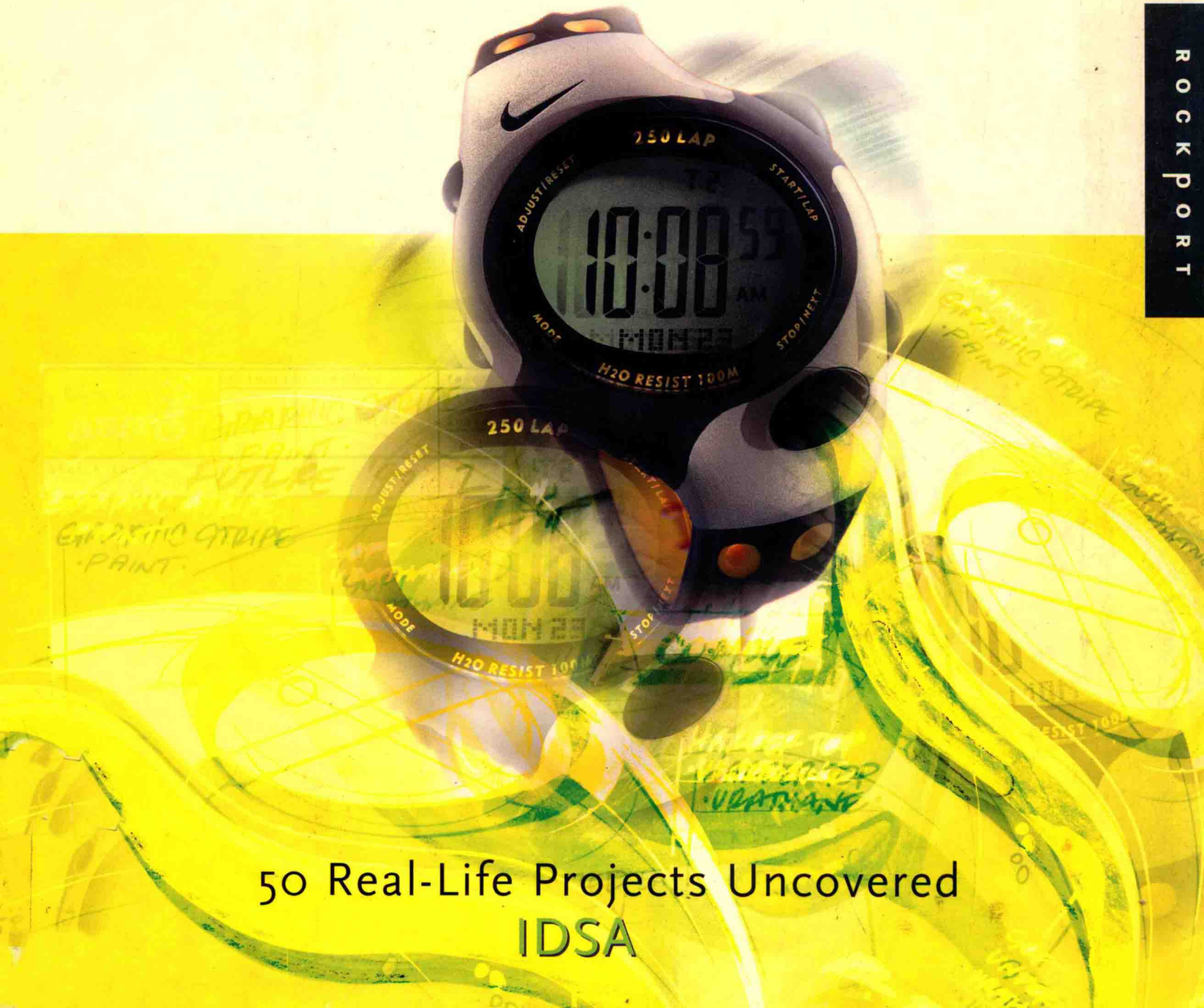
Design Secrets: Products



50 Real-Life Projects Uncovered

IDSA

ROCKPORT

Design Secrets: Products

50 Real-Life Projects Uncovered

IDSA (Industrial Designers Society of America)

