How Can I Join?

Simply fill out the form below and mail in with your membership dues.

(dues are for one year membership)

Name __________________________
Title ___________________________
Affiliation_______________________
Address _________________________
________________________________
City ____________________________
State __________ Zip ______________
Phone __________________________
e-mail __________________________
Date ____________________________

Membership categories:
• Individual $35
• Business $100
• Nonprofit $50
• Silver Level Sponsor $250
• Gold Level Sponsor $500
• Platinum Level Sponsor $1000

Total Amount Enclosed ____________

The Mission Statement:
The Western North Carolina Green Building Council is a non-profit organization whose mission is to promote environmentally sustainable and health conscious building practices through community education.

Steering Committee
Boone Guyton, President
Duncan McPherson, Vice-President
Cindy Mechan-Patton, Treasurer
David Brannon, Secretary
Marcus Barcsdale, Member at Large
Aaron Johnstone, Member at Large

Any questions or comments about the newsletter should be sent to robin@rowhouse-architects.com

WNCGBC
PO Box 8427
Asheville, NC 28814
www.wncgbc.org

What is Green Power??
How Can I Participate??

NC Green Power is a program that allows utility customers to have an impact on where their electricity comes from. Currently coal and nuclear make up the vast majority of electricity generated in NC. NC Green Power allows individuals and businesses to pay a premium per kWh that will go toward green power generation in North Carolina. The mass market program will be about 15% solar and wind with the remaining coming from methane produced at landfills and animal waste gasification. It costs 4¢ per kWh more. The large scale user product will include a mix of those sources plus wood waste and small hydro systems. It costs 2.5¢ per kWh. The power is sold in blocks of 100 kWh. NC Green Power is the first program in the nation to be administered by a separate non-profit organization and be available to everyone.

To calculate how many blocks you want to buy, figure out your average kWh's used from your electric bill. Then figure out what percentage of your electricity you want to come from green sources. If you use 800 kWh/month and want all (of course) to be generated from green sources. If you use 800 kWh/month and want all (of course) to be generated from renewable resources, you would sign up for 8 blocks at $4 each for a total of $32 extra per month.

Most utility users received an announcement and sign up card in their October Utility bill. If you didn’t receive an announcement in your bill you can purchase green power Now. Simply call your utility and request to sign up for NC Green Power or go to their website and sign up there. You can also link to the sign up form and find out more information in general at:

www.ncgreenpower.org

This is a unique opportunity for each of us to do our part and contribute to a cleaner, more sustainable world. We may not all be able to have PV panels or wind turbines in our yards, but we can choose to help build a wind farm or large solar thermal electricity generation facility in our own state.

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What is Low-VOC paint and where can I get it?

Volatile organic compounds (VOCs) are chemicals containing carbon that break down in sunlight or in the atmosphere. Paints, varnishes, and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing, and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored. Possible health effects include: Eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. In addition, these substances contribute to ground-level ozone.

EPA's Total Exposure Assessment Methodology (TEAM) studies found levels of about a dozen common organic pollutants to be 2 to 5 times higher inside homes than outside, regardless of whether the homes were located in rural or highly industrial areas.

Source: [www.epa.gov/iaq/voc.html](http://www.epa.gov/iaq/voc.html)

So what do I do?

One easy way to reduce VOCs in your home is to use Low- or Zero VOC paints which are readily available. Interior Low-VOC is defined by Green Seal ([www.greenseal.org](http://www.greenseal.org)) as below 50 g/L for flat paint and 150 g/L for non-flat. These numbers can be found on every can of paint.

Where do I get this kind of paint and how much does it cost?

