



## Building Winners Showcase Precast Concrete's Versatility

The nine winners in the buildings group of the 2002 Design Awards offer a range of solutions for structures of all shapes and sizes. These challenges ranged from a 47-story office building to a six-story technology center and from a 950,000-square-foot convention center to a 96,000-square-foot city hall. Two additional projects, both parking structures, were cited for Honorable Mention awards. In each case, precast concrete structural and architectural components met a variety of challenges and produced aesthetically pleasing projects that met the restrictions of schedules and budgets.

Jury Chairman

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American Institute of Architects  
San Francisco, Calif.



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Executive Editor  
*Building Design & Construction*  
Oak Brook, Ill.



**Todd G. McCoy, P.E.**  
Vice President  
H. Wilden & Associates Inc.  
Allentown, Pa.

### BUILDING AWARD WINNERS

<b>Best Office Building, Co-Winner:</b> Hearst Tower, Charlotte, N.C. . . . .	<b>13</b>
<b>Best Office Building, Co-Winner:</b> Bacsa Corporate Offices, Merida, Yucatan, Mexico . . . . .	<b>14</b>
<b>Best Public Building, Co-Winner:</b> San Diego Convention Center, San Diego . . . . .	<b>17</b>
<b>Best Public Building, Co-Winner:</b> Cape Coral City Hall, Cape Coral, Fla. . . . .	<b>18</b>
<b>Best Justice Facility:</b> Lloyd D. George U.S. Courthouse, Las Vegas . . . . .	<b>20</b>
<b>Best Manufacturing Facility:</b> AT&T Building Addition, Chicago . . . . .	<b>22</b>
<b>Best Parking Structure:</b> The River Street Garage, Harrisburg, Pa. . . . .	<b>24</b>
<b>Best Custom Solution, Co-Winner:</b> Millennium Carillon, Naperville, Ill. . . . .	<b>26</b>
<b>Best Custom Solution, Co-Winner:</b> Metronome, New York City . . . . .	<b>28</b>
<b>Parking Structure, Honorable Mention:</b> American Family Insurance Building C parking structure, Madison, Wis. . . . .	<b>30</b>
<b>Parking Structure, Honorable Mention:</b> North Shore Garage, Pittsburgh, Pa. . . . .	<b>31</b>



# Precast Trends In Buildings

*The Buildings jury noted these trends recurring through the entries, indicating why precast concrete use continues to grow:*

## **SCULPTURAL SHAPES**

Designers are exploiting precast's flexibility to create eye-catching designs in geometric designs and curves.

## **ATTENTION TO DETAIL**

Panels are being inset with brick and stone, and more intricate textures are being created to provide attractive finishes and detail at eye level.

## **MORE COLOR**

Precast's plant-cast quality allows designers to replicate the exact hue desired, providing contrast and uniformity of color presentation.

## **SECURITY**

Designers are using precast's durability to help maximize a building's ability to withstand bomb blasts and extreme weather conditions.

## **EARLY CONSULTATION**

Precasters are being brought into the design process to create the most efficient design and erection approaches, saving time and money.

## **SPEED OF DESIGN AND CONSTRUCTION**

Precast's speed of fabrication and erection is helping meet owners' growing demand for faster schedules to generate revenue quicker.

## **BUILDING 'NATURALLY'**

More buildings are using precast panels to blend the structure with the environment by conforming the building's shape to the topography or by creating colors and textures that complement the surrounding landscape.



**Architect**

Smallwood, Reynolds, Stewart,  
Stewart & Associates Inc.  
Atlanta

**Engineer**

Stanley D. Lindsey &  
Associates Inc.  
Atlanta

**Precaster**

Metromont Prestress Co.  
Greenville, S.C.

**General Contractor**

Shelco/Batson-Cook Joint  
Venture  
Charlotte, N.C.

**Owner**

Bank of America  
Charlotte, N.C.

*“Only through the use of precast concrete panels were we able to achieve the intricate detailing, color variation and erection efficiencies that we desired and still meet our budget.”*

—Jim Van Duys,  
project architect, Smallwood, Reynolds,  
Stewart, Stewart & Associates



## Hearst Tower Charlotte, N.C.

**DESIGN GOALS**

- Design a 47-story, 1.1 million-square-foot commercial office tower in the downtown center.
- Provide a design that complements the only taller office building in the city while offering a distinct and visually arresting façade.

