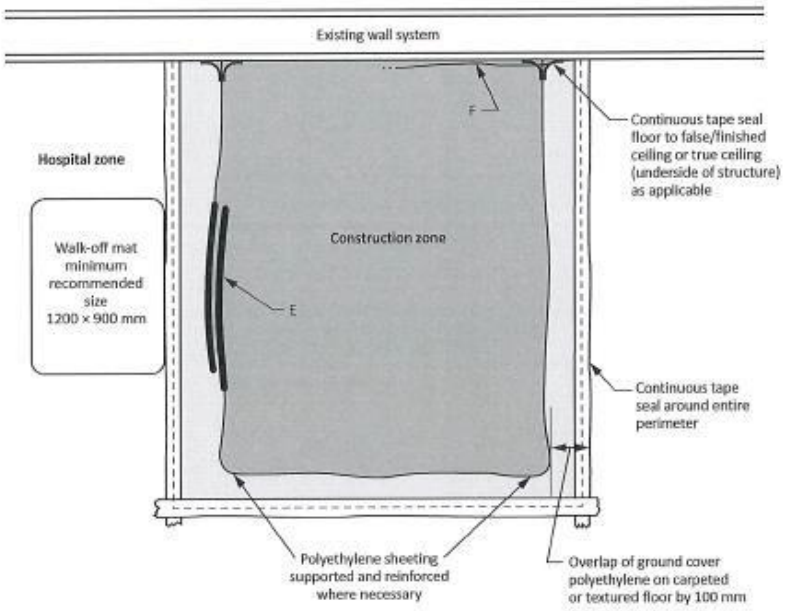
Interlake-Eastern Regional Health Authority

IERHA Hoarding Audit Checklist –reference CSA Z317.13:22	Y/N/n/a	Comments:
Date:		
Site:		
Completed by:		
The construction area shall be sealed off from the occupied area using one, or a combination, of the following barriers: • A solid dust barrier 7.3.3.2.1 a and b • An anteroom for PM IV 6.6.2 • A temporary containment unit 7.3.3.2.1 * Barrier selection differs between new construction (Clause 8) and renovation (Clause 7)		
PM level 1- barriers not required (pg 65)		
Measures identified to minimize dispersal of dust Patient-care equipment protected		
PM level 2- barriers required, negative pressure is not (pg 65-67)		
Minimize dust generation by: • Using drop sheets • Minimum 1 layer 6 mil fire-retardant poly sheeting that reaches from the floor to the true ceiling with top, bottom and side edges and joints sealed off to isolate construction area from adjacent areas and extend to true ceiling • Ceiling tiles shall either be protected with poly barrier or cleaned using HEPA vacuum at completion of dust generating activities • Water mist work surfaces while cutting • Seal windows and unused doors • Seal plumbing penetrations electrical outlets, and other potential sources of air leaks • Seal air supply and return ducts in construction area • Place walk off mat outside entrance to construction area • Use dust capturing attachment on HEPA vac		
Constructors shall: • Clean construction area with HEPA vac or wet mop at end of each day • All debris/equipment/supplies are transported in designated covered containers prior to transporting. Wheels wiped prior to transport		
Windows, doors, shafts, access panels, electrical outlets, intakes, grilles, vents, plumbing drains and all other penetrations in the floors, walls and ceilings: Sealed with duct tape		
Entrance and exit doors: double-flap poly sheeting with 6 mil true thickness weighted at the bottom over doors. Each sheet covers the entire cross-section of the entrance to work are and opens in both directions		
Carpeted or textured floors: poly sheeting 12 mil minimum or 2 sheets 6 mil layered on top of each other. Vertical sheeting overlaps horizontal base sheet of poly.		

Figure F.2
Preventive measure II infection control dust barrier, plan view
(See Clause 7.3.2.2.)



Legend:
E = An air lock closure comprising of a zipper, magnetic strip, or double-flap 6 mil polyethylene sheeting weighted at the bottom. In the case of flap doors, ensure each door covers the entire cross-section of the entrance to work area and opens in opposing directions.

