

## PUC 2018 December Meeting

Embassy Suites Waterfront, 150 Anza Blvd, Burlingame, CA  
December 4, 2018, 8:30 am – 5:00 pm, December 5, 2018, 8:00 am – 5:00 pm

### Participants

#### *Provisions Update Committee*

David Bonneville, Degenkolb Engineers (Chair), 4<sup>th</sup> and 5<sup>th</sup>  
Pete Carrato, Bechtel Corporation, 4<sup>th</sup> and 5<sup>th</sup>  
Kelly Cobeen, Wiss Janney Elstner, 4<sup>th</sup> and 5<sup>th</sup>  
C.B. Crouse, AECOM, 4<sup>th</sup> and 5<sup>th</sup>  
Dan Dolan, Washington State University (absent)  
Anindya Dutta, Simpson Gumpertz & Heger, 4<sup>th</sup> and 5<sup>th</sup>  
S.K. Ghosh, S.K. Ghosh Associates, 4<sup>th</sup>  
John Gillengerten, Consulting Engineer, 4<sup>th</sup> and 5<sup>th</sup>  
Ron Hamburger, Simpson Gumpertz & Heger, 4<sup>th</sup> and 5<sup>th</sup>  
Jim Harris, James Harris & Associates, 4<sup>th</sup> and 5<sup>th</sup>  
William Holmes, Rutherford & Chekene, 5<sup>th</sup>  
John Hooper, Magnusson Klemencic Associates, 4<sup>th</sup> and 5<sup>th</sup>  
Gyimah Kasali, Rutherford & Chekene, 4<sup>th</sup> and 5<sup>th</sup>  
Charles Kircher, Charles Kircher & Associates, 4<sup>th</sup> and 5<sup>th</sup>  
Philip Line, American Wood Council, 4<sup>th</sup> and 5<sup>th</sup>  
Bret Lizundia, Rutherford & Chekene, 4<sup>th</sup> and 5<sup>th</sup>  
Jim Malley, Degenkolb Engineers, 4<sup>th</sup> and 5<sup>th</sup>  
Bonnie Manley, American Iron and Steel Institute, 4<sup>th</sup> and 5<sup>th</sup>  
Robert Pekelnicky, Degenkolb Engineers, 4<sup>th</sup> and 5<sup>th</sup>  
Rafael Sabelli, Walter P. Moore, 4<sup>th</sup> and 5<sup>th</sup>  
John Silva, Hilti, 4<sup>th</sup> and 5<sup>th</sup>  
Greg Soules, CB&I, 4<sup>th</sup> and 5<sup>th</sup>  
Jonathan Stewart, University of California Los Angeles, 4<sup>th</sup>

#### *BSSC Members and Associates*

Sandy Hohener, Degenkolb Engineers (IT 2 Chair), 5<sup>th</sup>  
Julie Furr, Rimkus, P17 member, 4<sup>th</sup> (call in)  
Jason Collins, PCS Structural Solutions, Corresponding member, 4<sup>th</sup> and 5<sup>th</sup>  
Devin Huber, AISC, 4<sup>th</sup> and 5<sup>th</sup>  
Mike Ganna, AISC, 4<sup>th</sup> and 5<sup>th</sup>  
Jon-Paul Cardin, AISI, 4<sup>th</sup> and 5<sup>th</sup>

Jon Heintz, ATC, 4<sup>th</sup> and 5<sup>th</sup>  
Justin Moresco, ATC, 4<sup>th</sup>  
Philip Caldwell, SE, 4<sup>th</sup> and 5<sup>th</sup> (call in)  
Michel Bruneau, University of Buffalo, 4<sup>th</sup> and 5<sup>th</sup>  
Amit Varma, Purdue University, 4<sup>th</sup>  
Ben Schafer, Johns Hopkins University, 5<sup>th</sup>  
John Wallace, UCLA, 4<sup>th</sup>  
Negin Tauberg, UCLA, 4<sup>th</sup>  
Perry Haviland, 4<sup>th</sup> and 5<sup>th</sup>  
Jennifer Goupil, ASCE/SEI, BSSC Board, 4<sup>th</sup>  
Bahram Zarin-Afsar, BSSC Board, 4<sup>th</sup> and 5<sup>th</sup>

