Beyond Green™
Employing the WBDG to Achieve High Performance Buildings

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Sustainable Buildings Industry Council
www.SBI Council.org

The Sustainable Buildings Industry Council

Our mission: We unite and inspire the building industry toward higher performance-through education, outreach, advocacy and the mutual exchange of ideas.

Our vision: To dramatically improve the long-term performance and value of buildings by advancing a whole building approach to design, construction and operation.
Federal Buildings

Sustainable Buildings Industry Council

Beyond Green™ High-Performance Building Awards

Sustainable Buildings Industry Council
Welcome to the Sustainable Buildings Industry Council

On February 28th, SBIC will bring the winners of our 2008 Beyond Green™ High-Performance Buildings Awards Program to Capitol Hill for a special, educational briefing. We will explore the challenges and opportunities for building better buildings with the new Congress.

SBIC Members and members of the public will be invited to attend and contribute to the conversation.

Please save the date!

Beyond Green™

A High Performance Approach to Building Design, Construction and Operations
What Is a High Performance Building?

Energy Policy Act, Section 914. Building Standards
• A building that integrates & optimizes all major high-performance building attributes, including energy efficiency, durability, life-cycle performance, and occupant productivity.

• A building that integrates and optimizes on a life cycle basis all major high performance attributes, including energy conservation, environment, safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations.

High-Performance Buildings
• Achieve long-term value and performance
• Are enduring assets in their communities
• Support and enhance human performance
• Reduce operating costs
• Are safe, secure, accessible
• Protect the environment
• Are the result of using a whole building approach
High-Performance Bldg Design Strategies

• Design and build a better building envelope
• Reduce water runoff and water pollution
• Build tight – Ventilate right
• Right-size the HVAC system (do the real calcs, not rules of thumb)
• Reduce paths of air and water penetration
• Provide daylighting and views to occupants
• Specify high efficiency HVAC equipment
• Specify plumbing fixtures that use less or no water
• Specify high efficiency lighting fixtures and controls with occupancy sensors and daylighting controls
• Specify materials that pollute less
• Investigate design alternatives with energy modeling
• Use Total Building Commissioning of all building systems
• Use proven technologies - no gadgets or high costs

What are we getting now?

• Building codes are minimum
• One attribute is prominent while others are overlooked or trivialized
• Low Occupant satisfaction
• Lawsuits
• Premature failures of materials & systems
• Value of investment decreases while costs of operations & maintenance increase
CBE’s analysis of 15 buildings by 4096 respondents
- over 60% of occupants in cubicles think acoustics interfere with their ability to get their job done.

Occupants of green buildings generally show a higher level of satisfaction with their built environment than do occupants of standard buildings, but their buildings fall short in some key areas.
- Common complaints had to do with:
  - acoustics (too noisy, not enough privacy),
  - thermal comfort (limited temperature control), and
  - daylighting (too much glare and light spill).

[HOK Post Occupancy Evaluation Report of 7 HOK-designed green buildings as reported in BD&C June 9, 2006]
Business Rationale for Better Buildings

Personnel costs represent the most significant portion of total life cycle cost

Personnel Cost: 85% – 92%

Construction, maintenance and operational costs 8% - 15%

Total Expenditures over a 30 year life of a commercial building.

Environmental Impact of Buildings

In the United States, buildings account for:

- Total Energy Use: 39%
- Total Water Consumption: 12%
- Carbon Dioxide Emissions: 38%
- Total Electricity Consumption: 68%

Source: EPA, 2004
Goal: Reduce Environmental Impact

- Optimize Site Potential
- Optimize Energy Use
- Protect and Conserve Water
- Use Preferable Products
- Enhance IEQ
- Optimize Operational/Maintenance Practices

WBDG Sustainable Design Objectives

High-Performance Building Council

Release date: June 18, 2008
More information: www.SBICouncil.org
Rating Systems

How do you measure the performance of your building?
Who can you trust with confidence to certify critical aspects of your building?

• Green Buildings
  – LEED
  – Green Globes
  – Energy Star
• Building Security
  – PLUS/BSC
• Others

Also Professional Accreditations: AIA, PE, CEM, LEED AP, BSCP, Bd Cert NCE, etc.

