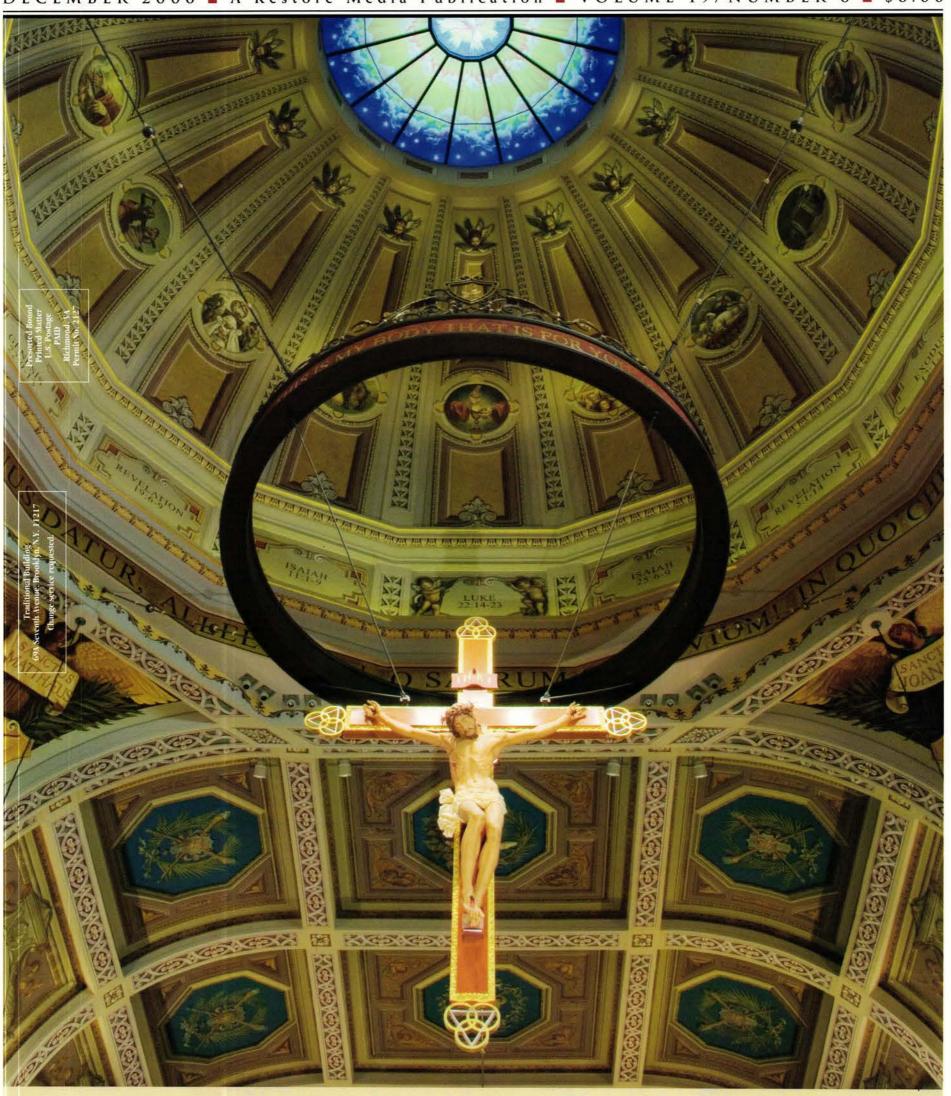
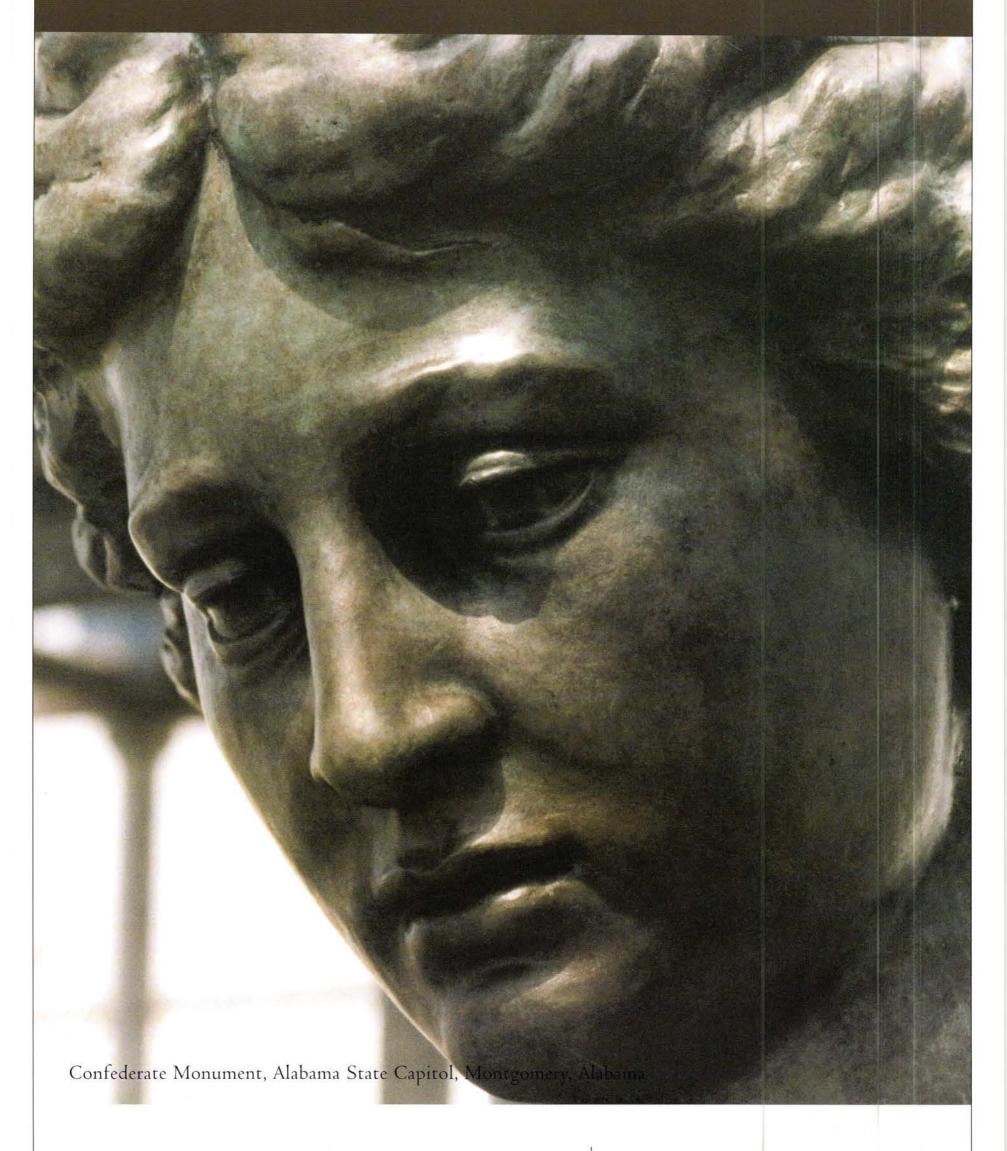
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Hord Architects, a 49-year-old firm based in Memphis, TN, boasts a portfolio of more than 100 religious buildings in 10 states, ranging from the design of a classically styled campus in Memphis and a Georgian church in Maryland to the renovation of a movie palace for a Chinese congregation in New York.

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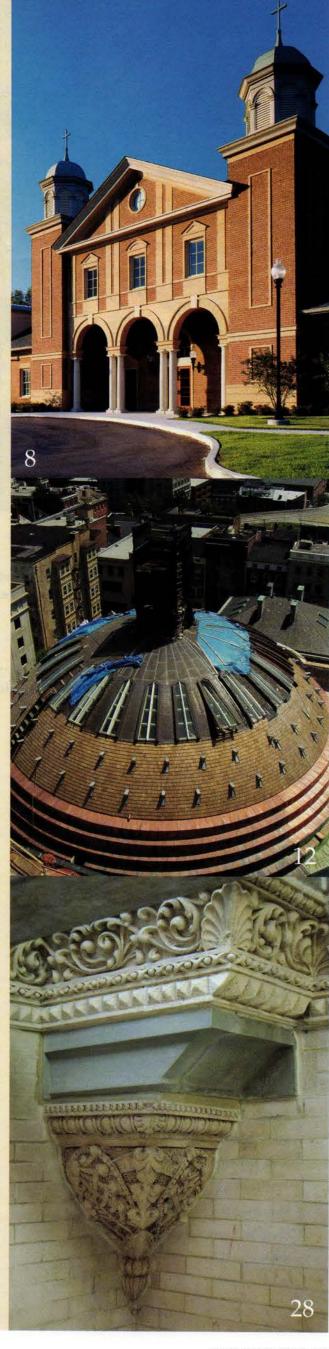
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On the cover: Completed in 1889 and distinguished by a lofty dome and a soaring 217-ft. tower, the Cathedral of the Blessed Sacrament in Sacramento, CA, was designed by architect Bryan Clinch to blend elements of the Italian Renaissance style with French traditions. Now restored, the cathedral once again serves the city's Catholic population. See page 20. *Photo: courtesy of David Wakely Photography*.



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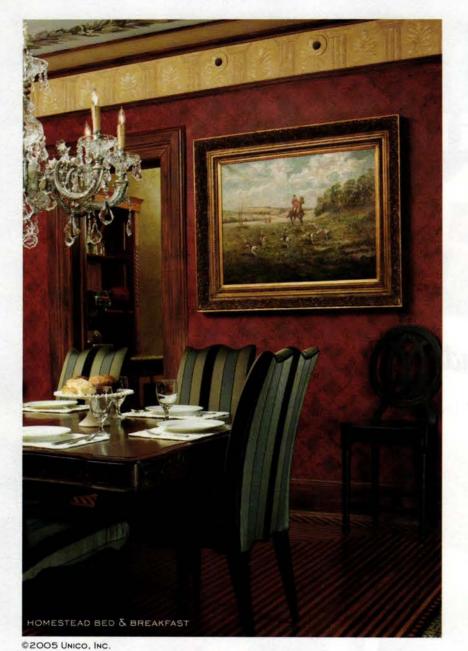
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New Orleans: Rebuilding Hope - Reclaiming Heritage

By Lisa Sasser, President, PTN

he 10th annual International Preservation Trades Workshop was as different from other IPTWs as New Orleans is unique among American cities. From the smell of Cajun cooking in the air, to the sight of ships passing along the levee above the main event location, it was clear that this was no ordinary venue when IPTW 2006 came to New Orleans' Lower Ninth Ward, Oct. 26-28, with the theme "Rebuilding Hope and Reclaiming Heritage."

Since Hurricane Katrina devastated the historic neighborhoods of New Orleans, PTN has been working with the World Monuments Fund and our local partner, the Holy Cross Neighborhood Association, to help local residents rebuild and return home through initiatives like the Mobile Preservation Unit, and a repair demonstration project at the Greater Little Zion Missionary Baptist Church. IPTW 2006 took this to a new level, by waiving the usual workshop registration fee and inviting all to join us in an open workshop setting designed to promote learning and sharing the knowledge of the trades for all who care about restoring these communities.

More than 100 members of the PTN community from 26 states, and from as far away as Scotland, Canada and Sweden, came to New Orleans to work side by side with local residents.

More than 200 local residents attended IPTW to view the demonstration projects, attend "hands on"



Master Plasterer Earl Barthé, 2006 recipient of the Askins Achievement Award

presentations and educational sessions such as "Repairing My House – Where Do I Start?" and many others on mold remediation, house raising, selecting and working with contractors, and applying historic preservation standards. In addition, 40 students from the Priestley School for Architecture and Construction, a new charter high school in New Orleans joined in the pre-conference workshop at Lafayette Cemetery No. 1 and the repair projects in Holy Cross. The World Monuments Fund also sponsored the attendance of four students from the Brooklyn High School for the Arts. A separate pre-conference "Repair and Conservation Workshop" sponsored by Save Our Cemeteries was also held October 21-25 at Lafayette Cemetery No. 1.

One of the most memorable highlights of this, or any other IPTW, was the presentation of the 2006

Askins Achievement Award to Earl Barthé, a sixthgeneration New Orleans master plasterer and distinguished teacher of the art of plastering. Barthé, whose home and workshop were heavily damaged by the floods following Hurricane Katrina, remarked that he was grateful not only for the award, but also for the fact that his home is being repaired and he now has a wall to display it on.

IPTW 2006, could not have taken place without the generous support of the World Monuments Fund, the Nathan Cummings Foundation, the Samuel H. Kress Foundation, and the members of PTN who contributed funding, tools and materials, as well as countless hours of their time to this effort.

Although PTN will continue to work in New Orleans and the Gulf Coast as long as the rebuilding and recovery efforts continue, we are also planning several major events in 2007. The first IPTW to take place outside of North America is scheduled for May 21-25, 2007 in Tällberg, Sweden. Another milestone event for PTN will be IPTW 2007 in Frederick, MD, Oct. 11-13, in partnership with the National Park Service Historic Preservation Training Center (HPTC) to mark the 10th anniversary of IPTW and the 30th anniversary of HPTC. To learn more about these and other upcoming workshops, visit PTN at: www.ptn.org and www.iptw.org, or contact the PTN Office. ◆

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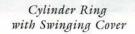
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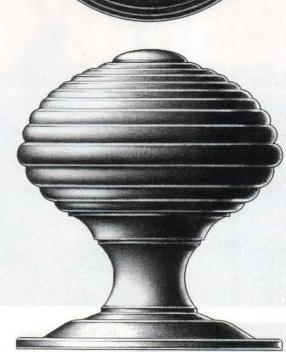


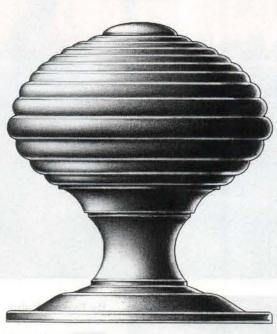
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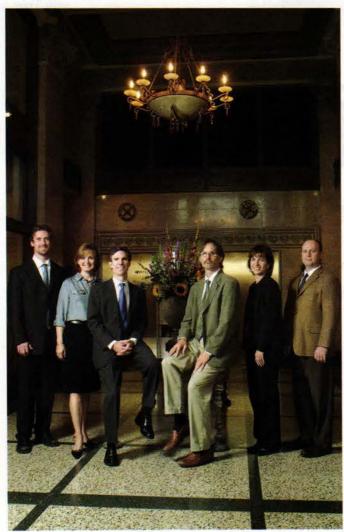
Designing and restoring churches nationwide, a Memphis firm opens congregations' eyes to architecture's ennobling possibilities.



Above: On a main thoroughfare in a Memphis suburb, Hord Architects has designed a Classical campus for Kingsway Christian Church.

Domed cupolas grace a chapel (right) and the main building, and Hord is now completing a stylistically compatible school for the property. Photo: ©2006 Jeffrey Jacobs Photography

Right: Carter Hord (third from left) poses in the office's 1923 Art Deco lobby with staff. From left: Brandon Allen, Lisa Hord, Carter Hord, Matthew Lee, Donna Dixon and Jeffrey Holt. Photo: Hud Andrews



By Eve M. Kahn

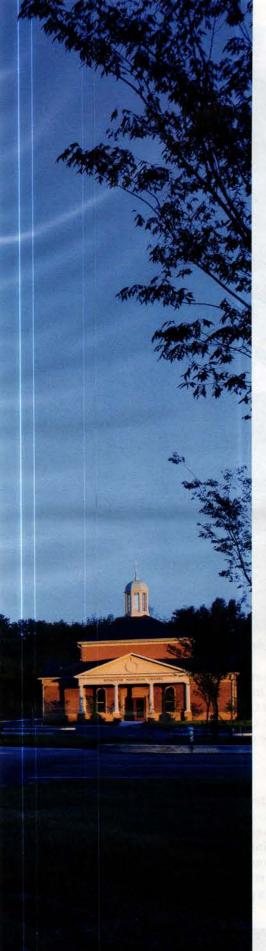
erhaps no other architecture practice in America has a portfolio of church projects with the aesthetic and geographical breadth and scholarly and soulful depth of Hord Architects of Memphis, TN. The 49-year-old firm has graced 10 states with religious buildings spanning from haute Renaissance to Carpenter Gothic. The office is a worthy successor to history's church specialists, such as Christopher Wren, Nicholas Hawksmoor, A.W.N. Pugin and Ralph Adams Cram. But just discussing the firm's accomplishments can make principal Carter Hord a little uneasy.

After an eloquent, impassioned one-and-a-half-hour interview, he confesses that he's not accustomed to talking about himself. "Our motto is 'service through architecture," he says. "I work hard to subordinate the ego, to make the work not about me, but about how well we've used our gifts to glorify God, and how well we've listened to the client."

Congregations keep telling him compelling stories. Their existing buildings have endured storm or fire damage, or their communities are expanding or splintering. Or perhaps they have recently changed liturgy, refocused on urban outreach to the needy, or welcomed new immigrant groups. Their neighborhoods are likewise evolving, gentrifying or fending off sprawl. Hord, age 43, a second-generation architect, creates uplifting architectural solutions out of his patrons' many competing needs.

The six-person office proceeds patiently, working phase by phase as funds are raised to rebuild downtown Gothic steeples or weave Georgian or Colonial complexes into suburbs. Scores of clients from Florida to Minnesota have commissioned 15- or 20-year master plans, so that every new wing will be consistent with the last. Worshippers enjoy Hord Architects' inspiring domes, colonnades and trusswork without realizing how much forethought and experience went into the sightline configuration, altar height or underlying technology.

"Sometimes congregations tell me that architecture isn't that important - they'll say, 'Carter, we can worship in a metal building,'" Hord







Above: Renaissance colonnades provided inspiration for the church's main entry. Gables and towers relieve the mass of the 300-ft.-long façade. Photo: ©2006 Jeffrey Jacobs Photography

Left: Sunlight through clear arched windows reflects on highly polished pews in the church's austere sanctuary. Photo: Carter Hord

observes. "But I say to them, 'Yes, you can, but do you have to?' Of course you can muddle through in a metal building. But then the congregation loses all the meaning and teaching opportunities that can

come from detail, space, light. Even infants get something out of a beautifully designed church – they have their own kind of spiritual experience. There are easier building types to work on, but none more gratifying."

A typical Hord project is born when a few representatives of a church planning committee arrive at the office, explaining that they want their new or rebuilt structure to look like a church. "Then we try to figure out exactly what those words mean to them," Hord says. "We analyze the site and we drive around to see the local vernacular. We study the history of the denomination and the congregation. We talk to members who have strong convictions about which architectural language they prefer, to find out why, and help decide if it's appropriate for their needs now. We hold town hall-style meetings, so everyone knows they're being listened to, that they can convey ideas. The dialogue, the research, the whole process always takes longer than the client anticipates. A solution doesn't fall out of our sleeves right away, but a solution always surfaces. And if there's been some controversy brewing in the congregation, the programming and building process can be therapeutic. It can bring everyone together, and refocus their energy."

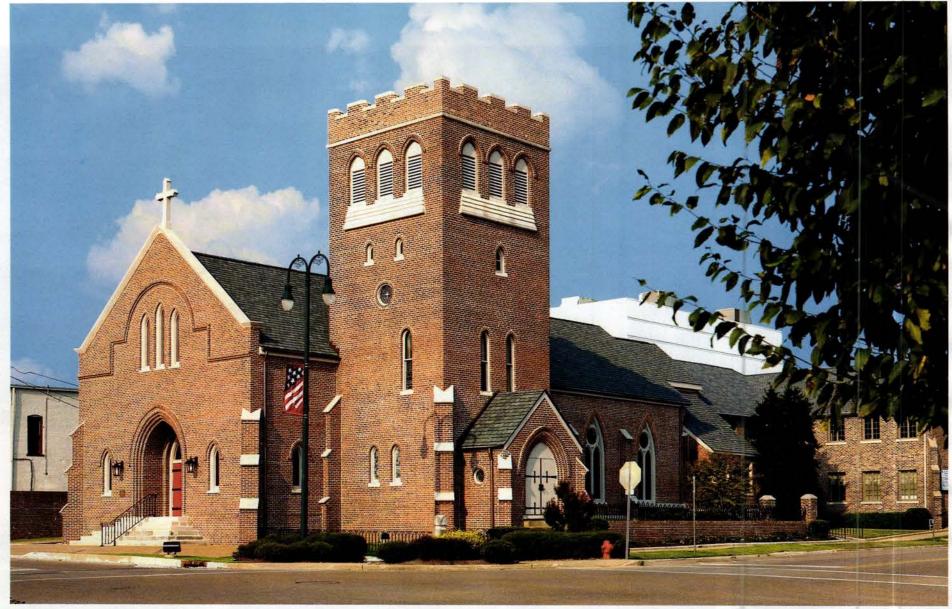
Pious Upbringing

Hord's commitment to client-tailored architecture is partly hereditary. His father, Lawrence T. Hord, Jr., was a Memphis-based Modernist-leaning architect. There were three boys and three girls in Carter's family, and they grew up in Modernist houses designed by their father. "We had mountains of glass around us, and stairs with open risers," Carter recalls, "so of course people

called us 'The Brady Bunch.'" The Hords belonged to a Roman Catholic congregation and attended Holy Rosary Catholic Church, a 1950s Romanesque essay in limestone. (Hord still worships there, and he has devised expansion plans for the building, with a new lantern, narthex and arcaded limestone porte cochere and entry.)

For undergraduate studies in architecture, Hord chose Auburn University, partly because it offered parallel tracks of rigorous design and pragmatic building science. "We were exposed to a lot of viewpoints – it was a 'cafeteria school' in some ways," he says. "There were professors who'd worked for Mies, Bruce Goff, Frank Lloyd Wright – but no Classicists." Not until his master's studies at Cornell did he meet erudite traditionalists; the charismatic scholar Colin Rowe was running Cornell's urban design studio. The architecture studio there was Modernist, Hord says, "which made for really fascinating, spirited debates about what exactly are an architect's responsibilities to the city and to the community."

During school vacations, he apprenticed at his father's office, and was tempted to partner there after finishing Cornell. Instead he was recruited by a Washington, DC, firm, Keyes Condon Florance Architects (now part of SmithGroup). "I wanted to be in a city full of world-class architecture, and help shape buildings on a monumental scale, a larger scale than what my father was handling," Hord says. He worked on the likes of a Metro station master plan, the U.S. Embassy in Algiers, and the Smithsonian Institution's half-million-sq.ft. Administrative Service Center. In Washington, Hord's wife Lisa, an Auburn classmate, helped design Collegiate Gothic school buildings for the office of Leon Chatelain. The couple made enduring friendships with



St. Luke's Episcopal Church in Jackson, TN, an 1840s landmark, reopened this fall, after Hord Architects undid devastating 2003 tornado damage. Photo: ©2006 Jeffrey Jacobs Photography

Chatelain, Allan Greenberg staffers and other prominent traditionalists including Michael Franck, James McCrery, and church specialist Duncan Stroik. (Stroik, now a professor at the University of Notre Dame, publishes *Sacred Architecture*, the only tradition-friendly journal for religious architecture.)

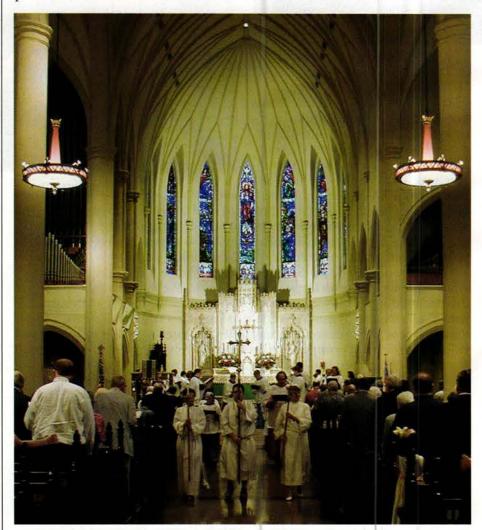
Hord officially partnered with his father in 1991, setting up a branch office of Hord Architects in Alexandria, VA. Carter and Lisa moved back to Memphis in 1995, shortly before L.T. died of cancer. The senior architect lived to see the firm undertake its first large traditionalist religious commission: Frederick Seventh-Day Adventist Church in Maryland. "The congregation's 1970s church had just burned to the ground," says Hord. "They had an insurance settlement and a high-profile new site on an interstate, and they wanted

Prolific church architect William Halsey Wood designed St. Mary's Episcopal Cathedral in Memphis, a circa-1900 English Gothic marvel carved from limestone. Hord Architects re-roofed the structure and cleaned and restored the masonry. *Photo: Carter Hord*

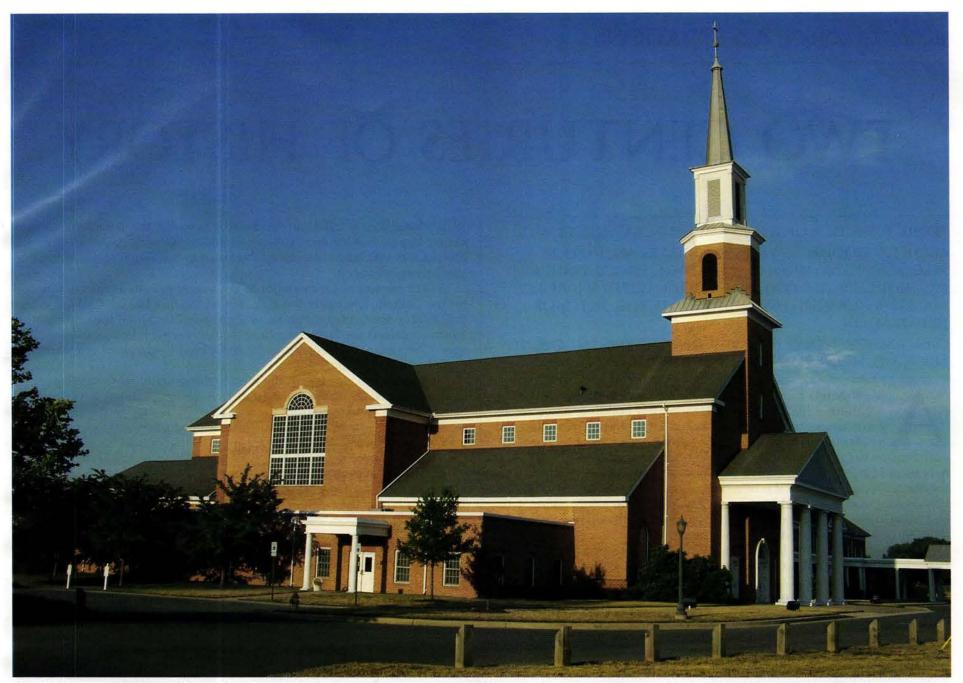
to build in the local Georgian tradition. We entered and won their design competition with a solution rooted in James Gibbs' 1720s design for St. Martin-in-the-Fields, the marriage of a Gothic spire engaged in a Greek temple front. My father approved. He was very open to letting me make my own way, on the business and aesthetic side of the firm."

