Photoluminescent Lighting Council Standard

PLCS 102(NZ) Passive Photoluminescent Exit Signs and Path Markings: Inspection and Maintenance

SECTION 1 - PRINCIPLES

1.1 Scope

This standard sets out the periodic inspection and maintenance procedures necessary to ensure that passive photoluminescent exit signs and path markings installed to meet the New Zealand Building Code continue to meet the requirements of the New Zealand Building Code.

1.2 Objective

The objective of this standard is to define the process for the periodic inspection and maintenance of passive photoluminescent exit signs and path markings to ensure ongoing compliance with the New Zealand Building Code, so that these products continue to meet their required functions:

- Exit signs: identifying escape routes under all conditions of foreseeable use;
- Path markings: making *specified features* in escape routes *reasonably visible* during failure of the main lighting.

1.3 Application

This standard details the periodic inspection and maintenance procedures required for passive photoluminescent exit signs and path markings, and requires that inspection outcomes are recorded accordingly.

1.4 Referenced Documents

This standard refers to the following specifications and regulations:

a. New Zealand Building Code (NZBC) Clause F8 Signs, 2nd edition, amendment 4, 1 January 2017.

b. New Zealand Building Code Clause F6 Visibility in escape routes, 2nd edition, amendment 4, 1 January 2017.

1.5 Definitions

Conformance defect: means missing (or incorrect) information that would be required to facilitate inspection and maintenance. For example, missing *installation documentation*

In-service life: means the time (in years) that a *passive PL sign* or *PL marking* can be expected to maintain sufficient photoluminescent performance, in the absence of any obvious sign of failure, to meet the relevant performance standard.

Independent qualified person: means a person or entity qualified to carry out inspections of *passive PL signs* and/or emergency visibility systems using *PL markings*.

Installation documentation: means the documentation detailed in clause 2.2.

Managing entity: means the building owner or their appointed agent.

Minimum luminance: the luminance (in mcd/m^2) that is required to ensure the *PL marking* is *reasonably visible*.

Minor defect: means a physical defect which does not cause the entire system/sign to be ineffective. For example, an unclean or obstructed *passive PL sign*.

Outstanding defect: means any defect recorded from the previous inspection which remains unresolved.

Passive PL sign: means an exit sign consisting of photoluminescent elements and contrasting elements where the photoluminescent elements need to be maintained in a charged state by external light source(s) such as daylight or electrical lighting.

PL: means photoluminescent

PL marking / PL escape path marking: means a product containing photoluminescent element(s) where the photoluminescent elements need to be maintained in a charged state by external light source(s) such as daylight or electrical lighting, the product being designed to be installed on or near *specified features* in such a way that the *specified features* in escape paths are made *reasonably visible* during failure of the main lighting.

Reasonably visible: means the same as the New Zealand Building Code definition for that term.

Serious defect: means a defect which causes the entire system/sign to be ineffective. For example, a non-operational charging lighting control system.

Specified features: means the same as the New Zealand Building Code definition for that term.

SECTION 2 - FUNDAMENTAL REQUIREMENTS

2.1 Relevant Performance Standard

The relevant performance standards for *passive PL signs* and *PL markings* are:

- Passive PL Signs: New Zealand Building Code Clause F8.3.1, F8.3.3 and F8/AS1 4.5.4, 2nd edition, amendment 4, January 2017.

- PL Markings: New Zealand Building Code Clause F6.3.1, January 2017. *PL escape path markings* shall, in the event of a power failure, continue to provide the *minimum*

luminance for the duration prescribed in NZBC Clause F6 whenever the building is occupied.

2.2 Installation Documentation

The *installation documentation* provides evidence that the installed *passive PL signs* and *PL markings* meet the relevant performance standard(s).

The *installation documentation* also assists the inspection and maintenance processes by confirming the physical location of all *passive PL signs* and *PL markings*, and confirms when a *passive PL sign* or *PL marking* will need to be replaced, even if it shows no obvious signs of failure.

The following documents form the *installation documentation* and should have been collated by the *managing entity* on or before the initial installation of any *passive PL signs* or *PL markings*:

a. Documentation justifying the specified products and the design of the installation, in relation to the relevant performance standard(s). This may be in the form of the relevant building consent documentation.

b. Plan detailing the location, brand and model number of the *passive PL signs* and *PL markings*, and their installation date.

c. *In-service life* (if less than the life of the building) of the *passive PL signs* and *PL markings*.

d. Location and specification of any artificial lighting (and any associated lighting controls) required to ensure the *passive PL signs* and *PL markings* are maintained in a charged state when the building is occupied.

e. Photoluminescent luminance test report(s) traceable to the *passive PL signs* and *PL markings* as new.

