HEPACART® ECU4 — How-To Setup Guide

Environmental Containment Unit (Generation 4) · US / Canada

This illustrated guide walks through unpacking, assembling, deploying, and taking down the HEPACART® ECU4. Use it alongside the Safety, Operations, and Maintenance Manual. Always follow your facility's infection-control and safety protocols.

HOW-TO SETUP GUIDE

WHAT'S IN THE BOX

The ECU4 ships in one large outer box containing two inner boxes: one holds the reusable envelope, cover bag, and strap; the other holds the frame, boxed top truss, and boxed memory foam. Save the upper-truss box — it stores the top truss in the cover-bag front pouch. Optional accessory kits (Sidewall Access Flange, Corridor Flange, 5-Foot Cuff, Mobile Platform, Tow Cart) ship separately; the Sidewall kit's one-foot cuff flange can join two ECU4 units side-by-side to expand the footprint.

⚠ **WARNING —** LIFTING HAZARD — the large outer shipping box weighs approximately 101 lbs [46 kg]. A single-person lift could cause injury. Use proper technique and get assistance when moving or lifting.

Large outer shipping box

Inner box 1 — reusable envelope, cover bag & strap

Inner box 2 — frame, boxed top truss & memory foam

Folded frame and boxed top truss

Optional Sidewall Access Flange Kit

Includes: side-access flange, one-foot cuff flange, 2 Velcro rolls, duffel storage bag

Optional Corridor Flange Kit

Includes: corridor flange, 2 Velcro rolls, duffel storage bag

Optional Five-Foot Cuff Flange Kit

Includes: envelope, 4 metal support trusses, 8 corner support locks, storage bag

Optional Mobile Platform (MP4)

Optional Tow Cart (to caddy a NAM)

1 FRAME SET-UP

Deploy the aluminum frame first, before attaching the envelope.

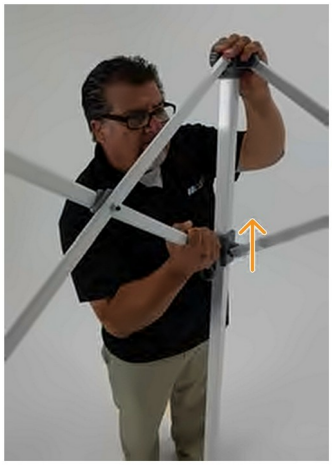
1. With the frame removed from the box, set the base on the floor and remove the foam blocks.

2. Place your hands on the two corner posts above the locking-collar sliders (the ring-pull sliders) and begin unfolding the frame.

CAUTION: Do not grasp the outer legs below the plastic sliders during opening — this prevents accidental pinching of fingers.

3. Standing on one of the two short ends, step down on the lower end truss to lock it into place.

4. Remove the cotter pins holding each long-side lower truss in its storage position, lower each truss to the floor, and secure it with the pins.



5. Push up on each plastic slider to lock the frame fully deployed. An audible click confirms it is locked.

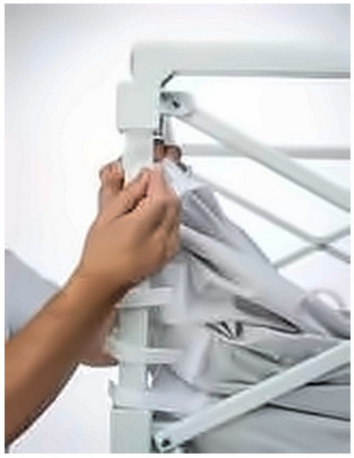
6. Place the two top-truss pieces (the Upper Folding Frame) onto the corner-post caps, swing the folding arms in, and secure them to the gray holders with the push-button pin latches.

7. Remove the self-adhesive memory foam from the inner box, peel off the protective backing, and apply it to the top edge of the top-truss pieces.

2 ATTACH THE CONTAINMENT ENVELOPE

With the frame locked open, install the reusable envelope.

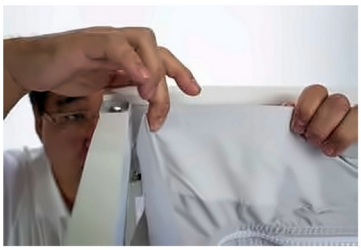
1. Unfold the containment envelope and place it inside the open frame.



