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#### **Attachments**

Technical Services TECH Note RILEM Tube Test Procedures Product Data literature for all products evaluated

# **Submitted Information**

For: James Holt cc: Paul Tessier

**Subject:** Sequatchie Concrete Services

South Pittsburg, TN

Date:

Project: 0607-13 PTP

Samples Submitted: 7 types of concrete brick

Sample	Name	Color	Integral Water Repellent	Size
Concrete Brick	"Etowah"	Tan, Red	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Hiwassee"	Red, Charcoal	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Leatherwood"	Tan, Brown	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Niota"	Tan, Red, Charcoal	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Ocoee"	Tan	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Tellico"	Red	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"
Concrete Brick	"Tumbled"	Tan, Red, Charcoal	Master Builders Rheopel	7 ½" x 2 ¼" x 3 ½"

Submitted by: James Holt

#### **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**

Seven types of concrete brick, all with large, small and fine aggregate were submitted for testing to AMT Laboratories by PROSOCO, Inc. to determine the optimal concentration of cleaner for complete removal of mortar and related new construction soiling which also leaves the external surface looking most like the uncleaned surface of the concrete brick. The effectiveness of protective water repellents and graffiti control suitable for concrete brick was also evaluated.

**New Construction Cleaning** – Sure Klean<sup>®</sup> Custom Masonry Cleaner and Sure Klean<sup>®</sup> Concrete Brick 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 uncleaned surface of the concrete brick.

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 N 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 N mortar staining after 7 days, 14 days, and 21 days of curing.

Color uniformity was evaluated by comparing aggregate exposure and surface pigment alternation/removal of each cleaned surface with the uncleaned surface of the submitted concrete brick.

<u>Aggregate Exposure</u> is the visual examination comparing aggregate exposure of the uncleaned surface of the concrete brick to surfaces cleaned with the selected product(s) at given dilutions.

<u>Surface Pigment Alteration/Removal</u> is the visual examination comparing the surface pigmentation of the uncleaned surface of the concrete brick to surfaces cleaned with the selected product(s) at given dilutions.

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

- 0 Worst match to uncleaned surface
- 1 Poor match to uncleaned surface
- 2 Fair match to uncleaned surface
- 3 Good match to uncleaned surface
- 4 Best match to uncleaned surface

**Protective Water Repellents** – Sure Klean<sup>®</sup> Custom Masonry Sealer, Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II, and Sure Klean<sup>®</sup> Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples.

**Graffiti Control** – Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II were evaluated for their ability to control graffiti on the submitted samples. Sure Klean<sup>®</sup> Fast Acting Stripper and Defacer Eraser<sup>®</sup> 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 Concrete Brick	Sure Klean <sup>®</sup> Concrete Brick Cleaner	(1:2), (1:3)
All Submitted Concrete Brick	Sure Klean <sup>®</sup> Custom Masonry Cleaner	(1:6)

## **Protective Water Repellent Products Evaluated**

Sample	Product	Dilution
	Sure Klean <sup>®</sup> Custom Masonry Sealer	Concentrate
All Submitted Concrete Brick	Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	(1:9)

#### **Graffiti Control Products Evaluated**

Sample	Product	Dilution
All Submitted Concrete Brick	Sure Klean <sup>®</sup> Custom Masonry Sealer	Concentrate
All Submitted Concrete Blick	Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	Concentrate

#### **Graffiti Removal Products Evaluated**

Sample	Product	Dilution
All Submitted Concrete Brick	Sure Klean <sup>®</sup> Fast Acting Stripper	Concentrate
All Submitted Concrete Brick	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 N mortar from the submitted samples while providing the best color uniformity when compared to the uncleaned surface of the submitted concrete brick.

## **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® Concrete Brick Cleaner** – Removes common construction and atmospheric staining from concrete brick 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. Concrete Brick Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

#### Sample Preparation - New Construction Cleaning

Type N mortar was prepared in compliance with the manufacturer's instructions, applied to the sample's surface and allowed to cure for 7, 14, and 21 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type N masonry mortar was visually evaluated after 7, 14, and 21 days of curing. A visual examination was also made to determine the optimal dilution of the tested cleaners that provide the best color uniformity when compared to the uncleaned surface of the submitted concrete brick.

