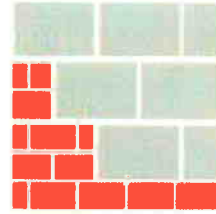


TRANSMITTAL - NATIONAL PARK SERVICE

Park: Florissant Fossil Beds N.M.		Project: Water System		Contract No.: C157410C023 TO P12PD11095		Transmittal No.: 10 Sheet: 1 of: 1		
Contractor: Bairco Construction, Inc.		Subcontractor/Supplier:				Pkg. No.: Date: 8/3/12		
Item No.		Specification Section No.	Paragraph No.	Description of Item (Size, Type, Name, Manufacturer, Use, Etc.)	No. of Copies Submitted	No. of Copies Returned	Approved with Notations	Disapproved - Resubmit
NPS ACTION								
1	042000		2.2	Unit Masonry	2			
2	042000		2.3	Mortar and Grout	2			
3								
4								
5								
6								
Contractor Signature <i>Mark Allgeier</i>				Recommended by				
Title, <i>Project Manager</i>				Date <i>8/3/12</i>		Date		
I hereby certify that this submittal has been reviewed for accuracy, completeness, and compliance with contract requirements (FAR 52.236-21)								
Review Comments				Action By		Date		
				Contracting Officer's Representative				
Approval of this submittal is subject to the provisions of the contract drawings and specifications. This action is for general concurrence only and the Government is not responsible for errors or omission.								
SUBMITTAL LOG DATES: From contractor [], To reviewer [], To reviewer [], To Contractor [] Distribution: () Contractor () DSC File () COR () A/E () DSC Interim () COR Interim () Contractor Interim								
CM-16Rev. 4/00 (Formerly DSC-1(CS))								

General Shale

Concrete Products



July 31, 2012

Mackey Masonry

Subject: Florissant Fossilbeds

Gentlemen:

This letter is to certify that all light weight concrete masonry units manufactured by General Shale comply with the requirements of ASTM C-90-06. Please refer to the attached test report for confirmation.

Sincerely,

Rosie Kranzler
Store Supervisor



Material Certification Report

Brand: Envirocore™ Family of Products
 Material: Masonry Cement
 Type: N

Test Period: 01-May-2012
 To: 30-Jun-2012

Certification

This cement meets the requirements of ASTM C91 specification for Type N.

General Information

Supplier:	Holcim (US) Inc.	Source Location:	Portland Plant
Address:	3500 State Highway 120		3500 State Highway 120
	Florence, Co. 81226		Florence, Co. 81226
Telephone:	719-784-1307	Contact:	Dick Roush
Date Issued:	10-Jul-2012		

The following information is based on average test data during the test period.
 The data is typical of cement shipped by Holcim; individual shipments may vary.

Tests Data on ASTM Standard Requirements

Physical			Physical		
Item	Limit ^A	Result	Item	Limit ^A	Result
+45 µm (No. 325) Sieve (%)	24 max	4	Autoclave Expansion (%) (C151)	1.0 max	0.03
Air Content (%)	8 min, 21 max	17	Water Retention (%)	70 min	89
Compressive Strength:			Gillmore		
7 Days, MPa (psi)	3.4 (500) min	14.4 (2090)	Initial Gillmore (%)	120 min, 1000 max	160
28 Days, MPa (psi)	6.2 (900) min	21.1 (3050)			

Notes

^ADashes in the limits columns means Not Applicable

This data may have been reported on previous mill certificates. It is typical of the cement being currently shipped which was produced in May of 2012.

By

, Quality Manager



Material Certification Report

Brand: Envirocore™ Family of Products

Material: Masonry Cement

Type: N

Test Period: 01-May-2012

To: 30-Jun-2012

Certification

This cement meets the requirements of ASTM C91 specification for Type N.

General Information

Supplier: Holcim (US) Inc.
Address: 3500 State Highway 120
Florence, Co. 81226
Telephone: 719-784-1307
Date Issued: 10-Jul-2012

Source Location: Portland Plant
3500 State Highway 120
Florence, Co. 81226
Contact: Dick Roush

The following information is based on average test data during the test period.
The data is typical of cement shipped by Holcim; individual shipments may vary.

