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CONTENTS

MAY 2019



40

40 Arts & Crafts Lesson

Focusing on proportion and purpose, architect Tom Kligerman brings an early 20th-century gem out of the shadows and into the light.



46

46 Regimental Yet Relaxed

Donald Lococo Architects modernizes a traditional home in the nation's capital while elevating its classic grandeur.



52

52 Orders in the Court

Since 1934, the imposing John A. Campbell Courthouse had reigned as the highest seat of justice in Mobile, Alabama.



56

56 Civic Duty

The restoration of the 1914 New Haven County Courthouse.

INTERVIEW

10 The Conservation Architect

Steven Semes muses on the role of heritage in terms of preservation and so much more.

THE TRADES

16 Keeping Time

Campbellville Industries replicates an 1853 clock tower for a Kentucky courthouse.

HISTORIC MATERIALS

22 Building Blocks

An ancient building material, brick offers a variety of color, textures, and patterns.

SKETCHBOOK

28 Grammar of Design

Classical traditions brought to life.

TECHNIQUES

32 Artisan to Artisan

Conserving a legacy of art and craftsmanship in the Luzerne County Courthouse.

PRODUCTS IN-DEPTH

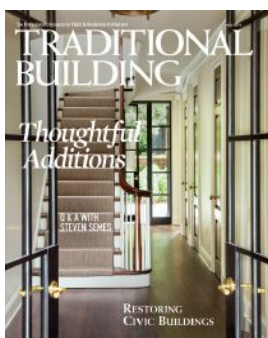
36 Rock Stars

What to look for when shopping for natural stone.

BOOKS

80 From Truths to Tools

Reviewed by Martha McDonald



ON THE COVER

A view of the stairway from a modernized renovation by Donald Lococo Architects.

See more on page 46.

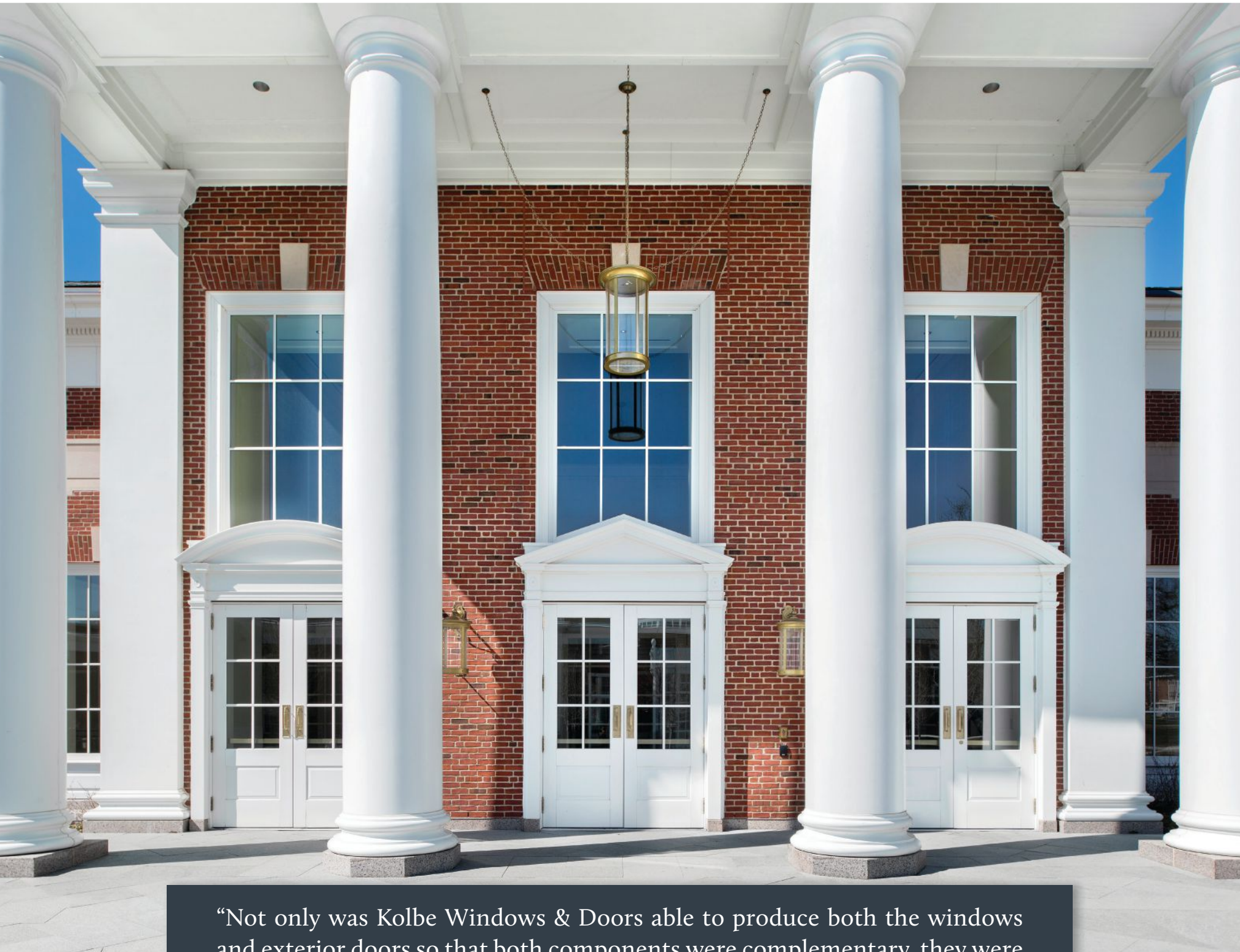
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BUYING GUIDES

Columns & Capitals	61
Historical Products Showcase	62
Conservatories, Greenhouses & Outbuildings	66
Architectural Sheetmetal	70
Windows, Doors & Hardware	71
Specialty Glass	76
Metal, Tile & Slate Roofing	77
Roofing Specialities	78
Wine Cellars	79

FREE INFORMATION GUIDE . . . 60

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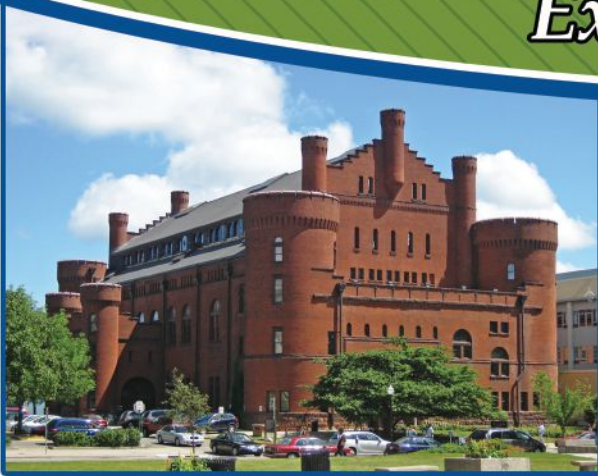
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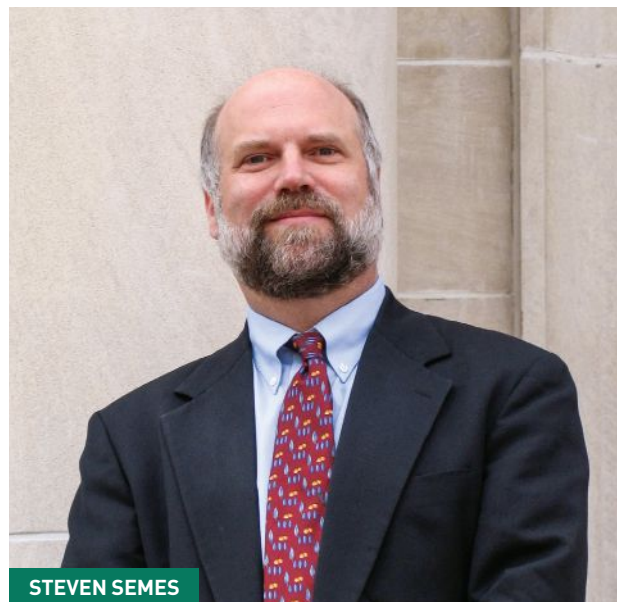
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The Conservation Architect

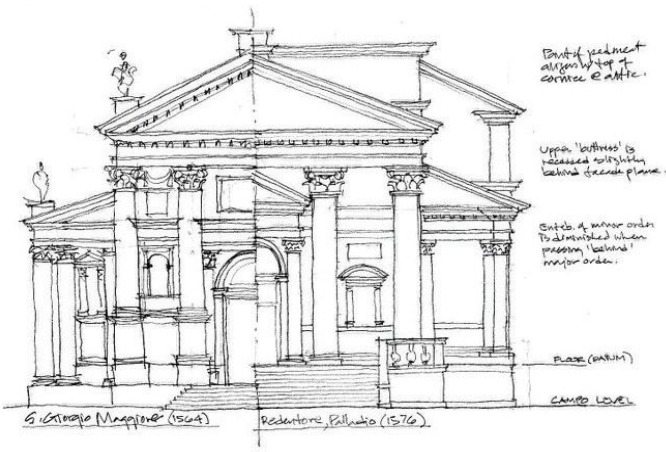
Steven Semes muses on the role of heritage in terms of preservation and so much more.



STEVEN SEMES



Photos courtesy of Steven Semes



TOP LEFT Professor Steven Semes.

LEFT A travel sketch made in situ, comparing the facades of two Palladio churches in Venice.

ABOVE Elevation of a medical office building in New Jersey, designed by Steven W. Semes and rendered by Kim Rollings.

From the very beginning, Steven Semes has been fully immersed in architecture. His childhood was spent running around the Mediterranean Revival style planned community of Coral Gables and swimming at Phineas Paist’s iconic Venetian Pool. The Lawn, Thomas Jefferson’s “Academical Village” was Semes’s backyard during his four years at the University of Virginia and his first job after college was at the National Park Service Technical Preservation Services branch reviewing grant proposals for National Register properties.

“Forty years on, I’m still connected to that experience.... it influenced the course of my career,” says Semes. After speaking with the Pueblo people in New Mexico, who wanted to continue the community’s organic building traditions, Semes asked himself “What are we preserving? A static moment or something ongoing?” Semes put these questions to practice while pursuing a Master of Architecture at Columbia University, inspired by Bob Stern’s passion for building traditions. When he re-entered the working architect’s world, he continued to ask himself

these questions. “Think about the city as a whole—that is the resource.” In fact, following a series of public talks debating modernism versus traditional architecture, Semes put the conversation to print in his book *The Future of the Past: A Conservation Ethic for Architecture, Urbanism and Historic Preservation* (2009) in which he explores cultural inheritance and preservation.

Semes, with his Coppola hat and charming baritone cadence, is a thoughtful storyteller, whether detailing his career-influencing mentors, championing overlooked architects of Italy’s early

20th century, or lining up his must-see monuments of 20th century Rome. And after 30 years working with some of history’s greats including Philip Johnson, Jacquelin Robertson, and Alvin Holm, Semes switched the drafting table for academic robes as professor of architecture and preservation at University of Notre Dame’s School of Architecture. It’s quite fitting that from a Venetian pool, Semes is living in Italy, teaching in Notre Dame’s Rome Program.

We sat down for a cappuccino and a conversation on preserving heritage with Steven Semes:

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CLOCKWISE FROM ABOVE
Semes leading a graduate seminar in Rome.

Semes giving a “desk crit” to a student in Rome.

Semes and students studying a baroque interior in Catania, Sicily, during a field trip.

Notre Dame students visiting the Villa Farnese in Caprarola.

1 Like the new classical architect of the 20th century, I’ve noticed that you are a contemporary Renaissance man—architect, critic, author, academic, artist, and government employee—what have been your most fulfilling projects? Your toughest? I didn’t plan it that way, it just happened, perhaps because I’m just interested in lots of things. But all these activities have a common thread: trying to make whatever small piece of the world I can have some impact on a little more orderly and beautiful. Most fulfilling is when some effort on my part seems to have made a difference in the lives of others, as when a building I designed as a home for a family turns out to be a true home for them or when students I have taught find success in the professional world. I’ve had the good fortune to see a lot of such positive outcomes. The toughest projects are those where the decisive

factor is not some physical or technical challenge, but a human one: A successful project is usually so because all the parties involved want it to be successful, but there are times when conflicting agendas can interfere with success for completely “human” reasons, and those are the most difficult. As one of my mentors, Jaquelin Robertson, always said, “architecture is about people,” and we architects cannot forget that.

2 In today’s world of changing politics and sensitive history, what is the role of conservation architect? The conservation architect? This is a complex and timely issue: because “heritage” involves the memory and sense of identity of a community, it is inevitably political. Whose heritage are we talking about? What parts of heritage are worthy of conservation and what parts can be allowed to change or

be transformed into something else? Professionals in conservation need, above all, to assist communities in defining what parts of the built environment are culturally significant and what steps are appropriate to preserve that significance, also recognizing the need in most cases to accommodate growth and change. Different communities in the same place may have different views of what is significant and their conservation aims may be in conflict. In general, conservation professionals need to facilitate making heritage more visible, presenting the evidence for it as much as possible, and making sure the views of all relevant groups are represented. The first obligation of the conservation architect is respect for the historic setting and putting aside the temptation to impose some personal vision on a place that is significant for many people.

3 What do you foresee as the role of conservation architect in the upcoming decades? For the most part, it will be what it has been for the last century or so—bringing valued historic places to life in the world of the present. Given the challenges of environmental sustainability, climate change, economic justice, and recognition of the claims of previously underrepresented communities, there will be some additional challenges. These will be both technical (for example, helping places threatened by climate change become more resilient) and ethical/political (bringing to light previously undervalued heritage or aspects of heritage that may be painful). The conservation architect must also lead us to appreciate heritage not as something from the past that stays in the past, but something from the past that we bring with us into the present and future. We need to understand






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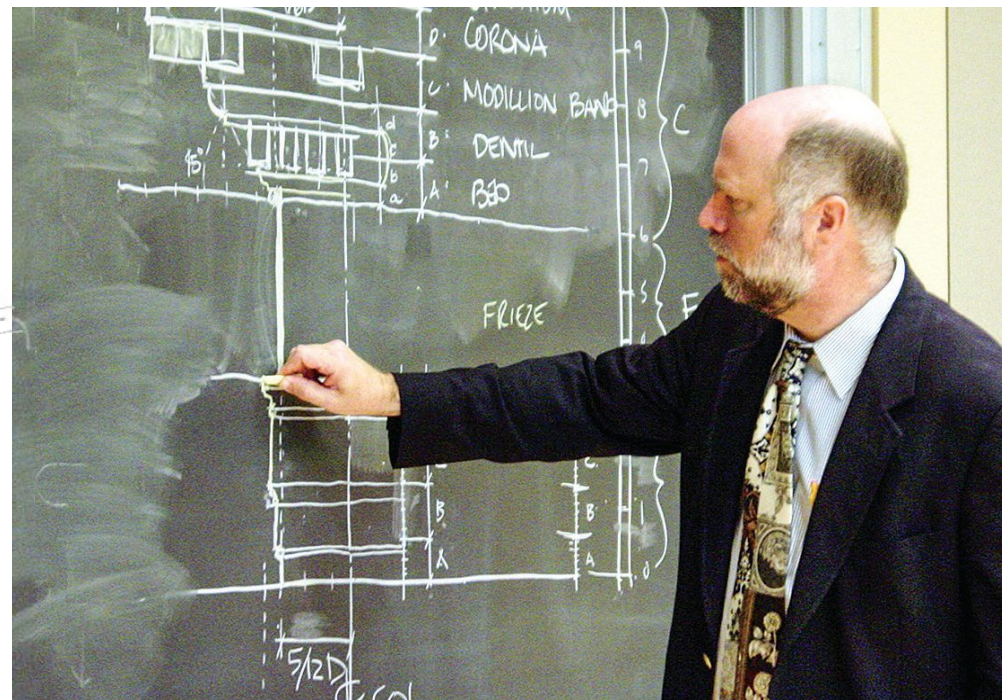
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LEFT FROM TOP Semes's design for a new residence in Eastern Long Island, New York.

Travel sketch of the façade of the Duomo in Siracusa, Sicily.

Semes joins students drawing in Piazza Santo Stefano, Bologna.



ABOVE Semes at the blackboard presenting the classical orders in class.



both continuities and discontinuities between the past and the present, and that means that conservation needs to be both critical and forward-looking. It must constantly pose the question: what kind of cities do we want to live in? How can we be at home in the world? And, of course, how can the “we” in those questions include as many diverse communities as possible?

