

Welcome



The Alliance for Sustainable Built Environments

- Who we are
- Like-minded manufacturers
- Our member organizations



The Alliance for Sustainable Built Environments

- Education
- Catalysts for change
- Making green buildings standard practice



Alliance for Sustainable Built Environments

Alliance Members



PHILIPS

KOHLER.



Associate Members

USG • Haworth • Eaton • Watertronics



Presentation Overview

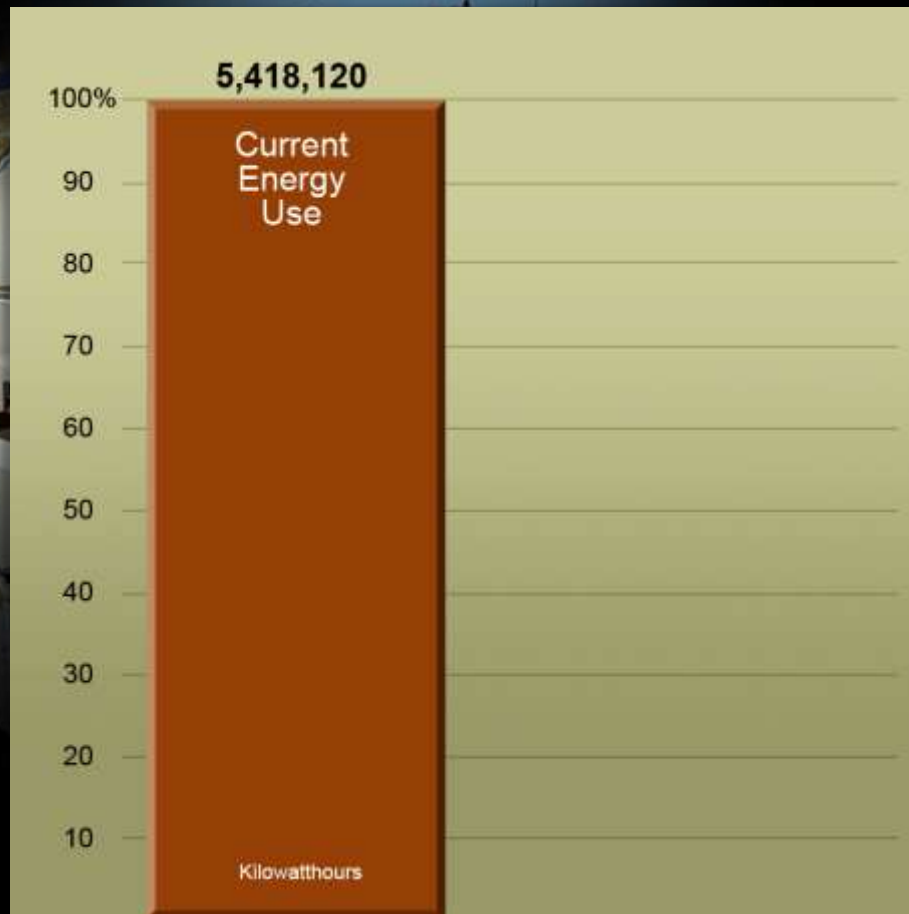
- Water reduction
- Energy reduction
- GHG emissions
- Sustainable materials
- Savings



