ARGOS USA
CEMENTS FOR MASONRY

ARGOS

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Specifications

Section 0460 Masonry Mortar

PART 1 GENERAL

1.01 SUMMARY

Specifier Note: Argos provides guide specifications as a service. Only a licensed architect or engineer can make determinations as to the suitability of this specification to a specific construction project as jobsite conditions and construction techniques may vary significantly. Please consult with a licensed architect or engineer prior to release of construction documents.

A. Section Includes

a. Masonry Mortar

b. Color Masonry Mortar

B. Related Sections: Sections related to this section include:

a. 04050 Basic Masonry Materials and Methods

b. 04200 Masonry Units

c. 04400 Stone

d. 04700 Simulated Masonry

e. 04800 Masonry Assemblies

f. 04070 Masonry Grout

1.02 REFERENCES

The following are applicable ASTM references. They are copyright material of ASTM, to purchase, please call ASTM.org directly:

A. ASTM C270 Standard Specification for Mortar for Unit Masonry

B. ASTM C150 Standard Specification for Portland Cement

C. ASTM C91 Standard Specification for Masonry Cement

D. ASTM C595 Standard Specification for Blended Hydraulic Cements

E. ASTM C1157 Standard Performance Specification for Hydraulic Cement

F. ASTM C1357 Standard Test Methods for Evaluating Masonry Bond Strength

G. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes

H. ASTM C144 Standard Specification for Aggregate for Masonry Mortar

H. ASTM C1329 Standard Specification for Mortar Cement

J. ASTM C780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

1.03 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract, Division 1 Submittal Procedures and items listed below.

Changes to products or colors specifically named must be approved 30 days prior to delivery or use on site.

1.04 QUALITY ASSURANCE

Mortar and its constituent materials shall conform to the proportions specified in ASTM C 270 as specified herein. Upon request by the architect, owner or owner's representative, proportion tests in accordance with ASTM C 780, Annex 4 may be required to verify proportions. Please note that ASTM C 270 is a laboratory test procedure only and is specifically not to be used to determine mortar strengths or other properties through field-testing.

A. Cement shall conform to ASTM C150, ASTM C595 or ASTM C1157.

B. Masonry cement shall conform to ASTM C91.

C. Mortar cement shall conform to ASTM C1329.

D. Lime shall be hydrated lime, Type S, conforming to ASTM C207.

E. Sand (aggregate) shall conform to ASTM C144. If the only available sand (aggregate) fails the gradation limits specified in ASTM C144, Section 4, Grading, sub-sections 4.1 and 4.2, it may be used provided the mortar can be prepared to comply with the aggregate ratio, water retention, and compressive strength requirements of the property specifications of ASTM C270. Use sand from the same source deposit throughout the entire project to promote color uniformity,

F. Water shall be clean, potable and free of deleterious material.

G. Accelerating compounds such as antifreeze, calcium chloride or other salts shall not be added to the mortar except by written approval of the architect.

H. Upon request by the architect, owner or owner's representative the installer may be asked to construct a project site mock-up using the products, construction methods, tooling, colors, textures, pattern, joint size and proposed workmanship. If requested, obtain acceptance of the mock-up by the requesting authority before proceeding on construction of the project. Cleaning of mock-ups shall not occur prior to 3 days after construction. Mock-ups shall cure a minimum of 7 days prior to acceptance.

1.05 WARRANTY

A. Argos warrants that Argos Cements meet applicable ASTM requirements. Argos makes no other warranty, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY of merchantability or fitness for a particular purpose, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. Having no control over their use, Argos will not guarantee finished work in which these products are used.

Note to Specifier: Please review the products listed below and eliminate those not required or not suitable for the specific project.

2.01 CEMENTS FOR MASONRY

A. Manufacturer: Argos and its affiliated companies.

B. Contact the **Customer Value Center** at **1.800.331.0022** or **cement-services@Argos-us.com**

C. Approved Products:

a. Magnolia® Masonry Cement Types N, S and M

b. Magnolia® Eaglebond® Portland Lime Types O, N, S, and M

c. Magnolia® Superbond™ Mortar Cement Type S

d. Argos Portland Cement Types I, II, II MH, I/II, I/II MH and III

e. Argos White Portland Cement Type I

f. Argos Masonry Cement Types N, S or M

g. Argos Mortar Cement Types N, S, or M

h. Argos White Masonry Cement Types N or S

PART 3 EXECUTION

3.01 MANUFACTURERS INSTRUCTIONS

1. Comply with the manufacturer's product data including technical bulletins and installation instructions.

2. Use one bag masonry cement to 3 cubic feet of damp, loose masonry sand in a mechanical batch mixer. First add approximately 2/3 the water required, ½ the sand and 1 bag masonry cement. Then add the rest of the sand and water to bring the mix to the desired workability. Mortar should be mixed a minimum of 5 minutes after all the material have been charged into the mixture. The use of a one cubic foot box to measure sand will insure batch-to-batch uniformity.

