Contego High Solids RFB Submittal Package

The Superior Fire Protection

Contego products save lives, time and money!
We make it that easy.

Building and pioneering an environmentally safer place for all to live well and work safely through innovative, sustainable and cost-effective fire protection solutions.

CONTEGO® INTERNATIONAL, INC.

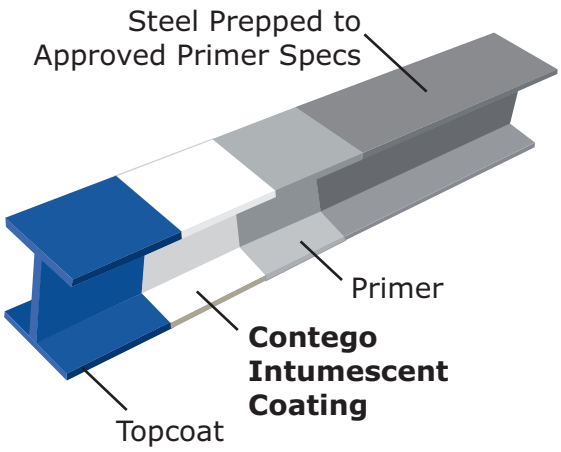
PROTECT • SHIELD • DEFEND

CONTEGO® INTERNATIONAL, INC. PROTECT • SHIELD • DEFEND

PRODUCT DATA SHEET

Contego *High Solids* RFB

Product Description: Contego HS RFB is a water-based, single component Intumescent Fire Resistive Material (IFRM) designed to protect structural steel against the effects of fire.



Contego HS RFB Product Advantages:

- Dry film thicknesses starting as low as 17.5 mils for certain 1-hour designs.
- Smooth, thin, architectural grade finish.
- LEED v4/v4.1 Compliant
- Nontoxic, ZERO VOC
- Fast drying and fast curing times.
- The longest shelf life in the industry.

Primer

- A complete listing of approved primers can be obtained at www.contegointernational.com

Application Instructions

- Airless Sprayer: 1+ gpm, 3,300 psi
  *TriTech T15, Graco Mark V or comparable
- Tip size: .025 minimum
- Hose: 3/8" I.D. - 50' optimal

*Full application instructions available at www.contegointernational.com
*Contego HS, must be protected from the elements, which include rain, snow, and high humidity during the application process and the life of the coating system. **ALL EXTERIOR PROJECTS REQUIRE CONTEGO APPROVAL PRIOR TO APPLICATION.**

Top Coats

- A finish coat in the desired color and sheen may be applied directly over Contego HS when installed in accordance with the requirements outlined in the Approved Topcoats Data Sheet.

Technical Data:

Net Packaging	57.5 lbs / 26.0 kg (+/- 1%)
Chemical basis	Water-based polymer dispersion
Consistency	Sprayable liquid
Color	White
Surface burning characteristics Class A (ASTM E-84)	Flame Spread 0 Smoke Development 15
Specific Gravity	1.35 +/- 0.05
pH Range	8.5 - 8.8
Weight/Gal	11.5 +/- 0.3 lbs (5.2 Kgs)*
Hazardous Ingredients	N/A
Volume Solids	72.0%
Flammability	Not Flammable
VOC. (less Water)	8 g/L
Storage Temperature	45 º F - 100º F (7 º C - 38º C) In a dry interior location away from direct sunlight.

Fire Test Performance

Tested for up to 3 hours Fire Resistance Ratings

- ANSI/UL 263
- CAN/ULC-S101
- ASTM E-119

UL Listing

- BXUV D603 – Steel Decking
- BXUV N644 – Wide Flange Beams

Intertek Listing

- CII/IF 120-01 - HSS Columns
- CII/IF 120-02 - Wide Flange Columns
- CII/IF 180-01 - Wide Flange Beams
- CII/IF 60-02 - Wide Flange Beams

Code Compliances

- IBC
- ICC-ES Certification #5314
- Florida Building Code (FBC, FRC)
- California Building Code (CBC, CRC, CFC)
- Los Angeles Building Code (LABC, LARC, LAFC)
- City of Los Angeles

Physical Performance

Characteristic	ASTM Method	Laboratory Tested Performance
Abrasion Resistance	D4060	Max: 0.225g/1000 cycles
Bond Strength	D4541	Minimum: 631 psi
Durometer Hardness (Shore D)	D2240	66 - 70 Shore D
Impact Resistance	D2794	151 inch-lbs.

CLASSIFIED cULus US
MASTIC AND INTUMESCENT COATING
FIRE RESISTANCE CLASSIFICATION
SEE UL FIRE RESISTANCE DIRECTORY
R38255

ICC ES

c ETL LISTED US Intertek

Contego *High Solids* RFB Specifications

- MasterSpec®, Section 078123 Applied Fireproofing (AIA)
- RIB SpecLink, Section 078123 Applied Fireproofing

SECTION 078123 - Intumescent Fireproofing
The following is an outline of our specification document. The complete specifications for intumescent fire resistive materials are available on website or 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**
SECTION 053100 – STEEL DECKING
SECTION 072100 – THERMAL INSULATION
SECTION 078123 – INTUMESCENT FIREPROOFING
1.4 **References**
1.4.1 Intertek or (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: 0 Smoke Developed Maximum: 15.
C. ASTM D3960 Results of Volatile Organic Compound Content - VOC content: 0.07 lbs/gal 8g/L
C. ASTM D2240 – Durometer Hardness (Shore D). Minimum: 66 - 70 Shore D.
D. ASTM D2794 – Direct impact resistance of 151 in-lbs.
E. ASTM D4060 – Abrasion Resistance. Maximum: 0.255g/1000 cycles
F. ASTM D4541 – Bond Strength. Minimum: 631 psi
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 /ASTM 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).

PART 1 - GENERAL Continued

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 temperature between 45º F - 100º F (7º C - 38º 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 50º F (10º C), a minimum substrate and ambient temperature of 50º F (10º 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 Contego HS® Intumescent RFB as supplied by Contego International Inc.
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. Contego HS® Intumescent RFB.

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 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 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.

CONTEGO® INTERNATIONAL, INC.

PROTECT • SHIELD • DEFEND

www.ContegoInternational.com
Contego International, Inc.
PO Box 49
Rochester, IN 46975
800-434-6444 Toll Free

Find us in MasterSpec® Powered by Deltek Specpoint® | RIB SpecLink

SAFETY DATA SHEET

Issuing Date 4-Aug-2016 **Revision Date** 11-May-2021 **Revision Number** 1

1. IDENTIFICATION

GHS product identifier

Product Name **Contego HS Intumescent Fire Barrier Latex (High Solids Version)**

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Fire barrier paint

Uses advised against No information available

Supplier's details

Supplier Address
Contego International, Inc.
P.O. Box 49
1013 Arthur Street
Rochester, IN 46975
TEL: 1-317-580-0655

Emergency telephone number

Emergency Telephone Number 1-800-434-6444

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

Not classified

GHS Label elements, including precautionary statements

Emergency Overview

Signal Word **None**

The product contains no substances which at their given concentration are considered to be hazardous to health

Appearance White. **Physical State** Liquid. **Odor** Mild.

2. HAZARDS IDENTIFICATION - Continued

Precautionary Statements

Prevention
• None

General Advice
• None

Storage
• None

Disposal
• None

Hazard Not Otherwise Classified (HNOC)

Not applicable.

Other information

If product is removed by sanding or grinding may produce dust particulates.

<50% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Proprietary Formulation

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact	Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Get medical attention if symptoms occur.
Skin Contact	Wash skin with soap and water. Remove and wash contaminated clothing before re-use. If skin irritation occurs: Get medical advice/ attention.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Ingestion	Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician if necessary.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects No information available.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media None

Specific Hazards Arising from the Chemical

None known

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with the skin and the eyes. Use personal protective equipment as required.

Environmental Precautions

Environmental Precautions See Section 12 for additional Ecological Information.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Use personal protective equipment as required. Do not take internally. Wash thoroughly after handling. Avoid sanding and grinding surfaces containing dried paint film.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed.

Incompatible Products Strong acids. Strong oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3	TWA: 15 mg/m^3 total dust (vacated) TWA: 10 mg/m^3 total dust	IDLH: 5000 mg/m^3
Pentaerythritol 115-77-5	TWA: 10 mg/m^3	TWA: 15 mg/m^3 total dust TWA: 5 mg/m^3 respirable fraction (vacated) TWA: 10 mg/m^3 total dust (vacated) TWA: 5 mg/m^3 respirable fraction	TWA: 10 mg/m^3 total dust TWA: 5 mg/m^3 respirable dust
Glass, oxide 65997-17-3	TWA: 1 fiber/cm3 respirable fibers: length >5 µm, aspect ratio >=3:1, as determined by the membrane filter method at 400-450X magnification [4-mm objective], using phase-contrast illumination TWA: 5 mg/m^3 inhalable fraction	-	
Aluminum hydroxide 21645-51-2	TWA: 1 mg/m^3 respirable fraction	-	

Chemical name	Alberta	British Columbia	Ontario TWAEV	Quebec
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3	TWA: 10 mg/m^3 TWA: 3 mg/m^3	TWA: 10 mg/m^3	TWA: 10 mg/m^3
Pentaerythritol 115-77-5	TWA: 10 mg/m^3	TWA: 10 mg/m^3 TWA: 3 mg/m^3	TWA: 10 mg/m^3	TWA: 10 mg/m^3
Glass, oxide 65997-17-3	TWA: 5 mg/m^3 TWA: 1 fibre/cm3	TWA: 1 fibre/cm3 TWA: 5 mg/m^3	TWA: 1 fibre/cm3 TWA: 5 mg/m^3	TWA: 1 fibre/cm3
Aluminum hydroxide 21645-51-2		TWA: 1.0 mg/m^3	TWA: 1 mg/m^3	
Propylene Glycol 57-55-6			TWA: 10 mg/m^3 TWA: 50 ppm TWA: 155 mg/m^3	

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection At minimum, wear safety glasses with side shields. Goggles are preferred, especially with spray applications

Skin and Body Protection Wear latex, vinyl, or nitrile gloves and a long sleeved work or jump suit such as Tyvek or similar.

Respiratory Protection A dust mask is recommended to protect against exposure to airborne particulates or mists. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid.	**Appearance**	White.
Odor	Mild.	**Odor Threshold**	No information available.

Property	Values	Remarks / Method
pH	8.0 - 8.5	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100 °C / 212 °F	None known
Flash Point	Not flammable.	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	No data available	
lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	1.3 – 1.5	No units, but stated at a given temperature
Water Solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	> 15,000 cTs	None known

Flammable Properties	Not flammable
Explosive Properties	No data available
Oxidizing Properties	No data available

Other information

VOC Content (%)	Negligible
VOC (g/l)	0.01

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Incompatible products.

10. STABILITY AND REACTIVITY - Continued

Incompatible materials

Strong acids. Strong oxidizing agents.

Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation No known hazard by inhalation.
Eye Contact Contact with eyes may cause irritation.
Skin Contact No known hazard in contact with skin.
Ingestion No known hazard by swallowing.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium dioxide	> 10000 mg/kg (Rat)	-	= 5.09 mg/L (Rat) 4 h
Pentaerythritol	= 19500 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	> 5.15 mg/L (Rat) 4 h
Melamine triamino-s-triazine	= 3161 mg/kg (Rat)	> 1 g/kg (Rabbit)	-
Aluminum hydroxide	> 5000 mg/kg (Rat)	-	-
Propylene Glycol	= 20 g/kg (Rat)	= 20800 mg/kg (Rabbit)	-
2,2,4-Trimethylpentane-1,3-diol monoisobutyrate	= 3200 mg/kg (Rat)	> 15200 mg/kg (Rat)	> 3.55 mg/L (Rat) 6 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization Not expected to be a sensitizer.
Mutagenic Effects No information available.
Carcinogenicity This product contains titanium dioxide in a non-respirable form. Inhalation of titanium dioxide is unlikely to occur from exposure to this product. However, this product may become a dust nuisance when removed by abrasive blasting, sanding, or grinding.

Chemical name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7	-	Group 2B	-	X
Melamine triamino-s-triazine 108-78-1	-	Group 2B	-	X
Glass, oxide 65997-17-3	-	Group 3	-	-

Legend

IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable as to Carcinogenicity in Humans
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

11. TOXICOLOGICAL INFORMATION - Continued

Reproductive Toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration Hazard No information available.