GLOUCESTER MASSACHUSETTS

ROCKPORT PUBLISHERS

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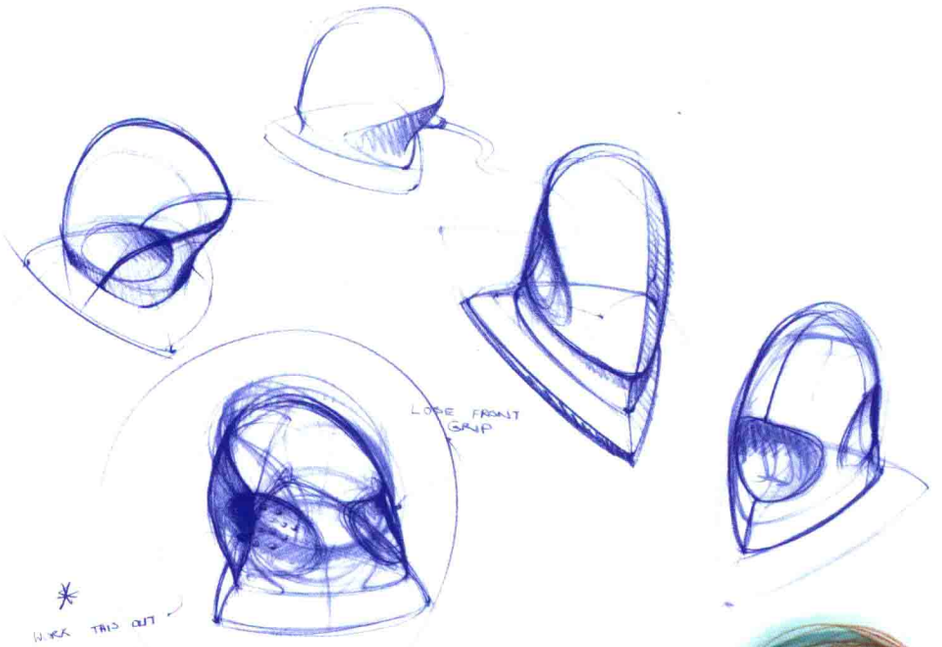
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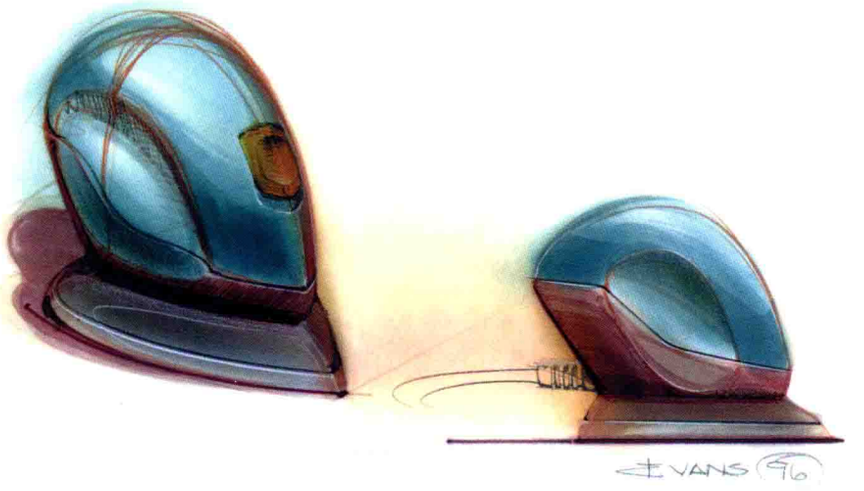
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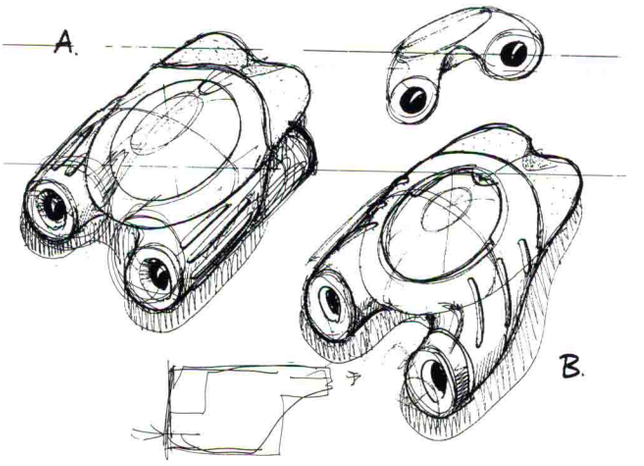
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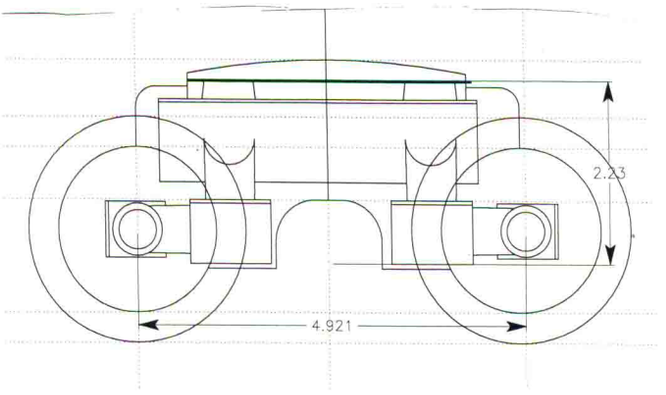
