



# re:news

At  
**DESIGN  
INSTALLATION  
SYSTEMS,**  
our **REPUTATION**  
is in our **WORK.**

### THIS MONTH'S FEATURES:

- GOLF AROUND CHICAGO
- CAULKING
- HOLIDAY INN CHICAGO CITY CENTER
- FLASHING



DESIGN INSTALLATION SYSTEMS, INC.  
8110 River Drive, Morton Grove, IL 60053  
[www.disrestoration.com](http://www.disrestoration.com)

## INTRODUCTION

The flashing detail shown in the project spotlight of this issue includes a sheet metal flashing. As discussed, the flashing is custom fabricated by Design Installation Systems for installation in the wall. The design drawings show concept and parameters for the installation. Once the walls are opened and the steel angles are exposed, the real flashing work begins.

First the requirements for the new piece must be communicated to the in-house shop from the job site. Measurements are carefully made and transmitted to our shop. The shop technicians translate these measurements onto a piece of raw stainless steel sheet metal. This is referred to as a template—the “unfolded” piece laid out and ready for cutting and bending (see photo F).



F

After layout is complete, the sheet metal is notched, cut and then bent into the required shape. (See photos G and H.) No matter what type of sheet metal is specified, the procedure for completing the shaping process is the same. Thicker sheets require more effort and sometimes heavier equipment, but the basic execution does not change (continued on Page Four).



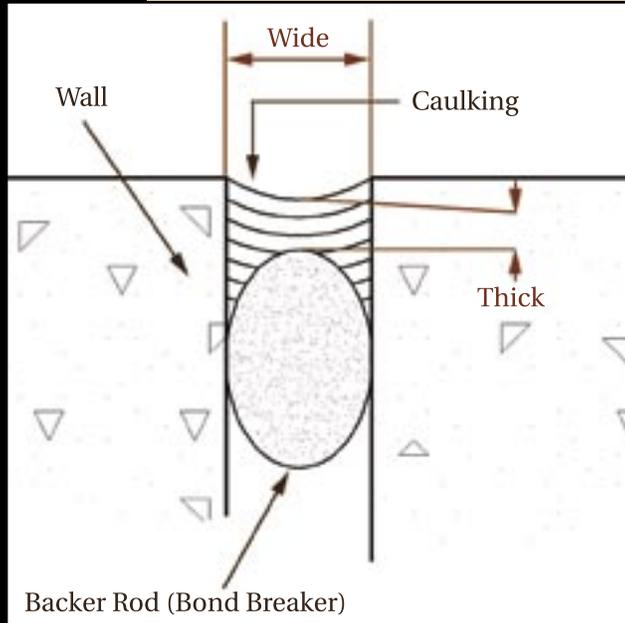
G



H

## CONSTRUCTION NOTES

Caulking is an often overlooked maintenance item. It is the first line of defense in the wall system and must be properly installed and carefully maintained to remain effective. Design Installation Systems' expert caulking is required on most projects. Existing caulking joints often are affected when completing tuckpointing, masonry or concrete rebuilding, or even when cleaning surfaces. Although DIS has completed projects that involve caulking only, the majority of our projects include multiple disciplines.



A

Each type of sealant has strong points and weak points. Using a rigid caulking in a dynamic application will not produce acceptable results. Likewise, application of caulking to a dirty, unprimed surface will cause the caulking to separate from the surface whenever any movement begins, regardless of what type of caulking was used. The following drawing (see photo A) shows a typical construction joint. There are many joints in the facade system of a building, and each situation needs to be addressed individually; but in general, the joint should be about half as thick as it is wide. The typical joint should also not exceed  $\frac{1}{2}$  inch in thickness.

Caulking materials come in many types and formulations; urethane, silicone and sulfur-based caulks are the most commonly used for exterior applications. Regardless of the type, all applications include common elements such as preparation, design, application and finishing. As with most restoration and maintenance procedures, improper installation will drastically reduce the working life of the application.



B

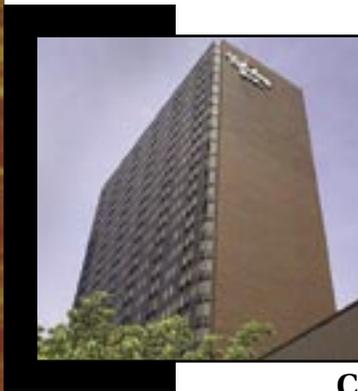
Sealant must be adhered to two surfaces—proper preparation (see photo B) ensures that this happens. If there is a third surface, a bond breaker must be applied to it. The two sides that the caulking will bridge must be cleaned and dry, and then (in most cases) a primer must be applied and allowed to dry. Only then can the sealant be applied.

Design of the caulk joint usually is not handled by the contractor. We get our instructions from the architect, engineer or material manufacturer. Depending on the materials or the designer, any given design could be completed in a number of ways. The main element of design is execution and functionality. The design must incorporate the real-world needs of the applicator as well as the material. In addition to the required profile and proper preparation, the design integrates the proper caulking material with the on-site situation. Some applications can only be completed using silicone; others require urethane or other materials. The designer will specify the type along with detailing the joint profile. The contractor's job is to complete the application as required.