**PRECAST SOLUTIONS**

- The façade features 299,000 square feet of precast concrete panels. The lower floors feature precast panels clad with black granite. Upper floors are clad with lighter-colored panels with sandblasted and retarded finishes that simulate natural stone.
- Specially designed architectural patterns were cast into panels at the fourth level to accentuate the division between textures and break up the mass of the larger footprint of the lower structure.
- Molds for these detailed pieces, which contain a high degree of surface relief, took nearly two weeks to fabricate.
- Value engineering produced a special window-unit panel that allowed architectural panels to span floor-to-floor. This design reduced the number of pieces to be cast and erected by several hundred, saving time and cost.

**PROJECT SPECS**

- 47-story, 1.1-million-square-foot office building
- 3,484 precast panels, comprising 1,134 window units, 377 flat panels, 268 fin panels, 508 spandrels and 1,197 column covers
- Total cost: \$150 million; Precast cost: \$8.78 million



*Precast panels clad the Hearst Tower in Charlotte, N.C., complementing the JLL Financial Center nearby which also features precast panels. Fast material delivery and the lack of storage space on the urban site were key reasons for specifying precast. Photo: Carolina Photo Group*

**THE JUDGES SAID...**

*“This project was a unanimous choice because of its very creative use of precast in a high-rise office building. The precast offers a lightness that aids the soaring visual style while integrating well with the building’s overall design. It’s very distinctive while blending with surrounding structures. The detail of the precast provides a nice quality, allowing the lower floors to provide a human scale for passersby.”*



**Architect**

Augusto Quijano  
Architects  
Merida, Yucatan,  
Mexico

**Engineer/  
Contractor/Owner**

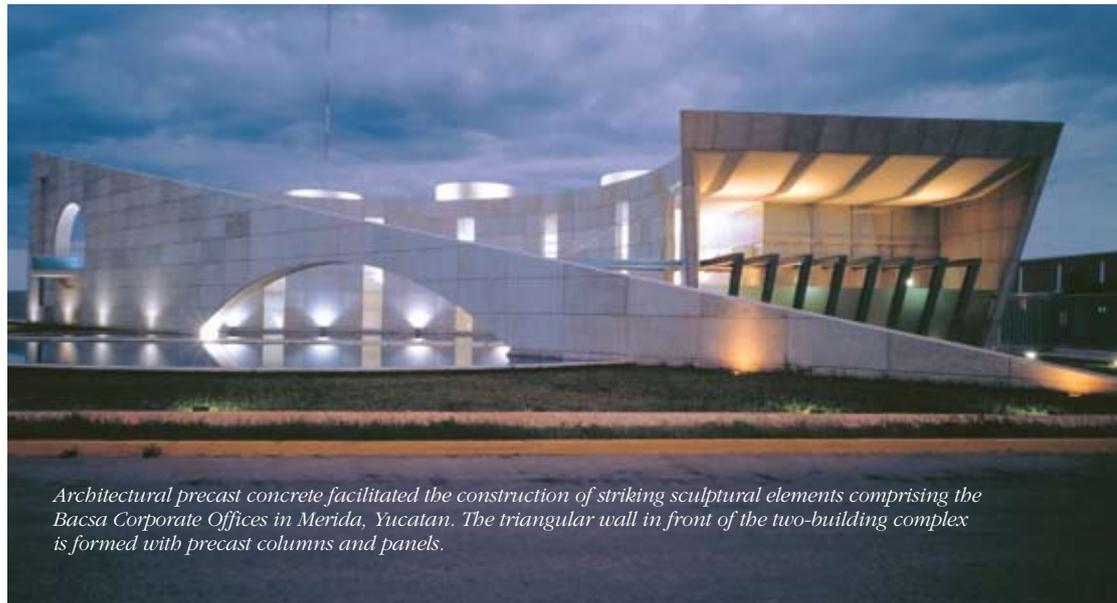
Bacsa Parque,  
Yucatan, Mexico

*“Precast concrete made it easy to shape the various building elements as we wanted.”*

—Augusto Quijano,  
principal, Augusto Quijano Architects



## Bacsa Corporate Offices Merida, Yucatan, Mexico



*Architectural precast concrete facilitated the construction of striking sculptural elements comprising the Bacsa Corporate Offices in Merida, Yucatan. The triangular wall in front of the two-building complex is formed with precast columns and panels.*

**THE JUDGES SAID...**

*“This project presents a very sculptural use of precast, in a form that would not traditionally be associated with the material. The arched and circular patterns mix nicely with the crisp, short lines of the triangular and lateral patterns, creating a free-flowing design. It is a very creative approach, and this type of creative thinking with precast concrete should be encouraged.”*

### DESIGN GOALS

- Design a two-building corporate office complex for a construction company, using materials representative of the construction industry: concrete, glass, and steel.
- Create a strong corporate image on a prominent corner site in an industrial park.
- Select a dominant material that facilitates the construction process and is easy to maintain.