Expanding Horizons

Carter and Lisa haven't quite replicated his Brady Bunch childhood. They are raising two children in a nondescript 1950s house, set in a spectacular landscape: cherry groves and manmade lakes laid out in the 1920s as the grounds for a supermarket tycoon's pink-marble mansion. Lisa is a principal at Hord Architects, which has offices on the ground floor of a 1923 high-rise downtown, the Shrine Building. The rest of the 14-story building has gone condo, just one example of Memphis's preservation-driven rebirth over the past decade.



In the interior of St. Mary's Episcopal Cathedral, Hord Architects brought in new mechanicals, supplemented pendant lights, adjusted pews, designed new modesty rails and restored plasterwork. Photo: courtesy of Hord Architects



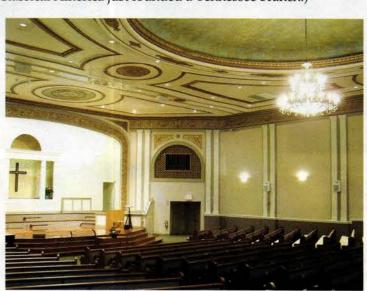
One of Hord Architects' first traditionalist religious commissions (ca. 1995) was Frederick Seventh-Day Adventist Church and School in northwest Maryland. A replacement for a 1970s building that had burned, it reflects local Georgian traditions. The Gothic spire embedded in a Greek temple front is also rooted in James Gibbs' 1720s design for London's St. Martin-in-the-Fields. Photo: Carter Hord

"Because this was not a very progressive city," Carter explains, "we didn't suffer very much from urban renewal." The whole state's economy has likewise been booming. Multinationals headquartered there, like FedEx and Nissan, are helping build a diverse client pool for Hord Architects, half of whose projects are in Tennessee.

"We've had congregations that are predominantly Chinese, Korean and African-American," Hord says. "People from all walks of life are on the church building committees now. The global economy has come here, and the committees are more open than ever to hiring architects from out of town." The members of local design review boards and grassroots preservation groups are diversifying, too. Hord reports that the firm's proposals meet with warm community approval wherever they go: "We respect scale and context, and we don't plunk down seas of asphalt in front of our churches. We put ourselves in the neighbors' shoes. And we find

more and more people are returning to an appreciation of traditional architecture." (Another sign of changing times, he adds: the Institute of Classical Architecture & Classical America just founded a Tennessee branch.)

A Chinese-American congregation has taken over a chopped-up movie palace in suburban New York, renaming it Long Island **Abundant Life** Church. Hord Architects excavated and restored the gilded proscenium and scrollworkencircled dome. Photo: Carter Hord







In the interior of the Frederick Seventh-Day Adventist Church, clerestory stained glass and a rose window illuminate a dome resting on unadorned Doric columns (above) and dramatic entablature molding supports the dome's pendentives (left). Photos: Carter Hord

Lately, Hord Architects' project budgets range from \$500,000 to \$9 million. Churches account for 90 percent of billings; secular nonprofits make up the rest of the workload, usually when taking over former warehouses, train depots or fire stations. But charities don't expect Hord's staff to work pro bono.

"Because we're specialists, they realize that they're getting their money's worth, that we'll be good stewards of every hard-raised dollar, with every spec, all the way through," he says. "We're more efficient, a better buy for them, than a firm with a steep learning curve would be." On one of the few occasions he can recall a job going slightly over budget, there was an irresistible reason. A few years ago, the firm was converting a chopped-up movie palace in a New York suburb into a church for Chinese-Americans. Work had to stop briefly during partial interior demolition, because a scrollwork-ornamented dome unexpectedly turned up above some lay-in ceiling tiles. "The church knew their money would be well-spent on restoring this remarkable treasure," Hord notes.

As he travels widely to construction or reconstruction sites and navigates diplomatically through meetings with AV engineers or road planners, Hord stays invigorated by imagining the next round of dedication ceremonies. "To see something we've worked on for literally thousands of hours, over the course of years, finally full of people worshipping together – that's a beautiful thing to see, every time." •

TWO CENTURIES OF HISTORY

PROJECT: BASILICA OF THE ASSUMPTION, BALTIMORE, MD ARCHITECTS: JOHN G. WAITE ASSOCIATES, ARCHITECTS PLLC, ALBANY, NY; JOHN G. WAITE, FAIA, SENIOR PRINCIPAL; MICHAEL CURCIO, PROJECT MANAGER; STEPHEN F. REILLY, AIA, PROJECT ARCHITECT; DOUGLAS BUCHER, INTERIOR RESTORATION

CONTRACTOR: HENRY H. LEWIS CONTRACTORS LLC, OWINGS MILLS, MD; ELLINGTON E. CHURCHILL, JR., PROJECT MANAGER

fter a storied history, the 200-year-old historic Baltimore Basilica is getting a fresh start. The Neoclassical building, noted for its grand dome, two onion domes and large portico, was designed by Benjamin Henry Latrobe, architect of the U.S. Capitol. Construction began in 1806 and the building was opened in 1821 at an original cost of \$225,000. The Basilica of the National Shrine of the Assumption of the Blessed Virgin Mary, as it is officially called, is now starting its third century looking much as it did in its early days, thanks to a \$32-million, two-and-a-half-year restoration led by John G. Waite Associates, Architects (JGWA), of Albany, NY, and New York City.

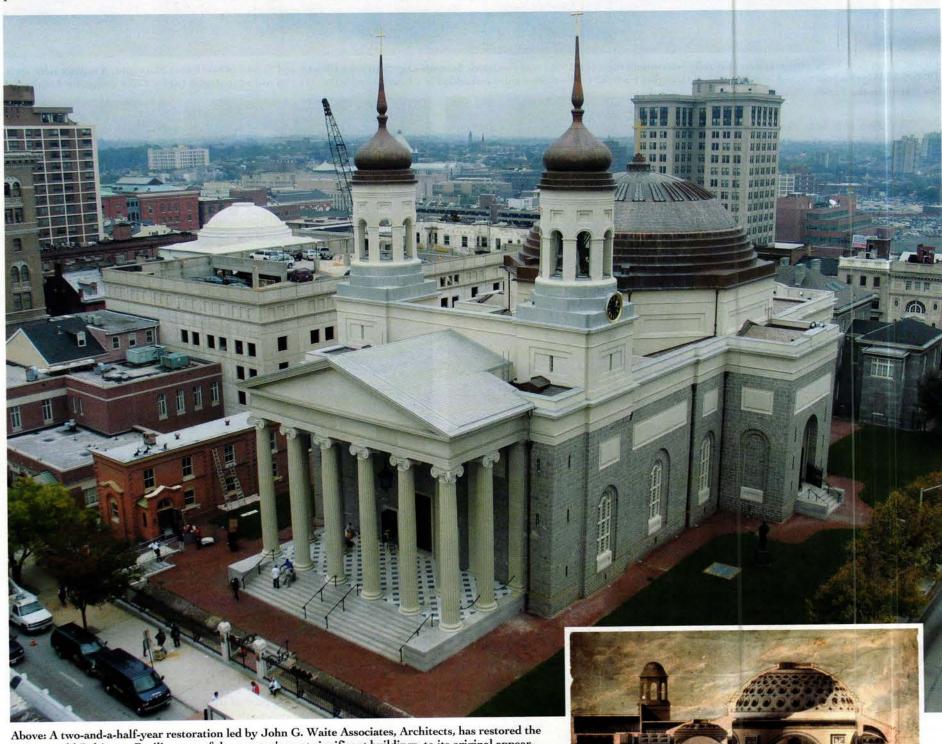
The effort was actually launched in 1976 with the creation of The Basilica Historic Trust, according to executive director Mark J. Potter. "Our mission is to restore, preserve and maintain the basilica," he says. "When Cardinal Keeler arrived in 1989, he realized the importance of the building and began plans to restore it." The historic structure report was conducted by John G.

Waite Associates in 2000 and fundraising began in the same year. Construction began in 2004 and was completed in November 2006, when the basilica was officially rededicated. Potter adds that much of the restoration was privately funded.

Potter stresses the importance of the building, both architecturally and for the Catholic Church in the U.S. "It was the first Roman Catholic cathedral built in the United States following the ratification of the Constitution, which contained the First Amendment guaranteeing religious freedom," he says. "Previous to the constitution, it was illegal in Maryland to practice the Catholic faith in public."

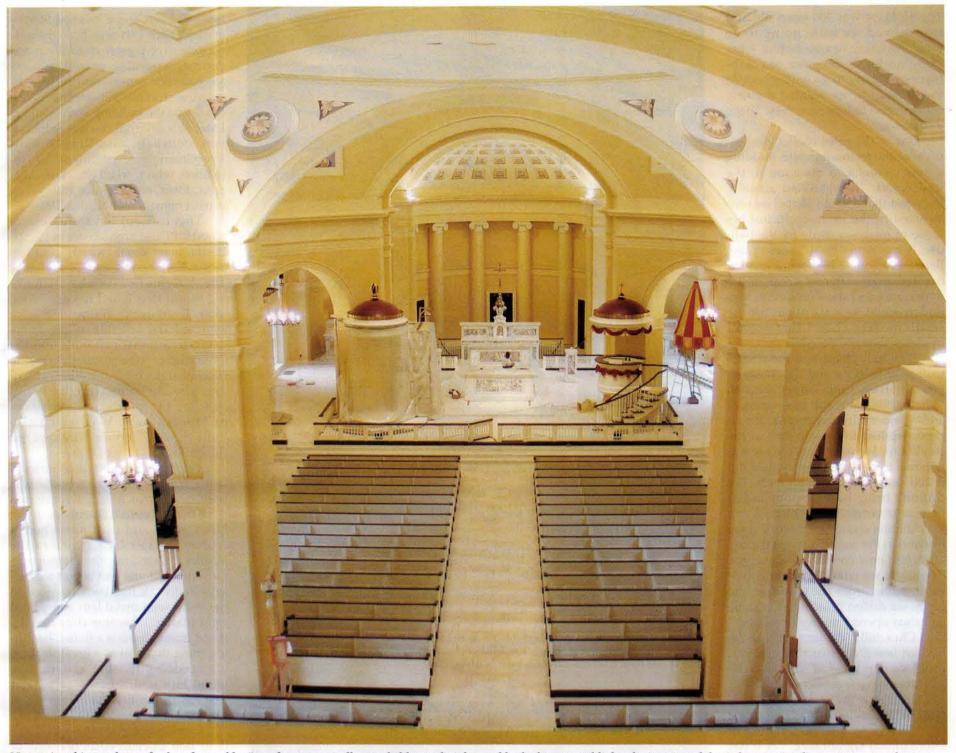
The basilica is also one of the most architecturally significant buildings in this country. "Latrobe submitted two designs – English Gothic and Neoclassical – to John Carroll, the first Catholic bishop in the U.S. Carroll selected the Neoclassical style because he wanted a forward-looking, 'American' design, similar to the U.S. Capitol," Potter notes. "It is considered Latrobe's masterpiece."

Following an extensive national search, JGWA, a firm with a long record in historic preservation, was selected to direct the restoration of the basilica. The firm's project list includes some of the country's most notable buildings, such as Mount Vernon, the Octagon, the Lincoln Memorial, Blair House and the Tweed Courthouse in New York City, as well as several state capitols. "Our work began with the historic structure report in 1998-99," says Jack Waite, FAIA, senior principal, JGWA. "It was the first time anybody had gone through all of the archival records to see how Latrobe actually designed the building. The report indicated that the building was of international significance; it was one of the most important buildings built at that time, either



Above: A two-and-a-half-year restoration led by John G. Waite Associates, Architects, has restored the 200-year-old Baltimore Basilica, one of the country's most significant buildings, to its original appearance while updating the mechanical systems to 21st-century standards. The Neoclassical building was designed by Benjamin Henry Latrobe, who was also Thomas Jefferson's surveyor of public buildings, a title later changed to Architect of the Capitol. *Photo: courtesy of John G. Waite Associates, Architects*

Right: This drawing, "Section of the Cathedral of Baltimore from West to East," was done by Latrobe in 1808. John Carroll, the first Catholic bishop in the U.S., preferred this Neoclassical proposal over a Gothic rival because it was forward-looking and "American." Drawing: courtesy of the Baltimore Basilica



Now painted in a palette of colors favored by Latrobe – straw yellow, pale blue and pink – and bathed in natural light, the interior of the Baltimore Basilica once more welcomes parishioners into a bright, open space. Photo: courtesy of John G. Waite Associates

in this country or in Europe. The original design was created with a great deal of assistance from John Carroll and was also influenced by Thomas Jefferson. Catholics had been a persecuted minority until the time of the revolution and Carroll realized that the church needed a significant building if it was going to play a major role in the religious life of the new republic. It was seen not only as a symbol of the Catholic Church, but also as a symbol of religious freedom.

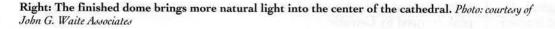
"In spite of 14 redecoration campaigns since the Civil War, a remarkable amount of the original Latrobe building fabric survived. The building construction had followed Latrobe's design intentions until the Civil War and

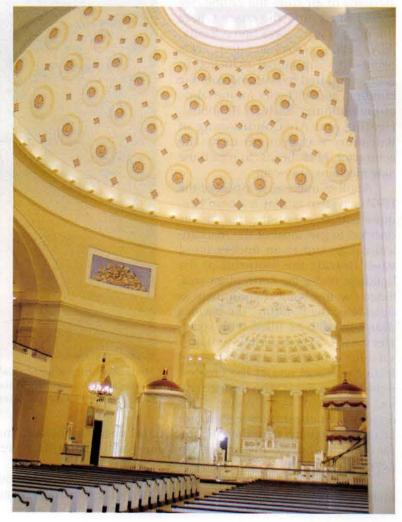
then his vision was lost. We found that the building was so significant that it needed to be restored to Latrobe's original vision. This is a very unusual approach for an American project," he adds. "We didn't restore it to any period of time and we didn't keep the later modifications that did not respect Latrobe's design."

"Henry H. Lewis was involved in the project three to four years before construction began," says Ellington Churchill, project manager. "It's unusual to be at the table with the owner and architects during the planning of the project. It's fortunate because we could do diagnostic work and provide information early on in the process. The enormity of the project was obvious.



Above: The architects specified historic materials for the 77-ft.-dia. main dome – wood lath and lime plaster – to follow Latrobe's intent and because they realized that these materials had the flexibility needed to accommodate the movement of the outer wooden dome. Photo: courtesy of the Baltimore Basilica





The building was 200 years old and we realized we were going to be touching every square inch of it because no finish, no piece of equipment was going to go untouched. At the same time, we wanted the new construction to look seamless. That's a challenge."

One of the most challenging aspects of the restoration was building a new chapel and museum in the undercroft. "Latrobe had actually intended that a small chapel be constructed in the undercroft, but because of mistakes made by the builder, it was never built," says Waite. Between 4 and 12 ft. of sand was excavated from different areas in the undercroft and the foundation was underpinned to make room for the small, modern chapel that accommodates about 50 people.

"The first phase was the undercroft modifications and the construction of the new vault," says Churchill. "The basilica is made of a series of arches and vaults and because it's on sand, we had to be sensitive to the conditions. For one thing, the excavation had to be done the way they did it 200 years ago, with shovels. We couldn't bring heavy equipment in because of ventilation problems."

Another example of work done by hand in the undercroft was the creation of a new entrance to the crypt. "Typically we would bring in equipment, but in order not to disturb the crypt, we drilled holes into the stone and then opened the wall by hand," says Churchill. "We learned that the basilica is a great structure and you could see why it lasted 200 years. The workmen have great respect for it."

Updating the mechanical systems of the basilica was also a priority. "This is an historic building of international significance, yet it has to be a working cathedral that functions well in the 21st century," says Waite. "That meant installing new lighting, HVAC, fire protection and plumbing systems." Waite and his team decided to condition space to a point only about 15 ft. above the main floor, the area occupied by people, rather than to condition all of the space up to the domed ceiling, which is approximately 77 ft. above the main floor.

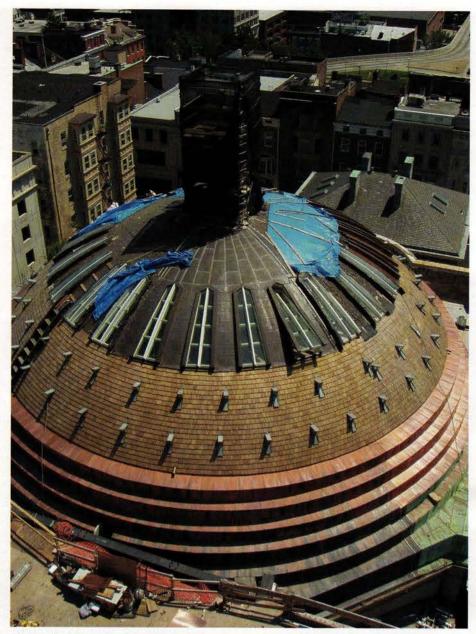
"Rather than dumping huge amounts of air from the ceiling, we conditioned only the space where the people are," says Steve Reilly, AIA, JGWA, project architect. "This results in a substantial reduction in energy required to heat and cool the building, and it's better for the fabric of the building." Calvert Plumbing, Heating and Air Conditioning of Baltimore was brought in by the contractor, H.H. Lewis, to install the

new mechanical system. Another interesting aspect of the AC system is that it doesn't require equipment on the roof. It was decided to put most of the mechanical equipment in an underground vault outside the footprint of the building, under the north plaza area. Since the mechanical equipment is outside of the building, the basilica didn't have to be filled with sprinkler heads. "The building will survive for centuries if it is protected from fire - and one of the greatest potentials for fire is with the mechanical equipment," says Waite. "This arrangement also makes it easier for

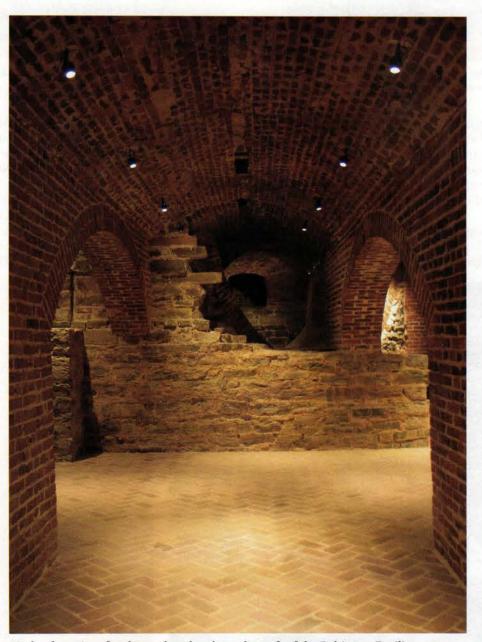
future generations to update the mechanical systems. The building may last for centuries, but the mechanical equipment will have a life expectancy of a

generation, at best."

The project also included restoring and reconstructing key original elements such as the great dome, windows, balconies, the sanctuary and interior



The roof of the main dome is wood shingle up to the perimeter of the wood frame, then new copper sheathing was added. The 24 skylights that had been covered during World War II and then later removed are back in place. Photo: courtesy of the Baltimore Basilica



Made of a series of arches and vaults, the undercroft of the Baltimore Basilica now houses a small chapel and museum, as well as the crypt. Some of the original brick had to be removed to create an entry to the crypt. Photo: courtesy of John G. Waite Associates

finishes. EverGreene Painting Studios of New York City was brought in to do extensive plaster restoration and decorative painting, as well as to create two new murals and restore the exterior stucco. "The architects directed that the building be restored to Latrobe's original design, which is very unusual," says Kim Lovejoy, EverGreene vice president for restoration, who worked with Luis Angarita, EverGreene senior restoration project manager, on the basilica.

This concept led to the use of wood lath and lime plaster in the 77ft.-dia. main dome, which incorporates a 22-ft. oculus and 24 skylights. The skylights had been covered during World War II and removed soon after. EverGreene craftsmen reconstructed the interior of the dome using traditional materials and the 24 skylights were restored, bringing natural light back into the sanctuary. The skylights were built and installed by Allegheny Restoration, of Morgantown, WV, which also built the new replica windows for the building.

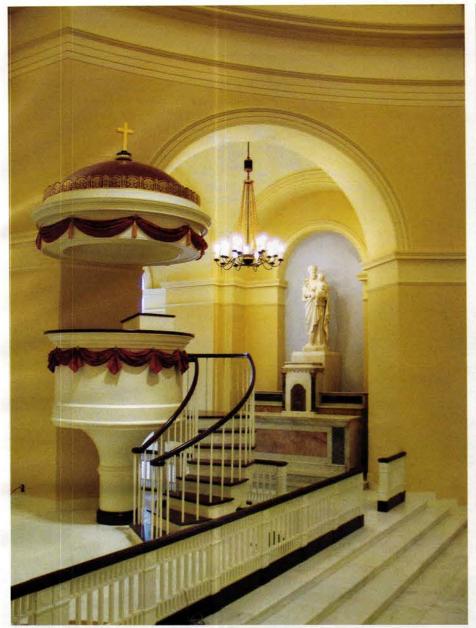
This type of dome construction using framing of light wood - was used by Thomas Jefferson for domes over the legislative chambers of the U.S. Capitol and used again here a few years later by Latrobe in the basilica. "Over time, the interior surfaces of the dome had begun to fail," says Reilly. "It had been replaced in the 1940s with metal lath and a hard rigid plaster. It became clear that the wood frame dome is a living, breathing thing that moves a great deal. So we needed a flexible system, like wood lath and lime-based plaster that has the ability to move without breaking apart."

EverGreene project superintendent Bob Corwin adds that one of the reasons for using lime plaster is that it doesn't deteriorate under moisture. "Also, since it was an historic building, they wanted to go with historical materials. You have to follow certain procedures with lime, but it is a really nice material," he adds. "For example, it cures very slowly. Because lime is weaker than other plasters - the wood lath provides the strength - it stresses differently and won't crack. Its weakness is its strength."

EverGreene also completed flat and ornamental plasterwork in the basilica, including cornices, moldings, rosettes and columns. The firm also created profiled moldings and cast ornaments in its shop for installation in the basilica. The decorative painting and mural work done in the Baltimore Basilica was also extensive. Following direction from Douglas Bucher of JGWA, Ever-Greene artists painted trompe l'oeil ceiling panels and coffers in the half dome and pendentives at the apse. stenciling and gilding for the baldachinos and grisaille ornament and gilding on the main dome.

In addition, Bill Mensching of EverGreene designed and directed the painting of two new period-appropriate 15-ft. dia. murals: Ascension of Christ and Assumption of Mary, and the firm restored four 19th-century frescoes of the evangelists, Matthew, Mark, Luke and John, that the architects discovered buried under later plaster surfaces. Dating from 1865, they once again adorn the cathedral.

Warren Construction & Painting of Baltimore was contracted to do the non-decorative painting in the interior as well as the painting on the exterior, such as the new wood windows and the cast-iron portico. The interior walls were restored to their original colors, a palette of straw yellow, pale blue and pink favored by Latrobe.



Every detail and surface of the Baltimore Basilica was restored, including the pulpit. Photo: courtesy of John G. Waite Associates

Another studio that restored paintings in the basilica was Simon Parkes Art Conservation, of New York City. It peeled back almost 120 years of accumulated candle soot and grime to restore the original oil paintings of the Stations of the Cross.

One of the more exciting events that occurred during the restoration was the discovery of the cornerstone of the building by H.H. Lewis workers. It had been placed there by Bishop John Carroll 200 years ago on July 7, 1806.

Another surprise was the discovery of two wooden life-sized an-gel statues that had graced the altar from 1821 to 1927 that were uncovered in the undercroft. They were restored by master woodworker Jim Adajian and gilded by Ed Milburn of Baltimore.

Restoring the skylights and repairing the grand dome to allow natural light into the building was only part of the new lighting system in the basilica. Translucent windows that replicate the original windows from the 1800s also allow more light into the cathedral. These were built and installed by

Allegheny Restoration to replace stained glass windows that had been added later.

Waite explains that the original windows had survived in the building until the 1940s, when they were replaced by stained-glass windows made by Conrad Schmitt Studios. These newer windows were removed and given to another church, which was designed to accommodate the stained glass.

In addition to opening the building to natural light, the restoration also included six chandeliers and six lanterns, which replicate the historic fixtures. The new fixtures were fabricated by Excalibur Bronze Sculpture Foundry of Brooklyn, NY.

Other interior work involved restoring the sanctuary to its original appearance and installing white marble flooring. Although the original design called for a light-colored marble floor, it was not possible at the time of the initial construction, so a temporary wood floor was installed for the 1821 opening. It was later followed by a white marble floor and then tile and finally dark marble in the 1940s. The new flooring is a creamy white marble with gold, gray and black veining and is in keeping with Latrobe's original intent. The marble blocks were provided by Polycor Colorado Stone



EverGreene painters restored the four murals that were discovered hidden behind a later plaster surface in the main drum of the building. They date from 1865 and were restored in place. Photo: courtesy of EverGreene Studios

Quarries of Marble, CO, and the pavers were fabricated by Georgia Marble of Kennesaw, GA.

