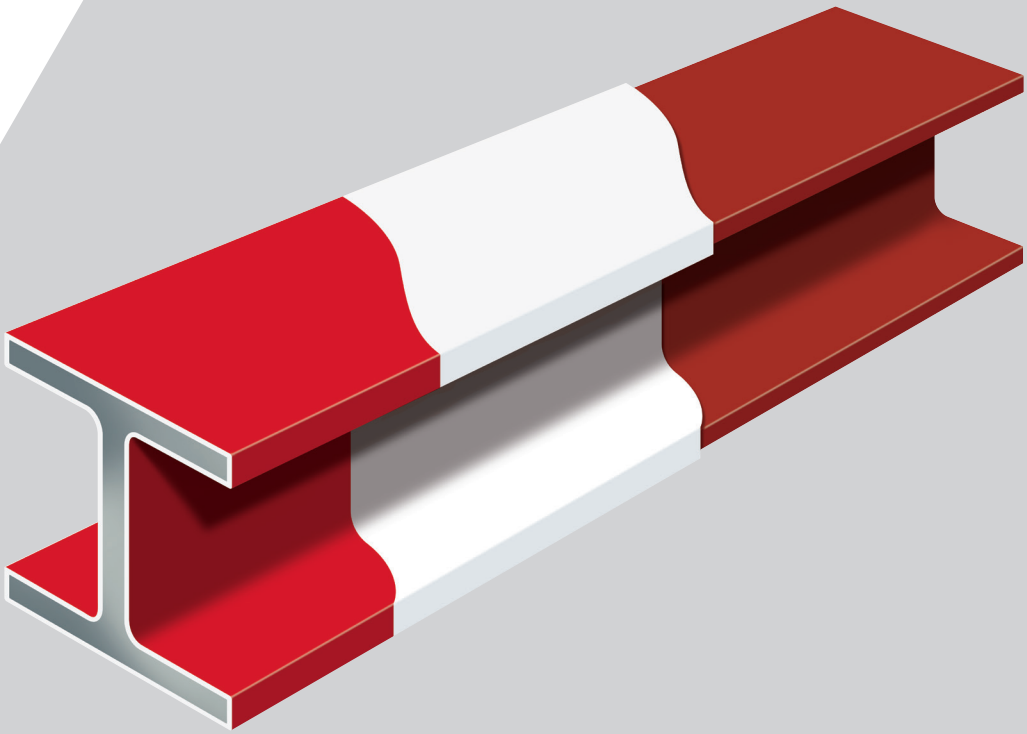
PRODUCT APPLICATION GUIDELINE

All Weather High Build
CFP-SP AWHB

2024 Edition



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1. BASIC INFORMATION

Hilti All Weather High Build CFP-SP AWHB is a 2-component intumescent steel fireproofing coating that has been designed to spray with single component airless sprayers, providing excellent weather resistance, a broad temperature and humidity range for application, and fantastic productivity. It has been tested to UL 263 / ASTM E119 standard and is approved for interior conditioned space, interior general-purpose use, and exterior use.

Hilti All Weather High Build CFP-SP AWHB comes in two parts: Part A (white) and Part B (Translucent Black) that must be fully mixed to be utilized.

It is important to adhere to the following application methods to comply with the independent fire test evidence which supports its use. Correct thickness, application and finish of the product must be assured. Hilti All Weather High Build CFP-SP AWHB must be installed only by Hilti trained and accredited installers.

2. SAFETY

Personal protective equipment (PPE)

- Protective clothing
- Safety glasses and/or goggles
- Gloves

Additional advice for respiratory protection:

- Ensure adequate ventilation on workstation.
- OSHA approved half mask respirator.

Read Safety Data Sheet and Product Instructions for Use

Environmental precautions

Do not discharge Hilti All Weather High Build CFP-SP AWHB into drains, water courses or soil. Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state and federal safety, health and environmental regulations.

3. MATERIAL STORAGE

3.1 STORAGE TEMPERATURE

Before use, Hilti All Weather High Build CFP-SP AWHB must be stored in the original unopened pails. The pails must be protected from direct sunlight and maintained at a temperature between 32°F (0°C) and 95°F (35°C) during shipping and storage.

3.2 SHELF LIFE

When stored properly, Hilti All Weather High Build CFP-SP AWHB has a shelf life of 12 months. The label on the bucket provides the expiration date. Do not use expired product.

Notice:
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4. SITE REQUIREMENTS

4.1 REQUIRED SERVICES

Prior to application, the applicator should ensure that proper services, safety and site conditions exist for the application process. These requirements are not limited to the following: power, ventilation, water, scaffold, masking, lighting, waste disposal, as well as serviced spray machines and adequate spares.

