# Clem Labine's Historical Products For Today's Professional



ARCHITECTURAL CONSERVATION,

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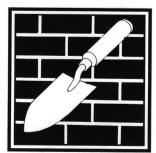
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Registers & Grilles
Wood Moldings

## Clem Labine's TRADITIONAL BUILDING

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69A Seventh Avenue Brooklyn, NY 11217 (718) 636-0788 FAX: (718) 636-0750

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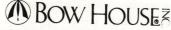


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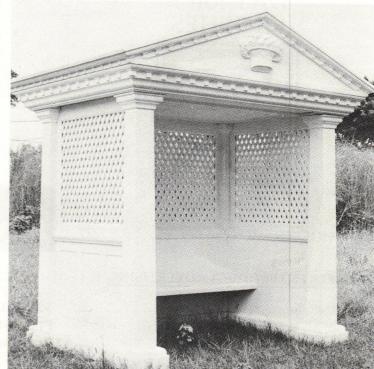
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## A GARDEN HOUSE FIT FOR EDEN

Last year, Stickney's Garden Houses and Follies expanded its line to include 14 different garden houses, follies, and tents. Follies are mini-houses; they are completely enclosed, and include doors, windows that open and close, and floors. Garden houses have no floors, the windows are merely openings, and they are enclosed on at least three sides. Tents have a curved wooden roof set on side walls. All of the structures have unfinished roofs that need some kind of roofing material installed.

The structures are fabricated of solid mahogany. Depending on the style, they may have continuous moldings, repeated pediments, paneled walls, chair rails, recessed ceilings, latticework, and barrel vaults sheathed with narrow-matched ship-lap paneling. Optional hand carvings for pediments include a basket of fruit, swag festoon, or wreath.

The structures are shipped broken down with two coats of white primer. Prices for garden houses start at \$5,000; follies are \$25,000. Shown is the Full Triangular Pediment With Seat. Also available: Benches and garden seats. For more information, contact: STICKNEY'S GARDEN HOUSES AND FOLLIES, 1 Thompson Sq., PO Box 34, Dept. TB, Boston, MA 02129 (617) 242-1711. CSI# 02800 — JL





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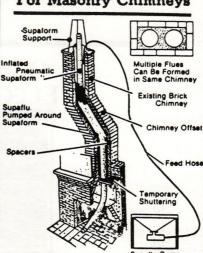
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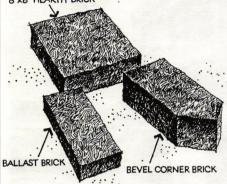


4 ■ JANUARY/FEBRUARY 1991

## A Cache Of Colonial Products

Bow House (also known as Bow Bends), usually associated with gazebos and bridges, actually does most of its business in Cape Cod House Kits. But owner John Rogers has connections with a wide variety of specialty suppliers and will also sell parts and pieces separately.

8"x8" HEARTH BRICK



For example, Rogers has three companies who manufacture authentic hand-made brick for him. "In the old days, molds were made of pine, but the bricks got smaller as the molds wore down. So the process was improved: Cherry molds were faced with steel, then the clay was packed by hand, and 'hand-made' bricks were turned out." There are different types of brick available: Molded fireplace corner bricks and matching common bricks in restoration size; 8 in. sq. hearth bricks, which were popular in Colonial times; and 1-in.-thick bricks for interior floors. "Because," insists Rogers, "when someone wants a true Colonial restoration, he doesn't want to use 20thcentury brick."

Some of the other products available through Bow House: Hand-made exterior doors with bull's-eye glass, hand-wrought hardware, true divided-light windows with blown glass, hand-made interior doors, bolection molding, etc.

For more information, contact: BOW HOUSE, PO Box 900, Dept. TB, Bolton, MA 01740 (508) 779-6464. CSI# 04200 — JL



## Division 5 **METALS**

## **SAVE THE TREES**

Neenah Foundry tree grates are ubiquitous. While researching this story, I inadvertently came across two tree grates, one in Park Slope, Brooklyn, and one in downtown Manhattan. Both bore the insignia, "Neenah Foundry."

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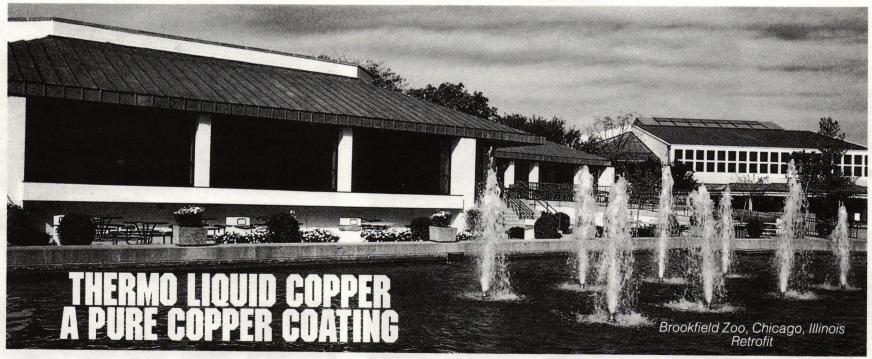
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foundries in the country, it manufactures municipal castings: Manhole covers, sewer and gutter inlet grates, bridge, subway, deck, and building drains, and more (their catalog is about 275 pages). In a separate tree grate catalog, you'll also find tree guards, footway medallions, and customized grates.

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profile

## Restoration, Texas Style

## BY EVE M. KAHN

ix-foot five, sporting a broad handlebar mustache, architect Killis Almond cuts a striking figure in the world of Texas historic preservation. In the past 17 years he has restored just about every type of building the state has to offer; from adobe forts and missions to turn-of-the-century Mission Revival mansions to Art Deco office towers. He serves as construction manager for most of his own projects, and he describes his supervisory style as "Attila the Hun," or perhaps "mutual respect with a huge streak of stubbornness." And yet he is widely admired for his charm.

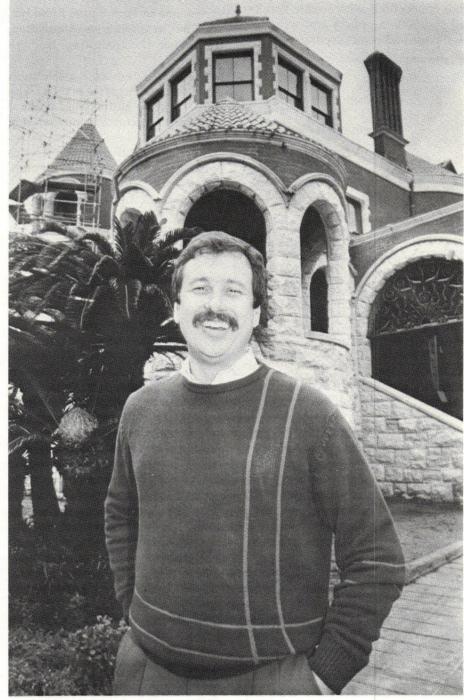
"He's quite a character," says Stanley Graves, Texas's State Historic Preservation Officer. "He's very jovial, he's always got some good stories to tell, and he can deal with clients — he can explain what he does, which many architects can't. He can handle projects where the political considerations are as important as the architectural ones." He can also be humble. "When I've done my best," Almond says, "you can't tell I've been there. It's the 'E' word — ego — that spoils old buildings."

As befits a rather theatrical man, Almond's specialty is theatres. He's written dozens of preservation plans for them, from Louisiana to Kansas to Florida, and he's president of the League of Historic American Theatres. Of the half-dozen his office has rebuilt, his favorite is the circa-1894 Grand Opera House in Galveston. He tackled it in 1981, three years after establishing his San Antonio office. "After all these years," he says, "I still walk into that auditorium and I feel amazed." Tiers of ornately stencilled half-round balconies flank the stage, and the curtain blazes with trompe-l'oeil red gilt-trim curtains. Armed with a \$7 million budget, he replicated the decorative painting brushstroke for brushstroke, and recreated the carpets and upholstery thread for thread. He also tucked concession areas under staircases and found space for restrooms by usurping guest rooms from an adjacent hotel.

"We take a holistic approach to theatres," he says. "In some areas we restore, and in others we rehabilitate. We balance the two, so that the theatre can be preserved *and* operate efficiently — or else you end up with a beautiful thing that no one will use." He is currently poised to begin work on the Fox Theatre in Hutchinson, Kansas, and the Meridian Opera House in Meridian, Mississippi; the latter, he says gleefully, "has six original dressing rooms with graffiti on the walls, signatures of the people who played there, and the original gas valves for the footlights. We're going to be able to preserve all that."

With so many projects requiring his attention, and only five employees assisting him in both his Galveston and San Antonio offices, why does Almond

continued on page 42



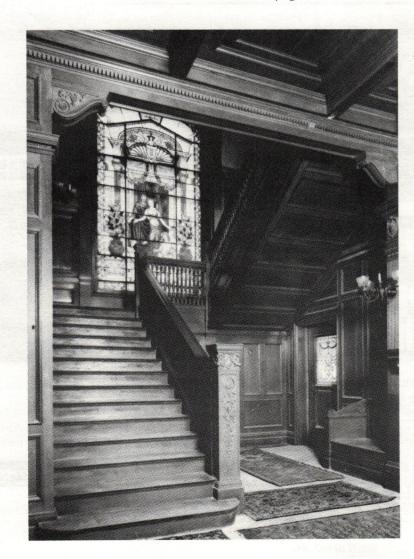
Killis Almond poses in front of the Moody Mansion in Galveston, one of his most challenging restoration projects to date. (*Photo: Robert W. Rizzo*)

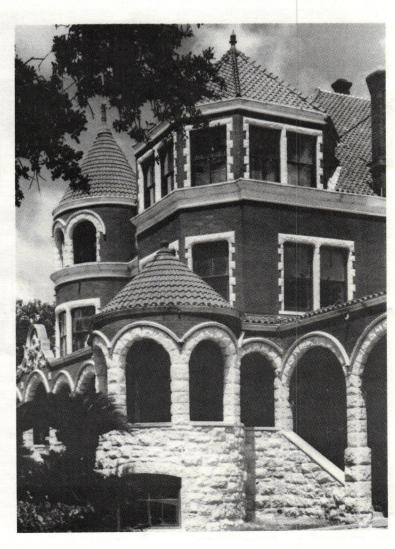
Left:

Inside the mansion's brick-with-limestone walls are 42 rooms, totalling 42,000 sq.ft.; the building will open as a museum this spring.

Right:

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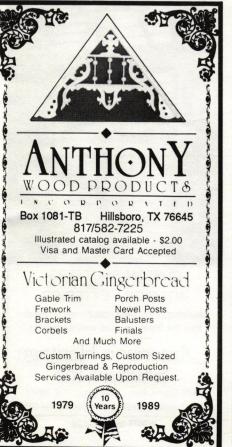
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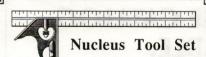
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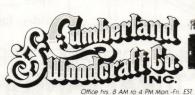
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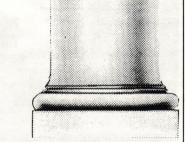


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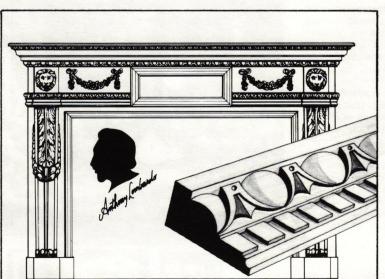
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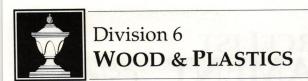


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## **MOLDED EXTERIOR ORNAMENT**

continued from page 1

Once the regulations governing a project have been pinned down, you still usually have a considerable range of materials to choose from. The materialsdriven CSI MASTERFORMAT System dramatizes the choices open to you. Depending on the material chosen, the spec for the exterior molded ornament might appear in Div. 3 (for precast concrete), Div. 4 (for cast stone), Div. 5 (for cast and sheet metal), Div. 6 (for polymers and FRP), or Div. 9 (for plaster). The table at the right gives you a sense of the advantages and limitations of the basic

## The Challenge Of Thin-Shell Composites

There are potential benefits to making exterior moldings from thin-shell fiberreinforced composites, such as FRP and GFRC. (Cross sections are usually 1/8" to 1/4" for FRP; 1/2" to 3/4" for GFRC.) These composites all share a fibrous material (usually fiberglass) that reinforces the basic matrix. The moldable component may be cement, gypsum, polyester or other polymer — and frequently combinations thereof. Other fillers and aggregates are often added for strength, to provide color and/or texture, or simply as extenders.

The weight savings of these thin-shell systems simplify part handling, installation, attachments — and minimize seismic problems. And on projects like terra cotta replacement, panels can be made up that incorporate multiples of the original units in a single element, which speeds installation. Thin-shell

composites normally are quite economical, too.

Several factors can offset the potential benefits. Many composites present complex engineering challenges due to the variable formulations and limited data on physical properties. Some polymer resins, for example, are particularly reliant on even distribution and loading of the glass fibers to achieve adequate strength. Given the irregular shape of many ornamental parts, that optimum distribution may be difficult to achieve. As a rule, thin composite materials tend to have fairly high thermal expansion rates — which can create stress problems, especially at attachment points.

Since many of these composites have limited track records, the reliability and experience level of your fabricator becomes extremely important.

## **Specifying FRP**

As with other replacement materials, proper understanding of Fiberglass Reinforced Polyester (FRP) is important in getting a satisfactory job done. (One experienced architectural FRP fabricator says he has "a whole file drawer of goofy specs" from specifiers who didn't understand the material.) Right now, the only good guide specifications for architectural FRP exist in the files of experienced fabricators. As indicated below, the Fiberglass Fabrication Assn. is preparing industry-wide guide specs for designers and specifiers.

The lack of accepted standards for architectural FRP has led to some unfortunate experiences (especially with "mom and pop" shops), which in turn has led to FRP getting a damaged reputation in some preservation circles. For example, Preservation Brief No. 7 from the National Park Service refers to FRP

as having "poor weathering and aging properties."

However, there are numerous instances of properly formulated architectural FRP lasting 15-20 years without deterioration. (After all, fiberglass boats have a 40-year track record in sunny, corrosive saltwater environments.) To make sure you get a reliable FRP fabricator: (1) Carefully examine previous jobs they've done; (2) Ask for samples of the kind of layups they'll be preparing for your job; (3) Get written specifications from the fabricator detailing resins and ratios they'll be using.

With any composite material, it's more important to get an experienced, interested fabricator than it is to get the lowest possible price. As Charles Wittman of Architectural Fiberglass Corp. points out: "There's a big difference between making an FRP shower stall and making an exterior cornice."

One aspect of FRP weathering: In polluted environments, deposits can build up which fade or discolor the material. However, even if FRP does seem badly discolored, the original color can usually be restored with a rubbing compound and waxing — just as you restore an automobile finish.

FRP weathering is also affected by whether the gel coat has a gloss or matte finish. (A matte finish is often specified to replicate historic materials.) It is possible to achieve a long-lasting integral matte finish in the mold. However, some fabricators create a matte finish after molding via abrasive methods. Abrasives can damage the gel coat and lead to premature weathering.

You'll also hear arguments about the necessity of painting. Some fabricators insist that the gel coat alone forms a durable, long-lasting finish. (However, as with paints, some dark colors are more subject to fading than

continued on page 11

## **Materials For Molded Ornament** Advantages And Limitations

### Cast Concrete

ADVANTAGES: Low-cost substitute for cut stone. (As a concrete product, it is specified in CSI section 03450.) Sturdy and durable; can be colored to approximate natural stone.

**LIMITATIONS:** Less refined control of texture, aggregates, and air bubbles than cast stone. Weathers somewhat differently than natural stone. Has to be installed by masons.

### Cast Metals

ADVANTAGES: Aluminum: Lightweight; tough and durable; easy to install. Bronze: Traditional material that acquires a handsome green patina. Tough and durable. Cast Iron: Traditional material; often the most suitable for replacement pieces that have to be intermingled with original cast-iron elements.

LIMITATIONS: Aluminum: High coefficient of expansion may limit use for replacement elements where it mixes with other materials. Requires special high-tech coatings. Must be separated from other metals to avoid galvanic corrosion. Moderate shrinkage may need to be anticipated in design of large pieces. Bronze: Expensive; subject to deterioration in acid rain. Cast Iron: Brittle; heavy; must be protected from moisture.

### **Cast Stone**

ADVANTAGES: Highly refined precast concrete; classified as a masonry product (CSI 04435 or 04720). By control of cement and sands, can be made to resemble brownstone, limestone, bluestone, granite, slate, marble, sandstone, etc. Free from air bubbles; weathers like natural stone. Uniform color and quality. Sturdy and durable; can be used anyplace natural stone would be. FireLIMITATIONS: Its weight and other physical characteristics require masons for installation. Somewhat more expensive than ordinary precast architectural concrete.

Exterior Plaster (polymer-modified exterior gypsum, e.g., Jesmonite, usually glass-fiber reinforced)

ADVANTAGES: Economical; sets up quickly, allowing rapid mold cycling. Can be colored integrally. Not UV sensitive; fire resistant; casts sharp detail. Smooth surface; can replicate fine-grained lime-

LIMITATIONS: Heavier than FRP ornament. Smooth surface not suitable for simulation of most natural stones. Fairly new; doesn't have a long track record under natural weathering.

## FRG (Fiberglass-Reinforced Gypsum)

ADVANTAGES: Very inexpensive. Casts crisp detail. Has greater scratch resistance than plaster.

LIMITATIONS: Depends upon coatings for weather resistance. Will break down in harsh climates if coating is not kept intact.

## FRP (Fiberglass-Reinforced Polyester)

ADVANTAGES: Light weight allows easy installation without special trades; corrosion resistant; wide range of fade-resistant integral colors. Protective gel coat lasts 15-20 years; may require painting thereafter. Light weight makes FRP ideal for seismic zones. High strength-toweight ratio makes structural laminates possible; fire retardancy available. Rugged, tough, graffiti-resistant.

**LIMITATIONS:** Some local fire codes may restrict use of FRP. Fire retardants added to gel coat may adversely affect weathering. Has coefficient of expansion about the same as aluminum, which may dictate attachments that can accommodate move-

### GFRC (Glass-Fiber Reinforced Concrete)

ADVANTAGES: Resistant to weathering, pollutants, and windborne abrasion. Can be cast with white or gray cement and a wide range of integral colors. Various aggregates and surface treatments can replicate a wide range of stones. Light weight permits long panels of ornament, simplifying installation. Original ornament can be used for mold. Noncombustible.

