



# RSO

# RAPID & AUSTERE MAINTENANCE ENVIRONMENTS

Rapid Sustainment Office | 26.07.22

Heath Wiseman, AIMS Chief

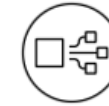
# Ability To's:

1. An ability to have a common operating picture and push information across multiple "battlespaces" from enterprise logistics/sustainment to integrated base defense.
2. An ability to counteract parts obsolescence issues by capitalizing on a network of advanced manufacturing & repair techniques/tools/equipment, reverse engineering capabilities, and advanced non-destructive inspection techniques, provided at the point of mission generation and throughout the supply chain (e.g. additive manufacturing, 3D printing, cold spray, composite materials/repairs, etc).
3. The ability to reduce the materiel footprint required to establish an operational foothold and generate missions by developing modernized, modular, flexible, multi-capable and interoperable support equipment.
4. An ability to capitalize on analytical/decision tools, to include ingesting existing, untapped data resident on/in weapon systems, to better understand and predict aircraft, munitions, and equipment condition during operation, and prior to induction into major inspection/maintenance.
5. An ability to train and experience our workforce faster and more effectively to bring their proficiency levels higher, sooner (e.g. Virtual Training, VR/AR).
6. An ability to optimize sortie generation and operational logistics capability & capacity through automation, robotics, etc.
7. An ability to distribute and provide secure, on-demand, and mobile access to information (tech data, forms, mission data, engineering documents, schematics, and tech orders) and logistics systems at the point of use .
8. An ability to leverage and capitalize on accurate maintenance and logistics information from the field and depot that will allow the sustainment enterprise to more effectively plan activities to reduce downtime and increase aircraft and materiel availability.
9. Ability to modernize and digitalize maintenance processes.

