

GREEN BUILDING AND
THE EARTHCRAFT™
HOUSE



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GREEN BUILDING

What is Green Building?

- As the environmental impact of buildings becomes more apparent, a new field called green building is gaining momentum. Green or sustainable building is the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance, and demolition. Research and experience increasingly demonstrate that when buildings are designed and operated with their lifecycle impacts in mind, they can provide great environmental, economic, and social benefits.
- Green Building does not have to cost more. There has to be better planning and building when building a Green Home.
- 10 Reasons to Buy or Build a Green House
 1. A Green House is Healthier Than a Traditional House
 2. A Green House is Better For The Environment
 3. A Green House Cost Less to Live in and Operate
 4. A Green House was Built Conserving Resources
 5. Green Houses Help Reduce CO2 Emissions into the Air
 6. Green Houses are More Comfortable To Live In
 7. A Green House Will Have a Better Resale Value in The Future
 8. Green Houses are Built Better Than Conventional Homes
 9. A 3rd Party Inspects most Green Houses
 10. Green Homes Will Save You Money in The Long Run

EARTHCRAFT™ HOUSE PROGRAM

What is the Earth Craft Home Program?

- EarthCraft House™ (www.earthcrafthouse.com) is an innovative new green building program that provides homebuilders with a set of guidelines to construct energy-efficient and environmentally friendly homes. The program standards were developed in 1999 through a unique partnership between Southface Energy Institute (www.southface.org) and the Greater Atlanta Home Builders Association (www.atlantahomebuilders.com), government and environmental leaders. Together, they created one of the country's most progressive home building programs.
- The Home Builders Association of Virginia (HBAV) (www.hbav.com) and Virginia Sustainable Building Network (VSBN) (www.vsbn.org) are excited to introduce the program to Virginia. VSBN partnered with the Blue Ridge Home Builders Association (BRHBA) to officially launch the EarthCraft

House Virginia Single Family Program in September 2006. Starting with the Roanoke area, the program is scheduled to expand throughout most of the state in 2007.

- Lower utility bills, better indoor air quality, durable construction, and a reduced environmental impact are just a few of the many benefits to living in an EarthCraft House. Although buying an EarthCraft House may cost a little more up front, the combined savings in lower utility and maintenance costs often more than make up for it. To ensure quality, an EarthCraft House must pass a set of inspections by a certified third-party inspector. Although rigorous, the program standards provide ample room for creativity in the design and building processes. The inspection is based on a flexible point system that includes areas such as site planning, energy efficient techniques and equipment, resource efficient design, waste management, indoor air quality, and water conservation.
- The Earth Craft Home Program is a green building program for healthy, comfortable homes that reduce utility bills and protect the environment.

How do you become a partner for the EarthCraft Home Program?

- Join the Earth Craft Home Program by mailing your application along with a fee to Virginia Sustainable Building Network, join your local HBAV affiliate, and the builder must also attend a one-day training taught by Southface staff.

What are different ways to achieve points in the EarthCraft Homes system?

- Certification requires 150 point total with half the points derived from energy efficiency, including satisfactory test results.
- Tree conservation, soil erosion control plans, air sealing measures, water conservation measures and other energy-efficient designs all are given points that when added up, can give a home the EarthCraft certification.

What Is the cost to have your house certified through EarthCraft Homes?

- Certification \$700/house plus .30/additional SF.
- Energystar Certification is \$75/house

EarthCraft House™

Sensibly Built for the Environment

MIXED HUMID CLIMATE WORKSHEET

IECC 2000 Climate Zones 7 and 8

A worksheet must be submitted to EarthCraft House for each home to be certified. An EarthCraft House certification requires 150 points. In addition to having a completed worksheet, each home must also have appropriate documentation and a Final Inspection

Worksheets may be submitted via mail, fax, email or presented on-site to the inspector.

Mail: EarthCraft House
241 Pine St. NE
Atlanta, GA 30308
Fax: 404-872-5009
Email: worksheets@earthcrafthouse.com

Builder
Group: _____
Contact
Person: _____
Phone: _____
Fax: _____
Email: _____

House
Address: _____

Lot #: _____

Community: _____

Builder - By accepting the EarthCraft House certification, I pledge that this house has been constructed to the standards listed on this Scoring Worksheet.

Builder Signature Date

Home Buyer - I have reviewed the EarthCraft House measures with the homebuilder or sales agent.

Home Buyer Signature (required only for pre-sales) Date

EarthCraft House Inspector

Inspector Signature Date

Worksheet Score

POINTS SCORE DOCUMENTATION

SITE PLANNING			
REQUIRED: Must comply with all federal, state, and local government erosion control and tree protection measures.	-		
erosion control site plan	2		site plan
workshop on erosion and sediment control	2		certificate
excavated topsoil protected from erosion	5		
use of redundant mulch, compost, or straw bales for erosion control	3		
grind stumps and limbs for mulch	2		
mill cleared logs	2		
registered Building <i>With Trees</i> (NAHB Program) development	5		confirmation letter
tree preservation plan	3		tree plan
utilities in tree root zones tunneled or hand dug (1 point per tree, max 5 trees)	1 per tree		
individual trees fenced at drip line (1 point per tree, max 5 trees)	1 per tree		
protected tree save area (min 25% of development or lot)	2		
tree planting (min 12 trees per acre of developed land; min 2" caliper)	4		
wildlife habitat including shelter, food, and water	2		
SITE PLANNING TOTAL			
ENERGY EFFICIENT BUILDING ENVELOPE AND SYSTEMS			
REQUIRED: ENERGY STAR HOME CERTIFICATION. Note: Homes with all items marked ★ will likely qualify as ENERGY STAR Homes using a Builder Option Package. See www.energystar.gov .			
REQUIRED AIR SEALING MEASURES			
chases sealed and insulated	-		
stud cavities blocked at change in ceiling height	-		
attic kneewall has sealed exterior sheathing and/or netting for dense insulation	-		
joist cavities under attic kneewall blocked	-		
penetrations through top and bottom plate sealed	-		
bottom plate sealed to floor or foundation	-		
window and door rough openings sealed	-		
gaps in exterior wall sheathing sealed	-		
sheathing penetrations sealed (including exterior light fixtures)	-		
penetrations through band sealed (including bathroom exhaust fan)	-		
exterior walls of fireplace chase sealed	-		
penetrations through insulated subfloor sealed (including HVAC boots)	-		
shower and tub drains sealed	-		
cantilevered floor sealed above supporting wall	-		
all recessed can lights in insulated ceilings must be airtight and IC-rated	-		
penetrations through insulated ceiling sealed (including HVAC boots)	-		

