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by BRIAN CURRAN, JR.

hortly before daybreak on December 12, 1995, storm clouds gathered just off the coast of northern California. Within hours, an unholy alliance of cold air, strong high-altitude winds, and plummeting atmospheric pressure erupted in what meteorologists call an explosive cyclogenesis—in layman’s terms, a “bomb” cyclone. The storm, with winds in excess of 160 kilometers per hour and torrential rains, thundered up the coast, unleashing its wrath on San Francisco and other coastal cities. Among the casualties was one of San Francisco’s greatest architectural and cultural treasures, the Conservatory of Flowers in Golden Gate Park.

In the days that followed, Mayor-elect William “Willie” Brown made a personal commitment to make the restoration of the Conservatory of Flowers a top priority. He dispatched a team from the Department of Public Works to survey the damage. The century-old wooden structure had suffered severe damage to its south and west elevations, which bore the brunt of the gale-force winds. Weakened by years of exposure to high humidity, support members had simply given way, and portions of the building collapsed. More than 40 percent of the conservatory’s glass tiles had shattered, taking out an extensive collection of tropical plants. Rare palms were sheared to the ground, glass pieces were imbedded in tree trunks, and a 70-year-old cycad had been crushed by falling wood beams. The floor was a glittering carpet of jagged shards. The conservatory had sustained more than \$10 million in damage.

The team did what it could to shore up the structure and cover open areas of the building with reinforced mylar while conservatory staff and volunteers picked up glass, hauled away refuse, and removed damaged plants to temporary housing. Despite these efforts, conservatory staff was unable to keep the building sealed. Exposed to winter temperatures, rare and fragile flora were severely traumatized. Within days, some 15 percent of the collection was lost.

Many thought the conservatory beyond repair. Others believed that the historic building could be restored only if the funds could be raised and the proper preservation team found. A nonprofit organization, Friends of Recreation and Parks, joined with the San Francisco Garden Club and began raising funds for the conservatory’s restoration. Realizing that time was of the essence and that delays could further threaten the building, Deanna Brinkmann of the San Francisco Garden Club convinced the group to nominate the conservatory for inclusion on the World Monuments Watch inaugural list of the *100 Most Endangered Sites* in 1996. Following its listing, American Express contributed \$100,000 toward the restoration campaign.

On December 11, 1998, nearly three years after the great storm, then First Lady Hillary Clinton visited the site to designate the building as an official project of a new public-private partnership program, Save America’s Treasures. The honor was accompanied by a \$1.24 million grant from the Federal Emergency Management Agency. This auspicious recognition attracted a series of benefactors: The Richard and Rhoda Goldman Fund offered a challenge grant of \$5 million in order to raise a further \$10 million from other sources, such as the Madeline H. Russell

# A CONSERVATORY REBORN

After falling prey to one of the most violent storms in California history, San Francisco’s Conservatory of Flowers blooms again.



THE RESTORED CONSERVATORY  
AGLOW AT AN OFFICIAL LIGHTING  
CEREMONY ON APRIL 30, 2003.



PRIOR TO THE CONSERVATORY'S RESTORATION, A NEW SET OF BLUEPRINTS HAD TO BE DRAWN UP FOR THE BUILDING AS ITS ORIGINAL PLANS WERE LOST IN A FIRE. BELOW LEFT AND RIGHT, THE CONSERVATORY BEFORE RESTORATION BEGAN.

