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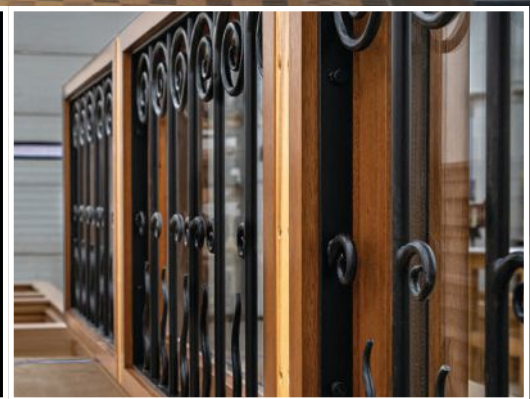
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Mills + Schnoering Architects restores the facade of the Milwaukee Federal Building and U.S. Courthouse.

More on page 46.

Photograph by Leslie Schwartz Photography





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## Saving a Frank Lloyd Wright Home.

Get a unique look at a Frank Lloyd Wright home and window restoration. Architect John Eifler carefully restores the Ross House, bound for demolition after years of neglect. He follows Wright's original drawings for all the windows to maintain authenticity, while inserting small upgrades for modern living.

Watch the details that bring life back to the windows of this home: [go.indowwindows.com/flw](http://go.indowwindows.com/flw)

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**Due to the COVID-19 outbreak, we have postponed our event at the Lyceum. Please visit the [website for updates.](#)**

Everything stays in place; thankfully, our venues, tours, speakers, and sponsors are all committed to these new dates. Thank you to all our speakers, sponsors, and registrants! *(See list of sponsors at right.)*

We're hoping this postponement isn't wishful thinking, that the Covid-19 health risk will have abated, and that everyone can come together safely. If this not the case, we will notify all registrants via email. For questions, contact Carolyn Walsh at [cwalsh@aimmedia.com](mailto:cwalsh@aimmedia.com).



## TRADITIONAL BUILDING'S 2020 PALLADIO AWARD WINNERS

We are pleased to announce the 2020 Palladio Award winners! The 19th annual Palladio Awards competition recognizes 14 firms for outstanding work in traditional design, five in the commercial, institutional, and public architecture category and nine for residential work. All winners enhance the beauty and humane qualities of the built environment through creative interpretation and adaptation of classical and traditional design principles. Thank you to all who submitted.

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Ferguson & Shamamian Architects

#### CRAFTSMANSHIP

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#### ADAPTIVE REUSE AND/OR SYMPATHETIC ADDITION

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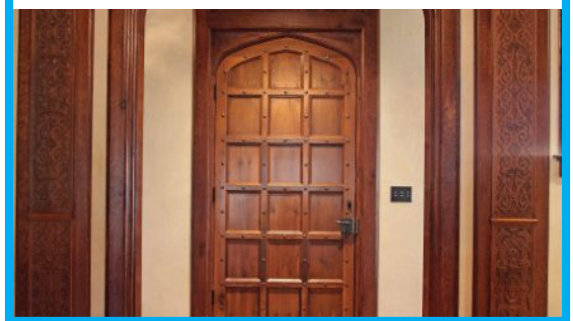


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**Speaker:** Brent Hull, Hull Historical, Inc.



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# Taking Care of Terra-Cotta

New railings and balusters from the original maker help a San Francisco landmark shine again.

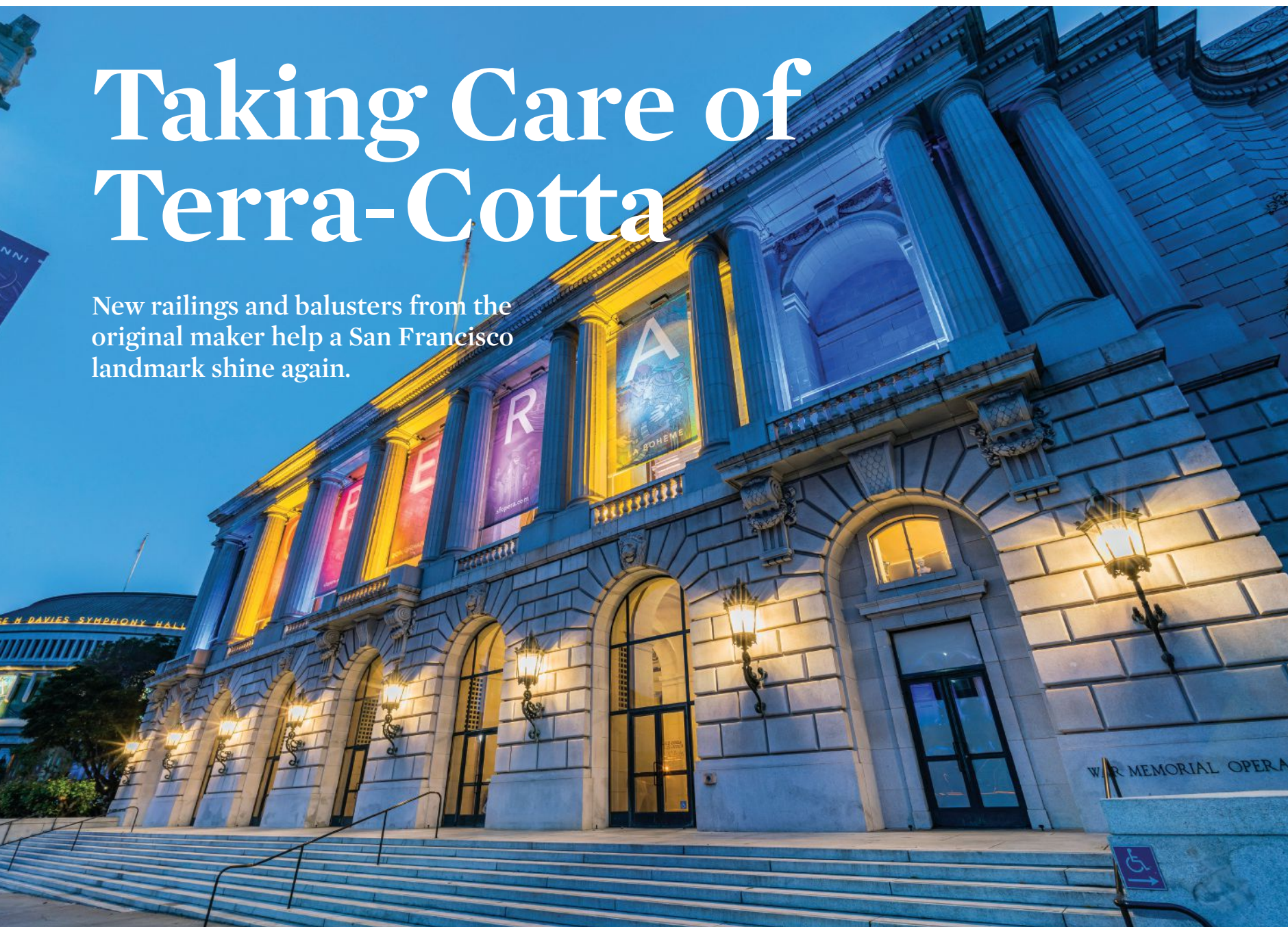


Photo by Kit Leong

Historic building restoration projects are seldom a pure play, as most any contractor or architect will tell you. “We wear several hats,” says Tom Lewis, president of Lewis Restoration and Consulting in San Francisco. “We’re very good at large, masonry façade restoration—be it granite, terra-cotta, brickwork, or GFRC (glass fiber reinforced concrete)—and we also have considerable experience with waterproofing details and related consulting.”

To illustrate how varied the work can be, Lewis points to their recent project at the War Memorial Veterans Building, an immense 1932 Beaux-Arts performing-arts center in San Francisco designed by Arthur Brown Jr.

Among the key features of the building are 72 terra-cotta balustrades—one running at the second-story level and another across the attic level. “The

balustrade assemblies were in very rough condition,” explains Lewis. “Each baluster is reinforced with steel rebar that had corroded, leading to corrosion jacking, which cracked individual balusters and compromised the railings. So we replaced all 72 balustrade assemblies, including railings, bases, and balusters with new terra-cotta to match the existing units.”

By good fortune, they were able to commission new terra-cotta from Gladding, McBean LLC of Lincoln, California, the original manufacturer of all the terra-cotta for the building. “Gladding, McBean supplied much of the historic terra-cotta from California to Chicago during the heyday of terra-cotta construction, and they still have the original drawings for the War Memorial Veterans Building. Using those drawings in combination with the existing conditions, we were able to replicate the terra-cotta and reinstall all

72 balusters and assemblies.”

He says getting the details right required extensive coordination between the manufacturer and the historic preservation architect. “We had to produce mock-ups, so all the granular features of the terra-cotta—the coarse, corrugated graining and what I call the “speckle patterns” had to match precisely.” Much of the terra-cotta on the building is fabricated to resemble Sierra White Raymond granite, a famous California stone used in the base.

Beyond replicating the terra-cotta, there was the challenge of matching the glaze. “Nowadays, in terms of color and patterning, the formulas used back in the 1930s are not the same formulas permitted today because there are environmental restrictions on materials, such as pigments and heavy metals, but I think Gladding McBean’s results were a big

success.” The value of manufacturing the terra-cotta was approximately \$500,000, a large portion of the work.

A third aspect of the project was repairing the glaze and bisque spalls in the original terra-cotta. “A bisque spall is where the actual clay substrate of the terra-cotta is eroded, missing, or cracked,” explains Lewis. “Here we replaced any broken clay with polymer-modified mortar to match the existing in compressive strength.” With a glaze spall, on the other hand, it’s the surface glaze that’s missing. This allows moisture into the clay and permits bio growth to form and with it continued deterioration of the terra-cotta. “So one large goal in the project was to recoat the missing glazing—especially much of the frieze at the top of the building where there’s a lot of exposure. After cleaning the exposed bisque and removing and patching loose material, they



**LEFT** Tom Lewis of Lewis Restoration and Consulting restored elements on War Memorial Veterans Building in San Francisco.

**RIGHT** Lewis also repaired the glaze and bisque spalls in the original terra cotta.

**BELOW** Lewis replaced all 72 terra-cotta balustrades. The original rebar had corroded.



treated any bio growth with a biocide. To match the original glaze in color and pattern, Lewis' company carefully painted on a custom 100 percent acrylic glaze with a suspension of black granular speckles. "The 'reglazing' dramatically improved the building visually," explains Lewis, "and also enhanced the waterproofing and conservation of the terra-cotta."

Inside the building, the lobby is built with beautiful cast stone blocks, which Lewis' company cleaned and repointed. "The joints are very small, almost like tile joints, so the repointing was very intricate." Even more intricate was the task of removing selected blocks in order to make cut-outs for adding outlets and electro-mechanical utility boxes in the walls of the lobby. "These blocks are very large—roughly 12" x 24"—and pulling the stones out without damage to the blocks or the surrounding blocks, and then putting the stones back in place, was very challenging."

Unfortunately, the Southwest corner

of the lobby had not been as lucky—in fact, a whole section of the sandstone had delaminated from the substructure and collapsed onto the floor of the lobby. "The right-side wall in that lobby, roughly a mirror image of the original wall on the left, was still intact, so I had a company come in and laser scan the wall on the right. With the laser scanning information we knew exactly how everything was placed." After hiring a company to replicate the damaged stone, Lewis' company reproduced the wall on steel framing. "If you're in the lobby, you wouldn't be able to tell the difference by looking at it."

The natural finishing touch was to clean the terra-cotta and the granite. "Using hot-water assisted power washing, and we cleaned the entire exterior of the building, producing a dramatic visual change and enhancing a lot of features, like the lions on the ground floor." After all the meticulous work, Lewis adds "it was really rewarding to see the building sparkle like new again."





Flanking the steps of the Supreme Court of the United States is a pair of marble candelabra with carved panels on their square bases depicting Justice, holding sword and scales, and The Three Fates, weaving the thread of life.

# Building Blocks

Marble has been used for millennia to construct our buildings.

**M**arble is a metamorphic rock formed from limestone under heat and pressure.

Typically, the process crystallizes the stone, overwriting some of the structure of the original rock. Marble's color can range from whites to yellow, pink, green, gray, and brown reflecting the mineral impurities in the original limestone. Depending on the type of marble, bedding planes formed by the layering of the original sedimentary rock could remain. These are locations along which the stone is more brittle and can split.

Marble had been used for buildings starting with the Greeks and Romans. A more recent North American example is the U.S. Supreme Court House, with exterior walls in Vermont marble, inner courtyard walls in white Georgia marble, and interior walls and floors in cream-colored Alabama marble. The Court Chamber walls and friezes are built of ivory vein marble from Alicante, Spain, the borders on the floor are of Italian and

African marble, while the columns are constructed from Old Convent Quarry Siena marble from Liguria, Italy.

Marble used as a bearing material is placed in units on a bed of mortar, similar to other stonework. Marble used as a facing material could be installed with daubs of gypsum plaster or could be attached additionally with wires into back-up masonry. For flooring, it is typically set in a mortar bed. Marble is also used as tub surrounds, countertops and other such uses, but it is very susceptible to staining.

Due to its inclusion of silica, cutting and shaping marble requires personal protection in the form of dust masks according to OSHA. The dust should be cleaned up through wet methods to avoid the spread of the dust.

## CURRENT CONSERVATION APPROACH

While Marble is a stone, and therefore considered to be hard, it is actually delicate. It is porous, making it easy to

stain, and permitting the stains to migrate deeply into the stone, especially with graffiti. When approaching any work on the stone, ensure all materials are non-staining (especially sealants).

## Repairs

Before proceeding to a repair method, ensure that the phenomena, which caused the damage is determined and understood. Damage must be addressed holistically, to prevent undertaking repairs, which could cause further damage, or fail prematurely.

Where a piece of marble is broken off, it can be repaired by a Dutchman. A dutchman is a piece of matching material with the same color and finish and profile, which is inserted into the base material, and epoxied in place. In cases or large repairs, it would also receive a stainless-steel anchor.

When a piece of marble cracks, it can be pinned with stainless steel anchors epoxied in place.

It is important that the stainless-steel is type 304 or 316, and that the epoxy is non-staining.

## Consolidating

When marble is exposed to de-icing salts or to acid rain, the surface can become powdery with large open pores. There are commercial products available on the market for consolidation of the stone, but these should only be used by professionals with deep experience in this application. Ideally, icing salts should not be used near the base of stone walls to prevent this from happening.

## Repointing

When repointing marble, the specific concern is how soft the marble is, relative to cutting tools. From the selection of the cutting tools, to the formulation of the mortar, please refer to the previously published pointing article <https://www.traditionalbuilding.com/product-report/mortar-glue-that-binds>.

**BELOW** Copper stains on marble due to the base of the lamp, which sits on the marble.



**RIGHT** Interior marble at the Supreme Court of the United States.



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A previously repaired crack failed due to oxidation of a steel pin in the original repair.



This image depicts biological growth on marble.

Interior marble is typically installed in veneer thicknesses that do not use mortar in the traditional sense. In whatever manner it is secured, interior joints are typically very fine, and filled with Plaster of Paris. This material has no structural capacity but does keep dust and dirt out of the assembly and is ideally suited to the thin interior joints due to its fine grading and nonstaining qualities.

