



DESIGN INSTALLATION SYSTEMS, INC.

re:news

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AT DESIGN  
INSTALLATION  
SYSTEMS,  
OUR  
**REPUTATION**  
IS IN OUR  
**WORK.**



## MARCH FEATURES

- **WORLD OF CONCRETE**
- **TERRA COTTA REPLACEMENT**
- **FIRE ESCAPE REPAIRS**
- **PROJECT PROFILES**

## INTRODUCTION

As spring approaches, we at Design Installation Systems Inc. (DIS) are looking forward to another challenging and safe construction season. Having recently attended the World of Concrete and World of Masonry show in Las Vegas, we are filled with ideas for the new year and eager to try new products and techniques. As fun and informative as the World of Concrete was, the show isn't all we cover in this issue. We thought it important to include a couple of other important features. Fire escape and terra cotta work are two issues we feel need some attention early in the year.

Spring is the perfect time to complete an exterior assessment of building conditions. Winter weather can adversely affect building components. It is a good idea to complete a walk-around early in the year. DIS is committed to helping make building exteriors look and function well. The building itself should never compromise its occupants or passers-by.

Fire escape safety is an issue that demands the attention of every person who owns or operates a building that has a fire escape. Chicago now requires periodic inspections, and owners must file copies of inspection reports with the city.

DIS can provide maintenance and repairs to all types of fire escapes. Our certified welders and in-house steel fabrication shop allow us to complete all repairs in a timely manner.

Exterior restoration work will involve terra cotta at some point—as a masonry contractor, this is inevitable. A large number of restoration specialists go to great lengths to avoid getting involved with any project that may include terra cotta work. Design Installation Systems has masons and support staff who are experienced and very comfortable working with this challenging material.

What makes working with terra cotta so difficult? It isn't the removal or the installation of the material that is so daunting. For many contractors the time and effort required for color and profile matching make terra cotta work prohibitive. DIS has the resources needed to complete this type of work without it adversely affecting our field operations. Our office and on-site staff work together, reducing the time needed for approvals and fabrication. Providing building owners the best service possible is just one more part of our ongoing commitment.

## THE CHICAGO BOARD OF TRADE

As one of the leading exterior restoration contractors in the Chicago area, Design Installation Systems is proud to have worked on many high profile city landmarks. The Chicago Board of Trade Building is a prime example of the type of work undertaken by DIS.

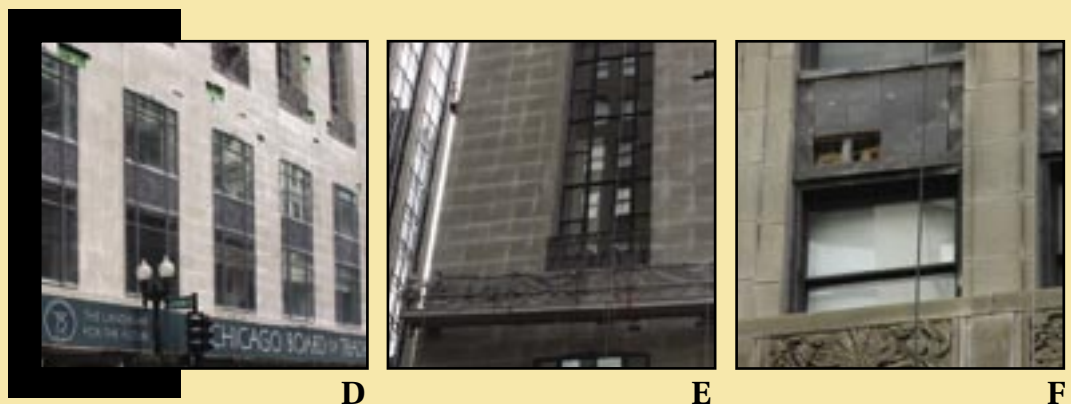
The building was well constructed and has served its purpose well over the decades. The owners of this structure have maintained the exterior throughout the years to keep it looking and operating at its best. However, they thought it was time to undertake a comprehensive and well-coordinated overall restoration. One of the first operations being completed is cleaning. The building's exterior is predominately limestone and consists of some ornamental terra cotta. The photos to the left show some of the cleaning nearing its completion. The overall look of the building is greatly enhanced by the removal of years of atmospheric contamination.



