Level Set® 500 HF Self-Leveling Underlayment

1. PRODUCT NAME
TEC® Level Set® 500 HF Self-Leveling Underlayment (500)

2. MANUFACTURER
H.B. Fuller Construction Products Inc. 1105 South Frontenac Street Aurora, IL 60504-6451 U.S.A. 800.552.6225 Office 800.832.9023 Technical Support 800.952.2368 Fax tecspecialty.com

3. DESCRIPTION
Ideal for fast track applications, Level Set® 500 HF is a high-flow, calcium aluminate-based, self-leveling underlayment that provides an extremely smooth surface for finished floor coverings.

Key Features and Benefits
• Exceptional flow and healing properties that yield a super smooth surface
• Once cured, no need for additional sanding or skim coating
• Can be featheredged to adjoining elevations
• Get up to 20% more coverage from adhesives
• Pourable or pumpable for interior applications
• 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

*Results may vary depending on adhesive and substrate

Packaging
50 lb. plastic bags (22.68 kg) Product #15030009
50 lb. moisture-resistant bags (22.68 kg) Product #7209353111

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

<table>
<thead>
<tr>
<th>Application Depth</th>
<th>Approximate Coverage per 50 lbs. (22.68 kg)</th>
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</thead>
<tbody>
<tr>
<td>1/4&quot; (6 mm)</td>
<td>25 sq. ft. (2.32 m²)</td>
</tr>
<tr>
<td>1/8&quot; (3 mm)</td>
<td>50 sq. ft. (4.65 m²)</td>
</tr>
<tr>
<td>1/4&quot; (6 mm)</td>
<td>25 sq. ft. (2.32 m²)</td>
</tr>
<tr>
<td>1/8&quot; (3 mm)</td>
<td>50 sq. ft. (4.65 m²)</td>
</tr>
<tr>
<td>1&quot; (25 mm)</td>
<td>6.25 sq. ft. (0.58 m²)</td>
</tr>
<tr>
<td>2&quot; (50 mm)</td>
<td>3.125 sq. ft. (0.29 m²)</td>
</tr>
</tbody>
</table>

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 sheet goods
• Exterior grade plywood (with reinforcement lath)
• Oriented Strand Board (OSB) (with reinforcement lath)
• Gypsum substrates (properly primed) 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 or control joints. Provide control joints where specified. Create a minimum of 1/4" to 1/4" (3-6 mm) wide gap where Level Set® 500 HF 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). Surfaces must be primed with TEC® Multipurpose Primer prior to installation of Level Set® 500 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® 500 HF. Level Set® 500 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® 500 HF. To reduce moisture vapor emissions to an acceptable level, use TEC® LiQuimask™ Penetrating Moisture Vapor Barrier or LiQuimask 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 until all that remains is a thin transparent layer of adhesive residue. Maximum Level Set® 500 HF thickness is 2" (50 mm) neat.

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. Maximum floor joist spacing is 16" (40 cm) o.c. with a maximum deflection of 1/300 of the span. Allow a gap of 1/4" 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 1/8" (3-6 mm) wide gap where lath sheet edges overlap, and every 8" (20 cm) in the field of the lath. Install Level Set® 500 HF based upon the joist spacing shown in the table below:

<table>
<thead>
<tr>
<th>Joint Spacing (o.c.)</th>
<th>Minimum SLU thickness with lath over single layer 1/4&quot; (19 mm) tongue and groove subfloor</th>
<th>Minimum SLU thickness with lath over single layer 1/4&quot; (15 mm) tongue and groove subfloor</th>
</tr>
</thead>
<tbody>
<tr>
<td>16&quot; or less (40 cm or less)</td>
<td>1/4&quot; (9 mm)</td>
<td>1/4&quot; (12 mm)</td>
</tr>
<tr>
<td>20&quot; or less (50 cm or less)</td>
<td>1/4&quot; (12 mm)</td>
<td>1/4&quot; (15 mm)</td>
</tr>
<tr>
<td>24&quot; or less (60 cm or less)</td>
<td>1/4&quot; (15 mm)</td>
<td>1/4&quot; (19 mm)</td>
</tr>
</tbody>
</table>

Double Layer of Exterior Grade Plywood without Lath:
Exterior Grade Plywood subflooring must be a minimum thickness of 5/16" (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 1/300 of the span. Allow a gap of 1/16" 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 1/8" (15 mm) with 1/4" (3 mm) gap between sheets. Underlayment fasteners should not penetrate.
TEC® Level Set® 500 HF Self-Leveling Underlayment

joists below. For ¾” (19 mm) tongue and groove subfloor thickness over joists 16” (40 cm) o.c., install Exterior Grade Plywood underlayment, minimum thickness is ½” (12 mm) with ¼” (3 mm) gap between sheets.

Use suitable TEC® surface preparation products (Feather Edge Skin 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® 500 HF of ¾” (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® 500 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 ¾” (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® 500 HF may be used in conjunction with hydronic systems installed over concrete or ¾” (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 ½” (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 ¾” (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 locked up in a cool, dry area, away from direct sunlight. Do not 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® 500 HF is not a wear surface and should be protected from construction traffic until the final floor covering is applied. Do not allow heavy or sharp metal objects to be dragged directly across the Level Set® 500 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

<table>
<thead>
<tr>
<th>Level Set® 500 HF Self-Leveling Underlayment (500)</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>28 Day Compressive Strength</td>
</tr>
<tr>
<td>28 Day Flexural Strength</td>
</tr>
<tr>
<td>28 Day Shrinkage</td>
</tr>
</tbody>
</table>

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

Physical Properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Dry powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Gray</td>
</tr>
<tr>
<td>Working Time</td>
<td>40-60 minutes</td>
</tr>
<tr>
<td>Heal Time</td>
<td>30-40 minutes</td>
</tr>
<tr>
<td>Walkable</td>
<td>2-3 hours</td>
</tr>
<tr>
<td>Flooring Installation</td>
<td>Moisture sensitive floor covering: 15 hours Ceramic: 2-3 hours</td>
</tr>
<tr>
<td>Speed of Flow</td>
<td>15-20 seconds</td>
</tr>
<tr>
<td>Flow (ASTM C1708)</td>
<td>6 (±0.2) inches</td>
</tr>
<tr>
<td>Storage</td>
<td>Store locked up in a cool, dry area, away from direct sunlight. Do not open containers.</td>
</tr>
</tbody>
</table>

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

5. INSTALLATION INSTRUCTIONS

Mixing
Mix 2-5 bags of Level Set® 500 HF at a time. In a clean, appropriate sized container, add 6.5 qts. (6.2 L) of clean, cool potable water for EACH 50 lb. (22.68 kg) bag. Next add the Level Set® 500 HF, while mixing at full speed using an egg-beater mixing blade attached to a heavy-duty ½” (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. Avoid overwatering, over mixing or moving the mixer up and down during mixing as this will 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.

For applications utilizing a pumping system: Level Set® 500 HF can be mechanically mixed using either an in-line continuous mixer and pump or a batch mixer and pump using 6.5 qts. (6.2 L) clean potable water for EACH 50 lb. (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® 500 HF installation, adjust the pump to ensure proper mixing and 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) within 24 hours of application. 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® 500 HF onto the floor and disperse with a gauge rake. Optimum results can be obtained by providing a continuous wet flow throughout the application. Level Set® 500 HF has a working time 40-60 minutes at 70°F (21°C). Temperature and humidity will affect flow, working time and set time. Minimum depth of 1/8” (3 mm) is required for heavy rolling loads.

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® 500 HF is not a wearing surface and should be protected from construction trade traffic until the final floor covering is applied.

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