

WHY SHOULDN'T I REPLACE MY WINDOWS?

People constantly tell me they need new windows because they fear lead paint, want better soundproofing, energy efficiency and easy cleaning. Then the answer is to restore original windows, not replace them.

Restoration costs less and the windows will be lead free, soundproof, energy efficient and easily cleaned. I've trained many small contractors and homeowners how to perform this task efficiently and cost effectively. For those who insist they want tilt-ins for easier cleaning, this system gives them an easy cleaning solution as well.

All of this and a new combination wood storm/screen or interior storm cost less than a wood tilt-in with vinyl jamb liners and no storm. This system keeps the sash weights, cuts nothing off the window sash and removes all old paint and glazing. My friend John Seekircher always says, "The reason they call them replacement windows is that you have to replace them over and over again,"

EPA & HUD lead paint regulations are out of control. The facts however fly in the face of this anti-preservation intrusion into our lives. Lead poisoning in children has been depicted by HUD and the EPA as an epidemic. The facts do not support this notion. Children today have less lead poisoning than ever before in history and it has little to do with lead paint regulations. Taking lead out of gasoline and better factory emissions are responsible for much of this.

In essence we should be teaching the uneducated, educated, poor and well-off families to clean their houses. Common sense education is all that's needed with lead paint. Lead paint is only a hazard if it's unstable. Removing lead paint from window jambs and sashes is a safe, quick and easy process if the homeowner or contractor knows how to do it. We must start immediately training small contractors & homeowners how to do this. Right now the contractors that are getting lead certified are gouging homeowner's pocketbooks because they can.

The reason homeowner's think they need to replace their windows is that the window industry spends tens of millions of dollars a year to convince them to buy their inferior products. It will take a consumer about 40+ years to get any payback from replacement windows with insulated glass and considering the following statements in the window industries trade periodical, Glass Magazine, the industry makes the case for restoration.

July 2001 Glass Magazine, By Editor, Charles Cumpstom, "The consumer's perception of glass is significantly different from the industry's. While some in the industry think a 15-year life is adequate, it is the rare homeowner who envisions replacing all his windows in 15 years."

Another article in 1995 in Glass Magazine by Ted Hart states, "Remember our industry, with rare exception, has chosen to hide the fact that insulating glass does have a life expectancy. It is a crime that with full knowledge and total capability to build a superior unit, most of the industry chooses to manufacture an inferior single-seal unit." **NOTE:** Single seal units are still the norm with an average seal life of 2 to 6 years.

As a side note to this, I am not a general contractor. I believe it is a conflict to teach people how to do these things out of one side of my mouth and then try to get their business out of the other. I do however buy endangered, residential historic properties and rehab them. This keeps me in the fray with the least conflict of interest. Outside of my own rehabs, my only professional purpose is to teach cost effective preservation methodology and neighborhood planning.

RESTORE & MAINTAIN WINDOWS

DON'T REPLACE THEM

- New wood windows are made with new growth lumber that is not as strong or rot resistant as the old growth lumber in windows made before the 1950s.
- Insulated glass seals tend to fail in 2 to 6 years allowing condensation between the panes.
- Most insulated glass panels cannot be replaced once they fail. The entire window must be replaced.
- Primary window sashes were never intended to take a direct hit from the weather. In early years they had shutters then storms to protect them.
- Air infiltration is the biggest energy issue with windows. Vinyl windows, by their nature, have weep holes in their bottom rail to let the moisture seep out which allows massive air infiltration.
- PVC or vinyl is the most toxic consumer substance manufactured today. It can't be recycled, off gasses toxic fumes and has excessive contraction and expansion issues. It fades, cracks and has a maximum lifespan of 16 to 18 years.
- Metal clad windows are designed to allow water to seep behind the cladding. This causes early rot of the often finger jointed, new growth lumber underneath.
- The vinyl jamb liners that are needed for tilt-in windows have cheap spring balances and cheesy foam backing that have a lifespan of about 6 to 10 years.
- Double hung windows were invented in the 1400s as an air conditioning system. Lower the top sash and raise the lower sash. This lets the hot air and humidity out the top and brings the breezes in through the bottom. Most replacement units don't have a full screen to allow for this process.
- Aluminum, self-storing storm windows are not even a good windbreak. Metal conducts heat and cold while wood insulated against heat and cold.
- Sash weight pockets are only a problem if a house has not been caulked and painted properly.
- Quarter inch thick, laminated glass has better UV protection than all the low-e coatings. It also approaches the same thermal capabilities as insulated glass, is more soundproof, is safer and cost less than insulated glass. If retrofitting glass into an old sash is something you feel must be done, install laminated glass.
- Original window sash is a part of the footprint of your old house or building. Replacements often have different dimensions and sometimes the window contractor wants to reduce the size of your openings. This has a negative effect on the overall texture and look of the original footprint of your building.
- If you don't want to lift a finger to maintain or rehab your home then hire a contractor to restore your windows. Your restored windows will cost less, have a better payback, be easily cleaned, have a nice track system, and stop air infiltration, which means greater energy efficiency.
- Restored wood windows have another 100-year economic life before total restoration is needed again. Replacement windows can never be restored effectively.