#### Polishing Marble

Many materials will etch marble, as explained above. Restoring a polished finish on marble is another repair that should only be attempted by professionals. There are mechanical grinders which can polish a surface smooth, using a range of wet dry

abrasive paper with increasingly fine grit, starting at 80 and moving up to 400 or sometimes 600 for dark marble. Tin oxide or aluminum oxide can be used last for extra luster.

#### Cleaning

As with all cleaning of historic surfaces, sample clean a small area away from public view, to ensure that the cleaning method is appropriate.

The calcium carbonate in marble reacts with acids, releasing carbonic acid, which in turn breaks down into CO<sub>2</sub> and H<sub>2</sub>O. Because of this inherent weakness, acidic cleaners or vinegar should never be used to clean marble. Even extremely dilute acids will etch the surface. For marble

## Rock Types

The earth's crust is 20 to 30 miles thick. It is made up of three types of rocks: igneous, sedimentary and metamorphic.

**IGNEOUS ROCK** comes from the cooling of magma or lava from volcanoes. Magma is made fluid by the heat in the depths of the earth. When magma cools below the surface, it is called plutonic, such as granite. When the magma leaves the earth as lava, it is called volcanic, such as basalt. The earth's crust is made up of 95 percent igneous rocks.

**SEDIMENTARY ROCKS** are formed over millions of years when sediments drop out of water from rivers, lakes and glaciers. The particles form layers, which are pressed together (lithification) and chemically bonded (precipitation). Examples include sandstone and limestone. Sedimentary rocks have a layered stratum, referred to as bedding planes. The orientation of the bedding plane is influential in how quickly the stone weathers over time, when used in a building. Sedimentary rocks form in the top most layer of earth's crust.

**METAMORPHIC ROCKS** are formed from heat and pressure exerted on other types of rocks. For example, limestone under pressure becomes marble. The heat and pressure change the initial rock by recrystallizing the minerals, forming them into another rock entirely, with different characteristics.

buildings, one of the greatest threats is acid rain, which will dissolve the stone irreparably.

For general soiling, use a nonionic detergent such as Ivory, applied with a natural or plastic bristle brush. Do not use steel wool or wire brushes, since micro particles of steel left behind will react with moisture to leave unwanted rust stains behind. For tougher stains, dilute ammonia will clean without lightening the stone. Do not use bleach, as it is an acid, which will dissolve the chemical bond of the stone.

Where stubborn stains remain, a poultice can be used. A poultice works like a facial for the stone. When the poultice is applied and covered with plastic, the cleaning solution migrates into the stone. After 24 hours, the plastic is removed. As the top surface of the poultice dries, the moisture is drawn out of the stone and into the poultice, carrying the stain or dirt with it in solution. As moisture evaporates, it deposits the dirt at the top of the poultice. Once dry, as evidenced by cracked and loose material, a plastic scraper can be used to remove the material, and dispose of environmentally.

The poultice substrate could use kaolin clay, fuller's earth, whiting, diatomaceous earth or powdered chalk. It needs to be inert and colorless. It is mixed with the cleaning agent, which varies, based on the type of stain. For smoke, use baking soda. For oils stains, crayons and magic markers, try acetone or mineral spirits. For organic stains such as coffee, fruit juice and wine, try ammonia, or 20 percent hydrogen peroxide. Rust is one of

the most difficult to remove. Start by wetting the area with sodium hydrosulphate solution, then a wet poultice containing sodium citrate. Whatever poultice mixture is used, apply it to the stain, and cover it with plastic to provide time for the liquid to penetrate the stone.

For larger exterior cleaning efforts, commercial products such as ProSoCo's 942 Limestone and Marble cleaner are a wet-and-rinse method that could be tested for effectiveness.

Expensive, but very effective and gentle on marble, is laser cleaning, suitable for both interior and exterior cleaning.

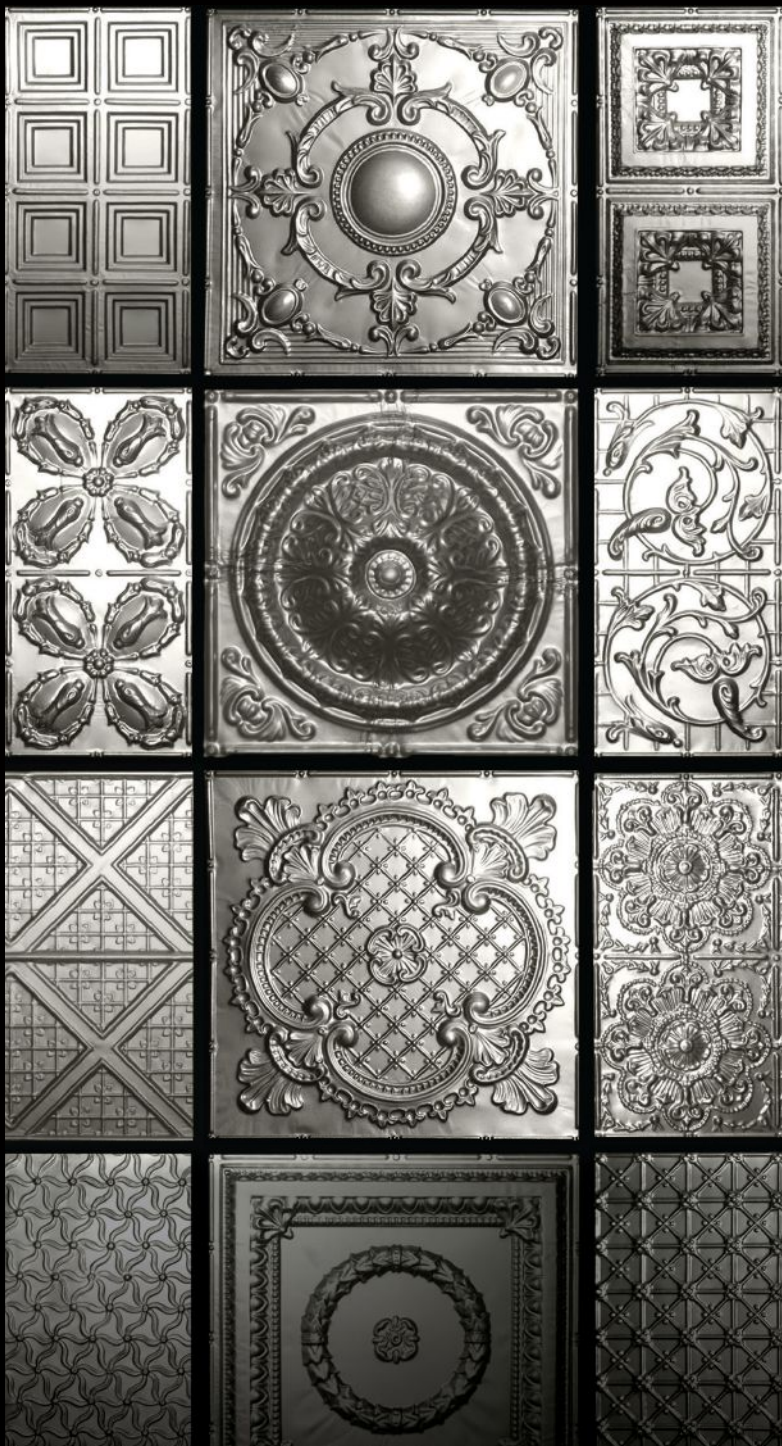
#### Paint removal

Where marble has been painted, commercial gel strippers can be used with caution. Always use plastic or wooden scrapers to remove the paint sludge from the surface, to avoid damage to the substrate. Don't use any acidic paint removers.

#### What not to do

There are a lot of commercially available plastic (as in can be molded) patches available on the market. These are not typically long-term repairs in an exterior environment, due to their unproven track record. They can be suitable for small interior repairs as they can be closely color matched and finely tooled.

**SUSAN D. TURNER** is a Canadian architect specializing in historic preservation of national registered buildings. She can be reached at [susan\\_rktect@hotmail.com](mailto:susan_rktect@hotmail.com)



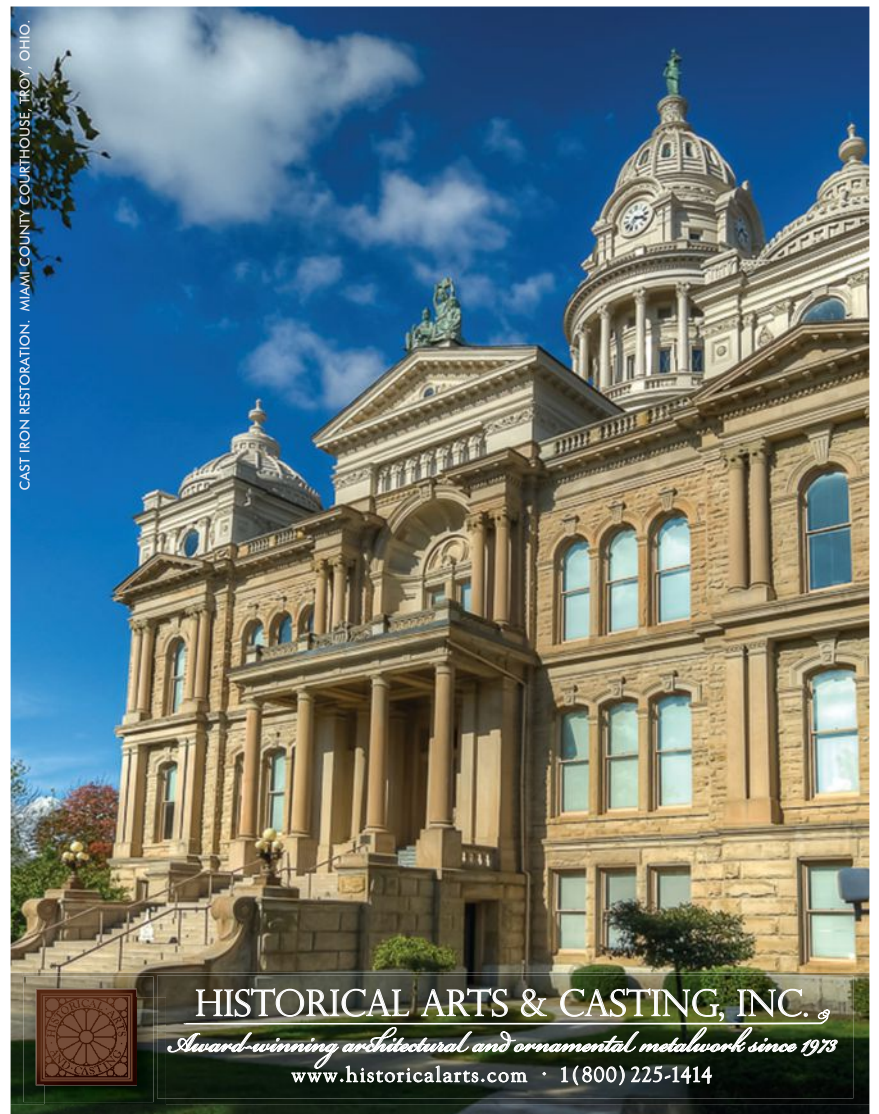
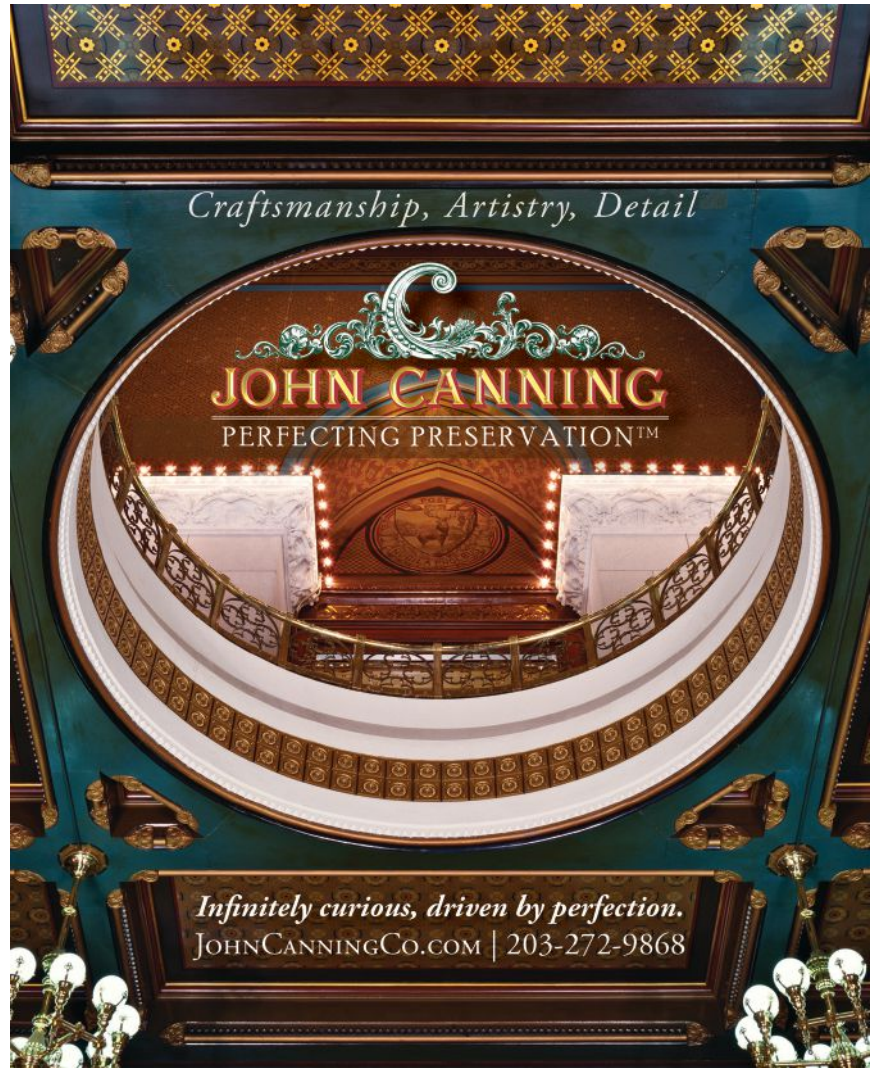
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# Carbon, Energy, and Building Conservation

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**M**ost homeowners want to go green to reduce energy consumption and save money. But how do architects and building professionals balance saving energy with building conservation? We turned to respected practitioners to ask their advice, and every architect interviewed stressed the importance of treating existing buildings holistically. After all, as architect Carl Elefante pointed out, “The greenest building is the one already built.”

Sandra Vitzthum, AIA, of Montpelier, Vermont, begins with a thorough conditions assessment. She believes that if a building’s underlying maladies go unfixed, any strategy for reducing

energy consumption is bound to fail. She also asks owners a simple but profound question: Do you want to manage your behavior or technology?

Vitzthum believes in quality daylighting, for starters. “We can design spaces that maximize daylight and minimize the use of power,” she notes. Ensuring that buildings breathe properly is also vital; this maintains good air exchange and cuts down on moisture problems. The architect is concerned that some of the industry’s calculations do not adequately measure embodied carbon in historic buildings. “We know it’s there but quantifying it accurately is hard to do,” she explains.