To Do a Job Well
It Takes the Right Tools

• Building a Home
• Planting a Garden
• Baking a Cake

• If You are planning, designing, constructing, operating or maintaining a building …
The Whole Building Design Guide

www.wbdg.org

Sustainable Buildings Industry Council

The Whole Building Design Guide (WBDG) as a Tool

Your Complete Internet Resource to Integrated, 'Whole Building', Design Information and Tools.

The WBDG condenses the vast amount of Web-based data on building design, products, & systems into usable, up-to-date information.

Single Point Access!
What is Whole Building Design?

• It is an Integrated Design Approach and a
• Integrated Team Process to achieve high-performance buildings

‘Whole Building’ Approach

• Materials, systems, and assemblies reviewed from many different perspectives

• Building components, sub-systems and materials are interdependent, can impact the total performance of the whole, and can perform ‘double duty’
**Integrated Project Team**

- Comprehensive Stakeholder involvement throughout the building’s life cycle
- Evaluation for cost, quality-of-life, future flexibility, energy efficiency, overall environmental impact, productivity, creativity, and how the occupants will be enlivened

Mark O. Hatfield U.S. Courthouse
Portland, OR

*Sustainable Buildings Industry Council*

**Applying the Integrated Team Process**

Who needs to be at the table at the outset of your project to ensure an integrated team process?
- Architect
- Landscape Architect
- Owner, Client, Tenants
- Engineers
- Programmers
- Interior Designer
- Contractor
- Specialists (Security, Telecom, Acoustics)
- Community Members or Other Stakeholders
- Operations and Maintenance Personnel
- Others???? (Real Estate Buyer)

*Sustainable Buildings Industry Council*
Building Siting Issues

- Solar Access*
- Security (Standoff Distance, CPTED)
- Stormwater Management
- Public Transportation
- Occupant Amenities
- Compatible Functions
- Disaster Avoidance

*Building orientation for passive solar heating, daylighting, natural ventilation, views

[Real Estate Buyer must be informed!!!]

Cost / Influence Over the Quality of a Project

Influence early for optimal design outcome and reduced life-cycle cost.
WBDG Goal

... to provide centralized access and use of facility information in a knowledge based management environment, from a 'whole building' perspective.

WBDG Building Type Page on Research Laboratory
w/ direct links to: Govt. Lab; Vivarium; Therapeutic Envi. RP; Sustainable Lab Design RP; Security & Safety in Labs RP, etc.

CCB Documents
VA Research Laboratory Des. Guide; NIH Design Policy and Guidelines; HHS Biosafety in Microbiological and Biomedical Laboratories

NGS

Sustainable Buildings Industry Council
Click on Topic to go directly to that section

Design Guidance
Design Objectives

Secure/Safe Branch
Resource Pages

- Concise summaries
- Written by industry experts
- Format:
  - Introduction
  - Description
  - Application
  - Relevant Codes & Standards
  - Emerging Issues
  - Additional Resources

Sustainability- and Security/Safety-Related Pages in WBDG

- Achieving Sustainable Site Design through Low Impact Development
- Air Barrier Systems in Buildings
- Air Decontamination
- Balancing Security/Safety & Sustainability Objectives
- Building Integrated Photovoltaics
- Cost Impact of the ISC Security Criteria
- Daylighting
- Designing Buildings to Resist Explosive Threats
- Distributed Energy Resources
- Electric Lighting Controls
- Energy Efficient Lighting
- Evaluating and Selecting Green Products
- Glazing Hazard Mitigation
- High-Performance HVAC
- Life Cycle Cost Analysis (LCCA)
- Low Impact Development Technologies
- Mold and Moisture Dynamics
- Security and Safety in Laboratories
- Sun Control and Shading Devices
- Sustainable Laboratory Design
- Sustainable O&M Practices
- Threat/Vulnerability Assessments and Risk Analysis
- Water Conservation
- Windows and Glazing
Sustainable Buildings Industry Council

Tools and Resources in WBDG

In 2008, WBDG is averaging:

250,000 visitors a month

and

1.7 million pdf downloads a month
Sustainable Design Objectives

• Optimize Site Potential
• Optimize Energy Use
• Protect & Conserve Water
• Use Environmentally Preferable Products
• Enhance Indoor Environmental Quality (IEQ)
• Optimize Operational & Maintenance Practices

