

# ARCHITECTURAL METAL

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## Forward-Thinking Yields A Creative Space For One Architectural Firm



*HOK Sport's new office in Kansas City's River Market Place serves as the medium for creative energy.*

**Architect:** HOK Sports Facilities Group

**Sheet Metal Contractor:** FCM Custom Metals Inc., Lee's Summit, Mo.

As the world's largest sports architecture firm, HOK Sports Facilities Group is known for its ongoing commitment to innovation and excellence. When it came time for the firm to design their own office space, they embraced their design philosophies.

"Designing our own space afforded us the ability to include elements, such as the grandstand, unique to our culture," said Jon Knight, principal and lead designer of the office space.

HOK Sport's new office in Kansas City's River Market Place serves as the medium for creative energy with seven dedicated design labs, an open, communicative floor plan and a colorful, modern environment. The building also houses a two-story grandstand space that is large enough to hold staff meetings for 200-plus employees in the Kansas City office.

SMACNA contractor, FCM Custom Metals Inc., was the sheet metal contractor chosen to complete the job for HOK Sports. FCM Custom Metals' work on the project

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## Forward-Thinking Yields A Creative Space For One Architectural Firm

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included wall panels, vertical perforated sunshades, horizontal sunshades and interior light shelves. Overall, their work on the project resulted in 5,600 combined shop and field hours.

The \$1,020,000 job included the fabrication and installation of 104,696 pounds of aluminum as well as 53,082 square feet of post clear anodized aluminum. There were 335 mullions that were fabricated from 3/16 inch aluminum and 3 inch x 4 inch x 1/4 inch extruded aluminum angles. The mullions were each cut and assembled into ten different configurations.

FCM custom fabricated more than 500 perforated panels using in-house programming and punching via a Nisshinbo HIQ1250 33-ton hydraulic 37-station turret punch and FabriWin software. There were 149, 1/8-inch custom perforated wall panels that had 3/4-inch-diameter holes on 7/8-inch staggered centers and 404 3/16-inch aluminum perforated vertical sunshades with 5/8-inch diameter holes on 3/4-inch staggered centers.

In addition, they also fabricated and installed 480 1/8-inch aluminum panels, 148 3/8-inch aluminum plate outriggers for the horizontal sunshades and 62, 42-inch x 96-inch sunshade grates fabricated from 1/8-inch aluminum punched into 2 inch strips and then notched to create an egg crate design.

For FCM Metals the most challenging aspect of this project was working on a building owned, designed, as well as occupied by a group of architects. This meant that an entire workforce was paying attention to every detail of the

## On The Cover



building. FCM Metals rose to the challenge and completed their work in October of 2005.

FCM Metals takes great pride in being able to share in the experience of creating an exceptional forward-thinking office space for the HOK Sports Facilities Group. Their new office building symbolizes HOK Sport's ongoing commitment to creating exceptional public assembly spaces and bringing people together.



*Left: FCM Custom Metals' work on the project included wall panels, vertical perforated sunshades, horizontal sunshades and interior light shelves.*

*Right: The \$1,020,000 job included the fabrication and installation of 104,696 pounds of aluminum as well as 53,082 square feet of post clear anodized aluminum.*



## Meet The New Architectural Sheet Metal Council Member

*Striving to develop and provide high quality programs and services for members working in the architectural sheet metal, custom fabricating and manufacturing sector, the SMACNA Architectural Sheet Metal Council welcomes a new member.*

**Leif Eng: Exterior Sheet Metal, Grimes, Iowa**

**A**s the president and owner of Exterior Sheet Metal, Leif Eng's business philosophy is to treat all customers with the same respect and admiration.

Mr. Eng started in the sheet metal industry through an apprenticeship program in 1969. After working in the industry for

several years, he decided to start his own business. This year marks Exterior Sheet Metal's 21<sup>st</sup> anniversary.

As the president, Leif feels that the greatest challenge he faces in today's business climate is being competitive with labor costs. He also sees the ever-changing weather climate as a challenge because it determines the hours that can be spent on a jobsite.

Exterior Sheet Metal is an architectural sheet metal shop that crafts roofs, gutters, siding and wall panels. Currently, they are in the process of completing a standing seam roof for an elementary school. ■

# FAB FOCUS

## SMACNA Contractor's Design Expertise Helped Transform Homeowner's Vision Into A Stunning First Impression

**Custom Fab Project:** *Doors for a Private Residence in Winter Park, Fla.*

**Sheet Metal Contractor:** *Vickers Metal Works Inc., Orlando, Fla.*

The craftsmen at Vickers Metal Works helped the owner of this modern residence turn his vision into a reality with this stunning entrance to his home.

