SMSHE 2024 Healthcare Symposium
May 8, 2024

Health Facilities Physical Environment Code Updates and Current Regulatory Issues

Pier-George Zanoni, PE, CIH
Health Facilities Engineering Section (HFES), BCHS, LARA

LARA
LICENSING AND REGULATORY AFFAIRS


Does your family say a prayer before you eat your food?
Nope. We're Italian !!
My mom knows how to cook.

Health Facilities Engineering Section

HFES staff includes:

- Andrea Wiggins, HFES Manager
- Kasra Zarbinian, P.E., Engineer
- Riyadh Almuktar, Engineer
- Pier-George Zanoni, P.E., Engineer
- Austin Webster, Engineer
- Carl Chapman, Engineer
- Jenna Engle, Department Technician

HFES FAQs

Pier-George Zanoni, PE, CIH
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- Email questions any time.

- We will return email with clarification with supportive background references.

When is Plan Review Required?

A construction permit (based on our plan review) must be obtained prior to initiating a construction project involving new construction, additions, modernizations, or conversions of a healthcare facility involving minimum expenditures as follows:

• Hospitals	$ 1,000,000.00
• FSOFs	$ 50,000.00
• Nursing Homes	$ 25,000.00
• Homes For the Aged (HFA)	All
• Hospice	All
• End Stage Renal Disease (ESRD)	Recommended

Facility Guidelines Institute (FGI)

The latest is the 2022 edition in 3 volumes: Hospital, Residential & Outpatient

On February 21, 2020, the State of MI adopted all 3 of the 2018 FGI Guidelines.

Note: Don't forget to also follow **Part 9 Environment of Care** section of the 2020 Michigan Health Facilities Rules which take precedence over any lesser FGI requirements.

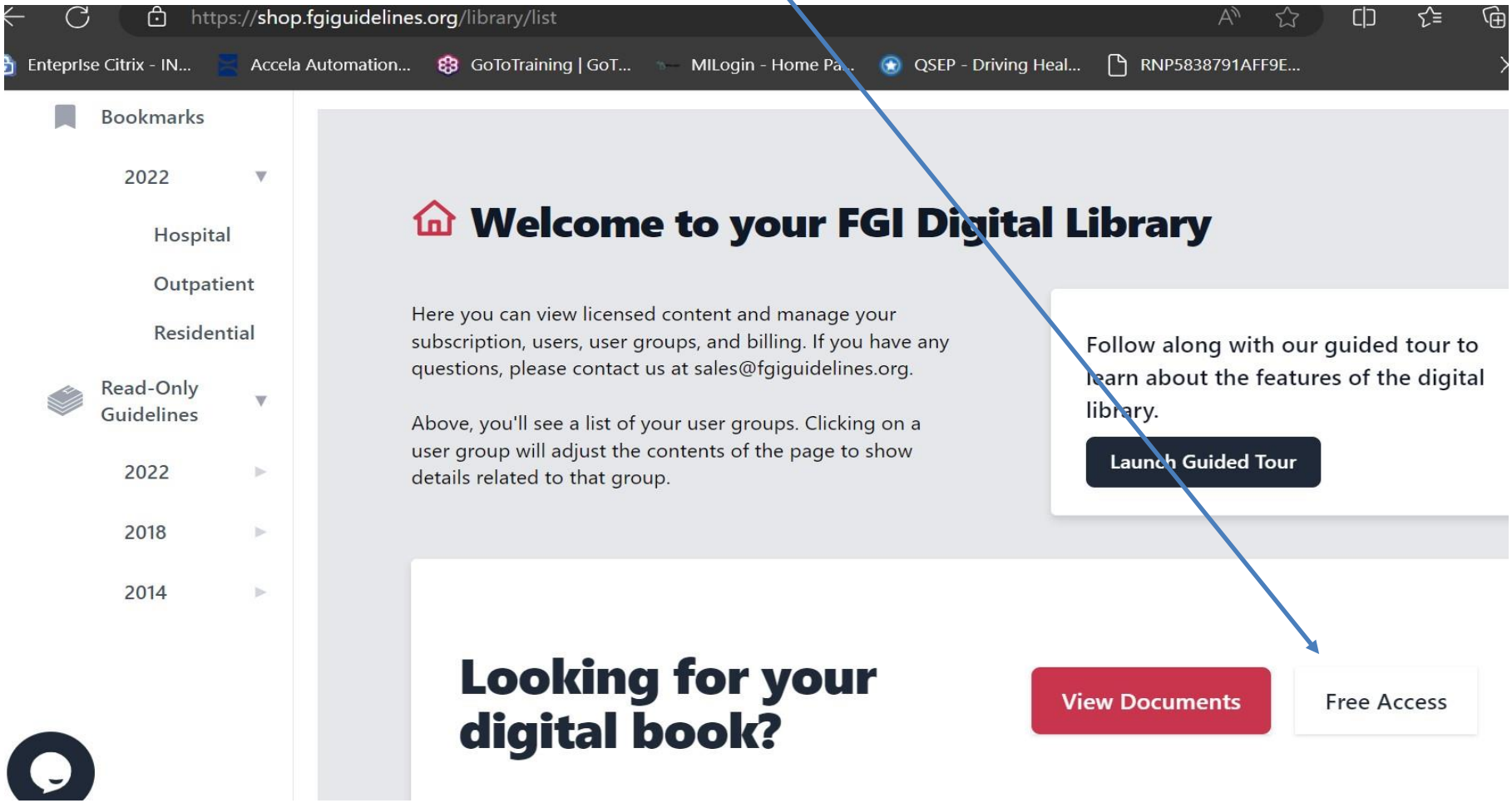
FGI
FACILITY GUIDELINES INSTITUTE

On Line FGI Guidelines Access

Where can I find a read-only version of the *Guidelines*?

> FGI provides limited, free access to the *Guidelines* documents with an account. This complimentary use is limited to 10 pages, 3 times per month.

Visit www.FGIguidelines.org



What may be coming in FGI 2026

FGI is now midway through its cycle for 2026

Over **586 proposed changes** to Hospital guidelines. (1547 total)

Including:

- Acoustics - more detailed sounds transmission requirements, etc.
- More plumbing requirements to reduce water age and facilitate flushing. (e.g. valves and flushing fixtures for mains and branches)
- Discharged Patient Areas (e.g. results waiting)
- More reliance on Infection Ctrl Risk Assessment to identify critical environments, etc.

2026 FGI may include Reqmnt for Soffits or Sloped tops in Patient care areas

For built in horizontal surfaces above 68”

Michigan Building Code Updates from BCC

- Adopted **2021 Mi Plumbing Code 03/12/2024.**
- Adopted **2021 Mi Mechanical Code 03/12/2024.**
- Adopted **2023 Mi Electrical Code 03/12/2024**.
- Working on adopting
  - **2021 Mi Building Code**
  - **2021 Mi Rehabilitation Code**
  - **2021 Mi Residential Code**

  Public hearings for these were held April 4, 2024.
- Working on adopting
  - **2021 Mi Uniform Energy Code (public hearing was 2/22/24)**

Free Online Access to ICC and NFPA Codes

With the Bureau's coordinated sale of the Michigan Construction Codes with the International Code Council (ICC), customers are able to purchase code books directly from ICC at the Michigan member prices.

Additionally, both ICC and the National Fire Protection Association (NFPA) offer free online access to their codes.

ICC - International and Michigan Code access
at https://codes.iccsafe.org/public/collections/I-Codes.

NFPA - Codes and Standards access by following the instructions below.

To view the codes online, go to https://www.nfpa.org.

Login to your account. If you do not have an account, you will need to create one.

Once logged in, click "CODES AND STANDARDS."

Below "CODES & STANDARDS," click List of NFPA codes & standards.

Click on the NFPA Code you wish to view.

Under View this Document, click Free Access.

BCHS Updates

- **Inpatient Psychiatric Hospital and Units** Administrative Rules currently being revised.

- **Home for the Aged** rule revision (location of toilet room in semiprivate).

- Educate before we Regulate !

- Online plan review
  - BFS went to 100% electronic submittal in 2023
  - HFES will also no longer accept paper plans in the near future …

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Bureau of Community and Health Systems (BCHS)

- Adult Foster Care Facilities
- **Freestanding Surgical Outpatient Facilities (FSOF)**
- **Homes for the Aged (HFA)**
- **Hospice** Agencies and Residences
- **Hospitals**
- **Nursing Homes**

- Substance Use Disorder Services Programs
- Qualified Interpreters
- Nurse Aides, Training Programs, and Trainers
- Medication Aides, Training Programs, and Trainers

- **Construction Plan Review and Permits (HFES)**
- **CMS surveys including complaint surveys now in Bureau of Survey & Certification (BSC)**

Rural Emergency Hospitals (REH)

- REHs are a new federal provider type established to address the growing concern over closures of rural hospitals.
- Conversion to an REH allows for the provision of emergency services, observation care, and additional medical and health outpatient services, that do not exceed an annual per patient average of 24 hours.
- REHs are hospitals that convert from either a CAH or a rural hospital with less than 50 beds, and that do not provide acute care inpatient services **(i.e. no hospital beds)** except for skilled nursing facility services furnished in a distinct part unit.
- Allows a hospital to apply to reduce their bed licenses by 100% temporarily for up to five years.
- This new provider type was effective January 1, 2023.

