Masonry Veneer Mortar PM

1. PRODUCT NAME
Tenon® Masonry Veneer Mortar PM

2. MANUFACTURER
TCC Materials®
2025 Centre Pointe Blvd.
Mendota Heights, MN 55120 USA

Phone: 1.651.688.9116
Fax: 1.651.688.9164
Internet: tccmaterials.com

3. PRODUCT DESCRIPTION
Tenon® Masonry Veneer Mortar PM is a polymer–modified blend of cementitious materials, oven–dried sand and special performance admixtures used as a bonding mortar for installing precast lightweight masonry veneer units, thin natural stone, and thin brick. This versatile non–sag, high–performance mix can also be used as the conventional scratch and base coat, or as a mortar joint grout, yet is excellent for applications such as dry stack where mortar joints are not used. It produces both a mechanical and chemical bond to the substrate with optimized consistency and workability, outperforming standard Type S and N mortars can be applied to Tenon® Waterproofing & Crack Isolation Membrane or directly to fully cured concrete.

Features and Benefits
- Excellent workability and board life
- Polymer–modified, mix with water only
- Non–sag performance
- Convenient for small or large jobs
- Pre–blended, just add water, mix, and use
- Textured base coat provides stronger mechanical and chemical bonding surface for veneer units
- High bond strength and impact resistance reduces cracking and pop–offs
- Meets requirements of ASTM C 1714, ASTM C 270, ASTM C1780 and ANSI 118.4
- Meets requirements of ACI 530 Shear Bond Standards

Uses
- Conventional thick–bed scratch and brown base coat
- Bonding mortar for setting lightweight precast masonry units
- Over concrete or masonry walls, wood frame construction stud walls, or metal buildings
- Interior non–load bearing or exterior veneer walls
- Above and below grade applications
- **For installation of:**
- Natural stone veneer*
- Masonry veneer stone (cast and simulated stone)

* All natural stone should be tested to be sure discoloration by bleed–through does not occur. Not intended for moisture sensitive or resin–backed stone.

Recommended Substrates:
- Concrete *
- Concrete Masonry Unit (CMU) *
- Brick masonry *
- Cement Backer Unit (CBU) **
- Exterior grade plywood ***
- Plaster ****
- Gypsum wall board ****

- Suitable as a load bearing substrate for installation of direct adhered masonry veneer applications when fully cured.
  ** Suitable as a substrate that supports its own weight for installation of direct adhered masonry veneer applications when verified by CBU manufacturer for exterior use and specific installation instructions are provided.
  *** Suitable as a substrate when verified for exterior use by manufacturer and proper preparation methods are followed.
  **** Interior dry areas only.

SAFETY
READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website: tccmaterials.com or contact TCC Materials® at 651–688–9116 (7:30 AM to 4:00 PM, M–F, Central US Time).

CAUTIONS
Read complete cautionary information printed on product container prior to use.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of the covered Tenon® brand product (s) under normal environmental and working conditions. Because each project is different, neither Tenon® nor TCC Materials® can be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

Typical Values • Masonry Veneer Mortar PM	
Mix Ratio (Water to Powder)	3.25–4.25 qt. (3.1–4.0 L) per 50 lb. (22.7 kg)

Latex Modified Portland Cement Mortar ANSI 118.4	
Open time at 70°F–77°F (21°C–25° C)	60 min.
Adjustability time at 70°F–77°F (21°C–25°C)	20–30 min.
Sag on Vertical Surfaces	0 inch

Compressive Strength ASTM C109	
28 Days	≥ 2,500 psi (17.2 MPa)

Shear Bond Standard	Requirement	PS MVM PM
ACI 530 (6.3.2.4) 28 day Shear Bond	50 psi (0.34 MPa)	330 psi (2.27 MPa)
ANSI 118.4 (F–5.1.5) 28 day Shear Bond	300 psi (2.07 MPa)	428 psi (2.95 MPa)

Tenon® Masonry Veneer Mortar PM has been tested under laboratory conditions to meet or exceed the following performance standards:

- Meets or exceeds requirements of ASTM C–270 Table 2 for Type S and Type N Mortar
- Meets or exceeds requirements of ASTM C–1384 Standard Specification for Admixtures for Masonry Mortars

4. TECHNICAL DATA (Cont.)

Note: Test results obtained under controlled laboratory conditions at 72°F (22°C) and 50% relative humidity.

