

# MANAGING ENERGY COSTS AND EFFICIENCIES- CONSUMER FOCUS

*Bahamas Home & Builders Show*  
*November 5, 2011*



# IMPROVING BUILDING PERFORMANCE

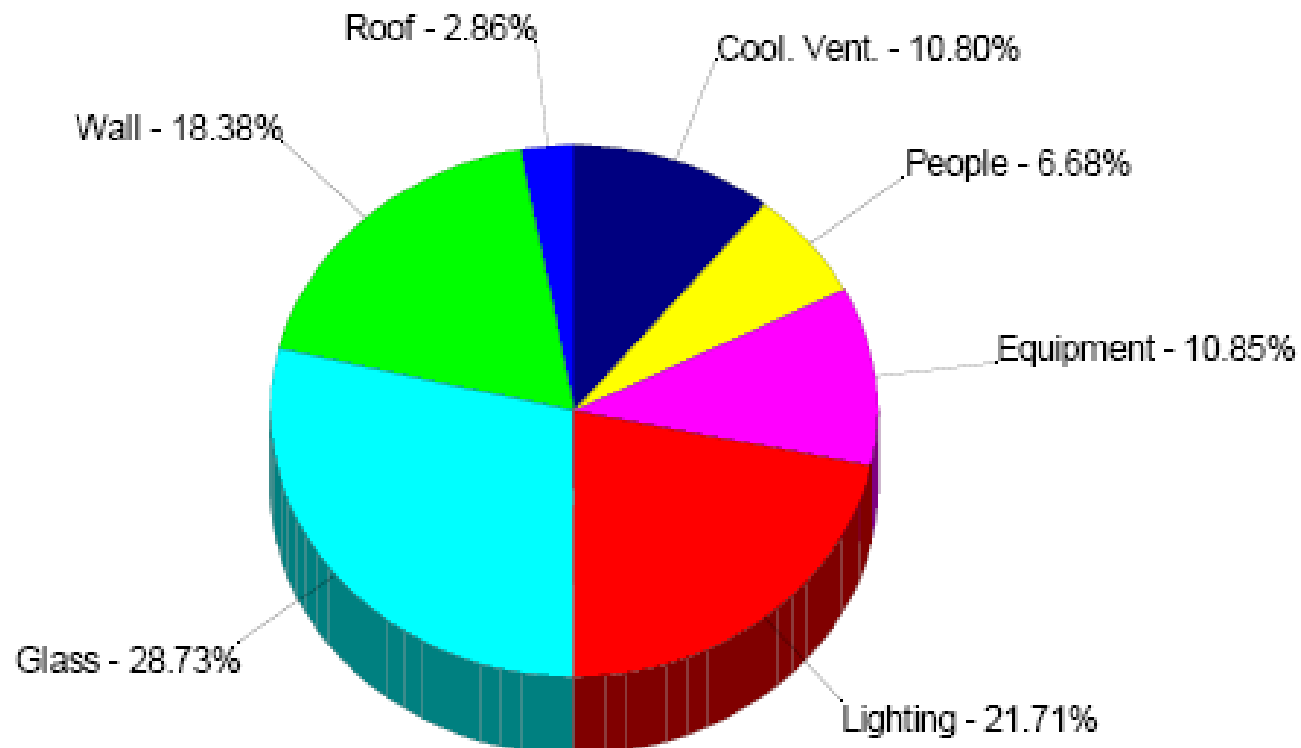
*Perspective of a designer of air-conditioning systems*

## THE WHY

- ▣ Saves money
- ▣ Makes investing in efficient products worthwhile
- ▣ Environmental consciousness- 40% of world's energy consumed by buildings

# Building Pie Chart

## Residence



# THE HOW

## Building Envelope (Skin Loads)





# Roof and Attic Space

- ▣ Cool roof- example Bermuda roof
- ▣ Cool Roof Rating Council- multiple colours

[www.coolroofs.org](http://www.coolroofs.org)

- ▣ Attic insulation- R Value

R Value- resistance to heat flow. Higher R value  
greater the insulation effectiveness