Richard W. Off, AIA, of Hoffmann Architects, works on large-scale, multifamily commercial and institutional buildings, many in New York City. New York has passed stringent energy codes and other ordinances, including the recent Local Law 92/94, an aggressive take on a roof’s energy considerations. Roof replacement, façade repairs, cladding changes and window repair and replacement are recurring projects for Off. Like many in the industry, he strives to understand underlying moisture challenges. He’s been using dew point analysis to combat the threat of moisture and address condensation in his designs.

Jill Gotthelf, AIA, FAPT, is a prin-

icipal with WSA | ModernRuins and a founding member of the Zero Net Carbon Collaboration (ZNCC) on Existing & Heritage Structures. Her practice concentrates primarily on heritage cultural institutions, houses of worship and multifamily residential buildings. In Gotthelf’s opinion, the discussion needs to shift from just energy conservation to reducing carbon footprints. She sees the increasing affordability of green renewable energy for both heat and power as the driver for improved environmental quality and reduced utility costs.

Diagnostics such as dew point analysis and understanding intrinsic benefits such as thermal lag, passive systems and



The house also has geothermal, a SIP wall system and rainwater collection for the pool, irrigation and toilets. Churchill is the cofounder and creative director of Hendricks Churchill in Sharon, Connecticut

materials science are essential to the decision-making process for energy upgrades, according to Gotthelf. She finds space utilization studies useful in reducing operational energy; they ensure that systems are sized appropriately. She also encourages people to learn about the ZNCC's mission. The goal of this strategic alliance is to discourage working in isolation and to encourage sharing of work on energy, carbon reduction, and historic preservation.

Mike Jackson, FAIA, worked for the Illinois State Historic Preservation Office for many years and is now in private practice in Springfield, Illinois. He focuses on older downtown buildings, including the installation of housing on their upper floors. Jackson says that many historic buildings have good design in their favor.



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LEFT: Amanda Kirkpatrick photo; RIGHT: John Gruen photo

**LEFT** The inclusion of natural daylight in design and renovations is key to cutting down on electric use.

**BELOW** The photos below show an in-progress freestanding mock-up of an insulated and ventilated steep-slope, batten-seam copper roofing assembly.



LEFT & FAR LEFT: Richard W. Off photos

“Downtown commercial buildings, with common party walls on the long sides, are particularly efficient in their orientation,” he relates. “Adequate roof insulation makes a big difference—I also like using movable cloth awnings for solar shading when needed. One of the first health and safety features regulated by building codes was the requirement of natural light and ventilation,” he continues. “As a result, most older houses have excellent daylighting.”

To combat heat loss, Jackson feels that storm windows have been overlooked. He also uses blower door tests as an analytical tool. He concludes: “Moving the definition of ‘net zero’ to the allowance of off-site renewables would be an excellent strategy for historic properties.”

Marilyn Kaplan, RA, FAPT, is in

private practice in the Albany, New York, area. She and Mike Jackson are co-chairs of the Association for Preservation Technology’s technical code committee, and recently both participated in the AIA Historic Resources Committee’s annual colloquium at Taliesin West. Kaplan specializes in small and mid-size historic buildings, including religious properties and museums, and the application of construction-related codes to historic properties. She has worked with the New York State Energy Research and Development Authority.

I interviewed Kaplan as the COVID-19 pandemic was hitting New York hard and on the same day the price of a barrel of U.S. oil dropped to approximately \$20. The gravity of the pandemic prompted some deep reflection about its impact on construction and preservation

specifically. She wondered about the role of existing buildings in our recovery, specifically in the context of climate change, and how the skill and knowledge of those working in traditional trades will fare in a slow or no-growth period. She also questioned whether or not society is willing to modify individual behaviors—and perhaps comfort levels—versus continuing to rely on technology to solve energy and carbon issues.

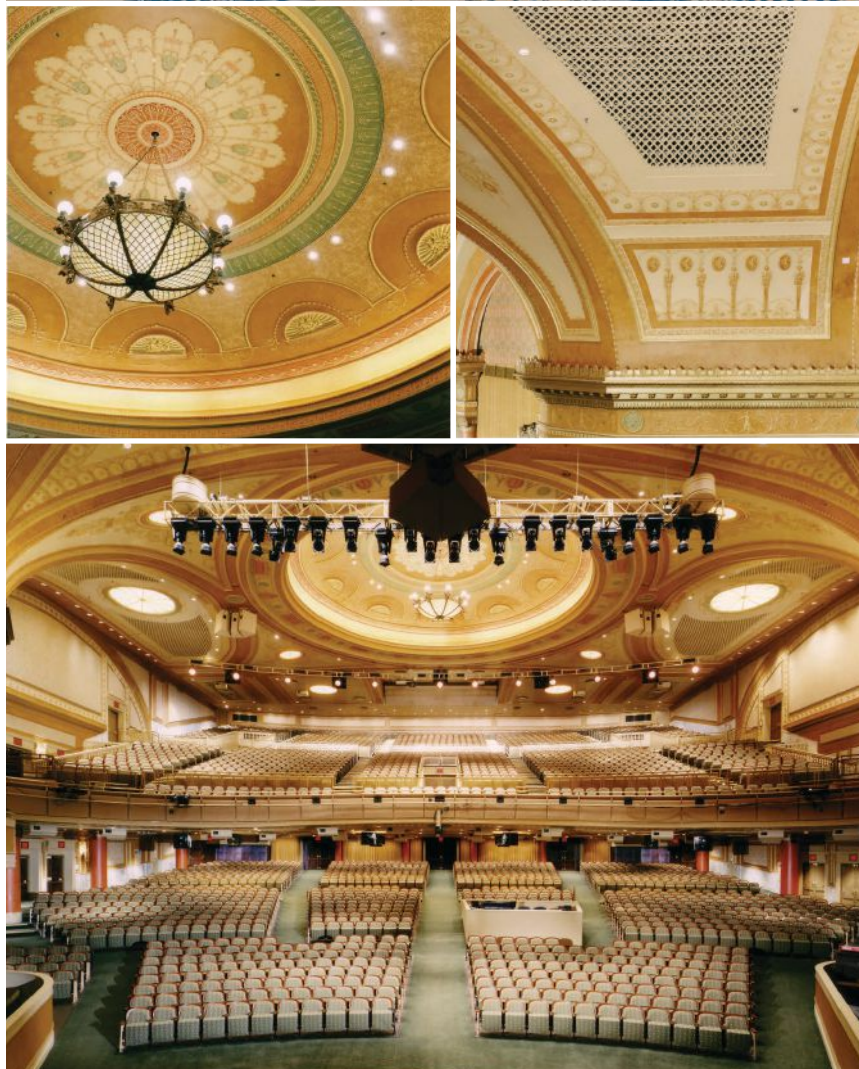
Kaplan recalled that, in the face of rising oil prices and a national effort to conserve oil, President Jimmy Carter once told us to “put on a sweater.” It feels like we need to button that sweater today.

My next installment will feature some case studies of successful energy conservation and carbon reduction projects for historic and existing buildings.

**JUDY L. HAYWARD** is executive director of Historic Windsor Inc. and the Preservation Education Institute. She serves as education director for the Traditional Building Conferences Series and Online Education Program. She blogs and writes this “Techniques” column regularly for Traditional Building. She specializes in the development of educational programs for builders, architects, and tradespeople. She can be reached at [peihwi@gmail.com](mailto:peihwi@gmail.com) or 802.674.6752.



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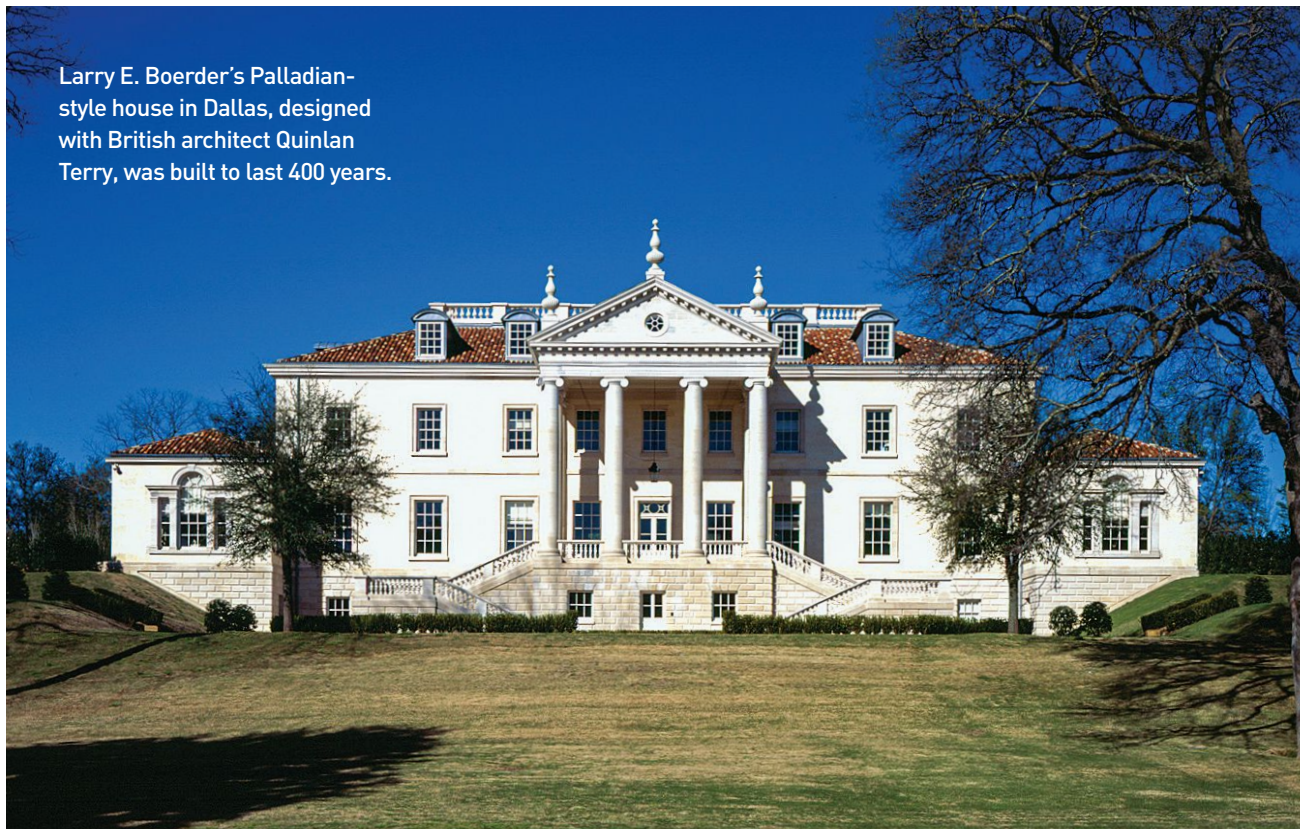
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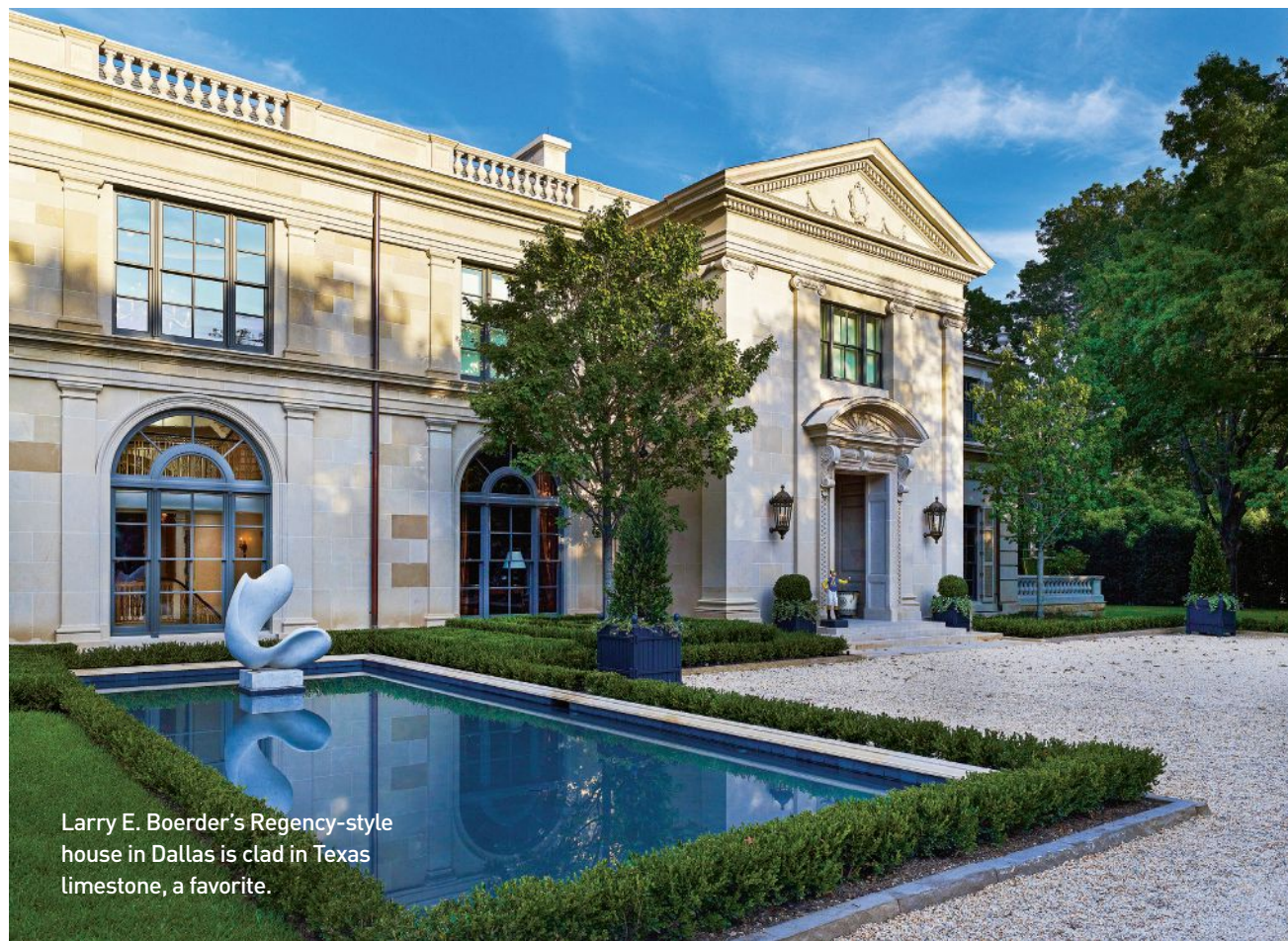
BY NANCY A. RUHLING

Larry E. Boerder's Palladian-style house in Dallas, designed with British architect Quinlan Terry, was built to last 400 years.



# Study in Stone

A valued material, stone has stood the test of time.



Larry E. Boerder's Regency-style house in Dallas is clad in Texas limestone, a favorite.

In traditional architecture, natural stone is a most valued material; its very use signals that the building it's on is designed to last the test of time. We talked with three architects who shared their thoughts on the subject and gave us details on various applications.

### LARRY E. BOERDER

Larry E. Boerder, AIA, whose eponymous firm is based in Dallas, always chooses natural stone, either rubble or cut, depending on the application, because of its durability and sustainability. Boerder, who has built over 250 residences in his 35-year career, generally selects Texas limestone, which is plentiful in the Lone Star State. He says, "Texas limestone actually is a cost-effective choice for his projects because as it's locally sourced, shipping is not expensive."