PRESERVATION RESOURCES, INC

Bob Yapp-573-629-2226 or yapperman@msn.com

SASH & JAMB RESTORATION SPECIFICATIONS

Work Description

A) Sash Removal and Restoration.

A-1) Be sure window opening to be worked on has a weather stripped storm window in place to protect the house from the weather. If not protect with ½” OSB board

A-2) Remove all interior sash stop, parting stop, metal weather stripping & both window sashes from the opening and mark for location that can survive paint removal. Discard parting stop and keep interior stop. If new interior stop is to be installed, discard original interior stop. Save all screw and washers removed from interior stop for later re-use.

A-3) Remove sash cords from sash weights & leave weights in jamb pocket.

A-4) Carefully remove sash pulleys from jamb & all hardware. Safely store all hardware & screws.

A-5) Remove all paint, putty & non-original obstructions from the 4 surfaces of the wood jambs, all surfaces of the window sashes and the interior stop. **DO NOT** dry scrape jambs, stops or sashes. All paint removal from sashes and interior stops must either take place off-site or in an area on the subject property, outside the main house. Use a wet paint removal product or mist the jambs with water before carbide scraping the jambs. Do not use heat that exceeds 600 degrees to remove paint. Over 600 degrees causes lead paint fumes that are toxic and can burn the original wood. Dispose of all paint debris according to local regulations.

A-6) Remove all remnants of glazing putty and glass. If the glass is of no historical importance, break it out, our over a

large garbage can. This should remove most of the glazing putty as the glass is broken. If the glass is of historical importance attempted to save as much original glass as possible for re-installation later. The average glass loss under this scenario is about 20%.

A-7) Repair individual window sashes, as needed. Clamp and re-pin sagging rails and stiles & utilize architectural epoxies. If rotted wood exists on the interior side of a sash and it will be finished naturally, it should have new wood that matches the original spliced in. If a sash is disassembled, **DO NOT** glue-up the mortise and tenon joints when re-assembling. Pinning the joints with two, a hot-dipped, galvanized finish nails that have been cut off shorter than the thickness of the sash and driven into the mortise and tenon joint, at opposing angles, if sufficient as long as the joint is clamped snugly before pinning. Provide new parting and interior stop as needed to closely match originals.

A-8) Repair jambs as needed with wood or exterior architectural epoxies. If the jamb is to be natural, use exterior grade fillers that will take a stain.

A-9) Lightly sand to 120 grit, all wood jambs, sills, interior stops & window sashes. Prime the faces, top& bottom edges of the window sashes only and do not prime or paint the sides of the sash. Prime all, including the glazing bed with alkyd oil based primer. **See Specification #109 for priming requirements.**

A-10) Install all original & new glass into bed of acrylic-latex, siliconized caulking & secure with adequate glazing points. All new glass is to be double strength. Install new glazing putty so that putty, at glass, is in the same sight plane as interior molding edge of sash. The glazing putty that is to be used is Glazol by UGL. This professional grade putty skins over quickly and can be primed and painted within 24 hours of installation.

A-11) Prime glazing putty with alkyd, oil based primer. **See Specification #109 for priming requirements.**

A-12) Apply two topcoats of the Acrylic Latex paint to sashes, jambs & sills. **Specification #109 for priming requirements.**

A-13) Stain, if needed, and apply three coats of White or Amber Shellac to interior sash surface, interior stop and parting stop to match original woodwork finish for that room.

B) Install Restored Sash.

B-1) Make all sash pulleys functional. If any are missing replace with new or salvaged pulleys that match in size & shape. Clean the surface of the pulleys, sash lifts & interior stop screws/washers without removing patina, do not buff unless you can establish that the original finish was polished. If any interior stop screws/washers are missing, provide new ones that are aged to match original patina.

