

# Raising Rock's Reliquary



Facing the public plaza that serves as its forecourt (1) the Hall of Fame appears as a pyramid of steel, most of which will be clad in glass curtain wall and metal panels. On the lakeside (2), the building meets the water, which required construction of concrete caps poured over steel piles that go down to bedrock.



PHOTO: THESE TWO PAGES: HILL STATE

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## I.M. Pei's monument to Rock and Roll takes shape on the Cleveland skyline. *by Michael J. Crosbie*

### Editor's Note:

In this issue P/A debuts a new monthly feature, "Process." As the name implies, this forum will be an in-depth look at the life of a project, large or small, as it moves from initial design concept through schematics and design development, through working drawings, and into construction. "Process" will trace architectural ideas over time, documenting them in the architects' own words, with sketches, diagrams, working drawings, and construction photographs.

On the shores of Lake Erie, the Rock and Roll Hall of Fame and Museum nears completion. Cleveland's newest landmark is the work of I.M. Pei of Pei Cobb Freed & Partners, New York, who was commissioned in 1986 to design the 150,000-square-foot repository of Rock culture. The building deserves special attention to its design process, given the unlikely choice of one of architecture's elder statesmen to design a monument to youth culture, because it exhibits Pei's repute for refined detail, and for its on-again, off-again project history. After nearly a decade, the Rock and Roll Hall of Fame, which was designed originally for a site in the heart of Cleveland, is now generating a new cultural district on the city's lakefront. Dedication of the \$84-million project is scheduled for Labor Day of this year.

When he was approached by the Rock and Roll Hall of Fame Foundation to design Rock's equivalent to baseball's Cooperstown, Pei had his doubts. "I'd never taken to the music," the 78-year-old-architect confesses, "although my children did. I remember always asking them to turn it down." Members of the Foundation tutored their unhip designer, taking him on a tour of some of Rock's shrines, such as clubs in New Orleans, "where it all began," Pei observes, and Graceland. He also listened to a lot of music and read a good deal of Rock history.

Fresh from his crash course, Pei plunged into the project. The site he helped to select was at Tower City, a large business complex near Cleveland's Tower Terminal, overlooking the Cuyahoga River. Pei liked this site because of its central location. "It was the most accessible of all the sites that we looked at," says

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Pei. "The railroad, subways, buses, hotels, and shopping are there. And it overlooks the famous bend in the river, with excellent views."

Pei developed a design for the steeply sloped site, with visitors entering at the building's mid-section, placed at Tower City's grade level. Some exhibit spaces were placed on the lower levels as the building cascaded downgrade. Marking the building on the skyline was a central tower, with the Hall of Fame at the top. Exhibit and performance spaces were found on intermediate levels under a triangular "tent" of glass.

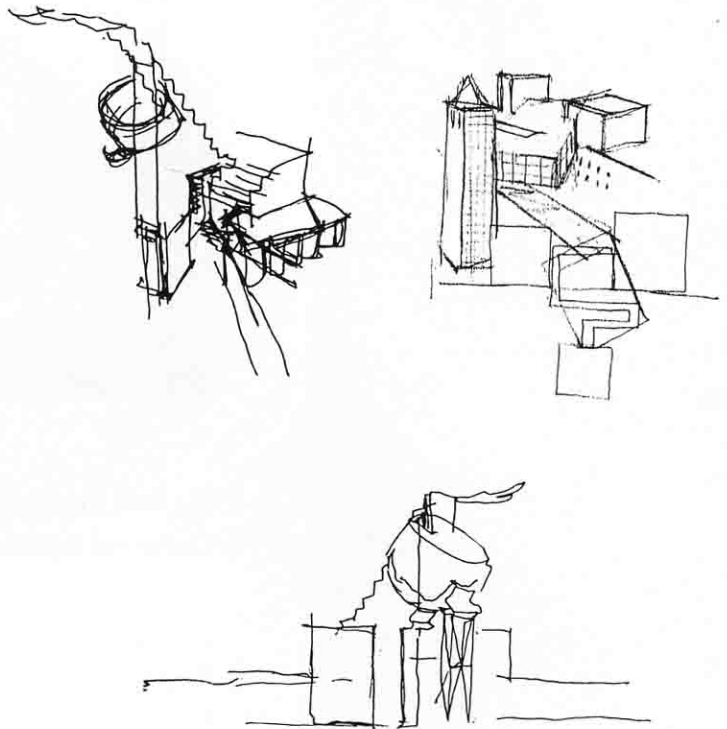
But local politics and fundraising troubles caused the Tower City site to be abandoned during schematics. The board finally chose the prominent lakefront site, although Pei still believes that Tower City was a better location. Rock and Roll is already attracting other development on the lakefront. The Great Lakes Museum a few hundred yards away is now under construction, and another museum is being considered for a site nearby.

