CONSTRUCTION MATERIALS

TECHNOLOGIES

Laboratory Test Report

Report for: Shredded Tire Inc.
6680 MW 17th Ave
Ft. Lauderdale Florida, 33309

Attention: Adnan Velic

Product Name: Echo Block	**Manufacturer:** Shredded Tire Inc.
Project No.: SHTI-002-02-01	**Source:** Shredded Tire Inc.
Date Received: May 2, 2018	**Dates Tested:** May 21 – Jun. 15, 2018

Purpose: Determine the following properties of Echo Block:

- ASTM C 518 Thermal Resistance (R-value)
- ASTM C 293 Flexural Strength
- UL 2218 Class 4 Impact

Test Methods: Thermal resistance testing was conducted as described in ASTM C 518-17: *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.* Thermal resistance specimens were evaluated as received. A TA Instruments LaserComp Fox 314 was used for the ASTM C 518 testing; the instrument has two heat flux transducers. Calibration was completed using NIST SRM 1450c; calibration used multiple temperature points and multiple specimen thicknesses; verification is performed periodically using NIST SRM 1450c.

Flexural Strength testing was conducted as described in ASTM C 293-16 *Standard Test Method for Flexural Strength of Concrete (using Simple Beam with Center-Point Loading).*

Impact testing was conducted in accordance with UL 2218 (2010) *Standard for Impact Resistance of Prepared Roof Covering Materials*.

Sampling: PRI received samples from Shredded Tire Inc. on May 2, 2018 from the Ft Lauderdale, FL facility.

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Results:

Table 1 – ASTM C 518 Results

Physical Properties	Test Method	Results				
		1	2	3	Avg	StDev
Thermal Transmission Properties Conditioned 24hrs @ 71.6±2°F & 50RH; Test ΔT ≥ 40°F	ASTM C 518					
Thickness (in)		3.992	3.981	3.768	**3.890**	0.126
Overall Density (pcf)		74.47	69.24	74.71	**72.81**	3.09
Thermal Conductivity (Btu·in./°F·h·ft^2)		1.756	1.542	1.605	**1.634**	0.110
Thermal Resistance (°F·h·ft^2/Btu)		2.234	2.582	2.347	**2.388**	0.178

Table 2 – ASTM C 293 Results

Property	Test Method	Results
Flexural Strength Two (2) specimens; 4in x 4in X 12in; Condition 24h @122±5.4°F; Span Length = 10in; Test Speed 133lb/min; Test @ 73.4±1.8°F	ASTM C 293	
Max Load (lbf)		752
Modulus of Rupture (psi)		128
Depth of Span at Fracture (in.)		0.42

Table 2 – UL 2218 Results

Property	Test Method	Results
Class 4 Impact Resistance, One (1) specimen; 2” dia. steel ball; 20-ft drop height;	UL 2218	Minor Cosmetic Damage

Note: Modified UL 2218. Impacts were similar with class 4 Steel Ball. Material did not fracture or disintegrate.

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Statement of Attestation:

The results of testing were determined in accordance with test methods defined of ASTM C 518-17: *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*, ASTM C 293-16 Standard Test Method for Flexural Strength of Concrete (using Simple Beam With Center-Point Loading), and UL 2218 (2010) *Standard for Impact Resistance of Prepared Roof Covering Materials*. The laboratory test results presented in this report are representative of the material supplied**.**

Signed: _____
Zachary H. Priest
Florida Registered Professional Engineer
P.E. Number: 74021

Date: 06/19/2018

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	06/19/2018	4	NA

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UL 2218
Damage of Impact

END OF REPORT

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