



# StormSAFE Cyclone Shelter

The StormSAFE is a fully portable, modular unit, specifically designed to withstand extreme weather conditions.



MineARC Systems - Built for Safety.

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

  
mineARC  
SYSTEMS

# Company Profile

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

With 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 several international locations including;

- Perth, Western Australia
- Johannesburg, South Africa
- Dallas, Texas
- Santiago, Chile
- Beijing, China
- Barcelona, Spain
- Guanajuato, 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 recognised '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.

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Bureau Veritas ISO 9001:2008 Quality Management Systems



ISO 9001 Quality Rating



Australian C-Tick Standards: AS4100-1998, AS3570.1-18, AS2208, AS3000, AS1716-15



Canadian Standards Association (CSA)



United States National Electrical Code (NEC) 2013/14



European CE Certified to Machinery Norms

# The MineARC StormSAFE

**The StormSAFE Cyclone Shelter represents MineARC's latest solution in above-ground safe refuges for industry.**

Designed specifically for regional industrial sites that experience extreme weather conditions, the StormSAFE has been engineered to withstand wind speeds in excess of 300km/hr. The unit complies with the Australian Building Code's 'Region D Rating' for tropical cyclones, and the Australian & New Zealand Standard AS/NZ1170.2, with a Building Code of Australia Importance Level of 4.

The StormSAFE Shelter features a fully portable, modular design comprising either stand alone chambers or a series of individual units that bolt together, creating a single internal environment. The design allows for easy disassembly and relocation as required.

The standard MineARC StormSAFE is designed to house any size team comfortably, offering bunk-style bedding, ample seating, kitchenette facilities and toilet amenities. Its clever modular design means that the space can be customised for any specification, particularly in regards to size, occupancy and internal features.

The StormSAFE is a cost effective option for remote industrial sites, allowing personnel to remain on-site to continue production right up to a 'blue' alert. For sites experiencing regular extreme weather conditions, this minimises costly down-time and process disruptions significantly.



# StormSAFE Exterior

The standard StormSAFE Shelter is designed as a modular unit that bolts together, providing ample internal space. Constructed from 5mm solid steel, it can withstand wind speeds in excess of 300km/hr and complies with 'Region D Rating' for tropical cyclones.



WATER TANKS AT REAR OF CHAMBER

5MM STEEL CONSTRUCTION FOR REGION D RATING

SEALING DOOR

ROOF MOUNTED LOUVRES

ROTATING HANDLES

REFLECTIVE SIGNAGE  
• Safety & operational  
• Optional extra: Multiple languages

CAUTION  
CHAMBER MUST BE ON LEVEL GROUND AT ALL TIMES

MA 1077

SALES & SERVICE  
P: +61 (8) 9333 4966  
E: info@minearc.com  
72 PERSON UNIT

9360kg

MULTIPLE ENTRY WAYS

BOLT TOGETHER MODULAR UNITS

SIREN & STROBE WARNING SIGNALS

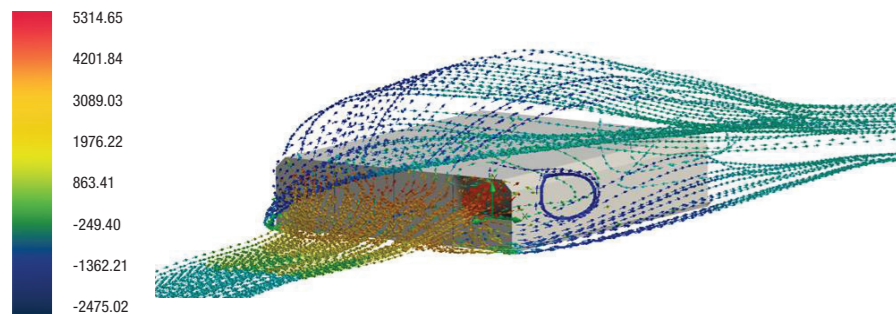
12MM PORTHOLE WINDOWS  
• AS 2208  
• Blast resistant upon request

