

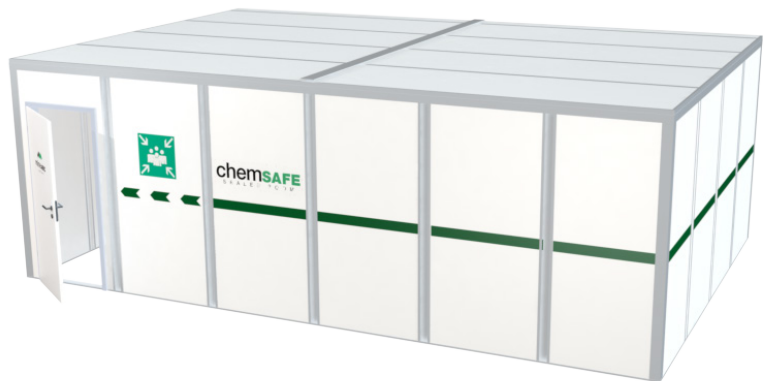


# ChemSAFE Sealed Room

MineARC's ChemSAFE Sealed Room is a customized modular construction that protects personnel from a toxic gas release.



**chemSAFE**  
SEALED ROOM



ChemSAFE  
Sealed Room

The world's leading manufacturer of emergency life-saving refuge



# Company Profile

MineARC Systems is the global leader in the manufacture and supply of emergency safe refuge solutions for the mining, tunneling, chemical processing and disaster relief industries.

With over 20 years' experience, our dedication to ongoing research and development is driven by our key focus to continually offer the best and most advanced safety solutions on the market.

Our team of qualified engineers, electrical designers and technical experts form a global network across five international locations including;

- Perth, Western Australia
- Johannesburg, South Africa
- Dallas, Texas
- Santiago, Chile
- Beijing, China
- Barcelona, Europe
- Leon, Mexico

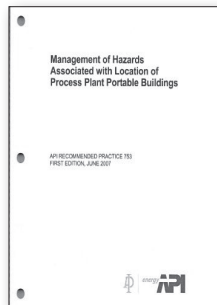
This allows MineARC to provide 24 hour service and engineering support to our expanding list of clients in over 60 countries across the globe.

All MineARC Refuge Chambers and Safe Havens comply with the highest international regulations and recognized 'world's best practice' industry guidelines. Our key focus on quality control and product advancement has meant that MineARC Refuge Chambers have successfully saved lives in multiple real life industrial emergencies around the globe.

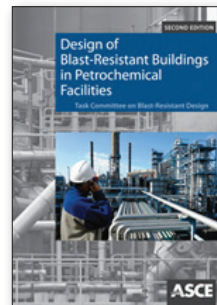
[www.minearc.com](http://www.minearc.com)



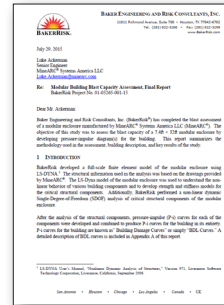
TRC ISO 9001:2015 Quality Management Systems



API 753 Management of Hazards Associated with Location of Process Plant Portable Buildings



2009 ASCE Design of Blast Resistant Buildings in Petrochemical Facilities



BakerRisk Blast Assessment Third Party Testing



Voluntary Protection Programs Participants' Association



National Safety Council



Canadian Standards Association (CSA)



Quality Management System (QMS)



