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# Choice of Materials Seen as Key to Healthier Indoor Spaces

Peter Syrett and Chris Youssef hope one day to design a cancer treatment center that is entirely free of cancer-causing materials.

Syrett, an architect, and Youssef, an interior designer, are healthcare facility specialists with the national architectural firm Perkins+Will.

''You would think this would be the standard. In fact, it's very difficult to do,'' Syrett told BNA Jan. 13.

To move closer to their dream, the two compiled the Precautionary List (http://transparency.perkinswill.com/), a database of 25 substances used in building materials that are known or suspected to be dangerous to human health or the enviroment. Each substance appears with its health effects, the building components likely to contain it, and alternative materials.

## Creating the Database

It took five years and help from many colleagues to create the database, largely because chemical formulas for building materials are closely held secrets. Manufacturers are not legally obliged to provide complete ingredient lists for their goods and usually refuse on the grounds they must shield the information from competitors.

Syrett and Youssef instead turned to books, material safety data sheets, patents, and websites.

''Your morning cereal lists the ingredients on the box. It's not that way with the stuff that we handle and touch everyday,'' Syrett said. When controversy swirls about a toxin in consumer items, manufacturers may boldly assert what is not in their goods, without revealing what is in them, he added.

He recalled an ad that claimed a product contained no polyvinyl chloride. Also known as vinyl or No. 3 plastic, PVC is on the Precautionary List and widely used in floors, pipes, roofing, siding, and window frames. Green builders seek to avoid PVC because, among other problems, it creates dioxin during manufacture and when burned.

Syrett learned though that the product contained chlorinated polyvinyl chloride or CPVC, also on their list, and an even greater health and environmental threat.

''It was brilliant green washing,'' Syrett said.

The duo do not overstate the list's value. Youssef notes that of the 82,000 chemicals registered for product use under the Toxic Substances Control Act, only 200 have undergone health and safety testing, and 700 more are introduced each year.

''In the building world, there is no material that is 100 percent green. The idea is to use less of the bad stuff,'' Youssef said. ''Our list highlights the big nasties.''

Since product secrecy is a problem, and more transparency the goal, Perkins+Will offers the list free to anyone, even competitors.

''We seek market transformation,'' Youssef said. ''The world is inching toward transparency. We'd like to shove it toward transparency.''

Syrett adds, ''We very much care about what's in our buildings. That's our mission and our passion.''

## Kaiser Permanente

Kaiser Permanente, one of the nation's largest health plans, has emphasized preventive health care since its start in California during the Depression. The same approach pervades its choices of facility materials.

David Hearn, Kaiser Permanente's vice president for environmentally preferable purchasing, said rubber has replaced vinyl tiles in its rehabilitation rooms. ''We chose rubber floors because they don't leach toxins like vinyl does and the maintenance people don't have to clean and wax them with harsh chemicals,'' he noted.

Researchers in Bulgaria and Sweden have found more asthma and autism among children in homes with vinyl floors and say phthalates from the vinyl that mix with household dust may be the cause.

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Kaiser Permanente's carpets are made so that dye components, like cadmium and lead, cannot leave the fibers and find their way into people, said Rachael Baker, the health plan's environmental supply chain manager. ''Chemicals like perfluorooctanoic acid added to make furniture fabrics stain resistant also can aerosolize, so we don't use them,'' she said.

## Herman Miller Inc.

Greg Mella, an architect and co-director of sustainable design at the SmithGroup, said furniture affects indoor air too. ''Look for furniture that is free of urea formaldehyde. It's a glue that offgasses slowly,'' he said. Mella also cautioned that even buildings made from nontoxic materials need proper ventilation systems.

Urea formaldehyde is a challenge for designers at Herman Miller Inc., a global supplier of office furniture, said Gabe Wing, who heads its Design for the Environment team. Alternatives are costlier and do not perform as well, so the firm's products that contain urea formaldehyde are constructed so emissions are negligible, he added. Wing said the firm began focusing on what is in its products in 1997. ''We look at the chemical nature of everything we use—paints, finishes, every component down to 100 parts per million.''

In 2001, Wing noted, two of the largest chemical companies in the world stopped doing business with Herman Miller rather than share the formulas for ingredients they were supplying. Both rejoined the supply chain in 2005. To assure suppliers that their formulas stay confidential, access to them is restricted to Wing and three co-workers.

Wing said the firm's years of material scrutiny has made complying with the European Union's registration, evaluation, and authorization of chemicals regulation less difficult and costly. The company also is in a strong position if bans are enacted on polybrominated diphenyl ether flame retardants because Herman Miller already has eliminated them from all of its standard products, he said.

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