# Arizona Healthcare
# Pollution Prevention Workshop
# April 28, 2005
# Jim Westberg

ARIZONA DEPARTMENT OF COMMERCE

*Our Job is JOBS!*

www.azcommerce.com

# Why is Commerce Interested in Energy Efficiency?

- **Healthy Economy and Jobs!**
  - Energy-Efficient Companies are more profitable.
  - They stay in business.  Maintain Jobs.
  - Energy-Efficient Governments reduce the need to tax companies.
  - Energy-Efficiency – Cleaner Environment

ARIZONA DEPARTMENT OF COMMERCE
*Our Job is JOBS!*

# Session Agenda

EPA Energy Star Healthcare Program

Low Cost Energy Ideas

New Products

# ENERGY STAR is…


A voluntary partnership with EPA

A strategic approach to energy management

Recognized by 64% of Americans

# ENERGY STAR Accomplishments

**Current Market Penetration:**

13 billion sq. ft. in partnership

21,000 buildings benchmarked in Portfolio Manager

**In 2004 alone, ENERGY STAR helped Americans achieve:**

Energy cost savings = $10 billion

Greenhouse Gas (GHG) reductions = 20 million cars

# ENERGY STAR Partners

13% of Healthcare organizations have partnered with ENERGY STAR


HCA
Hospital Corporation of America

Triad HOSPITALS, INC.

