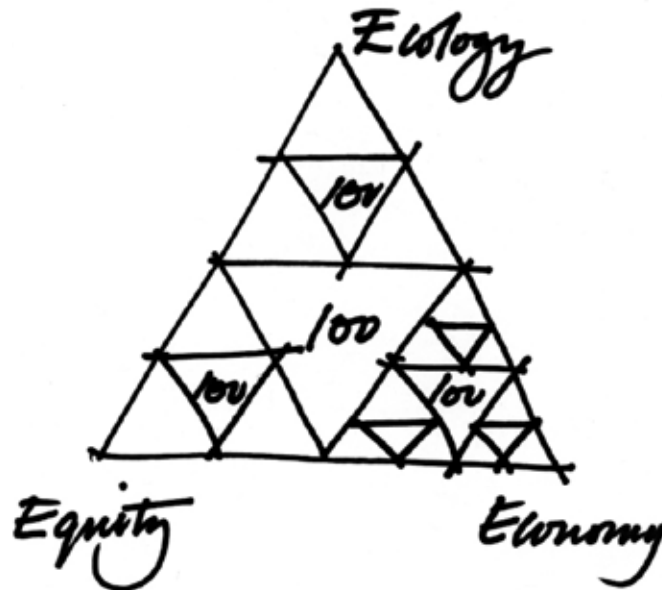


OUR COMMON VALUES:

# WAGING PEACE THROUGH COMMERCE BY DESIGN

CRADLE TO CRADLE • SUSTAINABLE DEVELOPMENT GOALS • CIRCULAR ECONOMY



Our goal is a delightfully diverse, safe, healthy, and just world, with clean air, water, soil and power – economically, equitably, ecologically and elegantly enjoyed.<sup>1</sup>

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# THE HANNOVER PRINCIPLES: DESIGN FOR SUSTAINABILITY (1992)

The Hannover Principles were commissioned of William McDonough + Partners by the City of Hannover, Germany, to guide the design of the 2000 World's Fair. They continue to inform the ever-evolving conversation on design for sustainability. At a time when urgent eco-efficiency was the standard practice, The Hannover Principles sought to reframe design for sustainability as both a signal of positive human intentions and a means to achieving them.

---

The Hannover Principles are committed to transformation and growth in the understanding of our interdependence with nature and may be adapted as our knowledge of the world evolves.

---

- 1 Insist on the right of humanity and nature to coexist** in a healthy, supportive, diverse and sustainable condition.
- 2 Recognize interdependence.** The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognize even distant effects.
- 3 Respect relationships between spirit and matter.** Consider all aspects of human settlement, including community, dwelling, industry and trade, in terms of existing and evolving connections between spiritual and material consciousness.
- 4 Accept responsibility for the consequences of design** decisions upon human well-being, the viability of natural systems and their right to coexist.
- 5 Create safe objects of long-term value.** Do not burden future generations with requirements for maintenance or vigilant administration of potential dangers due to the careless creation of products, processes or standards.

- 6 Eliminate the concept of waste.** Evaluate and optimize the full life cycle of products and processes to approach the state of natural systems, in which there is no waste.
- 7 Rely on natural energy flows.** Human designs should, like the living world, derive their creative force from perpetual solar income. Incorporate this energy efficiently and safely for responsible use.
- 8 Understand the limitations of design.** No human creation lasts forever, and design does not solve all problems. Those who create and plan should practice humility in the face of nature. Treat nature as a model and mentor, not as an inconvenience to be evaded or controlled.
- 9 Seek constant improvement by the sharing of knowledge.** Encourage direct and open communication between colleagues, patrons, manufacturers and users to link long-term sustainable considerations with ethical responsibility and to reestablish the integral relationship between natural processes and human activity.

# DESIGN FOR THE TRIPLE TOP LINE

Representing the ecology of human concerns, the fractal triangle shows how ecology, economy and equity anchor a spectrum of value and how, at any level of scrutiny, each design decision has an impact on all three. As we plan a product or system, we move around the fractal inquiring how a new design can generate value in each category. The goal: to maximize value in all areas of the triangle through intelligent design.

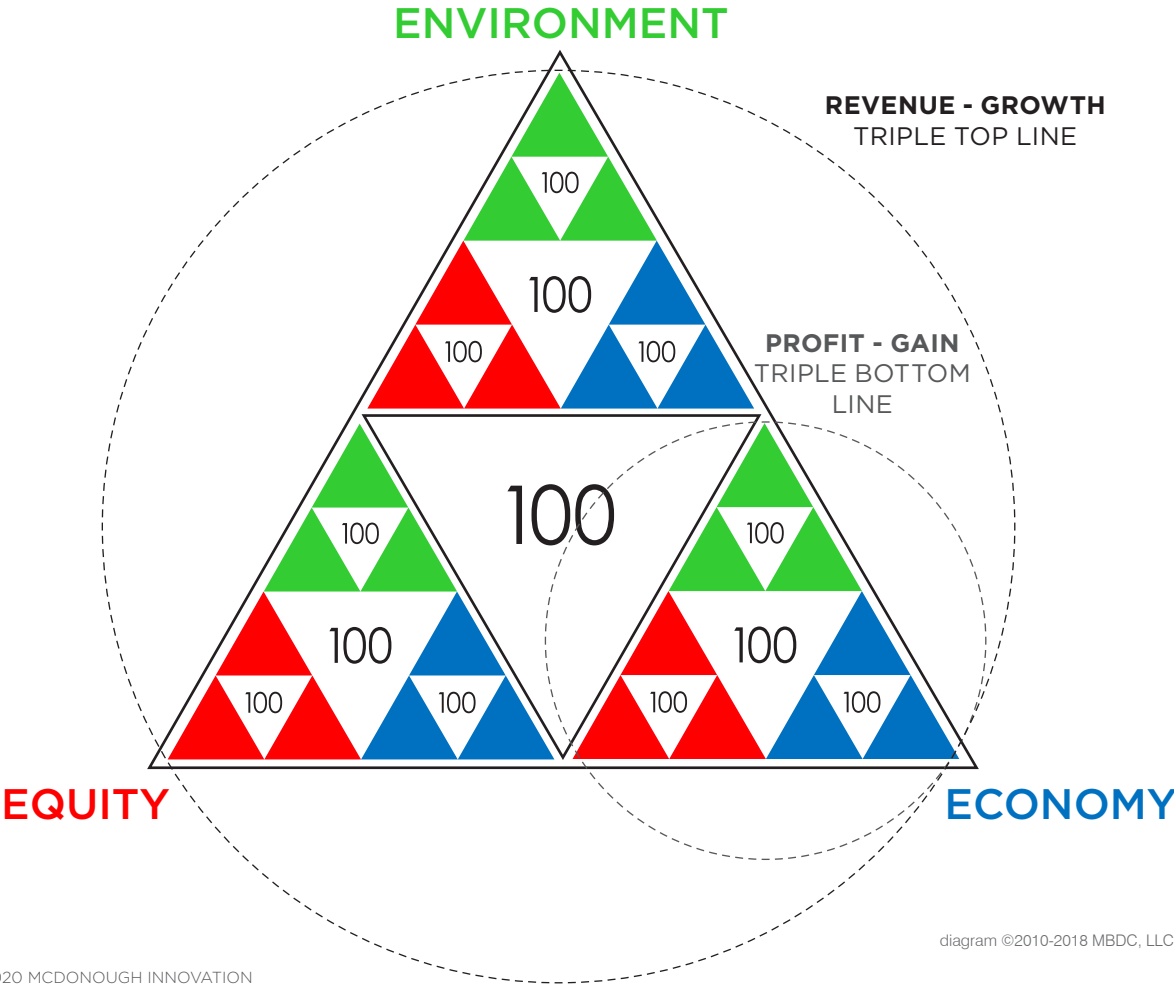
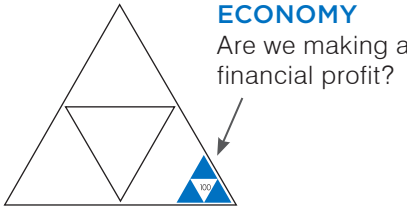


diagram ©2010-2018 MBDC, LLC.

## TRIPLE TOP LINE - REVENUE

### ECONOMY

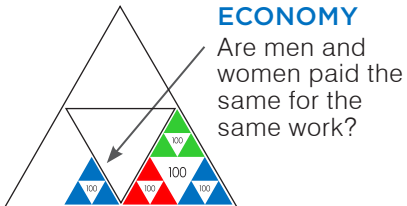


**EQUITY**  
Are people earning a living wage?

**ENVIRONMENT**  
Are we cost-efficient in operation and minimizing ecological burden?

## TRIPLE BOTTOM LINE - PROFIT

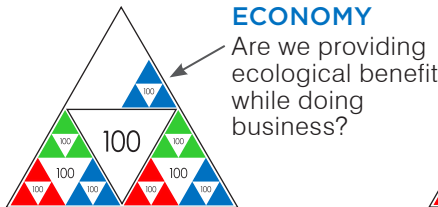
### EQUITY



**EQUITY**  
Are people being treated with respect?

**ENVIRONMENT**  
Are employees working in a safe and healthy workplace?

### ENVIRONMENT



**EQUITY**  
Are we enhancing the atmosphere, rivers, etc. for future generations?

**ENVIRONMENT**  
Are we following the laws of nature?



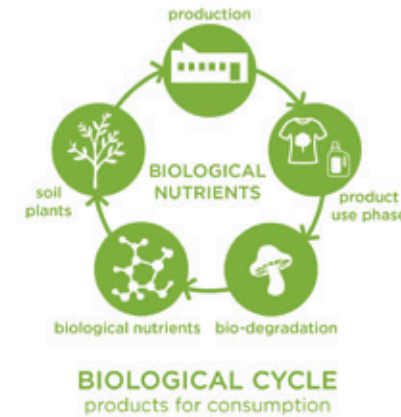
# CRADLE TO CRADLE

In their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*, architect William McDonough and chemist Michael Braungart presented a science-based design framework that eliminates the concept of waste and provides enduring benefits for society, from safe materials and circular economies to clean air, water and energy.

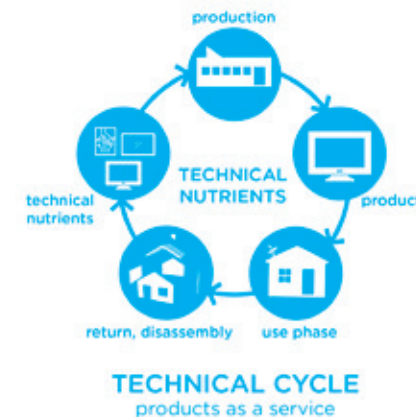


Waste Equals Food  
Use Current Solar Income  
Respect Diversity

The book put forward a design framework characterized by three principles derived from nature:



**Everything is a resource for something else.** In nature, the “waste” of one system becomes food for another. Everything can be designed to be disassembled and safely returned to the soil as **BIOLOGICAL NUTRIENTS**, or reutilized as high-quality materials for new products as **TECHNICAL NUTRIENTS** without contamination.



**Use clean and renewable energy.** Living things thrive on the energy of current solar income. Similarly, human constructs can utilize clean and renewable energy in many forms—such as solar, wind, geothermal, gravitational energy and other energy systems being developed today—thereby capitalizing on these abundant resources while supporting human and environmental health.

**Celebrate diversity.** Around the world, geology, hydrology, photosynthesis and nutrient cycling, adapted to locale, yield an astonishing diversity of natural and cultural life. Designs that respond to the challenges and opportunities offered by each place fit elegantly and effectively into their own niches.


Rather than seeking to minimize the harm we inflict, *Cradle to Cradle* reframes design as a positive, regenerative force—one that creates footprints to delight in, not lament. This paradigm shift reveals opportunities to improve quality, increase value and spur innovation. It inspires us to constantly seek improvement in our designs, and to share our discoveries with others.

diagrams ©1995-2020 MBDC, LLC.


# THE PRODUCT STANDARD

The Cradle to Cradle Certified™ Product Standard takes a comprehensive approach to evaluating the design of a product, the practices employed in manufacturing the product, and its potential for use and reuse.


The Cradle to Cradle Certified™ Product Standard is managed and updated by the Cradle to Cradle Products Innovation Institute’s Certification Standards Board. Products are assessed in five categories:




**Material Health (Biological and Technical Metabolisms)**  
Product ingredients are inventoried throughout the supply chain and evaluated for impacts on human and ecological health. The criteria at each level build toward the expectation of eliminating all toxic and unidentified chemicals and becoming nutrients for safe, continuous cycling.




**Circular Economy: Material Reutilization**  
Products are designed to either biodegrade safely as biological nutrients or to be recycled into new products as technical nutrients. At each level continued progress must be made toward increasing the recovery of materials and keeping them in continuous flows.



**Renewable Energy & Carbon Management**  
The criteria at each level progress toward the goal of completely carbon-neutral manufacturing operations that are powered with 100% renewable energy.



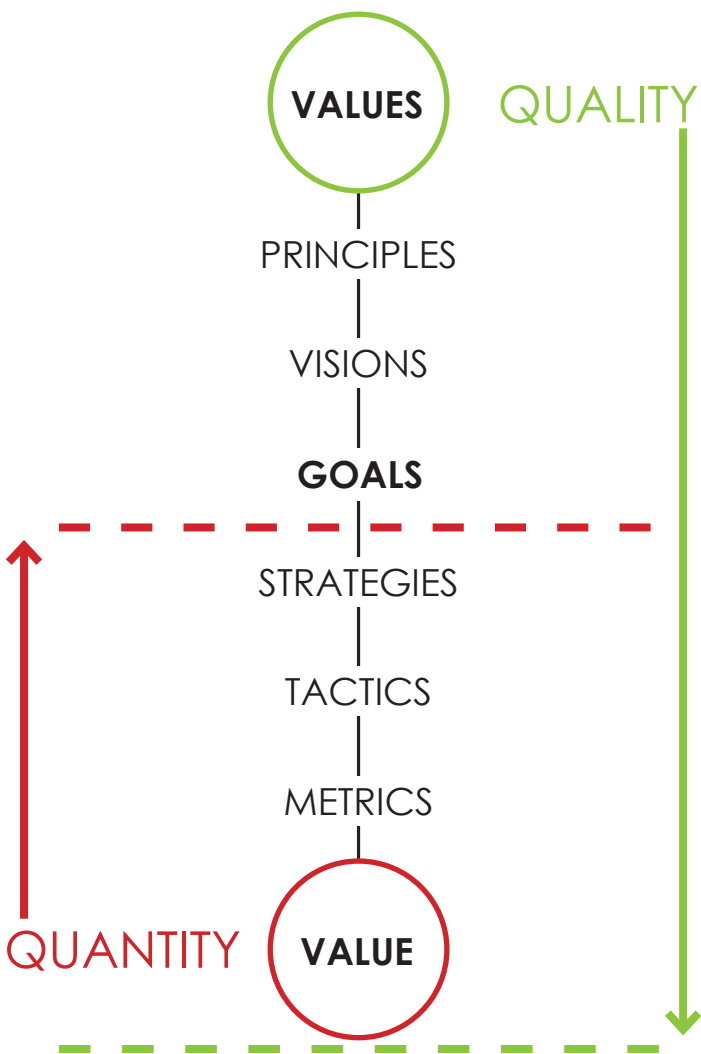
**Water Stewardship**  
Manufacturing processes are designed to regard water as a precious resource for all living things and at each level progress is made toward the goal of all effluent being clean enough to drink.



**Social Fairness**  
Company operations are designed to celebrate all people and natural systems and progress is made toward the goal of having a wholly beneficial impact on the planet.

# FROM VALUES TO VALUE™

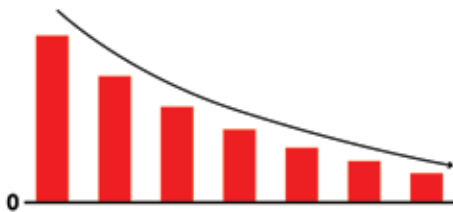
Using a design lens and multi-disciplinary approach, we work with our clients to innovate new systems and solutions for some of the toughest challenges they face. Our process begins with your values.