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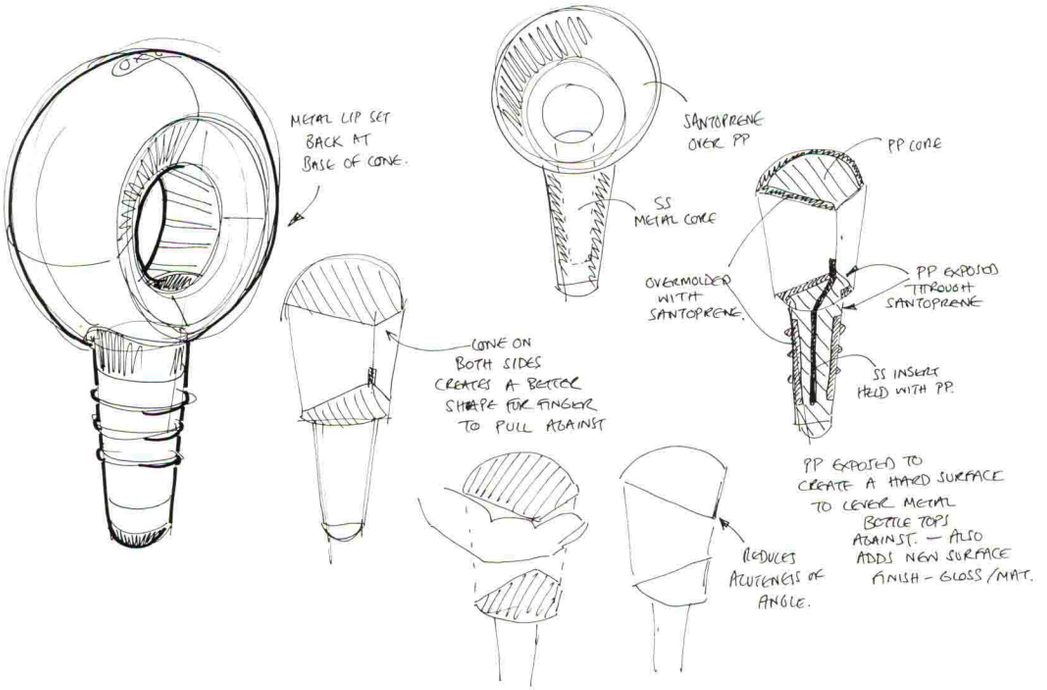
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SS INSERT HELD WITH PP.
CONE ON BOTH SIDES CREATES A BETTER SHAPE FOR FINGER TO PULL AGAINST
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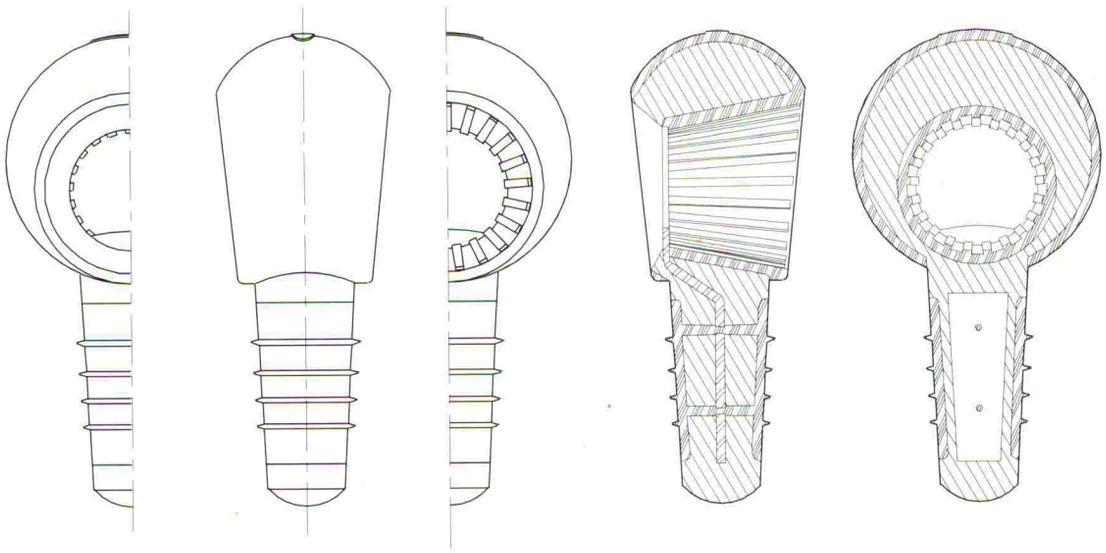


