



MF Program Overview
MSgt David P. Turner

Mission Statement

Our mission is to be the focal point for the Navy and Marine Corps MMF Program. Provide technical oversight for the planning, management, and delivery of configured mobile facilities and associated ancillary equipment in support of Navy and Marine Corps aviation units. Provide the resources and logistics processes required for the integrated planning, management, and delivery of internally configured mobile facilities and associated ancillary equipment in support of Navy and Marine Corps aviation units. Ensure the configuration of the mobile facilities meets the customer's requirements to perform aircraft maintenance, supply support, operational functions, metrology requirements, and other support applications.

CMC's 2010 Report to Congress

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- **EXPEDITIONARY:** The Marine Corps is the Nation's naval expeditionary, combined-arms force-in-readiness. To Marines, *expeditionary* connotes *fast*, *austere*, and *lethal*.
- Expeditionary means rapid deployment by air or sea to crises of temporary duration.
- Expeditionary means being efficient and effective while operating in an austere environment—a task-organized force that is manned and equipped no larger or heavier than necessary to accomplish the mission.
- Expeditionary means being prepared for decisive action—to be lethal, if necessary—but also possessing the lesser-included capabilities for security operation, humanitarian assistance, or disaster relief.
- In summary, the term expeditionary to Marines goes to the very heart of our service culture, core values, and warrior ethos. Service as part of an expeditionary force means embracing a Spartan way of life and regular deployments on foreign soil in furtherance of our nation's interests.

MOBILE FACILITY PROGRAM



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Supporting the War Fighter

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Program History

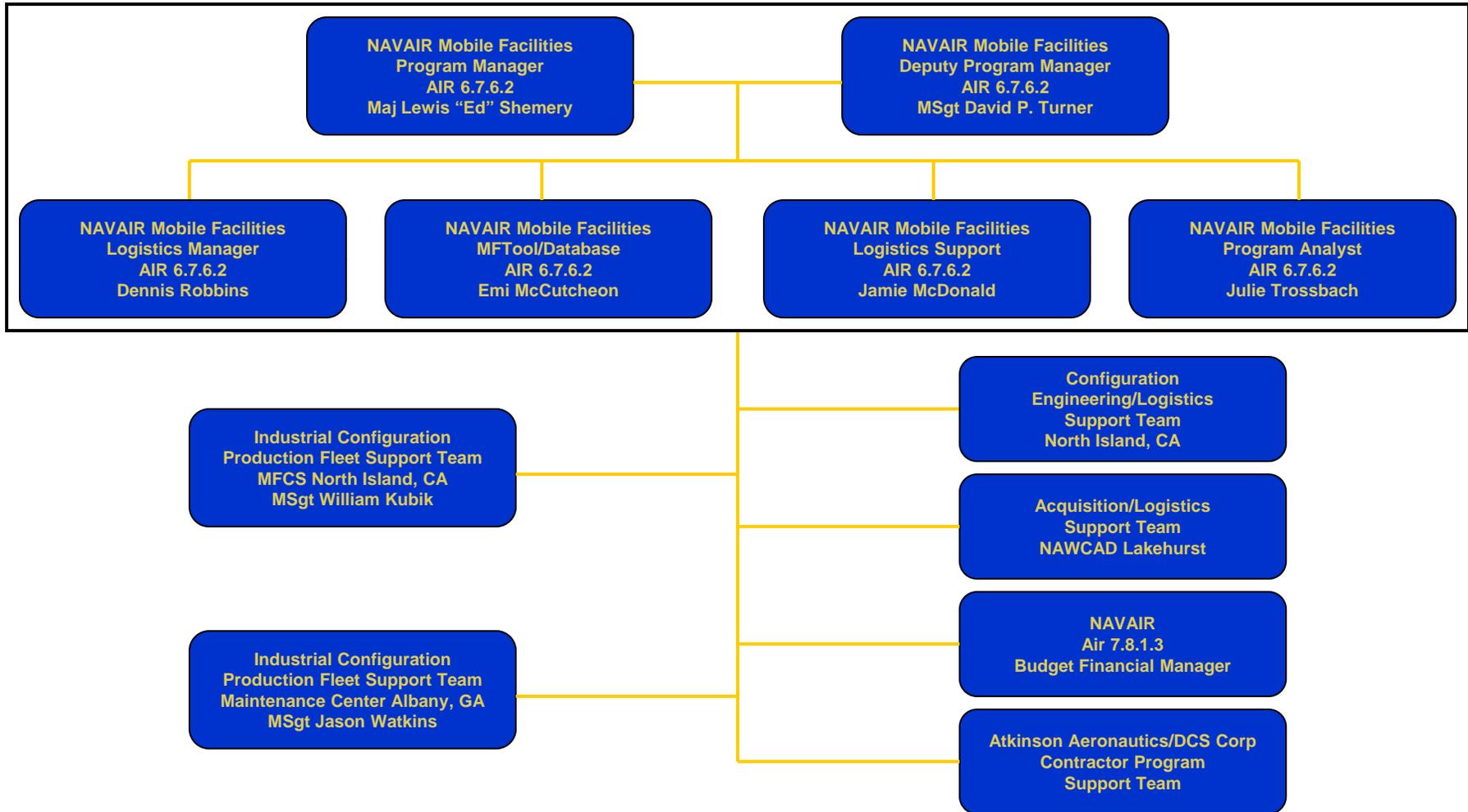
- During WW II, propeller aircraft maintenance was performed in tents and hastily constructed wooden shacks
- Introduction of jet aircraft in the fifties, drove crude WW II maintenance shelters to become obsolete
- Research indicated a requirement for mobile trailer-type vans for peculiar jet aircraft maintenance
 - Needed dust free, temperature & humidity-controlled maintenance environment for servicing, testing & repairing complex avionics equipment

Program History

- Navy purchased first 67 stand-alone vans in 1961
 - Supported Marine Corps Short Airfield for Tactical Support (SATS) concept
 - Consolidated Diesel Model 2111/2112, which was only 12 ½ feet long
- In 1964, the Navy bought the first 20-foot long van
 - Gichner Model 3010
 - First use of butting kits to integrate individual vans into complexes
- In 1975, standard-size van (tactical shelter or mobile facility) was adopted & military commercial sea-land containerization concept became a reality



Organizational Structure



Mobile Facility Basics

- Mobile Facilities are 8' X 8' X 20' rigid wall mobile tactical shelters
- Can be transported by most transportation modes
- Seven basic shells designed into numerous configurations to support a variety of functions
 - Primarily configured to provide aviation logistics support
 - Aircraft maintenance, supply support, operational functions, administrative management, metrology, meteorology, sheet metal, hydraulics and other applications
- 20-year service life

Mobile Facility Basics

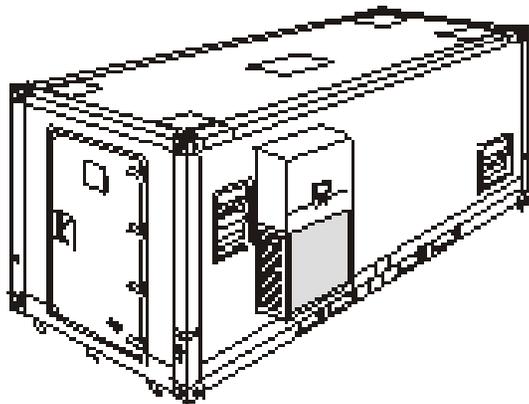
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- Integration Units (INUs) & butting kits allow Mobile Facilities (MFs) to be complexed together to create large work centers
- The power source connects to the INU & power is distributed to all MFs connected to it
- Maximum complex size is (41) interconnected MFs
- MFs can be stacked & complexed two-high when in operational status
 - Shipping mode, currently rated to a six high stacking limit
 - What affect does that have under the new ISO regulations??

