



SAFEHOUSE
A STARN COMPANY

REDUCE RISK // SAVE COSTS // EXTEND ASSET LIFE // INCREASE PRODUCTION // IMPROVE WELFARE

Protecting your people, assets and production

SAFEHOUSE MISSION

*We protect people, preserve
assets and improve production
through engineered protection
and services to ensure work
in hazardous environments is
universally safe.*

INTRODUCTION



Safehouse is a proud member of the Starn Group.

The SAFEHOUSE habitat system is an engineered control measure used to separate hot work ignition sources and non-Ex equipment from potentially explosive atmospheres.

With over 18 years' experience providing pressurised habitats to the oil and gas industry, Safehouse supports the safe and efficient execution of your project by delivering everything you need from site surveys and risk assessments, to complete project management incorporating design, warehousing and logistics, installation, monitoring and evaluation.

Safehouse supports the safe and efficient execution of your project.

SAFEHOUSE habitats provide pressure, atmosphere and climate controlled enclosures which allow potentially hazardous activities to be conducted in a safe, controlled way, in areas where hydrocarbons may be present.

Safehouse provides protection for conducting hot work in zone 1 and 2 areas, and helps to extend working time by providing cool environments in extreme heat, warm working environments for cold conditions, and dry air environments where humidity and condensation can compromise inspection and repairs.

Safehouse has been involved in developing habitat guidelines and procedures for many major operators, contractors and industry associations. Its equipment and technology is patented and unique with highly customisable packages suited to a wide range of applications and customer requirements.

It operates in over 50 countries through its partner network and regional hubs located in the UK, UAE, US, Australia and Malaysia. Safehouse ensures the world's toughest environments are safer, more productive and more economical. Wherever you are in the world, access

Safehouse's locally held stock and in-country certified technicians. All its products and services are backed by a global technical support team.

With extensive experience throughout the marine sector, Safehouse has facilitated the safe execution of hot work on board Gas Tankers, Oil and Product Tankers, FSRUs, FLNGs and FPSOs. By eliminating the need to gas-free, we save our clients the extensive costs associated with schedule delays, off hire losses and the cost of discharging gas heels.

Safehouse offers a range of commercial options to suit your requirements. These include: rental, managed service, sales and service, and sales.



TECHNICAL CAPABILITIES

The SAFEHOUSE habitat system is an engineered control measure used to separate hot work ignition sources and non-Ex electrical equipment from potentially explosive atmospheres. The system provides a non-hazardous zone within a surrounding zone 1 or 2 hazardous area, delivering an equivalent control and level of safety to gas-freeing.

Key system features include:

01 Containment

A sealed, flame-retardant, modular panel structure ensures ignition sources (e.g. grinding or welding sparks) are contained and sealed within the habitat.

02 Pressurisation

A ducted safe-air ventilation system, with its intake placed in a non-hazardous area, delivers clean air to the habitat, creates an internal pressure barrier and ensures the habitat atmosphere remains gas-free, even in the event of an unplanned release in the surrounding area.

03 Gas detection & automatic shutdown

To monitor for the presence of hazardous gases, independent gas detectors are located in the safe-air inlet duct, inside the habitat and in the external area surrounding the habitat.

If the safe-air inlet becomes contaminated with flammable gas, a sensor triggers the automatic closing of a damper to prevent flammable gas from contaminating the habitat internal atmosphere. If gas is detected by any of the system sensors, power to all equipment with ignition potential is automatically isolated.

04 Extraction and climate control

To ensure internal air quality is maintained for occupants, the SAFEHOUSE habitat system utilises Local Exhaust Ventilation (LEV) to remove airborne contaminants at the source. The high volume safe-air ventilation system also ensures a high air change rate is maintained. An Ex-rated zone 1 SafeCool air conditioning unit can be included in the ventilation system to deliver 22Kw of cooling.

