

Section 10 14 43

Ecoglo Photoluminescent Egress Path Markings

This specification has been numbered, organized and formatted in accordance with the MasterFormat, Section Format and Page Format documents published jointly by Construction Specifications Institute (CSI). For convenience, all products are contained within Section 10 14 43 (Photoluminescent Egress Path Markings) but if desired may be edited/adapted to suit any other Section(s) of Work in accordance with project requirements.

It is offered as a guide to experienced and knowledgeable construction professionals who assume full responsibility for its interpretation and use. Square brackets [] containing text indicate an option to be considered/inserted by the specifier. Remove brackets and unused options before printing.

Section 10 14 43

Photoluminescent Egress Path Markings

Part 1 General

1.1 Summary

- A Work Included: Furnishing and installation of complete photoluminescent Egress Path Marking System.
 - 1 Stair and Leading Edge Markings
 - 2 Handrail Markings
 - 3 Perimeter Demarcation and Door Frame Markings
 - 4 Obstacle Markings
 - 5 Stairway/Floor Identification Signs
 - 6 Egress Signage
 - 7 Door Hardware Markings

1.2 Related Sections:

- A Division 01: Administrative, procedural, and temporary work requirements
- B Section 26 5213 - Photoluminescent Exit Signs.
- C Section 05 5500 – Photoluminescent (Metal) Stair Treads and Nosings.

1.3 Design Requirements

- A Photoluminescent Exit Path Marking System shall be a complete system of low level egress markings in compliance with the requirements of the local building code and fire code.
- B Photoluminescent step edge marking products shall provide step edge colour contrast and slip resistance.
 - 1 Photoluminescent material shall be recessed within powder coated aluminium (aluminum) ridges which provide slip resistance and protect the photoluminescent material.
 - 2 Photoluminescent material utilized in step edge markings shall not have an abrasive texture that collects dirt and results in lower photoluminescent performance.
 - 3 Step edge products shall include an integrally bonded silicon carbide abrasive non-slip component that provides colour contrast.
 - 4 Step edge products shall be aluminium (aluminum) based and manufactured using High Temperature Curing (HTC) technology.
Flexible tape products and vinyl materials are not acceptable.
- C Photoluminescent egress markings shall be 1 inch (25 mm) wide, or UL 1994 listed.

- D Stairway/Floor Identification Signage in high rise buildings requiring photoluminescent egress markings are required to be made of photoluminescent material and must meet the following requirements.
 - 1 Signs shall be a minimum size of 18” x 12 inches (460 mm x 310 mm).
 - 2 Include the Identification of Stair
 - 3 Roof Access Yes/No
 - 4 Floor Number
 - 5 Optional: Braille Floor Number
 - 6 Termination top/Bottom of stair
 - 7 Story and direction of exit discharge

- 1.4 References
 - A [National Fire Protection Association (NFPA) 101 - Life Safety Code]

 - B [2009 International Building Code / International Fire Code (IBC/IFC) section 1024]
[2012 International Building Code / International Fire Code (IBC/IFC) section 1024]
[2015 International Building Code / International Fire Code (IBC/IFC) section 1025]
[2018 International Building Code / International Fire Code (IBC/IFC) section 1025]

 - C [New York City LL 141 Photoluminescent Exit Path Markings section 1024]

 - D Underwriters Laboratories, Inc. (UL) UL 1994 Standard for Safety, Luminous Egress Path Marking Systems.

 - E American Society for Testing & Materials (ASTM) ASTM E2072, Standard Specification for Photoluminescent (Phosphorescent) Safety Markings and E2073 – Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings.

- 1.5 Quality Assurance
 - A Manufacturer Qualifications: to have minimum of 20 years experience with similar work.

 - B Installer Qualifications: to be manufacturer trained/authorized installer.

- 1.6 Submittals
 - A Submit the following [in accordance with Section 01 33 00 – Submittal Procedures]:
 - 1 Product Data: Manufacturer’s product data sheets for materials used in system.

- 2 Shop Drawings: Provide drawings showing details, dimensions, extent of work, and other data necessary for the satisfactory installation of the products stated herein for compliance with the local building code requirements.
- 3 Samples: 12" size for review showing final colour. Label samples with product codes and intended use.
- 4 Manufacturer's Instructions: Pre-printed material describing installation of product, system or material, including special notices.
- 5 Test Reports: Submit independent test reports to verify compliance with relevant standards as detailed in 2.2A(3) and 2.2A(4).
- 6 Substitutions: Substitutions must be submitted and approved prior to bid date. All requests shall include test results, product descriptions, confirmation of piece design and engineering calculations meeting design criteria.

Include the following for submission of sustainable design submittals.