Numerical measures of toxicity - Product

Acute Toxicity <50% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document:

LD50 Oral 4425 mg/kg; Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Pentaerythritol	No data available	96h LC50: > 100 mg/L (Oryzias latipes)	No data available	48h EC50: 30477 - 37043 mg/L (Daphnia magna)
Melamine triamino-s-triazine	96h EC50: = 940 mg/L (Scenedesmus pannonicus)	96h LC50: > 3000 mg/L (Poecilia reticulata)	EC50 > 10000 mg/L 30 min	48h EC50: > 2000 mg/L (Daphnia magna)
Propylene Glycol	96h EC50: = 19000 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 41 - 47 mL/L (Oncorhynchus mykiss) 96h LC50: = 51400 mg/L (Pimephales promelas) 96h LC50: = 51600 mg/L (Oncorhynchus mykiss) 96h LC50: = 710 mg/L (Pimephales promelas)	-	48h EC50: > 1000 mg/L (Daphnia magna)
2,2,4-Trimethylpentane-1,3-diol monoisobutyrate	72h EC50: = 18.4 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 30 mg/L (Pimephales promelas)	No data available	No data available

Persistence and Degradability No information available.

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Melamine triamino-s-triazine	1.14
2,2,4-Trimethylpentane-1,3-diol monoisobutyrate	3.47

Other Adverse Effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging Do not re-use empty containers.

California Waste Codes 331

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA All ingredients are on the inventory or exempt from reporting.
DSL Not determined

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

15. REGULATORY INFORMATION - Continued

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Titanium dioxide	13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Titanium dioxide 13463-67-7	X	X	X		
Pentaerythritol 115-77-5	X	X	X		
Melamine triamino-s-triazine 108-78-1	X	X	X		
Propylene Glycol 57-55-6	X		X		

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard**	1	**Flammability**	0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard**	1	**Flammability**	0	**Physical Hazard** 0	**Personal Protection** X

Revision Date 11-May 2021
Revision Note First revision.

16. OTHER INFORMATION - Continued

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

PREPARED BY:	Comprehensive Safety Compliance, Inc. (CSC) Occupational Health and Safety Consultant (412) 826-5480	**VERSION NO.**: 1	**APPROVAL DATE**: 5/11/21
MFR. CONTACT:	Contego International, Inc. P.O. Box 49 1013 Arthur Street Rochester, IN 46975 TEL: 1-317-580-0655	**SUPERSEDES SDS DATED**: N/A	

End of Safety Data Sheet

LEED v4 / v4.1 Low-Emitting Materials Compliance Letter

Product: Contego High Solids RFB IFRM

Contego International Inc. confirms that the above-referenced product has been evaluated for volatile organic compound (VOC) emissions in accordance with the California Department of Public Health (CDPH) Standard Method Version 1.2. Testing was conducted by Intertek using environmental chamber emissions testing. Based on the modeled emissions results, Contego High Solids Intumescent complies with the requirements of LEED v4 and LEED v4.1 – Low-Emitting Materials for paints and coatings.

Summary of Emissions Testing Results:

- Test Method: CDPH Standard Method v1.2
- Modeled Exposure Scenarios: Private Office and School Classroom
- Modeled TVOC Concentrations:
  - Private Office: 0.1 mg/m³
  - School Classroom: < 0.1 mg/m³
- LEED v4 / v4.1 Allowable TVOC Limit: £ 0.5 mg/m³
- Result: PASS for all modeled scenarios

Supplemental Environmental Data:

Volatile Organic Compound (VOC) content testing conducted in accordance with ASTM D3960 indicates a VOC content of 0.07 lb/gal (8 g/L). This information is provided as supplemental supporting data and is not a substitute for emissions testing. This product may be used to support compliance with LEED v4 and LEED v4.1 EQ Credit: Low-Emitting Materials when incorporated into a project's overall materials calculations. LEED credits are awarded at the project level.

Full third-party test reports are available upon request. Please email: info@contegointernational.com

Contego International Inc.
Technical Services & Sustainability Support

CERTIFICATE OF COMPLIANCE

Certificate Number	20170331-R38255
Report Reference	R38255-20170328
Issue Date	2017-MARCH-31
Issued to:	CONTEGO INTERNATIONAL INC PO BOX 49 ROCHESTER IN 46975-0049
This is to certify that representative samples of	MASTIC AND INTUMESCENT COATINGS Thin film intumescent coating, designated Type Contego HS or Type CON-RFB HS. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 263, Fire Tests of Building Construction and Materials ULC S101-14, Standard Methods of Fire Endurance Tests of Building Constructions and Materials
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Contego International, Inc.
Design No. CII/IF 180-01
Unrestrained Beam
High Solids (HS) Reactive Fire Barrier (RFB) Intumescent
ASTM E119/UL 263
CAN/ULC-S101
Restricted Load: Maximum 75% of Design Load
Assembly Rating: Unrestrained, See Table CII/IF 180-01

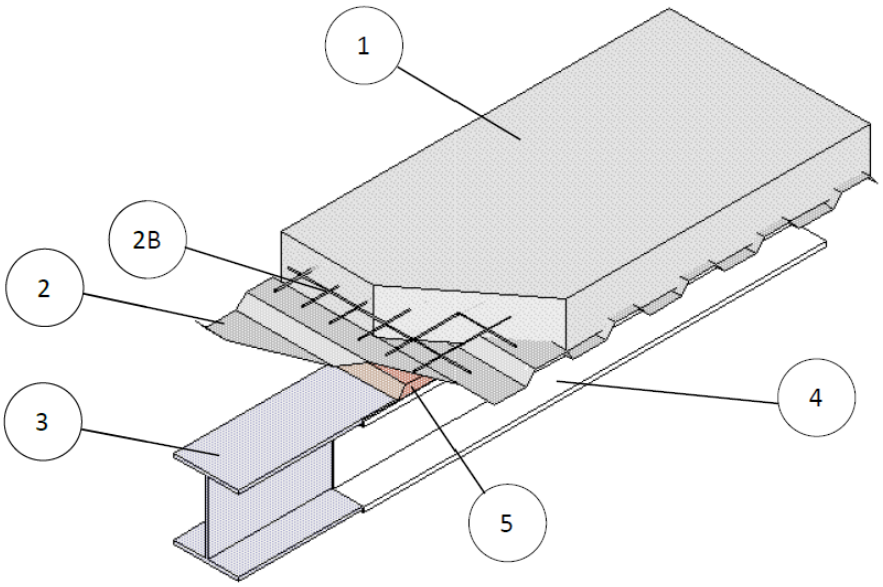


Figure 1. Beam Assembly

1. **FLOOR/CEILING ASSEMBLY:** Use a fire-rated floor/ceiling assembly consisting of normal weight or lightweight (min. 105 pcf, 3000 psi) reinforced concrete. Thickness of concrete floor/ceiling assembly must comply with designated fire resistive rating. The concrete thickness shall not be less than 2.5 in. thick as measured from the upper most surface of the fluted steel floor units.

2. **FLUTED STEEL FLOOR UNITS:** Corrugated steel decking, min. 1-1/2 in. deep (38 mm), min. 20 GA.

A. SHEAR CONNECTORS – (Not Shown) Install shear connectors sized appropriately for assembly, min. 3/4 in. diameter x min. 3.5 in. long, through the steel deck and welded to the top flange of each beam.

B. WELDED WIRE MESH – Install min. 6x6-W1.4xW1.4, 10 GA wire mesh, welded to the top of the shear connectors. Location of the welded wire mesh is at mid-height between the top of the steel deck flutes and the top of the concrete floor/ceiling assembly.

3. **STRUCTRUAL STEEL BEAM**: Use solid steel wide-flange beam, sized in accordance with the Table CII/IF 180-01.

4. **FIRE RESISTIVE COATING:**

   CERTIFIED PRODUCT: Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent

   APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Spray-apply Contego RUSTEX 710 primer (not shown) at a 2-4 mil dry film thickness. Spray-apply Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent fire resistive coating onto primed steel to the required final thicknesses as specified in Table CII/IF 180-01 and per the manufacturer's instructions.

5. **INSULATION:** Use non-combustible mineral wool, refractory ceramic fiber, or alkaline earth silicate, high-temperature fiber insulation to completely fill the voids created between the fluted steel floor units and the structural steel beam. Use min. 4 pcf density insulation, determined to be non-combustible in accordance with one of the following standards:

   - ASTM E136
   - CAN/ULC-S114
   - EN ISO 1182

Table CII/IF 180-01.

**Thicknesses in tables below do not include the primer dry film thickness.*
Note: Beam section factors are based on three-sided exposure.

Hp/A (max)	W/D (min)	Thickness*		Unrestrained Rating
1/m	lb./in./ft.	mil	mm	min.
171	0.78	17.5	0.44	60

Hp/A (max)	W/D (min)	Thickness*		Unrestrained Rating
1/m	lb./in./ft.	mil	mm	min.
198	0.68	40.0	1.02	60
198	0.68	80.0	2.03	120

Hp/A (max)	W/D (min)	Thickness*		Unrestrained Rating
1/m	lb./in./ft.	mil	mm	min.
266	0.50	130.3	3.31	120
266	0.50	165.0	4.19	180

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Contego International, Inc.
Design No. CII/IF 60-03
Unrestrained Beam
High Solids (HS) Reactive Fire Barrier (RFB) Intumescent
ASTM E119/UL 263
CAN/ULC-S101
Load Rating: 100% of Design Load
Assembly Rating: Unrestrained, See Table CII/IF 60-03

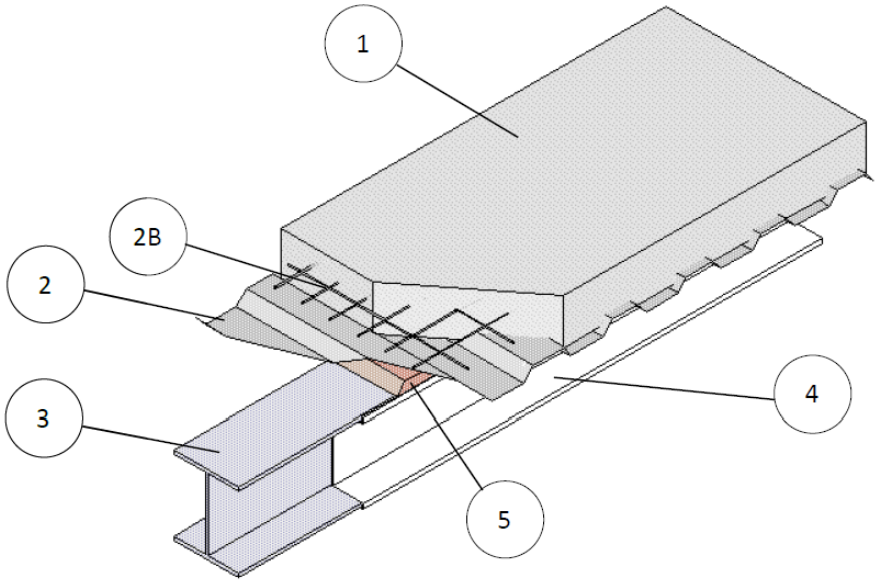


Figure 1. Beam Assembly

1. **FLOOR/CEILING ASSEMBLY:** Use a fire-rated floor/ceiling assembly consisting of normal weight or lightweight (min. 105 pcf, 3000 psi) reinforced concrete. Thickness of concrete floor/ceiling assembly must comply with designated fire resistive rating. The concrete thickness shall not be less than 2.5 in. thick as measured from the upper most surface of the fluted steel floor units.

2. **FLUTED STEEL FLOOR UNITS:** Corrugated steel decking, min. 1-1/2 in. deep (38 mm), min. 20 GA.

A. SHEAR CONNECTORS – (Not Shown) Install shear connectors sized appropriately for assembly, min. 3/4 in. diameter x min. 3.5 in. long, through the steel deck and welded to the top flange of each beam.

B. WELDED WIRE MESH – Install min. 6x6-W1.4xW1.4, 10 GA wire mesh, welded to the top of the shear connectors. Location of the welded wire mesh is at mid-height between the top of the steel deck flutes and the top of the concrete floor/ceiling assembly.

