

ARCHITECTURAL FACT SHEET

Renzo Piano Pavilion Kimbell Art Museum, Fort Worth

Renzo Piano Building Workshop and Kendall/Heaton Associates

Institutional Context

The Kimbell Art Museum has been challenged by space constraints for many years. Because the galleries in its 1972 Louis I. Kahn–designed home are not large enough to accommodate the Kimbell’s world-renowned permanent collection *and* loan exhibitions simultaneously, the Museum has been forced to place much of its permanent collection in storage during its frequent special exhibitions.

By greatly enlarging the Museum’s available gallery space, the Renzo Piano Pavilion remedies this situation. The Museum can now host special exhibitions while keeping its permanent collection on view. In addition, the new building will provide dedicated classrooms, an expanded library, generous underground parking and a 298-seat auditorium with excellent acoustics for concerts, performances and recitals.

The placement of the Piano Pavilion also serves to correct the tendency of most visitors to approach the Louis Kahn Building through what the architect considered the secondary east entrance: with the Piano Pavilion, visitors will enter by way of Kahn’s serene west entrance portico.

Project Overview

The Piano Pavilion faces east and sits 65 yards wall-to-wall from the Kahn Building.

Most visitors will enter the new Museum complex from the underground parking garage, located between the two buildings and accessed off Van Cliburn Way. They will ascend to ground level via stairs or glass elevator to a point near the new building’s entrance.

The Piano Pavilion subtly echoes the Kahn Building in proportion, scale, materials, and in its division into three bays.

Plan

Two adjacent wings connected by two glass passageways:

To the east, the front wing is a rectangular structure of poured-in-place concrete walls and glazing, topped by coupled wood beams supporting a glass roof with louvers.

To the west, the rear wing is covered by a green sod roof and appears to rise from the ground.

**Design
Highlights**

From the front approach, two layers appear to hover, one above the other, atop a long, low-slung pavilion. (These floating layers are the delicate glass roof and 100-foot-long wood roof beams.) The gap between the wood beams and the exterior wall creates a longitudinal band of light that runs along the top of the exterior, echoing a similar clerestory window band in the Kahn Building and contributing to the impression of a floating roof and beams.

Upon reaching the rear wing of the pavilion, the visitor is rewarded by a dramatic encounter: bright-red raked seating descends to the stage of a double-height auditorium against the background of a deep glass-and-concrete light well.

Concrete walls in the staircases and the light well are canted, providing drama and allowing for more natural light to be captured.

The astoundingly smooth and uniform architectural concrete and the laminated beams of Douglas fir complement the glazing.

**East Wing
Program**

Ground level: Pavilion Lobby with Pavilion Café and coat check; 2 top-lit galleries; Pavilion Shop; loading dock; security

Lower level: art storage; preparatory areas; mechanical systems; service; other back-of-house functions

**West Wing
Program**

Ground level: non-top-lit gallery, suitable for the display of light-sensitive works; auditorium balcony; education workshops; membership department

Lower level: Pavilion Auditorium and Auditorium Foyer; library; education department

Scale

Building size: approx. 101,130 sq. ft.
(*Note:* Kahn Building, approx. 120,000 sq. ft.)

Building height: 22 ft. 6 in.
East wing, exterior length, north–south: 300 ft.
East wing, exterior width, east–west: 82 ft.

Total campus size: 9 ½ acres
Green space: approx. 4 acres

Total new gallery space: 16,080 sq. ft.

(Note: Kahn galleries, 22,000 sq. ft.)

South gallery: 7,072 sq. ft.

North gallery: 4,328 sq. ft.

West gallery: 4,680 sq. ft.

Pavilion Lobby: 5,815 sq. ft.

Education center: 2,856 sq. ft.

Pavilion Auditorium: 4,100 sq. ft.; 298 seats, including 33 in balcony
(the Kahn Auditorium seats 182)

Library: 6,515 sq. ft.

Underground parking garage: 52,892 sq. ft.; capacity for 135 cars

Facade

The 300-foot-long symmetrical facade of the east wing is made up of three bays:

a central recessed glass entrance bay, which introduces a subtle verticality in mullions repeated at five-foot intervals in the glazing

two large bays on north/south axes, fabricated from a very soft, smooth, light-gray concrete, exactly cast to eliminate joints and imperfections

Coupled wood beams support the glass roof system; both seem to hover above the pavilion proper.

