



04 DIVISION
MORTAR

XP500

THIN VENEER ADHESION MORTAR



SUPERIOR WORKABILITY & ADHESION. MAXIMUM PRODUCTIVITY.

SPEC MIX® Thin Veneer Adhesion Mortar XP500 is a premium preblended polymer modified thin set mortar specifically designed to bond masonry thin veneer units including manufactured and gauged or ungauged natural thin stone and thin brick to substrates for interior and exterior installations. Its innovative, anti-sag formulation and optimized sand gradation provide superior workability, adhesion and durability crucial to the application.

SPEC MIX XP500 is engineered specifically to adhere thin cut natural and manufactured masonry veneer units utilizing performance additives to increase sag resistance to speed installation and increase bond strength to reduce callbacks. SPEC MIX XP500 exceeds ANSI A118.4 and ANSI A118.15 applicable requirements as well as TMS 402/602 Building Code Requirements and Specification for Masonry Structures shear strength requirements when tested in accordance with ASTM C 482.

TYPICAL MATERIALS
PORTLAND CEMENT
AGGREGATES
PERFORMANCE ADMIXTURES



(VM-07)

SPEC MIX XP500 IS THE LOW-SAG, HIGH BOND ADHESIVE MORTAR THAT MAXIMIZES DAILY PRODUCTION

KEY FEATURES

- Engineered to adhere thin cut natural and manufactured masonry veneer units
- Performance additives increase sag resistance to speed installation
- Increased bond strength reduces callbacks
- Exceeds ANSI A118.4 and ANSI A118.15 applicable requirements
- Exceeds TMS 402/602 shear strength requirements when tested in accordance with ASTM C 482

SUITABLE SUBSTRATES

When mixed with clean water, SPEC MIX Thin Veneer Adhesion Mortar XP500 can be used with the following:

- Interior and exterior thin veneer installations
- Hardened scratch coats
- Concrete (properly prepared and free of curing compounds)
- Concrete masonry units
- Cement backer boards
- Gypsum wallboard with or without primer (consult with primer manufacturer for suitability) (interior installation only)



PERFORMANCE STANDARDS

SPEC MIX THIN VENEER ADHESION MORTAR XP500 WAS PUT TO THE TEST TO CONFIRM IT IS COMPLIANT WITH THE FOLLOWING PERFORMANCE STANDARDS:

- AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) ANSI A118.4 AND A118.15
- ASTM C 482 STANDARD TEST METHOD FOR BOND STRENGTH OF CERAMIC TILE TO PORTLAND CEMENT PASTE
- TMS 402/602 BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES
- TILE COUNCIL OF NORTH AMERICA (TCNA) TCNA HANDBOOK FOR CERAMIC TILE INSTALLATION

ENGINEERING DATA (LABORATORY PREPARED)

* DUE TO THE WIDE VARIABILITY IN NATURAL STONE PHYSICAL CHARACTERISTICS AND STRENGTHS, TESTING IS PERFORMED WITH MANUFACTURED TILE FORMATS.

	ANSI A118.15 REQUIREMENTS	SPEC MIX XP500 (TYPICAL RESULTS)
PORCELAIN MOSAIC TILE SHEAR STRENGTH, PSI		
AT 1 DAY	100 PSI (0.7 MPa)	>200 PSI (1.3 MPa)
AT 7 DAYS	300 PSI (2.0 MPa)	>600 PSI (4.1 MPa)
AT 7 DAYS DRY / 7 DAYS WATER IMMERSION	200 PSI (1.3 MPa)	>300 PSI (2.0 MPa)
AT 28 DAYS	400 PSI (2.7 MPa)	>700 PSI (4.8 MPa)
AT 28 DAYS WITH FREEZE-THAW CYCLING	250 PSI (1.7 MPa)	>500 PSI (3.4 MPa)
AT 28 DAYS HEAT AGING	400 PSI (2.7 MPa)	>800 PSI (5.5 MPa)
QUARRY TILE SHEAR STRENGTH, PSI		
AT 28 DAYS	150 PSI (1.0 MPa)	>300 PSI (2.0 MPa)
AT 28 DAYS WITH FREEZE-THAW CYCLING	100 PSI (0.6 MPa)	>200 PSI (1.3 MPa)
CERAMIC TILE SHEAR STRENGTH, PSI		
AT 28 DAYS (ASTM C 482)	50 PSI (0.3 MPa)	>400 PSI (2.7 MPa)