2. Attach the four Velcro corner cuffs to the posts above the locking corner slides, choosing the loop position for your ceiling height: above 10'6" use the top loop; about 9' use the top two loops; about 8' use the top three; below 7'8" use all four loops above the corner locks.

3. Attach the remaining Velcro loops along the envelope edges to the outer legs down to the floor (best done once the unit height is adjusted).

4. Attach the Velcro cuffs to each of the four floor trusses.



5. Secure the top edge of the envelope to the Upper Folding Frame — the sewn-in loop mates to the hook strip on the inside edge of the truss.

BUILT-IN ENVELOPE FEATURES

Visual negative-air indicator

Two pass-through ports

Four clear windows

Zip ceiling-access panel

3 DEPLOY & RAISE

Position the unit at the opening and raise it to seal against the ceiling.

1. Position the ECU4 directly in front of the door, wall, or ceiling area to be accessed. Stand on one of the two short sides and place your foot on the foot pedal of the end floor truss, then grasp the outer legs and lift upward until the left and right Height Adjustment Ratchet Pins engage in the appropriate holes (spaced in one-inch increments). Repeat on the opposite end for a one-person deployment.

2. Lift the unit until the foam strips contact the ceiling tile and lightly compress the Upper Folding Frame. Depress the handles to release the hole-punch mechanism for easy final adjustment.

CAUTION: Confirm all four ratchet pins are engaged and the Upper Folding Frame is flush against the ceiling tile frame. With two people, perform steps 1–2 together from each end.

3. Adjust the door and envelope height with the Velcro loops on each corner post, above or below the locking corner collars — four loops above for short ceilings, one or two above for tall ceilings.

4. Finalize deployment by wrapping the Velcro loops on the corner posts and bottom trusses. The unit is now standing and sealed.

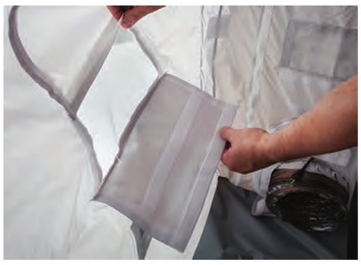
4 CONNECT A NEGATIVE AIR MACHINE

For Class III–V ICRA negative pressure, connect a stand-alone HEPA-filtered negative air machine (NAM). The ECU4 has two interchangeable ports on either narrow end: a 12.5" duct port and a 3.5" utility port for cords and hoses.

1. Locate the 12.5" negative-air port on the narrow end and open it — release the internal Velcro flap and remove the seal. (The port flange works on either narrow end.)

2. Insert the NAM flex duct into the 12.5" duct port, and clamp the opposite end to the intake of the HEPA-filtered negative air machine.

3. Tighten the draw strings to seal the port tightly around the flex duct. Route power cords and hoses through the 3.5" utility port.



4. Open the pressure-relief vents inside the envelope — beneath the windows on both cargo doors and the non-flange side door — then turn on the NAM. As internal pressure drops, the sides draw inward. Verify negative pressure with a flutter strip, smoke tube, or manometer.

5 APPLICATIONS & ACCESSORIES

The ECU4 scales from a single anteroom to a full corridor airlock using optional flange accessories.

Sidewall Access Flange — Anteroom & Wall Containment

The Sidewall Access Flange supports two applications. **A. Anteroom / airlock (Class IV ICRA)** — for construction entry/exit or a surge isolation response: deploy the ECU4 to a door threshold and adjust its height to seal against the ceiling. Remove a wide cargo door and zip the flange in its place (roll and stow the door on its hanging Velcro straps), apply the self-adhesive Velcro around the door frame and floor as four pieces meeting at each corner, then mate the sewn-in flange edge to it from center to corners (secure any excess with Polyken tape). Connect the NAM through the 12.5" port and verify negative pressure; then follow infection-control entry/exit procedures, seal the return vents of the converted room, and place isolation placards in the door pouches. **B. Wall containment** — the same flange seals sidewall penetrations when applied directly to a wall for construction containment projects.

