



WORKSHOP #8. GREEN HEALTHCARE INSTITUTIONS: Health, Environment, and Economics

**“THE GREEN GUIDE FOR HEALTHCARE - A TOOL FOR
HIGH PERFORMANCE HEALING ENVIRONMENTS”**

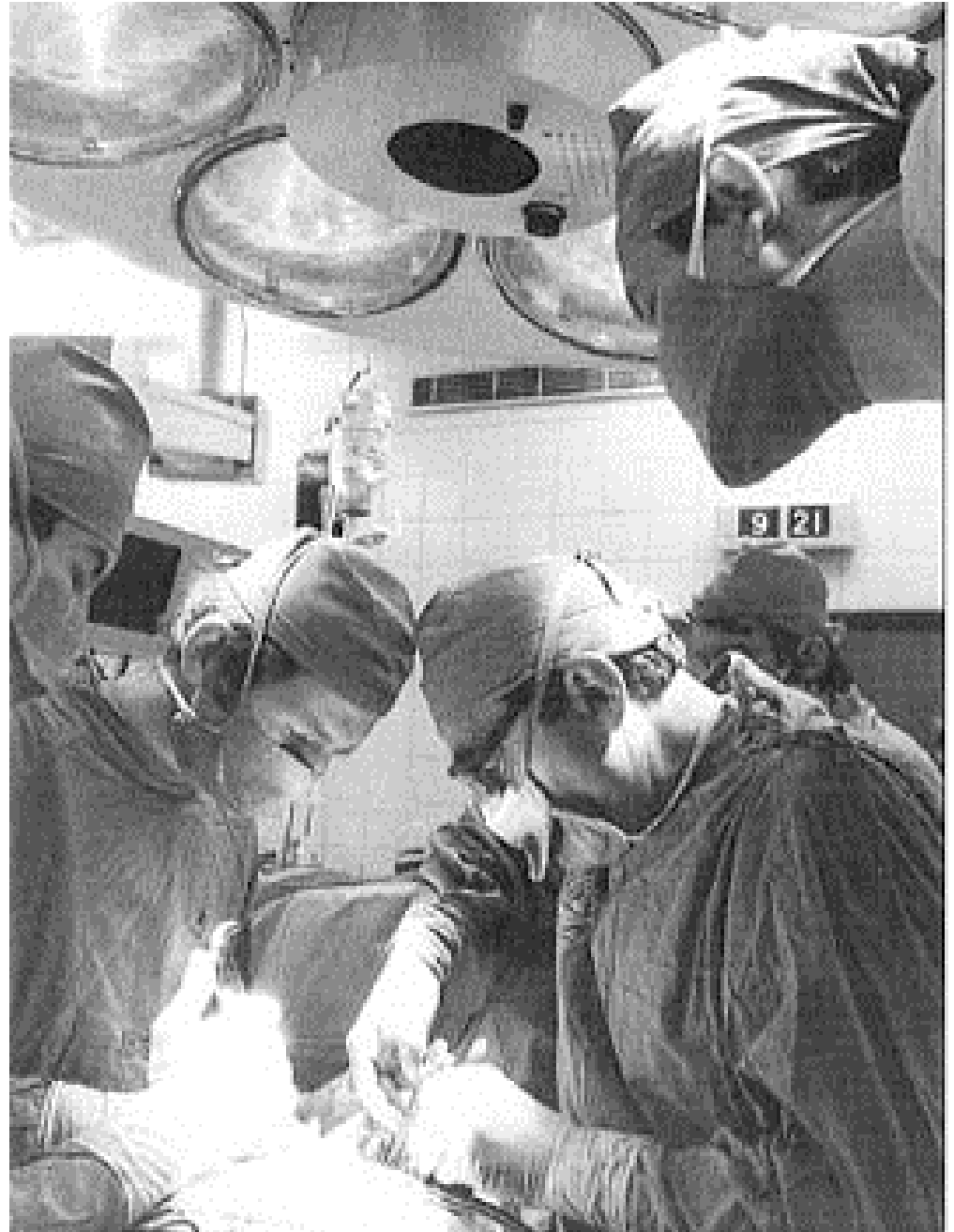
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GREEN GUIDE FOR HEALTH CARE

INSTITUTE OF MEDICINE
WASHINGTON DC
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“If there is one universal truth about hospitals, it is that they are drab, dismal places, not at all designed to soothe and heal.”