## PROJECT SPOTLIGHT

In 2005, Design Installation Systems Inc. was contracted to complete a comprehensive repair project at the Holiday Inn Chicago City Center (*see photo C*). This project, scheduled to be completed over two years, includes replacement of steel brick support “shelf angles,” tuckpointing all masonry joints and recaulking all caulk joints. Repair and maintenance work of this type is not only a specialty of DIS, but it is a joy to complete. All too often we are asked to work on a section of a building or wall, but due to budget or other reasons, the job is not comprehensive.

After completion of the specified work, the wall areas of this building will be restored to like-new condition. The steel and caulking will have been replaced and the mortar joints tuckpointed (tuckpointing replaces at least the exterior  $3/4$  inch of mortar). The only materials remaining will be the old brick and interior mortar, the most stable elements in the construction. As a standard part of the work, DIS will clean the wall areas. This will leave the building in fine shape and prevents any near-term wall repairs in areas completed. Repairs of this nature will last for decades and regular maintenance will include only inspections and occasional recaulking.



C



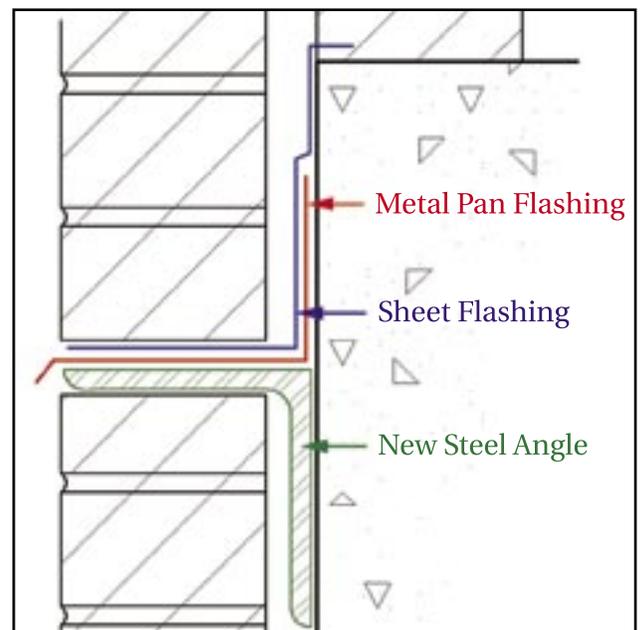
D

*Photo Courtesy of Wiss, Janney, Elstner Associates*

As we have noted in previous issues, masonry is a popular form of construction that has remained relatively unchanged over the years. One major difference between a traditional and contemporary detail in brickwork involves flashing at steel supports. In the past, a steel shelf angle or lintel was placed into the wall and the brick was built right on top of it. Current construction details often include flashing of one kind or another placed over the steel. The flashing is integrated somehow into the backup construction and serves as a way to direct water out

of the wall. The idea stems from observations made over the years regarding water infiltration into wall systems and even into the interior of the building through the masonry. If water finds its way into the cavity between the brick and the backup, ideally it will travel down the backup material until it hits the brick flashing, and then it will be directed out of the wall by the flashing.

In applications such as this, the flashing system (*see photo D and diagram E*) is composed of a shop-fabricated stainless steel pan. Corners of the pan are soldered, making the flashing system watertight and durable. This fabrication can take place only after the wall has been prepared and the new or refurbished steel is in place. This is the type of construction in which Design Installation Systems excels. Masonry, structural steel, sheet metal and caulking work are all completed by DIS staff. Outsourcing of supply and fabrication often causes delays in installation and subjects the wall to periods of exposure to the elements. Completing all operations in house allows DIS to complete the work more quickly with consistently high quality. The completed repair has been custom made for each situation, resulting in a higher quality repair, and the wall opening is closed up in less time. Streamlining these types of repairs is how DIS provides longer-lasting restoration work at competitive prices—true value engineering.



E

# FOUNDATIONS

## FOUNDATIONS

(continued from Front Cover) After the piece has been formed, it must be sealed. Supporting corner pieces are spot welded (See photo I), to hold them in place, and then the sealer is applied. Remembering that the sheet metal is intended to be a watertight flashing, all seams must be watertight too. For stainless steel, the sealing process is soldering. Each seam is cleaned and a priming flux is applied; the steel is heated using a torch or a hot iron, and then soldering material is applied to the heated surface and allowed to flow into the joint (See photo J).

Because DIS completes its own fabrication, the usual time needed to install these pieces is cut in half. Having the facilities and the craftsmen at our disposal greatly reduces risk of weather-related problems at wall openings.