attic kneewall doors & scuttle holes weatherstripped	-		
attic pull-down stairs, scuttle hole, & kneewall doors sealed at rough opening	-		
penetrations through drywall in attached garage sealed	-		
no polyethylene shall be used on exterior walls or foundation walls	-		
ADDITIONAL AIR SEALING MEASURES			
air barrier installed behind tubs and showers	2		
ceiling drywall sealed to top plate	2		
drywall penetrations in insulated walls	1		
attic pull-down stairs with sealed attic-side cover	2		
housewrap installed with all seams and edges taped	1		
seams in band joist between conditioned floors sealed	2		
BLOWER DOOR TEST			
REQUIRED: Blower door test result <0.50 cfm ₅₀ / square foot of building envelope	-		test results
★ test result <0.40 cfm ₅₀ / square foot of building envelope	25		test results
test result <0.25 cfm ₅₀ / square foot of building envelope (ventilation required)	35		test results
AIR SEALING SUBTOTAL			
REQUIRED INSULATION			
exterior walls & band joist R13	-		
flat ceilings R30 (requires baffles and blocking in vented attics)	-		
sloped ceilings R19	-		
cantilevered floors R19 (blocking between joists required)	-		
framed floors R19 (if basement/crawl is outside building envelope)	-		
foundation walls R5 (if basement/crawl is inside building envelope)	-		
attic kneewalls R19 (or U less than or equal to 0.061)	-		
ADDITIONAL INSULATION			
2x6 attic kneewalls with R19 cavity insulation & non-insulated sheathing (U=0.061)	2		
2x6 attic kneewalls with R19 cavity insulation & R3 insulated sheathing (U=0.051)	3		
2x4 attic kneewalls with R13 cavity insulation & R5 insulated sheathing (U=0.058)	3		
slab insulation R4	3		
foundation walls insulated instead of floor over basement (no paper faced batts)	5		
foundation walls insulated with continuous insulation	2		
sealed, insulated crawl space walls R8	4		
cantilevered floors R30 (blocking between joists required)	1		
insulate fireplace chase or no fireplaces on exterior walls	1		
spray applied wall insulation	5		

insulated wall stud cavities R15	1	
insulated headers	1	
insulated corners	1	
insulated T-walls (exterior/interior wall intersection)	1	
★insulated wall sheathing R 2.5 or greater (min. 75%)	2	
insulated wall sheathing R 5 or greater (min. 75%)	3	
band joist insulated R19	2	
loose-fill attic insulation card and rulers	1	
energy heel trusses or raised top plate	2	
flat ceilings R38 (requires baffles and blocking in vented attics)	2	
vaulted and tray ceilings R25	1	
vaulted and tray ceilings R30	2	
attic radiant barrier	2	
attic kneewall doors R8	2	
attic pull-down or scuttle hole R5	1	
attic pull-down or scuttle hole R19 (compressed batt not acceptable)	2	
INSULATION SUBTOTAL		
WINDOWS		
REQUIRED: Maximum window U-factor 0.65	-	
window is NFRC certified with label	1	window label
window U-factor <0.40	3	window label
★window U-factor <0.35	5	window label
window, skylight and glass door SHGC <0.40	3	window label
★window, skylight and glass door SHGC <0.35	5	window label
1.5-foot overhangs over 80% of windows (max 2 feet above windows)	1	
solar shade screens (min all east and west windows)	3	
west facing glazing less than 2% of floor area	2	
east facing glazing less than 3% of floor area	2	
certified passive solar design (25% load reduction)	10	computer print-out
WINDOWS SUBTOTAL		
HEATING AND COOLING EQUIPMENT		
REQUIRED: Manual J calculation for sizing heating and cooling equipment	-	
Manual J calculation based on actual house orientation	5	
installed cooling equipment within 6,000 btu/hr of Manual J (all units)	2	load calc + eqmt size
installed heating equipment within 25,000 btu/hr of Manual J (all units)	2	load calc + eqmt size
★90% AFUE furnaces / 7.5 HSPF heat pumps	6	energy guide label
SEER 12 cooling equipment	4	energy guide label
SEER 14 cooling equipment	6	energy guide label
geothermal heat pump	8	
sensible heat fraction less than or equal to 0.75		

(all air conditioners)			
★programmable thermostat (all systems)	1		
outdoor thermostat for heat pump	1		
cooling equipment has non-CFC and non-HCFC refrigerant	3		product literature
zone control - one system services multiple zones	5		
HEATING AND COOLING SUBTOTAL			
DUCTWORK / AIR HANDLER			
REQUIRED: air handlers & duct systems sealed with mastic or mastic tape	-		
REQUIRED: code approved solid connector for all flex to flex connections	-		
air handler located within conditioned space (all units)	5		
ducts located within conditioned space (min 90%)	5		
duct design complies with Manual D on a room-by-room basis	5		sizing calculation
all supply duct take-offs spaced 6" apart (no ducts from cap)	2		
no duct take-offs within 6" of supply plenum cap	1		
rigid ductwork or all flex duct pulled tight with no pinches	1		
return capacity 120% of supply capacity	3		
airflow for each duct run measured and balanced to within 15 cfm of design value	4		test results
variable speed blower	5		
no ducts in exterior walls or vaulted ceilings	1		
rigid supply trunk	3		
multiple return ducts (min 1 in each bedroom) or transfer grills	2		
interior doors with 1 inch clearance to finish floor	1		
duct trunk lines outside conditioned space insulated to R8	2		
DUCT BLASTER TEST			
REQUIRED: Duct blaster test result <10% of floor area served	-		test results
★Duct blaster result <5%	20		test results
DUCTWORK / AIR HANDLER SUBTOTAL			
ENERGY EFFICIENT BUILDING TOTAL*			
<i>*Builder must earn a minimum of 75 pts. No more than 85 pts. can be applied to the total score.</i>			
ENERGY EFFICIENT LIGHTING / APPLIANCES			
indoor fluorescent fixtures (min 200 watts)	2		
recessed light fixtures are compact fluorescents	2		
automatic outdoor lighting controls (e.g. motion sensor)	2		
high efficiency exterior lighting	2		product literature
ENERGY STAR dishwasher	1		product label

ENERGY STAR refrigerator	2	product label
no garbage disposal	1	
ENERGY EFFICIENT LIGHTING / APPLIANCES TOTAL		
RESOURCE EFFICIENT DESIGN		
total floor area of house <1800 square feet	6	
total floor area of house 1800-2100 square feet	4	
total floor area of house 2100-2500 square feet	2	
outside dimensions of floor plan adheres to 2-ft dimensions	2	
floor joists @ 24-in. centers (all floors)	5	
floor joists @ 19.2-in. centers (all floors)	3	
non-load bearing wall studs @ 24-in. centers	2	
all wall studs @ 24-in. centers	3	
window rough openings eliminate jack stud	2	
non-structural headers in non-load bearing walls	2	
single top plate with stacked framing	3	
2-stud corners with drywall clips or alternative framing	3	
T-walls with drywall clips or alternative framing	3	
RESOURCE EFFICIENT DESIGN TOTAL		
RESOURCE EFFICIENT BUILDING MATERIALS		
RECYCLED AND NATURAL CONTENT MATERIALS		
sustainably harvested lumber (50%)	3	
25% of cement in concrete replaced with fly ash or slag	3	content print-out
recycled concrete used as aggregate	1	letter
insulation (min 25% recycled)	1	product literature
reclaimed wood flooring	2	letter
recycled content tiles (min 30% recycled)	2	product literature
cork or bamboo flooring (min 10% of total floor area)	2	
carpet (min 50% recycled)	2	product literature
biodegradable carpet and backing (wool, hemp, etc.)	2	
outdoor decking and porches (min 40% recycled content)	3	
air conditioner condensing unit pad (min 50% recycled content)	1	
RECYCLED AND NATURAL CONTENT MATERIALS SUBTOTAL		
ADVANCED PRODUCTS		
engineered floor framing (80%)	4	
engineered roof framing	2	
OSB roof decking	1	
all beams are steel, engineered wood, or trusses	1	
all headers are steel or engineered wood	1	
engineered wall framing (25% of studs)	1	

