



Level Set® 400 HF Self-Leveling Underlayment

1. PRODUCT NAME

TEC® Level Set® 400 HF Self-Leveling Underlayment (400)

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
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Aurora, IL 60504-6451 U.S.A.
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3. DESCRIPTION

Ideal for fast track applications, Level Set 400 HF is a high-flow, calcium aluminate-based, self-leveling underlayment that provides a smooth surface for finished floor coverings.

Key Features and Benefits

- High flow distance and speed reduces labor and produces a super smooth surface
- Once cured, no need for additional sanding or skim coating
- For installations ranging from 1/16" - 1 1/2"
- Can be featheredged to adjoining elevations
- Up to 60 minutes of working time
- Pourable or pumpable
- Formulated for fast-track applications - walkable in 2-3 hours
- Install moisture sensitive floor covering in 15 hours and ceramic tile in 2-3 hours
- Compatible with all types of floor covering - wood, vinyl planks & sheet goods, linoleum, rubber, ceramic LFT, VCT etc.
- Contributes to LEED® project points
- Zero VOC

*Must be 1/16" over highest point of the floor

Packaging

50 lb. plastic bags (22.68 kg)

Product #15030440

50 lb. moisture-resistant bags (22.68 kg)

Product #15036414

Coverage

Coverages shown are approximate. Actual coverages may vary according to substrate conditions and thickness of applications.

Application Depth	Approximate Weight in Pounds per Square Foot (kg/m ²)	Approximate Coverage per 50 lbs. (22.68 kg)
1/16" (1.6 mm)	0.5-0.7 (2.7-3.1)	100 sq. ft. (9.29 m ²)
1/8" (3 mm)	1.1-1.3 (5.4-6.3)	50 sq. ft. (4.65 m ²)
1/4" (6 mm)	2.2-2.6 (10.7-12.7)	25 sq. ft. (2.32 m ²)
1/2" (12 mm)	4.6-5.3 (22.5-25.9)	12.5 sq. ft. (1.16 m ²)
1" (25 mm)	9.1-10.5 (44.4-51.3)	6.25 sq. ft. (0.58 m ²)
1 1/2" (38 mm)	13.7-15.8 (66.9-77.1)	2.778 sq. ft. (0.25 m ²)

Suitable Substrates

When properly prepared, suitable substrates include:

- Concrete
- Ceramic, porcelain or quarry tile
- Pavers
- Cement or epoxy terrazzo
- Cement backerboard

- Metal
- VCT or full glued down, non-cushioned vinyl sheetgoods
- Exterior grade plywood (with reinforcement lath)
- Oriented Strand Board (OSB) (with reinforcement lath)
- Gypsum substrates (properly primed) with minimum tensile bond strength 72 psi (0.5 MPa)

Substrate Preparation (In accordance with ASTM F710)

All materials should be stored at 50°F (10°C) to 90°F (32°C) 24 hours prior to installation. 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, curing compounds or contaminants. Minimum tensile bond strength of 72 psi (0.5 MPa) is required. Substrate temperature should be a minimum of 43°F (6°C) and air temperature maintained above 50°F (10°C). DO NOT cover existing building expansion joints, isolation joints or any crack or joint subject to movement. Provide control joints where specified. Create a minimum of 1/8" to 1/4" (3-6 mm) wide gap where Level Set 400 HF abuts walls, columns, and fixtures by installing a self-sticking foam such as weather stripping tape or damp sand (vacuum up sand after self-leveling underlayment has cured). **Surfaces must be primed with TEC® Multipurpose Primer prior to installation of Level Set 400 HF.** See Primer label for application instructions. It is recommended to test for substrate moisture content to ensure it meets the floor covering manufacturer's requirements. **Remediation of excessive moisture conditions must be addressed prior to the installation of Level Set 400 HF.** Level Set 400 HF can be installed over green concrete with RH of 99% or less. This product is not a moisture vapor barrier. If substrate moisture content exceeds the maximum allowed by the flooring manufacturer, then moisture mitigation must be applied prior to application of Level Set 400 HF. To reduce moisture vapor emissions to an acceptable level, use TEC® LiquiDam™ Penetrating Moisture Vapor Barrier or LiquiDam EZ™ Moisture Vapor Barrier (see product data sheets for details). **For installation over adhesive (except for tacky and pressure sensitive adhesive), remove adhesive by scraping (mechanical removal, DO NOT use chemical adhesive removers) until all that remains is a thin transparent layer of adhesive residue.**

