of concrete slabs or concrete-filled metal deck having a span-to-depth ratio of 3 or less, having a horizontal structural irregularity Type 1b of Table 12.3-1 are permitted when the maximum story drift in the direction of the irregularity, computed including the torsional amplification factor from Section 12.8.4.3, is less than 10% of the allowable story drift in ASCE 7 Table 12.12-1.*

SDLF CAC Item Number 6, DSASS 02/18-6-27, Original proposal:

~~1616.10.9~~1617.11.9 ASCE 7, Section 12.3.3.1. *Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:*

12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F. *Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.*

Exception: *Structures with reinforced concrete or reinforced masonry shear wall systems, and rigid diaphragms having a horizontal structural irregularity Type 1b of Table 12.3-1 are permitted, provided the maximum story drift in the direction of the irregularity, computed including the torsional amplification factor from Section 12.8.4.3, is less than 10% of the allowable story drift in ASCE 7 Table 12.12-1.*

…

CHAPTER 16A
STRUCTURAL DESIGN

SECTION 1616717A
MODIFICATIONS TO ASCE 7

****Informative Note** Changes to 1617A.1.10, as originally proposed, have been withdrawn and replaced with the following revised proposal.**

SDLF CAC Item Number 7, DSASS 02/18-7-50, Revised proposal (revisions shaded grey):

1617~~6~~A.1.10 ASCE 7, Section 12.3.3. *Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:*

> ***12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F.*** *Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.*
>
> > ***Exception:*** *Structures with reinforced concrete or reinforced masonry shear wall systems and rigid or semi-rigid diaphragms, consisting of concrete slabs or concrete-filled metal deck having a span-to-depth ratio of 3 or less, having a horizontal structural irregularity Type 1b of Table 12.3-1 are permitted when the maximum story drift in the direction of the irregularity, computed including the torsional amplification factor from Section 12.8.4.3, is less than 10% of the allowable story drift in ASCE 7 Table 12.12-1.*

SDLF CAC Item Number 7, DSASS 02/18-7-50, Original proposal:

1617~~6~~A.1.10 ASCE 7, Section 12.3.3. *Modify first sentence of ASCE 7 Section 12.3.3.1 as follows:*

> ***12.3.3.1 Prohibited Horizontal and Vertical Irregularities for Seismic Design Categories D through F.*** *Structures assigned to Seismic Design Category D, E, or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted.*
>
> > ***Exception:*** *Structures with reinforced concrete or reinforced masonry shear wall systems and rigid diaphragms having a horizontal structural irregularity Type 1b of Table 12.3-1 are permitted, provided the maximum story drift in the direction of the irregularity, computed including the torsional amplification factor from Section 12.8.4.3, is less than 10% of the allowable story drift in ASCE 7 Table 12.12-1.*

…

Rationale (for both 1617.11.9 (CAC item 6-27) and 1617A.1.10 (CAC item 7-50)): The proposed exception lifts the prohibition on extreme torsional irregularity for Seismic Design Categories D through F when the maximum story drift in the direction of the irregularity is less than 10% of the allowable story drift. ASCE 7-16 requires a semi-rigid diaphragm analysis when any horizontal irregularity is present. Therefore DSA-SS recommends including mention of sem-irigid diaphragms in this proposal since the proposal applies to a horizontal irregularity where all the diaphragms will be semi-rigid. With the addition of "semi-rigid", additional clarification is needed to stipulate that only concrete or concrete-filled metal deck diaphragms are eligible for this provision.

When applying the irregularity check on a structure that is very stiff on 3 sides (for example, full-length shear walls on 3 sides with an open front), calculated deflections will be very small, resulting in a very small denominator in the equation used to check torsional irregularity, thereby causing allowed limits to be exceeded despite very small calculated building drift. Damage or collapse of such rigid structures is unlikely to occur at such low levels of building drift. The ASCE 7-22 committee is looking into making modifications to this provision to permit structures with extreme torsional irregularities provided drifts are less than 75% of model code, but requiring consideration of load combinations that include orthogonal effects of 100% and 30% in each orthogonal direction applied simultaneously. The proposed provision is conservative and a step in that direction.