Here are some places in Asheville that sell low- or zero-VOC paints:

**DISTRIBUTER**                  **MANUF.**    **PRODUCT**     **VOC #**                         **PRICE / GAL.**

<table>
<thead>
<tr>
<th>Holladay Paint 255-8800</th>
<th>Benjamin Moore</th>
<th>Eco-Spec</th>
<th>Flat - under 50</th>
<th>$24.99</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICI Paints 254-6171</td>
<td>Dulux</td>
<td>Lifemaster</td>
<td>Flat - 0</td>
<td>$15.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semi-gloss - 0</td>
<td>$18.49</td>
</tr>
<tr>
<td>Sherwin-Williams 684-5183</td>
<td>Sherwin Williams</td>
<td>Harmony</td>
<td>Flat - 0</td>
<td>$27.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semi-gloss - 0</td>
<td>$31.49</td>
</tr>
<tr>
<td>Shelter Ecology 251-5888</td>
<td>AFM</td>
<td></td>
<td>Flat - 0</td>
<td>$27.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Semi-gloss - 0</td>
<td>$33.30</td>
</tr>
</tbody>
</table>

**remember to check w/ the suppliers for current prices.
WNCGBC CALENDAR

December 1, 2003  WNCGBC monthly board meeting
5:30 - 7:00 @ Land of Sky. All are invited to attend.

December 3-4, 2003  Southeast Green Power Summit
Emory Inn & Conference Center; Atlanta, GA  The focus will be on marketing green power, choosing appropriate technologies, and developing supportive public policies. $125.00 per person if registered by November 18, 2003 $175.00 per person if registered after November 18, 2003
http://www.southeastgreenpower.net

December 11, 2003  EarthCraft House Renovation Training  8:30am-4:30pm. At Southface, 241 Pine Street NE in Midtown, Atlanta. Learn all the benefits of EarthCraft House and how to apply them within the design and construction of your renovation projects.

January 17, 2003  WNCGBC annual board meeting
12:00 - 5:00 @ the Eco-Dorm @ Warren Wilson  We will vote on an amend ment to the by-laws permitting the board members to hold board positions for more than 2 consecutive terms, elect Board members, discuss the Strategic Plan for the council and the overall direction and emphasis for the council.

Thanks to Warren Wilson for the donation of the space!!!

February of 2004, WNCGBC Public Forum on Smart Growth  Please check the forum page of our website for more details

WNCGBC Public Forums
October 2003 – Building Green in WNC
by Ashley Featherstone

Building Green in WNC, the last forum of 2003, was a big success. This forum was a follow up to the WNCGBC Mayor’s Roundtable Forum with Leni Sitnik that took place in October of 2001. The American Institute of Architects (AIA) Asheville Chapter was one of the sponsors, and provided four hours of health and safety continuing education credits for member architects. Over seventy people attended the afternoon program on October 3rd, which included presentations of local green building case studies followed by a brief roundtable discussion. In addition to AIA Asheville, the WNCGBC would like to thank Earth Fare, Land of Sky Regional Council, Mitchel Sorin Architect, AIA, Samsel Architects, P.A., and Verdi/se Architects for sponsoring the October forum.

The most recent forum was one of three important green building related activities that took place during the first week in October. On October 2nd, the AIA annual lecture series hosted a well-known green building architect from Texas, Peter Pfieffer. On October 4th, the NC Sustainable Energy Association’s NC Green Building Tour took place in conjunc tion with Million Solar Roofs communities in Durham, Chapel Hill, Boone, and Asheville. The WNCGBC organized the self-guided Asheville tour, featuring several green built homes in the area, and sponsored the AIA lecture. Working together with other organizations is an important part of our community education efforts.

The WNCGBC holds four public forums each year on topics related to environmentally sustainable and healthy building practices. The public forums are a key part of the council’s mission, which is to promote environmentally sustainable and health conscious building practices through community education. In addition to Building Green in Western North Carolina, WNCGBC forums in 2003 included the Million Solar Roofs Initiative, Landscaping with Native Plants, and Energy Efficient Mortgages.