EPA’s New England Regional Laboratory (NERL) achieved a LEED Version 1.0 Gold rating. From conception the project was charged to “make use of the best commercially-available materials and technologies to minimize consumption of energy and resources and maximize use of natural, recycled and non-toxic materials.” Chelmsford, MA

LEVEL 3 - SUSTAINABLE

RELEVANT CODES AND STANDARDS
• ASHRAE 189.1—Standard Guide for the General Principles of Sustainability Relative to Buildings
• Executive Order 13132, “Improving Federal Environmental, Energy, and Transportation Management”

Major Resources

BUILDING / SPACE TYPES
Applicable to most building types and space types.

DESIGN OBJECTIVES
Information in these Sustainable pages must be considered together with other design objectives and within a total project context in order to achieve quality, high-performance buildings.

PRODUCTS AND SYSTEMS
Building Envelope Design Guide—Sustainability of the Building Envelope
Federal Green Construction Guide for Specifiers

LEVEL 3 - SUSTAINABLE

LEVEL 3 - SUSTAINABLE

LEVEL 3 - SUSTAINABLE

LEVEL 3 - SUSTAINABLE

LEVEL 3 - SUSTAINABLE
Sustainability Level 4 — Optimize Energy Use

Overview

On an annual basis, buildings in the United States consume 35% of America’s energy and 66% of its electricity. Furthermore, buildings generate 30% of the carbon dioxide (the primary greenhouse gas associated with climate change), 69% of the sulfur dioxide, and 75% of the nitrogen oxides found in the air. Currently, the vast majority of this energy is produced from non-renewable, fossil fuel resources. With America’s supply of fossil fuels dwindling, concerns for energy supply security increasing (both for general supply and specific needs of facilities), and the impact of greenhouse gases on world climate rising, it is essential to find ways to reduce load, increase efficiency, and utilize renewable fuel resources in federal facilities.

During the facility design and development process, building projects must have a comprehensive, integrated perspective that includes heating, cooling, and lighting systems through climate-responsive design and conservation practices; key renewable energy sources; and site planning.

Related Resource Pages

- Sustainable Buildings Industry Council
- Optimize Energy Use
- Protect and Conserve Water
- Energy Analysis Tools
- Energy Code and Standards
- Energy Efficient Lighting
- Energy Master Planning for HVAC Systems in New and Existing Buildings
- Extreme Greens Roof
- Facility Performance Evaluation (FPE)
- Fuel Cell Technologies
- High Performance HVAC
- Life-Cycle Cost Analysis (LCCA)
- Solar Water Heating
- Sun Control and Shading Devices
- Sustainable Laboratory Design
- Sustainable O&M Practices
OVERVIEW

Given the choice, nearly everyone would prefer to work in an office with an open interior space. But what is that window view “worth”? Does it make workers more productive, and has the opportunity to fine-tune and optimize window selection on a project-by-project basis.

DESCRIPTION

Window systems are comprised of glass panes, structural frames, spacers, and sealants. In recent years, the variety of glass types, coatings, and frames available for use in window systems has increased dramatically, as has the opportunity to fine-tune and optimize window selection on a project-by-project basis.

Correct specification of window and glazing systems is essential to the energy efficiency and comfort of all buildings. In residential, air-conditioning dominated structures (such as housing), optimum window design and glazing specification can reduce energy consumption from 10%–50% below accepted practice in most climates. In internal heat-dominated commercial, industrial, and institutional buildings, properly specified fenestration systems have the potential to reduce lighting and HVAC costs 10%–40%.

Window and glazing choices should be considered holistically. Once the design team and owner agree on the design problem, window and glazing options can be evaluated. Issues to consider include:

- Heat gains and losses
- Visual requirements (privacy, glare, view)
- Shading and sun control
- Thermal comfort
- Condensation control
- Ultraviolet control
- Aesthetics
- Code
A. Specifying Windows and Glazings

To fully specify a window system, it is necessary to specify the following characteristics:

- **Window U-value**
- **Window Solar Heat Gain Coefficient (SHGC), or shading coefficient (SC)**
- **Glass Visible Transmittance (T_{vis-glass})**

For specific aesthetic and performance objectives the specifier may also wish to specify:

- **Tints (colors) and Coatings**

**U-Value**

U-value indicates the rate of heat flow due to conduction, convection, and radiation through a window as a result of a temperature difference between the inside and outside. The higher the U-factor, the more heat is transferred (lost) through the window in winter.