engineered wall framing (80% of studs)	2	
interior trim finger jointed or MDF	1	
engineered exterior trim including soffit, fascia, and trim	1	
steel interior wall framing	1	
Structural Insulated Panels (exterior walls)	5	
Structural Insulated Panels (roof)	3	
Precast Autoclaved Aerated Concrete	5	
Insulated Concrete Forms	5	
ADVANCED PRODUCTS SUBTOTAL		
DURABILITY		
roofing (min 25-year warranty)	1	warranty
roofing (min 30-year warranty)	2	warranty
roofing (min 40-year warranty)	3	warranty
light roof color (tile or metal)	2	
roof drip edge	1	
exterior cladding (min 3 sides with 40-year warranty or masonry)	1	
walls covered with builder paper or housewrap (drainage plane)	1	
siding with vented rain screen	1	
back-primed siding and trim	1	
10 year warranty on all insulated glazing	1	warranty
window and door pan & sill flashing integrated with drainage plane	1	
window and door head flashing integrated with drainage plane	2	
continuous foundation termite flashing	1	
roof gutters that discharge water 5 feet away from foundation	1	
covered entryways (all doors)	2	
DURABILITY SUBTOTAL		
RESOURCE EFFICIENT BUILDING MATERIALS TOTAL		
WASTE MANAGEMENT		
WASTE MANAGEMENT PRACTICES		
Required: No construction materials shall be burned or buried on job site or anywhere but in a state-approved landfill.	-	
job site framing plan with cut list	1	frame plan + cut list
job site framing plan with locations of studs, joists, and roof structure with cut list	10	frame plan + cut list
central cut area	3	
donation of excess materials or re-use (min \$500/job)	1	letter
WASTE MANAGEMENT PRACTICES SUBTOTAL		
RECYCLE CONSTRUCTION WASTE		
posted job site waste management plan - recycle 75% of 3 materials	5	management plan
Wood	3	
Cardboard	1	

Metal	1		
drywall (recycle or grind and spread on site)	3		
Plastics	1		
Shingles	1		
RECYCLE CONSTRUCTION WASTE SUBTOTAL			
WASTE MANAGEMENT TOTAL			
INDOOR AIR QUALITY			
COMBUSTION SAFETY			
REQUIRED: No unvented combustion fireplaces or space heaters.	-		
REQUIRED: No duct runs from house system serving garage	-		
detached garage or no garage	5		
attached garage - seal bottom plate, penetrations, and band area	2		
attached garage - exhaust fan controlled by motion sensor or timer	2		
direct vent, sealed combustion fireplace (all units)	3		
heat pumps located inside conditioned space (all units)	2		
sealed combustion furnace or furnace isolated from conditioned space (all units)	4		
power vented water heater	2		
direct vent water heater or water heater isolated from conditioned space (all)	4		
carbon monoxide detector (one per floor required)	4		
backdraft depressurization test	4		test results
COMBUSTION SAFETY SUBTOTAL			
MOISTURE CONTROL			
plastic as footing wrap or capillary break between footing and foundation	2		
foundation drain on top of footing	1		
foundation drain at outside perimeter edge of footing	2		
drainage board for below grade walls	4		
gravel bed beneath slab	3		
vapor barrier beneath slab (above gravel) and in crawl space	1		
100% coverage of vapor barrier in crawl space all seams sealed to piers, walls	1		
capillary break between foundation and framing	1		
MOISTURE CONTROL SUBTOTAL			
VENTILATION			
REQUIRED: bathroom exhaust fans & clothes dryers must be ducted to outside	-		
passive radon/soil gas vent system	4		
radon test of home prior to occupancy	2		
ENERGY STAR bath fans (all units)	3		product literature
bath fans ducted with rigid duct (all units)	1		
automatic tub/shower room fan controls (e.g.			

timer)			
kitchen range hood or downdraft vented to exterior	3		
ceiling fans (minimum of 3 fans)	1		
whole house fan	2		
basement or sealed crawlspace dehumidification system	3		
vented garage storage room	1		
no power roof vents	1		
outside air intake without damper (10 cfm/person)	4		
outside air intake with dampers (10 cfm/person)	5		
ventilation timer on outside air intakes	3		
energy recovery ventilator	4		
VENTILATION SUBTOTAL			
MATERIALS			
REQUIRED: Ducts in floor protected until floor finishing	-		
subfloor urea-formaldehyde free	1		product literature
all cabinets, shelves, and countertops urea formaldehyde free	3		product literature
all surfaces of particle board in house sealed with water-based sealant	1		
reduced VOC paints (less than 250 g/L)	1		product literature
low VOC paints (less than 150 g/L)	3		
reduced VOC stains and finishes on wood floors	1		product literature
low VOC sealants and adhesives (less than 250 g/L)	1		product literature
low VOC carpet certified by the Carpet & Rug Institute	2		product literature
alternative termite treatment	2		
alternative pest control	2		
outdoor structures made from non-CCA pressure treated lumber	1		product literature
central vacuum system with outside collection receptacle	1		
filter / air cleaner MERV 8 or better (e.g. pleated filter)	1		
2" pleated filter or thicker	2		
ducts protected until construction is completed	2		
MATERIALS SUBTOTAL			
INDOOR AIR QUALITY TOTAL			
WATER - INDOOR			
REQUIRED: All fixtures must meet National Energy Policy Act low flow standards.	-		
REQUIRED: heat traps on all water heaters	-		
water filter (NSF certified)	1		product literature
front-loading clothes washer	2		product label
low-flow showerheads (max 2.25 gal/min)	1		product literature
low-flush toilets (max 1.45 gal/min)	1		product literature

hot water demand re-circulation (not continuous circulation)	2		
manifold distribution system	2		
shower drain heat recovery device	2		
high efficiency water heater (min Energy Factor: gas 0.62 electric 0.92)	2		energy guide label
tankless gas water heater	2		
water heater tank insulation	1		
water heater pipe insulation on first two feet of pipe	1		
heat recovery water heating	1		
solar domestic water heating	10		
heat pump water heater	4		
WATER - INDOOR TOTAL			
WATER - OUTDOORS			
xeriscape™ guidebook given to homeowner	1		resource
xeriscape™ plan provided to homeowner	4		xeriscape plan
soil tested and amended	5		
drought-tolerant landscaping plants	5		
reduced sod area (less than the home's footprint)	5		
no irrigation system	3		
drip irrigation system	2		
greywater irrigation	3		
rainwater harvest system	3		
permeable pavement driveway / parking area	2		
WATER - OUTDOORS TOTAL			
HOMEBUYER EDUCATION			
guaranteed energy bills	10		energy bill guarantee
review energy operations with homeowner	1		
review irrigation system operations with homeowner	2		
built-in recycling center	2		
local recycling contact	1		
household hazardous waste resources	1		
environmental features checklist for walk through	4		
HOMEBUYER EDUCATION TOTAL			
BUILDER OPERATIONS			
REQUIRED: Must build at least 1 EarthCraft House every year	-		
builder commits 80% of total homes to EarthCraft House standards	4		
markets EarthCraft House program	2		
environmental checklist provided to all subcontractors	2		
uses HBA Homeowner Handbook for warranty standards (or approved equiv.)	2		
BUILDER OPERATIONS TOTAL			

