

Conservation Audit Basics

Energy/Water/Waste Streams

Greening Buildings Economically

- Energy and Atmosphere
- Water Efficiency
- Indoor Environmental Quality
- Materials and Resources
- Sustainable Sites
- Funding Sources

Energy and Atmosphere

- Existing Building Commissioning
- Minimum Energy Performance

Water Efficiency

- Minimum Water Efficiency

Below the Energy Policy Act of 1992 by 20%

Strategies: Low Flow Toilets, .5 GPM aerators

Waterfree Urinals (NO Flush Valves)

Indoor Environmental Quality

- Outside Air Introduction
- Tobacco Smoke Control
- Asbestos Removal / Encapsulation

Materials and Resources

- Waste Management Policy / Waste Stream Audit
- Source Reduction – Recycling / Low Mercury Lamps

Sustainable Sites

- Erosion and Sedimentation Control

Write a Plan and Enforce to reduce impacts on water and air quality.

Uses Best Practices to:

Prevent loss of soil during construction by stormwater runoff or wind erosion

Prevent sedimentation of storm sewer or streams

Prevent polluting the air with dust particulate matter

Energy Audit Basics

- Rate Analysis – contact local provider and ask them what rates are available.

Enhanced Growth Credits for New Loads – contact Utility

Peak Shaving Use Generators Strategically if possible

Recommissioning Systems – what are your settings on HVAC systems – when are you having systems come on/ go off, Are your boilers chillers operating year round, Programmable Thermostats, simple control systems for HVAC/lighting – occupancy sensing, testing apparatus to determine economic paybacks (\$100)

Demand Side Management (1-5%)

Extinguish all energy using equipment possible during unoccupied modes

Lights / HVAC/Vending/water fountain compressors (timer), computers other office equipment, audit using students

Energy Audit Basics

- Lighting Analysis – Conduct count and inventory of all lighting types and the height of installation, Conduct lighting level analysis in footcandles (FC 4 foot level or work surface) Compare FC levels to IESNA standards, contact independent energy consultant for help

Warranty – 2-3 yrs. Lamps / 5-6 yrs. Ballasts – large maintenance savings for at least 2 years

Conduct Detailed Compressed Air Analysis – this is NOT a Leak check, optimization of compressed air system – typical cost - \$1,000 includes report and recommendations

Water Conservation Basics

- Analyze fixtures for flush valve capacities – lowest available is 1.0 gallons/flush Demo Waterfree Urinals
- UTK saved 100,000 gallons in 2006 / currently 152 waterfree urinals on campus - Falcon/Sloan
- Install .5 GPM aerators/sinks – about \$4 each
- Water recapture systems – Tank or French Drain
1600 Gal Tank- \$10K installed
- On site wells to be considered / water reuse
- Ask for deduct meters for cooling towers, get meters checked, check for leaks – hook to control system

Waste Stream Analysis Basics

- List of ALL waste streams and estimate volumes
- Contact local recycler for help with possible alternative disposal methods and budget pricing
- Research Best Practices by Contacting Peer Companies – (Other Institutions example)
- Quarterly monitoring after establishing program – report numbers to employees
- Add items as new waste streams become evident
- Consider empowering employees or other non profits to take care of profitable waste streams

State of Tennessee Projects

- Fall Creek Falls State Park
- Northeast Correctional Institute
- Northwest Correctional Institute
- Tennessee School For the Blind
- Clay County Schools
- Loudon County Schools
- 24 Industrial Sites
- John Duncan Federal Building – LEED EB
- Bridgestone Firestone – Morrison Plant – LEED EB Silver
- Clayton Homes Headquarters – LEED EB Gold (Pending)

Funding Sources

- State Energy Loan Fund – Federal Money
\$300,000 Available at ZERO% Interest for 7 years

Performance Contracting – Pay for Upgrades
from savings in utilities and maintenance over
time

Wise Investments for Energy consultation

\$1 Invested resulted in \$106 saved - Average