Whole Building Design Guide

Energy 2003 Workshop

CCB/WBDG/NGS Relationship

CCB/WBDG Board of Direction

- Office of Secretary of Defense
- Naval Facilities Engineering Command
- Army Corps of Engineers
- Air Force
- General Services Administration

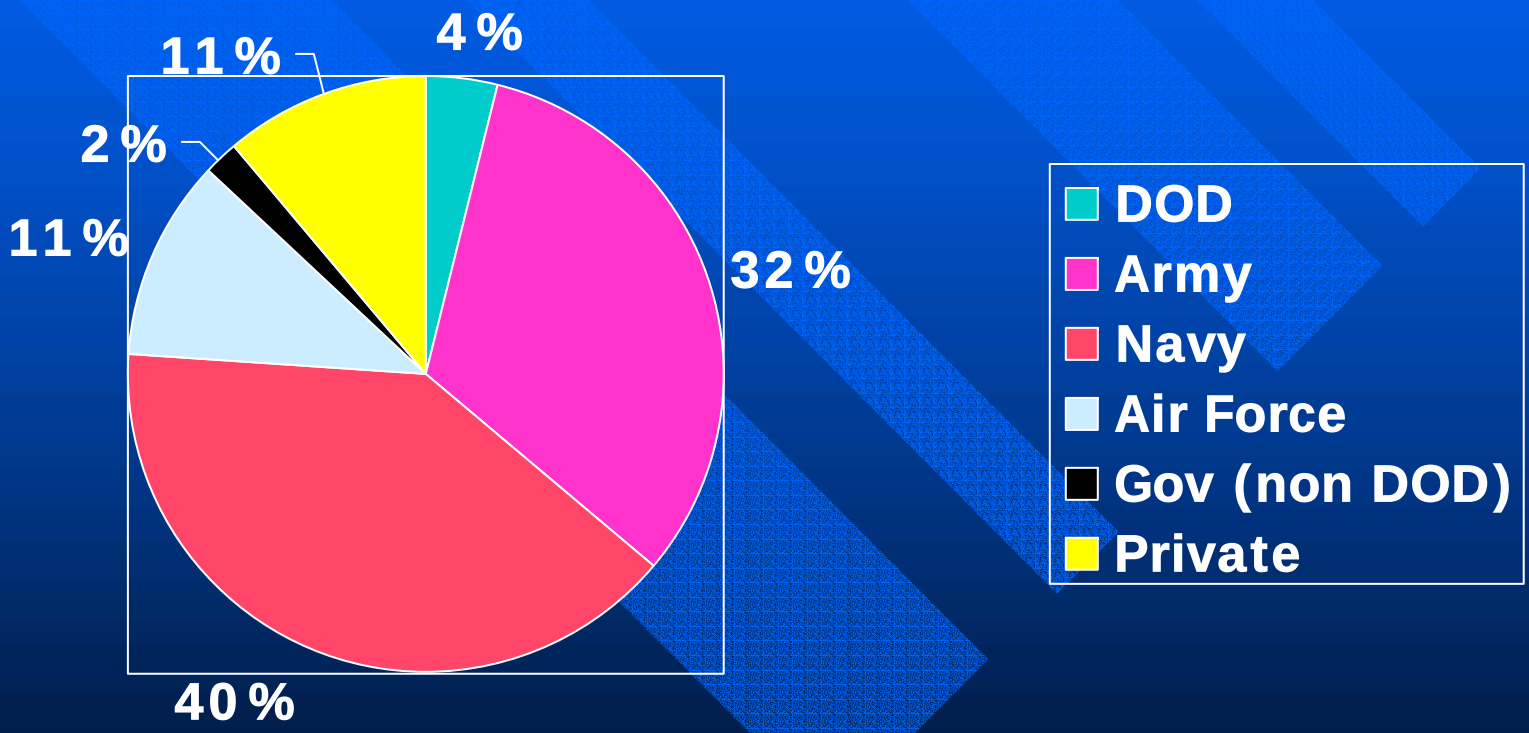
CCB/WBDG Advisory Committee

- Department of Defense
- Naval Facilities Engineering Command
- Army Corps of Engineers
- U.S. Air Force, AFCESA
- General Services Administration
- Department of Veterans Affairs
- National Aeronautics and Space Administration
- Federal Emergency Management Agency
- National Institute of Standards and Technology
- Department of Energy
- Department of State
- National Institutes of Health
- U.S. Access Board
- Department of Interior
- Environmental Protection Agency

Construction Criteria Base (CCB)

- Criteria distribution system for
  - Army Corps of Engineers
  - Naval Facilities Engineering Command
  - Air Force
  - Guard and Reserve Units
  - General Services Administration
  - USCG, NASA and others
- CD-ROM, DVD, Internet website
- Over 12,000 documents
- Over 13 years
- Approximately 6000 offices
- Approximately 38,000 users

CCB User Base



WBDG Goal

… to provide a web portal for the ***uniform access and use*** of facility information in a ***knowledge based*** management environment.

WBDG Objectives

- ***Effective implementation of unified facilities criteria*** allowing for the sharing and consolidation of criteria, procedures and dissemination.
- ***Partnering and integration*** of public and private sector efforts through the appropriate integration of the best federal/private sector criteria
- ***Centralized Knowledge Portal*** providing single point access to criteria

WBDG Objectives

- ***Efficient Resource Implementation*** promoting broad use of unified/consolidated criteria
- ***Reduced Life Cycle Cost of Criteria & Facilities*** through shared criteria development, reduced criteria development and distribution costs and facilitated criteria review and revision
- ***Knowledge Management Model*** allowing for an integrated search through all public and private sector criteria
- ***Innovative Use of Information*** through the application of Resource Pages which provide expert generated information on emerging technology and key topics

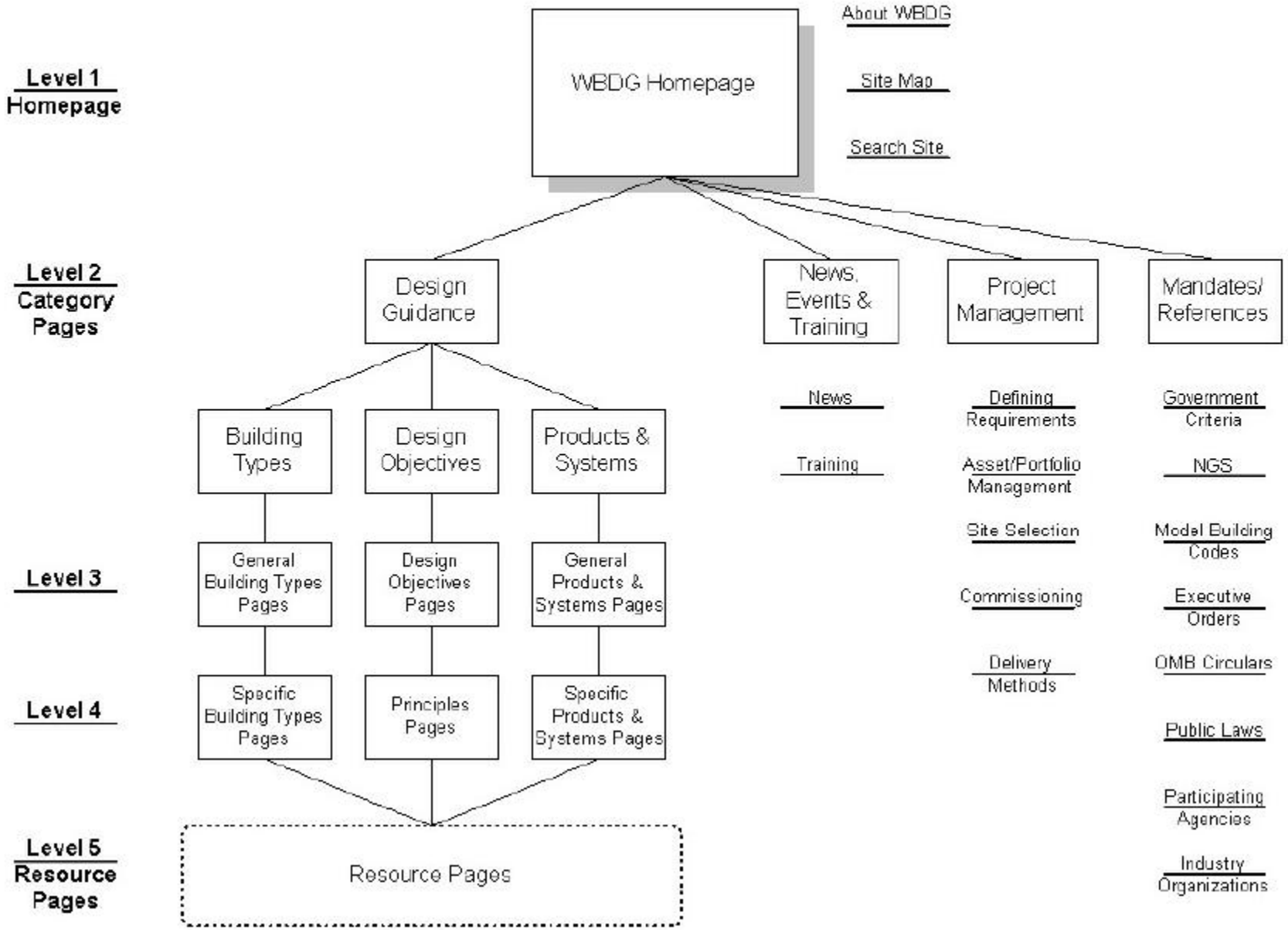
WBDG Funding Support

- Army Corps of Engineers
- Naval Facilities Engineering Command
- US Air Force
- General Services Administration
- Department of Energy (FEMP)
- Department of Veterans Affairs
- Environmental Protection Agency

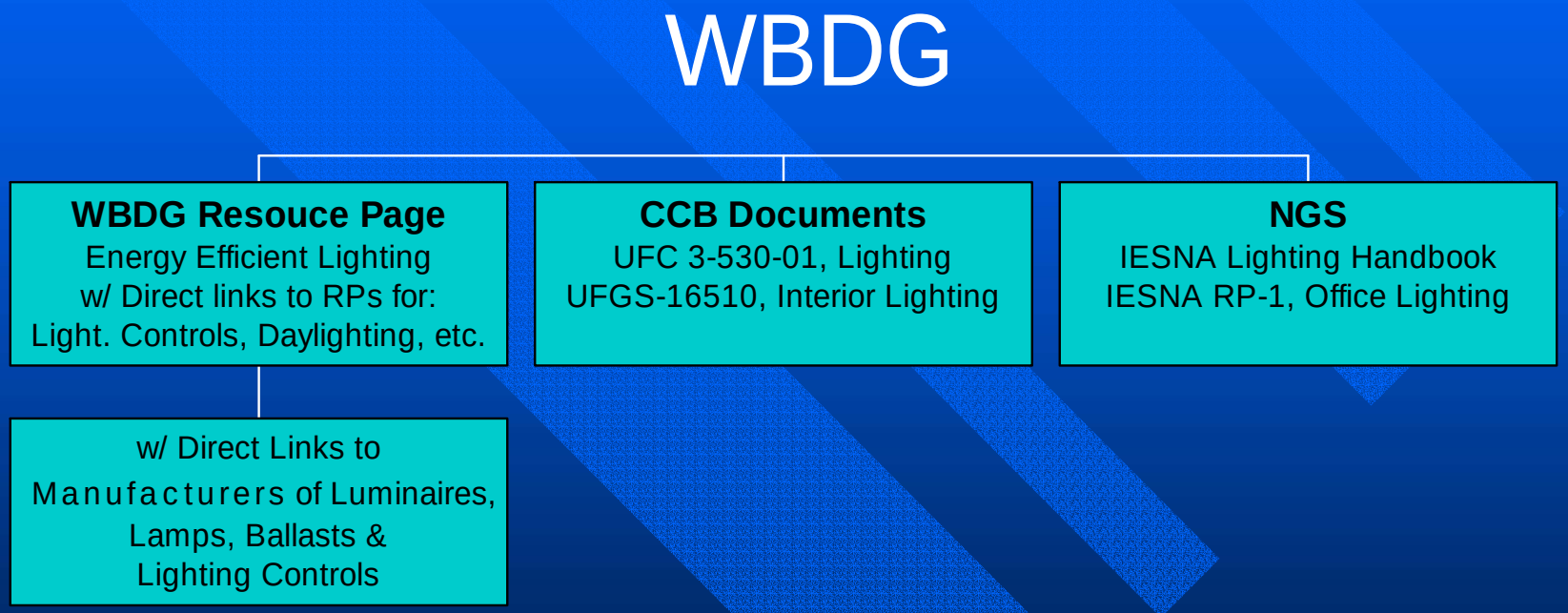
Whole Building Design Guide

www.wbdg.org

19 September 2002



Linear Criteria Access Example



BuildingSciences
A PUBLICATION OF THE NATIONAL INSTITUTE OF BUILDING SCIENCES
VOLUME 24 MARCH 2000

DOE Secretary Richardson Recommends Whole Building Design Guide

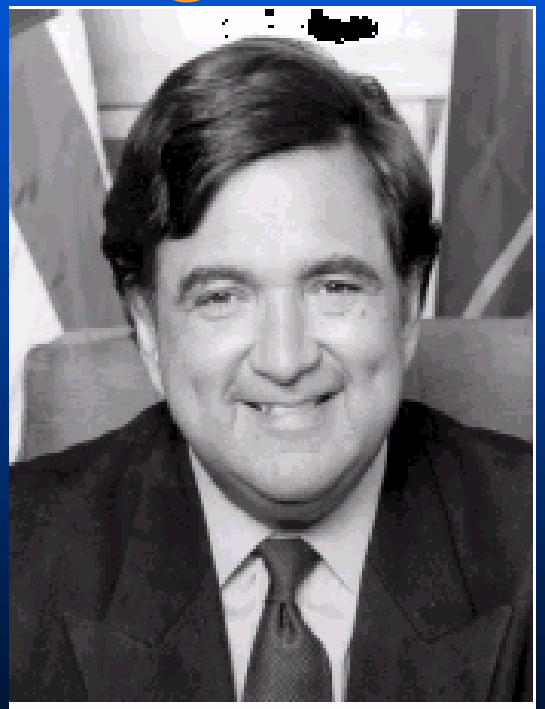
As a part of the federal government's effort to design and construct facilities with greater energy efficiency, Secretary of Energy Bill Richardson has recommended to the heads of all federal agencies that they and their agency staffs use information on sustainable building design available on the Whole Building Design Guide (WBDG) web site. The web site is maintained by NIBS.

Secretary Richardson's announcement provides a major boost to the effort to provide all federal agencies and military services with information that will make government buildings sustainable. This is a primary objective of President Clinton's green buildings initiative.

On June 3, 1999, President Clinton signed into law Executive Order 13123 "Greening the Government Through Efficient Energy Management." It calls for federal agencies to improve the energy efficiency of their buildings, promote the use of renewable energy, and reduce greenhouse gas emissions associated with energy use in federal buildings, among other energy-related requirements. It also requires federal agencies to develop a variety of guidance, criteria, tools, and other information for implementing the federal order.

One section of the Executive Order requires the Department of

WHOLE BLDG. continued on p. 5



Secretary Richardson

In buildings, *sustainability* must be achieved in concert with these other design objectives:

- ***Safe***
- ***Durable***
- ***Cost-Effective***
- ***Sustainable***
- ***Functional***
- ***Productive***
- ***Accessible***
- ***Aesthetic***

WBDG
Whole Building Design Guide

ABOUT WBDG | SITE MAP | SEARCH SITE: GO

- News, Events & Training
- Design Guidance
- Project Management
- Mandates / References

Browse the libraries of:

CONSTRUCTION CRITERIA BASE

IHS

Welcome to the Whole Building Design Guide

A Building Professional's Gateway to Up-to-Date Information on Integrated, 'Whole Building' Design Techniques andTechnologies



Participating Agencies:

WBDG Focus On

SECURITY

Browse through these and other pages to find out more about how security affects the overall function of a building and its design:

Design Objecives: Secure/Safe

- Provide Security for Building Occupants and Assets
- Balancing Security/Safety & Sustainability Objectives
- Glazing Hazard Mitigation
- Security and Safety in

The "Whole Building" Design Approach

The goal of 'Whole Building' Design is to create a successful high-performance building. To achieve that goal, we must apply the integrated design approach to the project during the planning and programming phases. It is necessary for the people involved in the building design to interact closely throughout the design process. The client, including building occupants and operation and maintenance personnel, should also be involved to get their buy-in to the design approach and their understanding of how their building and its systems will work for them once they occupy it. The fundamental challenge of 'whole buildings' design is to understand that all building systems are interdependent. More

Sustainable

by the WBDG Sustainable Committee

View resource pages linked to this topic GO

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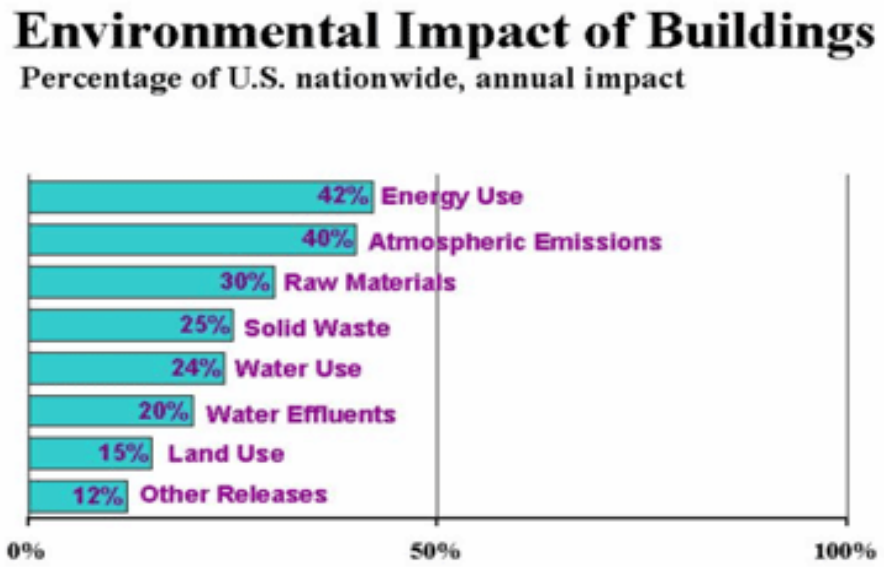
Overview

Building construction and operation has an enormous direct and indirect impact on the environment, as illustrated in the figure below. As economy and population continue to expand, designers and builders face a unique challenge to meet demands for new and renovated facilities that are accessible, secure, healthy and productive while minimizing their impact on the environment.



(Source: Worldwatch Institute & U.S. EPA

Recent answers to this challenge call for an integrated, synergistic approach that considers all phases of the facility life cycle. This "sustainable" approach supports an increased commitment to environmental stewardship and conservation, and results in an optimal balance of cost, environmental, societal and human benefits while meeting the mission and function of the intended

Minimize Energy Consumption

by the WBDG Sustainable Committee

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Overview

On an annual basis, buildings consume over 40% of America's energy and produce nearly 40% of our greenhouse gas emissions. Currently, the vast majority of this energy is produced from nonrenewable, fossil fuel resources. With America's supply of fossil fuel dwindling, our concerns for energy security increasing, and the impact of greenhouse gases on world climate rising, it is essential that we find ways to reduce load, increase efficiency and utilize renewable fuel resources in federal facilities.

The Solar Energy Research Facility (SERF) showcases passive solar design strategies and renewable energy systems such as daylighting, a trombe wall and photovoltaics. National Renewable Energy Laboratory—Golden, CO. (Courtesy of NREL)

During the facility design and development process, building projects must have a comprehensive, integrated perspective that seeks to:

Fuel Cell Technology

by Robert Wichert
Breakthrough Technologies Institute & U.S. Fuel Cell Council

Introduction

Fuel cell power systems are quiet, clean, highly efficient on-site electrical generators that use an electrochemical process-not combustion-to convert fuel into electricity. In addition to providing power, they can supply a thermal energy source for water and space heating, or absorption cooling. In demonstration projects, fuel cells have been shown to reduce facility energy service costs by 20% to 40% over conventional energy service.

First discovered in the early 19th century, fuel cell technology remained a laboratory experiment until space exploration required a new energy source. In the 1960s, NASA dramatically advanced fuel cell technology for use in American space vehicles, using hydrogen fuel. Current land-based fuel choices include natural gas, propane, methane gas from landfills, anaerobic digester gas, methanol, and hydrogen.

Installation of Five PC25TM Fuel Cell Power Plants at Regional USPS Mail Processing and Distribution Facility in Anchorage, Alaska for assured-power (Courtesy of International Fuel Cells)

At present, there are only a few companies that manufacture fuel cells commercially for building applications. Nevertheless, interest in the technology is intense and demonstration plants are being

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WBDG Demonstration

Sustainability

www.wbdg.org