



E3 228: Green Building Principles and Requirements in Government Contracts

Course Instructor: Nancy Goshow, Managing Partner,
Goshow Architects and WIPP National Founding Partner



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- The Voice for Women in Business in our Nation's Capital.
- National nonpartisan public policy organization representing over half a million Women Business Owners including over 49 business organizations.
- Advocates for and on behalf of women and minorities in business.
- Thirty-one local Instant Impact teams across the country engaging with legislative officials and the business community to advocate for Women Business Owners.
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*National program from WIPP's "Women, Money and Opportunity:
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*The E3 program is designed to educate entrepreneurs on how energy
and environmental issues affect business and the opportunities
they present.*

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- Woman-Owned Architectural Firm specializing in Green Building design for the public sector
- Clients include:
 - U.S. General Services Administration
 - U.S. Army Corps of Engineers
 - State University of New York (SUNY)
 - City University of New York (CUNY)
 - Dormitory Authority of the State of New York (DASNY)
- Areas of design expertise include:
 - Sustainable campus housing for colleges and universities
 - High performance building modernizations and interior renovations
 - LEED Certification Management + Documentation



Nancy Aber Goshow, AIA, LEED AP BD+C

- Founder and Managing Partner of Goshow Architects
 - Licensed Architect
- Professional & Civic Organizations
 - National AIA Women's Leadership Development Summit
 - AIA New York Women in Architecture Committee
 - Women Builders Council
 - Women Impacting Public Policy (WIPP) and its National Energy and Environmental Policy Committee
 - Enterprising Women
 - Women Presidents Organization
 - Women Construction Owners & Executives
- Speaking engagements include:
 - American Institute of Architects - National Convention
 - US State Department Industry Advisory Panel
 - General Services Administration
 - Small Business Administration
 - National Association of Owners & Developers Annual Conference
 - Enterprising Women Conference
 - American Express Open
 - Dormitory Authority of the State of New York M/WBE Annual Conference
 - WIPP's Entrepreneurs, Energy & Environment Program
 - Association for the Advancement of Sustainability in Higher Education (AASHE)
 - Greenbuild 2010



Working in the Public Sector...

- Capital investments for the long-term
- Value for the greater public good
- Creating markets for new technology
- Public bid construction
- Sustainable design
- Non-proprietary specifications
- Building Information Modeling
- Stakeholder input
- Building Commissioning
- Measurement and Verification



The Public Sector is leading the way through...

- Legislation
- Executive Orders
- Resolutions
- Ordinances
- Policies
- Incentives

“Government owned or occupied buildings make up 29% of all LEED projects.”

The Federal government:

310 certified projects & 3535 pursuing certification.

State governments:

487 certified projects and 2006 pursuing certification.

Local governments:

732 certified projects and 3208 pursuing certification.

Why Existing Buildings?

Private sector buildings = average **40 year** estimated lifespan

Public sector buildings = average **100 year** estimated lifespan (GSA)

Lifetime costs of 40 year building

- **75% for Energy and Operations**
- 11% for Design & Construction
- 14% for Project Financing

Add Cost of Occupants

Lifetime costs of 40 year building

- 2% for Design & Construction
- 6% for Operations & Maintenance
- **92% for Personnel salary**



Why “Green” Existing Buildings?

OWNER Benefits:

- Reduce operations & maintenance costs
- Increased productivity
- Reduce absenteeism
- Enhance recruitment & retention

OCCUPANT Benefits:

