



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



ARIZONA DEPARTMENT OF COMMERCE

Our Job is JOBS!

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

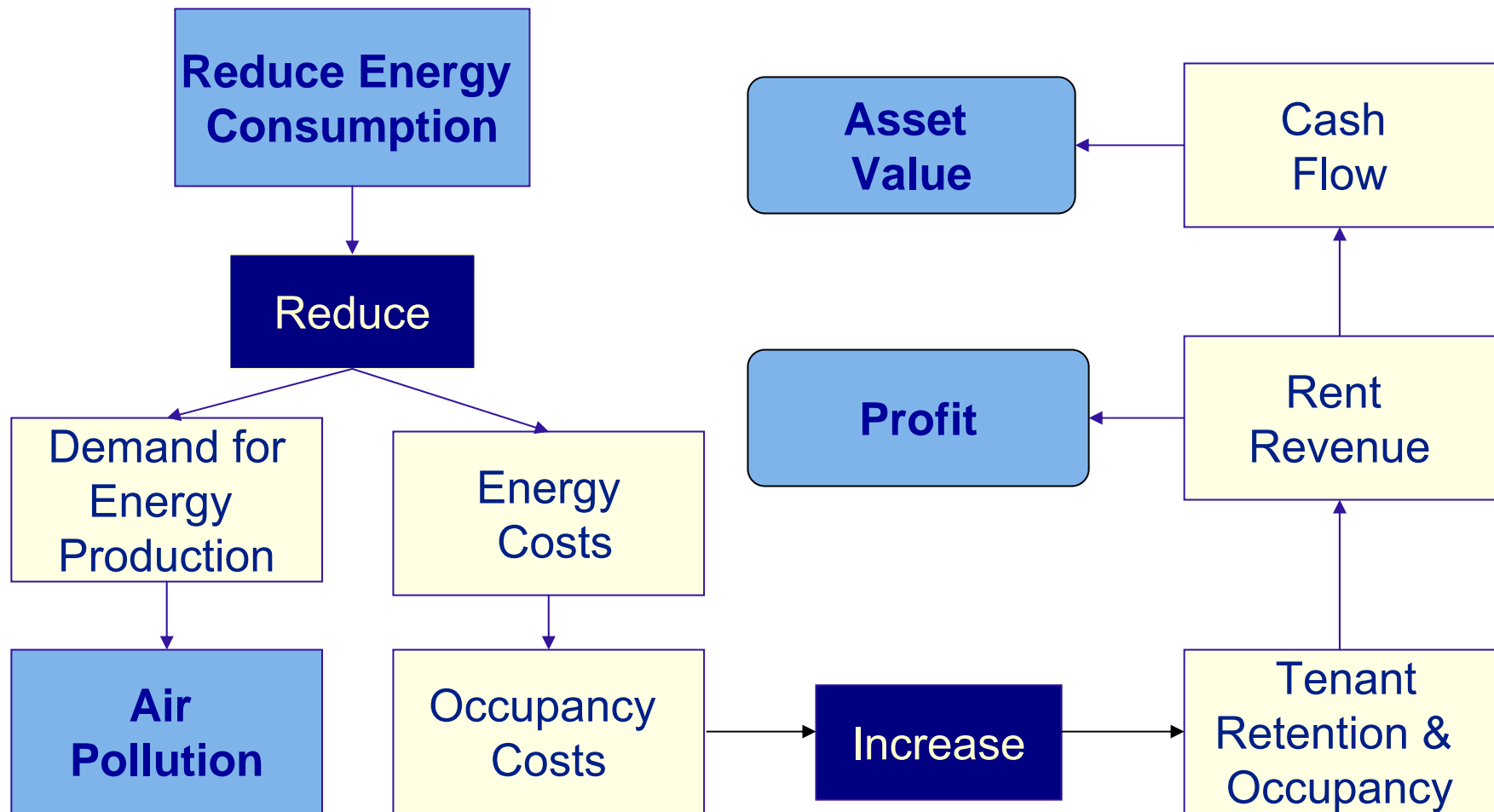


13% of Healthcare organizations have
partnered with ENERGY STAR



Prevent Pollution

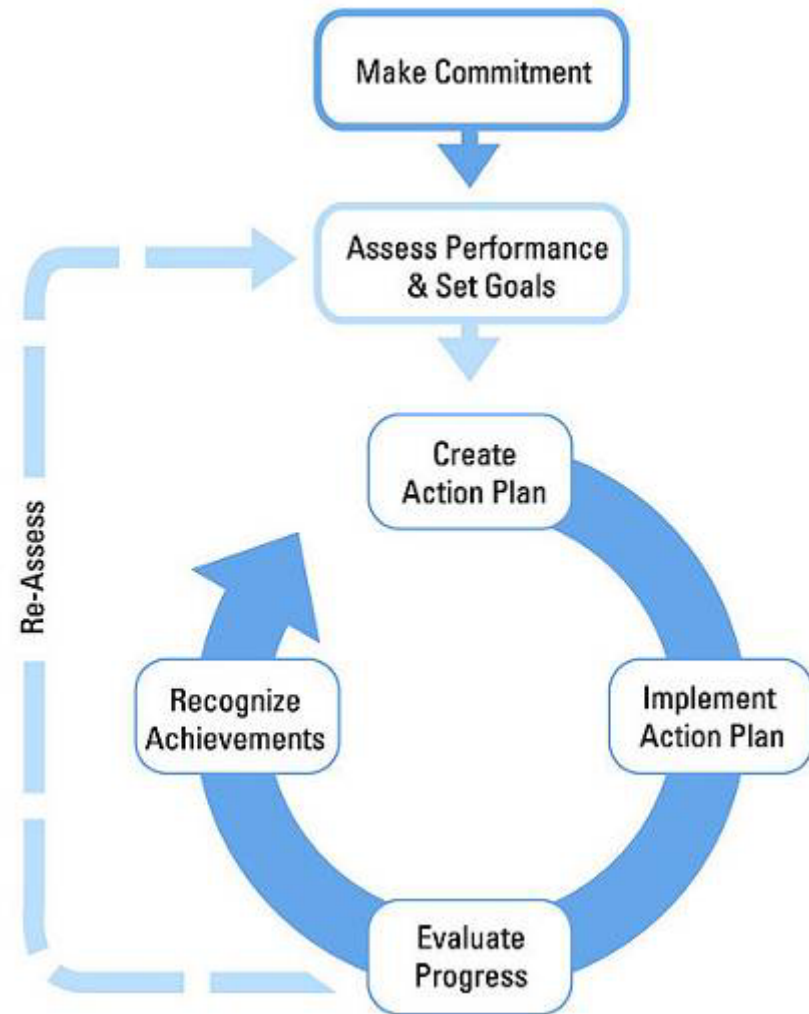
Increase Profit and Asset Value