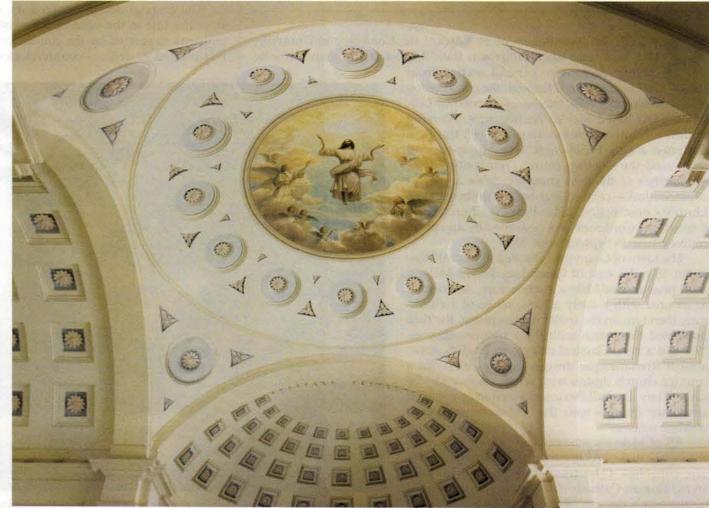
The exterior of the building required extensive stucco repair that was done by EverGreene. "Like many buildings of the same period, the basilica had historic lime stucco that was later covered over with wire lath and Portland cement," says Lovejoy. "We restored the exterior to historic materials using the Keim universal render system, which involved two coats of stucco with a mesh application between them to reinforce the plaster." In addition, run-in-place moldings were restored and ornamental plaster was repaired and hand-sculpted to match existing ornament.

The architectural investigations also led to the discovery of sections of Latrobe's 19th-century wood-shingle roof on the north and south transepts. To conserve the roof for future generations, JGWA designed a new wood roof that encapsulates and replicates the appearance of the original. This work was done by Heidler Roofing Services of York, PA. "Rather than remove and replace or even try to restore the original roof shingles, we decided to encapsulate them and replicate the profile with the new wood roofing," says Reilly.

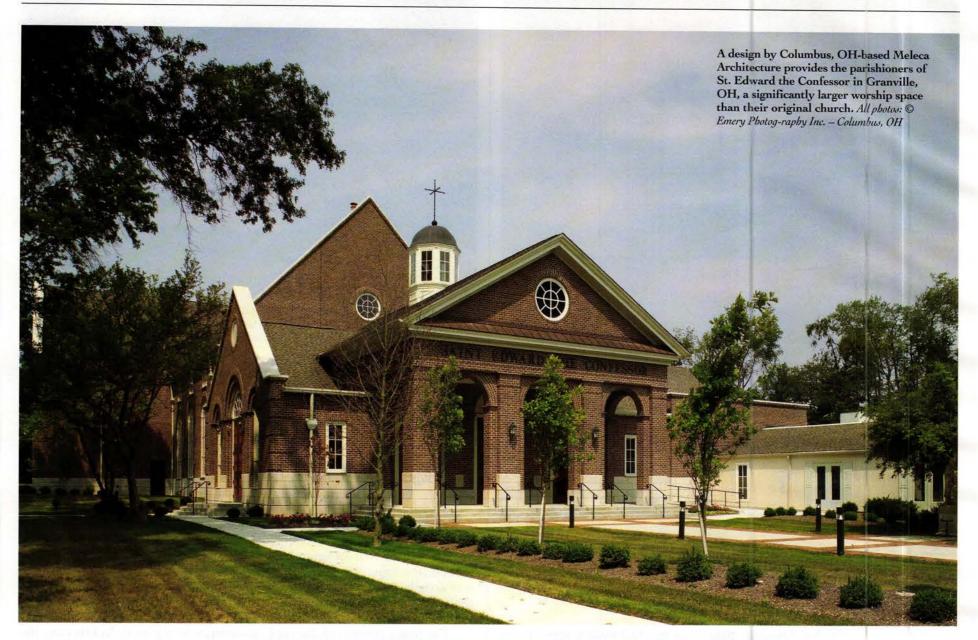
The major portion of the roof, however, was replaced. In this case, the workmen raised the existing roof about six ft. and suspended it in place while they constructed the new roof underneath. "This gave us space to frame up the new roof and still be fully protected from the elements," says Churchill. "And we would work on the roof in all weather." Once the new roof was complete and weather-tight, the old roof was demolished.

The original covering of wood shingles was also returned to the main dome. It was topped with the historic, gilded gold cross.

Benjamin Latrobe would probably be very happy to see the basilica now. Restored to its original intent and featuring the new chapel in the undercroft, the building is once again a light-filled symbol of religious freedom. "It's not often that one gets to work on a project that has such meaning in the history of Baltimore and the nation," says Churchill. "It is truly an honor. Most of the credit goes to the hard-working men and women who came from all over the country to work on this project." – Martha McDonald



The Ascension of Christ is one of two 15-ft. dia. murals designed and painted by EverGreene Studios under the direction of Bill Mensching. Photo: courtesy of EverGreene Studios



BURGEONING FAITH

PROJECT: THE CHURCH OF ST. EDWARD THE CONFESSOR, GRANVILLE. OH

ARCHITECT: MELECA ARCHITECTURE, COLUMBUS, OH; DAVID MELECA, AIA, PRESIDENT

CONSTRUCTION MANAGER: LINCOLN CONSTRUCTION, INC., COLUMBUS, OH

MURAL ARTIST: MICHAEL MCEWAN, COLUMBUS, OH

y 2002, the parishioners of St. Edward the Confessor in Granville, OH, had long since outgrown their 3,000-sq.ft. Roman Catholic church. Socking to expand seating from

church. Seeking to expand seating from 300 to at least 800 through the construction of a new worship hall, the parish turned to Columbus, OH-based Meleca Architecture. Working within a relatively restrictive budget, the firm designed a new 14,500-sq.ft. worship space and renovated the existing church, reinventing it as the narthex of the new complex. After a year of construction – carried out by Columbus-based Lincoln Construction, Inc. – the new Church of St. Edward the Confessor was dedicated by an appreciative parish in September of 2004.

The town of Granville is located in central Ohio about 30 miles east of Columbus. David Meleca, AIA, president of Meleca Architecture, describes it as an area with a fairly eclectic range of architecture; therefore, in the initial design phase, the firm presented the parish with three unique schemes. "We did a very Classical design, an English stone, almost Romanesque design, and we also did a country church design with wood clapboard," he says. "They liked all three and asked us to combine what they thought were the best qualities of each into one scheme."

All of Meleca's schemes laid out the new worship space in the cruciform plan of traditional Catholic churches. (The trend toward traditionally styled Roman Catholic churches is also evidenced by the firm's designs of St. Michael the Archangel Catholic Church in Leawood, KS, and St. Paul the

Apostle Catholic Church in Westerville, OH.) The final design of St. Edward the Confessor was realized in a metal-stud construction with a brick veneer, which Meleca says is probably the least expensive way to handle such a large facility. "What was unique about this one was that it had a very tight budget," he says. "At the time, they really wanted to stay in the \$3-3.5 million range. Building a church that met their requirements and hit those numbers was quite a challenge – goals for churches like these are to be long-lasting, to be generational, so there is a challenge in finding a balance between that and the budget."

The original design oriented the new church north-south as a separate structure just to the west of the existing church. In a cost-saving measure that was suggested by the contractor, the new church, in the final design, was rotated 90 degrees counterclockwise and connected to the old church,



Seen from the south, the mass of the new church extends from the existing church. A main entrance portico (visible at right) was added to the east side of the narthex; an auxiliary entrance was added on the south side of the narthex.

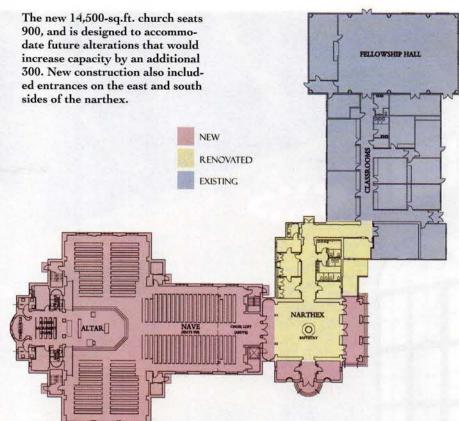


Completed in 2004 by Columbus, OH-based Lincoln Construction, the new church extends from the west façade of the existing church, which was incorporated into the new design as the narthex. A fellowship hall and classrooms compose the existing space extending to the north of the new narthex.

enabling the old church to be incorporated as the narthex and thereby eliminating the need for the construction of a new narthex. "The existing church was pretty rudimentary – a steel construction with a double-brick exterior wall," says Meleca. "We really had to almost dismantle the old church, keeping the steel frame and literally building around it on all sides." Along with the narthex, the renovated existing church now also includes offices and restrooms. (The completed L-shaped complex also includes classrooms and a fellowship hall in an existing space connected to the north end of what was the old church.) The new narthex is accessed from the east via a Classical entrance portico, which was designed to straddle the old church and connect with the new structure; it is topped with a cupola. An auxiliary entrance was also added to the south side of the narthex.

In the interior of the narthex, the wood ceiling and timbers of the original church are still visible to parishioners, creating a sense of continuity that Meleca says has been appreciated by the parish. "A lot of the older parishioners who were involved with the first church are very pleased with how they can still see the old church," he says.

In the new space, the treatment of the ceiling was another cost-saving measure. "The ceiling was a major debate," says Meleca. "How much volume



do we put in there? Do we do a full cathedral ceiling? Initially we had a full cathedral ceiling, both lengthwise and along the transepts. We resolved not to put the cathedral ceiling in the transepts, flattening out the trusses and simplifying some of that ceiling treatment." In the nave, the ceiling was partially flattened to allow mechanical systems to be hidden in the concealed truss space, thus eliminating the need for a basement. "We also painted the ceiling dark throughout, using painting as more of the decoration than trim work," says Meleca. "Keeping the trim down to a minimum was a way of keeping costs down."

The new church now seats 900. Taking the possibility of future expansion into consideration, Meleca Architecture's design allows for alterations that would increase capacity by an additional 300. "What we resolved to do, to try to incorporate the idea that they wanted to expand at some point, was enable the ability to put in balconies on the two transept sides in the future," says Meleca. "We brought the plate height of the roof up high enough so that could be handled, and actually worked out how the staircases and egress paths would work based on that."

The three large murals behind the altar were painted by local artist Michael McEwan, who was also the project artist for St. Brigid of Kildare



In the new narthex the original wood ceiling and timbers of the old church are still visible - creating a sense of continuity that has been appreciated by parishioners.





In the nave of the church (above and left), which seats 900, cost-saving measures included the introduction of a partially flat ceiling in lieu of a full cathedral ceiling to allow mechanical systems to be housed in the concealed truss space. The acrylic murals behind the altar were painted by Columbus-based artist Michael McEwan.



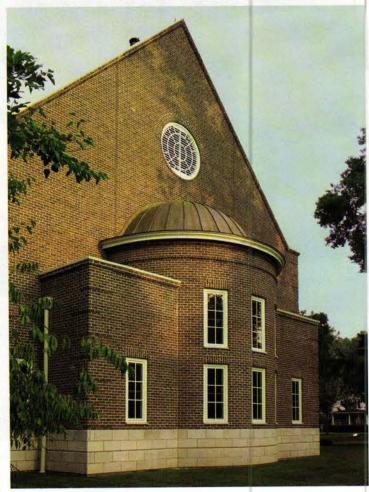
Seen from the Blessed Sacrament Chapel, the new 14,500sq.ft. worship space provides ample room for the parishioners of St. Edward the Confessor.

Catholic Church in Dublin, OH, and is now an artist-in-residence at Capital University in Columbus.

Because there were alcove spaces designed for the murals, McEwan actually executed the paintings – acrylic on canvas – in his studio and later had them installed in the church. The central mural portrays a young Christ as the Good Shepherd; the side panels include St. Edward, St. Theresa, St. Catherine of Siena and two figures known as the Roman martyrs, depicted in white. "I had some students who helped me with a lot of the base painting, and then I basically used a triad of gold, red and blue," says McEwan. "We also used quite a bit of iridescent and metallic paint to emulate gold leaf. We worked on the pieces over the course of three months and basically cut them off of their canvas – they have professionals who trim them and install them. It looks like they were painted there all along."

McEwan says the parish is very happy with the result, noting that the murals fit into the overall goal of creating a traditional-looking church. "I know that with this church and some other recent churches, the feeling is that we want churches that look specifically like churches, that they don't need to look like multi-purpose buildings or that 60s space-station kind," he says. "I'm really delighted, as an artist, to be able to contribute to that, because the great old churches always had fabulous decorative art of some kind – I enjoy taking that and putting it in a modern context, bringing some of that forward a little bit."

Meleca agrees that the response has been overwhelmingly positive. "One of the things we've heard over and over again is 'finally someone has built a church that looks like a church again, and it looks like a traditional Catholic church," he says. "I've heard it from parishioners, I've heard it countless times from priests, and then we just got a new bishop who actually went out there and said it was his favorite new church that he had seen." —Will Holloway



Completed in 2004 after a year of construction, St. Edward the Confessor has been well received for its evocation of tradition.



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SPIRITUAL RENEWAL

PROJECT: THE CATHEDRAL OF THE BLESSED SACRAMENT, SACRAMENTO, CA

ARCHITECT: BEYER BLINDER BELLE ARCHITECTS & PLANNERS LLP, NEW YORK, NY, AND WASHINGTON, DC; JIM SHEPHERD, AIA, ASSOCIATE PARTNER, PROJECT ARCHITECT

RESTORATION CONTRACTOR: HARBISON-MAHONY-HIGGINS BUILDERS, INC., SACRAMENTO, CA

STRUCTURAL ENGINEER: NABIH YOUSSEF & ASSOCIATES, LOS ANGELES, CA

atrick Manogue traveled a long way, geographically and spiritually, to become the first bishop in Sacramento, CA, in 1886. The Irishborn prospector hit pay dirt during the California Gold Rush in the 1850s and used his money to finance a sojourn in Paris, where he attended the Saint-Sulpice Seminary and was ordained a priest. He then returned to the States, and thanks to his efforts as Bishop Manogue, Sacramento became the site of the Cathedral of the Blessed Sacrament, completed and consecrated in 1889.

Designed by architect Bryan Clinch, the cathedral blended elements of

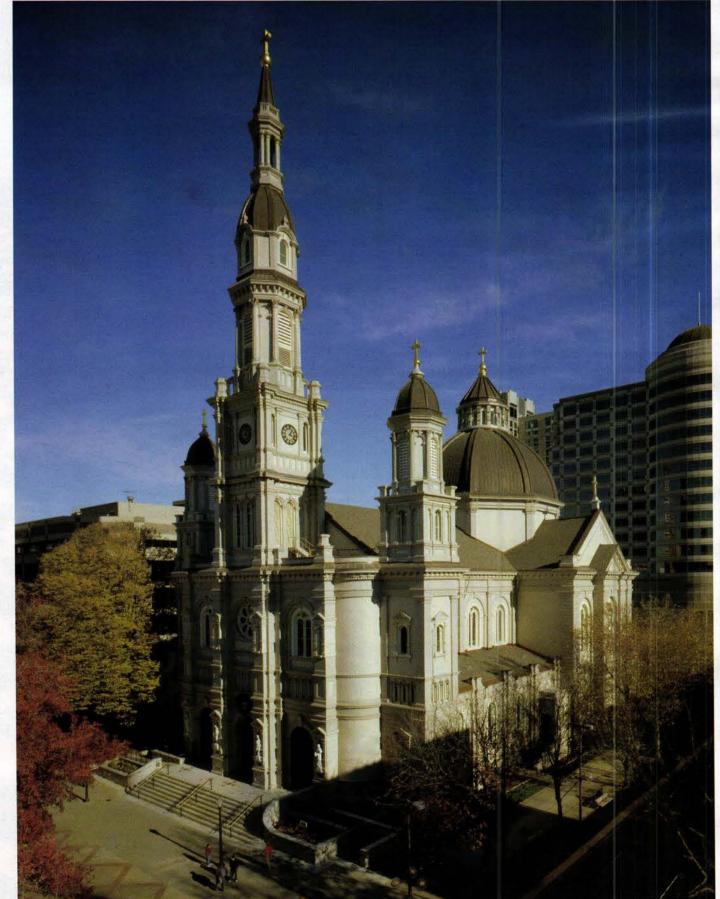
the Italian Renaissance style, especially such inspirations as Florence's Duomo and Rome's St. Peter's Basilica, with French traditions, incorporating the crucifix design of L'Église de la Trinité in Paris. Distinguished by a lofty dome and a soaring 217-ft.-tall bell tower, the cathedral became the heart of Sacramento's Catholic population.

It remained a vital force in the city's spiritual life for more than 100 years, despite the gradual loss of its architectural majesty in the 20th century. Its glorious dome was hidden by a simpler convex ceiling; other interior renovations compromised its architectural purity and complicated its design and organization. And then there was the lack of both seismic protection and accessibility for the disabled - two concerns that weighed heavily on the current bishop of Sacramento, the Most Reverend William K. Weigand, when the \$34-million restoration of the cathedral began. In 2001, the firm of Beyer Blinder Belle Architects & Planners LLP (BBB), which has worked on such landmark American cathedrals as St. Patrick's in New York City and the Cathedral of St. John in Providence, RI, was hired to undertake the restoration.

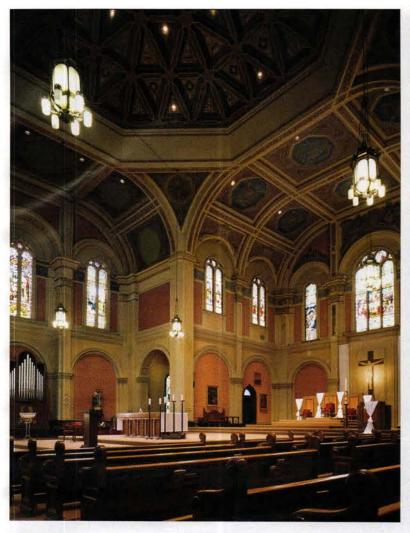
"The cathedral was deficient in addressing current seismic code for California and lacked compliance to most accessibility code, and these were a significant focus that the client wanted us to address," recalls project architect Jim Shepherd, AIA, associate partner at BBB. "The building was load-bearing masonry with heavy-timber redwood beams in the attic, resting on these masonry walls. So if there was a major seismic disruption in the area, there was a significant risk that the load-bearing walls could collapse. Our design intent was to stitch into the historic fabric a system that would hold the building together long enough for people to egress from it."

Working with BBB, Los Angeles-based structural engineer Nabih Youssef & Associates designed a series of steel-reinforced concrete beams along the perimeters of the masonry walls at the top, in the attic. "They called them 'collector beams," Shepherd explains. These basically tied the masonry walls together and tied them back to 1-ft.-thick shotcrete that they placed on two sides of the east elevation towers, which gave vertical support. Infill columns were also inserted within the four primary masonry columns that supported the dome at the crossing. "It was a really amazing process to see," he adds. "They took this huge saw and cut into the existing masonry, filled it with steel-reinforcement, and poured concrete in, almost like creating four new columns. They formed the four points at the crossing into which the collector beams were tied, to give the building's load-bearing masonry frame a cohesive structure."

To guarantee that the heavy-timber beams were secured, new anchor supports were placed into the masonry with epoxy and then included in the pour of the collector beams to tie all that structure together. A new plywood



Built in 1889, the Cathedral of the Blessed Sacrament stands one block away from the State Capitol in Sacramento, CA. Architect Bryan Clinch came up with an inspired blend of Italian Renaissance style with French design traditions, but after a century, the cathedral required a seismic retrofit and changes to meet ADA compliance. These were realized with a massive, four-year, \$34-million restoration project under the guidance of Beyer Blinder Belle Architects & Planners LLP. All photos: courtesy of David Wakely Photography





Several different renovation programs during the 20th century had led to a discontinuous and unsatisfactory organization of the cathedral's decorative and liturgical elements. In the original set up (left), the high altar was located at the west end; the 21st-century redesign (above) shifted it forward to the crossing, and a new chapel was created behind the altar for worship of the tabernacle, which is now the focus of the west wall. At the top of the "before" photo, the shallow dome that had hidden the cathedral's original dome for over 60 years is visible.

diaphragm was applied to the primary roof structure as an underlayment to the main roof, again tying all the roof trusses and roof joists together and tying them back to the masonry walls. "It was really a matter of making sure all of these historic elements reacted as a family rather than as independent, isolated pieces," says Shepherd.

Although these seismic improvements are largely invisible, ADA compliance required more obvious alterations. "When we came on board, the steps to the cathedral came right up to the doors – there was very little landing space," he states. "The bishop felt very strongly that everyone should be able to enter the front door of the cathedral together, so we completely redesigned the entrance stairs. We kept the look of the historic stairs that were there, but pulled them away from the building to allow for a generous landing at the top of the stairs."

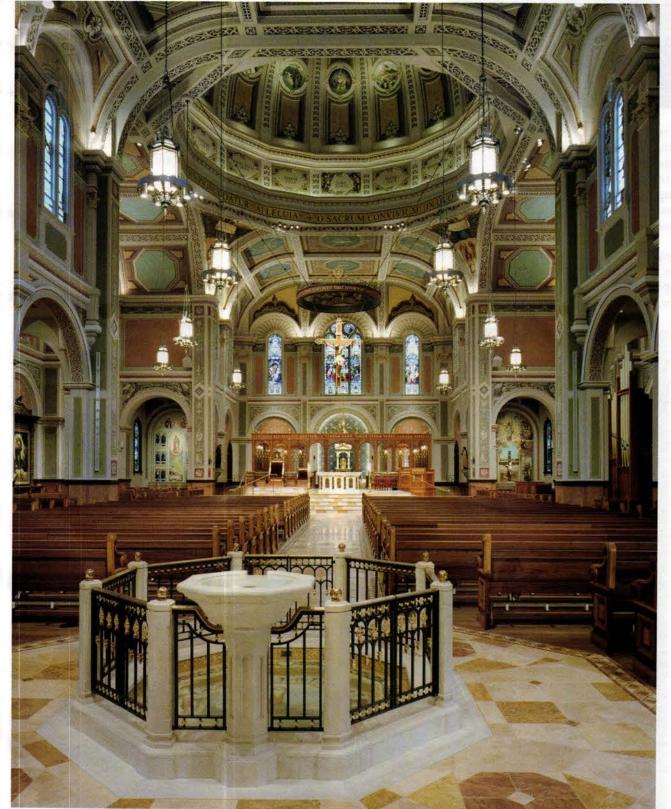
An accessible ramp was also added on the north side, enabling people to

come up to the main landing and enter the primary doors, and a stair was added on the south side, allowing access to the lower level. "They worked very nicely with the existing structure," says Shepherd. "The new ramp and stair brought symmetry to our additions to the front entrance and made it a more grand entrance."

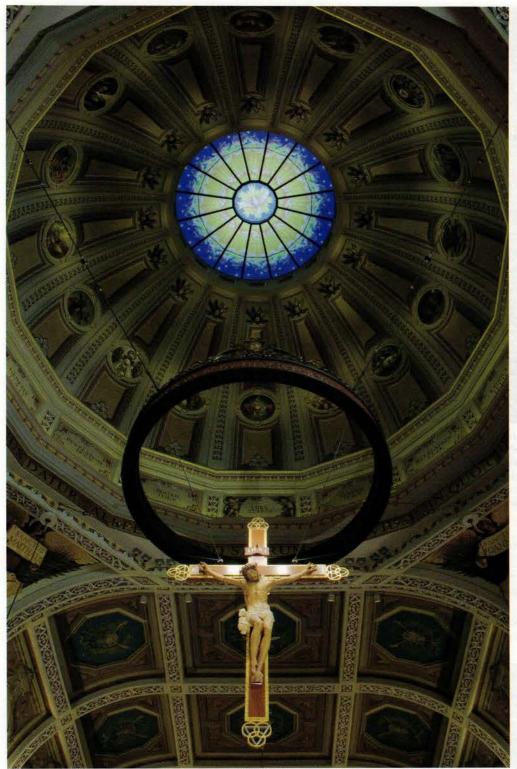
Inside the church, a new stair and elevator were introduced, allowing access from the main level – the main worship space – to the lower level, where the multi-purpose room and educational facilities are. "Prior to our coming on board, there was actually no way to navigate getting up and down from inside the building," adds Shepherd.

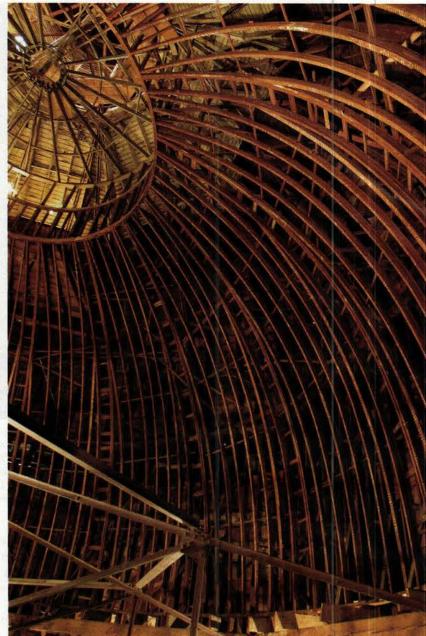
Although a greater plaza redesign for the cathedral has been put on hold until the funding is in place, all of the essential exterior work was done by the Sacramento-based restoration-contracting firm Harbison-Mahony-Higgins Builders, Inc. "The cathedral received an entire restoration of the stucco, and all the loose and damaged stucco was removed," says Shepherd. "We went back to the historic brick in a lot of cases, and re-pointed it and re-applied stucco in those areas. Then the entire exterior of the cathedral was painted."

A new waterproofing system was also introduced around the perimeter of the building. Most problems had occurred on the north side – when significant storms came through, the sewers would overflow and end up pouring into the basement of the cathedral. "We designed a parking area with a ramp that gave access to the lower level, with curbing and a stair sequence that actually provide



The redesign placed the baptismal font at the east end, near the entrance to the sanctuary, in direct alignment with the altar platform. Now the baptismal font is the first feature one encounters in the cathedral – a metaphoric acknowledgment of the importance of baptism as the first sacrament that gives the faithful entrance to the church. Note the new marble and travertine paving for the main aisle and the altar platform, a design feature dreamt of back in the 19th century but never incorporated into the cathedral until now.





The wooden structure of the cathedral's original 55-ft.-high dome (above) was discovered intact behind the 1930s-era shallow dome that had replaced it. For its unveiling and restoration (left), acoustic designers Shen Milsom & Wilke of San Francisco studied how its refraction of sound would impact activity in the cathedral. To ease the reverberations, perforated metal panels backed with sound insulation were engineered for the dome's 16 segments. These are now adorned with beautiful imagery that was painted on an acoustically transparent fabric by EverGreene Studios and then glued onto the panels.

some protection against flooding - a significant buffer of about 8 to 10 inches, so water won't penetrate the basement of the cathedral," says Shepherd.