Alliance for Sustainable Built Environments

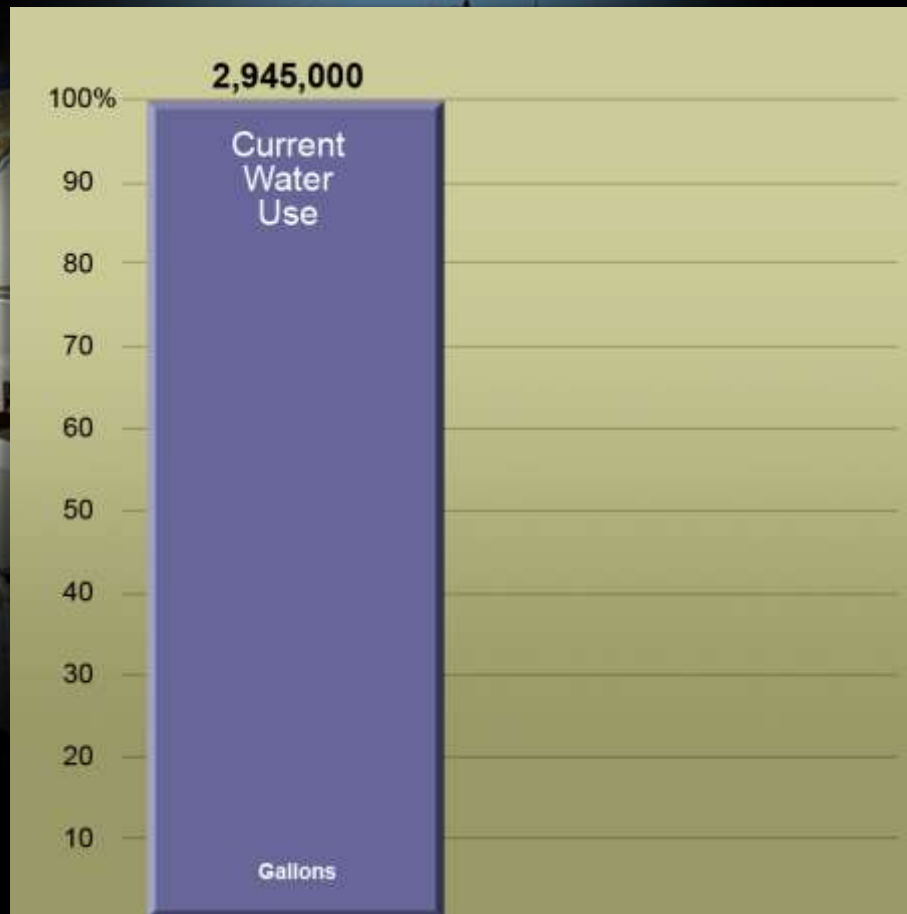


Alliance for Sustainable Built Environments



Virtual Building

- Electricity (annual)
 - 5.4 MM kWh
 - \$572,400
 - 3,588 tons CO₂



Virtual Building

- Water (annual)
 - 2.9 MM gallons
 - \$14,581



The Alliance

- Available solutions
 - Water
 - Materials
 - Energy

Water

Materials

Energy

Water Section Overview

- Applications
 - Inside
 - Outside
- Water Efficiency
 - Potable water use
 - Total water use
 - Cost savings



Water

Materials

Energy

Water Conservation

- Innovation
- Water audit
- Develop baseline
 - 1.1 million gallons
- Save water
 - Faucets
 - Toilets
 - Urinals

Water

Materials

Energy



Simple Solutions

- Faucet aerators
- Fixture sensors
- Savings
 - 140,000 gallons

Water

Materials

Energy



High Efficiency Toilets

- Technological advances
 - HETs
- Savings
 - 460,000 gallons

Water

Materials

Energy



High Efficiency Urinals

- HEUs
 - ½-gallon
 - Pint
 - Non-water
- Savings
 - 160,000 gallons

Water

Materials

Energy

The Kohler Advantage

- Water savings
- Cost savings

ANNUAL WATER SAVINGS 69%

760,000

Gallons

\$5,933

Cost Savings

Water

Materials

Energy

Harvesting Rainfall

- What is water harvesting?
- Where does the water come from?
- What can the water be used for?

Water

Materials

Energy



Designing to Fit

- One design does not fit all
- Tank options for materials and placement
- Reaping the most benefits

Water

Materials

Energy



Reducing Energy and Water Use

- VFD pumping systems
- Internal building potable water applications
- External building non-potable water applications

