

Section 10 14 43

Ecoglo Photoluminescent Emergency Visibility (including Outdoor Means of Egress)
Specification to Improve or Restore Emergency Lighting System Performance

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Photoluminescent Emergency Visibility (including Outdoor Means of Egress)
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Part 1 General

1.1 Summary

- A Work Included: Supply and installation of complete photoluminescent Emergency Visibility System, including outdoor means of egress where required.

- 1 Stair and Leading Edge Markings
- 2 Handrail Markings
- 3 Perimeter Demarcation and Door Frame Markings
- 4 Obstacle Markings
- 5 Egress Signage
- 6 Door Hardware Markings

1.2 Related Sections:

- A Section 26 53 00 - Photoluminescent Exit Signs.

1.3 Design Requirements

- A Photoluminescent Emergency Visibility System shall be a complete emergency visibility system in compliance with the performance 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 in step edge marking 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 for step edge marking.

- C Photoluminescent egress markings shall be UL 1994 listed.

- D Where photoluminescent egress path markings are installed, they shall be provided with not less than 54 lux of illumination for not less than 60 minutes prior to periods when the building is occupied, and continuously during the building occupancy.
Where the means of egress extends outdoors, daylight will provide sufficient illumination to ensure the photoluminescent egress path markings remain sufficiently charged to operate throughout the night.

- 1.4 References
 - A Underwriters Laboratories, Inc. (UL) UL 1994 Standard for Safety, Luminous Egress Path Marking Systems.
- 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: 300mm 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, safety data sheets outlining hazards and safety precautions and maintenance and cleaning instructions.
 - 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 30 Year Warranty on photoluminescent performance of all HTC products, including signs, when positioned indoors.
 - 2 15 Year Warranty on photoluminescent performance of HTC products (excluding signs) when positioned outdoors.
 - 3 3 Year Warranty on photoluminescent performance of non-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.

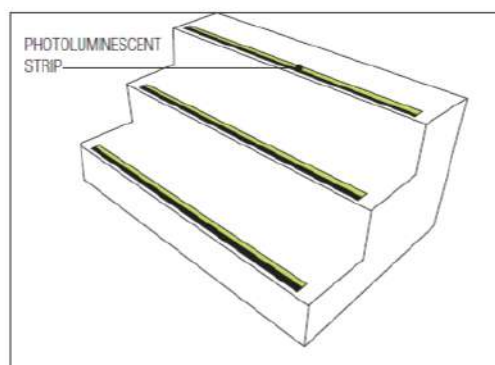
2.2 Materials

- A High Temperature Curing (HTC) Products
 - 1 Extruded Aluminium (Aluminum) Nosings: 6060T5 extrusion anodized to Class 1, 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 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 4586-2013 Slip Resistance Classification of New Pedestrian Surface Materials. PC - Classification: P5, or 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
 - 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, 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. AND
All step edge products, handrail markings and perimeter demarcation products shall be independently tested in accordance with UL 1994 except that the observation test is replaced by luminance readings at 60, 90, 120 and 180 minutes after charging ceases. PC -
60 minutes after charging ceases, a minimum of 15 mcd/m²;
and
90 minutes after charging ceases, a minimum of 10 mcd/m²;
and
120 minutes after charging ceases, a minimum of 8 mcd/m²;
and
180 minutes after charging ceases, a minimum of 5 mcd/m².
 - j. High Temperature Curing
Independently tested by placing 3 samples in an oven at 150°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 180°C.

2.3 Components

A Step Edge Markings



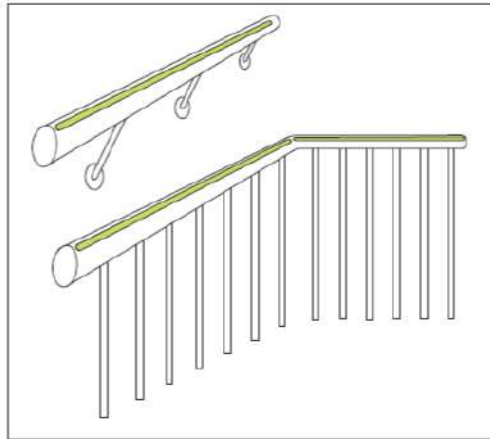
- Step Edge Product Code: [E14-075]
Description: [64mm wide aluminium (aluminum) base strip incorporating 10mm photoluminescent strip and 50mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.]

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
F15-175 Step Nosing	75mm x 33mm aluminium (aluminum) nosing 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.
F14-175 Step Nosing	75mm x 10mm aluminium (aluminum) nosing 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.
F9-171 Step Nosing	50mm x 25mm aluminium (aluminum) nosing incorporating 14.5mm photoluminescent strip and 20mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm and 3060mm.
E14-075 Step Edge Contrast	64mm wide aluminium (aluminum) base 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.
E2-071 Step Edge Contrast	37mm wide aluminium (aluminum) base strip incorporating 14.5mm photoluminescent strip and 20mm black anti-slip strip. Available in lengths from 800mm to 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.

