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
Ad hoc "HCAI Design Guide for Planning and Preparing for Disasters" Webinar Development Subcommittee

AGENDA
May 13, 2026
10:00 a.m. – 4:00 p.m.

The Subcommittee may not discuss or act on any matter raised during the public comment section that is not included on this agenda, except to place the matter on a future meeting agenda. (Government Code §§ 11125, 11125.7, subd. (a).)

Note: All Subcommittee members will attend this meeting virtually.

Locations:
2020 West El Camino Ave, Conference Room 930, Sacramento, CA 95833
355 South Grand Avenue, Conference Room 2000, Los Angeles, CA 90071
Teams Meeting Access; Meeting ID: 275 239 493 085 48; Passcode: aT2fn6RD
Call in: (916) 535-0978; Phone Conference ID: 111 781 9#

Item #1 Call to Order and Welcome
Facilitator: Teresa Endres, AIA, ACHA, EDA, AAH, Principal, Sr. Medical Planner, HOK; Subcommittee Chair (or designee)

Item #2 Roll Call and Meeting Advisories/Expectations
Facilitator: Veronica Yuke, HCAI; HBSB Executive Director (or designee)

Item #3 Discuss HCAI Design Guide for Planning and Preparing for Disasters Webinar Series in 2026

- Wildland-Urban Interface (WUI) – Title 24, Part 7
    - Originally Topic 2
    - Renamed: *Wildfire and Wildland-Urban Interface Readiness for Healthcare Facilities*
    - Presenters: Janice Cheung, PE, CSP, Fire Marshal, Redwood City; Gary Dunger, Executive Director, Design and Construction, Cedars-Sinai Health System; and Nanci Timmins, Chief Fire and Life Safety Officer, HCAI (or designees)

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  - Scheduled for May 14, 2026
  - Reviewed by the Education and Outreach Committee on April 29, 2026

- WUI – HVAC
  - Originally Topic 3
  - Renamed: *Designing Hospitals for Wildfire Smoke: HVAC Strategies for Resilience and Readiness*
  - Presenters: Abdel Darwich, PE, LEED AP, HFDP, Principal, Guttmann and Blaevoet Consulting Engineers; and Mikhail Fuks, PE, HFDP, DBIA (or designees)
  - Scheduled for June 10, 2026
  - Reviewed by the Education and Outreach Committee on April 29, 2026

- Power Independence
    - Originally Topic 1
    - Renamed: *Power Resilience, Regulatory Compliance, and the Future of Healthcare Infrastructure*
    - Presenters: David Bliss, MD, Faraday Microgrids; John Griffiths, PE, Electrical Engineer, CONTECH-CA; and Jamie Schnick, PE, Senior Electrical Engineer, HCAI (or designees)
    - Scheduled for July 7, 2026
    - Reviewed by the Education and Outreach Committee on April 29, 2026

Item #4 Review PowerPoint presentations

- Discussion and public input

Facilitator: Teresa Endres (or designees)

Department of Health Care Access and Information

OSHPD

Office of Statewide Hospital Planning and Development

HBSB

Hospital Building Safety Board

Why A Guide?

- Facilities managers want to know what they can do to be prepared
- Provide a resource to help evaluate how past events could impact future regulations and design requirements
- Provide a repository of information during crucial times
    - ➢ The guide presents various scenarios and design options to aid facilities, staff, and design teams in understanding additions to facilities and planning for future flexibility effectively
- Limit “Anything Goes” policies!
- Best practices for facilities to be better prepared for a disaster

How to Apply the Guide

Alterations

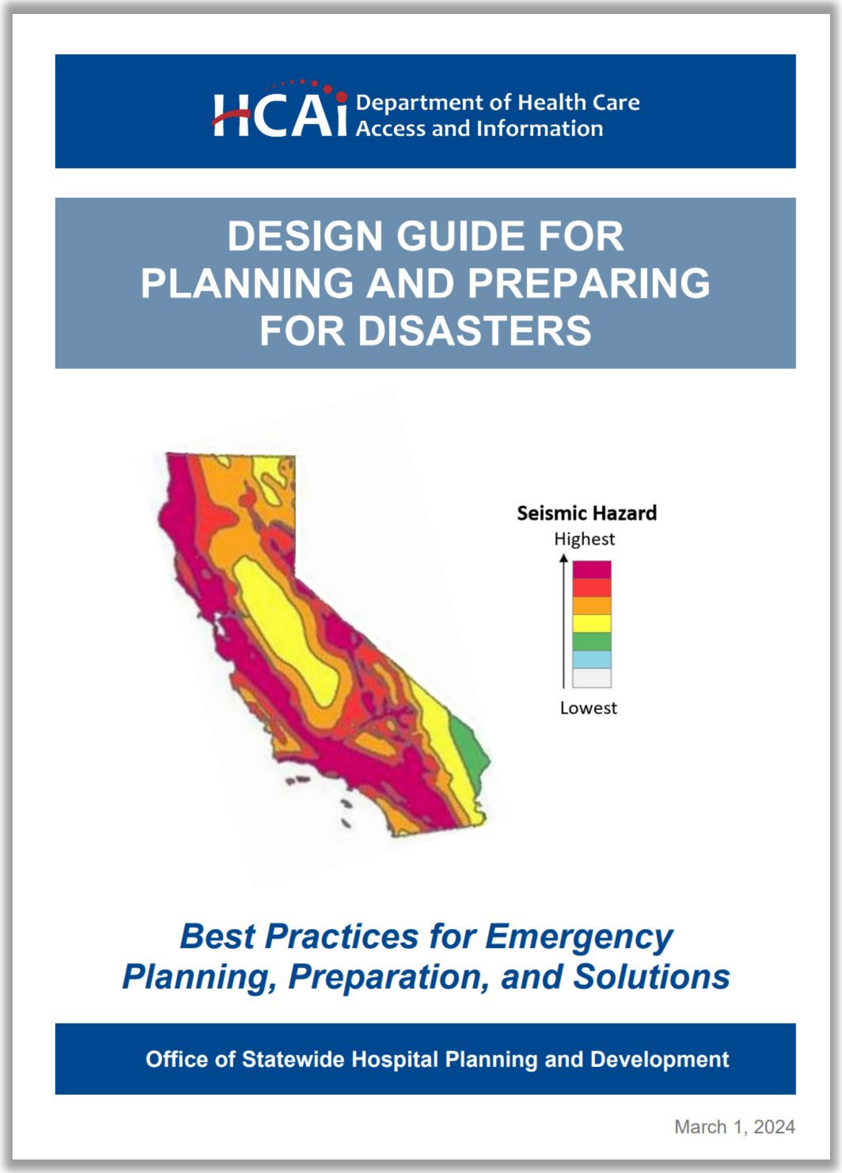
- Planning for the unknown
- Providing flexibility in existing buildings
- What can be done ***now?***
- Adapting existing services and system
  - Facility access
  - Utility services
  - Emergency projects

New Facilities

- Planning for the unknown
- Go beyond code minimums during design
- Go beyond the code
- Include potential flexibility for future care types
- Identify options and provide best practices to allow for quick implementation

Who Should be Using the Guide

- Facility Operators
- Architectural and Engineering Design Teams
- Local Agencies, Planners
- Contractors
- Other people involved in planning for future impacts and reacting to situations when they arise



Purpose

At the start of the COVID 19 pandemic, facilities were struggling to find ways to provide safe patient care: safe for the staff as well as the patients.

