Mechanical Technical Report 2

Building Plant and Energy Analysis Report

The Hearst Tower
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New York, NY 10019

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1.0 Executive Summary

The 42-story Hearst Tower rises from Midtown Manhattan and stakes its claim in the New York City skyline with its eclectic diagrid design. Further inspection of the building as a system, and not just an architectural icon, reveals a building striving for excellence not only in structural innovation, but in "green" design as well.

This report will investigate the building plant and energy performance and determine what impact this performance has on factors such as LEED certification, annual energy cost, and annual building emissions. In addition to these factors, this report looks at how the mechanical system contributes to first costs and loss of rentable space.

Upon completion of building performance calculations, it was found that although the tower utilizes a curtain wall system, it is in compliance with ASHRAE STD 90.1-2004. Ultimately, the building is able to save energy even though more than 90% of the envelope is glass. In addition to analyzing performance of building envelope, the lighting system was also addressed. After performing the appropriate calculations, it was determined that the kitchen and stairways did not comply with ASHRAE Std. 90.1-2004. However, these spaces were very close to compliance and all other spaces analyzed comply. Since the building was designed to be LEED certified it is possible that this noncompliance is the result of using assumed/preliminary information.

In its entirety, the Hearst Tower claims 856,000 SF of floor area, however only 598,142 SF are rentable. Approximately 35400 SF is lost due to the mechanical system. Therefore about 14% of the lost rentable space or about 4% of the total building area is attributed entirely to the mechanical system. Since Hearst is such a large building, operating the building is costly. It was determined that the annual cost to operate the Hearst Tower is approximately $3,030.000.00. Overall, HVAC equipment accounted for about 40% of the annual operating cost while the lighting system accounted for the other 60%.

Although the tower is very large and a "cookbook" method of design, similar to those used for most high-rise buildings could have been used, the Hearst Corporation sought to make a commitment to both its employees and the environment. In a preliminary report done by the design team (April 2004), the Hearst Tower had secured 37 LEED points with the possibility of obtaining an additional 6 points. Even without the additional 6 points, the Hearst Tower has earned enough points qualify as a LEED Silver Building. Ultimately, the Hearst Tower will achieve LEED Gold Certification and earn the title of being the first such building in NYC.