TOWARD A CRADLE TO CRADLE® FUTURE

BEYOND SUSTAINABILITY—DESIGN FOR ABUNDANCE

selected works by

WILLIAM McDONOUGH + PARTNERS

industrial projects

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

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FIRM INTRODUCTION

William McDonough + Partners (WM+P) executes a diverse international array of projects from our studio in Charlottesville, Virginia. Our Cradle to Cradle®–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. In the process, we have created pioneering architecture and community designs that consider the long-term consequences of design.

Among the practice's diverse achievements are several recognized landmarks of the sustainability movement: the Herman Miller "GreenHouse" Factory and Offices; Gap, Inc.'s Corporate Campus (now home to YouTube); the Adam Joseph Lewis Center for Environmental Studies at Oberlin College; the Ford Rouge Revitalization and Sustainability Base: NASA's first space station on earth.

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

OUR DESIGN APPROACH

William McDonough + Partners (WM+P) is a collaborative, principles-driven design firm that sees the unique characteristics of each place and project as a source of inspiration and innovation. The foundational principles we bring to each project derive from our vision of the future: Our goal is a delightfully diverse, safe, healthy and just world, with clean air, water, soil and power – economically, equitably, ecologically and elegantly enjoyed.

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.

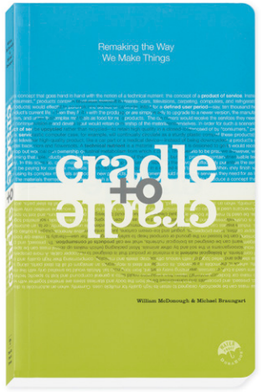
Begin by designing for a beneficial human footprint. Our ambition is to design for 'more good' by being positive and inspirational (e.g. use renewable energy) rather than only minimizing damage (e.g. produce less carbon).

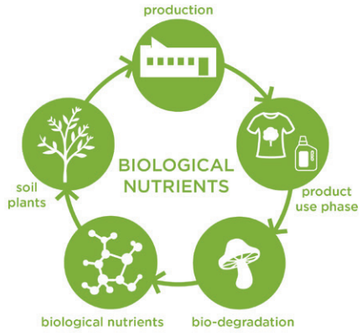
Use principles, goals, strategies and metrics (in that order) to guide action. This structure produces effective results, encourages innovation throughout project teams and ensures project alignment with corporate values.

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 client to its unique place in the world, and help unify the project team, generate new ideas and stimulate communication with the surrounding community.

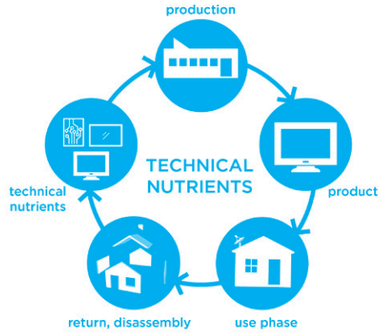
Anticipate the future. Look for emerging technologies and changing demands. Design flexible spaces that can easily adapt as technologies become feasible and needs evolve.

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.





BIOLOGICAL CYCLE
products for consumption



TECHNICAL CYCLE
products as a service

In their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*, architect William McDonough and chemist Dr. Michael Braungart presented an integration of design and science that provides enduring benefits for society from safe materials, water and energy in circular economies and eliminates the concept of waste. 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. Buildings can be designed to be disassembled and safely returned to the soil **(biological nutrients)**, or re-utilized as high-quality materials for new products and buildings **(technical nutrients)**. 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.

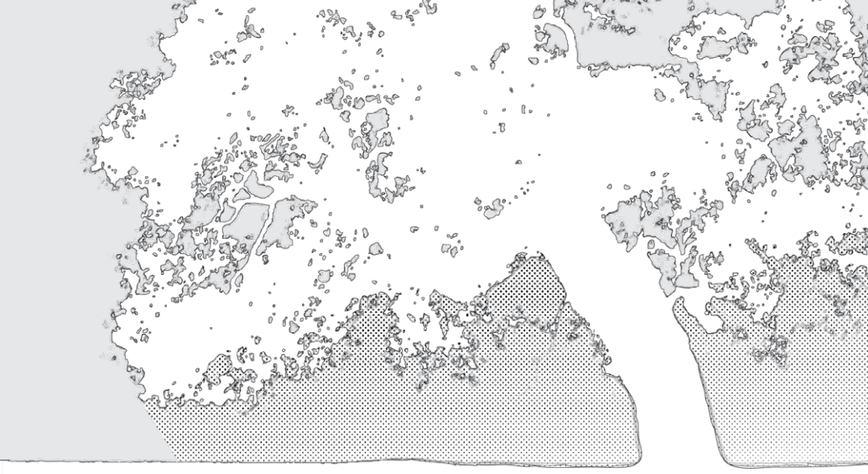
Rather than seeking to minimize the harm we inflict, *Cradle to Cradle* reframes design as a positive, regenerative force—one that creates footprints to delight in, not lament.

BUILDING LIKE A TREE

Inspired by Cradle to Cradle Design™ and The Five Goods™

Using the intellectual and practical filters of Cradle to Cradle Design, buildings are viewed as an aggregation of nutrient metabolisms, energy and water flows, and cultural and ecological biodiversity. The Cradle to Cradle Design Framework for the built environment include what we call **The Five Goods™:**

A TREE...
generates **OXYGEN**
fixes **NITROGEN**
creates **HEALTHY SOILS**
cleans **WATER**
creates **MICROCLIMATES**
allows for **ADAPTATION**
is **BEAUTIFUL**
is **SELF-REPLICATING**
is **PHOTOSYNTHETIC**



Material Health

GOOD MATERIALS

Safe, healthy, biological and technical nutrients

Prefer products which can be characterized as “biological nutrients” (those that can safely biodegrade and improve soil health) or “technical nutrients” (those that can be fully recycled, safely returning to high-valued uses in new products).

Circular Economy

GOOD ECONOMY

Circular, sharing and shared

Construction practices can facilitate easy building disassembly and material reuse. Develop long-term relationships with product manufacturers, such as product leasing arrangements, to ensure companies take responsibility for materials in the short and long term, and that they return nutrients to the biosphere or technosphere as appropriate.

Renewable Energy

GOOD ENERGY

Clean and renewable

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

Water Stewardship

GOOD WATER

Clean and available

The interplay between industrial and natural systems creates a new model for the regeneration of air, water, soil and habitat. An integrated system of green roofs, vegetated swales and pervious paving caputres, cleanses and releases clean water.