Single Layer of Exterior Grade Plywood or Oriented Strand Board (OSB) with Lath:

Wood sub-flooring 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 1/360 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 suitable TEC surface preparation products (Feather Edge Skim Coat VersaPatch®, Fast-Set Deep 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 Level Set 400 HF based upon the joist spacing shown in the table below:

Joist Spacing (o.c.)	Minimum SLU thickness with lath over single layer 3/4" (19 mm) tongue and groove subfloor	Minimum SLU thickness with lath over single layer 5/8" (15 mm) tongue and groove subfloor
16" or less (40 cm or less)	3/8" (9 mm)	1/2" (12 mm)
20" or less (50 cm or less)	1/2" (12 mm)	5/8" (15 mm)
24" or less (60 cm or less)	5/8" (15 mm)	3/4" (19 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 1/360 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 suitable TEC surface preparation products (Feather Edge Skim Coat, VersaPatch, Fast-Set Deep 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 Level Set 400 HF 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 – Level Set 400 HF 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 – Level Set 400 HF 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 and prime immediately with TEC Multipurpose Primer to prevent surface rusting.

Storage

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

Shelf Life

Maximum 1 year from date of manufacture in properly stored, unopened plastic package. Maximum 9 months from date of manufacture in properly stored, unopened paper package.

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, tempered hardboard (e.g. Masonite), particle board, or lauan plywood.
- Level Set 400 HF is not a wear surface and should be protected from construction trade traffic until the final floor covering is applied. Do not allow heavy or sharp metal objects to be dragged directly across the Level Set 400 HF surface.

Cautions

Read complete cautionary information printed on product container prior to use. 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 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.

4. TECHNICAL DATA

Level Set 400 HF Self-Leveling Underlayment (400)

Description	Typical Results
28 Day Compressive Strength	>4,500 psi (31.03 MPa)
28 Day Flexural Strength	>1,000 psi (6.89 MPa)
28 Day Shrinkage	<0.07%

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

Physical Properties

Description	
Physical State	Dry powder
Color	Gray
Working Time	40-60 minutes*
Heal Time (ASTM C1708)	30-40 minutes*
Walkable	2-3 hours*
Flooring Installation	Moisture sensitive floor covering: 15 hours* Ceramic: 2-3 hours*
Speed of Flow (ASTM C1708 ISO 8 capillary flow cup)	15-20 seconds*
Flow (ASTM C1708)	6 (+/- 0.2) inches*
Storage	Store in a cool, dry area, away from direct sunlight. Do not store open containers.
Shelf Life	Maximum 1 year from date of manufacture in properly stored, unopened plastic package. Maximum 9 months from date of manufacture in properly stored, unopened paper package.

*Temperature and humidity will affect flow, working time and set time.

5. INSTALLATION INSTRUCTIONS

Mixing

Mix 2-3 bags of Level Set 400 HF at a time. In a clean, appropriate sized container, add 6.0-6.25 qts. (5.7-5.9 L) of clean, cool potable water for **EACH** 50 lb. (22.68 kg) bag. Next add the Level Set 400 HF, while mixing at full speed using a mixing blade suitable for the mixing container shape attached to a heavy-duty 1/2" (12 mm) drill (minimum 650 rpm). Do not add extra water. Mix completely for a minimum of 2 minutes until lump free, adding no additional water. Do not over mix or move the mixer up and down while mixing as this could entrap air, lower the strength and may cause cracking and/or pin holing. The formation of a white film on the surface is an indication of overwatering. To keep the job moving, it is recommended that two mixing drums be used simultaneously. This will allow one mixing container to be poured while the other is being mixed. **Use full bags only.**

For applications utilizing a pumping system: Level Set 400 HF can be mechanically mixed using either an in-line continuous mixer and pump or a batch mixer and pump using 6.0-6.25 qts. (5.7-5.9 L) clean potable water for **EACH** 50lb (22.68 kg) bag of powder. The minimum required hose length is 100 ft. (30.5 m) for in-line continuous mixers. For horizontal applications greater than 300 ft. (91.4 m) and vertical applications greater than 40 ft. (12.2 m) contact TEC Technical Services at 800-832-9023.

