



# AISC 2005 IDEAS AWARDS

Innovative Design and Excellence in Architecture with Steel

Sponsored by the American Institute of Steel Construction, Inc., this program recognizes those designs where structural steel forms a prominent architectural feature of a building, either as an exterior or interior application.



## ELIGIBILITY

Buildings must either have been designed by architects licensed in the U.S. or be located in the U.S. Projects must have been completed between January 1, 2002 and December 31, 2004.

Both new buildings and renovation (major retrofit, expansion, or rehabilitation) projects were eligible. Firms were encouraged to submit multiple projects. Each submittal was considered separately.

## AWARDS

A panel of design industry professionals judged the entries in four size categories according to constructed value, in U.S. dollars:

- Less than \$10M
- \$10M or greater, but less than \$25M
- \$25M or greater, but less than \$100M
- \$100M and greater

## JUDGING CRITERIA

- Aesthetic and visual impact of the project
- Application of innovative design approaches in areas such as connections, gravity systems, lateral load resisting systems, fire protection and blast
- Innovative use of architecturally exposed structural steel
- Technical advancement in the use of structural steel in the architectural expression
- Creativity and sensitivity in the combination of structural steel elements with other materials

## 2005 JURY MEMBERS



**Robert A. Smith II, AIA**  
Principal, Architects Smith Metzger  
Des Moines, IA



**Joe F. Pryse, AIA**  
Principal, Leers Weinzapfel Associates  
Architects, Inc., Boston



**Sara Douglas Hart**  
Senior Editor, *Architectural Record*  
New York

## WINNERS

### \$100M and greater NATIONAL WINNER

#### Colorado Convention Center Expansion – Denver

*Fentress Bradburn Architects, Denver*

### MERIT AWARD

#### Boston Convention Center – Boston

*HNTB/Rafael Viñoly Architects Joint Venture, Boston & New York*

### \$25M or greater, but less than \$100M NATIONAL WINNER

#### Kingsbury on the Park – Chicago

*Lucien Lagrange Architects, Chicago*

### MERIT AWARD

#### Terminal Canopy and Roadway Expansion – Denver International Airport

*Leo A. Daly, Los Angeles*

### \$10M or greater, but less than \$25M

### MERIT AWARD

#### Como Park Visitor and Education Resource Center – St. Paul, MN

*Hammel, Green and Abrahamson, Inc.,  
Minneapolis*

### Less than \$10M

### NATIONAL WINNER

#### Academic Building, Palmer College Chiropractic – Port Orange, FL

*Herbert Lewis Kruse Blunck Architecture,  
Des Moines, IA*

*Farmer Baker Barrios, Orlando, FL*

### NATIONAL WINNER

#### South Mountain Community College Performing Arts Center – Phoenix

*Jones Studio, Inc., Phoenix*

### MERIT AWARD

#### Children's Museum of Pittsburgh – Pittsburgh

*Koning Eizenberg Architecture, Santa  
Monica, CA*

*Perkins Eastman Architects, Pittsburgh*

### MERIT AWARD

#### The Financial Center – Milford, PA

*Bohlin Cywinski Jackson, Philadelphia*

### MERIT AWARD

#### Creekside Residence – Houston

*Lake/Flato Architects, San Antonio*

## NATIONAL WINNER COLORADO CONVENTION CENTER EXPANSION

Photo courtesy James P. Scholiz.



The original 1 million sq. ft Colorado Convention Center was completed in 1990. In 2004, to meet projected business demands, the center expanded to 2.4 million sq. ft with a bold and forward thinking architectural design solution.

Rising 155' from the street, steel trusses form the 125' cantilevered roof. Galvanized steel panels conceal the trusses, giving the roof its aesthetic appeal. The blade roof simply yet vividly contrasts with the vertical nature of the downtown skyline and makes a sophisticated architectural statement for both the building and the city. Inside, expansive lobby spaces are bathed in natural light from the 190,000'-long glass curtain wall, which is anchored by 95'-tall steel columns connected with rod bracings. Through the glass curtain wall, visitors are exposed to views of the city and the Rocky Mountains.