The next forum will take place in February of 2004, the topic is Smart Growth. Please check the forum page of our website for more details including sponsorship opportunities. If you have ideas about related topics that you would like to see at an upcoming WNCGBC forum, please e-mail those to info@wncgbc.org, or call the Green Building Hotline at (828) 232-5080.
A Letter from the President

The Green Months

A lot has happened since the last newsletter. Momentum is building to green the way we build and operate our buildings on the local and the state level as well as nationally.

On the local level we had two very successful Green Building tours, one at the Southern Energy and Environment Expo and one in conjunction with a statewide tour. Both were a cooperative effort with the North Carolina Sustainable Energy Association and the NC Solar Center as well as the SEE Expo. They were organized and promoted by the WNC Green Building Councils’ MSRI committee co chairs, Maggie Leslie and Tracy Kearns. Both tours were sold out and received a lot of praise. The owners that opened their homes and helped educate about their systems and construction deserve a lot of praise as well. Their time and explanations made the experience much more valuable. Visiting a green built building and seeing and feeling the difference really brings home the concepts involved.

The council also had its quarterly forum on Oct. 3 as a follow up to the AIA Asheville’s presentation that featured Peter Pfieffer. His talk, You Don’t Have to Go Weird to Go Green, was an informative overview of green building design and practices. The Council’s follow up forum was organized by Ashley Featherstone with a lot of help from her friends. It included 3 case studies of local examples of green building and a presentation on marketing green projects. The 3 case studies were, The Eco Dorm at Warren Wilson by Duncan McPherson, The Queen Residence by Mitchel Sorin and the Prospect Terrace Affordable Housing project by Shane Elliot. David Hill was the presenter for marketing green buildings. The forum had eighty people attending the afternoon event. The Forum was sponsored by Earthfare, AIA Asheville, Land of Sky Regional Council, Samsel Architects, Verdi/se Architects and Mitchel Sorin Architect.

The Council has also been involved in developing the NC Green Building Program Guidelines. The final draft is now available for your review (contact bguyton@aol.com). That is the result of several months of meetings and collaboration with Dona Stankus of the NC Solar Center who heads that effort statewide. Terry Albrecht was involved in the first training in Raleigh for people interested in participating in the program once it is begun. 20 people from across the state attended. The hope is that the pilot for the program will happen in Asheville in cooperation with Mountain Housing Opportunities’ Prospect Terrace development. This statewide program will clearly quantify what a significant green built house will include. It gives a measure to designate a home as meeting environmental criteria, which assures the homebuyer and gives the homebuilder a distinction in the market. This will be a major boost in the promotion of sustainable and healthy building to our area.

Green Power Comes to North Carolina and Georgia

Green power—electricity from renewable energy sources—came to North Carolina and Georgia for the first time on October 1st. In North Carolina, NC GreenPower launched a statewide initiative with the support of all the state’s utility companies. The utilities are selling green power at a premium of $4 per 100 kilowatt-hours, with discounts available to buyers of 10,000 kilowatt-hours or more. In Georgia, the Green Power Electric Membership Corporation—Green Power EMC, for short—began providing green power to 16 electric cooperatives throughout the state. Green Power EMC is drawing on nine megawatts of green power generated by three landfill gas projects.

While many people are buying green power directly from their utility, another option is to buy green tags, also called tradable renewable energy credits, which represent the attributes or benefits of renewable energy generation. In September, the Center for Resource Solutions announced that six new suppliers have earned the center’s Green-e certification, which verifies that each green tag does in fact represent power produced from renewable energy. Green tags have attracted enough international interest to inspire the International Energy Agency to help launch a new Web site called TRECNET, the Tradable Renewable Energy Credit Expert Network. The site is meant as a tool for information sharing.

