



A HANDBOOK AND RESOURCE GUIDE FOR

OWNERS OF VIRGINIA'S HISTORIC HOUSES

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VIRGINIA DEPARTMENT OF HISTORIC RESOURCES



A Handbook and Resource Guide for Owners of Virginia's Historic Houses



*“We shape our buildings;
thereafter, our buildings shape us.”
– Sir Winston Churchill*

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This edition of *A Handbook and Resource Guide for Owners of Virginia's Historic Houses* is revised from a text originally written by the author for the Alabama Historical Commission and copyrighted and published by that agency in 2001. The author is indebted to the AHC, the State Historic Preservation Office for the State of Alabama, for funding the initial publication. The Virginia Department of Historic Resources is also grateful to the AHC for permission to reproduce much of that original text herein.

All photos are from the author or the Archives of the Department of Historic Resources, unless otherwise indicated.

Photo, previous page: Saved from demolition by APVA Preservation Virginia, Wilton of Middlesex County remains a pristine record of its time (1754). Complete with original paint colors, stucco, stairway, flooring and brickwork in the house, the property is protected in perpetuity by easements and is currently being marketed through the APVA Revolving Fund to be restored by a sensitive buyer.

Cover photos by David Edwards, John G. Lewis, Calder Loth, and Michael Pulice for DHR.

This project was brought to publication in cooperation with APVA Preservation Virginia, 204 West Franklin Street, Richmond, VA 23220; www.apva.org. The mission of APVA Preservation Virginia is to preserve, promote and serve as an advocate for the state's irreplaceable historic places for cultural, economic and educational benefits for everyone.

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About the Author



Camille Agricola Bowman received her Master of Science in Historic Preservation from Columbia University's Graduate School of Architecture, Planning and Historic Preservation. Ms. Bowman has over 30 years' experience in the field of historic preservation, having worked in North Carolina, New York City, and Alabama. She is currently the Easement Technical Advisor, located in the Tidewater Regional Preservation Office (in Newport News) of the Virginia Department of Historic Resources. As she is trained as an architectural conservator, her work in the field of historic preservation most often involves the understanding of building materials, how materials deteriorate, solutions for their preservation, and maintenance as a prescribed prevention technique.

Acknowledgments

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CHAPTER 1

INTRODUCTION AND BASIC RESOURCES

The goal for this handbook is to help owners of Virginia’s historic homes begin to understand their houses and to learn where to find the answers to protect, preserve, and maintain them. This basic compilation of resources and explanations should help homeowners to understand, plan, investigate, evaluate, and carry out the most sympathetic and cost-effective repairs to their historic homes. It is meant to be a simple and readable technical manual, touching on recurring themes and

questions that are repeatedly directed to the staff at the Virginia Department of Historic Resources. Not all questions will be answered in this publication, nor is it a complete restoration manual of resources or “how to” information. However, additional topic-related resources follow at the end of each chapter or topic. All of these resources—whether contacted by telephone, letter, or the Internet—can lead the careful investigator to more information and additional resources not listed in the manual.



Richmond's Fan District remains a cohesive, intact neighborhood due to excellent preservation planning and protection.

“Preservation happens best when property owners, local governments, businesses, community leaders, and an educated citizenry want it to happen and when they know and understand both the enormous benefits of historic preservation and how to incorporate preservation into their community’s economic, educational, and civic life.”

– Kathleen S. Kilpatrick, Director, Virginia Department of Historic Resources

“It is generally recognized that one of the most important duties of an enlightened society is the care and conservation of products of human genius.”

—Lawrence J. Jajewski, *Preservation and Conservation, Principles and Practices*

Developing A Way of Thinking About Virginia’s Historic Houses

Historic homes offer a sense of place that is otherwise fleeting in our fast-moving society. Not only are the architectural styles hard to find in construction today, but the superb craftsmanship and materials of yesterday’s buildings are unsurpassed in modern homes. The high ceilings, the abundance of real wood

and/or plaster decoration, and the spacious arrangement of rooms in historic houses are added enticements to those of us seeking an affordable home in which we will enjoy living. In addition, the “greenest” building is the one that is already standing. We, as citizens, need to understand how to take care of what we have – which is the most

sustainable approach to the environment.

The reasons for being attracted to old houses may be as varied as the people who love them, but we become enchanted by these “products of human genius,” and find ourselves wanting to live in them. In order to do so successfully, we must understand them as historic resources, and we should be prepared to invest ourselves and our sweat equity, our financial assets, and the goodwill of our families wisely. Restoring and living in historic houses can be economical, as long as we take the time to plan, research, and prepare the restoration and take advantage of the most up-to-date preservation methods available. For example, repair of the original elements in buildings is much more economical than total replacement. Not only is it expensive to completely replace building elements (such as windows), but modern materials are often inferior in quality to those originally put into the house. We live in a “remodeling” society where the quick fix from the big box store is the norm. However, in order to be a conscientious steward of your historic property, you must know, under-



Most people know and understand the “human genius” that designed and built Monticello. Talented craftsmen also designed and built Virginia’s historic houses.



In Virginia, we have many opportunities to learn from craftsmen and trades people. Not only are traditional trades perpetuated at Colonial Williamsburg, but also there is still an abundance of people who understand traditional construction.

stand, and preserve it to the best of your ability. Such knowledge and understanding comes from much reading and asking of many questions. The most successful preservation projects take place when we understand the historic home in its broad context, when we are familiar with available planning and incentive programs, and when we study the technical issues relating to the preservation of historic building materials. Bear in mind that many modern treatments of historic materials are done with good intentions, yet they can adversely affect the material (often permanently), while shortening its life span.

Although this handbook is intended as a guide toward sensitive preservation efforts, it is also intended to help develop a way of thinking about historic home ownership. Therefore, it covers broad issues of comprehensive preservation planning, as they affect the historic homeowner, for a better understanding of the specific recurring issues of

preservation repair and maintenance. Of primary importance is the will to find out the best course of action; this means the necessary time must be taken to analyze the problem and to determine the best course of action.

As you go through the process, it is only common sense to look out for opportunities for assistance. You can learn from those who have gone ahead on the restoration path and you can take advantage of their wisdom (much of which is readily available in the

form of leaflets and other documents). As you study, you may glean support, sympathy, encouragement, and maybe even cost-saving solutions and/or tax credits, along the way. This handbook presents resources for assistance to many of the recurring preservation issues that are faced every day by owners of historic homes in Virginia. Furthermore, the recommendations directly correlate with the incentives that are available to help homeowners preserve their historic house and its environment.



Planning is the key to any preservation project. Surveying historic resources is the first step in responsible city planning. Rehabilitation requires planning as well. Decision-makers – including the craftsman contractor – should gather early in the planning process.

Now you can tear a building down,
But you can't erase a memory
These houses may look all run down,
But they have a value you can't see.

From Living Colour, Letter to a Landlord



Virginia's Historic Home Owners #1 Resource: The Virginia Department of Historic Resources (VDHR)



DHR
Department of Historic Resources

The Virginia Department of Historic Resources is the State Historic Preservation Office. Based in Richmond, the agency has regional offices that serve communities farther away from the state capital.



On an annual Cleanup Day, the staff of the Virginia Department of Historic Resources teamed up with other state agencies and APVA staff members to clean up at Wilton, a property of the APVA Revolving Fund.

The VDHR is the federally mandated State Historic Preservation Office (SHPO), overseeing laws that relate to the preservation of cultural resources. Its staff provides assistance to the public in its efforts to preserve our state's history.

VDHR works with "cultural resources" (those things produced by humans, as opposed to natural resources) that are either located above ground (such as homes, whole districts, and neighborhoods) or below ground (archaeological sites and cemeteries). Very often, these historic sites include specialized art, craftsmanship, or design that is worthy of preservation, and it is the responsibility of the VDHR to define what is significant or worth preserving in the context of Virginia and the nation's history.

Because VDHR is charged with such a comprehensive undertaking, it has identified the most efficient, yet the most sympathetic, ways in which to preserve historical cultural

resources. To meet the need for a wide spectrum of knowledge, the staff of VDHR represents a variety of related fields ranging from archaeology and anthropology to architectural history, conservation, and law. As a service to the people of Virginia, the staff of VDHR are available to assist property owners when any of Virginia's cultural resources are affected by alterations or change. It is important—and sometimes legally mandated—that VDHR be notified of alterations to historic structures, or to the potential disturbance of a cemetery. It is

always important that proper intervention is considered and VDHR staff are available to provide direction. Remember that great harm can sometimes be done to our cultural resources, even with the best of intentions. For more information contact the main office at:

Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221
Telephone: 804-367-2323
Fax: 804-367-2391
www.dhr.virginia.gov

*"When we build, let us think that we build forever.
Let it not be for present delight nor for our use alone.
Let it be such work as our descendants will look upon
with praise and thanksgiving in their hearts."*

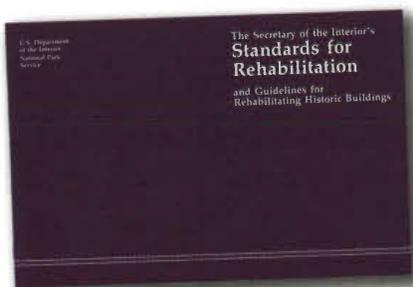
—John Ruskin, c. 1890

THE SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

The following Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

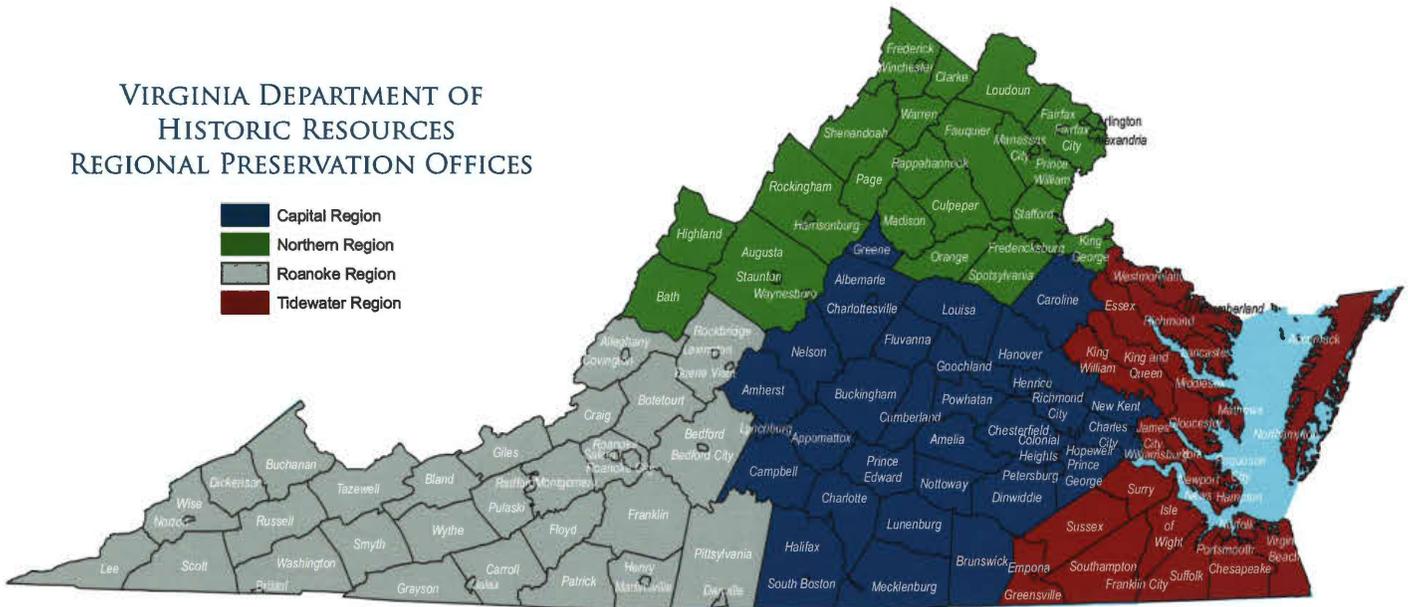
1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

For more information about these *Standards*, see www.nps.gov.



All programs of the Secretary of the Interior and the Virginia Department of Historic Resources follow these Standards for Rehabilitation for planning, identification, evaluation, registration, professional qualifications, and archaeology.

VIRGINIA DEPARTMENT OF
HISTORIC RESOURCES
REGIONAL PRESERVATION OFFICES



The Virginia Department of Historic Resources (VDHR) is the State Historic Preservation Office and was created in 1966 as an Act of the Virginia Legislature, with the following purpose: “Our mission is to foster, encourage, and support the stewardship of Virginia’s significant historic, architectural, archaeological, and cultural resources.” Headquartered in Richmond, there are also regional offices with both architectural historians and archaeologists in order to better serve the Commonwealth and its vast resources.

Resources

Recommended Initial Contacts

Consult VHDR

Consult VHDR if you have any questions about your old house, archaeological resources, or if you simply need help getting started. The appropriate staff member will address your concerns and will assist you. Many resources are available on the VDHR website (www.dhr.virginia.gov) so you may be directed to that site for additional assistance. If you do not have computer access, then photocopies can be made and mailed. Much information is available in the VDHR archives with a large amount of research ready available.

Virginia Department of Historic Resources

2801 Kensington Avenue
Richmond, VA 23221
Phone: 804-367-2323
Fax: 804-367-2391

Capital Regional Preservation Office (serving Central and Southside Virginia)

2801 Kensington Avenue
Richmond, VA 23221
Phone: 804-367-2323 ext. 133
Fax: 804-367-2391
www.dhr.virginia.gov

Roanoke Regional Preservation Office (serving SW Virginia and the Lower Piedmont)

1030 Penmar Avenue, SE
Roanoke, VA 24013
Phone: 540-857-7585
Fax: 540-857-7588

Tidewater Regional Preservation Office (serving Tidewater/Eastern Shore of Virginia and the Northern Neck)

14415 Old Courthouse Way, 2nd Floor
Newport News, VA 23608
Phone: 757-886-2807
Fax: 757-886-2808

Northern Regional Preservation Office (serving the Shenandoah Valley and Northern Virginia)

5357 Main Street
P.O. Box 519
Stephens City, VA 22655
Phone: 540-868-7033
Fax: 540-868-7033

Recommended Initial Contacts, Continued

Publications Available from VDHR

A complete list of VDHR publications, many of which may be downloaded as PDF documents, is available at www.dhr.virginia.gov.

- Salmon, John S (Updated in 2004 by Jean O. McRae, Register Specialist). *How to Research Your Historic Virginia Property*. Free photocopy available at www.dhr.virginia.gov or from VDHR.
- *Virginia's Historical Registers: A Guide for Property Owners*. Free copy available at www.dhr.virginia.gov or from VDHR.
- *Tourism Handbook: Putting Virginia's History to Work*. (Produced by the Virginia Department of Historic Resources and the Virginia Tourism Corporation.) Free copy available from VDHR.

Some Additional Places to Begin Researching and Understanding Your Historic Rehabilitation

Good Guides from the Technical Preservation Service

www.cr.nps.gov/hps/tps/online_ed.htm

The Technical Preservation Service's answer to an interactive rehabilitation experience. There are currently 11 online courses on such topics as building rehabilitation, historic districts, and managing moisture.

National Park Service

www.cr.nps.gov/hps/
www.cr.nps.gov/helpyou.htm
Heritage Preservation Services
1849 C Street NW (2255)
Washington DC 20240
Phone: 202-513-7270

National Trust for Historic Preservation Historic Home

www.nationaltrust.org/funding/historic_home.html
1785 Massachusetts Avenue, NW,
Washington DC 20036
Phone: 1-800-944-6847
An exhaustive resource for homeowners.

Old House Network

www.oldhouseweb.com
The Old House Web will introduce homeowners to many resources, including product literature and craftsmen.
www.oldhouse.com/preserve.html
The interactive Old House Network offers many resources for the homeowner.

Historic Home Works

www.historichomeworks.com/hhw/index.htm
John Leeke is a brilliant craftsman who writes and teaches about preservation issues as they relate to historic houses. His interactive video processes and discussion forums are extremely helpful when getting started.

American Association for State and Local History

www.aaslh.org
Phillips, Morgan W. Technical Brief #118.
The Eight Most Common Mistakes in Restoring Historic Houses (...And How to Avoid Them)
A "must read" for owners of historic homes.

Preservation Briefs

www.nps.gov/hps/tps/briefs/presbhom.htm
Over 40 topics are covered in a short, easy-to-read format. These are important topics for homeowners and are easily available from the NPS or on the Internet.

Illustrated Guide to the Secretary of the Interior's Standards for Rehabilitation

www.nps.gov/hps/tps/standards/index.htm
Illustrated examples of rehabilitation approaches that are recommended and not recommended.

General Booklists

Preservation Books

National Trust for Historic Preservation
1785 Massachusetts Avenue, NW
Washington DC 20036
Phone: 800-944-6847
www.nthpbooks.org or www.preservationbooks.org
The National Trust maintains a list of books which may be purchased by mail or via the Internet.

Heritage Preservation Services Bookstore

National Park Service
1849 C Street NW
Washington DC 20240
www.cr.nps.gov/hps/bookstore.htm
The Heritage Preservation Services Bookstore includes publications that are for sale as well as a listing of free publications that are available to the public.

PRG, Inc. (Preservation Resource Group, Inc.)

P.O. Box 1768
Rockville, Maryland 20849-1768
Phone: 800-774-7891
www.PRGinc.com
PRG is the place to find advice, tools, products and even publications of interest to the conservator or preservationist. PRG's booklist includes many fine books on materials and traditional construction from Donhead Publications in England.

Highly Recommended Books for Owners of Historic Houses

Kitchen, Judith L. *Caring for Your Old House—A Guide for Owners and Residents.*

1991. ISBN 0-471-14371-5.

www.nthpbooks.org

A brief, easy-to-read manual for homeowners.

Poore, Patricia, ed. *The Old-House Journal Guide to Restoration.* Dutton/

The Old-House Journal; New York; 1992. ISBN 0-525-93551-7

An excellent guide for homeowners with a compilation of the magazine's articles about old houses, their care, and upkeep.

