



CODE EVALUATION REPORT

CERus-1037

PUBLISHED:
EXPIRATION:

June 2025
June 2027

PRODUCT(s):	EDCO Metal Roofing Panels
REPORT HOLDER:	EDCO Products, Inc.
CONTACT DETAILS:	800 2 nd Street Northeast, Hopkins, MN 55343 USA www.edcoproducts.com
CSI DIVISIONS:	07 00 00 – Thermal and Moisture Protection
CSI SECTION:	07 31 16 – Metal Shingles 07 41 13 – Metal Roof Panels
APPLICABLE CODES:	2024, 2021, 2018 International Building Code (IBC) 2024, 2021, 2018 International Residential Code (IRC) 2023, 2020 Florida Building Code (FBC) 2022 California Building Code (CBC)
EVALUATED:	Weather Resistance. Wind Resistance. Roof Fire-Classification. Hail-Impact Resistance



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1.0 APPROVED FOR FOLLOWING:

APPROVED TYPES OF CONSTRUCTION:	Type I-V/ AB
APPROVED USE:	Roof coverings for use in Class A fire-classified assemblies.
APPROVED INSTALLATIONS:	Roofs including fire-classified roof assemblies.

2.0 DESCRIPTION:

2.1 General:

EDCO Metal Roofing Panels are roof coverings formed from 28-gauge (0.39 mm) G90 galvanized steel complying with ASTM A653. The top of the panel is coated with a polyvinylidene fluoride (PVDF). This product is intended for use on slopes $\geq 4:12$ (33%). EDCO Metal Roofing Panels are available in two different model types: ArrowLine Slate and ArrowLine Shake/Shingle.

When installed in accordance with Section 4.4 and Table 3 of this report, EDCO Metal Roofing Panel products provide a Class A roof-fire assembly determined in accordance with Section 1505 of the 204 / 2021 / 2018 IBC and Section R902.1 of the 2024 / 2021 / 2018 IRC.

EDCO Metal Roofing Panel products comply for use as roof coverings per the 2023 / 2020 Florida Building Code (FBC) for use in areas not defined as high velocity hurricane zones (HVHZ). See Section 10 of this report for further details.

EDCO Metal Roofing Panel products comply for use as roof coverings per the 2022 California Building Code (CBC). EDCO Metal Roofing Panel Class A roof-fire classified assemblies are approved for use in areas defined as a Wildland-Urban Interface (WUI) in Chapter 7A of the CBC when installed in accordance with Section 4.4 and Table 3 of this report. See Section 10 of this report for further details.

2.2 Products:

2.2.1 EDCO Metal Roofing Panels:

See Table 1 below for the properties of the recognized models of EDCO Metal Roofing Panels.

Table 1 – EDCO Metal Roofing Panel Properties

Product	Length		Width		Installed Weight		Installed Exposure	
	Inches	mm	Inches	mm	lbs/sqft	kg/m ²	Inches	mm
ArrowLine Slate	50.7	1288	12.8	325	0.91	4.44	12-1/8	308
ArrowLine Shake/Shingle	50.7	1288	12.8	325	0.86	4.20	12-1/8	308



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3.0 DESIGN:

EDCO Metal Roof Panel products outlined in this report comply with performance requirements outlined in Section 1504 of the 2024 / 2021 / 2018 IBC, 2023 / 2021 FBC, and 2022 CBC, including compliance for use as metal roof panels in accordance with Section 1507.4 of the 2024 / 2021 / 2018 IBC, 2023 / 2020 FBC, 2022 CBC and Section R905.4 of the 2024 / 2021 / 2018 IRC. EDCO Metal Roofing Panels are to be installed on roofs with minimum slopes of 4:12 (33%).

Where installed in accordance with Section 8.1 of this report EDCO Metal Roofing Panels are limited to applications to maximum allowable uplift pressures listed in Table 2 of this report. Use in applications greater than those stated require approval by a registered design professional and approval by the authority having jurisdiction.

EDCO Metal Roofing Panels are intended for use as the finished roof covering on new and over existing construction where existing roof coverings have been removed in accordance with Section 4.2 and 4.3 of this report as applicable. When used in applications requiring roof fire classified assemblies, installation shall conform to Section 4.4 and Table 3 of this report.

