
EXPERT TIP #1

How to optimize costs of your HVAC system in an effective way?

In most commercial and public buildings HVAC systems account for up to 50% of the total energy consumption. Initial investment costs of HVAC represent only roughly 20% of total cost of ownership (TCO). So how can building owners maintain an efficient indoor climate while ensuring total system costs are kept low?

Indoor climates, especially in mission-critical zones within buildings, must be controlled effectively with HVAC systems in order to create a safe, comfortable environment that fosters the productivity and well-being of building occupants. In addition, HVAC systems need to become more and more energy-efficient following the worldwide governments' attempts to save energy and the building owners' endeavor minimize costs.

Smart contractors will always work to make sure their initial costs are very competitive. This is the nature of their business. Building owners, however, should focus on long term system and energy performance as they are going to be living with the HVAC system for a long time and utilities are a large part of the costs involved in keeping buildings running. The building's operating performance could be substantially improved through enhanced operations and maintenance practices.

Aside from the cost of HVAC acquisition, the costs of labor and material associated with a complex installation can be significant. A high quality air-handler can last in excess of 25 years if installed and subsequently maintained correctly. However, the use of cheap, low-quality products and lack of maintenance, improper operation of systems, etc. often require replacing equipment prematurely and adversely affect TCO. Therefore, choosing products of high quality that match your application needs and are backed by comprehensive service and support from the supplier will pay off in the long run. The decisions you make at the beginning of the purchase journey will certainly impact on TCO.

Systems that run at low energy efficiency levels will increase operating costs, and ultimately add on TCO. In order to increase energy efficiency in buildings it is essential to apply equipment that is optimized in design for HVAC applications and help to reduce energy consumption such as variable speed drives (VSDs). These are designed to protect the owners' assets. Specifically, the drive will protect the motor and itself during power fluctuations and other non-ideal situations, ensuring an uninterrupted performance of the HVAC system. This is particularly important for preserving the comfort of the buildings' occupants and, in the case of mission-critical applications such as

hospitals, for meeting temperature and humidity requirements to minimize bacteria concentration and avoid cross-contamination of patients. These critical zones in buildings are often referred to as positive and negative protective spaces. For example, if tuberculosis is present in a hospital then a negative protective room is created to ensure the tuberculosis remains contained in that particular room by pulling air from elsewhere. If chemotherapy drugs are being administered to patients with weakened immune systems then a positively protected room is created by featuring pressurization control via the drive and the mechanical system, in order to ensure clean and safe conditions in critical environments.

Working with a supplier who understands the application of drives and motors in HVAC will prove beneficial. ABB specialists can support you in selecting the right product based on your specific requirements, ensuring that installations meet consultant`s design and product guidelines. They will also be at hand to support you with the commissioning of the drive and ensure the system is set up correctly to deliver the best possible performance. It's literally about living through the process together with the system owner.

You can learn more about ABB drive and motor solutions for HVAC on our [webpage](#).