Preservation Sourcebook—The Comprehensive Directory of Products and Services for Historic Preservation and Restoration. Preservation Publications, LLC,

1998. ISBN 0966057007

www.preservationweb.com

An annual compilation of resources and businesses who specialize in historic preservation work or who sell specialized products.

Whelchel, Harriet. *Caring for Your Historic House.* Heritage Preservation, Harry Abrams, Inc., New York, 1998. ISBN 0-8109-4087-6 (hardcover)

www.abramsbooks.com

A compilation of information by America's experts, this book reflects the best in state-of-the-art historic preservation philosophy today. Heritage Preservation and the National Park Service have collaborated on this publication and the result is recommended as an excellent investment for any historic homeowner.

Popular Periodicals

Old House Interiors

108 East Main Street
Gloucester, MA 01930

Phone: 800-462-0211

www.oldhouseinteriors.com

This *new* publication is edited by Patricia Poore, contributing editor of *The Old-House Journal*

The Old-House Journal

P.O. Box 420235

Palm Coast, FL 32142-0235

Phone: 800-777-3127

www.oldhousejournal.com

An excellent compilation of articles about old houses, written by homeowners as well as by experts in the field of historic homeownership.

Period Homes, The Professional's Resource for Residential Architecture

69A Seventh Avenue

Brooklyn, NY 11217

Phone: 718-636-0788

Fax: 718-636-0870

www.period-homes.com

Though intended for architects and other professionals, this publication and related web page are excellent resources for finding suppliers of historically-styled residential products.

Preservation Magazine

National Trust for Historic Preservation

1785 Massachusetts Avenue

Washington DC 20036

Phone: 800-944-6847

www.nationaltrust.org

A publication of the National Trust, sent six times a year to all members.

Renovators Supply

www.rensup.com

This catalog from a popular mail-order business offers an extensive listing of hard-to-locate supplies, from plumbing fixtures to period wallpapers.

Traditional Building, The Professional's Source for Historical Products

69A Seventh Avenue

Brooklyn, NY 11217

Phone: 718-636-0788

Fax: 718-636-0750

www.traditional-building.com

A rich resource for suppliers of historic building trades.

A Few Recommendations for the Technically Inclined

Association for Preservation Technology Bulletin

Published quarterly by the Association for Preservation Technology International, Chicago, IL, from 1969–present.

www.apti.org

This is the organization's journal of scholarly research into the field of preservation technology worldwide.

General Services Administration Readings on Technical Issues

www.gsa.gov

The GSA maintains historic government buildings throughout the country and they have published readings that are of interest to owners of historic homes and historic commercial buildings. These technical briefs are written in collaboration with the National Park Service.

Preservation Resource Group, Inc.

P.O. Box 1768

Rockville, MD 20849-1768

Phone: 301-309-2222

Fax: 301-279-7885

www.prginc.com

PRG has everything that you will ever need or want in the way of hard-to-find tools, from molding profile gauges, to moisture meters, and its home page links to wonderful web sites and extensive book lists. Visit their website for in-depth information and resources.

Weaver, Martin E. and Frank Matero. *Conserving Buildings: Guide to Techniques and Materials*. John Wiley and Sons, Inc., New York, 1993. ISBN 0-471-50945-0.

A technical publication, this book covers building materials, their deterioration, and what to do about it. Subjects range from wooden structures to paints and finishes.

Organizations You May Find Helpful

American Association of State and Local History

1717 Church Street

Nashville, TN 37203-2991

Phone: 615-320-3203

Fax: 615-327-9013

www.aaslh.org

This organization provides information useful to the private homeowner, although they are oriented primarily toward house museums. If you want to pursue a pure restoration, it would not be a bad idea to find out how the experts do it!

Association for Preservation Technology International

1324 Centre West, Suite 400 B

Springfield, IL 62704

Phone: 217-793-7874

Fax: 888-723-4242

www.apti.org

APTI is a multidisciplinary organization dedicated to "advancing the application of technology to the conservation of the built environment."

National Trust for Historic Preservation

1785 Massachusetts Avenue, NW

Washington, DC 20036

Phone: 800-944-6847

www.nationaltrust.org

The National Trust is the clearinghouse for historic preservation advocacy and assistance in our country. They maintain numerous informative resources including the Historic Homeowner Program and Preservation Forum. They are a private organization that depends on private dollars to provide their numerous services, so generous membership support is appreciated.

Organizations You May Find Helpful

APVA Preservation Virginia

204 West Franklin Street

Richmond, VA 23220

Phone: 804-648-1889

www.apva.org

Virginia's statewide non-profit organization advocates for preservation of the state's resources. They depend on private dollars for their existence and their newsletter is a welcomed report

on activities throughout the state. The APVA Preservation Virginia maintains 30 significant properties, sites, and house museums throughout the state, and regional chapters also serve as supporting members.

Preservation Trades Network (PTN)

P.O. Box 249

Amherst, NH 03031-0249

Phone: 866-853-9335

Fax: 866-853-9336

www.ptn.org

The Preservation Trades Network is a membership organization made up of tradespeople as well as those interested in learning and promoting traditional preservation trades. PTN holds annual workshops where hands-on demonstrations facilitate learning the trades and promoting their continued viability in historic preservation. PTN members are devoted to education in the trades and generously share their knowledge with interested parties.

CHAPTER 2

PRESERVATION PLANNING BEYOND THE HISTORIC HOUSE

Understanding Historic Preservation Issues, Laws & Opportunities that Relate to Owners of Virginia's Historic Houses

In Virginia, we have vast and varied cultural resources, ranging from the built environment to rich archaeological resources, some of which are still undiscovered. It is important to know and understand that these resources exist before any planning or protection of them can take place. The value of historic cultural resources is rec-

ognized on the federal level. One result of this was the National Historic Preservation Act of 1966 (later referred to as the NHPA1966). This act mandated the planning and protection of cultural resources nationally, and gave a legal framework for each state to survey or document its historic resources.

Furthermore, the Commonwealth of Virginia offers generous incentives for the preservation of Virginia's historic resources, particularly the Virginia Historic Rehabilitation Tax Credit. This publication is intended to point homeowners in directions that are both beneficial to them and the historic resources that they wish to preserve.



Without planning for preservation, our communities can rapidly become "Anywhere America." Planning can help balance development with preservation of a community's identity.

A Brief Lesson in Virginia's Architectural History



Throughout history, humans have built houses and other structures of materials that were easily available and of designs that they knew to be efficient.



A recreated structure at Jamestown illustrates Native American construction. Though conjectural, the recreation is based on archaeological evidence of many finds in the Virginia.



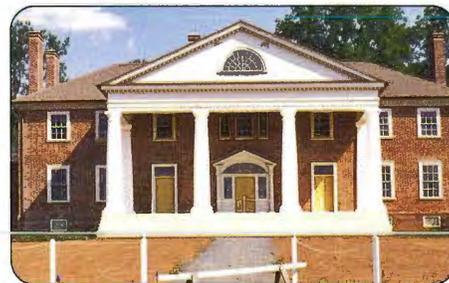
Thomas Jefferson studied the rules of classical architecture while traveling abroad. He demonstrated those rules by building his homes (such as his retreat Poplar Forest, shown here) and public buildings in the classical idiom. (Courtesy of Poplar Forest.)

Shelter is paramount to man's survival, and our creative ability to build it is a study of its own. Throughout history, man used the most readily-available materials to create his shelter. Caves served well, then such natural materials as mud, tree branches, and hides were utilized; later on, our pioneer fathers and mothers hewed logs and assembled them into cabins; and finally, as we became more technologically advanced, our houses have come to be built of a stunning variety of manmade materials. Housing styles, materials, locations, and uses have changed. Changing taste dictated what houses looked like and it is important to understand style and details when deciding what is important to preserve in our historic residential architecture.

Here in Virginia, our earliest residents lived in a variety of post-constructed structures, evidence of which is still being discovered in Jamestown, Werowocomoco and numerous Colonial and Native American

sites across the Commonwealth. Early Colonists built what they knew from their homelands. We still have many residences with English detailing, brought straight from Great Britain. Bacon's Castle in Surry County and the Adam Thoroughgood House in Virginia Beach are some of the earliest survivors of English Jacobean architecture.

Our fledgling Republic was symbolized



The restoration to its 18th-century appearance of James Madison's Montpelier in Orange County, completed in 2008, reveals its classical idiom, the emerging style of our early Republic.

by copies of Greek and Roman architecture that were discovered at the ancient cities of Herculaneum and Pompeii, for example.

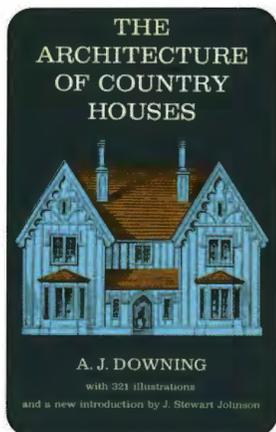
Small "temples" suddenly appeared all across the country, due to the publication of popular pattern books distributed by migrating property owners and craftsmen. Virginia's most famous architect, Thomas Jefferson, brought Classical ideas from his travels in Europe, most notably evidenced by his homes at Monticello and Poplar Forest, and his design for the State Capitol.

In many areas of the country, particularly where cotton was "king," Greek Revival residential architecture dotted the landscape, characterized by symmetry and columns. They were often painted white with green shutters, though the ancient counterparts were actually very colorful. Builders continued to use materials that were easily available: oyster shells for slaked lime mortars; lead, linseed oils, and earth colorants in their paints; and wood off the land – held together by mortice-and-tenon joints or even handmade nails.

Soon after the turn of the 19th century, architectural tastes changed dramatically. Books about style were being widely

“Architectural beauty must be considered conjointly with the beauty of the landscape or situation”

— A. J. Downing, from *A Treatise on the Theory and Practice of Landscape Gardening*, 1841



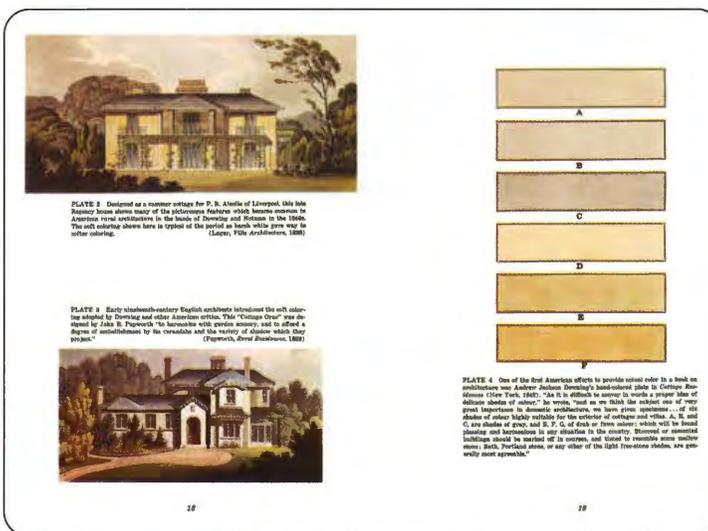
Pattern books became more widely available during the 19th century, which dictated rapid changes in taste and design across the country. A. J. Downing (1815–1852) was an early proponent of change in architectural taste in America. The title shown here was first published in 1850.

catalog and shipped into towns for immediate on-site assembly. Taste and technology were changing rapidly.

Just as suddenly as Victorian or Queen Anne-style architecture took over the country, so the Chicago World’s Fair Exposition of 1893 inspired the revival of

bungalows were prevalent, many of which were ordered in a catalog and shipped on the railroad. Eclectic neighborhoods developed in the 1920s that featured Spanish, Colonial, Mediterranean, and English Tudor revival styles. Many Victorian porches were altered at this time, in an effort to remodel

published; architects began to dictate the use of “natural colors,” asymmetry, and craftsmanship in widely-distributed publications; and knowledge regarding “tasteful” design were shared between cities and the frontier. Suddenly, there was a conscious effort to eliminate “Greek temples” from the landscape. They were considered by 19th-century tastemakers as passé, or unsuitable for the trendsetter. In their place, colorful Victorian cottages sprang up, particularly in industrialized cities across the country, including Virginia. The Victorian style was made possible by the newly-developed machinery of the Industrial Revolution which made everything from fine saw blades to cans for storing quantities of paint to sophisticated plumbing, so that finer, more comprehensive house plans, with more decorative craftsmanship, could be built. A vast railroad system had been developed, connecting Virginia with the rest of the nation, and whole houses could even be ordered through the Sears and Roebuck



Not only did Downing dictate design, but also he prescribed color that would blend with the environment (in opposition to the Classical forms of architecture that had preceded his writings).

classical forms in government buildings, and large, columned temple-style “Symbols of Democracy” again were built. Because of this sudden change in taste back toward classicism, many colorful Victorian cottages were painted white in an effort to keep up with changing taste. Around the turn of the 20th century, both Arts & Crafts and Eclecticism became popular. In the 1910s through the 1930s, spacious Arts & Crafts



After 1893, many Victorian houses were painted all-white in an effort to keep up with stylistic trends to return to white “symbols of democracy.” Zoar, shown here, is in Aylett, in King William County.



and update the earlier styles.

In a great demand for housing, post-WWII baby-boomer neighborhoods popped up across the nation, and by the 1950s, suburbia was born, in ubiquitous ranch-house neighborhoods. The trends continue today in whole, planned suburban neighborhoods, each reflecting the style of its period of development, each with its own theme, characteristics, materials, and design standards. Many of these planned neighborhoods today even have architectural review boards to guide those standards.

Staff members at the VDHR can be contacted for more information about trends in Virginia's architectural history. These trends are pertinent when considering the preservation of the historic house.



RESOURCE

Preservation Brief #17: *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*
www.nps.gov/hps/tps/briefs/presbhom.htm

Top: Victorian neighborhoods can be very colorful because of their craftsmanship and the use of many different colored materials. This photo is of the Gwaltney House in Smithfield. **Bottom:** Aberdeen Gardens, in Hampton, was built to house African American shipyard workers. Each duplex apartment featured land for gardens and a chicken house.

Recognition: Virginia Landmarks Register, the National Register of Historic Places, and the Highway Marker Program

Listing in the Virginia Landmarks Register and in the National Register of Historic Places is honorary. There are no controls associated with such listings, despite much misunderstanding to the contrary. To be eligible for any official federal or state recognition, a property must be researched, and its significance must be evaluated in the context of similar resources at the local, state, or national level. In Virginia, the first step in researching, or “listing,” a property begins with a “Preliminary Information Form” or “PIF” that is submitted to the appropriate regional VDHR office for review prior to the property being considered by the staff evaluation team. The State Review Board gives the PIF a final review and recommends the property as “potentially eligible” for listing in the Virginia Landmarks Register and the

National Register of Historic Places. VDHR can often assist property-owners preparing PIFs by determining what is already available in the VDHR archives pertaining to the property, often saving the property-owner an enormous amount of research. Because VDHR’s archives are not comprehensive, however, information will not be available to assist every property-owner.

The second step for listing in the Virginia Landmarks Register and the National Register of Historic Places is the nomination which is a more in-depth research project than the initial “preliminary” form. It is often recommended that a consultant be hired to complete the nomination as the trained consultant can more readily provide the architectural description and place the property into a broader context of historic and stylistic trends while more expediently filling out the necessary forms. These register listings estab-

lish a property, which may include a whole district or neighborhood, as important in the broader local, statewide, or national context. Neither listing is controlling, nor do they dictate to property-owners what they can or cannot do with their properties. They can, however, open the door to preservation incentives.

Nominations are useful to many professionals including researchers; they provide the groundwork for documenting our history and promoting what is important to our collective heritage. As a result, they can serve as the foundation for tourism, school programs, or other educational and promotional programs. They assist in planning for historic preservation both locally and regionally. Developers and city planners consult historic registers in order to define important areas that need to be protected.

Often, historic properties are recognized through markers or plaques. Working in conjunction with VDOT, VDHR approves

“But, in any case, whatever may be the future of architecture, in whatever manner our young architects may one day solve the question of their art, let us, while waiting for a new monument, preserve the ancient monuments. Let us, if possible, inspire the nation with a love for national architecture. That, the author declares, is one of the principal aims of this book; it is one of the principal aims of his life.”

—Victor Hugo, 1832, in *The Hunchback of Notre Dame*, note added to the Definitive Edition.



Listing in the Virginia Landmarks Register and in the National Register of Historic Places is honorary. There are no restrictions regarding what property owners may do with their property, once listed.

RESOURCES

How to Research your Historic Virginia Property. John Salmon, Staff Historian; updated in 2006 by Jean O. McRae, National and State Register Program Specialist.

An invaluable introduction to the legal documents, tax records, and library resources a property-owner can use to date a historic property. Free copy available by contacting the VDHR or at www.dhr.virginia.gov.

Virginia's Historic Registers: A Guide for Property Owners (1995)

This comprehensive guide to the Virginia Landmarks Register and the National Register of Historic Places is a good primer for anyone who wishes to understand the register programs and the processes for registering their property. Free publication available by contacting the VDHR or at www.dhr.virginia.gov.

A Guidebook to Virginia's Historical Markers (2007), compiled by Scott David Arnold.

This guidebook is great for keeping at hand when traveling around the state.

It provides the texts of more than 1,850 official state historical markers placed along Virginia's highways since 1927. It is available at most bookstores or can be ordered directly from the University of Virginia Press.

For more information and for appropriate register forms, visit www.dhr.virginia.gov/registers/register.htm. For a list of consultants, contact VDHR.

For more information about conducting surveys in Virginia, see www.dhr.virginia.gov/review/Survey_Manual_Web.pdf and also www.cr.nps.gov/nr/index.htm.