*USGS*

Nicolas Luco, 4<sup>th</sup> and 5<sup>th</sup>  
Sanaz Rezaeian, 4<sup>th</sup> and 5<sup>th</sup>

*NIST*

Siamak Satter, 4<sup>th</sup> and 5<sup>th</sup>

*FEMA /NIBS*

Mai Tong, FEMA, 4<sup>th</sup> and 5<sup>th</sup>  
Bob Hanson, FEMA, 4<sup>th</sup> and 5<sup>th</sup>  
Andrew Herseith, FEMA, 4<sup>th</sup> and 5<sup>th</sup>  
Jiqui Yuan, NIBS/BSSC, 4<sup>th</sup> and 5<sup>th</sup>

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1. **Call to order, David Bonneville**

David Bonneville opened the meeting at 8:30 a.m. with member introductions, a reading of the anti-trust statement, and a review of the agenda (**Attachment 1**).

2. **Approval of Last PUC Meeting Minutes, David Bonneville**

The minutes were approved unanimously and the meeting minutes and attachments are posted on the BSSC website. [https://www.nibs.org/?page=bssc\\_PUC](https://www.nibs.org/?page=bssc_PUC)

3. **2020 Cycle Schedule Review, Future PUC Meetings, David Bonneville**

David stated that the committee should have all substantive technical ballots by April 2019 and proposals should be sent to JQ no later than February 22, 2019. Proposals submitted in August which don't pass PUC ballot may not be done in time for this cycle of ASCE 7.

	<b>Proposal to BSSC, no later than</b>	<b>Post in BSSC Ballot system</b>	<b>PUC Ballot</b>	<b>Proponent Response</b>	<b>PUC discussion</b>
<b>Ballot #3</b>	2/18/2018	Within 3 days	3 weeks	3 weeks	April 4-5, 2018
<b>Ballot #4</b>	6/27/2018	Within 3 days	3 weeks	3 weeks	August 15-16, 2018
<b>Ballot #5</b>	10/15/2018	Within 3 days	3 weeks	3 weeks	December 4-5, 2018
<b>Ballot #6</b>	<b>2/22/2019</b>	<b>Within 3 days</b>	<b>4 weeks</b>	<b>3 weeks</b>	<b>April 16-18, 2018 (3 days)</b>
<b>Ballot #7</b>	6/21/2019	Within 3 days	4 weeks	3 weeks	August 13-15, 2018 (3 days)

4. **FEMA/BSSC Update, Mai Tong/Jiqui Yuan**

Mai congratulated the members of the PUC on a very successful year and stated that FEMA is continuing to support the PUC and a new issue team (IT10) to continue the Project 17 work in the next fiscal year. There will be funding to support two in-person meetings for issue teams.

JQ did a quick demonstration on the BSSC Ballot Portal on how to access ballot results, download files, vote, and respond to comments.

## 5. USGS National Seismic Hazard Model Updates, Nico Luco (attachment 2)

- The USGS Seismic Ground Motion Maps for 2020 NEHRP Provisions will be mainly based on the 2018 USGS National Seismic Hazard Model (NSHM) and recommendations from Project 17.
- Updates for 2018 USGS NSHM:
  - PEER NGA-East ground motion models (GMMs) for Central & Eastern U.S.
  - Basin effects via PEER NGA-West2 GMMs in Los Angeles, Seattle, San Francisco, and Salt Lake City regions. Within the four regions, basin depths are only used for portions of the basin that are deeper than the NGS-West2 defaults; outside these deep portions, default basin depth is used. Will submit a basin effect proposal for PUC Ballot #6 (proposal due by 2/22/19).
  - 2013-2017 earthquakes and other updates for smoothed seismicity sources outside California
  - Removal of Idriss (2014) and Atkinson & Boore (2003, 2008) GMMs

