



## **RiPOD**

### **(Rescue Isolation Pod)**

#### **What is a RiPOD ?**

A **RiPOD** is a mobile Negative Pressure Room (Class N) used for containment of infectious airborne pathogens caused by various medical procedures or in the course of treating a patient with an infectious disease. This type of room is also known by the name AIIR (Airborne Infection Isolation Room).

The **RiPOD** is designed and tested to Local and International ICU Guidelines for a variety of uses; accommodation of one patient suffering from an infectious disease, laboratory testing facility, autopsy room or any other room that is required to be in a Negative Pressure Room for the containment of infectious pathogens.

The **RiPOD** has a Air Management System (AMS) that autonomously controls and sterilises the airflow in the room so that the number of airborne infectious particles are reduced to a level that ensures cross-infection of other people within a healthcare facility is highly unlikely.

**RiPOD** achieves this by:

- Automatic Control of the quantity and quality of intake or exhausted air to maintain an internal negative pressure relative to the outside atmospheric pressure.
- Automatically maintaining different air pressures between compartments with automated pressure controlled locking doors.
- Designed airflow patterns for specific clinical procedures.
- Killing airborne infectious pathogens by **Ultraviolet germicidal irradiation(UVGI)**.
- Clean Air Supply through high-efficiency particulate air (HEPA) filter system.
- Best practices using antibacterial building materials for Medical facilities
- Independent Oxygen supply to patient via onboard Oxygen Bottle supply.
- Independently Tested and Certified by ISO 17025/NATA Accredited Testing Laboratory (AMT Group Australasia).

A **RiPOD** is an adapted shipping container with 4 negative pressure compartments; anteroom, exitroom, patient room and ensuite. These compartments can be changed by talking to our design team to suit the various uses as mentioned above. A negative pressure

room is a vital piece of medical infrastructure that is needed when dealing with airborne infectious diseases. When a patient has an infectious disease, there is a need to isolate the patient to reduce transmission routes of the virus, which is either by direct transmission, contact transmission and aerosol transmission.

Aerosol transmission refers to the mixing of the virus with droplets in the air to form aerosols, which can cause infections to other persons by inhalation of the virus particles. Aerosols are suspensions in the air of solid or liquid particles, small enough that they remain airborne for prolonged periods because of their low settling velocity. Settling times can be further affected by air turbulence. The median diameters at which particles exhibit aerosol behavior also corresponds to the sizes at which they are efficiently deposited in the lower respiratory tract when inhaled.

The unique design of **RiPOD** makes it possible to contain and neutralise contaminated airborne particles within a negative pressure-controlled environment on an individual patient basis.

### **What are some of the diseases a person could have and end up being placed in a RiPOD?**

It is wise medical practice to isolate a patient who may have an infectious disease to contain the spread. The following is a list of some known bacterial and viral infections that would require isolation in a **RiPOD**- tuberculosis, measles, chickenpox, Severe Acute Respiratory Syndrome (SARS-CoV), Middle East Respiratory Syndrome (MERS-CoV), influenza (flu), and Coronavirus disease 2019 (COVID-19). These are some of the most extreme sicknesses known but this will change as history has shown.

### **How is the RiPOD's atmosphere in negative pressure?**

A dedicated silent air exhaust system extracts air at a set volume to maintain a negative pressure within the 4 compartments of the **RiPOD**.

### **Is the exhausted air contaminated ?**

No. The exhausted air goes through an inline Virus Killer called an IAQ Inline Virus Killer by Radic8 , this sterilises the air and kills 99.9999% of viruses, including the cold virus, flu virus, SARS virus, and even the deadly Coronavirus.2019 (COVID-19) before it is exhausted into the outside atmosphere.

### **How is the air sterilised inside the RiPOD ?**

The **RiPOD** is fitted with a second Virus Killer called a Radic8 VK401 that sterilises the air volume approximately every 3 minutes. The Virus Killer kills 99.999% of airborne pathogens. This system also reduces odors that are associated with both medical and body functions due to its ability to destroy airborne contaminants. Sterilising the air will greatly reduce surface contamination.

### **Are the building products inside antibacterial?**

Yes. 90% of the building materials are antibacterial. The walls and ceiling in the main room, anteroom and exitroom are coated with a hard wearing antibacterial paint which does not allow a build up bacteria on the surface. The ensuite has a 100% waterproof antibacterial walls called Meganite. The flooring within the Pod is hospital grade antibacterial that does not harbor bacteria.

### **Does the RiPOD have fresh air circulation?**

Yes. The inflow fresh air into the **RiPOD** is supplied through a HEPA filter system which is regulated to enable twelve *air changes* per hour or 145 litres per second for the patient.

### **How is the air temperature controlled in the RiPOD?**

The air within the patient room air temperature is maintained by a mounted split system air conditioner which can be easily maintained and cleaned.

### **What safety and security systems are available in a RiPOD ?**

(a) CCTV - In the **RiPOD** there are 3 CCTV cameras and a single speaker in the main room. Cameras are located in the anteroom, patient room and the exitroom. These cameras are connected to a security management system that monitors who enters and exits the **RiPOD**. The patient room camera can be used by medical staff to observe the patient without having to enter the room.

(b) Pressure sensitive safety glass locking doors - The door locking system is activated by a wrist FOB and or key FOB which is used by medical staff, an emergency key is available. The doors will not unlock unless the predetermined pressures are achieved to maintain a safe negative pressure within the **RiPOD**. The system is designed to allow for remote access if required with the ability to remotely unlock and lock doors if required.

