EEBA News
Energy & Environmental Building Association
Summer 2001

Our Mission

The Energy Efficient Building Association is a nonprofit organization that promotes the awareness, education and development of energy efficient and environmentally responsible buildings and communities.

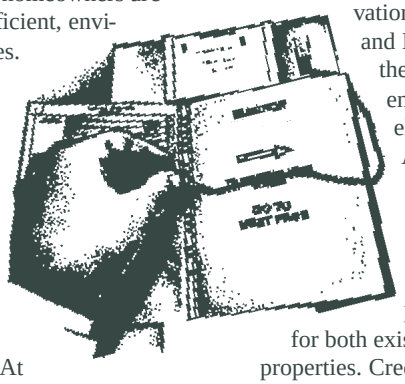
EEBA
10740 Lyndale Avenue South
Suite 10 West
Bloomington, MN 55420
Phone: 952.881.1098
Fax: 952.881.3048
EEBA Website
www.eeba.org

Re-Counts, Chads and Conservation

by Liz Burdock

Although the 2000 Presidential election has faded from our memories, the one lesson that every American took away from this historical event is that Every Vote Counts. Whether it is electing a President or passing a National Energy Policy – your voice counts.

A recent BUILDER magazine survey indicates that a majority of new homebuyers see their homes as statements of their environmental values. Consequently, potential homebuyers and current homeowners are willing to pay more for energy-efficient, environmentally friendly house features. This surge for sustainable development has brought builders and consumers in contact with more than fifteen governmental agencies. As a result, the United States Congress has entered the national debate surrounding energy efficient housing, and has moved in recent months to lift some of the monetary burdens associated with "green" building. At present, Congress is considering providing state-specific incentives, in the form of tax credits, grants, and special utility rates, which will make energy-efficient and renewable energy projects affordable to builders and consumers.



The House of Representatives passed HR 4, Securing America's Future Energy (SAFE) Act of 2001 on August 2, 2001. The tax portion of this legislation provides approximately $33 billion in tax relief over 10 years. Moreover, the tax incentives will significantly reduce the costs associated with "green" building at both residential and commercial levels. In addition, this legislation provides a 10 percent tax credit for residential solar energy and a 20 percent tax credit for the purchase of energy-efficient improvements. Even something as simple as purchasing energy-efficient clothes washers and refrigerators can earn consumers credits from $50 to $100 per appliance. Builders also benefit from this windfall. The bill proposes to provide home manufacturers with credit up to $2,000 per energy-efficient residence. This legislation creates tax incentives for nearly every energy-related item introduced in recent years. With this legislation, the House demonstrates its intention to reward both consumers and builders for their responsible deference to environmental conservation.

On the other side of the Capital, the Senate will soon consider a number of bills relating to sustainable development. They include legislation introduced by Senator Robert Smith (R. NH) —S. 207; Senator Frank Murkowski (R-AK) – S.389; the National Energy Security Act of 2001, the Energy Security and Tax Incentive Act of 2000, and the Resource Efficient Appliance Incentive. Each bill provides specific tax incentives designed to promote energy conservation and development. Although the Energy and Natural Resources Committee will take the lead in drafting the Senate version of energy legislation, a number of other panels have jurisdiction over related items. All of these committees hope to finish their work in early October.

Various Senators have proposed legislation to assist consumers and builders in energy-efficient and renewable energy projects. S 207 provides tax incentives for both existing and new environmentally friendly properties. Credits range from $500 for solar hot water to $6000 for certain solar panels. The National Energy Security Act of 2001 covers a wide range of energy policy including such provisions as tax credits for energy-efficient improvements and appliances, and business tax credits for construction. Consumers who reduce standard energy consumption by 20 percent are rewarded a $2,000 investment tax incentive. Likewise, builders can earn a $2,000 investment tax incentive by constructing homes that consume energy at least 30 percent below current standards. Tax credits for appliances are similar to those credits proposed in the House energy tax policy. Finally, solar panels installed on residential units can receive a $2,000 tax credit.

(continued on page 6)

Inside This Issue

EVENTS

EEBA

October 24-27, 2001
EEBA Excellence in Building Conference & Exposition; Orlando, Florida
(952)881-1098

National

September 24 - 26, 2001
Northwest Conservation Conference
DoubleTree Hotel
Jantzen Beach, Portland, OR
For more information go to
www.bpa.gov/Energy/N/news/crisis.html.

