

Measuring the Sustainability of Health Care Buildings

HEALTH CARE RESEARCH COLLABORATIVE

concerned with the health and safety of patients, workers and community

First Annual Research Exchange on Advancing Patient, Worker and Environmental Safety and Sustainability in the Health Care Sector

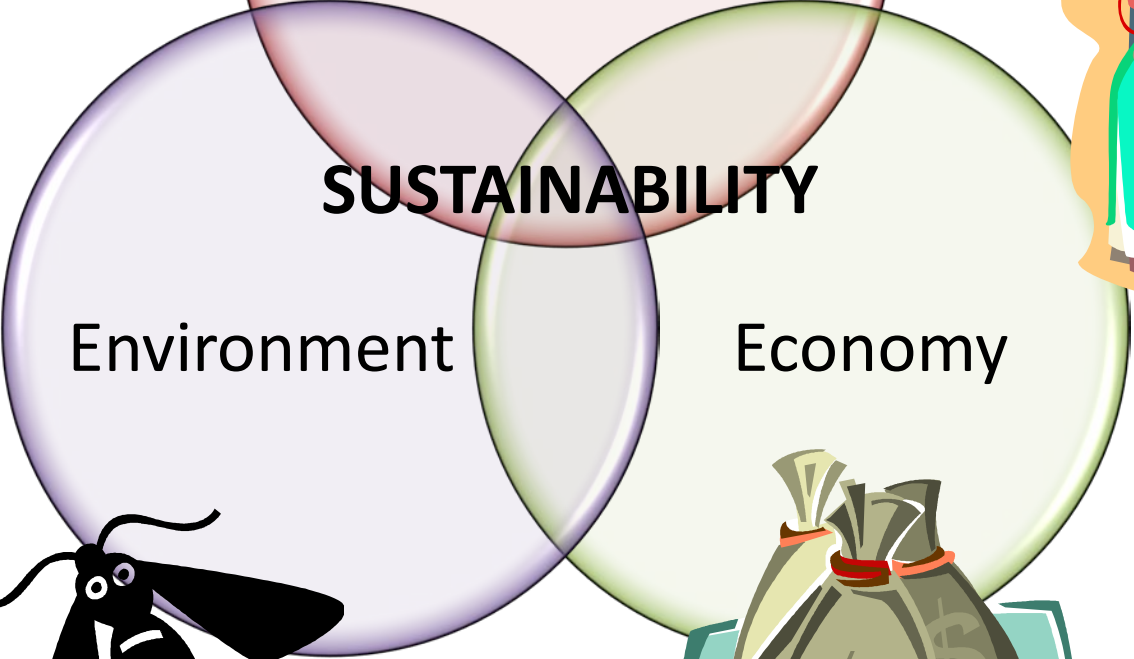
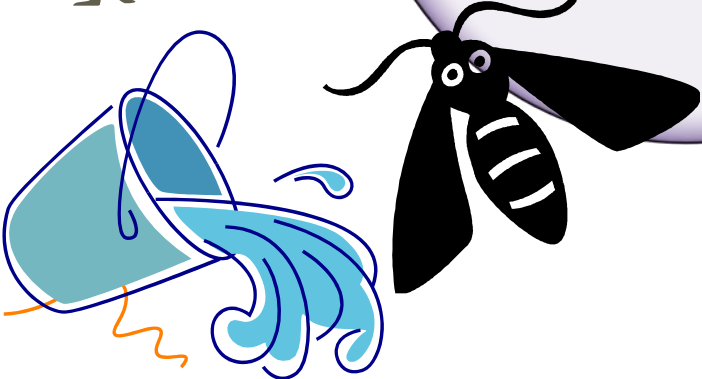
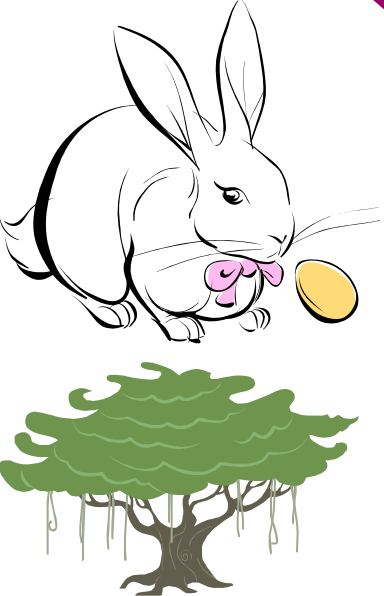
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Sustainability

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own **needs**.”

WCED - World Commission on Environment and Development. (1987).



What are the Patient's Needs?

- Receive medical treatment
- A peaceful place to heal
- The ability to rest
- Privacy
- Spiritual care
- Opportunity to have loved ones visit
- Safety
- Affordable care



What does the Staff Need?

- A place to perform their job
- Minimal distractions for focus
- Conditions conducive to work
- Opportunities for respite
- Safety
- Profit/income



What do Families Need?

- Ability to visit loved one
- Opportunities to participate in their care
- Place to stay overnight
- Security of possessions
- Places for respite
- Safety



What Affects These Needs?



Challenges

- Sustainability is multidimensional
- The building is just one way in which hospitals impact sustainability
- Given these conditions how can we measure the sustainability of hospital buildings?
- And what does that tell us about the sustainability of the healthcare system?

