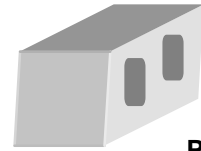




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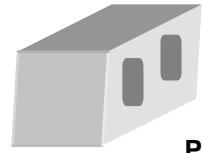
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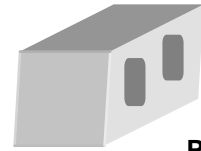
Attachment #1 – PHOTO A & B

Technical Services TECH Note RILEM Test Method No. II.4

Product Data literature for all products evaluated



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FOR: Steve Slawinski
cc: Perry Surber
John Bourne

SUBJECT: Tri County Block & Brick
1628 U.S. 20A
Swanton, OH 43558

DATE: August 15, 2001

PROJECT: 0106-24 BP

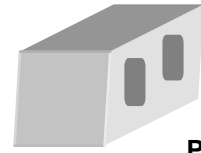
SAMPLES SUBMITTED: 5 colors of split-face and smooth CMUs.

| <u>Block</u> | <u>Color</u> | <u>Size</u> |
|----------------|--------------|---------------|
| Split-face CMU | "Buff" | 8" x 8" x 16" |
| Split-face CMU | "Red" | 8" x 8" x 16" |
| Split-face CMU | "Charcoal" | 8" x 8" x 16" |
| Split-face CMU | "Brown" | 8" x 8" x 16" |
| Split-face CMU | "White" | 8" x 8" x 16" |
| Smooth CMU | "Buff" | 8" x 8" x 16" |
| Smooth CMU | "Red" | 8" x 8" x 16" |
| Smooth CMU | "Charcoal" | 8" x 8" x 16" |
| Smooth CMU | "Brown" | 8" x 8" x 16" |
| Smooth CMU | "White" | 8" x 8" x 16" |

Submitted by: Steve Slawinski



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PURPOSE OF TESTING

Five colors of both split-face and smooth CMUs were submitted for testing using PROSOCO's new construction cleaning and water repellent products.

A. Cleaning Concrete Masonry Units – Sure Klean[®] Custom Masonry Cleaner was tested at various dilutions for the removal of laboratory applied mortar from the CMUs.

To simulate new construction soiling, all CMUs are placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall are positioned on top of each CMU and filled with a wet mixture of Ash Grove[®] Type S cementitious mortar. The wet, mortar-filled cylinder is allowed to remain in contact with the CMU for 10 minutes before removal.

Soiled CMUs are allowed to dry before test cleaning.

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

Refer to “*Note: When cleaning integrally colored CMU” in the following section, “Surface Alteration Testing.”

B. Surface Alteration Testing – Sure Klean[®] Custom Masonry Cleaner was tested at various dilutions to determine if a cleaning program implemented to remove excess mortar and related new construction soiling would otherwise alter the appearance of cleaned surfaces. Surface Alteration was evaluated visually based upon perceived discoloration or erosion/etching of the masonry unit.

Aggregate Exposure is the visual examination of the CMU comparing aggregate exposure of the untreated control surface to surfaces cleaned with selected product(s) at given dilutions.

Surface Pigment Alteration/Removal* is the visual examination of the CMU comparing the surface pigmentation of the untreated control to surfaces cleaned with selected product(s) at given dilutions.

Matrix Erosion is the visual examination comparing the untreated control surface to surfaces cleaned with selected products at given dilutions looking for any potential erosion/digestion of the cementitious matrix of the CMU.

Staining is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

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

| | |
|---------------|---------------|
| 0 – no change | 3 – heavy |
| 1 – slight | 4 – excessive |
| 2 – moderate | |

*** NOTE: When cleaning integrally colored CMU.**

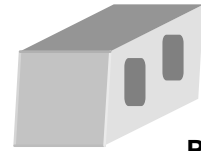
Integrally colored concrete masonry units (CMUs) frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one CMU to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface of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

C. Protective Water Repellents – Sure Klean[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate (1:9) were evaluated for their ability to provide water repellency to all colors of the submitted split face and smooth CMUs.



