Breadth Topics

The proposed changes to the Hearst Tower mechanical system will also affect the electrical and structural systems of the building.

Electrical Breadth

By changing the chiller plant to steam driven absorption chillers from electric motor driven chillers, the buildings electrical load also changes. This new equipment will be added to a load analysis using Carrier's Hourly Analysis Program to determine the reduction in kilowatt-hours. This reduction will require a resizing of feeders, panel boards, conduits, and over current protection devices. A cost analysis to determine the effects of this redesign will also be performed to further demonstrate the benefits of eliminating electric chillers. The National Electric Code will be used to guide these calculations.

Structural Breadth

The structural system will also be addressed on floors where mechanical equipment will be replaced. This will include the basement, 28th floor mechanical equipment room, and the roof level. Absorption chillers, which will be larger than the existing electric chillers, will be added to the basement and may require the addition of a cooling tower on the roof level. On the 28th floor, the air-handling units will be downsized to accommodate the minimum outdoor air requirement. These changes will yield new loads and therefore a study of the structural framing members in these areas will be completed. RAM Structural System software will be used to analyze the existing floor system with the new loading and resize the framing members as necessary.

In addition to these breadth studies, a life cycle cost and annual operating analysis will be calculated for the new mechanical systems and electrical system.