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Submitted Information

For: Jim O'Brien, Barnes & Cone, Inc.
cc: Mike Trotta
 Brian Koenings
 Steve Dean

Subject: Barnes & Cone, Inc.
 Syracuse, NY

Date: May 14, 2008

Project: 0803-05 PTP

Samples Submitted: 15 types of segmented retaining wall units

Name	Color	Finish	Integral Water Repellent	Size
"401"	Gray	Smooth	"Rainbloc"	15½" x 8" x ½"
"401"	Gray	Burnished	"Rainbloc"	15½" x 8" x ½"
"401"	Gray	Ground	"Rainbloc"	15½" x 8" x ½"
"706 NB"	White	Smooth	"Rainbloc"	15½" x 8" x ½"
"706 NB"	White	Burnished	"Rainbloc"	15½" x 8" x ½"
"706 NB"	White	Ground	"Rainbloc"	15½" x 8" x ½"
"1675"	Red	Split-Face	"Rainbloc"	15½" x 8" x ½"
"1675"	Red	Burnished	"Rainbloc"	15½" x 8" x ½"
"1675"	Red	Ground	"Rainbloc"	15½" x 8" x ½"
"18"	Brown	Smooth	"Rainbloc"	15½" x 8" x ½"
"18"	Brown	Split-Face	"Rainbloc"	15½" x 8" x ½"
"18"	Brown	Burnished	"Rainbloc"	15½" x 8" x ½"
"18"	Brown	Ground	"Rainbloc"	15½" x 8" x ½"
"1677"	Dark Red	Smooth	"Rainbloc"	15½" x 4" x ½"
"Brown Stone"	Brown	Split-Face	None	15½" x 8" x ½"

Submitted by: Steve Dean

Introduction

Architectural Materials Testing (AMT) Laboratories is a Boyer Industries company that provides laboratory testing and consulting services for the construction industry. Laboratory testing includes evaluating chemical cleaning products and protective treatments for a variety of new and existing architectural materials.

This report includes descriptions of the PROSOCO, Inc. products and test methods that were used. Following test results and conclusions, the report provides recommendations for the most effective products and procedures.

Purpose of Testing

Fifteen types of segmented retaining wall units, all with large, small and fine aggregate, were submitted for testing to AMT Laboratories by PROSOCO, Inc. to determine the optimum concentration of cleaner for complete removal of mortar and related new construction soiling. The effectiveness of protective water repellents and graffiti control products suitable for CMUs (concrete masonry units) was also evaluated.

New Construction Cleaning – Sure Klean® Custom Masonry Cleaner and Sure Klean® Burnished Custom Masonry Cleaner were evaluated to determine the optimal concentration of cleaner for removal of laboratory applied mortar which also leaves the external surface looking most like the natural through-body color of the segmented retaining wall units.

To simulate new construction soiling all samples were placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall were positioned on top of each sample and filled with a wet mixture of Type S mortar. The wet, mortar-filled cylinder was allowed to remain in contact with the samples for 10 minutes before removal.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing residual Type S mortar staining after 3 days, 7 days, and 14 days of curing.

Color uniformity was evaluated by comparing aggregate exposure and surface pigment alteration/removal of each cleaned surface compared to the natural through-body color of the samples.

Aggregate Exposure is the visual examination comparing aggregate exposure of the interior, through-body section of the CMU to surfaces cleaned with selected product(s) at given dilutions.

Surface Pigment Alteration/Removal is the visual examination comparing the pigmentation of the interior, through-body section of the CMU to surfaces cleaned with selected product(s) at given dilutions.

The following is the scale used for reporting results of both categories:

- | | |
|--|---------------------------------------|
| 0 – Worst match to through-body | 3 – Good match to through-body |
| 1 – Poor match to through-body | 4 – Best match to through-body |
| 2 – Fair match to through-body | |

NOTE: When cleaning integrally colored CMUs.

Integrally colored concrete masonry units (CMUs) frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one CMU to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface of the CMU, the weakly bound pigment will weather and streak, further detracting from the appearance of the completed CMU wall.

In addition to removing excess mortar and construction related soiling, the goal of any cleaning operation undertaken on an integrally colored CMU should include removal of unnaturally high concentrations of surface pigment. By revealing the natural through-body color on the integrally colored unit, the overall color uniformity and weathering resistance of the completed CMU wall is improved.