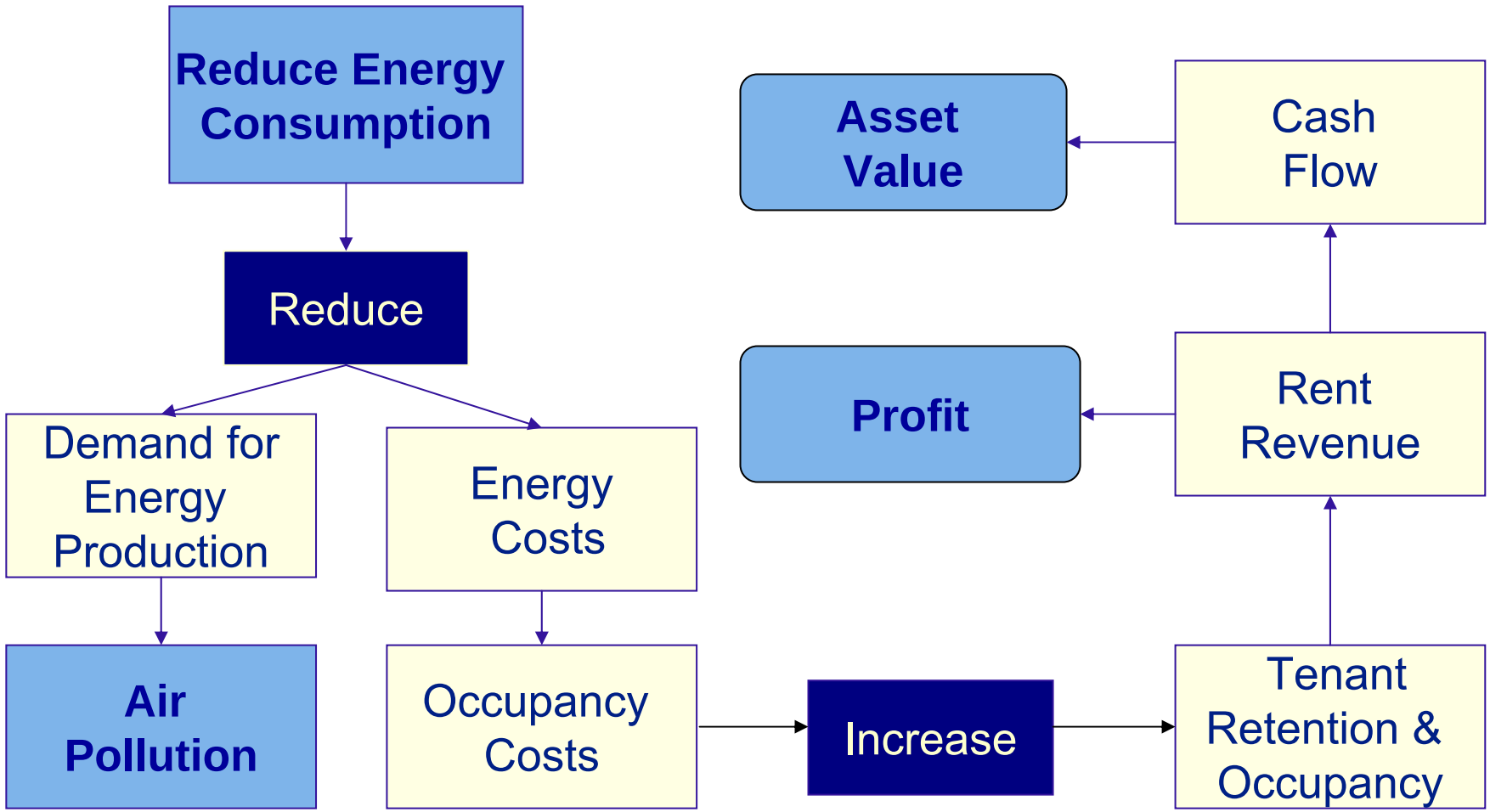
KAISER PERMANENTE

Catholic Healthcare West
CHW

Tenet

CATHOLIC HEALTH INITIATIVES

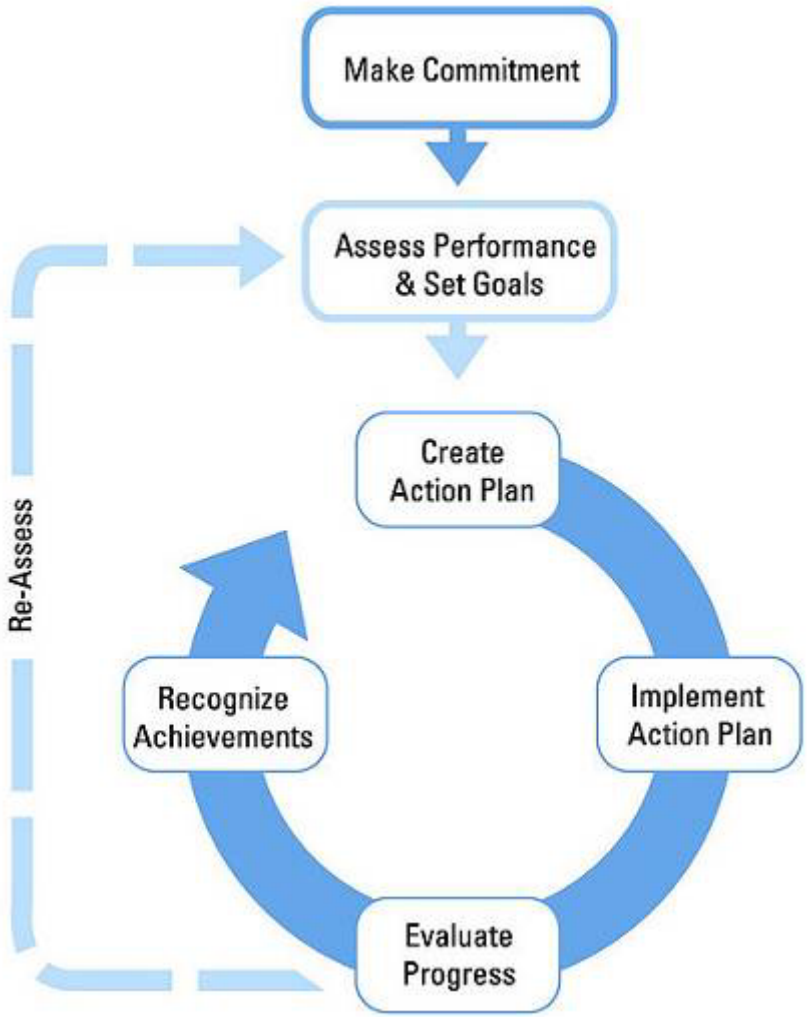
# Prevent Pollution
# Increase Profit and Asset Value



# Superior Energy Management Approach

Based on the successful practices of ENERGY STAR partners,

EPA has identified the key components for a successful energy management program.



# Energy Use & Healthcare

Hospitals uses 26.5 kWh per square foot,
*More than twice that of the average commercial office building*

U.S. hospitals spend more than
*$6.5 billion a year on energy*

Savings of up to 30% are possible from energy-efficient improvements

**CBECS 1999 www.doe.gov*

# Industry-wide Savings Potential

Reduce energy use by 10%...

Save $600 million dollars

Reduce electricity by nearly 7 billion kWh

Prevent greenhouse gas emissions
equal to that of 900,000 cars

# Financial Savings

## Non-Profits

$1 saved in energy…

$10 in additional revenue (MOBs)

$20 in additional revenue (hospitals)

## For-Profits

A 5% reduction in energy costs increases earnings per share by one penny

# Technology ≠ Performance

60% of building fan systems oversized on average 60% (EPA fan study)

Improper installation and poor maintenance

# Do You Know How Your Facilities Perform?

Until recently, a standardized, comparable metric of whole building *performance* did not exist

US EPA *energy performance rating* system was created to meet this need

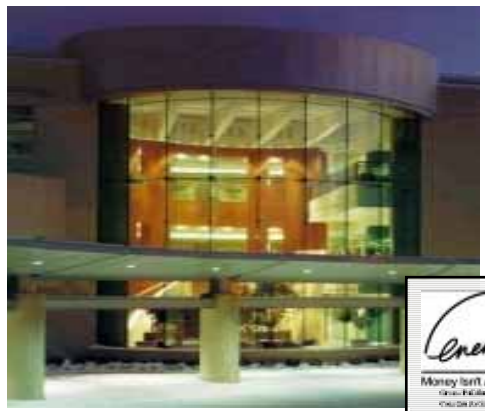
# Energy Performance Rating Extends to New Markets

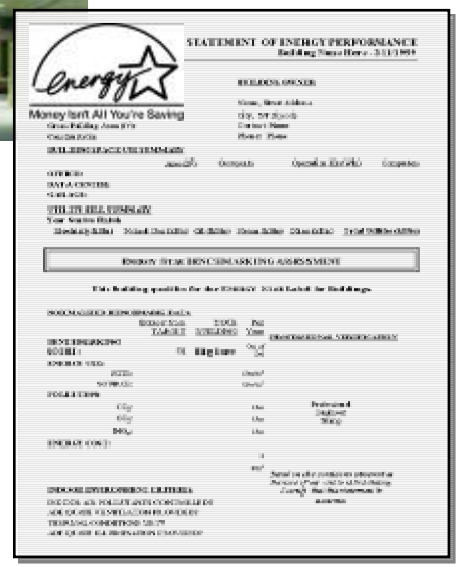
Is 10 MPG high or low for an automobile?


Fuel Efficiency:

MPG

Is 550 kBtu/SF/YR high or low for a hospital?



