



***Force Provider***  
***Presented to the Joint Chemical &  
Biological Decontamination and  
Protection Conference***

***“Call to Duty – the American Soldier in  
Service to our Nation for 230 years”***

11/6/2007



***Serving “Our Army at War -- Relevant and Ready”***

# PEO CS&CSS Portfolio &



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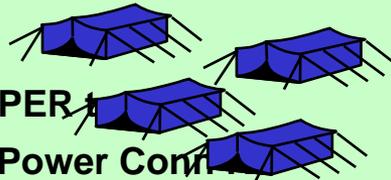
# PM FSS Programs & Organization



# Force Provider Overview

All materiel necessary to provide quality food, billeting, hygiene services and MWR for 550 personnel

- Kitchens
- Laundry, showers, latrines
- Air conditioned/heated TEMPER
- Power Generation or Prime Power Com
- Cold Weather Kit



Containerized - ready for deployment

Compatible with Air Force systems (Thanks to AI)

Transportable

- Air 
- Sea 
- Land 

Requirement = AAO - 56 - 4 Unfunded

- Deployed - 36
- APS 1- CONUS/0
- APS 2 - Europe/0
- APS 3 - Afloat/ 1
- APS 4 - Pacific/ 6
- APS 5 - SWA/0
- 1 Training and Test Facility, Fort Lee VA
- 2 modules in production - due out Apr 08
- reset/ 6 modules - Letterkenny/SFA



Missions (Wartime & Peacetime)

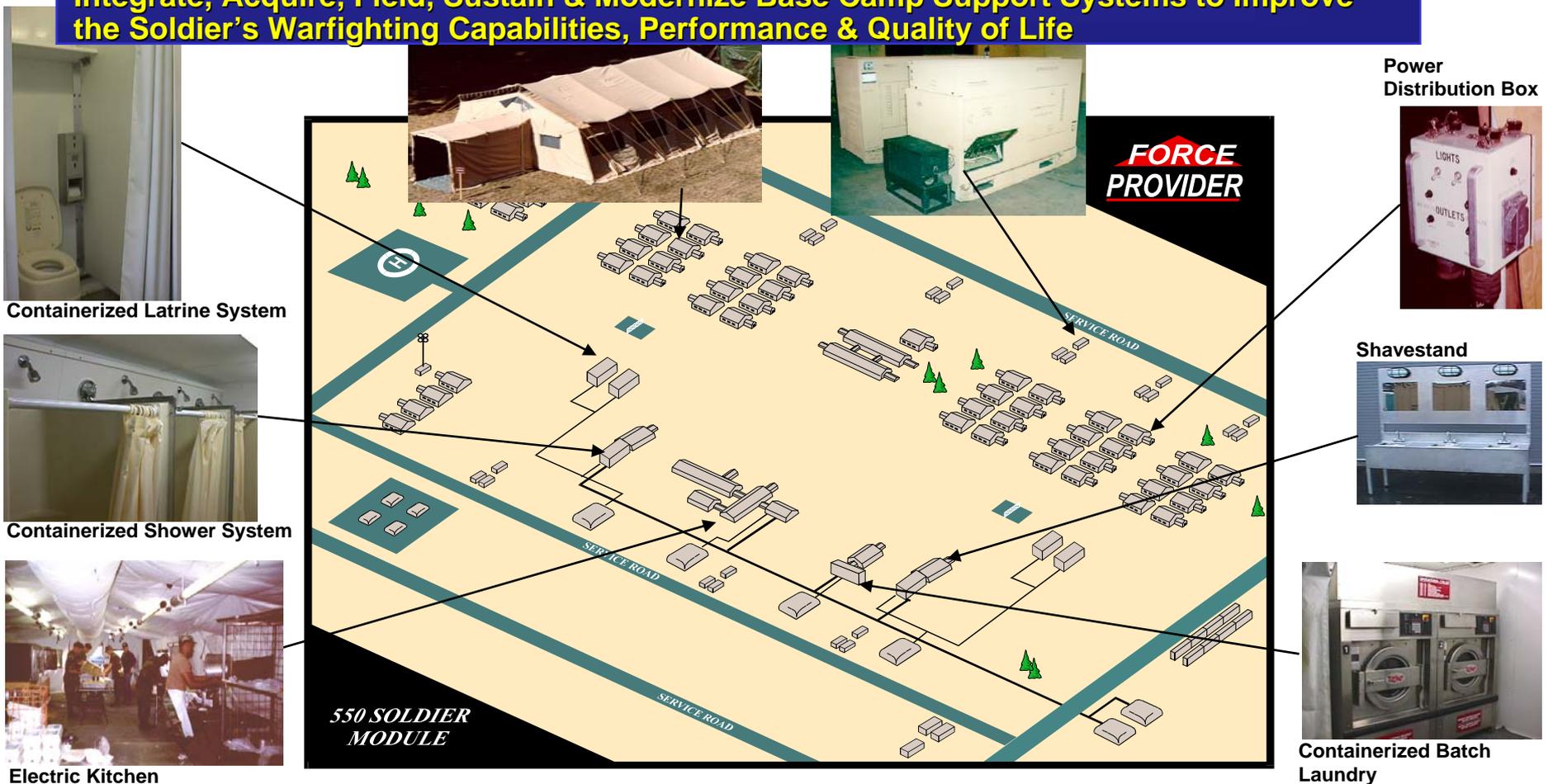
- Intermediate Staging Base
- Theater Reception/Staging
- Nation Building
- Interagency Support
- Disaster Relief/Humanitarian Aid
- Rest & Refit



# Force Provider

## MISSION:

To provide the Army, Joint U.S. Military, Host Nation, and Coalition Forces personnel with a high quality deployable base camp to support Expeditionary Missions. Develop, Integrate, Acquire, Field, Sustain & Modernize Base Camp Support Systems to Improve the Soldier's Warfighting Capabilities, Performance & Quality of Life



