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ATTACHMENT

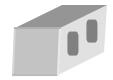
Attachment #1 - Surface Alterations

Attachment #2 - Surface Alterations Continued

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

Product Data literature for all products evaluated





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FOR: John Sherry
Cc: Steve Long
Tom Yager
John Bourne

SUBJECT: York Building Products

York, PA

DATE: January 17, 2002

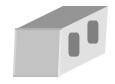
PROJECT: 0112-09 BP

SAMPLES SUBMITTED: One of each block type submitted

SAMPLE	<u>COLOR</u>	SIZE
Ground-face CMU	#11 Buff	4" x 8" x 16"
Smooth-face CMU	#11 Buff	6" x 8" x 16"
Smooth-face CMU	#23 Red	4" x 8" x 16"
Ground-face CMU	#71 Charcoal	4" x 8" x 16"
Split-face CMU	#2 Tan	4" x 8" x 16"
Split-face CMU	#98 Crème	4" x 8" x 16"
Smooth-face CMU	#98 Crème	4" x 8" x 16"
Ground-face CMU	#3 Crème	4" x 8" x 16"
Smooth-face CMU	#100 Red	4" x 8" x 16"
Split-face CMU	#9 Red	4" x 8" x 16"

Submitted by: Steve Long





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PURPOSE OF TESTING:

Ten types of integrally colored split-face (3), smooth-face (4) and ground-face (3) CMUs with large, small and fine aggregate were submitted for testing using PROSOCO's new construction cleaning and water repellent products.

A. Cleaning Concrete Masonry Units – Sure Klean[®] Custom Masonry Cleaner and Sure Klean[®] Burnished Custom Masonry Cleaner were evaluated for removal of laboratory applied mortar.

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 7 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 and Sure Klean[®] Burnished Custom Masonry Cleaner were 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.

<u>Aggregate Exposure</u> 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.

<u>Surface Pigment Alteration/Removal*</u> 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.

<u>Matrix Erosion</u> 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.

<u>Staining</u> 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

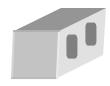
2 - moderate

* 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.

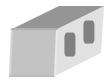




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C. Protective Water Repellents – Sure Klean[®] Custom Masonry Sealer, Sure Klean[®] Weather Seal Natural Stone Treatment and Sure Klean[®] Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples. All samples were evaluated for water repellency by using RILEM method II.4.





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CLEANING PRODUCTS EVALUATED

SAMPLE	PRODUCT	DILUTION
All colors of split-face and smooth-face CMUs	Sure Klean [®] Custom Masonry Cleaner	1:2, 1:4, 1:6
All colors of ground-face CMUs	Sure Klean [®] Burnished Custom Masonry Cleaner	1:2, 1:3

SURFACE ALTERATION PRODUCTS EVALUATED

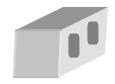
SAMPLE	PRODUCT	DILUTION
All colors of split-face and smooth-face CMUs	Sure Klean [®] Custom Masonry Cleaner	1:2, 1:4, 1:6
All colors of ground-face CMUs	Sure Klean [®] Burnished Custom Masonry Cleaner	1:2, 1:3

WATER REPELLENT PRODUCTS EVALUATED

SAMPLE	PRODUCT	DILUTION
	Sure Klean [®] Weather Seal Siloxane WB Concentrate	1:9
All colors and types of CMUs	Sure Klean [®] Custom Masonry Sealer	Concentrate
	Sure Klean [®] Weather Seal Natural Stone Treatment	Concentrate

NOTE: Dilution ratios refer to mixtures of concentrated product : fresh water.





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SECTION A - CLEANING INTEGRALLY COLORED CMUs

DESCRIPTION OF PRODUCTS EVALUATED

These cleaning trials were conducted to determine the optimal cleaning/cure time combination to most efficiently remove mortar from the submitted split-face and ground-face CMU samples.