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

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 \neq 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

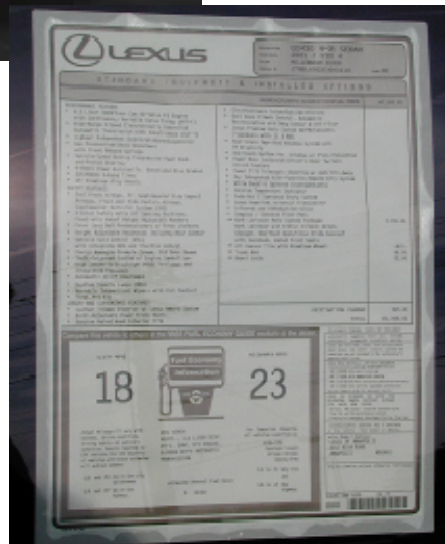
Energy Performance Rating Extends to New Markets



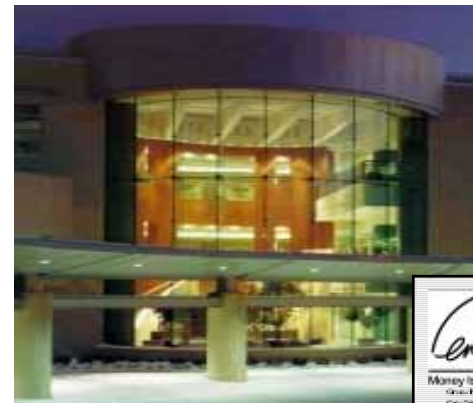
Is 10 MPG high or low for an automobile?