LIMITATIONS: Large panels require a steel subframe to support bearing loads. Due to a coefficient of expansion higher than precast concrete, panels over 15 ft. require a control joint within the panel. Some loss of flexural strength with age requires engineering design in large panels.

### Molded Polyurethane

ADVANTAGES: Takes sharp, crisp detail. LIMITATIONS: Expensive; limited to ougn; impact-resistant. very smooth surface.

relatively small moldings. Fire codes may restrict usage in public areas.

### Sheet Metal

ADVANTAGES: Stamped metal ornament LIMITATIONS: If the aged metal finish in zinc or copper can be economical if stock patterns can be used. Light weight makes sheet metal ornament fairly simple

isn't satisfactory, then a painted finish has to be applied. Subject to denting in high-traffic areas.

### Terra Cotta

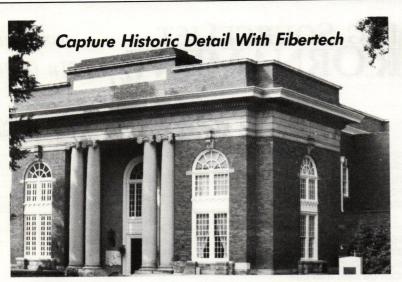
ADVANTAGES: Traditional material that captures detail with extreme crispness. Durable and weather-resistant (when made with proper clays). On restorations, it has same expansion/contraction rate as original units — an advantage when replacements are intermingled with originals. Wide range of colors and glazes available.

LIMITATIONS: Can be expensive to make duplicates of historic originals; clay shrinkage means you usually can't use original units as a mold. Much hand labor is involved in terra cotta production and glaze matching, so lead times can be protracted.



# TRADITIONAL BUILDING SOURCELIST OLDED EXTERIOR ORNAMENT CSI# 06200

COMPANY	SPECIALTY	LITERATURE	MATERIALS	Stock/ Custom
Ace Concrete Products 3940 Winchester Rd., Dept. TB Memphis, TN 38118 (901) 363-8877	Works in architectural precast concrete and cast stone. Specializes in custom fabrications, classic reproductions, and historical restorations.	Free	Precast concrete Cast stone	С
Archicast 1316 Madison Ave., Dept. TB Memphis, TN 38104 901) 726-6116	Custom casting studio. Can restore and replicate old pieces of architectural ornament or create new patterns from photos or drawings. Will also make molds for those who prefer to do their own casting.	No literature; will respond to specific inquiries	Plaster Exterior plaster Precast concrete Cast stone	С
Architectural Conservation Sarnowski Dr., Dept. TB Scotia, NY 12302 518) 370-0712	Custom studio deals in all phases of architectural sculpture and ornament: Pattern making, mold making, and casting. Will duplicate historic molded ornament and/or restore original material that's still in place.	Free Write in No. 641	FRP FRG Cast concrete Plaster Metals Ceramics	С
Architectural Fiberglass Corp. 1395 Marconi Blvd., Dept. TB Copiague, NY 11726 516) 842-4772	Specializes in molded fiberglass replicas of exterior ornament originally made in materials such as terra cotta, sheet metal, cast iron, stone, and wood. Typical installations include cornices, balconies, balustrades, and planters. Standard shapes available as well as custom replications.	Free Write in No. 640	FRP FRG	S/C
Architectural Reproductions 525 N. Tillamook St., Dept. TB Portland, OR 97227 503) 284-8007	Custom producer of a wide variety of architectural elements and historic ornament. Experienced in using a wide variety of casting materials — depending on nature of the job. Limited number of stock patterns.	Free Write in No. 613	Cast stone Cast concrete FRP, FRG, GFRC Cast plaster Cast metals Sheet metal	S/C
Architectural Sculpture P.O. Box 786, Dept. TB Malibu, CA 90265 213) 457-4819	In addition to designing and creating fine custom artwork, the firm does custom work for architects, interior designers, and industrial designers. Typical projects include custom doors, wall pieces, and limited-edition fixtures.	No literature	Bronze Aluminum FRP	C
Architerra Austin 304 South 6th, Dept. TB Austin, TX 78704 512) 441-8062	Creates handcrafted terra cotta modules that can be combined to form a wide variety of architectural details. Designs range from neoclassic to contemporary. Endless architectural forms such as columns, pedestals, moldings, and surrounds are created by simply rearranging modules. Standard and custom pieces.	Free	Terra cotta	S/C
Art Home Studios Co. 4 Huron St., Dept. TB Brooklyn, NY 11222 718) 383-0603	Custom studio provides exterior fiberglass cornices, architectural cast stone, and sculpture — both design and fabrication. Also: Domes, niches, architectural and ornamental plaster restoration and preservation.	Free Write in No. 643	FRP, FRG, GFRC Cast stone Cast metals Cast marble Plaster	С
Art In Action 450 Logan, Dept. TB Denver, CO 80203 303) 832-3250	Artist Barry Rose supplies original sculptures as well as historic reproductions. Experienced in terra cotta. Offers full design, production and installation services, including sculpted originals, rubber & plaster molds, and stonework.	Free	Terra cotta	С
Bauer Casting Design 18 Main St., Dept. TB Lexington, GA 30648 404) 743-3268	Recreates architectural ornament, both exterior and interior, in plaster, cast stone, terra cotta, and porcelain. Also designs original work. In addition to custom work, firm produces cast stone Victorian garden curbs for edging gardens and pathways.	Free	Cast stone Plaster Terra cotta Porcelain	S/C
Beavertown Cast Stone P.O. Box 337, Dept. TB Middleburg, PA 17842 717) 837-1774	Manufactures precast concrete building products, such as fascia panels, coping, sills, structural columns and spandrels, and replicas of architectural ornament. Uses pigments and/or special aggregates to achieve integrally colored units. Can make anything from a small date stone to a 70-ft. column.	Free	Precast concrete	С
Boston Valley Terra Cotta 860 S. Abbott Rd., Dept. TB Hamburg, NY 14075 716) 649-7490	Manufacturer of custom-made architectural terra cotta and roof tile for restoration projects and contemporary installations. On restorations, craftsmen can match color, texture, and detail of original elements.	Free	Terra cotta	С
Cameron Noriega 56 Culver Ave., Dept. TB ersey City, NJ 07305 201) 332-6827	Complete architectural ornament service from design and pattern- making to finished product. Can duplicate existing ornament or cre- ate new molds from drawings. Experienced in restoration projects; works in a wide variety of materials.	Free Write in No. 413	Cast concrete Plaster Terra cotta GFRC	С
Cathedral Stone Products 505 Reed St. NE, Dept. TB Washington, DC 20018 202) 832-2633	Supplies Jahn Restoration Mortars — cementitious materials that are specially formulated to be physically compatible with sandstone or limestone, terra cotta, concrete, and several injection-grout mortars. Jahn can be cast or used for plastic patching. (See Project Report on p. 44 for case history of Jahn in sandstone repair.)	Free Write in No. 380	Jahn Restoration Mortars	S
Cementex Latex Corp. 80 Canal St., Dept. TB New York, NY 10013 212) 226-5832 (800) 782-9056	Supplies mold-making materials for a wide range of needs in restoration and architectural reproductions. Among their molding compound products are a brush-on natural latex (#80), pourable polysulfide rubber (SP-16), and pourable silicone rubber (RTV-585).	Free Write in No. 645	Mold-making compounds	S
Themcrest Corp. .O. Box 99, Sta. F, Dept. TB Vinnipeg, Manitoba, R2L 2A5 Janada (204) 669-0224	Architectural moldings in structural polyurethane, including windows in many shapes: Round, octagon, oval, arched, and half-round. Also: Door surrounds, running moldings, brackets, arches, blocks, and columns.	Free Write in No. 633	Structural polyurethane	S/C
Treative Sculpture Design TRestoration TO. Box 33077, Dept. TB Tansas City, MO 64114 B16) 363-0057	Specialist in the conservation and restoration of historic buildings, monuments, and sculpture. Offers meticulous cleaning, repair, and restoration services. Can recreate damaged or missing areas of metal or stone and apply protective sealants when appropriate. Will also execute site-specific sculptural commissions.	Free Write in No. 638	Various	С
Custom Castings P.O. Box 758, Dept. TB Mansfield, TX 76063 817) 473-2796	Custom cast architectural elements in fiberglass reinforced-gypsum (FRG) or fiberglass-reinforced concrete (GFRC). GFRC can be cast in any color or tone by using non-fading pigments, ranging from subdued pastels and earth tones to vivid hues. Elements such as coffers, copings, capitals, niches, decorative moldings are available as	Free	FRG GFRC	S/C



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### **EXTERIOR MOLDED ORNAMENT**

continued from page 9

others.) Modern gel coats can be formulated with premium-grade UVresistant resins, which should be specified at the outset to make sure bids are comparable. Other fabricators view paint as the sacrificial surface — and apply it from day one. Catalyzed urethane paints can last 15 years, and 100% acrylic emulsion paints nearly as long.

## Who's Listed

To assemble the SourceList on pages 10-14, we sent a questionnaire to 97 firms involved with molded ornament. We received replies from 64 firms interested in bringing their capabilities to the attention of historical architects and contractors. After screening out companies who weren't, in the opinion of the editors, appropriate for this Report, we wound up with the 53 companies you'll find in the SourceList.

## Some Helpful **Technical Manuals**

For anyone designing or specifying molded ornament in cast stone, the Cast Stone Institute provides an indispensable tool. Their Technical Manual gives engineering data, anchoring details, designs for metal stud walls, sample specifications, and some typical projects showing design details and specs. The Technical Manual is available for \$35 ppd. from: CAST STONE INSTITUTE, Pavilions at Greentree, Suite 408, Dept. TB, Marlton, NJ 08053 (609) 858-0271.

For glass-fiber reinforced concrete (GFRC), there's also a helpful manual that provides information on planning, preparing specifications, design, manufacture, and installation of thin-wall GFRC architectural panels. Recommended Practice For Glass Fiber Reinforced Concrete Panels (MNL 128-87) costs \$16 ppd. from: PRESTRESSED CONCRETE INSTITUTE, 175

### West Jackson Blvd., Chicago, IL 60604 (312) 786-0300.

An excellent comparison of materials for exterior molded ornament and criteria for specifying one over the others appears in Preservation Brief No. 16: The Use Of Substitute Materials on Historic Building Exteriors. It's written by Sharon C. Park, AIA, and published by the National Park Service. The 14 pages contain 34 illustrations and summary tables. GPO Stock No. 024-005-01037-8. Available for \$1 from Government Printing Office, Washington, D.C. 20402

For architectural fiberglass, the Fiberglass Fabrication Assn. is preparing a Technical Manual containing sample specs and typical details. FIBERGLASS FABRICATION ASSN., 3299 K Street, NW, Suite 700, Washington, D.C., 20007 (202) 337-

### Special Thanks To...

The editors wish to thank the following people for technical assistance with this Report: David Talbott, Architectural Reproductions, Inc.; Ed Axel, Edon Corp.; David Jones, GFRC, Inc.; Lorrie Anderson, Rocca Noto Studios; and Charles Wittman, Architectural Fiberglass Corp.\*

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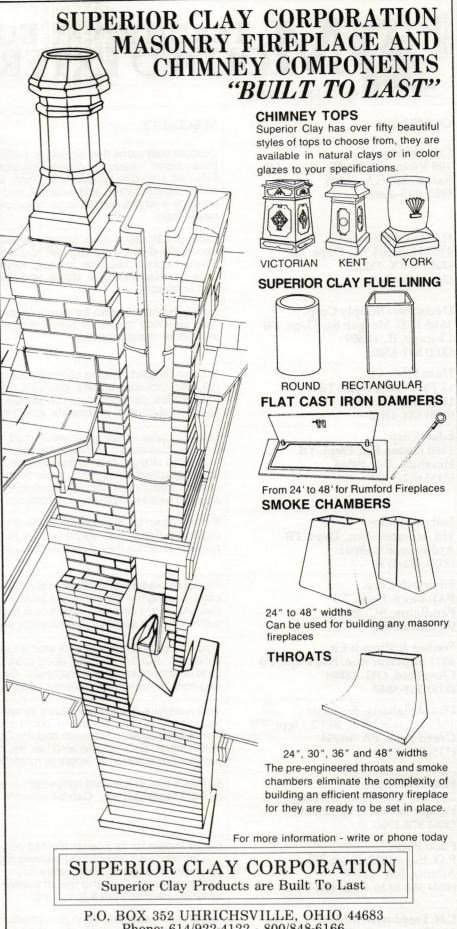
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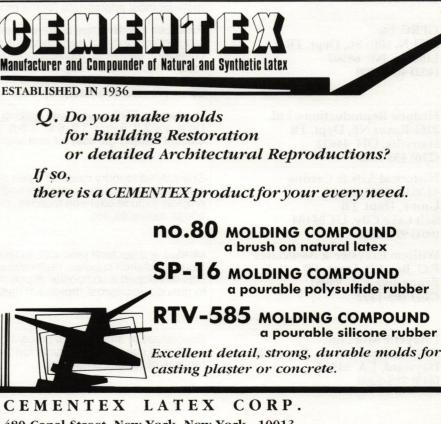
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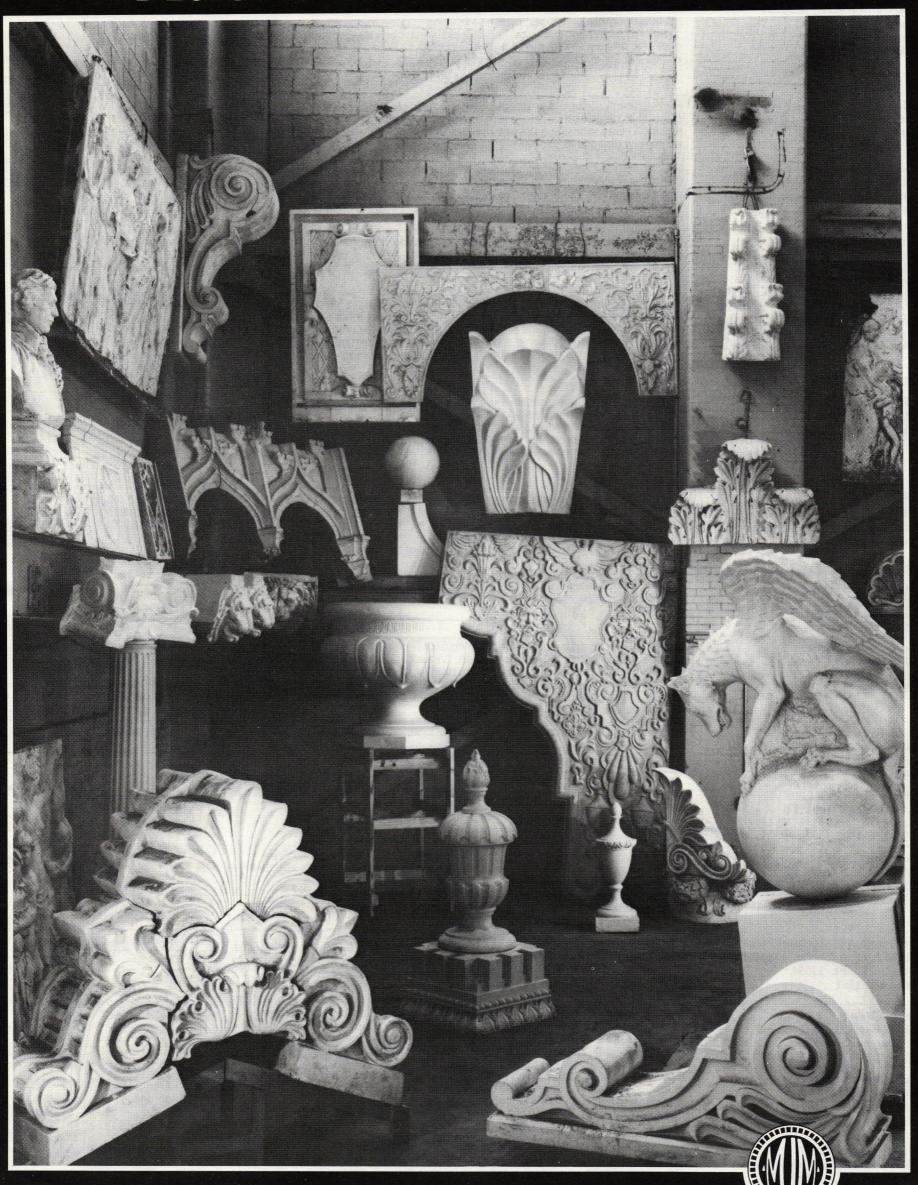
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COMPANY	SPECIALTY	LITERATURE	MATERIALS	Stock/ Custom
Cut Art Stone Co. 109 Victory Drive W., Dept. TB Savannah, GA 31405 (912) 235-4680	Custom cast stone that simulates building stones such as brownstone, limestone, granite, keystone, travertine, and others. Finishes available include form finish, exposed aggregate, smooth finish, sand-blasted, acid-washed, and other special finishes. Can produce everything from large fascia panels to cast balusters and newel balls.	Free	Cast stone	C
Dallas Cast Stone Co. 4107 Hancock St., Dept. TB Dallas, TX 75210 (214) 428-6269	Custom cast stone manufacturer of major architectural elements and decorative detail, including belt courses, water tables, cornices, window surrounds, headers, imposts, keystones, columns, quoins, and copings. Names, logos, dates, and relief motifs can be cast into custom entrances.	Free	Cast stone	С
Decorators Supply Corp. 3610-12 S. Morgan St., Dept. TB Chicago, IL 60609 (312) 847-6300	Although better known for their interior ornament, this firm has a wide selection of exterior ornamental details, such as capitals, cast in weather-resistant plaster.	Send \$3 for catalog	Exterior plaster	S
Duro Fiber Co. 11 Park Ave., Dept. TB Hudson, NH 03051 (603) 881-4200	Custom molded building components in fiberglass- reinforced polymer, including arches, dormers, ornamental panels, finials, balustrades, cornices, spandrel panels, columns & capitals, medallions, entablatures, pediments, and entryways.	Free	FRP	С
Edon Corp. 1160 Easton Rd., Dept. TB Horsham, PA 19044 (215) 672-8050	Major supplier of fiberglass-reinforced molded ornament. Among their specialties are architectural columns — both stock and custom — in both straight and entasis versions. Has in-house capabilities from designers through sculptors and pattern-makers to make large custom assemblies, including cornices, domes, columns, and signage. Extensive experience in historical replication.	Free Write in No. 189	FRP FRG	S/C
Felber Studios 110 Ardmore Ave., Dept. TB Ardmore, PA 19003 (215) 642-4710	Better known for their interior molded ornament in plaster and other materials, Felber has also executed numerous exterior restoration projects in which they duplicated molded brick, terra cotta, etc.	Free Write in No. 289	FRP GFRC Exterior plaster (Jesmonite)	С
Fibertech Corp. P.O. Box 8, Dept. TB Pendleton, SC 29670 (803) 646-9990	Produces traditional architectural detail in lightweight FRP assemblies. Among the elements available — in either stock or custom designs — are cornices, columns & capitals, pediments, lintels, archways, belt courses, balustrades, panels, brackets, etc.	Free Write in No. 651	FRP	S/C
Fischer & Jirouch Co. 1821 Superior Ave. NE, Dept. TB Cleveland, OH 44103 (216) 361-3840	This firm is best known for its vast array of fibrous plaster interior moldings. But the firm also does custom casting of exterior architectural ornament in various materials. Can duplicate from historic originals, or make new patterns and molds from drawings.	Free Write in No. 196	Various	S/C
David Flaharty, Sculptor 402 Magazine Rd., RD 2, Dept. TB Green Lane, PA 18054 (215) 234-8242	This sculpture studio specializes in high-quality replications of historic interior plaster ornament, some of which can be seen at New York's Metropolitan Museum and the State Department rooms in Washington, D.C. Studio also has the capability to produce custom exterior ornament in a variety of materials.	No literature	FRP FRG GFRC Terra cotta Exterior plaster	C
Foam Factory 2301 N.W. 33 Court #5, Dept. TB Pompano Beach, FL 33069 (305) 978-1700	Builder's trim in low-cost lightweight foam: Columns, capitals, straight moldings, etc. Can be covered with stucco and painted.	Free	Polystyrene foam	S
Focal Point P.O. Box 93327, Dept. TB Atlanta, GA 30377 404) 351-0820 (800) 662-5550	Better known for its interior molded polymer ornament, this firm has just introduced a line of load-bearing molded columns. Made of polymers, fiberglass, and marble chips, the "Marbleine" columns are said to have the look and feel of marble. Diameters range from 6 in. to 12 in,; heights from 8 ft. to 18 ft.	Free	FRP with marble chips	S
L.H. Freedman Studios 368 Congress St., Dept. TB Boston, MA 02210 617) 426-8887	Small studio specializing in preservation, conservation and restoration of architectural elements, sculpture, and fine art. Services include modeling, making molds from existing elements, recreation of lost detail from photographs or blueprints. Castings are made in the material most appropriate for the project at hand.	Free Write in No. 639	Wide variety of materials — depending on job	С
GFRC, Inc. 6001 N. 60th St., Dept. TB Lincoln, NE 68507 402) 466-3200	Produces a wide range of glass-fiber-reinforced concrete products, ranging from exterior wall claddings to replications of historical architectural elements, replacements for terra cotta, etc. Serves customers nationwide. They can make molds from in-place elements on a building, from pieces sent to their shop, or from drawings. Spray process accurately reproduces intricate shapes.	Free Write in No. 663	GFRC	C
Historic Reproductions, Ltd. 2166 Royer NE, Dept. TB Hartville, OH 44632 216) 453-7363	Produces a FRP cupola with glazing, or with ventilating louvers. Units are 3 ft. 6 in. x 3 ft. 6 in. x 8 ft. 3 in. high. Among the options: custom colored gel coat for roof and/or body; laminated copper roof.	Brochure \$3 Free flyer Write in No. 637	FRP cupolas	S
Historical Arts & Casting 130 W. 1939 South Unit F, Dept. TB Salt Lake City, UT 84104 801) 974-0242	Specialized foundry casts all types of traditional forms in metal, both replications of historic ornament and original designs. Some of their projects include cast-iron facades, cresting, finials, domes, lanterns, bridge elements, etc.	Free Write in No. 121	Cast Iron Bronze Aluminum	С
Villiam Kreysler & Associates P.O. Box 173, Dept. TB Penngrove, CA 94951 707) 765-1102	Molded architectural products; extensive experience in commercial facades, church cupolas, restoration, terra cotta replacement, etc. Has developed a composite of polymer-concrete over FRP laminate to provide waterproof replicas of natural stone in thin-section panels.	Free	FRP FRG GFRC Precast concrete Polymer con- crete	C
Lafayette Mfg., Inc. 3440 Enterprise Ave., Dept. TB Hayward, CA 94545 415) 785-5280	Specializes in architectural precast concrete and precast glass-fiber-reinforced concrete. Products run the gamut from building panels to replicas of historic ornament.	Free	GFRC Precast concrete	С



