ENERGY to care

Greater efficiency supports patient care.

Setting Construction Standards for Energy Efficiency

All ECM content was independently developed and reviewed to be vendor, product and service provider-neutral.

Description

When it comes to energy efficiency projects, it is difficult to compete with new patient care equipment and staff for capital. With the frequency of construction projects at hospitals, one of the best ways to incorporate energy efficiency is to include it in construction standards.

Project Talking Points

- Specifying energy-efficient equipment and lighting will increase the upfront cost for construction projects but will pay off over the life of the equipment.
- It is rarely a good idea to delay the energy efficiency project, as it will cost significantly more to retrofit the same equipment later.
- Do not neglect areas directly attached to those receiving energy-efficient upgrades (e.g. if rooms in a wing are being upgraded with LED lighting, be sure to upgrade the hallways and nursing stations with the same LED lighting).
- Building envelope standards should be established to ensure minimal air infiltration and exfiltration.
- Always include building commissioning and user training in the budget for any construction project, as even the most energy-efficient technologies can become ineffective with incorrect installation or a lack of building user knowledge following implementation.

Benefits

- **Cost benefits:** Energy efficiency during construction will pay off by decreasing energy use and the associated cost.

- **Environmental benefits:** Reducing energy use in a hospital will result in a reduction of greenhouse gases and the overall carbon footprint of the facility.

- **Social benefits:** Reduced costs will result in more opportunity for patient care upgrades and may decrease the overall cost of health care.

Purchasing Considerations

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- When starting a construction project, be sure to include the facilities staff as early as possible. They will have great insight into the function of equipment in and around the area.

- When selecting a commissioning agent for the project, ask for references to ensure they have experience with the particular systems being installed at the facility.

- Even if there is no official policy, be sure to look for quality and energy efficiency labels such as ENERGY STAR® or the DesignLights Consortium (DLC) to be sure the facility is receiving the best products available.

How-To

1. Engage relevant stakeholders. This will likely include the hospital's construction team, facilities management, purchasing, the building commissioning agent and clinical staff associated with the affected areas.

2. Create a policy specifying energy-efficient products and additional services for all construction projects. This can include the following:
    - All lighting should be LED technology with the ENERGY STAR and DLC label.
    - Commissioning of new building systems is required to ensure proper operation of new heating, ventilation and air conditioning (HVAC) and electrical equipment.
    - Require user training for all new building equipment and automation systems.
    - Require multiple higher efficiency HVAC options to be evaluated by the team with payback calculations.
    - Require duct testing for overall leakage to minimize energy waste.
    - Require low-e glass on windows to reduce heat gain through the building envelope.

3. Empower the commissioning agent on the project to enforce the policies stated above during the construction process.

Case Studies

- **Methodist Olive Branch Hospital, Olive Branch, MS**

- Installed a high-efficiency ground source heat pump system during new construction.
- Installed an electrochromic glazing system to allow for auto tinting during high sun load periods.
- Saved over $200,000 per year compared to conventional HVAC systems.

Resources

- ASHE Monograph: Reducing Operational Costs through Energy Efficiency
- Energy University
- U.S. Department of Energy: Educational Resources
- U.S. Department of Energy: Energy Saving Calculators

Regulations, Codes and Standards, Policies

- American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1 – Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE Standard 90.1 – Energy Standard for Buildings Except Low-Rise Residential Buildings
- ANSI/ASHRAE/The American Society for Health Care Engineering (ASHE) Standard 170 – Ventilation of Healthcare Facilities

ECM Synergies

- ENERGY STAR office equipment
- Energy-efficient lighting
- Surgical task lighting
- Notched V-belts
- Install variable frequency drives (VFDs) on pumps and motors
- Replace motors with premium efficiency motors

ECM Descriptors

Energy, Supply Chain

Category List:

- Energy
- Renewable power sources

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- Supply chain
- Supply strategies

Improvement Type:

- Alternative sources
- Energy

Department:

- Engineering/facilities management