3. **STRUCTRUAL STEEL BEAM**: Use solid steel wide-flange beam, sized in accordance with the Table CII/IF 60-03.

4. **FIRE RESISTIVE COATING:**

   CERTIFIED PRODUCT: Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent

   APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Spray-apply Contego RUSTEX 710 primer (not shown) at a 2-4 mil dry film thickness. Spray-apply Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent fire resistive coating onto primed steel to the required final thicknesses as specified in Table CII/IF 60-03 and per the manufacturer's instructions.

5. **INSULATION:** Use non-combustible mineral wool, refractory ceramic fiber, or alkaline earth silicate, high-temperature fiber insulation to completely fill the voids created between the fluted steel floor units and the structural steel beam. Use min. 4 pcf density insulation, determined to be non-combustible in accordance with one of the following standards:

   - ASTM E136
   - CAN/ULC-S114
   - EN ISO 1182

Table CII/IF 60-03.

**Thicknesses in tables below do not include the primer dry film thickness.*
Note: Beam section factors are based on three-sided exposure.

Hp/A (max)	W/D (min)	Thickness*		Unrestrained Rating
1/m	lb./in./ft.	mil	mm	min.
171	0.78	37.0	0.94	60

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Contego International, Inc.
Design No. CII/IF 60-02
Unrestrained and Restrained Beam
High Solids (HS) Reactive Fire Barrier (RFB) Intumescent
ASTM E119/UL 263
CAN/ULC-S101
Assembly Rating: See Table CII/IF 60-02

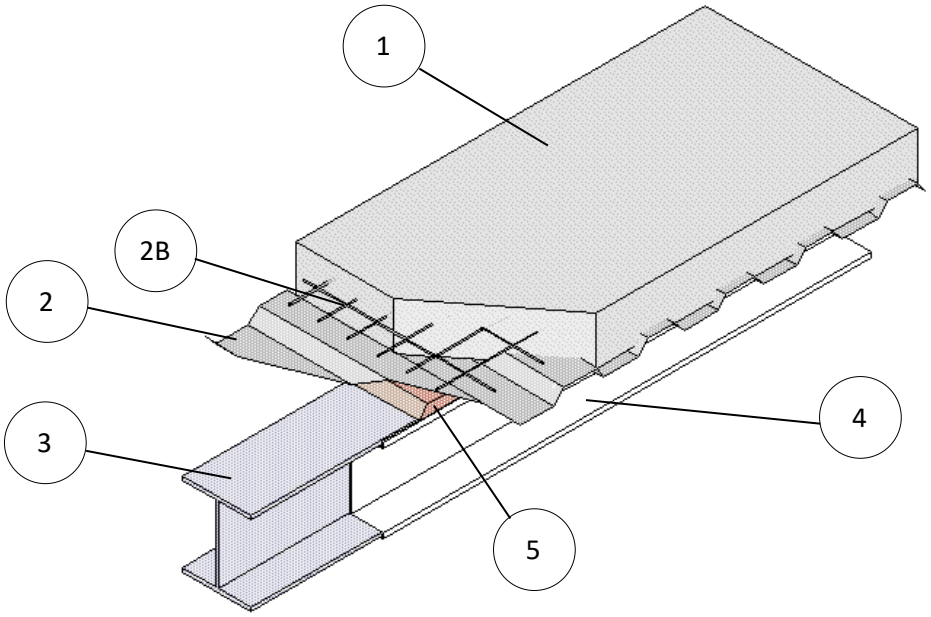


Figure 1. Beam Assembly

1. **FLOOR/CEILING ASSEMBLY:** Use a fire-rated floor/ceiling assembly consisting of normal weight or lightweight (min. 105 pcf, 3000 psi) reinforced concrete. Thickness of concrete floor/ceiling assembly must comply with designated fire resistive rating. The concrete thickness shall not be less than 2.5 in. thick as measured from the upper most surface of the fluted steel floor units.

2. **FLUTED STEEL FLOOR UNITS:** Corrugated steel decking, min. 1-1/2 in. deep (38 mm), min. 20 GA.

A. SHEAR CONNECTORS – (Not Shown) Install shear connectors sized appropriately for assembly, min. 3/4 in. diameter x min. 3.5 in. long, through the steel deck and welded to the top flange of each beam.

B. WELDED WIRE MESH – Install min. 6x6-W1.4xW1.4, 10 GA wire mesh, welded to the top of the shear connectors. Location of the welded wire mesh is at mid-height between the top of the steel deck flutes and the top of the concrete floor/ceiling assembly.

3. **STRUCTRUAL STEEL BEAM**: Use solid steel wide-flange beam, sized in accordance with the Table CII/IF 60-02.

4. **FIRE RESISTIVE COATING:**

   CERTIFIED PRODUCT: Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent.

   APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Spray-apply Contego RUSTEX 710 primer (not shown) at a 2-4 mil dry film thickness. Spray-apply Contego High Solids (HS) Reactive Fire Barrier (RFB) Intumescent fire resistive coating onto primed steel to the required final thicknesses as specified in Table CII/IF 60-02 and per the manufacturer's instructions.

5. **INSULATION:** Use non-combustible mineral wool, refractory ceramic fiber, or alkaline earth silicate, high-temperature fiber insulation to completely fill the voids created between the fluted steel floor units and the structural steel beam. Use min. 4 pcf density insulation, determined to be non-combustible in accordance with one of the following standards:

   - ASTM E136
   - CAN/ULC-S114
   - EN ISO 1182.

Table CII/IF 60-02.

**Thicknesses in tables below do not include the primer dry film thickness.*

Hp/A (max)	W/D (min)	Thickness*		Unrestrained and Restrained Rating
1/m	lb./in./ft.	mil	mm	min.
198	0.68	49.7	1.26	60

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

Contego International, Inc.
Design No. CII/IF 120-01
Column
High Solids (HS) Reactive Fire Barrier (RFB) Intumescent
ASTM E119/UL263/CAN-ULC-S101
Assembly Rating: See Table CII/IF 120-01

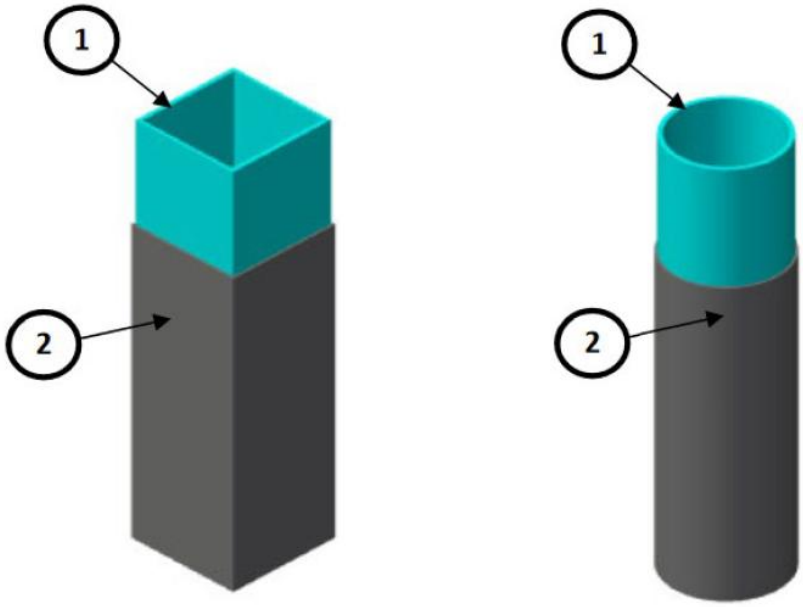


Figure 1

1. **HOLLOW RECTANGULAR OR CIRCULAR STRUCTURAL STEEL COLUMN:** Use hollow steel sections, rectangular or circular shape, having nominal Hp/A or W/D section factors based on four-sided exposure.

2. **FIRE RESISTIVE COATING**: Refer to Table CII/IF 120-01 for specific application thickness.

   CERTIFIED MANUFACTURER: Contego International, Inc.

   CERTIFIED PRODUCT: Fire Resistive Coating

CERTIFIED MODEL: High Solids (HS) Reactive Fire Barrier (RFB) Intumescent

APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Apply 2-4 mils wet film thickness of Contego Rustex 710 primer (not shown) per the manufacturer's instructions. Apply High Solids (HS) Reactive Fire Barrier (RFB) Intumescent to primed steel to the required final dry coating thicknesses per the manufacturer's instructions.

Table CII/IF 120-01
Dry Coating Thickness and Fire Resistance Time in Minutes

Hp/A	W/D	A/P	60 min		90 min		120 min	
1/m	lb./ft./in.	$in.^2/in.$	mm	in.	mm	in.	mm	in.
65	2.06	0.606	1.73	0.068	2.46	0.097	3.63	0.143
70	1.91	0.563	1.73	0.068	2.57	0.101	3.81	0.15
75	1.79	0.525	1.73	0.068	2.69	0.106	3.96	0.156
80	1.67	0.492	1.73	0.068	2.79	0.11	4.14	0.163
85	1.58	0.463	1.73	0.068	2.92	0.115	4.32	0.17
90	1.49	0.438	1.78	0.07	3.05	0.12	4.47	0.176
95	1.41	0.414	1.83	0.072	3.15	0.124	4.65	0.183
100	1.34	0.394	1.88	0.074	3.28	0.129	4.80	0.189
105	1.28	0.375	1.93	0.076	3.38	0.133	4.98	0.196
110	1.22	0.358	1.98	0.078	3.51	0.138	5.16	0.203
115	1.16	0.342	2.03	0.08	3.63	0.143	5.31	0.209
120	1.12	0.328	2.08	0.082	3.73	0.147	5.49	0.216
125	1.07	0.315	2.13	0.084	3.86	0.152	5.64	0.222
130	1.03	0.303	2.18	0.086	3.96	0.156	5.82	0.229
135	0.99	0.292	2.26	0.089	4.09	0.161	5.99	0.236
140	0.96	0.281	2.31	0.091	4.22	0.166	6.15	0.242
145	0.92	0.272	2.36	0.093	4.32	0.17	6.32	0.249
150	0.89	0.263	2.41	0.095	4.45	0.175	6.50	0.256
155	0.86	0.254	2.46	0.097	4.55	0.179	6.65	0.262
160	0.84	0.246	2.51	0.099	4.67	0.184	6.83	0.269
165	0.81	0.239	2.57	0.101	4.80	0.189	6.99	0.275
170	0.79	0.232	2.62	0.103	4.90	0.193	7.16	0.282
175	0.77	0.225	2.67	0.105	5.03	0.198	7.34	0.289
180	0.74	0.219	2.72	0.107	5.13	0.202	7.49	0.295
185	0.72	0.213	2.77	0.109	5.26	0.207	7.67	0.302
190	0.71	0.207	2.84	0.112	5.38	0.212	7.82	0.308

Contego International, Inc.
Design No. CII/IF 120-02
Column
High Solids (HS) Reactive Fire Barrier (RFB) Intumescent
ASTM E119/UL263/CAN-ULC-S101
Assembly Rating: See Table CII/IF 120-02

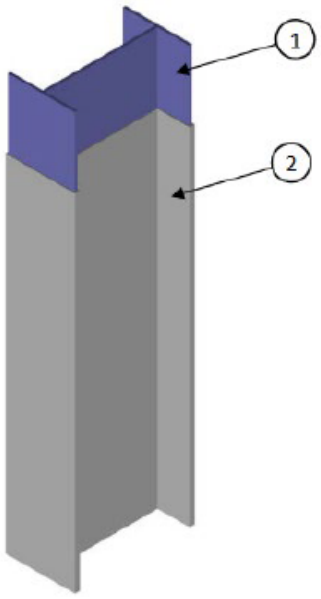


Figure 1

1. **SOLID STRUCTURAL STEEL COLUMN:** Use solid steel sections, I-shape or W-shape, having nominal Hp/A or W/D section factors based on four-sided exposure. Refer to Table CII/IF 120-02 for specific Hp/A or W/D section factors.

2. **FIRE RESISTIVE COATING**: Refer to Table CII/IF 120-02 for specific application thickness.

   CERTIFIED MANUFACTURER: Contego International, Inc.

