Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201
More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

APPEAL SUMMARY

Status: Decision Rendered - Held over from ID 15275 (6/21/17) for additional information	
Appeal ID: 15814	**Project Address:** 9200 NE Cascades Pky
Hearing Date: 9/13/17	**Appellant Name:** Don Johnson
Case No.: B-008	**Appellant Phone:** (541) 926-5959
Appeal Type: Building	**Plans Examiner/Inspector:** John Cooley
Project Type: commercial	**Stories:** 4 **Occupancy:** R-1 **Construction Type:** V-A
Building/Business Name:	**Fire Sprinklers:** Yes - Equipped throughout building
Appeal Involves: Erection of a new structure	**LUR or Permit Application No.:** 15-175550-C0
Plan Submitted Option: pdf [File 1] [File 2] [File 3]	**Proposed use:** Motel

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	Section 601/704.3
Requires	Individual encasement for primary structural members
Proposed Design	Using "column" design thickness for structural beam 1hr protection.
Reason for alternative	We have attached additional information requested for appeal # ID15275. The premise for the design change is that there is not a UL design that reflects the exact design that we are construction. By using the column design thickness for structural beams, it is more conservative than the tested assembly and will provide adequate protection.

APPEAL DECISION

Alternate one hour assembly for columns and beams: Granted as proposed.

The Administrative Appeal Board finds that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 180 calendar days of the date this decision is published. For information on the appeals process and costs, including forms, appeal fee, payment methods and fee waivers, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

DJ

A R C H I T E C T U R E

SUBMITTAL RESPONSE

From: **DJ ARCHITECTURE**	Project: **Cascade Station HIE**
	Project Number: **14017**
To: **Ron Miller** **Mega Pacific Co.** **3377 SE. 21st Avenue, Portland, OR 97202**	Date Rec'd: **02/08/2017**
	Date Ret'd: **02/09/2017**
Reference: **013- 7800 Intumescent**	

Notes:
Reviewed for product information only.

DJ Architecture

Date 02/09/2017 By Shane Fagan

- [x] NO EXCEPTIONS TAKEN
- [ ] MAKE CORRECTIONS NOTED
- [ ] SUBMIT SPECIFIED ITEMS
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED

Correction or comments made on the shop drawings during this review do not relieve the contractor of his responsibility to comply with the requirements of the drawings and specifications. This review is only to check for general conformance with the Contract Documents. The contractor remains responsible for confirming and correlating all dimensions and quantities, selecting fabrication processes and techniques of construction; coordinating the work of the trades; and performing the work in a safe and satisfactory matter.

Copies: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ File

2441 Brighton Way SE, Suite B. Albany, OR 97322 541-926-5959 dj@djarchitecture.com

MEGA PACIFIC CO

CCB No. OR63108

Project: **HOLIDAY INN EXPRESS & SUITES AT CASCADE STATION**

Mega Project No: **Mega- 15-093**

SUBMITTAL

Reference No: **13**

Submittal No: **7800.0**

Submittal Title: **FIREPROOFING- INTUMESCENT PAINT**

- [X] Shop Drawings
- [X] Product Data
- [ ] Product Sample

Description: CAFCO Spray Film WB 5

- Fireproofing Thickness Schedule
- Technical Data
- Approved Primer List
- UL Evaluation Report
- Safety Data Sheet
- Fireproofing UL Design Numbers
- Application Guide
- Finish Coat Data Sheet
- Approved Applicator Letter
- Shop Drawing

Primer from Approved Primer List

Sherwin Williams- Steel Spec Fast Dry Universal Primer-BW50AW3 or BW50RW3

Remarks: None

Submittal information received from:

Advanced Fireproofing & Insulation Co.

MEGA PACIFIC CO HAS REVIEWED THIS SUBMITTAL

Date: **2/8/2017** Signed: **Ron Miller**

REVIEW BY GENERAL CONTRACTOR IS UNDERTAKEN SOLELY TO SATISFY ANY OBLIGATION OF GENERAL CONTRACTOR TO OWNER AND DOES NOT IN ANY WAY RELIEVE SUBCONTRACTOR AND/OR SUPPLIER FROM ITS OBLIGATION TO FULLY PERFORM ALL SUBCONTRACT OR PURCHASE ORDER REQUIREMENTS, NOR SHALL SUCH REVIEW GIVE RISE TO ANY RIGHT OF ACTION OR SUIT IN FAVOR OF SUBCONTRACTOR, SUPPLIER, OR THIRD PERSONS AGAINST GENERAL CONTRACTOR. THIS REVIEW DOES NOT EXTEND TO CONSIDERATION FOR STRUCTURAL INTEGRITY, SAFETY, DETAILED COMPLIANCE WITH CONTRACT REQUIREMENTS, OR ANY OTHER OBLIGATION OF THE SUBCONTRACTOR AND/OR SUPPLIER. SUBCONTRACTOR AND/OR SUPPLIER IS FULLY RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL DIMENSIONS; FABRICATION AND CONSTRUCTION TECHNIQUES; COORDINATING THEIR WORK WITH THAT OF ALL OTHER TRADES; AND THE SATISFACTORY PERFORMANCE OF THEIR ENTIRE WORK IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS.

Action:

- [X] Approved as submitted- No exceptions taken.
- [ ] Approved as noted- Make corrections noted.
- [ ] Revise and re-submit as noted.
- [ ] Not approved.

Distribution:

- [X] Field Superintendent
- [X] Advanced Fireproofing & Insulation Co.
- [X] Submittal File

ADVANCED FIREPROOFING & INSULATION CO.

February 7, 2017

SUBMITTAL

Mega-Pacific Co.
3377 S.E. 21st Avenue
Portland, OR 97202
Attn: Ron Miller

RE: Holiday Inn Express & Suites at Cascade Station
Intumescent Fireproofing

Ron,
We hereby submit for your review and approval the following material and UL Design #'s for the application of Intumescent Fireproofing.

Substrates that receive Intumescent Fireproofing are to be primed with a compatible primer by others and be ready to receive fireproofing.

All clips, brackets and hangers shall be installed prior to fireproofing application.

Installation of ducts, piping, conduit, walls etc. to be deferred until fireproofing has been installed and inspected to insure a uniform coverage of fireproofing.

Material to be:
Intumescent Fireproofing: **CAFCO SprayFilm WB 5**

Brad Hardy
Project Manager

Enclosures:
Fireproofing Thickness Schedule
CAFCO SprayFilm WB 5 Technical Data Sheet
CAFCO SprayFilm Approved Primer List
UL Evaluation Report UL ER13348-01
Safety Data Sheet
Fireproofing UL Design Numbers
CAFCO SprayFilm WB 5 Application Guide
CAFCO SprayFilm Finish Coat Data Sheet
Approved Applicator Letter
Shop Drawing

Corporate Office
P.O. Box 789, Spokane Valley, WA 99016
(509) 924-6709 • FAX (509) 924-9045

WA CONTR. REG # ADVANFC005P5 • OR CONTR.REG # 146432 • MT CONTR. REG # 12751 • ID CONTR.REG # RCE-1052
ID PUBLIC WORKS # 10025-B-4(07200, 07400, 07800)

ADVANCED FIREPROOFING & INSULATION CO.

February 7, 2017

Holiday Inn Express & Suites at Cascade Station

Intumescent Fireproofing
THICKNESS SCHEDULE
MATERIAL / CAFCO SprayFilm WB 5

1hr Beams as Columns — UL Design # Y615

Columns	W/D ratio	1hr Fireproofing
W14x22	0.47	**87 mils**
W16x26	0.49	**84 mils**
W16x31	0.59	**69 mils**
W18x35	0.60	**68 mils**
W18x40	0.68	**60 mils**
W21x44	0.67	**61 mils**
W21x50	0.75	**55 mils**
W24x55	0.74	**55 mils**
W24x62	0.84	**49 mils**
W24x76	0.93	**44 mils**

1hr Columns — UL Design # Y616

Columns	A/P ratio	1hr Fireproofing
HSS5x5x5/16	0.29	**81 mils**
HSS6x6x3/8	0.35	**67 mils**
HSS6x6x1/2	0.46	**51 mils**
HSS8x8x3/8	0.36	**65 mils**
HSS8x8x1/2	0.47	**47 mils**

Brad Hardy
PM

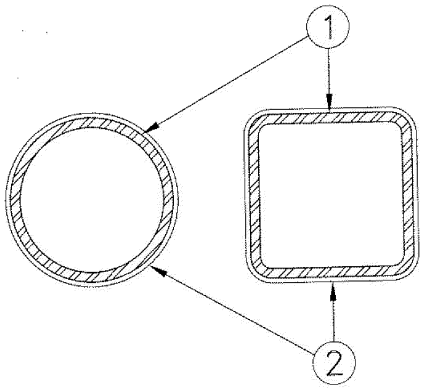
Corporate Office
P.O. Box 789, Greenacres, WA 99016
(509) 924-6709 • FAX (509) 924-9045

Portland / Vancouver Office
(503) 222-2950 · FAX (503) 222-6332

WA CONTR. REG # ADVANFC005P5 · OR CONTR.REG # 146432 · MT CONTR. REG # 12751 ·
ID CONTR. REG # RCE-1052 ID PUBLIC WORKS # 10025-B-4 (07200, 07400, 07800)

Design No. Y616

Ratings - 1, 1-1/2, 2 and 3 Hr. (See Item 2)



1. **Steel Column —** Steel tube (ST) or steel pipe (SP) with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil. Columns shall be primed with a metal alkyd primer at a nominal thickness of 1 mil.
2. **Mastic and Intumescent Coatings* —** Coating spray or brush applied directly from containers to desired thickness. See table below for appropriate minimum final dry thickness and applicable rating.

FOR STEEL PIPE

Steel			1 Hr		1-1/2 Hr		2 Hr		3 Hr	
Size	A/P	HP/A	in.	mm	in.	mm	in.	mm	in.	mm
SP 3 x 0.25	0.23	169	0.102	2.58	0.221	5.62	0.340	8.65	N / A	N / A
SP 5 x 0.3125	0.29	135	0.081	2.05	0.175	4.46	0.270	6.86	N / A	N / A
SP 5 x 0.375	0.35	114	0.067	1.70	0.145	3.69	0.224	5.69	N / A	N / A
SP 6 x 0.432	0.40	102	0.058	1.48	0.127	3.23	0.196	4.97	N / A	N / A
SP 4 x 0.5	0.44	93	0.053	1.35	0.115	2.94	0.178	4.52	N / A	N / A
SP 8 x 0.5	0.47	85	0.047	1.20	0.093	2.35	0.147	3.74	0.288	7.31

N / A = Not Available

FOR SQUARE AND RECTANGULAR STEEL TUBE

Steel			1 Hr		1-1/2 Hr		2 Hr		3 Hr	
Size	A/P	HP/A	in.	mm	in.	mm	in.	mm	in.	mm
ST 5x3x1 / 4	0.23	169	0.102	2.58	0.221	5.62	0.340	8.65	in.	mm
ST 5x3x5 / 16	0.29	135	0.081	2.05	0.175	4.46	0.270	6.86	N / A	N / A
ST 8x6x3 / 8	0.35	114	0.067	1.70	0.145	3.69	0.224	5.69	N / A	N / A
ST 6x6x7 / 16	0.40	102	0.058	1.48	0.127	3.23	0.196	4.97	N / A	N / A
ST 5x3x1 / 2	0.44	93	0.053	1.35	0.115	2.94	0.178	4.52	N / A	N / A
ST 8x8x1 / 2	0.47	85	0.047	1.20	0.093	2.35	0.147	3.74	0.288	7.31

N / A = Not Available

As an alternate to the above table, the required thickness of coating (in inches) to be applied to all surfaces of steel tube (ST) and steel pipe (SP) columns may be determined from the equations listed below. The equations may only be used for the indicated hourly rating, and for the corresponding listed ranges of thickness and A / P.

Hourly Ratng	Thickness Equation, in.	Thickness Range, in.	A/P Ratio Range
1	T = 0.02336 / (A / P)	0.050 to 0.102	0.23 to 0.47
1-1 / 2	T = 0.05081 / (A / P)	0.108 to 0.221	0.23 to 0.47
2	T = 0.07826 / (A / P)	0.167 to 0.340	0.23 to 0.47

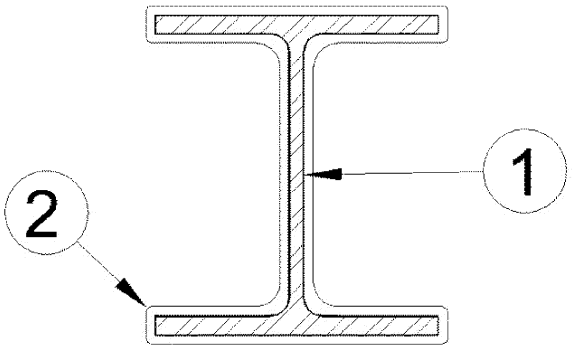
Where T = Thickness of coating in inches, A = Cross-sectional area of the pipe in square inches, and P = Heated perimeter of steel pipe or tube section in inches.

ISOLATEK INTERNATIONAL —Type SprayFilm WB 5, Type WB 5, Investigated for Interior Conditioned Space and Interior General Purpose.

*Bearing the UL Classification Mark

Design No. Y615

Ratings - 1, 1-1/2, 2, and 3 Hr. (See Item 2)



1. **Steel Column —** Wide flange steel columns with the minimum sizes shown in the tables below. Columns shall be free of dirt, loose scale and oil. Columns shall be primed with a metal alkyd primer at a nominal thickness of 1 mil.
2. **Mastic and Intumescent Coatings* —** Coating spray or brush applied directly from containers to desired thickness. See tables below for appropriate final dry thickness and applicable rating.

Steel Size	W/D	1 Hr Min Thickness, in.	1-1/2 Hr Min Thickness, in.	2 Hr Min Thickness, in.	3 Hr Min Thickness, in.
W6x12	0.44	0.093	N/A	N/A	N/A
W8x15	0.48	0.085	N/A	N/A	N/A
W10x22	0.52	0.078	N/A	N/A	N/A
W4x13	0.55	0.074	N/A	N/A	N/A
W8x24	0.59	0.069	N/A	N/A	N/A
W14x34	0.63	0.065	N/A	N/A	N/A
W8x31	0.66	0.062	0.126	0.191	N/A
W10x30	0.70	0.058	0.119	0.180	N/A
W8x35	0.74	0.055	0.113	0.170	N/A
W10x39	0.78	0.052	0.107	0.161	N/A
W10x49	0.84	0.049	0.099	0.150	0.307
W10x45	0.89	0.046	0.094	0.141	0.289
W16x57	0.95	0.043	0.088	0.132	0.271
W8x48	1.00	0.041	0.083	0.126	0.258
W14x90	1.07	0.038	0.078	0.118	0.241
W10x68	1.14	0.036	0.073	0.110	0.226
W18x97	1.21	0.034	0.069	0.104	0.213
W10x77	1.28	0.032	0.065	0.098	0.201
W16x100	1.36	0.030	0.061	0.093	0.189
W10x88	1.45	0.028	0.057	0.087	0.178
W14x132	1.54	0.026	0.054	0.082	0.167
W12x120	1.64	0.025	0.051	0.077	0.157
W14x159	1.77	0.023	0.047	0.071	0.146
W14x176	1.95	0.021	0.043	0.065	0.132
W14x193	2.12	0.021	0.039	0.059	0.122
W14x211	2.30	0.021	0.036	0.055	0.112
W14x233	2.52	0.021	0.033	0.050	0.102
W14x257	2.75	0.021	0.030	0.046	0.094
W14x283	3.00	0.021	0.028	0.042	0.086
W14x500	4.91	0.021	0.028	0.042	0.086
W14x730	6.68	0.021	0.028	0.042	0.086

N/A = Not Available

As an alternate to the above table, the required thickness of coating (in inches) to be applied to all surfaces of wide flange steel columns may be determined from the equations listed below. The equations may only be used for the indicated hourly rating and for the corresponding listed ranges of thickness and W/D.

Hourly Ratng	Thickness Equation, in.	Thickness Range, in.	W/D Ratio Range
1	T = 0.0408/(W/D)	0.021 to 0.093	0.44 to 3.00
1-1/2	T = 0.0833/(W/D)	0.028 to 0.126	0.66 to 3.00
2	T = 0.1258/(W/D)	0.042 to 0.191	0.66 to 3.00
3	T = 0.2576/(W/D)	0.086 to 0.307	0.84 to 3.00

Where T = Thickness of coating in inches, W = Weight of steel column in pounds per linear foot, and D = Heated perimeter of steel column section in inches.

The following table lists the thicknesses in metric units.