Pei adapted the Tower City scheme, with its dramatic slope, to the flat lakefront site by collapsing several underground levels into one. The tower was also shortened by approximately 15 feet to conform to height restrictions. Apart from these changes, the building's organization and form remained virtually the same.

"The building had to express the music," Pei says. "What is this music? It has a sense of rebellion, of breaking away from tradition. It has a dimension of energy. The generation that made Rock music was much more transparent about their ideas than my generation. Everything is up front, whether you like it or not. And there is diversity of the art form," Pei notes, everything from Rhythm and Blues to Grunge.

In the building's architecture, these elements translate into a form that, for Pei, has "explosive energy, as if parts of the building were flying out in all directions." The 117-foot-high triangular glass wall gives the building the transparency that Pei wanted. This element also anchors the building in the architect's *oeuvre*. Pei began work on Rock and Roll when he was deep in the Louvre project, and the Hall of Fame's glass triangle appears to be a fragment of the Paris pyramid. The glass "tent" will be complemented with sheathing of white painted aluminum panels on the building's opaque surfaces.

These pages document the evolution of the Hall of Fame, with emphasis on the glass curtain wall and its truss structure. After the base building's completion, scheduled for this month, exhibits designed by the Burdick Design Group of San Francisco will be installed for the September opening. □



3 INITIAL DESIGN TEAM SKETCHES



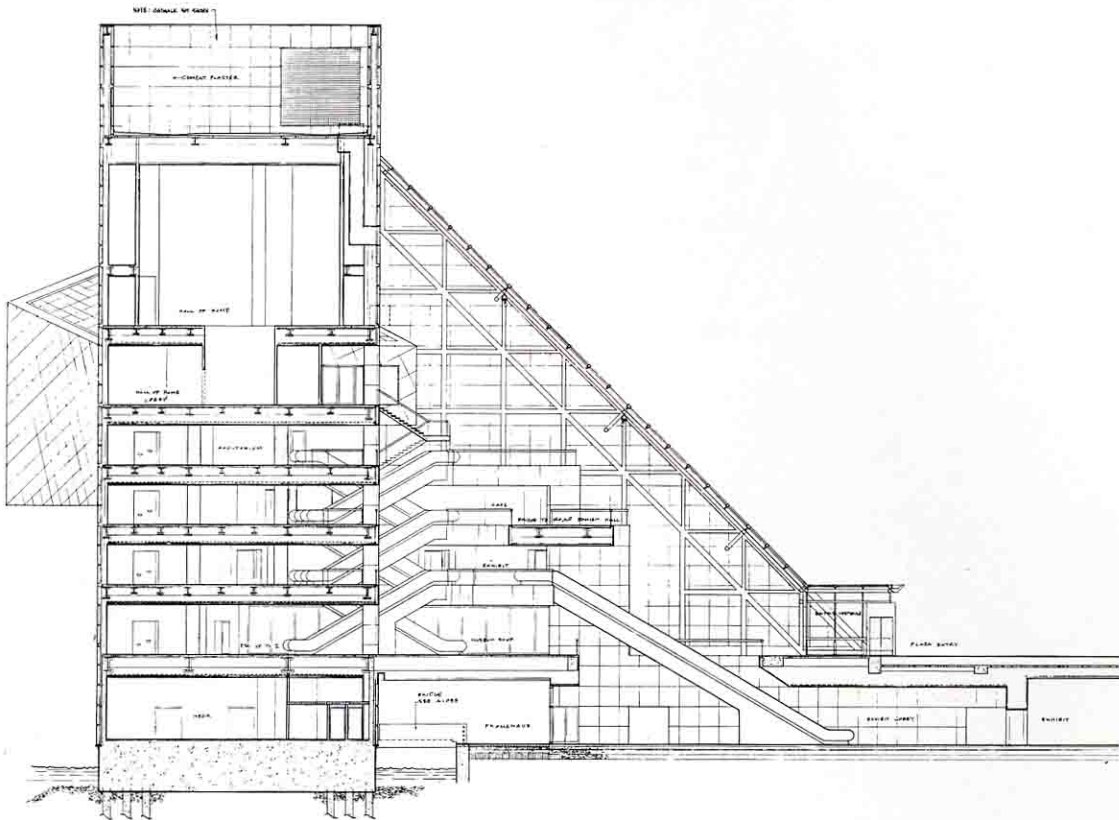
4 TOWER CITY SITE MODEL

Nathaniel Lieberman



5 LAKEFRONT SITE MODEL

PCF/Eric Schiller

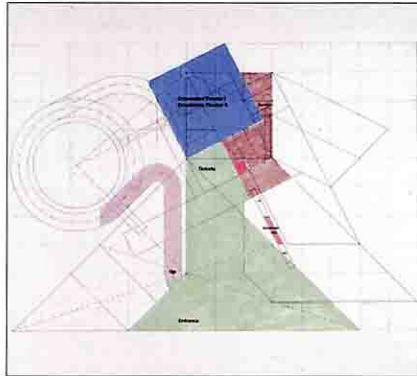


6 SECTION THROUGH TOWER AND LOBBY

