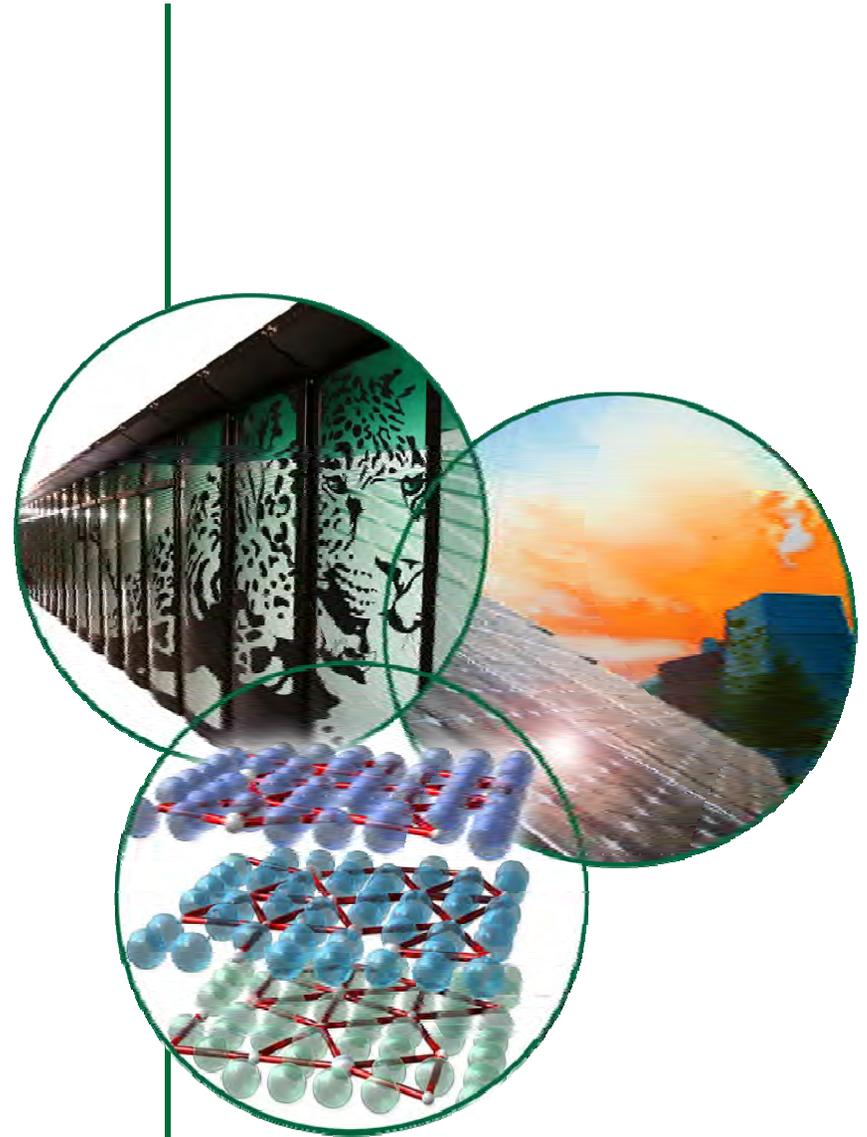


# *LEED by Example at ORNL*

Building 1059 –

An Overview of Sustainable Features and the LEED EB Certification Effort at ORNL



# Building 1059



- Standard office building
- Constructed in 1993
- 6,998 GSF
- Applying for LEED EB Gold

# *Sustainable Features*

## Enhanced Lighting Control

- **Occupancy Sensors:** Keep lights on only when a room is occupied
- **Dimming Controls:** Allow building occupants to control light levels in each office
- **Daylight Sensors:** Dim lights based on the amount of natural light coming through the windows to maintain a consistent overall light level



# *Sustainable Features*



## Metasys BAS

- A network of sensors and controls allow modulation of heating, ventilation and air conditioning to maximize efficiency
- Trending the total electricity consumption of the building as well as sub-metering of electricity consumed by lighting, packaged heat pump units and water heater
- Trending the hot water consumption and the building's total water usage

# *Sustainable Features*

## Roofing Upgrade

- Existing inefficient built-up roof at the end of life expectancy was replaced with a white, highly reflective, EDPM roof in order to reduce “heat island effect
- Additional insulation under the new roof material saves energy by reducing the building’s cooling load