Fuel
Efficiency:
MPG



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



Energy
Efficiency:
1 - 100

STATEMENT OF ENERGY PERFORMANCE
Building Name: _____ Date: 3/11/2015

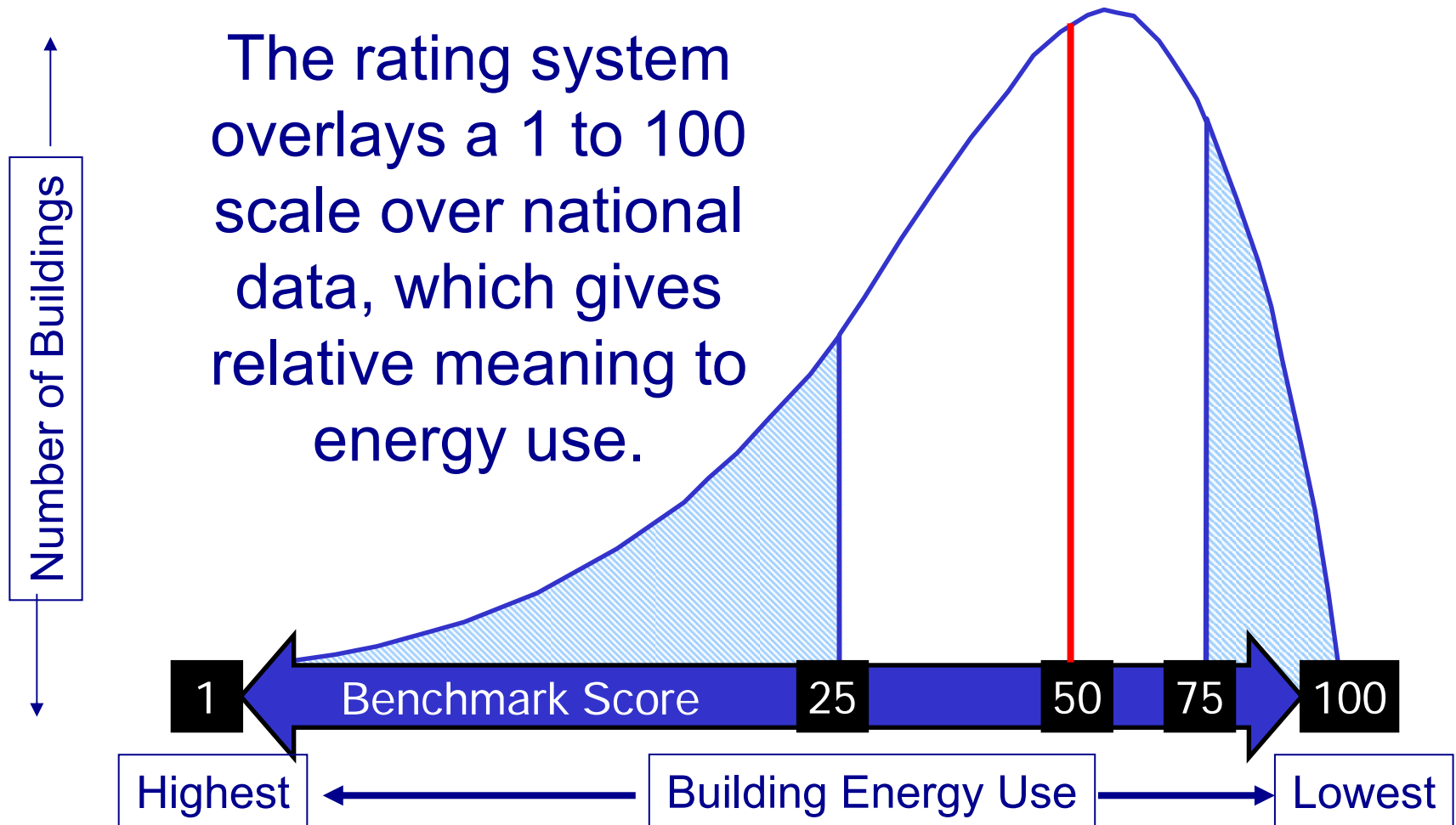
RECORD OWNER
Name: _____
City: _____
State: _____