## RSO Tech Focus Areas:



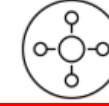
ADVANCED  
MANUFACTURING



ARTIFICIAL INTELLIGENCE  
& MACHINE LEARNING



AUTOMATION  
& ROBOTICS



DATA & DIGITAL  
ENVIRONMENTS



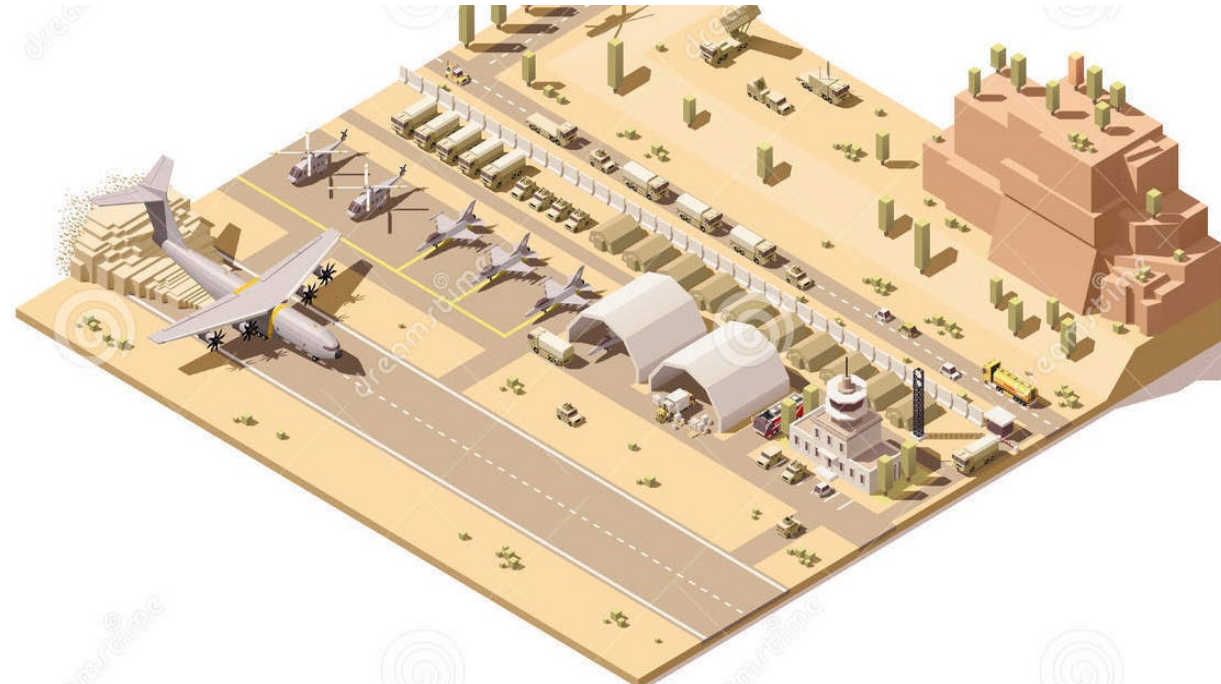
AUGMENTED &  
VIRTUAL REALITY



RAPID & AUSTERE  
MAINTENANCE ENVIRONMENTS



# RSO



pvision

pvision



**SPIS**

**SOLAR POWERED  
INTEGRATED STRUCTURE**

**HEXT**

**HANDS-OFF  
EXPEDITIONARY TENT**

**RDH**

**RAPIDLY DEPLOYABLE  
HANGAR**

**EXOHAB**

**EXO-SKELETON  
HAB-ITAT**

**ADAMS**

**ADVANCED DEPLOYABLE  
AIRCRAFT MAINTENANCE  
SYSTEM**

**ARMS**

**ADVANCED RAPID  
MAINTENANCE STRUCTURES**



## SPIS: SOLAR POWERED INTEGRATED STRUCTURES

The Solar Powered Integrated Structure is a family of kits that provide different capabilities depending on power requirements and operational needs. With fully integrated photovoltaic fabric panels, the SPIS allows for multi-capability use by providing power, shelter, lighting, and climate control.

Ground Mount Unit – SFS-GM6-3P-GS-A



Small Tent Kit – SFS-TM1-A



Tent Accessory Kit– SFS-TA16-3P-GS-ECU-A



Fully Enclosed Tent – SFS-TM4-3P-GS-ECU-A







## SOLAR POWERED 10 X 10 GROUND MOUNT

Pvilion's 10' x 10' Ground mount is an easy to deploy, flexible, lightweight, sheet-like solar cell integrated fabric that provides power independently from the electrical grid. Immediately operational in any environment that receives sun light, it can be used as a power source for lighting, heating, ventilation, electrical equipment, and for charging mobile devices.



Modularity and compatibility with existing power generation allows for near seamless integration of the system in field power grid



## SOLAR POWERED EXPEDITIONARY TENT LIGHT SYSTEM

The Solar Powered Expeditionary Tent Light System is a lightweight easy to deploy structure ideal for usage in austere and expeditionary environments. Built using Pvilion's solar cell integrated fabric, the tent is immediately operational in any environment, enabling it to provide electric power for communications, lightning, environmental controls, and electrical devices. Its integrated solar power eliminates the need to transport fossil fuel powered generators. Its lightweight and flexible design require minimal, manpower to assemble and deploy.



Designed for  
rapid  
deployment  
situations for  
instant  
power





## SOLAR POWERED EXPEDITIONARY TENT LIGHT SYSTEM

This is the first product of its kind to properly align solar, energy storage, cooling and heating for a fully off grid expeditionary system capable of operating in most climate conditions. The lightweight technology and thermal performance specified by the military also have applications in the commercial market. The tent system reduces the manpower required to set up renewable energy and shelter solutions, decreases dependency on diesel generators, while reducing the logistical burden of fuel resupply in remote locations.



**Highly Energy  
Efficient Split  
Unit ECU**





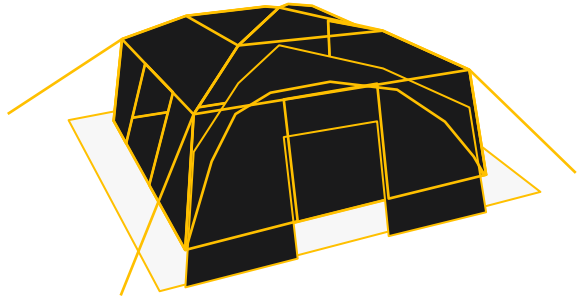
## SOLAR POWERED 5x5 FABRIC CROSS FRAME

The 5' x 5' Solar Powered Fabric Frame is an easy to deploy, flexible, lightweight, modular frame covered by a fabric integrated with solar technology. It provides power independently from the electrical grid and is immediately operational in any environment that receives sun light and can be used as a power source for lighting, heating, ventilation, electrical equipment, and or charging mobile devices. Super- versatile, the 5' x 5' can deploy as a tent with roof or side wall solar panels so as to capture maximum sun light for power utilization.