### PRECAST SOLUTIONS

- The building’s cladding consists of large precast concrete tiles anchored to cinder block and back-filled with mortar. The triangular wall near the buildings is formed with precast concrete columns and precast panels with a finish matching that of the smaller tiles.
- The use of precast concrete allowed the architect to achieve the curves and sculptural shapes he desired, creating a dramatic building complex now considered an architectural landmark in the area.
- Precast concrete gave the building the “smooth off the mold” finish, with some reveals, that the architect sought. Precast concrete also was used for interior finishes and for a spiral staircase leading from the lobby.
- Precast provided a durable, low-maintenance skin that also offered excellent insulation.

### PROJECT SPECS

- 15,000 square-foot corporate office complex
- 385 precast panels, 1,200 precast concrete tiles, 25 columns
- Concrete tiles are about 4 feet by 4 feet, while precast columns vary in height from 7 feet to 48 feet



**Architect**

Tucker Sadler Noble Castro  
Architects Inc.  
San Diego  
in association with  
HNTB  
Los Angeles

**Engineer**

Martin, Chow & Nakabara  
Associates Inc.  
Newport Beach, Calif.

**Precaster**

Clark Pacific  
Fontana, Calif.

**General Contractor**

Golden Turner c/o Turner  
Construction  
San Diego

**Owner**

San Diego Convention  
Center Corp.  
San Diego

*“The architectural integrity of the original building not only is maintained, but it is enhanced by the use of GFRC cladding on the addition.”*

—Art Castro,  
principal, Tucker Sadler Noble Castro Architects Inc.



## San Diego Convention Center

### DESIGN GOALS

- Increase the size of the existing convention center while maximizing flexibility and usable space and providing contiguous exhibition space between new and original spaces.
- Create a design that respects the original structure’s unique nautical look.

### PRECAST SOLUTIONS

- A steel structural system clad with glass fiber reinforced concrete (GFRC) was designed, more than doubling the original space to 1.7 million square feet.
- The original nautical theme was incorporated through similar architectural elements such as glass barrel vaults, circular elements and interior finishes that create a transparent feeling. The barrel vaults feature a series of GFRC “doughnut rings” that add dramatic effect.
- The transition point between new and existing space centers on a grand staircase and inclined elevator. The stairway leads to an overhead skywalk lined with GFRC-clad planters.
- GFRC was chosen for the cladding due to its economics, light weight, short erection schedule, durability, low maintenance, ability to match the existing concrete structure and ability to create unique shapes.

### PROJECT SPECS

- Two-story, 948,000-square-foot addition onto 750,000-square-foot convention center
- GFRC components comprising 13 doughnut-ring assemblies (43’8” tall and 30 feet wide), 55 wall panels (39 feet by 10’7”), 108 column covers (3 feet by 14’2”), 107 spandrels, 14 skywalk stairs and 11 planters
- Total cost: \$165 million; Precast cost: \$4.05 million

### THE JUDGES SAID...

*“GFRC helped create a distinctive addition to a well recognized building and definitely changed the character of the building in the process. The material enhances the character of the structure while providing a lightness that is very pleasing for this highly visible project.*

*GFRC did a superb job of meeting the need for special shapes, sharp corners, round circular shapes and well-blended colors.”*

*When designers for the San Diego Convention Center addition realized that matching the existing exposed-concrete façade would prove too heavy and expensive, they specified GFRC cladding on a steel framework.*





**Architect**

Spillis Candela DMJM  
Coral Gables, Fla.

**Civil Engineer**

Avalon Engineering  
Cape Coral, Fla.

**Precaster**

Universal Concrete Products  
Sarasota, Fla.

**General Contractor**

Centex Rooney Inc.  
Ft. Myers, Fla.

**Owner**

City of Cape Coral  
Cape Coral, Fla.