Existing Tools

- Design Tools

- LEED
- GGHC



- Operations Guidelines

- Practice Greenhealth Eco-Checklist for Operations
- GGHC Operations Pilot



- Measurement and Validation

- GHSI Footprint Guidance
- Energy Star Portfolio Manager
- Post Occupancy Evaluation



Post Occupancy Evaluation

Post-occupancy evaluation is the process of systematically comparing actual building performance, i.e., performance measures, with explicitly stated performance criteria.

Preiser, 1995.

Value of POE

- Correct mistakes/ fine tune building
- Identify and prioritize improvements needed
- Inform future hospital projects
- Build the knowledge base about good design

Value to Sustainability

- Improve the current operating conditions
- Hype – are we as good as we think?
- Lots of untested technology
- Lessons and feedback are critical
- Build the knowledge base for other projects
- Only by sharing our lessons will we make the big strides that are needed.

POE Methodologies

- Surveys
- Interviews
- Observation
- Review of Records
- Expert Walk-through
- Measurements

Different levels of POEs

- ***Indicative POEs*** capture major strengths and weakness of buildings through walk-throughs, structured interviews, and group meetings.
- ***Investigative POEs*** evaluate causes and effects of building environments through physical measurements, interviews, and questionnaires.
- ***Diagnostic POEs*** are focused, in-depth studies that correlate environmental measures with user experiences and/or behaviors, such as safety and way-finding.

Georgia Tech Framework

- Developing short POE tool for individual hospitals
- Gather and compile data for broad analysis
- Identify key features that need indepth study

GT Quick POE Module

- Collect facility data prior to visit
 - Presurvey of staff
 - Existing records
- Couple of days on site
- Between 3 to 5 people
- Multidisciplinary scope
 - Sustainability
 - Evidence-based Design
 - Process Improvement
- Immediately actionable results for the hospital

Generic Sustainability Metrics

- Energy consumption
- Water consumption
- Waste generation
 - Medical waste
 - Solid waste
 - Recycling
 - Compost
- Toxics usage
- Condition of the surrounding landscape
- Stormwater flows
- Indoor air quality
- Soundscape
- Access to natural light
- Community impact
- Staff injuries
- Patient and staff satisfaction
- Staff turnover
- Health outcomes
- Positive impact, stories about changes with multiple benefits

Project Specific Sustainability Evaluation

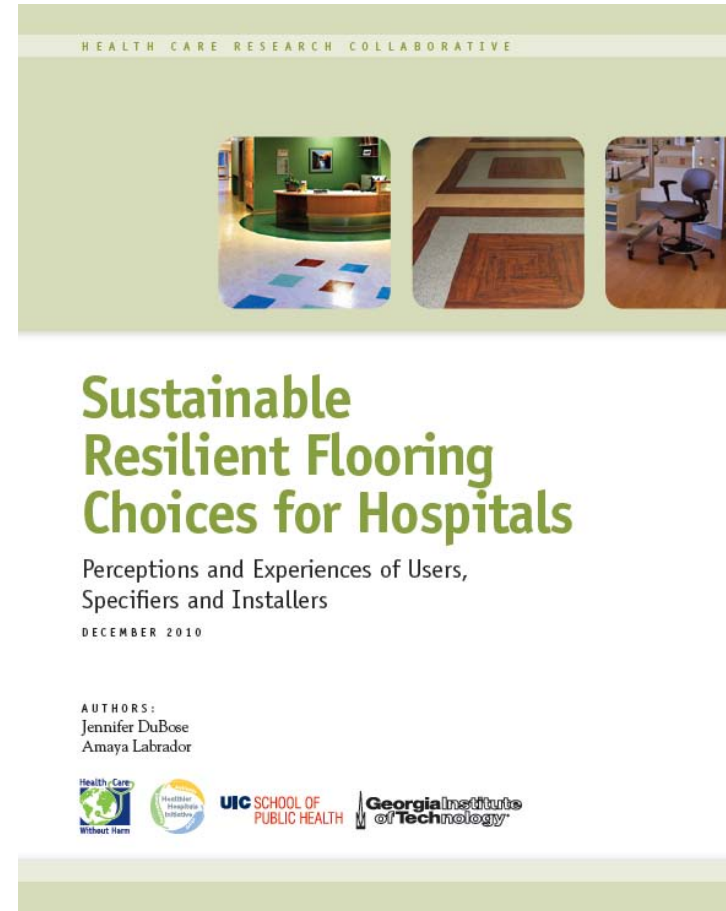
- Targeted examination of novel or critical strategies, e.g. displacement ventilation, gray water reuse, green cleaners
- Customized for each technology
- Stakeholder interviews in addition to quantitative data
- Collect data for multiple projects when possible

GT Healthcare POE Database

- Gather consistent data from all sites
- Include key data points that address critical issues in healthcare, ie infections, falls, flooring material
- Include outcome data, not just physical environment
- Analyze data for trends and correlations
- Share findings with the field

GT In depth POE Studies

- Resilient Flooring
- Patient falls
- Soundscape
- Patient transfers and transports
- Satisfaction
- Lighting



Final Thoughts

- Difficult to get participation
- Focus on the important, not just the measurable
- Communicate internally and externally
- Act on the results

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