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continued CSI# 06200

COMPANY	SPECIALTY	LITERATURE	MATERIALS	Stock/ Custon
MJM Studios 100 Central Ave., Bldg. 89 Dept. TB Kearny, NJ 07032 (201) 465-5220	Architectural sculpture studio that employs classically trained technicians to create, restore, and replicate architectural ornament. All sculpture, moldmaking, casting, and kiln-firing is done in-house. Typical projects: Sculpture, cartouches, columns, balusters, coping, cornices, friezes, lintels, modillions, and pilasters. Studio can cast in a wide variety of materials — depending on the job.	Free Write in No. 635	GFRC FRP Cast stone Terra cotta FRG Aluminum Bronze Cast iron	C
Molloy and Associates P.O. Box 515, Dept. TB Hutchins, TX 75141 214) 225-6106	High-strength architectural or ornamental panels are produced in glass-fiber reinforced concrete with cross-sections as thin as one-half inch. Can reproduce precise replicas of historic ornament, or execute new designs to your drawings and specifications.	Free Write in No. 646	GFRC	С
New England Garden Ornaments 88 East Brookfield Rd., Dept. TB North Brookfield, MA 01535 508) 867-4474	Importer of cast architectural ornament from two English companies: Chilstone Architectural and Yorkstone. Line includes steps and quoins, columns and pilasters, pier caps and copings, porticos, temples and pavilions, cornices and balustrades, balls and bases, door and window surrounds.	Free Write in No. 656	Cast stone	S
Nicholson & Galloway 261 Glen Head Rd., Dept. TB Glen Head, NY 11545 516) 671-3900	Exterior restoration contractor experienced in, among other things, resetting loose architectural ornament. Also does cleaning, caulking, pointing. Will cast ornament to replace missing moldings.	Free Write in No. 607	Cast stone FRP Copper	C
V.F. Norman Corp. P.O. Box 323, Dept. TB Nevada, MO 64772 800) 641-4038	The leading supplier of pressed metal exterior architectural ornament. Among the hundreds of items available: Cornices, leader boxes, window lintels, swags & garlands, balls & bases, sculptural figures, brackets & modillions, scrolls & corner ornaments, shells, medallions, moldings, frieze elements, crestings, panel ornaments, capitals, and finials.	Free Write in No. 52	Sheet zinc Copper Aluminum Bronze Lead-coated copper Other alloys	S/C
Manuel Palos Sculpture 330 Donner Ave., Dept. TB San Francisco, CA 94124 415) 822-8034	Sculpture studio with extensive experience in projects ranging from contemporary designs to historical replications. Architectural work includes moldings, doorways, arches, ceilings, medallions, columns, cornices, capitals, fountains, mantels, and ornamental figures. Skilled in working in a wide variety of materials.	Free Write in No. 642	FRP FRG Bronze Terra cotta Plaster Marble Stone	С
Polytek Development Corp. P.O. Box 384, Dept. TB Lebanon, NJ 08833 1908) 534-5990	Major supplier of mold-making materials; their polyurethane and silicone rubbers are fast and durable for taking molds off buildings and making production molds of recarved pieces. Poly RTV rubbers make molds for plaster, cements, and resins. New Polygel 50 mold rubber is an easy-to-use self-thickening rubber for taking molds on vertical surfaces.	Free Write in No. 636	Molding resins Mold-making materials	S
Robinson Iron Corp. P.O. Box 1119, Dept. TB Alexander City, AL 35010 205) 329-8486	Cast architectural elements, fountains, and garden ornament from original 19th-century molds. Has also recreated entire cast iron facades.	Free	Cast iron Aluminum Bronze	S/C
Rocca Noto Studios 0-06 38th Ave., Dept. TB ong Island City, NY 11101 718) 937-1977	Over 20 years of experience in fabricating architectural ornament and fine art in fiberglass-reinforced resin. Virtually any material can be replicated: Stone, bronze, terra cotta, marble, or other metal. Among the typical architectural elements they have made: Cornices, friezes, moldings, entryways, columns & capitals, brackets, balustrades, finials, etc.	Free Write in No. 422	FRP	С
V.N. Russell & Co. 4-60 Albertson Ave., Dept. TB Vestmont, NJ 08108 609) 858-1057	Replications of many natural stones: Brownstone, granite, slate, bluestone, sandstone, slate, etc. Can be cast into date blocks, logos, lintels, quoins, entryways, belt courses, ashlar panels, balusters, columns & capitals, railings, etc.	Free	Cast stone	С
Stucco Stone Products P.O. Box 270, Dept. TB Napa, CA 94559 707) 255-1727	Major producer of manufactured stone, using a formulation of Portland cement, lightweight aggregates, and iron oxide colors. Stone is cast from hundreds of individual molds.	Free	Cultured stone	S
Superior Clay Corp. P.O. Box 352, Dept. TB Jhrichsville, OH 44683 614) 922-4122	Can produce architectural terra cotta and ceramic products in any quantities for commercial and residential applications. Offers technical assistance in glaze development and shop drawings during design phase. Can design and produce original terra cotta pieces as well as replicate historic terra cotta. Produces terra cotta chimney pots in a wide range of styles.	Free Write in No. 549	Terra cotta	S/C
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Cerra Cotta & Cast Stone 2001 W. 83rd St., Dept. TB Chawnee, KS 66227 913) 422-7575	Cast stone made from white and/or gray cements, manufactured or natural sands, and selected aggregates to replicate limestone, sandstone, bluestone, granite and other natural stones. Can be cast into facings, ornament, masonry units, and other architectural trim.	Free	Cast stone	S/C
essera Studio 11 First St., Dept. TB ersey City, NJ 07302 201) 216-1806	Custom studio produces wide variety of hand-crafted architectural ceramics, including glazed and unglazed terra cotta, handpainted and embossed tiles and trim, interlocking tile patterns, mosaics, fireplaces, furniture, and garden accents. Can match any historic clay body or glaze. Installation services.	Free Write in No. 644	Terra cotta Architectural ceramics	S/C
Orban Archaeology 85 Lafayette St., Dept. TB New York, NY 10012 212) 431-6969	Has a stock of thousands of old unused stamped metal building ornaments, in zinc and copper, acquired from Kenneth Lynch & Sons. Ornaments range from small rosettes to large 3-ft. panel ornaments. Suitable for marquees, cornices, ornamental bands, etc.	Free Write in No. 299	Sheet metal	S
Jrban Artifacts 700 Wissahickon Ave., Dept. TB Philadelphia, PA 19144 215) 844-8330	Antique exterior ornament: Antique faces, finials, corbels, brackets, and columns — in copper, terra cotta, wood, tin, and iron.	No brochure; phone for current inventory.	As available	S

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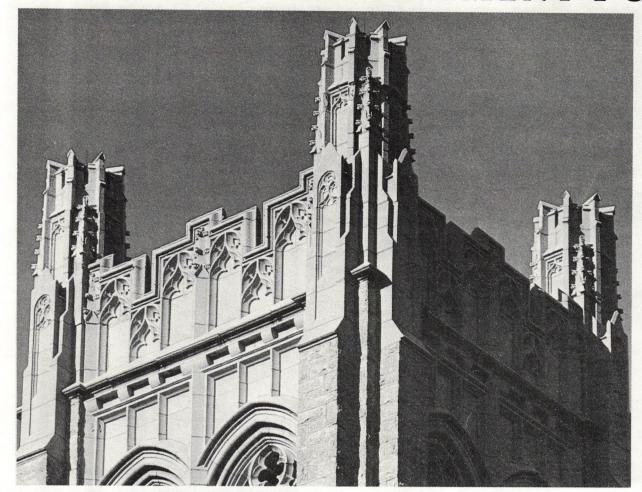
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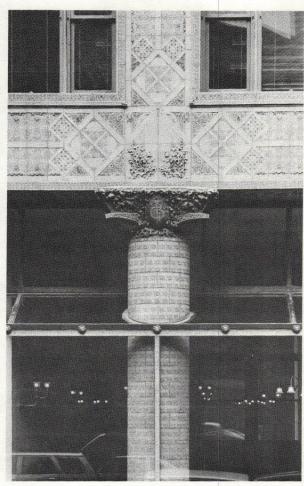
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## MOLDED ORNAMENT PORTFOLIO

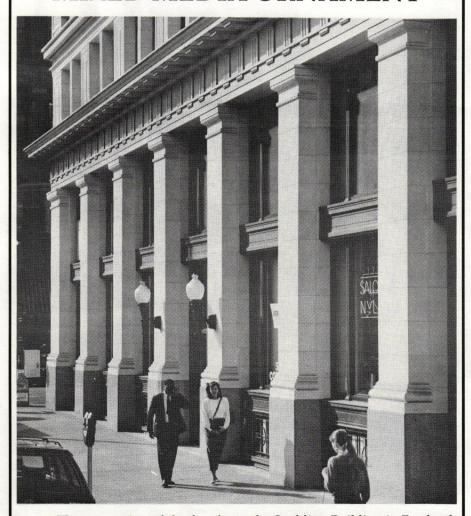


Carved in Naples in the 16th century, this stone belfry tower was struck by lightning and one of its 4 identical finials shattered. W.N. RUSSELL & CO. took impressions 140 ft. in the air and produced perfect replicas in cast stone.



The 1895 Guaranty Building in Buffalo, N.Y., designed by Adler & Sullivan, had its original terra cotta cladding restored and replicated by BOSTON VALLEY TERRA COTTA.

## **MIXED MEDIA ORNAMENT**



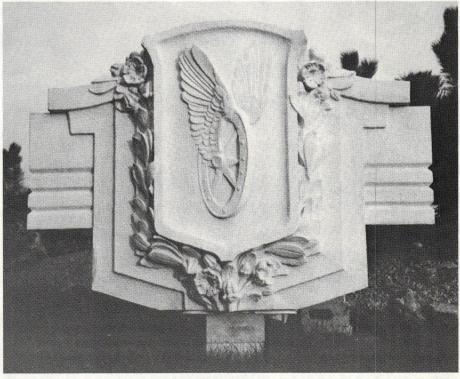
The restoration of the facade on the Spalding Building in Portland, Ore., illustrates how various parts of the same job can call for different materials. The 1911 structure, designed by Cass Gilbert, had undergone a 1950's modernization that obliterated the original limestone pilasters, cornices, and cast-iron window systems.

To replicate the 20-ft. tall limestone pilasters, Architectural Reproductions, Portland, Ore., used GFRC. The cornice and frieze profiles were matched with sheet metal formings, to which FRP and cast-aluminum detailing was added. Original cast-iron spandrels and grillwork that was found under the 1950's cladding was restored and reused. New extruded-aluminum window systems were combined with cast-aluminum fluting, caps, and plinths designed from historical photos.

Architectural Reproductions provided the design detailing and functioned as general contractor, in addition to fabricating the ornament. Company president David Talbott observes: "The limited size of the local Pacific Northwest market didn't allow us to specialize in a single material or process. So out of necessity we became proficient in a wide range of materials. That background lets us look at projects with an eye towards what seems best for each configuration and budget."



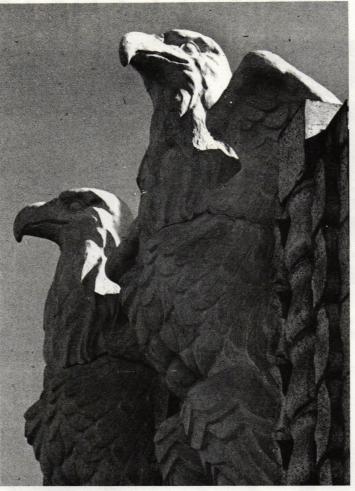
For a terra cotta restoration project, LAFAYETTE MANUFACTURING combined several of the original elements into a single GRFC panel for ease of installation.



This medallion was created in architectural precast concrete by VAL-CAST CORP. for restoration of a Merritt Parkway bridge.

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Architects, interior designers, and other professionals find that Manuel Palos Sculpture is not only an incredible resource for architectural and free-form sculpture, but an innovative design and production studio as well.



These 13-ft. eagle sculptures were recreated by Manuel Palos from 1924 drawings of the originals that once adorned the Pacific Telephone Building in San Francisco. Weighing only 1,500 pounds (half as much as the terra cotta originals), these enormous creatures were cast in fiberglass and framed with reinforced stainless steel.