**Easily  
attaches to  
current tent  
systems  
used by the  
Air Force**





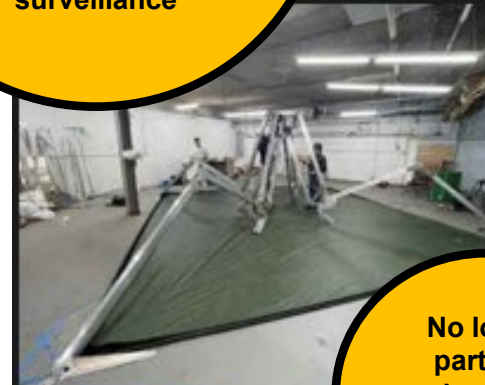
## HEXT: HANDS-OFF EXPEDITIONARY TENT

HEXT, Hands-Off Expeditionary Tent, is a rapidly deployable shelter system with defense, industrial and commercial applications. HEXT has been developed by Pvilion for the USAF in support of additive manufacturing, space operations, and expeditionary forces. Pvilion's advanced design reduces the labor, manpower, and time required to erect and dismantle temporary shelters for austere and remote environments. The structure can be entirely deployed without human intervention in less than three minutes. Where large labor forces and much time were previously required, Pvilion's structural system allows for fewer logistics operators managing more parallel processes. This rapid sequence allows more time to focus on mission accomplishment and less time required for logistics and setup.

Packs down  
less than 4% of  
deployed  
volume for  
easy  
transport and  
airlift

State-of-the-art  
fabric has a coating  
ability to reduce  
visual and electronic  
characteristics  
to support  
concealment from  
surveillance

No loose  
parts or  
pieces to  
assemble or  
misplace

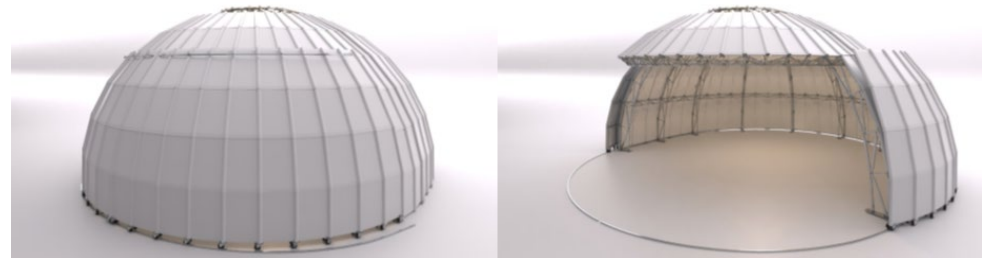


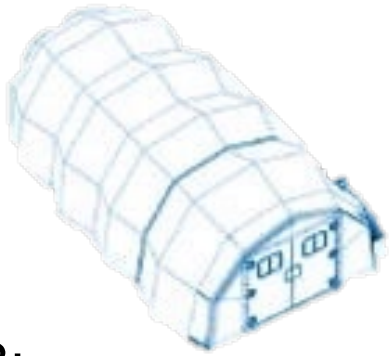


## RDH: RAPIDLY DEPLOYABLE HANGAR

The Green Magic Homes Rapidly Deployable Hangar is a hurricane resistant maintenance hangar designed to accommodate the size of F-22 and F-35 aircraft.

**Withstands  
CAT-5  
Hurricane  
Winds**





## EXOHAB: EXO-SKELETON HAB-ITAT

The EXO-skeleton, HABitat, or EXOHAB, is completely rigid shelter system that allows structures of various sizes to deploy from or collapse into a very small, lightweight, transportable and storable package. EXOHAB has been in internal development by Trac9, LLC for use in commercial and DOD markets for a number of years. The uniqueness of the EXOHAB design lies not only in its shape, but also in its inherent simplicity, durability, and adaptability, allowing for design flexibility not possible with fabric systems. The unique faceted shape provides a highly stable structure and allows the use of durable composite panels with integrated technology for lighting, power, sealing and modularity. In addition, the EXOHAB platform can allow for direct integration of Photovoltaic cells for power generation, RF patch antenna for communication, low voltage pre-installed electrical raceways (wire conduit and ribbon cable), ballistic protection, insulation, camouflage, specialized coatings to reduce infrared (IR) and electronic emissions and built in features to provide secure capable structures.