PM level 3 (includes all of PM 1 and 2) neg pressure, no anteroom, pg. 67-71		
Dust barrier: from floor to underside of deck including areas above false ceilings consisting of 2 layers of 6 mil poly (or equivalent) and a gypsum wallboard protective layer		
If ceiling tiles are not removed, they shall either be protected with fire retardant poly barrier or cleaned using HEPA vac upon completion		
Temporary containment units: shall have monolithic (one-piece) exterior shell constructed of 8 mil fiber-reinforced fire-retardant poly (or equivalent)		
Surface of barrier closest to hospital side shall be wipeable		
Measures in place to prevent dust from being referred to hospital zone on clothing		
Ventilation: • Ducts sealed or disabled in construction area		

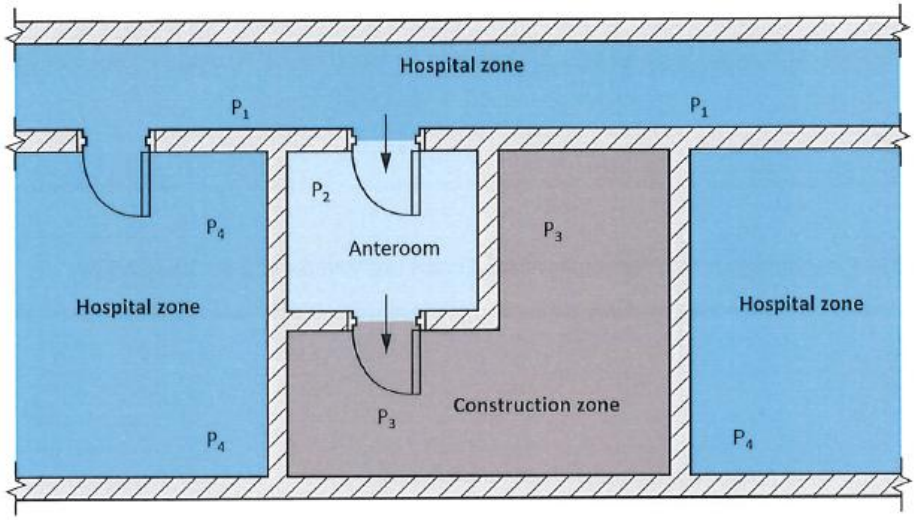
• CAHU filters checked periodically; *refer to Operation/Preventative Maintenance/Storage of CAHUs* - 6.6.4.3 Leak testing completed/documented (verification sticker) at start, filter replacement/reseated; *refer to 6.6.4.4 for exceptions* - Rented CAHU: 6.6.4.10 • Air exhausted directly outside away from intake vents and through HEPA filter 7.3.3.3, 7.3.3.6 - Ducting 6.6.1.8		
Differential pressure monitoring device: 6.6.1.11 and 6.6.2.5 • Negative pressure maintained and continuously monitored with local alarm (monitoring device shall be no closer than 5 m of the entrance to the construction site and be located on the adjacent or exterior side of the dust barrier) • Constructor shall record in a log sheet on a daily basis the pressure diff. If diff is less than 7.5 Pa of neg pressure for more than 4 h, or if it drops to less than 2.5 Pa for more than 90s, constructor shall take immediate corrective measures • shall have audible or visual alarms or both • be calibrated and maintained as per manufacturer • have calibration and maintenance documented neg pressure maintained through use of CAHUs to achieve -7.5Pa in construction zone relative to the hospital zone		
PM IV-neg pressure, anteroom required (includes all of PM I-III) pg 71-75 **Hospital zone/Outside anteroom**		
Door: • Door closure hardware in place • Lockable • Weather stripping around entire door to establish and maintain seal		
Walk off mat: 1200x900mm minimum recommended size		
Differential pressure monitoring device: 6.6.1.11 and 6.6.2.5 • in a continuously surveilled location • shall have audible or visual alarms or both • be calibrated and maintained as per manufacturer • have calibration and maintenance documented • neg pressure maintained through use of CAHUs to achieve -2.5Pa in anteroom and -7.5Pa in construction zone relative to the hospital zone		
Wipeable surface on exterior of hoarding		
Windows, doors, shafts, access panels, electrical outlets, intakes, grilles, vents, plumbing drains and all other penetrations in the floors, walls and ceilings: Sealed with duct tape		
Disable ventilation system (if possible) and seal duct openings in the construction area until project completed		