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CLEANING PRODUCTS EVALUATED

| BLOCK TYPE | Sure Klean® Custom Masonry Cleaner |
|---|------------------------------------|
| All Colors of Split-face and Smooth CMUs | 1:2* |
| | 1:4* |
| | 1:6* |

SURFACE ALTERATION PRODUCTS EVALUATED

| BLOCK TYPE | Sure Klean® Custom Masonry Cleaner |
|---|------------------------------------|
| All Colors of Split-face and Smooth CMUs | 1:2* |
| | 1:4* |
| | 1:6* |

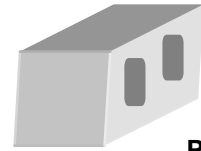
*Dilution ratios refer to mixtures of concentrated cleaner : fresh water.

WATER REPELLENT PRODUCTS EVALUATED

| BLOCK TYPE | PRODUCT | DILUTION |
|--|---|-------------|
| All Colors of Split-face and Smooth CMUs | Sure Klean® Custom Masonry Sealer | Concentrate |
| | Sure Klean® Weather Seal Siloxane WB Concentrate | 1:9* |



BLOCK PROGRAM LABORATORY REPORT



SECTION A – CLEANING INTEGRALLY COLORED CMUs

DESCRIPTION OF PRODUCTS EVALUATED – Cleaning

These cleaning trials were conducted to determine the optimal cleaning/cure time combination.

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.

TEST METHOD – Cleaning

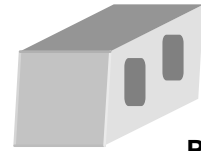
Dilution ratios refer to mixtures of parts concentrated cleaner : parts fresh water. Chemical cleaners were evaluated using the following procedure:

1. Prewet the surface with water.
2. Apply the cleaner at the appropriate dilutions.
3. Allow appropriate exposure time:
Custom Masonry Cleaner 3 minutes
4. Reapply the product and moderately agitate with a brush.
5. Pressure rinse thoroughly.*
6. Allow the surface to dry for at least 18 hours and visually examine.

* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.



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Test Results – Cleaning

| Block Type | Cleaner | Dilution | Cure | Effectiveness |
|---------------------------|------------------------|----------|--------|---------------|
| All Colors of Smooth CMUs | Custom Masonry Cleaner | 1:2 | 3 day | 100% |
| | | 1:4 | | 100% |
| | | 1:6 | | 100% |
| | | 1:2 | 7 day | 100% |
| | | 1:4 | | 100% |
| | | 1:6 | | 100% |
| | | 1:2 | 14 day | 100% |
| | | 1:4 | | 100% |
| | | 1:6 | | 100% |

| Block Type | Cleaner | Dilution | Cure | Effectiveness |
|-------------------------------|------------------------|----------|--------|---------------|
| All Colors of Split-face CMUs | Custom Masonry Cleaner | 1:2 | 3 day | 98% |
| | | 1:4 | | 98% |
| | | 1:6 | | 98% |
| | | 1:2 | 7 day | 98% |
| | | 1:4 | | 98% |
| | | 1:6 | | 98% |
| | | 1:2 | 14 day | 98% |
| | | 1:4 | | 98% |
| | | 1:6 | | 98% |

CONCLUSIONS – Cleaning

Based on the test data, all of the submitted CMUs samples were efficiently cleaned with each dilution of Sure Klean[®] Custom Masonry Cleaner. Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and minimal surface agitation to minimize aggregate exposure.

All dilutions of Sure Klean[®] Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from the CMUs, exposing small and large aggregate, and enhancing the natural appearance of the integrally colored concrete masonry units.

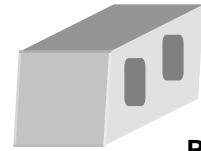
RECOMMENDED PRODUCTS AND DILUTIONS – Cleaning

Based on these evaluations, all of the dilutions of Sure Klean[®] Custom Masonry Cleaner tested can be recommended for job-site testing on the submitted split-face and smooth CMUs submitted by Tri County Block & Brick, Swanton, OH. They all are effective in removing excess mortar, and they all assist in improving the color and uniformity of these concrete blocks. 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.