"Surveying" our historic resources involves documentary research, including photographing sites. The resulting documentation accompanies a standard form that is maintained in the DHR Archives and entered into the Archives' Data Sharing System.

wording for highway markers that depict Virginia or National Register sites. The oldest highway marker program in the country, Virginia's popular markers are listed in a publication titled *A Guidebook to Virginia's Historical Markers*. Visit VDHR's website for more information about the highway marker program: www.dhr.virginia.gov/highway_markers/hwmarker_info.htm. Plaques on houses are purchased by individual owners or organizations and do not require permission of VDHR prior to their installation.



Virginia's highway marker program is likely the oldest in the country, established in 1927. Markers honor and commemorate a community's heritage. New markers are often unveiled during dedication ceremonies.

Controls: Architectural Review Boards and the Certified Local Government Program



Local design review guides decisions about building alterations and streetscape improvements at Charlottesville's successful downtown mall.



Local governments can implement preservation planning tools that include design review in order to protect what is unique and special about their community. A residential street in Smithfield, in Isle of Wight County, is pictured here.

“**H**istoric districts” can mean many different things to different people. Also, local designation of historic properties is not the same as national or state listing. Many people have heard about conflicts over historic districts, and many owners fear “government involvement” with their historic houses. These fears are unfounded, particularly at the federal and state level. Generally, districts listed on the Virginia Landmarks Register or the National Register of Historic Places offer recognition and incentives while recognizing property-owners’ rights. These listings provide positive opportunities and incentives for historic homeowners rather than the regulation of properties.

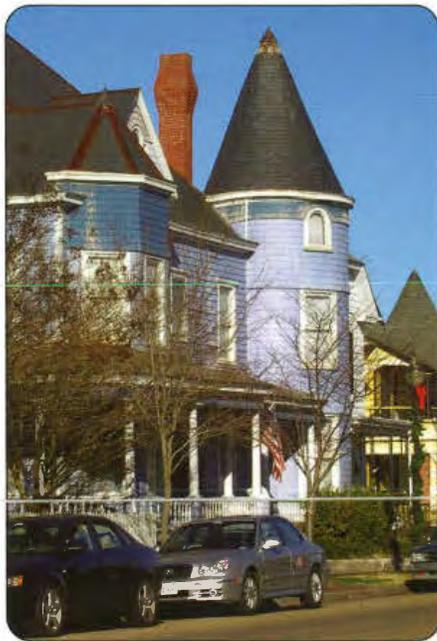
While listing in the state and national registers is honorary rather than regulatory,

local historic designations authorized by local governments do offer protection by requiring review of alterations to properties and approval of them by a local board or commission. A simple background explanation may help homeowners understand such controls and their related opportunities. In 1931, citizens of Charleston, SC, realized that what they had in their town —

historic homes, whole neighborhoods, commercial and residential resources — was special and valuable but threatened with rapid development and substantial change. The citizens pulled together, worked with their local city officials, and together wrote a historic district ordinance, or “local law,” to protect what was special about their city. (Note that they were protecting what was special to

“A country without a past has the emptiness of a barren continent, and a city without old buildings is like a man without a memory.” – Graeme Shandland, British architect and planner

them and not what their state or federal officials had already recognized in a register.) In order to enforce their local ordinance, they formed a commission of their own citizens to oversee what they considered to be special. They wrote design guidelines to govern what changes occurred in their defined boundaries, and “design review” became a planning tool that was adapted to historic neighborhoods. The City of Charleston led the way in “local district designation” and “design review” in order to protect what was special to that city.



Smithfield is one of the more than 30 jurisdictions participating in the Certified Local Governments program in Virginia. The program has been successful in helping the town to preserve its Victorian character.

Cities across the country have followed Charleston’s lead. Savannah and New Orleans were early followers, while Seaside, Florida, and modern subdivisions across the country have implemented “design review” in order to guide design decisions. State governments provide for local designation; thus, in our state the Code of Virginia defines how local historic districts may be set up in the Commonwealth of Virginia. Also, there are federal incentives for local governments with local historic districts. The federal incentives come in the form of grant monies to localities that are designated as a “Certified Local Government” (CLG) as defined by the guidelines of the National Park Service and specific guidance for the State Historic Preservation Office. Localities that are certified can apply for federal grants through the State Historic Preservation Office (VDHR, in Virginia’s case), and, if certified, may receive grants from the first 10% of Virginia’s federal grant allotment for historic preservation. These grants may be used for preservation planning, survey, development of or updating of design guidelines, member training, and many other preservation planning programs.

The initial decision to designate local historic districts for protection is always made at the local level and is generated by citizens of

a community and their own leaders. Through their local ordinance, many cities provide for design review in historic districts for actions like alterations, demolition, and new construction. Such a review process is intended to result in designs or changes compatible with the neighborhood’s special character and that will maintain that character based on the established design guidelines. Design guidelines should always be tailored to the special characteristics of the local district. Ideally, local standards also adhere to the Secretary of the Interior’s *Standards for Rehabilitation*. A board of qualified commission members undertakes such review. The commission follows due process throughout its entire decision-making process. As of 2008 in Virginia, there are 31 CLGs certified by the National Park Service. This means they have trained board members (they are required to undergo annual training), have a staff member devoted to their business, their guidelines follow the Secretary of the Interior’s *Standards*, they maintain an up-to-date survey of historic resources in their community, and may compete for federal funds set aside for Certified Local Governments. There are numerous non-CLG review boards in Virginia not certified by the National Park Service but that have established local historic districts to protect individual buildings or collections of resources.

“After 30 years living in a historic district, I would hate to live outside a historic district.” – *Dr. Bill Kennedy, Jonesborough, TN*



Design guidelines.

WORKING WITH DESIGN GUIDELINES

Whether they are the Secretary of the Interior’s Standards or guidance written specifically for your neighborhood, design guidelines are merely guides for the review board in making defensible decisions. Some ideas might assist the homeowner in making application or the local design review commission in making defensible preservation decisions.

- Review your commission’s purpose statement, reminding yourself that you are probably a “preservation” commission rather than a “remodeling” commission. There is a difference, and defining terminology is important before any decision is made.
- Document your “thought process,” why the work is needed, and how you decided to rehabilitate the house, room, window, or simply the piece of wood that needs to be repaired.
- Show your plans by documenting the damage and how you plan to repair it (cite the guideline that recommends “repair rather than replace”). Cite the Preservation Brief that you consulted or some other state-of-the-art

preservation source. Avoid modern sales brochures when defending your preservation or rehabilitation decision.

- Never approach a problem with wholesale removal in mind. Most commonly, this applies to windows, plaster, and porches. An inventory of each window, its current condition, and prescribed repairs to each element is helpful in making defensible decisions about window repair.
- “Rehabilitation” means that you can live in the house, prepare it for living, and be comfortable while living in it. There are sensitive ways to insert modern kitchens and bathrooms while preserving significant spaces.
- “Rehabilitation” does not mean expensive. Often it means less expense.

For a good example of the recommended “thought process,” refer to the City of Greensboro, NC’s Affordable Housing Design Guidelines online at www.achp.gov/altdesigsamples.html.

RESOURCES

For information about Virginia’s CLG program or for a “How to Apply for Status as a Certified Local Government” packet, contact www.dhr.virginia.gov/clg/clg.htm

For more information about the Certified Local Government program, visit the National Park Service’s web site: www2.cr.nps.gov/clg/index.htm

For a download copy of *Preserving Your Community’s Heritage through the Certified Local Government Program* (National Park Service and National Council of State Historic Preservation Officers), Richard Kronick, editor, 2004, visit www.cr.nps.gov/hps/clg/2004clg.PDF

The National Alliance of Preservation Commissions is a valuable organization with many resources for local commissions. See www.sed.uga.edu/psol/programs/napcllinks.htm for more information including sample design guidelines.

Bowsher, Alice Meriwether. *Design Review in Historic Districts: A Handbook for Virginia Review Boards*. Charlottesville, VA. 1978.

National Alliance of Preservation Commissions. *Design Review in Historic Districts*
An explanation of the design review process, role of the historic district commission, design guidelines, legal issues, and the significance of Certified Local Government status. Available from www.nthpbooks.org

Incentives, Assistance and Options for Historic Home Owners



Virginia's rehabilitation state tax credit program has provided assistance to numerous property owners as they undertake extensive repairs to their historic properties. Property owners can take 25% of eligible rehabilitation costs off their income taxes.

Rehabilitation Tax Credits

In most states, historic homeowners must use their own resources to restore or repair their residential properties. Government involvement with private property is minimal, and, therefore, grants do not go directly to private property-owners.

However, the Virginia Rehabilitation Tax Credit of 1997 created an opportunity for owners of historic houses that has created a boom in historic preservation efforts across the Commonwealth. Owners of properties listed in the National Register of Historic Places or in the Virginia Landmarks Register may receive 25% of all renovation work off the bottom line of their income taxes! Therefore, if \$100,000 is spent, \$25,000 may be taken off the owner's income taxes over a

five-year period. This is a tremendous help to many homeowners. (This explanation is vastly oversimplified and it behooves an interested homeowner to contact VDHR in the early stages to get a full explanation of this program. Early communication is very important; "before" photographs are imperative; and timing is everything, if applying for this credit is going to be successful.) A project must be certified (a "certified rehabilitation") by adhering to the Secretary of the Interior's *Standards for Rehabilitation* — the "rules" for proper rehabilitation that have to be followed in order to get the tax credit. Remodeling decisions or "quick cures" generally do not coincide with preservation decisions. The tax credit is a great help to homeowners — be very careful about making

QUICK REFERENCE FOR TAX CREDIT INFORMATION

For more information about the Virginia Rehabilitation Tax Credit, contact your regional office of VDHR or else consult www.dhr.virginia.gov/tax_credits/tax_credit.htm.

For more information about the Federal Rehabilitation Tax Credit (for income-producing properties only), contact your regional office of VDHR or else consult www.cr.nps.gov/hps/tps/tax.

rehabilitation decisions if the tax credit is something that will help you.

For an income-producing property listed on the National Register, such as a bed-and-breakfast or rental apartments, this state credit can be combined with the Federal Rehabilitation Tax Credit of 20% for a total of 45% off the bottom line of taxes. Additionally, tax credits may be sold or "syndicated" to parties that need them, if the homeowner does not pay taxes in Virginia, for example. Virginians are very fortunate to be able to take advantage of these opportunities for historic preservation and Virginia's historic resources have benefited substantially.

Easements

Virginia also has a very active easement program with almost 500 easements held by the Virginia Board of Historic Resources. These conservation and preservation easements also provide owners with the opportunity for a charitable deduction while preserving the historic character of their property in perpetuity. This means that VDHR must review and approve plans for easement properties before work is undertaken. Not only can historic homes be preserved through easement protection, but also archaeological resources, rural landscapes, farmlands, particularly in areas threatened by rapid development and urban sprawl, are protected. Conservation easements differ from preservation easements, though the two complement each other for many properties across the Commonwealth. For more information about historic preservation easements, contact the Easement Coordinator for VDHR, at www.dhr.virginia.gov/easement/easement.htm.

Grants

Historic preservation grant funds are not available for private homeowners. However, cities (and thus, indirectly, neighborhoods) can get financial assistance. These require planning and close coordination with local

city planning officials. Grants for planning purposes are available to cities through the aforementioned CLG program. Cities and counties can also apply for Survey and Planning Cost Share awards, administered by VDHR, which generally cover survey projects and some conditions assessments of publicly-owned properties. Local municipalities have other sources for federal grants through HUD (Housing and Urban Development) and the related CDBG (Community Development Block Grants), and low-income housing programs. Frequently, the preservation programs do not offer direct grants to help individuals repair or preserve their own houses; however, they can benefit whole neighborhood preservation planning efforts. Some creative ways that they can benefit homeowners is through surveys (that lead to National Register nominations, for example) or even façade grants (for paint research or repainting facades, or for porch or roof repairs in whole neighborhoods). Finally, many local governments have enacted tax abatement programs and may offer other financial incentives for homeowners. Contact local city planning officials for more information about these programs.

For information about the Cost Share grant

program, see www.dhr.virginia.gov/survey/Survey1.htm. For information about local planning issues, contact your local city planning office.

State matching grants are awarded by the Virginia General Assembly to non-profit groups and local governments for preservation of properties they own that are listed in or eligible for the Virginia Landmarks Register and that are open to the public. These appropriations require the assistance of a legislator during a session of Virginia's General Assembly. Acceptance of a grant requires conformance with procurement regulations, the Secretary of the Interior's *Standards*, and the donation of a historic preservation easement if grants total \$50,000 in a four-year period. VDHR staff can also help explain ways in which existing programs have worked together to benefit homeowners; visit www.dhr.virginia.gov/state_grants/state_grants.htm.

Several years ago, VDHR collaborated with the Virginia History Initiative on a publication for the Community Awareness Campaign called *Financial Incentives Guide: Putting Virginia's Historic Resources to Work*. More recently, Pamela Schenian, architectural historian for the Tidewater Regional Preservation Office, compiled an even more elaborate listing of funding sources called *Financial Incentives and Opportunities for Historic Preservation and Archaeology in Virginia*. Both publications are available through VDHR.

Finally, the National Trust for Historic Preservation features many resources and ideas for funding on its website www.nthp.org/funding. Again, there are ways to pool resources to benefit many property-owners (by setting up a revolving loan fund, for example), and the National Trust website describes many of these resources.



Easements are excellent tools for protecting historic houses as well as landscapes and viewsheds. The easement property shown in this photo protects a landscape and viewshed in Loudoun County, one of the fastest growing counties in the nation.

“The strength of a nation is derived from the integrity of its homes.” —Confucius

Insurance and Appraisals

Historic home insurance and appraisals for historic homes have been challenging for some homeowners, particularly in hurricane- or flood-prone areas of the state. The National Trust for Historic Preservation has an insurance program and

can offer the names of national companies that can also assist. Do not give up if a local insurance agent is unable to provide services or products for historic buildings. There are insurance companies that have the answers for your particular needs.

For more information visit www.nthp.org/main/homeowner.htm.

Appraisers for historic properties are available. Contact VDHR about possible appraisers.

Mothballing Historic Houses



This mothballed house in Port Royal awaits restoration. Its well-maintained roof and secured windows and doors will keep water out until it can be restored.

There are times when a historic home cannot be restored or put back into service immediately. For such situations, there are guidelines for “drying out” or “mothballing” a building – protecting it from the elements – until such time that it can be rehabilitated or restored. Often, such measures involve new roofing, stabilization, and plywood over windows and doors. Keeping water out of the structure is imperative to preserving it, so often

“mothballing” will involve some expenditure to get it ready for the waiting process.

RESOURCE

Preservation Brief #31: *Mothballing Historic Houses*
www.nps.gov/hps/tps/briefs/presbhom.htm

Moving Historic Houses



Moving buildings disrupts their intact history -- whether it is this stairway that will be isolated from its original house or the archaeological story that remains underground at the original site.

Moving historic properties is not a viable preservation option unless ALL other options have been totally exhausted. VDHR should advise a property-owner about the move, should it prove inevitable. The building can lose its historic significance (thus it can lose its eligibility for the National Register of Historic Places) and could be harmed irreparably. Affiliated archaeological resources are naturally lost in such an undertaking, thereby compromising the property’s historical significance.

A property’s history remains intact only when it remains on its original site.

RESOURCE

Curtis, John Obed. *Moving Historic Buildings*. AASLH Press, Nashville, TN. 1979.

Archaeology

Homeowners may not realize the full potential for discovery in their own backyards. Cultural resources consist of that which is under the ground as well as that which is readily visible. Archaeology offers an opportunity to glean much information about the house itself and, perhaps, even more about its inhabitants. Owners of historic property must realize that half their property's history lies under the surface of the earth and that such history is very fragile and easily disturbed. You should take great care when digging a sidewalk or a drainage ditch, for example, because evidence of an outbuilding, early kitchen, or smokehouse may lie just under the grass layer of the lawn. There may be pieces of shingles, or siding, or clues to the house color or materials that could aid in renovation decisions about the house. Or there could be nails, screws, or porcelain sherds that help date the property. And, of course, if landscape plantings or decorative features

remain intact, they can give clues to the property's early landscape history. Do not be persuaded to pick up your house and move it to another location; much of its history is left behind in such a separation. Each of VDHR's regional offices has an

archaeologist on staff. Don't hesitate to contact your regional office if you come across archaeological resources that may be of interest or historical significance. Never disturb a known site before consulting with an archaeologist.



Underground artifacts can contribute much information about the history of a home, its inhabitants, or even its landscape features. Contact your regional DHR preservation office for professional assistance, rather than removing artifacts from their context.

“Growth is inevitable and desirable but destruction of community character is not. The question is not whether your part of the world will change but how.”

—Edward T. McMahon, *The Conservation Fund*

Resources

Virginia's Architectural and Archaeological History

Buchanan, Paul E. "The Eighteenth-Century Frame Houses of Tidewater, VA." *Building Early America*. The Carpenters' Company of the City and County of Philadelphia. 1976. ISBN 0-8019-6294-3.

Hume, Ivor Noel. *Here Lies Virginia: An Archaeologist's View of Colonial Life and History*. The University Press of Virginia. 1963. 1994. ISBN 0-8139-1528-7.

Loth, Calder, ed. *The Virginia Landmarks Register*. Charlottesville and London: University of Virginia Press, 1999. ISBN 0813918626.

Lounsbury, Carl R. *An Illustrated Glossary of Early Southern Architecture and Landscape*. Oxford University Press, Inc, New York, NY, 1994. Reprinted by University Press of Virginia, Charlottesville, VA, 1999. ISBN 0-8139-1923-1.

VDHR
www.dhr.virginia.gov/registers/register_counties_cities.htm

These lists do not include archaeological sites.

Wells, John E. and Robert E. Dalton. *The Virginia Architects 1835-1955: A Biographical Dictionary*. Richmond, VA: New South Architectural Press, 1997. ISBN 1882595025.

General Architectural History

Blumenson, John J. G. *Identifying American Architecture: Pictorial Guide for Styles and Terms, 1600-1945*. American Association for State and Local History - Altamira Press, Lanham, MD 1995. ISBN 0761991433. One of many excellent primers originally published by the AASLH.