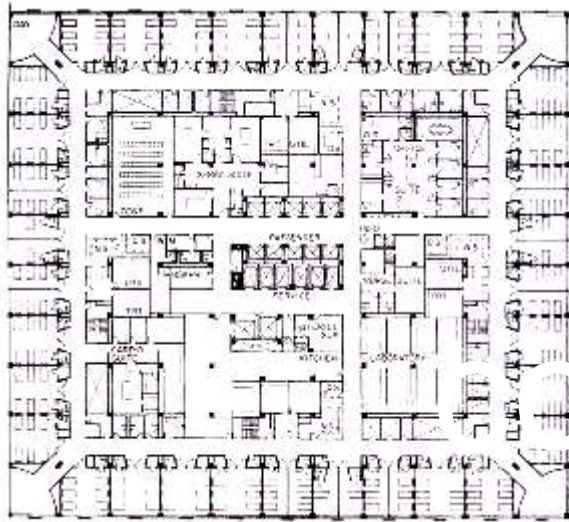
—Lizette Alvarez, *Where the Healing Touch Starts With the Hospital Design*, *The New York Times: Health*, September 7, 2004



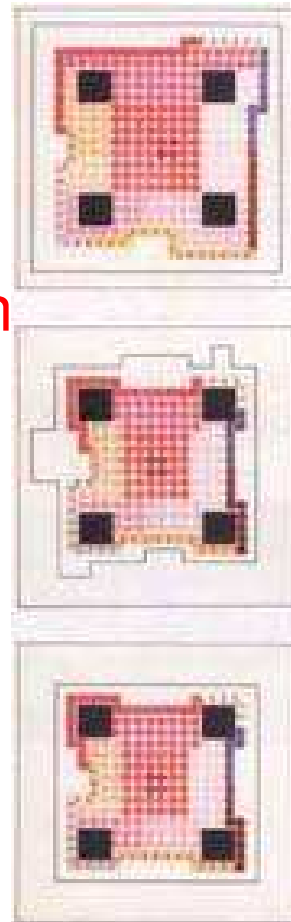
Where does this opinion come from?

New technologies in modern architecture produced new building forms:

- High Rise
- Deep Plan
- “Sealed” environmen



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“The annals of Bellevue tell the history of the development of American medicine.”



Resulting in buildings that are:

- 1 • Inappropriately **low in thermal mass**
 - Heat up too quickly
 - Cool down too rapidly

- 2 • And are too heavily dependant on **artificial systems**
 - Lighting
 - Ventilation
 - Interior environments



“The Rikshospitalet has been held up as a model hospital”

—Lizette Alvarez, New York Times, September 7, 2004

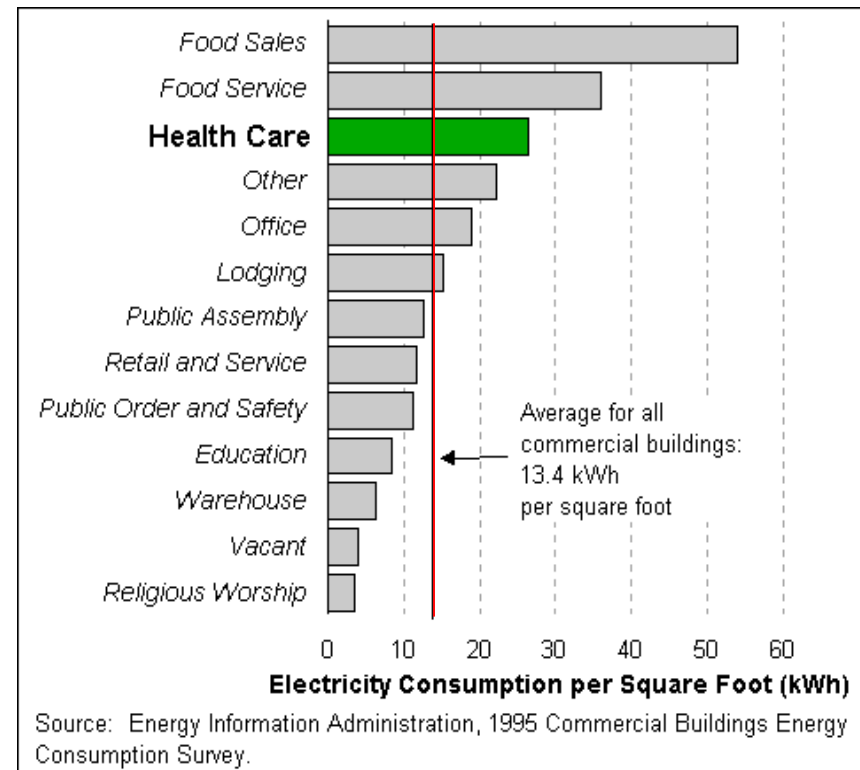
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Global Significance of the Health Care Sector

