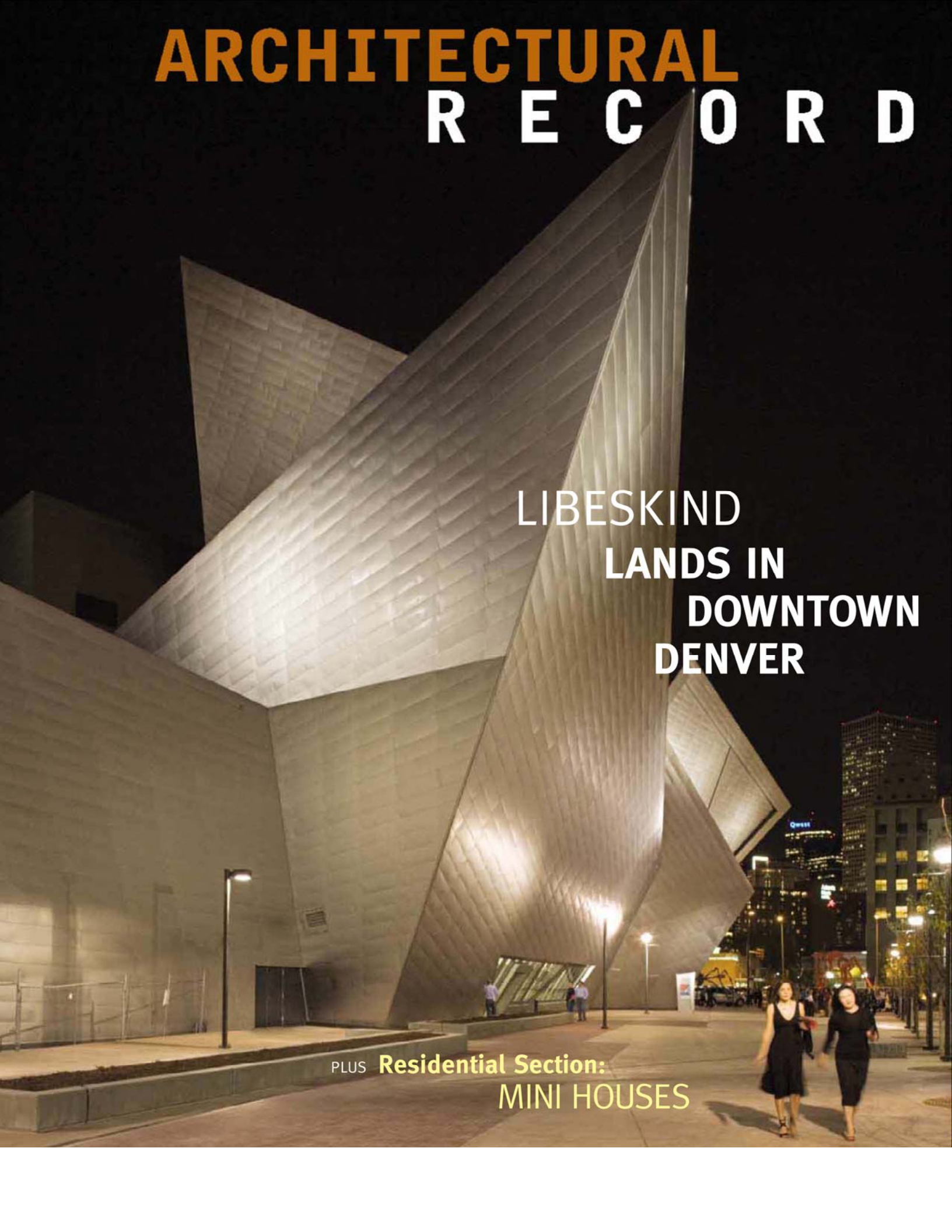


# ARCHITECTURAL RECORD

LIBESKIND  
LANDS IN  
DOWNTOWN  
DENVER

PLUS **Residential Section:**  
MINI HOUSES





# SANAA's Sejima and Nishizawa create layers of reflections and perspectives in their **GLASS PAVILION** at the Toledo Museum of Art