STAKEHOLDER COMMENTS
Comments: _____

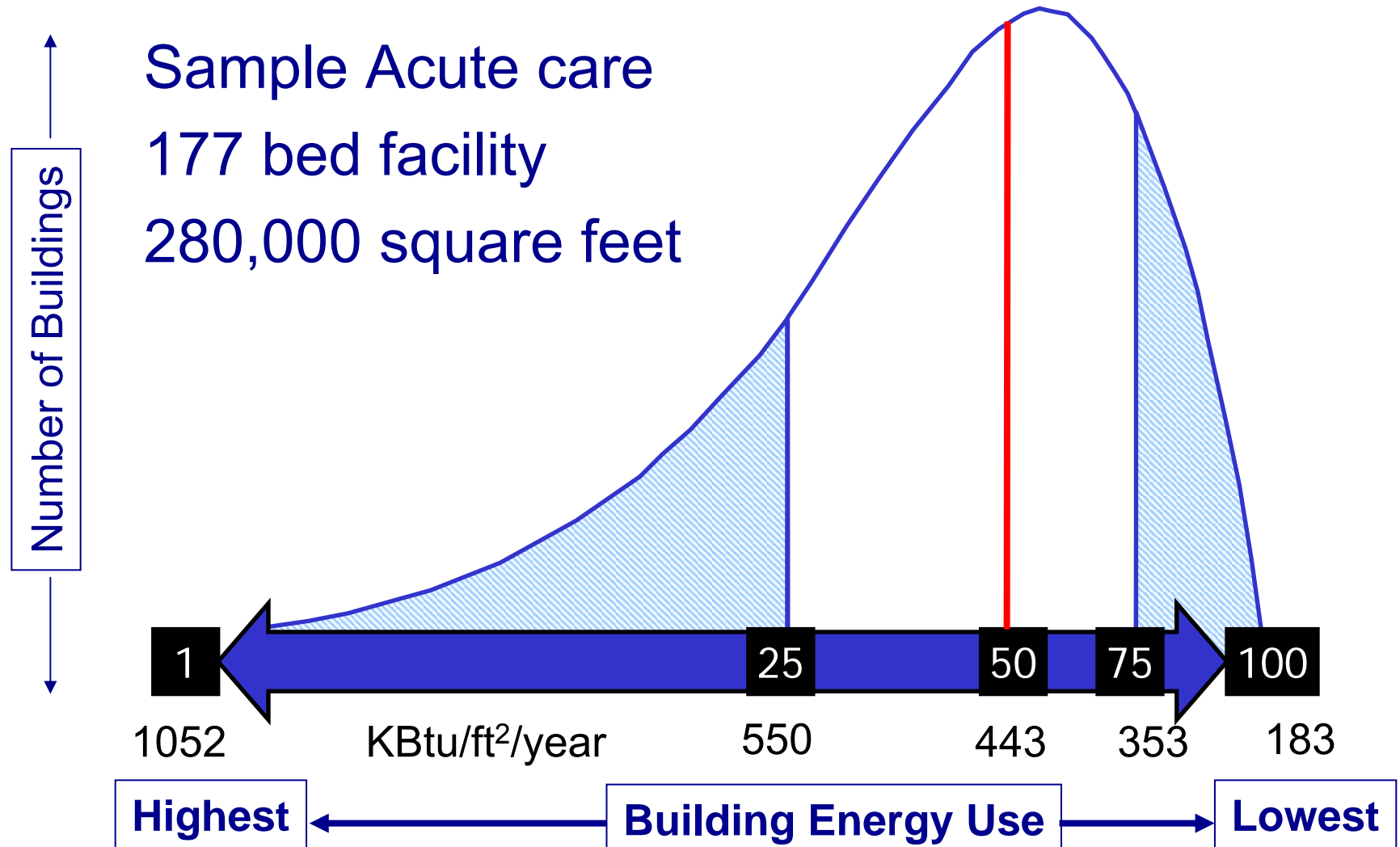
ENERGY STAR RATING
This building qualifies for the ENERGY STAR label for buildings.

ENERGY STAR RATING
1 - 100

US EPA Energy Performance Rating



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

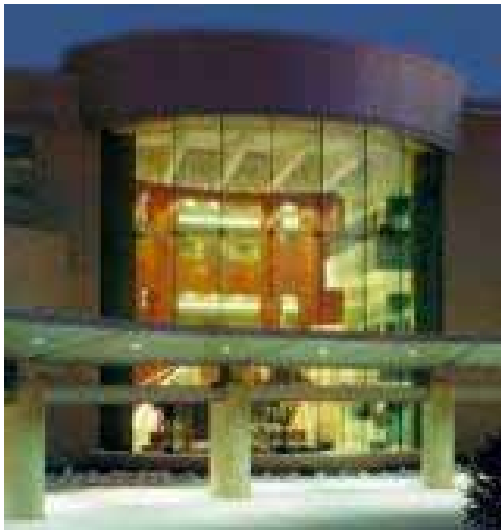
Recognizes top performing buildings

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



ENERGY STAR®

ENVIRONMENTAL LEADERSHIP ADDS VALUE TO YOUR BOTTOM LINE AND CORPORATE REPUTATION

[PRODUCTS](#) [HOME IMPROVEMENT](#) [NEW HOMES](#) [BUSINESS IMPROVEMENT](#) [PARTNER RESOURCES](#) [+ WHAT IS ENERGY STAR?](#) [+ NEWS ROOM](#)

[Home](#) > [Business Improvement](#) > [Assess Building Performance](#) [email this page](#) [print view](#)

Portfolio Manager

Assess Building Performance

Manage your entire portfolio of buildings online and take control of your energy performance. Whether you own, manage, or hold properties for investment, Portfolio Manager can help you to make smart energy choices. Portfolio Manager's many functions include:

- Benchmarking:** Rate the performance of your buildings on a scale of 1-100 relative to similar buildings nationwide using EPA's national energy performance rating system. The rating system accounts for the impacts of year-to-year weather variations, as well as building size, location, and several operating characteristics. Buildings rating 75 or greater may qualify for the ENERGY STAR.
 - See [eligibility requirements](#) for use of the national energy performance rating system
 - See [How to Apply for the ENERGY STAR](#)

Eligible space types, representing over 50% of US commercial floor space (with more to follow soon):

- Offices (general offices, financial centers, bank branches, and courthouses)
- K-12 Schools
- Hospitals (acute care and children's)

ANNOUNCING

The New Portfolio Manager

[Take Portfolio Manager Tour](#)
[APPLY for the ENERGY STAR for Your Buildings](#)
[Statement of Energy Performance](#)
[Support Documents on Benchmarking](#)

- [Professional Engineer's Guide](#) (425KB)
- [Indoor Air for Schools](#)

