

# Generation by Knoll™ Idea & Concept

Compiled and edited by Knoll, Inc.  
*Based on interviews with Formway Design and Benjamin Pardo, Knoll Director of Design*

**Knoll**

## Introduction

Does the world need another chair? Certainly that's a reasonable question to ask when the planet is already populated by hundreds, if not thousands, of different chairs—chairs for working, dining, relaxing, playing, napping, waiting, or, even, admiring—some are a wonder to behold but awkward to sit in and some are so comfortable that one is reluctant to get up again. For centuries, the chair has captivated the imagination of many of the leading architects and designers of their day as a master-class problem: an assignment so basic yet so complex that in devising a solution, each would, in effect, engineer their own design DNA. Designing a new chair is, as architect Frank Gehry, once put it, “like asking me to find the meaning of life while standing on one foot.”

Gehry fulfilled just such a daunting assignment from Knoll with his now iconic Cross Check chair and accompanying collection, introduced in 1992. With this chair, Knoll returned, once again, to its roots in experimental design and, particularly, its long history of innovative seating. Company co-founder, Florence Knoll, openly professed disdain for stiff chairs and, according to design writer Jonathan Olivares, stated that she was “sick and tired of these chairs that held you in one position.” That legacy continues today, as seen in our latest release, Generation by Knoll™, the result of our collaboration with Formway Design, the Wellington, New Zealand-based collaborative.

## Milestones in Chair Design

Each significant new chair is both propelled by the innovations of its predecessors and yet firmly rooted in its time. It's an attempt both to refine or elaborate on previously tested ideas and to launch new ones by way of new materials, new methods and tools of production, new patterns of use, new ways of seeing the world. Innovation in the furniture industry has been driven in part by a succession of game-changing chairs. Michael Thonet's Chair No. 14 of 1859, for example, which employed a new technique of steam bending laminated wood rods to form the graceful curve of its back and, in another innovation, is composed of a series of pieces that could be assembled without carving or gluing, reducing labor costs. There's Marcel Breuer's Wassily Chair of 1925, which consists of a tubular steel frame wrapped with strategically placed straps of leather that serve as seat, back, and armrest. This early use of metal tubing for furniture was supposedly inspired by the frame of Breuer's new bicycle, bringing not only a new material to the furniture industry but, again, an economy of means with its own inherent aesthetic. Both of these chairs spawned generations of disciples and remain in production today. Some of the most dramatic game changers, however, have had shorter lives—either by intention or as a result of market forces.

Chairs like Shiro Kuramata's Miss Blanche of 1988—with its paper flowers floating in slabs of acrylic resin—are produced in limited edition due to the complexities and costs of fabrication. The legacy of concept chairs like this, which, like couture, are not easily reproducible for the masses, is no less significant than the evergreen classics, as their experimental quality offers tantalizing glimpses of the future.

Striking design aside, most chairs are, as we know, for a primarily utilitarian purpose: sitting. What is less obvious, perhaps, is that the act of sitting is a far more complex activity than many might think. The longer someone remains seated—at work, for example—the clearer it becomes that sitting is not in fact a static state. For most, sitting for an extended period of time yields an array of positions, from upright





to slouched, and nowhere is that clearer than in the office. Though office chairs have a history before the 20th century, the period after World War II, with a newly flourishing economy and the emergence of a suave aesthetic of corporate modernism, was a particularly fertile time for innovative office furniture. This era marked the dominance of the swivel chair: a chair that permitted its user a new freedom of movement. Though the swivel chair is perhaps best personified by Charles and Ray Eames' now-classic Aluminum Group of 1958 for Herman Miller and Eero Saarinen's Executive Armchair of 1957, the idea of a swivel chair goes back at least a century and a half before the 1950s to one designed by Thomas Jefferson for his private study at his home in Monticello, Virginia. Whether he originated or adapted the idea, there is a certain poetic justice that the architect of American democracy is credited as the inventor of the first chair to revolve 360 degrees, endowing office workers with a new sense of self-governance—not unlike the combination of utopian ideals and pragmatic means that he instilled in a young nation.

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Despite its illustrious beginnings, the novelty of the swivel chair gradually wore off. By the 1970s, the swivel chair had given way to the more mechanically elaborate swivel and synchronized tilt mechanisms, which provided the additional freedom of being able to adjust the tilt of the back and seat not only in relation to one another, but also independently. Ingrained in both the swivel and synchronized chairs is the idea that there is a “correct” posture for everyone to maintain while at work. So the ideal office chair was both personal—adjustable enough to accommodate differences in height and weight—and universal—intended for an