Social Fairness

GOOD LIVES

Safe, creative and dignified

Promote individual human dignity with safe working conditions. Promote fairness, so groups of laborers or suppliers aren’t exploited with dangerously low wages or prices along the entire value chain.

THE OVERALL GOAL IS TO DESIGN AND MODEL NATURALLY INTELLIGENT STRUCTURES.

We must model positive futures and define an accessible and replicable model of how buildings can address the global challenges of sustainability and generate immediate and long-term ecological benefits by fostering intelligent resource use.

WM+P begins with companies' values to design projects which embrace Design for the Circular Economy™, integrate Cradle to Cradle Certified™ materials, use renewable energy and celebrate diversity to encourage environmental health and abundance.

Take a look at WM+P's Industrial projects incorporating **Cradle to Cradle Design™** and **The Five Goods™**

AGRO FOOD PARK

Vision and Master Plan

Aarhus, Denmark
Master Plan competition 2015

Client Agro Food Park, Realdania

Area 2020 Phase -92,200 M2
2030 Phase -200,00 M2

Program Vision and Master Plan development plan, Innovation Strategy

Team

3XN/GXN, Architect Team Leader; William McDonough + Partners, Collaborating Architect; BVCA Architects and Urland, Planning

Together with 3XN/GXN architects in Copenhagen, William McDonough + Partners was selected to create a vision and development plan for the Agro Food Park in Skejby, located in the northern part of Aarhus, Denmark. The team presented their proposal for how to develop an urban environment that promotes innovation, knowledge sharing and interaction between companies in the Agro Food Park, which is the centre for food and agricultural innovation.

World leading Cluster

Agro Food Park has the ambition to become a world leading cluster for food and agriculture innovation. But what can create the physical basis for an ecosystem of knowledge exchange?

People, knowledge and ideas

First and foremost, it is important to emphasize that a physical master plan can only be the basis for this development. The physical environment should be populated by people and ideas that provides the physical framework meaning and content.

"A carbon positive city demonstration at The Agro Food Park can be the embodiment of this new century—its clean water, air, soils and energy serving as a continuous source of economic and ecological innovation and regeneration , redefining how we act now for a positive future"

- William McDonough, FAIA, Int. FRIBA

AGRO FOOD PARK

The Strip, The Plazas, The Lawn
We have in our approach, we have focused on developing and strengthening Agro Food Park's identity through three primary spatial and landscape concepts which we have called "The Strip," "The Plazas" and "The Lawn." These three concepts relates to what we believe are the key elements for the future cluster, namely the urban and the agro culture.

The Strip is a street and campus course with open façades and shared amenities. It is here the companies and knowledge institutions of Agro Food Park display their identity and products. The main street is built in a density that create life and activity, kept in a human scale.

The Plazas are a number of plazas that have urban density and experiential qualities and give local character to the surrounding buildings.

The Lawn is the central open green area in the masterplan. It functions as the showroom for experimentation and innovation within agriculture and food production.

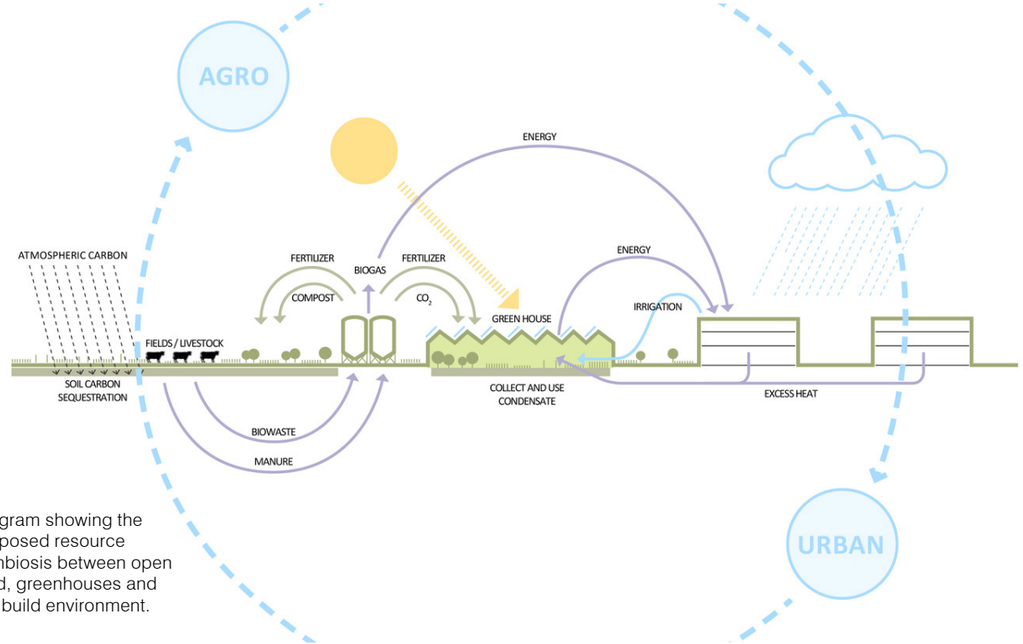


Diagram showing the proposed resource symbiosis between open land, greenhouses and the build environment.

Agro Food Park Masterplan.
Images Courtesy of TEAM GXN ©

CARBON POSITIVE FACTORY

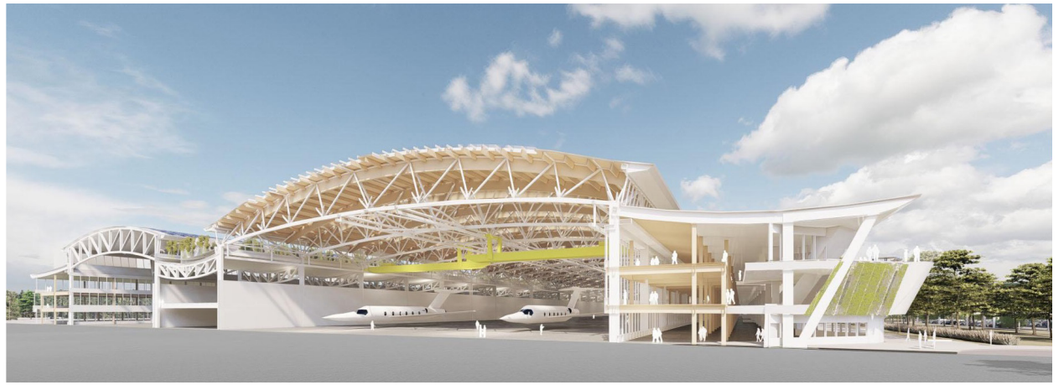
Mass Timber + Net-Energy Positive

United States
Conceptual Design Complete

Client Confidential
Area 1.5 million square feet
Program airplane factory and corporate offices

Team
William McDonough + Partners, Design Architect

The building is designed to optimize rooftop solar energy generation over a long span wood/steel hybrid structure; addressing carbon from two perspectives: clean energy and sequestration. Opportunities were explored to capture additional CO2 in the concrete.



