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CradletoCradle

How do you know if the product you select is an environmentally sustainable one?

C2C already has been called “a landmark in industrial design”

by I.D. Magazine (Jan/Feb 2006)

True Green

What do all of these products – the Tartan® running track at Stanford University, the brightly colored gDiaper™, Formawall™ exterior building panels at Andrews Air Force Base, Wet Women® Surf Wax, and the new Answer® system workstation – have in common?

They’re all certified as Cradle to Cradle™ (C2C) products, safe for both human and environmental health, and designed for easy recovery and reuse of materials. As a way to identify “green” products across a variety of industries from cleaning products to commercial interiors, C2C is an important new sustainability benchmark.

C2C was introduced by McDonough Braungart Design Chemistry (MBDC), a sustainable product and process design consultancy in Charlottesville, VA, to combine all of the aspects of sustainability into one process. Its foundation is an analysis of component materials against 19 human and environmental health criteria. In addition to materials assessment, C2C measures four other sustainability criteria including energy use, water stewardship, recyclability, as well as the manufacturer’s record of social responsibility.

Launched just two years ago, C2C already has been called “a landmark in industrial design” by I.D. Magazine (Jan/Feb 2006). Noted interior design and sustainability expert Penny Bonda, FASID, LEED AP, has referred to the standards that C2C sets for sustainable product design as “state of the art.”

The Value of Sustainability

The importance of C2C is largely due to its potential to dramatically impact the environmental footprint of commercial interiors. The U.S. Green Building Council states that buildings account for 36% of all energy used, including 65% of electricity consumption; 30% of raw materials use; 30% of waste; 30% of greenhouse gas emissions; and 12% of potable water use.

Embracing sustainable solutions and using C2C products can help reduce waste, improve air and water quality, conserve resources, and deliver significant health – and economic – benefits to business.

Susan Pelczynski, senior associate and assistant director of interiors for Hickok Cole Architects in Washington, D.C. and a LEED accredited professional designer, believes that sustainable design can, and does, deliver measurable productivity gains for a business. “A bad workplace environment means people are out sick, they’re not performing well, or they just don’t want to come in to the workplace. Employee productivity is a huge factor for every business. If you can show, for example, how you can improve productivity 12% with a sustainable workplace, then that company can either hire 12% fewer employees, or get that much more productivity. You can make that case, if your client is willing to make the investment.”

More and more clients are willing to make the investment, and even make sustainability a priority in their projects, says Nicolette Brandstedt, resource director at the Gensler office in Chicago. “Most of our clients are educated about sustainability, and we always bring it up to them on a project. But a lot of them bring it up to us.”

Clients raise the same issue with manufacturers. Nearly 85% of Steelcase client proposal requests have an environmental component today compared to just 40% two years ago. The questions are getting more sophisticated, too, as customers frequently ask about specific materials, or how particular chemicals are used.


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“You have to wade through what’s green-wash and what’s the truth”

100 Parts Per Million

To provide meaningful answers to sustainability questions, the C2C process analyzes a product's component materials down to the molecular level. "We do a deep dive into every material that goes into a product, as well as the materials used in each production, assembly and shipping process," says Jay Bolus, executive vice president of benchmarking and certification for MBDC.

Since few manufacturers are vertically integrated, tracking down the materials in every last nut and bolt of a complex product means researching multiple outside suppliers of raw materials and OEM parts.

In the case of Steelcase's Answer C2C furniture, that meant researching more than fifty different materials from twenty different suppliers. The job took five months to complete. "It's a huge undertaking and one of the most challenging aspects of materials assessment and the C2C certification process, says Nahikian. "You have to be very committed to understanding the supply chain and production process for each material, and you also have to be prepared to address the issues you uncover."

One of the biggest hurdles to achieving C2C certification comes from a seemingly innocuous material known as polyvinyl chloride, or PVC. Globally, more than 30 million tons of PVC are produced each year, with over 50% used in building construction. In the contract furniture industry, PVC coats wires in panel electrical systems, forms the edge band on laminate worksurfaces, and is used in a broad range of other applications. It's lightweight, easily shaped, and relatively inexpensive. In recent years, though,

PVC has become a source of global environmental concern. As PVC production and use have grown, so too has a body of scientific evidence that points to the potential long-term human and environmental health dangers of the material. In response to the research, MBDC has determined that no PVC can be used in any C2C certified products.

Engineers at Steelcase found a non-PVC-coated wire for the Answer C2C workstation, and replaced PVC-banded laminate worksurfaces with wood worksurfaces. The switch to wood increases the price of the workstation slightly. But in addition to its sustainable properties, wood offers users both aesthetic and performance benefits.

Sustainable by Design, or by Legislation?

The growth in sustainable product design, and green product specification is, in part, being driven by legislation. "Many state and local governments are creating new requirements. The state of Massachusetts now asks for sustainability information in their purchasing process," says Bolus.

"It's happening in different ways around the country," says Bonda. "Cities and counties are starting to incorporate requirements for green buildings through the permitting process and in zoning requirements, or offering incentives such as property tax and sales tax rebates. It's certainly the trend to require and reward sustainable design and business practices."

But many designers aren't waiting for legislation. According to the 2006 Design Giants Survey by Interior Design magazine, specification of sustainable products is up 47% from just three years ago. Of the firms surveyed, 100% expect to specify even more green products in the coming year.

