

Photoluminescent Exit Signs - NOT COMMERCIALY VIABLE

COMPARISON BETWEEN INTERNALLY ILLUMINATED EXIT SIGNS AND PL EXIT SIGNS



[28] Escape sign luminaire in maintained operation

[29] ... 10 minutes after a power failure;

[30] ... 30 minutes after a power failure;

[31] ... 60 minutes after a power failure. The minimum luminance of the white contrast colour is 10 cd/m², as required by DIN EN 1838.

[32] Standard photoluminescent sign exposed to a charging light source

[33] ... 10 minutes after a power failure;

[34] ... 30 minutes after a power failure;

[35] ... 60 minutes after a power failure. The minimum luminance of the white contrast colour is 0.012 cd/m², as required by ASR A3.4/3.

Used as an illustrative comparison with sourced figures from European standards.

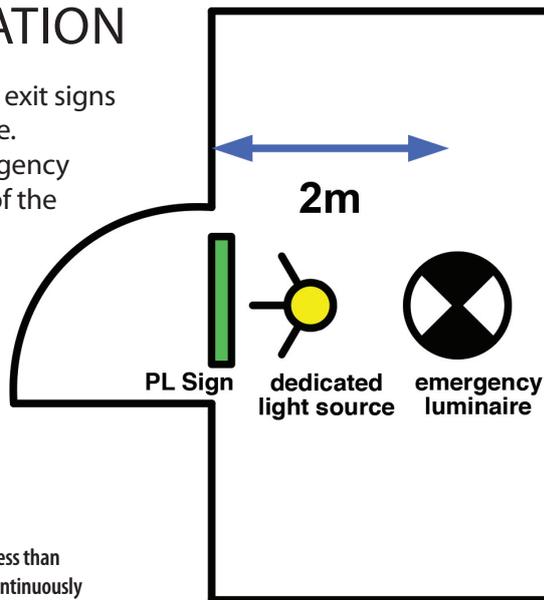
On 1 May 2014 an amendment to E4.8 of the National Construction Code of Australia (NCC) (formerly The Building Code of Australia), will be enacted, permitting the use of photoluminescent ("PL") exit signs. Lighting Council Australia is concerned over the recent introduction of PL 'glow in the dark' exit signs to the NCC, with a major issue being the potential confusion amongst electricians, building owners and building managers, as to how PL exit signs may be used.

The installation of a PL exit sign requires the installation of two additional luminaires. Firstly, the NCC amendment requires that a PL exit sign must have a dedicated, uninterrupted light source continuously illuminating 100 lux onto the face of the sign. Secondly, the NCC already requires, via AS/NZS 2293.1, that an emergency luminaire must be installed within 2m of an exit door or typically where exit signs are located (AS2293-1 clause 5.4.1). Unlike electrically powered exit signs, PL material cannot achieve a light output to be classified as an emergency luminaire, so this additional emergency luminaire is essential.



PL EXIT SIGN INSTALLATION

From 1 May 2014, NCC allows the use of PL exit signs with a dedicated uninterrupted light source. AS229.1:2005, clause 5.4.1 states: "An emergency escape luminaire shall be sited within 2m of the approach side of each doorway requiring an exit sign." This figure illustrates how PL exit signs are to be installed.



LEGEND

-  Emergency luminaire within 2m of the EXIT door
-  Photoluminescent EXIT sign
-  Dedicated light source with a colour temperature not less than 4000 K - to maintain the photoluminescent sign in a continuously charged state by a minimum illumination of 100 lux at the face of the sign

COST

The installation of the two additional luminaires has a significant cost impact. The expected supply and install cost of a standard LED exit sign is in the order of \$250, with ongoing energy costs of \$3.16 per year. The supply and install cost of a PL exit sign and accompanying emergency light and separate luminating light source is in the order of \$550, with ongoing energy costs of \$21.56 per year. In addition there are ongoing maintenance costs for both luminaires. A detailed breakdown is available from Lighting Council of Australia.

LEGAL EXPOSURE

Emergency and exit lighting is an essential life safety device and the non-compliance with regulations regarding its correct installation and maintenance jeopardises the safety of building occupants. There is therefore a legal requirement to comply with the NCC and AS/NZS 2293.1 and the WH&S legislation (OH&S in Victoria and WA) treats a serious breach as an indictable offence, and carries a maximum penalty of \$3 million dollars for

a corporation and significant financial penalty and up to 5 years imprisonment for individuals. In Victoria and Western Australia the maximum penalties for a corporation are \$1.3 million dollars and \$625,000 respectively, and significant financial penalties and possible imprisonment are imposed for serious breaches by an individual.

SAFETY ISSUES

There is a strong consensus across a number of industry bodies, experts and academics that even when installed with the additional luminaires in accordance with NCC compliance, the use of PL signs significantly compromises safety. Testing and empirical data support a worldwide consensus that the safety of an exit sign is determined by its luminance level and the appropriate luminance level to ensure safe egress in an evacuation scenario is between 8cd/m² (candela per square meter) and 15cd/m². The amendment to the NCC specifies a minimum luminance for PL exit signs of 30mcd/m² (0.03cd/m²) which is essentially 250 times less than the minimum 8 cd/m² luminance provided by an existing powered exit sign.

About Lighting Council Australia

Lighting Council Australia is the peak representative body for members in the lighting industry, including emergency lighting. The Council's goal is to encourage the use of environmentally appropriate, energy efficient and quality lighting systems. The Council works with, and advises the government on policy and strategy and has representation on numerous Australian and International standards committees.



Should any building owners, facility managers or employers be concerned about their current or proposed emergency lighting options, they may contact **Owen Manley** at **Lighting Council Australia (02 6247 8011)** omanley@lightingcouncil.com.au or visit www.lightingcouncil.com.au for further advice.