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 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 being installed, 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.

FRITO-LAY JIM RICH SERVICE CENTER

Efficient and intelligent ‘green’ facility and offices

Henrietta, New York
Completed 2005

Client Frito-Lay
Area 40,900 square feet

Awards
LEED Gold
AIA Central Virginia Award, 2006
ACEC New York Diamond Award, 2006

Team
William McDonough + Partners, Design Architect; Stantec, Architect of Record; Siteworks, Landscape Architect

The design of Frito-Lay’s primary distribution center in western New York showcases an array of innovative strategies and systems that reduce energy consumption dramatically, circulate and clean air and water, and serve as a prototype for efficient, intelligent, green commercial buildings.

Envisioned as a living laboratory for testing the performance of these approaches, this LEED Gold project is closely monitored to identify cost-effective strategies for replication at other sites. High-efficiency mechanical systems, advanced building controls, energy-efficient lighting, optimal interior daylighting and a well-insulated envelope combine to create an highly energy-effective facility. The building relies on renewable power from photovoltaic (PV) rooftop arrays, a solar entry canopy—one of the building’s distinguishing features—and a certified green energy purchasing program. The design makes use of abundant natural daylight and a palette of safe, healthy materials to ensure indoor comfort and workplace quality for the 20 people staffing the center.

HERMAN MILLER

“Greenhouse” Factory & Offices

Holland, Michigan
Completed 1995

Client Herman Miller

Area 295,000 square feet

Awards

AIA Committee on the Environment Top Ten Environmental Buildings, 1997

Business Week/Architectural Record Good Design Is Good Business Award, 1997

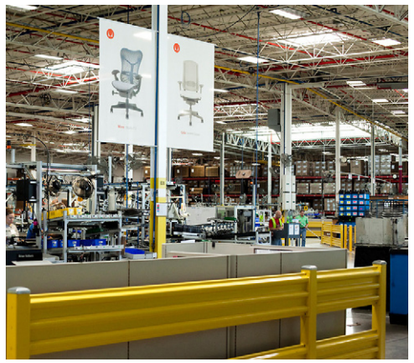
AIA Central Virginia Honor Award, 1998

International Development Research Council, Award for Distinguished Service in

Environmental Planning, 1995

Team

William McDonough + Partners, Design Architect; Verburg & Associates, Architect of Record; Pollack Design Associates, Landscape Architect; Robert Segar, Consultant



“We have doubled our productivity in this space in the last five years, which means that we are producing twice as much with the same number of people.” –Bill Bundy, Vice President, Herman Miller

350 employees before and after move.
Before Move Revenue: $250M
After Move Revenue: $350M

Winner of an inaugural “Good Design Is Good Business” Award, the Herman Miller “Greenhouse” office and manufacturing facility has become a case study in how a sustaining approach can enhance the physical and mental health of its occupants—not to mention corporate productivity and profits.

The interior and exterior landscapes of the Greenhouse are visually and physically integrated with the site. Maximum interior daylighting and fresh air in both office and manufacturing spaces optimize its occupants’ comfort, health and communication while yielding responsible, cost-effective operations. All spaces feed into The Street, an open corridor that runs the length of the building. This urbane public space connects people across departmental lines and to nature with views to the outside. These connections have led researchers to strong evidence that enhanced habitability is associated with increases in psychological and social well being.

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

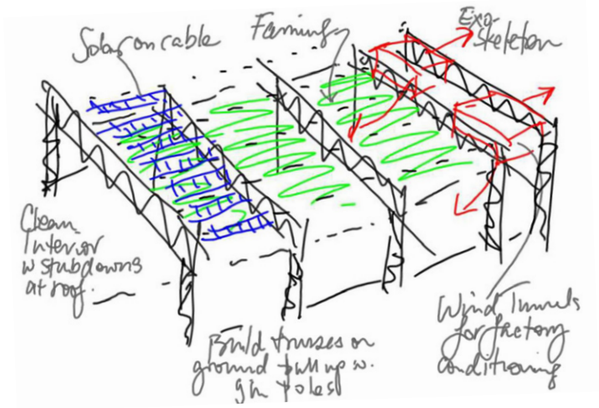
Team
William McDonough + Partners, Design Architect; SEMAC, Executive Architects and Engineers; Arup, Structural Concepts; Integral Designs, Landscape Consultants; WEI, Air Distribution and Cooling Engineering; WSP, Energy and Water Concepts; JLL, Construction Management

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 that 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. Condensation from the cooling equipment provides irrigation water for 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.

HERO MOTOCORP

Hero Global Center for Innovation and Technology (CIT)

Jaipur, India
Completed 2016

Client Hero MotoCorp

Building Area 50,000 sq. meters (all phases)

Site Area 250+ acres

Awards
Platinum Rating from the Indian Green Building Council

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

The CIT is a center of two wheeled vehicle innovation, connecting people with nature and inspiring creativity in a lively, colorful atmosphere. The 250 acre campus is designed to be flexible and adaptable; anticipating the changing needs of future technologies.

At the center of the design is a sculpted tower housing studio spaces for designers and engineers, overlooking test tracks and laboratory spaces below. Beneath the tower a Commons Building contains a visitor center, showroom, theatre-style auditorium and cafeteria. New vehicle models are revealed at the roof level of the Commons Building and descend via a ramp to the courtyard below.

