IsolationAir® is a portable contamination control system ideal for hospitals, extended care facilities, and emergency preparedness centers. This system maintains a sterile environment in an isolated room, which prevents cross-contamination throughout the rest of the facility—creating a better environment for patients and staff.

In addition to providing strict temperature and humidity control, IsolationAir is equipped with on-board HEPA filtration, UV sterilization, and ductwork connections. This system is capable of quickly converting a standard-sized patient room into a negative or positive pressure environment.

IsolationAir combines known technologies into an easy-to-deploy portable unit

- HEPA filtration for airborne particulate removal
- UV light to aide in sterilizing airborne viruses and bacteria trapped on the HEPA
- Pressure control either negative or positive
  - Infectious disease control (TB, SARS, smallpox, etc.) requires negative
  - Protective environment control (burn, immuno-suppressed) is positive
- Temperature control – the room becomes isolated from the central system
  - Only air having passed through both UV and HEPA will be returned to hospital HVAC
## Installation Method - Negative Pressure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Connect flex duct mounted on the top of the IsolationAir unit to the ceiling return air grill with universal grill adapter</td>
</tr>
<tr>
<td>Step 2</td>
<td>Close off supply air grill with universal grill adapter and snap cover</td>
</tr>
<tr>
<td>Step 3</td>
<td>Check for other air exhausts or leakages in room, seal closed (i.e., bathroom exhaust, open windows, etc)</td>
</tr>
<tr>
<td>Step 4</td>
<td>Plug into emergency outlet and turn on</td>
</tr>
<tr>
<td>Step 5</td>
<td>Verify pressurization is negative with a tissue</td>
</tr>
</tbody>
</table>

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*IsolationAir® Portable Contamination Control System*
Installation Method - Positive Pressure

<table>
<thead>
<tr>
<th>Step</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Connect flex duct mounted on the top of the IsolationAir unit to the ceiling return air grill with universal grill adapter</td>
</tr>
<tr>
<td>Step 2</td>
<td>Connect one end of a separate flex duct to supply air grill with universal grill adapter and connect the other end to the bottom inlet on the IsolationAir unit</td>
</tr>
<tr>
<td>Step 3</td>
<td>Check for other air exhausts or leakages in room, seal closed (ie. bathroom exhaust, open windows, etc)</td>
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Standards and Guidelines

**Office of the Assistant Secretary for Preparedness and Response**

Helps hospitals meet or address Capability 4 Medical Surge Objective 2:

**Activity #9 Enhance Infectious Disease Preparedness & Surge Response**

**Activity #6 Provide Burn Care during a Medical Surge Response**

**Activity #1 Develop Emergency Department and Inpatient Medical Surge Capacity and Capability**

[Ensure Immediate Bed Availability by rapidly... using non-traditional spaces; Critical Care: rapidly expand capacity by adapting... areas for critical care]

**Originally Designed to Meet U.S. Department of Health and Human Services Critical Benchmarks**

- Critical Benchmark #2-2: Surge Capacity: Isolation Capacity
- Critical Benchmark #2-9: Surge Capacity: Trauma and Burn Care
- Cross-cutting Critical Benchmark #6: Preparedness for Pandemic Influenza

**IsolationAir Meets the Guidelines for the Following Organizations:**

1. **CDC** guidelines for infectious disease control in health care facilities
   - Minimum of 12 air changes per hour via HEPA filters
   - Use portable units as needed to augment ACH – recirculating room air
   - Maintains minimum pressure differential of 0.01” (+ or – depending on the application)
   - Maintains dehumidification controls
   - Maintains backup ventilation – can be portable units – for emergency provision
   - Ultraviolet light can be used for supplemental control
2. **AIA** guidelines for design and construction of hospitals, incl. heating and cooling control to 75 °F
3. **ASHRAE** – Chapter 7 in Applications Handbook regarding health care facilities
## Technical Data & Standard Features