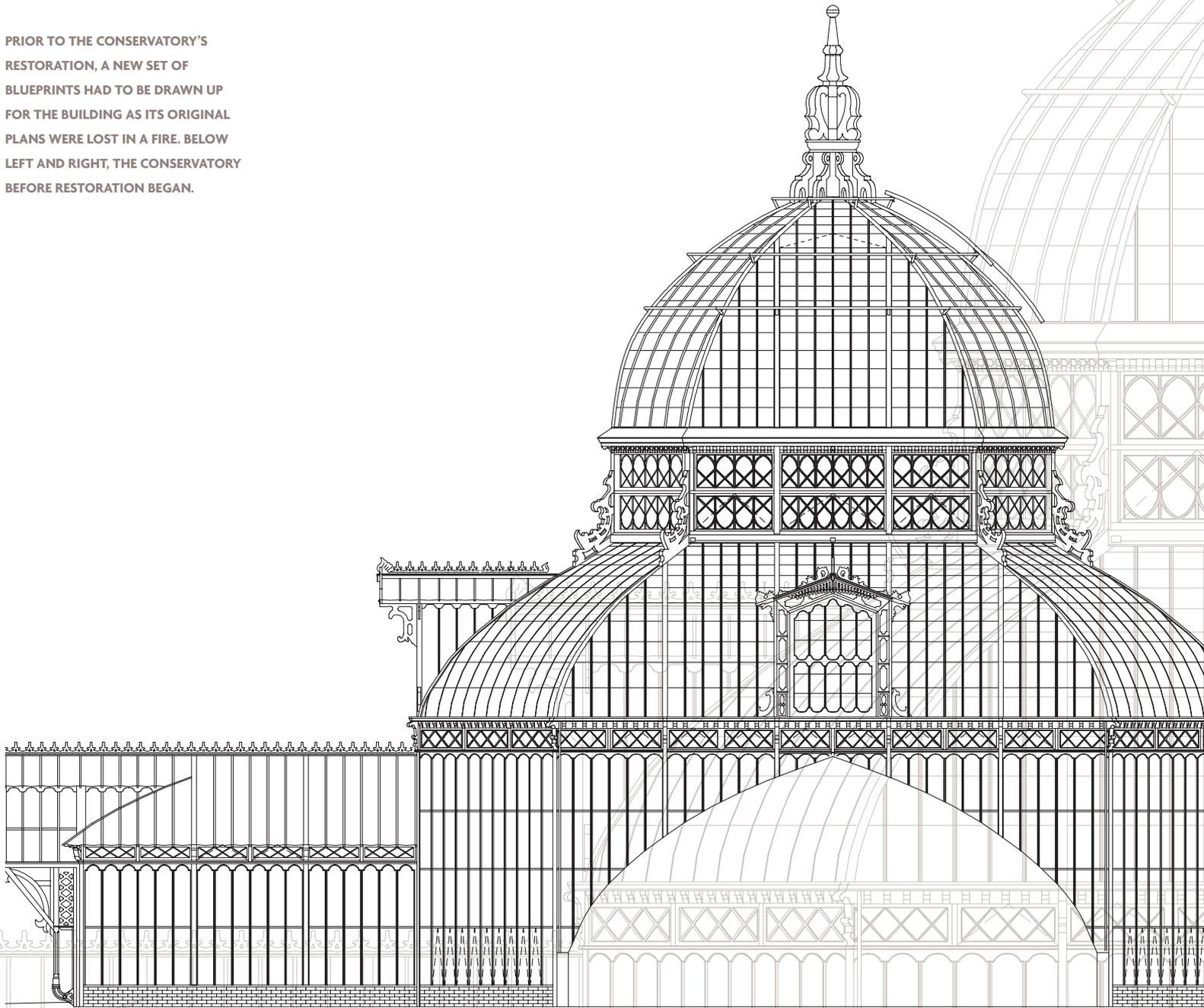
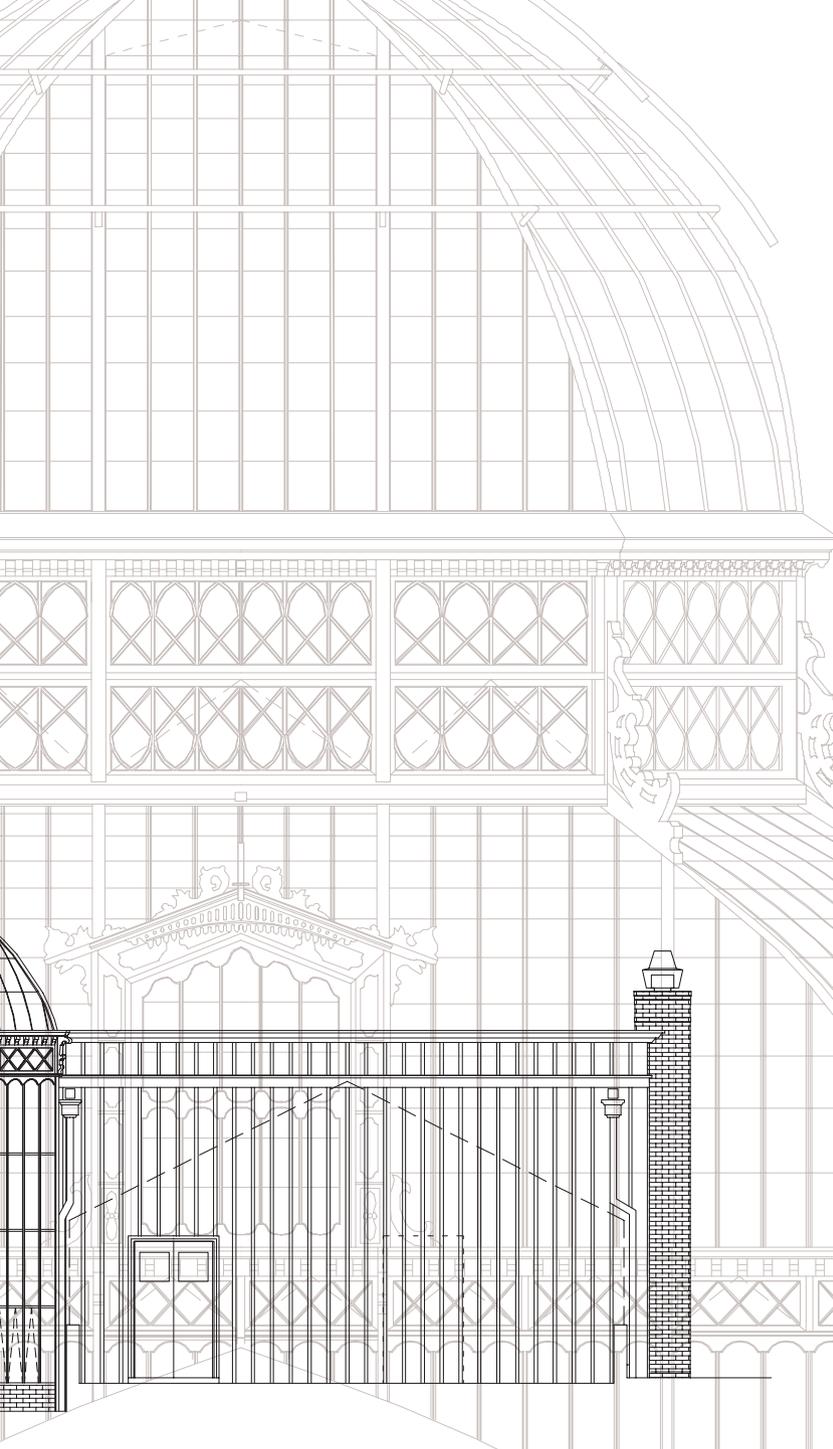