   CERTIFIED PRODUCT: Fire Resistive Coating

CERTIFIED MODEL: High Solids (HS) Reactive Fire Barrier (RFB) Intumescent

APPLICATION: Blast and clean structural steel per the manufacturer's instructions. Apply 2-4 mils wet film thickness of Contego Rustex 710 primer (not shown) per the manufacturer's instructions. Apply High Solids (HS) Reactive Fire Barrier (RFB) Intumescent to primed steel to the required final dry coating thicknesses per the manufacturer's instructions.

Table CII/IF 120-02
Dry Coating Thickness and Fire Resistance Time in Minutes

Hp/A	W/D	60 min		90 min		120 min	
1/m	lb./in./ft.	mm	mils	mm	mils	mm	mils
45	2.98	0.41	16	0.89	35	1.39	55
50	2.68	0.41	16	0.96	38	1.50	59
55	2.44	0.45	18	1.02	40	1.61	63
60	2.23	0.50	19	1.09	43	1.72	68
65	2.06	0.54	21	1.16	46	1.83	72
70	1.91	0.58	23	1.22	48	1.94	76
75	1.79	0.63	25	1.29	51	2.05	81
80	1.67	0.67	27	1.36	54	2.16	85
85	1.58	0.72	28	1.43	56	2.27	89
90	1.49	0.76	30	1.49	59	2.38	94
95	1.41	0.81	32	1.56	61	2.49	98
100	1.34	0.85	34	1.63	64	2.60	102
105	1.28	0.90	35	1.70	67	2.71	107
110	1.22	0.94	37	1.76	69	2.82	111
115	1.17	0.99	39	1.83	72	2.93	116
120	1.12	1.03	41	1.90	75	3.04	120
125	1.07	1.08	42	1.96	77	3.16	124
130	1.03	1.12	44	2.03	80	3.27	129
135	0.99	1.17	46	2.10	83	3.38	133
140	0.96	1.21	48	2.17	85	3.49	137
145	0.92	1.26	49	2.23	88	3.60	142
150	0.89	1.30	51	2.30	91	3.71	146
155	0.86	1.35	53	2.37	93	3.82	150
160	0.84	1.39	55	2.44	96	3.93	155
165	0.81	1.44	57	2.50	99	4.04	159
170	0.79	1.48	58	2.57	101	4.15	163
175	0.77	1.53	60	2.64	104	4.26	168
180	0.74	1.57	62	2.70	106	4.37	172
185	0.72	1.62	64	2.77	109	4.48	176

Hp/A	W/D	60 min		90 min		120 min	
1/m	lb./in./ft.	mm	mils	mm	mils	mm	mils
190	0.71	1.66	65	2.84	112	4.59	181
195	0.69	1.71	67	2.91	114	4.70	185
200	0.67	1.75	69	2.97	117	4.81	190
205	0.65	1.79	71	3.04	120	4.92	194
210	0.64	1.84	72	3.11	122	5.04	198
215	0.62	1.88	74	3.18	125	5.15	203
220	0.61	1.93	76	3.24	128	5.26	207
225	0.60	1.97	78	3.31	130	5.37	211
230	0.58	2.01	79	3.38	133	5.46	215
235	0.57	2.04	80	3.45	136	5.54	218
240	0.56	2.07	81	3.51	138	5.62	221
245	0.55	2.10	83	3.58	141	5.71	225
250	0.54	2.13	84	3.65	144	5.79	228
255	0.53	2.16	85	3.71	146	5.88	231
260	0.52	2.19	86	3.78	149	5.96	235
265	0.51	2.22	87	3.85	152	6.04	238
270	0.50	2.25	89	3.92	154	6.13	241
275	0.49	2.28	90	3.98	157	6.21	245
280	0.48	2.31	91	4.05	159	6.29	248
285	0.47	2.34	92	4.12	162	6.38	251
290	0.46	2.37	93	4.19	165	6.46	254
295	0.45	2.40	95	4.25	167	6.55	258
300	0.45	2.43	96	4.32	170	6.63	261
305	0.44	2.46	97	4.39	173	6.71	264
310	0.43	2.50	98	4.45	175	6.80	268
315	0.43	2.53	99	4.52	178	6.88	271
320	0.42	2.56	101	4.59	181	6.97	274
325	0.41	2.59	102	4.66	183	7.05	278
330	0.41	2.62	103	4.72	186	7.13	281
335	0.40	2.65	104	4.79	189	7.22	284
340	0.39	2.68	105	4.86	191	7.30	287

Hp/A	W/D	60 min		90 min		120 min	
1/m	lb./in./ft.	mm	mils	mm	mils	mm	mils
345	0.39	2.71	107	4.93	194	7.39	291
350	0.38	2.74	108	4.99	197	7.47	294
355	0.38	2.77	109	5.06	199	7.55	297
360	0.37	2.80	110	5.13	202	7.64	301
365	0.37	2.83	111	5.19	205	7.72	304
370	0.36	2.86	113	5.26	207	7.81	307
375	0.36	2.89	114	5.33	210	7.89	311
380	0.35	2.92	115	5.40	212	7.97	314
385	0.35	2.95	116	5.46	215	8.06	317
390	0.34	2.98	117	5.53	218	8.14	321
395	0.34	3.01	119	5.60	220	8.23	324
400	0.33	3.04	120	5.67	223	8.31	327
405	0.33	3.08	121	5.73	226	8.39	330
410	0.33	3.11	122	5.80	228	8.48	334
415	0.32	3.14	123	5.87	231	8.56	337
420	0.32	3.17	125	5.94	234	8.65	340
425	0.32	3.20	126	6.00	236	8.73	344
430	0.31	3.23	127	6.07	239	8.81	347
435	0.31	3.26	128	6.14	242	8.90	350
440	0.30	3.29	129	6.20	244	8.98	354
445	0.30	3.32	131	6.27	247	9.07	357
450	0.30	3.35	132	6.34	250	9.15	360
455	0.29	3.38	133	6.41	252	9.23	363
460	0.29	3.41	134	6.47	255	9.32	367
465	0.29	3.44	135	6.54	258	9.40	370

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

UL Product iQ®

BXUV.D603 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

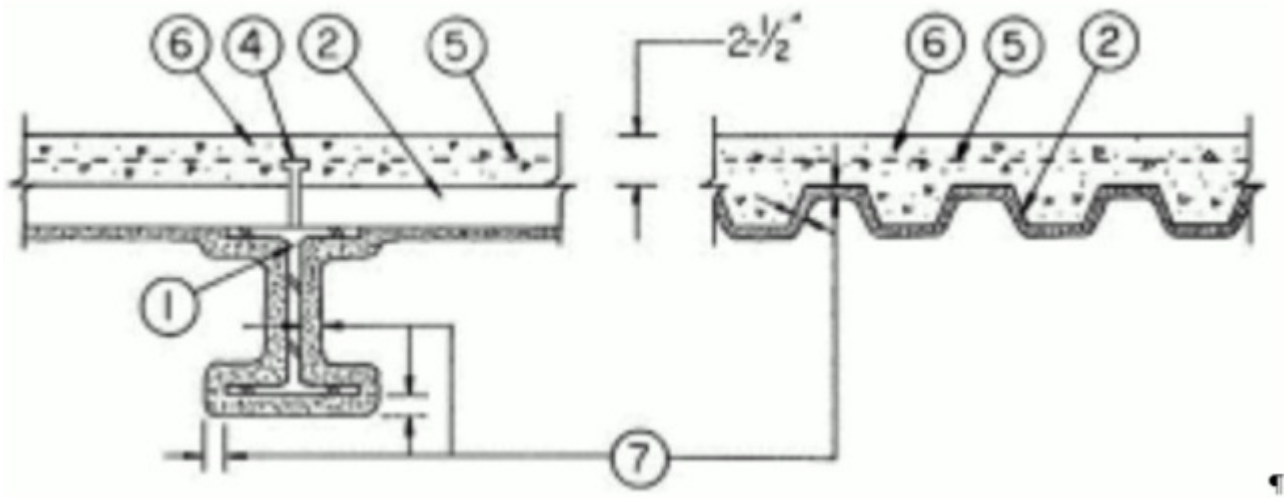
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. D603

November 18, 2022

Restrained Assembly Rating — 1, 1-1/2 and 2 Hr. (See Items 2 and 7)
Unrestrained Assembly Rating — 1, 1-1/2, and 2 Hr. (See Items 2 and 7)
Unrestrained Beam Rating — 1, 1-1/2, and 2 Hr. (See Items 2 and 7)
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



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* —** One component material spray-applied in one or more coats as described in the application instructions. See tables below for appropriate final dry thickness and applicable rating. Thicknesses 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.	W8 x 28 Min. Dry Film Thickness On Beam 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

CONTEGO INTERNATIONAL INC — Type Contego HS, Type CON-RFB HS. Investigated for Conditioned Interior Space Purpose, Interior General Purpose, and Exterior Use

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.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2022-11-18

UL Product iQ®

BXUV.N644 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. N644

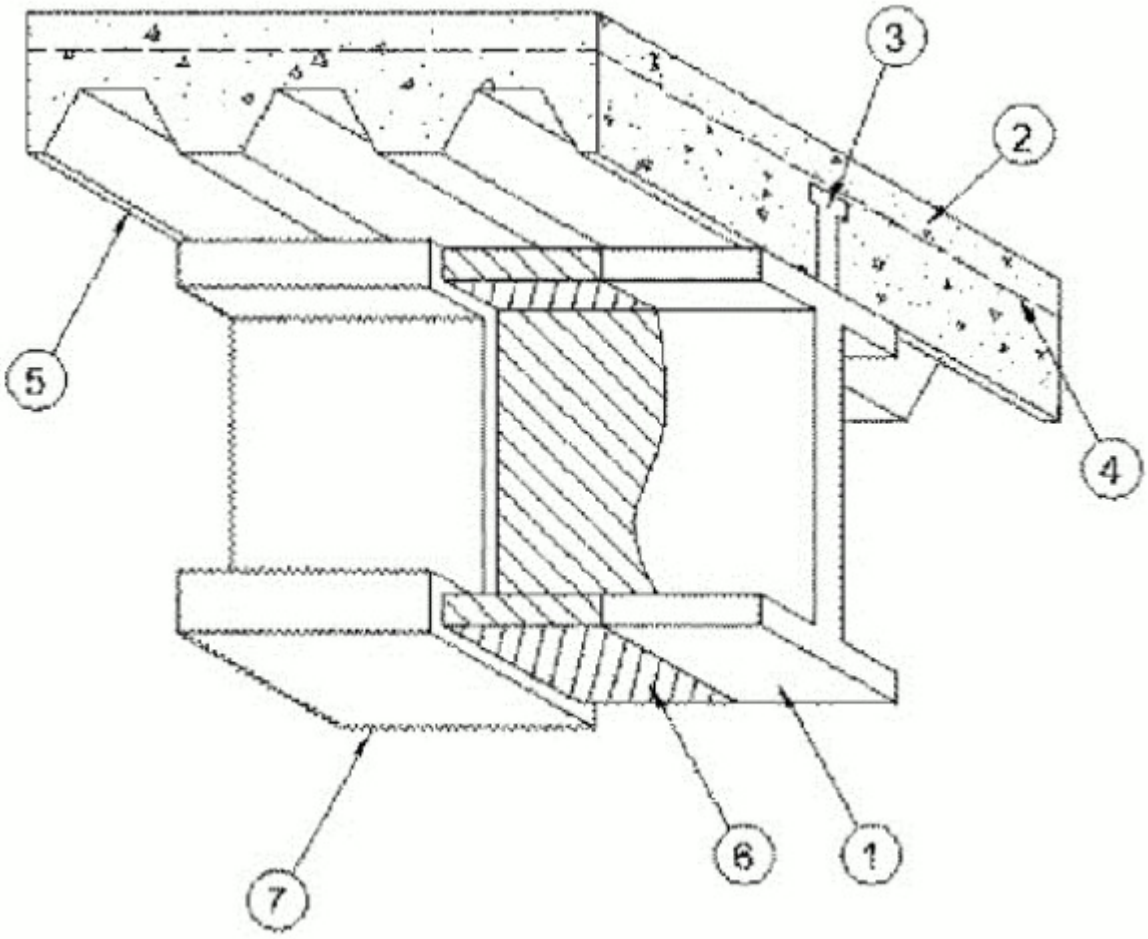
April 17, 2017

Restrained Beam Rating — 1, 1-1/2, 2 and 2-1/2 Hr (See Item 7)

Unrestrained Beam Rating — 1, 1-1/2 and 2 Hr (See Item 7)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



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* —** One component material spray-applied in one or more coats as described in the application instructions to the thicknesses shown below. Flutes above beam to be completely filled with mineral wool insulation having a nominal density of 6 lbs / ft^3. Thicknesses below include the 102 microns (4 mil) of primer.