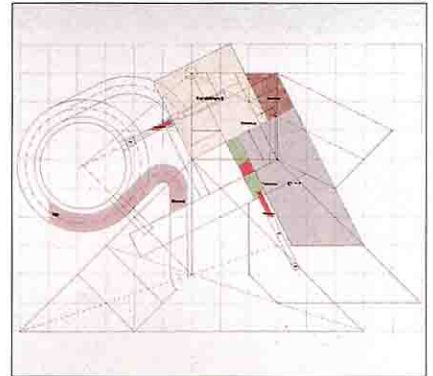
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Some of the design team's initial sketches (3) captured much of the sculptural, multilevel quality of the finished design. The earlier Tower City site (4) overlooked the Cuyahoga River from a precipice, and the building stepped down the slope with some exhibition spaces cascading down the slope. Local politics caused the building to be relocated, after a delay during which the project was put on hold, to the relatively flat, lakefront (5) site, with its design virtually intact.

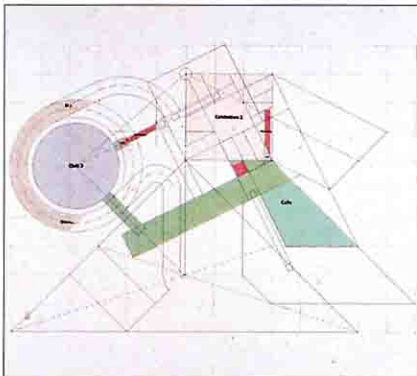
More than half of the building's 50,000 square feet of exhibit space will be below grade. Visitors circulate through the building's triangular lobby (6) to reach various levels (7-10). Primary circulation is via escalators and ramps, which allow access to the sculptural arrangement of exhibit spaces, cafés, performance spaces, and, at the top of the 142-foot tower, the Hall of Fame.



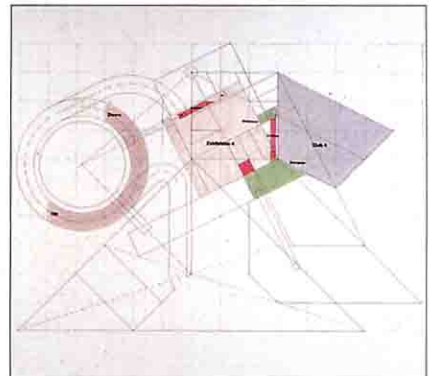
7 LEVEL 100 PLAN DIAGRAM



8 LEVEL 115 PLAN DIAGRAM



9 LEVEL 130 PLAN DIAGRAM



10 LEVEL 145 PLAN DIAGRAM



Photos: these two pages: Hal Sata

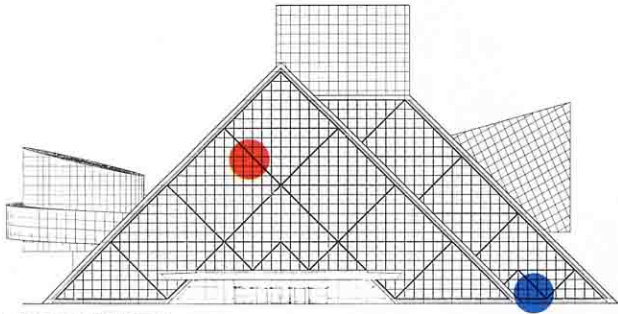
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Steel-pipe trusses (11) make up the superstructure of the sloping glass curtain wall. The bowstring geometry was chosen for its superior strength. Earlier versions of the structure employed the use of space frames that ran horizontally. The exhibition space (12) found below the plaza is a concrete waffle-slab. The entire building uses nearly 17,000 cubic yards of the material. The two-story, 125-seat auditorium (13) cantilevers 65 feet off the tower's east side, 60 feet above the lake. This web of structural steel will be clad with painted aluminum panels. Approximately 1,900 tons of steel are used throughout the building.





