Going Green
In The Kitchen

by William Craig, RA, LEED AP

Redmond Architectural Photography

Inscape Studio brought light, space, and storage to a cramped Adams-Morgan condo kitchen. The clients, a young couple with a newborn baby, were looking for an affordable solution that was both eco-friendly and healthy for their child. Contractor: Soren Juul.

1 **Low-VOC Paint**
Walls and ceilings are painted with low-VOC paints, minimizing the release of toxins during manufacturing, habitation, and disposal.

2 **Salvaged Lumber**
Reusing existing framing reduces waste and the need to purchase virgin materials.

3 **CFL's**
Compact fluorescent light bulbs reduce energy consumption.

4 **Linoleum**
Floor tile is made with natural materials that do not contain toxic chemicals.

5 **Formaldehyde-Free Cabinets**
Pieces were flat-packed for shipping and assembled on-site to reduce energy used in transporting material.

6 **Energy-Star Appliances**

7 **Low-VOC Sealers**
Water-borne sealers were used on the existing wood floors

Peabody Architects' design for an eco-friendly kitchen in Alexandria includes Fireslate countertops, wheatboard cabinets, and Marmoleum flooring. Contractor: Emmons Contracting, Inc.

The kitchen is the place to cook and prepare food, certainly, but also a place to gather, socialize, eat, relax, and so on. The kitchen can be the tranquil setting for that morning cup of coffee or the bustling nucleus of a catered event. Things come in, things go out. Food gets transformed. Energy gets used. Waste gets discarded or recycled.

Kitchen remodels run the gamut from appliance replacement to a new kitchen addition. No matter your circumstances, you can apply "green" principles to improve your kitchen. Even small adjustments are a step in the right direction. In the simplest terms, green kitchens are healthier and less wasteful. Green design recognizes that disparate elements within a composition affect one another: for example, light-colored cabinet surfaces and countertops will reflect more light, lessening the need for artificial lighting.

Before launching a kitchen renovation, a thorough assessment of present conditions and future needs is well advised. Ask yourself, what kind of cooking will happen? What are the storage needs? It's difficult to see it all ahead of time, but make an effort. A good plan can result in a smaller and less expensive kitchen. Smaller kitchens also tend to work better.

Another first question to ask is whether anything in your existing kitchen can be reused. For instance, butcherblock countertops and vintage ovens often have second lives lying just beneath the surface. Existing cabinet frames can be refaced with new doors and drawer covers.

Get your builder on board. Talk about recycling debris, controlling dust, and using safe sealants and adhesives.

It is heartening to see interest in green design accelerating these days. There are lots of choices out there now. The following catalog identifies products and materials that excel per environmental standards and, as is often the case, also excel in terms of durability, aesthetics, and performing their respective functions.

COUNTERTOPS

BUTCHERBLOCK is warm, resilient, and durable. Look for products from certified, well-managed forests. Maple is the best species. Butcherblock is vulnerable to liquids, so it should be sealed with an FDA-grade oil such as Bioshield herbal oil.

CONCRETE is durable and has a fabulous range of textures and tones, but it can stain so it should be sealed. Syndcrete is lightweight concrete with recycled content

Greg Hadley Photography

such as fly-ash and bottle glass. Tough and heat-resistant, Fireslate is a more refined variation that can substitute for granite or slate; it too can stain, so an FDA-grade tung oil or silicone sealer is needed.

LINOLEUM consists of all-natural, renewable resources (linseed oil, wood flour, jute). It is tough, long-lasting, and has an anti-microbial property that makes it a fine candidate for countertops. It comes in a wide color range.

SOLID-SURFACE does not necessarily have to be Corian. Richlite is a strong, waterproof, and sanitary alternative made of kraft paper layers in resin. It comes in warm, earthy tones.

PLASTIC made from recycled soda jugs and other plastics is an option too. Origins by Yemm & Hart is tough, impervious, and has flecks of color within—evidence of its previous life.