APPROXIMATE COVERAGE RATES

	50 lb (22.6 kg) BAG
SCRATCH COAT - 1/4 in x 3/8 in (6.3 mm x 9.5 mm) NOTCHED TROWEL	60 to 70 ft ² (5.5 to 6.5 m ²)
SCRATCH COAT - 1/2 in x 1/2 in (13 mm x 13 mm) NOTCHED TROWEL	40 to 45 ft ² (3.7 to 4.2 m ²)
COATING MASONRY UNIT METHOD	30 to 33 ft ² (2.8 to 3.0 m ²)

NOTE: COVERAGE WILL VARY DEPENDING ON THE SUBSTRATE, SITE CONDITIONS AND CONSTRUCTION PRACTICES.



GENERAL SURFACE PREPARATION

Concrete or Concrete Masonry Installation:

Surfaces must be structurally sound, clean, dry and free from grease, oil, dirt, curing compounds, sealers, adhesives and other contaminants that would prevent a good bond. Glossy or painted surfaces must be sanded, stripped and cleaned of waxes, dirt and other contaminants. Dry, dusty concrete walls or concrete masonry should be dampened and excess water swept off to remove dust. Installation may be made on a damp surface. These surfaces must properly prepared to ensure a mortar bond. Surface sand/blast, pressure washing, or a combination of these methods may be necessary to achieve the required bondable surface. Wear proper personal protective equipment. If a bondable surface cannot be achieved, attach lath and scratch coat before installing thin masonry veneer. Follow TMS 402/602 hot and cold weather preparation and construction requirements. Fresh concrete surfaces do not require a minimum cure time before installation. Surfaces must be structurally sound and subject to deflection not to exceed the current ANSI standards.

Exterior Wood or Steel Stud Installation:

When installed over wood-based sheathing, such as plywood, OSB or asphalt impregnated sheathing, 2 layers of grade D building paper, complying with UBC Standards, drainage mat required. As an alternative, 2 layers of grade D building paper, 1 layer of grade D 60-minute paper and 1 layer of EPS or extruded polystyrene board with tongue and groove edges can be used prior to the installation of the wire fabric or self-furred metal lath. Open studs, non-rigid sheathing and metal siding must be prepared with 3.4 lb (1.5 kg) paper backed lath with a minimum 1/2 in (13 mm) thick scratch coat with 1/4 in (6.3 mm) to 3/8 in (9.5 mm) horizontal notches and allowed to cure for a minimum of 48 hours prior to thin masonry veneer installation.

Cement Board Installation:

All framing for cement board installations shall be not greater than 16 in (406.4 mm) on center. Plywood, OSB, or Gypsum Sheathing to be installed in accordance with design specifications, manufacturer's recommendations, and applicable installation standards. Proper flashing around penetrations, as well as weep screeds must be installed per manufacturer's recommendations. An approved weather resistive barrier must be installed per building code requirements.

Cement Board to be installed horizontally or vertically with wafer head cement board screws through sheathing and water resistant barrier into wood framing. Fasteners must penetrate a minimum of 1 in (25.4 mm) into wood studs. Fastener spacing to be maximum 8 in (203.2 mm) on center along the perimeter and in the field of the cement board unless otherwise specified by the design. Screws at board edges shall be placed 3/8 in (9.5 mm) from the edge. Fastener heads are to be driven flush with the face of the cement board. All vertical joints of the cement board shall be staggered and terminate on framing. Offset horizontal cement board joints a minimum of 12 in (304.8 mm) from horizontal sheathing joints. Offset vertical cement board joints a minimum of one stud space from vertical sheathing joints. No joints in cement board to occur at corners of windows or doors. Offset cement board joints a minimum of 8 in (203.2 mm) from the corners of openings by "L" cutting the cement board around corners of openings.

Treat joints in cement board with 4 in (101.6 mm) wide alkali-resistant fiberglass mesh tape imbedded in polymer modified mortar.

Movement Joint Placement

Expansion joints, control joints and cold joints should never be bridged with setting material. They must be brought through the finished masonry work and filled with an approved elastomeric sealant. Do not cover expansion joints with masonry units or mortar. Align veneer movement joints with movement joints in backing wall.