OSHPD received many calls and questions as to what we were doing to assist.

In addition, people were asking what was going to change in how OSHPD did plan reviews and what code changes were anticipated for future code cycles.

OSHPD assembled people knowledgeable in healthcare regulations, planning, design, and operations. This included professionals, engineers, facility representatives, contractors, and many others that had experience in the many aspects of addressing and reacting to the pandemic and other emergencies.

The Emergency Design Task Force (EDTF) was born.

Emergency Design Task Force

The EDTF was tasked with identifying specific areas of concern for multiple types of events, such as pandemics, but also including wildfires and earthquakes amongst others. They were to look at how these past events could impact future regulations and design requirements.

It was determined that for normal everyday operations, the current regulations are fairly sufficient to meet the basic needs. Minor revisions are coming.

Adaptation

Adaptation

But what about those facilities that wanted to go above and beyond the basic needs?

Most, but not all, options to prepare for future events would most likely fit into this group.

The technology and processes learned would be optional approaches that a facility could decide to incorporate into their existing or proposed buildings. These options could include:

- switchable air volumes
- redundant services
- new technologies

If these were in place now, the facility would have flexibility in deployment in the future.

HCAI Design Guide for Planning and Preparing for Disasters Webinar Series:

- *Wildfire and Wildland-Urban Interface Readiness for HealthCare Facililities*—**May 14, 2026**
- *Designing Hospitals for Wildfire Smoke: HVAC Strategies for Resilience and Readiness*—**June 10, 2026**
- *Power Resilience, Regulatory Compliance, and the Future of Healthcare Infrastructure*—**July 7, 2026**
- *Beyond Minimums: Crafting Resilient Healthcare Facilities*— TBD
- *Infection Control – HVAC + Operations*— TBD
- *Hazard Vulnerability Analysis: A Systemic Approach to Risk Identification and Resilience Planning*— TBD

Start of Individual Content

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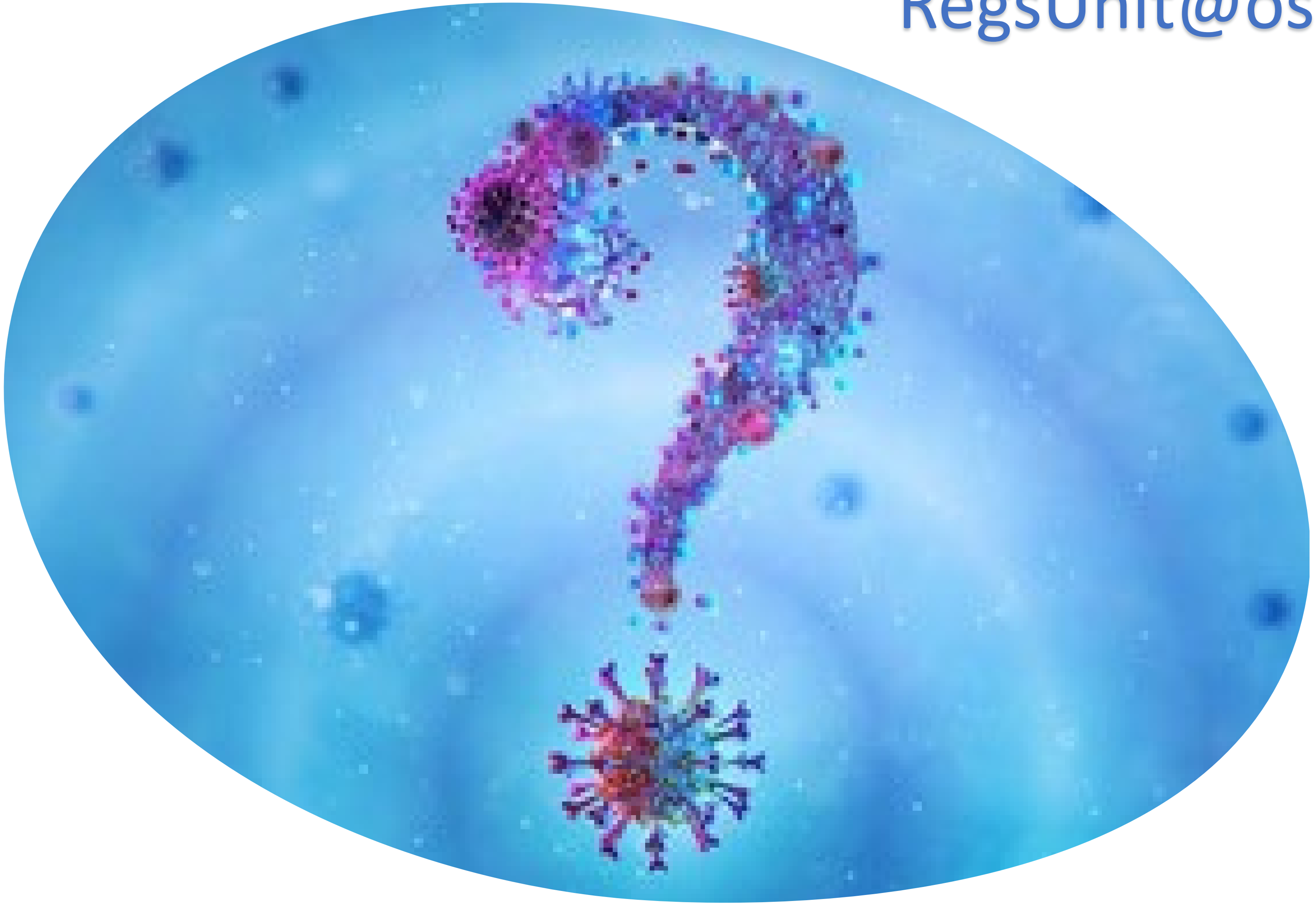


- Infection Control – HVAC
    - Originally Topic 4
    - Presenters: Abdel Darwich and Mikhail Fuks (or designees)
    - Target webinar date: TBD pending review by the Education and Outreach Committee on July 22, 2026

HCAI Design Guide for Planning and Preparing for Disasters Infection Control - HVAC