4 *Rome has often been considered an “Open Air” museum—how do you feel about that? What do you think that visitors overlook/don’t take into consideration when visiting Rome, and similar “museum/cities”?* Italy has a number of cities that are effectively large-scale museums, and rightly so, given the immense riches in art, architecture, and urbanism they contain. But Rome and other “heritage cities” are also living communities, the homes of millions of people, and economic hubs. They need to strike a balance between conserving the riches they’ve inherited

and accommodating the needs of life today. This was recognized a century ago by the Italian architect, urban planner, restorer, and historian Gustavo Giovannoni, who saw the need to give place to both the historic city and the modern one, side-by-side and in harmonious co-existence. The main obstacle to that today is the ongoing insistence of “contemporary” architecture on defining itself in opposition to all previous architecture, enforcing a sense of “rupture” between the historic and the modern city. If we can once again create a present-day architecture in continuity with that of the past, we can heal our cities, reduce gentrification, and manage tourism much better than we do now. Then, instead of certain cities being considered “museums” and attracting unsustainable levels of tourism, everyone could have the right to live in a beautiful place, not just those who can afford to live in or travel to “historic centers.” In this way, we can bring together beauty, sustainability, and justice.

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Keeping Time

Campbellville Industries replicates an 1853 clock tower for a Kentucky courthouse.



Crews get ready to put the clock portion of the tower into place.

Photography by Campbellville Industries

The people of Winchester, Kentucky, can't help but look up to the Clark County Court House. The showy Greek Revival structure, whose clock and bell tower is topped by a golden dome and a shining sword-of-justice-like finial, is the tallest building in the city.

Built in 1853 and added to the National Register of Historic Places 120 years later, the courthouse, home to the Circuit Courtroom and the Family Courtroom for the Administrative Office of the Courts, is the centerpiece of Winchester's downtown.

Sadly, after more than 160 years, its wooden clock tower had deteriorated.

In 2017, the tower, which weighed over 30,000 pounds and stood 165 feet tall, was removed and replaced with a prefabricated steel and aluminum replica manufactured by Campbellville Industries of Campbellville, Kentucky. The company, which was established in 1955, has made a name for itself as the oldest and largest steeple maker in America. Nicknamed "The Steeple People," the firm's 19,867 projects include the 229-foot spire for the First Baptist Church of Huntsville, Alabama, which was listed in the 1990 Guinness Book of World Records as the "world's largest prefabricated steeple."

Campbellville Industries, which

also manufactures domes, dormers, clocks, louvers, columns, cornices, balustrade railing, weathervanes, towers, and other custom architectural metalwork, has executed a number of major public projects, including replicating the historic illuminated clock tower at Hoboken Terminal in New Jersey.

To ensure the historical accuracy of the Clark County Court House tower, the company worked closely with the Kentucky Historic Preservation Review Board. David England, co-owner and president of marketing and sales for the company, says that it was an important project for the town because its towering presence on the skyline has served

as "an architectural exclamation point" for generations of residents.

"So many courthouses and churches don't replace towers and steeples because they don't have the budget," he says. "So it's kudos to Winchester."

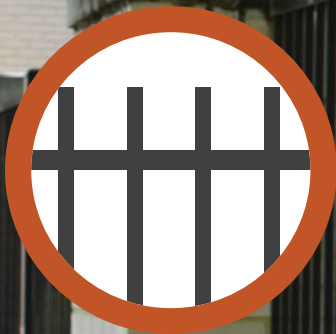
Campbellville Industries' manufacturing process, which marries old-world craftsmanship with new-world materials, cuts not only costs but also construction times. "In the 19th century, when this tower was built, everything was wood and whitewashed," says England. "It was expensive to paint and hard to get access to. We use heavy aluminum with a baked-on finish that doesn't need maintenance for years."

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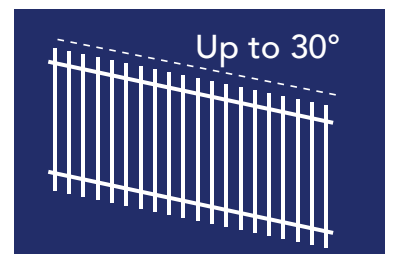
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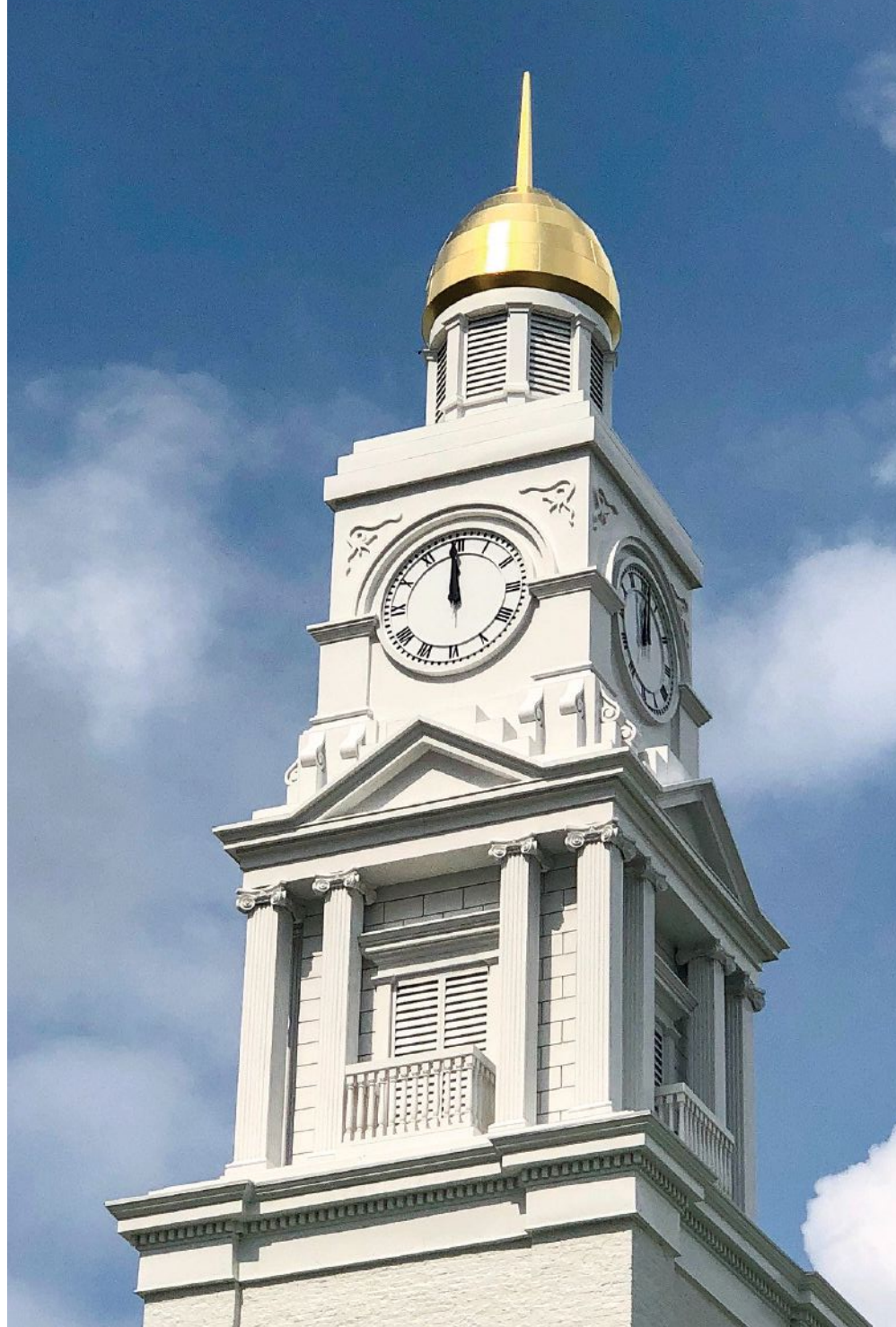
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ABOVE The new gold-leafed dome and finished clock tower look out over the City of Winchester.

LEFT The new prefab dome is a replica of the copper original; it's made of structural steel and clad in heavy aluminum with a maintenance-free baked-on finish.

England and his team based their initial damage assessments on film footage from a drone and gathered precise measurements when the clock tower elements were removed and stored. “Using a drone to get accurate conditions of the clock tower is much easier than when I used to work from a man basket hanging from a crane with high winds whipping in my face,” he says. “It’s also much more accurate.” The CAD drawings took a month to complete, and fabrication continued for 18 weeks more.

Campbellsville Industries made the tower’s LED-illuminated clock faces as well as the architectural columns, louvers, balustrades, railings, and dome

from aluminum.

“People are always amazed that we start with flat pieces of aluminum and turn them into decorative details such as hand-fabricated cornices and pediments,” England says. “Everything was replicated properly and is historically accurate. We even made faux stone blocks to match the rest of the building. We left space between each to simulate grouting.”

One of the more challenging aspects of the project was the dome, whose structural aluminum angle is clad in heavy-duty .032-inch aluminum with a 23 ¼ karat gold leaf finish. “It’s not ornate, but it caused a fabrication problem because of its tapered and rounded

design,” says England. “We worked hard to bend the aluminum with compound bends to get the rounded shape right, and we made several mockups to show the county for approval before one technique was selected.”

The team also took great pains to make the dome look historically accurate. “The original craftsman beat and hammered copper in a crude fashion, and the fabrication was not up to modern standards,” England says. “We were able to get exactly the same shape and also have it look aesthetically pleasing.”

An anonymous donor paid for the gold leafing of the dome and finial. England, a member of the Society of

Gilders, applied the tissue-thin 3 1/8-inch squares of 23 ¾ karat gold to the dome’s surface, which covers 23,000 square inches, and to the 6-foot-5-inch-high finial.

“It took me an entire week to put on all 2,556 square inches of gold,” he says, adding that if there’s a single hole or “holiday” in the gold leaf tissue, it has to be patched. “I worked from early in the morning until late at night. I did one 10-hour stretch. My shoulders and arms were sore for a week.”

The four clock faces, including numerals, rings, and tick marks—which are illuminated with LEDs—required equally intricate work: The custom numerals were replicated from the



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CLOCK TOWER MANUFACTURER David England, president of sales and marketing, and Rick Green, project sales rep, Campbellville Industries

ARCHITECT Margaret Jacobs, Tate Hill Jacobs Architects

GENERAL CONTRACTOR William Littlejohn, project engineer, SSRG (Structural Systems Repair Group)

ENGINEER President Christopher S. Kelly, Poage Engineering & Associates

TOP Campbellville Industries manufactured a new clock tower, complete with a gold-leaf dome, for the Clark County Court House, a 19th-century Greek Revival building in Winchester, Kentucky.

originals and cut out on a CNC machine. England says these and other details, such as the tower's hand-fabricated louvers backed with insect screens, define the project.

Once the components were finished,

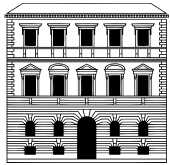
they were loaded onto special flat-bed trailers by crane and driven to their destination some 120 miles away. "It was a two-hour trip," England says. "For the dome, we created plywood windbreakers in the front to stop bugs and debris from damaging the gold."

Winchester's main streets, which were laid out during horse-and-buggy times, are so narrow that getting the trucks and crane in was difficult. "They had to block the streets, and we had to work around power lines and utilities," England says.

Finally, over two days, the pieces were set atop each other like layers of a wedding cake. "Everything was prefit in sections," England says. "It is amazing to see the coordination of the road crews as they choreograph the different trailer loads in the tight spaces."

According to England, it's quite possible that the new tower will last another century and a half. "We like to think that if people in other centuries had access to the same materials, they would have used them," he says. "At some point in time, if it is to be refinished in a generation or two, the pieces can be disassembled and brought back to our factory."

England takes pride in the fact that the children and grandchildren of the current residents will be dazzled by the beauty of the tower. Many won't even realize it's a replica, which is just the way he wants it. "It's great to see the community retain its architectural heritage," he says. "The dome is the crowning element; the brilliance of its gold hits so hard that it's difficult to look at."



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Building Blocks

An ancient building material, brick offers a variety of color, textures, and patterns.



This Schlitz Tied House uses colored bricks to make the diamond pattern in a running bond, as well as accentuate arches and the building rhythm. Bricks at 45° and recessed bricks create shadow lines for visual interest.

BELOW In 1884, Chicago imposed a steep liquor licensing tax in an attempt to get rid of small lower-class saloons. The small saloon owners turned to their beer vendors, who paid the steep fee in return for the bar agreeing to serve only their products. Schlitz were builders of many purpose-built saloons, incorporating the Schlitz logo cast into the building. For more information: forgottenchicago.com/features/tied-houses



Masonry consists of units cemented together with mortar such that the individual elements act together to transfer loads. The masonry units can consist of brick, block, stone, or terracotta; only brick will be discussed in this column. Brick can be used for load-bearing applications, veneer cladding, walls, floors, vaults, arches, and decorative elements. It is a versatile material, with a variety of sizes, colors, textures, and bond patterns, which can create interesting details on many levels.

HISTORY

Bricks date to 7,000 BC, using sun-dried mud and later, clay. About 3500 BC, Egyptians fired bricks in ovens, and this began the use of clay bricks in cooler climates where sun baking wasn't possible. During the Roman Empire, bricks were fired by mobile kilns, spreading the use of bricks through Europe. In North America, Taos Pueblo was built with adobe (mud and straw bricks) a thousand years ago. Bricks and masons came to North America with the migration of the Dutch and British in the 1600s, and with the Industrial Revolution came machines for increased production. In the 1900s, concrete blocks and bricks went into production after the invention of Portland cement.

CURRENT PRODUCTION

Bricks are formed from clay and placed in a drying shed to reduce the moisture sufficiently for the bricks to be fired. Before the advent of modern kilns, which move the air through the kiln for more even heat, old kilns had uneven heat that resulted in a variety of brick strengths: Black-heads, which were closest to the fire, picked up a black skin from the soot from the fire and were well vitrified. Red stretchers were close to the heat, evenly fired and the strongest. "Salmon" brick—those farthest from the heat—were soft and porous, did not vitrify well, and were typically used only on the interior of a building.

By contrast, concrete bricks, having a chemical strengthening process, are formed and left to cure.

CHARACTERISTICS OF BRICK

When repairing a historic structure, new bricks need to be carefully matched for all their properties. This includes color, texture, porosity, strength, dimensions, and texture.

Clay brick's particular hue comes from the intrinsic color of the clay, while concrete bricks require a colorant to overcome Portland gray, making it less colorfast. While visually similar, they behave very differently in the wall and should not be combined. Clay bricks are porous and expand with moisture, requiring expansion joints. In a Comparison of the Behaviors of Clay and Concrete Masonry in Compression, R.H. Atkinson G.R. Kingsley writes, "Concrete bricks are impervious and shrink over time, requiring control joints. While clay and concrete bricks behave similarly for engineering purposes," they do not for architectural purposes and should not be combined. Brick strength varies depending on its material and the method of production, ranging from minimum 1800 PSI to 5000 PSI. Existing brick strength should be tested to determine the strength of the mortar to be used, so that the mortar is always softer than the brick.

A range of sizes are standardized for modern brick. Bricks also have what are known as "specials," bricks that have a particular feature, such as a bullnose corner (or two), a curved face, or a chamfer. These are all fabricated to perform a particular function on the building, such as for a water course, a sill, or coping.

Brick matches can sometimes be obtained from modern manufacturers, but frequently the best match is a salvaged unit. For dimensions, it is most important to match the height of the brick, while the length of the brick can be made up with the vertical mortar joints. When performing a renovation that removes any quantities of brick,



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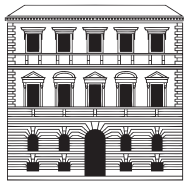
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the units should be salvaged for reuse in later repairs for the greatest success. This is especially true for bricks containing iron spots.

The texture of a brick provides visual interest and affects the reflectivity of the unit in the sun. If not matched correctly, the new unit will be obviously different in certain light, even if all other factors are matched. Some bricks are glazed, which makes them less pervious but provides a weathering face that is very durable. These bricks need to be matched for color of the substrate, the color of the glaze, and the gloss of the finish.

DETERIORATION

Bricks are a very durable material that can last indefinitely when properly designed and maintained. The mortar that combines the bricks is less durable by design, in order to protect the bricks. The mortar, when properly installed, should last 50 years, when the wall is not otherwise subjected to deteriorating conditions.