United States National Electrical Code



Global Supply Chain Risk Management Solutions



Contractor Management Services



Contractor and Supplier Management



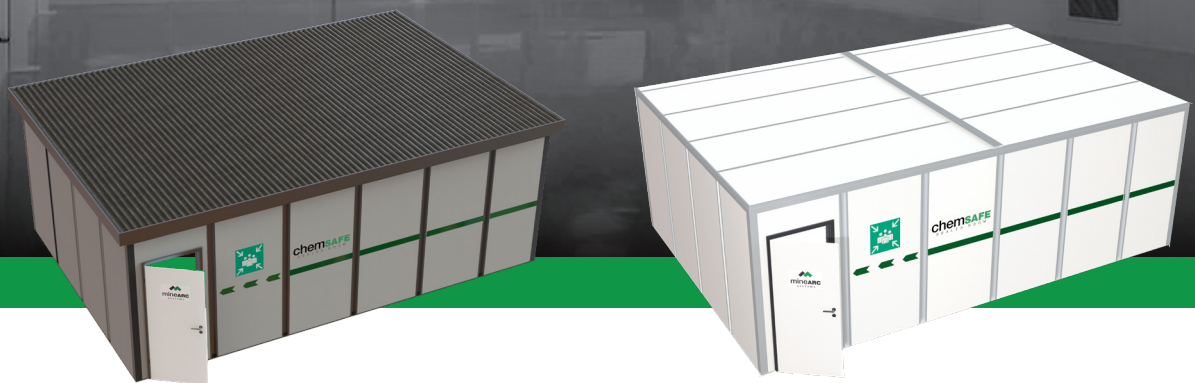
Mine Safety and Health Administration



# ChemSAFE Sealed Rooms For Shelter-in-Place

Intended for facilities that do not have the physical space for a portable Safe Haven; ChemSAFE Sealed Rooms provide a convenient means of protecting personnel from a toxic gas release.

These modular constructed room are designed to have minimal air changes per hour (ACH). The incorporation of life support systems such as the MineARC AirGEN, AirMAX and Aura-FX ensures occupants remain safe for the entire duration of the emergency.



## Features

- Customized modular construction
- ACH < 0.1
- 3" fiberglass reinforced plastic covered gypsum on exterior and interior with a polystyrene center
- Electrical package consisting of lights and outlets
- Integrated MineARC Life Support options
- Optional air conditioning/heating systems
- Optional Oxygen Candle
- Optional AirGEN, AirMAX and Aura-FX





# ChemSAFE Sealed Rooms For Shelter-in-Place





# AirGEN Scrubbing & Oxygen For Shelter-in-Place

mineARC  
SYSTEMS

Depending on the designated occupancy of the shelter-in-place location and its volume, CO<sub>2</sub> scrubbing and supplementary oxygen may be required. Humans consume oxygen and expire carbon dioxide (CO<sub>2</sub>) as part of normal respiration. In high enough concentrations, CO<sub>2</sub> can cause serious injury, leading to a loss of consciousness and eventually death. Removal of CO<sub>2</sub> is therefore a vital necessity for any shelter-in-place location, especially where CO<sub>2</sub> concentrations exceed one percent over the entrapment duration.

The MineARC AirGEN is a standalone air regenerative system that 'scrubs' the air inside of an enclosed location, effectively cleaning it so occupants can rebreathe it. In certain cases, it is necessary to also provide supplemental oxygen. MineARC offers either compressed oxygen cylinders or sodium chlorate (oxygen) candles. The delivery of compressed oxygen cylinders can be automated based on established low and high limits.



## AirGEN Scrubber

The MineARC AirGEN is compact in size, stores for extended periods, and is easy to operate. The addition of a scrubbing system permits a shelter that is ventilated from the outside to be converted to a fully isolated environment, protected from external hazards.

- Simple single switch operation
- Easy fitment of chemical cartridges
- 18.75" [476mm] x 13.75" [349mm] x 22.6" [570mm]
- 90lbs [41kg]

## Oxygen Supply

MineARC Scrubbers operate in conjunction with breathing grade O<sub>2</sub> cylinders. Scrubbers are generally supplied with a primary and backup oxygen regulator as well as Latex Gloves for handling. Cylinders can be housed securely in the rear of the MineARC Modular Building. An optional MineARC Automated Oxygen Delivery System (AODS) can be included to fully automate the delivery of oxygen between the required limits.