3. Cleaning of color mortar with muriatic acid or proprietary cleaners containing acid is strictly prohibited. Use water with mild detergents only. All products used must be in compliance with the recommendations of both the mortar and brick manufacturers.

4. The type of joint, as well as when struck, has an effect on the color of color masonry. Joints should not be struck until the mortar is "thumb print hard." Tooling mortar joints before they are "thumb print hard" will result in a significantly lighter joint color. All color masonry joints of the same color will be struck using the same type of joint (concave if not specified elsewhere on drawings) and at a similar time from placement. Joint type can affect water permeability of the assembly as well as the color.

Suggested Specifications for Masonry Cement

Section 0411 Mortar and Masonry Grout

PART 2 PRODUCTS

2.1 MATERIALS FOR MASONRY MORTAR

A. Shall conform to:

a. Masonry Cement – Type N, S or M – ASTM C91

b. Aggregate for masonry mortar.

i. Sand aggregate – ASTM C144

B. Water: shall be clean and free of deleterious amounts of acids, alkalies, salts or organic materials.

2.2 PROPORTIONING AND MIXING

A. Mortar proportions by volume – shall consist of a mixture of cementitious materials and aggregates conforming to ASTM C270, Standard Specification for Mortar for Unit Masonry, table 1.

a. Type N – 1 part Argos Type N masonry cement and not less than 2-¼ and not more than 3 parts sand aggregate.

b. Type S – 1 part Argos Type S masonry cement and not less than 2-¼ and not more than 3 parts sand aggregate.

c. Type M – 1 part Argos Type M masonry cement and not less than 2-¼ and not more than 3 parts sand aggregate.

Suggested Specifications for Mortar Cement

Section 0411 Mortar and Masonry Grout

PART 2 PRODUCTS

2.1 MATERIALS FOR MASONRY MORTAR

A. Shall conform to:

a. Mortar Cement – Types N, S and M – ASTM C1329

b. Aggregate for masonry mortar.

i. Sand aggregate – ASTM C144

B. Water: shall be clean and free of deleterious amounts of acids, alkalies, salts or organic materials.

2.2 PROPORTIONING AND MIXING

1. Mortar proportions by volume – Mortar Cement: Mortar shall consist of a mixture of Mortar cement and aggregate under ASTM C270, Standard Specification for Mortar for Unit Masonry, table 1.

a. Type N – 1 part Argos Type N Mortar Cement and not less than 2-¼ and not more than 3 parts sand aggregate.

b. Type S – 1 part Argos Type S Mortar Cement and not less than 2-¼ and not more than 3 parts sand aggregate.

c. Type M – 1 part Argos Type M Mortar Cement and not less than 2-¼ and not more than 3 parts sand aggregate.

Course and Training Information

US Green Building Council and AIA Courses

The courses listed below have been approved by the US Green Building Council (USGBC) for one (1) credit hour toward GBCI Continuing Education (CE) maintenance for LEED APs with specialty and LEED GAs. These courses also provide one CEU for AIA CES. Contact your local representative or the **Customer Value Center** at **1.800.331.0022** or **cement-services@Argos-us.com** to schedule continuing education.

ADVANCES IN CONCRETE AND CEMENT

This presentation highlights innovations that have taken place in the concrete and cement industries. The introduction gives an overview of important facts about concrete and cement and how their production impacts the environment. The presentation goes on to focus on advances in concrete formulation methods, including control of raw materials and inclusion of Supplementary Cementitious Materials (SCMs). These changes not only lower the environmental impacts of concrete production but have led to more versatile uses of concrete, which in turn create more options for designers and what they can do with the built environment.