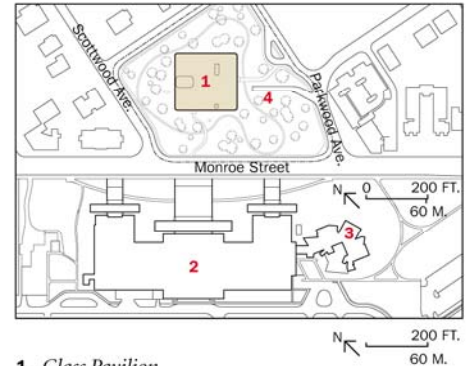
By Clifford A. Pearson

Just as theater-in-the-round radically changes the relationship between actors and audience, so the new Glass Pavilion at the Toledo Museum of Art subverts many of the old rules of displaying art. By using mostly clear-glass walls for both the building's envelope and its interior partitions, the architects Kazuyo Sejima and Ryue Nishizawa of the Tokyo firm SANAA have performed the museum equivalent of stripping away the proscenium stage and creating a more fluid dynamic between art and viewer. Materials and boundaries disappear, corners dissolve, front and back no longer apply. The building provides spatial drama using a remarkable economy of means, but at the same time creates a series of challenges for the museum's curators.

The 76,000-square-foot pavilion houses the museum's impressive collection of more than 5,000 pieces of glass art and sits in a small park across Monroe Street from the institution's Neoclassical main building. Placing glass art in a glass building seems like an obvious strategy, but turns out to be quite tricky to pull off. For example, how do you protect artworks from ultraviolet rays? How do you display them when most walls are transparent and traditional mounting techniques are impossible? Usually straightforward decisions—such as where to locate a thermostat—become difficult puzzles in an all-glass gallery.

Sejima and Nishizawa love wrestling with such design dilemmas. In their 21st Century Museum in Kanazawa, Japan [RECORD, February 2005, page 88], they figured out how to place square galleries in a circular glass building and move visitors through a mazelike interior with few traditional hallways. And at the New Museum now under construction in New York City, they have devised an intriguing way of stacking metal boxes off-axis to bring daylight into the galleries. When the Toledo Museum picked SANAA in 2000, it gambled on a young firm known by very few people outside of Japan. Today, SANAA is one of the hottest Japanese firms, with projects all over the world, including a recently completed design school in Essen, Germany; a theater in Almere, Holland; a museum in Valencia, Spain; an office building in Basel, Switzerland; and the Louvre II in Lens, France. The Toledo Museum's gutsy call looks nothing short of prescient now.

The Glass Pavilion's site imposed a number of constraints on its architects. To the south, it faced the main museum's 1912 colonnaded front and Frank Gehry's 1992 Center for the Visual Arts. To the north and



1. Glass Pavilion
2. Main museum
3. Center for Visual Arts
4. Loading dock



The \$30 million pavilion sits in a park (above left), facing the main museum and Gehry's Center for Visual Arts (site plan, top). A hot shop is visible from outside (left). Some of the heat from the shop is recycled for radiant floor panels.

west, it needed to address the residential scale of the Old West End, a leafy, affluent neighborhood of Victorian and Edwardian houses. From the beginning, Sejima and Nishizawa decided they would respond to the very different characters of the pavilion's neighbors by using simple forms and subtle materials and keeping the building's height to just one story above ground. They showed the museum's building committee about half a dozen schemes, including one with a cluster of small structures. But the museum wanted to bring galleries and glass-making hot shops under one

**Project:** Toledo Museum of Art Glass Pavilion, Toledo, Ohio

**Architect:** Kazuyo Sejima + Ryue Nishizawa/SANAA—Kazuyo Sejima, Ryue Nishizawa, principals; Takayuki Hasegawa, Florian Idenburg, Toshihiro Oki, project architects; Mizuki Imamura, Junya Ishigami, Hiroshi Kikuchi, Tetsuo Kondo, Keiko