Applicable Standards:

- ASTM C 91 Standard Specification for Masonry Cement
- ASTM C 109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars
- ASTM C 144 Standard Specification for Aggregate for Masonry Mortar
- ASTM C 150 Standard Specification for Portland–limestone Cement
- ASTM C 207 Standard Specification for Hydrated Lime for Masonry Purposes
- ASTM C 595 Standard Specification for Blended Hydraulic Cements
- • ASTM C 1063 Standard Specification for Installation of Lathing and Furring

LEED® Eligibility[1]

- Regional Materials (MR–c4, MR–c5)
- Low–Emitting Materials (IEQ–c4.3)

Product Enhancement

Rapid Cure Technology (RCT®) – Improves the strength, controls shrinkage, and prevents efflorescence of our products without sacrificing workability or working time.

Expansion Stabilization Technology (EST™) – Special additive designed to reduce the potential for cracking and shrinkage.

Packaging

- Gray: 50 lb. (22.7 kg.) bag (BOM #120461)

Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight.

5. INSTALLATION

Preparation

Refer to selected veneer manufacturers installation instructions for more complete instructions. Install in accordance with all local building code provisions and applicable ASTM standards.

- For best results all materials should be conditioned to 50°–90°F (10°–32°C) 24 hours prior to installation.
- Surface must be clean, dry, and free from dirt, loose particles, wax, sealers, curing compounds, grease, paint, efflorescence, and any foreign materials that could inhibit adhesion. Any concrete or masonry surfaces that have been painted, sealed, or treated must be cleaned back to the original surface.
- Surfaces must be plumb and true with square corners, free of movement, and structurally rigid and sound enough to support the veneer finish

Directly over concrete or masonry surfaces:

- Concrete and masonry surfaces should be washed before applying mortar. Precast masonry / veneer stone units should also be clean, and dust–free.
- Masonry and concrete surfaces that are pointed or waterproofed should be prepared by sandblasting and cleaning.
- Paint or sealer must be completely removed from masonry or concrete surfaces or securely covered with two layers of grade D water–resistant building paper and 2.5–3.4 lb. or heavier diamond mesh expanded metal lath. A galvanized lath should be used for exterior applications or interior wet areas.

Over wood frame construction and surfaces needing lath:

- Wood–framed walls, including plywood, sheetrock, green sheetrock, or fiber cement board require a water–resistive barrier composed of two layers of grade D water–resistant building paper or equivalent. Beginning at the bottom of the wall, smoothly and securely apply, overlapping layers a minimum of 4 in. (10.6 cm), or as specified in the precast unit installation instructions and local building codes.
- After securing the water–resistant barrier, galvanized, expanded metal lath (2.5 or 3.4 lbs. per yd^2, 1.4–1.8 kg/m^2)

or other code–compliant mesh or lath is tightly secured in accordance with ASTM C 1063.
- When applicable on exterior applications, a drainage plain system for additional moisture protection should be installed behind the lath including weep screeds at the wall bottom and flashings at windows, doors, and other openings per local building codes.

Note: It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

Job Mockups

The manufacturer requires that when its Tenon® products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long–term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project–specific conditions being addressed, and standardized tests performed for each proposed system or variation.

Mixing

1. For best results, use a paddle mixer or mechanical batch mixer to ensure homogeneity and workability, however, avoid high–speed mechanical mixing which can entrap air into the mixture. Always use full bags only. Do not exceed mixer capacity. Hand mixing mortar is not recommended.
2. Use cool, clean, potable water in the range of 50º–00ºF (10º –32ºC) for mixing. Always use clean tools and mixing containers. Mix with water only, no bonding additives
3. Add just enough dry mix to the liquid, begin with 3.25 qt. (3.1 L) water per 50 lb. (22.7 kg) bag. Add additional water sparingly up to 4.25 qt. (4.0 L) total, while mixing 3–5 minutes. Too much water will cause reduced strength. Mortar should be a firm, uniform, lump–free consistency, workable to be trowelable, and stiff enough to retain ridges and peaks when troweled on a horizontal or vertical surface.
4. Let mortar slake/rest for 5 minutes, Remix for 2 minutes and use. Do not add additional powder or liquid after slaking, as this may cause shrinkage and poor bonding. Stir occasionally to keep fluffy. Maintain water and mixing time consistency among batches.
5. Bucket life is approximately 1 hour, at normal temperatures of 70°F (21°C). Warmer temperatures will reduce the bucket life. Do not mix more product than can be placed in 1 hour. Mortar shall be used and placed in final position within 1 hour after initial mixing or discarded at that time.