Protective Water Repellents – Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II and Sure Klean® Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples.

Graffiti Control – Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II was evaluated for its ability to control graffiti on the submitted samples. Sure Klean® Fast Acting Stripper and Defacer Eraser® Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted samples.

Products Evaluated**New Construction Cleaning Products Evaluated**

Sample	Product	Dilution
All Submitted Samples	Sure Klean® Custom Masonry Cleaner	1:2, 1:4, 1:6
	Sure Klean® Burnished Custom Masonry Cleaner	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
All Submitted Samples	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	1:9

Graffiti Control Products Evaluated

Sample	Product	Dilution
All Submitted Samples	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate

Graffiti Removal Products Evaluated

Sample	Product	Dilution
All Submitted Samples	Sure Klean® Fast Acting Stripper	Concentrate
	Defacer Eraser® Graffiti Wipe	Concentrate

New Construction Cleaning

These cleaning trials were conducted to determine the optimal concentration of cleaner to most efficiently remove Type S mortar from the submitted samples while providing the best color uniformity when compared to the through-body color of the submitted segmented retaining wall units.

Description of Products Evaluated – New Construction Cleaning

Sure Klean® Custom Masonry Cleaner – A general purpose, concentrated acidic cleaner for most custom masonry and colored concrete. Removes concrete splashes, excess mortar, mud, heavy efflorescence and surface soiling, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 2-6 parts water. Apply by brush or low-pressure spray.

Sure Klean® Burnished Custom Masonry Cleaner – Removes common construction and atmospheric staining from custom masonry and other architectural concrete surfaces. This general-purpose, non-etching, acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Sample Preparation – New Construction Cleaning

Type S mortar was prepared in compliance with the manufacturer's instructions, applied to the samples and allowed to cure for 3, 7, and 14 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S masonry mortar was visually evaluated after 3, 7, and 14 days of curing. A visual examination was also made to determine the optimal dilution of the tested cleaners that provides the best color uniformity when compared to the through-body color of the segmented retaining wall units.

Test Method – New Construction Cleaning

Chemical cleaners were evaluated using the following procedure:

1. Pre-wet the surface with water.
2. Apply at the appropriate dilutions.
3. Allow appropriate dwell time, as specified.

Sure Klean® Custom Masonry Cleaner.....	3-5 minutes
Sure Klean® Burnished Custom Masonry Cleaner	3-5 minutes
4. Reapply the product and moderately agitate with a brush.
5. Pressure rinse thoroughly.*
6. Allow the sample to dry for at least 18 hours and visually examine.
7. Break the sample in half and compare the through-body surfaces to the cleaned surfaces for the best match.

***Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“401” Smooth Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
“401” Burnished Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
“401” Ground Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	90%	95%	100%
Burnished Custom Masonry Cleaner	1:3	90%	95%	100%
“706 NB” Smooth Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
“706 NB” Burnished Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
“706 NB” Ground Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“1675” Split-Face Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	90%	95%	100%
Custom Masonry Cleaner	1:4	90%	100%	95%
Custom Masonry Cleaner	1:6	90%	95%	100%
Burnished Custom Masonry Cleaner	1:2	85%	90%	95%
Burnished Custom Masonry Cleaner	1:3	85%	90%	95%
“1675” Burnished Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	95%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	95%	100%	100%
Burnished Custom Masonry Cleaner	1:2	85%	90%	95%
Burnished Custom Masonry Cleaner	1:3	85%	90%	95%
“1675” Ground Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	95%
Custom Masonry Cleaner	1:4	100%	100%	95%
Custom Masonry Cleaner	1:6	100%	100%	95%
Burnished Custom Masonry Cleaner	1:2	100%	95%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
“18” Smooth Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	95%	100%	100%
Custom Masonry Cleaner	1:4	95%	95%	95%
Custom Masonry Cleaner	1:6	90%	95%	90%
Burnished Custom Masonry Cleaner	1:2	95%	90%	95%
Burnished Custom Masonry Cleaner	1:3	95%	90%	90%
“18” Split-Face Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	95%	100%	90%
Custom Masonry Cleaner	1:4	90%	90%	90%
Custom Masonry Cleaner	1:6	90%	90%	90%
Burnished Custom Masonry Cleaner	1:2	85%	80%	90%
Burnished Custom Masonry Cleaner	1:3	85%	80%	90%
“18” Burnished Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	95%	100%	100%
Custom Masonry Cleaner	1:6	95%	100%	100%
Burnished Custom Masonry Cleaner	1:2	80%	85%	90%
Burnished Custom Masonry Cleaner	1:3	85%	85%	90%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“18” Ground Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	95%	100%	100%
Burnished Custom Masonry Cleaner	1:3	95%	100%	100%
“1677” Smooth Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	95%	95%	95%
Custom Masonry Cleaner	1:4	90%	95%	100%
Custom Masonry Cleaner	1:6	95%	95%	95%
Burnished Custom Masonry Cleaner	1:2	85%	85%	90%
Burnished Custom Masonry Cleaner	1:3	90%	90%	95%
“Brown Stone” Split-Face Finish				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%