Water

Materials

Energy



Limiting Rainwater Run-Off

- Impact on your property
- Impact on the entire floodplain

Water

Materials

Energy

The Watertronics Advantage

- Energy reduction
- Water conservation
- Cost savings
- GHG Emissions

ANNUAL SAVINGS

511,100

Gallons

\$7,825

Cost Savings

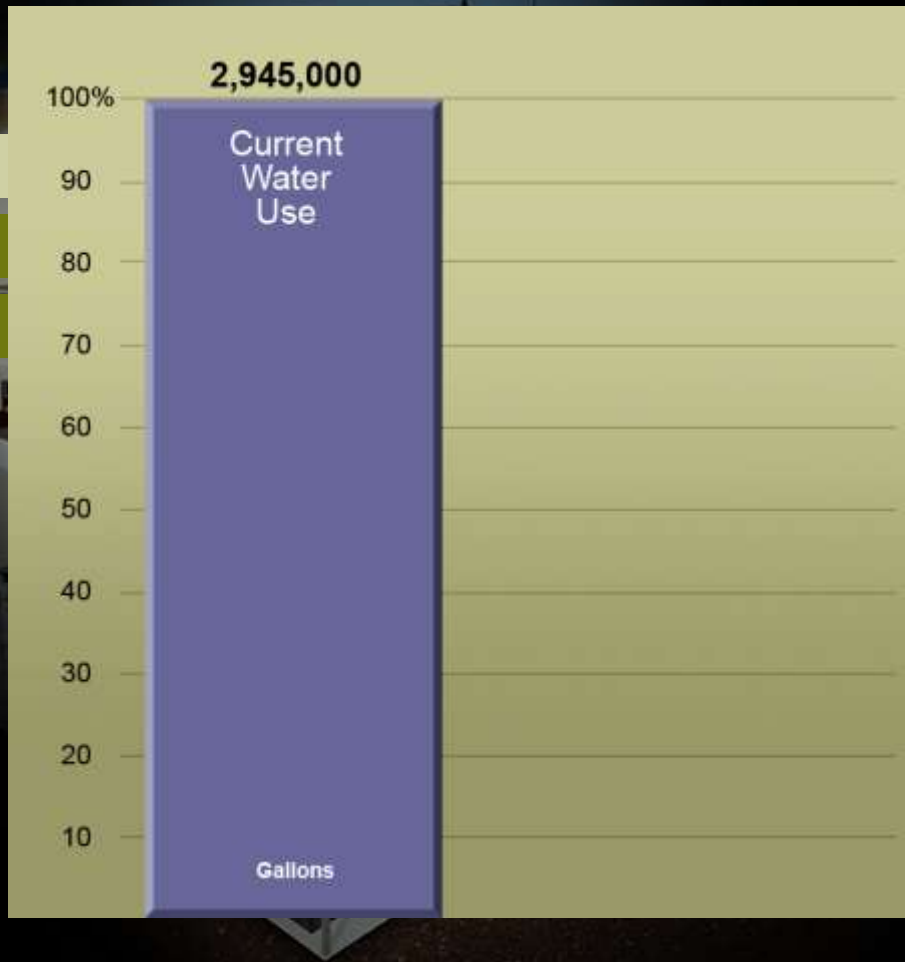
7.7 TONS

GHG Emissions

Water

Materials

Energy



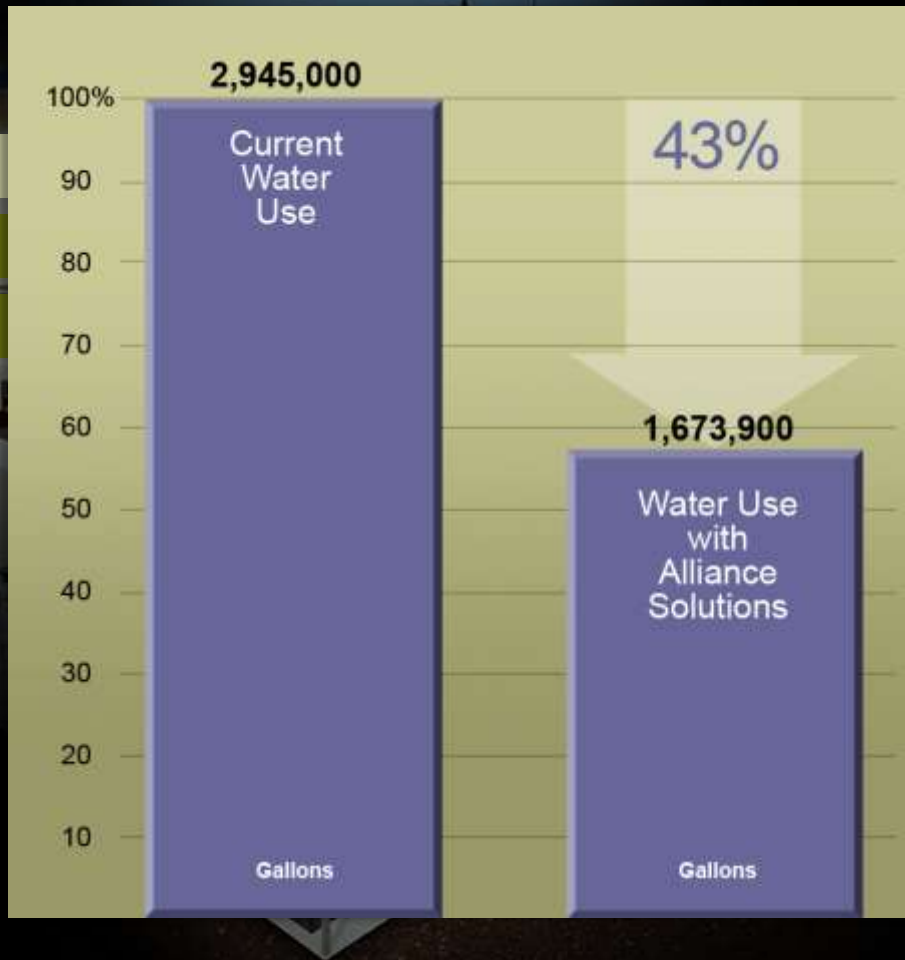
Benefits of Water Reduction

- Current water use

Water

Materials

Energy



Benefits of Water Reduction

- Current water use
- Alliance net savings
 - 1.2 MM gallons
 - \$12,721

Water

Materials

Energy



Materials Section Overview

- True sustainability
- From start to finish
- Look beyond the surface



Water

Materials

Energy

Finding Natural Alternatives

- World-class solutions
 - Low environmental footprint
 - LCA-based certification
 - 100+ years of performance

Alliance for Sustainable Built Environments

Water

Materials

Energy



Bio-Based Materials

- USDA bio-preferred certification
 - Provides product percentages

Water

Materials

Energy



Embodied Energy

- What is it?
 - Extraction of raw materials
 - Manufacturing process
 - Distribution
- Impact
 - Water consumption
 - GHG emissions

Water

Materials

Energy



Indoor Air Quality

- Off-gassing
- Cleaning & maintenance

Water

Materials

Energy

COMPARATIVE SAVINGS

40,000

Square Feet

1.58 LBS

CO₂ Equivalent
Per Square Foot

31.5 TONS

GHG Emissions

The Forbo Advantage

- Reduced carbon footprint
- Reduced chemicals in wastewater
- Improved IEQ



Water

Materials

Energy

Sustainable Floor Covering

- What to look for
 - Third-party certification
 - Zero waste to landfill
 - Positive impact on IAQ

Water

Materials

Energy



What To Look For

- Third-Party Certification
 - Carbon neutral
 - Carbon negative production
 - Not through credit purchases

Water

Materials

Energy



What To Look For

- Zero waste to landfill
 - Programs in place