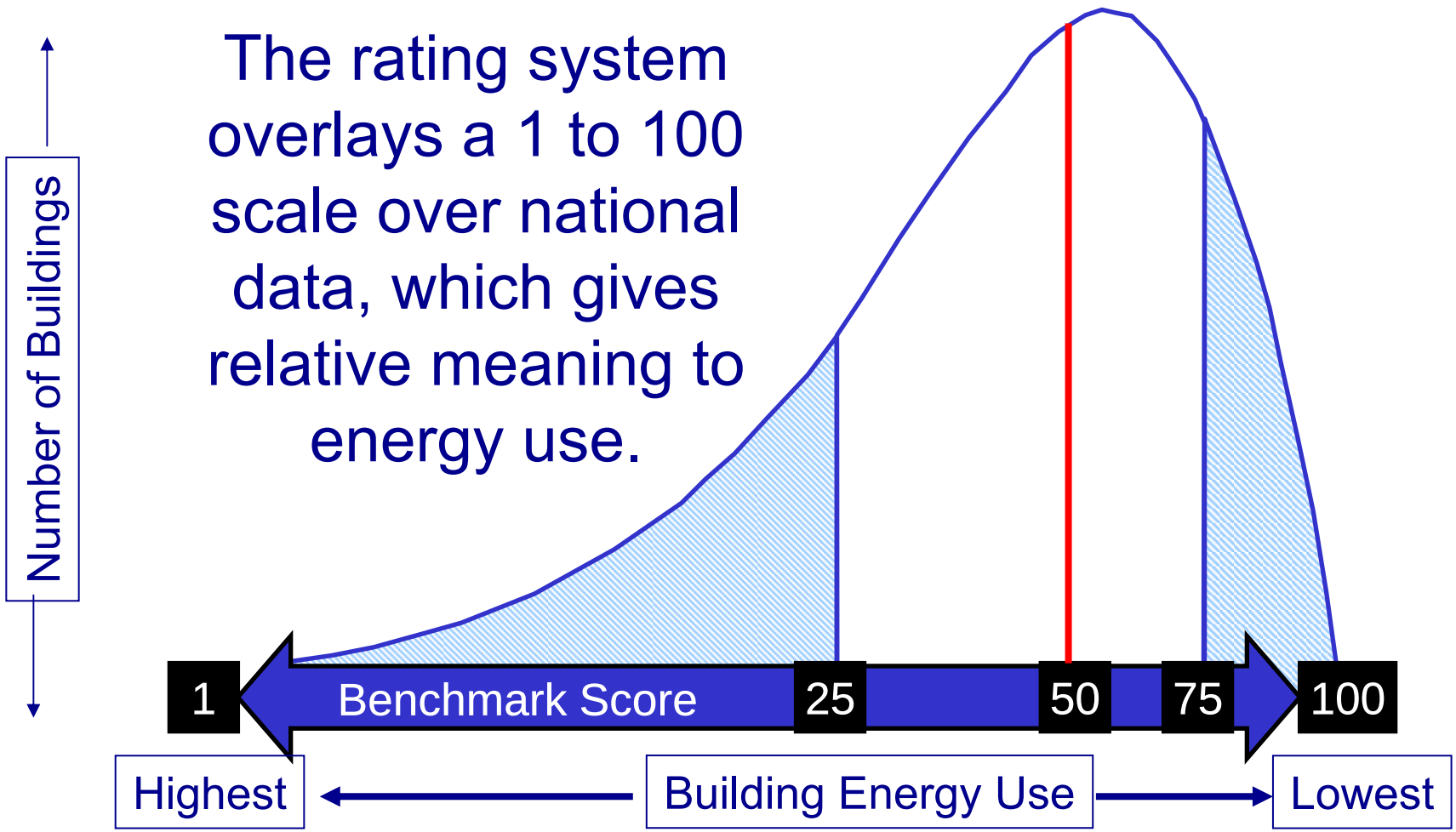



Energy Efficiency:

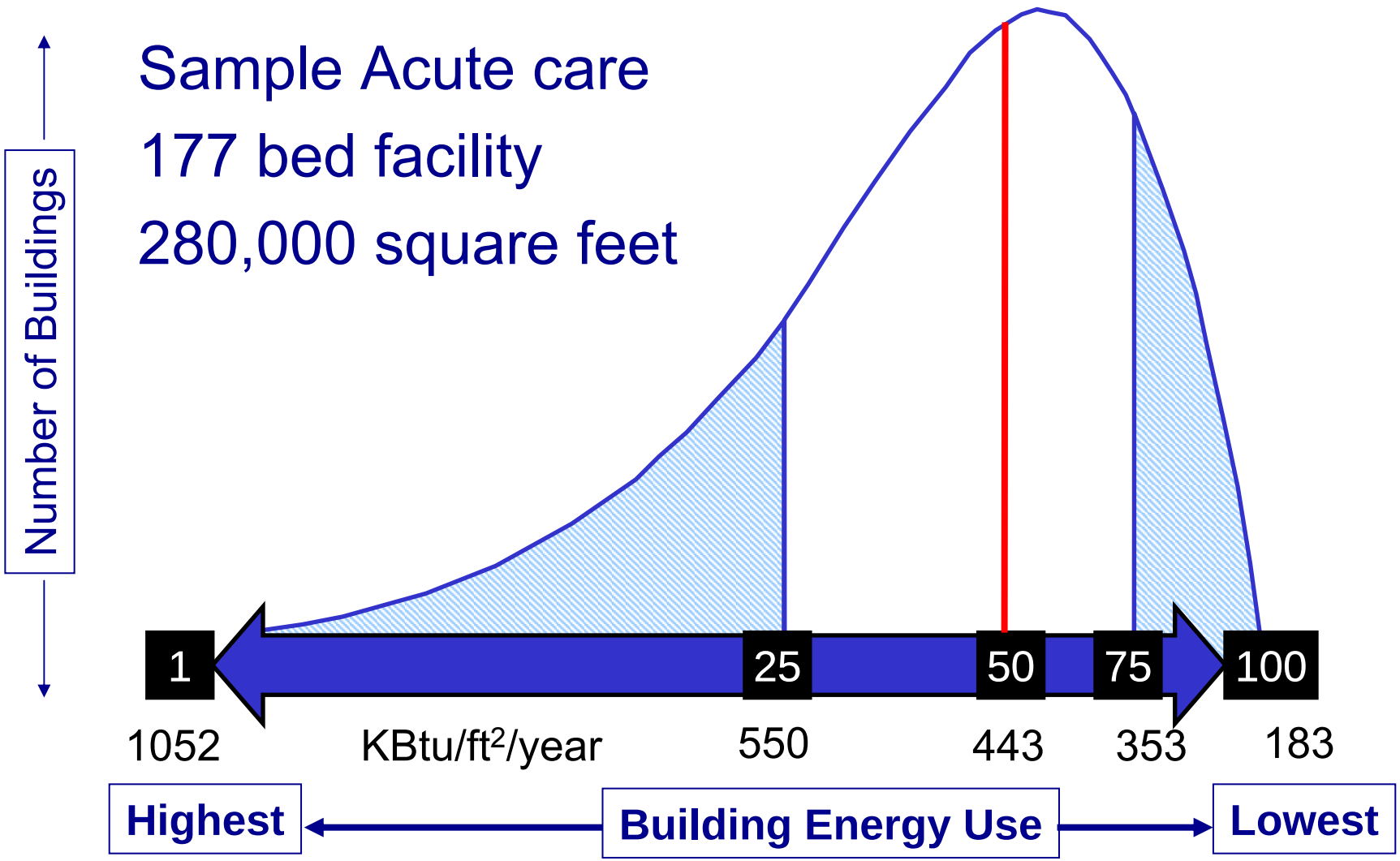
1 - 100

# US EPA Energy Performance Rating

The rating system overlays a 1 to 100 scale over national data, which gives relative meaning to energy use.



# Healthcare and the Energy Performance Rating



# Energy Performance Rating System

**Normalizes facility energy consumption**

Weather, occupant density, services

Whole building “mpg” rating

**Benchmarks for comparison**

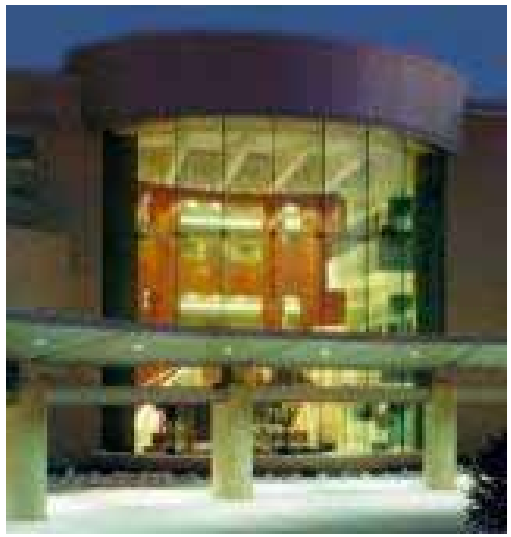
Similar buildings in national stock

**Recognizes top performing buildings**

Top 25% qualify for ENERGY STAR

# Eligible Space Types

## Hospitals



## Medical Offices

**Other Spaces Include**:

Hotels, K-12 Schools, Offices, Courthouses, Residence Halls/ Dormitories, Warehouses & Supermarkets

# Data Inputs to Benchmark a Campus

## Address

Zip code (for weather normalization)

## Energy Use

12 consecutive months of energy data

## Space Characteristics

Gross square footage
Number licensed beds
Number buildings on campus
Number floors in tallest building
Yes/No: tertiary care, lab, & laundry

# Data Inputs to Benchmark an MOB

## Address

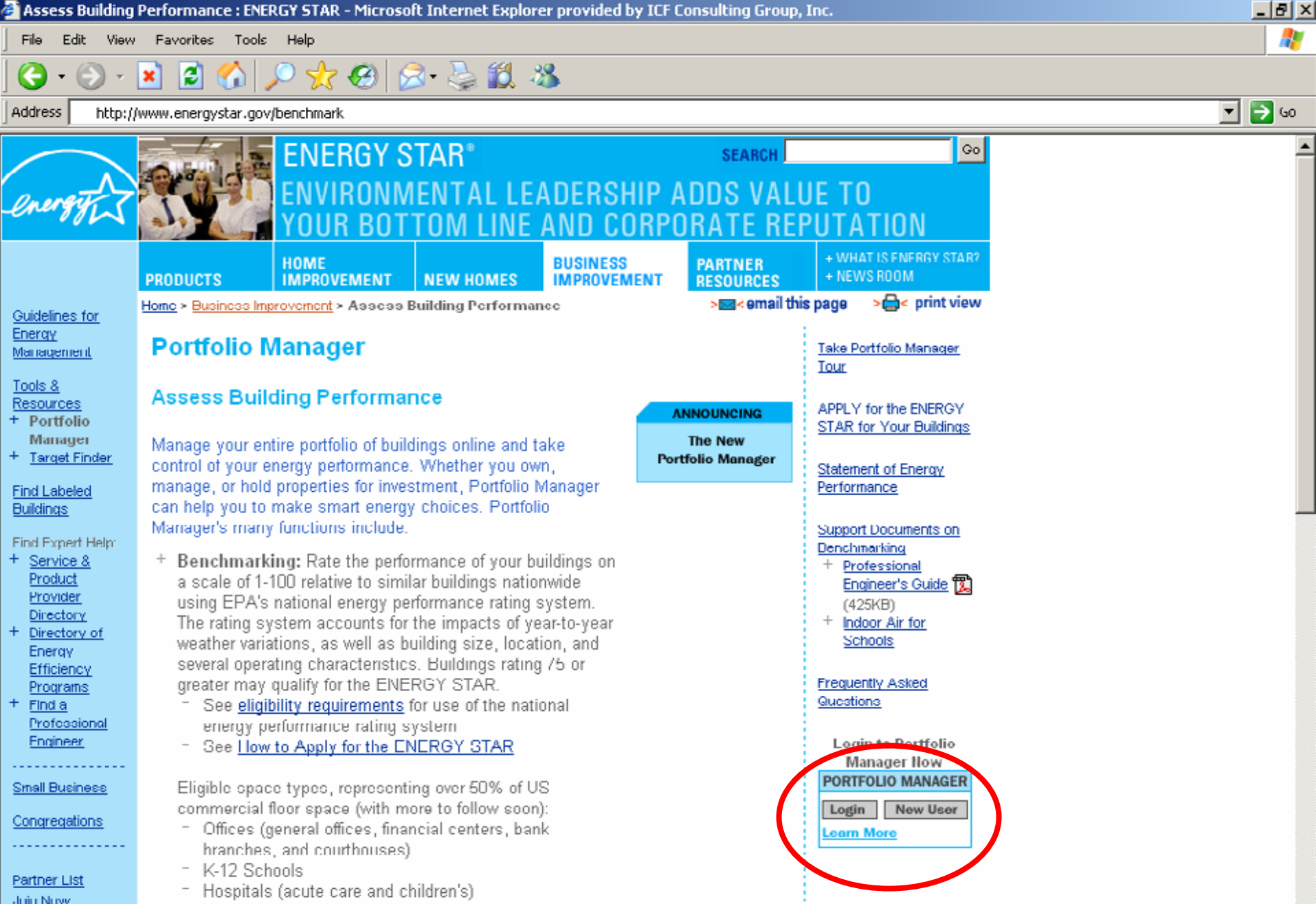
Zip code (for weather normalization)