Tests Data on ASTM Standard Requirements

Physical			Physical		
Item	Limit ^A	Result	Item	Limit ^A	Result
+45 µm (No. 325) Sieve (%)	24 max	4	Autoclave Expansion (%) (C151)	1.0 max	0.03
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Compressive Strength:			Gillmore		
7 Days, MPa (psi)	3.4 (500) min	14.4 (2090)	Initial Gillmore (%)	120 min, 1000 max	160
28 Days, MPa (psi)	6.2 (900) min	21.1 (3050)			

Notes

^ADashes in the limits columns means Not Applicable

This data may have been reported on previous mill certificates. It is typical of the cement being currently shipped which was produced in May of 2012.

By

, Quality Manager



13750 Sunrise Valley Drive
Herndon, VA 20171-4662
703.713.1900
Fax: 703.713.1910
www.ncma.org

August 4, 2011

Kevin Miller
General Shale Brick
3155 Drennan Road
Colorado Springs, CO 80910

Please find enclosed a copy of a test report that we performed at your request on the following product that you supplied to the NCMA Research and Development Laboratory:

8 x 8 x 16 Inch Concrete Masonry Unit
Mark "coslw82011"

NCMA Job Number: 11-356-1A

We are pleased to report that the tested properties from this report comply with the applicable requirements of ASTM C 90-11, Standard Specification for Loadbearing Concrete Masonry Units.

The attached report includes the tested compressive strength of the concrete masonry unit. The compressive strength of masonry constructed using these units can be calculated using the Unit Strength Method as outlined in Section 1.4.B.2.b of Specification for Masonry Structures (TMS 602-11 / ACI 530.1-11 / ASCE 6-11). In accordance with this method, the compressive strength of masonry is a function of unit strength and mortar type. As shown in the attached test report...

Net Area Compressive Strength of	
8 x 8 x 16 Inch Concrete Masonry Unit	3280 psi
Mark "coslw82011"	

Therefore, the net area compressive strength of masonry when these units are used, can be considered to be the following:

	Net Area Compressive Strength of Masonry	
<u>When used with:</u>		
Type M or S mortar	2250	psi
Type N mortar	2120	psi

The values provided above can be compared directly to the specified compressive strength of masonry, f'_m . If these values exceed f'_m , compliance has been documented.

The Unit Strength Method is acknowledged to be a conservative method for determining compliance with the specified compressive strength of masonry. A second method, the Prism Test Method can also be used. The results from the Prism Test Method will likely not be the same as the results of the Unit Strength Method above, and a higher compressive strength of masonry value will usually be obtained from the Prism Test Method.

Sincerely,

Nicholas R. Lang
Manager, Research & Development Laboratory



**NATIONAL
CONCRETE MASONRY
ASSOCIATION**

Sustainable Concrete Products for Structures and Hardscapes

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www.ncma.org

ASTM C140-11 Test Report

Sampling and Testing Concrete Masonry Units and Related Units

Job No.: 11-356-1A
Report Date: 8/4/2011

Client: General Shale Brick
Address: 3155 Drennan Road
Colorado Springs, CO 80910

Testing Agency: National Concrete Masonry Association
Address: Research and Development Laboratory
13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Standard Specification: ASTM C90-11

Sampling Party: General Shale Brick

Unit Description: 8 x 8 x 16 Inch Concrete Masonry Unit
Mark "coslw82011"

Date Samples Received: 4/26/2011

Summary of Test Results

	ASTM C90-11 Specified Values	Average Test Results		ASTM C90-11 Specified Values	Average Test Results
Physical Property			Physical Property		
Net Compressive Strength	1900 min	3280 psi	Min. Faceshell Thickness (t_f)	1.25 min	1.33 in.
Gross Compressive Strength	****	1710 psi	Min. Web Thickness (t_w)	1.00 min	1.25 in.
Density	****	102.5 pcf	Equivalent Web Thickness	2.25 min	2.88 in.
Absorption	18 max	12.0 pcf	Equivalent Thickness	****	3.98 in.
Percent Solid	****	52.1 %	Max. Var. from Spec. Dimensions	125 max	0.035 in.
			Net Cross-Sectional Area	****	62.10 in ²
			Gross Cross-Sectional Area	****	119.12 in ²

Individual Unit Test Results

Compression Units	Specimen No.	Received Weight lb	Cross-Sectional Area *		Max. Load lb	Compressive Strength	
			Gross	Net		Gross	Net
			in ²	in ²		psi	psi
	#1	28.76	119.12	62.10	210350	1770	3390
	#2	28.72	119.12	62.10	200710	1680	3230
	#3	28.68	119.12	62.10	199440	1670	3210
	Average	28.72	119.12	62.10	203500	1710	3280

* Unit areas determined as the average of the three absorption units and are assumed to be the same as those units tested in compression.