- The units of U-value are Btu per hour per square foot per degree Fahrenheit (Btu/h·ft²·°F).
- U-factors usually range from a high of 1.3 (for a typical aluminum-frame single glazing window) to a low of around 0.2 (for a multi-pane, high-performance window with low-emissivity coatings and insulated frames).
- A window with a U-factor of 0.6 will lose twice as much heat under the same conditions as one with a U-factor of 0.3.
- Total (or net) window U-factors can be considerably higher than the center-of-glass U-factors.

**Solar Heat Gain Coefficient (SHGC)**

SHGC indicates how much of the sun’s energy striking the window is transmitted through the window as heat. As the SHGC increases, the solar gain potential through a given window increases.

- The SHGC is a ratio between 0 and 1. SHGC = 0 means none of the incident solar gain is transmitted through the window as heat and SHGC = 1 means all of the incident solar energy is transmitted through the window as heat.
- A window with a SHGC of 0.6 will admit twice as much solar heat gain as one with a SHGC of 0.3. Windows with low SHGC values are desirable in buildings with high air-conditioning loads, while high SHGC values are desirable in buildings where passive solar heating is used. SHGC is relatively new and is intended to replace the term “shading coefficient (SC),” which is related; this shading coefficient of glass is defined as the ratio of the solar heat...
C. Other Attributes

Other important attributes of window and glazing systems include:

- **Gas Fills**—Inert gases such as argon and krypton are often injected between panes of glass to reduce conductive and convective heat transfer. These low-cost, gas fills reduce U-values without affecting shading coefficients or visible transmittance.

- **Fritting**—Deposited on ceramic coatings, or films, can be applied to the surface of glass in many different patterns, colors, and textures.

- **Safety and Security Glass**—Visit the North American Laminated Glays Information Center. It provides information on the applications and benefits of laminated architectural glass.

- **Retrofit Films**—For information on the pros and cons of retrofit films, visit Florida Solar Energy Center and Energy Stars.

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**APPLICATION**

**Case Study**

The State of Iowa Facilities Improvement Corporation (SIFIC) and the Mental Health Institute in Independence, Iowa joined forces to identify and implement energy management improvements. Among several strategies, the team installed more than $300,000 worth of energy-efficient windows. To date, the Institute has saved more than $100,000 annually in energy costs. More...

Argonne National Laboratory, Argonne, Illinois, is one of DOE's first buildings to pursue LEED certification by the U.S. Green Building Council. The design includes more than 15 building materials chosen for their recycled, renewable, or lower-emitting content. In addition, several energy conservation features, such as high-performance windows selective to west and north orientations, will reduce electric consumption by 20% and natural gas by 30%, lowering the building's greenhouse gas impact by 35 tons/year. More...

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**RELEVANT CODES AND STANDARDS**

Energy Star® Windows

National Fenestration Rating Council (NFRC) Certified Products Directory—Contains performance characteristics for window assemblies from most manufacturers.

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**RESOURCES**

- jig apples, Aesthetics, Section 07500, Joint Sealers
The two primary drivers for facility layout and functional space adjacencies in a fire station are the following:

1. Ensures that internal response times can be met (time for a firefighter to reach the apparatus and be ready to depart).
2. Separates the diverse and sometimes conflicting functions such as industrial maintenance spaces and residential spaces.

APPARATUS BAYS

By placing the apparatus bay between the maintenance and support functions and the residential and administrative functions, both primary layout goals can be accomplished. Some of the adjacencies shown alone may be accommodated through a hallway rather than a direct entrance from one space to another. This is particularly true with the apparatus bay and the day room as many facility spaces require an adjacency with these two spaces.

This approach to the layout can also accommodate expansion of the apparatus bay on the other side of the support and maintenance areas, although care must be taken to ensure that internal response times can be met after any expansion.

Since the apparatus bay is critical, it should be designed to accommodate variable.
Building Commissioning

Introduction
Building Commissioning is a rapidly emerging A/E/C project management practice that is being embraced by public and private organizations because of its benefits in improved project delivery results.

This section of WBDG organizes commissioning information, guidance, and resources under these broad principles, including: Commissioning Program and Planning, Commissioning Process, and Commissioning Code of Ethics. It is important to note that all these principles are applied over the life of a capital design and construction project and that it takes a multi-disciplined effort involving owners, design professionals, contractors, and commissioning providers to achieve optimal results from the commissioning process.

This WBDG page provides an overview of commissioning, drivers, benefits, goals, and principles and general commissioning guides, standards, and resources.

Definition

ASHRAE Guideline 0: The Commissioning Process defines commissioning as “a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria.” Commissioning is therefore an “umbrella” process for all the planning, design, construction, and management related to critical functions performed in or by facilities. Commissioning uncovers deficiencies in design or installation using peer review and field verification. Commissioning also accomplishes higher energy efficiency, environmental health, and occupant safety and improves indoor air quality. Commissioning is a quality assurance-based process that delivers commissioning and enables maintenance plans, training, and other documentation.
Construction Criteria Base (CCB)

Construction Criteria Base (CCB) is an extensive electronic library of construction guide specifications, manuals, standards and many other essential criteria documents. Published and updated continuously, CCB contains the complete unabridged, approved, current electronic equivalents of over 15,000 documents from participating federal agencies. CCB is the most effective tool available for finding and using current, approved U.S. construction criteria. Documents are available as Adobe® PDF files and some documents are also furnished by agencies in word-processing formats or in the SPECFACTS specification processing program used by the Army, NAVFAC and NASA. Documents are organized first into Libraries, then by Source and Category.

For document inquiries or additional information, please contact us either by phone at 877-CCBD-097 or by email at ccbupport@fbo.org.

Construction Criteria Base Index

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The Department of Defense (DoD) and the militaries have initiated a program to unify all technical criteria and standards pertaining to planning, design, construction, and operation and maintenance of real property facilities. The objective of the Unified Facilities Criteria (UFC) program is to streamline the military criteria system by eliminating duplication of information, increasing reliance on private-sector standards, and creating a more efficient criteria development and publishing process. Both technical publications and guide specifications are part of the UFC program. Previously, each service had its own publishing system resulting in criteria being disseminated in different formats. UFC criteria now have a uniform format and are identified by a number such as UFC 1-1306.

Though unification of all DoD criteria is the ultimate goal, each particular document may not apply to all services. The criteria are fully reviewed to reflect all service requirements.

In these instances, the UFC or UFDC (Uniform Facilities Design Criteria) document number will be followed by an alpha-designator, such as UFC 1-1306.09 or UFDC 0120.09. Alpha-designators are as follows:

A: USACE
P: Air Force
N: Navy
S: NASA

Starting April 2001, UFDC in MasterFormat™ 2004, have a numeric designator at the end of the document number, for example, LFDC 1122.21.19.40. The fifth numeric pair in this numbering system identifies it as an agency-unique section. If there is no fifth pair in the UFDC number, it is a unified section, the use by all services is governed.

The purpose of this Web site is to provide access to sustainable resources and report outcomes of the NAVFAC Sustainable Development Program to advance the program goals and objectives. For more information, contact NAVFAC.
Welcome to NAVFAC’s Sustainable Development Online Training!

This online training has been designed especially for NAVFAC’s Project Acquisition Team to help integrate principles of sustainable development into the acquisition process. Courses are tailored for each of the 13 project team members who comprise the facility development team.

The NAVFAC Business Lines - Project Team Members

- Environmental Specialist
- Real Estate Specialist
- Base Development
  - Facility Planner
  - Project Developer
- Capital Improvements
  - Project Manager
  - Cost Engineer
  - In-House Designer
  - Construction Management/Resident Office in Charge of Construction (ROCC)
- Public Works Specialist/Facility Manager
- Acquisition/Contract Specialist

Welcome Environmental Specialist!

This is your homepage for accessing the NAVFAC Sustainable Development Online Training!

OVERVIEW OF TRAINING:

The purpose of this course is to:

- Inform you about the importance of sustainable development to NAVFAC facility and infrastructure projects and
- Identify your role in ensuring the successful integration of sustainable development concepts during the project phases in which you are involved.