October 13, 2001
National Tour of Solar Homes
Contact: http://www.nesea.org/.

November 7, 2001
The Energy Summit: Power Strategies for Investment-Grade Real Estate
Hyatt Regency O'Hare, Chicago, IL
Contact: Scott McKinney, (646)654-4567, (646)654-4596 smckinney@billcom.com.

February 20-23 2002
Greenprints 2002
Hyatt Regency, Atlanta, GA
Contact: Aziza Cooper (404)872-3549, Fax (404)872-5009, www.greenprints.org

March 4-6, 2002
2002 RESNET Conference
Cocoa Beach, FL
Contact: Steve Baden, RESNET, P.O. Box 4561, Oceanside, CA 92052-4561, (760) 806-3448, info@natresnet.org or www.natresnet.org.

March 24-26, 2002
The National Green Building Conference
The Westin, Seattle, WA
For more information visit www.nahbrc.org or call (888)602-HOME.

2001 Conference at a Glance

For the first time in its 19 year history the Energy & Environmental Building Association's Excellence in Building Conference will be hosted in the "Hot & Humid" climate of Orlando, Florida.

"I am looking forward to bringing the great educational & networking opportunities of the conference to the building community in the Southeast," notes EEBA Executive Director, Kathleen Guidera. "For over 18 months we have been working with regional stakeholders to custom design segments of the conference to their climate specific needs."

The conference begins Wednesday, October 24 with self-contained, pre-conference sessions giving regional attendees a quick, 1-day option for such quality sessions as Cure for the Common Callback, Building Science for Hot/Humid Climates and When Biology Meets Design. In addition to the classroom sessions, on-site opportunities for hands-on experiences will be offered during a Habitat for Humanity Build and a behind-the-scenes tour of the Florida Solar Energy Center.

The full conference opens October 25 with track options including Better Performing Commercial Buildings, Building Systems 101, Healthier Homes, Marketing & Profitability, Residential HVAC, What's New in Research & Technology, Building Science Around the World and Houses Do Not Necessarily a Community Make. Over the course of the three day conference, events such as the Hard Hat Lunch and Exhibitor's Receptions will offer networking opportunities between conference attendees and the 80+ exhibitors.

In its 19 year history, information exchange has been an informal, yet pivotal component of the Excellence in Building Conference. Whether it was a gathering in the hall prior to a session beginning or the emergence of "Dumb and Dumber", what most attendees took from the EEBA conference was the ability to access professionals at all levels to share their experience and knowledge.

Understanding the value attendees placed on this resource, conference organizers have put in place three keynote addresses with Florida Solar Energy Center's Deputy Director, Philip Fairey, Building Science Corporation Principal, Joseph Lstiburek, PhD, and TrueNorth Development, Inc. President, Scott Sedam.

An Evening with the Experts, hosted by EEBA President and owner of Ideal Homes, Vernon McKown, will feature a panel that includes Betsy Pettit, Building Science Corporation, Randy Folts, Pulte Homes; Ed Von Toma, Centex Homes; John Tooley, Advanced Energy Corp; Mark LaLiberte, Shelter Companies; Perry Bigelow, The Bigelow Group; Dave Richmond, Prairie Crossing and Mike DeWein, Building Codes Assistance Project. Attendees can tap the panel's experiences for solutions to the tough questions facing the front lines.

Register today on our website, www.eeba.org/conference or call, 952.881.1098.

Don't miss the best EEBA Conference ever.

Introducing EEBA Applied

In real estate, it's location, location, location. In building performance, it's application, application, and application.

Expanding upon the popularity of last year's Habitat for Humanity "demonstration wall", coordinated by Building Science Corporation's, Betsy Pettit, conference organizers have expanded the concept for this year's conference with the EEBA Applied Demonstration Stage. Over the course of the 3-day conference, demonstrations of building products and basic building science applications will give attendees some hands-on experience and an opportunity to get their performance questions answered in person. EEBA Applied is a great new forum for product manufacturers and end-users to work out the kinks of real application. A full schedule of demonstrations will be included in attendee's information packets at the conference.

