Sponsored by the American Institute of Steel Construction, I.D.E.A.S. awards (Innovative Design and Excellence in Architecture with Steel) recognize architectural designs using structural steel as a prominent architectural feature.

AISC presented each project’s architect with their I.D.E.A.S. award at the AIA 2002 National Convention and Expo at the Charlotte Convention Center in May. Projects were judged in four categories based on project cost—less than $10 million; $10 million and greater, but less than $25 million; $25 million and greater, but less than $100 million; and $100 million and greater.

ELIGIBILITY
- Structural steel must form a prominent architectural feature of the building, either as an interior or exterior application.
- Building construction must have been completed after January 1, 1998.
- Projects must be designed by architects in the United States.
- 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

JUDGING CRITERIA
- Creative use of exposed structural steel in the architectural design
- Overall aesthetic and visual impact of the project
- Design resolution demonstrating exemplary sensitivity in the resolution of formal, functional and technical requirements as outlined in the project description
- Thematic advancement in the use of structural steel in the architectural expression
- Creativity and sensitivity in the combination of structural steel elements with other materials

AWARD WINNERS

LESS THAN $10M
National Award
Imperial Bank Tower Renovation—Murphy/Jahn, Chicago, IL
Merit Awards
World Peace Bell & Pavilion—NBBJ, Columbus, OH
Roseville Park Shelters—Meyer, Scherer & Rockcastle, Ltd. Minneapolis, MN

$10M AND GREATER, BUT LESS THAN $25M
National Award
The Pavilion at Symphony Lake—William Rawn Associates, Boston, MA
Merit Awards
Learning Laboratory for Complex Systems—Cambridge Seven Associates, Cambridge, MA
Donald W. Reynolds Center on Aging—Perkins Eastman Architects, Pittsburgh, PA

$25M AND GREATER, BUT LESS THAN $100M
National Award
Stonebriar Centre—ELS Architecture and Urban Design, Berkeley, CA
Merit Awards
The Great Platte River Road Archway Monument—Urban Design Group, Inc., Denver, CO
Diamond Ranch High School—Thomas Blurock Architects, Costa Mesa, CA
Utah Olympic Oval—Gillies Stranksy Brems Smith, Salt Lake City, UT

$100M AND GREATER
National Award
McNamara Terminal at the NorthWest World Gateway—Smith Group, Detroit, MI
Merit Awards
Heinz Field—HOK Sport + Venue + Event, Kansas City, MO
Pusan Convention Center and Exhibition Hall—Parker Durrant International, Minneapolis, MN
This structural system used to cover such a large open space echoes the long-span train sheds of Europe, such as the Gare de Lyons in Paris.

Located within the Detroit Metropolitan Airport, the McNamara Terminal at the NorthWest World Gateway has transformed the current airport into one of the nation's premier hubs. The 2.0 million sq. ft. terminal complex is surrounded by six active runways and taxiways. The Terminal Building consists of a terminal, connecting link, east concourse (Concourse A-up to 135’ wide and nearly one mile long), passenger tunnel and west concourse (Concourses B and C).

A steel joist and king post truss system provide support for the 650,000 sq. ft. roof. This framing system creates wide-open, column-free spaces that not only facilitate passenger movement within the building but also enhance the building's future flexibility. The king post trusses form the lateral-force-resisting system, eliminating the need for bracing and further increasing flexibility of the interior space. The king post truss roof system is continued through the connecting link between the Terminal Building and the East Concourse providing a large open space with a lively mall atmosphere. Steel framed glass walls provide natural light.
**JURORS’ COMMENTS**

Refreshingly lightweight sensation through the use of tensile elements in combination with natural light. Dynamic roof forms.

