CASE STUDY: HSBC NORTH AMERICAN CORPORATE HQ

THE SITUATION:

HSBC's North American Corporate Headquarters is a 576,000 square foot office building. The bank sought Gold Certification from the United States Green Building Council for its environmental initiatives.

Air Zone International's air column units and the underfloor air system would play an integral part in the building's green initiative, along with steps like collecting roof water for flushing toilets, using drought-resistant landscaping to reduce the need for watering, light-guided window treatments that track the sun's position to reduce the need for heating and air conditioning, and renewable or non-carbon-emitting energy resources. The underfloor air system was selected for this building because it allows heat from lights, equipment, and people to rise into the plenum and away from the occupant space.

OUR SOLUTION:

ESD, a very experienced design firm with over 3 million SF of UFAD projects under their belt, was the consulting engineer on the project. Air Zone International worked hand-in-hand with Environmental Systems Design (ESD). They elected to use Mixed Flow Column Units because they understood "the importance of maintaining consistent temperature and pressure in the floor plenum of UFAD systems and that the use of air columns in the occupied space was the optimal method for accomplishing this."

Air Zone International's Mixed Flow Column Units mix two air streams: Primary Air and Space Return Air. Building controls modulate the primary air damper, and a VFD controls the direct drive plenum fan to deliver supply air at a specified pressure- typically 65-68 degrees Fahrenheit underfloor. Operating at warmer supply temperatures under the floor compared to conventional overhead distribution extended the economizer hours for this project. The economizer air was delivered through the primary airshaft to the Column Unit.

THE RESULTS:

Our Mixed Flow Units allowed for lower static pressure, reduced fan horsepower, and decreased operating costs. By using column units, HSBC avoided underfloor ductwork, which can be an expensive proposition.

ESD commented, "by locating the column units on the floor to maintain pressure and temperature in the raised floor plenum, it allowed the main fan system to be sized at cooler temperatures and lower static pressures. The 48-degree supply air and lower static pressure resulted in smaller fans with small motor horsepower assisting, in part, toward a final building energy savings of 45.1% better than ASHRAE 90.1-1999. Lower supply air also resulted in smaller duct shafts and mains which reduced material usage."

Regarding lessons learned, ESD discovered that the location of the underfloor static pressure sensor is just as important as the column unit location.

Air Zone International's contribution to the underfloor air system was just one of many reasons why the HSBC Corporate Headquarters won the prestigious NAIOP 2008 Green Development Award.

Our units allow for smaller closets, more rentable square footage, and less energy consumption. Not every project that we work on wins awards, but we consistently win the satisfaction of our building owners and tenants. Call us to discuss UFAD on your next job.

HSBC Corp. Headquarters
Mettawa, Illinois

576,000 SF
LEED Registered Gold
ENG: **ESD**
Sales Rep: **Hatchell & Assoc.**
Project Cost: **Undisclosed**
Mechanical System: **UFAD**
AZI Product: **Mixed Flow Unit**

Air Zone International | 5220 Ted Street | Houston, Texas 77040 | office (713) 460-4040 | fax (713) 460-4050 | airzoneinc.com