

Room Pressurization and ICRA During Healthcare Construction Activities



Presenters



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Overview

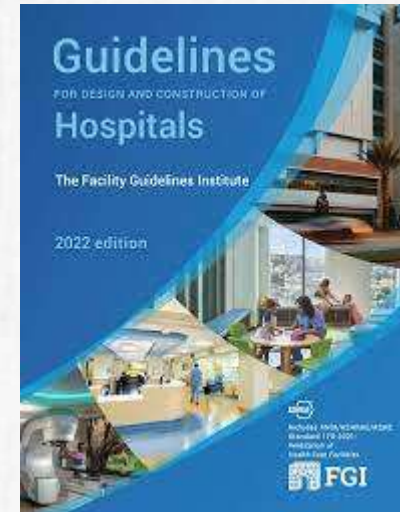


- Room Pressure Relationships in Healthcare Construction
- Infection Control and Risk Assessment Planning
- ICRA Best Practices
- Healthcare Construction Barriers
- Hazard Containment
- Creating Pressure in Healthcare Construction
- Monitoring Airflow
- Documentation during Construction

Healthcare Room Pressure Relationships



- FGI guidelines/ASHRAE 170
- Airflow from clean to dirty
- Test and balance readings before, during, and after construction



ICRA



- Why is it important?
- What is it?

ICRA 2.0



ICRA 1.0 Table 2 – Highest-risk Areas

- Any area caring for immunocompromised patients.
- Burn unit.
- Cardiac catheterization lab.
- Central sterile supply.
- Intensive care units.
- Negative pressure isolation rooms.
- Oncology.
- Operating rooms, including C-section rooms.

ICRA 2.0 Table 2 – Highest-risk Areas

- Procedural, invasive, sterile support and highly compromised patient care areas, such as:
- All transplant and intensive care units.
 - All oncology units.
 - Operating room theaters and restricted areas.
 - Procedural suites.
 - Pharmacy compounding.
 - Sterile processing department — clean side.
 - Transfusion services.
 - Dedicated isolation wards and units.
 - Imaging suite — invasive imaging.

ICRA



Nursing Staff

Knows the Patient Needs

- Highest Priority: Caring for patients



Facilities Manager

Knows the Facility

- Highest Priority: Keep systems operating and building safe

Those who
are
affected
by the
work

Those who
complete
the ICRA
2.0

Those who
carry out
the work
defined by
the ICRA
2.0

Those who
approve
the ICRA
2.0

Contractor

Knows the Work

- Highest Priority: Keep staffing and materials needs realistic to get the job done



Infection Preventionist

Knows Pathogen and Mitigation

- Highest Priority: Prevent infection and risk to patient and facility



Construction Barriers



- Types of Barriers – drywall, poly, modular
- What effect do they have on pressurization
- Why and when do you use certain types
- Anteroom for critical spaces
- Coordinate with Interim Life Safety (ILSM)

Construction Barriers



<https://www.mhfi.com/facilities/inside-look-at-new-hospital>

ILSM



- What is ILSM?
- Who is responsible?
- Example Matrix/temporary path of egress

ILSM Assessment Matrix Pre-Construction

Reason for Assessment(Circle): Code Deficiency Construction Project Life Safety Disruption

Project Location: Central bldg - 2nd floor corridor / Phase 5A

Expected Start Date: 11.15.22

Expected Completion Date: 12.2.22; revised: 12.15.22

Situation/Condition	Yes	No
Obstruction of Required Exit	X	
Taking a required fire alarm system, including initiation or notification devices, out of service for more than 4 hours in a 24-hour period		X
Taking a required fire suppression system out of service for more than 10 hours in a 24-hour period		X
Loss of Emergency Power		X
Lack of proper protection of hazardous areas		X
Major renovation of an occupied floor involving removal, changing or alteration of walls, ceilings, corridor doors, and/or medical gas, HVAC or utility systems		X
Lacking or breaching of smoke or fire barrier walls or fire-rated floor or ceiling assemblies		X
Large quantities of combustible materials, storage/use of flammable liquids or gases, or generation of large amounts of dust or debris		X
Significant ignition sources such as cutting or welding or use of temporary heating devices		X
Obstruction of fire department or other emergency access to the building		X
Major Life Safety Code deficiency: (Please specify):		X
Other factors: (please specify):		

Note: Any YES answer signifies that Interim Life Safety Measures (ILSM) must be implemented. ILSM selected to ensure that minimum fire/life safety is maintained must be documented on a separate matrix or checklist.