By

Abdel K Darwich, PE, ASHRAE Fellow, LEEP AP, HFDP

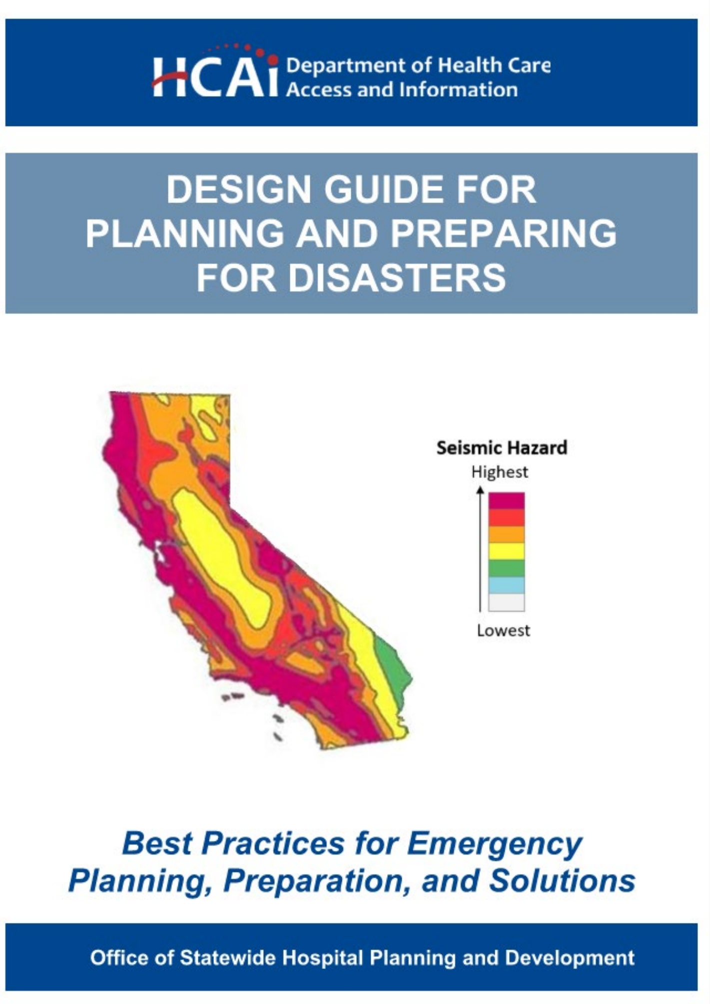
Mikhail Fuks, PE, HFDP, DBIA

Overview

1. Introduction / Background
2. Core HVAC Strategies from Design Guide
3. Project Considerations
4. Advancement Through ASHRAE Standard 241
5. Key Takeaways for Stakeholders

Why This Matters?

1. Hospitals must remain operational during:
    1. Pandemics
    2. Wildfires
    3. Patient surge events
2. COVID exposed critical HVAC limitations
3. Ventilation impacts:
    1. Infection control
    2. Patient safety
    3. Operational continuity



What Failed During COVID

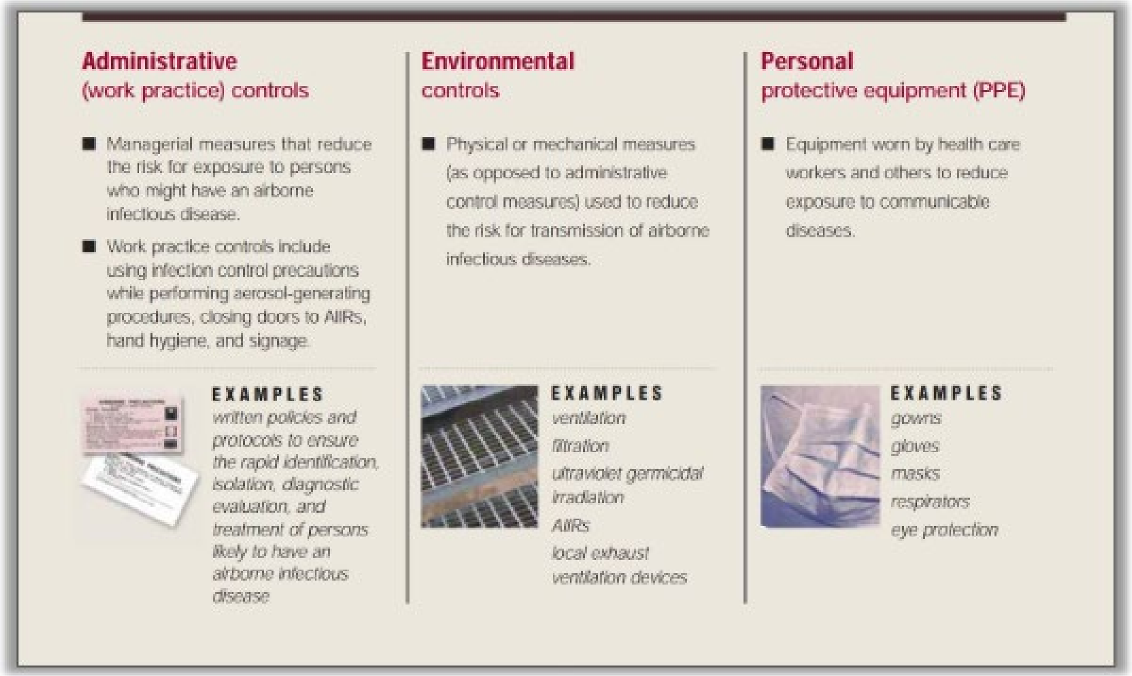
1. Limited airborne infection isolation capacity
2. Standard patient rooms not designed for:
   1. Negative Pressure
   2. High-efficiency filtration
   3. Rapid conversion
3. Systems lacked scalability during surge

The Core Gap

1. Hospitals designed to minimum code requirements
2. Not designed for:
   1. Emergency flexibility
   2. System reconfiguration
   3. Surge-level demand

Design Objective & HVAC Framework

1. Objective
   1. Convert standard rooms to isolation-capable environments
   2. Enable rapid (~12 hours) response to airborne events
2. Four Core HVAC Strategies
   1. Airflow & Pressurization
   2. Ventilation (Outside Air)
   3. Filtration
   4. System Flexibility & Controls



Core Strategy #1 – Airflow & Pressurization

1. Infection control relies on directional airflow.
2. Negative Pressure:
    1. Exhaust airflow > supply airflow
    2. Air flows into the room (not out)
3. Prevents contaminated air from spreading

Core Strategy #1 – Airflow & Pressurization

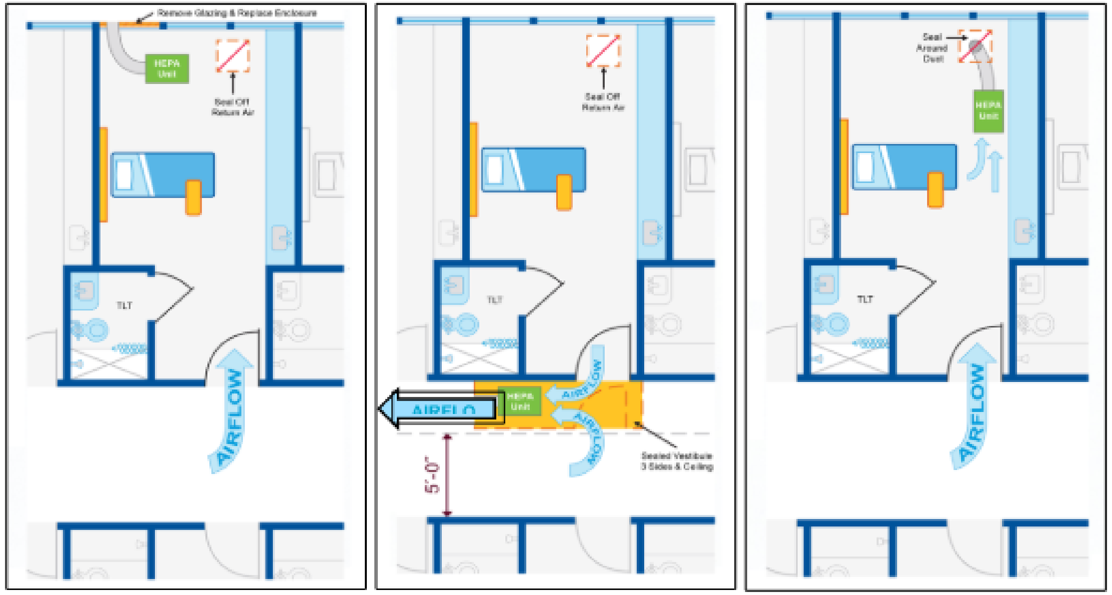
The constraints of the real-world…

1. Existing rooms are not airtight:
    1. Doors, ceilings, wall penetrations
2. Maintaining pressure differential is difficult
3. Retrofit conditions vary significantly