Steel Size	M/D	1 Hr Min Thickness, mm.	1-1/2 Hr Min Thickness, mm.	2 Hr Min Thickness, mm.	3 Hr Min Thickness, mm.
W6x12	25.9	2.35	N/A	N/A	N/A
W8x15	28.1	2.17	N/A	N/A	N/A
W10x22	30.4	2.00	N/A	N/A	N/A
W4x13	32.4	1.88	N/A	N/A	N/A
W8x24	34.6	1.76	N/A	N/A	N/A
W14x34	37.1	1.64	N/A	N/A	N/A
W8x31	38.7	1.57	3.20	4.83	N/A
W10x30	41.0	1.49	3.02	4.56	N/A
W8x35	43.6	1.40	2.84	4.29	N/A
W10x39	45.4	1.34	2.73	4.12	N/A
W10x49	49.1	1.24	2.52	3.81	7.79
W10x45	51.9	1.17	2.39	3.60	7.37

Steel Size	M/D	1 Hr Min Thickness, mm.	1-1/2 Hr Min Thickness, mm.	2 Hr Min Thickness, mm.	3 Hr Min Thickness, mm.
W16x57	55.9	1.09	2.22	3.34	6.84
W8x48	58.6	1.04	2.11	3.19	6.53
W14x90	62.6	0.97	1.98	2.99	6.11
W10x68	66.9	0.91	1.85	2.79	5.72
W18x97	71.0	0.86	1.75	2.63	5.39
W10x77	75.2	0.81	1.65	2.49	5.09
W16x100	79.4	0.77	1.56	2.35	4.82
W10x88	84.9	0.72	1.46	2.20	4.51
W14x132	90.0	0.68	1.38	2.08	4.25
W12x120	96.2	0.63	1.29	1.94	3.98
W14x159	103.9	0.59	1.19	1.80	3.68
W14x176	114.4	0.53	1.08	1.63	3.34
W14x193	124.4	0.53	1.00	1.50	3.07
W14x211	135.0	0.53	0.92	1.38	2.83
W14x233	147.9	0.53	0.84	1.26	2.59
W14x257	161.4	0.53	0.77	1.16	2.37
W14x283	176.0	0.53	0.70	1.06	2.17
W14x500	288.0	0.53	0.70	1.06	2.17
W14x730	391.0	0.53	0.70	1.06	2.17

N/A = Not Available

As an alternate to the above table, the required thickness of coating (in millimeters) to be applied to all surfaces of wide flange steel columns may be determined from the equations listed below. The equations may only be used for the indicated hourly rating and for the corresponding listed ranges of thickness and M/D.

Hourly Ratng	Thickness Equation, mm.	Thickness Range, mm.	M/D Ratio Range
1	T = 60.9/(M/D)	0.53 to 2.35	25.9 to 176.0
1-1/2	T = 123.9/(M/D)	0.71 to 3.20	38.7 to 176.0
2	T = 186.9/(M/D)	1.07 to 4.83	38.7 to 176.0
3	T = 382.5/(M/D)	2.18 to 7.79	49.1 to 176.0

Where T = Thickness of coating in millimeters, M = Weight of steel column in kilograms per linear meter, and D = Heated perimeter of steel column section in meters.

ISOLATEK INTERNATIONAL—Type SprayFilm WB 5 or Type WB 5, Investigated for Interior Conditioned Space and Interior General Purpose

*Bearing the UL Classification Mark

ISOLATEK® INTERNATIONAL

CAFCO® SprayFilm® WB 5

Intumescent Fireproofing

PRODUCT DESCRIPTION

CAFCO SprayFilm WB 5 is a patented and technically advanced water-based, Intumescent Fire Resistive Material (IFRM) designed for the fire protection of interior structural steel.

CAFCO SprayFilm WB 5 represents a generational breakthrough in material advantages and efficiencies. Architects can design steel that can be decorative, aesthetically pleasing, and very cost effective. CAFCO SprayFilm WB 5 can be top coated to match its surroundings or left exposed to view while providing the required fire resistance rating.

PRODUCT ADVANTAGES

- *Water-Based intumescent coating with zero VOC's*
- *Industry leading thermal performance, allowing for significantly reduced dry film thicknesses (DFT's)*
- *Semi smooth architectural finish*
- *ICC ES Approved (ICC ESR-1092)*
- *Can be finished with a wide variety of topcoat types and colors*
- *Quick, easy application and clean up*
- *Provides up to 3-hour fire resistance ratings in accordance with ANSI/UL 263, ASTM E119 and CAN/ULC-S101*

PHYSICAL PERFORMANCE

It is important for fire protection materials to be able to withstand abuse. American Society for Testing and Materials (ASTM) test methods are used to evaluate the performance of intumescent materials when subjected to these various physical forces. CAFCO SprayFilm WB 5 has been evaluated to meet rigorous industry test standards.

Physical Performance

Characteristic	ASTM Method	Tested Performance*	
Abrasion Resistance	D4060	0.2600 g/ 1000 cycles	
Bond Strength	D4541	340 psi (2013 kPa)	
Durometer Hardness (Shore D)	D2240	69 Shore D	
Impact Resistance	D2794	152 inch-lb (17.17 Nm) @ 2 mm	
Surface Burning	E84	Flame Spread 5 Smoke Developed 30	Class A

* Values represent independent laboratory tests under controlled conditions.

Technical Data

Color	White
Density	11.0 lb/gal ±05.
pH Value .	8.0 to 8.5
Application Temperature	Min. 50°F (10°C), Max. 100°F (38°C)

FIRE TEST PERFORMANCE

CAFCO SprayFilm WB 5 has been extensively tested for fire resistance and is rated for up to 3 hours for floor assemblies, beams, and columns.

- Classified by UL in accordance with ANSI/UL 263 (ASTM E119)
- Classified by UL in accordance with CAN/ULC-S101 (ASTM E119)

CAFCO SprayFilm WB 5 has also been tested for surface burning characteristics in accordance with ASTM E84 and is rated Class A.

Flame Spread .....5 Smoke Developed 30

Type SprayFilm-WB 5 OR Type WB 5 File 16640

CLASSIFIED c UL us

MASTIC COATING
FIRE RESISTANCE CLASSIFICATION
SEE UL FIRE RESISTANCE DIRECTORY

CODE COMPLIANCES

CAFCO SprayFilm WB 5 satisfies the requirements of the following:

- IBC® - INTERNATIONAL BUILDING CODE® (ICC ESR-1092)
- City of Los Angeles
- NBC - National Building Code of Canada

MAJOR SPECIFICATIONS

CAFCO SprayFilm WB 5 complies with the requirements of the following specifications:

- MasterSpec®, Section 078123 Applied Fireproofing (AIA)
- MasterFormat® 2014, Section 07 81 00 Applied Fireproofing (CSC,CSI)
- Unified Facilities Guide Specification, UFGS 07 81 00 Spray-Applied Fireproofing (USACE, NAVFAC, AFCEC, NASA)
- Master Construction Specifications, Number 07 81 00 Applied Fireproofing (VA)
- Code of Federal Regulations, Title 40 Protection of the Environment (EPA)
- PBS-P100, Facilities Standards for the Public Buildings Services (GSA)

APPLICATION

- A compatible primer must be applied to the steel substrate. Refer to the Primers for CAFCO SprayFilm Intumescent Fireproofing Technical Data Sheet.
- The applied thickness of CAFCO SprayFilm WB 5 will depend upon the specified fire rating and size / shape of the steel member to be protected.
- If desired, a finish coat may be applied in the desired color and finish directly over CAFCO SprayFilm WB 5 in accordance with the guidelines noted in our Finish Coat Materials Technical Data Sheet.

Packaging/Storage

Packaging	5.0 U.S. gal (18.9 L) container
Net Contents	5.0 U.S. gal / 55 lbs (18.9 L / 25 kg)
Gross Weight (Approx)	58 lbs (26.3 kg)
Shelf Life	12 months in unopened sealed containers, properly stored.
Storage	Storage Temperature 33° F - 100° F (1° C - 38° C) Must protect from freezing and excessive heat. Store in a dry environment.

CAFCO® SprayFilm® WB 5 Guide Specification

SECTION 078123 - Intumescent Fireproofing

The following is an outline/short language specification. Complete specifications for intumescent fire resistive materials are available on various media upon request.

PART 1 - GENERAL

1.1 Scope

1.1.1 This specification covers labor, materials, equipment, and application necessary for, and incidental to, the complete and proper installation of intumescent fire protection for application to steel structures and supports in accordance with all applicable requirements of contract documents.

1.1.2 This specification shall be supplemented by the applicable requirements of building codes, insurance rating organizations and all other authorities having jurisdiction.

1.2 Section Includes

1.2.1 Intumescent fire protection material.

1.2.2 Topcoat protective decorative finish.

1.3 Related Sections

1.3.1 SECTION 051200 – STRUCTURAL STEEL FRAMING
1.3.2 SECTION 053100 – STEEL DECKING
1.3.3 SECTION 072100 – THERMAL INSULATION
1.3.4 SECTION 078123 – INTUMESCENT FIREPROOFING
1.3.5 SECTION 078443 – JOINT FIRESTOPPING

1.4 References

1.4.1 Underwriters Laboratories (UL) Fire Resistance Directory.

1.4.2 Test Standards

A. UL 263 (ASTM E119) - Fire Tests of Building Construction and Materials.

B. ASTM E84 - Surface Burning Characteristics of Building Materials. Class A Rating Required; Flame Spread Maximum: 5 and Smoke Developed Maximum: 30.

C. ASTM D2240 – Durometer Hardness (Shore D). Minimum: 69 Shore D.

D. ASTM D2794 – Impact Resistance.152 inch-lb (17.17 kg-m).

E. ASTM D4060 – Abrasion Resistance. Maximum 0.2600 grams/1000 cycles.

F. ASTM D4541 – Bond Strength. Minimum: 340 psi. (2013 k Pa.)

1.4.3 Steel Structures Painting Council (SSPC) Surface Preparation Standards.

1.4.4 Material manufacturer's current published information including, but not limited to, application guide.

1.4.5 AWCI Technical Manual 12-B "Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide", Latest Edition.

1.5 System Description

1.5.1 The intumescent fire protection materials shall be applied at the required thickness to provide the UL fire resistive ratings.

1.6 Submittals

1.6.1 Manufacturer's Data: Submit manufacturer's specifications, including certification as may be required to show material compliance with contract documents.

1.7 Quality Assurance

1.7.1 Manufacturer - Company specializing in manufacturing fire protection products.

1.7.2 The intumescent fire resistive material shall be manufactured under the Follow- Up Service program of UL or ULC and bear the UL and/or ULC label (mark).

1.7.3 Applicator - A firm with expertise in the installation of fire resistive or similar materials. This firm shall be recognized or otherwise approved by fire resistive material supplier.

1.7.4 Product - The product shall be approved by the architect and applicable authorities having jurisdiction.

1.8 Delivery, Storage and Handling

1.8.1 Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data. Packaged materials shall bear the appropriate labels, seals and UL label (mark) for fire resistive ratings and shall be stored at temperatures between 33° F - 100° F (1° C - 38° C), in a dry interior location away from direct sunlight. PROTECT FROM FREEZING.

1.9 Project/Site Conditions

1.9.1 When the temperature at the job site is less than 50° F (10° C), a minimum substrate and ambient temperature of 50° F (10° C) shall be maintained prior to, during, and a minimum of 72 hours after application. If necessary for job schedule, the General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels in the application areas.

1.9.2 In enclosed areas, ventilation must not be less than 4 complete air exchanges per hour until the material is dry.

1.9.3 Relative humidity shall not exceed 85% throughout the total period of application and drying for the intumescent fire resistive material, and must not exceed 85% throughout the application and drying for the protective decorative topcoat.

1.10 Sequencing and Scheduling

1.10.1 Applicator shall cooperate in the coordination and scheduling of fire protection work to avoid delays in job progress.

1.10.2 The installation of piping, ducts, conduit or other suspended equipment shall not commence until the application of the thin-film fire resistive material is complete in that area.

PART 2 - PRODUCTS

2.1 Compatible Metal Primer

2.1.1 Primer shall be approved by manufacturer and applied in full accordance with the primer manufacturer's written instructions.

2.2 Intumescent Fire Protection System

2.2.1 The intumescent fire resistive material shall be CAFCO SprayFilm WB 5 as supplied by Isolatek International or CAFCO Industries.

2.2.2 Intumescent fire resistive material shall be applied in accordance with drawings and/or specifications, and shall have been tested in accordance with the procedures of UL 263 or ASTM E119 or CAN/ULC-S101, and reported by Underwriters Laboratories, Inc. or Underwriters Laboratories of Canada only.

2.3 Decorative Topcoating

2.3.1 Topcoat materials shall be as required for color-coding, aesthetics or additional surface protection, and approved by the thin-film fire resistive material manufacturer.

PART 3 - EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive thin-film fire resistive material shall be clean, dry and free of oil, grease, loose mill scale, dirt, dust or other materials which would impair bond of the thin-film fire resistive material to the surface. Any cleaning of the surfaces to receive fire resistive material shall be the responsibility of the General Contractor or steel erector, as outlined in the structural steel section.

3.1.2 Confirm compatibility of surfaces to receive thin-film fire resistive material. Steel surfaces shall be primed with a compatible primer approved by the thin-film fire resistive material manufacturer.

3.1.3 Provide masking, drop cloths or other suitable coverings to prevent overspray onto surfaces not intended to be coated with intumescent coating.

3.2 Application

3.2.1 The thin-film fire resistive material shall be applied at the required dry film thickness per the appropriate UL design number.

3.3 Mock Up

3.3.1 Before proceeding with the work, the applicator shall apply the thin-film fire resistive material to a section witnessed by the architect's or owner's representative. The application shall be subject to their approval and shall be used as a guide for texture and thickness of the finished work.

3.4 Clean Up and Repair

3.4.1 Upon completion of installation, all excess material, overspray and debris shall be cleared and removed from the job site.

3.4.2 All patching of and repair to thin-film fire resistive material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage. Patching shall be performed by applicators recognized or otherwise approved by the manufacturer.

3.5 Inspection and Testing

3.5.1 In addition to continuous Wet Film Thickness checks performed by applicator during application, the installed intumescent material shall be inspected by a qualified independent testing laboratory for thickness in accordance with the AWCI Technical Manual 12-B "Standard Practice For The Testing and Inspection Of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide", Second Edition, before application of the topcoat.

3.5.2 The results of the above tests shall be made available to all parties at the completion of each area and approved prior to the application of topcoat.

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We support our customers with unsurpassed technical expertise and customer service, complemented by an extensive global network of experienced sales representatives and recognized applicators. For detailed product information or for the name of the sales representative in your area please contact us.

Cafco® Brand

Isolatek International provides passive fireproofing materials under the CAFCO® trademark throughout the Americas and other markets and under the ISOLATEK® trademark throughout the world.

800.631.9600 or 973.347.1200
www.isolatek.com | technical@isolatek.com

ISOLATEK® Brand

ISOLATEK INTERNATIONAL - World Leader in Fire Protection

CAFCO® SprayFilm® WB 5™

Application & Installation Manual

www.isolatek.com

ISOLATEK®

Issued November 2012
Supersedes all previously issued Application Guides

CONTENTS

APPLICATOR SHALL COMPLETELY AND FULLY UNDERSTAND THIS GUIDE PRIOR TO THE APPLICATION OF CAFCO® SPRAYFILM® WB 5 INUTUMESCENT FIRE-RESISTIVE MATERIAL (IFRM).

1.0 INTRODUCTION

CAFCO® SprayFilm® WB 5 is a *zero* VOC water-based, intumescent coating designed for the fire protection of interior structural steel.

CAFCO SprayFilm gives architects the ability to design using steel that can be decorative and aesthetically pleasing. It can be top coated to match its surroundings and allows steel to be left exposed to view while providing the fire resistance rating.

Application is through a three step process. The first step of the intumescent system is the application of a compatible steel primer. Next, the intumescent basecoat is applied to the steel over the primer to the required thickness. This layer provides the actual fire protection to the member. Finally, a decorative and protective top coat may be applied over the installed intumescent coating. This top coat can be any color and gloss level and should be a material that will protect the intumescent coating against humidity and other interior environmental conditions, while providing a smooth, attractive, architectural finish.

ISOLATEK INTERNATIONAL provides passive fireproofing materials under the CAFCO® SprayFilm® WB 5 trade name throughout the Americas and under the ISOLATEK® Type WB 5 brand worldwide.

2.0 MATERIAL STORAGE/SHELF LIFE

2.1 Storage. Product must be stored in a dry environment with temperatures between 33°F (1°C) and 100°F (38°C).

2.2 Shelf life. 12 months in unopened, sealed containers, properly stored.

MATERIAL MUST BE KEPT FROM FREEZING AND EXCESSIVE HEAT.

3.0 SITE REQUIREMENTS

3.1 Lighting. Sufficient lighting must be provided for adequate control of spray pattern and thickness.

3.2 Ventilation. To allow proper drying of the system during and subsequent to its application, adequate ventilation must be provided. In enclosed areas, ventilation must not be less than 4 complete air exchanges per hour, until material is dry.

3.3 Application Temperature. Apply product when the ambient air temperature is between 50°F (10°C) and 100°F (38°C). A minimum substrate and ambient temperature of 50°F (10°C) must be maintained prior to, during and a minimum of 72 hours after application. If necessary for job schedule, the General Contractor must provide enclosures and heat to maintain proper temperatures and humidity levels in the application areas. Do not use propane heat.

Note: If product has been stored at temperatures below 50°F (10°C), it must be brought to 50°F (10°C) prior to mixing and application.

3.3 Steel Temperature. A minimum steel substrate temperature of 50°F (10°C) must be maintained prior to, during, and a minimum of 72 hours after application. Steel surface temperature must be a minimum of 4°F (2°C) above the dew point to avoid condensation from forming.

3.4 Humidity. Do not exceed a relative humidity of 85%. Precautions must be taken to avoid condensation from forming on the steel during application. Do not apply product if condensation is present.

Note: High humidity levels will increase drying times, reduce the maximum wet film thickness per coat and may promote sagging.

3.5 Weather Protection. SprayFilm WB 5 must be protected from any and all weather exposure during application and after the product has fully cured. Tarps may be used to enclose work areas. This procedure, in addition to jobsite heat, will help maintain proper substrate and ambient temperatures.

3.6 Masking. Required on all areas not to receive coating. Masking typically consists of lightweight polyethylene plastic and the appropriate tape/adhesive. It is installed to protect all surfaces not to receive product.

4.0 EQUIPMENT

4.1 Application Equipment. Use a pneumatic, electric or gas powered airless spray pump operating with a minimum fluid pressure of 3,000 psi (227 bar, 22.7 Mpa) and 1.25 gpm. Remove all filters and rock catcher screens. A direct immersion pump is recommended. Pumps that utilize siphon hoses at the material intake are not recommended.

Note: For pneumatic powered pumps, check with equipment manufacturer for exact compressor recommendations.