Boerder has worked with a variety of natural stone but does not use thin veneers attached with adhesives. He recently designed a house that mixes Wissahickon Schist from Philadelphia with Texas limestone.

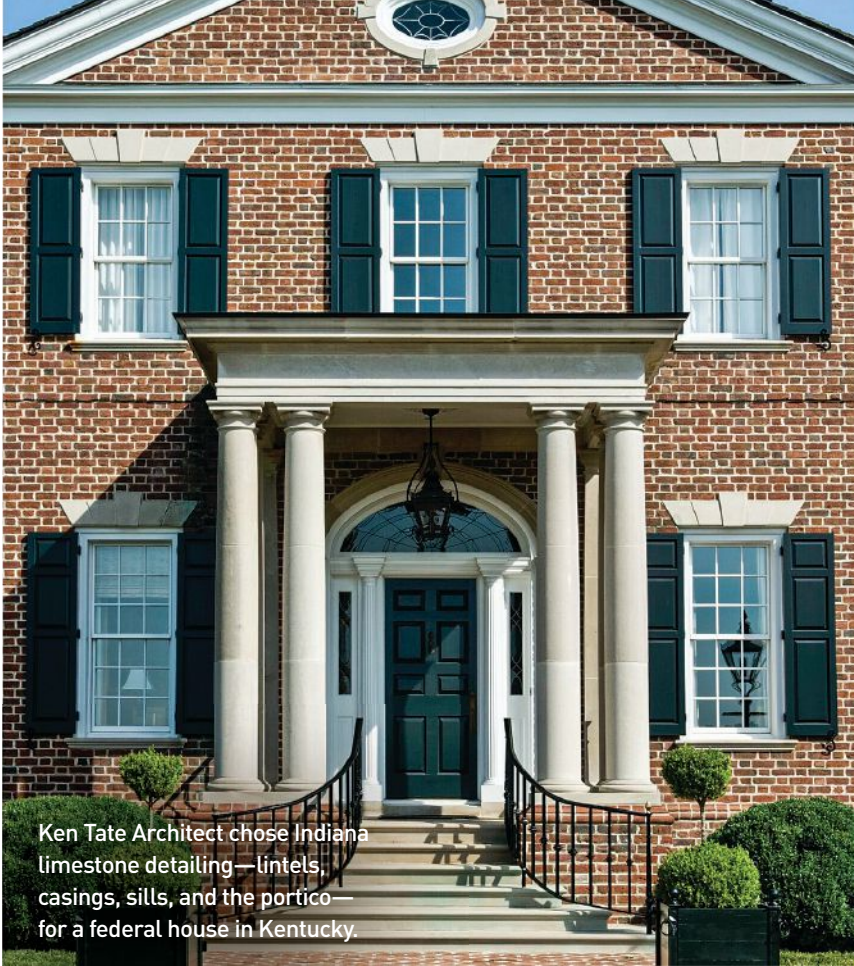
"Wissahickon is a grayish stone that was used in the iconic Main Line homes of the city," he says. "The client had seen it and requested it, and I was familiar with it because I once lived in Philadelphia." The Wissahickon is being used for the walls of the house, and the Texas stone will be used for carvings. "The Philadelphia stone gets harder when it weathers," he notes.

In another Dallas project, Boerder combined Texas Ashlar stone with stone imported from Spain. "This home is built with load-bearing masonry that will last 400 years," he says. Yet another client requested stone from France. "It was quarried 200 years ago," he says. "It looks ancient; it was used for utilitarian purposes, possibly on bridges."

On a Palladian-style residence clad in cut-stone Texas limestone, Boerder employed 18th-century building techniques that greatly increase the home's longevity. "The walls, which are 1 foot and 10 inches thick on the outside, are solid-masonry with plaster on the interior walls," he says. "The house is built to last at least 400 years. Some of my other homes are built to last 150 to 200 years."

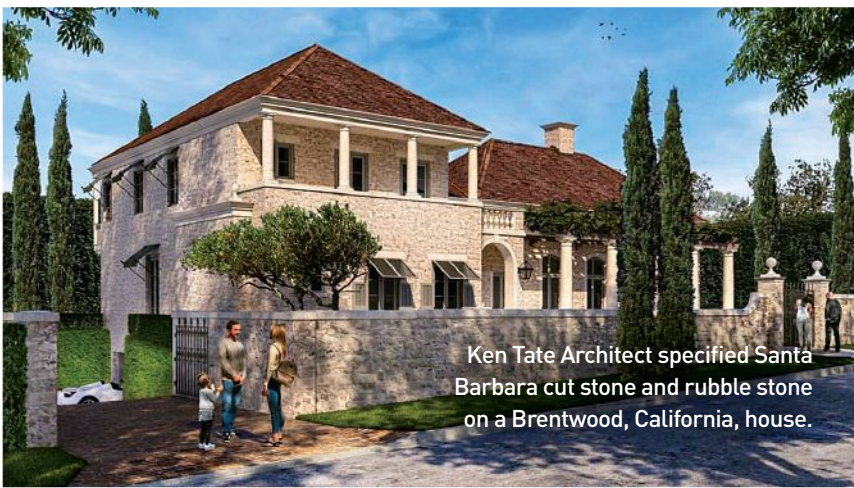
In every project, he says, "I'm always going to advocate cut stone because, among other qualities, it has a crisper edge whereas synthetic chips."

Photos by Dan Plassick



Ken Tate Architect chose Indiana limestone detailing—lintels, casings, sills, and the portico—for a federal house in Kentucky.

Photo by Tim Dunford



Ken Tate Architect specified Santa Barbara cut stone and rubble stone on a Brentwood, California, house.

Rendering by Redfish Renderings

## KEN TATE

Ken Tate, whose namesake firm has offices in West Palm Beach and New Orleans, often selects natural cut stone to complement the style of the building he's designing. His go-to cut stone for classical architecture is limestone, particularly Indiana limestone, which traditionally was used, along with granite and marble, on 19th-century U.S. government buildings, such as capitols and courthouses, all over America.

"Limestone is denser than most other stones, and Indiana limestone, which has a warm, gray color, is flawless—there's no grain, no pits and no character in it," he says, adding that it's most appropriate for high-end Georgian and Federal styles. "It's beautiful, it's stately."

For an award-winning Palladian-style villa in New Orleans, Tate chose Texas Lueders limestone, which has a tight grain and is a light gray/buff color, to bring out all the defining details of the residence's classical facade. He's also worked with Texas Cream, which he calls "a beautiful blonde stone that ages well."

It was his choice for the exterior of a French Country-style tinted-stucco home. "It's not as strong as Texas limestone, and when it arrived, it was chipped here and there, and the owner wanted to send it back," Tate says. "But I told him that it was perfect because we wanted it to look like an old house."

For Florida projects, Tate considers coquina stone, which, he says, "is associated with South Florida's architectural style; it gives a local flavor and ties to the local culture." He's exploring coral stone from the Dominican Republic for a Mediterranean-style stucco house he's designed for a Palm Beach client. "I'm going to go to the quarry to see it," he says. "We'll use cut stone for all the details—the columns, cornices, casements, windowsills and belt courses."

And for a house in California, he's using 3- to 4-inch-thick Santa Barbara rubble stone for the façade and is complementing it with cut-stone details. "The rubble has a rough face," he says, "which makes the house look like an older farmhouse."



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The Commons at Villanova University in Villanova, Pennsylvania, designed by Robert A.M. Stern Architects, is faced with hand-laid natural cut stone.



Photo by Robert A.M. Stern Architects

## ROBERT A.M. STERN ARCHITECTS

When schedule and budget demand it, Robert A.M. Stern Architects turns to an innovative precast-backed panel system it developed with fabricators to use in place of stone hand-laid on site.

The system, which is cost- and time-effective, “allows us to offer rich architectural detail, producing aesthetic effects that we could not otherwise afford,” says Partner Kevin M. Smith, adding that “we learned from strategies developed in the early twentieth century.”

The New York City-based firm inaugurated the system on a stone-clad science building and then the Collegiate Gothic North Campus residence halls at Marist College in Poughkeepsie, New York.

Although precast-backed brick panels are assembled by aligning bricks upside down and pouring concrete over them, Smith says with stone that method didn’t work because “there’s an artistry to laying stone. We experimented and ended up casting the panels while they were upright and then laying each stone face up so the masons could stand back and see their work.”

Quarter-inch veneer granite, attached by epoxy mortar, was used for the cladding, and exposed precast set into the same panels matches the finish and color of the Indiana limestone trim used elsewhere on the Marist campus.

By contrast, at Villanova University in Pennsylvania, six interlinked Collegiate Gothic student residential buildings—the Commons—are faced with hand-laid natural-cut stone.

“It made sense to use natural-cut granite for the Villanova residence halls because the buildings’ structure is concrete block that had to be laid by hand anyway,” Smith says, whereas at Marist the structures are steel. “In addition, we wanted the buildings at Villanova to have a relaxed feel, with less of the finished trim that traditionally would have been cut limestone.”

He notes that Villanova’s new performing arts center, clad with the new panelized system the firm worked with at Marist, is directly across the street from the Commons, and “when you look at the two projects, they look like they both were laid by masons who care about their artistry—because they were.”

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**Bybee Stone Co.**, [bybeestone.com](http://bybeestone.com), is an Indiana limestone fabricator specializing in custom fabrication for new construction and restoration projects.

**Continental Cut Stone**, [continentalcutstone.com](http://continentalcutstone.com), is a nationally recognized architectural cut stone fabrication mill and quarrier of Cream and Shell and Lueders limestone.

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All new landscape and hardscape was added, including granite signage and exedra bench.

Anice Hochlander photo



# *Beaux-Arts* REVAMP

Hartman-Cox Architects renovates one of Jules Henri de Sibour's crowning achievements for 21st-century use.

BY KILEY JACQUES



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The entrance rotunda's plaster walls were refreshed and tile floors were repaired.

OPPOSITE The team added built-in bookcases flanking the fireplace in the library.







The Beaux-Arts building located at 1789 Massachusetts Avenue in Washington, D.C., has served many tenants since it was built in 1915. Until recently, they included the National Trust Historic Preservation (NTHP), which continues its commitment to the building's care. Today, it is home to American Enterprise Institute (AEI), a conservative think tank for public policy research. According to project lead Graham Davidson of Hartman-Cox Architects, the organization had been looking for new headquarters when the NTHP decided to vacate. "AEI wanted more space but they also wanted their own identity," he notes. "It was a ready-made, distinctive building that just needed retrofitting for their use."

Designed by French-American architect Jules Henri de Sibour, the structure was originally residential in function. The McCormick Apartments housed one 11,000-square-foot units per floor, as well as servants' quarters. When the NTHP sold to AEI, it was agreed the Trust would hold a perpetual historic easement on the property, which would include not only the facade but also the primary spaces on each floor, plus the interior

corridor wall. It ensures anything done to those rooms is subject to the Trust's approval. "They wanted the fabric to remain as intact as possible," Davidson says, "so we had to not only renovate and re-core but also figure out how to make subtle interventions to make the building accommodate contemporary office use and all of their staff."

Though ideal in appearance and location, the building was not quite big enough for AEI's needs. "We were down a considerable number of square feet," Davidson explains, adding that the solution was to add a basement beneath the entirety of the building—a massive undertaking. "We had to do this with basically no movement on the façade, which is limestone and susceptible to breakage. And once you break a piece of limestone, there's no fixing it. So the control measures were extremely stringent." The work entailed underpinning all of the structural columns and exterior walls, and excavating down a level to accommodate a new commercial kitchen, some mechanical equipment, and additional office space. The portion of the floor plate given over to the servants' quarters was torn out and rebuilt to include elevators, a stair, and restrooms.

The entire exterior was restored.

Much of it was in good condition with a few notable exceptions: cracks at the window heads, chipped or spalled limestone, inappropriate patching material from previous repairs, joints in need of repointing, and a compromised entry canopy. The wood window sashes were taken offsite to be refurbished, though the glazing was left unaltered. "A lot of other owners would have wanted to seal them up and put storm windows on the outside to improve interior conditioning but AEI didn't want to do that," Davidson notes. "They wanted operable windows, although we did weatherstrip them so they wouldn't be so leaky." Metal fabricators restored the wrought-iron canopy over the main entry, shoring up the structure and replacing broken glass; after its installation, new lighting was added above for nighttime appeal.

Though the building had been repurposed for office use in the late 1930s, the original interior walls were still standing. To keep the rooms looking as much like the originals, existing partitions were left in place. Davidson notes that the conventional office has either an open floor plan or one that is broken into many offices and cubicles. This was neither. Instead, there are several fairly large rooms designed to hold seven to

ten people at a time. "No one would be getting a private office," he says, "but the interns wouldn't need to sit shoulder to shoulder." New partitions were custom designed to be less than two-thirds of the ceiling height, so the eye travels above them to grant views of the entire volume. They were also designed with the staff in mind. "The design of the workspaces was a juggling of many different factors," Davidson notes. "We wanted to serve the employees with private work stations, while maintaining the look of the original rooms."

The original building included a central stair wrapped around a cage elevator with windows opening to a light well. During the mid 20th century, the elevator shaft had been enclosed and the windows removed. Because AEI needed more than one elevator, and they wanted to encourage people to use the stairs, that elevator was removed to open the stair visually and to extend it up to the penthouse and down to the basement. Now the stair reaches all levels and is more open and bright. Fortunately, the marble used for the treads and risers is fairly common and still available today, which aided in their restoration. According to Davidson, the metal railing is not a replica from that era but it has the right character.



The first floor had already been modified in the past; this project included removing a few columns to make way for an auditorium as well as a dining room. That floor also includes a library, several meeting rooms, and a second kitchen—food service was a high priority. All of the herringbone-patterned white oak floors and moldings were restored, though the latter had to be replaced because the brown coat in the plaster contained asbestos. During asbestos removal, the area needed to be cordoned off and have special conditioning, which slowed down the work considerably. Then, all of it needed to be repaired by experts. “We ended up having three or four different plaster workers onsite because there was so much work to do that one company couldn’t keep up with it,” Davidson explains.

The scope of the work also included

expanding the penthouse level to make room for the bulk of the mechanical equipment, as well as a function hall and a roof terrace. The new penthouse dormers are intentionally spartan. And by sloping the walls, the visual impact of the penthouse is minimized. The enclosure now includes passenger and service elevators, cooling towers, an air handling, boilers, and exhaust fans. Of note is the way in which the perimeter walls were sited to align with the structural columns below. Doing so pushed the penthouse back about 20 feet from the roof edge—again to minimize its visual impact.

Of course, much of what the public sees of the building is from the street level, which means the plaster ceilings, with their decorative details and central lighting fixtures, were a special consideration. To maintain those features, fire

suppression lines were routed through interior partitions and sprinkler heads were mounted on side walls. The ceilings were repaired, patched, and painted, and molds were made from existing profiles to cast missing elements. Additionally, new wall sconces were added for uplighting.