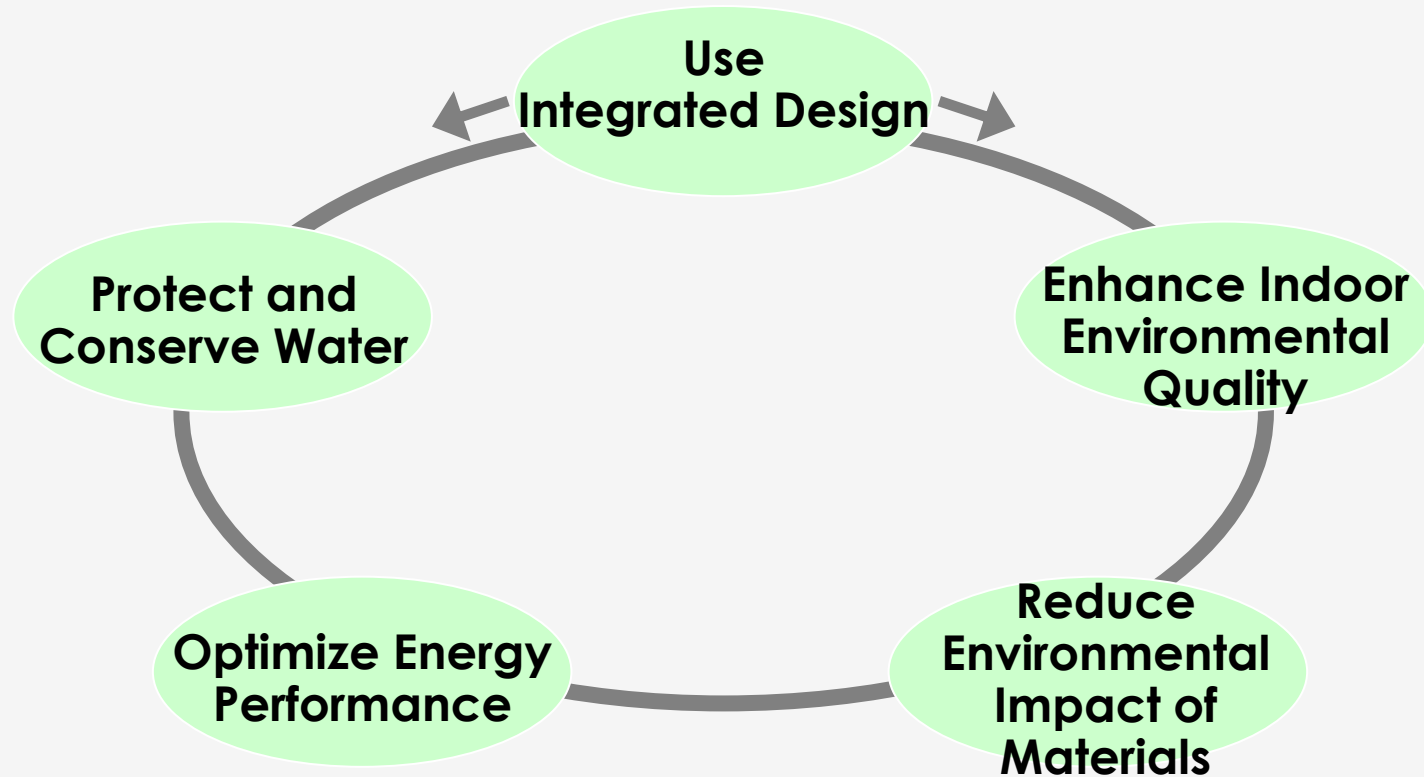
- Healthy comfortable working environment
- Better ventilation, better lighting
- Increased job satisfaction with increased productivity
- Environmental stewardship improves morale

Why “Green” Existing Buildings?

Challenges:

- Financing for energy upgrades
- Cost of greening
- Short term cost of capital improvements vs. long term cost of operations and maintenance
- Tenant/occupant resistance to change
- Working in occupied buildings
- Incentive for tenant or owner?

The Guiding Principles for High-Performance and Sustainable Buildings



www.wbdg.org/sustainableEO

Integrated Design & Whole Building Design

All components/subsystems analyzed to achieve comprehensive energy-efficient buildings.