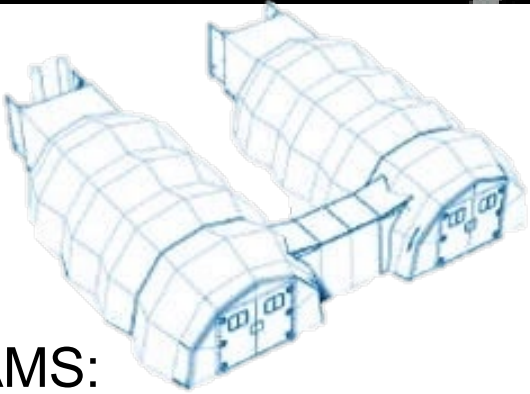
Exterior fabric flysheets provide added performance and allow for simple color upgrades to any base shelter (ex. white flysheets for Arctic environments, green for island environments)



Each EXOHAB can fit in an ISU 90







## ADAMS: ADVANCED DEPLOYABLE AIRCRAFT MAINTENANCE SYSTEM

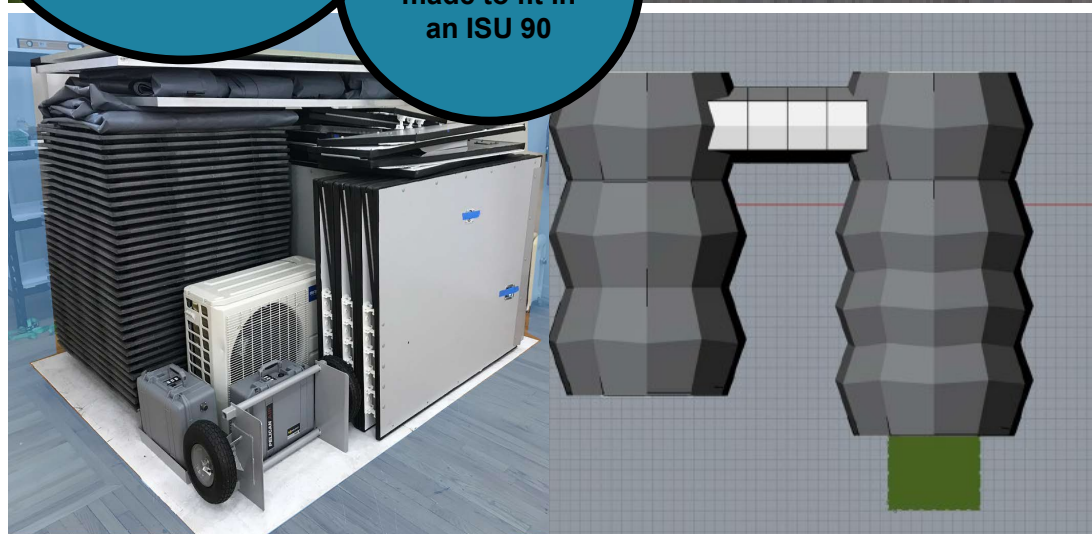
ADAMS, Advanced Deployable Aircraft Maintenance System, is an effort underway with the Rapid Sustainment Office (RSO). The ADAMS is based on the EXOHAB family of rigid shelters, The EXOHABs can be expanded in 120 sqft increments, and be connected with cross tunnels.



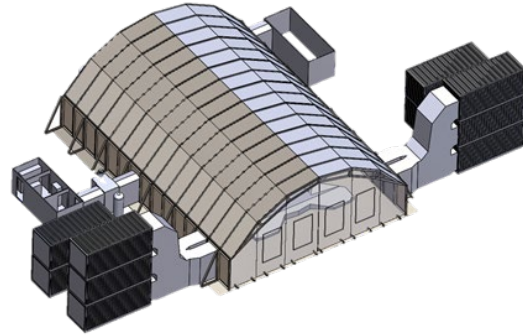
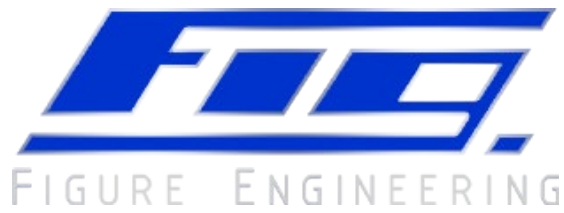
Each EXOHAB  
can fit in a  
standard  
ISU 90

