REHAB ROCHESTER

A Sensible Guide for Old-House Maintenance, Repair, and Rehabilitation

Published by the Landmark Society of Western New York
with support of the City of Rochester

Made possible through a Certified Local Government Grant
of the National Park Service, Department of Interior
Administered by the New York State Office
of Parks, Recreation and Historic Preservation

Sponsored by
Chase Manhattan Bank
Rochester Gas & Electric Corporation
Members of the Landmark Society of Western New York

Written by Steve Jordan

Illustrated by Melissa Carlson

Landmark Society of Western New York
133 South Fitzhugh Street
Rochester, New York 14608
(716) 546-7029

First published in 1995

Library of Congress Catalog Card Number: 95-81350

ISBN: 0-9641706-4-7

Rehab Rochester has been financed in part with federal funds from the National Park Service, Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute recommendation or endorsement by the Department of the Interior. The grant has been administered by the New York State Office of Parks, Recreation and Historic Preservation.

This program receives Federal funds from the National Park Service. Regulations of the U.S. Department of the Interior strictly prohibit unlawful discrimination in departmental Federal Assisted Programs on the basis of race, color, national origin, age or handicap. Any person who believes he or she has been discriminated against in any program, activity, or facility operated by a recipient of Federal assistance should write to: Director, Equal Opportunity Program, U.S. Department of the Interior, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127

TABLE OF CONTENTS

7 Introduction

I. Learning More About Your House

10 Colonial (1600-1800)

11 Federal (1780s-1820s)

12 Greek Revival (1820s-1850s)

12 Gothic Revival (1840s-1870s)

13 Italianate (1840s-1880s)

13 Second Empire/Mansardic (1860s-1880s)

13 Eastlake (1870s-1880s)

14 Queen Anne (1870s-1890s)

14 Colonial Revival (1880s-Present)

15 Bungalow (1905-1920s)

15 American Foursquare (1900-1920s)

16 Tudor (1890s-1930s)

16 Moderne (1920s-1940s)
International (1920s-1980s)

16 Researching Your House History

II. Before the Work Begins

20 Inspections

20 Planning—Looking at the Big Picture

21 Additions

22 Hiring an Architect

23 Doing it Yourself vs. Choosing a Contractor

24 Permits

III. The Exterior—Keeping the Rain and Pests Out

26 Asphalt/Fiberglass Roofs

28 Specialty Roofs

29 Flashing

31 Gutters

33 Grade and Foundations

35 Wet Basements

36 Rot, Insect Damage and Infestation

IV. Preserving Significant Exterior Features

40 Siding

41 Historic Masonry

44 Stucco

44 Chimneys and flues

45 Windows

48 Storm Windows

49 Doors

50 Porches

52 Exterior Painting

53 Choosing Appropriate Lumber

V. Preserving Significant Interior Features

56 Maintaining Your Floorplan and Original Elements

57 Baths and Kitchens

58 Wall and Ceiling Plaster

60 Floors

61 Mechanical Systems

62 Stripping Woodwork

64 Painting

64 Choosing the Best Lumber

65 Wallpaper

VI. Energy Conservation

68 Insulation and Weatherproofing

69 Attic Ventilation

71 Wall Insulation

VII. Living in Harmony with Your Neighborhood

74 Setback, Rhythm, and Scale

75 Fences, Decks, and Skylights

76 Historic Landscape Features

VIII. Working with City Hall

80 Building Permits

81 National Register Listing and Your Local Preservation Ordinance

82 Rochester's Preservation Districts

84 City Sponsored Rehabilitation Programs

84 Your Local Neighborhood Association

85 APPENDICES

85 The Secretary of Interior's Standards for Rehabilitation

87 Home Inspection Checklist

90 Bibliography

93 **Index**

95 ***Special Offer***

Acknowledgment

The publication of *Rehab Rochester* has been made possible through public and corporate support and individual donations.

Foremost, our ability to undertake this project was made possible by a Certified Local Government grant. This grant, administered by the New York State Office of Parks, Recreation and Historic Preservation, was awarded to the City of Rochester and supported much of the research and writing for this book. This grant will also enable the City of Rochester to distribute some complimentary copies. The support of Mayor Willam A. Johnson, Jr. and Commissioner Thomas R. Argust, plus the assistance of Joe Mustico, Laura Nobles, and other city staff have been greatly appreciated.

The idea for this book developed after 10 years of publishing one-page "House Notes" in the Landmark Society's newsletter. Ted Bartlett, former Landmark Society staff person, originated "House Notes," which were continued by Dorothy Victor and Steve Jordan. Architect John Bero has been both a contributor and consultant to "House Notes."

Chase Manhattan Bank, our loyal, long-time sponsor of "House Notes," is a corporate sponsor of *Rehab Rochester*. Rochester Gas & Electric Corporation also is a corporate sponsor of this book, and we appreciate their assistance in reviewing the manuscript.

The members of the Landmark Society, through their dues and donations, give us the ability to pursue worthwhile projects, and several have contributed monies specifically for this book: Giuseppe Erba, Jean and Robert France, Elizabeth Pine, Robert and Pat Place, and an anonymous donor.

In addition, I would like to thank the book's author, Steve Jordan, for bringing a wonderful combination of knowledge and practical skills to this work. For 15 years, Steve worked as a painter and contractor, gaining an ever-increasing appreciation of older buildings. In 1990 Steve earned a Master of Historic Preservation degree from Cornell University, and in 1991 he became the Landmark Society's Rehabilitation Advisor.

An important part of this book are the sketches by Melissa Carlson, an architect with Bero Associates. She completed these sketches while on maternity leave, in between caring for daughter Molly.

Others have been important contributors and proof-readers, especially John Bero, Lucy Breyer, Susan Crego, Deirdre Cunningham, Cynthia Howk, Gerald Klafehn, John Loftus, Blythe Merrill, Flo Paxson, Catherine Rourke, Theresa Schwarz, Karen Wolf, and Jim Yarrington.

For everyone who has helped with this book, thank you!

Henry McCartney
Executive Director
Landmark Society of Western New York

Introduction

We live in older homes for various reasons—their architectural complexity or simplicity, hidden nooks and crannies, tall ceilings, original woodwork, and histories. And it's no secret that older neighborhoods often have special charm characterized by interesting lawns and gardens, sidewalks, and porches where warm evenings are spent passing time with passers-by. Old-house living is part of what makes life interesting.

Many people believe that old houses are plagued with problems. But this need not be. The key to a comfortable, problem-free home is keeping up with maintenance before problems emerge, developing priority lists of projects and seasonal chores, and understanding the difference between quality and budget building materials. Interestingly, these same recommendations pertain to the care and maintenance of a newer home.

Quality home maintenance improves property values, promotes pride in the neighborhood, and saves you time and money. The enormous popularity of television shows such as "This Old House" and the growth of the do-it-yourself home improvement market are proof that homeowners want to know the correct method and materials to use, whether performing tasks themselves or hiring professional contractors.

The Landmark Society of Western New York is dedicated to perserving older homes and neighborhoods. *Rehab Rochester* will support those of you living in and loving your special older home. This book provides useful information that has been collected and researched by the Landmark Society of Western New York, one of America's oldest preservation organizations. Every suggestion has been approved and recommended by architects, contractors, preservation consultants, and people who live in old homes and understand their quirks. We have not tried to address every problem encountered in home rehabilitation projects, but have focused on some of the most common and misunderstood projects.

The nominal price of this book could save you hundreds or even thousands of dollars in unnecessary or inappropriate home repairs. If, after reading this book, you have any questions or if you need additional information, call us. We'll be pleased to answer your questions, introduce you to our library, or refer you to other professionals specializing in old-house issues and rehabilitations.

Steve Jordan
Rehabilitation Advisor
Landmark Society of Western New York

WORDS OF CAUTION

Maintaining your older home can be pleasurable—even fun, but it is always important to heed any safety precautions that are related to the tools or materials you are using. If you are beginning extensive work, it's a good idea to buy a good respirator, safety goggles, leather gloves and chemical-resistant rubber gloves. If you are removing walls or razing any part of your house, you'll need a hard hat and steel-toed boots.

All safety devices, guards, and protective covers must be maintained on your tools, and power cords must have an intact grounding plug. Each day, inspect your tools for frayed cords and dull blades, and always check the retractable blade guard on circular saws. If you frequently use power tools, build a sturdy work table, or use saw horses and boards at a comfortable working level. It's dangerous to cut boards supported by the porch rail, on the steps, or over the fence.

Chemicals and noxious paints require adequate ventilation. Products that have never bothered you before may make you sick in an enclosed area; they might make a chemical-sensitive person extremely ill. Some extremely flammable products might require that all pilot lights are turned off, so always read label directions and precautions carefully.

If you are living in a construction site, keep your living area clean of construction debris and dust. You don't want to bring in lead paint dust and asbestos fibers. It's a good idea to change your work clothes before entering your living space.

And speaking of asbestos and lead—you should read some current literature about abatement procedures, precautions, and who is most often affected by exposure. With this information, you can make your own decision about what to do.

STYLES

HISTORIES

RESEARCH

CHAPTER 1

Learning more about your house

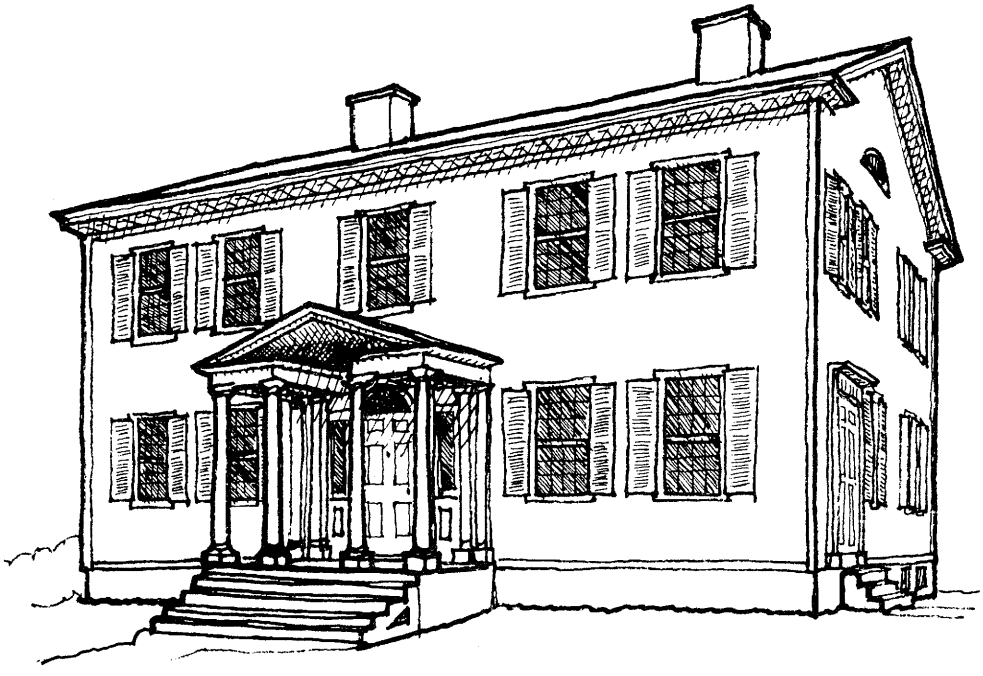
Learning more about your house

The more you know about your house, the more you'll enjoy it. Knowing its age and style and learning about the period when it was constructed will enable you to make better maintenance, repair, and rehab decisions. Ideally, we want to enhance the appearance of our homes in a way that will increase their value, complement our neighborhoods, and retain the historic integrity of the properties. Whether a house is simple and unadorned or replete with Queen Anne detailing, its design and the elements that comprise this design were carefully chosen to conform to styles that often developed over decades and even centuries. It is important to understand your house well enough to avoid compromising the design with inappropriate additions, subtractions, or repairs.

Your house might not easily fall within any of the following categories, or it might have details from two or more architectural periods. Don't worry if you can't place it in a particular slot; some houses simply cannot be identified by a particular style. It's perfectly acceptable, and sometimes preferable, to describe your house by its layout and details and forget about the style.

Colonial (1600-1800)

Architectural terms can be confusing. Rochester's newspapers are full of advertisements for "Colonial" homes, a term that many real estate agents use to describe any older home. But to be accurate, there are no Colonial structures in Rochester because this area was first settled in the early 1800s, after America's Colonial period. In the late 19th and early 20th century, however, an interest in America's early architectural roots fostered the "Colonial Revival " style which you'll read more about later in this chapter.



Federal

New York State and the Northeast, however, have many fine examples of Colonial architecture. Various nationalities settled the east coast and other areas of this country. The styles that developed vary according to building traditions brought from Europe and the local materials that were available.

The end-gabled, two-story New England clapboard house is easily brought to mind by the "House of Seven Gables" example in Massachusetts. The Dutch Colonial house from the New York coastal area was a lower structure with a gambrel roof, flared eaves, or parapeted gables. A little later, the Georgian style became popular from the northern coastal areas all the way to the southern colonies. The Georgian-style house featured classic details such as quoins, dentiled cornices, and elaborate door enframements. Dormers or rows of prominent dormers were a distinctive feature of this design.

