



## ICRA BARRIERS AND NEGATIVE PRESSURE ROOMS



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# Barriers Against Infection: Blocking COVID-19

## ICRA

An Infection Control Risk Assessment (ICRA) reviews the space and program of a healthcare facility to reduce the risk of infection through design and construction. Chapter 1.5 in the 2006 AIA Guidelines outlines the considerations required for the assessment and divides the ICRA process up into three sections: Design, Construction, and Risk Mitigation. To support the assessment, the ICRA Matrix was created as a tool to guide contractors and architects in reviewing the space and designing solutions that meet ICRA's requirements for preventing the spread of infectious pathogens.

The Risk Mitigation portion of the Guidelines helps assessors navigate patient relocation and temporary barriers systems. This part of the assessment will not only reveal the physical barriers the hospital space should consider in protecting their people and patients from infection, but it will also allow the team to modify air-flow to remove airborne diseases quickly. Their temporary solutions are best suited for the sudden and temporary influx of patients experiencing COVID-19.

## ICRA BARRIERS

Temporary barriers in the healthcare system have been a crucial tool in coping with COVID-19. As hospitals fill, administrators need fast solutions to serve more people while keeping everyone safe in the infectious environment. There are various panel systems best used to mitigate the risk of infection while allowing hospitals to expand their space. Some medical facilities have also been able to use these panel systems to easily cut off small sections of the hospital, a benefit needed to service both COVID and non-COVID patients, the staff, and visitors.



## TYPES OF BARRIERS

### PRE-FABRICATED PANEL SYSTEM

This versatile system provides a cost-effective approach and is easily installed. These fire-resistant panels are made of stainless steel and are insulated for added noise reduction. Each panel locks to the adjacent panel forming an airtight seal that can be configured as needed.

### COROPLAST PANEL SYSTEM

This simple mounting system makes for fast installation and creates an airtight seal that exceeds ICRA requirements. It is tougher than corrugated fiberboard, lighter than solid extruded plastic, waterproof, weather-resistant and stain-resistant, making it ideal for temporary walls and partitions.

### CONVENTIONAL FIRE RETARDANT VISQUEEN SYSTEM

This system is suitable for low traffic, non-patient care areas and short term or emergency containment. Fire-resistant, this is an ideal solution to cover electrical equipment. Made from polyethylene, it provides an optimum balance of economy and performance.

### FIRE-RATED DRYWALL BARRIER SYSTEM

Suitable for long-term containment projects, this system can help redirect patient traffic and provide a more permanent solution. The drywall barriers can be insulated to reduce overall noise within the contained space. All drywall barriers can be painted or have fire-rated wall protection installed on them in order to meet additional ICRA guidelines.

### DECONTAMINATION CHAMBER (ANTEROOM)

An anteroom is an essential tool for hospital infection control. They serve a vital purpose in a healthcare setting by protecting patients and staff by isolating contaminated air, dust and potentially deadly airborne pathogens. Workers can remove their PPE, shoe covers and work clothes so that it doesn't contaminate the occupied areas.

