# Surface Bonding Cement

## 1. PRODUCT NAME
Tenon® Surface Bonding Cement

## 2. MANUFACTURER
Bluestone Products™, a TCC Materials® company
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® Surface Bonding Cement is a versatile fiber-reinforced, Portland cement-based product used to build and restore retaining walls or block walls, patch large vertical holes where non-sagging cement is a must, repair deteriorated stucco, and in the construction of concrete block walls that are dry stacked (without mortar) above the first course. Special fibers control shrinkage, cracking, and sagging on vertical applications and provides additional overall strength when compared with conventional concrete.

### Features and Benefits
- Portland cement-based
- Applications from ⅜ in. (9.5 mm) to ½ in. (13 mm) per layer
- Moisture resistant when mixed with Tenon® Mighty Bond
- Glass fiber reinforced for durability
- High strength
- Controls shrinkage, cracking, and sagging on vertical repairs

### Uses
- Interior or exterior
- Repair, strengthen, and decorate deteriorated concrete walls
- Patch deep vertical holes
- Restore damaged concrete, masonry, and stucco
- Bonds dry-stacked cement block walls

## 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 • Surface Bonding Cement CR | |
|---|---|
| Mix Ratio (Liquid to Powder) | 1-1½ gal. (3.8-5.7 L) per 50 lb. (22.7 kg) |
| Working Time | 25-35 minutes |
| Set Time ASTM C191 | |
| Initial Set | 2 hours |
| Final Set | 4 hours |
| Compressive Strength ASTM C887 | |
| 1 day | ≥1600 psi (11 MPa) |
| 7 days | ≥ 2,000 psi (13.8 MPa) |
| 28 days | ≥ 3,500 psi (24.1 MPa) |
| Flexural Strength ASTM C887 | |
| 1 day | ≥ 450 (3.1 MPa) |
| 28 days | ≥ 800 (5.5 MPa) |

Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤

Note: Test results obtained under controlled laboratory conditions at 72°F (22°C) and 50% relative humidity. Reasonable variations can occur due to atmospheric and job site conditions.

## LEED® Eligibility[1]
- Regional Materials (MR-c4, MR-c5)
- Low-Emitting Materials (IEQ-c4.3)

## Packaging

- Gray: 50 lb. (22.7 kg.) bag (BOM #126197)
- White:50 lb. (22.7 kg) bag (BOM #120881)

## 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

Powder and water should be acclimated to room temperatures of 50°F-80°F (10°C-27°C) 24 hours prior to installation.

- Concrete must be fully cured (28 days minimum), free of efflorescence, and not subject to hydrostatic pressure or moisture condensation.
- All surfaces must be stable, solid, and structurally sound.
- Remove all unsound concrete, grease, oil, dirt, paint, sealers, curing compounds, waxes, old adhesive residue, and any other foreign materials that will inhibit adhesion. Mechanical removal is recommended, chemicals often serve to drive them deeper into the concrete substrate.

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

**Refer to:**

ANSI Standard A41.1 Building Code Requirements for Masonry
ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units
ASTM C887 Standard Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar
ASTM C946 Standard Practice for Construction of Dry-Stacked, Surface Bonded Walls
ASTM E72 Standard Test Method for Conducting Strength Tests of Panels for Building Construction
ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 75˚C
Federal Specification TTP-0035

## 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. Mix only the amount that can be placed in 25-35 minutes.
2. Mortar can be mixed manually in a mortar tub with a shovel or hoe, in a mechanical mixer, or in a 5-gallon bucket with a mixing drill attachment. Avoid high-speed mechanical mixing which can entrap air into the mixture.
3. **Optional:** For improved durability, strength, and adhesion when applying over previously coated and non-porous surfaces it is recommended to use Tenon® Mighty Bond (sold separately) blended with water. Mighty Bond may be diluted by up to 50% with water. For extra difficult restoration or waterproofing projects, it is recommended to always use the Mighty Bond additive/water blend in place of water alone.
4. Mix one 50 lb. (22.7 kg) bag of powder with 1 gal. (3.8 L) of clean, cool, potable water, or Mighty Bond/water blend. Blending powder into the liquid allows for easier mixing. Additional liquid can be added if necessary to achieve a smooth, trowelable consistency. Total liquid used should not exceed 1½ gal. (5.7 L).
5. Mix 2-3 minutes until a smooth, lump-free consistency is achieved. Avoid over watering, over mixing, or moving the mixer up and down during mixing as this will entrap air and lower the strength.