CONCRETE AND LEED

This presentation is designed to create an understanding of the sustainable components of various forms of concrete. It begins with a high-level view of the impact that cement and concrete have on our resources and compares those impacts to other building materials. The presentation goes on to highlight the role that Concrete can play in the LEED rating system, with an emphasis on Building Design and Construction (BD+C). Finally, it reviews performance attributes of various mix designs and outlines ways to alter your projects' concrete formulas to further benefit a LEED project.

GYPSUM AND SUSTAINABILITY

This presentation will discuss the mineral gypsum and its many fascinating attributes and uses. Building on knowing what gypsum is and what it can be used for, the course will cover how gypsum board is produced and the synthetic gypsum process. To further detail the synthetic gypsum process, participants will be able to describe the gypsum waste recycling process and the use of recycled paper in board manufacturing. The final goal of the course is to have participants be able to specify gypsum board for sustainability correctly and be able to incorporate all of the benefits of gypsum board into their future projects. This course is intended for anyone interested in better building processes in general, and people interested in the benefits of gypsum board specifically.

HEALTHY INDOOR AIR BY DESIGN - (GREENGUARD ENVIRONMENTAL INSTITUTE)

This presentation created by GREENGUARD is designed to communicate the importance of indoor air quality (IAQ) and empower architects to employ strategies to improve IAQ in the spaces they are creating. It includes a background of the impact of indoor air pollution on human health and economics. Several case studies are used to illustrate and highlight the effects of controlling versus not controlling IAQ at the design phase of construction. Emphasis is also placed on how to incorporate good IAQ principles into sustainable building projects.

Course and Training Information

US Green Building Council and AIA Courses, Continued

SUSTAINABLE MASONRY CONSTRUCTION (UNDER GBCI REVIEW)

This presentation is designed to highlight masonry construction and its role in energy conservation, air and sound quality, and fire resistance. In addition, ways in which building code requirements can be met in the most efficient manner possible with masonry construction are also introduced. The course introduction gives an overview of some projects recently constructed and how masonry was used to address various LEED credits in each project. The presentation goes on to look at each area in depth, giving background and research on masonry construction's performance in a building's energy usage, air quality, sound quality, fire resistance, and code compliance. Finally, the course looks at new ways to manufacture this building material which lower the environmental impacts of masonry, and maintain its capabilities.

FOR QUESTIONS RELATED TO CONTINUING EDUCATION OF CEMENT OR CONCRETE:

CHRISTOPHER WALKER, LEED AP BD+C

TECHNICAL SERVICES

EMAIL:CWALKER@ARGOS-US.COM

CELL: 404.395.3232

FOR QUESTIONS RELATED TO CONTINUING EDUCATION OF MASONRY:

BILL KJORLIEN

MASONRY TECHNICAL SERVICE MANAGER

EMAIL:BKJORLIEN@ARGOS-US.COM

CELL: 404.307.5992

Course and Training Information

Argos Masonry Seminars

MORTAR 101

CREDITS	ONE HOUR CEU SD HSW
COURSE NUMBER	M101ARGS
COURSE NAME	MORTAR 101

Masonry mortar is a cementitious binder of masonry units. It has varied applications, strength and workability requirements. It is key to the design, construction and sustainability of robust, durable structures. Mortar 101 details specification, testing and use of this key component of the world's Greenest building system.

Key Words: masonry, mortar, durable, sustainable, brick, concrete masonry unit, cmu

LEARNING OBJECTIVES

1. Understand that Mortar is a key component in the most sustainable, durable construction wall type
2. Understand the Difference and Correct Applications for the Three Types of Cements for Masonry
3. Improve specification by comprehending property requirements
4. Become aware of the post-consumer recycled material consumed in cement production

Course and Training Information

Argos Masonry Seminars

MASONRY WAS SUSTAINABLE WHEN SUSTAINABLE WASN'T COOL

CREDITS	ONE HOUR CEU SD HSW
COURSE NUMBER	M201ARGOS
COURSE NAME	MASONRY WAS SUSTAINABLE WHEN SUSTAINABLE WASN'T COOL

In a world seeking Sustainable Design, Masonry Construction has a proven record of millenniums on durable, robust, safe, economical, reusable and beautiful buildings on scales from small single family residential to the most grandiose structures. This offering presents Masonry's clear advantages in Design Flexibility, Energy Conservation, Fire Resistance, Mold Resistance, Sound Transmission Resistance and Raw Material Conservation.