[Frequently Asked Questions](#)
[Login to Portfolio Manager How](#)

PORTFOLIO MANAGER

[Learn More](#)

[Guidelines for Energy Management](#)
[Tools & Resources](#)

- [Portfolio Manager](#)
- [Target Finder](#)

[Find Labeled Buildings](#)
[Find Expert Help](#)

- [Service & Product Provider Directory](#)
- [Directory of Energy Efficiency Programs](#)
- [Find a Professional Engineer](#)

[Small Business](#)
[Congregations](#)

[Partner List](#)

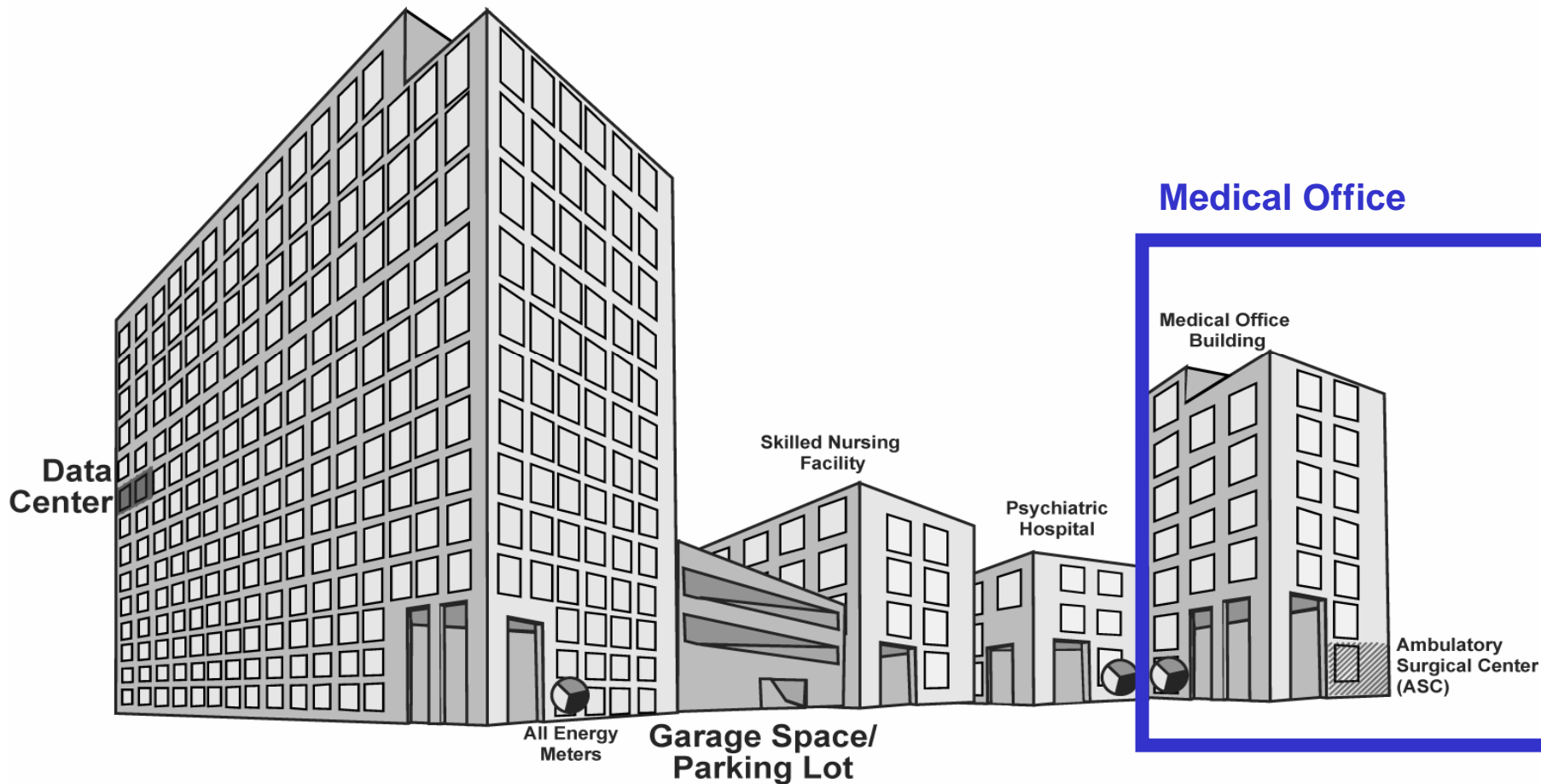
www.energystar.gov/benchmark

Benchmarking an Acute Care Campus