## Energy Use

12 consecutive months of energy data

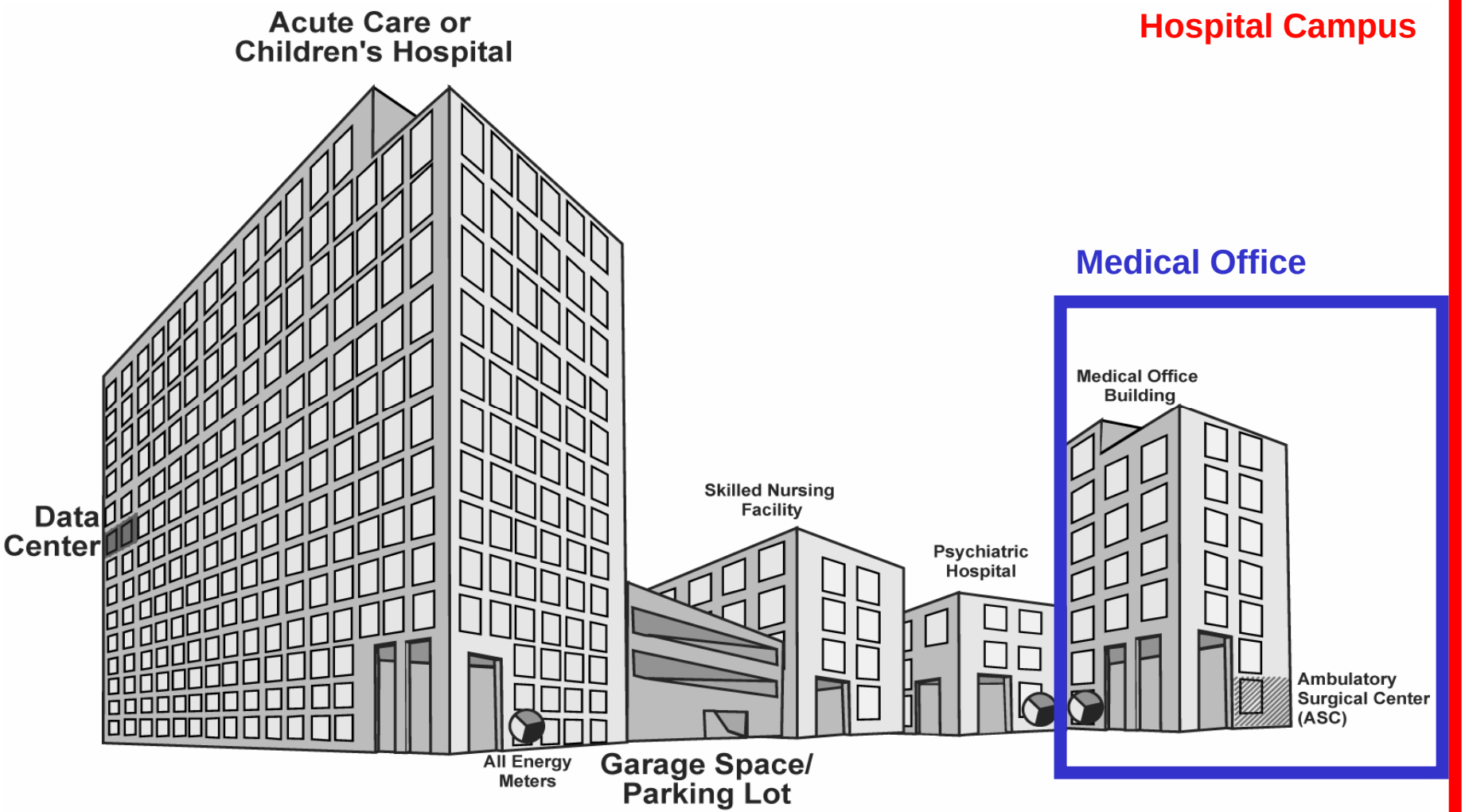
## Space Characteristics

Gross square footage
Number # of workers
Percent building cooled
Percent building heated