EEBA White Papers
To be presented at this years conference

Best Practice Guide for Insulation

Addressing the concern for better defined insulation types and installation approaches, EEBA commissioned Bradley Oberg of IBACOS, to create a "Best Practice", industry reviewed, document, approved for EEBA Institute training. This session will detail the document's findings outlining what product "types" perform best in specific applications, appropriate installation practice and recommendations for all climate zones of North America. Preview this unique training and educational tool as the first of two being developed by the EEBA Institute.

Water Management Guidelines

Building failure due to moisture is the #1 call back issue facing the building industry. The Water Management Guidelines is the second in a series of EEBA Institute training tools being developed for the industry. Guideline author, Joseph Lstiburek, PhD will present the recommendations addressing the prevention approach to reduce building degradation and failures due to water infiltration and exterior water intrusion into the structure through fenestration openings. The recommendations reflect applications and recommendations for all climate zones in North America.

Where in the World

Oliver's Travel Diary

South Korea

I have a photo from my trip to South Korea that might represent the best method for builders to enter this market. It's a photo of maybe a dozen jars. These jars are traditional Korean pottery and they contain different kinds of kim-shi, traditional Korean pickle. I mean, Koreans pickle all kinds of things we may or may not think of pickling. The base of most kim-shi is cabbage. But they also pickle peppers mixed with cabbage, nuts and peppers mixed with cabbage, cabbage mixed with cabbage — they even have this bracken or fern that, I'm told, is poisonous until it's pickled. Every family has different kim-shi recipes, some dating back hundreds of years. The jars are sitting on the back porch of a modern house. Each jar is sealed with a sophisticated vented plastic lid. It is this contrast of thousand-year-old tradition, so much a part of the orient, and modern house and plastic lid which speaks volumes about the psychology of the South Korean market.

Stepping off a rafter

Before the Korean War, a mere fifty years ago, a significant proportion of the population lived the existence of a peasant farmer in traditional farm homes with thatched roofs and a uniquely Korean heating system. Inside, the centre of a Korean farmhouse, was the kitchen. The kitchen usually contained a large cooking surface, firing wood. The flue gases from the stoves were forced under the floor and underground to the chimney. Naturally, the floor, called an ondo floor and covered with red clay, stayed very warm from the heat of the flue gases.

It is no wonder Koreans historically are the greatest potters on Earth. They all lived on pottery kilns. Virtually everyone has a living relative who, at one time or another, lived in a house pretty much like this.

On this visit, Seoul was, as always, a very busy place. There is high rise construction everywhere. The subways are full. The traffic is a nightmare and everybody's on a cell phone all the time. Their future is clearly high tech. They are one of the largest users of the Internet in the world and their cell phones even work on the subway many stories below ground. Everything is wired.

In this highly urbanized environment, there is a powerful nostalgia about the rural environment. There was no stress back then, the thinking goes, people were healthier and happier. So healthy housing is the hot button for the South Korean housing market.

At a trade show in Seoul, I saw a pamphlet that said, in English no less, "Sick House." Naturally, I thought, I have to see this. In fact, the "Sick House" display was for a house that was being advertised as something that was not a sick house. It was a major display for healthy housing.

Here's the wall section in this healthy house: wood paneling outside, studs, wood paneling inside. That's it, we're done. No insulation. None. Not even an attempt. So, I checked out a roof truss display. Between each truss they had blocks. Not purlins, little blocks! They don't support anything; they're there for decoration! Another display I saw had a hole drilled through the bottom chord of a floor truss with an electrical wire running through it. Here we have a society which builds some of the greatest temples in the world, and they have near zero experience building single family homes. They don't build many. High rise apartments, on the other hand, they build hand over fist. In sharp contrast to single-family construction, you would be hard-pressed to find more sophisticated construction techniques than are found in South Korean high rises.

Building a roof

But back to the couple of thousand single-family homes that are built in this country each year. If they want to do healthy housing, they could really use some tech transfer. That's what I was there for.

(continued on page 6)

Congrats Roger Woods

Energy Star has named Woods & Associates a "Partner of the Year" for its outstanding commitment to pollution prevention by building energy efficient homes. Environmental Protection Agency Administrator, Christie Todd Whitman, recognized Woods & Associates' achievement at a special ceremony in Washington DC. Woods & Associates is owned by EEBA board member Roger Woods.

Woods & Associates, a partner since 1998, is being honored for building homes that meet Energy Star specifications for energy efficiency. Energy Star Homes are at least 30% more efficient than the National Model Energy Code.

