

# ICC-ES Evaluation Report

**ESR-5314**

Reissued June 2024

Revised July 2024


Subject to renewal June 2025

This report also contains:

- LABC Supplement
- CBC Supplement
- FBC Supplement

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2024 ICC Evaluation Service, LLC. All rights reserved.

<p><b>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</b></p> <p><b>Section: 07 81 00— Applied Fireproofing</b></p>	<p><b>REPORT HOLDER:</b></p> <p><b>CONTEGO INTERNATIONAL INC.</b></p>	<p><b>EVALUATION SUBJECT:</b></p> <p><b>CONTEGO HS INTUMESCENT RFB AND CONTEGO R INTUMESCENT RFB</b></p>	
---	---	--	---

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2021, 2018, and 2015 [International Building Code® \(IBC\)](#)

For evaluation of codes adopted by [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-5314 LABC Supplement](#).

**Properties evaluated:**

- Fire-resistance-rated construction
- Surface burning characteristics

## 2.0 USES

Contego HS Intumescent RFB and Contego R Intumescent RFB coatings are intumescent fire-resistant coatings that provide protection, with up to a 2<sup>1</sup>/<sub>2</sub>-hour fire-resistance rating, for interior and exterior structural steel beams and columns in accordance with IBC Sections 703.2 and 704. When installed in accordance with this report, the products are suitable for use in buildings of Type I and II construction in accordance with IBC Section 603.1 Exception 21.

## 3.0 DESCRIPTION

Contego HS Intumescent RFB and Contego R Intumescent RFB coatings are water-based intumescent coatings that has a shelf life of twenty-four (24) months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 10°F (38°C). When installed in accordance with this report, Contego HS Intumescent RFB and Contego R Intumescent RFB coatings have a Class A interior finish classification, as set forth in IBC Section 803, when tested in accordance with ASTM E84.

## 4.0 DESIGN AND INSTALLATION

### 4.1 General:

Installation is applicable to Interior General Purpose, Interior Conditioned Space Purpose, and Exterior Use.

### 4.2 Surface Conditions:

The fire-resistant coatings must be installed in accordance with this report, the manufacturer's installation instructions and the applicable code. The manufacturer's installation instructions must be available at the jobsite at all times during installation.

The surface to be coated must be free of dust, dirt, oil, paint, stain, varnish, or sealant. The products are not for use on surfaces that may be subjected to washing or a maximum relative humidity of more than 80 percent.

#### 4.3 Application of Contego HS Intumescent RFB and Contego R Intumescent RFB:

The coatings must be thoroughly mixed before and throughout the application and applied using an electric, pneumatic, or gas-powered airless spray pump capable of spraying at a minimum of 3300 psi (216 kg/cm<sup>2</sup>). The ambient air temperature for application must be limited to a minimum of 50°F (10°C) and a maximum of 85°F (35°C) and relative humidity of not more than 80 percent. The substrate material surface must be prepared in accordance with the manufacturer instructions. The cure time for the fire-resistant coatings is 72 hours.

**4.3.1 Thickness:** Minimum average required dry-film thicknesses of the intumescent coating applied directly to structural steel columns are indicated in [Figures 1](#) through [3](#). Thicknesses must be verified using a calibrated dry-film thickness gauge.

**4.3.2 Minimum Tolerance:** The thickness of the coating must be corrected by applying additional material at any location where the average measured thickness of the material is less than that indicated in this report, or where an individual measured thickness reading is less than 80 percent of the thickness specified in this report.

**4.3.3 Maximum Tolerance:** An individual measured thickness exceeding the thickness specified in this report by 20 percent or more must be recorded as the thickness specified in the design plus 20 percent. The average dry-film thickness must not exceed by more than 10 percent the maximum thickness listed for the fire-resistance-rated assemblies indicated in this report.

#### 4.4 Special Inspection:

Application of Contego HS Intumescent RFB and Contego R Intumescent RFB coatings as described in this report require special inspection as described in 2021 IBC Section 1705.16 (2018 and 2015 IBC Section 1705.15), as applicable. The special inspector must verify the cleanliness of the substrate, site conditions, product designation, application procedures, and applied material thickness.

