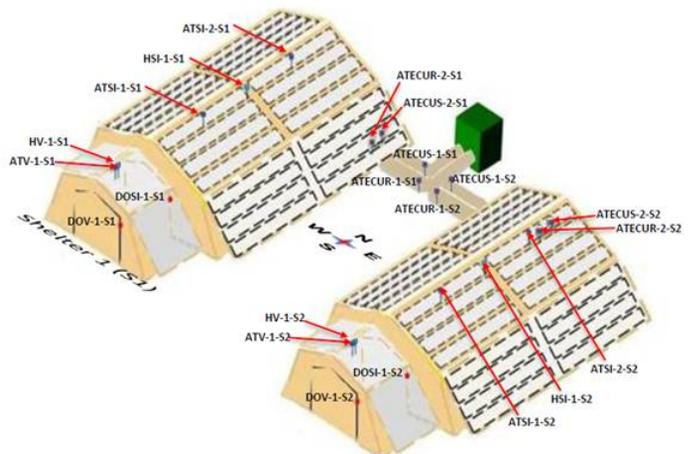


## Synopsis of Clinton McAdams briefing on the Advanced Energy Efficient Shelter Systems at the JOCOTAS Summer meeting 23 July 2014

Clinton McAdams, Project Officer from the Fabric Structures Team, briefed the Advanced, Energy Efficient Shelter Systems (AEESS) for Contingency Basing and Other Applications to the JOCOTAS community on July 23, 2014. This is a Joint Service, multi-organizational program that addresses inefficiencies with energy usage and fuel consumption of shelter systems. Lessons learned during program execution will lead to optimized shelter systems to meet Joint Service needs. The program is broken into three phases; Initial Demonstrations, Technology Development and Follow On Demonstrations. The latter will transition optimized shelter solutions into full scale validation in real world scenerios. The payoff for the Warfighter is a 50% reduction in shelter system power consumption translating into a significant reduction in fuel consumption. The program sponsor is the OSD Operational Energy Plans & Programs Office. Natick Soldier Research, Development & Engineering Center (NSRDEC) is the program lead. The research and development team includes the AF Civil Engineer Center and the Army Corps of Engineers Construction Engineering Research Laboratory (ERDC-CERL). The technology developers are teaming with the Air Force Base Expeditionary Airfield Resources (BEAR) Global Management Office and PdM Force Sustainment Systems (PM FSS), manager of the Army's Force Provider expeditionary basing system. Note that in recent realignment, PM FSS became part of the Project Manager Expeditionary Energy and Sustainment Systems (Formerly PM MEP). Initial Demonstrations, that included the Net Zero Joint Capabilities Technology Demonstration and Marine Corps ExFOB quantified the current state-of-the-art components in a relevant environment assessing solar shades, thermal insulation, energy efficient lighting and right sized Environmental Control Units. Follow up demonstrations were held at Tyndall AFB and Ali Al Salem, Kuwait. In an update since the JOCOTAS meeting an evaluation in Guam was just completed in August 2014. The test program moves to Fort Greely, AK for the Army and Ellsworth AFB for the USAF this winter assessing shelter configurations and the following



### Test Setup in Kuwait

summer hot weather testing is planned for Holloman AFB. The Army Rapid Innovation Fund is leveraging AEESS work through its Energy Efficiency Optimization of COP/PB Shelters to Reduce Fuel Consumption project. The Objective is to develop optimized energy efficient solutions for austere shelter systems. The project focuses on right-sizing the major energy-consuming components, harvesting renewable energy, insulate the shelter, and significantly reduce fuel consumption. Scope includes radiant barriers, shade fly, microgrid, photovoltaics, convective heaters and LED lighting. Results to date cover prototype microgrid storage and distribution demonstrators and; a 42K BTU HVAC unit with a variable speed scroll compressor that allows efficient cooling between 24K BTUs and 42K BTUs and provides electric resistive heating and dehumidification.