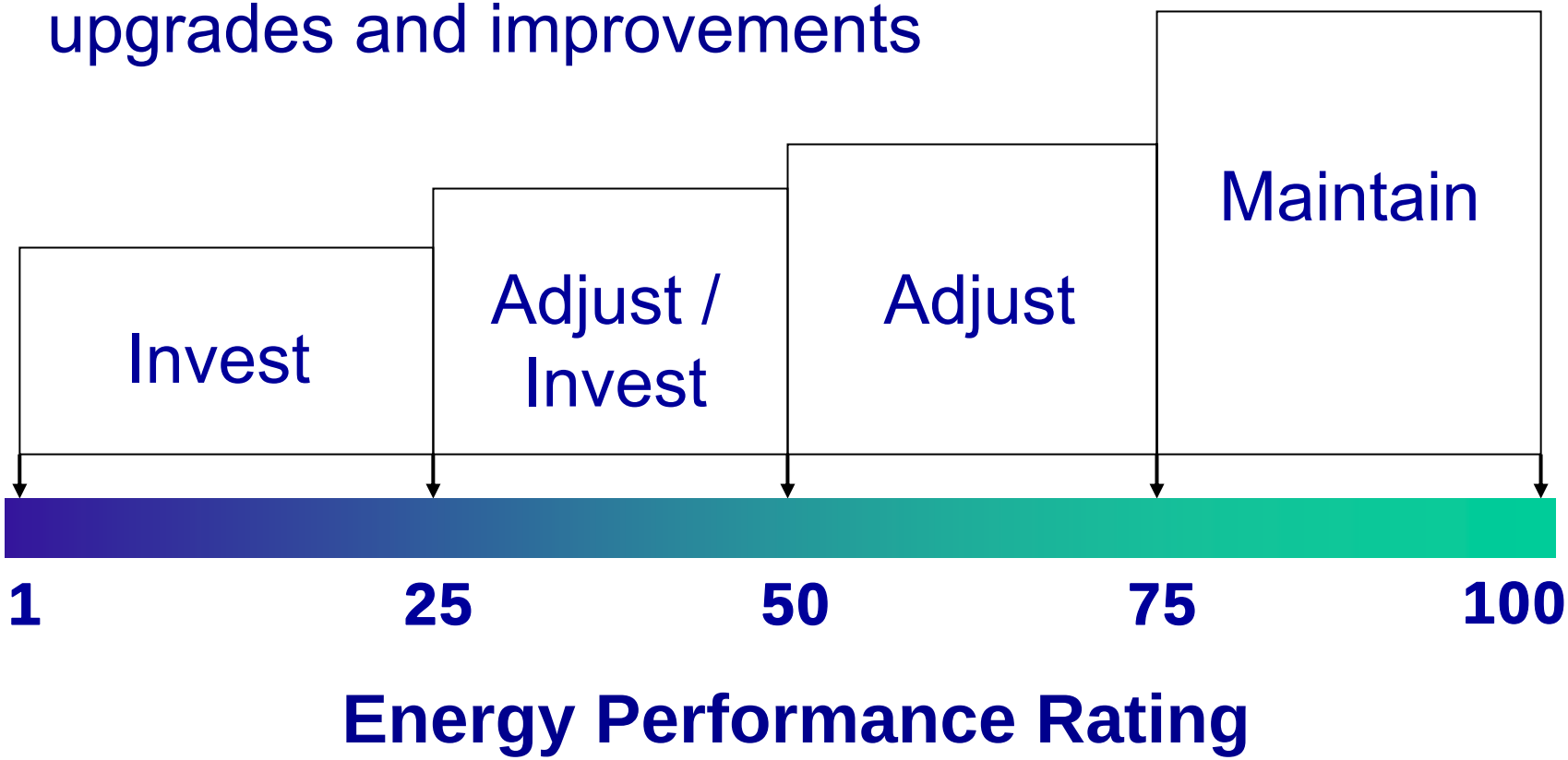

www.energystar.gov/benchmark

# Benchmarking an Acute Care Campus



# Energy Performance Rating is a Comparative Metric

Prioritize portfolio-wide upgrades and improvements



# Use the Rating System to:

## Benchmark
Energy performance baseline

## Compare
Within company and against industry

## Inform
Energy improvement plan

## Track and measure
Over time

# Building Profile

VA Health Care System - Prescott
500 Highway 89 North
Prescott, AZ 86314

**Building Owner:**
Department of Veterans Affairs
Year Labeled: 2002
Score (by years): 89
Space Type: Hospital (Acute Care or Children's)

Total Floor space: 659,080 sf
Year Constructed: 1903
Energy Intensity: 139.1 kBtu/sf/yr
Technologies Used:

Stage 1-Commissioning
+ Upgrade EMS

Stage 2-Lighting
+ Electronic Ballasts
+ LED Exit Signs
+ T8 Lamps

Stage 3-Other Load Reductions
+ Window Replacements

Stage 4-Fan Systems
+ Fan VFD's

Stage 5-Heating and Cooling Plant
+ Evaporative Cooling
+ High Efficiency Chillers

Other Technologies/Strategies
+ Dual Fuel

# Energy Benchmark Trainings

- May 26, 2005 12:30 p.m. EDT
- June 22, 2005 9:30 a.m. EDT
- 90 Minute On-Line Training

# ENERGY STAR Label

Satisfy Eligibility Requirements

Rate Facility Performance

Energy Performance Rating 75 to 100

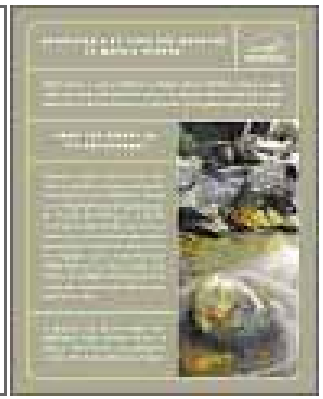

Those that qualify are in the top 25% of the market

Submit SEP & Application

Obtain PE Verification

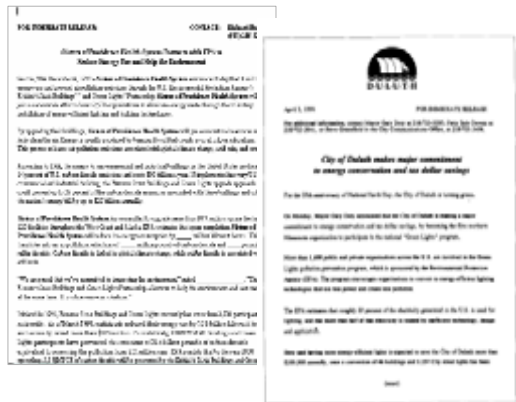
# Communicate Your Commitment

## Inform Employees


## Inform Stakeholders

## Inform the Media



# ENERGY STAR Resources

US. EPA Energy Performance Rating System

Portfolio Manager

Financial Value Calculator

Target Finder – New Building Design

Find Expert Help – Service and Product Provider Directory/Professional Engineer Directory

Find Financial & Technical Assistance - Directory of Energy Efficiency Programs

# Getting Started

Join ENERGY STAR
Visit www.energystar.gov/join

Healthcare Benchmarking Starter Kit
Go to www.energystar.gov/healthcare

Under “Be Strategic About Energy Management”