Absorption Units	Specimen No.	Avg Width in.	Avg Height in.	Avg Length in.	Avg./Min. Face Shell Thickness in.	Min. Web Thickness in.
	#4	7.63	7.65	15.60	1.35	1.30
	#5	7.63	7.66	15.64	1.33	1.23
	#6	7.63	7.66	15.62	1.32	1.22
	Average	7.63	7.66	15.62	1.33	1.25

**Where the thinnest points of opposite face shells differ in thickness by less than 0.125 inches, their measurements are averaged.

Date Tested: 5/12/2011 to 5/16/2011	Specimen No.	Received	Immersed	Saturated	Oven-Dry	Absorption pcf	Density pcf	Net	Percent
		Weight lb	Weight lb	Weight lb	Weight lb			Volume ft ³	Solid %
	#4	28.94	14.40	31.60	28.40	11.6	103.0	0.2756	52.3
	#5	28.62	14.38	31.52	28.10	12.5	102.3	0.2747	52.0
	#6	28.64	14.24	31.40	28.10	12.0	102.2	0.2750	52.1
	Average	28.73	14.34	31.51	28.20	12.0	102.5	0.2751	52.1

Comments: These units meet or exceed the compressive strength, absorption and dimensional requirements of ASTM C90-11.


Nicholas R. Lang
Manager, Research & Development
Laboratory



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www.ncma.org

ASTM C426-10 Test Report

Linear Drying Shrinkage of Concrete Masonry Units

Job No.: 11-356-1B

Report Date: 8/4/2011

Client: General Shale Brick
Address: 3155 Drennan Road
Colorado Springs, CO 80910

Testing Agency: National Concrete Masonry Association
Research and Development Laboratory
Address: 13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Unit Specification: ASTM C90-11

Sampling Party: General Shale Brick

Unit Size and Description:
8 x 8 x 16 Inch Concrete Masonry Unit
Mark "coslw82011"

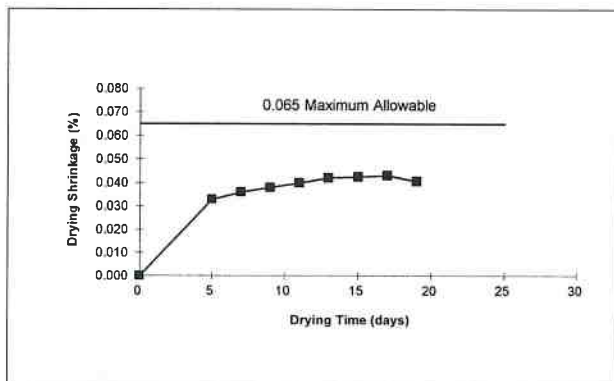
Date Samples Received: 4/26/2011

One face shell from each of three units was saw-cut from submitted specimens for the purpose of testing in accordance with ASTM C 426-10. Each reported value represents an average of calculated shrinkage values from measurements taken on each of two sides of the three specimens.

	Unit #1		Unit #2		Unit #3		Average	
	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)	Weight (lbs)	Linear Drying Shrinkage (%)
Saturated	5.28	---	5.31	---	5.30	---	5.30	---
5 Days	4.75	0.037	4.80	0.031	4.77	0.031	4.77	0.033
7 Days	4.74	0.039	4.80	0.033	4.77	0.037	4.77	0.036
9 Days	4.74	0.041	4.80	0.035	4.77	0.038	4.77	0.038
11 Days	4.74	0.044	4.80	0.036	4.76	0.040	4.77	0.040
13 Days	4.74	0.045	4.80	0.039	4.76	0.043	4.77	0.042
15 Days	4.74	0.045	4.80	0.040	4.77	0.043	4.77	0.043
17 Days	4.74	0.046	4.80	0.041	4.76	0.043	4.77	0.043
19 Days	4.74	0.043	4.80	0.038	4.76	0.041	4.77	0.041

Final Linear Drying Shrinkage, S (%)

Unit #1	Unit #2	Unit #3	Average
0.045	0.039	0.042	0.042



Note: Final linear drying shrinkage, S, is calculated by averaging the final length measurement at equilibrium with the previous two measurements for each specimen.