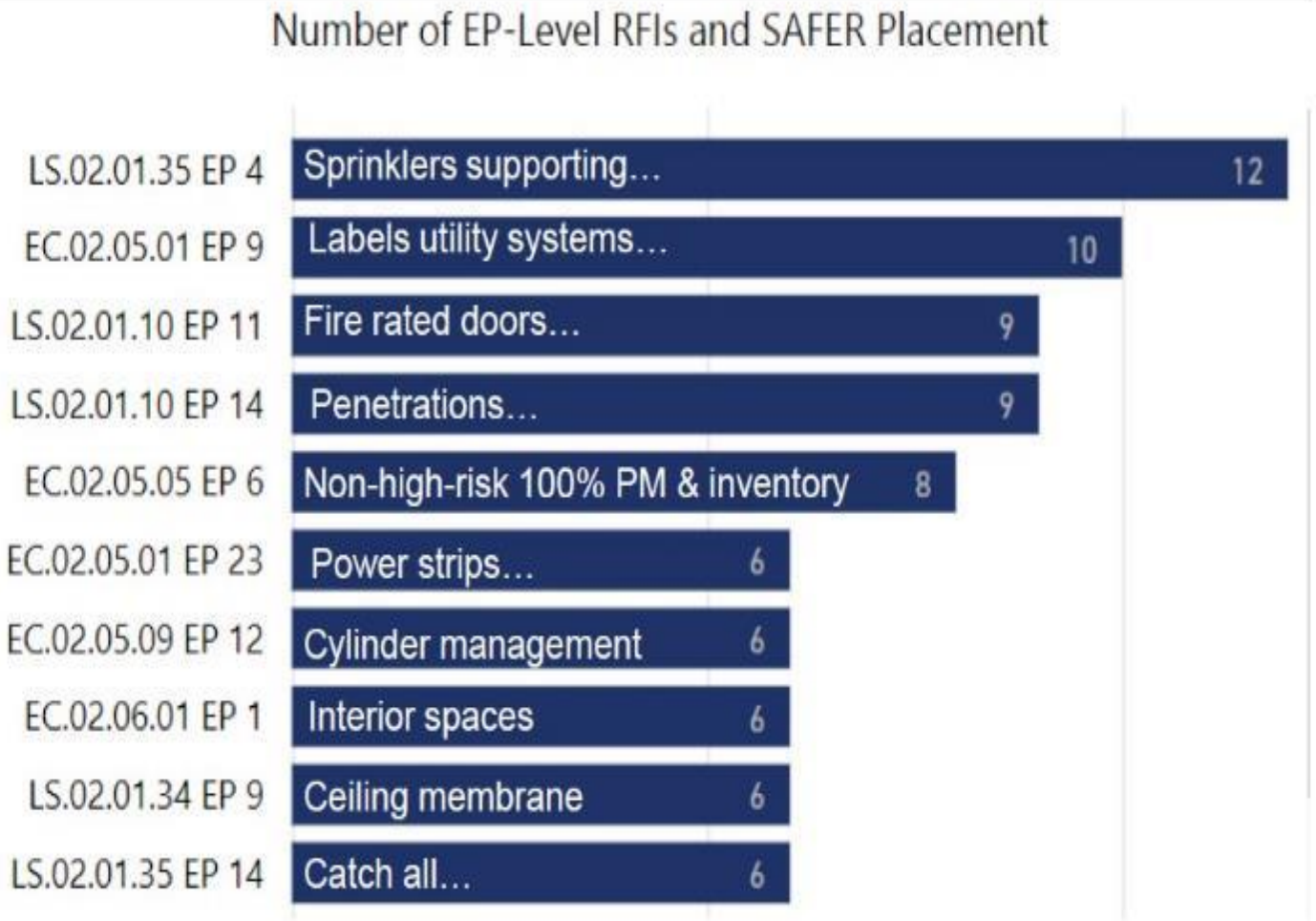
TJC Update

Scoring Trends - Top 10

- EP 1
  Individual assigned to assess Life Safety Code® compliance

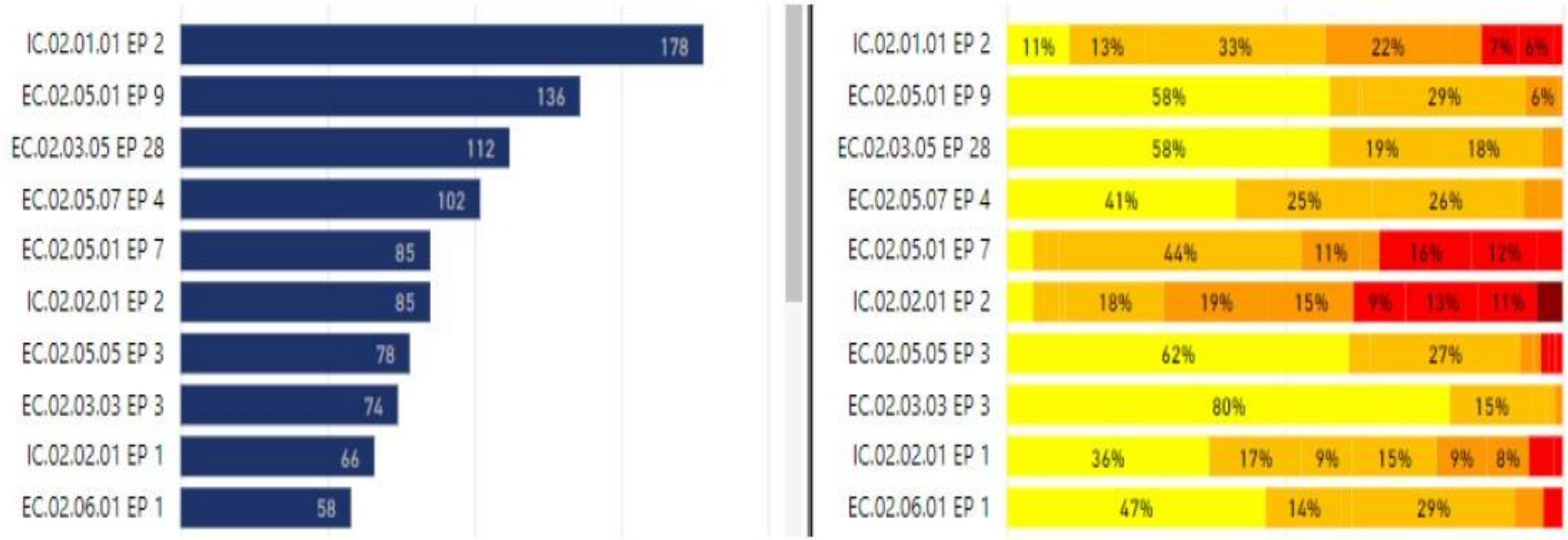
- EP 9
  - The written fire response plan describes the specific roles of staff
    When and how to sound and report fire alarms
  - How to contain smoke and fire
  - How to use a fire extinguisher
  - How to assist and relocate patients
  - How to evacuate to areas of refuge

Top 10 EC & LS - 1/1/2023 to 9/6/2023 - WI



The Joint Commission

Top 10 EC/IC Findings 2023



Most Common EC/IC Challenges

February 22, 2024

Faculty Introduction

- Elizabeth Even, RN, MSN, CEN
- Senior Associate Director, SIG
- Clinical and PES
- Standards +
- Entire Accreditation process

EC.02.05.05 EP3

The organization inspects, tests, and maintains the following: Utility systems.

The completion dates and test results are documented.

Utility System Control Labels

- The organization labels utility system controls to facilitate partial or complete emergency shutdowns. (EC.02.05.01 EP9)
- Examples of utility system controls that should be labeled:
  - Utility source valves
  - Utility system main switches and valves
  - Individual circuits in an electrical distribution panel
  - Fire alarm circuit

Utility System Control Labels

- Individual circuits in an electrical distribution panel
- "The electrical panel had 7 circuits in the on position that were labeled as spares. This was confirmed by the facility staff."

ITM Time Frames for Inspections Defined

- The Joint Commission EC chapter defines time as:
  - Every 36 months/every 3 years = 36 months from the last event, plus or minus 45 days
  - Annually/every 12 months/once a year/every year = 1 year from the last event, plus or minus 30 days
  - Every 6 months = 6 months from the last event, plus or minus 20 days
  - Quarterly/every quarter = every three months, plus or minus 10 days
  - Monthly/30-day intervals/every month = 12 times a year, once per calendar month
  - Every week = once per calendar week

Control of Airborne Contaminants

The ventilation system provides appropriate pressure relationships, air-exchange rates, filtration efficiencies, relative humidity, and temperature (EC.02.05.01 EP7)

- Operating rooms
- Special procedure rooms that require a sterile field
- Rooms for patients diagnosed with or suspected of having airborne communicable diseases
- Patients in "protective environment" rooms
- Laboratories
- Pharmacies
- Sterile supply/processing rooms
- Other sterile spaces.

The Joint Commission

Air-Pressure Relationships

Observation:

Observed in Building Tour. The air pressure in the clean side of sterile processing was negative to the corridor. The air pressure in the clean and sterile storage room (approximately 3/4 sterile items) was negative to the corridor.

Solution:

Implement monitoring process (automated)

Lab hood exhausts

- Let's talk about Lab exhaust labeling
  - NFPA 99 – 2012 > NFPA 45 - 2011 13.2 and A13.2

13.2* Exhaust Systems. Exhaust systems used for the removal of hazardous materials shall be identified to warn personnel of the possible hazards.

A.13.2 The exhaust system should be identified "WARNING — Chemical Laboratory Exhaust" (or "Chemical Fume Hood Exhaust" or other appropriate wording). Exhaust system discharge stacks and discharge vents and exhaust system fans should be marked to identify the laboratories or work areas being served.