Before starting, ensure the mixer and pumps are completely clean and in good working order. Refer to the manufacturer instructions for specific maintenance and cleaning. Prior to Level Set 400 HF installation, adjust the pump to ensure proper mixing and a uniform distribution of sand is achieved throughout the mix. Do not overwater as this will lower the strength and may cause cracking and/or pin holing. To avoid segregation and over watering during installation, the water settings may require adjusting. Check the product consistency to ensure a uniform distribution of the aggregates during pumping. The conditions that can affect the overall performance are, but not limited to, length of hose, water temperature, water pressure, substrate, ambient air temperature, and powder temperature. On the end of the hose attach a mesh-screen sock to trap any foreign or unmixed material. Always test pump using the actual maximum hose length and conditions before installation to ensure proper application and appearance is achieved. Test

the mixed material periodically from the pump to ensure suitable mix and flow prior to general application.

Application

Apply when air temperature is between 50°F (10°C) and 90°F (32°C). Close all windows, doors and HVAC vents to minimize air flow. Divide the areas to permit continuous placement without cold joints. Pour or pump the blended Level Set 400 HF onto the floor and disperse with a gauge rake*. Use cleated shoes to avoid leaving marks. Optimum results can be obtained by providing a continuous wet flow throughout the application. Level Set 400 HF has a working time 40-60 minutes at 70°F (21°C). **Temperature and humidity will affect flow, working time and set time.** Verify that the minimum depth of pour is at least 1/16" over the highest point of floor. Minimum depth of 1/8" (3 mm) is required for heavy rolling loads. Maximum Level Set 400 HF thickness is 1 1/2" (38 mm) neat. It is the sole responsibility of the installer to determine the suitability and compatibility of the Level Set 400 HF for the user's intended use.

*For smaller areas, a finish trowel may be used to move material as needed.

Curing

Protect from excessive temperature, air movement and direct sunlight during cure. Turn off all HVAC systems whenever possible for up to 24 hours after installation.

NOTE: Level Set 400 HF is not a wear surface and should be protected from construction trade traffic until the final floor covering is applied.

Multiple lifts: For installations using multiple lifts of self-leveling underlayment, the first lift should be allowed to cure until walkable. Application of two coats of primer are required prior to the second lift as outlined on the Multipurpose Primer product data sheet with the first coat being 1:3 primer to water, and the second coat being 1:2 primer to water.

Clean-up

While material is still fresh, clean tools, hands and equipment with warm soapy water.

6. AVAILABILITY

TEC premium surface preparation, tile, stone, carpet, wood and resilient floor covering installation products are available nationwide. To locate TEC products in your area, please contact:

Phone: 800-832-9002

Website: tecspecialty.com

7. LIMITED WARRANTY

The product(s) covered by this Product Data Sheet are sold subject to a Limited Warranty and related terms. **H.B. Fuller Construction Products disclaims the implied warranties of merchantability and fitness for a particular purpose and all incidental and consequential damages arising out of the sale, purchase or use of this product.** For Limited Warranty details visit tecspecialty.com. To obtain a hard copy of the Limited Warranty call H.B. Fuller Construction Products at 800-832-9023 or mail a written request to the address in Section 2 of this Product Data Sheet.

8. MAINTENANCE

Not applicable

9. TECHNICAL SERVICES

Technical and safety literature

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

10. FILING SYSTEM

Divisions 3 and 9



Conforms with LEED v4 low emitting interiors.
Compliant with (CDPH) Standard Method v1.2 VOC Emissions.



To learn more, visit TECSpecialty.com



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