Seven Mobile Facility Types

Basic Mobile Facility “A” (MFA)

- Provides for:
 - (2) personnel doors
 - (1) 3-Ton R-134A Environmental Control Unit (ECU)
 - (1) set of lights running down the center



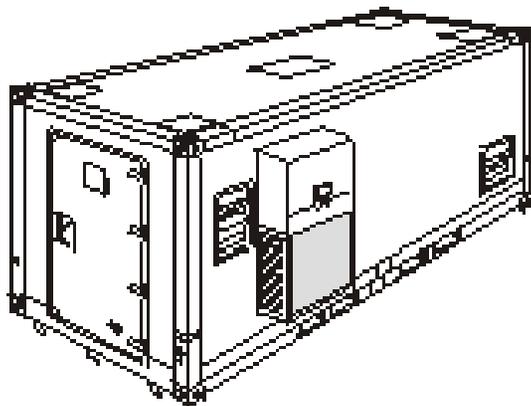
BASIC MF A



Seven Mobile Facility Types

Basic Mobile Facility “B” (MFB)

- Provides for:
 - (2) personnel doors
 - (1) 3-Ton R-134A Environmental Control Unit (ECU)
 - ECU duct work running down the center with lights on either side



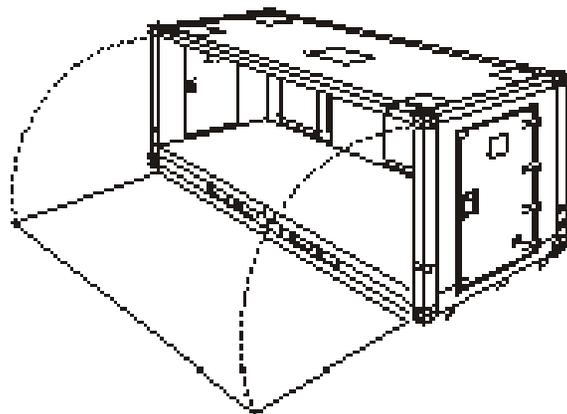
BASIC MF A



Seven Mobile Facility Types

Basic Side Opening Mobile Facility “A” (SOMF A)

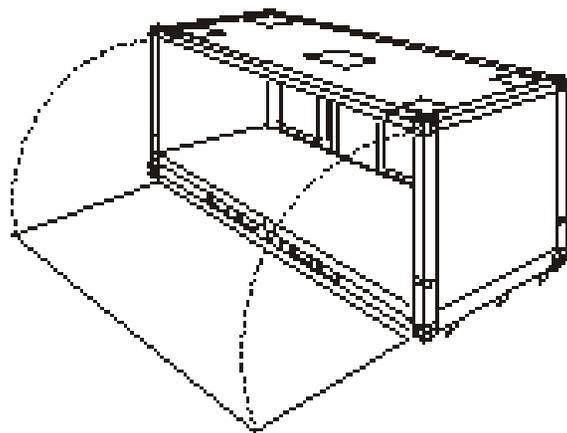
- Provides for:
 - (2) personnel doors
 - (2) 3-Ton R-134A Environmental Control Units (ECU)
 - (1) removable side panel



Seven Mobile Facility Types

Basic Side Opening Mobile Facility “B” (SOMF B)

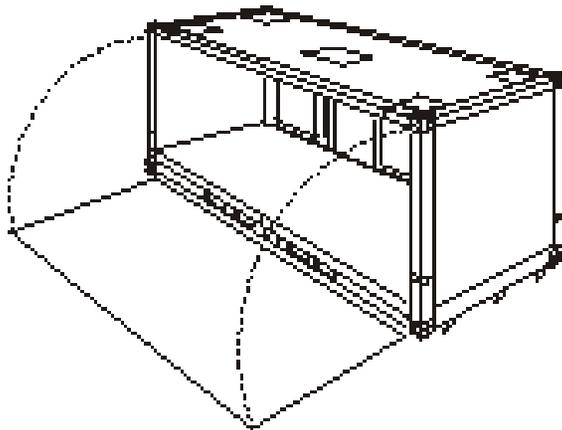
- Provides for:
 - (1) personnel door
 - (2) 3-Ton R-134A Environmental Control Units (ECU)
 - (1) removable side panel



Seven Mobile Facility Types

Basic Side Opening Mobile Facility “B” Modified (SOMF BM)

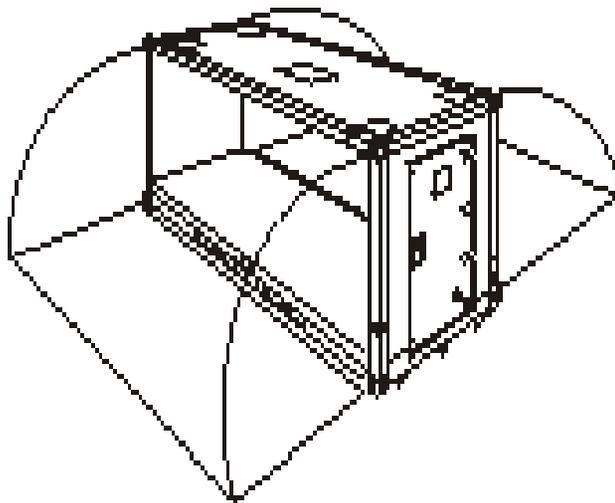
- Provides for:
 - (1) personnel door, (1) double door on end
 - (2) 3-Ton R-134A Environmental Control Units (ECU)
 - (1) removable side panel



Seven Mobile Facility Types

Basic Side Opening Mobile Facility “C” (SOMF C)