The Joint Commission

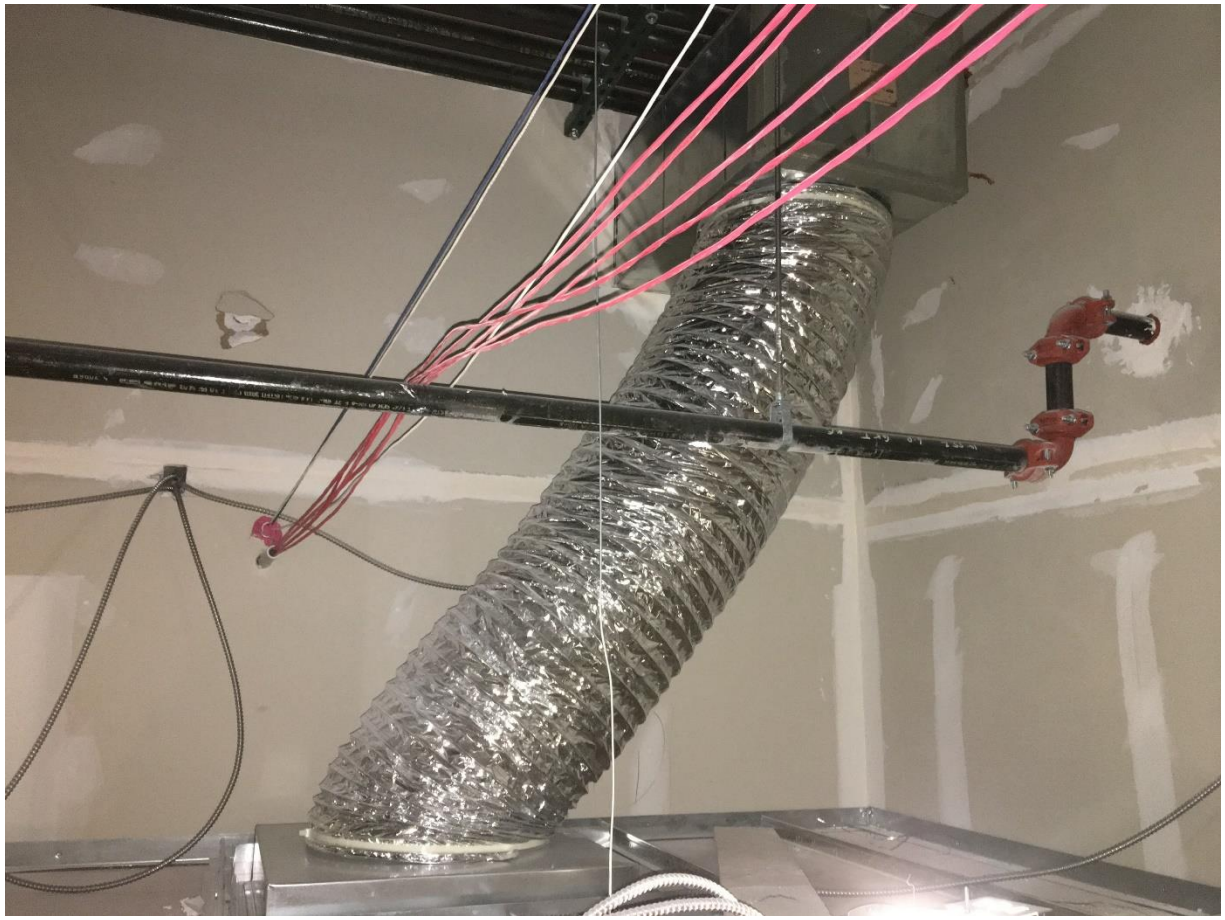
DNV Physical Environment Top 10 Findings – Q2 2023

1) Items supported by sprinkler lines. **(PE.2)**
2) Dirty/loaded sprinkler heads. **(PE.2)**
3) Fire/smoke barrier penetrations. **(PE.2)**
4) Compressed gas cylinders not individually secured. **(PE.5)**
5) Battery-powered lights not installed in required locations. **(PE.8)**
6) Inaccurate air-pressure relationships. **(PE.8)**
7) No semi-annual battery inspection for the FACP. **(PE.2)**
8) Physical environment ligature risks. **(PE.1)**
9) Annual fire door inspection incomplete or missing elements. **(PE.2)**
10) CO monitor for medical gas system INOP or not calibrated. **(PE.8)**

See also: June 2023 HFM article by Brennan P. Scott at https://www.hfmmagazine.com/articles/4769-top-10-physical-environment-findings

NFPA change clarifies requirement

NFPA 13 section 17.1.3.1 : Sprinkler piping or hangers shall not be used to support non-system components.
NFPA25 Inspections- 5.2.2.2 : Sprinkler piping shall not be subjected to external loads by materials either resting on the pipe or hung from the pipe.



DNV Requires Individually-secured Tanks

PE.5, SR5. States that ***"All compressed gas cylinders in service and in storage shall be individually-secured and located to prevent mechanical shock from falling or being knocked over."*** *This is language from section 4 of the 1999 edition of NFPA 99. Newer versions since 2005 now allow for proper group chaining of tanks.*

The PE.5 (SR.5) requirement is specific to the DNV GL accreditation requirements and may be considered by some to be more restrictive than current codes and regulations. In practice, our standard requirement allows a hospital to be in more continual compliance. When cylinders are secured together in groups, the act of un-securing them to move a cylinder often leaves the other cylinders unsecured for a period of time and subject to being knocked over. While this period of unsecured cylinders may be brief, it does still exist

New DNV Physical Environment Stds 2024

- PE.1: IG Now includes guidance for annual evaluations of management plans and maintenance of facility equipment.
- PE.2: (SR.2) New requirement that the organization maintain current life safety drawings;

(SR.6d) Requires annual operating room fire exit drills and fire safety training in accordance with NFPA 99;

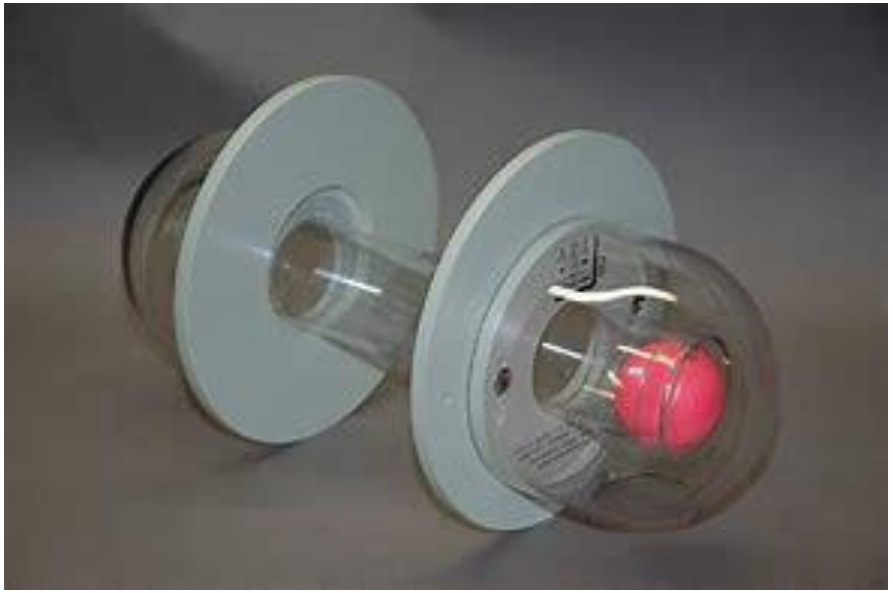
(SR.10a) Ensure fire extinguishers are inspected on at least a monthly basis.

New DNV Physical Environment Stds 2024 –contd

- PE.3: Directs organizations to maintain a hazard-free environment and oversee staff activities to minimize the risk of occupational illnesses or injuries.
- PE.4: (SR.4b) Added requirement that organizations address cybersecurity issues.
- PE.8: (SR.1a) New requirement that mandates the implementation of a water management program

Isolation Exhaust Signage AOK

Room Pressure Monitors for AIIRs (visual or audible type required by FGI 2.1-2.4.2.5)



- Must have - 0.01 in wc for neg pressure airborne infection isolation rooms (AIIRs)
- Note: Recommend – 0.01 to - 0.03 inch wc for construction zones. See ICRA 2.0

Assisted Toileting for 2021 IBC
Nursing homes, Assisted Living, & Rehab

Assisted is defined as help given or made available to another person. Assisted living facilities provide a much-needed service to senior citizens who may have difficulty with, or concerns about living on their own. Such facilities offer a safe place to live along with 24-hour assistance, healthcare services and activities that interest the residents. As the population of the US ages, the need for these types of facilities is increasing greatly.

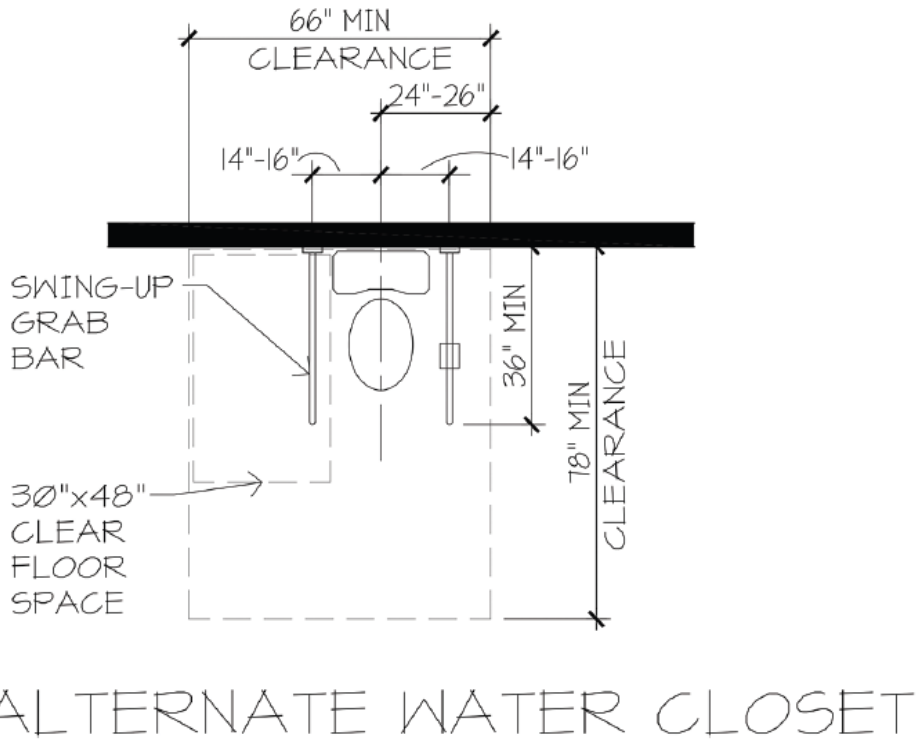
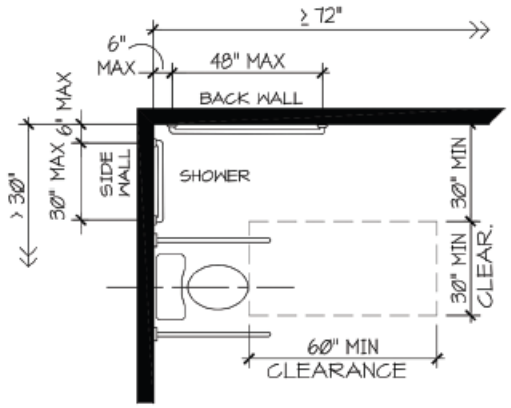
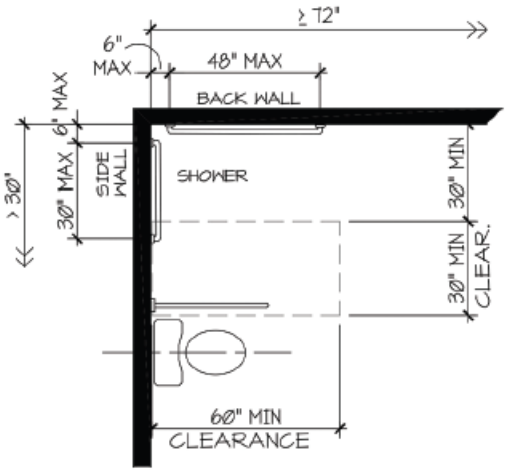


Figure 1: Alternate water closet.