Note: To remove excess mortar while minimizing aggregate exposure and color enhancement, clean within 7 days of completion using Custom Masonry Cleaner diluted with 6 parts fresh water.



BLOCK PROGRAM LABORATORY REPORT



SECTION B – SURFACE ALTERATIONS

DESCRIPTION OF PRODUCTS EVALUATED – Surface Alterations

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.

TEST METHOD – Surface Alterations

Dilution ratios refer to mixtures of parts concentrated cleaner : parts fresh water. Chemical cleaners were evaluated using the following procedure:

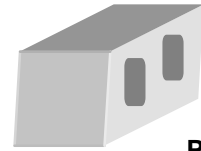
Procedure: (Custom Masonry Cleaner)

1. Prewet the surface with water.
2. Apply the cleaner at the appropriate dilutions.
3. Allow appropriate exposure time:
Custom Masonry Cleaner 3 minutes
4. Reapply the products and moderately agitate with a brush.
5. Pressure rinse thoroughly.*
6. Allow the surface to dry for at least 18 hours and visually examine.

* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.



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TEST RESULTS – Surface Alterations

| | | | | | |
|------------------------------|----------|----------------------------------|------------------------------------|----------------|----------|
| Substrate: Smooth CMU | | Pigment Color: "Buff" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 2 | 2 | 2 | 0 |
| Custom Masonry Cleaner | 1:4 | 2 | 2 | 2 | 0 |
| Custom Masonry Cleaner | 1:6 | 2 | 2 | 2 | 0 |
| Substrate: Smooth CMU | | Pigment Color: "Red " | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 2 | 1 | 2 | 0 |
| Custom Masonry Cleaner | 1:4 | 2 | 1 | 2 | 0 |
| Custom Masonry Cleaner | 1:6 | 2 | 1 | 2 | 0 |
| Substrate: Smooth CMU | | Pigment Color: "Charcoal" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 1 | 1 | 0 |
| Substrate: Smooth CMU | | Pigment Color: "Brown" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 2 | 1 | 0 |
| Substrate: Smooth CMU | | Pigment Color: "White" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 1 | 1 | 0 |

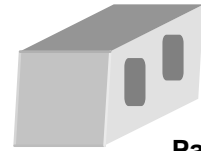
Scale used for reporting results of all categories

0 – no change
1 – slight
2 – moderate

3 – heavy
4 – excessive



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| Substrate: Split-face CMU | | Pigment Color: "Buff" | | | |
|----------------------------------|----------|----------------------------------|------------------------------------|----------------|----------|
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 1 | 1 | 0 |
| Substrate: Split-face CMU | | Pigment Color: "Red" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 2 | 2 | 2 | 0 |
| Custom Masonry Cleaner | 1:4 | 2 | 2 | 2 | 0 |
| Custom Masonry Cleaner | 1:6 | 2 | 2 | 2 | 0 |
| Substrate: Split-face CMU | | Pigment Color: "Charcoal" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 2 | 1 | 0 |
| Substrate: Split-face CMU | | Pigment Color: "Brown" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 2 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 2 | 1 | 0 |
| Substrate: Split-face CMU | | Pigment Color: "White" | | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | Matrix Erosion | Staining |
| Custom Masonry Cleaner | 1:2 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:4 | 1 | 1 | 1 | 0 |
| Custom Masonry Cleaner | 1:6 | 1 | 1 | 1 | 0 |

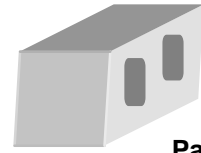
Scale used for reporting results of all categories

0 – no change
1 – slight
2 – moderate

3 – heavy
4 – excessive



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CONCLUSIONS – Surface Alterations

All dilutions of Sure Klean[®] Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from the split-face and smooth CMUs, exposing small and large aggregate, and enhancing the natural appearance.

