



## MODULAR BALLISTIC PROTECTION SYSTEM (MBPS) | STEFD

### BACKGROUND:

The **Modular Ballistic Protection System (MBPS)** is a lightweight and expeditionary armor system that can be installed in military shelters to protect the Warfighter. MBPS provides ballistic protection for expeditionary installations where mobility and rapid deployment requirements prevent the use of heavyweight systems like sandbags and concrete barriers. Additionally, MBPS can provide immediate protection during the early stages of a deployment, before these heavyweight systems are in place. Currently, in both these scenarios, Warfighters may be unprotected in the shelters where they work, eat, and live. MBPS is a first step in addressing that deficiency. Two designs have been developed: the MBPS TEMPER protects fabric structures while the MBPS RW is used for uparmoring Rigid Walled containers and shelters.

Natick Soldier Research, Development & Engineering Center (NSRDEC) is working in partnership with the Advanced Engineered Wood Composites (AEWC) Center at the University of Maine to develop the MBPS.

### DESIGN PARAMETERS:

Design parameters must satisfy requirements for both ballistic panels and the installed armor system.

#### Ballistic Panels:

- **Cost:** \$22 per square foot
- **Weight:** 2.5-4.0 lbs per square foot
- **Ballistic Capability:** Provides specified fragmentation protection and meets required National Institute of Justice (NIJ) level

#### Armor System:

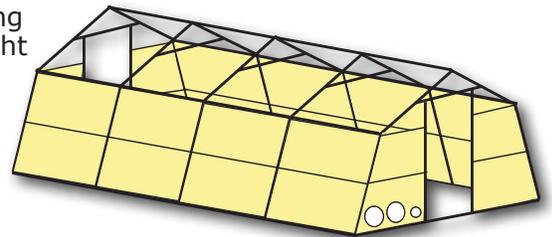
- **Deployment:** Capable of being installed in under one hour with four personnel
- **Overpressure:** Capable of withstanding blast overpressures as specified in Unified Facilities Criteria UFC 4-010-01

### GOALS:

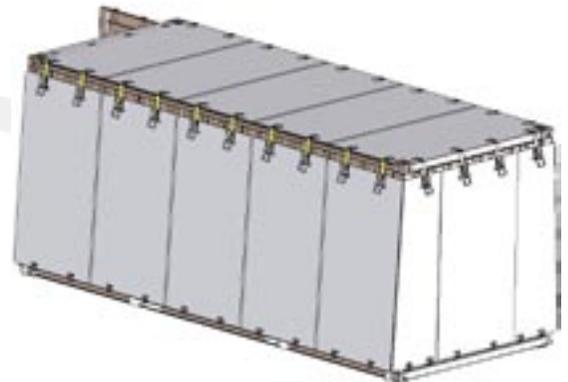
The goal is to provide a ballistic protection system of high strength panels that:

- Is lightweight, reusable and easily portable;
- Provides fragmentation protection and withstands blast overpressure;
- Attaches directly to standard shelters without modification or special tools/anchoring;
- Can be rapidly and easily installed without compromising the integrity of the shelter itself;
- Integrates seamlessly into shelters without causing any detriment to mission capability.

## NEW BALLISTIC CAPABILITY FOR EXPEDITIONARY SHELTERS



**MBPS TEMPER**



**MBPS RW**



### MBPS CHARACTERISTICS:

- MBPS TEMPER integrates into 32'x20' TEMPER tent frame
- MBPS RW integrates on the exterior of Rigid Wall containers and shelters
- Advanced, high-strength composite panels
- Sidewall protection
- Unique strap connections allow for blast load survivability as well as quick and easy installation
- Shelters can be uparmored by a team of four in 30 minutes

### BALLISTIC TESTING:

- **Right Circular Cylinder (RCC) Testing:** MBPS panels meet all V50 requirements when tested against RCC projectiles
- **Arena Testing:** MBPS panels performed as predicted against live threats
- **NIJ Firearm Testing:** MBPS panels meet specified NIJ level

### MODELING EFFORTS:

The University of Maine and NSRDEC have each developed complementary fragmentation models illustrating the reduction of casualties seen with MBPS in place.

### BLAST OVERPRESSURE TESTING:

The MBPS is blast resistant and meets UFC 4-010-01 DoD Minimum Antiterrorism Standoff Distances for Buildings.

### DEVELOPMENTAL TESTING (DT)

- MBPS TEMPER tested for snow load, wind load, transportability, durability, MANPRINT and safety
- MBPS TEMPER has received a Safety Confirmation
- MBPS RW undergoing DT in 2QFY09

### POINT OF CONTACT:

#### STEFD Liaison

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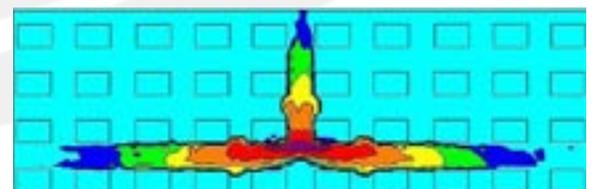
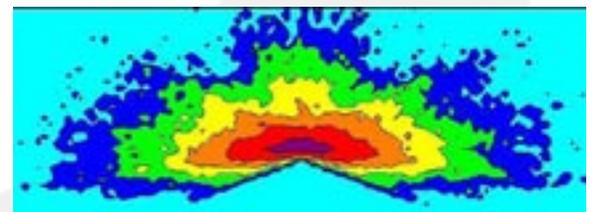
RCC TESTING



WIND LOAD TESTING



BLAST TESTING



NSRDEC MODELING:

Top - Without MBPS,  
Bottom - With MBPS