



AHU refurbishment

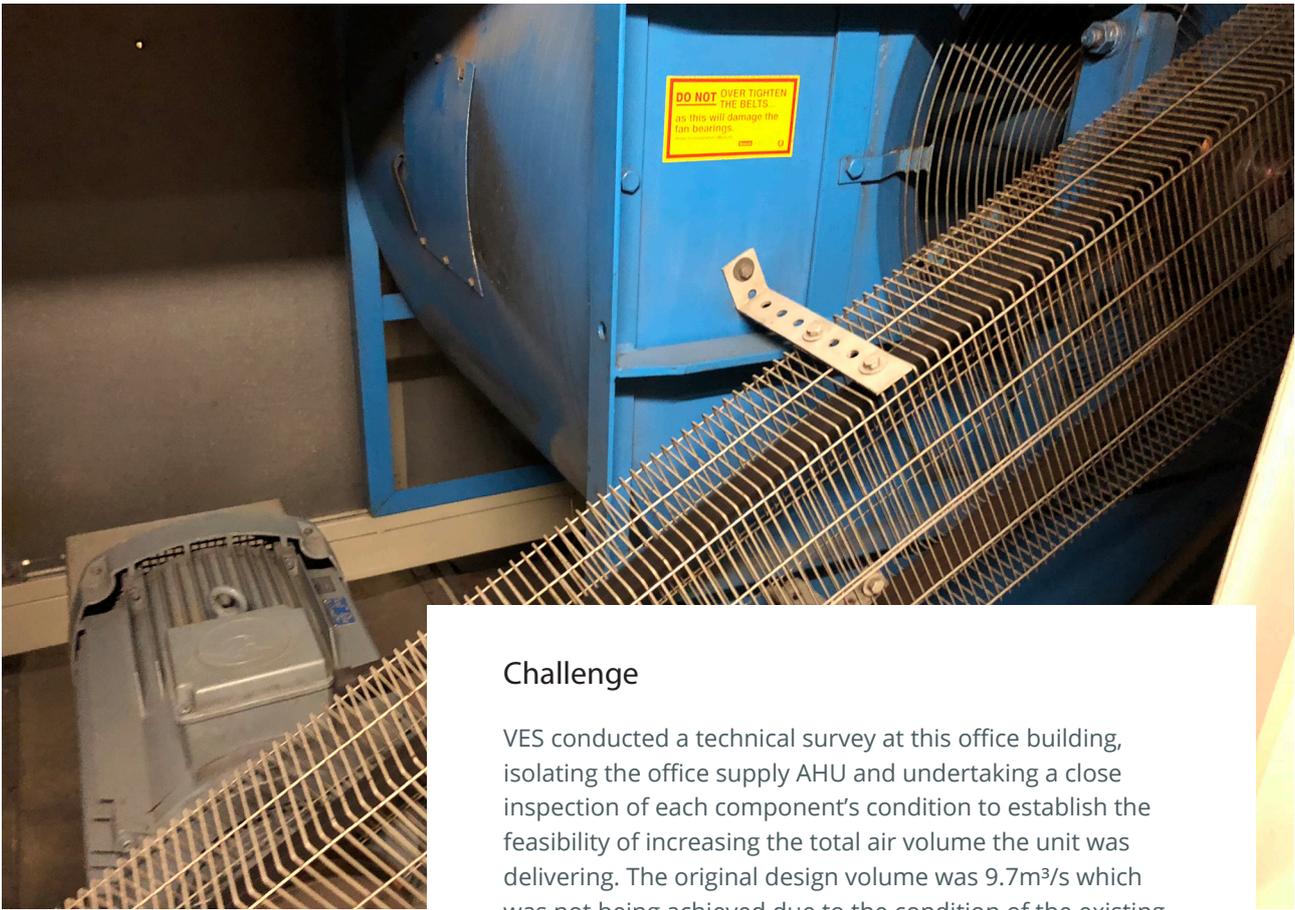
Case Study

Extending life expectancy and improving indoor air quality

As a leading local employer, indoor air quality and the building operation is vital to this company's corporate responsibility of achieving occupant comfort and the environmental impact through an effective ventilation.

This project required an increase in the volume of fresh air distributed through the building, to improve indoor air quality for the 1,000 building occupants, as well as the offices operational efficiency.

Sector	Commercial
Challenge	To increase the life expectancy and efficiency of the office ventilation system
Success	Increased system performance and reliability



Challenge

VES conducted a technical survey at this office building, isolating the office supply AHU and undertaking a close inspection of each component's condition to establish the feasibility of increasing the total air volume the unit was delivering. The original design volume was $9.7\text{m}^3/\text{s}$ which was not being achieved due to the condition of the existing components, as a result there was inadequate fresh air being supplied.

With the existing components being in poor condition, and restricted access within the plant room, refurbishment of the existing AHU and upgrade of its components was the most cost-effective option.

