**SECTION 04065**

**MASONRY MORTAR**

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\*\* NOTE TO SPECIFIER \*\* Amerimix; masonry mortar, masonry cement, grouts and additives.
This section is based on the products of Amerimix, which is located at:
375 Northridge Rd.
Atlanta, GA 30350
Toll Free Tel: 800-334-0784
Tel: 770-804-3363
Email:[request info (Joey.peters@oldcastle.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Amerimix&coid=45663&rep=&fax=&message=RE:%20Spec%20Question%20(04065amx):%20%20&mf=)
Web:[www.amerimix.com](http://www.amerimix.com)
[[Click Here](http://www.arcat.com/arcatcos/cos45/arc45663.html)] for additional information.
Amerimix Companies manufactures high quality mortar mixes, grouts, stucco mixes and cements. Our experienced sales, customer service and technical support teams are available to help you select the right Amerimix Companies product for any commercial or residential application. Amerimix Companies products are preblended for consistency in every bag, in every batch and from job to job.

1. GENERAL
	1. SECTION INCLUDES
		1. Preblended masonry mortars of the following types:
			1. Portland cement, lime and sand mortar.
			2. Masonry cement and sand mortar.
			3. Water repellent portland cement mortar.
			4. Water repellent masonry cement mortar.
			5. Integral water repellent for mortar.
			6. Tuck pointing mortar.
			7. Colored portland cement mortar.
			8. Colored masonry cement mortar.
			9. Stone veneer Portland cement mortar.
			10. Stone veneer masonry cement mortar.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 04200 - Unit Masonry: Masonry units and installation requirements.
		2. Section 04210 - Clay Unit Masonry: Masonry units and installation requirements.
		3. Section 04220 - Concrete Unit Masonry: Masonry units and installation requirements.
		4. Section 04430 - Stone Masonry: Masonry units and installation requirements.
		5. Section 07600 - Sheet Metal Flashing: Flashing requirements.
		6. Section 07900 - Joint Sealants: Control joint and sealant requirements.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Concrete Institute (ACI), American Society of Civil Engineers (ASCE), The Masonry Society (TMS) Masonry Joint Standards Committee:
			1. ACI 530.1 / ASCE 6 / TMS 602 - Specification for Masonry Structures.
		2. ASTM International (ASTM):
			1. ASTM C91 - Standard Specification for Masonry Cement
			2. ASTM C144- Standard Specification for Aggregate for Masonry Mortar
			3. ASTM C150- Standard Specification for Portland Cement.
			4. ASTM C207- Standard Specification for Hydrated Lime for Masonry Purposes.
			5. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
			6. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Masonry.
			7. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement Based Plasters.
			8. ASTM C979 - Standard Specifications for Pigments for Integrally Colored Concrete.
			9. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength.
			10. ASTM C1384- Standard Specification for Admixtures for Masonry Mortars.
			11. ASTM E514 - Standard Test Method for Water Penetration and Leakage through Masonry.
		3. National Concrete Masonry Association (NCMA):
			1. NCMA TEK 08-2A - Removal of Stains from Concrete Masonry.
			2. NCMA TEK 08-4A - Cleaning Concrete Masonry.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Mixing and preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. LEED Submittals:
			1. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.
		2. Test Reports:
			1. Submit certified test reports showing that the cementitious components of the mortar mix comply with the specified requirements.
			2. Submit certified test report showing that the mortar complies with the specified requirements.
			3. Submit certified test reports prepared by qualified independent laboratory indicating compliance with performance requirements for mortar admixtures.
		3. Certificates:
			1. From masonry Installer stating that only mortar made with the masonry mortar cementitious materials or pre-blended dry masonry mortar mix containing specified powdered water-repellent admixture has been used for construction of water-repellent masonry.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long representing actual product, in color selected.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Firm specializing in manufacture of masonry materials with minimum 10 years' experience.
		2. Installer Qualifications: Minimum 2 year experience installing similar products.
		3. Quality Assurance Testing: Test Reports prepared by a qualified independent laboratory indicating compliance with the following performance requirements.
			1. Mortar Test (Property Specification): For each mix provided, according to ASTM C780. Test mortar for mortar air content and compressive strength.
			2. Testing Standard: Mortar samples tested in accordance with ASTM C780.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship. Construct sample masonry panel to verify compatibility of materials and effects of materials and construction procedures on final appearance of masonry work. Incorporate range of masonry units, mortar textures and colors to be used.
			1. Finish areas designated by Architect.
			2. Construct panel using jobsite materials.
			3. Prepare more than one sample batch of mortar, especially when coloring pigments are added to the mortar, to establish acceptable visual and performance characteristics.
			4. Clean one half of panel and apply coatings, if any, and joint sealants.
			5. Refinish mock-up area as required to produce acceptable work. Construct additional samples as necessary to obtain Architect approval.
			6. Do not proceed with remaining work until workmanship is approved by Architect.
			7. Retain approved sample panel during construction as standard for judging completed masonry work.
			8. Acceptance of sample panel does not constitute approval of deviations from materials contained in sample panel, unless such deviations are specifically approved by the Architect in writing.
	1. PRE-INSTALLATION MEETINGS
		1. Pre-Installation Meeting: At least three weeks prior to commencing work conduct a meeting at the project site to discuss contract requirements and job conditions; require the attendance of masonry installer, installers of related materials; notify Architect in advance of meeting. Include the following agenda items:
			1. Interface of flashing, waterproofing, joints, and air barrier work with masonry installation.
			2. Construction details in accordance with ACI 530.1 / ASCE 6 / TMS 602 - Specification for Masonry Structures.
			3. Mortar handling and tooling techniques.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver mortar mix to site in sealed bags. Identify each bag with material name and type.
		2. Handle materials to avoid damage.
		3. Store the masonry mortar under cover to prevent materials from becoming wet before use.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's published recommendations.
		2. Proceed with work after all surfaces and conditions comply with requirements indicated in referenced masonry installation standard and manufacturer's published instructions.
	4. SEQUENCING
		1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Amerimix, which is located at: 375 Northridge Rd.; Atlanta, GA 30350; Toll Free Tel: 800-334-0784; Tel: 770-804-3363; Email:request info (support@amerimix.com); Web:[www.amerimix.com](http://www.amerimix.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. PREBLENDED MORTARS

