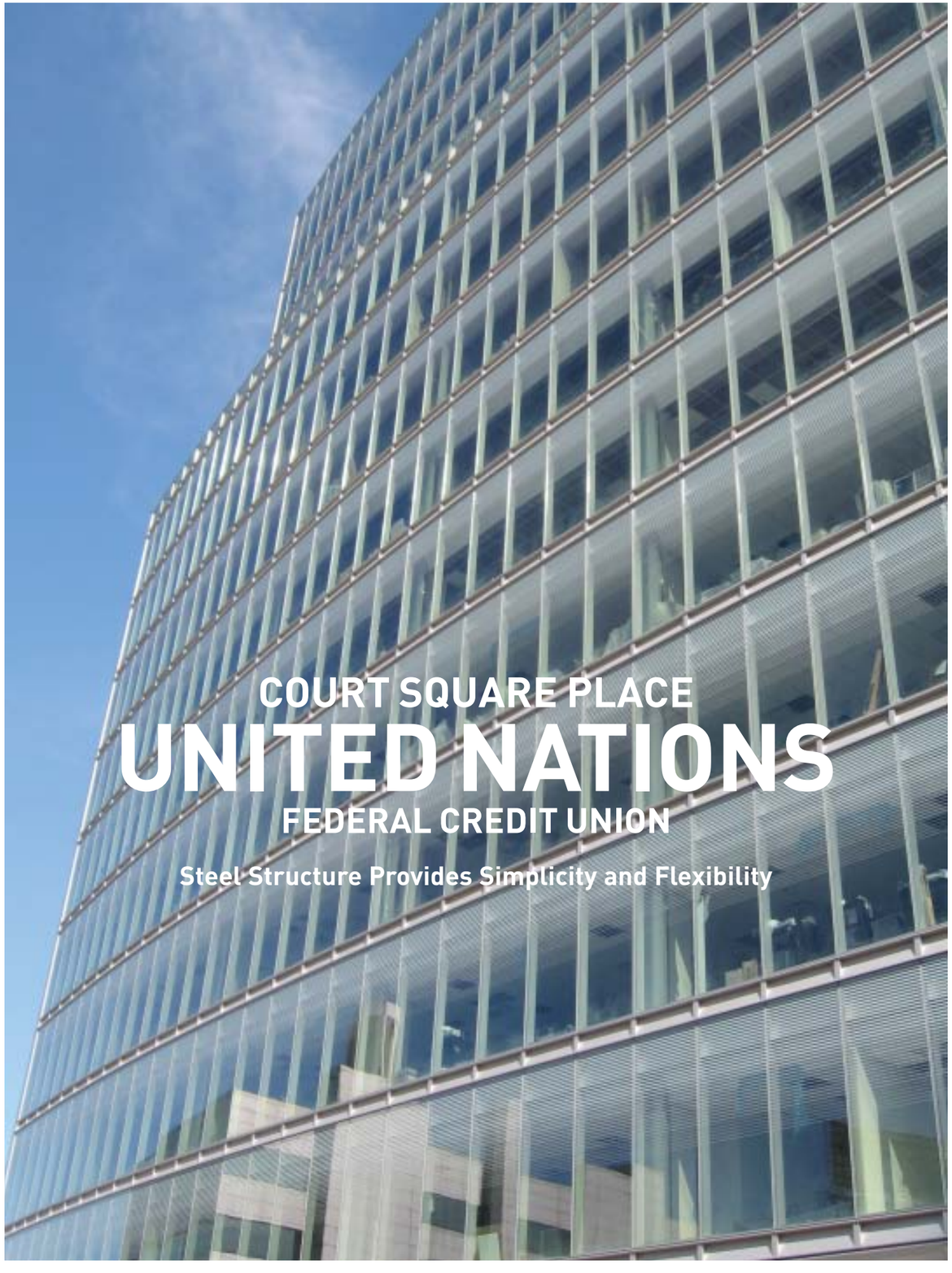

COURT SQUARE PLACE
UNITED NATIONS
FEDERAL CREDIT UNION
Steel Structure Provides Simplicity and Flexibility

OPPOSITE The building's Permasteelisa-fabricated curtain wall incorporates a ceramic frit to cut down on heat loading.

RIGHT A column-free corner was achieved by cantilevering the girder beams out from the columns of the moment frame.

The United Nations Federal Credit Union needed its new headquarters in Long Island City to achieve two goals. One, the project, which was commissioned in March 2004, had to be ready for occupancy by October 2006 and stay within a very tight budget. Two, when completed, the building had to provide enough flexibility to accommodate any future spatial changes without incurring exorbitant renovation costs. With these factors in mind, the architects and engineers at the New York City office of HLW International quickly decided on a steel structure for the project. "Steel goes up quickly and is the best material for accommodating renovations," notes John Gering, HLW Principal-in-Charge of the project. "If you wanted to put an extra staircase in, or had to shift the loading—those changes would be a lot more difficult and a lot more expensive with a reinforced concrete structure."

At 16 stories, the credit union's new headquarters, known as Court Square Place, contains 280,000 square feet—18,000 square feet for each of the lower floors, setback to 14,500 square feet on the upper floors. This arrangement was chosen after considering several other massing options, some of which distributed the space in taller, narrower volumes. "It was more economical to make a larger foot print and have less height in this instance," says Gering. Floor heights were set at 13 feet 6 inches, except in the main lobby, which has a 20-foot ceiling.