Test Results – Color Uniformity

Finish: Smooth		Pigment Color: "401"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Burnished		Pigment Color: "401"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Ground		Pigment Color: "401"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Smooth		Pigment Color: "706 NB"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Burnished		Pigment Color: "706 NB"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	

Scale used for reporting results of both categories

- 0 – **Worst** match to through-body 3 – **Good** match to through-body
 1 – **Poor** match to through-body 4 – **Best** match to through-body
 2 – **Fair** match to through-body

Test Results – Color Uniformity

Finish: Ground		Pigment Color: "706 NB"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Finish: Split-Face		Pigment Color: "1675"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Finish: Burnished		Pigment Color: "1675"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Finish: Ground		Pigment Color: "1675"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Finish: Smooth		Pigment Color: "18"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4

Scale used for reporting results of both categories

- 0 – **Worst** match to through-body 3 – **Good** match to through-body
 1 – **Poor** match to through-body 4 – **Best** match to through-body
 2 – **Fair** match to through-body

Test Results – Color Uniformity

Finish: Split-Face		Pigment Color: "18"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Burnished		Pigment Color: "18"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Ground		Pigment Color: "18"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Smooth		Pigment Color: "1677"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	
Finish: Split-Face		Pigment Color: "Brown Stone"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Custom Masonry Cleaner	1:2	4	4	
Custom Masonry Cleaner	1:4	4	4	
Custom Masonry Cleaner	1:6	4	4	
Burnished Custom Masonry Cleaner	1:2	4	4	
Burnished Custom Masonry Cleaner	1:3	4	4	

Scale used for reporting results of both categories

- 0 – **Worst** match to through-body 3 – **Good** match to through-body
 1 – **Poor** match to through-body 4 – **Best** match to through-body
 2 – **Fair** match to through-body

Photographs – New Construction Cleaning

“401” Smooth Finish; 3 Day Cleaning; Type S Mortar



Sure Klean® Burnished Custom Masonry Cleaner (1:2)	Sure Klean® Burnished Custom Masonry Cleaner (1:3)	Sure Klean® Custom Masonry Cleaner (1:2)	Sure Klean® Custom Masonry Cleaner (1:4)	Sure Klean® Custom Masonry Cleaner (1:6)
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“401” Smooth Finish; 7 Day Cleaning; Type S Mortar



Sure Klean® Burnished Custom Masonry Cleaner (1:2)	Sure Klean® Burnished Custom Masonry Cleaner (1:3)	Sure Klean® Custom Masonry Cleaner (1:2)	Sure Klean® Custom Masonry Cleaner (1:4)	Sure Klean® Custom Masonry Cleaner (1:6)
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Photographs – New Construction Cleaning

“401” Smooth Finish; 14 Day Cleaning; Type S Mortar



**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:3)**

**Sure Klean®
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Custom
Masonry
Cleaner (1:4)**

**Sure Klean®
Custom
Masonry
Cleaner (1:6)**



**Untreated
Control**

Photographs – Color Uniformity

“1675” Ground Finish; Color Uniformity



**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:3)**

**Sure Klean®
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Custom
Masonry
Cleaner (1:4)**

**Sure Klean®
Custom
Masonry
Cleaner (1:6)**



**Through
-body**

Conclusions – New Construction Cleaning

Based on the test data, all of the submitted samples were efficiently cleaned with Sure Klean® Custom Masonry Cleaner and Sure Klean® Burnished Custom Masonry Cleaner.

Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and surface agitation to minimize aggregate exposure.

