

Existing air conditioning upgraded to displacement air handling solution

Replacement of conventional mixing system results in multiple cost and energy saving benefits for McVitie's

The Challenge:

We were consulted by McVitie's regarding an upgrade to the existing air conditioning system in the chocolate biscuit production area. This system relied on the use of conventional air mixing and distribution systems using air socks.

A central part of the brief was to design and deliver a more energy efficient system with the clear objective of providing economic payback.



The Solution:

We designed and installed a displacement air handling solution using the technology and expertise we have developed in recent years.

Displacement air handling works by introducing air into occupied working zones at low velocity to reduce entrainment with internal air. Natural buoyance forces ensure that the fresh cool air pools at low level. As this air comes into contact with heat sources - people and machinery - it forms a thermal plume that takes the warm internal air upwards where it can be extracted.

The turnkey package was delivered in a live factory environment with no downtime.

The Benefits:

- ✓ Fan power savings of c £65K
- ✓ Refrigeration running costs reduced by £25K
- ✓ Peak load 11% lower resulting in reduced plant size and associated capital costs
- ✓ Reduced air volumes resulting in fewer filters and reduced maintenance costs
- ✓ Costly sock maintenance no longer needed
- ✓ Reduced refrigeration plant operation, increasing compressor and condenser fan life
- ✓ Additional energy savings using variable flow chilled water plant design



Testimonial

"Penmann's design using displacement air distribution is a real benefit to our business particularly with rising energy costs. The project was undertaken in a very professional manner and delivered on time and budget"

Paul Griffith, Engineering Manager, McVitie's Manchester