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.
D Section 10 4500 – Photoluminescent Exit Specialties

1.3 Design Requirements
A Photoluminescent Exit Path Marking System shall be a complete system of egress markings in compliance with the requirements of [local building code and fire code] [National Fire Protection Association (NFPA) 101 - Life Safety Code] [International Building Code / International Fire Code (IBC/IFC)]
B Photoluminescent step edge marking products shall provide step edge 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 may 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 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 460mm x 310mm (18" x 12").
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

E   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.

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   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.
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 delivery of the products.
        2   30 Year Warranty on photoluminescent performance of HTC products when positioned indoors.
        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 (350°F).
        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.

  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 (350°F).

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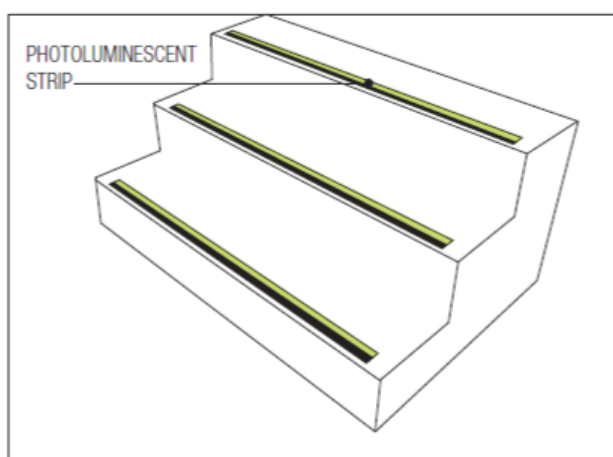
1   Step Edge Product Code: [E14-075]
Description: [64mm wide aluminium (aluminum) base strip
incorporating 10mm photoluminescent strip and 50mm black
anti-slip strip. Available in lengths from 800mm to 1500mm in
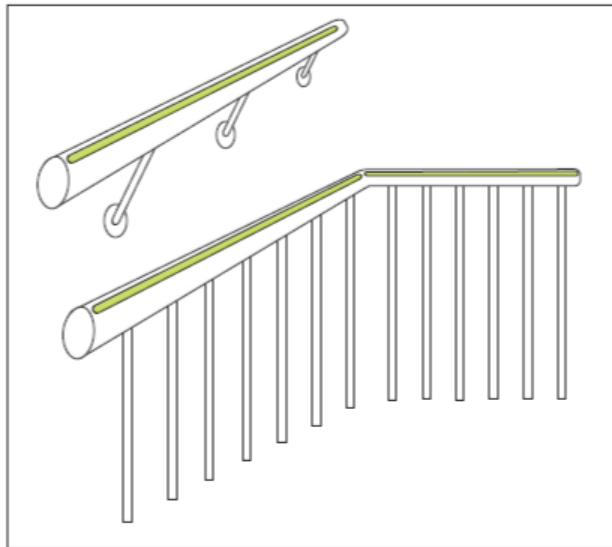100mm increments, or in full lengths of 2450mm or 3060mm.]

*SPEC NOTE: The listed data included in table below provide product codes and
descriptions. 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 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 aluminium (aluminum) base 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 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.
E15-073 Step Edge Contrast	64mm wide aluminium (aluminum) base 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 aluminium (aluminum) base 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 aluminium (aluminum) base photoluminescent handrail strip suitable for curved handrails. Available in 1000mm and 3060mm lengths.]
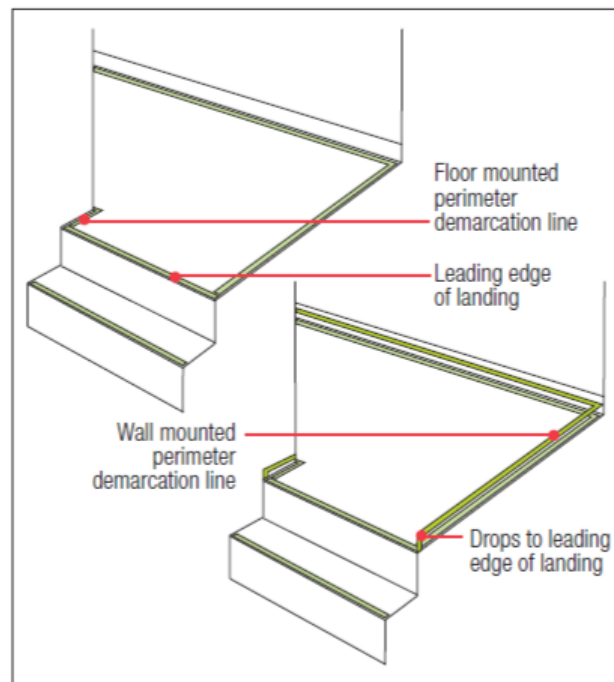
SPEC NOTE: The listed data included in table below provide product codes and descriptions. Specification articles (product selections) contained within square brackets [ ] are shown as example choices only.