Introduction

The Industrial Designers Society of America (IDSA) had compelling reasons to partner with Rockport Publishers on this book: It meets a growing, real, and broad hunger for information and inspiration on industrial design.

Recently, industrial design has emerged as a profession that fascinates people of all ages. This interest is fed by business magazines, fashion magazines, nationally noted newspapers and talk shows, along with museum exhibits and even advertising. The outcome of industrial design—the product—has become an icon for the reemergence of the U.S. economy. Discovering that the product is not an accident or only the offspring of marketing or engineering is fresh air to people just beginning to understand that their purchases are about more than money and function—they are about culture and lifestyle and experience.

For the profession of industrial design, this book feeds a vital longing and real need. With no textbook, students and educators need case studies on which to base the experiential, highly kinetic, exploration-based form of learning that prevails. Professionals need a source of inspiration and insight to fuel their quest for innovation, for true functionality. How better to learn how to blend and balance function with aesthetics, usability with business constraints, ecological responsibility with appeal?

But where to start? How could we select the fifty designs we wanted to capture? Feeling that we needed an objective basis for selecting these designs, we turned to the Industrial Design Excellence Award (IDEA) winners of the past few years. The annual IDEA competition is sponsored by *Business Week* magazine and IDSA to honor designs that achieve precisely those goals: innovation, benefit to user, benefit to business, ecological responsibility, and appropriate aesthetics. Unlike previous reports on IDEA winners, each of these stories is crafted by a writer based on interviews and information, focusing on the early conceptualization and decisions about what the product should be and do and how it should be presented.

The resulting book, rich in visual appeal, provides compelling insight into one of the new decade's most intriguing professions.

We hope you find in these stories a source of wonder and knowledge. Especially, we hope that this book opens doors for you, whether you are an attorney, a nurse, a politician, a homemaker, a teacher, or a designer.

Kristina Goodrich
Executive Director
Industrial Design Society of America

Resolve System for Herman Miller Today's technology allows people to **work virtually anywhere.** Given the **flexibility** afforded by cellular phones, modems, and portable computers, why do they still go to **the office?**

Above: The translucent fabric used for the boundary screens presents a culturally transparent framework upon which a company can express its identity or corporate mission and also allows natural light to bathe the entire office, not just a select few who are lucky enough to win a window location.

Below: An overhead system of trusses carries power and data to the poles and virtually eliminates the clutter that results in workstations from complicated, messy cables.

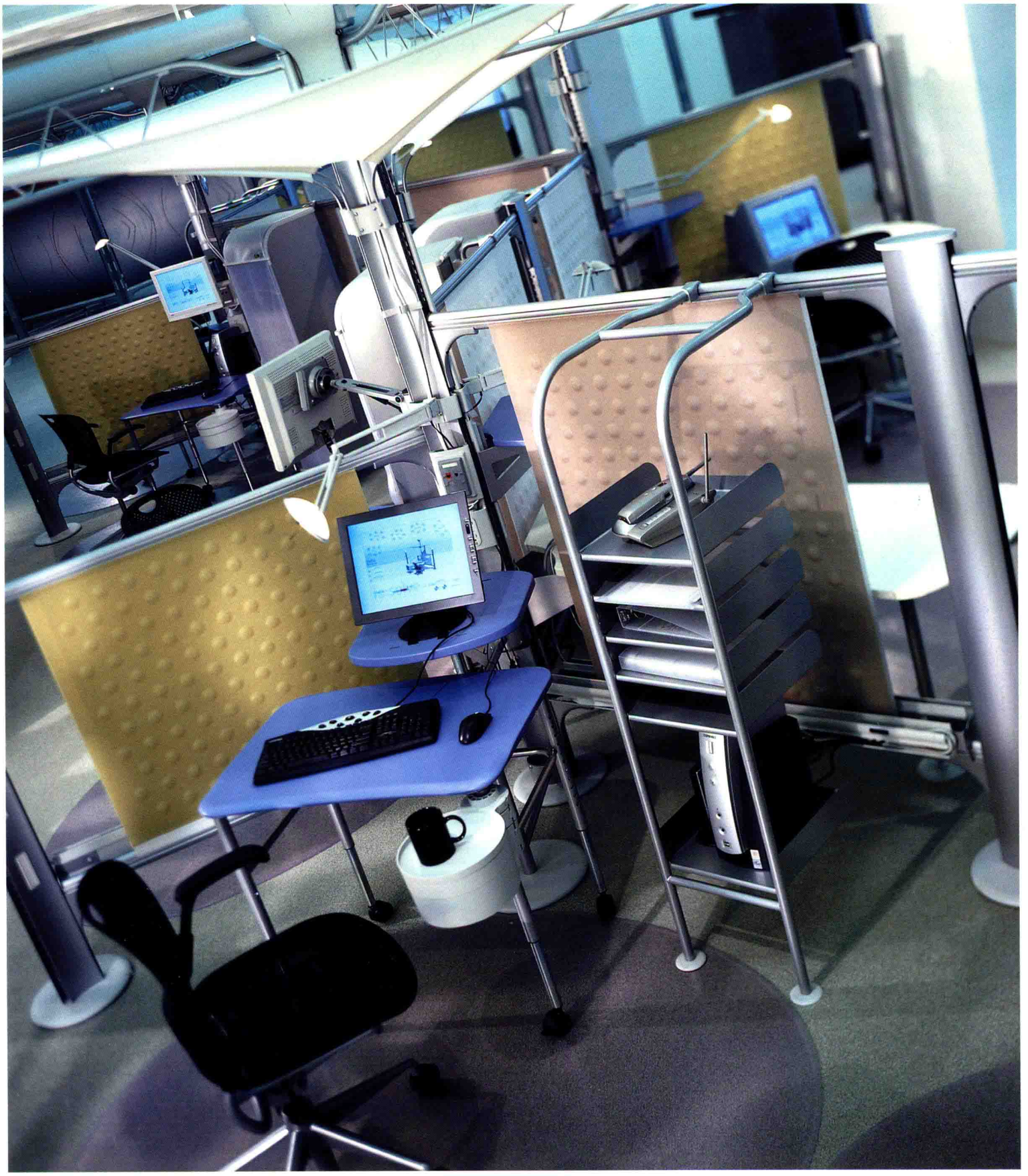
Experts say people crave sharing, learning, and socializing, yet the familiar cubicle system often inhibits interaction. Herman Miller, Inc., the company that introduced traditional panel-based, right-angle systems three decades ago, recognized that the time had come for an alternative. After all, work has shifted from a horizontal pen-and-paper surface to the vertically oriented computer.