# THE UPCYCLE

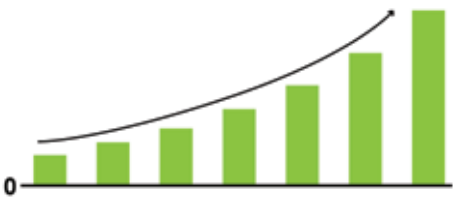
The Upcycle is a design and constant improvement tool based on *Cradle to Cradle*. It allows many industry sectors, including product manufacturers, to inventory, assess and then optimize products, processes and systems with positive intentions and beneficial goals.

Drawing on a decade of lessons in putting Cradle to Cradle Design™ concepts into practice around the world, McDonough and Braungart’s book, *The Upcycle: Beyond Sustainability—Designing for Abundance*, published in 2013, presents a persuasive and inspiring argument for moving beyond conventional approaches to sustainability that seek to merely minimize damage to the environment and human health. By adopting Cradle to Cradle values and principles, and seeking continuous improvement, companies are able to direct innovation in a coherent and positive trajectory.



### Eco-efficient approach = “Less Bad” Trajectory

- Reduce Carbon
- Minimize Chemicals of Concern
- Energy Efficient
- Reduce Water Consumption
- Goal of Zero Hazards



### Eco-effective approach = “More Good” Trajectory

- Increase Positive Ingredients
- Energy Positive
- Improved Water Quality
- Increased Biodiversity
- Goal of 100% Positive / Beneficial Products, Processes and Systems

# THE UPCYCLE CHART INNOVATION + CONTINUOUS IMPROVEMENT

The Upcycle Chart enables many industry sectors, including product manufacturers, to **1) inventory**, **2) assess** and then **3) optimize** products, processes and systems with positive intentions and beneficial goals.



diagrams ©2010 MBDC, LLC. We welcome proper use of this chart. For use, please contact Jay Bolus (jay@mbdc.com)

# CRADLE TO CRADLE DESIGN™

## THE QUALIFICATION OF THE CIRCULAR ECONOMY

Inspired by the Cradle to Cradle Design Framework, our multi-disciplinary team innovates for the circular economy at all scales.

“The circular economy is a resourceful economic system and innovation engine, providing benefits to society in the present and the future. It is designed to endlessly recirculate clean materials, energy, water and human ingenuity. In essence, the circular economy puts the ‘re’ back in resources.”  
-William McDonough

FROM THE MOLECULE...



Science-Based Analysis  
to the Parts per Million  
Material Health Assessments  
Product Optimization

TO THE PRODUCT...



Product and Packaging Design  
Assessments for the Cradle to Cradle  
Certified™ Products Program:  
Globally Recognized Standard  
Multi-Attribute  
Third-Party Verified

TO BUILDINGS,  
COMMUNITIES  
AND CITIES...



Architecture  
Built Environment Consulting  
Urban Strategy  
City Visioning / Principles  
Renewable Energy Optimization

TO REGIONS,  
COUNTRIES  
AND THE PLANET.



Strategic Thinking  
CEO / Government Advising  
International Speeches  
Business Consulting

# HISTORY OF THE CIRCULAR ECONOMY

Prepared by ABN AMRO

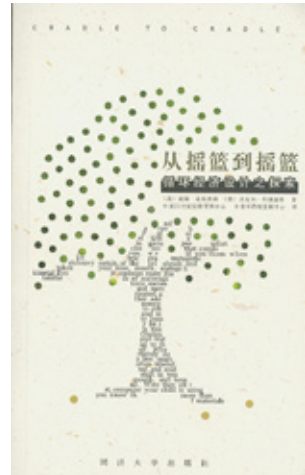
**2002**

William McDonough and Michael Braungart publish *Cradle to Cradle: Remaking the Way We Make Things*



**2005**

The Chinese Edition of *Cradle to Cradle* is published as: *Cradle to Cradle: The Design of the Circular Economy*



**2011**

China Announces their 12<sup>th</sup> Five-Year Plan called “The Promotion of the Circular Economy”

**2014**

The World Economic Forum commits to the circular economy and William McDonough is named Chair of the Meta-Council on the Circular Economy

**2015**

China Announces their 13<sup>th</sup> Five-Year Plan called “Implementation of the Circular Economy” and The Ellen MacArthur Foundation publishes “Growth Within: a circular economy for competitive Europe” and “Delivering the circular economy: a toolkit for policymakers”

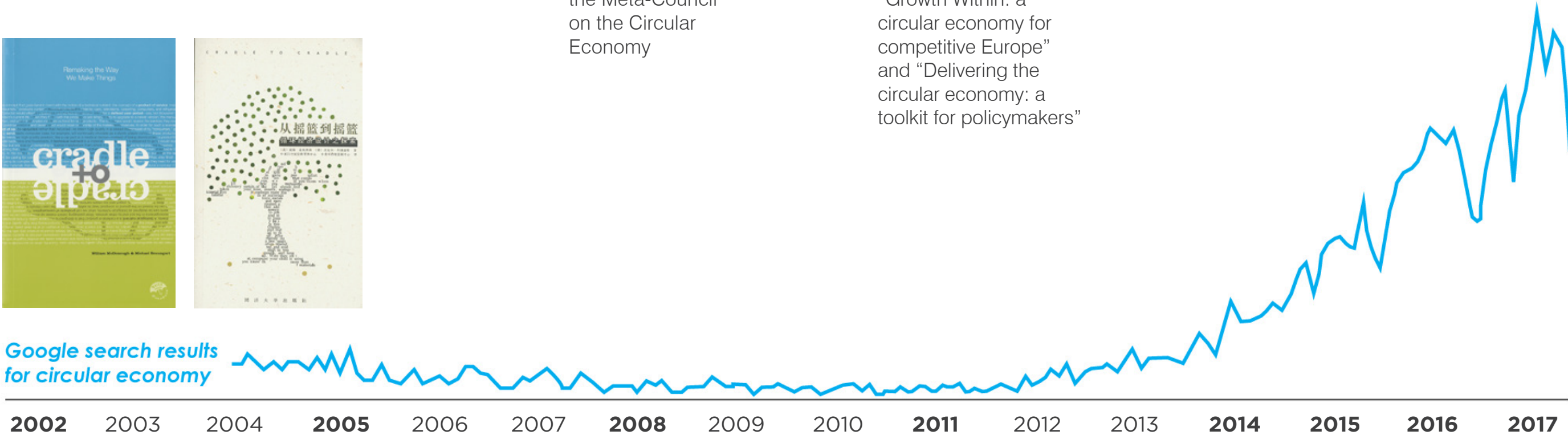
**2016**

The Netherlands expresses a commitment to the circular economy

**2017**

Update on the EU’s circular economy package and “Achieving Growth Within” is published

Google search results for circular economy





# CARBON IS NOT THE ENEMY

*Nature*, November 2016

William McDonough has developed a New Language for Carbon that seeks to clarify the terms typically used to describe efforts to reduce carbon emissions and define new, innovative ways in which carbon can be used safely, productively and profitably. In this new paradigm, which was originally published in *Nature*, the life-giving carbon cycle becomes a model for human designs, enabling us to cultivate urban food systems and closed-loop flows of durable materials in which carbon is an asset rather than a liability.

Carbon is not the enemy. Climate change is the result of breakdowns in the carbon cycle caused by us: it is a design failure. Anthropogenic greenhouse gases in the atmosphere make airborne carbon a material in the wrong place, at the wrong dose and wrong duration. It is we who have made carbon a toxin—like lead in our drinking water. In the right place, carbon is a resource and tool.

The world's current carbon strategy aims to promote a goal of zero. Predominant language currently includes words such as “low carbon,” “zero carbon,” “negative carbon” and even a “war on carbon.”

The new language signals positive intentions, leading us to do more good rather than simply less bad. It identifies three categories of carbon:

**Living carbon:** organic, flowing in biological cycles, providing fresh food, healthy forests and fertile soil; something we want to cultivate and grow

**Durable carbon:** locked in stable solids such as coal and limestone or recyclable polymers that are used and reused; ranges from reusable fibers like paper and cloth, to building and infrastructure elements that can last for generations and then be reused

**Fugitive carbon:** has ended up somewhere unwanted and can be toxic; includes carbon dioxide released into the atmosphere by burning fossil fuels, ‘waste to energy’ plants, methane leaks, deforestation, much industrial agriculture and urban development

**Working carbon** is a subset of all three categories and defined as a material being put to human use. For example, *working living carbon* is cultivated in agricultural systems. *Working durable carbon* is recycled, reused and reprocessed in circular technical systems; and *working fugitive carbon* includes fossil fuels used for power.

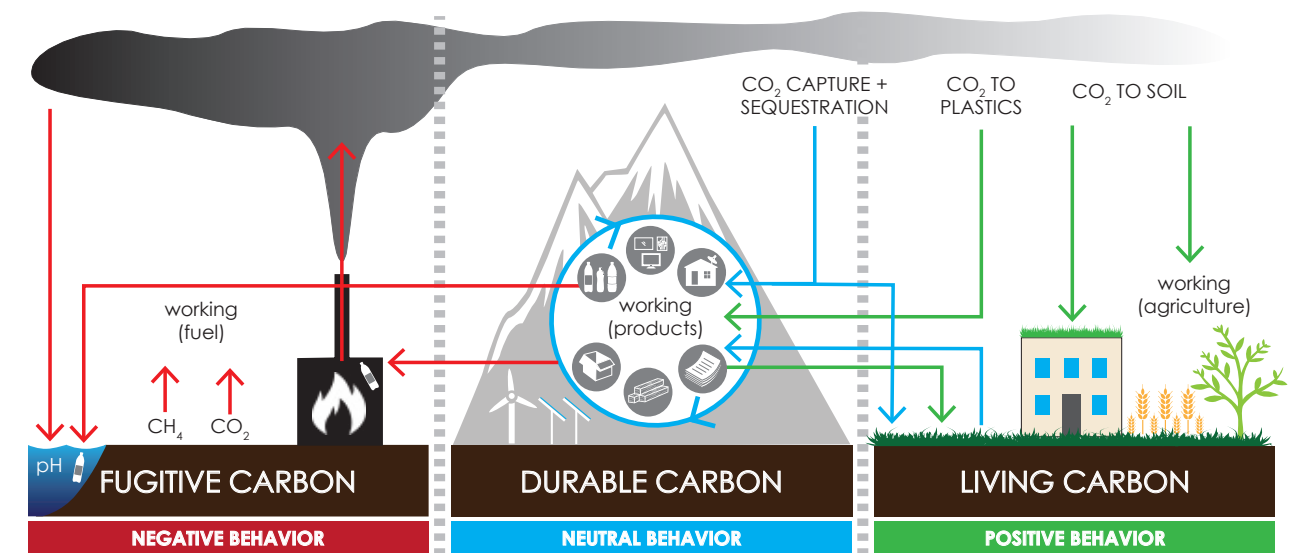
The new language also identifies three strategies for carbon management and climate change:

**Positive Behavior:** actions converting atmospheric carbon to forms that enhance soil nutrition or to durable forms such as polymers and solid aggregates; also recycling of carbon into nutrients from organic materials, food waste, compostable polymers and sewers

**Neutral Behavior:** actions that transform or maintain carbon in durable Earth-bound forms and cycles across generations; or renewable energy such as solar, wind and hydropower that do not release carbon

**Negative Behavior:** actions that pollute the land, water and atmosphere with various forms of carbon, for example, CO<sub>2</sub> and methane into the atmosphere or plastics in the ocean

Offering an inspiring model for climate action begins with changing the way we talk about carbon. Our goal is for all to embrace this new language and work toward a Carbon Positive design framework; and in doing so we may together support a delightfully diverse, safe, healthy and just world—with clean air, soil, water and energy—that is economically, equitably, ecologically and elegantly enjoyed.



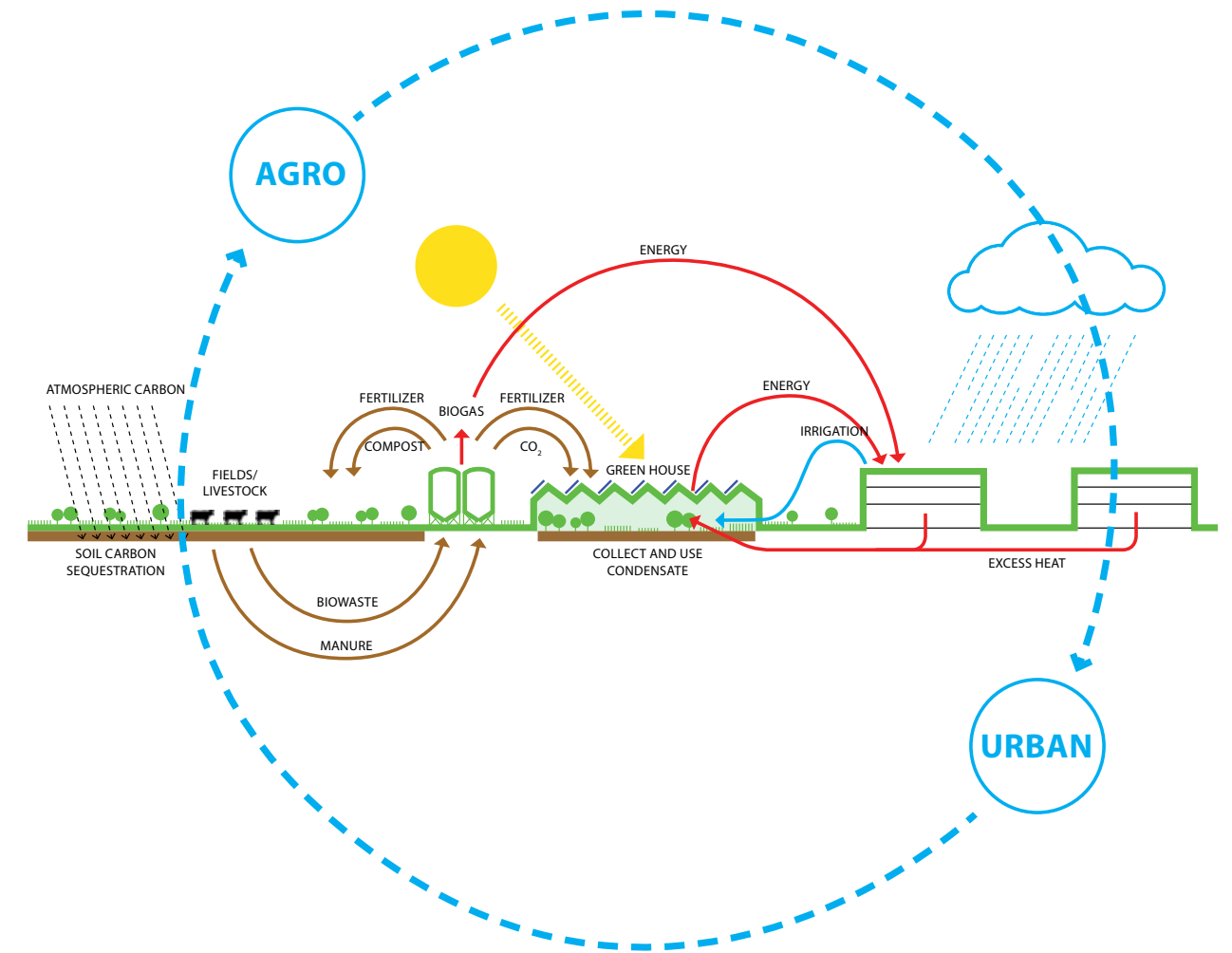
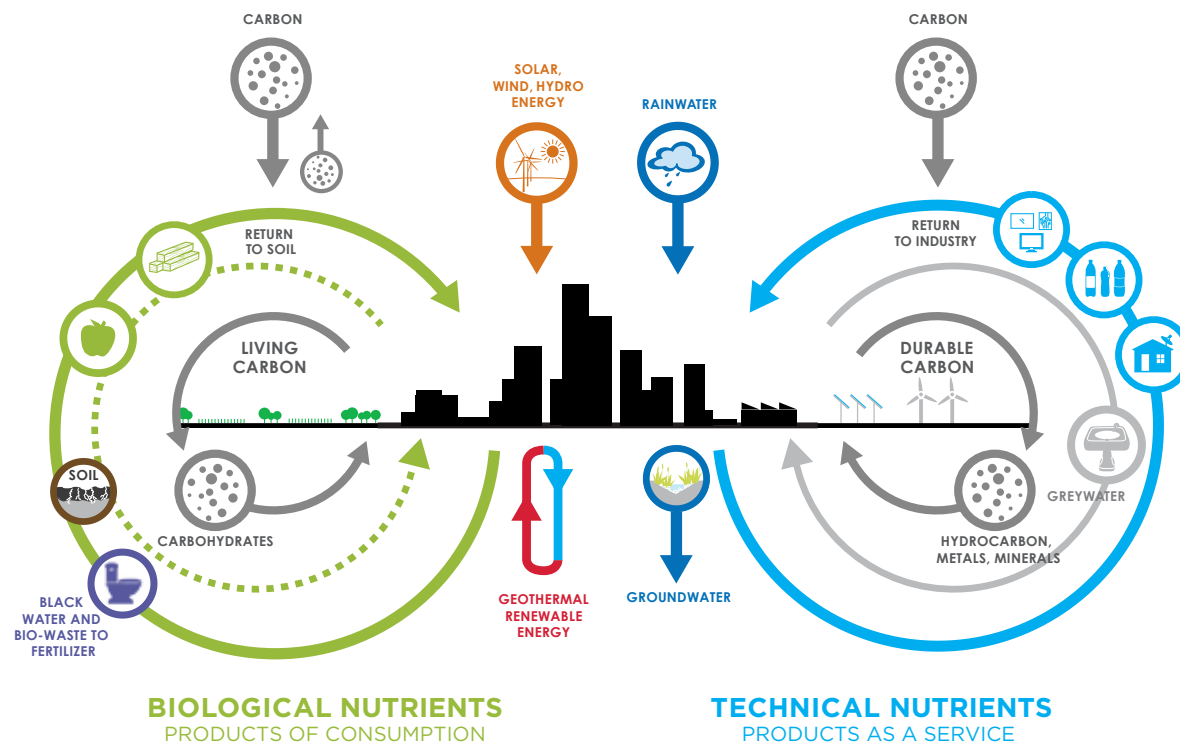
<sup>2</sup>Originally published as "Carbon is not the enemy" in *Nature*, 17 November 2016, Vol. 539, pages 349-351

