

# THE VANCOUVER SUN



## Innovations improve 'performance' of buildings

Some new kids on the (green block)

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From behind the scenes to the finishing touches, green building and interior products are on the rise, and are rapidly changing the way we expect buildings to perform. Here are just a few of the green innovations that could be coming soon to a home near you.

### SELF-COOKING ROCKS

California-based Serious Materials is hoping to reduce the carbon dioxide (CO<sub>2</sub>) emissions that result from the drywall production process -- more than 25 billion pounds of CO<sub>2</sub> each year, or the equivalent of the CO<sub>2</sub> emissions of more than two million cars, according to figures cited on the company's website. The company is offering a new product called EcoRock, a drywall that requires 90 per cent less energy to produce.

In traditional drywall production, gypsum and other raw materials are combined in a watery slurry that must be rolled flat and dried. Serious Materials' new recipe combines chemicals that, when mixed, react to create much of their own drying heat. This, in turn, significantly reduces energy consumption, and the associated fossil-fuel emissions.

EcoRock will initially be priced comparable to high-end drywall. However, as production increases, and energy costs rise, Serious Materials expects EcoRock to become less expensive, while the cost of gypsum drywall continues to rise. In an effort to further reduce fossil fuel usage, the company is also looking to run its first factory on a 100-kilowatt solar system. [www.seriousmaterials.com](http://www.seriousmaterials.com)

### PAINT IT UP, SCOTTY

Most of us are familiar with the key ways to improve the energy efficiency of our homes: high-performance windows, appropriate insulation, and high-efficiency furnaces and appliances. But high-performance, insulating paint? Enter nanotechnology. While the term may seem like something limited to science fiction or the high-tech industry, there is a whole new class of bioplastics called ecobionanocomposites that combine technology, biology and ecology to create some remarkable new green products.

One such product is Industrial Nanotech's insulating coating Nansulate HomeProtect.

Available in a translucent exterior and interior coating, as well as a white, semi-gloss interior paint, Nansulate HomeProtect is a water-based, low-VOC coating that helps prevent heat and cold conduction through walls, floors, and ceilings. The coatings contain no harmful anti-microbial additives or biocides and are mould resistant.

They can be applied easily, like any other paint, with a brush, roller or paint sprayer. At about \$65 US a gallon, they are also not likely to cripple one's reno budget.

Developed for both commercial and residential applications, a new development in Sherman, Texas, will be the first major residential project where Nansulate will be utilized specifically to help reduce energy use and homeowners' heating and cooling bills.

## MAGIC MUSHROOMS

Leave it to a couple of enterprising students to discover some of the hidden talents of mushrooms. Eben Bayer and Gavin McIntyre, who both graduated last year from Rensselaer Polytechnic Institute in New York state with dual degrees in Mechanical Engineering and Product Design and Innovation, found that mushroom spores could offer a renewable source of sustainable insulation.

Expected to be commercially available sometime in 2009 under the label Greensulate, Bayer told CCNews last year that "the insulation is created by pouring a mixture of insulating particles, hydrogen peroxide, starch, and water into a panel mold. Mushroom cells are then injected into the mold, where they digest the starch producing a tightly meshed network of insulating particles and mycelium." The result is an organic composite board that has a competitive R-Value (a measurement of insulation value) that can also serve as a firewall.

While fungus is typically the last thing B.C. residents want in their walls, according to the company's website ([www.ecovatedesign.com](http://www.ecovatedesign.com)) the mushrooms in Greensulate have been rendered biologically inert by removing all the water from the panels. The material will only begin to biodegrade when it becomes supersaturated for a significant period of time and the composite can be moistened and dried repeatedly without risk of biodegradation. The final product can also be treated with a natural sealant for additional protection.

Beyond insulation applications, Bayer and McIntyre hope to modify the growing mixture to include reinforcing materials, such as inexpensive structural panels that could be grown and assembled

on-site in developing countries where usable housing is scarce or difficult to obtain, or in disaster areas for temporary housing.

## PITTER PATT OF CLEAN AIR

It seems cleaner indoor air could be underfoot soon. Gambarelli, a textile company in Modena, Italy has created a ceramic floor tile, Oxygena, that also absorbs air pollution. Made of porcelain and infused with titanium dioxide, a natural compound that oxidizes polluting gasses when it comes in contact with sunlight, the tiles can continuously remove pollutants from the air. In a recent test, car exhaust was pumped into a room lined with Oxygena tiles. Eight hours later, the gases had been completely absorbed. Repeated tests in the same room produced similar results.

Despite being about 30 per cent more expensive than competing products, Oxygena tiles -- which come in a marbled gray and a shiny glass-like finish -- already have designers and architects interested. A hotel in Greece and a school in Switzerland plan to use them, and they are also being considered for citywide use in Italy. [www.gambarelli.it](http://www.gambarelli.it)

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