

### EFA+™

#### Elastomeric Flooring Urethane Adhesive and Moisture Vapor Retarder

- Easy Spread
- Easy Clean-up
- Prevents damages caused by moderate subfloor moisture
- Below, On and Above Grade Installations
- Exceeds IRC requirements for vapor retarder
- Low VOC



EFA+™ Elastomeric Flooring Adhesive is a one-part, trowel applied, moisture-cure urethane adhesive; this adhesive does NOT contain any water. Once cured, EFA+ is waterproof and is not adversely affected by exposure to moisture or water. When applied as directed for a moisture vapor membrane, EFA+ will reduce moderate amounts of moisture vapor transmission from the subfloor and prevent damages to engineered wood flooring caused by subfloor moisture.

EFA+ Elastomeric Flooring Adhesive may be used to adhere all engineered, solid (adhesive only), bamboo (adhesive only), cork, and parquet (adhesive only) designed and recommended in writing by the hardwood flooring manufacturer for glue-down applications. This adhesive can also be used to install plywood as described, as well as,

ceramic tile, marble, and stone inlays for light commercial and/or residential applications.

Bostik's EFA+ is recommended as a moisture membrane beneath dimensionally stable, engineered wood flooring only.

EFA+ Elastomeric Flooring Adhesive may be used over all properly prepared substrates common to hardwood flooring installations including: concrete, plywood, particle or chip board (underlayment grade), well bonded vinyl/VCT and ceramic tile, cement backer board, gypsum underlayments (dry, above-grade), cement patch/underlayments, radiant-heat flooring, and properly prepared terrazzo.

EFA+'s low-VOC formulation may contribute to the qualification of a project for LEED NC V3 certification under the following Indoor Environmental Quality credits for low emitting materials; EQ 4.1 Adhesives & Sealants.



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Stronger Bonds, Better Life

## Directions for Use

Read and understand data sheet completely before beginning installation. Follow industry standards, as well as hardwood and bamboo flooring manufacturer's recommendations for acclimation, design, layout and application of wood flooring material. If jobsite conditions are outside of flooring manufacturer's recommendations, take necessary corrective actions. Whether the moisture content of substrate exceeds or is within the flooring manufacturer's recommendations, to address current or possible future subfloor moisture and cracks (up to 1/8"), apply EFA+ for moisture vapor control as directed.

## Surface Preparation

Surfaces must be clean, dry and flat, free of voids, projections, loose materials, oil, grease, sealers and all other surface contaminants. EFA+ Elastomeric Flooring Adhesive may be used for concrete slabs as an adhesive and vapor retarder with elevated moisture levels up to 6 lbs. per 1,000 square feet per 24 hours (using an anhydrous calcium chloride test kit according to ASTM F-1869 test method), and up to 80% RH (tested in accordance with ASTM F-2170).

For substrates that have an MVER of greater than 6 lbs or an RH greater than 80% or for substrates where a vapor barrier is not used or is not functioning below slab, use Bostik Ultra-Set® SingleStep™ or Bostik MVP<sup>+</sup>/Bostik Adhesive System.

Completely remove any adhesive residue or surface contamination by diamond grinding, shot blasting or scarifying. When diamond grinding, shot blasting or scarifying, the resulting surface texture must be similar to light broom finished concrete. Maximum acceptable floor variation is 3/16" in 10 feet. Areas requiring patching or leveling must be done using a Portland cement-based material (e.g., Bostik UltraFinish™, Fast Patch 102™ or SL-150™ Self-Leveling Underlayment).

PLEASE NOTE: Concrete substrates should NOT be smooth and reflective; it should have a profile or broom-type surface texture for the adhesive/membrane to properly penetrate and bond.

## Installation

The installation begins with a starter row secured to the subfloor; the starter row provides a stationary point to push against so flooring doesn't move during installation. Once the starter row is secured, apply adhesive/membrane to substrate using the appropriate trowel. See the chart on last page for proper trowel selection.

Flooring may be installed using a "Wet-Lay" method of installation. For "Wet-Lay" installations, spread the adhesive and begin to install the flooring immediately. As you work, immediately clean any adhesive from prefinished flooring with Bostik's Ultimate™ Adhesive Remover or mineral spirits (be careful not to harm finish), then dry buff with a non-abrasive paper towel.

After a few rows have been installed, and as you move across the room, tape the boards together using removable 3M #2080 Blue tape to prevent boards from sliding and to secure close-fitting joints. Rolling is recommended for all installations. Flooring that is not flat should be tacked, weighted, or rolled to ensure proper contact between the flooring and substrate.

