



# Self Leveling Underlayment



Tile Perfect™ Self Leveling Underlayment is a pumpable/pourable cement based, self-leveling underlayment designed for use over a variety of substrates. The resulting smooth finished surface is ideal for the installation of all types of floor covering, including carpet, ceramic or natural stone tile, resilient, laminate flooring and wood flooring (for interior dry area use only).

**Note: All surfaces must be primed with Tile Perfect Self Leveling Underlayment Primer before application of underlayment.**

- Levels surfaces up to 1" (25 mm) in a single pour
- Seeks its own level
- Use directly over green concrete (<95% RH)
- No shot-blasting required\*

\*On structurally sound concrete with no surface contaminants.

### Warranty

For details about our limited warranties, see your sales associate or [www.hbfuller-cp.com/tp](http://www.hbfuller-cp.com/tp).

### Suitable Substrates

- Concrete
- Epoxy terrazzo
- Ceramic or quarry tile
- VCT or non-cushioned sheet goods
- Cement terrazzo
- Cement backer board
- Exterior grade plywood (with reinforcement mesh)
- Oriented Strand Board (OSB) (with reinforcement mesh)
- Gypsum substrates—minimum tensile bond strength 72 psi (0.5 MPa)

### Product Specifications

Description	Test Standard	Typical Results
28 Day Compressive Strength	ASTM C-109	4000 psi (27.3 MPa)
28 Day Flexural Strength	ASTM C-580	900 psi (6.1 MPa)
Bond Strength (Concrete)	ASTM D-3931	325-375 psi (2.2-2.5 MPa)
28 Day Shrinkage	ASTM C-531 (Modified)	0.025-0.045%
Description		
Physical State	Dry powder	
Color	Gray	
Working Time	15-20 minutes	
Walkable Hardness	2-4 hours <sup>1</sup>	
Flooring Installation*	Ceramic tile and natural stone installation in 12 to 16 hours; Permeable coverings after 24 hours; Non-permeable coverings after 48 hours. <sup>1</sup>	
Ideal Slump Range**	11"-12" (27.9-30.4 cm)	

<sup>1</sup>Colder temperatures and higher humidity will extend cure times.  
<sup>\*\*</sup>Flooring material installation within 48 hours after application is dependent on thickness, drying conditions, and type of flooring.  
<sup>\*\*</sup>Ideal slump range is based in 2" (5 cm) inside diameter plastic/metal pipe by 4" (10 cm) high.

### Limitations

For interior use only. Do not apply when the temperature is below 50°F (10°C). Not for use in conditions of hydrostatic pressure or excessive moisture. Do not apply over sealed concrete, cushioned flooring or perimeter bonded flooring, strip wood flooring, tempered hardboard (e.g., Masonite), particle board or lauan plywood. Do not use as a final wear surface. No more than 2 applications can be used at 1" (25 mm) thickness. See Application Instructions for more details for using 2 applications.

### Packaging

50 lbs. (22.68 kg) moisture-resistant bag

### Coverage

Unit Size	Application Depth			
	1/8" (3 mm)	1/4" (6 mm)	1/2" (12 mm)	1" (25 mm)
50 lb. (22.68 kg)	44-50 sq.ft. (4.1-4.6 m <sup>2</sup> )	22-26 sq.ft. (2.0-2.4 m <sup>2</sup> )	11-13 sq.ft. (1.0-1.2 m <sup>2</sup> )	5-6 sq. ft. (.46-.55 m <sup>2</sup> )

### Surface Preparation

**General:** It is required that all surfaces be structurally sound and free from any contaminants that may inhibit bond, including oil, grease, dust, loose or peeling paint, sealers, floor finishes, or curing compounds, etc. Minimum tensile bond strength of 72 psi (0.5 MPa) is required. Substrate temperature should be a minimum of 50°F (10°C) during application and air temperature maintained above 50°F (10°C). DO NOT cover existing building expansion or control joints. Provide joints where specified. Create 1/8" to 1/4" (3-6 mm) wide gaps where self-leveling underlayment abuts walls, columns, and fixtures by installing a self-sticking foam weather stripping tape or damp sand (vacuum up sand after self-leveling underlayment has cured). Use Tile Perfect Fast Setting Patch to plug all floor openings, gaps and static (non-moving) cracks and install termination dams to prevent any seepage.