 - Pledge to take back product

Water

Materials

Energy



What To Look For

- Low- or no-VOC adhesives
- Long product lifecycles
- Easy to replace

Water

Materials

Energy

The Milliken Advantage

- Waste reduction
- GHG emissions reductions
- Energy efficiency
- Water reduction

COMPARATIVE SAVINGS

17,800

Yards

89 LBS

CO₂ Equivalent
Per Yard

792 TONS

GHG Emissions



Water

Materials

Energy

Our Approach

- The Organic Workspace
 - Innovative design
 - Integrated
 - Pre-manufactured
 - Modular
 - Designed for change

Water

Materials

Energy



Reduced Footprint

- Smaller offices/buildings
 - Fully integrate
 - Sliding doors versus swinging
 - Access floors & UFAD
 - Reduces slab-to-slab
- Less resources, reduced energy, increased savings

Water

Materials

Energy



Reduced Construction Schedules

- Easy set up with little on site debris (waste)
- Fewer trades and faster turnaround

Water

Materials

Energy



People-Centered

- Improved air quality
- Lower lifecycle costs
- User control
- Comfort and control
- Access to daylight
 - Increases performance

Water

Materials

Energy

COMPARATIVE SAVINGS

\$200,000

Installation

\$76,800

Annual Churn

The Haworth Advantage

- Renewable & recycled material content
- Pre-manufactured, integrated, modular
- Reduces waste and cost
 - During initial installation
 - During eventual churn



Water

Materials

Energy

Surrounding Ourselves With Sustainability

- Indoor Environmental Quality
- Durability
 - Install versus replacement?
- Passive Building Design – A New Perspective

Water

Materials

Energy



Designing IEQ

- Improving productivity
 - At least 3% improvement
 - \$9 per ft² per year
- Mold and mildew control
- VOC Emissions
- Material selection key to success

Water

Materials

Energy



Install Versus Replacement

- Initial installation = \$X
- Repair/replacement = \$3X
- Select materials and systems which provide...
 - Durability
 - Moisture, mold & mildew resistance