Directional airflow is more important than perfect pressure

Core Strategy #2 – Ventilation

1. Convert return air systems to exhaust during emergency events
2. Dual return grille concept:
   1. At patient bed (isolation mode)
   2. At door (normal mode)
3. Dedicated exhaust risers for surge scenarios
4. AHU Systems must support multiple modes:
   1. Normal Operation
   2. High outside air (pandemic)
   3. Reduced outside air (wildfire)



HEPA filtered to outside | HEPA to corridor | HEPA filtered to return air

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Core Strategy #3 - Filtration

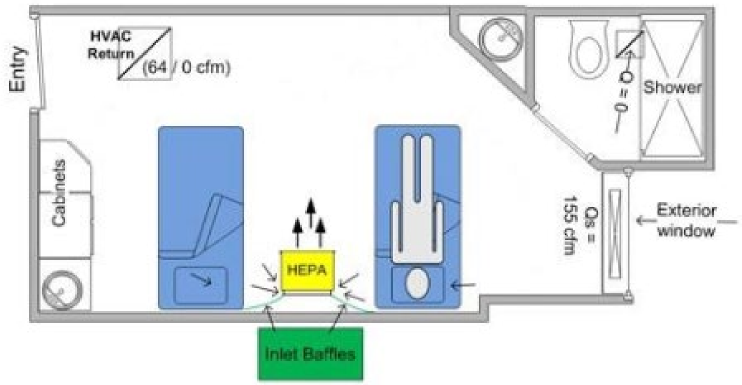
1. HEPA filtration removes airborne pathogens
2. Critical for infection control environments
3. Key constraints of additional filtration to check
    1. High pressure drop – does the system have capacity?
    2. Higher energy usage

Core Strategy #3 - Filtration

Deployment Approaches

1. Built-in HEPA systems (standby use)
2. Portable HEPA filtration units
3. Temporary ducted exhaust solutions

Flexibility is key to fit unique needs with speed



Temporary ventilation during pandemic.

Figure 3.3 – Use of Portable Air Cleaner

Figure 3.4 – Temporary Ducting to Outside

Core Strategy #4 – System Flexibility & Controls

Systems should be designed for adaptive operation:

1. Variable speed fans (VFDs)
2. Control dampers for airflow adjustment
3. Switchable return/exhaust configurations
4. Continuous system operation during events
5. HVAC response must be:
    1. Pre-programmed
    2. Controlled by facilities teams
6. Not user-adjustable at room level

Retrofit vs New Construction

Existing Facilities

1. Limited by infrastructure
2. Temporary solutions often required

New Construction

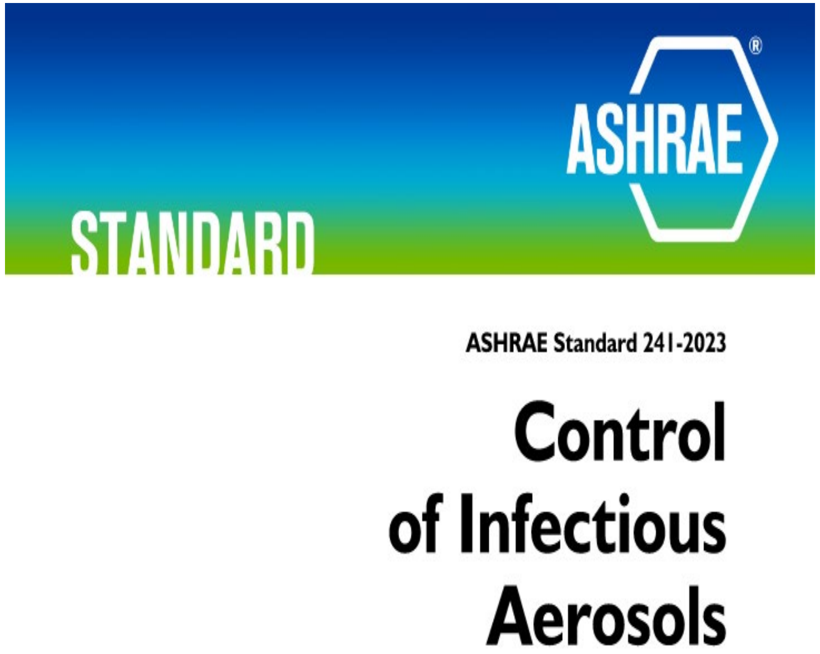
1. Opportunity to design
    1. Flexibility
    2. Redundancy
    3. Surge capability

Recommendations and Considerations for Negative Pressurization During Emergency Conditions

Patient Areas							Non-Patient Area Filtration
Temporarily Converting Existing Rooms to Negative Pressure	Creation of "Flex" Pressurization Rooms	Use of Corridor for Make Up Air	Use of Pressure Monitoring of Isolation Rooms	Filtration for Infectious Airborne Diseases	Use of Economizers on Air Intakes	Location of Patient Room Exhaust in Positive and Negative Isolation Rooms	

Why Standard 241?

1. COVID-19 exposed major gaps in HVAC guidance for infection control
2. Inconsistent strategies across healthcare facilities
3. Need for a unified, performance-based standard



BACKGROUND

Work on HCAI/OSHPD Guide Completed

ASHRAE Standard 241-2023
Control of Infectious Aerosols

Purpose

- ASHRAE 241 establishes minimum requirements for controlling infectious aerosols to reduce disease transmission risk in new and existing buildings and major renovations, covering air system design, installation, operation, and maintenance.

Scope

- Based on reduction of *long range transmission* risk
- Does not establish overall requirements for acceptable indoor air quality but requires IAQ as a pre-requisite

1. Infection Risk Management Mode (IRMM)

The mode of operation in which measures to reduce infectious aerosol exposure documented in a building readiness plan are active

Decision on IRMM Enable / Disable: Not specified in 241

- Public health official
- Owner
- Occupant

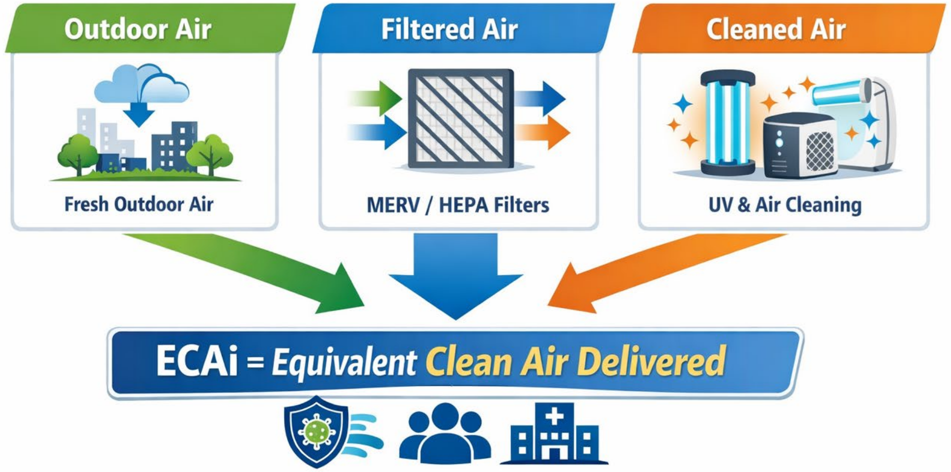
Why not all the time?

