

Testing Engineers & Consultants, Inc.

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TEC Report Number: 37448-3
Date Issued: November 16, 1999

Mr. Loren Venegas
Ideal Shield ® L.L.C.
2555 Clark Street
Detroit, MI 48209

**Re: On-site Structural Testing of the
Ideal Shield ® Ballard Rack**

Dear Mr. Venegas,

On October 19, 1999, Testing Engineers & Consultants, Inc. (TEC) witnessed the successful on-site testing of the Ballard Rack which is more fully described on the attached drawing.

The test was designed to exceed conditions that might normally be expected in an industrial, manufacturing, warehouse, factory or similar environment. The two 6-inch diameter, schedule 40 Ballard legs were placed into a pair of 7-inch diameter steel sleeves which had been cored 12 inches into the concrete floor. A Kalmar fork lift truck (Model ACC 80LP 2PS) with an empty weight of 12,100 pounds was then driven at a right angle into the middle of the horizontal rails of the Ballard Rack. Using previously calculated calibration data, the forklift speed at impact exceeded 3 miles per hour and the force exerted was over 2,000 pounds. The Ideal Shield ® Ballard Rack was successful in stopping the movement of the forklift.

Although bent, the Ballard Rack was not broken and continued to be functional. A second impact was completed successfully after which the Rack was lifted from the sleeves, rotated 180 degrees, reinserted into the sleeves and tested successfully a third time. A fourth test was conducted, this time striking one of the vertical posts directly. Again, the rack was successful in stopping the forklift. At this point, the test procedure was terminated due to the spalling and cracking of the concrete which had developed around the sleeves.

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CONSULTING ENGINEERS & FULL-SERVICE PROFESSIONAL TESTING AND INSPECTION
OFFICES IN ANN ARBOR, DETROIT, FLINT/LANSING AND TROY
FOUNDED IN 1966

Testing Engineers & Consultants, Inc.

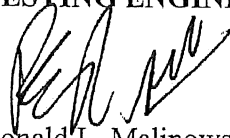
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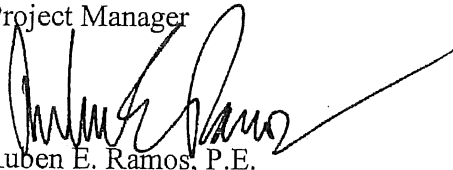
We at TEC were both pleased and impressed with the test results. Thank you for this opportunity to be of services and feel free to call should you have any questions.

Respectfully submitted,

TESTING ENGINEERS & CONSULTANTS, INC.



Donald L. Malinowski, P.E.
Project Manager



Ruben E. Ramos, P.E.
Vice President
Engineering and Construction Services

DLM/RER/zs
Enclosure