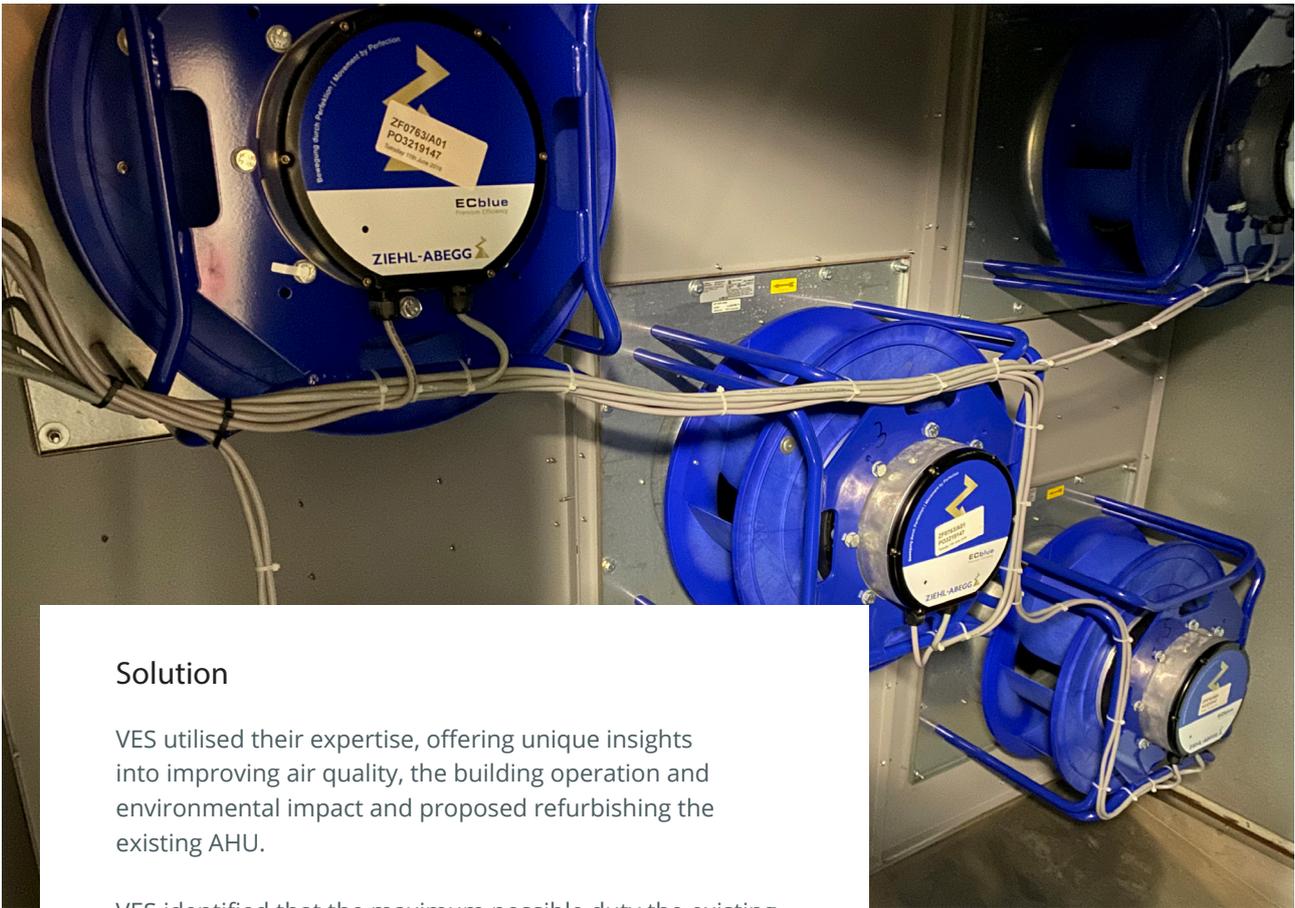
Due to the AHU location, new components required craning onto the roof and manoeuvring into the plant room via a restricted location of just double doors.



Fresh air inlet damper



Frost coil



Solution

VES utilised their expertise, offering unique insights into improving air quality, the building operation and environmental impact and proposed refurbishing the existing AHU.

VES identified that the maximum possible duty the existing unit was capable of achieving was 10.7 m³/s due to maximum velocity limitations over the existing components. VES proposed 5no EC plug fans to work simultaneously in a fan wall to achieve the new increased design duty.

The heating and cooling coils were in poor condition and therefore replaced to suit the new design air volume. Due to the restricted access and existing pipe work connections, the coils were supplied in 2 sections. The fresh air inlet damper was replaced, and the panel and bag filters were upgraded along with the filter frame to suit the new air volume.



Fresh air inlet damper



Frost coil



Rigid bag filters



*Refurbishment of the existing AHU
has increased system performance
and reliability.*

Results

Refurbishment of the existing AHU has extended the life expectancy of the unit and improved the energy efficiency with new EC plug fans. There is now adequate air being distributed around the building to ensure fresh air requirements for the 1,000 occupants is met.

By upgrading to energy efficient direct drive EC plug fans, there is increased control functionality to allow demand ventilation and improved system reliability as there are no belts and pulleys to be replaced.

From initial project consultation through to the ongoing project management and completed solution offered, the client was very satisfied with the solution.