An *independent qualified person* and/or the *managing entity* shall update the *installation documentation* if any changes are made to the system design or any *passive PL signs* or *PL markings* are replaced.

SECTION 3 - REQUIRED REPORTING AND RECORDS

All (hard/soft copy) records and written reports must be kept and maintained confirming inspections and maintenance have been carried out by the individuals responsible for inspecting and maintaining the systems or features (including but not limited to owners, service technicians and *independent qualified persons*) for a period of 2 years.

3.1 Summary Report

At the completion of the inspection the *independent qualified person* or representative of the *managing entity* shall provide the *managing entity* with a summary report detailing any unresolved *serious defects* for immediate remedy.

3.2 Detailed Report

Within 72 hours of the inspection the *independent qualified person* shall provide the *managing entity* with a detailed report containing the following:

a. Name and/or address of the installation

b. Inspection frequency

c. Inspection date

d. Applicable building code reference

e. *Conformance defects*

f. *Serious defects*

g. *Minor defects*

h. *Outstanding defects*

i. *Managing entity* details

j. *Independent qualified person* details

SECTION 4 - INSPECTION AND MAINTENANCE PROCEDURES

4.1 Required Inspection and Maintenance Procedures

The inspection and maintenance procedures shall be carried out as detailed in Clauses 4.2 and 4.3 of this standard.

4.2 Monthly Procedures

Monthly inspections and maintenance of *passive PL signs* and *PL markings* are to be carried out by the *managing entity*.

If the *installation documentation* is available, it shall be used as the template for inspection and maintenance procedures.

If the *installation documentation* is not available, this shall be noted in the detailed report as a *conformance defect*.

Inspection is be carried out to check the following:

- All products are still configured as at installation and there is no material damage to any of these products.
- All products are clean from general dust build up and any other specific obscuring deposits.
- All products are clearly visible and have not been covered up.

- All *PL markings* mark a clear path and have not been obstructed by physical hazards (furniture, trolleys, partitions, machinery, vehicles, products, storage, racking, etc)

- All *PL markings* can be used to provide clear escape path marking and there has been no change to the configuration of the building which renders the escape path unusable.

- All lights that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational and their positions have not altered from the design.

- All charging lighting control systems that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational as specified in the design.

Planned preventative maintenance and responsive maintenance is be carried out to ensure the following:

- All products are still configured as at installation and there is no material damage to any of these products.

- All products are clean from general dust build up and any other specific obscuring deposits (see Note 1 below).

- All products are clearly visible and have not been covered up.

- All *PL markings* mark a clear path and have not been obstructed by physical hazards (furniture, trolleys, partitions, machinery, vehicles, products, storage, racking, etc)

- All *PL markings* can be used to provide clear escape path marking and there has been no change to the configuration of the building which renders the escape path unusable.

- All lights that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational and their positions have not altered from the design.

- All charging lighting control systems that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational as specified in the design.

Note 1. If there is any visible accumulation of dust or other deposits, clean it in accordance with manufacturer's cleaning instructions.

4.3 Annual Procedures

Annual inspections of *passive PL signs* and *PL markings* are to be carried out by an *independent qualified person*.

If the *installation documentation* is available, it shall be used as the template for the inspection procedures.

If the *installation documentation* is not available, this shall be noted in the detailed report as a *conformance defect*.

Inspection is be carried out to check the following:

- No products have reached their *in-service life*.

- All products are still configured as at installation and there is no material damage to any of these products.

- All products are clean from general dust build up and any other specific obscuring deposits.

- All products are clearly visible and have not been covered up.

- All *PL markings* mark a clear path and have not been obstructed by physical hazards (furniture, trolleys, partitions, machinery, vehicles, products, storage, racking, etc)

- All *PL markings* can be used to provide clear escape path marking and there has been no change to the configuration of the building which renders the escape path unusable.

- All lights that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational and their positions have not altered from the design.

- All charging lighting control systems that are required to maintain *passive PL signs* or *PL markings* in a charged state are operational as specified in the design.

SECTION 5 – REPLACEMENT OF PRODUCTS

Passive PL signs and *PL markings* shall be replaced in the following situations:

- Physical damage has resulted in the product not being clearly visible to occupants;

- The product has passed the *in-service life*.

Replacement products must meet the relevant performance standard specified in Section 2.1.