After meeting with the home's owner on several occasions, Vickers Metal Works Inc. created a shop drawing for the project. Before starting on this design-build project, the owner had his interior design firm Ewing Noble & Winn, of Winter Park, Fla., review and approve Vicker's drawing.

A 16 gage #3 stainless steel sheet was used to clad over the existing doors with a 38 inch by 3 inch stainless steel brush finished flat bar. This piece was then attached using 38 inch - 16 stainless steel button allen head fasteners. The existing stainless steel door handles were removed and re-installed.

Overall, this design-build project required approximately 60 man-hours for the fabrication and installation of the doors.

Vickers Metal Works is a full service custom and architectural sheet metal shop offering both fabrication and installation services.



*Overall this design build project required approximately 60 man-hours for the fabrication and installation of the doors.*



*A 16 gage #3 stainless steel sheet was used to clad over the existing doors with a 38 inch by 3 inch stainless steel brush finished flat bar.*



*Vickers Metal Works Inc. created a shop drawing for the project based on the home owners specifications.*

# Making Architectural Roof And Wall Penetrations Weather-tight

The sixth edition of SMACNA's "Architectural Sheet Metal Manual" illustrates several types of roof and wall penetration construction methods. There are thousands of variations of individual construction details and it would be impractical for SMACNA to include all. Designers must adapt and alter a particular detail or group of details to accommodate an unusual design need.

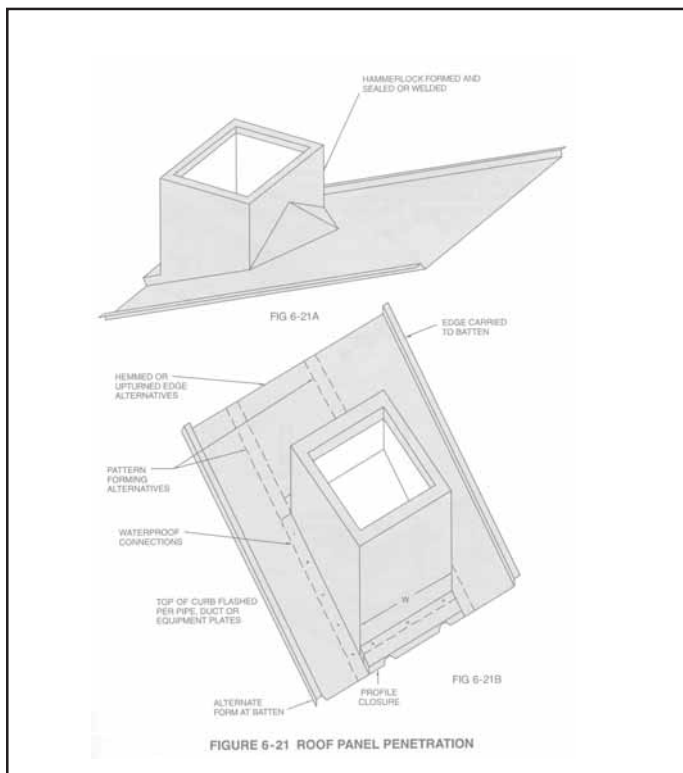
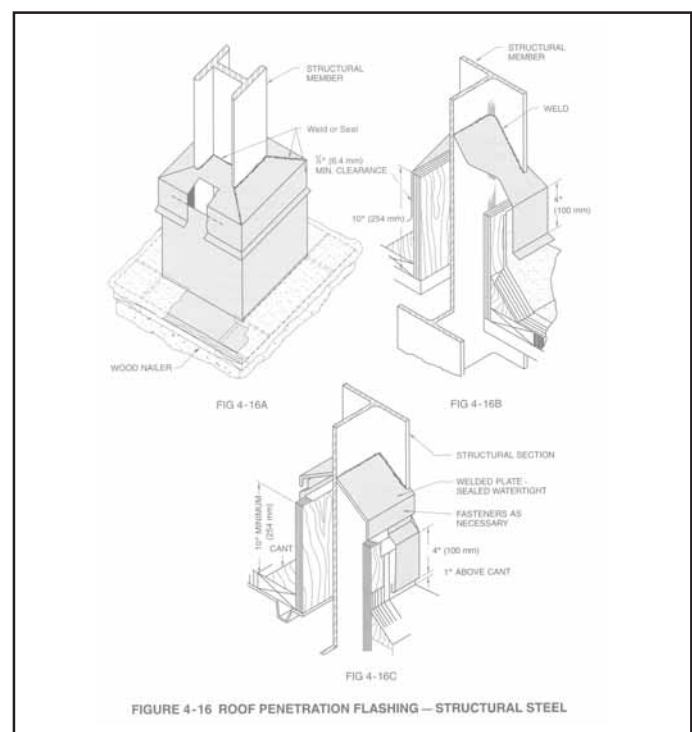
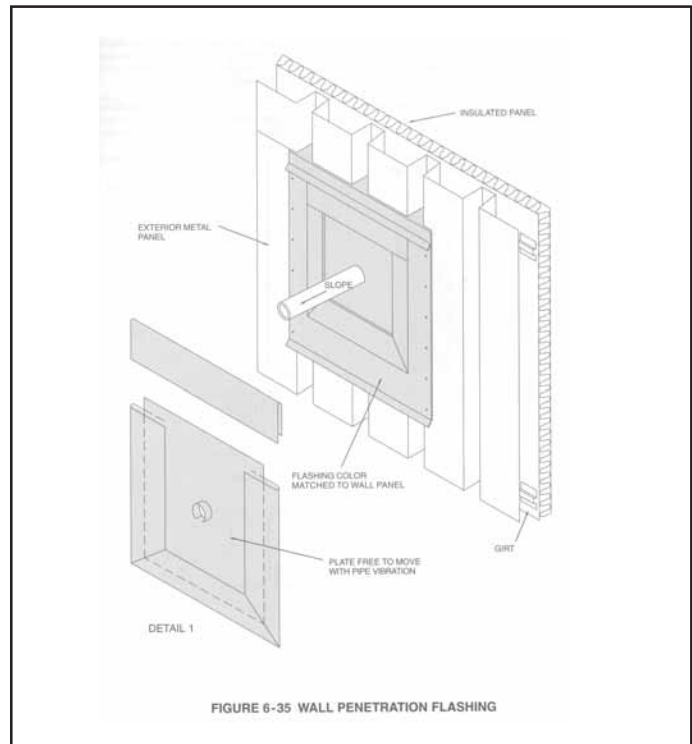
Figures 6-35 through 6-38 illustrate flashing approaches for a variety of elements penetrating metal wall. Elements of these details can be altered and adapted to other types of wall constructions or other elements that penetrate a wall.