**Acute Care or
Children's Hospital**

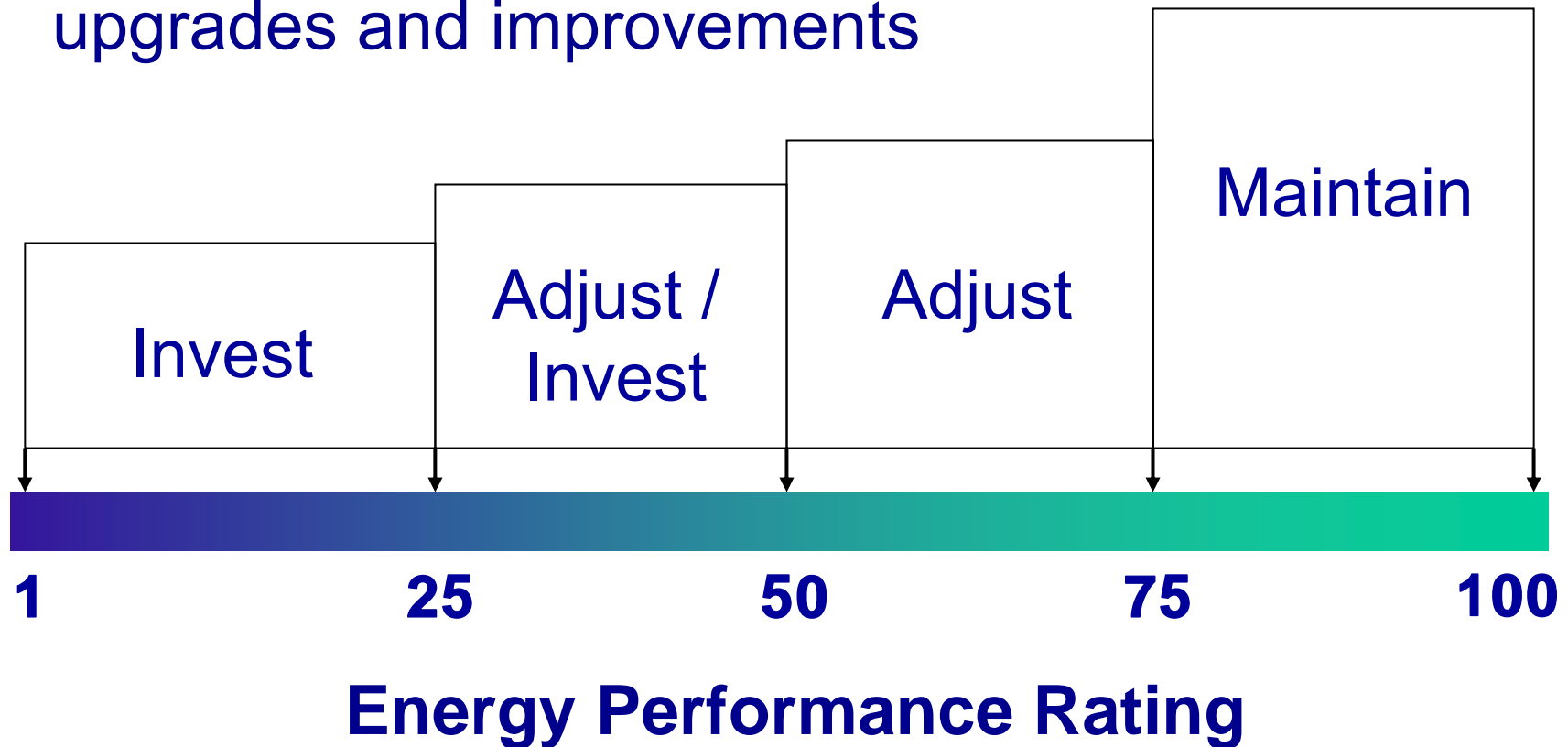
Hospital Campus



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

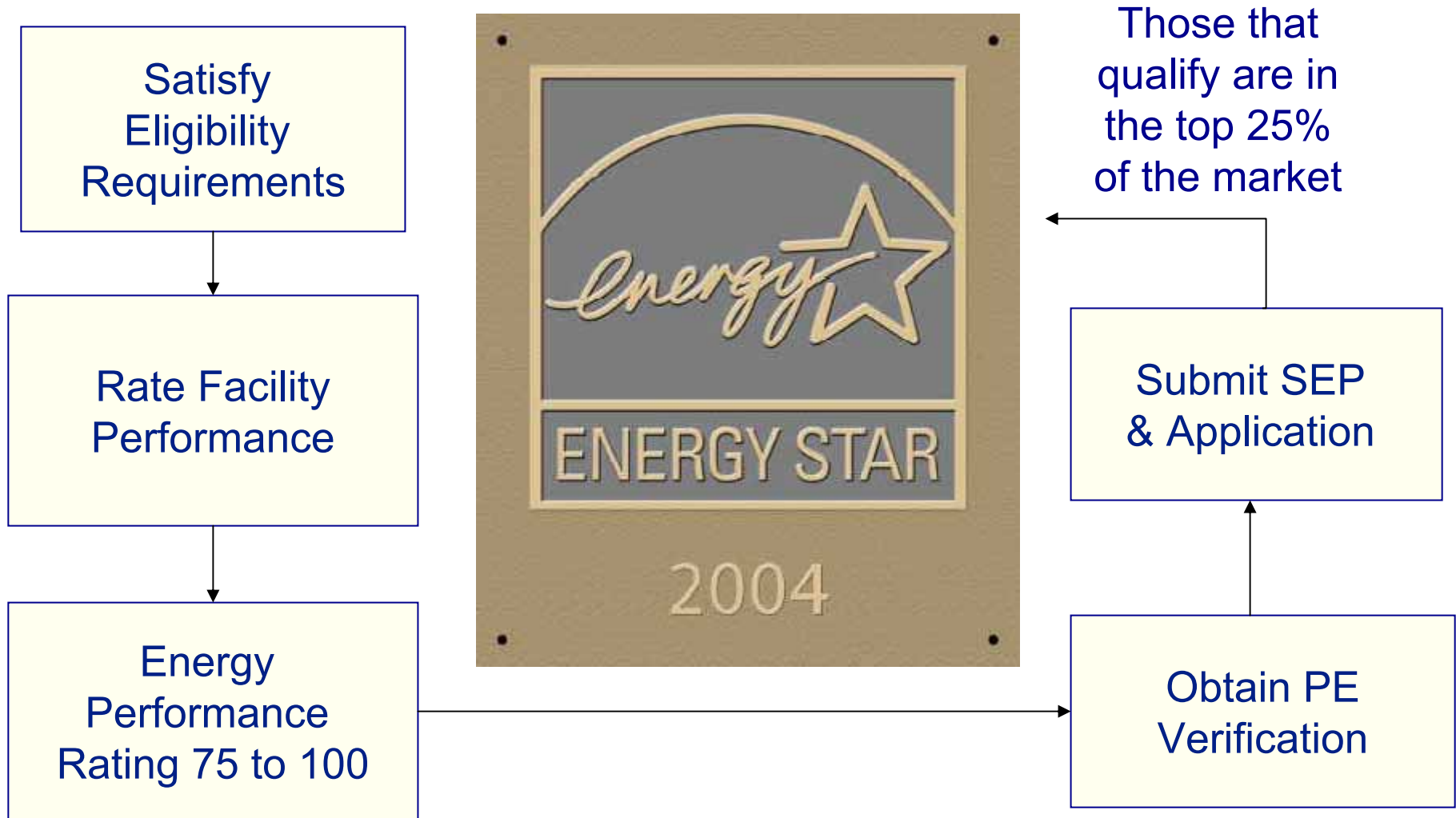
Other
Technologies/Strategies
+ Dual Fuel

Energy Benchmark Trainings



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

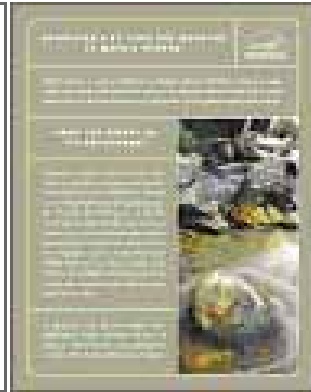
ENERGY STAR Label



Communicate Your Commitment



Inform Employees



Inform the Media

Inform Stakeholders