# THE CARBON POSITIVE CITY

William McDonough's concept for the Carbon Positive City brings the new language for carbon into a tangible design framework.

The Carbon Positive City integrates agriculture, regenerative land management practices and urban design at a regional and international scale. It recognizes both local and distant effects of cities and envisions a holistic, synergistic system to transform fugitive carbon into durable carbon, such as plastics and building materials, as well as into living carbon, such as healthy soils, gardens, crops and landscapes.

City infrastructure adapts to the new idea: for example, sewage treatment plants are reconceived as fertilizer factories and intensive integrated agriculture systems—what we call solar orchards—provide clean energy, clean food, clean water and jobs simultaneously.



# **William McDonough + Partners**

Architecture and Community Design





## NASA Sustainability Base

First Space Station on Earth in  
Moffett Field, California

# WILLIAM McDONOUGH + PARTNERS

Architecture + Community Design

William McDonough + Partners executes a diverse international array of projects from our studio in Charlottesville, Virginia. Our Cradle to Cradle Design™-inspired buildings and communities embody enduring standards of design quality and economic, ecological and social responsibility. We practice a positive, principled approach to design that draws inspiration from living systems and processes. At its heart, this unique approach celebrates the abundance of nature.

Founded by William McDonough in New York in 1981, the practice was relocated to Charlottesville, Virginia in 1994, when McDonough became Dean of the School of Architecture at the University of Virginia. The firm's partners collaborate closely with McDonough to bring his design concepts into reality. Among the practice's diverse achievements are several recognized landmarks of the sustainability movement:



## Herman Miller Greenhouse

Factory and offices in  
Holland, Michigan



## YouTube Headquarters

Originally designed for  
Gap, Inc. in San Bruno,  
California



## Oberlin College

Net-positive energy for  
the Adam Joseph Lewis  
Center for Environmental  
Studies



## Ford Motor Company

River Rouge office and  
manufacturing facility  
in Dearborn, Michigan



# THE WALL STREET JOURNAL.

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## Will Poland Plant A Forest to Satisfy A U.S. Architect?

• • •  
Air-Loving Mr. McDonough  
Plans Warsaw Skyscraper  
Of Lasting Aerobic Value

By ROME GUTFIELD

Staff Reporter of THE WALL STREET JOURNAL  
NEW YORK—Sitting at the bar of the  
Four Seasons restaurant, architect William  
McDonough seems oblivious to the glam-  
orous clientele and the elegant setting. He  
is ogling the curtains rippling above the  
ventilation ducts. "Look how much air is  
moving around!" he says. "The ventilation  
here is great!"

You may be hearing more about the 35-  
year-old Mr. McDonough and his preoccu-  
pation with clean air. After years of rela-  
tive obscurity, he is starting to attract no-  
tice for the ecological as well as the aes-  
thetic quality of his architecture.

Mr. McDonough believes that the well-  
being of the planet depends on such strata-  
gems as opening windows to cut indoor air  
pollution, tacking down carpets instead of  
using toxic glues, and avoiding malsegway,  
which comes from endangered rain for-  
ests.

### Aerobic Architecture?

He has put some of his aesthetic ideas  
into practice with his design of the four-  
star Quilted Giraffe restaurant—"architectu-  
rally impeccable," *Progressive Architecture*  
magazine called it—and his remodel-  
ing of Paul Stuart, the Madison Avenue  
clothing store. He has designed furniture  
and homes as well as commercial and of-  
fice space. He is now designing a broad-  
way stage set for a show by the band Kid  
Crook and the Crookies.

What really stirs his muse, though, is  
aerobic architecture. Now the question is:  
Is Poland ready for it? Mr. McDonough is  
about to tackle his biggest clean-air chal-  
lenge yet, the proposed Warsaw Trade  
Center in Poland, the first such center in  
Eastern Europe.

The project has already acquired a cer-  
tain New York cachet. Bloomingdale's



William McDonough

## Will Poland Plant Forest to Suit Architect Who Loves Clean Air?

Continued From First Page

plans to sell a foot-tall chocolate model of  
the center during the holidays. Some of the  
sales proceeds will go to the Design Indus-  
tries Foundation for AIDS. A cake topped  
with a replica of the center will be auc-  
tioned at an AIDS benefit at Sotheby's in  
December.

If Mr. McDonough's plans get executed,  
as much of the Polish center as possible  
will be made from aluminum, steel and  
glass recycled from Warsaw's abundant  
rubble. A 20-story mesh spire will stand  
atop 50 stories of commercial space. Solar-  
powered batteries will make the spire  
glow. The windows will open. The carpets  
won't be glued down, and walls will be  
coated with nontoxic finishes.

To the extent that the \$150 million  
budget will allow it, Mr. McDonough will  
rely on solid wood, rather than plywood or  
particle board, to limit the emission of  
formaldehyde.

If Mr. McDonough has his way, the  
Poles will compensate for the trade cen-  
ter's emissions of carbon dioxide, a prime  
suspect in the global atmospheric warming  
many scientists fear. The Poles would  
plant a 10-square-mile forest somewhere in  
the country at a cost of \$150,000, with the  
center's developer footing the bill.

The news hasn't exactly moved others  
in Mr. McDonough's profession to become  
architectural Johnny Appleseeds. All ar-  
chitects want to be aware of the ecological  
consequences of their work, says John Bur-  
gee, whose New York firm is designing the  
redevelopment of Times Square. "But we  
can't all carry it to that extreme," Karen  
Nichols, senior associate at Michael  
Graves's architecture firm in Princeton,  
N.J., says. "We're really at the mercy of  
what the construction industry can and will  
do readily."

Mr. McDonough responds: "I'm asking  
people to broaden their agendas."

The son of a Seagram's executive who  
was stationed in many countries around  
the world, Mr. McDonough was born in To-  
kyo and attended 19 schools in places rang-  
ing from Hong Kong to Shaker Heights,  
Ohio, before entering Dartmouth College.  
He earned a master's degree in architec-  
ture from Yale.

His interest in the natural environment  
dates from his youth. He and his father  
still spend time each summer fly-fishing  
for salmon in Iceland. Living in Hong  
Kong, he says, made him sensitive to the  
limits on food, power and water supplies.  
At his first school in the U.S. he was  
thought a little strange for shutting off  
open water taps and admonishing his  
schoolmates to take only brief showers.

He and a Dartmouth roommate estab-  
lished a company that restored three hy-  
droelectric power plants in Vermont. At  
Yale, he designed one of the first solar-  
heated houses to be built in Ireland.

### Beeswaxed Floors

Mr. McDonough's first professional  
project fully to reflect his environmental  
aror was his 1986 design for the headquar-  
ters of the Environmental Defense Fund in  
New York. The offices took 10,000 square  
feet of a building with 10-foot ceilings and  
big, operable windows.

Since the 1970s energy crisis, some ef-  
forts to conserve energy by sealing build-  
ings have had an unintended side effect:  
high indoor pollution. To reduce it at the  
fund's building, workers rubbed beeswax  
instead of polyurethane on the floors in the  
executive director's office. Jute, rather  
than a synthetic material, lies under the  
tacked-down carpets, and the desks are of  
wood and granite instead of plastic.

The budget was only \$400,000. "Athena  
with Spartan means," Mr. McDonough  
says. The fund's lawyers work in an Athen-  
ian grove of potted trees. Economists and  
administrators sit along a "boulevard"  
with street lamps and ficus trees. In of-  
fices, triphosphorous bulbs simulate day-  
light. Offices with outside windows have in-  
side windows, too, to let in more real day-  
light.

"We proved a healthy office doesn't  
cost more," says Frederic Krupp, execu-  
tive director of the fund.

It "really looks beautiful and is very  
light," says Ann Hornaday, a free-lance  
critic who has visited the office for lunch  
meetings. But, she says, "I guess I didn't  
really notice the trees. Maybe they were  
hidden by all the people."

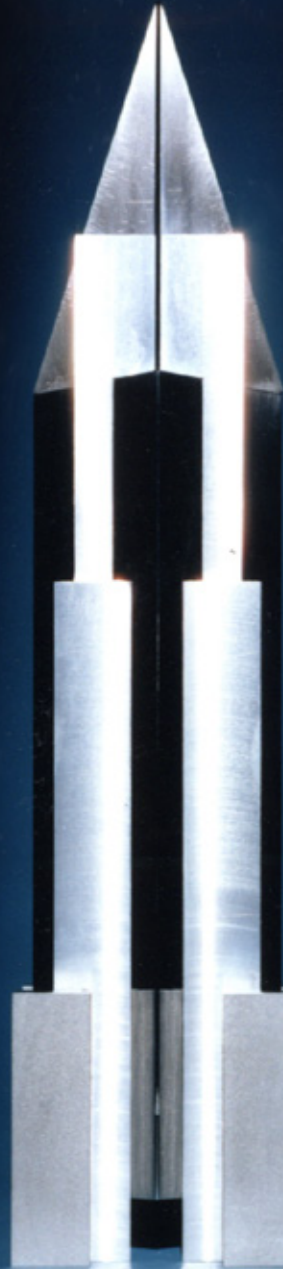
### Warsaw's Eiffel Tower

Neither the Quilted Giraffe nor the Paul  
Stuart renovation reflects much of Mr.  
McDonough's environmental concern. The  
restaurant was conceived as a sparkling,  
crystalline "grove." It makes extensive  
use of stainless steel, silver and aluminum  
that sets off black granite table tops and a  
gray terrace with zinc-strip floors. To  
more than replace the wood from two Eng-  
lish oaks used for paneling at Paul Stuart,  
however, Mr. McDonough and friends  
planted 1,000 acorns around the country.

The ambitious Warsaw project still  
awaits approval by city officials. Its devel-  
oper is a Polish American, Sasha Mamiak.  
He had worked with Mr. McDonough on an  
earlier project and recruited him as archi-  
tect for the trade center. The center will  
provide space for computer hardware and  
facsimile and other telecommunications  
equipment, not readily accessible in Po-  
land now, for a growing number of West-  
erners doing business in Eastern Europe.

Mr. McDonough thinks of the center as  
the "Eiffel Tower of Warsaw" and "a sym-  
bol of the resurgence of Poland." If any  
nation can use environmentally benign ar-  
chitecture, it is Poland. Jessica Mathews,  
vice president of World Resources Institute  
in Washington, D.C., says that perhaps a  
quarter of Poland's soil is too contam-  
inated for safe farming because of air pol-  
lution. The pollution is also killing for-  
ests and destroying buildings that date  
back to the Middle Ages.

The future of the forest remains uncer-  
tain. Mr. Mamiak's company, Bialag Ltd.,  
has agreed to set aside the money to plant  
and maintain it, but discussions are still  
going on over where to place it and how to  
ensure that it will be maintained. After all,  
Mr. Mamiak says, "in Poland there aren't  
too many people worried about the envi-  
ronment. They're more worried about  
bread on the table."



## GUIDING PRINCIPLES

In their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*, architect William McDonough and chemist Michael Braungart presented a science-based design framework that eliminates the concept of waste and provides enduring benefits for society, from safe materials and circular economies to clean air, water and energy.

The book put forward a design framework characterized by three principles derived from nature which inform our designs at all scales:

**Everything is a resource for something else.** In nature, the "waste" of one system is food for another. Building materials, such as interior fabrics and furnishings, can be designed as biological nutrients and safely returned to the soil after a period of use, or they can be designed as technical nutrients and re-utilized as high-quality materials for new products and building projects. Conventional building systems and infrastructure (for example, wastewater treatment) can be redesigned to become nutrient management systems that capture previously discarded resources for safe and productive reuse.

**Use clean and renewable energy.** Living things thrive on the energy of current solar income. Similarly, human constructs can utilize clean and renewable energy in many forms—such as wind, geothermal, gravitational energy—thereby capitalizing on these abundant resources while supporting human and environmental health.

**Celebrate diversity.** Around the world, geology, hydrology, photosynthesis and nutrient cycling, adapted to locale, yield an astonishing diversity of natural and cultural life. Designs that respond to the unique challenges and opportunities offered by each place fit elegantly and effectively into their own niches.

Rather than seeking to minimize the harm we inflict, *Cradle to Cradle* reframes design as a positive, regenerative force—one that creates footprints to delight in, not lament.

< WARSAW TRADE CENTER  
WARSAW, POLAND

Front page of *The Wall Street Journal* | October 23, 1989





## THE CRADLE TO CRADLE® WORKPLACE

To achieve our vision of making the world better now and for future generations, we need a different approach to design. While each project will respond to its unique culture, site, budget and schedule, a few simple approaches remain constant.

**Begin by designing for a beneficial human footprint.** Our ambition is not to be less bad (e.g. produce less carbon) but instead to be inspirational, more good and positive (e.g. use renewable energy).

**Use principles, goals, strategies and metrics (in that order) to guide action.** This structure produces effective results, encourages innovation throughout project teams and ensures project alignment with corporate values.

**Write nature's story.** Interpret the corporate vision and create a campus design concept through the lens of Cradle to Cradle thinking. This will connect the corporation to its unique place in the world, and help unify the project team, generate new ideas and stimulate communication with the surrounding community.