The International Building Code (IBC) specifies that a percentage of assisted living, nursing homes and rehabilitation facilities offer fully Accessible units for a percentage of the rooms. This percentage increases based on the anticipated need. This percentage is 4% or 10% in the different types of Assisted Living (Group I-1, Condition 1 and 2; IBC Section 1107.5.1.1); 50% in nursing homes and 100% in rehabilitation facilities (Group I-2, Condition 1; IBC Sections 1107.5.2.1 and 1107.5.4). The technical standard referenced for the "how to" is the ICC A117.1 Accessible and Usable Buildings and Facilities (ICC A117.1; Section 1002). However, the main purpose for the ICC A117.1 states "The intent of these sections is to allow for a person with a physical disability to independently get to, enter and use a site, facility, building or element." While allowing for individuals to maintain their independence is very important, many of the elderly residents in assisted living and nursing facilities no longer have the physical strength or stability for these options to safely work for them.



ASSISTED BATHING ROLL-IN SHOWER - USING EXCEPTIONS EXAMPLE 1



ASSISTED BATHING ROLL-IN SHOWER - USING EXCEPTIONS EXAMPLE 2

Figures 3 and 4:
Assisted bathing roll-in shower using exceptions, examples 1 and 2.

The key part the assisted bathing option is to remove the requirement for permanently installed folding or fixed seats from a roll-in shower configuration and have grab bars on three walls. No fixed seat also allows more options for locations of the water controls. These wall mounted seats do not work well when residents are being assisted with showering. The wall mounted seats make it challenging for care-givers to access the back and one side of the resident they are bathing. Most often, if residents cannot stand for bathing, a portable, rolling chair is used and the folding seat stays folded up (but takes up space). This new configuration allows the care-giver greater access to all sides of the resident. In addition, the rolling chair is often easier to transfer to for older adults, than a wall mounted seat. This proposal also recognized alternate shower configurations that provide equal, if not better accessibility. For example, many nursing homes provide a "European" shower where two sides are open to the bathroom. This provides greater access for both resident with mobility issues as well as the care-giver. Water can be managed with shower curtains, either on a curtain track or an "L-shaped" curtain rod, however usually the entire room is designed to be a "wet room".

Is the location for Med Gas Zone Valve Acceptable? 2012 NFPA 99 Chapter 5.1.4.8

5.1.4.8.7 A zone valve shall be located immediately outside each vital life-support area, critical care area, and anesthetizing location of moderate sedation, deep sedation, or general anesthesia, in each medical gas or vacuum line, or both, and located so as to be readily accessible in an emergency.

5.1.4.8.7.1 All gas delivery columns, hose reels, ceiling tracks, control panels, pendants, booms, or other special installations shall be located downstream of the zone valve.

5.1.4.8.7.2 Zone valves shall be so arranged that shutting off the supply of gas to any one operating room or anesthetizing location will not affect the others.

HITF on Med Gas Zone valve location 2012 NFPA 99 Chptr 5.1.4.8

Question #2. Zone valve location – NFPA 99, 2012 and 2021 editions.
Background. NFPA 99 Handbook information that is more stringent than recent NFPA 99 Handbooks (zone valves needing to be outside the room with a closed door) was included in the 1999 Handbook (also in 2002 and 2005). See the June 20, 2023 HITF meeting agenda for attachments. The 2012 NFPA 99 Handbook was updated to correlate with NFPA 101 suite allowances and included Exhibit 5.22 which clearly shows no door separating outlets from the valve The diagram was dropped in the 2018 NPFA 99 Handbook, however, the description of the suite arrangement remains.

Calling operatories and the hall serving them the same “room” would require that in suites without doors separating rooms, zone valve(s) would need to be located outside the suite served, opposite of what the NFPA 99 Handbook and explanatory material imply. Included pictures show a zone valve located such that if you are standing in front of the valve as you would to operate it, you cannot see the oxygen outlets. If you step to the side or back, you would be able to see one or more oxygen outlets.

HITF June 20, 2023 Meeting Minutes Page 4 of 5 QUESTION #2:
Is the "room" referenced in 5.1.4.8(3) of NFPA 99-2012 and 5.1.4.6.1(5) of NFPA 99-2021 required to have a door? **ANSWER: NO**

The Zone Valve Rules

ASPE Convention & Expo 2022

The Code Says (Piping Rules):

- No outlet/inlet can exist without a zone valve {5.1.4.6.1}
- On the same floor. {5.1.4.6.3 (1)}
- All terminals must be controlled {5.1.4.6.3 (3)}
- Each Category 1 space must have its own zone valve {5.1.4.6.2}
- Each anesthetizing location (for the administration of Moderate sedation/analgesia, Deep sedation/analgesia and General anesthesia) must have its own zone valve located outside the room.
- Zone Valves may never be in series.{5.1.4.6.3 (3)}

https://surveyortraining.cms.hhs.gov/pubs/EPlaye | Course Menu Page | External Content Player

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Captivate E-Learning Course Exit

CMS LSC TRANSITION COURSE
NFPA 99, Lesson 2: Chapters 5 and 11, *Gas and Vacuum Systems and Gas Equipment*

EXIT RESOURCES HELP

- Introduction
- Category 1
- Category 2
- Category 3
- K-tags
- Knowledge Check
- Medical Gas Equipment
- Knowledge Check
- Conclusion

CATEGORY 1 ZONE VALVE LOCATIONS

In new and altered systems, zone valves must be installed immediately outside each vital life-support area, critical care area and anesthetizing location, where moderate sedation, deep sedation or general anesthesia is used.

3.3.63.1 Deep Sedation/Analgesia - A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained. (MED)

3.3.63.2 General Anesthesia - A drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired. (MED)

3.3.63.4 Moderate Sedation/Analgesia (Conscious Sedation) - A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patient airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained. (MED)

There is a level of "minimal sedation," as defined in NFPA 99 Section 3.3.63.3, which is not addressed in 5.1.4.8.7.

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A few slides from Zac – EMGS presentation to EC-MISHE Dec 2023

Responsible Facility Authority (RFA) (5.1.14.1)

- Each Healthcare Facility Shall Designate one or more individuals to be the RFA with respect to the facilities med gas & vacuum systems
- Responsible For:
  - Advising on Section 1.3 & Risk assessment in accordance with Section 4.2
  - Writing & upkeep of facility's emergency plan that might affect or be affected by piped medical gas systems
  - Ensuring facility's emergency plan specifically addresses unusual or exceptional requirements necessary for patients & staff safety
  - Developing & Enforcing permit-to-work rules pertaining to piped medical gas & vac equipment to maintain patient, staff, & visitor safety during repair, maintenance, or construction
  - Evaluation & Acceptance of the test reports required in 5.1.12
  - Maintenance of the facility's records on piped medical gas systems & operations.

System Inspection (5.1.12.3.1.1)

- System Inspections shall be performed prior to concealing piping distribution systems in walls, ceilings, chases, underground, or otherwise hidden from view
- Inspection shall be performed by a party technically competent & experienced in the field of medical gas/vacuum pipeline inspection and testing & meet the requirements of ASSE 6020, or 6030
- Initial pressure test performed by the installing contractor shall be witnessed by an ASSE 6020 inspector or 6030 verifier.

Clinical Space to Nonclinical Space (5.1.14.3.5)

- When clinical spaces are converted to nonclinical spaces, medical gas inlets & outlets that are not accessible for maintenance & testing shall be removed or decommissioned.


Fish
COME IN THREE SIZES:
Small Medium
AND THE ONE THAT
Got Away.

Management of Dead-End Plumbing per 2018 FGI Guidelines

- For renovation of existing HC facilities, per FGI, all dead-end piping must be removed. Note: 2007 Min Design Stds in Mi allowed dead legs up to 6 inches in length to remain.

- For new construction, dead end piping is not permitted (not even for future expansion).

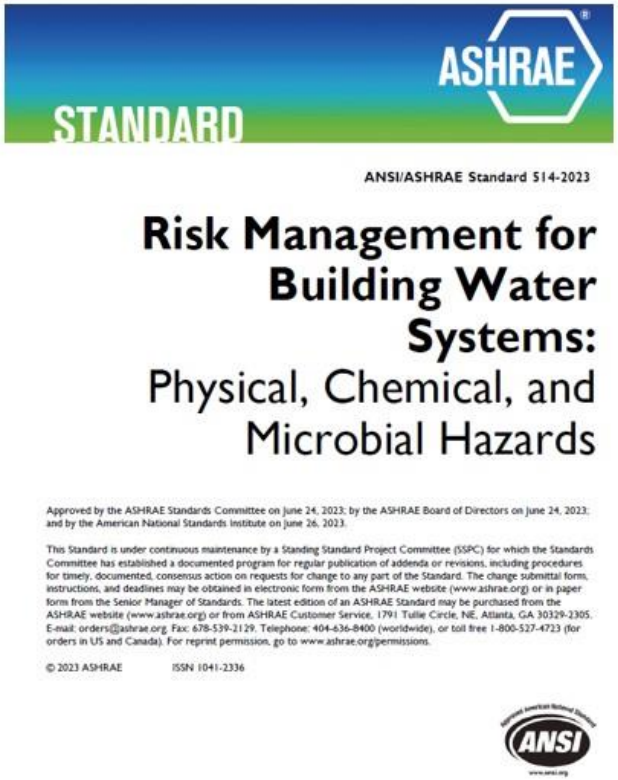
- In new healthcare construction, unrecirculated hot water runs longer than 25 ft are prohibited (2022 FGI limits to 10 ft)

Inpatient Dialysis water boxes

- Required in ICU patient rooms.
- Water supply must be protected with RPZ backflow.
- OK to have one RPZ protect series of water boxes, but can't loop back into potable water supply, thus it is essentially dead ended since not used often. **(Some AHJs require one RPZ per water box).**
- Recommend plumbing past last water box to a janitor closet or other drain and install automatic valve to open and flush water at least weekly.
- **Note: FGI 2022 does not allow shared water boxes.**

ASHRAE 514

- Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards
  - The purpose of this standard is to establish minimum requirements to reduce illness and injury from physical, chemical, and microbial hazards from water systems in buildings.
- **Published June 2023**
  - Now available via ASHRAE
  - Has not been adopted



ASHRAE Standard 514-*2023*

Risk Management for Building Water Systems: Physical, Chemical and Microbial Hazards

Where Standard 188 and Guideline 12 focus on harmful disease associated with legionella, Standard 514 pulls back to address ***microbial risk*** more broadly, and the associated ***physical*** and ***chemical*** hazards associated with its mitigation.