The program dictated that the exhibit hall, originally built on top of the ballroom, be expanded to 600,000 contiguous sq. ft, which would allow for trucks to drive directly on the floor. To support a 250 psf live load on the exhibit hall floor, the gravity system in the ballroom ceiling used steel trusses spanning 180'. Below, a spacious, column-free 50,000 sq. ft ballroom can be separated into 18 rooms, making it ideal for any gathering. The roof structure in the 5,000-seat auditorium consists of 110' radical trusses spanning to a 100' girder truss over the stage.

The \$304 million expansion now spans nine city blocks. Undulating stainless steel panels line the façade to mask the building's expanded size while creating a dynamic experience for those passing by the center. Acting as a visual screen, perforated stainless steel wraps around the 1,000-space double helix parking structure. Perforated steel allows enough daylight for the garage to remain unlit, providing huge energy savings. The air flow provides proper ventilation for the parking garage.

### OWNER

City and County of Denver

### ARCHITECT

Fentress Bradburn Architects, Ltd., Denver

### ASSOCIATE ARCHITECTS

Bertram A. Bruton & Associates, Denver  
Harold Massop Associates, Denver  
ACLP Architecture, Denver

### STRUCTURAL ENGINEER

Martin/Martin, Inc., Lakewood, CO

### ENGINEERING SOFTWARE

RISA 3D  
RAM Structural System

### FABRICATORS

Hirschfeld Steel Company, Inc., San Angelo, TX, AISC member  
Zimkor, LLC, Littleton, CO, AISC member

### ERECTOR

Derr & Gruenewald Construction Co., Hederson, CO, AISC member

### GENERAL CONTRACTORS

Hensel Phelps Construction Co., Greeley, CO  
J.A. Walker Co., Inc., Denver  
Alvarado Construction, Inc., Denver



Photo courtesy Martin/Martin, Inc.



Graphic courtesy Fentress Bradburn Architects, Ltd.

## MERIT AWARD BOSTON CONVENTION CENTER

Photo courtesy Feinknopf Photography.



This new 2,000'-long, 1.7 million sq. ft convention and meeting facility, located in the developing Seaport District of Boston, includes a 514,000 sq. ft exhibit hall, a 40,000 sq. ft grand ballroom and ballroom pre-function area, 84 meeting rooms, meeting room pre-function spaces, a 750-seat food court, and a full commercial kitchen and bakery.

The \$500 million project extends from the new business and commercial district adjacent to Boston Harbor to the residential neighborhoods of South Boston. The steel-framed, double curvature of the roof features an 80' cantilever that soars over the Summer Street entry to the north. Sloping steel columns that support this cantilever, combined with the projecting grand ballroom, create a dramatic entry plaza. The roof, which varies from 100' to 75' above the exhibit hall floor, slopes gradually toward the south, gently arching over the exhibition space.

Supported on columns spaced 90' by 180' apart, the roof features exposed trusses and purlins in addition to a network of catwalks and rigging supports for use by exhibitors. The exhibit hall also features lower 35' roofs on the side of the central exhibition space that are supported by sloping steel "tree" columns resting on 7'-tall concrete pedestals. This arrangement minimizes the impact of structure on the exhibit hall floor while simultaneously providing a system that resists lateral forces on the building. A continuous ribbon of clerestory glazing just below the eaves of the roof combines with careful detailing of all exposed connections to create a roof structure that floats above the building.



Photo courtesy Feinknopf Photography.

### OWNER

Massachusetts Convention Center Authority

### ARCHITECTS

HNTB Architecture, New York  
Rafael Viñoly Architects, New York  
Primary Group, Boston (associated)

### STRUCTURAL ENGINEER

LeMessurier Consultants, Cambridge  
Walter P. Moore & Associates, Tampa, FL

### ENGINEERING SOFTWARE

SAP2000  
Chiquita (LeMessurier in-house design program)

### FABRICATOR

Canam Steel Corp., Easton, MA, AISC member

### DETAILERS

Canam Steel Corp., Boucherville, Quebec, Canada, AISC member  
Steltec, Inc., Ste-Therese, Quebec, Canada, AISC member, NISD member  
Les Dessins Trusquin, Inc., Laval, Quebec, NISD member  
M & D Drafting Ltd., Edmonton, Alberta, Canada, NISD member

