CHAPCO® ULTIMATE WL  
WearLayer / Self-Leveling Underlayment

1. PRODUCT NAME  
CHAPCO® ULTIMATE WL WearLayer / Self-Leveling Underlayment

2. MANUFACTURER  
H.B. Fuller Construction Products Inc.  
1105 South Frontenac Street  
Aurora, IL 60504-6451 U.S.A.  
800-552-6225 Office  
chapco-adhesive.com

3. DESCRIPTION  
CHAPCO® ULTIMATE WL is a dual-purpose pumpable/pourable, cement-based product that can be used as an interior wear surface or as a high-performing self-leveling underlayment designed for use over a variety of substrates. CHAPCO® ULTIMATE WL is available in gray or white. CHAPCO® ULTIMATE WL gray is suitable to achieve a limited range of colors, while white provides the ultimate canvas for most color schemes. Color can be added integrally or applied to the surface. For integral color, powdered or liquid pigments are mixed with the product. Color can be added integrally or applied to the surface. White provides the ultimate canvas for most color schemes. For fast track flooring installations CHAPCO® ULTIMATE WL can be used as an interior self leveler. 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. Permeable coverings can be installed in as little as 6 hours. Non-permeable coverings can be applied in 12-24 hours.

Note: All substrates must be primed with CHAPCO® MP Multi-Purpose Primer before installing CHAPCO® ULTIMATE WL.

Product Features  
• Calcium aluminate technology for rapid strength development  
• Interior Wear Surface or a self-leveling underlayment  
• Superior flow properties  
• Accepts topical or integral colorants  
• Use directly over green concrete (<95% RH or 15 lbs per 1,000 ft²)  
• Cures to a smooth, consistent finish  
• Walkable in 2-4 hours, install flooring as soon as 6 hours  
• Available in gray or white  
• Contributes to LEED® project points  
• Self-drying formula

4. TECHNICAL DATA

Performance          Test Standard        Typical Results
28 Day Compressive Strength  ASTM C109        4000 psi (28.6 MPa)
28 Day Flexural Strength  ASTM C596        1200 psi (8.2 MPa)
Tensile Strength          ASTM C307       150-400 psi (2.4-2.7 MPa)
28 Day Shrinkage         ASTM C331 (Modified)     0.025 - 0.050%  
Working Time            N/A              15-30 minutes  
Walkable Hardness*       N/A              2-4 hours  
Flooring Installation*   Permeable Coverings    6 hours  
                       Non-Permeable Coverings   12-24 hours  
Surface Finish Application* N/A             16 Hours  
Ideal Slump Range**      N/A              10.5" - 11.5" (22.6-29.2 cm)

*Smaller temperatures and higher humidity will extend cure times.  
**Ideal slump range is based on 2" (5 cm) diameter plastic/metal pipe x 4" (10 cm) high.

5. INSTALLATION INSTRUCTIONS  
Preparation of Surfaces

General  
All surfaces must be structurally sound and free from any contaminants that may inhibit bond, including oil, grease, dust, loose or peeling paint, floor finishes or waxes, etc.

Surfaces must be primed with CHAPCO® MP Multi-Purpose Primer prior to installation of CHAPCO® ULTIMATE WL. See Primer label for application instructions. Minimum tensile bond strength of 72 psi (0.5 MPa) is required.
Substrate temperature should be a minimum of 43°F (6°C) during application and air temperature maintained above 50°F (10°C). DO NOT cover existing building expansion or dynamic (moving) control joints or cracks. 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). Plug all floor openings, gaps and static (non-moving) cracks and install termination dams to prevent any seepage.

Concrete
CHAPCO® ULTIMATE WL can be installed over new (“green”) concrete with a maximum of 95% RH or 15 lbs per 1,000 ft² (0.07 kg/m²) 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 CHAPCO® ULTIMATE WL. To reduce moisture vapor emissions to an acceptable level, use CHAPCO’S DEFENDER™ Moisture Vapor Barrier prior to application of CHAPCO® MP Multi-Purpose Primer and CHAPCO® ULTIMATE WL (see DEFENDER™ product data sheet for details).

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 2 through 4 on several areas, typically every 100 square feet (9.3 m²) per 24 hours. Remediation of excessive moisture conditions must be addressed prior to the installation CHAPCO® ULTIMATE WL. To reduce moisture vapor emissions to an acceptable level, use CHAPCO’S DEFENDER™ Moisture Vapor Barrier prior to application of CHAPCO® MP Multi-Purpose Primer and CHAPCO® ULTIMATE WL (see DEFENDER™ product data sheet for details).

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 weaken 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 CHAPCO® materials.
  • 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 CHAPCO® materials.

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 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 sub-floor must be tongue and groove or supported by bridging between floor joists. Use suitable CHAPCO® surface preparation products (CHAPCO® SmoothFinish™, CHAPCO® PATCH, CHAPCO® QDP PLUS) 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” x 6 mm” galvanized diamond metal or plastic lath to the floor overlapping 2 1/2” (6 cm) at seams. Staple every 6” (15 cm) around the perimeter, ends and overlaps, and every 8” (20 cm) in the field of the lath. Install CHAPCO® ULTIMATE WL based upon the following joist spacing in the following table:

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 CHAPCO® 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 CHAPCO® underlayment over these adhesives. They must be mechanically removed by a method such as shot blasting.

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    • Tacky or pressure-sensitive adhesive—Do not apply CHAPCO® underlayment over these adhesives. They must be mechanically removed by a method such as shot blasting.
Double Layer of Exterior Grade Plywood without Lath (underlayment only)

Exterior Grade Plywood sub-flooring 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 sub-floor 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 sub-floor 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 CHAPCO® surface preparation products (CHAPCO® SmoothFinish™, CHAPCO® PATCH, CHAPCO® QDP PLUS) 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 CHAPCO® ULTIMATE WL 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 – CHAPCO® ULTIMATE WL may be used in conjunction with wire systems installed over concrete, single layer plywood/OSB sub-floors with plastic lath or double layer plywood floors without lath. Follow the requirements for each substrate stated above and maintain minimum thickness above the wire when used as a self leveling underlayment of 1/4” (6 mm) and when used as a wear layer of 3/8” (9 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 - CHAPCO® ULTIMATE WL may be used in conjunction with hydronic systems installed over concrete or 3/4” (19 mm) single layer plywood/OSB sub-floors with lath. Follow the requirements for each substrate stated above and maintain minimum thickness of CHAPCO® ULTIMATE WL 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 CHAPCO® MP Multi-Purpose Primer immediately after surface cleaning.
6. AVAILABILITY AND COST
To locate a distributor in your area, please contact:

phone: 800-832-9002
website: chapco-adhesive.com

7. WARRANTY
H.B. Fuller Construction Products Inc. offers a limited warranty on this product when installed in accordance with H.B. Fuller Construction Products Inc. printed specifications. Ask your sales associate or call 800-832-9002 for a copy of the limited warranty.

8. MAINTENANCE
Not applicable.

9. TECHNICAL ASSISTANCE
Information is available by calling the Technical Support Hotline:

Toll-free: 800-832-9023

Technical and Safety Literature:
To acquire technical and safety literature, please call 800-832-9023.

10. FILING SYSTEM
Division 3 - Concrete
Division 9 - Finishes