



813 Chestnut Street • PO Box 68  
Lebanon, PA 17042  
Phone: 717.272.3744  
Fax: 717.272.5147  
Email: [staff@caststone.org](mailto:staff@caststone.org)  
[www.caststone.org](http://www.caststone.org)

---

Article for Masonry Magazine May 2012 Issue -- Restoration

## **Restoring Historic Structures with Cast Stone**

By Jan Boyer, Cast Stone Institute® Executive Director

As the magnificent historic buildings across America are aging, restoration will be required to maintain and save these structurally sound buildings rather than demolish and rebuild. No matter what the natural stone or concrete based material originally used on the building, cast stone is the natural choice for the restoration efforts due to the unique capabilities of the product and the craftsmen producing cast stone. The following case studies show just how versatile cast stone can be to turn restoration challenges into beautiful realities.

### **714 Main Street – Farmers & Mechanic Building Ft. Worth, Texas**

This project involved restoration of a historic 200,000 sq. ft. office tower originally built in 1920 and located at a popular crossroads in the downtown center. It involved replacing various veneer materials, both terracotta and GFRC, with cast stone on the first two stories. The building was originally ornamented with heads of Roman Soldiers at the second floor level as palace guards. In previous renovations of the structure, the heads of the Roman Soldiers were removed. The only remaining historical reference was old photographs. In order to reproduce the Roman Soldier heads in cast stone, original artwork was produced then a series of molds were made. The molds required significant detail that included the facial expression and the final product was reviewed by historians for accuracy.

The veneer pieces that formed the remaining parts of the exterior of the first two stories were challenging to produce as in many cases they had to form around the large heavy weight soldier heads. This visual challenge to achieve the look of the original terra cotta was met by adding black blasting material to the batch design.

The detail and the exacting design of the Roman Soldier heads in accordance with original pictures was the primary goal of this project. Cast Stone and casting techniques were critical in providing the detail necessary to restore this building to its original conception.

### **Princeton University Press Princeton, New Jersey**

Showing that cast stone is also perfect for structural applications, this hardscape restoration project involved replication of a collegiate gothic courtyard entrance, originally erected in 1911. The extreme detailing and massiveness of the piece as well as replicating the original exposed aggregate in the cast stone elements made this an extremely interesting project.

The scope of the project included the complete replacement of the existing ornate cast stone structure including the jambs, radius arch with rosettes, decorative panels, towers, and coping. In order to accomplish the original intent, the cast stone arch was fabricated as a one-piece design and

was structurally engineered to support the loads of the opening. This significantly reduced the installation cost and timeframe.

The molding process was extremely complex, as the one-piece cast stone arch incorporated numerous architectural details including rosettes, surround profiles, decorative panels, and false joints all into the same mold. Therefore, the mold was fabricated out of a combination of materials including, wood, fiberglass, and rubber, in order to be able to replicate the fine architectural details, as well as to be able to “de-mold” the element after casting.

“Cast stone was also effective in terms of flexibility in design. We [the project team] were able to make design changes and improvements that we would not have otherwise been able to do with natural stone”, said Jeff Frake of Masonry Preservation Group.

### **Joseph P. Kinneary Federal Courthouse Columbus, Ohio**

Built in 1934 with funding from President Franklin Roosevelt Public Works Administration economic recovery program, the entire façade of the building is sandstone taken from a quarry in northern Ohio in 1932. The huge seven story building is in the process of a complete exterior renovation with cast stone replacing the original sandstone. The Ohio Historical Society is involved with the project, along with the architect, to ensure that the cast stone is produced in such a manner that it will be an exact match to the existing sandstone to maintain the integrity of the original design.

Phase one of the restoration has begun involving the replacement of the sandstone on the top three floors with cast stone, the material of choice because of its versatility in color, texture and shapes for the stones. To ensure that the texture was correct, multiple pieces from the building were delivered to the cast stone manufacturer’s plant then castings were made from each of them. The samples made from the castings show the striations and blending of colors in the cast stone to create just the right look. In addition to color and texture, each original stone, when removed from the building, is numbered, a mold produced and stone cast with exactly the same look and size as the original.

To add to the complexity of the project, the Federal Courthouse will continue to be in session requiring all of the work to be performed from 6:00 PM to 4:00 AM only. This includes everything from demolition and shipments to installation. Given the location in downtown Columbus, one elevation is bordering a river, two elevations have road frontage, and one elevation has a city park connected to the property. The location also affords very little on site storage so communication among all team members is vital.

---

These are just a few of the myriad of projects already restored with the use of cast stone. When considering a producer of Cast Stone for your next project, log onto [www.caststone.org](http://www.caststone.org) for a listing of certified producer members of the Cast Stone Institute ® who take pride in the relentless pursuit of excellence for every project. While you are on the website, take a moment to review the

photos section for other award winning projects and further information about cast stone and the Cast Stone Institute ®.

---

Author: Jan Boyer is the Executive Director of the Cast Stone Institute since 2006. She serves on the Board of Directors for The Masonry Society and the Masonry Alliance for Codes & Standards. Involved in the masonry industry for over 14 years, she is also affiliated with the Concrete Joint Sustainability Initiative and the State Alliance of the National Concrete Masonry Association. She can be reached at [jboyer@caststone.org](mailto:jboyer@caststone.org) or by calling 717-272-3744. [www.caststone.org](http://www.caststone.org)