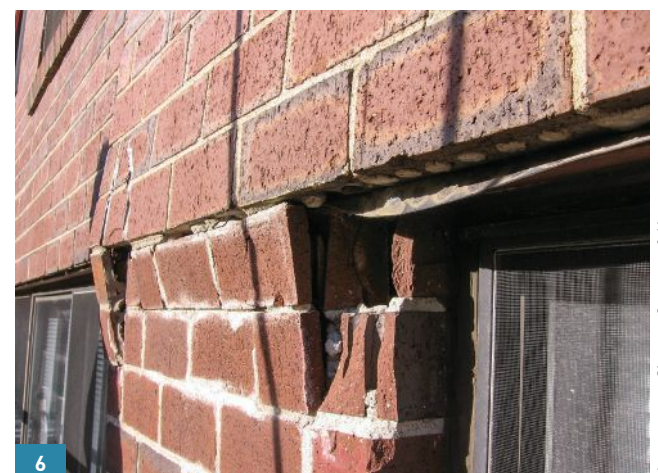
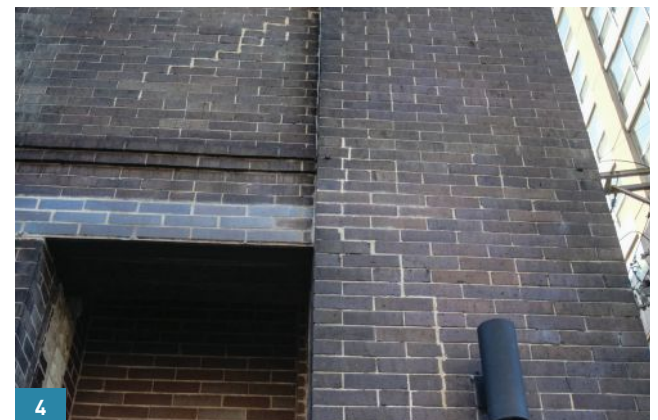
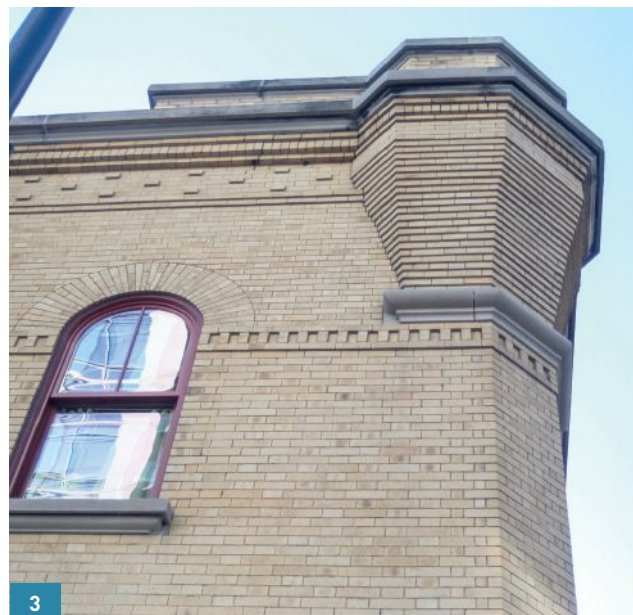
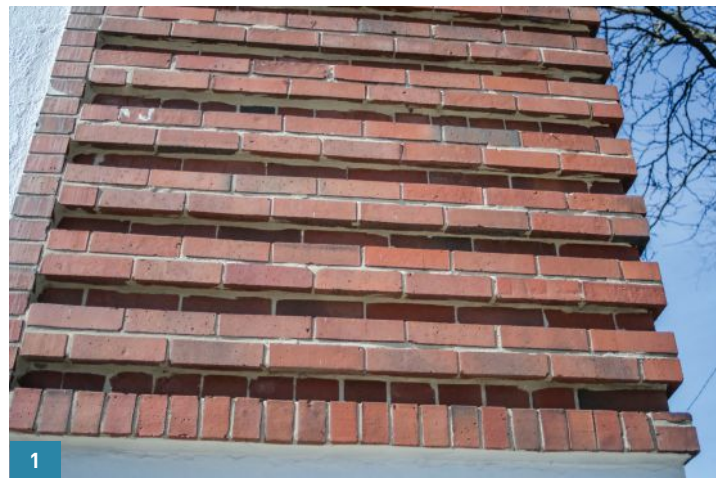
There are a variety of failure types for masonry. These symptoms should be surveyed and recorded onto drawings, so that patterns and correlations can be made. This mapping gives clues to the causes, such as adjacency to windows, presence of steel lintels, gutters, and downspouts, or adjacent features such as salted sidewalks. Typically, each failure has a cause that must be eliminated prior to the repair of the symptomatic failure, to affect a permanent repair.

Efflorescence is the deposition of salts on the surface of the brick, appearing as white staining. It is caused by moisture in the wall from broken downspouts, failing roofs, or failed window seals, which introduce moisture into the wall. This can be remedied by cleaning, as described below.

Cracking can be caused by one or more of several causes: a lack of movement joints, differential movement of the structure, or a design flaw of the support of the brick. Cracking appears as a fissure in the mortar, which can travel in a pattern indicating the stress in the brick. In extreme cases, the crack will extend through the brick itself.

Spalling can occur due to freeze/thaw cycles. If the wall can't dry out, the trapped moisture freezes, expands within the pores of the brick, and causes the brick to fracture, typically at the face.

Bulging of the entire brick wall can occur when the wall has not been tied back to the structure. Moisture can get behind the front wythe of brick, ex-



pand, and push the brick out of plane, if not reinforced with row lock headers (or modern steel reinforcing).

REPAIRS

Repointing is the removal and reinstallation of mortar into the joint. (Please see the April 2019 *Traditional Building* article on mortars.)

Once the masonry has dried out over a summer season, efflorescence can be removed with mild chemical cleaners. This process starts with cleaning trials in a discrete location, trying solutions of the proposed cleaners to determine the lowest strength that is still effective. Work would begin with wetting the entire wall, applying cleaning solution with soft bristle brushes from the top down, then rinsing thoroughly. The wall should be tested with a pH strip to ensure that the wall has returned to a neutral pH.

To remedy the cracking, first understand and eliminate

1 Common bricks with varying bearing depths turning a corner for visual interest.

2 Rough brick turned at 45° to the wall face for a sawtooth accent band.

3 Blond brick used in a Flemish bond, with corbelling at corner elements and raised brick bands for interest.

4 Note step cracking in the spandrel panel and pilaster, due to improperly supported new door opening, where poorly matched bricks were used in lieu of salvaged bricks.

5 Efflorescence formed on a historic building not properly protected during interruption of construction work due to economic problems. The building should have been made weather tight prior to abandoning it.

6 This brick bulging occurs at the base of an eight-story building, where the angles were underdesigned and improperly secured, resulting in the brick crushing under the weight of the unsupported brick.

Photo courtesy Simpson Gumpertz & Hager

A whimsical use of glazed brick in all colors on a parking structure.

Glazed Brick

LIKE OTHER BRICK, glazed brick is made from clay or concrete. Originally, brick was “salt fired,” where the kiln temperature was reduced, and salt (NaCl) was poured into the ports near the fire, which vaporized it, chemically mixing with the silicates in the brick to form a glazed finish. The color mostly comes from the color of the brick substrate and didn’t achieve the wide variety of hues available today. The process was not environmentally friendly and was replaced with an applied glaze. There are two methods for glazing brick, depending on the glaze. Some glazes can be applied to unfired bricks that are then fired at the typical high temperatures. Other glazes, which require lower temperatures for color consistency, are applied to fired bricks, and then re-fired.

The glaze on a brick provides a design opportunity, as well as an impermeable surface which resists the accumulation of dirt and can be cleaned of graffiti. The same glazed surface also prevents clay brick’s natural drying process. As a result, the adjacent mortar must be as permeable as possible, to permit drying. If glazed bricks can’t dry out, the area immediately behind the glaze has typically the highest moisture, which can freeze, and cause spalling to the face of the brick.

Bricks can be glazed in any number of colors. Further, the glaze can be applied to more than one face, for special shaped bricks. Glazed bricks can be interspersed with unglazed bricks, as long as all the bricks in the wall are made of either clay or concrete, but not both.

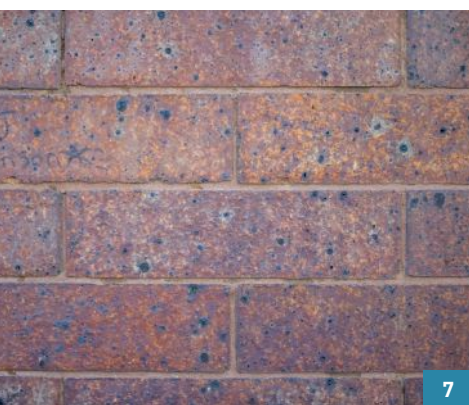
BELOW This 1930 White Castle building (now repurposed) on the National Register is constructed out of glazed brick. White Castle typically used porcelain enameled steel panels to connote cleanliness, but had to resort to glazed brick due to delivery delays during construction.

BOTTOM LEFT Special shapes are used on brick buildings for window sills, water courses, copings, and outside corners. Here, bullnose bricks are used at the window sills, while cant bricks are used on the tops of the pilasters. For an illustrated glossary of bricks terms: calbricks.net/firms.com/brickglossary.html

BOTTOM RIGHT Brick spall occurring where bricks are close to the sidewalk.



7 Example of iron spec brick, or spotted brick, formed by the firing of iron or manganese oxides.



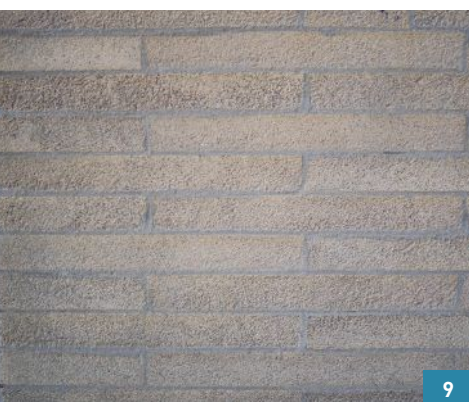
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8 While most of the building is running bond, the corner pilasters use alternating bands of soldier courses and running bond, interrupted by vertical columns of soldiers alternating between common brick and glazed brick.



8

9 Favored by Frank Lloyd Wright, this brick is longer and thinner than typical modular brick.



9

10 Sandblasting was used to remove the painted surface on this building, an aggressive method of cleaning which removed the fire face on the brick.



10

the cause. If differential movement of the structure is the cause, then the structural repairs should be effected before addressing the cracking. If the cracking is due to a design flaw, such as too great a span, too small a support angle, or where modifications have removed the support, then repairs should stabilize the structure to support the brick properly before repointing joints. If cracking is due to the building making its own movement joints, continuous expansion joints should be established in those locations. The expansion joint should receive sealant, while the rest of the cracked joints should be repointed. If any of the above causes has resulted in broken bricks, replacement bricks can be toothed in to return the integrity of the brick

When bricks spall, they are not repairable. Once the cause of the saturation is removed, replace the bricks in kind, using a full bed of matching mortar.

Where walls are bulging, they need to be stabilized. Once the cause of the bulge is removed, the one wythe can be disassembled and rebuilt. In some cases, where multiple wythes need to be tied back to the structure, there are helical anchors and other ways to stabilize the wall in its deformed state, but these require engineering.

With proper maintenance of all building systems, brick masonry will endure for generations. The greatest threat to it is uncontrolled moisture, which can be prevented by good maintenance of roofing, gutters, downspouts, window seals, and grade-level drainage.

SUSAN TURNER is a Canadian architect specializing in historic preservation of national registered buildings. She is the Director of Architecture for The Tradesmen Group, a restoration contractor specializing in the repair and preservation of historic buildings. She can be reached at sturner@tradesmengroup.com



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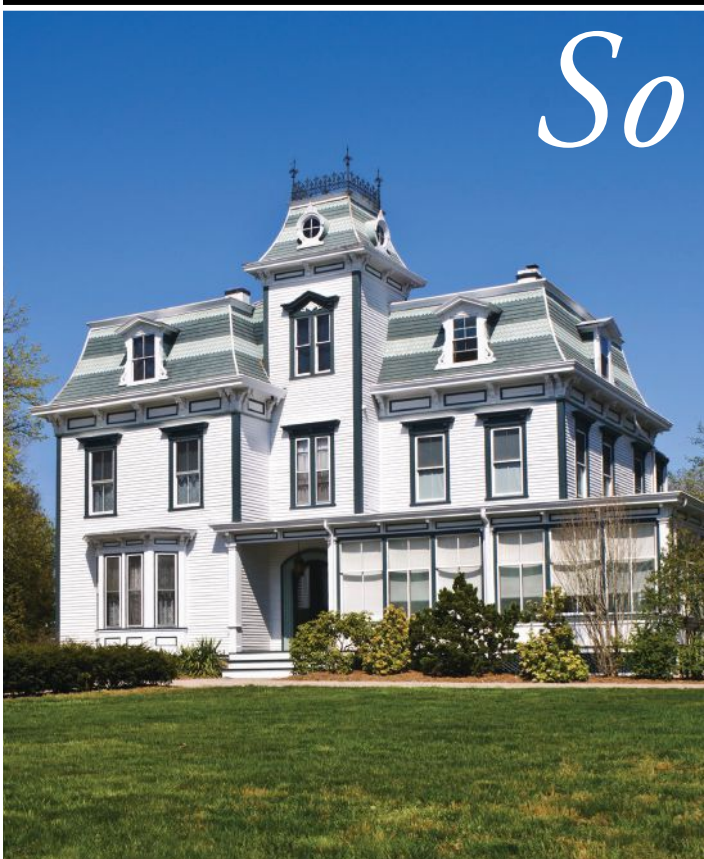
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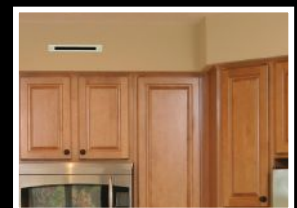
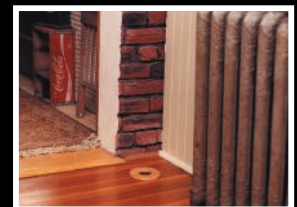
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Grammar of Design

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ABOVE New paneling shrouds the chimney breast of this Georgian Revival house outside Boston. Custom molding profiles based upon measured drawings of the Petit Trianon at Versailles and composition molding from Decorator's Supply Corp. help define the character of this French-accented room.

OPPOSITE This original sketch elevation of the chimney breast wall shows the proposed pilaster capitals from Decorator's Supply and the decision that was made to eliminate the architrave from the entablature. Note that the panels over the doors are taller in this drawing than in the photo on the previous page, a change made due to limited field information as the design developed and subsequently worked out in the field by the architect and carpenter.