Brand, Stewart. *How Buildings Learn: What Happens After They're Built*. Penguin Books, New York, NY 1994. ISBN 0-14-01-3996-6.

Carley, Rachel. *The Visual Dictionary of American Domestic Architecture*. Henry Holt and Company, Inc. New York, NY 1994. ISBN 0-8050-2646-0.

Handlin, David P. *The American Home: Architecture and Society, 1815-1915*. Little, Brown and Company, Boston-Toronto. 1979. ISBN 0-316-34300-5.

Howard, Hugh. *How Old is this House? A Skeleton Key to Dating and Identifying Three Centuries of American Homes*. For the Home Renovation Associates. The Noonday Press. New York, NY 1989. ISBN: 0-374-52179-4.

Howe, Barbara J., Delores A. Fleming, Emory L. Kemp and Ruth Ann Overbeck. *Houses and Homes: Exploring Their History*. The Nearby History Series of the American Association for State and Local History - Altamira Press, Lanham, MD 1987. ISBN 0761989293.

Hughes, Carolyn C., *This Olde Virginia House*. Ms. Hughes is a reference librarian for the City of Portsmouth. She has compiled an exhaustive bibliography of resources for anybody researching their historic houses. Contact her at hughesc@portsmouthva.gov for more information about this list.

Jester, Thomas C. *Twentieth-Century Building Materials: History and Conservation*. The McGraw-Hill Companies, Archetype Press, Inc., Washington, DC 1995. ISBN 0-07-032573-1. An excellent guide to modern materials from reinforced concrete, plywood and fiberboard, clay tiles and terra cotta, and other 20th-century fabrications.

Kyvig, David E., and Myron A. Marty. *Nearby History: Exploring the Past Around You*. American Association for State and Local History - Altamira Press, Lanham, MD 1996. ISBN 0742502716.

Learn How to Read a Historic Building. National Park Service, Heritage Preservation Services. www.cr.nps.gov/hps/TPS/walkthrough

McAlester, Virginia, and Lee McAlester. *A Field Guide to American Houses*. Alfred A. Knopf, New York, 1984. ISBN 0394510321. An excellent resource for the curious architectural historian.

Morrison, Hugh. *Early American Architecture: From the First Colonial Settlements to the National Period*. Oxford University Press, New York, NY 1952. Reprinted Dover Edition, 1987. ISBN 0-486-25492-5.

Nelson, Lee H., FAIA. Preservation Brief #17: *Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character*. National Park Service, Technical Preservation Services, Washington, DC, 1988. www.cr.nps.gov/hps/TPS/briefs/brief17.htm

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Rifkind, Carole. *A Field Guide to American Architecture*. Several Editions. An excellent guide to architectural resources and their styles.

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CHAPTER 3

PLANNING FOR THE PRESERVATION AND RESTORATION OF YOUR HISTORIC HOUSE

The Importance of Planning Your Repairs or Restoration

Most historic homeowners' understanding of good stewardship is that they must take care of what they have. Further, they respect the craftsmanship and the handiwork from an earlier time. The historic homeowner wishes to preserve that work but often does not have enough information to make a sound decision. So, with every good intention, the wrong thing is done, whether out of haste or from simply not knowing that there is a better way. It is difficult to educate one's self and to prioritize work items. And

both tasks must be done up front, before the hammer is ever swung.

Ask a lot of questions; listen to the answers; read as much as possible; and be careful about whom you listen to. Often you must take into consideration the source of your advice. You should regard with caution a salesman who stands to gain from his/her advice. Of course, you will hear that his product is the best and that you need much more of his product than you figured. His business is to sell; yours is to discern.

Keep in mind the following maxim by

A.N. Didron, the 19th-century French archaeologist: "It's better to preserve than to repair, better to repair than to restore, better to restore than to reconstruct." Didron describes a good general rule of thumb for historic homeowners. The conscientious homeowner must respect, appreciate and preserve the special qualities of his property. As in the broader city planning context, where it is necessary to identify what is special and worthy of protection, the homeowner must identify which features define the home as historic and which are character-defining and worth preserving.



Members of the Timber Framing Guild consult on appropriate repairs to this frame barn. There are many active professional preservation trade organizations in Virginia and surrounding states. They are good sources for advice about appropriate repairs

RESOURCE

Preservation Brief #17. *Architectural character: Identifying the Visual Aspects of Historic buildings as an Aid To Preserving Their Character.*
www.nps.gov/history/hps/tps/briefs/brief17.htm

DEFINITIONS

It is always necessary to define your work. Most often, as the State Historic Preservation Office, we are dealing with the “rehabilitation” of historic properties rather than their restoration, preservation, conservation, or remodeling. The terms that follow are defined under the Secretary of the Interior’s *Standards for the Treatment of Historic Properties* at www.cr.nps.gov/hps/tps/standguide.

Rehabilitation is the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

Preservation is the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Restoration is the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Reconstruction is the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

The following definitions are written by the author in order to distinguish from the terminology of the National Park Service definitions above.

Remodeling is the quick fix, cure-all, or instant gratification approach that is taught on television or in a big box store. This approach involves very little planning or forethought, and because the materials that result are not long-lasting, the results are not long-term. Though touted as being “cheaper” solutions, they are often more expensive and short-lived. Therefore, remodeling decisions are not recommended in the realm of preservation, rehabilitation, or restoration.

Conservation is most often thought of as dealing with the natural environment; however, architectural conservation is the scientific study of building materials, what they are made of, what makes them deteriorate, and what to do about that deterioration. Conservation takes place in a laboratory with a complete understanding of natural properties, chemical reactions, and the weathering abilities of varying architectural chemicals and materials. It is necessary to have an understanding of architectural conservation prior to making any decisions for long-term solutions and repairs to historic building materials.

“It’s better to preserve than to repair, better to repair than to restore, better to restore than to reconstruct.”

– A.N. Didron, *French Archaeologist*, 1839

Basic Guides for Approaching Repairs to Historic Homes



Proper planning for a rehabilitation project involves all team players from the architect, engineer, and homeowner to the contractor and even the architectural conservator. Each role should be represented early in the planning process.

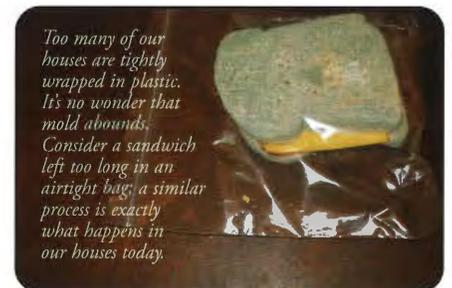
“It is again no question of expediency or feeling whether we shall preserve the buildings of past times or not. *We have no right whatever to touch them.* They are not ours. They belong partly to those who built them, and partly to all the generations of mankind who are to follow us.”

— John Ruskin, *Seven Lamps of Architecture*, 1848

The preservation of buildings can be compared to the care of the human patient. Most often, as with medicine, it is imperative that the source of the problem be identified and addressed before a simple bandage is applied; for example, patching a roof leak with liquid asphalt does not cure the leak. Identifying the reasons for the hole and taking care of the leak or roofing system will ensure a repair that will last longer than the quick patch. Buildings are made of natural materials that require much care, understanding, and forethought to prevent their being irreversibly damaged. All natural materials must be allowed to “breathe.” Airborne moisture must be able to pass through the materials, escape, and evaporate. When we unknowingly create a moisture barrier by slapping automobile putty on stone or by wrapping our buildings in plastic (in the form of siding – liquid or hardened vinyl), we accelerate deterioration of natural materials. Just as the human body breathes, grows over time, and experiences temperature changes, so do natural building materials. These natural conditions must be respected, as buildings must withstand the harsh elements of weather, temperature changes, and manmade hazards, such as acid chemicals or abrasive blasting machines.

Some slogans that you may wish to remember when approaching your repairs:

- “Poverty is the best friend of preservation.” This old preservationist’s adage means that a lack of funds has prevented many well-intentioned mistakes. Even when the money is in hand, it is enormously important to wait and plan items of work, rather than rushing to finish quickly.
- Take your time and think. Avoid the tendency toward a quick fix or instant gratification. Plan and research your work.
- Respect the craftsmen who came before you. Many times modern materials and modern decisions destroy the handiwork and craftsmanship of historic houses. It is important to realize that much time, energy, and effort went into forming the details that make these homes special today, and the materials are far superior to that which we have on hand today.



Too many of our houses are tightly wrapped in plastic. It's no wonder that mold abounds. Consider a sandwich left too long in an airtight bag; a similar process is exactly what happens in our houses today.

“If you start a new project and are not scared [to death], then you’re doing something wrong.”

—Jim Askins, Founder of the National Park Service Historic Preservation Training Center



Consider hiring craftsmen that have experience with historic houses, especially if they are familiar with the Secretary of the Interior’s Standards or accepted preservation principles (rather than “remodeling” principles). The craftsman shown here plies his trade in Colonial Williamsburg.



The Preservation Trades Network consists of people in the trades that demonstrate proper repairs of historic materials. Such workshops may be of interest to homeowners wishing to pursue historic rehabilitations.

such as electrical or plumbing systems, even leaky roofs, are considered. It is advisable to consult an architect with experience in historic preservation to assist you with your planning and prioritizing. A general contractor who has experience with historic materials is also a valuable resource. It is easy to determine their experience. Just ask what they know about the *Standards* (the Secretary of the Interior’s *Standards for Rehabilitation*). Familiarity with state-of-the-art decision-making regarding historic materials and buildings is the key to choosing a good architect and contractor.

- Ask many questions. Ask questions both of modern craftsmen and those with experience in historic materials. Of course, those with experience are not afraid to bid or to specify work on historic materials, whereas those without experience often recommend total replacement. Additionally, those with experience are most often the most patient and careful of workers. By asking many questions, you can often find repair solutions that are much less expensive than demolition or replacement.
- Hands-on workshops and demonstrations are excellent sources for learning traditional building trades and materials.
- Read as much as possible. There are more resources available than can be studied; however, the more you know, the better decisions you can make about preserving your historic house.
- Be discerning in what you read and hear. You must understand who is advising you. Again, beware of the local salesman who stands to gain from his/her advice. Of course, he will be selling his product, but is his product really the best one for the project?
- Plan your restoration. Very often, homeowners want to move right into their new home. Many times, they address aesthetic concerns before major issues



The Historic Preservation Training Center, in Frederick, Maryland, produces trades people that care for historic properties at our national parks. They serve as an excellent resource for proper historic preservation practice and methodology.

Where to Find Technical Assistance Most Quickly

The Virginia Department of Historic Resources can provide much information to the homeowner. Much of the work and technical decisions made by VDHR are guided by the National Park Service, as the eminent authority on managing and caring for historic properties.

SEE PAGE 13 FOR VIRGINIA DEPARTMENT OF HISTORIC RESOURCES REGIONAL PRESERVATION OFFICES



Little children clean a grave marker with water and a soft bristle brush, the “gentlest means possible.”

The Secretary of the Interior’s *Standards for Rehabilitation* (see page 12)

VDHR uses Secretary of the Interior’s *Standards for Rehabilitation* as a guide to all decisions that affect historic structures. These *Standards* list guidelines of “recommended” approaches to decision-making as well as “not recommended” approaches. In certain circumstances—to receive tax credits, for grants, and in local district designation, to name a few possibilities—a property-owner must follow these *Standards*. If there is any doubt about having to follow the guidelines, check with VDHR before starting any major work. Certainly, before making any repairs or alterations to your historic property, you should clearly have a general understanding of the *Standards* and you should clearly understand the following terms:

- **Using the Gentlest Means Possible:** Start gently and slowly rather than quickly or expediently. Utilize test patches to determine the gentlest method of achieving the desired effect. For instance, in cleaning or in repointing, make several test patches with varying strengths of cleaning agents or with the design and color of joint material. This will aid your decision about which solution would be sufficient to accomplish the desired effect.
- **Determining Compatible Materials and Design:** Old, soft building materials must have soft new materials or even hand-made materials next to them in order for them to weather compatibly. For

example, modern, cheap Portland cement is very harmful to old stone or brick because it does not expand and contract with thermal changes; consequently, the older, softer material breaks away with each expansion and contraction.

- **Reversibility:** Whatever you do—whether an addition or a repair—be sure that you can undo the work in the future so that you will have an intact original building. For example, adding on to a building should be “reversible” so that, in the future, the addition could be removed without harm to the integrity of the historic structure.

“Take proper care of your monuments and you will not need to restore them... Watch an old building with anxious care, guard it as best you may and at any cost from every influence of dilapidation.”

—John Ruskin, *The Seven Lamps of Architecture*, 1849

Preservation Briefs

The most concise, state-of-the-art technical information regarding historic properties can be found in the *Preservation Briefs* which are referenced throughout this handbook. Each brief may be photocopied and mailed from VDHR and they are easily accessible online. The brief that offers the quickest overview of priorities for the general examination of historic materials is Preservation Brief #35: *Understanding Old Buildings, the Process of Architectural Investigation* (www.nps.gov/history/hps/tps/briefs/brief35.htm).

LIST OF PRESERVATION BRIEFS

NPS Technical Preservation Publications www.nps.gov/history/hps/tps/presbhom.htm

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|--|---|---|
| 01: Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings | 18: Rehabilitating Interiors in Historic Buildings - Identifying Character-Defining Elements | 37: Appropriate Methods of Reducing Lead-Paint Hazards in Historic Housing |
| 02: Repointing Mortar Joints in Historic Masonry Buildings | 19: Repair and Replacement of Historic Wooden Shingle Roofs | 38: Removing Graffiti from Historic Masonry |
| 03: Conserving Energy in Historic Buildings | 20: Preservation of Historic Barns | 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings |
| 04: Roofing for Historic Buildings | 21: Repairing Historic Flat Plaster – Walls and Ceilings | 40: Preserving Historic Ceramic Tile Floors |
| 05: Preservation of Historic Adobe Buildings | 22: Preservation and Repair of Historic Stucco | 41: Seismic Retrofit of Historic Buildings: Keeping Preservation in the Forefront |
| 06: Dangers of Abrasive Cleaning to Historic Buildings | 23: Preserving Historic Ornamental Plaster | 42: Maintenance, Repair and Replacement of Historic Cast Stone |
| 07: Preservation of Historic Glazed Architectural Terra-Cotta | 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches | 43: Preparation and Use of Historic Structure Reports |
| 08: Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings | 25: Preservation of Historic Signs | 44: The Use of Awnings on Historic Buildings: Repair, Replacement and New Design |
| 09: Repair of Historic Wooden Windows | 26: Preservation and Repair of Historic Log Buildings | |
| 10: Exterior Paint Problems on Historic Woodwork | 27: Maintenance and Repair of Architectural Cast Iron | |
| 11: Rehabilitating Historic Storefronts | 28: Painting Historic Interiors | |
| 12: Preservation of Historic Pigmented Structural Glass (Vitrolite and Carrara Glass) | 29: Repair, Replacement, and Maintenance of Historic Slate Roofs | |
| 13: Repair and Thermal Upgrading of Historic Steel Windows | 30: Preservation and Repair of Historic Clay Tile Roofs | |
| 14: New Exterior Additions to Historic Buildings: Preservation Concerns | 31: Mothballing Historic Buildings | |
| 15: Preservation of Historic Concrete: Problems and General Approaches | 32: Making Historic Properties Accessible | |
| 16: Use of Substitute Materials on Historic Building Exteriors | 33: Preservation and Repair of Historic Stained and Leaded Glass | |
| 17: Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character | 34: Applied Decoration for Historic Interiors: Preserving Historic Composition Ornament | |
| | 35: Understanding Old Buildings: The Process of Architectural Investigation | |
| | 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes | |

Preservation Briefs are excellent guides to recurring preservation issues. The *Briefs* follow the *Standards*, which guide all preservation decisions.



• **Repair rather than Replace:**

Always think in terms of repairing historic materials rather than wholesale removal of them. For example, window salesmen often convince homeowners that they need to remove all their windows and replace them with new, “better” windows. However, repair of historic windows results in superior and cost-effective qualities over the long term.



Sandblasting destroys the face of brick, as shown here, and accelerates deterioration. Such treatment is not “reversible.”

Trades Workshops

Increasingly, it is difficult to find tradespeople that are trained in the traditional trades. There are trade schools that specialize in preservation trades (though most trade schools are training for modern materials and techniques). Tradespeople with knowledge and understanding of traditional buildings and related trades do exist and most are even willing to train others in their trades.

Contact the Preservation Trades Network at www.ptn.org for more information about trades training for your neighborhood or for hands-on demonstrations. The members of this organization are well-versed in their particular trade; they wish to spread the word to others that the trades are not “dead;”

and they want others to know that there is plenty of work for those practicing traditional trades. So, if you are a homeowner or a decision-maker on an architectural review board, you can set up training in traditional trades and skills. As a



Workshops with experienced craftsmen can teach proper technique while helping homeowners make decisions about appropriate preservation practice.

result, you can be empowered to make better decisions about preservation techniques and appropriate repairs, whether you are carrying out the work yourself or you are contracting the work.

These concepts are further explained in the *Standards* and can be better understood by consulting the recommended resources that follow:

Virginia Department of Historic Resources

www.dhr.virginia.gov

See the list of regional offices (page 13)

National Park Service

www2.cr.nps.gov/tps/standards/index.htm

www2.cr.nps.gov/e-rehab/

www2.cr.nps.gov/tps/YESS/index.htm

www2.cr.nps.gov/tps/boilerplate/index.htm

“It is revealing that the common worker of a few years ago did all his jobs ‘the hard way’ and with an eye toward their lasting qualities, thinking almost less of his own lifetime than that of his successors.”

– Eric Sloane, *American Yesterday*

Maintenance is Preservation



Though neglected for many years, this house can be saved and even rehabilitated for reuse. Because it is built of durable materials, it can withstand much neglect yet still serve into the future.