Unrestrained Beam Rating, Hr

Required Thickness

W/D	Hp/A	1 Hr, mil	1-1/2 Hr, mil	2 Hr, mil
0.52	257	76.33	211.2	NR
0.53	252	76.33	211.2	NR

0.54	247	76.33	211.2	NR
0.55	243	76.33	211.2	NR
0.56	238	76.33	211.2	NR
0.57	234	76.33	211	NR
0.58	230	76.33	207.36	NR
0.59	226	76.33	203.85	NR
0.6	223	76.33	200.45	NR
0.61	219	76.33	197.17	NR
0.62	215	76.33	193.99	NR
0.63	212	76.33	190.91	NR
0.64	209	76.33	187.92	NR
0.65	205	76.33	185.03	NR
0.66	202	76.33	182.23	NR
0.67	199	76.33	179.51	NR
0.68	196	76.33	176.87	NR
0.69	193	76.33	174.31	NR
0.7	191	75.28	171.82	NR
0.71	188	74.22	169.4	NR
0.72	185	73.18	167.04	NR
0.73	183	72.18	164.75	NR
0.74	180	71.21	162.53	NR
0.75	178	70.26	160.36	NR
0.76	176	69.33	158.25	NR
0.77	173	68.43	156.2	NR
0.78	171	67.56	154.19	NR
0.79	169	66.70	152.24	NR
0.8	167	65.87	150.34	NR
0.81	165	65.05	148.48	NR
0.82	163	64.26	146.67	NR
0.83	161	63.49	144.90	NR
0.84	159	62.73	143.18	NR

0.85	157	61.99	141.50	NR
0.86	155	61.27	139.85	NR
0.87	153	60.57	138.24	NR
0.88	152	59.88	136.67	NR
0.89	150	59.21	135.14	211.07
0.9	148	58.55	133.63	208.72
0.91	147	57.90	132.17	206.43
0.92	145	57.28	130.73	204.18
0.93	144	56.66	129.32	201.99
0.94	142	56.06	127.95	199.84
0.95	141	55.47	126.60	197.74
0.96	139	54.89	125.28	195.68
0.97	138	54.32	123.99	193.66
0.98	136	53.77	122.73	191.68
0.99	135	53.23	121.49	189.75
1.00	134	52.69	120.27	187.85
1.01	132	52.17	119.08	185.99
1.02	131	51.66	117.91	184.17
1.03	130	51.16	116.77	182.38
1.04	128	50.67	115.65	180.62
1.05	127	50.18	114.54	178.90
1.06	126	49.71	113.46	177.22
1.07	125	49.42	112.40	175.56
1.08	124	49.42	111.36	173.93
1.09	122	49.42	110.34	172.34
1.1	121	49.42	109.34	170.77
1.11	120	49.42	108.35	169.23
1.12	119	49.42	107.38	167.72
1.13	118	49.42	106.43	166.24
1.14	117	49.42	105.50	164.78
1.15	116	49.42	104.58	163.35

1.16	115	49.42	103.68	161.94
1.17	114	49.42	102.80	160.55
1.18	113	49.42	101.92	159.19
1.19	112	49.42	101.07	157.86
1.2	111	49.42	100.23	156.54
1.21	110	49.42	99.40	155.25
1.22	109	49.42	98.58	153.97
1.23	109	49.42	97.78	152.72
1.24	108	49.42	96.99	151.49
1.25	107	49.42	96.22	150.28
1.26	106	49.42	95.45	149.09
1.27	105	49.42	94.70	147.91
1.28	104	49.42	93.96	146.76
1.29	103	49.42	93.23	145.62
1.3	103	49.42	92.52	144.50
1.31	102	49.42	91.81	143.40
1.32	101	49.42	91.11	142.31
1.33	100	49.42	90.43	141.24
1.34	100	49.42	89.75	140.19
1.35	99	49.42	89.09	139.15
1.36	98	49.42	88.43	138.12
1.37	97	49.42	87.79	137.12
1.38	97	49.42	87.15	136.12
1.39	96	49.42	86.53	135.14
1.4	95	49.42	85.91	134.18
1.41	95	49.42	85.30	133.23
1.42	94	49.42	84.70	132.29
1.43	93	49.42	84.11	131.36
1.44	93	49.42	83.52	130.45
1.45	92	49.42	82.95	129.55
1.46	91	49.42	82.38	128.66

1.47	91	49.42	81.82	127.79
1.48	90	49.42	81.26	126.93
1.49	90	49.42	80.72	126.07
1.5	89	49.42	80.18	125.23
1.51	88	49.42	79.65	124.40
1.52	88	49.42	79.13	123.58
1.53	87	49.42	78.61	122.78
1.54	87	49.42	78.10	121.98
1.55	86	49.42	77.59	121.19
1.56	86	49.42	77.10	120.42
1.57	85	49.42	76.61	119.65
1.58	84	49.42	76.12	118.89
1.59	84	49.42	75.64	118.14
1.6	83	49.42	75.17	117.41
1.61	83	49.42	74.70	116.68
1.62	82	49.42	74.24	115.96
1.63	82	49.42	73.79	115.24
1.64	81	49.42	73.34	114.54
1.65	81	49.42	72.89	113.85
1.66	80	49.42	72.45	113.16
1.67	80	49.42	72.02	112.48
1.68	79	49.42	71.59	111.81
1.69	79	49.42	71.17	111.15
1.7	79	49.42	70.75	110.50
1.71	78	49.42	70.33	109.85
1.72	78	49.42	69.93	109.21
1.73	77	49.42	69.52	108.58
1.74	77	49.42	69.12	107.96
1.75	76	49.42	68.73	107.34
2.00	67	49.42	68.73	107.34
2.25	59	49.42	68.73	107.34

2.5	53	49.42	68.73	107.34
2.75	49	49.42	68.73	107.34
3.00	45	49.42	68.73	107.34
3.25	41	49.42	68.73	107.34
3.5	38	49.42	68.73	107.34
3.75	36	49.42	68.73	107.34
4.00	33	49.42	68.73	107.34

Restrained Beam Rating, Hr

Required Thickness

W/D	Hp/A	1 Hr, mil	1-1/2 Hr, mil	2 Hr, mil	2-1/2 Hr, mil
0.52	257	76.33	174.21	211.20	NR
0.53	252	76.33	170.92	211.20	NR
0.54	247	76.33	167.76	211.20	NR
0.55	243	76.33	164.71	211.20	NR
0.56	238	76.33	161.77	211.20	NR
0.57	234	76.33	158.93	211.20	NR
0.58	230	76.33	156.19	211.20	NR
0.59	226	76.33	153.54	211.20	NR
0.6	223	76.33	150.98	211.20	NR
0.61	219	76.33	148.51	211.20	NR
0.62	215	76.33	146.11	211.20	NR
0.63	212	76.33	143.79	211.20	NR
0.64	209	76.33	141.55	211.20	NR
0.65	205	76.33	139.37	211.20	NR
0.66	202	76.33	137.26	211.20	NR
0.67	199	76.33	135.21	211.20	NR
0.68	196	76.33	133.22	211.20	NR
0.69	193	76.33	131.29	211.20	NR
0.7	191	75.28	129.41	211.20	NR
0.71	188	74.22	127.59	211.20	NR
0.72	185	73.18	125.82	211.19	NR

0.73	183	72.18	124.1	208.30	NR
0.74	180	71.21	122.42	205.49	NR
0.75	178	70.26	120.79	202.75	NR
0.76	176	69.33	119.2	200.08	NR
0.77	173	68.43	117.65	197.48	NR
0.78	171	67.56	116.14	194.95	NR
0.79	169	66.70	114.67	192.48	NR
0.8	167	65.87	113.24	190.08	NR
0.81	165	65.05	111.84	187.73	NR
0.82	163	64.26	110.48	185.44	NR
0.83	161	63.49	109.14	183.20	NR
0.84	159	62.73	107.85	181.02	NR
0.85	157	61.99	106.58	178.89	NR
0.86	155	61.27	105.34	176.81	NR
0.87	153	60.57	104.13	174.78	NR
0.88	152	59.88	102.94	172.80	NR
0.89	150	59.21	101.79	170.85	NR
0.9	148	58.55	100.66	168.96	NR
0.91	147	57.90	99.55	167.10	NR
0.92	145	57.28	98.47	165.28	NR
0.93	144	56.66	97.41	163.51	NR
0.94	142	56.06	96.37	161.77	NR
0.95	141	55.47	95.36	160.06	NR
0.96	139	54.89	94.36	158.40	NR
0.97	138	54.32	93.39	156.76	NR
0.98	136	53.77	92.44	155.16	NR
0.99	135	53.23	91.51	153.60	NR
1.00	134	52.69	90.59	152.06	NR
1.01	132	52.17	89.69	150.55	NR
1.02	131	51.66	88.81	149.08	209.34
1.03	130	51.16	87.95	147.63	207.31

1.04	128	50.67	87.11	146.21	205.32
1.05	127	50.18	86.28	144.82	203.36
1.06	126	49.71	85.46	143.45	201.44
1.07	125	49.42	84.66	142.11	199.56
1.08	124	49.42	83.88	140.80	197.71
1.09	122	49.42	83.11	139.50	195.90
1.1	121	49.42	82.35	138.24	194.12
1.11	120	49.42	81.61	136.99	192.37
1.12	119	49.42	80.88	135.77	190.65
1.13	118	49.42	80.17	134.57	188.96
1.14	117	49.42	79.46	133.39	187.31
1.15	116	49.42	78.77	132.23	185.68
1.16	115	49.42	78.09	131.09	184.08
1.17	114	49.42	77.43	129.97	182.50
1.18	113	49.42	76.77	128.86	180.96
1.19	112	49.42	76.13	127.78	179.44
1.2	111	49.42	75.49	126.72	177.94
1.21	110	49.42	74.87	125.67	176.47
1.22	109	49.42	74.25	124.64	175.02
1.23	109	49.42	73.65	123.63	173.60
1.24	108	49.42	73.06	122.63	172.20
1.25	107	49.42	72.47	121.65	170.82
1.26	106	49.42	71.90	120.68	169.47
1.27	105	49.42	71.33	119.73	168.13
1.28	104	49.42	70.77	118.80	166.82
1.29	103	49.42	70.22	117.88	165.53
1.3	103	49.42	69.68	116.97	164.25
1.31	102	49.42	69.15	116.08	163.00
1.32	101	49.42	68.63	115.20	161.77
1.33	100	49.42	68.11	114.33	160.55
1.34	100	49.42	67.60	113.48	159.35

1.35	99	49.42	67.10	112.64	158.17
1.36	98	49.42	66.61	111.81	157.01
1.37	97	49.42	66.12	110.99	155.86
1.38	97	49.42	65.64	110.19	154.73
1.39	96	49.42	65.17	109.40	153.62
1.4	95	49.42	64.71	108.61	152.52
1.41	95	49.42	64.25	107.84	151.44
1.42	94	49.42	63.80	107.08	150.37
1.43	93	49.42	63.35	106.34	149.32
1.44	93	49.42	62.91	105.60	148.28
1.45	92	49.42	62.48	104.87	147.26
1.46	91	49.42	62.05	104.15	146.25
1.47	91	49.42	61.63	103.44	145.26
1.48	90	49.42	61.21	102.74	144.28
1.49	90	49.42	60.80	102.05	143.31
1.5	89	49.42	60.39	101.37	142.35
1.51	88	49.42	59.99	100.70	141.41
1.52	88	49.42	59.60	100.04	140.48
1.53	87	49.42	59.21	99.39	139.56
1.54	87	49.42	58.82	98.74	138.66
1.55	86	49.42	58.45	98.10	137.76
1.56	86	49.42	58.07	97.47	136.88
1.57	85	49.42	57.70	96.85	136.01
1.58	84	49.42	57.34	96.24	135.15
1.59	84	49.42	56.97	95.64	134.30
1.6	83	49.42	56.62	95.04	133.46
1.61	83	49.42	56.27	94.45	132.63
1.62	82	49.42	55.92	93.86	131.81
1.63	82	49.42	55.58	93.29	131.00
1.64	81	49.42	55.24	92.72	130.20
1.65	81	49.42	54.90	92.16	129.41

1.66	80	49.42	54.57	91.60	128.63
1.67	80	49.42	54.25	91.05	127.86
1.68	79	49.42	53.92	90.51	127.10
1.69	79	49.42	53.60	89.98	126.35
1.7	79	49.42	53.29	89.45	125.61
1.71	78	49.42	52.98	88.92	124.87
1.72	78	49.42	52.67	88.41	124.15
1.73	77	49.42	52.36	87.90	123.43
1.74	77	49.42	52.06	87.39	122.72
1.75	76	49.42	51.77	86.89	118.93
2.00	67	49.42	51.77	86.89	118.93
2.25	59	49.42	51.77	86.89	118.93
2.5	53	49.42	51.77	86.89	118.93
2.75	49	49.42	51.77	86.89	118.93
3.00	45	49.42	51.77	86.89	118.93
3.25	41	49.42	51.77	86.89	118.93
3.5	38	49.42	51.77	86.89	118.93
3.75	36	49.42	51.77	86.89	118.93
4.00	33	49.42	51.77	86.89	118.93

NR - No Rating

CONTEGO INTERNATIONAL INC — Type Contego HS, Type CON-RFB HS. Investigated for Conditioned Interior Space Purpose, Interior General Purpose, and Exterior Use.

