

Expeditionary Shelters using Rapidly Deployable Structure (RDS)

Capabilities Statement

Expeditionary Rigid Wall Structures

Assembled from Rapidly Deployable Panels (RDP):

A disruptive Next Generation solution

for

Deployable, Scalable, and Transportable

Military Shelters



WORLD HOUSING
— SOLUTION —

Expeditionary Shelters using Rapidly Deployable Structure (RDS)

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Accompanying Documents:

World Housing Solution SOQ Data Sheet

World Housing Solution Energy Efficiency Data Sheet

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Briefing Summary

Dynamic allocation of key military assets requires the company of shelter for warfighters, operations centers, medical facilities and sensitive C4I. Legacy solutions such as tents offer mobility and logistics efficiency, but offer limited protection against the elements; attempts to rectify the environmental deficiency of tents often requires excessive fuel to supply ECUs. Hard structures (such as concrete and stick-built structures) generally requiring weeks of construction and imparting a great load on the supply chain, thus are unable to meet the demands for rapidly deployable and geographically re-deployable operations.

The Next Generation of expeditionary shelters designed and manufactured by World Housing Solution, Inc. in Sanford, Florida offer semi-permanent, quick deploy structures that have been proven to offer superior performance to the warfighter performance and asset protection, while drastically decreasing supply chain demand, particularly for fuel.

These shelters are comprised of standardized Rapidly Deployable Panels (RDP) for walls, floor, and ceiling. These rigid walled structures, known as Rapidly Deployable Structures (RDS) may be assembled in hours by as few as three men without need of heavy equipment. Being of modular design, the RDS is readily packed into an ISO container and delivered via C-130. Redeployment is as simple as disassembly and repacking of the RDS.



Figure 1: Cut-away view of Rapidly Deployable Structure (RDS) comprised of insulated Rapidly Deployable Insulated Panels (RDP) as demonstrated by World Housing Solution at SOFIC

The Next Generation Expeditionary Shelter: Expeditionary, Scalable, Re-deployable



Expeditionary Shelters using Rapidly Deployable Structure (RDS)

“If we can put troops with equipment quickly in an area ahead of it turning into a real crisis, we’ve given our political leaders some options. And then we can prevent actually ever having to fight.”

- U.S. Army Europe Commander Lt. Gen. Ben Hodges

Mobility of assets is instrumental to modern defense operations. From the Army’s WIN-T On-The-Move (OTM) communications to Marine Corps Systems Command enterprise mobility management (EMM), mobility in personnel and the supply chain are instrumental in the ability to fight.

The rigid wall shelter is a critical and ubiquitous element in the defense tool chest. Until recently, operations requiring a rigid wall shelter were hindered by availability and transportation, which could be at times measured in years. Legacy shelter construction, dependent upon availability of material, construction personnel and machinery, and logistics, making them inadequate for expeditionary operations.

RDS and RDP: New Technology for Expeditionary Structures

The Next Generation Expeditionary Structure from World Housing Solution is a disruptive technology combined with a paradigm shift. The World Housing Solution (WHS) Rapidly Deployable Shelter (RDS) is a lightweight, modular and scalable solution for rigid wall building installations which is designed to be rapidly delivered, assembled, and re-deployed as necessary.

RDS employs standardized, modular insulated Rapidly Deployable Panels (RDP) weighing very little which are used for walls, floors, and ceilings.



Figure 2: Lightweight RDP panels are used for all structural elements.

Modularity provides for customized and tailorable configurations. Walls, Doors, offices, etc. may be configured from the factory or on site.

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Scalability enables the Expeditionary Shelter to be “right sized” to meet specific deployment requirements while minimizing load on logistics. Since an RDS is comprised of standardized panels it may be configured in virtually any footprint imaginable- from a small guard shack to barracks housing hundreds.



Figure 3: Two WHS RDS assembled from RDP panels to fit specific size and supply chain requirements.



Figure 4: RDS for US government contract, configured for office, barrack, and recreation

Logistics and Supply Chain

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An Expeditionary Shelter, as with all WHS Rapidly Deployable Shelters, is easily flat packed, being essentially not much more than panels. An entire building thus may be palletized or packed into a ISO container and shipped by air, sea, or land. The extremely lightweight nature of the RDS enables it to be easily carried by C-130 or helicopter.

Furthermore, the highly insulated nature of the RDP panels, and subsequently the entire structure, drastically reduces power consumption, and as a result, fuel usage. The reduced fuel load alone provides a financial Return on Investment (ROI)- and, in reducing the supply chain requirements, reduces exposure of those transporting fuel.

Autonomous Operation

Satellites have long ago cut the physical cord of communications, yet legacy shelters have remained wholly dependent upon a lengthy, expensive, and dangerous supply chain delivered through hostile territory. Given that, a legacy Expeditionary Shelter running on a fuel-hungry generator can hardly be called “autonomous.”

With the highly insulated RDP-based RDS rigid wall shelter, energy needs are drastically reduced. Not only does this reduce fuel usage and thus delivery interval, it opens the door to autonomous and/or semi-autonomous operation in the truest sense.

Alternative energy sources, such as solar and wind, are made feasible by the insulative RDS RDP construction. In most environmental conditions one or more of the alternative energy options, in conjunction with energy storing batteries, is instrumental to augment generator-supplied power; in some cases they may eliminate the generator and fuel altogether. That is true autonomy.