Key Words: masonry, mortar, durable, sustainable, brick, concrete masonry unit, cmu

LEARNING OBJECTIVES

1. Masonry's Compliance With Design Standards
2. Masonry's Energy Consumption and Thermal Properties
3. Fire Resistance, Sound Transmission and Mold Mitigation
4. Environmentally Responsible Materials Manufacturing

Course and Training Information

Argos Masonry Seminars

MASON FOR A DAY

CREDITS	FOUR HOURS CEU SD HSW
COURSE NUMBER	M102ARGOS
COURSE NAME	MASON FOR A DAY

This is a hands on masonry class. Participants will come to class in work clothes, prepared to mix mortar and masonry units. The designer's vision of the application of materials integrated into walls will be greatly enhanced by building a wall section of masonry. Although frequently exposed to individual material information, masonry walls are a composite of masonry units, mortar, accessories, design and workmanship. Under the direction of skilled masons, Design Professionals will construct a wall with interior and exterior finish, an opening and aesthetic enhancement. This wall section will be durable, robust, energy efficient and sustainable. Safety issues will be practiced and enhanced.

Key Words:bed joint, head joint, strike, re-temper, bond, extent of bond, wall ties, joint reinforcement, sill, rowlock

LEARNING OBJECTIVES

1. Sustainable Design Intent & Innovation- Exterior wall maintenance is complete for >50 years at time of construction completion.
2. Regional/Community Design & Connectivity- Flexibility of wall system to adapt to Regional/Community Design
3. Safety practices on a masonry jobsite
4. Materials & Construction- Robust materials in composite wall that do not produce off gas

Masonry Technical Information

Field Testing of Mortar

Field samples of mortar are not required to meet the strengths of the Standard Specification for Mortar for Unit Masonry.

There are three ASTM Standards that address Cements for Masonry:

- ASTM C91 is the Standard Specification for Masonry Cement.
- ASTM C270 is the Standard Specification for Mortar for Unit Masonry.
- ASTM C780 is the Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Masonry.

Key terms that are used in this discussion are “Cements for Masonry”, which include masonry cement and cement lime mortar, and “Mortar”, “a mixture of cementitious materials, fine aggregate, water, with or without admixtures, that is used to construct unit masonry assemblies.”

ASTM C91 is the Standard according to which Masonry Cement is manufactured. The requirements in this Standard are for cement manufacturers. Uniformity in testing is achieved by specifying the quantity of water in the test sample. The aggregate, sand, is also specified. By limiting the water content, or flow of the test sample, and by producing samples using the same sand (ASTM C778) the testing of manufactured masonry cement will be consistent in any location. The only variable in C91 testing is the masonry cement powder. C91 specifies property requirements that must be met to confirm that the cement for masonry and sand can produce mortar that complies with C270.

ASTM C270 is for lab verification of materials. It is for both manufacturers and users to assure that the mortar conforms to the requirements for that type of cement for masonry.

Section 3- Limitations, 3.1 states ***“Specification C270 is not a specification to determine mortar strengths through field testing.”*** Therefore, the materials for mortar are combined in the lab prior to construction and tested according to C270. This testing is routinely performed by the manufacturer to assure compliance with the standard. The manufacturer may supply a Certificate of Compliance, in compliance with C91 22.1- Manufacturer’s Certification: ***“Upon request of the purchaser in the contract or order, a manufacturer’s report shall be furnished at the time of shipment stating the results of the tests made on samples of the materials taken during the production or transfer and certifying that the applicable requirements of this specification have been met.”*** The materials supplied by Argos meet or exceed the requirements of C91. The specifier also has the right to submit the materials to a qualified testing lab familiar with the Specification and Test Method.

A critical factor that is controlled in the C270 test is the flow, or amount of water used in the sample to be tested. Section 5.3 *Property Specifications* defines the flow required for the lab test. Note 4 states ***“The required properties of the mortar in Table 2 are for laboratory prepared mortar mixed with a quantity of water to produce a flow of 110%+/- 5%. This quantity of water is not sufficient to produce a mortar with a workable consistency suitable for laying masonry units in the field. Mortar for use in the field must be mixed with the maximum amount of water, consistent with workability, in order to provide sufficient water to satisfy the initial rate of absorption (suction) of the masonry units. The properties of laboratory prepared mortar at a flow of 110 +/-5, as required by this specification, are intended to approximate the flow and properties of field prepared mortar after it has been placed in use and the suction of the masonry units has been***

satisfied. The properties of field prepared mortar mixed with the greatest quantity of water, prior to being placed in contact with the masonry units, will differ from the property requirements in Table 2. Therefore the property requirements in Table 2 cannot be used as requirements for quality control of field prepared mortar. Test Method C780 may be used for this purpose."