An integrated project team is:

- Multi-Disciplinary collaborative design team
- All project stakeholders in the life cycle of the project
- Planning, design, & construction professionals
- Building owners, management, and occupants
- Building operations and maintenance personnel

Successful project teams:

- Active and continuous collaboration among all team members - stakeholders
- Set and prioritize specific measurable goals
- Develop interdependent strategies to meet those goals
- Promote and sustain communication among team members
- Implement accountability
- Frequently evaluate progress toward the goals

Life Cycle Cost

Costs associated with a building or building system

- Acquisition
- Operations and Maintenance
- Replacement
- Disposal

Life Cycle Assessment

Environmental impact of a material/product/ service for its entire life-cycle

- Extraction of raw materials,
- Processing and fabrication
- Transportation
- Installation
- Use and maintenance
- Reuse/recycling/disposal

USGBC & The LEED Rating System

Nationally recognized benchmark rating system for the design, construction and operation of high-performance green buildings.

Promotes a whole-building approach to sustainability

USGB is a third party certifier of high performance green buildings according to the requirements of the LEED Rating System

Measures the environmental impact of a building's performance.

Building performance in five key areas of human & environmental health:

- Sustainable site development
- Water savings
- Energy efficiency
- Materials selection
- Indoor environmental quality

LEED Green Building Certification

Buildings are Certified – Professionals are Accredited

The LEED Green Building Certification Program

- Encourages & accelerates global adoption of
- Sustainable green building & development practices
- Through a suite of rating systems that recognize projects that
- Implement strategies for better environmental & health performance

These rating systems include:

- LEED NC for New Construction
- LEED EBOM for Existing Buildings Operations & Maintenance
- LEED CS for Core & Shell
- LEED CI for Commercial Interiors
- LEED for Retail
- LEED ND for Neighborhood Development
- LEED for Schools

LEED NC vs. EBOM

LEED NC – New Construction

- New buildings and major renovations of existing buildings
- Major HVAC renovation – equipment & distribution
- Significant envelope modifications
- Major interior renovation

LEED EBOM - Existing Buildings: Operations & Maintenance

- Ongoing building operations & processes
- Systems upgrades
- Minor space-use changes
- Minor facility alterations or additions

Which one do you use?

High-Performance Green Building

Energy Independence and Security Act of 2007

- Reduces energy, water & material resource use
- Improves indoor environmental quality
- Reduces negative impacts on the environment
- Increases use of environmentally preferable products
- Increases reuse & recycling opportunities
- Integrates systems
- Reduces impacts of transportation
- Considers effects on human health and the environment

GSA Public Buildings Service



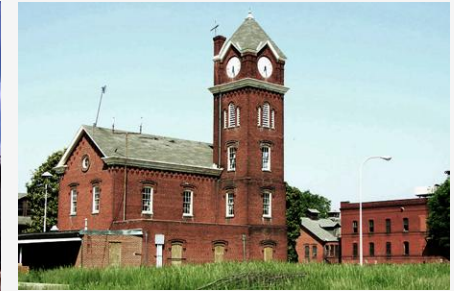
Denver Federal Center
Lakewood, CO



Byron Rogers U.S.
Courthouse
Denver, CO



Metzenbaum U.S. Courthouse
Cleveland, OH



St. Elizabeth's Campus
Washington, DC

- 8,603 owned and leased assets
- 354 million RSF across the U.S
- Houses 1 million federal employees
- Landlord for over 400 different federal agencies, bureaus and commissions

GSA High-Performance Green Buildings

Include such improvements as:

- Building Tune-up (Re-commissioning and Controls)
- Renewable energy—photovoltaics & wind
- Roofing, including green roofs
- Windows
- Lighting replacement
- High-performance building systems
- Advanced metering



Case Studies

LEED NC project – Nazario Courthouse & Degetau FOB

LEED EBOM project – Duberstein Courthouse

Nazario U.S. Courthouse & Degetau Federal Office Building

San Juan, Puerto Rico

High Performance Green Building Modernization

- Reduce energy & water consumption
- Improve indoor air quality

Built in 1970s:

- Energy inefficient
- Poor indoor air quality & comfort problems.