AEI also needed an accessible entrance. “Our preference is to have everyone come to the front door but there are a number of steps there, and we couldn’t figure out how to make it accessible without ruining the look of the building,” Davidson explains. The solution was to add a new entrance on P Street. It opens into a gallery that leads to the auditorium, a main public space. The entrance was created by turning an existing window into a door by lowering the sill to floor level and installing a lift that moves users from the sidewalk

level to the first floor. The landing is supported independent of the building for easy modification or removal in the future. “It was huge challenge to provide accessibility in a credible way,” Davidson recalls. “Previously the only way was through the service alley, which is not acceptable.”

After one-and-a-half years of design work, and roughly two-and-a-half years of construction, Jules Henri de Sibour’s Beaux-Arts masterpiece is ready to serve its occupants for another century, while pleasing the eye of all passersby. “It was an honor to work on a building of such stature,” Davidson concludes. “It was interesting to take a 100-year-old building and not only restore it but also retrofit it for very contemporary uses. It wasn’t just a simple rehab. It’s not an usual thing for us to do but it was much more complex.”



**FAR LEFT** A wall separating two rooms in the dining room was removed to open up the space.

**ABOVE** The roof terrace and penthouse are new. The penthouse conceals all mechanical equipment. A glass railing was added to the terrace to make the space feel more open. The space is today used for events.

**LEFT** Exterior lighting was incorporated to highlight the building's distinct architecture.

PROJECT: Riley Mansion

ARCHITECT: Slocum Hall Design Group



The mansion's prominent portico was added as part of the Rileys' 1896 renovation. Its Neoclassical Revival façade includes decorative balusters, exaggerated dentil moldings, and Corinthian columns.



# Luxe Legacy

Historic opulence and modern comforts coalesce in the c. 1870s Riley Mansion.

BY JENNIFER SPERRY | PHOTOGRAPHY BY SHELLY HARRISON



Historic details in the formal front entry were all preserved, including the African mahogany millwork, decorative frieze, and grand fireplace with mirrored surround.

OPPOSITE Neoclassical flourishes continue in the drawing room, which can be closed off from the entry hall via gorgeous mahogany pocket doors with etched glass.



Architecture wise, the Riley Mansion in Newton, Massachusetts, just outside Boston proper, has a storied past. Perched on Mount Ida, the town's highest point, it was built in 1876 as a one-and-a-half-story Queen Anne. When Boston textile titan Charles Riley purchased the estate at the tail end of the 19th century, he decided to turn it into a stately Gilded Age "summer cottage" like those dotting the coast of Newport, Rhode Island, where his wife grew up.

Transforming the Queen Anne into a Newport grand dame required a transition from Victorian to Neoclassical Revival in presentation, including removal of two spires. The Rileys added on another story and a half, attached a wing on either side, and also pushed out the back, doubling the original footprint of 5,000 square feet. This two-year metamorphosis finished in 1898. Mabel Louise, the couple's only daughter, lived in the family home her entire life. It was then purchased at auction and avidly preserved by a second family for another two decades.

In 2013, the Riley Mansion was transferred into the care of its third and current owners, a family of six who had outgrown their 1918 Tudor Revival home less than a mile away. David Boronkay, principal at Slocum Hall Design Group, an architecture and interior design firm based in Watertown, Massachusetts, had masterminded the Tudor's restoration and expansion. He sent his clients the real estate listing for the Newton gem, knowing its rich character would resonate.

"We've always loved older homes," explains the wife. "David joined us for

the initial showing and, as we toured, we discussed how the house could be updated while maintaining its history. We fell in love with the original details immediately." Boronkay adds of the initial impression: "It was like a time capsule: the previous owners were meticulous in its maintenance. Our goal was to keep the formal spaces feeling very accurate to 1896 but to make the house function well for a modern family."


"Of primary importance was preserving the formal first-floor spaces: the foyer, drawing room, parlor, dining room, and library," continues Boronkay. Since the Neoclassical moldings and flourishes were in good shape, the contractor, The Remodeling Company, made repairs as needed while updating the wiring and surgically installing a new HVAC system. The husband-and-wife team of Elaine Grant and Matthew Larkin, principals of Grant Larkin, worked with the owners to choose historically appropriate furnishings and paint colors throughout.

TLC measures included screen sanding and staining the original oak floors and under-mounting radiant heat from the basement, which was mostly dirt at

the project's start. Intricate dual-fuel light fixtures, including the parlor's twin crystal chandeliers, were removed, rewired, UL listed, and reinstalled. In the entry hall, the African mahogany millwork was refinished; the Venetian plaster walls painted a creamy white with honey gloss; and the frieze, previously green and gold, shifted to the same cream tone and a more muted platinum gold leaf.

Decorative glass—evocative of Aestheticism—is a fixture throughout the formal interiors. Tiffany-style stained glass acts as high-art transoms and inset panels of etched glass grace pocket doors prefacing the parlor and drawing room. "These doors were worked on significantly," says Boronkay. "We had to install steel beams in the floor above to correct sag and keep them functional." A distinctly Craftsman nod, Grueby Faience fireplace tiles in the parlor were shifted to the oak-lined library. A surround of more formal onyx replaced them.

In the back of the house, formality makes way for modernity, but Boronkay continued his period-appropriate approach. He borrowed space from a walk-in pantry to create a spacious new



An arch over the sink replicates the shape of the arch of the windows.

“An arch in the cabinetry references the arched window beyond, capturing instead of blocking the garden views.”

– DAVID BORONKAY



With black-painted woodwork and tiled floors, the new basement-level family room is the perfect informal hangout spot. Its adjoining kitchen doubles as a convenient catering hub for large gatherings.



family-friendly kitchen. The owners wanted it light and bright, opting for Shaker-style cabinets in white lacquer and Italian marble (“It’s like a reverse Carrara, grey with white veining,” he notes) for the island top and backsplash. A new copper hip-roof skylight lets in additional daylight.

“While out to dinner in New York City, the owners sent me a picture of ceiling tiles,” recalls Boronkay. “I said they’re Victorian in feel and something we could absolutely do. The restaurant version was a dull copper, but we chose polished zinc to help reflect light.” An arch in the cabinetry references the arched window beyond, capturing instead of blocking the garden views.

Continuing the owners’ desire for light-filled informality in the back of the house, Boronkay transformed a previously enclosed porch into a window-lined breakfast room. To connect it with the kitchen, the builder forged an opening by cutting through a foot of solid granite. Nestled into the porch’s rounded end, a custom dining table with integrated lazy Susan seats up to 14.

The owners gained additional square footage via the finished basement, where

a laundry room, theater, gym, hair salon, and steam room are all new amenities. “We enclosed an outdoor stairwell off the kitchen—the original access to the stable from the servants’ quarters—and turned the space below into a family room for the kids and a secondary caterer’s kitchen for entertaining” says Boronkay.

Adding on a three-bay carriage house (the original was sold in a previous subdivision) left Boronkay with the problem of sourcing granite, specifically Milford pink granite. “I luckily found a source at ABX, Boston’s architectural expo; we bought everything he had,” he recalls. The exterior was matched using heavily rusticated cuts of stone for the veneer and castings of the main home’s balusters. Cabinets preserved from the butler’s pantry lend period detail in the guest quarters above the garage.

On the second and third floors, Boronkay reutilized existing spaces to achieve more contemporary layouts. The home’s original master suite at the front of the house consisted of his-and-her bedrooms connected by a set of double doors. He recaptured this space for two en suite children’s bedrooms, and also grouped smaller rooms on the third floor

to create two additional children’s bedroom suites and a joint hangout space.

One of the owners’ favorite spots is their own master suite oasis. “It was originally several rooms,” explains the wife. “When we first toured the house with David, he saw the opportunity to convert the former sleeping porch into a stunning master bath, which provides views of downtown Boston with two exposures. The adjoining dressing room was created from two adjacent rooms and has a sitting area and wet bar.”

Even with all its grandeur, the mansion is still a place where the family feels at home. “We feel like we’ve made it a place where our kids can lounge on the furniture and host friends. There are plenty of cozy spots to curl up and read, yet sufficient space to entertain on a grand scale,” describes the wife.

The original Queen Anne blueprints hang on the mansion’s walls, and the Riley renovation’s plans grace Boronkay’s office. The parties’ mutual respect for the past is palpable. “We are only the third owners in 125 years,” points out the wife. “We feel a tremendous sense of responsibility to respect our home’s history and carry on its legacy.”

## KEY SUPPLIERS

**ARCHITECTURE + INTERIOR DESIGN**  
Stocum Hall Design Group,  
Watertown, MA

**INTERIOR DESIGN, FURNISHINGS + COLOR PALETTE**  
Grant Larkin, Richmond, MA

**CONSTRUCTION**  
The Remodeling Company,  
Beverly, MA

**CUSTOM CABINETS & ARCHITECTURAL MILLWORK**  
Kenyon Woodworking,  
Jamaica Plain, MA

**LANDSCAPE ARCHITECT**  
Past Designs, Kennebunk, ME

**LANDSCAPE & STONE CONTRACTOR**  
Leone Company, Newton, MA

**MASONRY**  
Murray Masonry & More Corp.,  
Peabody, MA

**DECORATIVE PAINTING**  
Christopher Audley –  
Painting By Design, Concord, MA

PROJECT Ponce City Market  
MANAGEMENT COMPANY Jamestown Properties  
DESIGN ARCHITECT S9Architecture

**Ponce City Market is a historic mixed-use community hub. The building is a historic landmark, originally constructed by Sears Roebuck & Co. in 1926.**



# ADAPTATION IN ATLANTA

**A Sears, Roebuck & Company distribution center  
is transformed into a sustainable city market.**

BY JEFF HARDER | ALL ART COURTESY OF JAMESTOWN





**ABOVE** There are several indoor and outdoor gathering spots at the market place.

**OPPOSITE** The team left the 20-foot long concrete columns and oak flooring in tact.

Just east of Atlanta's central business district, bright lights and 18-foot-tall letters adorn the biggest brick building in the southeast. Ponce City Market comprises some 2.1 million square feet in total, and its exterior composed of beefy masonry, steel-frame windows, and a water tower with 46,000-gallon tank, has been a fixture of Ponce de Leon Avenue since the 1920s. A former warehouse and shipping facility

for a giant of mail-order, the property declined over decades, becoming all but forgotten by 2010.

Today, however, Ponce City Market is thriving, located in the city's Old Fourth Ward at the nexus of four neighborhoods. Nine floors house headquarters for digital enterprises like HowStuffWorks and Mailchimp, several hundred on-property residential units, and a litany of high-end restaurants and retailers. The building has been described as the largest adaptive reuse project Atlanta

has ever seen. It's also a glowing example of how a rehabilitated building can make space for the future while preserving its history—a history that began between world wars.

In 1926, after earning local renown as the home of the Ponce City Amusement Park, Sears, Roebuck & Company transformed the site on Ponce de Leon Avenue into a regional distribution center during the heyday of catalog retail, warehousing and dispatching merchandise via Atlanta's adjacent rail



line. Initially designed by Nimmons, Carr and Wright Architects, the building possesses an interior grid of 20-foot concrete columns, oak floors, a thick brick shell, and a neoclassical central tower rising 227 feet high. By 1966, after two expansions beefed up the complex to superblock size, the Sears headquarters employed as many as 1,000 people. But changing economics saw Sears shut down its operations on Ponce de Leon Avenue by 1989 and, soon after, sell the property to the City of Atlanta. The city used the building as an annex dubbed City Hall East and used it as a main staging area for the 1996 Olympic Games, but by the time the city put the property on the market in the mid-2000s, the old Sears building was virtually vacant.

In 2011, Atlanta-based company Jamestown Properties—which already had a track record of reviving other historic sites like Ghirardelli Square in San Francisco and Chelsea Market in Manhattan—purchased the site. In reimagining the property, the firm’s goals involved bringing sustainability to the forefront, recasting the site as common ground for its neighborhoods rather than

an obstacle to their travels, and bringing high-end restaurants, retail, and housing to a neighborhood in the midst of a population surge. Coming up with a master plan required particularly nimble thinking: substantial parts of the building had fallen into disrepair, and peeling back the building layer by layer produced a lengthening list of architectural obstacles, including an early 1900s sewage system. But a project team headed by Jamestown and design firm S9Architecture pressed forward, tweaking plans in the face of new challenges, changing the scale of the building, and employing sustainable practices.

What emerged in fall 2015, after a \$300 million overhaul (and after welcoming a trickle of tenants in the preceding three years), was an industrial-modern monument to adaptation. Ponce City Market includes half a million square feet of office space, hundreds of residential units, and 300,000 square feet of retail, entertainment, and dining facilities, oriented around a central food hall that evokes Chelsea Market. The apartments evoke the building’s past with original brick walls, high ceilings,

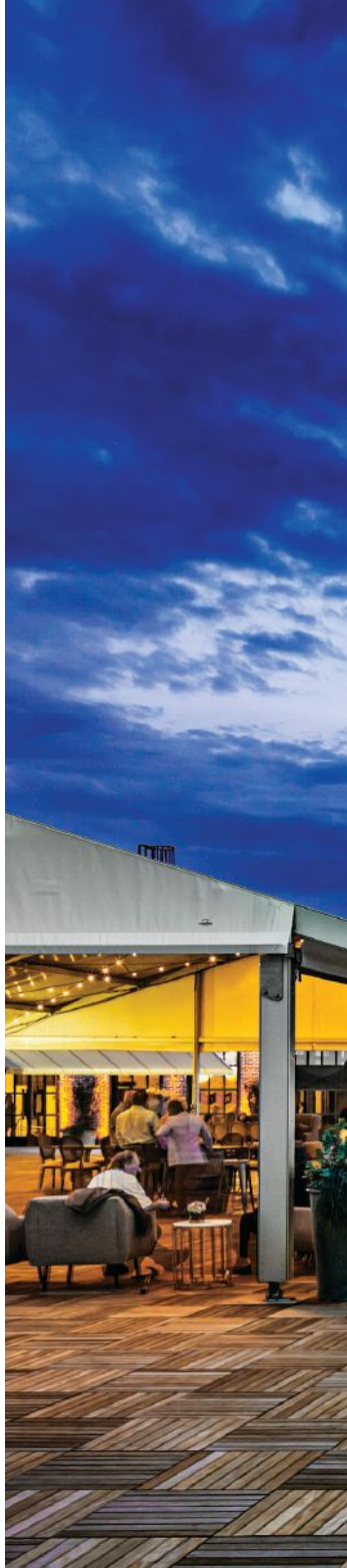
and stained floors. The six-acre rooftop includes, among other things, a beer garden and a carnival-style amusement park that recalls the site’s prehistory.

Throughout the complex, features from the past incarnation of Ponce City Market make frequent appearances. Some 370 original support columns lattice the interior, while original freight elevators, some 400,000 square feet of the building’s original hardwood floors, and thousands of panes of exterior windows were restored. A rail-line trestle, bridge, and passageway help connect the property with the Atlanta BeltLine—accessible on the east side of Ponce City Market—as well as the surrounding neighborhoods, and a plaza on North Avenue adds a dose of green space near the main entrance.

Along the way, Ponce City Market prioritized sustainability and green building practices. During construction, project teams recycled 98 percent of construction waste totaling more than 50,000 tons. Key sustainability features include a green roof, elevators equipped with regenerative drive systems that harness 200 kilowatt hours of energy

each day, an oil reclamation system that captures restaurants’ waste cooking oil to repurpose in biofuel, a solar array above a Montessori school capable of powering the equivalent of eight classrooms, and approximately 500 bicycle parking spaces to accommodate the BeltLine’s foot and pedal traffic. Along with efficient plumbing fixtures, Ponce City Market taps water from a spring beneath the building to supply make-up water for the complex’s air conditioning systems.