Preservation means maintenance—routine, disciplined, cyclical care and upkeep of the property. Usually, the property, or an element of it, has lasted a long time with very little care or maintenance, especially the least accessible elements. Chimneys, soffits, and upper-floor windows are some examples of elements that are most often neglected.

Because it is most often constructed of materials that are far superior to those available today, a historic property can withstand neglect, but it responds beautifully to proper care. Proper care includes a maintenance program, imperative for all historic properties, whether residential, commercial, public, or ecclesiastical. The maintenance plan serves as a detailed guide to routine upkeep.

However, such a plan must be implemented and followed in a disciplined manner, or it serves no purpose. For good examples of maintenance plans, refer to:

Leeke, John. *Managing Maintenance*. Practical Maintenance Report, 1993. See www.historichomeworks.com for more information.

Whelchel, Harriet. *Caring for Your Historic House*.

Heritage Preservation, Harry Abrams, Inc., New York, 1998. ISBN 0-8109-4087-6 (hardcover) www.abramsbooks.com This book has an excellent example of a maintenance plan that can be adapted to the specific homeowner's use.

Water Issues

There are many factors that affect historic structures including human neglect or lack of disciplined, routine maintenance. However, the effects of water are often the most profound. Concentrated attention to where water is going, to what path it takes, will generally offer clues as to what kind of repairs need to be made and where maintenance attention is needed. All moisture and water issues must be identified and corrected before any repair or restoration work is undertaken inside the home. Many times, homeowners begin their restoration by installing interior creature comforts and taking care of aesthetic concerns, only to have water creep in and ruin their work. The easiest and quickest way to discover the source of water penetration is to get out in the pouring rain

and watch where the water is going. Although much can be discovered from the ground, it is important that you safely examine every area of the roofing system during a heavy downpour. You need to determine where the water goes and where you need it to go. Generally, you need it to

go far away from the house. You should inspect each part of the house—basements, crawl spaces, roof valleys, attic spaces, and areas of chimney-roof junctions—in order to eliminate water from the home. Many recurring issues regarding water penetration and moisture control follow.



Algae, seen in the upper left of this photo, is a good indicator of recurring wetting or seepage. The source of the water has to be eliminated before cleaning or before interior repairs take place.



The darker splotches of moss and algae buildup along the base of this house clearly indicate water is splashing back onto this building. Gutters would help guide water away from the building.

“Nothing is weaker than water; yet for overcoming what is hard and strong, nothing surpasses it.” – *The Tao Te Ching of Lao-Tzu*



This is a complicated roof system which ultimately must shed water far away from the house.

Design of Roofs and Roof Systems

The roof and drainage devices of a house are planned as one large working system. It is important to understand the design of the original roof and drainage system before altering any part of it. Additions that join into an existing roof often cause problems at the junction of the two. Puncturing holes into a roof system for skylights or ventilation pipes may also create problems. Finally, redesigning a roof system can create new requirements of maintenance and upkeep; water will be collected in a different way (rotting window sills, mortar joints or porch steps, for example), so the entire drainage system must be redesigned to efficiently redirect water away from the house. Be aware that when modern roofers are called in for repair or replacement, they often consider the materials that they are selling, rather than the entire system of drainage. Most commonly, tar coatings may temporarily plug a leak, though just long enough for the roofer to be paid. Another common approach is for roofers to recommend entire new roofs when repair is all that is necessary (see Roofing Resources on page 60.)

Roofing Materials

Roofing materials can range from modern asphalt shingles to pressed metal, pine or cedar shakes, clay tile, asbestos, tile, or slate, to name a few. Generally, the older materials last much longer than modern composition or fiberglass shingles, as evidenced by comparing the known durability of roofing on historic houses and the warranties that come with the modern materials. A slate roof can last 50-100 years while an asphalt roof is guaranteed for 15 or 20 years. Replacing a superior, long-lasting material (slate, tile, or asbestos-cement shingle) with modern shingles does not make much sense economically when you consider the cost over the life of the roof. Composition, asphalt, or fiberglass shingles are an excellent, low-cost roofing material but they are no substitute for a longer-lasting, durable, historic material such as slate, clay tile, concrete tile, or metal, if these can be repaired in place.

Most homeowners do not realize that although slate or tile stands up to weathering beautifully, the fasteners do not last as well. Corroded or broken fasteners are often the reason for slipping or breaking of otherwise sturdy tiles. If you need assistance to make repairs, search for a roofer that is experienced with these longer-lasting, more

durable roofing materials. Fasteners can be replaced and the roof can last many decades longer than any new 15- or 20-year asphalt roof. There are companies that still make metal shingles and clay tiles. Some salvage companies even specialize in recycling historic roofing materials. Always ensure that flashing is also properly installed and maintained. Just as fasteners corrode, the flashing materials at vulnerable joints often deteriorate over time. Historic roofs can be repaired and can last a long time if properly maintained after the repair.



Joe Jenkins, author of The Slate Roof Bible, demonstrates proper slate installation and repairs. Too many slate roofs are removed when they could be repaired.



Flashing is properly installed when folded and stepped into mortar joints, as seen here.

RESOURCE

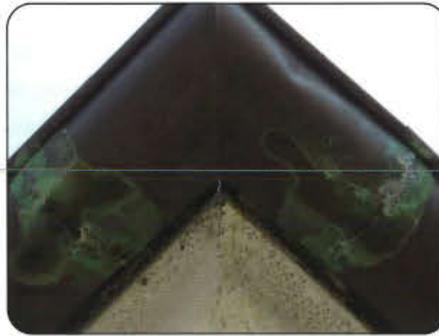
Preservation Brief #39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings.

www.nps.gov/tps/briefs/presbhom.htm

“Great architecture has only two natural enemies:
water and stupid men.” – Richard Nickel, photographer and preservationist



Historic roofing materials are not only more durable but also they can be character-defining elements of buildings, as seen in this house in Richmond's Church Hill neighborhood. These long-lasting roofs can be repaired and the roof can last another 100 years.



Even copper gutters leak if not maintained properly. Maintenance and proper design are the key to proper water drainage.



While the ground gutters shown here may carry water away from the foundation, rain water from the roof has splashed back onto the foundation eroding mortar, resulting in algae and bubbling plaster on the interior walls. Note how the window surround or trim in this photo have deteriorated as a direct result of water running down from the roof of the house.

An ill-conceived but popular notion suggests that copper is the best, and the only really good, roofing material. Copper is, of course, an excellent roofing material. However, it will fail like any other material if one of the following problems are present: the flashing is poorly planned and installed; the roof was installed in a manner that prevents expansion and contraction; or, if tannic acids are allowed to corrode the copper.

Very good roof systems that are not made of copper exist. Design and craftsmanship are more important than roofing materials. It behooves the homeowner to research his-

toric photographs, find out the origin of the historic roofing material, and duplicate those materials in composition, size, and color wherever possible. Historic clay tiles, metal shingles, slate, and composite roofing materials are still made, and today's investment for a long-lasting roofing material could pay great dividends.

Gutters and Downspouts

In order to preserve any historic building, it is imperative that the total roofing system functions properly. Roofs must shed water effectively and gutters and downspouts must take water away from the building.

Efficiency of these systems can be evaluated in your initial inspection during a hard rain. If water is going down the face of the house, if it overflows the gutters, or if it is splashing back onto the walls of the house or the windows, then it is not flowing away from the house properly. It is very simple to clean out gutters on a routine basis. If unsure about the proper flow of the water, place a hose in the gutters and downspout and watch where the water goes. In order to ensure that water is going far away from the house, simply install a plastic pipe and a plastic boot on the end of the downspout and channel the water off the house and away from the foundation.

RESOURCES

Preservation Brief #4:
Roofing for Historic Buildings

Preservation Brief #19:
*The Repair and Replacement of Historic
Wooden Shingle Roofs*

Preservation Brief #29:
*The Repair, Replacement, and
Maintenance of Historic Slate Roofs*

Preservation Brief #30:
*The Preservation and Repair of
Historic Clay Tile Roofs*

www.nps.gov/hps/tps/briefs/presbhom.htm

Weaver, Martin with Frank Matero.
“Restoring Slate Roofing.” *Conserving
Buildings*. John Wiley & Sons, United
States and Canada, 1993.



During a downpour, it is easy to watch rainwater pour over the gutter and over the edge of the roof rather than through the gutters and downspouts.

Many renovations include the elimination of gutters and downspouts, an ill-conceived effort to eliminate the reality that gutters are high maintenance. However, the roof will inevitably drain water onto the face of the building and major new deterioration problems are created.

It is important to consider that many old underground drainage systems (a standard facet of a well-built older house) no longer function to carry water away from the house. They may be broken or blocked so their original purpose is defeated. They must be opened up or relaid if downspouts are tied into them. Amazingly, it can happen that entire roof systems are repaired, gutters and downspouts replaced, but underground drainage is never addressed. It is your responsibility to ascertain that water is flowing through all the systems properly—on a routine basis.



Water is not properly flowing through the underground system if it is pooling at the ground and/or producing moss, as shown here.

Valleys

The junctions of roofs are called “valleys” and most often they are lined in metal. These areas are vulnerable to deterioration, thereby providing an entry into the house for water. It is imperative that valleys be designed with low-maintenance materials. They must also be maintained and painted with rust-inhibiting paint to prevent their deterioration and corrosion. Leaking valleys should NOT be treated with liquid asphalt which is the first thought of many modern roofing repairmen. Asphalt is highly corrosive to metal and guarantees more rapid deterioration of the valley. A roofer with experience in historic materials may be able to replace leaking valleys or can recommend an appropriate solution.



This plastic pipe serves to carry water far away from the building. It ensures that water flows far from the building rather than down underneath the building, over the face of the building, or across windows.

Flashing

Flashing is a metal sheathing between the roof and masonry walls or chimneys. It is most often a galvanized sheet metal (copper is good but unnecessary) cut and tucked underneath the roofing material (whether asphalt, tile, or metal shingles). Correctly installed, flashing should be stepped and folded into mortar joints (mortar joints only; no bricks should be cut for installation), fastened with compatible fasteners, and sealed with a minimal amount of sealant. An experienced roofer will tell you that most roof leaks are flashing leaks.

If flashing is installed flush with masonry and the joint merely sealed with a sealer, it will last a very short period of time. If flashing is coated with liquid asphalt, it will speedily corrode. If the fasteners that nail the metal into position are an incompatible material, the flashing will fail. It is very important that the flashing and its fasteners are made of compatible metals and that the system is properly installed. A watertight roofing system depends on well-executed details.



Tar generally does not stop roof leaks. Furthermore, it causes metal flashing to deteriorate, negating the purposes of the flashing, as shown here.

RESOURCE

See Suggested Readings on Roofing, page 60.



Flashing should always be cut into mortar joints. Crickets installed at the junction of roofs and chimneys can help shed water at a very vulnerable junction.

Chimneys

Chimneys are important design features of houses and their preservation is necessary to protect the overall character of the property. In a hasty effort to eliminate maintenance, many chimneys have been destroyed, either entirely or by the removal of their stacks.

Most often, chimneys can be repointed and cracks filled, thus eliminating water penetration. A “cricket” can be installed at the junction of the roof and the chimney, thereby diverting water away from the vulnerable junction of the roof and the chimney.

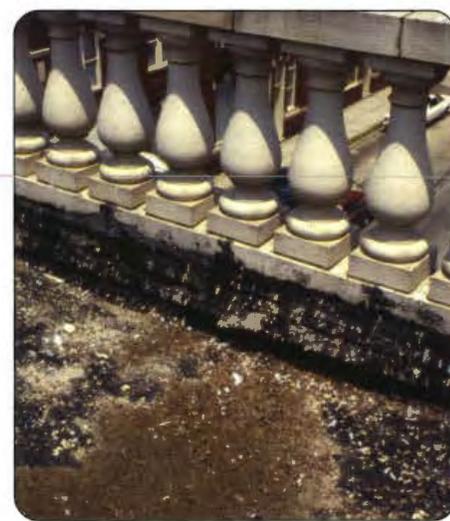
You should never build active fires in old chimneys until they are fully repaired and declared safe by a chimney specialist. Often, old chimney flues can be relined and their use restored or gas log systems can be installed in chimney openings (with and without vents). However, old chimneys require a cautious approach before lighting a fire in them.

Basements and Foundations

Wet basements and foundation walls are frequently perplexing to the homeowner. Rather than observe and evaluate their historic drainage systems over time, they purchase a “waterproof” coating or paint from a big box store and attempt to stop the water in the basement or they buy an expensive consolidant to inject into the masonry wall of the basement and install a fancy French drain system. No coating, consolidant, or new drain system, however, will correct drainage problems that have not first been addressed from above ground. Check to see that all drainage systems function properly, including any that are underground, and that the roof systems function in concert with the drainage system before any expensive work is undertaken around the basement walls. Ensuring proper drainage away from the house is the most important step to take when dealing with wet basements. French drains and waterproofing applications should only be considered after all other corrective measures have been undertaken.

RESOURCE

Weaver, Martin with Frank Matero. “Foundations and Footings” and “Investigating Old Buildings.” *Conserving Buildings*. John Wiley & Sons, United States and Canada. 1993.



Tar does not waterproof parapet walls. Hairline cracks must be closed with mortar, and stepped flashing must be installed into mortar joints.

Parapet Walls

Many houses have masonry or wood walls that extend higher vertically than the roof system. Proper maintenance of these walls is often neglected but they can fall victim to hairline cracks at their junction with the roof or at missing mortar joints, all of which can allow water inside masonry walls. Additionally, because the roof structure and drainage systems generally bank off parapet walls, their joints and intersections become good candidates for deterioration. Just as with chimneys, good flashing is imperative. Again, liquid asphalt will not stop water penetration into parapet walls; it will, however, corrode any flashing that had been installed under it. Parapet walls are high maintenance items and it is important that they be watertight.

Masonry Issues: Know What You Have Before You Begin Work

You must know what you are working with in order to correctly diagnose the problem and to prescribe a proper solution. Our modern materials and the quick fixes so easily available can often do more harm than good. We, as good stewards, must all learn the difference between long-lasting solutions and instant gratification. Do not be like those people who sandblasted their family tombstone to clean it and then wondered how to recall the inscription! It would be beneficial to read product labels carefully and get the material Safety Data Sheet (or SDS) if possible before deciding to use the product. As an example, an environmentally-sensitive building resident wanted to use a commonly-known product to clean the stone portico of his office overlooking the Chesapeake Bay — only to learn the product caused the efflorescence of salts if used on masonry in a salt-air environment!



This brick chimney can be repointed with traditional mortars, eliminating the need to demolish and rebuild it.



Gerard Lynch, noted authority on English brickwork, demonstrates penciling of mortar joints at a workshop.



All stone — whether weathered sandstone or limestone — consists of binders and solids. We can disrupt their natural state if we affect their natural formation with chemicals, blasting, or saturating them in plastics.

What is Masonry?

“Masonry” can be any one of a number of different materials or a combination of several.

Stone: Types of building stone vary significantly but marble, limestone, and sandstone are members of the same family. All are soft, porous, and highly sensitive to acids and chemical pollutants. They are formed in layers which means they can break off in whole sheets if water gets into the layers.

Granite is commonly thought to be impervious to damage, but it, too, can be harmed irreparably by modern chemicals (especially acids and chlorine bleaches) or harsh blasting.

Lime: The result of slaking oyster shells, limestone, or any calcium carbonate, lime is the source of traditional soft, self-healing, breathable mortars, plasters, whitewashes, and stuccos. Understood by ancient civilizations and still used today in less developed countries, lime is the pavement in Mayan ruins, Roman aqueducts, and Virginia’s traditional mortars and whitewashes. With the introduction of Portland cement at the turn of the 20th century, lime technology was virtually lost in this country until recently when its versatility is just now beginning to be rediscovered.

Brick: Bricks range widely in character from soft, old, handmade clay units to modern and hard-fired ones. The exterior crust of soft, old brick is vulnerable to breakage or blasting which leads to rapid deterioration. This happens when water seeps into the soft interior portions and freezes in winter; the expansion of ice causes the brick to crumble or “spall.” Hard mortars will also cause brick to spall.



The face of this brick is spalling, which opens the center of the brick to freeze-thaw deterioration.

Terra Cotta: Akin to brick, this fired clay material is poured as slip into molds; highly decorated detail is possible. Terra cotta may also be cast for roofing material and drainage pipes. Just as brick freezes and breaks, so can terra cotta. Its preservation must be carefully undertaken. Fortunately, many of the original companies that manufactured terra cotta are still in business, using the original molds to recreate their masterpieces.

RESOURCES

Preservation Brief #7: *The Preservation of Historic Glazed Architectural Terra-Cotta*

www.nps.gov/history/hps/tps/briefs/brief07.htm

Weaver, Martin with Frank Matero. "Cleaning Masonry" and "Cementitious Materials" and "Architectural Ceramics." *Conserving Buildings*. John Wiley & Sons, Inc., United States and Canada. 1993.

Concrete or Cast Stone: These two materials are related and resemble stone when tiny pebbles are used in their fabrication. Being man-made, these materials vary in their composition; consequently, their cleaning or repair treatment also varies.

RESOURCE

Preservation Brief #15: *Preservation of Historic Concrete*

www.nps.gov/history/hps/tps/briefs/brief15.htm

Stucco: Historically, this material is man-made, cement-like, and subject to weathering, just like natural masonry. Cracks should be closed with a soft, cement-like material that is softer than the original stucco. Modern "stucco," composed of rigid foam coated with a thin layer of cement, traps moisture behind its cementitious coating, is not durable nor long-lasting, and is not recommended for repair or remodeling of an historic home.