8. **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.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2017-04-17

ICC-ES Evaluation Report

ESR-5314

Reissued June 2025

Subject to renewal June 2026

This report also contains:

- **City of LA Supplement**
- **CA Supplement**
- **FL 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.

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 EVALUATION SCOPE

Compliance with the following codes:

■ 2021, 2018, and 2015 *International Building Code®* (IBC)

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 $2^1/_2$-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 50ºF (10ºC) and 10ºF (38ºC). 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^2). 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).

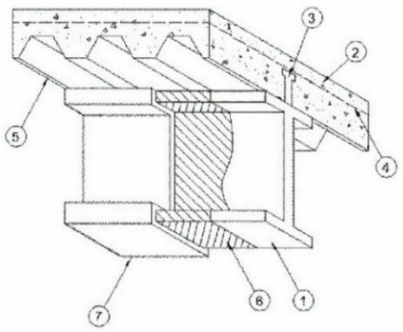
7.0 IDENTIFICATION

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



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^3. Thicknesses below include the 102 microns (4 mil) of primer.

W/D	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1 1/2-Hour	2-Hour	1-Hour	1 1/2-Hour	2-Hour	2 1/2-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-, 1 1/2-, 2- AND 2 1/2- HOUR FIRE-RESISTANCE RATED STEEL BEAMS: RESTRAINED AND UNRESTRAINED

W/D	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1 1/2-Hour	2-Hour	1-Hour	1 1/2-Hour	2-Hour	2 1/2-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	49.42	112.40	175.56	49.42	84.66	142.11	199.56
1.08	124	49.42	111.36	173.93	49.42	83.88	140.8	197.71
1.09	122	49.42	110.34	172.34	49.42	83.11	139.5	195.9
1.1	121	49.42	109.34	170.77	49.42	82.35	138.24	194.12
1.11	120	49.42	108.35	169.23	49.42	81.61	136.99	192.37
1.12	119	49.42	107.38	167.72	49.42	80.88	135.77	190.65
1.13	118	49.42	106.43	166.24	49.42	80.17	134.57	188.96
1.14	117	49.42	105.50	164.78	49.42	79.46	133.39	187.31
1.15	116	49.42	104.58	163.35	49.42	78.77	132.23	185.68
1.16	115	49.42	103.68	161.94	49.42	78.09	131.09	184.08
1.17	114	49.42	102.80	160.55	49.42	77.43	129.97	182.5
1.18	113	49.42	101.92	159.19	49.42	76.77	128.86	180.96
1.19	112	49.42	101.07	157.86	49.42	76.13	127.78	179.44
1.2	111	49.42	100.23	156.54	49.42	75.49	126.72	177.94
1.21	110	49.42	99.40	155.25	49.42	74.87	125.67	176.47
1.22	109	49.42	98.58	153.97	49.42	74.25	124.64	175.02
1.23	109	49.42	97.78	152.72	49.42	73.65	123.63	173.6
1.24	108	49.42	96.99	151.49	49.42	73.06	122.63	172.2
1.25	107	49.42	96.22	150.28	49.42	72.47	121.65	170.82
1.26	106	49.42	95.45	149.09	49.42	71.9	120.68	169.47
1.27	105	49.42	94.70	147.91	49.42	71.33	119.73	168.13
1.28	104	49.42	93.96	146.76	49.42	70.77	118.8	166.82
1.29	103	49.42	93.23	145.62	49.42	70.22	117.88	165.53
1.3	103	49.42	92.52	144.50	49.42	69.68	116.97	164.25
1.31	102	49.42	91.81	143.40	49.42	69.15	116.08	163
1.32	101	49.42	91.11	142.31	49.42	68.63	115.2	161.77
1.33	100	49.42	90.43	141.24	49.42	68.11	114.33	160.55
1.34	100	49.42	89.75	140.19	49.42	67.6	113.48	159.35
1.35	99	49.42	89.09	139.15	49.42	67.1	112.64	158.17
1.36	98	49.42	88.43	138.12	49.42	66.61	111.81	157.01
1.37	97	49.42	87.79	137.12	49.42	66.12	110.99	155.86
1.38	97	49.42	87.15	136.12	49.42	65.64	110.19	154.73
1.39	96	49.42	86.53	135.14	49.42	65.17	109.4	153.62
1.4	95	49.42	85.91	134.18	49.42	64.71	108.61	152.52
1.41	95	49.42	85.30	133.23	49.42	64.25	107.84	151.44
1.42	94	49.42	84.70	132.29	49.42	63.8	107.08	150.37
1.43	93	49.42	84.11	131.36	49.42	63.35	106.34	149.32
1.44	93	49.42	83.52	130.45	49.42	62.91	105.6	148.28
1.45	92	49.42	82.95	129.55	49.42	62.48	104.87	147.26
1.46	91	49.42	82.38	128.66	49.42	62.05	104.15	146.25
1.47	91	49.42	81.82	127.79	49.42	61.63	103.44	145.26
1.48	90	49.42	81.26	126.93	49.42	61.21	102.74	144.28
1.49	90	49.42	80.72	126.07	49.42	60.8	102.05	143.31
1.5	89	49.42	80.18	125.23	49.42	60.39	101.37	142.35
1.51	88	49.42	79.65	124.40	49.42	59.99	100.7	141.41
1.52	88	49.42	79.13	123.58	49.42	59.6	100.04	140.48
1.53	87	49.42	78.61	122.78	49.42	59.21	99.39	139.56
1.54	87	49.42	78.10	121.98	49.42	58.82	98.74	138.66
1.55	86	49.42	77.59	121.19	49.42	58.45	98.1	137.76
1.56	86	49.42	77.10	120.42	49.42	58.07	97.47	136.88
1.57	85	49.42	76.61	119.65	49.42	57.7	96.85	136.01
1.58	84	49.42	76.12	118.89	49.42	57.34	96.24	135.15
1.59	84	49.42	75.64	118.14	49.42	56.97	95.64	134.3
1.6	83	49.42	75.17	117.41	49.42	56.62	95.04	133.46
1.61	83	49.42	74.70	116.68	49.42	56.27	94.45	132.63
1.62	82	49.42	74.24	115.96	49.42	55.92	93.86	131.81
1.63	82	49.42	73.79	115.24	49.42	55.58	93.29	131
1.64	81	49.42	73.34	114.54	49.42	55.24	92.72	130.2
1.65	81	49.42	72.89	113.85	49.42	54.9	92.16	129.41
1.66	80	49.42	72.45	113.16	49.42	54.57	91.6	128.63
1.67	80	49.42	72.02	112.48	49.42	54.25	91.05	127.86
1.68	79	49.42	71.59	111.81	49.42	53.92	90.51	127.1
1.69	79	49.42	71.17	111.15	49.42	53.6	89.98	126.35

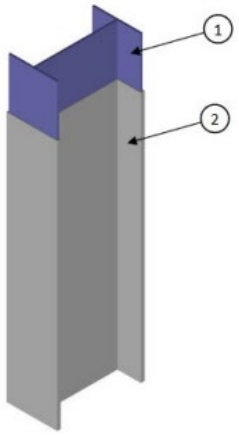
FIGURE 1— 1-, 1 1/2-, 2- AND 2 1/2- HOUR FIRE-RESISTANCE RATED STEEL BEAMS: RESTRAINED AND UNRESTRAINED (cont.)

W/D	Hp/A	Unrestrained Beam Rating, Hr.			Restrained Beam Rating, Hr.			
		1-Hour	1 1/2-Hour	2-Hour	1-Hour	1 1/2-Hour	2-Hour	2 1/2-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

8. **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-, 1 1/2-, 2- AND 2 1/2- 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

1. **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.

2. **Primer Coating (Not Shown) —**2 to 4 mils thickness of Contego Rustex 710 primer applied in accordance with the manufacturer's instructions.

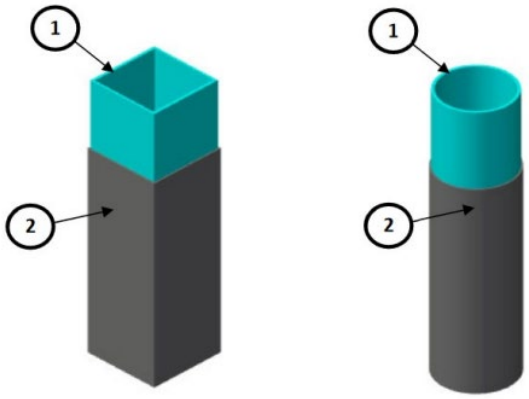
3. **Mastic and Intumescent Coatings —** Contego HS Intumescent RFB or Contego R Intumescent RFB coating applied in accordance with the manufacturer's instructions at the minimum dry thickness as shown in the table below. The thicknesses shown below include the thickness of primer.

W/D	Hp/A	Rating, Hr.		
		1-Hour	1 1/2-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-, 1 1/2- AND 2-HOUR FIRE-RESISTANCE RATED WIDE FLANGE STEEL COLUMNS

W/D	Hp/A	Rating, Hr.		
		1-Hour	1 1/2-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-, 1 1/2- 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

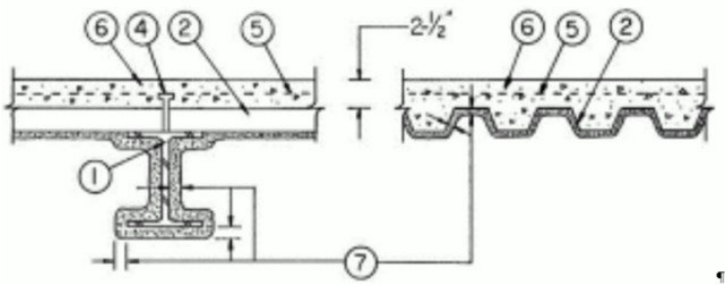
1. **Steel Column —** Hollow rectangular or circular structural steel columns with minimum sizes as shown in the table below. Columns shall be free of dirt, loose scale, and oil.

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	1 1/2-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-, 1 1/2- 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 2025.

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 2025.

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). Florida Rule 61G20-3 is applicable to products and/or systems which comprise the building envelope and structural frame for compliance with the structural requirements of the Florida Building Code.

This supplement expires concurrently with the evaluation report, reissued June 2025.

CONTEGO®
INTERNATIONAL, INC.
PROTECT • SHIELD • DEFEND

CONTEGO HIGH SOLIDS RFB APPLICATION GUIDE

www.contegointernational.com
info@contegointernational.com

1. GENERAL DESCRIPTION

Contego High Solids RFB is a water based intumescent coating designed to protect various substrates against the effects of fire. It has been tested to UL 263 / CAN S101 / ASTM E119 standards and is approved for interior conditioned space, interior general purpose, and exterior use. For exterior weatherability, an approved exterior topcoat is required. In exterior environments, the Contego HS RFB, must be protected from the elements, which include rain, snow, and high humidity prior to the application of the approved topcoat.

It is important to adhere to the following application methods for achieving correct thickness, application, and finish of the product being applied.

