

## **BREADTH TOPICS**

When implemented, any mechanical system redesign would consequently alter other buildings systems. Two, of the following three, proposed breadths will be analyzed during the 2009 Spring Semester.

### **ACOUSTICAL BREADTH**

The driving decision to switch from fan coil units to chilled beams was the reduction in acoustical interference in the space. The acoustical performance of the chilled beams in the offices and discussion classrooms will be analyzed to make sure they meet standardized noise criteria for the activities that will take place. By reducing the distracting vibrations and rattling that occurred with the fan coil units, the overall productivity of the students and tenants will increase.

### **ARCHITECTURAL BREADTH**

By installing the supplemental radiant flooring in the lobby/atrium space, the initial construction cost for the mechanical system will definitely increase. Although the system, in congruence with the displacement ventilation, will enhance the thermal comfort of the occupants, it might be possible to reduce the amount of heat gain/loss in the space. This will be done through alterations of the glass curtain wall system that runs the entire length of the space. Enhancing the thermal properties of the glazing, adding additional shading devices or changing a certain percentage of the wall to a different material are all viable options to help decrease the loads. As a result, the air handling unit can reduce in size, and the extra boiler capacity needed to heat the radiant flooring will be minimized.

### **CONSTRUCTION MANAGEMENT BREADTH**

One of the most appealing qualities about chilled beams is the ability to bring together several services in an integrated unit. A full range of building services (apart from heating, ventilating and air conditioning), can be incorporated into the beam. These include uplighting or downlighting, fully addressable lighting solutions and fire alarms and sprinkler heads. By integrating fire protection and/or lighting features into the beam, a reduction in costs and on-site installation time is almost assured. The breadth would explore the potential savings on the construction costs and installation schedule.