

Shortlisted for the

Greenbuild AWARDS

 **PhotonStar™**
Performance LED EcoLighting Solutions

Designed
& Produced
in the UK 

Arcola Theatre

The world's first carbon neutral theatre

In an attempt to become the world's first carbon-neutral theatre, the Arcola Theatre in Hackney has recently undergone a complete refurbishment. A key element of the renovation was to install high quality LED lighting supplied by PhotonStar.

The theatre, named after its original home on Arcola Street, boasts the biggest studios in London and is one of the most respected arts venues in the UK. Since the arrival of executive director Ben Todd in 2005, Arcola has had a strong focus on environmental performance, regularly carrying out sustainability projects in attempts to not only increase energy efficiency but to educate and inspire the community. The theatre has become the forerunner in sustainable practises within the arts community.

Following an Arts council grant in 2011, the Arcola team were finally able to improve the energy efficiency and overall quality of the theatre with the refurbishment; a significant part of this involved replacing the previous CFL bulbs with a state-of-the-art LED solution powered by solar panels.

Finding the perfect fixtures was challenging because, whilst energy-efficient products were required, the theatre desperately needed products with excellent light quality to create a dynamic and versatile atmosphere that suited its artistic nature of work. The team chose luminaires from PhotonStar's Lightslot range to illuminate many areas around the theatre.

"The PhotonStar luminaires achieved our desired energy efficiency levels whilst providing the quality of light needed for the theatre. They were also compact and aesthetically pleasing, giving that extra creative flair," explained Ben Todd.

The luminaires are used as part of a hybrid direct current (DC) microgrid system supplied by Moixa Technology, a company which often works with PhotonStar to provide DC-powered LED fixtures for energy saving projects.

The microgrids in the theatre turn any unused energy into AC power but instead of use it, it is sent back into the national grid, generating more energy in a clean way. The DC electricity is generated by solar panels and runs at a much lower voltage than power from AC mains, cutting the risk of electric shocks.

The highly efficient PhotonStar LED system consumes just 3.9W/m², requiring 65% less electrical supply than the CFL bulbs that were initially installed in the theatre; these used over three times more electricity at 13.9W/m². The light quality of the LED luminaires is far better and each of the fully recyclable LED fixtures has a life-time of 50,000 hours, considerably reducing maintenance and financial costs.

One significant advance yielded by the installation of the LED system is that the lighting renovation is encouraging people to think innovatively about using lighting technology to achieve the necessary ambience and show atmosphere whilst using much less energy.

Project highlights:

- ✓ LED luminaires powered by solar panels
- ✓ Lighting used as part of a hybrid DC microgrid system
- ✓ Energy losses associated with DC to AC conversion are reduced
- ✓ Risk of electric shocks reduced
- ✓ highly efficient, consuming just 3.9W/m²
- ✓ Energy usage cut by 65%
- ✓ Excellent light quality which creates a dynamic and versatile theatre atmosphere



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