**STRUCTURAL ENGINEER**
Smith Group, Detroit, MI

**ARCHITECT**
Smith Group, Detroit, MI

**STEEL FABRICATOR**
Havens Steel Company (AISC member), Kansas City, MO

**STEEL ERECTOR**
National Riggers & Erectors, Inc. (AISC & NEA members), Plymouth, MI

**STEEL DETAILER**
Havens Steel Company (AISC member), Kansas City, MO

**GENERAL CONTRACTOR**
Hunt Construction Group, Romulus, MI

**DESIGN SOFTWARE**
RAM Structural System, STAAD

**DETAILING SOFTWARE**
SDS/2, MicroStation, AutoCAD
Heinz Field- horseshoe-shaped and two-tiered-seats 64,440 Steelers fans with unobstructed sightlines. Its exposed structural steel framing is equally as impressive as its wide-open view of Pittsburgh’s three rivers and the downtown skyline. The upper tier, cantilevering 46’ over the suite and club levels, is supported by “quad-pod” column groupings consisting of four massive steel HSS placed at the midpoint alternating structural bays. These branch-like structures essentially halved the typical number of supports used in more traditional framing schemes. They funnel the structure’s loads into A-shaped frames carried down through the suite and club levels.

The use of cruciform columns and four-direction knee braces carried this system to the street level. Consisting of WT18s welded to W36 members capped at the top with knee braces, these columns eliminated costly story bracing and its corresponding erection time. The exposed structural steel frame has become the signature feature of the facility.
JURORS’ COMMENTS

A thoughtful use of steel and rational geometry to fulfill the pragmatics of a stadium structure. The clarity of this solution adds to its appeal and justifies its expression at the exterior of the complex. The upper deck structure is a dramatic solution. An incredible engineering tour de force.

STRUCTURAL ENGINEER
Bliss and Nyitray, Inc., Miami, FL

ARCHITECT
HOK Sport + Venue + Event, Kansas City, MO

STEEL FABRICATOR
Hirschl and Adler, New York, NY

STEEL ERECTOR
Century Steel Erectors, Inc., (NEA member), Drovosburg, PA

STEEL DETAILER
Consteel Technical Services (AISC & NISD members), Saltburn, England

GENERAL CONTRACTOR
Hunt Construction Group with Mascaro, Inc., Indianapolis, IN

DESIGN SOFTWARE
STAAD III, RAM Advanse, RAM Structural System

DETAILING SOFTWARE
AutoCAD
A progressive harbor city poised on the Sea of Japan, Pusan, Korea, is now the home to a convention center and exhibition hall composed of a prismatic glass gallery and a dramatically sloped roof. Both building elements are structured in steel in this 900,000 sq. ft. flagship convention and exhibition facility.

The curved glass circulation spine of the convention center is a 27 frame tri-chordal truss spanning 754'. The truss is generated by slicing a doughnut-shaped “torus of revolution” that accommodates the gallery’s curved, graduated geometry. Cantilevered steel pipe columns support the truss and the expansive glass curtainwall system.

Twenty-seven inclined bowstring trusses span 351’ to shelter an exhibition space 800’ in length. The resulting clear span area of 280,800 sq. ft. affords ultimate flexibility for staging exhibitions of any variety. The steel wide-flange truss framework is tilted toward clerestory windows letting in both natural light and views of the coastal mountains beyond.

Cascading into the glass gallery, a monumental stair gives the maritime allusion of a glass and steel serpent. Steel plate “vertebrae” support sandblasted glass treads while the railings are built of glass on stainless steel balustrades.
JURORS’ COMMENTS
The sense of drama and tension between the glazed masses of this complex take advantage of the properties of steel: essentially straight, linear elements are composed in astonishing geometries. Only steel could have created this extremely light long span...an architectural gem.

STRUCTURAL ENGINEER
Ove Arup and Partners USA, New York, NY
ARCHITECT
Parker Durrant International, Minneapolis, MN
Il Shin Architects and Assoc. Co. Ltd., Pusan, Korea
Stonebriar Centre
Frisco, TX

Situated near Dallas, TX, the Stonebriar Centre offers a dynamic public environment while remaining a traditional linear-concourse shopping complex. Using structural steel to define and highlight the major spaces, the mayor of Frisco, TX, likened the complex to a trip to the airport or opera. Defining the central circulation path, a 1,550'-long sloping and curling steel roof structure spans the entire spine of the complex. Constructed of tension-supported steel rod "king post" trusses resting on angled clerestory tube trusses, the roof structure undulates along the spine. Secondary spaces are defined by unique roof forms supported by a variety of truss systems, such as tension ring and bicycle wheel trusses. An innovative winged single-truss pedestrian bridge and fan truss mark the main entrance.

