awards for each winning project were presented to the project team members involved in the design and construction of the structural framing system, including the architect, structural engineer of record, general contractor, detailer, fabricator, erector, and owner.

New buildings, as well as renovation, retrofit, or expansion projects, were eligible. The projects also had to display, at a minimum, the following characteristics:

- A significant portion of the framing system must be wide-flange or hollow structural steel sections;
- Projects must have been completed between January 1, 2006 and December 31, 2008;
- Projects must be located in North America;
- Previous AISC IDEAS² or EAE award-winning projects were not eligible.

A panel of design and construction industry professionals judged the entries in three categories, according to their constructed values in U.S. dollars:

- Less than $15 million
- $15 million to $75 million
- Greater than $75 million

The judges considered each project’s use of structural steel from both an architectural and structural engineering perspective, with an emphasis on:

- Creative solutions to the project’s program requirements;
- Applications of innovative design approaches in areas such as connections, gravity systems, lateral load resisting systems, fire protection, and blast;
- The aesthetic and visual impact of the project, particularly in the coordination of structural steel elements with other materials;
- Innovative uses of architecturally exposed structural steel;
- Advances in the use of structural steel, either technically or in the architectural expression;
- The use of innovative design and construction methods such as 3D building models; interoperability; early integration of specialty contractors such as steel fabricators; alternative methods of project delivery; or other productivity enhancers.

Both national and merit honors were awarded. The jury also selected one project for the Presidential Award of Excellence in recognition of distinguished structural engineering.
Sitting atop First Hill overlooking downtown Seattle, the new Swedish Orthopedic Institute comprises seven occupied floors, four stories of underground parking, and a two-story penthouse. It covers an entire city block and connects via a sky bridge and tunnel across a city street to the main Swedish Medical Center.

The 372,000-sq.-ft building is the first in Seattle to employ the design of special steel moment frames using AISC 358-05 (Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications). The City of Seattle Department of Planning and Development approved the use of this design methodology for this particular project prior to the official code adoption of AISC 358. Structural engineering firm Lund & Everton LLC worked with the City to develop the proper use of the new standard and establish the special inspection program to assure its proper installation.

“This project deserves recognition for utilization of advanced design techniques while proposed code modifications were still under review,” noted juror Raymond Clark. “It demonstrates that the design community and code enforcement agencies can work harmoniously to achieve efficient designs in structural steel.”

AISC 358-05 allowed the designers to use large beam sections (W27 and W30) as the columns in the moment frames, saving over $5.00 per sq. ft in construction cost. The moment frames are a reduced-beam section (RBS) system located primarily on the perimeter of the tower. Other prequalified moment frame systems were compared with this frame and the RBS produced the least material cost and fastest installation. Plus, it allowed the team to decrease steel tonnage on the project by 500 tons; total tonnage for the job ended up at 2,500 tons.

According to the project’s architect, NBBJ, the driver for the structural layout was the need for large column-free spans on the surgery floor and a grid that would also be efficient for both the inpatient nursing unit and physician office configurations stacked above. The architects and engineers looked at many options for floor layout and systems and developed a tower floor plan with only 12 (steel) interior columns in the 22,000-sq.-ft footprint.

The RBS system has beam/column connections with bolted webs and welded flanges. The welding of the beam flanges proceeded faster than expected, saving erection time. The column-free bays for the surgery layout in the tower are 37 ft. 2 in. by 30 ft. Trusses over the post-surgery recovery room create a 60-ft by 105-ft column-free area.

A building information modeling (BIM) approach was used to speed the design and ensure the coordination between disciplines. RamSteel 3D software was used for gravity framing, Etabs for the lateral analysis, and Bentley Structural for the BIM model (Soft Steel was used for the detailing). The use of BIM technology was one of the key drivers in compressing the original construction schedule from 22 months down to 19 months.

Owner
Swedish Medical Center, Seattle

Architect
NBBJ, Seattle

Structural Engineer
Lund and Everton, LLC, Vashon, Wash.

Steel Fabricator
Fought and Company, Inc., Tigard, Ore. (AISC Member)

Detailer
Steel Systems Engineering, Inc., Sherman Oaks, Calif. (AISC/NISD Member)

General Contractor
Sellen Construction Company, Seattle

...work[s] harmoniously to achieve efficient designs in structural steel.”
—Raymond Clark