- Acute Care facilities consume nearly twice the energy annually of an average commercial building;
- 6% of total US annual energy
- Construction Projections:
 - > 100 million sq ft/year
 - > \$20 Billion annually



***Conserve energy & resources
through better practice in building
design.***

The Federal Government supports green building and defines it
as “the practice of

1) increasing the efficiency with which buildings and their
sites use energy, water, and materials, and

2) reducing building impacts on human health and the
environment, through better siting, design, construction, operation,
maintenance, and removal—the complete building cycle.”*

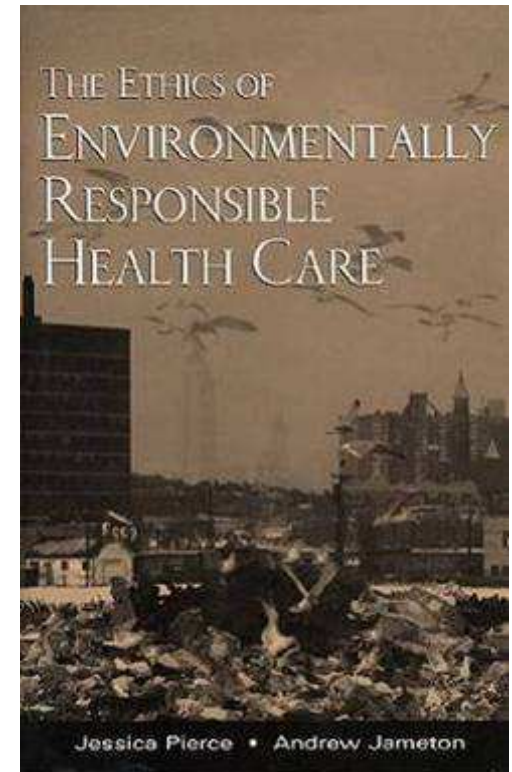
***Improve health for people &
outdoor habitats (ecosystems)
through better design
practices and operation.***

GOVERNMENT

*Urban sprawl
as a public health issue*

*Environmental health
as a medical ethics issue*

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Sprawl is taking a toll on
Americans' hearts, lungs, air,
drinking water, sense of
community, psychological well-
being and physical safety.

Book Review, Emory University, April 2004



ENVIRONMENTAL AND PUBLIC HEALTH



DO YOU WORK IN A TOXIN FACTORY?

The modern office is home to as many as 350 different volatile organic chemicals released by building materials, furnishings, and office equipment. That's not to mention the molds and bad indoor air that often flourish in these sealed-up environments. Some of the biggest offenders:

Printers and fax machines

They all ooze ozone. Scientists have yet to figure out definitively what happens when that ozone mixes with the workplace's other volatile organic chemicals.

Smoking

When people in your office smoke -- even if it's behind closed doors -- the second-hand stuff funnels through the ventilation system to the rest of the office.

Exterminators

It doesn't help that exterminators spray pesticides that may contain carcinogens over your workspace.

What fresh air?

Believe it or not many fresh air vents are located over loading docks and parking garages, sucking in carbon monoxide and other contaminants.

Sealed windows

Most people now work in enclosed offices. Not being able to crack open a window means that you're relying on building managers to pump through enough fresh air -- something they don't always do.

Carcinogenic cleaning products

There are 70,000 chemical cleaning products on the market, many of which are used to clean up your office. Some of these products may contain carcinogens.

Copy machines

These also emit ozone. What's worse, they are not always next to vents, so their emissions stay trapped in the office air.