Story Ideas? Comments?

We would like to hear from you. Please send letters, story ideas or comments to the editor at info@eeba.org

Got jobs?

Post your employment opportunities with EEBA for visibility to thousands of highly qualified and dedicated building scientists, builders, contractors, educators and more. Visit www.eeba.org/jobs and "click" on job announcement form to submit your opening for review and posting.

Membership

The EEBA News is provided free to members. For membership information call EEBA at: 952-881-1098.

Bookstore

Visit the EEBA Bookstore at www.eeba.org/bookstore

Moisture Control

John Straube & E.F. P. Burnett

John Straube was a featured speaker at this years Fifth Annual Westford Symposium on Building Science held August 6-8 in Westford, MA. As in past years, the event featured intensive discussion on building science in both a formal and informal setting. The information below was excerpted from a an articles presented at this years event.

Moisture Problems

Moisture is involved in almost all building enclosure performance problems or deterioration processes,such as:

- leakage of water into the building;
- freeze-thaw deterioration of concrete, stone, masonry;
- electrochemical corrosion of metal components;
- biological, especially fungal (mold, rot, decay) growth;
- the chemical deterioration and dissolution of materials such as gypsum sheathing and wood products;
- volume changes (expansion, shrinkage) that can cause structural failure;
- discoloration of building finishes.

Susceptibility and Vulnerability

Whether a moisture problem occurs depends on whether a susceptible material or assembly is placed in a vulnerable environment. This moisture vulnerability, or degree of risk, affects the probability of a problem occurring and may be considered to be a function of three potentials:

- wetting;
- drying
- storage

Moisture Control

Most moisture control strategies tend to reduce the amount of wetting by increasing air tightness and vapor resistance and reducing the volume of rain water penetration and absorption, etc. However, it has become generally accepted that most building construction will not be perfect, and thus wetting will occur. Therefore, the provision of greater drying potential and storage capacity have begun to receive more attention. These are powerful, and often overlooked moisture control design strategies. Finally, reducing vulnerability through intelligent design of building location, orientation, geometry, etc. is often the least expensive and best approach (although it must be considered very early in the concept stage).

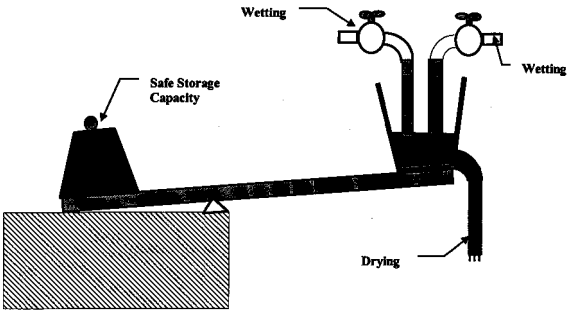


Figure 8.1: The Moisture Balance

The major wetting and drying processes and the moisture transport mechanisms involved in the movement of moisture into and out of the enclosure are summarized in Figure 8.2.

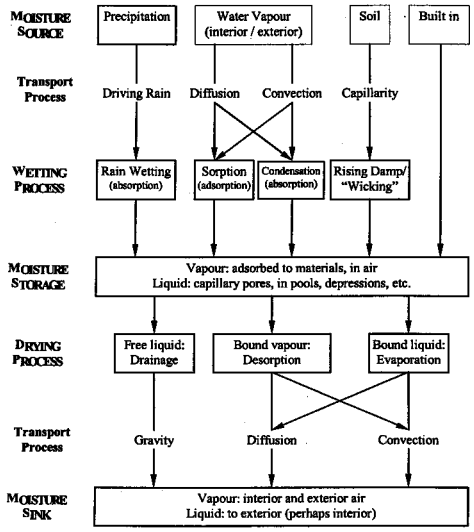


Figure 8.2: Wetting, drying and moisture storage in the building enclosure

Wetting

The three major sources of moisture for the above grade building envelope are (Figure 8.3)

- water vapor transported by diffusion and/or air movement through the wall;
- precipitation, especially driving rain;
- built-in and stored moisture.

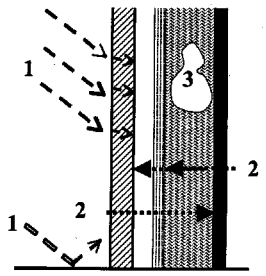


Figure 8.3: Moisture Sources for Above-Grade Enclosure

Rain wetting by wind driven rain is usually the largest moisture source for above-grade walls. Rain deposition on one or more faces of an exposed low-rise building can easily exceed 100 kg/m/yr.

