



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



**Hospital Building Safety Board
Ad hoc “HCAI Design Guide for Planning and Preparing for Disasters”
Webinar Development Subcommittee**

**September 23, 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

Subcommittee Members Present:

Teresa Endres, Subcommittee Chair
Gary Dunger, Subcommittee Vice-Chair
Janice Cheung
Jennifer Cox
John Griffiths
Kelly Martinez

Consulting Members Present:

Abdel Darwich

HBSB Member Present:

Jim Malley

HBSB Staff Present:

Chris Tokas, Deputy Director
Richard Tannahill
Geoff Troutman, HCAI Attorney

HCAI Staff Present:

Veronica Yuke, HBSB Executive Director
Marcus Palmer
Evet Torres

- 1 **1. Call to Order and Welcome**
- 2 **Facilitator:** Teresa Endres, AIA, ACHA, EDA, AAH, Senior Associate, Medical
- 3 Planning Director, Taylor Design; Subcommittee Chair (or designee)
- 4 Teresa Endres called the Hospital Building Safety Board Ad Hoc “Designing for
- 5 Resilience” Webinar Development Subcommittee meeting to order on September
- 6 23, 2025, at 10:05 a.m.

2. Roll Call and Meeting Advisories/Expectations

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

Veronica Yuke conducted roll call for subcommittee members and confirmed a quorum. She clearly presented all meeting expectations and participation rules.

3. Review of the HCAI Design Guide for Planning and Preparing for Disasters

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

Discussion and Input

Teresa Endres led the review of the HCAI Design Guide, published on March 1, 2024, and originally presented at the ASHE PDC Conference by Richard Tannahill, Gary Dunger, and herself. The subcommittee reviewed the presentation slide deck.

Teresa Endres explained that the Emergency Design Task Force developed the guide through six working groups, with Abdel Darwich and others contributing across multiple chapters such as Ventilation and Wildfire Preparedness.

She emphasized that the guide focuses on designing beyond code, with code representing only a minimum standard. The guide supports both new construction and facility alterations and offers strategies to build resilient healthcare environments that go beyond basic compliance.

Richard Tannahill clarified that the guide is not about post-disaster response but about embedding preparedness into facility design. Teresa Endres added that during the COVID-19 pandemic, many facilities implemented unplanned adaptations, which the guide now helps anticipate and resolve through preemptive planning.

Richard Tannahill described how during COVID, the “do anything” mentality resulted in poor decisions. He stressed the need to proactively design buildings with built-in flexibility for air handling and infection control.

Teresa Endres and Richard Tannahill described how the guide integrates lessons from past outbreaks like SARS (2003) and MERS (2012), especially the Canadian response, which led to code changes and the concept of pandemic-ready units. They highlighted tools like the DORSCON matrix from Singapore as models of institutional preparedness.

The group discussed design strategies for emergency departments, triage spaces, and compartmentalization, including diagrams for acuity-adjustable patient units and respite areas for staff to mitigate burnout.

1 Richard Tannaill and Teresa Endres elaborated on HVAC system strategies,
2 particularly for wildfire smoke filtration, infection control, and filter recommendations.
3 Teresa Endres noted that checklist sections from the guide provide robust
4 operational tools.

5 They showed a video from Gary Dunger’s section of the guide, depicting staff
6 evacuating patients during a seismic event. Gary Dunger also highlighted a real-life
7 oxygen tank failure at Marina Del Rey and shared lessons from emergency work
8 authorization processes (e.g., PIN 72).

9 Chris Tokas and others weighed in on issues like staffing shortages in field facilities
10 and the theoretical expectation that hospitals should remain fully operational after
11 seismic events, eliminating the need for surge hospitals — a view supported by
12 Richard Tannahill and Teresa Endres.

13 Teresa Endres noted that many adaptations made under governor emergency
14 orders during COVID required follow-up permits to become permanent. Chris Tokas
15 added that some of those temporary changes remain unresolved due to resistance.

