December 21, 2016
January 12, 2017 Additional Water Drainage Data Added.
March 6, 2017 Water Exposure, UV, Freeze Thaw and Mold/Fungi data added.
March 28, 2017 Compression Data Revised.
May 3, 2017 Heat Aging data added.

Mail To:

Mr. Gary Johnson
Mortar Net Solutions
326 Melton Road
Burns Harbor, IN 46304

email: GJohnson@mortarnet.com

Bill To:

<= Same

Dear Mr. Johnson:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the samples listed below.

TRI Job Reference Number: 25729

Materials Tested: WallNet (6mm)

Tests Requested:
Air Leakage (ASTM E 2925, Annex A1)
Water Drainage (ASTM E 2925, Annex A2)
Water Drainage (ASTM D 2273)
Water Exposure - 168 hours @ 50 C (ASTM D 5322)
UV Resistance - 336 hrs (ASTM G 154, Cycle 1)
Freeze Thaw Exposure
Heat Aging and Exposure - 90 days @ 77C (ASTM D 3045)
Flame Spread (ASTM E84)
Mold and Fungi Resistance - 28 days (ASTM C 1338)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Jarrett A. Nelson
Technical Director
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

DRAINAGE AND VENTILATION/AIR FLOW TEST RESULTS

TRI Client: Mortar Net Solutions

Material: Drainage Material
Sample Identification: Wallnet
TRI Log #: 25729

Air Flow (ASTM E 2925, Annex A1)

Differential Vacuum Pressure (pa)	Air Flow Rate (L/s)
1	0.01
5	0.06
10	0.12
15	0.18
25	0.29
75	0.77

Water Drainage (ASTM E 2925, Annex A2)

Parameter	Wt. g	% of Total
Water Drained	3375	98%
Water Retained	75	2%

Water Drainage (ASTM E 2273)

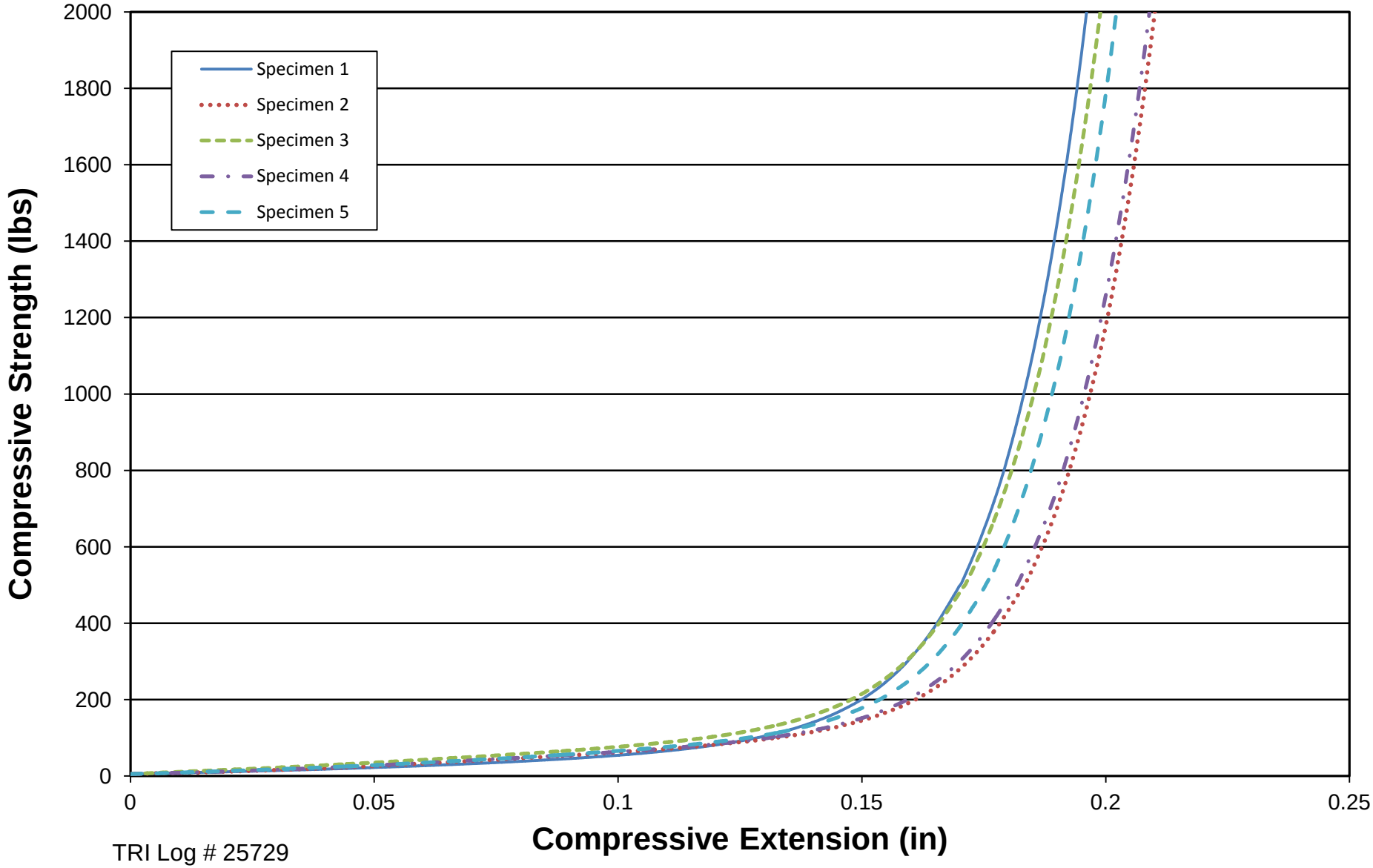
	Elapsed Time (min)	Wt. g	% of Total
	15	2123	
	30	2223	
Water Flowing	45	2141	
	60	2087	
	75	2096	
Water Draining	60	200	
	Total Water Drained	10868	95%