Containerized Latrine System



Containerized Shower System

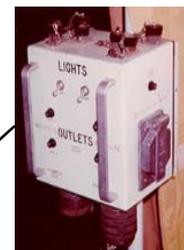


Electric Kitchen



**FORCE PROVIDER**

Power Distribution Box

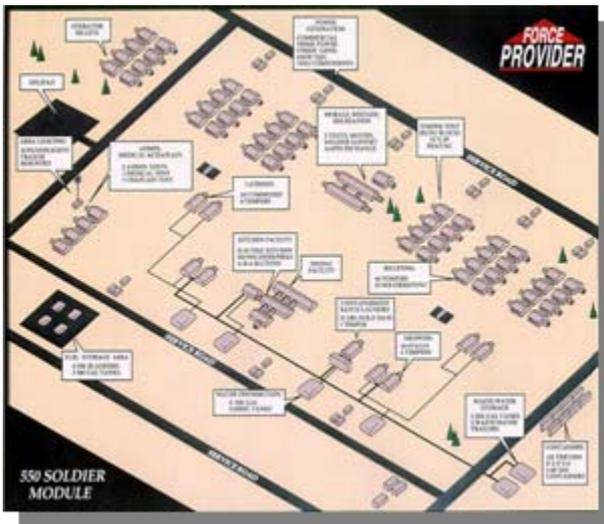


Shavestand



Containerized Batch Laundry

# *Force Provider Capabilities*



- ✓ Each Module Supports 550 personnel (+50 operators) with:
  - ✓ Climate Controlled Billeting-- (15 –22 soldiers per tent)
  - ✓ Quality Food Service (1800 meals/day “A” rations)
  - ✓ Laundry Service (200 lbs hour)
  - ✓ Showers & Latrines (one 10 minute shower/day)
  - ✓ Morale, Welfare and Recreation Facilities and Equipment
- ✓ Power, 60 kW TQGs (1.1 MW Continuous)
- ✓ Water Storage & Distribution (80K gals/3 days)
- ✓ Fuel Storage & Distribution (20K gals/3 days)
- ✓ Waste Water Collection (40K gals/day)
- ✓ System Support Packages-- 30 days spare & repair parts
- ✓ Transportable--air, rail, land, sea (containerized) TRICONs (80), 10ea ISOs and rolling stock
- ✓ Prime Power Connection Kit (add on kit, not part of standard module)
- ✓ Cold Weather Kit (add on kit, not part of standard module)

# *Force Provider Update*

- ◆ The Army Acquisition Objective (AAO) increased from 36 to 56 FP Modules. 4 FP modules remain unfunded.
- ◆ 52 FP Modules are currently located:
  - 36 FP Modules still deployed in the AOR (APS 5 SWA)
  - 1 FP Module Afloat (APS 3 APA)
  - 6 FP Modules in Sagami, Japan (APS 4 Pacific)
  - 1 FP Training Module (2/3 Ft. Lee – 1/3 Erie PA)
  - 4 FP Modules in Reset at LEAD
  - 2 FP Modules in Reset at SFA
  - 2 in Production

# *The Way it Was*



# *Containerized Batch Laundry (CBL)*

**Capabilities:** Provides capability to wash and dry 200 lbs of clothes per hour, in a clean and safe environment. This system is capable of collecting the waste water and transferring it up to 500' from the container. The system is equipped with water reuse capability capturing 60% of the water used.

**Description:** 2-50 lbs. washers/extractors, 2-75 lbs. dryers (both commercial), exhaust fan, all hoses and connections.

**Power requirements:** 100kW/208 volt/3-ph

**Size:** 20'x8'x8' ISO Container

**Weight:** 10,000 lbs

**1 unit per module**

**Other users:**

**DEPMED Hospitals**

**Marine Corp**



# *Containerized Batch Laundry (CBL)*



# *Containerized Latrine System (CLS)*

**Capabilities:** Provides capability for latrine services for 175 soldiers with individual privacy and increased sanitation.

**Description:** 6-low water flush toilets w/ privacy stalls, a trough urinal, 2-waste collection tanks, 2-sinks w/running hot/cold water, one 6-gallon water heater, mirrors, and dispensers for toilet paper, paper towels and soap. Each stall has hooks and shelves to accommodate the soldier's equipment. Commercial heater/AC unit installed in the rear wall to regulate internal temperature w/ a fan mounted on front wall to provide ventilation.

**Power requirements:**  
5kW 3 phase/60 amp connector

**Size:** 20'x8'x8' ISO Container

**Weight:** 8,000 lbs

4 units per module



# *Containerized Latrine System (CLS)*



# *Containerized Shower System (CSS)*

**Capabilities:** Provides a clean environment for soldiers to shower w/privacy. Each shower stall has individual controls for adjusting water pressure and temperature. Allows 72 soldiers to shower per hour (10 minute shower). System capable of collecting waste water and pumping it up to 500' for disposal/storage.

**Description:** 12-commercial, fiberglass shower stalls, onboard ejector pump, and M80 water heater.

**Power requirements:** 10kW/120 volt/single phase

**Size:** 20'x8'x8' ISO Container

**Weight:** 8,500 lbs

**2 units per module**



# *Containerized Shower System (CSS)*



# *Containerized Shower System (CSS)*



**KUWAIT**

# *Morale, Welfare and Recreation*

**Capabilities:** Provides the deployed soldiers with morale, welfare and recreation support.

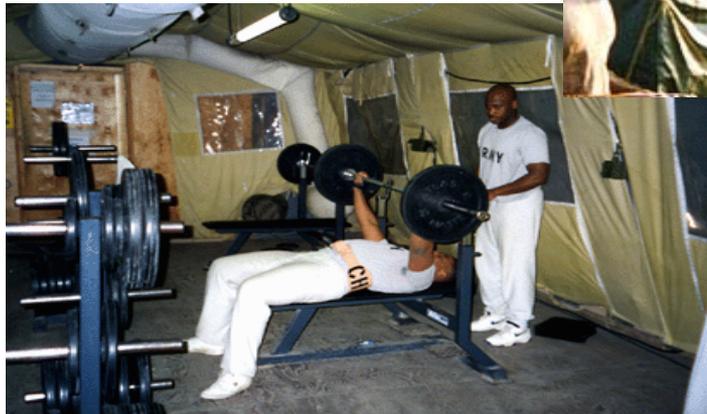
**Description:** Satellite television, sports equipment, free-weight equipment, board and card games, movies, books, table tennis, football, softball, volleyball, basketball, soccer and horseshoe equipment.