Campus buildings feature:

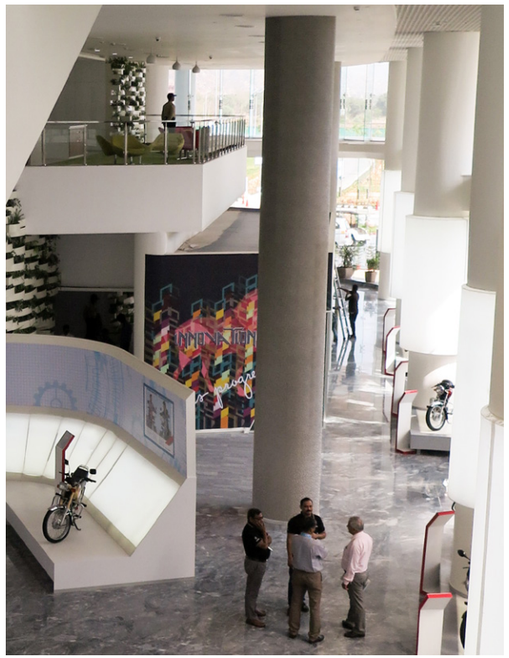
- rooftop greenhouses
- photovoltaic panels on the rooftops
- state-of-the-art lighting and energy technologies
- daylight and fresh air for all meeting and workspaces

“BOULEVARD OF WHEELED DREAMS”

The winding pathway through the center of the campus is a hub for activity. Cafes, tea houses and a large cafeteria are strategically placed along this “Boulevard of Wheeled Dreams” to reinforce the sense of community and maximize opportunities for collaboration.

"The CIT is the result of our bold vision to position Hero MotoCorp as the leading source of innovation and green technology. This facility is a giant stride in our relentless endeavour towards strengthening our in-house technology capabilities." *–Hero MotoCorp*

HERO MOTOCORP JAIPUR CIT



METHOD HOME
South Side Soapbox

Chicago, Illinois
Completed 2015

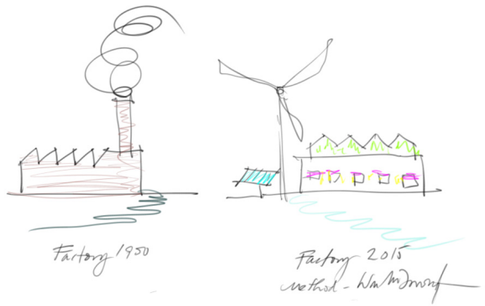
Client Method
Area 150,000 square feet
Program factory, offices, rooftop greenhouses

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 within easy transit access. The building provides 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 the time) at 75,000 sf, provides fresh greens to the area, previously calssified 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. Solar thermal panels 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

METHOD HOME

On the Roof: World's Largest Rooftop Greenhouse for Food Production

The facility will help pave the way for the future of urban agriculture. The climate-controlled hydroponic greenhouse built and managed by Gotham Greens produces more than one million pounds of fresh, pesticide-free produce annually, which is sold locally. Gotham Greens' production methods require 20 times less land and 10 times less water than conventional agriculture and avoid fertilizer and pesticide runoff, a leading cause of global water pollution. William McDonough + Partners created the vision for the rooftop farm and facilitated the opportunity for Gotham Greens to build on the roof.

PROCTER & GAMBLE

Taicang Beauty Plant

Taicang, Suzhou, Jiangsu, China
Completed 2012

Area 351,000 square meters
Phase I - 147,000 square meters

Program Master Plan including Manufacturing, Administration, Distribution Center

Awards
LEED Gold Certified - Administration buildings
LEED Silver Certified - Manufacturing buildings

Team
William McDonough + Partners, Design Architect; ARUP Hong Kong, Civil MEP and Structural Engineers; KOW Shanghai, Architect of Record

Envisioned as a factory like a garden, the P&G manufacturing facility in Taicang, China demonstrates Cradle to Cradle® thinking by achieving a zero carbon footprint, water neutrality and eliminating landfill waste.

According to P&G's 2013 Sustainability Report, the Taicang Beauty Plant is:

- The first site within P&G to use **100% renewable electricity from wind**, using 6 million kwh or the equivalent of 5,400 households in urban China. This helps eliminate over 5,000 metric tons of CO2 per year.
- The first P&G plant in the world to achieve both LEED Gold certifications for administration buildings and Silver for manufacturing buildings.
- The first P&G site to meet our zero manufacturing waste to landfill definition in China.

"Taicang is the result of an intentional sustainability focus from the project onset. We have partners with international experts on sustainable design, [William McDonough + Partners], who have helped us implement aspects of our environmental vision within a single plant. The process of construction the plant resulted in several breakthroughs for the company, and generated P&G's most sustainable manufacturing plant to date."

–Stefano Zenezini, VP Beauty Sector and Global Supply Chain Sustainability

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 adaptation and resiliency. The Center focuses on enhancing connectivity not just between occupants and visitors but also between people and the natural world.

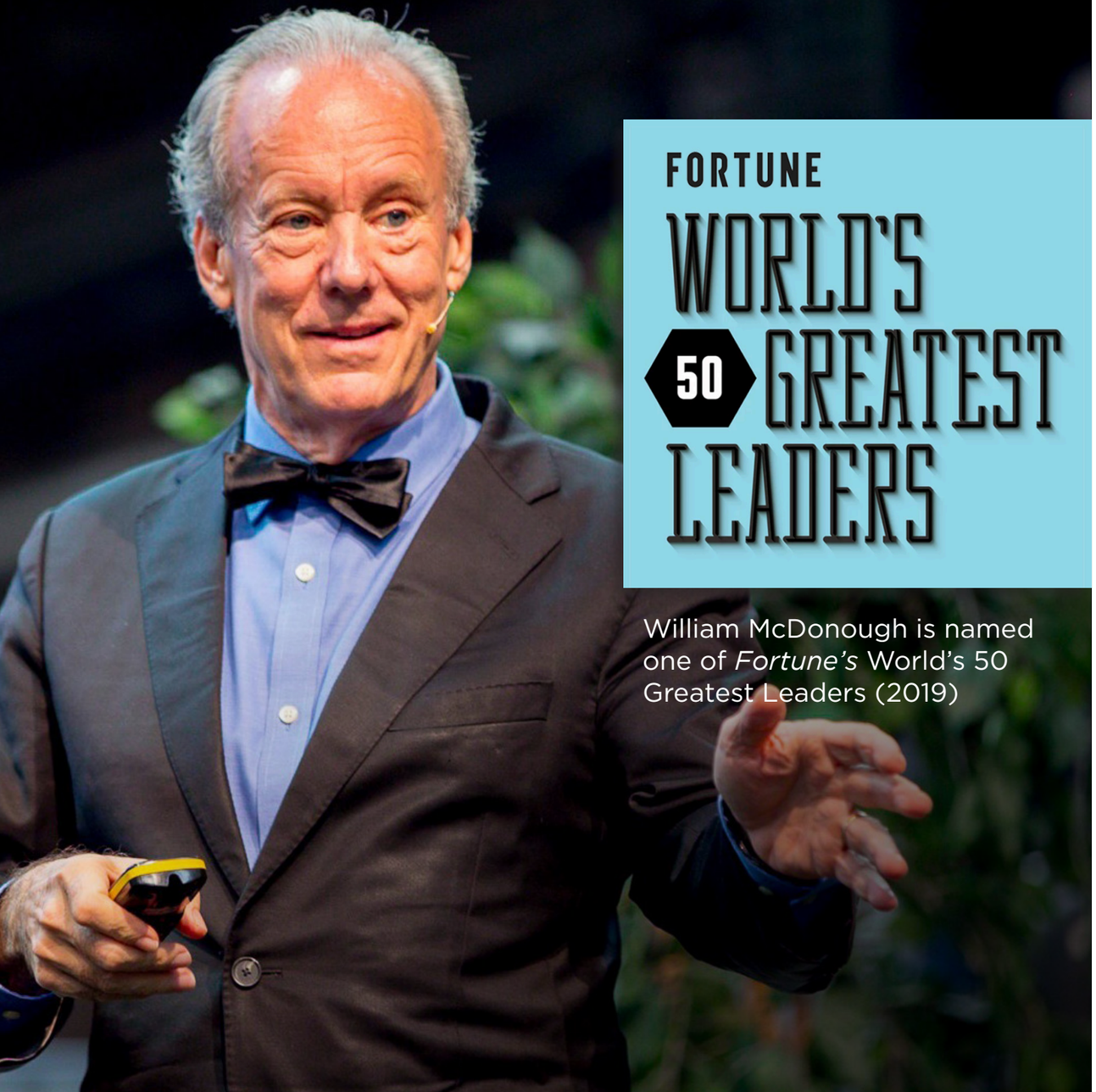
Through a central “Hub,” The Center seeks to connect and facilitate collaboration at multiple scales, providing direct visual and physical connectivity internally and externally toward the campus. The building connects the research and innovation laboratories, which provide flexible spaces for work,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