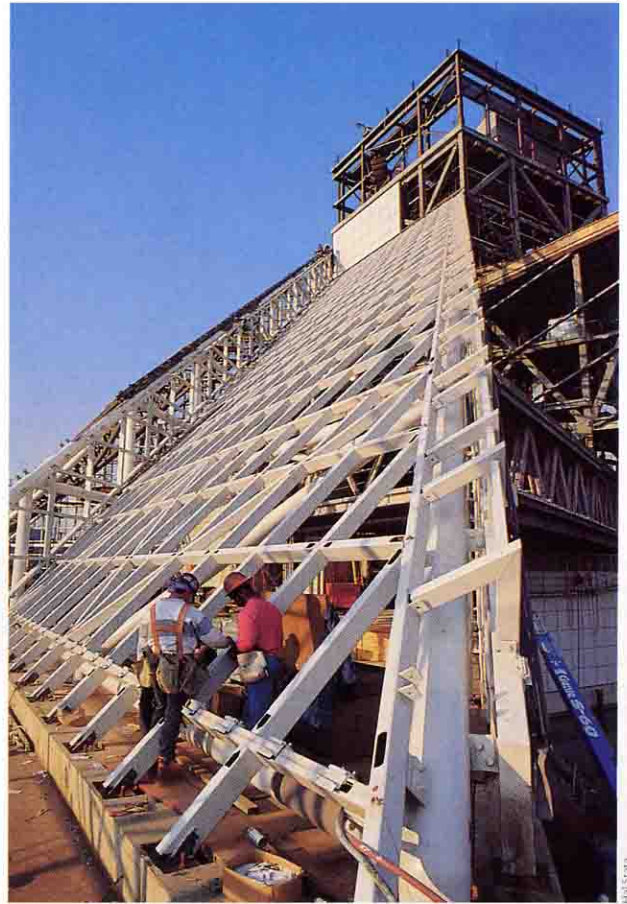
14 SOUTHEAST ELEVATION

The building's inclined curtain wall, known as the "tent," is a piggy-back system. The structural support is provided by 16 bowstring trusses, whose curved cords arch (as much as 6 1/2 feet) in the direction of the interior volume. Some of the bowstring trusses are expressed on the exterior (14) as the major diagonal elements on the façade. A prefabricated aluminum curtain wall system is laid over the bowstring structure and an aluminum channel system (11, 15), and will be glazed with low-e glass to mitigate heat-gain in the volume under the tent.

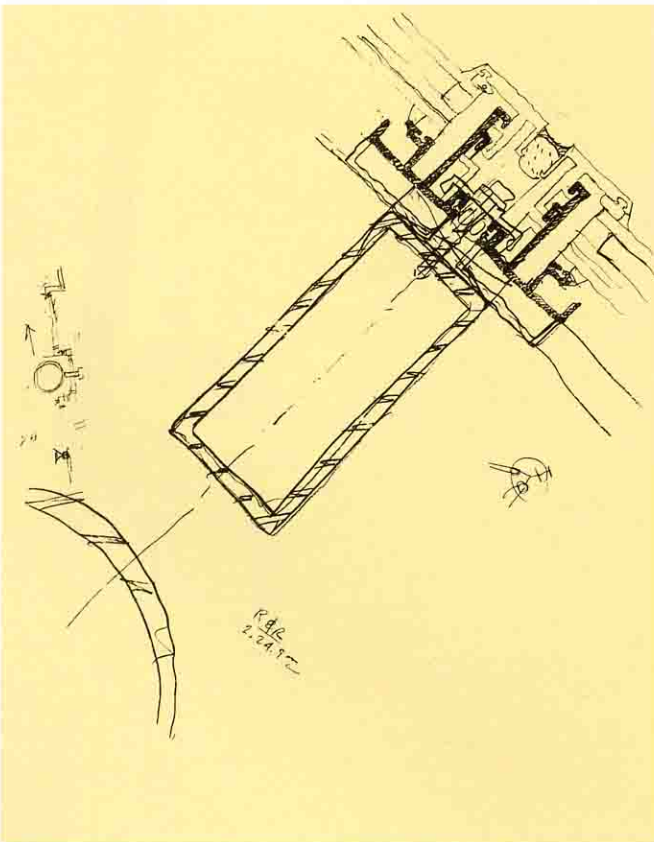
Details of the curtain wall system were developed at full scale, as are most details by Pei Cobb Freed. An initial sketch of a mullion detail (16) shows the curtain wall system with wide flanges that act