\*\* NOTE TO SPECIFIER \*\* AMX 400 series mortars are manufactured using Portland cement, hydrated lime and dried mason sand. AMX 400 series mortars are available in Type N, S or M and can be custom pigmented to meet architectural specifications. Delete if not required.

* + 1. Portland Cement, Lime and Sand Mortars:
			1. Product: AMX 400 N by Amerimix Companies.
			2. Product: AMX 400 S by Amerimix Companies.
			3. Product: AMX 400 M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. Exceeds ASTM C270 Standard Specification for Mortar for Unit Masonry.
				2. Meets ACI 530 code and ICC requirements for masonry mortars.
				3. Color pigments comply with ASTM C979 Standard Specifications for Pigments in Integrally Colored Concrete.

\*\* NOTE TO SPECIFIER \*\* AMX 500 series preblended mortars contain masonry cement (Portland cement when applicable), proprietary admixtures and dried mason sand. AMX 500 series mortars are available in Type N, S and M and can be custom pigmented to meet architectural specification. Delete if not required.

* + 1. Masonry Cement and Sand Mortars:
			1. Product: AMX 500 N by Amerimix Companies.
			2. Product: AMX 500 S by Amerimix Companies.
			3. Product: AMX 500 M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. ASTM C270 Standard Specification for Mortar for Unit Masonry.
				2. Color pigment complies with ASTM C979 Standard Specification for Pigments in Integrally Colored Concrete.
				3. Meets ACI 530 code and ICC requirements for masonry mortars.

\*\* NOTE TO SPECIFIER \*\* AMX 410 WRM Water Repellent Mortar eliminates the need to stock water repellent admixtures. It also eliminates the possibility of under-dosing or over-dosing the mortar with admixtures. Regardless of batch size, the repellent agent is correctly proportioned in every batch. AMX 410 WRM Water Repellent Mortar now with RainBloc; not available in all regions. Delete if not required.

* + 1. Water Repellent Portland Cement Mortars:
			1. Product: AMX 410 N by Amerimix Companies.
			2. Product: AMX 410 S by Amerimix Companies.
			3. Product: AMX 410 M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. ASTM C1384 Standard Specification for Admixtures for Masonry Mortars.
				2. Exceeds ASTM C270 Standard Specification for Mortar for Unit Masonry.
				3. Meets ACI 530 code and ICC requirements for Masonry Mortars.
				4. Color pigments comply with ASTM C979 Standard Specifications for Pigments in Integrally Colored Concrete.

\*\* NOTE TO SPECIFIER \*\* AMX 510 WRM Water Repellent Mortar eliminates the need to stock water repellent admixtures. It also eliminates the possibility of under-dosing or over-dosing the mortar with admixtures. Regardless of batch size, the repellent agent is correctly proportioned in every batch. Delete if not required.