INSTALLATION/APPLICATION BEST PRACTICES

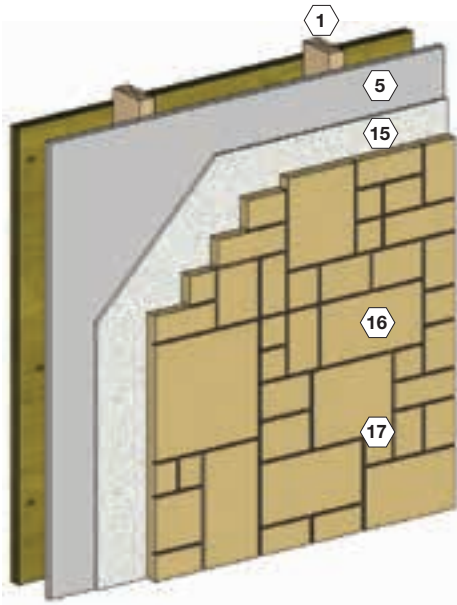
- SPEC MIX Thin Veneer Adhesion Mortar XP500 is not a replacement for a waterproofing membrane.
- Do not bond directly to metal, fiberglass, plastic or OSB panels.
- Do not use to install resin backed stone.
- Check building codes and structural requirements for adhering large and heavy thin veneer masonry units.
- Surfaces must be structurally sound and properly prepared to receive thin masonry veneers
- When setting moisture sensitive natural stone, check with Technical Services.

ADDITIONAL INSTALLATION INSTRUCTIONS

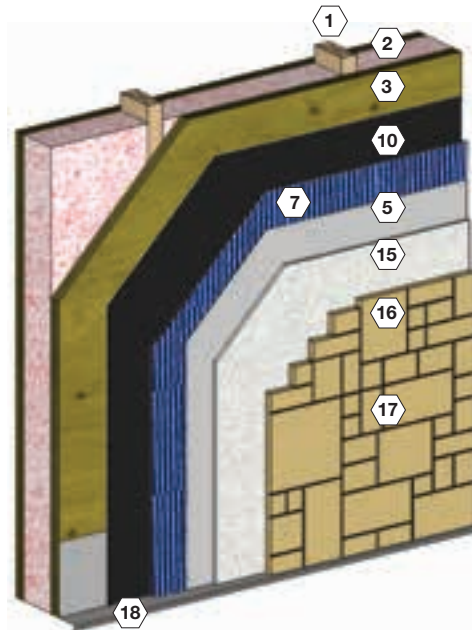
- FOLLOW PROPER COLD-WEATHER AND HOT-WEATHER MASONRY CONSTRUCTION PRACTICES IN THE CONCRETE MASONRY HANDBOOK AS PUBLISHED BY THE PORTLAND CEMENT ASSOCIATION WHEN AIR TEMPERATURE IS BELOW 40 °F (4 °C) OR ABOVE 100 °F (38 °C) RESPECTIVELY.
- CONTROL JOINTS CAN BE INSTALLED TO MITIGATE THE EFFECTS OF SUPPORT MOVEMENT TYPICALLY CAUSED BY SEISMIC CONDITIONS, CHANGE IN WEATHER, SHRINKAGE, AND DEFLECTION. THESE SHOULD BE INSTALLED IN ACCORDANCE WITH SPECIFICATIONS OF ENGINEER, ARCHITECT, DESIGNER AND LOCAL BUILDING CODES. REFER TO TCNA DETAILS EJ171.
- PREVENT WORK FROM OCCURRING ON THE OPPOSITE SIDE OF WALLS TO WHICH THE VENEER IS BEING APPLIED DURING AND WITHIN 48 HOURS AFTER INSTALLATION.
- WHERE DISSIMILAR MATERIALS ABOUT THE VENEER, SUCH AS WOOD, METAL OR VINYL, LEAVE A 1/2 in (13 mm) SPACE TO INSTALL BACKER ROD AND SEALANT.