Controlled water content assures that the lab can compare properties consistently from test to test. However, the amount of water or flow rate for the lab only test is much less than the amount of water the mason adds to make field mortar workable. The recommendation for water content of field mortars is to use as much as is necessary to achieve full extent of bond.

ASTM C780 is the test for mortars in the field. C780 does not require a specific compressive strength. Once materials have been verified to be incompliance with the lab Standard, they are used in the field. As stated above, the water content of field prepared mortar is greater than lab prepared mortar. Therefore, it is expected that samples taken in the field will yield much lower compressive strengths.

C780 1.4 states ***"The test results obtained under this test method are not required to meet the minimum compressive values in accordance with the property specifications of Specification C270."***

Field testing of mortar is to be done to monitor consistency of the mortar across the time duration of a project.

In some cases the reported compressive strength of field samples may approach or exceed the compressive strength requirements for lab prepared mortar. This should not be taken to mean that lower field values form a different project are a failure. Compressive strength is not the sole important property of masonry mortars. Water retention and air content are critical to assure good extent of bond, or a complete joining of masonry units together to resist lateral load and weather.

ARGOS USA

Letters of Certification

Certificate of Compliance

Argos hereby certifies that the following products are in compliance with the specification requirements of the American Society of Testing and Materials (ASTM), Federal Specifications of the U. S. Government, and the American Association of State Highway Transportation Officials (AASHTO) (where applicable), including the revisions to date and all preceding years.

ARGOS PORTLAND CEMENT, TYPE I, II, II MH I/II, I/II MH & III	ASTM C150
ARGOS WHITE PORTLAND CEMENT TYPE I	ASTM C150
ARGOS TYPE N MASONRY CEMENT	ASTM C91
ARGOS TYPE S MASONRY CEMENT	ASTM C91
ARGOS TYPE M MASONRY CEMENT	ASTM C91
ARGOS TYPE N SUPERBOND™ MORTAR CEMENT	ASTM C1329
ARGOS TYPE S SUPERBOND™ MORTAR CEMENT	ASTM C1329
ARGOS TYPE M SUPERBOND™ MORTAR CEMENT	ASTM C1329
ARGOS MAGNOLIA® MASON'S MIX TYPE N MASONRY CEMENT	ASTM C91
ARGOS MAGNOLIA® TYPE S MASONRY CEMENT	ASTM C91
ARGOS MAGNOLIA® TYPE M MASONRY CEMENT	ASTM C91
ARGOS MAGNOLIA® BUFF TYPE N MASONRY CEMENT	ASTM C91
ARGOS MAGNOLIA® DARK MASONRY CEMENT TYPE N	ASTM C91
ARGOS MAGNOLIA® ULTRA DARK MASONRY CEMENT TYPE N	ASTM C91
ARGOS WHITE TYPE N MASONRY CEMENT	ASTM C91
ARGOS WHITE TYPE S MASONRY CEMENT	ASTM C91
ARGOS CUSTOM COLOR TYPE N MASONRY CEMENT	ASTM C91
ARGOS CUSTOM COLOR TYPE S MASONRY CEMENT	ASTM C91
ARGOS CUSTOM COLOR TYPE M MASONRY CEMENT	ASTM C91
ARGOS CUSTOM COLOR TYPE N MORTAR CEMENT	ASTM C1329
ARGOS EAGLEBOND® TYPE N PORTLAND CEMENT & LIME	ASTM C150 & C207
ARGOS EAGLEBOND® TYPE S PORTLAND CEMENT & LIME	ASTM C150 & C207
ARGOS EAGLEBOND® TYPE M PORTLAND CEMENT & LIME	ASTM C150 & C207
ARGOS PREMIUM STUCCO MIX TYPE CEMENT	ASTM C1328

Certificate of Compliance

Product: Argos Portland Cement Type I, II, II MH I/II, I/II MH & III

Argos hereby certifies that each 94 lb (42.6 kg) bag of its ARGOS Portland Cement types I, II, II MH, I/II, I/II MH and III fully meet or exceed all the chemical and physical requirements of ASTM C150, the Standard Specification for Portland Cement and AASHTO M 85 requirements for Portland Cement.