Findings : ☒ ILSM Required ☐ ILSM are not necessary

Date of Assessment: 11.15.22

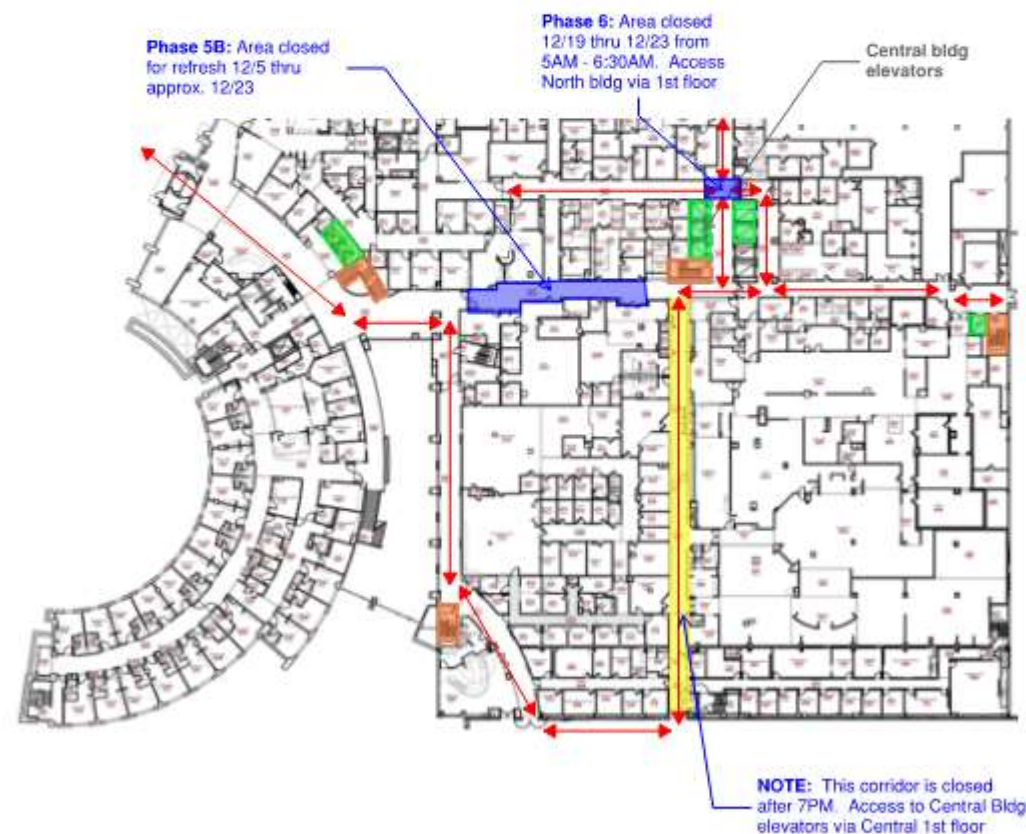
Assessment Completed by (name and title): Kelley Olson, Facilities Project Manager

We're remodeling

Thanks for your patience

Central Building - 2nd floor corridor refresh Phase 5B: Area closed 12/5 thru 12/23