* + 1. Water Repellent Masonry Cement Mortars:
			1. Product: AMX 510 N by Amerimix Companies.
			2. Product: AMX 510 S by Amerimix Companies.
			3. Product: AMX 510 M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. ASTM C1384 Standard Specification for Admixtures for Masonry Mortars.
				2. Exceeds ASTM C270 Standard Specification for Mortar for Unit Masonry.
				3. Meets ACI 530 code and ICC requirements for Masonry Mortars.
				4. Color pigments comply with ASTM C979 Standard Specifications for Pigments in Integrally Colored Concrete.

\*\* NOTE TO SPECIFIER \*\* In addition to integral water repellent in mortar, a compatible integral liquid polymeric admixture must be added to the concrete masonry units at the time of manufacturer, coordinate with unit masonry specification. Delete if not required.

* + 1. Integral Water Repellent for Mortar:
			1. Product: RainBloc GP by Amerimix Companies.
			2. Compliance:
				1. Water Permeance of Masonry, ASTM E514: Capable of achieving a Class E Rating when evaluated using ASTM E514 with the test extended to 72 hours.
				2. Flexural Bond Strength of Masonry, ASTM C1072: No statistically lower masonry flexural bond strength shall occur as a result of adding integral water repellent CMU and mortar admixtures when compared to a control (containing no admixtures) CMU and mortar tested in accordance with ASTM C1072 as directed by ASTM C1384.
				3. Water Repellent Mortar Admixture Classification: Capable of meeting all of the requirements for a Water Repellent Classification when evaluated in accordance with ASTM C1384.

\*\* NOTE TO SPECIFIER \*\* AMX 420 Tuck Pointing Mortar is a factory blend of graded sands, hydrated lime and portland cement with a formulation engineered to repair and restore masonry structures where a low strength, Type O mortar is required. Delete if not required.

* + 1. Tuck Pointing Mortars:
			1. Product: AMX 420, Type O by Amerimix Companies.
			2. Pigment: Standard or custom pigment color as selected by Architect.
			3. Compliance:
				1. Exceeds ASTM C270 Standard Specification for Mortar for Unit Masonry.
				2. Meets ACI 530 code and ICC requirements for Masonry Mortars.

\*\* NOTE TO SPECIFIER \*\* AMX 405 C is factory blends of portland cement, hydrated lime, dried sand and color pigment formulation engineered to provide long water retention, exceptional workability and superior bond strength over masonry substrates. Amerimix Companies offers 23 standard colors or can custom color match to your project requirements. Delete if not required.

* + 1. Colored Portland Cement Mortars:
			1. Product: AMX 405C - Custom, Type N by Amerimix Companies.
			2. Product: AMX 405C - Custom, Type S by Amerimix Companies.
			3. Product: AMX 405C - Custom, Type M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. ASTM C150 Standard Specification for Portland Cement.
				2. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes.
				3. ASTM C270 Standard Specification for Mortar for Unit Masonry.

\*\* NOTE TO SPECIFIER \*\* AMX 505 C is factory blends of masonry cement, hydrated lime, dried sand and color pigment formulation engineered to provide long water retention, exceptional workability and superior bond strength over masonry substrates. Amerimix Companies offers 23 standard colors or can custom color match to your project requirements. Delete if not required.

* + 1. Colored Masonry Cement Mortars:
			1. Product: AMX 505C - Custom, Type N by Amerimix Companies.
			2. Product: AMX 505C - Custom, Type S by Amerimix Companies.
			3. Product: AMX 505C - Custom, Type M by Amerimix Companies.
			4. Pigment: Standard or custom pigment color as selected by Architect.
			5. Compliance:
				1. ASTM C91 Standard Specification for Masonry Cement.
				2. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes.
				3. ASTM C270 Standard Specification for Mortar for Unit Masonry.

\*\* NOTE TO SPECIFIER \*\* Amerimix Companies AMX 475 PSV Polymer Modified Stone Veneer Mortar is a high performance, polymer modified mortar designed with superior bond strength and ability to grout artificial stone on horizontal and vertical surfaces to concrete or masonry substrates. Delete if not required.

\*\* NOTE TO SPECIFIER \*\* AMX 470 Stone Veneer Mortar is a high performance mortar designed to set and grout artificial stone on horizontal or vertical concrete or concrete masonry substrates. Delete if not required.

