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San Francisco Landmark Restored To Perfection

MARK HOPKINS HOTEL, SAN FRANCISCO, CALIF.

Architect: *Architectural Resources Group, San Francisco, Calif.*

Sheet Metal Contractor: *Crown Sheet Metal and Skylights, Brisbane, Calif.*

When it opened in 1926, the Mark Hopkins Hotel was described as "architecturally perfect and flawless." The hotel recently received a $10 million exterior restoration that returned the landmark structure to its former state of perfection.

Based on many years of experience in historical restorations, Crown Sheet Metal and Skylights was selected to remove and replace all existing architectural sheet metal flashing and ornamental metal work. Dedicating 10,000 man-hours and six months to the almost $1 million project, Crown completed their work on schedule and within budget in April 2003.

"This is one of the most challenging and rewarding projects that our company has ever accomplished," Don Dennehy Jr., president, commented.

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"Challenging because of the formidable conditions and rewarding because our crews worked safely and completed the work on time and within our budget. This job was a once in a lifetime opportunity."

The Crown Sheet Metal crew was especially challenged by the elevations and environmental conditions while onsite. Their portion of the project was above the 24th floor of the hotel where strong winds were frequently an issue.

To replace dormer flashing and ornamental metal work, the crew worked from a fixed staging erected and secured structurally at the 21st floor. After being secured by a double safety line system, workers climbed to the specified location to install hip caps. To complete restoration on the crow's nest, workers ascended to another staging set inside the crow's nest that wrapped up and over the exterior wall with a 3-foot wide plank area that did not touch the tile roof system.

The portholes and spiral columns were cast to match the original design. All brackets were supported with stainless steel tubes and formed chairs. All work was done off of a cantilevered staging.

The upper "Crow's Nest" roof had considerable decay and lost brackets. The entire wall area was reframed and covered with plywood prior to installion of copper work.

Crown Sheet Metal management requested the Occupational Safety and Health Administration (OSHA) provide inspections to insure worker safety. To their credit, Crown completed this project without a single injury.

Working closely with the historical architect, the firm used a combination of 20 oz. copper cornices and cladding to wrap all dormers, valleys, ornamental hip caps and the crow's nest. A stainless steel support system was engineered to support all of the cast aluminum ornaments. The existing terra cotta ornaments were strengthened as the crew fabricated, installed and soldered 4 pound lead at 24 different deck areas.

On the Cover

Crown worked with a local casting company to make certain all the molds matched the original items. Much of the ornamentation required multiple castings that were welded to make the completed part. The aluminum castings were then installed at the various locations. An isolation system was custom designed to prevent electrolysis between the different materials.

Material consumption on this project included almost 18,000 pounds of aluminum castings, 10,000 pounds of copper, 5,200 pounds of 4 pound lead, and 1,500 pounds of stainless steel.

Crown Sheet Metal and Skylights received the 2004 Guilfoy Memorial Architectural Sheet Metal Award from California-SMACNA for their work. The Guilfoy award is presented annually to the California SMACNA firm whose work best epitomizes high-quality craftsmanship in architectural sheet metal.

A second SMACNA contractor, Delucchi Sheet Metal Works, in San Francisco, performed work on the lead deck covers at a lower elevation.

All finished work was sealed and painted to match historical drawings and was competed prior to staging removal.

Victory! SMACNA List Serve Helps Contractor Stand Up to Manufacturer

The experience of SMACNA architectural sheet metal community is just a click away. One SMACNA member recently used the Architectural Contractors' E-mail List Serve to gather advice on handling a warranty issue with a manufacturer. He used his colleagues' advice to resolve his problem.

Paul Steckel, of Van-Mulder Sheet Metal in San Leandro, Calif., contacted the architectural list serve for guidance in dealing with peeling paint on metal panels installed only seven years ago. The warranty on the finish was for 20 years but the manufacturer and the painter took the position that scratches on the panels voided the warranty. Frustrated with the response, Paul turned to members of the list serve for help. With their guidance, he was able to effectively convince the manufacturer that it was in their best interest to honor their 20-year-paint-finish warranty.

