

# WESTERN SHELTER SYSTEMS GATEKEEPER

Public Health Issue 2009

## MOBILE RESPONSE TRAILER SYSTEMS

All-Hazard Trailer with Mobile Shelter Facilities

### FROM THE FIELD

Reports from CA, FL, IA, MI, MS and OR



# MOBILE RESPONSE TRAILER SYSTEM

## The All-Hazard Trailer with Mobile Shelter Facilities for Public Health Response Teams.

For all-hazard missions requiring first 72-hour support for staff, evacuees, or patients, the Western Shelter 53-foot Mobile Response Trailer System (MRTS) can store and transport at least six immediately-deployable shelters, housing 3,826 square feet of interconnected, environmentally-secure sheltering space.

Task it for medical mass-casualty triage, as a field hospital, an emergency inoculation center, or staff billeting. Whatever your specific mission requires can be stored and then deployed from this completely self-contained base of operations emergency response trailer.

### Designed and Engineered by Public Health Response Teams

Based on the N. Carolina State Medical Assistance Team trailer system specification, the MRTS GateKeeper system combines the FEMA-standardized, Western Shelter GateKeeper shelters with the storage capacity and instant mobility of a climate-controlled 53-foot trailer. In addition to N. Carolina's eight trailer systems, Mississippi and Florida have also taken delivery of several MRTS systems, which means that as of early 2009, fourteen 50-bed systems will be available for deployment in the Southeast.

### Includes Sheltering System

Each self-contained GateKeeper GK1935 (19' x 35' x 11' high) shelter is stored in its own wheeled storage case and is off-loaded by hand via the trailer's lift gate. The first shelter can be erected and operational in less than 45-minutes by three or four people without the use of tools, lift trucks or ladders.

Each additional GK1935 is erected and connected to the complex with its own Vestibule Connector. Because all FEMA USAR and NDMS DMAT teams (and most state and local teams) respond with Western Shelters, your shelters can be connected directly to most subsequent responders to create an ever-enlarging weatherproof complex.

When supporting a medical mission, the Vestibule Connectors can be converted to isolation-capable within minutes without disturbing the existing shelter complex or its occupants. Each shelter can be isolated from its neighbors while maintaining negative or positive air pressure, even in adjacent shelters.

Each shelter system includes its



Photo by Providence Health Systems

own shelter with Easy-Seal™ integrated floor, insulation, double-doors, and Vestibule Connector. The kit includes the shelter's interior electrical harness, lighting, water handling/hygiene support, and sanitation systems. The entire 6-shelter complex is supported by its own hi-amp electrical distribution system, which is powered by the trailer-mounted 100kW generator.

### Mission-Specific Support

When emptied of its shelters, support equipment, and supplies, the MRTS trailer converts to billeting space with bunk beds for up to



## 50-BED Field Hospitals for Florida SMRTs

The Florida Department of Health will be extending its capacity for Disaster and All-Hazards Response this year with the addition of three (3) 50-Bed Field Hospitals from Western Shelter Systems. The 50-Bed systems are equal to those utilized by the State Health Departments in North Carolina and Mississippi, as part of an ESF-8 HRSA Region IV effort to standardize equipment and training to maximize interoperability for their region.

These units will be a valued addition to the dedicated and established Florida State

Medical Response Teams (FL-SMRT). The final trailer which is on demonstration throughout the Public Health Preparedness Summit 2009 in San Diego and will be delivered in late February. After final delivery, logistics and base camp training will be conducted between the Western Shelter team and the FL-SMRT teams. Training has been designed to focus on a series of levels starting with Awareness level training all the way to an Expert/Technician level.

This is one more element of preparation tasked by the Florida Department of Health



to better prepare their public for natural and manmade disasters. More importantly, this is demonstrated leadership that is ready to innovate and aggressively prepare itself in the eyes of an ever changing world.

28 people. The onboard 8.5' x 11' Command Center and the 8.5' x 40' cargo/billeting space are completely climate controlled. When deployed in support of any all-hazard mission, the Command Center in the nose of the trailer is operational as soon as the on-board generator is started.