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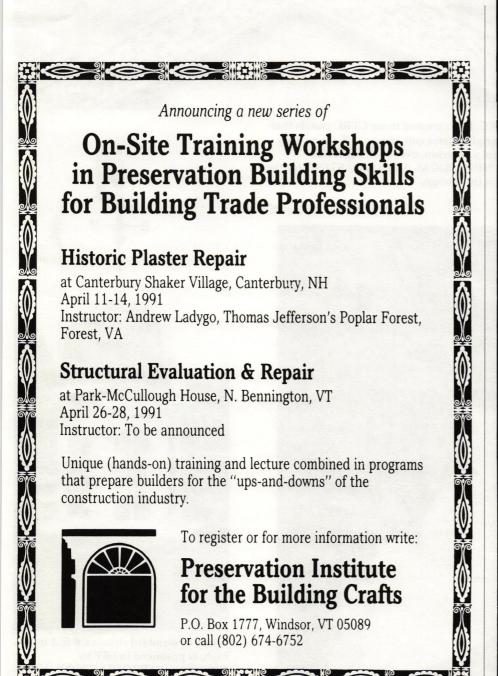
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(Photo: Scott Peterson)

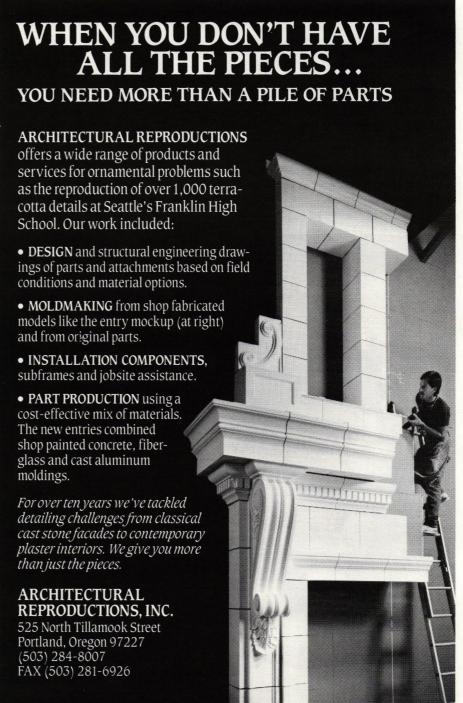
## MANUEL PALOS SCULPTURE, INC.

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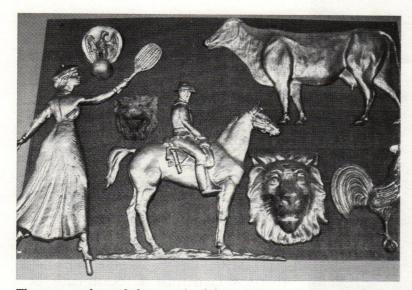
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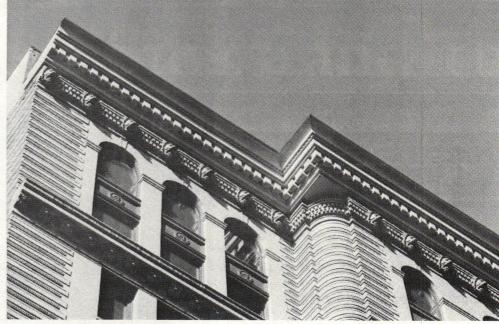
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## MOLDED ORNAMENT PORTFOLIO continued



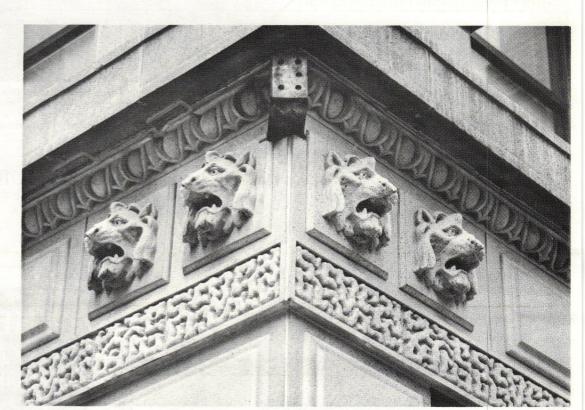
These pressed-metal elements (and thousands more) are available from W.F. NORMAN CORP. in zinc, copper, and other metals for fabrication of architectural sheetmetal ornament.



To replace a corroded sheet copper cornice, ARCHITECTURAL FIBERGLASS CORP. produced this FRP replica — complete with an integral patinated copper color.



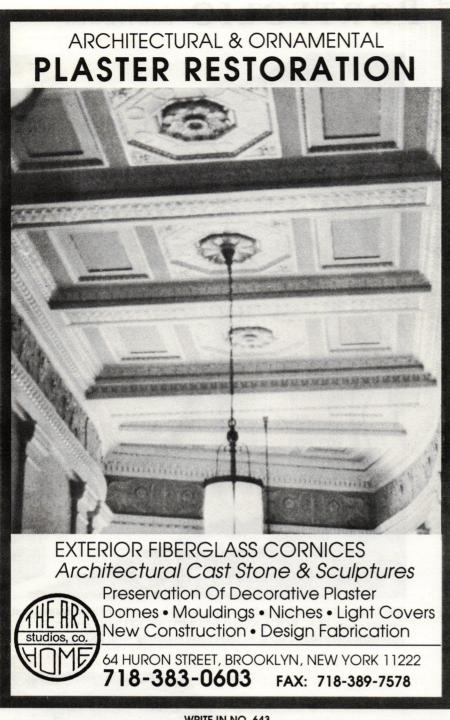
Brackets (with styrofoam cores) were precast in architectural concrete by ARCHICAST as part of the reconstruction of an Italianate cornice.



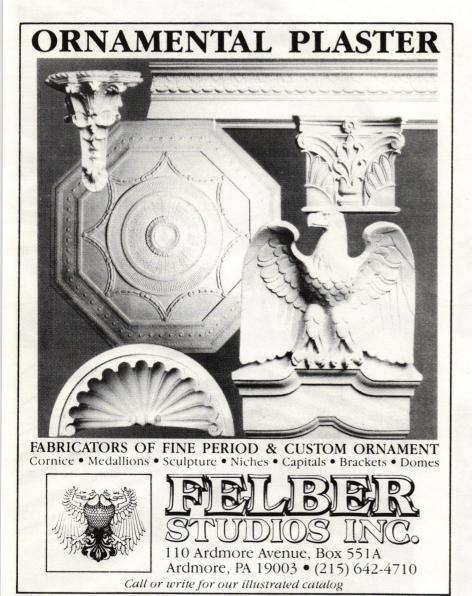
▲ Above: GFRC, INC., created these GFRC panels that replicate an original terra cotta frieze. ▼ Below: This cast-aluminum acroterion, over 10 ft. high, was produced by HISTORICAL ARTS & CASTING for the Field Museum in Chicago.



A line of standard cupolas, 8 ft. 3 in. high, is produced in FRP by HISTORICREPRODUCTIONS, LTD., with a variety of options — including openings with louvers or glass windows.



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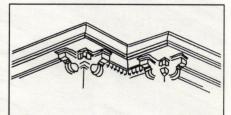
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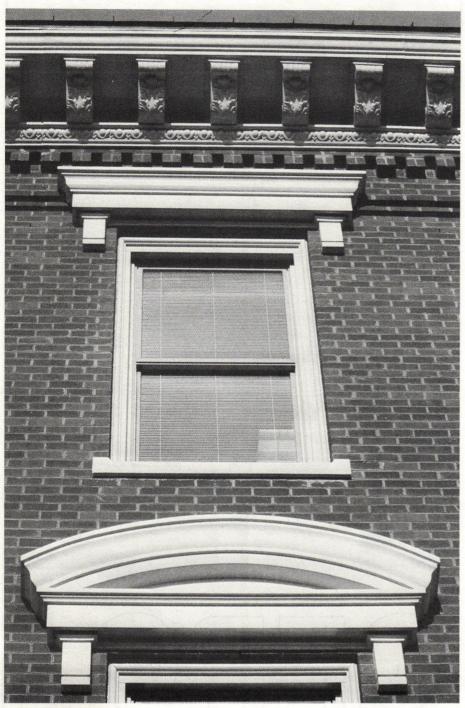
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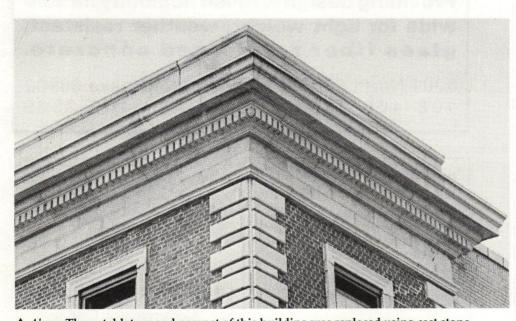
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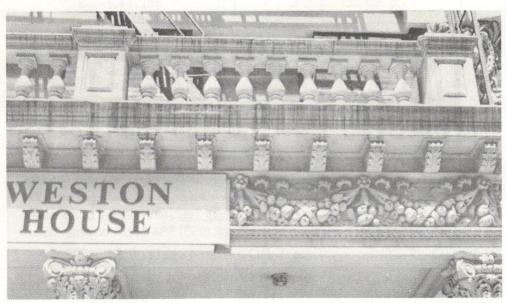
## MOLDED ORNAMENT PORTFOLIO continued



For this exterior restoration, window hoods and cornice were replicated in white FRP by FIBERTECH CORP.



▲ *Above*: The entablature and parapet of this building was replaced using cast stone custom-fabricated by MJM STUDIOS. ▼ *Below*: FRP moldings from ART HOME STUDIO were used to restore this hotel portico.



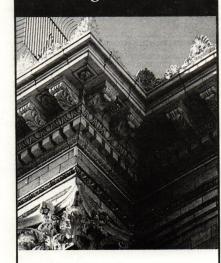


The Equitable Building in New York is the largest East Coast restoration project using FRP. ROCA NOTO SCULPTURE STUDIO replaced approximately 50,000 sq. ft. of terra cotta cladding with FRP replicas.



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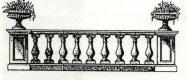
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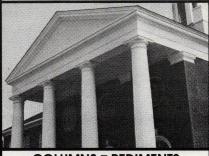
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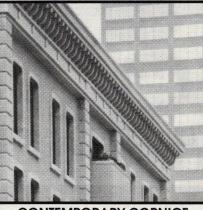


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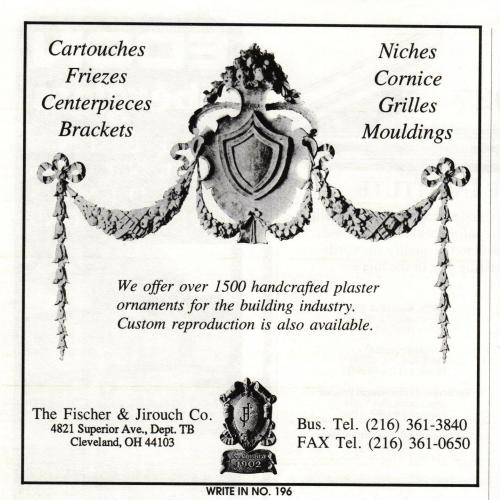
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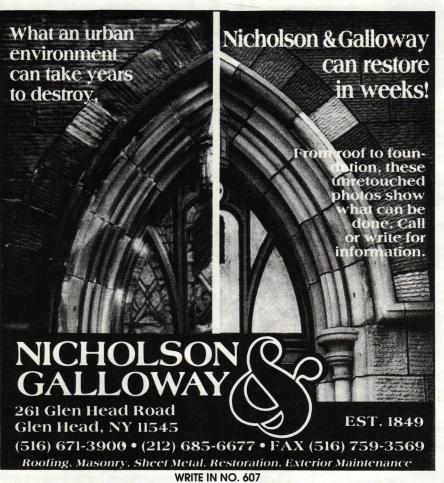
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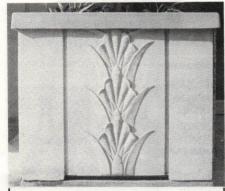
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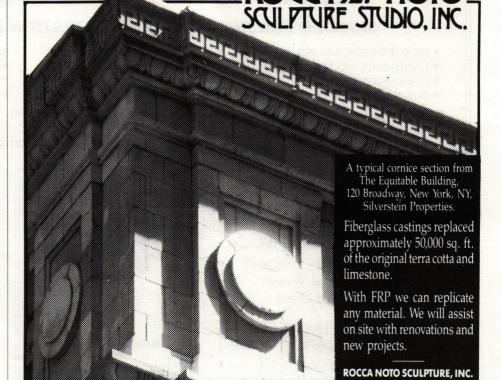


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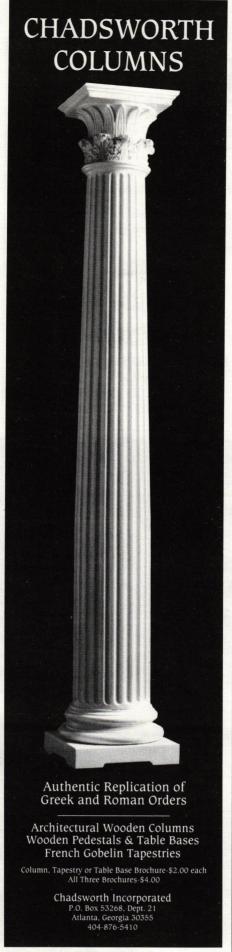
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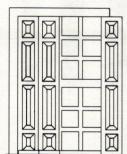
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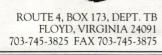
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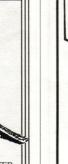
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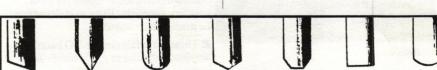
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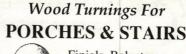


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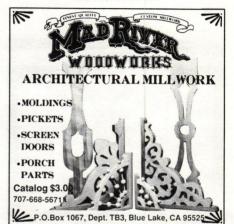
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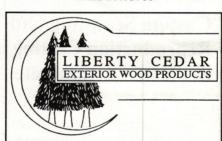
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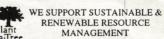
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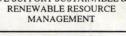
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## Division 7 **MOISTURE PROTECTION**

## The Quartersawn-Clapboard Revival

Quartersawn clapboards (also called radial-sawn, rift-sawn, or verticalgrain) were the standard siding material of the 19th century. But changes in sawmill technology in the 20th century made it more economical to produce flat-sawn (resawn) clapboards. So the more expensive radially sawn siding was all but driven from the market.

But in the past 5 years, quarter-

sawn clapboard has reasserted itself: There are now at least 4 mills cutting this highquality siding. The quartersawn-clapboard revival was originally driven by a need in torations. But now a BOARDS substantial quantity is also going into high-end custom-built homes.

The major advantage of radial sawing (see diagram) is that it puts the annual rings parallel to the board's length — making the clap-board less subject to warping, cupping, and cracking as it expands and contracts with humidity changes. (Unpainted radially sawn clapboards have lasted over 150 years in the harsh New England climate.) Vertical grain alignment also means quartersawn clapboards hold paint and stain better than conventional flat-sawn boards. And they last longer.

Prices for radially sawn clapboards vary considerably, depending on wood species, clearness of wood, degree of finish, thickness of butt, and whether you need a standard or custom-cut size. For comparable wood species and board size, quartersawn clapboards are roughly twice as expensive as resawn siding.

Of the 4 mills producing radially sawn clapboards, 2 are production-oriented, and 2 are smaller semi-custom shops. One of the first mills to target the historical market was the one run by Bill and Mayra Donnell. They were inspired to open their sawmill 8 years ago when they needed to replace siding on their old house - and couldn't find anyone to match the original quartersawn clapboards. So they purchased some antique equipment, refurbished it ... and Donnell's Clapboard Mill was in business. Their machinery turns out 8-ft. boards mainly Eastern White Pine with a high degree of finish and careful grading — aimed primarily at the restoration market. "Air-dried radialsawn Eastern White Pine will last longer on the side of a house than any other species," says Bill Donnell.

Also at the semi-custom end of the quartersawn business is Rick Johnson of Sky Lodge Farm. Rick entered the business the hard way: By building his own saw (which will turn out 8-ft. boards). Sky Lodge's specialty is custom-sawing for restoration; he will cut boards of any width, thickness, or wood species. Like the Donnell mill, Rick prides himself on producing perfectly flat boards with top and bottom uniformly planed — with no marks of plane "chatter" or "tear out."

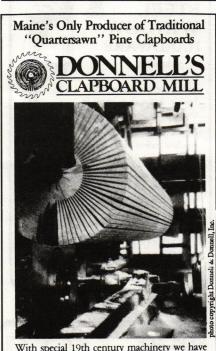
At Granville Manufacturing Co., Jeff Fuller notes that his mill "has been producing high-quality quartersawn clapboard for over 100 years." Granville produces 4 standard sizes: 6-in., 5-1/2-in., 5-in. and 4-1/2-in. Primary species are Spruce and Pine, and they'll do custom sawing. Granville also offers prefinished options such as priming, painting, and prestaining. They recommend Olympic Machinecoat finishes that are warranted for 10 years, but will custom-

apply any finish. Machine coating offers 2 advantages: (1) A saving on installation costs; and (2) A factoryapplied finish that looks and performs better than a field-applied Early American res- RADIALLY SAWN RESAWN finish. Jeff says, "We BOARDS carry a large inventory,

emphasize service, and ship anywhere in the U.S.'

Ward Clapboard Mill, also over 100 years old, is the largest producer of quartersawn clapboard, shipping most orders within a couple of days from its 350,000-ft. inventory at two mills - in Vermont and Maine. Mill manager Frank Baslow, along with George Armstrong, designed and built the special radial saw at the Maine mill. The Vermont mill uses turn-of-the-century equipment, cutting clapboards the way they've been milled for 100 years. Frank Baslow says he prefers Spruce, citing the even tone and color of the wood that absorbs stain more evenly. Spruce also has greater tensile strength than pine, so it doesn't dent as easily. Frank says that Ward, which sells both retail and wholesale as well as doing custom work has the largest range of standard sizes on hand, and can provide pre-staining when specified.

