

A brief overview of emergency lighting in rail

In this article, Paul Meenan discusses emergency lighting in rail – the background, how different companies address emergency lighting and how you can get involved in this line of work.

There are a lot of misconceptions around emergency lighting, one being that it's purely down to the lighting designer – well, no it isn't, unless it is in his client brief or remit! Maybe it's in yours, after all you are a sparky, a man or woman of many, many skills! Domestically, there isn't a huge demand for an emergency lighting specialist, but there is a huge demand within other sectors – rented accommodation, commercial and industrial premises. So what do you do?

Perhaps one of the biggest problems we find in many places is the poor application of the principles involved. Emergency lighting isn't just about BS 5266, BS EN 1838, and BS EN 60598-2-22 compliance – the principles, system and product standards involved with emergency lighting. It's also down to how those principles are applied to specific contexts.

No matter where you roam, into the Magical World of Kings Cross or on a London underground train, or the DLR winding your way around east London's ever-changing skyline, emergency lighting is riding along with you, ensuring that in any event of power loss you could still see your way clear. How is it installed? Read on ...

First, a bit of background



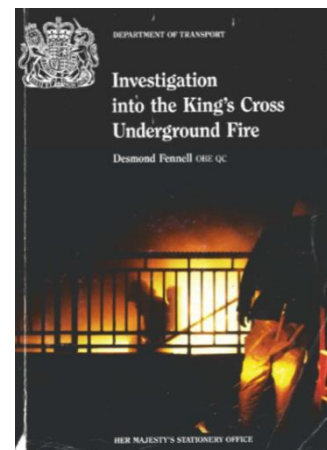
Emergency lighting goes as far back as Paris 1903, to the [Couronnes disaster](#): a terrible tragedy when a train short-circuited, was engulfed in flames and resulted in the loss of 84 lives. Following on from this the French government acted swiftly as the lighting failed, having been fed from a single source with no back up! Within 15 days all stations had to have back-up supplies to protect lighting as this was the main cause of people

losing their lives and not being able to evacuate the station safely.

Move forward to 1904 in England, legislation was brought in that recommended emergency lighting into railways. Hence there has been what is known as 'lighting mains' cables in tunnels for many years on London Underground, for example.

Fast forward to 1987 and [the tragic Kings Cross fire](#): 31 deaths. From this arose a whole suite of measures recommended in the Fennel report.

Today, the rail industry uses the lessons learned and is equipped with fantastic teams of fire engineers to ensure safety is paramount for all users, staff and public. Fire engineering is used on new builds to ensure mandatory standards are met and/or even exceeded.



London Underground

No better example is on London Underground, where we have what is known as the Off Line Battery Inverter (OLBI) systems across all major London Underground sites. These are huge battery systems that act as an alternate supply in case of the DNO failure. In addition to these, there are normally at least two power supplies to each station, and also a central connected back-up generator located in Greenwich, so even if the national grid failed, London Underground stations would still have essential power.

Docklands



Moving to the docklands, currently, if power was lost you would never know as each station has 100 % emergency lighting.

National rail

National rail – the term used for Network rail and all the train operator companies. Well, they use central battery systems as well as local bulkhead fitting where required; you will find that as stations are rewired due to the size of infrastrure, emergency lighting is introduced on the more suburban stations that currently have minimal emergency lighting. Remember: the BS EN 1838 standard only requires 1 lux in some places!



Buses



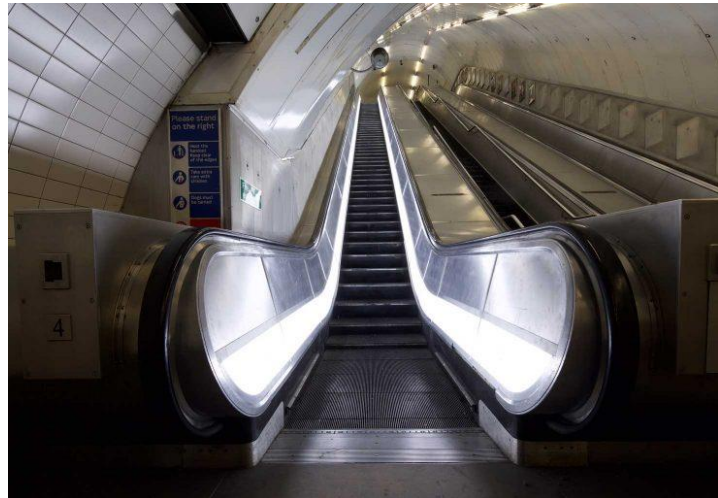
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Fortunately, buses have huge battery capacity on newer stock and as such will keep you safe even in the event of engine failure.

Maintenance of emergency lighting

The industry is ever changing alongside technology. The advent of LEDs makes emergency systems support so much easier to implement and maintain, and makes the traveling public feel more confident and safe.

Another change in our approach to how we use lighting could involve the use of low level lighting or building it into existing systems as a primary rather than secondary light source.



The advent of LEDs allows you to install discreet emergency lighting systems in hand rails, for example, making use of existing infrastructure and reducing the need to work at height!

Working as an electrician on railways

Working as an electrician on railways is an amazing adventure but also an enormous responsibility; not only do you have to hold permits and licences to do the role and access rooms regularly but you have to demonstrate competence and understanding of the impact your work has – for example, isolating a board could shut a station! So you need to understand complex distribution drawings, know how to write your own isolation plans and understand the unique electrical properties and numerous systems that are found when working on railways.

With HS2 Crossrail in full swing and Crossrail 2 perhaps on the horizon, getting an opportunity to work in this area has never been better and, once in, you may find that, having worked on building the railways, you wish to maintain the railways systems or even engineer future systems.

How I got involved

The start of my journey seems so easy when I look back: I started by ringing an agency and becoming an electrician's mate. Got my apprenticeship and hey presto 20+ years later I specify lighting schemes and oversee a railways emergency lighting system and beyond.

My recommendation for anyone wanting to enter this industry is to start out using Google to find electrician contractors that have rail accreditations, which mean that they are authorised to work in the industry – it doesn't matter where; it's getting your foot in the door that counts, your ability to learn and excel will do the rest.

Agencies are easily accessible via your phone and web searches but do not be afraid to do the old-fashioned ring up and ask for an apprenticeship if you are young and, if older, be honest and go in as an adult learner and work as a mate to pick up skills. If you have the right attitude your employer will support, embrace, train and develop you.

Do a great job, stand up for first principles and you will excel; be trusted, continue to train and you will grow your career quickly. You may have heard of the 'ABA effect' (attitude, behaviour, agenda); for me it was all about being friendly, open and keen to learn as much as I could to build my confidence. My behaviour grew with my knowledge and my agenda was to serve the industry in doing the right things. Electrical competence is a rare discipline in rail; this line of work can be complex but also very rewarding.