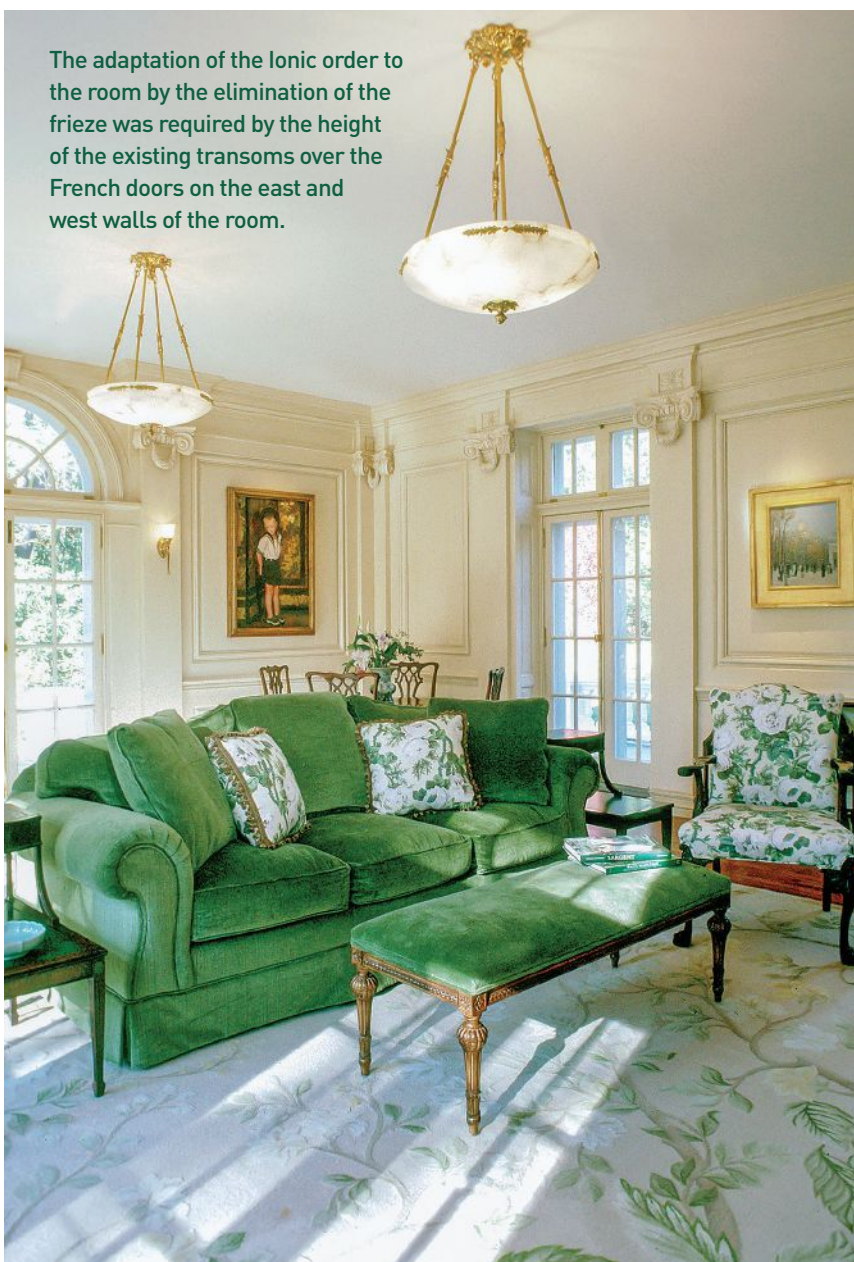
In two recent columns for *Traditional Building*, published in the October and December 2018 issues, California architect and ICAA instructor Erik Evens describes and illustrates the various molding profiles and their uses. In the first piece, *Purpose of Classical Moldings*, Evens restates the idea that classical architecture is a language and that moldings are its alphabet. In the second piece, *Using Moldings*, Evens discusses the use of precedent, referring to historical treatises for inspiration and to learn a particular dialect of design; the idea of establishing a hierarchy of the various moldings, dominant and subservient moldings; and the proportional and geometric relationship among molding aggregations. Evens also references a 1993 article in *Traditional Building*, by Donald Rattner, in which Rattner describes moldings as "...the smallest physical units—the atoms, as it were—of classical architecture."

If Classicism is a language and these atoms of classical architecture are its alphabet, we need to learn not just the vocabulary, but also the grammar of design. How do these elements relate? How do we combine them to tell our story? A critical part of this linguistic analogy is rooted in the idea that Classicism is not a style, but rather a range of styles developed both in different locales to address regional issues of climate and materials, and also as adaptations of historic precedents to meet current programmatic and design requirements. These stylistic traditions are thus the diverse dialects of the classical tradition.

We can look at two very different though related styles from 18th-century Britain. Neo-Palladian buildings from the first half of the century, influenced by Andrea Palladio's 16th-century publication *I Quattro Libri dell'Architettura* (and Inigo Jones's subsequent importation of Palladian ideas to Britain 100 years earlier) were a rejection of the excesses of the Baroque and Rococo—both aesthetically and as a reaction to the decadent Restoration period. Connected to the rise of the mercantile class in Britain, Palladian architecture was, according to historian Robert Tavernor in his book *Palladio and Palladianism*, "...a style that would express the new self-confident nationalism: the 'antique simplicity' of classical *virtù*." In contrast, Neo-classicism, directly influenced by the rationalism of the French Enlightenment, looked back farther to Antiquity. Emerging finds in archaeological digs in Italy and Sicily provided severe and rational forms that suited an architecture that Hugh Honour, in his book *Neo-classicism*, describes as "...primitive purity stripped ...to its primal and strictly autonomous state." The early Georgian, Neo-Palladian works



LEFT Detail photograph showing the Ionic capital and composition ornament rosette in the frieze: adapting the order of the design to the limitations of the existing space necessitated returning the cornice back upon itself above the pilaster and having fascia moldings continue the lines of the cornice and bed molding to terminate against the backband of the new archivolt around the existing arched transom.



The adaptation of the Ionic order to the room by the elimination of the frieze was required by the height of the existing transoms over the French doors on the east and west walls of the room.

historic buildings for ourselves, they are exactly the sort of historical treatises we seek for inspiration.

The profiles for the interior paneling that Gabriel drew are not the Euclidian arcs that Rattner describes of Roman Classicism, but voluptuous elliptical curves that turn back on themselves, casting deep shadows and causing the walls to undulate and breathe into the room. Another issue that affected the design is that the existing windows to the southwest were quite tall, with little space between the window head and the ceiling for a complete entablature. The room would be ringed with tall pilasters, with freestanding columns between the windows.

The next rule broken was to eliminate the architrave from the entablature. The architrave is the lowest of the three assemblies of moldings that compose the entablature. Our frieze would bear directly upon the capitals, and an extrusion of the abacus profile would continue between the pilasters and define the frieze above the panels. The pilaster bases were a variation of the typical attic base Evens describes in his column, *Using Moldings*. Rather than the conventional toruses of Vitruvian design, I continued the elliptical theme and used thumb moldings above and below the scotia, adding to the sense of gravity bearing down and deforming the column base.

I sketched the design rather quickly as the crew in the field were re-framing

the walls as I was trying to work out the design. I did not have accurate field dimensions to control the design. We had no time for the usual detailed plans and sections working out every intersection and the turning of each corner. I drew profiles and typical wall sections. I specified a selection of French-style composition ornament from Decorator's Supply, and there were no shop drawings generated to review and check the work. This might seem like a recipe for disaster, but what unfolded was one of the most rewarding design experiences of my career.

For a designer, the great advantage of working in a design/build firm is that he or she works on multiple projects with the same people. The project managers in the office are at the next desk to discuss construction methods and budget; the crew in the field become familiar and are willing to work to find the best way to implement the design goals. For the French room, custom-milled stock was delivered to the site and acclimated in the center of the room within a week or two of the completion of the design. I met with the finish carpenter on site and we spent many hours working around the room, referencing my drawings and mocking up transitions until we both were satisfied with the design and how the pieces fit together. Aaron Hildebeitel, my colleague in this exercise, is an exceptional finish carpenter and furniture maker; that was the level of expertise required to make the design with limited documents successful. He was able to respond to my ideas and offer suggestions, and together we designed and detailed the room *in situ*.

For this Georgian Revival house, the language of Classicism was the common framework that allowed the refined French dialect of this new room to relate to existing Palladian-influenced interiors of the house. Through the use of precedent, historical sources, and enough familiarity with the language to be willing to break a few rules, we were able to work around the room.

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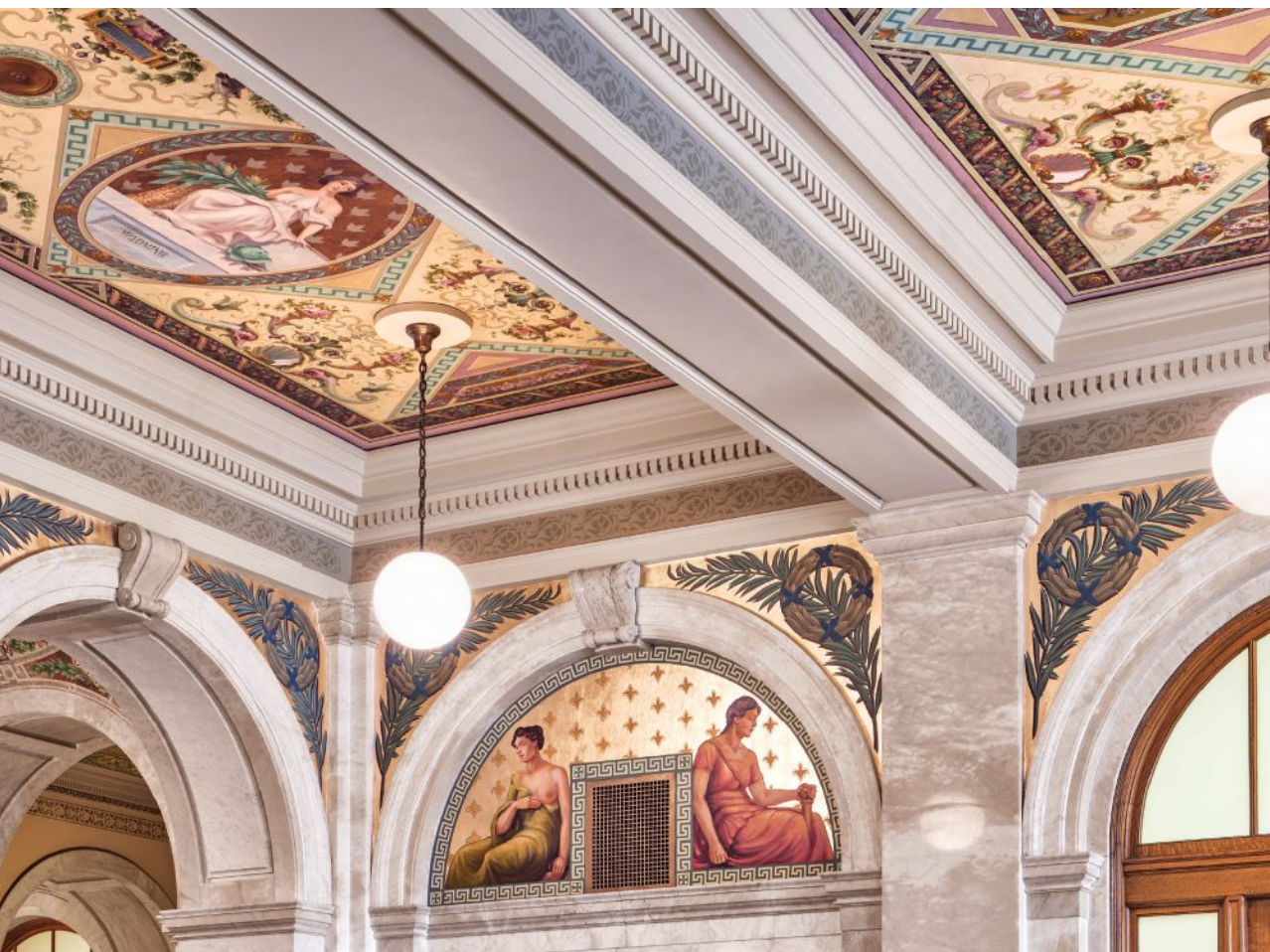
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Artisan to Artisan

Conserving a legacy of art and craftsmanship in the Luzerne County Courthouse.



All photos by Robert Benson Photography

ABOVE An artisan from John Canning and Company works on this portrait; conservation methods based on a variety of materials and substrates varied throughout the project. Canning voluntarily had all conservation work reviewed by peers in advance of application.

LEFT The richly ornamented entablature and adjacent murals exemplify Neo-classical design.

In 1906, the citizens of Luzerne County, Pennsylvania, erected a Beaux-Arts inspired, Neo-classical courthouse in the city of Wiles-Barre that rivaled the finest buildings in the world. As the industries of rail, coal, and steel had brought the county great prosperity, no expense was spared. Pittsburgh architect Frank J. Osterling (1865-1939) embellished the building with a rotunda, materials including Botticino and white Italian marble, bronze, 125 murals, simulated mosaics, decoration, and gilding.

When faced with a major preservation project for the courthouse, the County Commissioners secured the services of John Canning Co., a renowned Connecticut-based firm specializing in the conservation of historic decorative art, finishes, and plaster. Canning was hired to serve as the undertaking's primary contractor and conservator.

After a successful 90-day pilot project in the south lobby, the full restoration of the rotunda proceeded, along with that of the third-floor hallway. The six-month project was completed in April 2018, on time and within budget, at a cost of \$2.2 million.

The courthouse is built on land near the Susquehanna River. The setting is beautiful, but its proximity to the river proved to have a downside. The site was damp. Starting soon after the building was placed in service, groundwater infiltration, water infiltration in the rotunda dome, and several insensitive restoration campaigns took their toll on the courthouse's treasure trove of fine and decorative American art. Counting 125 murals, the courthouse's collection is large by anyone's standards. Furthermore, the murals had been painted by some of America's leading artists of the day: Will H. Low (1853-1933); Kenyon

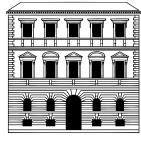
Cox (1856-1919); William Thomas Smedley (1858-1920); Arthur Brounet; and Edwin H. Blashfield (1848-1936). After groundwater problems were solved and the dome was rehabilitated, conservation could proceed on the murals and other decorative elements.

David Riccio, plasterer, decorative painter, and principal of John Canning Co. explained the process: The conditions of the artwork varied from panel to panel, and each mural was individually assessed and a specific treatment developed. A majority of the murals suffered from water intrusion that left behind efflorescence as well as biological growth and mildew. Previous intervention and overpainting had been performed on many of the murals, some more than others, during two earlier, separate campaigns. Canvas delamination, tears, rips, areas of overpaint, flaking paint, and paint loss were all documented and

mapped out on architectural drawings.

A team of conservators and craftsmen consolidated the plaster at water-damaged locations and replicated ornamental moldings and details prior to the conservation of the artwork. Each mural was treated appropriately, based on its condition. Murals with pockets of delamination were re-adhered through adhesive injection, and of the 36 murals (in the dome) executed on canvas, 11 required complete removal from the substrate.

Conservation cleaning methods varied, based on the specific condition of each mural; an aqueous solution was developed or a dry-cleaning method employed to remove surface dirt and grime while leaving the original finishes unharmed. While the project incorporated the dome as a whole, it was essential to consider each finish as an individual element—each mural, each molding—to



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David Martin, President, Allied Window



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New Horizon Shutters



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Speaker: Alicia Cordle,
Ceramic Engineer, Ludowici



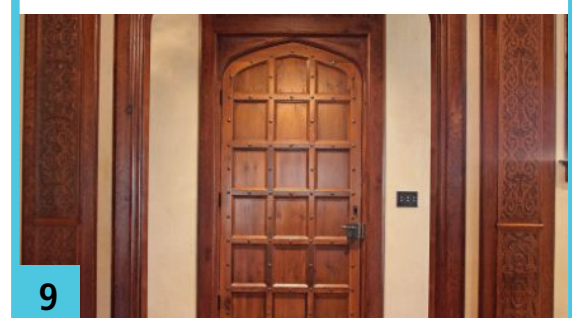
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Speaker: Brent Hull, Hull Historical, Inc.



9

BELOW The work on the dome and rotunda took six months; day-to-day work in the courthouse continued with no interruptions.

BOTTOM Each section of the dome is shown in this reflected ceiling plan.

RIGHT The design lifts the eye heavenward and then reinforces the visual impact with words of wisdom and integrity.

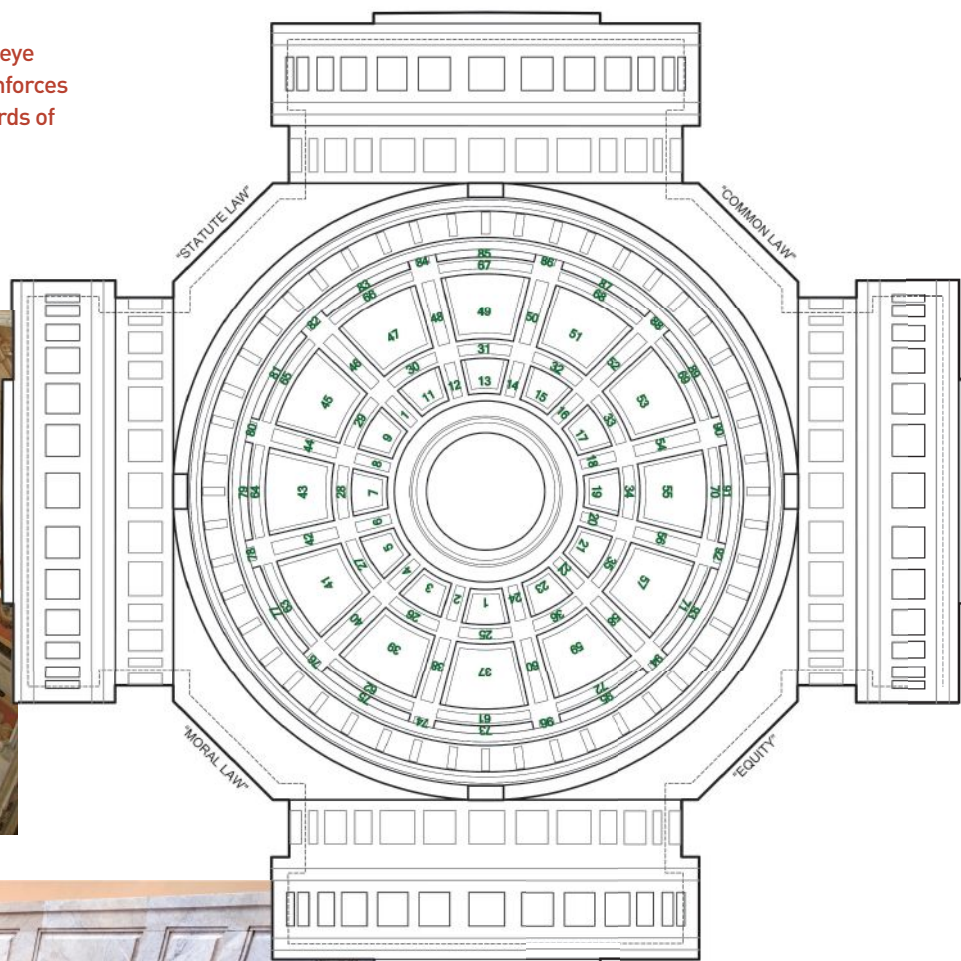


Image: Reflected Ceiling Plan

provide the best conservation practice for each work of art. Understanding the conditions of each mural allowed each piece of artwork to be restored as the original artist intended and reinstating the original decorative finishes, tied all aspects of the historic fabric, including the bronze and marble features, together.