Note: Elevated temperatures will shorten the working time. Lower temperatures will delay set times.

## Application

- Apply only to surfaces that are frost free and between 50°F -90°F (10°C-32°C) within 24 hours of application and 72 hours thereafter, and when rain is not expected within 24 hours. Do not apply on hot, windy days.
- Pre-dampen wall surfaces to be repaired with clean water to saturated surface dry (SSD) condition just prior to application. If the wall becomes dry before application of product, re-wet the wall to avoid water being withdrawn from the mixture.

**Patching or Filling Holes in Concrete/Masonry Walls and Stucco Repair**

- Surface Bonding Cement CR is ideally suited for patching or filling holes in concrete or masonry walls, as well as repairing cracks, or filling openings in stucco walls.
- The use of Tenon® Mighty Bond/water blend is required when application is made to other surfaces than uncoated block wall. Install galvanized expanded metal lath to walls that have been previously painted or coated.
- Apply up to ½ in. (1.3 cm) thickness per layer. Deep repairs may require applying product in multiple lifts or layers after initial set between lifts (approximately 2-4 hours), product should be firm, but not final set. Make sure to dampen the surface area between applications of product.
- When troweling, be sure to clean the surface of the trowel often with water and use a "light touch" when finishing the surface. Do not over trowel.

**Surface Finishes**

- Surface textures from a smooth finish to decorative stucco-like relief can be applied with Surface Bonding Cement CR with a single or multiple-coat application. Often a first smooth coat of product is applied at ⅛ in. (3 mm) minimum, then a second coating for the decorative finish using suitable spray equipment or plasterer's hand tools is applied 2-4 hours later.

## Application (cont.)

**Bonding Dry-Stack Segmental Retaining and Masonry Walls, Footings, or Foundations:**

- Sound structures require a strong, level foundation, an aligned footing makes block stacking and troweling much easier. Footings must be built below the frost line and should be a minimum of twice the thickness of the blocks used. Consult your local building codes for information about footings and slab construction in your area.

**Dry-stacking Masonry Units:**

- Lay the first course of masonry units in a full bed of Surface Bonding Cement CR. Make sure this course is straight and level.
- Dry-stack masonry units in a staggered or running bond pattern for strength in accordance with ASTM C946. As you place masonry units in position, slide it against the masonry units below to smooth out any roughness.
- Surface Bonding Cement CR can be used between masonry units to maintain a level and properly aligned wall. The better you are in maintaining a level and aligned wall, the stronger and more attractive your finished wall will be.
- Dry-stack the rest of the wall before applying the Surface Bonding Cement CR to both sides of the wall. Apply product with a trowel in upward strokes, maintaining a uniform thickness of at least ⅛ in. (3 mm). Follow American Concrete Institute (ACI) and National Concrete Masonry Association (NCMA) standards for grout, reinforcing, anchorage, and control joints. Do not over-trowel.

**Refer to:**
American Concrete Institute (ACI)
National Concrete Masonry Association (NCMA)

## Curing

Protect from excessive drying due to temperatures, air movement, and direct sunlight. Like other cement based materials, Surface Bonding Cement CR gets most of its strength within 24 hours after application. It is imperative to keep the new surface area damp for at least 2 days. Wetting the walls once or twice daily with fogging or a fine mist will ensure proper curing for strength. Hot, windy or dry conditions may require more frequent wetting. Wet curing may be minimized when using Concrete Bonding Additive.

## 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.

## Limitations

- When applying over previously coated and non-porous surfaces or for difficult restoration and moisture resistance, use a 50/50 diluted solution of clean water with Tenon® Mighty Bond as the mixing liquid.
- When additional layers are needed to build-up product, apply second coat after initial set of first coat, while product is still partially damp and plastic (approximately 2-4 hours).
- Mix only the amount that can be placed in 25-35 minutes.
- Do not over water, retemper, or add additional additives.

## Coverage

50 lb. (22.7 kg) bag: Approximately 50 sq. ft. (4.65 $m^2$) at ⅛ in. (3.2 mm) thickness.

## 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, M-F, CST):

Phone: 1.651.688.9116
Fax: 1.651.688.6164
Web: tccmaterials.com

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

## 10. FILING SYSTEM

Division 3
[1] Tenon® products can contribute to LEED® credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

LEED® is a registered trademark of U.S. Green Building Council.

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