"One of the most challenging things with the exterior," Shepherd adds, "was to re-gild the seven crosses at the tops of the towers and dome. To accomplish this, a New York steeplechase group hoisted themselves up on ladders and folding platforms - they didn't have to build scaffolding all the way up, over 200 ft., to the top of the central tower. That was an interesting feat to watch!"

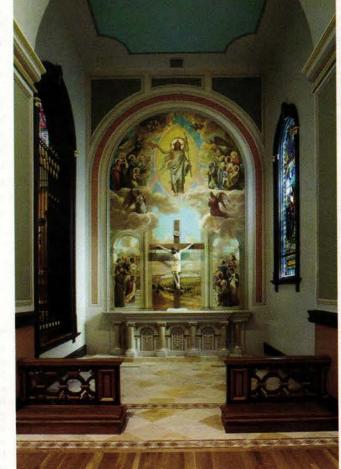
When work began inside the cathedral, attention was immediately drawn to the original dome, which proved to be perhaps the most gratifying surprise of the entire restoration. "We had no photographs of the old dome prior to coming onto the job," Shepherd recounts. "In the 1930s they put in a shallow

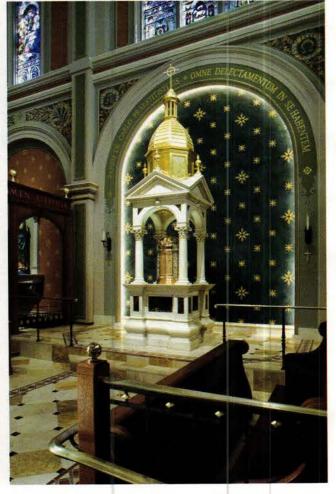
dome which covered it up, and we had no sense of the grandeur of the old dome until we went into the attic space and saw that it had been left in place."

such a thrill and surprise to see that wonderful structure there," he says. He explains that the dome started from about 55 ft. up from the cathedral floor, and extended an additional 55 ft. to its peak. The shallow dome had a Byzantine design, and rose from that 55 ft. above the floor 8 or 10 feet from its outside edge to the peak of the flat dome; it wasn't based on a spherical or elliptical shape cut in half, but was more like a convex lens. "There was conjecture that the old dome was hidden because of acoustic reasons or structural reasons, but we have no confirmation of that," Shepherd says.

Uncovering and restoring the dome, however, introduced an array of new acoustic issues. Working with San Francisco-based acoustic designer Shen Milsom & Wilke, a close inspection of what the refraction of sound in the dome would be was made. Ultimately, acoustic panels were installed in the 16 segments of the dome. "All its original finishes had been removed, and we had to make sure that whatever acoustic panels we introduced on the dome could either be painted or else could have canvases glued onto them, so that they would still perform acoustically but would appear from below

"That was a godsend, and it was just





Right: The restoration process entailed the discovery of two chapel altars, made of wood, which had been taken out and stored away decades before. Modified and restored, these altars are used in the redesigned side chapels located at the north and south ends of the cathedral. This chapel, like its corresponding sister, has also received new imagery as a focus for worship.

Far Right: According to Jim Shepherd, "The overall shape of the tabernacle was designed to mirror one of the towers of the exterior of the cathedral; the actual physical tabernacle that was enclosed within the tower was a 1930s tabernacle that we restored and used as the primary design element."



The interior redesign of the Cathedral of the Blessed Sacrament included the repositioning of both the bishop's chair (above) and the pulpit (right). These essential features now stand behind the high altar, to its left and right, respectively. Their decorative wooden design forms a natural outgrowth from the new chapel for worship of the tabernacle, located behind them at the west wall.

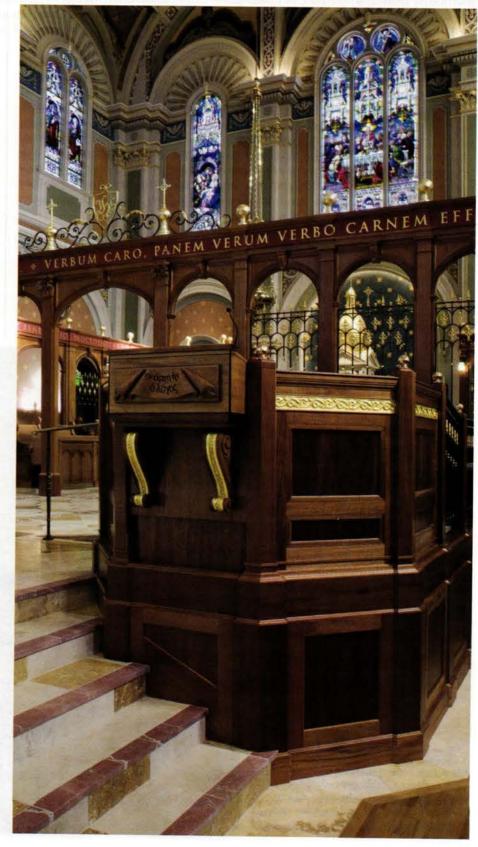
with the beautiful new imagery created by EverGreene Painting Studios," says Shepherd. "They worked with us very closely regarding the complete upgrade of the decorative paint on the interior of the cathedral. We came up with a system of perforated metal panels backed with sound insulation and an acoustically transparent fabric that was painted on by EverGreene Studios and then glued onto the perforated metal panels."

The interior restoration became a valuable opportunity to create a coherent profile after decades of alterations. "The cathedral had undergone a series of renovations," says Shepherd. "In addition to the 1930s, there was a 1989 campaign, and an earlier renovation in the 1970s, which addressed changes that came out of the Vatican II conference, regarding changing liturgical design in Catholic churches. So when we came on board there was a real discontinuity of design regarding the decorative and liturgical elements, and the overall appearance of the interior of the cathedral."

The high altar, originally at the west end, had been moved forward to the crossing; there were also shifts in placement of the pulpit, the bishop's chair and the baptismal font. "We relocated the baptismal font to the east end where the entrance to the sanctuary is, so when you come in, it's the first thing you encounter," Shepherd explains. "Baptism is the first sacrament that gives entrance to the church, so the font is at the entrance. That's directly aligned with the altar platform, which was completely redesigned; a new altar was designed to be integral with the platform and placed directly below the center of the dome. Behind the altar we created a new chapel for worship of the tabernacle, and the tabernacle became the central focus of the west wall, where the altar used to be."

Two wooden side chapel altars that had been removed and put in storage in one of the earlier renovations were also brought out, modified and put into the side chapels. These north and south chapels were also redesigned with updated imagery. BBB also reconfigured the pews in the main sanctuary, adding new seats to the historic pew ends. "When they built the cathedral in 1889, the pews were actually much smaller than what is designed today – when you sat on the old pews, you almost fell off!" says Shepherd. "These are more comfortable and generous, and are designed out of hardwood that's built to last. With the redesign we also wanted to bring a level of finish which Bishop Manogue had in mind but they couldn't afford in 1889. He had grand plans for marble wainscot and marble flooring until they ran out of funds, so we included new marble and travertine paving down the main aisle and on the altar platform."

It's a tribute to all the hands involved in this extensive restoration that it was achieved with a comparatively brief interruption in the life of the cathedral: the building closed in August 2004 and reopened on November 20, 2005. This date was celebrated with a re-consecration ceremony that was a special experience for Jim Shepherd. "The reaction that the people had when they came in was a big surprise for me. It was very touching to see how much it meant to them. This is a place that they would come to every week, and they hadn't been able to come to it for such a long time. And to see them come back and have such a positive, awestruck reaction was really inspiring." – Nicole V. Gagné



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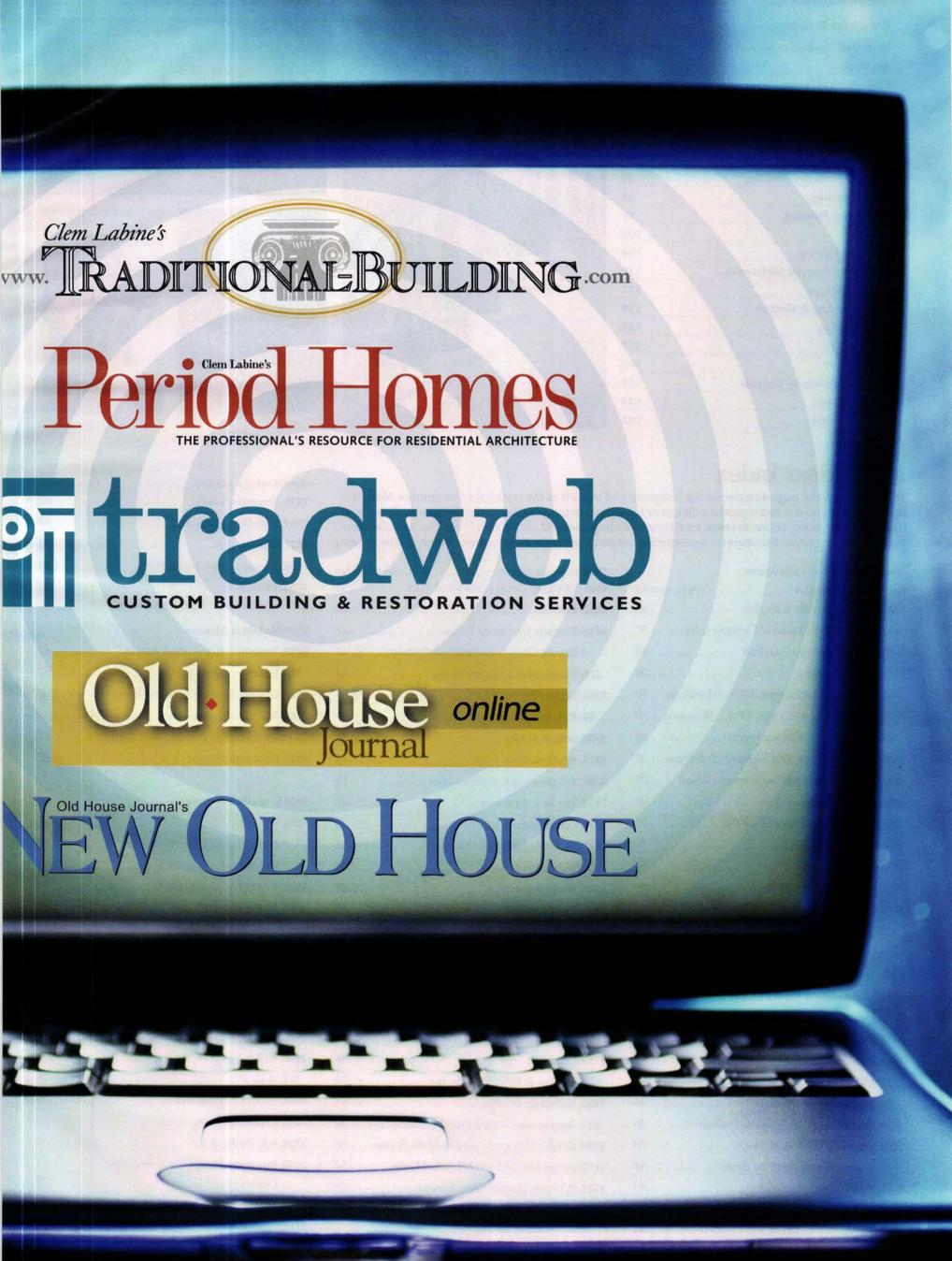
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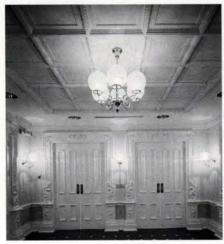
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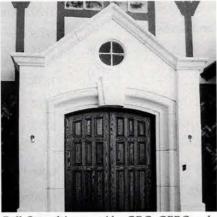
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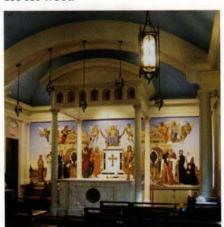
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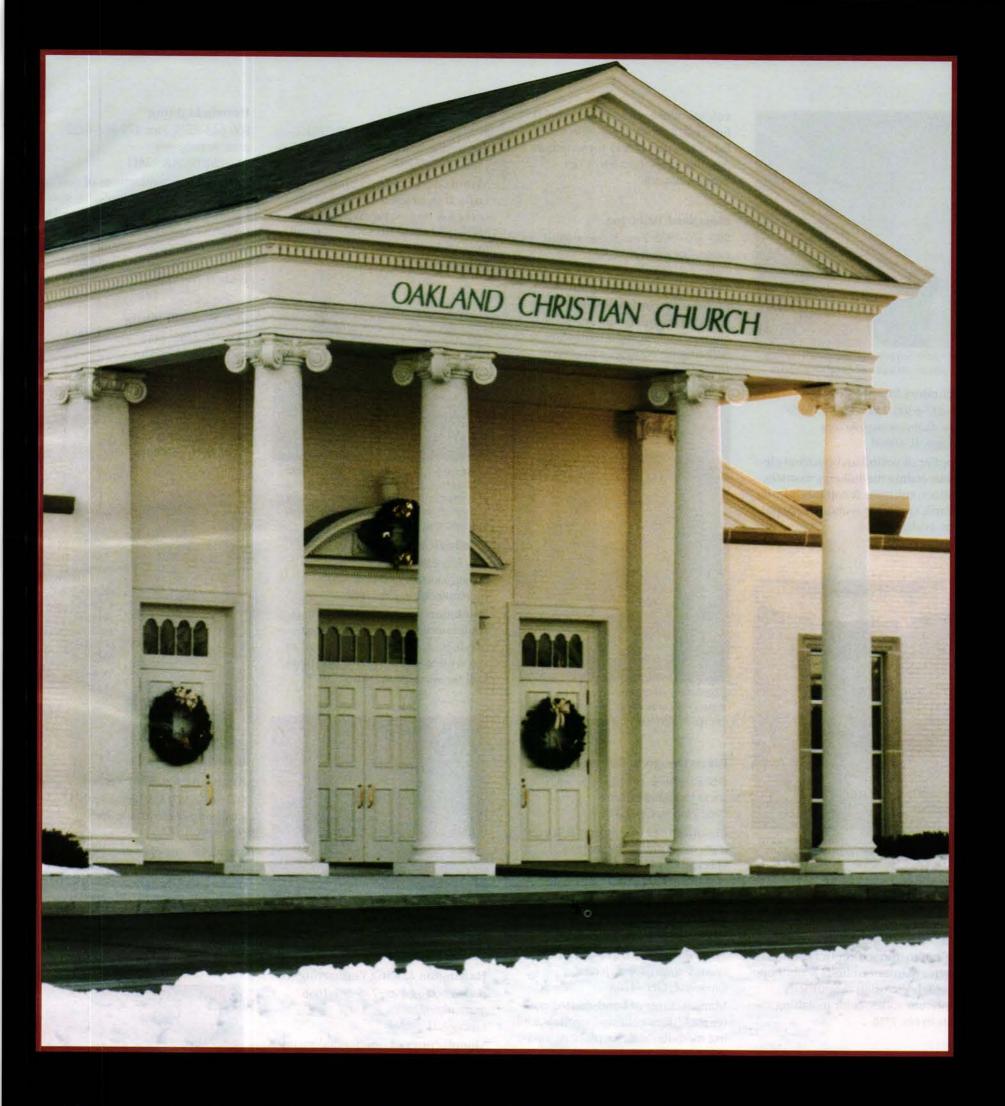
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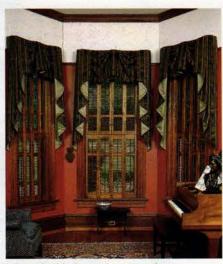
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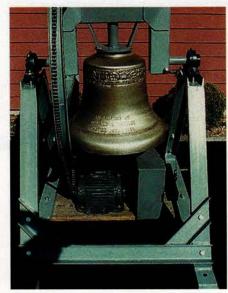
Write in No. 808

Elderhorst Bells, Inc.

800-810-7892; Fax: 215-679-3692 www.elderhorstbells.com Palm, PA 18070

Manufacturer of clock movements & complete clock & bell systems: cast-bronze bells, mini carillons, chimes, moving-figure displays & bell-ringing equipment; controls furnished & installed.

Write in No. 2100



Elderhorst Bells outfits new and used bronze bells with either traditional rope swings or electronic swinging systems.

Fagan Design & Fabrication, Inc.

203-937-1874; Fax: 203-937-7321 www.fagancolumns.net West Haven, CT 06516

Manufacturer of columns & turnings: stain grades in any wood species; Classical orders; stock & custom; worldwide supplier.

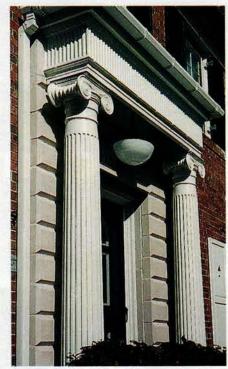
Write in No. 8210

Fischer & Jirouch Co.

216-361-3840; Fax: 216-361-0650 www.fischerandjirouch.com Cleveland, OH 44103

Manufacturer of hand-crafted plaster moldings: columns, capitals, ceiling medallions & fireplace mantels; interior & exterior ornament.

Write in No. 1960



The capitals that crown these exterior columns were fabricated by Fischer & Jirouch.

Gaby's Shoppe

800-299-4229; Fax: 214-748-7701 www.gabys.com Dallas, TX 75207

Manufacturer of hand-crafted decorative iron drapery hardware: for curved & angled bay windows & arches; 30 standard finishes; more than 10 finial options.

Write in No. 2520

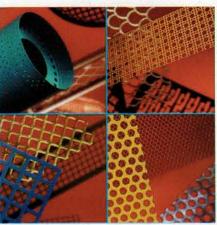


Goodrich & Co. produces the Greater Philadelphia Historic Home Show, which showcases companies that focus on the preservation of elements from structures from the 18th and 19th centuries.

Goodrich & Company

717-796-2380; Fax: 717-796-2384 www.goodrichpromotions.com Mechanicsburg, PA 17055

Exhibition for property owners & professionals: showcases experts, products & resources dedicated to renovating old homes & buildings. Call for more information.



Harrington & King custom perforates sheet metal to client specifications.

Harrington & King Perforating Co.

800-621-3869; Fax: 773-261-1686 www.hkperf.com Chicago, IL 60644

Manufacturer of ornamental metalwork: air-flow screens, registers, grilles & radiator covers; perforated steel, bronze & aluminum; custom & standard designs.

Write in No. 1020



This elegant lantern is one of many exterior wall-bracket models available from Herwig.

Herwig Lighting

800-643-9523; Fax: 479-968-6422 www.herwig.com Russellville, AR 72811

Designer & manufacturer of cast metalwork: pendant lanterns, street lighting, posts, bells, clocks, benches, bollards, custom plaques & signs, antique fence posts & more; aluminum & bronze; hand crafted. Write in No. 9130

IMS Wood Products

818-348-7230; Fax: 818-348-7231 www.jmswoodproducts.com Canoga Park, CA 91304 Supplier of custom millwork: roped,

fluted & twisted stair parts; columns, capitals & moldings; all wood species.

Write in No. 6320



The Farmington shutter from Kingsland Co. Shutters is shown here with period-style wrought-iron hardware.

Kingsland Co. Shutters

Write in No. 196

860-542-6981; Fax: 860-542-1752 www.kingsland-shutters.com Norfolk, CT 06058

Manufacturer of shutters in Honduras mahogany: louvered, raised panel, cutouts & reproductions; mortise-&-tenon construction; copper caps, fixed control rods & hardware; paneled & louvered arched tops.



A craftsperson from Kronenberger & Sons works on a salvaged beam for a timberframe project.

Kronenberger & Sons Restoration

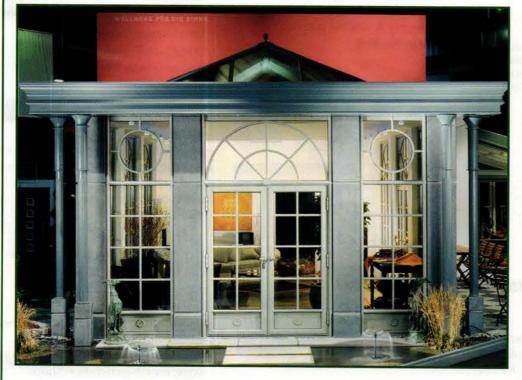
860-347-4600; Fax: 860-343-0309 www.kronenbergersons.com Middletown, CT 06457

Contractor for interior & exterior restoration: all types of finishes; post-&-beam construction; windows, molding & roofing; masonry & wood; museums, churches, town halls, libraries, barns, period homes & outbuildings.

Write in No. 536

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Kwick Kleen Restoration Products

888-222-9767; Fax: 812-882-3866 www.kwickkleen.com Vincennes, IN 47591

Manufacturer of Sun Block, a sun screen for wood: protects wood from ultraviolet rays; for interior & exterior applications.

Write in No. 1865



Kwick Kleen restoration products protect wood from the sun; they can be used in both interior and exterior applications.

Laguna Lightcraft

949-496-0360; Fax: 949-493-8777 www.lagunalightcraft.com San Juan Capistrano, CA 92675

Manufacturer of landscape & garden lighting: many Arts & Craftsstyle fixtures.

Write in No. 198

Lake Fountains & Aeration

800-353-5253; Fax: 407-324-1344 www.lakefountains.com Sanford, FL 32771

Manufacturer of floating fountains for lakes & ponds: variety of spray heights & patterns.

Write in No. 1109



The 15-hp. Lake Forest model from Lake Fountains & Aeration operates up to 40 ft. high with a 50-ft-dia. pattern.

M-Boss, Inc.

888-626-7746; Fax: 216-641-7387 www.mbossinc.com Cleveland, OH 44125

Manufacturer of tin ceilings, cornices & moldings: more than 200 patterns; array of finishes; panels nail to wood substrates or lay into suspension grids; molded resin medallions, cornices & corbels also available.

Write in No. 1014



The Ironwood Café, located in a turn-of-thecentury building, features tin ceiling panels and cornice from M-Boss, Inc.

Mohamad Woodturning Corp.

718-417-0025; Fax: 718-417-0021 www.mohamadwoodturning.com Brooklyn, NY 11206

Supplier of custom wood turnings: roped, twisted, fluted & spiral stairs & stair parts; balusters & columns; Classical styles; exterior & interior. Write in No. 50



Rope columns are available from Mohamad Woodturning in a variety of sizes and other specifications.

Monarch Products Co.

201-507-5551; Fax: 201-438-2820 www.monarchrad.com Carlstadt, NJ 07072

Supplier of all-steel radiator enclosures: baked-enamel finishes & grille fronts; stock & custom; for corporate boardrooms, offices, churches, institutions & private residences. Write in No. 6060

Native Tile & Ceramics

310-533-8684; Fax: 310-533-8453 www.nativetile.com Torrance, CA 90501

Manufacturer of handmade decorative tile: floor inserts, trim, fireplace fronts, murals & tile rugs; Mission, Craftsman & Deco styles; inspired by Batchelder, Malibu & Catalina tile companies; custom designs & glazes. Write in No. 570



This decorative tile was handmade by the artisans at Native Tile & Ceramics.

Nixalite of America, Inc.

800-624-1189; Fax: 309-755-0077 www.nixalite.com East Moline, IL 61244

Manufacturer of humane bird-control products: stainless-steel needle strips, Fliteline wire deterrent & 3 types of bird netting; visual, chemical & audible systems; free technical & planning services with direct order.

Write in No. 370



Stainless-steel wire bird barriers from Nixalite prevent birds from landing on the globe on the right.

Oak Leaf Conservatories of York

800-360-6283; Fax: 404-250-6283 www.oakleafconservatories.co.uk Atlanta, GA 30327

Designer, custom fabricator & installer of authentic British conservatories, orangeries, garden rooms, pool/spa enclosures & glass domes: hand crafted in England; mortise-&tenon construction, premium-grade mahogany & double glazing.

Write in No. 6860



Each of the curved, double-glazed, laminated glass units for the domed conservatory of England's Broughton Hall were individually made by Oak Leaf Conservatories.

PRG, Inc.

800-774-7891; Fax: 301-279-7885 www.prginc.com Rockville, MD 20849

Supplier of epoxies for wood repair: low-toxicity Borate wood preservatives, fire-retardant wood finishes, Proprep scrapers, moisture survey equipment, crack monitors, Rilem tubes, RecyClean system, scanners, books & more.

Write in No. 3030

Private Garden Greenhouse Systems

413-566-0277; Fax: 413-566-8806 www.private-garden.com Hampden, MA 01036

Designer & manufacturer of English Victorian greenhouses & custom conservatories: consultation & renovation services.

Call for more information.



In addition to its residential line, Private Garden also supplies commercial garden greenhouse systems.

Quality Lighting, Inc.

800-545-1326; Fax: 847-451-7512 www.qualitylighting.com Franklin Park, IL 60131

Supplier of outdoor lighting: roadway, area, parking, garage & flood lighting; design assistance. Write in No. 913



Renaissance Conservatories manufactured this conservatory for clients in New Jersey.

Renaissance Conservatories

800-882-4657; Fax: 717-661-7727 www.renaissanceconservatories.com Leola, PA 17540

Designer, manufacturer & installer of traditional old-world conservatories, greenhouses, garden follies, pool enclosures, area skylights, roof lanterns, domes & garden windows: hand-crafted mahogany components; custom designs.

Write in No. 378

Rich Woodturning & Stairworks

305-573-9142; Fax: 305-576-1653 www.richwoodturning.com Miami, FL 33014

Manufacturer of turnings & carvings: spirals, fluting, reeding & rope patterns; custom matching; restoration work; fourth-generation shop.

Write in No. 89

Seibert & Rice

973-467-8266; Fax: 973-379-2536 www.seibert-rice.com Short Hills, NJ 07078

Importer of handmade Italian terracotta items: benches, garden planters, urns & ornaments; high relief, fine detailing & frost proof; from Impruneta, Italy; extensive inventory; custom capabilities; catalog \$5.