Condensation of the water vapor in exfiltrating air during winter conditions can also deposit significant amounts of water within a wall.

Solar heating of absorbent exterior layers (especially cladding) will often cause evaporation from the interior face of the brickwork and condensation further inside the wall assembly.

Exfiltration-induced condensation on the inner face of the exterior sheathing is another relatively common problem in cold climates which results in wetting.

Built-in moisture can be an important issue in some

EEBA Factoids

A 1999 Mayo Clinic Study identified mold as the cause of nearly all chronic sinus infections.

A home built to EEBA Climate Specific criteria can cost 3-5% more than a home built with traditional construction technology. However, it can save the homeowner as much as 30-40% in the long run by reducing utility bills.

According to a consumer survey completed by Honeywell, "dry air in the home" ranked #4 among the top 10 "Home Pet Peeves". For comfort and greater control of indoor air quality, the relative humidity in a home should be between 30-50%.

The American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) recommends that the air in a home should be exchanged, at a minimum, 35 times per hour or a complete air "exchange" once every 3 hours. According to ASHRAE homes built today are so tight that the inside air is exchanged only once every 10 hours.

Human respiration and perspiration for a family of four can put nearly half a pint of moisture per hour into the air.

— ALA Health House Project

Dust Mites thrive on humid conditions when the relative humidity is more than 55% and the temperature is around 70 degrees.

— EPA

wall assemblies. The use of wet framing lumber, saturated concrete block, or green concrete within a wall may provide a large initial source of moisture.

Wetting by the capillary movement of water from other moisture sources (i.e. rising damp from below grade sources) is generally not a significant problem in Canada (capillarity is, however, very important as a redistribution mechanism).

Drying

An assembly's drying potential is an important factor in assessing its vulnerability to moisture problems. Moisture is usually removed from an enclosure by (Figure 8.4):

- drainage, driven by gravity;
- evaporation from the inside or outside surfaces;
- vapor transport by diffusion, air leakage, or both, either outward or inward;
- ventilation.

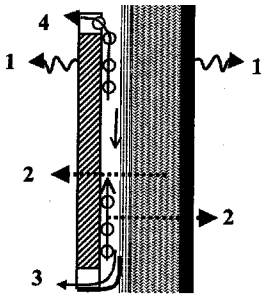


Figure 8.4: Moisture Removal Mechanisms for Above Grade Enclosures

Drainage is capable of removing the greatest volume of water in the shortest period of time. However, cladding or sheathing must be almost saturated by condensation before sufficient volumes of water will bead on the surface for drainage to occur. Therefore it must be assumed that water that cannot be removed by drainage will be stored within a wall.

Under the right conditions moisture not drained from a wall will dry by evaporation or desorption. The resulting water vapor can be transported out of and within the wall system either by diffusion or advection (i.e., combined diffusive and mass flow).

Diffusive drying will generally occur only in an outward direction because very low permeance polyethylene vapor barriers are located on the inside of modern walls in cold climates. Inward diffusive drying can occur in many climates, even cold ones, if the inner layers are sufficiently vapor permeable.

Air movement (or leakage) through the envelope can, under the proper conditions, move a large quantity of moisture. While air leakage usually leads to condensation wetting under many winter conditions, it can also remove moisture. Periodic reversals of air flow from exfiltration to infiltration (when the wind changes direction for example) can allow drying even under winter conditions.

Ventilation, or air flow through a space behind the cladding, uses the drier outdoor air to transport water vapor out of the wall. A recent study suggests that ventilation drying can be useful, but more research is required to quantify its benefits.

Capillary transport acts to redistribute moisture within a system. For example, water on the back of a brick veneer or wood siding will be drawn to the exterior face where it can evaporate.

The moisture in saturated exterior surfaces can evaporate to the exterior, but evaporation can take a relatively long time.

Storage

The ability of a wall assembly to store moisture may be an important measure of its durability because storage acts as the vital buffer, or capacitor, between the deposition and removal of moisture.