**Power requirements:** 208 volts/3 phase

**Size:** 2-64' TEMPER

**Weight:** n/a

**1 per module**



# *Morale, Welfare and Recreation*



# *Morale, Welfare and Recreation*



# *Morale, Welfare and Recreation - AAFES*



# *Cold Weather Kit (CWK)*

**Capabilities:** Add-on kit to allow Force Provider to operate down to -15°F. Provides heat to all living/operational areas.

**Description:** 68-Army Space Heaters (ASH), tools and equipment to assist in cold weather deployment. Provides 6-64' TEMPER for storage of water and waste water bladders and heat traced hose.

**Power requirements:** 208 volts/3 phase

**Size:** n/a

**Weight:** n/a



# *Force Provider – Cold Weather*



# *Power Generation/Distribution*

**Capabilities:** Provides power to run entire camp, 208V, 50/60Hz, 3 phase; w/ generators, Prime Power Support or Host Nation Power.

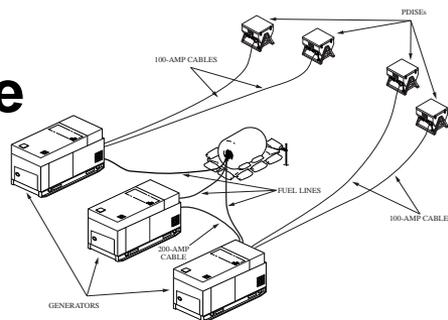
**Description:** 24-60kW Tactical Quiet Generators (TQGs) (18 running at all times), 39 100A DISE boxes distribute power to camp; Prime Power Connection kits; or the ability to connect w/ host nation power.

**Power requirements:** 1.1 MegaWatts continuous power

**Size:** 7'x3'x6' (generator)

**Weight:** 4,240 lbs.

**24 units per module  
(rolling stock)**



# *Prime Power Connection Kit*

**Capabilities:** The PPCK is designed to provide the link between the Force Provider secondary distribution system and the Prime Power generator sets or commercial power (4160V Delta). Other commercial power requires additional transformers to step down.

**Description:** The components are all commercial off the shelf items (transformers, cable, and medium voltage connection equipment) purchased from well known large electrical manufacturers such as Raychem, Square D, ABB and Wesco.