## 6. Multi-period response spectra (MPRS) proposals, Charlie Kircher

- The following are recommendations for improving the replacement of “generic” MCE design parameters  $S_S$  or  $S_1$  of ASCE 7-16 with site-specific MCE design parameters (e.g.,  $S_{MS}$  or  $S_{M1}$ ) or other criteria in the MPRS proposals:

(1a) Near Fault Sites. Where the parameter  $S_1$  is used primarily as a criterion to identify very high seismic “near fault” sites (e.g., Seismic Design Categories E and F), replace with the parameter  $S_{MS}$  (e.g.,  $S_{MS} \geq 1.5$ ).

Discussion on other options: (1) define near fault based on distance? It can be complicated by which fault to use and we don’t have a catalog of all the faults nationwide. (2) based on  $S_{M1}$  based on site class BC?

(1b) Near Fault Magnitude and Fault Distance Criteria (Section 11.1). Revise the magnitude and fault distance criteria of Section 11.1 to be approximately consistent with the value of  $S_{MS}$  that defines high seismic “near fault” sites. Not essential, but current magnitude and fault distance criteria of Section 11.1 appear overly conservative (i.e., identify too many sites as “near fault”).

(2) Design Equations. Where the design parameter  $S_1$  is used in design equations, replace with the minimum of the two parameters,  $S_{M1}$  and  $S_{MS}$ . This minimum of  $S_{M1}$  and  $S_{MS}$  would avoid the potential overstatement of long-period response at softer sites.

(3) Short-Period Parameter,  $S_S$ . Where the design parameter  $S_S$  is used (either as a criterion or in a design equation), replace with the parameter  $S_{MS}$ .

**Action: Charlie will move forward with current recommendations (items 1 through 3).**

IT 2 will review minimum base shear equations, e.g., section (12.8.1.1), and propose revisions. The proposal needs come forward on April 2019 meeting.

- No. 20 Draft for Discussion PROPOSAL IT10-1-Rev.0-2018-10-15\_Multi-Period Response Spectra, Chapter 11.
  - Passed PUC online vote with 12 yes, 6 yes with reservation, 2 no, and 1 not voting.
  - Regarding SK's comment on "What's the definition of the Western United States?" It is suggested to have a subcommittee (led by Jon Stewart) looking at vertical earthquake design requirements in section 11.9. Jon said they are planning to do it on west, but may not have enough data for east.
  - Regarding Jim Harris' comment on 11.4.5.1. Jon Stewart will draft a preferred interpretation rule and send it to Charlie and will possibly make it a footnote.
  - Regarding Bonnie Manley's comments: Bonnie will send Charlie with suggested language; Nico will get the correct URL.
  - Regarding John Silva's comment on making MPRS default. With discussion, it is suggested to proceed to allow two options as currently written and add explanation in the commentary.
  - Regarding Greg Soule's comment on  $T_L$ : Nico and CB need to develop this, but time is limited and this won't occur at this cycle.
  - Detailed comments and responses are available at BSSC Ballot Portal.

**Action: Charlie will submit the proposal with commentary for official vote in ballot #6 (proposal due by 2/22/19).**

- No.21 Draft for Discussion PROPOSAL IT10-2-Rev.0-2018-10-15\_Multi-Period Response Spectra – Chapter 20
  - Passed online vote with 13 yes, 4 yes with reservation, 1 no, and 3 not voting.
  - Regarding SK's comment on the precision of site classes: there is a separate proposal by IT 7 (Proposal No. 24). Charlie also explained the reason to have 8 site classes vs 5 site class in current code: there are huge jumps at mid periods

between different current site classes and extra site classes are added to smooth the changes between site classes.

- Detailed comments and responses are available at BSSC Ballot Portal.

**Action: Charlie will submit the proposal with commentary for official vote in ballot #6 (proposal due by 2/22/19).**

- No.22 Draft for Discussion PROPOSAL IT10-3-Rev.0-2018-10-15\_Multi-Period Response Spectra – Chapter 21
  - Passed online vote with 15 yes, 3 yes with reservation, 1 no, and 2 not voting.
  - Regarding Bob Pekelnicky’s comment on deterministic floor, PUC will have more discussion after hearing Nico’s deterministic cap proposal.
  - Detailed comments and responses are available at BSSC Ballot Portal.