**PLYWOOD OVER CONCRETE:** Score 4' x 4' or 2' x 8' sheets of 3/4" exterior-grade plywood on the backside every 8" to 10" by using a circular saw and cutting one-half the thickness of the plywood; "scoring or kerfing" takes the tension out of the plywood and helps to prevent possible warping or curling. Using a 1/4" x 1/4" V-notch or square-notch trowel, apply adhesive/membrane to substrate and then set plywood into the wet adhesive/membrane. Allow the adhesive/membrane to fully cure before nailing or using EFA+ adhesive/membrane to install flooring.

## Clean up

As you work, immediately clean any adhesive from prefinished flooring with Bostik's Ultimate™ Adhesive Remover or mineral spirits (be careful not to harm finish), then dry buff with a non-abrasive paper towel.

Immediately clean all tools and equipment with Bostik's Ultimate™ Adhesive Remover or mineral spirits before material cures.

**TROWEL CLEAN-UP TIP:** Before use, cover areas of the trowel that are not used to spread the adhesive with duct tape.

After use, simply tear off tape before material cures, and clean the remainder of the trowel with adhesive remover.



## Open Time

Refer to the “Open Time Chart

## Storage/Shelf Life

Store at temperatures between 50°F and 100°F. Shelf life is one year from date of manufacturing in closed, original packaging.

### Re-Seal Partially Used

**Container:** With pail upright place a sheet of plastic (e.g., trash bag) over the top of the pail.

Secure lid tightly over the plastic on top of pail. Carefully turn pail upside down. Plastic will help prevent the material from bonding the lid closed.

### Re-Open Partially Used

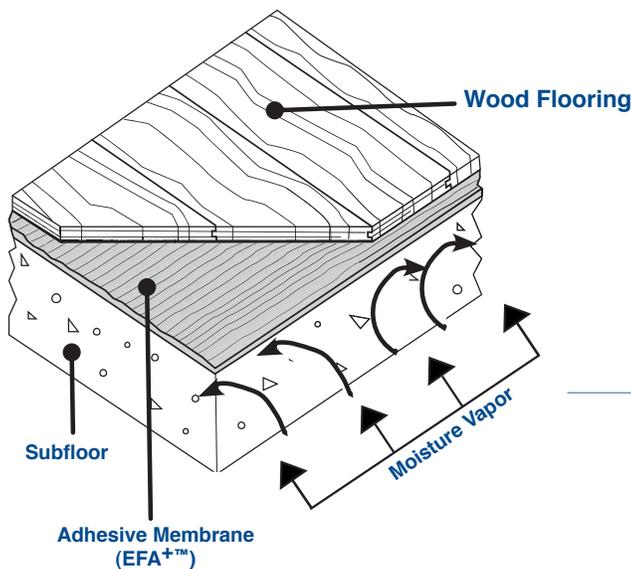
**Container:** Carefully turn pail right side up. Remove lid. Carefully cut and discard cured material and plastic from top of pail. Any uncured material may be used.

## Limitations

- Periodically check coverage of adhesive during installation; 100% substrate coverage and adhesive transfer is required to protect against damages from subfloor moisture.
- Due to limitations with solid and bamboo wood flooring (e.g., lack of dimensional stability), “below-grade” installations are limited to engineered hardwood flooring.
- For substrates with any history of moisture problems, or for concrete slabs exceeding 6 lb MVER or 80% RH, use a high performance moisture vapor reduction product such as Bostik’s Ultra-Set® SingleStep™ or Bostik’s MVP4/Bostik Adhesive System.
- On- or below-grade substrates must have appropriate vapor barrier (6 mil poly or better) properly installed below slab.
- Do not install solid wood flooring over VCT/vinyl.
- Bamboo installations should follow solid hardwood flooring installation recommendations.
- Slab temperature should be between 50°F and 95°F during installation.
- Do not use on wet, dusty, contaminated, glassy smooth or friable substrates; do not use over substrates/slabs treated with sealers or curing compounds; do not use in areas subject to hydrostatic head.
- Completely remove all adhesive residue and other surface contaminants by diamond grinding, shot blasting, or scarifying.
- Do not use over perimeter bonded flooring material.
- Use over gypsum-based/underlayment is limited to dry, “above-grade” installations where the gypsum has dried hard (not dusty/powdery), with a minimum compressive strength > 2,000 psi for engineered hardwood installations, or minimum compressive strength > 2,500 psi for solid hardwood installations.
- Please refer to wood flooring manufacturer’s recommendations and National Wood Flooring Association’s specifications for proper acclimation and expansion relief around perimeter or throughout installation.
- Do not use vinyl-backed cork flooring or foamed backed parquet.
- Do not use EFA+ as a moisture vapor membrane beneath solid or bamboo flooring.