During the cleaning operation the wall surface is closely examined, and any defects in the wall are addressed. Years of caulking and tuckpointing repairs will be removed along with any remaining original caulking and mortar. All caulking will be replaced and mortar joints will be repointed. This will give the building a more uniform appearance and give the exterior a fresh start.

Finally, signs of deterioration of steel inside the wall are noted, and investigation openings are made. At these openings, steel rehabilitation is performed to reestablish integrity of the wall that surpasses its original construction. Any chipped or cracked stones are then replaced and the wall restoration is complete. *(See photo E)*

Early in the restoration process the terra cotta panels also are examined. Although DIS can fabricate the needed limestone replacements, terra cotta samples must be removed and sent out for matching and fabrication. This is a time-consuming process and is started as early as possible to minimize construction delays later. *(See photo F)*



## FOUNDATIONS: WORLD OF CONCRETE

There is nothing in this industry that is more disconcerting than having to bid on a project that involves a material or technique that you are not familiar with. Our philosophy behind staying current with trends and technology in construction requires us to get out and see innovations for ourselves. At Design Installation Systems, we do all we can to keep informed. Reading industry publications helps, but in this field there is no substitution for the World of Concrete/World of Masonry Exposition; annual attendance is a must.

The World of Concrete (WOC) show is now held each year in Las Vegas at the Las Vegas Convention Center. In past years the WOC has rotated among Las Vegas, New Orleans and Orlando. The show has been around for more than a quarter-century and attracts approximately 70,000 attendees on an annual basis. This year the numbers topped out at 73,000 people from 111 countries. More than 1,500 exhibitors showing off their products and ideas is quite a sight, but the fact that more than 330 companies were new exhibitors this year emphasizes the fact that our industry is forward thinking.

## FOUNDATIONS: TERRA COTTA

As a material for new construction, terra cotta was most popular between 1900 and 1940, at the time many modern structures were clad. It is used in new design today but is most commonly found in restoration projects. Terra cotta is a fire-baked, glazed masonry unit. Rather than being stacked on a structural base like brick or block; terra cotta typically is hung or “tied back” to the structure using hooks



and dowels. Design Installation Systems has decades of experience in this type of construction. The restoration of terra cotta facades is both intricate and involved. No other aspect of restoration requires more preplanning, preparation and coordination. Our staff and field personnel have learned to work closely with field representatives of terra cotta fabrication specialists to minimize problems during all phases of terra cotta replacement.

Terra cotta is an extremely durable material; terra cotta failure most commonly is attributed to deterioration of its steel supports and the shifting caused by rusting steel as it expands. *\*During reconstruction, steel supports are coated*



Keeping informed also includes attending seminars. The WOC provides opportunities to attend more than 90 seminars with subjects ranging from Concrete Basics to Business Management Practices. Outside of the convention center is the Mega Demo area. This parking lot area is filled with large cranes, pumps, trucks and scaffolds. In this area you can see concrete being placed, finished and demolished. This “hands-on” area allows for practical experience and provides valuable knowledge not available anywhere else.

