

TRADE/TECHNICAL ASSOCIATIONS

Publications/Reports

Breathing Clean: How Air Filters Provide Cleaner Living

Produced by the Air Conditioning and Refrigeration Institute publication

5 pages - <http://www.ari.org/brochures/>

Homes and apartments are more energy-efficient than ever before. But along with energy efficiency has come another problem: dirty air trapped inside tight buildings. The air conditioning industry has produced this pamphlet to help consumers clean interior air and learn ways to further cut cooling costs.

Heat, Cool, Save Energy with a Heat Pump

Provided by the Air Conditioning and Refrigeration Institute

7 pages - <http://www.ari.org/brochures/>

This pamphlet describes how heat pumps work, how they are effective, and how they protect the environment.

Air Conditioning and Refrigeration Institute Standards for Recovery/Recycling Equipment Performance and Refrigerant Purity

By David Godwin, P.E., the Air Conditioning and Refrigeration Institute

September 15, 2000

5 pages - <http://www.ari.org/std/presentations/>

ARI Standard 700 was first introduced in 1988 to set a limit on the amount of allowable contaminants in new and reclaimed refrigerant. ARI Standard 740 establishes a common method of testing and rating recovery and recycling equipment. This paper provides an overview of ARI Standard 700, *Specification for Fluorocarbon Refrigerants*, and ARI Standard 740, *Refrigerant Recovery/Recycling Equipment*.

Use of Energy Efficient Products as a Measure for Responding to Climate Change

By Mark Menzer, Air Conditioning and Refrigeration Institute

6 pages - http://www.ari.org/rt/presentations/cfc_tewi.html

This paper examines how the replacement of current products with higher energy efficiency products can contribute to reduced greenhouse gas emissions, using air-conditioning and refrigeration equipment as a case study. The paper illustrates that the use of higher energy efficiency equipment has a greater effect on the environment than emissions of greenhouse gases by the equipment. The paper concludes that the utilization of higher energy efficiency products is, and will continue to be, a feasible means of reducing greenhouse gas emissions and one which yields greater gains than efforts to limit direct emissions from equipment.

Distributed Generation: Fuel Cells Deliver High-Quality Power, in Critical Applications

November 13, 2000

6 pages - <http://www.aga.org/Publications/DistributedGeneration/>

This paper discusses fuel cell use in today's information age and describes, among other topics, system design and performance.

Microturbines Promise Major Advances in Efficient Energy Sources

Provided by the American Gas Association

June 29, 2000

4 pages - <http://www.aga.org/Publications/>

As deregulation of the electric industry expands throughout North America, industrial consumers with power needs as low as 30 kW are actively investigating on-site electric power generation. Packaged units employing microturbines fueled by natural gas are among the most promising options.

Demystifying Green Buildings

By David Gottfried, president of Gottfried Technology, Inc. and co-founder of the U.S. Green Building Council

6 pages - <http://www.usgbc.org/resource/articles.htm>

The goal of green building construction is to design, construct, and operate aesthetic buildings that meet all of the occupants' needs while performing at optimum efficiency. The ultimate cost does not have to be more; rather the design should be more efficient. Green buildings have three main components: energy efficiency, resource efficiency, and worker health. This paper describes green construction techniques, the operation and management of the building and its occupants, national green building activity, and the use of environmental materials.

Building Connecticut Leadership in Green Buildings and Clean Energy: A Report to Connecticut Innovations

By Greg Kats, Capital E

April 2001

23 pages - <http://www.resourcesaver.com/file/toolmanager/O59F10808.PDF>

This analysis and report was commissioned by Connecticut Innovations to provide a set of program and funding recommendations to help Connecticut accelerate its investment in clean energy and promote the construction of green buildings. Connecticut Innovations asked for a set of linked proposals to help Connecticut achieve regional and national leadership in supporting clean energy and more environmentally-friendly design and energy efficient buildings. This analysis was shaped by Connecticut's specific attributes and needs and was developed in consultation with numerous leading experts in Connecticut as well as at national organizations.

Program Descriptions

Thirty Fuel Cells Serve U.S. Defense Bases

June 30, 2000

6 pages - <http://www.aga.org/Publications/DistributedGeneration/>

This document describes the use of fuel cells to provide electricity to Department of Defense facilities in 17 states. This program saves money for the Federal government by reducing electric bills. The chief advantages of fuel cells, as discovered in the program, are their high efficiency and low emissions as well as quiet operation and excellent power quality.

ARTI 21-CR – Focusing on Industry Needs

Produced by the Air Conditioning and Refrigeration Technology Institute

9 pages - www.ari.org

This program report describes a private-public sector collaboration for the HVACR industry. The mission of the HVACR Research for the Twenty-First Century (21-CR) program is to identify, prioritize, and undertake pre-competitive research that decreases energy consumption while improving indoor environmental quality within buildings. The effort seeks to foster an environment where technical barriers are identified, solutions investigated, and information shared.

HVAC&R Research for the 21st Century (21-CR)

Released by the Air Conditioning and Refrigeration Technology Institute

July 16, 1997

Updated October 28, 1998

32 pages - <http://www.arti-21cr.org/>

This document describes the results of the heating, ventilation, air conditioning, and refrigeration research mission with a theme of harmonizing energy efficiency, comfort, and environmental concerns with technical objectives that support the U.S. National Construction Goals.

HVAC&R Research for the 21st Century: 21-CR Research Compendium, Identification of Current 21-CR Research Projects

Released by the Air Conditioning and Refrigeration Technology Institute

July 3, 2001

20 pages - <http://www.arti-21cr.org/>

This publication describes 21-CR research projects in alternative equipment, equipment energy efficiency, system integration, indoor environmental quality, and working fluids.

Articles

Ventilation Systems Result in Healthy Building Design

By William Turner, MS, PE, vice president of the Indoor Air Quality Services Division of The H.L. Turner Group, Inc.

5 pages - <http://www.edcmag.com/>

This article discusses HVAC healthy building design, material selection and application, and office building economics and includes healthy building case studies.

Green Business: Next Generation 'Green Teams'

By Kristin Ralff Douglas, Editor, EDC

4 pages - <http://www.edcmag.com/>

Based on the success of one well-known firm, sustainable consulting divisions may well become a model for future “green teams” looking for a competitive edge. This article includes sections on expanding services for existing clients, broadening a client base, increasing revenue streams, and maintaining a competitive edge.

Controlling Respirable Particulates

By George Benda, Chairman and CEO, Chelsea Group, Ltd.

1 page - <http://www.acca.org/environment/IAQ/control.asp>

Controlling respirable particulates is not only big business for the outdoor air, but is an important consideration for HVAC professionals and has tremendous potential for companies that develop and market filtration products for indoor air.

The Future of IAG as an Industry

By George Benda, Chairman & CEO, Chelsea Group, Ltd.

1 page – <http://www.acca.org>

This article describes the themes that emerged from interviews with leaders of companies involved in heating, ventilation, and air conditioning. Two themes that emerged were markets for IAQ solutions are significantly under-penetrated compared with their potential and business opportunities for technology-driven solutions are fading.

Other available articles by George Benda:

Building Resilient Buildings and Homes

Energy Recovery Ventilation and IAQ

There's More to IAQ Than HVAC

Studies Show How Air Conditioning Equipment Efficiency Has Increased:

By Mark Menzer, ARI

1997

4 pages - <http://www.ari.org/rt/tu/1997/9710a.html>

Mr. Menzer's article examines how the air conditioning industry has made great progress over the past two decades in improving the efficiency of its products.

Distributed Generation: An Alternative Power Source for Air Conditioning and Refrigeration Needs

By Edward Reid, Jr., Executive Director, American Gas Cooling Center

Tech Update

November 1999

3 pages - <http://www.ari.org/rt/>

With the changing electricity market, many businesses are looking at generating electricity on-site for some or all of their electricity needs. Technologies such as fuel cells are making on-site generation a possibility for more than just huge industrial complexes. This article explains how customers may benefit by integrating distributed generation with their heating and cooling needs – possibly with different products than before.

Do Green Buildings Enhance the Well Being of Workers?

By Judith Heerwagen, Ph.D.

6 pages - <http://www.edcmag.com/>

This article examines a recent study conducted on the workers at the new Herman Miller SQA building in Holland, MI. The study provides strong evidence that enhanced habitability is associated with increases in psychological and social well-being.

Association Report: Moving LEED into the New Millennium

By Rob Watson, LEED Committee co-chair, U.S. Green Building Council

2 pages - <http://www.edcmag.com/>

This article details the USGBC's aim to grow LEED as a business, develop improved rating criteria, and develop and enhance the LEED program.

Differentiation: A Key Business Strategy for ‘Green’ Design and Construction Firms
By Suzanne Lowe, President, Expertise Marketing

3 pages - <http://www.edcmag.com/>

A recent study shows an increasing number of sustainable design construction firms are gaining a competitive advantage through differentiating themselves in the marketplace. Ms. Lowe discusses such topics as the essential elements of strategic differentiation and reaping its rewards.

From One Owner to Another

By Kristin Ralff Douglas

2 pages - <http://www.edcmag.com/>

According to this article, building owners are a critical piece of the sustainability puzzle and, without them, our potential for change in the building industry is limited.

Highlights of Environmental Flooring

By John Sailer

7 pages - <http://www.edcmag.com/>

This article describes selected flooring products that can contribute to a healthy planet including bamboo, cork, resilient flooring, linoleum, wood, carpet, natural fiber carpet, and laminates.

The Launch of the First Industry Standard for Green Buildings

By Tom Paladino, President, Paladino Consulting, Inc.

5 pages - <http://www.edcmag.com/>

This article discusses the USGBC’s LEED rating, its development and field testing, and its benefits, including stimulating performance, encouraging flexibility, rewarding innovation, challenging the industry, and debunking myths.

Building for the Future: ‘Green Building’ Continues to Grow in Popularity, but Means Different Things to Different People

By Rob Smith, Special Reports Editor

Real Estate Quarterly

March 26, 1999

4 pages - <http://seattle.bcentral.com/seattle/stories/1999/03/29/focus1.html>

Mr. Smith’s article explains what sustainability means and describes what’s behind this ‘coming trend.’ He also describes sustainability’s incentives and some low-profile projects that have already taken place.

How Green is a Building? Council Takes the LEED in Providing an Answer

By Roger Lewis

The Washington Post

October 20, 2001

2 pages – www.washingtonpost.com

Mr. Lewis' article describes the USGBC's LEED rating system of assessing life-cycle sustainability in existing or proposed buildings.

Green Buildings Start at the Top

By Elizabeth Daniels, Building and Industry Resource Venture

September 15, 2000

3 pages - <http://www.djc.com/news/enviro/11113857>

This article provides background on and details of the benefits of "green roofing" initiatives in Seattle

Presentations

Industry Research: Benefiting Equipment Efficiency & Building IEQ

Presented by the Air Conditioning and Refrigeration Technology Institute at the ASHRAE Winter Meetings

Atlanta, GA

January 27-31, 2001 - <http://www.arti-21cr.org/present/2001/01jan-ashrae.pdf>

This presentation provides an overview of ARTI's industry research efforts, including background information on the initiative, the status of the program effort, and research focus areas. The presentation also details the research effort's mission, purpose, benefits, organizational structure, methods, focus areas, and scope.

Assessing the Human and Organizational Impacts of Green Buildings

Presented by Judith Heerwagen, Ph.D., Nancy Durbin, Ph.D., and Jennifer Macaulay, Ph.D. of the Pacific Northwest National Laboratory

<http://www.usgbc.org/resource/articles/miller.pdf>

It is generally believed that green buildings are good for the environment. However, little is known about the true costs and benefits of green buildings, especially their impacts on people and on organizations that invest in them. This presentation provides background information on the Green Building Benefits project and details on a case study resulting from this project.

Guidelines

A Facilities Manager's Guide to Green Building Design

By Walter Simpson, energy office for the University of Buffalo, SUNY

13 pages – www.appa.org/resources

This report provides guidance on topics including energy efficiency, defining green design, site restoration, renewable energy usage, passive heating and cooling, green power, building envelopes, and environmentally friendly building materials, among others.

Energy & Environmental Building Association Building Info Criteria

Produced by the Energy & Environmental Building Association

11 pages - www.eeba.org/infocentral/criteria.htm

This document summarizes the goals, objectives, and criteria EEBA has developed for energy and resource efficient buildings. These criteria provide guidance for design, construction, and comprehensive rehabilitation of low-rise residential and small commercial buildings with less than 20,000 square feet floor area.

Green Roofs: Stormwater Management from the Top Down

By Katrin Scholz-Barth, Director of Sustainable Design for the HOK Planning Group

9 pages – <http://www.edcmag.com>

This report guidelines and information on green roof construction materials, maintenance requirements, stormwater management, energy efficiency, urban ecology, costs, and funding, and incentives.

Greening the Building Codes

By David Eisenberg, Co-Director, Development Center for Appropriate Technology

2 pages – <http://www.edcmag.com>

In this essay, Mr. Eisenberg claims the green design, building, and sustainable development communities are not participating in the process of creating new codes. He then challenges this community to carefully examine the global implications of standard practice in the U.S. and become advocates for significant change.

Specifying Building-Integrated Photovoltaics

By Steven Strong, President, Solar Design Associates, Inc.

5 pages – <http://www.edcmag.com>

This report provides architects with general background information on the expanding array of BIPV options and how they are applied so that the right approach can be chosen for a particular application.

HVAC Design for Green Buildings: A Practical (and Provocative) Overview for HVAC Designers, Installers, and Operators

By William Bobenhausen, AIA, CSI and Devashish Lahiri, Engineer, Steven Winter Associates, Inc.

<http://www.usgbc.org/resource/>

This article provides guidance in a question and answer format on such topics as sustainable design obstacles, daylighting, key sustainable design strategies, HVAC system selection and performance goals, and design development and performance modeling, among others.

Guidelines for Creating Green Buildings: Establishing Green Design Systems

Published by Green Building for Pennsylvania's Future

23 pages - <http://www.gggc.state.pa.us/publictn/>

This publication provides guidance as well as checklists on green team building and goal setting, site selection, enclosure systems, mechanical systems, interiors, and materials.

Guidelines for Creating Green Buildings: Creating a Green Design Process

Published by Green Building for Pennsylvania's Future

13 pages - <http://www.gggc.state.pa.us/publictn/>

Traditionally the design process has been taught and practiced as a linear progression from design to construction to occupancy. Most decisions are driven by cost, time, and the quality of the product desired. When planning high performance green buildings, decision makers need to be aware of the connections between environmental stewardship and the life cycle cost implications of long term investments in building stock. This publication addresses design optimization, construction documents and specifications, bidding and construction, building commissioning, operations & maintenance,

Case Studies

Green on the Grand Office Building

3 pages

http://www.advancedbuildings.org/main_cs_gog.htm

Green on the Grand is a low-rise office building in completed in Kichener, Ontario, Canada in March 1996. It is the first building built to meet the requirements of Canada's C-2000 program. The four criteria of the C-2000 program guided building design: energy efficiency, minimal environmental impact, occupant health and comfort, and functional performance. Green on the Grand is recognized as a leading example of sustainable design.

Mountain Equipment Co-Op

6 pages

<http://www.advancedbuildings.org/>

This two-story retail store with warehouse component in Ottawa, Canada is the first retail building to comply with Canada's C2000 Green Building Standard. The building was designed using the C2000 integrated design team process.

Surrey Tax Centre

3 pages

<http://www.advancedbuildings.org/>

This building in Surrey, British Columbia, Canada was developed through a competitive design-build process. The Surrey Tax Building, completed in the fall of 1998, is a modern office accommodation that blends into the existing streetscape. The building plan emphasizes the use of daylighting and the need to convert the space to multiple-tenant usage in the future.

The Conservation Co-operative Housing Apartment Building

6 pages

<http://www.advancedbuildings.org/>

The Conservation Co-op building, a multi-unit residential building in Ottawa, Canada completed in November 1996, incorporates a wide range of innovative design, construction and operational features to improve energy efficiency, building durability, occupant health and comfort, and to reduce environmental impact.

Condominium at 77 Governors Rd.

3 pages

<http://www.advancedbuildings.org/>

Condominium at 77 Governors Rd. is a 6-story condominium in Ontario, Canada completed in the spring of 2000. The building brings higher-quality design and construction to the speculative condominium market. The building is intended to illustrate the benefits of sustainable approach to multi-unit residential design. In addition, the design of the building implements innovative solutions to the building envelope problems common in many multi-unit residential buildings. The building design will result in lower operating costs and better overall building performance.

YMCA Environmental Learning Centre

3 pages

<http://www.advancedbuildings.org/>

The YMCA Environmental Learning Centre is a youth camp and conference center completed in April 1995. The Center is intended to provide a place where the whole site

– buildings and surroundings – explores environmental values while not comprising convenience or comfort.

Paterson Walk

4 pages

<http://www.advancedbuildings.org/>

Paterson Walk, a 4-story, 23-unit apartment building in Ontario, Canada, is one of the first apartment buildings in Canada to be constructed from prefabricated wood-frame modules. Completed in February 1990, the building was assembled on site in just under seven days from wood frame modules that had been constructed in the Standards Association's Preserved Wood Foundation construction standard.

BC Tellus Building

3 pages

<http://www.advancedbuildings.org/>

The project included interior and exterior renovations to the 8-story office building in British Columbia, Canada. The building owner mandated that the existing building should be recycled and re-used, and that green strategies be incorporated. The building was constructed from cast-in-place concrete in the 1940s. Approximately 11,800m of office and equipment space was rehabilitated into office, retail/commercial, and presentation space.

Niigon: A Sustainable First Nation Community

3 pages

<http://www.advancedbuildings.org/>

The Niigon injection molding facility in Ontario Canada is a 2,400m facility housing up to 10 injection-molding machines. A major part of the design of this project is to provide site services (water, sewer, electricity, and heat) in an environmentally-appropriate manner.

Case Studies from the American Gas Cooling Center

<http://www.agcc.org>

McQuay Air Conditioning

December 1997

GTE Headquarters integrated an absorption chiller into its hybrid HVAC system to gain outstanding flexibility. The chiller has earned a 34% reduction in demand charges and has saved \$350,000 per year.

Tran

April 1996

For their new headquarters, federal energy regulators chose a natural gas absorption chiller as part of a hybrid HVAC system. They expect to save \$30,000 to \$40,000 annually on fuel costs.

York, Waukesha Dresse

October 1994

During the construction of Denver's new airport an energy study convinced officials to install a natural gas-fired cooling system. The facility has now achieved estimated annual savings of \$300,000 in operating costs.

Munter, Dry Cool

September 1993

The Walt Disney World Swan was experiencing a humidity problem that its electric water chiller system operating at full capacity could not solve. Two Munters dessicant wheel-based dehumidifiers are tackling the problem, and the chillers are now operating at 60 to 70 percent capacity.

York International Corporation

April 1994

When the National Audubon Society decided to turn a vacant, 100-year-old building into its headquarters, the most efficient use of space and energy had to be a key concern.

TecoFROST

April 1996

A California winery realizes a 2-year payback on its investment in a gas engine-driven refrigeration system for process cooling.

Onsite Electric Generation Creates Opportunity for Absorption Cooling; Merritt Square Mall Pleases Tenants with Low-Cost Cooling Through Heat Recovery
From the American Gas Cooling Center

3 pages – <http://www.agcc.org>

This case study features descriptions of how the mall's absorbers increase overall efficiency, how exhaust heat recovery increases cooling capacity, and the mall's potential for additional recovery.

'Whole Building' Approach to Sustainable Design
By Will Zachman, Passive Solar Industries Council

9 pages – <http://www.wbdg.org>

This report provides a compilation of case studies completed by various members of the Passive Solar Industries Council. The case studies illustrate a variety of techniques for completing environmentally responsible buildings. Featured case studies were prepared by John Spears, Sustainable Design Group, Inc.; Paul Torcellini, National Renewable Energy Laboratory; Judy Niemeyer, Tierra Concrete Homes, Inc.; Lance Davis, Cooper Lecky CUH2A, LLP; Chris Herman, Winter Sun Design; and Gar Bailey, AIA.

Green Building Environmental Control: A Case Study, Achieving Idealized Environmental Goals Under Real-World Circumstances

By David Gottfried; Ellis Schoichet, AIA, Director of Green Building Services, Gottfried Technology, Inc.; and Mitch Hart, Mechanical Engineer, McParlane & Associates, Inc. From *Heating/Piping/Air Conditioning* February 1997

7 pages - <http://www.usgbc.org/resource/articles/acasestdy.pdf>

This article presents an overview of the City of San Diego's Ridgehaven Green Building Demonstration Project. The article describes Ridgehaven's successes and attempts to provide insights into how to approach a green renovation project. The article also presents some of the difficulties that can be encountered during green renovation.

Continental Office Plaza Retrofit

By Kevork Derderian and Dennis Sobek, MERITT Green Building Services

9 pages - <http://www.usgbc.org/resource/>

MERITT audited this commercial office property in Des Plaines, IL and mapped out a renovation strategy employing a whole-systems approach to optimize results. Retrofits were done to all light fixtures and existing centrifugal chillers and a building automation system with variable speed drives and high-efficiency motors was added. This report includes background information, a description of the risks involved, cost breakdowns, and a description of the execution/implementation phase.

Miller SQA Building Case Study

8 pages - <http://www.usgbc.org/resource/>

This 295,000 square foot office, manufacturing, and distribution center in Holland, Michigan was designed to follow the contours of the site, is heated and cooled passively, and is equipped with a state-of-the-art ventilation system, among other features. This case study includes the building vision, construction techniques and processes, and sections on building economics, operation and maintenance, monitoring and performance assurance, and project benefits.

Environmentally Friendly Offices Showcase ‘Green’ Technology

The Associated Press

September 22, 2000

3 pages - <http://www.cnn.com/2000/NATURE/09/22/green.building.ap/>

This article describes energy efficient and sustainable design initiatives built into the construction of the Chesapeake Bay Foundation’s new headquarters. With these features built into its foundation, officials thought at the time that this structure would be one of the greenest office buildings ever built.

Audubon House, Building for an Environmental Future

6 pages - <http://www.audubon.org/nas/ah/>

Audubon House, headquarters of the National Audubon Society, is a restored and remodeled century-old Romanesque Revival loft building in Manhattan that serves as a model for the energy-efficient, environmentally responsible workplace. Achieved at market rates with readily available technology, the renovation of Audubon House demonstrated that environmentally conscious design can be both practical and affordable. The case study includes information on creating the model workplace, key statistics, energy efficiency measures, and a healthy indoor environment.

Tellus: Revitalization of an Office Building

4 pages – www.tellus.org

In order to create a strong presence in downtown Vancouver, Tellus launched a project to perform extensive interior and exterior renovations on an existing building while incorporating green strategies. The goal was to rehabilitate both the built form and internal occupancies of approximately 11,800 square meters of existing office and equipment space into office, retail/commercial, and presentation space. This case study includes a description of energy strategies, mechanical systems, the indoor environment, construction waste, and materials efficiency, reuse, and recycling.

GOVERNMENT AGENCIES

Publications/Reports

The Federal Network for Sustainability Annual Report 2000

Provided by the Federal Network for Sustainability

18 pages - <http://www.federalsustainability.org/>

The Federal Network for Sustainability promotes cost-effective, energy- and resource-efficient operations across all branches of government. FNS is a voluntary, non-regulatory group that relies on a shared vision, close cooperation, and carefully orchestrated teamwork to accomplish its mission. FNS' annual report details the network's business plan, training initiatives, and green purchasing efforts.

Improved Productivity and Health from Better Indoor Environments

Provided by Lawrence Berkeley National Laboratory

Center for Building Science News

Spring 1997

2 pages - <http://eande.lbl.gov/CBS/NEWSLETTER/NL15/productivity.html>

Recently completed analyses suggest that improving buildings and indoor environments could reduce health-care costs and sick leave and increase worker performance, resulting in an estimated productivity gain of \$30 to \$150 billion annually.

Report on Sustainable Design, Design for Maintainability and Total Building Commissioning

For National Aeronautics and Space Administration Facilities Engineering Division

March 7, 2001

39 pages

In response to EO 13123 requiring federal agencies to incorporate sustainable principles into federal facility projects, NASA Facilities Engineering Division chartered this study to define, research, and recommend implementing strategies for the three principles of sustainable design, design for maintainability, and total building commissioning. Other agencies and industries were contacted to identify best practices and lessons learned. In addition to a comprehensive literature search, current practices at ten federal agencies, seven industry organizations, 4 state or local organizations, and several architect and engineering firms were reviewed.

Electricity Used by Office Equipment and Network Equipment in the U.S.

By Kaoru Kawamoto, Jonathan Koomey, Bruce Nordman, Richard Brown, Mary Ann Piette, and Alan Meier, Lawrence Berkeley National Laboratory.

13 pages - <http://enduse.lbl.gov>

In spite of the recent explosive growth in the use of office equipment and network equipment, there has been no recent study that estimates in detail how much electricity is

consumed by that equipment in the U.S. This study examines energy use by office equipment and network equipment at the end of 1999. The study classifies office equipment into 11 types and, for each type, estimates annual energy consumption for residential, commercial, and industrial use by combining estimates of stock, power requirements, usage, and saturation of power management. Network equipment is also classified into 6 types with annual energy consumption estimates for each type.

Designing for Security in the Nation's Capital

Provided by the Interagency Task Force of the National Capital Planning Commission

October 2001

39 pages - <http://www.ncpc.gov>

This report summarizes the findings of the Task Force regarding both Pennsylvania Ave. in front of the White House and the design of security measures throughout the Monumental Core. Based on these findings, the Task Force outlines recommendations for an Urban Design and Security Plan that will promote the safety of those who live in, work in, and visit the Nation's Capital while preserving the openness and historic design that have made Washington an expression of American ideals and one of the world's most admired capital cities.

Building Better Buildings: A Blueprint for Sustainable State Facilities

Prepared by the Sustainable Building Task Force and the State and Consumer Services Agency

December 2001

49 pages - <http://www.ciwmb.ca.gov/GreenBuilding/TaskForce/>

This report provides common-sense recommendations that can potentially save taxpayers money and preserve California's natural resources. It responds to EO D-16-00, which California Gov. Gray Davis issued to ensure that state buildings are 'sustainable' and cost-effective.

Program Descriptions

The Green Building Program of San Jose

A program from the City of San Jose

Brochure - <http://www.ci.san-jose.ca.us/esd/gb-home.htm>

The Green Building program of San Jose offers the opportunity to create environmentally sound and resource efficient buildings and homes by using an integrated approach to design. The programs' applications include energy, water, health and safety, and materials and waste.

The Efficient Window Collaborative

Provided by Lawrence Berkeley National Laboratory

Center for Building Science News

Winter 1998

2 pages - <http://www.efficientwindows.org/>

The goal of the EWC, formed by the U.S. Department of Energy and other key players, is to double the market share of efficient windows by 2005. With 31 charter members from the window and glass industries, the EWC is managed jointly by the Washington D.C.-based Alliance to Save Energy and the Center for Building Science's Windows and Daylighting Group. The EWC serves as a focal point for voluntary public/private-sector efforts to promote energy-efficient products.

Energy and Ventilation Research in High-rise Apartments: The Chelsea Public Housing Study

Produced by The Chelsea Housing Authority

2 pages - <http://eetd.lbl.gov/CBS/NEWSLETTER/>

This report details the program's findings which illuminate the asymmetric nature of the air flows in high-rise buildings. The program team also studied the relative importance of the stair towers and elevator shafts and how they interact with both the mechanical and natural ventilation in the building.

California Integrated Waste Management Board (CIWMB) Overview of Sustainable Building Activities

Produced by the California Integrated Waste Management Board (CIWMB)

4 pages - <http://www.ciwmb.ca.gov/ConDemo/Pubs.htm>

The report describes current programs at the CIWMB including "Leadership in Energy and Environmental Design (LEED) Green Building Rating System," "Educate Landscaping Professionals," and "Sustainable Building Training Program," among others.

The NIST Green Building Program

By James Hill, Chief, Building Environment Division, National Institute of Standards and Technology

13 pages - <http://fire.nist.gov/>

NIST's current energy conservation programs broadly span the areas from waste minimization to air, soil, water, indoor air quality, ozone depletion, and global warming. Through The Green Building Program, NIST is at the forefront of designing buildings using environmentally safe materials. The program has two components: working directly with manufacturers and designers to develop technologies conducive to energy efficiency and demonstrating buildings that feature environmentally safe designs that serve as monuments to green technologies.

Development Center for Appropriate Technology (DCAT) Survey on Green Building and Building Codes

1 page - <http://www.dcat.net/Codes/codesurvey.htm>

DCAT, along with several other organizations, has developed a survey designed to identify specific areas in building regulations that pose challenges to best sustainable building practices. The purpose of this survey is to collect information on the experiences of both building code users and code officials in relation to more environmentally responsible building and the use of alternative designs, materials, and methods of construction related to efforts to make buildings more sustainable.

NASEO-State Cooperative Highlights

Provided by the National Association of State Energy Officials

December 2001

6 pages - <http://www.naseo.org/projects/default.htm>

This report provides highlights and information on some of NASEO's activities including heating oil and propane data collection, assisting states in reducing school energy costs, and energy efficiency market development and export promotion.

The Federal Network for Sustainability (FNS) Initiatives

Provided by The Federal Network for Sustainability

December 2001

4 pages - <http://www.federalsustainability.org>

This paper provides information on various energy efficiency projects of the FNS, including Green Federal Copier Paper, Green Power Procurement, Environmental Management Systems, and Electronic Products Stewardship.

Case Studies

Maintaining a Green Commitment

September 2001

7 pages - <http://www.edcmag.com>

As EPA learned through its new Research Triangle Park campus, maintaining a sustainable commitment requires careful construction detailing and specifications, performance tracking, green value engineering, and a partnership effort.

Value Engineering and Sustainable Design: Using Intelligent Design Tools to Create a World-Class Federal Courthouse

By Christine Grahl, Managing Editor, EDC

6 pages - <http://www.edcmag.com>

As demonstrated by the U.S. Courthouse in Seattle, value engineering can be applied to maximize both the sustainability and functionality of a building project.

Guidelines for Creating Green Buildings: Case Studies
Produced by Green Building for Pennsylvania's Future
13 pages - <http://www.gggc.state.pa.us>

This case study includes descriptions of green building initiatives at DEP Southcentral Regional headquarters, The CCI Center, Audubon at Beechwood, The Burke Building, Women's Human Society, Lovell Place, Saint Francis College, PCTA Headquarters, Penn Center West, Buchart Horn, The Intelligence Workplace, and the David Lawrence Convention Center.

Guidelines

High Performance Building Guidelines
Provided by the City of New York, Department of Design and Construction
April 1999
164 pages - <http://www.ci.nyc.ny.us/html/ddc/html/highperf.html>

These guidelines outline strategies and techniques that can help make New York “an environmental prototype for the 21st Century.” They set out a range of ‘best practices’ for planning, designing, constructing, and operating healthier, more energy – and resource – efficient facilities. Such high performance buildings can earn long term life cycle savings for New York City, and may also help stimulate the markets for environmentally efficient technologies.

Santa Monica Green Building Design & Construction Guidelines
Developed by Sheltair Scientific Ltd.
100+ pages - <http://greenbuildings.santa-monica.org/>

These guidelines include required and recommended practices that are intended to reduce life-cycle environmental impacts associated with the construction and operation of both commercial and municipal developments and major remodel projects in Santa Monica. They provide specific “green” design and construction strategies in the following topic areas: building site and form, landscaping, transportation, building envelope and space planning, building materials, water systems, electrical systems, HVAC systems, control systems, construction management, and commissioning.

Sustainable Building Implementation Plan
Provided by the California Integrated Waste Management Board
September 1999
17 pages - <http://www.ciwmb.ca.gov/GreenBuilding/>

This plan details a proposed implementation strategy for the measures recommended by the CIWMB Board in April 1999. The recommended measures include creating a sustainable building executive level committee, creating a grant program to further sustainable buildings in the state, and providing education, training, and guidelines development.

POLICY/PUBLIC INTEREST GROUPS

Program Descriptions

Public Housing Efficiency

**Provided by the Northwest Energy Efficiency Alliance Project Coordination
December 2001**

3 pages - <http://www.nwalliance.org/projects/current/pubhouse.html>

This project description provides details of the public housing efficiency venture which sought to demonstrate to public-housing authorities the benefits of life-cycle cost analysis and resource efficiency management services, and to put those into widespread practice to improve the efficiency of public-housing heating systems and appliances. The contractor worked with state and federal agencies to develop regional energy efficiency guidelines for public-housing projects.

Residential Central Air Conditioning and Heat Pumps

**Provided by the Consortium for Energy Efficiency (CEE)
December 2001**

15 pages - <http://www.cee1.org/resid/rs-ac/rs-ac-main.php3>

This fact sheet provides information on several of CEE's initiatives including its Residential Central Air Conditioning and Heat Pump Initiative; the Commercial, Family Sized Clothes Washer Initiative; the Residential Clothes Washers, the Super-Efficient Apartment-Sized Refrigerator (SEAR) Initiative; the State and Local Government Purchasing Initiative; the Residential Lighting Initiative; the High-Efficiency Residential Gas Heating Initiative; the Commercial and Industrial Transformers Initiative; the Super-Efficient Home Appliances Initiative; and the Motor Systems Initiative.

Northeast Green Building Awards

**Provided by the Northeast Sustainable Energy Association
December 2001- <http://www.nesea.org>**

This flyer describes NESEA's awards program for built projects completed after January 1, 1998 in the northeastern United States.

NBI Integrated Building Systems Project

**Provided by the New Buildings Institute
December 2001 – <http://www.newbuildings.org>**

This collection of documents describes the NBI Integrated Building Systems Project's initiatives. Informational papers are available on several of the initiatives including Integrated Design of Small Commercial HVAC Systems, Integrated Design of Large Commercial HVAC Systems, Productivity and Interior Environments, Integrated Design of Commercial Building Ceiling Systems; and Outdoor Lighting Baseline Assessments.

Northwest Energy Efficiency Alliance Project Coordination
Provided by the Northwest Energy Efficiency Alliance
December 2001 - <http://www.nwalliance.org/>

This series of fact sheets details several energy efficiency and sustainable design projects by the Northwest Energy Efficiency Alliance, including Architecture + Energy: Building Excellence in the Northwest (A+E), Building Operator Certification, and the Efficient Building Practices Initiative.

Northeast Energy Efficiency Partnerships Initiatives
Provided by the Northeast Energy Efficiency Partnership
December 2001 – <http://www.nEEP.org>

These informational sheets provide background information, initiative reports and files, and contact names for several of NEEP's energy initiatives, including Energy Codes, Residential HVAC, Residential Lighting, Residential Appliances, Customer Side Transformers, DesignLights Consortium, Commercial Unitary HVAC, the Building Operator Certification course, and Premium Efficiency Motors.

National Awards for Sustainability
Hosted by Renew America
3 pages - <http://www.renewtheearth.org/>

For nine years, The National Awards for Environmental Sustainability have recognized exemplary programs that show how to make communities more livable by integrating environmental protection, social equity, and economic progress. This fact sheet provides information on examples of model programs and details about the awards.

Fact Sheets

About ENERGY – 10 Software: Designing Low-Energy Buildings with ENERGY-10
Provided by the Sustainable Buildings Industry Council
December 2001
5 pages - <http://www.nrel.gov/buildings/energy10/>

This fact sheet describes SBIC's ENERGY-10 software, a powerful design tool that analyzes – and illustrates – the energy and cost savings that can be achieved through more than a dozen sustainable design strategies. Hourly energy simulations help quantify, assess, and clearly depict the benefits of daylighting, passive solar heating, natural ventilation, well-insulated envelopes, better windows, lighting systems, mechanical equipment, and more.

The Center for Resourceful Building Technology
Fact Sheets include:

<http://www.crbt.org/>

Post-Consumer Glass Construction

Small-Diameter Timber

Construction and Demolition Waste

Biobased Building Materials

Energy and National Security

Produced by the Northeast Sustainable Energy Association

8 pages – <http://www.nesea.org>

This document provides a summary of a roundtable discussion between NESEA members exploring where our nation should head and suggest ways for NESEA to address national security issues.

EVs and HEVs on the Market

Provided by the Northeast Sustainable Energy Association

13 pages - <http://www.nesea.org/transportation/evs/vehicles.php>

This report provides model names and descriptions of a variety of EVs and HEVs including the Honda Insight, the Chevrolet Tiix, the DaimlerChrysler EPIC Electric Minivan, and the Ford Motor Company Ranger EV, among others.

A Green Grand Tour

Produced by the Northeast Sustainable Energy Association

5 pages - <http://www.nesea.org/publications/NESun/>

In the fall of 2000, 5 NESEA members spent three weeks touring 34 of the most celebrated green buildings in Germany, Switzerland, Holland, and England. This fact sheet describes their observations.

Other Northeast Sustainable Energy Association Fact Sheets:

<http://www.nesea.org>

Superinsulated Houses

Solar Electricity

Solar Water Heating

Sun Spaces

Landscaping to Conserve Energy

Solar Energy Goes to School

Information About Sustainable Transportation

Eleven Easy Things You Can Do to Save Energy and Money at Home

Choosing or Improving a Heating or Hot Water System

How to Reduce Pollution from Appliances

Solar Energy for Homes

What to Look for When Choosing a Home

Why Electric Drive Vehicles Now?

Produced by the Northeast Sustainable Energy Association

5 pages - <http://www.nesea.org/transportation/info/evenvir.pdf>

This fact sheet describes how electric vehicles can help the environment. The fact sheet provides information on electric vehicles' ability to reduce greenhouse gas emissions as well as provide energy security and a better balance of trade.

Solar Energy and You

Produced by the North Carolina Solar Center

8 pages - <http://www.ncsc.ncsu.edu/fact/05solr&u.html>

This fact sheet provides information on home heating, passive solar houses, active solar houses, storing solar heat, backup heating systems, and other uses of solar energy.

Solar Energy: An Overview

Produced by the North Carolina Solar Center

12 pages - <http://www.ncsc.ncsu.edu/fact/11overvw.html>

Although public approval for solar energy is high, there is some confusion over just how it can be used as a substitute or supplement for conventional energy sources such as coal, oil, gas, and nuclear. There is a simple reason for that: though conventional fuel sources are typically used in only one way (combustion for the fossil fuels, reaction for nuclear), there is a variety of ways in which the sun may be used to provide energy. This fact sheet presents a brief overview of the major solar technologies, and provides references where more information may be found on each.

Summer Shading and Exterior Insulation: For North Carolina Windows
Produced by the North Carolina Solar Center
18 pages - <http://www.ncsc.ncsu.edu/>

This fact sheet provides details on window orientation, comparing exterior and interior products, exterior window options to reduce winter heat losses, replacement windows, exterior window options to reduce summer heat gain, and contact information for more information.

Decorating Your Passive Solar Home: Balancing Energy and Aesthetics
Produced by the North Carolina Solar Center
13 pages - <http://www.ncsc.ncsu.edu/>

Harnessing the sun's energy with a passive solar design can mean substantial savings on utility bills. All that extra heat and sunlight can also pose some decorating challenges. This fact sheet describes floors, furniture, fabrics, accessories, and special problems that might be encountered.

Sources of Solar Home Plans
Produced by the North Carolina Solar Center
5 pages - <http://www.ncsc.ncsu.edu/>

The purpose of this fact sheet is to provide a list of planbooks that include passive solar home designs. The publication title is listed followed by ordering information and a very brief description.

Sunspace Design Basics
Produced by the North Carolina Solar Center
12 pages - <http://www.ncsc.ncsu.edu/>

This publication addresses the basic elements of sunspace design: design considerations for supplemental space heating, growing plants, and use as a living space; design guidelines including siting, heat distribution, and glazing angles; and major sunspace components including glazing options, thermal mass, insulation, and climate controls. A list of books for more information is also included.

Passive Cooling: For Your North Carolina Home
Produced by the North Carolina Solar Center
16 pages - <http://www.ncsc.ncsu.edu/>

As energy costs rise, and the public becomes more aware of the environmental damage arising from current energy use patterns, more people are looking into passive or active solar heating as a way of reducing the amount of energy used in their home. In most of North Carolina, just as much energy, if not more, may be used for cooling in summer. Thus, a properly designed home in North Carolina, whether it is solar or not, should be designed to require a minimum amount of energy for cooling in the summer. This fact

sheet discusses the major passive and low-energy cooling methods applicable to North Carolina homes.

Energy-Saving Landscaping

Produced by the North Carolina Solar Center

11 pages - <http://www.ncsc.ncsu.edu/>

This fact sheet provides information on methods of blocking out the summer sun, encouraging warming solar radiation in winter, deflecting winter winds, and channeling breezes for cooling. Also included in the fact sheet is a checklist for energy-saving landscaping.

Selecting a Site: For Your Passive Solar Home

Produced by the North Carolina Solar Center

4 pages - <http://www.ncsc.ncsu.edu/>

Included in the fact sheet is information on passive solar houses, solar access zones, what makes a good solar site, easements and covenants, and tips for solar lot hunting.

Passive Solar Home Design Checklist

Produced by the North Carolina Solar Center

8 pages - <http://www.ncsc.ncsu.edu/>

Many homeowners in North Carolina are taking advantage of the sun's energy to improve the quality of their daily lives. Passive solar concepts are not difficult to apply, but require consideration from the preliminary stages of design to be most effective. This checklist is presented as a planning tool, with references to other, more complete sources.

Passive Solar Options: For North Carolina Homes

Produced by the North Carolina Solar Center

7 pages - <http://www.ncsc.ncsu.edu/>

The passive solar home should always be built to high energy conservation standards. It must also be carefully planned and designed to balance the glass area and the storage mass. Otherwise, the house may overheat, underheat, or have undesirable temperature swings. Without proper planning, your passive solar home could end up using more energy than it collects. This checklist provides information on passive solar gains, room layout, energy conservation, and many other topics.

A Word to the Wise

Produced by the North Carolina Solar Center

7 pages - <http://www.ncsc.ncsu.edu/>

This fact sheet provides solar home builders or solar system installers with information about solar products, solar design, and building practices, including selecting a contractor, signing a contract, and what warranties mean.

Overview of Renewable Energy Technologies
Produced by the North Carolina Solar Center
19 pages - <http://www.ncsc.ncsu.edu/>

This overview presents some of the most feasible renewable energy technologies in North Carolina. The technologies reviewed include solar, micro-hydropower, biomass, wind, biogas, and geothermal. The overview also includes references that provide more information on each of these technologies.

Case Studies

Case Study: A Close Look at a Utility's Role in the California Commercial Energy Code Update

By Jeffery Johnson, Executive Director, New Buildings Institute, Inc.

November 7, 2001 - http://www.neep.org/files/2001_fall_workshop_brochure.pdf

This presentation provides information on the project portfolio, sponsors, policy options, and current programs.

Guidelines

Roof Insulation

Developed by the New Buildings Institute for the Southern California Gas Company
November 1998

31 pages – <http://www.newbuildings.org>

These guidelines were developed to assist designers, program planners, and evaluators to make informed decisions on the cost effectiveness of energy saving measures. The guidelines deal specifically with roof insulation and discuss types of insulation, thermal insulation materials, the history and status of roof insulation, analyzing the economics of roof insulation, and design analysis graphs.

Gas Furnaces

Developed by the New Buildings Institute for the Southern California Gas Company
November 1998

37 pages - <http://www.newbuildings.org/guide.htm>

These guidelines were developed to assist designers, program planners, and evaluators to make informed decisions on the cost effectiveness of energy saving measures. This guideline deals specifically with gas furnaces and includes sections on heating efficiency, furnace types, furnace venting, efficiency ratings, energy efficiency standards, and design analysis graphs.

Absorption Chillers

**Developed by the New Buildings Institute for the Southern California Gas Company
November 1998**

91 pages - <http://www.newbuildings.org/guide.htm>

These guidelines were developed to assist designers, program planners, and evaluators in making informed decisions on the cost effectiveness of energy saving measures. There are two basic types of gas chillers: absorption systems and gas engine driven chiller systems. These guidelines deal specifically with gas absorption systems and are intended to be a step toward a comprehensive approach to design specifications which encompass the full range of efficiency options for a building.

Gas Engine-Driven Chillers

**Developed by the New Buildings Institute for the Southern California Gas Company
November 1998**

96 pages - <http://www.newbuildings.org/guide.htm>

These guidelines were developed to assist designers, program planners, and evaluators in making informed decisions on the cost effectiveness of energy saving measures. There are two basic types of gas chillers: absorption systems and gas engine driven chiller systems. These guidelines deal specifically with engine-driven systems. They are intended to be a step toward a comprehensive approach to design specifications which encompass the full range of efficiency options for a building.

Green Base Conversion Strategies: Techniques for Creating Environmentally Sustainable Development on Closing Military Bases #1

Deconstruction for Reuse and Recycling

Produced by the Center for Economic Conversion

February 1997

8 pages - <http://www.conversion.org/cec/>

This publication is designed specifically for policy makers, planners, community leaders, property developers, base tenants, and others involved in military base conversion efforts throughout the San Francisco Bay Area. This brief provides information about how to plan for and implement Deconstruction for Reuse and Recycling, a cost effective alternative to traditional demolition and disposal of buildings.

Green Base Conversion Strategies: Techniques for Creating Environmentally Sustainable Development on Closing Military Bases #2

Sustainable Buildings: Designing for Environmental & Economic Efficiency

Produced by the Center for Economic Conversion

August 1997 - <http://www.conversion.org/cec/>

This document highlights techniques for creating economically and environmentally sustainable development. It is designed specifically for use by those actively involved in base conversion: policy makers, planners, community leaders, property developers and

base tenants. This brief provides information on building practices that save money, materials, energy, and water and create less pollution than conventional approaches. It provides an overview of the benefits of sustainable buildings, with specific emphasis on their economic paybacks.

Green Base Conversion Strategies: Techniques for Creating Environmentally Sustainable Development on Closing Military Bases #3
Eco-Industrial Parks: Economic Advantage through Environmental Performance
Produced by the Center for Economic Conversion
September 1997 - <http://www.conversion.org/cec/>

This publication is designed specifically for policy makers, planners, community leaders, property developers, base tenants, and others involved in military base conversion efforts throughout the San Francisco Bay Area. This brief provides an overview of the concept of Eco-Industrial Parks as an innovative strategy for military base conversion.

Green Base Conversion Strategies: Techniques for Creating Environmentally Sustainable Development on Closing Military Bases #4
Design Services for Sustainable Buildings: Requests for Proposals and Related Contract Issues
Produced by the Center for Economic Conversion
July 1998
12 pages - <http://www.conversion.org/cec/>

This publication is designed specifically for policy makers, planners, community leaders, property developers, base tenants, and others involved in military base conversion efforts throughout the San Francisco Bay Area. This brief provides language that is helpful in developing Requests for Qualifications and Requests for Proposals for design services that will minimize a project's environmental impact while maximizing its economic potential.

RESEARCH ORGANIZATIONS

Program Descriptions

Business & Sustainability Group
Produced by Tellus - <http://www.tellus.org/b&s/>

These documents describe Tellus' Business & Sustainability Group which provides strategic thinking and management tools to advance corporate sustainability. Also included is information on projects in the B&S Group's Supply Chain Management Program, the Public Policy Program, the Corporate Accountability & Governance Program, and the Environmental Management Accounting Program.

Sustainable Communities Group

Produced by Tellus - <http://www.tellus.org/sustcomm/index.html>

The Sustainable Communities Group at Tellus seeks to address today's critical environmental issues where they are most obvious – at the local level. This report provides information on several of the Sustainable Communities Group's initiatives, including the Community Initiatives and Strengthening Local Participation Program, and the Sustainable Futures Program.

Southface Energy and Environmental Resource Center

Developed by the Southface Energy Institute

16 pages - <http://www.southface.org/home/house/seerc.html>

The Southface Energy and Environmental Resource Center showcases innovative ideas for saving energy, water, and other natural resources, for reducing waste and using recycled materials, and for maintaining a healthy indoor environment. This report describes the features of the Center's various levels.

Publications/Reports

Energy Efficiency in Our Schools: An Update on States' Energy-Related Schools Programs

Published by the National Association of State Energy Officials Building Committee 1999-2000

17 pages - <http://www.naseo.org/committees/buildings/schools.pdf>

This report arose out of NASEO's 1999 survey intended to gain a better understanding of the many school-related energy programs offered through most of the 56 State and Territory Energy Offices across the nation. In all 40 states responded. NASEO's report provides a quick, reasonably accurate view of the major current energy-related school activities in the states and territories.

The Construction Metrication Newsletter
<http://www.nibs.org/cmcnews.html>

Volume 10, Issues 1, 1st Quarter, 2001

This issue features a profile of The Pentagon.

Volume 10, Issues 2, 2nd & 3rd Quarters, 2001

This uses features an updated and expanded list of metric resources.

Volume 9, Issue 4, 4th Quarter, 2000

This issue features questions and answers on the current state of metrication.

Volume 9, Issues 3, 3rd Quarter, 2000

This issue features metric design guidelines for concrete masonry construction. The designs were formulated by the National Concrete Masonry Association.

Volume 9, Issue 2, 2nd Quarter, 2000

This issues answers the question “why metrication?” and features information on the construction trades.

Volume 9, Issue 1, 1st Quarter, 2000

Topics in this issue include “2000: Where we stand” and welded wire reinforcement.

Building Sciences

Produced by The National Institute of Building Sciences

Volume 25

October 2001

6 pages - <http://www.nibs.org/news3.html>

This newsletter includes articles on zero energy homes, high performance schools, and HAZUS wind loss estimation methodology.

2000 Annual Report to the President of the United States

Produced by The National Institute of Building Sciences

36 pages – <http://www.nibs.org>

This Annual Report provides an overview of various NIBS councils, programs and initiatives.

Energy Smart Data Centers: Applying Energy Efficient Design and Technology to the Digital Information Sector

By Fred Beck, Research Manager, Renewable Energy Policy Project

November 2001

28 pages – <http://www.repp.org>

Data centers, buildings with high concentrations of computers and digital electronic equipment dedicated to hosting websites, supporting e-commerce and providing essential services for the new digital economy, are a fairly recent phenomena. This report finds that data center power demands could be reduced by 20 percent with minimal efficiency efforts, and by 50 percent with more aggressive efficiency measures.

Energy Security Blueprint

From the Renewable Energy Policy Project

11 pages - <http://www.repp.org>

This blueprint addresses concerns arising from 9/11 and provides information on the dimensions of security, the qualities of renewable energy and security requirements, integrating security with the energy environmental matrix, and strategic initiatives such as reducing fossil use, reducing exposure to catastrophic events, and maintaining reliability in the face of new threats.

Development and Testing of an Information Monitoring and Diagnostic System for Large Commercial Buildings

By Mary Ann Piette, Lisa Gartland, Satkartar Khalsa, Lawrence Berkeley National Laboratory; Peter Rumsey, Lee Eng Lock, Supersymmetry; Anthony Sebald, University of California, San Diego; and Christine Shockman, Stanford University

15 pages - <http://ciee.ucop.edu/>

Large commercial buildings generally do not operate at economically achievable levels of energy efficiency. Performance monitoring projects have shown whole-building energy savings of 20% or more through improved operation and maintenance practices. This paper discusses a multi-year, multi-institutional project to develop and demonstrate an Information Monitoring and Diagnostic System (IMDS).

Environmental Perspectives: Special Edition

The Newsletter of the Risk Analysis and Solid Waste Groups at the Tellus Institute

Issue Number 16

April 2000

15 pages – <http://www.tellus.org>

Included in this issue: “Environment and the Information Age,” “e-Commerce and the Environment,” “Community Awareness: The Next wave of Environmental Information,” and “From Data to Knowledge: A New Vision for Compliance Reporting.”

Environmental Perspectives

The Newsletter of the Risk Analysis and Solid Waste Groups at the Tellus Institute

Issue Number 15

July 1999

7 pages - <http://www.tellus.org>

In this issue: “Second Time Around: Remanufacturing and Inner-City Revitalization,” “Servicizing: The Quiet Transition to Extended Product Responsibility,” “Measuring Solid Waste Prevention,” and “Work in Progress.”

Preliminary Evaluation of Energy Efficiency Improvements to Modular Classrooms

By Danny Parker and Philip Fairey, Florida Solar Energy Center

September 2001

11 pages - <http://www.naseo.org/projects/>

The objective of this investigation is to evaluate innovations that would enable modular classroom builders to improve the energy performance of their classrooms. The authors investigate improved insulation, better windows, daylighting, cross-ventilation, sensible and latent heat recovery of ventilation air and light colored surfaces, and radiant barriers for cooling dominated climates.

Energy-Efficient Design for Florida Educational Facilities

Submitted by the Florida Solar Energy Council (Project Team: Janet McIlvaine, Michele Mallette, Danny Parker, Michael Callahan, Philippe Lapujade, David Floyd, Lynn Schrum, and Ted Stedman)

Revised September 2000

10 pages - <http://www.fsec.ucf.edu>

This document provides a detailed simulation analysis of a variety of energy conservation measures with the intent of giving design teams a basis for decision making.

EnergyGauge USA: A Residential Building Energy Simulation Design Tool

By Danny Parker, Paul Broman, John Grant, Lixing Gu, Michael Anello, and Robin Vieira of the Florida Solar Energy Council and Hugh Henderson of CDH Energy Corporation

8 pages - http://www.fsec.ucf.edu/~bdac/pubs/JAPAN/Japan_ppr.html

This report examines new software developed by the Florida Solar Energy Center which allows simple calculation and rating of energy use in residential buildings around the United States.

Advanced Fenestration and Daylighting Systems

By Ross McCluney, Ph.D.

Principal Research Scientist, Florida Solar Energy Center

8 pages – <http://www.fsec.ucf.edu>

This paper examines advanced fenestration systems and advanced daylighting systems.

Energy Efficient Industrialized Housing Research; Summary of FY 1998 Activities

By Janet McIlvaine, David Beal, Subrato Chandra, Armin Rudd, Brian Fuehrlein, Matthew McCloud, all of the Florida Solar Energy Center.

November 1999

27 pages - <http://www.fsec.ucf.edu/>

The objectives of this work are to increase the market share of energy efficient housing by conducting field testing and monitoring, research, development, design assistance, and training activities in partnership with housing manufacturers, production builders, non-profits and related members of the housing community.

Ventilation in US Manufactured Homes: Requirements, Issues, and Recommendations

By Michael Lubliner and Andrew Gordon, Washington State University Extension Energy Program

Presented at the 21st Annual AIVC Conference, The Hague, Netherlands

September 26-29, 2000

10 pages - <http://www.fsec.ucf.edu/>

This presentation describes modeling research performed to evaluate ventilation requirements for the future revisions to the Department of Housing and Urban Development's Manufactured Home Construction and Safety Standards (MHCSS). Also included in the presentation are author recommendations.

Strategic Assessment of Renewable Energy in Northeastern Wisconsin

An analysis for the Wisconsin Focus on Energy program

Prepared by Richard Shaten, Primary Investigator, Internal Energy, LLC and Prof. Erhard Joeres, Principal Investigator, Institute for Environmental Studies,

University of Wisconsin-Madison

June 2001

13 pages - <http://www.ecw.org/ecw/index.jsp>

This report estimates the amount of fossil fuel potentially displaced by renewable energy in the Wisconsin Public Service Corporation 23-county Wisconsin Focus on Energy area over the next 30 years. The renewable technologies considered include wind turbines, active and passive solar technologies, and gaseous or distilled fuels from dedicated energy crops and organic waste materials. An economic model compares the price trajectories of the renewable options to coal, natural gas and petroleum across electricity, transportation, and thermal energy markets.

New Commercial Buildings – Market Transformation Research Needs: A Scoping Report Prepared for the California Institute for Energy Efficiency
By Loren Lutzenhiser and Rick Kunkle, Washington State University and Nicole Woolsey Biggart and Bruce Hackett, University of California, Davis
Published by the California Institute for Energy Efficiency
September 28, 1998
40 pages - <http://ciee.ucop.edu/MT/welcome.html>

This report presents the results of a scoping study that examined the state of knowledge about new commercial buildings markets and related MT research needs.

A Research Agenda for the Integration of Fuel Cells and Building Systems: A Scoping Study
Prepared for the California Institute for Energy Efficiency (CIEE) and the National Fuel Cell Research Center (NFCRC)
December 1998
35 pages - <http://ciee.ucop.edu/>

In the past few years, fuel cells have received increasing attention from venture capitalists as well as from established companies. As a result, hundreds of millions of dollars have been invested in fuel cells, with the expectation that fuel cells will become a major energy conversion device in stationary and mobile applications. Given the multitude of unknowns surrounding the use of fuel cells in buildings, the broad expectation that they will be a significant contributor to the future energy system in the built environment in California and across the U.S. may be more challenging to achieve than is typically assumed.

The Work That Goes Into Renewable Energy
By Virinder Singh with BBC Research and Consulting and Jeffrey Fehrs
Provided by the Renewable Energy Policy Project, Research Report No. 13
November 2001
26 pages – <http://www.repp.org>

This report examines the labor requirements for renewable energy in the U.S., from collecting fuel to manufacturing components to building and running power plants.

Green Building: A Primer for Builders, Consumers, and Realtors
Provided by Building Environmental Science and Technology
Version 5.1
September 20, 2001
12 pages - <http://energybuilder.com/greenbld.htm>

The report provides information on the meaning of ‘sustainability,’ reasons for buying green homes, how green homes are energy efficient, and basic green homes specifications and programs.

Articles

Greenprints 2001: Designing a Better Future

By Julie Simon

Southface Journal of Sustainable Building

Spring/Summer 2001 - <http://www.southface.org/>

The article discusses greening the supply of power, transforming buildings into solar power plants, scaling down to rooftop power plants, harvesting sunlight, and adding renewable energy to the power mix.

Greenprints 2001: The Nature of Good Business

By Eric Weir

Southface Journal of Sustainable Building

Spring/Summer 2001 - <http://www.southface.org/>

In this article, the author writes of buildings that enhance environmental quality, the greater value that comes from designing with nature, using natural processes to manage water, and educating public officials about sustainability.

Home Depot – Coming of Age in Sustainable Building Materials Practice

By Kim Woodbury-Drye

Southface Journal of Sustainable Building

Fall 2001 - <http://www.southface.org/>

Home Depot's Environmental Council, made up of senior level executives representing each functional area of the company, works to integrate sustainability throughout the business.

Environmental Perspectives Special Edition: The New Environmental Governance

Provided by The Tellus Institute

Issue Number 17

November 2000 - <http://www.tellus.org/b&s/newsletters/>

This report examines the new environmental governance from the perspectives of three different writers.

Conference Proceedings

Workshop on National Construction Goals as Related to the Commercial & Institutional Building Sector

Conducted by National Institute of Building Sciences for the Construction and Building Subcommittee of the Technology Innovation Committee of the National Science and Technology Council

July 16, 1996

26 pages - http://www.bfrl.nist.gov/860/c_b/c&bpublications.htm

The workshop participants generally agreed that the technology exists to accomplish many of the National Construction Goals, but to exploit the technologies they must first be universally accepted as standard practice, and this is the principal challenge. New proven technologies must be accepted by the owners, designers, contractors, and regulators.

Forum Notes

Provided by the Texas Energy Coordination Council, Texas Building Energy Institute

<http://tbei.ces.utexas.edu/>

Forum Notes: Forum on Financing Energy Efficiency

Prepared by Tom Fitzpatrick

December 11, 2000

4 pages

Includes meeting notes on EnergyStar financing, Fannie Mae energy efficient mortgages, FHA energy efficient mortgages, home energy ratings, and electric restructuring.

Forum Notes: Windows Forum

Provided by the Texas Energy Coordination Council, Texas Building Energy Institute

Prepared by Tom Fitzpatrick

November 29, 2000

4 pages

Includes meeting notes on how windows work in Texas, selecting high performance windows, and marketing efficiency.

Forum Notes: Forum on Energy Efficiency & The Texas Economy

Provided by the Texas Energy Coordination Council, Texas Building Energy Institute

Prepared by Tom Fitzpatrick

March 1, 2001

4 pages

Includes meeting notes on a sustainable future in Dallas, selling energy efficient, environmentally sensitive homes, and residential deemed savings and rebates for electric utility programs.

Meeting of Association of State Energy Research and Technology Transfer Institutions

October 18-20, 2000

16 pages - <http://www.energy.wsu.edu/>

Meeting of Association of State Energy Research and Technology Transfer Institutions
March 13-15, 2001
13 pages - <http://www.energy.wsu.edu/>

Meeting of Association of State Energy Research and Technology Transfer Institutions
February 23-25, 2000
7 pages - <http://www.energy.wsu.edu/>

Meeting of Association of State Energy Research and Technology Transfer Institutions
October 18-20, 2000
16 pages - <http://www.energy.wsu.edu/>

Meeting of Association of State Energy Research and Technology Transfer Institutions
March 13-15, 2001
13 pages - <http://www.energy.wsu.edu/>

Guidelines

Priorities for Energy Efficiency in New Residential Construction in Florida
D. Parker, R. Vieira, Florida Solar Energy Council
3 pages - <http://www.fsec.ucf.edu/Bldg/PUBSONLINE.HTM>

Provided in this report are the priorities for obtaining an energy efficient building in Florida.

Fact Sheet

The Georgia Energy Code
Prepared by the Southface Energy Institute for Georgia Environmental Facilities Authority – <http://www.southface.org>

Includes guidelines on wall insulation, combustion equipment safety, insulating foundation and floors, radon-resistant construction for builders, choosing heating & cooling equipment, ductwork, and better indoor air through filtration.

Case Studies

Northland College's Environmental Living and Learning Center
Prepared by the Energy Center of Wisconsin
September 2000
22 pages – <http://www.edcmag.com>

This report presents findings of a process evaluation of Northland College's green dormitory. As part of the evaluation, interviews were conducted with college staff, consultants, and students familiar with the building and published reports about the

building, including the results of the Energy Center's year-long monitoring of the building's energy performance, were reviewed.

Performance Monitoring of a Sustainable Residence Hall at Northland College

Prepared for the Energy Center of Wisconsin

September 2000

9 pages - <http://www.ecw.org/ecw/index.jsp>

The Environmental Living and Learning Center at Northland College in Ashland, Wisconsin is a showcase of sustainable building techniques and systems. This report provides information on the center's overall sustainability performance.

Green Building Profiles from Green Building Services

<http://www.greenbuildingservices.com/>

Viridian Place

This summary describes Viridian Place, a three-story, 15,000-square-foot office building and retail showroom designed to conserve energy and resources. The building is expected to use an estimated 41 percent less energy each year than one built to Oregon Energy Code specifications.

Norm Thompson Headquarters

This summary describes the two-story, 54,500-square-foot corporate headquarters designed to conserve energy and resources through energy efficiency, quality indoor environment, environmental responsibility, and resource efficiency measures.

Nike World Headquarters

At Nike's World Headquarters, four new buildings totaling 822, 000 square feet were designed to conserve energy and resources through various Earth Advantage™ measures.

CNF Information Technology Centers

This profile describes CNF's new information technology center in Northwest Portland which demonstrates how environmental and fiscal responsibility go hand in hand. The building was constructed to use energy and natural resources wisely. CNF is also saving \$65,000 annually in energy costs.

Creating Sustainable Buildings: Volume 1, Program Case Studies
By Angela Vitulli, Miriam Landman, and Akiko Hayano, of Tufts University's
Department of Urban and Environmental Policy for the Massachusetts Operational
Services Division and the Massachusetts Division of Capital Planning and
Operations
April 1998
32 pages - <http://www.state.ma.us/osd/enviro/products/case/vol1case.PDF>

These two case studies of municipal sustainable building programs are intended to provide practical information to staff in various agencies within the Commonwealth of Massachusetts, as they begin to consider developing a comprehensive sustainable building program or project for state-owned buildings. Therefore, the content of the cases focuses heavily on the internal governmental process of getting programs off the ground.

PROFESSIONAL ORGANIZATIONS

Case Studies

Virtual Office Showcases Green Technology
By Daniel McQuillen
3 pages – <http://www.edcmag.com>

This article describes Green-Tech, a prototype of a state-of-the-art office building, featuring everything from building-integrated photovoltaics to personal environment workstations. The model office's purpose was to demonstrate how green building products can be integrated into a complete building design.

Campus's First Green Building Serves as a Model
By Joyce Lee, AIA
4 pages – <http://www.edcmag.com>

Although the design of this research facility had no green agenda at first, the involvement of all 25 design and construction participants in a two-day workshop was a first step towards the completion of an environmentally friendly building.

Business and the Environment Are Not "Natural" Enemies
By Randolph Croxton, FAIA, Croxton Collaborative Architects
2 pages - <http://www.edcmag.com>

This article describes an effort by Croxton Collaborative Architects at several older Boston-area shopping centers to reconnect the commercial properties with the adjoining natural landscapes and underlying watershed systems, recovering an authentic sense of place and, in the bargain, heightening the shopping centers' consumer appeal.

Chesapeake Bay Foundation Headquarters: A Deeper Shade of Green

By Will Zachmann

9 pages - <http://www.edcmag.com>

This case study describes efforts at greening the Chesapeake Bay Foundation's 28,000 square foot headquarters.

Program Descriptions

A Sustainable Design Resolution for the AIA

By Sandra Mendler, chair of the AIA Committee on the Environment

1 page - <http://www.edcmag.com>

This brief article describes new efforts by the AIA to move sustainable design out of the periphery of the architecture profession and straight into the center of daily practice.

POLICY/PUBLIC INTEREST GROUPS

Publications/Reports

Baseline Characteristics of the Residential Sector: Idaho, Montana, Oregon, and Washington

By David Baylon, Shelly Borrelli, and Michael Kennedy

Prepared for the Northwest Energy Efficiency Alliance

December 2001

70 pages – <http://www.nwalliance.org>

The purpose of this report is to develop a baseline description of residential construction practices with respect to energy use and efficiency in the Pacific Northwest region. The study focused on a direct field review of buildings under construction in all four Pacific Northwest states: Washington, Oregon, Idaho, and Montana. The goals of the study were: to develop and provide a statistically representative sample that could be used to characterize building practices in each state and combined to develop a picture of the overall range of building practices in the region; to assess the degree to which local energy codes and standards are being followed in the building industry and enforced by relevant code jurisdictions; to provide a basis for comparing building practices across states; and to identify attitudes toward energy efficiency and energy codes and building standards through interviews with builders and others.

Baseline Characteristics of the Non-Residential Sector: Idaho, Montana, Oregon, and Washington (Market Progress Evaluation Report Executive Summary)

By David Baylon, Shelly Borrelli, and Michael Kennedy

Prepared for the Northwest Energy Efficiency Alliance

December 2001

8 pages – <http://www.nwalliance.org>

The purpose of this study is to compile a baseline set of characteristics on non-residential building practices in the Pacific Northwest region. For this purpose, the baseline has four important components: the description of the size and type of buildings constructed in each of the four states; the identification of characteristics associated with energy use in these buildings; observations of markets for particular building components and products; and the description of the attitudes towards energy-efficiency among design professions.

Baseline Characteristics of the Multi-Family Sector: Oregon and Washington (Market Progress Evaluation Report Executive Summary)

By David Baylon, Alison Roberts, Shelly Borrelli, and Michael Kennedy

Prepared for the Northwest Energy Efficiency Alliance

December 2001

7 pages – <http://www.nwalliance.org>

The specific goals of this study were to establish a representative sample of multi-family buildings in Washington and Oregon; develop a picture of the building characteristics in these buildings, distinguish between states; establish heating fuel selection and HVAC system practices in these buildings to contrast the performance and building characteristics with findings in the single-family sector; and to assess attitudes toward energy efficient buildings and building practices among decision-makers involved in the multi-family market.

Drive Power Initiative, No. 3 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

November 2001

14 pages - <http://nwalliance.org/resources/>

The Drive Power Initiative is a market transformation venture funded by the Alliance and administered by the Electric League of the Pacific Northwest. This report comprises the third Market Progress Evaluation Report and covers the six-month period between August 2000 and January 2001. The purpose of this report is to track changes in the regional motor services market that may demonstrate market transformation over the course of the Initiative.

Scientific Irrigation Scheduling, No. 3 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

November 2001

8 pages

This is the Executive Summary for the third Market Progress Evaluation report and includes an assessment of program progress based on interviews with agency staff and a review of program documents, and an assessment of the market for irrigation management equipment based on interviews with soil moisture monitoring equipment manufacturers.

Silicon Crystal Growing Facilities, No. 2 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

November 2001

6 pages - <http://nwalliance.org/resources/>

This Executive Summary provides a broad overview of Siemens Solar Industry's efforts to develop an innovative process for growing silicon crystals.

Microelectronics Initiative, No. 1 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

November 2001

13 pages - <http://nwalliance.org/resources/>

This Executive Summary of a Market Progress Evaluation Report focuses on the Microelectronics Initiative and its core hypothesis that by working with a small number of interested players to identify and implement energy efficiency changes, the changes will spill over internally to others in the industry through the tendency of firms to use a "copy exact" approach to design.

Regional Building Operator Certification, No. 7 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

September 2001

12 pages - <http://nwalliance.org/resources/>

This Executive Summary of a Market Progress Evaluation Report provides an overview of the initiative to conduct an evaluation of the region-wide Building Operator Certification market transformation efforts from 1998 to 2001

New Commercial Office Buildings: Developing Strategic Market Transformation Initiatives for Energy Efficiency (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

September 2001

7 pages - <http://nwalliance.org/resources/>

The purpose of this collaborative research project is to increase the understanding of new commercial office building markets to support better-informed strategies to encourage energy efficiency in those markets.

Efficient Building Practices Initiative (EBPI), No. 1 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

July 2001

26 pages - <http://nwalliance.org/resources/>

This Executive Summary provides an overview and evaluation of the EBPI's efforts as it seeks to influence various areas of the building market. EBPI's goals are to increase the consumer demand among commercial building users and decision-makers for highly energy-efficient buildings over a twenty year period and to enhance the capability of code-related institutions so they can meet increased consumer demand for efficient buildings.

Architecture + Energy Program, Final Report (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

June 2001

7 pages - <http://nwalliance.org/resources/>

This Executive Summary provides information on the A+E, the goal of which is to encourage design professionals to use "energy-efficient/sustainable building practices" from inception to completion of their commercial building projects. .

ENERGY STAR® Resource-Efficient Clothes Washers, No. 5 (Market Progress Evaluation Report Executive Summary)

Prepared for the Northwest Energy Efficiency Alliance

June 2001

9 pages - <http://nwalliance.org/resources/>

This Executive Summary describes the ES-RECW program, a program working to maintain the sales of ENERGYSTAR resource-efficient clothes washers through consumer marketing and retailer support.

Energy Ideas Clearinghouse (Market Progress Evaluation Report Executive Summary)
Prepared for the Northwest Energy Efficiency Alliance
June 2001
12 pages - <http://nwalliance.org/resources/>

Since 1990, the Energy Ideas Clearinghouse has served energy professionals in the Pacific Northwest by providing fast, centralized access to comprehensive and objective information and technical assistance on energy-related topics. This Executive Summary provides an overview of the evaluation that examined a number of topics about the Clearinghouse, including updated statistics about services, staffing, and funding for the Clearinghouse and a benchmarking study that compares the Clearinghouse Web site to other energy sites.

Efficient Building Practices Initiative, No. 1 (Market Progress Evaluation Report Executive Summary)
Prepared for the Northwest Energy Efficiency Alliance
March 2001
11 pages - <http://nwalliance.org/resources/>

This Executive Summary focuses on Regional Public Information Program evaluation activities and provides key findings and conclusions from baseline market surveys of primary and secondary target audiences for RPIP's initial public information campaign.

Alliance Annual Activities Report 2000
Prepared by the Northwest Energy Efficiency Alliance
<http://nwalliance.org/resources/>

This report describes the Alliance's efforts and initiatives during the year 2000. In that year the region's joint efforts saved under 14 aMW through energy efficiency projects in markets supported by the Northwest Energy Efficiency Alliance and its partners. As of the end of 2000, the Alliance had invested in 32 projects in the residential, commercial, industrial, and agricultural sectors as well as in efforts that support energy efficiency information and training activities in the region.

Final Report to Consortium for Energy Efficiency (CEE) Regarding State and Local Government Purchasing Initiative – Program Evaluation Scoping Study
Prepared by GDS Associates, Inc. and Patricia Barnes Consulting
March 13, 2001
37 pages - <http://www.cee1.org>

The goal of the Scoping Study is to define appropriate methodologies for evaluating the impact of CEE's State and Local Government Purchasing Initiative. Key objectives of the Scoping Study are to develop a method for identifying key measurement indicators pertaining to the purchase of energy efficient products; to identify a procedure for establishing a baseline of existing energy efficient purchases; and to identify methodologies for assessing program impact from the perspective of three groups of

stakeholders: state and local governments, federal program sponsors and experts on public purchasing of energy efficient products; and program administrators.

Specification of Energy-Efficient Installation and Maintenance Practices for Residential HVAC Systems: White Paper

By Rick Karg, ZR.J. Karg Associates, and John Krigger, Saturn Resource Management

Prepared for the Consortium for Energy Efficiency

70 pages - <http://www.cee1.org/>

The purpose of the *Specification* is to guide contractors and technicians in the installation practices that impact the energy use of HVAC systems. A secondary mission is to improve system durability and life span to conserve the energy embodied in the system's components. The purpose of this white paper is to explain the process used to derive the *Specification*, explain and defend certain elements of the *Specification*, discuss obstacles to industry adoption of best-practice HVAC installation, and recommend HVAC industry changes that will enhance market transformation.

Guidelines for Energy-Efficient Commercial Unitary HVAC Systems: Final Report

Prepared for the Consortium for Energy Efficiency

January 19, 2001

40 pages – <http://www.cee1.org>

This specification is a compilation of energy-efficient best practices for the sizing, selection, installation and commissioning of unitary air-source air conditioner and heat pump systems up to 30 tons. This document is intended as a tool for improving the energy efficiency of commercial unitary HVAC installations. The purpose of this document is to facilitate implementation of energy-efficient installation practices by providing a specification guide that can easily be used by key people in the industry, namely installing contractors, service providers, and designers.

State and Local Government Purchasing Model Program Plan: A Guide for Energy Efficiency Program Administrators

Prepared for the Consortium for Energy Efficiency

64 pages - <http://www.cee1.org>

This Model Program Plan was prepared to assist CEE member organizations with the development and adoption of successful state and local government procurement programs. The primary audience for the MPP is the Program Administrator at CEE member organizations, which include gas and electric utilities, and market transformation organizations. The MPP is intended to encourage increased purchasing and specifying of energy-efficient equipment and products by state and local government agencies and departments.

Efficient Motors: Selection and Application Considerations
Prepared by the Consortium for Energy Efficiency
1999

14 pages - <http://www.cee1.org>

This publication describes the benefits of efficient motors, who gets the most from a CEE premium efficient motor, selecting and specifying an efficient motor, and realizing maximum energy savings.

Lighting the Way to Energy Savings: How Can We Transform Residential Lighting Markets?

By Chris Calwell, Chris Granda, Lois Gordon, and My Ton of Ecos Consulting
Prepared for the Natural Resources Defense Council

40 pages - <http://www.ecosconsulting.com/>

This publication provides a review of the status of energy efficient residential lighting in the U.S., explores the reasons for current residential lighting energy consumption, draws lessons from past efforts to improve residential lighting efficiency, and makes recommendations regarding future ones.

The Residential Clothes Washer Initiative: A Case Study of the Contributions of a Collaborative Effort to Transform the Market

By Shel Feldman Management Consulting, Research Into Action, Inc., and Xenergy, Inc.

Prepared for the Consortium for Energy Efficiency

49 pages - <http://www.cee1.org>

This report is intended to help the CEE and its members review the effects of the Residential Clothes Washer Initiative and identify CEE's contributions to increasing the availability and penetration of resource-efficient clothes washers in the North American market. Specifically, the report reviews the background of the effort to develop a market for resource-efficient clothes washers and the nature of CEE. It then describes the initiative, the history of which it is a part, and the findings of the study.

Super-Efficient, Apartment-Sized Refrigerator Initiative Bulk Purchase Opportunity
Prepared by the Consortium for Energy Efficiency

June 2001

13 pages - <http://www.cee1.org/gov/sear/sear-part.php3>

This report is designed to assist publicly assisted properties and other multifamily properties in the procurement and installation of super-efficient refrigerators. It provides information on the benefits to buildings and tenants, estimating energy savings, and how to purchase these refrigerators.

A Market Transformation Opportunity Assessment for LED Traffic Signals

By Margaret Suozzo

Prepared for the American Council for an Energy-Efficient Economy

April 1998

21 pages - <http://www.aceee.org/pubs/>

This report states that light emitting diode light sources for traffic signals offer significant energy savings over the incandescent lamps traditionally used in this application. It also describes technology and technical potential for energy savings in LED traffic signals, key characteristics and trends in the traffic signal market, alternative light sources, the economics of LED traffic signals, the barriers to LED traffic signal penetration, and strategies to reduce LED traffic signal market barriers.

An Evaluation Program for the National Clothes Washer Initiative: Options and Recommendations

Prepared by Shel Feldman Management Consulting for the Consortium for Energy Efficiency

May 1998

39 pages - <http://www.cee1.org>

This report offers recommendations assessment of the National Clothes Washer Initiative. These suggestions are based on earlier project reports, including a summary of critical issues raised by stakeholders in CEE, a review of other relevant research, and a gap analysis comparing the two.

Dishwasher Survey Report

Submitted to the Northwest Energy Efficiency Alliance and the Consortium for Energy Efficiency

Submitted by Dethman & Associates

April 5, 1999

33 pages - <http://www.cee1.org>

The purpose of this research was to gather better information about how homeowners use their dishwashers. The results of this study will address several issues about the test procedures used to determine dishwasher energy and water efficiency.

National Residential Home Appliance Market Transformation Strategic Plan

Prepared by Consortium for Energy Efficiency Appliance Committee

December 2000

38 pages – <http://www.ceeformt.org>

This document is intended to provide a common focus and direction for the MT community's involvement in the appliance market. The focus is primarily long-term with clear implications for the short-term. It is intended to offer a foundation for individual program planning and implementation and serve as a guide for those currently promoting home appliances or plan to in the future.

CEE Multifamily Housing: 2001 Program Summary
Prepared by the Consortium for Energy Efficiency
17 pages – <http://www.cee1.org>

This report provides summaries of various energy efficiency programs including Austin Energy's Multifamily Program, Efficiency Vermont's Residential Energy Efficiency Program, National Grid USA's EnergyWise Program, and NYSERDA's Direct Installation of Electric Measures Program, among others.

Lighting the Way to Energy Savings: How Can We Transform Residential Lighting Markets (Strategies and Recommendations)
By Chris Calwell, Chris Granda, Lois Gordon, and My Ton of Ecos Consulting
Prepared for the Natural Resources Defense Council
December 1999
42 pages - <http://www.ecosconsulting.com/>

This policy- and program-focused paper identifies successful elements of past programs and recommends strategies to encourage the broader use of compact fluorescent lamps energy efficient residential light fixtures in the United States.

Residential Lighting Fixture Market Assessment: Ceiling Fans and Outdoor Lighting
Submitted to the Consortium for Energy Efficiency by Opinion Dynamics Corporation
October 2000
72 pages – <http://www.cee1.org>

The purpose of this research was to conduct an assessment of the national residential lighting fixture market in order to identify promising market segments for the creation of market transformation opportunities. CEE initiated this research in response to its members' concerns about the lack of available ENERGYSTAR lighting fixtures.

Guide to Resource Efficient Building Elements: A Directory of Environmentally Responsible Building Products
Prepared by the Center for Resourceful Building Technology
5 pages - <http://www.crbt.org/>

Includes information on resource efficient buildings and building materials.

Environmental Sustainability Kit
Prepared by the Pollution Prevention Alliance
<http://www.environmentaldefense.org/>

This *Kit* provides a set of tools including ideas, procedures, and resources to help local leaders, residents, and businesses work toward making their own communities more sustainable. The *Kit* is focused on the environmental and pollution prevention aspects of

sustainable communities' efforts. Also included in the *Kit* are case studies, resources, project objectives, ground rules, and indicators of progress.

Metered Load Factors for Low-Voltage, Dry-Type Transformers in Commercial, Industrial, and Public Buildings

Prepared by The Cadmus Group, Inc.

December 7, 1999

26 pages - <http://www.neep.org/>

This study was undertaken to determine the load factors, expressed as a percentage of nameplate rating, that are commonly experienced by low-voltage, dry-type transformers in commercial and industrial applications. Because the benefits of energy-efficient transformers vary depending on load factor, this information will be useful in evaluating the savings to be expected from Massachusetts's statutory requirement that such units be installed in all new construction.

Linking Energy Codes and Equipment Standards with Energy Efficiency Programs

By Jeff Johnson and Doug Baston, NEEP Advisers

Prepared for the Northeast Energy Efficiency Partnerships, Inc.

6 pages – <http://www.neep.org>

This paper identifies and briefly discusses a variety of potential efficiency program administrator roles with regard to building energy codes. This paper also discusses ways that efficiency program administrators and regulators can generate financial and societal benefits by coordinating regulatory, programmatic, and implementation efforts with energy codes and equipment standards activities.

Combined Heat and Power: Saving Energy and the Environment

By Tina Kaarsberg and R. Neal Elliott

14 pages – <http://www.nemw.org>

This paper discusses CHP concepts, potential, and case studies.

Minnesota Sustainable Design Guide

<http://www.sustainabledesignguide.umn.edu/>

The *Guide* is a tool to learn about sustainability, manage design decisions, and integrate sustainable design into the building design and operation processes for new and renovated facilities. The *Design Guide* provides 42 strategies that are organized according to six environmental design topics – site, water, energy, indoor environmental quality, materials, and waste. Each topic contains a series of design strategies and performance indicators.