2. MATERIAL STORAGE

2.1 STORAGE TEMPERATURE

Before use, Contego HS RFB must be stored in the original unopened pails. The pails must be protected from direct sunlight and maintained at a temperature between 45°F (7°C) and 100°F (40°C) during shipping and storage.

The product must not be stored at or below freezing temperatures. DO NOT ALLOW THE MATERIAL TO FREEZE

2.2 SHELF LIFE

When stored properly, Contego HS RFB has a shelf life of 24 months from date of manufacture. See label for expiry date. Do not use expired product.

3. WORK SITE CONDITIONS

3.1 REQUIRED SERVICES

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

3.2 APPLICATION TEMPERATURE

Contego HS RFB must only be applied when the ambient and substrate temperature is between 50°F (10°C) and 100°F (40°C). The steel surface must be dry and, for best results, the surface temperature should ideally be 4°F (2°C) above the dew point. A minimum substrate and air temperature of 50°F (10°C) must be maintained during and for at least 72 hours after application. The dew point can be determined with any commercially available dew point meter. If necessary, the contractor shall provide enclosures, air flow and conditioned air to maintain proper temperature and humidity levels in the application areas.

3.3 HUMIDITY

The relative humidity can be determined using any commercially available hygrometer. If the relative humidity exceeds 85%, precautions should be taken to prevent condensation from forming on the steel surface during application. As Contego HS RFB dries through the evaporation of water, it can cause the humidity of the surrounding area to rise. Adequate ventilation must be provided and maintained during application and curing process to ensure proper drying. Sufficient air exchange is the most significant factor to achieve good and fast drying.

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

Caution: Do not apply Contego HS RFB on wet surfaces or if condensation is present.

4. SAFETY

4.1 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Protective clothing
- Suitable eye protection
- Gloves

Additional advice for respiratory protection:

- Ensure adequate ventilation on work site
- Read Safety Data Sheet and Product Instructions For Use Environmental precautions

4.2 WASTE

Do not discharge Contego HS RFB into drains, water courses or soil. Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health, and environmental regulations.

5. SURFACE PREPARATION

5.1 PRIMER

Contego HS RFB must always be applied over an approved primer system for metal substrates, which has been prepared in accordance with the primer manufacturer's recommendation. The primer must be applied in full compliance with the primer manufacturer's recommendations and must be fully cured.

A complete listing of tested and approved primers can be obtained at www.contegointernational.com. Organic and inorganic zinc silicate primers are not suitable for use with Contego products.

5.2 CLEAN SUBSTRATES

Before applying Contego HS RFB, the following conditions must be excluded:

- Unprimed or poorly primed steel
- Unapproved or unknown primer
- Not properly cured primer
- Organic or inorganic zinc silicate primer
- Galvanized steel, unless suitably prepared with a compatible etch primer
- Condensation or frost on the steel surface
- Oil, grease, dirt, dust, or any other contaminant which may inhibit bonding with the primed surface

6. EQUIPMENT

For optimized aesthetics, airless spraying is the preferred method of application. For hard-to-reach areas, touch up, or repair purposes Contego HS RFB can also be applied via brush or roller.

6.1. AIRLESS SPRAY PUMP

An airless spray pump capable of operating with min. fluid pressure of 3300 psi and volume transport of > 1 gal/min (4 l/min) should be used. Check with pump manufacturer for exact recommendations (Graco Mark V or comparable).

Warning: Contego HS RFB requires that all mesh filters commonly found in many airless sprayers be removed prior to the application. Commonly, there are three: a suction filter, a pre-pump filter and the spray gun filter. If the spray tip uses any 'diffuser bars', these also need to be removed.

If a filter remains in the spray system, this will cause the mesh to filter out some of Contego HS RFB ingredients and cause blockages around the filters.

6.2 HOSES

High pressure type hoses, rated to match pump capacity, with minimum inner diameter of 3/8" (10 mm) should be used. A maximum hose length of 150 ft (45 m) should not be exceeded.

Note: A hose whip is acceptable, however could reduce the required pressure.

6.3 SPRAY GUN AND TIP

A contractor grade spray gun capable of handling a minimum 3300 psi fluid pressure should be used.

Recommended tip sizes are .025 or above.

6.4 BRUSH OR ROLLER APPLICATION

A high-grade latex paint brush or a short pile roller should be used.

6.5 MASKING

All areas not receiving coating should be masked, typically with lightweight polyethylene plastic and masking tape.

7. APPLICATION

7.1 STIRRING/MIXING

Contego HS RFB is supplied ready to use in sealed containers.

Contego HS RFB should be stirred thoroughly with a drill type mixer until homogeneous. 3-5 minutes mix time depending upon product temperature. Excessive stirring should be avoided as this may introduce air into the coating. Manual mixing is not recommended. Do not use drywall paddle mixers as this could cut into plastic pail causing debris in material.

7.2 APPLIED WET FILM THICKNESS

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

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

- By spray 35 mils (1,7 mm)
- By brush/roller 25 mils (0,65 mm)

To achieve superior aesthetic finish, a thickness of 30 mils per coat is recommended.

7.3 MULTIPLE COATS

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

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

7.4 DRYING TIME

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

For a coat of 35 mil wet film thickness, the following drying times at various temperatures and at 50% r.h. serve as an orientation:

35 mils @ 50%rh	Surface dry	Through dry	Recoating	Top coating
50°F / 10°C	6h	18h	24h	48h+
68°F / 20°C	4.5h	12h	5h	48h
86°F / 30°C	3.5h	5h	3h	24h

It may be possible to apply two coats in one day if the air temperature is at normal room temperature, there is good air movement, and the relative humidity is ≤ 50%. DO NOT apply subsequent coats until previous coat has thoroughly dried. It should be "dry tack free" or "dry to handle" prior to recoat.

Topcoat can be applied once >50 Shore-D Hardness has been achieved. Contact Contego for a list of approved topcoats.

Higher than recommended wet film thicknesses, high air flow and low humidity conditions may lead to crack formation.

Hairline cracks are not detrimental to fire performance. Where they do occur, repairs can be carried out by application of a brush coat of Contego HS RFB.

8. THICKNESS DURING APPLICATION

8.1 WET FILM THICKNESS (WFT)

During the application of Contego HS RFB, the wet film thickness should be checked frequently with a clean wet film thickness gauge by inserting the teeth into the wet Contego HS RFB. Care should be taken not to press the gauge into any previously applied coats that may still be soft. The highest reading indicated on moistened teeth is the wet film thickness of the most recent coat.

8.2 DRY FILM THICKNESS (DFT)

The dry film thickness can be estimated from the wet film thickness by multiplication with 0.72. Actual coverage depends on surface, substrate, application technique and method. No allowance is made for waste. *LUMBER AND DRYWALL SUBSTRATES MUST BE MEASUED BY WFT CONVERSION.

9. FINAL THICKNESS CHECK

9.1 TOTAL DRY FILM THICKNESS

A DFT reading should be taken as soon as the coating is sufficiently hard to allow a reading to be made without indenting the surface. DFT's may be measured using commercially available electronic type gauges. Multiple readings should be taken per steel member to verify sufficient coating thickness. *LUMBER AND DRYWALL SUBSTRATES MUST BE MEASURED BY WFT CONVERSION.

The final DFT reading can be taken as soon as Shore-D hardness > 50 is reached.

9.2 DRY FILM THICKNESS OF CONTEGO HS RFB

The DFT of Contego HS RFB can be calculated from the total DFT by subtracting the DFT of the primer. Therefore, it is important to determine the DFT of the primer prior to application of Contego HS RFB.

9.3 THICKNESS VERIFICATION

Verify that the total DFT of the fire protection coating (without primer and topcoat) complies with the requirements of the official approval document. Do not apply any topcoat until the DFT of Contego HS RFB has been properly verified. See AWCI 12-B for practice standards. *Lumber and drywall substrates must be verified by WFT records of application and converted to DFT total by .72 multiple.

10. REPAIR

10.1 DAMAGE OF PRIMER AND CONTEGO HS RFB

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

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

Reinstate the Contego HS RFB within the recommended overcoating limits of the repair primer.

Apply Contego HS RFB in multiple applications by brush. If a topcoat has already been applied to the existing system, minimize overlap of fresh Contego HS RFB product over the existing topcoat. Apply topcoat as appropriate.

10.2 DAMAGE NOT REQUIRING PRIMER REPAIR

Depending on severity of damage, either lightly abrade the damaged area to a feathered edge, or cut out a suitable area of Contego HS RFB and feather out the edges. If cutting out, do not damage the priming system, otherwise repair as for damage down to steel will be required.

Reinstate Contego HS RFB to the required dry film thickness using the method described above.

After the appropriate overcoating interval apply an approved topcoat in accordance with original specification, if desired.

11. INTERRUPTION OF WORK / CLEAN UP

Contego HS RFB can remain in the hose for up to 18 hours. To prevent material from curing in the tip, the spray gun should be submerged in a bucket of water. For downtime longer than 18 hours, clean all application equipment with water. Run the water through all hoses and equipment until clean.

Follow sprayer manufacturer's instructions for cleaning. Do not allow Contego HS RFB to set in the hose, pump, spray gun or tip for over 24 hours.

www.contegoInternational.com

Contego International, Inc.

PO Box 49

Rochester, IN 46975

800-434-6444 Toll Free

Approved Primers

Primer Requirements:

Prior to apply Contego intumescent coatings **ALL** ferrous and nonferrous metals require primer. If applying Contego intumescent coatings to galvanized metals or aluminum substrates contact Contego International for specific references. All primers must be applied in accordance with the primer manufacturer's written instructions. All primers must be fully cured prior to the application of the Contego intumescent coatings according to manufactures specifications. Failure to comply with the primer manufacturers instruction could void Contego intumescent 2-year warranty.

Special Precautions:

Semi-gloss and gloss sheen primers are not recommended for best adhesion results. Zinc-rich primers are **NOT** approved for use with direct application of Contego intumescent coatings. An additional primer barrier between Contego intumescent coatings and zinc-rich primers are required.

*Please contact the Contego International Technical Services Department at 800-434-6444 or info@contegointernational.com for further assistance or for the use of primers other than those listed.

Introducing Contego RUSTEX 710

Contego RUSTEX 710 Metal Primer HS Low VOC a high performance, universal anti-corrosive primer with excellent adhesion, hardness, durability, and corrosion resistance. The corrosion resistance will surpass in excess of 1000 hours of cyclic corrosion testing using ASTM D 5894 Salt Fog/UV Exposure testing methods.

The High solids content of this coating permits extremely economical use at low film builds, while at the same time enabling higher film builds to achieve coverage over aggressive surface profiles. Formulated for fast dry times with exceptional low temperature curing even during winter conditions.

This primer meets the requirements of AISC 1-73A and MPI 76. and is VOC compliant for non-shop use.