Figures 4-14 through 4-17 illustrate flashing for construction elements penetrating flat roofs. If those details are compared to Figures 6-19 through 6-21 that illustrate penetrations through sloped metal roofs, the similarities between the flashing techniques should be obvious.

Using a separate curb and cap flashing provides some simplification of what may be a difficult to flash penetration. It may also simplify re-roofing if designed with that in mind. A curb helps isolate reworking the upper flashing from the primary roofing surface.

Members may purchase the "Architectural Sheet Metal Manual" at the special member price of \$42 for the book, \$50 for the CD-ROM, \$67 for the CD/book combo and \$42 for the PDF download on [www.smacna.org/bookstore](http://www.smacna.org/bookstore).

Architects and engineers may purchase the new publication at the discounted price of \$184 for the book, \$220 for the



CD-ROM, \$294 for the CD/book combo and \$184 for the PDF download. The list price for the book is \$262, the CD-ROM is \$315, the CD-ROM/book combo is \$419 and \$262 for the PDF download.

To order, call SMACNA's Publications Department at (703) 803-2989. ■

# SMACNA Contractors Discuss Rapid Growth Of The Architectural Sheet Metal Market

The following is an excerpt from the March 20, 2006 article "Sheet Metal is Starting to Shine," in the Los Angeles Times.

**T**he sheet metal market has expanded rapidly, growing 9.7 percent a year, on average, from 2002 to 2005, when manufacturers chalked up \$15 billion in sales to contractors and other customers. That comes after a 1 percent average annual growth rate in the five previous years, according to Catalina Research Inc.

Architectural sheet metal, the type used to clad and roof buildings rather than to line ducts or form automobiles, constitutes a quarter of the market, the research firm said.

"L.A. is the land of stucco, so give me anything that's not stucco," said architect Lawrence Scarpa, adding that sheet metal's low maintenance and often high recycled content has increased its appeal. His Santa Monica-based firm, Pugh & Scarpa Architects, works frequently with metal.

The major beneficiaries of metal's rising popularity: contractors who specialize in its architectural uses.

Orange-based SMACNA contractor CMF Inc., which installed a "skin" of aluminum around Staples Center and 4,000 stainless-steel panels on Disney Concert Hall, said it had seen the number and size of its projects soar.