4.0 INSTALLATIONS:

4.1 General:

Installation of EDCO Metal Roofing Panels must comply with the manufacturer's published installation instructions, this report, and the applicable code(s). Where differences are found, this report and the applicable building code shall be followed.

EDCO Metal Roofing Panel products are intended for installation onto minimum 4:12 (33%) roof slopes

EDCO Metal Roofing Panels require direct-to-deck installation over plywood or OSB sheathing of minimum 15/32-inch (12 mm) thickness complying with the applicable code. Each panel is attached using five to seven EDCO steel clips which are fastened to the sheathing using one (1) No. 10 by 1-inch (25mm) length corrosion resistant Zip screw for each clip installed at a preformed hole. Attachment of the sheathing to underlying framing elements is outside the scope of this report and shall be sufficient to resist service loads. .

Flashing, counterflashing, and valley flashing shall be sheet metal complying with the applicable code. Sheet metal must be G90 galvanized of minimum thickness in accordance with applicable code. Valley flashing shall be a minimum 15 inches (381 mm) wide sheet metal complying with applicable code. Flashing, including fasteners, shall not be in contact with dissimilar metals to avoid corrosion. Flashing shall prevent moisture from entering the wall and roof in accordance with Section 1503.2 of the 2024 / 2021 / 2018 IBC and Section R903.2 of the 2024 / 2021 / 2018 IRC.

While not required, drip edge flashings and rake edge flashings are recommended, installed with good roofing practice.



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4.1.1 Special Inspection:

2024 / 2021 IBC Section 1705.12: Special inspection including periodic special inspection for wind resistance are required for buildings constructed in the following areas:

1. Wind Exposure Category B, where V_{Ult} is ≥ 150 mph (241 km/hr).
2. Wind Exposure Category C or D, where V_{Ult} is ≥ 140 mph (225 km/hr).

Special inspection is to confirm installation is in conformance with Section 8.1 of this report. Installation in areas of maximum V_{Ult} of 130 mph (209 km/hr), maximum mean roof height of 40 ft (12.2 m) and Exposure Category B do not require special inspection.

4.1.2 Underlayment:

Underlayment must comply with and be installed in accordance with 2024 /2021 / 2018 IBC Sections 1507.1.1 and 2024 / 2021 / 2018 IRC Sections R905.1.1 as applicable. For fire-classified roof assemblies, underlayment shall be installed in accordance with Table 3 and Section 4.4 of this report. Underlayment must comply with and be installed in accordance with the applicable code and the manufacturer's published installation instructions.

In areas where there is potential for or has been a history of ice forming along eaves causing the backup of water an ice barrier is required. The ice barrier may consist of:

- a) Two layers of ASTM D226 Type I, ASTM D4869 Type I or ASTM D6757 underlayment cemented together or
- b) A self-adhering polymer modified bitumen sheet complying to ASTM D1970.

Alternate ice barriers are outside the scope of this report but may be used where approved by the authority having jurisdiction. The ice barrier shall be used as an alternative to the normal underlayment, extending from the lowest edges of all roof surfaces to a point at least 24 inches (610 mm) inside the exterior wall line of the structure. Following, the standard underlayment shall be lapped over the ice barrier and shall overlap a minimum of 4 inches (102 mm). Attachment and overlapping of the ice barrier to underlayment are outside the scope of this report and is to be in accordance with the applicable code and the ice barrier manufacturer's published installation instructions.

4.2 New Construction:

EDCO Metal Roofing Panels are to be installed directly on solid or closely fitted minimum 15/32-inch (12 mm) thickness plywood or OSB complying with the applicable code. A metal starter piece is secured along the eave. Full-length panels are then laid atop the approved underlayment, beginning at the eave line. The lower edge of each panel must securely engage with the starter strip. Panels should be overlapped along the sides from left to right. Next, the system is fastened to the substrate using clips and fasteners as specified in Table 2 of this document. Each additional row of panels is installed by locking the bottom edge into the top fold of the panel below and securing it per manufacturer instructions. When used in applications requiring a fire-classified roof assembly, installation shall follow Section 4.4 and Table 3 of this report.



