

innovation



A Glimpse of the Future?

Soon-to-be everyday products being
developed by extraordinary minds

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Ever wonder how the latest scientific discoveries will change the way you live? While you're working on your kitchen renovation or sprucing up your cottage, researchers around the world are developing new technologies that may, one day, lead to products for the home that you can't live without. Check out some of these fascinating finds...

Using Paint to Kill Germs

Would you banish all germs from your bathroom or child's nursery if you could? Would you mildew-proof your cottage walls if there was a way? Soon there may be paint on the market that quickly kills any microbes it comes into contact with – including viruses, bacteria, mould and fungi. A special germ-destroying molecule has been developed by chemists at the University of South Dakota. Scientists at Antimicrobial Technologies Group are working on mixing this molecule with a line of products for the home, including paint.

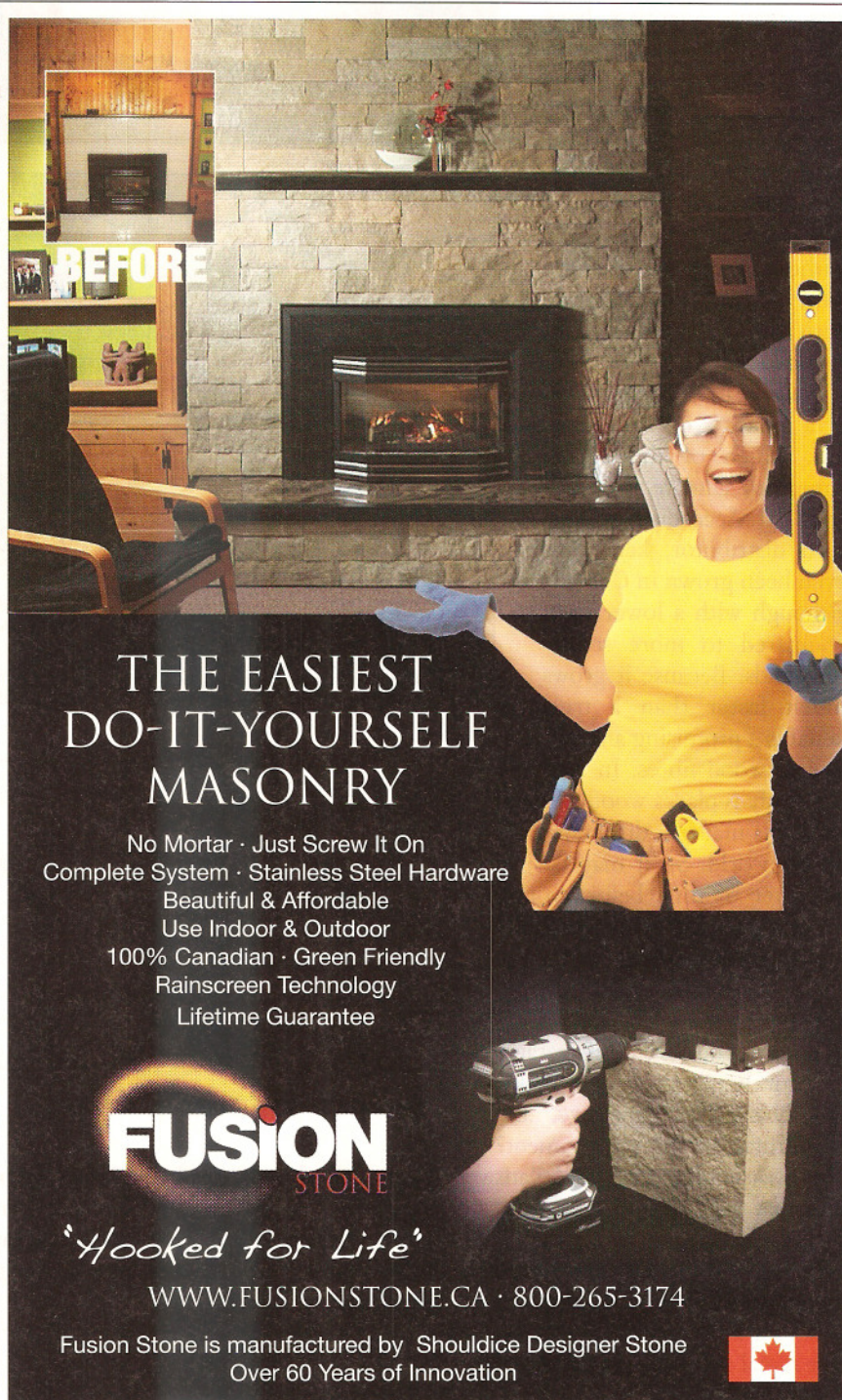
“Because of the growing awareness of the problems of bacteria and viruses, homeowners are looking for ways to protect their families,” says Simon Johnston, CEO of Antimicrobial Technologies Group. His company is also looking into germ-killing textile products like carpets, towels and furniture upholstery, and will be rolling out bed linens later this year.