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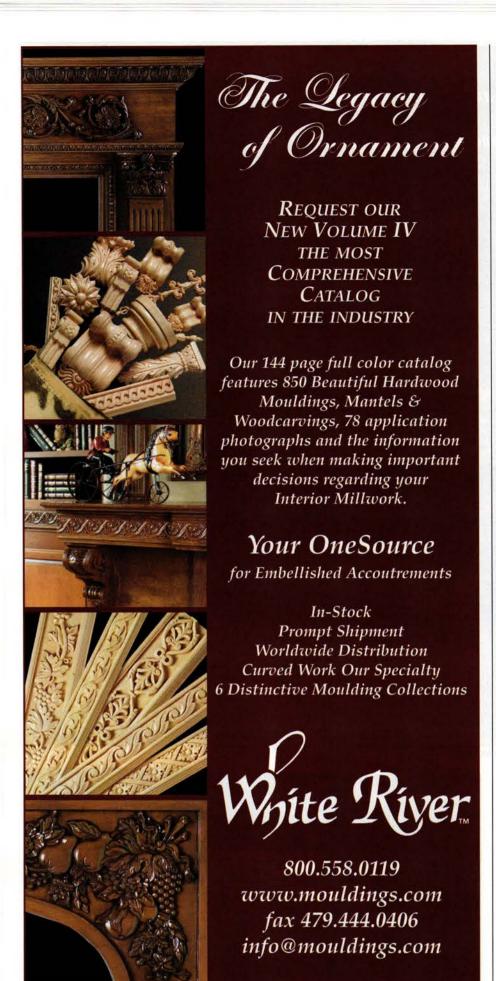
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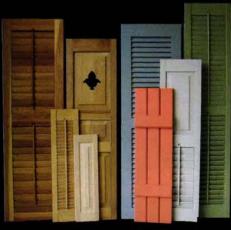


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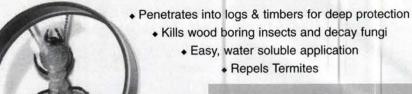
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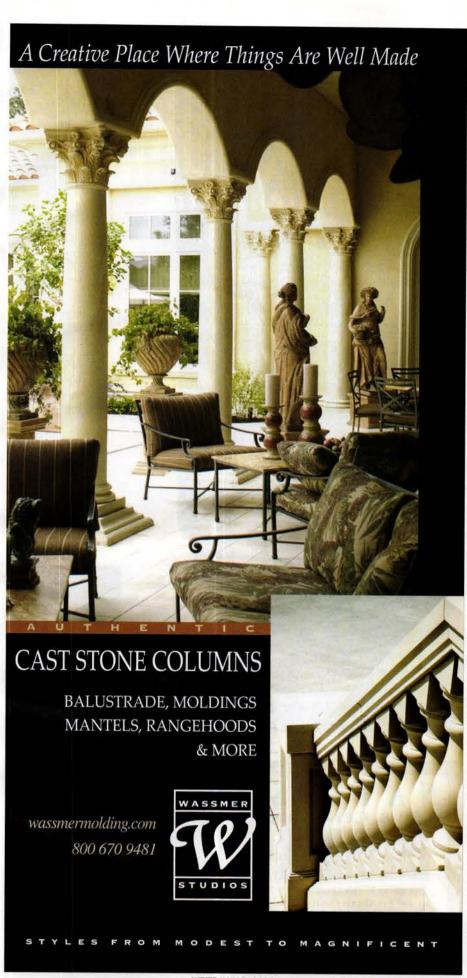
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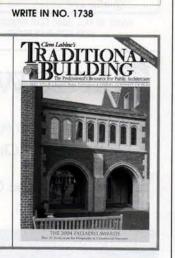
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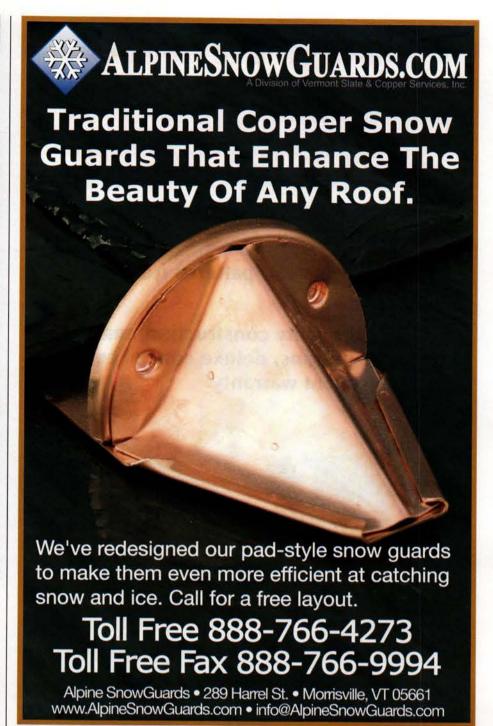


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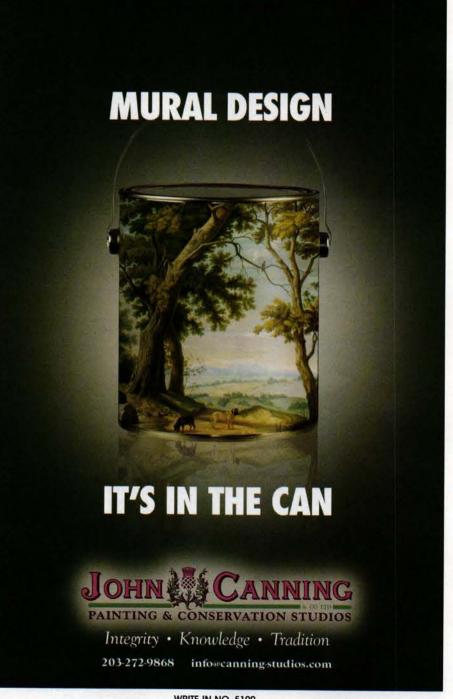


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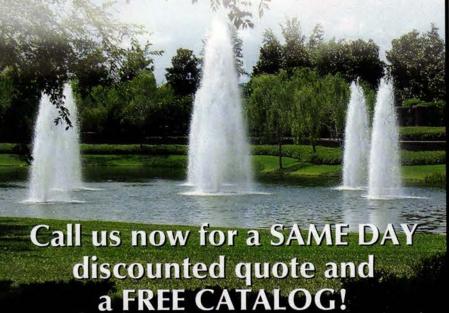
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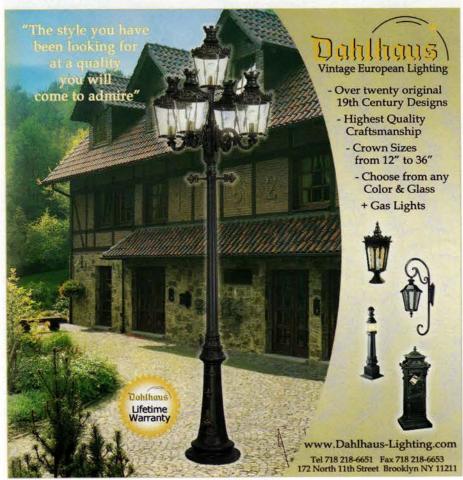


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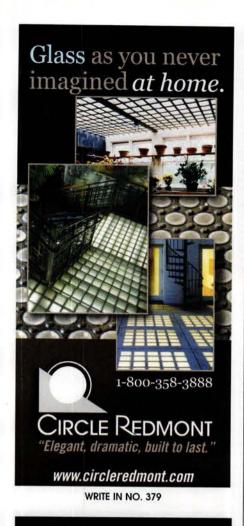
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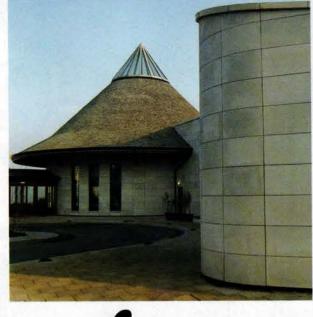
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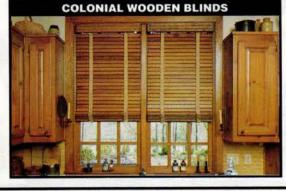
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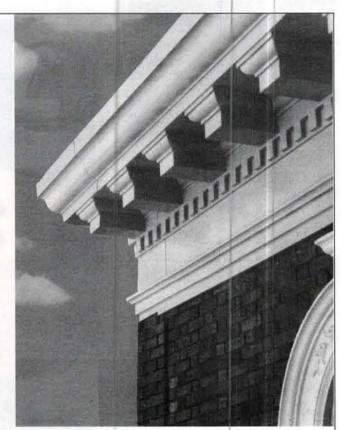
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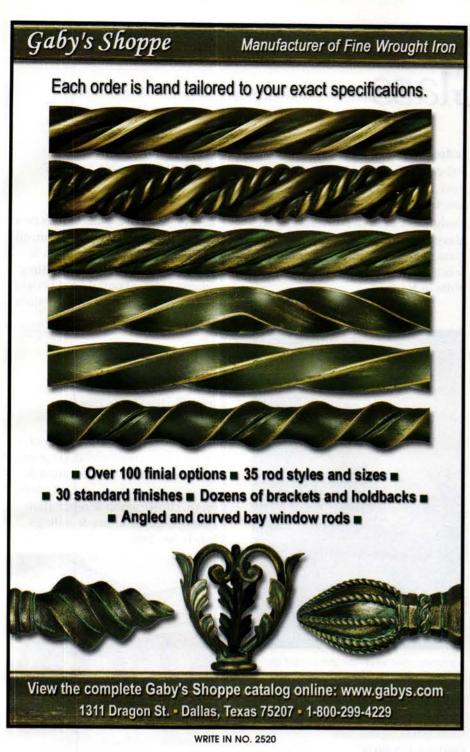
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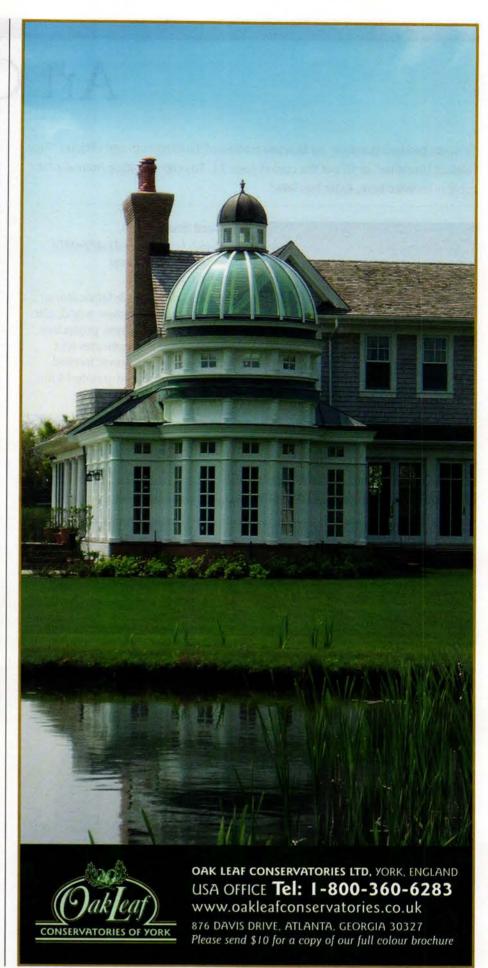
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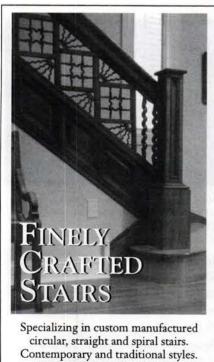




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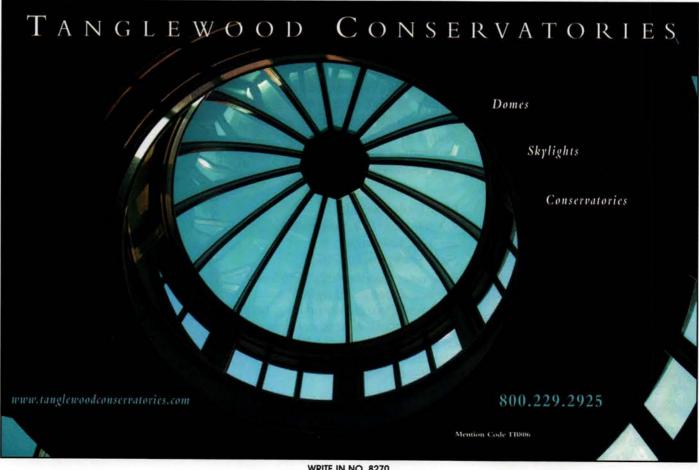


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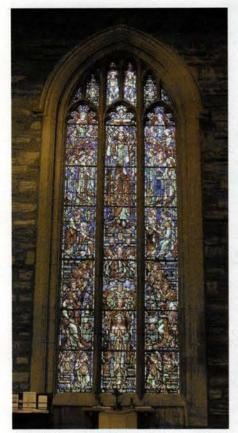
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Art Glass

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Art of Glass restored this stained-glass window for the Trinity Episcopal Church in Swarthmore, PA.

Art of Glass, Inc.

610-891-7813; Fax: 610-891-0150 www.theartofglassinc.com Media, PA 19063

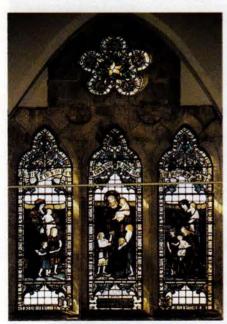
Conservator & restorer of stained glass: painted/fired-glass replication; epoxy repairs; paint consolidation; public, historic & religious projects. Write in No. 2695

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These chancel windows were restored by Bovard Studio for an historic chapel at Baker University in Baldwin, KS.

Bovard Studio, Inc.

800-452-7796; Fax: 641-472-0974 www.bovardstudio.com Fairfield, IA 52556

Restorer, designer & fabricator of stained-glass windows: wood, aluminum & steel frames; protective glazing systems; replicates lost stained-glass windows; faceted glass; mosaics; hand-painted kilnfired original art glass. Write in No. 7690

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800-445-8376; Fax: 323-255-8529 www.judsonstudios.com Los Angeles, CA 90042

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Lehmann Glass Studio

510-465-7158; Fax: Same as phone www.lehmannglass.com Oakland, CA 94607

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Write in No. 4730



This window in an Irish pub was designed and fabricated by Oakbrook Esser Studios.

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This rectangular glass dome was fabricated and installed by Reflection Studios.

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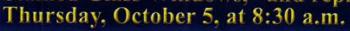
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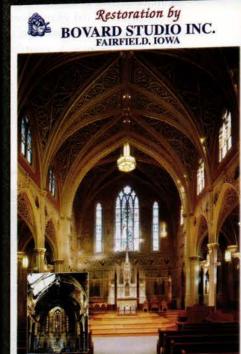
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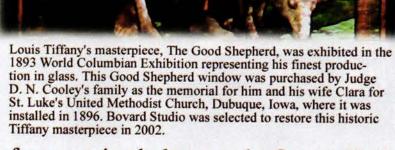
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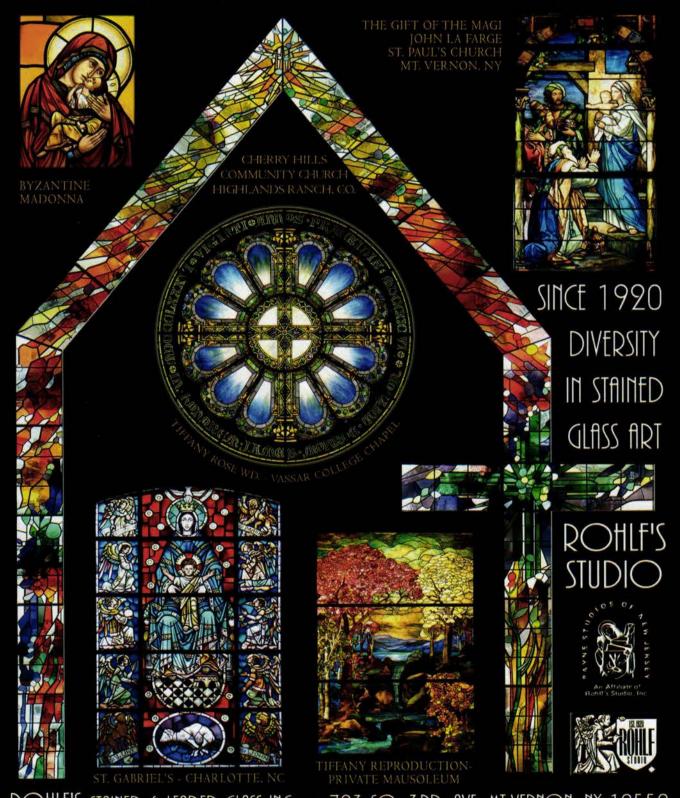
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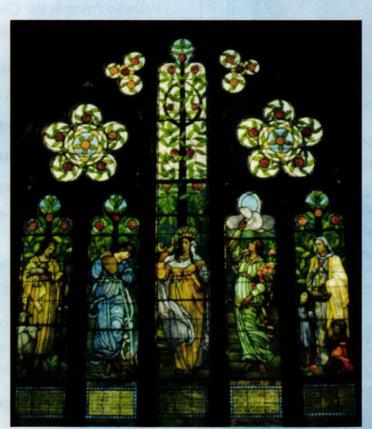


Detail of Tiffany window. Houghton Chapel -Wellesley College, Wellesley, MA. Restored by Serpentino Studio.





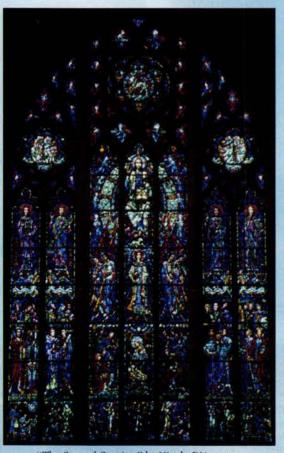
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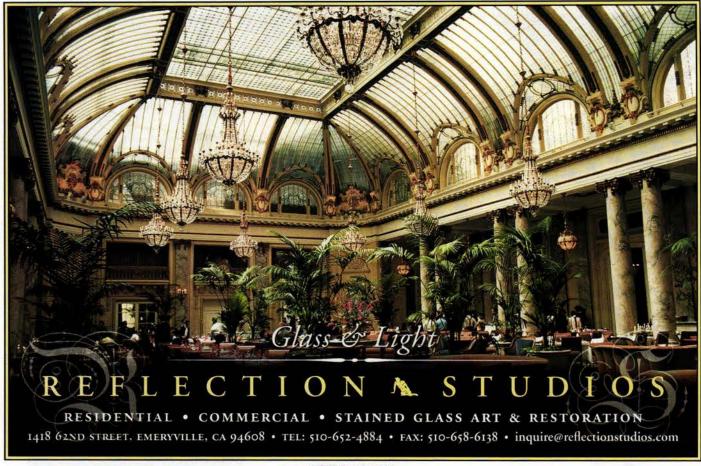
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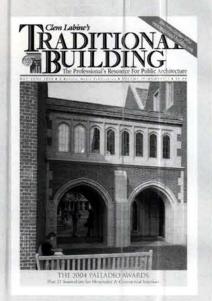
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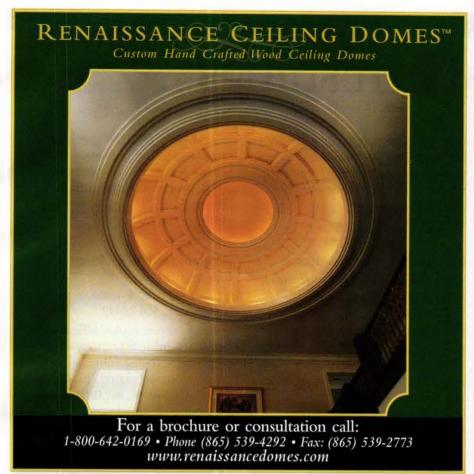
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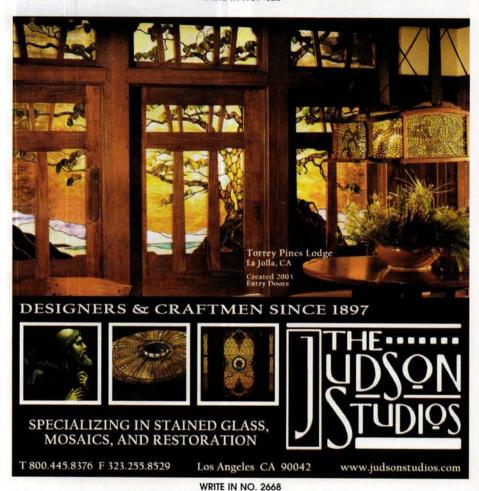
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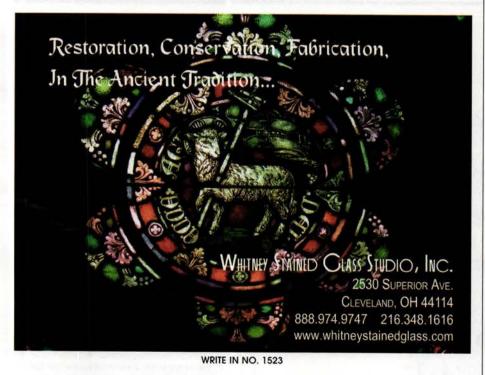
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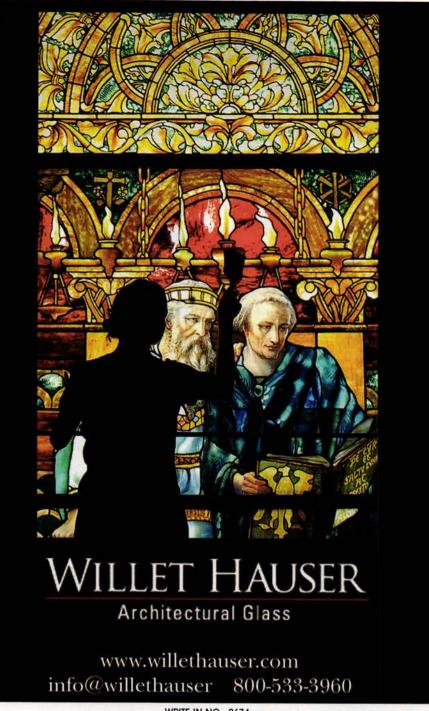


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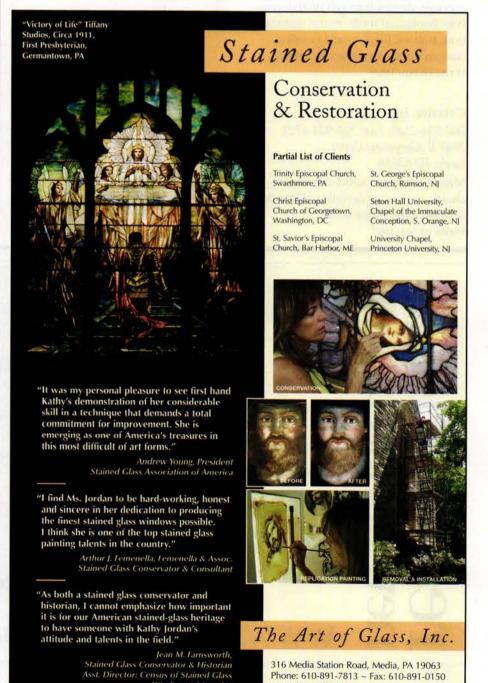




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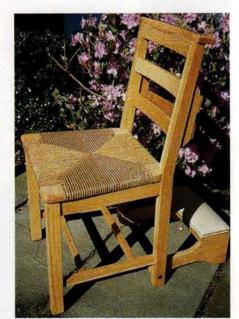
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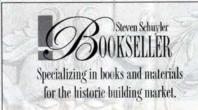
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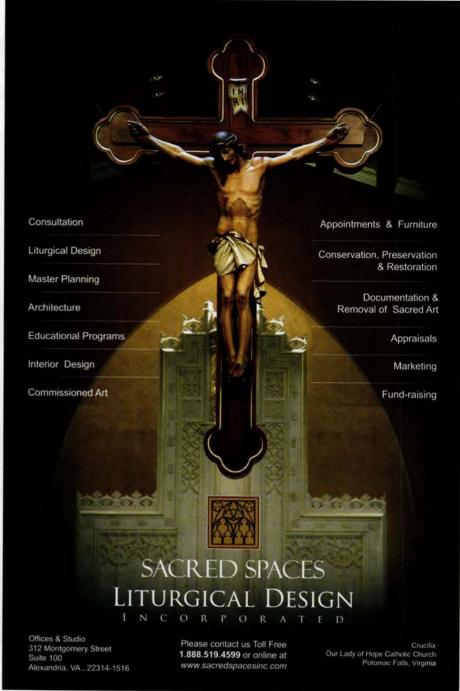
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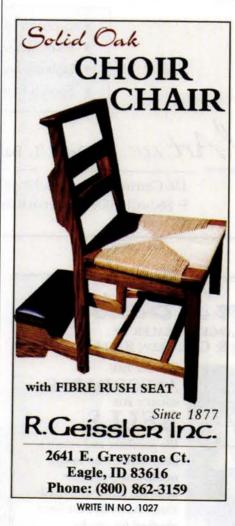
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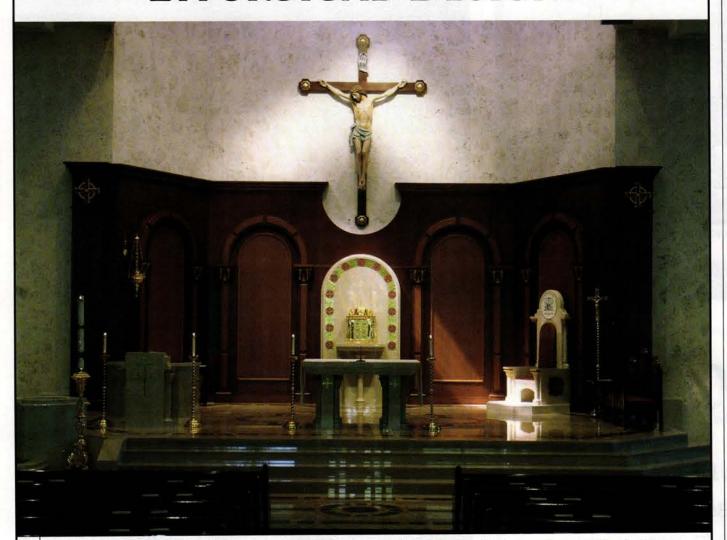
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TRUE FRESCO

The tradition and techniques of buon fresco are undergoing a renaissance.