*“The buildings were designed to be a play between glass and precast, showcasing different colors of precast as well as light and shadow.”*

—Lawrence Kline,  
associate principal, Spillis Candela  
DMJM



## Cape Coral City Hall Florida



*Cape Coral City Hall, Cape Coral, Fla., is a two-building municipal complex featuring architectural precast concrete cladding. Finished in white precast, the front building containing offices and the council chambers, stands out against the long, low administrative building in the background, which has a skin of glass and gray precast panels.*

### DESIGN GOALS

- Create a two-story monumental city hall complex with differentiation between the office/council chamber structure in front and the long administration building in the back.
- Provide a durable, low-maintenance building complex.
- Meet the city’s budget requirements with cost-effective construction.

### PRECAST SOLUTIONS

- The precast architectural panels for the building façade provide two contrasting colors and textures. The smaller public building in front stands out with white, lightly sandblasted panels, which cover the majority of the building. The administration building’s façade, combining glass and gray-ribbed precast panels, serves as a contrasting background.
- The ribbed pattern on the precast panels creates the play of light and shadow desired by the architects. Contrasting white window frames provide additional visual interest on the administration building.
- The use of architectural precast speeded up construction. Panels with a repetitive module made the building more cost effective.
- The precast concrete cladding is durable and requires little maintenance.

### PROJECT SPECS

- Two-story, 96,000-square foot city hall complex of two buildings
- 300 precast concrete panels
- Precast components vary in size, from small canopy slabs and window sills to panels measuring 10’8” by 31’6”

### THE JUDGES SAID...

*“This complex highlights an innovative use of precast with exceptional color control and quality in the panels. The exceptional design demonstrates a confidence that should be associated with municipal buildings. The structures exude a bold, modern look that is crisp and clean but also retains an understated elegance.”*



**Executive Architect**

Langdon Wilson Architects  
Los Angeles

**Design Architect**

Dworsky Associates  
(now Cannon Dworsky Inc.)  
Los Angeles

**Engineer**

Martin & Peltyn Inc.  
Las Vegas

**Precaster**

Clark Pacific  
Fontana, Calif.

**General Contractor**

J.A. Jones Construction Co.  
Las Vegas

**Owner**

General Services Administration  
San Francisco

**THE JUDGES SAID...**

*"This is an excellent contemporary interpretation of a justice federal courthouse building, showing a nice blending of contemporary materials. The relationship between the precast components and the glass areas creates a welcome and inspiring building. These materials have given the courthouse true landmark status."*

*"Precast panels were ideal for dealing with the new security guidelines to withstand bomb-blast loads without catastrophic failure or injury to the occupants."*

—Asad Kahn, senior managing partner,  
Langdon Wilson Architects



# Lloyd D. George United States Courthouse, Las Vegas

**DESIGN GOALS**

- Create a 410,000-square-foot federal courthouse that meets state-of-the-art bomb-blast resistance guidelines.
- Account for 4-inch story drift in the cladding system.
- Meet tight budget and timing schedules.

**PRECAST SOLUTIONS**

- The 8-story courthouse features a steel moment-resisting perimeter frame with bracing inserted between the frame and the precast concrete wall panels used to clad the structure.
- Designers combined architectural panels with a limestone-like finish on upper floors with panels featuring Indiana limestone veneer inset into the pieces around the lobby entry.
- Aligned reveals, joint patterns and substantial corner returns create a façade that appears monolithic instead of hanging from a structure. Deeply recessed punched windows add to the monolithic look.
- The 6-inch-thick panels were reinforced with two 12-inch-square pilasters cast integrally into the panels to provide additional blast resistance.
- Field estimates were required to determine how high to set each panel to allow for deflection after each previous panel was erected.

**PROJECT SPECS**

- Eight-story, 407,000-square-foot federal courthouse built to metric dimensions
- 450 precast panels comprising 243 wall panels, 45 limestone-veneer panels, 30 column covers, 20 curved spandrels, 14 flat sill panels, 19 curved sill panels, 17 flat roof spandrels and 12 curved roof spandrels
- Total cost: \$96.8 million;  
Precast cost: \$4.2 million



*Precast panels with a limestone finish on upper floors blend with limestone veneer inset into precast panels around the lobby. The accessible, controlled environment of the precast plant facilitated layout and review of the veined stone.*



**Architect**

MFH Associates PC  
Chicago

**Engineer**

Pease, Borst & Associates Inc.  
Park Ridge, Ill.

**General Contractor**

Bovis Lend Lease Inc.  
Chicago

**Precaster**

Gate Bluegrass Precast Inc.  
Winchester, Ky.