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4.3 Reroofing Applications:

EDCO Metal Roofing Panels are not intended for installation over existing roof systems. Existing roof coverings and underlayment are to be removed, and roof sheathing and penetrations are to be inspected to ensure the roof structure is free of rot and damage prior to installation of the EDCO products. All past existing roof coverings shall be completely removed, following all installation conditions noted in Section 4.1 and 4.2. When used in applications requiring a fire-classified roof assembly, installation shall follow Section 4.4 and Table 3 of this report.

4.4 Roof Fire Classified Assemblies:

EDCO Metal Roofing Panels comply for use as Class A and Class B roof-assemblies per 2024 / 2021 / 2018 IBC Section 1505.1 and 2024 / 2021 / 2018 IRC Section R902.1. Installation and assembly details, including maximum roof slope, are to be in accordance with Table 3 in Section 8.2 of this report.

4.5 Hail Impact Resistant Assemblies:

EDCO Metal Roofing Panels are Class IV impact resistance rated evaluated following UL 2218. EDCO Metal Roofing Panels are eligible for use in hail-prone areas classified as Very Severe Hail (VSH) in accordance with FM 4473 when installed in accordance with Table 4 of this report.

5.0 LIMITATIONS:

- Installation of EDCO Metal Roofing Panels are to comply with the applicable codes, this report and the manufacturer's installation instructions. Where differences are found, the applicable code and this report shall be followed.
- EDCO Metal Roofing Panels are intended for use on roof slopes $\geq 4:12$ (33%).
- Maximum allowable wind uplift pressures are specified in Table 2 of this report. Use in applications requiring greater wind uplift resistance are outside the scope of this report and require engineering design.
- Attachment of sheathing to underlying framing members is outside the scope of this report and shall be in compliance with the applicable code and be sufficient to resist uplift forces and service loads required.
- Special inspection for wind resistance may be required as per Section 4.1.1 of this report.
- EDCO Metal Roofing Panels used in Class A and Class B fire rated roof-assemblies are to be installed in accordance with Sections 4.4 and 8.2 Table 3 of this report.
- EDCO Metal Roofing Panels used in hail-prone areas are to be installed in accordance with Sections 4.5 and 8.3, Table 4 of this report.
- EDCO Metal Roofing Panel products are manufactured in Hopkins, MN with inspections by QAI Laboratories.

6.0 SUPPORTING INFORMATION:

The following data has been evaluated for EDCO Metal Roofing Panel products:

- Data for use in roof fire classified assemblies determined in accordance with ASTM E108.
- Data for wind uplift evaluated in accordance with UL 580 and TAS 125.
- Data for outlining class IV impact resistance per UL 2218.
- Data for impact testing for Very Severe Hail classification per FM 4473.
- Data for wind driven rain in accordance with TAS 100.



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7.0 MARKING:

EDCO Metal Roofing Panel finished products are labeled with the product and model name, manufacturer's name (EDCO Products, Inc.), location of manufacture, and the QAI CERus-1037. Examples of finished product labels can be seen in Figure 1 below.

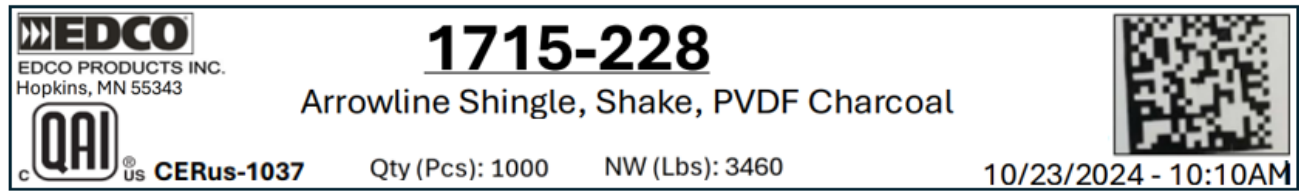


Figure 1 – Representative Example of EDCO Metal Roofing Panel Product Label



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8.0 RESULTS/RATINGS:

8.1 Wind Uplift Resistance

Table 2 – Wind Uplift Classification Assembly Details

System No.	Substrate ¹	Roofing Panel	No. of Clips ⁴	Fasteners	Allowable Wind Uplift Pressure ²	
					psf	kPa
1	Minimum 15/32-inch (12 mm) plywood	ArrowLine Slate	5	#10 by 1-inch (25mm) length Zip screw	71	3.4
2	Minimum 15/32-inch (12 mm) plywood	ArrowLine Slate, or ArrowLine Shake/Shingle	6	#10 by 1-inch (25mm) length Zip screw	89	4.3
3	Minimum 15/32-inch (12 mm) plywood	ArrowLine Slate, or ArrowLine Shake/Shingle	7	#10 by 1-inch (25mm) length Zip screw	116	5.6
4	Minimum 15/32-inch (12 mm) OSB	ArrowLine Slate, or ArrowLine Shake/Shingle	5	#10 by 1-inch (25mm) length Zip screw	56	2.7
5	Minimum 15/32-inch (12 mm) OSB	ArrowLine Slate, or ArrowLine Shake/Shingle	6	#10 by 1-inch (25mm) length Zip screw	77	3.7
6	Minimum 15/32-inch (12 mm) OSB	ArrowLine Slate, or ArrowLine Shake/Shingle	7	#10 by 1-inch (25mm) length Zip screw	108.5	5.2
7	Minimum 15/32-inch (12 mm) Plywood	ArrowLine Shake/Shingle	5	#10 by 1-inch (25mm) length Zip screw	86	4.1

1. Attachment of sheathing to underlying framing members and attachment of battens is outside the scope of this report and shall be sufficient to resist uplift forces required.
2. Maximum uplift pressure was determined in accordance with method UL 580 / TAS 125 with a factor of safety of 2.0 applied to ultimate pressure achieved.
3. See Section 4.1.1 where Special Inspection of the above installation is required.
4. Clips to be spaced evenly along the length of the panel as per EDCO installation guidelines and anchored through sheathing.



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8.2 Roof Fire Classified Assemblies:

Table 3 – Roof Fire Classified Assemblies

System	Substrate	Approved Underlayment ²	Approved Roof Coverings	Installation Guidelines	Maximum Slope	Class
New construction or reroof when existing roof is removed ¹	Minimum 15/32-inch (12 mm) plywood	One layer of Type G3 mineral-surfaced cap sheet complying with the ASTM D3909 applied over one layer of ASTM D226 Type II asphalt felt.	ArrowLine Slate or ArrowLine Shake/Shingle	See Sections 4.1, 4.2, 4.3, 4.4	Unlimited	A
New construction or reroof when existing roof is removed ¹	Minimum 15/32-inch (12 mm) plywood	Two layers of GAF VersaShield™.	ArrowLine Slate or ArrowLine Shake/Shingle	See Sections 4.1, 4.2, 4.3, 4.4	Unlimited	A
New construction or reroof when existing roof is removed ¹	Minimum 15/32-inch (12 mm) plywood	One layer of GAF VersaShield™.	ArrowLine Slate or ArrowLine Shake/Shingle	See Sections 4.1, 4.2, 4.3, 4.4	Unlimited	B
New construction or reroof when existing roof is removed ¹	Minimum 15/32-inch (12 mm) plywood or OSB	One layer of Eco Chief SOLARHIDE™.	ArrowLine Slate or ArrowLine Shake/Shingle	See Sections 4.1, 4.2, 4.3, 4.4	Unlimited	A
New construction or reroof when existing roof is removed ¹	Classified Non-Combustible ³	Unrestricted	ArrowLine Slate or ArrowLine Shake/Shingle	See Sections 4.1, 4.2, 4.3, 4.4	Unlimited	A

1. Installation of the EDCO Metal Roofing Panels requires complete removal of existing roof coverings and underlayment and inspection prior to installation in accordance with Section 4.3 of this report.
2. Underlayment end laps to require offsets to comply with the applicable code and manufacturer's instructions.
3. Non-combustible substrates complying with ASTM E136.