The bulk of the company's projects in 2000 averaged \$100,000 or less, said Dave Duclett, co-owner with founder Paul Keohane. Its current roster of present and future jobs includes 15 projects of at least \$1 million and several that easily top that figure.

"The use of sheet metal in buildings is taking off," said Duclett, whose company is one of the largest sheet metal contractors in Southern California. "It's like styles of clothing that go in and out of fashion over the years. I think metal is really coming into its own."

Cimco AC & Sheet Metal Inc., in Santa Fe Springs, has seen a 10 percent to 20 percent increase in business the last five years. Gardena-based Weiss Sheet Metal has noticed an uptick in the call for architectural sheet metal too.

A recent construction boom has fueled demand, leading to potential growth of 10 percent to 15 percent this year for Weiss, said Andre Sarai, the company's president. The pluses of building with metal play a role too, he said.

"Metals tend to last longer, and there's less maintenance," he said. "And aesthetically, they are very pleasing."

Architects and contractors say metals now take center stage in an increasing number of projects.

"You can do a million things to metal depending on how you treat it," said Bill Blackstone, a technical consultant to the Los Angeles chapter of the sheet metal contractors group.

Architect Brent Eckerman, principal of Frederick Fisher & Partners Architects in Los Angeles, said in the last five years he had worked with an increasing number of projects that call for metal – and seen other architects catch on to it too.

"It used to be it was only put on hangars and sheds and that sort of thing," he said, "but it's sort of a trendy material now."

Architectural sheet metal isn't cheap, and those who work with it point out that recent increases in the price of raw ma-

terials have driven up costs even more.

"Every two weeks I get an increase," said Wayne Chambers of Coast Sheet Metal Inc. in Costa Mesa. Chambers estimated that his raw materials costs have jumped by a third this year in large part because of increases in the price of copper, which hit an all-time high last month.

Scarcity is a reason for the price increases, as is China's building boom and its simultaneous cutback in metal production, metal distributors said.

But projects in which metal will play a starring role are still going forward around the region.

Construction has begun in downtown Los Angeles on the Nokia Theatre, part of a \$1.5-billion entertainment and hotel complex going up across the street from Staples Center. CMF will clad the theater in 85,000 square feet of metal paneling.

Irvine-based Atlas Sheet Metal Inc. will create yet more shiny baubles when it clads or roofs 10 schools and 40 custom homes in the stuff this year.

Atlas President Jim Odlum took a stab at explaining metal's appeal.

"It's something different and modern looking, you know?" he said. "It's a beautiful material." ■

## Architectural Forum Preview

### *Interested In Mastering The Current Techniques In Soldering?*

**T**he Architectural Sheet Metal Contractors Forum on Monday, Oct. 9 during SMACNA's annual convention, in Phoenix, Ariz., will offer contractors an opportunity to explore soldering techniques as well as soldering penetration, the connection between soldering and welding and a discussion on the "perfect joint."

The forum will include a panel discussion led by members of the Architectural Sheet Metal Council including Harold Munder of New York Roofing Company, Long Island, N.Y., and Glenn

Parvin of Custom Architectural Sheet Metal Specialists of Detroit, Mich. Industry representatives will also be on hand to participate in the panel discussion as well as a representative from the Copper Development Association.

For more information on the annual convention, Oct. 8 to 12, contact Mary Lou Taylor, director of meetings and convention at (703) 803-2998 or [mtaylor@smacna.org](mailto:mtaylor@smacna.org), or visit the SMACNA homepage at [www.smacna.org](http://www.smacna.org). ■

# SMACNA Contractor Helps Upscale Steakhouse Expand Its Fine Wine Selections

**Architect:** Jem Associates West, Las Vegas

**Sheet Metal Contractor:** Royal Metal Works Inc., Las Vegas

Having merely one wine display case would simply not be enough for a restaurant like Hank's Fine Steaks and Martinis at the Green Valley Ranch Resort, Spa and Casino. The restaurant is known for its wide variety of martinis, but now it also has large glass wine cases that hold the restaurant's more than 300 selections thanks to SMACNA contractor Royal Metal Works Inc.

The Las Vegas contractor was chosen by the resort to complete six custom-built wine cases for the restaurant. The cases took more than 1,800 man-hours to construct and install in a three-week time frame. The tight schedule made the job challenging, especially since there were design changes from the beginning to the end of the project.

Each case was fabricated from #8 304 stainless steel with fully insulated interior, thermo glass doors and windows at the rear. The wine racks were fabricated from 1 inch diameter stainless steel tubing with 3/8 inch x 1 inch oval slots lasered into one side for LED lighting.