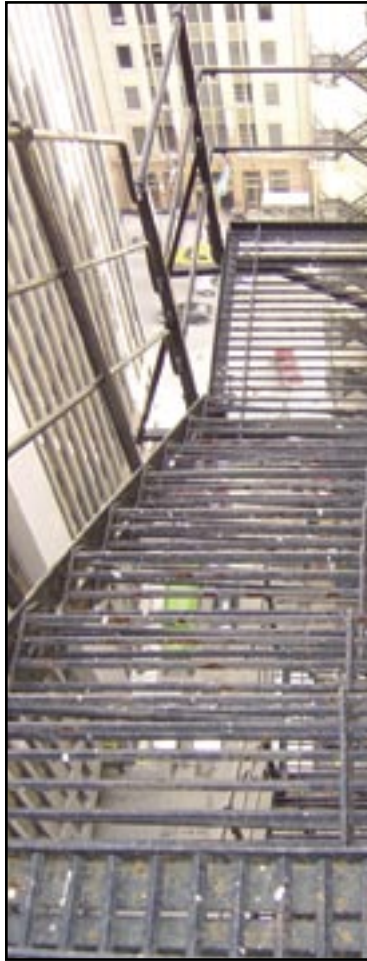


*to prevent rusting, or replaced with stainless steel.* In the past, little thought was given to steel within wall construction. This has led to many of the problems seen in deteriorating building facades. Unlike past construction, when a facade is rebuilt today, accommodations are made for the eventuality of water infiltration into the wall system. Using modern-day techniques and materials helps to protect the terra cotta cladding from damage, allowing this very stable material a longer effective working life.

Terra cotta is a clay product that can be cast into a mold, sculpted or extruded. Glazing and baking can give a wide range of colors and appearance. When replicating pieces on a restoration project, the craftsmen at DIS have learned that removal and reconditioning of the original building components is vital. We start by completing color matching, then move along to match sizes and profiles. This process is long and involved, often spanning months with Design Installation Systems working closely with the manufacturer to match replacement pieces to the building as closely as possible. At DIS, we consider overall project scheduling and try to remove sample pieces from restoration areas at the beginning of the project. That way, the time-consuming process of replication can start while other project objectives are being completed. Our field and office personnel have good working relationships with every terra cotta manufacturer in the United States and act as liaisons between the manufacturer and owner representatives, to expedite the required approvals and to keep progress steady, from removal of samples right through to finished installation.

*\*DIS NOTE: We have discussed rusting problems in past issues. Please call DIS at (847) 470-8100 and ask for copies of past articles. We are happy to send additional copies whenever asked to do so. View copies of old issues at our website, [disrestoration.com](http://disrestoration.com).*

## FIRE ESCAPE REPAIRS



Maintenance and repair of fire escapes often is put off due to lack of understanding or interest. Fire escapes are the least understood and most ignored components of most buildings' fire safety program. Placed in low visibility areas, they are low maintenance items not subject to regular use by building occupants and therefore are often taken for granted. At Design Installation Systems we feel that highlighting this important building component early in the construction season is important.

Building owners and management can take advantage of this slow construction period by having inspections done and planning for any needed work. Very often, inspections are carried out by walking the fire escape. Unlike building facade inspections, professionals completing inspections of fire escapes often need no scaffolding or other equipment. This helps to minimize the cost of the inspection.

In addition, the cost of maintaining fire escapes normally is much lower than other types of exterior restoration. This is mainly due to easy access and limited scope of work. However, without continued maintenance, deterioration of the steel

composing the escape structure can damage other building elements because in most cases steel fire escape supports are attached to the building structure, behind the facade. Once damage occurs to other facade elements, repairs become much more involved. Removal of masonry, stone or terra cotta may be required to expose embedded steel. The steel then needs to be replaced or, at minimum, cleaned and coated. The exterior cladding materials then need to be replaced.