Photos by Julie Macie - WakeMed

*Above: North Carolina SMAT team unloads GateKeeper shelters.*

*Below: Former president George H. Bush seen here on command center plasma screen as he tours the North Carolina MRTS.*

*Left: Mississippi Med-1 deploys two MRTSs*

## When Disaster Strikes, Mississippi Med-1 Responds On-site

— Patrice Sawyer Guilfoyle November 3, 2008

About 100 Shubuta residents are watching an afternoon baseball game when a crop duster flies overhead and sprays poison on the crowd. Soon, complaints of runny noses, coughing and respiratory distress begin.

With no hospital nearby to handle all the patients, workers with the Mississippi State Department of Health and first responders with the University of Mississippi Medical Center are dispatched to the scene with a mobile field hospital – Mississippi Med-1. In four to six hours, the 53-foot-long tractor-trailer transforms into three mobile field hospital units, operated by a team of 40 professionals.

UMMC emergency responders have been training for more than a year to set up and operate the self-contained and self-sufficient field hospital. They quickly assess the situation, triage the patients and work immediately to address the most serious cases.

That was the scenario Oct. 23 at the unveiling of Mississippi Med-1 at Trustmark Park in Pearl that also served as a disaster drill for first responders. The mobile hospital units, purchased with \$2.4 million in federal funds, will allow for immediate medical response in disaster situations in Mississippi or anywhere in the country, if requested.

Dr. Dan Jones, vice chancellor for health affairs, said the operation of the field hospital is a team effort.

“As the only academic medical center and the only Level 1 trauma center in Mississippi, we are pleased to meet our responsibility to the state by helping prepare for disaster,” he said. “We’re pleased to be a part of a health care community that pulls together for the good of the state.”

“Experience has taught us that in disasters like Hurricanes Katrina and Gustav, the most critical medical asset is the ability to treat wounds and illnesses when hospitals are unable to function or have limited capabilities,” said Dr. Ed Thompson, state health officer. “This first line of defense can keep residents healthy and safe while area hospitals recover.”

North Carolina sent a similar mobile hospital to the Mississippi Gulf Coast following Hurricane Katrina, and Thompson said the state greatly benefited from that.

“We cannot pay back to North Carolina, but we can pay forward some of the wonderful help we received from around the country,” he said.

Med-1 places Mississippi among the top states in the country when it comes to disaster-related trauma care. North Carolina, Florida, Georgia, South Carolina, and Oklahoma also feature this kind of mobile field hospital.

## Michigan Chooses GATEKEEPER™ for 100-Bed Transportable Disaster Medical Facility

Region 2 South Medical Bio Defense Network and Region 5 District Medical Coalition in conjunction with Michigan's Office of Public Health Preparedness have chosen Western Shelter System's GateKeeper™ mobile emergency medical system for Michigan's Transportable Emergency Surge Assistance (MI-TESA) Medical Unit.

Federal funds furnished through the Office of Public Health Preparedness were used to support this project.

The State of Michigan's expandable medical response system consists of two core 50-bed facilities and two add-on 25-bed patient wards. The transportable facility will be used throughout the State of Michigan.

The core 50-bed facilities include space for administration, isolation, supply, patient intake, and staff lounge. The shelter is self-sufficient for power, climate control, and water handling. The transportable medical facility is expected to provide medical services primarily to patients who are suffering from COPD, asthma, congestive heart failure (no C-PAP or vent dependent), chronic pain syndrome or behavioral conditions, and patients needing IV hydration and IV antibiotic therapy.



Region 2 South Medical Bio-Defense Network includes the greater Detroit metropolitan area and the counties of Wayne, Livingston, Washtenaw and Monroe. The 5th District is composed of nine counties in the southwest corner of the state – it's based in Kalamazoo at Michigan State University. Their mission is to augment existing resources, regional and community surveillance, emergency management systems and hospital preparedness by developing plans that will facilitate a coordinated healthcare response to disasters throughout the state.

## IOWA CENTER FOR DISASTER OPERATIONS AND RESPONSE

*Iowa Center for Disaster Operations and Response Newsletter  
Division of Acute Disease Prevention and Emergency Response September 2006 v1.1*

### Mobile Health Care Facility Summary

A tornado rips through Anytown, Iowa causing extensive damage to the local hospital. Hospital administration initiates a call to the county Emergency Management Agency (EMA) requesting assistance of personnel and facilities. The county EMA coordinator calls Homeland Security Emergency Management requesting a Disaster Medical Assistance Team (DMAT) and a Mobile Health Care Facility. The DMAT is deployed and arrives on scene along with Iowa Department of Public Health's (IDPH) new Mobile Health Care Facility to assist the local hospital.

