

Photoluminescent Lighting Council Standard PLCS 101 - Photoluminescent Exit Signs

PART B – PRODUCT SPECIFICATION

SECTION 1 - PRINCIPLES

1.1 Scope

This standard sets out the product specifications for Photoluminescent Exit Signs intended for identifying exits and paths to exits in and around buildings in all conditions of foreseeable use including in an emergency. The standard applies to all Photoluminescent Exit Signs installed to meet the Relevant Building Code.

1.2 Objective

The objective of this standard is to define the product specifications of Photoluminescent Exit Signs, including Standard PL Exit Signs and Hybrid PL Exit Signs, to ensure that exits and paths to exits are identified as required by the Relevant Building Code.

1.3 Application

This standard details the product specifications required for Photoluminescent Exit Signs, and requires that all Photoluminescent Exit Signs are specified, tested and labelled accordingly.

1.4 Referenced Documents

This standard refers to the following regulations or codes:

- a. National Construction Code 2016, Volume 1 “Building Code of Australia, Class 2 to Class 9 Buildings” (NCC).
- b. New Zealand Building Code Clause F8 Signs, 2nd edition, amendment 4, 1 January 2017 (NZBC).
- c. ASTM G155-2013 Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.
- d. ASTM E2073-10 Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings.
- e. AS/NZS 60598.1 Luminaires Part 1: General Requirements and Tests.
- f. AS/NZS IEC 61347 Lamp Controlgear.
- g. AS/NZS CISPR 15 Limits and Methods of Measurement of Radio Disturbance Characteristics of Electrical Lighting and Similar Equipment.

1.5 Definitions

All defined terms are contained in Part A of this standard.

SECTION 2 - PERFORMANCE REQUIREMENTS

2.1 Testing - Standard PL Exit Sign

To ensure that a Standard PL Exit Sign has sufficient performance to be suitably visible when the normal lighting fails it shall have its performance verified by testing as defined by Standard PL Luminance Test.

2.2 Testing - Hybrid PL Exit Sign






To ensure that a Hybrid PL Exit Sign has sufficient performance to be suitably visible when the normal lighting fails it shall have its performance verified by testing as defined by Hybrid PL Luminance Test.

SECTION 3 - GRAPHICAL REQUIREMENTS

3.1 Graphical Details

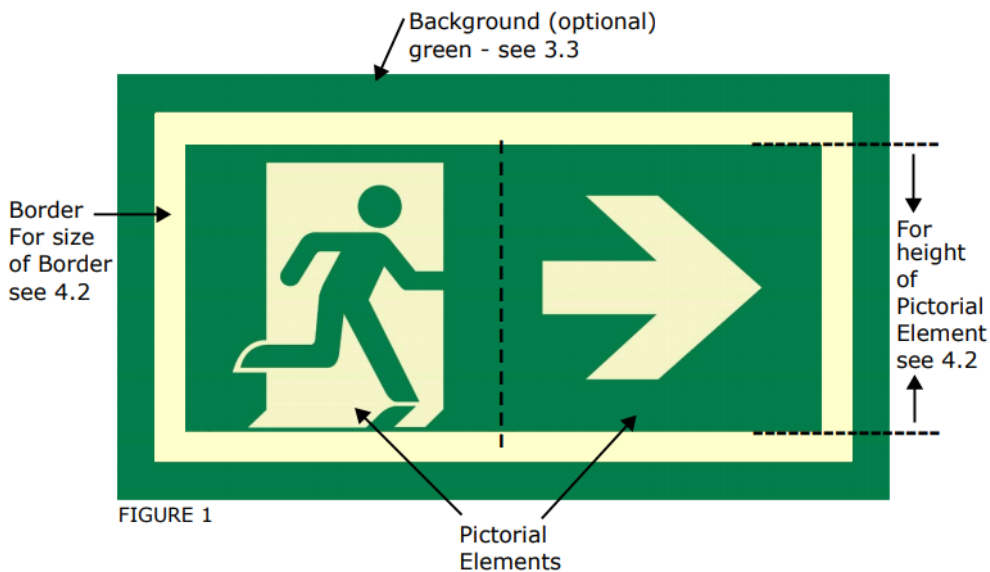
A Photoluminescent Exit Sign shall use the pictorial elements and meanings detailed in Table 1 below.