Herman Miller tapped Ayse Birsel, principal of the New York design firm Olive 1:1, for guidance. She asked that Herman Miller form a concept team to help her conduct observational research on the office setting. Members were chosen from every corner of the company. They conducted site visits with two objectives: to see how people work and to develop a common understanding of what is happening in offices today. Birsel uncovered one overwhelming fact—she wouldn't want to work in any of these offices herself. "They felt oppressive and all of them looked the same," she says. Additionally, facilities managers complained that ordering furniture was too complicated. "Could we design a system with so few pieces that you could remember them off the top of your head?" Birsel asked.

The team met every two weeks. The first three months were dedicated to design exploration and ideation. Birsel was then able to articulate an idea close to the final concept of Resolve. Prototypes followed from mock-ups to increasingly developed designs—all built to human scale; Olive 1:1 models in 1:1 scale rather than the traditional 1:8 architectural scale. "My work methodology is a true demonstration. Things that on paper or the computer might look one way are experienced differently when you do them in full scale," says Birsel. "Some things can be appreciated only at full scale."

The first prototypes "didn't have any design form intent. They were all about the idea," says Birsel. Olive 1:1 built prototypes from off-the-shelf parts, including a lightweight scaffolding product used as the basic structure. They bought inexpensive soft blankets at IKEA, sewed transparent pockets onto them, and cable-tied the blankets to the scaffolding to represent a privacy screen between two people. Finally, they attached a flexible sweater bag from Hold Everything to the screen to simulate a potential storage option.

"These mock-ups were about the fundamentals of Resolve but, at that early stage, we had no idea what that would mean in terms of actual design details, size, and shape. With every iteration, we improved on the details as we learned more about the system, until we ended up with the final design," explains Birsel.



Resolve is based on a 120-degree geometry—the centerpiece of which positions the user and their technology in a 120-degree corner that is nurturing, yet open and considerably more generous than the 90-degree corner found in a traditional cubicle.

The first mock-up, built in the corner of Olive 1:1's office, grew too big for the space. Birsel suggested that, as the project was all about work, her own personnel work in it. Olive 1:1 moved into Resolve, becoming the first test group for the system.

With each of the six iterations, Birsel sent prototypes to an outside company of about fifteen people for two months to gather user feedback; she was surprised at some of the findings. Designers were concerned that acoustics might be a problem with such an open office configuration. But one company, accustomed to panels, reported that the acoustics were the same.

