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## **Breadth Studies**

While completing the construction management analyses for the Integrated Science Center, I plan to investigate other area specialties of the Architectural Engineering program. The breadth studies I have selected are briefly explained below.

### **Mechanical Breadth**

The Integrated Science Center is a state-of-the-art laboratory facility and it requires an elaborate mechanical system. During the humid summer months caused an excessive amount of condensation formed when the system was operating the system at 100% external air exchange. As a result moisture began to overflow the drain pans and flooded the penthouse floor. I plan to calculate the building's peak demands during Williamsburg's humid summers and determine if the number and size of the AHU's would be affected by the new figures.

### **Lighting/Electrical Breadth**

Phase II of the Integrated Science Center project consists primarily of the complete interior demolition and renovation of approximately 25,000 SF of lab space. The original contract documents required the existing window and curtainwall systems to remain protected and in place. Blinds would eventually be installed for glare control. However, blinds hinder the use of daylighting in spaces. I propose replacing the existing windows with a tinted window system which would provide an alternative measure of glare control without compromising the penetration of daylight. The increase in daylighting would significantly reduce artificial lighting requirements and electrical energy demands compared to the existing windows and blinds. The new window system would also improve energy efficiency, aesthetics, and quality.