Eric Ulrich
Commissioner

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Dakota L. Reid
Testing and Approvals Engineer
Hilti, Inc.
3701 W Royal Ln.
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Re: OTCR Submittal Code: # 7-22,
General Acceptance Application and Evaluation of Hilti CFP-ES Endo-Shield Endothermic Wrap used to provide fire protection for fuel oil piping as a horizontal offset enclosure,
Material Acceptance Letter

Dear Mr. Reid,

Thank you for submitting the OTCR1 application received February 23, 2022, for the above referenced project. The application includes the following:

- **Uses.**

Endothermic Wrap provides fire protection for supply and overflow/return piping in horizontal offsets.

- **Equipment Description.**

The Hilti Endo-Shield endothermic wrap consists of the following components:

1. A flexible insulative material that releases chemically bound water when exposed to heat. It has foil scrim facing on both sides. The installation requires four or five layers of 0.5" thick flexible sheet material wrap.
2. Nominal 3" wide pressure sensitive aluminum foil or FSK tape, is used to secure the inner layers of the wrap. 18-gauge steel wire ties or ½" wide stainless steel banding installed over the outermost layer of wrap.
3. HILTI CP 606 or FS-ONE MAX Firestop sealant shall be applied to any joints between adjacent layers of wrap that exceed 1/8" in. width to the full depth of the joint or in any area where the joint will be aligned through the depth of the product.

- **Supporting Documents.** Please see Appendix A for the list of supporting documentation.

MC 1305.9.3 prescribes requirements for horizontal offsets for supply and

overflow/return piping and associated enclosures. The overflow/return piping transfers fuel oil from transfer pumps to equipment or storage tanks that are above the lowest floor in a building. In accordance with MC 1305.9.3 horizontal offset enclosures are required to be 2-hour fire-resistance rated construction. Fire resistance ratings for enclosures or shafts are determined in accordance with BC 708.4 and 703.2. Accordingly, fire-resistance rating of building elements, such as horizontal offsets, shall be determined in accordance with the test procedures set forth in ASTM E 119 or UL 263. The prescribed testing procedures, ASTM E119 or UL 263, are not designed to provide fire-resistance ratings for flexible building materials such as the proposed endothermic wrap.

Therefore, flexible endothermic wrap applied over or onto rigid fuel-oil piping used for horizontal offsets is considered an alternative to the code in accordance with 28-113.2.2. Accordingly, the Hilti CFP-ES Endo-Shield Endothermic Wrap must be approved by the commissioner and demonstrate that the material complies with the intent of the Code and the material is at least equivalent of that prescribed in the code in quality, strength, effectiveness, fire resistance, durability, and safety. Accordingly, the evaluation considered the following:

> **Fire resistance ratings.** The code intends for fire resistant insulative material to offer 2-hour fire resistance in accordance with MC 1305.9.3. The applicant submitted the UL/Intertek HI-AF Listing Report 120-03 that certifies the equivalent fire resistance rating.
>
> OTCR reviewed UL 1489 “Fire Resistant Pipe Protection Systems Carrying Combustible Liquids” (published September 2016) as an alternative to ASTM E 119 and UL 263 and will accept endothermic wrap materials evaluated to UL 1489 to determine fire resistance ratings. The Intertek listing report for the Hilti CFP-ES Endo-Shield Endothermic Wrap (see Appendix A for Supporting Documents), performed in accordance with UL 1489, demonstrates the tested systems (both Method1 and Method 2) meets the required 2-hour fire resistance rating.

Therefore, OTCR recognizes the Hilti Endo-Shield endothermic wrap in accordance with the above. Additional conditions for acceptance include the following:

1. **Requirement Prior to Permit**

   a. **Construction permit.** A DOB permit is required for all applicable work.