**Anticipate the future.** Look for emerging technologies and changing demands. Design flexible workplaces that can easily adapt as technologies become feasible and needs evolve.

**Create a framework for innovation.** Encourage improved processes, technologies and infrastructures; support experimentation and the exchange of knowledge. Document the design process and share lessons learned. Improve upon what others have done before.

< YOUTUBE HEADQUARTERS (current)  
GAP CORPORATE CAMPUS (former)  
San Bruno, California | Completed 1997



# PARK 20|20

Cradle to Cradle Design™ Development

Hoofddorp, The Netherlands  
8 Completed, 2 in Design Development

William McDonough + Partners is the lead architect and master planner for Park 20|20, the first full-service Cradle to Cradle Design™-inspired working environment in The Netherlands.

Located within a man-made cultural landscape of a Dutch polder (land reclaimed from the sea), the firm was engaged by Delta Development Group in 2007 to create a new model of sustainable development that implements the Cradle to Cradle philosophy holistically and at all scales—from the city down to the molecule.

**Client** Delta Development Group

**Area** 114,000 sq. meters (Phase 1: 24,500 sm)

**Awards**

2010 ASLA Honor Award

2012 SHARE (Sustainable Haarlemmermeer Real Estate) Award

**Team**

William McDonough + Partners, Master Planning; Nelson Byrd Woltz, Landscape Architect



**A NOW**  
Completed 2017

**B Fox Vakanties**  
Completed 2012

**C SHARE**  
In Development

**D Tower**  
In Development

**E Bosch Siemens  
Inspiration House**  
Completed 2012

**F FIFPro  
Headquarters**  
Completed 2013

**G Bluewater**  
Completed 2014

**H Biological  
Nutrient Pavilion**  
Completed 2012

**I Plantronics  
Headquarters**  
Completed 2016

**J Technical  
Nutrient Pavilion**  
Completed 2012





“We have looked at the best architects all over the world for the most innovative development in The Netherlands—a place known for sustainable thinking, business performance and economics—and there is no one better than William McDonough + Partners. Our clients, like Bosch Siemens, agree. This is the best architect imaginable for their business.”

– Dr. Coert Zachariasse, CEO, Delta Development Group

## WHAT MAKES PARK 20|20 DIFFERENT?

William McDonough + Partners’ master plan is the paramount example of applying the Cradle to Cradle Design™ Framework and circular economy thinking to a community-scale development.

The plan is based on a few key principles that set it apart from a typical office park:

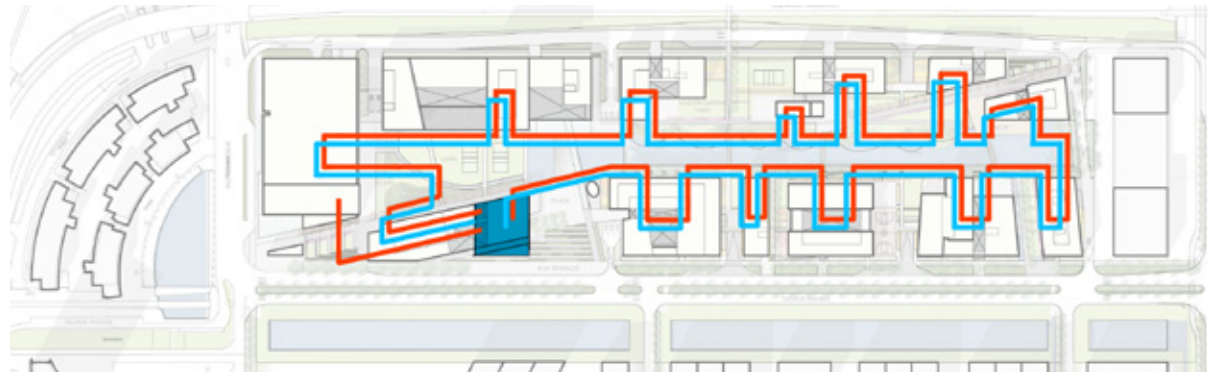
**The buildings are constructed as “material banks”** and are designed for disassembly or reconfiguration if market demand changes.

**Financial leases with material suppliers lower upfront construction costs**, which allow those suppliers to retain ownership of materials used in construction.

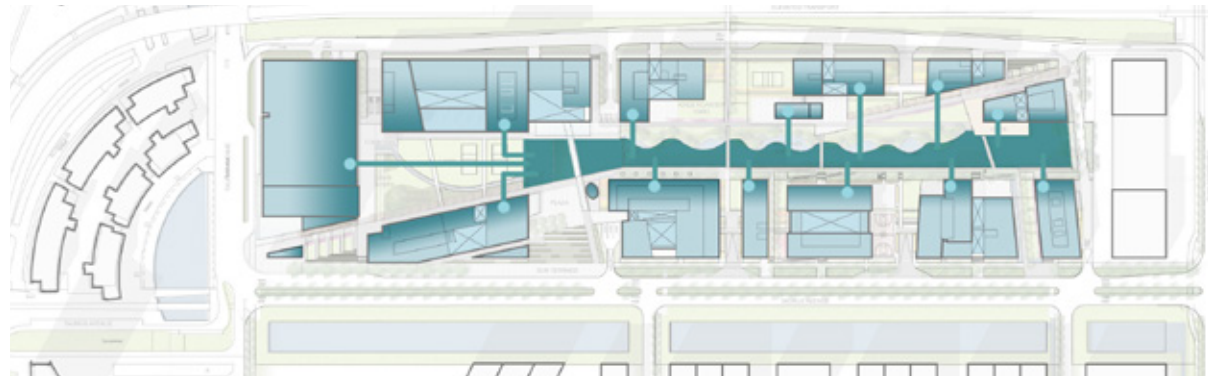
**The buildings are designed with flexibility in mind, anticipating the needs of future tenants.** Connections between floors can easily be changed and staircases repositioned, avoiding energy-intensive demolition processes to alter buildings’ purposes.

**Park 20|20 is the largest installation of Cradle to Cradle Certified™ materials worldwide.** An integrated supply chain has resulted in reduced construction costs of 19% while improving quality at the same time, according to Cradle to Cradle® and BREEAM-NL Standards. By focusing on procuring the highest quality that budgets allow, rather than the cheapest price for meeting the technical specifications, Park 20|20 embodies innovation.

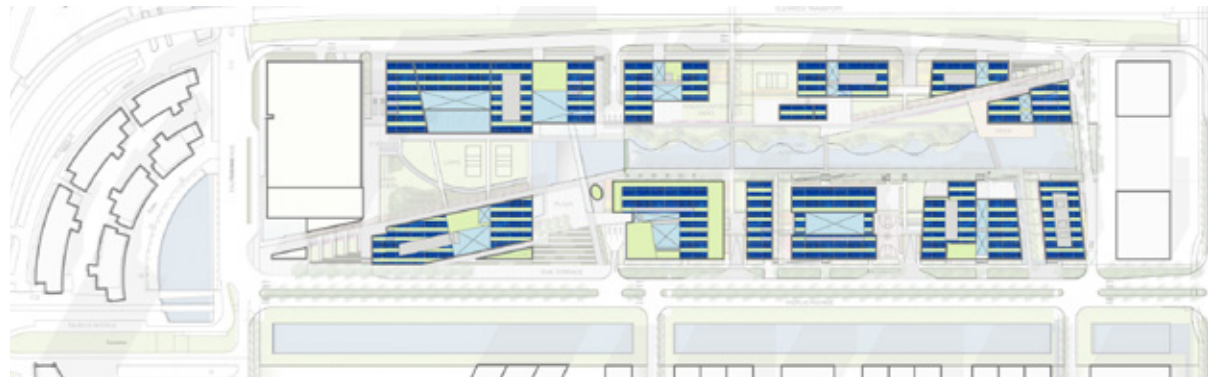
**Structures are designed as integrated systems.** While each building is unique, they are all designed to be supportive of William McDonough’s concept of “a building like a tree.” They generate energy, sequester water and through a central “nervous system” running through the entire community, the buildings “feed and nourish” each other as needed.



**Waste, Heat and Power**



**Stormwater and Waste Water**



**Photosynthetic Surfaces**

## PARK 20|20

### Integrated Systems

William McDonough + Partners' award-winning master plan creates a community of shared systems that serve as one big, live organism. While each building is unique, they are all designed to be supportive of William McDonough's concept of "a building like a tree." They generate energy, sequester water and through a central "nervous system" running through the entire community, the buildings "feed and nourish" each other as needed.

#### **Waste, Heat and Power**

Office wastewater and restaurant green wastes are treated in a solar aquatic waste-treatment system within a centralized facility on site. Biogas from the wastewater treatment powers the turbines for electricity. Heat generated in the process produces hot water for the hotel.

#### **Stormwater and Wastewater**

Wastewater is collected through a district loop for on-site treatment in the central facility. After purification, greywater is reused for toilet flushing. Green roofs absorb rainfall. Runoff and overflow are directed to on-site storage.

#### **Photosynthetic Surfaces**

Building roofs include photovoltaic (PV) arrays and green roofs—sustainable strategies that are also synergistic. With a cooler surface temperature, green roofs boost the efficiency of PVs while PVs provide shade to the landscape for increased biodiversity.





# PARK 20|20

## Cradle to Cradle Certified™ Products

	B/S/H/ INSPIRATION HOUSE	FOX VAKANTIES	BIOLOGICAL PAVILION	TECHNICAL PAVILION	FIFPRO	BLUEWATER	PLANTRONICS	NOW	PARK 20 20 LANDSCAPE
KEY: <span>●</span> BIOLOGICAL NUTRIENT <span>●</span> TECHNICAL NUTRIENT									
Accoya® Wood (certified gold)	<span>●</span>	<span>●</span>	<span>●</span>		<span>●</span>		<span>●</span>	<span>●</span>	<span>●</span>
Daas Baksteen Zeddam BV ClickBrick® (certified silver)	<span>●</span>	<span>●</span>			<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>
BB-Lightconcepts LED Lightpipe®System (certified bronze)	<span>●</span>	<span>●</span>		<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>
Espacio Solar DEPOSUN® Glass Top Sun Tube (certified silver)			<span>●</span>				<span>●</span>		<span>●</span>
RHEINZINK® Cladding (certified silver)		<span>●</span>	<span>●</span>		<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>
Alcoa, Inc. (certified bronze)			<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>
Excluton (certified silver)								<span>●</span>	<span>●</span>
Royal Dutch Bammens B.V. Waste Bin (certified basic)									<span>●</span>
Royal Mosa Floor and Wall Tiles (certified silver)	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	
Saint Gobain Gyproc (certified bronze)	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	
AGC Glass (certified silver)		<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>	<span>●</span>		

Matrix ©2018 William McDonough + Partners



# B/S/H (BOSCH SIEMENS)

## Inspiration House at Park 20|20

Hoofddorp, The Netherlands  
Completed 2011

**Client** Bosch Siemens Hausgeräte, a high-end appliance manufacturer

**Area** 8,348 gross square meters

**Program** A Netherlands headquarters and showroom; includes offices, café

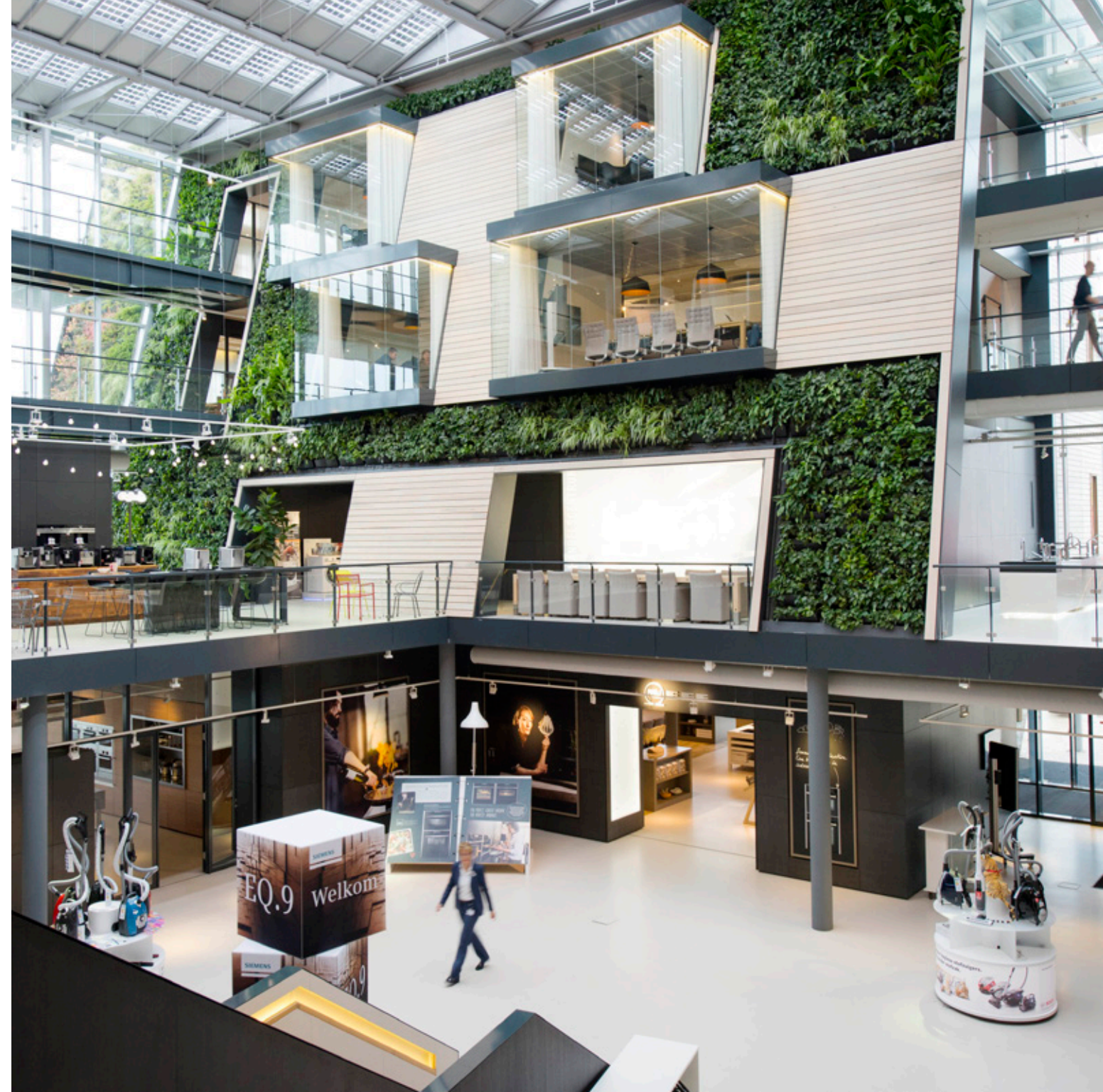
**Awards**  
BREEAM Good

Shaw Contract Design Is...Award 2012

**Team**  
William McDonough + Partners, Design Architect;  
KOW, Architect of Record; D/Dock Amsterdam,  
Interior Designer; Nelson Byrd Woltz, Landscape  
Architect; Techniplan Adviseurs BV, Civil and  
MEP Engineers; DGMR, Fire Engineer/BREEAM  
Consultant; Van Der Vorm Engineering, Structural  
Engineer; IBB Kondor, Contractor

Bosch Siemens Hausgeräte (B/S/H/) is home to five of the top brands in household appliances – Bosch, Siemens, Gaggenau, Neff and Solitaire – in the first building completed at Park 20|20.

Designed by William McDonough + Partners as a flexible, innovative workplace, B/S/H/ includes a full-height atria with a Living Green Wall and Building Integrated Photovoltaic (BIPV) roof that maximizes energy and daylighting to showrooms that can be converted to offices as needed. Interior spaces are designed to encourage occupant well-being through individual user controls, fresh air and sunlight, and materials assessments to ensure that safe and healthy products are used throughout the construction and use of the building.





