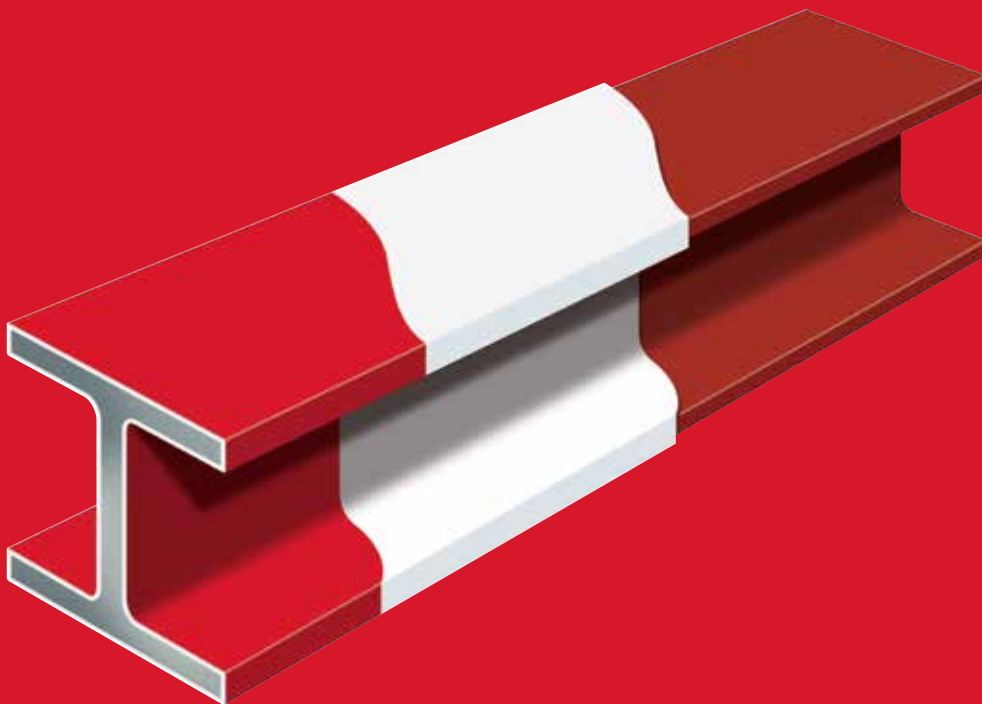




Product Application Guideline

Fire Finish CFP-SP WB



A guide to installation

2016 Edition

Contents

| | |
|-------------------------------------------------------|---|
| 1. Basic Information | 3 |
| 2. Material storage | 3 |
| 2.1 Storage temperature | 3 |
| 2.2 Shelf life | 3 |
| 3. Site Requirements | 4 |
| 3.1 Required services | 4 |
| 3.2 Application temperature | 4 |
| 3.3 Humidity | 4 |
| 4. Safety | 4 |
| 5. Surface preparation | 5 |
| 5.1 Primer | 5 |
| 5.2 Clean substrates | 5 |
| 6. Equipment | 5 |
| 6.1. Airless spray pump | 5 |
| 6.2 Hoses | 5 |
| 6.3 Spray gun and tip | 5 |
| 6.4 Brush or roller application | 5 |
| 6.5 Masking | 5 |
| 7. Application | 6 |
| 7.1 Stirring | 6 |
| 7.2 Applied wet film thickness | 6 |
| 7.3 Multiple coats | 6 |
| 7.4 Drying time | 6 |
| 7.5 Documentation | 6 |
| 8. Checking thickness during application | 7 |
| 8.1 Wet film thickness (WFT) | 7 |
| 8.2 Dry film thickness (DFT) | 7 |
| 9. Final thickness check | 7 |
| 9.1 Total dry film thickness | 7 |
| 9.2 Dry film thickness of Hilti Fire Finish CFP-SP WB | 7 |
| 9.3 Thickness verification | 7 |
| 10. Approved top coats | 8 |
| 11. Repair | 8 |
| 11.1 Damage of primer and Hilti Fire Finish CFP-SP WB | 8 |
| 11.2 Damage not requiring primer repair | 8 |
| 12. Interruption of work / Clean up | 9 |

1. Basic Information

Hilti Fire Finish CFP-SP WB is a water based intumescent coating to help protect interior 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. Hilti Fire Finish CFP-SP WB must be protected from exposure to water and humidity.