Recommendations – New Construction Cleaning

Recommendations for cleaning for each type of segmented retaining wall unit submitted by Barnes & Cone, Inc., Syracuse, NY are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while providing the best match to the through-body color of the segmented retaining wall units.

Sample	New Construction Cleaning (Type S mortar, 14 day cleaning)
All Submitted Samples	Sure Klean® Custom Masonry Cleaner (1:6) or Sure Klean® Burnished Custom Masonry Cleaner (1:3)

The most appropriate cleaner and dilution should be determined on the specific job-site, and will be dependent primarily on the nature and severity of soiling present at that location.

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate cleaning product and procedures for a particular project. See product literature for additional application and product information.

Protective Water Repellents

The testing described below evaluates the suitability of water repellent treatments.

The surface treatments evaluated were selected for their suitability for application based on the following selection criteria:

1. Weatherproofing properties
 2. Color change
 3. Ease of application
-

Description of Products Evaluated – Protective Water Repellents

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

Sure Klean® Weather Seal Siloxane WB Concentrate – A self-emulsifying water repellent concentrate designed for dilution with fresh water at the job site. This solvent-free blend of silanes and oligomeric alkoxysiloxanes mixes easily with water to produce a penetrating water repellent ideal for application to dense or porous masonry surfaces.

Sample Preparation – Protective Water Repellents

The submitted samples were scored and allowed to dry for 24 hours prior to treatment. All of the products were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. Both treatments were allowed to cure for at least 72 hours prior to testing.

Test Methods – Protective Water Repellents

Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes

The water absorption tube test simulating wind driven rain conditions was performed. This test simulates 60 mile per hour wind driven rain conditions for a period of 20 minutes. See Technical Services TECH Note RILEM Tube Test Procedures.

Test Results – Protective Water Repellents**Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes****Results**

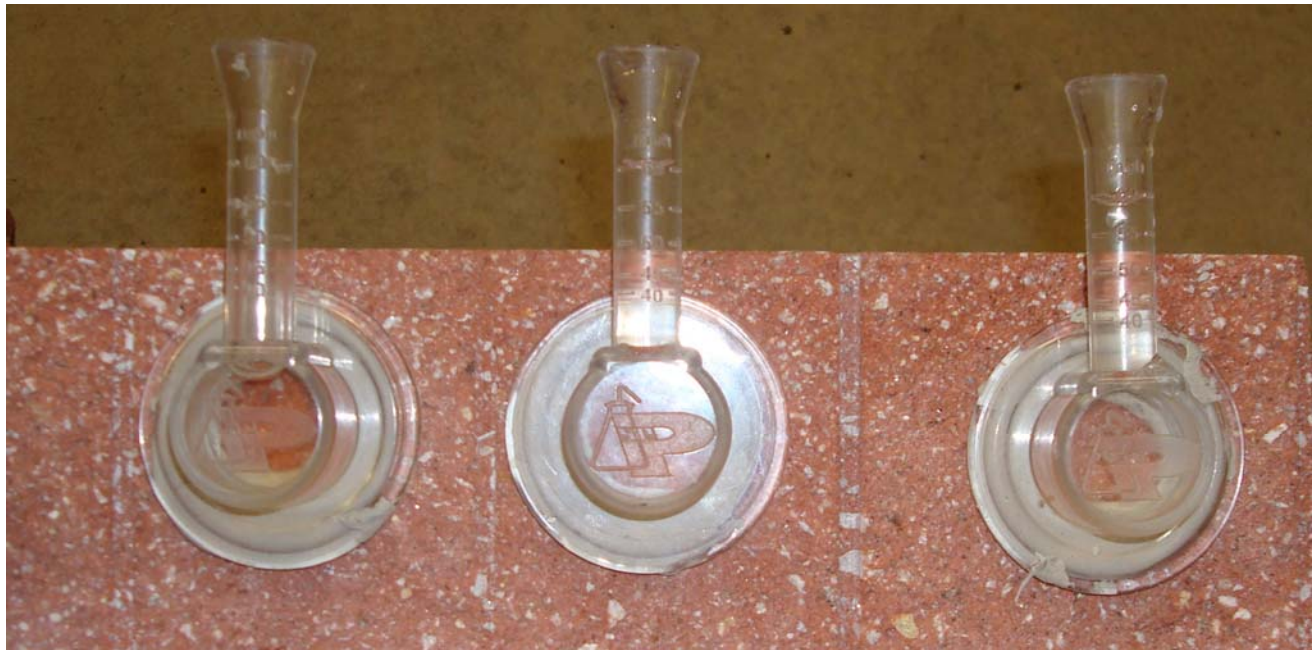
“401” Smooth Finish	
Untreated Control	60 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“401” Burnished Finish	
Untreated Control	50 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	57 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“401” Ground Finish	
Untreated Control	50 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	58 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	58 mph
“706 NB” Smooth Finish	
Untreated Control	45 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“706 NB” Burnished Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“706 NB” Ground Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 mph
“1675” Split-Face Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 mph
“1675” Burnished Finish	
Untreated Control	55 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph

