



Wind Science & Engineering Research Center
Debris Impact Test Facility
P.O. Box 41023
Lubbock, Texas 79409-1023

806.742.3476 ext. 336 - Campus Office
806.885.2333 ext. 226 - Lab Office
806.885.2333 ext. 227 - Lab
9713 11th Street, Lubbock, Texas 79416

September 27, 2011

Mr. Ric Rhodd
Hausner Precast
P.O. Box 32
Drumright, OK 74030

RE: Product Compliance

Dear Mr. Rhodd;

Debris impact testing has been conducted at Texas Tech University (TTU) since the mid to late 1970's with a focus on tornadoes. Based on research and collaboration with other researchers at other universities, debris impact standards were developed that were subsequently adopted by the Federal Emergency Management Agency (FEMA) in 1998. An exhaustive amount of testing has been conducted on differing building materials and assemblies. Most of the test results are contained within the reports included on the TTU Wind Science and Engineering Research Center (WISE) website, <http://www.depts.ttu.edu/wcweb/Research/DebrisImpact/TestingLab.php>

The test protocols for debris impact testing have not changed since the 1998 First Edition of FEMA 320, *Taking Shelter from the Storm, Building a Safe Room for Your Home or Small Business*. Subsequent later editions up through 2008, have made editorial corrections and have added some new building systems, but the protocols for testing have not changed. Since the 2008 International Building Code ICC-500, *Standard for the Design and Construction of Storm Shelters*, was built off the protocols of FEMA 320, products tested to FEMA 320 were also consistent with ICC-500. The primary difference in the standards relating to tornadoes regards a safety factor of 1.2 x the design wind pressure on doors and windows to comply with ICC-500. FEMA 320 and FEMA 361, *Design and Construction Guidance for Community Safe Rooms*, editions 1999-2008, require no additional safety factor. For wall and roof systems of shelters, the design wind pressure is based upon a 250 mph tornado. No additional safety factor is required by either FEMA 320/361 or ICC-500.

In summary, your use of a reinforced wall system contained within the reports listed will meet the FEMA 320 and ICC-500, 2008 requirements. Hopefully, the above explanation answers your concerns regarding your product. Let me know if I can be of further assistance.

Sincerely,

Larry J. Tanner, P.E.
Manager, WISE Debris Impact Test Facility



TEXAS TECH UNIVERSITY