Night Silent Benefit

Night vision, ground radar, and satellites afford a defensive intelligence for base defense. However, they do not eliminate the noise signature of fuel-hungry generators, which can be used to identify barracks and key C4I locations.

The RDS, with the highly insulated RDP panels, reduces night-time energy requirements. When integrated with batteries and alternative energy sources, power generated during daylight is stored and used sparingly during nighttime operations. Thus, an RDS can operate in “silent mode” at night, without the use of a sound attenuating generator.

Tailoring and Customization



Expeditionary Shelters using Rapidly Deployable Structure (RDS)

World Housing Solution prides itself on custom-designed RDS tailored for specific applications.

Standard roof and ceiling RDP panels are 4'x16', and standard wall RDPs are 7'x9'. However, WHS can custom fabricate virtually any panel size. RDPs are available with steel or phenolic fiberglass reinforced laminate skins, and various thicknesses of Expanded Polystyrene (EPS). Other materials are available for maximizing the value of the RDS for particular installations.

WHS recommends collaborative design and execution of the Expeditionary Shelter to ensure that customer and user real-world needs are met. This includes not only the RDS itself, but also generator requirements, alternative energy solutions, bunking, even latrine and potable water solutions.

Sample Structure

WHS can provide a 32' x 32' x 10'H structure with:

- 2 windows (privacy)
- 2 exterior doors/one with emergency exit/panic bar
- Light weight Aluminum Frame and adjustable leg system
- Complete electrical package
- Split HVAC system
- Paint color choices
- Available interior configurations-multiple layouts available

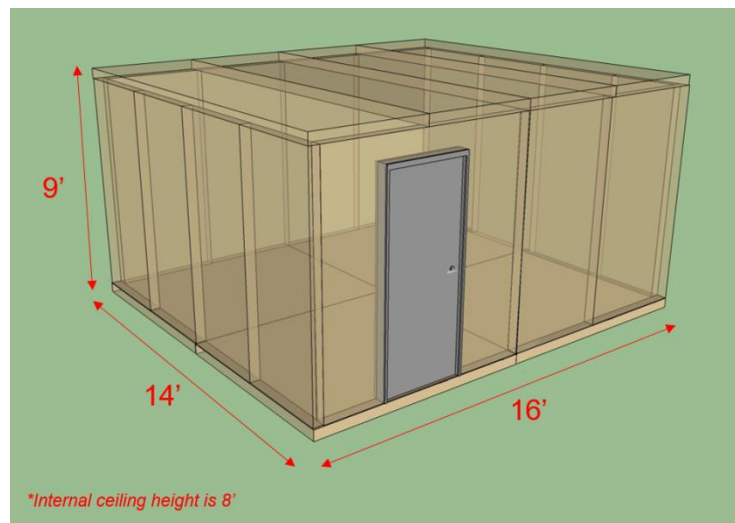


Figure 5: Sample RDS external design using RDP insulated panels

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WHS RDS Expeditionary Shelter Benefits

World Housing Solution offers both standard configuration buildings for multi-use as well as custom configurations to suit an exact need or site application.

The following are the standard features and value of our galvalume structures:

The highest R-value insulated metal panels available. This structure has been designed for high insulation value, i.e. roofs & floors at R38 and walls at R19 offering reduced energy demand and cooling costs

Green value. WHS structures offer a thermally-efficient insulated panel, with an exterior metal and interior core material are either recyclable or are made from recycled content. No other type of panel insulation core can be recycled.

Environmental Resistance. Designed for extreme environmental conditions:

- Fire resistant RDS shell
- Rain resistant
- Synthetic materials resistant to insects, mold, mildew
- Rated to 150MPH winds when secured
- High insulation values resist both heat and cold; increase internal condition retention

Flexible, Adaptable, Deployable

- Durable in any environment and designed to be disassembled, stored, shipped and reassembled as often as required.
- Flexible space can be re-configured and additional panels provided to increase the building size and purpose as your needs change.
- Minimum of 8'6" interior height.
- 26 gage steel siding material & higher gauge steel tongue and groove track and attachment.
- Interior walls are of the same insulating value and specification as exterior walls.
- Buildings are available in a standard clean white interior and exterior or customer select color.
- All paint surfaces can also include microbicidal paint that kills 99.9% of bacteria.
- All plumbing & electrical is surface mount and fully compliant to respective state and local standards.
- All windows and doors are certified to hurricane standards for build quality, value and strength.
- Vapor tight LED lighting systems with high efficiency low cost operating function.

Expeditionary Shelters using Rapidly Deployable Structure (RDS)

2400 Man Encampment

A complete encampment designed using RDS Expeditionary Shelters. Semi-austere environment in eastern Europe.

- 116 structures including dorms, privacy suites, latrines, MWR, classrooms, and medical urgent care.
- Solar collectors on rooftops
- Shared 20kW output power enclosures with 200kWh max. battery storage



Figure 6: Rendering of encampment with RDS structures

Collaboration for Customization

From single deployable shelters to entire camps, World Housing Solution recognizes that there is no “one size fits all.”

Too often, end users are trying to fit their requirements into off-the-shelf products. The results are less than efficient, less than effective, and produce less on the investment.

Experience demonstrates that the best solutions- using today’s technologies and manufacturing methods- come from an intimate understanding of the customers’ needs and uses. With a collaborative experience, a truly optimized solution can be designed, developed, and delivered. That’s the World Housing Solution way.