## Membrane Reduces Moisture Vapor Emissions

- This membrane is designed to reduce moisture vapor emissions that originate/emanate from below the membrane only.
- This membrane does NOT reduce/affect issues originating from the sides, ends, or top of flooring (ie. puddles, water, leaks, hydrostatic-head, etc.).
- This membrane does NOT eliminate all possible moisture related or install related issues (i.e. improper acclimation of flooring, jobsite temperature/relative humidity, etc.).
- This membrane is designed to prevent excessive variance of moisture between the top, middle, and bottom of flooring that originates from the substrate.



| Open Time Chart |      |             |             |             |
|-----------------|------|-------------|-------------|-------------|
|                 |      | Humidity    |             |             |
| Temp.           |      | 40%         | 60%         | 80%         |
| 60°F            | Open | ≤ 3.8 Hours | ≤ 3.5 Hours | ≤ 3.2 Hours |
| 70°F            | Open | ≤ 2.8 Hours | ≤ 2.5 Hours | ≤ 2.2 Hours |
| 80°F            | Open | ≤ 2.3 Hours | ≤ 2 Hours   | ≤ 1.7 Hours |

Note: This chart is for reference only; actual jobsite times may vary.

## Chemical & Physical Properties

|  |  |                |
|--|--|----------------|
| Percentage of Water <sup>*1</sup>  | 0.0%   |                |
| Water Vapor Permeability <sup>*2</sup>   | < 0.9  |                |
| Percentage of Adhesive Coverage Required:<br>- Engineered<br>- Solid   | Membrane                                     | Adhesive       |
|  | > 100%<br>N/A                                | > 80%<br>> 95% |
| Elongation   | >180%  |                |
| Open/Working Time in minutes <sup>*3</sup>   | 180 minutes                                  |                |
| Application Temperature  | 50°F to 100°F                                |                |
| Service Temperature  | -40°F to 150°F                               |                |
| Flash Point  | ≥142°F, closed cup                           |                |
| VOC Compliant (SCAQMD Rule 1168)   | Yes (85 g/L)                                 |                |
| Odor   | Mild   |                |
| Color  | White  |                |
| Weight   | 13.7 lbs/gallon                              |                |
| Cure Time <sup>*4</sup>  | 8 to 12 hours                                |                |
| Concrete Moisture Vapor Limits for subfloor moisture vapor protection<br>ASTM 1869 Calcium Chloride Method<br>ASTM 2179 Relative Humidity Test | 6 lbs/1000 ft <sup>2</sup> /24 hrs<br>80% RH |                |
| Concrete Moisture Vapor Limits for bond  | No Limit / Dry-to-the-Touch                  |                |

<sup>\*1</sup> Per ASTM E203-01 Standard Test Method for water using Volumetric Karl Fischer Titration Method. Results rounded to the nearest tenth. Test Method has error range of +/- 0.2%.

<sup>\*2</sup> Per ASTM E-96 Standard Test Methods for Water Vapor Transmission of materials. Ratings are g/m<sup>2</sup>-24 hour-mmHG.

<sup>\*3</sup> Please refer to the Open/Working Time Chart.

<sup>\*4</sup> Humidity affects cure to a greater degree than temperature; the higher the humidity, the faster the cure. Under normal conditions, light foot traffic is acceptable after 6 to 8 hours; normal traffic after 12-16 hours.



### Packaging

EFA+ Elastomeric Flooring Adhesive is available in 5 gallon pails, 27 pails/pallet

**WARNING:** Combustible liquid and vapor. Harmful if swallowed. Inhaling vapors harmful. May cause eye, skin and respiratory tract irritation.

**PRECAUTIONS:** Keep away from sparks and flames. Do not smoke, extinguish all flames and pilot lights and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Avoid contact with mouth, eyes, skin and clothing. Wear chemical resistant gloves and clothing during handling. Avoid prolonged exposure to vapors. Use with adequate ventilation. Prevent build up of vapors by opening all windows and doors to achieve cross-ventilation. Wash thoroughly after handling. Store container in a clean, dry area. Follow all warnings and precautions with empty container as residues may remain. Do not reuse container without professional cleaning.