Furthermore, when ARGOS Portland Cement is batched with type S Hydrated Lime complying with ASTM C207 or Masonry Cement complying with ASTM C91 or Mortar Cement complying with ASTM C1329 and mixed in a mechanical paddle mixer at the rate of one part combined cementitious material to not less than 2-¼ and not more than 3 parts of damp loose masons sand complying with ASTM C144 and clean potable water, the resultant mortar will exceed the property requirements for ASTM C270, the Standard Specification for Mortar for Unit Masonry, provided that all the stated ingredients are mixed and tested in accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

Additionally, ARGOS Portland Cements are eminently suitable for use as the cement portion in the production of both fine and coarse ASTM C476, the Standard Specification for Grout for masonry.

Compliance with the requirements of C476 should only be performed by a certified Masonry Testing Technician utilizing ASTM C1019, the Standard Test Method for Grout for Masonry.

ARGOS USA

Certificate of Compliance

Product: Argos White Portland Cement Type I

Argos hereby certifies that each 94 lb (42.6 kg) bag of its Argos White Portland Cement Type I fully meet or exceed all the chemical and physical requirements of ASTM C150, the Standard Specification for Portland Cement and AASHTO M85 requirements for Portland Cement.

Furthermore, when Argos White is batched with type S Hydrated Lime complying with ASTM C270 and mixed in a mechanical paddle mixer at the rate of one part combined cementitious material to not less than 2-¼ and not more than 3 parts of damp loose masons sand and clean potable water, the resultant mortar will exceed the property requirements for ASTM C270, the Standard Specification for Mortar for Unit Masonry, provided that all the stated ingredients are mixed and tested in accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

Additionally, Argos White Cement is eminently qualified for use in an ASTM C926, Portland Cement-Based Plaster (Stucco) system when a White or Off-white finish coat is desired.

ARGOS USA

Certificate of Compliance

Product: Argos Type N Masonry Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Type N Masonry complies with ASTM specification C91 for use in producing ASTM C 270 Type N mortar without further addition of Hydrated Lime.

Additionally, this Type N Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ARGOS Type N Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Type S Masonry Cement

Argos hereby certifies that each 75 lb (34kg) bag of its Type S Masonry Cement fully complies with ASTM specification C91 for use in producing ASTM C270 Type S mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this Type S Masonry Cement, when tested in accordance with ASTM C 1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ARGOS Type S Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Type M Masonry Cement

Argos hereby certifies that each 80 lb (36.3 kg) bag of its Type M Masonry fully complies with ASTM specification C91 for use in producing ASTM C270 Type M mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this Type M Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ARGOS Type M Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type M mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Type N Superbond™ Mortar Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Type N Superbond™ Mortar Cement complies with ASTM specification C1329 for use in producing ASTM C270 Type N mortar without further addition of Hydrated Lime.

Additionally, this Type N Superbond™ Mortar Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Type N Superbond™ Mortar Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C 270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Type S Superbond™ Mortar Cement

Argos hereby certifies that each 75 lb (31.8 kg) bag of its Type N Superbond™ Mortar Cement complies with ASTM specification C1329 for use in producing ASTM C270 Type S mortar without further addition of Hydrated Lime.

Additionally, this Type S Superbond™ Mortar Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Type S Superbond™ Mortar Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Type M Superbond™ Mortar Cement

Argos hereby certifies that each 80 lb (31.8 kg) bag of its Type M Superbond™ Mortar Cement complies with ASTM specification C1329 for use in producing ASTM C 270 Type M mortar without further addition of Hydrated Lime.

Additionally, this Type M Superbond™ Mortar Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Type M Superbond™ Mortar Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C 270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Mason's Mix Type N Masonry Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Type N Magnolia® Mason's Mix Masonry Cement complies with ASTM specification C91 for use in producing ASTM C 270 Type N mortar without further addition of Hydrated Lime.