I

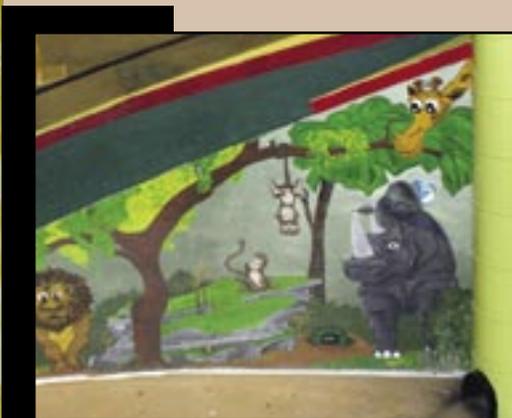


J

In March and April, the Epilepsy Foundation of Greater Chicago presented “Golf Around Chicago 2006.” The annual mini-golf fundraising event is held at Navy Pier and features 18 holes designed and built by some of Chicago’s leading businesses. This year, Design Installation Systems was invited to bring to life a design by the architectural firm Klein & Hoffman Inc.

The main structure included the green and the ramp. These wood elements were constructed in the Design Installation Systems wood shop. The curved ramp was built to launch the golf ball up and over the palm barrier, giving the player a chance at a hole in one.

The design was meant to emulate the main entrance to Chicago’s Lincoln Park Zoo. The front posts hold up the hanging sign, and the large upright in the back is a stylized palm tree. A small hole in the base of the palm is a challenging alternative to golfing up the ramp.



Graphic animal artwork was provided by the Klein and Hoffman design team. Thematic stuffed animals were bought and arranged around the structure.

The central palm tree was an ideal place for some of the large stuffed animals to rest. Each hole at the event had its own theme, and some holes were used for more than one event. Details about this golf hole and others can be found on the Epilepsy Foundation Web site.

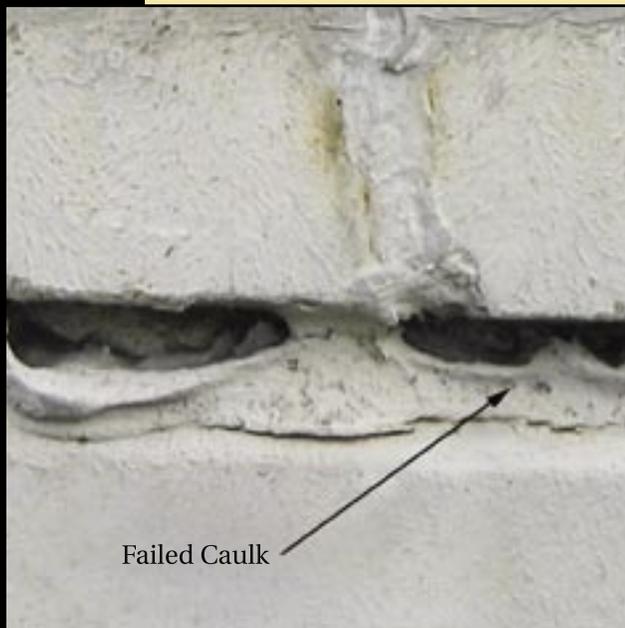
For additional information on how you can help the Epilepsy Foundation, visit <http://www.epilepsyfoundation.org/local/chicago>.

## CONSTRUCTION NOTES *(continued from Page Two)*

Laying caulk is one of the most weather-sensitive operations in construction. The contractor not only must wait for the needed temperatures, but also must make sure moisture will not be an issue. To further complicate matters, joint preparation must be followed by caulking without delay. If a joint is prepared but not caulked right away, the joint may have to be prepared again. Leaving a joint open allows dirt and moisture to collect in the void, and recaulking at that point is not recommended. Application makes or breaks the caulk joint—it means the difference in caulking lasting a few months or a few years.



All manufacturers of sealant materials recommend finishing procedures. We call it tooling a joint. When caulking your bathtub at home, the method is normally running your finger over the fresh caulk to make a smooth-looking corner joint. In the field, the finishing of a joint is done with a steel tool and an approved solvent. The tool must be kept clean to allow for a consistent and proper profile. The tooling process is not just a matter of shaping the finished bead to the required profile, but it pushes the caulking into the joint to remove voids and air bubbles. In addition, tooling the joint forces the fresh caulking up against the prepared surfaces. This assures full contact and the needed adhesion.



Everything being accomplished properly, the caulking normally is the first material to fail in the wall system. It is the nature and function of the material. That is why it is referred to as a maintenance item. Regular inspections and periodic replacement is required; a simple maintenance schedule can prevent larger, more expensive repairs down the road.

Design Installation Systems, Inc.  
8110 River Drive  
Morton Grove, IL 60053



Vol. 4, No. 2

Exceeding the Expectations of the Construction Industry Since 1982

June 2006



DESIGN INSTALLATION SYSTEMS, INC.

# re:news

8110 River Drive • Morton Grove, IL 60053 • 847-470-8100 • [www.disrestoration.com](http://www.disrestoration.com)

IN THIS ISSUE:

- **GOLF AROUND CHICAGO**
- **CAULKING**
- **HOLIDAY INN CHICAGO CITY CENTER**
- **FLASHING**