NOTE: See Attachment #1 “PHOTO A” for visual surface alterations.

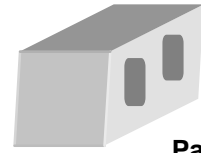
RECOMMENDED PRODUCTS AND DILUTIONS – Surface Alterations

Based on these evaluations, all of the dilutions of Sure Klean[®] Custom Masonry Cleaner tested can be recommended for job-site testing on the split-face and smooth CMUs submitted by Tri County Block & Brick, Swanton, OH. They all are effective in removing excess mortar and assist in improving the color and uniformity of these concrete bricks. 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.

NOTE: To remove excess mortar while minimizing aggregate exposure and color enhancement, clean within 7 days of completion using Custom Masonry Cleaner diluted with 6 parts fresh water.



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SECTION C – 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

DESCRIPTIONS 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, and concrete block without altering the natural appearance. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering as well as long-lasting protection against many types of graffiti.

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 alkoxy siloxanes 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 blocks were scored, allowed to dry, and to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of a wet-on-wet brush application. All treatments were allowed to cure at least 72 hours prior to testing.

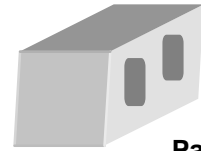
TEST METHODS – Protective Water Repellents

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.



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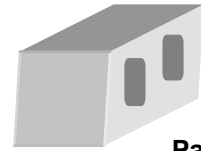
TEST RESULTS – Protective Water Repellents

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

| PRODUCT | RESULTS |
|-----------------------|---------|
| "Buff" smooth CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 58 mph |
| Siloxane WB (1:9) | 59 mph |
| "Red" smooth CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 60 mph |
| "Charcoal" smooth CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 60 mph |
| "Brown" smooth CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 57 mph |
| Siloxane WB (1:9) | 60 mph |
| "White" smooth CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 59 mph |



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| PRODUCT | RESULTS |
|---------------------------|---------|
| "Buff" split-face CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 60 mph |
| "Red" split-face CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 60 mph |
| "Charcoal" split-face CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 58 mph |
| "Brown" split-face CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 60 mph |
| Siloxane WB (1:9) | 60 mph |
| "White" split-face CMU | |
| Untreated Control | <40 mph |
| Custom Masonry Sealer | 58 mph |
| Siloxane WB (1:9) | 55 mph |



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CONCLUSIONS - Protective Water Repellents:

Based upon laboratory evaluations, all colors of the split-face and smooth CMUs exhibited above average water repellency when treated with all of the water repellents tested. Sure Klean[®] Custom Masonry Sealer enhanced the natural appearance of the submitted split-face and smooth CMUs.

NOTE: See Attachment 1 "PHOTO B" for visual color enhancement.

RECOMMENDATIONS – Protective Water Repellents

Based on evaluations, both Sure Klean[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate, diluted with nine parts fresh water, can be recommended for job-site testing on all colors of the split-face and smooth CMUs submitted by Tri County Block & Brick, Swanton, OH.