Yet before they can specify products, designers need to understand sustainability, and that takes time and usually a do-it-yourself approach. "You have to wade through what's green-wash and what's the truth," says Brandstedt at Gensler. "You have to be educated, attend U.S. Green Building Council events, ask for white papers, independent studies, and third party certifications."

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A Holistic View of Sustainability

Newly designed sustainability standards help designers sort out sustainability claims and concerns. The LEED Green Building Rating System™ is perhaps the best known. Accepted as the green standard for the built environment, LEED is having a significant impact on design and real estate communities in North America, and increasingly, around the world.

C2C certification is an ideal complement to LEED. As LEED emphasizes the broader building process and the building itself, C2C emphasizes the material characteristics of products that compose the building, or occupy it. By adding criteria related to water stewardship, energy and social responsibility in the production process, C2C gives designers assurance that in addition to getting a sustainable product, they are getting if from a an environmentally responsible company.

“We pursue Cradle to Cradle certification of our products because it’s a rigorous, holistic approach. It also best mirrors our environmental aspirations and business philosophy,” says Nahikian. Accordingly, Steelcase plans to have C2C solutions for all of its major systems products by the end of 2007.

“Environmental sustainability is more than a corporate responsibility. It inspires innovation and offers a unique opportunity to redefine quality. We believe that’s how design professionals look at it, too.”

Difference Makers

“I think most designers consider their work to be a social contract with the user,” says James Ludwig, director of design at Steelcase. “We’d all prefer to use sustainable products. But materials are the hard part. What’s available? How do I know it’s really a green product? And what are the materials that go into it?”

C2C is one certification process that helps designers understand the makeup of the products they specify, but Ludwig sees it as more. “It’s a philosophical approach, a way of solving design problems. Regardless of the certification, it’s about sustainable behavior, and that’s the way we should approach things as designers.”

Individuals drive change, of course. Bonda recalls a situation when her daughter repainted her home’s interiors a few years ago. She told her daughter, “I want you to use low-VOC paint, to protect your lungs and the lungs of my grandkids.” The house painter, however, argued that low-VOC paints were harder to work with and didn’t cover as well as other paints. “That was debatable then, and it’s certainly not true anymore,” says Bonda. “But at the time I said, ‘let’s just say your painter’s right. What’s important here: your painter’s happiness or your children’s health?’”

From the paint on the living room walls to the interior furnishings of a multi-story building, individuals making sustainable choices can make a huge difference.

Going Green

Comparing the major programs for measuring sustainability

	What it does	Why it's important	Certification available
Cradle to Cradle www.mbdc.com	Rates products and manufacturers	Most holistic approach; incorporates materials, energy, life cycle, and social responsibility criteria	Silver, Gold, Platinum
LEED Leadership in Energy & Environmental Design (US Green Building Council) www.usgbc.org	Rates the environmental performance of buildings	Sets an example for leadership in the built environment; does not address products in the environment	Certified, Silver, Gold, Platinum
Air Quality Testing (GREENGUARD™, Indoor Advantage™, etc.) www.greenguard.org www.scscertified.com	Rates interior building materials, furnishings, and finishes for air quality	Addresses an important component of the quality of the interior environment air quality	GREENGUARD Indoor Air Quality Certified®; Indoor Advantage™ and Indoor Advantage Gold™
Life Cycle Assessment ISO14001 standard	Evaluates product lifecycles, primarily for energy use, emissions, and waste	Focuses on energy and water use, global warming potential, hazardous materials, as well as recycled content and recyclability	N/A

Staying up on Sustainability

"Green design is a discipline that needs to be learned like any other," says Penny Bonda, editor of GreenZone on interiordesign.com. "Almost everyone who's practicing sustainable design today is a self-learner." James Ludwig, Steelcase's director of design, agrees. "You have to be engaged, and keep learning."

Bonda and Ludwig gave us their recommendations for where to begin – or continue – learning about sustainability:

• Eco-Structure (free to industry professionals) **www.eco-structure.com**

• Environmental Building News ("So much to recommend it; they don't accept advertising so what they write isn't influenced by advertisers."-PB) **www.buildinggreen.com**

• Environmental Design + Construction (free to U.S. A&D professionals) **www.edcmag.com**

• Greenpeace ("You can disagree with politics and methods, but there is a wealth of information to form your own point of view." -JL) **www.greenpeace.org**

• GreenSpec Directory ("An excellent resource." -PB) **www.buildinggreen.com**

• GreenSource: The Magazine of Sustainable Design ("One of the benefits of USGBC membership." -PB) **www.usgbc.org**

• MBDC ("Engage them in a project or talk materials with Jay Bolus over drinks." -JL)

• Penny Bonda's "Green Zone" column ("Great mix of discussing the issues responsibly, Q & A, and finding sustainable options." -JL) **www.interiordesign.net**

• Sierra Club ("Seriously engages the issues in a critical, but constructive tone." -JL)

Also of note, Bonda published a new book just last month: Sustainable Commercial Interiors, by Penny Bonda and Katie Sosnowchik (Wiley) It offers guidance, case studies, lessons learned, and environmental insights, as well as a global view of sustainability.

The World's First Cradle to Cradle Systems Workstation

• It's a fully powered workstation – complete with panels, wood worksurfaces, glass windows, upper and lower storage

• PVC-free – from the panel trim to the wiring solution, not a spec of PVC anywhere

• Fabric is 100% recycled polyester

• Answer C2C systems furniture, Leap® and Think® task seating, Move™ side seating are all C2C certified and complete a fully sustainable workplace

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