The Hannover Principles: Design for Sustainability (1992)

Prepared in 1992 by [William McDonough Architects](http://www.mcdonoughpartners.com/)

And Dr. Michael Braungart; commissioned by the City of Hannover,

Germany, as design principles for Expo 2000, The World’s Fair.

The Hannover Principles

1. **Insist on rights of humanity and nature to co-exist** 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 recognizing 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 co-exist.
5. **Create safe objects of long-term value.** Do not burden future generations with requirements for maintenance or vigilant administration of potential danger 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 forces 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 re-establish the integral relationship between natural processes and human activity.

*The Hannover Principles should be seen as a living document committed to the transformation and growth in the understanding of our interdependence with nature, so that they may adapt as our knowledge of the world evolves.*

From the 2012 20th Anniversary Printing

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As an architect and designer, I am someone who spends time thinking about how we can imagine a future of abundance for our children. In 1991, we were commissioned by the City of Hannover, Germany, to craft sustainable design principles for Expo 2000, The World’s Fair. The result was The Hannover Principles: **Design for Sustainability**, which was officially presented by Hannover as a gift to the 1992 Earth Summit’s World Urban Forum in Rio de Janeiro, Brazil.

If design is the first signal of human intention, our intention today can be to love all ten billion people who will live on our planet by 2050. We can do this. If we imagine and embrace our cities as part of the same organism as the countryside, the rivers and the oceans, then we can celebrate ourselves, all species and the natural systems we support and that support us. This is our design assignment. If we are principled and have positive goals, we can rise to this occasion. It will take us all; it will take forever—that is the point.

—*William McDonough*

From the 2002 10th Anniversary Edition

INTRODUCTION, by Teresa Heinz

I first became aware of William McDonough’s work in 1984, when he redesigned the national headquarters of the Environmental Defense Fund. The redesign of the EDF office was a watershed event. Not only was it the first “green” office in New York City, it also laid the foundation for a new design philosophy: a commercially productive, socially beneficial and ecologically intelligent approach to the making of things that Bill and his colleague Michael Braungart would come to call eco-effectiveness.

When I hired Bill to design the Heinz family offices and Heinz Foundation offices in Pittsburgh in 1991, he and Michael had just been commissioned by the City of Hannover to develop a set of design principles for the 2000 World’s Fair. Having chosen “Humanity, Nature and Technology” as the theme of the fair, the city wanted to showcase hopeful visions for a sustainable future. The Hannover Principles were to put forth an inspiring standard, presenting to the world the first coherent framework for rethinking design through the lens of sustainability.

Getting to know Bill and Michael as colleagues and friends over the last ten years has given me the opportunity to see firsthand the impact of the Hannover Principles. From their elegant insistence on “the rights of humanity and nature to co-exist” to their call to “eliminate the concept of waste,” the Principles echo the deep human instinct—and wisdom—to care for the world. Indeed, they have become a cultural touchstone, providing information and grounding not just for the design community but also for all those devoted to bringing forth a world of social equity, environmental health and peaceful prosperity.

At their core is a simple truth: Human health, the strength of our economy and the well-being of our environment are all connected. I learned this lesson early in life, as a child growing up in Mozambique. In the East Africa of my youth, the interplay of nature, health and survival was a given, something that people who lived close to the natural world intuitively understood. For me, that understanding was reinforced by having a father who was a doctor. Observing him and the questions he asked of his patients taught me how illness can be related to environment and the practices of daily life.

We lived in a place where nature’s laws of cause and effect were fairly clear. If you went swimming at sunrise or sunset, feeding time for sharks and river crocodiles (and indeed, for all the animals in the savannah), you might get a nasty nibble. We learned to respect the rules of the natural world because they had such obvious implications for people’s personal well-being. Nature taught us the virtues of prevention—of solving problems by not creating them in the first place.