Sidewall Access Flange installed

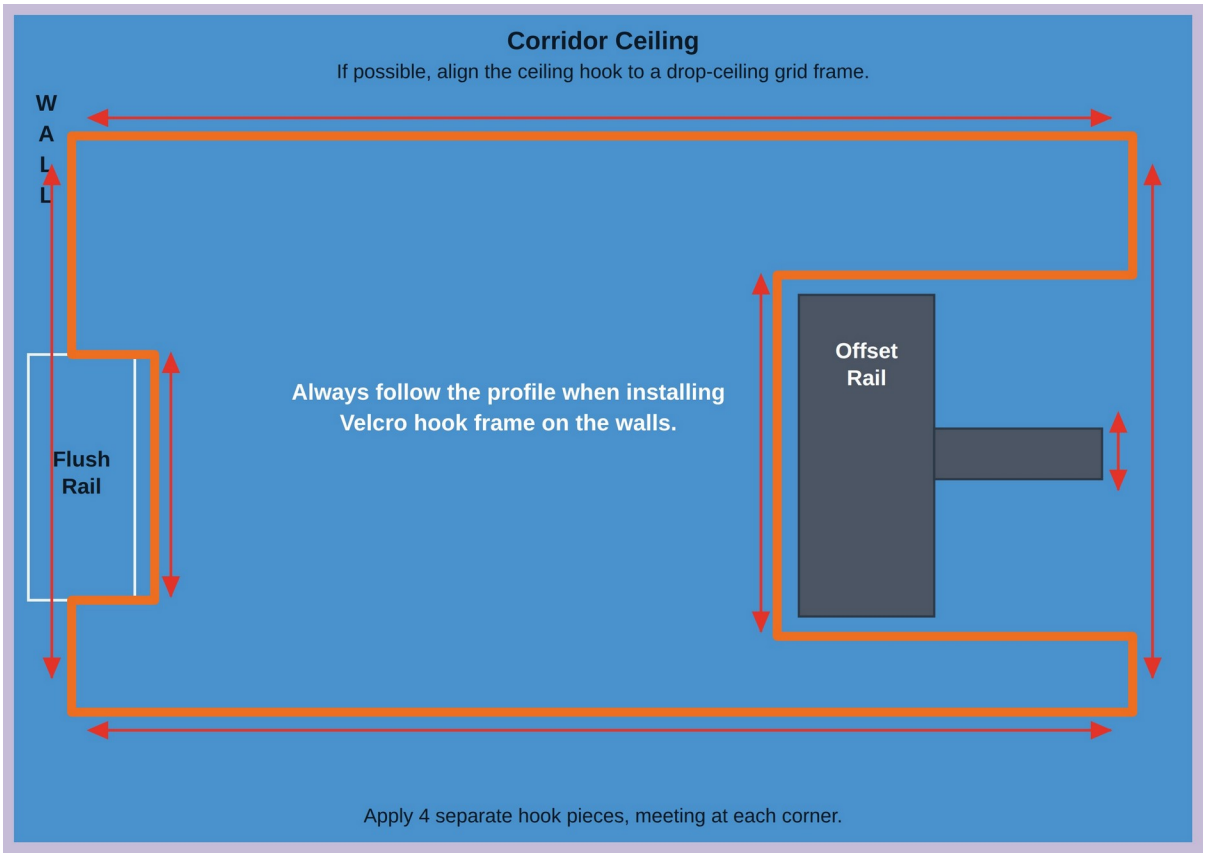
Flange applied to a wall penetration

Anteroom deployed at a doorway

Corridor Flange

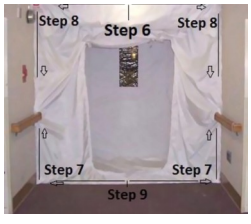
Install the Corridor Flange in order — ceiling first, then the walls, then the floor. The flange extends about 20" out from the unit.