This moisture can be stored as vapor, liquid, or solid n a variety of ways:

- trapped in small depressions or poorly drained portions of assemblies;
- adhered by surface tension as droplets (or frost, even ice) to materials and surfaces;
- adsorbed in or on hygroscopic building materials (esp. brick, wood, fibrous insulation, paper);
- retained by capillarity (absorbed) in porous materials;
- in the air as vapor.

A significant amount of moisture can be stored within a porous material as water vapor molecules adsorb to the large internal surface areas of materials such as wood, concrete and masonry (e.g. Figure 8.5).

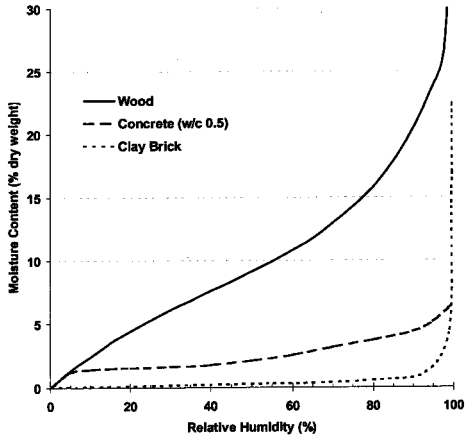


Figure 8.5: Moisture Storage versus Ambient Relative Humidity (Sorption Isotherm)

Dr. John Straube is a structural engineer who has been deeply involved in the areas of building envelope design, moisture physics, and whole building performance as a consultant, researcher, and educator. He is a professor in both the Civil Engineering Department and the School of Architecture at the University of Waterloo in Canada.

Dr. Eric Burnett is a structural engineer with specialist competence in the broad areas of building science and technology, building performance and structural concrete. He has been involved in the design and construction of buildings on three continents. He is cross-appointed to the Departments of Civil and Environmental Engineering and Architectural Engineering at Pennsylvania State University, where he has developed a Building Enclosure Testing facility.

Websites of Interest

US Department of Energy's "Moisture Control In Homes" booklet www.energy.gov (publications requests)

Healthy Indoor Air for America's Home Project Montana State University www.montana.edu/wwwcxair/air.html

Cold Climate Housing www.cnr.umn.edu/wps

Canadian Mortgage & Housing Corporation www.cmhc-schl.ge.ca

Are you Online with EEBA?

To facilitate communication in the energy efficient and environmental building community, EEBA has established this email discussion list.

The EE-Building list is a free flowing discussion among the participants on energy efficient design and construction including building science principles, emphasizing our buildings as whole systems, and environmentally superior practices.

EEBA News

The EEBA News is printed quarterly by the Energy & Environmental Building Association, a nonprofit organization providing educational services on energy and environmental technologies and applications.

Offices are located at 10740 Lyndale Avenue, 10 West Bloomington, Minnesota 55420. Editorial comments may be sent to the attention of Newsletter Editor or by phone: (952) 881-1098, fax: (952) 881-3048 or email: eeba@eeba.org

Editorial Content

Authored articles represent the position of the author and not necessarily that of the EEBA. Articles may be edited due to space limitations.

Note to Advertisers

The EEBA News welcomes submission of advertising of services or products that relate to the issues of energy conservation and environmental concerns addressed by the organization. The company placing the ad must be a legitimate business with a good reputation for quality product or service. Advertising privileges in the EEBA News in no way imply endorsement of the service or product. For advertising rates and information call (952) 881-1098 or email eeba@eeba.org.

(Oliver's Travels continued from page 3)

I have travelled and conducted training all over the world and have found perhaps no audiences more open to absorbing new ideas than Koreans. I am very buoyant about South Korea as a market because of this. A very significant proportion of their single family builders are willing to listen very carefully to the whole-house approach — and that's because it's healthy.

How big is this healthy thing? A couple of examples:

Item one: Charcoal. I mentioned the sophistication of high rise construction techniques earlier. One technique which baffled me was the placing of a substrate under the wallpaper that is made from charcoal. This, I was told, was to clean the air. What?

Small house constructed by the class

Item two: Remember the red clay and the ondo floor? Well, if you're building a house in Korea, it's got a modern version of an ondo floor. We would call this in-floor radiant heat, and the Koreans are experts at it. On top of this, they will put in some kind of floor covering that looks like red clay even if it's the twentieth floor of a modern high-rise.

Just as there's a segment of the North American population that gets that pioneer-spirit feeling from log homes, in Korea, it's just not a healthy, back-to-the-land kind of floor if it doesn't look like red clay.