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooling Capacity</strong></td>
<td>Nominal 1/4-ton (3,000 BTU/H) R-134a refrigerant</td>
</tr>
<tr>
<td><strong>Heating Capacity</strong></td>
<td>Optional 1 kW electric heating element</td>
</tr>
<tr>
<td><strong>Final Filtration</strong></td>
<td>HEPA 99.99% efficient to 0.3 microns; MERV rating 18; filter 8 x 36” All-recirculated and exhausted air is HEPA treated. Wooden (for incineration) or aluminum framing options available for final filter</td>
</tr>
<tr>
<td><strong>Pre-Filter</strong></td>
<td>Washable media @ 10 pores per inch</td>
</tr>
<tr>
<td><strong>Room Airflow</strong></td>
<td>12 air exchanges per hour minimum via HEPA filters; ACH based on maximum room size 375 SF with 8-foot high ceiling</td>
</tr>
<tr>
<td><strong>Condenser Airflow</strong></td>
<td>Exhausted to return air grille or directly outside</td>
</tr>
<tr>
<td><strong>UV Lights</strong></td>
<td>Dual, 36-watt bulbs upstream of HEPA</td>
</tr>
<tr>
<td><strong>Sound Level</strong></td>
<td>59db(A) 6’ from the unit at bed height</td>
</tr>
<tr>
<td><strong>Ambient Range</strong></td>
<td>Unit is not designed to operate in ambient conditions over 90°F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
<th>Single room – 125 sqft</th>
<th>Double room – 288 sqft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Changes per Hour</strong></td>
<td>36</td>
<td>16</td>
</tr>
<tr>
<td><strong>Negative Pressure Control</strong></td>
<td>-0.034” to -0.052” note 1</td>
<td>-0.01” to -0.017” note 1</td>
</tr>
<tr>
<td><strong>Positive Pressure Control</strong></td>
<td>+0.015” to +0.022” note 1</td>
<td>+0.003” to +0.011” note 1</td>
</tr>
<tr>
<td><strong>Particle Reduction (0.5μ/ft3)</strong></td>
<td>6,480 to 225 in 2 hours</td>
<td>34,254 to 1,630 in 3 hours</td>
</tr>
<tr>
<td><strong>Temperature Control</strong></td>
<td>70F +/- 1.5F</td>
<td>75F +/- 1.5F</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Controls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature Control</strong></td>
<td>Set point range 65-80°F; user adjustable; electronic controller</td>
</tr>
<tr>
<td><strong>Hour Meter</strong></td>
<td>Total run time</td>
</tr>
<tr>
<td><strong>Service Light</strong></td>
<td>Flashing indicator light at service intervals</td>
</tr>
<tr>
<td><strong>On/Off Switch</strong></td>
<td>Rocker</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electric</strong></td>
<td>110 Volts / 1 Phase / 60 Hz; 15 amps</td>
</tr>
<tr>
<td><strong>Condensate</strong></td>
<td>32-ounce internal bottle (no drain connections are required)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>30” deep x 20” wide x 48” tall</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>125 pounds</td>
</tr>
<tr>
<td><strong>Cabinet</strong></td>
<td>Powder coated aluminum, ocean blue</td>
</tr>
<tr>
<td><strong>Power Cord</strong></td>
<td>Factory-installed LCDI cord (leakage current detection inter-rupter), rated for 15 amp protection</td>
</tr>
<tr>
<td><strong>Casters</strong></td>
<td>4” wheels, front locking</td>
</tr>
</tbody>
</table>

*Note 1: Pressure measured as a differential between patient room and adjoining hallway*

*Note 2: Highest values are based on results with additional temporary door seals, lowest figures are without any additional seals*

*Note 3: Room particle counts based on measuring total particle concentration of 0.5 micron particles per cubic foot of room air; tests done with a laser particle counter positioned over patient bed, room was unoccupied during test*

*Note 4: Technical data results based on Alpha Test performed at SUNY Upstate Medical University, February 14, 2005*

Air Innovations makes no guarantees that these test results can be duplicated in any similar sized space; many variables such as room leakage and initial airborne contamination levels can effect IsolationAir's performance.
Wire Diagrams