as gutters, and a profile on the exterior. Detail refinements, the inclusion of thermal breaks, and input from the curtain wall manufacturer are reflected in mullion details from the working drawings (17). Pei wanted to express on the exterior the location of the trusses with a deep joint, so a wide reveal and a T-shaped fin was designed to provide shadow lines. The gutter was also incorporated into the mullion and simple anchors were used.

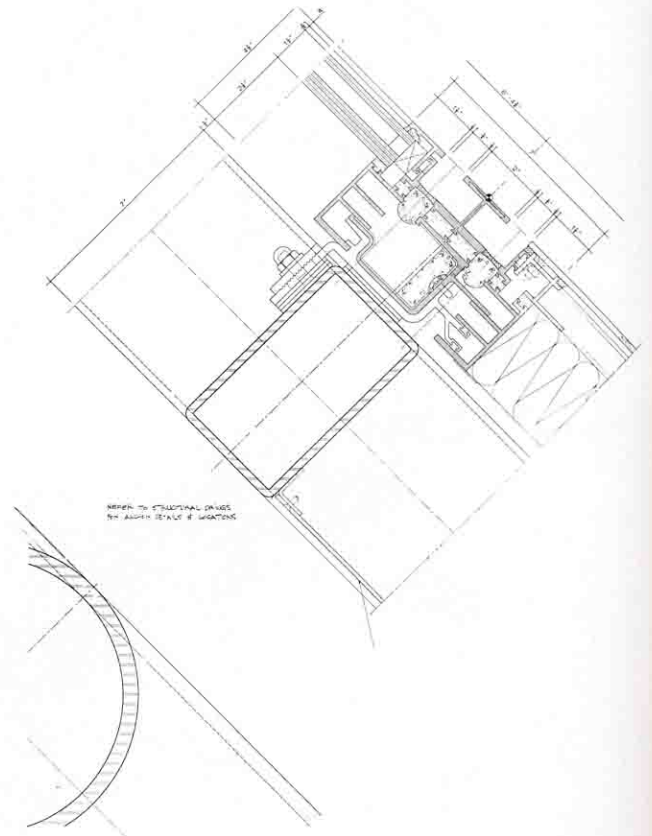
Where the curtain wall meets grade, very little changed from the early sketch (18) to the working drawing (19). The stainless steel grating and insulation were changed from a 45-degree angle parallel to the curtain wall to a vertical condition in order to simplify construction and cut costs.