Each ADAMS  
can be  
completely  
customized by  
the customer

Specialized  
air shower  
made to fit in  
an ISU 90



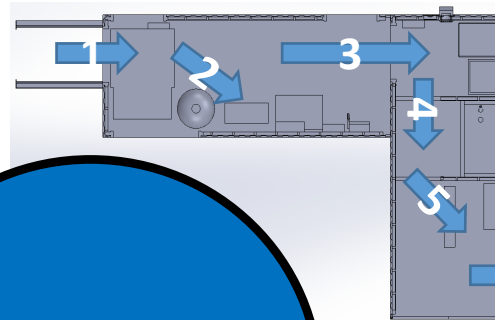
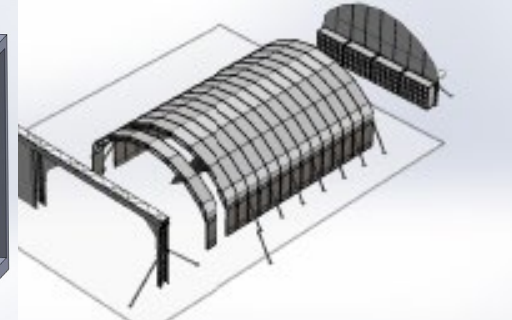
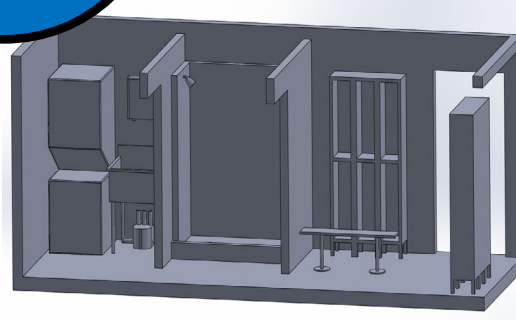
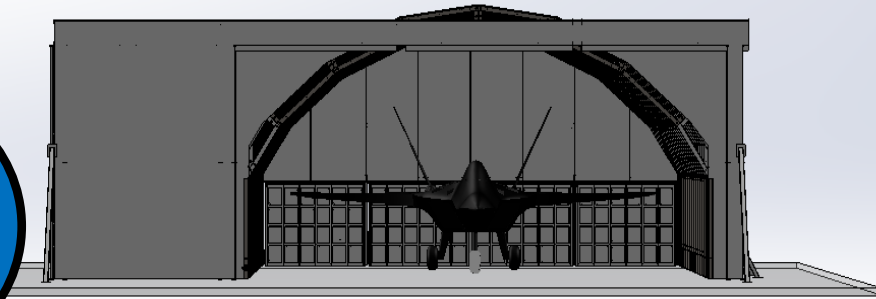




## ARMS: ADVANCED RAPID MAINTENANCE STRUCTURES

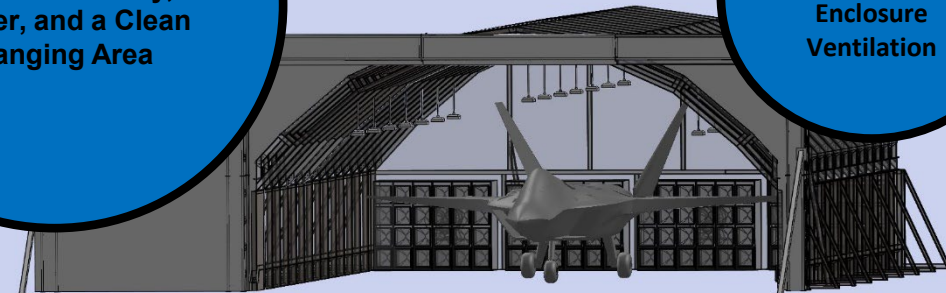
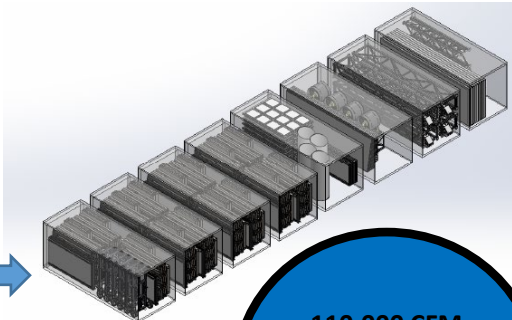
The Advanced Rapid Maintenance Structures (ARMS) is a portable, rigid, modular structure with NESHAP 319 compliant filtration to support LO maintenance and corrosion control efforts for F-15, F-16, and F-22. The system will have a fighter-sized structure with wing, tip and tail clearance, a paint mixing room, air shower, transition room, and HVAC to maintain UFC compliance.

Water Sealed  
Wall and Roof  
Panels



Transition Room  
Includes Laundry,  
Shower, and a Clean  
Changing Area

110,000 CFM  
Entire  
Enclosure  
Ventilation





<https://www.afcmc.af.mil/WELCOME/Organizations/Rapid-Sustainment-Office-Directorate/>

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