Water

Materials

Energy



Passive Design: A New Perspective

- Use high light-reflective materials
- Employ daylight harvesting strategies
- 45% lighting operational energy savings

Water

Materials

Energy

The USG Advantage

- Improved indoor environmental quality
- Enhanced durability in materials and systems
- Greater daylight harvesting
- Reduced energy

ANNUAL SAVINGS 9%

486,000

Kilowatthours

\$51,516

Cost Savings

323 TONS

GHG Emissions

Water

Materials

Energy

Benefits of Sustainable Materials

- Waste reduction
- GHG emissions reductions
- Energy efficiency
- Water reduction

Water

Materials

Energy



Energy Section Overview

- Lighting
- Vertical transportation
- Mechanical systems
- Building automation systems



Water

Materials

Energy

Illuminating Life Indoors

- Excellent ROI
- Three solutions
 - General lighting
 - Down lighting
 - Parking lot lighting
- Current lighting energy use
 - 1.6 MM kWh
 - \$175,324
 - 1,099 tons CO₂

Water

Materials

Energy



General Lighting

- Replace fixtures
 - T12s for T5s
 - Save 58%
 - 2.5-year payback
 - 544 tons CO₂

Water

Materials

Energy



Down Lighting

- Replace incandescent fixtures with LEDs
 - Save 67%
 - 2.4-year payback
 - 81 tons CO₂
 - Reduce maintenance
 - Less heat generated

Water

Materials

Energy



Parking Lot Lighting

- Replace cobra head fixtures with LEDs
 - Improved efficiency
 - 35% energy reduction
 - 14 tons CO₂
 - Reduce maintenance

Water

Materials

Energy

The Philips Advantage

- Energy reductions
- Cost reductions
- Emissions reductions

ANNUAL LIGHTING SAVINGS 58%

962,740

Kilowatthours

\$102,050

Cost Savings

639 TONS

GHG Emissions

Water

Materials

Energy



Vertical Transportation

- Aging technology
- Risk mitigation
- Today's technology

Water

Materials

Energy



Aging Technology

- Estimated 1 million elevators in operation today in U.S.
- Technology improves...
 - Hoisting motor efficiency
 - Mechanical efficiencies
 - Power conversion efficiency
 - Recovering of regenerated energy
 - Reducing idle time losses

Water

Materials

Energy



Risk Mitigation

- An estimated 50% of elevators in operation are hydraulic elevators
 - Energy intensive
 - Need oil-based hydraulic fluid
- Environmental consideration
 - Ground water contamination

Water

Materials

Energy



Today's Solutions

- 70% more energy efficient
- Hydraulic oil eliminated
- Reduced carbon footprint

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KONE

Water

Materials

Energy

The KONE Advantage

- Energy reductions
- Cost reductions
- Emissions reductions

COMPARATIVE SAVINGS 86%

37,485

Kilowatthours

\$3,973

Cost Savings

24.9 TONS

GHG Emissions



Water

Materials

Energy

Getting More From Less

- Tied together
 - 4.6 million buildings
 - 250 million passenger vehicles
 - 154 million employees

Alliance for Sustainable Built Environments

EAT•N
Powering Business Worldwide

Water

Materials

Energy



Lighting, Heating & Cooling

- Delivery systems review
- Maximize efficiency

Water

Materials

Energy



Sustainable Fleets

- Hybrid transportation
- Electric vehicles
- Charging equipment

Water

Materials

Energy



Energy Dashboards

- Incorporated metering
- Real-time management
- Access & attitudinal impact

Water

Materials

Energy

The Eaton Advantage

- Energy reductions
- Cost reductions
- Emissions reductions

ANNUAL SAVINGS 24%

1,296,000

Kilowatthours

\$137,376

Cost Savings

861 TONS

GHG Emissions

Alliance for Sustainable Built Environments

EATON
Powering Business Worldwide



Water

Materials

Energy

Bringing It All Together

- Develop sustainable approach
- Determine best technologies
- Improve operational effectiveness
- Measure, manage, report GHG emissions

Water

Materials

Energy



Performance Contracts

- All types of projects
 - Renewable energy
 - Water efficiency

Water

Materials

Energy



Improve Operational Effectiveness

- Continuous commissioning
 - HVAC service
- \$4 saved for every \$1 spent

Water

Materials

Energy



Measure, Manage, and Report Your GHG Emissions

- Collect and convert data from multiple sources
- Provide tracking and analysis
- Create forecasts
- Report clear info to key audiences
- Automatic ENERGY STAR® benchmarking

