



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 them in construction standards.

Project Talking Points

- Specifying energy-efficient equipment and lighting will increase first cost for construction projects but will pay off over the life of the equipment.
- Rarely is it 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 areas 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 on implementation.

Triple Bottom Line Benefits

- **Cost benefits:** Energy efficiency during construction will pay off by avoiding 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 healthcare.

Purchasing Considerations

- When starting a construction project, be sure to include the facilities staff as early as possible in the project. They will have great insight on 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 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, 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 examples:
 - a. All lighting should be Light Emitting Diode (LED) technology with the ENERGY STAR and DLC label.
 - b. Commissioning of new building systems is required to ensure proper operation of new HVAC and electrical equipment.
 - c. Require user training of all new building equipment and automation systems.
 - d. Require multiple higher efficiency HVAC options to be evaluated by the team with payback calculations.
 - e. Require duct testing for overall leakage to minimize energy waste.
 - f. Require low-e glass on windows to reduce heat gain through the building envelope.
3. Empower commissioning agent on the project to enforce the policies stated above during the construction process.

Tools

U.S. Department of Energy – [Energy Saving Calculators](#)

Case Studies

Methodist Olive Branch Hospital (From ASHE Monograph)

- 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

Regulations, Codes and Standards, Policies

ANSI/ 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/ 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 on Pumps and Motors
Replace Motors with Premium Efficiency Motors

Educational Resource

ASHE Monograph, [Reducing Operational Costs Through Energy Efficiency](#)

U.S. Department of Energy, [Educational Resources](#)

[Energy University](#)

ECM Descriptors

Energy, Supply Chain

Category List:

- ENERGY
- Renewable power sources
- SUPPLY CHAIN
- Supply Strategies

Improvement Type:

- Alternative Sources
- Energy

Department:

- Engineering/Facilities Management

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