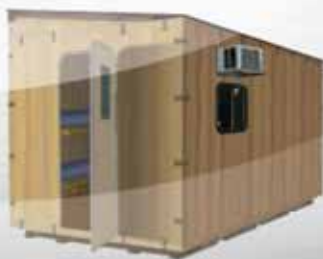


Independent **WIND LOAD ANALYSIS**



**COMPASSION
SHELTERS**

Rest Easy.



The Versi-Panel Compassion Shelter is an easily assembled temporary shelter that is portable, sturdy, insulated and expandable. A complete wind load study of the structure was completed by MIND Studios at the University of Colorado at Colorado Springs.

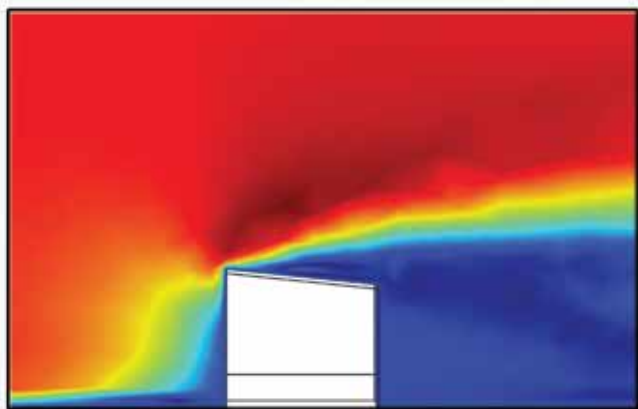


- CALL US: 1-866-928-5710 ext.141
- VISIT US: 2855 South Academy Blvd, Colorado Springs, CO
- WEBSITE: www.vpenclosures.com

Compassion Shelters

Summary

An in-depth Wind Load Analysis was completed by MIND Studios at the University of Colorado at Colorado Springs in order to determine acceptable wind conditions and suggested anchoring systems for the Versi-Panel Compassion Shelter.



- ❖ Initial Analysis Using Standard Drag Equations
- ❖ Comprehensive CFD Analysis using COMSOL Multiphysics Software
- ❖ Realistic expectations & anchoring system recommendations

- ✦ STURDY, WEATHER/DISASTER TESTED SHELTER
- ✦ STORES AND SHIPS FLAT
- ✦ ASSEMBLY BY TWO PEOPLE IN 30 MINUTES

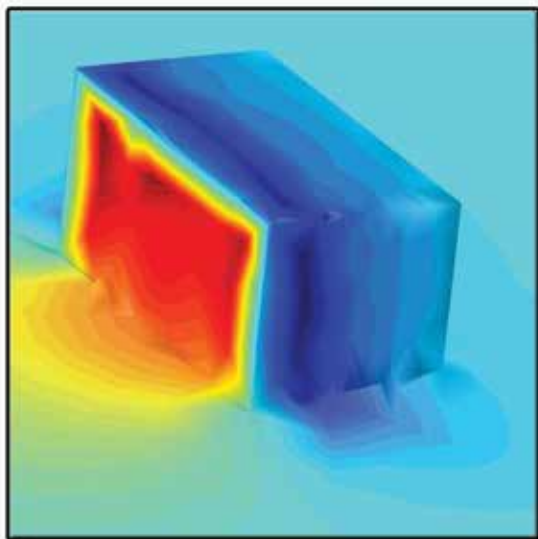
Compassion Shelters

CFD Analysis

Initial Computational Fluids Dynamics analyses were used to produce velocity profiles and pressure contours due to varying wind conditions. These results were then compared to predicted values using standard drag force equations.

Left: Wind velocity profile in the Transverse Direction

Below: Effective pressure contour plot in the transverse direction.



MINDStudios
innovation. by design.