INSTALLATION DETAILS

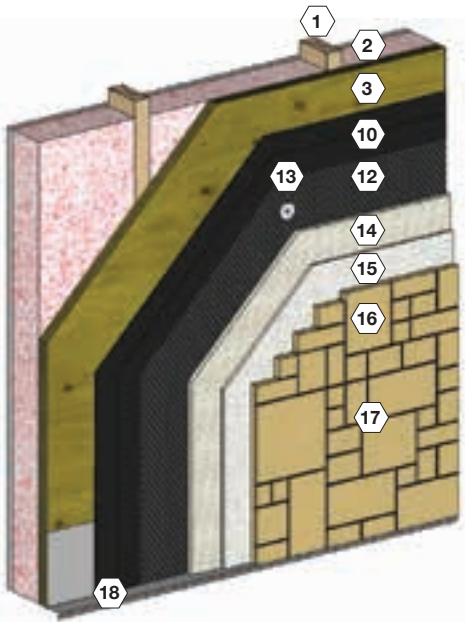
Masonry thin veneer materials and wall systems continue to evolve to meet changing codes and desires of building designers, engineers and owners. The following details reflect several possible wall systems that can be incorporated into a building's design. Installation of masonry thin veneer should follow ASTM C 1780 guidelines. It is important that the designer also reviews local building codes and takes into account other design elements before implementing one of these systems. These details show how SPEC MIX Thin Veneer Adhesion Mortar XP500, Adhered Veneer Mortar (AVM) and Polymer Modified Adhered Veneer Mortar (PMAVM) are used in application.