The sketches in this chapter—all based on Rochester-area buildings—are illustrative of western New York's rich architectural heritage.

In southern Louisiana, styles evolved from the French tradition with an emphasis on comfort from the oppressive heat. Large windows and deep porches were common. Finally, in the Southwest, the Spanish created adobe houses with tile roofs and porches overlooking private courtyards.

Federal (1780s-1820s)

Rochesterville was established in the early 19th century, during America's Federal period of government. The local interpretation of the architecture from that time is known as the Federal style. The lightness, symmetry, proportion, and simple plan that characterized this style evolved from the English Adam brothers whose work was extremely influential here and in England during the last half of the 18th century. The Federal style featured details such as low-pitched roofs, narrow cornices, delicate moldings, and fan-shaped gable windows. Special attention was given to the entrance way which often included a fan window, flanking side windows, and small porches.

Local examples of the Federal style vary from the high-styled Granger Homestead in Canandaigua to the modest Stone-Tolan Tavern here in Rochester. Both of these house museums are open to the public and offer a rare glimpse into the early

Greek Revival

life and customs of the region. You'll find other good examples in the Village of Pittsford and in the Town of Clarkson.

Greek Revival (1820s-1850s)

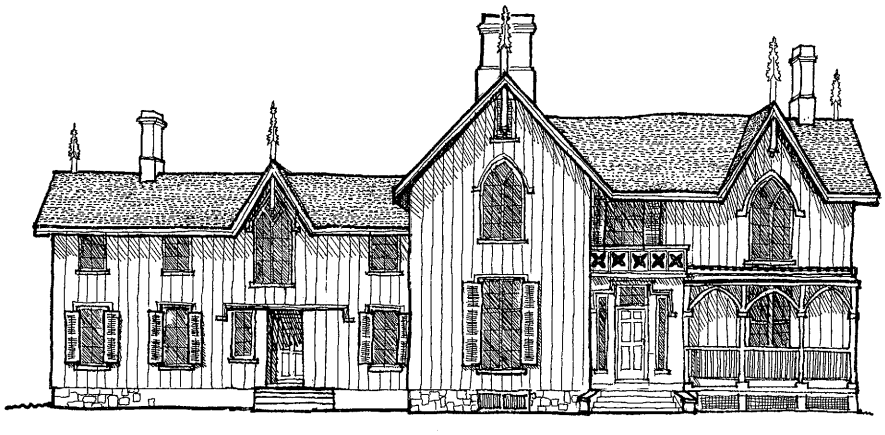
Archaeological discoveries in Greece in the latter half of the 18th century captured the imagination of the West and, in particular, the newly independent American people. Throughout this country, public buildings, churches, schools, and houses imitated classic Greek temples, though usually in a simplified manner. Since Rochester was booming during this era, this style provides a major foundation to our architectural heritage.

Characteristics of the Greek Revival style include columns and pilasters, pedimented gables, wide entablatures divided into two parts, frieze windows, and cornice returns on gabled ends. Principal doorways were often flanked by sidelights with interesting uses of heavy moldings or pilasters.

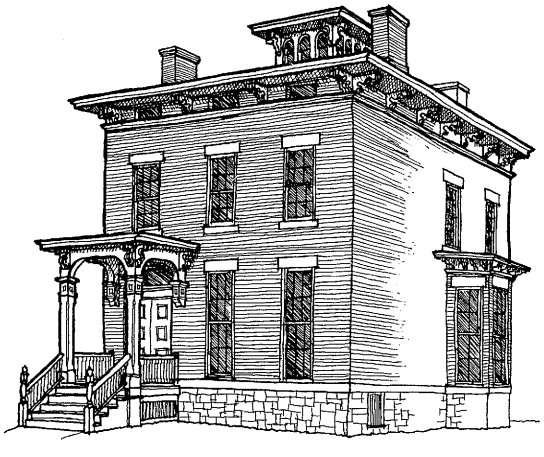
The popularity of Greek Revival architecture coincided with the opening of the Erie Canal. As the population grew, thousands of houses and public buildings were constructed in both literal and inventive versions of Greek forms. Few villages across New York State are without several examples. Locally, the Corn Hill Neighborhood in the Third Ward is a great place to examine this style. The Landmark Society's headquarters, the Hoyt-Potter House, and the adjoining Campbell-Whittlesey House Museum are wonderful examples of Greek Revival. Both are open to the public.

Gothic Revival (1840s-1870s)

The Gothic Revival style was adapted from famous Gothic churches of Europe and was a challenge to the advocates of the classical Greek and Roman forms of architecture. Pointed-arch windows, steeply-pitched roofs with deep overhangs, vertical board-and-batten siding, and decorative gable trim are hallmarks of the Gothic Revival style. Porches are supported by thin columns that are often grouped in pairs or clusters. Later in the century, various Gothic elements were mixed with new designs and styles.



Gothic Revival



Italianate

Gothic Revival houses are rare in Rochester, but there are a few to see. The Danforth House at 200 West Avenue is a good board-and-batten example, the Bissell House at 666 East Avenue is a stone version and the 1870s townhouse at 149 S. Fitzhugh is the late Victorian Gothic style.

Italianate (1840s-1880s)

The Italianate style was derived from the villas of the Italian countryside. Two full stories, low-pitched hip roofs with cupolas, and expansive overhangs supported by decorative brackets are typical features of the style. These houses often had small porches and double entrance doors. Interior spaces were large with tall ceilings and massive decorative features. Italianate houses featuring prominent towers are called Italianate villas. The Italianate style was popular in New York State, particularly in rural areas. You'll find several in Corn Hill, especially on Fitzhugh Street.

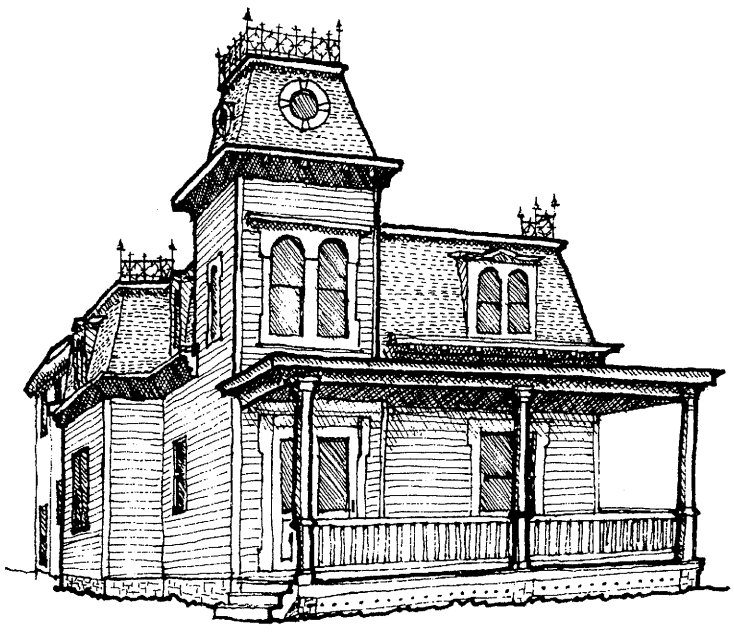
The term "Victorian" is associated with the years spanning Queen Victoria's reign in England from 1837 to 1901. While all the architectural styles from Greek Revival to Queen Anne are from the Victorian era, there is no particular style that is actually called "Victorian." Rochester is rich with neighborhoods that developed during the Victorian era, but most of these neighborhoods exhibit many different architectural styles.

Second Empire/Mansardic (1860s-1880s)

Deriving its name from the French Second Empire, this style is set apart by the use of the mansard roof, a prominent characteristic of French architecture. The mansard roof, named after the 17th-century French architect who first popularized it, was a way to diminish the apparent height or mass of a building and add a third story. Structures in the Second Empire style share many features with the Italianate style. In fact, adding a mansard roof was a popular method of remodeling Italianate homes. You'll find a great example of side-by-side Italianate and Second Empire on the corner of Plymouth Avenue and Troup Street in Corn Hill.

Eastlake (1870s-1880s)

Eastlake was a popular decorative ornamentation that was often applied to houses of other styles, such as Queen Anne. Eastlake detailing consisting of assorted knobs, spindles, and circular motifs (usually called "gingerbread"), is often seen on gable



Second Empire/Mansardic

Eastlake

trim. Porches and verandas feature rows of spindles, posts, and brackets. Look for Eastlake detailing on houses around the Park Avenue and Mt. Hope neighborhoods, the Wadsworth Square neighborhood, and in the Susan B. Anthony Preservation District.

Queen Anne (1870s-1890s)

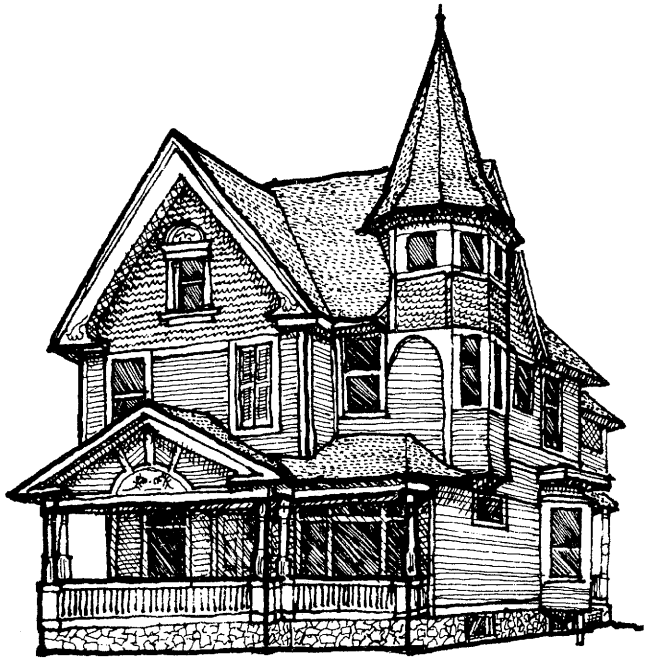
The Queen Anne style is characterized by a rambling floor plan, asymmetrical design, an eclectic mixture of materials, and an informal atmosphere. Distinctive traits include the combined use of brick or stone with shingles and clapboard, decorative exterior woodwork, steep gables, large and elaborate chimneys, round towers and turrets, bays, porches, and stained-glass windows.

Modest single-story versions of the Queen Anne style are sometimes referred to as Victorian cottages or Princess Annes. You'll find wonderful examples of the Queen Anne style in the Park Avenue area, the Prince-Alexander-Champeney-Kenilworth (P.A.C.K.) neighborhood, the 19th Ward, and also in the South Wedge.

Colonial Revival (1880s-present)

Colonial Revival style houses are based on the designs of houses that were popular from early colonization until the American Revolution in 1776. Interest in this style was renewed during the American Centennial of 1876 and has remained popular in various forms ever since. In the late 19th and early 20th century, adding Colonial details to an older home was a popular remodeling technique. After about 1920, a thorough re-creation of the Colonial style in new housing and in remodelings became popular.

One common example is the two-story end-gable home with a centered entrance and symmetrical, stacked placement of windows. Another common example is the Dutch variety with a gambrel roof. Typical details are dormers, centered



Queen Anne

Colonial Revival

entrances, dentil molding, fan lights, little or no cornice overhang, and various elements borrowed from the classical Greek and Roman architectural eras. Look for examples of the Colonial Revival along and adjacent to East Avenue, Highland Avenue, in the Canterbury/Harvard areas, in the Browncroft neighborhood, in the Maplewood neighborhood, and in every area of the city that developed in the 1920s.

Bungalow (1905-1920s)

The Bungalow or Craftsman house became popular just after the turn-of-the-century. They were an austere departure from the eclectic Queen Anne style or the studied Colonial Revival. Typical details were exposed rafters and support beams, tapered columns, paired or grouped windows, porches, and a low-pitched roof. Basic in design, they were highly publicized in national magazines and sold in kits available through firms like Montgomery Ward and Sears & Roebuck. Although scattered around the city, you'll find good examples on Bellevue Drive in the Ellwanger & Barry neighborhood, in the Culver/Merchants area, on Avenue D in the 14621 neighborhood, in Irondequoit along St. Paul Boulevard, and off Summit Drive in Brighton.

American Foursquare (1900-1920s)

Built to offer the most house for the least amount of money, there may never have been a more popular or practical house than the American Foursquare. Typical features of the Foursquare are a boxy, two-story body, hipped roofs, dormers, front porches, and deep overhangs. Most decorative features were saved for the front porch which could reflect either Colonial Revival details or Bungalow elements.

A front-gabled version of the Foursquare is often found in the same neighborhoods or adjacent to the hipped-roof version. These houses usually feature the same or similar floor plans and like the Foursquare, have few architectural details except on the front porch. You don't have to look hard to find numerous examples; try the 19th Ward, Beechwood, and the Culver/Merchants neighborhood.

Bungalow

American Foursquare

Tudor (1890s-1930s)

The Tudor style house was derived from early English sources. Steeply-pitched roofs, decorative half-timbering and casement windows are commonly found on most variations. Tudor houses in Rochester are usually brick or stucco with some finer examples built of stone. Interiors are frequently dark with stained trim, wainscotting, and doors. The hardware and lighting fixtures are often wrought or simulated wrought iron. This style is found in both modest and expensive neighborhoods. Look for great examples of Tudor houses along and adjacent to East Avenue, in the Browncroft and Cobbs Hill Drive neighborhoods, and in Brighton.

