

# THE BOW

Calgary, Alberta, Canada

*The largest steel framed building  
currently under construction  
in the Americas*

the **STEEL**  
**CONSTRUCTION**  
**GROUP LLC**  
*Every Project ... Every Time*



At almost 50,000 tons, The Bow - located in Calgary, Alberta, Canada - is the largest steel-framed building currently under construction in the Americas and incorporates several notable design features that make it unique.

In addition to a striking, graphical presentation on Calgary's skyline, this diagonal grid (diagrid) system provides superior structural efficiency and significantly reduces the overall steel weight, as well as the number and size of interior columns.

Visually, the diagrid pattern is repeated every six stories, and a single unit of the pattern is referred to as a node. This is the first time a triangular diagrid system has been applied to a curved building design in a North American skyscraper.

***"The Steel Construction Group was exactly what we needed on The Bow. Without their services this would have been just another project cancelled due to the economy."***

Jack Matthews, President, Matthews Southwest, Inc.

At a time when economic conditions were causing financing pressures on all large construction projects, the steel budget for the project had grown from \$250,000,000 to \$350,000,000. So the developer, Matthews Southwest, and the bank brought in The Steel Construction Group.

The original assignment was to assess the cause of what amounted to budget "creep" of approximately 40% before erection of the tower had even commenced and to help determine the most practical level to "cap" construction and halt the project.

Fortunately for the project and all its players, both the Developer and the Owner really wanted to finish the project rather than be forced to delay or abandon it. At the end of the initial 30-day evaluation, SCG's assignment was refocused, and they were given the task of reducing steel costs and developing a more manageable steel contract that would allow new financing to be negotiated and allow the project to proceed.

What followed was a 60-day period of intense negotiations, requiring cooperation between the parties at levels unheard of in today's construction market.

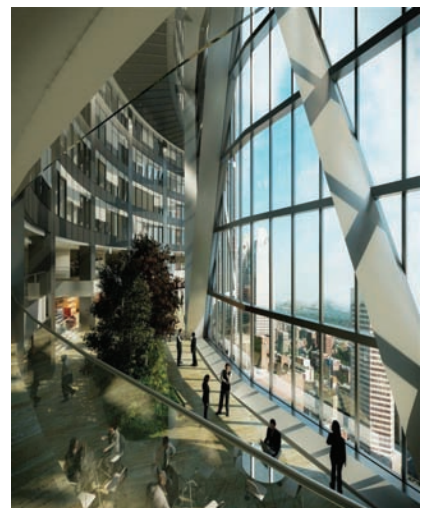
SCG was asking the Steel Contractor, Supreme Walters Joint Venture, to abandon their "cost-plus" contract, which had been previously executed, then accept a "lump-sum" contract that would carry more risk on their part. And the new "lump-sum" contract needed to be executed at a greatly reduced price, with no reduction in scope.

Working until the last minute allowed by the bank, what resulted was a new "lump-sum" contract at a net savings to the project of approximately \$50,000,000. This met the requirements previously established and allowed construction to proceed.

One of the conditions established in the amended contract by BOTH the Steel Contractor and the bank required The Steel Construction Group to remain a party to the project for the duration of steel construction and contract close-out.

Total Savings on Steel  
**\$50,000,000**

Project: **The Bow**  
Architect: **Foster + Partners**  
Engineer: **Halcrow Yolles**  
Steel Contractor: **Supreme/Walters, JV**  
Developer: **Matthews Southwest**  
Steel Program Manager:  
**The Steel Construction Group**





# THE "BIG HOUSE"

Michigan Stadium -  
Home of the  
Michigan Wolverines  
Ann Arbor, Michigan, USA

the **STEEL**  
**CONSTRUCTION**  
**GROUP LLC**  
Every Project ... Every Time

The 400,000-square-foot addition included two multi-story steel framed structures on both the east and west sides of the stadium with a total of 8,500 tons of structural steel. The structures, which stand 10 feet higher than the current scoreboards at their highest point, include 83 suites and 3,000 club seats. When the renovations are complete, the capacity of the Big House will top 108,000.