#### **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.
- 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. Visually compare the color of the cleaned surfaces of the concrete brick to an uncleaned surface 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 N Mortar Removal)**

"Etowah" Concrete Brick							
Product	Dilution	7 day	14 day	21 day			
Sure Klean® Concrete Brick Cleaner	1:2	98%	95%	95%			
Sure Klean® Concrete Brick Cleaner	1:3	95%	95%	90%			
Sure Klean® Custom Masonry Cleaner	1:6	98%	95%	95%			
"Hiwassee" C	oncrete Brick						
Product	Dilution	7 day	14 day	21 day			
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:2	98%	98%	95%			
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:3	95%	95%	95%			
Sure Klean® Custom Masonry Cleaner	1:6	98%	95%	95%			
"Leatherwood"	Concrete Brick						
Product	Dilution	7 day	14 day	21 day			
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:2	95%	95%	95%			
Sure Klean® Concrete Brick Cleaner	1:3	95%	90%	90%			
Sure Klean® Custom Masonry Cleaner	1:6	98%	98%	95%			
"Niota" Cor	ncrete Brick						
Product	Dilution	7 day	14 day	21 day			
Sure Klean® Concrete Brick Cleaner	1:2	98%	98%	95%			
Sure Klean® Concrete Brick Cleaner	1:3	98%	98%	95%			
Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:6	100%	98%	95%			
"Ocoee" Co	ncrete Brick						
Product	Dilution	7 day	14 day	21 day			
Sure Klean® Concrete Brick Cleaner	1:2	99%	99%	99%			
Sure Klean® Concrete Brick Cleaner	1:3	98%	98%	95%			
Sure Klean® Custom Masonry Cleaner	1:6	98%	98%	95%			
"Tellico" Co	ncrete Brick						
Product	Dilution	7 day	14 day	21 day			
Sure Klean® Concrete Brick Cleaner	1:2	99%	99%	99%			
Sure Klean® Concrete Brick Cleaner	1:3	99%	99%	99%			
Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:6	99%	99%	99%			
"Tumbled" Concrete Brick							
Product	Dilution	7 day	14 day	21 day			
Sure Klean® Concrete Brick Cleaner	1:2	99%	98%	98%			
Sure Klean® Concrete Brick Cleaner	1:3	99%	98%	98%			
Sure Klean® Custom Masonry Cleaner	1:6	99%	98%	98%			

## **Test Results** – Color Uniformity

Substrate: Concrete Brick	Pigment Color: "Etowah"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean® Concrete Brick Cleaner	1:2	4	4	
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:3	4	4	
Sure Klean® Custom Masonry Cleaner	1:6	3	3	
Substrate: Concrete Brick	Pigment	Color: "Hiwassee"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:2	4	4	
Sure Klean® Concrete Brick Cleaner	1:3	4	4	
Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:6	3	3	
Substrate: Concrete Brick	Pigment	Color: "Leatherwoo	ď"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean® Concrete Brick Cleaner	1:2	4	4	
Sure Klean® Concrete Brick Cleaner	1:3	4	4	
Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:6	3	3	
Substrate: Concrete Brick	Pigment	Color: "Niota"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean® Concrete Brick Cleaner	1:2	4	4	
Sure Klean® Concrete Brick Cleaner	1:3	4	4	
Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:6	3	3	
Substrate: Concrete Brick	Pigment	Color: "Ocoee"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean® Concrete Brick Cleaner	1:2	4	4	
Sure Klean <sup>®</sup> Concrete Brick Cleaner	1:3	4	4	
Sure Klean® Custom Masonry Cleaner	1:6	3	3	
Substrate: Concrete Brick	Pigment	Color: "Tellico"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Sure Klean® Concrete Brick Cleaner	1:2	4	4	
Sure Klean® Concrete Brick Cleaner	1:3	4	4	
Sure Klean® Custom Masonry Cleaner	1:6	3	3	
	Pigment Color: "Tumbled"			
Substrate: Concrete Brick	1 19			
	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Substrate: Concrete Brick  Product  Sure Klean® Concrete Brick Cleaner				
Substrate: Concrete Brick  Product	Dilution	Exposure	Alteration/Removal	

