East Columbia Library

Install Variable Speed Drives

- AHU's-1, 3 and 4

AHU's-1, 3 and 4 are variable air volume (VAV`) units that utilize inlet guide vanes (IGV) to vary the flow of air to the VAV boxes. We propose to replace the IGV function through variable speed drives. The IGVs will either be locked in the full-open position or removed entirely, where feasible, and be replaced by a variable speed drive (VSD). The VSD will vary the speed of the fan directly by varying the motor speed and reduce the amount of electricity used by the fan motors. The required speed of the VSD will be determined by the existing differential pressure sensor.

- HW Pumps

Currently, the heating water pumps operate at a constant speed. As the 2-way valves close, a pressure by-pass in the piping opens to maintain constant flow through the system. Energy can be saved by varying the flow of the heating water pumps in relation to the pressure in the system. As the 2-way valves on the VAV boxes close, the pressure in the piping system will increase. The control system will reduce the speed of the pump(s) via the variable speed drives to maintain a constant system pressure. As the speed of the pump is reduced, the electrical consumption is reduced, resulting in energy savings.

Green Roof

A green roof is a roof substantially covered with vegetation. Green roofs improve the energy performance of buildings, reduce storm water runoff, and contribute to a healthier environment. ESG proposes to install 1200 square feet of modular green roof. In the modular system, the modules are composed of recycled plastics and can be placed directly on the roofing membrane or on any other surface. The modules are composed of 60% post-industrial, recycled, high molecular weight polyethylene. The modules come in a variety of sizes and are available in three depths. ESG and Howard County staff will work together to determine the planting scheme and layout of the modules. This proposed system can absorb up to 99% of a 1-inch rainfall. Runoff potential is reduced, lessening the risk of flooding and sewer overflows. By slowly percolating through the specialized growing media, roof runoff occurs several hours after peak flows. This provides additional time for sewer systems to handle other uncontrolled runoff.

We propose the green roof at East Columbia Library because the building already has a photovoltaic system in place, and a green roof at the same location provides a great opportunity to the County for a community education and awareness type program.

Please see Scope of Work Section in the appendix for details on this proposal and also refer to the Building Description Section for thorough descriptions of existing conditions.