B-2) Install sash pulleys with original or new, aged screws.

B-3) Install upper sashes with original or new metal weather stripping By Dorbin Metal Strip Company (see attached supplier list) & new parting stop. Parting stop to be attached with 3 brass screws that are counter sunk instead of nailed. This makes it easier to pull the top sash for cleaning the exterior side of the glass. Install the bottom sash in the same manner.

B-4) Install all sashes use nylon sash cord.

B-5) Install refinished interior sash stop with original screws and washers.

B-6) Clean up the area and dispose of all debris off-site.

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WINDOW & STORM PAINTING SPECIFICATIONS

Work Description

A) Preparation

A-1) Remove all paint from sashes, jambs, sills and interior stools. Remove the paint with either liquid strippers or infrared heat and carbide hand scrapers. **DO NOT DRY SCRAPE.** Always mist the paint with water before carbide scraping. Do not excessively heat the wood or it will produce lead fumes over 600 degrees or scorch the wood. If using a standard heat gun, it is not necessary to heat the paint very long. After lightly heating the paint go to another sash or jamb. This allows the heated paint to cool down making removal of the water misted paint easier. Stage the paint removal, except jambs/sills/stools either off-site or outside the building, on the grounds. Before scraping, all areas on the ground must be tarped off and all windows must be closed. Dispose of all paint debris according to local regulations. Always wear a double filtered respirator rated for lead fumes as well as safety glasses.

B) Wood Repairs

B-1) Repair any rotted broken or cracked siding and trim with like material and/or architectural epoxies. All epoxy wood repairs to be made with both LiquidWood & WoodEpoxy by ABATRON 262-653-2000 or www.abatron.com.

C) Hand Washing

C-1) All bare wood should be hand washed with TSP and water. Use ¼ cup of TSP for every gallon of water and scrub the siding. This should then be rinsed with a hose without a spray nozzle.

D) Moisture

D-1) Before any primer or paint is applied on the wood, you must test the wood to be sure the moisture content does not exceed 15%. The only way to determine this is with a moisture meter. All house painters should have one of these meters. Painting wood above 15% moisture can knock 5 to ten years off the life of the paint job. Power washing is an automatic prescription for paint failure and is not allowed. The high pressure drives moisture deep into the wood and it can take as long as six months to dry down to 15% moisture.

E) Priming

E-1) Prime all bare wood surfaces only with Benjamin Moore “Moorwhite” exterior alkyd oil primer. Latex primer does not bite into the wood and condition it properly for caulk and topcoats. This should be applied by brush, not spray. Cover all areas not to receive paint to assure no dripping or spilling on these surfaces.

F) Caulking

F-1) Use a paintable, acrylic/latex caulk with silicon. Imagine your house under Niagara Falls. Caulk all areas the cascading water can penetrate, but don’t caulk where it can’t.

G) Two Top Coats

G-1) Brush-on two coats of Benjamin Moore, MoorGlo semi-gloss, acrylic latex as topcoats to all wood surfaces. Color determined by owner.

H) Paint Maintenance

H-1) A paint job must be maintained on a yearly basis. Look around the house to see if any paint is failing. Paint failure, on a properly painted house, can be caused by things such as exhaust fans not sealed properly, leaky gutters or roof problems. Correct the moisture problems first, then scrape, prime and paint the failed areas.

STORM WINDOW SPECIFICATIONS

Work Description

A) Replacing & Installing Wood Storm Windows

A-1) Remove all aluminum storm windows and dispose of according to owner's recommendation.

A-2) Measure Storm window opening for sill angle and horizontal dividing rail position. Measure horizontal dividing rail from top of jamb to center of sash meeting rails. New Storm measurement should have no more than a 1/8" reveal on the top & two sides. A gap of no less than 1/8" and no more than 3/16" must be provided between bottom rail of storm & sill of window.

A-3) Order all Storms from Marvin Windows Manufacturing. Order their "Wood Combination Window" factory primed. These are self-storing wood storm windows.

A-4) Fit, trim and install all new wood storms after all exterior window opening and trim is painted.. Attach storms using stainless steel flat head screws over stainless steel, decorative cup washers. Three screws for each stile with the center screw located on the stile at the center horizontal rail. Maintain a 1/8" reveal on the top & two sides. A gap of no less than 1/8" and no more than 3/16" must be provided between bottom rail of storm & sill of window.

