



2020 West El Camino Avenue, Suite 800  
Sacramento, CA 95833  
hcai.ca.gov



## **HOSPITAL BUILDING SAFETY BOARD Instrumentation Committee**

**Thursday, January 28, 2025  
10:00 a.m. – 4:00 p.m.**

### **Locations:**

2020 West El Camino Ave, Conference Room 930, Sacramento, CA 95833  
355 South Grand Avenue, Conference Room 2000, Los Angeles, CA 90071

### **Committee Members Present**

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

### **Consulting Members Present**

Hamid Haddadi  
Moh Huang  
Tony Shakal

### **HCAI Staff Present**

Chris Tokas  
Arash Altoontash  
Hussain Bhatia  
Erol Kalkan  
Roy Lobo  
Andia Farzaneh

### **Ex-Officio Board Member Present**

Jeremy Lancaster

### **HBSB Staff Present**

Veronica Yuke, Executive Director  
Marcus Palmer  
Evelt Torres

## **1. Call to Order and Welcome**

**Facilitator:** Farzad Naeim, PhD, SE, Esq, NAE, President, Farzad Naeim, Inc.;  
Committee Chair (or designee)

Farzad Naeim welcomed everyone and called the meeting to order at 10:01 a.m.

## 2. Roll Call and Meeting Advisories/Expectations

**Facilitator:** Veronica Yuke, Manager, HCAI; Executive Director (or designee)

Veronica Yuke conducted the roll call and confirmed a quorum was met.

## 3. Discussion on issues related to enhancing instrumentation to health monitoring, and status of publication and distribution of the *Seismic Instrumentation of Healthcare Facilities* white paper.

**Facilitator:** Farzad Naeim (or designee)

Farzad Naeim began by asking for the best way to conduct a meeting between the Education and Outreach Committee and the Instrumentation Committee to discuss producing a webinar on the benefits of structural health monitoring.

### Discussion and input:

- Chris Tokas suggested thinking of topics to discuss within the committee. Afterwards, representatives could then decide on a time for a webinar to take place and deliver the message in a manner that is valuable to non-technical end-users.
- Farzad Naeim asked that the meeting be set up for a date and time that works for both committees.
- Farzad Naeim asked whether the office could help them organize a meeting with the education committee.
- Chris Tokas stated that the topic would be included in the agenda for the February 13, 2025, Education and Outreach Committee meeting.
- Farzad Naeim noted that he would not be available to attend. Martin Hudson and Jim Malley said they were available and would attend.
- Farzad Naeim then said that a webinar should be attractive enough to encourage people to take part in their course.
- Martin Hudson contributed that the objective of a webinar was to get the main points of the paper across without having to read the whole paper.
- Chris Tokas disclosed that he would incorporate parts of the white paper into his presentation at the upcoming annual conference of the California Society of Hospital Engineers (CSHE). Because they are in hospital facilities daily, they would see the benefits of hospital instrumentation.

- 1           ● Jennifer Thornburg inquired whether hospital owners typically attend  
2           CSHE conferences. Chris Tokas explained that it was a mixed bag, but  
3           that hospital engineers are tasked with operating the central plant and  
4           the ones responsible for keeping systems going after an earthquake.  
5           Jennifer agreed that it would be good advertising in that audience.
- 6           ● Tony Shakal suggested creating a two- to three-page executive  
7           summary for those who do not have time to read the entire white  
8           paper.
- 9           ● Jennifer Thornburg added that a good way to convince hospital owners  
10          of the usefulness of this information would be to include Ali Sumer's  
11          presentation on his experience in Turkey after their earthquake.
- 12          ● Wendy Bohon of California Geological Survey (CGS) suggested that in  
13          addition to the webinar, a series of short videos could be helpful to  
14          reach each of the white paper's intended audiences. She added that  
15          because CGS also has an interest in showing the importance of  
16          structural health monitoring, they would be happy to help produce  
17          them.
- 18          ● Chris Tokas explained that the topic must be presented in a way that  
19          clearly shows how it will ultimately benefit hospital owners and  
20          operators, which is best done with storytelling.
- 21          ● Farzad Naeim said the discussion should not just be about the quality  
22          and number of instruments, but also about the usefulness of  
23          instruments. Their focus should be on moving to real-time health  
24          monitoring.
- 25          ● Martin Hudson questioned whether to include an example of what the  
26          software would look like, showing what end-users would see  
27          immediately following seismic activity.
- 28          ● Erol Kalkan proposed a feature other than a software dashboard to  
29          help users assess the strength of seismic activity in the moment, to  
30          prevent potential chaos in hospitals.
- 31          ● Martin Hudson commented on a geotechnical instrument that he has  
32          used for deformation monitoring during construction, that sends a push  
33          notification to the smartphones of key personnel to receive alerts and  
34          links to the software dashboard.
- 35          ● Hamid Haddadi informed that the software that CGS developed is not  
36          for critical health monitoring, but instead sends a notification to  
37          stakeholders when some critical parameters exceed a set threshold.