**Power requirements:** Supports a Prime Power generation plant.

**Size:** 12 TRICONS

**Weight:** NA





**Uzbekistan**

# All Electric Kitchen



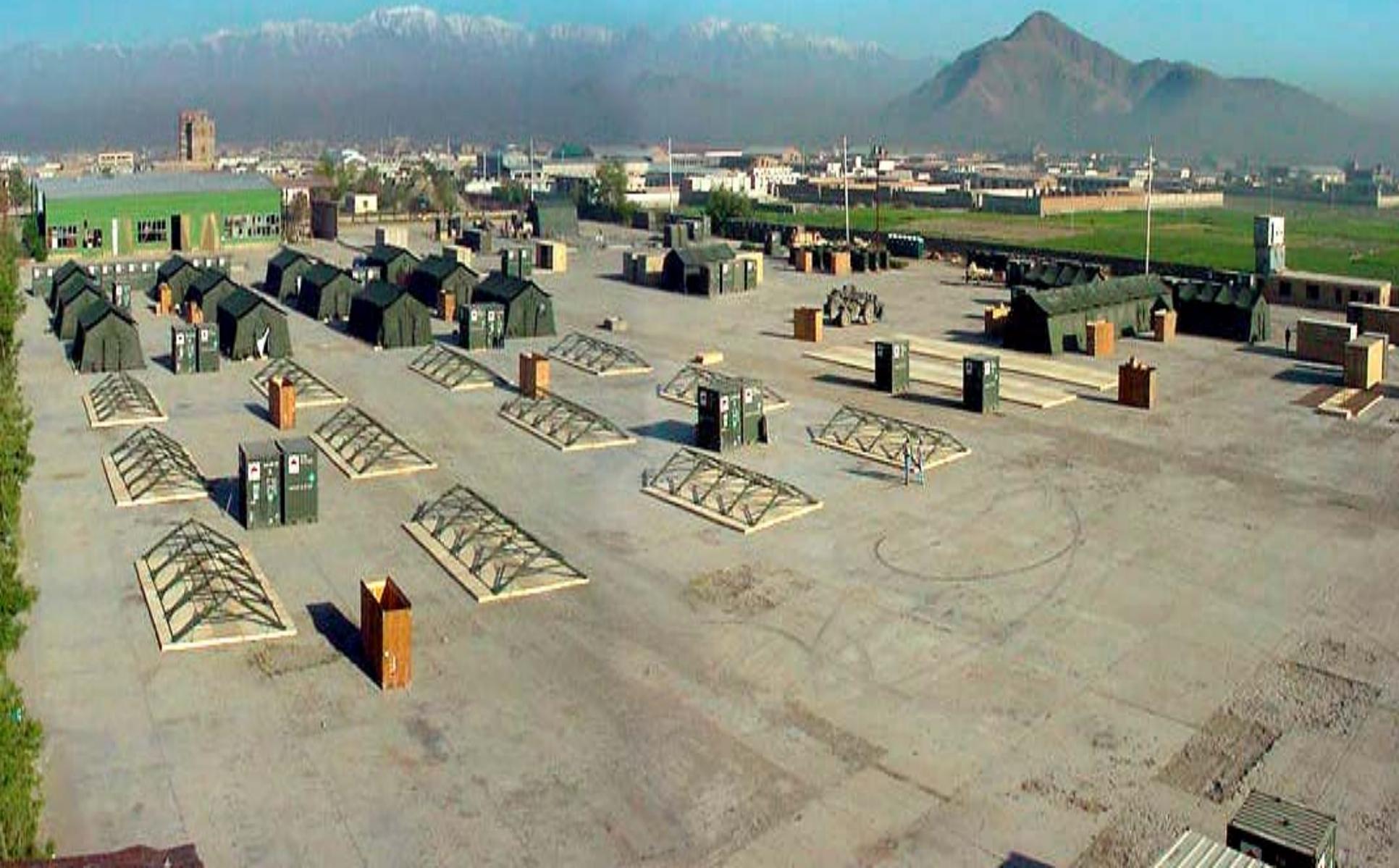
# *Kyrgyzstan— 2001-Present*



# *Ganci, Air Base - Biskek*



# *Kabul, Afghanistan*



# *Force Provider Modernization*

- ◆ Lessons learned and feedback from field commanders deployed to the AOR indicate an urgent need for a **modular/scalable** base camp system that is completely self-contained, lightweight, and expeditionary (Existing modules being disbursed in **150-man size element, over 56 FOB's**)
- ◆ PM FSS worked with all the joint services to develop requirements
- ◆ **Worked with all agencies to validate modern systems and components**
- ◆ Key systems:
  - Power Generation (60Kw Tactical Quiet Generators) with LEX power distribution
  - State of the art Airbeam billeting tents w/cots, lighting, and convenience power receptacles
  - Hygiene systems (shower, latrine, laundry)
  - Kitchen w/TRICON Refrigerated Container
  - Water storage and distribution (fabric tanks, pumps, hoses, etc.)
  - Fuel storage and distribution
  - Water re-use capability (Captures 75-percent)
  - NOTE: User only needs to supply water and fuel

# *Force Provider Modernization*

- ◆ Entire 600-man module (fully operational) is capable of being set-up with 32 personnel using MHE in less than 4-hours.
- ◆ Module can be set-up in 150-man (fully operational) increments to support a phased deployment/housing plan.
- ◆ One C-17 aircraft (18 pallet positions) can transport a fully self-contained 150-man segment.
  - Add on kits – Additional four C-17's
    - Cold Weather Kit
    - Prime Power Connection Kit
    - Admin Kit
    - MWR Kit
    - Waste Water Kit
    - All Electric Kitchen

= 4 C-17's

**NOTE: Old Configuration required twelve C-17's**  
**New configuration requires eight C-17's**

- ◆ Can be complexed to support larger base camps and/or disbursed to support smaller FOB's
- ◆ **Commonality among joint services**
- ◆ Continues to provide a very high Quality of Life to deployed troops

**Kitchen**

- Cook and Hold Oven
- Steam and Hold Counter Top Steamer
- Steam Kettle (6 gallon)
- Under Counter Refrigerator



**Dining Facility With Kitchen**



**Laundry**

- 1 Commercial Uni-Mac 50lb Washer and Unimac 75lb Dryer
- Onboard Hot Water Heater
- Onboard Supply and Gray Water Pumps



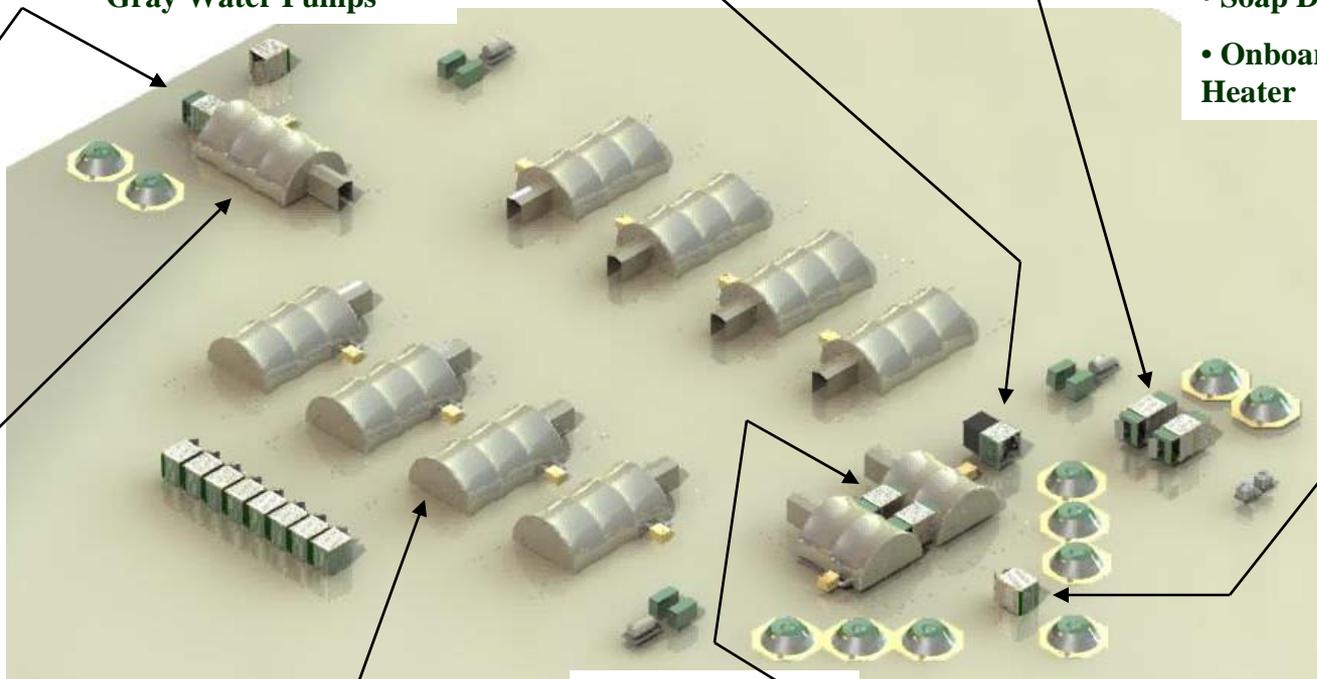
**Laundry**



**Latrine**

**2 Latrine**

- 8 Commercial Toilets
- 4 Urinals
- 4 Sinks w/Mirrors
- Soap Dispenser
- Onboard Hot Water Heater