In a era of low-cost shortcuts, it is reassuring that there are enough buyers with an eye for long-term value to support a market for a highquality product like quartersawn clapboards. — CL



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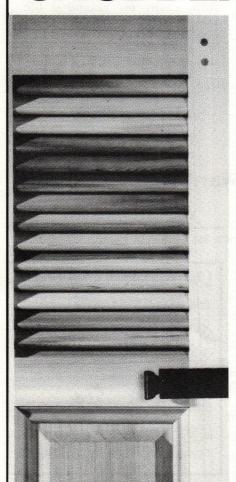
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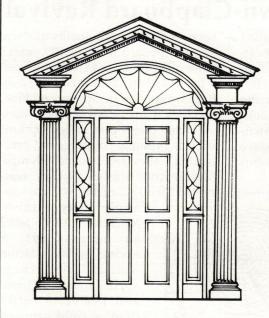
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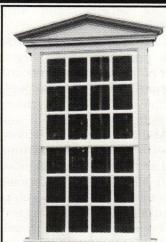


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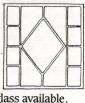
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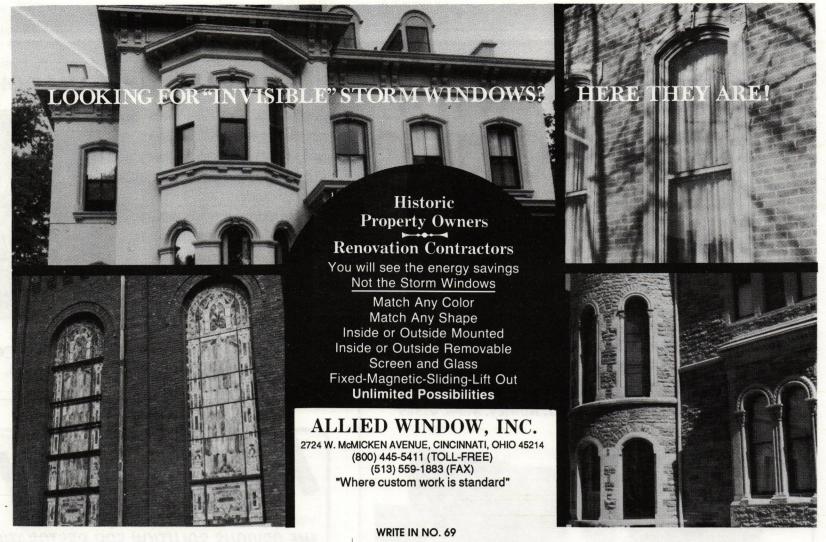
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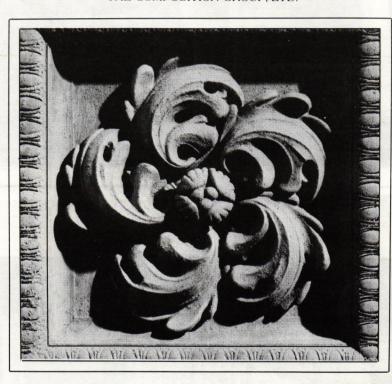
Cumberland Woodcraft, which has stocked the entire line of Orac Decor ornament for two years, also sells two kinds of adhesive cartridges for affixing the ornament: Standard costs \$3.50 and is used for moldings and medallions; Extra Fix costs \$13.60 and is necessary to hold moldings with mitered corners. (All ornament should be toe-nailed until adhesive dries.)

Marketing director Randy Reese adds a footnote: "This ornament is intended only to replace ornamental plaster, not wood moldings. If a stained effect is what you want, use wood, but in a painted period room this works as well as plaster."



For more information, contact: CUMBERLAND WOODCRAFT, PO Drawer 609, Dept. TB, Carlisle, PA 17013 (717) 243-0063. CSI# 06200 — JL Or write in No. 131

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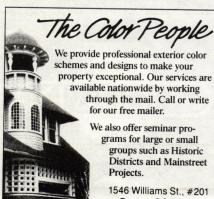
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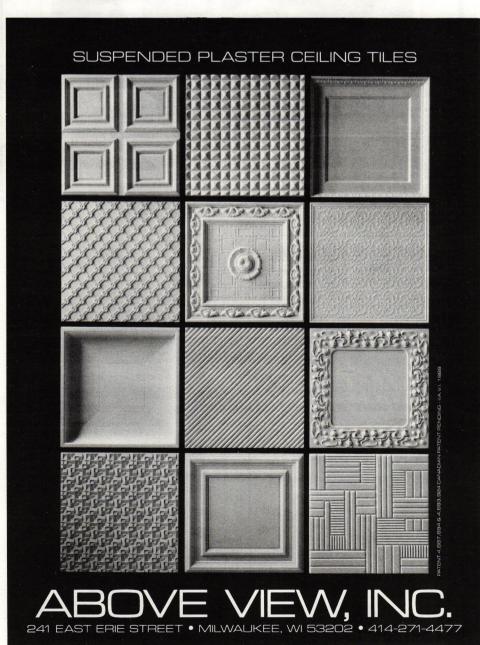
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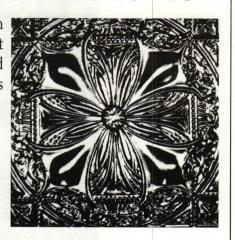


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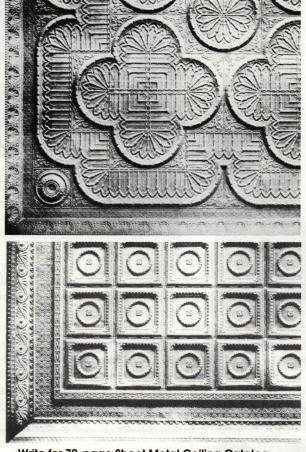
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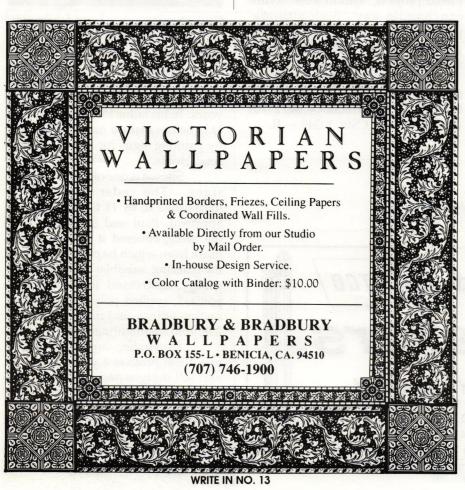
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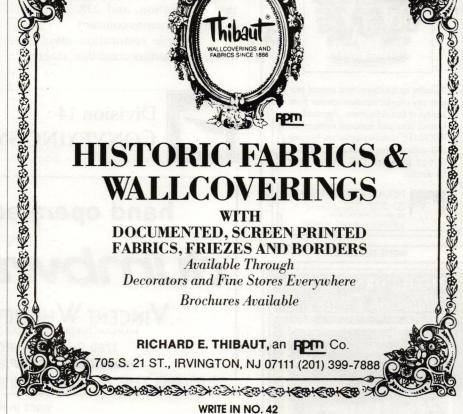
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This handsome cast-iron fireplace ensemble from Fourth Bay is actually two separate units: Fireplace and mantel. The cast-iron hob-grate fireplace (model #4253) is a replica of a c.-1825 English original. The firegrate, originally designed for coal, will burn either wood or coal. The 38-in. x 38-in. fireplace (without mantel) lists for \$2,500.

The cast-iron mantel (model #4297) is a reproduction of a c.-1865 English Georgian surround. It is cast as three pieces, and is highlight-polished to bring out the full luster of the metal. (No finish is applied to the

iron, so it has to be kept polished.) List price for the iron mantel is \$3,500. Cast iron mantels were quite popular in England during the 19th century — and were used to a lesser extent in the U.S. But few have survived intact in this country. So, to date, not many U.S. consumers have developed a taste for cast-iron mantels.

For customers who prefer a more conventional mantel, Fourth Bay can supply the fireplace with a wood mantel in a variety of styles. FOURTH BAY, Box 287, Dept. TB, Garrettsville, OH 44231 (800) 321-9614. CSI# 10300 — CL Or write in No. 521

WRITE IN NO. 176

## These Engineers Know How To Get High

Daniel Quinn, owner of the 40-year-old Skyline Engineers Of Maryland, hasn't been feeling the economic crunch the way many builders have. "Traditional values survive despite economic hardships," maintains Quinn, in reference to ecclesiastical projects. So the demand for the kind of work they do — steeple restoration, fabrication, and 23K-XX gold leafing — remains constant.

Steeple restoration involves assessing: Surface condition, staging,

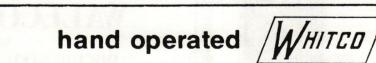
and extent of scaffolding. "With our expertise in rigging, our guarantee — we are the only Master Gilders who give 15 years — and record of completed projects," Quinn feels Skyline can handle any "high-altitude" project. Prices for gilding, although difficult to gauge until the site is surveyed, can run from \$40-\$90/sq. ft.

Contact: SKYLINE ENGINEERS OF MARYLAND, INC., 5405 Beall Dr., Box 671, Dept. TB, Frederick, MD 21701 (301) 831-8800. CSI# 10340 — JL



Division 14

CONVEYING SYSTEMS



## dumbwaiters

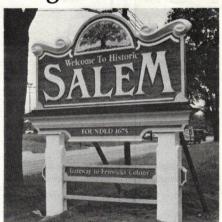
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WRITE IN NO. 502

## A Sign For The Times



Paul Musgrove has been fabricating signs (historic and contemporary), restoring facades, designing interiors (including faux marble, graining, and trompe l'oeil), and consulting in all aspects of signage and painting for 10 years. In his home town of Mt. Holly, N.J., he has made a name for himself by painting signs for nearly 30 local retail stores.

Shown is one of Paul's original signs. The cedar construction measures 5 ft. by 11 ft. After design approval, Paul and staff fabricated the piece, covered it with a rubber mask from which he cut away all but the lettering, sandblasted it (to give a grainy, distressed look), primed, painted, applied polyurethane (precast) moldings, and finished off with 23K gold highlighting. Price: \$5,000.

Paul's shop currently bills out about 200 projects a year. Paul will also sell designs and scale drawings and provide consultation on custom projects.

Contact: PAUL MUSGROVE GRAPHIC DESIGN, R209 High St., Dept. TB, Mt. Holly, NJ 08060 (609) 267-3393. CSI# 10400 — JL









## Faucets, Sinks, and Tubs

Reproduction faucets and fixtures made here and abroad are flooding the market, and it can be hard to tell good quality from bad. Here's some advice from four suppliers.

B Y E KAHN

o get a handle on today's complex plumbing fixture business, we interviewed Brian "Mac" McIntire, of Mac the Antique Plumber; Chris Rheinschild, of Antique Baths & Kitchens; Ragnar Boresen of the Sink Factory; and Tom Scheller of Bathroom Machineries. All of them deal with a wide variety of reproduction plumbing. They told us how to avoid products that don't look good or won't wear well.

## **FAUCETS & FITTINGS**

"Go for solid brass only, not stainless steel, and make sure there are no plastic parts inside," says McIntire. "Look for a heavy-duty stem, and don't believe the manufacturers who tell you that washerless faucets are always better — the ceramic disks inside can wear out, and if the company disappears or changes its patterns you're in trouble." He also recommends solid porcelain levers or cross handles instead of resin-filled porcelain-coated pieces, which can break.

Rheinschild dismantles new faucets and fittings before he buys them. "I watch out for poorly machined, rough castings," he says. "And I make sure there are no huge handles relying on tiny works — you crank those once too often and you destroy the insides." Nor does he approve of brass coatings rather than chrome or nickel plate, and he usually avoids foreign-made goods: "When the importer stops importing," he says, "you can't get parts."

Another problem with imports, says Boresen, is that "some of them are manufactured in places that don't have the 100-psi. water pressure we get in the States, so the valves aren't engineered to stand the strain." He also warns that bad faucets don't just have to be repaired often or replaced, they can also damage fixtures: "Porcelain breaks most often while the faucets are being

"Foreign-made is not necessarily bad," says Scheller, "as long as it's compatible with American products, as many of the Taiwanese imports are." He adds, "But stay away from discount-priced units, no matter how tempting they are. Some faucets that look like good ones may have thinner castings and non-standard works, which are hard to repair."

Keep in mind, adds Boresen, that antique faucets are often not difficult to resuscitate: "I'll charge \$200 to restore an antique to its original splendor, in any finish; a new Chicago faucet of similar quality would cost \$300." He also emphasizes, as do the other three suppliers, that Chicago Faucet Co. sells some of the best faucets on the market. "They haven't changed their works in years; you can put a 1990 part on a 1920 faucet," he says. McIntire calls the company "the Cadillac of faucets."

## SINKS, BATHS, TOILETS

Taiwan, Brazil, Portugal, France, and Italy are among the countries now exporting reproduction porcelain fixtures. Quality varies by country, within country, and even within shipments. On a pedestal sink, "make sure the pedestal fits the top," says Scheller. "and that the top's not warped. And the faucet and drain holes on sinks and tubs should be perfect circles." Scheller also says that although a few surface pits are unavoidable — "nothing is perfect" — a smooth, even glaze is ideal.

Another way to check porcelain quality is to examine the unglazed parts. "The hotter the porcelain was fired, the stronger it is," says McIntire. "The unglazed bottom should be very dense and hard, not porous, flaky, or crusty." He also suggests checking the tank liners on oak-tank toilets: "Copper or galvanized steel won't last; you get seam leaks in three to seven years," he says. "We only use vinyl." Also stay away from non-porcelain tubs, says Rheinschild: "Fiberglass and polyester are more susceptible to abrasive cleaners. They just

won't last 70 years."

Boresen also suggests avoiding some porcelain imports. "They may be strong," he says, "but the design finesse, the fine details aren't there." One alternative is to buy refitted antiques. "There are more reproduction manufacturers than ever," he says, "but most of them make the same 15-odd designs. Before the 1930s, hundreds of styles were available."\*

## Who's Included

The 30 companies included on the SourceList on page 32-34 include general restoration supply sources, like Restoration Works that offer some plumbing; importers and distributors like Watercolors and Roy Electric who concentrate on plumbing; and large, old manufacturers like Chicago Faucet; as well as smaller, newer firms like the Sink Factory. There are also a few antique dealers who carry a significant selection of restored plumbing. As noted in their write-ups, some companies offer custom work and/or custom colors, and some can repair and refinish old fixtures and fittings.

Their literature ranges from onepage flyers to thick binders; some of it is free, and some is not. If you need information immediately, call or write the companies directly. We've provided all contact information on the SourceList. (Please mention TRADITIONAL BUILDING.) If you simply need information to update your files, you may find it more convenient to use the enclosed Product Information Card or the Form on page 46.



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Oakley, CA 94561 (415) 625-5518



CSI# 15400

COMPANY	SPECIALTY	Literature	Tubs	Sinks	Toilets	Faucets	Showers	Accessorie
A-Ball Plumbing Supply 1703 W. Burnside St., Dept. TB Portland, OR 97209 503-228-0026	Mail-order source of everything from porcelain resurfacing kits to showers, corner sinks, pedestal sinks with fluted or plain bases, kitchen faucets, high- and low-tank toilets, clawfoot tubs, and shower curtains.	Free	~	~	~	-	•	, deper
Antique Baths & Kitchens 2220 Carlton Way, Dept. TB Santa Barbara, CA 93109 805-962-8598	One-craftsman supplier of high- and low- tank toilets with oak boxes, oak medicine cabinets; wall-mount and pedestal sinks, basins, cast-iron clawfoot tubs, copper kitchen sinks, and dinner-plate-size shower- heads. Custom work is available in oak and copper.	Send \$2 for catalog Write in No. 445	~	~	V	~	•	,
Antique Emporium 7805-7809 Lorain Ave., Dept. TB Cleveland, OH 44102 216-651-5480 or 631-7756	Architectural salvage shop that keeps dozens of antique wall-hung and pedestal sinks, clawfoot tubs, toilets, and faucets in stock.	None	~	~	•	-	~	~
Barclay Products 124 N. Oakley Blvd., Dept. TB Chicago, IL 60612 112-243-1444	Large faucet-and-fixtures manufacturer that offers toilets with fluted bases in high- or low-tank and close-coupled models; also pedestal sinks, acrylic-and-fiberglass clawfoot tubs in many colors, centerset and widespread faucets, and showers for clawfoot tubs.	Free	•	•	V	~	~	~
Bathroom Machineries Box 1020, 495 Main St., Dept. TB Murphys, CA 95247 209-728-2031	Antique and reproduction bathroom fixtures and fittings: wall-mount and pedestal sinks, clawfoot tubs, wall-hung toilets, mahogany or cherry toilet tanks and seats, drinking fountains, showers, faucets marble and mahogany lavatories, and even c1940 urinals.	Send \$3 for catalog Write in No. 172	~	~	•	~	~	~
Besco Plumbing 729 Atlantic Ave., Dept. TB Boston, MA 02111 617-423-4535	Distributes a variety of fixtures and fittings: mahogany vanities and high- and low-tank toilets, hand-painted pedestal sinks and basins, clawfoot tubs; Art Nouveau and Victorian sinks, toilets, faucets, and showers. Workshop can repair, refinish, or modify to spec.	Send \$5 for catalog	~	~	~	~	~	,
Bona Decorative Hardware 8073 Madison Rd., Dept. TB Cincinnati, OH 45209 513-321-7877	Distributes fixtures and fittings, including marble or brass drop-in and pedestal sinks, and porcelain pedestal sinks with a choice of 15 basins, two pedestals, and 42 colors as well as custom hand painting.	Send \$2 for catalog	1006 9/ 1000 10 1000 10 1000 100	~	d bres e	~		V
Chicago Faucets 2100 S. Nuclear Dr., Dept. TB Des Plaines, IL 60018 312-694-4400	90-year-old plumbing manufacturer that produces commercial-quality items for residential use: gooseneck showers for clawfoot tubs, centerset and widespread faucets, and kitchen faucets with built-in soap dishes. Most pieces available in brass or chrome plate.	Free				•	~	Application of the second
Crawford's Old House Store 550 Elizabeth St., Dept. TB Waukesha, WI 53186 800-556-7878 or 414-542-0685	Restoration supply source that offers porcelain toilets with fluted bases; also pedestal sinks, acrylic-and-fiberglass clawfoot tubs in many colors, centerset and widespread faucets, and showers for clawfoot tubs.	Free	V	V	V	~	~	~
Cumberland General Store Rt. 3, Dept. TB Crossville, TN 38555 800-334-4640 or 615-484-8481	"Old-time" general store with catalog of hard-to-find products: steel tubs with oak trim and oak claw feet, cast-iron tubs, hip baths, showers, sinks, brass basins, reproduction c1900 faucets, and oak high- and low-tank toilets.	Send \$3 for catalog	V	~	V	~	~	•
DuraGlaze 2825 Bransford Ave., Dept. TB Nashville, TN 37204 615-298-1787 or 1865	Company refinishes marble, porcelain, or fiberglass bathroom fixtures; it also sells refinished antique sinks and tubs and distributes reproduction sinks, toilets, tubs (custom finished in any color), faucets, showers, and accessories.	Free Write in No. 649		V	8.	~	~	
P.E. Guerin 23 Jane St., Dept. TB New York, NY 10014 212-243-5270	Manufactures unusual faucets with handles shaped, for example, like starfish, birds, rocks, pineapples, or dolphins and with spouts shaped like turtles, swans, or goose heads. Also pedestal sinks and porcelain basins finished with classical patterns.	Send \$25 for color catalog		~	E La	V	da Z	_
Hardware +Plus 701 E. Kingsley Rd., Dept. TB Garland, TX 75041 214-271-0319	This "all-in-one-source for the restoration contractor" offers clawfoot-tub showers, faucets, fittings; dozens of centerset and widespread faucets; cast-iron clawfoot tubs with or without oak trim, pedestal sinks, and oak high- and low-tank toilets.	Free flyer; send \$10 for binder Write in No. 652	~	~	~	~	~	
Hippo Hardware and Trading Co. 201 S.E. 12th St., Dept. TB Portland, OR 97214 503-231-1444	Restoration-supply shop and salvage yard that sells antique and reproduction clawfoot tubs and fittings, pedestal sinks, faucets, and accessories, all from the 1900's to the 1950's.	Free	~	~	~	~	~	~
Liette International 243 Fleet St., Dept. TB New Bern, NC 28562 800-533-1999	Imports unusual plumbing fixtures and fit- tings: toilets, wall-hung and pedestal sinks, clawfoot tubs, painted china accessories, and a Vienna-Werksttate-esque freestand- ing enameled-metal sink with built-in soap	Free	~	~	-	-	~	~

## PORCELAIN REFINISHING

Porcelain on antique bathroom fixtures is sometimes so chipped, cracked, or crazed that you have only 2 choices: (1) Look for another fixture, or (2) Have the porcelain finish restored. (If the finish is only *slightly* cracked or worn, often the best course is to learn to love the blemishes and regard them as part of the "charm and character" of the piece.)