- Breathable oxygen cylinders 303ft<sup>3</sup> (8,580L)
- Medical grade oxygen regulator with flow selection from 1-30 persons. Supplied with rubber gloves for regulator handling

MineARC's oxygen candle is a compact source of oxygen that can be easily stored for long periods. The oxygen candle is a backup oxygen supply, and provides 2,600L (92ft<sup>3</sup>) of pure oxygen upon ignition.

- Includes igniter, stainless steel stand, and Kevlar™ gloves.

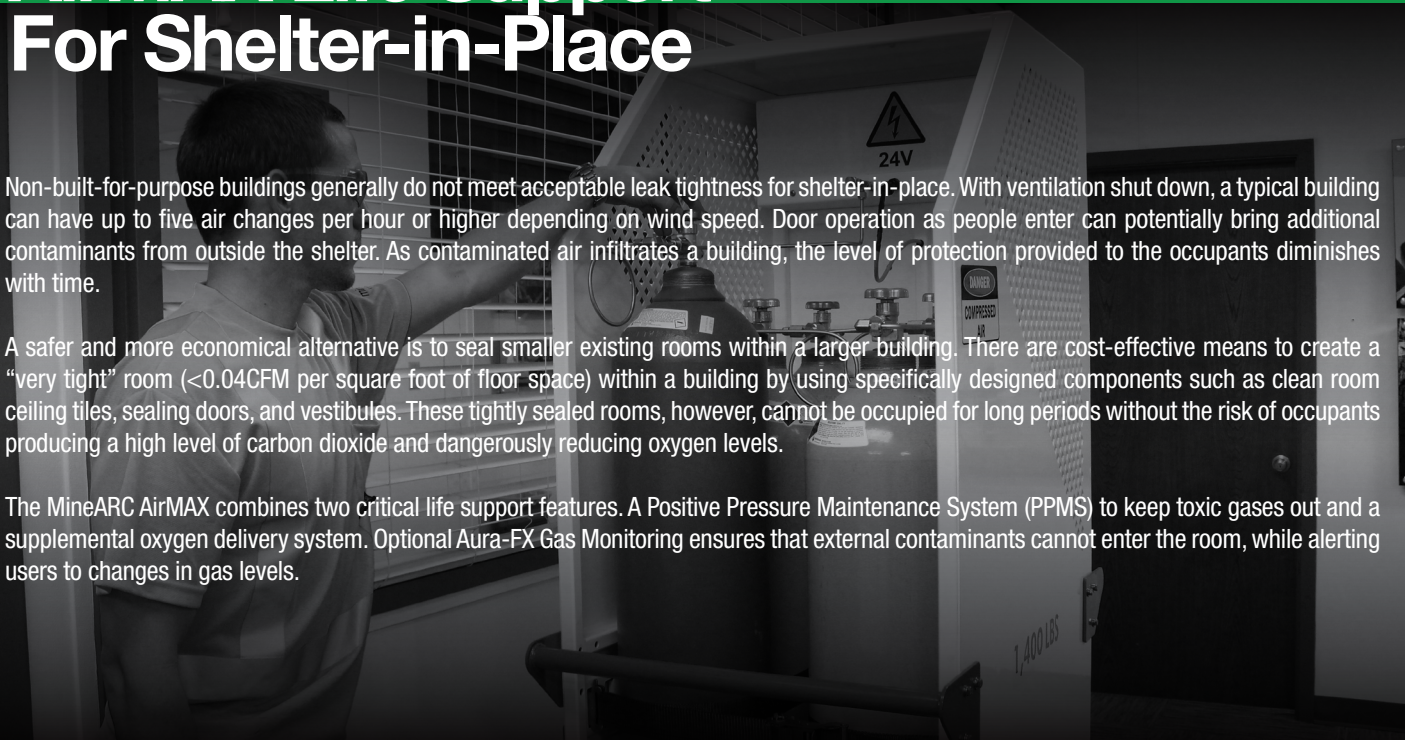


# AirMAX Life Support For Shelter-in-Place

Non-built-for-purpose buildings generally do not meet acceptable leak tightness for shelter-in-place. With ventilation shut down, a typical building can have up to five air changes per hour or higher depending on wind speed. Door operation as people enter can potentially bring additional contaminants from outside the shelter. As contaminated air infiltrates a building, the level of protection provided to the occupants diminishes with time.