The thickness of the coating must be determined using the methods prescribed in Technical Manual 12-B, "Standard Practice of the Testing and Inspection of Field Applied Thin-Film Intumescent Fire Resistive Materials: An Annotated Guide," published by the Association of the Wall and Ceiling Industries (AWCI). The special inspector must verify that the application complies with the manufacturer's instructions and this report.

## 5.0 CONDITIONS OF USE:

The Contego HS Intumescent RFB and Contego R Intumescent RFB coatings described in this report comply with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report and the manufacturer's published installation instructions. If there are differences between this report and the manufacturer's published installation instructions, the more restrictive governs.
- 5.2 Thickness of the intumescent coating materials must comply with Section 4.3 and [Figures 1](#) through [3](#).
- 5.3 Special inspection is required as set forth in Section 4.4.
- 5.4 The Contego HS Intumescent RFB and Contego R Intumescent RFB described in this report are permitted to be used on interior and exterior steel columns and beams, as specified in [Figures 1](#) through [3](#).
- 5.5 The Contego HS Intumescent RFB and Contego R Intumescent RFB described in this report are produced under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Reports of testing 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 June 2019 (Editorially revised March 2021).

## 7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5314) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 Additionally, containers of Contego HS Intumescent RFB and Contego R Intumescent RFB fire-resistant coatings are identified by the label bearing the manufacturer's name (Contego International Inc.) and address, the product name (Contego HS Intumescent RFB or Contego R Intumescent RFB), the date of manufacture, shelf-life, the manufacturer's instructions for application, and the ICC-ES evaluation report number (ESR-5314).

7.3 The report holder's contact information is the following:

**CONTEGO INTERNATIONAL INC.**

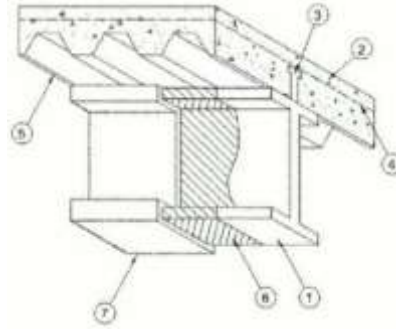
**1013 ARTHUR STREET**

**POST OFFICE BOX 49**

**ROCHESTER, INDIANA 46975**

**(800) 434-6444**

**[www.contegointernational.com](http://www.contegointernational.com)**



Where noted with an “\*\*” in the description below, the product must bear the UL Classification Mark.

For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

1. **Beam** — Min size as shown in the table below (See Item 7). Beam shall be free of dirt, loose scale, and oil.
2. **Normal Weight or Lightweight Concrete** — Compressive strength 3500 psi. For normal weight concrete either carbonate or siliceous aggregate may be used. Unit weight 145 +/- 3 lbs / cu ft for normal weight concrete and 107 +/- 3 lbs / cu ft for lightweight concrete.
3. **Shear Connectors** — (Optional) — Studs, headed type or equivalent per AISC specifications welded to the top flange of beam through the steel floor units.
4. **Welded Wire Fabric** — 6x6 SWG.
5. **Steel Floor Units** — 1-1/2, 2 or 3 in. deep fluted units, welded to beam.
6. **Primer Coating** — Beams primed with a single component alkyd primer to an approximate dry film thickness of 102 microns (4 mil).
7. **Mastic and Intumescent Coating\***— Contego HS Intumescent RFB or Contego R Intumescent RFB coating applied in accordance with manufacturer’s instruction to the minimum dry film thickness specified in the table below. Flutes above beam to be completely filled with mineral wool insulation having a nominal density of 6 lbs / ft<sup>3</sup>. Thicknesses below include the 102 microns (4 mil) of primer.