4.2 APPLICATION TEMPERATURE

Hilti All Weather High Build CFP-SP AWHB must only be applied when the ambient and substrate temperature is between 5°F (-15°C) and 122°F (50°C). Steel surface temperature must always be a minimum of 5°F (3°C) above the dew point to prevent condensation from forming on the steel. The dew point can be determined with any commercially available dew point meter.

A minimum ambient and substrate temperature of 5°F (-15°C) must be maintained prior to, during and for a minimum of 24h after application. At temperatures below 5°F (-15°C) or ambient humidity below 20% RH the product will cure very slowly; however, the product performance will not be affected.

If necessary for job schedule, the contractor should provide enclosures, air flow and heat to maintain proper temperature and humidity levels in the application areas.

Recommendations for Minimum / Maximum temperatures are given below.

Condition	Material	Substrate	Ambient	Humidity
Minimum	32°F (0°C)	5°F (-15°C)	5°F (-15°C)	15%
Maximum	95°F (35°C)	122°F (50°C)	122°F (50°C)	95%

When working at ambient / substrate temperatures below 32°F (0°C), it is recommended to have the material above 50°F (10°C) for optimal spraying and curing.

When working at ambient / substrate temperatures above 95°F (35°C), it is recommended to have the material below 77°F (25°C) for optimal pot-life management.

In general, for best practice, is recommended to have the material between 18°F (10°C) and 77°F (25°C).

Caution: If cooling the material, ensure no condensation forms inside the pail.

4.3 HUMIDITY

The relative humidity can be determined using any commercially available hygrometer. If the relative humidity exceeds 85%, precautions should be taken to prevent condensation from forming on the steel surface during application. As Hilti All Weather High Build CFP-SP AWHB cures through polymerization, excess humidity in the surrounding can adversely affect the pot life and expedite the curing of the product. In line with good painting practice, application should not take place in conditions which are deteriorating, e.g., where the substrate temperature is below the dew point temperature.

Caution: Do not apply Hilti All Weather High Build CFP-SP AWHB on wet surfaces or if condensation is present.

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5. SURFACE PREPARATION

5.1 CLEAN SUBSTRATES

Before applying Hilti All Weather High Build CFP-SP AWHB, the following conditions must be excluded:

- Poorly primed steel
- Unapproved or unknown primer
- Not properly cured primer
- Organic or inorganic zinc silicate primer
- Galvanized steel, unless suitably prepared with a compatible etch primer
- Condensation or frost on the steel surface
- Oil, grease, dirt, dust, or any other contaminant which may inhibit bonding with the primed substrate

5.2 PRIMER

Hilti All Weather High Build CFP-SP AWHB must be applied over an approved primer system. Please refer to the primer manufacturer recommendations on surface preparation. The primer must be applied in full compliance with the primer manufacturer's recommendations and the primer's recoat window need to be strictly adhered to.

If a tie coat is needed to be applied over an existing primer for compatibility, the total primer system should not exceed 6 mils DFT. In general, Hilti AWHB is not compatible with physically drying primers such as alkyds or acrylics.

For a list of approved primers, consult the Hilti Technical Service Department.

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6. EQUIPMENT

For optimized aesthetics, airless spraying is the preferred method of application. For touch up and repair purposes, Hilti All Weather High Build CFP-SP AWHB can also be applied via brush or roller.

6.1. AIRLESS SPRAY PUMP

An airless spray pump capable of operating with fluid pressure of 3300 psi and volume transport of > 1.2 gal/min (4.5 l/min) should be used.

The optimal volume of transport of the pump is >2 gal/min (7,5 l/min).

Check with pump manufacturer for exact recommendations.

Hilti All Weather High Build CFP-SP AWHB requires that all mesh filters commonly found in many airless sprayers be removed prior to the application. Commonly, there are three, a suction filter, a pre-pump filter and the spray gun filter. If the spray tip uses any 'diffuser bars', these also need to be removed. If a filter remains in the spray system, this will cause the mesh to filter out some of Hilti All Weather High Build CFP-SP AWHB ingredients and cause blockages around the filters.

Warning: Hilti All Weather High Build CFP-SP AWHB requires moisture free equipment due to its high reactivity to water. Ensure that all previous coating, moisture and incompatible solvent remains are removed prior to application. Only use compatible solvent to clean the spray unit.

Xylene is the only approved and compatible solvent for Hilti CFP-SP AWHB. Please follow the Xylene supplier's instructions for use and MSDS for proper use, handling, and storage.