Barriers: • Extended to the true ceiling • **From floor to the underside of the deck:** Impermeable dust barrier erected consisting of two layers of 0.15 mm (6 mil) polyethylene and a gypsum wallboard or drywall protective layer • Poly reinforced where necessary with framing (metal or wood), poles • **From true ceiling to the floor and around the entire perimeter of the construction area:** Used continuous polyethylene sheeting wall, minimum of 0.15mm (6 mil) thickness • Continuous tape seal of gypsum wallboard to floor and ceiling • Continuous tape seal of polyethylene to floor and ceiling • Continuous tape seal on both sides of polyethylene		
Mechanical equipment and materials: protected from dust and moisture exposure		
Anteroom		
Constructed at access point to construction area		
Large enough to accommodate materials/supplies without having to open both doors at the same time (Length of anteroom is 2 meters minimum)		
Exit procedures shall be posted inside the anteroom and list all activities to be undertaken prior to exit (vacuum clothes, wipe wheels, cover bins)		
Walk off mat 1200x900mm minimum recommended size in front of door to enter construction zone		
Optional walk off mat for high traffic corridors 1200x900mm minimum recommended size in front of door to hospital zone, both feet contact, replace when visibly soiled 6.6.1.9		
Walls: 6.6.2.1 • constructed of material resistant to moisture • metal studs 400 mm on center (max) • bottom and top tracks sealed to flooring and ceiling • 2 layers of 6 mil poly installed on one face of the studs, sealed and protected with drywall with wipeable surface		
Dust barriers extend to the true ceiling or have their roofs constructed in the same manner as Preventive Measure III barriers. Roof is constructed to protect against overhead hazards		
Doors: • Hollow metal non-combustible door and frame construction • lockable with door- closure device • Frame and bottom sealed with weather-stripping at base of door in contact with floor at all times placed on the opposite side of walk-off mat to avoid interference		
5-meter minimum negative pressure reference port from anteroom door to port in construction zone (for monitoring negative pressure)		
When anterooms are used, the negative pressure diffs from occupied areas to the anteroom shall be at least -2.5 Pa and *may* be periodically measured (beginning of project and during heavy demolition)		
Assigned and dedicated HEPA vacuum for cleaning anteroom and decontam of equipment, materials, carts, personnel etc		
Anteroom may use existing walls/ceilings provided that requirements of the standard are met and ensuring anteroom ceilings provide adequate protection against overhead hazards		