- B Sustainable Design Submittals:
 - 1 Regional Materials: Certify manufacturing location.
 - 2 Construction Waste Management Divert from Land Fill: Certify if products are made with materials that are recyclable.
 - 3 Recycled Content: Certify percent recycled content and designate whether pre-consumer or post-consumer.
 - 4 VOC content for installation adhesives.

- 1.7 Delivery, Storage and Handling
 - A Handle and store Products in a manner to prevent damage, deterioration and soiling to Products, other building components, assemblies, other Products, the structure, the Site and surrounding property and in accordance with manufacturer's instructions.

 - B Store products subject to damage from weather in weatherproof enclosures.

- 1.8 Warranty
 - A Provide manufacturer's limited warranty. Warranty to cover defects in materials and workmanship.
 - 1 High Temperature Curing (HTC) Products: (5) years from the date of Substantial Performance of the Work.
 - 2 30 Year Warranty on photoluminescent performance of HTC products when positioned indoors.

Part 2 Products

2.1 Manufacturers

- A Contract Documents are based on products by Ecoglo International Ltd. (www.ecoglo.com)
- B Substitutions: [Under provisions of Division 01.] Submit for consideration prior to bid closing.

2.2 Materials

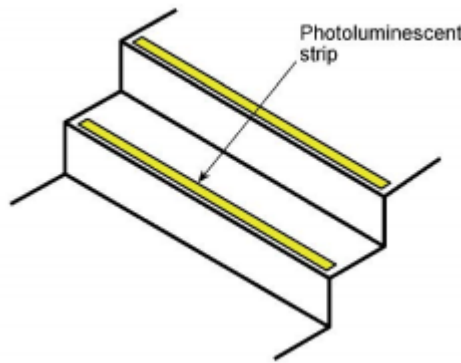
- A High Temperature Curing (HTC) Products:
 - 1 Extruded Aluminium (Aluminum) Nosings: 6060T5 extrusion anodized to Class 1, .0007" (20 microns) thickness.
 - 2 Photoluminescent material: manufactured using HTC technology - strontium aluminate-based photoluminescent pigment embedded in thermoset polyester carriers that integrally bond the active ingredients into powder coated aluminium (aluminum) substrates following curing at 350°F (180°C).
 - 3 Materials shall be UL 1994 listed.
 - 4 All HTC products to meet or exceed the performance criteria specified in the following tests or standards. PC = Performance Criteria
 - a. Slip Resistance
 - UL 410 Standard for Slip Resistance for Floor Surface Materials, PC – Pass, or alternatively, AS/NZS 4586-2004, Slip Resistance Classification of New Pedestrian Surface Materials. PC – Dry slip resistance classification F, wet slip resistance classification V, slip resistance assessment group R12
 - AS 4586-2013 PC - Classification: P5
 - b. UV Resistance
 - ASTM G155-04 Cycle 1 1000hrs, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials. PC – Loss in luminance after exposure < 10%
 - c. Salt Spray Resistance
 - ASTM B117-97 1000hrs, Standard Practice for Operating Salt Spray (Fog) Apparatus. PC – Slight corrosion build up along scribes, no blistering or filiform growth along scribes.
 - d. Washability
 - ASTM D4828-94(2003), Standard Test Methods for Practical Washability of Organic Coatings. PC – crayon, pen, 3M soil: all rating 10, being complete removal of soilant.
 - e. Rate of Burning
 - ASTM D635-03, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a

Horizontal Position. PC – Time of burn 0 seconds, does not burn.

- f. Surface Flammability
ASTM E162-02, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source. PC – Flame spread index 7.6, ignites with difficulty.
 - g. Toxicity
Bombardier Toxic Gas Generation Test SMP800-C.
PC – Pass.
 - h. Radioactivity
ASTM D3648-2004, Standard Practices for the Measurement of Radioactivity. PC – Pass.
 - i. Luminance
UL 1994 Standard for Luminous Egress Path Marking Systems. PC – Pass.
 - j. High Temperature Curing
Independently tested by placing 3 samples in an oven at 180°C for 20 minutes and then examining the samples after removing from the oven. PC – the samples shall have no shrinkage, delamination, distortion, or yellowing.
- 5 Anti-slip surface: manufactured using HTC technology – silicon carbide integrally bonded into powder-coated aluminium (aluminum) substrates following curing at 350°F (180°C).

2.3 Components

A Step Edge Markings



- 1 Step Edge Product Code: [E14-075]
Description: [64mm wide strip incorporating 10mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.]

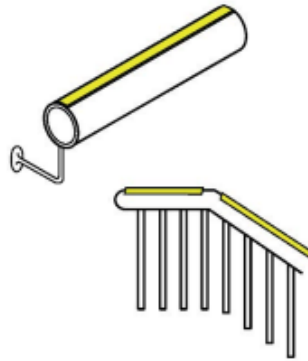
SPEC NOTE: The listed data included in table below provide product codes and descriptions. Anti-slip in all products is black in colour. Specification articles (product selections) contained within square brackets [] are shown as example choices only.

