# Partial Depth Concrete

## 1. PRODUCT NAME
Tenon™ Partial Depth Concrete Patch

## 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™ Partial Depth Concrete Patch is ideal for placing overlays less than 2" deep (5 cm). It is also used for adhering pavers to concrete steps and walks, patching and/or leveling concrete surfaces, filling large cracks, and filling cores in masonry block or brick. Applications include concrete pavements, bridge decks, industrial floors, concrete parking lots and garage decks. This pre–blended cement and oven dried sand mixture will produce a high–strength concrete repair material that is extremely durable in partial depth applications. Available in 2 to 1 mix, 2.5 to 1 mix, or 3 to 1 mix (fine sand aggregate to Portland cement ratio).

### Features and Benefits
- Pre–blended mixtures (2:1 , 2.5:1, and 3:1 blends)
- Meets ASTM C387 for high–early and normal strength
- High compressive strength
- Durable patching material
- No pea gravel

### Uses
- Shallow depth repairs between ½–2 in. (13–50 mm)
- Partial depth repair of concrete pavements
- Parking deck repair & patching
- Bridge deck repair & patching
- Industrial floors
- Precast & tilt–up panel
- New slab construction
- Formed concrete work
- Grouting
- Paver bonding mortar

## 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 | Partial Depth Patch 2 to 1 Mix | Partial Depth Patch 2.5 to 1 Mix | Partial Depth Patch 3 to 1 Mix |
|---|---|---|---|
| **Compressive Strength, psi (ASTM C39)** | | | |
| 1 day | > 3,000 (20.7 MPa) | > 2,200 (15.1 MPa) | >1,800 (12.4 MPa) |
| 3 day | > 4,500 (31.0 MPa) | > 3,200 (20.0 MPa) | > 2,500 (17.2 MPa) |
| 7 day | > 6,000 (41.3 MPa) | > 4,500 (31.0 MPa) | > 3,700 (25.5 MPa) |
| 28 day | > 7,000 (48.2 MPa) | > 5,500 (37.9 MPa) | > 4,500 (31.0 MPa) |
| **Physical Testing (ASTM C387)** | | | |
| Water Demand (lb/bag) | 9.19 (4.17 kg) | 9.24 (4.19 kg) | 9.29 (4.21 kg) |
| Slump (inches) | 5–6 (127–152 mm) | 4–5 (101–127 mm) | 3–4 (76–101 mm) |
| Unit Wgt. (lb/sq. ft.) | 135.6 (662 kg/$m^3$) | 134.1 (654.7 kg/$m^3$) | 132.6 (647.4 kg/$m^3$) |
| Yield (cu. ft./ bag) | .4375 (0.0123 $m^3$) | .444 (0.0126 $m^3$) | .45 (0.0127 $m^3$) |
| Air (%) | 3–4 % | 3½–4½ % | 4½–5½ % |

## LEED® Eligibility[1]
- Regional Materials (MR–c4, MR–c5)

## 4. TECHNICAL DATA (Cont.)

### Packaging

- 2:1 Blend 50 lb. (22.7 kg.) bag (BOM #120722)
- 2.5:1 Blend 50 lb. (22.7 kg) bag (BOM #120723)
- 3:1 Blend 50 lb. (22.7 kg.) bag (BOM #120724)

### 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. Product should be stored dry at 40°F–95°F (4°C–35°C).

## 5. INSTALLATION

### Preparation

Proper preparation is crucial to achieving a successful application. Concrete surfaces should be clean, sound, and free from any materials that may inhibit bond such as oil, asphalt, curing compounds, acids, dirt and loose debris. Roughen surface and remove all unsound concrete. Thoroughly saturate surface with water immediately prior to placement. Do not leave standing water.

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

**Patches 1–2 in. (2.5–5 cm):**

1. For best results, use a mechanical batch mixer.
2. Place the desired number of bags in the mixer. Always use full bags only. Do not exceed mixer capacity.
3. Approximately 3.1–4.4 pts. (1.47–2.06 L) of clean, potable water is required per 50 lb. (22.7 kg) bag for optimal workability.
4. Add additional water in small increments and adjust slump to about ¾ in. (1.9 mm), maximum slump of 1 in. (2.5 cm).
5. Continue mixing for an additional 3–5 minutes to a uniform lump free consistency.
6. Maintain water and mixing time consistency among batches.