RESOURCE

Preservation Brief #22: *The Preservation and Repair of Historic Stucco*

www.nps.gov/history/hps/tps/briefs/brief22.htm

Mortar: This is the material that joins units of brick and stone and performs a second vital function—it keeps water out of the building. Old mortar is most often of a high lime content which means that it is very soft, self-healing, is most often hand-made, colored by local sands, and expands and contracts with thermal changes. Modern, store-bought mortar is often high in Portland cement, which does not expand and contract, so it can be very harmful to softer brick or stone. (A basic principle of historic masonry is that mortar must always be softer than the units it touches. It was meant to be sacrificial and should also be so today.) Prior to the 20th century, mortar was derived from the slaking of oyster shells or limestone. Because it went through a "lime cycle" from burning to wetting and back to hardening, the chemical reaction that occurred created a durable yet self-healing material. Roman aqueducts, Mayan temples, and many of Virginia's historic landmarks similarly feature traditional lime mortars. Modern cements with crushed oyster shells do not constitute historic lime mortars that have been through the lime cycle. In Virginia, the Virginia Limeworks is recreating the historic lime mortars accurately and should be consulted for any historic masonry work.



The plaster in this photo is located in the attic space. It was scored to look like larger blocks of stone, and then painted a "stone" color while the joints were painted to look like mortar.



Traditional oyster-shell mortars contained no cements. Their setting occurs in a natural chemical cycle, needing no modern cements to harden them.

RESOURCE

Preservation Brief #2: *Repointing Mortar Joints in Historic Buildings*.

www.nps.gov/history/hps/tps/briefs/brief02.htm



Traditionally, oyster shells were slaked and then mixed with sand to make mortars. Limestone or any other calcium carbonate was ideal for traditional mortars.

Masonry Is Not as Tough as It Looks

The proper preservation of historic building materials will ensure their stability for many more (perhaps, hundreds) of years. In the end, slow, well thought-out cleaning and repair techniques will pay off. You must always know and understand your techniques in order to avoid causing inadvertent and irreparable harm to your building materials. Your initial thought process should include determining the answer to these questions: “How clean does it have to be? Does it have to look new when it is not new?” (see Resources for Masonry on page 61.)

Chemical processes occur naturally throughout the life of organic materials. Original stone forms through chemical processes; the making of mortars involves a chemical reaction; pollutants from acid rains affect stone chemically; paint removal is a chemical reaction; salt crystals can form and grow inside stone units—another chemical reaction. Although it is not necessary to fully understand chemistry, it is important to know that we can cause serious harm to historic building materials just by setting adverse chemical reactions into motion. Taking our time and educating ourselves about the products we are using, before they are applied to the material, will prevent serious harm to historic masonry.

Water is the most common element that affects seemingly impervious masonry. The changing pressures of water inside masonry units can displace whole structures. When water freezes, whole units can move or break. Furthermore, water can cause additional chemical reactions within the pores of stone and masonry which, over time, can dissolve binders or even totally crush whole units. It is enormously important that water be shed from the masonry and that it not be allowed to seep inside cracks or open mortar joints (see Resources for Masonry on page 61.)

Cleaning

Cleaning masonry can produce aesthetically pleasing results and prolong its life. If you are replacing mortar joints (known as “repointing”), be sure to clean the original mortar before making color matches. Take care to remove soot, algae and lichen, as they can accelerate deterioration by holding in water and environmental acids.

Cleaning must be performed gently and carefully. Often, a garden hose and a soft bristle brush are the only tools necessary; try simple water soaking and gentle brushing first. If the water alone does not clean the masonry, other gentle (non-ionic) cleaning agents may be needed (in diluted solutions) but always soak the masonry prior to adding any chemical to it. Bear in mind that some of our most common materials in Virginia—marble and limestone—are very sensitive to acids. Therefore, only alkaline solutions should be tested on these materials. The first step in cleaning should never involve detergents or, worse, acids or blasting (whether with sand, water, glass beads, or pecan shells). Never use a wire brush on masonry. A paint remover solution that is specifically designed for restoration work may be used but the manufacturer’s literature should be precisely followed.

Test patches can help determine the “gentlest means possible” to achieve a clean surface. Working in an inconspicuous spot, test various cleaning agents beginning with the gentlest (plain water) and working up to the solution which achieves the desired effect.



Water and a soft bristle brush are often sufficient cleaners for masonry surfaces. Blasting disturbs binders and solids while soaking inner surfaces.



Test patches can help determine the “gentlest means possible.” Whether patches of new mortar or patches of paint remover, it is advisable to try several formulas.

RESOURCES

Preservation Brief #1: *The Cleaning and Waterproof Coating of Masonry Buildings*

Preservation Brief #6: *Dangers of Abrasive Cleaning to Historic Buildings*

Preservation Brief #38: *Removing Graffiti from Historic Masonry*

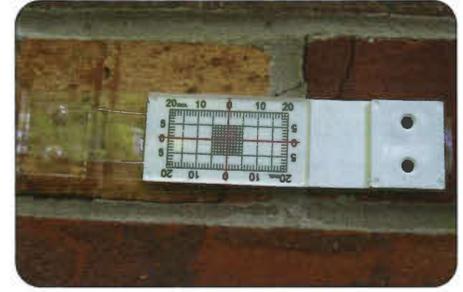
www.nps.gov/history/hps/tps/briefs/presbh01.htm



Jimmy Price of Virginia Lime Works demonstrates appropriate repointing techniques, using traditional lime mortars and lime washes at a recent workshop.



Clearly, the varying crafts persons on this job had no pride in their repointing work. Not only is their handiwork of poor quality and unsightly, but they also used the cheapest product available.



Crack monitors can be applied over cracks to detect movement over time. An alternative to such monitors is a piece of glass secured to each side of the crack.

Repairing and Repointing

Any material used to repair masonry must be compatible with the material it is binding. The repair should also be reversible, meaning it can be removed without harm to the original material. Modern Portland cement will actually crush brick or stone while it traps moisture and introduces salts into the wall. Usually, the best choice in repointing Virginia's historic masonry is a mortar high in lime content, generally from slaked lime putty or a hydraulic lime, but no cement should be added. The formulas prescribed in the Preservation Brief (1 part cement: 1 part lime: 6 parts sand) should be avoided unless the brick is known to be hard fired. Mortar should be colored by matching the sands in the original mortar which may have originally come from a nearby creek bed. Generally, a careful mason can execute a matching mortar joint that is not easily detected. Test patches will ensure a proper job. If you are working with a conscientious mason and are armed with the knowledge of what the final product should look like, you can expect excellent results (see Resources for Masonry on page 61.)

There are many modern materials that have been developed to assist in masonry repairs. For example, companies manufacture colored hydrated mortars in order to eliminate hand mixing but you have to ensure the modern material is compatible with the historic materials. Epoxies have been developed

for adhesion as have consolidants and stone strengtheners. However, you must know and understand these materials, their compatibility with the stone, and their reversibility before they are injected into masonry. Most are new products so it is unknown how they will weather, their compatibility, or how reversible they are. Beware of the "quick fix." A conservator should always be involved when major consolidation or conservation issues are considered with historic masonry because technology is changing rapidly and a product that might be considered good today may be discredited tomorrow.

RESOURCE

Preservation Brief #2:
*Repointing Mortar Joints in
Historic Buildings*
www.nps.gov/history/hps/tps/briefs/brief02.htm

Cracks

Hairline cracks are not always something to be alarmed about; however, all cracks should be regarded as potential entryways for water. They should be sealed with cement-like materials (essentially watered-down mortar), never with silicone caulk, wood putty, or bathroom caulk—they are incompatible with the original materials, are unsightly, will break down when exposed to sunlight, and their sealing ability is quite limited.

Wide cracks need special attention and evaluation by a structural engineer, especially when they cross through brick or stone.

Observe changes carefully. Crack monitors can be installed over cracks, so that changes can be charted over time. A low-tech crack monitor can be made with a glass slide (used with microscopes); glue it over a crack. If it breaks, significant shifting is occurring, and an engineer should be consulted.

RESOURCE

Preservation Resource Group
www.prginc.com

This company sells many different products useful to preservationists including crack monitors. Molding profile gauges, moisture meters, borates, and epoxies for wood treatment are also available.

Sealers and Coatings

The same preservation principles discussed earlier hold when it comes to deciding whether to apply a coating or a sealant. Modern marketing of sealants and coatings has created the misconception that coatings or sealants are necessary in order to maintain a watertight condition. This is not true! It is almost impossible for sufficient damage-causing moisture to enter a well-maintained masonry wall. It is imperative that evaluation of problems from elsewhere be undertaken and that those problems are solved first. Joints must be properly repointed; hairline cracks must be closed; and water must be properly diverted away from the building. Generally, a coating of what is basically "plastic" or "rubber" will



This rubberized coating has trapped moisture behind it, producing mold and algae between the coating and the brick. Such coatings accelerate deterioration of masonry.

not alleviate water penetration, particularly when the basic related repairs have not been made. Furthermore, coatings are not

reversible and are not long lasting; just like paint, coatings must be renewed; worse yet, they trap moisture behind their film. Buildings must breathe, allowing interior household moisture to escape through the natural building materials. Though many sealers and waterproof coatings are touted as “breathable,” they are not readily recommended on historic masonry. Traditionally, masons used lime renders as “waterproofing” which worked well while allowing moisture to pass through the building.

Furthermore, such renders were self-healing and easy to renew. Whitewashes were simply lime washes which could be colored but most often were white and were applied frequently to the exterior of the masonry.

RESOURCE

Preservation Brief #1: *Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Building*
www.nps.gov/history/hps/tps/briefs/brief01.htm

Wood Issues

Wood, the original building material of our state’s settlers, has been cut and hewn for many different purposes in housing and has deteriorated for any number of reasons. Only the most common, recurring issues will be dealt with in this handbook; many resources are available for further independent study.

RESOURCE

Weaver, Martin with Frank Matero. “Restoring and Repairing Old Wooden Structures.” *Conserving Buildings*. John Wiley & Sons, Inc., United States and Canada. 1993.

Natural Material

One of the most important aspects of wood is its natural ability to withstand varying weathering conditions and that characteristic is directly related to the age of the tree when it was cut. Historically, wood was cut from old-growth timber (growth rings are closer together); new wood is from fast-growth timber (growth rings are farther apart). Old wood is more durable and withstands deterioration much better than newer woods. (However, all wood needs protection from ultraviolet light. Remember that trees have bark for a reason! Therefore, never expose wood to sunlight. It always needs to have a pigment between its soft growth wood and the sunlight.) Durable modern woods are hard to find and expensive to secure, so it is good to know proper installation techniques as well as good materials when working with historic woods. Proper installation is an important aspect of wood’s ability to shed water and to weather efficiently. For example, when growth rings are turned down during installation, the wood will shed water; when growth rings are turned up, the wood will trap water and deteriorate faster.



Think of wood’s formation as a bunch of straws. Water and oxygen travel through these “straws” and wood must maintain 17% moisture in order to retain its integrity.

Wood must breathe. It must be able to expand and contract with thermal and moisture fluctuations and it can be severely damaged by man’s machinery and/or neglect.

Wrapping wood in plastic (vinyl siding or even modern vinyl paints) is the worst thing we can do to the natural material. Such treatment creates the perfect opportunity for deterioration since the wood cannot breathe and moisture is trapped. Additionally, homeowners have found out the hard way that sandblasting machines can irreparably damage wood. Their harsh treatment pulverizes the soft portion of the wood leaving a fuzzy, hairy surface that is difficult to paint.

Wood construction is an important indicator of the period in which the piece was constructed. Of special importance in historic houses are small, seemingly insignificant details, such as moldings and molding profiles. They tell much about period taste



Historic slow-growth wood is far superior to modern fast-growth wood, so it makes good sense to preserve good wood in windows, moldings, and structural members.

“Barns...were designed to shrink and allow for ventilation during dry hot weather.” – Eric Sloane, *American Yesteryday*



Chemical paint removers and blasting paint off of wood can leave a fuzzy surface, as has occurred here, that probably cannot hold paint again.



Wood epoxy repairs can consolidate historic wood and can prolong the life of superior materials.



Wood can be repaired by splicing (shown here in the horizontal piece), thus retaining some historic wood in perpetuity.

Wood Repair Techniques

Wood can often be repaired instead of replaced. Historic wood is worth keeping and maintaining, wherever possible as stated earlier, because of its superior quality to any fast-growth wood that is available today.

Historic wood can be salvaged and its life prolonged through the proper use of modern wood epoxy consolidants. Missing sections of historic wooden elements or deteriorated sections can be made whole again with this modern material and the surface sanded and painted. When properly used, wood epoxy can eliminate the need for refabrication of whole wooden elements thus saving money on labor and material costs. However, epoxies cannot withstand exposure to sunlight and cannot be spread over the surface of wood or any other natural material. Cracks can be filled but the surface must remain exposed so the wood can breathe. Following epoxy consolidation or repair, wood members should be sanded, primed, and repainted. Again, such consolidation can prolong the life of the historic material. However, it does not replace the original material in life expectancy.

Many times, large sections of wood are missing or have deteriorated. In some cases, new wood can be cut and fabricated for installation alongside solid original detailing.

(This technique is called a “Dutchman repair.”) It is important that the craftsman match the original wood joinery and the replacement wood must match the original wood in weathering abilities and in the graining patterns so that water is shed at similar rates. Epoxies can be used to adhere new wood to the old; the new insert can be sanded and painted to match the old wood.



Vinyl siding masks details of original wood while it traps moisture and masks deterioration underneath.

and technology and can be found on trim, siding, windows, doors, soffits, or crown moldings. In fact, historic wooden elements may even be dated through dendrochronology or dating growth rings. Much care should be taken to preserve and match such details. The same holds true of shutters, blinds, doors and windows.



Wooden windows are character-defining elements of historic houses and function as the “eyes” of the building. Though awaiting restoration, this building’s lack of window openings makes it look blind or “sightless.”

“...the beauty of old American windows will never be recaptured by the mass-production methods that seem necessary for modern buildings... they cannot be reproduced today with the same grace and workmanship.” – Eric Sloane, *American Yesterday*

Historic Wooden Windows

Because historic wooden windows are often treated as wholly dispensable elements of historic buildings, their restoration has become a recurring issue at VDHR.

Take a few minutes to examine your old windows before you make a hasty decision to replace them. Here are some points to consider:

- Your old windows have survived for many years with minimal maintenance.
- Old windows need only restoration to be airtight again.
- Old, slow-growth wood is far superior and more weather-resistant to modern, fast-growth wood. It behooves any homeowner to retain old wood wherever possible.
- New windows have limited warranties; new vinyl windows have a 20-year guarantee at best; new wood windows have a 10-year guarantee. This is why they are called “replacement” windows: you have to replace them and replace them!
- Wholesale replacement of all windows is not an acceptable preservation practice. Always, the ultimate goal should be to repair and maintain historic wooden windows rather than to replace them.
- Repair of historic wooden windows has been proven to be less expensive than total window replacement.



Historic wooden windows, their construction and repair, can best be understood through a hands-on, interactive workshop.



Historic wooden windows, their construction and repair, can best be understood through a hands-on, interactive workshop.

- The final product of a restored window is a more satisfactory solution as important elements of a building are retained in the final restoration of the building.

Often, all that your windows need is good paint preparation and new putty, or, put into simpler terms — basic maintenance. Maintenance can include the addition of weather-stripping at the sides, tops, bottoms, and meeting rails of the windows. Many repairs may be undertaken while the windows remain in place.

If areas are rotted, consider epoxy repair and consolidation. Consolidation with liquid epoxies can save better-quality wood in windows and even sills. Consolidation should be considered if less than 50% of the wooden area is missing. Following consolidation, wood surfaces can be sanded, primed, and painted again.

If larger areas (more than 50%) need replacement, consider Dutchman repairs. Many times, larger sections of windows are rotted or missing and consolidation is not always an option. However, Dutchman repairs should be considered before entire refabrication of the element (see previous explanation under “Wood Repairs.”) Cheap, easily available wood will not weather at the



Rotted wood can be filled with epoxy fillers, prolonging the life of the more superior historic woods in windows and doors, sills and joists.

same rate as the historic wood so the best possible quality wood should be obtained along with epoxy adhesives, proper priming, and a good paint job.

When an entire window sash is missing or deteriorated beyond repair, fabrication of a new window element is necessary. It must match the original in design, profile, and material. Often, new wooden windows must be made by hand with special molding planes; rarely can they be purchased from a local source. Close attention to detail will ensure that new windows duplicate the original windows in material and in appearance. Never should all windows in a home be totally replaced. Replace the missing window or window element only; resist the impulse to make all new windows.



If sashes need to be replaced, new materials should match the old ones; the sash profile can be shaped to match the historic moldings.



If windows have been thoroughly restored and weather stripped and still feel drafty, then storm windows serve as an acceptable preservation technique.



Frequently, wooden structural members can tolerate significant termite damage or deterioration while maintaining structural integrity.



Historic houses were built off the ground in order to maximize ventilation underneath. The latticework between the piers of this house allows for circulation of air while it keeps out animals and pests.

Window Alternatives

If your windows seem cold after you have restored them or if you want to protect your windows from rain and weathering, you might consider installing storm windows. A few important points should be considered:

- Storm windows should have baked-on enamel finishes which match the window trim. (Shiny aluminum is generally unsightly and should be avoided.)
- Meeting rails of storm windows should match those of original windows.
- Weep holes are imperative in the bottoms of storm windows. Never seal those tiny openings because they allow moisture to drain and the windows can “breathe” and dry out.
- Interior storm windows are an option. These have been installed in house museums where exterior elements were important, where UV film can be applied to the new window, and in situations where windows needed to be installed and removed on a seasonal basis.

Steel or metal windows are found in historic housing and are significant character-defining elements of a historic home. These windows often have problems that range from rusting to tremendous paint buildup and these issues often prevent their efficient operation. A skilled craftsman can restore metal windows to their original, airtight efficiency and for much less than it would cost to fabricate new windows. Furthermore, important historical elements are restored rather than replaced.