16 Chris Tokas then raised concerns about the use of the term “resilience,” explaining
17 that the term has grown ambiguous across disciplines. He urged the subcommittee
18 to clarify the subcommittee’s identity and scope. Teresa Endres agreed, noting that
19 even among medical planners and engineers, “resilience” means different things.

20 They proposed aligning the webinar title with the guide’s existing name: “HCAI
21 Design Guide for Planning and Preparing for Disasters” to maintain clarity and
22 continuity. Veronica Yuke confirmed that a subcommittee name change does not
23 require a vote.

24 Richard Tannahill responded to an earlier question from John Griffiths about
25 audience reactions at the ASHE presentation. He described the response as
26 extremely positive, with many attendees asking detailed project-specific questions,
27 even after the session ended. Teresa Endres confirmed that a large crowd lingered,
28 and the session ran overtime, demonstrating strong interest and demand for wider
29 dissemination.

30 Abdel Darwich emphasized the importance of addressing multi-layered threats such
31 as wildfires, pandemics, and earthquakes, especially when they overlap.

32 Teresa Endres suggested breaking the content into a series of webinars, with each
33 focused on specific chapters or topics (e.g., HVAC, operations planning).

1 Chris Tokas supported this structure, noting that different types of events (e.g.,
2 natural hazards vs. operational demands) require different approaches.

3 **Subcommittee and Public Comments**

- 4 • John Griffiths asked about the audience reaction at the ASHE presentation
5 and later raised a concern about operating facilities during extreme heat
6 events. Teresa Endres acknowledged the relevance and scheduled that topic
7 for Agenda Item #4.
- 8 • Abdel Darwich shared concern about handling compound disasters, such as
9 earthquakes during a pandemic.
- 10 • Chris Tokas raised a broader concern about the term “resilience” and
11 suggested refining the subcommittee’s focus. He supported a structured,
12 phased approach for the webinar series.

13 **Voting**

- 14 • Veronica Yuke clarified that naming the webinar and determining its content
15 are informational items and do not require a formal vote.

16 **Informational and Action Items**

- 17 • The subcommittee confirmed that all chapters of the Design Guide should be
18 included in a future webinar series.
- 19 • Members agreed that the webinar series should carry the same title as the
20 guide: HCAI Design Guide for Planning and Preparing for Disasters.
- 21 • Teresa Endres proposed, and the group accepted developing topical webinar
22 segments (e.g., HVAC, layout planning) to address the guide’s wide scope.
- 23 • Chris Tokas emphasized the need to differentiate operational resilience from
24 facility infrastructure resilience.
- 25 • Richard Tannahill, Chris Tokas, and Teresa Endres acknowledged ongoing
26 lessons learned and the guide’s potential for future refinement.

28 **4. Review Criteria for the “Designing for Resilience” Webinar (Beyond the Design** 29 **Guide)**

30 **Facilitator:** Teresa Endres (or designee)

Discussion and Input

Teresa Endres opened the item by listing hazard topics not included in the existing HCAI Design Guide (March 2024) that could become part of a future webinar series. These included:

- Power independence
- Air quality and wildfire smoke (not currently in the guide)
- Wildfire-specific design strategies
- Hazard vulnerability assessments (HVAs)
- The “Island Hospital” concept (self-sufficiency)
- Extreme heat (added by John Griffiths)
- Sustainability and equity design considerations (added by Gary Dunger)

Teresa Endres invited the subcommittee to identify any additional gaps. John Griffiths suggested adding civil unrest, which Chris Tokas and Teresa Endres clarified, was already addressed under mass casualty events in the guide. Jennifer Cox raised extreme wind conditions, prompting Abdel Darwich to explain that wildfire smoke and outdoor pollution require similar mitigation strategies through filtration. However, extreme winds like tornadoes are not common in California and are addressed through separate structural codes.

Gary Dunger emphasized that designers must integrate resilience, sustainability, and equity into their planning, especially for new builds. Chris Tokas agreed that if the subcommittee expands the scope to include infrastructure and operations, then the term “resilience” becomes more meaningful.