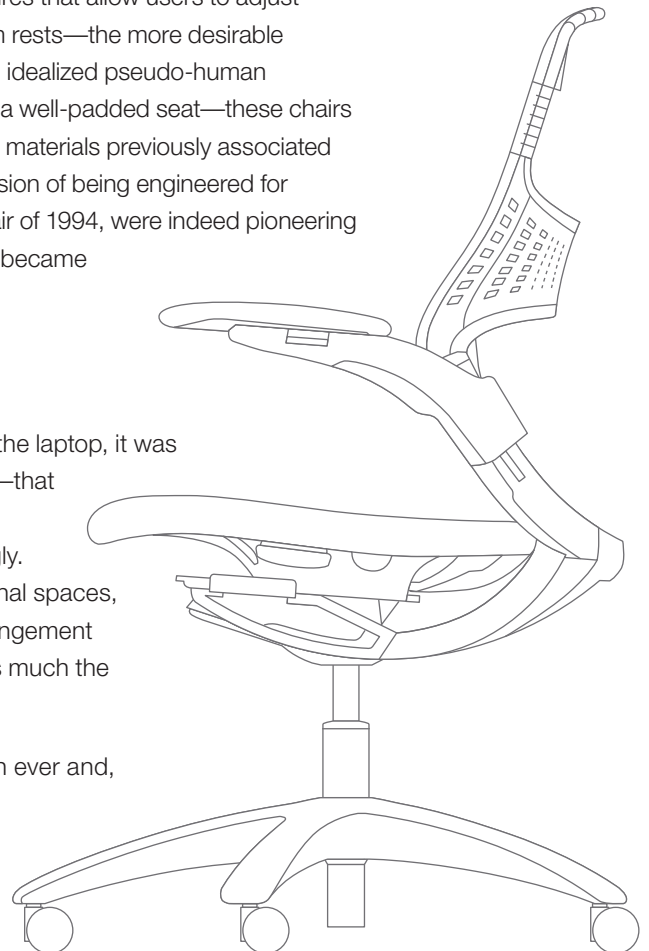
“optimal” upright front-facing position. By the 1980s, with the growing role of personal computers, the prescriptive quality of some offices chairs was reflected in the increasingly frequent use of a new rubric, the “Task Chair,” revealing that the function of the product, sitting, was being eclipsed by what its user was to perform while in it, typically while shackled to their desk.

Over the years, recognition grew that sitting for hours at a desk in front of a computer took a physical toll and by the early 1990s, the era of ergonomic design was in full swing. New office chairs responded to specific areas of the body susceptible to muscle strain—the lower back, for example—with special features intended to prevent such problems. Sitting comfortably in your chair required making a precise series of adjustments suitable to you. The more adjustable levers and mechanisms—adding features that allow users to adjust lumbar support, seat angles, the tilt tension and range, the height of the arm rests—the more desirable the chair. Many designers anthropomorphized their chairs. By incorporating idealized pseudo-human characteristics—an articulated structural spine, tapered waist, maybe even a well-padded seat—these chairs appeared sympathetic to the human condition. In addition, by incorporating materials previously associated with athletic gear—such as nylon mesh—the chairs gave the overall impression of being engineered for maximum efficiency. Standouts of this era, like the Herman Miller Aeron chair of 1994, were indeed pioneering and met with huge success, but, like other revolutionary models, they soon became stepping-stones to yet another cycle of innovation.

## The 21st Century Workplace

By the turn of the 21st century as the desktop computer was eclipsed by the laptop, it was the design of the office itself—the “workplace” in contemporary parlance—that had undergone dramatic transformation. As the nature of work became less sedentary and more interactive, the setting had to respond accordingly. Influenced by the initial success of the dot-com model of informal communal spaces, the place of work had become increasingly separated from a specific arrangement of furniture in a fixed location; in fact, these days, the chair has become as much the “office” as a cubicle or executive suite once was.

In this role, the demands placed on each individual chair are greater than ever and, as a result, Knoll saw an opportunity for a new approach to seating. The company turned to Formway, a design collaborative whose members act as much as keen observers of human behavior



as product designers. Comprised not only of industrial designers, but also engineers, materials experts, and marketing staff, Formway is research driven. They spend nearly as much time articulating a design brief as designing the eventual product. For Formway, precisely framing a problem is essential to solving it—the first step of their methodology of “discover, design, deliver.”

The Knoll Life® chair, designed by Formway and introduced in 2002, automatically calibrates to the weight of its user and adjusts accordingly. It was this idea of an intuitive chair that Knoll wanted to take further. And so began our second collaboration with the New Zealand design firm, a multi-year process that ultimately led to the introduction of the Generation by Knoll™ chair in the spring of 2009.

For this project, the Formway team interpreted the chair brief by turning it on its head—focusing on functions that standard office seating isn’t supposed to perform, an approach that they called “designing outside of the chair.” In early 2005 they began an initial feasibility study, which included substantial field work—photo documentation and detailed interviews with a wide variety of office workers—to examine how people really use their chairs and to tease out what Formway’s Lead Designer Kent Parker calls “empathetic insights.”