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** – A general purpose, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Liquid concentrate for dilution with 2-3 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 each cleaner at the appropriate dilution.
- 3. Allow appropriate exposure time:

- 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 - Cleaning

SAMPLE	CLEANER	DILUTION	CURE	% EFFECTIVENESS
Buff #11	Sure Klean [®] Burnished Custom	1:2	7 day	100%
Ground-face CMU	Masonry Cleaner	1:3	,	100%
Charcoal #71	Sure Klean [®] Burnished Custom	1:2	7 day	100%
Ground-face CMU	ound-face CMU Masonry Cleaner 1:3	r uay	100%	
Crème #3	Sure Klean [®]	1:2	7 day	90%
Ground-face CMU	Burnished Custom Masonry Cleaner	1:3	7 day	80%

SAMPLE	CLEANER	DILUTION	CURE	% EFFECTIVENESS
	_	1:2		100%
Buff #11 Smooth-face CMU	Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	100%
		1:6		90%
		1:2		90%
Red #23 Smooth-face CMU	Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	90%
		1:6		90%
		1:2		100%
Crème #98 Smooth-face CMU	Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	95%
		1:6		95%
		1:2		100%
Red #100 Smooth-face CMU	Caro Moan Cactoni	1:4	7 day	100%
		1:6		100%

^{*} Due to insufficient samples, 3 and 14-day cures were not tested on all samples.





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SAMPLE	CLEANER	DILUTION	CURE	% EFFECTIVENESS
		1:2		100%
Red #9 Smooth-face CMU	Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	95%
		1:6		95%
		1:2		100%
Crème #98 Smooth-face CMU	Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	95%
		1:6		95%
		1:2		100%
Tan #2 Sure Klean [®] Custom Masonry Cleaner	1:4	7 day	100%	
		1:6		100%

^{*} Due to insufficient samples, 3 and 14-day cures were not tested on all samples.

CONCLUSIONS – Cleaning

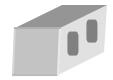
Based on the test data, all of the submitted block samples were efficiently cleaned with each dilution of the selected PROSOCO Inc. cleaning products. Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and surface agitation to minimize aggregate exposure.

All dilutions of Sure Klean[®] Custom Masonry Cleaner and Sure Klean[®] Burnished Custom Masonry Cleaner tested affected the substrate in a similar manner, removing slight to moderate concentrations of pigmented matrix from the split-face, smooth-face, and ground-face CMUs, exposing small and large aggregate, and enhancing the natural appearance of the integrally colored concrete masonry unit.

RECOMMENDED - CLEANING

Based on these evaluations, all dilutions tested of Sure Klean[®] Custom Masonry Cleaner can be recommended on all split-face and smooth-face CMUs and Sure Klean[®] Burnished Custom Masonry Cleaner can be recommended on all ground-face CMUs for job-site testing on the CMUs submitted by York Building Products, York, PA. 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.





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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.

Sure Klean[®] Burnished Custom Masonry Cleaner – A general purpose, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Liquid concentrate for dilution with 2-3 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:

- 1. Prewet the surface with water.
- 2. Apply each cleaner at the appropriate dilution.
- 3. Allow appropriate exposure time:

- 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: Ground-face CMU	Pigment Co	olor: Buff #11			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Ground-face CMU	Pigment Co	Pigment Color: Charcoal #71			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Ground-face CMU	Pigment Co	olor: Crème #	3		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Smooth-face CMU	Pigment Co	olor: Buff #11			
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-face CMU	Pigment Co	lor: Red #23		•	
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	1	1	1	0
Custom Masonry Cleaner	1:6	1	1	1	0
Substrate: Smooth-face CMU	Pigment Color: Crème #98				
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 3 – heavy 4 – excessive

2 – moderate





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TEST RESULTS – Surface Alterations (Cont.)