BONUS POINTS		
site located within 1/4 mile of mass transit	5	
sidewalk connects house to business district (max 2 miles)	5	
brownfield site	5	
solar electric system	25	
alternative fuel vehicles: electric charging station or natural gas pump	5	
Easy Living accessibility / visitability certification	2	
American Lung Association Health House	5	
certified as a LEED-H Home	10	
exceeds ENERGY STAR (1 point for each 5%) max 5 points		
Innovation points - Builder submits specifications for innovative products or design features to qualify for additional points		
BONUS POINTS TOTAL		
	MIN	
EARTHCRAFT HOUSE TOTALS		
SITE PLANNING	0	
ENERGY EFFICIENT BUILDING ENVELOPE AND SYSTEMS	75	(Max 85)
ENERGY EFFICIENT LIGHTING / APPLIANCES	0	
RESOURCE EFFICIENT DESIGN	0	
RESOURCE EFFICIENT BUILDING MATERIALS	0	
WASTE MANAGEMENT	0	
INDOOR AIR QUALITY	0	
WATER - INDOOR	0	
WATER - OUTDOORS	0	
HOMEBUYER EDUCATION	0	
BUILDER OPERATIONS	0	
BONUS POINTS	0	
GRAND TOTAL	150	

ENERGY STAR™ PROGRAM

What is the Energy Star Program?

- The Energy Star Program is a program sponsored jointly by the U.S. Environmental Protection Agency and the U.S. Department of Energy that promotes energy efficient products, homes, and technologies for consumers and businesses. Energy Star qualified products and new

homes are often 10 to 30 percent more efficient than their conventional counterparts.

LEED PROGRAM

What is a LEED?

- A LEED is a set of guidelines to help people design more environmentally friendly buildings. This rating system for buildings – called LEED, or Leadership in Energy & Environmental Design – is organized into six categories:
 - Sustainable sites or being a good neighbor by limiting the building's impacts on the local environment, both during and after construction.
 - Water Efficiency by finding ways to reuse and recycle the building's water, in order to use less of the city's water supply.
 - Energy & Atmosphere by designing an energy-efficient building that minimizes greenhouse gas emissions.
 - Materials and resources by reusing and recycling construction materials to reduce the amount of waste sent to landfill, and buying materials from local suppliers.
 - Indoor environmental quality by ensuring that the building is always circulating clean, fresh air from outside.
 - Innovation and design process by designing creative ways to save energy & resources and reduce waste.

TAX CREDITS

What are the tax credits for building an Energystar home?

Homebuilders are eligible for a \$2,000 tax credit for a new energy efficient home that achieves 50 percent energy savings for heating and cooling over the 2004 International Energy Conservation Code (IECC) and supplements. At least 1/5 of the energy savings must come from building envelope improvements. This credit also applies to contractors of manufactured homes conforming to Federal Manufactured Home Construction and Safety Standards.

There is also a \$1,000 tax credit to the producer of a new manufactured home achieving 30 percent energy savings for heating and cooling over the 2004 IECC and supplements (at least 1/3 of the savings must come from building envelope improvements), or a manufactured home meeting the [requirements](#) established by EPA under the ENERGY STAR program.

Please note that, with the exception of the tax credit for an ENERGY STAR qualified manufactured home, these tax credits are not directly linked to ENERGY STAR. Therefore, a builder of an ENERGY STAR qualified home may be eligible for a tax credit but it is not guaranteed.

These tax credits apply to new homes located in the United States whose construction is substantially completed after August 8, 2005 and that are acquired from the eligible contractor for use as a residence from January 1, 2006 through December 31, 2008.

A consumer can receive the following tax credits for building an Energy Star Home:

- Windows – 10 percent of cost, up to \$200 for all windows, skylights, and storm windows.
- Exterior Doors – 10 percent of cost, up to \$500 for exterior doors and storm doors.
- Roofing – 10 percent of cost, up to \$500 for metal roofs.
- Insulation – 10 percent of cost, up to \$500 for insulation.
- HVAC - \$300 for central A/C, \$300 for Air Source Heat Pumps, \$300 for Geo-Thermal Heat Pumps, \$150 for Gas, Oil, Propane Furnace or Hot Water Boiler, and \$50 for Advanced Main Air Circulating Fan.
- Water Heaters - \$300 for Gas, Oil, Propane, or Electric Heat Pump Water Heater.
- Solar Energy Systems – 30 percent of cost, up to \$2000 for Solar Water Heating or photovoltaic Systems.
- Fuel Cells – 30 percent of the cost, up to \$1000 per kW of power that can be produce

PLUMBING/GREY WATER

What is Grey water?

- Grey water is household wastewater that doesn't contain sewage and can be reused for irrigation. It typically comes from showers, dishwashers, and washing machines. This water is also sometimes used for flushing toilets.

Plumbing Fixtures

- Water Saving Fixtures are available for houses and commercial buildings that use less water than traditional fixtures.

SOLAR HOT WATER

Solar hot water refers to water heated by solar energy.

Solar heating systems are generally composed of solar thermal collectors, a fluid system to move the heat from the collector to its point of usage, and a reservoir or tank for heat storage and subsequent use. The systems may be used to heat domestic hot water, swimming pool water, or for space heating. The heat can also be used for industrial applications or as an energy input for other uses such as cooling equipment.[1]

In many climates, a solar heating system can provide a very high percentage (50 to 75%) of domestic hot water energy. In many northern European countries, combined hot water and space heating systems (solar combisystems) are used to provide 15 to 25% of home heating energy.

Residential solar thermal installations can be subdivided in two kinds of systems: compact and pumped systems. Both typically include an auxiliary energy source (electric heating element or connection to a gas or fuel oil central heating system) that is activated when the water in the tank falls below a minimum temperature setting such as 50 °C. Hence, hot water is always available.

HVAC

What is a SEER?

- A SEER is a Seasonal Energy Efficiency Ratio. It indicates the energy efficiency of an air conditioner. The efficiency of central air conditioning units is governed by U.S. law and regulated by the U.S. Department of Energy (DOE). Every air conditioning unit is assigned an efficiency rating known as its “seasonal energy efficiency ratio” (SEER). The SEER is defined as the total cooling output (in British thermal units or Btu) provided by the unit during its normal annual usage period divided by its total energy input (in watt-hours) during the same period.

How is it measured?

- The higher the seer, the more efficient the air conditioner.

What is a J-factor?

- A dimensionless equation used for the calculation of free convection heat transmission through fluid films.

What is a U-factor?

- A U-factor indicates how easily heat will pass through a construction assembly, such as a window. The lower the U-factor, the lower the rate of heat flow.

What is a R-factor?

- R-factor is the measure of a materials resistance to the passage of heat through it. The higher the R-factor, the more effective the material is as insulation.

What is Geo-Thermal Heating and Cooling?

- Geothermal heating is a method of heating and cooling a building. It takes advantage of the natural stable warmth stored in the earth. Normally the earth temperature is around 55 °F (13 °C) at depths of 10 ft. In climates warmer than 55 °F (13 °C), this can be used to cool a building, and in colder climates (those under 55 °F or 13 °C) it can be used for warmth. This is accomplished by one of a number of methods. A heat pump uses the extracted water or transfer fluid (such as water mixed with antifreeze) as a heat source in winter and a heat sink in summer. Some heat pumps provide heating and cooling via forced air distribution, and others through the heating and/or chilling of water for radiant type systems. Some systems are used to heat domestic hot water.