**Owner**

AT&T Corp.  
Chicago

*"Precast panels enabled us to design a technology center that does not use glazing yet has an aesthetically pleasing exterior."*

— Marshall Hjertstedt,  
president, MFH Associates PC



## The AT&T Building Addition Chicago

### DESIGN GOALS

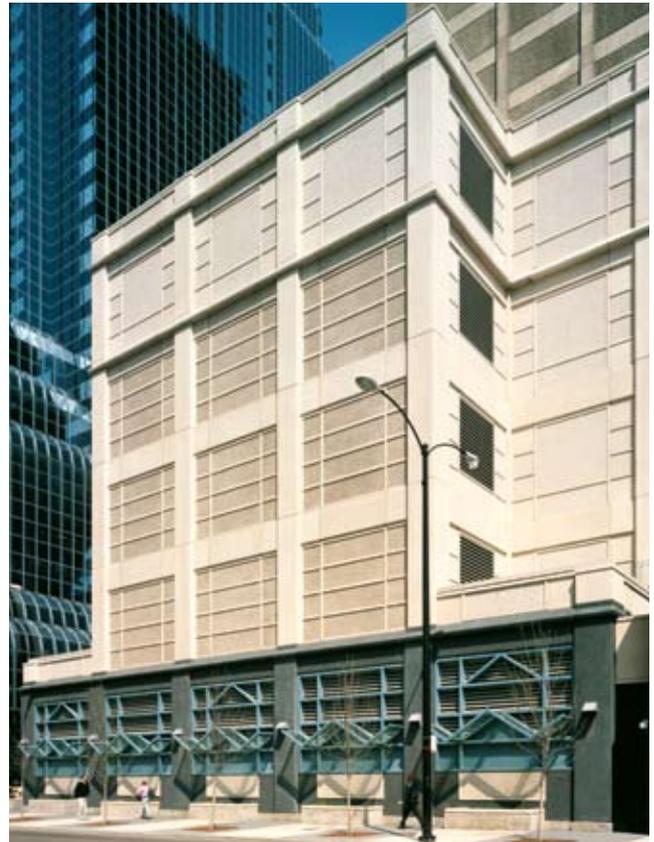
- Create a six-level addition adjacent to the existing technology center.
- The addition will form the base for a future vertical expansion of the structure up to 18 stories in height.
- Provide a secure environment for high-technology equipment.
- Unify various elements of the façade while providing separate expression for the different functional elements.
- Deliver the building on a tight time schedule.

### PRECAST SOLUTIONS

- The entire façade, except for louvered openings, consists of architectural precast panels. The building encompasses three functional elements: a base for mechanical systems, a truck dock and four technology floors for high-tech equipment.
- Precast panels provided designers with a strong, secure material and allowed them to create a grid pattern with subtle texture changes that express the building's modular nature.
- The panels' grid pattern unifies the disparate elements of the façade and creates a pattern that harmonizes with windowed buildings near the site.
- The panels were erected in 10 weeks of winter weather, meeting the tight schedule.

### PROJECT SPECS

- Five-story, 111,400-square-foot high technology building with expansion capability up to 18 stories
- 300 precast building panels, eight precast fence panels and 81 precast bench tops
- Typical precast panel is 16'6" high by 10 feet wide
- Total cost: \$19.4 million; Precast cost: \$1.6 million



*Precast panels allowed the architect to create a pattern that is sympathetic to other windowed buildings in the context of the addition.*

### THE JUDGES SAID...

*"This is an excellent example of how to add to an existing structure in an urban setting. Eliminating windows and a need for public sensitivity were challenges as much as advantages. The designers made good use of precast in a variety of ways to mimic fenestration and blend the buildings together. The design also relates well to the pedestrian and urban setting."*



**Architect**

*Boblin Cywinski Jackson Inc.  
Philadelphia*

**Engineer**

*John P. Stopen  
Engineering Partnership  
Syracuse, N.Y.*

**Precaster**

*High Concrete Structures Inc.  
Denver, Pa.*

**General Contractor**

*The Whiting-Turner  
Contracting Co.  
Baltimore*

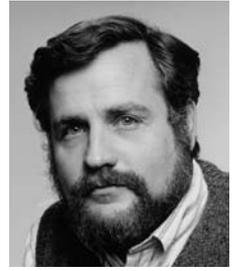
**Owner**

*Harrisburg Parking Authority  
Harrisburg, Pa.*

## River Street Garage Harrisburg, Pa.

*“We were delighted to find that we could use precast as a skeletal frame, which allowed the parking facility to become an open and inviting arrival building.”*

*—Frank Grauman,  
principal, Boblin Cywinski Jackson Inc.*



**DESIGN GOALS**

- Create an 850-car parking structure to help the city maintain its strong downtown revival, including the addition of a million square feet of new state government office space.
- Design a structure that contributes to the district’s rich urban character, a mix of 19th-century row buildings and taller 20th-century structures.
- Minimize the structure’s presence in the middle of its block, where it will be surrounded by commercial buildings.