Windows, doors, shafts, access panels, electrical outlets, intakes, grilles, vents, plumbing drains and all other penetrations in the floors, walls and ceilings: Sealed with duct tape		
From floor to the underside of the deck: Impermeable dust barrier erected consisting of two layers of 0.15 mm (6 mil) polyethylene and a gypsum wallboard or drywall protective layer		
From true ceiling to the floor and around the entire perimeter of the construction area: Used continuous polyethylene sheeting wall, minimum of 0.15mm (6 mil) thickness		
Seals: • Continuous tape seal of gypsum wallboard to floor and ceiling • Continuous tape seal of polyethylene to floor and ceiling • Continuous tape seal on both sides of polyethylene		
Inside construction zone		
Door closures hardware in place on door between anteroom and construction space		
Construction zone exit procedures posted		
Windows, doors, shafts, access panels, electrical outlets, intakes, grilles, vents, plumbing drains and all other penetrations in the floors, walls and ceilings: Sealed with duct tape		
Entrance and exit doors: Double-flap polyethylene sheeting of a minimum 0.15mm (6 mil) true thickness weighted at the bottom over doors. Each sheet covers the entire cross-section of the entrance to work area and opens in both directions		
Carpeted or textured floors: Polyethylene sheeting of a minimum 0.30mm (12 mil) thickness or two 0.15 mm (6 mil) sheets layered one on top of the other. Vertical sheeting overlaps the horizontal base sheet of polyethylene		
Textured, perforated, or drop ceilings: Covered with polyethylene placed on the inside of vertical sheeting and taped with a continuous seal		
HVAC systems: Supply and return-air ducts into the construction area are blocked off/sealed or isolated. Conduct HVAC system shutdowns in accordance with CSA Standard Z317.2-12		
Barriers: • Extended to the true ceiling • Used 0.15 mm (6-mil) fire-retardant polyethylene barriers		
Polyethylene sheeting: Reinforced where necessary with framing (metal or wood), poles		
From floor to the underside of the deck: Impermeable dust barrier erected consisting of two layers of 0.15 mm (6 mil) polyethylene and a gypsum wallboard or drywall protective layer		
From true ceiling to the floor and around the entire perimeter of the construction area: Used continuous polyethylene sheeting wall, minimum of 0.15mm (6 mil) thickness		
Construction area: Enclosed by dust barriers comprising 2 layers of 0.15 mm (6-mil) fire-retardant polyethylene and 1 layer of drywall		
Seals: • Continuous tape seal of gypsum wallboard to floor and ceiling • Continuous tape seal of polyethylene to floor and ceiling		

• Continuous tape seal on both sides of polyethylene		
Vacuums: • HEPA filter installed and performance leak tested 6.6.4.4		
Between construction area and facility: • Electronic monitoring of pressure differentials and pressure recorded daily • Checked for air leakage paths • Windows and doors sealed with 2 layers of 0.15 mm (6 mil) polyethylene and 1 layer of drywall		
CAHU: • Ensure air is exhausted directly outside, filtered through a HEPA filter, and away from intake vents. See clause 7.3.3.6 if air is to be re-circulated – note it cannot be recirculated into pop risk grp 3 + 4 areas • Portable HEPA filtered CAHUs include pressure gauges and an alarm (for PM III, device should be connected to integral data recorder. For PM IV, device shall be connected to integral data recorder and report alarm conditions in a continuously surveilled location) • Performance leak tested and verified at the beginning of project except as per clause 6.6.4.4 • HEPA filters and pre-filters shall be visually inspected daily and condition documented • Temporary flexible ducts inspected for leaks/damage • Inspected daily and documented • Performance leak tested by third party at beginning of project unless all of the following met: tested within last 12 months, stored as per standard, not exhausted within the building, discharge locations comply with CSA		
Mechanical equipment and materials: Protected from dust and moisture exposure		
All barriers remain in place until project completed and area thoroughly cleaned by environmental services and inspected by the ICP		
Holes in walls or breaches in the polyethylene containment system repaired immediately when found. If temporary repair made, permanent repair made within 2 hrs		
Short-term protection used when removing barrier walls to minimize environmental contamination during removal		
Other considerations		
• Sites with operable windows used to exhaust, adjacent windows are closed and locked • Doors and intake exhaust vents in areas of HCF adjacent to construction areas shall be sealed		
CAHU shall run after the completion of construction for a period of time sufficient to remove airborne contaminants		
NOTES:		

Figure 1
Pressure differentials for a construction zone
(See Clause 6.6.1.4.)