DUCT BLASTER TEST

Leaky ducts can be a significant source of energy loss in both new and existing homes. Leaky supply ducts can send expensive conditioned air into unconditioned spaces such as attics and crawlspaces, and can be responsible for inadequate air distribution, resulting in rooms that are too cold or too warm for occupant comfort. A measure of the air tightness of the duct system can help identify leaks; simple duct sealing methods can save energy and increase comfort.

A Duct Blaster test is usually performed prior to the wallboard being hung. This will allow any leaks in the duct system to be repaired before they are covered. A duct blaster test is where all of the intentional holes (registers and returns) in the duct system are sealed shut. A fan is then attached to the system and it tries to suck the air out of the duct system. The airflow that comes from the leaks in the duct system is then measured. Chuk Bowles of Earthcraft has stated that

typically across the country when ductwork is tested there is between 18-25% air leakage in the duct system. The Earthcraft House Program requires that there is a maximum of 10% of the floor area served. If there is <5% leakage of the floor area served, the builder can earn additional points.

PHOTOVOLTAIC

What is Photovoltaic?

- Photovoltaic is a material that converts sunlight directly into electricity.
- PV is distinct from other kinds of solar energy in that it harnesses the sun's light, rather than its heat. Because the hardware needed for this is entirely solid-state electronics, photovoltaic cells are extremely low-maintenance and have very long life spans.
- In remote areas, it can be less expensive to run a photovoltaic system than to run utility wires a great distance.
- Typically in Virginia we do not get enough sun to take full advantage of a solar system like they do in Arizona or New Mexico. Typically a person who installs photovoltaic systems in their house in Virginia will never recover the expense of installing the system.

LIGHTING

What makes compact fluorescent and fluorescent bulbs more energy-efficient than regular bulbs? Fluorescent light bulbs (including compact fluorescents) are more energy-efficient than regular bulbs because of the different method they use to produce light. Regular bulbs (also known as incandescent bulbs) create light by heating a filament inside the bulb; the heat makes the filament white-hot, producing the light that you see. A lot of the energy used to create the heat that lights an incandescent bulb is wasted. A fluorescent bulb, on the other hand, contains a gas that, when excited by electricity hits a coating inside the fluorescent bulb and emits light. Because fluorescent bulbs don't use heat to create light, they are far more energy-efficient than regular incandescent bulbs.

Do light bulbs (such as compact fluorescent bulbs) give off hazardous amounts of ultraviolet (UV) light? Regular fluorescent light bulbs used in your home and office do not produce a hazardous amount of ultraviolet light (UV). Most light sources, including fluorescent bulbs, emit a small amount of UV, but the UV produced by fluorescent light bulbs is far less than the amount produced by natural daylight. (Ultraviolet light rays are the light wavelengths that can cause sunburn and skin damage.)

Where can I find lighting disposal policies and contact information for my state? In most states, fluorescent and compact fluorescent light bulbs used at home can be disposed of in the same way as regular light bulbs. While all fluorescent bulbs contain a trace amount of mercury, the quantity is so minute that disposal is not regulated by federal standards (established by the EPA, the Environmental Protection Agency). You would have to dispose of an incredibly large amount of fluorescent bulbs — around 360 4-foot fluorescent tubes — before you would be subject to federal disposal standards. However, individual states and provinces also have established disposal standards, so you should check the disposal policies in your area.

How much heat is emitted by regular, halogen, and compact fluorescent light bulbs? Regular light bulbs, known as incandescent bulbs, create light by heating a filament inside the bulb; the heat makes the filament white-hot, producing the light that you see. Halogen light bulbs create light through the same method. Because incandescent and halogen bulbs create light through heat, about 90% of the energy they emit is in the form of heat (also called infrared radiation). To reduce the heat emitted by regular incandescent and halogen light bulbs, use a lower watt bulb (like 60 watts instead of 100).

Fluorescent light bulbs use an entirely different method to create light. Both compact fluorescent bulbs and fluorescent tubes contain a gas that, when excited by electricity hits a coating inside the fluorescent bulb and emits light. (This makes them far more energy-efficient than regular incandescent bulbs.) The fluorescent bulbs used in your home emit only around 30% of their energy in heat, making them far cooler than regular bulbs and an ideal choice whenever reducing heat from bulbs is important.

What's the white powder I see inside my fluorescent bulb? The white powder that you see inside a fluorescent lamp is called phosphor, which is a substance that emits white, visible light whenever it absorbs light waves. Both compact fluorescent bulbs and fluorescent tubes contain a gas that gives off invisible light when excited by electricity. This invisible light travels to the phosphor coating on the bulb, where it is transformed into light visible to the human eye.

State Lamp Disposal Policies

Disposing of your lamps Most states do not have special requirements for the disposal of regular household mercury-containing fluorescent lamps (including compact fluorescents), although a few states and localities ban homeowners from disposing of such lamps in normal household trash.

Recycling your lamps Many towns and cities offer recycling opportunities at local recycling centers or transfer stations. There may also be household hazardous waste collection days when fluorescent lamps are collected along with paints, pesticides, used motor oil, etc. Contact your local waste disposal officials for details. State requirements and recycling opportunities vary.

For more information, including a list of companies that recycle lamps, visit www.lamprecycle.org.

INSULATION

Air Infiltration

Infiltration means the uncontrolled penetration of air into the building through the opening. Uncontrolled air infiltration takes place through openings, primarily through inadequate and imperfect sealing between the frame of the opening and the wall, and between the different parts of the window. Air infiltration is an important factor in a building's energy balance, especially if the building is well insulated, in which case the movement of energy with the air becomes a relatively more important factor than in a poorly insulated building.

Spray Foam

Spray foam can be used as an insulating and air sealing product for residential wall and ceiling cavities. The insulation is sprayed, via special equipment, into wall cavities and expands to fill all the nooks and crannies in a wall cavity. Excess foam is scraped off the studs to form a uniform wall cavity. Spray foam insulation makes it easy to completely fill wall cavities with insulation and to perform air sealing in the same step.

There are two types of spray foam: open-cell (isocyanurate) and closed cell (polyurethane). The closed cell foams typically have a higher R-value than open-cell foam.

Sprayed foam insulation is applied as a liquid that contains a polymer (such as polyurethane or modified urethane) and a foaming agent. The liquid is sprayed through a nozzle into wall, ceiling, and floor cavities where it expands to fill every nook and cranny. Because it expands into tight areas, sprayed foam is ideal for insulating steel framing and around outlets. By acting as a wind and air barrier, it often eliminates the need for separate air-tightness detailing, which can increase energy efficiency and allow downsizing of the heating and cooling system equipment. Sprayed foam insulation does not shrink, sag, settle, or biodegrade.

Cellulose

Cellulose insulation is made from recycled paper that is applied as either loose fill into attics and closed wall cavities or damp-sprayed into open wall cavities. Due to its recycled content and potentially higher energy and acoustic performance, cellulose is an environmentally preferable product.

R-Factors

Fiberglass comes in a variety of sizes and thicknesses. The thickness is called the R-factor. The R-designation is meant to tell how well the substance is resistant to heat loss. The higher the R-factor, the more resistant to heat loss the

insulation is.