PHOTO: KEVIN J. FREST; ARCHITECTURAL RESOURCES GROUP

Fund and the Columbia Foundation. Encouraged by this show of support, the Board of the Friends of Recreation and Parks launched a campaign to raise an additional \$12 million to complete the restoration and a further \$4 million for new exhibits. With funds in place, work began on the first phase of restoration—a complete documentation and analysis of the remaining structure.

Although the Conservatory of Flowers was a well-regarded landmark, not much was known about the history of the building, and there was precious little documentation available to guide its restoration. Some believed the conservatory design was based on the Palm House at Kew Garden in London, England. According to several historical documents, the building had been brought to San Francisco from either Europe or the East Coast, by way of a perilous journey around Cape Horn. “Here was this unique animal,” recalled Edgar Lopez, project manager for the Department of Public Works Bureau of Architecture. “We were confronted with restoring a prefabricated, one-of-a-kind, nineteenth-century greenhouse without any existing drawings. We had no idea how to put the building back together again.”

KEVIN J. FREST



The City of San Francisco engaged Architectural Resources Group and Tennenbaum Manheim Engineers to carry out the conservation, restoration, and rehabilitation of the conservatory. As plans for the restoration progressed, clues to the building's origins began to emerge. In the early 1870s, James Lick, a real estate magnate from San Jose, had commissioned the design and manufacture of the greenhouse for his estate in Santa Clara Valley, but Lick died before the greenhouse could be erected. Its components remained in crates until 1878, when a prominent group of San Francisco businessmen purchased the kit and donated it to Golden Gate Park. The Park Commission gratefully accepted the gift and hired the renowned greenhouse design and manufacturing firm Lord & Burnham of Irvington, New York, to assemble it.