(c) Each **RiPOD** has its own unique identifier number and is tracked via an inbuilt GPS system.

(d) Parameters for recording activities can be set to maintain infectious disease protocols if required.

(e) Smoke alarm which is local and back to base.

(f) Internal speaker for alarms and announcements.

(g) Emergency lighting and power.

### **Is there internet access inside the RiPOD?**

Yes. The **RiPOD** has its own mobile modem and WIFI system.

**If I am a patient can I connect to the WIFI and use the internet with my mobile phone or iPad?**

Yes. You will need to be given the WIFI access code for the **RiPOD** you are occupying.

**Is there a TV?**

Yes. There is a ceiling mounted TV for the use of the patient.

**Is there privacy for the patient?**

Yes. Strict set CCTV protocols will be followed by the medical staff to ensure patient discretion at all times. The glass front doors have 2 remote controlled blinds that can be lowered for patients privacy. The ensuite door is heavily frosted safety glass to keep privacy for the patient whilst using the toilet or shower facilities.

**How does the patient call for help?**

The **RiPOD** is fitted internally with intercom system located for the patient ease of use. The intercom has a call button which activates a digital signal to the nurses' station and a flashing light at the front doors to alert staff.

**Can staff and visitors safely communicate with the patient without entering the RiPOD?**

Yes. Due to the doors being full height safety glass, people can look at the patient from the outside and communicate through the intercom system without having to enter the **RiPOD**.

**Will I feel claustrophobic in the RiPOD?**

No. Certainly not. The layout of the inside give you a sense of comfort with the added knowledge that the air you breath has been filtered and treated with UV light for the cleanest air possible to breath. We have endeavored to make the inside of a **RiPOD** as comfortable as possible with the combination of glass doors and soft lighting. The ensuite will allow you to have privacy yet the space for your personal hygiene requirements. The HVAC systems is designed for minimal noise impact within the **RiPOD** for added comfort.

**Is RiPOD disabled friendly?**

Yes. We have incorporated a ramp for wheel chair access in the entry of the **RiPOD**. Due to restricted space within the **RiPOD** we have implemented some additional accessories to make the **RiPOD** fit for purpose. Patient movement has been made easier with the assistance of an overhead patient lifting system which can be used to lift a patient out of bed and onto a mobile shower/ toilet seat which is easily moved within the ensuite space.

## **What medical equipment can be installed in the RiPOD?**

**Rescue Pods Pty Ltd** the owner of **RiPOD**, have partnered with Zoll Medical and other Medical Equipment suppliers to supply the latest medical equipment required in each **RiPOD** at the request by the purchaser, which could include the following:

- (a) Defibrillators and Monitors by Zoll Medical
- (b) Mechanical Ventilators by Zoll Medical
- (c) IV stands
- (d) Remote temperature monitoring
- (e) Automated CPR called an Auto Pulse by Zoll Medical.
- (f) Oxygen supply and suction available
- (g) Specially designed Bed for ICU
- (h) Medical grade soap dispensers and PPE glove dispensers installed
- (h) Lifting equipment for patient movements

## **Where can a RiPOD be installed?**

Anywhere worldwide! **Rescue Pod Pty Ltd** has partnered with **Nepean Engineering & Innovation** a global company to deliver **RiPOD** anywhere in the world. Due to its design it can be installed anywhere power, water and sewerage are available. If required in remote locations it will need **RiPOD**'s additional **ServoPod** to accompany it. The **ServoPOD** has a 5kva- 25kva Diesel generator, 2000Lt Diesel tank, 8000lt freshwater tank and 5000lt black water tank (sewerage) this can run our **RiPOD** infectious hospital which incorporates 8 x **RiPOD**'s, 1 x Testing laboratory, hospital staff toilets, amenities and hospital management facilities, which is all in negative pressure.

## **How is a RiPOD transported to its destination?**

The RiPOD's outer shell is an adapted shipping container which has the ability to be transported globally. The robust structure of a shipping container allows the RiPOD to be transported by conventional transportation modes either by land or sea.

### **How easy is the RiPOD to be connected to power , water and sewerage where available?**

Very easy. The **RiPOD** can be connected to mains power via a standard 15amp extension power lead which is plugged into the outside standard 15amp male socket which is concealed in the side of the shipping container. Water connection is as simple, only requiring an extension hose connected to a water supply which can be a garden tap, then its connected to a concealed water ball valve in the side of the shipping container which is directly below the power connection. The inbuilt water filtration system deals with keeping the water clean. Below the water connection is a concealed compartment where a standard 50mm Storz fitting is located. This is attached to a ball valve on the outlet from the toilet macerator. A 50mm flexible sewerage hose can be connected to this and rolled out to a local sewerage connection. Depending on the connection location at the site, the pump is able to "push" the waste to a head height of 6.5m and a distance of 60m.

### **Can the RiPOD be serviced easily?**

Yes. The maintenance is quiet simple. After each patient you will need to give the air conditioner fan unit a spray clean with an antibacterial spray and perform standard hospital cleaning/ disinfection for patient change over procedures as per standards. Every 12 months the water filters will need changing.

**Do you have more questions? Contact us on - [enquiries@rescuepods.com.au](mailto:enquiries@rescuepods.com.au)**