We encourage building, neighborhood, and landscape researchers to share their knowledge with the Landmark Society. It is important that these records be retained in a safe place that is available to the public. If you have any old photographs, records, or maps that you think we'd be interested in, please call us.

Moderne (1920s-1940s) International (1920s-1980s)

The Art Moderne and International Style have their roots in the European movement that shunned the long continuum of architectural tradition that they viewed as fussy, impractical and excessively ornate. Art Moderne styling is characterized by smooth plaster or concrete walls, flat roofs with scant cornice, curved or rounded corners, and horizontal bands of decoration. Look for glass blocks, metal-framed windows with no trim, and pipe railings. This was a popular style for commercial buildings, but was occasionally used in residential designs.

The International style was more rectilinear with flat roofs, metal casement windows sometimes placed on corners, cantilevered roofs or porches, and walls of windows. Walls were generally stucco or concrete with no decorative features.

Researching your house history

Researching the history of your house can be rewarding because the more you know about your house, the more you'll enjoy it. Research can reveal the physical history of the house—when it was constructed or changed—and also disclose interesting information about the people who lived in or owned the property and the development

Tudor

of your neighborhood. If you like history, it's also interesting to learn how the social and economic conditions at a specific time affected your house, its inhabitants, and the area.

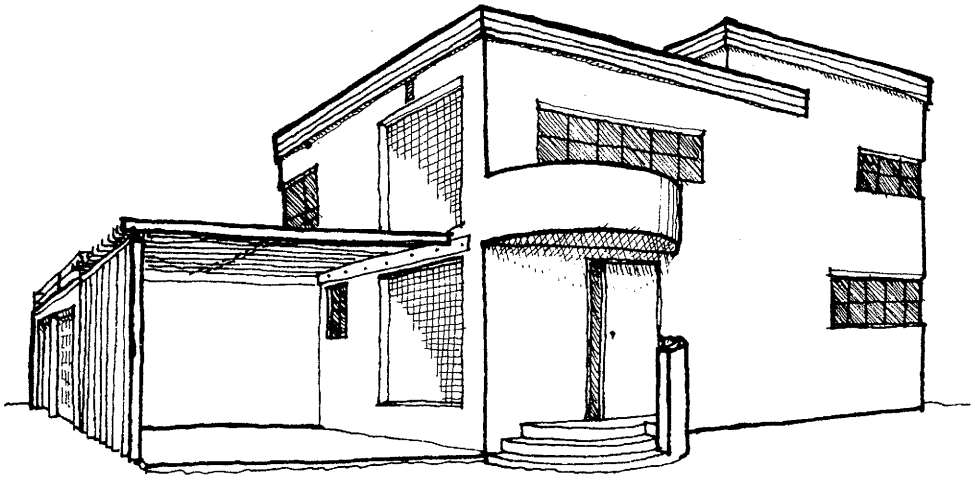
Your property abstract is a great place to begin research. In Monroe County, an abstract lists former owners and the dates that a property changed ownership for the past 60 years. If you don't have an abstract, or if you think your property is older than the abstract specifies, conduct your own deed search at the County Clerk's office on West Main Street. Beginning with the most recent transaction, carefully follow sales backward as far as possible. Unfortunately, deeds only record the transfer of land; be alert to words like appurtenances (buildings or improvements) and to any drastic changes in the price of a property over a short time. For example, if a lot sold in 1872 for $100 and again in 1875 for $800, there's a good chance that a house was constructed on the lot between these years.

Rochesterians are lucky to have an excellent record of the city's history in old maps and city directories. Sanborne Insurance Maps and city or county maps often reveal when a neighborhood was developed or when houses were constructed. Many of these maps also indicate the floorplan or a bird's-eye view of the house which is helpful in determining if additions, wings, porches, or outbuildings existed at the time the map was published.

The Rochester City Directory dating from the mid-19th century to the present is also an excellent source. City directories list the inhabitants of a property by family name cross-referenced with a street address. The occupation of the tenant or owner is often included with the listing. Remember that the person living in a house may not be the owner.

The Landmark Society has researched and surveyed over 20 neighborhoods in the city. Most of this information is about houses, their history, and architecture. Call the Landmark Society to find out if your house has been surveyed.

The City of Rochester has maintained building permit records since 1898. These records might indicate when significant additions or changes were made to your



Moderne

house. To review these records, visit the Bureau of Zoning, Room 122B, at City Hall.

Other potentially reliable sources of information are former owners, longtime neighbors, and local historians. Although you should be careful about hearsay and second-hand information, you can often learn a lot by simply asking. If you're lucky, neighbors might have old family photographs that show your house in the background. Other good sources are church documents and cemeteries, old newspapers, tax assessor records, private or fraternal organization records, and probate court records.

Good places to conduct your research:

Wenrich Library
Landmark Society of Western New York
133 South Fitzhugh St.
546-7029

The Wenrich Library's collection of books, journals, maps, directories, photographs, etc. is completely dedicated to the area's houses and neighborhoods.

Rochester Public Library
Local History Division
115 South Avenue
428-7300

Rochester Historical Society
485 East Avenue
271-2705

Monroe County Clerk's Office
39 West Main Street
428-5151

City of Rochester, Building Permits
30 Church Street
428-6526

INSPECTIONS

ADDITIONS

ARCHITECTS

CONTRACTORS

CHAPTER 2

Before the work begins

Before the work begins

Just the thought of preparing for a rehab project, addition, or purchase of an older home can be overwhelming. It's a bad idea to rush into any project without an objective opinion and clear idea of what is ahead. Getting inspections, planning the project, hiring professionals, and acquiring permits are all important parts of this process. The following recommendations and ideas are a good place to begin.

Inspections

If you are considering the purchase of an older home or if you need help with a maintenance plan, it might be a good idea to get a building inspection. A quality inspection can detect flaws in a property that would normally be ignored. For example, structural flaws, hazardous material problems, or insect infestation are often overlooked except by a trained eye. An inspection might save you money and help you prepare for your future maintenance and repair needs.

There are plenty of professional inspectors, architects, engineers, and builders willing to evaluate your older house and its plumbing, heating, and electrical systems. But remember, not all professionals are interested or well-versed in what is best for the older home. A thorough inspection includes every area of your house from the cellar to the attic, especially any area that is difficult to get to. If you need a recommendation, ask other old-house owners or call the Landmark Society. If you want to conduct your own inspection, refer to the Home Inspection Checklist in the appendix.

Planning — looking at the big picture

Talk to nearly anyone who has rehabilitated an older home and they'll all tell you to take your time and get to know your house before you make major changes. It might be helpful to live through a full year of seasons to fully understand exactly what you want. Is the kitchen dreary in the morning? Is the living room drafty and cold? Notice where you spend most of your time; if the kitchen has enough working room or cabinet space; if circulation patterns are simple or cumbersome; and if doors in halls or small rooms open in annoying directions.

SIMILAR PORCHES & DORMERS, EVENLY SPACED HOUSES

Before making any plans, it also helps to evaluate the architectural character of your house—decide what makes your house special. This means looking at your house from a distance, from up-close, and on the inside.

By looking at your house from a distance, determine the features that make it stand apart or blend in with others around it. For example, in some neighborhoods all of the houses might be stucco, close to the street, or have hipped roofs or porches. Houses might be located on spacious lawns with mature trees or in rows of similarly spaced homes. In any of these cases, you're identifying characteristics that should probably be left alone, because these features blend with and ultimately enhance the streetscape.

As you move in closer, you'll notice other details—the layout and details of the windows and doors, porches, bays, overhangs, and cladding materials. These details are just as important as the overall picture and should be considered carefully in any rehab plans.

ADDITIONS SHOULD REFLECT MATERIALS & SCALE OF THE EXISTING BUILDING.

On the inside, evaluate the floor plan, the individual spaces, special features like trim, doors or built-ins, and finally the finishes and materials. With perhaps the exception of bathrooms and kitchens, most houses built in the last 100 years are very "livable." You may need an extra bathroom, but putting it at the end of the entrance hall or at one end of the living room could be a terrible solution. It's best to think about it for awhile.

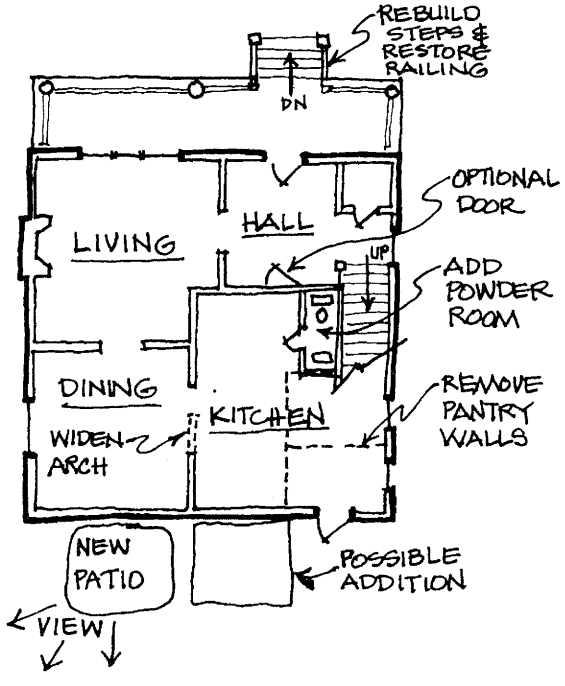
Additions

Additions are a popular way to gain living space, stay in a familiar neighborhood, and avoid the expense of purchasing another home. Additions can complement your property and add value to it or they can look like a wart on your nose. Here are a few general rules that make good sense.

1. Additions should not interfere with the principal elevation (side) of your house. In some cases, secondary elevations are also too important to obscure or alter with additions.
   Additions should be subordinate to or smaller than your house in size and scale.

2. Always preserve the significant or special materials and features that characterize your house. For example, preserve porch details and make repairs that match the original work—it won't complement your house to replace round fluted columns with square pressure treated posts. Investigate methods to improve the efficiency of windows and doors; don't make quick judgements about thermal replacements.

3. Additions should harmonize with your house in form, scale, color, materials, and character. That's not to say that additions must mimic every original detail and snub contemporary design. In fact, a good design complements your house but remains identifiable as an addition and not an historical part of the structure.



PRELIMINARY DESIGN SKETCH

Hiring an architect

After becoming familiar with your house and after developing a priority list, you must decide what professional services, if any, you will need. Hiring the services of an architect may or may not be necessary for your project. Simple decisions on issues like moving a door, installing cabinets, or basic repairs are usually handled by you or your contractor.

On the other hand, additions and rehabilitations that might affect the architectural integrity of your property or involve major changes to the floor plan and exterior appearance should be reviewed by an architect familiar with old houses and their special problems. The City of Rochester's building permit office requires an architect or engineer's stamp on all projects over $10,000.

Architects offer a variety of services that can be tailored to your needs. Below is a list of options:

- Conceptual, schematic, or preliminary designs are a good way to look at various options that you might consider. These drawings usually give an overview without spending significant time and money on details.
- The design development phase refines the preliminary concept with drawings, specifications, cost estimates, and project scope plan.
- Contract documents include working drawings and specifications that are used for competitive bidding and for the actual construction work.
- In addition to these services, your architect might provide a list of competent contractors and provide periodic site visits to review and certify completed work and to monitor work in progress.

Doing it yourself vs. choosing a contractor

"Doing it yourself" often seems like an appealing option; after all, when you're finished, you can stand back and proudly wag your finger at the job-well-done. But to find out if this option is for you, think about the following questions:

Do you have the expertise to tackle complex building problems?

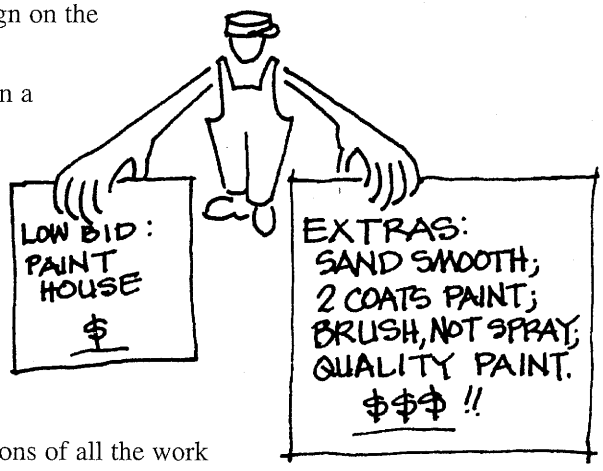
Can your building acumen predict every angle, space, and fraction so that after the first board is laid, the remaining work from stone to plaster will fall exactly in line without having to begin anew, ruining expensive materials, and wasting precious time in the process?

Do you have the time, the patience, and the tools needed to complete the work?

If you are acting as your own general contractor, will subcontractors respond to your needs, requests, and budget as they would for a familiar contractor?