Contributing to the complexity, more than 7,000 slots and LED lights were used to complete these 12 foot by 6 inch tall x 10 foot - 6 inch wide by 2 feet deep wine cases that will contain 3,000 bottles of select wine. The refrigeration runs from a remote location to each wine case then down specially constructed ducts built into the sides of each case with louvered diffusers spanning the full height of the interior.

The \$250,000 project was completed in August of 2005 before the restaurant's grand reopening.



*More than 7,000 slots and LED lights were used to complete the wine racks.*



*Each case was fabricated from #8 304 stainless steel with fully insulated interior, thermo glass doors and windows at the rear.*

## Architectural Listserv: Architectural Experts Ready To Serve You

**T**he architectural sheet metal contractors listserv is the most widely used SMACNA listserv with more than 100 subscribers.

The listserv's success is a direct result of how well its members use it. Some rely on it as a sounding board for their questions on products, while others pursue information on topics such as soldering, insurance, and training.

Recently, council member Robert Zahner wanted to know if more training in the area of soldering is needed. More than 15 contractors responded that soldering is alive and well. The contractors' comments reinforced the idea that training is needed as well as an International Training Institute (ITI) task force. Many feel that the ability to solder is an advantage for SMACNA contractors and that it is a great idea to have various types of training materials available such as DVD courses.

Another recent listserv topic was about contractors looking for products and suppliers. One contractor was looking to buy a new plotter/scanner and wanted input on what was the best

kind to buy. Several contractors responded and pointed him to a reputable product and provided the contractor with references. Contractors also sought advice on products such as anodized aluminum sheets as well as where to find hammered copper sheet.

Why should you join the listserv? This electronic mailing list provides SMACNA members the opportunity to network with colleagues from all over the U.S. and participate in discussions or receive information on various topics, current issues, or areas of concern.

Subscribing is easy. SMACNA members who would like to join the architectural listserv should send an e-mail to Jeannette Schluderberg at [jschluderberg@smacna.org](mailto:jschluderberg@smacna.org). Your message can be as simple as "please subscribe me to the Architectural E-mail Listserv." Once you've been added to the list, you'll receive a confirmation from SMACNA and you'll be able to converse with the group members. It's easy to unsubscribe - instructions are included with each e-mail. ■

# Hexavalent Chromium – OSHA’s Final Standard Takes Effect In 2006

**O**n Feb. 28, 2006, the Occupational Safety and Health Administration (OSHA) published court-ordered final rules governing workplace exposures to hexavalent chromium (hex chrome) in general industry and the construction industry. Contractors in “state-program” states (state OSHA programs versus federal OSHA programs) can expect that the states will adopt these or more stringent standards in the near future.

Hex chrome is a chemical by-product generated when welding on stainless steel, and to a lesser extent, galvanized steel and chrome-coated metals. In addition, low levels of hex chrome may be an ingredient of the welding rods and wires used in the welding processes.

OSHA adopted a permissible exposure limit (PEL) of five micrograms of hex chrome per cubic meter of air (5 ug/m<sup>3</sup>) as an 8-hour time weighted average (8-hr TWA). If air monitoring results indicate hex chrome exposures above the PEL, then provisions such as air monitoring every three months, regulated work areas, medical examinations and respirators may be required.

There are other less strict provisions of the standard that allow for “performance oriented” air monitoring programs using his-

torical air monitoring results, an “action level” of 2.5 ug/m<sup>3</sup> where air monitoring is required every six months, and an exemption to the entire standard if air monitoring results are below 0.5 ug/m<sup>3</sup>.

The effective date of the standard is May 30, 2006, yet the main provisions of the standard (i.e., air monitoring, regulated work areas, and respirators) do not take effect until Nov. 27, 2006 for employers with 20 or more employees (May 30, 2007 for employers with 19 or fewer employees). If needed, significant engineering controls to get air monitoring results below the PEL, such as modified ventilation systems, are not required until May 31, 2010.

SMACNA members are encouraged to evaluate their welding processes, identify which processes may generate excessive hex chrome fumes, and implement a compliance plan. Initial air monitoring may be needed and can be done in-house, by an insurance provider, or an outside consultant.

A hexachrome standards summary fact sheet is available on the safety page of the SMACNA Web site at [www.smacna.org/safety](http://www.smacna.org/safety). Also, please take time to submit the hexchrome survey on the same Web site. If members have immediate questions or concerns, they may contact Mike McCullion, director of safety and health, at [mmccullion@smacna.org](mailto:mmccullion@smacna.org) or (703) 995-4027. ■

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