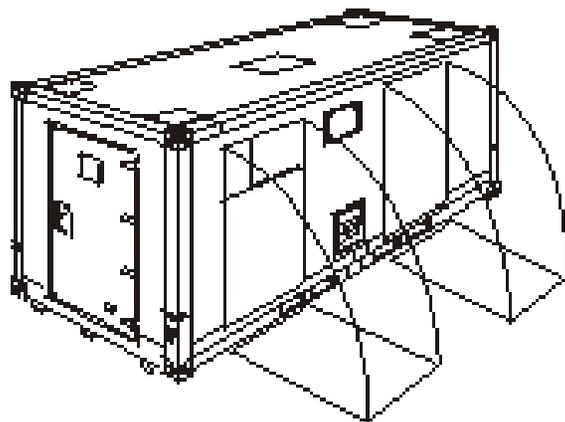
- Provides for:
 - Used to connect with other SOMFs for a larger space
 - (1) personnel doors
 - (2) removable side panels



Seven Mobile Facility Types

Standard Integration Unit (INU)

- Provides for:
 - (2) personnel doors
 - (1) “window style” Environmental Control Unit (ECU)
 - Capability to interconnect other MFs to one another



Mobile Facility Complex

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- Connecting multiple MFs together via INUs, produces large enclosed dust-free, temperature & humidity controlled, lighted, and self-contained work centers. Units may be connected end-to-end to produce an almost infinite variety of complex sizes and configurations



Environmental Control Units

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- Both R-22 and R-134A refrigerants
 - Pushing R-22 out
- Heat pump functionality
- Cooling / heating capacity is 36,000 BTUs
 - Heat; 25,000 BTUs @ 20 degrees F



Ancillary Power

MEP-807A 100KW



- 50/60 Hertz
- 120/208V or 240/416V
- 3 Phase voltage
- Utilizes diesel or Jet fuel (JP-5/JP-8)

MEP-809A 200KW



- Frequency Convertor
- 440/220 VAC, 50/60Hz 3 phase input
- 115/200 VAC, 400Hz 3 phase output
- 270 VDC output
- 28 VDC output
- Up to 110 kVA load output



Aviation Logistics (AvLOG) Support Functions

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- Avionics repair
- Machine shops
- Welding
- Tire & Wheel repair
- Sheet metal fabrication
- Calibration (Metrology)
- Weather stations (Meteorology)
- Aircraft Engine Test Stands / repair
- Aviation Life Support Systems
- Composite materials repair
- Ordnance Launcher repair
- Mine Sweeper equipment repair
- Air Traffic Control
- Information Technology (IT)
- Supply operations support
- Production Control
- Quality Assurance
- Administrative offices
- Aircrew Brief / De-brief rooms
- Conference / Training Spaces
- Aircraft Battery Lockers
- Micro-miniature repair
- Hydraulic repair
- Technical Publication Libraries
- Cryogenics
- Expeditionary Airfield (EAF)

Other Support Functions

- Army Theatre Aviation Maintenance Program
- Army Forensics
- Joint Expeditionary Field Forensics (JEFF)
 - Firearms analysis, DNA analysis, fingerprints, etc
 - HQs out of Dahlgren , VA (NAVSEA program)
- Unmanned Aerial Systems (UAS)
- Humanitarian assistance relief efforts
 - Provided legacy aging assets to Haiti relief efforts
- Ground Combat Elements (GCE) for training, i.e. Navy SEALS
 - Combat towns, close quarters training

Modes of Transportation

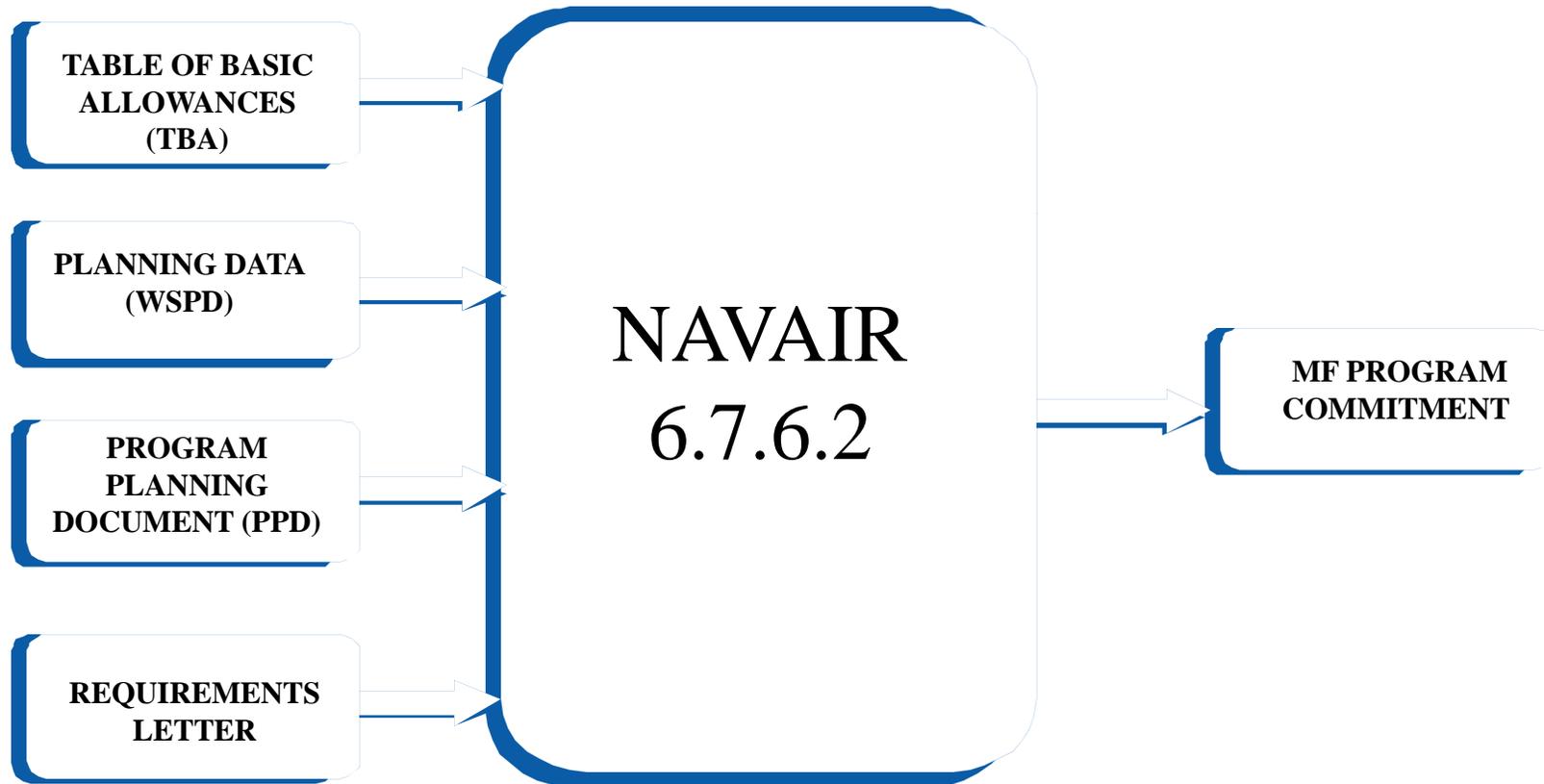
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- **Air**
 - C-130: 1 MFs (2 MFs in stretch C-130)
 - C-17: 6 MFs
 - C-5: 8 MFs
- **Shipboard (Commercial or TAVB)**
 - T-AVB is a civilian operated aviation logistics naval vessel for the USMC
- **Air-Ride Truck**
- **Helo-Lifted with sling (not certified)**