6.2 HOSES

High pressure type hoses, rated to match pump capacity, with minimum inner diameter of 3/8" (10 mm) should be used. A maximum hose length of 100 ft (30 m) should not be exceeded.

Ensure that there is NO moisture in the hose, and that it has been flushed with a compatible solvent.

Note: Do not use a 1/4" whip-end with Hilti All Weather High Build CFP-SP AWHB. A 3/8" whip end line is optional.

6.3 SPRAY GUN AND TIP

A contractor grade direct feed spray gun with a 3/8" or greater connection should be used.

No reductions from the 3/8" hose connection to the spray gun shall be used.

Recommended guns are Graco XHF or WIWA 500 PFP

Recommended tip sizes are XHD 21, 23; 25; 27 spray tips. Fan angle generally 30, 40 and 50 degrees.

For optimum aesthetics use tip sizes 21 or 23.

6.4 BRUSH AND ROLLER APPLICATION

A high-grade latex paint brush or a short pile roller should be used.

6.5 MASKING

All areas not receiving coating should be masked, typically with lightweight polyethylene plastic and masking tape.

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7. MIXING AND POT LIFE

7.1 MIXING

Hilti CFP-SP AWHB comes in two parts: Part A (white) and Part B (Translucent Black) that must be fully mixed to be utilized.

To ensure proper mixing, the following steps must be followed:

- Stir Part A thoroughly with a drill type mixer until homogeneous (>= 1 minute)
- Shake part B can thoroughly before opening (>= 1 minute)
- Pour Part B into Part A bucket, and mix thoroughly with a drill type mixer until homogenous (>= 1 minute)

Note: Ensure that ALL the Part B product is fully mixed into Part A. Checking the sides of the bucket for un-mixed traces of Part B may be necessary. Ensure that you only utilize full kits.

It is possible to open and pre-mix **Part A before utilizing; however, Part B should be utilized IMMEDIATELY after opening, as it is extremely moisture sensitive**.

7.2 POT LIFE

The pot life of Hilti All Weather High Build CFP-SP AWHB at different temperatures is given in the table below.

Ensure that all product is utilized before pot life is reached. Please read the troubleshooting guide for guidance on how to manage/extend pot life in emergency situations.

Pot Life Table (50% RH)

Temperature F°(C°)	Pot life (min)
41°F (5°C)	30
73°F (23°C)	60
95°F (35°C)	30

Hilti All Weather High Build CFP-SP AWHB has a pot life of up to 60 minutes (@ 73°F); however, it is recommended that the mixed material be used as soon as possible as the viscosity will increase during the pot life, which may make it tougher to spray the material.

High humidity may lead to skin formation on the pail. Remove the skin prior to the application to ensure good sprayability.

In extenuating circumstances or in case of work interruptions, please see troubleshooting guide for notes on how to extend pot life.

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8. APPLICATION

8.1 APPLIED WET FILM THICKNESS

Purging/Priming the application units

Purging an airless spray system before starting to spray will minimise tip blockages. The process takes about 3-4 minutes during the start-up each day and is well worth doing. Hilti All Weather High Build CFP-SP AWHB is 85% solids by volume.

Wet Film Application Recommendations

The recommended wet film thickness for optimum aesthetics is between 40 – 120 mils (1mm to 3mm).

For top-coat application make sure the below conditions are followed:

- Up to 80 mils DFT => wait a minimum of 24h and Shore D must be 15 or higher.
- From 80 to 160 mils DFT => wait a minimum of 48h and Shore D must be 15 or higher.

Pause during application

It is recommended to flush the pump and system with Xylene if a pause (> 60 min) occurs during spraying

At this point, All Weather High Build must be removed from the system to avoid any potential clogging / curing in system

8.2 MULTIPLE COATS

Where the specified dry film thickness needs to be built up in two or more applications, the recoating can be done after 24h if a maximum DFT per coat of 160mils (4mm) is respected. For airless spraying, several thinner coats as opposed to one heavy coat allow the sprayer greater control over thickness. When multiple coats are applied, the final coat should be applied at approx. 40-80 mils (1-2mm) wet film thickness to achieve optimum aesthetics

8.3 CURING TIME

The curing time for Hilti All Weather High Build CFP-SP AWHB is dependent on the temperature, air movement and relative humidity.

In general, when applying Hilti All Weather High Build CFP-SP AWHB, you can expect the product to:

- Dry/Cure FASTER with Higher Temperature, Higher Humidity, Lower sprayed WFT
- Dry/Cure SLOWER with Lower Temperature, Lower Humidity, Higher sprayed WFT

Please note that the range of ambient/surface temperatures is wider than what is allowed for the paint temperature.