Riccio noted that he, Canning project manager David Grough, and their team of artisans and conservators fully appreciated the significance of their endeavor: they had become the stewards of masterpieces created by an earlier generation of sophisticated artists and craftsmen. All the artwork had meaning. This heightened the team's determination to do well and right by the original artists and craftsmen, even without access to any original construction drawings or documents. As members of the American Institute of Conservation, the firm routinely follows ethics and protocols established by the AIC, but this project inspired a reverence for the original artists' intent in a particularly powerful and meaningful way.

A project of this magnitude always includes challenges. Conservators today find themselves under pressures inherent to other contractors on a preservation project. In this case, the county had revised its contracting processes prior to finalizing the collaboration with Can-



ABOVE The marble flooring was cleaned and conserved, and repairs were made to any deteriorated joints. The ornamental torchieres and railings were cleaned as well.

ning. Strict deadlines had to be met and were enforceable by monetary penalties.

The project is a credit to all involved. The county took its role as owner and steward very seriously and held its contractor to a high standard. The team from Canning recognized that the work of many major American muralists at the turn of the 20th century was in their hands. They applied accepted conservation practice and gave their best effort to protect this gallery of American art. Finally, the taxpayers of Luzerne County supported a preservation effort for a building and artwork whose heritage all Americans share. The Luzerne County Courthouse project demonstrates the value and importance of preserving America's rich Neo-classical architectural heritage. Great art and architecture belong in all communities for all generations.

KEY PERSONNEL

PRINCIPAL David Riccio,
John Canning & Co.

PROJECT MANAGER David
Gough, John Canning & Co.

PROJECT ARCHITECTS Don
Baron, Jude Cooney, A+E
Group, Inc.

KEY SUPPLIERS

Arsenal Scaffold
Bovard Studio, Inc.

D. Force Environmental
Monitoring Systems

Professor Richard Wolbers,
Winterthur/University of
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Rock Stars

What to look for when shopping for natural stone.



ABOVE Behind the decorations highlighting this house is a beautiful, coursed rubble façade of Leuders tumbled limestone on the main body and Antique Guillotined limestone on the darker wing at right.

OPPOSITE TOP Choosing light colored flagstones, such as Tennessee chestnut, for pool copings and paving, can help limit heat absorption and thereby keep surfaces cooler in hot locales.

RIGHT Bluestone flooring paves the way to this entrance detailed with a cast stone arch. The gable top above is also cast stone, a nice contrast against the new slate roof.

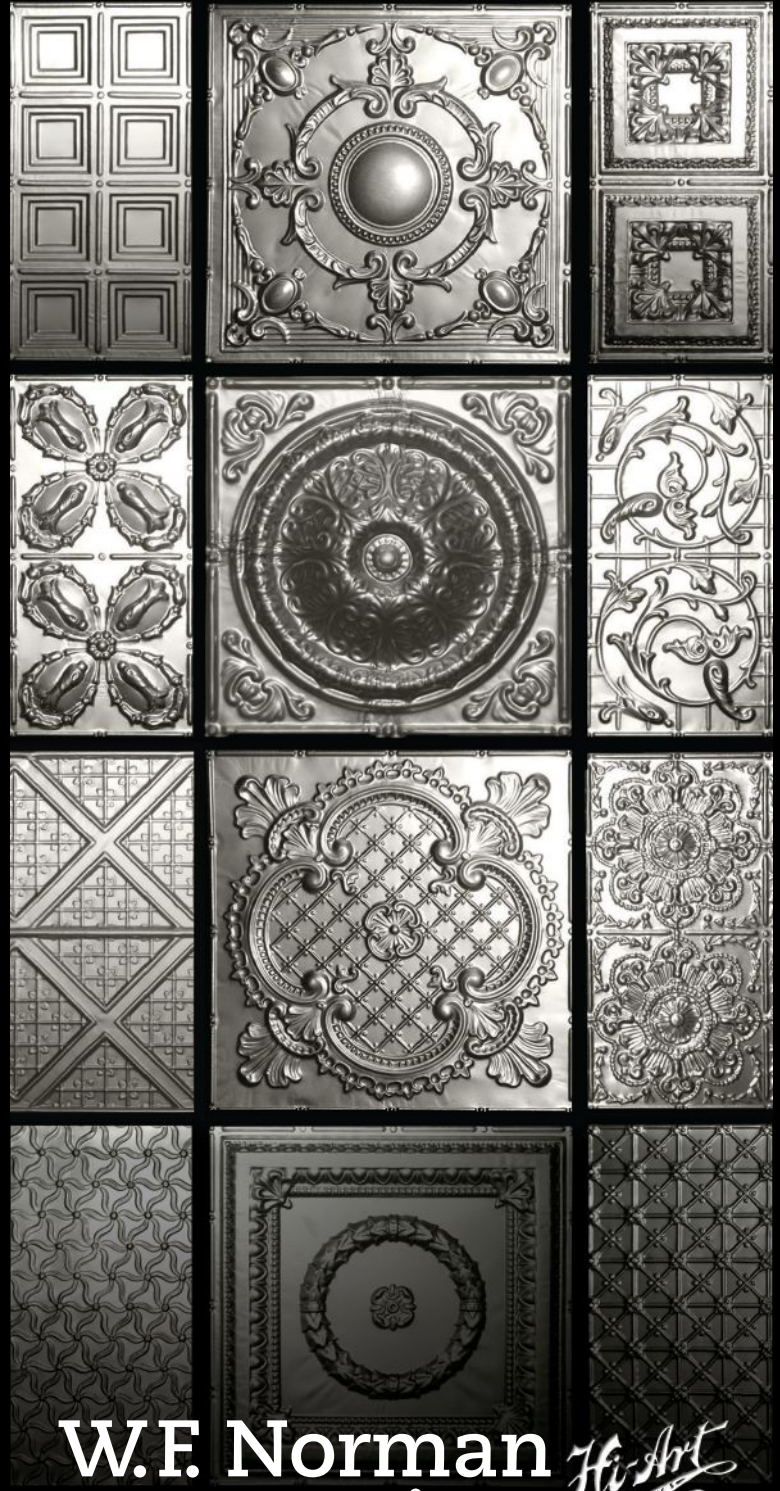
Choosing natural stone, whether to match existing stonework for additions and repairs or to build new projects, is not rocket science, but it is part earth science. Not only must buyers consider the architectural needs of appearance and dimensions, but also how this natural building material varies, stone to stone, and how it will perform in different applications and environments around the continent.

According to Nadia Perez at Aztec Stone Empire in Norcross, Georgia, the first step in matching natural stone is to correctly identify the color and texture. “Those are the two stone characteristics

that you can’t change,” she explains. After that, there are the shapes, sizes, thicknesses, installation techniques, and finish to consider, “and of course, the budget.” In the case of veneer stone, for example, buyers should know whether they need full-size veneer or thin veneer and understand that, because natural stone is a natural material, dimensions can vary. “A piece of 1-inch stone may actually be $\frac{3}{4}$ to $1\frac{1}{4}$ -inch thick—something most architects would know but a homeowner may not.”

As a leading natural stone supplier in the Southeast, serving both commercial and residential markets, Perez notes they are known for their knowledge of

the industry, quality, and vast inventory, working with over 120 quarries throughout the United States and a few overseas. “We have a lot of flagstone and granite,” she says, as well as Indiana limestone, various sandstones, quartz, and river boulders and rocks. One of their most common flagstones is Pennsylvania bluestone quarried in Northeast Pennsylvania. “It’s quite popular here,” she says. “I’d say we get at least 15 calls a day for bluestone,” noting that it’s commonly used for paving—especially for step treads—and for copings around the perimeters of pools. “Sometimes the coping will be circular, but if people have different shapes and designs in



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Photos courtesy of Aztec Stone Empire unless otherwise noted; OPPOSITE: Photo by Galina Photography



TOP Upgrading the detailing of this 1960s Atlanta house included refacing the water table and stone base with weathered granite rubble to match existing veneer, and adding a limestone parapet wall.

ABOVE LEFT A restored bluestone walkway leads under the entry arch to “Fairsted”, the 1880s office of Frederick Law Olmsted in Brookline, Massachusetts.

ABOVE RIGHT Veneer stones in random, mixed colors and laid in irregular shapes and joints complete the bulk of the façade of this covered entrance.

mind, we can always do that.” She says they specialize in custom fabrication, whether the customer wants treads, full-coping, or unique patterns. “We usually have a four-piece pattern, but maybe the customer wants six different sizes.”

Regional stones are a specialty. They include Tennessee ashlar, a course-grained fieldstone widely used for veneers and building walls, and Crab Orchard stone, a unique, unusually hard sandstone quarried only in Crab Orchard Mountain, Tennessee. Originally considered worthless and only used locally, it was “discovered” by architects in the 1920s, most notably Henry

Hibbs who used it for the Gothic Revival chapel at Scarritt College in Nashville. A beautiful, rose-colored stone mottled with streaks of brown, it gained a national reputation in buildings from IRS Headquarters in Washington, D.C., to Elvis Presley’s mansion, Graceland. Another is sunset sandstone. “That’s actually from Savannah,” says Perez, “and is one of our newest products.” It can be used for flooring and treads as well and, being lighter in tone, is a little bit different than what they usually sell, she says.

A favorite flooring and paving material for walks and drives is their

cobblestone product. “One of our most popular cobbles is granite,” says Perez, “but we can make them pretty much out of any stone—they just need to be cut and tumbled.” Here again, the customer should first determine the desired color and texture, “because we can pretty much manipulate anything else: shape, size, thickness, and finish.”

For outdoor applications, climate becomes a big factor in selection. “Knowing the resistance of a specific stone to a certain climate is crucial,” she says. “For example, if the climate is very humid, and the stone very porous, it will absorb moisture.” Then if the temperature

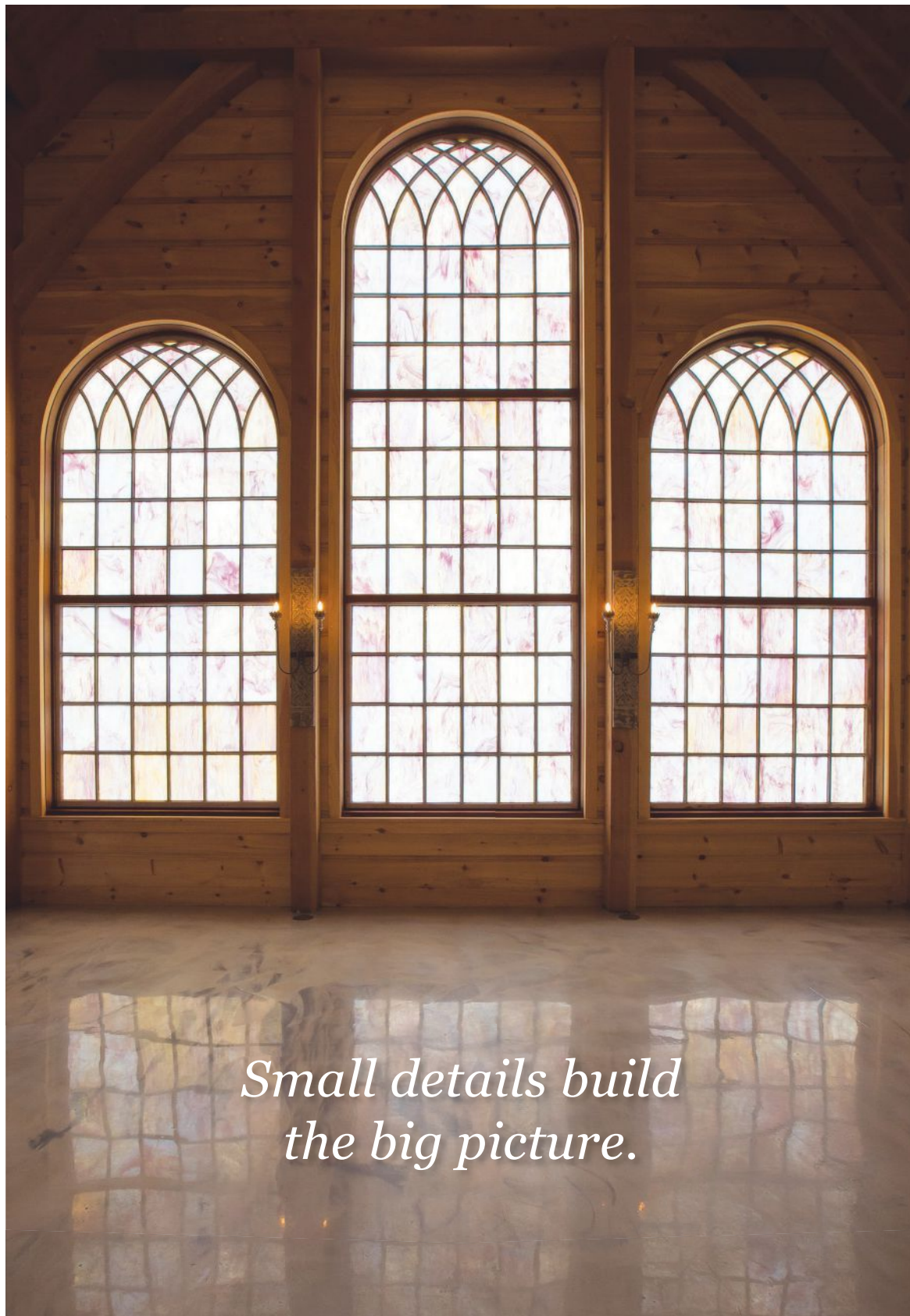
FAR LEFT: Library of Congress HABS; ABOVE: Photo by Galina Photography



drops below freezing, the water will freeze, expand about 10 percent, and potentially crack the stone. It is this swing, or freeze-thaw cycle, that is the threat; climates that stay continually below freezing all winter pose less of a problem. Paving stones are more vulnerable to freeze-thaw than other installations because water will dwell longer on a horizontal surface than on a vertical one. "In climates where it gets humid and cold, you want stone that's dense, not very porous."

Durability is another key point. "Pavers, treads, and cobbles that are walked on constantly are prone to more wear than stones that are not, so it's always better to choose denser stone where there's heavy traffic." The stones she says her company recommends in their market for paving durability are bluestone, Crab Orchard, and limestone. Heat absorption and reflection may also be important for paving stones. "If your project is in, say, Arizona, where the temperature runs to 100 degrees F. all the time, the best stone to place around your pool is probably not the thickest stone or densest stone. Granite, for instance, can get really hot."

GORDON BOCK is an architectural historian, instructor with the National Preservation Institute (www.npi.org), and speaker through www.gordonbock.com.



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arts & crafts LESSON

Focusing on proportion and purpose, architect Tom Kligerman brings an early 20th-century gem out of the shadows and into the light.

BY JANICE RANDALL ROHLF | PHOTOGRAPHY BY WILLIAM WALDRON

Not many home renovations start by removing a massive pipe organ from the living room, but then this was no ordinary house. Built in the early 1900s as an entertaining venue down the hill from the family mansion in Summit, New Jersey, the bungalow was clearly meant for parties. “There was no front entrance,” explains the homeowner, “just an enormous transition space leading to an even bigger living room with a 20-foot vaulted ceiling.” According to legend, a hundred years ago operatic tenor Enrico Caruso found the acoustics to his liking, and other international guests included President Woodrow Wilson and Madame Chiang Kai-Shek. But as a place for a 21st-century family to live comfortably, it was nearly unimaginable.