Product Code: 71044 Category: Undercoats and Primers Chemistry: Phenolic Alkyd,

Manufacturer	Product Description
American Coatings	AK Series Shop Coat Primer (AK3333 Gray Primer - Alkyd Resin Primer)
American Coatings	AK11509 Red Oxide HS VOC 2.8
American Coatings	American Coatings AK12946 Gray Iron Oxide
American Coatings	American Coatings AK 16292 2.8 VOC Low HAPs Dark Gray Primer
Ameron International / PPG	Amercoat 5105 Alkyd Primer (oxide red, pearl gray, white)
Behr	Exterior Primer Water Based Primer and Sealer #436
Benjamin Moore & Co.	M14 Shop-Coat Modified Alkyd metal primer
Benjamin Moore & Co.	Super Spec HP Shop Coat Alkyd P-14
Century Industrial Coatings	220-D-252, 220-D-252B
Century Industrial Coatings	RD Red NULO Spray - HAPs Free Primer W/B 220-R-355A
Century Industrial Coatings	120-D-263, 120-D-264, 120-D-331
Century Industrial Coatings	Dark Red Spray Primer 220-R-250/A
Century Industrial Coatings	120-D-224A Gray
Century Industrial Coatings	120-D-326A - 275 Light Gray Spray Primer
Century Industrial Coatings	220-D-358, 220-D-358C
Century Industrial Coatings	120-D-174Q Gray Joist Primer
Century Industrial Coatings	220-R300-103A Fast Dry WB Red Oxide Spray Primer
Century Industrial Coatings	220-D-544B Gray Water-Based Spray Primer
Cloverdale Paint	Industrial Phenolic Modified Alkyd Shop Primer 71019, 71306, 71312
Cloverdale Paints	Universal Phenolic Alkyd Primer 83040 Grey, 83041 Red
Cloverdale Paints	Rustex 710
Cloverdale Paints	839 Eco Logic
Dunn-Edwards	W715 Ultra-Grip Acrylic Multi-Purpose Primer
Farrell Calhoun	1099 Red Tuff Boy
Farrell Calhoun	Tuff Boy QD Low VOC Rust Stop Modified Alkyd primer 5-53 Red & 5-54 Gray
Farrell Calhoun	Tuff Boy Quick Dry 6-30
Kelley Moore Paint	-Gard Metal Primer White 1712-100
Kelley Moore Paint	1760 Sop Coat Alkyd Primer
Kelley Moore Paint	265 KM Professional Water-Oil Hybrid
Miller Paint Co.	Red Oxide Metal Primer Red Oxide #363
Miller Paint Co.	470011 All Purpose Stain Blocking Acrylic Primer
Miller Paint Co.	310210 Acrimetal DTM Low Sheen Acrylic
Pittsburgh Paints	SPEEDHIDE Alkyd Rust Inhibitive Primer 6-208 Red (6-212 White)
PPG	Pure Performance 9-900 Acrylic Primer
PPG	Amerlock 600
PPG	Amerlock 2 VOC
PPG	Multiprime 94-269
PPG	7-852, 7-858 Series Rust Inhibitive Steel Primers Alkyd Resin
PPG	MULTIPRIME Low VOC Quick Dry Universal Alkyd Primer 97-680
PPG	Pitt-Tech Plus 90-1210
PPG	Pitt-Tech Plus Int.Ext. DTM Industrial Primer 90-912 Series
PPG	Multi Primer Fast Dry 2.8 VOC 94-258 Series
PPG	Multiprime 4160
PPG	HPC Industrial Alkyd 4308

PPG	Fast Dry 4190
PPG	Pitt Tech Plus SG 4216H
PPG	Pitt Tech Plus 4020 PF
PPG	Fast Dry 4180
Rodda Paint	P-80 Quick Drying Metal Primer Gray
Rodda Paint	Barrier III High Solids Alkyd Metal Primers
Rodda Paint	Barrier III Rust Inhibitive Metal Primer
Rodda Paint	Barrier III HS Rust Inhibitive Metal Primer
Rodda Paint	6340 Shop Primer 40 Red (LCF) Primer
Rust-Oleum	2068 Quick Dry Red Primer
Rust-Oleum	K7769 Rusty Metal Primer - Alkyd
Sherwin Williams	Pro-Cryl Universal Acrylic Primer B66 Series
Sherwin Williams	E61RC21 Red (E61AC82 gray) Shopcoat Primer
Sherwin Williams	Red Structural Steel Primer B50XXRW4648
Sherwin Williams	Kem Bond HS Universal Metal Primer B50 Series
Sherwin Williams	E61R26 Kem Flash Prime Red Oxide
Sherwin Williams	Industrial Grey Metal Primer SW28
Sherwin Williams	Alkyd QD Primer B50A50 / B50R51
Sherwin Williams	Ironox primer #29 Red
Sherwin Williams	DTM Acrylic Primer/Finish (B66W1)
Sherwin Williams	Kem Bond HS Universal Metal Primer B50 Series
Sherwin Williams	Macropoxy 646 Fast Cure Epoxy (Part A -B58-600, Part B - B58V600)
Sherwin Williams	B74AT83 Utility Shop Coat Fast Dry Alkyd Gray Primer
Sherwin Williams	Ironox Primer 96 Gray
Sherwin Williams	Macropoxy 646-100 (low voc)
Sherwin Williams	B66W310 Pro-Cryl Universal Metal Primer (low voc)
Sumter Coatings	100D2314
Sumter Coatings	100D7714, 100R7713, 100D7720 Inhibitive Shopcoat Primers
Sumter Coatings	100R8813, 100D8814 High Solids Inhibitive Primers
Sumter Coatings	100R9913, 100D9914 Heavy Duty Inhibitive Primers
Sumter Coatings	100D0031,100R0027, 100W0038 Universal Primers
Sumter Coatings	Red Shopcoat Primer (801R2712 / SP 2712)
Sumter Coatings	100R0984, 100D0985 Structural Shopcoat Primers
Sumter Coatings	Sumter Coatings 196D1635
Sumter Coatings	HS Low VOC Inhibitive Primer Gray - 100D8823
Sumter Coatings	Inhibitive Shopcoat Low VOC HS Universal Primer Gray - 100D2230
Sumter Coatings	High Solids - Low VOC Inhibitive Primer (100R8822 Red)
Sumter Coatings	Pretreatment Primer (100G2029 / 100X2030)
Sumter Coatings	100D2314
Sumter Coatings	100D7714, 100R7713, 100D7720 Inhibitive Shopcoat Primers
Sumter Coatings	100R8813, 100D8814 High Solids Inhibitive Primers
Tnemec	FM 88-0559 - modified short oil alkyd
Tnemec	Series FD 88 Azeron - modified alkyd
Tnemec	Series 10-99 Red (10-1009 Gray) modified alkyd
Tnemec	Azeron H.S. Primer Series 88HS, 555 Red, 599 Gray
Tnemec	Uni-Bond DF Series 115 Acrylic Primer

Tnemec	UVX Series 750
Tnemec	2C 118-30GR Mastic WB Acrylic
Tnemec	Tneme-Fascure Series 161 Primer
Tnemec	FM 88-0559 - modified short oil alkyd
Tnemec	Series FD 88 Azeron - modified alkyd
Valspar	High Performance WWA 164-759
Valspar	Duraspar 130 AX Series Primer
Valley Paint Co.	V-006 Universal Metal Primer
Vista Paint	Metal Pro Coating Primer/Finish (4800, 4805, 4810, 4896)
Vista Paint	MP10 Waterborne Red Oxide Shop Primer
Vista Paint	4000 Uniprime Multi-purpose Acrylic
Vista Paint	9600 Protec Metal Prime- Alkyd Emulsion

Prior to apply Contego intumescent coatings **ALL** ferrous and nonferrous metals require primer. If applying Contego intumescent coatings to galvanized metals or aluminum substrates contact Contego International for specific references. All primers must be applied in accordance with the primer manufacturer's written instructions. All primers must be fully cured prior to the application of the Contego intumescent coatings according to manufactures specifications. Failure to comply with the primer manufacturers instruction could void Contego intumescent 2-year warranty.

Semi-gloss and gloss sheen primers are not recommended for best adhesion results. Zinc-rich primers are **NOT** approved for use with direct application of Contego intumescent coatings. An additional primer barrier between Contego intumescent coatings and zinc-rich primers are required.

Contego 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.

*Please contact the Contego International Technical Services Department at 800-434-6444 or info@contegointernational.com for further assistance or for the use of primers other than those listed.

www.contegointernational.com

Approved Topcoats

Topcoat Requirements

The aesthetic finish will vary with each project design and is the responsibility of the project designer. The topcoat product chosen will vary depending on color and finish desired. Topcoat material is often written for the Intumescent Fireproofing Systems within the specifications for the project. To optimize this scope of work for the project for scheduling requirements and color choices, local sourcing of topcoat materials will likely be required. Contego is providing the following recommendations to meet this need.

- The surface of the Contego IFRM products must be clean and free from condensation, grease or any other surface contaminants that may interfere with the adhesion of the topcoat.
- A minimum of 5 days shall be allowed for the Contego IFRM to fully cure prior to the application of the topcoat material. Alternatively, a minimum Shore-D value of >50 is recommended prior to the application of a finish coat.
- Do not apply the topcoat material until the dry film thickness of the Contego IFRM has been measured and it is verified that the thickness meets the requirements of the fire resistance design.

Interior Application

- A topcoat is not required for Conditioned Interior Space Purpose and/or Interior General Purpose.
- If desired, for conditioned interior space, a quality acrylic latex topcoat may be applied in accordance with the specific manufacturer's instructions. Additional topcoats should be waterborne long oil alkyd resins, silicone alkyds, or other topcoats approved by Contego International or may be listed in the table below.
- 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 topcoat material must be applied in full accordance with the coating manufacturer's written instructions.

  *If the Contego specific design listing being followed requires a topcoat contact Contego International for further assistance in product changes and/or removal recommendations.

Exterior Application

- A topcoat is **ALWAYS REQUIRED** for Exterior and Unconditioned Space application of Contego IFRM coatings.
- A topcoat must be applied to fully cured Contego IFRM coatings prior to the substrate being exposed to rain, dew, high humidity, etc. Contego IFRM coatings **MUST** reach >50 Shore-D hardness prior to topcoat being applied.
- Topcoat must fully encapsulate Contego IFRM coating without voids. A minimum of two coats (6-8 mils DFT) of the chosen material is recommended.
- In fully exposed areas where steel is not under roof a topcoat system of 6-8mils DFT of a compatible Epoxy coating followed by 6-8 mils DFT of a compatible Polyurethane are recommend for longevity of the coating system.
- Regular monthly visual inspections of the coating system post application are highly recommended by Contego to ensure exterior/unconditioned space applications are maintained without defect.
- Exterior/unconditioned space topcoat **MUST** be maintained for the life of the structure to ensure longevity of fire protection system.
- Penetrations of the topcoat system due to post application attachments must be sealed properly to ensure moisture does not penetrate coating system around or through attachment.

*The topcoat material must be applied in full accordance with the coating manufacturer's written instructions.

*If Contego IFRM coatings are exposed to weather conditions without a proper topcoat or in cases where topcoat is not maintained or applied correctly coating system failure will occur.

*If the Contego specific design listing being followed requires a topcoat contact Contego International for further assistance in product changes and/or removal recommendations.

Manufacturer	Product Description	Interior	Exterior
BEHR	Interior Alkyd Semi-Gloss NO. 3900	X	
BEHR	Marquee Interior Semi-Gloss Enamel 3400	X	
Benjamin Moore	Impervex Latex High Gloss Enamel 309	X	
Benjamin Moore	Ultra Spec 500 N538	X	
Cloverdale	ArmourShield 8475: Semi-Gloss	X	X
Cloverdale	ArmourShield 839: High Gloss	X	X
Dulux	Lift Master Interior Acrylic 59311	X	
PPG	Speedhide 6-500 Series	X	
PPG	Speedhide Series 6-70	X	
PPG	Speedhide Zero 6-4310 Series	X	
PPG	Speedhide Zero Latex Eggshell 6-411	X	
PPG	Ultra Hide 150 1210-0100G Series	X	
PPG	Amershield ™ Low VOC	X	X
PPG	Amerlock ® 2 VOC Fast Dry	X	X
PPG	Coraflon Urethane Mastic ADS650	X	X
Sherwin Williams	Acrolon 218 HS B65-600 Series	X	
Sherwin Williams	METALATEX SEMI-GLOSS B42-100 SERIES 100%	X	
Sherwin Williams	Pro Industrial Acrylic Gloss B66-600 Series	X	
Sherwin Williams	Pro Industrial DTM Acrylic Primer - Finish B66	X	
Sherwin Williams	ProMar 200 B31-2600 Series	X	
Sherwin Williams	Sher-Cryl HPA	X	
Sherwin Williams	Steel Master 9500 B56-300 Series Silicone	X	
Sherwin Williams	Pro Industrial WB Catalyzed B73-300 Series	X	
Sherwin Williams	Hi-Solids Polyurethane 250	X	X
Sherwin Williams	Pro Ind. Acrolon 100 B65-700 Series	X	X
Tnemec	Enduralume Series 1077	X	
Tnemec	Endura-Shield Series 73	X	
Tnemec	Enduratone Series 1028 HDP	X	
Tnemec	Uni-Bond DF Series 115	X	
Miller Paint	Acrimetal DTM Low Sheen Acrylic Primer/Finish	X	
Miller Paint	Acro HP Acrylic Semigloss	X	
Miller Paint	Acrinamel Acrylic Enamel Semigloss	X	
Vista Paint	8400 Carefree Semi-Gloss	X	
Vista Paint	9800 Protec Semi-Gloss	X	

*Please contact the Contego International Technical Services Department at 800-434-6444 or info@contegointernational.com for further assistance or for the use of topcoats other than those listed.
www.contegointernational.com