4.2 Hose Requirements. High pressure, rated to exceed pump capacity, minimum 3/8" (10mm) I. D. hose. Hose length is dependent on pump type being used. Optional 1/4" whip hose is allowed at a maximum length of 4 feet. Remove all in-line filters. Maximum hose lengths are dependent upon the application equipment being used.

4.3 Spray Gun. A Graco HD Texture Spray Gun Model #241-705, Series B or equivalent with diffuser tip removed capable of handling a minimum 3,000 psi (216 kg/cm^2) fluid pressure.

Note: A bypass type spray gun is recommended where the product bypasses the internal/ mechanical components.

Spray Tip. Reversible type. Tip size minimum is 223 and maximum is 431.

Note: Heavy Duty tips are recommended, but not required.

4.4 **Brush. Use a high-grade soft bristle latex paint brush. Brush lightly in one direction using as few strokes as possible. Do not roll material.**

Note: For speed and for a smoother finish, spraying is the preferred method of application.

4.5 **Mixer. Use standard shielded drywall mixing paddle or Jiffy style mixer for 3-5 minutes prior to use, depending upon material temperature.**

5.0 SURFACE PREPARATION

5.1 **Primer. All structural steel to be coated with SprayFilm WB 5 must first be primed with an approved primer. Primed surface must be free from any grease, oil, dirt, loose mill scale, rust or any other contaminant that would inhibit the bonding of the product to the primer. Primer must be fully cured in accordance with the primer manufacturer's application instructions before application.**

Note: For primer recommendations and approvals contact Isolatek International's Technical Department (800) 631-9600, Press 1. You can also find a copy of the Approved Primer List on our website www.sprayfilm.com.

5.2 **Clean substrates. Proper adhesion of SprayFilm WB 5 depends on clean substrates. Make certain that the following conditions do not exist before applying the SprayFilm WB 5:**

1. **Unprimed steel**
2. **Unapproved or unknown primer**
3. **Oil, dirt, grease, rust or mill scale**
4. **Old chalked or oxidized paint**
5. **Poorly primed steel, i.e. rust bleed through**
6. **Galvanized steel (See Section 5.3)**
7. **Condensation**
8. **Over-cured or under-cured primer**
9. **Zinc-Rich Primers (See Section 5.4)**

Note: The direct application of Intumescent Coatings over zinc-rich primers without the use of an approved barrier (key coat or prime coat) is not allowed. See Sections 5.3 and 5.4.

5.3 **Galvanized Steel. Product is not to be applied directly to galvanized steel. A key coat or prime coat must be applied in accordance with manufacturer's instructions. Contact Isolatek Technical Services for more information.**

5.4 **Zinc-Rich Primers. Product is not to be applied directly to zinc-rich primers. An approved key coat or prime coat must be applied in accordance with manufacturer's instructions. Contact Isolatek Technical Services for more information.**

5.5 **Substrate Blemishes. The finish quality of the product is dependent on the quality of the surface to which it is being applied. Repair all substrate blemishes prior to initial application of product.**

6.0 MIXING AND APPLICATION OF SPRAYFILM WB 5

6.1 **Primer. SprayFilm WB 5 must be applied to primed steel in accordance with Section 5.**

6.2 **Mixing. SprayFilm WB 5 is supplied ready for use. Do not dilute with water or solvent. The product must be thoroughly mixed for 3-5 minutes prior to use, depending upon material temperature.**

6.3 **Spray Gun Distance. Spray gun distance from the substrate must be a minimum of 18" (460mm). Typical spray gun distance from the substrate is between 24" (600mm) and 36" (900mm).**

6.4 **Catch Coat. For initial coat over primed steel, apply a thin "catch coat" of SprayFilm WB 5 between 3 mils (0.076mm) and 5 mils (0.127mm) Dry Film Thickness (DFT), sufficient to cover the primer. The "catch coat" must dry 1 to 2 hours before subsequent coats can be applied to greater thicknesses.**

6.5 **Subsequent Coats. Product can be applied at the wet film thicknesses shown in the table below. A second coat of product may be applied within one spray day provided that a minimum drying time of 4-hours is allowed between coats. A maximum of two coats can be applied per spray day (24 hours). The thickness applied per coat is dependent upon relative humidity, air and steel temperature, and airflow. Refer to the following table for guidance for maximum thicknesses per coat:**

Environmental Conditions	Max.1st Coat "Hangability" Wet Mils to Re-coat in 4-Hours*	Maximum Subsequent Coats in Wet Mils
70°F (21°C) 50% R.H.	60 mils (1.52mm)	40 mils (1.01mm)
55°F (13°C) 70% R.H.	45 mils (1.14mm)	30 mils (0.76mm)
85°F (30°C) 85% R.H.	55 mils (1.40mm)	35 mils (1.89mm)

*** Following initial "catch coat" (See Section 6.4)**

6.6 **Techniques. Particular attention must be paid to the application of product when applied to wide flange columns and beams. The spray technique employed and resulting angles of the spray gun when applying SprayFilm WB 5 to wide flange sections may lead to wet film thicknesses that exceed those specified in the previous table and sagging/running of the material may occur.**

6.7 **Maximum Thickness.** Do not exceed wet film thickness (WFT) of 60 mils (1.5mm) by spray or WFT of 30 mils (0.76 mm) by brush, per coat.

Note: Application thicknesses per coat are dependent upon air and steel temperature, relative humidity, and airflow. Refer to Section 3.2 for ventilation requirements.

6.8 **Finish.** The finish is traditionally light-textured or light orange peel. The quality of the finish will differ depending on application technique and thickness of product applied per coat. The application of thinner coats usually produces a smoother, more desirable finish.

7.0 WET FILM THICKNESS (WFT)

7.1 **Measuring.** During the application, measure the WFT frequently with a WFT gauge to ensure the correct thickness is being applied.

7.2 **Technique.** To use the wet film gauge, insert the teeth into the wet product. The highest reading indicated on the moistened teeth is the WFT achieved on the most recent coat. Due to the softness of the first coat, caution must be exercised when measuring the WFT of the second coat applied in the same spray day.

8.0 DRY FILM THICKNESS (DFT) MEASUREMENT

8.1 **Measuring.** Readings shall be taken a minimum of 5 days after the last coat has been applied and before any top coat is applied. DFT may be taken using equipment such as an Elcometer 456 electronic electromagnetic type gauge or equivalent. Refer to Appendix A for recommended gauge suppliers. The DFT gauge must be calibrated according to manufacturer's instructions and must be capable of measuring the required DFT.

Note: AWCI Technical Manual 12-B, Third Edition provides useful information regarding acceptable thickness measurement procedures.

9.0 TOPCOATING

9.1 **Requirements.** A topcoat is not UL/ULC required for Conditioned Interior Space Purpose and/or Interior General Purpose.

9.2 **Conditioned Interior Space.** If desired, for conditioned interior space, a top quality semi-gloss acrylic latex topcoat may be applied to a minimum DFT of 0.0016" (0.04mm). Alternate topcoats should be long oil alkyd resins, semi-gloss silicone alkyds, or other topcoats approved by Isolatek International Technical Services.

9.3 **Unconditioned Interior Space.** If desired, for unconditioned interior space where protection against humidity and surface damage is a concern, apply a silicone alkyd marine enamel topcoat to a minimum DFT of 5.0 mils (0.13mm).

Note: The interior finish coat material must be applied in full accordance with the coating manufacturer's written instructions.

9.4 **Dry Time.** A minimum of 5 days must be allowed prior to applying a top coat over SprayFilm WB 5. Alternatively, achieving a minimum Shore D value of 40 is recommended prior to applying a top coat. Increased drying time may be required under conditions of low air flow and/or high humidity. Note: Do not apply the topcoat until the final thickness is verified and the finish of the installed product is acceptable.

Note: A recommended procedure for smoothing the surface prior to top coating of SprayFilm WB 5 is utilizing potable water with a non-abrasive kitchen type scrub sponge once the product is dry. Dampen the sponge and move lightly in one direction using as few strokes as possible. Care must be taken to ensure that the intumescent coating thickness is maintained.

10.0 REPAIR

10.1 **Procedures.**

a. Damaged areas must be abraded back to a sound surface.

b. The surface must then be cleaned and dried before re-applying product.

c. If necessary, touch up the primer and allow curing.

d. Apply SprayFilm WB 5 to the required dry film thickness.

11.0 CLEAN UP

11.1 **Workability.** Product can remain in the hose for up to 1 hour. Do not allow SprayFilm WB 5 to set up in the hose, pump, spray gun or tips. It is recommended to submerge the spray gun in a bucket of water to prevent material from setting up.

11.2 **Equipment Clean Up.** Run potable water through all hoses and spray gun until clean.

11.3 **Unused Material.** The surface of the product must be covered with the plastic sheet included in the original pail. The pail must be kept tightly closed.

11.4 **Overspray.** Before the material dries, use warm, soapy water with a non-abrasive sponge to clean. Light "citrus type" cleaners are also effective, provided they are suitable for the substrate.

12.0 TROUBLESHOOTING

12.1 Product not spraying or flowing

- Check equipment - tips, pressure, blockages, hose diameter/length
- Make sure filters, rock catcher screen, and diffusers are removed
- Equipment may not have been cleaned thoroughly after last use
- Product too cold - check conditions
- Shelf life of products may be expired
- Lid left off containers for too long
- Material not adequately mixed prior to use
- Material froze
- Plastic pail chipped with mixer blade
- Piece of plastic coversheet within the material
- Under powered pump being used and/or pump with siphon hose

12.2 Product sagging - not adhering to substrate

- Absence of "catch-coat"
- Check primer: not compatible, over-cured, under-cured, or improper primer application
- Check temperature, humidity, dew point and condensation
- Too much material applied in one coat
- Contamination of substrate
- Substrate may not be primed
- Diluted product used
- Previous coat not dry
- Spraying too close to substrate

12.3 Slow drying time

- Temperature and humidity level outside specification
- Material applied too thick per coat
- Diluted product used
- Additional coats applied too soon
- Poor air circulation

12.4 Bubbles, blisters or cracks within coatings

- Primer not compatible
- Material applied before primer cured
- Spraying too close to substrate
- Additional coats applied too soon
- Product diluted
- Water or condensation on steel
- Top coat applied too soon
- Surface drying too quickly and trapping moisture
- Substrate and/or material temperatures below 50° F (10°C)
- Exposure to rain or drainage runoff

12.5 Delamination

- Water intrusion
- Moisture entrapment
- Primer not compatible
- Contamination of substrate or within the product
- Unapproved substrate
- Previous coat not dry
- Impact damage
- Substrate and/or material temperature below 50° F (10° C.)
- Coat drying too quickly (i.e. skinning over)

13.0 HEALTH AND SAFETY PRECAUTIONS

13.1 Basic Safety. The following precautions must be taken when applying the products.

- **Skin Contact: Wash affected area with soap and water for at least 15 minutes. If irritation persists, seek medical attention.**
- **Eyes: Flush eyes with clean water for at least 15 minutes. If irritation persists, seek medical attention.**
- **Inhalation: If adverse effects occur, remove to fresh air. If irritation persists, seek medical attention.**
- **Ingestion: If swallowed, do not induce vomiting. If irritation persists, seek medical attention.**

13.2 Personal Protective Equipment.

- **Eyes/Face. Wear splash resistant safety goggles.**
- **Protective Clothing. Wear typical long sleeve work clothing or a "TYVEK®" type suit.**
- **Glove Recommendations. Wear cloth, rubber or latex type gloves.**
- **Respiratory Protection. A dust mask should be used in cases where individuals are exposed to airborne mists of the material.**

Note: Refer to MSDS for complete health and safety information.

All regulatory agency and site requirements must be followed.

APPENDIX A — Recommended Equipment & Accessories

SPRAY-EQUIPMENT MANUFACTURERS

Graco, Inc
88 – 11th Ave NE
Minneapolis, MN 55413
USA Tel: 612-623-6000
Fax: 612-623-6777
www.graco.com

- Electric: Graco 1595, Mark V, Mark X (220V)
- Pneumatic: President 46:1, King 45:1
- Gas: GH 5030 Roof Rig

Titan Tool, Inc
556 Commerce Street
Franklin Lakes, NJ 07417
USA Tel: 800-526-5362
Fax: 800-526-4826
www.titantool.com

- Electric/Gas: 1200 XLT D1, 6900 XLT D1
- Gas: Hydra M 4000, Hydramax 350
- Pneumatic: Admiral 40:1, Commander 45:1, Admiral 60:1

Spray-Tech
1770 Fernbrook Lane
Plymouth, MN 55447
USA Tel: 1-800-292-4637
www.spraytechnic.com

- Electric: EP 2510
- Gas: GPX 130/165/220

DRY FILM GAUGES

Elcometer, Inc
1093 Rochester Industrial Drive
Rochester Hills, MI 48309
USA Tel: 800-521-0635
Fax: 248-650-0501
www.elcometer.com

- Model 456 (range 0 – 500 mils, 0 - 13mm)

Defelsko, Corp
802 Proctor Ave
Ogdensburg, NY 13669
USA Tel: 800-448-3835
Fax: 315-393-8471
www.defelsko.com

- Model Positector 6000 FT2 (range 0 – 250 mils, 0 – 6 mm)

HOSES/GUNS

Graco, Inc
88 – 11th Ave NE
Minneapolis, MN 55413
USA Tel: 612-623-6000
Fax: 612-623-6777
www.graco.com

- Graco HD Texture Plus Spray Gun (Model # 241-705)
- 3/8" ID hose, capable of handling pump pressures.

Titan Tool, Inc
556 Commerce Street
Franklin Lakes, NJ 07417
USA Tel: 800-526-5362
Fax: 800-526-4826
www.titantool.com

- 3/8" ID hose, capable of handling pump pressures.

Spray-Tech
1770 Fernbrook Lane
Plymouth, MN 55447
USA Tel: 1-800-292-4637
www.spraytechnic.com

- 3/8" ID hose, capable of handling pump pressures.

WET FILM GAUGES

ISOLATEK INTERNATIONAL
41 Furnace Street
Stanhope NJ 07874
USA Tel: 1-800-631-9600
www.isolatek.com

- Intumescent Wet Film Gauge

SHORE D GAUGES

PTC Instruments
Pacific Transducer Corp
230 Federal Ave
Los Angeles, CA 90064
USA Tel: 310-478-1134
Fax: 310-312-0826
www.pct1.com

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In Asia/Pacific: Tel: 60.3.5121.3886 Fax: 60.3.5121.4886

WE SAVE LIVES®

ISOLATEK® INTERNATIONAL

Primers for CAFCO® SprayFilm®

Intumescent Fireproofing System

PRODUCT DESCRIPTION

Before applying CAFCO SprayFilm WB 3, WB 4, or WB 5 to structural steel, the steel must be primed with a suitable primer approved by Isolatek International. **The primer must be applied in accordance with the primer manufacturer's written instructions**. In addition, the primer must be fully cured prior to the application of the CAFCO SprayFilm system.

In order to achieve the desired fire resistance ratings for the structural steel, it is essential that the CAFCO SprayFilm be applied at the proper thickness. The correct dry film thickness for SprayFilm can be found in the appropriate design listing in the UL/ULC fire resistance directories. Please note that the dry film thickness in the designs may include the primer thickness.

PRIMER ADHESION TESTING

The primers listed have been evaluated for use with CAFCO SprayFilm Intumescent coatings under laboratory conditions in accordance with ASTM D-4541-95 (Standard Test Method for Pull-Out Strength of Coatings Using Portable Adhesion Testers). The results of these tests indicate the listed primers are compatible with the intumescent basecoat, provided SprayFilm WB 3, WB 4, or WB 5 are applied in accordance with our written application/installation instructions and primer manufacturer guidelines are followed.*

PRECAUTIONS

Zinc primers are not included in this list. Following industry practice, the direct application of intumescent coatings over zinc-rich primers without the use of an approved barrier / tie coat is not allowed. When left exposed for long periods, zinc-rich coatings may form a layer of zinc salts on the surface which may inhibit adhesion of the intumescent coating.

Please contact the Isolatek Technical Services Department at 800.631.9600 (Option 1) or technical@isolatek.com for further assistance or for the use of primers other than those listed.

Compatible Primer List

Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Aervoe	Crown 7707 Galva Bright Premium - Aerosol	X	X	X
Aervoe	1510 Red Oxide (1501 Black, 1502 Gray, 1511 Brown)	X	X	X
Aervoe	Rebar Green Epoxy Paint 1156	X	X	
Albi	Albi 490 W	X	X	X
American Coatings	AK Series Shop Coat Primer (AK3333 Gray Primer - Alkyd Resin Primer)	X	X	X
American Coatings	AK11509 Red Oxide HS VOC 2.8	X	X	X
American Coatings	AK12946 Gray Iron Oxide	X	X	X
American Coatings	AK 16292 2.8 VOC Low HAPs Dark Gray Primer	X	X	X
Ameron International / PPG	Amerlock 400 High Solids Epoxy Coating	X	X	
Ameron International / PPG	Amercoat 5105 Alkyd Primer (oxide red, pearl gray, white)	X	X	X
Anchor Paint Mfg. Co., Inc	B-9912 Lo Voc Brown Primer	X	X	X
Anchor Paint Mfg. Co., Inc	Low HAPS Red Primer CC0658	X	X	X
Anchor Paint Mfg. Co., Inc	Structural Steel Gray Primer, #CC-486	X	X	X
Anchor Paint Mfg. Co., Inc	2653 Red Oxide Primer, Fast Dry	X	X	X
APCO	Fleet Line Series Gray Metal Primer VE703	X	X	X
Behr	Exterior Primer Water Based Primer and Sealer #436	X	X	X
Benjamin Moore & Co.	M14 Shop-Coat Modified Alkyd metal primer	X	X	X
Benjamin Moore & Co.	M29 DTM Acrylic Semi-Gloss	X	X	X
Benjamin Moore & Co.	Super Spec HP Shop Coat Alkyd P-14	X	X	X
Bennette Paint	Very Quick Dry Low VOC Red Oxide Metal Primer #280944	X	X	X

X = Primer has been evaluated and approved

* Isolatek International assumes no responsibility for the duplication of these results in the field as variations in site conditions, surface preparation, formulation changes and other factors are beyond our control.