OCTOBER 2003

SWANA Briefs White House on LFG Tax Credits

Washington, D.C. — Thomas Hadden, a member of the Solid Waste Association of North America (SWANA), Silver Spring, Md., and the executive director of the Iowa Metro Waste Authority, Des Moines, met with Energy Secretary Spencer Abraham and White House Chief of Staff Andrew Card on Thursday, Oct. 2, to discuss the merits of adopting landfill gas (LFG) tax credits. SWANA says passing landfill gas tax credits is one of the association’s major legislative priorities. At the briefing, Hadden stressed that 600 additional LFG sites potentially could be developed if the LFG tax credit in the House Energy bill passes.
Use of pervious pavements helps owners and environment

Although pervious concrete has been in use for more than 50 years in a variety of applications, recent EPA regulations are causing many owners, specifiers and architects to reexamine applications of this unique material. Also referred to as “no-fines concrete” or “porous concrete,” this material is comprised of narrowly graded coarse aggregate, cementitious materials, water, admixtures, and, in some cases, fibers. Little or no fine aggregate is included in the mixture. Carefully controlled amounts of water and cementitious materials are used to create a paste that forms a thick coating around aggregate particles without flowing off during mixing and placing. Using just enough paste to coat the particles maintains a system of interconnected voids on the order of 15% to 35% depending on materials and intended application. The result is a very high permeability concrete that drains quickly: Percolation rates of 100 to 750 liters per minute per square meter (2 to 18 gallons per minute per square foot) are common. Due to the high void content, pervious concrete is also lightweight, 1600 to 1900 kg/m³ (100 to 120 lb/ft³).

Construction Practices

After placement, pervious concrete resembles popcorn. Its low paste content and low fine aggregate content make the mixture harsh, with a very low slump. The compressive strength of pervious concrete is limited since the void content is so high. However, compressive strengths of 3.5 to 27.5 MPa (500 psi to 4000 psi) are typical and sufficient for many applications.
Pervious concrete is not difficult to place, but is a bit different from conventional concrete placement. It is a very low workability material, so considerable hand work may be necessary for placement. The use of a vibrating screed is important for optimum density and strength. After screeding, this material is usually compacted with a hand roller. There are no bull floats, trowels etc. used in placing pervious concrete. Conventional jointing methods and spacing are recommended. Curing with plastic sheeting must start immediately and continue for at least 7 days. Careful engineering is required to assure structural adequacy, hydraulic performance, and minimum clogging potential.

**Paving the Way for Better Water Management**

The principal uses for pervious concrete have been for parking lots, low traffic pavements, and pedestrian walkways. For these applications, the smallest sized aggregate feasible is used for aesthetic reasons. Coarse aggregate size 89 (9.5-mm or 3/8-inch top size) has been extensively used for parking lot and pedestrian applications, dating back 20 years or more in Florida.

Pervious concrete’s main advantage is its ability to pass large amounts of water quickly and this has dictated traditional applications: drainage media for hydraulic structures, porous base layers under heavy duty pavements, parking lots, tennis courts, and greenhouses. Its high porosity also gives it other useful characteristics: it is thermally insulating (in buildings) and has good acoustical properties (for sound barrier walls).

The interconnected void structure of this material allows water to pass through and percolate into the ground. This unique ability of pervious concrete captures rainwater and recharges ground water, reducing storm water runoff and helping owners comply with EPA regulations. In the last few years, a high level of interest in pervious concrete has developed due to federal clean water legislation.

**Control of "First Flush" Storm Water**

Pervious concrete pavement systems provide a viable solution to the new requirements under the EPA Storm Water Phase II Final Rule (see Reference 1). Phase II regulations require programs and practices to help control the amount of hazardous contaminants in our waterways. Impervious pavements, particularly in parking lots, collect oil, anti-freeze and other automobile fluids, which may be washed into streams and lakes when it rains.