W/D	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1½-Hour	2-Hour	1-Hour	1½-Hour	2-Hour	2½-Hour
		Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil
0.52	257	76.33	211.2	NR	76.33	174.21	211.2	NR
0.53	252	76.33	211.2	NR	76.33	170.92	211.2	NR
0.54	247	76.33	211.2	NR	76.33	167.76	211.2	NR
0.55	243	76.33	211.2	NR	76.33	164.71	211.2	NR
0.56	238	76.33	211.2	NR	76.33	161.77	211.2	NR
0.57	234	76.33	211	NR	76.33	158.93	211.2	NR
0.58	230	76.33	207.36	NR	76.33	156.19	211.2	NR
0.59	226	76.33	203.85	NR	76.33	153.54	211.2	NR
0.6	223	76.33	200.45	NR	76.33	150.98	211.2	NR
0.61	219	76.33	197.17	NR	76.33	148.51	211.2	NR
0.62	215	76.33	193.99	NR	76.33	146.11	211.2	NR
0.63	212	76.33	190.91	NR	76.33	143.79	211.2	NR
0.64	209	76.33	187.92	NR	76.33	141.55	211.2	NR
0.65	205	76.33	185.03	NR	76.33	139.37	211.2	NR
0.66	202	76.33	182.23	NR	76.33	137.26	211.2	NR
0.67	199	76.33	179.51	NR	76.33	135.21	211.2	NR
0.68	196	76.33	176.87	NR	76.33	133.22	211.2	NR
0.69	193	76.33	174.31	NR	76.33	131.29	211.2	NR
0.7	191	75.28	171.82	NR	75.28	129.41	211.2	NR
0.71	188	74.22	169.4	NR	74.22	127.59	211.2	NR
0.72	185	73.18	167.04	NR	73.18	125.82	211.19	NR
0.73	183	72.18	164.75	NR	72.18	124.1	208.3	NR
0.74	180	71.21	162.53	NR	71.21	122.42	205.49	NR
0.75	178	70.26	160.36	NR	70.26	120.79	202.75	NR
0.76	176	69.33	158.25	NR	69.33	119.2	200.08	NR
0.77	173	68.43	156.2	NR	68.43	117.65	197.48	NR
0.78	171	67.56	154.19	NR	67.56	116.14	194.95	NR
0.79	169	66.70	152.24	NR	66.7	114.67	192.48	NR
0.8	167	65.87	150.34	NR	65.87	113.24	190.08	NR
0.81	165	65.05	148.48	NR	65.05	111.84	187.73	NR
0.82	163	64.26	146.67	NR	64.26	110.48	185.44	NR
0.83	161	63.49	144.90	NR	63.49	109.14	183.2	NR
0.84	159	62.73	143.18	NR	62.73	107.85	181.02	NR
0.85	157	61.99	141.50	NR	61.99	106.58	178.89	NR
0.86	155	61.27	139.85	NR	61.27	105.34	176.81	NR
0.87	153	60.57	138.24	NR	60.57	104.13	174.78	NR
0.88	152	59.88	136.67	NR	59.88	102.94	172.8	NR
0.89	150	59.21	135.14	211.07	59.21	101.79	170.85	NR
0.9	148	58.55	133.63	208.72	58.55	100.66	168.96	NR
0.91	147	57.90	132.17	206.43	57.9	99.55	167.1	NR
0.92	145	57.28	130.73	204.18	57.28	98.47	165.28	NR
0.93	144	56.66	129.32	201.99	56.66	97.41	163.51	NR