# FOX VAKANTIES

## Office Building at Park 20|20

Hoofddorp, The Netherlands  
Completed 2012

**Client** Fox Vakanties, a Dutch eco-tourism agency

**Area** 3,678 square meters

**Program** Offices, café and interactive theater

### Awards

BREEAM Excellent

### Team

William McDonough + Partners, Design Architect;  
KOW, Architect of Record; Jos Bogaarts, Interior  
Architect

With a high design ambition, the office headquarters for Fox Vakanties occupies a prominent site at the entrance to Park 20|20 and embodies and colorfully celebrates both global and local diversity and cultures.

William McDonough + Partners' exuberant design is anchored by the company's "Travel Theater" with its undulating and sculptural folded fabric skin that becomes a glowing beacon at night.

The Fox Vakanties building dynamically responds to its site with a self-shading south mass and an open glass north facade with views toward the park. Interiors are designed to connect occupants to both each other and the world through equitably and sustainably sourced materials that are optimized for human and ecological health.





# FIFPRO

## World Headquarters at Park 20|20

Hoofddorp, The Netherlands  
Completed 2013

**Client** Delta Development Group / FifPro

**Area** 2,358 square meters

**Program** Offices, roof garden and event space, auditorium

### Awards

BREEAM Excellent

### Team

William McDonough + Partners, Design Architect;  
KOW, Architect of Record; Merkx + Girod, Interior Architect; Copijn, Landscape Architect; Van der Vorm Engineering, Structural Engineer; Installatie Advies Groep, MEP Engineers; DGMR, BREEAM Consultant; IBB Kondor, Contractor

As the worldwide representative union for all professional soccer players, FIFPro's global reach and the cultural diversity of its members have inspired a dynamic design from William McDonough + Partners.

Enveloped by a solar shade canopy, a monumental glass entry volume visually connects and activates interior public spaces on multiple floors while creating direct relationships with exterior gardens and park amenities. Abundant daylight penetrates deep into open, efficient and flexible floor plates with interiors that showcase the colors and materials of the world. Embodying the organization's mission to promote fair play, equality and solidarity among its international family of athletes, FIFPro's new home is a connective instrument of openness, transparency and responsive design, celebrating connectivity between global and local communities.





# NASA SUSTAINABILITY BASE

## NASA'S First Space Station on Earth

NASA Ames Research Center  
Mountain View, California  
Completed 2012

**Client** NASA Ames Research Center

**Area** 50,000 square feet

**Program** Open and closed office spaces,  
conference area, library and meeting space

### **Selected Awards**

Architectural Record, 2014 Good Design is Good  
Business Award

Acterra, 2013 Business Environmental Award

White House GreenGov Award 2011, Lean Clean  
and Green

ENR California, Best Projects of 2011, Award of  
Merit—Green Building

GSA Real Property 2010 Award for Green  
Innovation

### **Team**

William McDonough + Partners, Design Architect;  
AECOM, Architect of Record, MEP/Structural/  
Civil; Loisos + Ubbelohde, Daylighting/ Lighting /  
Energy Consultant; Siteworks Studio, Landscape  
Architect; MBDC, Materials Assessment

NASA engaged William McDonough + Partners to design Sustainability Base, its first new construction in 20+ years. The NASA team wanted to show how a federal facility, with a tight schedule and a conventional budget, could be a model of effectiveness and sustainability.

Sustainability Base is named in recognition of the kinship between it and the first off-planet human outpost on the moon, Tranquility Base. The facility has earned LEED® Platinum certification, among the first federal installations to do so. NASA is applying its expertise derived from aeronautics, information technology and space exploration to the built environment, using Sustainability Base as a living laboratory to develop methods and tools for understanding and controlling dynamic energy and water systems here on Earth.

“Working closely with Bill McDonough and his team was inspirational and extremely beneficial. The collaborative process yielded a highly sustainable and beautiful design—optimized for building performance and representative of our values.”

– Steven F. Zornetzer, Ph.D, NASA Ames Research Center, Associate Center Director





# NASA SUSTAINABILITY BASE

## High Performance Systems

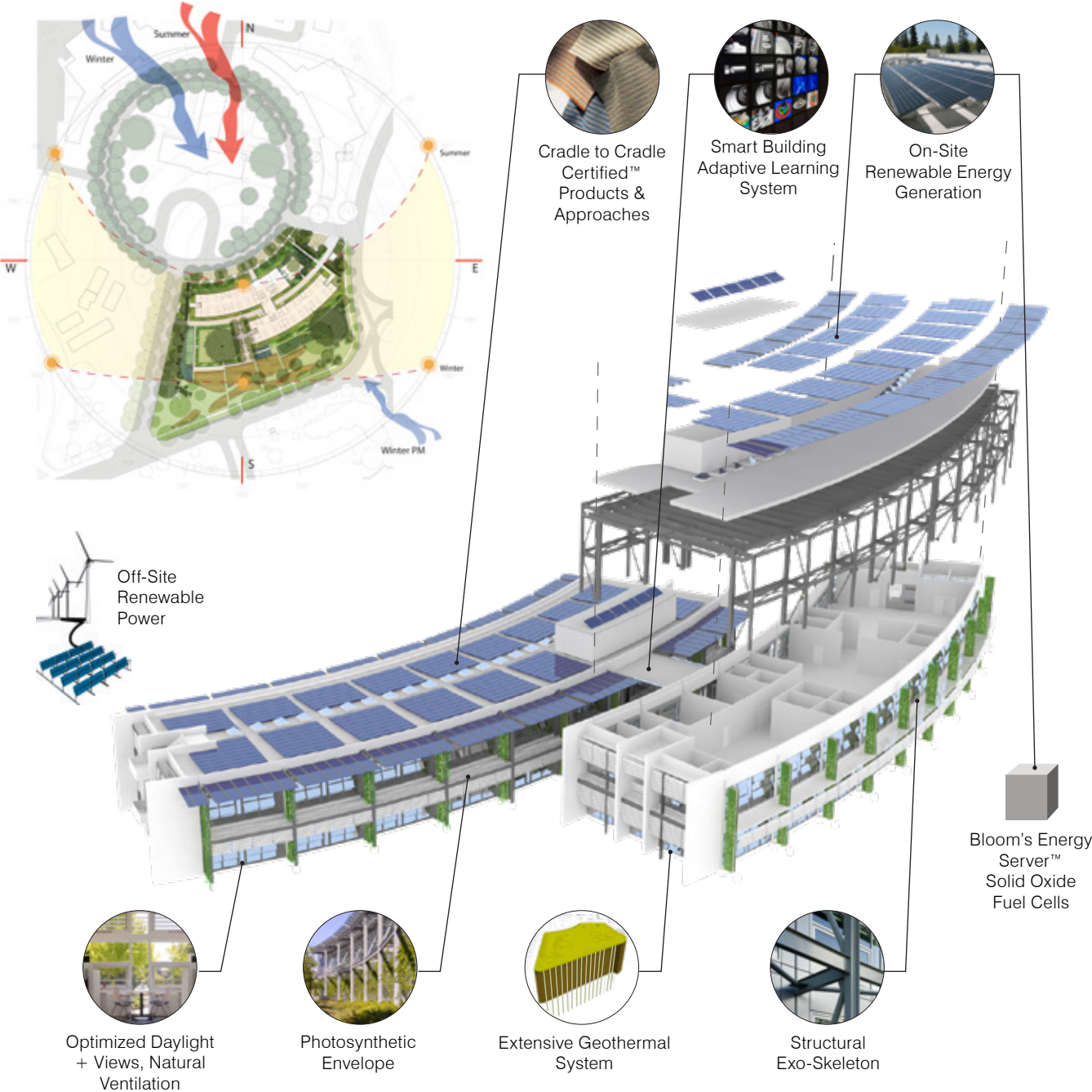
Sustainability Base benefits from integrated state-of-the-shelf, high-performance systems coupled with NASA's unparalleled expertise in experimentation, monitoring and optimization.

Sustainability Base effectively combines passive (hydronic geothermal) and active (heat exchangers, radiant ceiling tiles) heating/cooling and daylighting strategies to optimize energy use. The facility's two wings are offset to maximize natural ventilation from prevailing wind patterns. Intelligent, automated windows, window shades and efficient lighting modified by individually addressable ballasts, intensity pre-sets and integrated light sensors contribute layers of responsive optimization options.

On-site, a BloomBox® ES-5700 **produces more electricity than peak demand**. Roof-mounted SunPower® E-19 panels can produce 87kW, approximately 30% of annualized demand. Excess production is metered onto the local electrical grid at the Ames substation.

Over 2000 sensor 'points' report data, instantaneously or at intervals; ~1200 generate quantified information. Sustainability Base doubled the active sensor numbers for the entire Ames campus. Facilities managers use this data operationally and intelligent systems researchers access it to advance modeling, prediction, anomaly detection, failure anticipation and on-demand maintenance studies. **This scaled-up test bed is an economic engine for built environment technologies leading to autonomously 'smart' buildings for NASA and its commercial and academic partners.**

Inside, technology developed for the International Space Station recycles sink/shower greywater for toilet flushes. Outside, irrigation uses locally remediated Superfund-site groundwater. Overall, **Sustainability Base saves 90% of potable water over comparably sized facilities.**



# NASA SUSTAINABILITY BASE

## Materials Selection

A rigorous materials selection protocol was implemented during the design and construction of Sustainability Base. First, Cradle to Cradle Certified™ products were used when available, cost effective and achievable through a competitive, tender process. When certified products could not be implemented, alternative products were evaluated by MBDC for their Cradle to Cradle Certified™ potential.



Other material strategies included:

**Using materials effectively.** An external braced frame reduces the amount of steel (by weight) in the building and provides an armature for sunshading.

**Preferring materials beneficial to human health, ecological health and designed for technical and/or biological cycles.** When these materials were not available due to performance requirements, remaining materials were evaluated for obvious risks to the biosphere.

**Incorporating material content considerations** included recyclable/recycled materials, salvaged materials, locally available and/or rapidly renewable materials and certified wood. The main components of the design (concrete, steel, glass, aluminum) have high recycled content and are regionally available. The lobby areas reuse oak flooring from a transonic wind tunnel on the NASA Ames Campus.

**Designing for disassembly** by choosing a steel structure (rather than concrete) that can be easily dismantled as well as repaired after a seismic event. Exterior cladding was provided in pre-fabricated unitized components.

# NASA SUSTAINABILITY BASE

## Cradle to Cradle Certified™ Products



- Centria Dimension Series® panels (certified SILVER)
- Alcoa, Inc. Kawneer 1600 SunShade® louvers (certified SILVER)
- PPG Industries Solarban 70XL™ architectural glass (certified SILVER)
- Alcoa, Inc. Kawneer 1600 Wall System® (certified SILVER)
- Alcoa, Inc. Kawneer InLighten® Light Shelf (certified SILVER)
- Mechosystems, Inc. Mecho®/5 with EcoVeil (certified SILVER)
- Icestone® Durable Surface (certified GOLD)
- Herman Miller Mirra® chair (certified SILVER)



# NIKE

## European Headquarters

Hilversum, The Netherlands  
Completed 1999

**Client** Nike

**Area** Phase 1: 375,000 square feet  
Phase 2: 125,000 square feet (unbuilt)

**Awards**

AIA DC Award of Excellence, 2001

**Team**

William McDonough + Partners, Design Architect;  
B & D Architekten, Architect of Record; Nelson  
Byrd Woltz, Landscape Architect; John Bergs,  
Green Building Consultant

Nike has crafted one of the world's most readily recognizable corporate identities through its emphasis on world-class athletic performance. William McDonough + Partners furthered Nike's mission by bringing world-class innovation to the Nike European Headquarters.

Located within easy access to the train station and the city, the site was once a former harness track and Olympic training ground. The new campus continues the tradition of physical excellence through incorporation of a jogging track that bridges the entry doors, a central pond that becomes an ice rink in the winter and numerous athletic fields and courts. The campus's quartet of office buildings with parking below and the commons building surround a large central public lawn which includes one of the largest rainwater collection systems in Europe.

The flexible, adaptable workplace, designed to convert to housing in the future, includes strong connections to the outdoors through daylighting, natural ventilation, and access to views. Employee health is further optimized through the use of low-VOC finishes in a virtually PVC-free environment. Renewable energy sources provide 30 percent of the total supply, due in large part to one of northern Europe's largest geothermal heating and cooling systems. Designed and built on a rapid schedule, the project offers a model of effective resource management, community connection, long-term flexibility and aesthetic appeal while reflecting its tenants' commitment to corporate social responsibility.



“Bill McDonough is a pioneer and leader in the development of sustainable design and architecture and continues to inspire others with his ideas. Nike looks forward to continuing to share ideas collaboratively as we move toward creating a more sustainable future together.”

– Hannah Jones, Vice President , Sustainable Business and Innovation, Nike Inc.



# DROPBOX

## Headquarters

San Francisco, California  
Completed 2017

**Client** Kilroy Realty

**Area** 180,000 square feet

**Program** Mixed-use commercial offices

### Awards

LEED Platinum Certified

### Team

William McDonough + Partners, Design Architect;  
Loisos + Ubbelohde, Architecture & Energy  
Consultant; Rana Creek, Landscape Architect;  
WSP, MEP Engineer; Nishkian Menninger,  
Structural Engineer; Sandis, Civil Engineer;  
Charles M. Salter Associates, Acoustics / AV  
/ Telecommunications; Swinerton Builders,  
Contractor

William McDonough + Partners designed 333 Brannan, Dropbox headquarters, to be resource effective, to support human and ecological health, and to respect the South of Market historic district character.

Inspired by Cradle to Cradle®, this LEED® Platinum certified building features large, highly flexible, open office floors configured around a central court. The design allows for ample natural light into the office areas and for passive ventilation through closely spaced operable exterior windows. Courtyards at the front entry on Brannan Street and on the Stanford alley are richly landscaped spaces open and available to the neighborhood. The exterior of the building combines brick, high-performance glazing, metal sunshades and exposed concrete that are in visual harmony with the surrounding historically industrial neighborhood.





# MEADOW FARM

## Organic Farm and Residence

Northern California  
Completed 2013

**Area** 5,800 sq ft

**Program** Organic farm and private residence

### Awards

LEED Platinum Certified

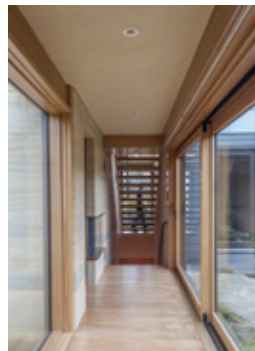
### Team

William McDonough + Partners, Architect;  
Carla Carstens, Interior Design; Bernard Trainor  
+ Associates, Landscape Architect; Tipping  
Structural Engineers, Structural; Timmons Design  
Engineers, MEP; Sherwood Design Engineers,  
Civil; Horton Lees Brogden, Lighting Designer;  
Davis Energy, LEED Consultant; Green Building  
Specialist, Inc. LEED Consultant

A deep connection to place is achieved using gently curved roofs echoing local topography and rammed earth walls constructed of site-sourced soil.

William McDonough + Partners collaborated with the client to develop a vision for an organic farm and residence inspired by and rooted in its place. The site is designed to transition from a cultivated to a native landscape, from orchards and garden to meadow and coastal live oaks.

The main house, located at the intersection of structured and native landscape, is a series of pavilions with rolling zinc roofs that echo waves and wind patterns coming off the ocean just visible from the property. Striated color patterns in rammed earth walls extrapolate the gentle curve of existing site topography. The farm is a net energy exporter and includes comprehensive rainwater and graywater harvesting. The project is LEED Platinum certified and is a pilot project in the Sustainable Sites Initiative™ (SITES™).