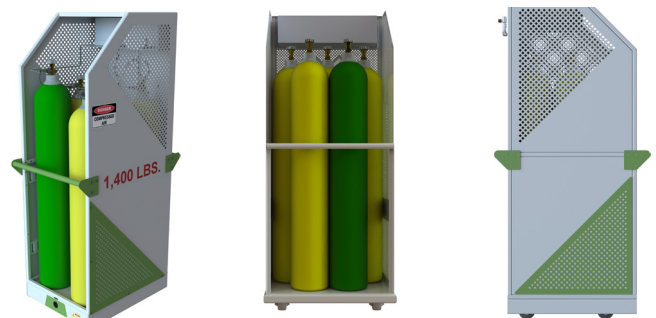
A safer and more economical alternative is to seal smaller existing rooms within a larger building. There are cost-effective means to create a “very tight” room (<0.04CFM per square foot of floor space) within a building by using specifically designed components such as clean room ceiling tiles, sealing doors, and vestibules. These tightly sealed rooms, however, cannot be occupied for long periods without the risk of occupants producing a high level of carbon dioxide and dangerously reducing oxygen levels.

The MineARC AirMAX combines two critical life support features. A Positive Pressure Maintenance System (PPMS) to keep toxic gases out and a supplemental oxygen delivery system. Optional Aura-FX Gas Monitoring ensures that external contaminants cannot enter the room, while alerting users to changes in gas levels.



## Standard Dimensions

Occupancy:	<50 Person
Duration:	4 Hours at 9cfm
Voltage:	120V or 240V
Depth:	36.00in (914mm)
Width:	25.00in (635mm)
Height:	75.88in (1,978mm)
Weight (Est.):	1,400lbs (636kg)
Power Draw:	30W at 24V





# Aura-FX Gas Monitoring For Shelter-in-Place

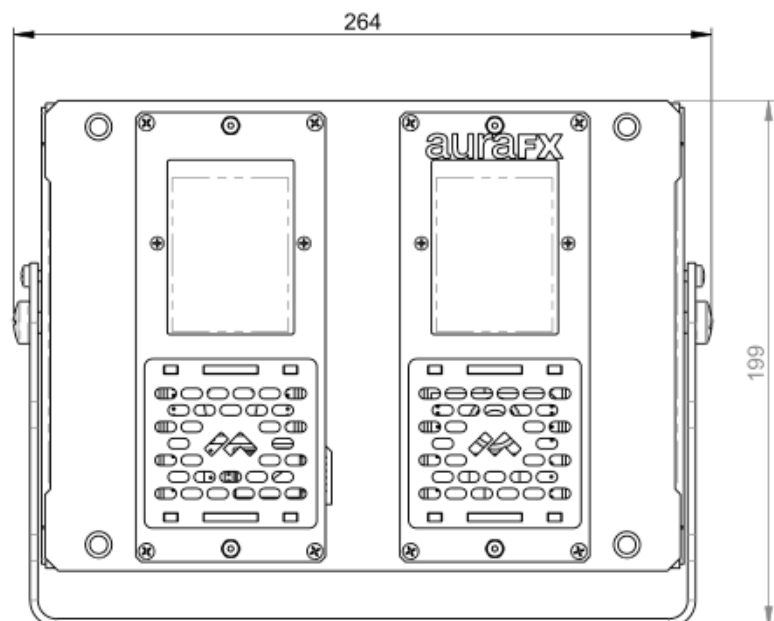
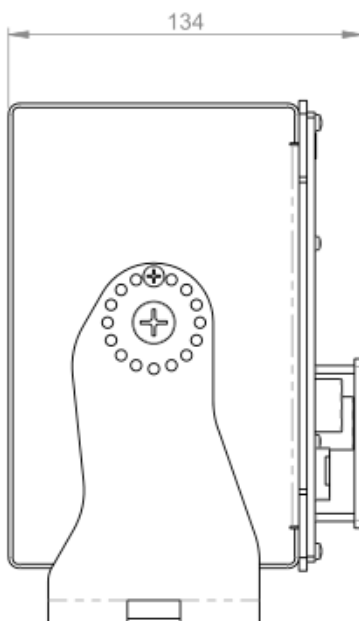
A vast improvement on current digital gas monitors on the market, Aura-FX provides a more convenient solution to internal refuge chamber gas monitoring. Aura-FX has the ability to individually monitor temperature, humidity, pressure, oxygen, carbon dioxide, and carbon monoxide via a series of user-friendly, digital screens.