- Potential Energy use and cost increase
- Infection risk and consequences of infection vary over a wide range

Normal IRMM

2. Equivalent Clean Airflow-Infection (ECAi)

1. Core concept of Standard 241
2. Represents “pathogen-free” air delivered to occupants
3. Includes:
   1. Outdoor air
   2. Filtered Air
   3. Cleaned Air
4. It’s not just how much air you deliver. It's how clean that air is !
5. Multiple strategies can achieve the same result



2. How are(ECAi) goals determined?

1. 0.1% infection probability
2. 1-hour exposure
3. 1% infected population (higher for healthcare)

Determining ECAi

1. ECAi Depends on:
    1. Space type
    2. Occupancy
    3. Activity level
2. Typical range: 20–90 cfm/person
3. Allows calculation of maximum occupancy under IRMM

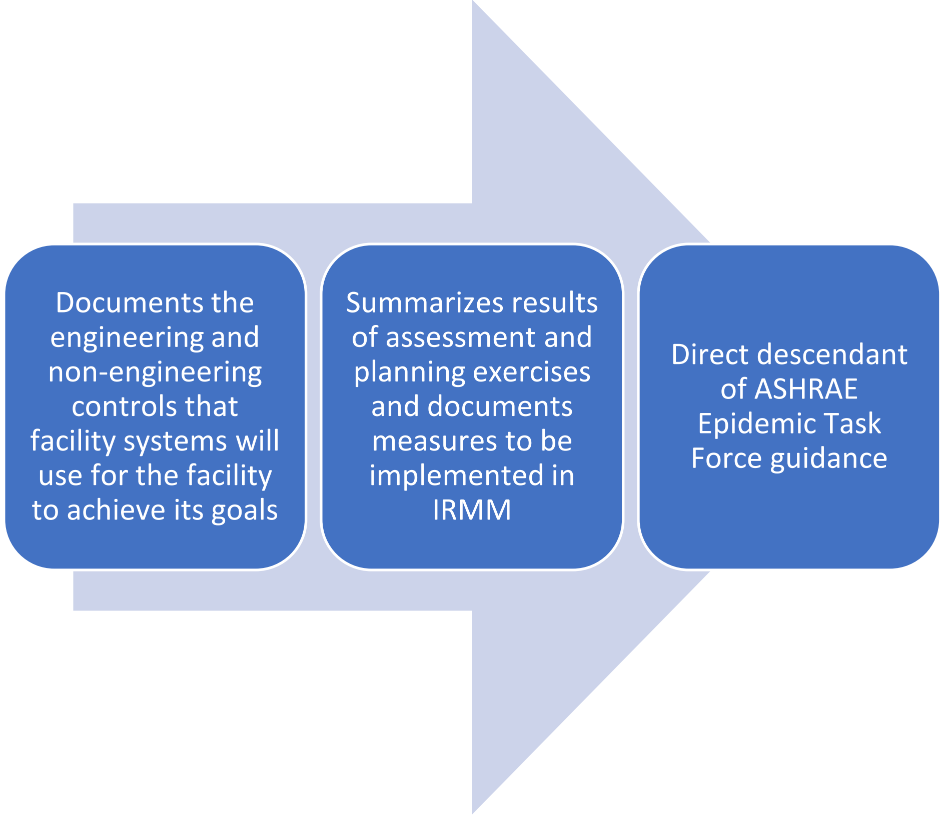
	ECAi	
Occupancy Category	**cfm/person**	**L/s/person**
Correctional Facilities		
Cell	30	15
Dayroom	40	20
Commercial/Retail		
Food and beverage facilities	60	30
Gym	80	40
Office	30	15
Retail	40	20
Transportation waiting	60	30
Educational Facilities		
Classroom	40	20
Lecture hall	50	25
Industrial		
Manufacturing	50	25
Sorting, packing, light assembly	20	10
[illegible]	[illegible]	[illegible]
Health Care		
Exam room	40	20
Group treatment area	70	35
Patient room	70	35
Resident room	50	25
Waiting room	90	45
Public Assembly/Sports and Entertainment		
Auditorium	50	25
Place of religious worship	50	25
Museum	60	30
Convention	60	30
Spectator area	50	25
Lobbies	50	25
Residential		
Common space	50	25
Dwelling unit	30	15

3. Air Cleaning Effectiveness and Safety

1. Major issue during COVID: lack of validated technologies
2. Standard 241 addresses:
   1. Effectiveness (removal/inactivation)
   2. Safety (e.g., ozone, byproducts)
3. Appendix A provides testing requirements
4. Goal is a level playing field for all technologies

4. Building Readiness Plan (BRP)

1. A documented response strategy for infection events
2. Includes:
    1. Engineering controls
    2. Operational measures
3. Acts as a facility "playbook" for IRMM



Adoption

- LEED
- ASHRAE 62.1 now references both 241 and G44

Resilient Spaces

Indoor Environmental Quality

EQc4 | Possible 2 Points

All credits | Guidance

Language | Addenda | Resources and tips | Courses | Forum

Intent

To support design features that increase the capacity for occupants to adapt to changing climate conditions and be protected from events that may compromise the quality of the indoor environment and subsequently occupant health and well-being.

Requirements

Comply with any of the following options for up to two points:

Option 1. Management Mode for Episodic Outdoor Ambient Conditions — New Construction Only (1 point)

This option applies to LEED BD+C: New Construction projects only.

Design systems with the capability to operate an episodic outdoor event management mode as described in *ASHRAE Guideline 44*. The mode should address varying outdoor conditions or events that could negatively influence indoor air quality, such as wildfire smoke. Include the management mode in the design and commissioning documents. Verify proper implementation of the mode during commissioning.

AND/OR

Option 2. Management Mode for Respiratory Diseases — New Construction Only (1 point)

Design occupied spaces with the capability to operate an infection risk management mode that provides the minimum equivalent clean airflow rates outlined in *ASHRAE 241-2023*, Section 5.1. Include the management mode in the design and commissioning documents as outlined in *ASHRAE 241-2023*, Section B10.2 Design Documentation. Verify proper implementation of the mode during commissioning.

ASHRAE 241 Calculator

- Standard is free viewing at https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards
- With the purchased standard, an Excel Std 241 calculator is provided
- Let's do an example !