Scale used for reporting results of both categories:

- 0 **Worst** match to uncleaned surface 3 **Good** match to uncleaned surface
- 1 **Poor** match to uncleaned surface
- 4 **Best** match to uncleaned surface
- 2 **Fair** match to uncleaned surface

#### **Photographs** - New Construction Cleaning

## "Niota" Concrete Brick; 7 Day Cleaning



"Niota" Concrete Brick; 14 Day Cleaning



"Niota" Concrete Brick; 21 Day Cleaning



#### **Photographs** - Color Uniformity





#### **Conclusions - New Construction Cleaning**

Based on the test results, both of the PROSOCO, Inc. products tested performed well in removing excess Type N mortar from the submitted samples even after allowing the mortar to remain on the surface of the samples for 21 days.

Sure Klean® Custom Masonry Cleaner diluted with six parts water removed slight to moderate amounts of pigmented matrix from the surface of the submitted concrete brick, exposing small and fine aggregate. Both dilutions of Sure Klean® Concrete Brick Cleaner removed slight amounts of pigmented matrix, exposing small and fine aggregate.

**NOTE:** Based on lab tests and conversations with the manufacturer, Sure Klean<sup>®</sup> Concrete Brick Cleaner diluted with two or three parts water, and Sure Klean<sup>®</sup> Custom Masonry Cleaner diluted with six parts water can be recommended for new construction cleaning operations.

#### **Recommendations** - New Construction Cleaning

Recommendations for cleaning for each type of concrete brick submitted by Sequatchie Concrete Services, South Pittsburg, TN 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 uncleaned surface of the concrete brick.

Sample	New Construction Cleaning (Type N mortar, 21 day cleaning)
All Submitted Concrete Brick	Sure Klean <sup>®</sup> Concrete Brick Cleaner (1:2) OR (1:3) OR Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)

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® Custom Masonry Sealer** – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, architectural concrete block, pre-cast concrete, wood and porous masonry. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

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 treatments were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. All 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**

"Etowah" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean® Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Hiwassee" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean <sup>®</sup> Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Leatherwood" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean® Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Niota" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean <sup>®</sup> Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Ocoee" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean <sup>®</sup> Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Tellico" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean <sup>®</sup> Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	60 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	60 mph			
"Tumbled" Concrete Brick				
Untreated Control	<40 mph			
Sure Klean <sup>®</sup> Custom Masonry Sealer	60 mph			
Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	59 mph			
Sure Klean <sup>®</sup> Weather Seal Siloxane WB (1:9)	59 mph			

#### **Photographs** - Protective Water Repellents

#### "Hiwassee" Concrete Brick; RILEM II.4, 60 mph, 20 Minutes



#### <u>Conclusions</u> – Protective Water Repellents

Based upon laboratory evaluations, all of the PROSOCO, Inc. products tested provided excellent water repellency to each of the submitted samples. In addition, Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II provided a slight color enhancement to the submitted samples. Sure Klean<sup>®</sup> Weather Seal Siloxane WB Concentrate diluted with nine parts water did not alter the appearance of the samples in any way.

#### **Recommendations – Protective Water Repellents**

Recommendations for water repellency for each type of concrete brick submitted by Sequatchie Concrete Services, South Pittsburg, TN 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 Concrete Brick	*Sure Klean <sup>®</sup> Custom Masonry Sealer OR Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II OR Sure Klean <sup>®</sup> Weather Seal Siloxane WB Concentrate (1:9)

\*NOTE: Sure Klean<sup>®</sup> Custom Masonry Sealer is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

#### <u>Description of Products Evaluated</u> – Graffiti Control

#### **Graffiti Control Treatments**

**Sure Klean® Custom Masonry Sealer** – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, architectural concrete block, pre-cast concrete, wood and porous masonry. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

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

**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.

**Defacer Eraser**<sup>®</sup> **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.

#### **Graffiti Agents**

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

#### Sample Preparation – Graffiti Control

Sections of the concrete block samples were treated with Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and were then 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 of Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Sure Klean<sup>®</sup> Fast Acting Stripper and Defacer Eraser<sup>®</sup> Graffiti Wipe.