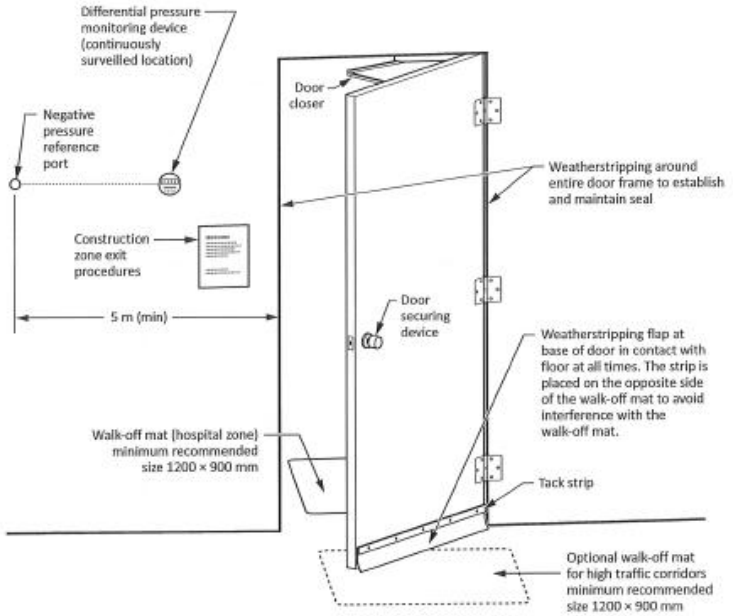


Example:

$P_1 > P_2$, minimum differential 2.5 Pa
$P_2 > P_3$, minimum differential 2.5 Pa
$P_4 > P_2$, minimum differential 2.5 Pa
$P_1 > P_3$, minimum differential 7.5 Pa
$P_4 > P_3$, minimum differential 7.5 Pa

→ Denotes direction of air flow

Figure F.5
Preventive measures III and IV infection control solid dust barrier door detail, elevation view
(See Clauses 7.3.3 and 7.3.4.)



Legend:

A = Seal windows, unused doors, shafts, access panels, electrical outlets, intakes, grilles, exhausts, vents, air supply and return vents, unused plumbing drains, and all other penetrations and sources of potential air leaks in the floor, walls, and ceilings.

B = Seal the entire perimeter with continuous tape seal.

C = Continuous tape seal on both sides of penetration through polyethylene.

D = Adhere continuously both sides of top and bottom track with tape to floor and ceiling [i.e., false/finished ceiling, true ceiling (underside of structure)].

E = Two layers of continuous polyethylene sheeting, minimum 6 mil thickness with lapped joints, extending from true ceiling (underside of structure) to the floor.

Notes:

1) *Hollow metal non-combustible door and frame construction with securing device. Seal door frame and bottom with weatherstripping.*
2) *Where deemed appropriate by the MDT, the composition of the barrier may be modified to suit time, space, or impact constraints. Alternative forms of construction or containment products may be used if they can be shown to provide an equivalent barrier.*
3) *For modular containment and/or anteroom products used in lieu of on-site construction, consult Clauses 6.6.2.1, 6.6.2.2, and 7.3.3.2.1.*

Figure F.4
Preventive measure IV infection control solid dust barrier anteroom, plan view
(See Clauses 6.6.1.9 and 7.3.4.)