ASHRAE 241 Example

- ED Waiting Room – 1,500 sq.ft / 50 persons / 12 ACH/ MERV 14
- During a pandemic mode, does NOT comply with Std 241
- HEPA upgrade alone → insufficient
- Effective solution:
  - Reduce occupancy (50 → 30)
  - Increase airflow (12 → 15 ACH)
  - Maintain MERV 14
- Demonstrates multi-variable approach

Std 241 and energy

- Which strategies to comply with Std 241 use the least energy?
- Pacific Northwest National Lab (PNNL) did a study in 2025. Published October 2025.
- Compared multiple strategies
- Findings:
  - Increasing outdoor air → most energy intensive
  - Increasing airflow → also energy intensive
  - Lowest energy options → Portable air cleaners and UV systems

Key Takeaways

1. HVAC is a critical infection control system
2. Flexibility is the most important design priority
3. Systems must operate under multiple conditions
4. Planning ahead enables rapid emergency response

For Building Owners

1. Assess existing conditions
2. Define ECAi targets by space
3. Identify gaps
4. Select strategies (OA, filtration, cleaning)
5. Develop Building Readiness Plan
6. Implement improvements

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For Designers of HCAI/OSHPD projects

1. HVAC System Sizing
    1. Systems may need to support dual-mode operation (normal + IRMM)
    2. Increased airflow, pressure drop, and capacity considerations
2. Filtration Strategy
    1. Greater reliance on MERV 13–14 and HEPA where applicable
    2. Filtration becomes a primary compliance tool, not just baseline
3. Design & Plan Review Impact
    1. Future need to demonstrate ECAi compliance
    2. Impacts OPR, BOD, and mechanical design documentation
4. Future Code Direction
    1. ASHRAE 241 already referenced in 62.1
    2. Possible path toward Title 24 / HCAI adoption especially with Std 170/FGI adoption
    3. Early adoption positions projects ahead of code

Key Takeaways

- Standard 241 introduces a new way to define “clean air”
- ECAi is the central design metric
- Multiple strategies can achieve compliance
- Planning (BRP) is as important as design
- Healthcare facilities must be ready to adapt quickly

- Infection Control – Operations
  - Originally Topic 5
  - Presenters: Jennifer Cox, MHA, BSN, RN, PHN, CIC, System Director, Epidemiology and Infection Prevention, University of California Irvine Health; and Kelly Martinez, RN, MBA, FACHE, EDAC, Co-founder, Hallsta, Inc. (or designees)
  - Target webinar date: TBD pending review by the Education and Outreach Committee on July 22, 2026

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Infection Prevention Operations

Designing healthcare facilities for resilience, surge readiness, and infection control across every operational mode.

Agenda

Topics and Objectives

Foundational & Built Environment

- Infection prevention role in design
- ICRA, regulatory framework, materials
- Airflow, water, hand hygiene, EVS workflow
- Flexibility, surge, and isolation pathways
- Convertible rooms, ante-rooms, traffic flow

Operations, Support & Validation

- Ventilation, water, and clinical workflow
- Patient and staff flow during outbreaks
- Sterile processing, waste, technology
- Commissioning, construction, governance

Infection prevention woven through every phase — from predesign to activation — not bolted on at the end.

Foundational Principles

The infection-prevention lens applied at every design decision — from regulatory framework to early operational planning.

Role of Infection Prevention in Design

Embedding IP throughout the design lifecycle

Strategic Voice at the Table

IP integrated from predesign through activation — not consulted reactively after construction begins.

Operational Mode Awarene

Normal-mode and emergency-mode design considered side by side for every clinical area.

Risk-Based Decision Making

Every design choice evaluated against transmission risk, cleanability, and surge convertibility.

Cross-Disciplinary Alignmen

Bridges clinical, facilities, EVS, design, and regulatory perspectives into one coherent strategy.

Phased Construction Protec

Air, water, and traffic separation maintained throughout renovations and retrofits.

When IP is embedded throughout the design process, preparedness becomes structural — not an afterthought.

Infection Control Risk Assessment (ICRA)

The structured framework for integrating IP into facility design and construction.

Clear Decision Workflows

Defined pathways for design choices that impact infection prevention, with named decision-makers and time limits.

Early Mode Identification

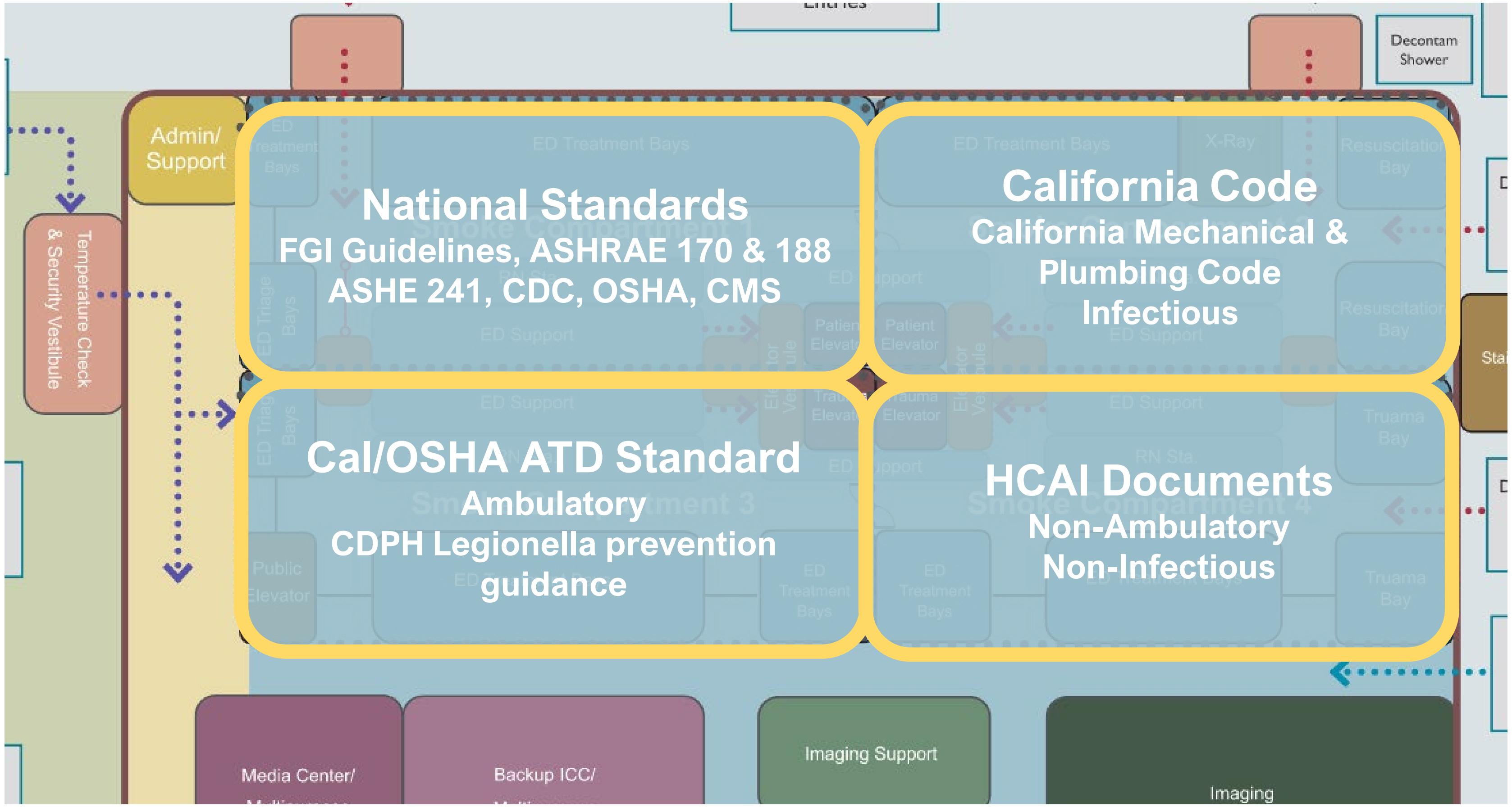
Pandemic and emergency operational modes flagged during programming — not surfaced during construction.