Requirements Generation



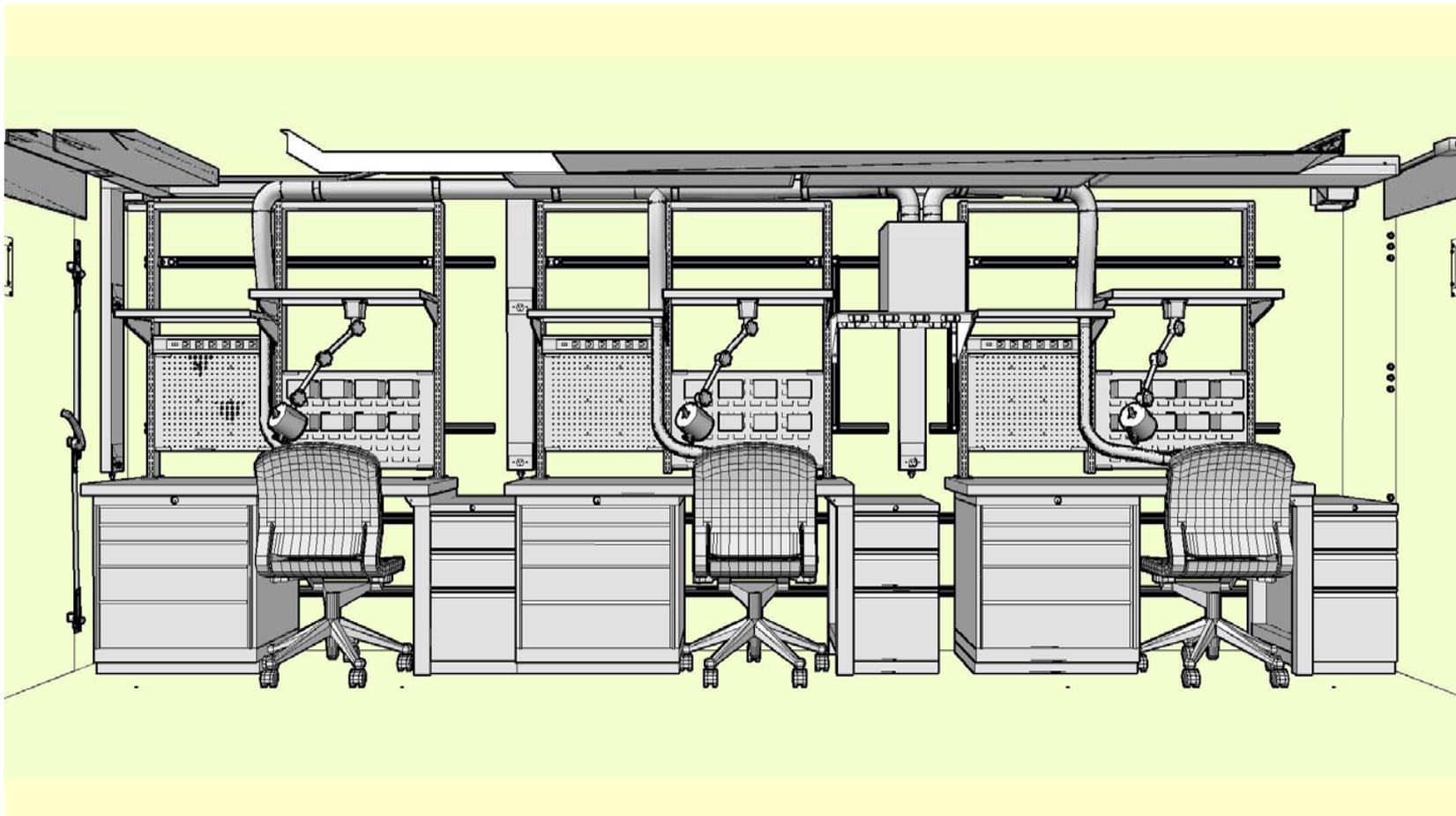


Mobile Facility Engineering

- Responsible for the configuration management of the various types of mobile facility configurations
- Take requirements data and turn product into a conceptual 3-D design
- Once 3-D design “approved”, will draw “build to” prints 2D
- SE upgrades often affect fielded mobile facilities, MF dimensions (interior) need to be considered for new SE
- SE usually customer furnished (PMA-260 supplied), but installed by configuration site artisans
 - Not always the case, i.e. RTCASS