B Handrail Markings



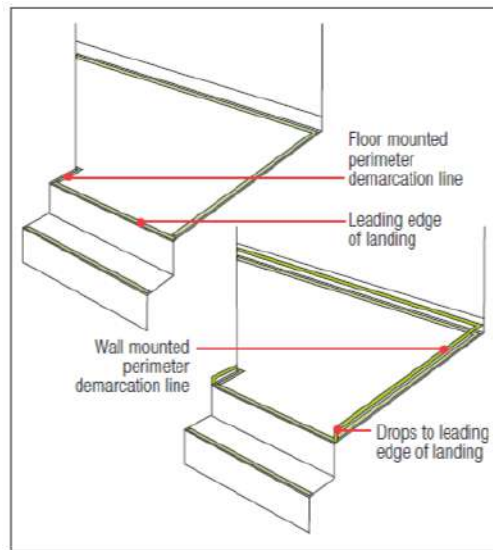
- 1 Handrail Markings Product Code: [H3-001]
Description: [15.5mm wide aluminium (aluminum) base photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.]

SPEC NOTE: The listed 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 aluminium (aluminum) base photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.
HREC3.WHT End Cap	White Metal End Cap for use with H3-001
HRJC3.WHT Joiner Cap	White Metal Joiner Cap for use with H3-001
G3-001 Guidance Strip	15.5mm wide aluminium (aluminum) base photoluminescent strip suitable for flat handrails. Available in 1000mm and 3060mm lengths.

C Perimeter Demarcation



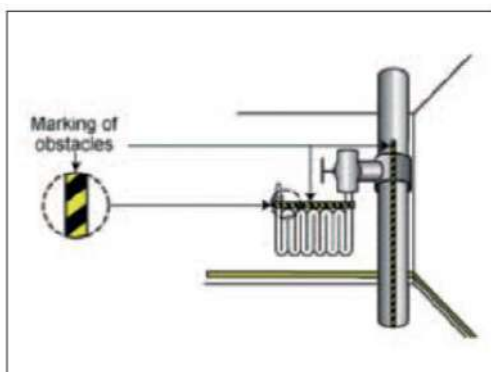
- 1 Perimeter Demarcation Product Code: [G3-001]
Description: [15.5mm wide aluminium (aluminum) base photoluminescent strip. Available in 1000mm and 3060mm lengths.]

SPEC NOTE: The listed 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 aluminium (aluminum) base photoluminescent strip. Available in 1000mm and 3060mm lengths.
T6-101 Path Marker	37mm wide aluminium (aluminum) extrusion incorporating 15.5mm wide photoluminescent strip. Available in 1000mm lengths and 3060mm lengths.
T5-101 Path Marker	51mm wide aluminium (aluminum) extrusion incorporating 15.5mm wide photoluminescent strip. Available in 1000mm lengths and 3060mm lengths.

D Obstacle Marking



- 1 Obstacle Marking Product Code: UL-HZ2518
Description: High quality photoluminescent vinyl tape with 45 degree angled black stripes.
Available in rolls 25mm wide x 18m. (*Non-HTC Product*)

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

E Egress Signage

- 1 Egress Signage Product Code [S5-RML2010]
Description: [Aluminium (aluminum) base photoluminescent sign. Directional pictogram – left facing. 200mm x 100mm]

SPEC NOTE: The listed data included in table below provide product codes and descriptions. Specification articles (product selections) contained within square brackets [] are shown as example choices only. Signs can be used alone or in combination with other egress signage.

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

Product Code	Description
S5-RM2010	Aluminium (aluminum) base photoluminescent sign. Pictogram. 200mm x 100mm
S5-RMUA2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing straight up. 200mm x 100mm
S5-RMDA2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing straight down. 200mm x 100mm
S5-RML2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing left. 200mm x 100mm
S5-RMR2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing right. 200mm x 100mm

S5-RMUL2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing diagonally up left. 200mm x 100mm
S5-RMDL2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing diagonally down left. 200mm x 100mm
S5-RMUR2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing diagonally up right. 200mm x 100mm
S5-RMDR2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green arrow pointing diagonally down right. 200mm x 100mm
S5-ARS1010	Aluminium (aluminum) base photoluminescent sign. Green directional arrow – straight. 100mm x 100mm
S5-ARD1010	Aluminium (aluminum) base photoluminescent sign. Green directional arrow – diagonal. 100mm x 100mm

F Door Hardware Markings

- 1 Door Hardware Markings Product Code: S5-DHM1010
Description: Aluminium (aluminum) base photoluminescent door handle marker (100 mm x 100 mm).
- 2 Door Hardware Markings Product Code: UL-DHM3840
Description: High quality vinyl door push bar marker with “PUSH TO OPEN” text on photoluminescent background (407 mm x 38mm). Vinyl. (*Non-HTC product.*)

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

Product Code	Description
S5-DHM1010	Aluminium (aluminum) base photoluminescent door handle marker. 100mm x 100mm
UL-DHM3840	High quality vinyl 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 [local building code and fire code]]
 - 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 into contact with installed products.

End of Section