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Ware R&D Building 5 Chillers

Energy Management Case Study – Ware R&D Building 5 Chillers

Background

The three HT York Chillers that provide the cooling in Building 5's HVAC system have a cooling capacity of 4300 kW. The total building installed cooling capacity is 4467 kW. This cooling deficit is to be addressed within the refrigerant review currently underway at Ware that will ensure compliance with forthcoming refrigerant legislation.

In the meantime the deficit causes difficulties in the summer months when demand for cooling is stretching the chillers to their maximum capacity.

Before Cleaning

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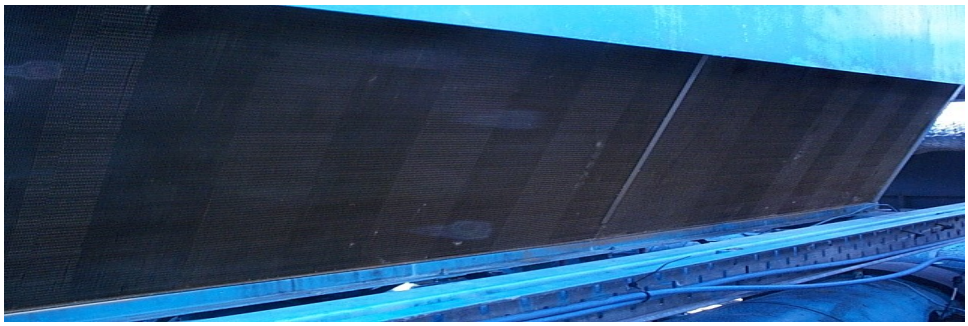
Investigations were made into how the operational characteristics of the chillers could be improved without impacting on the building users and at a cost that would be viable based on the limited lifetime of the chillers due to the forthcoming legislation.

Solution

The cleaning and re-preservation of the air cooled condenser coils on the chillers offered by Blygold provided the opportunity to improve the chillers operational characteristics and to produce an energy saving to give a payback period of approximately 1 year.

Cleaned without coating

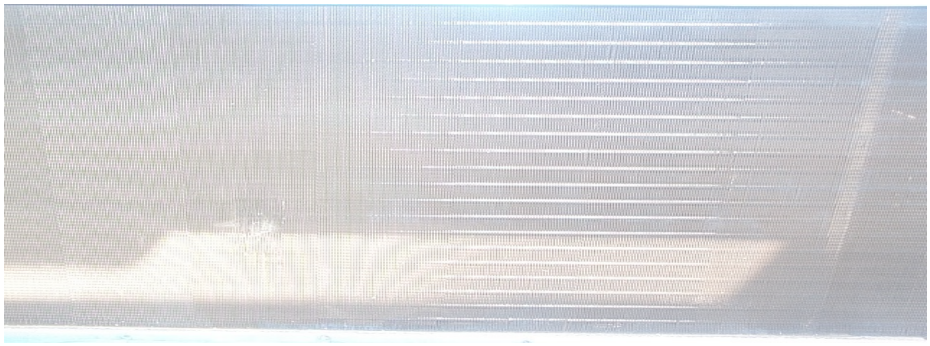


Finished – with coating

Benefits

The Blygold clean and film has improved the operational characteristics of the chillers: e.g. at 30 degrees celsius prior to Blygold treatment all four fans would have been operating to maintain the head pressure. After the treatment the head pressure can be maintained with only two or three fans operational.

This gives a reduction in the compressor duty thus reducing the chillers power consumption. The typical power usage dropped by 25 to 30 amps per phase which is equivalent to a 10 to 15% power drop whilst running at full duty.



The re-preservation of the condenser coils has given the condenser a life improvement of approximately 5 to 10 years. This will ensure the condenser will out see the natural usage of the chillers prior to their replacement due to the forthcoming legislation.

The 15 year old chillers are now operating at close to their original specification and should cope with the demand for their maximum capacity in the forthcoming summer.