05 Ex hazardous area zone rated equipment

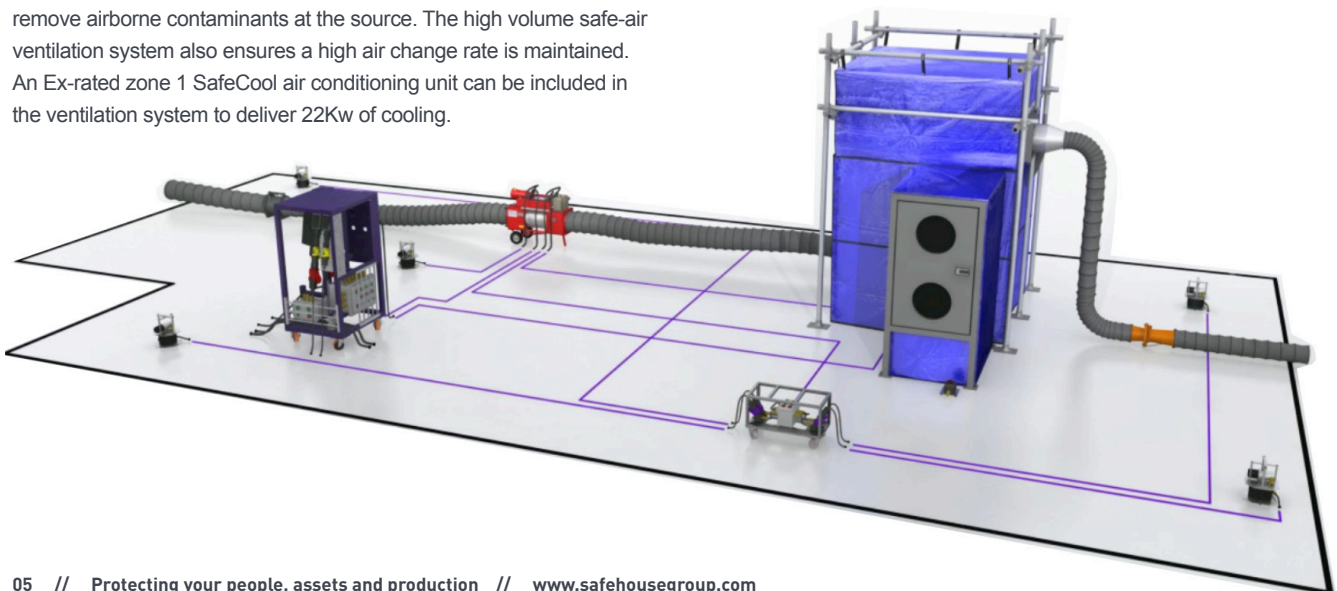
All Safehouse electrical gas detection, power distribution, auto-shutdown and ventilation equipment is ATEX and IECEx certified for hazardous area zones 1 and 2.

06 Modular, flexible and versatile

The SAFEHOUSE habitat system is constructed from uniform sized, flexible, flame-retardant fabric panels. These durable panels can be assembled in a limitless range of configurations to construct a habitat of any size, shape or design to suit any work site. The system includes a range of panels designed to allow pipework, structures and cabling to penetrate the habitat, the sealing of the habitat to a deck, bulkhead or wall and the connection of the double door airlock entrance or ventilation system.

07 Efficient & reusable

Highly trained and experienced technicians can install a habitat in as little as a few hours. When work is complete, the habitat can be rapidly disassembled and the materials reused on subsequent work scopes.



BENEFITS

Safehouse products and services deliver five core benefits:

01 Reduce risk

The SAFEHOUSE habitat system is an engineered control designed to mitigate ignition risks associated with hot work. By using a sealed habitat structure, a positive pressure barrier and independent gas detection and ignition source shutdown systems, SAFEHOUSE habitats ensure ignition sources are contained and a safe atmosphere is maintained at the hot work site. Our highly trained and experienced technicians and engineering team can assist with HAZIDs, HAZOPs, risk assessments and any class, flag, shipyard, port authority and national or local approvals. Safehouse works with you to ensure stringent procedures are integrated into your safety management system and task specific risk assessments. Additionally, all supporting documentation is provided.