**PRECAST SOLUTIONS**

- The nine-level, 285,000-square-foot parking facility features 10- by 30-foot precast concrete elements incorporating slender precast concrete columns and spandrel beams.
- The structural design eliminated the tall spandrels traditionally associated with parking structures. The panels’ slender columns correspond individually to the 15-foot-wide by 57-foot-long structural double tee stems.
- Precast concrete provided quality control, speed of construction, low maintenance and a high level of design and aesthetics.
- Completed precast pieces were delivered to the site ready for installation, which required approximately half the time needed for a comparable cast-in-place structure.
- Precast achieved maximum transparency and reduced mass. Columns were lightly sandblasted to expose the darker aggregate, causing the columns to visually recede for a more delicate effect.

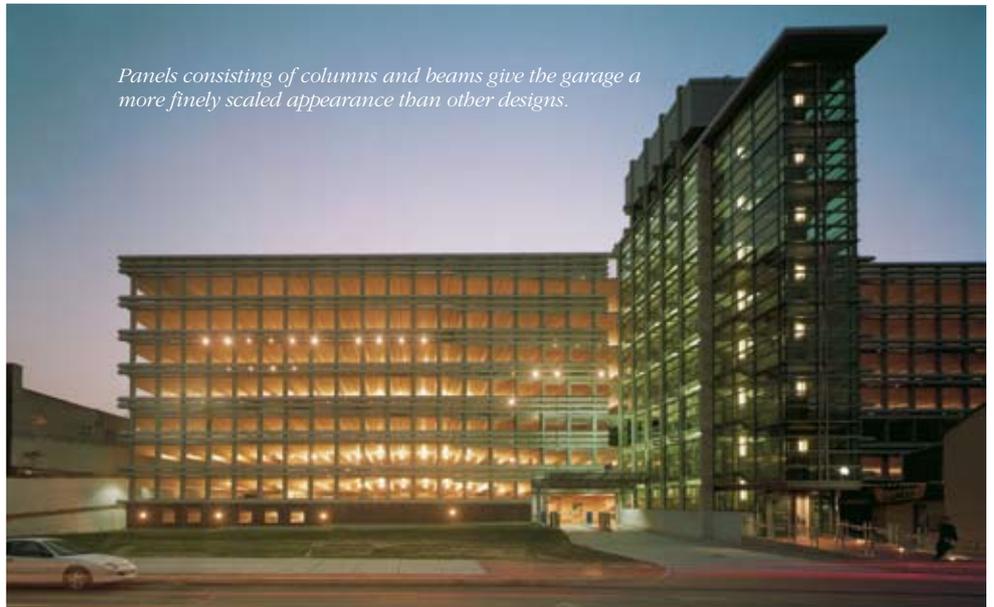
**PROJECT SPECS**

- Nine-level, 285,000-square-foot precast concrete parking garage with 850 spaces
- Precast components comprised 52 architectural panels, 18 rectangular beams, four columns with no haunches, 30 spandrels, 113 solid slabs, 30 stair units with landings, 152 wall panels (10 by 30 feet), 181 exterior architectural wall elements (10 by 30 feet), 68 interior wall elements, 291 15-foot-wide double tees (57 feet long) and 39 inverted tee girders

**THE JUDGES SAID...**

*“This project was a unanimous choice of the jury due to its innovative use of big, horizontal precast pieces. It creates a nice balance between heavy elements and light elements while providing an open design. The architects devised a unique design that worked very well for this situation.”*

*Panels consisting of columns and beams give the garage a more finely scaled appearance than other designs.*





**Architect**

Charles Vincent George  
Design Group Inc.  
Naperville, Ill.

**Engineer**

McCluskey Engineering Corp.  
Naperville, Ill.

**General Contractor**

Schramm Construction Co.  
Geneva, Ill.