“No one could figure out what to do with it,” continues the homeowner. “But Tom made sense of it.” Tom is Thomas Kligerman, a partner at the architecture firm Ike Kligerman Barkley. He is also a longtime friend of the homeowners, and he enjoyed many Thanksgivings with them in their former house, helping to prepare the feast. “Unlike most projects, where you spend a good amount of time

upfront getting to know the clients, with this one I could hit the ground running,” he says.

While the house called for a major demolition, among its assets was the site—a secluded acre-plus with formal gardens, albeit overgrown at the time. Coming from a 10-acre horse farm, the homeowners were delighted to find such privacy in a suburban setting. And Kligerman, along with IKB Director of Interiors Mia Jung, was up for the renovation challenges. “It is 85 percent a new house, on basically the same L-shaped footprint,” he explains. The IKB team re-proportioned rooms, tore out the old kitchen and moved it to a newly built wing, installed radiant heated floors throughout, replaced pretentious faux stone mantelpieces with more modern materials like limestone, and favored reclaimed white oak paneling for much of the interior wall space.

Painted an insipid, detail-obscuring beige on the exterior, the stucco house had a more redeeming red-and-black tile roof that reminded Kligerman of early English Arts & Crafts, and he cites 20th-century architects C.F.A. Voysey and Baillie Scott as inspirations. “I wanted something richer [than beige], with saturated landscape colors,” he says.





FAR LEFT To evoke a feeling of there being a hearth in the kitchen, Kligerman framed the stove alcove with terracotta moldings. Warm-toned Moroccan tiles, rich walnut base cabinets, and splayed wood ceiling beams add to the cozy ambience.

LEFT An octagonal transition space turned into a dining room with white oak rift quarter sawn paneling is the homeowners' favorite room.

BELOW Materials and textures evocative of the Arts & Crafts movement combine with more contemporary elements, like the limestone fireplace, in the living room.





By transforming the home with a more modern deep-gray and red palette and glossy black trim, it recedes into the landscape, just as the architect intended.

While much of the home is structurally new, its interior style has more in common with tradition than modernity. Kligerman and Jung took pains to retain the English Arts & Crafts flavor and also to incorporate many of the homeowners' furnishings from their previous country house. Some original leaded glass windows remain, new oak timbers are a lighter version of heavier wood detailing that was removed, and other materials, such as the dining room's lichen-green tile surround and the conservatory's terracotta floor, bring in a variety of textures evocative of the Arts & Crafts movement. Furthermore, the materials are repeated in different areas of the house, bringing a continu-

ity to the whole. Here and there Jung introduced a contemporary flair. "When Mia added pieces, she stretched me in a little bit more of a modern way," says the wife.

Opening up the dark, cramped house to sunlight was a top priority. Where once there was the ominous pipe organ, three sets of French doors allow light to stream in as well as foster an easy indoor/outdoor flow. The conservatory off the living room began life as a two-story music room with no windows. Now its three walls of windows bring in so much natural light that the wife uses it as a painting studio. Above it sits the master bedroom, a space that was added on top of the old living room and which has a cathedral ceiling and a Palladian window. An expansive curtain wall of doors and divided light window gives onto a balcony, the roof of the new

conservatory.

Replacing an inefficient and dark kitchen, the new heart of the home occupies a spot formerly dedicated to a greenhouse. "The homeowners wanted a kitchen where they could live in a modern way," says the architect, supporting the presence of a sofa and a breakfast table in the window bay that overlooks newly renovated lawns and gardens. Kligerman says he wanted to evoke a feeling of there being a hearth, so he used 12-by-12-foot terracotta moldings to frame the stove alcove and a similar area across the room from it. Warm-toned Moroccan tiles, rich walnut base cabinets, and splayed wood ceiling beams add to the cozy ambiance. The 12-foot-long island was designed around a single slab of honed Imperial Danby marble that is 2.5 inches thick. Taking it all in, the husband says, "Tom struck a

perfect balance between formality and comfort."

But of all the areas in the house, architect, interior designer, and homeowners agree that it's the initially confoundingly large, disproportioned entry space that endears them most to the home. "You can stand here and see something pleasing in whichever direction you look," explains Kligerman. "At the end of every axis, there's something interesting—a Japanese maple outside the conservatory, the fireplace on the patio. You can look up and see the second floor, too."

Skeptical early on to make this octagonal transition space a dining room, the wife couldn't be happier with how it turned out. "It's a great space for entertaining, formal dinners, cocktail parties, an informal business meeting, or just reading and eating by the fire," she says.



FAR LEFT Two circa 1940 Italian armchairs of dyed oak wood and woven river straw add character to a seating area with a custom daybed by Classic Sofa and custom embroidered Shantung silk drapes.

LEFT Meant to be comfortably snug, the library is painted a dark shade and repurposes cherished furniture from the homeowners' former house.

BELOW Sometimes used as a painting studio, the conservatory's large windows illustrate how the once-dark and cramped house was opened up to natural light.

BOTTOM By transforming the formerly beige home with a more modern deep-gray and red palette and glossy black trim, it recedes into the landscape.



PROJECT Modernized Renovation in Washington, D.C.
ARCHITECT Donald Lococo Architects





regimental yet relaxed

Donald Lococo Architects modernizes a traditional home in the nation's capital while elevating its classic grandeur.

BY JANICE RANDALL ROHLF

PHOTOGRAPHY BY GORDON BEALL

With its dormered hip roof, nine-over-nine sash windows, front-door pediment, and white stone quoins on a red-brick facade, this stately 80-year-old house in Washington, D.C.'s, Kalorama neighborhood typifies Georgian Revival style. When architect Donald Lococo first walked into the foyer, however, classical design and proportions were not what greeted him.

"The center stairway was so low that it clipped off [the view of] the back of the house," he says, explaining that the circulation pattern lacked an important front-to-back fluidity. Furthermore, three disparate additions on the back of the house, he says, "left it disjointed and far from its original historic read." Lococo and his team set their sights on refreshing the front exterior, simplifying the first-floor plan, and creating a modern conservatory addition in the rear. "My goal was to bring light and green energy into the house," says the architect.

From the street, the pre-renovation home was observed by passersby but not necessarily admired. The undistinguished front lawn did nothing to foster curb appeal. Small gestures like repointing brick and installing new limestone treads sharpened up its



profile, as did adding historical shutters and painting the white front door a glossy black to match them. But what really restored grandeur to the home was a new brick retaining wall at the edge of the sidewalk. Divided in two by the front walkway, the wall acts as a plinth, says Lococo, adding to the house a visual pedestal and, with it, the illusion of having been physically lifted. The new setting adds a horizontal base to the house that beautifully balances its verticality and enhances its overall stature.

Lococo aimed to carry the newly restored outside elegance of the home to the interior, particularly by reinstat-

ing the historical tripartite plan (three spaces front to back and three spaces left to right). Especially off-putting was the central stairway, whose scale and configuration prevented a clear sightline from the front to the back of the house and also obstructed centralized circulation. By replacing the stair landing with winders, the stairway and the ceiling beneath it were raised, opening the entry hall and seemingly allowing the house to breathe. Now, a visitor stepping into the home can drink in the overarching classical simplicity of the residence and even get a glimpse of the rear garden.

“The informal kitchen, family room and breakfast areas were opened up to address modern living, and the basement was claimed as family and recreation areas,” notes the architect. In the rear-ranged interior, a bathroom and closets that had been awkwardly positioned under the central stairway are now behind three doors to the right of the stairs, keeping the front and back axis clear. One of these doors leads to a mahogany-clad pantry on which the kitchen is centered. The rich wood contrasts with the subtle, almost monochromatic shades of white chosen for the countertops, cabinetry, and backsplash.

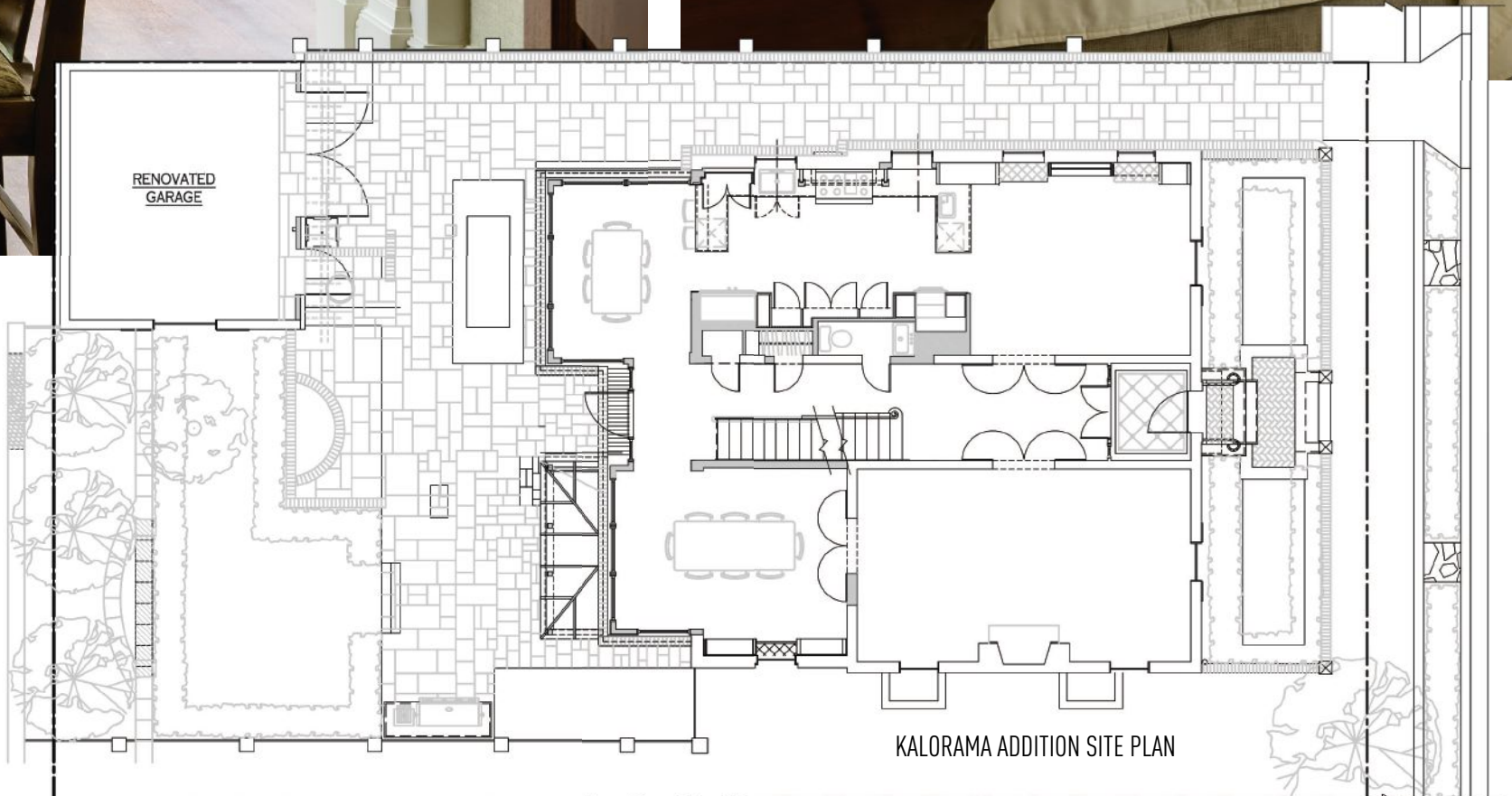
The most important counterpoint to the home’s neutral interiors and also to its traditional white-framed windows is the modern rear conservatory addition with its floor-to-ceiling windows framed in black. Dating back to the early decades of the 19th century, the tradition of conservatories has always been one of connecting people with nature. In this Washington, D.C., neighborhood where backyard space is at a premium, the architect says, “The conservatory allowed us to purchase all the light and view in the back.”

Where there was once a mismatched trio of structures patchworked onto



LEFT The double-glazed windows of the conservatory addition keep the dining room warm year-round and also bring the freshness of the outside greenery into house.

BELOW A bedroom on the second floor.







the house, the glass, metal, and wood conservatory unifies the rear elevation. Its purpose is also to add square footage to the house's main inside spaces: formal living/dining room; hallway; kitchen, and breakfast area. Double-glazed windows keep the rooms warm year-round. Certain zoning restrictions forced Lococo to leave the bluestone patio area outside the dining room unenclosed but in every other way—columns, roof, window panes—it is identical to the bump-out on the kitchen and breakfast room.

“Even though the addition references

conservatories of an earlier time, the distinction between the original historic home and the new contrasting addition is clear,” notes Lococo. Examples abound of new, modern elements paying homage to history without blindly copying the past. For instance, the pineapple-shaped finial centered on the Palladian window in back mirrors the existing one over the front door. It is a small detail but an important clue to understanding the level of care and sensitivity that goes into Lococo's approach to modernizing traditional homes.

ABOVE A new brick retaining restored grandeur to the home, adding a visual pedestal.

FAR LEFT By raising the stairway and the ceiling beneath, a visitor can now step into the home and drink in its overarching classical simplicity and even get a glimpse of the rear garden.

CENTER The most important counterpoint to the home's neutral interiors and also to its traditional white-framed windows is the modern rear conservatory addition with its floor-to-ceiling windows framed in black.

BOTTOM LEFT “The conservatory allowed us to purchase all the light and view in the back,” says architect Donald Lococo.

The U.S. Federal Courthouse in Mobile, Alabama, designed by Hartman-Cox Architects, employs massing to step down to the street. Its limestone façade and vertically grouped Davisean windows relate to the Campbell Courthouse next door.



PROJECT U.S. Federal Courthouse in Mobile, Alabama
DESIGN ARCHITECT Lee Becker and Carl Holden, Hartman-Cox Architects
ARCHITECT OF RECORD Rodrigo Hurtado, AECOM

ORDERS IN THE COURT

Since 1934, the imposing John A. Campbell Courthouse had reigned as the highest seat of justice in Mobile, Alabama.

BY NANCY A. RUHLING

PHOTOS BY PHOTOS BY LEE BECKER, HARTMAN-COX ARCHITECTS
(EXCEPT WHERE OTHERWISE NOTED)

During the following decades, the city and its architecture grew up around the white limestone building that is named for the local resident who also served as a state representative and U.S. Supreme Court justice. The citizens of Mobile had long recognized the need for a larger building to dispense justice and had set their sights on erecting a new federal courthouse in the downtown district that would complement the existing edifice.

In 2015, Yates Construction of Biloxi, Mississippi, Hartman-Cox Architects of Washington, D.C., and AECOM of Arlington, Virginia, were declared the winners of a design and build competition that brought the city's vision to life. The project also included the renovation of the Campbell Courthouse, which is still underway.

For Hartman-Cox, which has received over 150 design awards, this was the fourth courthouse project. Previously, it designed the U.S. Courthouse in Corpus Christi, Texas, and Circuit and U.S. District Courthouses in Lexington, Kentucky.

The new Mobile building has six courtrooms and nine judge's chambers for the U.S. District and U.S. Magistrate Court. There's also tenant space for the U.S. Marshals Service. "The General Services Administration, which commissioned the building, and everyone else involved, including the Mobile Historic Development Commission, wanted it to be in a traditional style," says Lee Becker, FAIA, the Hartman-Cox partner in charge of the project. "We designed a building that fits into the context of the architectural heritage of the city."

In designing the five-story, 158,000-square-foot courthouse, the team looked not only to the neighboring Campbell Courthouse but also to the Commercial Business District it resides in, whose other structures are large in scale and include contemporary structures.

Hartman-Cox also took cues from the adjacent DeTonti and Dauphin Historic Districts, whose 19th-century residential buildings are in

the Federal, Greek Revival and Italianate styles. "We were asked to design all sides of the courtyard," Becker says, adding that the landscaping incorporates live oaks, the same trees that define the two historic districts. "The people in the neighborhood didn't want to see dumpsters in the back. So we depressed the service area."

The white Alabama limestone of the new building links it visually to its historic Neoclassical Revival-style peer, which is next door and is only 115,000 square feet, while its Greek Doric columns, entablature, and profiles reference other historically significant public buildings downtown.

"The Alabama limestone was key," Becker says. "We used hand-set stone with eight-inch pre-cast concrete behind. This accommodates security rules related to blasts. The precast also acts as a vapor barrier and heat sink to maintain the temperature of the building. The assembly method also shortened the production schedule."