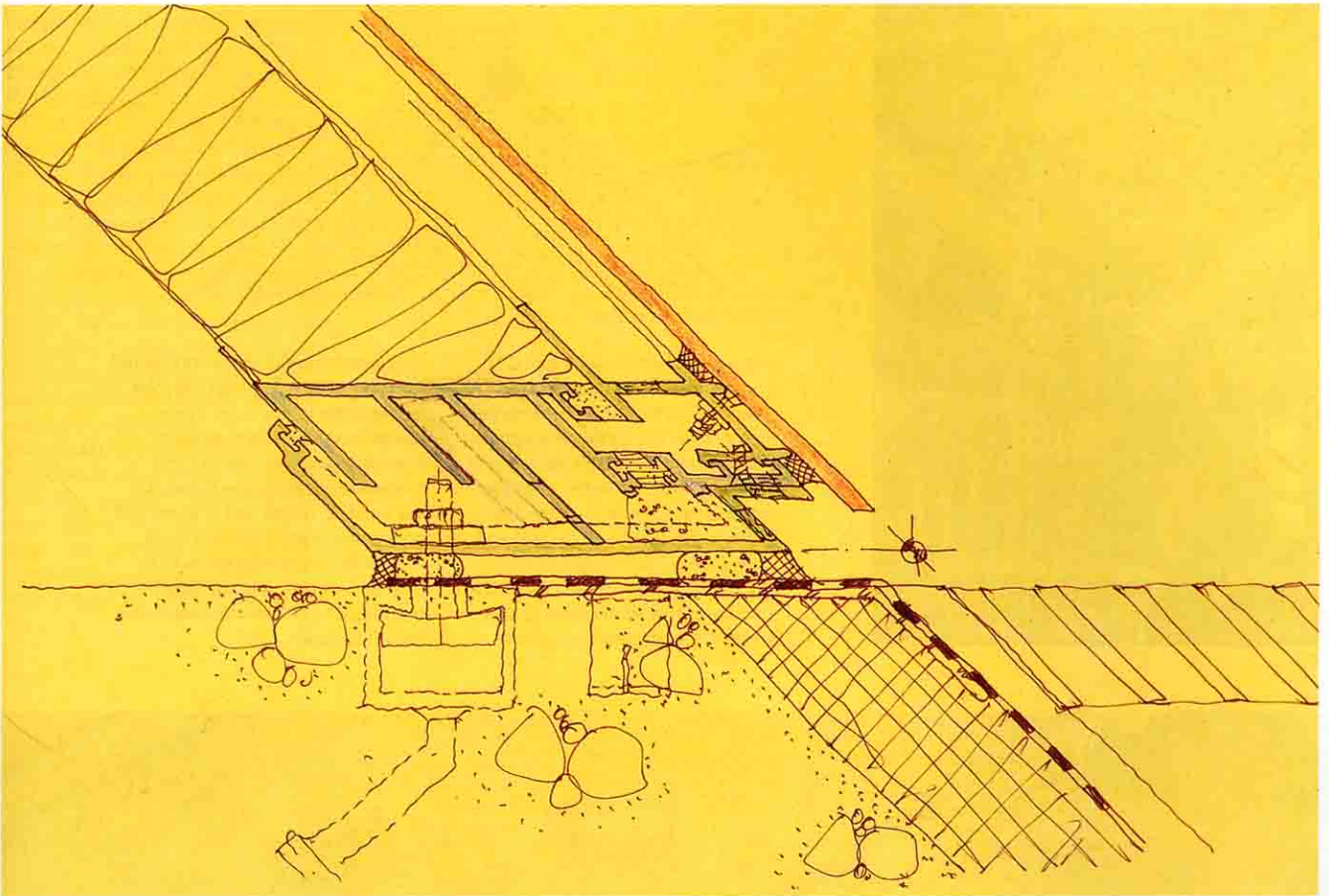
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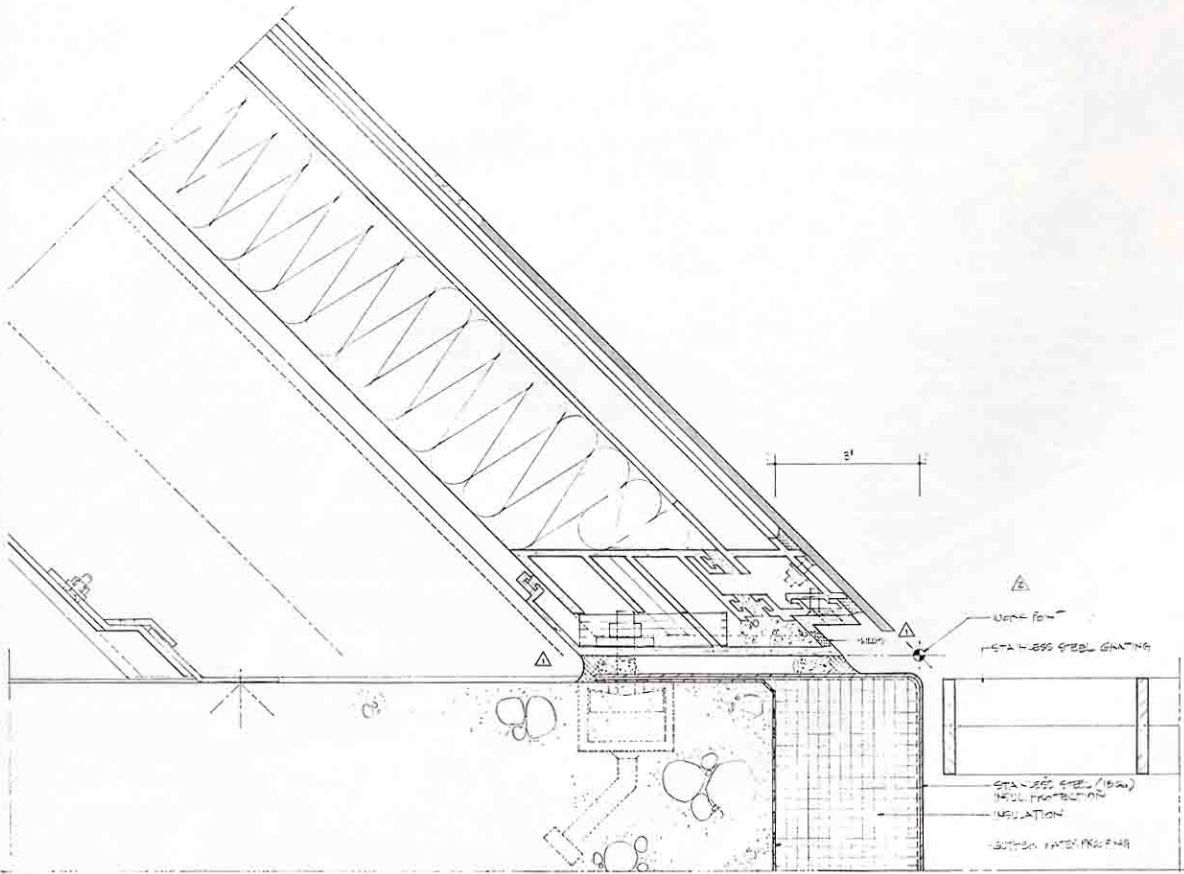
16 PRELIMINARY CURTAIN WALL MULLION DETAIL