Nazario U.S. Courthouse & Degetau Federal Office Building

Hato Rey, Puerto Rico

LEED NC - New Construction v3 rating system:

- Scope of work constituted a “major renovation” of an existing building

3 key requirements of LEED NC:

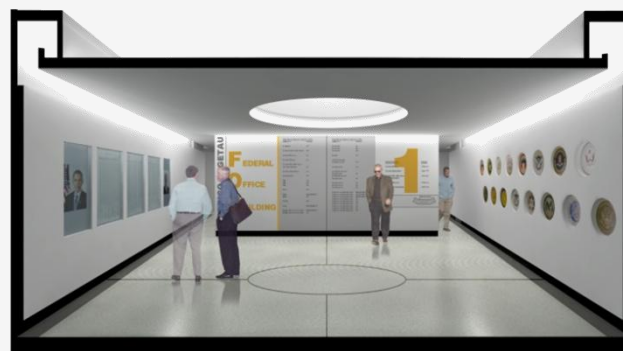
- Major HVAC renovation
 - Significant envelope modifications
 - Major interior rehabilitation
- Construction occurring throughout entire building
 - Construction budget justified LEED material & resource credits

Nazario U.S. Courthouse & Degetau Federal Office Building

San Juan, Puerto Rico

The scope of work included:

- New mechanical system
- New electrical panels & distribution system
- Energy conservation program
- High efficiency lighting
- Intelligent lighting controls
- New interior finishes
- Renovate public restrooms
- Upgrade fire protection & life safety system
- Cool roof on Federal Office Bldg
- New entry building
- Stormwater retention system
- Photovoltaic array on roof
- New windows and glazing
- Achieve minimum LEED Silver rating



Conrad B. Duberstein Courthouse

Brooklyn, New York

Improve energy efficiency of the Courthouse

Mechanical equipment upgrades

New photovoltaic panels

Under Separate Contracts

Exterior Envelope Restoration Project

Window Upgrade Project



Conrad B. Duberstein Courthouse

Brooklyn, New York

LEED EBOM:

Existing Buildings Operations & Maintenance v3 rating system:

- Limited scope of work
- Replacement of mechanical equipment
- Separate project included envelope modifications, however no interior work was completed to warrant LEED NC rating system
- Sustainable building operations and maintenance already in place
- Smaller facility alterations scheduled during LEED performance period

Executive Order 13514 Spawns GreenGov Initiatives

- October 5, 2009
 - Executive Order 13514 signed by President Obama
 - Federal Leadership in Environmental, Energy & Economic Performance
- October 19, 2009
 - GreenGov Challenge
- February 18, 2010
 - GreenGov Collaborative
- September 9, 2010
 - Federal Agency Strategic Sustainability Performance Plans
- November 16, 2010
 - GreenGov Supply Chain Partnership

Executive Order 13514 signed by President Obama October 5, 2009

“As the largest consumer of energy in the U.S. economy, the federal government can and should **lead by example when it comes to creating innovative ways to **reduce greenhouse gas emissions, increase energy efficiency, conserve water, reduce waste, and use environmentally responsible products and technologies.**”**

- President Barack Obama
upon signing Executive Order 13514
Federal Leadership in Environmental, Energy and Economic Performance

Executive Order 13514 signed by President Obama October 5, 2009

- Federal Leadership in Environmental, Energy & Economic Performance
- Sets sustainability goals for Federal agencies
- To Improve environmental, energy and economic performance
- Submit 2020 GHG pollution reduction targets
 - Increase energy efficiency
 - Reduce fleet petroleum consumption
 - Conserve water
 - Reduce waste
 - Support sustainable communities
 - Leverage Federal purchasing power to promote environmentally responsible products & technologies