**(SWRS) Shower Water Reuse System**

**Billeting**

- 7 Air Beam Tents, House 150 Personnel
- Climate Controlled for the Environment



**Billeting**

**2 Shower**

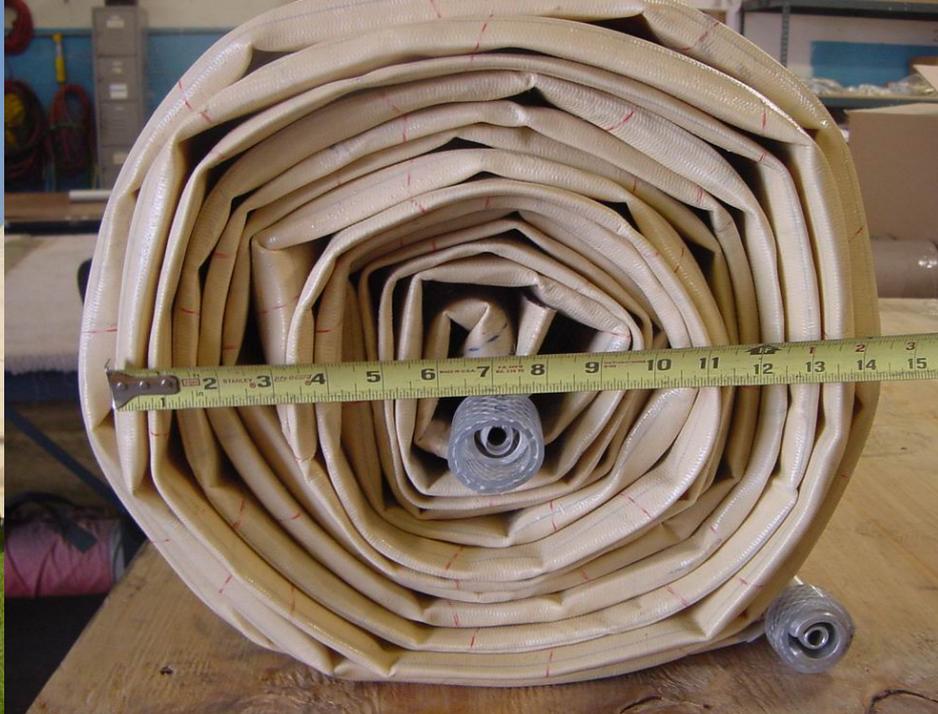
- 8 Shower Stalls
- 4 Sinks w/Mirrors
- 4 Soap Dispensers
- Onboard Hot Water Heater



**Shower**

**SWRS**

- Treats 12,000 Gallons per Day with a 75% recovery rate of shower/laundry wastewater
- Unattended automatic operation (7 Days without operator interface)







*C-17 with entire 150-man camp heading to AOR*



# Shower Water Re-use System (SWRS)

## Metrics - Resource efficiency

### Concept

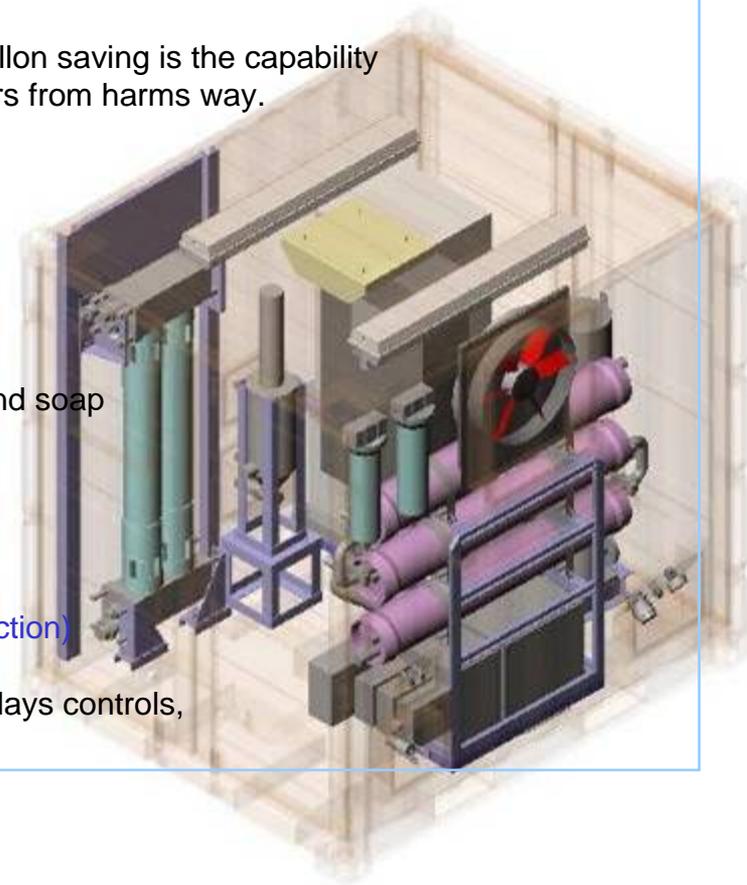
- Leveraged off existing technology from the Hospital Containerized Batch Laundry (CBL) and 1500 GPH Tactical Water Purification System (TWPS), and integrated into the Force Provider System.
- FP Containerized Shower utilizes 12,000 gallons of water per day, 4.4M per year. The potential to save 75-80% of this water equates to **3.3M gallons saved per year**, per module. Currently 70 CS in operation in the AOR, stand to save 231M gallons of water per year.
- In this case, more importantly than the resource efficiency or cost per gallon saving is the capability of drastically lessening the logistic resupply convoys and removing Soldiers from harms way.

### Filtration System Details

- 12,000 Gallons Per Day capacity (40 GPM peak flow)
- 75%-80% recovery
- automated chlorine injection
- Self cleaning (air purge) pre-filter to remove hair (15 micron)
- Micro filters (.2 micron) to remove suspended solids w/auto backwash
- Saltwater RO membranes to remove organic materials, bacteria, virus and soap
- Carbon filtration after membrane
- Potable water quality

### Features

- System operational temperatures -25 F to 140 F
  - **Unattended automatic operation**, (7 days minimum w/out operator interaction)
- Built in Test Equipment, self-monitoring
- Programmable Logic Control (PLC) with LCD screen user interface, displays controls, flows, pressures, set-up/operating instructions and troubleshooting.