UPS BATTERY BACKUP

LOUVRED AIR VENTS

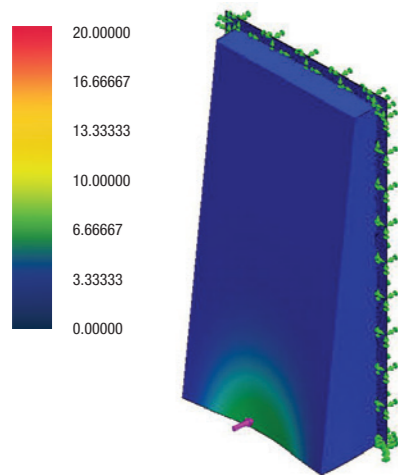
# Precision Engineered Design

## Wind Stability



MineARC Engineers have utilised flow simulation software to accurately analyse the flow path of cyclonic wind from all directions acting on the StormSAFE. By determining the areas of positive and negative pressures caused by air passing over the geometry, our engineers were able to develop a chamber design that is both stable and self-weighting, whilst also remaining easily transportable.

## Impact Resistance



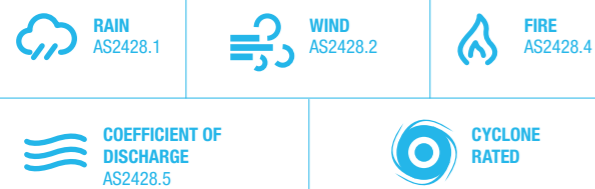
FEA structural analyses have been conducted to determine the maximum deflection of the StormSAFE, ensuring the impact energy of flying debris will not allow the shell to yield.

AS1170.2 Debris Impact Calculations specify the following:

- A cyclone shelter must withstand impact of a spherical steel ball, of 8mm diameter and 2g mass, travelling at 144km/h; and
- A cyclone shelter must withstand impact of a 4kg mass travelling at 144km/hr, with a cross section of 100mm x 50mm

FEA software and manual tests by MineARC engineers have confirmed the StormSAFE displays deflections below a fraction of a millimetre and a stress impact well below yield across the chamber, proving compliance with the aforementioned aspects of AS1170.2.

## Ventilation System



The StormSAFE's AS 2428.1/2 compliant ventilation system provides effective, natural air flow, whilst ensuring optimal protection in even the most extreme weather conditions. The system has been Australian engineered and designed to withstand Region D Rated cyclonic conditions.

## Plumbing

If kitchenette and toilet modules are required, the MineARC StormSAFE is built to conform to AS3500 Plumbing and Drainage Regulations. Fresh water is provided to the facilities via a gravity fed water storage bank. An effluent tank is mounted underneath the floor of the chamber, externally accessible for emptying via pumping.

## UPS Battery Backup

A standard StormSAFE chamber is designed with a UPS battery backup system, capable of powering the unit for 12 hours stand alone. This includes providing power to all internal fluorescent lighting, emergency exit signs, and external warning lights. Extended back up is available upon request.

# StormSAFE Sleeping Quarters

The standard StormSAFE Chamber can include dormitory modules with triple bunk-style bedding, ideal for scenarios in which personnel are taking shelter for long periods of time.



TURBO FAN

CLIMBING RUNGS

SAFETY SIGNAGE

CAUTION  
DO NOT SLIDE  
AGAINST THIS

LOUVRED  
AIR VENTS

OPTIONAL STORAGE NETS  
ON INTERIOR WALLS

FIRE RETARDANT  
MATTRESS



FLUORESCENT LIGHTING

SPLIT SYSTEM  
AIR CONDITIONING

ELECTRICAL SYSTEMS

TOILET FACILITIES

POWER & COMMS  
CONNECTION

STAINLESS STEEL  
SINK & STORAGE

COMMUNAL SEATING AREA

INSTRUCTIONAL SIGNAGE



SLEEPING QUARTERS  
(SEE PG. 7)

Modules can be configured to contain a kitchenette and mess hall facilities, as well as all necessary control and communication systems. Other modules incorporate recreation amenities and ablutions, utilising MineARC's award winning EnviroLAV technology as an option.

\*Fridge and microwaves not provided as standard.