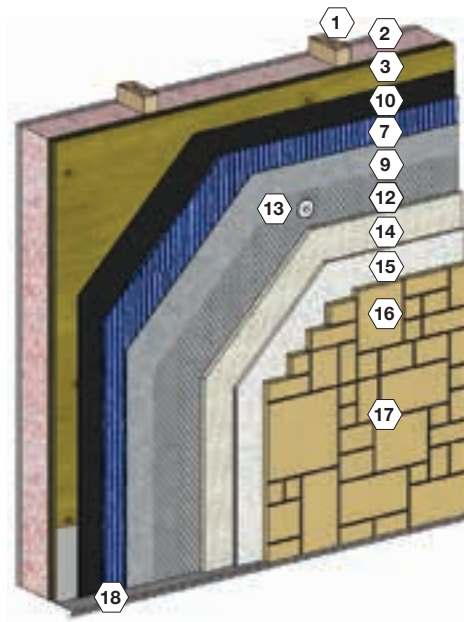
INTERIOR-CEMENT BOARD



EXTERIOR-CEMENT BOARD



WOOD/STEEL FRAMING

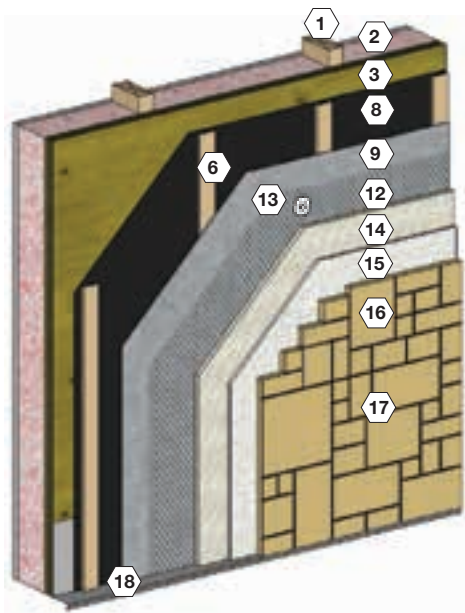


RAINSCREEN DRAINAGE SYSTEM

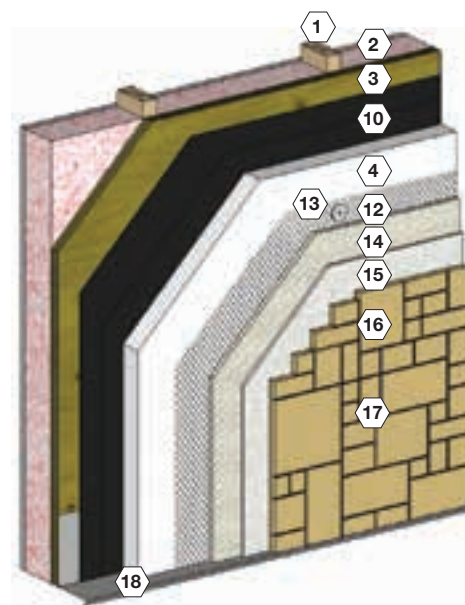
DETAIL KEY

1. Wood/ Steel Stud
2. Insulation
3. Exterior Grade Sheathing
4. Continuous Insulation
5. Cement Board to be installed per manufacturer instructions
6. Pressure Treated Furring 8 in (203mm) O.C.
7. Drainage Medium (Optional)
8. (1) Layer WRB or Fluid Applied WRB (Lapped Over Weep Screenshot)
9. (1) Layer WRB or Mortar Screen
10. (2) Layers WRB or Fluid Applied WRB (Lapped Over Weep Screenshot)
11. (2) Layers WRB or Fluid Applied WRB (Lapped Over Weep Screenshot)-If evaluated as such, foam may qualify as one layer
12. Lath
13. Lath Fasteners-Type & Spacing per ASTM C 1063
14. SPEC MIX Adhered Veneer or Polymer Modified Adhered Veneer Mortar scratch coat
15. SPEC MIX Thin Veneer Adhesion Mortar XP500 setting bed
16. Adhered Concrete Masonry Veneer/ Thin Natural Stone/ Thin Brick
17. SPEC MIX Adhered Veneer or Polymer Modified Adhered Veneer mortar joint
18. Weep Screenshot

SPEC MIX XP500's INNOVATIVE, ANTI-SAG FORMULATION PROVIDES SUPERIOR WORKABILITY, ADHESION AND DURABILITY CRUCIAL FOR HIGH PRODUCTIVITY