This could be the biggest challenge for someone wanting to sell our highly researched and high tech healthy housing in South Korea. Even though healthy is huge, convincing a society looking for respite from urban hustle that technology is the road to comfort and health, is going to take some effort. After all, isn't it technology that's stressing us out in the first place?

On the other hand, it could be like the jars. The vented plastic lids help make great kim-shi.

As the head of CMHC's International Training Team, Oliver Drerup is recognized as one of Canada's leading authorities on housing construction. A builder for twenty-seven years before joining CMHC International, he continues to apply his combination of hands-on experience and expertise in innovative housing to his training sessions, picking up keen insights into export markets. Look for more of Oliver's Travels in upcoming issues of the EEBA News. His whimsical, but informative travel diary is a regular feature on CMHC web site (www.cmhc-schl.gc.ca/en/homadoin/excaprex/oltr/).

Canadian Mortgage and Housing Corporation (CMHC) is the Government of Canada's national housing agency with a mandate to help Canadians gain access to a wide choice of quality, affordable homes. CMHC has been contributing to improve the living conditions and the well-being of Canadians through four areas of housing activities: housing finance, assisted housing, research & information transfer and export promotion. You can find more on their web site at: www.cmhc-schl.gc.ca

(Re-Counts continued from page 1)

The Energy Security and Tax Incentive Act of 2000 contains a remarkable six sections on energy-efficient tax incentives. Homes that use 30 percent less energy or 50 percent less energy than the standards established are rewarded with $1,500 and $2,500, respectively. Additionally, a 20 percent tax credit is provided for any combination of energy technologies applied as improvements to existing homes, which result in 30 percent less energy consumption. Finally, the Resource Efficient Appliance Incentive proposes a $50 tax credit for efficient refrigerators and $100 credit for efficient clothes washers. Responsibility for all energy tax issues resides in the Senate Finance Committee that, while expected to produce a strong package, is likely to be less comprehensive than the House version.

Although the Senate is still expected to produce an energy package this session, the scope is very uncertain. Senate floor consideration could occur after all federal appropriations bills are completed and before it adjourns for the year, now not expected until Thanksgiving at the earliest.

After Senate passage, differences between the House and Senate versions must be reconciled by a joint Conference Committee, approved by each body, and then sent to the President for his signature. A final bill is not likely to be enacted until 2002, if at all. Passing energy legislation is a complex process, directly dependent upon constantly changing dynamics. These dynamics, ranging from shifting political and regional coalitions to unexpected energy developments, will dictate the scope and size of Congresses' energy tax package. Whether or not an energy package reaches the Senate floor depends on whether there is a perceived need to address a "crisis." However, it is also possible that the tax portion of an energy bill could be split off and added to the comprehensive budget measure that will move at the end of the session.

It is important to remember that to the extent energy concerns fade from the public radar screen, so will pressure to advance the bill so make sure your voice is heard.

It is too important to let the opportunity to secure an energy-efficient tax package fade away. Now is the time to make your voice heard.

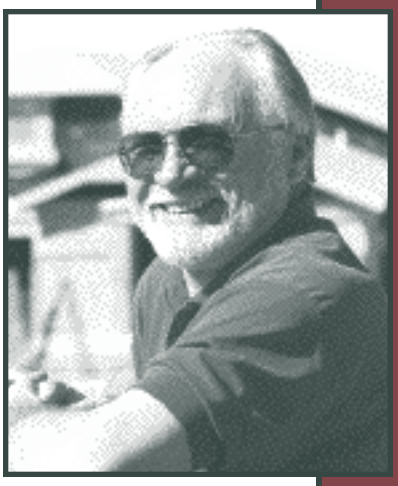
Liz Burdock is a Vice President with The Dutko Group's Sustainable Development Practice. Named by Fortune Magazine as one of the most influential public policy management firms in Washington, DC, The Dutko Group closely monitors national policies, market trends, and public opinions to help its clients develop proactive strategies and maintain their competitive edge. Liz is a consultant for EEBA in the Washington, DC area.

EEBA Success Story

Artistic Homes • Albuquerque, New Mexico

Design Philosophy and Application

When Jerry Wade started building homes in New Mexico back in 1965, he had no idea how much influence technology would have on this industry. What he did know was that he staked his personal reputation on every new home he built. Now, thanks to advanced design, engineering and construction techniques, Artistic Homes has added a homeowner's heating and cooling cost guarantee. And, as always, he's staking his reputation on it.