FIGURE 1— 1-, 1½-, 2- AND 2½- HOUR FIRE-RESISTANCE RATED STEEL BEAMS: RESTRAINED AND UNRESTRAINED

WD	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1½-Hour	2-Hour	1-Hour	1½-Hour	2-Hour	2½-Hour
		Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil
0.94	142	56.06	127.95	199.84	56.06	96.37	161.77	NR
0.95	141	55.47	126.60	197.74	55.47	95.36	160.06	NR
0.96	139	54.89	125.28	195.68	54.89	94.36	158.4	NR
0.97	138	54.32	123.99	193.66	54.32	93.39	156.76	NR
0.98	136	53.77	122.73	191.68	53.77	92.44	155.16	NR
0.99	135	53.23	121.49	189.75	53.23	91.51	153.6	NR
1.00	134	52.69	120.27	187.85	52.69	90.59	152.06	NR
1.01	132	52.17	119.08	185.99	52.17	89.69	150.55	NR
1.02	131	51.66	117.91	184.17	51.66	88.81	149.08	209.34
1.03	130	51.16	116.77	182.38	51.16	87.95	147.63	207.31
1.04	128	50.67	115.65	180.62	50.67	87.11	146.21	205.32
1.05	127	50.18	114.54	178.90	50.18	86.28	144.82	203.36
1.06	126	49.71	113.46	177.22	49.71	85.46	143.45	201.44
1.07	125	49.24	112.40	175.56	49.24	84.66	142.11	199.56
1.08	124	49.24	111.36	173.93	49.24	83.88	140.8	197.71
1.09	122	49.24	110.34	172.34	49.24	83.11	139.5	195.9
1.1	121	49.24	109.34	170.77	49.24	82.35	138.24	194.12
1.11	120	49.24	108.35	169.23	49.24	81.61	136.99	192.37
1.12	119	49.24	107.38	167.72	49.24	80.88	135.77	190.65
1.13	118	49.24	106.43	166.24	49.24	80.17	134.57	188.96
1.14	117	49.24	105.50	164.78	49.24	79.46	133.39	187.31
1.15	116	49.24	104.58	163.35	49.24	78.77	132.23	185.68
1.16	115	49.24	103.68	161.94	49.24	78.09	131.09	184.08
1.17	114	49.24	102.80	160.55	49.24	77.43	129.97	182.5
1.18	113	49.24	101.92	159.19	49.24	76.77	128.86	180.96
1.19	112	49.24	101.07	157.86	49.24	76.13	127.78	179.44
1.2	111	49.24	100.23	156.54	49.24	75.49	126.72	177.94
1.21	110	49.24	99.40	155.25	49.24	74.87	125.67	176.47
1.22	109	49.24	98.58	153.97	49.24	74.25	124.64	175.02
1.23	109	49.24	97.78	152.72	49.24	73.65	123.63	173.6
1.24	108	49.24	96.99	151.49	49.24	73.06	122.63	172.2
1.25	107	49.24	96.22	150.28	49.24	72.47	121.65	170.82
1.26	106	49.24	95.45	149.09	49.24	71.9	120.68	169.47
1.27	105	49.24	94.70	147.91	49.24	71.33	119.73	168.13
1.28	104	49.24	93.96	146.76	49.24	70.77	118.8	166.82
1.29	103	49.24	93.23	145.62	49.24	70.22	117.88	165.53
1.3	103	49.24	92.52	144.50	49.24	69.68	116.97	164.25
1.31	102	49.24	91.81	143.40	49.24	69.15	116.08	163
1.32	101	49.24	91.11	142.31	49.24	68.63	115.2	161.77
1.33	100	49.24	90.43	141.24	49.24	68.11	114.33	160.55
1.34	100	49.24	89.75	140.19	49.24	67.6	113.48	159.35
1.35	99	49.24	89.09	139.15	49.24	67.1	112.64	158.17
1.36	98	49.24	88.43	138.12	49.24	66.61	111.81	157.01
1.37	97	49.24	87.79	137.12	49.24	66.12	110.99	155.86
1.38	97	49.24	87.15	136.12	49.24	65.64	110.19	154.73
1.39	96	49.24	86.53	135.14	49.24	65.17	109.4	153.62
1.4	95	49.24	85.91	134.18	49.24	64.71	108.61	152.52
1.41	95	49.24	85.30	133.23	49.24	64.25	107.84	151.44
1.42	94	49.24	84.70	132.29	49.24	63.8	107.08	150.37
1.43	93	49.24	84.11	131.36	49.24	63.35	106.34	149.32
1.44	93	49.24	83.52	130.45	49.24	62.91	105.6	148.28
1.45	92	49.24	82.95	129.55	49.24	62.48	104.87	147.26
1.46	91	49.24	82.38	128.66	49.24	62.05	104.15	146.25
1.47	91	49.24	81.82	127.79	49.24	61.63	103.44	145.26
1.48	90	49.24	81.26	126.93	49.24	61.21	102.74	144.28
1.49	90	49.24	80.72	126.07	49.24	60.8	102.05	143.31
1.5	89	49.24	80.18	125.23	49.24	60.39	101.37	142.35
1.51	88	49.24	79.65	124.40	49.24	59.99	100.7	141.41
1.52	88	49.24	79.13	123.58	49.24	59.6	100.04	140.48
1.53	87	49.24	78.61	122.78	49.24	59.21	99.39	139.56
1.54	87	49.24	78.10	121.98	49.24	58.82	98.74	138.66
1.55	86	49.24	77.59	121.19	49.24	58.45	98.1	137.76
1.56	86	49.24	77.10	120.42	49.24	58.07	97.47	136.88
1.57	85	49.24	76.61	119.65	49.24	57.7	96.85	136.01
1.58	84	49.24	76.12	118.89	49.24	57.34	96.24	135.15
1.59	84	49.24	75.64	118.14	49.24	56.97	95.64	134.3
1.6	83	49.24	75.17	117.41	49.24	56.62	95.04	133.46
1.61	83	49.24	74.70	116.68	49.24	56.27	94.45	132.63
1.62	82	49.24	74.24	115.96	49.24	55.92	93.86	131.81
1.63	82	49.24	73.79	115.24	49.24	55.58	93.29	131
1.64	81	49.24	73.34	114.54	49.24	55.24	92.72	130.2
1.65	81	49.24	72.89	113.85	49.24	54.9	92.16	129.41
1.66	80	49.24	72.45	113.16	49.24	54.57	91.6	128.63
1.67	80	49.24	72.02	112.48	49.24	54.25	91.05	127.86
1.68	79	49.24	71.59	111.81	49.24	53.92	90.51	127.1
1.69	79	49.24	71.17	111.15	49.24	53.6	89.98	126.35