LABORATORY TEST RESULTS
TRI Client: Mortar Net Solutions

Material: Drainage Material
Sample Identification: Wallnet
TRI Log #: 25729

PARAMETER	TEST REPLICATE NUMBER					MEAN	DEV.
	1	2	3	4	5		
Compressive Strength (ASTM D 6364)							
Original Thickness (in)	0.2113	0.2279	0.2218	0.2206	0.2188	**0.2201**	0.0060
Compressive Strength (lbf)	195	175	211	172	182	**187**	16
Compressive Strength (psf)	780	700	844	688	728	**748**	64
Extension @ Compressive Strength Point (in)	0.1845	0.1985	0.1865	0.1968	0.1901	**0.1913**	0.0062
Thickness @ Compressive Strength Point (in)	0.0268	0.0294	0.0353	0.0238	0.0287	**0.0288**	0.0042

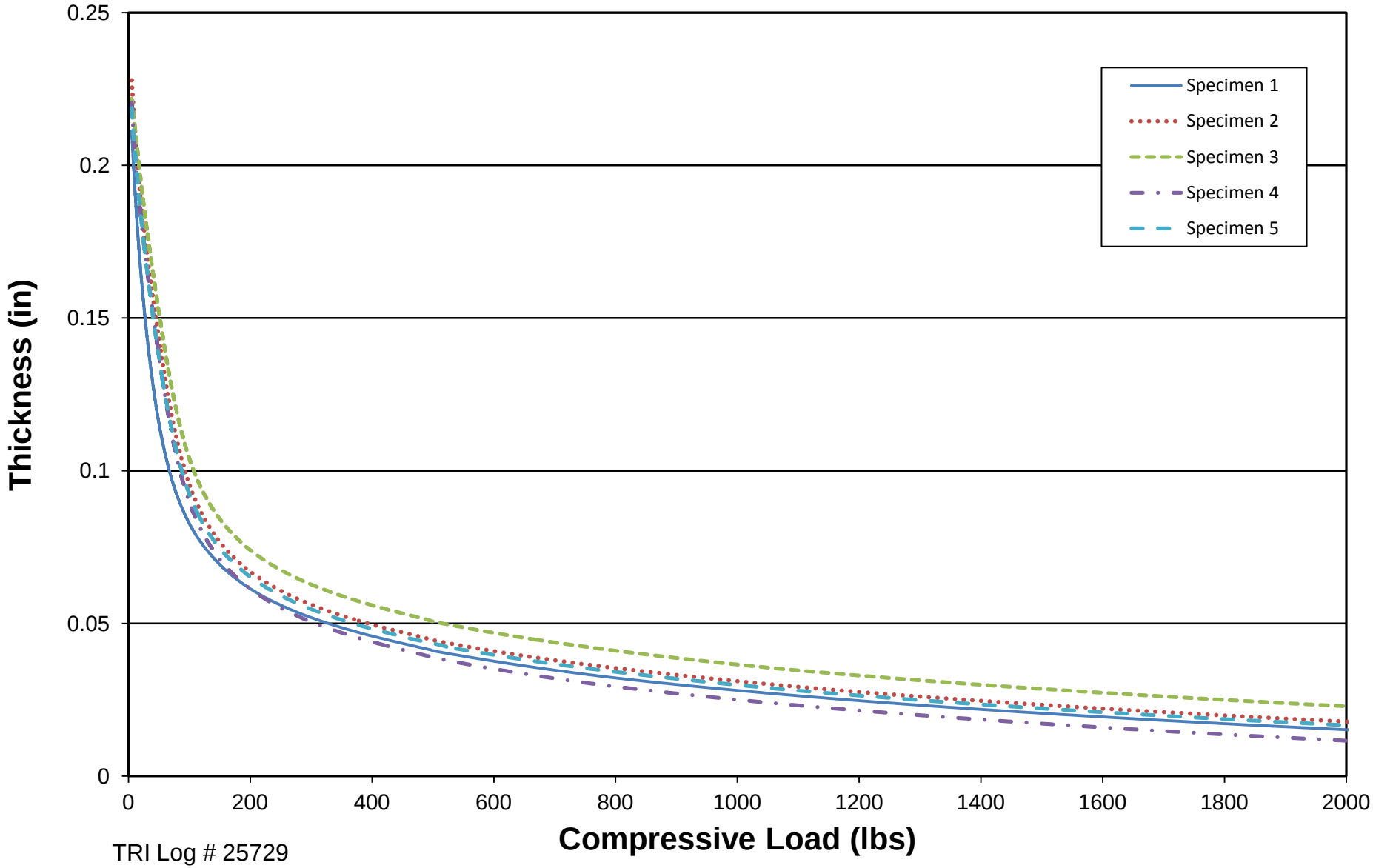
Compression Test Results
TRI Client : Mortar Net Solutions
Product: Wallnet



