

July 22, 2010

Dear BOBer,

Thanks for taking a moment to view the BOB news today!

**There's still time to join us today
Thursday, July 22nd, for the
Mid-Construction LEED Home Tour
3:00 to 6:00 pm at 712 Ebenway Drive, Nashville, TN.**

Please see the details here and below
<https://e3innovate.backpackit.com/pub/2060443-leed-home-west-meade-sustainable-features>

Here's what we have for you today:

- BOB Survey – Final Chance for Feedback
- Belgard Permeable Paver Installation Viewing Aug 2-4
- Final Reminder: Mid-Construction LEED Home Tour - July 22nd
- NAHB Report: Home Sizes Declining, Energy Efficiency Factor
- DOE Release New "Guidelines for Selecting Cool Roofs"
- NOAA News: First Half of 2010 Warmest on Record

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**BOB Survey – Your Input Requested:**

To better serve your sustainable building educational needs, we are circulating our **BOB Educational Impact Survey** one last time. I would appreciate it very much if you would take a few moments to answer the 12 quick questions on the survey. Please help me evaluate how our sustainable building education has benefited the development community and encouraged sustainable building over the past several years. Tell us what worked for you and how we can improve. Your feedback really matters so thanks for taking a moment for the survey. The survey will be available only through **July 30** so please visit the survey **right now**. Many thanks!!

The survey is available here: <http://www.surveymonkey.com/s/FV6HJ2Q>

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Open Invitation: Interlocking Permeable Paver Installation Viewing – Aug 2-4

Belgard Environmental is pleased to announce that our Design Center Facility is preparing to eliminate the gravel, muddy/dusty mess that have been our drive lanes, parking areas and inventory storage areas for the past several months. Beginning Monday morning August 2nd we

will begin the mechanical installation of permeable interlocking concrete pavers to solve all the above mentioned issues. In addition we will eliminate untreated stormwater runoff from our site. I would like to extend an open invitation for anyone interested in observing pavers being mechanically installed to visit the Design Center anytime between Monday August 2nd and Wednesday August 4th, with Tuesday the 3rd probably being the best day. The contractor installing the pavers will be LPS Paving out of Chicago, IL and they have literally installed millions of square feet of pavers. In addition, there will be folks from Advanced Pavement Technologies on hand to answer questions. The Design Center is at 3035 Powell Avenue, directly under Armory Road overpass.

For more information contact:
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E3 INNOVATE
ENERGY • EFFICIENCY • ENVIRONMENT



Spray Foaming for Insulation



Detecting Insulation Gaps



Radiant Barrier in Attic

LEED-Home Site Tour

Join E3 Innovate
Thursday, July 22
3:00–6:00 PM

West Meade • 712 Ebenway Drive



Join Erik Daugherty, of E3 Innovate, for a LEED-Home site tour. Tour the West-Meade home seeking Energy Star and LEED-H Gold certifications in

mid-construction, pre-drywall stage to become better educated on the hidden construction practices that create a truly high-performance, energy-efficient, durable and long-lasting, and water-friendly home.

Everyone is invited!

Builders, Contractors, and Designers: See practical applications and speak with your peers.

Homeowners: See important design and construction behind the walls and understand green building practices.

See below for a complete list of what to expect.

Come out on Thursday, July 22 at 3:00 pm.

There will be a 15-minute briefing at 3:30 and 5:00.

West-Meade • 712 Ebenway Drive, Nashville

PROJECT TEAM TOUR LEADERS:

Architect: David Baird

Builder: Blair Myers

Energy (HERS) Rater: Jeff Middlebrooks

LEED-AP Homes Facilitator: Erik Daugherty

Landscape Architect: Kevin Guenther

Green Rater: Tony Viglietti

BOB Program Director: Gwen Griffith

PARKING FOR THE TOUR: Please parallel park along either side of the street in front of 712 or 708 Ebenway. Additionally, the good neighbors at Brook Hollow Baptist Church have made their paved parking lot (a short walk up the hill) available for parking. Our thanks to them! (GREEN TIP: This would be an excellent carpooling opportunity!)



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**Report: Home Size is Declining, Energy Efficiency a Factor**

The size of new U.S. single-family homes completed in 2009 declined, dropping to a nationwide average of 2,438 square feet and reversing trend of the past three decades, according to a National Association of Home Builders (NAHB). New single-family homes were almost 100 square feet smaller in 2009 than they were in 2007, according to recently released U.S. Census Bureau data. One reason for the drop, NAHB noted, was homeowners' desire to keep energy costs in check. This growing energy-efficiency consciousness is one of many trends that the association said was likely to continue.

