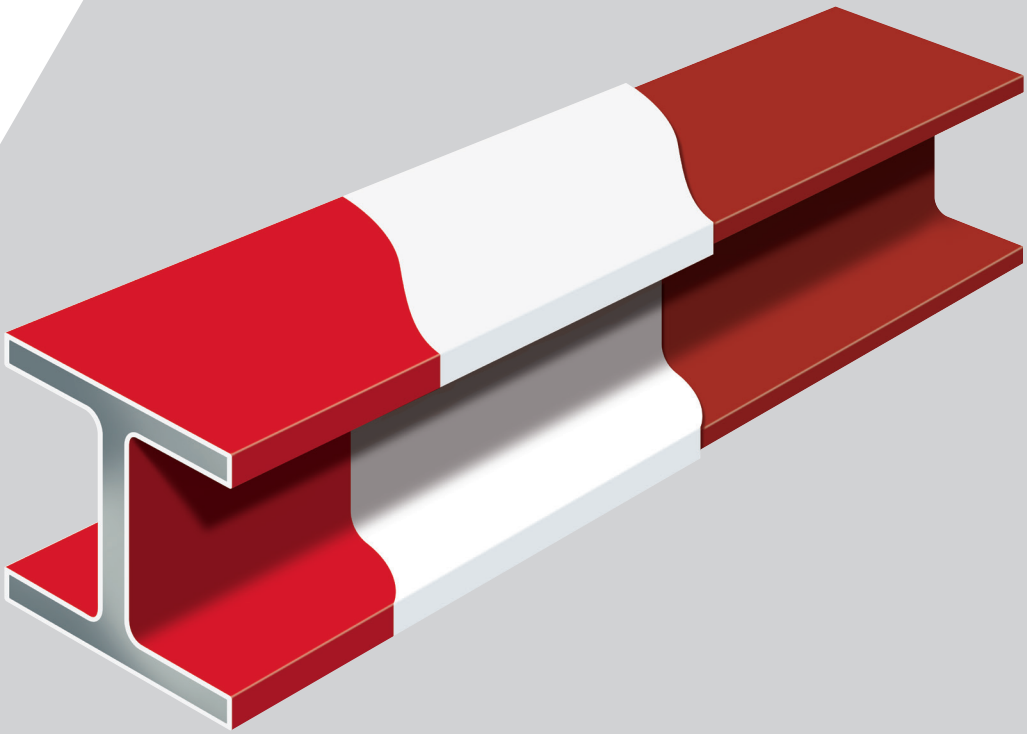
PRODUCT APPLICATION GUIDELINE

Fire Finish 120+ CFP-SP WB

2024 Edition



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1. BASIC INFORMATION

Hilti Fire Finish 120+ CFP-SP WB is a water based intumescent coating to help protect structural steel against the effects of fire. It has been tested to UL 263 / ASTM E119 standard and is approved for interior conditioned space and interior general purpose use. It has been tested to UL 263 / ASTM E119 / ULC-S101 standards and is approved for interior conditioned space and general purposes without a top coat. For exterior weatherability, a UL approved exterior top coat is required. Contact a Hilti Representative to obtain the most recent approved list. In exterior environments, the Hilti Fire Finish 120+, must be protected from the elements, which include rain, snow, etc. prior to the application of the approved UL top coat.

It is important to adhere to the following application methods in order to comply with the independent fire test evidence which supports its use. Correct thickness, application and finish of the product must be assured. Hilti Fire Finish 120+ CFP-SP WB must be installed only by Hilti trained and accredited installers.

2. MATERIAL STORAGE

2.1 STORAGE TEMPERATURE

Before use, Hilti Fire Finish 120+ CFP-SP WB must be stored in the original unopened pails. The pails must be protected from direct sunlight and maintained at a temperature between 41°F (5°C) and 86°F (30°C) during shipping and storage. Exposure to a temperature up to 104°F (40°C) for up to 4 weeks is tolerable. The product must not be stored at or below freezing temperatures.

2.2 SHELF LIFE

When stored properly, Hilti Fire Finish 120+ CFP-SP WB has a shelf life of 12 months from date of manufacture. See label for expiry date. Do not use expired product.

Notice:
- Before handling, read Product Safety Data Sheet and product label for safe usage and health information
- Instructions above are general guidelines – always refer to the applicable listing in the UL Fire Resistance Directory or Hilti Firestop Systems Guide for complete installation information

3. SITE REQUIREMENTS

3.1 REQUIRED SERVICES

Prior to application, the applicator should ensure that proper services, safety and site conditions exist for the application process. These requirements will include some or all of the following: power, ventilation, water, scaffold, masking, lighting, waste disposal, as well as serviced spray machines and adequate spares.

