



COMMUNICATION ZONE KITCHEN (COMM-Z KITCHEN)

PROJECT BACKGROUND:

The Navy Expeditionary Medical Support Command (NEMSCOM) expressed the need to modernize and extend the life of all the COMM-Z kitchens in their inventory. These kitchens are pre-positioned in classified locations to support field hospital operations in Navy communications zones (COMM-Z). The original COMM-Z field feeding complex consisted of three expandable ISO containers: a kitchen, a bakery, and a sanitation unit. The COMM-Z Kitchen has been in use for over 20 years in support of Navy field hospitals. All of the food service equipment used in the Kitchen is "military unique" fuel-fired equipment. Converting the existing equipment/systems by upgrading them with modern "all-electric" food service equipment reduces system maintenance and downtime by leveraging the logistical and maintenance support of the commercial industry; enhances operational effectiveness and reliability through reduced system complexity; improves accuracy, control, and performance of the cooking equipment; lowers the life cycle acquisition cost associated with system maintenance; and provides a safer working environment through the removal of on-board fuel and high pressure steam appliances.

To date, four COMM-Z Kitchens have been modernized and delivered to NEMSCOM and one COMM-Z Kitchen has been modernized and delivered to the Navy Expeditionary Medical Training Institute (NEMTI) for training purposes. All modernization, fabrication, and procurement efforts are conducted in-house at the Natick Soldier Research Development & Engineering Center (NSRDEC).

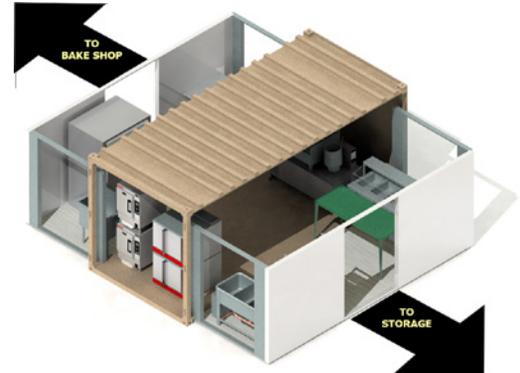
TECHNOLOGY:

The COMM-Z Kitchen has the capability to support a Navy Field Hospital consisting of 250 patients and a staff of 550 medical complex personnel with three meals a day prepared from any of the Military's ration groups (UGR-A™, UGR-B™, UGR-H&S™) in any environment. This is accomplished by providing a capable suite of appliances stowed in a hard-shelter expandable 8' x 8' x 20' ISO container which has the capability to triple its floor space once expanded; providing a generous 345 sq ft of enclosed cooking/serving space. This shelter is also capable of interfacing with external HVAC systems and vestibules (not included), allowing the kitchen to maintain a habitable work environment while remaining connected to the rest of the COMM-Z field feeding complex.

All of the COMM-Z Kitchen's equipment are Commercial Off-The Shelf (COTS) items. As seen throughout this effort, the use of COTS equipment has reduced the cost and complexity of the system; resulting in an average cost of \$200K per COMM-Z Kitchen integration effort (not including container).

The COMM-Z Kitchen's onboard appliance suite includes:

- (1) 48" electric griddle
- (2) Full sized convection ovens
- (2) Boilerless steamers
- (1) Under counter refrigerator
- (1) 5-well hot food counter serving line with under counter heated storage
- (1) Mobile stainless steel serving counter with under counter equipment storage
- (1) Reach in Refrigerator



AT A GLANCE:

- **Feeding Capacity:** up to 800 personnel, 3 meals over a 24 hour period
- **Personnel Requirement:** 4 training cooks
- **Setup Time:** 45 min
- **From packed to serving time:** 2 hrs 45 min
- **Operational Dimensions:** 8' x 24' x 20'
- **Weight:** 16,000 pounds
- **Power:** Electrically powered with 100 kW generator
- **Heat Source:** All-electric
- **Refrigeration:** 1 refrigerator with 22 cu ft. of refrigeration capacity. 1 undercounter refrigerator with 6.5 cu ft. of refrigeration capacity.
- **Transportation:** Sea, air (C1-30), and land (M1022A1 Dolly Mobilizers)

UNCLASSIFIED



- (1) Table top 10 quart electric kettle
- (1) 3-well coffee urn dispenser
- (1) 3-shelf storage rack
- (1) Hand washing sink
- (1) 3-well sanitation sink

The COMM-Z Kitchen also includes all serving and food preparation equipment to include: all serving utensils and preparation utensils, sheet pans, hotel pans, beverage containers, cutting boards, 4 food preparation tables, an electric meat slicer, a manual scale, a 1 quart blender, a 1 gallon blender and a mixer.

Power is supplied to the kitchen via a 100kW MEP-807A generator through two 200 Amp Class L main power cables that feed power to two separate circuit breaker boxes. All power from the circuit breaker boxes is routed internally through the shelter. Each electrical circuit has its own circuit breaker. In addition, 110VAC GFCI duplex convenience outlets are added to provide power for convenience, lighting, and smaller food preparation equipment.

Water can be supplied to the kitchen from any pressurized source via a standard 1" camlock fitting. This potable water is then transferred to either the cold water pipe system or hot water pipe system. The cold water pipe system leads the water straight to the appliances, while the hot water pipe system transfers the potable intake water through a tankless instant hot water heater prior to delivery to the appliances. This hot water heater is capable of providing up to 160°F water on-demand depending on the water's initial temperature. Conversely, waste water from the kitchen can be supplied to a grey water bladder via a standard 1" camlock fitting.

The COMM-Z kitchen does possess an on-board sanitation capability via a 3-well sanitation sink and hand washing sink. This sanitation sink, with the help of an integrated electric booster heater, is capable of heating water to the TB-MED 530 sanitation requirement of 171°F.

The COMM-Z Kitchen can be transported and deployed via any cargo transport medium capable of handling 20 ft ISO containers; however, the generator, water supply equipment, external HVAC units, bulk refrigerated/frozen storage, and other miscellaneous dining equipment (i.e. dining shelter, tables, chairs, etc) need to be transported separately.

The COMM-Z Kitchen requires staffing by 4 trained personnel who can setup the COMM-Z within 45 minutes and begin serving within 2 hours of setup. All setup and pack out procedures can be completed by these 4 personnel.

CAPABILITY & BENEFITS:

- Capable of preparing UGR-H&S™, UGR-A™, and UGR-B™ meals for 250 patients and a staff of 550 medical personnel 3 meals over a 24-hour period
- Four personnel can complete preparation and begin serving meals within two hours of set-up
- Can be set up or taken down and packed for transport by two personnel in 45 minutes
- Conversion of fuel and steam to all-electric equipment improves safety by eliminating the need for fuel-fired burners
- Able to interface with external heat and air conditioning units; allowing operation in temperatures ranging from -25°F to 120°F
- Can be transported by sea, air (C-130) and land (M1022A1 Dolly Mobilizers)



APPLICATION:

Although esigned primarily for UGR-A menu items, the COMM-Z Kitchen also provides the capability to prepare UGR-H&S and UGR-B.

COMMENTS:

The COMM-Z is managed by the Navy Expedition Medical Support Command (NEMSCOM) and the Natick Soldier Research Development & Engineering Center's (NSRDEC) Combat Feeding Directorate (CFD). Completion of the fifth of 12 COMM-Z integration efforts occurred in March 2012, and completion of all conversions is planned for the next 3 years.



POINT OF CONTACT:

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