TABLE 1

Sign Graphics	Meaning	Width – Height Ratio
	Straight on from here	2:1
	Left from here	2:1
	Right from here	2:1
	Left from here	1:2
	Right from here	1:2

3.2 Graphical Dimensions

A Photoluminescent Exit Sign shall have dimensions as detailed in Figure 1.



3.3 Sign Colour

(a) The pictorial elements and background of a Photoluminescent Exit Sign shall be coloured green as defined by ISO 3864-1 or as defined by the Relevant Building Code.

(b) All other areas of a Photoluminescent Exit Sign shall be the colour of the photoluminescent material.

(c) Where a Hybrid PL Exit Sign is installed in a room or area which normally has low levels of illumination the areas coloured green may be coloured black.

3.4 Identification and Markings

(a) Photoluminescent Exit Signs shall include text in the border no less than 3mm in height and no greater than 8mm in height which details:

- (i) Maximum viewing distance.
- (ii) Product number.

(b) Photoluminescent Exit Signs may include text in the border no greater than 8mm in height which details:

- (i) Classification code as detailed in Section 5.
- (ii) Website for further information.
- (iii) Other information relevant to the specification or operation of the sign.

SECTION 4 - VIEWING DISTANCE REQUIREMENTS

4.1 Maximum Viewing Distance

The maximum viewing distance for a Photoluminescent Exit Sign shall be determined by the pictorial element height.

4.2 Pictorial Element Height

(a) Photoluminescent Exit Signs with a pictorial element height up to 260mm shall have a maximum viewing distance as detailed in Table 2.

TABLE 2

Maximum Viewing Distance	Minimum Pictorial Element Height	Minimum Border
16m	130mm	15mm
24m	195mm	15mm
32m	260mm	20mm

(b) For Photoluminescent Exit Signs with a pictorial element height greater than 260mm, the maximum viewing distance shall be calculated by the following equation:

$$\text{Maximum Viewing Distance(m)} = 0.123 \times \text{Pictorial Element Height(mm)}$$

(c) For Photoluminescent Exit Signs with a pictorial element greater than 260mm the minimum border shall be calculated by the following equation:

$$\text{Minimum Border(mm)} = \text{Pictorial Element Height(mm)} \times 0.077$$

SECTION 5 - CLASSIFICATION OF PHOTOLUMINESCENT EXIT SIGNS

5.1 Classification Codes

(a) Photoluminescent Exit Signs shall be classified according to the intended use environment and intended service life.

(b) Table 3 details the testing required to declare each classification code.

(c) Hybrid PL Exit Signs intended for outdoor use must also undergo appropriate electrical safety testing as detailed in Section 6.

TABLE 3

Classification Code	Intended Environment	Intended Service Life	Required Test
I5	Indoors	5 Years	None
I30	Indoors	30 Years	1000 Hour UV Durability Test
X5	Outdoors	5 Years	1000 Hour UV Durability Test
X10	Outdoors	10 Years	2000 Hour UV Durability Test
X15	Outdoors	15 Years	3000 Hour UV Durability Test

SECTION 6 - PARTICULAR REQUIREMENTS FOR HYBRID PHOTOLUMINESCENT EXIT SIGNS

6.1 Electrical Safety Testing

Hybrid PL Exit Signs with LED light sources and electronic drivers shall be tested in accordance with:

AS/NZS 60598.1 Luminaires Part 1: General Requirements and Tests: and

AS/NZS IEC 61347 Lamp Controlgear Part 1 and Part 2.13

Or the equivalent tests as required by the Relevant Building Code.

6.2 Electromagnetic Compatibility Testing

Hybrid PL Exit Signs with LED light sources and electronic drivers shall be tested in accordance with:

AS/NZS CISPR 15 Limits and Methods of Measurement of Radio Disturbance Characteristics of Electrical Lighting and Similar Equipment.

Or the equivalent test as required by the Relevant Building Code.