Cafco Brand

ISOLATEK® INTERNATIONAL

Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
BLP Mobile Paints	MO-BAR Alkyd Universal Metal Primer (28-DR-105, 28-DH-37, 28-DW-12)	X	X	X
Camger Chemical Systems Inc	#100 Enamel Red 10-99 primer	X	X	X
Capital Paint MFG Corp	19958	X	X	
Carboline	Carboguard 893 SG	X	X	X
Carboline	Carbocoat 150 HG Single Component Modified Alkyd	X	X	X
Carboline	Carbomastic 15 Modified aluminum epoxy mastic	X	X	
Carboline	Carboguard 8922 Cross-Linked Epoxy	X	X	
Carboline	Carboguard 134 H6 Alaphatic Polyurethane	X	X	
Carboline	Carbocoat 115 Modified Alkyd Resin	X	X	X
Carboline	Carbomastic 15 /15 FC Part A 0185A1NL, Part B 0186b1NL	X	X	X
Carboline	Carboguard 888 Epoxy Polyamide Primer	X	X	X
Cardinal	E-305-GR533 Epoxy Powder Coating	X	X	
Caribbean Paint Co.	Red Oxide Primer (1820)	X	X	X
Caribbean Paint Co.	Plioline Combo Red Oxide Primer 1820	X	X	X
Century Industrial Coatings	Dark Red NULO Spray 220-R-347A	X	X	X
Century Industrial Coatings	220-D-252, 220-D-252B	X	X	
Century Industrial Coatings	NULO Spray - HAPs Free Gray Primer W/B 220-D-344	X	X	X
Century Industrial Coatings	NULO Spray - HAPs Free Gray Primer W/B 220-D-321	X	X	X
Century Industrial Coatings	RD Red NULO Spray - HAPs Free Primer W/B 220-R-355A	X	X	X
Century Industrial Coatings	120-D-263, 120-D-264, 120-D-331	X	X	
Century Industrial Coatings	Joist Kote 220-D-406 Waterbased Gray Dip Joist Primer	X	X	X
Century Industrial Coatings	Dark Red Spray Primer 220-R-250/A	X	X	
Century Industrial Coatings	120-D-224A Gray	X	X	
Century Industrial Coatings	120-D-1740 Gray Joist Primer	X	X	
Century Industrial Coatings	220-D-358, 220-D-358C	X	X	X
Century Industrial Coatings	220-R-347	X	X	
Century Industrial Coatings	120-D-174Q Gray Joist Primer	X	X	
Century Industrial Coatings	HAPS Free Dark Gray Solvent-based Spray Primer 120-D-253B	X	X	X
Century Industrial Coatings	Dark Gray Vacuum Primer W/B 220-D-253A, 220-D-253B	X	X	X
Century Industrial Coatings	3.0 Gray Joist Primer Joist Kote 120-D-199M	X	X	X
Century Industrial Coatings	Alamo Steel NULO Spray 220-R-345			X
Chemcoat (John L. Armitage)	Armorchem 4500 Red / Gray Alkyd DIP Primer	X	X	X
Century Industrial Coatings	220-R-485 MTH Brown Waterbased Vacuum Primer	X	X	X
Century Industrial Coatings	220-D378B Dark Gray Dip Primer W/B	X	X	X
Century Industrial Coatings	220-R300-103A Fast Dry WB Red Oxide Spray Primer	X	X	X
Century Industrial Coatings	220-D-544B Gray Water-Based Spray Primer	X	X	X
Century Industrial Coatings	Century Guard Joist 220-D-529 Waterbased Gray Dip Joist Primer	X	X	X
Chemcoat (John L. Armitage)	Armorchem 1000 SP Gray / Red / Orange Primer	X	X	X
Chemcoat (John L. Armitage)	Armorchem SP 1000 Gray / Red Primer	X	X	X
Chemcoat (John L. Armitage)	Armorchem WG-4 Hybrid WD-27185V	X	X	X
Chemex	CX-2006 Gray	X	X	
Chem-Pro	Gray No Lift Primer 2078	X	X	
Cloverdale Paint Co.	Industrial Phenolic Modified Alkyd Shop Primer 71019, 71306, 71312	X	X	X
Cloverdale Paints, Inc.	Universal Phenolic Alkyd Primer 83040 Grey, 83041 Red	X	X	X

ISOLATEK® INTERNATIONAL

Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Columbia Paint & Coatings	Industrial Shop Prime Red Oxide 07-770	X	X	X
Columbia Paint & Coatings	Universal Metal Primer Phenolic Alkyd 07-450 Red/07-455 Light Gray	X	X	X
Columbia Paint & Coatings	Paint Quick Dry Metal Primer Modified Alkyd 07-466 Gray	X	X	X
Comex Industrial Coatings	E-10 High Solids Epoxy Coating	X	X	
Comex Industrial Coatings	M-10	X	X	
Coronado Industrial Coatings	CORO-BOND Universal Primer 1147 Line	X	X	X
Crest Industries	WS VOC 102 Gray Dip Primer	X	X	X
Davis Frost	P-47 HS Haps Free Alkyd Red Oxide Primer	X	X	X
Davis Frost	23-R612 H.S. Haps Free Red Oxide Primer	X	X	X
Davis Frost	P-042 3.5 VOC Red Oxide Primer	X	X	X
Dell + Sons Industrial Coatings	Series 116 Epoxy Kote	X	X	X
Delta Laboratories	3.5 VOC Red Electrostatic Primer 3-22702	X	X	
Delta Laboratories, Inc.	Lead Free Orange High Solids Primer 390027455	X	X	
Delta Laboratories, Inc.	Gray Chromate Alkyd Primer 33H009351	X	X	X
Delta Laboratories, Inc.	Red Shopcoat Primer 30R001055	X	X	X
Devoe	4150-7100 Red Low Voc Shopcoat	X	X	X
Devoe	Devflex PFDTM Akrylic Waterborne	X	X	X
Devoe	Devguard 4160 Alkyd Multi-Purpose Tank & Structural Primer	X	X	X
Devoe	Rustguard Q.D. Shop Coat Primer (Red-27453,Gray-27455,Can Am dK Gray-27455)	X	X	X
Devoe	Devguard 4180	X	X	X
Devoe	Devguard 4190 Q.D. Shop Coat Primer	X	X	X
Devoe	Rustguard 4140 Aklyd Primer (red and gray)	X	X	X
Devoe	Devguard 4308 Alkyd Industrial Gloss Enamel	X	X	
Devoe	Devflex 4216HP Acrylic Semi-Gloss Enamel	X	X	
Devoe	DevFlex PF 4020-1000PF Waterborne acrylic (White)	X	X	X
Diamond Vogel	QL-5505	X	X	
Diamond Vogel	PB 5616 Fast Dry Red	X	X	X
Diamond Vogel	Red Oxide R/I L/F PN-5521	X	X	X
Drew	Red Oxide Universal #4230	X	X	X
Dunn-Edwards	W715 Ultra-Grip Acrylic Multi-Purpose Primer	X	X	X
Duron	33-676 Red Oxide	X	X	X
Duron	Red Oxide Metal Primer 33-015	X	X	X
Duron	Dura Clad H.S. Alkyd Shop Coat Red 33-088	X	X	X
Duron	Dura Clad 906-0000 Red Primer	X	X	X
Eagle Bridges Marathon	Grey L/F 1035 shopcoat	X	X	X
Ellis	682 Red / 683 Gray Oils Based Rust Inhib. Primer	X	X	X
Elpaco	4703P	X	X	
Far West Paint	X-6948 AstroGalv V.O.C. Compliant Gray Alkyd Primer	X	X	X
Farrell Calhoun	1099 Red Tuff Boy	X	X	X
Farrell Calhoun	Tuff Boy QD Low VOC Rust Stop Modified Alkyd primer 5-53 Red & 5-54 Gray	X	X	X
Farrell Calhoun	Tuff Boy Quick Dry 6-30	X	X	X
Farwest	Astro Galvanized Red Oxide X-6933	X	X	X
Farwest	TT-P-664C Lacquer Resisting Primer Phenolic Modified Alkyd	X	X	X
Flame Control Coatings, LLC	Flame Control No. 40-40A	X	X	X

ISOLATEK® INTERNATIONAL

Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Floyd Coatings, Inc.	P257 Gray Primer	X	X	
Forrest Paint Co.	16P Shopcoat Primer	X	X	X
Frazee Paint	661 Metal Prime Interior / Exterior Alkyd Primer	X	X	X
Frazee Paint	681 Metal Prime Interior / Exterior Alkyd Primer	X	X	X
Griggs Paint	DC740 Ratmoore #7 Gray Water Reducible Primer	X	X	X
Hammerite	Rust Cap Paint	X	X	
Hawthorne Paint	7701 Red Anti-Corrosive Primer	X	X	
Hawthorne Paint	340 Gray Anti-Corrosive Primer	X	X	
Hentzen	02040RIP-4 High Universal Red Oxide Primer	X	X	X
HSC Industrial Coatings	H24-2097	X	X	
Insul-X	Corotech Shop Primer V142 Series	X	X	X
Intercoastal Paint Company, Inc.	WP-1009 Brown Oxide Fast Dry WB Shop Primer	X	X	X
Intercoastal Paint Company, Inc.	HSP-6462 Brown Oxide High Solids Shop Primer	X	X	X
Intercoastal Paint Company, Inc.	HSP-6466 Dark Gray High Solids Shop Primer	X	X	X
International	Interguard 269 Epoxy	X	X	X
International	Interseal 670 HS Surface Tolerant Epoxy	X	X	
International	Interlac 393 Alkyd Red / Gray	X	X	X
International	Inturcure 200HS Rapid Recoat Epoxy	X	X	
Jones-Blair	Stantest HS Modified Alkyd Primers Low VOC (15245, 15253, 15635)	X	X	X
Jotun	Penguard Primer	X	X	
Kansai Paint's	Paraprime 15	X	X	
Kansai Paint's	Paralux P268HS	X	X	
Kansai Paint's	Paramastic 52	X	X	
KCC	K'Mastic 5000 Surface Tolerant Epoxy Primer	X	X	
Kelley Moore Paint Co.	All-Gard Metal Primer White 1712-100	X	X	X
Kelley Moore Paint Co.	1760 Sop Coat Alkyd Primer	X	X	X
Kelley Moore Paint Co.	265 KM Professional Water-Oil Hybrid	X	X	X
Kenlar	173-0009 super nu-primer	X	X	
Korzite Coatings Inc.	03PA035 HS 10 Deg. Grey Primer MF4	X	X	
Korzite Coatings Inc.	01PAK3 Grey Oxide Primer RMA / MF4	X	X	
Krylon Industrial Coatings	Weld Through Primer K00020102	X	X	X
Lanco	Metal Master Gray Primer mm-200 Gloss finish Latex Paint	X	X	
Lanning Paints	LB-90 Fast Dry Gray Universal Primer	X	X	X
MAB Inductrial Coatings	Rust-O-Lastic Alkyd Shop Primer 073299 / 073499	X	X	X
MACLAC	42 Series Red Oxide	X	X	X
Marcus Paint Company	Gray Vacuum Coat Aqua Mar W/R Primer	X	X	X
Martin-Senour Paints	W/R Alkyd 2-2764 Red / 2-2793 Gray	X	X	X
MasterTouch	92R16 Alliance Red Oxide MP Metal Primer	X	X	X
Micron Coatings Inc.	MC4535 Fast Dry A/C Primer Behlen Grey	X	X	X
Miller Paint Co.	Red Oxide Metal Primer Red Oxide #363	X	X	X
Mils Paint	Fast Dry Shop Primer 580 Red	X	X	X
Moline Paint Co.	Red metal	X	X	
Passano Paint Company	Pen-Rust 610-10	X	X	
Perry and Derrick	97197 Snap Dry	X	X	

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Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Pioneer Paint of Arizona	2055 Industrial Epoxy Ester Rust Inhibiting Metal Primer	X	X	
Pittsburgh Paints	SPEEDHIDE Alkyd Rust Inhibitive Primer 6-208 Red (6-212 White)	X	X	X
Porter Coatings	Porterprime 2.8 288 Red Low VOC Modified Alkyd primer	X	X	X
PPG	Pure Performance 9-900 Acrylic Primer	X	X	X
PPG	Multiprime 94-269	X	X	X
PPG	Amercoat 370 - Fast Dry Multi-Purpose Epoxy	X	X	X
PPG	Coraflon Champagne Pearl - A & Coraflon Curing Agent - Comp B	X	X	
PPG	7-852, 7-858 Series Rust Inhibitive Steel Primers Alkyd Resin	X	X	X
PPG	Pitt-Tech 90-712 Series DTM Industrial Enamel Acrylic	X	X	X
PPG	7-844 Alkyd/Oil Resin Primer	X	X	
PPG	MULTIPRIME Low VOC Quick Dry Universal Alkyd Primer 97-680	X	X	
PPG	Pitt-Tech Plus 90-1210	X	X	X
PPG	PITTHANE ULTRA Gloss Urentane Enamel 95-812 Series	X	X	X
PPG	CRE 321 2.1 VOC Corrosion Resistant Epoxy Primer	X	X	X
PPG	Pitt-Tech Plus Int.Ext. DTM Industrial Primer 90-912 Series	X	X	X
PPG	Multi Primer Fast Dry 2.8 VOC 94-258 Series	X	X	X
Pratt & Lambert	Steeltech Rust Inhibitive Metal Alkyd Primer S4556 Red / S4551 Gray	X	X	X
Pratt & Lambert	Steeltech Acrylic Prime or Finish Z190	X	X	X
Pratt & Lambert	Techgard S4520 Safety Red Alkyd Primer	X	X	X
Pratt and Lambert	Steeltech Red Oxide Quick Dry Shopcoat Primer S4501	X	X	X
Precision Mastermade	388EI	X	X	
Precision Mastermade	217E2	X	X	
Precision Technical Coatings	373-R-1 Red Oxide	X	X	X
Prime-Tech	7-550	X	X	
Prolux	2570-10	X	X	
Prolux	Quick Drying High-Solids Alkyd Primer Grey	X	X	X
Prolux	Quick Drying Alkyd Primer 3914-05 Grey / 3940-10 Red Oxide	X	X	X
Robinson Chemical Coatings	14-R-37 Red Oxide	X	X	X
Rodda	P-80 Quick Drying Metal Primer Gray	X	X	X
Rodda	Barrier III High Solids Alkyd Metal Primers	X	X	X
Rodda Paint	6340 Shop Primer 40 Red (LCF) Primer	X	X	X
Rose Taburt	9002 QD Gray Shopcoat Metal Primer	X	X	X
Royal Coatings, Inc.	AQ 610 Waterbased Acrylic Primer	X	X	X
Rust-Oleum	2068 Quick Dry Red Primer	X	X	X
Sampson Coatings	131400 Exterior Alkyd Quick Dry Shopcoat Primer	X	X	X
Sampson Coatings, Inc.	133040 Sentrx Low VOC fast dry shopkote	X	X	X
Selectone	MR053 Light Grey Metal Primer	X	X	X
Selectone	4142	X	X	
Selectone	MR-27	X	X	
Selectone	MR-19 Red Oxide Primer	X	X	X
Sheboygan Paint Company	RTS L.F. Red Oxide Primer (41-8176)	X	X	X
Sherwin Williams	B50NV12 (B50AV11) Steel Spec Structural Steel Primer	X	X	X
Sherwin Williams	B50AV3973	X	X	
Sherwin Williams	Pro-Cryl Universal Acrylic Primer B66 Series	X	X	X