Application

The optimal temperature range for mortar application is between 50°–90° F (10°–32°C). Apply only to surfaces that are frost free and above 50°F (10°C) and below 90°F (32°C) within 24 hours of application and 72 hours thereafter. Do not apply in direct sunlight on hot, windy days or when rain is forecasted within 24 hours. Apply mortar using a trowel and masonry hawk with enough pressure to compact the mortar into the substrate.

Scratch and base coat layer over concrete or masonry

- All installations over concrete and masonry should be in accordance with local building codes and ASTM C 926.
- With porous substrates, or when conditions are dry, windy or high temperatures, dampen the clean concrete or masonry surface to SSD (surface saturated dry).

Scratch and base coat over wood frame construction or concrete / masonry with lath

- All installations over concrete and masonry should be in accordance with local building codes and ASTM C 926.

Scratch and base installation

- Trowel a ½ in. to ¾ in. (13–19 mm) thick coating to the substrate. When lath is present, it should remain flat while completely and evenly embedded by the mortar.
- While the mortar is pliable, within approximately 20–30 minutes, use a notched trowel to rake horizontal grooves, creating a texture for the veneer units to grab on to.
- Veneer units can be applied with additional mortar to the Masonry Veneer Mortar PM immediately (after approximately 30 minutes drying time), or allow the scratch coat to cure for a minimum of 24 hours before installing the veneer units.

Precast masonry / veneer stone unit installation

- With porous substrates, or when conditions are dry, windy or high temperatures, dampen the cured Masonry Veneer Mortar PM scratch coat, concrete, or masonry surface to SSD (surface saturated dry).
- If the precast masonry veneer units are very porous and absorptive, it may be helpful to dampen the back of each clean unit prior to application of mortar. Do not soak units.
- Follow stone veneer manufacturers instructions for layout, installation, and techniques. Stone veneer units can be laid from the bottom of the wall up or top down. Starting at the bottom helps support the weight of the units above, working from the top prevents mortar from spilling on the units below. Corner units should always be installed first.
- Evenly coat or "butter" the back of each veneer unit with a minimum of ½ in. (13 mm) mortar thickness and press firmly into place with a twisting motion until the excess materials extrudes from the sides of the unit.
- For larger units, apply a thick ring of mortar around the back of each, leaving a small void in the center to create a vacuum when pressing the stone in place.
- After pressing the unit into place, the distance from unit to substrate should be approximately ⅜ in. (9.5 mm). Joints between units should be consistent at ½ in. (13 mm) or less.
- Once veneer units are in place, remove excess extruded Masonry Veneer Mortar PM from between units to allow for application joint grout. Do not allow mortar to fill grout lines more than ¼ in. (6.3 mm), an even space between units is desired for grouting and will help the grout color to remain consistent.
- Veneer units may be adjusted up to 10–15 minutes after placing (at normal temperatures of 70°F (21°C).
- Work in areas of 5–10 sq. ft. (0.4–0.9 m2) to avoid allowing mortar to dry or skim over before each unit is placed.
- Check mortar for complete coverage periodically by lifting a

veneer unit and inspecting the unit and substrate. Mortar coverage for exterior and interior wet applications should be 95%–100%, interior dry areas 80% minimum.
- Shims, spacers, or wedges can be used to temporarily support the units and maintain even spacing. They should be removed once units are set and mortar is thumb print hard.

Application (cont.)

Precast masonry / veneer stone unit installation: (Cont.)
- Control joints can be installed to mitigate the effects of support movement typically caused by seismic conditions, change in weather, shrinkage and deflection per specifications of project engineer, architect, designer, and local building codes.
- Remove any mortar from the unit face during the installation. Do not allow mortar to dry on the unit surface. In most cases, allow the mortar to become "crumbly", then remove with a brush, whisk broom, steel wool, or trowel.
- Once all units are in place and firmly set for a minimum of 12 hours, if grout is desired, fill each joint with Tenon® Masonry Veneer Joint Grout or this product using a grout bag, trowel, and a tuck–pointing tool or gun.