Each area of the house requires a different R-factor. Exterior walls are usually R-13 and ceilings R-30.

GREEN ROOFS

A **green roof** is a roof of a building that is partially or completely covered with vegetation and soil, or a growing medium, planted over a waterproofing membrane. The term does not include roofs which are merely colored green, as with green shingles. It may also include additional layers such as a root barrier and drainage and irrigation systems. Container gardens on roofs, where plants are maintained in pots, are not included in this discussion, as they are not considered true green roofs (though this is an area of debate). The term Green Roof can also be applied to roofs that have some form of purpose considered "green", such as solar panels or a photovoltaic module. Green roofs are also referred to as eco-roofs, living roofs or green roofs (a more grammatically correct terminology)

Green roofs are used to:

- Provide amenity space for building users — in effect replacing a yard or patio
- Grow fruits, vegetables, and flowers
- Reduce heating (by adding mass and thermal resistance value) and cooling (by evaporative cooling) loads on a building — especially if it is glassed in so as to act as a terrarium and passive solar heat reservoir
- Reduce the urban heat island effect
- Increase roof life span
- Reduce storm water run off
- Filter pollutants and CO₂ out of the air
- Filter pollutants and heavy metals out of rainwater
- Increase wildlife habitat in built up areas

BUILDING METHODS/MATERIALS

AdvanTech™ Flooring- AdvanTech™ Flooring is manufactured to be environmentally friendly. AdvanTech™ utilizes small, fast-growing tree species. In addition, they have implemented the Sustainable Forestry Initiative Program throughout all our wood procurement operations. AdvanTech™ Flooring's moisture resistance, design bending strength and design stiffness are

superior in comparison to commodity OSB or plywood. AdvanTech™ has a 50 year limited warranty against needing sanding or swelling.

OSB- OSB is manufactured from faster growing smaller trees. OSB is a cost-effective alternative engineered to meet the same performance standards as plywood. OSB meets the same performance standards as plywood, yet it won't cup or warp as easily.

I Joists- I joists are manufactured from faster growing smaller trees. Unlike 2x12's that are cut from large mature trees. I-Joists are stronger pound for pound, straighter, easier to install. They can span longer lengths than conventional framing members. I joist lay flatter.

Tech Shield™- Tech Shield is a radiant barrier. A radiant barrier, according to ASTM standards, must have an emittance value (a measure of the energy radiated by a surface) of less than 0.1. Aluminum is one of the most effective radiant barriers because it's a good heat reflector and a poor heat radiator. A layer of aluminum foil placed in an air space reflects thermal radiation, prevents up to 97 percent of the radiant heat in the panel from radiating into the attic.

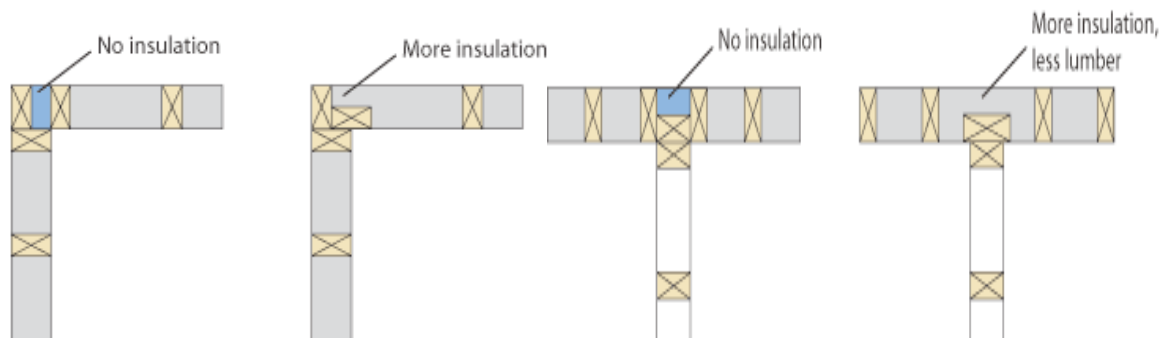
LP Techshield blocks up to 97% of the radiant heat in the panel from entering your attic, which keeps your home cooler. This means less work for your air conditioner.

A radiant barrier is installed in buildings and homes to minimize radiant heat gain in summer, and to minimize radiant heat loss in winter.

California Corners- A common misconception is that energy-efficient construction is very expensive. In reality, the extra cost is minimal, sometimes even cost-saving, and the long-term benefits are substantial.

By using a remarkably simple framing technique called "California Corners", greater savings are achieved on heating and cooling costs.

With traditional framing, once the corner space on outside corners is boxed in, it cannot easily be insulated, resulting in energy loss. The California method allows easy access and ability to insulate. Insulating this space results in energy savings for the life of the structure.

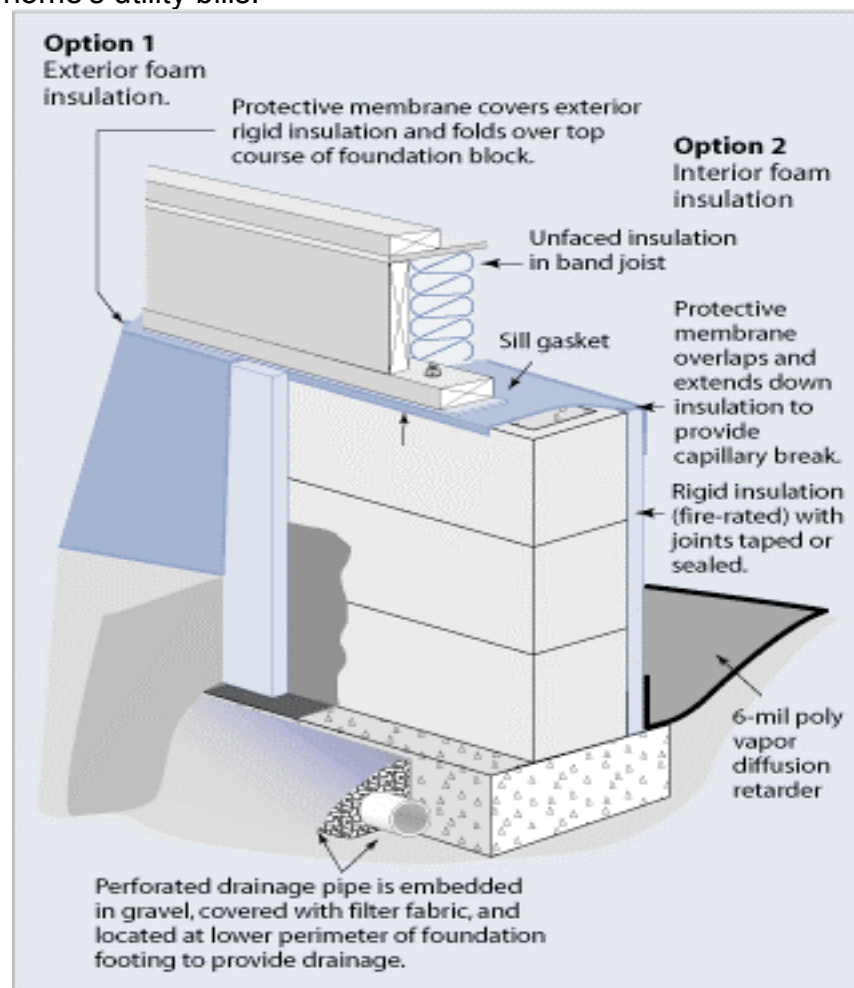


On inside corners, using a 2"x6" or 2"x8" stud (turned 90°) to attach the inside walls not only allows insulation of the space, but framing is faster because there's no need to measure for inside wall placement.