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Formway and Knoll recognized that the furniture industry’s basic assumption about office seating—that there are only a few optimal ways to sit while at work—was flawed. In fact, empirical evidence showed that sitting upright and facing forward was just one of many things that people did in their office chairs and that other positions such as stretching, rotating, leaning, and reclining were not merely physical tics to relieve boredom, but, rather, essential activities as workers executed a range of tasks both on their own and while interacting with colleagues. No combination of adjustable levers would make a chair equally comfortable in each of those positions. Instead of assuming that a user would constantly adjust their chair, the team maintained that a chair should adjust to the user. Like many observers of the new workplace, they were convinced that business innovation is a direct result of collaborative interaction and that the shift between working independently and in groups often happened spontaneously. This meant that the chair of the future would not force the user to choose between freedom of movement and continuous support, but would provide both, simultaneously. For Knoll, this new project with Formway led by Kent Parker, was not just a question of devising the next generation of office seating, but, says Alana Stevens, Senior Marketing Director, Knoll, “the next generation of chairs—period.”

## Elastic Design

It’s worth noting that the concept of seating that moves as you move was not entirely new. In fact, one could argue that the bean bag chair of the 1960s, which quickly became a ubiquitous symbol of hippie informality, could be considered a forerunner of Generation by Knoll: each time the user shifts position on the bean bag chair, the “beans” (actually polystyrene beads) rearrange themselves to support you—comfort is entirely a result of automatic responsiveness. For Knoll, it was time to take this idea of elastic design—where the product rearranges itself in response to its user—to a new level.

With goals firmly in place, the next step was an in-house Formway charette—a 48-hour design challenge—with two Formway teams competing against each other to give three-dimensional form to what had, up until then, been mostly abstractions. Early ideas were presented to Knoll in June 2005 and at that point designer and manufacturer agreed on the overall intent of the project. The design itself went through several stages of development. An early prototype was reviewed in October 2006 and at that point the team considered the overall form of the chair to be not fully resolved. A substantial part of the following year was devoted not only to refining the design, but also to hands-on full-scale model and manufacturing testing. The extensive testing was facilitated by the fact that Formway’s design studio is located on top of their factory, as well as by the depth of the Knoll in-house material and production expertise, which would prove critical as it became clear that the chair would largely rely on a material that had never before been used in such a way in the furniture industry.

Over time, Generation by Knoll evolved from a boxy skeleton that conveyed an old-fashioned futurism to its more fluid final form: a curvy figure-eight structure fused to a molded, pliable high performance elastomer. To identify one component as the skeleton and the other as skin is misleading as they are inextricably intertwined. The high performance elastomer gives the back and control its spring, flexibility and durability—so it is, essentially form and function, in one.

## Material Flexibility and Durability

Until now, this material has never been used in such an application, and its most common uses—as a hinge on dishwasher door or as a ski boot strap—give a good indication of its features: durability and flexibility. A high performance elastomer hinge is equally stable in the “open” and “close” position and sustains its shape through ongoing and, even, punishing use.

For the purpose of the Generation by Knoll chair, this molded material is manipulated, in a way that strengthens it, making it virtually inured to flex fatigue. It can twist and bend with use and yet retain memory of its original position. The back part is fused to the figure-eight structure, which is made of a reinforced polyester. As a result of the overall design of the Generation by Knoll chair, you can push your elbow against the Flex Top of the backrest and it will bend over to support your arm as you turn and reach for something behind you or lean to chat with a colleague. The flexibility is not just from front to back, but also from side to side, allowing you to fluidly reach across your right or left side while the chair moves with you. This flexibility is also a feature of the Flex Seat, an ischial plate that rests atop a shallow, flexible nest. The perforations in the seat plate allow it to reduce pressure points. The nest offers 270 degrees of seat flex—on the front and both



of the sides—so that if you drape your legs over the side, they are not obstructed or cut off by a hard edge. Also, the inside surface of the arms is designed so that if you—like many of the people Formway documented in their research—sit sideways in your chair, your back won't hit an uncomfortable corner of an armrest as it would in most chairs—but will have continuous, comfortable lumbar support.

Because of the streamlined and innovative construction of the chair's synchronized control, gone is the hulking chassis found beneath the seat of most task chairs. Made from the same high performance elastomer as the back, it consists of just one-third the amount of parts found in a typical ergonomic chair mechanism. With fewer parts there is less likelihood of breakage and the chair is lighter and more agile. This careful attention to minimizing mechanical features is yet another legacy of Florence Knoll.

Innovative design can serve as a portrait of its times. While certain values endure, like Florence Knoll's dedication to clarity of design, others emerge. This is an era beginning to come to grips with conserving natural resources and this chair's efficient use of materials, in which extraneous parts were eliminated, is part of our embrace of sustainable design. This is also an era in which the quality prized above many is agility. Agility requires strength, endurance, coordination, and responsiveness—all qualities characteristic of Generation by Knoll. These days "the chair represents you in the office," notes Knoll Director of Design Benjamin Pardo. It is a new ideal of the office chair that Generation by Knoll aspires to: no longer your taskmaster, now your office surrogate, and almost, but not yet, as elastic as the human body.

