Swimming in the Fast Lane: Next-level Strategies for Improving Water Efficiency

Thursday August 23rd, 2018
Cutting Water Waste

DOE Began Working with Partners on Water Goals in 2015

- Saving water saves energy
- Cuts costs
- Improves resiliency
- Demonstrates environmental stewardship
Better Buildings Water Savings Initiative

• More than 40 Partners
• 9 Goal Achievers
• More than 6 billion gallons cumulative water savings
• 30+ solutions to common barriers, such as:
  - Making the business case for water savings
  - Tracking and managing water data

betterbuildingssolutioncenter.energy.gov/challenge/water-savings
Speakers

- Mark McDermid, Wisconsin Manufacturing Extension Partnership
- Rock Ridolfi, Rivion
- Jonathan Bauer, The Tower Companies
Mark McDermid, Wisconsin Manufacturing Extension Partnership
2018 Better Buildings Summit
Swimming in the Fast Lane -

If you have a lane, you have a chance.
And
Are you really that fast?

Mark McDermid
The Water Standard

• International Alliance for Water Stewardship (AWS)
  ▪ North America – www.thewatercouncil.com
  ▪ International – www.a4ws.org

• Water Stewardship Standard

• Released in 2014
  ▪ Registered Sites (http://a4ws.org/water-stewards/registered-sites/ )

• First certifications 2015 (USA – 2017)
  ▪ Certified Sites (http://a4ws.org/water-stewards/certified-sites/ )

• Over 500 trained worldwide

• Membership based organization (Business, NGO, Academic)

• Direct branding impact
WHAT IS AWS?

Through TRAINING, ACCREDITATION AND MEMBERSHIP programs we help organizations

- Promote water stewardship
- Manage water risks
- Understand water use
- Build internal capacity
- Access support
- Share knowledge
- Demonstrate real leadership

*International Water Stewardship Standard*
“Move Beyond Managing Water as an Input”
FOUNDATION MODULE SUMMARY

1. GOVERNANCE  
2. BALANCE  
3. QUALITY  
4. IWRAs
WHY ARE BUSINESSES CONCERNED ABOUT WATER?

- Quantity
- Quality
- Source water health
- Community perceptions
- Physical Risk
- Reputational Risk
- Regulatory Risk
- Financial Risk
BUSINESS VALUE OF AWS

- **Business relies on shared water resources**
  - Risk Identification (note too much and too little)
  - Value Creation (Innovation, resource reduction, resource efficiency, etc.)

- **Framework for systems integration**
  - Leveraged capabilities and crosswalks (ISO 14001, ISO 9001, GRI, LEED, etc.)
  - Leveraged core competencies (supply chain, public relations, accountability, etc.)

- **Context and engagement structure for other systems such as ISO**

- **Collateral benefit and impact discovery**
BUSINESS VALUE OF AWS

• Constructive/proactive governance engagement and validation
• Strategic collaboration opportunities for 4 outcomes
• Creation of investor relations grade information
• Tactical support
  ▪ Outreach
  ▪ Partnership
  ▪ Advocacy
• Site Passion and Excellence
Overall Water Risk
Supply Chain Operations for MillerCoors

Brewing Operations
Barley Growing Regions

Water Risk is an aggregated measure of Quantity, Quality, and Regulatory & Reputational Risk categories.
AWS Outcomes and Benefits

• Gaining a thorough understanding of the watershed
• Engaging with stakeholders, building relationships and potential for partnerships
• Great Water Month
• The first Brewery in the world to AWS certified

Milwaukee Brewery Watershed Map
Ensuring a Secure Future Through Water Stewardship

• Water Efficiency Projects to reduce overall usage
  • Cleaning optimization, process efficiency improvements
• Green Infrastructure Installation
• Wastewater Management
• Watershed Assessments and Stakeholder Engagement
• Water Footprinting – Agricultural Supply Chain
• Community Investment
The Global Water Center

- Home of The Water Council
  - North American headquarters for the Alliance for Water Stewardship
- First Commercial Office Building to achieve certification
- Better contribute to watershed governance
  - Stakeholder engagement
  - Public initiatives
- Address site-level water-related risks
  - Reputational
  - Physical
  - Regulatory
The Global Water Center Outcomes

- Engaged with 15 local stakeholders
  - Aligned site water-related practices with public initiatives and shared challenges in the watershed
- Improved on-site stormwater infrastructure
- Improved salt application practices
- Use of environmentally friendly parking lot pavement
- Provides a scalable framework and precedent for other commercial, industrial and agricultural sites to follow!
Thank you for your kind attention!