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

— Steve Zornetzer, Associate Director, NASA Ames Research Center

Read more about our esteemed architects, planners and designers



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

King Abdullah University of Science and Technology (KAUST)
Distinguished Research Professor, 2020–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

HEROES FOR THE PLANET | DESIGN

WILLIAM MCDONOUGH

The Man Who Wants Buildings to Love Kids

By ROGER ROSENBLATT SAN BRUNO

WHEN ARCHITECTURAL FIRMS BEGAN TO COMPETE for the Gap Inc. office complex in San Bruno, Calif., William McDonough saw it as a competition of ideas rather than for a contract. "Our idea," he says, "was that if a bird flew over the building, it would not know that anything had changed." If that sounds like pure eco-nut talk (I almost resist noting that McDonough is for the birds), try the question he puts to potential clients when he undertakes any of his architectural projects: "I ask, 'How do we love all children, all species, all time?'"

Upon hearing him say that, one is tempted to go for a pistol, but after a day of McDonough's instruction in much more than architecture, one sees that his utopianism is grounded in a unified philosophy that—in demonstrable and practical ways—is changing the design of the world. McDonough empathizes with birds because he's a rare one himself, a visionary—half green, half pink—who talks like a communist, thinks like a plutocrat and acts like an ecologist. Indeed, the three points of his abstractly designed universe (he is given to drawing incomprehensible diagrams on any available surface) reflect that people who used to be impelled to make things by the old impulses of social and economic interests now must add the environment. "But not as an ism," he cautions, not as an extreme. "What we're trying to do is balance ecology, equity and economy."

The Gap campus, which William McDonough + Partners completed in 1997, is an anomaly of a building that looks more beautiful in life than it does in photos, and seems to expand its beauty from the inside out. The inside is essentially the outside, so when one is there, one is also somewhere else. The "facts" of the structure read like an essay on "What I Did for the Environment Last Summer": the roofs are planted with native grasses and wildflowers atop 6 in. of soil that both fools the birds and serves as a thermal and acoustical insulator. San Bruno is a stone's throw from San Francisco's airport, yet planes flying low overhead create barely a buzz.

The complex's wood floors and veneer were harvested from sustainable forests. Not a single California live oak was cut down during construction, and a stand of the ancient trees rises in a dark elegance just beyond a piazza. Huge atriums carry daylight deep into the building, paints and adhesives are low toxicity, the place is 30% more energy efficient than state law requires, and so on.

But the special power of the structure is its palpable connection to the people who work there. On the day that McDonough and I visit, 600 employees go about their tasks, yet the building feels empty. The windows bring people to the sky. "When it's a nice day," says McDonough, "why feel as if you've missed it?" Stand in practically any spot, and one can see the greenery of the outside trees, the grassy lower roof or the grasses growing in one of the two interior courtyards. Light is everywhere. It fills the vast open hallways that seem to stretch on forever under ceilings 15 ft. high. McDonough says, "People have lofty thoughts in lofty places."

GREAT INDOORS Staying in at the Gap building is like going out. "When it's a nice day," says McDonough, "why feel as if you've missed it?"

The most visionary of today's designers see the earth as a machine for living—and honor nature as a guide to structure