All of the structural members are grade 50 steel, and only wide flange beams were designated. "There are no HSS or built-up members in the structural system," says Thomas Gasbarro, HLW's Director of Structural Engineering. "This saved money in fabrication and made way for a quicker erection." The structure's heaviest columns, 14W342s, handle the greater loading at the base of the building, while lighter columns, 14W82s, take over up top. In between, the structure gets lighter every two floors. 18W40 and 16W31 beams, bolted to the columns, frame out the structure. Throughout, 30-foot spacing between vertical members provides ample flexible space for the credit union's evolving needs. With a total of 1,600 tons of structural steel, the building is light—between 12 and 13 pounds per square foot overall.

OPPOSITE The structure's heaviest columns, 14W342s, frame the base of the building.

RIGHT The engineers only designated wide flange sections for the structure to save on cost.

There were some features that might have been expected to add to the tonnage, but didn't. In order to give the credit union the flexibility of placing heavy equipment or filing systems wherever they want, the flooring was reinforced to accommodate 200-pounds-per-square-foot loading, exceeding the 50-pounds-per-square-foot required by the New York City building code. Providing this reinforcing only added one-pound-per-square-foot of steel in the reinforced areas—where the 18W40 beams are used instead of the 16W31s—which isn't much. All of the decking used was 18-gauge.

To open up views to Manhattan and allow plenty of natural light into the workspace, the architects aligned the building's core elements, including six elevators and a stairwell, against the east face, which is clad with a Titan granite panel system, and curved the west facade, which is covered in an all-glass Permasteelisa curtain wall. Rolling the steel members to make this curve would have exceeded the budget, so the designers ran straight stringers between the columns, defining an incremental curve in plan. The ceramic fritted glass cladding is also flat, but the variation in depth between the columns is gradual enough to make the entire facade appear curved.

Floor depths were kept down to between 50 and 60 feet from the windows. "Any more and it would have become too dark," says Gering. Also, a triangle bracing system was located on the opaque east and north faces, while moment frames on the west and south faces keep the building open to views and daylight.

The credit union also wanted all-glass corner offices, so the southwest corner of the building was designed column-free. This was accomplished by cantilevering the girder beams out from the last columns of the moment frame. The cantilever raised concerns from some during construction. "The phone started ringing off the hook early one morning because someone thought that the corner would sag when the concrete was poured on the metal deck," recalls Gasbarro. Joe Capone, Tishman Speyer project director, adds, "McNulty, the steel erector, put the tie cables back on the corners in case shoring would be needed." After running the numbers, however, Gasbarro found the tie cables could be removed. He wanted the concrete to flow evenly and ensured everyone that any sagging would be infinitesimal. After the floor set, a surveyor confirmed that the corner had sagged less than a quarter of an inch. "You can't do something like that with reinforced concrete," continues Capone.

Erection of the steel structure was delayed two months early in the construction process due to poor soil conditions and other problems. The first members weren't put into place until July 1st, 2005, but nevertheless the project topped out on time on November 1st, 2005. While good weather conditions and McNulty's hard work were factors, Capone also credits the efforts of Cives, the steel fabricator. "We made a field trip to Cives' plant in Gouverneur, NY, in early June," says Capone. "At that point they had 60 to 70 percent of the steel ready to go. It was key to the job because we were able to get the erection going and they kept a steady supply of trucks loaded with steel coming our way."

The steel members were picked into place by one crawler crane situated in a parking lot on the building's east face. "We were able to rent a portion of the parking lot from the owners so we didn't have to hassle with street permits and main closures," says Capone. This also allowed the construction team to place the crane equidistant between the building's north and south faces, where it easily reached any place on the site.

Originally the credit union had planned to occupy only half of Court Square Place, renting the rest out to other tenants in a development plan that closely resembles the New York Times Company's deal with Forest City Ratner. But after the project turned out so well—on time, within budget, and with such a striking appearance—and considering their projected growth, they decided to eventually occupy the entire building themselves. In part, this success was due to structural steel. "It was pretty exciting," says Capone. "After working on the project for over a year, the steel arrives and, boom, you have the whole project topped out in 16 weeks."

OPPOSITE The building's west facade curves to open up views to Manhattan.

ABOVE LEFT Connections between curtain wall and floor slab

ABOVE RIGHT One crawler crane in a parking lot behind the building erected all of the steel members.

BELOW The building sets back after the 10th floor.

TOP PHOTOS: © HLW INTERNATIONAL; BOTTOM: © BERNSTEIN ASSOCIATES PHOTOGRAPHERS

UNITED NATIONS FEDERAL CREDIT UNION

Owner **United Nations Federal Credit Union** *New York, NY*
Architect and Structural Engineer **HLW International LLP** *New York, NY*
General Contractor **Tishman Construction** *New York, NY*
Structural Steel Fabricator **Cives Steel Company** *Gouvernor, NY*
Structural Steel Erector **AJ McNulty & Co., Inc.** *Maspeth, NY*
Miscellaneous Steel Fabricator and Erector **Empire City Iron Works** *Long Island City, NY*
Architectural Metal Fabricator and Erector **Allied Bronze LLC** *Long Island City, NY*
Ornamental Metal Fabricator and Erector **Allied Bronze LLC** *Long Island City, NY*
Curtain Wall Fabricator and Erector **Permasteelisa Cladding Technologies** *Windsor, CT*
Cable Net Wall Fabricator **Permasteelisa** *Europe*
Cable Net Wall Erector **Permasteelisa Cladding Technologies** *Windsor, CT*
Metal Deck Erector **A.C. Associates** *Lyndhurst, NJ*