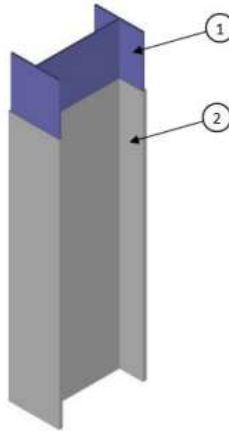
FIGURE 1— 1-, 1½-, 2- AND 2½- HOUR FIRE-RESISTANCE RATED STEEL BEAMS: RESTRAINED AND UNRESTRAINED (cont.)

W/D	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1½-Hour	2-Hour	1-Hour	1½-Hour	2-Hour	2½-Hour
		Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil	Min. Coating Thickness, mil
1.7	79	49.42	70.75	110.50	49.42	53.29	89.45	125.61
1.71	78	49.42	70.33	109.85	49.42	52.98	88.92	124.87
1.72	78	49.42	69.93	109.21	49.42	52.67	88.41	124.15
1.73	77	49.42	69.52	108.58	49.42	52.36	87.9	123.43
1.74	77	49.42	69.12	107.96	49.42	52.06	87.39	122.72
1.75	76	49.42	68.73	107.34	49.42	51.77	86.89	118.93
2.00	67	49.42	68.73	107.34	49.42	51.77	86.89	118.93
2.25	59	49.42	68.73	107.34	49.42	51.77	86.89	118.93
2.5	53	49.42	68.73	107.34	49.42	51.77	86.89	118.93
2.75	49	49.42	68.73	107.34	49.42	51.77	86.89	118.93
3.00	45	49.42	68.73	107.34	49.42	51.77	86.89	118.93
3.25	41	49.42	68.73	107.34	49.42	51.77	86.89	118.93
3.5	38	49.42	68.73	107.34	49.42	51.77	86.89	118.93
3.75	36	49.42	68.73	107.34	49.42	51.77	86.89	118.93
4.00	33	49.42	68.73	107.34	49.42	51.77	86.89	118.93

NR = No Rating

- Topcoat** — (Not Shown) — Required for Interior Conditioned Space Purpose, Interior General Purpose, and Exterior Use. Type Rustoleum K7786 Smoke Grey Top Coat applied at a minimum thickness of 127 microns (5 mil) over the intumescent material.

FIGURE 1— 1-, 1½-, 2- AND 2½- HOUR FIRE-RESISTANCE RATED STEEL BEAMS: RESTRAINED AND UNRESTRAINED (cont.)



For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

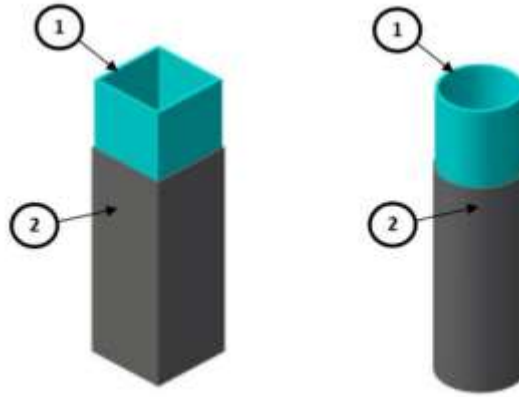
- Steel Column** — Wide flange steel columns with minimum sizes as shown in the table below. Columns shall be free of dirt, loose scale, and oil.
- Primer Coating (Not Shown)** — 2 to 4 mils thickness of Contego Rustex 710 primer applied in accordance with the manufacturer's instructions.
- Mastic and Intumescent Coatings** — Contego HS Intumescent RFB or Contego R Intumescent RFB coating applied in accordance with the manufacturer's instructions at the minimum dry thickness as shown in the table below. The thicknesses shown below include the thickness of primer.