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Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Sherwin Williams	B50WZ Series GALVITE HS Acrylic Primer	X	X	X
Sherwin Williams	E61RC21 Red (E61AC82 gray) Shopcoat Primer	X	X	X
Sherwin Williams	Red Structural Steel Primer B50XXRW4648	X	X	X
Sherwin Williams	Kem Bond HS Universal Metal Primer B50 Series	X	X	X
Sherwin Williams	Kem Kromik Universal Metal Primer B50 Series	X	X	X
Sherwin Williams	E61R26 Kem Flash Prime Red Oxide	X	X	X
Sherwin Williams	ProMar 200 Interior Latex Eg-Shel B20w2200	X	X	X
Sherwin Williams	Industrial Grey Metal Primer SW28	X	X	
Sherwin Williams	Steel Spec QD Primer (B50A51 Gray / B50R52 Red Oxide)	X	X	X
Sherwin Williams	KEM AQUA 70P Primer E61A570 Gray (E61R572, E61B571, E61W573)	X	X	X
Sherwin Williams	Steel Spec RIP B50AV2314 Gray	X	X	X
Sherwin Williams	B75 WF 1001 White	X	X	
Sherwin Williams	Alkyd QD Primer B50A50 / B50R51	X	X	X
Sherwin Williams	Ironox primer #29 Red	X	X	X
Sherwin Williams	Envirolastic 980 PA Polyaspartic Urethane	X	X	X
Sherwin Williams	Acrolon 218 HS Acrylic Polyurethane	X	X	X
Sherwin Williams	DTM Acrylic Primer/Finish (B66W1)	X	X	X
Sherwin Williams	Steel Spec Primer (Part A - B58R8 Base / Part B - B58V8 Hardener)	X	X	X
Sherwin Williams	Kem Bond HS Universal Metal Primer B50 Series	X	X	X
Sherwin Williams	Steel Spec Universal Metal Primer B50 - RV6227 Red, AV8431 Gray, WV8430 White	X	X	X
Sherwin Williams	Kem Flash Prime E61 A 45	X	X	X
Sherwin Williams	Water Based Catalyzed Epoxy Part A & Part B	X	X	
Sherwin Williams	Steel Spec Fast Dry Primer (B50AW3 Gray / B50RW3 Red)	X	X	X
Sherwin Williams	Macropoxy 646 Fast Cure Epoxy (Part A -B58-600, Part B - B58V600)	X	X	X
Sherwin Williams	Mil-24441S Type III N10-350 Series Epoxy Polyamide	X	X	
Sherwin Williams	B74AT83 Utility Shop Coat Fast Dry Alkyd Gray Primer	X	X	X
Sherwin Williams	Ironox Primer 96 Gray	X	X	
Sherwin Williams	Macropoxy 646-100 (low voc)	X	X	X
Sherwin Williams	Kem Kromik 100 B50R00100 (low voc)	X	X	X
Sherwin Williams	B66W310 Pro-Cryl Universal Metal Primer (low voc)	X	X	X
Sherwin Williams	B67 Recoatable Epoxy Primer Gray - Parts G and H	X	X	X
Sherwin Williams	Zero VOC Acrylic (B66-600 Gloss, B66-650 Semi-Gloss, B66-660 Eg-Shel)	X	X	X
Sherwin Williams	B50AS200 2.3 VOC Steel Spec	X	X	X
Sherwin Williams	E41N1 Kromik Primer	X	X	X
Sherwin Williams	Kem Aqua 50P (E61A580)	X	X	X
Sherwin Williams	Low HAPS Light Gray Primer E61AS28			X
Southern Coatings	14507 Red Oxide Primer	X	X	X
Stiles Paint MFG, Inc.	7-550 Red Oxide	X	X	X
Sumter Coatings	100D2314	X	X	
Sumter Coatings	100D7714, 100R7713, 100D7720 Inhibitive Shopcoat Primers	X	X	X
Sumter Coatings	100R8813, 100D8814 High Solids Inhibitive Primers	X	X	X
Sumter Coatings	100R9913, 100D9914 Heavy Duty Inhibitive Primers	X	X	X
Sumter Coatings	100D0031,100R0027, 100W0038 Universal Primers	X	X	X
Sumter Coatings	Red Shopcoat Primer (801R2712 / SP 2712)	X	X	X

ISOLATEK® INTERNATIONAL

Compatible Primer List				
Coating Manufacturer	Coating Designation	WB 3	WB 4	WB 5
Sumter Coatings	100R0984, 100D0985 Structural Shopcoat Primers	X	X	X
Sumter Coatings	196D1635	X	X	
Sumter Coatings	HS Low VOC Inhibitive Primer Gray - 100D8823	X	X	X
Sumter Coatings	Inhibitive Shopcoat Low VOC HS Universal Primer Gray - 100D2230	X	X	X
Sunburst	#38 Series W/R Alkyd Metal Primer	X	X	X
TCI Coatings Inc.	Aqua Clad High Solids Gray Primer (AC8344)	X	X	
Tnemec	FM 88-0559 - modified short oil alkyd	X	X	X
Tnemec	Series FD 88 Azeron - modified alkyd	X	X	X
Tnemec	Series 10-99 Red (10-1009 Gray) modified alkyd	X	X	X
Tnemec	Series 530 omnithane (50-330 Poly-ura prime) Aromatic Urethane	X	X	
Tnemec	Enduralume Series 1077 Aliphatic Polyurethane	X	X	X
Tnemec	Endura-Shield Series 73 – 2 part polyurethane	X	X	
Tnemec	Azeron H.S. Primer Series 88HS, 555 Red, 599 Gray	X	X	X
Tnemec	Uni-Bond DF Series 115 Acrylic Primer	X	X	X
Tnemec	Series 27 F.C. Typoxy Polyamide Epoxy	X	X	
Tnemec	Series 136	X	X	
Tnemec	Tneme-Fascure Series 161 Primer (2 part epoxy - polyamide epoxy)	X	X	
Tnemec	F.C. Typoxy Series 27 and Series 27WB	X	X	
Tnemec	Series 297 Enviro-Glaze	X	X	X
Tnemec	UVX Series 750	X	X	X
Tnemec	Series L69 High Build Epoxoline II	X	X	X
Tnemec	N69 Hi-Build Epoxoline II	X	X	
Tnemec	Series 66 (2 Part Epoxy-Polyamide Epoxy)	X	X	X
Tnemec	Tneme-Fascure Series 161 Primer	X	X	X
Triangle Coatings Inc.	Triprime Red Oxide 902P Series	X	X	X
UCP / Solignum Paint Inc.	OF3-12 Water Based Alkyd	X	X	X
UCP / Solignum Paint Inc.	Fast Dry Primer Grey (5150)	X	X	X
Valley Paint	V-418 Red Oxide Primer	X	X	X
Valley Paint	V-003 Shopcoat Gray	X	X	X
Valley Paint	V-007 Corrosion/Epoxy Resistant Red Oxide Primer	X	X	X
Valley Paint	V-305 Water Reducible Grey Primer	X	X	X
Valspar	High Performance WWA 164-759	X	X	X
Valspar	Duraspar 130 AX Series Primer	X	X	X
Victor Steel Inc	Red Structural Steel Primer	X	X	
Vista Paint	Metal Pro Coating Primer/Finish (4800, 4805, 4810, 4896)	X	X	X
Vista Paint	MP10 Waterborne Red Oxide Shop Primer	X	X	X
Vulcraft	#27-09-1231 Red and Gray Primers	X	X	X

We have evaluated the compatibility of the above primers under laboratory conditions in accordance with ASTM D4541-95 (Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers). Results of our investigation indicate that the above primers are compatible with the intumescent basecoat, provided SprayFilm WB 3, WB 4 or WB 5 are applied in accordance with our written application/installation instructions and primer manufacturer guidelines are followed.

Isolatek International assumes no responsibility for the duplication of these results in the field as variations in site conditions, surface preparation, formulation changes and other factors are beyond our control.

Precaution: Zinc-rich based coatings are not included in this primer list. In following industry practice, the direct application of Intumescent Coatings over zinc-rich primers without the use of an approved barrier / tie coat is not allowed. When left exposed for long periods, zinc rich coatings may form a layer of zinc salts on the surface which may inhibit adhesion of the Intumescent Topcoat.

Isolatek International is continually evaluating new primers. Should you require the use of a specific primer for your project which is not on this list, please feel free to send us a quart sized sample or minimum 6"x6" (16 gauge) steel plate with the primer applied. Please e-mail your request to technical@isolatek.com for approval before shipping your sample. Required with the sample will be the primer MSDS, primer data sheet, project name, CAFCO material to be evaluated and your contact information.

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We support our customers with unsurpassed technical expertise and customer service, complemented by an extensive global network of experienced sales representatives and recognized applicators. For detailed product information or for the name of the sales representative in your area please contact us.

ISOLATEK® INTERNATIONAL

Finish Coat Materials For CAFCO® SprayFilm®

Intumescent Fireproofing Systems

PRODUCT DESCRIPTION

We recognize that the choice of finish colors for the CAFCO SprayFilm Intumescent Fireproofing Systems is the responsibility of the project's designer. In order to comply with project scheduling requirements and color choices, it may be more efficient to obtain finish coat material locally. We are providing the following recommendations to satisfy this need.

- *The surface of the CAFCO SprayFilm must be clean and free from condensation, grease or any other surface contaminants that may interfere with the adhesion of the finish coat or the final surface texture.*
- *A minimum of 5 days shall be allowed for the CAFCO SprayFilm to fully dry prior to the application of the finish coat material. Alternatively, a minimum Shore D value of 40 (SprayFilm WB 5) and 50 (Sprayfilm WB 4) is recommended prior to the application of a finish coat.*
- *Do not apply the finish coat material until the dry film thickness of the CAFCO SprayFilm has been measured and it is verified that the thickness meets the requirements of the fire resistance design.*

INTERIOR APPLICATION

CAFCO® SprayFilm® WB 3, WB 4 & WB 5

A finish coat is not UL/ULC required for Conditioned Interior Space Purpose and/or Interior General Purpose.

- If desired, for conditioned interior space, a top quality acrylic latex finish coat may be applied in accordance with the specific manufacturers instructions. Alternate finish coats should be waterborne long oil alkyd resins, silicone alkyds, or other finish coats approved by Isolatek International.
- If desired, for unconditioned interior space where protection against humidity and surface damage is a concern, apply a silicone alkyd marine enamel or aliphatic polyurethane topcoat to an average film thickness of 5.0 mils (0.13mm).
- The interior finish coat material must be applied in full accordance with the coating manufacturer's written instructions.

EXTERIOR APPLICATION

CAFCO® SprayFilm® WB 4 & CAFCO® SprayFilm® Topseal®

For exterior use, CAFCO SprayFilm WB 4 must be coated with CAFCO SprayFilm Topseal and a compatible exterior finish coat. The following products are approved for use over CAFCO SprayFilm Topseal:

- Sherwin Williams Steel Master 9500
- Sherwin Williams Acrolon 218HS
- Tnemec Endura-Shield Series 73
- Tnemec Enduralume Series 1077
- Tnemec Endura-Shield II series 1075 or other similar finish coats approved by Isolatek International.

These finish coats will provide the desired color to the system and further protect the CAFCO SprayFilm WB 4 System.

A minimum of 5 days shall be allowed for CAFCO SprayFilm WB 4 to fully dry prior to the application of CAFCO SprayFilm Topseal. A minimum Shore D value of 50 is recommended.

CAFCO SprayFilm WB 4 must be coated with CAFCO SprayFilm Topseal at a minimum dry film thickness of 14 mils (0.34 mm) in a minimum of 2 coats. (Refer to the CAFCO SprayFilm Topseal Technical Data Sheet for complete application instructions).

A minimum of 24 hours shall be allowed for CAFCO SprayFilm Topseal to fully dry prior to the application of the compatible exterior finish coat. The exterior finish coat material shall be applied to an average dry film thickness of 7 mils (0.18 mm) and must be applied in full accordance with the coating manufacturer's written instructions.

The entire CAFCO SprayFilm WB 4 System must be protected from any and all weather exposure until the finish coat is dry. Typical drying time requirements range from 5 to 14 days and are dependent upon ambient temperature, air movement, relative humidity, and coating thickness.

The exterior finish coat and CAFCO SprayFilm Topseal must be maintained throughout the life of the building to preserve the fire resistive rating.

Please contact the ISOLATEK Technical Services Department at 800.631.9600 (Option 1) or technical@isolatek.com if you should have any questions regarding the suitability of specific finish coat materials with CAFCO Sprayfilm intumescent fireproofing systems.

ISOLATEK INTERNATIONAL is registered with the
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We support our customers with unsurpassed technical expertise and customer service, complemented by an extensive global network of experienced sales representatives and recognized applicators. For detailed product information or for the name of the sales representative in your area please contact us.

Cafco® Brand

Isolatek International provides passive fireproofing materials under the CAFCO® trademark throughout the Americas and other markets and under the ISOLATEK® trademark throughout the world.

800.631.9600 or 973.347.1200
www.isolatek.com | technical@isolatek.com

ISOLATEK® Brand

C-TDS-09/14

UL Evaluation Reports

The UL Evaluation Service (UL ES) provides an Evaluation Report (ER) which presents the findings as to a product's compliance with model building code requirements of the subject of each report.

Code authorities use evaluation reports to provide technical evidence that a material, product, design or method of construction complies with the intent of the model building codes.

UL Evaluation Report ER13348-01, provided to Isolatek International, is based on the same ICC Evaluation Service, Inc, AC23 Requirements and AC10 Requirements for inspection audits as ICC Evaluation Service Reports (ICC-ESR) for fire-resistive materials. The basis of this report is to provide evidence that the products and systems meet code requirements, ensure code compliance, and to simplify the code approval process.

UL has vast testing experience, a strong reputation for technical excellence, thousands of UL product safety certifications within the built environment, intimate knowledge of the product and test standards referenced within the model codes, and full involvement with the model code development processes and ICC approved reference standards.

Our product safety experts perform code evaluation services as an extension of our traditional product safety evaluation activities. The work involves a UL review of the product's construction, test data and installation details and applications.

UL ERs are available to be viewed for free at www.UL.com/ERdirectory, and are searchable by various means, including, code, manufacturer, product type, and CSI number. UL ERs can also be located by model code sections using UL ProductSpec (www.UL.com/ProductSpec). Products covered by an UL ER are marked with the UL Certification Mark, and UL Evaluation Report number.

For more information on UL ES, go to www.UL.com/EvaluationReports.

For additional information call 1.800.595.9844, by email at ulregulatoryservices@ul.com, or visit us at www.ul.com/codeauthorities.

UL Evaluation Report

UL ER13348-01

Issued: August 23, 2016

Visit UL's On-Line Certifications Directory: www.UL.com/erdirectory for current status of Report.

UL Category Code: ULFE

CSI MasterFormat®

DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Sub-level 2: 07 80 00 – Fire and Smoke Protection
Sub-level 3: 07 81 00 – Applied Fireproofing
Sub-level 4: 07 81 16 – Cementitious Fireproofing
Sub-level 4: 07 81 23 – Intumescent Fireproofing

COMPANY:

United States Mineral Products Co., DBA Isolatek International
41 Furnace St.
Stanhope, NJ 07874
973-347-1200
www.isolatek.com

1. SUBJECT:

	Product Trade Name	UL Product Designation
Spray-Applied Fire Resistive Materials	CAFCO® BLAZE-SHIELD® II	Type II
	CAFCO® BLAZE-SHIELD® HP	Type HP
	CAFCO® 300	Type 300
	CAFCO® 300 AC	Type 300AC
	CAFCO® 300 HS	Type 300HS
	CAFCO® 300 ES	Type 300ES
	CAFCO® 300 SB	Type SB
	CAFCO® 400	Type 400
	CAFCO® 400 AC	Type 400AC
	CAFCO® 400 ES	Type 400ES
	CAFCO® 3000	Type 3000
	CAFCO® 3000 ES	Type 3000ES
	CAFCO® FENDOLITE® M-II	Type M-II
Hand-Applied Fire-Resistive Materials	CAFCO® FIBER-PATCH	Type P
	CAFCO® FENDOLITE® TG	Type TG
Adhesives/Additives	CAFCO® BOND-SEAL	Type EBS
	CAFCO® PRE-COAT	Type PC
	ISOLATEK® QWIK-SET®	
Intumescent Fire-Resistive Coatings	CAFCO® SprayFilm® WB 3	Type SprayFilm-WB 3, Type WB 3
	CAFCO® SprayFilm® WB 4	Type SprayFilm-WB 4, Type WB 4
	CAFCO® SprayFilm® WB 5	Type SprayFilm-WB 5, Type WB 5

2. SCOPE OF EVALUATION

- 2015, 2012, 2009, 2006 *International Building Code*® (IBC)

- ICC-ES Acceptance Criteria for Sprayed Fire-Resistant Materials (SFRMs), Intumescent Fire-Resistant Coatings and Mastic Fire-Resistant Coatings Used to Protect Structural Steel Members (AC23), dated December 2012

- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014

The products were evaluated for the following properties:

- Fire Resistance (ANSI/UL 263, ASTM E119)
- Surface Burning Characteristics (ANSI/UL 723, ASTM E84)
- Tensile Bond (ASTM E736)
- Steel Deck Deflection (ASTM E759)
- Impact Resistance (ASTM E760)
- Compressive Strength (ASTM E761)
- Air-stream Resistance (ASTM E859)
- Mold Growth and Humidity Resistance (ASTM G21)
- Environmental Exposures (ANSI/UL 263, ASTM E119)

3. REFERENCED DOCUMENTS

- ANSI/UL 263, 14th Ed. (ASTM E119), Fire Tests of Building Construction and Materials
- ANSI/UL 723, 10th Ed. (ASTM E84), Test for Surface Burning Characteristics of Building Materials
- ASTM E736-00 (2011), Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members
- ASTM E759-92 (2011), Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members
- ASTM E760-92 (2011), Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members
- ASTM E761-92 (2011), Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members
- ASTM E859-95, Standard Test Method for Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members
- ASTM G21-13, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

4. USES

CAFCO® BLAZE-SHIELD® II, BLAZE-SHIELD® HP, 300, 300 AC, 300 HS, 300 ES, 300 SB, 400, 400 AC, 400 ES, 3000, 3000 ES, and FENDOLITE® M-II are spray-applied fire resistive materials (SFRMs) intended for use in steel roof and floor assemblies and on structural steel beams, joists, columns, trusses, and walls.

CAFCO® FIBER-PATCH is a hand or trowel-applied fire resistive material intended for use for patching the CAFCO® BLAZE-SHIELD® II, BLAZE-SHIELD® HP, 300, 300 AC, 300 HS, 300 ES, 300 SB, 400, 400 AC, 400 ES, 3000, 3000 ES spray-applied materials. FENDOLITE® TG is a hand or trowel-applied fire resistive material intended for use in steel roof and floor assemblies and on structural steel beams, joists, columns, and trusses, for patching the FENDOLITE® M-II spray-applied material.

CAFCO® FENDOLITE® M-II and TG have been evaluated for exterior use in accordance with AC23.

CAFCO® BOND-SEAL, CAFCO® PRE-COAT, and ISOLATEK QWIK-SET are additional materials that may be used in conjunction with several of the SFRMs covered in this report, to aid in the application process.

CAFCO® SprayFilm® WB 3, CAFCO® SprayFilm® WB 4, and CAFCO® SprayFilm® WB 5 are intumescent fire resistive materials (IFRMs) that are applied to structural steel beams, columns and floor assemblies for use as fire protection.