17 WORKING DRAWING CURTAIN WALL MULLION DETAIL



18 PRELIMINARY DETAIL OF SLOPED WALL AT GRADE



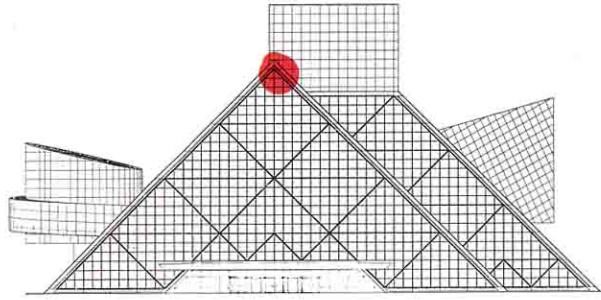
19 WORKING DRAWING DETAIL OF SLOPED WALL AT GRADE



Photos these two pages: Hal Sataa

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22 SOUTHEAST ELEVATION

The apex of the triangular tent (21) whose structure is of tubular steel (20) meets the vertical tower housing the Hall of Fame. The curtain wall system will be installed over this framework. Details of the juncture between the tent and the tower show little change between the early sketches (23) and the working drawings (24). Double seals with backer rods are used at the juncture to thwart the entry of water. Any moisture that collects will be

evacuated through the tent's internal gutter system. A one-inch soft joint between the tent and the tower allows for differential movement between these two systems. The tower and other opaque surfaces of the building will be clad in aluminum panels with a white painted finish. A paint finish was selected over an enamel finish because the latter is less forgiving of imperfections in the panel's surface.