John Griffiths elaborated on the operational strain extreme heat places on mechanical systems not designed for prolonged high temperatures. Richard Tannahill responded that power outages, not mechanical system failure, posed the greater issue, but new codes now require facilities (e.g., SNFs) to maintain air conditioning during outages.

Teresa Endres and Chris Tokas discussed including microgrids under the “power independence” theme. They confirmed the current guide lacks this content but could reference existing HCAI materials. Abdel Darwich noted the guide also omits ASHRAE's updated extreme temperature metrics, such as designing for 108°F in Sacramento for 2030 projections.

1 The committee agreed to structure the new content into webinar modules, each
2 based on a specific theme or chapter. Proposed sections include:

- 3 • Wildland-Urban Interface (WUI/WIWUI)
- 4 • Infection Control (HVAC + Facility Layout)
- 5 • Power Independence (incl. Microgrids, prolonged outages)
- 6 • Hazard Vulnerability Assessments (HVAs)

7 Janice Cheung and Gary Dunger introduced updates to California's Title 24, Part 7,
8 which supersedes Chapter 7A and governs wildfire mitigation through:

- 9 • Ember-resistant vents
- 10 • Non-combustible materials
- 11 • Defensible space
- 12 • Regular maintenance (e.g., clearing gutters)

13 Abdel Darwich described how WUI fires differ chemically from wildfires due to
14 manmade materials burning in urban zones. He and Chris Tokas warned that
15 hospitals often lack adequate filter inventories, which caused system shutdowns
16 during smoke events.

17 Abdel Darwich then presented two significant ASHRAE updates:

- 18 • ASHRAE Standard 241 (Control of Infectious Aerosols):
 - 19 ○ Introduces Infection Risk Management Mode (IRMM)
 - 20 ○ Focuses on clean airflow (CFM/person) instead of air changes per hour
 - 21 ○ Applies to all building types and projects
 - 22 ○ Uses filters, UV, and outdoor air to calculate clean airflow
 - 23 ○ Includes a calculator and matrix to ensure compliance
- 24 • ASHRAE Guideline 44 (Wildfire Smoke Preparedness):
 - 25 ○ Builds on Section 7 of the Design Guide
 - 26 ○ Offers new methods for operations and design, including performance-
27 based strategies
 - 28 ○ Recommends filter stockpiles and highlights overlooked systems (e.g.,
29 NICU incubators, air compressors)
 - 30 ○ Includes a matrix ranking implementation difficulty by building type

1 Chris Tokas urged the group to incorporate both documents into the Design Guide
2 and webinar.

3 Teresa Endres proposed that the group update the Design Guide with these new
4 references and expand the webinar scope accordingly.

5 **Subcommittee and Public Comments**

- 6 • John Griffiths asked about civil unrest and extreme heat.
- 7 • Jennifer Cox asked about extreme wind and joined the infection control and
8 HVA subgroups.
- 9 • Kelly Martinez volunteered for infection control and hazard vulnerability
10 assessments.
- 11 • Gary Dunger and Janice Cheung offered expert insight on fire hardening,
12 WUI codes, and ember control.
- 13 • Chris Tokas advised the committee to remain cautious about Bagley-Keene
14 Open Meeting Act compliance, suggesting limited team sizes and routing
15 communication through HBSB staff.
- 16 • Veronica Yuke confirmed that teams must route outlines and collaboration
17 through HBSB staff to avoid quorum issues and ensure transparency.

