

need to Know

FIVE STEPS TO
SUCCESSFUL
HISTORICAL
RESTORATION
BY MARY LOU JAY



A&B. A before-and-after look at the **First Church of Christ, Scientist**. Restoration included cleaning and repointing the façade, which consisted of a Concord White granite base and water table, as well as Dover White marble façades. *Photos courtesy of Sydness Architects*

HISTORICAL STONE RESTORATION PROJECTS REQUIRE a different approach than other types of stone building projects. We asked several people who have been involved in these undertakings to share their thoughts on making them successful.

Look for experience

For historical restoration jobs, architects and designers need a restoration specialist, says Bryan Imhoff of Imhoff Engineering. "Look for someone who has done it before, who knows what to look for, what to do and who to get to do it."

Joseph Alonso, mason foreman at the National Cathedral in Washington, D.C., has given workshops showing architects, engineers and design professionals how artisans work, using angle grinders or hand chisels to open up joints, for example. "They come away with a renewed sense of how it's done, and it helps them design and write the specs for a project," he adds.

Jeff Sydness, AIA, and George Chin, AIA, principals with Sydness Architects of New York, turned to knowledgeable advisors when they began working on the restoration of the exterior and primary public interior spaces of the First Church of Christ, Scientist, an elegant, 1901 neo-classical landmark located on Central Park West at 68th Street in New York City. "We hired sub-consultants, façade experts and structural engineers who had done this type of work and relied heavily on them," says Sydness.

They also chose contractors and artisans with previous experience. "Time and time again you're faced with certain challenges in the field that require a brainstorming moment. You can try to anticipate all these problems, but with a historic

PROJECT DESIGNERS SHOULD TALK WITH ARTISANS IN EACH SPECIFIC TRADE BEFORE THEY DRAW UP ANY CONSTRUCTION DOCUMENTS.

structure, once you get out there with the contractor and really start the work, you often find what you anticipated really isn't the case," Sydness says. Experienced craftsmen can draw upon techniques they have used before to resolve unexpected issues.

Understand the material

Having a basic knowledge of all the properties of a particular type of stone is essential in restoration, not only to determine how to clean existing stone but also to find any needed replacement stone to match it. "[The restoration team] should be looking not only for the color, which everyone thinks of at first, but also the grain and textures of the stone. Is it tight grain, loose grain or does it have different color variations in it?" says Laurie Wells, vice president of sales and marketing at Old World Stone, Ltd. "Another consideration is the availability of the material: how big does it come from the quarry, is it available in 8-foot lengths for a certain tread or lintel, and is it available in certain bed heights?

"They also need to know if the stone they're looking for is actually suitable as a building stone. Does it meet the ASTM requirements for durability, density, modular structure? Is it suitable for the application that they're going to use it for?" she adds.

Wells takes architects, engineers and owners on tours of the Old World Stone facilities so they understand the stone production process and how much time it actually takes to acquire a block of stone and put it through the line.

Architects can rely on quarries and stone masons to help determine the best stone choice for an historic restoration. After inspecting a deteriorated, century-old Chicago brownstone, for example, Wells recommended replacing the stone rather than repairing it. "The original sandstone, although available, was not



really suitable for construction. It didn't work the first time, so we found a better quality material that looks very similar, so the brownstone still blends with all the other homes in the neighborhood," she says.

Appreciate different expertise

"The restoration business is very complex because you need to know not only about stone but about chemistry and archaeology, too," says retired stone mason Harold Vogel. "Architects and engineers need to understand that stone artisans may have specialized knowledge that they do not."

The project designers should talk with artisans in each specific trade before they draw up any

D. A stone carver works on replacement stone for a 100-year-old Chicago brownstone. Although the original sandstone was available, a similar, better-quality material will help the building blend with the other homes in the neighborhood. Photo courtesy of Old World Stone, Ltd.

E. During the recreation of the **Sunken Road Stone Wall** at the Fredericksburg and Spotsylvania National Military Park in Fredericksburg, Va., collaboration and communication between the architects and the artisans helped avoid the potential of conflicting interpretations, opinions and recommendation. *Photo courtesy of the Dry Stone Conservancy*



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construction documents, advises Dry Stone Conservancy Restoration Manager Jane M. Wooley. "It's important that there be a dialogue from the beginning between the project managers, site representatives, engineers, architects and people who will be installing the job," she says.

On one project, the recreation of a dry stone wall for a national battlefield, early discussions between the architect and Dry Stone Conservancy helped prevent later problems. "The architects had a rudimentary understanding of dry stone masonry, but what they had originally designed was not buildable from a practical standpoint," Wooley says. "They had to adjust some dimensions so the stone could fit. It worked out fine because of the open dialogue, and because the architects and engineers maintained an open mind."

"It's good for architects and engineers to know the procedures that craftsmen use for stone cutting techniques, stone removal, mortar joint removal and cutting out joints," says Alonso. "Architects may specify, for example, the removal of all mortar joints. But have they ever seen how a mortar joint is removed, or tried doing it themselves?" Alonso feels fortunate that the architect and oversight committee at the National Cathedral include the in-house masons in project discussions. "We know the building really well because we're on it all the time, and they listen to what we say because we do know it so well. I appreciate that they trust us to know what's going on."

Add time for approvals

Getting approvals can be a relatively easy process—on the First Church of Christ, Scien-

tist, it took just four to six weeks, and the historic groups were willing to work with the owners and the architects. Other times a renovation schedule can drag out for years.

"Historic preservation can be difficult to work with, because [preservation societies] don't want to replace anything," says one restoration veteran. "And if they agree to replacement, it has to be exactly what the original material was. It's not that they're unreasonable in their goals; it's that they are slower to accept cheaper alternatives than others working on the project would like them to be."

Provide clear expectations and procedures

Before a project begins, everyone involved should understand the extent of the work that needs to be performed: how much needs to be replaced, and how much of the historic material can be preserved.

"Another thing that you have to take into account is order, process and procedures," says Imhoff. "If you're going to repoint the mortar and clean the building, you should repoint it first, or you'll blow a bunch of water into the wall cavity. Things like that may seem obvious, but sometimes people don't think of them."

Determine who will make decisions

"It's important whenever you get to the point where you've got your craftsmen on-site there is one line of communication and one voice coming from both sides," says Wooley. She recalls one project where four or five different managers and historic experts all were coming in with their own interpretations of what should be done. "We had to get out of the way so that the lead master craftsman on the site could talk with the lead historian on the project."

Understanding and appreciating the unique roles that every team member plays in a historic renovation project helps the project run smoothly. "As in any endeavor, it gets down to the chemistry between people and the respect for other professionals," says Sydness. When those ingredients are present, the historic restoration becomes a "harmonious collaboration"—and a successful one. ♦

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F. The Washington National Cathedral, built mainly of Indiana limestone, has been under construction for 83 years and represents the work of thousands of masons, sculptors, and other workers. *Photo courtesy of Joseph Alonso*

Resources

Old World Stone Ltd.

- oldworldstone.com

Harold Vogel

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Div Stone Conservancy

- drystone.org

Sydness Architects

- sydnessarchitects.com