## Low Flow Plumbing Fixtures

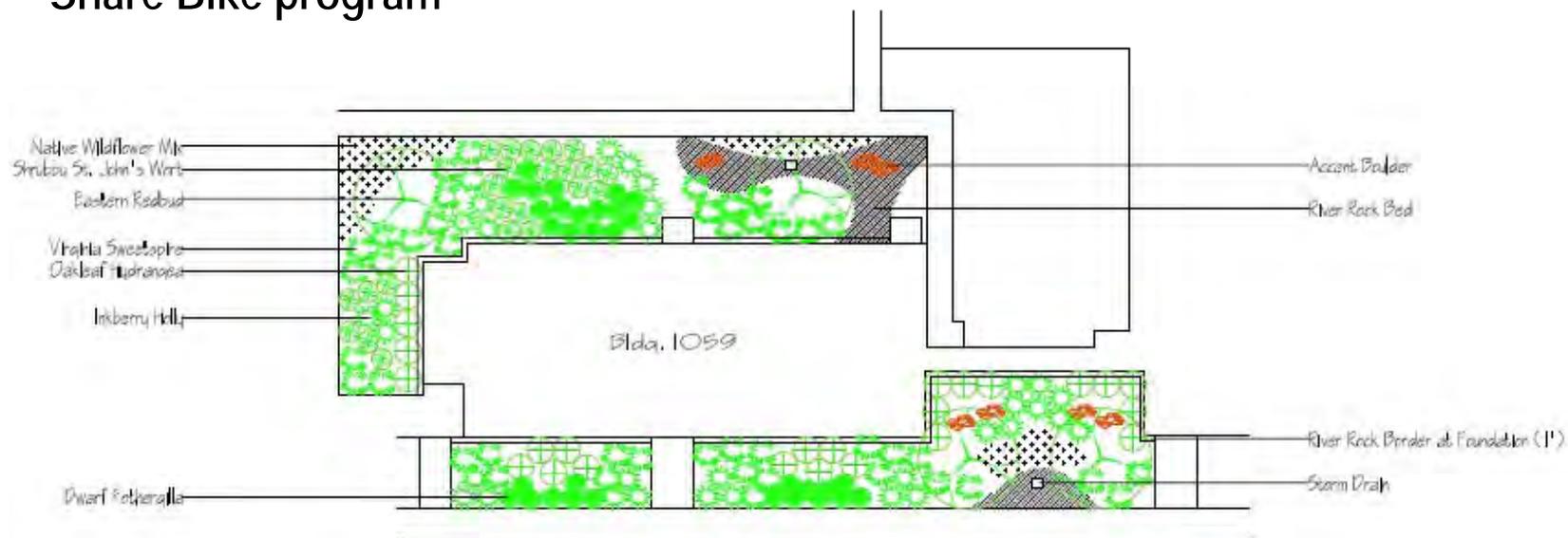
- Toilets are fitted with dual flush valves with a 1.6 or 1.1 gallons per flush option
- Urinal features a sensor activated 1.0 gallon per flush valve
- Lavatory faucets are hands free and have a flow rate of 0.5 gallons per minute
- Kitchen faucet has a flow rate of 2.2 gallons per minute



# Sustainable Features

## Exterior Site Upgrades

- Native Landscaping requires no irrigation
- Designated Smoking Area located 25 feet from the facility
- Integrated Pest Management contract
- Share Bike program



# Sustainable Features

## Energy Awareness Dashboard

- Flat panel monitor located in the main lobby
- A real-time representation of the building's electricity and water consumption
- Consumption trends are displayed for at-a-glance awareness
- Periodically, informational bulletins pertaining to sustainability will be displayed



# Sustainable Features

## Salvage, Re-use and Recycling

- Light fixtures, toilet partitions, cabinets, restroom and kitchen fixtures that were not reused in the building were sent to ORNL property sales for donation, reuse or sale
- All old carpet was removed and recycled by the “Bluecycle” carpet reclamation program

## Enhanced Occupant Recycling

- Individualized collection containers are provided for each office and they will be routinely emptied by the janitorial staff
- Large collection containers are provided in the conference room and cubicle area



# Sustainable Features

Finish Materials Selected for Sustainable and Environmental Characteristics

Finish Material	Recycled or Sustainably Sourced Content	Indoor Air Quality Impact Mitigation	Local Sourcing
Carpet	14.22 % Post-consumer	CRI Green Label Plus	North Carolina, Georgia
Porcelain Tile	40 % Pre-consumer	Low VOC sealant	Tennessee
Glass Tile	23% Post-industrial	Low VOC sealant	Illinois
Restroom Partitions	33% Post-industrial	N/A	Georgia
Stair Treads	10% Pre-consumer	PVC free, low VOC adhesive	Ohio
Entry Way Walk-off Mats	90% Post-consumer	Low VOC adhesive	Ohio
Cabinetry	KCMA ESP	ARB compliant	North Carolina
Furniture Partitions	3% Post-consumer 23% Post-industrial	SCS Certified	Michigan
Paint	N/A	No VOC	Ohio

**Post-consumer:** End products generated by consumers that have been separated or diverted from the solid waste stream

**Pre-consumer:** Products that are not suitable for customer distribution are reconstituted

**Post-industrial:** Surplus materials resulting from the manufacturing process are reintroduced into the process

**VOC:** Volatile Organic Compound

**KCMA ESP:** Kitchen Cabinet Manufacturers Association Environmental Stewardship Program

**ARB:** California Air Resources Board

# *Sustainable Features*

## Occupancy-Sensor Controlled Power Strips

- Essential devices (i.e. hard drives) use uncontrolled outlets for continuous power
- Devices that are only used during office occupancy (i.e. monitors, task lights, printers) should use controlled outlets
- Controlled outlets are automatically switched by the occupancy sensor

## Energy Star Rated Appliances and Electronics

- Refrigerator located in the kitchenette is Energy Star rated for efficiency
- Building occupants are encouraged to purchase Energy Star rated computers and peripherals

## Hand Dryers

- Eliminate large amount of waste that results from paper towel usage



## *LEED EB initiative at ORNL*

- 1059 Portfolio to serve as a template for future EB projects at ORNL.
- Plans outlined for two additional LEED EB certifications in 2010
- Goal is to obtain LEED EB certification for at least 10 buildings by 2014.





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