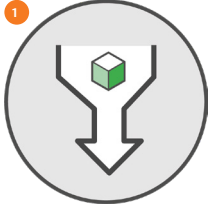


Benefits of retrofitted light fittings:



1 Saved 2,000kg of material (8kg per fitting) compared to using new lights



2 Retrofitted lights use 23w less energy than the old lights



3 Retrofitted lights were £30 cheaper (per unit) to manufacture compared to new lights



4 Whitecroft offer the same warranty on both the new and retrofitted lights

Circular thinking at Cheshire Police Headquarters

BAM want to develop circular economy thinking within the built environment, but to do this, clients, designers, contractors and suppliers must all collaborate to find new solutions. When we saw an opportunity to examine possible circular lighting solutions at the BAM FM-managed Cheshire Police Authority Headquarters and Force Training Centre, we were keen to engage the client and lighting supplier, Whitecroft Lighting, to take full advantage of the opportunity.

Ageing lighting systems...

BAM has a longstanding relationship with the Cheshire Police Authority (CPA) - in 2003 we built their 23,000m² Headquarters and Force Training Centre, and since then has continued to provide a full range of FM services for them. In 2018 we recognised a need to update the building's 15 year-old internal lighting system as a significant number of the old light fittings were starting to need replacing, and the lighting's control system could only be maintained by rewiring each fitting. Maintaining the current lighting system would cause ongoing and significant disruption to the CPA, so instead we proposed to upgrade their lighting, in a solution that reused many of the existing fittings and also enabled increased functionality, efficiency and a healthier work environment.

Circular economy – saving money and material

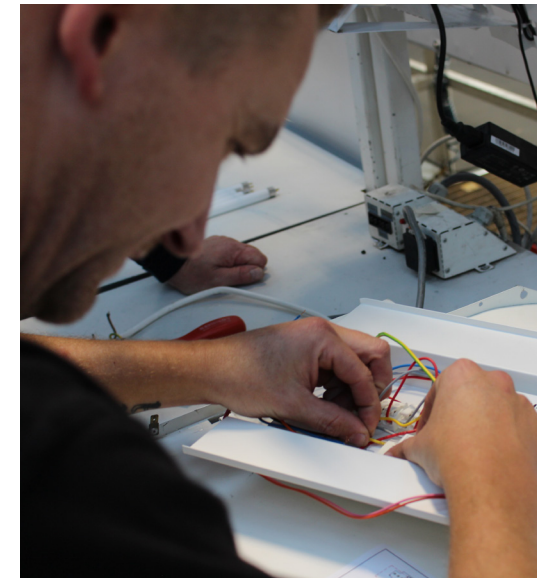
Having participated in our 2017 circular economy workshops, and understanding our ambition to drive circular economy solutions, Whitecroft Lighting agreed to take three of the original fittings from CPA back to their manufacturing warehouse and explore the opportunities for reuse. Our installation partner, Gibson and Ryan,

also took time to do some on-site investigations into possible installation options. Our partners worked collaboratively and came up with a variety of solutions:

- Retrofitting lights
 - 120 'Cirrus' light fittings were changed from fluorescent tubes to LED, these were removed from the main building and refitted in the outbuildings. This approach reduced disruption to the CPA's main areas, and provided an upgrade to the lighting in the outbuildings.
 - 75 stairwell fittings were changed from fluorescent tubes to LED. A fitting process was created to allow this to be done onsite, so the stairwells could remain in operation. This was so successful that it is hoped the same technique can be used in other BAM FM buildings where possible.
- Installation of 1,300 bespoke bezel units throughout the corridors in the main building allowed us to install more efficient downlights without the need to replace the existing ceiling tiles.
- Modification of 82 control modules. These were reused in the corridors to upgrade the corridor lighting functionality.



This project was a great success, and demonstrates the advantages of long-term, collaborative relationships with our supply chain to drive innovation.
Julia Messenger,
BAM Construct UK



The old light fitting being upgraded at the Whitecroft's manufacturing warehouse

Customer: Cheshire Police Authority
Facilities Management: BAM FM
Lighting manufacturer: Whitecroft Lighting
Lighting installer: Gibson & Ryan

Improved energy efficiency

A new wireless control system was installed, which drastically reduced the need for new cabling and also increased functionality:

- Automatic controls ensure required lux levels are maintained, no matter the external lighting influence or if the work space is altered via desk moves.
- Emergency lighting can be tested and reported automatically, reducing the need to carry out night-time testing.
- The lighting can produce occupancy patterns throughout the facility to determine whether some areas are being utilised more than others. This data can also help to inform soft service requirements, helping BAM FM to tailor their services further.
- Sub-metering allows real-time monitoring of lighting use throughout the buildings.
- Users with light sensitivity can adjust light fittings to their preference.

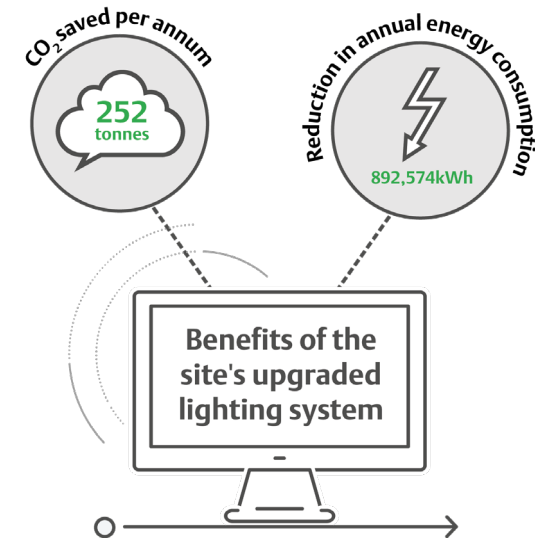


The old light fitting compared to the retrofitted fitting

Reusable packaging

During this project, Whitecroft Lighting used Ecopack reusable packaging to both take the old light fittings back to their factory and to deliver the new fittings back to CPA. This saved the use of one and a half tonnes of cardboard (400g per luminaire) and one tonne of wooden pallets, and also eliminates waste disposal costs as the cartons are stacked onsite before being returned to Whitecroft Lighting for reuse. Once an Ecopack can no longer be reused the materials are recycled.

Having previously attended our circular economy workshops, Whitecroft Lighting were able to apply these principles during this project and moving forward, see the potential to review their business model to incorporate retrofitting their lights which have been installed in other buildings.



The reusable packaging solution