### DETAILING SOFTWARE

SDS/2  
Xsteel

### ERECTORS

CDSP Erectors  
Capco Steel Corporation, Providence, RI, AISC member

### GENERAL CONTRACTORS

Clark Construction Group, LLC, Bethesda, MD  
Huber Hunt & Nichols, Indianapolis  
William A. Berry Construction, Danvers, MA

**NATIONAL WINNER**  
**KINGSBURY ON THE PARK**

This 25-story Chicago building features an efficient steel structure, with six steel mega frames, rising above a cast-in-place concrete base. Three-story high chevron steel braces in the upper tower were designed around a central elevator core, and span the width of the building to meet lateral drift limits. Eighteen residential floors of composite steel framing house 125 condominium units, with eight vertical self-supporting balconies of varying widths. Floor seven serves as a transition between the residential units and the split-level parking garage on floors two through six. The steel frame afforded several other design advantages, including:

- greater opportunities for building transparency
- raised ceiling heights and mechanical flexibility, which enhanced efficiency
- reduced construction costs and a shortened project schedule.

<b>DEVELOPER</b> Smithfield Properties, Chicago	<b>ENGINEERING SOFTWARE</b> ETABS RAM Structural System
<b>ARCHITECT</b> Lucien Lagrange Architects, Chicago	<b>FABRICATOR &amp; DETAILER</b> Zalk Josephs Fabricators, LLC, Stoughton, WI, AISC member
<b>STRUCTURAL ENGINEER</b> Thornton-Tomasetti Group, Chicago	<b>GENERAL CONTRACTOR</b> Wooton Construction, Chicago



Photo by Nathan Kiriman

**MERIT AWARD**  
**TERMINAL CANOPY AND ROADWAY EXPANSION, DENVER**



Photo courtesy Ooms Studios.

<b>OWNER</b> Denver International Airport, Denver	<b>ENGINEERING SOFTWARE</b> STAAD 3
<b>ARCHITECT AND STRUCTURAL ENGINEER</b> Leo A. Daly, Los Angeles	<b>GENERAL CONTRACTOR</b> PCL Construction Services, Inc., Glendale, CA
<b>ASSOCIATE ARCHITECT</b> KT Architecture, PC, Aurora, CA	

The canopy addition of the Denver International Airport creates covered outdoor waiting areas for passenger pick up and drop off. The project encompasses two 800'-long canopies, directly adjacent to the east and west main fronts of the two-sided central terminal. The height of the structure was restricted by the requirement that views remain open over the canopy from the upper level to the Rocky Mountains.

The canopies were located on top of the existing structure of the roadways, requiring a lightweight solution and restricting column support locations to 60' spacing. Emergency vehicle clearance required a minimum clear height of 15', and a central opening for natural ventilation of smoke and exhaust fumes. Potential heavy snow loading, snow shed, and snow melt and rain diversion had to be accommodated.

The design solution created a lightweight tensile fabric structure of Teflon-coated fiberglass stretched over a white painted steel truss structure. The shallow curved 90'-wide main steel members rest on a "tree" cluster of four steel columns at each support point, creating a stable base for the long-span trusses and providing a concealed zone for the location of drainage, electrical, and sprinkler lines. The raised column bases shield the transition of these service lines to the level below.

## MERIT AWARD

# COMO PARK VISITOR AND EDUCATION RESOURCE CENTER

I.D.E.A.S. AWARDS  
\$10M or greater, but less than \$25M



Photo courtesy Hammel, Green and Abrahamson, Inc.

Exposed structural steel is the primary interior and exterior architectural expression at the Como Park Zoo and Conservatory Visitor and Education Resource Center in St. Paul, MN. The new building connects to an existing turn-of-the-20th-century botanical conservatory, which is constructed of steel and glass. The architects used the historical design themes of the conservatory as a starting point but gave the new building its own identity.