CONDITIONED CRAWLSPACES

Is there a better way to create a warm, dry and mold-free crawlspace?

With a few minor changes to the current practice of venting the crawlspace, it is possible to prevent mold growth and wood rot, eliminate drafts, *and*, actually lower the home's utility bills.



From Dominion Power-The "best practice" for constructing a crawlspace is to make it as airtight as possible, to include a moisture barrier, and to deliver conditioned air into the space. This method is usually used in new construction but can be specified for retrofit applications when existing insulation is damaged and must be removed. The conditioned crawlspace varies slightly from the unvented crawl space in that it treats the crawl space area as part of the living

space, much like a basement. This construction technique also meets local and national building codes.

The primary characteristics making this method code approved are the insulation of the exterior foundation wall and the introduction of conditioned/house air into the crawl. Because this foundation technique is utilized in a relatively small number of new homes, it is prudent to talk to your local county or city code official before construction.

Several construction details ensure an unvented-conditioned crawl space provides desired results.

1. Rainwater is controlled by gutters and downspouts, as well as a 5% grade sloping away from building. Downspouts should empty 8 to 10 feet from the foundation or be tied to an underground drain system.
2. Ground water is controlled by a foundation drain system. If outside grade is higher than inside grade, a damp proof coating on the exterior foundation wall is recommended. If interior grade is higher than exterior grade damp proofing and foundation drains may be eliminated.
3. The polyethylene ground cover or equivalent vapor barrier covers the foundation wall and terminates under the sill plate.
4. Outdoor air is controlled by sealing all penetrations to the exterior and installing gaskets around access doors.
5. Outside foundation walls are insulated using code approved rigid or batt insulation. Rigid insulation extends down to the top of the footing with the polyethylene ground cover sealed to its face at the bottom. Batt insulation extends down the wall and terminates 2 to 3 feet into crawlspace with seams continuously taped. In either case, the band joist is insulated using either rigid or batt insulation. Access doors are insulated using 2 inches rigid foam board or equivalent.
6. A dampered duct attached to the forced air heating/air conditioning system or a small exhaust fan transferring air from the house provides conditioned/ house air to the crawl space. The code also allows for the installation of an exhaust fan to exhaust crawl space air to the outside. Because exhausting can create negative pressure in the crawlspace, this method is not recommended.

The construction of crawlspaces has gone through an evolution of building science that turns the conventional practice on its head. Venting a crawlspace can actually do more harm than good. It can compromise the durability of the house and create a health hazard for the occupants.

WINDOWS

The first step to choosing an energy efficient window is to understand the most significant ratings on the windows label: **the U Factor** and **the Solar Heat Gain Coefficient**.

The U Factor is the measurement of heat flow through the window. It takes into account the entire window, including the glass, frame, and the gas filled between

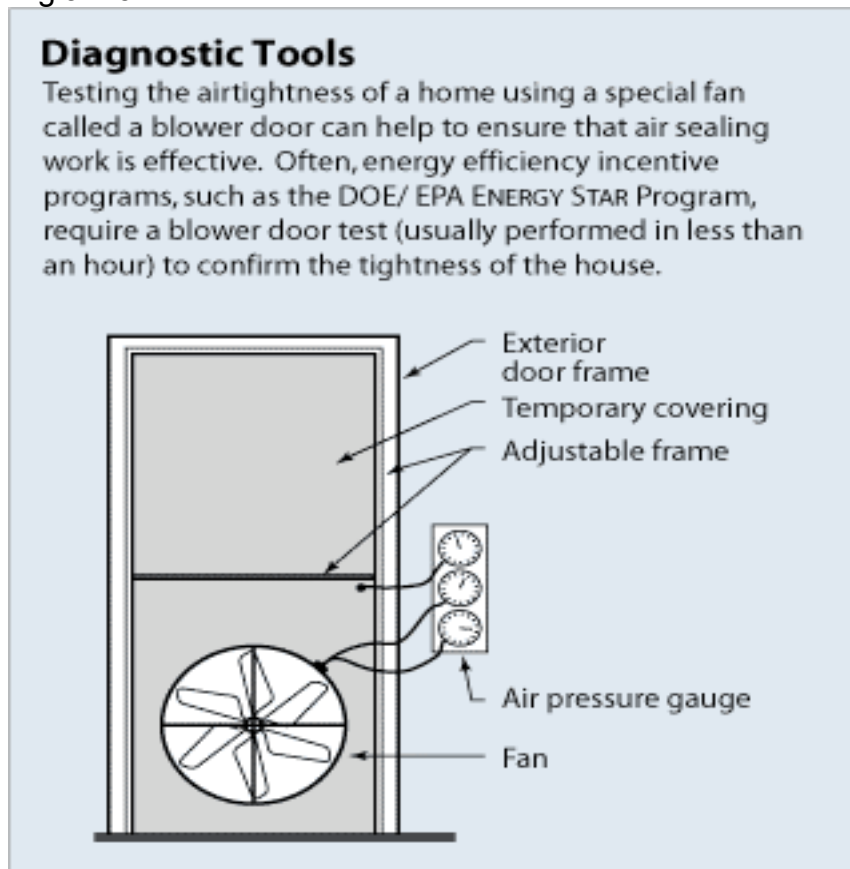
the panes. The lower the U-Factor the more efficient the window is. The Earthcraft House program requires a maximum U Factor of .65.

The Solar Heat Gain Coefficient is the percentage of heat from sunlight that passes through the window. Window manufacturers regulate how much solar heat can enter a home by placing various types of nearly invisible metallic low emittance (low-e) coatings. These coatings can reflect solar heat or keep it in. The SHGC determines whether a window is classified as a high, moderate, or low solar gain. The SHGC will typically range from .3 to .6. Typically in our area a SHGC of .45 is considered good.

BLOWER DOOR TEST

A blower door is a powerful fan that mounts into the frame of an exterior door. The fan pulls air out of the house, lowering the air pressure inside. The higher outside air pressure then flows in through all unsealed cracks and openings. The auditors may use a smoke pencil to detect air leaks. These tests determine the air infiltration rate of a building.

Blower doors consist of a frame and flexible panel that you can place in a doorway, a variable-speed fan, a pressure gauge to measure the pressure differences inside and outside the home, and an airflow manometer and hoses for measuring airflow.



There are two types of blower doors: calibrated and uncalibrated. It is important that auditors use a calibrated door. This type of blower door has several gauges that measure the amount of air pulled out of the house by the fan. Uncalibrated blower doors can only locate leaks in homes. They provide no method for determining the overall tightness of a building. The calibrated blower door's data allows the auditor to quantify the amount of air leakage and the effectiveness of any air-sealing job.

NON-TOXIC PAINTS

Indoor air is three times more polluted than outdoor air, and according to the EPA, is considered to be one of the top 5 hazards to human health. Paints and finishes are among the leading causes.