**Bellfounder**

Royal Eijsbouts  
Asten, The Netherlands

**Owner**

Millennium Carillon  
Foundation  
Naperville, Ill.

*“The primary reason we selected precast panels was that they could supply the stone finish we wanted at an economical price. It was the only way to provide that high-end look.”*

—Bruce George,  
principal, Charles Vincent George Design Group Inc.



## Millennium Carillon Naperville, Ill.

### DESIGN GOALS

- Create a freestanding carillon tower with an accessible observation deck using a style that reflects the past and future.
- Design an aesthetically pleasing structure within a tight budget.

### PRECAST SOLUTIONS

- The 160-foot carillon consists of a structural steel framework that supports the bells, observation deck, stairs and playing cabin. The frame sits on two large girders just below the tower midpoint, which transfer the loads out to the perimeter walls. The walls consist of precast concrete panels that carry the tower’s weight into the concrete foundation.
- The post-tensioned precast panels feature a limestone-like finish and a cut-stone appearance created with form liners. Precast was chosen over masonry due to the significant cost advantage.

- Each panel was designed and cast in separate forms following 3-D CAD drawings produced by the architect.
- The design left the option for a concert hall and elevator to be added at a later date as funds become available.



### PROJECT SPECS

- 160-foot carillon containing structural steel framework and 179 pieces of precast concrete panels
- 134 precast panels in the tower (two elevations with 33 and two with 34)
- 23 precast panels comprising precast mullions (11), base rib (4), memorial (6) and entry wall (2)
- Total cost: \$5.18 million;  
Precast cost: \$905,000

### THE JUDGES SAID...

*“This structure was a unanimous choice because of its creative use of precast. The elegant bell tower appears to be built of individually carved stones. It shows the long-term possibilities and flexibility for precast by nicely integrating materials to create a wonderful sculptural monument.”*

*Naperville, Ill., residents have responded enthusiastically to the city’s new carillon, which is clad in freestanding precast concrete panels. Bell concerts and visits by international carillon players have highlighted recent activities.*



**Art Wall Architect**  
Fredenburgh Wegierska-  
Mutin Architects Inc.  
New York City

**Art Wall Designers**  
Kirstin Jones and  
Andrew Ginzel  
New York City

**Engineer**  
RSD Engineers P.C.  
New York City

**Precaster**  
Artex Systems Inc.  
Concord, Ontario, Canada

**General Contractor**  
HRH Construction Corp.  
New York City

**Owner**  
The Related Companies  
New York City

**THE JUDGES SAID...**

*“This playful project provides a nice integration of a sculptural piece with an exterior wall system.*

*Aligning the rings took significant planning and forethought. Using precast concrete for this design shows the advanced technological applications the material offers to designers.”*

*“We found the right precaster with the right skills for this project, which would not have been possible without him or someone with comparable abilities.”*

*—Harold Fredenburgh,  
partner, Fredenburgh Wegierska-Mutin  
Architects*



# Metronome Art Wall New York City

## DESIGN GOALS

- Construct an art wall as the main façade of a mixed-use retail/residential building, implementing the winning design of two artists.
- The art wall must feature concentric circles and an undulating pattern of waves so that the building appears to be in motion.
- The wall material must be similar in appearance to the brick used on the remainder of the building.

## PRECAST SOLUTIONS

- Because of its complex design and large size (50 feet wide by 100 feet high), the entire art wall couldn't be constructed in place. Erecting separate precast concrete panels offered the best solution.
- Brick matching the style that was used on the rest of the building was inset into the precast panels' face at the plant.
- Precast had the plasticity needed to create the concentric circles and undulating wave pattern on the panels' surfaces. More than 50,000 bricks were laid concentrically in 29 panels to create 36 concentric rings with wave spacing varying from 15 to 36 inches and trough depths from 9 to 14 inches.
- The use of precast panels provided a fast and cost-effective installation on a tight urban site, with the streets closed at night during erection.

## PROJECT SPECS

- Art wall measuring 50 feet wide by 100 feet high on a 500,000 square-foot building
- 29 precast panels
- Panels vary in weight from 8 to 22 tons
- Total cost: \$4.3 million (art project); Precast cost: \$1 million



*The art wall sculpture on the Metronome building at One Union Square in New York City consists of concentric, undulating circles formed by bricks inset into shaped precast concrete panels. The art wall's theme is Time: Past, Present and Future.*