Square concrete columns encircle the four sides of the Piano Pavilion's front wing: four on the east side (facade) and west side, with more closely spaced rows on the north and south sides supporting the overhang of wooden beams.

Roof System

In the *east wing*, three layers modulate daylight in different ways:

Top: aluminum mechanical louvers shade the direct rays of the sun and capture energy with embedded photovoltaic cells.

Middle: high-efficiency fritted glass roof further diffuses light.

Bottom: in the interior, stretched between the wooden beams, a silk-like scrim filters light to evenly distribute daylight throughout the gallery.

The roof overhang also provides shade and shields the interior from direct rays.

On the *west wing*, a 19,200-square-foot green-roof structure slopes down to a lawn on the north and south and is accessible to the public.

Sustainability

Using only half of the amount of energy per square foot required by the Kahn Building, the new building is highly energy efficient via:

Photovoltaic cells on the roof, which will replace 90 tons of carbon dioxide production annually, or about 20% of the annual carbon emissions of the new building;

Thirty-six 460-foot geothermal wells, which will store energy and provide low-carbon heating and cooling;

Low energy LED lighting, used throughout;

High specification glazing units, used throughout to reduce heat gains and losses;

An air displacement supply system, used throughout the ground floor to reduce the energy needed to condition spaces;

Fresh air processed through a central unit to efficiently recover energy and moisture;

A breathable floor in the galleries that provides well-distributed, low-velocity air;

High efficiency bathroom fixtures.

Materials

Architectural concrete: An alabaster-like sheen and silky texture are the result of a complex fabrication process performed by The Beck Group, a team of Italian specialists from Dottor Group, American concrete consultants and the subcontractor Capform. The concrete recipe was reached only after much experimentation in the Texas climate and was mixed and poured in place with scientific precision.

Glass: double-glazed, gas-filled, low-iron

Wood: 29 pairs of 100-foot-long laminated Douglas-fir ceiling beams, weighing 435 tons; quarter-sawn engineered white-oak flooring

Steel: Painted white, custom-sized steel members are the main structural element for the glazing system

Landscaping

approx. four acres of the grounds of the Kimbell Art Museum are green space.

The new landscaping is designed to extend Kahn's vision and conserve as much green space as possible. Piano's 19,200-square-foot green roof was conceived in part to provide more recreation area for the campus.

Some 320 new trees will be planted, including 47 30-foot-high elms between the two buildings that re-establish the previous planting. In addition, 52 new yaupon holly trees will renew the grove outside the Kahn building's west entrance.

Dates	November 27, 2013 , Grand Opening Fall 2010, beginning of construction
Cost	Piano Pavilion: \$135 million
Owner	Kimbell Art Foundation, Fort Worth, TX
Design Architect	Renzo Piano Building Workshop, Genoa, Italy
Executive Architect	Kendall/Heaton Associates Inc., Houston, TX
Project Manager	Paratus Group, New York, NY
Executive Committee Advisor	Bill Lacy, FAIA, December 2006–June 2010
Construction Manager	The Beck Group, Dallas/Fort Worth, TX
Structural Engineer	Guy Nordenson and Associates, New York, NY
Structure Engineer	Brockette, Davis, Drake, Inc., Dallas, TX, consultant to construction manager
Lighting	Arup Lighting, London, Great Britain
MEP Engineers	Arup, London, UK, with Summit Consultants, Fort Worth, TX
Civil Engineer	Huitt-Zollars, Fort Worth, TX
Facade Consultant	Front, New York, NY
Landscape Architect	Michael Morgan Landscape Architecture and Pond & Company, Atlanta, GA
Concrete Consultants	Dottor Group, Venice, Italy Reg Hough, Rhinebeck, NY Capform, Carrollton, TX
Graphic Design	Pentagram, New York, NY
Acoustical/Audiovisual	Harvey Marshall Berling Associates Inc., New York, NY

**Geotechnical
Engineers**

Henley-Johnston Associates, Dallas, TX

Wind Engineering

Rowan Williams Davies & Irwin, Guelph, Ontario, Canada

Security

Architects Security Group, Ormand Beach, FL

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