W/D	Hp/A	Rating, Hr.		
		1-Hour	1½-Hour	2-Hour
		Min. Coating Thickness, mils	Min. Coating Thickness, mils	Min. Coating Thickness, mils
2.98	45	16	35	55
2.68	50	16	38	59
2.44	55	18	40	63
2.23	60	19	43	68
2.06	65	21	46	72
1.91	70	23	48	76
1.79	75	25	51	81
1.67	80	27	54	85
1.58	85	28	56	89
1.49	90	30	59	94

FIGURE 2 — 1-, 1½- AND 2-HOUR FIRE-RESISTANCE RATED WIDE FLANGE STEEL COLUMNS

W/D	Hp/A	Rating, Hr.		
		1-Hour	1½-Hour	2-Hour
		Min. Coating Thickness, mils	Min. Coating Thickness, mils	Min. Coating Thickness, mils
1.41	95	32	61	98
1.34	100	34	64	102
1.28	105	35	67	107
1.22	110	37	69	111
1.17	115	39	72	116
1.12	120	41	75	120
1.07	125	42	77	124
1.03	130	44	80	129
0.99	135	46	83	133
0.96	140	48	85	137
0.92	145	49	88	142
0.89	150	51	91	146
0.86	155	53	93	150
0.84	160	55	96	155
0.81	165	57	99	159
0.79	170	58	101	163
0.77	175	60	104	168
0.74	180	62	106	172
0.72	185	64	109	176
0.71	190	65	112	181
0.69	195	67	114	185
0.67	200	69	117	190
0.65	205	71	120	194
0.64	210	72	122	198
0.62	215	74	125	203
0.61	220	76	128	207
0.60	225	78	130	211
0.58	230	79	133	215
0.57	235	80	136	218
0.56	240	81	138	221
0.55	245	83	141	225
0.54	250	84	144	228
0.53	255	85	146	231
0.52	260	86	149	235
0.51	265	87	152	238
0.50	270	89	154	241
0.49	275	90	157	245
0.48	280	91	159	248
0.47	285	92	162	251
0.46	290	93	165	254
0.45	295	95	167	258
0.45	300	96	170	261
0.44	305	97	173	264
0.43	310	98	175	268
0.43	315	99	178	271
0.42	320	101	181	274
0.41	325	102	183	278
0.41	330	103	186	281
0.40	335	104	189	284
0.39	340	105	191	287
0.39	345	107	194	291
0.38	350	108	197	294
0.38	355	109	199	297
0.37	360	110	202	301
0.37	365	111	205	304
0.36	370	113	207	307
0.36	375	114	210	311
0.35	380	115	212	314
0.35	385	116	215	317
0.34	390	117	218	321
0.34	395	119	220	324
0.33	400	120	223	327
0.33	405	121	226	330
0.33	410	122	228	334
0.32	415	123	231	337
0.32	420	125	234	340
0.32	425	126	236	340
0.31	430	127	239	347
0.31	435	128	242	350
0.30	440	129	244	354
0.30	445	131	247	357
0.30	450	132	250	360
0.29	455	133	252	363
0.29	460	134	255	367
0.29	465	135	258	370

FIGURE 2 — 1-, 1½- AND 2-HOUR FIRE-RESISTANCE RATED WIDE FLANGE STEEL COLUMNS (cont.)



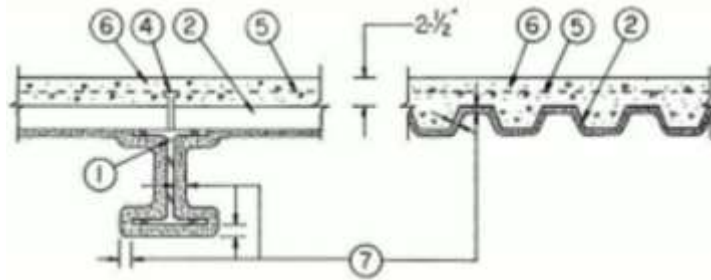
For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

1. **Steel Column** — Hollow rectangular or circular structural steel columns with minimum sizes as shown in the table below. Columns shall be free of dirt, loose scale, and oil.
2. **Primer Coating (Not Shown)** – 2 to 4 mils thickness of Contego Rustex 710 primer applied in accordance with the manufacturer’s instructions.
3. **Mastic and Intumescent Coatings** — Contego HS Intumescent RFB or Contego R Intumescent RFB coating applied in accordance with the manufacturer’s instructions at the minimum dry thickness as shown in the table below. The thicknesses shown below include the thickness of primer.