**Action: Charlie will submit the proposal with commentary for official vote in ballot #6 (proposal due by 2/22/19).**

- No.23 Draft for Discussion PROPOSAL IT10-4-Rev.0-2018-10-15\_Multi-Period Response Spectra – Chapter 22
  - Passed online vote with 16 yes, 2 yes with reservation, 1 no, and 2 not voting.
  - Detailed comments and responses are available at BSSC Ballot Portal.

**Action: Charlie will submit the proposal with commentary for official vote in ballot #6 (proposal due by 2/22/19).**

## 7. Presentation of MPRS study, Charlie Kircher and Sanaz Rezaeian (attachments 3 &4)

The MPRS study is about Response Spectrum Shape Parameters (RSSPs) for all other US territories where NSHMs are currently limited in terms of periods and site classes (i.e., AK, HI, GU&AS, PRVI). The RSSPs are developed based on WUS data.

**Action: The final report will be ready in February 2019 and should be included in Ballot #6 (proposal due by 2/22/19).**

8. **IT 7 Draft for Discussion Proposal: PUC comments resolution on No. 24 IT7-1 Site classification, Gyimah Kasali**

- Jon Stewart presentation on  $V_S$  estimation and site class assignments **(attachment 5)**
  - Suggest to link site classes to only  $V_{S30}$  in Provisions, get rid of blow count  $N$  and shear strength  $S_u$
  - Allow for underlying  $V_S$  profile to be measured directly or developed from suitable correlations
  - A penalty could be imposed when uncertainty in  $V_{S30}$  allows more than one site class to potentially be assigned (having an envelope and use the worst scenario). This is not in current proposal and PUC discussed and agreed this should be included in the revised proposal.
  - In Commentary, provide relevant parameters for  $V_S$  correlations in different soils. Provide example relationships.

Action: Gyimah will revise proposal per resolution on the comments and re-submit with commentary for April PUC meeting. (Proposal due by 2/22/19)

9. **IT 10 \_ Deterministic Caps proposal, Nico Luco (attachment 6)**

- Proposed procedure for deterministic caps:
  - (1) Compute Risk-Targeted Ground Motion (RTGM).
  - (2) If RTGM is greater than deterministic lower limit, deaggregate hazard at RTGM return period.
  - (3) From deaggregation, obtain deterministic scenarios that could result in RTGM (i.e., fault/source names, magnitudes, distances, epsilons, relative likelihoods).
  - (4) Adjust each deterministic scenario to 84th-percentile ground motion by dividing RTGM by  $\exp(\text{Epsilon} \cdot s) / \exp(1 \cdot s)$
  - (5) Use largest 84th-percentile ground motion amongst deterministic scenarios with relative likelihood  $\geq x\%$ .

Action: The PUC agrees to move forward with the proposed procedure and will vote on the proposal in Ballot #6 for April meeting. The PUC will review  $S_{MS}$ ,  $S_{M1}$  maps with all site classes for 34 cities plus 190 sites (the 190 sites are used internally by USGS to check the changes), and the  $S_{MS}$ ,  $S_{M1}$  values will be compared with ASCE 7-16  $S_S$  and  $S_1$  values.

For PUC August meeting: USGS probably won't have web service tool. PUC may need to vote on the final proposal with 34 cities plus more sites, which will be decided at April meeting.

Discussion: look at collapse risk for deterministic caps as refinement and improvement? May not have time in this cycle.