Area of refresh Available elevators Available stairwells



Pressure in Construction Areas



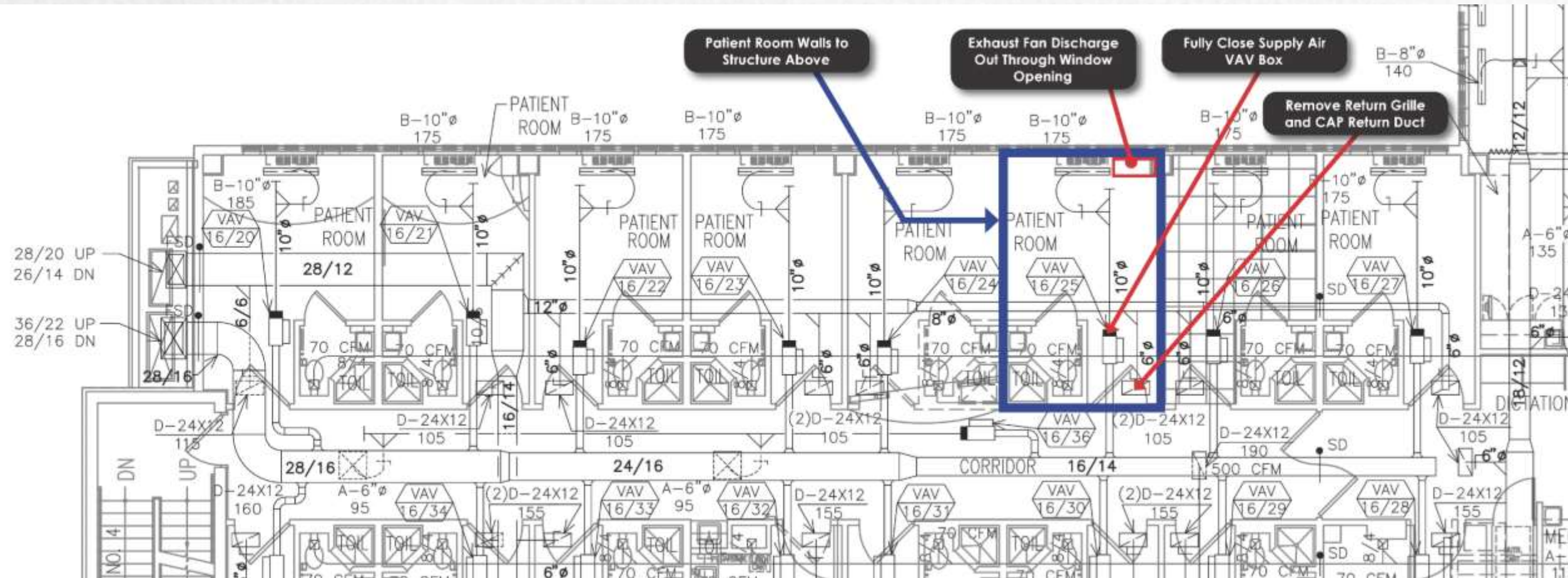
- Construction area under negative pressure
- Airborne dust control
- Need sealed ICRA barriers