W/D	Hp/A	Rating, Hr.		
		1-Hour	1½-Hour	2-Hour
		Min. Coating Thickness, mils	Min. Coating Thickness, mils	Min. Coating Thickness, mils
2.06	65	68	97	143
1.91	70	68	101	150
1.79	75	68	106	156
1.67	80	68	110	163
1.58	85	68	115	170
1.49	90	70	120	176
1.41	95	72	124	183
1.34	100	74	129	189
1.28	105	76	133	196
1.22	110	78	138	203
1.16	115	80	143	209
1.12	120	82	147	216
1.07	125	84	152	222
1.03	130	86	156	229
0.99	135	89	161	236
0.96	140	91	166	242
0.92	145	93	170	249
0.89	150	95	175	256
0.86	155	97	179	262
0.84	160	99	184	269
0.81	165	101	189	275
0.79	170	103	193	282
0.77	175	105	198	289
0.74	180	107	202	295
0.72	185	109	207	302
0.71	190	112	212	308

FIGURE 3 — 1-, 1½- AND 2-HOUR FIRE-RESISTANCE RATED HOLLOW STRUCTURAL STEEL COLUMNS





Where noted with an “\*” in the description below, the product must bear the UL Classification Mark.

For SI Units: 1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 pound = 4.45 N

1. **Steel Beam** — Minimum steel beam size as described in Item 7. Beams shall be primed with a single component alkyd primer to an approximate dry film thickness of 152 microns (6 mil).
2. **Steel Floor and Form Units\*** — 1 1/2, 2 or 3 in. deep, min 18 MSG galv fluted units. Spacing of welds attaching units to supports shall be 12 in. OC max. Adjacent units welded together at side joints and shall not exceed 36 in. OC. Steel Floor and Form Units shall be primed with an acrylic primer to an approximate dry film thickness of 102 microns (4 mil). For 1 1/2 hr Unrestrained Assembly Rating, clear span of units limited to 6 ft, 3-3/4 in. For 2 hr Restrained Assembly Rating, 2 hr Unrestrained Assembly Rating and 2 hr Unrestrained Beam Rating, clear span of units limited to 6 ft, 3-3/4 in.
  - **INTSEL STEEL EAST LLC** — 36 in. wide Types 1.5" COMPOSITE/FLOOR, 2" COMPOSITE/FLOOR, 3" COMPOSITE/FLOOR.
  - **VULCRAFT, DIV OF NUCOR CORP** — 36 in. wide Types 1.5 VL, 1.5 VLI and 36 in. wide Types 2 VLI, 3 VLI fluted units.
3. **Joint Cover** — (Not Shown) — Nom. 2 in. wide, pressure-sensitive tape, applied following the contour of floor units when butted over beams.
4. **Shear Connector Studs** — (Optional, Not Shown) — Studs, 3/4 in. diam, by 3 in. long for 1 1/2 in. deep form units to 5 1/4 in. for 3 in. deep units, headed type or equivalent per AISC specifications. Welded to top beam flange through steel form units.
5. **Welded Wire Fabric** — 6x6-W1.4xW1.4.
6. **Normal Weight or Lightweight Concrete** — Normal weight concrete: carbonate or siliceous aggregate, 147 plus or minus 3 pcf unit weight, 3000 psi compressive strength, vibrated. Lightweight aggregate concrete: expanded shale, clay, or slate aggregate by rotary-kiln method, 109 plus or minus 3 pcf unit weight, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air. Min thickness as measured to crests of steel floor and form units, 2 1/2 in.
7. **Mastic and Intumescent Coatings\*** — Contego HS Intumescent RFB or Contego R Intumescent RFB coating applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thicknesses shown below include the primer.