## 10. Examples of $S_{MS}$ and $S_{M1}$ Changes (attachment 7)

- Causes of  $S_{MS}$  and  $S_{M1}$  changes
  - (1) 2018 USGA National Seismic Hazard Model (NSHM) update
  - (2) max-direction scale factor
  - (3) Deterministic capping (deterministic lower limits, “active” faults, and characteristics” earthquakes/magnitudes)
  - (4)  $S_{MS} = 0.9 \times \max(S_{M0.2} \dots S_{M0.5})$   
 $S_{M1} = \max(S_{M1.0}, \dots, T \times S_{M2.0})$  for  $V_{S30} > 365\text{m/s}$ ,  
 $S_{M1} = \max(S_{M1.0}, \dots, T \times S_{M5.0})$  for  $V_{S30} \leq 365\text{m/s}$ ,
  - (5) GMM site terms vs NEHRP site coefficients

The PUC will review  $S_{MS}$ ,  $S_{M1}$  maps with all site classes for 34 cities plus 190 sites (the 190 sites are used internally by USGS to check the changes), and the  $S_{MS}$ ,  $S_{M1}$  values will be compared with ASCE 7-16  $S_S$  and  $S_1$  values.

## 11. IT 1 proposal: PUC comments resolution on No.19- IT-01-1-Rev1-2018\_10\_14\_SDC Consolidation, Ron Hamburger

- The proposal passed the PUC online vote with 11 YES, 4 YES WITH RESERVATIONS, 6 NO, AND 1 NOT VOTING.
- Presentation on the potential effect of SDC consolidation (particular consolidate SDCs ABC) by SK Ghosh and Kelly Cobeen (attachments 8 & 9)
- Discussions: consolidate SDCs ABC will: (1) change the border line, lower B to low and upper B to moderate; (2) some systems will be eliminated, the big one will be ordinary concrete frame system; (3) some current upper SDC B area may be pushed to moderate with USGS NGA-East update.
- Instead of resolving all the negative comments in detail, a straw vote was conducted to see the preference to move forward to consolidate all SDCs: Support 12, against 9. The proposal failed. The possibility of writing a Part III concept white paper on consolidating SDCs ABC is discussed.
- Consolidating SDCs DEF is generally supported by PUC and will be discussed within IT 1.

## 12. IT 1 proposal: PUC comments resolution on No.25 - Proposal IT-01-06-R0\_SDC Maps, Julie Furr

- The proposal failed the online PUC vote with 7 YES, 3 YES WITH RESERVATIONS, 7 NO, AND 5 NOT VOTING.

- The proposal failed and PUC won't resolve all the negative comments in detail per procedure, but will have discussions: (1) the intent of the proposal is to stabilize yo-yo effect, not simplification. It may create short term pain, but may gain long term sustainability and acceptance by local jurisdictions? ; (2) if there is an option to override the site class, or not using the default site class, will it pass? (3) discussion to create the SDC maps by PUC/USGS, though USGS does not have accurate soil condition information for all US sites; (4) if SDC consolidation proposal move forward, there may be no need for this proposal?
- Straw vote to modify the proposal, that SDC would be based on default site class, but be allowed to make site class justification based on site specific analysis: in favor 10, oppose 9. Failed.

**13. IT 4 Coupled concrete shear wall P-695 study presentation, Negin Tauberg/John Wallace (attachment 10)**

- The PUC had an active discussion on the study, including lower bound of the aspect ratio, rigid floor slab assumption, strain in the end zone, etc. A few suggestions include:
  - With ACI coupled wall definition, no strength requirements, but suggestion to include a minimum stiffness requirement
  - For short buildings there is not substantial coupling, and it was suggested to put a height limit on using such system

Action: The proposal will be balloted within IT 4 first, and will be ready for BSSC PUC ballot #6 (proposal due by 2/22/19).

**14. IT 4, R-Factors for Coupled Composite Steel Plate Shear Walls-Concrete Filled, Michel Bruneau/Amit Varma (attachments 11 and 12)**

- The study seeks R-Factors from FEMA P-695 studies for coupled composite plate shear walls-concrete filled and investigate whether it is possible to use of R=8.
- Discussion on scale factor, height limit, connection, shear amplification factor, reparability, etc.
- Details of the system design will be included chapter 14 of the Provisions

Action: The proposal will be balloted within IT 4 first, and will be ready for BSSC PUC ballot #6 (proposal due by 2/22/19).