The new building consists of two large steel-framed greenhouse exhibit spaces flanking a centralized two-story visitor service and educational core. The structural engineers took advantage of steel's flexibility to help the architects define the unique and intricate form of the "Tropical Encounters" pavilion greenhouse. Steel framing for this greenhouse is turned at an angle from the main building's framing in order to optimize day lighting conditions for tropical plants. A cascade of greenhouses connecting to the conservatory houses new fern, bonsai, and orchid rooms. Stepped steel framing for this greenhouse assemblage is accomplished with a welded moment frame. This eliminates the need for intermediate columns within the fern room. Unfinished steel framing defines the bonsai room, where a supported "collar" beam acts as a unique transfer member for the terrace roof above.

An exposed steel frieze beam ties the elements of the new building together. This beam aligns with a frieze element on the existing conservatory. An assembly of steel columns creates a rhythmic colonnaded façade. Drainage for the roof terrace and skylights above is accomplished with downspouts integrated into the column assembly. A stair cantilevers over an exterior reflecting pool, accomplished in structural steel by means of horizontal bracing and special connections designed to carry resulting horizontal thrusts that exceed gravity loads. A pergola along one side of the building is framed with steel.

### OWNER

City of St. Paul, MN

### ARCHITECT/STRUCTURAL ENGINEER

Hammel, Green and Abrahamson, Inc.,  
Minneapolis

### ENGINEERING SOFTWARE

RISA 3D  
RAM Structural System

### DETAILER AND FABRICATOR

Egger Steel Company, Sioux Falls, SD,  
AISC member

### DETAILING SOFTWARE

Xsteel

### ERECTOR

Danny's Construction Company,  
Shakopee, MN, NEA member

The academic building project completed phase one of the new Palmer College of Chiropractic campus in Port Orange, FL. Two additional building sites, parking for the entire campus, a significant water feature, and a landscaped central campus green have also been planned for the 25-acre site.

The 55,000 sq. ft building serves as the primary teaching classroom and faculty office facility for the campus. In addition to traditional classrooms and offices, the facility also accommodates technique teaching labs, temporary administrative offices, a temporary learning resource center, a computer lab, small group study rooms, and support space.

The architectural expression of this project is based on a response to the environment of Florida and Sarasota-style architecture. The building was designed to maximize day lighting while protecting the interior from the intense heat of the Florida sun. Fritted glass and steel sunscreens are used in lieu of mirror glass to shade direct sunlight, while also allowing daylight in and providing clear views from the interior. In addition to effectively shielding the sun, the glass and steel sunscreens create a dynamic architecture full of detail, light, and shadow.

**OWNER**

Palmer College of Chiropractic

**ARCHITECTS**

Herbert Lewis Kruse Blunck Architecture, Des Moines, IA  
(design)

Farmer Baker Barrios, Orlando, FL (AOR)

**STRUCTURAL ENGINEER**

Walter P. Moore, Orlando, FL

**STRUCTURAL ENGINEERING SOFTWARE**

RAM Structural System

**FABRICATOR**

Schuff Steel Co., Orlando, FL, AISC member (formerly Addison Steel, Inc.)