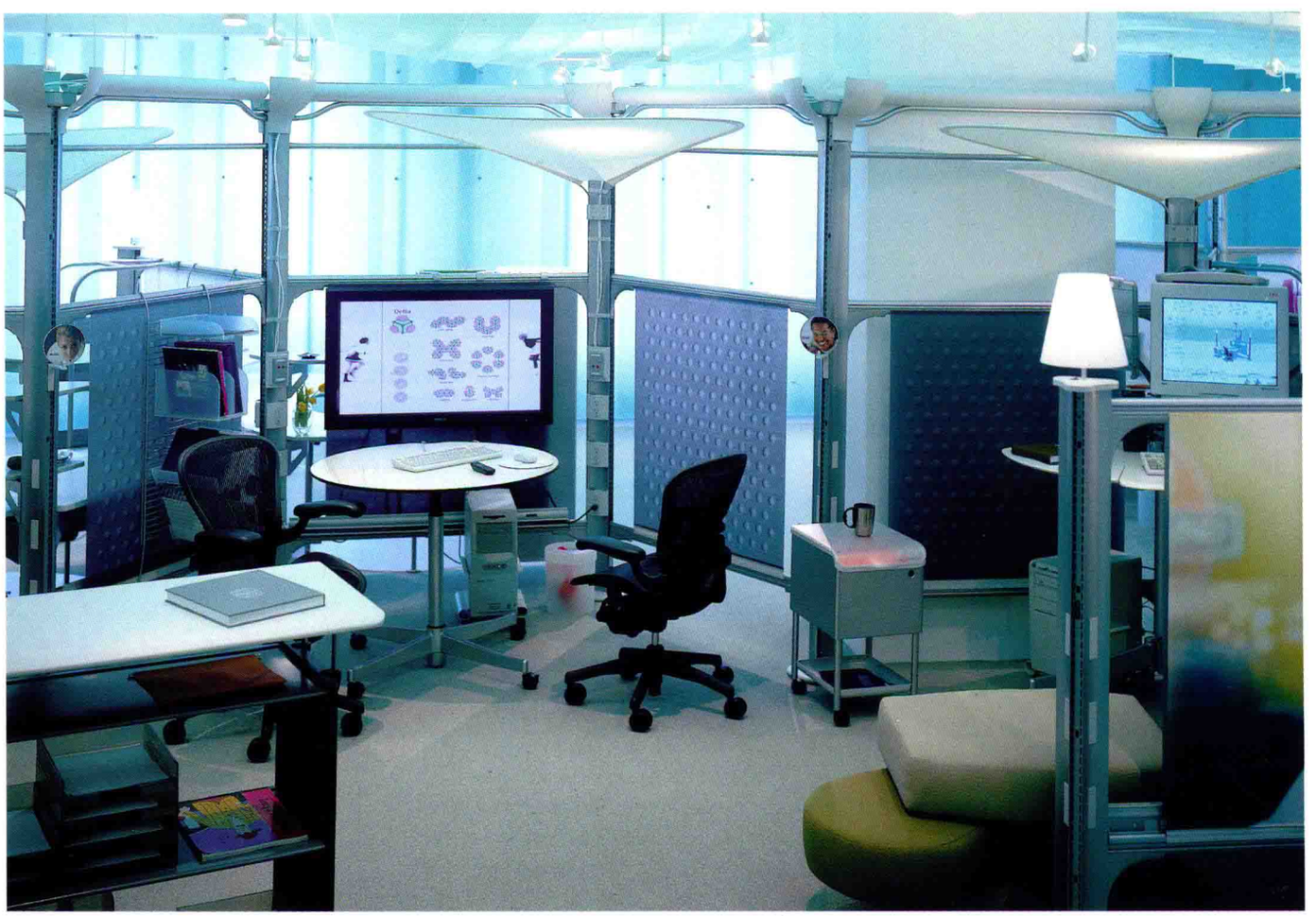
The design called for dividers made of translucent screens that would not block natural light, yet could function as bulletin boards. The engineering team suggested that Velcro be incorporated as well. The fabric was opaque and, while test groups liked the idea of a Velcro-able and tackable display screen, they didn't like that it was not translucent. Birsel's group therefore invented Bubbletack. They also tweaked other parts of the system. After a year, the flexible storage accessory simulated by the sweater bag was dropped in favor of hard storage, sturdier for storing books and binders. "That was one thing that changed radically, but we had the flexibility to do it," says Birsel.

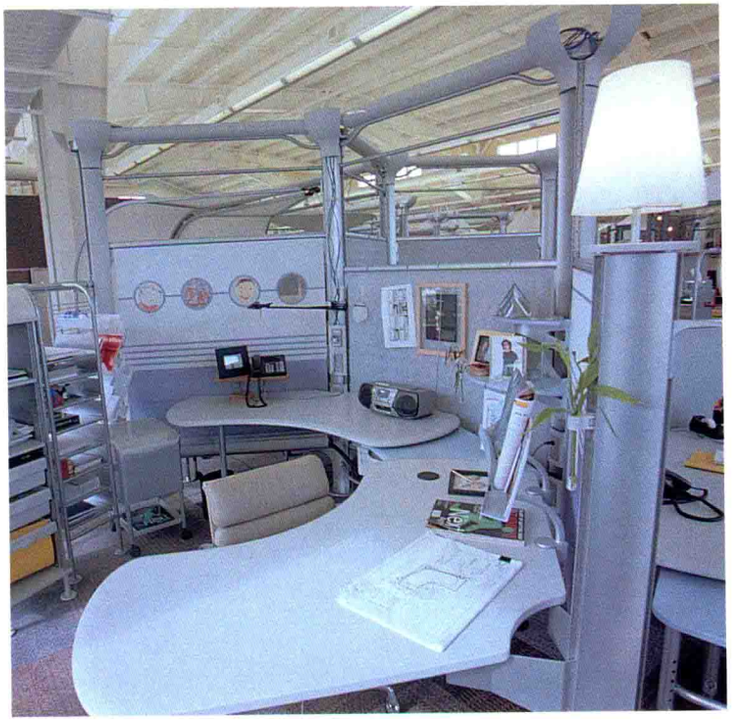
The elements differentiating Birsel's concept from traditional office systems became increasingly evident. Unlike traditional panel systems, Resolve is based on a 120-degree geometry, the centerpiece of which positions users and their technology at a boomerang-shaped table in a gently angled corner that is nurturing, yet open and more generous than the usual 90-degree corner. Main components are roll-formed of stamped steel or plastic and comprise an overhead system of trusses that carry power and data to the poles, virtually eliminating cable clutter. The layout makes workstations more open and easier to plan and change while allowing more efficient use of space. The translucent fabric used for the boundary screens presents a framework on which a company can express its identity and permits natural light to bathe the entire office.