**15. IT 9 (Rigid Wall-Flexible Diaphragm (RWFD)) update, Kelly Cobeen (attachment 13)**

- RWFD with wood diaphragm proposal (part 1) is complete
- Steel deck diaphragms proposal (part 1) is ongoing, and the proposal will be balloted in PUB Ballot #6 (proposal is due by 2/22/2019).
- Drift due to diaphragm deflection proposal (No.11) by Rafael. IT 9 will discuss the possibilities of looking this aspect outside of this proposal.
- The effort to derive diaphragm design force reduction factor,  $R_s$ , is ongoing, and IT9 is likely to have a part III paper for PUC Ballot #6 (proposal is due by 2/22/2019).

**16. IT9 proposal: MO comments resolution on No.13 - IT9-1-Rev.1 2018-08-16 Alternative Diaphragm Design, Kelly Cobeen**

- It passed MO ballot with 23 YES, 4 YES WITH RESERVATIONS, 0 NO, AND 1 NOT VOTING.
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.
- NAHB comments: non persuasive
- DGS-CA comments: editorial persuasive, changes made
- SEAOSC comments: editorial persuasive, changes made
- SEA OCC comments: editorial persuasive, changes made
- SEAW comments: non persuasive, however explanatory language will be added to commentary regarding noted step function
- PUC agrees the MO comments resolution and the proposal will be sent to ASCE 7. The final version "Rev.2" is uploaded in the BSSC portal.

**17. IT9 proposal: MO comments resolution on No.14 -PROPOSAL\_IT9-2-Rev.1 2018-08-16 Two Stage Analysis, Kelly Cobeen**

- It passed MO ballot with 23 YES, 3 YES WITH RESERVATIONS, 0 NO, AND 1 NOT VOTING.
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.

- NAHB comments: editorial persuasive, changes made
- SEAOSC comments: non persuasive
- SEA OCC comments: non persuasive
- PUC agrees the MO comments resolution and the proposal will be sent to ASCE 7. The final version “Rev.2” is uploaded in the BSSC portal.

**18. IT 9 Advancing Seismic Design for Bare Steel Deck Diaphragms Study update, Ben Schafer (attachment 14)**

- Ben provided an overview of the Steel Diaphragm Innovation Initiative (SDII), which has worked to leverage a unique industry-academic partnership to advance the seismic performance of steel floor and roof diaphragms utilized in steel buildings. Experiments, simulations, and codes and standards work have led to new insights, new capabilities, and new thinking about this important system within buildings.
- Forthcoming Ballots for Bare Steel Deck Diaphragms
  - Definition of Special Seismic Detailing
    - Prescriptive PAF/Screw
    - Performance-Based: Cyclic Cantilever Test or Connectors + Simulation
  - Conventional Diaphragm Design (R)
    - If ductility needed - SDC trigger for this? (otherwise no change)
    - Special – no change,
    - Ordinary – design at  $W_o$  levels
  - Modifications for Alternative Diaphragm Design ( $R_s$ )
    - Special  $R_s=2.5$
    - Ordinary  $R_s=1.0$
  - Modifications for RWFD Design
    - Special  $R_{diaph} = 4.5$
    - Ordinary  $R_{diaph} = 1.5$
    - Follow same procedure as adopted for wood
- Potentially have three Part I proposals for BSSC Ballot #6 (proposal are due by 2/22/19)

**19. IT 1 PROPOSAL: PUC comments resolution on No.17 - IT-01-2-Rev.0-2018-07-02\_Essential Facility Function Reliability Targets, Bob Pekelnicky**

- The proposal passed the PUC ballot with 11 YES, 7 YES WITH RESERVATIONS, 3 NO, AND 1 NOT VOTING.

- All comments are resolved and see detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>
- The proposal will be revised per discussion (“Rev.1”) and moved to MO ballot.