# Contact Information

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**www.energystar.gov**


| | |
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# Low Cost Energy Actions

- Lighting Examples
- New Lighting Products
- HVAC Ideas

# Recessed Fixtures

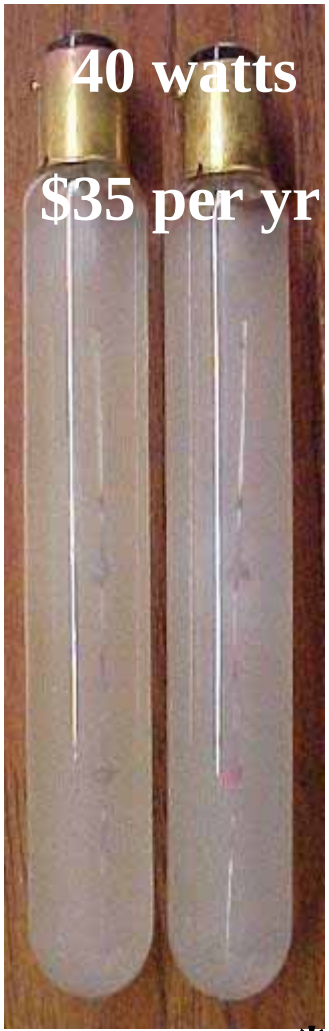
- **Convert to Compact Fluorescent Lamps**

Incandescent bulbs can be replaced with compact fluorescent lamps.

# Compact Fluorescent Lamps

- 20 Watt Compact Fluorescent Lamp produces the same amount of light as a 60 Watt Incan-descent Lamp

# Convert Exit Signs to LEDs





*** Operating cost is based on $0.10 per kWh**

# Interior Lighting
## Lighting System Schedules

- When are lights turned off?
- Who turns off the lights?
- Security?  Custodial staff?
- Can the lights be turned off sooner?
- Restrooms, on 24hrs/7days?

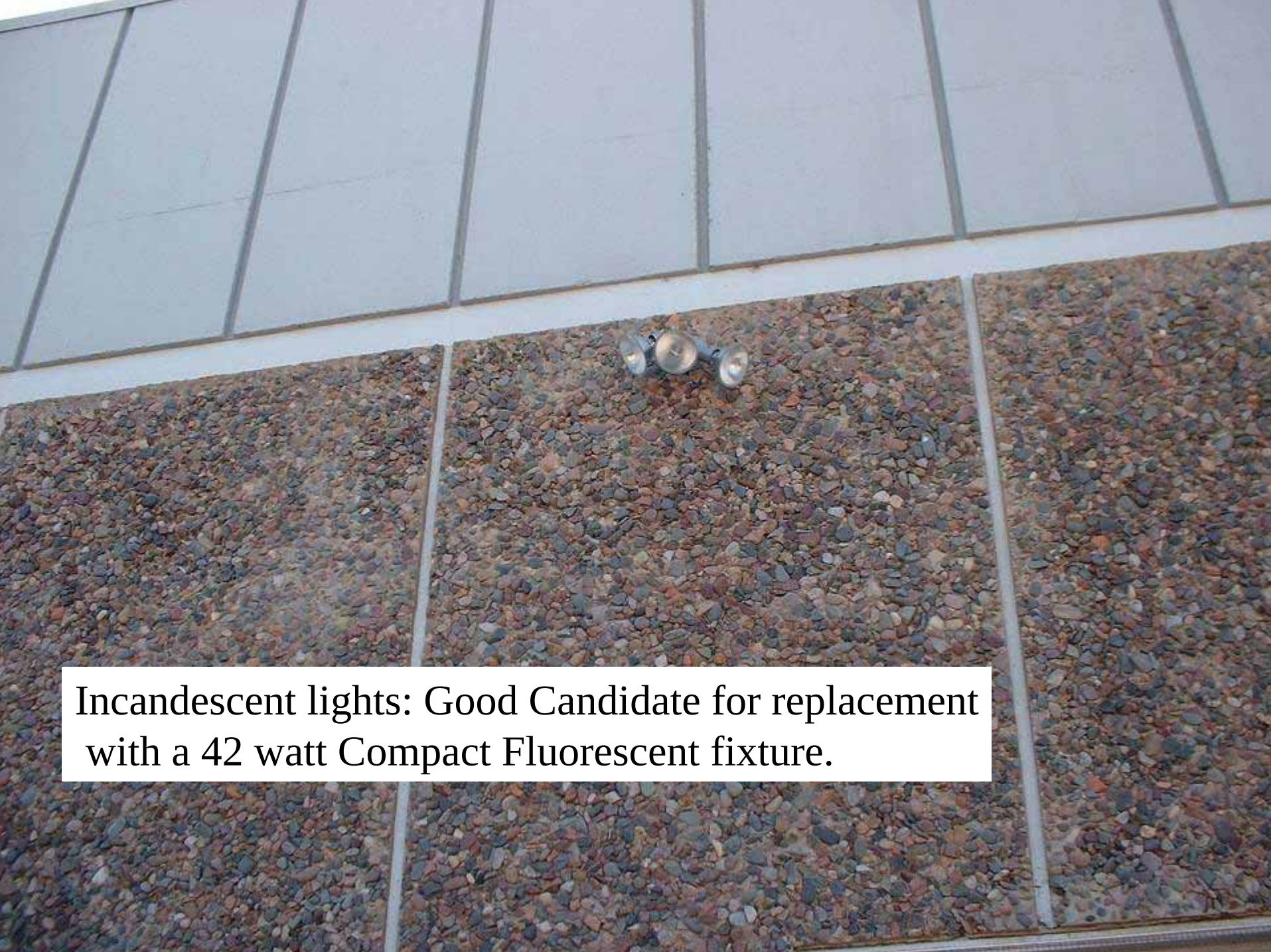
# Delamping Opportunities

- Lobbies with Plenty of Daylighting
- Hallways with Plenty of Daylighting
- Display Cases
- Overlit Areas


400 South 3rd floor hallway
Existing lighting levels: 22 fc on the floor.


400 South 3rd floor hallway
After light levels: 11 fc
Turned off one-half of fixtures


In end to end fixtures,
Disconnect one fixture



Incandescent lights: Good Candidate for replacement with a 42 watt Compact Fluorescent fixture.