Would you be better off doing only that portion of work that you are proficient in or jobs that require few skills? (This is called "sweat equity" on the TV home repair shows.)

If, on the other hand, you intend to hire a contractor, there are still important decisions to make. Consider the following guidelines before you sign on the dotted line:



Always choose a contractor who has demonstrated expertise in a project similar to yours. Extensive old-house rehab experience is important because no two projects are alike, and it takes years to understand and master this special area of construction. Contractors should provide a reference list of completed projects and clients that are nearby and accessible.

Always get at least three estimates. This helps you determine what the price, scope of work, and materials for your job should be. Estimates should also include detailed descriptions of all the work to be completed, notes of any verbal agreements made during the estimating process, a date to commence work, a time schedule, and the contractor's licensing and insurance information.

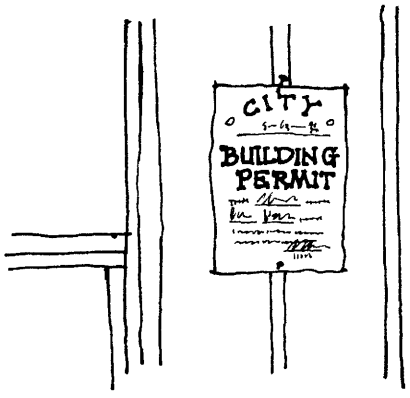
Detailed estimates and work descriptions always help clear up misunderstandings that arise mid-way through a project. For example, a contract that reads, "Contractor will paint walls," might be intentionally vague. This kind of wording does not specify the quality, brand, sheen, or type of paint to be used, nor does it specify the number of coats or method to apply the material. Anything done above the very minimum may result in extra charges.

Avoid suspiciously low bids. Some contractors purposely bid low, knowing that once they are on the job, they can ask for more money for work not specifically mentioned in the bid, thus another reason for a detailed estimate of costs.

Get all change orders or extras in writing as soon as the verbal change or agreement is made. In many cases, it is impossible to foresee all the circumstances that will arise to affect the cost and outcome of the job. This is especially true in old-house work. For example, everyone on the job wants to trust everyone else, but sometimes simple verbal agreements are not understood or remembered the same by every

party. Written change orders and extras ensure that the end of the project will be as pleasant as the beginning.

The amount and practice of marking up the cost of subcontracted labor and materials varies from one contractor to another. You have the right to know how much this mark-up will be. Charges from 10% to 40% are typical.



Unless you are very familiar with a contractor and his reputation, it is unwise to advance start-up or prepayment money. If an advance is given, it should not be a substantial amount. Incremental payments for work completed (draws) are normal and permissible provided the contractor does not ask for an amount exceeding the work completed. You should also retain enough of the final payment to ensure that all the work is finished. Ten percent is typically reserved for this reason.

Permits

The purpose of a building permit is to preserve life and property. Through the building permit process, the City of Rochester assures that construction work meets the New York State Building Code, the Fire Prevention Code, and local zoning and insurance requirements. You obtain a permit for your own safety. Failure to obtain a permit when it is needed can have devastating results. Fines, Stop Work Orders, failure to receive a Certificate of Occupancy (C of O), and loss of insurance are all possible.

In Rochester, building any kind of structure requires a building permit. In addition, alteration to the interior floor plan, structural change, plumbing or electrical work also requires a building permit. If you're not sure, call the Permit Office.

If a contractor is managing the construction project, he/she will file for the building permit. If you are acting as the general contractor, managing subcontractors, or this is a do-it-yourself project, you will file for the permit. In either case, you, the property owner, are ultimately responsible for obtaining the building permit. For more specific information about building permits, refer to the building permit section in chapter VIII or call the Permit Office and ask for their pamphlet, "When Do You Need a Building Permit?"

- ROOFS
- GUTTERS
- BASEMENTS
- INSECTS

CHAPTER 3

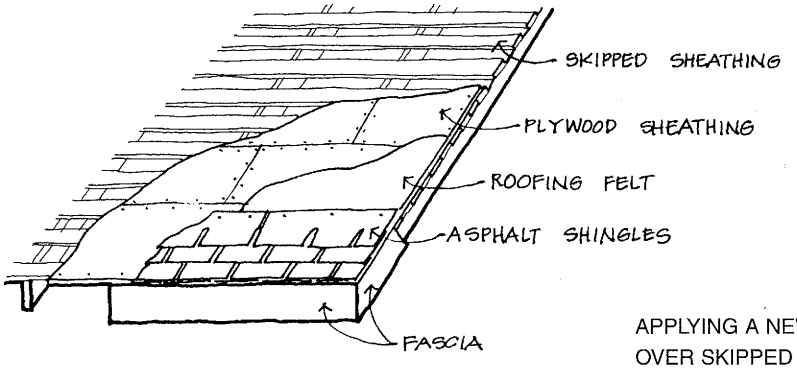
The exterior: Keeping the rain and pests out

The exterior—keeping the rain and pests out

Exterior material and craftsmanship failures generally create the most expensive repair problems on our homes. Anyone faced with a multitude of home repairs and maintenance should develop a priority list beginning with the areas of greatest threat. Always attend to inadequacies in the roof, foundation, grade, drainage, and structure before beginning cosmetic repairs. The following sections briefly discuss some of the most common maintenance and repair projects that you'll encounter.

Asphalt/fiberglass roofs

A good roof is the first line of defense against damage and deterioration to your home. Roof leaks damage interior finishes, deteriorate structural members, and attract harmful insects. Among the various types of residential roofs, asphalt or asphalt/fiberglass roofs are the most common and affordable.



APPLYING A NEW ROOF
OVER SKIPPED SHEATHING

Asphalt roofs usually last from 20 to 30 years, depending on the quality of shingle. If you have an asphalt roof, there are several indicators that signal trouble. Loose or cracked shingles, loss of aggregate, loose nails, deteriorated flashing, lumpy surfaces, moss, and asphalt patches are indications that an asphalt roof might need replacing.

When choosing a new roof, always buy the highest quality materials you can afford. The extra money spent on a 30-year shingle as compared to a cheaper product will come back to you many times in the added life of the better roof. Roofing is hard work; if you are installing it yourself, purchase your shingles from a supplier that will deliver them to your roof; you'll be glad you did.

Roofing is best done in moderate weather. Walking and working on an asphalt roof in hot weather can ruin shingles and take years off their expected life. The shingles of roofs applied in frigid weather may not adhere properly and get damaged before the next warm season.

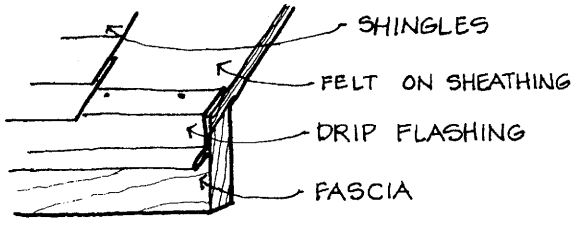
Your choice of color is personal, but there are a few things you should consider. White or light gray roofs often stain easily, especially if there are overhanging trees. Black roofs often appear too monochromatic—like a dark void on the top of the

house. Bright red or green roofs might complement your current paint scheme but may be very difficult to work with in your future plans. Several manufacturers are offering shingles that are shaded to resemble the thick profile of slate. Some of these look terrible, so it's a good idea to look at a finished example before choosing them for your home.

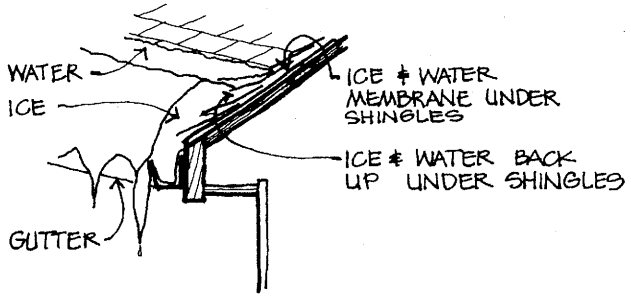
If you know what the original roofing material was, you might try to match it in color or shading. For example, many varieties of shingles come in a brown/gray color that is similar to a faded wood shingle roof. You might choose a charcoal gray or gray/green shingle if your roof was once slate. Neutral colors are always easier to work with when choosing a new paint color.

A new asphalt roof will last longest and look best when applied directly over the decking and a layer of roofing felt rather than over multiple layers of old roofs. While it is common practice to apply two or three roofs back to back, two should be the limit, and any more than three could damage your rafters and framing.

Removing the old shingles down to the deck is known in the roofing trade as a



DRIP FLASHING



ICE DAM

"tear-off." When a tear-off is necessary, many homeowners discover that their original roof was applied over spaced or skipped sheathing—boards spaced a few inches apart to allow ventilation of the original wood shingles. In this case, cover the entire roof with a new deck of 5/8" plywood (not particle board) to create a smooth surface for the new asphalt roof. As a cost-saving measure, your roofer might suggest removing only one or two of the old roof layers rather than a complete tear-off. When faced with this decision, always ask for a comparison price between this option and a complete tear-off. Remember, however, the life of the roof over smooth decking will be greater than that of a roof applied over old, uneven shingles.

Manufacturer's recommendations vary, but most asphalt roofs are applied over 15-or 30-pound felt underlayment (tarpaper). Flashing around chimneys, penetrations, valleys, or dormers must be evaluated and replaced with flashing that will exceed the life of the new roof and at least one additional roof. Replace any flashing that has been repaired with asphalt patching compound. Refer to the next section in this chapter for more information about flashing.

Installation of metal drip flashing is a good idea to protect the edge of the roof decking and facia. If ice dams are a problem, install an ice and water membrane.

Proper attic ventilation is also important in getting good service from your new roof. Inadequate ventilation might void the manufacturer's warranty, so be sure to read and follow the instructions that are included with the shingles or printed on each bundle. For more information on ice dams and attic ventilation, refer to chapter VI.

Specialty roofs

Slate, tile, wood-shingle, or metal roofs are often an important feature that substantially contribute to the appearance of your home. Most of these roofs require more expertise than what is needed to apply asphalt shingles. Inexperienced contractors might encourage you to remove or cover a roof that is superior to a new asphalt roof when careful repairs by an experienced professional might be more economical. Always seek roofing contractors who specialize in your type of roof, and get other opinions if your contractor's recommendations seem questionable or unreasonably negative. Other roofs that might require a professional evaluation are concrete-tile, asbestos-shingle, membrane, and built-up systems.

SLATE: Most slate roofs last 50 to 100 years. Generally, the slate does not fail, but the fasteners holding the slate or the flashing under the slate fails. Slate is also damaged by walking on it. Several local roofers maintain a collection of the various types and colors of slate. Repairs are made by pulling the damaged slate out with a shingle or slate ripper and then fastening the new slate in place with copper clips.

TILE: Like slate, tile roofs last from 50 to 100 years, and most failures are related to the flashing and walking on the tiles rather than from the tiles themselves. Repairs must be made by a specialist who maintains a collection of replacements. If salvaged tiles are not available, there are a few suppliers who will make new tiles to match the old ones.

CONCRETE TILE: During the early part of this century, concrete-tile roofs, imitating more expensive tiles, were popular in Rochester for new homes and for replacement roofs. These roofs lost their red color over the years and also became brittle and porous. If you have a concrete tile-roof, there are several contractors who repair them with salvaged tiles. 50-75 years is about all the life you should expect from one of these roofs.

METAL: Repair metal roofs with the appropriate mix of solder and the same type of metal that the roof is made of, i.e. copper to copper. Once a metal roof is coated with bituminous or other coatings, proper repairs are nearly impossible. Any coatings or patching compounds are a temporary fix.

WOOD SHINGLES: Keep wood-shingle roofs clear of debris, leaves, and moss that might prevent adequate drying of the surface. Attic ventilation is especially important to prolong the life of the shingles. The Cedar Shake and Shingle Bureau recommends a periodic treatment of roofs with a fungicidal wood preservative beginning after your new roof weathers for one year. Reapply the preservative every three or four years thereafter.

ASBESTOS SHINGLES: Asbestos shingles were popular for the first 30 years of this century. They were extremely durable, but pose special problems today. As the owner of a single family home, you may remove and dispose of your asbestos-shingle roof, but any contractor that repairs or removes your roof must follow all legal abatement procedures.

Flashing

Flashing is the material used to prevent water penetration into areas of your roof that are difficult or impossible to protect with the roofing itself. In residential construction, the most common areas to apply flashing are around penetrations such as chimneys, dormers, and ventilation stacks; at the intersection of additions, porches, and bays; and at the junction of the roof and parapet walls.

Whenever a roof is covered or replaced, the condition of existing flashing must be evaluated. The decision to leave or replace flashing should include the present condition of the material and the potential of the flashing to last as long as the new roof and possibly an additional roof that might be installed over this one. Flashing installed with a new roof is simple but replacing flashing under an existing roof without damaging the shingles is difficult.