By David Mayernik

"Of all the methods that painters employ, painting on the wall is the most masterly and beautiful, because it consists in doing in a single day that which, in the other methods, may be retouched day after day, over the work already done." – Giorgio Vasari, Lives of the Artists

by plastered wall (fresco meaning it is a painting executed on a freshly plastered wall (fresco means "fresh" in Italian). There are also "untrue" frescoes – using lime water on a dry plaster wall, for example, which is known as fresco secco or dry fresco. But fresco is more than just a technique, it is a tradition, and to understand the medium you need to know something of its history, the ways it has been employed in great rooms and on facades and the vicissitudes of its practice over time – from rigor to decline to restoration.

Perhaps no other artistic medium calls to mind such specific imagery as fresco. For those who have been to Italy, it is likely that the majority of paintings they encountered on the walls of villas, palaces and churches were executed in buon fresco and, as with Classical music, many of the terms used in the contemporary practice of fresco painting are Italian. It was in Italy that the technique underwent a major revival beginning with Giotto's master, Cimabue, in the 13th century, and it was there where it was revived again in the 20th century through the efforts of restorers and a singular artist named Pietro Annigoni. While marvelous frescoes can be found from our nation's capital to monasteries in Russia, the paradigms are still those masterworks created in Italy in the Renaissance.

Many Americans flocked to Florence after the disastrous flood of 1966 to save what they could of frescoes being damaged by the receding waters (it was not contact on the surface with the water per se, but rather with caustic elements – including decomposed bones from monastic cloisters – leaching up

through the walls that did the greatest damage); the reward for this service was the largest traveling exhibit of frescoes before or since, which came to the Metropolitan Museum in 1968. Many of these detached frescoes where removed and restored by the master restorer with whom I studied fresco technique, Leonetto Tintori. Despite vulnerability to such cataclysmic events as floods, one of fresco's prime advantages is its durability. The reason the Sistine ceiling, for instance, could survive centuries of misguided restorations is precisely because Michelangelo's pigments were so firmly bonded to their plaster.

Masterly and Beautiful

As the Renaissance painter and writer Giorgio Vasari suggests, it is the almost heroic character of working into the fresh plaster – meaning nothing can be corrected or erased without chipping off the plaster and starting again – that makes buon fresco "masterly and beautiful." Fresco demands solid prepara-

tion, long hours and a bold, confident touch. It resists fussiness and rewards bravura.

The overawing impression of Michelangelo's Sistine ceiling is owed, in part, to the perfection of his technique, which took him some time to achieve as he moved down the chapel's length over four years. But that perfection, which could only be realized at lightening speed, can only be seen up close and is unavailable to the audience 60 ft. below. This recalls Ruskin's "Lamp of Sacrifice" and artistic effort made for God alone, but fresco has also been brilliantly put to very worldly uses, as Giulio Romano, architect and painter, did at the Palazzo Te in Mantua. There the frescoed gods feast in wanton reverie, while the audacious giants are crushed under the painted rocks set tumbling by Jupiter's frescoed thunderbolts. It is just this capacity to transform walls into fictive worlds, earthly or divine, that recommended fresco to artists and patrons for centuries and, no doubt, it was also the fact that it was relatively inexpensive (due to the speed of execution) that made patrons favor it over more costly wall decorations.



This copy of the head of Bramante in the guise of Euclid from Raphael's School of Athens was prepared for a demonstration of fresco technique for Notre Dame's Rome Studies. Photo: David Mayernik

Fresco Glossary

Arriccio: the equivalent of the second ("brown") coat in a three-coat plaster wall; the surface on which the sinopia is painted (see below)

Bozzetto: the small-scale, full-color model for the fresco composition, often in oil or watercolor

Buon fresco: "true" or "good" fresco. Fresco means "fresh" in Italian, and a buon fresco is a painting into fresh plaster (finish coat of plaster laid on the wall that day)

Cartoon: from the Italian cartone, or large sheet of paper, it is the full-size drawing used to transfer the design onto the intonaco

Giornata: a day's work—usually about 8 hours, but can be longer—determined by the length of time the plaster remains "fresh" and able to absorb the pigments when brushed on the wall. A large fresco is composed of many giornate, the seams between which often remain somewhat visible in the final painting

Intonaco: the finish coat of plaster upon which the fresco is painted. Composed of roughly one part lime putty and one part aggregate (usually salt-free river sand, but also pozzolana [volcanic ash], marble powder, etc.)

Lime milk: latte di calce in Italian, it is the limey milk that rises to the surface of a bucket of lime putty but can also be made by mixing lime putty and water. Can be used in fresco painting (it tends to lighten colors as it dries). Also used to brush on the sinopia and for limewash wall painting

Sinopia: derived from the name of a red pigment (sinoper) often used for this kind of painting, it is the outline of the final fresco painted on the arriccio coat. Any pigment, in fact, can be used, and it is applied with lime milk to adhere to the "dry" arriccio. The sinopia principally provides guidelines for the various giornate.



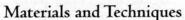
The intonaco is applied over the arriccio and the red sinopia drawing. *Photo: Krupali Uplekar*



The cartoon is transferred into the fresh intonaco with the incisione method, tracing the cartoon with a sharp point (in this case, a mechanical pencil) to create an incised line into the soft plaster surface. Photo: Krupali Uplekar

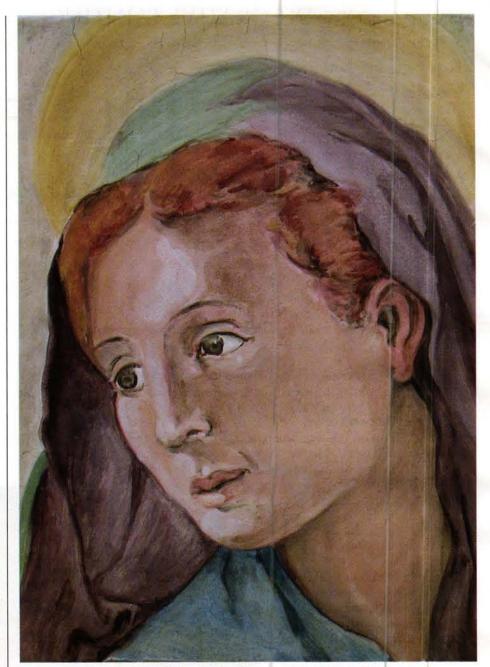


The early stages of the giornata involve blocking out broad areas of color. Details are added later in the day. Photo: Krupali Uplekar



The materials and techniques of fresco are simple enough: aged, slaked lime putty is increasingly more available to artists without the resources to make their own lime pit and fine, salt-free sand or marble dust are common. The steps in the creation of a buon fresco are:

- The initial idea is invented, perhaps first by drawing, but eventually developed and described in some sort of painted color study (the bozzetto or small draft).
- A full-size drawing, or cartoon, is made for each of the principle elements (figures, architecture, etc.). This will be progressively transferred to the wall over the course of painting.
- •The number of giornate, or day's painting, is defined: these are based on the artist's experience of how much he or she can paint in the roughly eight hours available while the plaster remains "fresh," or able to bond the pigments onto its surface.
- The wall is prepared with its base coats. The plaster is composed of aged, slaked lime putty and aggregate (sand, volcanic ash, marble powder). The first, the scratch coat, has the highest ratio of aggregate to lime. The second, the arriccio or brown coat, with a higher proportion of lime to aggregate, will receive a brushed outline drawing of the composition (known as the sinopia), in part to study the final effect in situ and partly to serve as a map of the various giornate.



The final fresco painting is shown here a day after it has thoroughly dried. Photo: David Mayernik

- •Beginning at the top of the composition, the first giornata is begun by applying that day's intonaco, or finished coat (composed of equal parts lime and aggregate) onto a damp arriccio, over-plastering the size of the giornata. Within the first half hour or so of plastering, the corresponding part of the cartoon is transferred to the wall (by either pouncing through holes punched in the cartoon or tracing over the drawing with a stylus). As one plasters, the sinopia below is covered over.
- •Painting is done with pigments adapted to fresco, and water. Each artist has his or her own methods and techniques, but generally one works from the broad forms to specific details and shadows.
- At the end of the day's painting one bevel-cuts the edge of the giornata, scraping away the plaster beyond in preparation for the next day's work; it is good practice to wet the wall of the next day's giornata the night before.

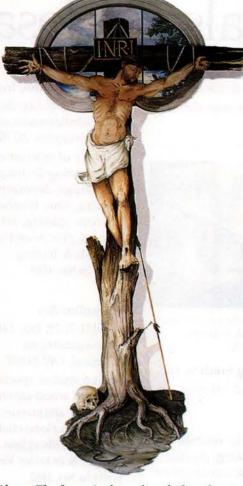
Related Techniques

Sgraffito (from which we get our word graffiti) consists in scratching (sgraffiare in Italian) through a thin coat of lime or lime plaster to reveal an undercoat toned with a dark pigment (red, brown, grey or black). Producing a high-contrast image, essentially resembling a woodcut, it may be more resistant to the elements in harsher climes than fresco. The technique was especially popular in 15th and 16th-century Florence, and went through a major revival in that city in the nineteenth century.

Fresco Today

Fresco has undergone a mini-renaissance in the United States during the last few decades, thanks in part to the Metropolitan Museum's fresco exhibit, Annigoni's pupil Ben Long (who has worked in the States for 20 years or more) and many new schools of fresco. But in order for it to develop a full-fledged rebirth, traditional architects need to incorporate frescoes into the their projects for new buildings at the beginning of the design process, and in order to do this they need to both understand the medium and the ways is has served architecture historically. Ideally, as Ruskin, Michelangelo and Bernini would have it, architects should actually be painters and sculptors. Then painting and sculpture would find their home again in the mother of all the arts, architecture. •

David Mayernik is a painter who works in oil, watercolor, and buon fresco, in addition to being a practicing architect and author of Timeless Cities: An Architect's Reflections on Renaissance Italy (Westview Press); he is an associate professor at the School of Architecture, University of Notre Dame.



Above: The fresco is shown here before the canvases were mounted on either side. Photo: Don Giuseppe Clarioni

Left: David Mayernik stands in front of his justcompleted fresco of the life-size figure of Christ on the Cross. Photo: Don Giuseppe Clarioni



Mayernik's fresco of the Crucifix is positioned between two 17th-century canvases. Photo: Don Giuseppe Clarioni

Applying the Lessons of History

My frescoes for the winter chapel of the

ancient church of San Cresci in Valcava, in the Mugello district of Tuscany, were motivated by completing a 17th-century oil painting of Mary and John at the foot of the cross. At some point in its life the central image of Christ on the cross had been cut out and removed, leaving only the two outside figures. My solution of creating a frescoed crucifix and placing Mary and John on either side preserved the historical integrity of the paintings while completing their narrative logic.

Originally the fresco was proposed for the altar wall of the small chapel, but in the course of preparing the whitewashed wall for the new painting, an 18th-century fresco of the Annunciation was discovered, necessitating the relocation of the new fresco and the restoration of the old one. The crucifix and its oil pendants were moved to a lateral wall, necessitating the elimination of the oval painting showing the martyrdom of the church's patron saint – instead, five new oval frescoes in the same register were proposed for the rest of the space, illustrating the saint's life.

In the summer of 2002, I painted the crucifixion while the successors to the founder of the school where I had studied fresco worked on the restoration. It is telling of the nature of those two enterprises that my new work took four intense giornate, while their painstaking task required a full month. In the following summer I returned to the chapel to paint the second scene of the saint's life on the wall opposite the crucifixion. The rest of the ovals remain to be done.

Further Reading and Resources

Books

Ralph Mayer, *The Artist's Handbook*, Viking, 5th Edition, 1991 (His chapter on fresco is perhaps the most succinct technical and practical guide to the technique available in print.)

Eleonora Pecchioli, *The Painted Facades of Florence: From the Fifteenth to the Twentieth Century*, Centro Di, 2005.

Vasari on Technique, Dover, 1960.

The Great Age of Fresco: Giotto to Pontormo; Metropolitan Museum of Art, 1968.

Millard Meiss, *The Great Age of Fresco*, George Braziller, 1970 (This and the above book are based on the traveling exhibit of detached frescoes that honored American contributions to the aftermath of the Florentine flood of 1966.)

E. H. Gombrich, Means and Ends: Reflections on the History of Fresco Painting, Thames and Hudson, 1976.

Mary P. Merrifield, *The Art of Fresco Painting*, A. Tiranti, 1952. Shaun Tyas, *Making Medieval Art*, Donington, 2003.

Resources

www.truefresco.com (an online portal to painters, courses and products)

www.kremerpigments.com (a source for pigments, lime putty, brushes)

Murals & Mosaics

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Canning Studios restored the murals and decorative painting and also cleaned and repointed the marble at the Pennsylvania State Capitol House Chamber.

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"Justice" was designed and created by Fishman Mosaics in traditional glass smalti and split-faced stone for the entryway of a temple in south Florida.

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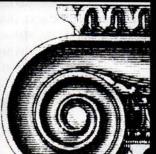
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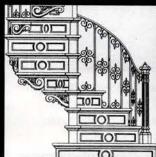


Thomas Moore Studios custom designed this deco-inspired mural with bas-relief architectural elements for a new club lobby.







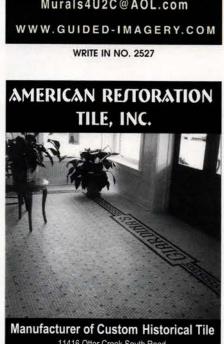


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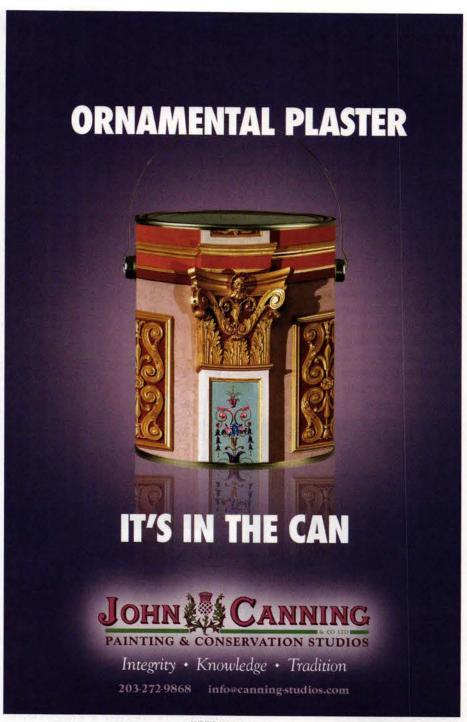
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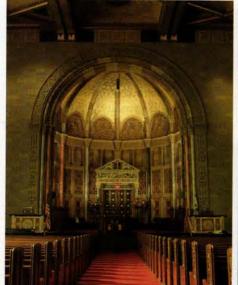
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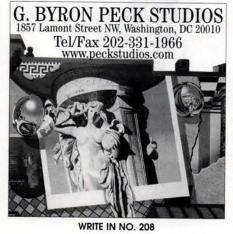




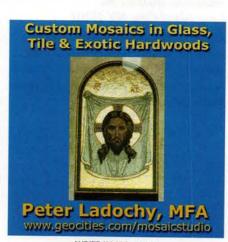
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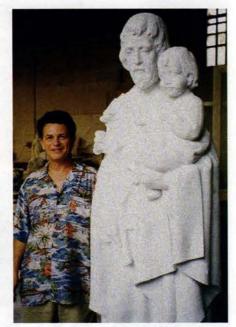
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Saint Joseph was carved in white marble by Dan Sinclair of DMS Studios for a church in New Jersey.

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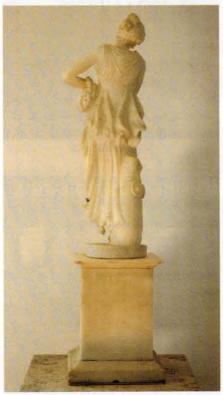


This 45-in.tall statue of Neptune. fabricated in lead by Florentine Craftsmen, includes an iron trident.

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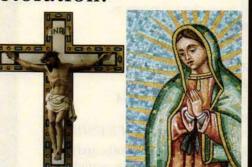
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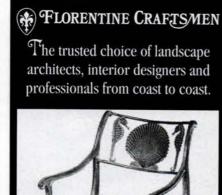
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Manufacturer of 40,000+ decorative building products: architectural moldings & millwork, columns, capitals, wrought-iron components, balustrading, door & window hardware, lighting, ceiling tile, furniture, cabinet components & more.

Write in No. 1088



Outwater's extensive collection of architectural products includes a wide variety of door knobs.

Architectural Resource Center

800-370-8808; Fax: 603-942-7465 www.aresource.com Northwood, NH 03261

Supplier of door, window & cabinet hardware: awning & window pulleys; cast bronze & brass; custom weights.

Write in No. 1670

Baker Liturgical Art

860-621-7471: Fax: 860-621-7607 www.bakerliturgicalart.com Southington, CT 06489

Supplier of liturgical furnishings & art: complete range of restoration services, design through final decoration; baptismal fonts, statues, mural restoration, statues, tile & wood flooring, custom doors & millwork & more.

Write in No. 1869

Ball & Ball Hardware

610-363-7330; Fax: 610-363-7639 www.ballandball.com Exton, PA 19341

Custom manufacturer & supplier of ornamental metalwork & hardware: door, window, shutter & furniture hardware; fireplace tools; wrought iron, steel, aluminum, bronze, brass, copper & cast iron; custom reproductions.

Write in No. 2930



Ball & Ball fabricates and casts custom door hardware in a variety of metals.

Baltica

866-830-9174; Fax: 310-349-3443 www.baltica.com Rochester, MA 02770

Manufacturer of hand-crafted, European-made door, window & cabinet hardware: cremone bolts, doorknobs & knockers, hinges, lever handles, push plates & more; Gothic & Baroque; showrooms worldwide. Write in No. 411



Baltica designs and produces hand-crafted cremone bolts in bronze and brass.

Cardine Studios

540-329-6460; Fax: 540-439-6462 www.cardinestudios.com Bealeton, VA 22712

Designer & fabricator of hand-forged metalwork: furnishings, pot racks, lighting, fireplace, gates, door hardware, straight & curved railings, panels & balusters; iron, bronze, copper, aluminum & stainless; national market.

Write in No. 1867



This period-style door hardware was fabricated by Cardine Studios.

Coppa Woodworking

310-548-4142; Fax: 310-548-6740 www.coppawoodworking.com San Pedro, CA 90731

Manufacturer of wood screen doors & windows: Douglas fir, mahogany, pine & oak; more than 165 styles; any size; stained or painted; Adirondack furniture kits, benches & barstools.

Write in No. 9600



Coppa
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offers a wide
variety of wood
screen doors.

CopperCraft, Inc.

800-486-2723; Fax: 817-490-9661 wwww.coppercraft.com Keller, TX 76248

Manufacturer of sheet-metal products: spires, finials, louvers, dormers, weathervanes, cupolas, conductor heads, cornices, cladding, chimney caps, canopies, bronze doors & more. Write in No. 1490

Craftsmen Hardware Co.

660-376-2481; Fax: 660-376-4076 www.craftsmenhardware.com Marceline, MO 64658

Supplier of Arts & Crafts-style hardware: door, window, cabinet & drapery hardware; hand-hammered copper.

Write in No. 6980



The Windsor series knob and escutcheon are manufactured by Crown City.

Crown City Hardware Co.

626-794-1188; Fax: 626-794-2064 www.crowncityhardware.com Pasadena, CA 91104

Supplier of hardware: casement fasteners & adjusters; sash locks, lifts, balances & weights; screen fasteners & hangers; glass knobs, bin pulls, switch plates & more; iron, brass, glass & crystal; Victorian & Arts & Crafts styles.

Write in No. 432

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door to door,





coast to coast.



[custom door hardware from A.R.C.]

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D.J.A. Imports, Ltd.

718-324-6871; Fax: 718-324-0726 www.djaimports.com Bronx, NY 10466

Distributor of architectural metal components: gates, railings, stairs, gate & door hardware, machinery for the metal industry & specialty items; stainless steel & aluminum; reproductions; riveted gates & railings, operators & more.

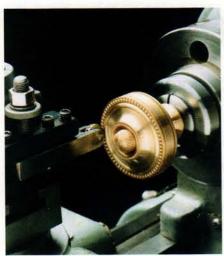
Write in No. 495

Durable Slate Co., The

800-666-7445; Fax: 614-299-7100 www.durableslate.com Columbus, OH 43201

Contractor providing historic restoration: slate, tile & metal roofing; exterior metal ornament; restoration of masonry, monuments, doors, windows, interiors, steeples, spires & cupolas; Midwest, East & South regions; since 1986.

Write in No. 3720



E.R. Butler custom fabricates door hardware in numerous metals, including brass, bronze, nickel, stainless steel and wrought iron.

E.R. Butler & Co.

212-925-3565; Fax: 212-925-3305 www.erbutler.com New York, NY 10012

Manufacturer of historically accurate, premium-quality hardware for doors, windows & furniture: brass, bronze, nickel silver & wrought iron; complete design selections of Early American period hardware; many finishes.

Write in No. 2260



Brass and iron door hardware from European Hardware & Finishes/Gerber Hinge can be ordered in a variety of finishes.

European Hardware & Finishes/Gerber Hinge Co.

800-643-7237; Fax: 818-717-5016 www.gerberhinge.com Canoga Park, CA 91304

Importer & distributor of ornamental hardware: cabinet, door &

window; cremone bolts/espagnolettes; iron, bronze & brass; from France, Italy & England; special finishes upon request. Write in No. 2540

Grabill Windows & Doors

810-798-2817; Fax: 810-798-2809 www.grabillwindow.com Almont, MI 48003

Custom manufacturer of solid-wood, bronze & aluminum-clad windows & doors: lift & slide doors, casements, tilt-turn, European in-swing & historically accurate double-hung windows with weights & pulleys; residential & commercial.

Write in No. 1910



This Honduras mahogany arched door from Grabill features solid V-groove panels.

Guerin, P.E.

212-243-5270; Fax: 212-727-2290 www.peguerin.com New York, NY 10014

Manufacturer of high-end handcrafted brass & bronze hardware & accessories: for doors, windows, furniture, objets d'art & bathroom accessories; hand-crafted sconces & residential lighting fixtures.

Write in No. 1166

Heather & Little, Ltd.

800-450-0659; Fax: 905-475-9764 www.heatherandlittle.com
Markham, Ontario, Canada L3R 0H1
Fabricator & supplier of historical sheet-metal roofing & specialty architectural sheet metal: finials, cornices, leader heads, cresting, canopies, metal shingles, pressedmetal siding, cupolas, steeples, domes & snowguards; sheet-metal reproductions; Kalemein, custom bronze & lot-line windows.
Write in No. 2470

Historic Doors

610-756-6187; Fax: 610-756-6171 www.historicdoors.com Kempton, PA 19529

Custom fabricator of wood windows & doors: casing; circular & crown moldings; complete entryways; wood storefronts; restoration & period-style construction.

Write in No. 3570



Historic Doors incorporated antique linenfold panels into this custom Gothic door.

Historical Arts & Casting, Inc.

800-225-1414; Fax: 801-280-2493 www.historicalarts.com West Jordan, UT 84088

Designer & custom fabricator of ornamental metalwork: doors, windows, hardware, stairs, balustrades, registers, fences, lighting, gutters, columns, weathervanes, planters & more; iron, bronze, aluminum & steel; restoration services.

Write in No. 1210

House of Antique Hardware

888-223-2545; Fax: 503-233-1312 www.houseofantiquehardware.com Portland, OR 97214

Manufacturer & supplier of door & furniture hardware & accessories: rare & ornate hardware; 1860s-1930s styles; switch plates; grilles & registers; historical reproductions.

Write in No. 1096



House of Antique Hardware offers this traditional egg-and-dart door set and steepletip door hinge in nine different finishes.

J.S. Benson Woodworking & Design

800-339-3515; Fax: 802-254-4874 www.jsbensonwoodworking.com Brattleboro, VT 05301

Custom fabricator of historical windows & doors: European window & wall systems; 7/8-in. TDL warm-edge glazing; architectural bronze cladding; custom hardware; restoration & reproduction services; institutional & residential. Write in No. 8930

James Peters & Son, Inc.

215-739-9500; Fax: 215-739-9779 www.jamespetersandson.com Philadelphia, PA 19122

Manufacturer of ornamental gate, shutter & barn door hardware: gate, barn & stable hinges; shutter bolts, shutter dogs & pull rings. Write in No. 1240

Jim Illingworth Millwork, LLC

877-390-2392; Fax: 315-232-3645 www.jimillingworthmillwork.com Adams, NY 13605

Custom builder of wood windows, doors & moldings: sashes or doors only or complete units; matching of existing moldings; crowns, bases, casings, trim, spindles, balusters & turnings; architectural, traditional & historical.

Write in No. 1696



Jim Illingworth Millwork created this Gothicstyle white-oak entryway with leaded glass and grooved panels.

Kayne & Son Custom Hardware, Inc.

828-667-8868; Fax: 828-665-8303 www.customforgedhardware.com Candler, NC 28715

Manufacturer of forged- & castmetal hardware: strap, H, HL, butterfly & butt hinges; thumb-latch locksets, gate hardware, shutter dogs & more; fireplace tools; bathroom accessories & kitchen equipment; restoration services.

Call for more information.



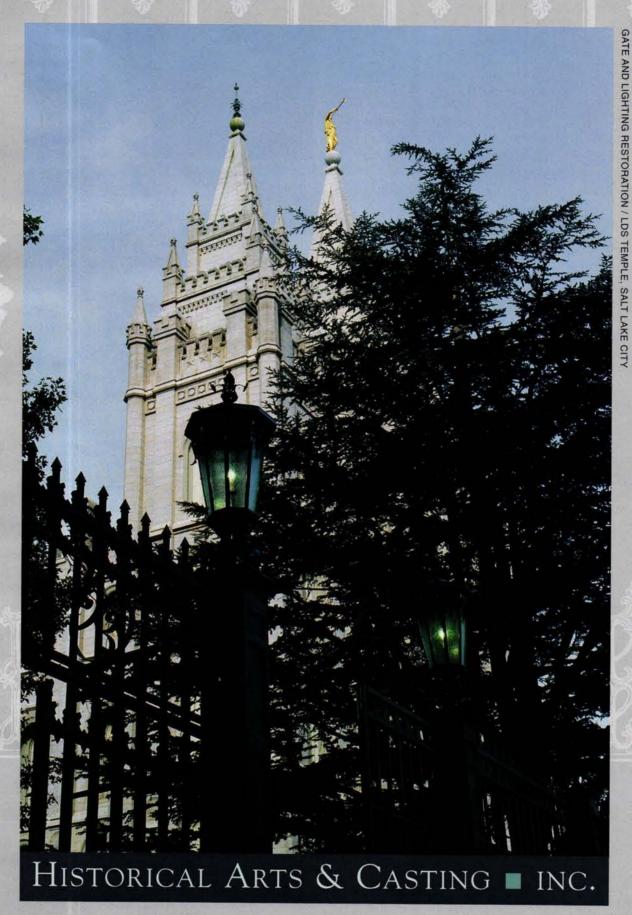
These forged-steel thumb latches, variations on a tulip Norfolk latch set, were fabricated by Kayne & Son.

