



TotalFlex® Universal Mortar

1. PRODUCT NAME

TEC® Skill Set™ TotalFlex® Universal Mortar

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
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Aurora, IL 60504-6451 U.S.A.
800-832-9002 Customer Support
800-952-2368 Fax
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3. DESCRIPTION

TEC® Skill Set™ TotalFlex® Universal Mortar is a high performing polymer-modified mortar ideal for heavy and large format tile in both interior and exterior applications. It provides extended open time, non-sag and non-slump formulation for wall and floor applications. It can be used in thin-set and medium-bed applications [up to 3/4"] with all types of tile sizes. This polymer mortar will provide ultimate transfer to the back of the tile, reducing the need for back-buttering.

Key Benefits and Features

- Excellent bond strength
- Hang large, heavy format tile on the wall without slippage
- Set large, heavy tile on the floor without slump

Packaging

40 lbs. plastic bag; white

Coverage

Coverage will vary with condition of substrate. Required trowel size will vary with the tile size, type and substrate uniformity. Select the trowel size that will ensure 100% coverage. Figures below are presented only as guidelines.

Trowel Size	Approximate Coverage per 40 lbs.
1/4" x 1/4" x 1/4" square-notched trowel	91-102 sq. ft.
1/4" x 3/8" x 1/4" square-notched trowel	75-85 sq. ft.
3/8" x 3/8" x 3/8" square-notched trowel	60-68 sq. ft.
1/2" x 1/2" x 1/2" square-notched trowel	45-51 sq. ft.
3/4" x 9/16" x 3/8" rounded notched trowel	30-34 sq. ft.

Suitable Substrates

When properly prepared, suitable substrates include:

- Gypsum wallboard
- Water resistant gypsum wallboard (greenboard)
- Cementitious backer units (CBU)
- Glass mat backer board

- Cured concrete, cured mortar beds, brick and masonry
- APA Grade Trademarked Exposure 1 Plywood [underlayment grade or better, two layers, 1 1/8" total minimum thickness, interior floors only].
- Existing ceramic tile and natural stone, provided existing flooring is well-bonded to an approved substrate
- Vinyl composition tile, asphalt tile, linoleum or non-cushioned vinyl sheet goods (provided existing flooring is well-bonded to an approved substrate)
- Adhesive residue (except tacky or pressure-sensitive adhesive)

Storage

Store in a cool, dry area away from direct sunlight. Do not store open containers.

Shelf Life

Maximum of 1 year from date of manufacture in unopened package.

Limitations

Not for installing green marble or other moisture-sensitive stone tile. Not for use over rubber, strip wood floors, oriented strand board, particle board or lauan plywood. For CDX plywood, use TEC® Skill Set™ Latex Mortar Additive with TEC® Skill Set™ Floor Mortar. Do not apply over single-layer wood floors. Certain natural stone tiles may be affected by mortar shadowing or staining. Test a small area prior to use to determine suitability.

Cautions

FIRST AID MEASURES: In all cases, seek medical attention if symptoms develop or persist. EYES: Flush with water for 20 minutes. SKIN: Wash with soap and water. IF VAPORS INHALED: Remove to fresh air. IF SWALLOWED: Do not induce vomiting. WARNING! This product contains chemicals known to the State of California to cause cancer, birth defects or reproductive harm. KEEP OUT OF REACH OF CHILDREN. For Medical Emergency Information, call 1-888-853-1758.

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 TEC® Skill Set™ brand product(s) under normal environmental and working conditions. Because each project is different, H.B. Fuller Construction Products Inc. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.