Test Results – Protective Water Repellents**Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes****Results**

“1675” Ground Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“18” Smooth Finish	
Untreated Control	55 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“18” Split-Face Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 mph
“18” Burnished Finish	
Untreated Control	60 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 mph
“18” Ground Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 mph
“1677” Smooth Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	58 mph
“Brown Stone” Split-Face Finish	
Untreated Control	<40 mph
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 mph
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 mph

Photographs – Protective Water Repellents

“1675” Ground Finish; RILEM II.4, 60 mph, 20 Minutes



**Untreated
Control**

**Sure Klean® Weather
Seal Blok-Guard® &
Graffiti Control II**

**Sure Klean® Weather
Seal Siloxane WB
Concentrate (1:9)**

Conclusions – Protective Water Repellents

Based upon laboratory evaluations, both Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II and Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) provided excellent water repellency to each of the submitted segmented retaining wall units. Neither of the treatments applied altered the appearance of any of the samples.

Recommendations – Protective Water Repellents

Recommendations for water repellency for each segmented retaining wall unit submitted by Barnes & Cone, Inc., Syracuse, NY are provided in the chart below. Recommendations are based on the treatment that proved most effective and can provide water repellency on all types submitted.

Sample	Protective Water Repellents
All Submitted Samples	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II or Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate water repellent product and procedures for a particular project. See product literature for additional application and product information.

Graffiti Control

This evaluation compares the effectiveness of graffiti control treatments in preventing staining of enamel spray paint and permanent markers.

Description of Products Evaluated – Graffiti Control

Graffiti Control Treatments

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

Products Evaluated for Graffiti Removal

Defacer Eraser® Graffiti Wipe – An easy-to-use graffiti remover that does not contain methanol, methylene chloride or other halogenated solvents prohibited on many projects. Graffiti Wipe removes a variety of graffiti stains from most smooth masonry, split-face concrete block, wood and metal surfaces.

Sure Klean® Fast Acting Stripper – A thixotropic stripping compound formulated specifically for removal of high strength paints and coatings such as epoxies, polyurethanes, and floor enamels. Additionally, Fast Acting Stripper dissolves most spray paints, marking pens, lacquers and other graffiti.

Graffiti Agents

Interior/Exterior Spray Paint (Red)
Permanent Marker (Green)
Permanent Marker (Red)
Permanent Marker (Black)

Sample Preparation – Graffiti Control

Sections of the segmented retaining wall units were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and allowed to cure for at least one day. At the end of the cure period, a visual adverse effects evaluation was made and then the graffiti agents were applied to the substrates.

Spray paint and markers were applied as graffiti agents to all treated surfaces no sooner than one day following application Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Defacer Eraser® Graffiti Wipe and Sure Klean® Fast Acting Stripper.

Test Method – Graffiti Control

Chemical cleaners were evaluated using the following procedure:

1. Apply the product to a dry surface, soiled with graffiti.
2. Allow appropriate dwell time:

Defacer Eraser® Graffiti Wipe	5 minutes
Sure Klean® Fast Acting Stripper	20 minutes
3. Pressure rinse thoroughly until water runs clear. *
4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

***Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

Test Results – Graffiti Control

“401” Smooth Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	60%	50%	50%	60%	55%
Graffiti Wipe	55%	50%	50%	60%	54%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	75%	50%	65%	68%
Graffiti Wipe	60%	70%	50%	60%	60%
“401” Burnished Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	55%	30%	25%	25%	34%
Graffiti Wipe	45%	30%	25%	25%	31%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	75%	50%	65%	68%
Graffiti Wipe	60%	70%	50%	60%	60%
“401” Ground Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	70%	85%	40%	35%	58%
Graffiti Wipe	50%	30%	25%	30%	34%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	75%	60%	60%	70%
Graffiti Wipe	70%	50%	50%	50%	55%
“706 NB” Smooth Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	60%	25%	25%	25%	34%
Graffiti Wipe	35%	25%	25%	25%	28%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	40%	40%	45%	50%
Graffiti Wipe	40%	40%	40%	45%	41%
“706 NB” Burnished Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	65%	25%	10%	10%	28%
Graffiti Wipe	40%	25%	10%	10%	21%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	40%	40%	40%	50%
Graffiti Wipe	65%	40%	40%	40%	46%
“706 NB” Ground Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	35%	25%	25%	41%
Graffiti Wipe	75%	25%	25%	25%	38%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	55%	35%	40%	53%
Graffiti Wipe	75%	40%	35%	40%	48%

Test Results – Graffiti Control

“1675” Split-Face Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	80%	55%	75%	71%
Graffiti Wipe	60%	70%	55%	60%	61%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	90%	60%	80%	80%
Graffiti Wipe	75%	75%	60%	75%	71%
“1675” Burnished Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	75%	75%	90%	80%
Graffiti Wipe	60%	75%	75%	90%	75%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	90%	80%	90%	86%
Graffiti Wipe	75%	90%	85%	90%	85%
“1675” Ground Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	50%	80%	75%	73%
Graffiti Wipe	75%	60%	80%	65%	70%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	60%	90%	75%	79%
Graffiti Wipe	75%	75%	90%	25%	66%
“18” Smooth Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	50%	65%	70%	75%	65%
Graffiti Wipe	50%	50%	50%	75%	56%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	65%	75%	75%	85%	75%
Graffiti Wipe	60%	70%	75%	75%	70%
“18” Split-Face Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	90%	75%	50%	73%
Graffiti Wipe	50%	75%	75%	50%	63%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	90%	90%	75%	85%
Graffiti Wipe	60%	90%	90%	75%	79%
“18” Burnished Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	50%	25%	50%	25%	38%
Graffiti Wipe	25%	25%	50%	25%	31%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	40%	60%	60%	60%
Graffiti Wipe	50%	40%	60%	60%	53%

Test Results – Graffiti Control

“18” Ground Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	60%	60%	75%	70%
Graffiti Wipe	50%	75%	60%	75%	65%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	80%	70%	75%	78%
Graffiti Wipe	70%	75%	70%	75%	73%
“1677” Smooth Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	45%	75%	75%	68%
Graffiti Wipe	50%	45%	75%	75%	61%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	60%	75%	80%	76%
Graffiti Wipe	65%	60%	75%	80%	70%
“Brown Stone” Split-Face Finish					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	50%	50%	50%	59%
Graffiti Wipe	50%	50%	50%	50%	50%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	75%	75%	75%	75%
Graffiti Wipe	65%	75%	75%	75%	73%