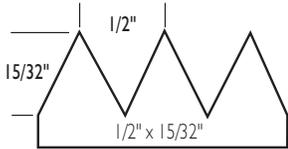
**FIRST AID:** If overcome by vapors, remove to fresh air and call a physician. If necessary give artificial respiration or oxygen. In case of contact, immediately flush eyes and skin with water and call a physician. If ingested, DO NOT INDUCE VOMITING. Immediately contact a hospital or poison control center. Remove contaminated clothing to prevent further exposure.

FOR INDUSTRIAL USE ONLY. SEE MATERIAL SAFETY DATA SHEET.

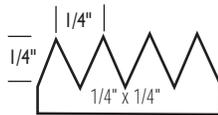
**Keep Out of the Reach of Children.**

### Suggested Notched Trowel for Maximum Performance

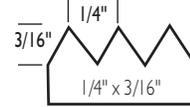
FOR USE AS AN ADHESIVE MEMBRANE; REFER TO DUAL PURPOSE TROWELS RECOMMENDATIONS (FOR MOISTURE VAPOR MEMBRANE AND ADHESIVE)



**1/2" x 15/32" V Notch**  
Engineered wood flooring  
greater than 5/8" thick  
Coverage: 20 sq.ft. per gallon



**1/4" x 1/4" V Notch**  
Engineered wood flooring  
up to 5/8" thick  
Coverage: 30 sq.ft. per gallon

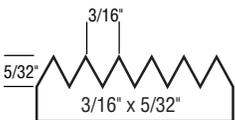


**1/4" x 3/16" V Notch**  
Engineered wood flooring  
up to 3/8" thick  
Coverage: 35 sq.ft. per gallon

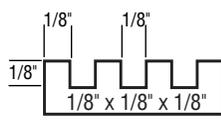
Trowel size is suggested to maximize coverage of adhesive. Periodically lift a board to insure the following conditions are being met: 100% coverage is of concrete substrate and > 95% transfer to the back of the engineered flooring product. Uneven subflooring may require the use of either a leveling/patching material, or a larger V-notched trowel for proper coverage of adhesive. These trowels are available from leading tool manufacturers such as Marshalltown ([www.marshalltown.com](http://www.marshalltown.com)) and your Bostik Distributor.

### Suggested Notched Trowel for Maximum Performance

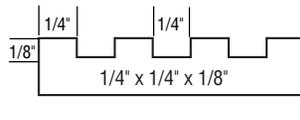
FOR USE AS AN ADHESIVE ONLY; REFER TO STANDARD ADHESIVE TROWEL RECOMMENDATIONS (FOR BONDING ONLY)



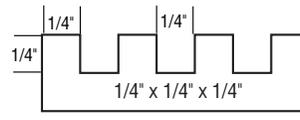
**3/16" x 5/32" V Notch**  
≤ 1/2" Engineered Hardwood Flooring  
Coverage: 50 sq.ft./Gallon



**1/8" x 1/8" x 1/8" Square Notch**  
Finger Block Parquet  
Coverage: 80 sq.ft./Gallon



**1/4" x 1/4" x 1/8" Square Notch**  
1/2" Engineered Hardwood Flooring  
1/2" Solid Wood Flooring,  
and 3/4" Parquet  
Coverage: 40 sq.ft./Gallon



**1/4" x 1/4" x 1/4" Square Notch**  
> 1/2" Solid Wood Flooring  
or Plywood  
Coverage: 35 sq.ft./Gallon

Trowel size is suggested to maximize coverage of adhesive. Periodically check coverage of adhesive during installation: >80% coverage is required for all engineered wood flooring; > 95% coverage is required for all solid wood flooring or bamboo flooring products.

**DUAL PURPOSE**

**ADHESIVE ONLY**

**LIMITED WARRANTY**  
The Limited Warranty for this product can be obtained at [www.bostik-us.com/resource-center/warranties](http://www.bostik-us.com/resource-center/warranties) or by calling 1-800-726-7845 (choose option 2, then option 2 again). TO THE MAXIMUM EXTENT ALLOWED BY LAW, BOSTIK DISCLAIMS ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND LIABILITY FOR DIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES. UNLESS OTHERWISE STATED IN THE LIMITED WARRANTY, THE SOLE REMEDY FOR BREACH OF WARRANTY IS REPLACEMENT OF THE PRODUCT OR REFUND OF THE BUYER'S PURCHASE PRICE. It is the buyer's obligation to test the suitability of the product for an intended use prior to using it. Any claim for a defective product must be filed within 30 days of discovery of a problem, and must be submitted with written proof of purchase.

This document supersedes all previously published literature.

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