To restore a porcelain finish, a 2-part high-tech coating is applied over a surface that has been carefully cleaned and etched to provide the right porosity and a good bond. Timing and good surface preparation make the difference between a job that can last 10-15 years and a botched job that won't last 12 months. (The do-it-yourself kits they sell at the hardware store are next to worthless.)

Because there are no industry standards for the formulation and application of porcelain restoration finishes, the experience, reputation, and reliability of the applicator is of primary importance. The customer also should be aware that the restored surface is not as hard as true porcelain, and should be cleaned ONLY with non-abrasive cleaners, such as Bon Ami or liquid cleaners. The following firms are among those with an established track record in the porcelain refinishing business:

■ DURAGLAZE, 2825 Bransford Ave., Dept. TB, Nashville, TN 37204 (615) 298-1787 or 1865 Write in No. 649

■ MIRACLE METHOD OF CENTRAL CONN., 456 Tollgate Rd., Dept. TB, S. Glastonbury, CT 06073 (203) 657-2284 Write in No. 655

■ OLE FASHION THINGS, 402 SW Evangeline Thruway, Dept. TB, Lafayette, LA 70501 (318) 234-7963 Write in No. 657

■ PERMA CERAM ENTERPRISES, 65 Smithtown Blvd., Dept. TB, Smithtown, NY 11787 (800) 645-5039

■ PERMA-GLAZE, 7310 E. 22nd St., Ste. 167, Dept. TB, Tucson, AZ 85731 800-332-7397

■ VINTAGE TUB & SINK RESTORATION, 701 Center St., Dept. TB, Ludlow, MA 01056 (413) 589-0769



WRITE IN NO. 655



WRITE IN NO. 606



WRITE IN NO. 657

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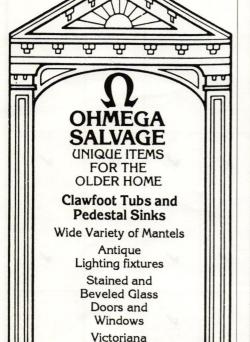
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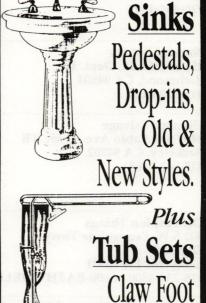
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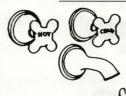




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continued CSI# 15400

COMPANY	SPECIALTY	Literature	Tubs	Sinks	Toilets	Faucets	Showers	Accessories
Mac the Antique Plumber 885 57th St., Dept. TB Sacramento, CA 95810 916-454-4507	12-year-old plumbing distributor that sells high- and low-tank toilets, pedestal sinks with fluted bases, brass basins, shower curtain rods, and a wide variety of faucets, showers, and other fittings. Also a few antiques, including clawfoot shower pans.	Send \$6 for catalog	~	~	~	~	~	V
Norstad Pottery 253 S. 25th St., Dept. TB Richmond, CA 94804 415-620-0200	Stoneware drop-in round sinks painted with abstract swirls, Japanese maple leaves, and thin pinstripes, in colors including deep blue, brown, rust, gray, and rose. Custom colors and designs are available.	Free		~				
Ohmega Salvage 2407 San Pablo Ave., Dept. TB Berkeley, CA 94702 415-843-7368	15,000-sq.ft salvage yard with up to 100 antique sinks; skirted or clawfoot tubs; and high- and low-tank toilets with oak or porcelain tanks, all either rebuilt or as is. Styles include Art Deco, Victorian, and Neoclassical. Also reproduction and antique faucets, showers, and accessories.	Free Write in No. 564	~	~	~	~	v	~
Ole Fashion Things 402 S.W. Evangeline Thwy. Dept. TB Lafayette, LA 70501 318-234-4800 or 800-BATHWORLD	Refurbishes and sells tubs from 4 to 6 ft. L and pedestal sinks; also distributes clawfoot tubs including slipper and center-fill models, high- and low-tank toilets with porcelain or oak tanks, pedestal and drop-in sinks, and brass faucets, showers, and accessories.	Free information; send \$3.75 for catalog Write in No. 657	•	•	~	~	~	~
Rapetti Faucets George Blotcher Ltd. Zero High St., Dept. TB Plainville, MA 02762 800-688-5500 or 508-699-9400	Imports unusual European plumbing fittings: showers, faucets with cross handles, and fittings for clawfoot tubs. Finishes include chrome, polished brass, and colored enamel.	Free			potentia	~	~	~
Restoration Works Box 486, Dept. TB Buffalo, NY 14205 800-735-3535	Restoration-products showroom and mail- order source: faucets, fittings, and shower- curtain rods for clawfoot tubs; toilets with fluted bases and porcelain high tanks; Marbrex polyester clawfoot tubs in six colors; sink faucets, pedestal sinks, por- celain and brass drop-in basins.	Free	~	~	~	~	~	
Roy Electric 1054 Coney Island Ave., Dept. TB Brooklyn, NY 11230 718-434-7002	Among their best-selling plumbing items are clawfoot-tub enclosures with showers, faucets, and pipes; also pedestal sinks, oak or porcelain high- and low-tank toilets with fluted or plain bases, clawfoot tubs, and dozens of styles of faucets and showers.	Send \$5 for catalog; Free flyer Write in No. 670	~	~	~	~	~	~
Salvage One 1524 S. Sangamon St., Dept. TB Chicago, IL 60608 312-733-0098	A 360,000-sqft. warehouse contains a vast selection of architectural antiques, including vintage plumbing fixtures. Inventory includes clawfoot tubs, pedestal sinks, hightank toilets, fittings, and bathroom accessories.	Free Write in No. 499	~	~	•	•	•	~
The Sink Factory 2140 San Pablo Ave., Dept. TB Berkeley, CA 94702 415-540-8193	Manufactures 14 styles of pedestal sink, from streamlined to Edwardian, reproduction toilets, basins that can be custom painted, custom marble or granite tops for vanities, and brass supports for open vanities. Can repair and replate old fittings.	Send \$3 for catalog Write in No. 666	~	~	•	•	•	-
Sunrise Specialty 2204 San Pablo Ave., Dept. TB Berkeley, CA 94702 415-845-4751	Imports or fabricates everything needed to recreate Victorian baths: oak high- or low-tank toilets with or without fluted bases, centerset and widespread faucets, pedestal sinks with fluted bases; showers and fittings for clawfoot tubs; and tubs with or without oak trim.	Free Write in No. 667	~	~	•	~	~	
Tennessee Tub 207 Donelson Pike Ste. 201, Dept. TB Nashville, TN 37214 615-391-3828	Distributes fixtures and fittings and sells antique tubs and sinks. Reproduction lines include pedestal sinks, showers and fittings for clawfoot tubs, widespread and centerspread faucets for kitchen and bath, and toilets with oak seats and fluted bases.	Send \$6.50 for catalog	~	~	~	~	~	,
Val's Antique Baths and Architectural Antiques Box 74, Dept. TB Oakley, CA 94561 415-625-5518	Carries unusual vintage plumbing fixtures in working condition: pedestal sinks with twisted bases, two-basin pedestal sinks, sidefill clawfoot tubs, ribcage showers, and foot and sitz baths; also plain and painted tubs, some with embossed designs, and embossed toilets.	Send specific request for photos Write in No. 662	~	~	~			
Vintage Plumbing 9645 Sylvia Ave., Dept. TB Northridge, CA 91324 818-772-1721	Source of antique bathroom fixtures and fittings, specializing in Victorian and Art Deco: pedestal sinks, plain and embossed toilets, end and sidefill clawfoot tubs, ribcage showers, and accessories. Shop can also duplicate, repair, and refinish fixtures and fittings.	None; send specific request for photos	~	~	~	-	~	,
Vintage Tub & Sink Restoration 701 Center St., Dept. TB Ludlow, MA 01056 413-589-0769	Restores damaged antique fixtures and sells restored sinks, tubs, and toilets as well as faucets and fittings for clawfoot tubs.	Send \$4 for catalog	~	~	~	-		-
Watercolors Dept. TB Garrison-on-Hudson, NY 10524 914-424-3327	Imports faucets, showers, and accessories, including reproductions of c1900 styles: of special note are shower-and-faucet combinations for clawfoot tubs, wall-mounted temperature controls, and faucets with cross					~	V	

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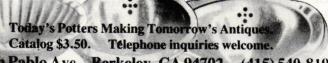
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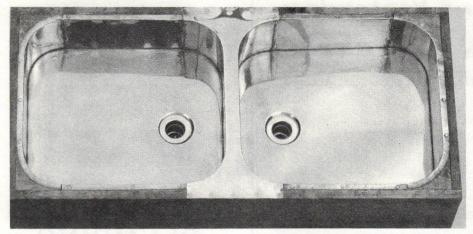
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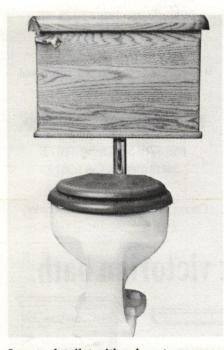
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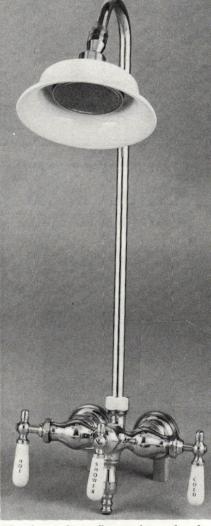
Reproduction of old double kitchen sink, copper lined on 18-by-42-in. wooden case, from ANTIQUE BATHS & KITCHENS



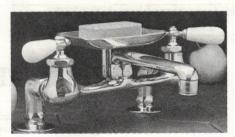
C.-1890 antique marble sink from BATHROOM MACHINERIES, with brass legs and original spout; 30 in. H with 15-in. backsplash, top 32 in. W and 22 in. D



Low-tank toilet with oak seat, copperlined oak tank, and brass fittings from SUNRISE SPECIALTY



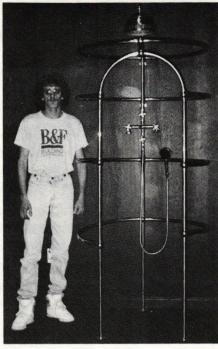
Clawfoot-tub sunflower showerhead with porcelain handles, available in chrome or brass, from CRAWFORD'S OLD HOUSE STORE



Brass deck-mounted sink faucet with soap dish, 6-in. swing spout, and porcelain handles, from CHICAGO FAUCETS



Copper tub with brass dolphin feet from the BROADWAY COLLECTION



Solid-brass 1-in. tubing makes up this reproduction ribcage shower from ROY ELECTRIC



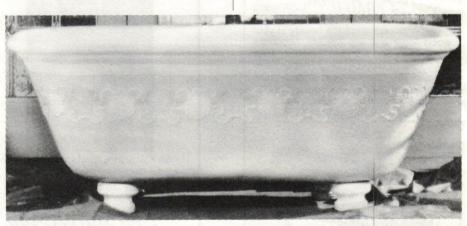
4-in. centerset with lever handles from P.E. GUERIN



Pedestal sink with fluted base, model 290, from the SINK FACTORY



Washerless widespread sink faucet with cross handles from HARDWARE +PLUS



Vintage tub embossed with seashells and garlands from OHMEGA SALVAGE



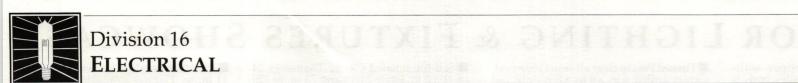
Faucet imported by RAPETTI/ GEORGE BLOTCHER, with pop-up drain control



WATERCOLORS imports this cross handle, part of a widespread set with automatic drain



Antique ribcage shower plus dozens of tubs and sinks in the showroom of VAL'S ANTIQUE BATHS & ARCHITECTURAL ANTIQUES



# EXTERIOR LIGHTING & FIXTURES SHOWCASE

# Here's an illustrated cross-section of traditional street clocks, bells, and exterior lighting fixtures.

BY JUDITH SIEGEL LIEF

In deciding which exterior lighting fixtures to purchase, there are two factors to consider: Design and material. All of the lighting companies listed below offer a wide range of traditional designs — and it's fairly easy to find the style you want. Materials are another matter.

If there's a controversy over materials used for exterior lighting fixtures, it boils down to this: Consider the setting. These lighting companies fabricate posts out of cast iron, steel, cast (anodized) aluminum, FRP (fiberglass-reinforced polymer), or cast concrete, and not all materials are appropriate for all applications.

Cast iron is the traditional material. Denise Shafer of Lamp Light, Inc., says, "Cast iron shows wonderful detail; it's heavy, authentic, and poses no fire hazard." Lamp Light uses cast iron for the base and decorative fittings and 9- or 11-gauge steel for the post because "we can pull the fluting in one piece, which gives it tremendous structural integrity." For urban settings, cast iron can withstand salt used in snow zones and is rugged enough to resist dings from parking cars.

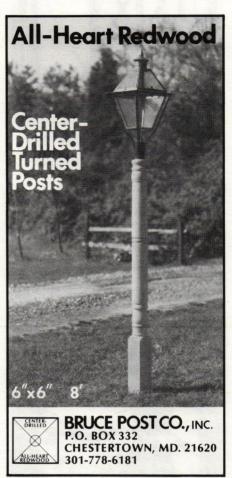
Marianne Leisinger at Dutch Products suggests that aluminum is easier to maintain than cast iron (in salt-free environments) but, more important, is less than

half the weight of iron. Installation is easier; shipping charges are less. (Posts come with a base coat of Rustoleum, ready for painting.)

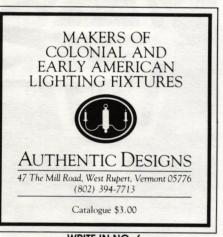
Bob McAlister of Shakespeare praises fiberglass: "Its primary advantages are that it's light in weight — so it installs easily — and is inexpensive to ship. And it's more shear resistant than cast-iron and won't bend like aluminum. In addition, fiberglass doesn't need to be grounded."

Carol Wester of Great Lakes Concrete Products claims cast concrete is the least expensive of all materials used for posts. And, since the color is cast into the concrete, chips don't show. The average post, which weighs about 700 lbs., can be installed using the direct burial method, so the cost of an anchor base is eliminated.