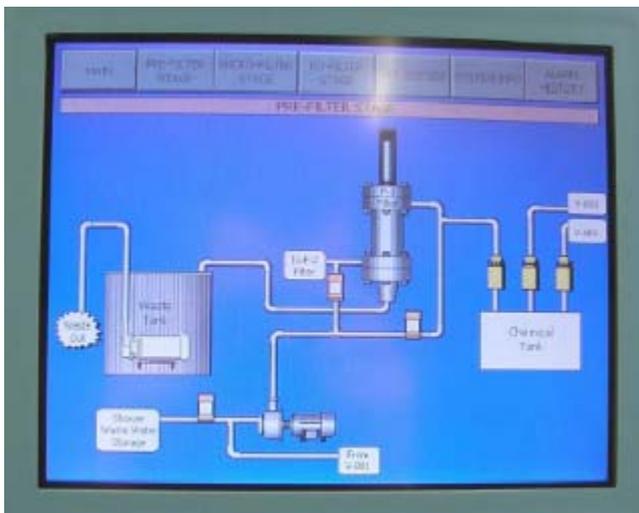
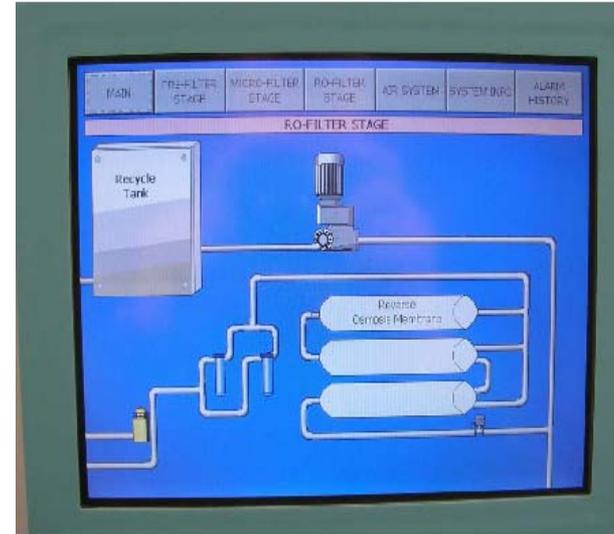


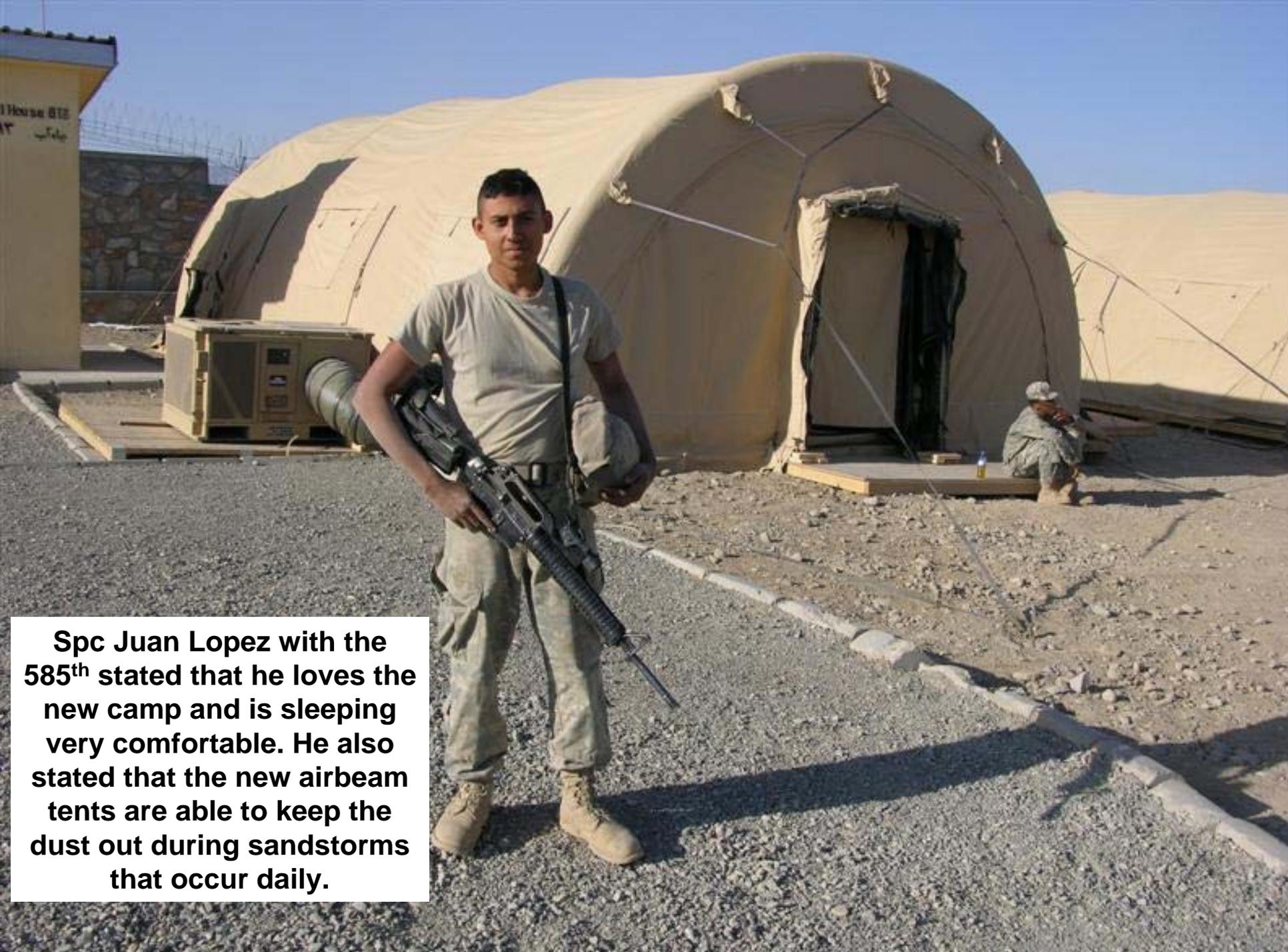
# ***Shower Water Reuse System (SWRS)***



# SWRS PLC and Touch Screen

- ◆ Easy to follow step by step start up and shut down menus
- ◆ Graphical User Interface, P&I diagram displays, real time system monitoring (flows, conductivity, pressures, tank levels)
- ◆ System status display and alarm displays





**Spc Juan Lopez with the 585<sup>th</sup> stated that he loves the new camp and is sleeping very comfortable. He also stated that the new airbeam tents are able to keep the dust out during sandstorms that occur daily.**