In 2016, Ponce City Market received LEED Gold certification under three different U.S. Green Building Council rating systems, as well as a slate of awards including the Urban Land Institute’s Global Award for Excellence. As it happens, the campus was added to the National Register of Historic Places that same year. The synchronous timing reinforces a principle that’s guided Ponce City Market throughout: revitalizing a decades-old urban institution for maximum building performance and 21st-century needs means leaning into the things that make it great, not letting them go.



The mixed-use building offers office space, restaurants, shops and apartments.





The team focused on preserving the original facade while focusing on environmental sustainability and connection to the surrounding community.

Mills + Schnoering Architects was commissioned to clean and restore the façade of the historic Milwaukee Federal Building and U.S. Courthouse. The restored tower (left) is the most recognizable feature of the building, which was completed in 1899.





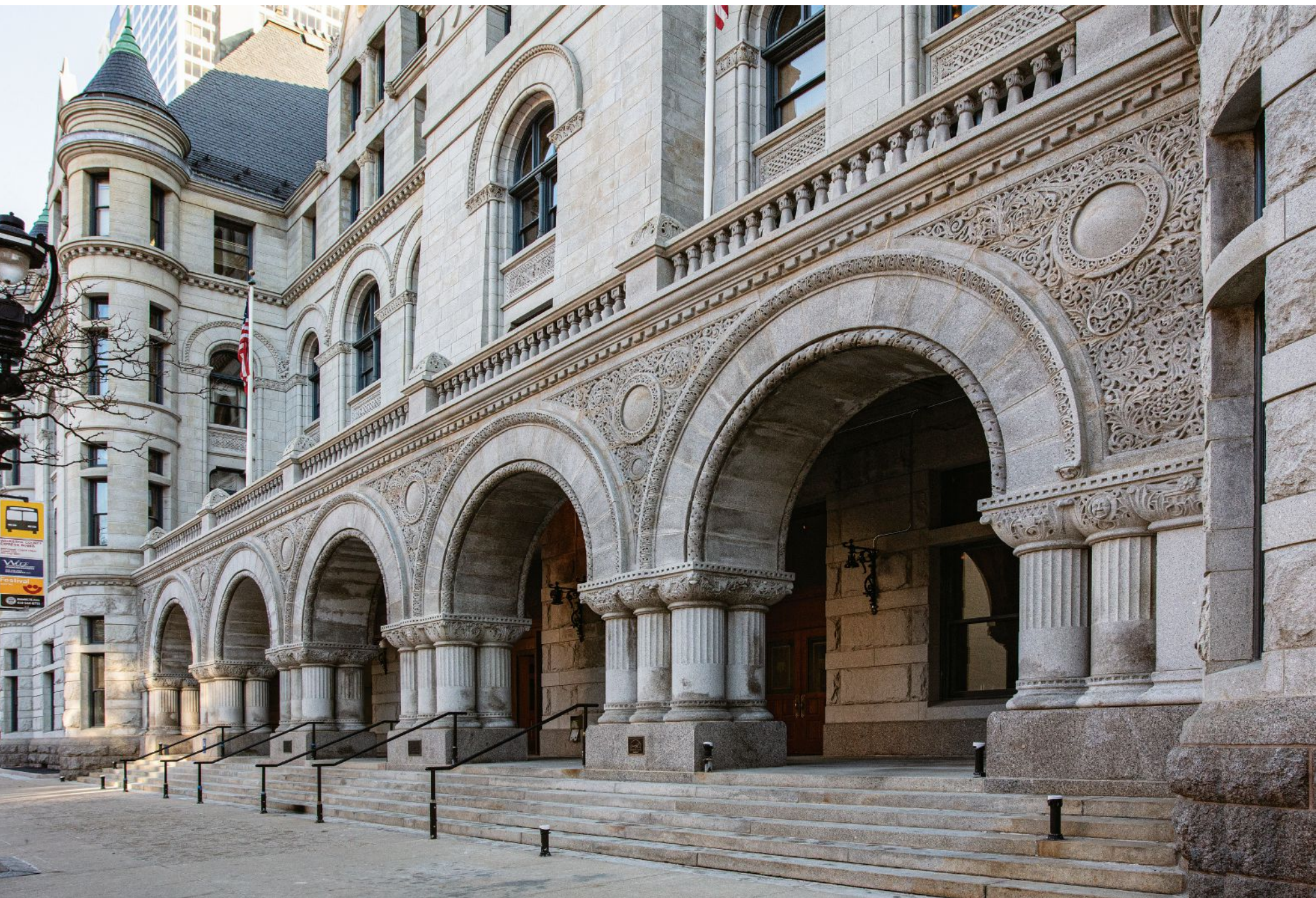
PROJECT  
Federal Building &  
U.S. Courthouse in Milwaukee  
ARCHITECT  
Mills + Schnoering Architects



# FACE LIFT

**A team of architects and artisans bring the façade of the Federal Building and U.S. Courthouse in Milwaukee back to its original splendor.**

BY NANCY A. RUHLING | PHOTOGRAPHY BY LESLIE SCHWARTZ PHOTOGRAPHY



**I**N Milwaukee, the Federal Building and U.S. Courthouse is a defining feature of the Wisconsin city's downtown skyline.

Since 1899, when it was completed, the grand granite Romanesque Revival edifice with the monumental tower on the north end has formed a perfect complement to the iconic Pfister Hotel, which dates to 1893, and the Wisconsin City Club, which is housed in an 1895 mansion, and a counterpoint to the more modern monoliths that surround and sometimes soar far beyond its slate roof.

More than a century of time (and the Brew City's brutal winters) took their toll on the building as did a 1964 cleaning effort using hydrofluoric acid that changed the chemical composition of the granite's surface, creating a crust that

gave the façade a blotchy appearance and accelerated exfoliation of the stone.

The General Services Administration, through its national Design Excellence Program competition, commissioned Mills + Schnoering Architects, which is based in Princeton, New Jersey, to clean and repair the facade and its carved ornamentation, which features allegorical figures, stylized flora, strapwork and heraldic details.

The mission of the team—Michael J. Mills, FAIA, lead designer and partner in charge; Anne E. Weber, FAIA, FAPT, project manager; and Christa J. Gaffigan, AIA, LEED AP, BD+C, project architect—was to carefully bring the façade back to its original splendor, using, Mills says, “the gentlest, most effective methods of preservation and restoration technology possible” to secure the courthouse for at least a half century.

Mills + Schnoering Architects' partners in this effort were Deborah Slaton, Ken Itle and Mike Ford of Wiss Janney Elstner Associates.

The courthouse building, which covers a city block and nearly 55,000 square feet, includes a seven-story U-shaped addition made of Rockville Beige granite. The addition was completed in phases—in 1929-1932 and 1940—and forms an interior courtyard on the south end of the structure.

The main building, designed by architect Willoughby J. Edbrooke, features a one-story arched entrance loggia; symmetrical, gabled-roof center bays on the east and west elevations and a half dozen cylindrical towers on the corners that are topped by conical roofs.

Originally a U.S. post office, court and custom house, the building is made of smooth-dressed Mt. Waldo granite

from Maine and has a rusticated base of Athelstane-Amberg granite.

The Mills + Schnoering team, which used a pair of articulated boom lifts and a rappelling crew to survey the massive structure, identified a number of distress conditions, including deterioration of the stone cornices at the corner turrets; vertical cracking in the 1940 addition; water penetration in the roof of the loggia; and widespread exfoliation of granite in the original building. Crews used a sounding hammer to find underlying, concealed issues in the granite.

“The building was in such bad shape that for several years the turrets had been covered in stainless steel net screening to prevent pieces of damaged stone from falling to the ground below and injuring people or property,” Mills says, adding that his team also disassembled, redesigned and reinstalled



new gutters to halt water infiltration in the turrets. “It was very visible from the street—it looked like they were wearing Band-Aids.”

After evaluating several methods and running tests on on-site mockups, Mills and his team decided to clean the building with sponge jets, which involves spraying surfaces with a micro-abrasive medium embedded in the sponge.

The treatment, which Mills calls “effective and gentle,” not only removed dirt and loose exfoliated stone, but it also evened out the façade’s appearance.

“It’s eco-friendly,” he says. “The product can be recycled and reused.”

The previous cleaning, he notes, was so drastic that “newspapers at the time remarked on the acid’s strong smell and the fact that car finishes near the site were ruined; apparently, even the hosiery of passing women was damaged by the acid’s airborne mist.”

The project presented a number of significant challenges, including the unanticipated discovery and removal of hazardous materials in the basement.

Because the courthouse is on the National Register of Historic Places, the GSA had to consult with and coordinate the work with the Advisory Council on Historic Preservation, the State Historic Preservation Office and the Secretary of the Interior’s Standards of Historic Preservation.

The courthouse, which is on one of the city’s busiest streets, remained open

during the two-year project, so the team had to work around its schedule, which meant seven-day weeks and night shifts.

“The sponge-jet cleaning, for instance, is jet-engine loud, so it had to be done overnight,” says Mills, who adds that the city’s short construction season made timing all the more complicated and the deadline all the more urgent.

Because space around the building was limited and congested, the crews set up a temporary material staging area a block from the site. To repair the south corners of the building, which required a lot of reconstruction, workers used swing stages for access and turned the roof into a stone yard.

The historic skylights were protected by air pillows that were craned over the building and positioned in place, and the slate roof, copper gutters and wood windows, all of which had recently been repaired or restored, also were covered to protect them during the masonry work.

Mills says that the new façade makes a dramatic difference. “When we were halfway done, we were able to remove the scaffolding on one side,” he says. “I stood across the street, and it was exciting to see what it was before next to what it is now.”

Mills, who is from Ohio, says he was thrilled to be chosen to do such a prestigious project in a Midwestern state. “What I regret the most is that the job is over,” he says.

**FAR LEFT** The one-story arched front loggia features carvings of allegorical figures, heraldic details, strapwork and stylized flora that were cleaned and, in some cases, re-carved.

**ABOVE** Universal Manufacturing supplied the scaffold. A sponge-jet cleaning process was used on the facade of the building.

**BELOW** The team found several areas where the stone has deteriorated.



## KEY SUPPLIERS

### ARCHITECT

Mills + Schnoering Architects

### STRUCTURAL ENGINEER AND MATERIALS CONSERVATOR

Wiss, Janney, Elstner Associates

### GENERAL SERVICES

#### ADMINISTRATION TEAM

Carly Thompson, Regina Nally, Chris Braun

### GENERAL CONTRACTOR

The Tradesmen Group

### BUILDING/SCAFFOLD

#### STRUCTURAL ENGINEER

#### AND SURVEYOR

GZA Engineers

### ELECTRICAL AND LIGHTING

#### SUBCONTRACTOR

Walkowiak Electric

### ASBESTOS AND

#### LEAD ABATEMENT

Robinson Brothers Environmental

### STONE SUPPLIERS

Coldspring Granite and Granites of America

### STONE FABRICATOR

Metro Stone

### BRICK MANUFACTURER

Belden Brick

### BRICK SUPPLIER

County Materials Corp.

### ROOFING MANUFACTURER

Kemper System

### SCAFFOLD SUPPLIER

Universal Manufacturing Corp.

### COST ESTIMATOR

Becker & Frondorf

### LIGHTING DESIGN

Emilio Bras Museum Services

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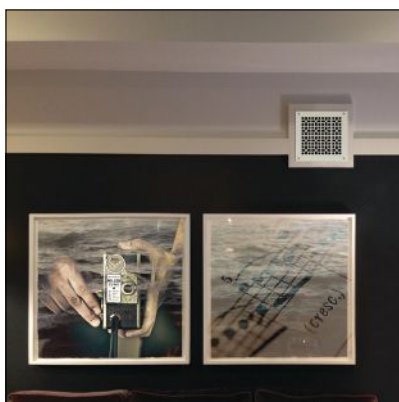
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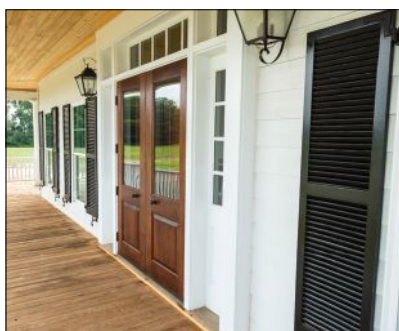
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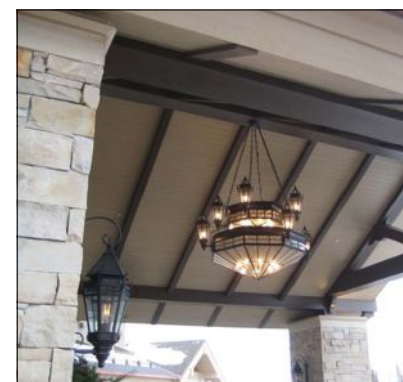
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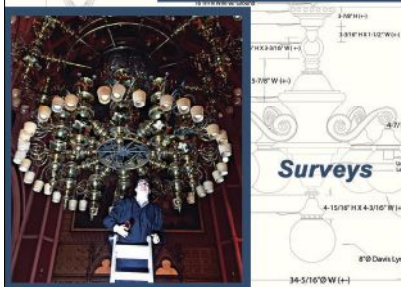
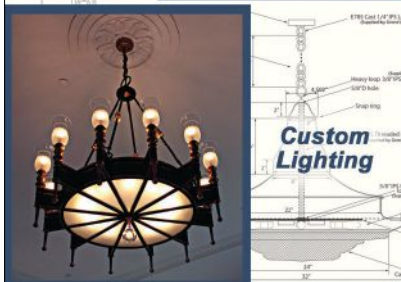