- Addresses Water age in Construction Start Up Procedures
- Includes requirements for flushing/disinfection of potable water premise plumbing in construction not yet occupied.

ASHRAE 514 Start-up Flushing and Disinfection Procedures

- **7.4 *Start-up* Procedures.** Instructions for placing all *building water systems* into operation, and for confirming that the systems are operating as designed, *shall* be provided to the building *owner* or *designee*, and *shall* include the following:

1. Procedures for flushing and *disinfection*:
2. Procedures *shall* comply with all applicable national, regional, and local codes and regulations.
3. Flushing, *disinfection*, and final flushing of *potable building water systems shall* be completed within three weeks prior to *beneficial occupancy*.
4. **If *beneficial occupancy* of any part of the building is delayed more than two weeks but less than four weeks after *disinfection*, flushing of all fixtures *shall* again be completed.**
5. If *beneficial occupancy* of any part of the building is delayed four weeks or more after *disinfection*, the need for *disinfection*, flushing, or both *disinfection* and flushing of unoccupied areas *shall* be determined by the *Program Team*.

Beneficial Occupancy **defined**

The term ***beneficial occupancy*** is defined in the glossary as: *stage of construction when all or part of a building is to be occupied for the purpose that the building was constructed, whether before or after completion.*

The requirement in section e.2.i essentially requires new construction projects to ensure timing of flushing and disinfecting the potable water system within 2 weeks of "beneficial occupancy."

Editor's note*: Although this recommended timeframe may change before the final version of ASHRAE 514 is approved, it seems to be consistent with other guidance current in the industry today.*

Monthly flushing of stagnant or unused plumbing fixtures in healthcare facilities now seems to be too long of a period to wait. Weekly flushing or maybe every other week seems more acceptable.

To Treat Water on-site or Not to treat?

- Older HC facilities with recurring spikes in Legionella test results have decided to go with on-site treatment to help eliminate biofilm.
- Regulatory burden for ongoing testing, state certification, and documentation discourages many HC facilities from going to “secondary” on-site water disinfection.
-

ASHE Code update

by Jonathan Flannery

NFPA 99 -Health Care Facilities Code

- 2021 vs. 2024 Edition Med Gas Limitations
- OR Surgical Smoke Removal
- Oxygen Concentrators
- Corrugated Medical Tubing
- Med Gas Responsible Facility Authority
- Med Gas Permit to work system
- Technology other than Generators allowed for Essential Electrical Systems

NFPA 101 -Life Safety Code

- No maintenance of non-required fire doors required
- No 30 day exit sign inspection
- No ABHR refill test and sign off
- Private operating mode clarified
- Limitation on number of trash cans removed, density requirements removed
- Temporary flame-resistant plastic barriers allowed
- 40,000 s.f. Compartments allowed in new and existing

NFPA Health Care Interpretations Task Force

- HITF Meeting usually held every June
- Representatives: TJC, DNV, CHIQ, DOD, VA, ASHE, et. al.

Topics included hazardous storage rooms in business and ambulatory occupancies, zone valve locations, cross corridor door latching, multiple-outlet connections, and levels of sedation, Spare breaker "On" / "Off" position and more...

Submit questions for HITF to **cbeebe@aha.org**

ICC Committee on Healthcare

- Currently working on:
  - **Carbon Monoxide** detection exceptions
    - Not served by a carbon monoxide producing forced-air furnace.
    - Where carbon monoxide detection is installed in an enclosed room or area containing the carbon monoxide source that is not contiguous to the sleeping unit, and an alarm signal shall be transmitted to an approved location
  - **ABHR**
    - Align with current health care practices
    - Align MAQ's with NFPA 30 and GHS requirements
  - **Microgrids**
    - Alignment with NFPA 99 and NEC

ICC Committee on Healthcare

- Currently working on:
  - **Control Vestibules**
    - Allowance for high security areas
  - **Locking of doors** for 'Clinical Need'
    - Concern that security issues are not clinical need
  - **Structural Risk Categories**
    - Group I-2, Condition 2 from Category 2 to 4
    - Concern about existing facilities being renovated
  - **Align with ASHRAE/ASHE 170**
    - Allowance of Natural Ventilation
    - Update Outpatient Ventilation Rates
      - ASHRAE/ASHE 170 Tables 8.1 & 8.2

Miscellaneous Concerns Identified on Surveys

*** OLD STANDARD: 2007 MINIMUM DESIGN STDS REQUIRED 10 INCH CLEARANCE**

2.1.A1 Handwashing facilities shall provide the discharge point at least 10 inches above the bottom of the basin.

* MICH 2020 LICENSING RULES - SILENT

* 2018 FGI GUIDELINES - HOSPITAL 10 INCH

2.1-8.34.3.2 (2) The water discharge point of handwashing sink faucets shall be at least 10 inches above the bottom of the basin.

* 2018 FGI Guidelines – Resident room 8.5 inch

2.1-8.4.3.2 (3) Fittings (a) The water discharge point of a handwashing sink faucet shall be at least 8.5 inches above the bottom of the basin for resident rooms/bathrooms and 10 inches above the bottom of the basin for all other locations.

s

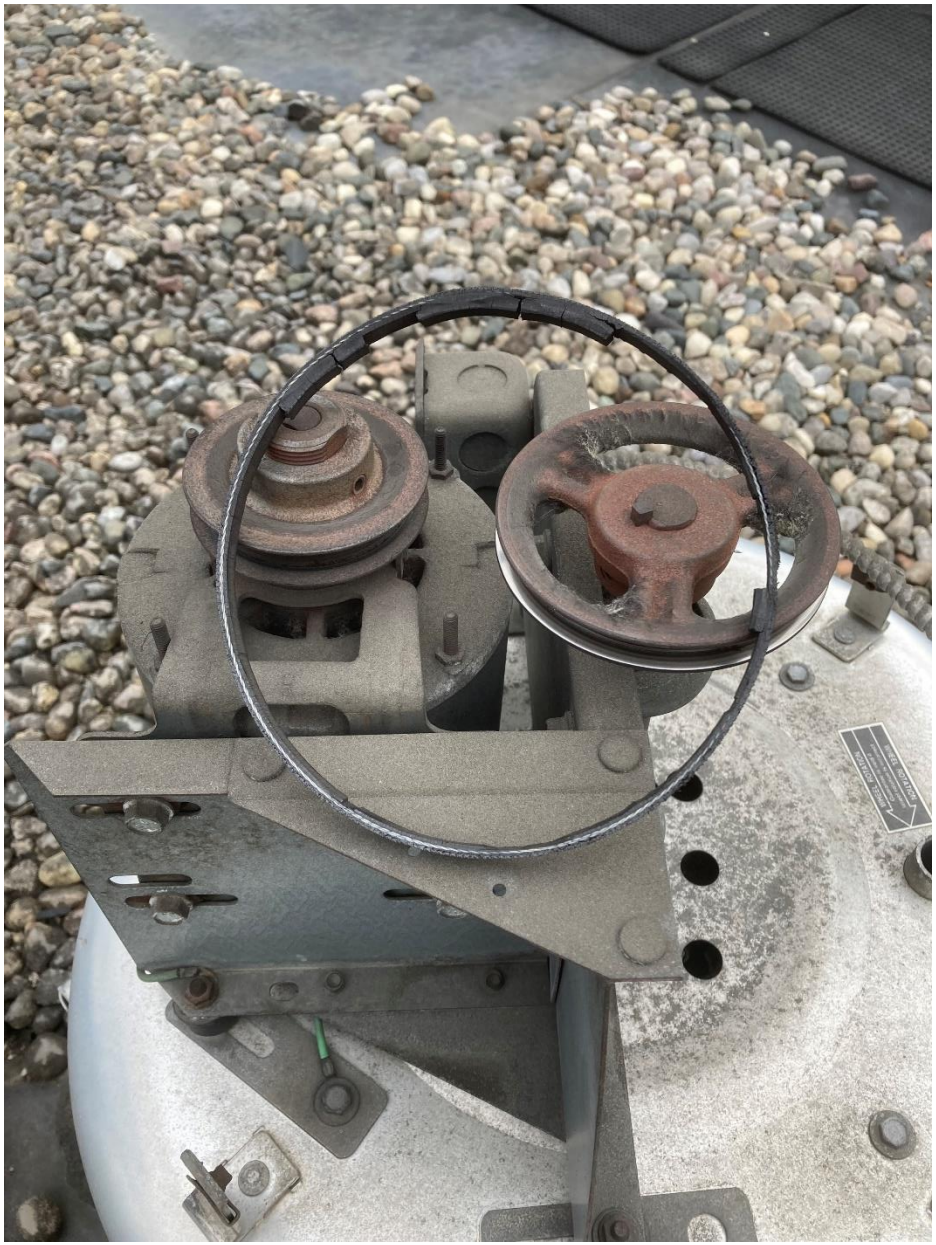
Violation? Is this easily moveable?

Most accrediting agencies would cite even for a stretcher parked in front of med gas zone valve box.

Medical Gas Zone Control Valves – Common cites

- Obstructed such as blocker behind stretchers or other equipment or behind door
- In line of sight of gas outlets where used
- Note: Past HITF interpretation allowed stretcher, etc. in front of zone valve if easily moveable. Portable x-ray machines would not be considered easily moveable.

After testing for negative pressure of soiled utility room, inspector visited roof to check exhaust fans



No issues here.