A WHOLE NEW WORLD

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

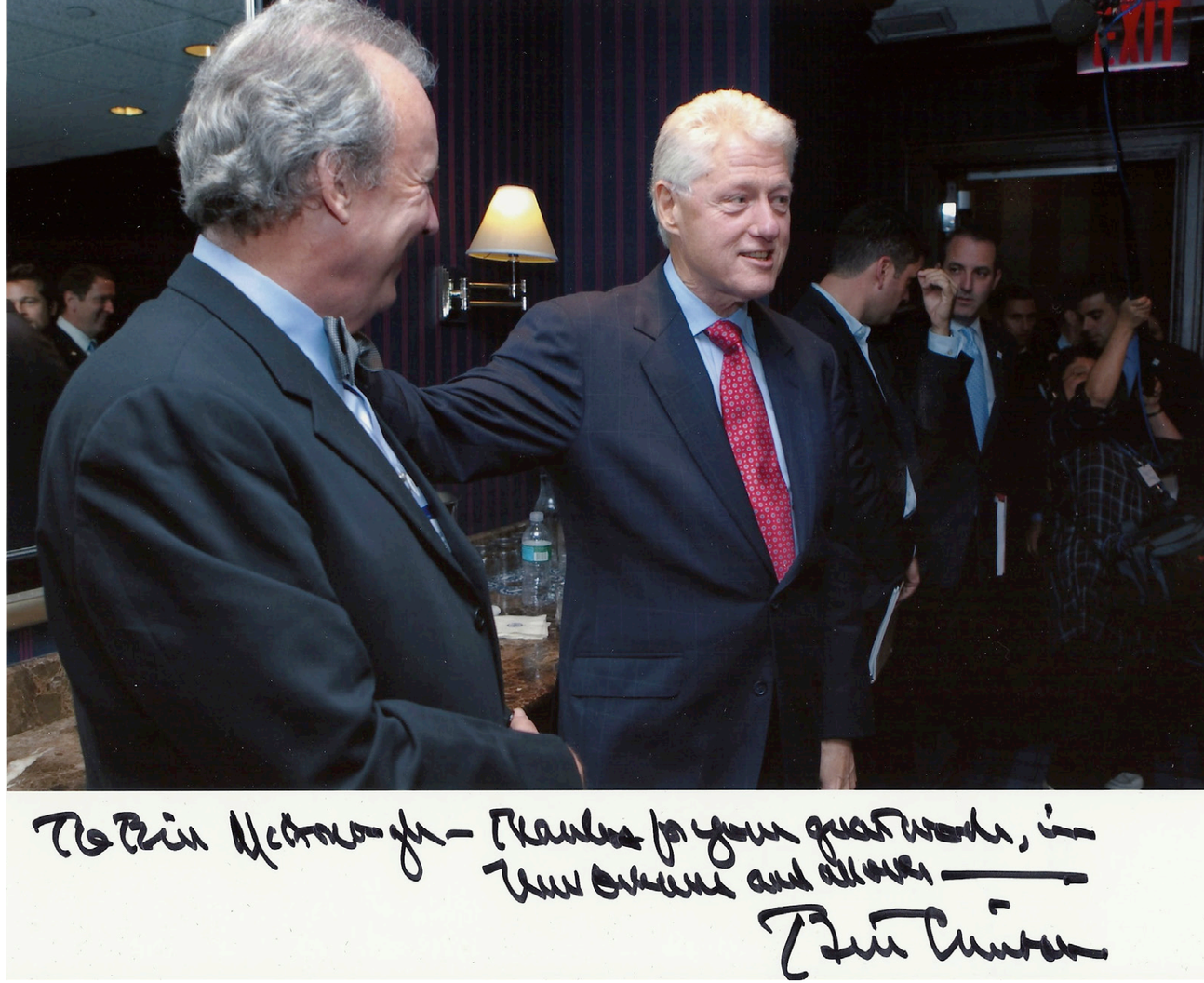
Sustainable Packaging Coalition
Co-Founder, 2005

GreenBlue
Co-Founder, 2002

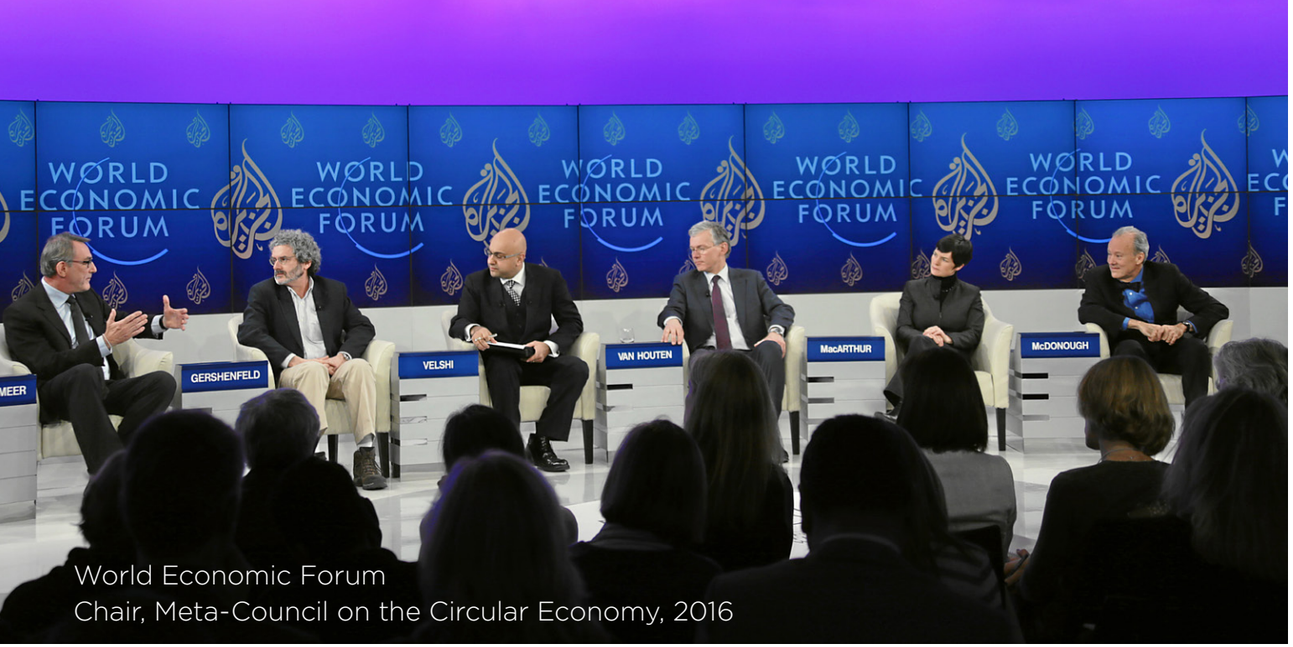
H. John Heinz III Center for Science, Economics, and the Environment
Board of Trustees, 2001–2004

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

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



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

ALASTAIR REILLY, AIA, LEED AP

Design Partner

EDUCATION

University of Virginia, School of Architecture, Master of Architecture, 1990

Syracuse University, Bachelor of Arts, 1987

ACADEMIC

Catholic University of America, School of Architecture, U.S. Department of Energy Solar Decathlon competition - Visiting Critic, 2012

Alastair Reilly brings more than twenty years of architectural and urban planning experience. His focus on research informed design allows him to find innovative sustainable solutions to complex building types. He leads design on WM+P's most innovative sustainable projects, including NASA's Sustainability Base, Google Master planning and workplace strategies, VMware's Corporate Campus, and is involved in a range of design initiatives globally including Park 20|20 in the Netherlands.

Through advanced technology, research and overarching sustainable principles, Alastair brings to bear added financial and ecological value to global projects. He aims to create progressive, eco-effective architecture through a collaborative and multi-disciplinary approach. His experience includes large-scale, high-rise and mixed-use urban developments, campus workplace, hospitality and residential projects. He has also taught sustainable architecture at Catholic University on their entry into the DOE's Solar Decathlon Competition, and advised corporate leaders and business groups including P&G and Google on sustainable strategies. Alastair has extensive project management experience in commercial base building. His background in construction enables him to develop unique design criteria into buildable architecture.

