



re:news

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

THIS MONTH'S FEATURES:

- CBOT RESTORATION
- MASONRY REPAIRS
- DIS AND INDUSTRY STANDARDS



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INTRODUCTION

The Chicago Board of Trade (CBOT) building, located at 141 West Jackson Boulevard, is being completely restored. **Design Installation Systems** was selected as the restoration contractor responsible for all exterior work. This building, constructed in the 1920s, is listed as a landmark by the Chicago Landmark Commission. Historic landmark buildings such as this require special care whenever any work is done.

The Landmark Commission was created in 1957 as an advisory board. In 1968, the city passed an ordinance which gave the board authority to designate and protect Chicago landmarks. Working with the city council, the U.S. Department of the Interior and the Chicago Department of Planning and Development, the commission provides outlines for the care and restoration of buildings such as the CBOT.

The commission's website refers to the building as "one of the city's finest examples of Art Deco architecture, a style of the 1920s and early 1930s that attempted to express the modern, streamlined world by the use of cubic forms, geometric ornamentation, and sleek surface materials." The CBOT was designated a Chicago Landmark on May 4, 1977 and fits the Art Deco definition perfectly. Its sleek stone and terra cotta façade and ornamentation are the focus of the work being completed by DIS.



PROJECT SPOTLIGHT

The north face of the CBOT is a work of art. Restoring this beautiful, historic façade is a great challenge. Of all of the work Design Installation Systems is doing at CBOT, the clock tower on this façade has to be the most noteworthy. Located above its main entrance, one predominant element of the clock tower is a very large, ornate set of stones depicting an American eagle.



The north elevation of the building contains a large percentage of ornate cut stone. In addition to the large stone eagle, there are a number of stone statues and specialty pieces.

The stone cladding on the building façade is not structural; it is supported by steel angles affixed to the building structure. The project's scope includes rehabilitation of a portion of these angles. Investigation revealed limited corrosion; since rusting steel could cause cladding stone to shift, it was decided to undertake this restoration to head off any problems.

Ultimately, some steel replacement was required at the face of the clock tower. Due to the size and arrangement of the stones making up the oversized ornamentation, this portion of the work presented challenges not often seen in modern day construction. DIS was up to the task. Careful planning, precise execution and teamwork made this difficult project-within-a-project a success story—something the project team can recall with pride.

The capstone was moved only a few feet back to allow for work on the north façade. The interior wall cavity also was examined and refurbished.

The capstone (as viewed from the roof) shows how the eagle looks out over LaSalle Street.



At the top of the clock tower there is an extremely large capstone. Weighing approximately 5,000 pounds, this stone is the "face" of the eagle. Removing and resetting this piece was just part of the challenge when it was decided to replace some of the steel supports in the clock tower wall.

The clock tower is the focal point of the north (front) elevation. The base of the tower is at the 10th floor roof, approximately 130 feet above Jackson Boulevard. It is centered above the CBOT sign and the main entrance to the building. Its position also puts the clock at the very end of LaSalle Street, in direct view of commuters on the street throughout the day.

The front of the eagle assembly consists of three stones: two shoulder stones each weighing 3,500 pounds and a third vertical stone. The third stone—the main piece—is larger and ornate. The entire 7,300-pound stone is a deep relief of the eagle's body. The smaller shoulder stones were removed and carefully placed on the roof, waiting for the removal of the final piece and replacement of the steel. The main piece, once removed, was left attached to multiple chain hoists and steel cables while its weight was supported by temporary steel beams bearing on the clock tower structural wall. Only after replacement of the structural steel supports inside the north wall could the tower stones be reset.

CONSTRUCTION NOTES

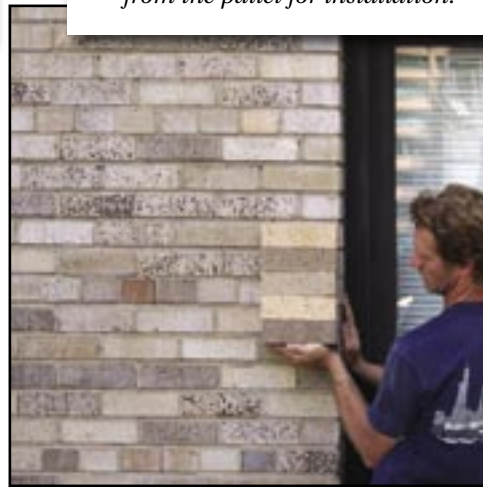
During the restoration of a masonry building only one thing is certain: replacement brick will be needed. The issue of matching new brick to old is of great concern in the masonry trade and requires a lot of leg-work and experience. It is a rare occasion when a sample brick taken to a brick supplier results in an exact match. Most often we are looking for a close relative to a brick that has not been produced for decades.

Before a brick match can even be attempted, assessments of both *condition* and *range* need to be made. This is where the contractor's experience is priceless. Design Installation Systems has masonry supervisors and journeymen who can look at these issues with a trained eye.