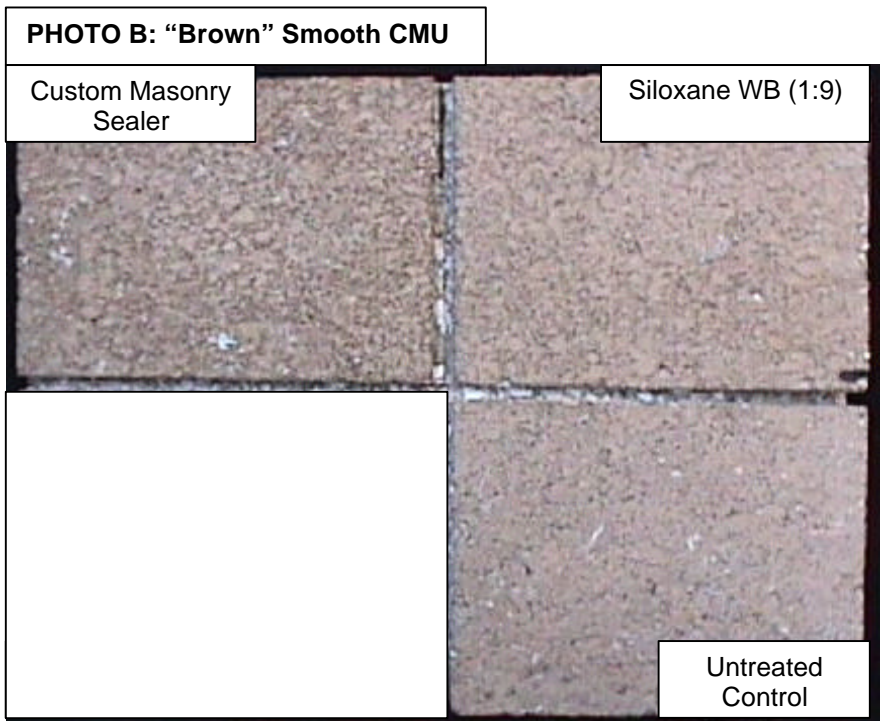
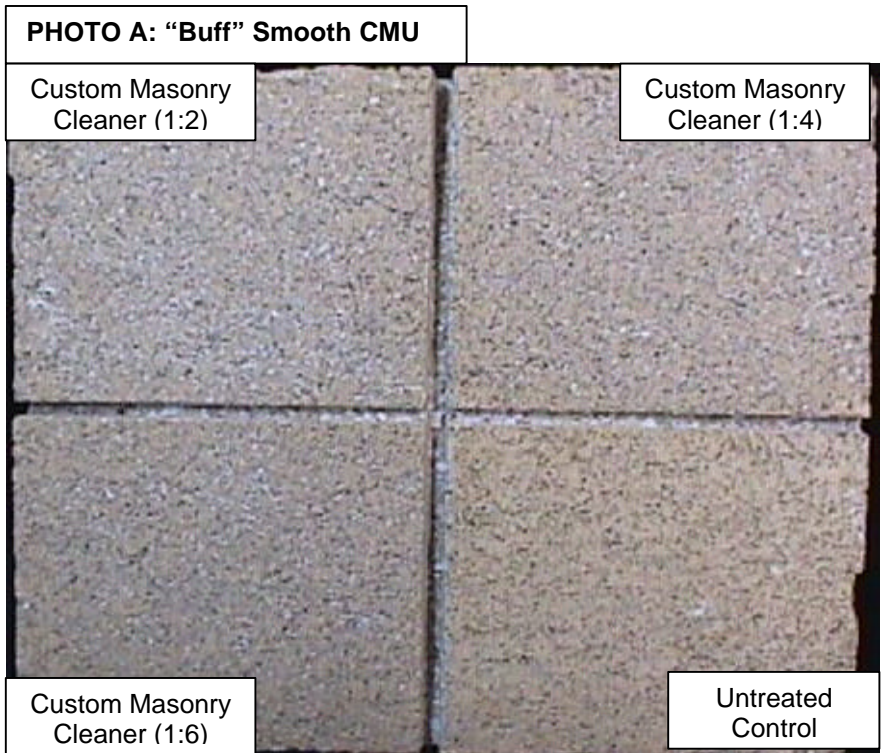
Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate water-repellent product and procedures for a particular project. See product literature for additional application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

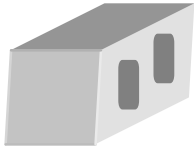
Donald M. Muathe

Donald M. Muathe
Technical Analyst

DMM/

Attachment #1





Laboratory Report

Block Program Evaluation

**Tri County Block & Brick
Swanton, OH 43558**

Project No. 0106-24 BP

Prepared For:

**Steve Slawinski
Tri County Block & Brick
1628 U.S. 20A
Swanton, OH 43558**

Prepared By:



***PROSOCO, Inc.
August 2001***