Preparedness-Driven Standardization

Room and unit standardization that builds flexibility for surges, conversions, and rapid staff deployment.

Regulatory & Guideline Framework

National, California, **and HCAI** standards that **shape infection-prevention** design in California.



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Built Environment Factors

The physical infrastructure that determines whether infection control is achievable in daily operations and during surges.

Airflow, Pressurization & Ventilation

Normal-mode and emergency-mode airflow strategies designed in from the start.

Normal vs. Emergency Modes

HVAC designed for both routine operation and rapid switch to pandemic/surge modes — with documented sequences and tested transitions.

Convertible Rooms & Wards

Med/surg rooms designed to flex into AIIR. Entire units convertible into isolation wards — ductwork, dampers, and exhaust pre-stubbed for rapid switchover.

Materials & Finishes for Cleanability and Durability

HCAI-Compliant Selection

All finishes documented and verified against HCAI material requirements before specification.

Disinfectant Compatibility

Cleanable, durable surfaces compatible with hospital-grade disinfectants used in surge cleaning protocols.

Seams, Joints & Surge Resilience

Integral coving, sealed transitions, minimal crevices — finishes that withstand enhanced environmental disinfection.

Hand Hygiene Infrastructure

Sink and dispenser strategy that supports compliance under normal conditions and during water disruption.

Placement Strategy

Visible, accessible, at every transition point: room entry and exit, between patient zones, at staff workstations.

Supply Redundancy

Backup ABHR dispensers, refill protocols, and pandemic-stock storage planned in coordination with EVS.

Water Outage Contingenc

Pre-identified alternative stations and waterless protocols ready to activate during service disruption.

HAND HYGIENE IS THE SINGLE MOST EFFECTIVE INFECTION CONTROL MEASURE.

Infrastructure has to make compliance the easy choice — not the difficult one.

Built Environment

Environmental Services Workflow Integration

Storage & Staging

Dedicated rooms for supplies, equipment, and PPE — sized and located with EVS workflow input from day one.

Cleaning & Disinfection Access

Utility rooms, dilution systems, and cleaning equipment accessible without crossing patient zones.

Waste Routing & Clean/Soiled Separation

Distinct pathways for waste collection and disposal that never cross clean-supply flow. Design separation, not procedural workarounds.

Flexibility & Surge Capacity

How rooms, units, and pathways can be reconfigured under outbreak conditions — without major construction.

Convertible Units &

Designing rooms that can flex to higher acuity and standardize for rapid conversion.

Standard → AIIR Conversion

Routine patient rooms pre-engineered with the ductwork, dampers, and exhaust capacity to switch to airborne isolation.

PACU → Critical Care

Post-anesthesia care units designed with medical gas, electrical, and headwall capacity to support critical care during surges.

Universal Room Design

Standardized layouts, headwalls, and finishes across units so staff can deploy anywhere without orientation delay.

Procedural Flexibility

Treatment areas planned with multiple use cases anticipated — every space carries surge value.

Temporary Isolation Areas & Traffic Flow

- Pre-planned options that activate quickly when standard zones reach capacity.
- Donning and doffing zones at unit entries with hand hygiene and waste capture.
- Ante-rooms and transition spaces secured during outbreaks as buffer zones.
- Clean and dirty pathways physically segregated — not just procedurally.
- Mortuary surge planning with outdoor space and utilities for refrigerator trailers.

Department of Health Care Access and Information

Ventilation & Water Systems

Mechanical and plumbing systems engineered to switch operational modes safely — and to prevent stagnation, Legionella, and emergency failures.

Emergency-Mode Ventilation & Pressurization

Three layers of resilience: convertibility, power continuity, and real-time visibility.

Convertible Pressure Modes

Rooms designed to switch between positive and negative pressure where clinically warranted, with documented limits and verification.

Power-Loss Pressurization

Critical isolation rooms maintained on emergency power; fans, dampers, and controls on essential branches with battery backup.

Real-Time Monitoring

Continuous pressure and ACH sensors with BMS integration, audible alerts, and remote dashboards for IP and FMS visibility.

Failure modes documented and tested at commissioning — not discovered during an outbreak.

Preparedness in Water Systems

Designing potable, hot, and non-potable water systems to prevent Legionella, support ASHRAE 188, and respond to emergencies.

Low-Use Zones & Stagnation Prevention

Recirculation Design

Hot-water loops maintained at target temperatures across all branches, including remote outlets and lightly used wings.

Dead-Leg Elimination

No abandoned branches. Capped-off connections removed rather than left for future use.

Aerosolizing Fixture Strategy

Fixture selection mapped to clinical risk — minimize aerosolizing outlets near immunocompromised patients.

Water Management Plan Integration

Aligning facility design with ASHRAE 188 and California Legionella expectations.

Water management team identified at predesign with documented control measures and verification protocols.

ASHRAE 188 Alignment

Risk assessment per facility zone with documented control measures, verification, and corrective-action plans.

California Expectations

CDPH Legionella guidance, HCAI water-system commissioning requirements, and coordination with local water authority.

Emergency & Low-Use Response

Design features supporting flushing, automated flow/temperature monitoring, and sampling access for IP and water-safety teams.

Sampling Ports, Sensors & Backup Disinfection

The instrumentation that makes water systems observable — and the redundancy that keeps them safe.

Strategic Sampling Ports

Sample access throughout distribution — not just at the source. Accessible without disrupting service.

Sensor Infrastructure

Continuous temperature, chlorine residual, and flow monitoring with BMS integration and alerting.

Automated Flushing

Smart-fixture or solenoid-driven flushing in low-use branches, with logs available to compliance teams.

Hyperchlorination Access

Pre-installed hyperchlorination access points for shock disinfection during contamination events.

Backup Disinfection

Secondary-disinfection compatibility — capable of continuing during power loss or system disruption.

Emergency Response Scenarios

Main Break Response: Isolation valves, alternate supply tie-ins, and prioritized service zones documented and accessible to facilities staff.

Contamination Event Response: Sampling protocols, backup disinfection, and communication plans pre-defined — not improvised.

Construction Shutdown Protocols: Pre-flush procedures, branch isolation strategies, and recommissioning validation before reopening any service zone.

Recommissioning Triggers: Every shutdown becomes a future stagnation event. Recommissioning belongs in the original design — not in the after-action report.

Communication Continuity: IP, facilities, and clinical leadership notified in real time when water system status changes.

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Clinical Operations During Outbreaks

How people — patients, staff, and visitors — move through the facility when the rules change. The design decisions that protect everyone.