Once the façade material was selected, the team tackled one of the project's bigger issues: making the courthouse look smaller so it didn't overwhelm the surrounding streetscape.

The building's positioning was predetermined—GSA rules for building U.S. courtrooms mandate, for security reasons, that the structures be set back approximately 50 feet from the streets, and flood-plain regulations required the occupied floors to be roughly six feet above the surrounding sidewalks. "We took advantage of the setback to create gracious entry steps that elevate the entrance sufficiently above the flood plain while providing a contextual relationship to similar civic buildings in the neighborhood," Becker says.

The steps set the stage for the entry pavilion, which has a Greek Doric portico in front of a glazed lobby wall. Stacked windows in the style of 19th-century American architect Andrew Jackson Davis link the first and second, as well as the third and fourth floors, a design device that mitigates the building's scale as does the lower, attic-like top floor.

The roof features a parapet topped with





CLOCKWISE FROM ABOVE The lobby features permanent art installations, including glass wall mosaics of local flora, that were commissioned for the space.

Carved limestone spandrel panels link first-floor and second-floor windows and provide judicial-themed iconography.

The public entrance of the courthouse references examples of Greek Revival architecture derived from principal institutions in the city.

The jury box, judge's desk, spectator rail, feature wall, and furniture are classically detailed and finished in American cherry.

A muted color palette in the main lobby allows the proportion and detailing to become the focal points.

scallops whose curves play hide-and-seek with the sun as it moves across the building. The mechanical penthouse, constructed of pre-cast concrete with a finish that matches the tone of the limestone, is set back so it cannot be seen from street level.

Decorative elements, notably metal panels adorned with five reeds that represent the five rivers of the Tensas Delta and stone panels that feature the Great Seal of the United States and the Scales of Justice with the inscription *Magna Est Vis Veritatis* (Great is the power of truth—a quote from Cicero), complete the classic touches.

One of the more striking features of the courthouse is the curved portion of the front façade, which literally embraces visitors as they enter. “This was added because I didn’t feel there was enough definition between the working spaces of the building, which are on each side of the façade, and the public spaces,” Becker says. “The curve reinforces the entrance and tells this story.”

Inside, the exterior curve is supported by Greek Doric columns that separate the entry from the elevator lobby and mezzanine. “From the curve on the upper floors, you can see sweeping views of the City of Mobile and the river,” Becker says.

The courthouse lobby is clad in the same limestone as the exterior and also serves as an art gallery, with permanent installations of glass mosaics that depict local flora.

Becker says that one of the greater challenges presented itself before the project even started. “We had to design and price everything in only 12 weeks,” he says. “We also had to adhere to a vast number of security rules and regulations that governed everything from elevator placement to the inclusion of so-called street screens that surround the city’s civic buildings like Christ Church and the Basilica of the Immaculate Conception that are a few blocks away.”

There also were environment and flood regulations that had to be met. Hydraulic flood gates and percolation tanks that store stormwater were added to the raised planting beds that surround the courthouse.

Becker, who made a speech at the courthouse on opening day in the company of political luminaries, says it was gratifying to create a building that contributes to the city’s skyline without calling unnecessary attention to itself. “From overall composition to scale, it works with the neighborhood and fits right in,” he says.



LEFT: Photo by Rob Williamson



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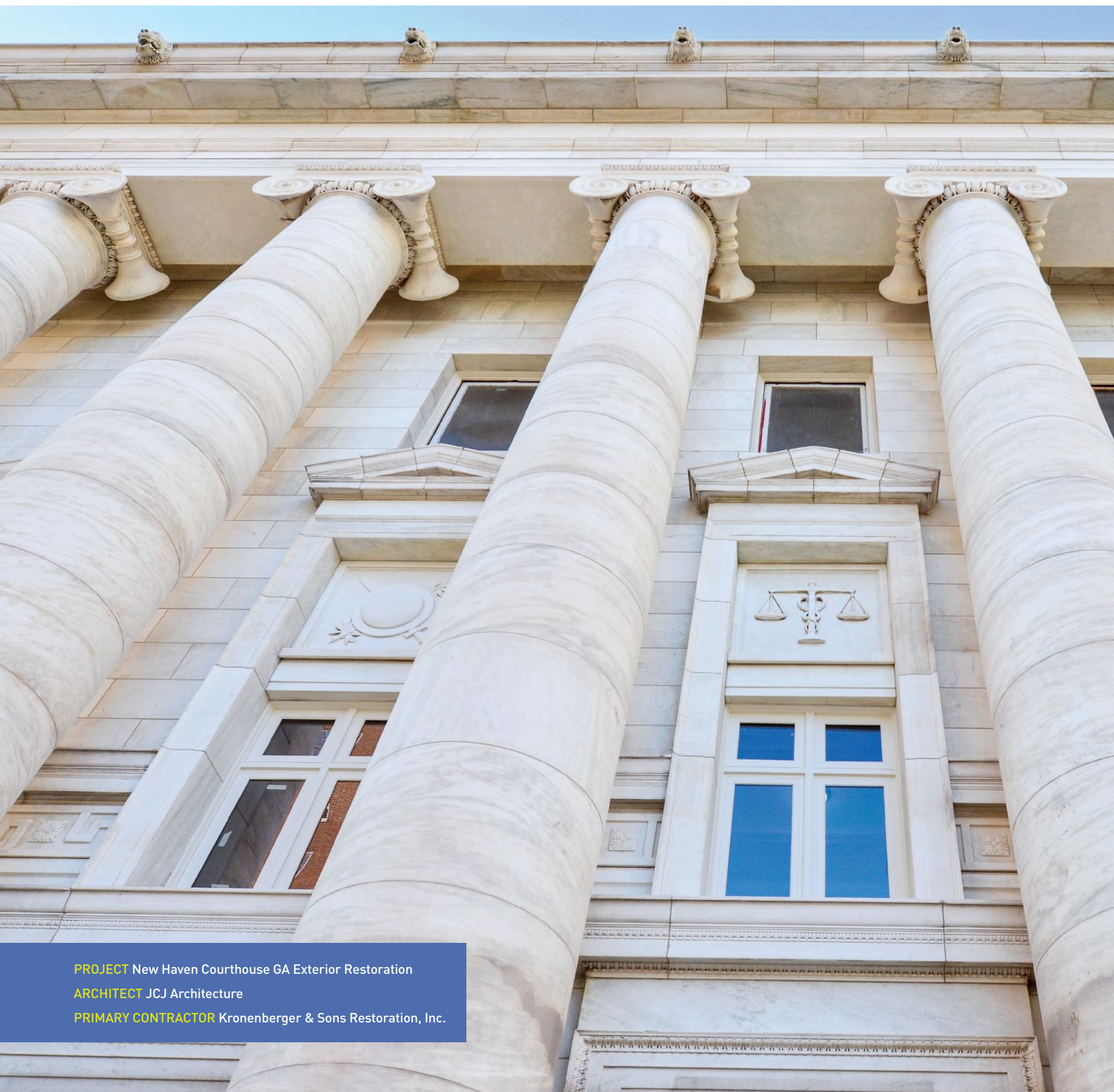
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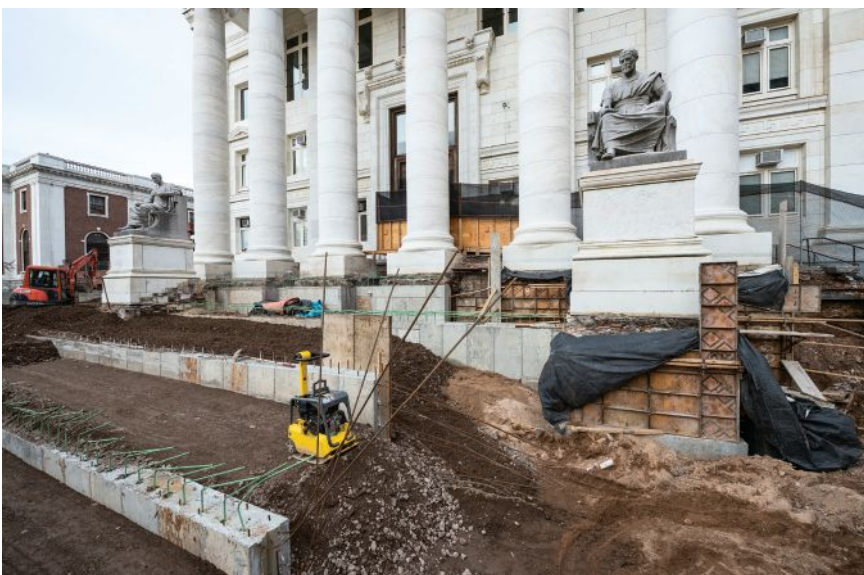
CIVIC DUTY



**The restoration of the 1914
New Haven County Courthouse.**

BY KILEY JACQUES

PHOTOS BY JAMES R ANDERSON



TOP ROW Before, during, and after photos of marble column capital restoration, including a complex dutchman repair to the volutes.

MIDDLE ROW The ceilings within the front temple portico before and after intense plaster restoration and refinishing. John Canning Co. performed the work there.

BOTTOM ROW The front monumental stairs required complete demolition and new footings. Original treads were saved and reinstalled at completion (left).

THE NEW HAVEN COUNTY COURTHOUSE (NHCC) is one of the few structures commissioned by the county to be part of the nation's City Beautiful Movement. The original building was completed in 1914 and was the work of New Haven firm Allen and Williams. Modeled after St. George's Hall in Liverpool, it is described as Neo-classical "infused Beaux-Arts principles." Together with New Haven Green—completed in 1638—the building occupies the central square of the Puritan colonists' nine-square settlement. NHCC is on the National Register of Historic Places and is part of the New Haven Green Historic District, a National Historic Landmark District.

With this deep history always in mind, Hartford-based JCJ Architecture and Kronenberger & Sons Restoration of Middletown, Connecticut, brought the monumental structure back from a state of decrepitude. Decades of pollution, ill-executed alterations, and general neglect had contributed to its demise. "Too often, buildings of this level of craftsmanship fall into heavy deterioration because of the cost of upkeep and the special skill required to maintain them," says Andrew S. Moore, representing Kronenberger & Sons.

Charged by the State of Connecticut with repairing the compromised envelope and heading off continued erosion

of the 100-year-old building's façade, the team—which included Hoffmann Architects, the State Department of Construction Services, and Building Conservation Associates—kicked off a two-year reconstruction plan in 2012. It was Phase One of a multi-phase project, and it addressed the Elm Street and Church Street elevations—the windows, skylights, roofing, stairs, doors, and masonry, as well as important architectural features and fixtures. "The work on this project was diverse," Moore notes. "It ranged from demo, excavation, structural [repairs], and abatement to highly ornate metalwork, stonemasonry, plastering, and finishes."



Several original bronze exterior doors had been replaced in years past. New doors were perfectly reproduced in bronze to match an existing original pair (left).



The complexity of the project was compounded by the busy downtown location, high-level security constraints, and a requirement that courthouse operations be unhindered. “Staging the building, maintaining or redirecting egress, protecting sidewalks and roadways, delivering and removing materials, and performing work were all equally crucial to the safety and success of this project,” says Moore, adding that keeping noise to a minimum and providing front-door access when an entire front portico staircase is being deconstructed is no small feat.

The goal was to restore rather than replace as much of the original structure as possible. First steps included removing said stairs and storing them offsite for reinstallation. The existing rubble foundation was then replaced with steel-reinforced concrete footings and elevated slabs. Repair work on the façade masonry began by cleaning the limestone and marble, which was done using a specially designed low-pressure misting system that carefully lifts contaminants without destabilizing the materials.

Repairs were made using a dutchman technique, which, Moore explains, is used when an area of stone is missing or deteriorated beyond the point of patching. The type of stone is identified and matched with new stone. In this case, the marble had a distinctive grain,

and new dutchman pieces were arranged such that the grain would align with the existing material. The damaged section of stone was removed and the surface cut into a flat, uniform opening. The new stones are rough-cut, and then ground and honed by hand until the fit is within 1/64 of an inch, at which point it is secured in place using stone epoxies and stainless steel anchors. “This incredible precision was carried throughout the courthouse to ensure the original design was done justice,” Moore notes.

“The trickiest parts of the project were replicating the marble volutes of the column capitals, and making the center-pivot windows functional again. The marble volutes had to be laser scanned and perfectly reproduced to match the original, and then fit seamlessly into the existing material,” he explains, noting that each volute weighed several hundred pounds and had to be lifted delicately into place. “The center-pivoting window sashes have complex weather stripping and jambs. Site superintendent Pete Hansen remarked, “There’s a reason they don’t make them anymore.”

Both entries featured large-scale doors and light fixtures. Grand Light was subcontracted to refinish the eight-foot entry door on the Elm Street elevation and to replicate the original Church Street doors, which had been lost when they were removed and replaced with

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standard emergency exit doors. The company was also asked to bring the 400-pound lanterns flanking the doors back to their original finish.

All of the windows were removed, lead abated, restored, reglazed (triple-paned windows replaced the original single-pane units), and reinstalled into the existing wood frames. To make accurate repairs to damaged frames, samples of the original wood were sent to the National Forest Service for species identification; they were shown to be oak, mahogany, and ash. Additionally, multiple stained-glass windows on the second floor were dismantled and reassembled, replacing all the zinc comes in the process.

To ward off nesting birds and to protect sculptures by John Massey Rhind, permanent netting was installed across

the tympanum located above the main entrance. The front entry roof and gutters were replaced, new roof drains and piping were installed, and the original three flights of granite stair treads—with new concrete footings and reinforced concrete walls—were put back in place.

The NHCC project is remarkable for the old-world craftsmanship—stone carving, wood repair, metal fabrication, stained glass work, and decorative plastering required to restore a building of such historic grandeur. “Every building is different,” Moore concludes, “and although many techniques can be universally applied, understanding the context of [this project was] paramount. This is certainly one of New Haven’s most beautiful structures.”

The interiors are slated for restoration in a future phase.

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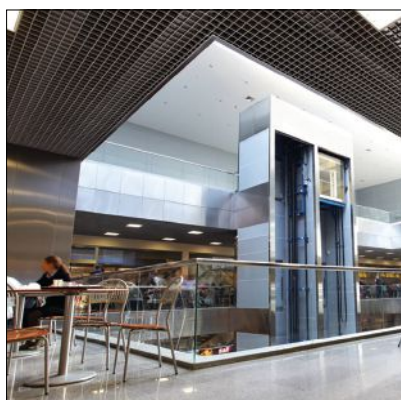
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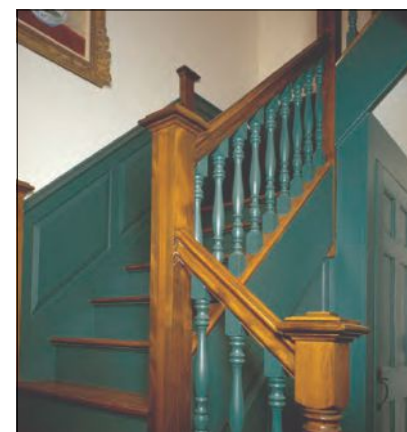
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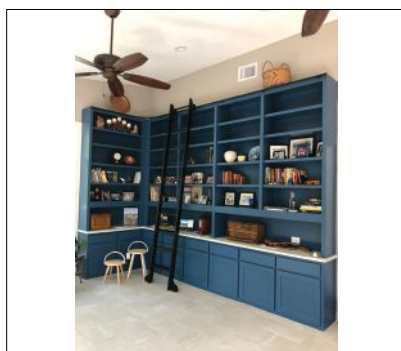
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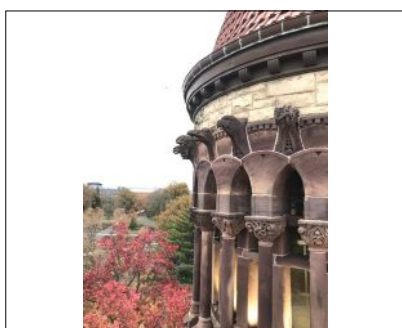
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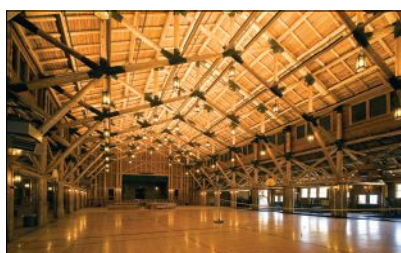
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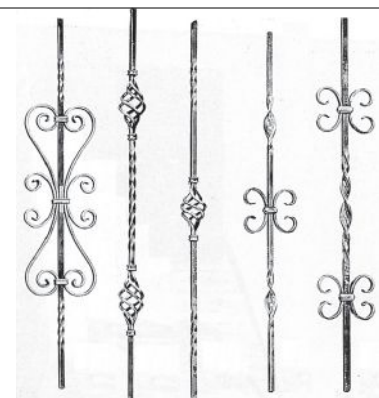