So consider the setting. In urban situations, metal is probably a better choice. Cast iron is authentic for restorations and can withstand *minor* automobile assault. Aluminum, though it doesn't have the ruggedness of cast iron, is easier for installation and maintenance. In areas that are not vandal prone, FRP can be the most economical choice. And if cost, strength, and load-carrying capacity are important — and historic authenticity is not — you may want to consider cast concrete. •

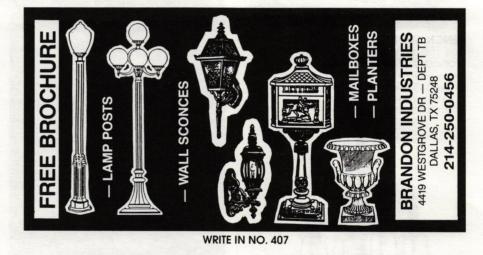


WRITE IN NO. 375











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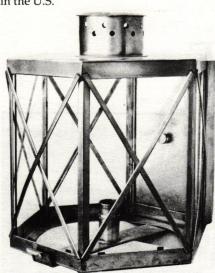
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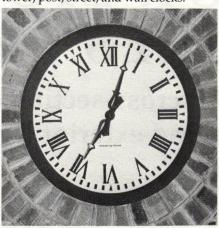
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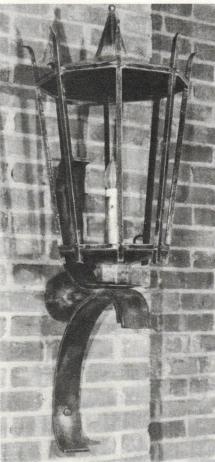
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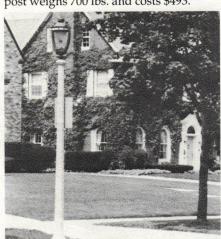
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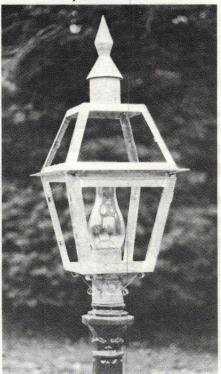
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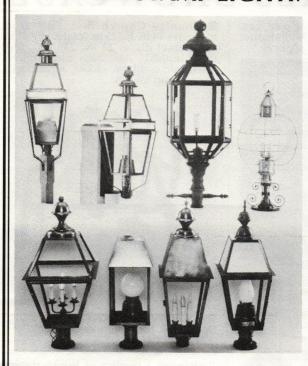
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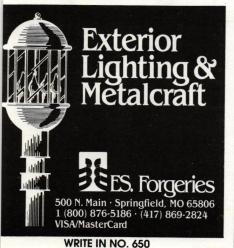
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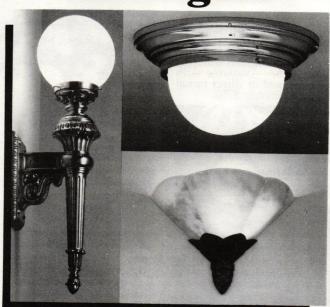
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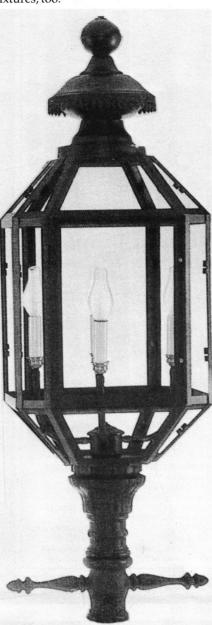
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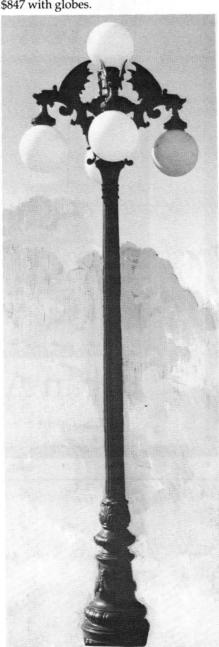
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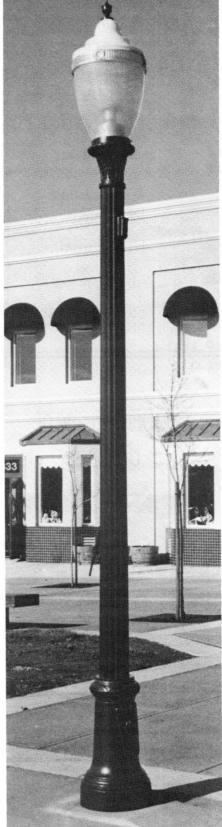
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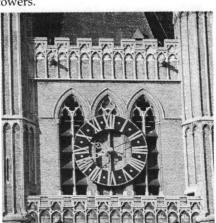
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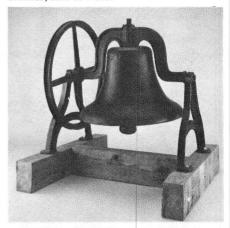
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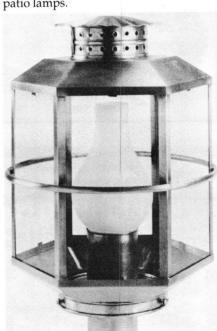
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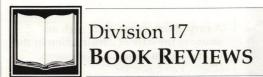


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**WASHINGTON COPPER WORKS**, Dept. TB, Washington, CT 06793 (203) 868-7527.



## Old Buildings/New Construction

New Construction For Older Buildings: A Design Sourcebook For Architects And Preservationists by Peter H. Smealie and Peter H. Smith, John Wiley & Sons. 212 pp.; over 200 illus. Hardcover. \$54.95 ppd. from Wiley Book Orders — Dept. TB, 1 Wiley Dr., Somerset, NJ 08875 (201) 469-4400.

The 1980's was the decade in which the architectural profession came to terms with the preservation movement. That some architects were more at ease with old buildings than others is apparent from this useful new design sourcebook from Wiley. This volume presents 200 photos (and some plans) of old buildings that underwent development of one type or other.

Readers will obviously find some of these projects more appealing than others. Depending on point of view, of course, readers will disagree on which of the illustrated projects are winners and which are losers.



Our favorite example: Two historic buildings in Washington, D.C., skillfully joined with a tall, narrow infill section that houses mechanical equipment, elevators, and fire stairs. Design Architect: Hartman-Cox Architects. Architect: Geier Renfrow Brown (Phase I), Leo A. Daly (Phase II). Preservation Architect: John Milner Associates.

The book is almost as useful for its illustrations of what *didn't* work as for the clear winners; sometimes negative examples are the most powerful teachers. You'll have to supply your own critique, however; the authors don't offer any critical evaluations of the projects. The book is



Least favorite: Facades of two 18th-century Washington, D.C., townhouses incorporated into an ultramodern office development. (The facades look like the scalps of defeated enemies tacked to the wall of the modernist victor.)

divided into three main sections: (1) Additions to older buildings; (2) Adaptive re-use; (3) Infill construction and the integration of new buildings into existing environments.

Not all of the projects are tax-act jobs done to the Secretary of the Interior standards. In fact, some examples will make preservation purists bristle. However, most of the projects seem to strike a creditable balance between the need to preserve historic architecture while at the same time providing for modern function. The material for the book was provided by the various designers and architectural firms-involved, so there is some useful description of the program and real-world constraints.

In the section on additions to old buildings, the authors have some kind words to say about additions that follow the style of the original. Any architect who has arm-wrestled with the National Park Service over interpretation of the Interior Secretary's Standard No. 9 will draw comfort from this section.

If you anticipate working with or around old buildings in the 1990's, you'll find this volume a source of useful ideas. • — CL

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# THE SECRET PRESERVATION INFORMATION CENTER

So few people are aware of it that it might as well be a national secret: The little-known National Trust for Historic Preservation Library at the University of Maryland is actually the largest preservation information center open to the public. But Sally Sims Stokes, curator of the preservation collection, assures us that she doesn't want to keep the Library under cover. To the contrary; she'd like to see more people use its considerable resources.

The collection contains more than 50,000 items ranging from clippings and brochures to restoration do-it-yourself books. And the collection grows daily. For example, the National Park Service recently designated the library as the central repository for all research reports relating to historic preservation.

Each month the Library staff combs more than 300 periodicals and adds to the Univ. of Maryland Index to Historic Preservation Periodicals — the first such comprehensive index. Ms. Stokes is also encouraging local preservation organizations to send copies of their reports and documents to the Library where they will become available to other groups.

The collection was originally started by the National Trust for Historic Preservation. But in 1986 the Trust turned the Library over to the University of Maryland, which now has full responsibility for managing and expanding the collection.

The collection is open to the public from 9:00 a.m. to 5:00 p.m. Monday to Friday. Ms. Stokes says the staff can prepare preservation bibliographies in response to telephone requests. The Library staff is also available for consultation upon appointment. Contact: Sally Sims Stokes, Curator, Univ. of Maryland National Trust for Historic Preservation Library Collection, Architecture Library, College Park, MD 20742 (301) 405-6320. — CL

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#### KILLIS ALMOND

continued from page 6

still make time to supervise his own construction sites? "I have a big problem giving up control," he admits. "If I'm on site, I can make sure things get done my way. I can change or correct things as I go along. I can watch over the really fine details. I've put sprinklers into little ceiling rosettes, and that's tough to get right if you're not looking over somebody's shoulder. And I can make sure we come in on time, within budget. We give good commitment; that's how we compete with the big-time folks."

He inherited his taste for hands-on work from his father, an expert cabinetmaker in a hamlet near Dallas. By age 12, Killis Jr. was serving as his father's apprentice, although he soon realized he'd rather be designing than building. "I figured, 'That way I'll get to sit in an air-conditioned office all day," he says. "Boy, was I wrong." After 3 years of a five-year architecture program at the University of Texas at Austin, he left school for a year and worked in construction. "Something was missing, but I didn't know what," he says. When a professor at the school told him about an upcoming course in "modern design to suit a historic context," Almond promptly re-enrolled. He had found what his previous courses lacked: A sense of respect for the past. He graduated in 1972 and apprenticed for three years to O'Neil Ford, an architect in San Antonio.

#### Learning/Unlearning

"O'Neil Ford remodeled and rehabilitated, he did not restore," says Almond. "But he was the best in the state at what he did. Under him I converted an old printing plant into apartments and a boutique, which was at the cutting edge of preservation at the time. I learned a lot; and I had to unlearn a lot, all on my own. There were no books to learn from then; the Secretary of the Interior hadn't even published his guidelines



A carved limestone entry arch announces the date of construction of the Grand Opera House in Galveston. (Photo: Van Edwards)

**▼** Detail of the arch's carving. (*Photo: Van Edwards*)

yet." Almond next delved into museum-quality restoration, spending two years as an architect with the Historic Sites and Restoration Branch of the Texas Parks and Wildlife Department. He oversaw work throughout the state, on everything from missions and wood and adobe forts to archaeological digs, and he opened a private practice when John and Sarah Yates asked him to restore their home.

The couple had just inherited a 1929 Mission Revival ranch house on the outskirts of San Antonio. It had been vandalized and vacant for years; yet Almond calls it "an absolute joy to work on" — a phrase that crops up often when he recounts his career. He is especially fond of its plasterwork, including a fireplace, designed by San Antonio folk artisan Dionicio Rodriguez, which resembles the facade of a thatch-roof log cabin. On the project, Almond developed a skill he has been refining ever since: Hiring talented restoration crews. "Texas is full of craftsmen who still use ancient techniques," he says; for example, he tracked down Maximo Cortez, an 82-year-old craftsman





Two tiers of half-round balconies flank the Opera House's stage, whose curtain features an idyllic river scene. (Photo: Van Edwards)

who had worked with Rodriguez, to help restore the Yates fireplace and over the years he has also found cement-tile makers who have been in business for decades, as well as woodworkers who keep alive the traditions of Galveston's once-thriving shipbuilding business.

Larger projects followed the Yates assignment in quick succession, including both restorations and adaptive uses. Many of them set state precedents, including a 19th-century San Antonio dry goods store that Almond rehabilitated into offices and restaurants in 1979. He enabled the owner to receive Tax Act certification for the building, although its missing cornice was never rebuilt: It was simply painted on, using trompe l'oeil. "That shocked the commissioners," Almond recalls, "but it was certified. We spent \$3200 to paint the cornice — it would have cost \$32,000 to rebuild it — and I can still hear the owner saying, 'Pigeons don't pay

#### The Moody Mansion

For the past two years he has been tackling one of his toughest assignments yet: The Moody Mansion in Galveston. Inside its brick-with-limestone-trim walls and under its



Almond restored the c.-1930 Paramount Theater in Abilene, Texas, including its tiled outer foyer. (Photo: Jon King Keisling)



Gilded classical statues pose between columns in the Paramount's lobby. (Photo: Jon King Keisling)

terra cotta-tile roof, lie 42 rooms, totalling 28,000 sq.ft., and Pottier & Stymus-designed decor full of rare marbles, exotic woods, ornamental plaster, and stained glass. The 1892 house, designed by W. H. Tyndall, has been in the Moody family since industrial tycoon William Lewis Moody Jr. bought it in 1900. Its technology was well ahead of its time: Cast-iron beams run through its first-floor ceiling, distributing the weight of the second floor to the outer load-bearing masonry walls and allowing expansive first-floor rooms.

"Tyndall was applying an idea from the commercial architecture of the time, and trying to emulate the Newport mansions," says Almond, who undertook the restoration work in 1988. W. L. Moody's daughter, Mary Moody Northen, had lived in the house until just before restoration began in 1983, and she had never changed the decor, moved the furniture, or even thrown much away.

Among the one million objects she left when she died in 1986 were hundreds of photos of the interior and exterior. "It's rare to work on something so well documented," Almond says. "On so many other buildings, we end up flying blind."

#### A Rescue Mission

Despite the extensive documentation, the project floundered before Almond came to its rescue; he is its fifth restoration architect. Although previous practitioners had stabilized the major problems — damage from hurricanes, wear and tear, termites, and plumbing leaks — an enormous amount of work had *not* been completed, and the Mary Moody Northen Foundation's budget was far from bottomless.

Almond swiftly applied his Attila the Hun tactics: "I stopped all work, redid the drawings, and rebid major elements," he says. "When a car's out of control, the first thing you have to do is hit the brakes. And then

I hired one of the finest restoration crews ever." Among his more ingenious new ideas was to redesign the house's heating and cooling system. Ducts for the first floor rise through old chases and in between joists, and tiny units for the second floor are concealed in corners or under eaves, with narrow wall slots serving as outlets. "They make what you might call a 'non-architectural statement,'" Almond says.

#### **High-Tech Docents**

Although a few rooms will not be ready when the Moody Mansion opens this spring, and the landscaping will not yet meet Almond's exacting standards, the building will represent one of the world's most technologically sophisticated house museums.

Docents will carry infrared devices that trigger sound and light shows: Voices will describe what life in the house was like and what happened in a particular room, sometimes by reading family letters. Spotlights will shine on the objects the voices mention.

And behind the scenes, a computer will dictate all maintenance work: Almond has developed a historic-minded variation of a commercial-building maintenance program. "As soon as you log on, it will tell you what needs to be done that day," he says. "It'll tell you which light bulbs need to be changed, how many are in inventory, where to get new ones. It will tell you if you need to vacuum the hall, which vacuum to use, how much cord to bring. It can be modified by the client, and the head of maintenance can practically run it with one finger. There's nothing like it on the market."

And then he sighs. "Oh, am I happy with this house," he says. "To be associated with it, and yet to be invisible. When you can't wait to get to work in the morning, you know you're doing something right."

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#### project report

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#### ■ PROJECT REPORT ■

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**BUILDING:** The Church of St. Ann and the Holy Trinity (formerly Holy

Trinity Church) — built 1847 **LOCATION:** Brooklyn, N.Y.

PROJECT MANAGERS: David A. Korman, Preservation Coordinator;

Glenn Boornazian, Architectural Conservator

PROJECT CONSULTANT: John Stubbs (for the World Monuments

Fund)

The Church of St. Ann and The Holy Trinity in Brooklyn Heights, N.Y., shares a problem common to many old, inner-city churches: A small congregation that cannot afford the repair and restoration this 1847 masterpiece requires.

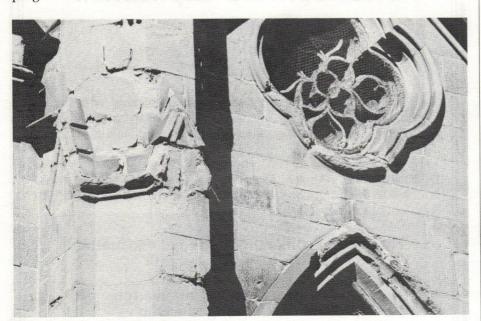
Two factors, however, distinguish St. Ann from hundreds of other down-at-heels ecclesiastical counterparts: (1) St. Ann is a National Historic Landmark (containing, among other things, the first set of figural stained-glass windows produced in this country); (2) Community groups outside the congregation recognized that St. Ann was a place worthy of special rescue efforts.

Ten years ago, when it became clear that the existing congregation could not properly fund repairs of this Gothic revival masterpiece, the New York Landmarks Conservancy initiated a pilot project in restoration, which expanded use of the church buildings as a performing arts center. In 1983, a volunteer Board of Directors formed The St. Ann Center for Restoration and the Arts, Inc., whose main goals are to raise funds for the church's restoration and to oversee the cultural and community uses of the buildings.

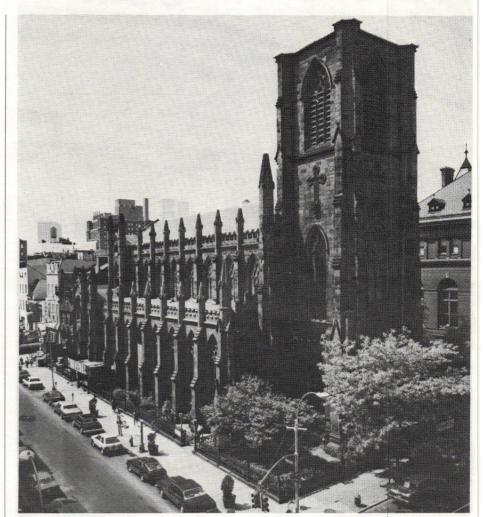
Since then, financial aid has come from government and private sources — including corporations and foundations throughout the U.S. Major funding has been provided by the New York State 1986 Environmental Quality Bond Act, The J. Paul Getty Trust, The Vincent Astor Foundation, The J.M. Kaplan Fund, Samuel H. Kress Foundation, and The Andy Warhol Foundation for the Visual Arts, among others. In addition, the World Monuments Fund recently selected St. Ann's as the pilot restoration project for its U.S. Heritage Program.

Currently under the chairmanship of the indefatigable Evelyn Ortner, ASID, The St. Ann Center for Restoration and the Arts' annual operating budget has grown to around \$1.5 million. The restoration side of the Center's programs, coordinated by David Korman, has three major in-house components: (1) A stained-glass conservation studio (headed by Mel Greenland) that is restoring the priceless stained glass panels created by William Jay Bolton; (2) A program for sandstone conservation and training using state-of-the-art technology; and (3) A program of wood windowframe stabilization and conservation under the direction of Kevin Crawford.

The current sandstone conservation project got under way in May, 1989. Architectural conservator Glenn Boornazian and master mason Dennis Rude (both of Cathedral Stone Co.) were hired to design and implement the pilot program.



Stone delamination and spalling was caused not only by a poor quality of sandstone but also by previous tuckpointing. High-cement mortars that were used created hard, nonporous joints that restrained stone expansion and forced moisture to evaporate at the edges of the stone. So instead of the mortar joints deteriorating, the edges of the expensive cut stonework began to decay.

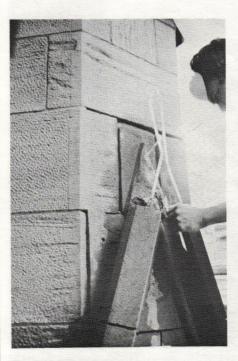


The Church of St. Ann and the Holy Trinity (1847) has lost, among other things, its original 100-ft. spire and numerous crockets and finials because of sandstone deterioration.

