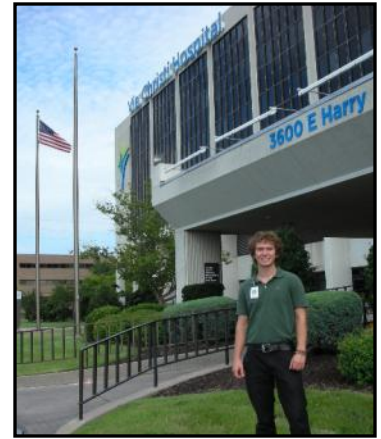


2010 Case Study

Via Christi Health System

Intern: Wesley New
Major: Mechanical Engineering
School: Kansas State University

Wichita, Kansas



Company background

Via Christi Health System (VCHS) is a not-for-profit Catholic health organization based in Wichita, Kan. VCHS was formed in October 1995 when the Sisters of the Sorrowful Mother and the Sisters of St. Joseph merged. They currently have two acute-care campuses in Wichita. One facility is a behavioral health campus, and the other is a rehabilitation center. VCHS serves more than 1,500 residents in its 12 senior citizen communities throughout Kansas and Oklahoma.

Project background

Via Christi has participated in the H2E intern program for the past three years, utilizing intern recommendations that have paved a path for energy and cost savings. The primary goal of this 2010 internship was to initiate a building simulation method that would provide credible data for projected savings of future proposals use a software called eQUEST. Other projects included transfer of the steam and condensate system, as well as the fire damper system, into AutoCAD from architectural drawings; organization of the St. Joe print room; and data entry for the review of water consumption of the entire Via Christi organization. Although the project was data-entry focused, preliminary environmental data analysis for energy and water conservation were calculated.

Incentives to change

Via Christi Health System is dedicated to the implementation of energy conservation techniques. The facility expects its efforts to procure and implement 'green' applications to continue to lower operation costs and enhance the overall healing experience of its patients.

Projects reviewed for source reduction potential

1. **eQUEST**
eQUEST provides an informational database assembled into an energy modeling tool. The software can forecast changes in energy consumption of a facility as a user manipulates key variables in the simulation. It is also a way to catalogue, with precision and accuracy, a detailed description of the components and mechanical systems in the entire building. This is crucial to facility personnel for a diverse assortment of objectives and communication purposes, including environmental and cost-savings impacts. Most of the internship was dedicated to inputting data and building this model.
2. **Water consumption study**
Water consumption history and charges for all Via Christi water accounts for the last three years were reviewed and entered into Excel using the Wichita online water department database. The idea behind the project is to determine where, how much, and for what purpose water is used. The information will allow the facility to track and benchmark its water use in an effort to identify opportunities for water conservation. The intern took into account both water- and sewer-related uses and charges when analyzing the project. These consumption rates and costs are another reason it is crucial to have properly working steam traps and condensate piping, ensuring water reuse and energy conservation opportunities are maximized.
3. **AutoCAD mapping**
Via Christi St. Francis has information on locations of each steam trap (580 entries) on paper prints. This information was drafted into AutoCAD onto the building prints. This will allow for

multifunctional applications and access to the knowledge. In an electronic state, the file can be emailed and shared virtually. Thus, the process of searching out and identifying the required print is eliminated, saving facilities and other personnel time and energy. The fire damper system at this facility followed a similar transformation process.

information, arranged in an efficient manner for various tasks that require viewing these architectural, mechanical, and electrical prints. Work was completed at the St. Joe campus to organize the print room layout and provide accurate labeling of print racks. This work provides ease of access to vital information in a facility or contractor situation.

4. Print room reorganization
Via Christi St. Francis' print room is a well-organized center of categorized building

Summary of 2010 H2E recommendations for Via Christi Health System

Project	Annual Cost Savings	Environmental Results	Status
eQUEST Modeling (3)	[In Progress]	[In Progress]	[In Progress]
AHU 7 CV to VAV Conversion (1)	\$2,943.00	39,244 kilowatts per hour	[In Progress]
Water Consumption (2)	\$35,241 to \$74,045	5,220,960 to 10,969,710 gallons of water	[Needs Research]
St. Francis Steam Trap System into AutoCAD	Access and Documentation Efficiency		[Implemented]
St. Francis Fire Damper System into AutoCAD	Access and Documentation Efficiency		[In Progress]
St. Joe Print Room Organization	Access and Cataloguing Efficiency		[In Progress]

Conventional Air Pollutants and Green House Gases Diverted in Standard Tons	
	CO2
Total for all sectors	40.114

(1) Values for the AHU7 CV to VAV conversion project only incorporate three terminal unit boxes. Therefore, figures given in annual cost savings and the environmental results are extremely conservative. The terminal units for AHU 7 were installed as VAV boxes, thus, instant savings are available once scheduled.

(2) Savings determined as if the St. Joe campus were operating on 300 to 250 gallons per day per bed (respectively) vs. current conditions.

(3) At this time, the eQuest project is in progress. Once the entire facility has been catalogued into the software, the need for hand calculating savings and environmental effects in comments (1) and (2) will be optional.