Substrate: Smooth-face CMU	Pigment Color: Red #100				
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	1	1	0
Substrate: Split-face CMU	Pigment Co	olor: Red #9		1	
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: Crème #98				
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: Tan #2				
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

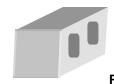
Scale used for reporting results of all categories

0 – no change

3 – heavy

1 – slight 2 – moderate 4 – excessive





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CONCLUSIONS - Surface Alterations

Based on test data, all dilutions of Sure Klean[®] Custom Masonry Cleaner tested affected the split-face and smooth-face CMUs and all dilutions of Sure Klean[®] Burnished Custom Masonry Cleaner tested affected the ground-face CMUs in a similar manner, removing slight to moderate concentrations of pigmented matrix from the CMUs, exposing small and large aggregate, and enhancing the natural appearance of the integrally colored concrete masonry unit.

NOTE: Refer to Attachments #1 and #2 for Surface Alteration photographs.

RECOMMENDATIONS – Surface Alterations

Based upon laboratory evaluations, Sure Klean[®] Custom Masonry Cleaner in all dilutions are recommended for job-site testing on the split-face and smooth-face CMUs submitted by York Building Products, York, PA. Sure Klean[®] Burnished Custom Masonry Cleaner in all dilutions is recommended on all submitted ground-face CMUs.

They are effective in removing excess mortar and assist in improving the color and uniformity of these CMUs. 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.





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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 alkoxysiloxanes mixes easily with water to produce a penetrating water-repellent ideal for application to dense or porous masonry surfaces.

Sure Klean[®] Weather Seal Natural Stone Treatment – A modified siloxane water repellent developed for limestone, marble and most other traditional masonry surfaces. It penetrates deeply to provide long-lasting protection without altering the natural appearance of the substrate.

SAMPLE PREPARATION – Protective Water Repellents

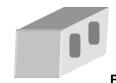
The submitted blocks were scored, allowed to dry, and to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of a wet-on-wet brush application. All treatments were allowed to cure at least 72 hours prior to testing.

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.





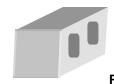
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TEST RESULTS - Protective Water Repellents

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

	RESULTS
Buff #11 Ground-face	
Untreated Control	60 mph
Custom Masonry Sealer	56 mph
Natural Stone Treatment	60 mph
Siloxane WB Concentrate (1:9)	60 mph
Charcoal #71 Ground-fac	ce
Untreated Control	50 mph
Custom Masonry Sealer	60 mph
Natural Stone Treatment	60 mph
Siloxane WB Concentrate (1:9)	60 mph
Crème #3 Ground-face	
Untreated Control	59 mph
Custom Masonry Sealer	58 mph
Natural Stone Treatment	59 mph
Siloxane WB Concentrate (1:9)	60 mph
Red #9 Split-face	
Untreated Control	<40 mph
Custom Masonry Sealer	<40 mph
Natural Stone Treatment	57 mph
Siloxane WB Concentrate (1:9)	<40 mph
Crème #98 Split-face	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph
Natural Stone Treatment	59 mph
Siloxane WB Concentrate (1:9)	56 mph
Tan #2 Split-face	
Untreated Control	50 mph
Custom Masonry Sealer	60 mph
Natural Stone Treatment	60 mph
Siloxane WB Concentrate (1:9)	55 mph





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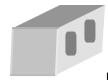
TEST RESULTS – Protective Water Repellents (continued)

Crème #98 Smooth-face	
Untreated Control	50 mph
Custom Masonry Sealer	59 mph
Natural Stone Treatment	46 mph
Siloxane WB Concentrate (1:9)	60 mph
Red #100 Smooth-face	
Untreated Control	58 mph
Custom Masonry Sealer	59 mph
Natural Stone Treatment	58 mph
Siloxane WB Concentrate (1:9)	59 mph
Buff #11 Smooth-face	
Untreated Control	<40 mph
Custom Masonry Sealer	57 mph
Natural Stone Treatment	59 mph
Siloxane WB Concentrate (1:9)	55 mph
Red #23 Smooth-face	
Untreated Control	<40 mph
Custom Masonry Sealer	<40 mph
Natural Stone Treatment	<40 mph
Siloxane WB Concentrate (1:9)	57 mph