**Concrete:** Tile Perfect Self Leveling Underlayment can be installed over new ("green") concrete with a maximum of 95% RH or 15 lbs per 1000 ft<sup>2</sup> (0.07 kg/m<sup>2</sup>) per 24 hours. **However, when installing moisture sensitive floor coverings refer to the finished floor manufacturer's specifications on moisture limitations.** Remediation of excessive moisture conditions must be addressed prior to the installation Tile Perfect Self Leveling Underlayment.

A successful application to concrete requires evaluation of the concrete surface and preparation to address any conditions that would prevent a good bond. Following are the four conditions you need to check for. Check for Condition 1 on the entire concrete surface. Check for Conditions

SURFACE PREPARATION

# Self Leveling Underlayment

## SURFACE PREPARATION

2 through 4 on several areas, typically every 100 square feet (9.3 m<sup>2</sup>) on applications of 1000 square feet (93 m<sup>2</sup>) or less and every 500 square feet (46.5 m<sup>2</sup>) on larger applications. Once you have completed the preparation method, always re-check to confirm the method worked.

Shot blasting is one of the most effective methods of removing a wide variety of contaminants, or laitance (weak concrete surface material) from concrete. A shot blast machine will remove sealers, coatings, curing compounds and other contaminants quickly and effectively, leaving behind a proper surface ready to receive the primer and underlayment. Thickness of surface removal must be deep enough to eliminate penetrated contaminants or laitance.

**CONDITION 1:** Surface coatings and/or contamination such as gypsum plaster, joint compound, or adhesive.

**Evaluation:** Look at the surface and note the type and location of the surface contamination.

**Preparation:** First scrape off any lumps and loose material. Then use an appropriate cleaning method for the type of contamination. Examples include:

- Coatings or paints – Application over coatings is acceptable if they are well bonded and achieve a minimum of 72 psi (0.5 MPa) tensile bond strength. Coating surface must be free from any contaminants that may inhibit bond. Poorly bonded or peeling coatings must be removed by mechanical method.
- Gypsum plaster and joint compound – Scrub with warm water and detergent to remove any remaining material. Thoroughly rinse off any residue and allow concrete surface to dry prior to application of any Tile Perfect™ materials.
- Adhesive
  - Cutback Adhesive Residue (non-asbestos) – Application over asphalt-based cutback adhesive residue is acceptable provided the residue is well bonded and can achieve a minimum of 72 psi (0.5 MPa) tensile bond strength. Scrape and remove adhesive until all that remains is a thin, transparent layer.

Note: Mechanical removal of cutback by sanding, grinding or blasting can be hazardous since old cutback adhesive may contain asbestos. Harmful dust may result. Inhalation of asbestos dust may cause asbestosis or other serious bodily harm. Consult all applicable government agencies for rules and regulations concerning the removal of floorings and adhesives that contain asbestos.

- Tacky or pressure-sensitive adhesive – Do not apply Tile Perfect underlayments over these adhesives. They must be mechanically removed by a method such as shot blasting.

**CONDITION 2:** Weak top layer (laitance) or damaged concrete (spalling, scaling, or crumbling).

**Evaluation:** First scrape the surface with a knife blade. If this produces a fine powder, then laitance is present. Then use a hammer or other heavy object to sound out weak or hollow areas. Note the areas that are weak or damaged.

**Preparation:** Weak or damaged concrete must be removed by mechanical method such as shot blasting.

NOTE: Acid washing or etching is not recommended because it is difficult to control and to fully remove contaminants and properly neutralize. The acid can penetrate into the porous concrete and chemically undermine the cement, weakening the concrete. Acid washing will not remove grease or oil.

**CONDITION 3:** Invisible contamination such as sealers, curing compounds or oil.

**Evaluation:** Sprinkle water onto the surface. If water forms droplets without absorbing immediately, the surface is probably contaminated.

**Preparation:** Contaminated concrete must be removed by mechanical method such as shot blasting.

- Curing Compounds
  - Petroleum based, wax emulsion or dissipating curing compounds must be removed by mechanical means such as shot blasting. If the type of curing compound is unknown, removal is required.
  - Silicate or Acrylic resin curing compounds may be acceptable. Install primer test sample areas to evaluate bond strength first. Samples must achieve 72 psi (0.5 MPa) tensile bond strength. For silicate types, all residual salts must be removed prior to application of the primer and underlayment.

