

# PHOTOLUMINESCENT EXIT SIGNS NOT COMMERCIALY VIABLE

LIGHT TECHNICAL BRIEF

	Internally Illuminated Exit Sign	Photoluminescent Exit Sign
During normal operation		
10 minutes after power failure		
30 minutes after power failure		
60 minutes after power failure		

*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) was enacted permitting the use of photoluminescent (“PL”) exit signs.

The use of these exit signs, which are required to be only **1/250<sup>th</sup> as bright** as electrically powered exit signs, pose safety risks to building occupants in emergency situations. Due to the low light output, PL exit signs’ visibility is most heavily impacted in the presence of smoke, meaning that **safe escape in the presence of fire can be significantly impaired**.

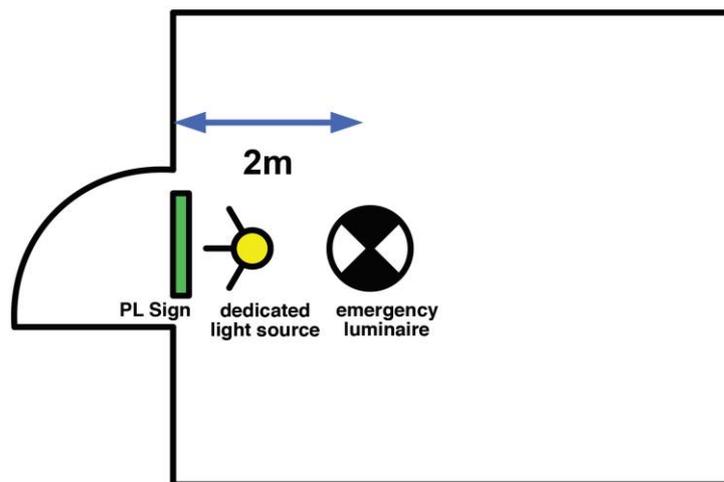
Experts on the visibility of exit and emergency lighting in evacuation situations **do not condone** the use of PL exit signs as they simply cannot be bright enough to guarantee safe egress.

Illuminated Exit Signs and Emergency luminaires are subject to half-yearly testing to ensure all components will function in an emergency situation. PL exit signs have **no Australian or International** standards for maintenance and are not subject to routine testing.

## PL Exit Sign Requirements

The use of a PL exit sign requires the installation of two additional lights:

1. A PL exit sign must have a dedicated, uninterrupted light source continuously illuminating 100 lux onto the face of the sign.
2. The NCC requires an emergency luminaire must be installed within 2m of an exit door or typically where exit signs are located.



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 a compliant PL Exit Sign and supporting lighting represents significantly more investment than a single internally illuminated exit sign. To be compliant with the National Construction Code, the installation and commissioning of two luminaires as well as the fixture of an PL exit sign takes considerably longer than an illuminated exit sign, which also functions as an emergency luminaire. These Internally illuminated exit signs will also use considerably less energy than a dedicated light source for a PL exit sign and associated emergency luminaire.

Comparison of costs for PL vs Internally Illuminated Exit Signs

	<b>PL Exit Sign Installation</b>	<b>Internally Illuminated Exit Sign</b>
Exit Sign	\$25	\$100
Dedicated Light Source	\$50	
Emergency Luminaire	\$100	
Installation	\$300	\$150
<b>Total</b>	<b>\$475</b>	<b>\$250</b>

## 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.

## Non-Compliant Installations



Strip lighting has failed making the sign non-compliant



Strip lighting doesn't illuminate whole surface with 100 lux



An installation without a dedicated light source and the required emergency light



Rated distance of 40 m is non-compliant to AS/NZS 2293.1 (maximum 24 m)



Track lights may be moved from their original positioning, making systems non-compliant