Limitations

- Mortar shall be used and placed in final position within 1 hour after initial mixing or discarded at that time. Do not mix more mortar than can be placed in 60 minutes.
- Do not adjust veneer units after mortar takes its initial set or the bond will be permanently broken.
- Do not retemper, adding additional water after initial mixing. Do not overwater.
- Install in accordance with local building codes and applicable ASTM standards.
- Precast masonry/ stone veneer units can be installed directly to clean, interior or exterior unpainted or unsealed concrete block, brick, or poured concrete walls without using metal lath or moisture barriers.
- A water–resistant barrier with reinforcement wire lath should be applied to surfaces other than clean concrete or masonry. Use rust –resistant fasteners (galvanized roofing nails, rust resistant staples, concrete nails) with building paper and metal lath applications.
- Freshly poured concrete or masonry substrates must be cured a minimum of 7 days prior to Masonry Veneer Mortar PM application.
- All substrates must be structurally sound to support the precast masonry veneer units.
- Do not apply to frozen surfaces and protect installation from freezing for 72 hours. Do not apply when rain is forecasted within 24 hours.
- Do not cover expansion joints with mortar.
- Individual stones should be less than 7 lbs. (3.8 kg) each.
- Prevent work from occurring on the opposite side of walls to which the stone veneer is being applied within 48 hours during and after the installation.
- Do not soak stone or tile.

Curing

Allow 24–36 hours minimum cure time. Strength will increase over the following 28 days. If conditions are very hot, dry, or windy, curing with a gentle mist of water will help prevent premature drying and improve mortar strength. A drape of plastic over the wall will help retain moisture; if the surface begins to appear dry, remove the plastic, mist/moisten the surface and replace the plastic.

Cleaning

Use clean potable water to clean all tools immediately after use. Dried material must be mechanically removed. Use a waste water hardener (e.g. Conglez™ or similar product) for cementitious waste disposal.

Coverage

- 50 lb. (22.7 kg) bag: Yields approximately .44 cu. ft. (12.5 L)
- As a scratch coat will cover approximately 12–14 sq. ft. (1.1–1.3 m^2) at ½ in. (13 mm) thickness
- As a mortar for precast masonry veneer units will cover approximately 8 sq. ft. (0.92 m^2) at ½ in. (13 mm) thickness
- As a joint grout, coverage will vary with depth and width.

Notch Trowel Size	Approximate Coverage
Adhered Stone Masonry Veneer Application Method	8 sq. ft. (0.92 m^2)
¼" x ¼" x ¼" Square Notched Trowel (6 x 6 x 6 mm)	77 sq. ft. (7.1 m^2)
¼" x ⅜" x ¼" Square Notched Trowel (6 x 9.5 x 6 mm)	66 sq. ft. (6.1 m^2)
½" x ½" x ½" Square Notched Trowel (13 x 13 x 13 mm)	40 sq. ft. (3.7 m^2)

6. AVAILABILITY

To locate Tenon® products in your area, please contact:

Phone: 1.651.688.9116
Email: info@tccmaterials.com

7. WARRANTY

Seller warrants that its product will conform to and perform in accordance with the product specifications. The foregoing warranty is in lieu of all other warranties, expressed or implied, including, but not limited to those concerning merchantability and fitness for a particular purpose. Because of the difficulty in ascertaining and measuring damages hereunder, it is agreed that Seller's liability to the Buyer shall not exceed the total amount billed and billable to the Buyer for the product hereunder.

8. MAINTENANCE

Not applicable.

9. TECHNICAL SERVICES

Technical Assistance:
Information is available by calling TCC Materials®
(hours 7:30 AM to 4:00 PM CST):

Phone: 1.651.688.9116
Email: info@tccmaterials.com
Web: tccmaterials.com

Technical and Safety Literature:
To acquire technical and safety literature, please visit our website at: tccmaterials.com.

10. FILING SYSTEM

Division 4

[1] Tenon® products can contribute to LEED® credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

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