A-5) Weather-strip only the top and both sides of all storms with weather stripping #199DV by Dorbin Metal Strip Manufacturing Company, Inc. 773-242-2333. They also have a catalogue you can order. Do not weather strip the bottom rail of any storms.

A-6) Brush two coats of Benjamin Moore, MoorGlo semi-gloss acrylic latex as topcoats to all surfaces of factory-primed storms. Color determined by owner. **See #101**

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A COST BREAKDOWN FOR WINDOW RESTORATION V.S. WINDOW REPLACEMENT

The following is a break down of the costs to **completely** restore & weather- strip two original wood sashes in a double-hung window opening, including a new wooden storm window. It is important to note that often, total paint removal, epoxy repair, new glass, new interior stop-molding, etc. isn't needed.

Window sash and jambs that are **completely** restored have a life of another 100 years with painting every 12 to 20 years depending on conditions. With the wooden storm they also exceed the u-value and r-value of a comparable replacement as described in the next paragraphs.

Replacement with two new wooden sashes in an original 33" X 67" double hung jamb unit with four, true divided lights on the top and one light on the bottom will run \$800 to \$1,200 for single pane with no storm window. Double paned glass in the new wood sash would raise the cost to \$1,000 to \$1,400 per unit installed with no storm.

Commercial grade, double paned aluminum sashes with fake divided light muntins and spring balances in the same size opening will run \$1,200 to \$2,000 with no storm.

The restoration labor time estimates below are based on a worker that is experienced in this type of window restoration process. They also are accumulated time, not consecutive time. In other words, if you apply primer and two topcoats there is dry time in between when other work is performed.

(A) is a traditional wood storm with putty glazed, fixed glass. (B) is a traditionally constructed wood storm with removable glass and screen from inside the house or building.

(A)
MATERIAL & LABOR TO RESTORE A DOUBLE HUNG WINDOW UNIT 33" X 67"
OPENING WITH A 4 LIGHT TOP SASH & ONE LIGHT BOTTOM SASH,
INCLUDING NEW, TRADITIONAL WOOD STORM

Materials

What	Description	Cost
Storm Window	Factory primed traditional wood storm 33" x 67"	\$150.00
Glazing Putty	Linseed oil based glazing compound	\$.65
Weather Stripping	Rigid metal with EPDM rubber tube for storm	\$12.40
Weather Stripping	Dorbin Strip Metal double hung weatherizing system with shipping	\$14.15
Glass	Double strength glass, 4 lights per upper sash & 1 light on lower @ \$4.00 per square foot	\$32.00
Storm Hardware	Traditional storm hangers and 2 hook & eyes	\$4.50
Sandpaper	100 grit 5" sanding disc- 2 pieces	\$.30
Epoxy	Architectural epoxy wood filler-liquid & putty	\$4.50
Tack Cloths	For cleaning bare wood surface	\$.29
Glazing Points	For setting glass	\$.20
Caulk	Acrylic Latex caulk with silicone for bedding glass	\$1.00
Sash Cord	Nylon braided sash cord	\$1.50
Moldings	New interior finish stop & parting stop	\$8.50
Primer	Alkyd oil based primer with linseed oil-sash only	\$2.25
Paint	Acrylic latex semi-gloss, 2 top coats-sash & storm	\$3.50

Total Material Costs with Traditional Wood Storm **\$235.74**

Labor @ \$25 Per Hour

Task	What	Time	Cost
Sash removal	Remove sash from jamb, take off all hardware	.50 hrs	\$12.50
Paint & Glazing Removal	Infrared paint removal from jamb. Infra red paint removal from glazing from sash	2.00 hrs	\$50.00
Repair Sash	Re-pin or repair with wood or epoxy	.50 hrs	\$12.50
Clean & Prime all	Tack-off, clean & oil prime	.75 hrs	\$18.75
Glaze	Set glass in caulk with points & glaze	.50 hrs	\$12.50
Paint Sash, Storm & Jamb	Apply and cleanup Two top coats	1.00 hrs	\$25.00
Hardware	Buff or wire wheel & lacquer or spray paint.	.25 hrs	\$6.25
Weather-Stripping	Cut sash slots & install weather-stripping-sash & storm	1.00 hrs	\$25.00
Hang Storm & Sash	Re-hang two sashes & one storm with hardware	1.50 hrs	\$37.50
Total Labor Costs with Traditional Storm		8.00 hrs	\$200.00
Total Material Costs with Traditional Storm			+\$235.74
Total Window Restoration Costs with Traditional Storm			\$435.74

NOTE: This is absolute worst-case/total restoration scenario, with all work being hired done.