3.2 APPLICATION TEMPERATURE

Hilti Fire Finish 120+ CFP-SP WB must only be applied when the ambient and substrate temperature is between 50°F (10°C) and 95°F (35°C). The steel surface must be dry and, for best results, the surface temperature should ideally be 9°F (5°C) above the dew point. Steel surface temperature must always be a minimum of 5°F (3°C) above the dew point to minimize condensation from forming on the steel. The dew point can be determined with any commercially available dew point meter.

The substrate must be dry and a 50°F (10°C) temperature must be maintained before installing, during and for a minimum of 24h after application. If necessary, the contractor shall provide enclosures, air flow and conditioned air to maintain proper temperature and humidity levels in the application areas.

3.3 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 Fire Finish 120+ CFP-SP WB dries through the evaporation of water, it can cause the humidity of the surrounding area to rise. Adequate ventilation must be provided and maintained during application and curing process to ensure proper drying. Sufficient air exchange is the most significant factor to achieve good and fast drying.

In line with good painting practice, application should not take place in conditions which are deteriorating, e.g. where the temperature is falling and is likely to go below 10°C (50°F) or where there is a risk of condensation forming on the steel.

Caution: Do not apply Hilti Fire Finish 120+ CFP-SP WB on wet surfaces or if condensation is present.

4. SAFETY

Personal protective equipment (PPE)

- Protective clothing
- Suitable eye protection
- Gloves

Additional advice for respiratory protection:

- Ensure adequate ventilation on workstation
- Breathing apparatus in the event of high concentration

Read Safety Data Sheet and Product Instructions For Use

Environmental precautions

Do not discharge Hilti Fire Finish 120+ CFP-SP WB 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.

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5. SURFACE PREPARATION

5.1 PRIMER

Hilti Fire Finish 120+ CFP-SP WB must always be applied over an approved primer system, which has been prepared in accordance with the UL listing. The primer must be applied in full compliance with the primer manufacturer's recommendations, and must be fully cured.

A complete listing of tested and approved primers can be obtained at www.hilti.com (U.S.) or www.hilti.ca (Canada). Organic and inorganic zinc silicate primers are not suitable for use with Hilti Fire Finish 120+ CFP-SP WB.

5.2 CLEAN SUBSTRATES

Before applying Hilti Fire Finish 120+ CFP-SP WB, the following conditions must be excluded:

- Unprimed or 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 surface

6. EQUIPMENT

For optimized aesthetics, airless spraying is the preferred method of application. For touch up and repair purposes, Hilti Fire Finish 120+ CFP-SP WB can also be applied via brush or roller.

6.1. AIRLESS SPRAY PUMP

An airless spray pump capable of operating with min. fluid pressure of 2500 psi (176 kg/cm^2) and volume transport of > 1 gal/min (4 l/min) should be used. Check with pump manufacturer for exact recommendations.

Warning: Hilti Fire Finish 120+ CFP-SP WB 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 Fire Finish 120+ CFP-SP WB ingredients and cause blockages around the filters.

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 150 ft (45 m) should not be exceeded.

Note: Do not use a hose whip where the hose is < 3/8" (10 mm) diameter as it reduces the required pressure.

6.3 SPRAY GUN AND TIP

A contractor grade spray gun capable of handling a minimum 2500 psi (176 kg/cm^2) fluid pressure should be used. Recommended tip sizes are 217- 223, 317 – 323, 417 – 423, 517 – 523 and 617 – 623. For optimum aesthetics use tip sizes 17 or 19.

6.4 BRUSH OR 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. APPLICATION

7.1 STIRRING

Hilti Fire Finish 120+ CFP-SP WB is supplied ready to use in sealed containers.

Hilti Fire Finish 120+ CFP-SP WB should be stirred thoroughly with a drill type mixer until homogeneous. Excessive stirring should be avoided as this may introduce air into the coating. Manual mixing is not recommended.

7.2 APPLIED WET FILM THICKNESS

An initial application of a minimum coalescent film of approx. 12 mils (0,3 mm) is recommended. This allows subsequent coats to be applied at greater thickness.

The recommended maximum wet film thickness per coat at 73°F (23°C) and 50%rh is

- By spray 65 mils (1,7 mm)
- By brush/roller 25 mils (0,65 mm)

To achieve superior aesthetic finish, a thickness of 30 – 40 mils (0,8 – 1.01 mm) per coat is recommended.

7.3 MULTIPLE COATS

Where the specified dry film thickness needs to be built up in two or more applications, use the recommended recoating windows (see below). Prior to overcoating, ensure the previous coat is dry. For airless spraying, several thinner coats as opposed to one heavy coat allow the installer greater control over thickness and reduce overall drying time.

When multiple coats are applied, the final two coats should be applied at approx. 30 mils (0,8mm) wet film thickness to achieve optimum aesthetics.

7.4 DRYING TIME

The drying time is dependent on the wet film thickness, temperature, air movement and relative humidity.