Pressure in Construction Areas

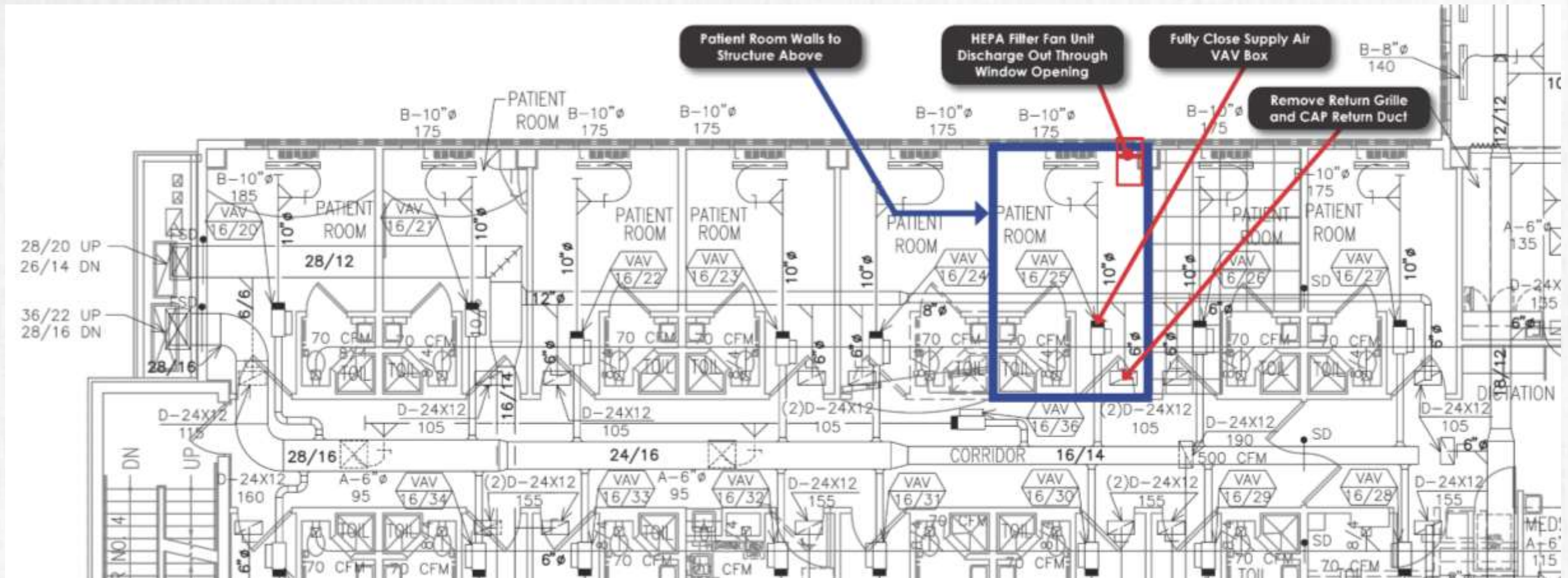


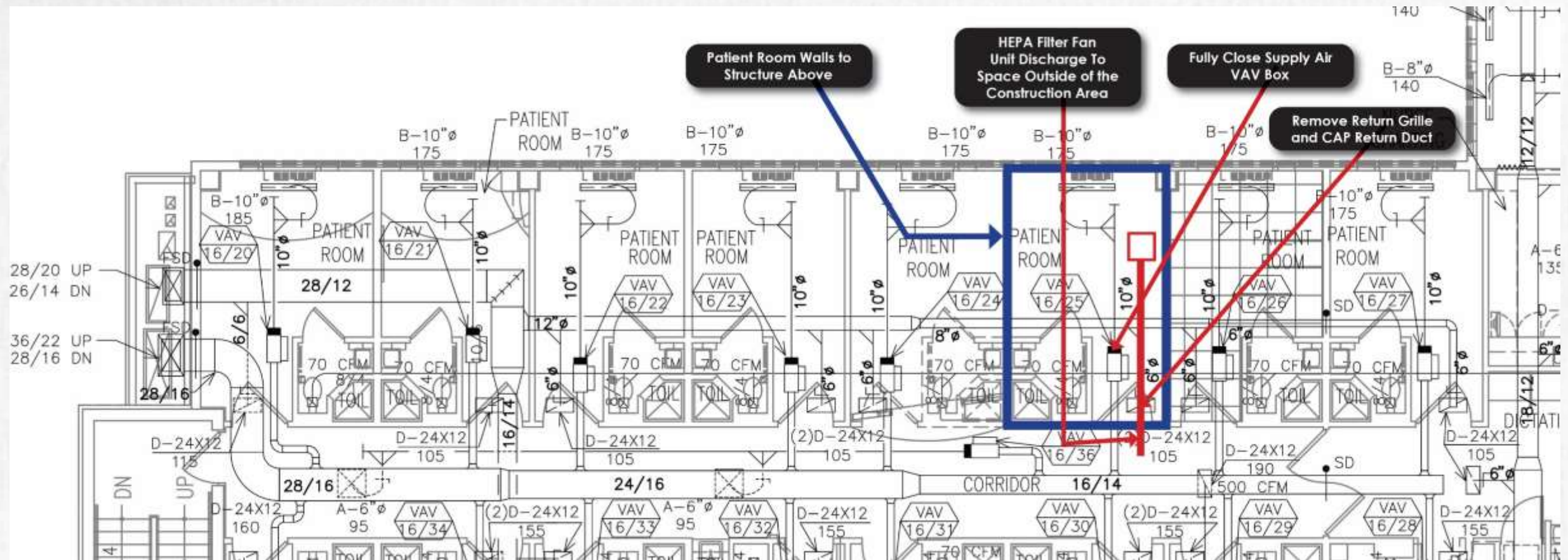
- How to achieve negative pressure
 - Shut off/isolate existing HVAC systems
 - Exhaust fans to outside of hospital
 - HEPA Filter Fan Units with discharge to outside of hospital
 - HEPA Filter Fan Units with discharge to space outside of construction area

