

DATE: February 6, 1992

TO: Glen Taylor  
Berit Stevenson  
Jim Goddard

FROM: Joanna Karl

RE: Controls

The following information is from two phone calls: one with Steve Scott (lead engineer at TECI, a non-profit energy consulting company) and Paul David (Microgrid).

This is a follow-up from yesterday's discussion about controls at the Lloyd 500 building. It sounds like the system is quite "leading edge". It has been operating for about 6 months at the Lloyd 500 Building, and is saving 45% of the previous energy used in the building.

It is a DDC (direct digital control) system designed by Tom Hartman in Seattle, and manufactured by Delta Industries. It controls both the HVAC and lighting. The system adjusts according to the dynamic needs of the building, as it is collecting data at all times.

There are 3500 points in their system (making up 18 floors). The system scans the building 20 times per second on a real-time basis, and can vary the speed on the supply fans as needed (rather than shutting down the system via the dampers). Thus, its response time is very fast (on the order of 10 minutes, as opposed to a few hours in other systems).

This system is a step beyond the "variable air volume" system, which is considered the norm for energy efficiency. I believe this system uses a terminal air volume - its inexpensive because it only moves a small amount of air. Air quality is good, because the air is always moving. It also uses outdoor air at night to purge the building air and improve the building's air quality.

The building also includes a lighting sweep at the end of the work day, requiring a manual override if staff is still working.

Compared to other systems, which are limited to set software choices, the Delta system can be customized to the building. The additional "tweaking" of the system can result in an approximate 20% more savings.

Many of the other systems are essentially electronic time clocks with on/off functions on pre-set schedules; many have optimal starters and/or weather predictions. However, this system is collecting data at all times, such that the building can be controlled on a dynamic basis.

If you are interested, I can arrange a tour for some time next week. Please let me know your schedule if you want me to pursue this.