Audible voice alarms will prompt occupants to replace scrubbing chemicals or adjust oxygen supply levels into the refuge chamber as required. Aura-FX is standard on all new MineARC Refuge Chambers and is also available to retrofit to most existing chambers.



## Major Features

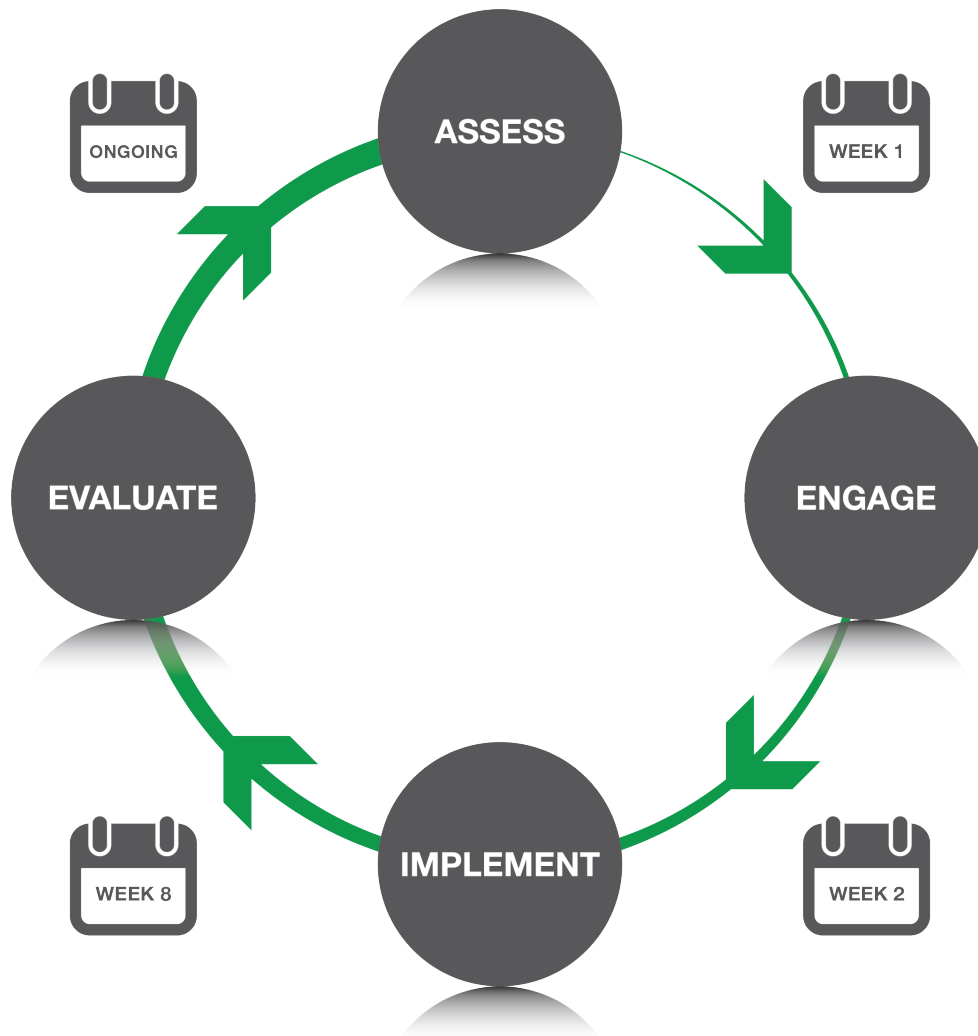
- Temperature, pressure and humidity monitoring
- Oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>) and toxic gas (NH<sub>3</sub>, CL etc.)
- Graphical displays with trend lines
- Audible alarm and voice prompts
- Ethernet connectivity for remote monitoring
- Yearly calibration
- Long sensor lives
- **Operating:** 24-48VDC @ 33W
- **Weight:** 3.6kg (8lbs)