This photo shows the new brick blend provided by DIS. Once cleaned, the dirty original brick will blend with the repair area much better. We know this because we blended the new brick by hand from three different sources and matched the existing color range from the area we cleaned for that purpose.



This blend of brick is single sourced; one supplier provided all of the brick for this job. However, since there are three different colors, DIS specified how many of each type was needed and what order they would be placed onto the pallets. This allows for proper blending as the mason removes them from the pallet for installation.



After cleaning a representative area of brick, DIS discovered that previous repairs were done without a proper brick match. This immediate area consists of original brick (clean and dirty) and three different colors of new brick.



Most bricks have a *range*. A brick from one part of the building may not match the brick on an opposite wall. Brick is a natural product, and brick lines vary from batch to batch. Managing that variance is important and cannot be overlooked.

The *condition* of the masonry wall includes issues such as how much of the brick needs replacing, why it needs replacing and how clean is it. If the face is popping off of the brick, you may not want an exact match. If the wall is dirty, you may want to clean a portion before matching the brick or the mortar.

Experience has taught DIS that the mortar color greatly affects the look of the finished installation; sometimes holding the proposed brick up against the wall just doesn't work. Brick mockups are sometimes made to display the proposed brick in a manner the building owner can more readily recognize. If a choice needs to be made between matching color or texture, color is most important; texture only matters when viewed from a short distance. On most high-rise buildings, the percentage of brick work at the main entrance is limited, and the texture becomes less and less important.

Once the brick is chosen, the remaining task is to fit it into the wall. This can be a challenge; there are a number of standard brick sizes. Normally, a selected brick is available in only one specific size. Therefore, you may have only a one in five chance that the brick is available in the necessary size. A talented mason can make certain accommodations regarding brick size without sacrificing too much, but size is crucial in most reconstruction and repair.

Brick matching is the most challenging aspect of preconstruction work on a masonry project. DIS project managers, foremen and masons work hard to streamline this difficult process. We endeavor to make the building owner's choices as effortless as possible and, as always, to make our repair work unnoticeable to those who view the structure.

This mockup shows how the brick can be presented to the owner. The contractor provides choices for the owner and designer, but only the owner can approve the brick. Building a mockup sometimes makes it easier to visualize the brick as it would sit in the wall.



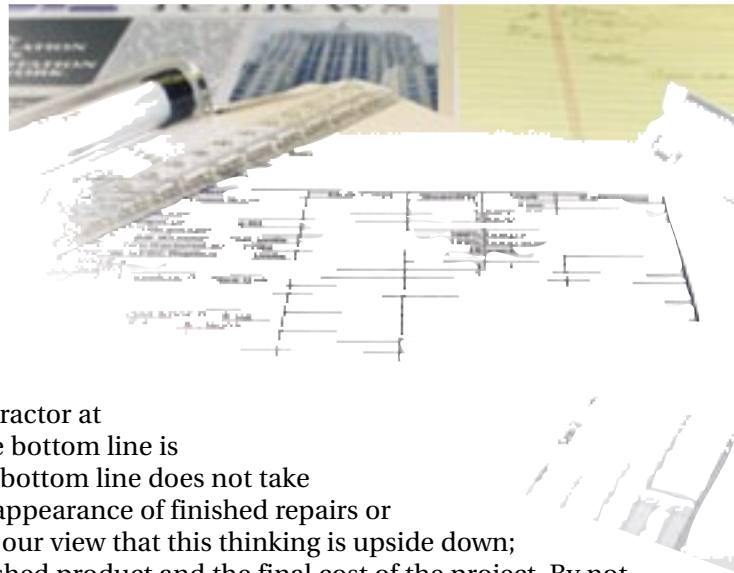
FOUNDATIONS

The members of the Design Installation Systems team are proud that DIS has a reputation for honesty, hard work and quality results. As one of the premier exterior restoration contractors in the Midwest, we never lose sight of the fact that we are only as good as our last job.

In today's extremely competitive market, the real value of quality assurance can be forgotten. The intangible asset of being able to take a contractor at his word may often be overlooked. Although the bottom line is often defined as the lowest responsible bid, the bottom line does not take into account real world factors such as quality, appearance of finished repairs or extra costs encountered during the project. It is our view that this thinking is upside down; the main concern should be the look of the finished product and the final cost of the project. By not emphasizing these aspects during the bid, building owners encourage bad behavior on the part of contractors. Researching prospective bidders' previous work and encouraging all-inclusive bids needs to be part of the bidding process.

As a contractor with more than two decades of experience in this industry, we are disconcerted to see the industry moving away from some of its long-held values. There is a real, yet indeterminate, value to being able to trust a contractor. Getting an honest assessment of the project's scope (from what repairs are needed to how much they will cost) is the first step to a successful outcome. No matter how much observation, verification and documentation are carried out, two simple truths remain: the contractor is in control during the work, and that control can be abused.