Kirkpatrick Ltd.

704-658-1016; Fax: 704-998-3558 www.kirkpatrick.co.uk Mooresville, NC 28117

Manufacturer of window, door, cabinet, gate & bathroom hardware: iron gate latches, hinge fronts, cremone bolts & more; brass & powder-coated black & pewter; established in 1855.

Write in No. 1806

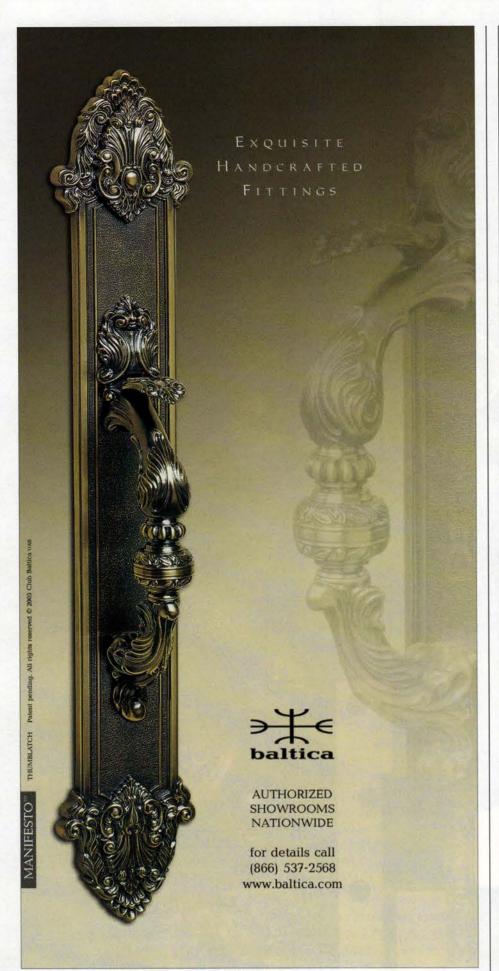


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1(800)225-1414



www.historicalarts.com

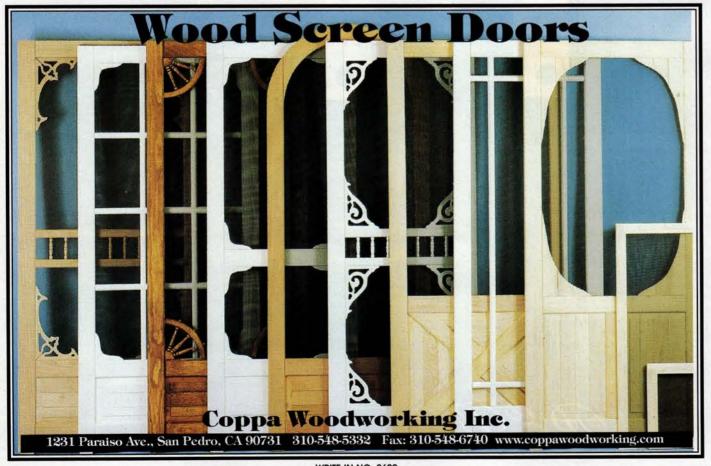




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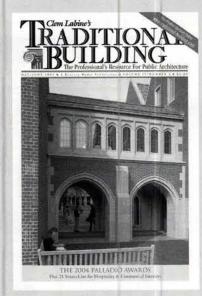


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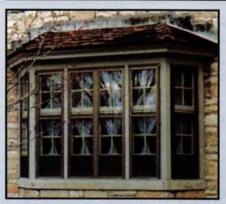
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www.monray.com Dealer Inquiries Welcomed

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Craft Metal Products, Inc.

800-669-3254; Fax: 317-545-3288 www.craftmetal.com Indianapolis, IN 46218

Manufacturer of church & institutional lighting: chandeliers, sconces, pendants & lanterns; custom lighting; restoration services. Write in No. 1021

Crenshaw Lighting

540-745-3900; Fax: 540-745-3911 www.crenshawlighting.com Floyd, VA 24091

Manufacturer of decorative lighting fixtures: period & custom designs; historical restoration & reproduction; lighting for worship. Write in No. 313



This custom chandelier was designed and fabricated by Crenshaw Lighting.

Crown City Hardware Co.

626-794-1188; Fax: 626-794-2064 www.crowncityhardware.com Pasadena, CA 91104

Supplier of hardware & switch plates: casement fasteners & adjusters; sash locks, lifts, balances & weights; screen fasteners & hangers; glass knobs, bin pulls & more; iron, brass, glass & crystal; Victorian & Arts & Crafts styles. Write in No. 432

Fine Architectural Metalsmiths

845-651-7550; Fax: 845-651-7857 www.iceforge.com Chester, NY 10950

Designer & custom fabricator of ornamental metalwork: period appropriate motifs; custom lighting; curved, straight & monumental stairs; driveway & garden gates; hand forged & wrought iron, bronze & aluminum. Write in No. 2640

Flickinger Glassworks, Inc.

718-875-1531; Fax: 718-875-4264 www.flickingerglassworks.com Brooklyn, NY 11231

Fabricator of bent glass: for curved brownstone windows, cabinetry, lighting & more; reproductions, complex shapes & custom molds; lighting restoration.

Write in No. 2852



Flickinger Glassworks specializes in custom glass bending for new and restoration lighting.

Guerin, P.E.

212-243-5270; Fax: 212-727-2290 www.peguerin.com New York, NY 10014

Manufacturer of high-end handcrafted brass & bronze hardware & accessories: for doors, windows, furniture, objets d'art & bathroom accessories; hand-crafted sconces & residential lighting fixtures. Write in No. 1166

Historical Arts & Casting, Inc.

800-225-1414: Fax: 801-280-2493 www.historicalarts.com West Jordan, UT 84088

Designer & custom fabricator of ornamental metalwork: doors, windows, hardware, stairs, balustrades, registers, fences, lighting, gutters, columns, weathervanes, planters & more; iron, bronze, aluminum & steel; restoration services.

Write in No. 1210



This three-ring chandelier was designed and fabricated by Historical Arts & Casting for the Arden Presbyterian Church in North Carolina; the design was also used in the AT&T Atlanta Center in Georgia.

Lehmann Glass Studio

510-465-7158; Fax: Same as phone www.lehmannglass.com Oakland, CA 94607

Custom manufacturer of wheel-cut art-glass panels: etched & beveled art glass; door & lighting-fixture glass; historic & modern designs; historical reproductions. Write in No. 4730

Maguire Iron Corp.

510-234-7569; Fax: 510-232-7519 www.maguireironcorporation.com Richmond, CA 94801

Supplier of traditional hardware & lanterns: door, cabinet, window, gate & mailbox hardware; knobs & levers with compatible locks, various backsets & functions; pewter, rust, brass & bronze finishes; custom work. Write in No. 7600

Mills Architectural Lighting

800-268-1526; Fax: 905-643-6667 www.millslighting.com Stoney Creek, Ontario, Canada L8E 5L6 Custom designer & manufacturer of interior & exterior lighting: historical lighting & restoration; for houses

of worship, public institutions & theaters; servicing all of North America & parts of South America. Write in No. 1416



Providence 1000 Series fixtures from Mills Architectural Lighting are hand crafted with steel frames and solidglass panels.

Remains Lighting

212-675-8051; Fax: 212-675-8052 www.remains.com New York, NY 10001

Importer & distributor of traditional lighting fixtures: thousands of antique chandeliers & sconces restored; some made by 19th- & 20th-century designers such as E.F. Caldwell & Co.; new wall & ceiling fixtures; UL listed.

Write in No. 792



This 10-in.-tall wall sconce from Remains Lighting is constructed of cast bronze and tooled brass.

Signature Hardware/ Clawfoot Supply

866-475-9707; Fax: 800-682-6826 www.signaturehardware.com Erlanger, KY 41018

Direct distributor of bathroom supplies & lighting: cast-iron & acrylic clawfoot bathtubs, porcelain sinks, brass faucets, shower rods & rings; floor registers & air returns; decorative door hardware.

Write in No. 1376



The lighting fixtures at Old Christ Memorial Church in Pensacola, FL, were supplied by St. Louis Antique Lighting.

St. Louis Antique Lighting Co.

314-863-1414; Fax: 314-863-6702 801 N. Skinker Blvd. St. Louis, MO 63130

Manufacturer & supplier of architectural lighting: all styles; historical reproductions & custom lighting; restoration services; commercial & ecclesiastical projects. Write in No. 6190

Steven Handelman Studios

805-962-5119; Fax: 805-966-9529 www.stevenhandelmanstudios.com Santa Barbara, CA 93103

Manufacturer of hand-forged traditional lighting, grilles & fireplace accessories: many types & styles of lighting & grilles; fireplace screens, grates & inserts; historic reproduction & restoration services.

Write in No. 483



This large candlelight wall sconce, featuring a back-lit mica band, was custommade by Handelman Studios.

Wiemann Ironworks

918-592-1700; Fax: 918-592-2385 www.wiemanniron.com Tulsa, OK 74104

Designer, fabricator, finisher & installer of custom ornamental metalwork: railings, gates, balustrades, lighting, fences, furniture, doors & fixtures; cast & wrought iron, bronze & aluminum; CAD services. Write in No. 1223

World Class Lighting

727-524-7661; Fax: 727-524-7663 www.worldclasslighting.com Clearwater, FL 33760

Manufacturer of chandeliers & wall sconces: crystal & wrought-iron chandeliers; Neoclassical & other styles; custom sizes.

Write in No. 1612



This crystal chandelier with an antique finish was created by World Class Lighting.



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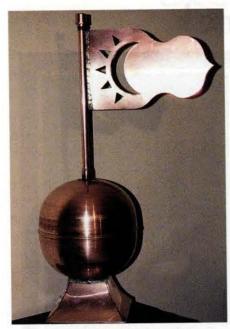
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WRITE IN NO. 6190



This keystone finial with a "Tatra" flag is manufactured by EJMcopper.

EJMcopper, Inc.

877-447-0074; Fax: 407-447-0075 www.ejmcopper.com Orlando, FL 32804

Custom fabricator of copper products: cupolas, dormers, weathervanes, finials, vents, chimney caps & more.

Write in No. 1377

Fiberglass Specialties, Inc.

800-527-1459; Fax: 903-657-2318 www.fsiweb.com Henderson, TX 75653

Manufacturer of FRP steeples, domes & cupolas: dozens of stock sizes & components; fiberglass & custom baptismal fonts; columns & balustrades; design department assists with custom requirements. Write in No. 7310

Florentine Craftsmen, Inc.

Call for more information.

800-876-3567; Fax: 718-937-9858
www.florentinecraftsmen.com
Long Island City, NY 11101
Manufacturer of garden ornament & other ornamental metalwork & stonework: freestanding & wall-mounted fountains, statuary, urns, planters, wrought-iron gazebos, furniture & more; weathervanes; cast stone, cast aluminum & lead.



Heather & Little custom fabricated four copper-clad domes for the Church of the Transfiguration in Markham, ON; the upper domes are adorned with 22k gold leaf.

Heather & Little, Ltd.

800-450-0659; Fax: 905-475-9764 www.heatherandlittle.com Markham, Ontario, Canada L3R 0H1 Fabricator & supplier of historical sheet-metal roofing & specialty architectural sheet metal: finials,

cornices, leader heads, cresting, canopies, metal shingles, pressedmetal siding, cupolas, steeples, domes & snowguards; sheet-metal reproductions; Kalemein, custom bronze & lot-line windows.

Write in No. 2470

Historical Arts & Casting, Inc.

800-225-1414; Fax: 801-280-2493 www.historicalarts.com West Jordan, UT 84088

Designer & custom fabricator of ornamental metalwork: doors, windows, hardware, stairs, balustrades, registers, fences, lighting, gutters, columns, weathervanes, planters & more; iron, bronze, aluminum & steel; restoration services.

Write in No. 1210

Kenneth Lynch & Sons, Inc.

203-762-8363; Fax: 203-762-2999 www.klynchandsons.com Wilton, CT 06897

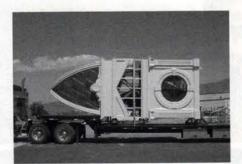
Manufacturer of ornamental metalwork & cast-stone products: planters, urns, benches, fountains, statuary, topiary, sundials & weathervanes; cast stone, cast & wrought iron, lead & bronze; stock & custom designs. Call for more information.

Michigan Ornamental Metals

201-945-4930; Fax: 201-945-4931 www.michiganornamental.com Ridgefield, NJ 07657

Custom fabricator of metal ornament: columns, capitals, rosettes, wreaths, cornices & ceilings; cupolas, domes, gutters, finials, leaders & leader boxes; stamped/pressed sheet metal; replications & historic reproductions.

Write in No. 9520



This metal cupola was prefabricated by Munns Mfg. for the restoration of the historic County Courthouse in Goliad, TX.

Munns Mfg., Inc.

435-257-5673; Fax: 435-257-3842 www.munnsmfg.com Garland, UT 84312

Manufacturer of aluminum steeples, pinnacles, spires, cupolas & towers: variety of styles & designs; weather-vanes optional; custom copper & aluminum dormers.

Write in No. 1356

New Concept Louvers

800-635-6448; Fax: 801-489-0606 www.newconceptlouvers.com Springville, UT 84663 Manufacturer of finials, spires &

Manufacturer of finials, spires & turret caps in copper: full-size weathervanes in stock; stock & custom cupolas in aluminum; 450 colors; maintenance free.

Write in No. 1264



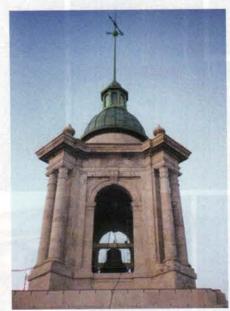
Stock and custom cupolas from New Concept Louvers are made of PVC-coated aluminum and copper so they never require painting.

Nicholson & Galloway

516-671-3900; Fax: 516-759-3569 www.nicholsonandgalloway.com Glen Head, NY 11545

Full-service exterior & historic facade restoration contractor: flat, slate, tile & metal roofing; brick, stone, concrete restoration; cupolas & domes of all metals; chimney restoration.

Write in No. 3067



The weathervane and dome on the Rotunda Clock Tower in Baltimore, MD, were fabricated by NIKO.

NIKO Contracting Co., Inc.

412-687-1517; Fax: 412-687-7969 www.nikocontracting.com Pittsburgh, PA 15213

Custom fabricator & contractor of sheet metal & roofing: slate, tile & other roofing; storefronts, cornices, cupolas, domes, steeples, snowguards & leader heads; copper, lead-coated copper, zinc & stainless steel; metal ceilings.

Write in No. 8300

No 9 Studio UK

011-44-1769-5404-71; Fax: 44-1769-5408-64

www.no9uk.com

Umberleigh, Devon, UK EX379HF

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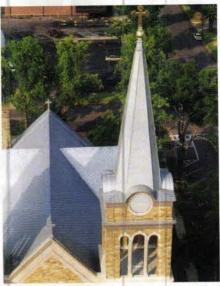
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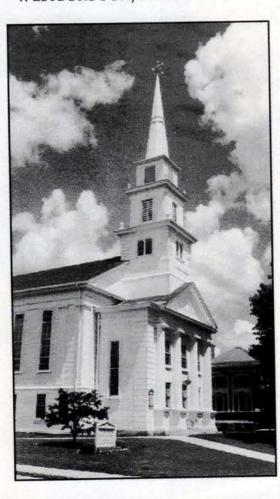
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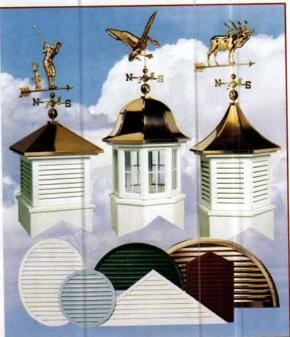
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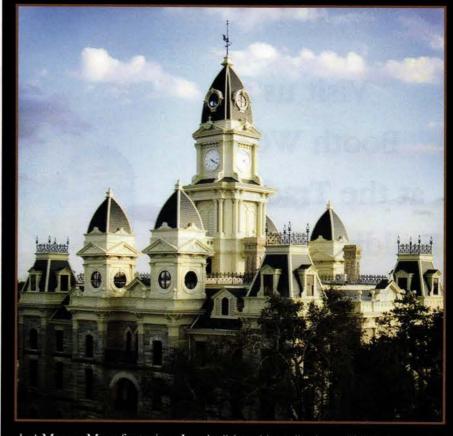
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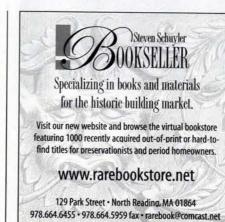
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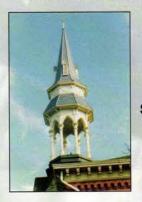
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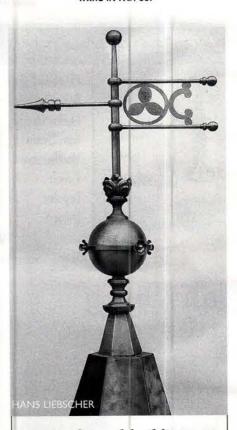
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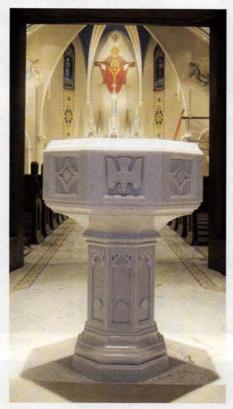
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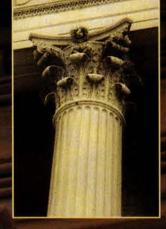
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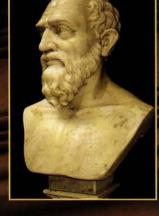
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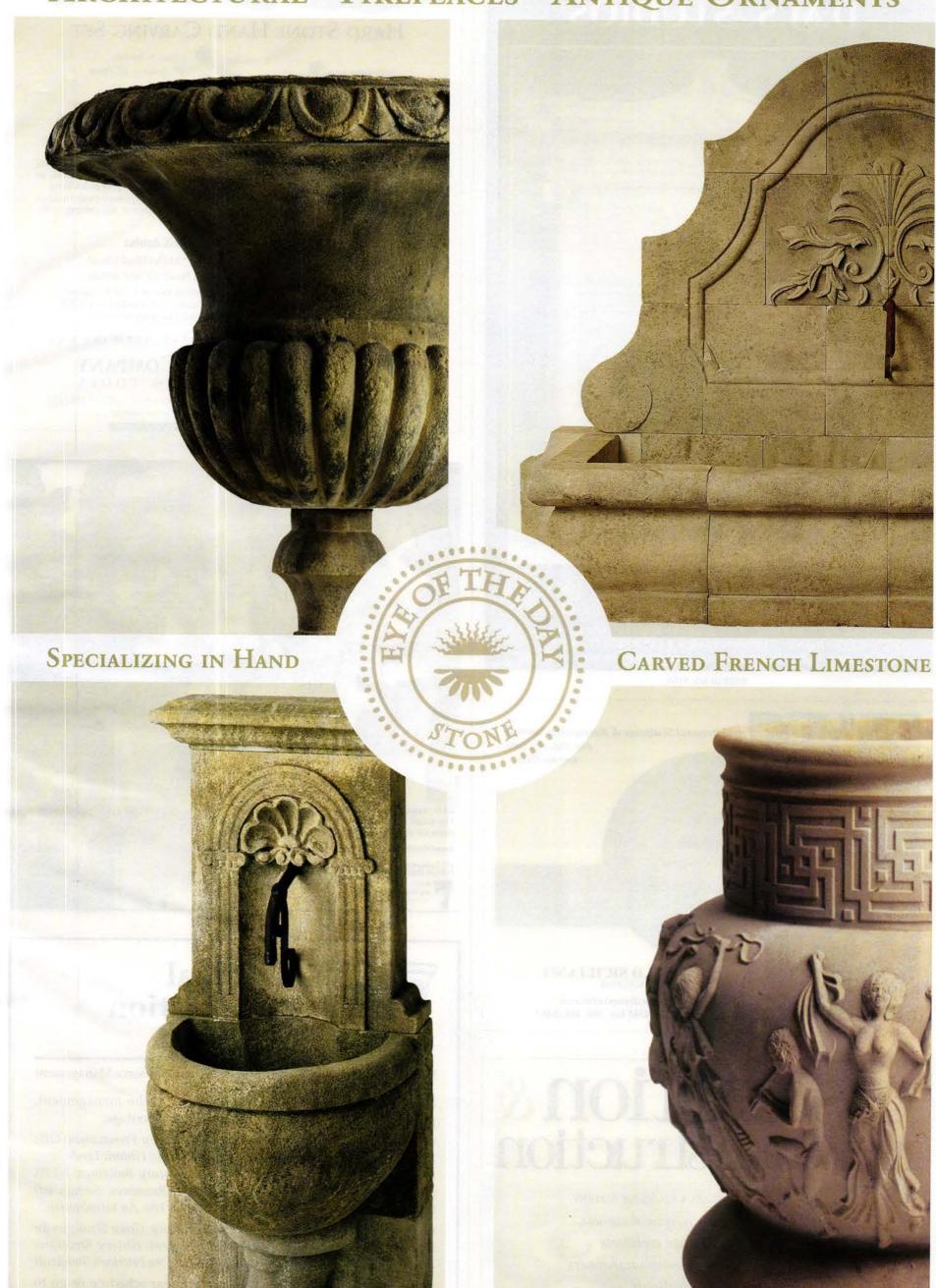
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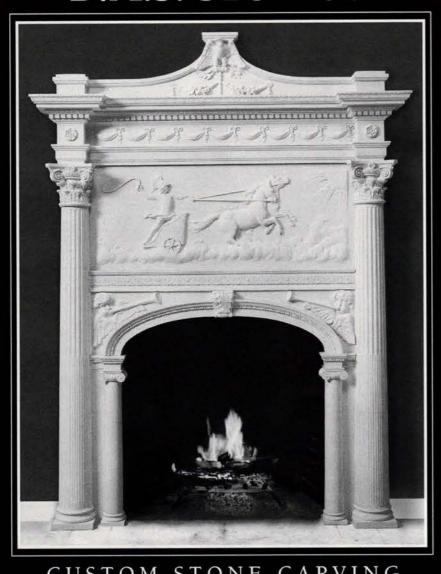


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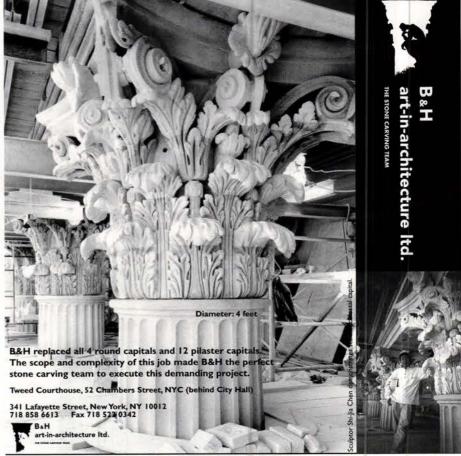
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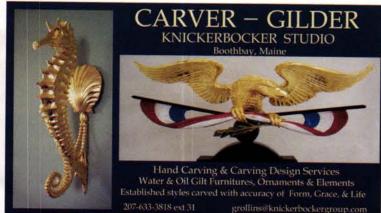
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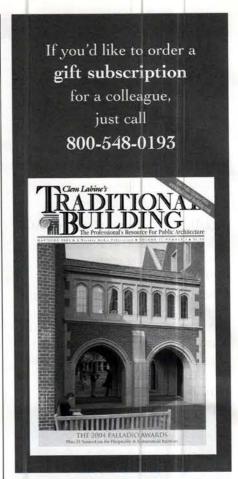
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The Makers of Trinity Church in the City of Boston

Edited by James F. O'Gorman

University of Massachusetts Press, Amherst & Boston, MA; 2004

206 pp.; hardcover; 61 b&w illus., 16 color; \$39.95

ISBN 1-55849-436-7

Reviewed by Martha McDonald

ublished in association with Trinity Church in Boston, *The Makers of Trinity Church* grew out of a symposium held at the Boston Public Library on November 17, 2001, that was part of a year-long celebration of the 125th anniversary of the dedication of Trinity Church on February 9, 1877.

The book is edited by James F. O'Gorman, Grace Slack McNeil Professor of History of American Art at Wellesley College and author of numerous books on H.H. Richardson. In his preface, he sets the tone: "Architecture is not the expression of individual genius, despite the adoration given in our time to such magical names as Frank Lloyd Wright, Philip Johnson, and

Frank Gehry."

A collection of 10 essays and an introduction written by leading scholars in the field, the book brings the process of building an historic church to life as it shows the collaboration among the various people involved over the years. It starts with the idea and inspiration of the rector, Phillips Brooks, and goes through the remodeling of the chancel in the 1937 by Charles D. Maginnis, of Maginnis & Walsh. The recent restoration by Goody Clancy is also mentioned. (See *Traditional Building*, December, 2005, page 16.)