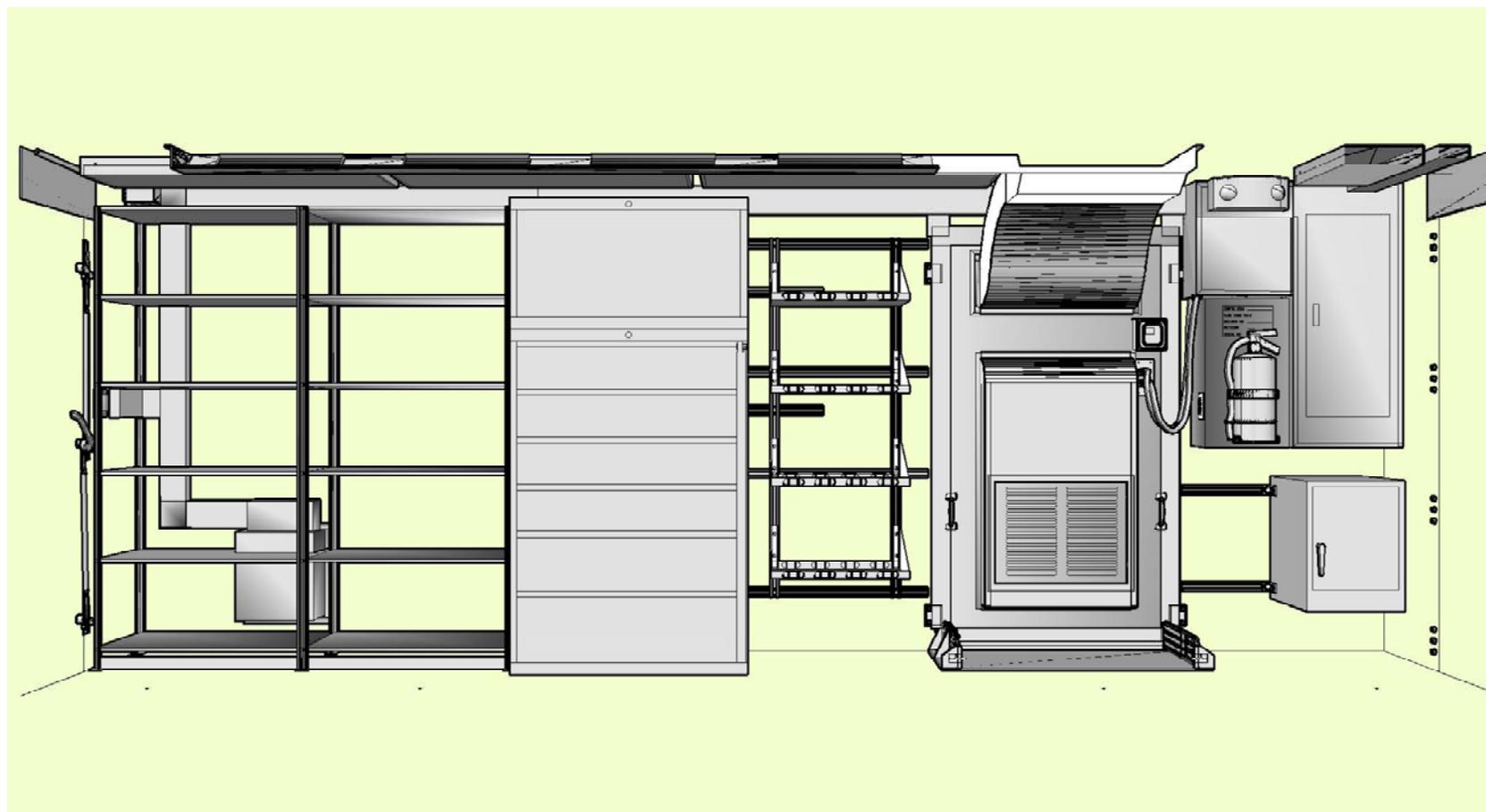


3-D Conceptual Drawings



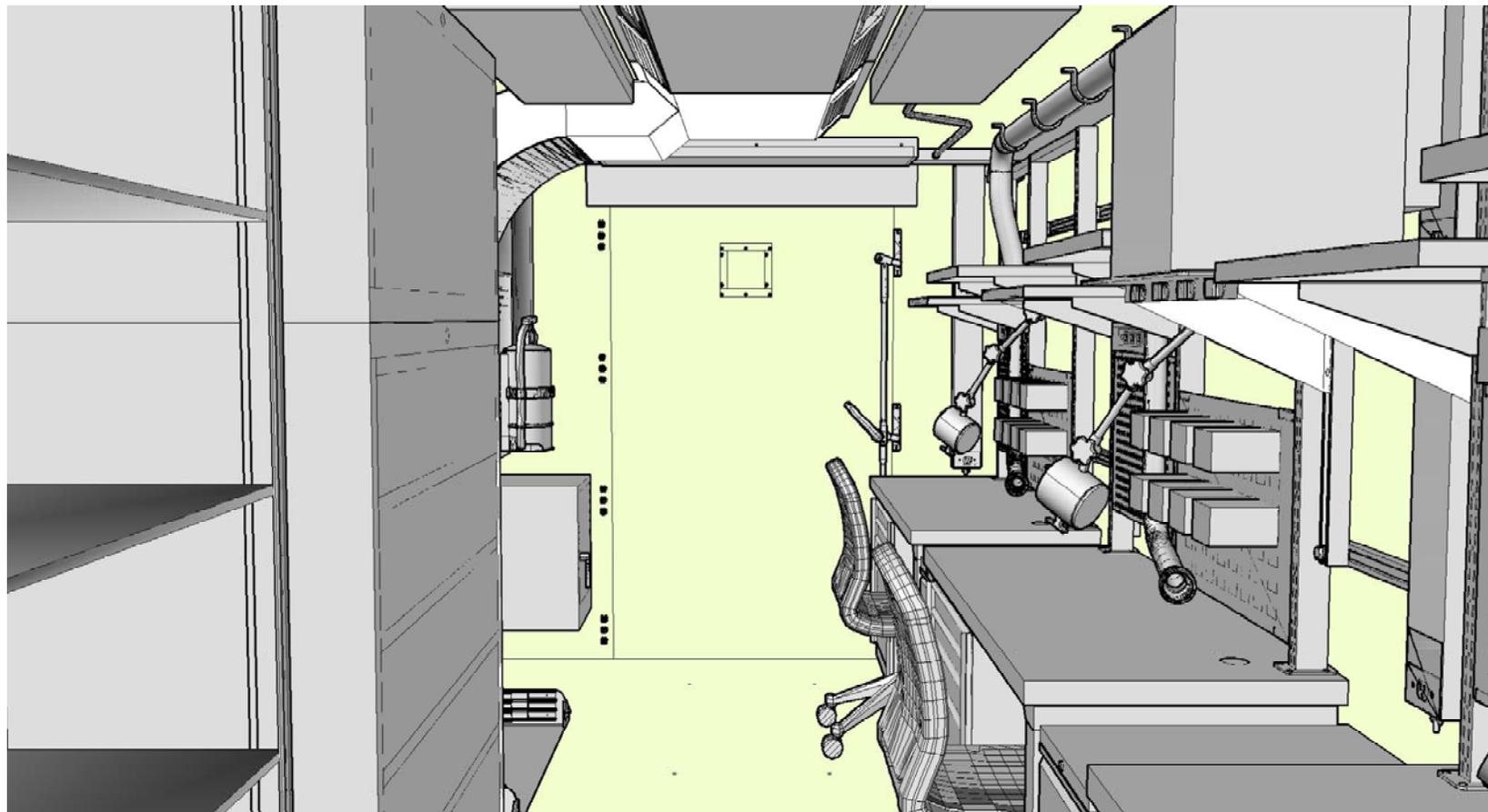


3-D Conceptual Drawings





3-D Conceptual Drawings



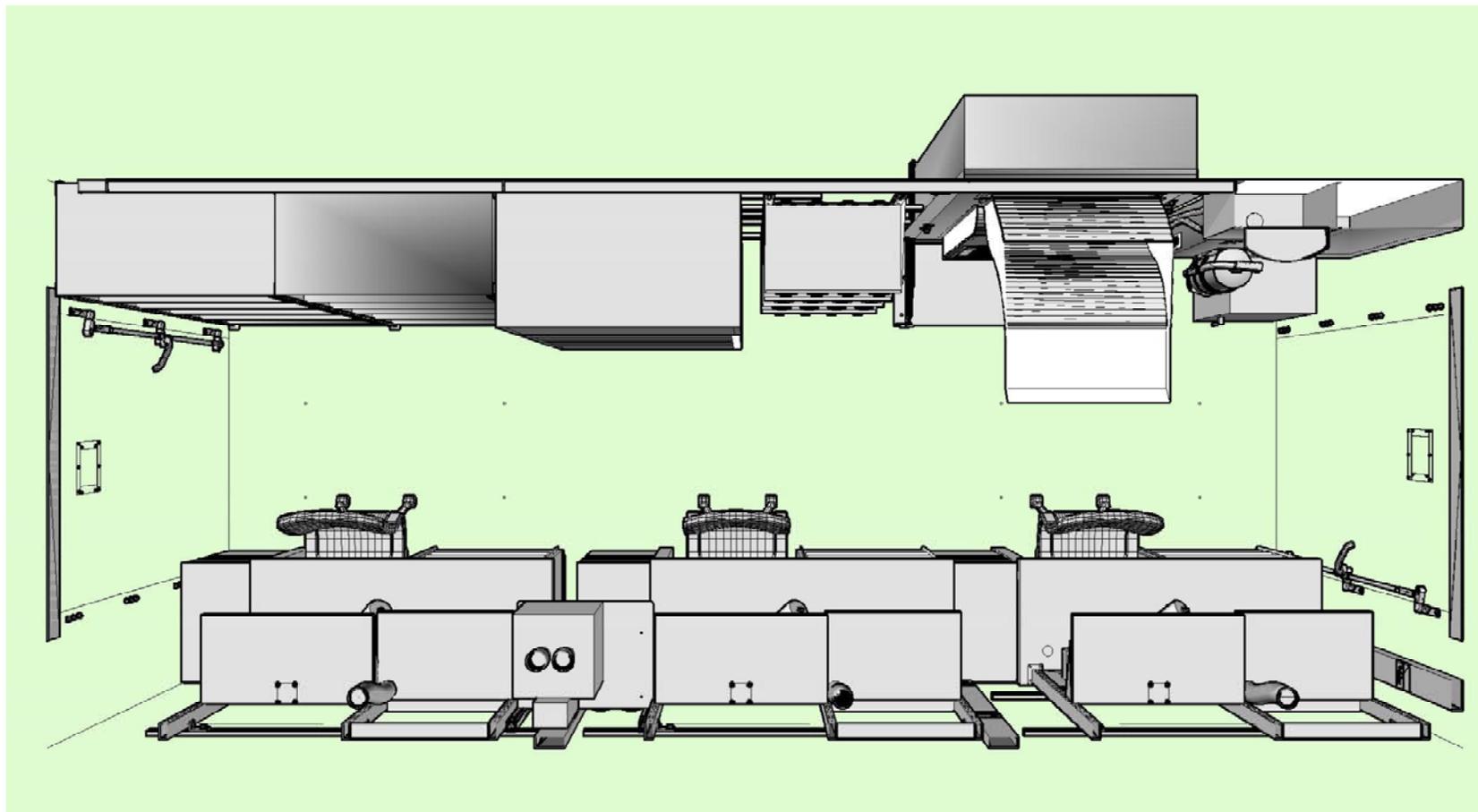


3-D Conceptual Drawings



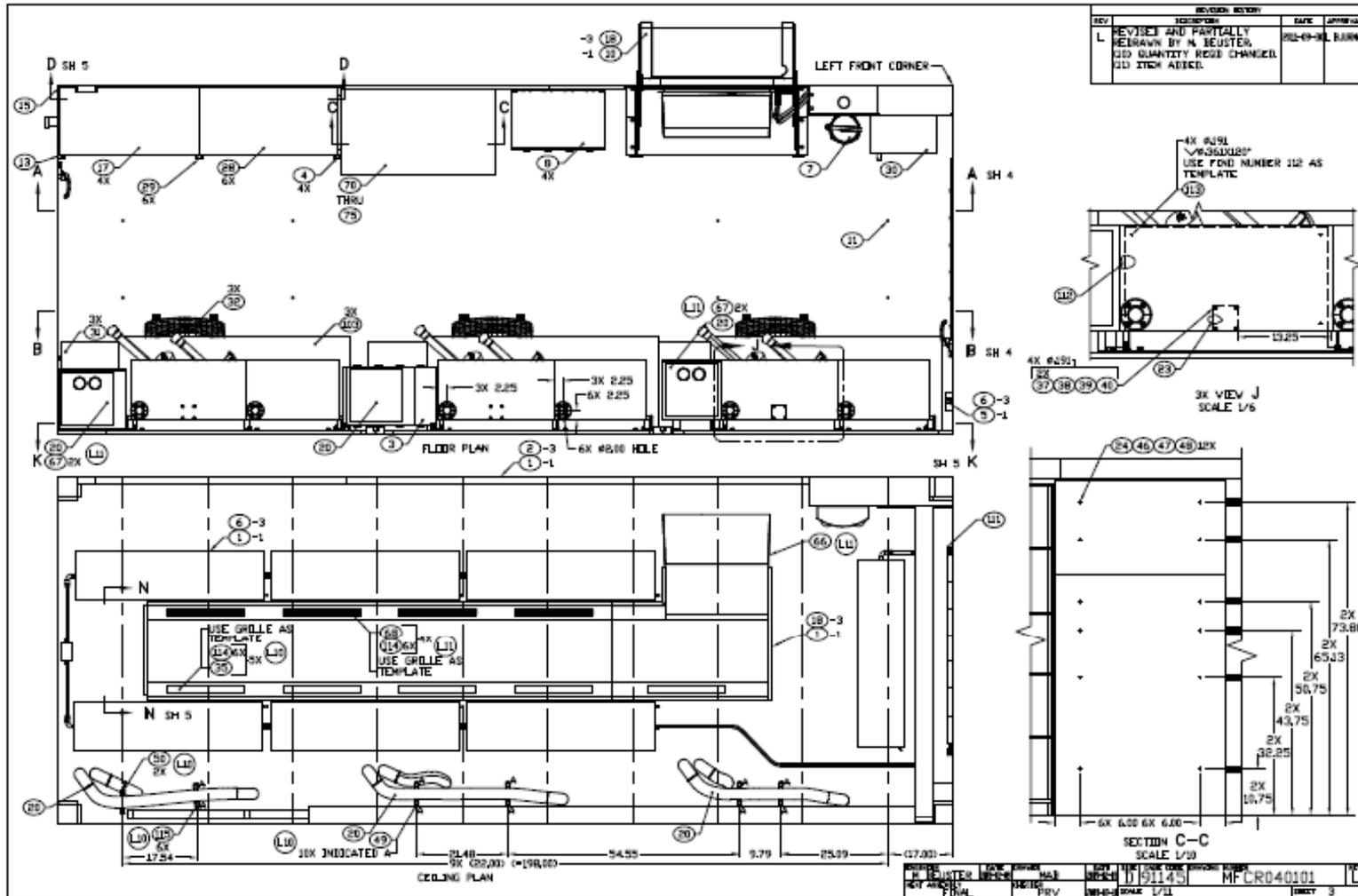


3-D Conceptual Drawings





“Build to” 2-D drawings





In production



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In production

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Final product in the fleet

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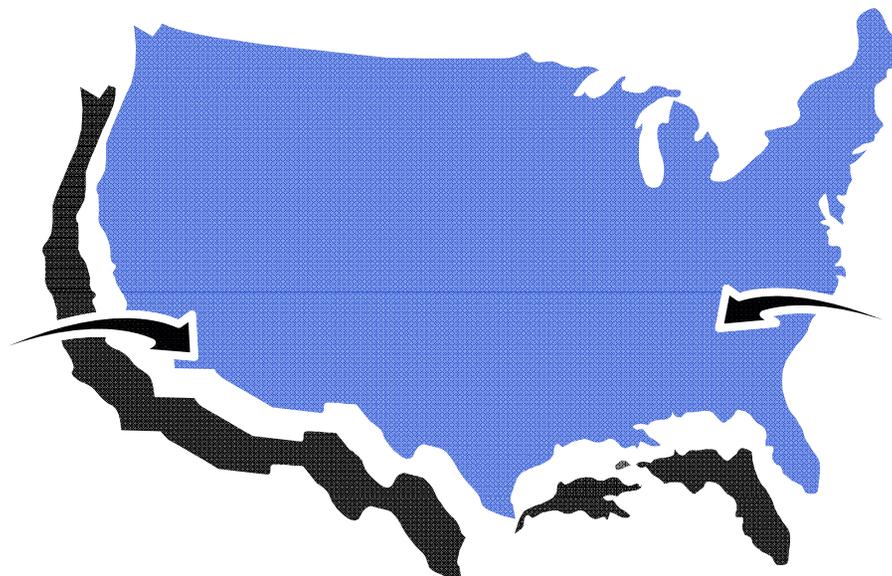


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Configuration Sites



FRCSW North Island
Capacity: 6 MFs per month
2 MILPER
10 Artisans
4 Engineers

MCLB Albany, GA
Capacity: 15 MFs per month
2 MILPER
12 Artisans

Global War on Terrorism (GWOT)

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- A total of 400 plus MF's and ancillary equipment are currently globally sourced to establish aviation logistics operations forward in support of the Global War on Terrorism