# Turnkey Project Execution

MineARC Systems specializes in providing engineering, construction and commissioning of safe havens for existing and new facilities. Our commitment to technical excellence and innovative solutions, drives MineARC to provide the highest caliber “turnkey” execution available. We offer our customers a wide range of specialized services built

around our core belief of providing proven safe haven for personnel during an emergency situation. We strive to meet each customer’s exact engineering, procurement and construction requirements and deliver a lump sum turnkey (LSTK) project with minimal impact to an operating facility’s day to day business.



## All Aspects of Turnkey Project Execution are evaluated:

- ✓ Management
- ✓ Design
- ✓ Engineering
- ✓ Procurement
- ✓ Construction
- ✓ Testing
- ✓ Pre-Commissioning
- ✓ Commissioning
- ✓ Handover



MineARC NORTH AMERICA

MineARC EUROPE

MineARC CHINA

MineARC SOUTH AMERICA

MineARC AFRICA

MineARC AUSTRALIA

# MineARC® Systems

## HEAD OFFICE

### MineARC AUSTRALIA

274 Welshpool Road, Perth  
Australia 6106  
ph: +61 (8) 9333 4966  
fax: +61 (8) 9333 4900  
email: [info@minearc.com.au](mailto:info@minearc.com.au)

### MineARC NORTH AMERICA

4850 W. Ledbetter Drive  
Dallas Texas 75236 USA  
ph: +1 (214) 337 5100  
fax: +1 (214) 337 5103  
email: [info@minearc.com](mailto:info@minearc.com)

### MineARC SOUTH AMERICA

Avda. El Salto N°4001 oficina 142 A,  
Piso 14 Comuna de Huechuraba  
Santiago, Chile  
ph: +56 2 29644290  
fax: +56 2 29644291  
email: [info@minearc.com](mailto:info@minearc.com)

### MineARC AFRICA

Stand 205, Flaming Rock Rd, Northlands  
Business Park, 29 Newmarket Street,  
North Riding, Johannesburg, South Africa  
ph: +27 (0) 11 796 5162  
fax: +27 (0) 86 504 1750  
email: [info@minearc.co.za](mailto:info@minearc.co.za)

### MineARC CHINA

Room 16-03C, Level 16 Tower A  
Gemdale Plaza Centre, No. 91, Jian Guo Rd.  
Chaoyang District, Beijing 100022, China  
ph: +86 10 8472 6488  
fax: +86 10 8478 5769  
email: [info@minearc.com.au](mailto:info@minearc.com.au)

### MineARC EUROPE

Carrer Dels Consellers 4  
Barcelona, 08003, Spain  
ph: +34 657 702 360  
fax: +61 8 9333 4900  
email: [info@minearc.com.au](mailto:info@minearc.com.au)

The world's leading manufacturer of emergency life-saving refuge

  
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SYSTEMS  
[www.minearc.com](http://www.minearc.com)