# FORD MOTOR COMPANY

## Ford River Rouge

Dearborn, Michigan  
Completed 2003

**Client** Ford Motor Company

**Area** 1,300,000 square feet

### Awards

AIA Michigan Sustainable Design Award, 2003

ASLA Michigan Honor Award, 2003

### Team

William McDonough + Partners, Design Architect;  
Arcadis Giffels, Architect of Record, Civil MEP  
and Structural Engineers; Walbridge Aldinger,  
Construction Manager

William McDonough + Partners led the master planning and revitalization of this historic site and facility. The ambitious 20-year plan pioneered strategies and technologies for brownfield redevelopment, sustainable industry, corporate citizenship and environmental regeneration. The new master plan integrated a new form of stormwater management infrastructure that saved the company \$35 million in capital costs over conventional systems. At the heart of the new system lies a 10.5-acre living roof—the world’s largest green roof installation at the time.

By relying on a landscape-based infrastructure requiring a minimum use of pipes, the new stormwater system cost less than one-third that of conventional practices, and created a powerful and highly-acclaimed business case model for sustainable design. The natural stormwater system also created new and revived habitats on the site for native birds, butterflies, insects and microorganisms, generating a larger biological order.

The Ford Rouge Center has won numerous awards from the design, business and construction industries. It is now recognized as having the one of the most iconic green roof installations in the United States which helped to transform the green roof industry.

“Ford Motor Company’s River Rouge facility has been transformed from an icon of the industrial revolution to a model of 21st century sustainable development.”

— William C. Ford, President, Ford Motor Company





# FORD RIVER ROUGE

## Visitor Experience

Conceived as both an extension and an integral component of the industrial landscape, this LEED Gold certified visitor center supports a key goal of the 20-year revitalization of the historic Rouge complex - the restoration of public access to a site that hosted hundreds of thousands of visitors from 1924 to 1980.

A three-sided glass observation platform rises above the roof, offering visitors a panoramic view of the 10.4-acre green roof installation on the adjacent assembly plant. Solar thermal panels in the entry plaza produce the building's hot water. Roof-mounted photovoltaic panels and a translucent PV array on the entry canopy convert sunlight into energy. The surrounding landscape embodies the same commitment to environmental design with its crab-apple orchard, apiary, bioswale system and a 40-foot high vegetated trellis around the building perimeter.



# FORD RIVER ROUGE

## Habitat Restoration

A green roof was the most compelling solution to the stormwater problem at the Rouge. The idea made intuitive sense: The soils and grasses that comprise functional living roofs absorb water just like the soil and plants in a healthy landscape.

Within five days of the roof going down, local killdeer had nested and laid their eggs in the sedum. Turns out that those who had said a 10-acre green roof was 'for the birds' were right after all.





# HERO MOTOCORP | NEEMRANA FACTORY

The Garden Factory™

Neemrana, India  
Completed 2014

**Client** Hero MotoCorp

**Factory Area** 62,599 square meters (Phase One)

**Global Parts Area** 22,444 square meters

**Program** Factory and global parts center

**Awards**

Platinum Rating from the Indian Green Building Council

**Team**

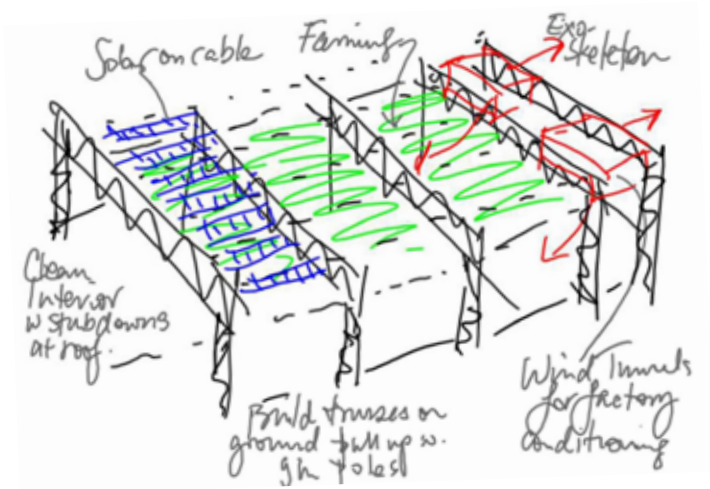
William McDonough + Partners, Design Architect;  
SEMAC, Executive Architects and Engineers;  
Arup, Structural Concepts; Integral Designs,  
Landscape Consultants; WEI, Air Distribution and  
Cooling Engineering; WSP, Energy and Water  
Concepts; JLL, Construction Management

## What if a factory could be a garden of health and productivity?

With its Garden Factory™, Hero demonstrates how a manufacturing facility can be a healthy workplace and enhance the local economy.

Achieving a Platinum Rating from the Indian Green Building Council, the factory is designed to support Hero's product manufacturing, optimize productivity and create a healthy work environment:

- capturing water from the air
- producing fresh air/oxygen
- channeling carbon dioxide into soil for plants
- growing fresh food
- creating jobs on the roof
- harvesting clean energy
- providing heating and cooling



Concept sketch by William McDonough.  
Garden Factory™ is a trademark of  
William McDonough + Partners.



## A BUILDING DESIGNED FOR ENDLESS POSSIBILITIES

The **factory's roof is supported from above**, freeing the interior space for current manufacturing tools and equipment and providing flexibility for future technologies and innovations.



# HERO MOTOCORP | NEEMRANA FACTORY

## On the Roof: Renewable Energy and Food Production

Rows of greenhouses alternate with rows of photovoltaic panels, providing clean power, supporting experimentation in hydroponic food production and supplying fresh food grown on site to the canteen. In the long term it is envisioned the food grown on the roof will supply the surrounding community.





# HERO MOTOCORP | NEEMRANA FACTORY

A large **interior vegetated wall** serves as an air purification system that filters contaminants from the air and produces oxygen. A **cooling coil condenses water from the air** to irrigate the rooftop vegetation and interior biowalls, helping to conserve the precious water resources of India. **Skylights and eye-level windows** optimize energy use by flooding the factory floor, break rooms and a company canteen with natural, glare-free light during daylight hours.





# RESEARCH AND INNOVATION CENTER

Solar Orchard Concept | Net-Positive Energy

The Netherlands  
Conceptual Design Complete

**Client** Delta Development / Fortune 500  
Company (name withheld)

**Area** 18,500 square meters

**Program** R&D facility, offices

## Team

William McDonough + Partners, Design Architect



Designed to embody Cradle to Cradle Design™ for the Circular Economy, the Research and Innovation Center allows for adaption and resiliency. The Center focuses on enhancing connectivity not just between occupants and visitors but also between people and the natural world.

Through a central “Hub,” The Center seeks to connect and facilitate collaboration at multiple scales, providing direct visual and physical connectivity internally and externally toward the campus. The building connects the research and innovation laboratories, which provide flexible spaces for work, experimentation and growth.

Premised as a structure that is energy and water positive, creating more than is needed to operate, the Center embodies the idea of “A Building Like a Tree.” A rooftop Solar Orchard optimizes the roof area for harvesting solar-derived energy while also integrating greenhouse space. Through a linear skylight in the atrium, a solar path of daylight lights the procession from the building entry and to the gardens beyond.









# METHOD HOME

## South Side Soapbox

Chicago, Illinois  
Completed 2015

**Client** Method

**Area** 150,000 square feet

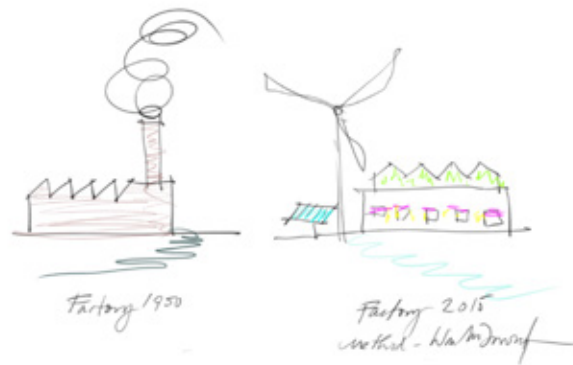
**Program** factory, offices, rooftop greenhouses

### Awards

LEED Platinum Certified

### Team

William McDonough + Partners, Design Architect; Summit Design + Build, LLC, Contractor; Heitman Architects Incorporated, Architect of Record; KJWW, Structural and MEP Engineers; Spaceco, Inc., Civil Engineers; Norris Design, Landscape Architects; Buro Happold, Renewable Energy Consultant; MBDC, Healthy Material Assessments; Gotham Greens, Rooftop Greenhouses; Nexus, Greenhouse Manufacturer/Installer; Envision, Solar



Method’s manufacturing home is a clean home—using clean energy, water and materials to create innovative household products.

The first factory opening in the South Side of Chicago in nearly 30 years, Method Home: The South Side Soapbox sought to redefine the historic Pullman District community. Designed to be part of a future mixed-use development, Method envisioned employees living nearby, the building providing daylighting to maximize employees’ connection to nature and allowing visitors to look in through large windows and utilize the “front yard” as a park.

The front has colorful, welcoming awnings that serve as sun shades to help regulate heating and cooling needs. The 150,000 sf manufacturing facility was designed to epitomize Method’s commitment to the environment and community well-being, while still maintaining a competitive budget. The rooftop greenhouse, the largest in the world at 75,000 sf, provides fresh greens to the area, previously referred to as a “food desert.” The urban greenhouse was incorporated with the purpose of creating buildings modeled on natural processes through industrial agriculture.

The first LEED® Platinum manufacturing facility in its industry, The South Side Soapbox relies on a refurbished on-site wind turbine for 50% of its energy supplemented by solar trees that track the sun and provide hot water to office sinks and showers. These additions signal Method’s commitment to sustainability in ways that are both symbolic and substantive.

“Method is built from a belief that business should play a leading role in creating good society. William McDonough helped us translate that set of values into principles that we would manifest in the building. Design, as McDonough would say, is the first signal of human intention. This building is a signal of Method’s intention to be part of a positive future.”

– Adam Lowry, Co-Founder, Method





# ICEhouse™ DAVOS

## Innovation for the Circular Economy

Davos, Switzerland  
January 2016, 2017, 2018, 2019

**Client** Hub Culture with support from SABIC

**Area** 90 square meters

**Program** Meeting Space

### Team

William McDonough, concept; William McDonough + Partners, Design Architect; WonderFrame, LLC, Builder; SABIC, Cladding Material Supplier

William McDonough + Partners and McDonough Innovation showcased a new structure in conjunction with the 2016 World Economic Forum Annual Meeting in Davos. Commissioned by Hub Culture with support from SABIC. The ICEhouse™ is an adaptable and reusable building inspired by the positive design framework described in *Cradle to Cradle: Remaking the Way We Make Things*, the Sustainable Development Goals of the United Nations and the reuse of resources implicit in the circular economy. The same structure has been used annually in Davos as an official meeting space since 2017.

ICEhouse™ is designed to offer visitors to Davos a curiosity of the opportunities of WonderFrame™. This special Davos pavilion is made of technical materials (polymers, aluminum and aerogel) which will be returned to industry at the end of their use cycle as part of this building. These elements can be endlessly used, reused or recycled in new products across generations.





# UNIVERSIDAD EAN

## Cradle to Cradle Design™-Inspired Building

Bogotá, Colombia  
In Construction

**Client** Universidad EAN

**Area** 20,000 square meters

**Program** laboratories, classrooms, administrative offices, seminar rooms, a cafeteria, indoor basketball court, exercise gymnasium, and an auditorium seating 500 people

### Team

William McDonough + Partners, Design Architect; AIA, Executive Architect; PAYC, Construction Manager; Acustec, Acoustic Design; ADRAR, Plumbing; AGR, Codes; Aqualab, Laboratory; EIG, C2C products; Gaia, Landscape; GBCG, HVAC/Electrical; MTS, Lighting; PyP Proyectos, Structural; SES, Energy Model; SETRI, LEED

Aptly referred to as “Project Legacy,” the new 20,000 square meter building for Universidad EAN (UEAN) will illustrate the possibilities of Design for the Circular Economy™, with a focus on the Latin American construction sector, and starting with Colombia.

The most prominent feature of the building is the McDonough-designed WonderFrame™ shade structure. The UEAN WonderFrame screen is clad with multi-colored perforated panels, metaphorically invoking tree leaves. These triangular panels provide shade while simultaneously admitting daylight, demonstrating both material and energy efficiency. Covering roughly 85% of the façade, the WonderFrame will stand as the largest installation of this modular building system to date. Window glazing was chosen for energy effectiveness as well as high acoustic control.

Natural ventilation for the new building will be aided through solar chimneys, which draw air through the building and exhaust it at the roof. Operable windows will be featured on all façades. The building will be one of the first to implement a new verification protocol for engineered natural ventilation systems in Equatorial Climates, developed by Bogotá-based environmental engineering consultants (and design team members) for the Colombia Green Building Council to standardize the use of natural ventilation as a LEED energy effectiveness strategy. This new protocol has been accepted by the U.S. Green Building Council as an Alternative Compliance Path toward the achievement of energy credits within the LEED rating system.

“It’s not a building that could be in any city. It doesn’t look like a building you’ve seen before, because it’s a celebration of the colorful expression of the students and faculty of a place that will experiment constantly with surprise and delight.”

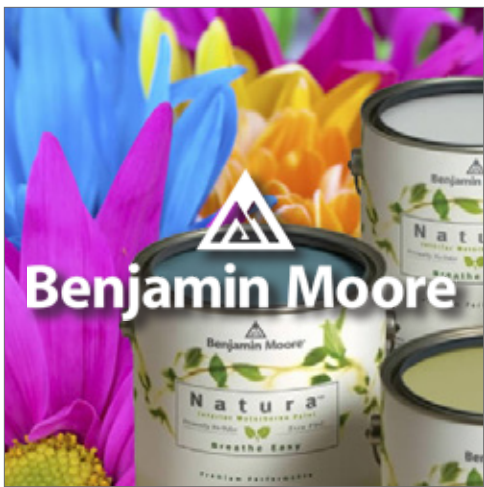
—William McDonough





The creators and foremost implementers of the  
Cradle to Cradle Certified™ Products Program





## MBDC

Cradle to Cradle® Assessment and Leadership

Founded in 1995 by William McDonough and chemist Michael Braungart, MBDC has been advocating for endlessly resourceful Cradle to Cradle approaches, working with companies to intentionally design products which eliminate the concept of waste, use clean energy, value clean water and celebrate diversity.

MBDC's services help clients understand and implement the Cradle to Cradle Design™ Framework on multiple levels, from materials and products to packaging and corporate leadership:



### We are leaders in Material Health Assessments

Our chemists have been providing material and product assessments, down to the parts per million, for over two decades.

### We developed the Cradle to Cradle Design Framework

We have inspired and guided companies around the world to remake the way they make things.

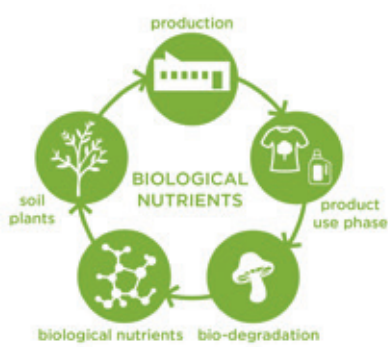
### We created the Cradle to Cradle Certified™ Products Program

We conceived the Cradle to Cradle Certified Product Standard and is now administered by the Cradle to Cradle Products Innovation Institute to make it available to the public as an independent, third-party, peer-reviewed program in order to spur innovation on a global scale.

# CRADLE TO CRADLE

In their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*, architect William McDonough and chemist Michael Braungart presented a science-based design framework that eliminates the concept of waste and provides enduring benefits for society, from safe materials and circular economies to clean air, water and energy.

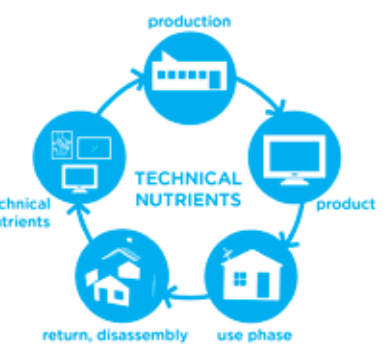
The book put forward a design framework characterized by three principles derived from nature:



**Everything is a resource for something else.** In nature, the “waste” of one system becomes food for another. Everything can be designed to be disassembled and safely returned to the soil as **BIOLOGICAL NUTRIENTS**, or reutilized as high-quality materials for new products as **TECHNICAL NUTRIENTS** without contamination.