CHAPTER 21*A*
MASONRY

SECTION 2105A
QUALITY ASSURANCE

****Informative Note** Changes to 2105A.3, as originally proposed, have been withdrawn and replaced with the following revised proposal:**

SDLF CAC Item Number 14, DSASS 02/18-14-16, Revised proposal:

2105A.3 Mortar and grout tests. *These tests are to establish whether the masonry components meet the specified component strengths.*

…

Exceptions:
1. For non-bearing non-shear masonry walls not exceeding total wall height of 12' feet above ~~wall base~~ top of foundation, mortar test shall be permitted to be limited to those at the beginning of masonry work for each mix design.
[DSA-SS] *2. Mortar sampling and testing shall be as follows: At the beginning of all masonry work, mortar test samples shall be taken on three successive working days and at least at one-week intervals thereafter. Where mortar is based on a proportion specification, mortar shall be sampled and tested during construction in accordance with ASTM C780 Annex 4 and 5 to verify the proportions specified in ASTM C270, Table 2. Where mortar is based on a property specification, mortar shall be laboratory prepared and tested prior to construction in accordance with ASTM C780 to verify the properties specified in ASTM C270, Table 1 and field sampled and tested during construction in accordance with ASTM C780 to verify the proportions with the laboratory tests. Mortar sampling and testing is not required for ~~approved~~ preblended mortars in conformance with ASTM C270 with a valid evaluation report.*

SDLF CAC Item Number 14, DSASS 02/18-14-16, Original proposal (discontinued changes shaded grey):

2105A.3 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 shall be taken on three successive working days and at least at one-week intervals thereafter. Samples of grout shall be taken for each mix design, each day grout is placed, and not less than every 5,000 square feet of masonry wall area. They shall meet the minimum strength requirement given in ASTM C270 Table 1 and TMS 402 Section 7.4.4.2.2 for mortar and ASTM C476/TMS 602 Section 2.2 for ~~mortar and~~ grout ~~respectively~~. Additional samples shall be taken whenever any change in materials or job conditions occur, as determined by the building official. When the prism test method in accordance with Section 2105A.5 is used during construction, the tests in this section are not required.

Test specimens for mortar and grout shall be made as set forth in ASTM C 1586 and ASTM C 1019.

> ***Exceptions:***
> *1. For non-bearing non-shear masonry walls not exceeding total wall height of 12~~'~~ feet above ~~wall base~~ top of foundation, mortar test shall be permitted to be limited to those at the beginning of masonry work for each mix design.*
> ***[DSA-SS]*** *2. Mortar sampling and testing shall be as follows: At the beginning of all masonry work, mortar test samples shall be taken on three successive working days and at least at one-week intervals thereafter. Where mortar is based on a proportion specification, mortar shall be sampled and tested during construction in accordance with ASTM C780 Annex 4 and 5 to verify the proportions specified in ASTM C270, Table 2. Where mortar is based on a property specification, mortar shall be laboratory prepared and tested prior to construction in accordance with ASTM C780 to verify the properties specified in ASTM C270, Table 1 and field sampled and tested during construction in accordance with ASTM C780 to verify the proportions with the laboratory tests. Mortar sampling and testing is not required for ~~approved~~ preblended mortars in conformance with ASTM C270 with a valid evaluation report.*

Rationale: The original proposal included the addition of a pointer reference to TMS 402 Section 7.4.4.2.2, which contains requirements for mortar type based on Seismic Design Category D (the default minimum for DSA regulated projects) and above. It also included a pointer reference to the prism test section (CBC 2105A.5) proposed for addition.

In response to comments received from The Masonry Society (TMS), DSA has withdrawn both these pointers from the current proposal. The remaining proposed changes involve Exceptions 1 and 2 and provide editorial and clarifying language for regulatory intent. No net regulatory change.