18 **Informational and Action Items**

- 19 • New Topics for Inclusion in Webinar Series:
 - 20 ○ Power Independence: Microgrids, prolonged outages, emergency systems
 - 21 ○ Infection Control: ASHRAE 241, clean air systems, risk modeling
 - 22 ○ Wildfire Preparedness (WUI/WIWUI): Part 7 Title 24, air quality, smoke
23 filtration, home hardening
 - 24 ○ Hazard Vulnerability Assessments (HVA)
 - 25 ○ Extreme Heat: Infrastructure impact, code planning for 108°F+, ASHRAE
26 thresholds
- 27 • Subcommittee Assignments (“Sub-Subs”) by Topic:
 - 28 ○ WUI/WIWUI
 - 29 ▪ Janice Cheung
 - 30 ▪ Abdel Darwich
 - 31 ▪ Gary Dunger

- 1 ▪ Mikhail Fuks
- 2 ○ Infection Control
- 3 ▪ Jennifer Cox
- 4 ▪ Abdel Darwich (HVAC)
- 5 ▪ Teresa Endres (design)
- 6 ▪ Mikhail Fuks
- 7 ▪ Kelly Martinez
- 8 ○ Power Independence
- 9 ▪ John Griffiths
- 10 ▪ Jamie Schnick (OSHPD, invited)
- 11 ▪ David Bliss (to be invited)
- 12 ○ HVA
- 13 ▪ Jennifer Cox
- 14 ▪ Kelly Martinez
- 15 • Teresa Endres and Veronica Yuke confirmed that HBSB staff would serve as
- 16 the central point for all communications to avoid Bagley-Keene violations.
- 17 • Teresa Endres and Chris Tokas proposed the creation of individual webinar
- 18 outlines as the next milestone.
- 19 • The group agreed to prepare these outlines and later organize them into a full
- 20 webinar series framework.
- 21 • Timeline Proposal:
- 22 ○ Begin first webinar: February 2026
- 23 ○ Release one webinar per month
- 24 ○ Teresa Endres suggested starting with Power Independence as the first
- 25 topic due to its readiness

26

27 **5. Schedule the Next Committee Meeting**

28 **Facilitator:** Teresa Endres (or designee)

29 **Discussion and Input**

1 Teresa Endres introduced the scheduling item and listed the proposed dates:
2 October 15, October 16, and November 20, 2025.

- 3 • Teresa Endres ruled out October 16, as she would present at WIC on that
4 day.
- 5 • The committee considered October 15 as the preferred option.
6

7 Veronica Yuke confirmed that all ad hoc committee meetings would allow virtual
8 participation, similar to the current meeting format.

9 Committee members reviewed availability:

- 10 • Kelly Martinez, Jennifer Cox, John Griffiths, and Gary Dunger confirmed their
11 availability for October 15.
- 12 • Gary Dunger and Janice Cheung clarified they were available only in the
13 morning.
- 14 • Teresa Endres confirmed the meeting would start at 10:00 AM.
- 15 • The group noted that absent members such as Mikhail Fuks and others would
16 be contacted separately.

17 Veronica Yuke and Teresa Endres agreed to proceed with October 15, 2025, as the
18 confirmed meeting date, citing the urgency of maintaining momentum for the
19 February 2026 webinar launch.

20 Subcommittee and Public Comments

- 21 • None.

22 Informational and Action Items

- 23 • Next Meeting Date Confirmed:
 - 24 ○ Date: October 15, 2025
 - 25 ○ Time: 10:00 AM
 - 26 ○ Format: Virtual (same as current meeting)
- 27 • Follow-Up Actions:
 - 28 ○ HBSB staff will send out:
 - 29 ▪ Calendar invite for October 15
 - 30 ▪ Follow-up instructions for sub-subcommittee coordination

- Sub-subcommittees (“sub-subs”) may meet before October 15 to begin outlining their webinar content. Veronica Yuke confirmed they are permitted to collaborate prior to the next full meeting.

6. Comments from the Public/Subcommittee Members on Issues Not on This Agenda

Facilitator: Teresa Endres (or designee)

Discussion and Input

Teresa Endres opened the floor for any comments from subcommittee members or the public regarding issues not listed on the meeting agenda.

7. Adjournment

Teresa Endres formally adjourned the meeting and thanked all participants for their time. The meeting concluded successfully at approximately 1:38 PM.