Damper Testing - 2

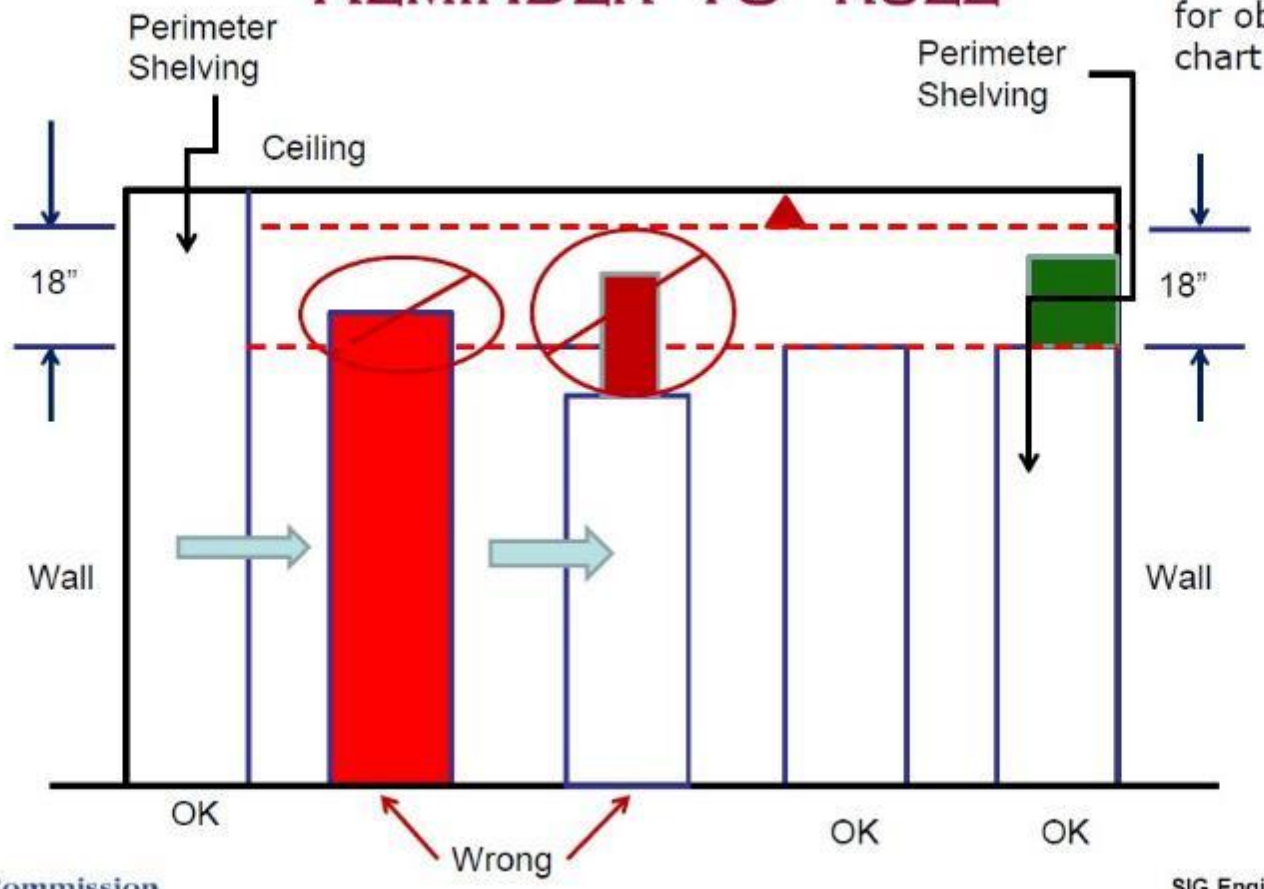
Noncompliance Damper Testing

Damper Testing - 4

Non-compliant Damper Test

Reminder - 18" Rule

See NFPA 13-2010 for obstructions chart 8.12.5.5.5



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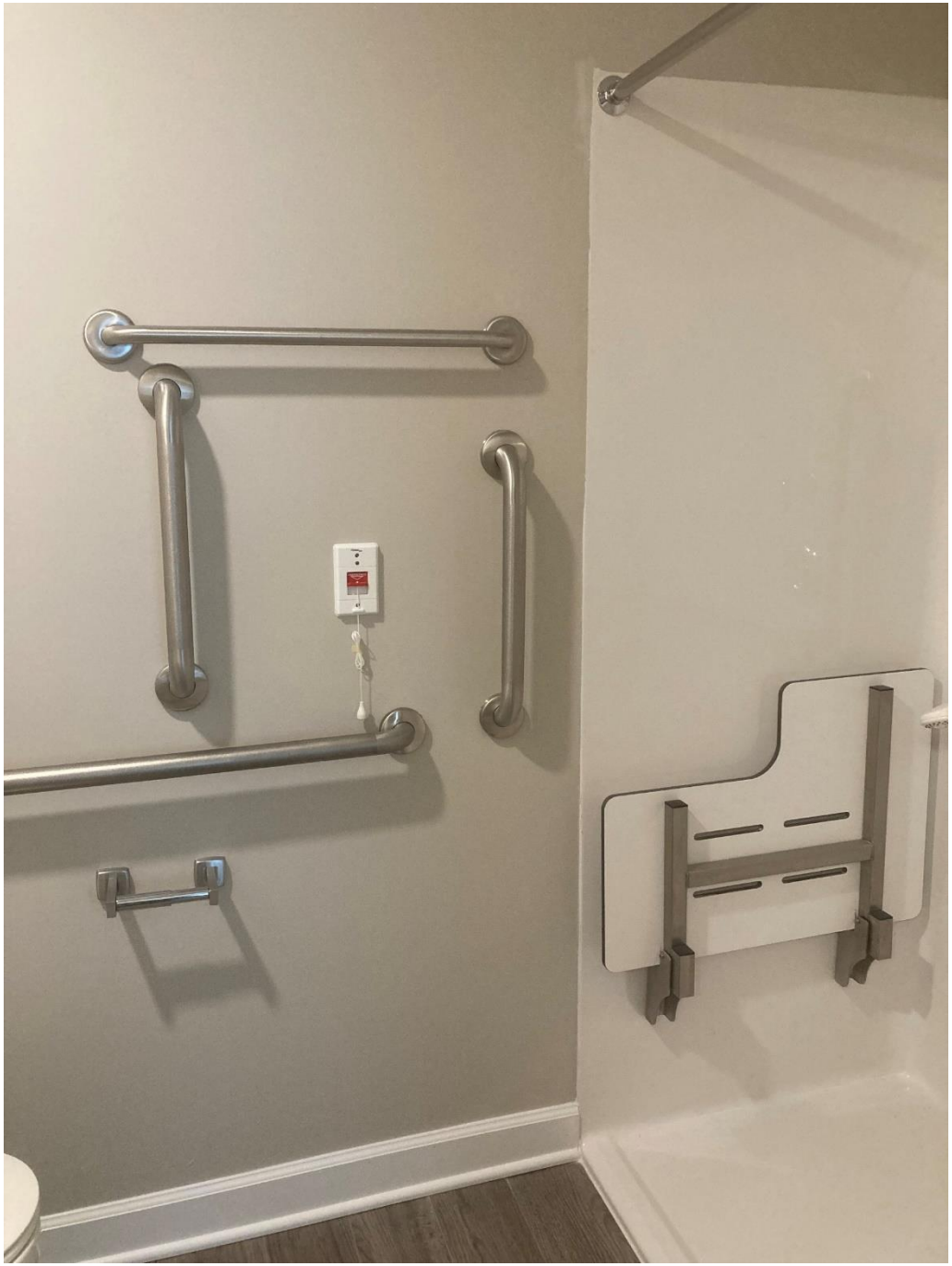
SIG Engineering 2011 - 37

Window had stops to prevent raising up but not to prevent folding out.

In Memory Care all windows must be secured or restricted to prevent elopement

You can’t have too many grab bars



Best Practice: Foam seal on edge of filter bank to prevent air bypass.

But ASHRAE 6.4.1 requires filter bank blank-off panels to be permanently attached.

ASHRAE 170

6.4.1 Filter-Bank Blank-Off Panels. Filter-bank blank-off panels shall be permanently attached to the filter-bank frame, constructed of rigid materials, and have sealing surfaces equal to or greater than the filter media installed within the filter-bank frame.

6.4.2 Filter Frames. Filter frames shall be durable and proportioned to provide an airtight fit with the enclosing ductwork. All joints between filter segments and enclosing ductwork shall have gaskets or seals to provide a positive seal against air leakage.

Acceptable?

Ligature resistant Behavioral Health patient toilet room door - typically magnet or Velcro mounted hinge - OK

AT LUNCH WITH BIGFOOT IN MUNISING

Does this meet the 20-foot clear window view requirement?


Need a more remote
Emergency stop

This eyewash gets a thumbs up!

It operates without splashing over rim of sink.

BUT… no 4-inch wrist blades

Roll-in shower has No fixed bench and controls on wrong wall.
But OK with Barrier Free waiver and future ANSI 117.1 nursing home exception.

No wasting tee.

Is eyewash water tepid (50 – 100 F)?

Also, eyewash was not mounted in a way that can be used hands-free.

What's wrong here?

Answer: Ceiling tile in sterile storage (a semi-restricted area) is not smooth and non-perforated. Any exceptions?

2018 FGI *(2) Semi-restricted areas

A2.1-7.2.3.3 (2) Semi-restricted areas. These include areas such as procedure rooms, Class 2 imaging rooms, AII rooms, trauma rooms, endoscope processing rooms, decontamination rooms, clean corridors, and central sterile supply.

(a) Ceiling finishes in semi-restricted areas shall be:
(i) Smooth and without crevices
(ii) Scrubbable
(iii) Non-absorptive
(iv) Non-perforated
(v) Capable of withstanding cleaning with chemicals

(b) Where a lay-in ceiling is provided, it shall be gasketed or each ceiling tile shall weigh at least one pound per square foot.