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4. TECHNICAL DATA

Applicable Standard

TEC® Skill Set™ Glass Tile Mortar		
Description	ANSI Requirement	Typical Results
28 Day Shear Strength ANSI A118.4		
Glazed Wall Tile	> 300 psi (2.1 MPa)	490 psi (3.35 MPa)
Porcelain	> 200 psi (1.4 MPa)	330 psi (2.25 MPa)
Quarry Tile	> 150 psi (1.0 MPa)	385 psi (2.63 MPa)
Sag on Vertical Surfaces	≤ 1/16"	0-1/32"
Open Time at Room Temperature	≥ 50 minutes	80-90 minutes
Adjustability at Room Temperature	≥ 30 minutes	30 minutes
Final Set	9-15 hours	9-11 hours
28 Day Shear Strength ANSI A118.11		
Quarry Tile to Plywood	150 psi (1.0 MPa)	220 psi (1.5 MPa)

Physical Properties

Description	
Physical State	Dry Powder
Color	Available in white
Pot Life	3-4 hours
Initial Cure [at 72°F (22°C)]	16-24 hours
Final Cure	21 days
Foot Traffic Rating (ASTM C627)	Residential to Extra Heavy Commercial (depending on substrate)

5. INSTALLATION INSTRUCTIONS

Surface Preparation

All substrates must be dry, structurally sound with maximum deflection per industry standards of $\frac{1}{360}$ for ceramic tile installations and $\frac{1}{720}$ for natural stone installations under all live and dead loads; and be free from oil, grease, dust, paint, sealers or concrete curing compounds. All contaminants should be removed prior to installation of tile. Surface protrusions and tile glazes shall be removed by sanding, scraping or scarifying. After preparation, remove all dust by vacuuming. *Note:* Vinyl asbestos tile or any substrate containing asbestos shall not be sanded, scored or scarified because of the potential health hazard of breathing dust. Any substrate containing asbestos must be handled in accordance with existing EPA regulations. Contact your local EPA office.

Notes: Expansion joints must be provided in the tile work over all construction, control and expansion joints in the backing and where backing materials change. Follow ANSI A108.01 Section 3.7 Requirements for Expansion Joints.

Maximum variations in all substrates must not exceed $\frac{1}{4}$ " in 10 ft. or $\frac{1}{16}$ " in 1 ft. from the required plane. For non-level, interior surfaces use TEC® Skill Set™ Self Leveling Underlayment.

Mixing

For best results, maintain all tiling materials, substrates, room and adhesives at 50°-70°F (10-21°C) for 24 hours before and 48 hours after installation. Avoid breathing dust and contact with eyes and skin. Avoid using high speed mixing, not to exceed 300 rpm, to prevent entraining air. Add powder to liquid for ease of mixing.

In a clean mixing container, slowly add product to 6-6.75 quarts clean, cool water. Mix material for 2-5 minutes to a thick creamy consistency, then allow the mortar to stand for 10 minutes. Remix for 1-2 minutes and apply.

Application

Apply mortar using flat side of trowel to promote better substrate contact, then comb in one direction with the notched side of the trowel. Spread only an area that can be tiled while surface is still tacky (typically 20-30 minutes.) Press tiles into setting bed, then push in a direction perpendicular to the notched trowel ridges to achieve optimum coverage. Apply mortar in a heavy enough layer so that complete contact (no voids) between mortar and tile is accomplished when tile is positioned. It may be necessary to "back-butter" large tiles to achieve complete coverage and firm support. Periodically remove and check a tile to assure proper coverage. Keep a minimum of 2/3 of the joint depth between tiles for grouting.

Open time and tile hand adjustability may vary with job site conditions. Stir occasionally during use to maintain the smooth, creamy consistency of the product. **Do not add additional water.**

Drying Time

Grouting may be accomplished when tiles are held firmly in place, typically 16-24 hours after installation is completed. No traffic is permitted over the tiles prior to grouting. Cold temperatures or high humidity may extend curing time. Unglazed tiles may require sealing prior to grouting so discoloration will not occur. The use of TEC® Skill Set™ brand grouts or TEC® Power Grout™ is highly recommended.

Clean Up

Clean tools, hands, and excess materials from face of tile, while mortar is still fresh, with warm soapy water.



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6. WARRANTY

For details about our limited warranties, see your sales associate or tecskillset.com.

7. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the Technical Service Helpline.

Toll Free: 800-832-9023

Fax: 630-952-1235

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at tecskillset.com.