[Click Here](#) to view Ecoglo Step Edge Products

Product Code	Description
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F15-175 Step Nosing	75mm x 33mm aluminium (aluminum) nosing incorporating 12.6mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F14-175 Step Nosing	75mm x 10mm aluminium (aluminum) nosing incorporating 12.6mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F15-173 Step Nosing	75mm x 33mm aluminium (aluminum) nosing incorporating 25mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F14-173 Step Nosing	75mm x 10mm aluminium (aluminum) nosing incorporating 25mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F2-003 Step Nosing	77mm x 22mm aluminium (aluminum) nosing incorporating 26mm photoluminescent strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
E2-071 Step Edge Contrast	37mm wide strip incorporating 16mm photoluminescent strip and 21mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
E14-075 Step Edge Contrast	64mm wide strip incorporating 10mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
E15-073 Step Edge Contrast	51mm wide strip incorporating 26mm photoluminescent strip and 25mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
E4-073 Step Edge Contrast	51mm wide strip incorporating 26mm photoluminescent strip and 25mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
G6-003 Guidance Strip	26mm wide photoluminescent strip suitable for step edging. Available in lengths from 800mm to 1500mm in 100mm increments, and in full length of 3060mm.

B Handrail Markings



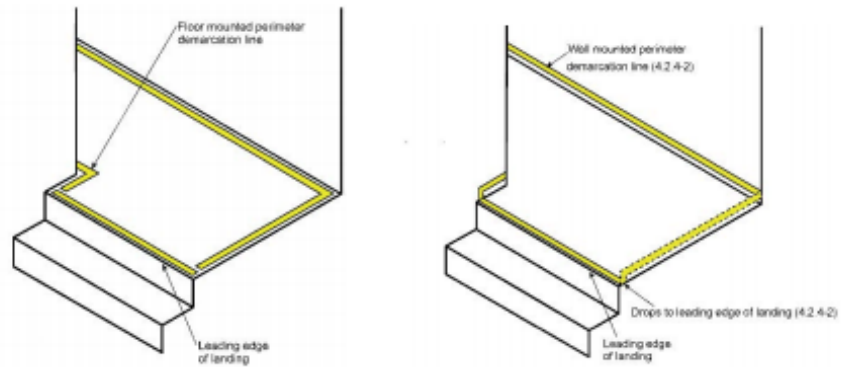
- 1 Handrail Markings Product Code: [H5-001]
 Description: [27mm wide photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.]

SPEC NOTE: The listed italics data included in table below provide product codes and descriptions. Specification articles (product selections) contained within square brackets [] are shown as example choices only.

[Click Here](#) to view Ecoglo Handrail Products.

Product Code	Description
H3-001 Handrail Strip	15.5mm wide photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.
HREC3 End Cap	Metal End Cap for use with H3-001
H5-001 Handrail Strip	27mm wide photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.
HEC5 End Cap	Plastic End Cap for use with H5-001
G3-001 Guidance Strip	15.5mm wide photoluminescent strip suitable for flat handrails. Available in 1000mm and 3060mm lengths.
G6-003 Guidance Strip	26mm wide photoluminescent strip suitable for flat handrails. Available in lengths from 800mm to 1500mm in 100mm increments, and in full length of 3060mm.

C Perimeter demarcation



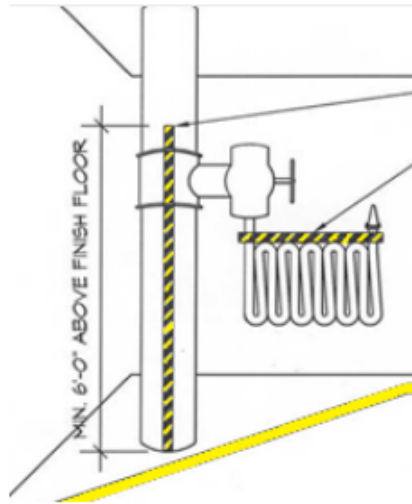
- 1 Perimeter Demarcation Product Code: [G3-001]
 Description: [15.5mm wide photoluminescent strip. Available in 1000mm and 3060mm lengths.]

SPEC NOTE: The listed italics data included in table below provide product codes and descriptions. Specification articles (product selections) contained within square brackets [] are shown as example choices only.

[Click Here](#) to view Ecoglo Perimeter Demarcation Products.

Product Code	Description
G3-001 Guidance Strip	15.5mm wide photoluminescent strip. Available in 1000mm and 3060mm lengths.
G6-003 Guidance Strip	26mm wide photoluminescent strip. Available in lengths from 800mm to 1500mm in 100mm increments, and in full length of 3060mm.
T6-101 Path Marker	37mm wide aluminium extrusion incorporating 15.5mm wide photoluminescent strip. Available in 1000mm lengths.
T5-101 Path Marker	51mm wide aluminium extrusions incorporating 15.5mm wide photoluminescent strip. Available in 1000mm lengths.