Uchiyama, project team

**Architect of record:** Kendall Heaton

**Engineers:** SAPS/Sasaki and Partners (structural concept); Guy Nordenson and Associates (structural); Cosentini (m/e/p); Transsolar (environmental)

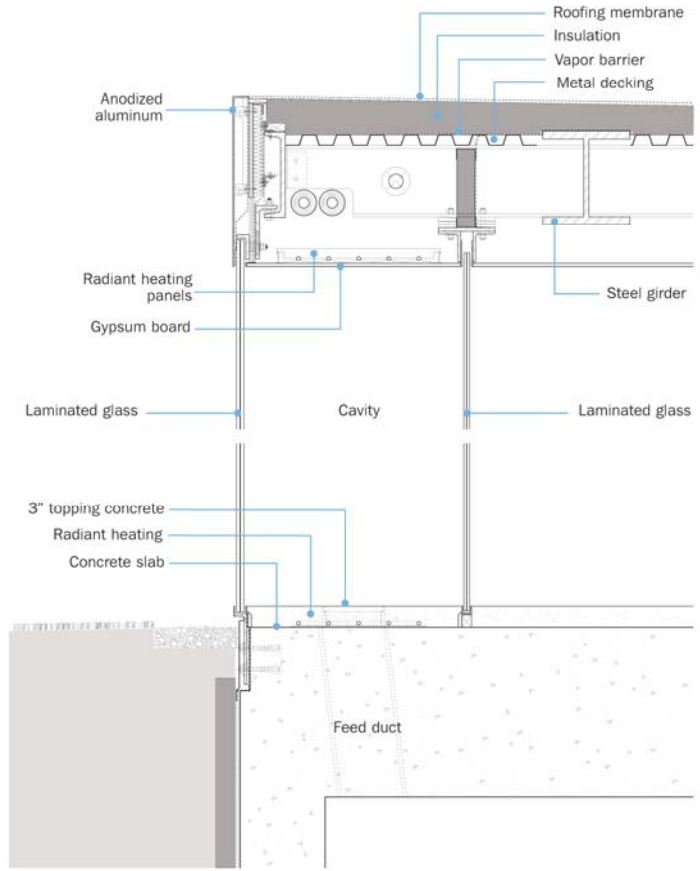
**Project manager:** Paratus Group

**General contractor:** Rudolph/Libbe



Glass panels, made in Germany, then molded in China, are secured in channels in the floor and ceiling. Visitors can enter the pavilion from a large courtyard (left in photo).





SECTION THROUGH CURTAIN WALL

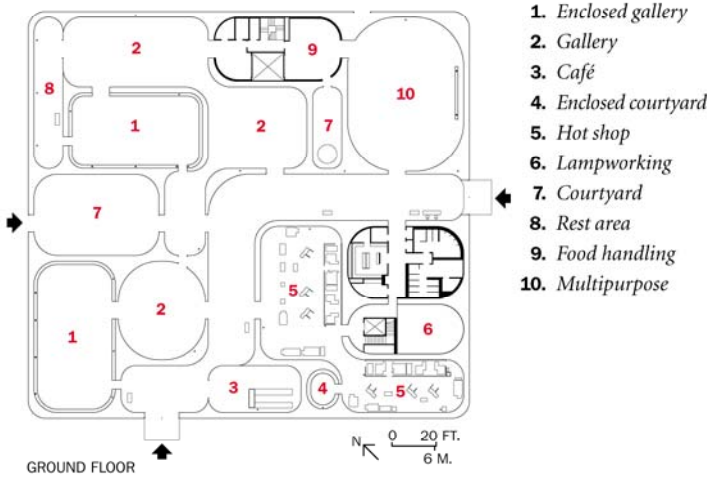
The pavilion's main foyer (above) winds its way between galleries and other spaces such as hot shops, a café, and a multipurpose room. Slender steel columns and a ¼-inch-thick steel wall wrapping around a lampworking shop (left in photo, top) carry most of the building's vertical loads.

roof (they had been in separate facilities before), so it selected a scheme that turned the pavilion into one large vitrine with curved glass corners.