SELECTED PROJECTS

Walmart Home, Corporate Headquarters, Bentonville, Arkansas
Apex Plaza, Apex Clean Energy Headquarters, Charlottesville, Virginia
YouTube Headquarters Expansion, San Bruno, California
HITT Co|Lab, Zero Net Energy, Falls Church, VA
NASA Sustainability Base, AMES Research Center, Moffett Field, CA
Dropbox Headquarters, 333 Brannan, San Francisco, CA
Schiphol Trade Park , The Netherlands
Park 20|20, The Netherlands:
Master Plan, B/S/H/ Inspiration House, FifPro World Headquarters, FOX Vakanties, Bluewater, Plantronics, and the Biological and Technical Pavilions
VMware Corporate Campus, Palo Alto, CA
Google – NASA AMES Research Center Master Plan, Mountain View, CA
Google Corporate Campus, Mountain View, CA
Google Sustainable Design Elements, Mountain View, CA
P&G Manufacturing Facility, Masterplan and Concept design, Utah & China

ASSOCIATIONS

LEED AP Homes, U.S. Green Building Council, Member, 2004–present

SELECTED HONORS AND AWARDS

Young Architects Forum Award, New York Architecture League, (Alastair Reilly), 1994
"Young Architects", Progressive Architecture, 1993

ROGER SCHICKEDANTZ, AIA, LEED AP BD+C

Design Director

EDUCATION

Yale University, School of Architecture, Master of Architecture, 1985

University of North Carolina, Charlotte, Bachelor of Arts, Architecture, 1982

Roger is a Director, project manager and architect at William McDonough + Partners where he has worked for over 20 years. He has led many groundbreaking projects that are well known for their accomplishments in the field of sustainable architecture, including the 2005 LEED Platinum certified Frito Lay Distribution Center and the 10-acre Ford Rouge Truck Plant project, completed in 2003, featuring the world's largest greenroof at the time of completion. Ongoing and recently completed projects include two motorcycle factories and a R&D center in India for Hero MotoCorp, and the new Southside Soapbox factory in Chicago for Method Home. These buildings include a vision for rooftop food production at scale, ranging from experimental hydroponic greenhouses to a commercially viable 75,000 sq. ft. agriculture facility. Through his work at William McDonough + Partners and his frequent speaking engagements, Roger has championed food production as an important component for a regenerative planet. He has worked with the Green Roofs for Healthy Cities organization over many years to develop training courses and exams for the Green Roof Professional certification.

AUTHORED ARTICLES AND PAPERS

"Farming Moves to the Roof", Canadian Property Management, Vol. 30, No. 5, Sep. 2015

Introduction to Rooftop, Brad Temkin; Radius Books, ©2015

"Base Sostenible de la NASA" (NASA Sustainability Base), Habitat Futura, No. 32, Mayo 2011 and in *III Bienal Internacional Arquitectura Sostenible*

"Ecourban, Simbiosis de Metabolismos" (EcoUrban, Symbiosis of Metabolisms), Habitat Futura, No. 1, Abril 2006, and in *Bienal Arquitectura* 2008

SELECTED PROJECTS

Starbucks Roasting Factory, China
Carbon Positive Factory, United States
Georgetown University, Sustainable University of the Future Initiative
Universidad EAN City Campus, Bogotá, Colombia
Hero MotoCorp Neemrana Factory, Jaipur R&D Center, and Gujarat Factory, India
Method Southside Soapbox Factory, Chicago, IL
Feasibility Study for Rooftop Food Production, City of Houston, Texas
Ferrer Research & Development Building, Barcelona, Spain
Karachi School of Business and Leadership, Karachi, Pakistan
City Center DC Sustainability Consulting, Washington, D.C.
National Museum of Science & Industry Collections Center and Master Plan, Wroughton, England
Eco-Template for Distribution Centers, Gazeley Properties Limited, United Kingdom
Frito-Lay Distribution Center, Rochester, NY
Ford Rouge Center Revitalization, Dearborn Truck Plant, Visitor's Center, Airport Hangar, Glass Plant Restoration, and Chairman's Office Renovation, Dearborn, MI
Adam Joseph Lewis Center for Environmental Studies, Oberlin College, Oberlin, OH
Nike European Headquarters, Hilversum, The Netherlands
University of Michigan, School of Natural Resources and Environment, Ann Arbor, MI
Herman Miller "GreenHouse" Factory and Offices, Holland, MI
Howard Heinz Endowments Offices, Pittsburgh, PA

ASSOCIATIONS

LEED® Accredited Professional, U.S. Green Building Council
Member, American Institute of Architects/Registered Architect
Green Roofs for Healthy Cities, Green Roof 201 training course committee
Green Roof Accredited Professional, exam committee

JOSÉ ATIENZA, WELL AP
Design Director

EDUCATION
Princeton University School of Architecture, Master of Architecture, 2000

University of Virginia School of Architecture, Bachelor of Science in Architecture, 1995

ACADEMIC
University of Virginia School of Architecture - Lecturer, 2007 -2012

National Cheng Kung University, Tainan City, Taiwan - Invited Critic, 2018

José's design leadership spans over 18 years of professional experience in the realization of diverse architectural typologies at multiple scales that include award-winning commercial, mixed-use, multi-family and single-family custom residential, academic, hospitality, aviation and urban design projects throughout the U.S. and Europe. His ability to lead teams towards materializing primary concepts into unique and innovative solutions that embody project goals while integrating site, form and systems has led to many successful collaborations.

Viewing issues of sustainability both as a source of innovative design solutions and as a fundamental measure of quality, José's design work seeks the holistic balance and integration of both constructed and native human, environmental and technical ecologies. With a broad view of design at all scales as signals of human intention, José believes in the importance of a collaborative and multi-disciplinary approach to achieve higher levels of design innovation. During the past 10 years, José has led the design and realization of eight innovative buildings at Park 20|20 in the Netherlands, the first Cradle to Cradle-inspired development.