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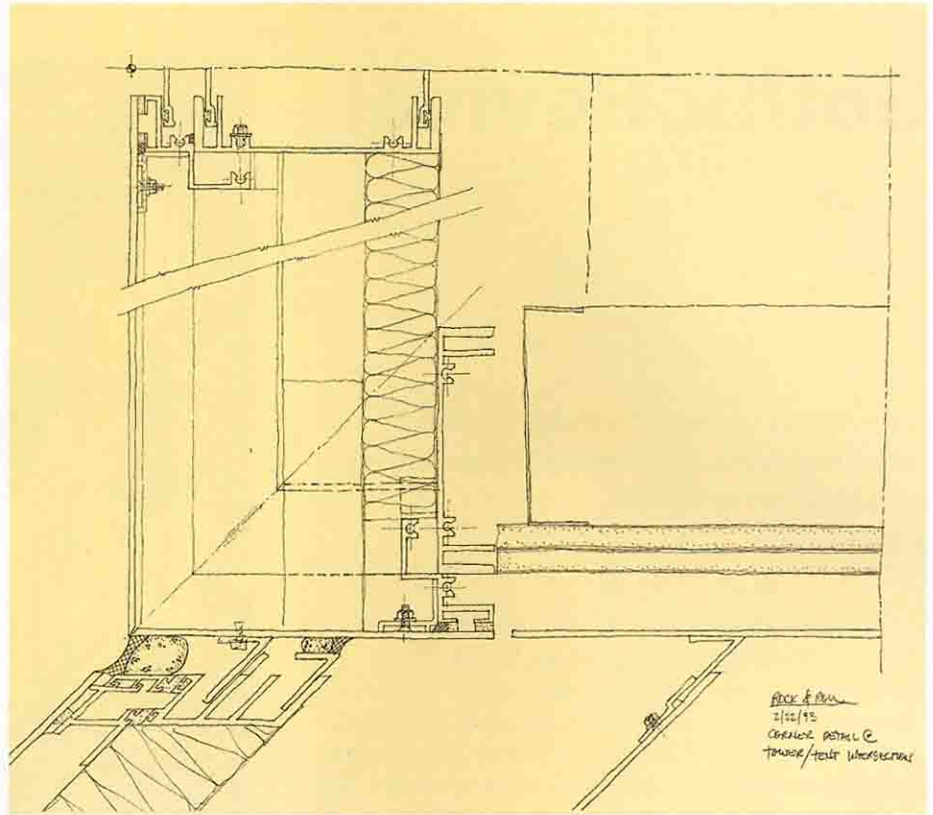
**Project:** Rock and Roll Hall of Fame and Museum, Cleveland.

**Client:** Rock and Roll Hall of Fame and Museum Foundation.

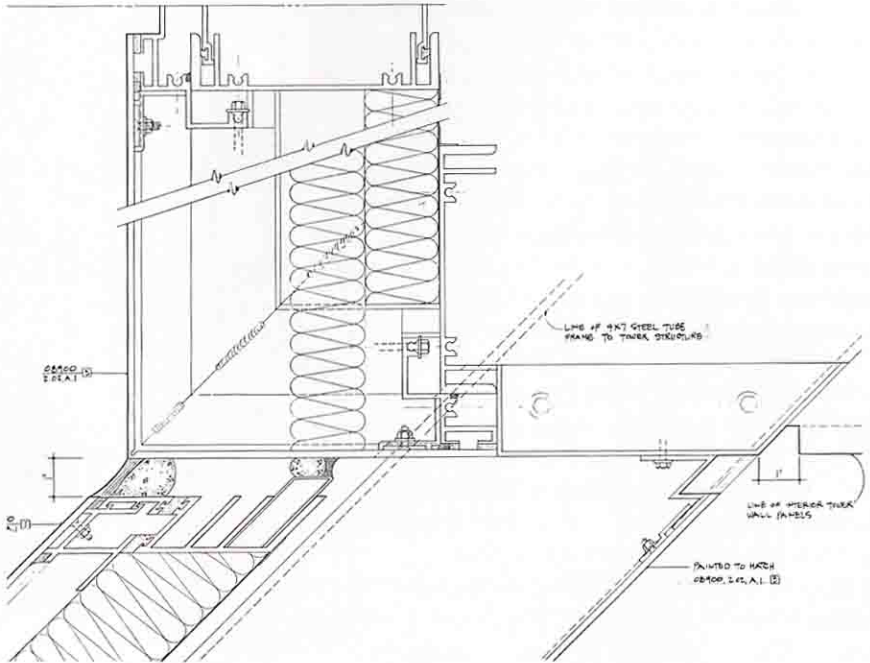
**Architect:** Pei Cobb Freed & Partners, New York (I.M. Pei, design principal; Leonard Jacobson, management; Michael Flynn, management and technology; Richard Diamond, management; Jennifer Sage, design; Winslow Kosior, curtain wall; Richard Gorman, specifications; Marianne Lau, Hope Dana, Steven Derasmo, David Dwight, Mahasti Fakourbayat, Kevin Johns, Sandra Lues, Christine Mahoney, Krista Williams, project team).

**Associate Architect:** Robert P. Madison International, Cleveland.

**Consultants:** Leslie E. Robertson Associates, structural; Altieri Sebor Wieber Consulting Engineers, mechanical/electrical/plumbing; Fisher Marantz Renfro Stone, lighting; Robert P. Madison International, site/civil; Shen Milsom & Wilke, acoustics; Knight & Stolar, landscape.



23 PRELIMINARY DETAIL OF TOWER/TENT INTERSECTION



24 WORKING DRAWING DETAIL OF TOWER/TENT INTERSECTION