**GENERAL CONTRACTOR**

Brasfield & Gorrie, Lake Mary, FL

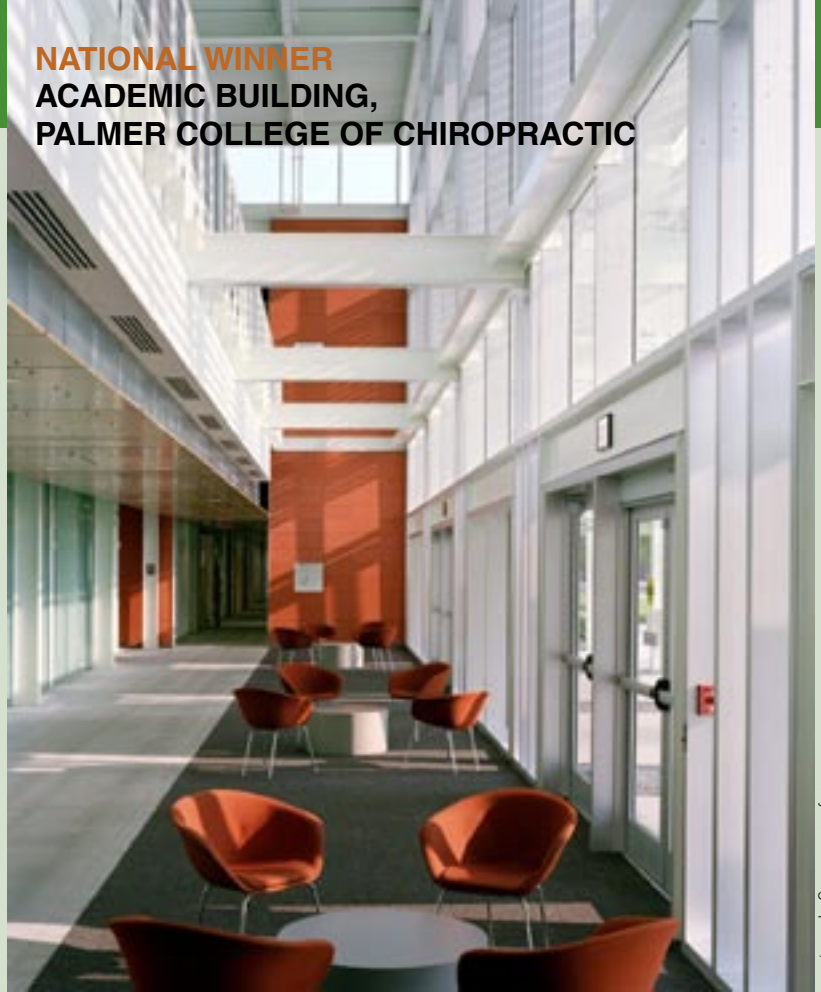


Photo courtesy Esto Photographics, Inc.



Photo courtesy Esto Photographics, Inc.

**NATIONAL WINNER**  
**SOUTH MOUNTAIN COMMUNITY COLLEGE**  
**PERFORMING ARTS CENTER**

**I.D.E.A.S. AWARDS**  
**Less than \$10M**



Photo courtesy Mark Boisclair.

**OWNER**

Maricopa Community College District, Tempe, AZ

**ARCHITECT**

Jones Studio, Inc., Phoenix

**STRUCTURAL ENGINEER**

Rudow + Berry, Inc., Scottsdale, AZ

**ENGINEERING SOFTWARE**

RISA 3D

**GENERAL CONTRACTOR**

Layton Construction, Phoenix

**T**he South Mountain Community College Performing Arts Center project site borders the edge of Phoenix and the South Mountain Preserve, an area where citrus groves and floral nurseries are slowly being replaced by urban development. The design challenge was to integrate the rich textures of the existing conditions with new construction.

The functional programs of the new performing arts center are divided into three major building blocks coupled around the existing art, music, and liberal arts buildings to create an outdoor arts quad. The new 43,000 sq. ft performance center contains

a 350-seat theater, 100-seat black box theater, 75-seat dance studio, recording studio, scene and costume shops, a dressing room, make-up room, and green room, as well as faculty offices and two multi-purpose classrooms.

The arts quad is a landscaped space outfitted to house impromptu rehearsals, group meetings, and scheduled performances. The first and most prominent building block, the performance hall, which includes the lobby, house, and stage, sits nearest to the main campus entry. An elevated exterior lobby, constructed of aluminum grate and galvanized purlins, provides a “stage” for audience members

before and after performances. The second building block includes the back-of-house functions, while the third block includes the black-box theater, a dance studio, multipurpose classrooms, and administrative offices.

The three building blocks are constructed of sandblasted CMU, except for the “cap” of the performance hall. The cap is steel-framed and clad in overlapping profiled plain steel shapes, left to rust, that peel away to reveal glazing in areas where light locks are not required. The mass transfigures from the stage end, which is completely opaque, to the glass lobby, which is translucent.

The Children's Museum of Pittsburgh's new linking building is explicitly modern in counterpoint to the flanking masonry-clad buildings—a 19th century post office and a mid-20th century planetarium. The addition is comprised of an exposed steel structure veranda for the entryway and lobby, and a wrapped-steel structure lantern for exhibit space.

Young visitors get to experience the contrast between traditional carved space and modern framed space as they explore the museum's "play with real stuff" exhibits. The steel-framed veranda sets up the introduction to the program by expressing the "real stuff" of structure. Acoustic steel decking provides the form for concrete floors and a ceiling surface that keeps noise levels down.