The scenario above describes one of many uses for IDPH's mobile health care facility. Other potential uses could include establishment of special needs shelter, evacuee processing center, general shelter,

immunization clinics, triage/first aid clinic, Public Health Response Team (PHRT) lodging, off-site IDPH command center.

Most Health Resources & Services Administration (HRSA) Critical Benchmarks require a basic level of preparedness that includes temporary shelter for critical tasks related to bioterrorism and other health care emergency responses. IDPH's Center for Disaster Operations and Response purchased this system to address those needs.

Portability, versatility and expandability are three key points about this emergency response shelter system. The mobile health care facility consists of five 19 ft x 35 ft tents and two 20 ft octagon tents. A deployed team has the versatility of using all the tents or only as many as needed for their shelter, field hospital, etc. In addition, most federal response teams have this same type of system, making Iowa's system compatible should it be necessary for state and federal resources to join forces during an incident.



## 210-BED ALTERNATIVE CARE CENTER for HAMILTON CO - CINCINNATI, OH

The Hamilton County, Ohio Alternative Care Center consists of 24 individual shelter modules that can be integrated to each other in a single, environmentally-controlled field hospital with a 210-bed capacity.

The Western Shelter GateKeeper modules can also be deployed as separate 3-shelter "wings" with up to 30 beds each. Should an incident grow beyond the initial field hospital capacity, other modules can be connected to provide a virtually unlimited response capability.

The GateKeeper ACC is a clean, climate-controlled, and safe medical environment for any long-term event.

While the portable medical facilities can function in a variety of healthcare capacities, the intent of the Hamilton County Alternative Care Center is to provide triage, acute care, and inpatient treatment to victims who need varying degrees of life-saving technology during a mass casualty situation.

Depending on the complexity of the deployment, the first modules can be erected by a core command team in just a few hours without the assistance of lift trucks, ladders, or tools.

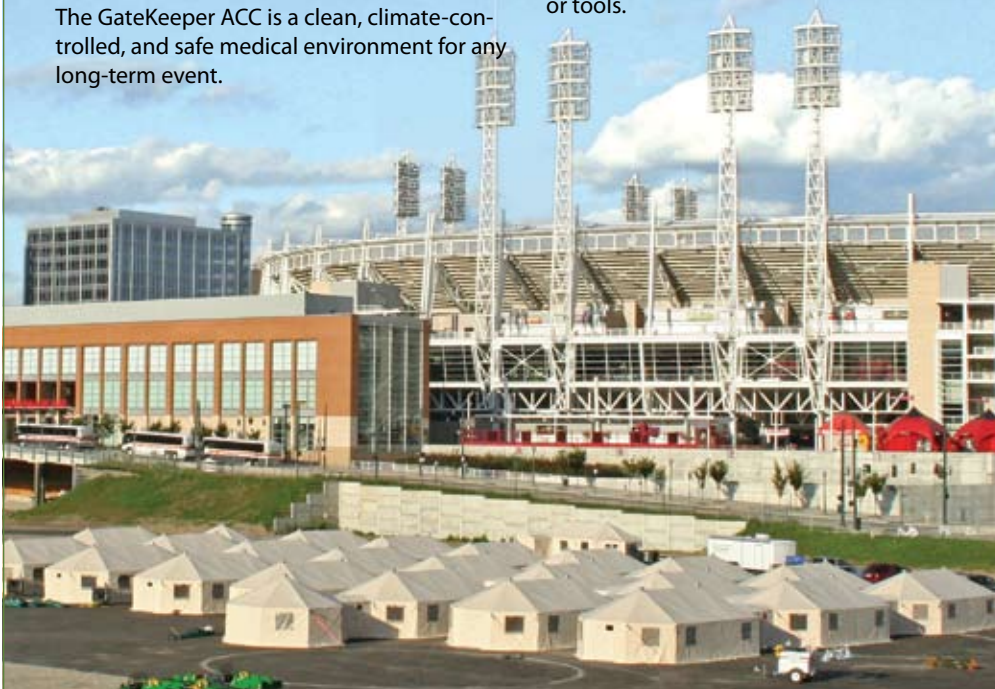


Photo by CAP Hamilton Co., OH

The first deployment of the 24-shelter field hospital was accomplished in 8-hours by a dozen newly-trained team leaders and about 45 volunteers. The first wing was ready to treat patients within 90-minutes of the equipment being delivered on-site.