**CONDITION 4:** Surface dirt and dust.

**Evaluation:** Wipe the surface with a clean dark cloth. If powder is visible on the cloth the surface is not clean enough. Note the areas that require cleaning.

**Preparation:** Always use a two step method to remove surface dirt and dust. First use a dry clean broom and sweep the entire surface. Do not use sweeping compounds. They can leave an oily or waxy film on the concrete surface that will prevent a proper bond. The second step should consist of one of the following:

- Vacuuming – use a heavy-duty industrial type vacuum to provide a dust-free surface.
- Water cleaning – use a stream of potable water with sufficient pressure to remove dust and dirt. When necessary, also scrub with a stiff bristled brush. Thoroughly remove all wash water and allow concrete surface to dry prior to application of any Tile Perfect materials.

# Self Leveling Underlayment

## SURFACE PREPARATION

- Detergent water cleaning – Using a stiff bristled brush or broom, scrub the entire concrete surface with a cleaning product intended for concrete or a solution of at least 4 ounces (118 ml) of trisodium phosphate per gallon (3.78 L) of warm water. Before the surface dries, thoroughly flush the concrete with clean potable water to remove all wash water and residue. Allow concrete surface to dry prior to application of Tile Perfect™ materials.

**Single Layer of Exterior Grade Plywood or Oriented Strand Board (OSB) with Lath:** Wood subflooring must be securely fastened with screw type or ring shank nails and adhesive. Installations of exterior grade plywood or OSB (APA Rated Sturd-I-Floor OSB, Exposure 1 or better) require 3/4" (19 mm) single layer minimum thickness on bridged floor joists up to 24" (60 cm) on center, with a maximum deflection of L/360 of the span. Allow a gap of 1/8" to 1/4" (3-6 mm) between sheets of plywood or OSB. Long edges of subfloor must be tongue and groove or supported by bridging between floor joists. Use Tile Perfect Fast Setting Patch to plug all floor openings, gaps and cracks and install termination dams to prevent any seepage. Prime the floor and allow it to dry to a clear film. Next, staple 1/4" (6 mm) galvanized diamond metal or plastic lath to the floor overlapping 2" (5 cm) at seams. Staple every 6" (15 cm) around the perimeter and overlaps, and every 8" (20 cm) in the field of the lath. Install Tile Perfect Self Leveling Underlayment based upon the following joist spacing in the table below:

Joist Spacing (o.c.)	Minimum SLU thickness with lath over single layer 3/4" (19 mm) tongue and groove subfloor
16" (40 cm) or less	3/8" (9 mm)
20" (50 cm) or less	1/2" (12 mm)
24" (60 cm) or less	5/8" (15 mm)

**Double Layer of Exterior Grade Plywood without Lath:** Exterior Grade Plywood subflooring must be a minimum thickness of 5/8" (15 mm), securely fastened with screw type or ring shank nails and adhesive. Maximum floor joist spacing is 16" (40 cm) o.c. with a maximum deflection of L/360 of the span. Allow a gap of 1/8" to 1/4" (3-6 mm) between sheets of plywood. Long edges of subfloor must be tongue and groove or supported by bridging between floor joists. Install Exterior Grade Plywood underlayment, minimum thickness of 5/8" (15 mm) with 1/8" (3 mm) gap between sheets. Underlayment fasteners should not penetrate joists below. For 3/4" (19 mm) tongue and groove subfloor thickness over joists 16" (40 cm) o.c., install Exterior Grade Plywood underlayment, minimum thickness is 1/2" (12 mm) with 1/8" (3 mm) gap between sheets.

Use Tile Perfect Fast Setting Patch to plug all floor openings, gaps and cracks and install termination dams to prevent any seepage. Prime the floor. Allow

primer to dry to a clear film. Maintain minimum thickness for Tile Perfect Self Leveling Underlayment of 3/8" (9 mm).

**Radiant Heating Systems:** For radiant heat system installations, always prime the substrate before installing heating system components on the substrate surface. Heating system must be off 2 days before and kept off for 7 days after installation.