CONCLUSIONS - Protective Water Repellents

Based upon laboratory evaluations, all water repellents tested on the submitted ground-face CMU provided above average water repellency. All water repellents tested provided adequate protection on two of the three split-face CMUs. Sure Klean[®] Weather Seal Natural Stone Treatment was the only water repellent able to provided water repellency to type Red #9 split-face CMU. All water repellents tested were able to provide above average water repellency to Red #100 and Buff #11 smooth-face CMUs. Sure Klean[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate (1:9) were able to provide water repellency to Crème #98 smooth-face CMUs. Sure Klean[®] Weather Seal Siloxane WB Concentrate (1:9) was the only water repellent that was able to provide adequate water repellency to Red #23 smooth-face CMUs.





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RECOMMENDATIONS – Protective Water Repellents

Based on evaluations the following recommendations are made for job-site testing on the CMUs submitted by York Building Products, York, PA.

Substrate	Sure Klean [®] Custom Masonry Sealer	Sure Klean [®] Weather Seal Natural Stone Treatment	Sure Klean [®] Weather Seal Siloxane WB Concentrate (diluted 1:9)
Buff #11 ground-face	Yes	Yes	Yes
Buff #11 smooth-face	Yes	Yes	Yes
Charcoal #71 ground-face	Yes	Yes	Yes
Crème #3 ground-face	Yes	Yes	Yes
Crème #98 smooth-face	Yes	No	Yes
Crème #98 split-face	Yes	Yes	Yes
Red #100 smooth-face	Yes	Yes	Yes
Red #23 smooth-face	No	No	Yes
Red #9 split-face	No	Yes	No
Tan #2 split-face	Yes	Yes	Yes

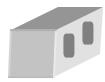
Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate water-repellent product and procedures for a particular project. See product literature for additional application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

KriskWalker

Krista Walker R & D Technician

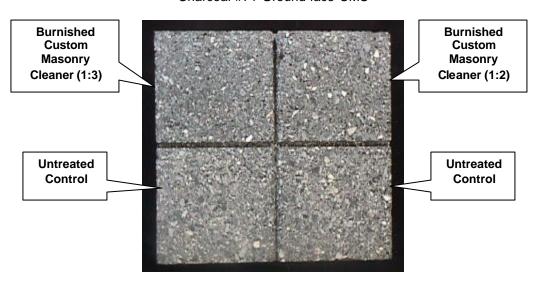
CMN/KW/csm



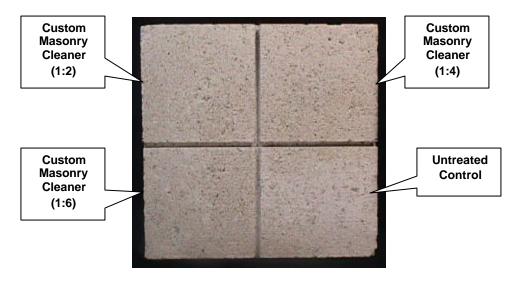


Attachment # 1 - Surface Alterations

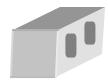
Charcoal #71 Ground-face CMU



Crème #98 Smooth-face CMU







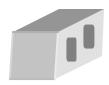
Attachment # 2 - Surface Alterations

Custom
Masonry
Cleaner
(1:2)

Custom
Masonry
Cleaner
(1:4)

Untreated
Control

Custom
Custom
Custom
Custom
Custom
Cleaner
(1:4)



Laboratory Report

Block Program Evaluation

York Building Products York, PA

Project No. 0112-09 BP

Prepared For:

John Sherry

York Building Products 1020 W. Hartley York, PA 17405

Prepared By:



PROSOCO, Inc. January 2002