**Use clean and renewable energy.** Living things thrive on the energy of current solar income. Similarly, human constructs can utilize clean and renewable energy in many forms—such as solar, wind, geothermal, gravitational energy and other energy systems being developed today—thereby capitalizing on these abundant resources while supporting human and environmental health.

**Celebrate diversity.** Around the world, geology, hydrology, photosynthesis and nutrient cycling, adapted to locale, yield an astonishing diversity of natural and cultural life. Designs that respond to the challenges and opportunities offered by each place fit elegantly and effectively into their own niches.



diagrams ©1995-2020 MBDC, LLC.

Rather than seeking to minimize the harm we inflict, *Cradle to Cradle* reframes design as a positive, regenerative force—one that creates footprints to delight in, not lament. This paradigm shift reveals opportunities to improve quality, increase value and spur innovation. It inspires us to constantly seek improvement in our designs, and to share our discoveries with others.

# WHAT IS CRADLE TO CRADLE CERTIFIED™?

The Cradle to Cradle Certified™ Products Program is becoming a globally recognized “gold standard,” science-based quality certification. It acknowledges continuous improvement and innovation of products and processes toward the goal of being not just “less bad” but also “more good” for people and the planet.

The certification program is based on the Cradle to Cradle Design™ framework and methodology, which has been developed and implemented by MBDC over the past two decades. MBDC created the certification program in 2005 to recognize achievement in applying Cradle to Cradle Design principles. In 2009, William McDonough co-founded the Cradle to Cradle Products Innovation Institute, which now administers the program and manages the Product Standard as a third-party, nonprofit organization.



PRODUCTS PROGRAM
PLATINUM
GOLD
SILVER
BRONZE
BASIC

## Cradle to Cradle Certified™ Products

Products or materials from any industry or country are eligible to apply for certification. Since the program began in 2005, more than 150 companies from over 15 countries have participated in the Cradle to Cradle Certified™ Products Program. The Institute has issued over 475 certificates covering more than 8,000 certified products in a variety of categories, including building materials, interior design products, textiles, fabrics, cosmetics, home care products, paper, packaging and polymers.

## Levels of Achievement

The Cradle to Cradle Design framework has outlined a vision to guide product design and manufacturing, and the certification program recognizes multiple levels of achievement toward that vision. Under Version 3 of the program, there are five levels of product certification: Basic, Bronze, Silver, Gold, Platinum. In order to be certified at a certain level, a product must meet the minimum criteria for that level in all five criteria categories. The criteria in each category becoming increasingly demanding with each level of certification.



# THE PRODUCT STANDARD

The Cradle to Cradle Certified™ Product Standard takes a comprehensive approach to evaluating the design of a product, the practices employed in manufacturing the product, and its potential use and reuse.

The Cradle to Cradle Certified™ Product Standard is managed and updated by the Cradle to Cradle Products Innovation Institute’s Certification Standards Board. Products are assessed in five categories:



**Material Health (Biological and Technical Metabolisms)**  
Product ingredients are inventoried throughout the supply chain and evaluated for impacts to human and ecological health. The criteria at each level build toward the expectation of eliminating all toxic and unidentified chemicals and becoming nutrients for safe, continuous cycling.



**Circular Economy: Material Reutilization**  
Products are designed to either biodegrade safely as a biological nutrient or to be recycled into new products as a technical nutrient. At each level continued progress must be made toward increasing the recovery of materials and keeping them in continuous flows.



**Renewable Energy & Carbon Management**  
The criteria at each level progress toward the goal of completely carbon-neutral manufacturing operations that are powered with 100% renewable energy.



**Water Stewardship**  
Manufacturing processes are designed to regard water as a precious resource for all living things and at each level progress is made toward the goal of all effluent being clean enough to drink.



**Social Fairness**  
Company operations are designed to celebrate all people and natural systems and progress is made toward the goal of having a wholly beneficial impact on the planet.

# THE UPCYCLE CHART INNOVATION + CONTINUOUS IMPROVEMENT

Products are often described as **goods**. MBDC designs and assesses products to make sure they actually are through its unique approach to innovation and continuous improvement:

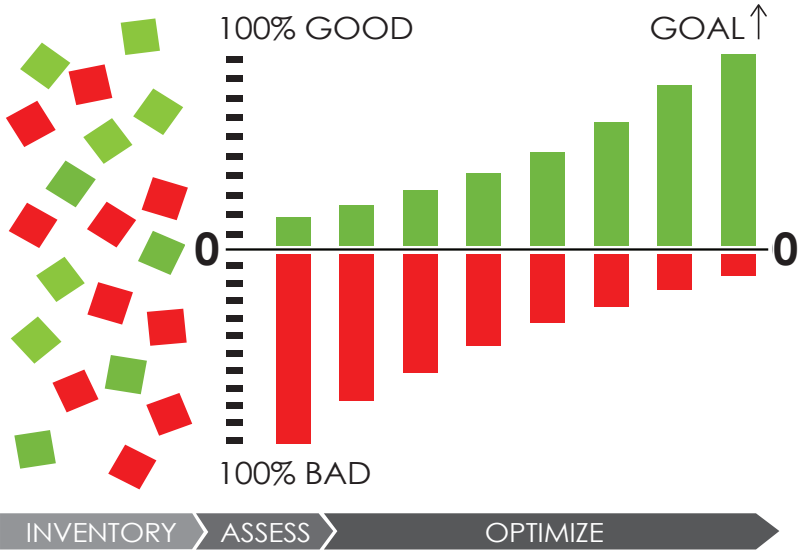
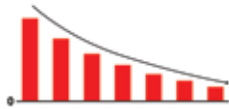
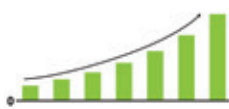


diagram ©2010 MBDC, LLC.

**The Upcycle Chart**  
Enables our clients to **1) inventory, 2) assess** and then **3) optimize** products, processes and systems with positive intentions and beneficial goals.



Industry can do better than conventional, eco-efficient approaches which seek to reduce or minimize damage and typically portray reducing a negative footprint.



By adding eco-effective approaches and integrating positively defined goals based on Cradle to Cradle® values and principles, we are able to direct innovation in a coherent and positive trajectory.

# BENEFITS OF CRADLE TO CRADLE CERTIFIED™

Cradle to Cradle Certified™, created by MBDC, is more than a recognized mark of product quality; it is a process that leads companies to make better products, better companies and better communities.

## Results of the Certification Process

- **Benchmarking of a product's design** for safety to human and environmental health, sustainability of manufacturing processes and future use cycles
- **Defined trajectory for optimizing product design** and manufacturing processes
- **Expert evaluations** of product ingredients throughout the supply chain for toxicity hazards and risks in context of use
- **Third-party assessments** that can provide data to verify claims about your products, to meet regulations or to contribute to other certifications

## Advantages of the Cradle to Cradle Certified™ Products Program

- **Joining a community of innovative companies** that make certified quality products and use the power of business to provide social and environmental benefits in the circular economy
- **Use of the Cradle to Cradle Certified™ marks** on product packaging and marketing materials to indicate commitment to continuous improvement and total quality
- **Recognition in green building certification programs** (USGBC's LEED V4 Rating System, BREEAM-NL 2014 v1.0) and preference for use in certain Cradle to Cradle®-inspired buildings, communities and developments.
- **Becoming “products of choice”** for numerous environmentally preferable purchasing programs

# GETTING CERTIFIED

MBDC has decades of experience working throughout the supply chain to collect formulations, and evaluate product and manufacturing data to meet the requirements. MBDC supports and advises clients throughout the entire process.





# INVENTORY + ASSESSMENT + OPTIMIZATION

MBDC has been providing material and product analysis, down to the parts per million, for over two decades. We are an internationally recognized authority on material health and product optimization.

In addition to providing Assessments for the Cradle to Cradle Certified™ Products Program, our services include:

## Material Health Assessments

The MBDC Material Health Assessment (MHA) is based on the Material Assessment Methodology published as part of the Cradle to Cradle Certified Products Program. It goes beyond a simple supplier declaration of ingredients, to provide an in-depth, detailed report covering homogeneous materials inventoried to 100 parts per million and assessed for toxicity to human and environmental health. The report details the presence of hazardous materials; chemicals known to be carcinogens, mutagens or reproductive toxins; endocrine disrupters and any incomplete data.

## Product Screens

MBDC's product screens evaluate products for their potential for becoming Cradle to Cradle Certified™ and can provide valuable guidance in selecting and procuring materials from several potential suppliers for use in the built environment.

## Product Optimization

MBDC will analyze the results of a product inventory and assessment and guide you to improve product design and manufacturing operations to minimize negative impacts, optimize positive impacts and work toward being 100% good for people, planet and profits.

For any new or existing product or packaging design, MBDC can help you rethink and redesign it using the Cradle to Cradle Design™ Framework, select optimal materials, and plan for the future use cycles for the component materials.

# CRADLE TO CRADLE® TRAINING

MBDC conducts inspiring, value-added, actionable workshops worldwide on applying the Cradle to Cradle Design™ Framework and The Upcycle Chart to business audiences.

MBDC also facilitates hands-on design workshops where design teams work in groups to apply the Cradle to Cradle Design principles to real world product designs. The workshops can be tailored to suit your organization's needs. Corporate environmental and sustainability programs can be mapped using the proprietary Upcycle Chart to help identify additional value-added opportunities.

In the early 2000s, following a keynote speech given by William McDonough, MBDC hosted a Cradle to Cradle workshop for the executives of Steelcase, Inc. Inspired by the concepts presented at these events, Steelcase invited a project manager from MBDC to join Steelcase's design team on the development of a new chair which would be a technical nutrient - designed to be easily disassembled with common hand tools and able to be returned for remanufacturing and endless reuse. The resulting product was the Think® chair, launched in 2004 as the first product to become Cradle to Cradle Certified™. Think became a global best seller, and one of the company's most popular selling products.



“The relationship forged with MBDC has been a potent catalyst for inspiration and innovation. Simply stated, the things we’ve learned as a result of our early relationship with [MBDC] have driven us to become a more sustainable, innovative, fit and relevant company. It has changed us, and continues to change us, profoundly and for the better.” –Steelcase





## L'ORÉAL BIOLAGE R.A.W.

Ensured all ingredients pose no human or environmental health risks so that the product can safely return to nature.

“We are extremely proud of this Cradle to Cradle certification because it exemplifies how our Sharing Beauty With All sustainability program encompasses every aspect of our product's value chain, from formulation to packaging and production.”

—Jonathan Maher, VP of Corporate Social Responsibility & Sustainability, L'Oréal



PLATINUM

Achieved Platinum level - the **highest level in the Cradle to Cradle Certified™ Products Program**.



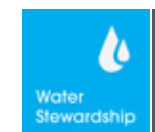
GOLD

Designed a true biological nutrient product with a **fully optimized formula** made from over **99% biodegradable materials**.



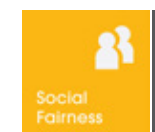
GOLD

Instituted a program to produce Biolage R.A.W. products from **100% renewable power**.



SILVER

Assessed and partially **optimized water treatment chemicals** for on-site management of manufacturing process water.



GOLD

Completed a **social fairness screen for all tier one suppliers** and a **UN Global Compact self assessment** of management, human rights, labor, environment and anti-corruption practices.





“Obtaining external verification from MBDC reinforces the work we’re doing to make our products safe for people and the environment, and it reflects our authentic mission of sustainability at a time when many companies talk about being green.”

—Adam Lowry, Co-founder, Method



## METHOD

### 92% of Method’s product line is Cradle to Cradle Certified™

Adopting the Cradle to Cradle Design™ philosophy holistically, Method partnered with William McDonough + Partners to design their innovative manufacturing facility: The Southside Soapbox and now has 92% of their product lines Cradle to Cradle Certified™.



PLATINUM

In 2017 Method was able to develop a formula to remove an X-assessed preservative, moving them from **SILVER to PLATINUM** in this category.



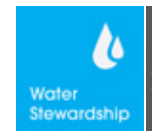
GOLD

**All ingredients** in the hand soap are **safe for biological systems**.



GOLD

**100% of energy use is offset with RECs.**



GOLD

Assessed on-site management of manufacturing process water and verified that all X-assessed **chemicals have been eliminated from effluent**.



GOLD

As a **Certified B Corp**, Method has met rigorous standards of social / environmental performance, accountability and transparency.





## HENRY ROSE + IFF

### First 100% transparent fine fragrance

“I set out to see if it was possible to develop a line of fine fragrances providing you don’t need to sacrifice quality and sophistication for safety. And we did it!” —*Michelle Pfeiffer, Founder, Henry Rose*

“This collaboration between Cradle to Cradle [chemists at MBDC], the Environmental Working Group is unprecedented. Not only have we broken new ground with our product — the first fine fragrance that is 100 percent transparent with its ingredients — but environmentalists and the fragrance industry were able to reach across the aisle to work together towards a common goal: creating a product that is safer for humans and the planet.” —*Melina Polly, CEO, Henry Rose*



PLATINUM

**Fragrance achieved Platinum level** due to being free of molecules likely to cause allergic reactions as well as any ingredients on the Cradle to Cradle banned list



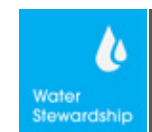
GOLD

Henry Rose is created to **safely biodegrade in natural systems**, while bottles are made from **90% recycled glass**, which is also recyclable, alongside compostable caps



GOLD

IFF carbon reduction strategy focuses on increasing the amount of renewable energy purchased including working to procure more than **75% of electricity from clean, renewable sources** by 2025



GOLD

IFF **reduced water use in manufacturing processes by 66%** between 2010 and 2018



GOLD

Henry Rose **donated a portion of proceeds to farming families** in Haiti as part of a partnership with Heifer International



## C&A

Real-life example of how rigorously sustainable clothing that can return to nature and can also be accessibly priced.

“What we really need is other brands to go down the same path and to recognize that Cradle to Cradle Certification™ is really one of the most well-thought-through, holistic, third-party, peer-reviewed standards for the circular economy.”

—Jeffrey Hogue, Global Chief Sustainability Officer, C&A



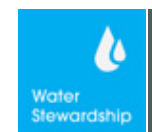
Achieved Platinum level - the **highest level in the Cradle to Cradle Certified™ Products Program.**



T-shirts are **recyclable** and can be **composted** - returned to healthy soil in about 12 weeks - at the end of their useful lives.



C&A purchased **offsets for 50% of purchased electricity and CO2 emissions** related to the t-shirt production.



**All effluent is filtered.** The only water imported from the local watershed is for drinking and utility purposes, as well as to compensate for process losses.



Both factories where the t-shirts are produced have impressive and **innovative social fairness initiatives and projects.**





#WearTheChange  
CRADLE TO CRADLE CERTIFIED™ GOLD



## C&A

# First Cradle to Cradle Certified™ Gold jeans.

MBDC worked closely with C&A, their supply chain, Fashion for Good and other assessors – Eco Intelligent Growth (EIG) and EPEA Switzerland – to address challenges in designing such a complex product. The process included evaluating and optimizing the garment for human and environmental health, recyclability and biodegradability, renewable energy use and carbon management, water stewardship and social fairness.

Designed in partnership with Fashion for Good, an open-source initiative co-founded by William McDonough, that supports the transformation of apparel culture toward a circular economy, C&A's new Cradle to Cradle Certified™ denim garment release is accompanied by the toolkit *Developing Cradle to Cradle Certified™ Jeans*. This toolkit includes concrete solutions on how to approach



complex products and projects, such as jeans, which contain multiple technical and biological nutrient components (from thread to zipper) to reach product certification at the Gold level.