WATER & OIL REPELLENT  
CARPETING

Like all MineARC Chambers, the StormSAFE is highly customisable to suit any client requirement or project specification:

*"The MineARC team, from initial concept discussions through to handover on site, provided a professional service. The design of the StormSAFE product evolved during construction to meet the conflicting requirements of two separate end user locations.*

*The StormSAFE shelter met all of our technical criteria and the internal fit out provides total flexibility for seating arrangements within the two centre modules."*

- Trevor Beattie  
Capital Works Manager, Atlas Iron

# StormSAFE Configurations

The StormSAFE Cyclone Shelter is available in two standard lengths; a short 6m design for up to 12 persons per module, and a longer 12m chamber for up to 24 persons per module. A combination of end, centre or stand alone modular units are utilised to create the most suitable solution for each client's requirements:



Within each model, a number of amenity options are available; including bedding, kitchenette facilities, toilets and seating. Standard StormSAFE modules have been designed to ensure optimal comfort of personnel during an emergency.

## Sleeping Quarters

Dormitory modules, featuring triple bunk-style bedding, ideal for extended refuge. Fire retardant mattresses included.

## Kitchenette

Basic food preparation facilities, including a stainless steel sink, storage, and power access for additional amenities.





## Ablutions

EnviroLAV toilet system, available in either single-sex or uni-sex. Includes hand-basin and wall mounted EnviroWASH soap dispenser.

## Recreation

Mess-hall area for general use, including tables and seating.

## Standard Configurations

| Module | Part No.     |  |  |  |  |
|--------|--------------|---|---|---|---|
| 6m     | SS-06-EM1-12 | ✓   |   |   |   |
|        | SS-06-EM2-12 |   |   | ✓   | ✓   |
|        | SS-06-EM3-12 |   |   | ✓✓  | ✓   |
|        | SS-06-EM4-12 |   | ✓   | ✓   | ✓   |
|        | SS-06-EM5-12 |   | ✓   |   | ✓   |
| 6m     | SS-06-CM1-12 | ✓   |   |   |   |
|        | SS-06-CM2-12 |   |   | ✓   | ✓   |
|        | SS-06-CM3-12 |   |   | ✓✓  | ✓   |
|        | SS-06-CM4-12 |   | ✓   | ✓   | ✓   |
|        | SS-06-CM5-12 |   | ✓   |   | ✓   |
| 6m     | SS-06-SM6-12 | ✓   |   | ✓   | ✓   |
|        | SS-06-SM7-12 |   | ✓   | ✓   | ✓   |
| 12m    | SS-12-EM1-24 | ✓   |   |   |   |
|        | SS-12-EM3-24 |   |   | ✓✓  | ✓   |
|        | SS-12-EM4-24 |   | ✓   | ✓   | ✓   |
|        | SS-12-EM5-24 |   | ✓   |   | ✓   |
|        | SS-12-CM1-24 | ✓   |   |   |   |
| 12m    | SS-12-CM3-24 |   |   | ✓✓  | ✓   |
|        | SS-12-CM4-24 |   | ✓   | ✓   | ✓   |
|        | SS-12-CM5-24 |   | ✓   |   | ✓   |
| 12m    | SS-12-SM6-24 | ✓   |   | ✓   | ✓   |
|        | SS-12-SM7-24 |   | ✓   | ✓   | ✓   |

Custom configurations and occupancies available. Refuge configurations are ultimately designed to client specifications.

# StormSAFE Feature Summary

Fully Portable, Modular Design

Can Withstand Wind Speeds of up to 300km/h

Built to Local Compliance Standards and Building Specifications

Tailored Interior Space

No Special Transport Permits Required - Loads onto a Flat Bed Truck

Customisable To Your Site's Requirements

## Standard Features

- Fully customisable, modular design
- 5mm (3/16") steel construction
- Viewing porthole
- Reflective signage and durable paint exterior
- Outward opening door with securing handle
- Air vents
- Airconditioning
- Interior lighting
- Carpeted flooring
- Communication ports
- UPS battery back-up
- Toilet facilities
- Water tanks
- First aid kit

## Optional Features

- Language of choice for documentation and instruction
- Bunk-style bedding
- Capacity for fridge and microwave
- Fold away tables and seating
- Kitchenette with stainless steel sink
- Additional entertainment options





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