Quartz Halogen light: Good Candidate for replacement with a 42 watt Compact Fluorescent fixture.

# New Lighting Products


**New 28 watt Four Ft. T-8 Lamp**

- **Highly efficient T8 lamp and ballast system utilizing the new GE 28W T8 lamp and the GE UltraMax ballast product family.**
- **Up to 44% reduction in energy consumption.**
- **CRI > 82.**
- **TCLP-Compliance may reduce disposal costs.**

# New Lighting Products


**New 25 watt Four Ft. T-8 lamp**

- **Simple replacement for the existing 32 watt T8.**
- **Save up to 25%.**
- **CRI = 85.**
- **Long Life – Rated at 30,000 hrs. on 12 Hour start.**

# New Lighting Products

PHILIPS

Marathon™ 65W PL-EH
Compact Fluorescent Lamps

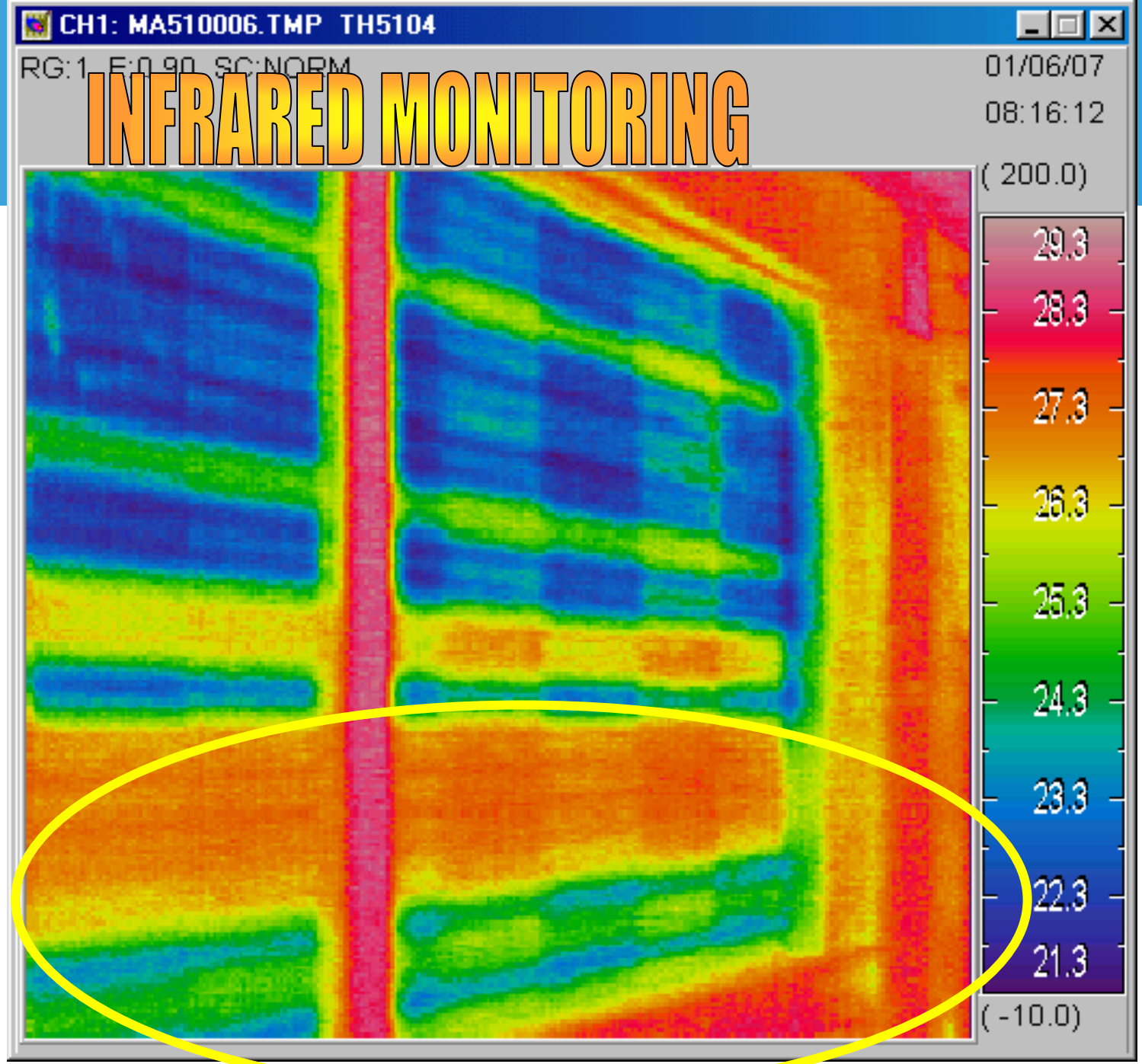
Energy saving alternative to higher wattage incandescent lamps.

# New Lighting Products

- 28 Watt, 4-foot SUPERSAVER, T-8 Lamp
- 12.5% Energy Savings over Standard T-8 Lamp
- 82 CRI
- Designed to Pass TCLP test


Copier located near thermostat

# INFRARED MONITORING




ENERGY STAR

**Red Means, Coil Is Blocked.**

# Maintenance Opportunity:

# Cleaning Air Handler Coils:

**Coil fins and tubes can be dirty. Power washing the fins and flushing the tubes will improve efficiency and comfort.**

BEFORE

AFTER

Photo courtesy of ASU

# Valuable Links

- **EPA Energy Star**
  - **http://www.energystar.gov**
- **Green Guide for Health Care**
  - http://www.gghc.org/
- **U.S. Green Building Council**
  - **http://www.usgbc.org**

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