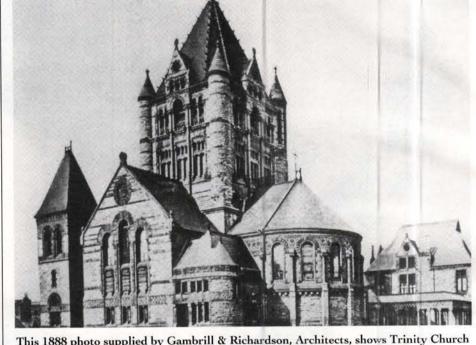
While the two most famous artists involved in the project, architect H.H. Richardson and decorator John La Farge, are covered in separate chapters by different authors, the book takes us deeper into the subject by including individual chapters on others involved in Trinity Church. These include Robert Treat Paine, the chairman of the building committee, and the builder Orlando Whitney Norcross. But it doesn't stop there. Other chapters delve into subjects not covered so often: the furnishings, the women artists who contributed to the project (stained glass designers Sarah Wyman Whitman and Margaret Redmond), and the author Henry Adams. His novel, *Esther*, references the red walls and features a character similar to Phillips Brooks, although the church is not specifically named. The final chapter, "Chancel Remodeling: Charles D. Maginnis (Maginnis & Walsh)" discusses the remodeling of the chancel in 1937.

In his introduction, "From the Parish to the World: The Architectural Context of Trinity Church," Keith N. Morgan notes that the style is

Richardson's version of Romanesque, "modernized to match the spirit and the needs of the 1870s Here he took an architectural tradition of thick walls, small windows, and long naves and massaged it into a composition of generous volumes, punctuated by large openings, and restrained ornament both within and without. Indeed, it was in this commission that Richardson perfected a personal design manner that he further explored in his subsequent work and that deeply influenced the architecture of his generation."

This is followed by Theodore E. Stebbins, Jr.'s, "Trinity Church at 125." It summarizes the development of the idea for a new building, the design and building process and the changes that occurred over the years, while subsequent chapters focus on individuals, starting with Brooks. Stebbins also confirms the opinions expressed by the other contributors, that the design of Trinity Church was a process involving many people: "The Trinity we know today resulted from two years of engineering disputes, design debates, and high friction involving the architect, the rector, the contractor, and the building committee. Richardson's plans were redrawn, rejected, then redrawn again."

Interestingly, the architect is covered in chapter four, following the client, Brooks, and the chairman of the building committee, Robert Treat Paine. In this chapter on H. H. Richardson, Kathleen A. Curran details many of the changes that were made as the design developed over the years. Perhaps the most significant of these was the tower. This started out a "tall ungainly tower and octagonal lantern" in the drawings that Richardson submitted for the competition in 1872, and evolved over time. When the building committee and the engineer, Ernest Bowditch,



This 1888 photo supplied by Gambrill & Richardson, Architects, shows Trinity Church from the southwest.

expressed concern about the weight of the tower in 1874, the design was once again changed, this time to a square tower. The author suggests that Brooks may have influenced this decision, with his preference for square towers without spires.

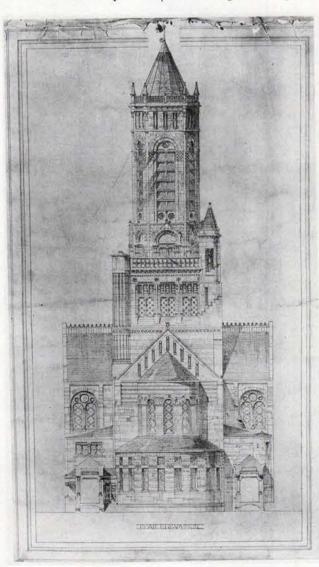
The chapter on the builder, Norcross, by James F. O'Gorman, provides insight into the man as well as the project. O'Gorman described him as self taught, a practical man, and "a perfect balance to the artistic Richardson." His firm lasted for 60 years and he built the majority of Richardson's buildings. As the first builder to offer a full-service construction service, Norcross created the general contracting business. Like Richardson, he favored load-bearing masonry construction. He was a "master of time-honored, load-bearing masonry construction ... but he was not one to embrace technologically cutting-edge projects with structural steel frames and curtain walls."

The discussion of La Farge's contributions covers a number of years and highlights his background and influences as well as his accomplishments. Following the completion of the rich red murals by La Farge and his team in

the tower in only four months in 1876-77, La Farge was disappointed when the church commissioned Henry Holiday of London to create stained-glass windows that were paid for by donors. La Farge had preferred muted grisaille windows to coordinate with his murals. He did ultimately create stained-glass windows for the church, incorporating new techniques that he developed. These included "Christ in Majesty," completed in 1883, "Presentation of the Virgin in the Temple," in 1888 and "The Resurrection," in 1902. The second one, "Presentation," was a memorial to Julia Appleton McKim, donated by her husband Charles Follen McKim, of McKim, Mead & White.

This is a scholarly, yet lively work, filled with details about the process and the people involved. In addition to the editor James F. O'Gorman, who also wrote the chapter on O.W. Norcross, contributors included Keith Bakker, David B. Chesebrough, Kathleen A. Curran, Erica E. Hirshler, Keith N. Morgan, Thomas M. Paine, Virginia Chieffo Raguin, Milda B. Richardson, Theodore E. Stebbins Jr. and Charles Vandersee. Brief biographies of each author appear at the end of the book, just before the useful index. Also useful are the extensive bibliographies at the end of each chapter and the list of illustrations at the front of the book.

A center section features a number of color images and many black-and-white historical photographs and drawings appear in the chapters. The book measures 7x10 in. and is not a glossy coffee table book, but rather an interesting, historical description of the process of building a truly valuable architectural landmark. Anyone interested in American culture and history as well as those studying American architecture will find much to enjoy and savor in *The Makers of Trinity Church*. •



Submitted in 1872, the competition drawing for Trinity Church featured a tall octagonal tower.

Magazines, Conferences, Trade Shows, Websites, Directories



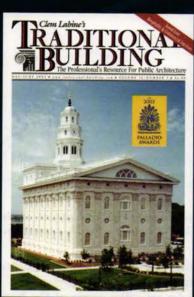
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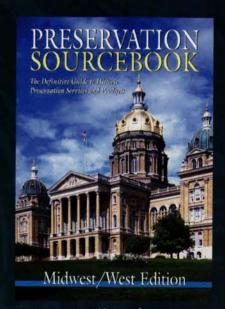
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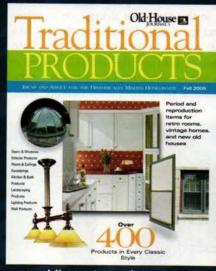
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STRONGLY COMPACT

Castles of God: Fortified Religious Buildings of the World

by Peter Harrison

The Boydell Press, Rochester, NY; 2004

312 pp.; hardcover, 41 monochrome figures, 44 color illustrations; \$60

ISBN 1-84383-066-3

Reviewed by Noah Waldman, Archdiocese of St. Louis

'n "A Way to Love God," Robert Penn Warren wrote: "Everything seems an echo of something else." Warren expresses the inherently symbolic character of all-that-is, calling to consciousness common themes once forgotten, transformed now by the passage of time and of its final waning - its

'echo" - which ends in the terribleness of forgetting.

In this remarkable book, Castles of God: Fortified Religious Buildings of the World, Peter Harrison sounds the depths of a subject heretofore "little studied or understood" for echoes of impulses deeply rooted in the human spirit: its natural desire for security and order, and its spiritual thirst for religious meaning. By the time we are finished reading Harrison's book we are able once more to hear an ancient resonance. And in this resonance, and by means of it, Harrison has succeeded in identifying no less than the essence of a new architectural typology, one which is not merely evident in many diverse forms from the post-Classical to pre-Renaissance periods, but which predominates, telling a new architectural story of the Middle Ages: a two millennium pas de deux of fortress and temple.

Now, the "old story" of medieval architecture is one most of us are familiar with. Most of us will recall it from art history courses. Its plot centers around a different dyad, not a duet but a conflict between the solidity of the wall and the desire for openness and height. Between them, the architect struggles like Sisyphus to open the wall to light and space. The scene of the drama is more or less centered upon Western Europe. It is, like most stories, not without a polemic: the early Christians, with their heads in the clouds, weren't the best of builders. They were able to adapt the old Roman types (the longitudinal basilica and the round martyrium) only to a limited degree of skill. Their churches assumed heavy postures, and wall maintained dominion over column and arch - and most of all, over the freedom of the architect - for nearly a millennium. Justinian and Carolingian permutations of those types demonstrated a limited development, instilling some new meaning into the Roman forms, but even with these architects had to settle for mosaic and alabaster to create lighting effects.

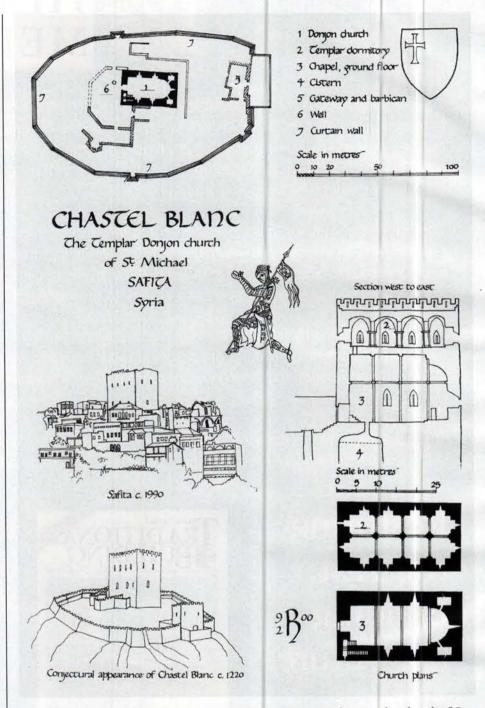
Then suddenly (like the Incarnation itself) with the Promethean genius of Abbot Suger, the Gothic arch and the flying buttress allowed for a new soul to be breathed into the old forms, freeing them from earth. Cathedrals soared. Walls dissolved into glass, space, light, and (at last) meaning. Were not Suger and his new Gothic freedom the forerunner and foretaste of modernity's dream, fulfilled in the coming of the final architectural messiah

Le Corbusier and of his gospel, the plan libre?

Such was the story (myth really) told to generations during the 20th century. While it is not my intention to take too lightly what is true in the previous account (Otto von Simpson's Gothic Cathedral shall remain an indispensable classic, and the story it tells of formal evolution is not without depth of vision, as myths do contain certain truths!); nevertheless – why should we so easily believe that analysis of form should become the sole determiner of our understanding of architectural evolution? And why should form be the lens through which we gauge our retrospective standards of perfection and symbolic potency? Are the echoes of meaning in the forms of things, or in what lies beyond form, in a matrix of history and memory? Formal evolution has a nearly mathematical logic of its own that points to a changeless structure of human values; yet a story of form and of taming the primal forces though an invariant datum of explanation, part science and part myth - cannot substitute for the fuller human dimensions of history and culture that,



The defense tower, or qasr, in the monastery of St. Simeon in Aswan, Egypt, is an instance of a common typology traceable to the Essene settlement at Qumran.



Fixed squarely within the enceinte at Chastel Blanc in Syria, the Templar church of St. Michael is equally a church, a tower and a fortress.

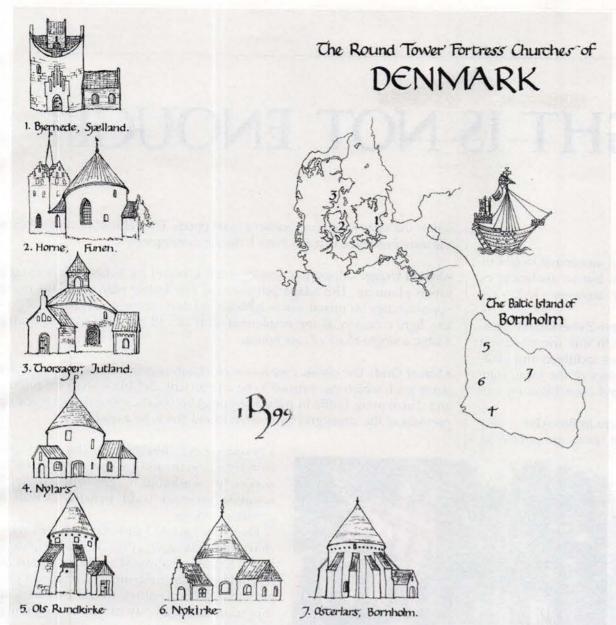
though often conditional and accidental, comprise those occasions of a form's coming-to-be.

An intuitive grasp of the human situation in life is one of Harrison's greatest strengths. Of course, he does not ignore formal considerations, for no discussion of typological diversity and commonality is possible without some examination of form. Yet, Harrison always contextualizes (and therefore gives meaning to) typological expression by considering history, crosscultural connections and religious visions that, like new sources of radiance, charge the old story and the old formalizations of medieval architecture with a fuller sense.

Using this method, Harrison begins his book with a very simple observation: a common typology that binds religion and defense into one can be traced to the Essene settlement at Qumran of 100 B.C., and possibly well before that. Harrison then shows how this typological genus is like a seed that can blossom into a myriad of forms across history, culture, local build-

ing tradition and religious belief.

To be more specific about the typology Harrison identifies, it has within it two recognizable formal elements: a worship space, which may be interpreted as an element of vertical or transcendental meaning, and a tower/enceinte, which he interprets according to horizontal or political necessities and local influences. As nucleus and membrane of a cell are necessary components of one living being, these two elements stand in relation to one another as composing one type. The common elements of worship space and tower/enceinte do show up time and time again, but in variations on a single two-part theme, according to religious orientation and to its situation in the world - so that this one typology echoes its essence into the world in many ways. The typology is not limited to Europe or the Christianity. It can serve as a genus common to the Christian West and East and also to Islam and, to a lesser degree, to Tibetan Buddhism. In Ethiopia, the typology may materialize as monastery with gasr. In Egypt and Iran, it may show up as Islamic mosque and minaret. Often, both elements may conflate into a single expression, as in the tower churches of Denmark or the donjon churches of the Templars. Or, they break



Even if Harrison does not go so far as to relish the fullest possibilities of his masterpiece, by no means does he falter in the least. Castles of God is a groundbreaking work. Once introduced into architecture curricula, it will change the way medieval architecture is taught at the university level. It will draw architecture students back from the world of forms into the world of history, which is the world of man. Architectural historians will find this book an invaluable tool to weave together the story of architecture. The architect will discover in its pages a treasure of inspiration and insight into the design of churches, monasteries and parish centers. So, too, this book will (inevitably, in time) become a touchstone for those seeking deeper resonances between anthropological and theological meaning. For no peaceable city, no city of man that lacks strength and security from the forces of the world, can allow the hearts of its citizens to soar to the heavens. One thinks of the psalm verse:

I rejoiced when I heard them say:
"Let us go to God's house!"
And now, my feet are standing
Within your courts, O Jerusalem—
Jerusalem—City built strongly compact!

Grace cannot be built but upon nature. Love of god, in any religious tradition, requires protection from the community of the unenlightened, to grant man the freedom to love God. And freedom is weakened by the possibility of fear. If this indeed is the condition of man, then it must be echoed throughout the architecture of the world. In recognizing the universal sound of this echo, Harrison has written nothing less than a classic. ◆

forth into fragments and repetitions, as in the vast palace complexes of Tibet.

Harrison's repertoire is considerable. In the Christian tradition that makes up the main of the book, he examines the round towers of Ireland, the later Norman churches, priories and tower houses. The castles and great "fortress cathedrals" of the Iberian Peninsula, Latvia, Prussia and the Latin Middle East are studied in light of the Crusades. In England, Scotland and Wales, he analyzes gatehouses, peles, marches and tower churches. The great monasteries and abbeys of France display the highest degree of typological differentiation, whereas the round and freestanding fortified churches of Denmark and Sweden demonstrate a brilliantly cool efficiency of form. Mt. Athos and the "sky monasteries" of Greece are discussed, as are the very terrestrial designs of the fortified church villages in Transylvania, Austria, Czechoslovakia, Poland and their more complex variations, such as Moscow's Kremlin and Georgia's cathedral complex at Ninocminda. Even the Vatican and missionary churches in the Americas and the Philippines are given notable representation.

A small but important section of the book considers Islamic variations on the type, including foursquare *ribats*, the *khanaqah* of the Sufis, and the castles of the Assassins. Finally, Harrison examines a few important Hindu sub-types, such as the fort monasteries of the *dob dobs*, the chalet-like *dzongs* and the Dalai Lama's Portala Palace.

the Dalai Lama's Portala Palace.

Certainly Castles of God will change the way we think about the evolution of architectural form during the Middle Ages, and possibly the evolution of architectural form far into antiquity. The book is wonderful for exposing the casual reader to a subject of architecture little studied. The glossary of terms, bibliography and index are extensive and helpful; organization and layout are beautiful and precise. Marvelously researched, beautifully written and illustrated (the lovely diagrams and photographs are Harrison's), this book is scholarly without flaw.

But there is something more here, both for the architectural imagination and for the mind: if there were an architectural form in which the echo of all other forms found sonority, what would it be? Would it be found in the cities and dwellings of the Ancient East, or in the cathedrals and solitary skyscrapers of the West? Could there be a universal type embracing architectural opposites? While Harrison's sobriety as a scholar prevents his going so far as to explicitly tackle this question, the breadth and trajectory of his study can imply nothing else. This fortress/temple typology, in its embrace of the full span of human experience – from worldly survival to the hope of other-worldly transcendence – seems the iconic fusion of the city and the sanctuary into one. Is this not, therefore, that one type that contains in its germ all possible architectural types within its sphere?

EDDA MEDHADE ALEM 'The Saviour of the world' Adua · Tigre ETHIOPIA Scale in metres 1 Outer gatehouse and curtain wall 2 Outer churchyard and cemetery 3 Priests lodgings 4 Inner gatchouse and bell tower 5 Inner courtpard containing the 'Bethlem' - a bakery for communion bread The Church 6 Ambulatory 7 The Kene Mahalet: for worshippers 8 The Makdas: reserved for officiating priests 9 The Holy of Holies containing the altar and a representation of the Ark of the Covenant

"The Savior of the World" sanctuary in Ethiopia arranges the worship and *enceinte* elements in concentric zones of holiness. Perhaps no other church compound in the world so frankly communicates the hagiocentric idea of a fortified place of worship.

BEING RIGHT IS NOT ENOUGH

By Clem Labine

he brownstone revival and the New Urbanist movement taught us how to create livable urban neighborhoods, but an avalanche of developer dollars can sweep aside all "right" answers – unless we are willing to join the political fray.

For 30 years, Andrés Duany and Elizabeth Plater-Zyberk have been confronting the traditional design community with this inconvenient truth: Sensitive development in existing cities requires architects and planners to engage in rough-and-tumble political processes at the local, state and federal levels. Otherwise, all our good ideas and clear thinking will amount to nothing.

We are facing a glaring example of that situation here in Brooklyn – only 10 blocks from where *Traditional Building* and *Period Homes* are published.

Ironically, our city, which has seen one of the most successful urban-revival phenomena in the U.S. – the brownstone movement – is about to be assaulted with a mega-project that does violence to just about every humane urban-planning principle.

The brownstone revival, which took hold in Brooklyn in the 1960s, proved the validity of many of the same city-planning principles that the New Urbanists, like Andrés and Elizabeth, were simultaneously developing from an entirely different starting point. Here are some of the reasons that brownstones, and similar row-house neighborhoods, make vibrant urban communities today:

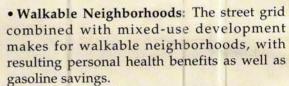
- Traditional Architecture: The traditional architecture of 19th- and early-20th-century row houses is very attractive to many middle- and upper-income homeowners. Traditionalism provides a sense of stability in a world that increasingly lacks this quality. Similarly, the New Urbanists have found great market acceptance for new communities that feature traditional designs.
- The Row House Plan: The American row house is based on the 18th-century London townhouse plan and has proved to be an amazingly adaptable and successful urban building type. For example, the building that houses the editorial and business offices of this magazine is an 1885 brownstone that was built as a residence, but was readily adapted to commercial use in 1905.
- Horizontal Density vs. Vertical Density: Neighborhoods of connected row houses provide high population density per acre, making

efficient use of expensive city real estate. These row houses provide horizontal density, which still allows residents to be connected to street life. The "Tower in the Park" residential developments of the 1960s, on the other hand, provide vertical density. This building type has proved a social failure in numerous cases; vertical density isolates people from the street and fosters alienation. Many of these projects have already been dynamited after being in service for less than 45 years.

- Human Scale: The three to five stories of the typical urban row house create an appealing human scale, while providing from 3,000 to 6,000 sq.ft. of living space.
- Energy Efficiency: The long common walls on two sides of the row house insulate the bulk of the house from extremes of hot and cold weather.
- Vibrant Street Wall: Connected row houses make a human-scale street wall that encloses the block on its two long sides, transforming the street into an inviting "public room." And each house has a door that leads into that communal room.
- The Stoop and the Porch: The typical New York row house has a stoop a set of steps leading from the sidewalk to the second ("parlor") floor. The stoop is an intermediate zone between public and private space, and provides many opportunities for casual social interchange with neighbors. The stoop

serves the same social function as a front porch. The value of front porches is a feature promoted in many New Urbanist developments.

- Mixed Usage: "Mixed-use development" is one of the buzzwords of today's urban planners. The adaptability of the row-house plan provides many opportunities for mixed-use neighborhood development: offices, retail outlets, light commercial and residential units can all be easily accommodated within a single block of row houses.
- Street Grid: The classic row-house neighborhood is built on a rectangular street grid, which has proved to be an efficient, flexible system for routing and distributing traffic in mixed-use neighborhoods. Projects that block up portions of the street grid have often found this to be a mistake.



Over the past 40 years, the value of these characteristics in creating livable neighborhoods has been validated again and again. So it would seem a "no-brainer" that urban projects in the 21st century would be based on this accumulating body of humane planning principles.

Ironically, today – right in the heart of brownstone Brooklyn – a developer is proposing a \$4-billion mega-project that would diminish (some of us say "destroy") the livable character of a large section of Brooklyn. This project has the full backing of New York State – and many New York City politicians – along with nearly \$1 billion in public subsidies.

I have become personally involved in the struggle to stop – or radically downsize – this project because the developer and his architect (Frank Gehry) have chosen to ignore all the guidelines for sensitive urban development. The project proposes to pack 18,000 people, commercial offices, a basketball arena and retail outlets in 16 skyscrapers on a 22-acre site. The project would create the densest census tract in the U.S., duplicating many of the worst mistakes and abuses of 1960s "Urban Renewal."

It is disheartening to see the way a politically connected developer has been able, so far, to ignore a growing chorus of community opposition. The project is under the control of New York State and this means that not a single elected official in New York City has any legal standing to alter or oppose it. So, to no one's surprise, the recent Draft Environmental

Impact Statement, compiled by the state's Empire State Development Corporation, found that the mammoth project would have a "negligible" adverse impact on adjacent neighborhoods.

This gargantuan project is wrong on so many counts, and the political process so rigged, that space doesn't permit anywhere near the full list. It quickly became apparent to me, though, that cool logic and rational discussion counts for little or nothing when a big-bucks project like this gets rolling.

The alternative: I'm joining with many other citizens in the kind of civic activism that Duany has said is so necessary to achieve humane urban development. In this case, the challenge is to ignite so much political heat that state political officials will reconsider the size and scale of this project – or even dump it entirely and start over. Getting political officials to change their minds is no easy task, however, especially when the developer is promoting the idea that this is a "done deal."

Opposition to this project involves many of the standard tactics of civic activism – letter-writing, emailing, lobbying politicians, attending rallies and testifying at public hearings – but when big developer bucks and political influence are involved, opposition also involves lawyers and courts and even getting involved with political campaigns. That takes money and endless fundraising.

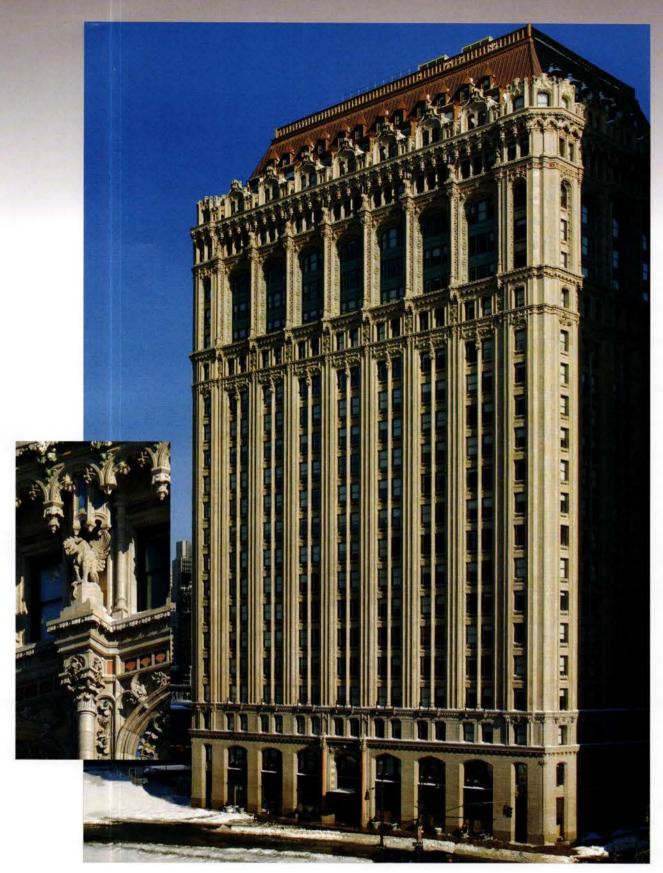
So, when a well-heeled and politically connected developer wants to build a mammoth ill-conceived project, just knowing it's wrong is not enough. You must be prepared to wrestle in mud in the public forum. •



The typical streetscape in the neighborhoods adjacent to the \$4-billion mega-project proposed for downtown Brooklyn features 19th- and early-20th-century row houses. Photo: Jerome Harris

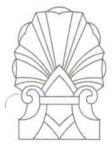


The orginal model of the 16-skyscraper, 10-million-sq.ft. project illustrates the design by Frank Gehry for the developer, Forest City Ratner. The Draft Environmental Impact Statement asserts with a straight face: "...the proposed project would not adversely affect the overall character of the surrounding adjacent neighborhoods." Photo: Gehry Partners LLC



90 West Street - New York, NY Architect/Engineer: Facade Maintenance Design Contractor: Seaboard Weatherproofing & Restoration Company

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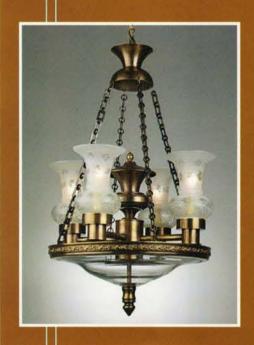
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