Additionally, this Type N Magnolia® Mason's Mix Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Type N Magnolia® Mason's Mix Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Type S Masonry Cement

Argos hereby certifies that each 75 lb (34kg) bag of its Magnolia® Type S Masonry fully complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C260/C260Ma for use in producing ASTM C270 Type S mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this Type S Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Magnolia® Type S Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Type M Masonry Cement

Argos hereby certifies that each 80 lb (36.3 kg) bag of its Magnolia® Type M Masonry Cement fully complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing ASTM C270 Type M mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this Type M Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Magnolia® Type M Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type M mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Buff Type N Masonry Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Magnolia® BUFF Type N Masonry Cement complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C 260/C260Ma for use in producing an ASTM C 270 BUFF Type N mortar without further addition of oxides or Hydrated Lime.

Additionally, this Magnolia® BUFF Type N Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Magnolia® BUFF Type N Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Dark Masonry Cement Type N

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Magnolia® Dark Type N Masonry Cement complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing an ASTM C270 BUFF Type N mortar without further addition of oxides or Hydrated Lime.

Additionally, this Magnolia® Dark Type N Masonry Cement, when tested in accordance with ASTM C 1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Magnolia® Dark Type N Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Magnolia® Ultra Dark (Mud) Type N Masonry Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its Magnolia® ULTRA DARK Type N Masonry fully complies with ASTM specification C91, Federal specification SS-C-181e, and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing an ASTM C270 ULTRA DARK gray Type N mortar without further addition of oxide or Hydrated Lime.

Additionally, this Magnolia® ULTRA DARK Type N Masonry Cement, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ULTRA DARK Type N Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos White Type N Masonry Cement

Argos hereby certifies that each 70 lb (31.8 kg) bag of its ARGOS WHITE Type N Masonry Cement is a formula consisting of limestone and Argos White Portland Cement Type I with the blend complying with ASTM C91 for use in producing ASTM C270 Type N mortar.

Additionally, ARGOS WHITE Masonry Cement type N masonry cement has a water retention in excess of 75% and when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ARGOS WHITE Masonry Cement Type N masonry cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos White Type S Masonry Cement

Argos hereby certifies that each 75 lb (34 kg) bag of its ARGOS WHITE Type S Masonry Cement, consisting of ARGOS White Portland Cement Type I complying with ASTM C150 and Masons Lime Type S Hydrated Lime complying with ASTM C207. This blend fully conforms to ASTM specifications C91 and C1329 for use in producing ASTM C270 Type S mortar. This blend fully conforms to ASTM specifications C91 and C1329 without further additions of White Portland Cement or Hydrated Lime.

Additionally, ARGOS WHITE Masonry Cement type S masonry cement has a water retention in excess of 75% and when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when ARGOS WHITE Cement Type S Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Custom Color Type N Masonry

Argos hereby certifies that each 70 lb (31.8 kg) bag of its US CEMENT™ Custom Color Type N Masonry Cement fully complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing ASTM C270 Type N mortar without further addition of Hydrated Lime.

Additionally, this US CEMENT™ Type N Masonry Cement, when tested in accordance with ASTM C 1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when its US CEMENT™ Custom Color Type N Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type N mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Custom Color Type S Masonry Cement

Argos hereby certifies that each 75 lb (34 kg) bag of its US CEMENT™ Custom Color Type S Masonry Cement fully complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing ASTM C270 Type S mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this US CEMENT™ Type S Masonry Cement, when tested in accordance with ASTM C 1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when US CEMENT™ Custom Color Type S Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C 270 is not a field test procedure. It is to be performed only in a qualified laboratory setting

ARGOS USA

Certificate of Compliance

Product: Argos CEMENT™ Custom Color Type M Masonry Cement

Argos hereby certifies that each 80 lb (36.3 kg) bag of its US CEMENT™ Custom Color Type M Masonry fully complies with ASTM specification C91 and WESTVACO ULTRA PLAS® complying with ASTM C 260 for use in producing ASTM C 270 Type M mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this US CEMENT™ Type M Masonry Cement, when tested in accordance with ASTM C 1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when US CEMENT™ Custom Color Type M Masonry Cement is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C 144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C 270, Table II for Type M mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting

ARGOS USA

Certificate of Compliance

Product: Argos Type S Superbond™ Mortar Cement WP

Argos hereby certifies that each 75 lb (34 kg) bag of its Superbond™ Type S Mortar Cement WP fully complies with ASTM specification C1329 and WESTVACO ULTRA PLAS® complying with ASTM C260 for use in producing ASTM C270 Type S mortar without further addition of Portland Cement or Hydrated Lime.