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 End Cap	Metal End Cap for use with H3-001

H5-001 Handrail Strip	27mm wide aluminium (aluminum) base 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 aluminium (aluminum) base photoluminescent strip suitable for flat handrails. Available in 1000mm and 3060mm lengths.
G6-003 Guidance Strip	26mm wide aluminium (aluminum) base 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: [G6-003]
Description: [26mm wide aluminium (aluminum) base photoluminescent strip. Available in lengths from 800mm to 1500mm in 100mm increments 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.

| G6-003 Guidance Strip | 26mm wide aluminium (aluminum) base 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 (aluminum)extrusion incorporating 15.5mm wide photoluminescent strip. Available in 1000mm and 3060mm lengths. |
| T5-101 Path Marker | 51mm wide aluminium (aluminum)extrusion incorporating 15.5mm wide photoluminescent strip. Available in 1000mm and 3060mm lengths. |

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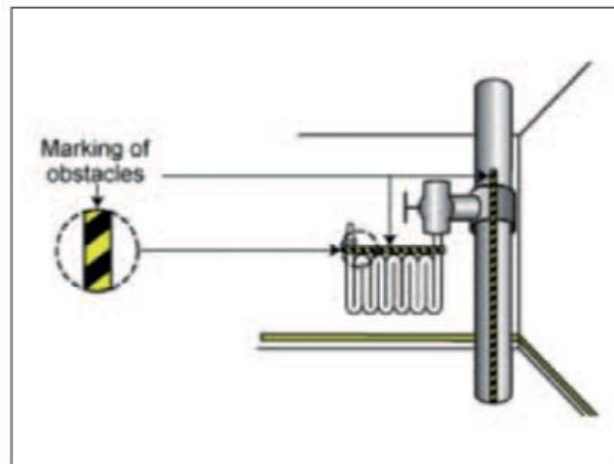
1   Obstacle Marking Product Code: UL-HZ2518
Description: High quality photoluminescent vinyl tape with 45 degree angled black stripes.
Available in rolls 25mm wide x 18m. (*Non-HTC Product*)

Click Here to view Ecoglo Obstruction Marking Products.

E   Stairway Identification Signs
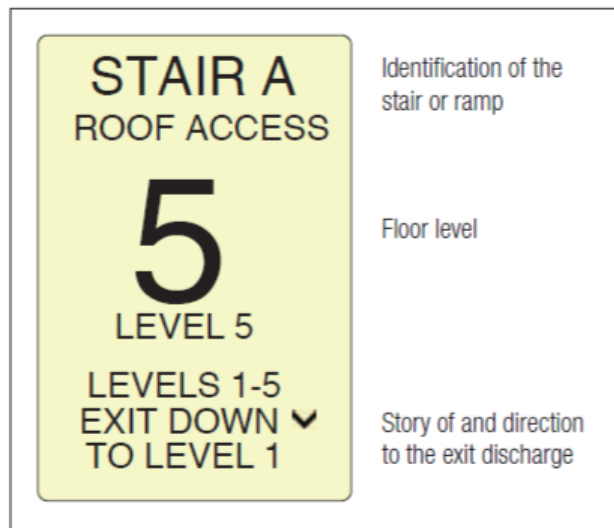
1   Stairway Identification Signs Product Code: S5-SI4631
Description: Aluminium (aluminum) base Photoluminescent
Floor Identification Signs. 460mm x 310mm (18" x 12") with
Tactile raised Floor level numbers (ICC A117.1 compliant).
Braille floor number optional. Signage shall state the story of,
and 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   Egress Signage
1   Egress Signage Product Code [S5-RMUA2010]
Description: [Aluminium (aluminum) base photoluminescent sign.
Pictogram and green upward pointing arrow. 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 upward pointing arrow. 200mm x 100mm
S5-RMDA2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green downward pointing arrow. 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-RML2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green directional arrow pointing left. 200mm x 100mm
S5-RMR2010	Aluminium (aluminum) base photoluminescent sign. Pictogram and green directional arrow pointing 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

G   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: Photoluminescent door push bar marker (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] [National Fire Protection Association (NFPA) 101 - Life Safety Code] [International Building Code / International Fire Code (IBC/IFC)]].
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