Since countertops serve many functions, it may make sense to add an insert of another material with special properties specific to special tasks (such as marble for rolling dough).

CABINETS

WOOD SUBSTITUTES are the way to go for custom cabinets. I recommend wood-substitute products with formaldehyde-free binders. One option is medium-density fiberboard (MDF) with high recycled content (sawdust). Agriboard is a composite of crop waste such as wheat, soybean, straw fiber, and sunflower seed husks. Some products resemble stone or burled wood; most take various finishes well and cut cleanly using normal woodworking tools. If you want unique custom cabinets, also look into CitiLogs, an operation that salvages logs from urban trees and hires Amish craftsmen to mill them into the finished product.

STOCK CABINETS offer advantages that can offset their limitations. Preassembled into standard modules, these relatively inexpensive cabinets come ready to install, meaning less noise, dust, and debris on site. Factory optimization means less material waste. Ikea makes decent stock cabinets.

Photo courtesy of Smith & Fong Plyboo

Bamboo flooring is hard, durable, and good-looking.

GOOD-QUALITY HARDWARE, particularly drawer slides and door hinges, is important, making all the difference as the kitchen is put through its paces over the years.

FLOORING

SOLID WOOD FLOORING wears well and has a long lifespan. Look for options from certified and reclaimed sources.

BAMBOO is the world's fastest-growing grass— an excellent rapidly renewable resource. It is extremely hard, durable, and good-looking (blond and carbonized finishes are the norm). It comes at a moderate cost. Another strip floor alternate for wood is coconut palm, which is rich, lustrous, and very durable, too.

CORK FLOORING is a great insulator and shock absorber. It is a tough, beautiful, rapidly renewable resource. Also available is a cork and recycled-rubber amalgam called Expanko.

LINOLEUM is all-natural, comfortable, durable, and warm. It comes in tile and sheet form. As with bamboo, it will not break the bank.

CERAMIC TILE floors are good-looking and durable. But they can also be hard and cold, plus dropped dishes won't have a chance!

Photo courtesy of Expanko

A variation on cork flooring is a cork and recycled-rubber amalgam called Expanko.

Image courtesy of Sunpipe

A tubular skylight funnels daylight to a ceiling diffuser.

Look for the Energy Star logo on appliances approved as energy-efficient.

PAINTS AND COATINGS

ECO-FRIENDLY PAINTS, such as Benjamin Moore's EcoSpec, are becoming available from most companies. AFM Safecoat and BioShield offer superlative products formulated for those with chemical sensitivities. These paints (and primers, stains, sealers, oils, and adhesives) are very clean with little or no VOCs. Try to choose colors and gloss levels that will improve brightness and clarity.

LIGHTING

NATURAL LIGHT—use as much natural light as possible. It has a positive effect on mood and means less reliance on artificial lighting. Windows and skylights help, but sometimes cost or logistics preclude them. A less invasive option is a tubular skylight. These units consist of a small acrylic dome on the roof and a tube with a highly-reflective lining that funnels daylight to a frosted ceiling diffuser. They are affordable and easy to install.

FLUORESCENT lamps use about one-quarter the energy of incandescent and last about 10 times as long. Compact fluorescent lamps (CFLs) now have color-rendering indices that compare to warm incandescent sources. This is the way to go if at all possible. While halogen still prevails for undercabinet and task lighting, ever-smaller and ever-stronger fluorescent mini-tubes are a more-than-viable alternative.

LIGHTING CONTROL is critical to energy-efficient lighting design. You want to put different types of light in different locations according to need. Don't put everything on the same switch. Proper zoning and combinations of switches and dimmers can yield a flexible system that saves energy.

APPLIANCES

ENERGY-EFFICIENT APPLIANCES will pay back their often modest extra costs in on-going savings. The EnergyStar website lists the best ones. Search online and look for the Energy Guide yellow label on regulated appliances.