* + 1. Stone Veneer Masonry Cement Mortars:
			1. Product: AMX 470 by Amerimix Companies.
			2. Color: Gray or buff as selected by Architect.
			3. Compliance:
				1. ASTM C91 Standard Specification for Masonry Cement.
				2. ASTM C270 Standard Specification for Mortar for Unit Masonry.
	1. ACCESSORY MATERIALS
		1. Water: Clean and free from deleterious acids, alkalies, and organic matter.
		2. Sand: Mason's sand, ASTM C144 Standard Specification for Aggregate for Masonry Mortar.
		3. Hydrated Lime: ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes.
	2. MIXING

\*\* NOTE TO SPECIFIER \*\* Portland cement mortar. Delete if not required.

* + 1. Mixing Procedure: Add Portland cement to sand, water and lime in mortar mixer and mix for 3 to 5 minutes.

\*\* NOTE TO SPECIFIER \*\* Masonry cement mortar. Delete if not required.

* + 1. Mixing Procedure: Add masonry cement to sand and water in mortar mixer and mix for 3 to 5 minutes.
		2. Retempering: Use mortar within 2 hours of initial mixing. Retemper mortar that has stiffened because of evaporation of water from mortar by adding water and blending to restore required consistency.
		3. Cold Weather: Follow National Concrete Masonry Association recommendations for cold weather construction.
		4. Hot Weather: Follow National Concrete Masonry Association recommendations for hot weather construction.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
	4. MORTAR BEDDING AND JOINTING
		1. Lay hollow masonry units as follows:
			1. Bed face shells in mortar and make head joints of depth equal to bed joints.
			2. Bed webs in mortar in all courses of piers, columns, and pilasters.
			3. Bed webs in mortar in grouted masonry, including starting course on footings.
			4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
			5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.
		2. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

\*\* NOTE TO SPECIFIER \*\* Delete below if integral water repellent is not used.

* + 1. Water-Repellent CMU Masonry:
			1. Installer shall use only concrete masonry units containing a compatible integral water-repellent admixture added to the concrete masonry units (CMU) at the time of manufacture.
			2. Installer shall use only mortar containing a powdered water-repellent admixture and mixed according to the manufacturer's recommended instructions for construction of water-repellent masonry walls.
			3. Use face shell bedding to provide the greatest resistance to water penetration.

\*\* NOTE TO SPECIFIER \*\* Delete below if stone or cast-stone are not used.

* + 1. Set stone and cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
			1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.

\*\* NOTE TO SPECIFIER \*\* For relatively impervious stones, such as granite retain first subparagraph. For absorptive stones, such as limestone and sandstone, and for cast stone require wetting if recommended by manufacturer. Delete provision not required.

* + - 1. Wetting: Do not wet unit surfaces. Allow cleaned surfaces to dry before setting.
			2. Wetting: Wet joint surfaces thoroughly before applying mortar.
			3. Rake out mortar joints for pointing with sealant.
		1. Rake out mortar joints at pre-faced CMUs, glazed brick and glazed structural clay tile to a uniform depth of 1/4 inch (6 mm) and point with epoxy mortar to comply with epoxy-mortar manufacturer's written instructions.
		2. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

\*\* NOTE TO SPECIFIER \*\* Delete below if glazed masonry units are not used.

* + - 1. For glazed masonry units, use a nonmetallic jointer 3/4 inch (19 mm) or more in width.
		1. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
		2. Cut joints flush where indicated to receive waterproofing, cavity wall insulation or air barriers unless otherwise indicated.
	1. FIELD QUALITY CONTROL

\*\* NOTE TO SPECIFIER \*\* Delete one of the two following paragraphs.

* + 1. Owner will arrange and pay for field testing.
		2. Contractor shall arrange and pay for field testing by an acceptable testing agency.
		3. Field Testing: In accordance with ASTM C780 with following exception: Verify compressive strength by obtaining minimum 20 pound (9 kg) uniform sample of dry blend, prepare mix as specified, and test in accordance with applicable portions of ASTM C270.
	1. CLEANING
		1. In-Progress Cleaning: Promptly remove excess wet mortar as work progresses by dry brushing.
		2. Final Cleaning: Clean masonry work once mortar is set and cured.
			1. Test cleaning methods on one-half of sample panel prior to cleaning masonry work.
			2. Remove dirt or stains from masonry walls exposed in the finished work in accordance with the manufacturer's recommendations and NCMA TEK 08-02A.
			3. Do not clean using strong acids, overaggressive sandblasting, or high-pressure cleaning methods.
			4. Clean in accordance with manufacturer's recommendation and NCMA TEK 08-04A.
			5. Comply with environmental laws and restrictions of authorities having jurisdiction.
	2. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION