Document Database: Extended Abstracts

Updated 4/9/2003

Advanced Systems

New!

PDF 594 KB

Title: Design and Performance of the Van Geet Off-Grid Home: Preprint.
Author: Barley, C. D.;Torcellini, P.; Van Geet, O.
Pages/Volumes: 11 pp.
Publication Year: 2003
Notes: Prepared for the ISEC 2003: International Solar Energy Conference, 15-18 March 2003, Hawaii Island, Hawaii
Subject Category: Advanced Systems; Cold Climate
Document Type: Technical Reports
NTIS/GPO Number: 15002872
Abstract: The Van Geet home near Denver, Colorado, demonstrates the successful integration of energy conservation measures and renewable energy supply in a beautiful, comfortable, energy-efficient, 295-m2 (3,176-ft2) off-grid home in a cold, sunny climate. Features include a tight envelope, energy-efficient appliances, passive solar heating (direct gain and Trombe wall), natural cooling, solar hot water, and photovoltaics. In addition to describing this house and its performance, this paper describes the recommended design process of (1) setting a goal for energy efficiency at the outset, (2) applying rules of thumb, and (3) using computer simulation to fine-tune the design. Performance monitoring and computer simulation are combined for the best possible analysis of energy performance. In this case, energy savings are estimated as 89% heating and cooling, 83% electrical, and nearly 100% domestic water heating. The heating and cooling energy use is 8.96 kJ/ºC·day·m2 (0.44 Btu/ºF·day·ft2).
Accession Number: 32764
Report Numbers: CP-550-32764

PDF 2.4 MB

Title: Building America Field Project: Results for the Consortium for Advanced Residential Buildings (CARB), January to October 2001.
Pages/Volumes: 38 pp.
Publication Year: 2002
Notes: Work performed by Steven Winter Associates, Inc., Norwalk, Connecticut.
Subject Category: Advanced Systems; Cold Climate; Cost-Performance Tradeoffs; Hot-Dry Climate; Hot-Humid Climate
Document Type: Project Summaries
NTIS/GPO Number: 15002036
Abstract: This report describes the various projects by the Consortium for Advanced Residential Buildings (CARB) that were active during the first 10 months of 2001, summarizing results, benefits, lessons learned, and future plans. The second part of this report describes technical matters, summarizing innovative technologies, systems engineering and results, and industry team member contributions.
Accession Number: 31380
Report Numbers: SR-550-31380

PDF 3.4 MB

Title: Residential Fuel Cell Demonstration Handbook: National Rural Electric Cooperative Association Cooperative Research Network.
Author: Torrero, E.; McClelland, R.
Pages/Volumes: 88 pp.
Publication Year: 2002
Notes: Work performed by National Rural Electric Cooperative Association, Arlington, Virginia and Energy Signature Associates, Inc., Pittsburgh, Pennsylvania.
Subject Category: Advanced Systems; Other
Document Type: Technical Reports
NTIS/GPO Number: 15000844
Abstract: This report is a guide for rural electric cooperatives engaged in field testing of equipment and in assessing related application and market issues. Dispersed generation and its companion fuel cell technology have attracted increased interest by rural electric cooperatives and their customers. In addition, fuel cells are a particularly interesting source because their power quality, efficiency, and environmental benefits have now been coupled with major manufacturer development efforts. The overall effort is structured to measure the performance, durability, reliability, and maintainability of these systems, to identify promising types of applications and modes of operation, and to assess the related prospect for future use. In addition, technical successes and shortcomings will be identified by demonstration participants and manufacturers using real-world experience garnered under typical operating environments.
Accession Number: 32455
Report Numbers: SR-560-32455

No PDF

Title: Putting Technology into Practice. At the Village Green in Los Angeles, new kinds of partnerships and new energy-efficient applications work hand-in-hand.
Author: James, M.; Peckler, D.
Source: Home Energy Magazine. March/April 2001

Pages/Volumes: pp. 42-44
Publication Year: 2001
Notes: Posted on the Web site with permission from Home Energy Magazine, which is available on the Web at www.homeenergy.org..
Subject Category: Affordable Housing; Advanced Systems
Document Type: Magazine/Newspaper Articles
Abstract: At the Village Green in Los Angeles, new kinds of partnerships and new energy-efficient applications work hand-in-hand.
Accession Number: 31212
Report Numbers: 31212

PDF 456 KB

Title: Hourly Simulation of Grid-Connected PV Systems Using Realistic Building Loads: Preprint.
Author: Balcomb, J. D.; Hayter, S. J.; Weaver, N. L.
Pages/Volumes: 9 pp.
Publication Year: 2001
Notes: Prepared for the American Solar Energy Society (ASES) National Solar Conferences Forum 2001, 21-25 April 2001, Washington, D.C.
Subject Category: Advanced Systems
Document Type: Technical Reports
Abstract: This is one of two companion papers that describe the ENERGY-10 PV design tool computer simulation program. The other paper is titled "ENERGY-10 Photovoltaics: A New Capability." Whereas this paper focuses on the PV aspects of the program, the companion paper focuses on the implementation method. The case study in this paper is a commercial building application, whereas the case study in the companion paper is a residential application with an entirely different building load characteristic. Together they provide a balanced view.
Accession Number: 29638
Report Numbers: CP-550-29638

PDF 1.7 MB

Title: Energy Value Housing Award Guide: How to Build and Profit with Energy Efficiency in New Home Construction.
Author: Sikora, J. L.
Pages/Volumes: 89 pp.
Publication Year: 2001
Subject Category: Advanced Systems
Document Type: Project Summaries
NTIS/GPO Number: 15000100
Abstract: As concern over the environment grows, builders have the potential to fulfill a market niche by building homes that use fewer resources and have lower environmental impact than conventional construction. Builders can increase their marketability and customer satisfaction and, at the same time, reduce the environmental impact of their homes. However, it takes dedication to build environmentally sound homes along with a solid marketing approach to ensure that customers recognize the added value of energy and resource efficiency. This guide is intended for builders seeking suggestions on how to improve energy and resource efficiency in their new homes. It is a compilation of ideas and concepts for designing, building, and marketing energy- and resource-efficient homes based on the experience of recipients of the national Energy Value Housing Award (EVHA).
Accession Number: 28996
Report Numbers: SR-550-28996

PDF 3 MB **Title:** Design, Construction, and Performance of the Grand Canyon House. Toward Net Energy Buildings Case Studies Series.
Author: Balcomb, J. D.; Hancock, C. E.; Barker, G.
Pages/Volumes: 108 pp.
Publication Year: 1999
Subject Category: Advanced Systems; Cold Climate
Document Type: Project Summaries
NTIS/GPO Number: DE00009519
Abstract: The Grand Canyon house is a joint project of the DOE's National Renewable Energy Laboratory and the U.S. National Park Service and is part of the International Energy Agency Solar Heating and Cooling Programme Task 13 (Advanced Solar Low-Energy Buildings). Energy consumption of the house, designed using a whole-building low-energy approach, was reduced by 75% compared to an equivalent house built in accordance with American Building Officials Model Energy Code and the Home Energy Rating System criteria.
Accession Number: 24767
Report Numbers: TP-550-24767; DOE/GO-10099-795

PDF 1 MB **Title:** Photovoltaic and Solar-Thermal Technologies in Residential Building Codes: Tackling Building Code Requirements to Overcome the Impediments to Applying New Technologies.
Author: Wortman, D.; Echo-Hawk, L.
Pages/Volumes: 86 pp.
Editor: Weichman, J.; Hayter, S.; Gwinner, D., eds.
Publication Year: 1999
Notes: Prepared from a longer subcontractor report for the National Renewable Energy Laboratory, entitled "Renewable Energy and Energy Efficiency Technologies in Residential Building Codes", by David Wortman and Linda Echo-Hawk (September 20, 1998)..
Subject Category: Advanced Systems
Document Type: Technical Reports
Abstract: This report describes the building code requirements and impediments to applying photovoltaic (PV) and solar-thermal technologies in residential buildings (one- or two-family dwellings). It reviews six modern model building codes that represent the codes to be adopted by most locations in the coming years: International Residential Code, First Draft (IRC), International Energy Conservation Code (IECC), International Mechanical Code (IMC), International Plumbing Code (IPC), International Fuel Gas Code (IFGC), and National Electrical Code (NEC). The IRC may become the basis for many of the building codes in the United States after it is released in 2000, and it references the other codes that will also likely become applicable at that time. These codes are reviewed as they apply to photovoltaic systems in buildings and building-integrated photovoltaic systems and to active-solar domestic hot-water and space-heating systems. The first discussion is on general code issues that impact these technologies—for example, solar access and sustainability. Then, secondly, the discussion investigates the relationship of the technologies to the codes, providing examples, while keeping two major issues in mind: How do the codes treat these technologies as building components? and Do the IECC and other codes allow reasonable credit for the energy impacts of the technologies? The codes can impact the implementation of the above technologies in several ways: (1) The technology is not mentioned in the codes. It may be an obstacle to implementing the

technology, and the solution is to develop appropriate explicit sections or language in the codes. (2) The technology is discussed by the codes, but the language is confusing or ambiguous. The solution is to clarify the language. (3) The technology is discussed in the codes, but the discussion is spread over several sections or different codes. Practitioners may not easily find all of the relevant material that should be considered. The solution is to put all relevant information in one section or to more clearly reference relevant sections. (4) The technology is prohibited by the code. Examples of this situation were not found. However, energy credit for some technologies cannot be achieved with the requirements of these codes. Finally, four types of future action are recommended to make the codes reviewed in this report more accommodating to renewable energy technologies: (1) Include suggested language additions and changes in the codes; (2) Create new code sections that place all of the requirements for a technology in one section of an appropriate code; (3) Apply existing standards, as appropriate, to innovative renewable energy and energy conservation technologies; and (4) Develop new standards, as necessary, to ease code compliance. A synergy may be possible in developing suitable code language changes for both photovoltaic and solar hot-water systems. The installation of rooftop photovoltaic panels and solar hot-water collectors involves many overlapping issues. Roof loading, weather tightness, mounting systems, roof penetrations, and similar concerns are identical for both technologies. If such work can be coordinated, organizations supporting both technologies could work together to implement the appropriate revisions and additions to the codes.
Accession Number: 26579
Report Numbers: TP-550-26579

No PDF

Title: Tierra Concrete Homes: Low-Energy Residential Building Design.
Author: Hayter, S. J.; Torcellini, P. A.; Neimeyer, J.
Source: Proceedings of the 22nd National Passive Solar Conference, 25-30 April 1997, Washington, D.C..
Pages/Volumes: pp. 1-4
Editor: Campbell-Howe, R.; Wilkins-Crowder, B., eds.
Publication Year: 1997
Publisher, Place: Boulder, CO: American Solar Energy Society
Subject Category: Cold Climate; Advanced Systems
Document Type: Technical Reports
Abstract: Using a whole building design concept, Tierra Concrete Homes, a home builder in Pueblo, Colorado, created low-energy, passive solar home designs. Passive solar features incorporated into the designs include house orientation, high-mass walls for thermal storage, exterior insulation, appropriate glazing type combined with overhangs to prevent summer overheating, open interior spaces to maximize daylighting potential, and high efficiency lighting. These ranch-style homes require no cooling and minimum heating equipment to maintain comfortable indoor conditions. They are economically competitive to build, consume little fossil fuel, and produce virtually no construction waste. This paper discusses how the design of one of these homes was optimized to further minimize energy consumption while maintaining an attractive livable environment. It also describes monitoring activities that are currently underway to verify predicted energy consumption.
Accession Number: 22682
Report Numbers: 22682

Affordable Housing

New!

PDF 462 KB

Title: Read This Before You Turn Over A Unit.
Author: Lstiburek, J.; Brennan, T.
Source: www.buildingscience.com.
Pages/Volumes: 12 pp.
Publication Year: 2001
Publisher, Place: Building America Consortium
Notes: Posted on the Web site with permission from Building Science Consortium.
Subject Category: Affordable Housing; Envelope and Window Systems; Ventilation Systems; Hot Water Systems; Cooling Systems
Document Type: Bulletins
Abstract: This document helps landlords provide safe housing, keeping in mind the issues of asthma, health, ventilation, pests, and chemicals.
Accession Number: 32115
Report Numbers: 32115

New!

PDF 352 KB

Title: Read This Before You Move In.
Author: Lstiburek, J.; Brennan, T.
Source: www.buildingscience.com.
Pages/Volumes: 12 pp.
Publication Year: 2001
Notes: Posted on this Web site with permission from the Building Science Consortium.
Subject Category: Affordable Housing; Envelope and Window Systems; Ventilation Systems; Hot Water Systems; Cooling Systems
Document Type: Bulletins
Abstract: This document provides advice for healthy and affordable housing: practical recommendations for building, renovating, and maintaining housing.
Accession Number: 32116
Report Numbers: 32116

PDF 550 KB

Title: Bringing Big Builders to Efficiency.
Author: Tully, G.
Source: Home Energy Magazine. March/April 2000
Pages/Volumes: p. 12
Publication Year: 2000
Notes: Posted on this Web site with permission from Home Energy Magazine, which is available on the Web at www.homeenergy.org.
Subject Category: Affordable Housing
Document Type: Magazine/Newspaper Articles
Abstract: For several years, Consortium for Advanced Residential Buildings -- one of five DOE Building America teams -- has been producing cost-effective, energy-saving prototype homes, with the goal of convincing builders to bring these technologies into the marketplace.
Accession Number: 31211
Report Numbers: 31211

PDF 301 KB

Title: Building America Developments, September 2000, Information Bulletin Number 1 (Rev. July 2001).
Author: Hendron, R.; Anderson, J.; Epstein, K.

Pages/Volumes: 4 pp.
Publication Year: 2000
Notes: Available electronically only..
Subject Category: Affordable Housing
Document Type: Bulletins
Abstract: Building America Developments on-line newsletter highlights the Erie-Ellington Homes publicly-funded housing project in Boston, Massachusetts. A Building America and industry partnership that produced energy-efficient manufactured homes built with foam core panels is featured. Also, Habitat for Humanity dedicates two energy-efficient test houses in East Tennessee, and affordable, healthy homes are offered in metro Atlanta. Upcoming events in the Building America Program are also listed.
Accession Number: 28583
Report Numbers: BR-550-28583

PDF 863 KB

Title: Erie-Ellington Homes: Affordable + Green.
Source: Environmental Building News. Vol. 9(7/8) July/August 2000
Pages/Volumes: pp. 6-7
Publication Year: 2000
Notes: Copyright 2000, BuildingGreen, Inc. Posted on this site with permission from Environmental Building News.
Subject Category: Affordable Housing
Document Type: Magazine/Newspaper Articles
Abstract: A ribbon-cutting ceremony for the 50-unit Erie-Ellington Homes housing project was held on June 22. The triplex units cost $94 per square foot to build -- 25% below market rates in the area -- and are projected to use just half as much energy as conventional houses.
Accession Number: 31146
Report Numbers: JA-610-31146

PDF 1.5 MB

Title: Erie-Ellington Homes: The Green Story.
Pages/Volumes: 2 pp.
Editor: Hickory Consortium
Notes: Posted on this Web site with permission from GreenVillage Company / Hickory Consortium.
Subject Category: Affordable Housing; Cold Climate
Document Type: Project Summaries
Abstract: The Erie-Ellington Homes development brings 50 beautiful, affordable homes and a community center to the Four Corners Neighborhood of Boston. It provides a model for residential development of quality, community-based, affordable housing.
Accession Number: 30944
Report Numbers: 30944

Air Distribution Systems

New!

Title: Observations on Changing Residential Design Conditions and Recommendations for Register Assessment for the High Performance Home.

PDF 1.6 MB

Author: Holton, J.K.
Source: ASHRAE Transactions: Research. Vol. 108(2) 2002
Pages/Volumes: pp. 351-359
Publication Year: 2002

Notes: The following article was published in ASHRAE Transactions (Volume 108, Part 2, pp. 351-359). © 2002 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for educational purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at www.ashrae.org.
Subject Category: Air Distribution Systems
Document Type: Technical Reports
Abstract: There are significant differences between the conditions for which registers have traditionally been designed and tested and the conditions in today's high performance house. This paper examines many of these differences through field evaluation studies and test chamber experiments. It proposes a new set of topics to develop a set of register performance measures that are more appropriate to high performance residential applications.
Accession Number: 33074
Report Numbers: 33074

New!

Title: Your New Home: Duct Hunting, Part I.
Author: Salant, K.
PDF 129 KB
Source: The Daily Camera. Vol. Section G January 28, 2001
Pages/Volumes: pp. 15G
Publication Year: 2001
Publisher, Place: Boulder, CO: The Daily Camera
Notes: Reprinted courtesy of The Daily Camera.
Subject Category: Air Distribution Systems
Document Type: Magazine/Newspaper Articles
Abstract: With the Building America approach, buyers pay a minimal amount extra to get energy efficiencies and greater comfort and savings from day one.
Accession Number: 31936
Report Numbers: 31936

New!

Title: Your New Home: Duct Hunting, Part II.
Author: Salant, K
PDF 151 KB
Source: The Daily Camera. Vol. Section G February 4, 2001
Pages/Volumes: pp. 19G
Publication Year: 2001
Publisher, Place: Boulder, CO: The Daily Camera
Notes: Reprinted courtesy of The Daily Camera.
Subject Category: Air Distribution Systems
Document Type: Magazine/Newspaper Articles
Abstract: With the Building America approach, buyers pay a minimal amount extra to get energy efficiencies and greater comfort and savings from day one.
Accession Number: 31937
Report Numbers: 31937

PDF 573 KB

Title: Building America System Performance Test Practices: Part 2, Air Exchange Measurements.
Author: Hancock, E.; Norton, P.; Hendron, B.
Pages/Volumes: 25 pp.
Publication Year: 2002
Subject Category: Air Distribution Systems; Performance Analysis and Tests;

Ventilation Systems
Document Type: Technical Reports
NTIS/GPO Number: 15000840
Abstract: Staff at the National Renewable Energy Laboratory's Center for Buildings and Thermal Systems and associated contractors perform experiments to quantify the air-exchange characteristics of homes built within the Building America program. This report documents the test practices used. The document was prepared to increase understanding of the advantages and limitations of the approach described. This document is not intended to be a standard protocol for these test measurements.
Accession Number: 30270
Report Numbers: TP-550-30270

PDF 696 KB

Title: McStain Sets IAQ Standard.
Author: Andrews, S.
Source: HomeBuilder Magazine. January 2001
Pages/Volumes: pp. 13-15
Publication Year: 2001
Notes: Posted with permission from the HomeBuilder's Association of Metropolitan Denver.
Subject Category: Ventilation Systems; Air Distribution Systems; Cold Climate
Document Type: Magazine/Newspaper Articles
Abstract: McStain Enterprises builds homes in the Denver, Colorado, Metropolitan area. Soon, this company will incorporate a simple, yet effective, controlled ventilation system in all homes it builds. The company's goal is to score no lower than 84 on the E-Start rating scale.
Accession Number: 31045
Report Numbers: JA-610-31045

No PDF

Title: Evaluation of Turbulence Effect on Air Distribution Performance Index (ADPI).
Author: Abu-El-Hassan, M. B.; Hosni, M. H.; Miller, P. L.
Source: ASHRAE Transactions 1996: Technical and Symposium Papers Presented at the 1996 Annual Meeting of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 22-26 June 1996, San Antonio, Texas. ASHRAE Transactions, Vol. 102, Part 2.
Pages/Volumes: pp. 322-331
Publication Year: 1996
Publisher, Place: Atlanta, GA: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
Subject Category: Air Distribution Systems
Document Type: Technical Reports
Abstract: Proper distribution of conditioned air plays an important role in both the comfort of the occupants and the air quality of ventilated or air-conditioned spaces. Conditioned air should be supplied in proper quantities and temperatures to meet various thermal requirements of occupied spaces. Large air velocities, temperature gradients, and turbulence intensities should be avoided since these factors either individually or combined, may cause draft, which is undesirable for occupants, The main objectives of this study were to evaluate the air distribution performance indes (ADPI) based on measured centerline data and determine the effect of turbulence on ADPI. The data were collected in a large room (24 by 16 by 9 ft [7.3 by 4.9 by 2.7m]) with a high

sidewall grill. The airflow characteristics at the centerline of the room for 21 cases under both isothermal and nonisothermal flow conditions were investigated. The results showed that ADPI values determined using the "centerline" data and the "whole room" data were approximately the same. The ADPI results were strongly dependent on the room heat load and the airflow rate. The effect of turbulence on ADPI was investigated using a comfort model, and a modified ADPI model was presented. The results showed that the turbulence intensity strongly affected ADPI values at high airflow rates.
Accession Number: 23349
Report Numbers: 23349

PDF 1.3 MB

Title: Toward a Simplified Design Method for Determining the Air Change Effectiveness.
Author: Rock. B. A.; Brandemuehl, M. J.; Anderson, R. S.
Source: ASHRAE Transactions 1995: Technical and Symposium Papers Presented at the 1995 Winter Meeting of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 25-29 January 1995, Chicago, Illinois. ASHRAE Transactions, Vol. 101, Part 1.
Pages/Volumes: pp. 217-227
Publication Year: 1995
Publisher, Place: Atlanta, GA: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Subject Category: Air Distribution Systems
Document Type: Technical Reports
Abstract: Modeling techniques for the design and analysis of air diffusion in occupied rooms are being developed to provide a simple and reliable method for determining heating, ventilating, and air-conditioning (HVAC) system compliance with ventilation standards. Simplified two-region models of rooms are used with six occupancy patterns to find the air change effectiveness.
Accession Number: 21021
Report Numbers: 21021

Cold Climate

PDF 675 KB

Title: Prairie Crossing, Prairie Holdings Corporation, Grayslake, Illinois.
Source: Building Science Consortium.
Pages/Volumes: 2 pp.
Publication Year: 2002
Notes: This publication was produced under Building America. Online at www.buildingscience.com.
Subject Category: Cold Climate
Document Type: Project Summaries
Abstract: Prairie Crossing was the first community-scale Building America project in the United States, opening in 1996. This cold-climate community is built with conservation of the environment in mind.
Accession Number: 31671

Report Numbers: 31671

PDF 3.0 PDF

Title: Built Green and Beyond . . . Stapleton homes will be a better buy.
Author: Knott, M.
Source: The Stapleton Front Porch. Winter 2002
Pages/Volumes: pp. 3
Publication Year: 2002
Notes: Posted on this Web site with permission from Forest City Stapleton, Inc.
Subject Category: Cold Climate; Envelope and Window Systems; Heating Systems; Cooling Systems
Document Type: Magazine/Newspaper Articles
Abstract: Forest City's commitment to sustainable development at Stapleton includes a requirement that all of its homebuilders produce homes that meet or exceed the Built Green standards of the Home Builders Association of Metro Denver.
Accession Number: 31934
Report Numbers: 31934

PDF 2.0 MB

Title: Engle Homes leapfrogging the pack.
Author: Andrews, S.
Source: HomeBuilder Magazine. Vol. 40(11) November 2001
Pages/Volumes: pp. 10, 33, 38
Publication Year: 2001
Notes: Posted on this Web site with permission of Home Builders Association of Metropolitan Denver.
Subject Category: Cold Climate
Document Type: Magazine/Newspaper Articles
Abstract: Forced-air HVAC systems are linked to a surprising number for comfort, health, safety, durability and energy-efficiency problems. Engle homes is moving their HVAC systems to the leading edge in the industry and will be testing every system to make sure it performs to their specifications.
Accession Number: 32111
Report Numbers: 32111

PDF 1.0 MB

Title: How Low Can You Go?.
Author: Tanzer, V.
Source: Permanent Buildings and Foundations. July 1, 2001
Pages/Volumes: pp. 48
Publication Year: 2001
Notes: Posted on the Web site with permission from Permanent Buildings and Foundations magazine.
Subject Category: Cold Climate
Document Type: Magazine/Newspaper Articles
Abstract: Otto Van Geet of Idaho Springs, Colorado, has a 3,000-sq-ft concrete-block house that cost a mere $100 for heating and power in 1999 in spite of the rough alpine climate.
Accession Number: 32113
Report Numbers: 32113

PDF 188 KB

Title: Cambridge Homes Increases Energy Efficiency in a Mix of Housing Types. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Cold Climate
Document Type: Project Summaries
Abstract: New houses designed by Cambridge Homes in Crest Hill, Illinois, with technical support from the U.S. Department of Energy's Building America Program, save their homeowners money by applying the principles of "whole-building" design to the entire home product line. Regardless of the model chosen, home buyers can enjoy consistently high levels of comfort and performance with the added benefit of reduced operating costs.
Accession Number: 30459
Report Numbers: FS-550-30459

PDF 1.4 MB

Title: The House as a System: Combustion Safety.
Author: Andrews, S.
Source: HomeBuilder Magazine. January 2001
Pages/Volumes: pp. 16-32
Publication Year: 2001
Notes: Posted with permission from HomeBuilders Association of Metropolitan Denver.
Subject Category: Cold Climate; Heating Systems; Hot Water Systems
Document Type: Magazine/Newspaper Articles
Abstract: Along Colorado's Front Range, new home combustion appliances are assumed to be safe. However, exhaust systems are rarely tested for performance and safety. Between 1988 and 1996, 115 people died due to unintentional exposure to carbon monoxide, many others became sick. The safest solution is that "Only sealed-combustion, power-vented, induced-draft or direct-vented combustion appliances should be used for space conditioning and domestic hot water."
Accession Number: 31046
Report Numbers: JA-610-31046

PDF 3.9 MB

Title: Improved Framing and Ductwork Lower Energy Costs: McStain Enterprises, Longmont, CO. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2000
Subject Category: Cold Climate
Document Type: Project Summaries
Abstract: McStain Enterprises' new cottage-style homes built under the U.S. Department of Energy's Building America program are designed to greatly reduce energy costs and improve indoor air quality for their customers in Longmont, Colorado. In addition, energy-efficient features in the homes provide owners with greater durability and value, allow some buyers to qualify for special energy-efficient mortgages, and can result in higher resale values. Features include improved building envelope and air distribution systems, high-efficiency heating and cooling systems, improved indoor air quality, Green Builder concepts from Colorado's Green Builder Program.
Accession Number: 27208
Report Numbers: FS-550-27208

PDF 212 KB

Title: Colorado Builder Joins Efficient Home Parade.
Source: Frame Builder News. August 2000
Pages/Volumes: p.16
Editor: Stottrup, E., ed.
Publication Year: 2000
Notes: Posted with permission from Frame Builder News..
Subject Category: Cold Climate
Document Type: Magazine/Newspaper Articles
Abstract: Six new energy- and resource-efficient homes are being introduced into the Boulder, Colorado, market as part of a federal project to increase public access to integrated whole-building design.
Accession Number: 31142
Report Numbers: JA-610-31142

PDF 144 KB

Title: Prairie Crossing Homes. Office of Building Technology, State and Community Programs (BTS) Case Study (Brochure).
Pages/Volumes: 4 pp.
Publication Year: 1999
Subject Category: Cold Climate
Document Type: Project Summaries
Abstract: More than three hundred homes are being built in a northwest Chicago suburb that demonstrate the "whole house" design concept. The homes cost approximately the same as competitive houses of the same size but use approximately 50% less energy for heating and cooling.
Accession Number: 26261
Report Numbers: BR-330-26261; DOE/GO-10099-738

PDF 508 KB

Title: Ryan Homes and the Consortium for Advanced Residential Buildings. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 1999
Subject Category: Cold Climate
Document Type: Project Summaries
Abstract: Through Building America's unique collaboration process, Ryan Homes, the U.S. Department of Energy, the National Renewable Energy Laboratory, and the Consortium for Advanced Residential Buildings worked together to identify ways to incorporate money-saving energy features throughout the Carborne house.
Accession Number: 26476
Report Numbers: FS-810-26476; DOE/GO-10099-791

PDF 828 KB

Title: Developing a Better Shell for Lab House.
Author: Holton, J. K.
Source: ASHRAE Journal. Vol. 39(11) November 1997
Pages/Volumes: pp. 56-59
Publication Year: 1997
Notes: The following article was published in ASHRAE Journal. Copyright 1997 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE, and is presented for educational purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at

www.ashrae.org.
Subject Category: Envelope and Window Systems; Foundation Systems; Cold Climate; Performance Analysis and Tests
Document Type: Technical Reports
Abstract: The Residential Integrated Systems Application project is the initial effort of a home building research and development consortium consisting of building products manufacturers and an A/E firm. The objective to develop methods to construct homes that are energy efficient, environmentally response, offer improved quality and are affordable.
Accession Number: 30939
Report Numbers: JA-610-30939

Cooling Systems

PDF 4.7 MB
Title: Cost-Effective, Energy-Efficient Residence.
Author: Griffiths, D.; Zoeller, W.
Source: ASHRAE Journal. April 2001
Pages/Volumes: pp. 56-58
Publication Year: 2001
Notes: Posted with permission from ASHRAE.
Subject Category: Hot-Humid Climate; Cooling Systems
Document Type: Project Summaries
Abstract: One of the goals of the Building America program, sponsored by the U.S. Department of Energy, is to produce energy-efficient environmentally sensitive, affordable and adaptable residences on a community scale. The Consortium for Advanced Residential Buildings (CARB) worked with one of America's largest production builders to develop a new innovative home, the Carbury. Its design and technical features can easily be applied on a community scale.
Accession Number: 31113
Report Numbers: JA-610-31113

Cost-Performance Tradeoffs

PDF 188 KB
Title: Elements of an Energy-Efficient House. Energy Efficiency and Renewable Energy Clearinghouse (EREC) Brochure.
Pages/Volumes: 8 pp.
Publication Year: 2000
Subject Category: Cost-Performance Tradeoffs
Document Type: Bulletins
Abstract: A fact sheet that explains the elements of an energy-efficient house.
Accession Number: 27835
Report Numbers: 27835; DOE/GO-102000-1070

PDF 140 KB
Title: Energy Efficiency Pays: Systems Approach Cuts Home Energy Waste and Saves Money. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 1999
Subject Category: Cost-Performance Tradeoffs

Document Type: Bulletins
Abstract: A fact sheet explaining the technology and benefits of energy efficient residential construction using the "whole building" approach.
Accession Number: 26290
Report Numbers: BR-330-26290; DOE/GO-10099-746

PDF 420 KB

Title: Building America: Cost Saving System Trade-Offs for Mixed Climates. Office of Building Technology, State and Community Programs (BTS) Case Study Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 1999
Subject Category: Cost-Performance Tradeoffs; Mixed-Dry Climate; System Engineering Research
Document Type: Project Summaries
Abstract: The project shown in this fact sheet uses "break points," where the cost of the energy-efficient features are balanced by the reductions of other construction costs. The goal of the Building America program is to produce energy efficient, environmentally sensitive, affordable, and adaptable residences on a community scale.
Accession Number: 26536
Report Numbers: FS-550-26536

PDF 1.2 MB

Title: Building America: Cost Saving System Trade-Offs for Hot Climates. Office of Building Technology, State and Community Programs (BTS) Case Study Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 1999
Subject Category: Hot-Dry Climate; Cost-Performance Tradeoffs; System Engineering Research
Document Type: Project Summaries
Abstract: This Building America fact sheet compares the energy performance of vented roofs versus unvented roofs and high performance windows versus conventional double glazed windows in homes in Tucson, Arizona. The houses are models in the Pulte Home Corporations' Retreat at the Bluffs housing development and have controlled mechanical ventilation to insure air exchange required for good indoor air quality. The design approach addresses the effect of air leakage in ductwork and air handlers in vented attics.
Accession Number: 26884
Report Numbers: FS-550-26884

PDF 1.2 MB

Title: Pulte Homes--Las Vegas, Nevada Cost-Saving System Trade-Offs for Hot, Dry Climates: Building America Project Summary (Fact sheet).
Pages/Volumes: 2 pp.
Publication Year: 1999
Subject Category: Cost-Performance Tradeoffs; Hot-Dry Climate
Document Type: Bulletins; Project Summaries
Abstract: Building America houses in Las Vegas, Nevada, are using state-of-the-art building materials and systems to provide residents with much lower energy bills than standard construction. The houses use unvented roofs, high-performance windows, and combo domestic hot-water and air-conditioning units.
Accession Number: 27158

Report Numbers: FS-550-27158

Envelope and Window Systems

New!

Title: Thermal Performance of Unvented Attics in Hot-Dry Climates: Results from Building America; Preprint .

PDF 565 KB

Author: Hendron, R.; Farrar-Nagy, S.; Anderson, R.; Reeves, P.; Hancock, E.
Pages/Volumes: 11 pp.
Publication Year: 2003
Notes: Prepared for the ISEC 2003: International Solar Energy Conference, 15-18 March 2003, Hawaii Island, Hawaii
Subject Category: Hot-Dry Climate; Envelope and Window Systems
Document Type: Technical Reports
NTIS/GPO Number: 15003044
Abstract: Unvented attics have become a more common design feature implemented by Building America partners in hot-dry climates of the United States. More attention is being focused on how this approach affects heating and cooling energy consumption. By eliminating the ridge and eave vents that circulate outside air through the attic and by moving the insulation from the attic floor to the underside of the roof, an unvented attic become a semi-conditioned space, creating a more benign environment for space conditioning ducts.
Accession Number: 32827
Report Numbers: CP-550-32827

New!

Title: Moisture Control for Buildings.
Author: Lstiburek, J.

PDF 840 KB

Source: ASHRAE Journal. Vol. 44(2) February 2002
Pages/Volumes: pp. 36-41
Publication Year: 2002
Notes: The following article was published by ASHRAE as part of the ASHRAE Journal (February 2002). © 2002 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for educational purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at www.ashrae.org.
Subject Category: Moisture Control; Cold Climate; Hot-Humid Climate; Mixed-Humid Climate
Document Type: Technical Reports
Abstract: Moisture engineering uses an iterative and interdisciplinary systems approach to develop performance metrics to meet moisture-related objectives.
Accession Number: 33288
Report Numbers: 33288

New!

Title: Read This Before You Design, Build or Renovate.
Author: Lstiburek, J.; Brennan, T.

PDF 662 KB

Source: www.buildingscience.com.
Pages/Volumes: 28 pp.
Publication Year: 2001
Publisher, Place: Building Science Consortium
Notes: Posted on this Web site with permission from Building Science

Consortium.
Subject Category: Envelope and Window Systems; Ventilation Systems; Cooling Systems; Affordable Housing
Document Type: Bulletins
Abstract: This document helps builders design, build or renovate homes, keeping in mind the issues of asthma, health, indoor air quality, dust, and living creatures.
Accession Number: 32114
Report Numbers: 32114

PDF 705 KB

Title: Roofs Reflect Better Savings.
Author: Parker, D.; Sonne, J.
Source: Home Energy Magazine. July/August 2001
Pages/Volumes: pp. 24-26
Editor: Mary James, ed.
Publication Year: 2001
Notes: Posted on this Web site with permission from Home Energy Magazine, which is available on the web at www.homeenergy.org. This document may be obtained by emailing contact@homeenergy.org or by calling 510-524-5405.
Subject Category: Hot-Humid Climate; Envelope and Window Systems
Document Type: Magazine/Newspaper Articles
Abstract: Dramatic savings in cooling energy are possible with highly reflective roof systems.
Accession Number: 31186
Report Numbers: JA-610-31186

PDF 392 KB

Title: Thermal Performance Analysis of a High-Mass Residential Building (Preprint).
Author: Smith, M. W.; Torcellini, P. A.; Hayter, S. J.; Judkoff, R.
Pages/Volumes: 8 pp.
Publication Year: 2001
Notes: Prepared for the American Solar Energy Society (ASES) Forum 2001, 21-25 April 2001, Washington, DC
Subject Category: Envelope and Window Systems
Document Type: Technical Reports
Abstract: Minimizing energy consumption in residential buildings using passive solar strategies almost always calls for the efficient use of massive building materials combined with solar gain control and adequate insulation. Using computerized simulation tools to understand the interactions among all the elements facilitates designing low-energy houses. Finally, the design team must feel confident that these tools are providing realistic results. The design team for the residential building described in this paper relied on computerized design tools to determine building envelope features that would maximize the energy performance [1]. Orientation, overhang dimensions, insulation amounts, window characteristics and other strategies were analyzed to optimize performance in the Pueblo, Colorado, climate. After construction, the actual performance of the house was monitored using both short-term and long-term monitoring approaches to verify the simulation results and document performance. Calibrated computer simulations showed that this house consumes 56% less energy than would a similar theoretical house constructed to meet the minimum residential energy code requirements. This paper discusses this high-mass house and compares the expected energy performance, based on the computer simulations, versus actual energy

performance.
Accession Number: 29537
Report Numbers: CP-550-29537

PDF 1.7 MB

Title: Analysis of the Thermal Performance of Tierra I -- A Low-Energy High-Mass Residence.
Author: Smith, M. W.
Pages/Volumes: 89 pp.
Publication Year: 2001
Subject Category: Envelope and Window Systems
Document Type: Technical Reports
Abstract: A low-energy concrete house was designed using passive solar strategies to consume 70% less heating and cooling energy than a base case that conformed to the 1996 Home Energy Rating System (HERS) and the 1995 Model Energy Code (MEC). The performance of this house was then evaluated using computer simulations and measured data. The house, Tierra I, was monitored from July 22, 1996, through October 14, 1997. A Short Term Energy Monitoring (STEM) test was done November 19 to December 10, 1996. Computer simulations of the house were done using SUNREL, an updated version of the hourly data simulation package SERI-RES. The SUNREL model of the house was calibrated using both short- and long-term data. The house achieved energy savings of 56%, below the goal of 70%. The lower than expected savings resulted from problems with the window modeling. As a result, during the design phase the solar gains were overestimated causing an underestimate in the level of insulation necessary to achieve the savings goal. For very low-energy passive solar buildings, it is apparent that very accurate window modeling is required. It also became apparent that accurate ground models are required as well because ground-heat loss accounts for a significant portion of the total heat loss in low-energy buildings.
Accession Number: 25873
Report Numbers: TP-550-25873

No PDF

Title: "Behind the Walls" House Demonstrates SIPs at the 2001 International Builders' Show.
Author: Wachtler, B.
Source: OnSite@SIPA. SIPA Structural Insulated Panel Association. January/February 2001
Pages/Volumes: 2 pp.
Publication Year: 2001
Notes: Posted on this Web site with permission from the Structural Insulated Panel Association.
Subject Category: Envelope and Window Systems
Document Type: Program Summaries; Magazine/Newspaper Articles
Abstract: For the fifth consecutive year, SIPA leads the construction effort to build a demonstration house showing advanced wood products, building systems, and proper building practices at the International Builders Show in Atlanta, Georgia.
Accession Number: 30976
Report Numbers: 30976

PDF 1.8 MB

Title: Attic Access: Office of Building Technology, State and Community Programs (BTS) Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Technology fact sheet on installing insulation coverage and air sealing for the access between living space and the unconditioned attic.
Accession Number: 26447
Report Numbers: 26447; DOE/GO-102000-0768

PDF 1.8 MB

Title: Ceilings and Attics: Office of Building Technology, State and Community Programs (BTS) Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Technology fact sheet on installing insulation and providing ventilation through ceilings and attics
Accession Number: 26450
Report Numbers: 26450; DOE/GO-102000-0771

PDF 262 KB

Title: Air Sealing: Seal Air Leaks and Save Energy! Office of Building Technology, State and Community Programs (BTS) Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Technology fact sheet on sealing air leaks to save energy in your home.
Accession Number: 26446
Report Numbers: BR-810-26446; DOE/GO-102000-0767

PDF 859 KB

Title: Window Industry Technology Roadmap: Office of Building Technology, State and Community Programs (BTS) Brochure.
Pages/Volumes: 23 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Strategic Plans
Abstract: Technology roadmap describing technology vision, barriers, and RD&D goals and strategies compiled by window industry stakeholders and government agencies.
Accession Number: 27994
Report Numbers: BR-810-27994; DOE/GO-102000-0980

PDF 794 KB

Title: Advanced Wall Framing. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 6 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Advanced framing techniques for home construction have been

researched extensively and proven effective. Both builders and home owners can benefit from advanced framing. Advanced framing techniques create a structurally sound home that has lower material and labor costs than a conventionally framed house. This fact sheet describes advanced framing techniques, design considerations, and framing.
Accession Number: 26449
Report Numbers: FS-810-26449; DOE/GO-102000-0770

PDF 765 KB

Title: Wall Insulation. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Fact sheet for homeowners and contractors on how to provide moisture control and insulation in wall systems.
Accession Number: 26451
Report Numbers: FS-810-26451; DOE/GO-102000-0772

PDF 223 KB

Title: Weather-Resistive Barriers. Office of Building Technology, State and Community Programs (BTS) Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Envelope and Window Systems
Document Type: Bulletins
Abstract: Fact sheet for homeowners and contractors on how to select housewrap and other types of weather-resistive barriers.
Accession Number: 28600
Report Numbers: FS-810-28600; DOE/GO-102000-0769

PDF 1.3 MB

Title: Vented and Sealed Attics in Hot Climates.
Author: Rudd, A. F.; Lstiburek, J. W.
Source: ASHRAE Transactions. Vol. 104(2) 1998
Pages/Volumes: pp. 1199-1210
Publication Year: 1998
Notes: The following article was published in ASHRAE Transactions. Copyright 1997 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for educational purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at www.ashrae.org.
Subject Category: Envelope and Window Systems
Document Type: Technical Reports
Abstract: Sealed attic construction, by excluding vents to the exterior, can be a good way to exclude moisture-laden outside air form attics and may offer a more easily constructed alternative for air leakage control at the top of residential buildings. This study showed that, when compared to typically vented attics with the air distribution ducts present, sealed "cathedralized" attics (i.e., sealed attic with the air barrier and thermal barrier (insulation) at the sloped roof plane) can be constructed without an associated energy penalty in hot climates.

Accession Number: 30938
Report Numbers: JA-610-30938

PDF 2.7 KB

Title: Measurement of Attic Temperatures and Cooling Energy Use in Vented and Sealed Attics in Las Vegas, Nevada.
Author: Rudd, A. F.; Lstiburek, J. W.; Moyer, N. A.
Source: EEBA Excellence, The Journal of the Energy Efficient Building Association. Proceedings of the 14th Annual Excellence in Building Conference, 14-17 November 1996, Minneapolis, Minnesota.
Pages/Volumes: 6 pp.
Publication Year: 1996
Notes: Posted with permission from the Energy Efficient Building Association.
Subject Category: Envelope and Window Systems
Document Type: Technical Reports
Abstract: A study consisting of computer modeling and on-site experiments is conducted to determine the usefulness of attic vents. The question is raised of whether they are truly necessary.
Accession Number: 30974
Report Numbers: JA-610-30974

Foundation Systems

New!

PDF 692 KB

Title: Let's Talk About ... Comfort.
Author: Hunt, S.
Source: Quality Home. July 2002
Pages/Volumes: 6 pp.
Publication Year: 2002
Notes: Posted with permission from IBACOS.
Subject Category: Foundation Systems
Document Type: Bulletins
Abstract: Bi-monthly newsletter from IBACOS that focuses on construction quality. This issue deals specifically with thermal comfort.
Accession Number: 33183
Report Numbers: 33183

New!

PDF 458 KB

Title: Let's Talk About ... Moisture & Mold.
Author: Hunt, S.
Source: Quality Home. April 2002
Pages/Volumes: 6 pp.
Publication Year: 2002
Notes: Posted with permission from IBACOS.
Subject Category: Moisture Control; Ventilation Systems; Foundation Systems; Humidity Control Systems
Document Type: Bulletins
Abstract: Bi-monthly newsletter from IBACOS that focuses on construction quality. This issue deals specifically with moisture and mold.
Accession Number: 33182
Report Numbers: 33182

PDF 665 KB

Title: Ground-Coupled Heat and Moisture Transfer from Buildings; Part 1: Analysis and Modeling (Preprint).
Author: Deru, M. P.; Kirkpatrick, A. T.

Pages/Volumes: 12 pp.
Publication Year: 2001
Notes: Prepared for the American Solar Energy Society (ASES) National Solar Conferences Forum 2001, 21-25 April 2001, Washington, DC
Subject Category: Foundation Systems
Document Type: Technical Reports
Abstract: Ground-heat transfer is tightly coupled with soil-moisture transfer. The coupling is threefold: heat is transferred by thermal conduction and by moisture transfer; the thermal properties of soil are strong functions of the moisture content; and moisture phase change includes latent heat effects and changes in thermal and hydraulic properties. A heat and moisture transfer model was developed to study the ground-coupled heat and moisture transfer from buildings. The model also includes detailed considerations of the atmospheric boundary conditions, including precipitation. Solutions for the soil temperature distribution are obtained using a finite element procedure. The model compared well with the seasonal variation of measured ground temperatures.
Accession Number: 29693
Report Numbers: CP-550-29693

PDF 583 KB

Title: Ground-Coupled Heat and Moisture Transfer from Buildings; Part 2: Application (Preprint).
Author: Deru, M. P.; Kirkpatrick, A. T.
Pages/Volumes: 10 pp.
Publication Year: 2001
Notes: Prepared for the American Solar Energy Society (ASES) National Solar Conferences Forum 2001, 21-25 April 2001, Washington, DC
Subject Category: Foundation Systems
Document Type: Technical Reports
Abstract: In this paper the effects of moisture on the heat transfer from two basic types of building foundations, a slab-on-grade and a basement, are examined. A two-dimensional finite element heat and moisture transfer program is used to show the effects of precipitation, soil type, foundation insulation, water table depth, and freezing on the heat transfer from the building foundation. Comparisons are made with a simple heat conduction model to illustrate the dependency of the soil thermal conductivity on moisture content.
Accession Number: 29694
Report Numbers: CP-550-29694

PDF 218 KB

Title: Slab Insulation. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Foundation Systems
Document Type: Bulletins
Abstract: This fact sheet for homeowners and contractors discusses how to insulate slab-on-grade floors and control moisture, air leakage, termites, and radon.
Accession Number: 29237
Report Numbers: BR-810-29237; DOE/GO-102000-0775

PDF 235 KB

Title: Crawlspace Insulation. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Foundation Systems
Document Type: Bulletins
Abstract: This fact sheet for homeowners and contractors contains information on how to manage moisture in the crawlspace, insulate crawlspace walls, insulate underflooring, handle ventilation, and manage radon.
Accession Number: 29238
Report Numbers: BR-810-29238; DOE/GO-102000-0774

Heating Systems

New!

Title: Gustafson cheers Engle's HVAC challenge.
Author: Andrews, S.

PDF 401 KB

Source: HomeBuilder Magazine. Vol. 40(12) December 2001
Pages/Volumes: pp. 10, 12, 15, 33
Publication Year: 2001
Notes: Posted on this Web site with permission from HomeBuilders Association of Metropolitan Denver.
Subject Category: Heating Systems; Cooling Systems; Cold Climate
Document Type: Magazine/Newspaper Articles
Abstract: Engle Homes of Colorado, with consultant Rob DeKieffer (Boulder Design Alliance), met several times with the five HVAC companies that installed their systems. They demonstrated in the field, the critical problems tied to today's HVAC installation, offered their preliminary list of recommendations and then asked, "What do you think?"
Accession Number: 32110
Report Numbers: 32110

PDF 501 KB

Title: Whole-Building Energy Simulation with a Three-Dimensional Ground-Coupled Heat Transfer Model: Preprint.
Author: Deru, M.; Judkoff, R.; Neymark, J.
Pages/Volumes: 18 pp.
Publication Year: 2002
Notes: Prepared for the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) Winter Meeting, 25-29 January 2003, Chicago, Illinois.
Subject Category: Performance Analysis and Tests; Heating Systems
Document Type: Technical Reports
NTIS/GPO Number: 15000848
Abstract: A three-dimensional, finite-element, heat-transfer computer program was developed to study ground-coupled heat transfer from buildings. It was used in conjunction with the SUNREL whole-building energy simulation program to analyze ground-coupled heat transfer from buildings, and the results were compared with the simple ground-coupled heat transfer models used in whole-building energy simulation programs. The detailed model provides another method of testing and refining the simple models and analyzing complex problems. This work is part of an effort to improve the analysis of the ground-coupled heat transfer in building energy simulation programs. The output from this detailed model and several others will form a

set of reference results for use with the BESTEST diagnostic procedure. We anticipate that the results from the work will be incorporated into ANSI/ASHRAE 140-2001, Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs.
Accession Number: 32690
Report Numbers: CP-550-32690

Hot Water Systems

New!
PDF 1.0 MB

Title: Performance Comparison of Residential Hot Water Systems; Period of Performance: January 30, 2001 through July 29, 2002.
Author: Wiehagen, J.; Sikora, J. L.
Pages/Volumes: 61 pp.
Publication Year: 2003
Notes: Work performed by NAHB Research Center, Upper Marlboro, Maryland.
Subject Category: Advanced Systems; Hot Water Systems
Document Type: Technical Reports
Abstract: A laboratory test experiment was conducted to measure the energy performance of two different types of water heaters--electric storage tank and demand (tankless)--in two types of plumbing distribution systems--copper piping in a tree configuration and cross-linked polyethylene (PEX) piping in a parallel configuration. Two water-usage patterns were used in the week-long experiments and in the annual simulations: one representing a high-usage home and the other representing a low-usage home. Results of weekly performance testing and annual simulations of electric water-heating systems are presented.
Accession Number: 32922
Report Numbers: SR-550-32922

PDF 836 KB

Title: Water Heating: Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2001
Subject Category: Hot Water Systems
Document Type: Bulletins
Abstract: Fact sheet for homeowners and contractors on how to supply hot water in the home while saving energy.
Accession Number: 26465
Report Numbers: BR-810-26465; DOE/GO-102001-0785

Hot Dry Climate

New!
PDF 918 KB

Title: Copper Moon, Pulte Homes, Tucson, Arizona.
Source: Building Science Consortium.
Pages/Volumes: 1 pp.
Publication Year: 2002
Notes: This publication is a Building America project. Online at www.buildingscience.com.
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
Abstract: Pulte Homes of Tucson, Arizona, has more than 90% customer

satisfaction in their energy-efficient homes. For Pulte, these Building America houses achieved the 2001 Energy Value in Housing Award (EVHA) Builder of the Year.
Accession Number: 31674
Report Numbers: 31674

New!
PDF 1.3 MB

Title: Cinco Ranch, Pulte Homes, Houston, Texas.
Source: Building Science Consortium.
Pages/Volumes: 1 pp.
Publication Year: 2002
Notes: This publication is a Building America project. Online at www.buildingscience.com.
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
Abstract: Pulte-Houston began constructing Building America prototype houses in late 2000. They have overcome many challenges to now produce outstanding energy-efficient homes.
Accession Number: 31675
Report Numbers: 31675

New!
PDF 2.7 MB

Title: Strosnider builds high-tech classic.
Author: Sanchez, L.
Source: Su Casa. Autumn 2001
Pages/Volumes: pp. 40-43
Publication Year: 2001
Notes: Posted on this Web site with permission from Su Casa magazine.
Subject Category: Hot-Dry Climate; Cooling Systems
Document Type: Project Summaries
Abstract: The Strosnider family has 65 years of experience building in Albuquerque. Their featured house in this year's Homes of Enchantment Parade is one of the first custom homes in Albuquerque certified by the Building America Program.
Accession Number: 32112
Report Numbers: 32112

PDF 183 KB

Title: Systems Engineering Saves Energy in Southwest: Pulte Homes--Tucson, Arizona. Building America Project Summary Hot/Dry Climate (Fact Sheet).
Pages/Volumes: 2 pp.
Publication Year: 2002
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
NTIS/GPO Number: 15000364
Abstract: Houses being built in Tucson, Arizona, by Pulte Homes are part of the U.S. Department of Energy Building America program. These homes reduce electric air-conditioning bill and gas-heating bills by 30-50% relative to the 1995 Model Energy Code.
Accession Number: 31701
Report Numbers: FS-550-31701

PDF 911 KB

Title: New American Home: Las Vegas, Nevada--2003. Office of Energy Efficiency and Renewable Energy, Building Technologies Program Brochure.
Pages/Volumes: 4 pp.

Publication Year: 2002
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
NTIS/GPO Number: 15002486
Abstract: The New American Home is an annual showcase project designed by committee and co-sponsored by the National Association of Home Builder's National Council of the Housing Industry (NCHI) and Builder Magazine. This year it was a building project for Amland Development.
Accession Number: 32944
Report Numbers: BR-550-32944

PDF 180 KB

Title: State-of-the-Art Building Concepts Lower Energy Bills: Pulte Homes -- Las Vegas, Nevada. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2002
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
NTIS/GPO Number: 15000368
Abstract: Houses built by Pulte Homes as part of the U.S. Department of Energy's Building America program in Las Vegas, Nevada, save money for the home owners by reducing electric air-conditioning costs and gas heating costs with little or no additional investment.
Accession Number: 31793
Report Numbers: FS-550-31793

PDF 1.2 MB

Title: Thermal Performance of Unvented Attics in Hot-Dry Climates.
Author: Hendron, B.; Anderson, R.; Reeves, P.; Hancock, E.
Pages/Volumes: 58 pp.
Publication Year: 2002
Subject Category: Hot-Dry Climate
Document Type: Technical Reports
NTIS/GPO Number: 15000301
Abstract: As unvented attics become a more common design feature implemented by Building America partners in hot-dry climates of the United States, more attention has been focused on how this approach affects heating and cooling energy consumption. The National Renewable Energy Laboratory (NREL) has conducted field testing and hourly building simulations for several Building America projects to evaluate energy use in vented and unvented attics in hot-dry climates. In summer, testing of the Las Vegas protoype house demonstrated that the thermal performance of an unvented attic is highly dependent on duct leakage.
Accession Number: 30839
Report Numbers: TP-550-30839

PDF 429 KB

Title: Impacts of Shading and Glazing Combinations on Residential Energy Use in a Hot Dry Climate.
Author: Farrar-Nagy, S.; Anderson, R.; Hancock, C. E.; Reeves, P.
Pages/Volumes: 17 pp.
Publication Year: 2000
Notes: Prepared for the 2000 ACEEE Summer Study on Energy Efficiency in Buildings, 20-25 August 2000, Pacific Grove, California
Subject Category: Hot-Dry Climate

Document Type: Technical Reports
Abstract: A residential building in Tucson, Arizona, was studied to evaluate opportunities for reducing cooling energy use in a hot dry climate. The reduction of solar heat gain was strongly influenced by spectrally selective windows, architectural shading, and site shading from adjacent buildings. The study emphasized accurately modeling these features to account for effects on the energy load. Building performance was modeled using a detailed hourly energy simulation tool and was measured while unoccupied for a period of 12 days. Model inputs included direct measurements of the net air exchange rate, surface reflectance, and window transmittance. Model results showed good agreement with the direct measurements of cooling loads and air-conditioning energy use. A parametric study of annual energy use is presented showing the impacts of glazing type, architectural shading, site shading, and building orientation. It is important to understand these interactions to optimize energy savings in community-scale housing developments.
Accession Number: 28203
Report Numbers: CP-550-28203

PDF 211 KB

Title: New Building Approach Saves Energy and Cost: Retreat at the Bluffs Prototype, Pulte Homes, Tucson, Arizona. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2000
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
Abstract: An innovative prototype house built by Pulte Homes as part of the U.S. Department of Energy's Building America program in Tucson, Arizona, saves money for the homeowner by reducing electric air-conditioning costs and gas-heating costs with little or no additional investment.
Accession Number: 28576
Report Numbers: FS-550-28576

(No PDF)

Title: System Interactions and Energy Savings in a Hot Dry Climate.
Author: Farrar, S.; Hancock, E.; Anderson, R.
Source: Panel 1: Residential Buildings: Technologies, Design, and Performance Analysis. 1998 ACEEE Summer Study on Energy Efficiency in Buildings Proceedings.
Pages/Volumes: pp. 1.79-1.91
Publication Year: 1999
Publisher, Place: Washington, DC: American Council for an Energy-Efficient Economy
Subject Category: Hot-Dry Climate
Document Type: Technical Reports
Abstract: To evaluate opportunities for reducing cooling energy use in a hot dry climate, two new production houses located near Phoenix, Arizona, were studied: 1) a control home built with standard construction and 2) a prototype home with an integrated package of energy-saving features. The prototype's energy saving features included spectrally selective windows, interior air handler location, low-loss ducts, and high efficiency air-conditioning equipment. Both houses were monitored while unoccupied for a period of several weeks during very hot weather to evaluate cooling energy use. A comparison of short periods of detailed data showed a cooling energy use reduction of approximately 40% during peak summer conditions. Effects of the

various energy-saving measures and their interactions were separated by a series of test that focused on specific components of the overall cooling load. It is important to understand the interactions of shell measures with mechanical system measures to properly size equipment and minimize overall system costs. An experimental technique was also developed to directly measure the contribution of window solar gains to overall cooling loads.
Accession Number: 24524
Report Numbers: 24524

Hot Humid Climates

PDF 181 KB

Title: Insulated Concrete Homes Increase Durability and Energy Efficiency: Mercedes Homes-- Melbourne, Florida. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Hot-Humid Climate
Document Type: Project Summaries
Abstract: New houses designed by Mercedes Homes in Melbourne, Florida, with technical support from the U.S. Department of Energy's Building America Program, save their homeowners money by using energy efficient features such as a high performance heat pump and solar control glazing to reduce cooling costs.
Accession Number: 30386
Report Numbers: FS-550-30386

PDF 1.4 MB

Title: Prototype House Provides Test Case for Energy-Efficient Systems: Mitchell Homes, Pensacola, Florida. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2000
Subject Category: Hot-Humid Climate
Document Type: Project Summaries
Abstract: The Carbelle prototype house is a new design produced under the U.S. Department of Energy's Building America program. Working with other members of the Consortium for Advanced Residential Buildings, Mitchell Homes developed the Carbelle as an energy-efficient upgrade to one of their standard models. By treating all design aspects of the house as a system and involving all stakeholders in the process, Mitchell experts to decrease on-site energy use for space heating and cooling by as much as 40% compared to their typical construction.
Accession Number: 27209
Report Numbers: FS-550-27209

PDF 235 KB

Title: Precast CARB Home Begun.
Source: Rural Builder. March 2000
Pages/Volumes: p. 6
Editor: Erik Stottrup, ed.
Publication Year: 2000
Notes: Posted on this Web site with permission from Rural Builder Magazine.
Subject Category: Hot-Humid Climate
Document Type: Magazine/Newspaper Articles

Abstract: One of the latest energy efficiency experiments by the Consortium for Advanced Residential Buildings (CARB) is a home being built by Mercedes Homes in Melbourne, Florida.
Accession Number: 31185
Report Numbers: JA-610-31185

Humidity Control Systems

New!

PDF 281 KB

Title: Relative Humidity.
Author: Lstiburek, J.
Source: Proceedings of the Healthy Indoor Environments Conference, April 23, 2002, Austin, Texas.
Pages/Volumes: 10 pp.
Publication Year: 2002
Publisher, Place: Madison, NJ: IAQ Media Group
Notes: Posted on this site with permission from IAQ Media Group.
Subject Category: Humidity Control Systems
Document Type: Technical Reports
Abstract: Determining the correct range of humidity depends on where the home is located, how the home is constructed, the time of year, and the sensitivity of the occupants.
Accession Number: 33077
Report Numbers: 33077

Lighting Systems

New!

PDF 692 KB

Title: Efficient Lighting Strategies: Wise Design Choices Can Meet Lighting Needs and Save Energy. Building Technologies Program, Office of Energy Efficiency and Renewable Energy (EERE) (Brochure).
Pages/Volumes: 6 pp.
Publication Year: 2002
Subject Category: Lighting Systems
Document Type: Bulletins
NTIS/GPO Number: 15002862
Abstract: Fact sheet for homeowners and contractors on how to employ efficient lighting strategies in the home for comfort and safety.
Accession Number: 26467
Report Numbers: **BR-840-26467**; DOE/GO-102002-0787

PDF 750 KB

Title: Vision 2020: The Lighting Technology Roadmap, Executive Summary (Brochure).
Pages/Volumes: 6 pp.
Publication Year: 2000
Subject Category: Lighting Systems
Document Type: Strategic Plans
Abstract: Technology roadmap describing technology vision, barriers, and RD&D goals and strategies compiled by lighting industry stakeholders and government agencies.
Accession Number: 28236
Report Numbers: BR-810-28236; DOE/GO-102000-1015

Manufactured Housing

New!

Title: Moisture Problems in Manufactured Housing: Probable Causes and Cures.

PDF 1.0 MB

Author: Moyer, N.; Beal, D.; Chasar, D.; McIlvaine, J.; Withers, C.; Chandra, S.
Source: IAQ 2001- Moisture, Microbes and Health Effects: Indoor Air Quality and Moisture in Buildings. Proceedings of the Indoor Air Quality Conference, 5-7 November 2001, San Francisco, CA.
Pages/Volumes: 20 pp.
Publication Year: 2001
Publisher, Place: Atlanta, GA: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE)
Notes: The following article was published in ASHRAE Indoor Air Quality 2001 Conference, Nov 5-7, 2001. Copyright 1997 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for education purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at www.ashrae.org.
Subject Category: Manufactured Housing; Humidity Control Systems; Moisture Control
Document Type: Technical Reports
Abstract: A significant number of new manufactured houses built to HUD code and located in the hot, humid Southeast are experiencing moisture problems. Soft wallboards, buckled floors, damaged wood molding and extensive mold growth are the most common symptoms. These problems do not respond to the standard service and repair strategies for water intrusion.
Accession Number: 32144
Report Numbers: 32144

New!

Title: Ventilation in U.S. Manufactured Homes: Requirements, Issues and Recommendations.

PDF 417 KB

Author: Lubliner, M.; Gordon, A.
Source: 21st Annual AIVC Conference, 26 - 29 September 2000, The Hague, Netherlands.
Pages/Volumes: 18 pp.
Publication Year: 2000
Notes: Posted on this Web site with permission from the author Michael Lubliner.
Subject Category: Manufactured Housing; Ventilation Systems
Document Type: Technical Reports
Abstract: U.S. manufactured homes are required to be built to Department of Housing and Urban Development's (HUD) Manufactured Home Construction and Safety Standards (MHCSS). The National Fire Protection Association recently updated ventilation standards for manufactured homes (NFPA501-1999). HUD will review and consider adopting the NFPA501-129999 ventilation standards for their revisions to the MHCSS.
Accession Number: 31067
Report Numbers: 31067

New!

Title: Measured Air-Tightness and Thermal Insulation Quality of 11 Industrialized Houses.

PDF 106 KB

Author: Rudd, A.; Chandra, S.; Tooley, J.
Source: 1993 EEBA / NESEA Conference on Building Solutions, 3 - 6 March 1993, Boston, MA.
Pages/Volumes: pp. 8-12
Publication Year: 1993
Publisher, Place: Minneapolis, MN: Energy Efficient Building Association
Notes: Posted on this Web site with permission from the Energy Efficient Building Association.
Subject Category: Manufactured Housing
Document Type: Technical Reports; Project Summaries
Abstract: Building air-tightness and thermal insulation quality has been evaluated for five major industrialized housing manufacturers in the U.S. A small sample size of 11 houses has been tested to date. The sample includes factory stud-frame panelized, foam core panel, and modular construction.
Accession Number: 31069
Report Numbers: 31069

PDF 1.6 MB

Title: Up to 50% Energy Savings Proven Possible: University Studies Energy Efficiencies in Manufactured Housing.
Author: Sedan, P.
Source: Automated Builder Magazine. Vol. 38(6) June 2001
Pages/Volumes: pp. 20-21
Publication Year: 2001
Notes: Posted with permission from Automated Builder Magazine.
Subject Category: Manufactured Housing
Document Type: Magazine/Newspaper Articles; Project Summaries
Abstract: Using two, identical, double-section HUD-code units, professors and students from North Carolina Agricultural and Technical University (NCA&T) in Greensboro, North Carolina, have begun studying the impact that specific energy-saving features may have on today's manufactured housing.
Accession Number: 31000
Report Numbers: JA-610-31000

PDF 3.3 MB

Title: Champion Enterprises Builds First HUD-Code Home Made of SIPs: DOE Tests Insulation for Building America Program.
Source: Automated Builder Magazine. Vol. 37(10) October 2000
Pages/Volumes: pp. 16-18
Publication Year: 2000
Notes: Posted with permission from Automated Builder Magazine..
Subject Category: Manufactured Housing
Document Type: Magazine/Newspaper Articles; Project Summaries
Abstract: Champion Enterprises, Inc., a world leader in home building, and the U.S. Department of Energy partnered in producing the first manufactured HUD-Code home constructed entirely of structural insulated panels (SIPs). The unit came off the production line in early July and will undergo extensive testing for energy efficiency with expectations of saving over 50% of energy (heating and cooling) costs compared to a minimum standard HUD-Code house.
Accession Number: 30975
Report Numbers: JA-610-30975

PDF 3.4 MB

Title: Industrialized Housing Partnership (BAIHP): BAIHP Project Goals.
Source: Industrialized Housing Partnership (BAIHP).
Pages/Volumes: 2 pp.
Editor: Subrato, C.
Notes: Posted on this Web site with permission from Florida Solar Energy Center.
Subject Category: Manufactured Housing
Document Type: Project Summaries
Abstract: This fact sheet lists Building America Industrialized Housing Partnership (BAIHP) Project Goals, BAIHP Leaders, BAIHP Scope, and BAIHP Activities
Accession Number: 30945
Report Numbers: 30945

Mixed-Dry Climate

New!

PDF 1.8 MB

Title: El Rancho Grande, Artistic Homes, Albuquerque, New Mexico.
Source: Building Science Consortium.
Pages/Volumes: 2 pp.
Publication Year: 2002
Notes: This publication is a Building America project. Online at www.buildingscience.com.
Subject Category: Mixed-Dry Climate
Document Type: Project Summaries
Abstract: El Rancho Grande community of Albuquerque, New Mexico, is a project of Artistic Homes. It was built as part of the Building America program for energy-efficient homes.
Accession Number: 31673
Report Numbers: 31673

New!

PDF 341 KB

Title: Neighboring builder plows new ground.
Author: Andrews, S.
Source: HomeBuilder Magazine. Vol. 40(6) June 2001
Pages/Volumes: pp. 14-15, 20-21
Publication Year: 2001
Notes: Posted on this Web site with permission from Home Builders Association of Metropolitan Denver.
Subject Category: Mixed-Dry Climate; Hot-Dry Climate
Document Type: Magazine/Newspaper Articles
Abstract: Artistic Homes is New Mexico's largest builder. Last year they sold 689 homes, priced between $80,000 and $115,000, to first-time buyers
Accession Number: 32109
Report Numbers: 32109

PDF 293 KB

Title: Unvented Attic Increases Energy Efficiency and Reduces Duct Losses: Pulte Homes - Sun Lakes at Banning, California. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Hot-Dry Climate; Mixed-Dry Climate
Document Type: Project Summaries

Abstract: New houses in the Sun Lakes at Banning subdivision are designed by Pulte Homes with technical support from the Building Science Consortium as part of the U.S. Department of Energy's Building America Program. These homes save their homeowners money by applying the principles of "whole-building" design, which considers the house as a complete system instead of separate components.
Accession Number: 30909
Report Numbers: FS-550-30909

PDF 892 KB

Title: Building America Developments, October 2000, Information Bulletin Number 2 (Rev. July 2001).
Pages/Volumes: 3 pp.
Publication Year: 2000
Notes: Available electronically only..
Subject Category: Mixed-Dry Climate
Document Type: Bulletins
Abstract: This special issue of Building America Developments highlights the new Artistic Homes' models at the Albuquerque Parade of Homes. These new model homes are designed to reduce energy use by 30% to 50% over that of standard, typically constructed new production homes in Albuquerque, New Mexico. The Green Builder Program is also being offered in Metro Albuquerque.
Accession Number: 28952
Report Numbers: BR-550-28952

Mixed-Humid Climate

New!

PDF 1.2 MB

Title: Fairburn, Atlanta, Georgia, for Health-E Enterprises.
Source: Building Science Consortium.
Pages/Volumes: 1 pp.
Publication Year: 2002
Notes: This publication was done for Building America. Online at www.buildingscience.com.
Subject Category: Mixed-Humid Climate
Document Type: Project Summaries
Abstract: Fairburn is the first energy-efficient, healthy, affordable community in metro Atlanta. It is built by Health-E Enterprises of the Building Science Consortium.
Accession Number: 31672
Report Numbers: 31672

New!

PDF 753 KB

Title: EcoVillage Cleveland at 58th St., Cleveland, Ohio.
Source: Building Science Consortium.
Pages/Volumes: 2 pp.
Publication Year: 2002
Notes: This publication is a Building America project. Online at www.buildingscience.com.
Subject Category: Mixed-Humid Climate
Document Type: Project Summaries
Abstract: EcoVillage Cleveland works under the Building America premise that high performance homes must be sustainable both environmentally and economically.
Accession Number: 31676

Report Numbers: 31676

PDF 269 KB

Title: New American Home(R): Atlanta, Georgia--2002. Office of Building Technology, State and Community Programs (BTS), Building America Brochure.
Pages/Volumes: 4 pp.
Publication Year: 2002
Subject Category: Mixed-Humid Climate
Document Type: Project Summaries
NTIS/GPO Number: 15000214
Abstract: The New American Home is an annual showcase project designed by committee and co-sponsored by the National Association of Home Builders' (NAHB) National Council of the Housing Industry (NCHI). This year's project is built by John Wieland Homes and Neighborhoods and supported by IBACOS.
Accession Number: 31470
Report Numbers: BR-550-31470

PDF 280 KB

Title: Building America Developments, February 2001, Information Bulletin Number 3 (Rev. July 2001).
Pages/Volumes: 4 pp.
Publication Year: 2001
Subject Category: Mixed-Humid Climate
Document Type: Bulletins
Abstract: This document is one in a series of information bulletins about the Building America program, member teams, and current projects. This bulletin highlights the construction completed in Atlanta, Georgia, and will focus on the projects related to the International Builders' Show.
Accession Number: 29122
Report Numbers: BR-550-29122

PDF 326 KB

Title: New American Home (R): Atlanta, Georgia 2001; Building America--The New American Home. Office of Building Technology, State and Community Programs (BTS) Brochure.
Pages/Volumes: 4 pp.
Publication Year: 2001
Subject Category: Mixed-Humid Climate
Document Type: Project Summaries
Abstract: The New American Home (R) is an annual showcase project designed by committee and co-sponsored by the National Association of Home Builders' National Council of the Housing Industry, BUILDERS Magazine, and Ladies Home Journal. Hedgewood Properties teamed with Building America's IBACOS Consortium and Southface Energy Institute to build a house with a Home Energy Rating Systems (HERS) level of 90.
Accession Number: 30722
Report Numbers: FS-550-30722

PDF 180 KB

Title: Whole-Building Design Increases Energy Efficiency in a Mixed-Humid Climate: Ideal Homes, Norman, Oklahoma. Building America Project Summary Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Mixed-Humid Climate

Document Type: Project Summaries
Abstract: New houses designed by Ideal Homes, with technical support from the U.S. Department of Energy's Building America Program, save their homeowners money by applying the principles of "whole-building" design. The homes are in Norman, Oklahoma.
Accession Number: 30504
Report Numbers: FS-550-30504

Onsite Power Systems

New!

PDF 987 KB

Title: Guidelines for the Economic Evaluation of Building-Integrated Photovoltaic Power Systems. Photovoltaic Power Systems in the Built Environment.
Author: Eiffert, P.; International Energy Agency (IEA) PVPS Task 7
Pages/Volumes: 52 pp.
Publication Year: 2003
Subject Category: Onsite Power Systems
Document Type: Technical Reports
NTIS/GPO Number: 15003041
Abstract: This report identifies the economic parameters of building-integrated PV (BIPV) systems. The guidelines are structured in three major parts: the investment analysis (methods and ownership issues), benefits, and costs. Measurement and verification are also discussed briefly. The outline and evaluation of investment analysis methods showed their effectiveness for BIPV systems. All investment methods can be used to evaluate BIPV economics (in relation to other techniques). However, for designing and sizing BIPV systems, either net present value or life cycle cost is recommended. The advantages of BIPV systems include multiple (building) functions, electricity benefits, grid-support benefits, control of load growth by utilities (institutionalized by utility and national incentives and programs), demand savings, power quality and reliability, promotional and educational benefits, environmental benefits, shading and thermal benefits, and security. Each topic is addressed, and international examples are given for most. The costs of BIPV systems depend on the system technology, utility interconnection costs, labor and installation costs, associated costs for building permits, maintenance costs, costs for replacement and repair, and the salvage costs (or value). Each topic is addressed, and international examples are given for most.
Accession Number: 31977
Report Numbers: TP-550-31977

Performance Analysis and Tests

New!

PDF 446 KB

Title: Growing market for high-performance homes.
Author: Andrews, S.
Source: HomeBuilder Magazine. Vol. 41(7) July 2002
Pages/Volumes: pp. 8, 10, 18, 21
Publication Year: 2002
Notes: Posted on this Web site with permission from Homebuilder magazine.
Subject Category: Performance Analysis and Tests
Document Type: Magazine/Newspaper Articles
Abstract: A high-performance home, according to Mark LaLiberte, is a healthy, comfortable, affordable, energy efficient, environmentally responsible,

and durable home. According to Ren Andersen, the key Building America performance objective is a 30-50 percent reduction in energy consumption - compared to the same home built to the 1995 CABO Model Energy Code.
Accession Number: 33071
Report Numbers: 33071

PDF 969 KB

Title: International Performance Measurement & Verification Protocol: Concepts and Practices for Improved Indoor Environmental Quality, Volume II (Revised).
Pages/Volumes: 58 pp.
Publication Year: 2002
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
NTIS/GPO Number: 15000244
Abstract: This protocol serves as a framework to determine energy and water savings resulting from the implementation of an energy efficiency program. It is also intended to help monitor the performance of renewable energy systems and to enhance indoor environmental quality in buildings.
Accession Number: 31601
Report Numbers: TP-710-31601; DOE/GO-102002-1517

PDF 2.6 MB

Title: International Performance Measurement and Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume I (Revised).
Pages/Volumes: 93 pp.
Publication Year: 2002
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
NTIS/GPO Number: 15000242
Abstract: This protocol serves as a framework to determine energy and water savings resulting from the implementation of an energy efficiency program. It is also intended to help monitor the performance of renewable energy systems and to enhance indoor environmental quality in buildings.
Accession Number: 31505
Report Numbers: TP-710-31505; DOE/GO-102002-1554

PDF 623 KB

Title: International Performance Measurement & Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume I.
Pages/Volumes: 101 pp.
Publication Year: 2001
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: This international protocol describes a methodology for measuring energy and water savings.
Accession Number: 29564
Report Numbers: TP-810-29564; DOE/GO-102001-1187

PDF 1.6 MB

Title: Building America House Performance Analysis Procedures.
Author: Hendron, B.; Farrar-Nagy, S.; Anderson, R.; Judkoff, R.; Reeves, P.; Hancock, E.
Pages/Volumes: 127 pp.
Publication Year: 2001

Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: As the Building America Program has grown to include a large and diverse cross section of the home building industry, accurate and consistent analysis techniques have become more important to help all program partners as they perform design tradeoffs and calculate energy savings for prototype houses built as part of the program. This document illustrates some of the analysis concepts proven effective and reliable for analyzing the transient energy usage of advanced energy systems as well as entire houses. The analysis procedure described here provides a starting point for calculating energy savings of a prototype house relative to two base cases: builder standard practice and regional standard practice. Also provides building simulation analysis to calculate annual energy savings based on side-by-side short-term field-testing of a prototype house.
Accession Number: 27754
Report Numbers: TP-550-27754

PDF 308 KB

Title: Multi-Criteria Decision-Making Process for Buildings: Preprint.
Author: Balcomb, J. D.; Curtner, A.
Pages/Volumes: 10 pp.
Publication Year: 2000
Notes: Prepared for the American Institute of Aeronautics and Astronautics (AIAA) Conference, 24-28 July 2000, Las Vegas, Nevada
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: This paper focuses on a process designed to facilitate two key decisions early in the building design process that are critical to a building's sustainability. As vital decisions are made during the building's design, the process and accompanying tools assist the design team in prioritizing their goals, setting performance targets, and evaluating design options to ensure that the most important issues affecting building sustainability are considered.
Accession Number: 28533
Report Numbers: CP-550-28533

PDF 659 KB

Title: National Status Report: Home Energy Rating Systems and Energy-Efficient Mortgages.
Author: Plympton, P. C.
Pages/Volumes: 47 pp.
Publication Year: 2000
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: The Energy Policy Act of 1992 included several provisions promoting the use of HERS and EEMs, which strengthened efforts to develop a national infrastructure for HERS and to promote the use of EEMs. This report documents HERS and EEMs activities since 1992 by the U.S. Department of Energy, the U.S. Environmental Protection Agency, the U.S. Department of Housing and Urban Development, mortgage lenders, and other organizations. Though the process of establishing HERS has faced some barriers, this report shows that, as of November 1999, home energy ratings were available in 47 states and the District of Columbia, which represents a significant increase from 1993 when home energy ratings were available in 17 states. Both national and state organizations have developed HERS and related residential energy-efficiency programs. The availability and use of EEMs has also

increased significantly. The number of EEMs supported by the Federal Housing Administration has increased more than eight times in the last three years. More than $2.5 billion in federally supported EEMs have been issued to date. Several national lenders offer EEMs, and six states have state-specific EEM or loan programs. EEMs have been used to finance energy-efficient homes in every state.
Accession Number: 27635
Report Numbers: TP-550-27635

PDF 2.5 MB

Title: M&V Guidelines: Measurement and Verification for Federal Energy Projects, Version 2.2.
Author: Schiller, S. R.; Jump, D. A.; Franconi, E. M.; Stetz, M.; Geanacopoulos, A.
Pages/Volumes: 340 pp.
Publication Year: 2000
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: This document provides guidelines and methods for measuring and verifying the savings associated with federal agency performance contracts. It contains procedures and guidelines for quantifying the savings resulting from energy efficiency equipment, water conservation, improved operation and maintenance, renewable energy, and cogeneration projects implemented under federal agency-financed energy savings performance contracts.
Accession Number: 26265
Report Numbers: BK-710-26265; DOE/GO-102000-0960

PDF 4.8 KB

Title: New American Home to Win HERS Rating.
Source: Energy Design Update. Vol. 20(12) December 2000
Pages/Volumes: pp. 1-2
Editor: Cutter Information Corporation
Publication Year: 2000
Publisher, Place: Surrey, New Hampshire
Notes: Posted on this Web site with permission from Cutter Information Corporation.
Subject Category: Performance Analysis and Tests
Document Type: Magazine/Newspaper Articles
Abstract: New American Home unveiled at the International Builders' Show in Atlanta, Georgia, in February 2001. Built by Hedgewood Properties, this large, plush home was equipped with many amenities and scored 90 or better on its Home Energy Rating (HERS)
Accession Number: 30946
Report Numbers: 30946

PDF 953 KB

Title: Side-By-Side Thermal Tests of Modular Offices: A Validation Study of the STEM Method.
Author: Judkoff, R.; Balcomb, J. D.; Hancock, C. E.; Barker, G.; Subbarao, K.
Pages/Volumes: 39 pp.
Publication Year: 2000
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: Two modular office units were tested at the National Renewable Energy Laboratory (NREL) to establish each unit's thermal performance. The

two units were nearly identical in appearance, but one was built with structural insulating panels (SIP), and the other was built using standard frame construction. The primary objective of these tests was to compare the thermal performance of buildings using SIP and standard frame construction. Both units were tested under carefully controlled steady-state conditions in the NREL large-scale environmental enclosure. They were then moved outdoors where Short-Term Energy Monitoring (STEM) tests were performed, and long-term heating and cooling energy use was measured. A secondary objective was to evaluate the accuracy of the NREL STEM method by comparing the results of outdoor STEM tests to steady-state indoor test results. STEM is a method developed by NREL to determine key thermal parameters of a building in-situ, based on a 3-day test sequence. The indoor test facility also provided the opportunity to investigate the phenomenon of infiltration heat recovery in a real building, under carefully controlled conditions, to evaluate the stability of the "concentration decay" method of tracer gas-based infiltration monitoring, and to compare the blower-door method with the tracer-gas technique in determining infiltration. This project was a cooperative effort with the Structural Insulated Panel Association, the Modular Building Institute, All-American Modular (AAM, the manufacturer of the units), and GE Capitol (the owner of the units). Richard Harmon, the president of AAM, requested NREL's assistance in exploring the feasibility of converting his manufacturing process to SIP construction. His engineering staff needed to assess which comfort and energy benefits might be associated with this new technology. AAM manufactured the two units, and NREL tested the modules for 8 months.
Accession Number: 23940
Report Numbers: TP-550-23940

PDF 420 KB

Title: Software Tools for Energy Efficient Buildings: BTS Buildings for the 21st Century Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 1999
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: A summary of the software available to building industry professionals on the Internet Web site www.eren.doe.gov/buildings/tools_directory.
Accession Number: 26256
Report Numbers: FS-26256; DOE/GO-10099-744

No PDF

Title: Using ENERGY-10 for Trade-Off Evaluations of Energy-Efficient Strategies in IEA Task 23.
Author: Balcomb, J. D.
Source: Green Building Challenge '98: Proceedings of An International Conference on the Performance Assessment of Buildings, 26-28 October 1998, Vancouver, Canada.
Pages/Volumes: Vol. 1; pp. 355-362
Publication Year: 1999
Publisher, Place: Ottawa, Canada: Natural Resources Canada
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: The International Energy Agency's Solar Heating and Cooling Program Task 23 entitled, "Optimization of Solar Energy Use in Large Buildings", focuses on the study of a design process that best enables a

realization of low-energy buildings. The 5-year task is in its second year. Through a series of four subtasks, participants from 12 countries first identify the process employed in case-study buildings selected in each country and then focus on design-process recommendations. Key to the identification of appropriate strategies is the use of tools for trade-off analysis. The U.S. computer program ENERGY-10 is being used within the Task as an example of a design tool with most of the characteristics required. This paper discusses how ENERGY-10 is being used and identifies some intermediate results.
Accession Number: 27169
Report Numbers: 27169

No PDF

Title: Short-Term Energy Monitoring: A Quick Way to Predict Long-Term Energy Performance. Energized (Fact sheet).
Pages/Volumes: 2 pp.
Publication Year: 1995
Subject Category: Performance Analysis and Tests
Document Type: Project Summaries
NTIS/GPO Number: DE95000254
Abstract: Long-term building energy efficiency can now be determined from building data collected during a short period. This fact sheet examines the STEM test, a rapid, cost-effective way to verify the energy performance of residential and small commercial buildings and isolate the effects of individual components that influence energy use.
Accession Number: 15819
Report Numbers: TP-470-5776-U

No PDF

Title: Short-Term Energy Monitoring for Commercial Buildings.
Author: Balcomb, J. D.; Burch, J. D.; Westby, R.; Subbarao, K.; Hancock, C. E.
Source: ACEEE 1994 Summer Study on Energy Efficiency in Buildings, 28 August - 3 September 1994: Proceedings, Panel 5 Commissioning, Operation, and Maintenance.
Pages/Volumes: pp. 5.1-5.10
Publication Year: 1994
Publisher, Place: Washington, DC: American Council for an Energy-Efficient Economy (ACEEE)
Subject Category: Performance Analysis and Tests
Document Type: Technical Reports
Abstract: The short-term energy monitoring (STEM) method is being used with commercial buildings, starting with units in the 5,000 to 15,000-square-foot range. The method helps disaggregate and understand building hear flows to a degree that had not previously been demonstrated and with much greater accuracy.
Accession Number: 20915
Report Numbers: 20915

Severe Cold Climate

New!
PDF 1.1 MB

Title: Oakbrooke Patio Homes, Pulte Homes, Minneapolis, Minnesota.
Source: Building Science Consortium.
Pages/Volumes: 1 pp.
Publication Year: 2002
Notes: Published as part of Building America. Online at www.buildingscience.com.
Subject Category: Severe-Cold Climate
Document Type: Project Summaries
Abstract: Pulte-Minnesota has been working with Building Science Consortium and Building America since 1996 to build homes for severe cold climates.
Accession Number: 31670
Report Numbers: 31670

Solar Load Control Systems

PDF 414 KB

Title: How to Size a Grid-Connected Solar Electric System: Better Buildings Series Solar Electric Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2002
Subject Category: Solar Load Control Systems
Document Type: Technical Reports
NTIS/GPO Number: 15000946
Abstract: This fact sheet provides the consumer with a concise overview of how to size a grid-connected solar electric system. The initial process for collection of data is explained, followed by a description of how to use the data to determine the correct size of the system. A worksheet for determining the required number of panels for the consumer's home is included.
Accession Number: 31688
Report Numbers: FS-520-31688; DOE/GO-102002-1607

PDF 212 KB

Title: Passive Solar Design: The Foundation for Low-Energy Federal Buildings . Federal Energy Management Program (FEMP) Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Solar Load Control Systems
Document Type: Bulletins
Abstract: This fact sheet updates a similar one published in 1996 for the U.S. Department of Energy's Federal Energy Management Program. It is part of a series of fact sheets on ways that the Federal government can incorporate new energy efficiency, solar energy, and other renewable energy technologies in buildings and other facilities to save on energy costs and reduce greenhouse gas emissions. This fact sheet describes strategies for implementing passive solar features - such as south-facing windows, daylighting, and thermal mass - into new building designs and retrofits. It also discusses how to design and build low-energy, sustainable buildings by using a "whole-building approach" to the design process. In this approach, designers not only use passive solar techniques, they also create a design that makes the most of the complex ways that a building's occupants, components, and materials connect and interact in order to achieve the greatest possible comfort and energy efficiency.

Accession Number: 26015
Report Numbers: 26015; DOE/GO-102000-728

System Engineering Research

New!
PDF 924 KB

Title: Building America Program. 2002 State Energy Program / Rebuild America National Conference.
Author: James, G.
Pages/Volumes: 27 pp.
Publication Year: 2002
Publisher, Place: New Orleans, Louisiana
Notes: 2002 State Energy Program / Rebuild America National Conference
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: A summary of the research, development, technology implementation, and cost-share activities of Building America.
Accession Number: 33225
Report Numbers: 33225

PDF 1.6 MB

Title: Energy Star for Homes Progress Report (Viewgraphs).
Author: Lee, D.
Source: Building American Update Workshop.
Pages/Volumes: 25 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: How the ENERGY STAR for Homes program sells the concept of energy efficient homes to builders. Materials provided to builders of energy efficient homes and its relationship to Building America.
Accession Number: 30960
Report Numbers: PR-610-30960

PDF 1.5 MB

Title: Southface Energy Institute (Viewgraphs).
Author: Creech, D.
Source: Building America Update Workshop.
Pages/Volumes: 9 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Southface Energy Institute of Building America summary of projects, partners, training and technical assistance.
Accession Number: 30955
Report Numbers: PR-610-30955

PDF 748 KB

Title: Whole-House Approach Benefits Builders, Buyers, and the Environment. Building America Program Overview: Office of Building Technology, State and Community Programs (BTS) Brochure.
Pages/Volumes: 8 pp.
Publication Year: 2001
Subject Category: System Engineering Research

Document Type: Program Summaries
NTIS/GPO Number: 15000960;775818
Abstract: This document provides an overview of the U.S. Department of Energy's Building America program. Building America works with the residential building industry to develop and implement innovative building processes and technologies-innovations that save builders and homeowners millions of dollars in construction and energy costs. This industry-led, cost-shared partnership program aims to reduce energy use by 50% and reduce construction time and waste, improve indoor air quality and comfort, encourage a systems engineering approach for design and construction of new homes, and accelerate the development and adoption of high performance in production housing.
Accession Number: 27745
Report Numbers: BR-550-27745

PDF 826 KB

Title: Building America Program, ORNL Outreach (Viewgraphs only).
Author: Love, P.
Pages/Volumes: 12 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Provides introduction to Pacific Northwest National Laboratory and its Building America programs; discussion of design and construction of SIPs.
Accession Number: 30949
Report Numbers: PR-610-30949

PDF 752 KB

Title: Hickory Consortium (Viewgraphs only).
Author: Hampton, B.; Stuntz, S.
Pages/Volumes: 34 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Summary of the Hickory Consortium of Building America, their projects and success stories. Explanation of their strategy for Green building and sustainability.
Accession Number: 30951
Report Numbers: PR-610-30951

PDF 89 KB

Title: Partnership for Advancing Technology in Housing (PATH) (Viewgraphs only).
Author: Talbott, J.
Pages/Volumes: 10 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Goals of the Partnership for Advancing Technology in Housing

(PATH) and industry-related PATH activities, including Building America.
Accession Number: 30961
Report Numbers: PR-610-30961

PDF 2.6 MB

Title: IBACOS: Home to Innovation (Viewgraphs).
Author: Oberg, B.
Source: Building America Update Workshop.
Pages/Volumes: 53 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: The IBACOS team of Building America summary of their Builders Programs, Buildings Partners, Manufacturer Partners, alliances and vision.
Accession Number: 30952
Report Numbers: PR-610-30952

PDF 902 MB

Title: Innovations in Manufactured Housing and Modular Classrooms (Viewgraphs only).
Author: Baechler, M.
Pages/Volumes: 15 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Provides introduction to Pacific Northwest National Laboratory and its Building America programs; discussion of design and construction of SIPs.
Accession Number: 30948
Report Numbers: PR-610-30948

PDF 1 MB

Title: Building America Update (Viewgraphs only).
Author: Anderson, R.
Pages/Volumes: 36 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Summary of Building America results, such as cost/benefits, technical and programmatic challenges, barriers, and strategic approaches.
Accession Number: 30947
Report Numbers: PR-610-30947

PDF 2.6 MB

Title: DOE Building America Program / DOE Buildings Technology Center Integration (Viewgraphs).
Author: Christian, J.
Source: Building America Update Workshop.
Pages/Volumes: 44 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research

Document Type: Presentations
Abstract: Building America program, Buildings Technology Center Integration promotes insulated concrete houses, its moisture research, systems integration, and whole wall hot box testing.
Accession Number: 30962
Report Numbers: PR-610-30962

PDF 818 KB

Title: Systems Engineering Approach to the Design of Energy and Resource Efficient Homes (Viewgraphs).
Author: Chism, L.
Source: Building American Update Workshop.
Pages/Volumes: 30 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Home Builders Association of Central New Mexico summary of key program components in Building America, performance criteria, performance goals, cost tradeoffs.
Accession Number: 30956
Report Numbers: PR-610-30956

PDF 944 KB

Title: Building Science Consortium (Viewgraphs only).
Author: Pettit, B.
Pages/Volumes: 49 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Strategies to use Systems Engineering to develop cost trade-offs in Building America projects. Use of climate-specific strategies for improving the building envelope and downsizing of mechanical equipment.
Accession Number: 30950
Report Numbers: PR-610-30950

PDF 1.6 MB

Title: Consortium for Advanced Residential Buildings (CARB) (Viewgraphs only).
Author: Bruncati, C.; Zoeller, B.
Pages/Volumes: 30 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Mission statement for Consortium for Advanced Residential Buildings (CARB) of Building America. Summary of projects and associated builders.
Accession Number: 30953
Report Numbers: PR-610-30953

PDF 6.7 MB

Title: Florida Solar Energy Center: Industrialized Housing Partnership (Viewgraphs).
Author: Chandra, S.
Source: Building America Update Workshop.
Pages/Volumes: 69 pp.
Editor: Anderson, R., ed.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Florida Solar Energy Center presents summary of Building America Industrialized Housing Partnership. Includes list of goals, description of teams and collaborators and program highlights.
Accession Number: 30954
Report Numbers: PR-610-30954

PDF 2.0 MB

Title: EEBA, Building America Integration Workshop (Viewgraphs).
Author: Guidera, K.
Source: Building America Update Workshop.
Pages/Volumes: 20 pp.
Editor: Anderson, R.
Publication Year: 2001
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Explanation of what is the Energy & Environmental Building Association (EEBA) and its relationship to Building America, what tools they use to reach the public, their curriculum modules, institute partners, and target audience.
Accession Number: 30958
Report Numbers: PR-610-30958

PDF 382 KB

Title: Future of Residential Green Buildings: Fannie Mae's Perspective (Viewgraphs only).
Author: Desiderio, M.
Pages/Volumes: 15 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations
Abstract: Mission of Fannie Mae, partnership between NAHB and Fannie Mae, how Fannie Mae encourages energy efficiency in home building, its relationship to Building America.
Accession Number: 30957
Report Numbers: PR-610-30957

PDF 197 KB

Title: Community Energy Efficiency Program (Viewgraphs only).
Author: Hodgson, M.
Pages/Volumes: 10 pp.
Publication Year: 2001
Notes: Presentations from the Building America Update Workshop, 10-11 April 2001, Washington, DC.
Subject Category: System Engineering Research
Document Type: Presentations

Abstract: Description of the Community Energy Efficiency Program of Building America, their requirements, local benefits of "green" building, and builders protocols.
Accession Number: 30959
Report Numbers: PR-610-30959

Ventilation Systems

New!

PDF 400 KB

Title: Whole-House Ventilation Systems: Improved Control of Air Quality. Building Technologies Program, Office of Energy Efficiency and Renewable Energy (EERE) (Brochure).
Pages/Volumes: 6 pp.
Publication Year: 2002
Subject Category: Ventilation Systems
Document Type: Bulletins
NTIS/GPO Number: 15002860
Abstract: Fact sheet for homeowners and contractors on how to employ spot ventilation in the home for comfort and safety.
Accession Number: 26458
Report Numbers: BR-840-26458; DOE/GO-102002-0778

New!

PDF 256 KB

Title: Spot Ventilation: Source Control to Improve Indoor Air Quality. Building Technologies Program, Office of Energy Efficiency and Renewable Energy (EERE) (Brochure).
Pages/Volumes: 4 pp.
Publication Year: 2002
Subject Category: Ventilation Systems
Document Type: Bulletins
NTIS/GPO Number: 15002861
Abstract: Fact sheet for homeowners and contractors on how to employ spot ventilation in the home for comfort and safety.
Accession Number: 26466
Report Numbers: BR-840-26466; DOE/GO-102002-0786

New!

PDF 1.1 MB

Title: HVAC: 'V' stands for 'Ventilation'.
Author: Andrews, S.
Source: HomeBuilder Magazine. Vol. 41(12) December 2002
Pages/Volumes: pp. 7, 8, 10, 33, 37
Publication Year: 2002
Notes: Posted on this Web site with permission from Homebuilder magazine.
Subject Category: Ventilation Systems
Document Type: Magazine/Newspaper Articles
Abstract: Every systems-built home needs an effective ventilation system. The essentials include combustion safety, moisture management, good thermal performance of the shell, and whole-house mechanical ventilation.
Accession Number: 33276
Report Numbers: 33276

New!

PDF 789 KB

Title: Residential Ventilation and Latent Loads.
Author: Lstiburek, J.
Source: ASHRAE Journal. Vol. 44(4) April 2002
Pages/Volumes: pp. 18-21

Publication Year: 2002
Notes: The following article was published by ASHRAE as part of the ASHRAE Journal (April 2002). © 2002 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for educational purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE at www.ashrae.org..
Subject Category: Ventilation Systems
Document Type: Technical Reports
Abstract: Most houses in hot, humid climates are over-ventilated because of duct leakage and induced-air change from internal air pressure effects from unbalanced air flow and door closure.
Accession Number: 33076
Report Numbers: 33076

PDF 450 KB

Title: Barriers to Improved Ventilation in Production Housing: Preprint.
Author: Barley, C. D.
Pages/Volumes: 9 pp.
Publication Year: 2002
Notes: Prepared for the International Academy of Indoor Air Sciences, Indoor Air 2002 Conference, 30 June - 5 July 2002, Monterey, California
Subject Category: Ventilation Systems
Document Type: Technical Reports
NTIS/GPO Number: 15000293
Abstract: In addressing the goals of energy-efficiency and indoor air quality (IAQ) in homes, industry teams in the U.S. Department of Energy's Building America program are installing mechanical ventilation systems in tight homes.
Accession Number: 31665
Report Numbers: CP-550-31665

PDF 405 KB

Title: Overview of Residential Ventilation Activities in the Building America Program (Phase I).
Author: Barley, D.
Pages/Volumes: 32 pp.
Publication Year: 2001
Subject Category: Ventilation Systems
Document Type: Technical Reports
Abstract: This report provides an overview of issues involved in residential ventilation; provides an overview of the various ventilation strategies being evaluated by the five teams, or consortia, currently involved in the Building America Program; and identifies unresolved technical issues.
Accession Number: 30107
Report Numbers: TP-550-30107

PDF 679 KB

Title: The Residential Ventilation Standard.
Author: Sherman, M.
Source: Environmental Energy Technologies Division News (EETD News). Vol. 2(3) Spring 2001
Pages/Volumes: pp. 6-7
Publication Year: 2001
Publisher, Place: Berkeley, CA: Lawrence Berkeley National Laboratory

Notes: Posted with permission..
Subject Category: Ventilation Systems
Document Type: Technical Reports
Abstract: The author is Chair of ASHRAE's Standard Project Committee 62.2, which is reviewing public comments on the ventilation standard's first draft. This article describes the general outline of the draft's contents.
Accession Number: 30984
Report Numbers: JA-610-30984

PDF 240 KB

Title: Whole House Fan: How to Install and Use a Whole House Fan. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 1999
Subject Category: Ventilation Systems
Document Type: Bulletins
Abstract: An informational fact sheet about the energy-cost benefits of a whole house fan, installation tips, and selection criteria.
Accession Number: 26291
Report Numbers: BR-330-26291; DOE/GO-10099-745

PDF 2.1 MB

Title: Design/Sizing Methodology and Economic Evaluation of Central-Fan-Integrated Supply Ventilation System.
Author: Rudd, A. F.
Source: Proceedings of the ACEEE 1998 Summer Study of Energy Efficiency in Buildings, 23-28 August 1998, Washington, DC.
Pages/Volumes: 15 pp.
Publication Year: 1998
Publisher, Place: Washington, DC: American Council for an Energy-Efficient Economy (ACEEE)
Notes: Posted with permission from American Council for an Energy-Efficient Economy.
Subject Category: Ventilation Systems
Document Type: Technical Reports
Abstract: An effective ventilation system can be achieved using a 5" to 9" diameter insulated duct from outdoors to the return side of a central air distribution fan, with a specialized fan control that automatically cycles the fan if the fan has been inactive for a period of time.
Accession Number: 30973
Report Numbers: JA-610-30973

PDF 1.5 MB

Title: Comparative Ventilation System Evaluations.
Author: Holton, J. K.; Kokayko, M. J.; Beggs, T. R.
Source: ASHRAE Transactions. Vol. 103(1) 1997
Pages/Volumes: pp. 675-692
Publication Year: 1997
Notes: The following article was published in ASHRAE Transactions. Copyright 1997 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. This posting is by permission of ASHRAE and is presented for education purposes only. ASHRAE does not endorse or recommend commercial products or services. This article may not be copied and/or distributed electronically or in paper form without permission of ASHRAE. Contact ASHRAE

at www.ashrae.org.
Subject Category: Ventilation Systems
Document Type: Technical Reports
Abstract: A home-building research and development consortium developed improved methods of home construction. In developing the technical package for these houses, it was realized that construction a test model would be valuable, especially if a comparable "baseline" house of standard construction could be build immediately adjacent to the test model. This was done in suburban Pittsburgh.
Accession Number: 30937
Report Numbers: JA-610-30937

Other

New!

PDF 2.0 MB

Title: Building America - working with American builders for energy-efficient, green and sustainable houses.
Author: Love, P. M.
Pages/Volumes: 2 pp.
Publication Year: 2002
Subject Category: Other
Document Type: Program Summaries
Abstract: This 3-fold brochure describes the Building America program and its whole-house approach to energy efficiency.
Accession Number: 33227
Report Numbers: 33227

PDF 414 KB

Title: Summary of Green Building Programs.
Pages/Volumes: 44 pp.
Publication Year: 2002
Notes: Work performed by the National Association of Home Builders (NAHB) Research Center, Inc., Upper Marlboro, Maryland.
Subject Category: Other
Document Type: Program Summaries
NTIS/GPO Number: 15000961
Abstract: In early 2002, the National Association of Home Builders completed a census of residential green building programs across the United States to assess differences and similarities among programs. This report catalogs different ways that builders participate in residential green building programs.
Accession Number: 32390
Report Numbers: SR-550-32390

PDF 186 KB

Title: RAND Summary of Federal Construction, Building, and Housing Related Research and Development in FY1999.
Author: Hassell, S.; Florence, S.; Ettedgui, E.
Pages/Volumes: 54 pp.
Publication Year: 2001
Notes: Posted with permission from RAND.
Subject Category: Other
Document Type: Technical Reports
Abstract: This publication presents the results of a search of the "Research and Development in the United States" (RaDiUS) database. The search sought to identify all federally funded research and development (R&D) activities

related to the fields of construction, building, and housing in fiscal year 1999.
Accession Number: 30877
Report Numbers: 30877

PDF 185 KB

Title: Advanced Air Distribution Strategies Improve Performance of Palm Harbor Homes: Building America System Fact Sheet.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Air Distribution Systems; Ventilation Systems; Manufactured Housing
Document Type: Project Summaries
NTIS/GPO Number: 15000167
Abstract: Palm Harbor Homes (PHH), one of the nation's largest producers of manufactured homes, and Building America's Industrialized Housing Partnership have teamed together to develop air-distribution and duct-sealing strategies that reduce energy use and increase comfort.
Accession Number: 30540
Report Numbers: FS-550-30540

PDF 267 KB

Title: Building America Partner Program: A Program of the Home Builders Association of Central New Mexico.
Pages/Volumes: 2 pp.
Publication Year: 2001
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
NTIS/GPO Number: 15000183
Abstract: This tri-fold brochure introduces the Building America Partner Program in central New Mexico and encourages home builders and home owners to participate.
Accession Number: 30858
Report Numbers: FS-550-30858

PDF 216 KB

Title: Home Builders Association of Central New Mexico: Building America Fact Sheet.
Pages/Volumes: 1 p.
Publication Year: 2001
Subject Category: Hot-Dry Climate
Document Type: Project Summaries
NTIS/GPO Number: 15000184
Abstract: This one-page flier introduces the Building America Partner Program in central New Mexico and encourages homebuilders to participate.
Accession Number: 30859
Report Numbers: FS-550-30859

PDF 1.2 MB

Title: Pulte Homes and Re-Engineering.
Author: Andrews, S.
Source: HomeBuilder Magazine. Vol. 40(4) April 2001
Pages/Volumes: pp. 20-24
Publication Year: 2001
Notes: Posted with permission from HomeBuilder's Association in Metropolitan Denver.
Subject Category: Other

Document Type: Magazine/Newspaper Articles
Abstract: Pulte Homes is involved with the U.S. Department of Energy's Building America program with a Comfort and Energy Use Guarantee.
Accession Number: 31044
Report Numbers: JA-610-31044

PDF 780 KB

Title: Energy-Efficient Appliances: Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2001
Subject Category: Other
Document Type: Bulletins
Abstract: This fact sheet for homeowners and contractors explains the energy savings potential of efficient appliances, how to purchase them, and how to maintain them.
Accession Number: 26468
Report Numbers: BR-810-26468; DOE/GO-102001-0788

PDF 1.0 MB

Title: Combustion Equipment Safety. Office of Building Technology, State and Community Programs (BTS) Technology Fact Sheet.
Pages/Volumes: 4 pp.
Publication Year: 2000
Subject Category: Other
Document Type: Bulletins
Abstract: Combustion appliances that use fuels like natural gas, propane, oil, kerosene, or wood can be more efficient and effective at heating than electricity. However, careful installation is required to ensure safe and efficient operation. This fact sheet addresses problems posed by combustion equipment and provides suggestions for furnaces and water heaters, unvented space heaters and fireplaces, and stoves and ovens. Installation, combustion closet design, causes of and prevention of backdrafting are also covered.
Accession Number: 26464
Report Numbers: FS-810-26464; DOE/GO-102000-0784

PDF 212 KB

Title: Office of Building Technology, State and Community Programs (BTS) Strategic Plan (Brochure).
Pages/Volumes: 16 pp.
Publication Year: 1998
Subject Category: Other
Document Type: Strategic Plans
Abstract: This strategic plan is in direct response to the call by a broad array of interested parties, for the Office of Building Technology, State and Community Programs (BTS) to reduce fragmentation and increase focus. This plan outlines our goals for saving energy, three key strategies to accomplish these goals, and our commitment to improving how we do business.
Accession Number: 28392
Report Numbers: 28392; DOE/GO-10099-688

No PDF **Title:** Building America. Energized (Fact sheet).
Pages/Volumes: 2 pp.
Publication Year: 1994
Subject Category: Other
Document Type: Strategic Plans
Abstract: An introduction to the U.S. Department of Energy Building America Program in 1994.
Accession Number: 14996
Report Numbers: TP-470-5776-J