In addition to conflicting information surrounding the origin of the building, several early accounts of the donation mention two conservatories rather than one. Some have posited that there were, in fact, two greenhouses—the conservatory itself, and a smaller propagation structure. Others have suggested that only the conservatory's wings had been donated, and that the central dome was commissioned sometime later to unite them. If so, the dome may have been made by Lord & Burnham, as it bears a striking resemblance to several structures in their catalog. We may never know for sure, as most of the Lord & Burnham archives perished in a blaze in 1881.

An 84-square-meter portion of the west wing of the structure was disassembled in order to examine its individual components, so that a proper conservation strategy could be developed. Each piece of the building was then surveyed to determine materials composition, age, and structural integrity. It was soon revealed that the conservatory was constructed of several different kinds of wood, most of which came from California. "While the building's design may have been of foreign origin, its components clearly were not," said Debbie Cooper, the project manager for Architectural Resources. "Samples taken of structural elements revealed the wooden structure was built almost entirely of *Sequoia sempervirens*, better known as California redwood."

Conservators also discovered that after years of exposure, many of the wooden beams were in advanced stages of deterioration, and many of the building's metal fittings were rusted beyond repair. In addition to replacing these elements, restorers would have to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties and take into account new seismic and safety regulations. Moreover, all work would have to be done without further damaging the conservatory's immovable residents, including a towering, century-old philodendron. The gargantuan





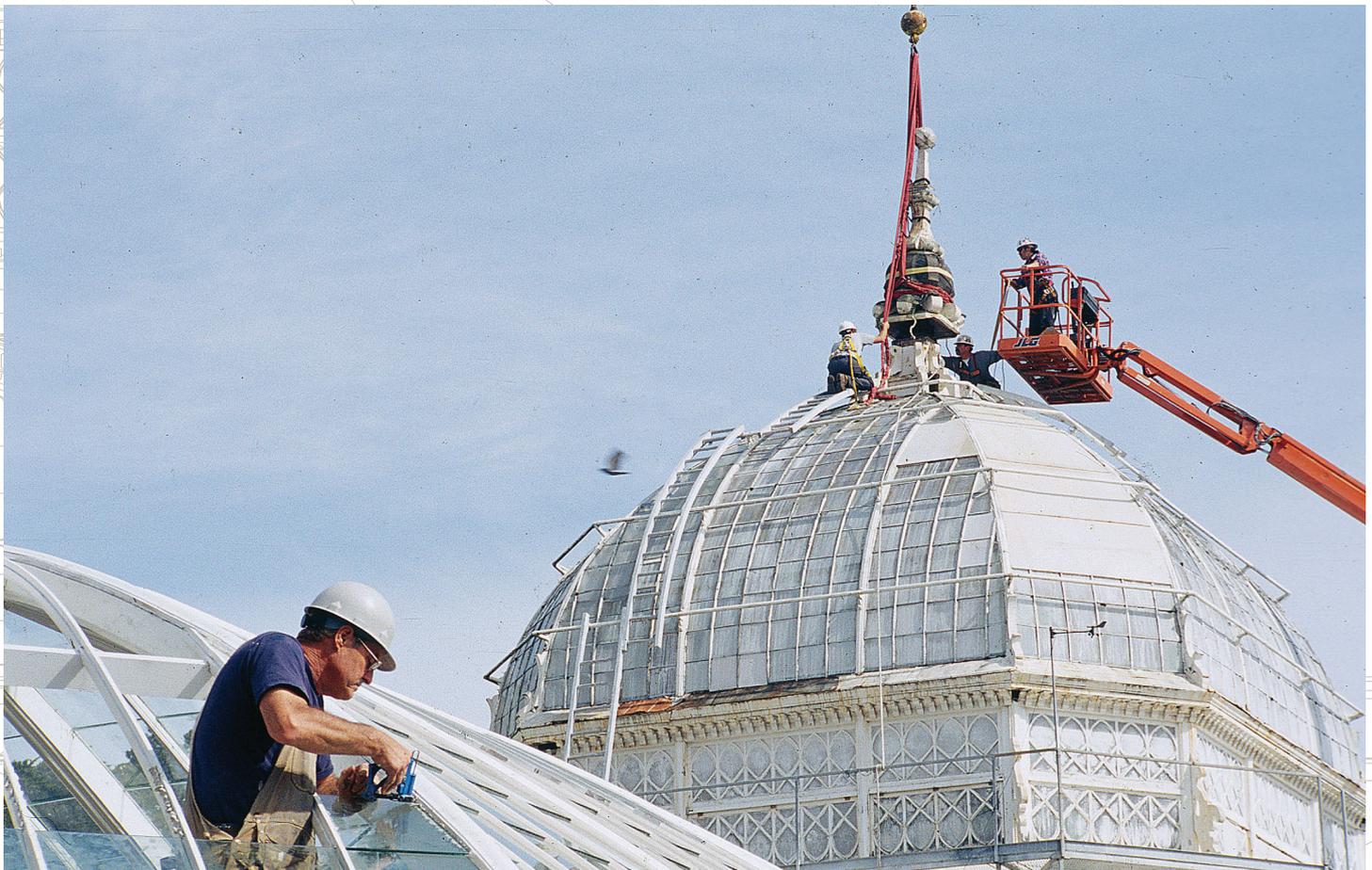
RESTORED WOODEN ORNAMENTATION, ABOVE, AWAITS REINTEGRATION INTO THE STRUCTURE. BELOW, WORKERS HOIST THE RESTORED FINIAL OF THE CONSERVATORY'S CENTRAL DOME INTO PLACE. THE RECONSTRUCTION OF THE GREENHOUSE NEARS COMPLETION, FACING PAGE.