RESOURCES

Preservation Brief #9: *The Repair of Wooden Windows*

Preservation Brief #13: *The Repair and Thermal Upgrading of Historic Steel Windows*

www.nps.gov/history/hps/tps/briefs/presbhom.htm

Termites and Other Wood-Destroying Pests

In Virginia, we are generally aware of the dangers of subterranean termites. However, we may be less aware of the threat of wood-borer beetles, carpenter ants, and carpenter bees. Each can do significant damage to our home’s structural systems if left untreated. Most historic systems can withstand quite a bit of damage and maintain structural stability so don’t give up on a historic home or materials if it bears the marks of termite damage or wood borer beetles.

Treatment for these different pests varies but they must be dealt with, either chemically or by eliminating the conditions necessary for their survival. Subterranean termites, like any living creature, must have food and water to survive. Their food is the cellulose found in soft wood. They must also have water which they can readily obtain from leaky pipes adjacent to their food or from moisture in the soil. Under the right conditions, termites can destroy wood from ground level all the way into attic spaces. Despite popular belief, termites have even been known to eat heart pine and oak. It is important to eliminate the conditions that are necessary for the termites’ survival. Begin by ensuring good ventilation underneath the house.

Then, clean up all superfluous wood in the basement area, including small scraps. Next, provide 18” clearance between soil and any wood. Coat any new wood with borates. When it is not possible to remove wood from ground contact, coat wood with borates.

Then termite shields should be installed; these simple devices (simply sheet metal placed between wood and soil or masonry, in many instances) prevent the termites’ passage into the framing members of the house. Always provide active ventilation underneath the house even in the cold months of the year. (Most homes were built on piers with plenty of open ventilation, the ideal situation for the evaporation of moisture.) Third, eliminate all water from around the building. These simple steps should be taken before contacting an exterminator who will readily pump dangerous chemicals into the ground. You can counteract the need for chemicals by eliminating the conditions that are conducive to termites’ survival. (Note: A new strain, the Formosan termite, has been introduced to our country and has appeared in the Deep South. These termites fly into buildings to nest, eat wood, and then fly away from the building for water. Technology is being developed to trap and eliminate this pest but it is not yet known what works the most effectively to reduce their infestation. (See Wood Repair and Restoration on page 61.)



This building was infested with powder post beetles which necessitated its tenting for treatment.

Paints and Finishes

Wood has bark for a reason. It cannot withstand harsh ultraviolet rays of the sun because soft cellulose and lignum binders break down causing the wood to deteriorate. Paints are preservatives for wood as they provide pigment protection from the sunlight. As long as paints allow vapor to pass through them, they serve as the “bark” on the wood. (Always check technical literature for “vapor permeability” of the product that you are using.) Not only do paints protect building materials from harmful elements but they provide a quick way to address aesthetics. Finishes on historic buildings require routine, cyclical maintenance. A disciplined painting program will prolong the life of the house because it will protect it from the elements. Additionally, the monitoring of chipping or peeling paint can give clues to other maintenance problems. For example, if gutters are leaky, the areas underneath often discolor with algae buildup; if paint peels, you will know that there is excess moisture somewhere that needs attention. If you simply apply new paint, the underlying problem continues.



Paint color is an important indicator of changing taste throughout history.



Peeling paint is a clue that there is moisture behind the film. Eliminate the moisture, prepare the surface properly, and the paint should perform beautifully.

Historical Paint Colors

Paint colors are an important document of the house’s past. Throughout history, the choices of color and how they were used have been purposeful and they exist as an indicator of taste during the periods in which they were applied. Painted finishes contribute to the total story that can be learned from an historic house. Paint colors cannot be accurately matched by scraping on site and viewing with the naked eye because oils in the paints fade and turn yellow and also because paints change when covered with subsequent layers of finishes.

and labeled for examination under a microscope. A laboratory analysis is necessary for accuracy in documenting and matching historic paint colors. Such an analysis must be performed in conjunction with documentary research and the full knowledge of early alterations and changes that have occurred at the house.

Hazardous Paint

Most primers and paints contained lead before it was banned in the 1970s. Lead was the ingredient that provided superior adherence and colorfastness that is not equaled by today’s paints. Lead is dangerous—when it is disturbed, when it is ingested, or when particles are released into the air and the lungs. The presence of lead paint is not necessarily a source for panic, however, nor must homeowners spend thousands of dollars totally removing lead paint or painted elements from the home.

Interim hazard controls of old lead paint are important preservation options. Loose paint should be scraped, edges feathered, and well-adhered paint retained and painted over. Of course, you and any other workers should wear protective clothing when scraping or removing paint. Masks with HEPA filters should be worn and precautions taken to avoid inhaling particles of lead paint. All loose paint should be transported to a landfill.

Any lead paint that is well adhered should be left in place and painted over. Not only is it a health hazard to disturb it,



Under a microscope, it is possible to see multiple layers of paint which indicate many periods of changing taste in interior decoration.



The painted history of the house tells the story of changing taste. It is best to leave that story intact so that scientific paint research can be undertaken.

RESOURCE

Matero, Frank. “Paints and Coatings.” *Conserving Buildings*. Edited by Martin Weaver. John Wiley & Sons, Inc., United States and Canada. 1993.

The painted history of a house can be discovered through historic paint color analysis which is performed by professional conservators both on the site and in a laboratory. Small samples of the different layers of paint history (and equally important, the surface to which the paints are attached) are removed

it is a material that is performing to maximum standards that cannot be duplicated today. Leave it alone if possible. It is a wonderful preservative that protects the history of the house.

RESOURCE

Sharon C. Park, AIA and Douglas C. Hicks. Preservation Brief #37: *Appropriate Methods for Reducing Lead-Paint Hazards in Historic Housing* www.nps.gov/history/hps/tps/briefs/brief37.htm

Surface Preparation

When you paint any surface, historic or not, remember that proper surface preparation will ensure adherence and prolonged life for the primer(s) and the finish(es) coat(s). However, total paint removal is not a recommended first step in preparation for painting, for many reasons, which range from the dangers of breathing toxic vapors to permanently damaging the surface material. It is recommended that any paint that is well adhered be retained in place. As with lead paint, the well-adhered material is probably superior to those that are available today. Additionally, the painted finishes are a significant part of the history of the particular house.

As discussed in Preservation Brief #10, simple steps lead to a well-prepared surface:

1. Clean off all dirt and mildew. Let the surface dry.
2. Scrape any loose paint.
3. Sand and feather the edges of the paint that is adhered.
4. Thoroughly clean the surface before applying primers and subsequent paints.
5. Prime the surface with a factory-approved primer.
6. Paint with a finish coat that is compatible with the primer.

Many of the reasons for paint failures are related to surface preparation. It is imperative that any underlying problems be addressed before painting. Deteriorated wood must be repaired, consolidated, or replaced and the reason for that deterioration must be discovered and addressed. Approaching any painting project with the “gentlest means possible” will ensure the preservation of the house, its finishes, and its materials.

Compatible Materials

Paints must be compatible in order to have a long-lasting finish. Ideally, well-adhered oil paints should have oil paints applied over them. However, because they are cheaper and easy to work with, homeowners often prefer to use latex paints. Latex paints will not last as long as oil paints because they discolor and become brittle when exposed to sunlight. All paints should be used as directed by the manufacturer who will recommend the proper, most compatible products.

Paints and coatings must also be compatible with the material on which they are applied. Unpainted masonry should never be painted or coated. Masonry does not generally hold paint well so painting it generates continual maintenance and upkeep. Wood, on the other hand, should always be painted. Cellulose in wood is extremely sensitive to sunlight even if the wood is as fine as mahogany. A “clear” coating on exterior wood must have some pigment in it in order to protect the wood from ultraviolet exposure. Natural wood front doors, in vogue today, will not withstand the effects of ultraviolet deterioration unless there is some pigment in their clear coating.

There is a new liquid vinyl paint product on the market that ensures the “elimination of all future maintenance” according to the sales pitches. Again, this quick, easy cure should be avoided, primarily because it traps moisture which occurs in any home with people, kitchens, and bathrooms. Furthermore, the treatment is not “reversible” and when it fails, it cannot be removed.



Latex paint applied over limewash and damp brick – results in unsightly results because of incompatible materials.

RESOURCE

Preservation Brief #10: *Exterior Paint Problems on Historic Woodwork* www.nps.gov/history/hps/tps/briefs/brief10.htm

Aluminum and Vinyl Siding



This vinyl blew off the porch because there was so much rot underneath that the fasteners could not hold it in place. Actually, this porch joint is very dangerous and the rot has been masked by the vinyl covering.

Siding does not eliminate painting or additional maintenance. Unfortunately, siding salesmen are quite convincing and any homeowner who has been physically and financially challenged to keep paint on their house would be tempted to investigate alternative methods of masking their paint problems. However, the problems that create the paint failure must be addressed, or they will continue. A wrapping of plastic, which is essentially what vinyl siding is, traps moisture, encourages the growth of mold and mildew, and encourages wood deterioration.

It must be realized, also, that any future problems cannot be “read” under siding. Many houses have deteriorated underneath siding, and termites thrive under such conditions. A situation is created where deterioration is accelerated and the ability to read that deterioration is masked. This combination is deadly for the historic house or the building. Finally, vinyl is enormously toxic – in its production, in its destruction (particularly in fires), and in the gases it produces. Vinyl is not GREEN.

RESOURCE

Preservation Brief #10: *Exterior Paint Problems on Historic Woodwork*

Preservation Brief #8: *Aluminum and Vinyl Siding on Historic Buildings* www.nps.gov/history/hps/tps/briefs/presbhom.htm

Metals

Basic Considerations

Metals used in historic homes range from sheet metal to steel, with many others in between. Iron is part of most of these metals (in fencing, flashing, or tie rods). The notable property of most metal is that it will rust if exposed to moisture and oxygen. Therefore, metals must be coated to protect them from moisture and that coating must be maintained throughout the lifetime of the metal. If left uncoated, rust will grow and it can even displace or crack building components as large as blocks of granite.

Metals are also subject to a chemical reaction known as “galvanic action.” This is corrosion that occurs between incompatible metals. Galvanic action must be considered when metals are placed next to each other as in the case of fasteners (roofing nails, for instance). The safest thing to do is to make sure the metal and the fastener are the same metal or alloy. Copper flashing, for instance, requires copper nails. In no case should aluminum and copper be installed side by side! Other materials can cause metal corrosion; for example, when concrete is



Metal roofs are very durable, if painted and maintained.

Metal Roofing Materials

Metals are found within roofing shingles and their fasteners, as well as in valleys and flashing. General considerations are discussed in the roofing section so a reminder will suffice. Roofing metals must be compatible, or all efforts to install a watertight roof system are futile. Flashing, valleys, gutters, and all fasteners must be compatible with one another and must be coated to protect them from weathering. Most historic metal roofing materials are still being manufactured, and some shingle-makers are still in business today. Historic metal roofing is worth maintaining as it has lasted quite a long time with very little maintenance.

Modern metal roofing systems rarely simulate historical metal roofs. Primarily, the pans (the flat area between the seams) are narrower than historic metal roofs. (Historically, pans were 16” to 24” wide or wider.) Further, they are often installed without consideration for historic rooflines so the historic drainage system is frequently totally altered (usually throwing water down the face of buildings and windows rather than through historic scuppers and downspouts). Attic ventilation is altered (or eliminated), promoting deterioration of wooden roof trusses. Finally, they trap fires so that damage is more traumatic for the historic building (and people inside) than if there were a chimney and historic roofing system in place.



Nail technology is useful in helping to date historical buildings.



Iron corrosion will displace large pieces of stone if not laid in lead pockets.

poured into steel or iron decorative pieces, it produces dissimilar chemicals that accelerate corrosion of the steel or iron (along with expansion pressures). Therefore, if a railing must be installed in concrete or stone steps, a lead liner should be used to separate the incompatible materials and inhibit corrosion.

HIERARCHY

Hierarchy of Some Common Metals in Historic Houses

Weakest Metal

(most active corrosion)

Sodium

Aluminum

Zinc

Chromium

Iron/Steel

Brass

50-50 Tin-Lead Solder

Nickel

Lead

Copper

Strongest Metal

(least active corrosion)



Carpenter and Company seals (shown to the right of the knob) changed throughout the history of the company, so the locks can be dated fairly accurately.



Cast iron fences can endure some neglect, but just as all metals rust, so should these fences be painted regularly.

Hardware

Locks, hinges, shutter hardware, screws, and nails can all contribute to the story that the house has to tell. Hardware technology and manufacture evolved with a history that can be documented—patent dates are very helpful in dating hardware. Often, locks will have dates stamped right on them. Each little nail or screw in the house contributes to the entire story. Be diligent about leaving original materials in their original location, and, if it is necessary to remove nails or screws, document and retain them for future interpretation of the house.

Cast Iron Railings or Fencing

Generally, decorative cast iron and wrought iron are very durable materials as long as they are kept painted and maintained. Old paint can be cleaned off cast or wrought iron using harsher methods than generally recommended for other historic elements of the home. Blasting may be utilized but only after you determine what is the “gentlest means possible” for cleaning paint off the ironwork. Often, for a small job, a steel bristle brush will suffice. A wet blast should be avoided since water is the biggest enemy of steel or iron. There are many dry blast, as well as chemical, techniques for paint removal on large projects.

Remember that a bare surface should be primed and painted within minutes of paint removal as corrosion begins again instantly when the surface is exposed.

RESOURCE

Preservation Brief #27: *The Maintenance of Architectural Cast Iron*
www.nps.gov/history/hps/tps/briefs/brief27.htm

Weaver, Martin with Frank Matero. “Architectural Metalwork.” *Conserving Buildings*. John Wiley & Sons, Inc. United States and Canada. 1993.

Additions to Historic Homes

There are several things that the homeowner must consider when adding on to an historic house. Of course, their work must comply with requirements of local zoning officials. Homeowners are obligated to comply with building code officials and the requirements for safety in homes. Before issuing a building permit, inspectors will need to know that residents will be safe and that codes will be enforced in any proposed work. Finally, plans must be reviewed if the homeowner is taking advantage of any tax credit opportunities. (Though a credit probably cannot be taken for the new work, the size, scale, design, and adherence to the *Standards* will be reviewed for compliance.) Again, it is important to work with architects and con-

tractors who are familiar with old buildings so that the rehabilitation work is both sensitive to historical integrity and complies with code issues and *Standards*. Sometimes, changes to structures may meet minimal code requirements in order to protect historic integrity. Do not hesitate to contact VDHR if questions about special exceptions for code compliance arise.

The Secretary’s *Standards* offer guides to decision-making for building new additions on historic houses. Some points to consider are:

- Add onto the rear of the house or out of sight on the side of the house. Avoid altering the front of the house.
- New additions should not overshadow the old house whether in color, size, or material.

- New additions should blend with the original design but they should not look historic.
- Ground disturbance destroys archaeological features. Assess the archaeology in the area before it is destroyed.

The *Standards* emphasize that old additions can gain significance in their own right. If it is over 50 years old, an addition is considered historic and should be evaluated for its significance before it is removed. Porch remodeling is an excellent example of historic alterations; 19th-century Victorian porches were very often changed in the 1920s to square-columned porches but such changes in taste are considered to be significant in the evolution of architectural history.



Additions and alterations can gain significance in their own right, as evidenced in the photo of a 1745 house in Port Royal. Carefully consider an addition before demolishing it.



This 17th-century cemetery lies in a private yard in Denbigh area of Newport News. Fortunately, the owner is sensitive to the early graves that are marked. However, the total number of graves in the original graveyard is unknown.



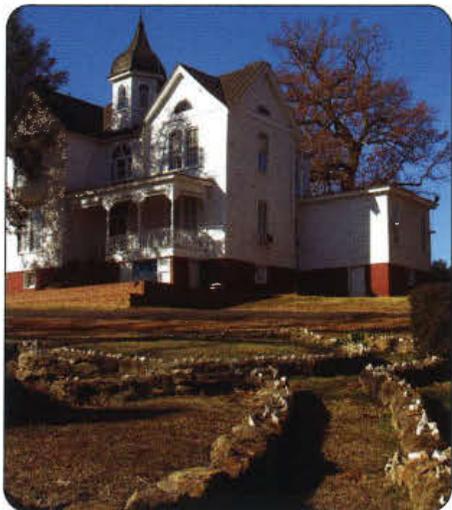
Much information about a Native American village was discovered in this subdivision development. (Post holes to a building form an oval to the right of the person pictured in the center.) Virginia's underground resources are vast, so take great care when digging. (Photo: Dave Hazzard.)

Landscapes and Back Yards

There are numerous things to think about concerning historic landscapes, plant materials, and the clues they give about the property's history. Maintenance and drainage issues have been dealt with earlier in this handbook. Plant materials, archaeology, and underground cultural resources are areas that are not as apparent to historic homeowners. Much planning and research should be undertaken before any ground disturbance because so much can be lost forever with a backhoe or bulldozer.

Maintenance of Landscapes and Back Yards

Drainage away from the home is of paramount importance. As has been discussed,



Located on the campus of St. Paul's College, in Lawrenceville, this garden features some special, individualized details that should be recorded and preserved as part of the significant history of the building and grounds.

gutters and downspouts must carry water down off the house and then the water must travel away from the house. Underground systems must function properly; above-ground systems must carry water away from the house; and the slope of the yard must be positive and away from the house.

Bushes and foundation landscaping are a 20th-century phenomenon and are inappropriate around 18th- or 19th-century houses. Furthermore, they are harmful since their roots grow into foundations and they trap moisture against the house. The little "feet" that attach vines to the house will corrode mortar joints; they trap moisture against wood or masonry, and vines make pathways for termites to reach upper stories. Tree limbs hanging over roofs and eaves encourage moisture. Do not install irrigation systems up against the house and foundation. Many people wonder why the basement floods or rising damp causes blisters on interior plaster even though they have an irrigation system continually soaking the foundation plantings!