Restrained Assembly Rating, Hr.	Unrestrained Assembly Rating, Hr.	Min. Dry Film Thickness on Steel Deck	
		mils	mm
1	1	100	2.54
1 1/2	1 1/2	100	2.54
2	2	100	2.54

Restrained Assembly Rating, Hr.	Unrestrained Assembly Rating, Hr.	Unrestrained Beam Rating, Hr.	Min. Dry Thickness on Beam (W8 x 28)	
			mils	mm
1	1	1	141	3.58
1 1/2	1 1/2	1 1/2	141	3.58
2	2	2	229	5.82

8. **Top Coat** — (Not Shown) — Required for Interior Conditioned Space Purpose, Interior General Purpose, and Exterior Use. Type Rustoleum K7786 Smoke Grey Top Coat applied at a minimum thickness of 127 microns (5 mil) over the intumescent material.
9. **Mineral Wool Insulation** — (Not Shown) — Min 6 pcf mineral wool insulation cut into pieces and firmly packed into, and completely filling the spaces between the flutes of the steel floor and form units and the top flange of the beam.

FIGURE 4— 1-, 1 1/2- AND 2- HOUR FIRE-RESISTANCE RATED ASSEMBLIES: RESTRAINED AND UNRESTRAINED

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 81 00—Applied Fireproofing**

**REPORT HOLDER:**

CONTEGO INTERNATIONAL INC.

**EVALUATION SUBJECT:**

CONTEGO HS INTUMESCENT RFB AND CONTEGO R INTUMESCENT RFB

## 1.0 REPORT PURPOSE AND SCOPE

**Purpose:**

The purpose of this evaluation report supplement is to indicate that the Contego HS Intumescent RFB and Contego R Intumescent RFB coatings, described in ICC-ES evaluation report [ESR-5314](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2023 *City of Los Angeles Building Code* (LABC)

## 2.0 CONCLUSIONS

The Contego HS Intumescent RFB and Contego R Intumescent RFB coatings, described in Sections 2.0 through 7.0 of the evaluation report [ESR-5314](#), comply with the LABC Sections 603.1 (Item 21), 703.2, 704 and 803, and are subject to the conditions of use described in this supplement.

## 3.0 CONDITIONS OF USE

The Contego HS Intumescent RFB and Contego R Intumescent RFB coatings described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-5314](#).
- The design, installation, conditions of use and identification of the Contego HS Intumescent RFB and Contego R Intumescent RFB coatings are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-5314](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 7, 8 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued June 2024 and revised July 2024.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 81 00—Applied Fireproofing**

**REPORT HOLDER:**

CONTEGO INTERNATIONAL INC.

**EVALUATION SUBJECT:**

CONTEGO HS INTUMESCENT RFB AND CONTEGO R INTUMESCENT RFB

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Contego HS Intumescent RFB and Contego R coatings, described in ICC-ES evaluation report ESR-5314, have also been evaluated for compliance with the code(s) noted below.

**Applicable code edition(s):**

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

**2.0 CONCLUSIONS****2.1 CBC:**

The Contego HS Intumescent RFB and Contego R Intumescent RFB coatings, described in Sections 2.0 through 7.0 of the evaluation report ESR-5314, comply with CBC Sections 603.1 (Item 21), 703.2, 704 and 803.1, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 7, 8 and 17, as applicable.

**2.1.1 OSHPD:** The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

**2.1.2 DSA:** The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

This supplement expires concurrently with the evaluation report, reissued June 2024 and revised July 2024.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 81 00—Applied Fireproofing**

**REPORT HOLDER:**

CONTEGO INTERNATIONAL INC.

**EVALUATION SUBJECT:**

CONTEGO HS INTUMESCENT RFB AND CONTEGO R INTUMESCENT RFB

**1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the Contego HS Intumescent RFB and Contego R Intumescent RFB coatings, described in ICC-ES evaluation report ESR-5314, have also been evaluated for compliance with the code noted below.

**Applicable code edition:**2023 *Florida Building Code—Building***2.0 CONCLUSIONS**

The Contego HS Intumescent RFB and Contego R Intumescent RFB coatings, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-5314, comply with the *Florida Building Code—Building*. The design requirements shall be determined in accordance with the *Florida Building Code—Building*. The installation requirements noted in ICC-ES evaluation report ESR-5314 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building*.

Use of the Contego HS Intumescent RFB and Contego R Intumescent RFB coatings for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* has not been evaluated and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued June 2024 and revised July 2024.