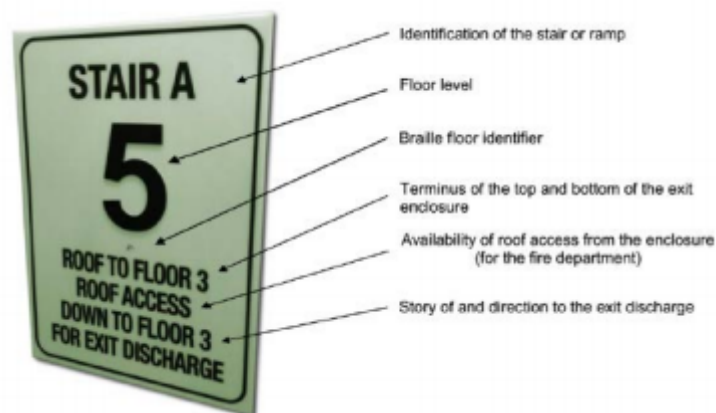
D Obstacle Marking



- 1 Obstacle Marking Product Code: UL-HZ2503
Description: Manufactured from high quality vinyl tape.
Available in rolls 25mm wide x 3m. (*Non-HTC Product*)

[Click Here](#) to view Ecoglo Obstruction Marking Products.

E Stairway Identification Signs



- 1 Stairway Identification Signs Product Code: S5-SI4631
Description: Photoluminescent Floor Identification Signs. 18" by 12" (460mm x 310mm) with Tactile raised Floor level numbers (ICC A117.1 compliant). Braille floor number optional. Signage

shall state the story of, and the direction to, the exit discharge and the availability of roof access from the enclosure for the fire department.

[Click Here](#) to view *Ecoglo Stairway Identification Signs*.

- F Photoluminescent Egress Signage
- 1 Directional egress signage. 100 mm x 100 mm. Signs can be used alone or in combination with other egress signage.

[Click Here](#) to view *Ecoglo Egress Signage*.

Product Code	Description
S5-RML1010	Directional pictogram – left facing. 100mm x 100mm..
S5-RMR1010	Directional pictogram – right facing. 100mm x 100mm
S5-ARS1010	Directional arrow – straight. 100mm x 100mm
S5-ARD1010	Directional arrow – diagonal. 100mm x 100mm

- G Door Hardware Markings
- 1 Door handle marker (100 mm x 100 mm).
 - 2 Door Push Bar Marker (407 mm x 38 mm). (*Non-HTC product.*)

[Click Here](#) to view *Ecoglo Door Hardware Markings*.

Product Code	Description
S5-DHM1010	Door handle marker. 100mm x 100mm
UL-DHM3840	Door push bar marker with “PUSH TO OPEN” text on photoluminescent background. 407mm x 38mm.

Part 3 Execution

3.1 Examination

- A Before installation, examine surfaces on which the work of this section depends. Notify [Contractor] if substrates do not comply with requirements of this section
- B Ensure any painted surfaces are fully cured.
- C Do not proceed with work of this Section until all unsatisfactory conditions have been corrected, if any.
- D Commencement of Work will imply acceptance of surfaces.

3.2 Preparation

- A Clean surfaces to remove dirt, dust, grease, oil, loose material, frost, paint, coatings, or other matter that may affect bonding or installation of photoluminescent products.

- B Test substrates for fit with products before using adhesives or mechanical fastening.
- 3.3 Installation
- A Install signs [as per Schedule attached at end of Section] [as indicated in Drawings] [positioned in accordance with [National Fire Protection Association (NFPA) 101 - Life Safety Code] [International Building Code / International Fire Code (IBC/IFC)] [New York City RS6-1 and RS6-1A Photoluminescent Exit Path Markings]].
 - B Unless otherwise indicated in the specifications, install Products in accordance with manufacturer's instructions. Obtain written instructions directly from manufacturer.
- 3.4 Cleaning
- A Trim any excess adhesive with a sharp blade.
 - B At completion of installation, clean soiled Product surfaces in accordance with manufacturer's instructions.
- 3.5 Waste Management and Disposal
- A Separate waste materials for [reuse] [and] [recycling] at nearest used building materials facility.
 - B Divert unused caulking, sealants and adhesive materials from landfill through appropriate disposal procedure listed in safety data sheets (SDS).
- 3.6 Protection
- A Allow 24 hours for adhesive cure with no foot traffic permitted.
 - B Protect areas from damage using barriers, markers or temporary signs as required.
 - C Do not allow heavy objects to come in contact with installed products.

End of Section