- Participating in Joint Committee on Tactical Shelters (JOCOTAS) w/ two new MF configurations – **if you have not already, please stop by our NAVAIR display outside**
 - CR-03 (Air Traffic Control Micro-Miniature repair)
 - CY-01 (Communications Equipment maintenance/repair)
- New Frequency Converters
 - Plan to sun down legacy Mobile Motor Generators (MMG-1As)
 - Procure new 400Hz Mobile Frequency Converters; converts 60Hz to 400Hz for aircraft maintenance



Mobile Facility Projects

- Modernize Supply MFs (Expeditionary Delivery System):
 - UNS submitted by MARFORPAC; evaluated via DOTMLPF by TTF, TWG and market research completed with industry
 - Make Supply MFs more compatible for distributive operations across the full Range of Military Operations (ROMO)
 - Fleet procured numerous non-standard supply container / shelter solutions with no life cycle logistics support
 - Incorporate stackable shelving modules into MFs
 - Go from garrison to two-man lift; support FOB/FARPs
 - Modules could support multiple size deployment packages for multiple applications

Expeditionary Delivery System (EDS)



...to this



Dynamic, demand-pull logistics chain

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EDS Notional Concept

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EDS Notional Concept

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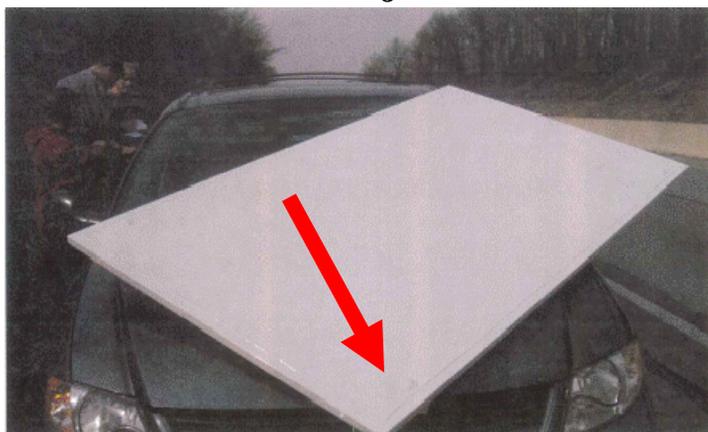
- Drawers and cage can be reinstalled in module for transport on aircraft pallet, in helicopters, or in back of trucks or HUMVEEs



Mobile Facility Projects

- Corrosion preventive measures:
 - Mobile Facility IPT at Lakehurst was funded for a alternate materials solution to help mitigate corrosion
 - Tests to include various materials for primer, paint, undercoating and corrosion preventive compounds
- ROC-LOC RAMEC:
 - 26 Mar 2010, ECU plug departed new MF and impacted windshield of Dodge mini-van during shelter transport
 - Developed a material solution to prevent future occurrences; ROC-LOC
 - Any shelter coming out of refurbishment/configuration work has been incorporated
 - Anticipate the Technical Directive to be released this month in order to modify all fleet assets

Pennsylvania, I-83 just a few miles down the road from Gichner



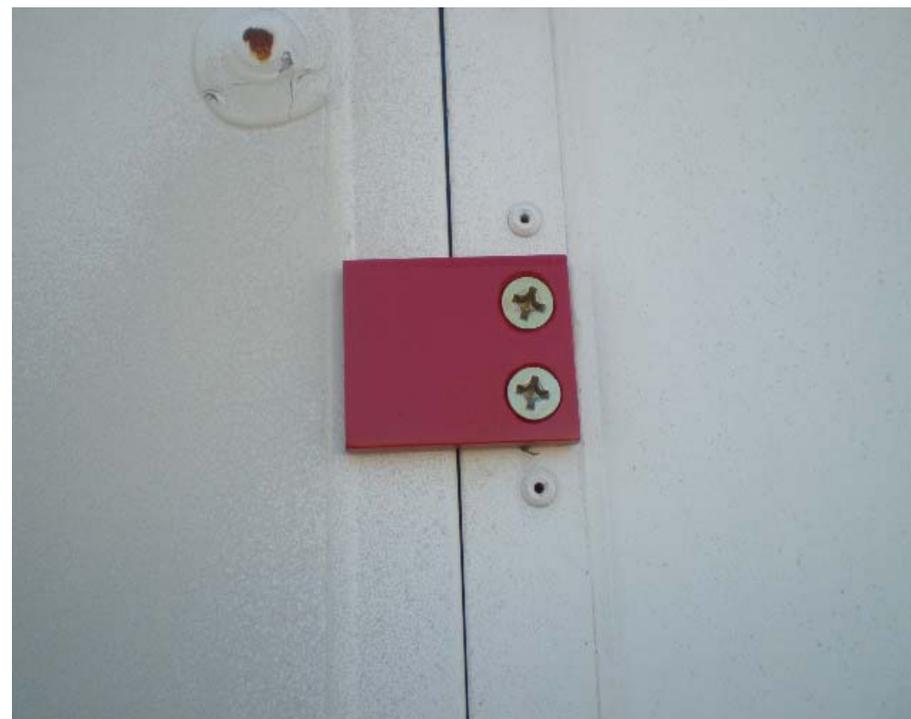
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ROC LOC RAMEC