#### **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:

- 3. Pressure rinse thoroughly until water runs clear.\*
- 4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

#### **Test Results** - Graffiti Control

Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         85%         95%         30%         80%         73%           Graffiti Wipe         40%         10%         30%         50%         33%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         60%         95%         89%           Graffiti Wipe         100%         100%         60%         85%         78%           Blok-Guard® Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         85%         40%         80%         85%           Graffiti Wipe         80%         20%         50%         90%         81%           Graffiti Wipe         80%         20%         50%         90%         60%           Graffiti Wipe         80%         20%         50%         90%         60%           Graffiti Wipe         100%         100%         100%         100%         100%		"Etowah" Concrete Brick							
Graffiti Wipe         40%         10%         30%         50%         33%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         60%         95%         89%           Graffiti Wipe         100%         85%         40%         85%         78%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         85%         40%         80%         85%           Graffiti Wipe         100%         85%         40%         80%         76%           "Hiwassee" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         90%         95%         50%         90%         81%           Graffiti Wipe         100%         100%         100%         100%         100%           Graffiti Wipe         100%         95%         90%         100%         96%           Blok-Guard® & Graffiti Control II	Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         60%         95%         89%           Graffiti Wipe         100%         85%         40%         85%         78%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         85%         40%         80%         85%           Graffiti Wipe         100%         85%         40%         80%         76%           **Hivacusese" Concrete Brick           **Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         90%         95%         50%         90%         81%           Graffiti Wipe         80%         20%         50%         90%         60%           Graffiti Wipe         100%         100%         100%         100%         100%           Graffiti Wipe         100%         95%         90%         100%         96%           Black Marker Wipe         1	Fast Acting Stripper	85%	95%	30%	80%	73%			
Fast Acting Stripper         100%         100%         60%         95%         88%           Graffiti Wipe         100%         85%         40%         85%         78%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         85%         40%         80%         85%           Graffiti Wipe         100%         85%         40%         80%         76%           "Hivassee" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         90%         95%         50%         90%         81%           Graffiti Wipe         80%         20%         50%         90%         60%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         100%         100%         96%           Blok-Guard® & Graffiti Ontrol II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal <td>Graffiti Wipe</td> <td>40%</td> <td>10%</td> <td>30%</td> <td>50%</td> <td>33%</td>	Graffiti Wipe	40%	10%	30%	50%	33%			
Blok-Guard® & Graffiti Control II   Red Paint   Black Marker   Green Marker   Red Marker   % Avg. Removal	Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Black Guard® & Graffiti Control II	Fast Acting Stripper	100%	100%	60%	95%	89%			
Fast Acting Stripper	Graffiti Wipe	100%	85%	40%	85%	78%			
Graffiti Wipe         100%         85%         40%         80%         76%           "Hiwasse" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         90%         95%         50%         90%         81%           Graffiti Wipe         80%         20%         50%         90%         60%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         100%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         95%         90%         100%         99%           Graffiti Wipe         100%         95%         90%         100%         96%           Whread Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffi	Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Control   Red Paint   Black Marker   Green Marker   Red Marker   % Avg. Removal	Fast Acting Stripper	100%	100%	60%	80%	85%			
Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         90%         95%         50%         90%         81%           Graffiti Wipe         80%         20%         50%         90%         60%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         100%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         95%         100%         99%           Graffiti Wipe         100%         95%         90%         100%         96%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%	Graffiti Wipe	100%	85%	40%	80%	76%			
Fast Acting Stripper   90%   95%   50%   90%   81%		"Hiv	wassee" Concre	te Brick					
Graffiti Wipe         80%         20%         50%         90%         60%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         100%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         95%         90%         100%         99%           Graffiti Wipe         100%         95%         90%         100%         96%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%      <	Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         100%         100%         100%         100%           Graffiti Wipe         100%         95%         90%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         95%         90%         100%         96%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Ma	Fast Acting Stripper	90%	95%	50%	90%	81%			
Fast Acting Stripper         100%         100%         100%         100%         100%           Graffiti Wipe         100%         95%         90%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           "Leatherwood" Concrete Brick           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99% <t< td=""><td>Graffiti Wipe</td><td>80%</td><td>20%</td><td>50%</td><td>90%</td><td>60%</td></t<>	Graffiti Wipe	80%	20%	50%	90%	60%			
Graffiti Wipe         100%         95%         90%         100%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         95%         100%         99%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         100%         100%         95%         100%         99%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%           Black Marker         Green Marker         Red Marker         % Avg. Removal	Fast Acting Stripper	100%	100%	100%	100%	100%			
Fast Acting Stripper         100%         100%         95%         100%         99%           Graffiti Wipe         100%         95%         90%         100%         96%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Graffiti Wipe	100%	95%	90%	100%	96%			
Graffiti Wipe         100%         95%         90%         100%         96%           "Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
"Leatherwood" Concrete Brick           Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Fast Acting Stripper	100%	100%	95%	100%	99%			
Untreated Control         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Graffiti Wipe	100%	95%	90%	100%	96%			
Fast Acting Stripper         70%         95%         70%         90%         81%           Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%		"Leat	herwood" Conc	rete Brick					
Graffiti Wipe         10%         30%         50%         80%         43%           Custom Masonry Sealer         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Custom Masonry SealerRed PaintBlack MarkerGreen MarkerRed Marker% Avg. RemovalFast Acting Stripper98%100%90%95%96%Graffiti Wipe100%95%70%90%89%Blok-Guard® & Graffiti Control IIRed PaintBlack MarkerGreen MarkerRed Marker% Avg. RemovalFast Acting Stripper99%100%90%95%96%	Fast Acting Stripper	70%	95%	70%	90%	81%			
Fast Acting Stripper         98%         100%         90%         95%         96%           Graffiti Wipe         100%         95%         70%         90%         89%           Blok-Guard® & Graffiti Control II         Red Paint         Black Marker         Green Marker         Red Marker         % Avg. Removal           Fast Acting Stripper         99%         100%         90%         95%         96%	Graffiti Wipe	10%	30%	50%	80%	43%			
Graffiti Wipe 100% 95% 70% 90% 89%  Blok-Guard® & Graffiti Control II Red Paint Black Marker Green Marker Red Marker % Avg. Removal  Fast Acting Stripper 99% 100% 90% 95% 96%	<b>Custom Masonry Sealer</b>	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Blok-Guard® & Graffiti Control IIRed PaintBlack MarkerGreen MarkerRed Marker% Avg. RemovalFast Acting Stripper99%100%90%95%96%	Fast Acting Stripper	98%	100%	90%	95%	96%			
Fast Acting Stripper         99%         100%         90%         95%         96%	Graffiti Wipe	100%	95%	70%	90%	89%			
	Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal			
Graffiti Wipe 100% 95% 70% 90% <b>89%</b>	Fast Acting Stripper	99%	100%	90%	95%	96%			
	Graffiti Wipe	100%	95%	70%	90%	89%			