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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Healthcare Sector Account Manager

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.

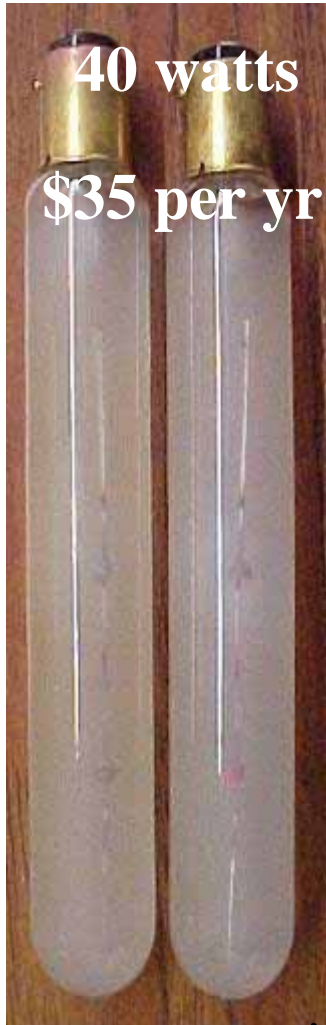
Compact Fluorescent Lamps



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



Convert Exit Signs to LEDs



40 watts
\$35 per yr



3 watts
\$2.50 per yr

*** 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



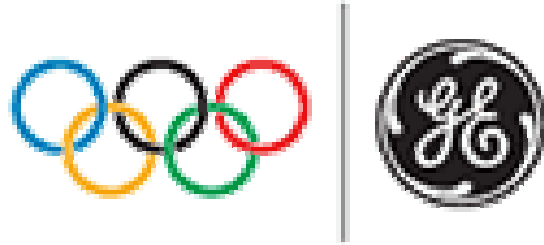


Incandescent lights: Good Candidate for replacement with a 42 watt Compact Fluorescent fixture.