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8.4 DOCUMENTATION

For warranty reasons, please document application conditions according to ISO 12944 pt. 7 and 8.

8.5 WET FILM THICKNESS (WFT)

During the application of Hilti All Weather High Build CFP-SP AWHB, the wet film thickness should be checked frequently with a clean wet film thickness gauge by inserting the teeth into the wet Hilti All Weather High Build. Care should be taken not to press the gauge into any previously applied coats that may still be soft. The highest reading indicated on the moistened teeth is the wet film thickness of the most recent coat.

8.6 DRY FILM THICKNESS (DFT)

The dry film thickness can be estimated from the wet film thickness by multiplication of 0.85. Actual coverage depends on surface, substrate, application technique and method.

A DFT reading should be taken as soon as the coating is sufficiently hard to allow a reading to be made without indenting the surface. DFT's may be measured using commercially available electronic type gauges. Multiple readings should be taken per steel member to verify even coating thickness. The final DFT reading can be taken using the methods as referenced in Section 8.1 Applied Wet Film Thickness.

The DFT of Hilti All Weather High Build CFP-SP AWHB can be calculated from the total DFT by subtracting the DFT of the primer. Therefore, it is important to determine the DFT of the primer prior to application of Hilti All Weather High Build CFP-SP AWHB.

8.7 THICKNESS VERIFICATION

Verify that the total DFT of the fire protection coating (without primer and topcoat) complies with the requirements of the official approval document. Do not apply any top coat until the DFT of Hilti All Weather High Build CFP-SP AWHB has been properly verified.

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9. PUMP CLEANING

Ensuring proper cleaning of pumps is critical with Hilti All Weather High Build CFP-SP AWHB, as it undergoes a curing mechanism (vs. drying). Thus, any remaining material in pumps / hoses may cure if left uncleaning, clogging the equipment for future use.

It is also critical that only compatible solvents are used to clean equipment to ensure proper cleaning and prevent any contamination for future use. Please refer to the instruction guideline below for specific cleaning steps to follow.

Airless sprayer without Hopper

1. Finish spraying and run material out from pump till the application unit double strokes. Release pump pressure
2. **Remove spray tip and diffuser from spray gun**. This step is critical, as failure to remove the diffuser could result in material clogging at the gun nozzle during cleaning
3. Clean intake and remove wet end cover (cling film if used)
4. Place clean container under application and pour in Xylene
5. Utilize solvent to spray out all remaining waste / unwanted material into waste bucket. Once lines clear of AWHB product, release pressure
6. Clean and scrub filter housing with bottle scrub till no residual or unwanted material is left. Re-connect filter housing top
7. Spray material through a sieve back into intake container / hopper to circulate solvent and catch all unwanted fibers. Once all fibers have been collected / no new fibers are being caught, dispose of fibers in waste container
8. Spray out ‘dirty’ solvent into a waste container to flush it out of the system. Clean the intake container / hopper, and re-fill with clean solvent
9. Recirculate solvent through purge/dump valve back into container. Continue to flush application equipment until solvent/thinners has removed any residual Intumescent from the application unit and fluid lines, then release pressure
10. Re-connect diffuser, and clean out diffuser and spray tips
11. Once spray tips / hopper / lines / pump are thoroughly cleaned, ensure residual solvent has been sprayed out and then release pressure. Check the filter housing to make sure it is clean

Airless Sprayer with Hopper

1. Finish spraying and run material out from pump till the application unit double strokes. Release pump pressure
2. **Remove spray tip and diffuser from spray gun**. This step is critical, as failure to remove the diffuser could result in material clogging at the gun nozzle during cleaning
3. Pour Xylene / approved solvent into hopper and clean inside of hopper
4. Utilize solvent to spray out all remaining waste / unwanted material into waste bucket. Once lines clear of AWHB product, release pressure
5. Clean and scrub hopper till no residual or unwanted material is left.
6. Spray material through a sieve back into intake container / hopper to circulate solvent and catch all unwanted fibers. Once all fibers have been collected / no new fibers are being caught, dispose of fibers in waste container
7. Spray out ‘dirty’ solvent into a waste container to flush it out of the system. Clean the intake container / hopper, and re-fill with clean solvent
8. Recirculate solvent through purge/dump valve back into container. Continue to flush application equipment until solvent/thinners has removed any residual Intumescent from the application unit and fluid lines, then release pressure
9. Re-connect diffuser, and clean out diffuser and spray tips
10. Once spray tips / hopper / lines / pump are thoroughly cleaned, ensure residual solvent has been sprayed out and then release pressure
11. Remove hopper (if necessary) to access filter housing. Open the filter housing from the top and bottom and scrub clean a bottlebrush. Re-assemble filter housing.