Mark McDermid
Mcdermid@wmep.org
608/512-3378

Greg Gasper
Gasper@wmep.org
608/213-2865
Rock Ridolfi, Rivion
Swimming in the Fast Lane: Next-level Strategies for Improving Water Efficiency

BETTER BUILDINGS SUMMIT
August 23rd, 2018
Hi, who’s Rivion!

- Operational audits
- Energy & Water audits
- Commissioning
- Energy modeling
- LEED®, WELL®, Fitwel®
- GRESB reporting
- ENERGY STAR® benchmarking
- PACE financing

Rock Ridolfi Jr., CxA, CEM, LEED AP BD+C, O+M
- Director of Project Operations
- Existing buildings & New construction
- I Love Buildings!!!
WHY ARE WE HERE?
Why are we really here today?

- How do we practically analyze water consumption?
- To prepare for water-centric, operational challenges.

Don’t waste a...
WATER BENCHMARKING BASICS

- Easily track with ENERGY STAR® Portfolio Manager™
- Whole-building water use:
  - Indoor Use + Irrigation + Cooling Tower
- Provide Recognition
BENCHMARKING WATER CAN BE EASY...

City Building Main (CCF) - Utility Owned
…OR NOT.

City Irrigation Main (kGal) Utility Owned

Irrigation Sub (CCF) Tenant Owned

Tenant Main (kGal) Utility Owned

City Building Main (CFx10) Utility Owned

Building Sub (Gal) Building Owned

Cooling Tower Sub (CFx4) Tenant Owned
VALUE OF A WATER RATING

- Provides comparison on Expected vs Actual Water Use Intensity (WUI)
- True cost of water is still not typically billed - Prepare now!

Check out: EPA WaterSense® and EPA’s 1-100 Water Score for Multifamily Buildings
TAKE ACTION!

Indoor Water Usage
- Efficient fixtures & equipment
- Interval faucets
- Submeter readings
- Vacancy checks
- Leak checks

Outdoor Water Usage
- Reduce irrigation frequency
- Drip irrigation
- Rainwater capture
- Sewer savings
Keep it simple. Become a Water Star!

- Identify the water meters in your facility.
- Enter utility data in ENERGY STAR® Portfolio Manager™
What’s your story?

- Have you joined a program/org promoting water efficiency?
- What are your barriers to benchmarking?
Jonathan Bauer, The Tower Companies
Swimming in the Fast Lane: Next-level Strategies for Improving Water Efficiency

August 23, 2018
2018 Energy Exchange & Better Buildings Summit
Jonathan Bauer, Sustainability Analyst
Company Overview
Commitment to Sustainability

Lead by example on environmental responsibility, by developing and managing high performance properties, being a global voice on environmental stewardship, and sharing our sustainable and innovative practices.
# Portfolio Progress and Goals

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Energy Efficiency</td>
<td>61 MILLION kWh</td>
</tr>
<tr>
<td>Water Efficiency</td>
<td>94 MILLION GALLONS</td>
</tr>
<tr>
<td>Reduced greenhouse gas emissions</td>
<td>equivalent to carbon sequestered by</td>
</tr>
<tr>
<td>Forest Conservation</td>
<td>70,400 ACRES</td>
</tr>
<tr>
<td>Waste Management</td>
<td>130,000 POUNDS</td>
</tr>
<tr>
<td>Landfill Diversion</td>
<td>55% OF WASTE</td>
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</tbody>
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**Better Buildings**

U.S. Department of Energy

20% by 2020

- **76% Recycle**
- **76% Percent**

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20% Reduction by 2020

CHALLENGE COMMITMENT

2.5 Million Square Feet

GOALS

20% Reduction in Energy Intensity

PROGRESS

Goal Achieved

GOALS

20% Reduction in Water Intensity

PROGRESS

Goal Achieved

Source: Better Building Challenge
- Benchmarking & Goal Setting
- Green Building Standards
- Energy Conservation Measures
- Energy Management
- Green Lease Guidelines
- Tenant Engagement
- Energy Procurement
- Demand Response
- Renewable Energy