2. **Requirements Prior to Signoff**

   a. **Installation.** Application of the endothermic wrap shall be in accordance with:
      i. 2014 NYC Construction Codes, including applicable provisions of Sections BC 708.4 and MC 1305.9.3.
         1. A drain pipe shall be provided where needed as prescribed by MC 1305.9.4.
      ii. FDNY Requirements in accordance with FDNY Letter of No Objection FP Index 2022-TM ENGR-0042380PLSN dated July 6, 2022.
      iii. Installation must be performed in accordance with the UL/Intertek 1489 listing document.

iv. Installations deviating from any of the above requirements must be evaluated and approved by OTCR.
v. Installation shall be labelled as per AC 28-113.4: The label shall contain the manufacturer's identification, model number, serial number, or definitive information describing the material's performance characteristics and the approved agency's identification.

b. **Special Inspections.**
i. Fuel oil piping. Fuel oil piping shall be inspected in accordance with BC 1704.17.
ii. Endothermic wrap. Pursuant to BC 1704.14, the installation of endothermic wrap shall be subject to special inspection requirements of Chapter 17 of the Building Code and Department Rules covering special inspection. Special inspectors of endothermic wrap systems shall:
1. Be a PE or RA with 3 years relevant experience,
2. Have duties and responsibilities in accordance with, but not limited to, 1 RCNY section 101-06, and the Intertek listing report (see Appendix A), and
3. Complete the statement of special inspection by referencing this letter under the Special Inspection Item for "Alternative Materials" in section 3.0 of the TR1 form.

In the event of non-compliance with any of the requirements listed above or unresolved system failure during operation, the Hilti CFP-ES Endo-Shield Endothermic Wrap will be required to be removed at the owner's expense. An audit may be performed to verify compliance.

This OTCR Conditional Acceptance Letter only addresses material/equipment acceptance. Project approval and permit must be obtained from the Department of Buildings through the required application process.

This OTCR Material Acceptance Letter must be scanned and included in the Departments' BSCAN Virtual Job Folder as part of the project record. Refer to the above referenced OTCR Submittal Code in any future correspondence.

Regards,

Andrew Lum

Andrew Lum, P.E.
Mechanical Engineer II

Cc: Alan Price, P.E., Director, OTCR, DOB
Kam Chan, P.E., Technology Management, (FDNY)

APPENDIX A

List of Supporting Documentation

1. OTCR 1 application.
    a. Filename: OTCR1, 7-22.pdf
2. UL 1489 Standard for Safety – Fire tests of Fire-Resistant pipe Protection Systems Carrying Combustible Liquids: September 22, 2016.
    a. Filename: UL 1479 -XHEZ.C-AJ-5450 - Through-penetration Firestop Systems _ UL Product iQ.pdf
3. Hilti CFP-ES Endo Shield Product description
    a. Filename: OTCR1.2 for CFP-ES.pdf
4. Product description of Hilti CFP-ES Endo-Shield for use as a material in the alternative assembly protecting horizontal offsets in the supply and overflow piping for fuel, prepared by Dakota Reid, Testing and Approvals Engineer for Hilti, dated February 2, 2022.
    a. File name: Operating-Instruction-CFP-ES-Endo-Shield-Operating-Instruction-PUB-5652624-000.pdf
5. UL Product iQ, HNKJ.Guide Info – Fire-resistant Pipe protection Systems
    a. File Name: XHEZ.C-AJ-5450 - Through-penetration Firestop Systems _ UL Product iQ
6. Intertek Testing Services NA, Inc., for Hilti Corporation, Design no. HI/AF 120-03, Applied Fireproofing of Hilti CFP-ES Endo-Shield to UL 1489, Spec ID: 64390, dated January 27, 2022.
    a. File name: UL 1479 -XHEZ.C-AJ-5450 - Through-penetration Firestop Systems _ UL Product iQ.pdf
7. UL Certificate of Compliance, certificate no. R13240, report reference R13240-20210714, issued July 23, 2021 to Hilti Construction Chemicals Division for compliance with ANSI/UL 1479, Fire tests of Penetration Firestops.
    a. File name: UL 1479_R13240-20210714-CertificateofCompliance.pdf
8. Hilti CFP-ES Endo Shield Safety Data Sheet, version 1.0, dated 7/27/2021.
    a. File name: SDS_H_US_en_01-00_CFP-ES_Endo-Shield.pdf
9. Historical info/similar product approvals:
    a. OTCR #17-16 for 3M Interam E-5A-4 Endothermic Wrap
        i. Name: signed acceptance letter.pdf
    b. OTCR #5-20 for STI E-Wrap Endothermic Wrap
        i. Name: OTCR Acceptance Letter7.31.2020FINAL.pdf
10. CFP-ES Endo Shield Operating Instructions (No. 2333724-09-2021)

a. Name: 2022-01-27 HI-AF 120-03.pdf