For storage of spray equipment longer than four weeks, please ensure a thorough cleaning of the pump, as per manufacturer’s recommendations.

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10. APPROVED TOPCOATS

Prior to the application of a topcoat, ensure that the surface of the coating is clean and free of dirt and dust.

If needed, rub gently with a cloth dampened with soap and water to clean the dirt off the surface, or sand lightly. If sanding, work carefully to prevent any DFT reduction.

For interior application, a top coat is not required (UL263). However, it is recommended for decorative purposes.

For exterior applications, a top-coat is not required for fire performance. To ensure an aesthetic appearance of the Hilti All Weather High Build CFP-SP AWHB to be free from dirt, dust, chalking or other surface contamination, we recommend an approved top coat be used.

For exterior conditions where the UV index is greater than 10, a top coat shall be applied at a minimum of 3 days not to exceed 10 days after final application of the Hilti All Weather High Build CFP-SP AWHB. If this window is exceeded, the surface must be visually inspected to ensure there are no foreign matter. If there is signs of oil or other contamination, you must employ a solvent cleaning in accordance to SSPC-SP1 “Solvent Cleaning”

Once the area is dried, lightly sand the area in accordance with SSPC SP2 or SP3 “Hand and Power Tool Cleaning” to remove loose layers of the Hilti All Weather High Build CFP-SP AWHB. Then use compressed air to blow down the area with clean and dried air in accordance with SSPC ASTM D4285 “Standard Test Method for Indicating Oil or Water in Compressed Air”, thus ensuring loose materials are removed. Then either re-apply the AWHB to build up thickness in accordance to our UL Listings or apply an approved top coat. per top coat manufacturer’s instructions.

Please apply the top-coat as soon as possible for exterior exposure (as defined by curing tables).

11. SERVICE TEMPERATURE

The product should not be exposed to temperatures below -76°F (-60°C) during it’s service life.

12. REPAIR

12.1 DAMAGE OF PRIMER AND HILTI AWHB

Remove unsound and damaged coatings upto a neat firm edge with sound adhesion. Remove all corrosion products. For limited small areas (up to 1 sq. ft.) prepare steel surface with SSPC SP 2 or SP3 “Hand and Power Tool Cleaning” at a minimum. For large areas (more than 1 sq. ft.) of repair, prepare the steel surface in accordance with the primer manufacturer’s recommendations.

Feather coat edges by abrading. Reinstate the original or other priming system recommended by Hilti. Avoid overlap of primer onto surrounding. Reinstate the Hilti All Weather High Build CFP-SP AWHB within the recommended overcoating limits of the repair primer.

Apply Hilti All Weather High Build CFP-SP AWHB in multiple applications by brush trowel or spatula. If a topcoat has already been applied to the existing system, remove the top coat to the areas requiring repair and ensure the cutback from repair area is at least 1 inch past previously top coated area. The thickness of the repair section will be the same as the rest of the steel member. Once repair is complete and Hilti All Weather High Build CFP-SP AWHB is allowed to properly cure, apply the optional top-coat as appropriate.

12.2 DAMAGE NOT REQUIRING PRIMER REPAIR

Depending on severity of damage, either lightly abrade the damaged area to a feathered edge or cut out a suitable area of Hilti All Weather High Build CFP-SP AWHB and feather out the edges. If cutting out, do not damage the priming system, otherwise repair as for damage down to steel will be required.

Reinstate Hilti All Weather High Build CFP-SP AWHB to the required dry film thickness using the method described above.

After the appropriate overcoating interval apply an approved topcoat in accordance with original specification, if desired.

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In the U.S.:
Hilti, Inc.
7250 Dallas Parkway, Suite 1000, Dallas, TX 75024
Customer Service: 1-800-879-8000
en español: 1-800-879-5000
Fax: 1-800-879-7000

www.hilti.com

In Canada:
Hilti (Canada) Corporation
2201 Bristol Circle
Oakville ON | L6H 0J8
Canada
Customer Service: 1-800-363-4458
Fax: 1-800-363-4459

www.hilti.ca

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The data contained in this literature was current as of the date of publication. Updates and changes may be made based on later testing. If verification is needed that the data is still current, please contact the Hilti Technical Support Specialists at 1-800-879-8000. All published load values contained in this literature represent the results of testing by Hilti or test organizations. Local base materials were used. Because of variations in materials, on-site testing is necessary to determine performance at any specific site.

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