HCAI Department of Health Care Access and Information
2020 West El Camino Avenue, Suite 800
Sacramento, CA 95833
hcai.ca.gov

HOSPITAL BUILDING SAFETY BOARD
Instrumentation Committee

Thursday, January 25, 2024
10:00 a.m. – 4:00 p.m.

Teleconference Meeting Access:
HBSB Teams Instrumentation Committee
Access Code: 867-382-721

Committee Members Present
Farzad Naeim, Committee Chair
Jim Malley, Vice Chair
Martin Hudson
Jennifer Thornburg

Consulting Members Present
Hamid Haddadi
Tony Shakal

HCAI Staff Present
Arash Altoontash
Hussain Bhatia
Erol Kalkan
Roy Lobo
Ali Sumer
John Grey

HBSB Staff Present
Veronica Yuke, Acting Executive Director
Marcus Palmer
Evett Torres

1. Welcome and introductions

Farzad Naeim, Committee Chair, called the meeting to order on January 25, 2024, at 10:00 a.m., and HBSB Acting Executive Director, Veronica Yuke called roll.

2. Roll Call and Meeting Advisories/Expectations

Four members of the Committee present constitute a quorum. There being six present at the time of roll, a quorum was established.

Ms. Yuke read the meeting rules and procedures.

3. Discussion on issues related to the Instrumentation of wood-framed hospital buildings

Presenter: Farzad Naeim, Committee Chair

Discussion and Input

Mr. Naeim stated that there was a need for increased instrumentation in flexible diaphragm buildings, particularly wood-frame hospitals, compared to ordinary concrete or steel buildings.

Mr. Sumer stated that the motivation for considering wooden buildings was the planned retrofits for small and rural hospitals.

Mr. Hudson asked if there were differences in mounting instruments between wood-frame, steel, and concrete structures. Mr. Kalkan answered that it was easier to install instruments on wood frame buildings compared to steel or concrete structures.

Informational and Action item

- None

4. Selection of candidate wood-framed hospital buildings for HCAI Instrumentation

Presenter: Ali Sumer and Erol Kalkan, HCAI

Discussion and Input

Mr. Kalkan stated that wood-frame hospital buildings were predominantly single-story facilities with the built eras ranging from 1902 to 2023.

Mr. Kalkan stated that there were only two instrumented wood-frame hospital buildings:

- John F. Kennedy Memorial Hospital, Indio.
- Tenet Health Central Coast Twin Cities Community Hospital, Templeton.

Mr. Kalkan mentioned that in total, there were 307 wood-frame hospital buildings in California.

Mr. Kalkan discussed the criteria for selection of wood-framed hospital buildings for HCAI Instrumentation were:

- Plan irregularities, hence they have many wings.
- Flexible diaphragm.
- Shear walls.
- Construction year.
- SPC category.
- Rocking.
- Seismicity.

Mr. Kalkan said that there were seven wood-frame hospital buildings candidates for instrumentation:

- Providence Redwood Memorial Hospital, Fortuna.
- Healdsburg Hospital, Healdsburg.
- Providence Santa Rosa Memorial Hospital, Santa Rosa.
- Hazel Hawkins Memorial Hospital, Hollister.
- Community Memorial Hospital – Ojai.
- Monterey Park Hospital, Monterey Park.
- Community Hospital of San Bernardino.

Mr. Sumer stated that the focus was on wood-frame buildings with uniform lateral systems to enhance understanding of their behavior.

Mr. Sumer communicated that the focus on single-story hospital buildings rather than two-story ones was because it is easier to identify common details and develop in-house clarifications regarding their performance in the past.

Mr. Bhatia mentioned that the primary reason most hospital buildings were one-story was that current fire codes would prevent the construction of two-story hospital buildings, indicating that primarily, it was related to fire requirements rather than structural considerations.

Mr. Malley asked for clarification on wood-frame commercial buildings and their usage. Mr. Sumer explained that commercial buildings were categorized as Type 1 or Type 2, both utilizing wood frame construction and designated for general acute care occupancy.

Mr. Hudson asked why there were only seven wood-frame hospital building candidates for instrumentation. Mr. Kalkan answered that the feasibility of adding sensors depended on the type and quantity planned, with fewer sensors potentially allowing for more buildings within the budget, while a larger number of sensors would limit the number of structures that could be instrumented.

Mr. Hudson asked whether the soil conditions were known for the selected sites of wood-framed hospital buildings intended for instrumentation. Mr. Sumer answered that while geotechnical reports were accessible, older sites lacked such data, suggesting consultation with the California Geological Survey to ascertain the soil conditions.

Mr. Haddadi asked for more details on the extent of the new approach of implementing more comprehensive instrumentation for the seven hospitals. Mr. Sumer answered that there was no extensive consideration on the level of instrumentation as it necessitated the evaluation of each building individually, and not all seven hospitals would be ultimately selected for instrumentation, some may be eliminated based on prioritization.

Mr. Haddadi asked if there were plans to utilize measurements other than laser measurement. Mr. Sumer answered that there were plans to use laser measurements but a later stage.

Mr. Haddadi asked for the differences in the frequency range between single-story frame buildings and mid- or multi-story buildings, or if it were the same across all building types. Mr. Naeim answered that for the long-term, sensors should be able to capture intervals from 0.05 seconds to 2 seconds, as there was less need for sensors to detect longer periods or high frequencies that do not usually cause much damage.

An interested party asked if there were any ground stations at the proposed locations for instrumentation. Mr. Haddadi answered that depending on the building size, the building might be considered a ShakeMap caliber or qualified station, suitable for use as a ground station.

Mr. Sumer asked what was likely to be prioritized on the soil conditions. Mr. Hudson suggested avoiding hard rock or very soft sites for the initial evaluation.

MOTION: [Hudson/Malley]

The committee unanimously voted to approve the selection of candidate wood-frame hospital buildings for HCAI instrumentation for further discussion and prioritization.

Informational and Action item

- None

5. Plan Committee activities for 2024 and beyond

Presenter: Farzad Naiem, Committee Chair

Discussion and input

Mr. Naiem proposed the move to utilize instrumentation for structure health monitoring.

Mr. Malley said that major providers had consultants available after an event to assist in response efforts, and having instrumentation information immediately after the earthquake would be highly beneficial.

Mr. Bhatia explained the post-earthquake procedure, involving prioritized inspections based on ShakeMap notifications via email, followed by ATC-20 inspections by field staff to categorize buildings as per state law.

Mr. Haddadi suggested the use of real-time structural monitoring in the future and manage the cost of communication for real-time streaming of data.

Informational and Action item

- None.

6. Comments from the public/committee members on issues not on this agenda

Presenter: Marshall Lew, Committee Chair

Discussion and input

Future Instrumentation Committee meeting:

- October 29, 2024

Informational and Action item

- None.

7. Adjournment

Mr. Naeim adjourned the meeting on January 25, 2024, at approximately 12:00 p.m.