(B)**MATERIAL & LABOR TO RESTORE A DOUBLE HUNG WINDOW UNIT 33" X 67" OPENING WITH 4 LIGHTS ON TOP SASH & ONE LIGHT ON BOTTOM SASH INCLUDING NEW, COMBINATION WOOD STORM/SCREEN****Materials**

What	Description	Cost
Storm Window	Factory primed traditional wood storm 33" x 67"	\$200.00
Glazing Putty	Linseed oil based glazing compound	\$.65
Weather Stripping	Rigid metal with EPDM rubber tube for storm	\$12.40
Weather Stripping	Dorbin Strip Metal double hung weatherizing system with shipping	\$14.15
Glass	Double strength glass, 4 lights per upper sash & 1 light on lower @ \$4.00 per square foot	\$32.00
Storm Hardware	Traditional storm hangers and 2 hook & eyes	\$4.50
Sandpaper	100 grit 5" sanding disc- 2 pieces	\$.30
Epoxy	Architectural epoxy wood filler-liquid & putty	\$4.50
Tack Cloths	For cleaning bare wood surface	\$.29
Glazing Points	For setting glass	\$.20
Caulk	Acrylic Latex caulk with silicone for bedding glass	\$1.00
Sash Cord	Nylon braided sash cord	\$1.50
Moldings	New interior finish stop & parting stop	\$8.50
Primer	Alkyd oil based primer with linseed oil-sash only	\$2.25
Paint	Acrylic latex semi-gloss, 2 top coats-sash & storm	\$3.50

Total Material Costs with Storm/Screen Wood Combination **\$285.74**

Labor @ \$25 Per Hour

Task	What	Time	Cost
Sash removal	Remove sash from jamb, take off all hardware	.50 hrs	\$12.50
Paint & Glazing Removal	Infrared paint removal from jamb. Infra red paint removal from glazing from sash	2.00 hrs	\$50.00
Repair Sash	Re-pin or repair with wood or epoxy	.50 hrs	\$12.50
Clean & Prime all	Tack-off or clean with TSP & oil prime	.75 hrs	\$18.75
Glaze	Set glass in caulk with points & glaze	.50 hrs	\$12.50
Paint Sash, Storm & Jamb	Apply and cleanup Two top coats	1.00 hrs	\$25.00
Hardware	Buff or wire wheel & lacquer or spray paint.	.25 hrs	\$6.25
Weather-Stripping	Cut sash slots & install weather-stripping-sash & storm	1.00 hrs	\$25.00
Hang Storm & Sash	Re-hang two sashes & one storm with hardware	1.50 hrs	\$37.50
Total Labor Costs with Storm/Screen Wood Combination		8.00 hrs	\$200.00
Total Material Costs with Storm/Screen Wood Combination			+\$285.74
Total Window Restoration Costs with Storm/Screen Wood Combination			\$485.74

NOTE: This is absolute worst-case/total restoration scenario, with all work being hired done.

BASIC TOOLS & SUPPLIES
FOR DOUBLE-HUNG, WOOD WINDOW RESTORATION
PRESERVATION RESOURCES, INC
Bob Yapp-573-629-2226 or yapperman@msn.com

TOOLS

Window Removal

- * Window zipper.
- * Utility knife.
- * Utility knife blades
- * Numbered die stamps (to mark for replacement in correct jamb).
- * Screw drivers.
- * Small, flat ply bar.

Restoration

- * Speed Heater – infrared heating devise to remove lead paint safely.
- * Spray bottle - to mist wood before scraping.
- * Carbide scraper - for 2” blades.
- * Profile scrapers & pull-shave scrapers.
- * 1.5” stiff putty knife for applying glazing putty
- * Bastard file to sharpen profile, steel scraper blades
- * Orbital Palm Sander, 5” with dust bags or a sanding block.
- * Wood chisels.
- * Sharpening stone & oil.
- * Large garbage can (to break glass out of sashes on top of).
- * Hammer & nail set.
- * C-clamps, Quik-Grip Clamps- lots.
- * 3/4” Bar Clamps- lots.
- * 2 1/2”, quality, angled bristle, trim paint brushes. One set for oil & one for latex.
- * Exhaust fan for fumes.
- * Double filtered face mask with lead cartridges.
- * Compressor with blower.
- * Bench grinder with wire wheel and/or cotton buffing wheel to clean-up hardware.
- * Caulk guns.
- * Table saw with thin kerf blade or router with slot bit for slotting edges for Dorbin system.
- * Off-set, dovetail saw.
- * HEPA vacuum or shop vacuum with drywall filters.