Despite the tendency towards a smaller footprint, overall energy usage has been growing. One reason could be the spread of air conditioning. Census Bureau data show that less than half of all new single-family homes completed in 1973 had air conditioning while nearly nine-out-of-ten new homes were air conditioned. Not surprisingly, there are regional differences in those nationwide findings. The proportion of homes with air conditioning ranged from a low of 69% in the West to a high of 99% in the South. The Northeast and Midwest were at 75% and 90%, respectively. Still, even as energy use climbs, so does energy efficiency. "Residential Energy Consumption Survey," a U.S. Energy Information Administration (EIA) report released in 2005, confirms that while both floor size and overall energy consumption been trending upwards for decades, energy consumption per square foot has been dropping. The survey shows that new households were smallest from 1970 to 1979, averaging 1,863 square feet. They steadily increased through 2005, according to the EIA report. Likewise, overall household energy consumption was lowest from 1980 to 1989, but has been rising ever since. However, even as residences have grown, the amount of energy used per

square foot has declined from a high of 89 cents per square foot during the 1970-79 era to 68 cents per square foot in structures built from 2000 to 2005.

See the [NAHB press release](#) and page three of the EIA 2005 “Residential Energy Consumption Survey” ([PDF 51 KB](#)). [Download Adobe Reader](#).

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DOE Takes Steps to Implement Cool Roofs across the Federal Government

DOE announced on July 19 a series of initiatives to more broadly implement cool roof technologies on DOE facilities and buildings across the country. As part of the new efforts, DOE will install a cool roof, whenever cost effective over the lifetime of the roof, during construction of a new roof or the replacement of an old one at a DOE facility. Buildings use 40% of all U.S. energy and contribute about 35% of greenhouse gas emissions in the United States. Cool roofs rely on lighter-colored roofing surfaces or special coatings to reflect more of the sun's heat. Re-roofing for DOE headquarters in Washington, D.C., will begin this summer.



The Environmental Protection Agency's Research Triangle Park facility cool roof is an example of this cooling technology. *Credit: Environmental Protection Agency*

As an example of a project already underway, the National Nuclear Security Administration (NNSA), a separately organized agency within DOE, has already installed more than two million square feet of cool and white roofs at NNSA sites across the country. Through the Roof Asset Management Program, NNSA currently saves an average of \$500,000 a year in energy costs and expects to save more than \$10 million over the next 15 years. Overall, NNSA has reduced building heating and cooling costs by an average of 70% annually on reroofed areas by installing cool roofs and increasing insulation.

While announcing the new initiatives, Energy Secretary Steven Chu also issued a letter to the heads of other federal agencies, encouraging them to take similar steps at their facilities. To offer additional support for federal and commercial building operators considering cool roofs, DOE released its "Guidelines for Selecting Cool Roofs." The guidelines provide technical assistance on types of roofing materials and the selection of a roof that will work best on a specific facility. These measures follow President Obama's Executive Order on Sustainability, issued in October 2009 and under which the federal government committed to reducing its greenhouse gas emissions 28% by 2020.

See the [DOE press release](#), Secretary Chu's memorandum ([PDF 395 KB](#)),

Guidelines for Selecting Cool Roofs ([PDF 909 KB](#)),

[Secretary Chu's YouTube video on cool roofs](#), and the [LBNL study](#). [Download Adobe Reader](#).

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## **First Half of 2010 is the Warmest on Record for the Globe**

The first six months of 2010 were the warmest on record, according to a new analysis by the National Oceanic and Atmospheric Administration (NOAA). The agency's National Climatic Data Center (NCDC) found that the combined global land and ocean surface temperatures averaged 57.5°F for January through June, which is 1.22°F above the 20th-century average. For comparison, the second-warmest January-June on record was in 1998, when the average global temperature was 1.19°F above the 20th-century average. Temperatures on land were the second-warmest on record, falling behind 2007, while ocean surface temperatures were also the second-warmest on record, falling behind 1998. In addition, every month from March to June 2010 was the warmest on record for the globe.

See the [NOAA press release](#) and the [NCDC analysis](#).

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## **WEST MEADE RESIDENCE- GREEN/SUSTAINABLE DESIGN OVERVIEW PLANNING**

1. Integrated Project Team of Designers, Builders & LEED Raters
2. Design Charrette that included Owners, Designers, Builders, Suppliers, Raters
3. LEED for Homes Accredited Professional

### **SITE**

1. New house site uses a previously developed infill lot with existing infrastructure/utilities
2. Minimized site disturbance; construction primarily over previous site footprint;
3. Developed a tree preservation plan; no trees removed
4. Invasive plants removed on property
5. Developed a basic Landscaping Design Plan
6. Reduced the amount of existing turf area
7. 50% + drought tolerant plants
8. Custom Rainwater Harvesting system to capture 50%+ of roof area run off for a 1"/24hr rain fall; Roof downspouts are connected together under ground & connect to the rainwater tanks; use the rainwater for the landscape irrigation system
9. Installed permanent erosion controls in the form of trees, shrubs, ground cover & rain gardens
10. Non-toxic pest control
11. Innovation- Used an underground utility trench filled with gravel & drainage pipe to minimize & re-direct subsurface water