TRI Log # 25729

9063 Bee Caves Road / Austin, TX 78733 / 512-263-2101 / FAX 263-2558 / 800-880-TEST

Compression Test Results
TRI Client : Mortar Net Solutions
Product: Wallnet



TRI Log # 25729

9063 Bee Caves Road / Austin, TX 78733 / 512-263-2101 / FAX 263-2558 / 800-880-TEST

LABORATORY TEST RESULTS
TRI Client: Mortar Net Solutions

Material: Drainage Material
Sample Identification: Wallnet
TRI Log #: 25729

PARAMETER	TEST REPLICATE NUMBER					MEAN	DEV.
	1	2	3	4	5		
Water Exposure - 168 hours @ 50 C (ASTM D 5322)							
Strength Retained measured via Compressive Strength (ASTM D 6364)							
Compressive Strength (lbf) - B	195	175	211	172	182	**187**	16
Compressive Strength (psf) - B	780	700	844	688	728	**748**	64
Compressive Strength (lbf) - E	162	185	173	180	180	**176**	9
Compressive Strength (psf) - E	648	740	692	720	720	**704**	36
UV Resistance - 336 hrs (ASTM G 154, Cycle 1)							
Strength Retained measured via Compressive Strength (ASTM D 6364)							
Compressive Strength (lbf) - B	195	175	211	172	182	**187**	16
Compressive Strength (psf) - B	780	700	844	688	728	**748**	64
Compressive Strength (lbf) - E	178	180	170	162	180	**174**	8
Compressive Strength (psf) - E	712	720	680	648	720	**696**	31
Freeze Thaw Exposure (25 cycles of 3 h at (50 ± 2) °C, 3 h in water at (21 ± 2) °C, 18 h at (-10 ± 2) °C)							
Strength Retained measured via Compressive Strength (ASTM D 6364)							
Compressive Strength (lbf) - B	195	175	211	172	182	**187**	16
Compressive Strength (psf) - B	780	700	844	688	728	**748**	64
Compressive Strength (lbf) - E	201	197	218	206	205	**205**	8
Compressive Strength (psf) - E	804	788	872	824	820	**822**	32
Heat Aging and Exposure - 90 days @ 77C (ASTM D 3045)							
Strength Retained measured via Compressive Strength (ASTM D 6364)							
Compressive Strength (lbf) - B	195	175	211	172	182	**187**	16
Compressive Strength (psf) - B	780	700	844	688	728	**748**	64
Compressive Strength (lbf) - E	162	174	165	164	172	**167**	5
Compressive Strength (psf) - E	648	696	660	656	688	**670**	21
Pre expose Thickness (inch)	0.223	0.228	0.232	0.233	0.228	**0.229**	0.004
Post expose Thickness (inch)	0.223	0.230	0.234	0.234	0.230	**0.230**	0.004

LABORATORY TEST RESULTS
TRI Client: Mortar Net Solutions

Material: Drainage Material
Sample Identification: Wallnet
TRI Log #: 25729

Flame Spread (ASTM E84)	
Flame Spread Index	**25**
Smoke Developed Index	**55**
Time to Ignition (sec)	5
Time to Max FS (sec)	17
Maximum FS (ft)	4.6
Time to 980F (sec)	NA
Time to End of Tunnel (sec)	NA
Max Temperature (F)	559
Time to Max Temp (sec)	579
Total Fuel Burned (cu ft)	49.36
FS*Time Area (ft*min)	45.4
Smoke Area (%A*min)	36.9
Unrounded FSI	23.4

Mold and Fungi Resistance - 28 days (ASTM C 1338)

Material	After 1 Week	After 28 Days	Fungal Growth	**Results**
Sample	Light Growth covering sample and sides	Heavy Growth covering 50% of the sample	Growth was less than comparable item	**Pass**
Comparative Item - Wood	Heavy Growth	Heavy Growth	Heavy Growth	-
Negative Control	No Growth	No Growth	No Growth	-
Viability Control (Sabouraud agar)	Heavy Growth	Heavy Growth	Heavy Growth	-
Viability Control (Czepek agar)	Heavy Growth	Heavy Growth	Heavy Growth	-