Exhaust Fan to Exterior

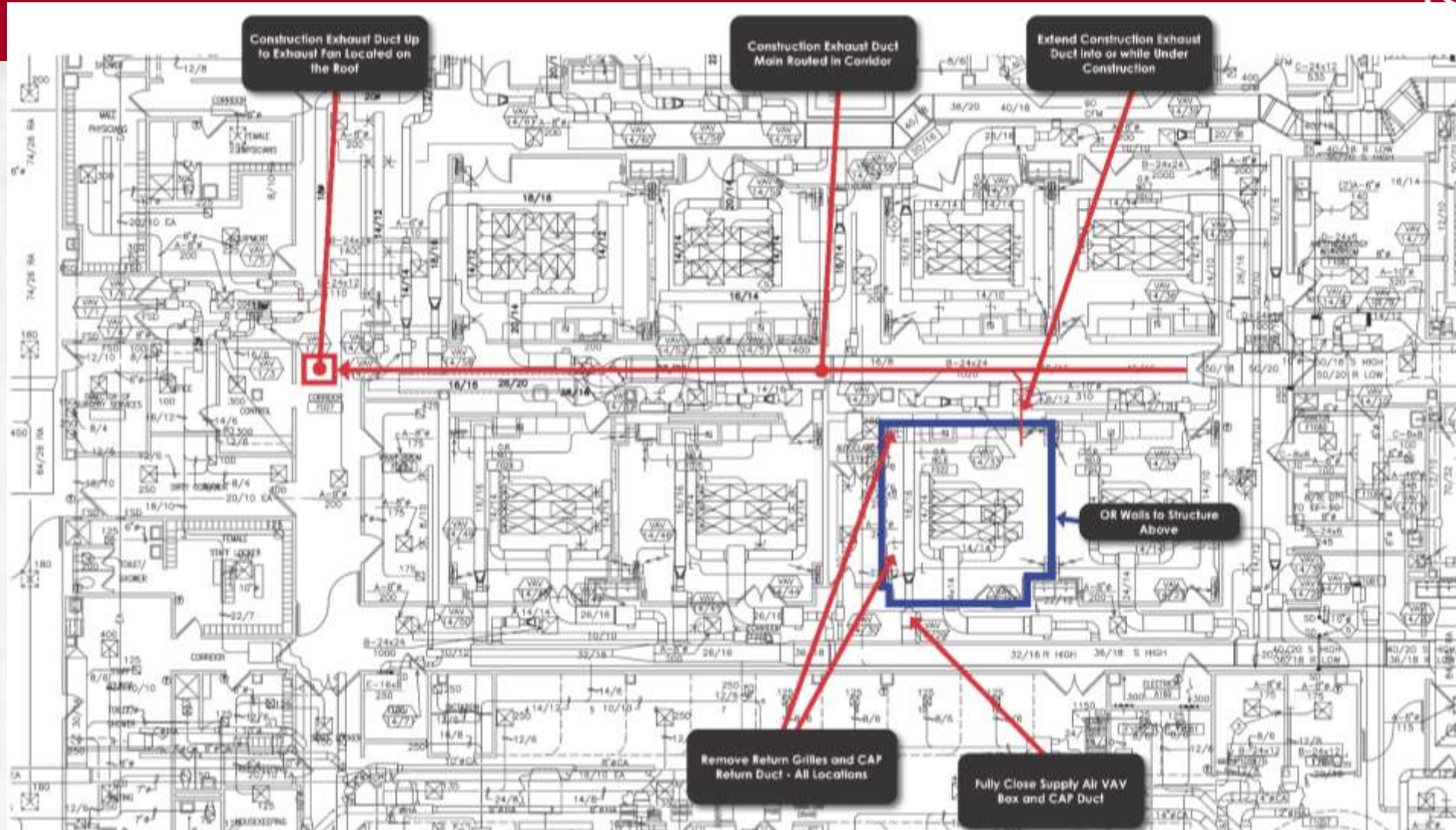


HEPA Filter Fan Unit to Exterior





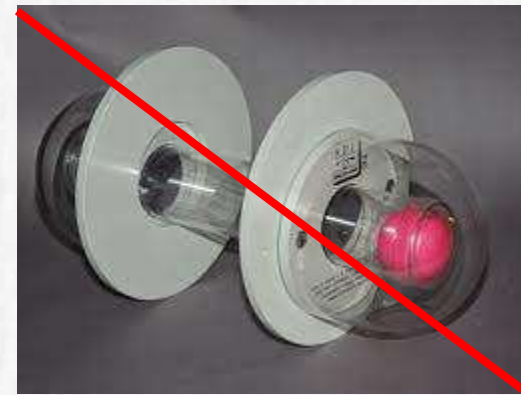
Interior Remodel



Monitoring Pressure



- How to monitor pressure in construction areas
- What tools are available
- Best Practices
- Documentation requirements



Construction Site Daily Monitoring Log Life Safety and Infection Prevention

DATE: _____ TIME: Twice Daily SITE: _____

(Post in visible location / Site Supervisor Verifies Compliance)

ICRA: Risk Assessment: This project is Class of Project is: (circle/highlight one) **II** III, IV

Check Is Recorded Electronic	N/A- to this project	<p style="text-align: center;">The Following are Indicators & Standards Used to Monitor this Site</p> <p style="text-align: center;">Contact the Project Manager for Documentation Records, as needed.</p> <p style="text-align: center;">Findings are electronically recorded X/X/XXX</p>
		Life Safety / Safety / Infection Prevention
		Personnel on-site are current with IP & Safety education/training
		Personnel are wearing correct ID & PPE (personal protective equipment)
		Signage is posted to caution patients/visitors & staff, as applicable
		Personnel received instructions on fire reporting
		Additional firefighting equipment is provided and staff are trained in use
		All fire alarms/systems are working properly: per Life Safety & Safety Officer Or as otherwise determined by Life Safety/Safety Officer
		All exists are free/unobstructed egress; including emergency services & marked appropriately
		Only non-combustible materials are used for construction / renovation
		Construction materials are kept clean and free of contamination
		Housekeeping standards are maintained to control potential debris hazards
		Appropriate signage / way finding for re-routing is in place
		Construction barriers are in place / secure & integrity maintained
