

Pathian Solves Building Pressure and Comfort Issues; Reduces Hospital Energy Costs by 39%

The Problem: New Patient Tower, Cold Lobby

A large Ohio-based hospital completed construction on a multi-story patient tower addition. Upon opening, the hospital staff was unable to keep the lower lobby of the new tower pressurized in the winter. The pressure problem caused large amounts of cold air to infiltrate into the hospital each time a visitor entered, and the new lobby temperature would routinely drop below 65 °F on cold winter days. The cold was very uncomfortable, causing staff to don winter coats, gloves and scarves to keep warm. Even worse, first impression of the new million-dollar, state-of-the-art facility was a cold and drafty lobby. Upper management was disappointed that their new building was performing so poorly. The A&E firm of record worked earnestly to resolve the issues but after two years the temperature conditions persisted. The A&E firm's final position was they were confident of the accuracy of their design; it must be a control or air balancing issue. The mechanical and control contractors verified their work and confirmed the HVAC systems were operating as specified. This type of scenario is typical in the industry. Nothing they tried worked. Why?

The Assessment: Competing HVAC Systems

A typical hospital goes through multiple expansions and renovations during its lifetime, each designed by separate A&E firms in accordance with the-then current building codes. Given constraints on design budgets, seldom does the A&E look at interactive effects of new HVAC systems and their control strategies on the existing building systems. In this case, the addition of the new patient tower magnified a building pressure problem that already existed, causing excess air flow within the building due to stack-effect issues. To mitigate the problem, Pathian developed and implemented Pathian Optimal Building Pressure Control (POBPC), a best practice HVAC control strategy that forces the building's AHUs to work together, resulting in improved building pressure control and significant energy savings.

The Result: HVAC Optimization Delivers ASHE E2C and ENERGY STAR™ Awards Plus 39% Savings

Pathian's services were called upon initially to solve a cold lobby problem. Through Pathian's HVAC optimization process, we developed and implemented a best practice control strategy, POBPC, which has since reduced the hospital's energy consumption by over 39%. Prior to HVAC optimization, the hospital had a single-digit ENERGY STAR rating of 8. Upon completion, the ENERGY STAR rating was elevated to 81, which warranted EPA ENERGY STAR award in 2010 for their achievements followed by ASHE E2C recognition.