Architectural elements complement the steel structures. A contemporary architectural vocabulary reflects this area's reputation for cutting-edge technology and communication industries. Traditional Texas themes blend with the architectural elements; Texas limestone pillars, motifs and steel sculptural art complement the structural system. A glass elevator, wrapped by a steel stair, extends through the overhead trusses.

The combination of the interweaving skylight system and steel span evokes an exciting and spacious promenade, reflecting seasonal and hourly variances of light.
JURORS’ COMMENTS

Steel construction is used inventively to create a sense of place, rhythm and articulation in a building type not known for exemplary architecture. Here is the best example that a mall can be a beautiful building. The whole structure is incredibly airy and light.
Located in Kearney, NE, and spanning a busy stretch of Interstate 80, the Great Platte River Road Archway Monument celebrates both historic pioneer migration trails and the more contemporary links that join the eastern and western halves of the United States. The monument’s exhibits draw parallels between the more traditional Mormon, Oregon and California trails, and the other “trails” that followed: the Pony Express, the first telegraph line, the Transcontinental Railroad, the Lincoln Highway, Interstate 80 and fiber optic cables.

The monument, which appears to be a large bridge structure over the interstate, contains a two-story building. Filled with interactive exhibits, the building is accessed through pavilions that serve as abutments for the 308’ span. Numerous architectural treatments were considered for the facades before deciding that the best solution for a building of such length was to expose the structure. The skin and the structure were reversed, exposing an arched truss of weathering steel, replete with bolts, welds and plates. Glass panels forming the skin of the monument are located behind the steel truss.

The monument’s location (spanning an interstate highway) required innovative construction techniques. The entire structure-including cladding and roofing-was constructed on one side of the highway and “rolled out” over the highway at night. The building incorporates a steel plate floor at the lower level, adapted from the concept of orthotropic plate bridge decks. This floor serves as the primary tension tie and enabled the designers to minimize the mass of the lower chord of the truss-desirable from both an economic and visual standpoint. Loads are transferred from the webs of the girders into the plate at each corner through full-penetration welds.

To protect the building from potential petroleum-fueled fires from the roadway below, the building was fire-engineered, resulting in the addition of discreetly detailed steel plate flame shields.
**JURORS’ COMMENTS**

Given the span, steel was the logical choice. The use of weathering steel is consistent with the rustic setting of the “frontier.” At once romantic and evocative, it recalls the past in a muscular way that is totally American and unquestionably bold.
Located among the hills of Pomona, CA, this dramatic high school was the result of a design competition sponsored by the school district. The campus was designed on an “unbuildable” hillside site acquired by the school district for $1. A $13 million grading project created 30 usable acres on the steep slope at a fraction of the cost of condemned urban land in the district.

The exciting forms and massing of the individual buildings could only be cost-effective with structural steel frames. Dramatic features include a trussed 65’ cantilevered element, which beckons to the school’s main entry from the Administration Building. The exposed steel trusses in the gymnasium offer a strong aesthetic while achieving an innovative structural design. To maximize usable square footages, many buildings feature large steel-framed cantilevers.

In the interest of controlling energy management at the site’s sunny hillside location, the majority of exterior wall surface area was placed below grade to minimize direct heat gain. The resulting structure is highly energy-efficient.

Diamond Ranch High School
Pomona, CA
JURORS’ COMMENTS
The application of metal siding achieves a cohesive composition of elements, and underscores the fresh geometry. Beautifully-detailed, elegant, well-proportioned forms.
Utah Olympic Oval

Kearns, UT

The Utah Olympic Oval in Kearns, UT, is all about steel—from the speed skater’s blades to the top of the cable suspension towers. By using a cable suspension system to support the arena roof, the 310’-span roof trusses are only 3’ deep (compared to the 18’ depth required by a typical framing scheme). The shallower roof structure reduced the enclosed building volume by 2.6 million cubic feet and reduced the required steel tonnage by 953 tons.

According to The Salt Lake Tribune on May 27, 2001, “Olympic speed skaters in 2002 will fly around a building that is designed to be as energy efficient as it is visually stunning. The [Olympic Oval]’s roof is held up by a cable suspension system similar to that of the Golden Gate Bridge. The dramatically lowered roof ... makes it cheaper to heat and cool the arena.” The smaller enclosed volume also allows for optimum indoor air temperatures for skating and for ice control.