**Patches ½–1" (13–24.4 cm):**

1. For best results, use a mechanical batch mixer.
2. Place the desired number of bags in the mixer. Always use full bags only. Do not exceed mixer capacity.
3. For patches less than 1" deep, it is beneficial to replace part of the mixing water with Tenon™ Mighty Bond® Concrete Bonding Additive for improved bonding. Add Mighty Bond® diluted at a rate of 1 part clean water to 1 part bonding additive.
4. Use approximately 3.1–4.4 pts. (1.47–2.06 L) of liquid per 50 lb. (22.7 kg) bag for optimal workability.
5. Add additional liquid in small increments and adjust slump to about ¾ in. (1.9 mm), maximum slump of 1 in. (2.5 cm).
6. Continue mixing for an additional 3–5 minutes to a uniform lump free consistency
7. Maintain water and mixing time consistency among batches.

**Paver Bonding and Paver Grouting:**
**Use the 3:1 Partial Depth Concrete Patch**

1. For best results, use a mechanical batch mixer.
2. Place the desired number of bags in the mixer. Always use full bags only. Do not exceed mixer capacity.
3. Replace part of the mixing water with Tenon™ Mighty Bond® Concrete Bonding Additive for improved bonding. Add Mighty Bond® diluted at a rate of 3 parts clean water to 1 part bonding additive.
1. Use approximately 3.1–4.4 pts. (1.47–2.06 L) of liquid per 50 lb. (22.7 kg) bag for optimal workability.
2. Add additional liquid in small increments and adjust slump to about ¾ in. (1.9 mm), maximum slump of 1 in. (2.5 cm).
3. Continue mixing for an additional 3–5 minutes to a uniform lump free consistency.
4. Maintain water and mixing time consistency among batches.

### Application

Ideal application temperatures are when air and substrate are between 50°F–90°F (10°C–32°C).

**Patching, Repairing, Grouting:**

- Shovel or place mixture immediately into pre–dampened prepared area. Applications should be between ½–2 in. (13–50 mm).
- Once the mixture has been compacted and spread, finish with a steel trowel or wood float.
- Mortar shall be used and placed in final position within 1 hour after initial mixing or discarded at that time.
- Allow the mortar to obtain initial set, wait for all water to evaporate from the surface before finishing with a trowel or broom.
- Can be open to foot traffic in 6–8 hours, wheeled traffic in 1 day.
- Do not retemper Partial Depth Concrete Patch.
- Do not overwork the concrete mixture.

**Paver bonding and grouting:**

- For best results of direct bonding of pavers to slab–on–grade surfaces a gravel bed or other means of drainage should be present below the slab. Slab should be sloped to provide complete drainage at ⅛ in. (3 mm) per 1 ft. (0.305 m) of surface.
- Honor all cold joints and saw–cut joints by keeping joints open and free to move. Do not lay pavers over joints or allow grout, mortar or other material into joint cavities. Align paver joints with joints in existing concrete.

- Pre–wet surface just prior to application of mortar with no

residual water pooling.

## Application

**Paver bonding and grouting:** (cont.)

- Apply mixed mortar to the slab and to the back of each paver to achieve full coverage beneath the paver. Do not allow voids.
- Pavers should be firmly set (minimum of 24 hours) before grouting.
- Dampen surface of pavers with clean water using a light spray or sponge just prior to grouting. Do not fill grout lines with water.
- Clean any residue off paver immediately while it is still wet.
- Note that any open pours or irregularities in the surface of the pavers may become filled with Partial Depth Concrete Patch and thus influence the overall color of the pavers.
- Can be open to foot traffic in 1 day after setting pavers and 1 day after grouting. Can be open to wheeled traffic in 7 days after setting and 7 days after grouting.

## Limitations

- 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 48 hours thereafter.
- Shade and protect patch in windy and/or hot weather conditions.
- During weather warm conditions, keeping mixing water and material cool should assist in maintaining open time of the product. During cold weather conditions, the use of warm mixing water and warming surfaces should accelerate set times.
- Do not overwater, retemper, or over–mix.
- Do not bridge over existing expansion or control joints.
- Depth of patches should be between ½–2 in. (13–50 mm).
- Do not mix more mortar than can be placed in 1 hour.
- Tenon™ Partial Depth Concrete Patch should be installed in accordance with local building code provisions and all applicable ASTM standards.

## Curing

Always follow industry standard practices for finishing and curing concrete patches as described in ACI Manual of Concrete Practice.

## 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

Each 50 lb. (22.7 kg) bag yields approximately 0.375 cu. ft. wet (10.6 L).

## 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: 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 3

[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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