Water

Materials

Energy

ANNUAL SAVINGS 45%

2,416,800

Kilowatthours

\$256,181

Cost Savings

1,606 TONS

GHG Emissions

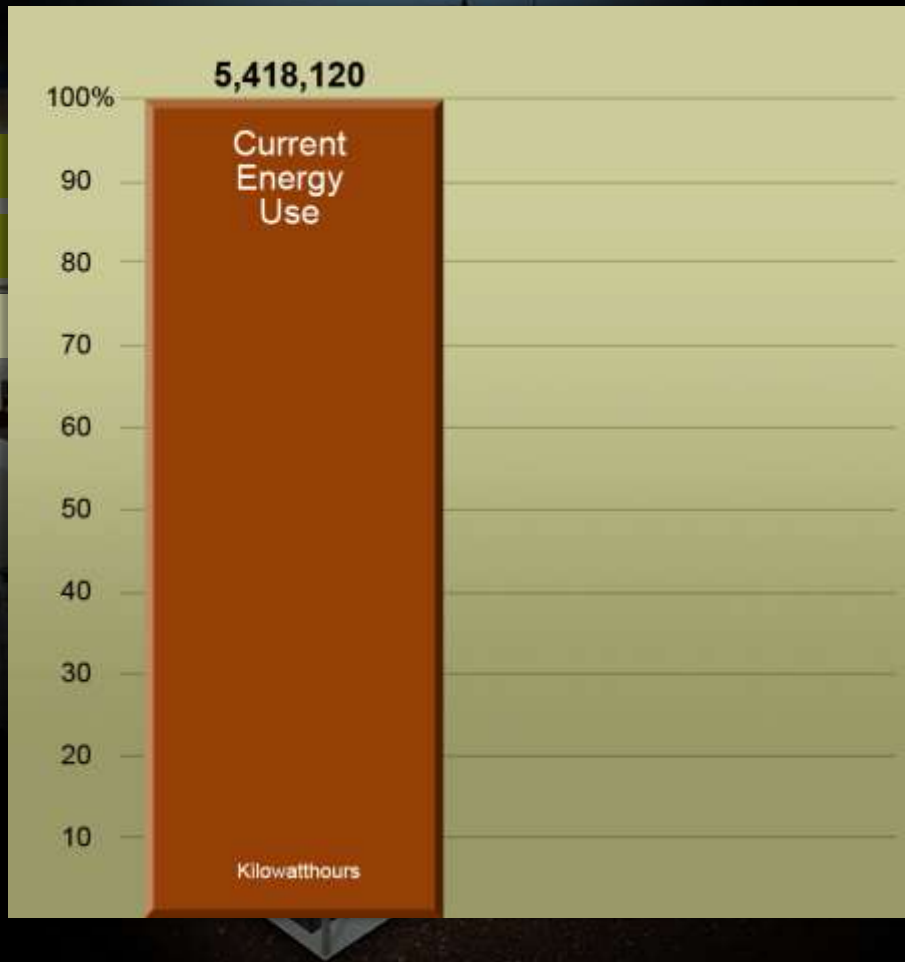
The Johnson Controls Advantage

- Energy/water reductions
- GHG emissions tracking/reporting
- Behavioral changes
- Local economic development
- Regional planning