1. **Build the hook-Velcro frame:** measure the two walls, ceiling, and floor separately, cut four runs of hook Velcro, and install them as a frame (follow the bumper-rail profile on the walls).
2. **Position & zip in:** position the unit to the frame, unzip and remove the wide-side door, then zip the Corridor Flange in — logo facing you, right-side up.
3. **Support straps:** secure the flange's top support straps and buckles to the upper truss, as tight as possible.
4. **Ceiling:** starting centered, connect across the ceiling from the middle out to each corner (stop 6–8" short, then work back from the corner), folding excess onto itself.
5. **Walls:** from each bottom corner, work the edge up the wall about 5–6 ft (higher for taller ceilings); then from each top corner work down until you meet it. Fold excess onto the extra Velcro patch, or bridge the gap with Polyken tape if the patches don't meet.
6. **Floor:** from the center of the floor edge, connect out to each corner (stop 8–12" short, then work back), folding excess.
7. **Tape & cinch:** tape the entire floor edge down to eliminate a trip hazard, then cinch the three draw strings above the entrance to lift the material for clearance and easier egress.



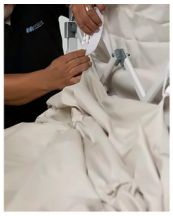
Corridor Flange hook-frame profile.

Apply the Velcro hook frame to the corridor's two walls, ceiling, and floor, following the exact profile of each surface. Use four separate hook pieces that meet at each corner. Run the hook straight along a flush rail; where a wall has an offset rail, follow the offset so the flange still seals to the surface. Where possible, align the ceiling hook to a drop-ceiling grid frame for a solid anchor.



Install order: ceiling (6), walls (7–8), floor (9)

Secure the support straps to the upper truss



Connecting the flange edge

Cinch the draw strings for egress

Corridor flange deployed in place

5-Foot Cuff Corridor Bundle

Two ECU4 units paired with the 5-Foot Cuff and Corridor Flange create a non-ambulatory, controlled ingress/egress airlock across a corridor. The kit includes one envelope, four support trusses, and eight corner-post locks.

Two ECU4 units joined by the 5-Foot Cuff

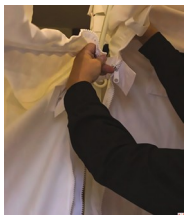
1. **Position the units:** place the two ECU4 units five feet apart, wide cargo doors facing each other.
2. **Remove the facing doors:** unzip and store the two wide-side doors that face each other.
3. **Spread the cuff & load the poles:** spread the 5-Foot Cuff out, reinforced floor down (logo-oriented). Locate the support loops on each edge (both sides, top and bottom) and slide the four white support poles through them.
4. **Install the corner locks:** install the eight structure supports on the facing frames — above the corner locking slides and at the base of the corner poles. Wrap each around the pole, apply pressure, and push the metal pin to secure.
5. **Seat the poles:** install the four poles into the structure supports — top supports first, then bottom.
6. **Zip the ends in:** zip each end of the cuff into the wide-side doors of the ECU4 envelopes, leaving the cuff doors in place at each end.