5. PRODUCT DESCRIPTION

5.1 Spray-Applied Fire Resistive Materials

The spray-applied and hand-applied fire resistive materials covered in this report are of various densities that are specified in the UL Fire-Resistive Designs listed on the CHPX.R13348 Classification Card.

In general, CAFCO® BLAZESHIELD® II, 300, 300 AC, 300 HS, 300 ES, 300 SB, 3000, and 3000 ES are commercial density products for use in construction applications. The CAFCO® BLAZESHIELD® HP, 400, 400 AC, and 400 ES are medium density SFRMs for use in construction applications. CAFCO® FENDOLITE® M-II and FENDOLITE® TG are high density SFRMs for use in construction applications and are acceptable for use in exterior locations.

CAFCO® FIBER-PATCH may be used to hand patch CAFCO® BLAZESHIELD® II, HP, 300, 300 AC, 300 HS, 300 ES, 300 SB, 3000, 3000 ES, 400, 400 AC, and 400 ES products. CAFCO® FENDOLITE® TG may be used to hand patch FENDOLITE® M-II. Refer to guidelines for patching specified in the CHPX.R13348 Classification Card.

CAFCO® BOND-SEAL is an off-white liquid adhesive/sealant required in specific applications, as identified in the designs listed in the CHPX.R13348 UL Classification Card. If required, it shall be applied to the substrate prior to patching material. It is required on all cellular decks, as well as fluted steel deck that does not contain concrete, as shown in the appropriate UL Fire-Resistive Designs listed on the CHPX.R13348 Classification Card.

CAFCO® PRE-COAT is an adhesive/primer packaged as a grey, dry powder, and is required in specific application, as identified in the designs listed in the CHPX.R13348 UL Classification Card. When required, it shall be applied before application of the following SFRMs: CAFCO® 300, 300 AC, 300 HS, 300 ES, 300 SB, 3000, 3000 ES, 400, 400 AC, or 400 ES.

ISOLATEK QWIK-SET is an off-white set accelerator in powder form that is required for the CAFCO® 300 AC, 300 HS, 300 ES, 3000, 3000ES, 400AC, and 400 ES; it is optional for CAFCO® 300 and 300 SB.

5.2 Intumescent Fire Resistive Materials

The intumescent fire resistive materials covered in this report can be applied in the various thicknesses as specified in the UL Fire-Resistive Designs listed on the CDWZ.R16640 Classification Card.

CAFCO® SprayFilm® WB 3, CAFCO® SprayFilm® WB 4, and CAFCO® SprayFilm® WB 5 are water-based intumescent fire-resistive coatings for installation in construction applications. CAFCO® SprayFilm® WB 3 and SprayFilm® WB 4 provide up to 4-hour fire-resistance ratings, and CAFCO® SprayFilm® WB 5 provides up to and including 3-hour fire-resistance ratings, in accordance with ANSI/UL 263.

The SFRMs and IFRMs covered in this report have a flame spread index of 25 or less and a smoke developed index of 50 or less when tested in accordance with ANSI/UL 723 (ASTM E84).

6. INSTALLATION

6.1 General:

The SFRMs and IFRMs covered in this report must be installed in accordance with this report and the manufacturer's published installation instructions, which must be available to the applicators during installation at the jobsite.

The CAFCO® 300, 300 AC, 300 HS, 300 ES, 300 SB, 3000, 3000 ES, 400, 400 AC, 400 ES, or M-II SFRMs are mixed in a paddle or ribbon type mixer and machine-applied to the surface using varying air pressure and pumping rates to ensure accurate coverage. The products may be hand-patched using the guidelines outlined in the UL CHPX.R13348 Classification Card.

The CAFCO® BLAZE-SHIELD II and HP materials are mixed by conditioning the material though the application equipment and pneumatically conveying it through the hose to the nozzle where mixed with water. The products may be hand-patched using CAFCO® FIBER-PATCH following the guidelines outlined in the UL CHPX.R13348 Classification Card.

CAFCO® FIBER-PATCH and FENDOLITE® TG are hand or trowel applied to the surface until the thickness required to meet the specified fire resistance rating is achieved.

The thickness and densities of each product shall comply with the requirements of the various assemblies and applications as specified in the corresponding designs listed on the CHPX.R13348 Classification Card. The materials shall be applied immediately after mixing, without retempering. The equipment and mixer shall be clean prior to mixing the material.

CAFCO® 300, 300 AC, 300 HS, 300 ES, 300 SB, 3000, 3000ES, 400AC, and 400 ES products may be injected with ISOLATEK QWIK-SET in the field, to aid in product yield and the setting process.

CAFCO® SprayFilm® WB 3, CAFCO® SprayFilm® WB 4, and CAFCO® SprayFilm® WB 5 are machine-applied, brush or trowel applied, after the application of approved primers on the steel surface.

6.2 Preparation of Substrate, Site and Surface Conditions

Prior to application of material, the substrate to receive the fire resistive materials shall be free of any substances or conditions that interfere with adhesion of the material, in accordance with 2015, 2012, 2009 IBC Section 704.13.3. Primers, paints, and encapsulants are allowed, provided they comply with 2015, 2012, 2009 IBC Sections 704.13.3.1 and 704.13.3.2.

The temperature of the substrate and ambient temperature should be kept at a minimum of 40°F (4.4°C) for SFRMs before, during, and for a minimum of 24 hours after application. For the intumescent materials, the substrate and ambient temperatures should be maintained between 50°F (10°C) and 100°F (38°C) before, during, and for a minimum of 72 hours after application.

CAFCO® BOND-SEAL may be applied as an adhesive prior to the SFRM material, directly to the steel surface, or as a sealer on the surface of the SFRM material itself.

CAFCO® PRE-COAT is applied prior to SFRMs to cover approximately 70% of the steel surface, as required by the relevant designs specified on the CHPX.R13348 Classification Card. Thickness of the PRE-COAT is included in the total final thickness of the SFRM.

If minimum bond strengths are not met at the jobsite, and for wide flange structural steel shape dimensions that do not meet the conditions specified in 2015, 2012, 2009 IBC Section 704.13.3.2 for allowing primers, paints, and encapsulants at the jobsite, a mechanical break is required. Refer to the various UL Fire-Resistive Designs in the CHPX.R13348, as well as the Guide Information Card for UL Category Code BXUV for specific requirements on the required mechanical break to facilitate the spray application of SFRMs.

6.3 Fire Resistive Assemblies

The SFRMs covered in this report shall be installed as specified in one or more of the UL Fire-Resistive Designs listed in the CHPX.R13348 Classification Card, for each of the corresponding SFRMs. The IFRMs in this report shall be installed as specified in one or more of the UL Fire-Resistive Designs listed in the CDWZ.R16640 Classification Card, for each of the corresponding IFRMs. Refer to the table in Section 1 of this report for the UL Product Designation for each Trade Name.

6.4 Thickness Tolerances

6.4.1 Spray-Applied Fire Resistive Materials

The minus tolerance of the SFRM thickness must be no greater than 1/4 inch (6.4 mm), or 25% of a design thickness of less than 1 inch (25.4 mm). When applicable, additional material must be applied to meet this tolerance.

When an individually measured SFRM thickness exceeds the design thickness by 1/4 inch (6.4 mm) or more, the thickness shall be recorded as the design thickness plus 1/4 inch (6.4 mm).

6.4.2 Intumescent Fire Resistive Materials

The minus tolerance of any individual IFRM thickness must be no less than 80% of the thickness specified in the applicable designs. When applicable, additional material must be applied to meet this tolerance.

When an individually measured IFRM thickness exceeds the design thickness by 20% or more, the thickness shall be recorded as the design thickness plus 20%. The average thickness shall not exceed the maximum tested thickness specified in the applicable designs by more than 10%.

6.5 Special Inspections

Special inspections are required for the SFRMs covered in this report, in accordance with 2015 IBC Section 1705.14, 2012 IBC Section 1705.13, 2009 IBC Section 1704.12, or 2006 IBC Section 1704.10.

Special inspections are required for the IFRMs covered in this report, in accordance with 2015 IBC Section 1705.15, 2012 IBC Section 1705.14, 2009 IBC Section 1704.13, or 2006 IBC Section 1704.11.

6.6 Physical Protection

The CAFCO® FENDOLITE® M-II and TG may be applied on exposed structural shapes less than 8 ft (2438 mm) from a floor, landing, or occupied space.

Where SFRMs are applied to a structural member and are subject to impact damage, the structural members shall be protected with FENDOLITE® M-II or TG applied at the required thickness in accordance with the fire-resistive design, or the fire resistive material shall be protected by corner guards or any other substantial jacket of metal or noncombustible material to at least 5 ft (1524 mm) from the finished floor, in accordance with 2015, 2012, 2009 IBC Section 704.9, or 2006 IBC Section 714.4.

7. CONDITIONS OF USE

7.1 General:

The fire-resistive materials described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 2 of this report, subject to the following conditions:

7.2 The products must be manufactured, identified, and installed in accordance with this report, the manufacturer's published installation instructions, and the applicable code. If there is a conflict between the manufacturer's installation instructions and this report, the report governs.

7.3 All assemblies shall be built in accordance with the applicable published UL designs, or as otherwise described in this report.

7.4 The density, thickness, and bond strength of the fire-resistive materials in this report must be measured in accordance with 2015 IBC Section 1705.14, 2012 Section 1705.13, 2009 IBC Section 1704.12, or 2006 IBC Section 1704.10.

7.5 The CAFCO® 300 ES and CAFCO® 300 HS SFRMs recognized in this report have been evaluated for use in high-rise buildings up to 420 feet (128) in height in accordance with 2015, 2012, 2009 IBC Section 403.2.4 and Table 403.2.4.

7.6 The CAFCO® BLAZESHIELD® HP, 400, 400 AC, 400 ES, 3000, 3000 ES, and FENDOLITE® M-II SFRMs recognized in this report have been evaluated for use in high-rise buildings up to and greater than 420 feet (128 m) in height in accordance with IBC Section 403.2.4 and Table 403.2.4.

7.7 See UL's Online Certification Directory under UL File R13348 for Spray-applied Fire-Resistive Materials (CHPX) evaluated as a part of fire-resistance-rated assemblies in accordance with ANSI/UL 263.

7.8 See UL's Online Certification Directory under UL File R116640 for Mastic and Intumescent Coatings (CDWZ) evaluated as a part of fire-resistance-rated assemblies in accordance with ANSI/UL 263.

7.9 The fire resistive materials covered in this Evaluation Report are manufactured by Isolatek International, located at the manufacturing location(s) named below, under the UL LLC Listing/Classification and Follow-Up Service Program, which includes inspections in accordance with the quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC 10.

Plant Location
Huntington, IN
Stanhope, NJ
Houston, TX
San Bernardino, CA
Lawrence, MA

8. SUPPORTING EVIDENCE

8.1 Manufacturer's product literature and installation instructions.

8.2 Data in accordance with ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014.

8.3 Data in accordance with ICC-ES Acceptance Criteria for Sprayed Fire-Resistant Materials (SFRMs), Intumescent Fire-Resistant Coatings and Mastic Fire-Resistant Coatings Used to Protect Structural Steel Members (AC23), dated December 2012.

8.4 UL Classification reports in accordance with ANSI/UL 263 (ASTM E119). See UL Product Certification Category, Spray-applied Fire-Resistive Materials (CHPX).

8.5 UL Classification reports in accordance with ANSI/UL 263 (ASTM E119). See UL Product Certification Category, Mastic and Intumescent Coatings (CDWZ).

8.6 UL Classification reports in accordance with ANSI/UL 723 (ASTM E84). See UL Product Certification Category, Cementitious Cement and Plaster Mixtures (BLPR).

9. IDENTIFICATION

The products described in this evaluation report are identified by a marking bearing the report holder's name, Isolatek International, the plant identification, the UL Listing/Classification Mark, and the evaluation report number UL ER13348-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Listing/Classification Mark certificate.

10. USE OF UL EVALUATION REPORT

10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.

10.2 UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.

10.3 The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via our On-Line Certifications Directory:

www.UL.com/erdirectory

ISOLATEK INTERNATIONAL®
Corporate Headquarters

October 1, 2015

Mr. Brad Hardy
Advanced Fireproofing & Insulation Co.
P.O. Box 789
Greenacres, WA 99016

Re: Isolatek International Recognized Applicator

Dear Mr. Hardy:

This is to certify that Advanced Fireproofing & Insulation Co., located Greenacres, WA, is a recognized applicator of Isolatek International and is authorized to purchase and install CAFCO® products for sprayed fire protection, thermal insulation and acoustical control. Advanced Fireproofing & Insulation Co. has over 20 years experience applying our products.

We trust this information is of assistance. Should you have any questions, please feel free to contact the undersigned at 973-347-1200.

Sincerely,

Matthew Martinez
Applications Engineer
CAFCO® Fire Protection Products

MLM
Cc: J. McKay – Isolatek International

Section 1 – Chemical Product / Company Information

Product Name:	CAFCO® SprayFilm® WB 5	**Effective Date**:	April 22, 2015
Product Use/Class:	Fireproofing coating		
Manufacturer:	United States Mineral Products Company dba Isolatek International 41 Furnace Street Stanhope, NJ 07874 USA (973)-347-1200	**Preparer**:	R&D Department
In Case of Emergency Call:	**CHEMTREC**	**Supersedes**:	October 28, 2014
800.424.-9300 (USA)	+1 703.527.3887 (Int'l)		

Section 2 – Hazards Identification

GHS Classification:

Hazard Class	**Hazard Category**	**Route of Exposure**
Skin Irritation	2	Skin
Skin Sensitizer	1	Skin
Eye Irritation	2B	Eye
Inhalation Toxicity	4	Nose/Mouth

Global Harmonization Labeling and Classification:

Signal word: Warning

Hazard Symbol(s): GHS07

Overview: A thick liquid that poses little immediate hazard.

Primary Route(s) of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Medical Conditions Prone to Aggravation by Exposure: Sensitive skin; respiratory conditions

Hazard Statements:	
H303	May be harmful if swallowed.
H313	May be harmful in contact with skin.
H320	Causes eye irritation.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements:	
P202	Do not handle until safety precautions have been read and understood.
P261	Avoid breathing dust/ fumes/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P403+235	Store in a well ventilated place. Keep cool.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

Response:	
P301+P330 P331+P312	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/ physician if you feel unwell.
P302+P352+ P332+P313+ P363	IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.
P304+P340+ P342+P313	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get medical advice/ attention.
P305+P351+ P338+P337+ P313	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Storage:	
P402+P403+ P404+P410+ P411	Store in a dry place. Store in a well ventilated place. Store in a closed container. Protect from sunlight. Store at temperatures not exceeding 38°C/ 100°F.

Disposal:	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations (see section 13).

Section 3 – Composition / Information On Ingredients

Chemical Name	CAS Number	Wt. %
Ammonium Polyphosphate	68333-79-9	15-35
Pentaerythritol	115-77-5	7-13
Melamine	108-78-1	7-13
Titanium Dioxide	13463-67-7	7-13
Glass wool fiber	65997-17-3	3-7

Section 4 – First Aid Measures

General – If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

First Aid – Skin Contact: Wash with soap and water. Remove contaminated clothing. If persistent irritation occurs, seek medical attention.

First Aid – Eye Contact: Flush eyes thoroughly with copious amounts of water. Seek medical attention if irritation persists.

First Aid – Inhalation: Remove to fresh air. Seek medical attention if irritation persists.

First Aid – Ingestion: If swallowed do not induce vomiting. Rinse mouth out with water. If Irritation persists seek medical attention.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

Section 5 – Fire Fighting Measures

Extinguishing Media:	NFPA non-combustible liquid: ABC dry chemical, foam or carbon dioxide.
Unusual Fire & Explosion Hazards:	Product is not considered a fire hazard. Closed container may rupture (due to build up of pressure) when exposed to extreme heat. Irritating or toxic substances may be emitted upon burning, combustion or decomposition (including but not limited to ammonia gas, nitrogen oxide, titanium oxide, and phosphorous oxide gases).
Special Firefighting Procedures:	Wear positive pressure self-contained NIOSH approved breathing equipment and approved protective equipment if necessary.

Section 6 – Accidental Release Measures

Personal precautions, Protective Equipment, and Emergency Response:
Use personal protective equipment as recommended in section 8.

Methods and materials for containment and cleaning up:
If spilled, absorb spill with vermiculite or other inert material (such as sand). Collect up and place in an appropriate container

Section 7 – Handling And Storage

Precautions for safe handling: When working with any chemical product, use good workplace procedures. Do not cut, puncture, or weld on or near the container. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well ventilated conditions. Avoid skin and eye contact. Avoid inhalation of mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse.

Conditions for safe storage: Keep away from heat, sparks, and open flames. Avoid extreme heat or cold. Store above freezing. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Empty container containing residual product which may exhibit hazards of product. Do not reuse empty container.

Section 8 – Exposure Controls / Personal Protection

Permissible Exposure Limits

Chemical Name	CAS Number	OSHA PEL	ACGIH TLV	NIOSH	Mexico
Pentaerythritol	115-77-5	15 mg/m^3 TWA (total dust) 5 mg/m^3 TWA (respirable fraction)	10 mg/m^3 TWA (total dust)	10 mg/m^3 TWA (total dust) 5 mg/m^3 TWA (respirable dust)	10 mg/m^3 TWA 20 mg/m^3 STEL
Melamine	108-78-1	N/A	N/A	N/A	N/A
Ammonium Polyphosphate	68333-79-9	N/A	N/A	N/A	N/A
Titanium Dioxide	13463-67-7	15 mg/m^3 TWA	10 mg/m^3 TWA	5000 mg/m^3 IDLH	10 mg/m^3 TWA (as Ti) 20 mg/m^3 STEL (as Ti)
Glass wool fibers	65997-17-3	5 mg/m^3 TWA (respirable fraction) 15 mg/m^3 TWA (total dust)	1 fiber/cc TWA	5 mg/m3 TWA (total dust) 3 fibers/cc TWA	N/A

Engineering Controls: Provide ventilation to ensure compliance with applicable exposure limits

Respiratory Protection: A dust mask should be used in cases where the individual is exposed to airborne mists of the material.