At DIS, we have earned the trust of the people we work with and hope that the industry does not forget the worth of that trust. Following the bottom line often leads to a quagmire of "unanticipated" extras and the need to accept substandard repairs.



PROJECT SPOTLIGHT

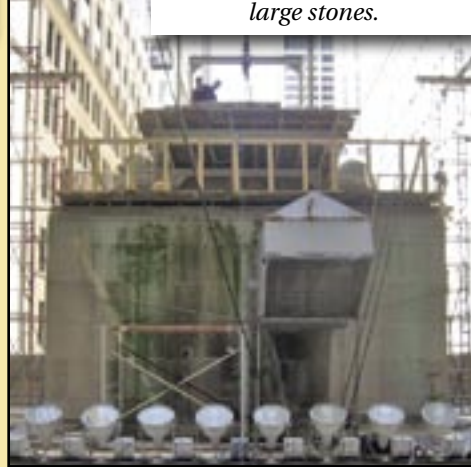
PROJECT SPOTLIGHT *(continued from Page Two)*

A major goal of this historical restoration is to keep repairs true to the original. Stone, mortar, caulking and paint are all approved by historical restoration professionals and verified prior to installation. Even the cleaning process is carefully monitored so that the finished product matches the original construction as closely as possible. The work being completed on the clock tower does not differ from the work on the rest of the elevations other than the size and complexity of the stones involved. Upon completion of the steel and stone work, the clock tower will be cleaned, tuckpointed and caulked. This repair and maintenance will substantially augment serviceability of the clock tower and keep it looking as the original designers intended.

Looking down from high above the clock tower and facing north and out over LaSalle Street, the set-up for the work is apparent.

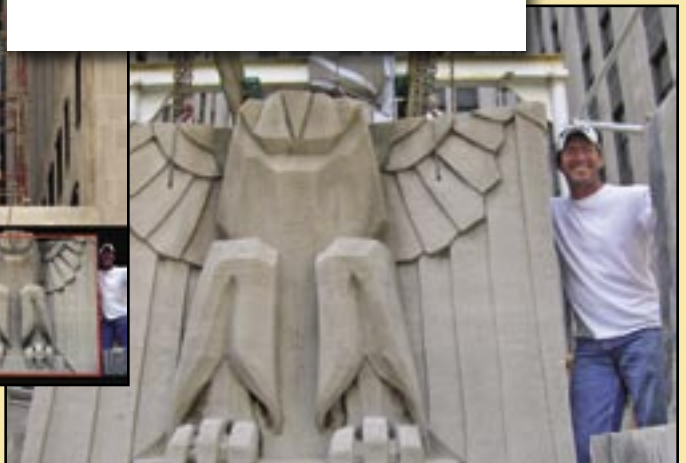


This view, from the roof side of the clock tower, shows the DIS equipment needed to accomplish the successful handling of these large stones.

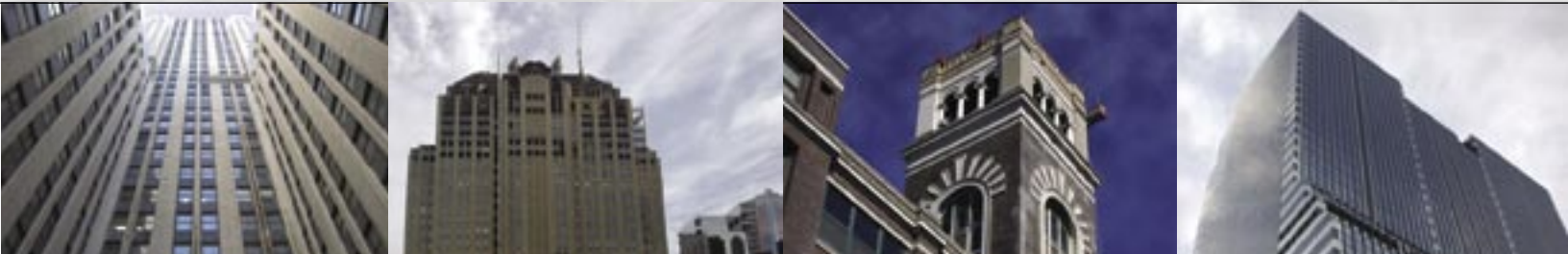


The structural engineering firm, Klein and Hoffman, Inc., is a national company with an office in Chicago. They have developed the comprehensive plan for the exterior restoration work. The detailing of the steel angles incorporates flashing, drip edges, coatings and weep holes to help preserve the work. These design elements—not available for use in the original construction—will greatly extend the lifespan of the steel supports. With regular maintenance, the details can last for many decades. Most likely, this is the first time the clock tower stones have been moved since their installation. With the new flashing details and expert execution of many DIS craftsmen, this may be this last time this eagle takes flight.

This stone dwarfs our DIS stone mason. Careful and accurate handling is the key to removing and resetting these large pieces.



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Vol. 4, No. 3

Exceeding the Expectations of the Construction Industry Since 1982

September 2006



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