The tube linking the veranda to the post office is clad in satin stainless steel panels that camouflage the fire-rated connection. The design was selected through an NEA-sponsored national design competition. Built for \$9.4 million and completed in 2004, the 80,000 sq. ft museum, including remodeled and new space, is slated for a silver LEED rating—the first for a children's museum.

**OWNER**

Children's Museum of Pittsburgh

**ARCHITECT**

Konig Eizenberg Architecture, Santa Monica, CA (design)  
Perkins Eastman Architects PC, Pittsburgh (AOR)

**STRUCTURAL ENGINEER**

Ove Arup & Partners, Los Angeles (design)  
Atlantic Engineering, Pittsburgh (EOR)

**ENGINEERING SOFTWARE**

SAP 2000  
RAM Structural System  
Enercalc  
STAAD

**ERECTOR**

Multi-Phase, Inc., Coraopolis, PA, AISC member

**GENERAL CONTRACTOR**

Mascaro Construction Company, L.P., Pittsburgh



Photo courtesy Esto Photographics, Inc.

**MERIT AWARD**  
**THE FINANCIAL CENTER**



Photo courtesy Nic Lehoux Photography.

**OWNER**

The Biondo Group, Milford, PA

**ARCHITECT**

Bohlin Cywinski Jackson, Wilkes-Barre, PA

**STRUCTURAL ENGINEER**

E.D. Pons & Associates, Inc., Wilkes-Barre, PA

**ENGINEERING SOFTWARE**

Digital Canal  
RAM Structural System

**FABRICATOR AND DETAILER**

Standard Iron Works, Scranton, PA, AISC member

**DETAILING SOFTWARE**

SteelCAD

**GENERAL CONTRACTOR**

Zitone Construction and Supply Co., Inc., Montague, NJ

Located on a seven-acre site, this 20-person office building perched at the top of a 40'-deep ravine provides occupants with extraordinary views of the natural surroundings. The 10,000 sq. ft, \$3 million building has its design roots firmly planted in the California "Case Study Houses" lineage.

The exposed steel structure is organized on two circulation axes. The glazed entrance occupies the intersection of these axes. The first axis is 275' in length, beginning at the building's entry and extending through all open and private offices, culminating at an employee lounge and deck. A brick wall defines the western edge of this axis and parallels an existing stone wall.

The cross axis ties together the more varied public spaces. The building's glazed lobby introduces visitors to the building's layered and offset structural rhythm. Three meeting spaces are located along this cross axis. One is a conventionally appointed conference room, the second is a multi-media auditorium for educational and training seminars, and the third is a glazed-on-four-sides meeting space that projects over the ravine.

Terraces, cantilevered porches, and deep overhangs visually extend interior space into the forest. A crisp triangle of manicured grass is situated between the office building's two axes to contrast with the natural landscape.





**MERIT AWARD  
CREEKSIDE RESIDENCE,  
HOUSTON**



Photo courtesy Lake/Flato Architects.

**T**all pine trees and a ravine provide the perfect site for a steel- and timber-framed residence. Steel was selected to give the owners design flexibility to create spaces for entertaining, while maintaining an intimate scale for the residence.

The pavilion feel of the house is emphasized by the large, thin-edged steel-framed roof. Overhangs are given additional support by a system of steel struts reaching out like tree limbs at the high corners. Steel angle and cable supported trellises provide sun protection to the glass.

The long axis of the site is oriented east-west along a ravine. Designed in two parts, the house has

both a public north side and shaded private south side along the ravine. Steel-framed shoji panels allow the carport to be used as a gathering space off the entry courtyard, or to be used by caterers to set up and open to the pool area during outdoor entertaining.

The stiffness of the steel structure allowed for 10' by 15' suspended rolling panels to be used to open and close areas of the first floor, creating alternately intimate and spacious living and entertaining spaces. On the second floor, the private master suite is connected by a steel bridge across the two-story living room to the children's area, offering privacy and intimacy.

**ARCHITECT**

Lake/Flato Architects, San Antonio, TX

**STRUCTURAL ENGINEER**

Steve G. Persyn, P.E. Consulting Engineers, San Antonio, TX

**GENERAL CONTRACTOR**

Renaissance Builders, Houston