A photograph of a building's exterior wall. The wall is divided into two main sections by a horizontal line. The upper section consists of large, light-colored rectangular panels separated by vertical metal strips. The lower section has a rough, gravel-like texture. A small, square, light-colored fixture is mounted on the left side of the upper panel section. Another similar fixture is mounted on the right side, positioned at the boundary between the two wall sections. The sky is visible in the upper left corner.

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

New Lighting Products



WORLDWIDE PARTNER

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

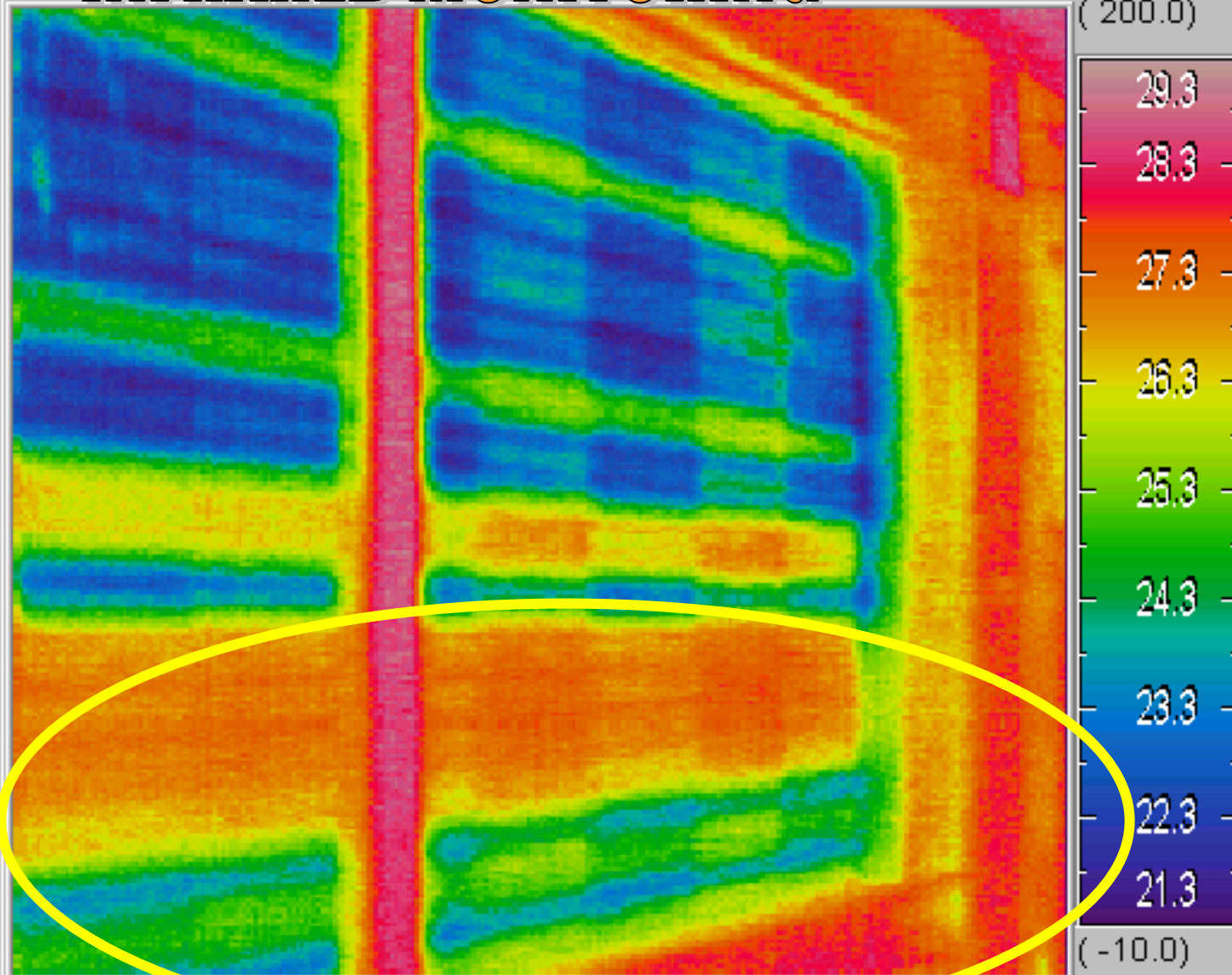
Copier located near thermostat



INFRARED MONITORING



INFRARED MONITORING



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

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>

Contact Information



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