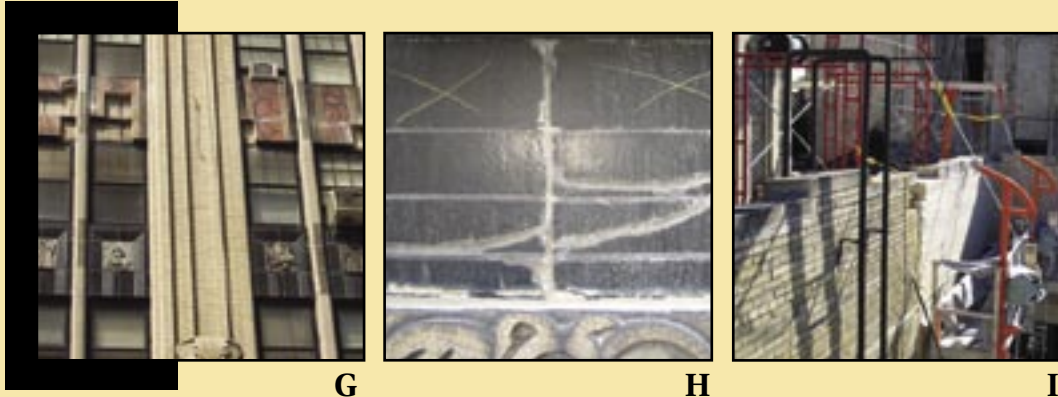
Like other areas of building maintenance, it is important to inspect fire escapes on a regular basis. Repairs carried out early reduce damage to the facade and help keep the building a safe environment for its occupants. We urge anyone with questions regarding inspections and maintenance to call DIS at (847) 470-8100.



## HYDE PARK CONDOMINIUM

The Hyde Park Condominium, above, located on Chicago's South Side, is another example of Design Installation Systems completing exterior restoration that includes terra cotta work. The construction of this building includes decorative mullions and panels. These photographs show areas of removed panels as well as panels marked for removal. (See photos H & I)

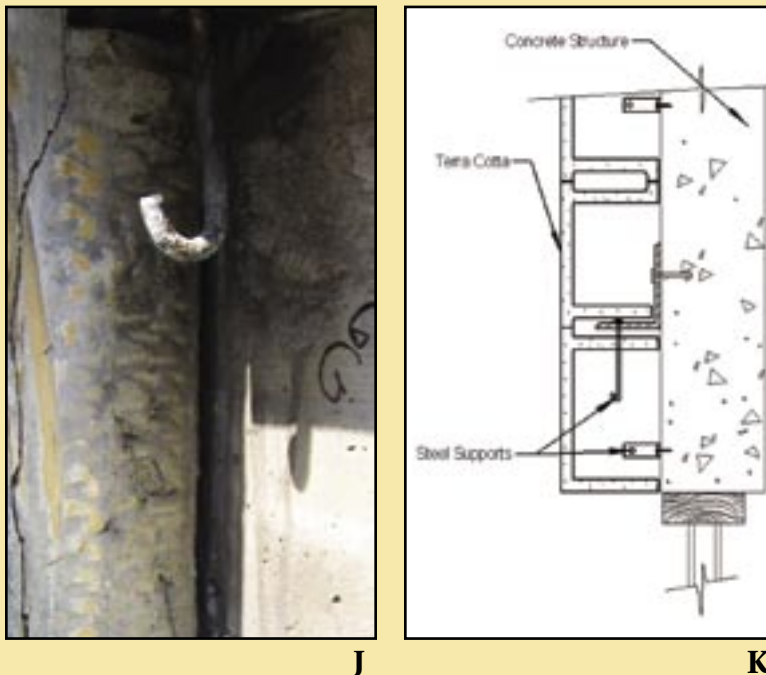
The large photograph shows an example of a steel support hook that the new terra cotta will be "hung" from. The steel will be cleaned and coated with a rust inhibitive paint prior to installation of the new piece. (See photo J)



Terra cotta pieces in the wall are examined and marked for repair or replacement. In installations such as this a "hands on", visual inspection, is the only acceptable method for determining weather or not a given piece needs attention. (See photo K) In some cases it may be necessary to remove terra cotta to verify existing conditions behind the façade. Determinations such as this can give engineers and architects estimates as to the continued serviceability of the wall and also allows building owners to more accurately budget for future restoration work.

Like most projects of this type, the terra cotta work is not our sole focus. Masonry rehabilitation on this project includes a good deal of parapet wall reconstruction. Over the years, parapet walls are exposed to the deteriorating effects of water, as is the rest of the building; but parapets are subjected to even greater abuse from drifting snow and saturation caused by leaking roof flashing. (See photo I) The only sure way to protect the buildings

roofing system is to ensure that the parapet wall is in good repair.



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