Lighting up Your Life at Low Cost

About a fifth of the world's electricity consumption is used for powering lights. Light emitting diodes (LEDs) are known to be more efficient than incandescent bulbs, and they don't contain mercury vapour like fluorescent lighting. But LEDs only produce one colour at a time. Getting an LED to produce a natural white light, which is actually a blend of several colours, has always required costly workarounds.

This has restricted the market for LEDs, since most of us prefer natural white for lighting our homes. But an

inexpensive white-light LED has now been developed, by a research team at the Chinese Academy of Sciences, using organic materials. This means we may one day be able to choose from a variety of efficient bright lights for our homes and cottages. “It will benefit homeowners in cost, and it is also environment-friendly,” says research



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leader Dr. Dongge Ma, who predicts we'll see products on the market by 2012.

Building Homes without Harvesting Trees

In order to protect our forests, many scientists have been experimenting with wood alternatives. At a wood engineering lab at the University of Illinois, for example, building products like wall-sheathing and sub-flooring have been designed without touching a single tree. Instead they're made with the fibres of a plant called kenaf.

Native to Africa, kenaf is a relative of the hibiscus. Much of the North American climate is kenaf-friendly. According to one seed distributor, kenaf has even been grown in Canada, although with a lower yield compared to more southern fields. Because it grows much faster than a tree, kenaf is a promising alternative to wood fibres. In fact, it already replaces wood in some products made in different parts of the world. So it may be just a matter of time before you're finding kenaf at your favourite building supply store.

Chilling Out More Efficiently

Wouldn't you love a refrigerator in your home that's less bulky, less noisy, less expensive, and less brutal on the environment?

Magnetic cooling may be the answer. It uses special materials that heat up in the presence of a magnetic field, and then cool way, way down when the magnetic field is shut off. A system like this is quieter and smaller than the gas-compression systems in fridges today. But you haven't seen it at your local appliance store because it uses an extremely rare metal as well as deadly arsenic.



White-light LED (Photo: Chinese Academy of Sciences)



Kenaf (Photo: Vision Paper)



Unbreakable Glass (Photo: Santanoni)

in a wide range of glass products like stemware and mugs. "I think everyone can benefit from 'unbreakable' glass," Dr. LaCourse says. "Lower overall costs, less injury, and less glass in the garbage!" **HC**

However, an international team at the National Institute of Standards and Technology's Center for Neutron Research in Gaithersburg, Maryland, has discovered a new mixture of manganese, iron, phosphorus and germanium that works well in a magnetic cooling system – without toxins or rare substances. The yet-to-be-named alloy could spark a new generation of home refrigeration appliances. "It should be more efficient, thereby lower cooling costs," says team leader Dr. Jeffrey Lynn. "The working material is a solid and therefore easy to recycle – it can't escape to the atmosphere like in present-day gas compression systems."

Raising a Toast to Unbreakable Glass

Dr. William LaCourse, a professor at New York's Alfred University, has created break-resistant glass – perfect for protecting those drinking glasses that get knocked over on the dock or patio. A chemical process replaces sodium ions in the glass with larger potassium ions, which expand the glass and close any cracks. "The resulting glass is super-strong," says Dr. LaCourse. "It's the same process used to strengthen fighter aircraft windows."

The technology has been used

By Lisa Bendall