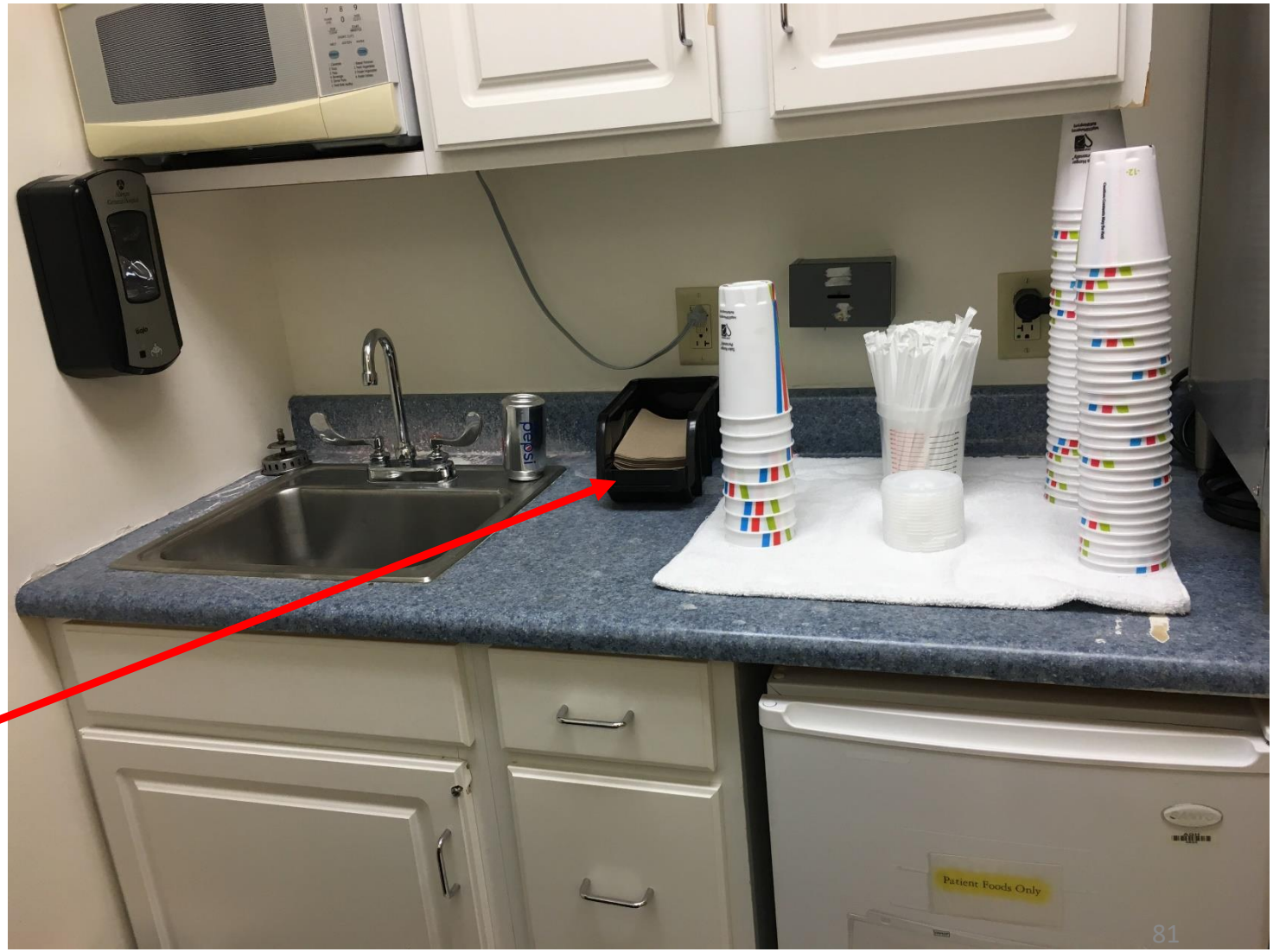
(c) Use of perforated, tegular, serrated, or highly textured tiles shall not be permitted in semi-restricted areas.

Keep all HVAC ducts covered during construction

Clean supplies within splash zone of sink (approx 3 ft)

Recommend splashguard.

Paper towel dispenser must dispense down or horizontal not up.



What's Wrong With This Picture

Answer: Shut off valve downstream of atmospheric vacuum breaker. See pg 22 of 2008 MI Cross Connections Rules Manual

2008 Michigan Cross Connection Rules Manual p 22

4.3.1 *Atmospheric Vacuum Breakers (AVB)*

An AVB allows air to enter the water supply line when the pressure in the public system or the service line is reduced to zero or below. During normal flow, a float within the device is pushed up and seals the air inlet. When a backsiphonage condition develops, the float drops and allows air to enter through the air inlet, preventing backsiphonage. Figure 4-7 shows an AVB under normal and no flow conditions plus a typical installation. AVBs are considered nontestable devices.

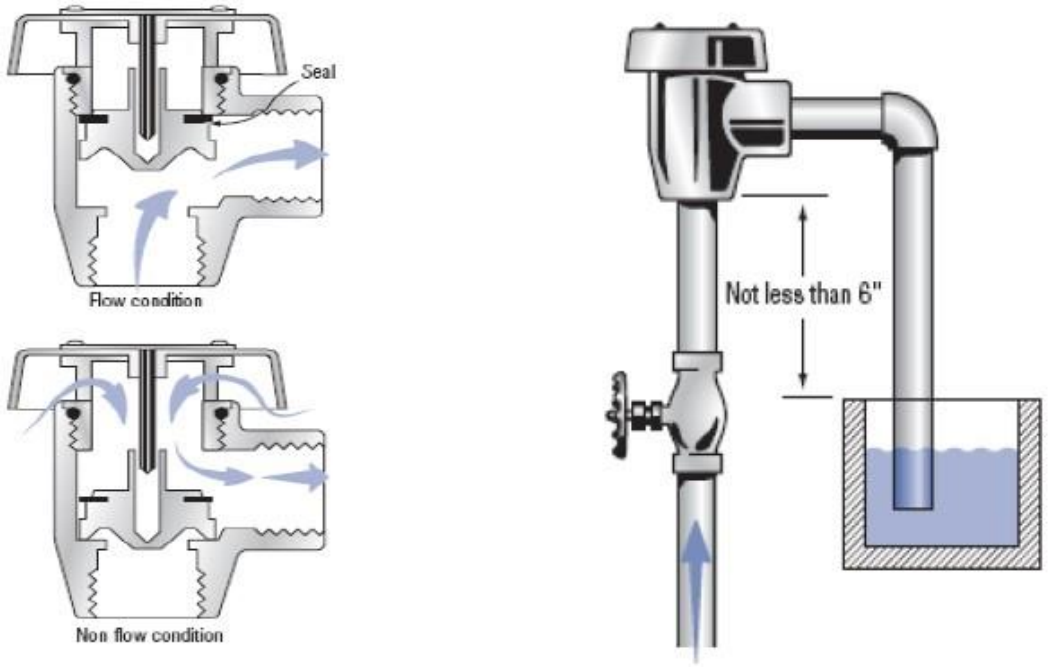


Figure 4-7

AVBs shall not be installed where they will be under continuous pressure for more than 12 hours (i.e. no downstream shutoff valve).

What's wrong with this picture?

Gap between wheelchair and ADA bench more than 3 inches.

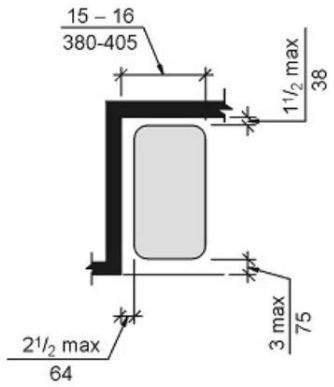
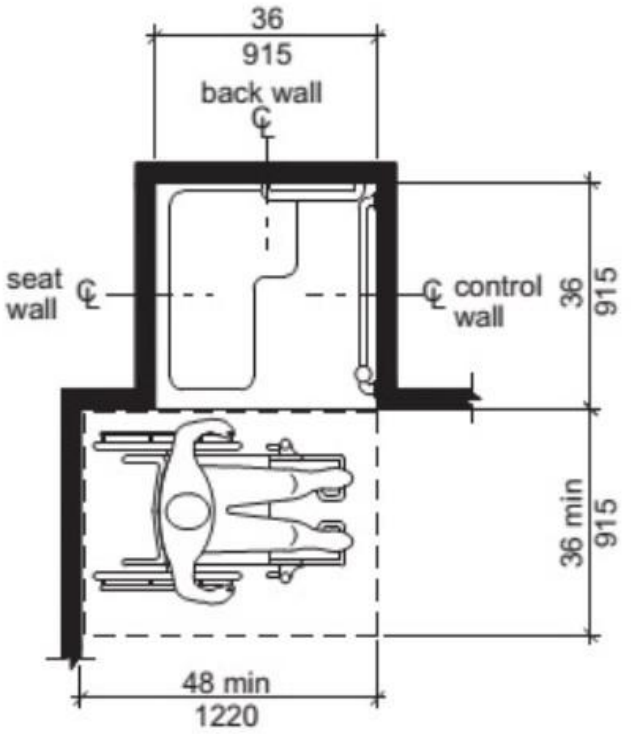


FIG. 610.3.1 RECTANGULAR SHOWER COMPARTMENT SEAT



Note: inside finished dimensions measured at the center points of opposing sides

FIG. 608.2.1 TRANSFER-TYPE SHOWER COMPARTMENT SIZE AND CLEARANCE


THE END

My brother Mike at his UP deer camp says it's time for Happy Hour – Homemade Grappa anyone?

Bonus Slides

10. This accident waiting to happen:

Can temperatures be outside of established range in operating rooms?

Any examples are for illustrative purposes only.

The Joint Commission references NFPA 99-2012 Chapter 9, that requires the use of ASHRAE 170-2008, Ventilation Table 7-1. This document provides allowances to exceed minimum temperature ranges. To use this exception, it must be done by following the established organizational policy. In accordance with the allowances, the policy or formal process must be limited to cases based on either surgeon, patient, or procedure. It is not acceptable to consistently maintain temperatures outside of the required ranges

- This is not a blanket exception but one to be used on a case-by-case basis. Once the surgical procedure has been completed the temperature is to be returned to the normal range. Additionally, when the temperature is temporarily adjusted outside of the established range, there is still an expectation that relative humidity levels remain below 60%.