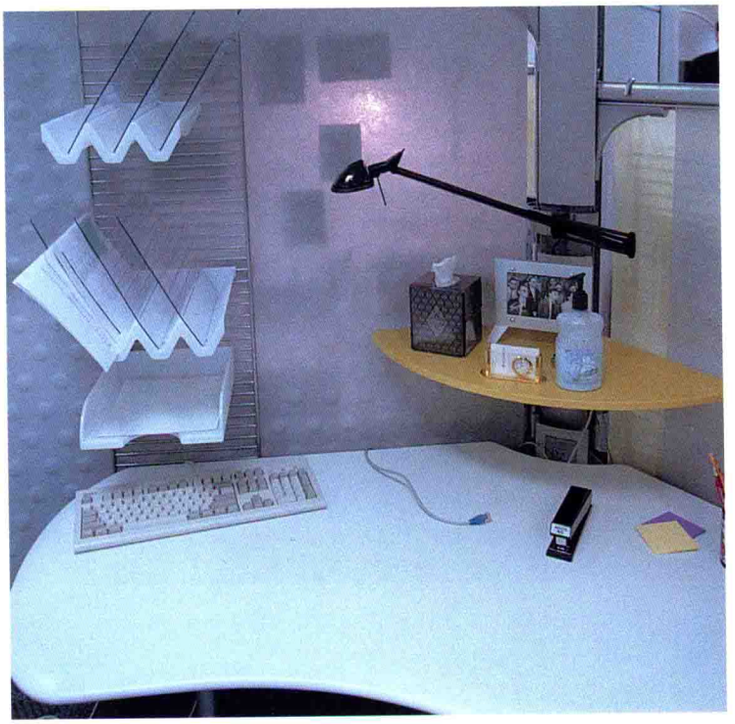
A company in India was chosen as one of first gamma sites to receive the nearly completed system. The experience was overwhelmingly positive and taught the group a lot about Resolve's advantages. Because it is one-third the weight of a traditional system, Resolve's shipping costs were relatively low and, because of its flat lines, it was easy to pack. The best news was that the company had no problems installing it.

The ease of installation is due, in part, to the simplicity of the system, which boasts a vocabulary one-quarter the size of traditional systems. Birsel points out that planning, specifying, installing, inventorying, and reconfiguring is faster, easier, and more affordable. In fact, the company states that reconfiguring, upgrading, and restyling the system is more than 50 percent faster than with traditional systems.

"Resolve is made up of fewer than twenty products," and the variety of configurations possible with those few pieces is considerable, says Birsel.







These shots of the final incarnation of the Resolve system, as it stands in Herman Miller's design showroom, show off its unique geometry and simplicity.

Experts say we go there to belong to a community—a craving to share, learn, and socialize—yet the panel-based system of cubicles often inhibits interaction by compartmentalizing its inhabitants into a 90-degree corner. This system's goals were to bring people together, not separate them.

Leap Chair The human spine is not a **single, solid unit.** When a person **reclines** in a chair, for instance, the upper back moves **backward,** but the lower back arches **forward.**

By exposing the Leap Chair's skeleton and using a technology that lets the chair move exactly as the user does, Steelcase and IDEO designed an unusual, healthy, and comfortable chair.

This causes a gap between the seat and the lower back, which, in turn, causes the person to sag and hunch his or her back in an unhealthy way.

Another dilemma: Every spine is as unique as a fingerprint. Every person has his or her own unique "spine print," and that print changes as the person's posture changes. Sitting down, sitting up, reclining, and every posture in between requires a chair that provides almost customized support.

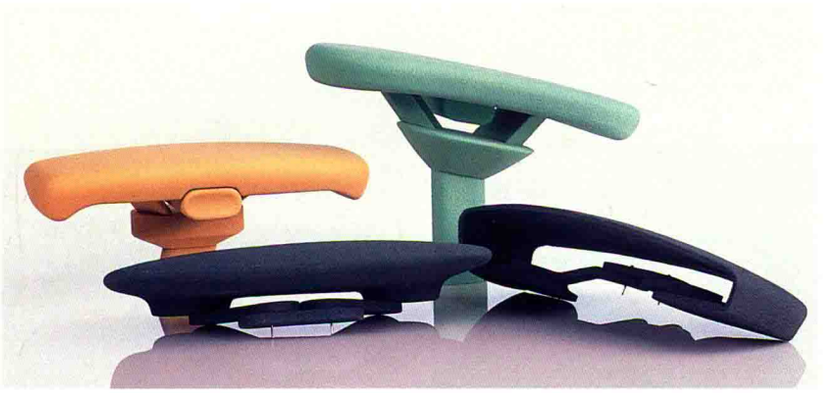
Yet another chair design problem: There is an ideal "vision and reach zone" that most people naturally position themselves into when seated at a desk. The zone provides the best place for you to see and reach your work. Unfortunately, when you recline, you leave this comfort zone. The distance between you and your work increases, causing you to stretch, squint, or struggle back to your original zone.