For a coat of 40 mil (1 mm) wet film thickness, the following drying times at various temperatures and at 50% r.h. serve as an orientation:

40 mils @ 50%rh	Surface dry	Recoating	Topcoating
50°F / 10°C	8h	24h	48h
73°F / 23°C	3h	6h	24h
95°F / 35°C	2h	5h	24h

It may be possible to apply two coats in one day if the air temperature is at normal room temperature, there is good air movement and the relative humidity is ≤ 50%.

To allow for proper drying, adequate ventilation is required.

Higher than recommended wet film thicknesses, low air flow and high humidity conditions may lead to crack formation. Hairline cracks are not detrimental to the fire performance. Where they do occur, repairs can be carried out by application of a brush coat of Hilti Fire Finish 120+ CFP-SP WB.

7.5 SANDING

Fire Finish 120+ sprays well enough to not require sanding. However, where finish is highly important, it must be ensured that the required DFT thicknesses are met according to UL requirements after sanding.

The property of intumescence is activated from 356°F (180°C), so low speed tools should be used with orbital sander with 120 to 220 grit, without prolonging the sanding on the same area for more than 5 seconds to promote cooling of the surface.

Sanding causes open pores on the surface of the intumescent coating; therefore, a topcoat shall be applied immediately to avoid the absorption of humidity and dust. The dust generated by sanding must be removed to ensure proper adhesion of the topcoat.

7.6 DOCUMENTATION

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

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8. CHECKING THICKNESS DURING APPLICATION

8.1 WET FILM THICKNESS (WFT)

During the application of Hilti Fire Finish 120+ CFP-SP WB, the wet film thickness should be checked frequently with a clean wet film thickness gauge by inserting the teeth into the wet Hilti Fire Finish 120+ CFP-SP WB. 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.

8.2 CALCULATION OF DRY FILM THICKNESS (DFT)

All installation must ensure that required DFT thicknesses are met as per UL requirements.

The DFT can be estimated by contractors from the wet film thickness by multiplication with 0.60. No allowance is made for waste.

Actual coverage depends on surface, substrate, application technique and method.

It is recommended for contractors to consider their typical shrinkage rates and wastes, based on their experience and the on-site conditions.

9. FINAL THICKNESS CHECK

9.1 TOTAL DRY FILM THICKNESS

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 sufficient coating thickness. The final DFT reading should be taken as soon as Shore A hardness > 90 is reached.

9.2 DRY FILM THICKNESS OF HILTI FIRE FINISH 120+ CFP-SP WB

The DFT of Hilti Fire Finish 120+ CFP-SP WB 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 Fire Finish 120+ CFP-SP WB.

9.3 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 Fire Finish 120+ CFP-SP WB has been properly verified.

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10. APPROVED TOP COATS

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

In interior applications where the steel element is exposed to uncontrolled high humidities (>80%), water, chemical and corrosive agents, a top coat is required.

For exterior applications, an approved top coat must be utilized. Please apply the top-coat as soon as possible after the product dries.

For a list of compatible approved top coats, consult the Hilti Technical Service Department.

11. REPAIR

11.1 DAMAGE OF PRIMER AND HILTI FIRE FINISH 120+ CFP-SP WB

Remove unsound and damaged coatings to a neat firm edge with sound adhesion. Remove all corrosion products. For limited small areas prepare steel surface in accordance with SSPC SP11 without polishing the substrate. For large areas of repair the exposed steel surface should be prepared by abrasive blasting to a minimum standard of SSPC-SP6.

Feather coat edges by abrading. Reinstate the original or other priming system recommended by Hilti. Avoid overlap of primer onto surrounding.

Reinstate the Hilti Fire Finish 120+ CFP-SP WB within the recommended overcoating limits of the repair primer.

Apply Hilti Fire Finish 120+ CFP-SP WB in multiple applications by brush. If a topcoat has already been applied to the existing system, minimize overlap of fresh Hilti Fire Finish 120+ CFP-SP WB product over the existing topcoat. Apply topcoat as appropriate.

11.2 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 Fire Finish 120+ CFP-SP WB 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 Fire Finish 120+ CFP-SP WB 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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12. INTERRUPTION OF WORK / CLEAN UP

Hilti Fire Finish 120+ CFP-SP WB can remain in the hose for up to 1 hour. To prevent material from drying in the tip, the spray gun should be submerged in a bucket of water. For downtime longer than 1 hour, clean all application equipment with water. Run the water through all hoses and equipment until clean. Follow sprayer manufacturer's instructions for cleaning. Do not allow Hilti Fire Finish 120+ CFP-SP WB to set in the hose, pump, spray gun or tip.

The performance data herein reflects expectations based on tests conducted in accordance with recognized standard methods. The sale of product is subject to Hilti's terms and conditions of sale. No agent, employee or representative of Hilti, or of its subsidiary or its affiliated companies, is authorized to modify this statement except Hilti Legal Department personnel.

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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 1-800-363-4458. 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. Laser beams represented by red lines in this publication.
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