Sound Team 011  
AVI. 4-200



USAU 080

385 4

USAU 080

381 2

USAU 080

382 8

USAU 080

384 9

USAU 080 380 0

ARS4041

HANDLE WITH CARE  
REGULABLE CONTAINER





384

FEMALE

FEMALE

382 8

381 2





# Comments from the AOR on the 150-man Base Camp

**Sgt. Bennight of the 585<sup>th</sup> states he really likes the system. The tents are better made to include internal thermostats to keep out of the elements. The hygiene complex is awesome. He loves the entire system**

**Sgt Shields of the 585th stated the system is very impressive. The entire camp can easily be moved and re-established quickly. Very key to our mission.**

**Sgt Thomas of the 585th stated “thanks for comforts of home”**

**Sgt Sikora with the 585th stated that the camp was a huge morale booster and that he liked all the equipment. He also added it was very easy and quick to set-up.**

**Spc Juan Lopez with the 585th stated that he loves the new camp and is sleeping very comfortable. He also stated that the new airbeam tents are able to keep the dust out during sandstorms that occur daily.**

**SFC Deyton of the 585th states that the design of the camp makes for an easy set-up. The hygiene complex makes life drastically better for field environment. The Force Provider concept is outstanding**

**The kit is a great program for the Army to invest in for our Soldiers," said Sgt. 1st Class Clay Wait.**

**The first one we received is beautiful and exactly the tool we need here in OEF. - LTC Andrew Danwin, CJTF 82  
Dep CJ4**

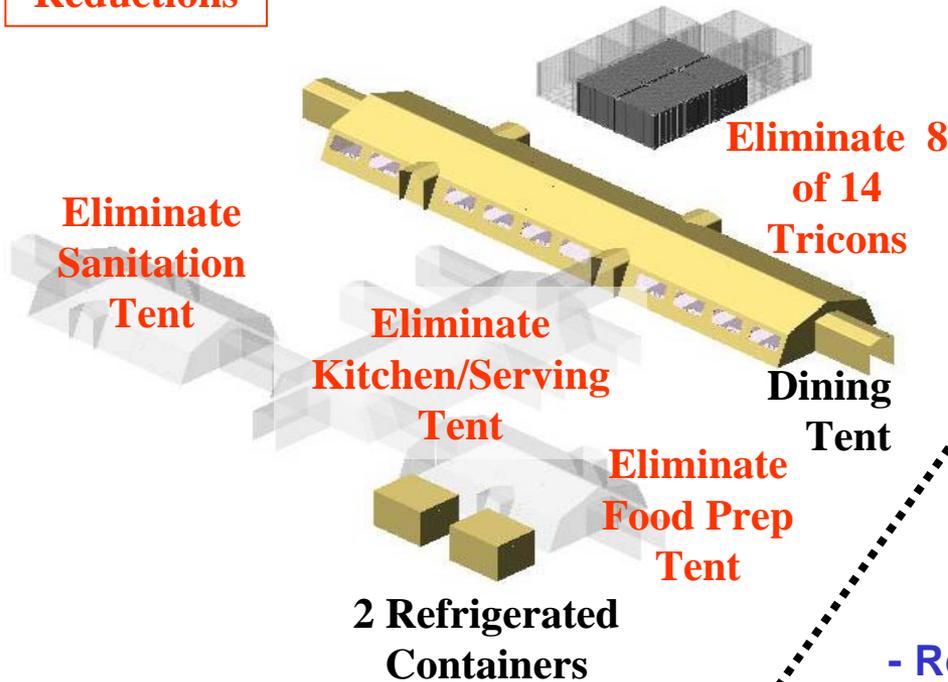
**I have personally toured all facilities and can report that not only did it go up in a matter of hours as advertised but it is functioning as designed and meeting all the needs of our approximately 115 man element The system is the best solution I have experienced for providing a rapid expeditionary CO+ base, our mission requires us to consistently relocate construction bases and this system makes us much more efficient.**

**LTC Mark J. Deschenes  
TF Pacemaker  
Commander**

# FP Kitchen Comparison

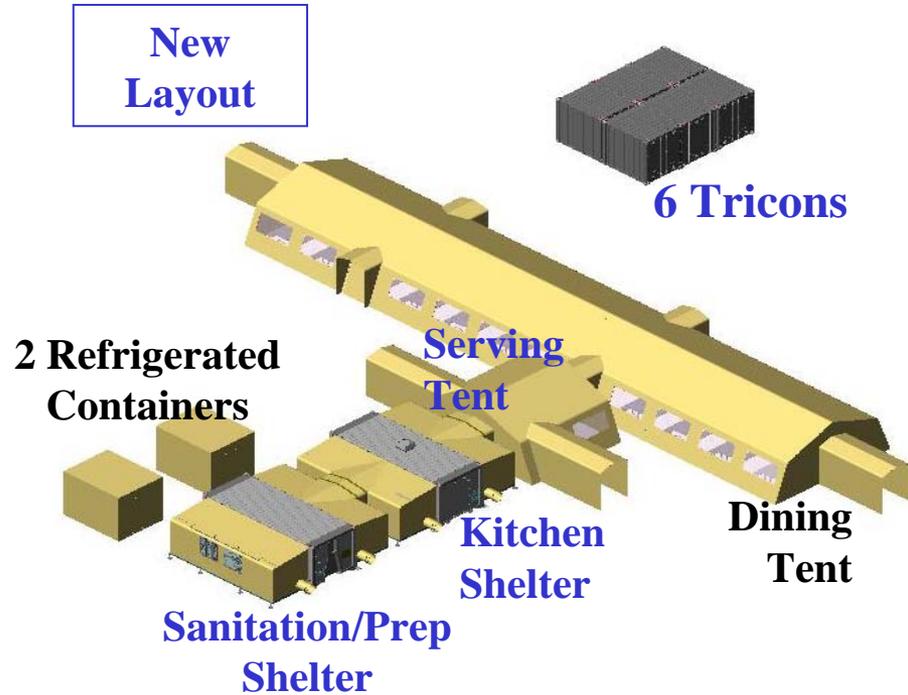
## Current

**Baseline Reductions**



## Concept

**New Layout**



- Reduces Transportation Footprint
- Capable of Initiating Operations Within 4 Hours vs. 1-2 Days With Current System
- Eliminates Need to Construct Flooring
- Reduces Power Requirement by 30kW