Initially The Steel Construction Group was brought into the project to do a full estimate and analysis of the steel design and cost when original bids had resulted in a low bid of approximately \$44,000,000.00, almost 50% over the steel budget that had been established at approximately \$30,000,000.00 in place. It was hoped by Barton Malow and the Owner that SCG would be able to make a determination of whether the problem stemmed from "heavy" design or just a bad budget.



At the end of an intensive 3 week period preparing the estimate, SCG arrived at a budget of \$29,500,000.00 which was even lower than the original steel budget. After meetings with the Owner and Barton Malow, it was decided that the engagement would be extended with their new scope to include developing and implementing a "Steel Procurement Plan" that would include Owner-procured 3D Modeling and preparation of shop drawings combined with rebidding, possibly including off-shore procurement of the structural steel.

Within a few days of beginning this process and at the request of the Owner, SCG refocused their thinking toward how to recover the budget while involving even more local firms than in the original bid process. In the end the final "Steel Procurement Plan" resulted in the Owner pre-buying raw materials but not becoming involved with the 3D Modeling or Detailing. What had been originally one bid package became 3 smaller bid packages for steel that were much more palatable to the local steel contractors. While this required more coordination for Barton Malow, they had a strong, experienced project team led by Mr. Neal Morton and were able to manage the process without additional personnel.

The Owner's final total cost for steel when the second bids were received was a total of approximately \$29,600,000.00 with no delays to the original schedule and no redesign required of the Engineer of Record.

*"Sid helped Barton Malow Company develop an ABM, an estimate and bid strategy at Schematic Design for the University of Michigan Stadium Expansion and Renovation. His bid strategy helped our team properly secure multiple structural steel fabricators and erectors to deliver our project on-time and saved \$14.0 M dollars to get the project back under budget."*

Neal Morton,  
Sr. Project Manager,  
Barton Malow Company

Total Savings on Steel  
**\$14,000,000**

Project: **Renovation to Michigan Stadium**  
Architect: **HNTB Architecture**  
Construction Manager:  
**Barton Malow Company**  
Steel Procurement Consultant:  
**The Steel Construction Group**





The 1.2-million-SF, 12-story University of Chicago Medical Center's New Hospital Pavilion will increase the hospital's current clinical capacity by more than one-third. The structural system consisted of concrete shearwalls, with steel beams and columns with a total of approximately 13,500 tons of structural steel.

When notified by the Construction Manager that the budget for steel construction would have to be increased from \$52,000,000.00 to \$56,000,000.00 after an earlier increase from the original budget of \$45,000,000.00, the Owner decided to bring in The Steel Construction Group to help develop a procurement plan which would rely heavily on the use of off-shore procurement to control costs.



After their initial analysis revealed that the structural steel framing system did not have sufficient complexity to allow full savings from the reduced labor cost of using off-shore fabricators, SCG recommended that a new approach to steel procurement using U.S. domestic fabricators but a more "hands-on" pre-approval and bidding procedure would lead to enough savings to warrant reducing the budget for structural steel to \$44,000,000.00.

*Total Savings on Steel*  
**\$15,000,000**

With some reservations being expressed by the Construction Manager, the Owner accepted the recommendations made by SCG with the stipulation that off-shore pricing should still be developed and compared with domestic pricing. The final Procurement Plan developed and implemented by SCG called for a steel budget of \$44,000,000.00 and the award of steel contract to domestic contractors if the

domestic pricing at bid time was within budget and no more than \$3,000,000.00 higher than pricing received from off-shore sources.

Upon receipt of steel bids an award was made to the lowest, qualified domestic bidder at approximately \$41,000,000.00 which reflected a savings to the project of approximately \$15,000,000.00. The lowest off-shore pricing received totaled \$39,000,000.00 making the domestic pricing within the \$3,000,000.00 window previously established.



Project: **New Hospital Pavilion,**  
**The University of Chicago Medical Center**  
Engineer: **Thorton Tomasetti**  
Owner: **UCMC**  
Steel Procurement Consultant:  
**The Steel Construction Group**