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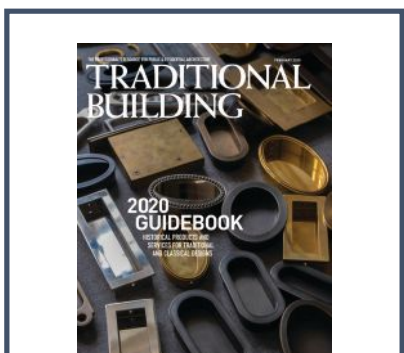
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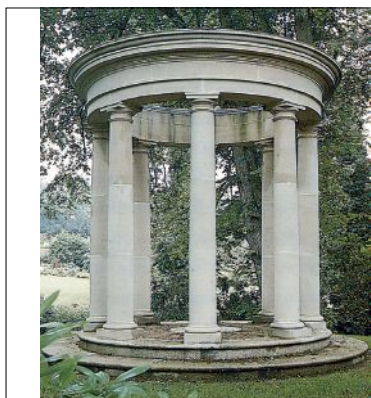
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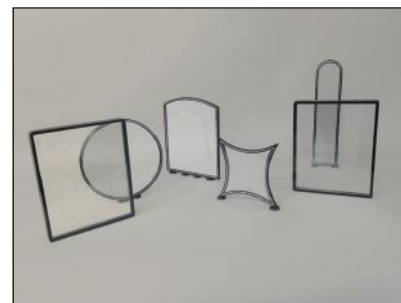
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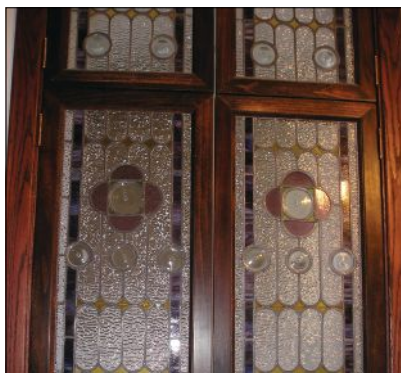
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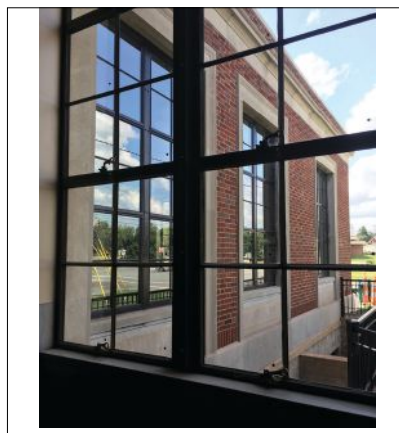
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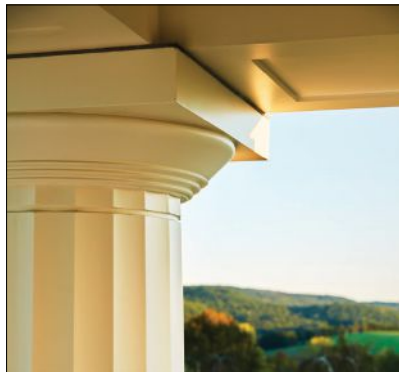
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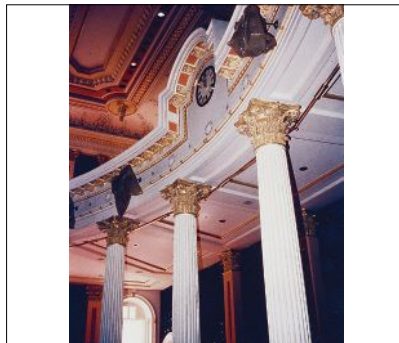
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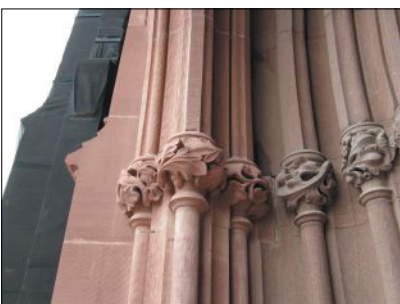
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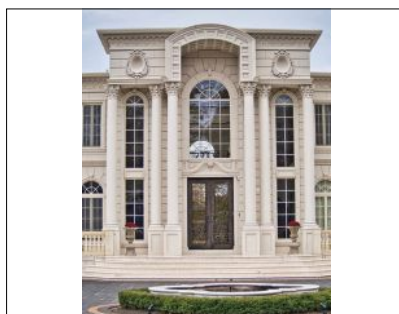
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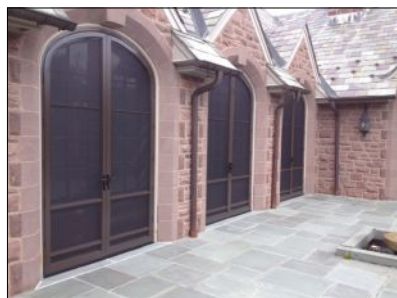
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Manufacturer of interior/exterior aluminum custom "invisible" storm windows® for historic, residential and commercial buildings: custom colors, shapes & screens; special glazing for energy savings, UV protection & sound reduction.

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330-723-2551; Fax: 330-722-4389  
[www.archangleohio.com](http://www.archangleohio.com)  
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**ARCHITECTURAL COMPONENTS, INC.**  
413-367-9441; Fax: 413-367-9461  
[www.architecturalcomponentsinc.com](http://www.architecturalcomponentsinc.com)  
Montague, MA 01351

Manufacturer of reproduction & custom wood windows & doors: true-divided lites with insulated glass; wood-framed storm sash & screens; renovation & restoration projects & new construction; paneled walls & storefronts; catalog \$5.

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**ARCHITECTURAL RESOURCE CENTER**  
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[www.brasswindowhardware.com](http://www.brasswindowhardware.com)  
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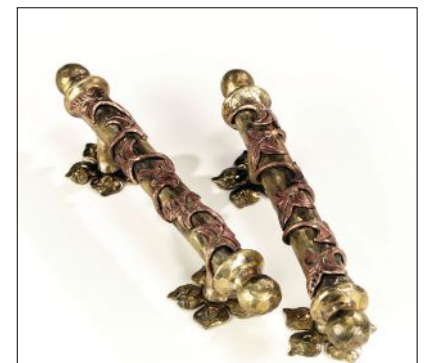
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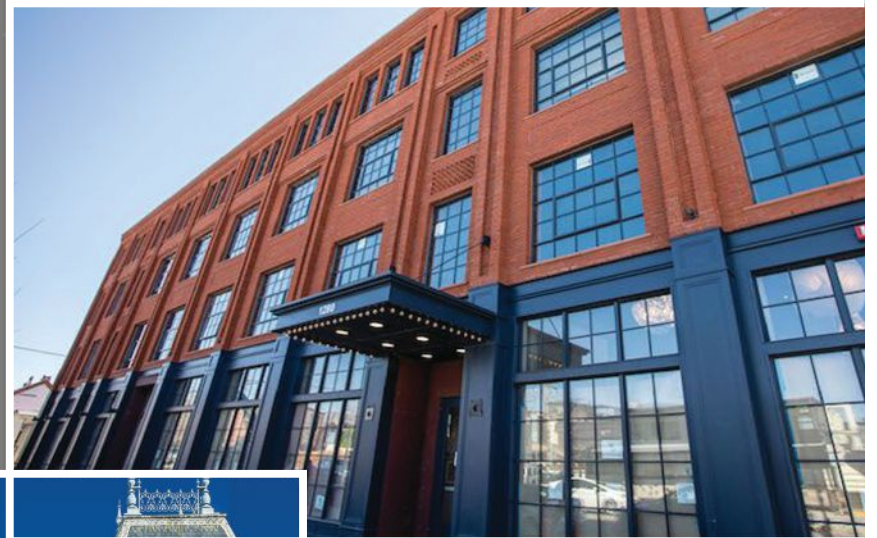


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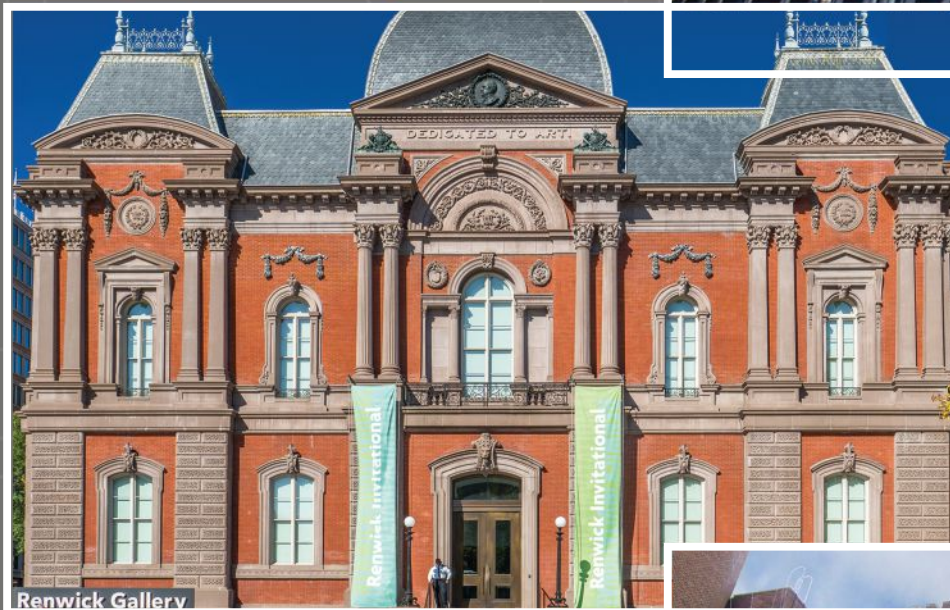
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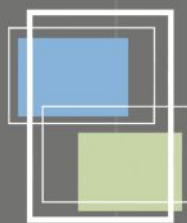


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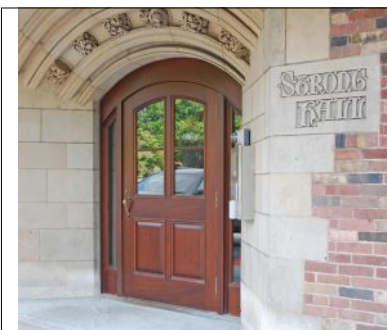
800-299-4229; Fax: 214-748-7701

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**HEARTWOOD FINE WINDOWS & DOORS**

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[www.heartwoodwindowsanddoors.com](http://www.heartwoodwindowsanddoors.com)

Rochester, NY 14606

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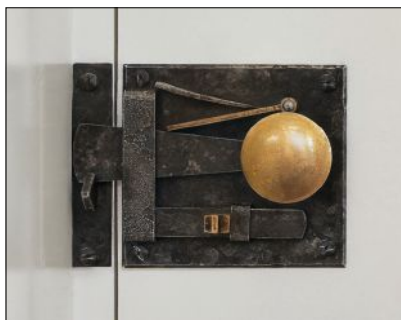
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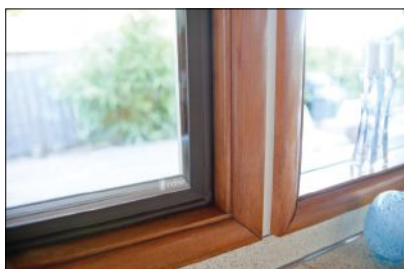
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[www.houseofantiquehardware.com](http://www.houseofantiquehardware.com)

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Manufacturer & supplier of vintage reproduction door, window, shutter, cabinet & furniture hardware & accessories: Federal, Victorian, Colonial Revival, Craftsman & Deco styles; lighting fixtures, push-button switches & plates; bathroom accessories; registers & grilles.

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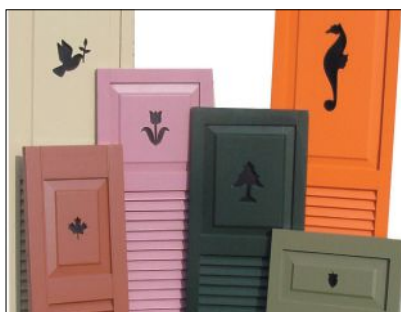
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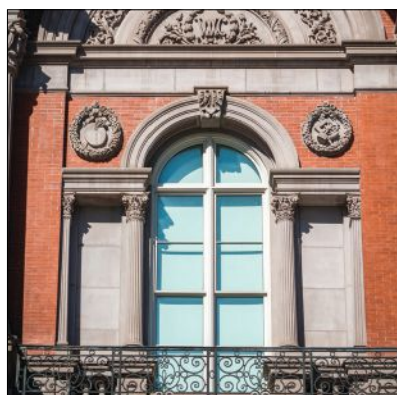
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Sauk Rapids, MN 56379

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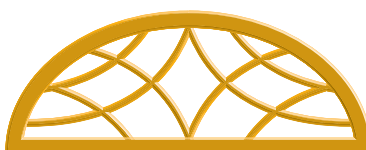
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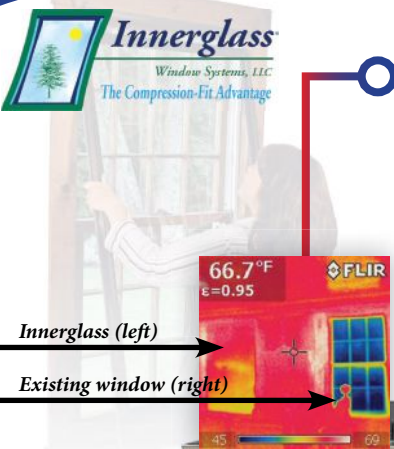
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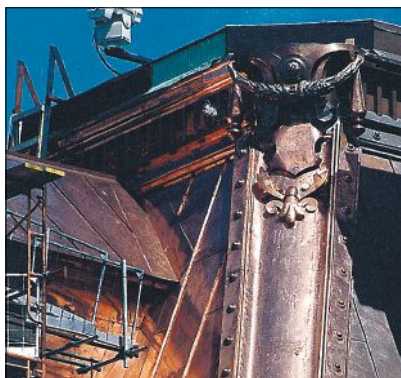


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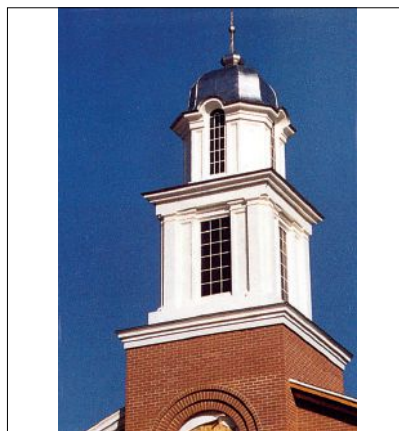


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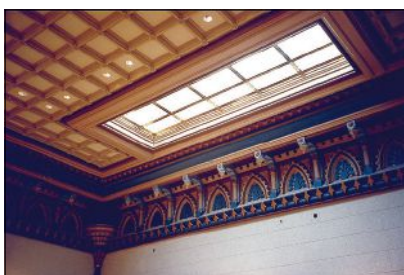
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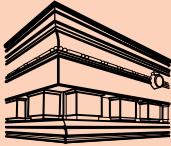
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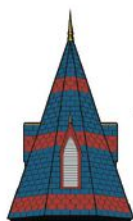
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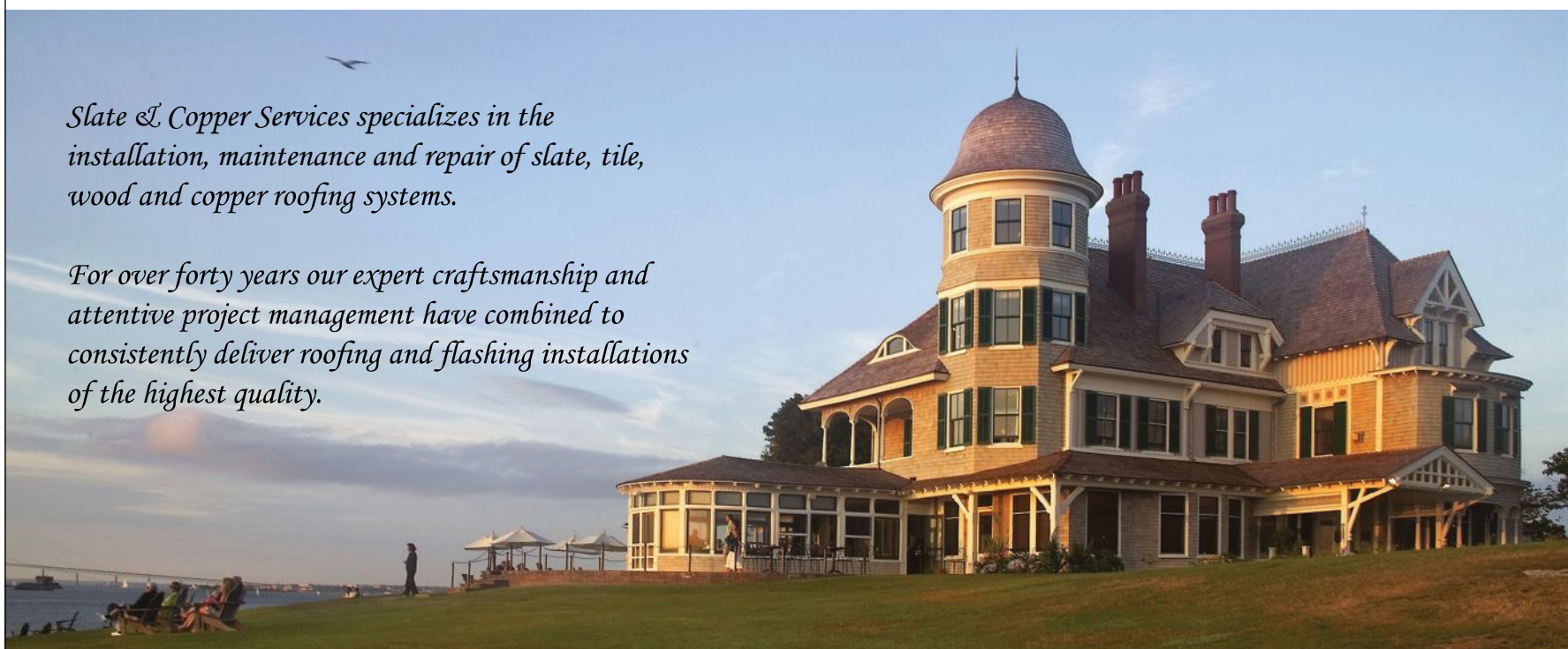


