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## HOSPITAL BUILDING SAFETY BOARD Instrumentation Committee

Friday, April 15, 2022  
10:00 a.m. – 4:00 p.m.

**Teleconference Meeting Access:**  
[HBSB GoToMeeting Instrumentation Committee](#)  
Access Code: 483-058-017

### **Committee Members**

Marshall Lew, Chair  
Jim Malley

### **Consulting Members**

Moh Huang  
Hamid Haddadi  
Tony Shakal

### **HCAI Staff**

Arash Altoontash  
Erol Kalkan  
Roy Lobo  
James Yi

### **HBSB Staff**

Ken Yu, Executive Director  
Evet Torres

- 1 **1. Call to Order and Welcome**
- 2 Marshall Lew, Committee Chair, called the meeting to order on April 15, 2022, at 10:00
- 3 a.m., and HCAI Executive Director, Ken Yu called roll.
- 4
- 5 **2. Roll Call and Meeting Advisories/Expectations**
- 6 Five members of the Committee present constitute a quorum. There being five present
- 7 at the time of roll, a quorum was established.

1 Mr. Yu read the meeting rules and procedures.

2

3 **3. Review and approve the draft Jan 27, 2022 meeting report/minutes**

4 **Presenter:** Marshall Lew, Committee Chair

5 **Discussion and Input**

6 Mr. Huang pointed out an error in the assignments on page five of the January 27, 2022  
7 meeting report/minutes: Section 4 should be Marshall Lew and Tony Shakal; Section 5  
8 should be Jim Malley and Hamid Haddadi; and Section 6 should be Bruce Clark and  
9 Tim McCrink.

10

11 **MOTION: [Malley/Shakal]**

12 The committee voted unanimously to approve the January 27, 2022 meeting  
13 report/minutes with corrections.

14

15 **Informational and Action item**

- 16 • None

17

18 **4. Draft section of the white paper, “The Benefits of Strong-Motion  
19 Instrumentation in Hospital Facilities,” and integration into a single document**

20 **Presenter:** Marshall Lew, Committee Chair

21 **Discussion and Input**

22 Mr. Malley stated that there is a need to introduce the white paper report with  
23 summaries and recommendations. Mr. Naeim suggested that the white paper be a  
24 technical document that engineers can easily use. Mr. Lew asked if the white paper  
25 should be a short document with a separate technical companion. Mr. Naeim answered  
26 yes, that people interested in more details could use the technical sources of the white  
27 paper.

28

29 Mr. Clark disclosed that some information was missing from the white paper. These are  
30 records of the experience with existing earthquakes. Mr. Clark suggested that Chapter 2  
31 or Chapter 3 talk about the results and effects of earthquakes in hospitals and how  
32 HCAI incorporates the information for evaluating hospitals after an earthquake. Mr.  
33 Kalkan stated that the information about earthquakes and their aftermath on hospitals

1 does exist in the instrumentation system but that recent earthquakes have not caused  
2 very much damage to the hospitals. Mr. Kalkan added that apart from instrumentation,  
3 information can also be found in the USGS ShakeMap, which helps decide which  
4 hospital needs to be inspected first. Mr. Lew indicated the importance of including how  
5 this information has been used.

6

7 Mr. Clark asked if HCAI feels that the local data source at an individual hospital is  
8 helpful. Mr. Lobo answered that the information is helpful and can be used by engineers  
9 to evaluate the building. Mr. Lew asked how this information can be immediately  
10 accessed from a hospital. Mr. Haddadi indicated that accessing engineering information  
11 is doable but done on a case-by-case basis. He recommended that the white paper  
12 have a systematic way of providing such data and information for rapid response to an  
13 earthquake.

14

15 Mr. Lew asked how the information was being supplied since it is not raw data. Mr.  
16 Haddadi explained that information is received on different levels of data. The first level  
17 is a pure observation notification without getting into details. That happens a few  
18 minutes after an earthquake. After that, there is a strong motion record that goes  
19 through processing at Pacific Earthquake Engineering Research Center. Mr. Haddadi  
20 said that all this information is sent as raw data and processed.

21

22 Mr. Lew asked, in case of a large earthquake, if there is a need for different servers to  
23 process all the data. Mr. Haddadi replied that there are different centers according to  
24 the magnitude of the data, and this way, information is prioritized by which records need  
25 to be processed first. Mr. Haddadi added that there is a live, real-time data processing  
26 system that will be in use soon.

27

28 Mr. Haddadi explained that there is a process of migrating the strong-motion automated  
29 recovery and analysis to the cloud system to help prioritize the process in case many  
30 facilities want to use the system. The system is capable of parallel processing of  
31 records, so the system does not need one process to end to start another. Mr. Clark  
32 suggested that the information on HCAI upgrading to a cloud system be included in the  
33 white paper.

34

35 An interested party asked about the realistic rollout of an operational system that can be  
36 used and deployed in hospitals. He also asked about some of the competitive issues  
37 and allowed roles of state-funded agencies concerning private companies. Mr. Haddadi  
38 answered that the state-funded agency does not go into detailed structural health

1 studies but rather focuses on observation. The role of the agency is to work on selected  
2 types of structures. Mr. Malley added that the white paper should focus on the existing  
3 system and how to integrate new approaches with the new technology. Mr. Clark  
4 responded that there are guidelines that define what the state agency does. Mr.  
5 Haddadi stated that there is no competition between private agencies and government-  
6 funded agencies, in that the state-funded agencies only instrument selected structures.

7

8 Mr. Malley asked if HCAI has a formal position in case a hospital wants to put in their  
9 system data sharing and inspection coordination in the event of an earthquake. Mr.  
10 Lobo responded that there is currently no such agreement; HCAI only does the rapid  
11 evaluation.

12

13 Mr. Clark suggested that the list of instrumented hospital buildings, Table 1, be added to  
14 the white paper.

15

16 Mr. Naeim opined that Section 2 of the white paper be separated into two: one intended  
17 for the general public and the other for the technical document. In Section 3, Mr. Lobo  
18 suggested adding information on how instrumentation was used in the past. Mr. Lobo  
19 asked about the meaning of the second paragraph in Section 5. Mr. Lew stated that the  
20 idea is to have other types of instruments in buildings and make sure the number of  
21 sensors is appropriate for that building.

22

23 In Section 5, Mr. Haddadi suggested changing the wording on the topic. Mr. Lew  
24 indicated that all names be generalized because the white paper is not about specific  
25 facilities, but rather, facilities in general.

26

27 In Section 6, Mr. Naiem expressed that some of the information be used in the  
28 introductory part of the white paper. Mr. Clark agreed and added that it should focus  
29 more on the decision-makers than the scientific community.

30

31 Mr. Lew suggested that he and Mr. Naeim take different sections and work on the first  
32 cut that will be the targeted white paper, then work on the contents that will go in the  
33 technical part of the document. Mr. Naeim agreed and added that Section 5 needs  
34 changes to the language; it should be revised and sent back before putting the white  
35 paper together.

36

37 **Informational and Action item**

1 • None.

2

3 **5. Comments from the public/committee members on issues not on this agenda**

4 **Presenter:** Marshall Lew, Committee Chair

5 Having concluded the meeting, Mr. Lew expressed that it was productive and thanked  
6 everyone for their participation.

7

8 **Discussion and Input**

9 • None.

10

11 **6. Adjournment**

12

13 Mr. Lew adjourned the meeting on April 15, 2022, at approximately 12:24 p.m.