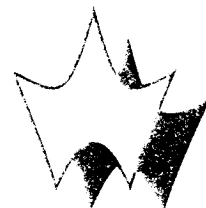


H.P. WHITE LABORATORY, INC.

3114 Scarboro Road
Street, Maryland 21154-1822
Telephone: (410) 838-6550
Facsimile: (410) 838-2802



18 November 1997
(HPWLI 7489-01A)
(Revised 10 April 1998)

Waco Composites, Inc.
P.O. Box 20667
Waco, Texas 76702

Attention: Mr. George Smith

Gentlemen:

In accordance with your verbal authorization, H.P. White Laboratory, Inc. conducted Ballistic Resistance Testing of two fiberglass laminates identified as **ARMORCORE** which were received on 13 November 1997 via United Parcel Service.

Testing was conducted in accordance with the Level I requirements of NIJ-STD-0108.01, BALLISTIC RESISTANT PROTECTIVE MATERIALS, dated September 1985. The test samples were rigidly mounted on an indoor range 16.5 feet from the muzzle of a test barrel to produce zero degree obliquity impacts using calibers .22, 40.0 grain, LRHV, Lead and .38 Special, 158.0 grain, RN, Lead ammunition. Lumiline screens were positioned at 6.5 and 9.5 feet which, in conjunction with an elapsed time counter (chronograph), were used to determine velocities at 8.0 feet from the muzzle. Penetrations were determined by visual examination of a 0.020 inch thick sheet of 2024T3 aluminum positioned 6.0 inches behind, and parallel to, the test samples. The requirements of NIJ-STD-0108.01 specify only that the shot pattern will be "evenly spaced". Integrating that requirement with a minimum allowable sample size of 12" x 12", we have derived a shot pattern of 5 shots on the corners and in the center of an 8.0 inch square. In order to eliminate variance in the test results related to shot density, it is our policy to use this pattern for all testing REGARDLESS of the size of the test samples. Table I is a summary of the attached data records.

TABLE I. SUMMARY OF RESULTS

Test Sample			Ballistic Threat				Results	
Serial Number	Thickness (in) (a)	Weight (lbs.)	Caliber	Shots	Velocity(fps) Max.	Min.	Pene- tration	Spall Only
97-262-12								
HPW-8	0.238	3.37	.22 LRHV	5	1142	1088	0	0
HPW-7	0.236	3.35	.38 Spl.	5	911	876	0	0
(a) Average of four corner thicknesses.								


Wace Composites, Inc.
Attention: Mr. George Smith
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Job No. 7489-01A
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Based on the data presented in Table I, the samples submitted for testing **SATISFIED** the ballistic requirements of NIJ-STD-0108.01 for **LEVEL I** protection.

The test panels are being returned via United Parcel Service. Should you have any questions regarding this matter or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H.P. WHITE LABORATORY, INC.



David M. MacLeod

DMM:lc

enclosures