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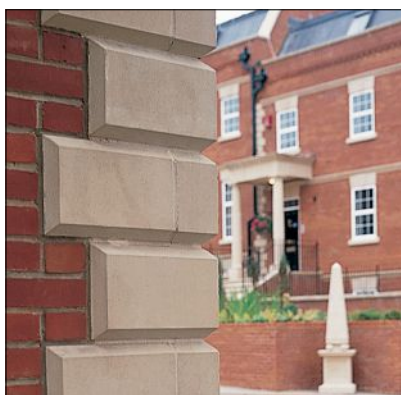
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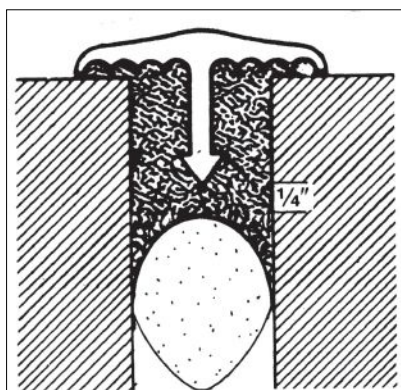
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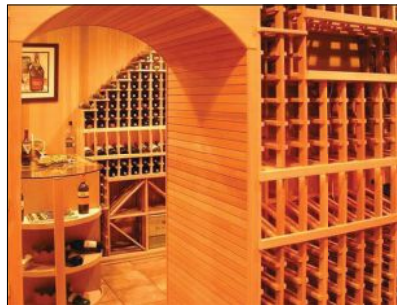
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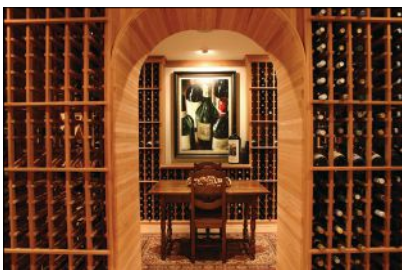
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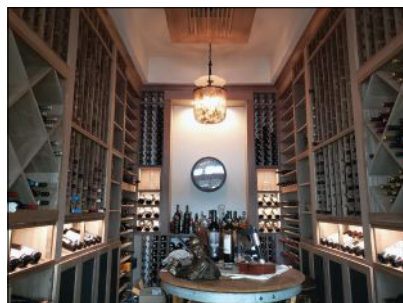
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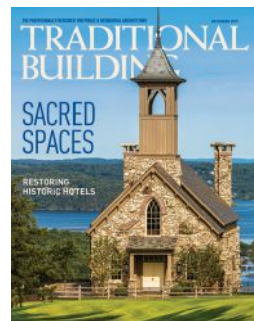
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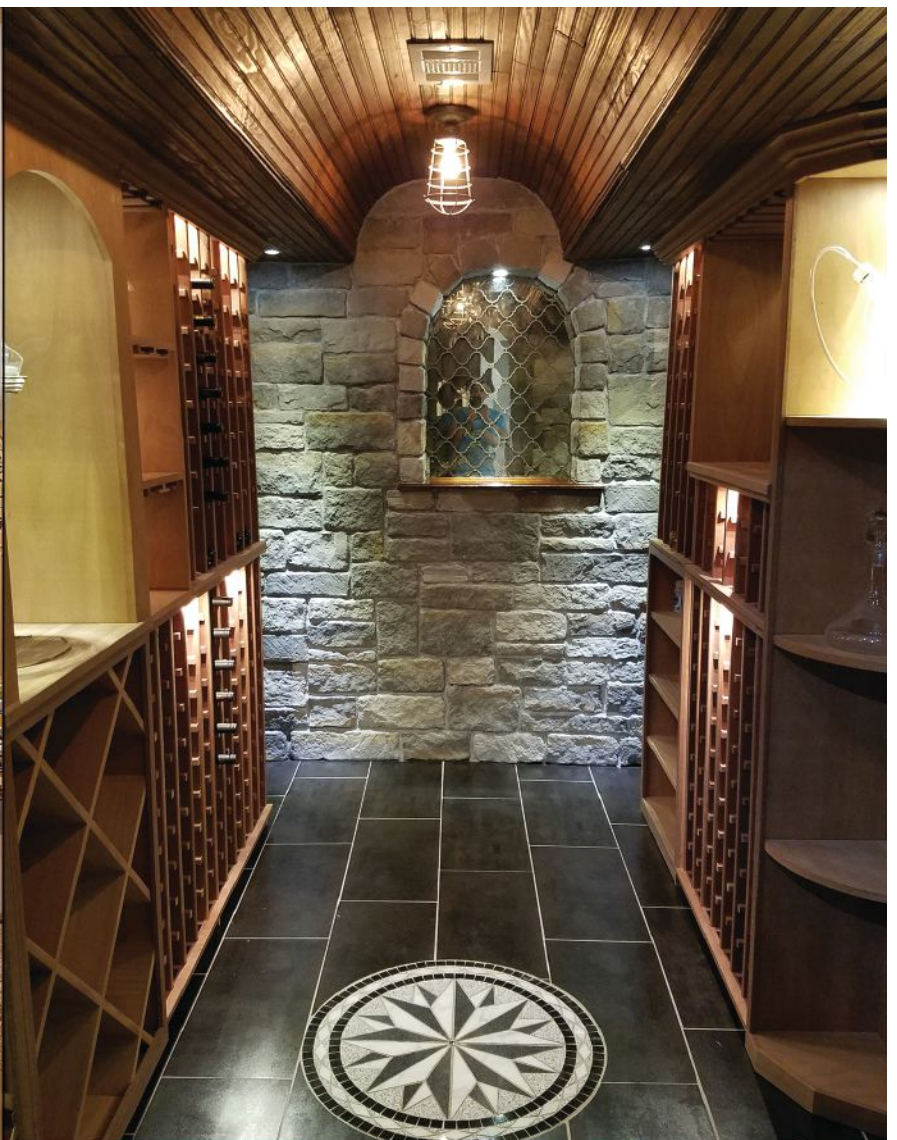
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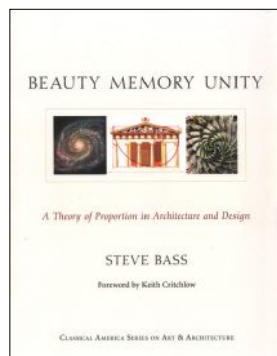


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# Beauty, Memory, Unity



## Beauty Memory Unity

BY STEVE BASS

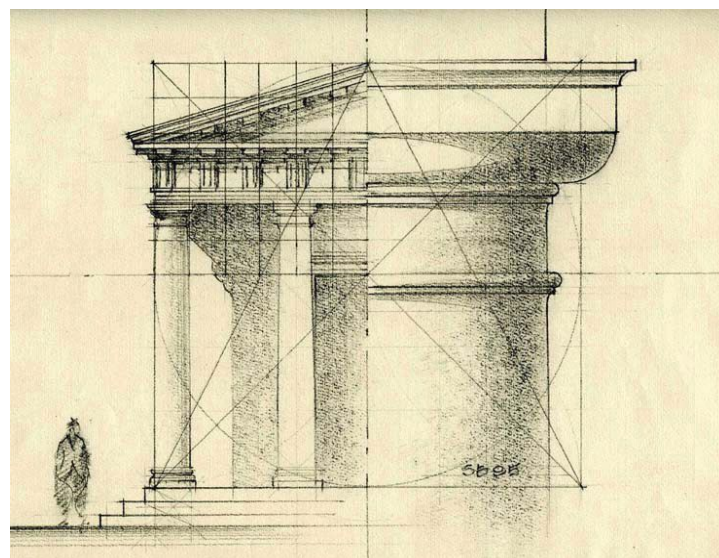
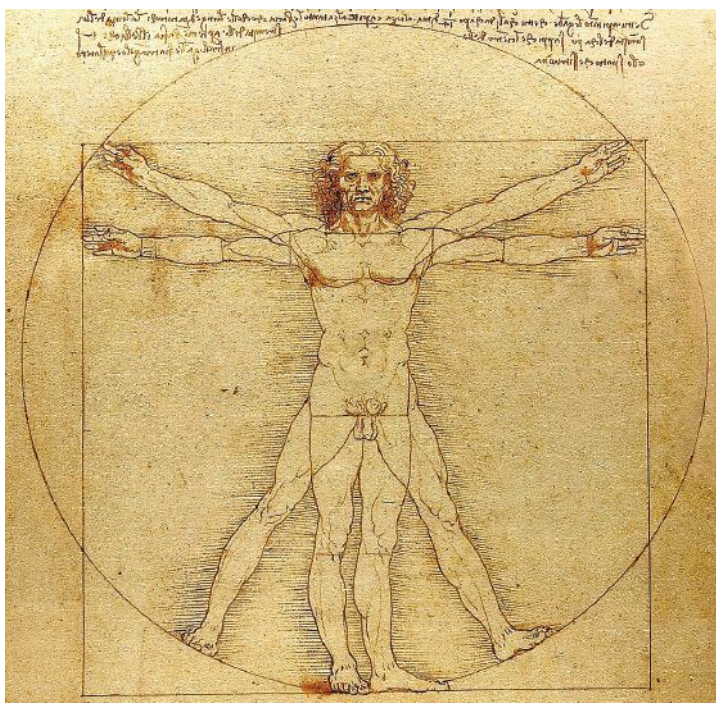
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Steve Bass looks at the symbolic interpretation of numbers, most notably geometry and harmony.

**IN BEAUTY MEMORY UNITY**, architect, author, and sacred geometer Steve Bass invites us to accompany him upon a symbolic quest in search of beauty, an elevation of individual consciousness, a return to unity through remembrance.

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An ancient model is presented where beauty emerges as a state of being in the psyche and consciousness which act as the nexus that conjoin ideas and sense, pattern and material. In this model number plays a vitalising role. Of particular interest is the use of number, not in counting or mathematical calculation, rather in its symbolic interpretation, notably geometry and harmony. One of the most fundamental interpretations of the numbers 1, 2, 3, & 4 relate to geometric concepts of singularity, extension, enclosure and materialisation symbolised by the point, line, triangle, and solid respectively. These same numbers are demonstrated in their most basic harmonic interpretation of the consonant tones of the tetrachord or lyre: the fundamental 1:1, the perfect 4th 4:3, the perfect 5th 3:2, and the octave 2:1. The harmonic progression of the tones of the lyre served as an analogy of the departure (fundamental) from and return (octave) to unity through number.

Of course, the aforementioned only serves as an initiation into symbolic interpretations of number. The author continues to expand upon this foundation, first with several geometric and harmonic diagrams, progressing to over 20 step by step examples of how these principles can be applied architecturally to the design of facades,

plans, and architectural elements with the simple tools of ruler and compass. One can simultaneously experience and observe how designs can 'grow' from number like the unfolding of a flower.

### A Theory of Proportion in Architecture and Design

Just as a few consonant notes can produce an infinite range of musical compositions that resonate within us, so too can the mastery of basic geometric and harmonic principles be utilised for a grand variety of architectural compositions in a similar manner. A key to unlocking the power of symbolic number is the Roman concept of 'proportion', known as 'analogia' by the Greeks; a concept of holistic unity in the entire work that one had to search no further than the human body to discover. About a third of the way into the reading we encounter an historical review of Classical architecture from Ancient Egypt concluding with a few examples of Federal architecture in the United States. The same geometric and harmonic principles previously demonstrated are now applied in the analyses and reconstructions of these historical examples. This is where the theory of proportion enters in. Rather than assert that these analyses were how these buildings were designed, the strong independent case is presented that such principles, being both generative and intuitive, accord with how these building might have been designed.

As previously, we are guided through many of the reconstructions step by step, invited to pick up compass and rule and experience proportion in design viscerally. Where there is archaeological evidence or surviving written documentation in support of the use of geometric and harmonic proportional systems of design, it is presented. Such documentation increases exponentially in the Medieval and Islamic periods, with the use of geometric and harmonic proportion as a means of seeking unity through the pursuit of beauty became openly and self-consciously acknowledged during the Italian

Renaissance where as Steve phrases it, they began "using attunement to physical beauty as a trigger for the elevation of consciousness."

### The Flight from Beauty and the Path of Return

Obviously, this is not the built environment we inhabit today. What happened? The latter portion of the book points to the late 17th century as having propagated philosophical ideas that challenged the understanding of beauty as an inherent aspect of nature underlying the unity of the cosmos, reducing it to a mere subjective, culturally determined epiphenomenon. The architectural interpretation of such a perspective diminished beauty from being an eternal search and source of inspiration to mere fashion and whimsy. Shortly thereafter there arises a replacement aesthetic of the sublime, pain based sensory experiences.

Stripped bare of the geometric and harmonic traditions underlying the generative vitality of traditional architecture, this so-called Enlightenment period presides over a rational reduction of architectural design to academic references and the application of historical precedents, initially maintaining the external form of a living culture but quickly desiccating internally. This weakened state of tradition opened the door for the ascendancy of Modernism as an anti-Classical, anti-traditional movement that would fully align contemporary architectural practise, expression, and form with the Modern philosophy.

In conclusion, our author does not leave us without hope. He challenges that the anxiety, chaos, and grim ugliness of architecture are not inevitable. He invites us to an examination of 5,000 years of beautiful architecture and perhaps more importantly, points us towards the "logos", the generative principles that led to their creation. The strong case is made that the path to unity through beauty remains with us, more accurately within us and only awaits inducement to remembrance.

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