SELECTED PROJECTS
Grunewald Mixed-Use Project, Kirchberg Plateau, Luxembourg
Together Tower, Hoofddorp, The Netherlands
Plantronics EU Headquarters, Hoofddorp, The Netherlands
CloudForest Mixed-Use Project, Hoofddorp, The Netherlands
The Valley at Schiphol Trade Park, Hoofddorp, The Netherlands
AltaSea, Port of Los Angeles, California
La Vie Resort, St. John USVI
Catalina Island Strategic Masterplan, California
Park 20|20, Hoofddorp, The Netherlands
Isola (Google's Italian Headquarters), Milano, Italy
Greenbridge Mixed-Use, Chapel Hill, North Carolina
Boutique JACOB Campus Master Plan, Montreal, Canada

ASSOCIATIONS
Energy Efficiency Emerging Technologies (E3T) Commercial Building Technical Advisory Group (COMTAG), Washington State University Extension Energy Program, Bonneville Power Administration, Member, 2014

SELECTED HONORS AND AWARDS
Abaco Y Ciudad' Travel Fellowship, Spain Ministry of Culture, 2000
University Fellowship, Princeton University, 1998

JOHN EASTER
Director

EDUCATION
University of Virginia, School of Architecture, Master of Architecture, 1991

University of Virginia, Bachelor of Science in Architecture, 1986

John is a Director at William McDonough + Partners, where he has practiced for over twenty two years. He works closely with William McDonough on the design of commercial, institutional, and residential projects, many of which have earned awards for the firm.

John's project experience covers a wide range of scales throughout the globe, from small single-family home prototypes in the United States to factories in India and large community designs in China. John's unique combination of talents has played a crucial role in shaping the firm's transformation of land-planning and development processes. He has led the day-to-day design of several large-scale commercial projects abroad, including Nike European Headquarters and IBM Corporate Offices in Amsterdam; Ford Amazon Workplace in Camacari, Brazil; and Ecourban 22@ in Barcelona, Spain. The common thread to this body of work has been devotion to McDonough's Hannover Principles and the Cradle to Cradle® Design Framework.

SELECTED PROJECTS
Carbon Positive Factory, United States
YouTube Headquarters Expansion, San Bruno, CA
Apex Plaza, Apex Clean Energy Headquarters, Charlottesville, VA
Hero MotoCorp Neemrana Factory, Jaipur R&D Center, and Gujarat Factory, India
Universidad EAN City Campus, Bogotá, Colombia
Method Southside Soapbox Factory, Chicago, IL
Ferrer Research & Development Building, Barcelona, Spain
BioPol Laboratory Tower, Barcelona, Spain
B/S/H/ Inspiration House at Park 20|20, Hoofddorp, The Netherlands
Park 20|20 Master Plan, Beukenhorst Zuid, The Netherlands
Ecourban 22@ Mixed-Use Development, Barcelona, Spain
American University School of International Service, Washington D.C.
Nike European Headquarters, Hilversum, The Netherlands
PG&E Energy Center, Treasure Island, San Francisco, CA
Fokker Corporate Park Concept Plans for UPC, Amsterdam, The Netherlands
IBM Corporate Offices, Riekerpolder, Amsterdam, The Netherlands
Adam Joseph Lewis Center for Environmental Studies, Oberlin College, OH
Eco-Template Master Plan, Magna Park, Neu Eichenberg, Germany
Eco-Template for Distribution Centers, Gazeley Properties Limited, UK
Hot Springs New Town Concept Plan, Daxing, Beijing, China
Ford Rouge Center Revitalization, Dearborn, MI
Coffee Creek Center Master Plan, Chesterton, IN

ERIC ROSS, AIA, NCARB

Project Architect

EDUCATION

Savannah College of Art and Design, Master of Architecture

Eric is a registered architect with over 20 years of experience in the building design and construction industry. After four years of service in the Army, he earned both Bachelor's and Master's Degrees in Architecture at the Savannah College of Art and Design. Eric joined William McDonough + Partners in 2013, with a background in hospitality, commercial and high-end residential projects. Since joining WM+P his work has been centered around the integration of Cradle to Cradle thinking at all levels of a given project. The result has been a series of beautiful and compelling case study projects that embody regenerative design and development principles across scale and typology.

For the last seven years his primary areas of research have been focused on the integration of Circular Economy and Cradle to Cradle Design strategies on a project-specific scale. Specifically, he focuses on employing methodologies to extend the life span of buildings and their components through the use of Design for Disassembly and adaptability and the inclusion of Cradle to Cradle Certified™ products at increasing scales. In addition, Eric has had a parallel focus on lowering embodied carbon beyond industry-set benchmarks through the use of Mass Timber for building structures and the development of a design workflow informed by an iterative carbon footprint feedback loop.

SELECTED PROJECTS

YouTube Headquarters Expansion, San Bruno, CA

While the entitlement project was initially designed as a build-to-suit for The Gap Inc, the facilities are now home to YouTube and embrace design for disassembly and next use methodologies. YouTube's Headquarters is currently under construction to expand its campus.

Apex Plaza, Clean Energy Headquarters**,** Charlottesville, VA

The Apex office will be wood structure, optimized in its carbon footprint, and bring the company's more than 200 renewable energy experts into one building designed for collaboration, health, and wellbeing.

HITT Co|Lab, Zero Net Energy, Falls Church, VA

Designed as a flexible and adaptable high-performance building for HITT, a leading national construction company, Co|Lab promotes engagement with clients and team members through hands-on experiences and direct observation.

Carthage Farm, Zero Net Energy, TN

SELECT CLIENT LIST

Annenberg Foundation
American University
Bosch Siemens
Catalina Island Conservancy
Cherokee Investment Partners
China U.S. Center for Sustainable Development
City of Chicago
City of San Francisco
Delta Development Group
Equity Office Properties
Ferrer Grupo
FifPro
Ford Motor Company
Fox Vakanties
Frito-Lay
Gap Inc.
Gazeley Properties UK
GE Ecomagination
General Services Administration (U.S.)
Georgetown University
Google
Heinz Family Foundation
Herman Miller
Hero MotoCorp
Hines
IBM
Johnson Family Foundation
Kilroy Realty Corp.
L'Oréal
Madison Partners & Novita Capital
MARS
Method
Municipality Almere, The Netherlands
NASA
Nike
Oberlin College
Palm Inc.
Plantronics
Procter & Gamble
Prado Group
Projectbureau Ijburg
Recology
SABIC
Starbucks
U.S. Department of Defense
Universidad EAN
University of California, Davis
University of California, San Francisco
University of Michigan
VMware Corporation
Walmart
Wells Fargo
Whole Foods Market
Woods Hole Research Center
YouTube

< Universidad EAN
Bogotá, Colombia
Completed 2020

WILLIAM McDONOUGH + PARTNERS
architecture and community design

www.mcdonoughpartners.com

1 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.