Additionally, this Superbond™ Type S Mortar Cement WP, when tested in accordance with ASTM C1403, affords a level of water repellency which is well below the absorption requirement of Federal specification SS-C-181-e.

Furthermore, when Superbond™ Type S Mortar Cement WP is mixed in a mechanical paddle mixer at the rate of 1 cubic foot (1 bag) cement to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, the resultant mortar will exceed the property requirements of ASTM C270, Table II for Type S mortar, provided that all the stated ingredients are mixed and tested in full accordance with all the applicable provisions of ASTM C 270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Eaglebond® Type N Portland Cement & Lime

Argos North America Inc. hereby certifies that each 70 lb (31.8 kg) bag of its Eaglebond® Type N Premixed Portland Cement and Hydrated Lime contains, by volume, one (1) part ARGOS Magnolia® Type I Portland Cement complying with ASTM C150 and by volume, one (1) part Masons Lime Type S Hydrated Lime complying with ASTM C207. This blend fully conforms to the proportion requirements of ASTM C270 for Type N mortar.

Furthermore, this premixed portion of Type I Portland cement and Type S Hydrated Lime, when mixed in a mechanical paddle mixer at the rate of one cubic foot (1 bag) cement-lime to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C 144) and clean potable water, will produce a mortar which will exceed the property requirements for ASTM C270 for Type N mortar, provided that all the stated ingredients are mixed and tested in accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Eaglebond® Type S Portland Cement & Lime

Argos North America Inc. hereby certifies that each 70 lb (31.8 kg) bag of its Eaglebond® Type N Argos hereby certifies that 75 lb (34 kg) bag of its Eaglebond® Type S Premixed Portland Cement and Hydrated Lime contains, by volume, one (1) part ARGOS Magnolia® Type I Portland Cement complying with ASTM C150 and by volume and one half (1/2) part Mason's Lime Type S Hydrated Lime complying with ASTM C207 by volume. This blend fully conforms to the proportion requirements of ASTM C270 for type S mortar.

Furthermore, this premixed portion of Type I Portland Cement and Type S Hydrated Lime, when mixed in a mechanical mortar mixer at the rate of one cubic foot (1 bag) cement-lime to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, will produce a mortar which will exceed the property requirements for ASTM C270 for Type S mortar, provided that all the stated ingredients are mixed and tested in accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Eaglebond® Type M Portland Cement and Lime

Argos USA hereby certifies that each 80 lb (36.3 kg) bag of its Eaglebond® Type M Premixed Portland cement and Hydrated Lime contains, by volume, one (1) part ARGOS Magnolia® Type I Portland Cement complying with ASTM C150 and by volume and one fourth (1/4) part Masons Lime Type S Hydrated Lime complying with ASTM C207 by volume. This blend fully conforms to the proportion requirements of ASTM C270 for Type M mortar.

Furthermore, this premixed portion of Type I Portland cement and Type S Hydrated Lime, when mixed in a mechanical paddle mixer at the rate of one cubic foot (1 bag) cement-lime to not less than 2-¼ and not more than 3 cubic feet of damp loose masons sand (conforming to ASTM C144) and clean potable water, will produce a mortar which will exceed the property requirements for ASTM C270 for Type M mortar, provided that all the stated ingredients are mixed and tested in accordance with all the applicable provisions of ASTM C270.

Please note that specification ASTM C270 is not a field test procedure. It is to be performed only in a qualified laboratory setting.

ARGOS USA

Certificate of Compliance

Product: Argos Premium Stucco Cement

Argos hereby certifies that each 80 lb (36.3 kg) bag of its Premium Stucco Cement is a mill mixed formula fully complying with ASTM specification C1328 for use in producing ASTM C926 Portland Cement-based Plaster without further addition of Portland Cement or Hydrated Lime.

Additionally, Premium Stucco Cement contains WESTVACO ULTRA PLAS® complying with ASTM C260, a water-repellent additive, which is interground with the cement during finish grinding, eliminating the need for further jobsite waterproofing additives.

Furthermore, this premixed portion of Premium Stucco Cement, when mixed in accordance with ASTM C926, The Standard Specification for the Preparation and Application of Portland Cement - Based Plaster, will produce durable stucco for both exterior and interior surfaces provided an aggregate (sand) complying with ASTM C897 and clean potable water is used in the preparation of the stucco.

ARGOS USA