GreenGov Challenge October 19, 2009

- Launched by the White House
- Federal & military personnel asked to share ideas about how to green the government:
 - Federal community to lead the greening of the government
 - Meet the goals of Executive Order 13514
- Generated over 5,000 ideas ranked by 165,000 votes from 14,000 Federal Employees
- GreenGov Challenge Final Report, February 2010
- Published by the White House on www.whitehouse.gov
- Some top ideas from the Final Report:
 - Conserve energy by allowing federal employees to Telework whenever possible
 - Use motion activated lights in halls, bathrooms, etc.
 - Reduce energy consumption by powering down desktop computers, printers, non-networked peripherals at the end of the day

GreenGov Collaborative February 18, 2010

- White House challenge to Federal & military personnel
 - Build on GreenGov Challenge momentum
 - An online community of 1,000+ members
 - Dedicated to putting the 5,000+ GreenGov ideas into action
- White House Council on Environmental Quality
 - Held its first GreenGov Symposium in October 5-7, 2010
- Greengov Symposium Tagline:
 - Bringing Leaders Together to Green the Federal Government
 - Hosted by George Washington University's
- The GreenGov Leader Electronic Newsletter
 - Published by the Office of the Federal Environmental Executive, Council on Environmental Quality, Executive Office of the President
 - Information about current GreenGov events & information important to the Federal Community

Federal Agency Strategic Sustainability Performance Plans

September 9, 2010

- Federal Agencies required:
 - To develop, implement & annually update
 - A plan of prioritized actions
 - To meet energy, water & waste reduction targets
- Federal Agencies commitment to lead by example
- First Sustainability Performance Plans by Federal Agencies

GreenGov Supply Chain Partnership November 16, 2010

- GSA role in Executive Order 13514
- **GSA called to lead the Federal Government in greening the Federal supply chain**
 - GSA is one of the largest purchasers of goods & services in the world
 - A unique position to collaborate with industry
- **GSA launches GreenGov Supply Chain Partnership & Small Business Pilot**
- A voluntary collaboration between the Federal government & its suppliers to create a greener, cleaner, more energy efficient Federal Supply chain
- GSA strategy:
 - Measure, report & reduce Federal suppliers' GHG emissions
 - Large & small businesses in the Federal supply chain



GreenGov Supply Chain Partnership November 16, 2010

- GSA will lead by example & leverage the GreenGov Supply Chain Partnership to move the Federal Government and **its supply chain** toward a clean energy economy
- Voluntary GSA pilot program to:
 - Promote clean energy
 - Cut waste & pollution in the Federal supply chain
 - Uses GHG emissions reporting as a measurement
- Open to 60 small businesses for the Pilot Program:
 - Agree to voluntarily measure & report company's GHG emissions
 - Share experience to help GSA develop a phased, incentive-based approach to developing contracting advantages to companies that track & disclose their GHG emissions
- Explore small business benefits & challenges in measurement of GHG emissions

GSA Sustainability Policy

“GSA will eliminate its impact on the natural environment and use its government-wide influence to reduce the environmental impact of the Federal government...

...GSA will use its purchasing power to drive the market to produce a wider variety and greater number of products, services, and workspaces that are more sustainable...

...GSA will seek out green technologies, practices, and ideas, test them, and weave them into the agency’s processes, relationships, and culture.”

GSA Strategic Goals

- *Innovation* – GSA will be a green proving ground that demonstrates the viability of new green technology and practices.
- *Customer Intimacy* – GSA will lead with its expertise to drive the market for high-performance green products, services, and solutions that support its customer agencies' missions and meet or exceed their sustainability goals.
- *Operational Excellence* – GSA strives for performance excellence, continuous improvement, and the elimination of waste in all of its operations.



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Women, Money and Opportunity combines policy, resources, and a wealth of knowledge from within the WIPP community to educate women business owners. The programs combine webinars, events, resources and tools to educate, advance and support women-owned firms



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EDUCATION AND ACCESS FOR WOMEN
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