2007 / 2 / 11



NORDIC

0098  
FILL-RITE

TEMPERATURE

Velcor  
VF-61EP

GR



# Jointness – Commonality on the Battlefield



- ◆ Army Force Provider/RESET
- ◆ Navy Fleet Hospital
  - Expeditionary TRICON Systems
  - Completed Medical Utility Module (MUMs) design/Potential partnering with DEPMED
- ◆ Navy Seabees
  - Expeditionary TRICON Systems
  - All-Electric Kitchen
- ◆ Working with USAMMDA
  - Received RDT&E dollars for BICON Operating Room Design
- ◆ Working with Air Force (Harvest Bear) for complete 150-man system

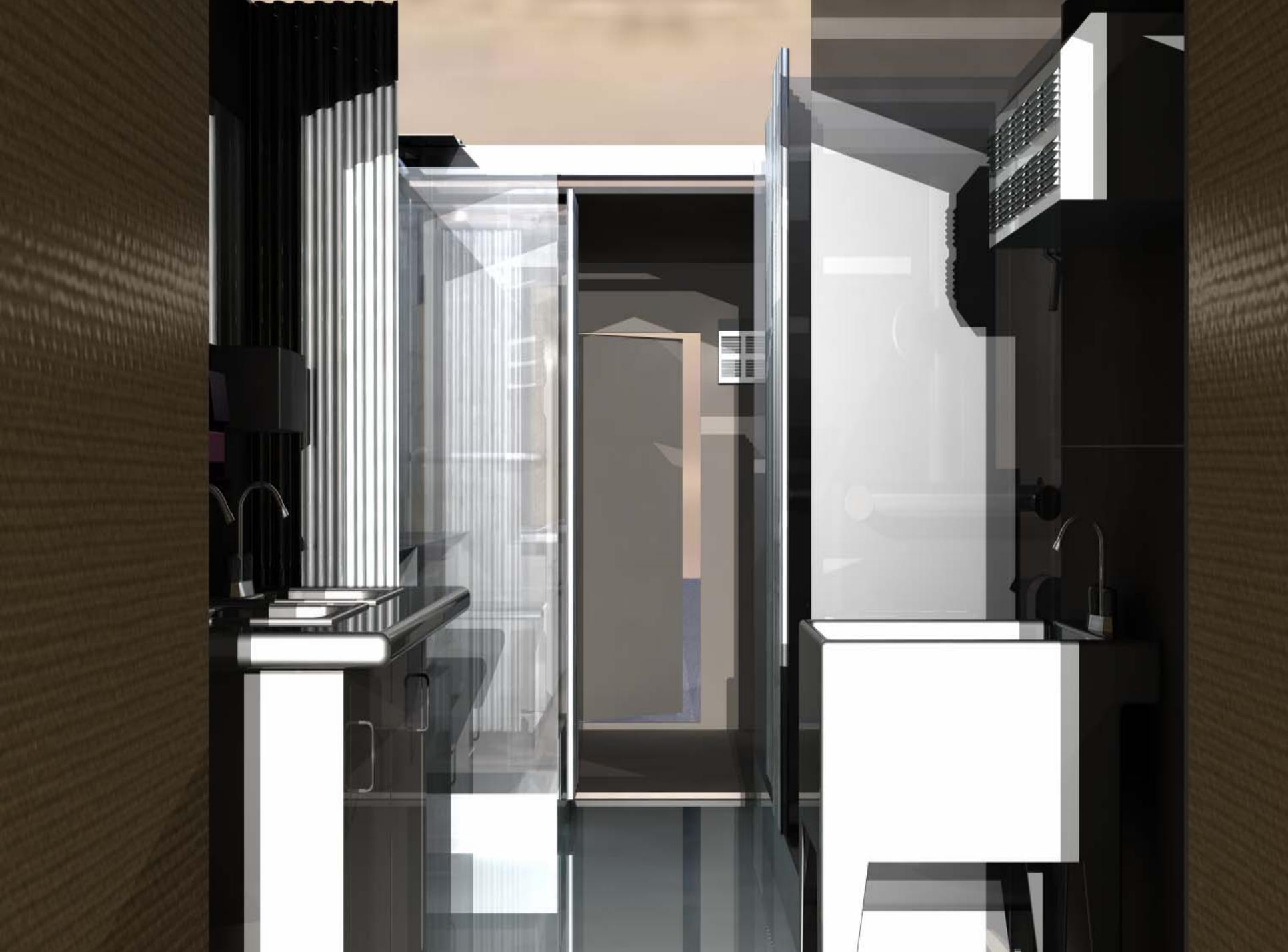
# Mobile Utility Module



# ***MUM Capabilities in a T2 BICON***

- ◆ Received requirements from Navy Fleet Hospital
- ◆ PM FSS received a current MUM's model to evaluate
- ◆ Requirements
  - One 300lb Portable (roll-around) Ice Machine with 25ft Water Supply Hose Assembly
  - Two Toilets each with Spray Nozzles, Adjustable IV Bag Hooks, and Grab Bars
  - One Shower with Spray Nozzle, Stool, and Grab Bars
  - One deep well sink and two shallow well sinks.
  - Two urinals
  - Provisions for cold weather kit hook up of additional heater.
- ◆ Commonality of components between other Expeditionary TRICON Systems.
- ◆ Packs out with power cables, water bladders, bench, urinals, and all associated equipment.
- ◆ Reduces current logistic footprint from 13, 20 foot ISO's to 6, 20 foot ISO's with one remaining MUM BICON for the Navy Fleet Hospital.











# *MUM's Path Forward*

- ◆ Currently have finalized the design
- ◆ Have selected a contractor for prototype design (JGB Enterprises Inc.)
- ◆ Opportunity to partner with Army DEPMED
  - Share costs
- ◆ Lead-time to produce one prototype (6-months)
  - Two additional units 3-months after first prototype
- ◆ Costs for prototypes – 176K per unit

## *Contact Information*

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