Artistic Home Features:

Mechanical System Characteristics

- High efficiency filtration
- Integrated heating and water heating system, 0.57 EF water heater with air handler
- 12 SEER air conditioner
- Supply-only ventilation system with cycled distribution through air handler
- All ducts within conditioned space and sealed with mastic

System Improvements

- Exterior air flow retarder system, asphalt impregnated sheathing
- Interior air/vapor retarder system, airtight drywall approach
- Spectrally selective, high performance glazing
- Sealed polyethylene moisture barrier below slab
- Simplified duct system

Envelope Characteristics

- Floor area: 1,824 square feet
- Foundation: Slab on grade, R-5 perimeter insulation, peel and stick membrane capillary breaks
- Wall System: Advanced framed, 2X6, 24" on center with R-19 batts
- Attic/Roof: R-38 blown fiberglass insulation
- Windows: Vinyl framed, double glazed, argon filled with Low-E coating U: 0.36, SHGC: 0.73

Product Choices:

- Hard surface flooring throughout home
- Low VOC cabinetry
- Low VOC paint
- Upgraded 4" pleated high efficiency filtration system

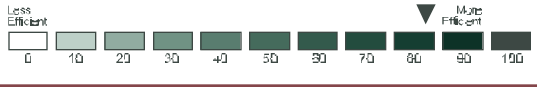
Measured Leakage Characteristics:

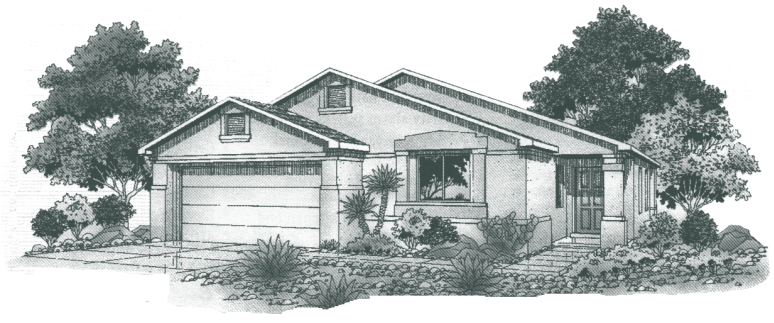
- Total envelope CFM at 50 pascals: 598
- 0.12 CFM/Square foot of surface area
- 2.23 ACH50

Estimated Annual Energy Use and Cost:

Space Heating:	29.6 Mbtu	$125
Space Cooling:	6.3 Mbtu	$150
Water Heating:	28.8 Mbtu	$122
Totals:	64.7 Mbtu	$397

Energy Star Rating: 87.5





health house
Raising the Standard for Home Environments.

energy
Money Isn't All You're Saving

Building America
U.S. Department of Energy

About the Builder – Artistic Homes

Artistic Homes is a family owned and operated business. Owner and president Jerry Wade is a second-generation homebuilder who has built more than 6,000 homes in the state of New Mexico since 1965. In 1990 he entered the Albuquerque market and was the metro area's top homebuilder by 1998 with 498 closings. His production goal for 1999 had grown to 600. Jerry feels efficiency is the key to building affordable homes, where the profit margins are slim. He makes it work with strict scheduling and an assembly-line approach to building a house. From framing to finish takes about 35 calendar days.

Despite the pace of construction and growing volume, quality and building integrity are not compromised. Evidence of this can be found through Artistic Homes involvement with programs such as the American Lung Association's Health House program and the Department of Energy's Building America program. Both have strict standards regarding combustion safety, indoor air quality and building durability and both require testing and verification of home performance. Artistic Homes is also involved with the Home Builders Association of Central New Mexico's Green Builder program. Requirements of this program include the use of engineered lumber and trusses, which are designed to maximize strength and uses fewer natural resources. They also use 2" x 6" wood for framing to allow more insulation and greater comfort. And, of course, they recycle the scrap lumber to help the environment and lower costs.

Board of Directors

Printed on Recycled Paper

10740 Lyndale Avenue South, Suite 10 West
Bloomington, MN 55420

Non-profit Org.
U.S. Postage
PAID
Permit No. 1109
Minneapolis, MN