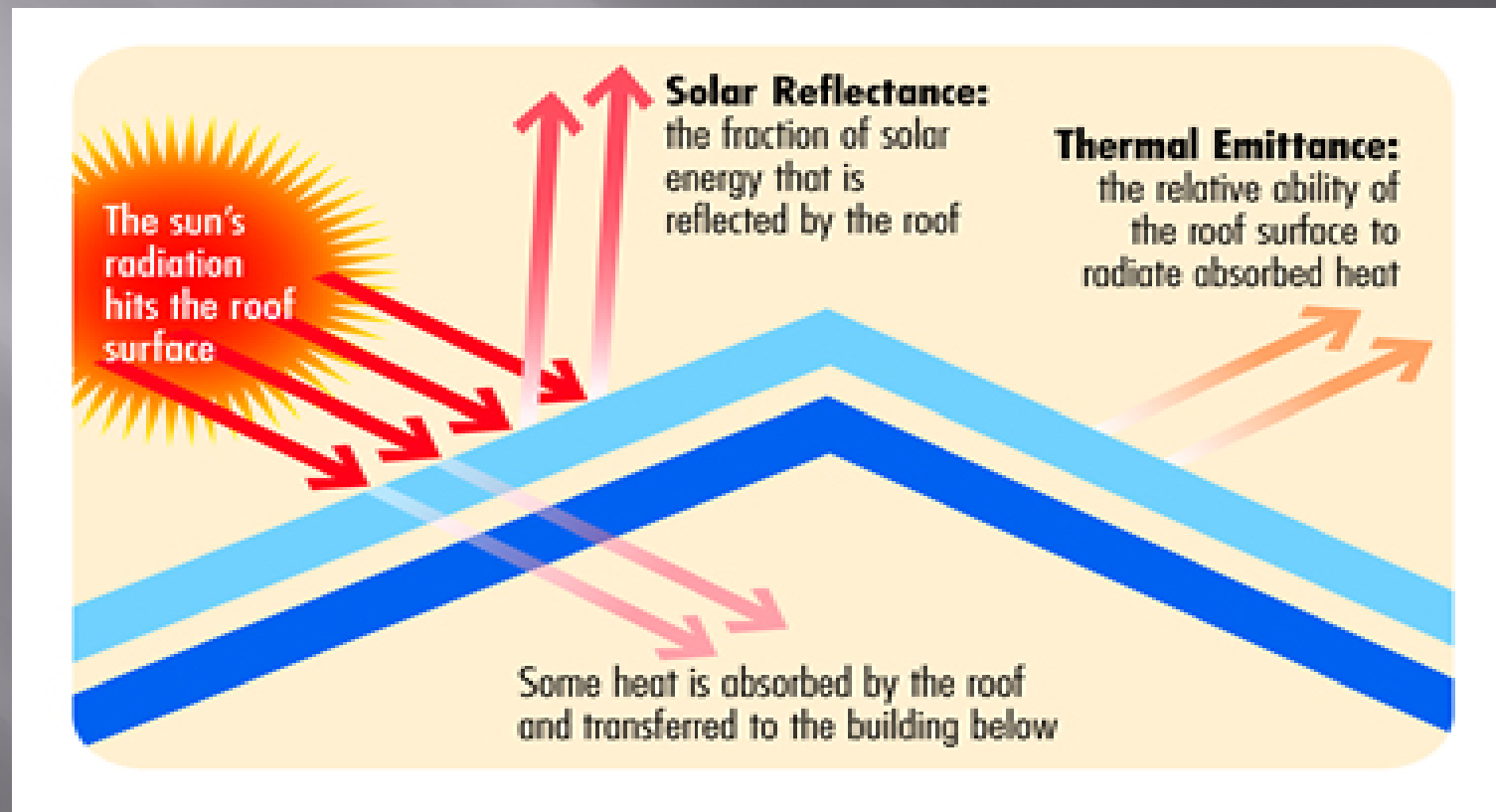
For residence US Department of Energy

Wall R- 14.6 (advanced insulation)

Wall R – 11 (standard)

# Solar Reflectance & Thermal Emittance

Measured from 0 to 1 (Higher the number the better)  
Predicted savings on cooling: 7-15%



# Exterior Shading

Bahama Shutters (also hurricane)

Raised level

Porches

Trees

Cross ventilation- windows & doors lined up



# Modern Example- Bahama Shutters





# Building Orientation

- ▣ Avoid lining up building with North- angle if possible
- ▣ Separate Air-conditioning systems for East & West facing sides of building

# More Strategies

- Interior shading- blinds, drapes
- Tinted glass
- Double paned windows
- Properly seal all penetrations- windows, doors, pipes
- Poured concrete walls (Schooner Bay example)

# Conclusion

- ❑ Evaluate building before investing in energy efficiency & renewables- [www.energystar.gov](http://www.energystar.gov)  
[www.eia.gov/kids](http://www.eia.gov/kids) (good start for kids & adults- basic understanding)
- ❑ Seal
- ❑ Insulate
- ❑ Shade
- ❑ Building- do your homework before hiring your engineer or Architect. Know what you want to achieve.
- ❑ Evaluate your budget develop a long and short term plan
- ❑ Measure your success- keep copies of your BEC bill and measure kWh usage from month to month
- ❑ BEC website- Energy depot –energy profile, energy calculator, library