The EPA Storm Water regulations set limits on the levels of pollution in our streams and lakes. To meet these regulations, local officials have considered two basic approaches: reduce the overall runoff from an area and reduce the level of pollution contained in runoff. Efforts to reduce runoff include zoning ordinances and regulations that reduce the amount of impervious surfaces in new developments; green

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**Fig. 2.** Pervious concrete is usually placed by hand and then struck off with a vibratory screed, followed by compaction with a hand roller. Prompt curing with plastic sheeting is required. (IMG13627)
space requirements; and implementation of “storm water utility districts” that levy an impact fee on a property owner, based on the amount of impervious area. Efforts to reduce the level of pollution from storm water include requirements for developers to provide systems that collect the “first flush” of rainfall (usually about 25 mm or 1 in.) and “treat” the pollution prior to release.

Pervious concrete pavement reduces runoff. It can also be used as part of a system to reduce the level of pollution contained in storm water that is captured, the so-called “first flush” that contains most of the pollution that comes from an impervious surface. By capturing the first flush of rainfall and allowing it to percolate into the ground, soil chemistry and biology are allowed to naturally “treat” the polluted water. Thus, storm water retention areas may be reduced, allowing increased land use.

Trees planted in parking lots capture some storm water and offer a cooling effect in the area, further reducing pollution. Pervious concrete pavement is ideal for protecting trees in a paved environment. For lack of water, trees planted in small “islands” in parking lots often have difficulty growing. Pervious concrete placed in parking spaces and pavements adjacent to tree islands greatly increases the amount of rain available to the trees without reducing usable area. Pervious concrete sidewalks allow urban trees to receive more water and still permit full pedestrian usage.

The use of pervious pavements has been growing in recent years as owners, architects, specifiers, and other concrete professionals become familiar with its benefits.

For more information please contact:

Dan R. Brown, P.E.
Product Specialist
Holcim (US) Inc.
1-800-292-4355 (office)
Chairman of ACI Committee 522, Pervious Concrete
Email: danr.brown@holcim.com


New Documents Available from ACI

The American Concrete Institute has recently issued the following committee reports and specifications:

- Guide for the Design and Construction of Concrete Reinforced with FRP Bars, ACI 440.1R-03
- Slag Cement in Concrete and Mortar, ACI 233R-03
- Design and Construction Practices to Mitigate Corrosion of Reinforcement in Concrete Structures, ACI 222.3R-03
- Specification for Unreinforced Concrete Parking Lots, ACI 330.1-03

These publications are available from ACI International, P.O. Box 9094, Farmington Hills, Michigan, 48333. You may order by telephone at 248.848.3800, or on-line at http://www.concrete.org/BOOKSTORE/BKSTR.HTM.
We have an updated website (www.wnecgb.org) thanks to the work of Susan Frantz and hope to have a listserv soon to facilitate members communication.

The second edition of the Directory is moving along thanks to a lot of effort by Duncan McPherson and with help on advertising by Matt Siegle and Adam Lurie. We are planning on having the directory by March.

The NC Green Power program was kicked off in Oct and you can now purchase 100 kilowatt-hours for $4. Each block “over the course of a year is the environmental equivalent of not driving a car for 74 days or planting 150 full-grown trees.” (www.ncgreenpower.org)

On the national level the US Green Building Council (www.usgbc.org) continues expand the number of LEED Certified buildings as the cost savings of energy and pollution reduction becomes more obvious. It is convening its annual convention in Pittsburgh and is working on an umbrella group of residential green building programs.

Thanks for all the support!!
Boone Guyton

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**Energy Efficient Mortgages @ Wachovia**

This is announce that Wachovia Mortgage has signed up to offer energy efficient mortgages in North Carolina. Wachovia Mortgage is a big boost to the program with its large regional presence and branch offices throughout the state. There will be a news conference announcing the launching of the North Carolina project that will take place in conjunction with the NC rater/building performance professionals marketing training that will take place at the McKinnon Center at North Carolina State University. The news conference will take from 10:30 to 11:00 a.m. on November 18 in another room at the McKinnon Center. The news conference will feature Congressman Miller, Jon Gauthier of the NC Fannie Mae Partnership Office, Larry Shirley of the NC State Energy Office and representatives of Countrywide Home Loans and Wachovia Mortgage.