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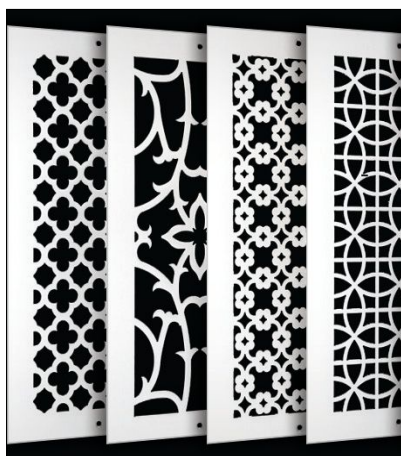
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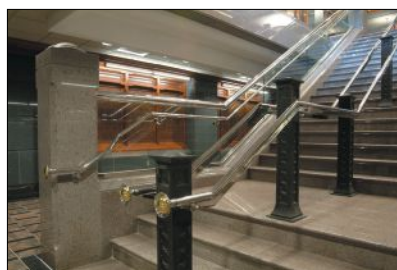
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www.pacificregisterco.com
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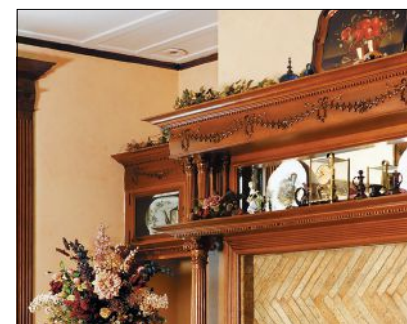
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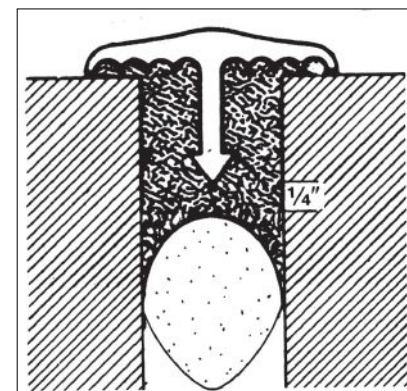
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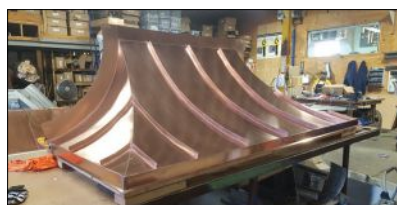
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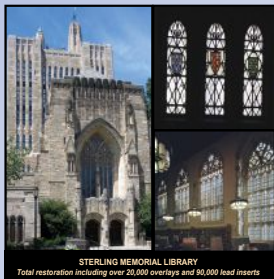
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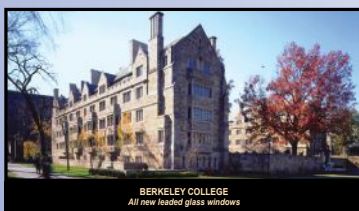
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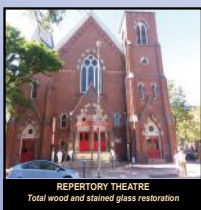
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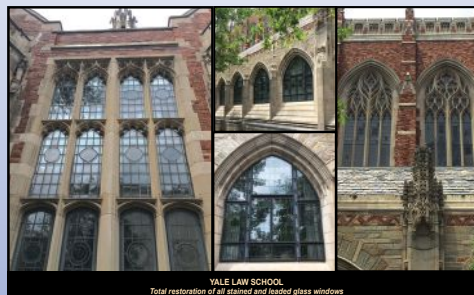
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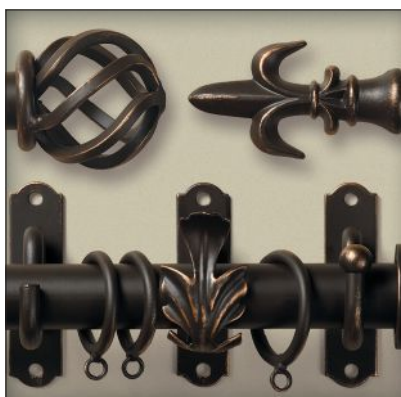
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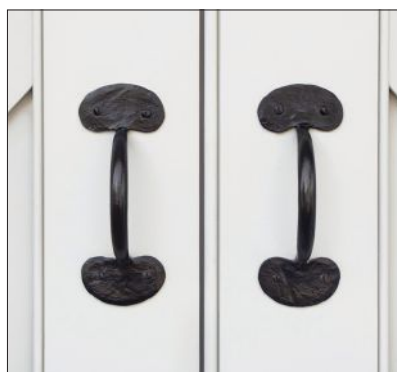
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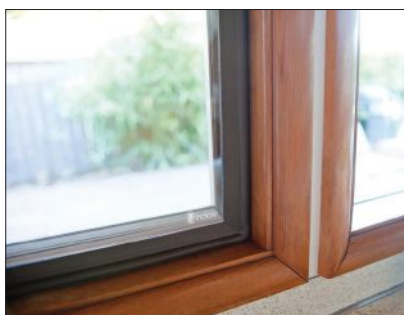
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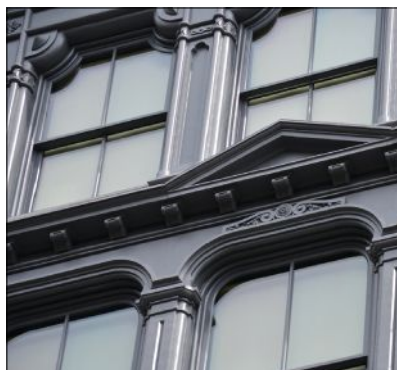
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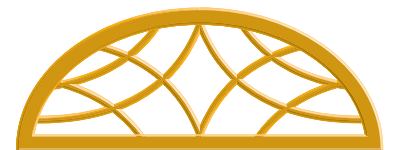


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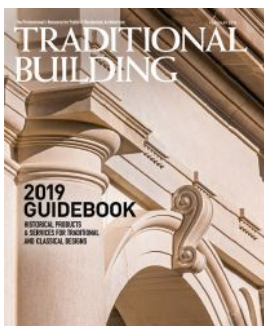
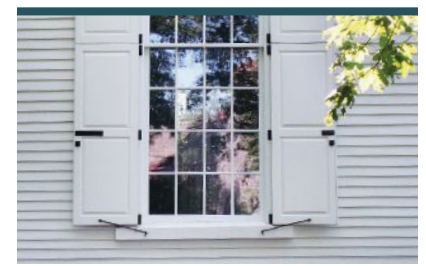


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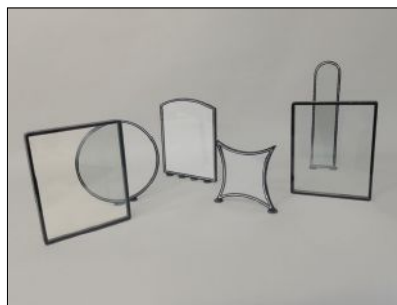
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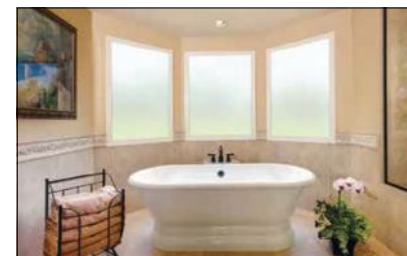


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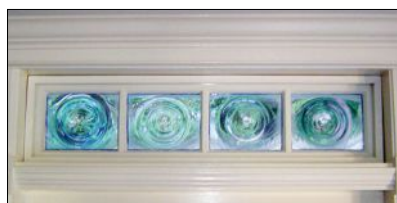
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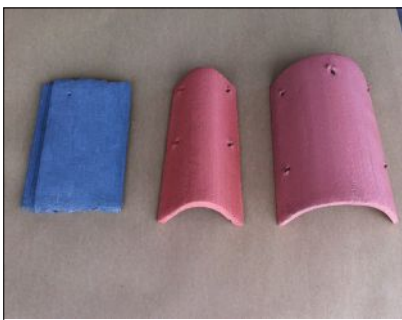
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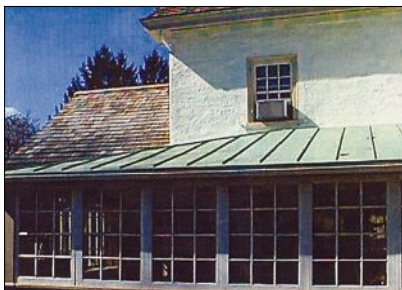
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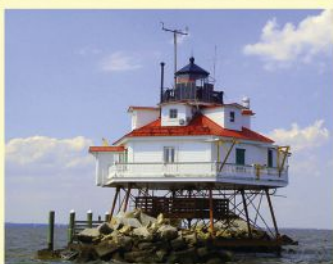
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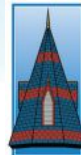
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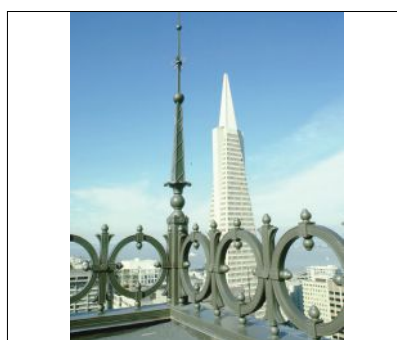
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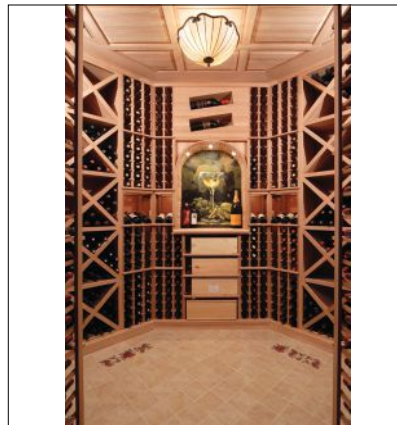
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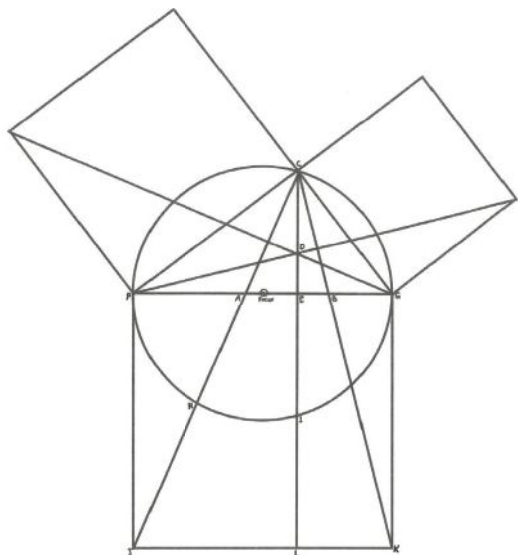
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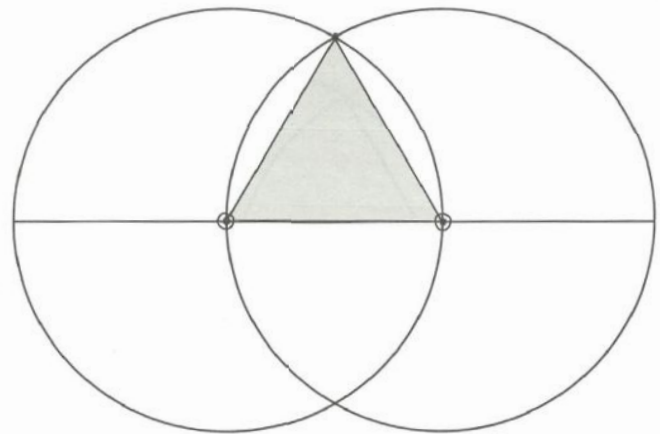
Exploring Artisan Geometry



Embedded in this geometric construction from antiquity is all the information an artisan needs to create a full kit of layout tools. When you finish the book, come back and the inherent truths of parallelism, like angles, right angles, triangular proportionality and a 3-4-5 triplet generated from a hidden hexagon will be revealed.

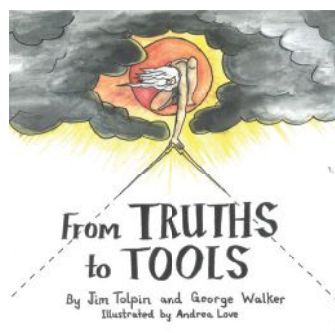
2

If we go one step further and connect the second focus point to the rim intersection point, we have before us the birth of the "triangulas" (triangle).



This three-angled shape has a length (the shared radius line) and a height (the maximum of which is found at the intersection of the two circles' rims).

56



From Truths to Tools
By Jim Tolpin and George Walker
Illustrated by Andrea Love

Lost Art Press, Fishers, IN, 2017
Hard cover, 198 pages, \$25
Numerous black-and-white drawings

WHILE AT FIRST GLANCE this may appear to be a child's book, with the black-and-white sketches and large print, it actually explains and illustrates geometric truths and the simple tools that reveal them. The authors show that these universal geometric truths are available to anyone who has a peniculus (brush or pencil) and a papyrus (paper) and they show how valuable this knowledge is.

From Truths to Tools is the latest book by Jim Tolpin and George Walker. Tolpin has been a woodworker for 30 years and now teaches at the Port Townsend School of Woodworking in Port Townsend, WA. Walker originally got into woodworking to relieve the stress of his day job and was soon writing for publications such as *Fine Woodworking* and *Popular Woodworking Magazine*.

Divided into 31 short chapters, each describing a certain tool and its uses, the book starts with the first hand tool of geometry, the awl. From there it goes into topics such as the Compass, String Line, Plane Generators, Squares, Plumb Line, Sector, Cord of Polygons, Cross Staff, and finishing with the Logger's Felling Gauge. Each chapter explains how the traditional tool reveals the geometric truths needed for building and is accompanied by appropriate drawings and diagrams. There is also an Appendix and an Epilogue.

One example is the chapter on Rulers which shows that they originated in Egypt when the pharaohs were building pyramids. They created a wooden measuring tool based on the length of a forearm called the cubit. Europeans followed this concept, but based it on the span of a foot (1/6 a man's height).

The book progresses to more complex concept such as the Sector, "a forerunner of the slide rule used by arisen designers up until the end of the 18th century." The authors describe and illustrate how this is related to a circle and an isosceles triangle.

The book starts with this statement: "Alethia—the revealing, the uncovering, the bringing of what was previously hidden into the open—the Truth." Then it offers a drawing with this explanation, "Embedded in this geometric construction from antiquity is all the information an artisan needs to create a full kit of layout tools."

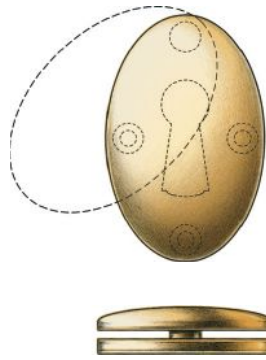
And that is what they do for the rest of the book—explain the truths of geometry and how traditional hand tools can be used to build most anything, including furniture, boats, buildings, and bridges.

Any builder, designer, or woodworker would find this book invaluable.

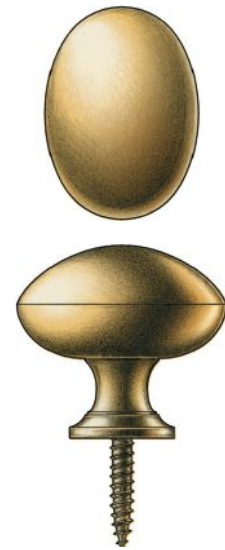
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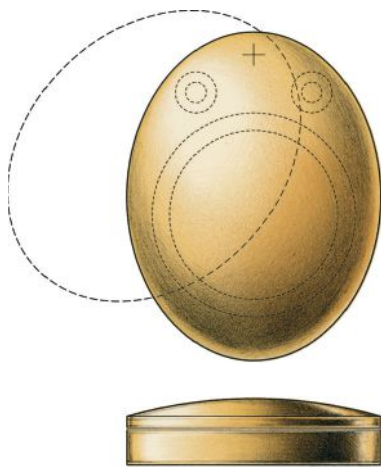
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