**20. IT 1 proposal: PUC comments resolution on No.18 - IT-1-3-Rev.0-2018-07-02\_Individual Structural Member Reliability Targets, Bob Pekelnicky**

- The proposal passed the PUC ballot with 13 YES, 5 YES WITH RESERVATIONS, 1 NO, AND 2 NOT VOTING.
- All comments are resolved and see responses in BSSC portal <https://portal.nibs.org/bssc/>
- The proposal will be revised per discussion (“Rev.1”) and moved to MO ballot.

**21. IT 1 (Seismic Performance Objectives) report, Bob Pekelnicky**

- Topics regarding resilience white paper, reliability target, how structural design can and can’t contribute to resilience will be discussed with IT 1.
- Raising the requirements for high rise building (over 240 ft) is being investigated by IT 1.

**22. IT 6 (Non Building Structures) report, Pete Carrato (attachment 15)**

- Two working proposals:
  - Stiffness effect (very stiff subsystem in deflection sensitive structure i.e. big pipe connection two framed structure)
  - Braced frames proposal: Change the over strength factor for ordinary steel braced frames for non-building structures. It is agreed that this will be forward directly to ASCE 7.

**23. IT6 proposal: MO comments resolution on No.15 -IT6-5-Rev.1-2018-06-29\_Coupled\_Analysis\_Requirements, Greg Soules (attachment 16)**

- It passed MO ballot with 25 YES, 2 YES WITH RESERVATIONS, 0 NO, AND 0 NOT VOTING.
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.
- PCA comments: non persuasive.
- SEAW comments: editorial persuasive and made the changes.

- PUC agrees the MO comments resolution and the proposal will be sent to ASCE 7. The final version “Rev.2” is uploaded in the portal.

**24. IT5 proposal: MO comments resolution on No.16 - IT\_5-1-Rev.1-2018-08-16\_Scope\_of\_Nonstructural\_Provisions, John Gillengerten (attachment 17)**

- It passed MO ballot with 24 YES, 2 YES WITH RESERVATIONS, 2 NO, AND 0 NOT VOTING.
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.
- Motion on NAHB’s comments non-persuasive, second by John Silva: in favor 19, oppose 0. Motion carried.
- Motion on ACI’s negative comments non-responsive, second by John Silva: in favor 19, oppose, 0. Motion carried.
- PCA comments: non persuasive
- SEA OCC comments: non persuasive
- PUC agrees the MO comments resolution and the proposal will be sent to ASCE 7. The final version is “Rev.1”.

**25. IT 5 (Non Structural Components) report, John Gillengerten (attachment 17)**

- Presentation on the new force equation
- IT 5 in-person in January in San Francisco and will have multiple proposals for PUC Ballot #6 (proposals are due by 2/22/2019)

**26. Rafael Sabelli’s proposal: PUC comments resolution on \_ No.11 (reballot) - RS-1-Rev.1-2018-08-23\_Diaphragm\_Deformation, Rafael Sabelli**

- The proposal passed the PUC ballot with 12 YES, 5 YES WITH RESERVATIONS, 3 NO, AND 2 NOT VOTING.
- Kelly’s comments: Will delete item 3 under Section 12.12.1 (page 3 line 33). Kelly withdraws the rest comments.
- Bill Homes’ comments: motion by Rafael that all Bill’s comments non persuasive, 2<sup>nd</sup> by Jim Harris, in favor: 11, oppose 2, not voting: 4. Motion carried.

- John Hooper's comments: addressed by drop item 3 under Section 12.12.1 in responding to Kelly's comments.
- See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>

Motion by Rafael, second by Jim Harris, to approve the proposal by deleting item 3 under Section 12.12.1 and make all suggested changes, and move to MO ballot: approve 18, oppose 0, not voting 0. Motion carried.

In an afterward discussion between Bill Holmes and Rafael, it is agreed that some revisions are needed and the proposal will be revised and resubmitted.