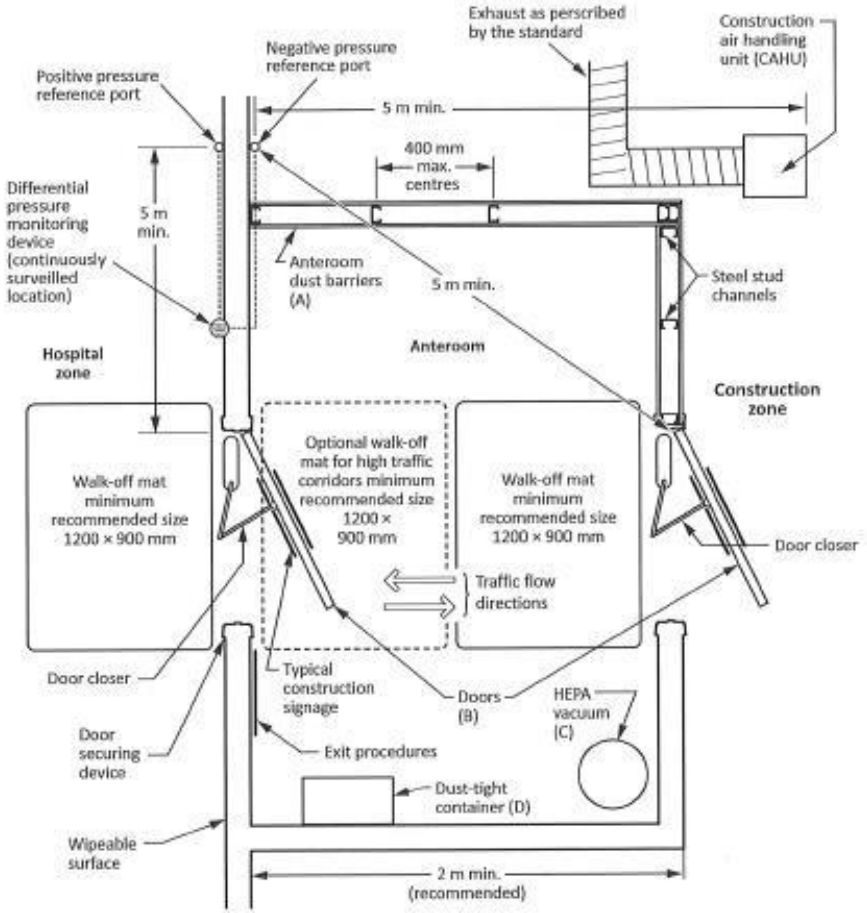
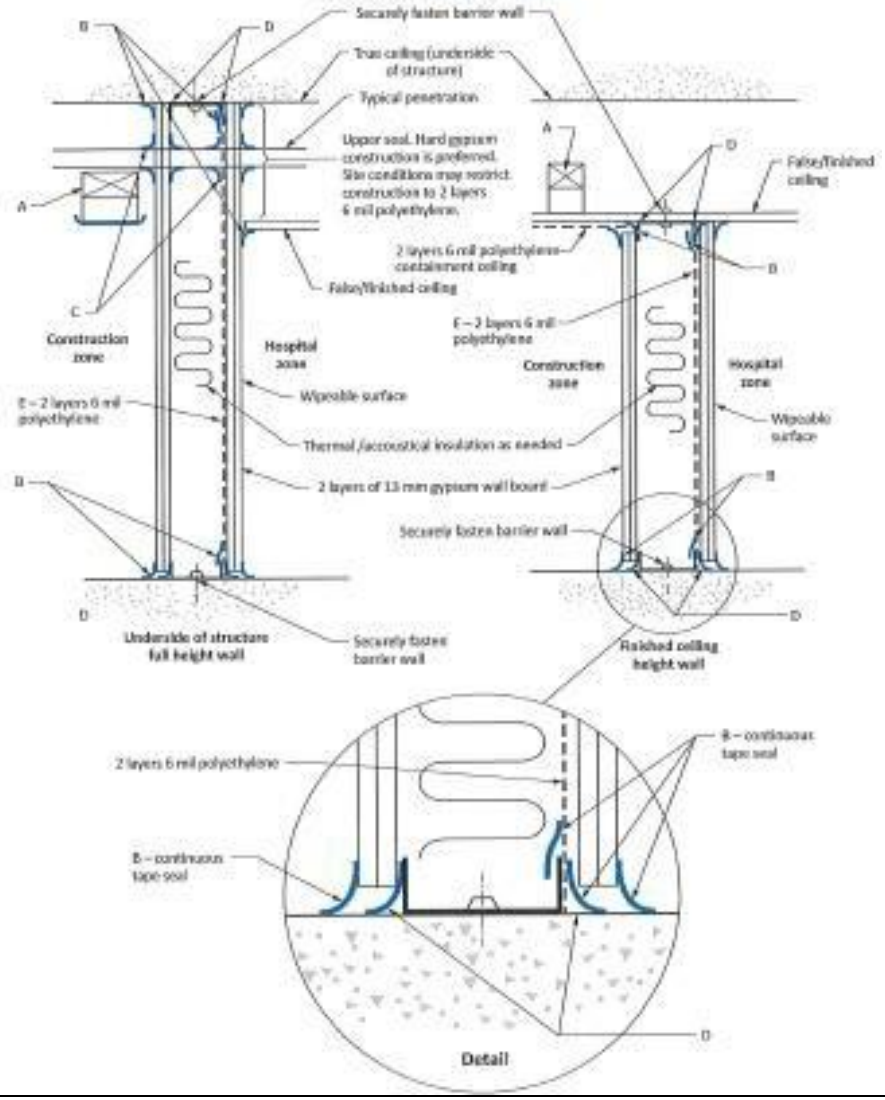


Figure F.3
Preventive measures III and IV infection control solid dust barrier wall details, elevation section view
(See Clauses 7.3.3 and 7.3.4.)