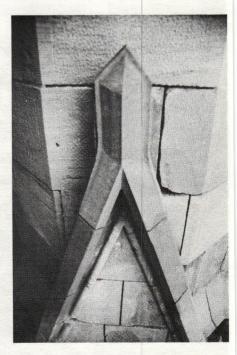
Boornazian, assisted by one mason and three apprentices, tested a wide variety of materials and procedures for cleaning, restoring, and repointing sandstone during the pilot phase, which ended in December, 1989. The St. Ann Center Sandstone Conservation Committee concluded that the most satisfactory material for restoration of the St. Ann sandstone was Jahn M-70 restoration mortar. (The Jahn material is a cementitious product imported from Holland that closely matches the physical, aesthetic, and vapor-transmission characteristics of sandstone.)

Armed with knowledge from the pilot phase, sandstone repair is moving forward on the entire church building. Of equal importance, the mason apprentice training program is proving quite successful. A total of 9 apprentices have been involved in the program. Not only are these young men and women learning practical masonry skills, but they are also developing a good sense of the value of historic materials.

Because of its research and educational components, the St. Ann project is far more than a garden-variety restoration job. Not only is a national landmark being restored to the highest preservation standards, but also the



For large protruding patches, armatures are used to reinforce the Jahn patching material. Threaded nylon rods are inserted into 1/4-in. dia. holes drilled 3/4-in. deep on 4-in. spacings. Rods are glued into the holes with a polyester adhesive. Nylon armatures are kept at least 3/4 in. below the finished surface of the patch.



The Jahn patching material can be built up to 8-in. thick in one application. After the patch is partially set, the lost ornament is carved, using molding profiles and straightedges. When the patch is set completely, the surface is tooled to match the texture of the original stone.

sandstone restoration skills being developed will find their way into the larger preservation community. And young people are learning marketable skills and historic sensitivity that have value beyond the St. Ann program. It is indeed a model project on many levels.

#### The Brownstone Dilemma

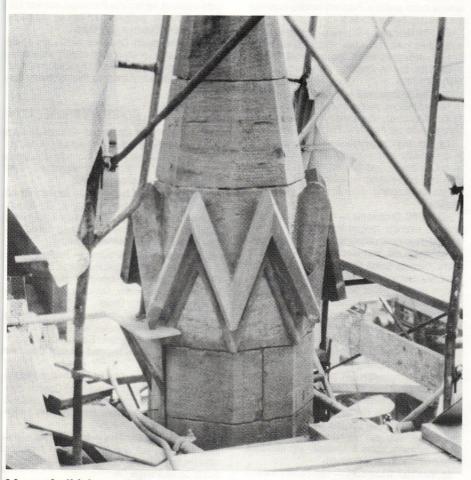
Brownstone (a reddish-brown sandstone) is a marginal building material. It was very fashionable in the 1850's through 1880's — but more for its color than its inherent virtues as a structural stone. Builders liked it because it was plentiful, inexpensive, and easy to cut and carve.

However, as a naturally occurring sedimentary stone, brownstone blocks have wide variations in color, aggregate size, and porosity — even when they come from the same quarry. Because most sandstone is quite porous, it is subject to deterioration and spalling in climates that undergo freeze-thaw cycles.

Unfortunately, the original brownstone used in St. Ann was not of the highest quality. In a paper submitted to the New York State Museum in 1889 entitled "Building Stone In New York," J. S. Smock cited a quarry in Portland, Conn., as the source of the brown sandstone for St. Ann. In Smock's survey of the Portland quarry, it was clear to him that there were wide variations in color



Workers remove deteriorated stone using hand-held hammers and chisels along with the same pneumatic carving heads they use to rake mortar joints for repointing. They then drill the stone wherever armatures will be required.



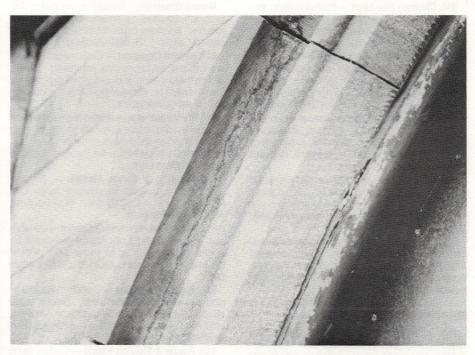
Masons build the patching material over the armature slightly higher than the finished surface, to allow for final carving and shaping. Six basic color mixtures of the Jahn material were created to match the different shades of natural stone occurring on the building.

and aggregate size.

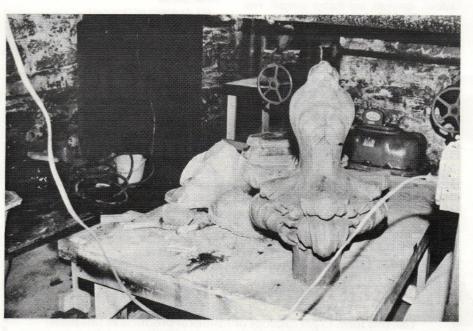
Problems with the Portland sandstone have plagued St. Ann since shortly after its construction. The original 100-ft. brownstone spire was taken down at the turn of the century because of structural problems due in part to defective stone. A major repair program was undertaken in 1906 when many deteriorated units of Portland brownstone were replaced with new stones from a different quarry. And in subsequent decades, a patchwork of incompatible cement patches and repointing mortar was created. Much of the previous repointing and patching was done with hard, low-permeability mortars that actually accelerated deterioration of the sandstone.

In many respects, the massive sandstone restoration program going on at St. Ann today can be traced back to the unfortunate stone specification written in 1844—and to inappropriate repair materials and methods employed over the years to deal with the substandard stone. 

CL



Hand tooling that's done after the patches set make the repairs indistinguishable from the original quarried and cut stone.



One of the original finials was found lying in the church yard and was used to create the model for molding replicas with a cementitious casting mix.



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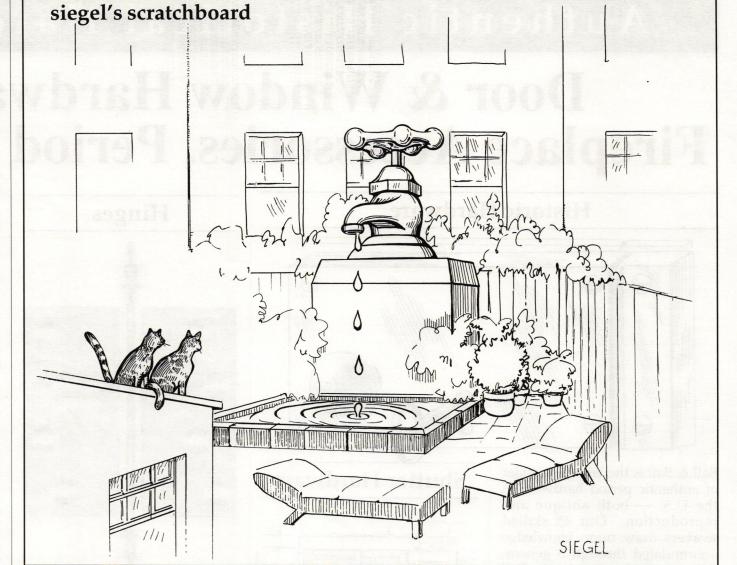
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46. Historic Markers — Historic markers in sandcast bronze or aluminum. Also: Anodized aluminum markers with image permanently embedded in bronze or pewter finish. No charge for photos. Custom work. Free catalog. Smith-Cornell

#### ■ Division 14 — CONVEYING SYSTEMS

**502. Dumbwaiters** — Hand-operated and electric dumbwaiters are appropriate for restorations — and very handy, no matter what the style. Free brochure. **Vincent Whitney Co.** 

#### ■Division 15 — PLUMBING & HEATING

998. Faucets & Fixtures — Complete line of modern, Victorian, and European plumbing. Accessories for clawfoot tubs, shower conversions in chrome or brass, high-tank toilets, pedestal sinks, etc. Free catalog. A-Ball Plumbing

445. Reproduction Bathroom Fixtures — Oak pull-chain toilets, pedestal basins, medicine chests, copper kitchen sinks, kitchen & bath faucets, brass & china basins, carved marble vanity tops. Cast drinking fountain. Antique Baths & Kitchens

172. Bathroom Fixtures — Major collection of turnof-the- century and country bath sinks, tubs, toilets, and accessories. Brass, porcelain, and oak furnishings — both reproduction and antique. Free catalog.

#### **Bathroom Machineries**

 649. Porcelain Finish — Tub and tile and refinishing with high-tech polymer finishes creates porcelain-like surface. Bathroom restoration. Free brochure. Dura-Glaze

**652. Bathroom Fixtures** — Sinks: Pedestal, dropin, old and new styles. Clawfoot tub sets and accessories. Faucets: Tub and shower, widespreads and centersets. Much more. Free flyer. **Hardware Plus** 

Bathroom Fixtures — Wide variety of antique and reproduction plumbing, tubs, porcelain faucets and handles, pedestal sinks, high-tank toilets, shower enclosures, and bathroom accessories. Call (916) 454-4507. Mac The Antique Plumber

**270. Moisture Vents** — Small, screened metal louvers, 1" to 6" dia., release moisture trapped in walls, cornices, soffits, etc. Just drill holes and press in place. Free literature. **Midget Louver** 

**655. Bathroom Restoration** — Company does bathroom restoration, and refinishing. Vintage inventory; on-premises porcelain restoration. Free brochure. **Miracle Method of Central Conn.** 

**606. Radiator Enclosures** — Sells and ships allsteel radiator enclosures. Stock as well as custom are offered in many colors and styles. Free brochure. **Monarch** 

**564.** Architectural Antiques — Antique mantels, old lighting fixtures, stained and beveled glass, doors & windows, Victoriana, clawfoot tubs & pedestal sinks. Free flyer. **Ohmega Salvage** 

**657. Plumbing Supply** — Sinks, tubs, bathroom accessories. Unusual plumbing fixtures and plumbing hardware. Free brochure. **Ole Fashion Things** 

**581. Brass & Iron Registers** — Beautiful solid brass and cast-iron registers are made from 19th and early 20th century originals. Free catalog. **Reggio Register** 

670. Vintage Bathroom Fixtures — Large inventory of both antique and reproduction bathroom fixtures in Victorian and turn-of-the-century styles. Catalog \$5; flyer free. Roy Electric/Plumbing

499. Architectural Salvage — Enormous selection of architectural artifacts, including large selection of art glass, housed in 360,000-sq.-ft. Chicago warehouse. Free information. Salvage One

**666.** Pedestal Sinks — Porcelain pedestal sinks & floral vanity basins in Victorian & early-20th-century designs. Also bathroom accessories; custom orders welcomed. Buy factory-direct. Free catalog. **Sink Factory** 

667. Victorian Bathroom Fixtures — Brass faucets, showers, clawfoot tubs, pedestal sinks, marble, lighting, vanities, and accessories. Doors and windows also. Free brochure. Sunrise Specialty Co.

**574.** Wooden Air Vents — Strong, durable wood vent covers are made from over 40 select woods in 57 standard sizes and 6 styles. Free brochure. **Triarco**, **Inc.** 

**662. Vintage Bathroom Fixtures** — Unusual antique plumbing fixtures in working condition: Pedestal sinks with twisted bases, sidefill & clawfoot tubs, ribcage showers, etc. Specific photos sent on request. **Val's Antique Baths** 

53. Edwardian Faucets — Exclusive importers of authentic English Edwardian and Italian transitional style kitchen and bathroom faucets, fittings, washbasin sets, bath/shower and bidet sets in chrome, brass, gold, and enamel finishes. Catalog. Watercolors

#### ■ Division 16 — ELECTRICAL

6. Reproduction Lighting — Handcrafted 18thand 19th-century lighting fixtures: chandeliers, sconces, and table lamps — all of solid brass. Free catalog. Authentic Designs

**407.** Street Lighting — Old-fashioned castaluminum benches, urns and street lamps in a wide variety of Victorian and turn-of-the century styles. Direct-from-manufacturer low prices. Free brochure. **Brandon Industries** 

**375. Drilled Posts** — Company specializes in turned, center-drilled wooden posts that are ideal for exterior lamps. Wide range of sizes and styles. Also: Finials and other turnings. Custom work. Free brochure. **Bruce Post Co.** 

650. Exterior Lighting — Wide selection of sconces, lanterns, and pole lights in 18th-century, Victorian, and other traditional styles. Free brochure. E.S. Forgeries

664. Light Poles — Concrete light poles for: Streets, parks, marinas, subdivisions, office complexes, and shopping centers. Surface is self-cleaning; will not discolor with age. Rigid construction prevents windsway. Free brochure. Great Lakes Concrete Products

**604. Reproduction Lighting** — Colonial reproduction light fixtures in copper, brass, tin, and iron. Post lanterns, wall lanterns, chandeliers, and candlestands. Custom work available. Free brochure. **Lighting by Hammerworks** 

**654. Copper Lanterns** — Coppersmiths create handcrafted weathervanes. Lanterns and lighting custom designed. Free brochure. **MacQuarrie & Niccum** 

80. Lanterns & Sconces — Large selection of Early American lanterns, sconces, and chandeliers for indoor and outdoor use. Constructed from solid copper and brass. Catalog free to professionals. Newstamp Lighting

**43. Vintage Lighting** — Victorian and turn-of-century chandeliers and sconces: Gas, oil, and electric. Antique and reproduction fixtures; replacement parts and glass shades. Free catalog. **Roy Electric** 

103. Cast-Iron Light Poles — Highest-quality castiron light poles in historical styles can be purchased separately, or with wide selection of luminaires. Also sign poles, clock supports, and bollards. Custom work. Free brochure. Spring City Electrical

997. Historic Street Lights — Large selection of historic cast-aluminum light poles and luminaires, plus matching wall-mounted fixtures and bollards. Free brochure. Sternberg Lanterns

**660.** Period Lighting — Cast-aluminum antique period outdoor lighting and related accessories for: Parks, streets, driveways, pools, entrances, gardens, decks, patios. Free brochure. Sunfeather Reproductions

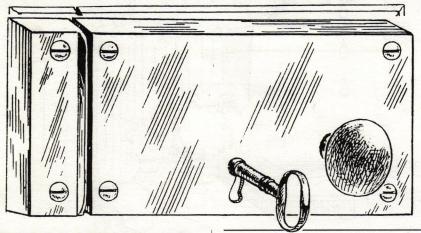
**299. New Old Lighting**—A new line of reproduction lighting fixtures includes wall-mounted torchieres, ceiling fixtures, and sconces from the turn-of-the-century. Free brochure. **Urban Archaeology** 

**373. Victorian Lighting Fixtures** — Authentic reproduction Victorian & turn-of-century electric and gas chandeliers and wall brackets. Variety of glass shades. Catalog free. **Victorian Lighting Works**❖

# Authentic Historical Hardware

# Door & Window Hardware, Fireplace Accessories, Period Lighting

#### **Historic Hardware**



Ball & Ball is the largest supplier of authentic period hardware in the U.S. — both antique and reproduction. Our 45 skilled workers draw upon knowledge accumulated through 3 generations of management by the Ball family. And our study collection of antique hardware provides Ball & Ball with more in-depth knowledge of historic hardware than any other supplier.

For example, our X90 box locks (shown) combine modern convenience with charm. Faithful to the historic originals, this lock has a brass box covering an iron plate on which the operating mechanism is mounted. Because of our attention to historical detail, these locks may be used in the most important restorations as well as in the well-appointed home.

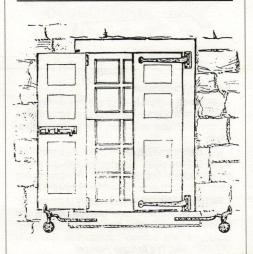
Many other types of authentic historic box locks are shown in our 108-page catalog — along with a wealth of other hardware for architectural and furniture applications..

#### **Lighting Fixtures**



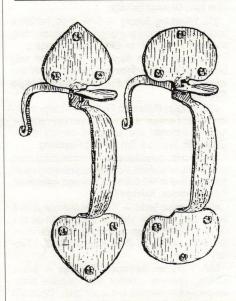
Ball & Ball offers the finest selection of reproduction Early American lighting fixtures. All brass is solid — not plated — and glass used is hand-blown lead crystal. Pure copper, tin and iron are used for fixtures that require these metals. Shown: The Independence Hall chandelier, identical to fixtures supplied by Ball & Ball for the restoration of Independence Hall in Philadelphia.

#### **Shutter Hardware**



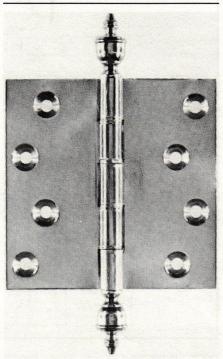
Strap hinges, locks, and shutter hold-backs are available as stock or special-order items. HAND-FORGED shutter hinges with lag screw or drive pintles available on special order. Also: Inside shutter hardware in brass and cast iron.

#### Latches



We have a varied stock of authentic reproduction thumb latches, ranging from Colonial times up to 1850. Many special thumb latch shapes can also be made at the STOCK PRICE. Left: 10-1/2" hand-forged spade-end latch. Right: 9-3/4" semi-hand made bean-end latch.

#### Hinges



We carry a wide selection of iron and brass hinges from the Early American and Victorian periods. Shown: the H1877 4x4 brass steeple-tip door hinge with bronze load-bearing bushings, typical of the style used in the late 1880's

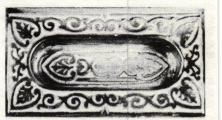
#### Used In The Finest Restorations

Ball & Ball hardware has been specified for the finest restorations in North America including: Independence Hall, Philadelphia; The Shirley Eustis House, Boston; Iolani Palace, Hawaii; New York State Capitol, Albany; Klondike Gold Rush Park, Alaska; The Old Synagogue, Barbados.

#### **Window Hardware**



Sash and casement window fittings are available for the Early American and Victorian periods: Hand-forged and cast; iron, brass, and bronze. Above: V150-226 Victorian cast-iron sash lock with porcelain knob. Below: V160-290 brass flush-mounting sash lift.



#### Catalogs In 2 Sizes

Our MINI-CATALOG provides an introduction to the range of products and services furnished by Ball & Ball and is available FREE. (You can write in no. 293 on the Reader Service Form.) Or for \$5 we'll send you — via U.P.S. — our handsome, lavishly illustrated 108-page product catalog. Our catalog incorporates useful information about antique hardware that will help you appreciate the subtle differences in the manufacture of reproductions. But even the 108-page catalog doesn't show all 2,000 of our hardware products. If you're looking for something rare or unusual, call or FAX us.

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