Comments: These units comply with the drying shrinkage requirements of ASTM C90-11.

Nicholas R. Lang
Manager, Research & Development Laboratory



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Herndon, VA 20171-4662
703.713.1900
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www.ncma.org

Fire Resistance Rating Test Report

Job No.: 11-356-1C
Report Date: 8/4/2011

Manufacturer: General Shale Brick
Address: 3155 Drennan Road
Colorado Springs, CO 80910

Testing Agency: National Concrete Masonry Association
Address: Research and Development Laboratory
13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Plant: Colorado Springs, CO

Date Samples Received: 4/26/2011

Date Tested: 5/12/2011

Unit Description: 8 x 8 x 16 Inch Concrete Masonry Unit
Mark "cosiw82011"

AGGREGATE INFORMATION

Aggregate	Type	Batch Wt (lb)	Unit Wt (pcf)	Volume (ft ³)	% Volume
Sand	4	2350	100.0	23.50	48.45
Buildex (Expanded Shale)	2	1350	54.0	25.00	51.55
Totals		3700		48.50	100.00

CALCULATIONS

Calculated values used to determine performance values:

Avg Width	7.63 in.	Gross Volume	0.528 ft ³
Avg Height	7.66 in.	Net Volume	0.2752 ft ³
Avg Length	15.62 in.	% Solid	52.1 %
Avg Min FS	1.33 in.	Equivalent Thickness	3.98 in.
Avg Min Web	1.25 in.		

CERTIFICATIONS ISSUED

Fire: ACI 216.1-07/TMS 0216-07 **2.1 hr**
Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies

Note: The fire rating shown above was calculated based on information provided by the producer regarding the types of aggregates, and their proportions, used to manufacture the units.

Nicholas R. Lang
Manager, Research & Development Laboratory

Fire Resistance Rating

Certificate Number: 11-356-1C

Certificate Valid from 8/4/2011 through 8/3/2012

The concrete masonry unit submitted by the manufacturer listed has been evaluated by the National Concrete Masonry Association Research and Development Laboratory for fire resistance in accordance with the code, standard, or procedure cited. The National Concrete Masonry Association certifies to the manufacturer that concrete masonry constructed in accordance with the cited code, standard, or procedure, using units representative of the submitted unit, has the fire resistance stated.

Fire Resistance Rating 2.1 Hour(s)

determined in accordance with

ACI 216.1-07/TMS 0216-07, *Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies*

Note: The fire rating shown above was calculated based on information provided by the producer regarding the types of aggregates, and their proportions, used to manufacture the units.

Manufacturer:

General Shale Brick

Plant:

Colorado Springs, CO

Unit Description:

8 x 8 x 16 Inch Concrete Masonry Unit

Mark "costw82011"

Equivalent Thickness: 4.0 inches

Aggregate Type(s): Sand

Buildex (Expanded Shale)



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13750 Sunrise Valley Drive

Herndon, VA 20171

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CERTIFICATION AUTHORIZATION

Signature:

Name:

Nicholas K. Lang

Title:

Manager, Research & Development Laboratory

Fire Resistance Rating Certificate of Compliance

General Shale Brick

certifies that concrete masonry constructed in accordance with the code, standard or procedure cited, using units from the shipment listed, has the fire resistance stated. Units in the shipment are representative of the unit evaluated by the National Concrete Masonry Association for fire resistance in accordance with the cited code, standard or procedure, as provided on the NCMA Product Certification Certificate.

Fire Resistance Rating 2.1 **Hour(s)**

determined in accordance with

ACI 216.1-07/TMS 0216-07, *Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies*

Certificate Number: *11-356-1C*

Manufacturer: *General Shale Brick*

Plant: *Colorado Springs, CO*

Unit Description: *8 x 8 x 16 Inch Concrete Masonry Unit*

Mark "coshw82011"

Shipment: _____



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13750 Sunrise Valley Drive
Herndon, VA 20171
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CERTIFICATION AUTHORIZATION

Signature: _____

Mfg. Representative: _____

Title: _____

Date: _____