		Debris removal: Carts are covered for transport & proper route is followed
		Negative pressure: Visual indicator(s) in place & relationships are maintained
		Security is provided for increased hazard surveillance
		After-Hours: All windows, doors, debris chutes to the outside are closed and secured
		Additional Infection Prevention:
		The On-Site Supervisor has read the ICRA & clarified any questions
		Air supply & duct work are protected; e.g. capped
		HEPA filter unit(s): are functioning properly / filters are working
		Doors are kept closed and taped if unused and/or if acting as a barrier wall
		Tacky mats are in place & changed at frequent intervals
		Adjacent floors are kept clean / mopped- no visible tracking of dust
		Special Notifications:
		Breeches are reported to the Safety Officer/Project Manager &/or Maintenance Management.
		Project Manager or Facilities will notify Infection Prevention.
		Leadership is notified of any major impairments; impact to Life Safety &/or Patient Safety
		Additional Knowledge Considerations for the Project:
		Adjacent occupants know who to contact for issues.
		Construction area is free of visible signs of pests

Negative Airflow Measurements		
AM: XXXX PM: XXXX		



Best Practices



- Lamiflow or ball in wall system is NOT acceptable per ICRA 2.0
- Poly barriers are best used only when work is less than 24 hours pending facilities approval.
- ICRA board should be utilized at every construction entrance
- Document negative air twice a day
- Use blue tape to show layout of barriers to show staff how space may be impacted

Best Practices





Kraus-Anderson Construction Company

HEPA Filter

HEPA Unit Number: [illegible]



Best Practices



Recap



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Questions and Follow-Up



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