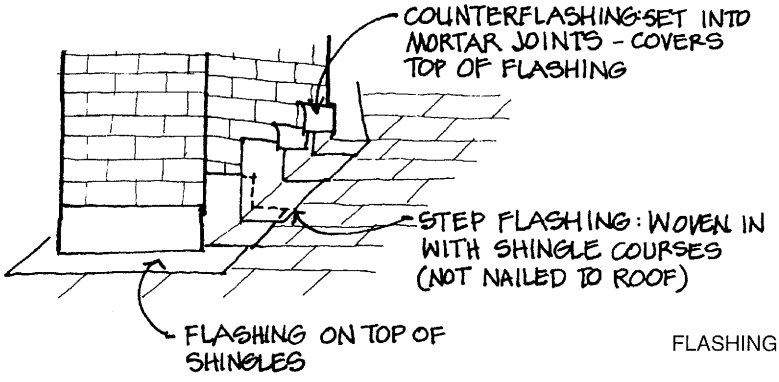
Various metals are used for flashing. Copper, terne, stainless steel, galvanized steel, aluminum, and lead are all used to some degree. For most simple residential applications, labor is the greatest expense of a flashing project. Considering the high cost of labor and the difficulty of installing flashing properly, it's always best to use the best material you can afford.

Copper is one of the most dependable metals used for flashing. When installed correctly, a 50-year life is common. Lead-coated copper is a good choice if the green patina of copper is objectionable, for example, over limestone or any light-colored material that could stain. Copper flashings must be attached with copper nails or clips to avoid galvanic corrosion, a reaction between unlike metals that undermines one or both of the connected materials. Bituminous coatings hasten deterioration of the metal. Therefore, well-intentioned asphalt cement patches often lead to premature failure of the flashing.

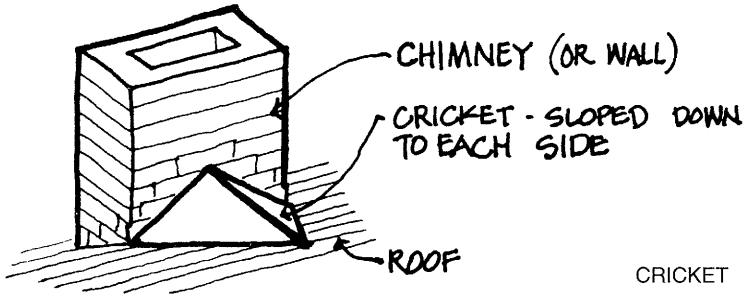
Galvanized steel is an acceptable flashing material with a shorter life expectancy, but requires special consideration and maintenance. For example, the acids in cedar shakes and shingles rapidly deteriorate the galvanized (zinc) coating on steel flashing. A properly applied coat of paint, maintained throughout the life of the roof, usually prevents this deterioration. As with copper, bituminous coatings can attack the galvanized protective layer.

Aluminum may be the most commonly used flashing metal for 15-20 year asphalt and fiberglass shingle roof applications. Available in light-weight coils and in prefabricated pieces, it is inexpensive and simple to fabricate without bulky, expensive tools. Aluminum's flexibility also means that it can be torn, penetrated, or twisted out of shape easily. Generally, it should be replaced with each new roof.

STEP FLASHING: Many applications of flashing are simple and straight-forward, others are more complicated. "Step flashing," as applied to masonry surfaces is a difficult technique that is often done wrong. When installed into masonry, properly applied step flashing consists of two parts—the base and the counter flashing (sometimes called cap flashing). Using this system, the two joined areas can move independently without the risk of damage that might occur in a one-piece installation. Smaller stepped pieces of flashing alleviate contraction/expansion stress failures. For maximum protection, all stepped counter flashing should be tucked into a groove (reglet) provided by the mason. This groove can be scored into wet mortar or sawn into old mortar joints.



FLASHING



CRICKET

CRICKETS: Another important type of flashing in this climate is the cricket. Crickets are installed behind chimneys and other larger elements that protrude from or intersect a pitched roof. This is especially useful to deflect snow that might pile up behind a chimney or wall.

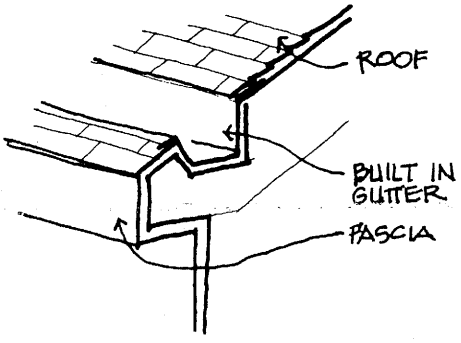
VALLEY FLASHING: Valley flashing is used at the intersection of two roof planes. This type of flashing varies according to the individual house. On asphalt roofs, the valley flashing is often omitted in lieu of lapped shingles or a rolled mineral roofing valley. In either case, apply metal flashing under the asphalt material, because the valley always deteriorates more quickly than the adjacent field of shingles, and it's difficult to repair the valley without harming affected shingles.

Depending on the details of your house, various types of flashing can be used. If you have a particular problem, refer to the flashing sections of *Architectural Graphic Standards.*

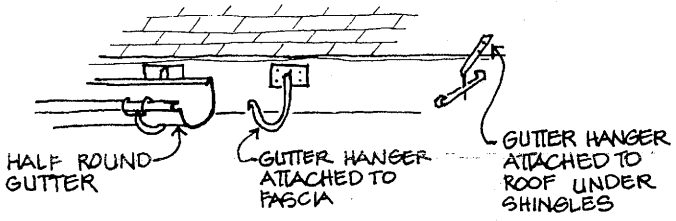
Gutters

If you want to dry out your damp basement and control excessive moisture around your house, a good gutter system is often the first place to begin. Properly installed gutters divert rain and melting snow away from the foundation and also protect your windows, porches, and siding from excessive moisture. Foundation repointing, painting, and carpentry repairs should all come after the gutters are installed.

BUILT-IN GUTTERS: If you live in a house built at the beginning of this century or earlier, you might have built-in or Yankee gutters. These systems were discretely built into your roof and cornice system, unlike conspicuous hung gutters. It is extremely



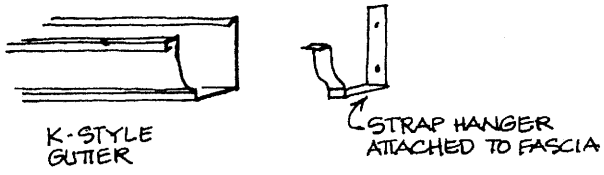
BUILT-IN GUTTER



HALF-ROUND GUTTER

important to maintain these systems in perfect order. Minor leaks can damage walls, ceilings, and structural members with little indication that expensive repairs are necessary. If you have had problems with your built-in gutters, consider covering them with the roof and installing a more economical, reliable hung-gutter system.

HUNG GUTTERS, THE HALF-ROUND: There are various types of hung gutters. The most appropriate hung system for most 19th-century and early 20th-century homes is the half-round. Various widths of half-round gutters are available in copper, galvanized steel, and aluminum in 10-, 20-, and 30-foot lengths. Copper gutters with soldered joints are the longest lasting, but galvanized steel half-rounds with soldered joints are more common and economical. Aluminum half-round gutters have an appropriate appearance, but should not be used on houses with seasonal ice dam problems or in situations where they could be crushed by tree limbs or ladders. Aluminum sections are riveted and waterproofed with special sealants.



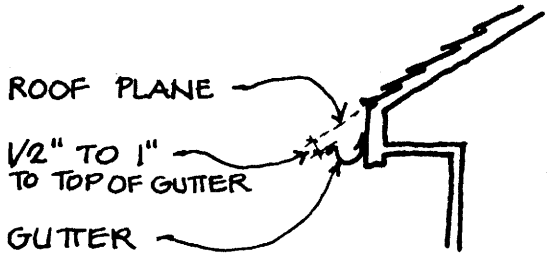
K-STYLE GUTTER

K-STYLE GUTTERS: K-style gutters have an ogee profile (a reverse curve or s shape) similar to the profile found on some early cornice boards. They are most appropriate for houses built after 1940. Like half-rounds, they are also available in copper, galvanized steel, and aluminum. The aluminum seamless gutter is probably

the most popular K-style system used today. Seamless gutters are fabricated from large rolls of aluminum to specifically fit your house. Long runs of gutter can be fabricated without troublesome junctions. Unless exceptionally well installed with adequate stiffeners, they are vulnerable to ice-dam, ladder, and tree-limb damage. Lengths over 30 feet must have expansion joints.

The metal used for aluminum gutters should be at least .032 inches thick. The aluminum gutters sold at most home centers are .024 inches thick, thus vulnerable to damage.

VINYL GUTTERS: Vinyl gutter systems are the newest type available from hardware and home stores. These are simple to install, but aesthetically inappropriate for older homes and may be a poor choice for our cold climate. Vinyl becomes brittle in cold temperatures and fractures easily.



GUTTER LOCATION

GUTTER HANGING TIPS: It's best to replace or repair gutters at the same time you reroof. Fasten hung gutters from adjustable brackets or straps attached to the facia or to the roof deck under the roofing material. Do not use spike and ferrule fasteners; they often loosen after a long winter of cold and snow, and the spike hole at the back can leak, causing facia or rafter deterioration.

Never attach gutter straps over shingles; the nail penetrations will eventually leak. To prevent galvanic corrosion, never combine unlike metals; use copper fasteners with copper systems, galvanized nails with galvanized systems, and aluminum with aluminum.

Choose gutter widths according to the area being drained and the pitch of your roof; a five-or six-inch width is generally adequate for residences in this area, but steep expansive roofs might require more drainage. Install gutters with a slight pitch toward the nearest downspout. Typically, 1/16 inch per foot is adequate, but long runs look better drained in two directions. Install gutters below the roof plane so that heavy accumulations of snow and ice will slide over the gutter and not into it. Put basket strainers in the downspout openings to prevent leaves from clogging the leaders and drains. Always check the slope with a can of water before paying your installer or before completely fastening the system down. For more specific leader and gutter requirements, refer to *Architectural Graphic Standards.*

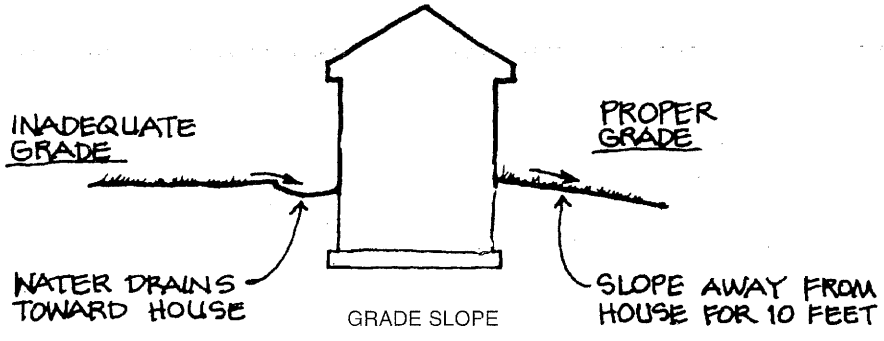
PAINTING GUTTERS: Leave galvanized gutters unpainted or allow them to weather for a year before painting. If they must be painted immediately, remove packing

oils with mineral spirits or lacquer thinner and use a galvanized gutter primer, or etch and paint with a quality acrylic latex paint. Aluminum gutters come with a factory finish. Copper gutters are usually allowed to weather into an attractive green patina.

To maintain your gutters, remove debris, clean basket strainers, and inspect for leaks and proper drainage yearly. If your gutter system is not connected into the local storm sewer or dry well, install splash blocks to divert water away from your foundation.

Grade and foundations

One of the most common site problems for homeowners is an inadequate grade or level of earth around your house. If your house site is lower than the yard around it, any rain or snow melt has no option but to percolate directly down your foundation wall, creating a musty or wet basement. This condition didn't exist when your house was new. Grass clippings, leaves, plantings, and added topsoil all build up over time,



GRADE SLOPE

increasing the grade of your yard by as much as one foot in 100 years. Poorly planned driveways, sidewalks, and additions often exacerbate the problem. This means that a house designed to sit atop a slight rise or hill might now be sitting in a depression.

Maintaining or restoring an appropriate grade should be central to any landscaping plan. Ideally, the earth around your house should slope away from it. Remove dense bushes or plantings adjacent to the foundation. These hold moisture next to your house and often create a damp environment next to vulnerable building materials. Where possible, raise the grade by adding topsoil. Your sills and clapboards must be at least eight inches from the ground; if adding soil raises the earth too close to these vulnerable elements, regrade troublesome locations by removing soil and installing underground drains or swales to create better drainage.

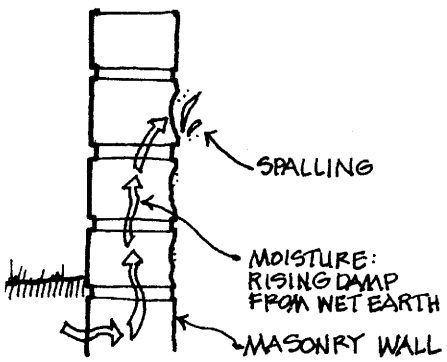
The foundation of your house must be maintained from the inside and out if the rest of the structure is expected to function correctly and remain stable. A deteriorated foundation can create minor annoyances like sticking doors or windows, or it can lead to devastating problems such as bowed walls, sagging rooflines, and structural failure.