Portions of the ACC will be deployed at community events year-round to familiarize people with seeking medical assistance in the shelters during mass casualty incidents.

## Providence Vernonia Clinic Reopens As Rebuilding Continues

-Gary Walker Providence Healthcare Systems Newsletter December 10, 2007

The tents in place at Vernonia are heated, insulated, include four private exam rooms and have access to electrical power and running water - everything the clinic needs to resume operations.

The doors have reopened following the flood at Providence Medical Group's Vernonia clinic - thanks to the deployment of some heavy-duty emergency tents that will allow Providence to provide care while the clinic's building is being repaired. These aren't your ordinary shelters - more like the Taj Mahal of tents.

They are equipped with everything the clinic needs to resume operations, including four

private exam rooms. Heated, insulated and with electrical power and running water available, the tents also feature a durable vinyl floor that is designed to handle the traffic anticipated at the clinic.

The tents are set up in the Vernonia clinic's parking lot. Assembly took place over the weekend, as a team from Providence - along with volunteers from the tents' manufacturer, Western Shelter of Eugene - made sure the clinic was set up and ready to go on Monday morning.

"This shows the best of our emergency planning at work," said Craig Wright, MD, chief

executive, Providence Physician

Division. Providence sent the tents to Vernonia from Providence St. Vincent Medical Center, where they are stored to provide extra patient capacity during times of crisis. Providence's Phyllis Gilmore, MD, is Vernonia's only doctor. Her work at the clinic is being supported by extra staffing from Providence Medical Group, which has additional physicians, nursing and pharmacy staff on site.

**Note: The temporary shelter clinic operated at peak performance for over five weeks while the Vernonia Clinic was rebuilt.**



## Broward County Preps M.A.S.H.-Type Unit

-Emily Michot Miami Herald Staff

Health and medical personnel learn to disassemble the mobile emergency medical center at the end of a two-day exercise in Plantation Heritage Park.

The 2007 hurricane season might be over in fewer than 30 days, but the Broward County Health Department has a new secret weapon for the next natural disaster.

Emergency medical teams learned how to deploy a mobile emergency medical system by setting up tents with medical supplies and equipment.

The white tents took over most of Plantation Heritage Park Monday and Tuesday when officials from the Broward County Health

Department taught the health employees and several law enforcement officers who would volunteer during an emergency.

"This is a regional asset for us in the event of a disaster," said Adam Yanckowitz, director of emergency operations for the Broward County Health Department. "We would be able to place it in the outskirts of a disaster depending where the most damage is."

The Broward County Health Department purchased the \$450,000 Western Shelter Mobile Emergency Medical System with federal and state grants. The mobile system can serve anywhere from Palm Beach to Monroe counties.



The volunteers would need to get the tent operated by generators as soon as possible if a state of emergency is declared. After Hurricane Katrina, medical teams were ready within an hour.

The connecting tents, which hold 44 people, would be set up near a hospital.

"We can treat acute problems to take the strain off of the hospitals," Yanckowitz said. "We will be able to lessen the burden."

## CITY OF SAN FRANCISCO, PROJECT HOMELESS CONNECT

SAN FRANCISCO, Calif.

-Kevin McCormack contributed to this article

### Project Homeless Connect and V.A. Medical Center Team Up To Help Homeless Veterans and Their Families

You don't have to watch the latest news to see the devastating impact that the conflicts in Iraq and Afghanistan are having on American soldiers. You can just look on the streets of many American cities.

Hundreds, perhaps thousands, of veterans of Iraq and Afghanistan are already homeless, and each year their numbers grow larger.

That's why Project Homeless Connect teams up with the City of San Francisco, the VA Medical Center, Swords to Plowshares and a coalition of businesses and non-profit organizations to help homeless veterans.

They are holding annual Veterans Connect events, a one-day event that will offer homeless military veterans and their families access to medical treatment, dental care, housing



information, food and much more.

"The idea of Veterans Connect is to bring the VA, Project Homeless Connect, City of San Francisco and local non-profit organizations together to give America's homeless veterans the help and hope that they need and deserve," says Judith Klain, Director of Project Homeless Connect.

At the event clients are able to access a wide range of services from mental health to dental health, immunizations and mammograms. Other services include things as simple as haircuts to employment information, legal assistance and housing resources. Services are geared towards all ages, from children and youth to adults and seniors. There is even a veterinary service to take care of people's pets.