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8.3 Impact Rated Assemblies:

Table 4– Impact Rated Assemblies

Substrate	Approved Underlayment	Approved Roof Coverings	Installation Guidelines	Hail-Impact Classification ¹
Minimum 15/32-inch (12 mm) plywood	Unrestricted	ArrowLine Slate Metal Roofing Panel	See Sections 4.1, 4.2, 4.3, 4.4	Class 4 and VSH
Minimum 15/32-inch (12 mm) plywood	Unrestricted	ArrowLine Shake/Shingle Metal Roofing Panel	See Sections 4.1, 4.2, 4.3, 4.4	Class 4 and VSH

1. Hail-impact classification determined in accordance with UL 2218 and FM 4473.

9.0 PRODUCT DETAILS:

9.1 EDCO Metal Roofing Panel Product Drawings

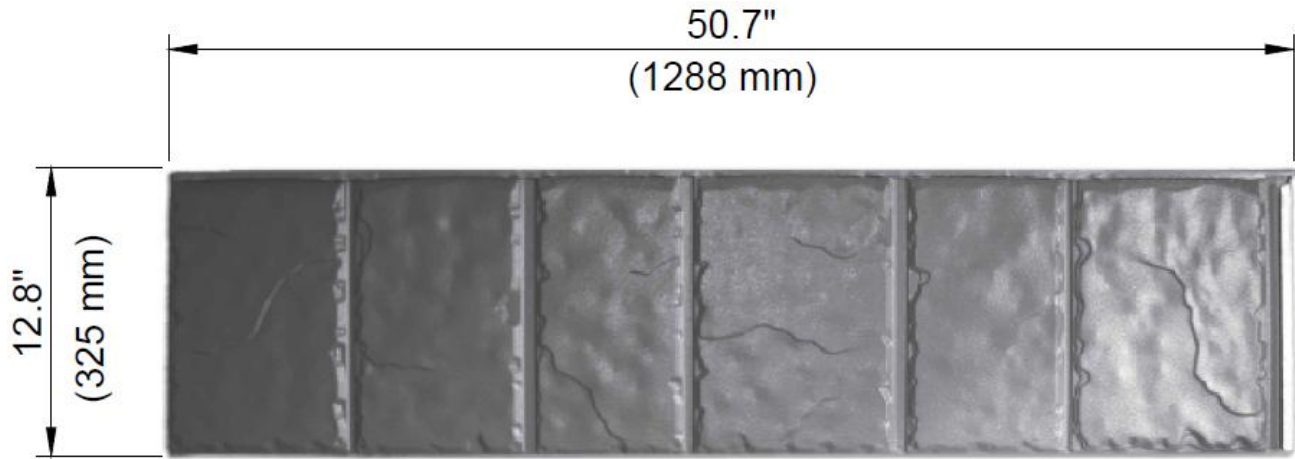


Figure 2 – EDCO ArrowLine Slate Details

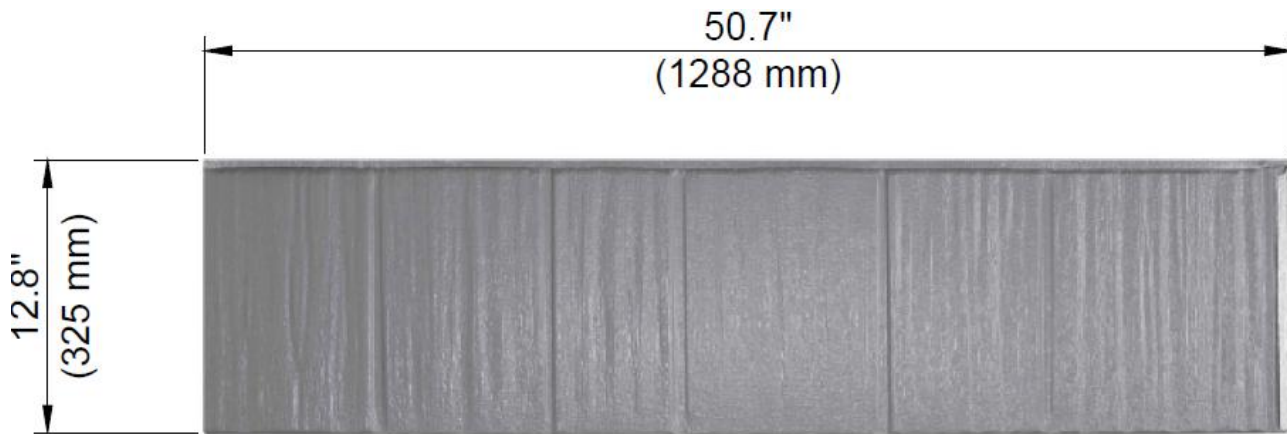


Figure 3 – EDCO ArrowLine Shake/Shingle Details



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10.0 SUPPLEMENTAL CODES

10.1 2023 / 2020 Florida Building Code:

EDCO Metal Roofing Panels as detailed in Sections 2.0 through 9.0 of QAI CER_{US}-1037 comply with the 2023 / 2020 Florida Building Code (FBC) requirements for a roof covering including Section 1507.4 when installed in accordance with the applicable building codes and this report for use in areas not defined as high velocity hurricane zones (HVHZ) for applications as outlined in this report. EDCO Metal Roofing Panels have met the Wind Driven Rain requirements outline in method TAS 100 as referenced in the 2023/2020 FBC section 1523.6.5.

10.1 2022 California Building Code:

EDCO Metal Roofing Panels as detailed in Sections 2.0 through 9.0 of QAI CER_{US}-1037 comply with the 2022 California Building Code (CBC) when installed in accordance with the applicable building codes and this report. EDCO products installed in accordance with Section 4.4 and Table 3 of this report, identified as Class A fire rated assemblies comply for use in Fire Hazard Severity Zones or Wildland-Urban Interface (WUI) Fire Areas as outlined in Section 705A of the 2022 CBC.

11.0 ELIGIBILITY OF REPORT

QAI's Code Evaluation Report complies with the 2024 IBC Section 104.2 and / 2021 / 2018 IBC Section 104.11 *Alternative materials, design and methods of construction and equipment*, 2024 IBC subsection 104.2.3.6.1 *Evaluation reports* and 2021 / 2018 / 2015 subsection 104.11.1 *Research Reports*. Supporting data has been evaluated by QAI for compliance of the noted materials and assemblies to the applicable code by QAI, and *approved source* as detailed below.