plant would sustain irreparable damage if it were subjected to temperatures less than 14°C.

A lively discussion over the choice of materials was prompted by the fact that many of the pieces of the conservatory were no longer structurally viable and required replacement. At first, the team suggested the use of pressure-treated, new redwood as the most appropriate. However, many in the environmentally conscious city objected to the idea. A compromise was finally reached, and the team settled on reclaimed, old-growth redwood that came from naturally downed trees or wood abandoned by loggers. This required that after each piece was milled, it be graded to determine its structural integrity. Replacement pieces alone numbered 2,000, some of which were six meters long.

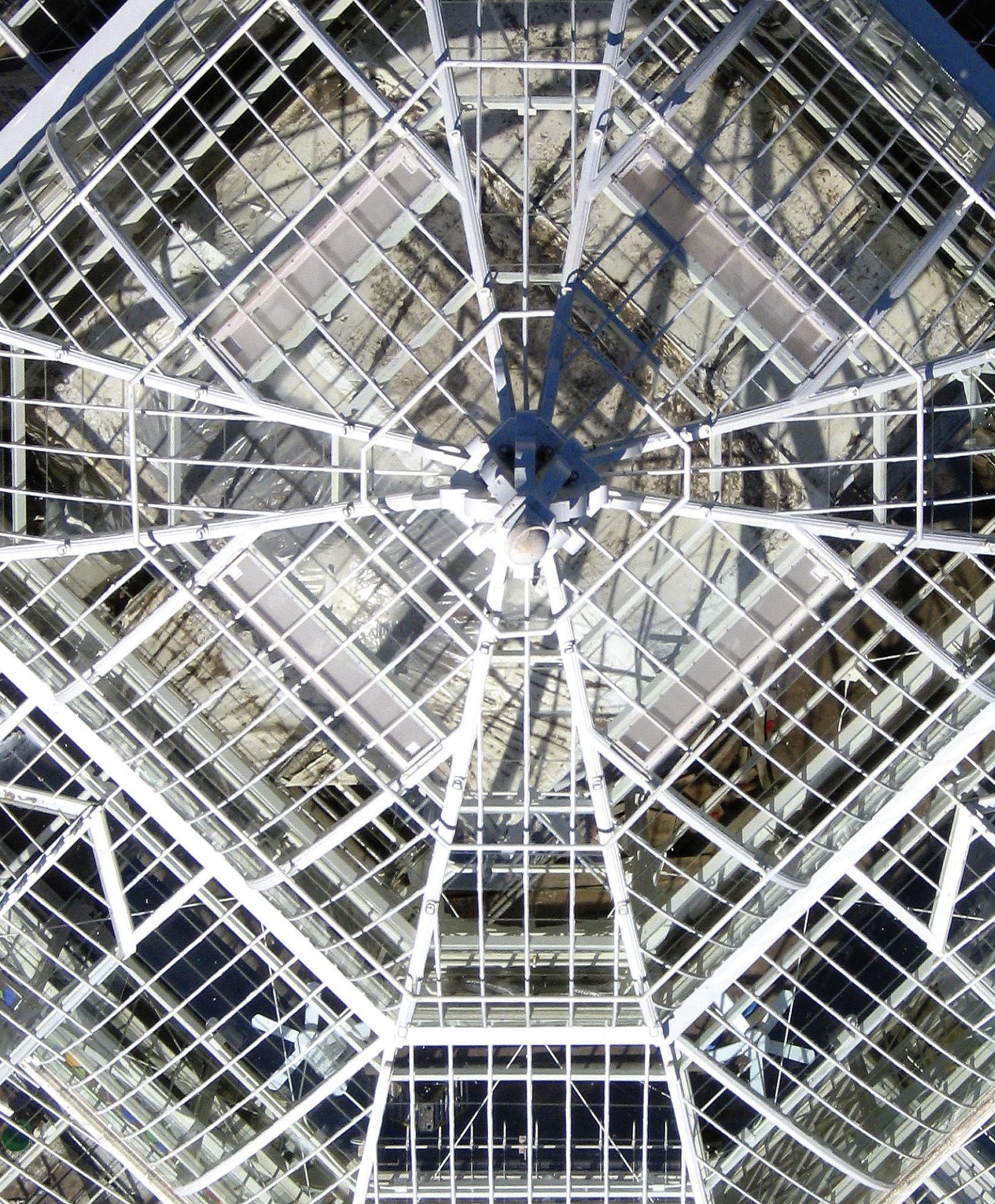
Historic authenticity and accuracy were also main concerns for the restoration team. The conservatory's pre-storm appearance was not its original design. The dome of the building had been destroyed in a fire in 1893 and redesigned during the subsequent restoration. With no plans or records of the original dome's specifications, the team decided to retain the 1893 dome. While accuracy in design was followed as stringently as possible, structural alterations were mandatory. Bringing the building up to code necessitated the introduction of steel reinforcements and new concrete foundations, while inherent flaws in the original construction and subsequent restorations—as well as natural aging—forced the adaptive reuse of original components so that structural flaws could be corrected.