Spread the cuff and load the support poles

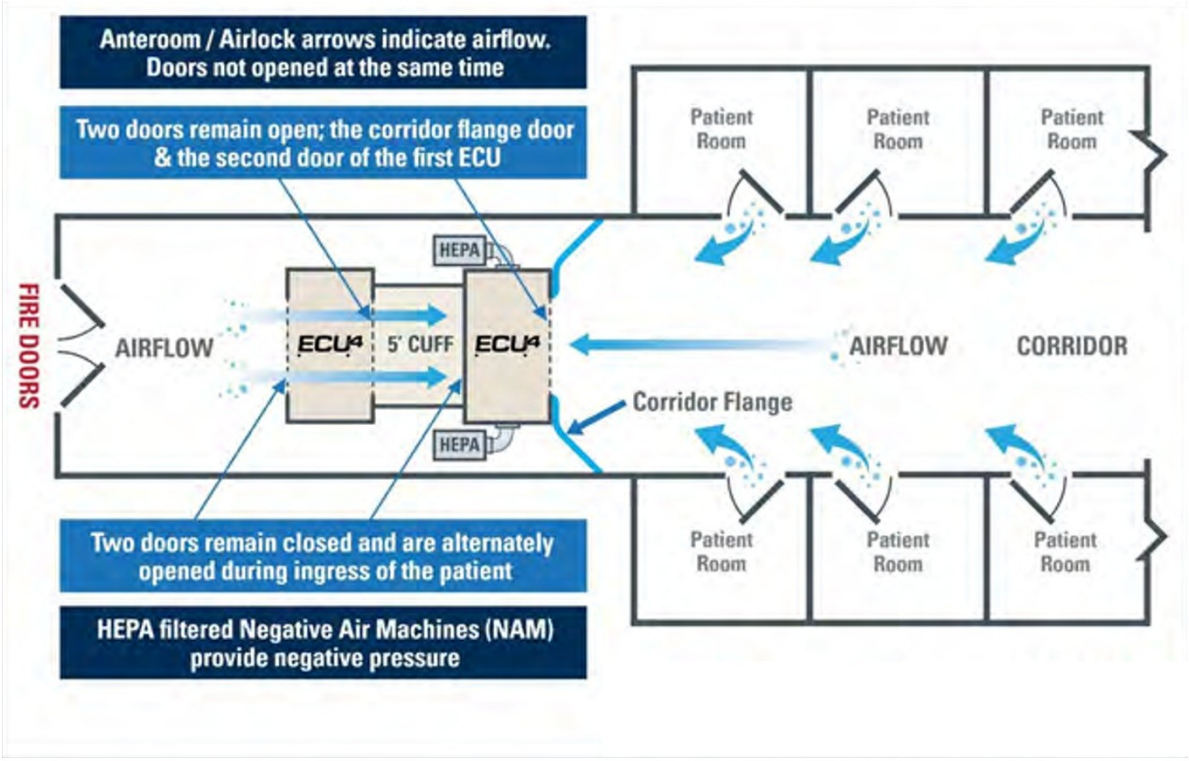
Slide support poles through the edge loops

Install a structure support on the frame

Seat the poles into the structure supports



Zip the cuff ends into the ECU4 envelopes



Modular corridor operation while deployed.

Two ECU4 units are joined five feet apart by the 5-Foot Cuff to form a negative-pressure air lock across the corridor, with HEPA-filtered Negative Air Machines (NAMs) supplying negative pressure. Arrows indicate airflow. During patient ingress the two inner airlock doors are never opened at the same time: the corridor-flange door and the second door of the first ECU remain open, while the two facing doors alternate open and closed. Fire doors and patient-room airflow are shown for context.

6 TAKEDOWN & COLLAPSE

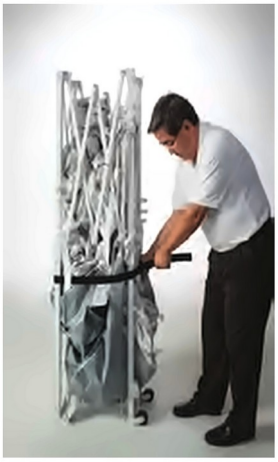
Clean the interior before takedown. The envelope stays on the frame for storage. Steps 1–6 follow the manual's Lowering / Collapsing sequence (Fig. III-1 to III-8).

1. Grasp both height-adjustment release levers (one on each side), depress them with your thumbs, and pull down together to lower the unit to the floor — do both ends in succession. (III-1)

2. Detach the envelope's top edge from the Upper Folding Frame (III-2), then detach the Velcro loops along the corner posts — from the floor up to the ring-pull sliders — and the floor-truss wraps (III-3).

CAUTION: Do NOT detach the straps above the corner sliders — they stay attached to hold the envelope on the frame for storage.

3. Unlock the four frame components (see Frame Unlock Points below): lift off both Upper Folding Frame pieces (push-pin latches), release the four plastic sliders (pull each gray release ring, then push the slider just past the catch), free the long-side lower truss at its tethered cotter pins, and unlock the two short-side lower trusses (pull the center knob toward you and lift).



4. Facing a long side, grasp two opposite corner posts above the sliders and slowly draw them inward until the frame articulates closed.

CAUTION: Do not grasp the outer legs below the sliders, and do not force the legs together — the upper trusses can strike the collapsed envelope. If you feel resistance, confirm all four sliders, the long-side truss, and both short-side trusses (raised at the center, off the floor) are disengaged.

5. Before closing fully, wrap the bottom-most loop at each corner around the corner post above the locking corner (III-7). This distributes the envelope evenly — pull some envelope toward the top to avoid bunching at the bottom.