SUPPLIES

- * Carbide scraper blades. 2” - lots of them.
- * Profile steel scraper blades. Several different profiles (curved etc.)
- * 100 & 120 grit, orbital sticky disks with dust holes.
- * Abatron Liquid Wood & Wood Epox - two parts each.
- * Glazing compound & glazing points. (no DAP! Use compound with linseed oil)
- * #10 galvanized casing/finish nails (used as new mortise & tenon pins)
- * Wood screws & cup washers for re-installing parting and finished stop.
- * Tack cloths.
- * Acrylic latex, siliconized caulking.
- * Primer - alkyd oil based.
- * Paint thinner.
- * Brush cleaner - the type that spins around.
- * Acrylic latex paint or oil enamel - color to be determined.
- * Aerosol spray paint - matte black for pulleys.
- * Dorbin Metal Window Weather-Stripping System.
- * Storm window weather-stripping - from Dorbin or hardware store.
- * Boxes of cotton rags.

PRESERVATION RESOURCES

OLD HOUSE STUFF BOB YAPP USES

SASH-METAL WEATHER STRIPPING

Dorbin Metal Strip Manufacturer, Inc.
2404-10 S. Cicero Ave.
Cicero, IL. 60804-3492
1-773-242-2333

PULLEY COVERS

Blaine Window Hardware Co.
17319 Blaine Drive
Hagerstown, MD 21740, Ph- 800-678-1919

SCREEN-STORM WINDOW COMBO

Adams Architectural Eldridge, IA
319-285-8000
1-888-285-8120

Acker Millwork Co.
3300 W. Pabst
Milwaukee, WI 53215

BEVEL CEDAR SIDING (Pre-painted)

Cabot Stains (only make the stain)
800-877-8246
Also: Olympic Stains

Westside Forest Products
RR # 3, Box 303
Bloomington, IL. 61704, Ph.- 309-827-4717
(factory painted 6 sides, cedar clapboard smooth & factory stained fiber cement siding)

CLAY TILE ROOF MFG.

Ludowici Roof Tile, Inc.
Box 69
New Lexington, OH 43764

MORTAR TESTING

The Collaborative, Inc.
1002 Walnut, Suite 201
Boulder, CO 80302, Ph- 303-442-3601

David Arbogast
Architectural Conservator
Mortar, Stucco, Paint & Plaster Analysis
Iowa City, Iowa 52247 Ph- 319-351-4601

MORTAR TESTING (Continued)

US Heritage Group
1-773-286-2100
Contact: John Speweik
(mortar analysis - will match mortar for color & original mix & supply it to you pre-mixed and ready to go - supplier of lime putty mortar)

PAINT SHAVER MFG

American International Tool
1140 Reservoir Ave., Suite L01
Cranston, RI 02920, Ph- 800-932-5872

HALF-ROUND GUTTERS

Historic Gutter Systems
5621 East "DE" Ave.
Kalamazoo, MI 49004, Ph- 616-382-2700

PULLMAN MFG. CORP.

(Counterbalances for windows)
77 Commerce Drive
Rochester, NY 14623
Office 716-334-1350, Fax 716-359-4460

STEEL WINDOW REPAIR

Seekircher Steel Window Repair
Scarsdale, NY
John Seekircher, 914-725-1904

NU WALL & RECYCLED RUBBER

Specification Chemicals
Boone, IA, Ph- 800-247-3932
Also: Glid-Wall by Glidden Paints

PLASTER WASHERS

Charles Street Supply Co.
54-56 Charles Street, Dept. OH
Boston, MA 02114, Ph- 800-382-4360

ARCHITECTURAL EPOXIES

Abatron, Inc.
LiquidWood & WoodEpoxy
Kenosha, Wisconsin
1-262-653-2000

THE SPEED HEATER

Safe, infrared paint removal tool
703-476-622

NOTICE

The attached list of names should be used as a guide for selecting products and services. While many of the companies and products named in this list have been successfully used on/with historic properties, their listing in no way constitutes a recommendation or endorsement by Bob Yapp. You are encouraged to check references as well as review the work, products and services prior to making any selection for your projects.