The conservatory's 100 wooden arches are actually assemblies of several pieces of wood connected with elegant scarf joints. The team was able to salvage and reuse two thirds of the original redwood, preserving authenticity and integrity of the historic structure now listed on the municipal, state, and national registers, as well as holding the distinction of being an Historic Civil Engineering Landmark.



LEFT: KEVIN J. FREST; RIGHT: CHARLES C. BENTON







TED KURIHARA (3)



AN AERIAL VIEW OF THE CONSERVATORY'S RESTORED DOME, FACING PAGE. ABOVE FROM LEFT, FOLLOWING THE RESTORATION OF THE CENTRAL DOME, THE WINGS WERE REBUILT, THE INTERIOR SPACES WERE REDESIGNED, AND MODERN ELECTRICAL AND CLIMATE-CONTROL SYSTEMS WERE INSTALLED.

In addition to new mechanical and electrical systems, restoration included the installation of automated environmental-control systems that operate the heating, ventilation, and fogging systems to simulate the environments the plants need to survive.

From the outset of the project, conservatory curators also began to consider how the exhibits could benefit from the reconstruction. Scott Medbury, the conservatory's director, recalled, "we realized that we were uniquely positioned to reinvent the conservatory with exhibitions that matched the architecture." This led to the creation of a blue ribbon panel of advisors to help guide the work of landscape architecture firm, The Portico Group, which specializes in interpretive planning and exhibit design for natural history institutions. The group foresees visitors passing through lush jungles and cool mountain rainforests as well as by waterfalls and ponds, all displaying the grandeur of the conservatory's collection. The intended result is to be a visceral and educational experience for the visitor, who, through interpretive and interactive exhibits, will be able to explore and gain a renewed understanding of the world of plants.

Eight years and three restoration phases later, the resurrection of the conservatory is almost a reality. In January 2003 the central dome of the conservatory was reinstalled, signaling the last stretch of work before the grand reopening on September 20, 2003.

The restoration of the Conservatory of Flowers highlights the importance of partnerships between public and private entities. This fall, when the public returns to the Conservatory of Flowers, they will enter a world filled with fragrance and beauty. It is hoped that when they depart, they take away with them not only the lesson that well-tended gardens can be awe-inspiring, but that monuments themselves are able to bloom just as brilliantly. ■

CHARLES C. BRINTON