List serve members offered up useful advice about how manufacturers operate, what their interests are and what types of risk exposure gets their attention. Their wisdom helped Paul demonstrate the validity of his position. Through the list serve, he spoke with experts in the industry and was pointed in the right direction.

"Using the list serve to post my dilemma was of immeasurable help to me in successfully resolving an unpleasant issue," Paul said. "Thanks to the SMACNA architectural community for being such a terrific resource."

Could you benefit from the experience of the SMACNA community? By signing up for the e-mail list, you'll have an audience of nearly 100 architectural sheet metal contractors as your sounding board for advice on manufacturers, materials, equipment or other business issues as they arise.

Launched by the Architectural Sheet Metal Council, the Architectural Contractors' E-mail List Serve allows members to send one message to all members of the list and receive responses and advice. In addition, all members of the list may review the responses and monitor the discussion.

Subscribing to the list is easy. SMACNA members should send an e-mail to Jeannette Schluderberg at jschluderberg@smacna.org. Your short message can be as simple as "please subscribe me to the Architectural E-mail List Serve." 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. ■

Field Productivity – Take Control With SMACNA's HPC Program

We have always struggled with our field productivity, notes Paul Steckel of Van-Mulder Sheet Metal, a specialty sheet metal contractor in San Leandro, Calif. "We realize that it's the key to a successful project and yet it is the least controllable element in our construction process."

Recently Paul and Van-Mulder employees began SMACNA's High-Performing Contractor Program. Creating an effective structure to control field labor productivity is one of several goals they're hoping to accomplish.

"This is still a work in process, but there's one thing that we know to be true," says Paul. "The key to managing productivity is to measure field performance and to honestly and openly communicate the measured results with the field crews."

Van-Mulder, like other SMACNA firms, conducted an initial company assessment by asking key management staff to rate the company in a variety of areas. Senior foremen participated in the review process to give them a look at the broader picture and insight into how the company is managed.

One outcome of the HPC program was establishing a pre-job meeting to identify the various opportunities and challenges of the project and address them early on.

Paul believes that each job has a few critical details or issues that are paramount to its success. The pre-job meeting, of course, must effectively communicate both these technical and contractual elements so that the field workers are completely informed as to the work's scope and performance requirements.

Paul advises that members should consider the SMACNA program presented by Dennis Sowards. "The High-Performing Contractor Program concepts are appropriate for addressing field productivity issues, if that's your organization's priority."

For more information on the SMACNA High-Performing Contracting Company Program, contact Tom Soles, executive director of market sector councils at (703) 803-2988 or tsoles@smacna.org.

For a copy of the "Creating the High-Performing Contracting Company" visit SMACNA's Web site at *www.smacna.org/members/onlinepubs/HPCC_Book_Final_Version.pdf* or call Carol Novak in SMACNA's member services division at (703) 995-4025 for more information. Contact Dennis Sowards at (602) 740-7271 or dennis@YourQSS.com. ■

Understanding the Popularity of Zinc

When viewing some of the more memorable projects across the United States and Canada in recent years one can appreciate the incredible growth zinc has experienced as building material.

That should come as no surprise to our colleagues in Europe. That's because, while it is a relative newcomer to North American construction market, zinc's use throughout the "Old World" dates back to the 1700s.

The same aesthetic and durable properties that continue to make zinc a building material in demand throughout Europe are becoming increasingly obvious to architects and builders here.

Zinc applications need little or no maintenance. Properly detailed and installed, zinc is extremely durable. It lasts 80 to 100 years as a roofing material and upwards of three centuries as a wall finish. It is important to keep in mind that the longevity applies to monolithic zinc, not surface-coated galvanizing.

The durability comes from the inherent ability of zinc to form a protective coating, as patina. The patina forms over several years, combining carbon dioxide from the air with water to create zinc carbonate or zinc chloride in a maritime environment. Condensate cannot be allowed to form between the metal and the substrate; it must be detailed and installed according to the manufacturer's requirements to ensure durability. Zinc needs "to breathe."

