



CHAPCO

CHAPCO® ULTIMATE WL

WearLayer / Self-Leveling Underlayment

PRODUCT DATA

SURFACE PREPARATION

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
www.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, 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 ULTIMATE WL prior to placing it on the substrate. Surface colors such as chemical concrete stain, or liquid dyes are applied following minimum curing period. All wear surface installations require a topical sealer.

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 (0.07 kg/m²) per 24 hours]
- Thickness ranges from 1/16" (1.6 mm) up to 1-1/2" (38 mm) depth in a single pour (minimum 3/8" (9 mm) thickness for wear surface applications)
- 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

Packaging

50 lb. Moisture Resistant Bag (22.67 kg)
Gray Product # 70-5208-3169
White Product # 70-5321-3169
2,200 lb. Super Sack - Available upon request*

*Contact your CHAPCO representative for further information.

Coverage

Coverage shown is approximate.
Actual coverage may vary based on substrate conditions.

Thickness	1/8" (3mm)	1/4" (6 mm)	1/2" (12 mm)	1" (24 mm)
Approximate Coverage per 50 lb. (22.67kg) Bag	44-50 ft ² (4.1 – 4.6 m ²)	22-27 ft ² (2.0 – 2.5 m ²)	11-13 ft ² (1.0 – 1.2 m ²)	5-6 ft ² (0.5 – 0.6 m ²)

Recommended Substrates

- Concrete
- Ceramic, porcelain or quarry tile
- Cement or epoxy terrazzo
- Cement backerboard
- VCT or full glue down, non-cushioned vinyl sheet goods
- Exterior grade plywood
- Oriented Strand Board (OSB)
- Existing wood flooring
- Gypsum substrates -- minimum tensile bond strength 72 psi (0.5 MPa)

Storage/Shelf Life

Store in a cool dry area away from direct sunlight. Maximum shelf life is 6 months from date of manufacture in unopened 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 ($>95\%$ RH or 15 lbs per 1,000 ft² (0.07 kg/m²) per 24 hours). May be subject to hairline cracking when installed as a wear layer over wood substrates.

Due to variations in cements, CHAPCO ULTIMATE WL may exhibit slight color differences from one manufacturing plant to another, and from lot to lot. To minimize this effect, install CHAPCO ULTIMATE WL from consecutive lot numbers when used as a wear surface.

Cautions

Read complete cautionary information printed on product container prior to use. For medical emergency call 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 guidelines for the proper use and application of the covered CHAPCO 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

Performance	Test Standard	Typical Results
28 Day Compressive Strength	ASTM C-109	6000 psi (41.0 MPa)
28 Day Flexural Strength	ASTM C-580	1200 psi (8.2 MPa)
Bond Strength (Concrete)	ASTM D-3931	350-400 psi (2.4-2.7 MPa)
28 Day Shrinkage	ASTM C-531 (Modified)	0.025 - 0.050%
Working Time	N/A	15-20 minutes
Walkable Hardness*	N/A	2-4 hours
Flooring Installation*	Permeable Coverings Non-Permeable Coverings	6 hours 12-24 hours
Surface Finish Application*	N/A	16 Hours
Ideal Slump Range**	N/A	10.5"-11.5" (22.6-29.2 cm)

*Colder 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) on applications of 1000 square feet (93 m²) or less and every 500 square feet (46.5 m²) 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 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 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 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" (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 CHAPCO ULTIMATE WL based upon the following joist spacing in the following table:



Joist Spacing (O.C.)	Minimum SLU thickness with lath over single layer 3/4" (19 mm) tongue and groove sub-floor
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 (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.

Solid Hardwood Flooring

Existing 3/4" (19 mm) thick tongue and groove solid hardwood flooring only (laminates are not acceptable) with maximum deflection of L/360 of the span. Remove surface contaminants and ensure 72 psi (0.5 MPa) tensile bond strength. Prime with CHAPCO MP Multi-Purpose Primer full strength (undiluted). 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. Maintain minimum thickness for CHAPCO ULTIMATE WL of 3/4" (19 mm).

Mixing Instructions

Add the entire bag of the CHAPCO ULTIMATE WL to 5 - 5.25 quarts (4.7 - 5.0 L) of clean, cool water and mix with a high power drill (650 RPM). Mix thoroughly for two-three minutes. Scrape container's sides and remix to ensure a smooth, lump-free consistency. CHAPCO ULTIMATE WL can also be used in most pump equipment, please consult a CHAPCO representative to verify equipment compatibility. A slump test should always be performed to ensure that mix is homogenized and free from separation.

Application Instructions

Immediately after mixing, pour CHAPCO ULTIMATE WL onto the primed substrate. Spread into place with a long-handle, gauge rake or smoother covering all high spots on the floor. Working time is approximately 15-20 minutes, depending on ambient air temperature, substrate temperature and relative humidity of the air. High temperatures and low humidity will shorten working time. CHAPCO ULTIMATE WL can be applied from a 1/16" (1.6 mm) up to 1-1/2" (38 mm) depth in a single application or up to 3" (7 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 CHAPCO MP Multi-Purpose Primer.)

Up to 5" (12 cm) thickness may be poured in a single application with the addition of aggregate [well-graded, washed, dry pea gravel 1/8" (9 mm) or larger]. First mix the CHAPCO ULTIMATE WL as instructed. During placement add equal parts of aggregate to mixed self-leveler by volume, mix until completely coated. To ensure proper bond, all aggregate and substrate must be completely coated with the underlayment mixture. Do not use sand. For further information, please contact your CHAPCO representative.

Drying Time

CHAPCO ULTIMATE WL quickly dries to a walkable hardness in 2 to 4 hours. Permeable coverings can be applied in as soon as 6 hours. Colder temperatures and higher humidity will extend cure times. Non-permeable coverings can be applied in 12-24 hours. CHAPCO ULTIMATE WL is cement-based, and all general rules of concrete work should be observed to achieve maximum results. Never use forced air to accelerate the drying of CHAPCO self-leveling cement.

Surface Finishes

CHAPCO ULTIMATE WL requires a topical sealer when used as a wear surface. For topical color designs use straight or radius saw cuts to delineate colors and create shapes and patterns. Toppings can be applied after 16 hours. This will help to protect the material from potential staining, resists dirt and grime build-up, and makes the surface easier to clean. Most commercial toppings, including acrylic, polyurethane and epoxy-based systems can be applied directly to CHAPCO ULTIMATE WL. For best results, always test performance suitability and compatibility prior to application and consult manufacturer of toppings for specific guidelines/procedures. For specific recommendations, please contact your CHAPCO representative.

Clean-up

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



CHAPCO® ULTIMATE WL

PRODUCT DATA

6. AVAILABILITY AND COST

To locate a distributor in your area, please contact:

phone: 800-832-9002

website: www.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



Environmentally Conscious
Manufacturer



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