### NEGATIVE PRESSURE VIEWPOINT DOORS

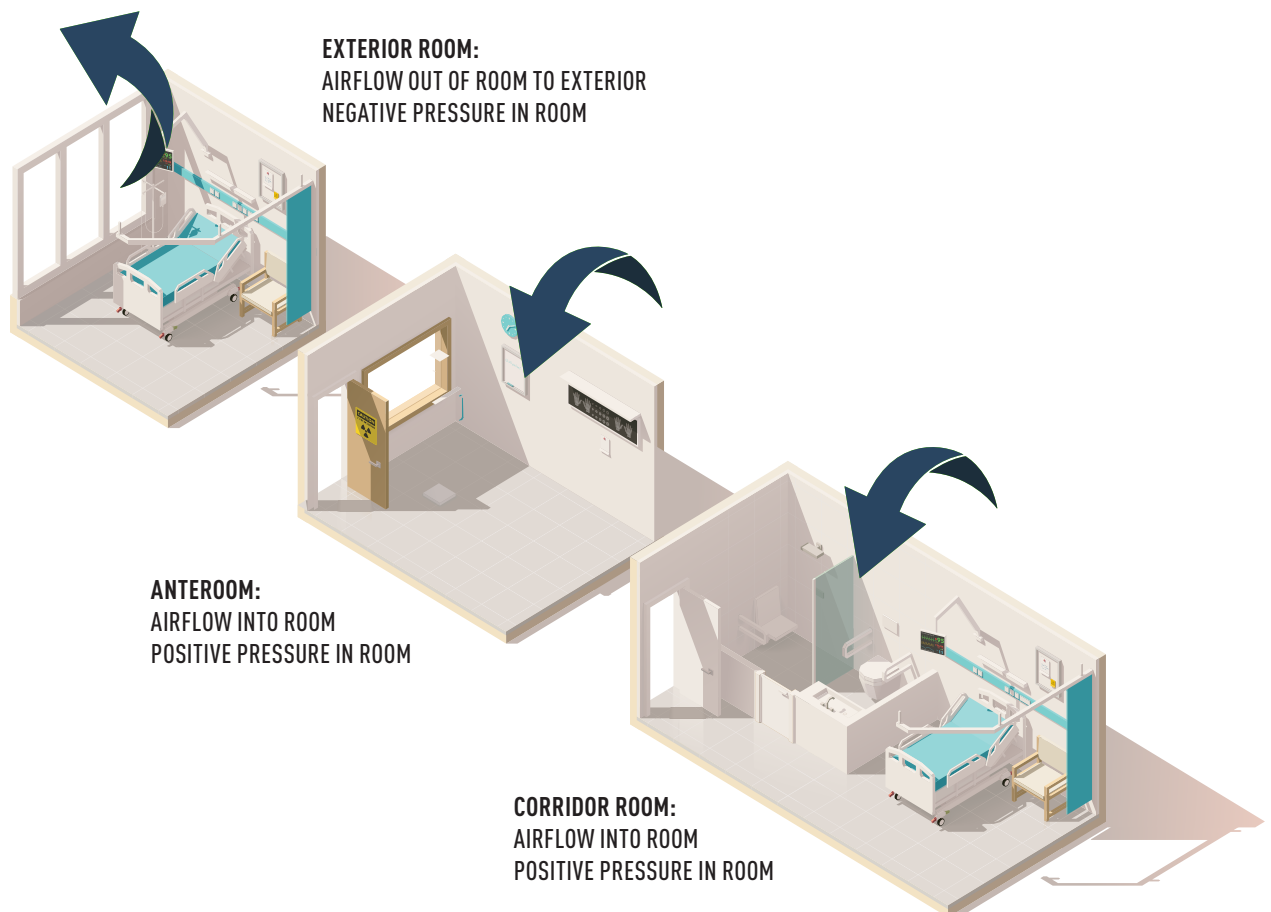
These visual panels in containment doors offer multiple functionalities. The interior of a containment and or isolation room can be observed without opening the door, reducing the risk of exposure. They also allow workers and designated staff entering and exiting the containment to see a person on the other side of the door, avoiding collisions. Finally, the panel allows light to pass through, creating a safe work environment without the need of temporary lighting.

## NEGATIVE PRESSURE ROOMS

At the beginning of the pandemic, little was known about the spread of COVID-19. Hospitals were in survival mode and prevented spread through detailed surface cleaning practices and PPE. Once it was discovered to be an airborne virus, hospitals became innovative with their HVAC systems and started creating temporary negative pressure rooms, which slowly became a staple in COVID units.

Negative pressure rooms maintain lower air pressure inside the room versus outside the room. Non-contaminated “outside” air flows into the room while the contaminated air inside the room is forced out through the negative air machine. These negative air machines are equipped with HEPA filters to clean the exhaust of any airborne contaminants before being pushed outside and away from the hospital. To preclude the spread of airborne contaminants and cross-contamination, namely when entering and exiting the room, many of these systems contain a barrier enforced “anteroom,” an airlock space for healthcare providers to remove their PPE, shoe covers and work clothes so that it doesn’t contaminate the occupied areas. Anterooms are also equipped with a digital pressure monitoring system or Manometer to detect the pressured differential in the Patient Room to ensure adequate negative pressure is maintained at all times.

After an ICRA, a contractor will determine the type of barrier system best suited to seal and properly ventilate a room using negative pressure. These barrier systems may include the various systems above to create an airtight seal beyond ICRA requirements. Doors will often have a plexiglass viewpoint window for medical staff to survey the patient outside of the room.





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