# ISOLATION CAPABILITY

## Positive/Negative Pressure Environments for Infectious Emergency Response

The optional GateKeeper™ Isolation System can be installed in just a few minutes without modifying the shelters or disturbing their occupants to isolate one or more shelters from the rest of the complex. With the addition of an appropriate filtration/air conditioning unit, positive and/or negative air pressure can be maintained for isolation infection control.

### GATEKEEPER Versatility

The GateKeeper Isolation System includes the patent-pending Isolation Entryway and Isolation Vestibule Connector. Both the Entryway and Connector vestibules can be installed on all new and existing Western Shelter and GateKeeper 20-foot octagon and 19' x 35' stretched-octagon shelters. Negative pressure in one shelter can be maintained while an adjacent shelter maintains positive pressure.

### Meets CDC Guidelines

When properly operated with a HEPA filtered-HVAC or fan-assisted HEPA filtration system that produces a volume of at least 1250 CFM, the isolation-controlled shelter can meet or exceed CDC guidelines for twelve air exchanges per hour.

Exhausting a portion of the available filtered airflow to the outside atmosphere will achieve the CDC standard of 0.015 bars of barometric pressure required for negative or positive environments in the shelter.

GateKeeper medical shelters can be fitted with the Isolation Package as a factory option and as an Isolation Conversion Package for GateKeeper and Western Shelters already in the field. Isolation packages are also available for stand alone shelters with Entryway Vestibules.

### Filtration and HVAC Minimum Specifications:

**AIRFLOW:** To maintain 0.015 bars of pressure differential in the Western Shelter GateKeeper 19' x 35' shelter, and maintain 12 air exchanges per hour, requires peak airflow of at least 1250 CFM.

### FILTRATION:

- 99.99% microbial capture at 0.3 microns
- Positive and negative pressure configurations
- Hi-Watt Ultraviolet lamps
- Visual and audio filter alarm
- Disposable air ducting
- 60,000 Btu (5 tons) cooling
- 68,000 Btu (20kW) heating
- Heavy-duty metal cabinet
- Air monitoring during operation



Photo courtesy of FEMA

## Finally, an emergency treatment bed that makes good sense.

Medical stainless steel construction. Adjustable height from 21" to 35". Lockable wheels. Easily decontaminated.

### All at a price that makes good sense.

E-Bed is a very versatile, sturdy and durable multi-use medical treatment bed. Use it in the ER for additional surge capacity or roll it out to the alternate care shelter for mass casualty triage and treatment.

One emergency bed system converts to:

- Emergency hospital treatment bed with adjustable backrest, rails, casters, mattress and linens
- Portable fully-enclosed negative pressure isolation unit
  - Alternate care facility cot
  - Autopsy table with tray, tilt and height adjustment
  - Mortuary storage system stacks 3 high
  - Adjustable height workstation with shelves



The E-Pod™ System is a portable fully-enclosed negative pressure isolation unit. The flexible clear PVC enclosure is completely removable in seconds for patient loading or removal. The entire unit can be decontaminated for re-use.

The E-Pod isolation unit includes:

- Mattress and mattress tray, which snaps into position on the standard E-Bed frame
- Four 30" non-latex butyl gloves
- Blower provides 7 CFM for 15 air changes per hour
- Rechargeable lithium battery with low flow, low battery alarm
- All HEPA filtration, including filtered pass through lock box for medicines and fluids
- Exterior-mounted IV pole with port for patient access
- Medical grade stainless steel
- Casters with locking wheels



# PARTING SHOTS



Photo courtesy of FEMA



*Clockwise from left: Patients resting comfortably in a GateKeeper mobile hospital. A FEMA camp deployed in the aftermath of Katrina. Osceola County, Florida Sheriff's camp.*

## Who we are...

Since its inception in 1988, Western Shelter has been producing innovative products for those that work in difficult and often dangerous environments. Our equipment has supported field operations around the world in disaster response, wildland fire incidents, military endeavors, crime scene investigations and remote construction projects.

Western Shelter is proud to be an ISO 9001 company that produces Made in America products for all-hazard emergency incident response and recovery. We are proud of our 140 employees who are dedicated to producing innovative products that make our customers' difficult jobs a bit easier and a lot more effective.



*North Carolina SMAT 800 - one of eight MRTS Systems in the state.*

*Barron Point Camp - Katrina*



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