The creative use of steel and other functional and sustainable design features (including the tower-adjoining white heat-reflecting roof) earned the first of thirteen worldwide Leadership in Energy and Environmental Design (LEED) ratings from the U.S. Green Building Council.
JURORS’ COMMENTS

Lacy, well-crafted and honest in its expression. Minimal structure (in weight) for the span. This is engineering at its best! The use of steel as a recyclable element in sustainable architecture is a noteworthy plus.
Nestled within a native pine forest gently sloping to the lake, the Pavilion at Symphony Lake in Cary, NC, has a transformable stage capable of supporting symphony, theater, dance and opera, outdoor seating for 7,000, a covered pavilion for 300-seat dining or 500-seat lectures, concessions and ticket booth and support spaces. Providing a high-tech civic icon to a fast-growing new town, the Pavilion in the Park features extensive use of steel, glass, and wood.

One goal of the pavilion was to integrate with the wooded area. The vertical lattice-like steel structure is in harmony with the scale and nature of the pines, while the thin steel columns and transparent glass surround allows for optimum viewing of the trees and lake, which in turn provide the enclosure of the stage. The dining crescent at the rear of the audience area forms the back edge of the audience clearing. The glowing steel and glass lantern over the stage stores and masks theater equipment, shelters performers and creates a visual delight for the audience with computer-controlled flickering bulbs that mimic a basket of fireflies.

Another goal was to create a flexible design. Draperies can transform the concert shell into a proscenium theater, and the choral loft transforms into an orchestra loft for dance and opera. The orchestra pit provides a dance floor or extra seating when covered.

A vast speaker grid placed inconspicuously amongst the trees provides balanced and articulated sound for large audiences. The computer-enhanced sound system generates warmth of indoor reverberation in an outdoor setting, and the glass shell around stage offers acoustic support for musicians and audience.
JURORS' COMMENTS

A symbolic enclosure of space with a floating structure that could only be steel, supported by tree trunk–like columns. Canopy elements take on tree–like forms of the surrounding forest as they cantilever in unpredictable angles from the columns. The potentially overwhelming sense of mass is mitigated by the use of light framing and transparent screens.
Emphasizing the “lightness” of common structures in the aerospace industry, the designers of the Learning Laboratory for Complex Systems at MIT feature glass and steel elements in exterior and interior wall systems to complement the heavier masonry look of the existing building. The new stainless steel, long span hangar roof system also reinforces a feeling of “lightness” by springing from small HSS columns in the window walls. The roof structure incorporates a series of delicate steel king post and rod trusses that reinforce the “lightness” of the roof. The exterior window wall is comprised of a series of steel channels, which in turn support a steel window system. Even the oversized bi-fold hangar door incorporates a glazing system that coordinates closely with the steel window wall to give the overall space a generous sense of transparency and daylight.

Steel window systems with thin sightlines were incorporated into major portions of the new interior walls such as in the library, fabrication shops and various specialty classrooms. Metal panel cladding was the material of choice when the east brick façade of the building was discovered to have structural problems. Using a metal panel treatment in combination with the new steel windows allowed the hangar addition and the existing low speed wind tunnel to blend with the newer structures.
JURORS’ COMMENTS

Straight-forward, workmanlike, yet inventive approach to steel construction: devoid of stylistic moves. Simple, clean and well-engineered. No nonsense here. A very honest, down-to-earth use of steel... No gimmick! A raw expression of the material with its structural integrity and detailing.
The architects of the Donald W. Reynolds Center were challenged to combine the functions of patient services, clinical research, basic research and education in an environment that promotes information exchange between researchers and patients.

The canopy of the entrance court features exposed structural steel tree-like supports and a transparent glass roof, bringing the outdoors right up to the edge of the lobby. In the lobby itself, an exposed roof deck and exposed structure play an integral role in allowing the lobby to feel spacious, blurring the distinction between inside and outside. Exterior steel and glass frames continue the look and feel of the entry canopy while shading large areas of glass curtain walls. The atrium space incorporates a 200’-long south-facing clerestory window to connect the space to the outdoors. Ornamental steel handrails and small balconies provide a series of dramatic focal points.

This project has received design awards from both the Arkansas State AIA in 2001 as well as the Gulf States Region AIA in 2002.
Elegant and refined use of steel to create transparent pavilions which engage, rather than oppose, the surrounding masonry structures. The steel detailing is unstudied and clear yet it maintains a complexity that comes from incredible attention to detail.