The office bathroom -- the modern mold machines

Who hasn't seen a clogged toilet? Flooded bathrooms can create molds.

The stack effect

Co-workers who smoke may think they are doing you a favor by taking it outside. But experts say this can be even worse. When you open the revolving door, the building sucks in the second-hand smoke like a chimney.

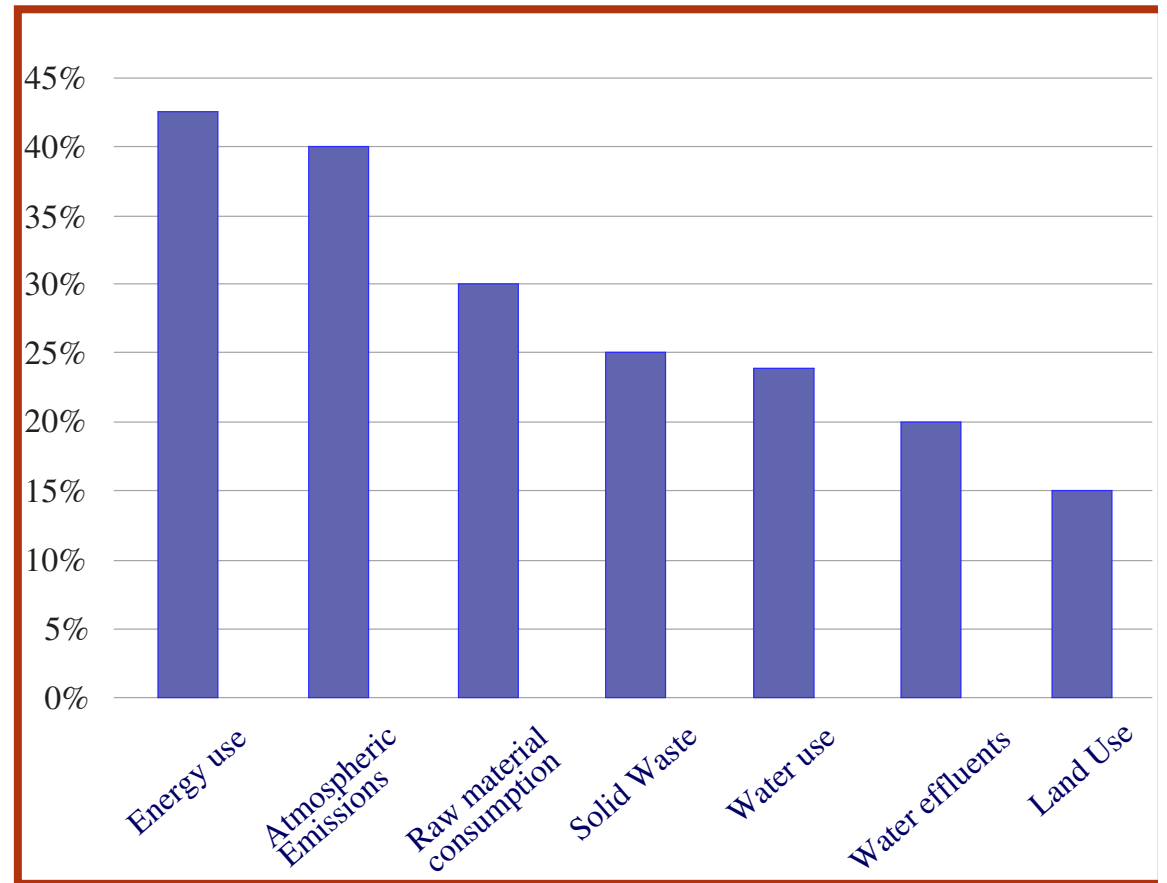
Renovations

Working in a building -- especially those with sealed windows -- can cause workers to inhale paint fumes, construction dust, and odors from new furnishings that can irritate skin, eyes, and airways.



As green building is linked with high performance, human health, safety, and security, regulation and policy will support continued development of the industry.

THE MEDIA



Building Construction, Operation and Demolition as a Percentage of Overall Environmental Impact

Today's consumption levels for food, forestry products & fossil fuels are estimated to exceed global carrying capacity by 30%

THE MEDIA