As an Environmental Specialist for a given facility project, you work to balance the installation’s natural and cultural resources with the Client’s Occupant’s facility requirements. While your main focus is on environmental compliance, your expertise in stormwater management, solid waste and recycling, clean air and water resources, hazardous materials, and/or historic preservation makes you a natural (no pun intended) champion for the overall sustainability of the project.

Throughout this training, you will learn about your key responsibilities in the facility life-cycle process related to sustainable development. These include:

- Provide technical consultation on site selection and facility disposal
- Advocate environmental and sustainability goals during project planning and programming
Introduction

Below Grade Systems
- Foundation Walls
- Floor Slabs
- Pumps, Tanks, Vaults

Wall Systems
- Cast-In-Place Concrete
- Exterior Insulation and Finishing Systems (EIFS)
- Masonry
- Panelized Metal
- Precast Concrete
- Thin Stone

Fenestration Systems
- Glazing

Design Disciplines

Fire Protection Engineering

Introduction

Fire protection engineers use science and technology to protect people and property from fire. When designing new buildings or renovating existing buildings, fire protection engineers develop the plans for the protection.

Fire protection engineering has evolved significantly over the past several centuries. Early application of fire protection engineering was intended to prevent configurations, which could cause destruction or injury. Until the early 1980s, the primary objective of the fire protection engineer was to limit a fire to its building of origin. As fire protection engineering advanced, this objective was refined to time a fire to its source or origin of fire.

However, it wasn't until the latter part of the 20th century that fire protection engineering had reached the point that it included the fundamental concepts of a science, professional disciplines (1981).

Introduction

As directed in EO 13423, the Interagency Sustainability Working Group has developed this technical guidance to assist agencies in meeting EO goals and statutory requirements. This technical guidance includes clarification of requirements, related mandates, additional recommendations and considerations; and resources for implementation, including model contract and specification language by the Federal/Owner Construction Guide for Specifications.

The ISWG shall review the Guiding Principles and Technical Guidance periodically for updates and to consider adopting additional principles or goals addressing issues such as conservation plantings, integrated pest management, deconstruction, and string.

Notice - High Performance and Sustainable Buildings Guidance

New guidance on High Performance Federal Buildings was issued December 6, 2008. It includes revised Guiding Principles for new construction, new Guiding Principles for existing buildings, clarification of reporting guidelines for enhancing information on the sustainability data element (SDE) in the Federal Real Property Profile, and an explanation of how to calculate the percentage of buildings and square footage that are compliant with the Guiding Principles for agencies’ scorecard input. The ISWG will be updated in the coming months to reflect these changes.

A set of answers to frequently asked questions (FAQs) on this guidance is also provided below. These FAQs are based on comments received during the development of this guidance, and will be updated as necessary.

- High Performance and Sustainable Buildings Guidance - PDF
- High Performance and Sustainable Buildings Guidance - Comment Resolution Summary (PDF)

To begin, select a topic:

CORE GUIDANCE TOPICS
Integrated Design
Commissioning
Energy Efficiency
Measurement & Verification
Indoor Air Quality
Outdoor Water Conservation
Stormwater Runoff Mitigation
Vacculation & Thermal Comfort
Moisture Control
Daylighting
Low-Emitting Materials
Protecting LEED During Construction
Recycled Content
Green Building
Construction Waste
Green Building Components

SUPPORTING GUIDANCE
General Information
Renewable Energy & Green Power
Operations & Maintenance
Chemicals of Concern
Indoor Noise
Sustainability in Real Estate
Creative Financial Strategies & Lifecycle Costing
Making the Environmental Case
Leverage Assessment
EMG Integration
Selecting LEED Contractors
Minor Alterations & LEED-ER
Security and Sustainability
Working with GSA—Leasing
Utilizing Building Information Modeling (BIM)

E.O. 13423 Technical Guidance Five Guiding Principles

The five Guiding Principles address:
• Employing integrated design;
• Optimizing energy performance;
• Protecting and conserving water;
• Enhancing indoor environmental quality; and
• Reducing the environmental impact of materials.

To build from this and other accomplishments and to pave the way for future success, the President signed Executive Order 13423 "Strengthening Federal Environmental, Energy and Transportation Management" on January 24, 2007. This Executive Order (EO) consolidates and strengthens a number of prior EOs by establishing new and updated goals, practices, and reporting requirements for environmental, energy, and transportation performance and accountability.

