



London Bridge Best Practice

Case Study Title: Energy Saving Dehumidifiers at London Bridge

Month/Year: September 2015

Key Benefits

- ✓ More energy-efficient than a standard dehumidifier with an 181,063 kWh reduction over a 4 year project life cycle
- ✓ Carbon emission savings of 167 tCO₂e
- ✓ Cost savings of over £14,000 for the project
- ✓ Shorter drying times, which is particularly useful during the wetter months

Objectives and Targets

- ✓ CEEQUAL – Energy & Carbon Performance – Energy consumption consideration by contractor
- ✓ Sustainability Delivery Statement
 - Objective 13 – To minimize the levels of carbon generated over the whole life of Thames Link Project
- ✓ Rail sustainability strategy – reduce energy consumption from site offices - 10% target on baseline year.

Overview

With over 300 operatives working on the London Bridge Station Redevelopment Scheme 24/7, our welfare facilities require constant heating and drying to ensure both day and night shifts have dry clothing and personal protective equipment. This however is costly to run and uses a substantial amount of energy. The project are committed to reducing energy usage and operational costs and as such sought two energy efficient dehumidifiers for a new welfare room that was being fitted out. Dehumidifying is a much more economical way of drying than heating up outside air. It is energy efficient, and reduces drying times. We have however installed the El Bjorn A 155HW which uses a water-based auxiliary heating. It quickly raises the temperature in the drying room with a softer air flow than traditional electrical heating. This is much more energy-efficient than a standard dehumidifier and provides shorter drying times. To show the benefits of using the water-based auxiliary heating system instead of the standard dehumidifier we have undertaken a comparison study between a standard EL Bjorn dehumidifier and a hot water air exchange EL Bjorn dehumidifier.



The Comparison Study:



Our dehumidifiers are on 24/7 during most months throughout the year. The dehumidifiers will then be installed for 4 years from 2014 to project completion in 2018.

By undertaking this study, it was identified that the weekly kWh usage for one energy efficient A155HW dehumidifier was 45% less than the traditional A155F thus creating a cost saving of over £60. The A155HW emitted nearly 50% less carbon emissions and saved approximately 0.65 tCO₂e per week.

Over a year this equates to a 22630 kWh saving, a reduction in cost by £2000 and an additional 41t CO₂e saving for one unit alone.

Therefore from installation and over a 4 year project life cycle for the two A155HW units that have installed a carbon saving 167 tCO₂e, energy saving of 181063 kWh and financial saving of over **£15000**.

Whole Life Costing:

The energy efficient A155HW dehumidifier is £812 more expensive to purchase than the traditional A155F. With the anticipated energy efficient savings of £60 per week, achieved by the A155HW model, the extra cost is paid back in as little as 14 weeks!

Subsequently, over the project duration a total whole life saving of around £14,000 will be achieved from the two units.

With only a 14 week payback and a small implementation cost, using these units at London Bridge has proved both cost effective and a sustainable short term solution to heating and drying our welfare rooms during the project construction phase.