For use as a building material, pure zinc is alloyed to strict European standards. Alloying with small fractions of titanium and copper adjusts material properties, including expansion/contraction rates and color.

Zinc use is not specific to any geographic area. Though temperature may influence how a craftsman works with the material, it is as comfortable at high altitude in extremes of cold as it is in hot desert or wet maritime environments.

As a flexible material, zinc can be used in both traditional and cutting edge, modern signature solutions. In traditional buildings zinc is replacing lead for domes, copulas and flashing. It is easily formed into shingles, flatlocks or tiles.

Completed in 1999, the David Geffen Foundation Building, in Beverly Hills, Calif., features 12,000 sq. ft. of RHEINZINK metal panels installed by SMACNA member, CMF Inc., of Orange, Calif.

The ability to profile zinc into corrugated, trapezoidal shapes makes the material an attractive option for industrial type applications. As modular panels, zinc is appropriate to rain screen technology employed on contemporary and high-rise structures.

Architects are specifying zinc out of environmental concerns. Zinc is available globally in large quantities. Finished goods have a low primary energy content. The material is UV and temperature resistant and non-combustible. In addition, it is easily recycled, consuming as little as five percent of its primary energy content.

As we look toward other reasons for the growth of zinc, we look to the evolving face of those working in the field.

There is a renaissance in the crafted metal trade. Trade schools and manufacturers are training craftsmen to work in zinc. Metalsmiths are discovering that their skills of working with copper can be directly applied to zinc, as the materials work similarly. Zinc, however, is stiffer than copper, requiring more strength to fold. Folds are characteristically softer and more rounded than other metal, and notching requires cutting to a punched hole to prevent stress build-up. Through their training and their work metalsmiths are learning the idiosyncrasies of zinc.

There is a pleasant variability to zinc. Don't expect a painted reflective finish. The gloss on "pre-weathered" material diminishes to a matte 14.5 percent reflective blue-gray after a few months of weather. Each building elevation will weather differently in relation to the prevailing winds and develop its own distinct look and feel. Roof material will age differently than wall material providing another dimension to the architecture. ■

Courtesy of RHEINZINK® America Inc. (www.rheinzink.com), a leading manufacturer of titanium zinc roofing, cladding, and rainwater goods.

An Investment in Technology Pays Off for Ohio Contractor

UNIVERSITY OF CINCINNATI CENTRAL UTILITY PLANT, CINCINNATI, OHIO

Architect: *Cambridge Seven Associates, Cambridge, Mass.*

Sheet Metal Contractor: *Budde Sheet Metal Works, Dayton, Ohio*

When a Dayton-area general contractor called for bids on the cooling tower louvers for the University of Cincinnati Central Utility Plant, Budde Sheet Metal Works knew their investment in state-of-the-art equipment was going to win them the contract.

"After looking at the set of prints for the project I knew our investment in 3D CAD/CAM technology and CNC equipment was going to win us this contract," commented Ryan Gudorf, Budde CAD/CAM supervisor. "We were able to design, fabricate and assemble this project faster and cheaper than anyone else due to the investment in new technology made during the last few years."

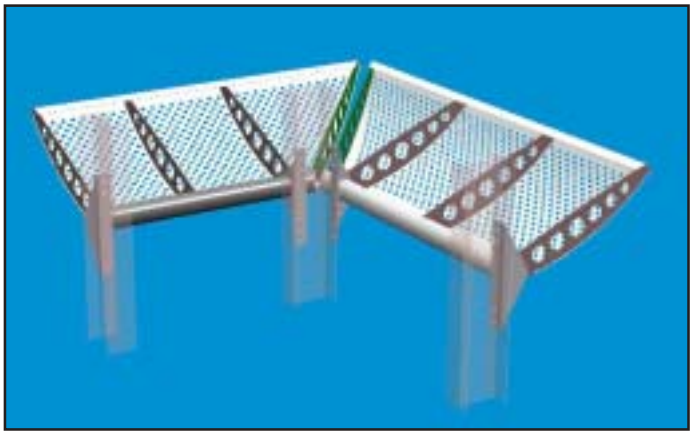
The $1 million project required Budde to perform design verification, flat pattern development, fabrication and assembly of the winged louvers. In almost 5,400 man-hours, the firm produced 3,000 .25-inch louver ribs and more than 1,100 .375-inch brackets that mounted and held the louvers in place. Using Type 304 stainless steel, more than 5,600 pieces were used to create 640 individual louver assemblies of 11 different variations.