“This collaboration has shown that ecologically intelligent design can help achieve multiple goals in an effort to move beyond the competition...will show that Cradle to Cradle® solutions are possible and profitable.”

—Steve Bradfield, Corporate Director of Environmental Affairs for Shaw Industries

**A Walk In The Garden**  
a collaboration with William McDonough

## SHAW CONTRACT GROUP

Shaw’s “We Want It Back” program results in a 10% savings from storing raw materials on customers’ floor for reclamation (perpetual assets).

**SHAW CONTRACT GROUP**, a Berkshire Hathaway Company, made the groundbreaking decision in 2002 to apply Cradle to Cradle Design™ principles and introduce PVC-free commercial carpet tiles designed to be separated into component materials for carpet-to-carpet recycling. Each tile is labeled with a toll-free number that customers can call to have used tiles picked up for recycling. Shaw worked with McDonough and MBDC to assess the human and environmental health attributes of all ingredients and identify preferred substitutes, as needed.

## ACHIEVEMENTS

In 2003, Shaw Industries and MBDC received the inaugural Presidential Green Chemistry Challenge Award from the White House and the U.S. EPA for its EcoWorx® backing.



Currently, 88% of the products Shaw manufactures are Cradle to Cradle Certified™ and have undergone a rigorous material health assessment, including residential and commercial carpet, carpet tile and hardwood flooring.

Shaw Industries moved to #1 in the U.S. market share for carpet tile and is now the world’s largest carpet company.





Mirra® Chair ©Herman Miller, Inc.



## HERMAN MILLER

100% of Herman Miller's electrical energy is from renewable resources.

"Bill McDonough had the drive, vision, and connections to make this protocol a standard across all industries. Also, McDonough was willing to put together resources for the implementation of his vision, therefore ensuring that C2C would be more than just a nice idea on paper. Finally, the 'virtuous closed loops' concept that is behind C2C enabled businesses to move beyond the traditional 'be less bad' to the 'consumption is good' paradigm. C2C is a godsend to business!"

—Mark Schurman, Senior Vice President of Supply Chain Management, Herman Miller

**HERMAN MILLER'S** dedication to doing more good extends beyond their adoption of Cradle to Cradle Certified™ to their "Greenhouse " Factory and Offices in Holland, Michigan designed by William McDonough + Partners. To fully incorporate Cradle to Cradle Design™ into their practices and Design for the Environment guidelines, together we built a customized assessment tool that analyzed materials for their human health and ecological effects, recyclability and design for disassembly.

## ACHIEVEMENTS

The first product designed from the beginning to end under the Cradle to Cradle Design protocol was the Mirra chair which - during implementation - led to the training of more than 300 employees. The chair was the first engineered product to use the Cradle to Cradle protocol and received considerable attention from customers who sought out environmentally sustainable products. The resulting protocol, employee engagement and product has led to Herman Miller further expanding their Cradle to Cradle product portfolio and securing brand recognition as a firm deeply involved in sustainability.



McDONOUGH INNOVATION  
DESIGN FOR THE CIRCULAR ECONOMY™





“William McDonough  
is the mastermind of  
sustainable design.”  
– Vice President Al Gore

“McDonough’s utopianism  
is grounded in a unified  
philosophy that—in  
demonstrable and  
practical ways—is  
changing the design  
of the world.”  
*Time Magazine,*  
“Hero for the Planet”

# McDONOUGH INNOVATION

Design for the Circular Economy™

Through McDonough Innovation, William McDonough provides targeted ideas, product concepts and solutions to a wide range of sustainable growth issues faced by government leaders, corporate officers, senior executives, product designers and project managers. He often works with global leaders and CEOs to set the vision, and then with management teams to set goals and execute projects. His values-driven approach helps nations and companies embed sustainable growth principles into their culture and to advance progress toward their positive vision. The following selection of clients demonstrates McDonough's vast involvement with global leaders and corporations:

<p>BASF</p> <p>Advisor on building products, biopolymers and circular economy</p>	<p>Ford Motor Company</p> <p>Advisor to the Chairman</p>	<p>State of California</p> <p>Advisor to Governor Schwarzenegger</p>
<p>China Ministry of Science &amp; Technology</p> <p>Advisor to the Minister</p>	<p>Georgetown University</p> <p>Advisor to President John DeGioia</p>	<p>Unilever</p> <p>Advisor to the CEO and Member of Sustainable Living Council</p>
<p>City of Chicago</p> <p>Advisor to Mayor Richard Daley</p>	<p>Google, Inc.</p> <p>Advisor to Founders</p>	<p>Walmart</p> <p>Member of External Advisory Council</p>
<p>City of San Francisco</p> <p>Advisor to Mayor Gavin Newsom</p>	<p>SABIC</p> <p>Creator of the ICEhouse™ in Davos</p>	<p>The White House</p> <p>Councilor to President Clinton</p>





FORTUNE  
WORLD'S  
50 GREATEST  
LEADERS

William McDonough is named one of *Fortune's* World's 50 Greatest Leaders (2019)

WILLIAM **McDONOUGH**, FAIA, INT. FRIBA  
Architect, Advisor, Author, Speaker

William McDonough has earned the reputation of being “the leading environmental architect of our time.” After building the first solar heated house in Ireland (1976), he designed the first “green office” in New York for the Environmental Defense Fund (1985) which set the modern green building movement in motion, inspired the formation of the U.S. Green Building Council and established many of the principles and practices that have come to define sustainable design.

Landmark projects—Herman Miller’s “Greenhouse” Factory and Offices; Gap, Inc.’s Corporate Campus (now YouTube’s headquarters); and Nike’s European Headquarters—were followed by other commissions that have become flagships of 21st century environmental design: Ford’s River Rouge, widely celebrated for its 10-acre “living roof”; NASA’s Sustainability Base, the “first space station on Earth” and one of the most innovative buildings in the federal portfolio; and Park 20|20 in the Netherlands, a new model of mixed-use, transit-oriented, Cradle to Cradle Design™-inspired urban development.

*Time* magazine named McDonough “Hero for the Planet,” stating that his “utopianism is grounded in a unified philosophy that—in demonstrable and practical ways—is changing the design of the world.” In 2019 *Fortune* Magazine named McDonough one of the World’s 50 Greatest Leaders for his work in advancing Design for the Circular Economy™. McDonough is co-creator of the Cradle to Cradle Design™ framework and led the founding

of the Cradle to Cradle Certified™ Products Program, a global standard for the design of safe, healthy products. He is a business strategist for leading global companies, an advisor to government and international bodies as well as not-for-profits. He was the inaugural Chair of the World Economic Forum’s Meta-Council on the Circular Economy (2014-2016), and currently serves on the Forum’s Global Future Council on Biodiversity and the Bio-economy.

In recognition of his visionary work, McDonough received the Presidential Award for Sustainable Development (1996), for exemplary leadership and public service; the U.S. EPA Presidential Green Chemistry Challenge Award (2003), for groundbreaking innovations in product development; and the Smithsonian’s National Design Award (2004), for outstanding achievement in environmental design. Recently, he was awarded the Fortune Award for Circular Economy Leadership during the 2017 World Economic Forum Annual Meeting in Davos, where he was introduced as “the father of the circular economy.”

## EDUCATION

**Yale University**, School of Architecture, Master of Architecture, 1976

**Dartmouth College**, Bachelor of Arts, Magna cum Laude, Phi Beta Kappa, 1973





World Economic Forum,  
Award for Circular Economy  
Leadership, 2017

## ASSOCIATIONS

**American Institute of Architects**, Fellow; Founding Member, Committee on the Environment

**American Society of Landscape Architects**, Honorary Member

**Royal Institute of British Architects**, International Fellow

**Urban Land Institute**, Fellow

**U.S. Green Building Council**, Charter Member

## ACADEMIC

### University of Virginia

Dean, School of Architecture and Edward E. Elson Endowed Chair, 1994–1999

Professor of Business Administration & Alumni Research Professor, Darden School of Business, 1999–present

### Stanford University

Consulting Professor, Civil and Environmental Engineering, 2004–present

Living Archive Subject, Stanford University Libraries, 2012–present

### University of Cambridge

Founding member, Sustainability Leadership Council, 2007–present

### Yale University

School of Forestry & Environmental Studies Leadership Council, 2002–present

### Arizona State University

International Board of Trustees for Sustainability, 2007–present

### Instituto de Empresa, Madrid, Spain

Chair, Eco-Intelligent Management Center, 2004–2006

### Cornell University

A.D. White Professor-at-Large, 1999–2004

### Tongji University, Shanghai

Honorary Professor, 2004

## SELECTED HONORS AND AWARDS

**World's 50 Greatest Leaders**, *Fortune* Magazine, 2019

**Award for Circular Economy Leadership**, World Economic Forum, 2017

**US Green Building Council Leadership Award**, 2016

**J.N. Darling Conservation Award**, National Wildlife Federation, 2014

**Rachel Carson Environmental Award**, Natural Products Award, 2013

**21st Century Visionary Science Leadership Award**, U.S. EPA, 2008

**Presidential Green Chemistry Award** (for work with Shaw Industries/Berkshire Hathaway)

President George W. Bush, 2004

**Benjamin Botwinick Prize for Ethical Practice in the Professions**, Columbia University Business School, 2003

**Hero for the Planet**, *Time* Magazine, 1999

**United States Presidential Award for Sustainable Development**, President Clinton, 1996

**National Design Award**, The Smithsonian Institution, Cooper-Hewitt Museum, 2004



Hero for the Planet,  
*Time* Magazine, 1999





# CORPORATE LEADERSHIP

**Unilever Sustainable Living Plan**  
Advisory Council, 2018–present

**Walmart**  
External Advisory Council, 2009–2013

**SAP CEO Sustainability Advisory Panel**  
Member, 2011–2012

**General Electric**  
Ecomagination, Board of Advisors, 2008–2009

**Dow Jones Sustainability Index**  
Advisory Board, 2004–present

**VantagePoint Capital Partners**  
Senior Advisor, 2004–present

**Cherokee Sustainability Advisory Council**  
Member, 2004–present

# NON-PROFIT LEADERSHIP

**Fashion For Good**  
Co-Founder, 2017

**Clinton Global Initiative**  
Advisor, 2013–2016

**Cherokee-McDonough Challenge**  
Advisor, 2012–present

**Cradle to Cradle Products Innovation Institute**  
Co-Founder, 2009

**Healthy Child Healthy World**  
Advisory Board, 2006–2011

**Sustainable Packaging Coalition**  
Co-Founder, 2005

**GreenBlue**  
Co-Founder, 2002

**H. John Heinz III Center for Science, Economics,  
and the Environment**  
Board of Trustees, 2001–2004

**President’s Council on Sustainable Development**  
Special Advisor to President Clinton, 1993–1996

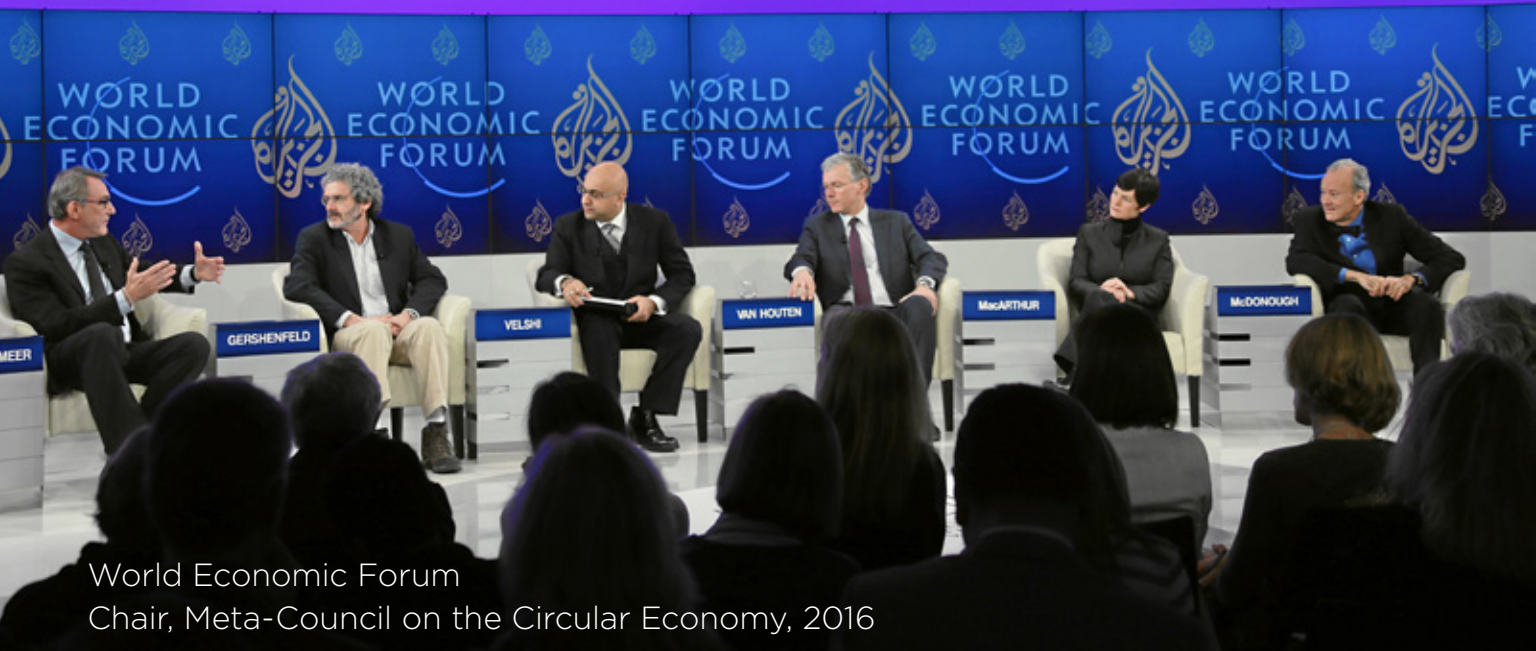
**W. Alton Jones Foundation**  
Board of Trustees, 1992–1996



Robin McDonough - Thanks for your great work, in  
this arena and others —  
Bill Clinton

President Clinton’s Council on  
Sustainable Development





World Economic Forum  
Chair, Meta-Council on the Circular Economy, 2016



China-U.S. Center for Sustainable Development  
Chair and Member of the Board of Councilors, 1999–2009

# INTERNATIONAL LEADERSHIP

## World Economic Forum

- Member, **Global Future Council on Biodiversity and the Bio-economy**, 2018–present
- Member, **Global Future Council on the Future of Environment and Natural Resource Security**, 2016–2017
- Chair, **Meta-Council on the Circular Economy**, 2014–2016
- Chair, **Global Agenda Council, Future of Sustainable Construction**, 2008–2009
- Cultural Leader** 2002–2008
- Member, **Global Agenda Council on Design**, 2010

## United Nations

### Sustainable Development Goals

- Presenter and Panel Participant, 2014
- Conference on the Environment & Development (UNCED: The Earth Summit)**
- Official Representative for Architecture and City Planning, International Union of Architects and the American Institute of Architects (dual role), Rio de Janeiro, 1992
- Official Representative, New York, 1992

## China-U.S. Center for Sustainable Development

- U.S. Chair Emeritus of the Board of Councilors, 2009–present
- U.S. Chair and Member of the Board of Councilors, 1999–2009

China Association of  
Circular Economy, 2016





# McDONOUGH INNOVATION

CRADLE TO CRADLE DESIGN™ FOR THE CIRCULAR ECONOMY  
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## WILLIAM McDONOUGH + PARTNERS

ARCHITECTURE  
[www.McDonoughPartners.com](http://www.McDonoughPartners.com)

## MBDC

CRADLE TO CRADLE CERTIFIED™ PRODUCT ASSESSMENT  
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<sup>1</sup> This goal statement was created while writing *The Upcycle: Beyond Sustainability—Designing for Abundance*, William McDonough and Michael Braungart, published in 2013 by North Point Press, a division of Farrar, Straus & Giroux.