![Energy Consumption & Cost Avoidance: 2010 - Present](chart.png)
Water Conservation Measures

- Benchmarking
- Goal Setting
- LEED Guidelines
- Green Lease Requirements
- Preventative Maintenance
- Repair Leaks upon detection
- Work Tickets for Client Issues
- Real-Time Energy Monitoring
- Real-Time Water Monitoring

Millennium Building - Water
Mon, Jul 23

<table>
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<th>Operating Conditions</th>
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Actual Vs Expected Usage

- Actual Data
- Expected Range
Today’s Focus

1. Real-time Water Monitoring
2. Water Efficiency Technologies
3. Achieving Water Efficiency through Green Leasing

WATER EFFICIENCY
The intent of this section is for Tenant to implement design strategies to reduce indoor water consumption.

- WaterSense labeled fixtures are required for all newly installed water fixtures, when available for the specific type of fixture. For more information and available products, please visit this website: http://www.epa.gov/watersense/

- All newly installed fixtures must meet the following minimum flush and flow rate requirements:
  - 1.29 gallons per flush (gpf) or less toilets (water closets)
  - 0.5 gpf or less for urinals
  - 0.4 gallon per minute (gpm) lavatory (restroom) faucets
  - 1.75 gpm faucets in the common area kitchen or pantry spaces
  - 2.0 gpm or less shower heads
Optimized Water Usage Profile
High Water Expense Profile
Peak Water Demand
Weekend/Holiday Water Demand
Water Monitoring Technology

Options to Consider:

• Use Existing Infrastructure
• Replace Existing Meter
• Add New Meter
• Ultrasonic Meters
Flow Management Device

- Creates smooth flow that “trues” the utility meter
- Option to alter pressure downstream for additional water savings
- 5-25% water savings

Source: http://www.energysolutionsnetwork.net/products-services/water/
Green Lease Guidelines

Building a Successful GREEN LEASE

"Green," "energy-aligned," or "high-performance" leases can reduce utility bills up to 22% in U.S. office buildings alone and create deeper energy savings, less pollution, and greater tenant well-being.

REAL LEASE LANGUAGE THAT GETS EFFICIENCY RESULTS²

"Landlord requires that at least one principal participant of the Tenant’s project team shall be a LEED Accredited Professional (LEED AP)."

Requires industry-recognized training for real estate professionals to execute a green lease

The Millennium Building
1500 K Street, Washington, DC
Green leases in over 95% of leased space

“A tool to drive smarter building investments & higher performance

Green Lease Leaders, a national recognition program established by IMT and the U.S. Department of Energy (DOE), sets the bar for using the lease as a powerful tool to create highly efficient buildings.

A Green Lease Leader since 2014, The Tower Companies owns, develops, and manages over 5 million square feet of building space in the D.C. metro area. In this region, Tower has executed over 1 million square feet of green leases in its commercial office portfolio.

Let’s take a look at how Tower is changing the status quo to include sustainability best practices in its leases.

Promotes multi-faceted building efficiency to increase returns and save resources

"Tenant shall endeavor to participate in other water saving initiatives and adopt water saving best practices. Examples include running the dishwasher when it is completely full and reporting fixture and bathroom leaks."

Engages tenants to collect and share data, unleashing win-wins energy efficiency investments that save money for both landlords and tenants

“The Landlord participates in an energy and water benchmarking program with the United States Environmental Protection Agency (EPA) called ENERGY STAR Portfolio Manager. This program helps to improve the energy efficiency of this Building, lower operating costs for the Tenant, and achieve ENERGY STAR certification.”

Want to learn more and take the next step on greening your lease?

Learn about Tower's efforts at TOWERCOMPANIES.COM
See if you qualify for Green Lease Leader recognition at GREENLEASELEADERS.COM
Start the conversation about green leasing in your D.C. buildings at DCEIU.COM
Thank you!

Jonathan Bauer, LEED AP O+M, Fitwel Ambassador
Sustainability Analyst
2000 Tower Oaks Boulevard, Ninth Floor
Rockville, Maryland 20852
MAIN 301.984.7000  DIRECT 301.692.1460
Jonathan.Bauer@TowerCompanies.com
www.towercompanies.com

The Tower Companies envisions a world where buildings inspire and enrich the lives of their occupants, and create positive social change. In this world, people seek out buildings that better their health and well-being, connect them to thriving communities, and help to sustain the environment.