Once assembled, each custom-fabricated louver measured more than 350 feet long and 60 feet wide. In addition, each louver was five stories high. Before beginning full production, a sample louver was created and mounted for approval by the architects.

The louver's "perforated skin" required a two-part process that started on the punch machine and was completed on the laser cutter. Using the TRUMPF TC 2000R and L 3030, a part moved from the punching machine to the laser bed. Using a light probe to locate the part, the laser machine's controller adjusted the program to fit the punch part accurately regardless of the orientation on the laser machine's bed.

The utility plant is ringed with 640 custom-fabricated louvers.

"The investment by Budde in people, training, software and CNC machinery helped us win this contract," Mr. Gudorf said. "It's a truly unique building that our crew will be able to look at and be proud of decades from now."



A CAD rendering of the louver design.

The TRUMPF 2000 punches the perforated louver "skin."

Are You Qualified to Perform Historical Preservation Work?

Contractors and subcontractors interested in submitting bids for historical preservation work must have their skills pre-qualified. SMACNA's "Architectural Sheet Metal Manual," 6th edition, contains a new chapter on how to successfully accomplish this task.

Chapter nine explains in depth the special qualification requirements for sheet metal restoration, ornamental sheet metal, sheet metal roofing, flashing and sheet metal, aluminum framed skylights, copper framed skylights, and clerestory skylight laylight assembly restoration.

Historic preservation qualification forms for both contractor and contractor personnel are included in this 496-page, widely-acclaimed book. Companies must submit three Historic Preservation Qualification Forms listing three successfully completed projects demonstrating appropriate experience of relevant specification sections. Three forms should be submitted for each specification section requiring prequalification.

Work on these types of projects must comply with the U.S. Secretary of the Interior's "Standards for the Treatment of Historic Properties" and atleast one of the projects submitted must have been reviewed by a State Historic Preservation Office or the historic review body of a county or local municipal authority.

SMACNA members may purchase SMACNA's "Architectural Sheet Metal Manual," 6th edition, at the member price of $42 for the book, $50 for the CD-ROM and $42 for the PDF download. The IFUS price for the book is $139, $166 for the CD-ROM and $86 for the PDF download.

Architects and engineers may purchase the new publication at the discounted price of $184 for the book, $220 for the CD-ROM and $114 for the PDF download. The list price for the book is $262, $315 for the CD-ROM and $163 for the PDF download.

To order, call SMACNA's Publications Department at (703) 803-2989 or visit *www.smacna.org/bookstore/.* ■

"Tools of the Trade – The Cutting Edge"

In the highly-competitive architectural sheet metal market, a project's profitability relies on the details to be aesthetically pleasing, watertight and completed in a timely manner within budget.

"Tools of the Trade – The Cutting Edge," the Architectural Sheet Metal Forum during SMACNA's annual convention, Oct. 24-28 in Maui, will offer contractors an opportunity to see how the use of presently available tools can save time and money on every project.

Members of the Architectural Sheet Metal Council will present hand-forming techniques used by architectural and custom sheet metal contractors. Photographs and metal samples will be displayed allowing attendees to examine the intricacies of their most important assets... the tools of the trade.

In addition a representative from Rheinzink will demonstrate the use of finishes on various metal samples.

For more information on the SMACNA annual convention visit, *www.smacna.org.* ■

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