Skin Protection: Wear cloth, rubber, or latex gloves. Use typical long sleeve work clothing or a “Tyvek” type suit .

Eye Protection: Wear proper eye protection; at minimum, safety glasses with side shields.

Work / Hygienic Practices: Use proper personal protective equipment. Eye wash stations are recommended in the work area.

Section 9 – Physical And Chemical Properties

Appearance: white liquid
Odor: Mild, minty
pH: 7-9
Melting Point (°F): Not Applicable
Boiling Point (°F): >210-215°F
Flash Point: >200°F (SCC)
Evaporation Rate: 1 (water=1)
Flammability: Not Applicable
Lower Explosive Limit: Not Applicable
Upper Explosive Limit: Not Applicable
Vapor Pressure (mm Hg): Not Applicable
Relative Density (kg/mm3) Not Applicable
Solubility in Water: Not Applicable
Specific Gravity (H_2O=1): 1.1-1.5
Physical State: white paste
% Volatiles: 25-30%
Viscosity 20-40K CPS
Auto ignition temperature Not Applicable

Section 10 – Stability And Reactivity

Chemical Stability (under normal conditions): Stable
Possibility of Hazardous Reactions: None
Conditions to Avoid: Avoid high temperatures or freezing. Avoid incompatible materials.
Incompatibility: Strong Acids, bases, and oxidizing agents.
Hazardous Decomposition Products: Thermal decomposition may produce smoke, carbon monoxide (CO), carbon dioxide (CO2), oxides of titanium, oxides of phosphorous, and other products of incomplete combustion.
Hazardous Polymerization: No hazardous polymerization will occur under normal conditions.

Section 11 – Toxicological Information

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of personal protective equipment and handling procedures to minimize exposure.

Eyes: May cause eye irritation.

Skin: Causes skin irritation.

Inhalation: High airborne concentrations of mist resulting from spraying may cause irritation of the respiratory tract and mucous membranes.

Ingestion: Not likely route of exposure but ingestion may cause irritation.

Carcinogenicity	IARC			NTP		OSHA
Chemical Name	**Group 1**	**Group 2A**	**Group 2B**	**Known**	**Suspect**	
Pentaerythritol	No	No	No	No	No	No
Melamine	No	No	No	No	No	No
Ammonium Polyphosphate	No	No	No	No	No	No
Titanium dioxide	No	No	Yes	No	No	No
Glass wool fibers	No	No	No	Yes	No	Yes

Acute toxicity
No toxicity studies have been conducted on this product.

Titanium dioxide

LD50 Oral	Rat	>10,000 mg/kg
LC50 Inhalation	Rat	>6.8 mg/L
LD50 Dermal	Rabbit	>10,000 mg/kg

Melamine

LD50 Oral	Rat	3161 mg/kg
LD50 Dermal	Rabbit	>1000 mg/kg

Ammonium polyphosphate

LD50	Rat	>2000mg/kg

Pentaerythritol

LD50 Oral	Rabbit/rat/mouse	>18500 mg/kg

Chronic effects – For this category no toxicological test data is available for the whole product.
Carcinogenicity - For this category no toxicological test data is available for the whole product.
Mutagenicity - For this category no toxicological test data is available for the whole product.
Teratogenicity - For this category no toxicological test data is available for the whole product.
Developmental effects - For this category no toxicological test data is available for the whole product.
Fertility effects - For this category no toxicological test data is available for the whole product.
Target organs – For this category no toxicological test data is available for the whole product.

Review Section 2 and 11 for any additional assessments

Section 12 – Ecological Information

Ecological Information: No ecological testing has been conducted on this product.

Ecotoxicity

Ammonium polyphosphate
Fish (Brachydanio rerio)96 hour LC50 >500 mg/l

Melamine
Fish (Poecilia reticulata) 96 hour LC50 >3000 mg/L
Invertebrate (Daphnia) 48 hour EC50 >2000 mg/L

Pentaerythritol
Invertebrate (Daphnia) 24 hour EC50 50000 mg/L
Invertebrate (Daphnia) 48 hour EC50 30477-37043 mg/L

Persistence and degradability: N/E
Bioaccumulative potential: N/E
Mobility in soil: N/E

Section 13 – Disposal Considerations

Disposal Information: Do not allow the product to enter drains, water courses or the soil. Liquids can not be disposed of in a landfill. Allow liquid material to dry. Dispose of in accordance with federal, state and local regulations.

Section 14 – Transportation Information

Proper Shipping Name: Not regulated – See Bill of Lading for details
Technical Name: Not regulated
Hazard Class: Not regulated
UN/NA Number: Not regulated
Additional Notes: None

Section 15 – Regulatory Information

US Regulations
HCS Classification Irritating material, Sensitizing material

SARA 313 - Supplier Notification None

U.S. Federal Regulations SARA 311/312	Immediate Health (Acute)	Delayed Health (Chronic)	FIRE	PRESSURE	REACTIVE
	Yes	No	No	No	Yes

U.S. State Regulations	State Hazardous Substance List						
	CAS Number	CA	MA	NJ	PA	MN	RI
	13463-67-7	No	Yes	Yes	Yes	Yes	Yes
	115-77-5	No	Yes	Yes	Yes	Yes	Yes
	108-78-1	No	Yes	No	No	Yes	No
	65997-17-3	Yes	Yes	No	Yes	Yes	Yes

INTERNATIONAL REGULATIONS AS FOLLOWS:

Chemical Inventory Status

All chemicals in this product are listed or exempt from listing in the following:

U.S	Canada	Europe	Australia	Korea
TSCA	DSL I NDSL	EINECS I ELINCS	AICS	ECL
Yes	Yes I No	Yes	Yes	Yes

CANADIAN WHMIS

This SDS has been prepared in compliance with Controlled Product Regulations and contains all information required.

CANADIAN WHMIS CLASS: D2B

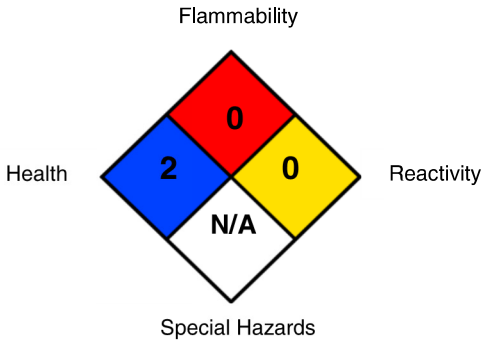
HMIS Ratings

VOLATILE ORGANIC COMPOUNDS, GR/LTR MIXED (UNTHINNED): 0g/L

Section 16 – Other Information

N/E – Non Established
N/A – Not Applicable

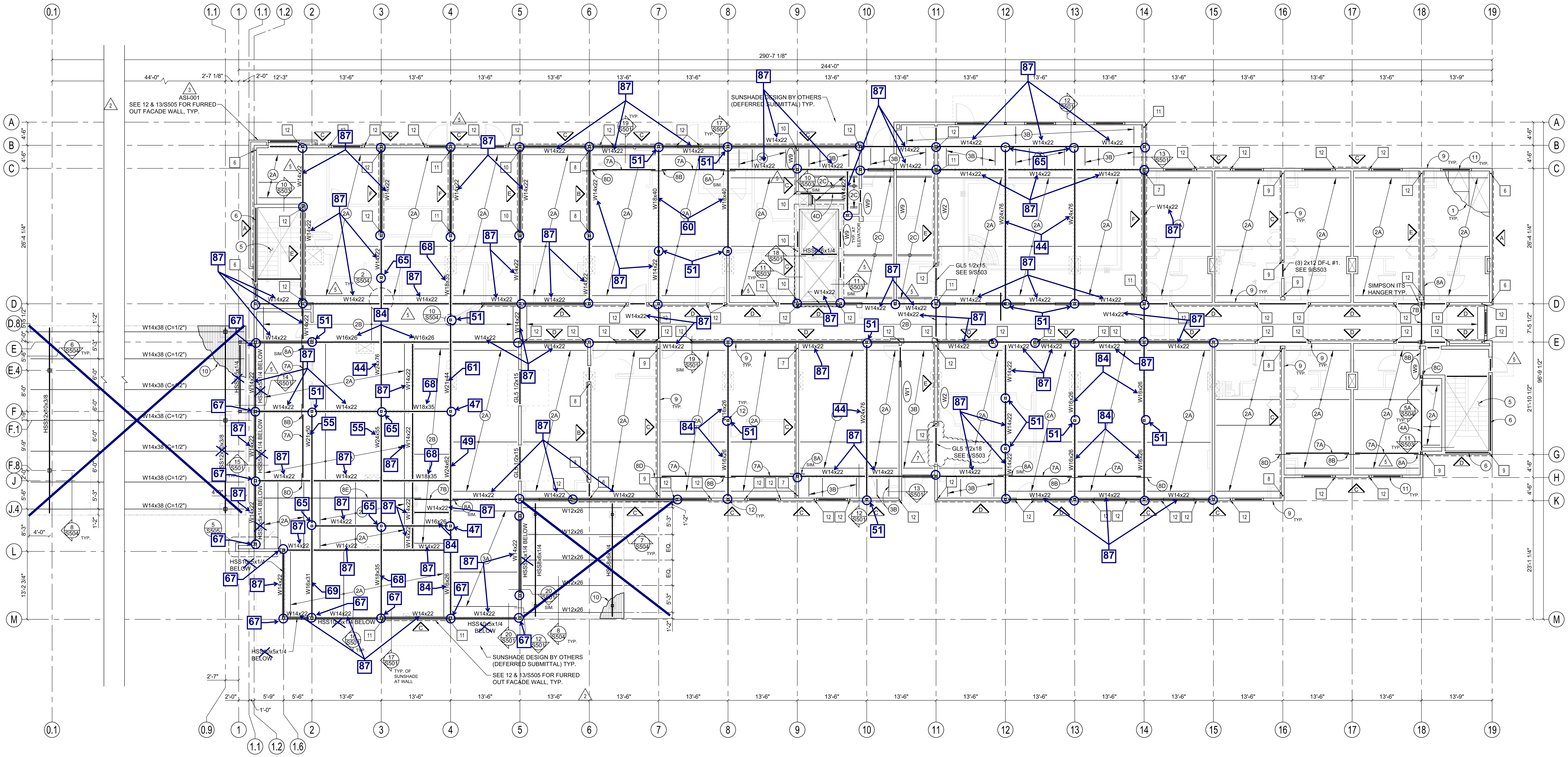
NFPA



Prepared By: Research Department, U.S.A.
Telephone: (973) 347-1200

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. VENDOR SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no event shall the vendor be liable for special, indirect or consequential damages.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in this data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes all risks in his use of the material.



2ND FLOOR FRAMING PLAN

1 / S112 — NORTH

A14014 / A14014201 CLC — SCALE: 1/8" = 1'-0"

Holiday Inn Express & Suites
At Cascade Station
Advanced Fireproofing & Insulation Co.
Intumescent Fireproofing
Shop Drawing February 7th, 2017

GENERAL FIREPROOFING NOTES

67 → This symbol type next to beam or column denotes Intumescent fireproofing thickness in mils.

✕ This symbol next to beam or column denotes fireproofing not required at this location.

Please Note:
All Circled Columns:
To Receive **81 mils**
Intumescent Fireproofing,
Unless Noted Otherwise

FLOOR FRAMING KEYNOTES:

1. 7/8" T&G PLYWOOD (INDEX 48/24) W/ 10d @ 4" O.C.AT DIAPHRAGM BOUNDARY, 6" O.C. AT PANELS EDGES & 12" O.C. FIELD. LAY WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. REFERENCE ARCHITECTURAL FOR FLOOR FINISH UNDERLAMENTS AND FINISHES. SEE 6/S503 FOR ADDITIONAL NAILING REQUIREMENTS.
2. FLOOR JOIST FRAMING AS FOLLOWS:
   - 2A. 11 7/8 TJI 210 @ 16" O.C.
   - 2B. 2x10 DF-L #2 @ 16" O.C.
   - 2C. (2) 2x10 DF-L #2 @ 16" O.C.
3. ROOF JOIST FRAMING AS FOLLOWS:
   - 3A. 11 7/8 TJI 210 @ 24" O.C.
   - 3B. 2x10 DF-L #2 @ 24" O.C.
4. FLOOR BEAMS AS FOLLOWS:
   - 4A. (3) 1 3/4x11 7/8 MICROLAM LVL BEAMS.
   - 4B. (2) 1 3/4x9 1/2 MICROLAM LVL
5. SEE 1, 2, 3/S505 FOR TYPICAL STAIR FRAMING DETAILS.
6. GL5 1/2x12 RIM JOIST AT STAIR TOWERS AT EACH FLOOR LINE. SEE 4/S505 FOR CONNECTIONS.
7. DRAG BEAMS AS FOLLOWS:
   - 7A. 3 1/2x11 7/8 GLULAM BEAM
   - 7B. 5 1/2x9 GLULAM BEAM
8. DRAG STRAP AS FOLLOWS:
   - 8A. CMST14 STRAP FROM SIDE OF SHEAR WALL RIM TO SIDE OF INFRAMING DRAG BEAM. (33) 10dx1 1/2" COMMON NAILS EA. END (66 TOTAL), 66" MIN. STRAP LENGTH. AT SIMILAR, PLACE STRAP ON TOP OF FLOOR SHEATHING.
   - 8B. CMSTC16 STRAP ON TOP OF FLOOR SHEATHING. (25) 10d COMMON NAILS EA. END (50 TOTAL), 48" MIN. STRAP LENGTH.
   - 8C. MSTI36 STRAP ON TOP OF FLOOR SHEATHING. (18) 10d COMMON NAILS EA. END (36 TOTAL).
   - 8D. MSTI36 STRAP ON TOP OF FLOOR SHEATHING. (12) 10d COMMON NAILS EA. END (24 TOTAL). ALIGN FLOOR JOIST WITH DRAG BEAM.
   - 8E. CMSTC16 STRAP ON TOP OF FLOOR SHEATHING. ADD 2x4 FLAT BLOCKING BETWEEN JOISTS. (25) 10d NAILS TO BEAM & (3) 10d NAILS TO EA. BLOCK.
9. SPLICE RIM BOARDS ON CORRIDOR WALLS, EXTERIOR WALLS AND INTERIOR SHEAR WALLS W/ (2) CS14x32" STRAPS, (13) 10dx1 1/2" NAILS EA. END OF EA. STUD.
10. 20 GA. 1 1/2" B-DECK.
11. SEE8/S503 FOR TYPICAL STACKED EXTERIOR WALL HEADERS.
12. BRACE ALL COLUMNS TO LVL x4'-0" BLOCKING IN FLOOR OR LVL RIM JOIST. PROVIDE 3/8" PL ON COLUMN AND (2) 3/4"Ø THROUGH BOLTS. SEE 9/S504, TYP.

FLOOR FRAMING PLAN NOTES:

1. REFER TO STRUCTURAL GENERAL NOTES ON S100 & S101 FOR ADDITIONAL REQUIREMENTS AND SCHEDULES.
2. REF. S400 SERIES FOR FOUNDATION DETAILS.
3. REF. S500 SERIES FOR FLOOR FRAMING DETAILS.
4. REF. S600 SERIES FOR ROOF FRAMING DETAILS.
5. REF. ARCH FOR TOP OF FINISH ELEVATIONS.
6. REF. ARCH FOR DIMENSIONS, EXTENTS & FINISH OF ALL WALLS.
7. COORDINATE ALL OPENINGS FOR MECHANICAL UNITS WITH MECHANICAL DRAWINGS.
8. FLOOR SHEATHING TO BE GLUED & NAILED TO FRAMING. SEE KEYNOTES AND DETAILS FOR NAILING REQUIREMENTS.

LEGEND

- ☐ OR ☒ — STEEL COLUMN OR WOOD POST, RESPECTIVELY.
- ■ — COLUMN OR POST THAT TERMINATES ON THIS LEVEL.
- INDICATES WOOD STRUCTURAL WALL.
- INDICATES NON-STRUCTURAL WALL.
- INDICATES PLYWOOD SHEAR WALL. SHEATHING IS SHOWN ON THE APPROPRIATE SIDE(S) OF THE WALL. WHERE PLYWOOD DESIGNATION IS DISCONTINUOUS (SUCH AS AT HEADER BETWEEN SHEARWALLS) PROVIDE SHEATHING ON ALL ADJACENT WALL SURFACES NAILED PER (A) TO PROVIDE SURFACE WITH NO HORIZONTAL OFFSETS.
- (X) — KEYNOTE
- (X) — PLYWOOD SHEARWALL TYPE, SEE SHEARWALL SCHEDULE ON SHEET S502
- # — HOLDOWN TYPE, SEE SCHEDULE ON SHEET S502
- • — HOLDOWN LOCATION
- INDICATES WOOD STRUCTURAL WALL ABOVE.
- (X) — SPECIAL WALL STUD TYPE PER SCHEDULE ON 1/S503

REVISION

NO.	DATE/DESCRIPTION
2	06-25-15
3	ASI-001 09-08-15
5	ASI #2 11-06-15
6	ASI #3 1-05-16
7	ASI #8 6-23-16

AAI afghan associates, inc.
ENGINEERING
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STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
11,262
OREGON
JULY 7, 1981
HAMID R. AFGHAN
EXPIRES: 12/31/17

DJ ARCHITECTURE
COMMERCIAL • HOSPITALITY • RESIDENTIAL • INTERIORS
DJ Architecture P.C.
2443 Brighton Way SE
Albany, OR 97322
Tel (541) 926-5959
dj@djarchitecture.com
www.djarchitecture.com

HOLIDAY INN EXPRESS & SUITES AT CASCADE STATION
9200 NE CASCADES PKWY — PORTLAND, OR 97220

DATE	3/18/15
JOB NO	A14014
JOB NAME	CASCADE STATION
DRAWING	S112

2ND FLOOR FRAMING PLAN — SCALE: AS NOTED

Protective & Marine Coatings

STEEL SPEC™ FAST DRY UNIVERSAL METAL PRIMER

B50WW7	White
B50RW3	Red
B50AW3	Gray
B50BW3	Black

Revised: March 16, 2015

Product Information

Product Description

STEEL SPEC FAST DRY UNIVERSAL METAL PRIMER is a fast drying, high solids, weldable, heavy metal free, rust inhibitive, universal, alkyd metal primer. It can be topcoated with alkyd, acrylic, and high performance coatings. Also suitable as a barrier coat over conventional coatings which would normally be attacked by strong solvents in high performance coatings.