Photographs – Graffiti Control

“401” Ground Finish; Before Graffiti Removal

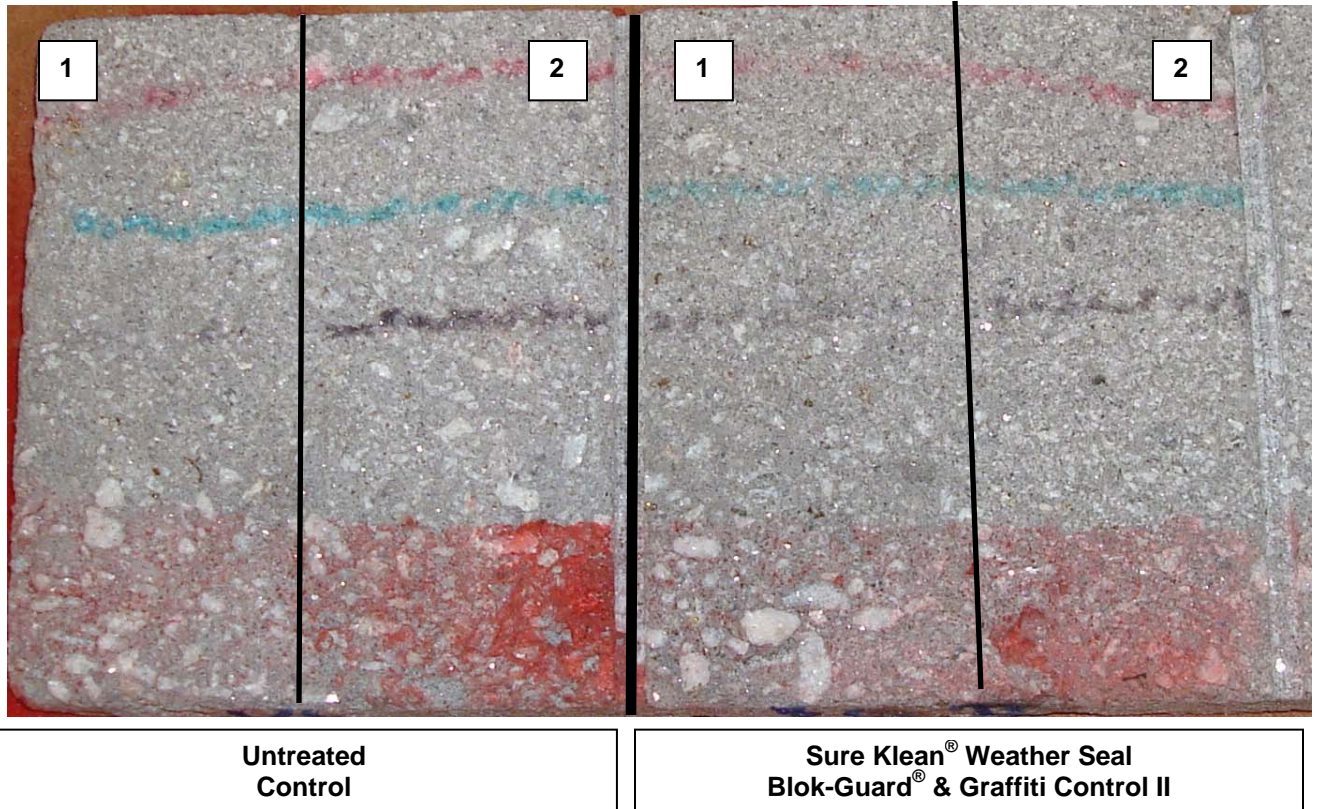


Untreated Control

**Sure Klean® Weather Seal
Blok-Guard® & Graffiti Control II**

Photographs – Graffiti Control

“401” Ground Finish; After Graffiti Removal



KEY

1. Sure Klean® Fast Acting Stripper
2. Defacer Eraser® Graffiti Wipe

Conclusions – Graffiti Control

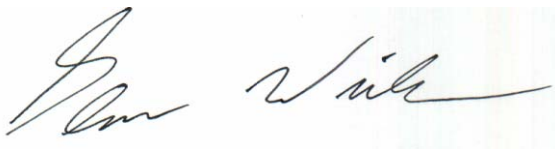
Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II prior to graffiti application. Sure Klean® Fast Acting Stripper was more effective than Defacer Eraser® Graffiti Wipe when removing spray paint from the submitted samples. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II did not cause any change to the appearance of the submitted segmented retaining wall units.

Recommendations – Graffiti Control

Recommendations for graffiti control treatment for each segmented retaining wall unit submitted by Barnes & Cone, Inc., Syracuse, NY are provided in the chart below. Recommendations are based on the treatment that proved most effective for providing graffiti repellency and the product that was most effective at removing the graffiti on each type of segmented retaining wall unit.

Sample	Graffiti Repellents	Graffiti Removers
All Submitted Samples	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Sure Klean® Fast Acting Stripper or Defacer Eraser® Graffiti Wipe

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. Because the severity of graffiti varies from location to location, on-site testing should be conducted to determine the most appropriate graffiti control product and procedure for a particular project.

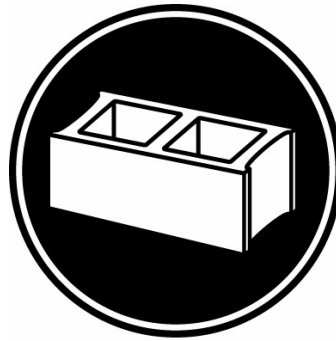


Glenn Winkler
Project Testing Laboratory Technician



PALLET TAG PROGRAM
Laboratory Report

Barnes & Cone, Inc.
5894 Court Street Road
Syracuse, NY 13206
Segmented Retaining Wall Units



Project No. 0803-05 PTP

Prepared For:
PROSOCO
SINCE 1939

Prepared By:
AMT Laboratories
May 2008