NEBRASKA MEDICAL CENTER

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COMPANY BACKGROUND

OMAHA, NE

The Nebraska Medical Center (NMC) is an acute care health facility with 689 beds and 37 operating rooms, located in Omaha, Nebraska. Known internationally as one of the top hospitals in the world for oncology, neurology, cardiology and both organ and bone marrow transplant, NMC also houses the nation's only civilian access biocontainment unit. In 2007, the center treated 26,000 inpatients and 445,000 outpatients. NMC has 9,100 employees, including nurses, staff, medical students, residents and more than 1,000 physicians practicing all major specialties and sub-specialties.

PROJECT BACKGROUND

New utility meters are being installed around the NMC campus. A building-by-building historical baseline was needed to make efficient use of the new data in evaluating future projects. The intern used archived utilities data from the new Hixson-Lied Clinical Center, billing data and national trends to extrapolate an accurate baseline for the north campus. The intern then made several recommendations to NMC for further energy saving opportunities.

INCENTIVES TO CHANGE

The hospital is participating in the Department of Energy's Energy Star Portfolio system, to integrate LEED design and construction practices into its new buildings and renovations. It has also formed a technical Energy Management Team to explore energy reduction projects and an Energy Advocate Committee to collect and disseminate information regarding new projects. Constructive change begins with analyzing and understanding current practices.

RESULTS

Dedicated Heat Recovery Chillers: Presently the Hixson-Lied Clinical Center's heating, cooling and ventilation (HVAC) system simultaneously heats and cools. Chilled water is purchased to first cool the supply air, and then steam is purchased to heat water, which in turn is used to reheat the supply air just prior to room delivery. Heat recovery chillers would reclaim the heat dumped into the chilled water lines by the north campus and use it to reheat the air in the Hixson-Lied HVAC system, thus producing savings in two areas. These chillers would reduce steam consumption for the building by 85 percent and would turn the building from a net consumer to a net producer of chilled water.

Surgery Suite HVAC Controls: In order to be in constant readiness for the intense demands of surgical procedures, devoted AHUs and electrical loads are operated non-stop at full capacity. However, the actual need for this energy varies greatly throughout the day and drops off entirely during nights and weekends. Using a controls system that can accurately dial up or dial down the energy would result in considerable savings.

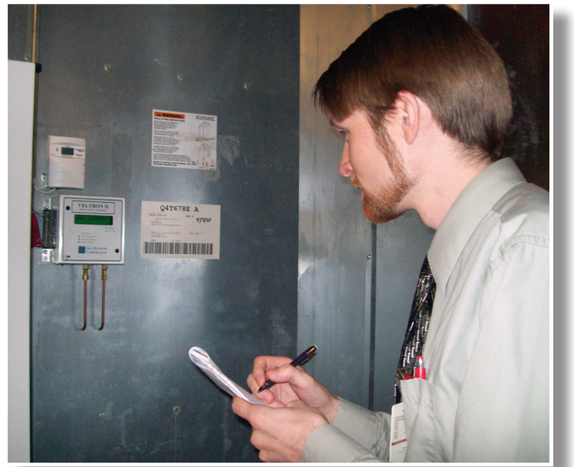
Temperature Control and Energy Management Systems: In several medical office buildings, chilled water and steam appear to be running non-stop and only vary with outside air conditions rather than occupancy. Weekday usage does not vary from weekend usage. Installing systematic temperature controls and an Energy Management System for all floors and areas would enable NMC to regulate heating and cooling based on work schedules, thus reducing energy wasted during nights and weekends.

Computer Power Management Adjustments: NMC's north campus uses approximately 2,500 computers. Few of these are set up to make use of built-in power saving modes. By changing the computers' operating parameters to allow them to enter hibernation while workers are not in the building, roughly 100 watts of demand per computer could be saved during off-work hours.

Lighting Sensors in Unoccupied Spaces: Mechanical rooms, elevator control rooms, stairways and circuit breaker rooms are unoccupied most of the time, yet lighting is typically left on in these areas constantly. If occupancy sensors were installed, the lights would draw power only when necessary.

AHU Retrofit/Replace: The northernmost medical office building currently uses nearly double the amount of chilled water that it should, based on national trends for its size and purpose. Retrofitting the air handling unit with a new coil or replacing the entire unit with a more efficient system could save $31,000 annually in chilled water use. NMC would also realize secondary savings, since the unit would not need to work as hard to condition the building space.

Lighting Retrofits: While most light fixtures on campus have been replaced with newer models, more than one hundred high-wattage incandescent bulbs remain in the mechanical rooms and pipe chases. These fixtures waste more than 54,000 kWh of power each year. Switching to more efficient, longer lasting bulbs would save energy and reduce the frequency of bulb changes.



CONVENTIONAL AIR POLLUTANTS AND GREEN HOUSE GASES DIVERTED IN STANDARD TONS

Total for all sectors					
CO_2	SO_2	CH_4	N_20	CFC	PM-10
3,588.90	17.82	1,103.88	4.02	44.30	0.53

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
DEDICATED HEAT RECOVERY CHILLERS	$368,215	482,394 THERMS	RECOMMENDED
SURGERY SUITE HVAC CONTROLS	$135,241	67,300 THERMS 1,209,900 KWH	RECOMMENDED
TEMPERATURE CONTROL AND ENERGY MANAGEMENT SYSTEMS	$328,500	265,420 THERMS 1,173,000 KWH	IN PROGRESS
COMPUTER POWER MANAGEMENT ADJUSTMENTS	$47,000	900,000 KWH	RECOMMENDED
LIGHTING SENSORS IN UNOCCUPIED SPACES	$12,032	231,386 KWH	RECOMMENDED
AHU RETROFIT/REPLACE	$31,000	40,800 THERMS	RECOMMENDED
LIGHTING RETROFITS	$2,850	54,788 KWH	IN PROGRESS