In the area of sustainable design and high performance buildings, the new EO makes mandatory the five Guiding Principles of the MOU for all new construction and major renovations and sets an aggressive goal for applying these practices to existing capital assets over the next decade.
Sustainable Buildings Industry Council

CONTINUING EDUCATION

Courses
- WBDG1: The Integrated Design Process
- WBDG2: Whole Building Approach to Libraries
- WBDG3: Planning for Secure Buildings
- WBDG4: Optimizing Operations and Maintenance (OAM)
- WBDG5: Daylighting Principles and Strategies for Sustainable Design
- WBDG6: Sustainable Roofing Design Considerations and Applications
- WBDG7: Lighting, Evaluating, and Reducing Green Products
- WBDG8: Principles and Goals of Accessible Design

WBDG CONTINUING EDUCATION

Welcome to the WBDG continuing education system. The WBDG database contains a wealth of information and is your gateway to up-to-date information on integrated Whole Building Design Techniques and Technologies. The courses featured offer an introduction to whole building design concepts as well as more specific applications for design objectives, building types and operations and maintenance.

The content of the WBDG has been developed by top experts in the fields of architecture, engineering, planning, and facility management, among others. You can be assured that the information is up to date and relevant and will inspire you to engage in the practice of whole building design contributing to the stock of America’s building.

Distance education is a great and very convenient way for architecture, engineering, and building design professionals to gain valuable knowledge about whole building design while earning continuing education credits. As a registered CES provider, the WBDG CES system is a source of AIA Continuing Education System learning units for registered architects. AIA members will receive their learning units and certificate of completion upon passing the course tests and completing an evaluation form and filing out an affidavit. Other building design professionals will receive a certificate of completion for approval and processing with their professional organization upon passing the course test and completing an evaluation form and filing out an affidavit.

Enroll now or log in to begin taking a class with the WBDG Continuing Education System.

COURSES

WBDG1: THE INTEGRATED DESIGN PROCESS

This course will introduce you to the concepts of whole building design and the elements of an integrated design process.

NEW! Sustainable Design

Becomes a Mandatory Continuing Education Requirement for AIA Membership

The AIA Board of Directors has mandated the AIA – member continuing education requirement to include 8 hours of education in sustainable design as part of the existing 18-hour annual requirement. This sustainable design requirement goes into effect on January 1, 2002. The AIA will extend this requirement through 2007.

About the Requirement

Sustainability has been a focal point of architectural practice for over thirty years, and the AIA has provided resources and tools to assist its members in better serving their clients and communities through environmentally responsible projects. The AIA Board of Directors recognized that the need to adapt to this challenge and as an expression of their support for the Council on Sustainable Practice, the AIA Board has mandated that all AIA members must complete at least 8 hours of continuing education in sustainable design and that these courses must be offered by Continuing Education System (CES) providers who offer sustainable design courses.

Resources For AIA Members

This sustainable design mandatory continuing education requirement is for AIA membership renewal. However, some states may also have state continuing education requirements in addition to AIA. For verification of a specific state’s mandatory continuing education (MCE) requirement, please contact the state licensing board directly.

- AIA/CES Member FAQs
- AIA/CES Provider FAQs

Resources For AIA/CES Providers

- AIA/CES Provider FAQs
- Guidelines for Approving AIA/CES Sustainable Design (SD) Courses
- Resources for Developing SD Qualifying Programs

General Resources

- AIA/CES Provider FAQs
- Guidelines for Approving AIA/CES Sustainable Design (SD) Courses
- Resources for Developing SD Qualifying Programs
Charrettes/Project Team Meetings

- A high-performance building cannot be achieved unless the integrated design approach is employed.
- Conduct charrettes & project team meetings from concept through planning, design & construction (include O&M folks)
- Use the Whole Building Design Guide as a tool to achieve high-performance buildings
Emerging Issues

- Building Information Modeling (BIM)
- Design for deconstruction
- Smart building technology
- Passive Survivability
- Focus on Existing Buildings
- Carbon footprint / greenhouse gas reduction
- Net Zero Energy Buildings
Let’s check out the WBDG!

Be sure to visit the site when you start your next project!

www.wbdg.org

Thank you for your time!

QUESTIONS??

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