**Electric Wire Systems Installed Over Substrate** – Tile Perfect Self Leveling Underlayment may be used in conjunction with wire systems installed over concrete, single layer plywood/OSB subfloors with plastic lath or double layer plywood floors without lath. Follow the requirements for each substrate stated above and maintain minimum thickness of self leveling underlayment above the wire of 1/4" (6 mm).

**Electric Mat Systems Installed Over Substrate** – Mat system configurations can vary by system manufacturer. Contact system manufacturer for installation instructions.

**Hydronic Systems Installed Over Substrate** – Tile Perfect Self Leveling Underlayment may be used in conjunction with hydronic systems installed over concrete or 3/4" (19 mm) single layer plywood/OSB subfloors with lath. Follow the requirements for each substrate stated above and maintain minimum thickness of self leveling underlayment over the heating tubes of 1/2" (12 mm) (depending on the diameter of the tubing, two lifts of self leveling underlayment may be required). When installing ceramic tile over hydronic systems the application of a crack isolation membrane over the self leveling underlayment is recommended.

**Hydronic Systems Embedded in Concrete Substrate** – Follow the requirements for concrete substrate installations stated above and maintain minimum thickness of concrete over the embedded heating tubes of 3/4" (19 mm). When installing ceramic tile over hydronic systems the application of a crack isolation membrane over the self leveling underlayment is recommended.

**Metal Substrates:** Suitable metal substrates include non-galvanized steel, stainless steel, copper, aluminum and lead. Metal substrates must be fully supported, firmly attached and rigid with no flexing or vibration. In addition to the General surface contaminants listed above, metal surfaces shall be free of rust or corrosion. Remove by sand blasting, wire brush or other mechanical means. To prevent rusting of unpainted steel, prime with Tile Perfect Self Leveling Underlayment Primer immediately after surface cleaning.

# Self Leveling Underlayment

## SURFACE PREPARATION

### Mixing Instructions

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. Add powder to liquid for ease of mixing.

In a clean mixing container, slowly add product to 5 quarts (4.7 L) clean, cool water and mix with a high power drill (650 RPM). Mix thoroughly for two (2) to three (3) minutes. Scrape container's sides and remix to ensure a smooth, lump-free consistency.

### Application Instructions

Immediately after mixing, pour Tile Perfect™ Self Leveling Underlayment onto the primed substrate. Spread into place with a long-handled, gauged spreader or smoother covering all high spots on the floor. Working time is approximately 15-20 minutes, depending on ambient temperature and relative humidity of air. High temperatures and low humidity will shorten working time. Tile Perfect Self Leveling Underlayment can be applied from a 1/16" (1.6 mm) up to 1" (25 mm) depth in a single application or up to 2" (5 cm) with two applications. (Wait until walkable hardness between coats. If waiting 6 hours or more between applications, surface of first layer must be primed with Tile Perfect Self Leveling Underlayment Primer.)

### Drying Time

Tile Perfect Self Leveling Underlayment dries to walkable hardness in 2 to 4 hours. Most floor coverings can be installed in 12 to 16 hours. In hot, dry or drafty conditions protect the installation to avoid fast water loss while curing. Never use forced air to accelerate the drying of Tile Perfect Self Leveling Underlayment. Colder temperatures and higher humidity will extend cure times. For best results, always test performance of finished floor systems prior to installation.

### Clean Up

Wash tools, hands and equipment with warm soapy water while material is still fresh.

### Cautions

CAUTION! EYE, SKIN AND RESPIRATORY IRRITANT. Avoid breathing dust. Avoid contact with eyes, skin and clothing. If in eyes, rinse with water 20 minutes. If on skin, rinse well with water. For additional information, see Material Data Safety Sheet (MSDS) for this product. WARNING! This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. KEEP 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 Tile Perfect 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.

### Storage/Shelf Life

Store in a cool, dry area away from direct sunlight. Do not store open containers. Maximum shelf life is 1 year from date of manufacture in unopened package.

### Customer and Technical Services

#### Customer support

Toll Free: 800-832-9002

Fax: 800-952-2368

#### Technical assistance

Information is available by calling the Technical Support Hotline.

Toll Free: 800-832-9023

Fax: 630-952-1235



H.B. Fuller Construction Products Inc.

1105 South Frontenac Street  
Aurora, IL 60504-6451 U.S.A.  
[www.hbfuller-cp.com/tp](http://www.hbfuller-cp.com/tp)