- 1           ● Farzad Naeim suggested that the team should have a clear plan with  
2           methodologies and solutions ready before the webinar and to have a  
3           system in place and ready to deploy before then.
- 4           ● Chris Tokas indicated that it is often beneficial to show users what  
5           already exists and what is coming in order to build anticipation.
- 6           ● Farzad Naeim acknowledged the webinar's purpose is to create a  
7           network of people interested in this topic and have a vested interest in  
8           its implementation, to learn from them and develop a solution that  
9           works for them. He explained that the webinar will focus on describing  
10          the advantages of using instrumentation for structural health  
11          monitoring, the technologies available, and working on developing  
12          freely available technology that can be deployed.
- 13          ● Wendy Bohon shared that they are working with an animator who  
14          works with earth science-related videos intended for the general public  
15          as the audience. She said that creating such videos is useful for  
16          general public dissemination and that the contents of the white paper  
17          could easily be incorporated into a three- to five-minute video to help  
18          people connect with why this topic matters.
- 19          ● Erol Kalkan commented that hospitals with instrumentation will need  
20          real-time data processing software, but that he didn't think CGS or  
21          HCAI should be the entities to develop and maintain software that will  
22          put them in competition with the companies that already provide that  
23          service. He asked if the existing instrumentation data could be used by  
24          third-party companies instead.
- 25          ● Hamid Haddadi stated that through CSMIP, CGS has already  
26          upgraded 47 HCAI funded stations which are ready for real-time  
27          monitoring. Chris Tokas added that the data is already made available  
28          to the public.
- 29          ● Hamid Haddadi shared that they have been working on a feature to  
30          allow hospital owners to receive stations' communication data. For  
31          some hospitals, CSMIP uses hospital networks for transferring data  
32          and for others, CSMIP can set up separate communications with  
33          hospitals that do not require access to the hospitals' networks.
- 34          ● Hamid Haddadi confirmed that data can also be made available  
35          through a data center in near real time. He went on to clarify that near  
36          real-time would be approximately a 5-minute window within which data  
37          can be collected, processed, and made available on the website.

- Hamid Haddadi added that CSMIP is not streaming data from the structural stations, because the cost of communication would increase significantly. CSMIP is using a data acquisition and management system instead that starts to stream as soon as the level of shaking exceeds the threshold.
- Farzad Naeim noted that what is needed is a system in place that understands where the instruments are and an algorithm developed to estimate damage based on that in near real-time and automatically sends push notices to authorized personnel.
- Hamid Haddadi, upon inquiry from Tony Shakal, said that data users can set up a script and query the information on the CSMD server as soon as it becomes available.
- Hamid Haddadi gave a few examples of CSMIP data sharing, including a system in collaboration with Golden Gate Bridge, whereby as soon as the drift ratio exceeds a certain value, the bridge engineers and management are notified that they may need to respond to the earthquake.
- Chris Tokas explained that owners should be made aware of the usefulness of the system, so they do not feel forced or coerced into installing it.
- Martin Hudson suggested the webinar could explain the system's usefulness by showing pictures or videos explaining how some buildings have historically been evacuated for minor architectural reasons and then go on to explain that if the owner knows about those minor architectural reasons, they will not evacuate the building when they don't need to.
- Chris Tokas echoed that there is a need for building owners to know the differences between minor architectural damage and damage that would force the building to be red tagged.

#### **Committee Comments**

- Martin Hudson commented that it had been a good session because the committee had started to develop a framework for some of the things that are to be included in the webinar agenda and not just the white paper, which he said is very valuable.

#### **Public Comments**

- None.

#### **4. Planning Tasks and Objectives for 2025 and Beyond**

**Facilitator:** Farzad Naeim

Farzad Naeim introduced this part of the meeting by saying that they have to enumerate everything the committee aims to achieve in 2025, with the primary objective being getting the webinar up and running and completing all the tasks needed to make the technology accessible and available for near real-time health monitoring that is useful for end users and hospital administrators.

#### **Discussion and Input:**

- Jim Malley said they still need to work with CGS to establish which buildings are to be fitted with instruments in the near future.
- Farzad Naeim said that among the list of buildings to be instrumented, there are seven wood frame buildings that are to be done this year. Hamid Haddadi commented that they are running behind schedule for wood frame buildings because they have been talking with property owners and have had meetings to discuss documentation but because of delays in the contract they are not sure they will be completed as scheduled.
- Ali Sumer said that they have been having meetings with hospital managers and once they get the green light, they will meet with Hamid Haddadi's team to arrange hardware purchase and installation.
- Roy Lobo stated that most buildings to be instrumented were built before 1973 and are slated to be retrofitted. He added that some maybe instrumented before retrofit, but same may not.

#### **Committee Comments**

- None.

#### **5. Comments from the Public/Committee Members on Issues not on this Agenda**

- None.

#### **6. Adjournment**

Farzad Naeim adjourned the meeting at 11:25 a.m.