REDUCE RISK

02 Retain cargo

A SAFEHOUSE habitat provides a non-hazardous zone within a surrounding zone 1 or 2 area. When coupled with task specific risk assessments, stringent procedures and existing controls, the safe execution of hot work within the gas zone is enabled without the need to gas-free cargo tanks. Repairs can be safely carried out while fully laden, either berthed, underway or at anchorage.



RETAIN CARGO

03 Save costs

Eliminating the need to empty cargo tanks to safely perform urgent repairs avoids costly schedule delays, minimises off hire losses and saves the cost of discharging gas heels. SAFEHOUSE habitats allow flexible maintenance scheduling; hot work activities can be safely performed outside of regular dry-dock survey schedules, reducing maintenance costs.



SAVE COSTS

04 Maintain schedule

Safehouse's global network and dedicated project engineering and logistics teams ensures a rapid response and delivery time. Safehouse can mobilise expert technicians and equipment to meet vessels in port to help minimise schedule disruption. Using a pressurised SAFEHOUSE Habitat avoids costly downtime spent warming, gas-freeing and re-cooling gas cargo tanks. Repairs and maintenance can be undertaken using SAFEHOUSE habitats while berthed, at a shipyard, at anchorage or underway, ensuring charters can be fulfilled without delay.



MAINTAIN SCHEDULE

05 Improve welfare

Combined with SAFEHOUSE habitats, or used independently, our SafeCool ACU and SafeHeat products create a controlled environment, enabling work in any climate. Habitats are engineered to provide safe breathing atmospheres for occupants, ensuring exposure to airborne contaminants is minimised. SAFEHOUSE and its range of complementary Ex zone 1 and 2 rated ventilation equipment and SafeCool ACU, can be used to improve ventilation of cargo and ballast tanks during inspections and repairs.



IMPROVE WELFARE

PANAMA CANAL EMERGENCY HULL REPAIRS LPG CARRIER

01

PROJECT CHALLENGE



- LPG tanker denied entry to Panama Canal due to condition of class for minor hull damage
- Vessel operators faced with prospect of sailing around South America or jettisoning cargo to allow weld repairs
- Fwd port fairlead repairs also required

02

ENGINEERED SOLUTION



- Safehouse project engineer worked with client and Canal authorities to gain approvals and issue of hot work permit
- Pressurised habitat installed inside and outside hull

03

OUTCOME



- Habitats installed and repair work completed without incident within 24-hour period
- <72 Hour turnaround from enquiry to demobilisation
- Tanker allowed to traverse the Canal with cargo
- Client savings in excess of US \$400,000

BELGIUM/FINLAND 'EN VOYAGE' URGENT MAINTENANCE ON LPG/LEG CARRIER

01

PROJECT CHALLENGE



- During inspection, cracks in a compartment housing non-is equipment were identified
- Damage required urgent repair 'en voyage' between Belgium and Finland

02

ENGINEERED SOLUTION



- Closely communicated with the vessel's superintendent at all times to ensure maximum efficiency of planning
- On completion habitat was deconstructed, technician down manned and material offloaded the very same day

03

OUTCOME



- Downtime of the vessel was limited to less than 48 hours
- The journey schedule of the vessel remained unchanged
- The use of SAFEHOUSE habitats to carry out the repairs saved the client over €100,000 by avoiding the need to gas-free the vessel

VESSEL IN TRANSIT AUSTRALIA TO CHINA LNG CARRIER MOORING WINCH REPAIRS

01

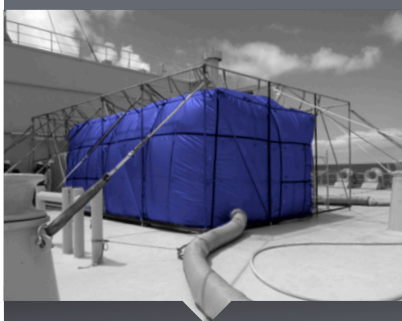
PROJECT CHALLENGE



- Forward mooring winch required urgent repairs ordered by receiving port authority before returning with next LNG cargo
- Very short notice mobilisation

