



# TRADE NEWS BULLETIN

## Polymer Wall Forms - Stand up to Blast Test by US Air Force

*April 22, 2004*



AFRL Test Site, Tyndall AFB, Florida

On March 19, 2004, the Air Force Research Lab (AFRL) at Tyndall Air Force Base in Panama City, Florida performed a blast test on two concrete walls constructed with Conform. Specifically the CF8 (8" concrete) and the CF8i (6" concrete + 2" insulation) were used at the test site. The test was conducted to study the blast resistance and fragmentation of walls using Conform. The walls were unreinforced and were poured with a 4000 psi concrete mix.

Over the past several years, AFRL has been evaluating and testing various types of polymers and wall configurations to study their blast mitigation properties. Nuform became aware of their research and was especially impressed with test results the lab had achieved with extruded polymer sheeting. Nuform hypothesized that a concrete wall completely encased in a polymer form would have to provide similar if not improved results.



CF8 & CF8i Walls Filled with Concrete

The charge for the blast test consisted of 1,000 lbs. of ammonium nitrate and fuel oil (ANFO) and was detonated 75' from the test walls. (4,800 lbs of the same material was used in the Oklahoma City bombing at a distance of 20') The CF8 was expected to sustain significant damage and the CF8i was expected to fail altogether. This would allow the AFRL engineers an opportunity to assess how the walls failed and also determine the polymer's ability to contain and shield personnel from the concrete fragments entering the interior of the building.



1000 lbs. of Explosives at 75' from walls

The results of the blast test confirmed Nuform's hypothesis. The CF8 and CF8i walls deflected only 3" and 4½" respectively. The walls did not fail and there was no fragmentation. The walls absorbed the shock of the blast and returned to their original positions without any external evidence of damage. The combination of the concrete, the polymer skin on both sides of the walls and the interior polymer webbing created a very ductile wall system that was able to absorb the shock wave of the blast and then rebound back into place. Dr. Ken Knox, AFRL's principal investigator for the wall test, said "The extruded polymer wall forms certainly exceeded our expectations. The excellent blast performance of the composite polymer and concrete walls, coupled with quick and cost-effective construction, make these types of walls an excellent choice for protective construction applications."



Detonation of 1,000 lbs. of ANFO

Conform has been used by the US Military for a wide variety of applications around the world, including the expedient construction of barracks, clinics, latrines, community centers, schools and utility buildings.



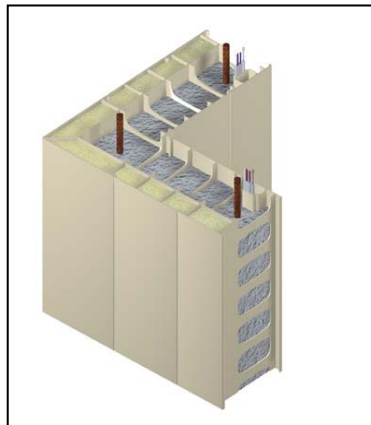
The Blast Created a 3'-4" Deep Crater

Now, with an understanding of Conform inherent blast resistance, the scope of applications can logically and assuredly expand to include blast protection for existing facilities, ammunition bunkers, office facilities, storage buildings and any other federal and military construction that requires enhanced hardening and associated force protection capabilities. The system can also provide a solution to stand-off requirements on real-estate constrained installations. These benefits, coupled with the cost effectiveness of a rapid construction system, make Conform a winning combination for today's security conscious environment.

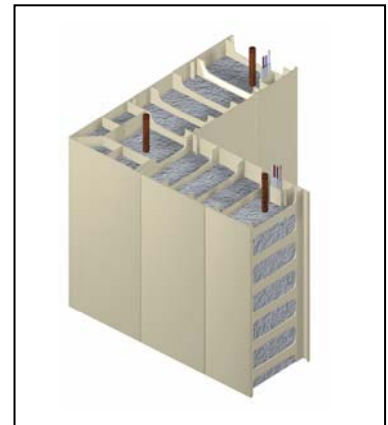


CF Walls After the Blast – No Damage

Nuform Building Technologies Inc. is a manufacturer of innovative, polymer-based building products, serving the home improvement, consumer and construction sectors of the market.



The CF8i Insulated Wall System



The CF8 Wall System

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