- High build to protect abrasive blasted steel
- Good corrosion and rust protection
- Can be used as a "universal" primer under high performance topcoats
- Fast drying
- Suitable for use in USDA inspected facilities

Product Characteristics

Finish:	Flat
Color:	White, Red, Gray, Black
Volume Solids:	63% ± 2%, may vary by color
Weight Solids:	81% ± 2%, may vary by color
VOC:	<340 g/L; 2.8 lb/gal

Recommended Spreading Rate per coat:

	Minimum		Maximum	
Wet mils (microns):	**3.0**	(75)	**6.5**	(163)
Dry mils (microns):	**2.0**	(50)	**4.0**	(100)
~Coverage sq ft/gal (m^2/L):	**252**	(6.2)	**504**	(12.7)

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 4.0 mils wet @ 50% RH:

	@ 40°F/4.5°C	@ 77°F/25°C	@ 120°F/49°C
To touch:	15 minutes	15 minutes	10 minutes
Tack-Free:	3.5 hours	30 minutes	2 hours
Dry-Hard:	4.5 hours	4 hours	2.5 hours
To handle:	5.5 hours	5 hours	3 hours
To recoat (itself):	8.5 hours	5 hours	3 hours

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.

Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	Black: 80°F (27°C), PMCC White: 90°F (32°C), PMCC Red: 102°F (39°C), PMCC Gray: 103°F (39°C), PMCC
Reducer/Clean Up:	Xylene

Recommended Uses

For industrial application on steel to protect against atmospheric corrosion. Interior/exterior use. A premium shopcoat primer. For use under a variety of coatings, including high performance topcoats.

- Rail Cars
- Structural Steel
- Machinery and Equipment
- Piping and Pipe Racks
- Marine Applications
- Tanks
- Bridges
- Vessels
- Bulkheads

According to AISC, shop coat primers are intended for protection for only a short period of exposure in ordinary atmospheric conditions, and is considered a temporary and provisional coating.

Not recommended for immersion service or exposure to acids or alkalis.

Performance Characteristics

- Passes ANSI/AWS D1.1 when applied at 2 mils (50 microns) dft

continued on back

Protective & Marine Coatings

STEEL SPEC™ FAST DRY UNIVERSAL METAL PRIMER

B50WW7 WHITE
B50RW3 RED
B50AW3 GRAY
B50BW3 BLACK

PRODUCT INFORMATION

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Steel, Alkyd Topcoat:			
1 ct.	STEEL SPEC Fast Dry Universal Metal Primer	2.0-4.0	(50-100)
1-2 cts.	Industrial Enamel HS Series	2.0-4.0	(50-100)
Steel, Aluminum Finish:			
1 ct.	STEEL SPEC Fast Dry Universal Metal Primer	2.0-4.0	(50-100)
1-2 cts.	Silver-Brite Aluminum	1.0-1.5	(25-38)
Steel, Epoxy Topcoat:			
1 ct.	STEEL SPEC Fast Dry Universal Metal Primer	2.0-4.0	(50-100)
1-2 cts.	Epolon II Multi-Mil Epoxy	3.0-6.0	(75-150)
Steel, Acrylic Topcoat:			
Topcoat only after 16 hours minimum dry @ 77°F (25°C) & 50% RH			
1 ct.	STEEL SPEC Fast Dry Universal Metal Primer	2.0-4.0	(50-100)
1-2 cts.	Pro Industrial DTM Acrylic	2.5-4.0	(63-100)
Steel, Polyurethane Topcoat:			
1 ct.	STEEL SPEC Fast Dry Universal Metal Primer	2.0-4.0	(50-100)
1-2 cts.	Hi-Solids Polyurethane	3.0-4.0	(75-100)

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:
Iron & Steel: SSPC-SP2

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

COLOR AVAILABILITY / TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum
(air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging: 5 gallon (18.9L) containers and 53 gallon (200L) drums

Weight per gallon: 13.9 ± 0.2 lb ; 1.7 Kg/L (White) varies by color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Protective & Marine Coatings

STEEL SPEC™ FAST DRY UNIVERSAL METAL PRIMER

B50WW7 WHITE
B50RW3 RED
B50AW3 GRAY
B50BW3 BLACK

Revised: March 16, 2015

APPLICATION BULLETIN

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel

Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils or 50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard, or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer .....Xylene

Airless Spray

Pressure.....1800 psi minimum
Hose.....1/4 - 3/8" ID
Tip .....017" - .019"
Filter.....60 mesh
Reductions.....as needed up to 5% by volume

Conventional Spray .....Not recommended

Brush

Brush.....Natural Bristle or Nylon Polyester
Reduction.....Not recommended

Roller

Cover .....1/4 - 3/8" woven with solvent resistant core
Reduction.....Not recommended

If specific application equipment is not listed above, equivalent equipment may be substituted.

continued on back

Protective & Marine Coatings

STEEL SPEC™ FAST DRY UNIVERSAL METAL PRIMER

B50WW7	White
B50RW3	Red
B50AW3	Gray
B50BW3	Black

Application Bulletin

Application Procedures

Surface preparation must be completed as indicated.

Mixing Instructions: Mix paint thoroughly by boxing and stirring before use.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum		Maximum	
Wet mils (microns)**:**	**3.0**	(75)	**6.5**	(163)
Dry mils (microns)**:**	**2.0**	(50)	**4.0**	(100)
~Coverage sq ft/gal (m^2/L)**:**	**252**	(6.2)	**504**	(12.7)

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 4.0 mils wet @ 50% RH:

	@ 40°F/4.5°C	@ 77°F/25°C	@ 120°F/49°C
To touch:	15 minutes	15 minutes	10 minutes
Tack-Free:	3.5 hours	30 minutes	2 hours
Dry-Hard:	4.5 hours	4 hours	2.5 hours
To handle:	5.5 hours	5 hours	3 hours
To recoat (itself):	8.5 hours	5 hours	3 hours

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

Clean Up Instructions

Clean spills and spatters immediately with Xylene. Clean tools immediately after use with Xylene. Follow manufacturer's safety recommendations when using any solvent.

Disclaimer

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

Performance Tips

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Xylene, R2K4.

Intimate contact of the steel surface and primer is necessary for adhesion and rust inhibition.

Refer to Product Information sheet for additional performance characteristics and properties.

Safety Precautions

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

Warranty

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31 August 2017

Shane Fagan
Associate Designer/Project Manager
DJ Architecture
2411 Brighton Way SE, Suite B
Albany, OR 97322
P: 541-926-5959
Email: djarch@djarchitecture.comcastbiz.net

RE: Project: Holiday Inn Express at Cascade Station
Location: Portland, OR
Contractor: Advanced Fireproofing
Isolatek Engineering Judgment: 03MLM102R1

Dear Mr. Fagan:

We have received and reviewed the Engineering Judgment documentation 03MLM102R1 prepared by Matthew Martinez (Isolatek International) dated 19 July 2017, regarding the use of CAFCO WB 5 Intumescent Fire Resistive Material (IFRM) on wide-flange beams, HSS hollow tube steel, and angled structural steel members supporting a wood floor and roof-ceiling assemblies, along with all pertinent data. It is desired that the appropriate thickness of CAFCO WB 5 be determined that would achieve the required fire resistive rating, in accordance with ASTM E119/UL 263, "Standard Test Methods for Fire Tests of Building Construction and Materials."

It is standard industry practice to determine the thicknesses required of IFRM to achieve specific ratings based on calculated W/D (or A/P) ratios, which are further calculated by dividing the weight, W of the steel section in lbs./ft., or the cross-sectional area, A of the steel member, with the perimeter D, or P, of protection at the interface of the protection material through which heat is transferred to the steel, in inches. W/D ratios are utilized for solid, wide-flange steel members, whereas A/P ratios are utilized for tubular or hollow steel members.

The described structural steel beams and angles supporting the ceiling assemblies fall outside the scope of UL Designs, so thicknesses are determined based on those required for columns which would be a more severe exposure (4-sided exposure for columns as opposed to 3-sided exposure for beams). Additionally, column thicknesses (based on a 4-sided exposure, which has the test sample fully exposed on all four sides during the test) are based on testing that does not account for the heat sink properties of a floor or roof assembly (which uses a 3-sided exposure (where the test sample is mounted in the furnace such that only three sides are exposed to heat). In this case, data is based on UL Design Y615.

Provided the CAFCO WB 5 IFRM is installed in accordance with manufacturer's written application installation instructions and methods, the aforementioned methods, and UL Design Y615 guidelines, the required fire resistance rating on the structural steel members will be achieved, if tested.

This review is limited to those specific assemblies depicted and only for use as part of the above referenced project and cannot be extended to other assemblies or projects. The rating of the fireproofing system is dependent on the performance of the surrounding structure under fire exposure with a maximum possible F rating based on the thicknesses provided. The contractor is responsible for the compliant installation of the referenced engineering judgment.

Reviewed by: John D. Campbell, P.E.

Shane Fagan
Associate Designer/Project Manager
DJ Architecture
2411 Brighton Way SE, Suite B
Albany, OR 97322
P: 541-926-5959
E: djarch@djarchitecture.comcastbiz.net

31 August 2017

RE: Holiday Inn Express at Cascade Station
Portland, OR

Subject: Engineering Judgment Engineer Seal

Dear Mr. Fagan:

It has been indicated that there is a concern regarding my Professional Engineer stamp being "Mechanical" in lieu of "Fire Protection" and my qualifications to practice fire protection. To clarify, as a mechanical engineer, I am allowed "to practice or offer to practice mechanical engineering in any of its phases" based on the engineering licensure laws. Fire protection has long been considered a phase of mechanical engineering, and as such, my mechanical engineer stamp is valid and should be considered acceptable in the execution of the engineering judgment.

In addition, the licensure laws of Oregon, as well as every other state, require that engineers limit practice to within their respective discipline or area of expertise. I have been practicing fire protection engineering for over 30 years and hold certifications as a Certified Fire Protection Specialist, full Professional Member status in the Society of Fire Protection Engineers (I also sit on the Board of Directors for the SFPE), am a Fellow in the Institute of Fire Engineers, sit on the ASTM E05 committee which is the committee on Fire Standards, and serve on several NFPA technical committees. A copy of my CV is also attached for consideration.

I trust that you will find that my experience and qualifications, as well as my understanding of the licensure laws in the State of Oregon, allow for the use of my PE stamp as is on the documents.

Should you have any questions, or concerns, do not hesitate to contact us.

Sincerely,

John D. Campbell, P.E.
EVP – Engineering

JDC

Encl

ec: BH/PT – Global FPG

JOHN D. CAMPBELL, P.E., P.Eng., CFPS, FIFireE

732 Spring Crest Ct., Fenton, MO 63026 (h) 636-349-9228 (m) 619-961-8255 firehydt@gmail.com

PROFESSIONAL SUMMARY

Experienced and proven leader with 30 years experience in fire protection engineering, consulting, analysis, design, and management, of hazards, systems, water supplies, plans and specifications, inspections, testing, and investigation, with success in building teams, motivating associates, and completing projects on-time, on-budget and at high profit margin. Provide skilled competence in building relationships, excellent problem solving skills, and achieving successful solutions.

PROFESSIONAL EMPLOYMENT HISTORY

EVP Engineering, Global Fire Protection Group
2015 to Present
Perform fire protection and life safety engineering, consulting, and design services related to fire and building codes, national fire protection standards and related issues. Review engineering judgments for conformance to listed and accepted systems and practices. Consultant to Construction Projects globally. Analyze plans for conformance to standard practice, codes, and specifications for seal and signature. Engineer of record for alarm and suppression and passive fire system designs and supervise the design work of others. Responsible for engineering, consulting, and design work of firm.

Chief Engineer, NRG Fire Consulting, LLC
2015 to 2016
Perform fire protection and life safety engineering, consulting, and design services related to fire and building codes, national fire protection standards and related issues. Engineer of record for alarm and suppression designs and supervise the design work of others. Responsible for engineering work of firm.

Vice President – International Services, Telgian Corporation
2000 to 2015
Perform fire protection and life safety consulting and design services. Analyze plans for conformance to standard practice, codes, and specifications for seal and signature. Engineer of record for designs. Prior to VP-International role, served as Area Manager, Regional Director, Engineering Consulting Group Division Head, and VP-Operations for Professional Services Division.

Director of Engineering, Alternatives in Engineering, Inc.
From 1996 to 2000

Performing management and administration functions related to the overseeing the design and engineering of fire protection suppression system for varying occupancy classifications and hazards. Investigated and analyze alternative solutions to fire protection problems. Performed code studies and reviews to determine fire protection requirements.

Design/Project Engineer, The Bick Group
From 1993 to 1996

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Provided design and project supervision of all mechanical systems and fire protection suppression systems including fire alarm for special hazard projects. Design included foam, clean agent (FM200, Halon), CO2, and water based suppression. Supervised design work of engineering technicians and managed all fire protection projects.

Field Engineer, Alternatives in Engineering, Inc.
From 1991 to 1993

Supervised design work of engineers and engineering technicians and managed all fire protection projects. Provided training in fire protection to engineering technicians. Reviewed contractor shop drawings and calculations.

Design/Project Engineer, Fire Protection Systems, Inc.
From 1987 to 1991

Designed sprinkler and fire pump systems for commercial and industrial occupancies.

SPECIALIZED PROFESSIONAL COMPETENCE

Fire Suppression System Design	*Preparation of schematics and shop quality designs for all types of systems including automatic sprinkler (wet, dry, pre-action, and deluge), gaseous extinguishing (CO2 and clean agents), and foam.*
Fire Hazards Analysis	*Analysis of hazardous waste storage, incinerator facilities, etc., to establish fire scenarios, determine chemical process impacts, analyze life safety features, and predict loss results.*
Hydraulic Calculation & Analysis	*Manual or computer hydraulic analysis performed for new and existing systems.*
Water Supply Analysis	*Analysis of public water supply systems for fire protection/loss prevention purposes, as well as design of water supply systems (fire pumps and water storage tanks).*
Fire Protection Plan Review	*Analysis of plans for conformance to standard practice, codes, and specifications.*
Fire Protection Specification	*Preparation of written specifications for the design and installation for all water based and special hazard systems.*
Fire Protection System Inspection and Testing	*Conduct periodic surveys and tests as required by ordinance, code, and insurance underwriting for all water based and special hazard systems.*
Fire Protection System Analysis	*Survey and analysis of existing system design, installation, building*

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and Investigation *conditions, and building use in relation to codes and standards.*

EDUCATIONAL AND TRAINING HISTORY

UNIVERSITY OF MISSOURI - Rolla (now known as Missouri University of Science & Technology)
December 1986. Bachelor of Science in Mechanical Engineering

FONTBONNE UNIVERSITY
May 1994. Master of Business Administration

P.E. REGISTRATIONS & CERTIFICATIONS

Licensed as Professional Engineer in all 50 U.S. states, District of Columbia, Guam, Northern Mariana Islands, and Puerto Rico
Licensed in the Canadian provinces of Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Saskatchewan
Certified Fire Protection Specialist (CFPS) - NFPA
Fellow Grade – Institution of Fire Engineers (IFE)

PROFESSIONAL ORGANIZATIONS & TECHNICAL COMMITTEE MEMBERSHIP

National Fire Protection Association (NFPA)
Technical Committee Member – Fire Pumps (NFPA 20); Water Storage Tanks for Fire Protection (NFPA 22); Water Additives for Fire Control and Vapor Mitigation (NFPA 18, NFPA 18A, NFPA 1150); Mining Facilities (NFPA 120 and NFPA 122); Hybrid Fire Extinguishing Systems (NFPA 770); former member of Aerosol Products (NFPA 30B); and, former member of Storage and Warehousing of Containers and Portable Tanks (NFPA 30-Flammable/Combustible Liquids Code)
Society of Fire Protection Engineers (SFPE)
Member of Board of Directors
International Association of Fire Safety Science (IAFSS)
International Code Council (ICC)
American Fire Sprinkler Association (AFSA) – member and instructor
American Water Works Association (AWWA)
Committee Member – Fire Protection (subcommittee to Distribution Systems)
American Society of Mechanical Engineers (ASME)
American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

PUBLICATIONS/ARTICLES WRITTEN

NFPA 20 Handbook, 2016 Edition, *Supplement #1 – Considerations When Designing and Selecting a Fire Pump, June 2015*
Fire System Maintenance in Older Buildings, *Facilities Services Management (FSM), March 2014*
International Use of NFPA Standards – Spreading Fire Safety on a Global Scale, *Sprinkler Age Magazine, American Fire Sprinkler Association (AFSA), April 2014*

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Putting the Puzzle Together – Tips on How to Navigate Storage Requirements in NFPA 13, *PM Engineer Magazine, May 2014* (reprinted as Storage Protection: Part 1 in *Fire Protection Contractor Magazine*)
Storage Protection: An 8 Article Series in *Fire Protection Contractor Magazine*, *October 2014* through *June 2015*