Industrialized societies tend to be less in touch with nature’s rules. In the nineteenth century, the paradigm was that we should tame nature; in the twentieth, it became a sense that we are almost immune to its rules. Today, we tend to think of the natural world as somehow separate, an entity “out there” that can be controlled, held at bay or even ignored. Even our efforts to protect the environment have been informed by this “us versus it” mentality, a sense that we are in competition with the natural world and that the best we can hope for is to mitigate the damage we cause.

The simple genius behind the nine Hannover Principles was that they reframed the issue. Rather than take a certain amount of ecological harm as a given, with people on various sides of the environmental debate reduced to arguing over the permissible amount, Bill and Michael invited us to consider an alternative. Why not just design products and institutions that support the environment, they asked?

The Hannover Principles were the first expression of that transforming idea. In nine lean declarations they set forth a value system and a design framework that Bill and Michael continue to use as the foundation of their evolving design paradigm. As they write in Cradle to Cradle: Remaking the Way We Make Things, nature’s cycles are not just lean and efficient; they are abundant, effective and regenerative. By going beyond mere efficiency to celebrate the abundance of nature, the practice of eco-effective, cradle-to-cradle design allows us to create materials, dwellings, workplaces, and commercial enterprises that generate not fewer negative impacts but more productivity, more pleasure and more restorative effects.

The key insight of eco-effective or cradle-to-cradle thinking is recognizing the materials of our daily lives—even highly technical, synthetic industrial materials—as nutrients that can be designed to circulate in human systems very much like nitrogen, water, and simple sugars circulate in nature’s nutrient cycles. Rather than using materials once and sending them to the landfill—our current cradle-to-grave system—cradle-to-cradle materials are designed to be returned safely to the soil or to flow back to industry to be used again and again.

Far more than a theoretical notion, this central principle of sustainability can be readily seen in the work of Bill’s architectural firm, William McDonough + Partners, and Bill and Michael’s industrial design consultancy, McDonough Braungart Design Chemistry. Working with clients ranging from small companies like the Swiss textile mill Rohner to global megacorporations like the Ford Motor Company, both firms are showing that designers attuned to this cradle-to-cradle philosophy can replicate nature’s closed-loop systems in the worlds of commerce and community. The result: safe, beneficial materials that either naturally biodegrade or provide high-quality resources for the next generation of products; buildings designed to produce more energy than they consume; cities and towns tapped into local energy flows; places in every human realm that renew a sense of participation in the landscape.

My own hopes for the urban landscapes of Pittsburgh brought The Hannover Principles home, literally. At the Earth Summit in Rio in 1992, where the Principles were introduced to the international community, I invited Bill and Michael to come to Pittsburgh to share their ideas. Both were invited to lecture at Carnegie Mellon University and, as I had hoped, the Hannover Principles became a part of the dialogue going on in Pittsburgh at the time about the region’s environmental future.

Today, Pittsburgh is gaining national recognition as a leader in green building and sustainable design. In many ways, that began with the building of the Heinz family offices, which represented the first, commercial-scale use of sustainably harvested tropical wood. Our offices served as a laboratory and model for others to learn from, and not just locally. The Discovery Channel covered it; architectural magazines wrote about it; and builders, designers and architects from across the country came to study its features. Since then, the ideas articulated in the Hannover Principles have never been far from the minds of the staff at The Heinz Endowments as they have advanced our green building agenda in Pittsburgh over the past decade.

Those ideas are making communities from Pittsburgh to Chicago and from Shanghai to Barcelona better places to live. They are helping people create buildings and landscapes where natural processes unfold with renewed vitality. They are transforming product design and shaping the work of such influential companies and institutions as Ford, Nike, BASF, the University of California, the Woods Hole Research Center and Oberlin College. As more and more companies and institutions adopt these sustaining principles, there is also the chance that the global economy as a whole will begin to find robust health and long-term strength through the practice of intelligent design.

Ultimately, that is the enduring value of The Hannover Principles and the reason why this tenth anniversary edition is as fresh and necessary as ever. The Principles urge us to start seeing ourselves as part of the natural world and to replicate the joyful, productive and intelligent practice of life itself.