Most older houses in this area have stone or concrete block foundations. If you have a brick foundation, it is probably veneer over stone or block, because bricks are porous and deteriorate easily. In many neighborhoods, decorative or rock-faced concrete blocks were used above grade over stone footings.

MOISTURE AND YOUR FOUNDATION: Rising damp is moisture that is absorbed into porous masonry materials and rises up a wall through the capillaries in these materials. It can creep several feet up a wall. When this moisture freezes and the surface of the masonry breaks off in small pieces, hunks, or paper-thin flakes, the condition is known as spalling. Spalling can occur from any source of moisture such as leaky roofs or missing copings.

Another sign of a moisture problem is efflorescence, a white salt-like crystalline deposit that is often noticeable on basement walls, foundations, and exterior masonry walls. Efflorescence is composed of soluble salts that are dissolved in the mortar and brought to the surface. Like spalling, these salts can damage your foundation as they expand and grow. Small particles or larger chunks of masonry can gradually break loose from the foundation until major repairs are needed.

If you have moist conditions around your house—puddles of water, a musty basement or mildew on the walls—but no sign of spalling or efflorescence, you still



SPALLING

should be concerned. Constant wetness can dissolve the particles that hold masonry units together whether the masonry is concrete, sandstone, or brick.

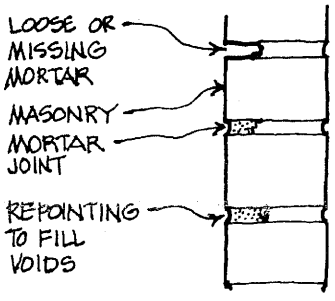
Always stop the source of moisture before repairing and repointing damaged masonry. Adjusting the grade to slope away from the foundation and installing a good gutter system are good ways to begin.

TREES AND YOUR FOUNDATION: Don't plant saplings too close to your house. Strong foundations are sometimes damaged by small roots that entered tiny cracks, then grew and expanded the crack. Large roots can push bulges into the foundation wall. Excavate problem tree roots, or remove the entire tree before making repairs or repointing.

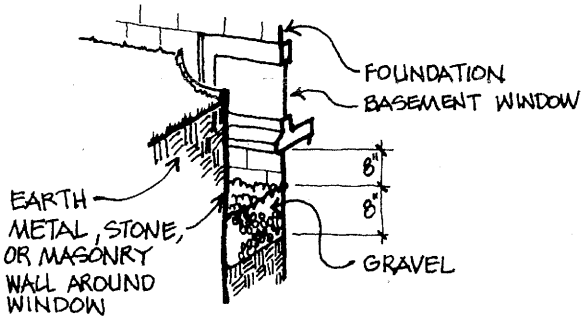
REPOINTING YOUR FOUNDATION: The mortar chosen for repointing is one of the least understood yet most important details in repairing masonry. Through most of the 19th century, masons used lime mortar. This slow-drying, soft mortar was compatible with the stone used for most foundations. Near the turn of the century, masons added Portland cement to the lime to make a harder mortar for the cast concrete blocks that were popularly replacing stone. In each case, the mortar was always softer than the adjacent masonry units. Slow-drying, soft beds of lime or lime/Portland mortar allowed buildings to settle initially and adjust to the contraction/expansion rigors of this climate.

Lime and lime/Portland mixes are still appropriate for repointing. Hard Portland mortar was not used historically and cannot successfully be used today. Mortar that is harder than adjacent stone, brick, or block will crack, allowing moisture penetration and increasing the chance of spalling. If the mortar fails, it cannot be removed safely from the masonry where it is firmly attached.

Finally, beware of inexperienced contractors who urge you to cover your foundation with stucco. Stucco (sometimes called parging) is not a substitute for repointing and repairs; it often covers up the problem rather than actually remedying it. For more specific repointing instructions, refer to chapter IV.



REPOINTING



WINDOW WELL

Wet basements

Damp or wet basements are usually cured by improving the drainage around your house. A sloping grade and functioning gutters solve most problems. If you've noticed specific damp areas, check to see if these areas correspond with an interior or exterior drainage pipe that joins the storm sewer. If these pipes are clogged with roots or collapsed, the water will back up, possibly into your basement. Your plumber can clean these lines or tell you if they must be replaced. In plumber lingo, this is known as "snaking the lines."

Many foundation windows are below grade and protected by window wells. When these wells are not cared for, moisture is often forced through the window or the wall below it. Excavate window wells allowing at least 8" of clearance below the window sill and another 8" of gravel for drainage.

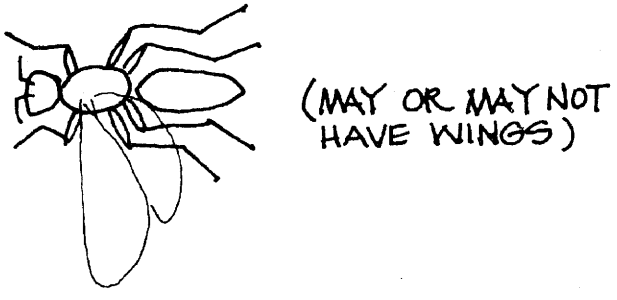
For problem basements not dried out by typical drainage measures, contractors sometimes recommend excavating the foundation, applying a waterproof coating, and installing a gravel drain system leading away from the house. Consult an architect or professional engineer before undertaking such a drastic project. Also, be wary of waterproofing companies that recommend interior basement perimeter drains and a sump system without addressing your gutters and grade. Interior perimeter drains and sumps treat the symptoms but not the problem. You'll still have open water in your basement, thus the possibility of a musty odor and excessive humidity.

Rot, insect damage and infestation

Rot, mold, mildew, carpenter ants, termites, and wood-boring beetles are all attracted to damp environments, and they can all be avoided. Knowing how and where to detect them is the first step in eradication.

ROT/FUNGI: There are many types of rot, and they all have one thing in common: rot does not occur without, first, the presence of excessive moisture and, second, the presence of fungus spores. If you discover rot, the source of moisture must be stopped before making repairs.

Many people are confused by the term "dry rot"; after all, how can something rot if it's dry? The reason is that the rotted area was once wet or suffered from seasonal wet and dry periods.



CARPENTER ANT

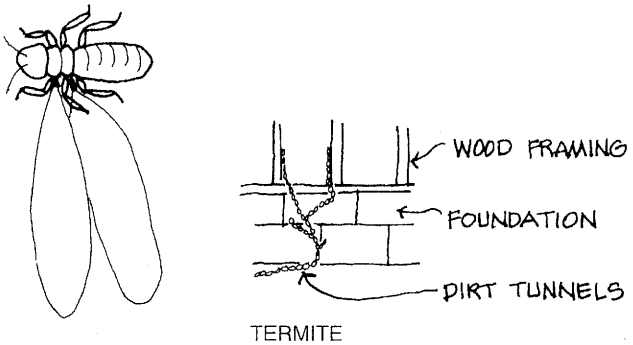
CARPENTER ANTS: Carpenter ants are large (1/4"-1/2") and black with a thin pinched waist between the thorax and abdomen. They are most often noticed in the spring. If you detect carpenter ants inside or around your house, inspect it for a damp area where they might be burrowing. The logical areas of infestation are the foundation, woodpiles, and porches. But don't rule out unlikely places like the deck under a leaky roof, interior walls around faulty plumbing, or sills moist from wall condensation. Carpenter ants are also commonly found around deteriorating and rotten tree stumps. If this is the case in your yard, get rid of them before they find some vulnerable area of your house.

Carpenter ants can be controlled with insecticides, but it is most important to stop the source of moisture first. For safe insecticides that you can use, call the Cornell Cooperative Extension Office, at 461-1000. If you cannot locate the ant colony, call a pest-control professional.

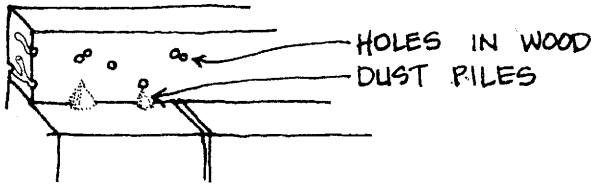
TERMITES: Termites are not as common in this climate as in warmer regions of the country, but they do exist here, and with virtually no evidence of their presence, can

create serious damage to a house. Distinguishing between termites and ants is easy. The termite body does not narrow in the middle like that of an ant; termites also have wings or wing stubs where wings were once attached. Dirt tunnels running from the ground up to the wooden members of your foundation are a good indication that you have termites.

Like carpenter ants, termites are also attracted to moist wood. The major difference, however, is that carpenter ants do not eat wood for nourishment and termites do. Since termites often construct tunnels from the earth to a structure, they bring in enough moisture to live and continue their destruction even if there is no excessive moisture problem. Termite damage can be extremely destructive, reaching into all areas of your home. If you have a termite problem, call a professional exterminator.



TERMITE



POWDER-POST BEETLE DAMAGE

POWDER-POST BEETLES: It's rare to inspect the sills and basement joists of a 19th-century home that does not have some degree of beetle damage. Usually they've done their damage and moved on, but it is important to determine if the damage is old or new. Small pyramidal piles of dust (frass) below 1/8" round holes usually indicate their presence.

Beetles damage hardwoods and softwoods, but each family of beetle attacks only one or the other. Powder-post beetles commonly infest the sapwood of oak or other hardwood timbers. Since they are often brought into a house in unseasoned timber or firewood, it is important to use only seasoned or treated lumber and keep firewood away from the structure. Excessively damp and humid basements must be ventilated or dehumidified. There are very few chemicals effective on powder-post beetles that are legal for homeowner use. For recommendations, call the Cornell Cooperative Extension Office. In extreme cases, professional fumigation is the best treatment.

INSECTICIDE SAFETY: The pest-control industry has changed drastically over the past few years. The general public and professional exterminators are much more

aware of the dangers of toxic chemicals. Many insecticides that were commonly available in the past are no longer legal, and the approved list of chemicals changes constantly. Professional exterminators will provide technical data on any chemicals they propose to use in your house. If your insect problem is pervasive, call a professional exterminator. If your problem is minor, the Cornell Cooperative Extension Office (461-1000) will send you up-to-date information on available chemicals.

Many professional pest-control companies encourage new customers to begin routine inspections and applications. This is generally unnecessary if all moisture problems are solved and the initial extermination process is successful.

- SIDING
- MASONRY
- WINDOWS
- PORCHES
- PAINTING

CHAPTER 4

Preserving significant exterior features

Preserving significant exterior features

Once you've attended to serious exterior building threats, it's time to consider problems with the skin or envelope of your house. Wooden cladding, masonry, windows, doors, and porches are some of the character-defining details of your home that may need work. Since many contractors unnecessarily encourage replacement materials that are inappropriate and inferior to those already in place, we offer the following maintenance and repair tips.

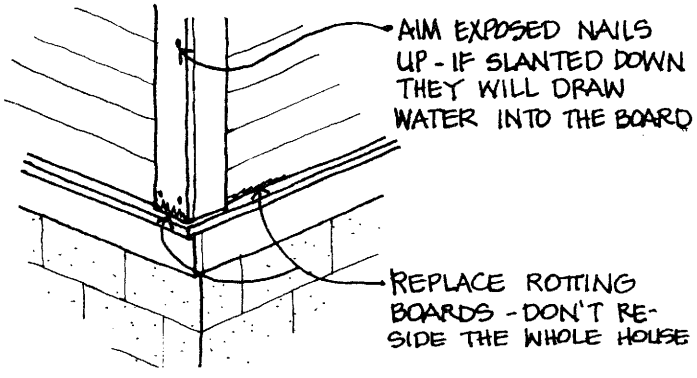
Siding

SUBSTITUTE SIDING

Maintaining the original siding of your home is extremely important. Replacing or covering your siding with vinyl, aluminum, Masonite hardboard, Textured-lll, or any material different from the original, severely compromises the architectural integrity and can lower the value of your house.

The siding and various other elements original to your home define its special historic character and style. When a house is covered with substitute siding, the original siding will be hidden, removed, or sometimes ruined forever. In the process, other important elements such as brackets, window or door pediments, and porch details are often removed and discarded. The result is an historic structure, stripped of its charm and rendered bland and unappealing with low quality, modern materials.

Perhaps one of the worst myths of synthetic siding is that it protects your property. To the contrary, siding often hides problems that aren't discovered until severe damage occurs—problems that can only be repaired at great expense. Whether you are a homeowner or a potential buyer, remember that inner wall condensation, ice dam damage, insect infestation, and rot can all be hidden by substitute siding.



REPLACING SIDING

And if anyone tells you that substitute siding is maintenance-free, don't believe it. All varieties of siding have their special weaknesses. Aluminum and steel siding dent and fade. One of the biggest markets for house painters today is repainting "maintenance-free" aluminum siding. Vinyl siding shatters in cold weather, fades and slowly deteriorates from the ultra-violet light. Unlike aluminum siding, vinyl siding does not hold paint well and is a problem when fading, graffiti, or replacement dictate a new coating.

Don't be fooled by exaggerated claims of big energy savings from new siding and the thin layer of styrofoam that is often installed behind it; savings are minimal. The best way to weather-proof your house is with attic insulation, quality storm windows, caulking around openings, and weatherstripping.