**27. James Malley's proposal: PUC comments resolution on No.9 (reballot #2) - JM-1-Rev.2-2018-10-11\_Structural System Selection, Jim Malley**

- The proposal passed the PUC ballot with 17 YES, 3 YES WITH RESERVATIONS, 1 NO, AND 1 NOT VOTING.
- The negative comment by John Gillengerten was solved by making suggested changes. It is not considered as substantial change, and no vote carried.
- See other detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>

Motion by James Malley, second by Greg Soules to approve the proposal with all suggested changes, and move to MO ballot: approve 17, oppose 0, not voting 1. Motion carried.

**28. IT2 proposal: MO comments resolution on No.12-IT2-6-Rev.1-2018-02-18\_Accidental Torsion, Sandy Hohener**

- It passed MO ballot with 23 YES, 1 YES WITH RESERVATIONS, 2 NO, AND 2 NOT VOTING
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.
- NAHB's comments: Editorial persuasive
- SEA OCC's negative comments: non persuasive. Motion by Sandy that SEA OCC's comments non persuasive, 2<sup>nd</sup> by Greg: in favor 18, oppose 0, not vote 0. Motion carried.

- SEAW’s negative comments: non persuasive. Motion by Sandy that SEAOCC’s comments non persuasive, 2<sup>nd</sup> by Ron Hamburger: in favor 17, oppose 0, not vote 1. Motion carried.
- The proposal will be revised per persuasive comments and forwarded to ASCE 7 and the final version “Rev.2” is uploaded in the portal.

**29. IT2 proposal: MO comments resolution on No.5 - IT2-3-Rev.2-2017-10-06\_Weight Irregularity, Sandy Hohener**

- It passed MO ballot with 20 YES, 5 YES WITH RESERVATIONS, 1 NO, AND 1 NOT VOTING
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.
- VA comments: Editorial persuasive, changes made.
- SEAOSD’s comments: no persuasive.
- SEAONC’s comments: Editorial persuasive, changes made.
- NCSEA’s comments: Editorial persuasive, changes made.
- SEAOSC’s comments: no persuasive.
- SEAOCC’s negative comments: no persuasive. Motion by Sandy that SEAOCC’s comments non persuasive, 2<sup>nd</sup> by John Gillengerton: in favor 18, oppose 0,not vote 1. Motion carried.
- The proposal will be revised per persuasive comments and forwarded to ASCE 7 and the final version “Rev.3” is uploaded in the portal.

**30. IT2 proposal: MO comments resolution on No.7\_ IT2-5-Rev.2-2017-10-06\_Deformation Compatibility, Sandy Hohener**

- It passed MO ballot with 23 YES, 2 YES WITH RESERVATIONS, 1 NO, AND 0 NOT VOTING
- The comments and responses were discussed at the meeting. The results are summarized below. See detailed comments and responses in BSSC portal <https://portal.nibs.org/bssc/>.

- SEAOSC's comments: non-persuasive
- SEA OCC's comments: non-persuasive
- SEAW's negative comments: no persuasive. Motion by Sandy that SEAW's comments non persuasive, 2<sup>nd</sup> by John Gillengerton: in favor 16, oppose 2, not vote 1. Motion carried.
- The proposal will be forwarded to ASCE 7 and "Rev.2" is the final version.

**31. IT 2 (Seismic-Force Resisting Systems and Design Coefficients) report, Sandy Hohener (attachment 18)**

- Sandy updated the PUC about the accidental torsion changes included in ASCE 7-16 Supplement 2, which will require static method for extreme torsion irregularity buildings

**32. IT 3 Modal Response Spectrum Analysis Report, Anindya Dutta (attachment 19)**

- Update on the study of irregular buildings, comparison of ELF and MRSA on story shear, overturning moment and drift.
- Will develop a Part III white paper

**33. Proposal No.1: MO comments resolution on Proposal No.1 Adoption of ASCE 7-16 as the basis for 2020 NEHRP Provisions, David Bonneville**

- ASCE 7-16 supplement 1 is available now and will be shared with PUC members. ASCE 7-16 supplement 1 will be discussed at April meeting and Supplement 2 will not be considered at this time.

**34. Future Meetings**

PUC will have a 3-day meeting on April 16-18, 2019 and a 3-day meeting on August 13-15, 2019.