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Building Program To Basis Of Design For A Patient Floor Corridor Renovation Within An Existing Hospital Building Project

For a building program to be successful and sustainable, it must include an operating budget as well as a construction budget. Fifteen to 20% of the total cost of a building is first cost, and that remaining 80% or more is in the operation of the building over its life. The following is a sample of what the HVAC annual operating budget add-on to the current hospital operating budget along the infection control beta-test site data collection reporting could look like at the conceptual phase of a new patient floor infection control (IC) corridor HVAC design renovation.

When designing a renovated patient care space within a hospital facility, the design engineer should refresh her memory relative to this Basis of Design by first going to ASHRAE *Handbook 2015 Applications* and read Chapters 8 Health-Care Facilities, Chapters 36 through 43 relative to building operation and management, Chapter 59 HVAC security, and Chapter 61 codes and standards. In addition the design engineer should take into account ASHRAE Standard 170-2013, *Ventilation of Health Care Facilities*.

With all these design guidelines from ASHRAE, the engineer should then meet with the hospital's facility management/maintenance manager for the hospital's CMMS (responsible for patient room custodial workorders and HVAC equipment preventive maintenance workorders), as well as with the infection control manager to complete this conceptual phase O&M budget. Because this Patient Corridor and Patient Room Vestibule project is a beta-test site to improve infection control, the HVAC engineer will need to budget her time to work closely with both facility management, infection control department, housekeeping, and IC tablet computer programmer, plus the third-party IC commissioning consultant and TAB consultant, to assist in developing the first year's operating budget to monitor, measure, and report on the IC project success. The budget estimate is reflected below and will be an additional operating cost to collect and analyze the data throughout the first year of occupancy.

Unlike commercial buildings, hospitals are built for 30+ years of sustainability, and so an annual operating budget is critical to the long-term success and investment of each building program project. For this month's Facility File and based on the Back2Basics test, the operating budget will focus solely on the patient floor corridor central HVAC system and the associated semi-annual air balancing verification based on the infection control vestibule computer program.

It should be noted that the Center for Disease Control and Prevention (CDC) in a 2002 report estimated the number of hospital acquired infections (HAIs) in U.S. hospitals, adjusted to include federal facilities, was approximately 1.7 million. An integral part of a hospital's HVAC operation and maintenance department operating budget should include the infection control policy and procedure compliance when performing their work.

The following is a sample of what the HVAC annual operating budget for a beta-test site renovation of the patient floor corridor HVAC system could look like at the conceptual phase of a building program project.

| SALARIES, WAGES & BENEFITS | | |
|-----------------------------------|--------------------------------------|-----------|
| • Employee salaries & wages | (0) O&M Manager (1) Maintenance tech | \$ 5,000 |
| • Taxes, health care, etc. | | \$ 1,500 |
| • Retirement & benefits | | \$ 500 |
| OUTSOURCE OPERATION & MAINTENANCE | | |
| • Project management | | \$ 0 |
| • Vendor salaries & wages | | \$ 0 |
| • Supplies | | \$ 0 |
| SERVICE CONTRACTS | | |
| • Refrigeration equipment | None within building | \$ 0 |
| • Heating equipment | None within building | \$ 0 |
| • Filters | Replace twice a year | \$ 100 |
| • Emergency generator | None within building | \$ 0 |
| CONSULTANTS | | |
| • IC computer programmer | | \$ 5,000 |
| • IC commissioning physician | | \$ 10,000 |
| • TAB technician | | \$ 2,000 |
| INFORMATION TECHNOLOGY | | |
| • CMMS system PM work orders | | \$ 1,000 |
| • Handheld devices | Not for this space | \$ 0 |
| UTILITIES | | |
| • Electricity | | \$ 4,500 |
| • Chilled water | | \$ 6,000 |
| • Hot water | | \$ 1,000 |
| TOTAL ANNUAL OPERATING COST | | \$36,600 |
| TOTAL ANNUAL OPERATING COST/Sq Ft | | \$18.30 |