02

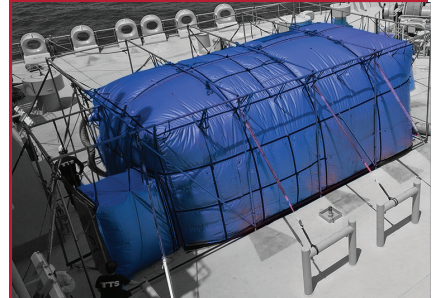
ENGINEERED SOLUTION



- Safehouse rapidly mobilised a local technician and equipment stored at the LNG liquefaction facility
- Habitat sealed to deck surrounding winch using unique magnetic seal panels

03

OUTCOME



- Habitat installed by technician within 12 hour shift
- Hot work was executed without incident and winch repaired prior to arrival at port
- Vessel was able to come along side, offload its cargo safely and fulfil its charter without disruption to schedule

GASSED-UP FSRU SEA WATER HEAT EXCHANGER REPAIR

01

PROJECT CHALLENGE



- SAFEHOUSE habitat required to facilitate inspection on sea water heat exchangers as a leak was suspected
- Crack resulted in client having to buy gas at great expense to meet contract obligations
- Additionally, the work was to be completed before the expiry of the two-year warranty of the vessel to keep costs to a minimum

02

ENGINEERED SOLUTION



- Three SAFEHOUSE habitats were erected over two separate trips to facilitate the inspection
- The first habitats created a safe-area which housed non-Ex equipment during the inspection
- The third habitat facilitated the hot-work repair of the crack

03

OUTCOME



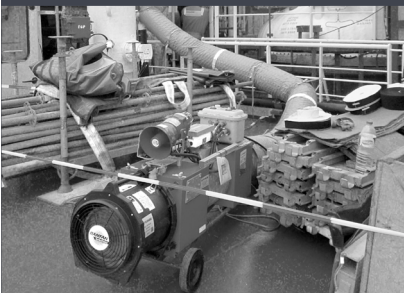
- The use of SAFEHOUSE habitats resulted in the completion of the repair job on-time before the warranty became void
- The FSRU was able to move to a new docking point without delay or additional costs
- As the repair was completed so efficiently, the client avoided having to buy anymore gas to meet its contracted obligations

PORT OF AMSTERDAM SHIPYARD

REPAIR OF FULLY GASSED-UP LPG TANKER

01

PROJECT CHALLENGE



- A small pinhole was discovered on the 2" hot gas line
- Repairs were to coincide with pre-planned dry dock maintenance to the directional thrusters
- Hot work was to be conducted without offloading the 10,000L of ethylene on board the vessel

02

ENGINEERED SOLUTION



- SAFEHOUSE habitat was erected around the hot work site to contain and control the risk
- The Safehouse operations team worked with the port authority and shipyard safety management team to ensure the relevant permits could be obtained

03

OUTCOME



- The SAFEHOUSE habitat was fully installed and work was completed within a single shift. There was no impact on the scheduled departure from port
- This was the first time hot work was permitted by the local authorities on a gasged up vessel
- Significant savings achieved as there was no need to discharge or offload the vessel's cargo

KEY BENEFITS

01.

REDUCE
RISK



02.

RETAIN
CARGO



03.

SAVE
COSTS



04.

MAINTAIN
SCHEDULE



05.

IMPROVE
WELFARE



COMMERCIAL FLEXIBILITY TO SUIT YOUR NEEDS

01.

FULLY MANAGED
SERVICE



02.

RENTAL



03.

SALES



04.

MAINTENANCE



05.

TRAINING



06.

SAFEHOUSE
TECHNICIANS





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associate member of



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