REFRIGERATORS are the biggest energy gobblers in the house. Efficiency has improved markedly, so older models should probably be replaced. Top-and-bottom models are more efficient than side-by-side. Features such as automatic icemakers and water/ice dispensers tend to waste energy. Keep the refrigerator away from direct sunlight and other (heat-producing) appliances. Also, cool pantries can be used for storing foods that do not require refrigerator temperatures to stay fresh.

DISHWASHERS use energy in heating the water, so less water use means less energy use. Select a model with a water-saving wash cycle and no-heat drying. Units with internal booster heaters will raise water to the 140 degrees recommended for soiled

dishes; this allows the house water temperature to be set back, resulting in savings. An efficient dishwasher, fully-loaded, will generally use less water than hand-washing. Note that dish detergents contain phosphates and other contaminants, so use the stuff sparingly or choose alternate products (such as those at GreenHome.com).

OVENS AND COOKTOPS are not rated by EnergyStar. Gas cooktops outperform electric resistance coils in terms of efficiency. Up to 23% more efficient than conventional ovens, convection ovens quicken cooking time. An internal fan circulates hot air around the chamber so more even cooking results can be expected.

VENTILATING HOODS are important to eliminate heat, odors, aerated grease, trace combustion products (with gas), steam, etc. Venting the hood directly outside is best. It must be sized correctly to function well but also to avoid excessive energy loss or the danger of backdrafting. Also, consider the power of nature in this context. Plants such as philodendron, golden pothos, and spider plants can absorb lots of gas, odors, and CO2. What a great addition to the kitchen!

PLUMBING

SINGLE-LEVER FAUCETS allow one to quickly find the right mix of hot and cold water for a given task, so they tend to save water.

FLOW RESTRICTORS further improve water-savings. Aeration makes flow seem greater by adding air to the water stream. What an easy yet effective change, for less than $10! Go for the type that can be toggled between full and partial throttle (or it will take awhile to fill a pot) and that can be temporarily shut off without readjusting the water temperature.

MISCELLANEOUS

RECYCLING should be easy and effortless. Provide for the separate collection of newspapers, cans, bottles, plastic containers, paper and plastic bags, and whatever else that can be diverted from the garbage can. Select ample and easy-to-move bins and barrels and put them in or near the kitchen. Or build a recycling center into the cabinetry.

COMPOSTING is an option, too. It can be done with a removable plastic bin set within a base cabinet drawer near the sink. The process converts food scraps into free nutrient-rich soil for a garden.

In closing, it is important to emphasize that maintenance and habits will greatly affect the on-going greenness of a kitchen. So fix that dripping faucet, clean or change those filters, use the toaster oven instead of the regular oven, and remember that common household products such as baking soda, vinegar, and citrus can be effective cleaners.

Photo courtesy of Niagra Conservation Corp.

A $10 flow restrictor adds air to the water stream.

Green Kitchens: Find Out More

Countertops
http://www.endurawood.com
http://www.syndesisinc.com
http://www.fireslate.com
http://www.themarmoleumstore.com
http://www.richlite.com/countertop
http://www.yemmhart.com

Cabinets
http://www.sierrapine.com
http://www.phenixbiocomposites.com
http://www.dow.com/bioprod/
http://www.citilogs.com
http://www.ikea-usa.com
http://www.hafeleonline.com/usa
http://www.blumhinge.com

Flooring
http://www.ecotimber.com
http://www.teragren.com
http://www.plyboo.com
http://www.regupol.com
http://www.expanko.com
http://wwwthemarmoleumstore.com
http://www.terragreenceramics.com

Paints and Coatings
http://www.benjaminmoore.com
http://www.afmsafecoat.com
http://www.bioshieldpaint.com

Lighting
http://www.solatube.com
http://www.sunpipe.com
http://www.lutron.com
http://www.wattstopper.com

Appliances
http://www.energystar.gov

Plumbing
http://www.niagaraconservation.com
http://www.amconservationgroup.com

Good Resources
http://www.greenhome.com
http://www.realgoods.com
The Smart Kitchen, *2nd Edition*, by David Goldbeck, 1994. Ceres Press, Woodstock, NY.