Paints and finishes release low-level toxic emissions into the air for years after application. The source of these toxins is a variety of VOC's (Volatile Organic Compounds) which, until recently, were essential to the performance of the paint.

New environmental regulations, and consumer demand, have led to the development of low-VOC and zero-VOC paints and finishes. Most paint manufacturers now produce one or more non-VOC variety of paint. These new paints are durable, cost-effective and less harmful to human and environmental health.

Health. Reduced toxins benefit everyone, including those with allergies and chemical sensitivities.

Environment. Reduces landfill, groundwater and ozone depleting contaminants.

Effective. Low-VOC products perform well in terms of coverage, scrub ability and hide ability (covering flaws on previous coats).

Water-Based. Easy cleanup with soap and warm water.

Little or No Hazardous Fumes. Low odor during application; no odor once cured. No off gassing. Painted areas can be occupied sooner, with no odor complaints.

Not Deemed Hazardous Waste. Cleanup and disposal greatly simplified.

Types of Non-Toxic Paints and Finishes

The term "non-toxic" is used here in its broadest sense. With paints and finishes, it's more a matter of degree. Even Zero-VOC formulations contain some small amounts of toxins. Here are three general categories of non-toxic (or low-toxic)

paints:

Natural Paints, Zero VOC, and Low VOC

Natural Paints and Finishes - These are paints made from natural raw ingredients such as water, plant oils and resins, plant dyes and essential oils; natural minerals such as clay, chalk and talcum; milk casein, natural latex, bees' wax, earth and mineral dyes. Water-based natural paints give off almost no smell. The oil-based natural paints usually have a pleasant fragrance of citrus or essential oils. Allergies and sensitivities to these paints are uncommon. These paints are the safest for your health and for the environment.

Zero VOC - Any paint with VOC's in the range of 5 grams/liter or less can be called "Zero VOC", according to the EPA Reference Test Method 24. Some manufacturers may claim "Zero-VOC's", but these paints may still use colorants, biocides and fungicides with some VOC's.

Adding a color tint usually brings the VOC level up to 10 grams/liter, which is still quite low.

Low VOC - Low VOC paints, stains and varnishes use water as a carrier instead of petroleum-based solvents. As such, the levels of harmful emissions are lower than solvent-borne surface coatings. These certified coatings also contain no, or very low levels, of heavy metals and formaldehyde. The amount of VOC's varies among different "low-VOC" products, and is listed on the paint can or MSDS. Paints and stains, to meet EPA standards. Must not contain VOCs in excess of 200 grams per liter. Varnishes must not contain VOCs in excess of 300 grams per liter. As a general rule, low VOC paints marketed by reputable paint manufacturers usually meet the 50-g/L VOC threshold. Paints with the Green Seal Standard (GS-11) mark are certified lower than 50 g/L.

Low VOC paints will still emit an odor until dry. If you are particularly sensitive, make sure the paint you buy contains fewer than 25 grams/liter of VOC's.

FLOORING

Bamboo- Bamboo Flooring is different than hardwood in that bamboo is a grass not a wood. Bamboo is grown and harvest every three years from a plant. Therefore we are not killing the plant when harvesting the grass. Bamboo is about as hard as red oak hardwood flooring and the cost is about the same. Bamboo can be stained.

Cork- Cork is another product that is harvest. Cork is harvested from the Cork Oak tree that is grown primarily around the Mediterranean basin. The cork oak tree is not destroyed and then replanted but rather the bark is harvested from the tree every 9 years, leaving the forest undamaged. It's not unusual to have a 200-year-old tree still producing cork bark. Only the bark is harvested from the tree, causing no damage to the tree which re-grows new bark. Cork flooring is actually

made from the waste of the cork wine stopper manufacturing process so cork flooring is a recycled product. Cork can be attained different colors using non-toxic stains or paints. Cork has many benefits: Beauty, Durability, Softness, Sound Reduction, Thermal Insulator, Insect Resistant, Fire Resistant and Elasticity.

Recycled Carpet- Approximately five billion pounds of carpet are replaced each year in the U.S. Much of the old carpet, along with plastic soda bottles and other textiles can be woven into new carpet fibers. Recycled content carpet has a similar look, feel, and price as virgin fiber (typically polyester, nylon, and olefin) carpet, but takes advantage of post-consumer recycled materials.

Recycled carpet can be made from recycled polyethylene terephthalate (PET) or from recovered textile fibers. PET plastic is usually found in plastic soda bottles. About 40 two-liter soda bottles are recycled per square yard of carpeting. The backing used for recycled content carpet is the same as traditional carpets.

Recycled content carpet fiber is said to be more resilient and colorfast than virgin fiber carpet. Recycled carpet usually comes with the same warranties for colorfastness, static control, and resistance to stain, crushing, and matting as virgin synthetic fiber carpets.

COMPRESSED NATURAL GAS VEHICLES **(CNG'S)**

Phill™ Station

The Phill™ unit is a small, compact gas compressor that can deliver up to 3,600 pounds per square inch of natural gas. It costs about \$3,500, which can often be offset by local incentive programs.

Honda Civic

The Civic GX is the only dedicated natural gas-powered passenger car available to retail customers in the United States.

Equipped with a 5-speed automatic transmission, the 1.8-liter, 4-cylinder engine delivers 113 hp.

The Civic GX carries 8.0 gas gallon equivalent of natural gas at 3,600 psi and achieves an EPA-estimated city/highway fuel economy of 28/39 miles per gasoline-gallon equivalent. Honda pegs the maximum range at 200 miles.

Currently, natural gas is approximately 30% less expensive than gasoline when purchased at a refueling station, and approximately 50% cheaper than gasoline when supplied by a Phill™, the natural-gas home-refueling appliance

manufactured by FuelMaker Corporation.

2007 Civic GX buyers are eligible for a Federal tax credit of \$4,000 for the car and an additional \$1,000 in tax credits for the purchase and installation of Phill.

OTHER GREEN BUILDING ORGANIZATIONS

GREEN BUILDING RESOURCES AND SUPPLIERS

Healthy Building Network PVC-free Materials Charts

www.healthybuilding.net/pvc/alternatives.html

Greenpeace PVC alternatives database

www.archive.greenpeace.org/pvcdatabase

Home Energy Magazine Online, "Seeking Green Building on the Internet"www.hem.dis.anl.gov/eehem

Oikos searchable database of green building products

www.oikos.com

Green Building Resource Guide

www.greenguide.com/

Green Building Q & A

www.greenguide.com/q-and-a.html

Recycled-Content Product Database by California's Integrated Waste Management Board

www.ciwmb.ca.gov/RCP/default.asp

Rainforest Acton Network green sources for construction

www.ran.org/ran_campaigns

Environmental Home Center

www.environmentalhomecenter.com

Sustainable Sources

www.greenbuilder.com

Gallery of Building Exteriors

www.potkettleblack.com/natbild

Sustainable Village
www.sustainablevillage.com

GREEN BUILDING AND DESIGN ORGANIZATIONS

Healthy Building Network
www.healthybuilding.net/

Ecological Building Network
www.ecobuildnetwork.org/

Architects / Designers / Planners for Social Responsibility (ADPSR)
www.adpsr-norcal.org

Center for Health Design
www.healthdesign.org/

Center for Resourceful Building Technology
www.crbt.org/

Green Building News
www.buildinggreen.com/

Ecological Design Education Network
www.ecodesign.org