Water

Materials

Energy



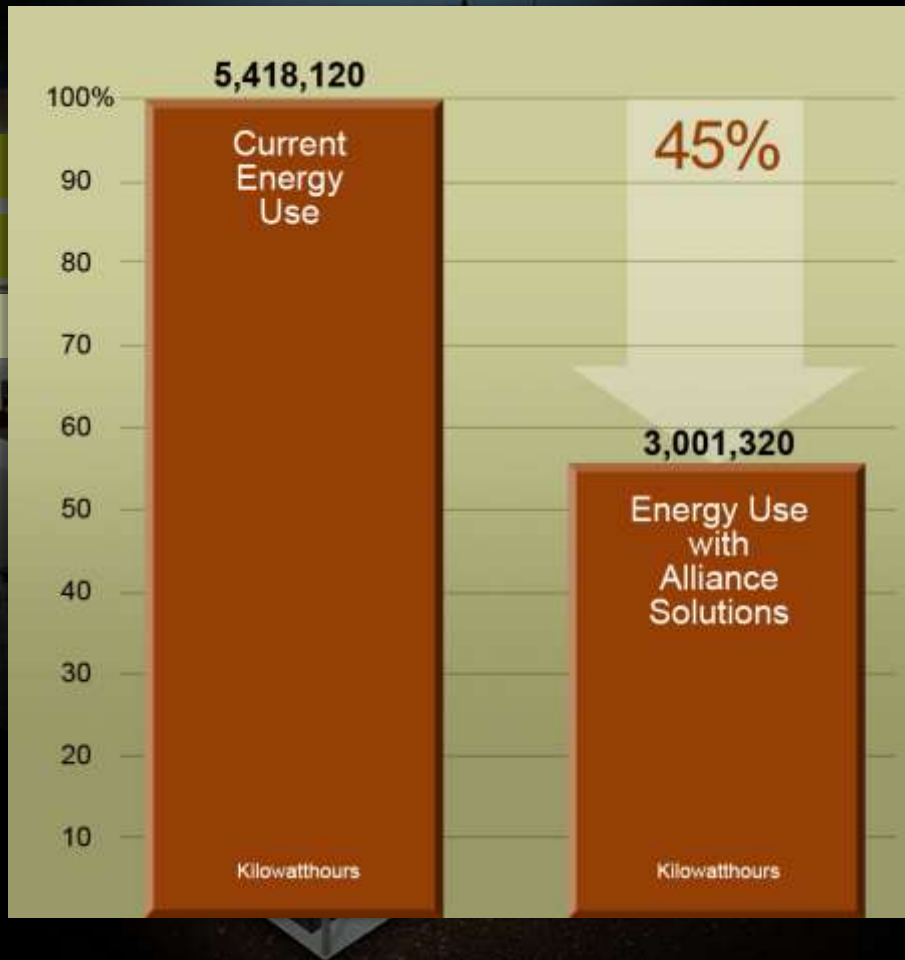
Benefits of Energy Reduction

- Current energy use

Water

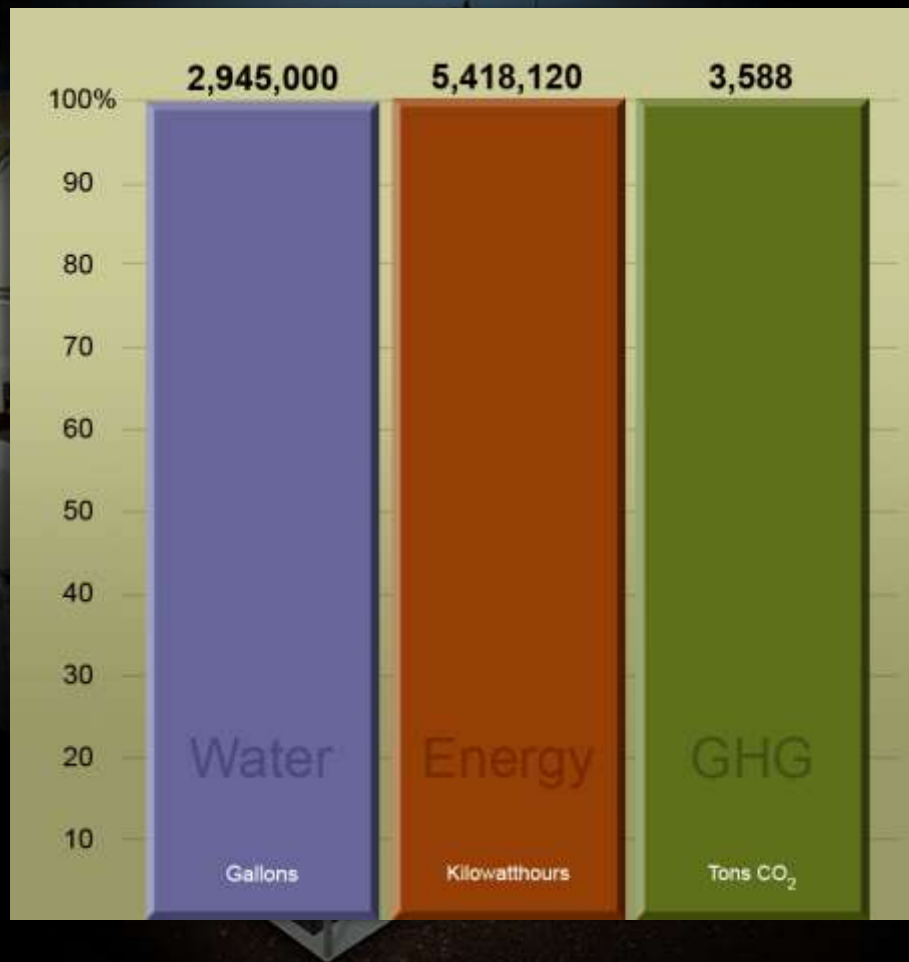
Materials

Energy



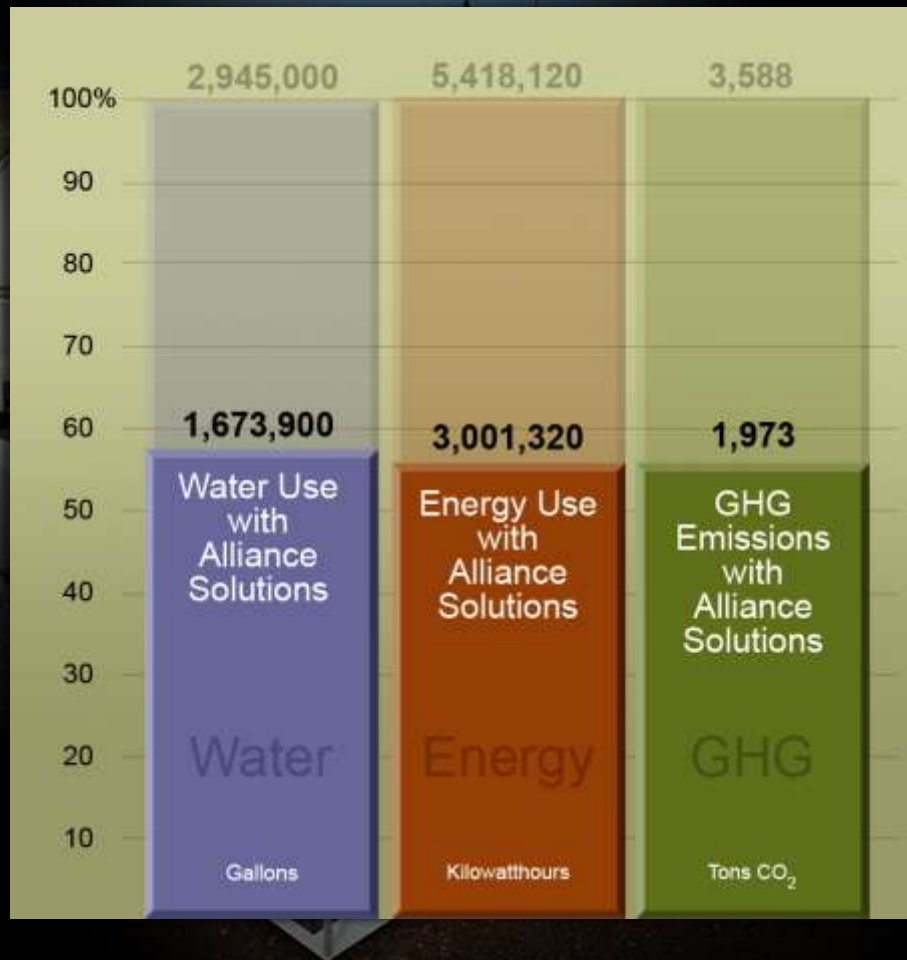
Benefits of Energy Reduction

- Current energy use
- Alliance net savings
 - 2.4 MM kWh
 - \$256, 181



The Alliance for Sustainable Built Environments

- Catalysts for change
- Provider of the Sustainable Bundled Solution™



The Alliance for Sustainable Built Environments

- Net savings
 - 1.3 million gallons
 - 2.4 million kWh
 - 1,615 tons CO₂



The Alliance for Sustainable Built Environments

- 45% energy savings?
- Cynics may say: Those kinds of savings are impossible!
- The reality is: The more you do, the more you save.
 - The Empire State Building
 - 38% annual energy savings
 - Top 10% in the nation in energy efficiency

The Alliance for Sustainable Built Environments

- Member's savings calculations overlap
- FM's would pick & choose their own solutions
- Get specific ROI from ASBE members

Thank You



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Alliance Members



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