REUSE OF EXISTING MATERIALS, RECYCLING, DEMOLITION, WASTE

1. Materials from the existing demolished house were reused and recycled
2. The brick from the existing house & 2 other houses in the neighborhood are reused on the new house
3. Donated home items/appliances/building materials from the demolished house to Nashville Habitat HomeStore
4. Various recycling companies removed specific items for recycling, ie. Plumbing pipe, electrical wiring
5. 75% of construction waste is diverted from landfills

#### CONSTRUCTION TECHNIQUES

1. Detailed Framing documents showing layout & sizes of wood framing
2. Advanced framing techniques & minimal lumber waste
3. Coordination with other systems

#### PRODUCTS & MATERIALS

1. Locally-sourced wall stone
2. Recycled brick
3. Reclaimed hardwood floors (old growth white oak from Columbia [TN] Cotton Mill, built in 1884)
4. Reclaimed wood in some cabinetry
5. No/low VOC paints and glues
6. FSC certified wood trim
- 2
7. 100% of floor surfaces are hard surfaces that are easy to clean & do not trap dirt/dust
8. Roof shingles are certified to be used for foam insulated roofs

#### WATER EFFICIENCY

1. Custom Rainwater Harvesting system
2. High efficiency landscape irrigation system
3. High efficiency plumbing fixtures- Faucets, Shower Heads, Toilets
4. Low water use clothes washer

#### HEATING & AIR CONDITIONING, AIR QUALITY

1. Energy Modeling & Manual J Calculations to determine HVAC right sizing
2. Multiple unit Geothermal HVAC system that is divided into zones that heats and cools different areas of the house separately
3. Air tight insulated metal duct system, Humidifier, (ERV) Energy Recovery Ventilators
4. All ducts are located within semi-conditioned spaces
5. Energy Star exhaust fans
6. Fireplace- EPA approved 73% efficiency, wood burning
7. Innovation- A door is used at the bottom of the stair leading to the 2<sup>nd</sup> floor to "thermally" close off the 2<sup>nd</sup> floor from the 1<sup>st</sup> floor
8. 90% of the windows are operable for natural ventilation
9. Energy Star ceiling fans in all bedrooms & 2<sup>nd</sup> floor gallery/hallway
10. Entryway walk off mats to improve indoor air quality

#### INSULATION, AIR INFILTRATION, MOISTURE PROTECTION

1. Enhanced insulation- Open cell foam insulation for the roof & 2<sup>nd</sup> floor knee walls
2. 5 ½" blown cellulose insulation in the exterior walls
3. Cellulose insulation is used between floors for both thermal & sound purposes
4. The house envelope is caulked/foamed to achieve Minimal Envelope Leakage
5. Encapsulated crawlspace
6. Commercial-grade waterproofing & water drainage around foundation

## 7. Insulated water piping

### WINDOWS & DOORS & GLASS FLOOR

1. High quality double glazed insulated windows & doors
2. The coating on the glazing is specific to the orientation of the windows & doors; Low E II & Low E 366 with Argon gas
3. 90% of the windows are operable for natural ventilation
4. Increased the number of windows to enhance daylighting & views
5. Pre-finished aluminum clad windows for durability & minimize maintenance
6. Solar controlled skylights in the Art Studio to enhance daylighting
7. Solatube in the interior bathroom to enhance daylighting
8. Laminated Glass Floor in the interior hallway to enhance daylighting

### WATER HEATING & DISTRIBUTION

1. 3 different zoned/structured plumbing water heating systems that serve different areas of the house.
2. High efficiency water heaters that are right sized for their zoned uses.
3. Re-circulating hot water loops

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### LIGHTING

1. Energy Star LED & Compact Fluorescent fixtures
2. Adjustable down lights that can be retrofitted with LED bulbs
3. Motion sensors to turn off lights in some rooms
4. Automated lighting controls

### SYSTEMS AUTOMATION

1. Computer controlled system that controls lighting, hvac, data network, AV, telephone; Employs energy efficiency options

### APPLIANCES

1. Energy Star refrigerator, ceiling fans, dishwasher, clothes washer
2. Operable Ceiling-suspended clothes "airer" in laundry room
3. Central vacuum system

### RENEWABLE ENERGY

1. 4KW Solar Photovoltaic System
2. Battery back-up storage system

### OTHER

1. Universal design, aging in place features