Operation/Preventative Maintenance/Storage of CAHUs [6.6.4]		
CAHUs used for dust mitigation and maintenance of differential pressures shall perform leak-tested and verified at least every 12 months by a competent third party [6.6.4.1]		
• CAHU unit shall be inspected before leaving storage and upon arrival at work site to ensure: ○ Operating as per manufactures specifications and recommendations ○ In good working order ○ Clean and free from dust, debris, moisture and biological contaminants ○ All filters (including HEPA filters) are in place ○ Performance leak-test completed		
CAHUs used in PM III or PM IV leak-test required at the beginning of the project		
• Performance leak-test shall be conducted whenever the HEPA filters are replaced or reseated; results documented. • Verification sticker shall be displayed on CAHUs and shall include: ○ Name and contact info of company/individual who performed leak-test ○ Date of unit verification ○ Location of unit verification ○ Allowable max leakage rate and actual leakage rate; ○ Performance leak test pass or fail		
Performance leak testing on CAHUs is not required if **ALL** the following conditions are met; [6.6.4.4] ○ CAHU performance leak-tested within 12 months ○ CAHU has been maintained, stored, and handled as per standard ○ CAHU not exhausted in the building ○ Discharge locations pose no patient exposure or re-entrainment issues		
HEPA filters must have a collection efficiency of 99.97% at 0.3um • HEPA filters (pre-filters and HEPA filter): SHALL ○ Visual inspection prior to instillation and condition document on IERHA- Daily Filter Inspection Record ○ shall be changed regularly as determined manufacture instructions and environmental conditions of the work site ○ When filter becomes wet, damaged or visibly soiled • Repaired and replaced should occur if any of the following occur: ○ The unit fails a performance leak test; ○ Filter is visibly damaged; ○ Filter becomes overloaded and adversely affects air flow or containment negative pressure		
CAHU storage should only take place within Risk Group 1 areas or outside of healthcare facility • Storage location of CAHUs, filters, ducting, and accessories shall be safe and secure; limited access. Climate control; humidity <60%/ temperature range 16-28°.		
CAHU maintenance shall be performed in locations and at times when such activities will not contaminate other systems or equipment. Maintenance required in Population Risk Groups 2, 3 & 4 areas only when all preventative measures are in-place and operational		
Rented CAHUs may be used for projects; documentation and adequate assurance of preventative measures and storage requirements shall be maintained.		

• Contractor owned or rental CAHU shall be verified by CAHU owner to have been cleaned and tested prior to being sent to a new site. **If CAHU is brought from a non-HCF site the following is required:** ○ Remove all HEPA filters and pre-filter(s), ○ Clean and accessible surfaces inside and out of CAHU: i. HEPA vacuum ii. Spray with approved sporicidal and fungicidal solution iii. Repeat HEPA vacuum; and iv. Damp wipe; and ○ Reassemble the CAHU with new HEPA and pre-filter(s) and conduct performance leak testing *If CAHU are greater than 250kms from a qualified performance leak test provider and CAHU has been tested and HEPA filter replaced within past 12 months; strip down and cleaning procedures shall be performed without removing replacing HEPA filter*		
After use, CAHU shall be surfaced cleaned and contained prior to being moved from construction site: ○ All surfaces shall be thoroughly cleaned using HEPA- filtered vacuum or damp wipe; and ○ Unit intake and exhaust openings shall be covered with poly and tape sealed to prevent dust contamination during transport		