The attached report has been reviewed by a QAI Registered Professional Engineer approved by the specific state Board of Professional Engineers noted on the specific P.E. seal(s).

Per section 1703 of the IBC, QAI is an independent third-party testing, inspection and certification agency accredited by the International Accreditation Service, Inc. (IAS) for this specific scope (see IAS PCA-118). QAI can confirm that based on its IAS accreditation it meets IBC Section 1703.1 on Independence, Section 1703.1.2 on Equipment and Section 1703.1 on Personnel.

This Evaluation report has been designed to meet the performance requirements of IBC Section 1703.4 and contains the required information to show the product, material or assembly meets the applicable code requirements.

The product is labeled per section IBC 1703 and subject to follow-up inspection per IBC 1703.6 using QAI IAS accredited ISO/IEC 17020 inspection program (see IAS AA-723).

For more information regarding QAI Laboratories, please visit www.qai.org.



The above is an example of the QAI registered Listing mark. The Listing mark may only be used by the Report Holder per the QAI service agreement on products defined in this report. The 'us' indicator in the 4 o'clock position indicates the product complies with the properties evaluated with limitations outlined in this report for use in the US market. A 'c' indicator in the 8 o'clock position indicates the product has been evaluated for use in the Canadian market.





12.0 REFERENCED STANDARDS

ASTM E108 *Standard Test Methods for Fire Tests of Roof Coverings.*

UL 580 *Test for Uplift Resistance of Roof Assemblies*

TAS 125 *Standard Requirements for Metal Roofing Systems*

UL 2218 *Standard for Safety Impact Resistance of Prepared Roof Covering Materials*

FM 4473 *Specification Test Standard for Impact Resistance Testing of Rigid Roofing Materials by Impacting with Freezer Ice Balls*

TAS 100 *Test Method for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems*

ASTM A653 *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process*

ASTM E136 *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 °C*