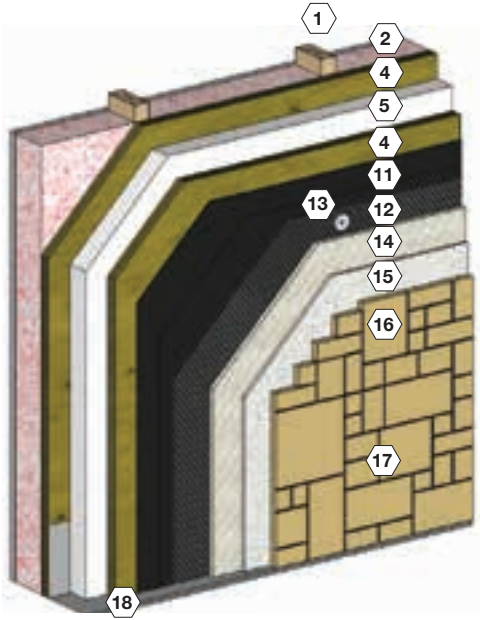


STRAPPED RAINSCREEN SYSTEM

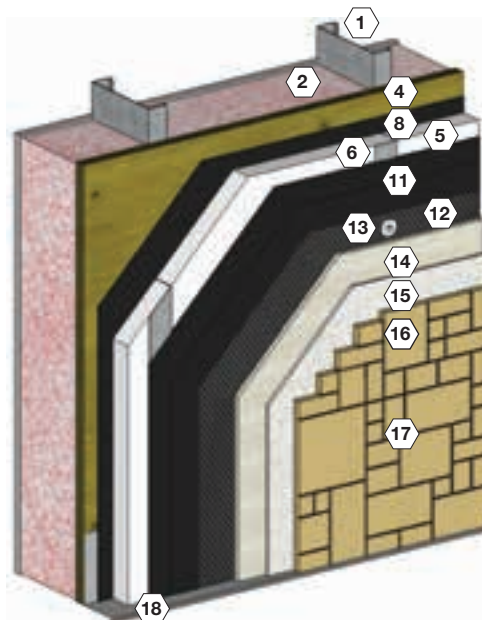


RIGID INSULATION

INSTALLATION DETAILS



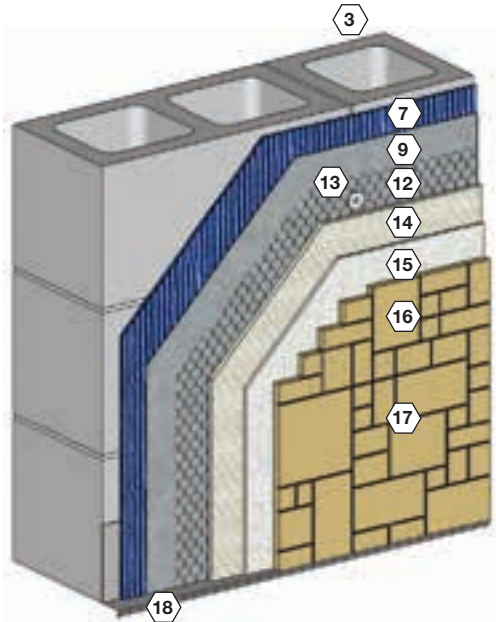
RIGID INSULATION WITH ADDITIONAL SHEATHING



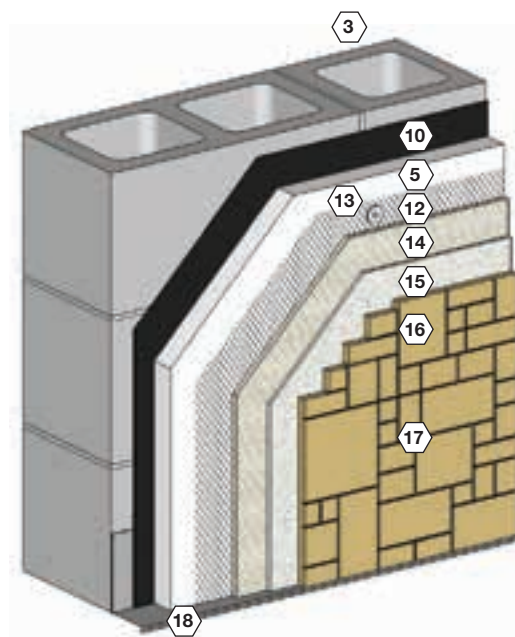
RIGID INSULATION WITH Z CHANNELS

DETAIL KEY

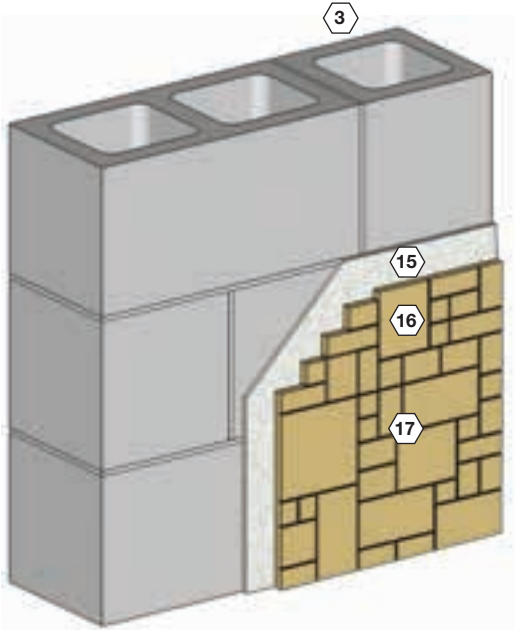
1. Wood/ Steel Stud
2. Insulation
3. Concrete Masonry or Concrete Wall System
4. Exterior Grade Sheathing
5. Continuous Insulation
6. Z Channel
7. Drainage Medium (Optional)
8. (1) Layer WRB or Fluid Applied WRB (Lapped Over Weep Screenshot)
9. (1) Layer WRB or Mortar Screen (Optional)
10. (2) Layers WRB or Fluid Applied WRB (Lapped Over Weep Screenshot)
11. (2) Layers WRB or Fluid Applied WRB-If evaluated as such, foam may qualify as one layer of WRB
12. Lath
13. Lath Fasteners-Type & Spacing per ASTM C 1063
14. SPEC MIX Adhered Veneer or Polymer Modified Adhered Veneer Mortar Scratch Coat
15. SPEC MIX Thin Veneer Adhesion Mortar XP500 Setting Bed
16. Adhere Concrete Masonry Veneer/ Thin Natural Stone/ Thin Brick
17. SPEC MIX Adhered Veneer or Polymer Modified Adhered Veneer Mortar Joint
18. Weep Screenshot (Optional)



CMU OR CONCRETE WALL SYSTEM



RIGID INSULATION ON CMU OR CONCRETE WALL SYSTEMS



DIRECT ADHERED ON CMU OR CONCRETE WALL SYSTEMS

For additional information on the installation of masonry thin veneer systems and wall details that may be applicable to your project, contact the International Masonry Institute (IMI), National Concrete Masonry Association (NCMA) and consult with the project designer/engineer. Always follow building codes.



www.imiweb.org



www.ncma.org



www.ncma.org/manufactured-stone-veneer/





THIN VENEER ADHESION MORTAR XP500

MIXING INSTRUCTIONS

WEAR IMPERVIOUS GLOVES, such as nitrile.

When mixing SPEC MIX XP500, use a mechanical batch mixer or an electric drill with a paddle to ensure homogeneity and good board life.