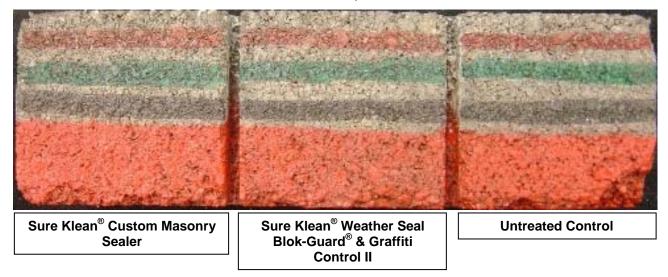
<sup>\*</sup>Pressure Rinsing Equipment – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

# <u>Test Results</u> – Graffiti Control

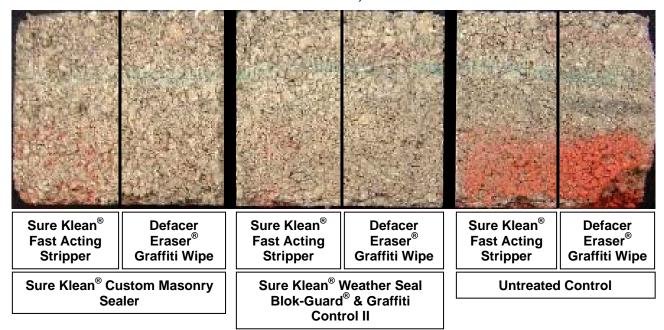
"Niota" Concrete Brick						
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	90%	80%	20%	30%	55%	
Graffiti Wipe	70%	40%	20%	30%	40%	
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	98%	98%	60%	90%	87%	
Graffiti Wipe	98%	80%	40%	70%	72%	
Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	98%	90%	30%	40%	65%	
Graffiti Wipe	98%	80%	30%	40%	62%	
"Ocoee" Concrete Brick						
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	90%	70%	50%	50%	65%	
Graffiti Wipe	80%	70%	50%	50%	63%	
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	98%	95%	80%	90%	91%	
Graffiti Wipe	100%	90%	80%	90%	90%	
Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	95%	80%	80%	80%	84%	
Graffiti Wipe	100%	80%	80%	80%	85%	
"Tellico" Concrete Brick						
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	95%	90%	80%	90%	89%	
Graffiti Wipe	80%	30%	80%	90%	70%	
<b>Custom Masonry Sealer</b>	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	95%	100%	99%	
Graffiti Wipe	100%	90%	95%	100%	96%	
Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	95%	100%	99%	
Graffiti Wipe	100%	90%	95%	100%	96%	
"Tumbled" Concrete Brick						
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	90%	95%	80%	90%	89%	
Graffiti Wipe	75%	10%	60%	80%	56%	
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	95%	100%	90%	100%	96%	
Graffiti Wipe	100%	95%	90%	100%	96%	
Blok-Guard <sup>®</sup> & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	95%	90%	90%	94%	
Graffiti Wipe	100%	95%	90%	90%	94%	

#### Photographs - Graffiti Control

## "Leatherwood" Concrete Brick; Before Graffiti Removal



"Leatherwood" Concrete Brick; After Graffiti Removal



#### **Conclusions** – Graffiti Control

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Blok-Guard<sup>®</sup> & Graffiti Control II prior to graffiti application. In addition, both treatments provided a slight color enhancement to the submitted samples.

#### Recommendations - Graffiti Control

Recommendations for graffiti control treatment for each type of concrete brick submitted by Sequatchie Concrete Services, South Pittsburg, TN 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 all types submitted.

Sample	Graffiti Repellents	Graffiti Removers	
"Etowah" "Hiwassee" "Leatherwood" "Ocoee" "Tellico" "Tumbled"	*Sure Klean <sup>®</sup> Custom Masonry Sealer OR Sure Klean <sup>®</sup> Weather Seal Blok-Guard <sup>®</sup> & Graffiti Control II	Sure Klean <sup>®</sup> Fast Acting Stripper OR Defacer Eraser <sup>®</sup> Graffiti Wipe	
"Niota"	*Sure Klean <sup>®</sup> Custom Masonry Sealer	Sure Klean <sup>®</sup> Fast Acting Stripper OR Defacer Eraser <sup>®</sup> Graffiti Wipe	

\*NOTE: Sure Klean® Custom Masonry Sealer is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

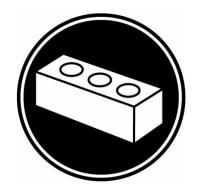
Christopher A. Moore

Project Testing Laboratory Technician

CAM



# Sequatchie Concrete Services 210 Ash Avenue South Pittsburg, TN 37380



Project No. 0607-13 PTP

Prepared For: PROSOCO

Prepared By:
AMT Laboratories
August 2006