Ground Disturbance and Archaeology

Archaeological documentation may tell a great deal about an historic house, its related outbuildings, its gardens, and pathways. Information never recorded on paper can become lost from the memories of old-timers but it may be waiting just under the surface of the yard. It may turn out that an old outbuilding is actually an old slave quarter, for example. Because these structures are



To ensure that ground water drains away from the house, install gutters and downspouts and even build swales to channel water away from the building.

disappearing at a rapid pace, such a discovery could help to document a very important, very significant aspect of Virginia's history. But all opportunity for such discovery is lost if a backhoe or bulldozer disturbed the ground perhaps in order to install a driveway or a new addition to the house.

Do not disturb a known archaeological site before you consult with professionals at the VDHR or at a local university. You may be



A developer discovered an unmarked cemetery (a casket is outlined) when cutting a road. Work halted immediately and the graves were relocated.

surprised that an assessment by an archaeologist may be neither expensive nor time-consuming. Ground-penetrating radar (GPR) can help detect what is underground. Infrared photography can detect irregular heat patterns in the ground. These, along with simply probing the soil, could indicate where structures, plant materials, or even people, lie beneath the surface of the yard.

It is always an excellent idea to photograph and document any area of the yard before it is destroyed. Historic plant materials and landscape information is hard to reconstruct at any property and, the more information that can be saved or documented, the more that can be shared with others. Remember that archaeology can tell much of a property's story and archaeologists even assist architectural historian and homeowners in surveying and researching the property.

Historical Plant Materials

If you want to identify historical plant materials in your yard or learn more about historical plantings, contact your county extension agent. There are excellent resources in Virginia who are knowledgeable about what plants were popular in the state at different periods, how landscape materials were planted, and how to locate such materials today. Find out what you have!

Many native plants in Virginia are rare or even endangered. Other old plant materials are unknown to those who wish to recreate

landscapes today. Record what you can through photographs and names (if known) before native plants or historical planting patterns are destroyed.

Family Cemeteries

Cemeteries are a common feature of rural Virginia and are often located adjacent to historic farmsteads or homes. Family members were buried near the homeplace, along with household servants. Graves of slaves may have been unmarked and located outside the wall of the family cemetery. Be aware of those who may lie outside the marked boundary lines.

Much literature exists regarding the appropriate repairs and cleaning of grave markers. The same rules hold true as for masonry buildings.

- Use the gentlest means possible (water and a soft bristle brush) rather than acids, chlorine bleach, or blasting.
- Repair using similar materials. No Portland cement or car-repair putty should ever be used on gravestones.
- Do not let livestock run loose over graves and markers. A fence will aid in protecting graves. However, due to the high numbers of unmarked graves likely to be found in a marked cemetery, it would be prudent to determine where the graves are located (through probing or ground penetrating radar) prior to installing a fence post.



Cemetery markers are best repaired with dowels. Glues and cement adhesives cause more problems for weathering stones, so their use should be avoided.

RESOURCES

Favretti, Rudy J., and Joy Putman Favretti. *Landscapes and Gardens for Historic Buildings: A Handbook for Reproducing and Creating Authentic Landscape Settings*. American Association for State and Local History - Altamira Press, 1991. ISBN 0761989307

An excellent guide to follow when recreating historic landscapes.

RESOURCE

Preservation Brief #36: *Protecting Cultural Landscapes*
www.nps.gov/history/hps/tps/briefs/brief36.htm

FOR INFORMATION ABOUT
 HISTORIC BURIAL GROUNDS AND CEMETERIES,
 CONTACT VDHR

Interiors

The interior spaces of homes are where the owner's personal tastes prevail. However, it is the detailing of historic houses that make them appealing. The owner of a historic home should think in terms of adapting himself/herself to those features that are special to the house, rather than the other way around. Of course, the Secretary of the Interior's *Standards for Rehabilitation* should also be consulted and understood at all points of decision-making. Interior work should be reversible, just as that on the exterior. If the homeowner is taking advantage of the Virginia Rehabilitation Tax Credit, then the *Standards* must be followed. This section of a *Handbook and Resource Guide for Owners of Virginia's Historic Houses* is not meant to provide answers to all situations encountered inside historic houses. The *Old-House Journal* (www.ohj.com) offers much information regarding the possible dilemmas of old house renovation. Old-House Journal publications and magazines are indexed and specific questions about such topics as old bathrooms, hardware for pocket doors, and sources for old house repairs can be answered with some research and time. Contact VDHR for specific questions you

might have about sources or specific repairs.

The furnishings of a historic home probably were of the same period as the house when it was new, with some earlier pieces mixed in. The owner of a historic home will surely want to understand the taste of the period of the home so that they can make decorating and furnishing decisions accordingly. Many historic homeowners enjoy searching for furnishings and other accessories that match the period of their homes. There are many resources available and many of these are referenced in the "Resources" section herein.

Some recurring issues, if understood up front, can guide a homeowner away from some common pitfalls. These issues will be briefly discussed.

Planning

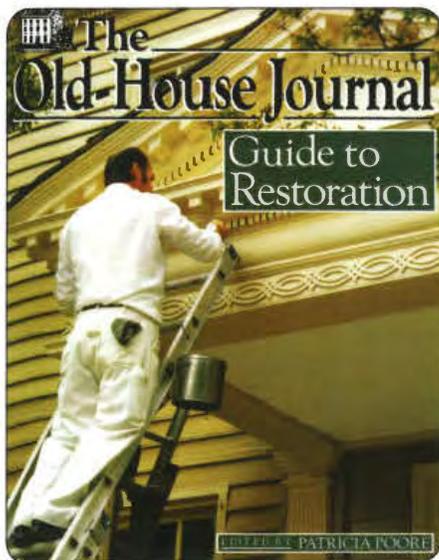
The same principles of planning apply to interior work as to exterior work. Plumbing work affects plasterwork, and so on, making the prioritizing of interior work extremely important. Wiring for a chandelier after decorative plasterwork is completed, for example, may damage the new plasterwork. Again, in this instance, a preservation architect can certainly help save headaches and money as can a contractor

who has experience with old houses. And remember, major interior work must have professional endorsement by building code officials.

Much interior planning and evaluation will involve solving exterior issues first, and those will primarily be moisture concerns. Water damage must be addressed before undertaking major interior work. Of course, numerous property owners have found this out the hard way! It is our objective to assist in the planning and decision-making process to save you such lessons.

Structural Systems

Many do-it-yourself homeowners mistakenly remove load-bearing partition walls or structural systems in their remodeling efforts. Such systems must be evaluated by a professional before their demolition. In addition, structural problems can be "read" on the interior of the home—cracking over doors, or doors that will not open, are signs of shifting in the house. Sometimes, shifting is historic; the home may have settled when first built and then has never moved again. A structural engineer should be consulted about structural systems in the home. See "Cracks" under the Masonry section of this handbook for information about evaluating and monitoring cracks.



The *Old-House Journal*, printed since the 1970s, provides a wealth of information for homeowners.



Though in great need of restoration, this interior has never been painted since the original Prussian blue paint was applied to the wainscoting, plaster walls were limewashed, and the moldings and doors were grained.

Window Repair and Replacement

An Interactive Guide to Window Rehabilitation
www.cr.nps.gov/hps/TPS/tax/rhb/windows01.htm

Fisher, III, Charles E., Deborah Slaton, and Rebecca Shiffer. *Window Guide for Rehabilitating Historic Buildings*. Historic Preservation Education Foundation/National Park Service.

Most comprehensive guide available on the preservation and rehabilitation of windows in historic buildings. Containing over 600 pages of valuable information, it covers appropriate window treatments and provides technical guidance for architects, building managers, contractors, and property-owners. Topics include code compliance, energy conservation, maintenance, custom fabrication, repair techniques, and historic technology. With glossary, bibliography, and special 40-page directory of companies involved in all special types of window work. 1997. \$55.00 including postage and handling. Send your order and payment to Historic Preservation Education Foundation, P.O. Box 77160, Washington, DC, 20013-7160. Make checks payable to "Historic Preservation Education Foundation."

National Park Service/Technical Preservation Service Preservation Briefs
www.cr.nps.gov/hps/tps/briefs/presbhom.htm

Leeke, John. *Practical Restoration Report: Save Your Wood Windows*

John Leeke, Preservation Consultant
26 Higgins St., Portland, ME 04103
www.historichomeworks.com/HHW/reports/reports.htm

Leeke's briefs provide concise recommendations and illustrated steps in repairing historic wooden windows.

Myers, John H. Preservation Brief #9:
The Repair of Historic Wood Windows.
www.nps.gov/hps/tps/briefs/brief09.htm

New York Landmarks Conservancy. *Repairing Old and Historic Windows: A Manual for Architects and Homeowners*. 1992. ISBN 0-471-14418-5.

Amplly illustrated guide provides detailed information on how to refurbish windows within current preservation standards. Packed with useful, hands-on material, it focuses on window problems, maintenance and replacement.

Smith, Baird M., AIA. Preservation Brief #3:
Conserving Energy in Historic Buildings.
www.nps.gov/hps/tps/briefs/brief03.htm

Weeks, Kay D., and David W. Look, AIA. Preservation Brief #10: *Exterior Paint Problems on Historic Woodwork*.
www.nps.gov/hps/tps/briefs/brief10.htm

Painting and Finishes

Bevil, Marianne, Meredith Fiske, and Anne-Leslie Owens. *Painting Historic Buildings: Materials and Techniques: An Annotated Bibliography*. US Department of the Interior, National Park Service, Washington, DC 1993. ISBN 0160420415

A very thorough bibliography with references to numerous additional resources regarding historic painted finishes.

Moss, Roger W. and Gail Caskey Winkler. *Victorian Exterior Decoration: How to Paint Your Nineteenth Century American House Historically*. Henry Holt, New York, 1987. ISBN 0805003762.

An excellent guide to purposeful placement of paint colors for Victorian houses.

Moss, Roger. *Century of Color*. American Life Foundation, Watkins Glen, NY, 1981. ISBN 0891332634.

A good history of paint color theory.

Moss, Roger W., ed. *Paint in America: The Colors of Historic Buildings*. The Preservation Press, Washington, DC, 1994. ISBN 0891332634.

This book is an excellent overview of paint colors and paint formulas.

Schweitzer, Robert. *Bungalow Colors*. Gibbs Smith, Publisher, Layton, UT. 2002. ISBN 1-58685-130-6.

Complete with color palettes and photographs, this book illustrates the placement of colors on early 20th-century houses. Call 800-748-5439 for a copy.

Weeks, Kay D., and David W. Look, AIA. Preservation Brief #10: *Exterior Paint Problems on Historic Woodwork*.
www.nps.gov/hps/tps/briefs/brief10.htm

Moving Buildings

Curtis, John Obed. *Moving Historic Buildings*. AASLH Press, Nashville, TN, 1979. ISBN 0910050929.

Moving Historic Buildings. W. Patram for the International Association of Structural Movers, 1991. Publications Department, IASM, P.O. Box 2637, Lexington, SC, 29071-2637.

Metals

Metals in America's Historic Buildings: Uses and Preservation Treatments. Margot Gayle, David W. Look, AIA, and John G. Waite, AIA. US Government Printing Office, 1992. ISBN 0-16-061655-7. GPO stock number: 024-005-01108-1. The definitive study in metals, their deterioration, and their appropriate repair.

Landscape and Archaeological Issues

Birnbaum, Charles A. Preservation Brief #36: *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*. National Park Service, Technical Preservation Services, Washington, DC, 1994. www.nps.gov/hps/tps/briefs/brief36.htm

Birnbaum, Charles A. and Heather L. Barrett. *Making Educated Decisions 2: A Landscape Preservation Bibliography*. U.S. Government Printing Office, Washington, DC, 2000. GPO Stock Number: 024-005-01206, ISBN 016042786X

Deetz, James. *In Small Things Forgotten—An Archaeology of Early American Life*. Anchor Press/Doubleday, Garden City, NJ, 1977. This book is a classic which covers the basics of archaeology; it is relatively short and easy to read.

Favretti, Rudy J., and Joy Putman Favretti. *Landscapes and Gardens for Historic Buildings: A Handbook for Reproducing and Creating Authentic Landscape Settings*. American Association for State and Local History—Altamira Press, 1991. ISBN 0761989307. An excellent guide to follow when recreating historic landscapes.

Henry, Susan. *Protecting Archaeological Sites on Private Lands*. US Department of the Interior, National Park Service, Washington, DC. www.cr.nps.gov/hps/pad/strategies/index.htm Though written from the perspective of archaeologists who are reaching out to private landowners, this publication is very useful to anyone who may not understand how to protect historic sites on their land. It covers such topics as the value of archaeological sites, laws and ordinances, tax benefits to protection, and land use compatibility.

Historic Landscapes Initiative
www.cr.nps.gov/hps/hli/index.htm

Hume, Ivor Noël. *Historical Archaeology*. Alfred A. Knopf, New York, 1969. A good primer on the principles of historical archaeology (with a concentration on the recent past).

Stewart, John J. *Historic Landscapes and Gardens: Procedures for Restoration*. Technical Leaflets #80 and #199. American Association for State and Local History, Nashville, TN, 1974. www.aaslh.org/leaflets.htm

Stuart, David, and James Sutherland. *Plants from the Past*. Viking, New York, 1987. ISBN 0670808520.

Vlach, John Michael. *Back of the Big House: The Architecture of Plantation Slavery*. The University of North Carolina Press, Chapel Hill, NC, 1993. ISBN 0-8078-2085-7.

Cemeteries

Strangstaad, Lynette. *A Graveyard Preservation Primer*. American Association for State and Local History—Altamira Press, Lanham, MD 1998. ISBN 0761991301. An excellent guide to cemetery assessment, documentation and maintenance.

Interiors

*Auer, Michael J., Charles E. Fisher, III, Thomas C. Jester, and Marilyn E. Kaplan. eds. *The Interiors Handbook for Historic Buildings, Volume II*. Historic Preservation Education Foundation, P.O. Box 77160, Washington, DC 20013, 1993.

A compilation of information on historic interiors, this compilation complements the first handbook, listed next. Out of print.

*Fisher, Charles E., Michael Auer and Anne Grimmer, eds. *The Interiors Handbook for Historic Buildings*. Historic Preservation Education Foundation, PO Box 77160, Washington, DC 20013, 1988.

Based on papers delivered at the Historic Interiors Conference, this information covers planning, finishes, systems and many other issues surrounding rehabilitation of historic interiors. Out of print.

Frangiamore, Catherine Lynn, for the National Park Service. *Wallpapers in Historic Preservation*. University Press of the Pacific, Honolulu, 2005. ISBN 1410224104

A definitive publication that covers an overview of the history of wallpapers, their identification, and repair and conservation.

Garrett, Elisabeth Donaghy. *At Home: The American Family 1750-1870*. Harry N. Abrams, Incorporated, New York. 1990. ISBN 0-8109-1894-3.

This book is primarily a compilation of period paintings of American interiors so it depicts actual decorative arts and domestic practices in early America.

*Grimmer, Anne, ed. *Historic Building Interiors: An Annotated Bibliography*. Diane Publishing Company, Darby, PA, 1994. ISBN 0788143387.

This is an excellent resource for further information about historic interiors, though it is currently out of print.

The Old-House Journal
www.oldhousejournal.com

This magazine, also listed in the "Favorite Periodicals" section, is the ultimate resource for old house fixtures, parts, helpful hints, and how to help. It bears mentioning in this section on "Interiors" because it is an excellent resource for issues that relate to old house interiors.

Moss, Roger W. *Lighting for Historic Buildings*. The Preservation Press, Washington, DC. 1988. ISBN 0-89133-131-X.

One of a series of topics produced by the National Trust for Historic Preservation, this book gives a good overview of the history of lighting and illustrates appropriate reproductions.

Nylander, Jane C. and Richard C., *Fabrics and Wallpapers for Historic Buildings*. John Wiley and Sons, New York, 2005. ISBN 0471706558.

One of a series of topics produced by the National Trust for Historic Preservation, this book gives a good overview of the history of fabrics and wallpapers and illustrates appropriate reproductions.

Russell, Loris S. "Early 19th-Century Lighting." *Building Early America*. The Carpenters' Company of the City and County of Philadelphia. 1976. ISBN 0-8019-6294-3.

Shivers, Natalie. *Walls and Molding: How to Care for Old and Historic Wood and Plaster*. John Wiley and Sons, New York, 1990. ISBN 0471144320.

Von Rosenstiel, Helene, and Gail Caskey Winkler. *Floor Coverings for Historic Buildings*. John Wiley and Sons, New York, 1995. ISBN 0471143820.

Winkler, Gail Caskey. *Introduction to The Well-Appointed Bath: Authentic Plans and Fixtures from the Early 1900's*. National Trust for Historic Preservation, 1989. Reprint of two early catalogs. ISBN: 0891331514.

*Seale, William. *Recreating the Historic House Interior*. American Association for State and Local History—Altamira Press, Lanham, MD 1985. ISBN 0910050767.

An excellent publication on historic interiors and the period accoutrements that enhanced them. This work is currently out-of-print but may be obtained through internet booksellers such as amazon.com.

*Seale, William. *The Tasteful Interlude: American Interiors Through the Camera's Eye, 1860-1917*. Altamira Press, Lanham, MD, 1995. ISBN 0761991344.

Another excellent publication that shows dated interiors through photographs.

*Winkler, Gail Caskey, and Roger W. Moss. *Victorian Interior Decoration: American Interiors 1830-1900*. New York: Henry Holt, 1992. ISBN 0805023127.

An excellent guide to purposeful placement of paint colors and the "tastemakers" from the period of highly decorated interiors. Any recreation of Victorian interiors would benefit from study of this publication.

*Many of these books are out of print. However, a search of www.alibris.com, www.powellbooks.com, or www.amazon.com may turn them up. Many of the government publications may be photocopied. The author has them in her collections so sections may be copied. Check with VDHR or government agencies directly for copies and remember to check your local library and inter-library loan system!

BOOKLISTS AT THE FOLLOWING DISTRIBUTORS MAY INCLUDE OTHER HELPFUL PUBLICATIONS:

National Trust for Historic Preservation
Altamira Press
Dover Publications
Donhead Books
Preservation Resource Group
Taunton Press
Restore Media



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