6. Wrap the unit with the Velcro belt, replace the storage cover, and stow the top truss in the front pouch. (III-8)

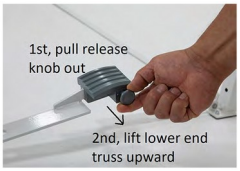
FRAME UNLOCK POINTS

Unlock these four points in order, then apply inward pressure at one end to articulate the frame closed. If it resists, recheck all four before forcing — undue force can damage the frame.

A · Upper Folding Frame
Push the corner release pins, fold the narrow ends in, and lift each off

B · Plastic slide locks
Pull each ring pin outward — the corner posts slump inward

C · Long-side lower truss
Remove the tethered cotter pins (re-secure them to the opposite post)



D · Short-side lower truss
Pull the center push-plate knob toward you, then lift

7 CLEANING & MAINTENANCE

Keep the reusable envelope serviceable between deployments.

Routine cleaning

Most projects only require vacuuming the interior with a HEPA vacuum to remove the dust and debris of the job. The smaller 3.5" port on the narrow end of the envelope doubles as a vacuum port.

Decontamination

If the unit must be decontaminated, UV disinfection is the first recommendation. A quaternary disinfectant your facility already uses, or a 5% bleach solution, may also be used — apply by sponge for saturation, or by wipes.

Disposable envelopes

Disposable envelopes are also available and interchange on your existing frame:

- Ideal for especially dirty work such as fire caulking — use once and discard.
- Protects the investment in your reusable envelopes.
- A ready answer when you need to work in a clinical area but the reusable envelope has not been serviced.
- A countermeasure for critical environments when you cannot be confident in a contractor's containment.

8 CLINICAL NOTES & COMPLIANCE

Background from the manual for clinical use. Always follow your facility's infection-control protocols and the direction of your infection preventionist and Authority Having Jurisdiction (AHJ).

Why a negative-pressure anteroom?

The CDC identifies the negative-pressure anteroom as the safest way to create airborne infectious isolation (CDC Environmental Infection Control Guidelines, MMWR Vol. 52, June 6, 2003). The ECU4 forms a negative air lock between a standard room and the corridor, holding contaminated particulates back from the corridor, and converts a standard room into short-term isolation in minutes. Because it is also used by maintenance, engineering, and construction staff for dust containment, it does not sit idle — improving ROI and keeping crews trained.

How does it compare to a portable air scrubber placed inside the room?

An anteroom protects the patient, the caregiver, and the general patient population at once. Its two doors let one stay closed at all times, it redirects airflow from both the corridor and the room into the anteroom, and it gives caregivers a protected area to don and remove PPE. A scrubber inside the room provides none of these, and can create a positive-pressure room or overload a return duct if it is ducted in.

Is it safe to recirculate the HEPA-filtered air back into the hospital?

Yes — the CDC EIC Guidelines expressly permit recirculating HEPA-filtered air in patient-populated areas. A HEPA filter captures 99.97% of airborne particulates (a typical corridor is filtered at roughly 80%), so the exhaust can return to the corridor without ducting outside the building.

Does the unit need to be pressure-tested?

Yes. The CDC requires an isolation room's pressurization to be checked before a patient is placed in it, and daily while the room is occupied. Verify negative pressure with a flutter strip, smoke tube, or handheld manometer.

What about the room's return-air grilles?

Block or cover the room's return-air grilles with a nonporous material or a HEPA medium so particulates are not recirculated into the general air stream. The negative air machine exhausts over 425 CFM, so this is rarely a limiting factor.

How does it protect the health care worker?

The ventilation system does not kill microorganisms, so staff should always wear PPE in a room with a known or suspected infectious patient. The anteroom provides a separate area to don and remove PPE; when exiting into it, wait a few seconds for the air to purge through the HEPA filter before removing the mask and outerwear.

Does it comply with the NFPA Life Safety Code?

At 31.31" wide, the ECU4 leaves room in a standard 8-ft corridor for beds, gurneys, and carts, and on its wheels it relocates easily. The envelope is a flame-resistant poly ripstop tested to ASTM E84 (a standard flame-spread test). Implement interim life-safety measures and a plan to move the unit in the event of a fire, and confirm specifics with your AHJ.