CONSTRUCTION MATERIALS

TECHNOLOGIES

Laboratory Test Report

Report for: JA Cesare and Associates, Inc.
106 Cassia Way
Henderson, NV 89014

Attention: Scott Heiny

Product Name: Sample "P", Sample "H", and Sample "Cleft/Crushed Rock"	**Manufacturer:** N/A
Project No.: JAC-001-02-01	**Source:** JA Cesare and Associates
Date Received: March 16, 2010	**Dates Tested:** March 27-April 2, 2010

Purpose: Determine the solar reflective index in accordance with ASTM E 1980: *Standard Practice for Calculating Solar Reflective Index of Horizontal and Low-Sloped Opaque Surfaces* and the abrasion resistance in accordance with ASTM C 241: *Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic*.

Results:

Table 1. Solar Reflectance per ASTM C 1549 (Monte Carlo Method)

Specimen ID	Test Method	File Number	Monte Carlo Result, Solar Reflectance, (r) Air Mass = 1.5
Sample "P"	ASTM C 1549MC	JAC-001-02-01 Sample P	0.280
Sample "H"	ASTM C 1549MC	JAC-001-02-01 Sample H	0.292
Sample "Cleft/Crushed Rock"	ASTM C 1549MC	JAC-001-02-01 Sample Cleft/Crushed Rock	0.404

Table 2. Emittance per ASTM C 1371

Specimen ID	Test Method	Emittance, ε			
		1	2	3	Avg.
Sample "P"	ASTM C 1371	0.85	0.86	0.87	0.86
Sample "H"	ASTM C 1371	0.87	0.89	0.88	0.88
Sample "Cleft/Crushed Rock"	ASTM C 1371	0.89	0.91	0.90	0.90

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ASTM E 1980:

Solar Reflective Index (SRI) Calculation for Sample "P"

Reflectance (a)	0.28
Emittance (ε)	0.86
Absorptance (α)	0.72

Low-Wind Condition		Medium-Wind Condition		High-Wind Condition	
h_c =	5 W/m^2·K	h_c =	12 W/m^2·K	h_c =	30 W/m^2·K
$c_{low\text{-}wind}$	0.727	$c_{medium\text{-}wind}$	0.716	$c_{high\text{-}wind}$	0.706
$SRI_{low\text{-}wind}$	26	$SRI_{medium\text{-}wind}$	28	$SRI_{high\text{-}wind}$	29

Solar Reflective Index (SRI) Calculation for Sample "H"

Reflectance (a)	0.29
Emittance (ε)	0.88
Absorptance (α)	0.71

Low-Wind Condition		Medium-Wind Condition		High-Wind Condition	
h_c =	5 W/m^2·K	h_c =	12 W/m^2·K	h_c =	30 W/m^2·K
$c_{low\text{-}wind}$	0.704	$c_{medium\text{-}wind}$	0.697	$c_{high\text{-}wind}$	0.690
$SRI_{low\text{-}wind}$	29	$SRI_{medium\text{-}wind}$	30	$SRI_{high\text{-}wind}$	31

Solar Reflective Index (SRI) Calculation for Sample "Cleft/Crushed Rock"

Reflectance (a)	0.40
Emittance (ε)	0.90
Absorptance (α)	0.60

Low-Wind Condition		Medium-Wind Condition		High-Wind Condition	
h_c =	5 W/m^2·K	h_c =	12 W/m^2·K	h_c =	30 W/m^2·K
$c_{low\text{-}wind}$	0.579	$c_{medium\text{-}wind}$	0.576	$c_{high\text{-}wind}$	0.573
$SRI_{low\text{-}wind}$	45	$SRI_{medium\text{-}wind}$	46	$SRI_{high\text{-}wind}$	46

ASTM C 241:

Table 2. Abrasion Resistance per ASTM C 241

Specimen ID	Test Method	Abrasion Resistance, H_a			
		1	2	3	Avg.
Sample "P"	ASTM C 241	7.8	11.8	7.1	8.9
Sample "H"	ASTM C 241	14.0	16.4	8.1	12.8

Statement of Attestation:

The results of testing were determined in accordance with standard methods as described herein. The laboratory test results presented in this report are representative of the material supplied.

Signed: _____
Brad Grzybowski
Managing Director

Date: April 25, 2012

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	04/02/2010	3	NA
Revision1	04/25/2012	3	Include identification for "unlabeled" sample

END OF REPORT

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