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 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 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 freezing temperatures. Exposure to freezing temperatures will be indicated by the freeze check label on the pail. If the freeze indicator is activated, the product must be discarded.

2.2 Shelf life

When stored properly, Hilti Fire Finish 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

Fire Finish CFP-SP WB

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 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 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 50°F (10°C) must be maintained prior to, during and for a minimum of 24h after application. If necessary for job schedule, the contractor shall provide enclosures, air flow and heat 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 75%, precautions should be taken to prevent condensation from forming on the steel surface during application. As Hilti Fire Finish 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 CFP-SP WB on wet surfaces or if condensation is present.

4. Safety

Personal protective equipment (PPE)

- Protective clothing
- Safety glasses
- 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 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.

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

5. Surface preparation

5.1 Primer

Hilti Fire Finish CFP-SP WB must always be applied over an approved primer system, which has been applied to an abrasive blast cleaned steel substrate. The primer must be applied in full compliance with the primer manufacturer's recommendations, and must be fully cured.

For a list of approved primers, consult the Hilti Technical Service Department. Organic and inorganic zinc silicate primers are not suitable for use with Hilti Fire Finish CFP-SP WB.

5.2 Clean substrates

Before applying Hilti Fire Finish 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 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/cm²) and volume transport of > 1 gal/min (4l/min) should be used. Check with pump manufacturer for exact recommendations.

Warning: Hilti Fire Finish 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 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/cm²) 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.

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

Fire Finish CFP-SP WB

7. Application

7.1 Stirring

Hilti Fire Finish CFP-SP WB is supplied ready to use in sealed containers. Hilti Fire Finish CFP-SP WB can be sprayed from the original pail. If other containers are being used, they must be cleaned thoroughly to avoid any contamination.

Hilti Fire Finish 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 – 50 mils (0.8 – 1.3 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 overcoating 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 sprayer 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 | Touch dry | Through dry | Self overcoating |
|--------------------|--------------|----------------|---------------------|
| 50°F / 10°C | 8h | 20h | 24h |
| 73°F / 23°C | 3h | 5h | 6h |
| 95°F / 35°C | 2h | 4h | 5h |

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 \leq 50%.

To allow for proper drying, adequate ventilation is required.

Higher than recommended wet film thicknesses, high air flow and low 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 CFP-SP WB.

7.5 Documentation

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

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

8. Checking thickness during application

8.1 Wet film thickness (WFT)

During the application of Hilti Fire Finish 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 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 Dry film thickness (DFT)

The dry film thickness can be estimated from the wet film thickness by multiplication with 0.7. Actual coverage depends on surface, substrate, application technique and method. No allowance is made for waste.

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 even 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 CFP-SP WB

The DFT of Hilti Fire Finish 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 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 CFP-SP WB has been properly verified.

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

Fire Finish CFP-SP WB

10. Approved top coats

For interior application, a top coat is not required. If desired a top coat may be applied for decorative purposes.

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

11. Repair

11.1 Damage of primer and Hilti Fire Finish 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 CFP-SP WB within the recommended overcoating limits of the repair primer.

Apply Hilti Fire Finish 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 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 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 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.

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

12. Interruption of work / Clean up

Hilti Fire Finish CFP-SP WB can remain in the hose for up to 1 hour. To prevent material from curing 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 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 the company, or of its subsidiary or its affiliated companies, is authorized to modify this statement.

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

HILTI

Hilti. Outperform. Outlast.

7250 Dallas Parkway, Suite 1000, Plano, TX 75024 • Hilti, Inc. (U.S.) 1-800-879-8000 • www.us.hilti.com • en español 1-800-879-5000
• Hilti (Canada) Corp. 1-800-363-4458 www.hilti.ca • Hilti is an equal opportunity employer • Hilti is a registered trademark of Hilti, Corp. ©Copyright 2016 by Hilti, Inc. (U.S.) • 07/16 • DBS

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. Printed in the United States



*14001 US only