Patient Flow During High-Consequence Outbreaks

Waiting Room Segregation

Physically separate waiting areas for infectious vs. non-infectious patients, with distinct entries when possible.

Dedicated Patient Pathways

Pre-planned routes that avoid shared corridors, elevators, and processing areas during outbreaks.

Triage Decision Points

Screening checkpoints that route patients to the correct pathway before they enter shared spaces.

Visitor & Staff Separation

Coordinated flow design that protects clinical and support staff from inadvertent exposure.

Separation that protects everyone in the building — not just the people being treated for infection.

Staff Workflow & Decontamination

Protecting the workforce that protects everyone else.

PPE Storage & Surge Stock

Decentralized PPE caches sized for surge demand, with clear stocking and replenishment protocols.

Reusable PPE Processing

Infrastructure for PAPR cleaning, respirator decontamination, and other reusable PPE management.

Don / Doff Zones

Dedicated, well-marked donning and doffing areas with hand hygiene, waste capture, and direct observation lines.

Staff Decontamination Showers

Showers and clean-clothing stations at critical transitions — contaminated to clean, dirty to home.

Pathway Discipline

Designed traffic flow that staff actually follow — because the layout makes the correct route obvious.

Staff safety is the precondition for everything else. Design accordingly.

Visitor Management & Additional Populations

Designing for the people who arrive at the hospital but aren't admitted — and surge populations needing outdoor accommodation.

Screening Stations

Indoor and outdoor checkpoints with shelter, lighting, and computing capacity for high-throughput triage.

Holding Zones

Spaces to hold visitors awaiting clearance without contaminating clinical areas or congesting entries.

Exterior Population Spaces

Pre-identified site areas with electricity, sanitation, and shelter access for tents, buses, or modular units.

Surge Infrastructure Hooks

Site utilities (power, water, data) ready to support tents, buses, modular units, or refrigerated trailers.

Sterile Processing & Perioperative

Surge readiness for the spaces that keep instruments safe — and the patients who depend on them.

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Scalable Capacity & Redundancy

Designing SPD and the perioperative environment to flex up without compromising sterility.

Scalable Sterile Processing

Equipment capacity, workflow, and storage that absorb peak demand without bottlenecking the OR schedule.

Scalable OR / Procedural

Operating rooms and procedure spaces designed for flex utilization — anesthesia, holding, and recovery scalable in parallel.

Contingency Sterilization

Support for deferred sterilization: extended cycles, alternate processing locations, IUSS protocols documented in design.

HVAC Redundancy

Procedure rooms and ORs on redundant ventilation — N+1 fans, dampers, and exhaust paths to maintain pressurization.

Centralized vs. Decentralize

Decentralized and centralized reprocessing each have tradeoffs. Choose with surge scenarios explicitly in mind.

Sterile processing is the silent backbone of surgical surge response — design it that way.

Waste, Hazmat & Biohazard Readiness

The unglamorous infrastructure that quietly determines whether surge operations succeed or fail.

Redundant Routing, Surge Storage & Decon

Designing waste handling to scale with patient volume — not to fail at the worst possible time.

Redundant Waste Routing

Multiple pathways from generation point to dock, so a single chase, elevator, or corridor closure doesn't halt operations. Redundancy isn't optional for waste.

Surge Storage & Decontamination

Pre-identified climate-controlled biohazard surge space plus dedicated decon stations for equipment and carts — with utilities, drainage, and ventilation already in place.

Technology, Validation & Governance

The monitoring, automation, commissioning, and governance systems that make rapid response possible.

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Real-Time Environmental Monitoring

Continuous Monitoring

Air pressures, temperature/RH, water quality, and ACH tracked 24/7 with BMS integration and audit trail.

Mode-Switching Automat

Pre-programmed sequences for AIIR mode, pandemic surge mode, and water-flushing mode — single-action activation.

Automated Dashboards

IP, facilities, and clinical leadership see the same data in real time. One source of truth, accessible remotely.

Supply Chain & Storage Preparedness

Strategic storage that survives interrupted deliveries and supports outbreak response.

Strategic Surge Storage

PPE, disinfectants, and high-consequence pathogen kits stored at quantities sized for documented surge scenarios.

Decentralized Caches

Critical supplies stored at point of use, not just central warehouse — reduces transport risk and surge bottlenecks.

Decontamination Flow

Inbound supply decontamination paths designed to keep contamination out of clean storage areas.

INVENTORY VISIBILITY DRIVES SURGE RESPONSE TIMING.

Stock-level dashboards integrated with monitoring — leadership sees consumption in real time, not month-end.

Facilities Management & Emergency Coordination

Maintainability Under Outbreak

Safe zones for FMS staff to access mechanical rooms without crossing patient or contaminated zones.

Remote Inspection & Access

Cameras, sensors, and remote-operable systems where physical access carries infection risk. Cross-trained staff with documented access paths.

System Maps & Documentation

Up-to-date schematics for airflow, water zones, and pressurization grids — accessible during emergency response, not buried in a binder.

Commissioning, Recommissioning & Validation

Proving the systems work — before patients depend on them, and every time they're modified.

IP Role in Commissioning

Infection prevention at the table for functional testing — not just signing off on a punch list at the end.

Pre-Occupancy Verification

Pressurization tests, airflow patterns, and water-system flushing all verified before clinical activation.

Scenario-Based Testing

Simulated surge, outage drills, and water-disruption exercises that prove systems work under real conditions.

Recommissioning Triggers

Defined events that trigger re-validation: renovations, system changes, occupancy shifts, post-incident review.

Construction & Renovation Preparedness

ICRA-integrated construction that protects operations throughout the project lifecycle.

1

ICRA Integration

Risk assessment for every phase, every trade, every space — documented and signed off before work begins.

2

Phased Construction

Air, water, and traffic separation maintained throughout the project lifecycle, with documented controls per phase.

3

Temporary Controls

Negative pressure, HEPA filtration, sealed barriers, and monitoring — not improvised mid-project.

4

Turnover & Reopening

Water-system flushing, air-balance verification, and IP signoff before re-occupancy. Always.

Every active project in a working hospital is an infection-prevention project.

Governance & Decision-Making

Embedding infection prevention into every phase of the project lifecycle.

1 Predesign
IP at the programming table. Operational modes and risk priorities established before design begins.

2 Schematic
ICRA decisions logged. Convertibility, isolation strategy, and traffic flow baked into the SD set.

3 Design Development
IP review checklists complete. Materials, finishes, plumbing, and HVAC validated against IP requirements.

4 Construction
ICRA monitoring active. Temporary controls verified weekly. Issues escalated through defined paths.

5 Activation
Functional validation. Pressurization, airflow, water flushing, mode switching — all proven before patients arrive.

6 Ongoing
IP signoff required for any system modification post-activation. Recommissioning triggers documented in operations manual.

IP review checklists signed off at every phase release — with named decision-makers and escalation paths.

Item #5 Comments from the Public/Subcommittee Members on Issues not on this Agenda

The Subcommittee will receive comments from the Public/Subcommittee Members. Matters raised at this time may be taken under consideration for placement on a subsequent agenda.

Facilitator: Teresa Endres (or designee)

Item #6 Adjournment