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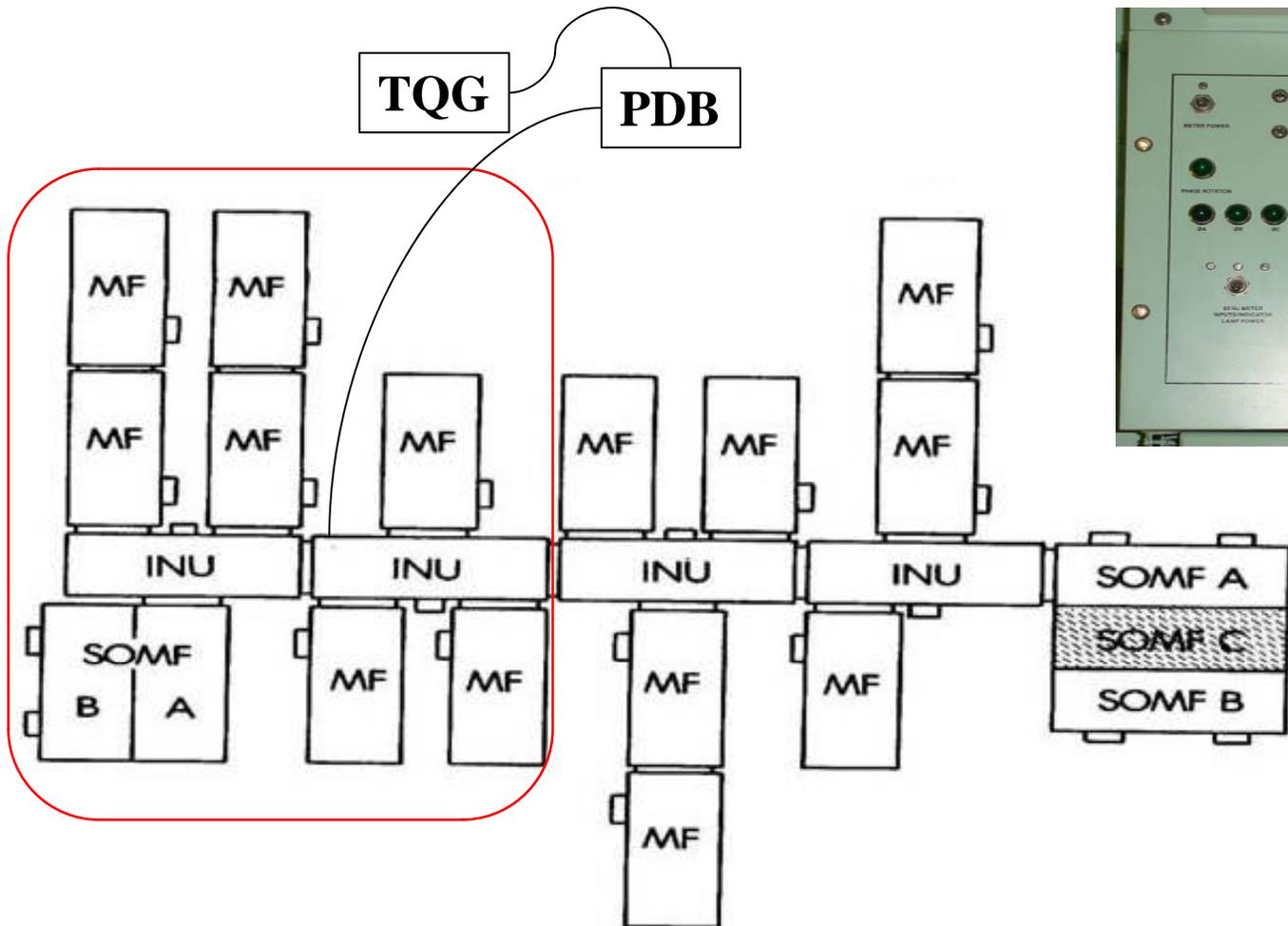


- Develop a Scheduled Depot Level rework event (Reliability Centered Maintenance?)—**treat MFs like Aircraft & Support Equipment**
 - Develop a metric to rework or sundown MF at correct interval
 - **Forced depot-level rework event at 12 - 15 year interval**
 - **Force survey at service life limits**
 - **Increase rework/refurbishment tempo of MFs**
 - Decision to re-use Fleet returned shells:
 - Age of shells
 - Current configuration
 - Quantity of MFs of that configuration in the original CSC Authority Approval Number
 - Material condition of shell (i.e., number of cut-outs, corrosion, damage, etc.)

INU Power Monitor

- INU Power monitor panel will meter all power loads applied to that INU, to include the total load from the “legs” attached
 - Identifies entire load draw from that power “pop-up”
(60 Hz only)
 - Will assist in helping determine load balancing at the INU (if required)

INU Power Monitor



Digital Power Monitor

- Will affect the MFA's, MFB's, SOMFA's, SOMFB's and & SOMFBDD'S
- Will provide the following for 60Hz power:
 - Monitor Voltage, Amperage, Power and Frequency
- Panel has LED indicator to identify 60Hz phase reversal
- Panel has LED indicator to indicate 400 Hz power present

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Digital Power Monitor

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Positive Air Relief Valve

- Working with JOCOTAS group (Army Natick) in researching the venting required for the air transport of shelters
- Initial results look like we might not be able to come up with a viable solution
- JOCOTAS still working to acquire various flight profiles to adequately evaluate appropriate venting requirements
- Final results will be reviewed to determine if a suitable automatic vent can be added to our MF's

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Potential Positive Air Relief Solution

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How can JOCOTAS help us?

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- **Positive Air Relief Valve Solution:**
 - Develop an “idiot” proof design to prevent implosion of MFs during air transportation
 - Can be a common solution across the JOCOTAS group
 - Too many times shelters have been scrapped way before life expectancy
- **Common Corrosion Prevention:**
 - Leverage off other Programs to have common corrosion prevention solutions
 - Joint corrosion prevention/materials studies??
 - Composite materials have been discussed in the past, but that does not resolve corrosion intensive areas (ISO Corners)
- **JOCOTAS not a “household” name:**
 - What is JOCOTAS role in establishing any new shelter requirements within DoD?
 - Too many “out the box” solutions in the DoD community with many having no life cycle logistics support
 - JOCOTAS could act as a QA clearing house for any new shelter requirement



Questions?