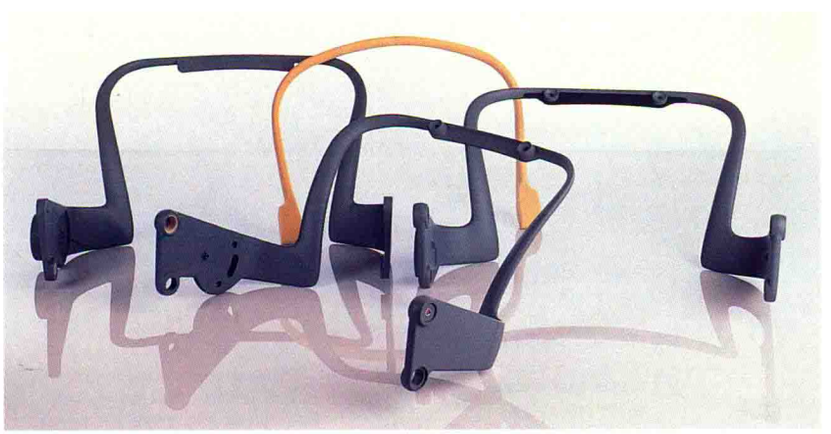
Steelcase presented IDEO with all of these challenges. They wanted a chair that conforms to the person rather than the other way around. The chair back should change shape with the person's back as his or her posture changes. The upper and lower back support mechanism should be independently adjustable. Finally, the chair should allow the sitter to recline without changing his or her orientation to the work at hand.

Unspoken but understood, another design mandate was that the chair had to be beautiful and appropriate in an office setting, says IDEO's Scott Underwood. "There was no model that came before [what would become] the Leap Chair that had any kind of genetic link to the [final] chair's design and mechanism," he says. "Certainly there have been many high-end, ergonomic task chairs from Steelcase over the years, but Leap—as its name implies—represents a bold leap forward."

Steelcase had spent many dollars over four or five years of research—eleven studies, 732 test participants, four university study settings, and twenty-seven scientists—in developing what the company calls its Live Back technology. Live Back mimics the human back, moving as the person moves and providing support in all positions. IDEO's job was to apply the technology to an aesthetic and manufacturable framework.

Addressing the technology in a visual way was a challenge. Says IDEO designer George Simons, "When engineering is such a dominant part of the design statement, the question is how to keep a chair a chair. We took a very straightforward approach. We brought forward, in a very honest way, the mechanism of the chair. We didn't try to hide it under covers or behind other elements."





IDEO designer Thomas Overthun says the final chair design is both mechanical and organic. "We tried to make it as light and elegant as possible while tying it all together. So, for example, the back frame has a skeletal feel to it, and we picked this up in the design for the loop arm." Two controls allow different settings for the upper and lower back, and the Natural Glide System lets the seat move forward as it reclines.

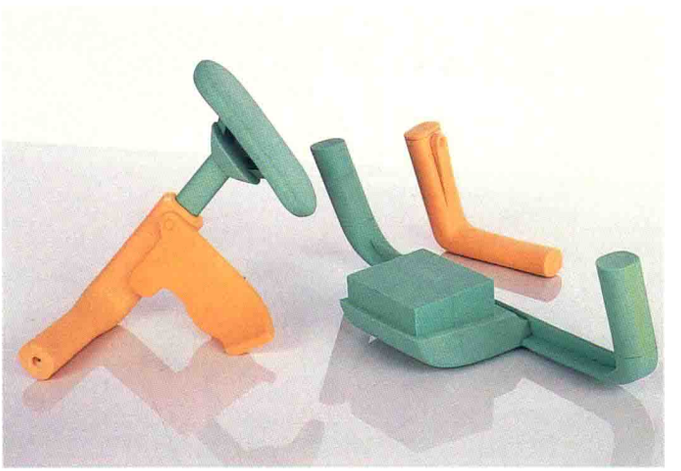
The goal of the controls, Simons adds, was to bring a simple clarity to the design. "Our goal was not to design lots of parts that became objects in themselves but to design something that added up—and remained clearly within the furniture vernacular."

The result was a form that is both mechanical and organic. From the exposed structure of the back and the feel of the armrests to the straightforward nature of the controls and the many upholstery solutions that Steelcase offers—more than ninety configurations of arm, back, frame and upholstery styles are available—the chair is remarkable enough in function and design to have become the company's flagship chair. Customer response has been overwhelming.

Underwood says the response to the Live Back technology alone has sparked interest in other areas of industrial design. He believes Steelcase is interested in licensing it to manufacturers of airplane seating, auto and truck seating, and others.

Above: Various arm studies exploring articulating armrest designs.

Below: Ribbon backframe prototypes.



Very early foam studies for arm and seat mechanisms.

The final industrial design prototype for a see-through arm.