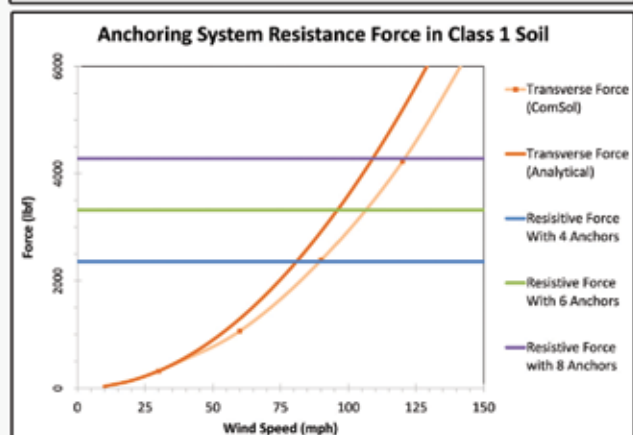
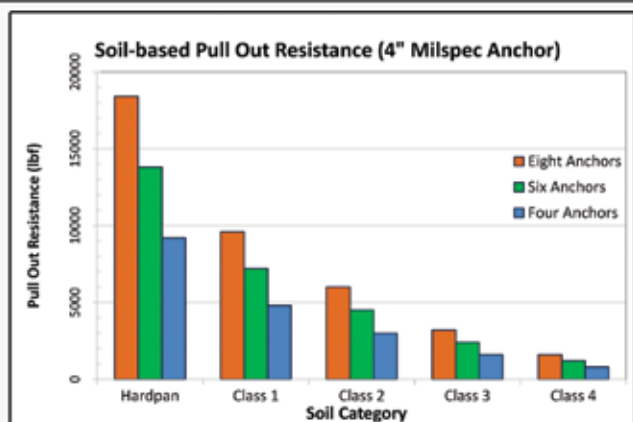


- EASILY ASSEMBLED
- PORTABLE, STURDY, INSULATED
- EXPANDABLE

Compassion Shelters

Anchor System

Using MILSPEC 4" Earth Anchors, the Versi-Panel Compassion Shelter can be anchored down in multiple soil conditions, including soils submerged under water. The tabulated anchor force was utilized along with pressure and force calculations derived from ComSol CFD Analysis. The suggested anchoring system was developed based upon these results.



- ✦ CALL US: 1-866-928-5710 ext. 141
- ✦ VISIT US: 2855 South Academy Blvd, Colorado Springs, CO
- ✦ WEBSITE: www.vpenclosures.com

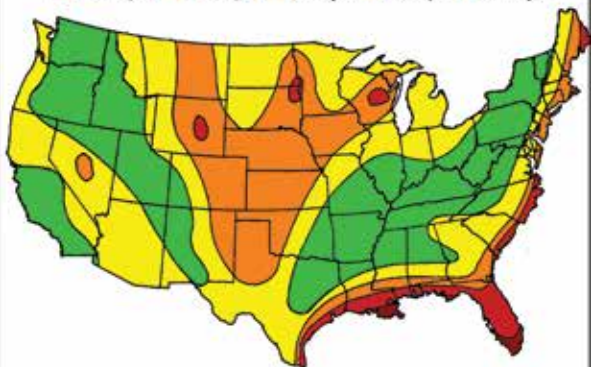
WIND & WEATHER DISASTERS



Compassion Shelters are designed to resist the devastating wind loads often common in disaster stricken regions.

Basic Wind Speed of the United States

■ 110 mph ■ 100 mph ■ 90 mph ■ 80 mph ■ 70 mph



- STURDY, WEATHER/DISASTER TESTED SHELTER
- STORES AND SHIPPED FLAT
- ASSEMBLY BY TWO PEOPLE IN 30 MINUTES

OVERVIEW

A complete wind load analysis was conducted in an effort to calculate the maximum sustainable wind loads of the Compassion Shelter. Using a Computational Fluid Dynamics (CFD) analysis, MIND Studios determined the actual wind loads on the structure.

■ ANALYTICAL APPROACH

Initial wind force calculations were determined using traditional drag force equations in both longitudinal and transverse directions.

■ COMPUTATIONAL FLUID DYNAMICS (CFD)

ComSol Multiphysics Simulation Software was used to model wind characteristics. From this model, velocity profiles and pressure contours were developed and compared to analytical results.

■ ANCHORING

Using data formed through Computational Fluid Dynamics, effective pressure and force were determined. These results were used to determine a reasonable suggested anchoring system for various wind and soil conditions.

- EASILY ASSEMBLED
- PORTABLE, STURDY, INSULATED
- EXPANDABLE