Reference EC.02.05.01 EP 15

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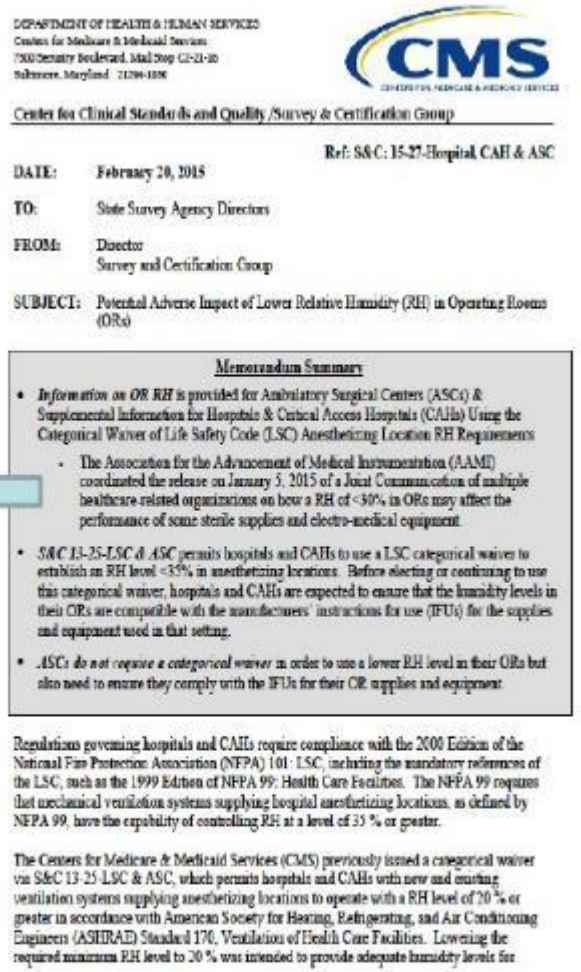
Memorandum Summary

- ***Information on OR RH*** is provided for Ambulatory Surgical Centers (ASCs) & Supplemental Information for Hospitals & Critical Access Hospitals (CAHs) Using the Categorical Waiver of Life Safety Code (LSC) Anesthetizing Location RH Requirements
  - The Association for the Advancement of Medical Instrumentation (AAMI) coordinated the release on January 5, 2015 of a Joint Communication of multiple healthcare-related organizations on how a RH of <30% in ORs may affect the performance of some sterile supplies and electro-medical equipment.
- ***S&C 13-25-LSC & ASC*** permits hospitals and CAHs to use a LSC categorical waiver to establish an RH level <35% in anesthetizing locations. Before electing or continuing to use this categorical waiver, hospitals and CAHs are expected to ensure that the humidity levels in their ORs are compatible with the manufacturers' instructions for use (IFUs) for the supplies and equipment used in that setting.
- ***ASCs do not require a categorical waiver*** in order to use a lower RH level in their ORs but also need to ensure they comply with the IFUs for their OR supplies and equipment.



DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-15
Baltimore, Maryland 21244-1850

CMS

Center for Clinical Standards and Quality /Survey & Certification Group

Ref: S&C: 15-27-Hospital, CAH & ASC

DATE: February 20, 2015

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Potential Adverse Impact of Lower Relative Humidity (RH) in Operating Rooms (ORs)

Memorandum Summary

- ***Information on OR RH*** is provided for Ambulatory Surgical Centers (ASCs) & Supplemental Information for Hospitals & Critical Access Hospitals (CAHs) Using the Categorical Waiver of Life Safety Code (LSC) Anesthetizing Location RH Requirements
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- ***ASCs do not require a categorical waiver*** in order to use a lower RH level in their ORs but also need to ensure they comply with the IFUs for their OR supplies and equipment.

Regulations governing hospitals and CAHs require compliance with the 2000 Edition of the National Fire Protection Association (NFPA) 101: LSC, including the mandatory references of the LSC, such as the 1999 Edition of NFPA 99: Health Care Facilities. The NFPA 99 requires that mechanical ventilation systems supplying hospital anesthetizing locations, as defined by NFPA 99, have the capability of controlling RH at a level of 35 % or greater.

The Centers for Medicare & Medicaid Services (CMS) previously issued a categorical waiver via S&C 13-25-LSC & ASC, which permits hospitals and CAHs with new and existing ventilation systems supplying anesthetizing locations to operate with a RH level of 20 % or greater in accordance with American Society for Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 170, Ventilation of Health Care Facilities. Lowering the required minimum RH level to 20 % was intended to provide adequate humidity levels for

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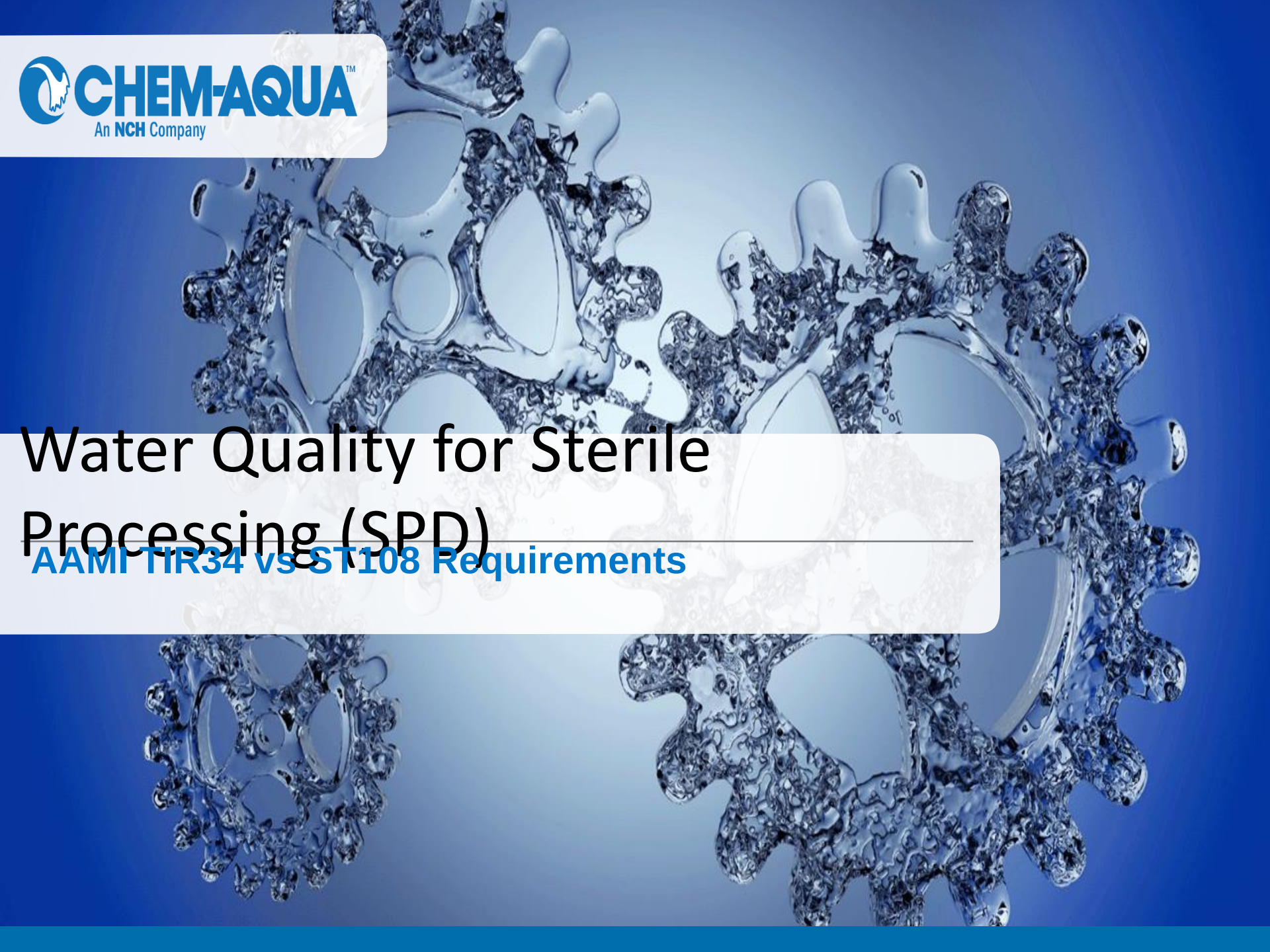


Water Quality for Sterile Processing (SPD)

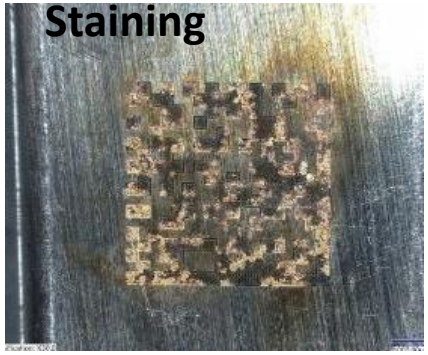
AAMI TIR34 vs ST108 Requirements

Why is AAMI ST108 Important?

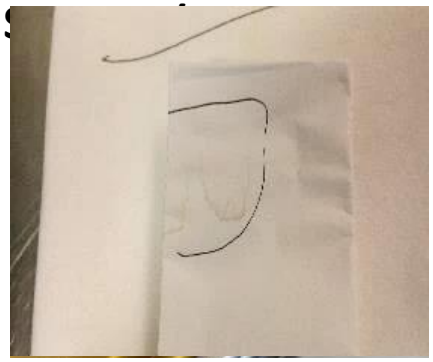
- Instrument staining & wet pack problems in SPD can shut down surgery; <u>if surgery is down, hospitals not generating revenue</u>
- Problems difficult to troubleshoot since so many contributing factors/vendors involved ✓
  - Steam quality and purity ✓
  - Utility and critical water quality
  - Incompatible / overfeed washer chemicals
  - SPD processes
- ST108 designed to remove water quality and steam from troubleshooting equation

Wet Packs / Staining

Instrument



Instrument Corrosion



Wet Pack

AAMI ST108 Support

- Finalized August 2023
  - Expands on previous guidance document TIR34:2014
  - Adds new standards for UV disinfection, endotoxin filters,
    distribution loops, steam purity, and expanded testing
- Compliance may be required by instrument washer
  manufacturers in their instructions for use (IFU)
- Chem-Aqua can help evaluate existing critical

Utility Water vs. Critical Water

4.2 Two categories of water quality

Table 1 describes two categories of water quality in terms of the characteristics that are important for medical device reprocessing and the level of treatment that may be needed:

a) **Utility Water:** Water as it comes from the tap that might require further treatment to achieve the specifications. This water is mainly used for flushing, washing, and rinsing.

NOTE—The decision regarding the need to treat incoming tap water to provide adequate water for medical device reprocessing should be undertaken in every facility that reprocesses medical devices (see Introduction).

b) **Critical Water:** Water that is extensively treated (usually by a multistep treatment process that could include a carbon bed, softening, DI, and RO or distillation) to ensure that the microorganisms and the inorganic and organic material are removed from the water; a final submicron filtration could also be part of the treatment process. This water is mainly used for the final rinse or steam generation.

Thank you!

Questions & Answers

LARA
LICENSING AND REGULATORY AFFAIRS