"We wanted a showcase for our glass collection," says Don Bacigalupi, the museum's director. "SANAA's design changes the way you view the artworks, since you're not seeing them against flat walls," he explains. "They seem to sing in these spaces."

Sejima and Nishizawa know how to coax dramatic tension out of almost nothing. By reducing every element to its bare minimum—the thinnest wall, the most slender column, the clearest glass—the architects create an ethereal beauty that makes you marvel that it doesn't just blow away. The building's exterior skin, made of low-iron glass panels 8 feet wide and 13½ feet high, is just 1 inch thick. Interior glass walls are just ¾ inch thick. Thirty-five rolled-steel columns just 3½-to-4¼ inches thick support the steel roof, along with a ¼-inch-thick curved steel wall wrapping around the building's lampworking room and some cross bracing hidden within three Sheetrock walls.

Not only does the Glass Pavilion float within its wooded park, but its galleries float like glass bubbles inside its sheer envelope. Setting interior glass partitions about 2½ feet behind the building's exterior skin, the architects created a thermal buffer that reduces energy consumption and eliminates condensation. To protect artworks from solar radiation, translucent, silvery curtains can be drawn where needed. Wanting to keep the roof as thin as possible (just 1½ feet) and unblemished by protruding mechanical systems, SANAA placed air ducts in the pavilion's floor and





located most of the physical plant in a nearby building. A basement hides space for museum offices, studios for activities such as sandblasting and casting, a loading dock, and 15,000 square feet for future galleries.

As part of Sejima and Nishizawa's strategy of dematerialization, a series of courtyards carve out spaces within the confines of the building, creating a trio of outdoor rooms that reduce glare by bringing daylight inside and balancing the light coming in from the perimeter. In a peculiarly Japanese way, the courtyards act as voids—free of benches, furniture, or even art. Visitors can enter the museum through the largest courtyard, but the other two are inaccessible to the public. Like the gap space that runs between the pavilion's glass walls, the courtyards assert a strong visual presence, but remain tantalizingly out of reach. In Japanese architecture, the concept of *ma*—a gap in either time or space—has long played an important role. At the Glass Pavilion, Sejima and Nishizawa use *ma* to animate what could be considered just wasted, leftover space. To American visitors, the gap between all the glass walls—which is large enough for maintenance workers to walk through—creates an initial wave of frustration. We can see the space but can't get inside it. Then we start imagining what might happen in there—not just men in overalls cleaning the glass, but perhaps modern dancers snaking their way around and between the galleries.

Working with the graphic design firm 2x4, SANAA developed an ingenious system of displaying glass art and providing way-finding cues. Glass vitrines set on rectangular bases serve as freestanding showcases for most of the art, while a few works, such as a Dale Chihuly piece, are sus-

**Translucent curtains can be pulled around the glass walls of courtyards, some visible but not accessible to the public (right in photo, above), to protect artwork from UV rays.**

ended from the ceiling. Canted surfaces around the top of each base provide space for information about the art. To help visitors navigate their way through the museum, 2x4 devised a simple vocabulary of gray circles and logos for the rooms, which are embedded in the concrete floor at the two main entrances and the threshold of each gallery. With no opaque walls on which to mount thermostats, the architects set them on curving, freestanding rods inside the rooms. Two hot shops equipped with furnaces that reach 2,200 degrees act as major attractions.

SANAA's first completed building in the U.S., the Glass Pavilion displays the firm's talent for manipulating simple geometry and a restricted palette of materials to maximum effect. Looking at the reflections, refractions, and layers of spaces visible in the building's ethereal surfaces, you understand why people have been fascinated by glass for thousands of years. ■

#### Sources

**Glass curtain wall:** Pilkington  
**Anodized aluminum fascia:** UAD  
**Acoustical metal ceilings:** Armstrong  
**Gallery lighting:** Litelab  
**Downlights:** Lucifer

**Exterior lights:** Louis Poulsen  
**Paint:** PPG

For more information on this project, go to Projects at [archrecord.construction.com](http://archrecord.construction.com).