JURORS’ COMMENTS

Elegant and refined use of steel to create transparent pavilions which engage, rather than oppose, the surrounding masonry structures. The steel detailing is unstudied and clear yet it maintains a complexity that comes from incredible attention to detail.
NATIONAL WINNER
Less than $10 million

JURORS’ COMMENTS
Light, sophisticated, elegant; minimal use of material to achieve a dramatic, light-filled space, only possible with steel. Elegant, refined fusion of steel and glass. A very dramatic use of steel and glass...
Built in the early 1970s, the Imperial Bank Tower in Costa Mesa, CA, required updating to match the quality of adjacent properties within the owner’s office campus. The focus of the renovation is a glass vault that replaces the original connecting link between the Tower and the adjacent office building. The spacious glass-clad lobby is the crossroads of paths between the adjacent structures and serves as an informal gathering space.

The use of an extremely light steel-and-cable support system, in conjunction with a highly engineered structural steel frame, maximizes the glazing while allowing the entire structure to be exposed. Seismic movements between the two buildings are handled by the cumulative movement accommodated at each silicone glass joint and by the inherent flexural properties of steel.
The World Peace Bell and Pavilion in Newport, KY, form the beginning of Newport’s Millennium Monument Center development. As the world’s largest free-swinging bell, the World Peace Bell weighs nearly 45 tons and is 12’ tall and 12’ in diameter.

Standing 54’ tall, the Pavilion incorporates 50 tons of structural steel. The architects chose structural steel because of steel’s historic significance in the Ohio River valley. The Pavilion’s bolting patterns and x-braces are reminiscent of the steel bridges and train trestles that span the Ohio River. The Pavilion is clad with glass panels with horizontal 1” frit bands. The semi-transparent look gives the bell mechanism the appearance of a glass-enclosed mechanical clock.
Monumental in its simplicity and refined detailing. Simple structure and detailing makes the object more important than the enclosure, as it should be.

**JURORS’ COMMENTS**

Monumental in its simplicity and refined detailing. Simple structure and detailing makes the object more important than the enclosure, as it should be.

**STRUCTURAL ENGINEER**
Thornton-Tomasetti Engineering Co., Newark, NJ

**ARCHITECT**
NBBJ, Columbus, OH

**STEEL FABRICATOR**
Southern Ohio Fabricators (AISC member), Batavia, OH

**STEEL DETAILER**
Ted F. Duggan and Sons Inc. (AISC member), Chattanooga, TN

**CONTRACTOR**
Turner Special Projects Division, Cincinnati, OH

**DESIGN SOFTWARE**
SAP 2000

**DETAILING SOFTWARE**
DetailCAD
Extremely proud of their extensive park system, the small suburban community of Roseville, MN, boasts nearly 30 parks for a total of more than 600 acres of open space. Providing a variety of public services and amenities including play areas, picnic facilities, ball fields, ice rinks, trails and golf courses, the parks and recreation department is in the process of replacing many of its existing park shelters, starting with three of the system’s parks: Acorn, Central and Evergreen.

The new buildings serve a wide range of functions: a picnic shelter for groups of up to 200 people (600 sq. ft., enclosed; 4,200 sq. ft., roof area), a concession stand for little league baseball (770 sq. ft., enclosed) and two winter ice rink warming houses with rest room facilities and staging areas for summer playground activities (1,000 sq. ft., enclosed, 2,000 sq. ft., roof area). In accordance with the program, the new shelters are designed to be prototypes for other park structures that will be considered in future years. As such, all of the shelters have a consistent and durable aesthetic and remain within the $122/sq. ft. budget established by the client. Large roof overhangs are supported by an arbor-like structure of galvanized steel beams and cedar. In several years, the steel and cedar trellises will be entwined with vines, planted in the concrete bases of the structural columns. The seamless flow from interior to exterior alludes to park and recreation aesthetics of the past.

JURORS’ COMMENTS
Creative assembly of materials and pieces; steel used in a way that celebrates its light weight and strength. The success of these structures lies in their “edges.”

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An appropriate use of steel in a park setting which recalls timber construction techniques and detailing in a modern way.