1. Add each 50 lb (22.6 kg) bag of SPEC MIX Thin Veneer Adhesion Mortar XP500 to 5 to 5.5 quarts (4.7 to 5.2 L) of clean, potable water.
2. Use a 300 to 500 rpm speed 1/2 in (13 mm) drill to achieve a smooth, paste-like consistency.
3. Let the mortar slake or stand for 5 to 10 minutes and then remix prior to use.
4. Stir occasionally during use, but do not add more water.

When properly mixed, troweled ridges will stand without slump.

INSTALLATION/APPLICATION

If installing on sheathed wood or steel frame construction with wire lath, use SPEC MIX Adhered Veneer Mortar or SPEC MIX Polymer Modified Adhered Veneer Mortar for the wall render prior to installing SPEC MIX Thin Veneer Adhesion Mortar XP500. When using a fluid applied air and water barrier follow manufacturer's instructions.

Prior to installation, make sure that the thin masonry veneer units are free from dust, cutting residue or any film that could impede proper bond to the substrate.

A sample of the proposed product will be provided by the manufacturer for architectural approval and testing, if required. Preparation of a sample panel with all materials and masonry systems employed in the final project is imperative. Retain the mock-up or field sample through the completion of the project.

SPEC MIX products must be kept dry, covered and protected from weather and other damage.

ADHERED VENEER INSTALLATION METHOD

Apply a skim coat of mortar to the surface of the masonry veneer unit using a standard masonry trowel for thin veneer application to coat the entire thin veneer surface. Then apply additional mortar sufficient to completely fill the space between the unit and substrate when set (approximately 1/4 in (6.3 mm)). Press the thin veneer unit firmly into place on a properly prepared substrate in a perpendicular motion, moving back and then forth into place using even pressure to make sure voids behind the unit are filled completely. Make sure to use

enough mortar to see mortar extruding around the units, ensuring complete coverage. Remove any excess mortar from the unit surface, sides of units or areas where units are not applied while mortar is still wet. Mixed material will remain workable for approximately 2 hours depending on site conditions.

THIN SET INSTALLATION METHOD

Key SPEC MIX Thin Veneer Adhesion Mortar XP500 into the substrate thoroughly using a 1/4 in x 3/8 in (6.3 mm x 9.5 mm) or 1/2 in x 1/2 in (13 mm x 13 mm) notched trowel. Add additional thin set mortar to the substrate and then comb with a notched trowel to produce horizontal ridges. Work in small areas to keep the bond coat plastic while installing. Coat masonry veneer units fully with SPEC MIX Thin Veneer Adhesion Mortar XP500 to provide a full mortar bed when installing thin masonry veneer units. Place thin masonry veneer into the mortar bed and adjust into final desired location using firm pressure. Remove any excess mortar from the unit surface, sides of units or areas where units are not applied while mortar is still wet.

JOINTING

Allow installation to cure for 24 hours before jointing. Joint thin veneer installation with SPEC MIX Polymer Modified Adhered Veneer Mortar or SPEC MIX Adhered Veneer Mortar; both mortars are specifically designed to flow through grout bags for ease of installation and are available in standard or custom colors.

CLEANING

Clean tools and stone work with water while the SPEC MIX XP500 Mortar is fresh. If XP500 gets on the surface of the units and is allowed to fully bond to the masonry units, the use of physical abrasion or chemical cleaning may be required for removal. If chemical cleaning is chosen, consult with the manufacturer of a national proprietary masonry cleaning solution company for the most appropriate solution.

PACKAGE SIZES AND DELIVERY EQUIPMENT

SPEC MIX Thin Veneer Adhesion Mortar XP500 is available in 50 lb (22.6 kg) packages for easy hand loading. Also available in 3,000 lb (1,360.7 kg) reusable bulk bags to be used with the various SPEC MIX silo delivery systems. Once the bulk bags of mortar are delivered to the project site, load them into the portable silo with a jobsite forklift and dispense the product into a mechanical batch mixer.

LIMITATIONS

SPEC MIX XP500 should be installed in accordance with the provisions of the local building code and applicable ASTM and ANSI standards. Good workmanship coupled with proper detailing and design assures durable, functional, watertight construction. SPEC MIX Thin Veneer Adhesion Mortar XP500 is intended to be used as a cementitious adhesive for bonding thin masonry veneer units to substrates. It should not be used as a standard mortar in full depth structural masonry construction. Follow proper cold-weather and hot-weather masonry procedures at temperatures below 40 °F (4 °C) or above 100 °F (38 °C) respectively.

NOTICE OF LIMITED WARRANTY IN THE UNITED STATES

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IN CANADA

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