Few older homes require complete replacement of the original clapboard siding. Houses that have not been painted for 50 years or longer often can be rescued with judicious repairs and a good coat of paint. Neglected houses typically exhibit the most deterioration on the south side, so you might have to replace most of the siding on the south and only a few pieces on other sides. Also, carefully inspect clapboards abutting lower roofs and those near the ground.

Replace all original siding with materials similar in design, composition, and installation. For example, don't substitute clapboards for shingles or board and batten for clapboards. Backprime all replacement boards, seal cut joints with primer and fasten with hot-dipped galvanized, stainless, or aluminum nails. Caulk all vertical joints that are vulnerable to moisture penetration, but don't caulk or seal the horizontal seams under the clapboard edge; this crack provides a thin opening for moisture vapor trapped in the wall.

TYPICAL 19TH- AND EARLY 20TH-CENTURY SOFT BRICK MORTAR FORMULA

Mortar must be softer than the brick or stone, for an average soft mortar:

1 part Portland cement (to improve workability and drying)

4 parts hydrated lime

10 parts sand

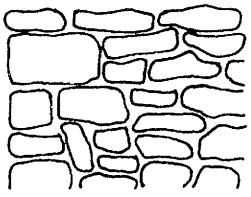
Historic masonry

REPOINTING: Repointing is the process of removing deteriorated mortar from the joints of a masonry wall or foundation and replacing it with new mortar. Properly done, repointing restores the visual and physical integrity of the masonry. Improper repointing detracts from the appearance of the building and may cause physical damage to the masonry or to a substantial portion of the structure.

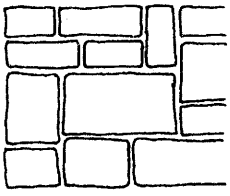
The decision to repoint is most often related to some obvious sign of deterioration such as disintegrating mortar, cracks in mortar joints, loose bricks, etc. Determine the cause of the deterioration before beginning repointing work. Repair old gutters and leaking roofs, and attend to rising damp and grade problems before repointing.

An important rule is to mix mortar that is slightly softer than the adjacent masonry unit. Formulas must be adjusted for different materials. For example, granite requires a harder mortar than sandstone, especially our soft, brown Medina sandstone.

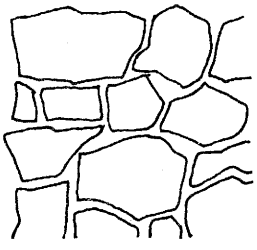
Repointing soft 19th-century brick is particularly troublesome. The original lime mortars were compatible with the brick because they were slow-drying and allowed



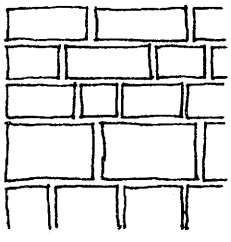
COURSED RUBBLE RANDOM BOND



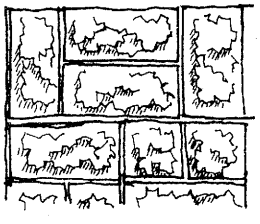
RANDOM COURSED ASHLAR



RUSTIC RUBBLE



COURSED STONE

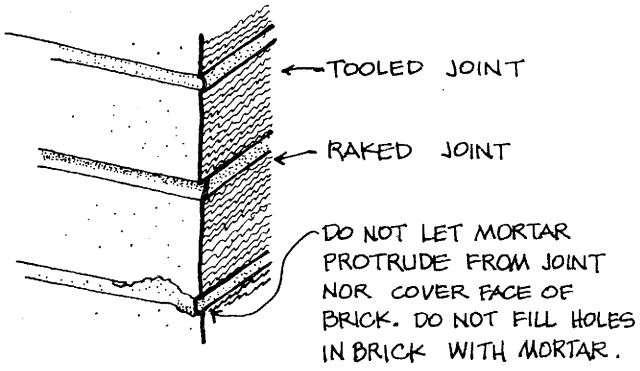


DECORATIVE CONCRETE BLOCK

slight movement of the masonry without affecting the bond with the individual unit. Conversely, Portland cement mortar drys extremely hard and restricts any movement of the wall or individual unit. If the mortar is harder than adjacent stone, brick, or block, a crack often occurs between the dry mortar and the masonry, allowing moisture in and increasing the chance of spalling. If the mortar fails, it cannot safely be removed from units where it is firmly attached.

Matching new mortar to old is tricky, but with a little research and the correct ingredients, you can get a good match. First, determine what materials were used in the original mortar. To do this, dissolve a sample of soft mortar in water or harder mortar in a dilute solution of muriatic acid. When the sample has completely broken down, pour off the liquid, let the residue dry, and determine the size and color of the aggregates. Call local quarries or sand and gravel suppliers to find sand in the color and size that matches the original. A less satisfactory method involves tinting the mortar with masonry pigments. Should you choose this method, make your final choice from dry samples only. You can purchase pigments from most masonry suppliers.

Whenever possible, remove old mortar a minimum depth of 2-1/2 times the width of the joint. This usually means removal of 1/2 to 1 inch of mortar. Only use



MASONRY

hand tools for removing deteriorated mortar. Power tools such as saws with diamond-edged blades and impact hammers always damage the adjacent stone or brick by breaking edges and overcutting.

Fill deep voids in layers, not all at once. To prevent excessive absorption of moisture from the fresh mortar, mist or dampen dry brick or stone just before packing in the mortar. Reinstate original joint detailing. Brick mortar must not protrude beyond the face of the unit, but should be recessed into the joint. Wipe off excess mortar with a dampened bristle or fiber brush before it gets hard. Never clean sloppy workmanship with an acid etch.

WATERPROOFERS AND WATER REPELLANTS ON HISTORIC MASONRY: Don't use waterproof sealers or coatings on your historic masonry surfaces. Although believed by many people to protect the surface, these products often trap moisture in

the wall, creating a problem that cannot be repaired. Unsightly stains, discoloration of the masonry, and thin paper-like spalling are symptoms of failed waterproofing methods.

Water repellants that allow a degree of vapor transmission through the wall have been used with success in some applications, but are unnecessary unless the masonry is deteriorated to the point of requiring replacement. Water repellants require frequent applications and their long-term effects are unknown.

STRIPPING PAINT AND STAINS FROM HISTORIC MASONRY: If you are thinking about stripping old paint from your masonry, consider why it was painted originally. For example, some brick was always painted. Early brick varied in quality and hardness as it came from the kiln. If a soft porous brick was used on exterior walls, it was painted for protection. In this case, it is a mistake to strip the brick. Also look carefully for interruptions in the brick coursing—filled-in windows or openings and other imperfections hiding under multiple coats of paint that will be unsightly if the surface is stripped.

Be careful when hiring a mason who also promotes and provides sandblasting services. Old masonry should never be sandblasted—especially old brick. Most old brick is extremely soft on the inside with a harder outer layer—similar to the crust on a loaf of bread. If this harder exterior layer is blasted away, the porous inner layer will absorb moisture, collect dirt, and rapidly deteriorate. In extreme cases, walnut shells, ground corn cobs, and soda are sometimes successfully used to abrasively clean painted or dirty masonry. As with any technique, the success or failure of these methods depends on the skill and patience of the person performing the work and careful job oversight. Always test any products and methods in an inconspicuous area of the building before determining their appropriateness.

High pressure water strippers (power washers) can be as abrasive and damaging as sandblasting. Operating pressures ranging from 2500 - 5000 psi can etch the face from masonry or score multitudes of ugly circles all over the surface. Besides destroying the surface of the masonry and vulnerable mortar, water trapped in the masonry can spall if the temperature drops below freezing. Medium pressure water blasting (500 - 1000 psi) is appropriate for dust, dirt, chalk, mildew, and cobweb removal, but never for complete paint removal.

Chemical stripping is expensive, messy, toxic, and often deteriorates building materials. Most advertisements and promotional literature for chemical strippers exaggerate the product's ability. When chemicals are used, they must be carefully chosen for the type of masonry and stain that needs cleaning. Some surfaces are seriously affected by acidic cleansers, others by alkaline cleansers. Before undertaking any stripping project, always refer to *Keeping It Clean: Removing Exterior Dirt, Paint, Stains and Graffiti from Historic Masonry Buildings*, Anne Grimmer, U.S. Department of the Interior, Washington, D.C., 1988.

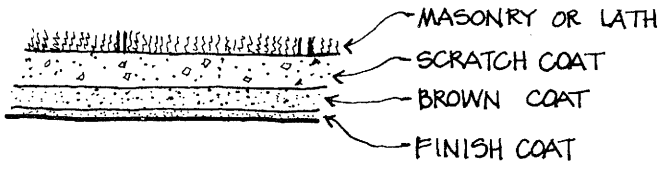
Although various chemicals are available for cleaning dirty masonry, the best method is a prolonged water mist or spray. To do this, a hose or pipe is punctured with small holes that will direct the mist toward the building. Eventually, the dirt will loosen and wash away; scrubbing with hemp brushes speeds up the process.

Stucco

Stucco is a versatile masonry material that was applied in a variety of decorative finishes from smooth to rough. Most mid-19th-century examples in this area were smooth, lime-based stuccos scored to look like stone. Although popular throughout the 19th century, stucco reached its greatest use in this area from about 1910 to 1940.

After the 1880s, various formulas of Portland cement and lime were used for stucco. It was usually applied in three coats over stone, brick, or terra cotta, and over wood and wire lath. Stucco was popular for new construction and also used to modernize older homes.

Although durable, stucco is vulnerable to moisture damage. Problems range from hairline cracks to large bulges. Before mending damaged stucco, always determine the reason for failures and make suitable repairs. Cut or chisel damaged areas out to a sound surface. Dampen adjacent stucco and the lath or base to prevent excessive moisture absorption from the new mixture. Determine how the original mixture was formulated using the same methods recommended for historic masonry repointing earlier in this chapter and make your patch with similar materials and ratios. If the textured finish of your stucco appears difficult to match, contact a mason who specializes in stucco repairs.



STUCCO

MID-NINETEENTH-CENTURY LIME STUCCO FORMULA

l part by volume hydrated lime

3 parts by volume sand

6 lbs. animal hair per cubic yard of stucco, 1/2"-2" long

Water to form a workable mix

Omit hair from finish coat To increase workability and setting time, add 1 part white Portland cement to 12 parts lime and sand.

TYPICAL EARLY TWENTIETH-CENTURY PORTLAND STUCCO FORMULA

1 part Portland cement

2-1/2 parts sand

Hydrated lime - not more than 10% of the cement's volume

Water to form a workable mix

Finish coats generally contained more lime than undercoats but not more than 25% of the cement's volume.

Pigment as needed in finish coat

If your house was built in the 20th century, chances are the stucco is a Portland base. To analyze the materials in your stucco, drop a small piece in a dilute solution of muriatic acid. Lime-based stucco will dissolve; Portland cement will not. If part of your sample dissolves, the dissolved part was lime, the remainder is Portland and aggregate. Never formulate a stucco that is harder than the adjacent material or substrate. As in repointing, the harder stucco patch will crack away from the older, softer material.

Unpainted stucco in good condition is difficult to match with a patch. The aggregates (sand, pebbles or stones) must match the original as closely as possible. If your stucco is painted, repaint with a material compatible with the last coat that was applied. If you are painting new or unpainted stucco, use an acrylic latex or special masonry paint. For more specific painting information, refer to the painting section later in this chapter.

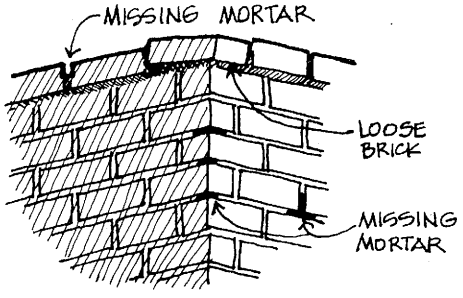
Chimneys and flues

Chimneys are often "out of sight and out of mind," but they can be an important architectural element of your home. Whether your chimney is easily visible or not, it must be inspected regularly and maintained.

If you burn wood or coal fires, use a woodstove, or vent your heating and hot water systems through the chimney, it must be lined. A deteriorated brick flue can leak deadly carbon monoxide fumes or flames back into the living space. Clean and inspect your chimney yearly. This is particularly important if you consistently maintain a woodstove fire. Low or cool fires greatly increase the accumulation of creosote, the leading fuel of chimney flue fires. For a fair evaluation of your chimney, it's best to choose a chimney sweep who is not also a masonry contractor.

Over time, the condensation of flue gases will deteriorate the interior of a brick or tile-lined chimney. Bits and pieces of fallen masonry can clog the chimney or the pipe leading into your chimney. If yours is not lined, ask your HVAC (heat, ventilation and air conditioning) contractor to inspect your flue when your furnace is inspected.

Inspect the exterior of your chimney with binoculars. Look for loose bricks, missing pointing, rusty or tarred flashing, and deteriorated caps or copings. Loose bricks or masonry copings (the protective cap) can fall and damage the roof and gutters and leave a vulnerable spot in the chimney face that will deteriorate rapidly. Chimneys should be repaired just as you would the foundation, by repointing. Parging, a heavy coat of cement stucco, is a poor way to repair a deteriorated chimney, because the condition of the old pointing is ignored and simply covered up; the chimney will still be structurally weak.



CHIMNEY MASONRY

Finally, never attach your television antennae to your chimney; the swaying motion of the antennae and fasteners located in the mortar will eventually undermine its integrity.

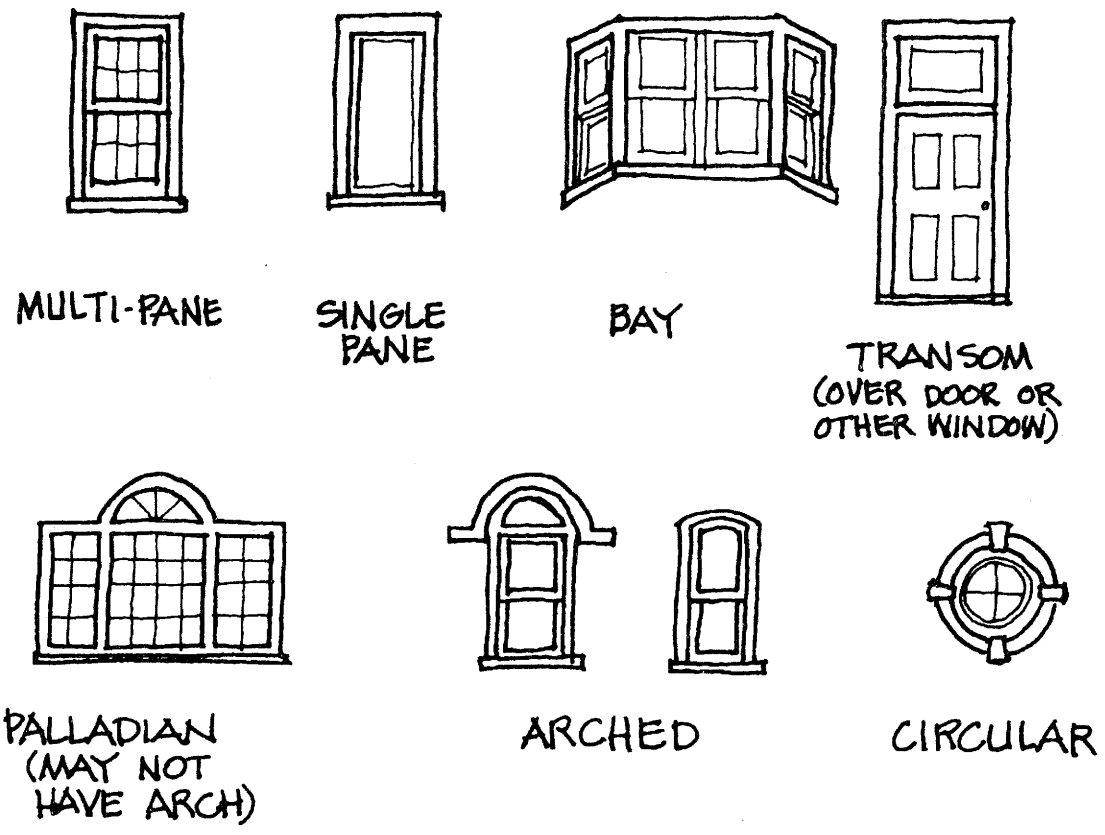
Windows

Window style and placement are two of the most important character-defining features of any structure, and often one of the few clues to the age and evolution of a building. For example, multi-paned sash and mottled glass usually indicate a pre-1850 construction date; larger panes were not available until later in the century. Uneven spacing of upper and lower windows can reveal that a front porch has been removed.

Wooden window sash were made with the precision of fine cabinetry. Joints were morticed and tenoned and sometimes pegged for added strength. This is why the typical window can withstand decades of use and abuse. Unfortunately, when the remodeler arrives, windows are often the first feature to be thrown away—usually for no reason. The savings realized from an average double-glazed, insulating replacement window does not warrant the cost when compared to the energy performance of

a properly functioning prime sash with a quality storm window. Furthermore, wood sash are far more efficient than most metal replacement sash.

If your windows are drafty and don't function properly, adjust and weatherproof them for better performance. One of the biggest problems with any window system is the thick accumulation of paint that prevents the sash from moving and closing correctly. Prior to making adjustments, remove this build-up of paint with sandpaper,



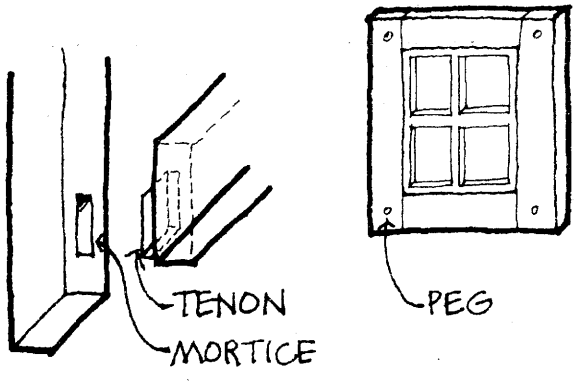
WINDOW STYLES

stripper, or a rasp. To do this on double-hung windows, remove the stop, then remove the sash from the frame, taking care to tie a knot in the sash cords to prevent them from flying back into the wall pocket.

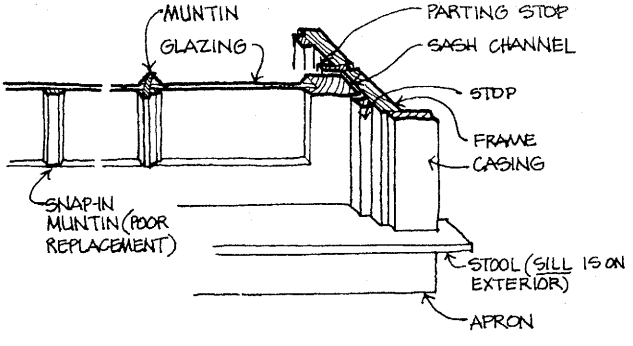
Strip thick accumulations of paint from the sash and the face of the stop and parting rail that meets the sash. When repositioned, the sash should glide easily but not fit loosely between stops. Paraffin is a good lubricant for the face of the stop that abuts the sash and the channel. With the sash in a closed position (and all the paint removed), try using the lock. This should pull the upper and lower sash firmly together at the meeting rails. If your windows are exceptionally loose and drafty, install weatherstripping in the sash channels and between the meeting rails. In the past, spring-metal type weatherstripping was used successfully but now sophisticated channel weatherstripping systems in both metal and vinyl are available from hardware

stores and home centers.

Casement windows are often drafty, but their efficiency can usually be improved. Begin by removing excessive paint build-up and check the locks to see if they pull the sash tightly into the frame. If not, repair or replace handles and locking hardware. Install weatherstripping or a home-made silicone gasket around the contact points.



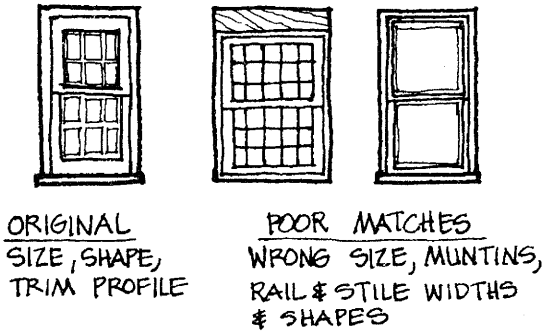
MORTICE & TENON



WINDOW ELEMENTS

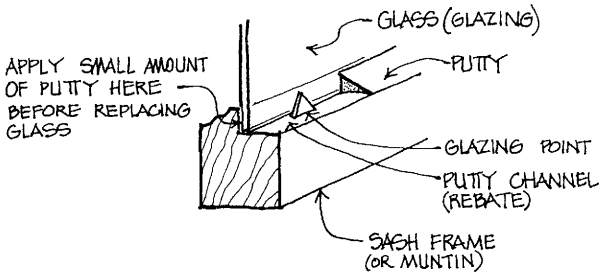
The glass in your window sash is held in place with glazing points and glazing compound (usually called putty). Reglaze windows by removing as much of the old material as possible without breaking the glass. Dust off the rebate or putty channel and prime it with a thin coat of boiled linseed oil or exterior oil-based primer. When the oil dries (about 24 hours), apply new glazing compound, taking care to keep the level even with the inside part of the muntin. When the glazing compound begins to harden (usually about 3 days), repaint the sash, slightly lapping your paint upon the glass to create a seal between the glass and glazing compound. If you must scrape excess paint from the glass, protect the putty and the paint seal with a wide blade putty knife.

When replacing glass, remove the old glazing compound with a putty knife, heating element, or pencil-point nozzle propane torch. Clean out the rebate, sand it smooth, and prime it with boiled linseed oil. After the primer coat of linseed oil has dried, back-putty the glass by applying a small amount of glazing compound in the rebate just before pushing in the glass. Secure the glass with glazing points, reglaze, and paint.

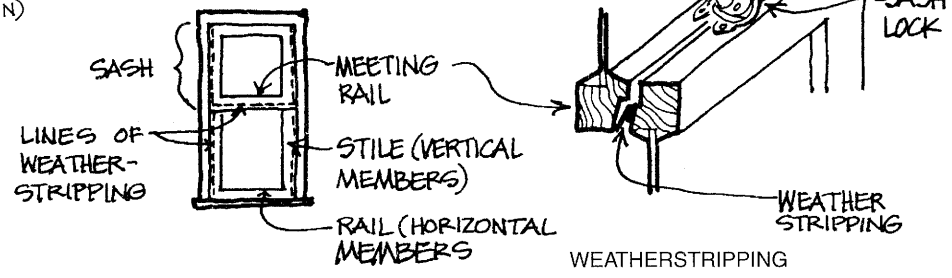


WINDOW REPLACEMENT

If window replacement is necessary (and it seldom is), always purchase units that match the originals. This includes the size of the unit, the number of window panes, muntin profiles, and material. Never install a unit that is smaller or larger than the opening; exact copies of unusual sizes can be duplicated by many millwork companies. Don't try to match your original windows with replacements that have snap-in muntins. False muntins create a shallow, inappropriate appearance.



REGLAZING



WEATHERSTRIPPING

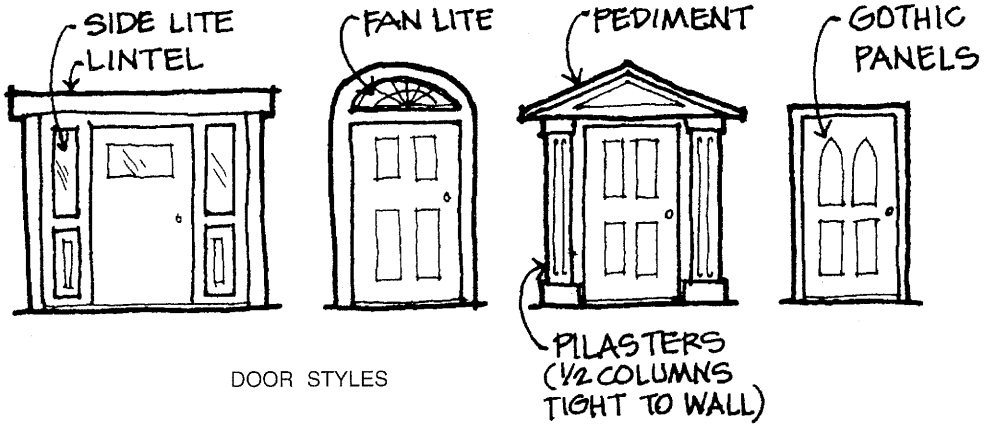
Storm windows

After the prime sash has been renewed, it's time to consider storm windows. Storms are not only another method of energy conservation, they also protect the more expensive prime sash. If you want the most efficient, best-looking storm windows, wooden storm sash are a great choice. Wooden storms can be fabricated to fit any location and, because wood is an outstanding insulator, they are more efficient than aluminum sash. Wooden storms should have meeting rails that line up with those of the prime sash and they should be fabricated from high quality, paint grade 5/4 (1" thick) pine. All glass should be double-strength, the joinery mortice and tenon, and each unit should have adjustable fasteners that hold it tightly to the window frame. Well-maintained wooden storms easily last 100 years—you'd purchase three or four sets of aluminum units in that time.

Aluminum storms (often called triple tracks) come in a variety of qualities. They are popular because the storm sash and summer screen are all part of the same unit; there is no need to seasonally remove one or the other. One problem with most aluminum sash is that the metal conducts as much energy out as it saves in energy efficiency. If you choose aluminum storms, insist on a low-profile design and a good quality window. Low-profile units have thinner frames that hide less of your prime sash. Don't buy models that are light and flimsy. Meeting rails should line up with those of the prime sash; install the frames within the perimeter of the window casing, not on the outside of the casing. Aluminum storm windows usually fit tighter than wooden storms; look for vents that allow an escape for moisture or condensation. Caulk the frame on the top and sides, but leave the bottom open to prevent an excessive accumulation of moisture from condensation or rain.

Doors

Many houses built from the Federal period until now were designed with few stylistic features except those around the front door. Side lights, fan lights, pediments, and pilasters are typical details of a house's entrance.



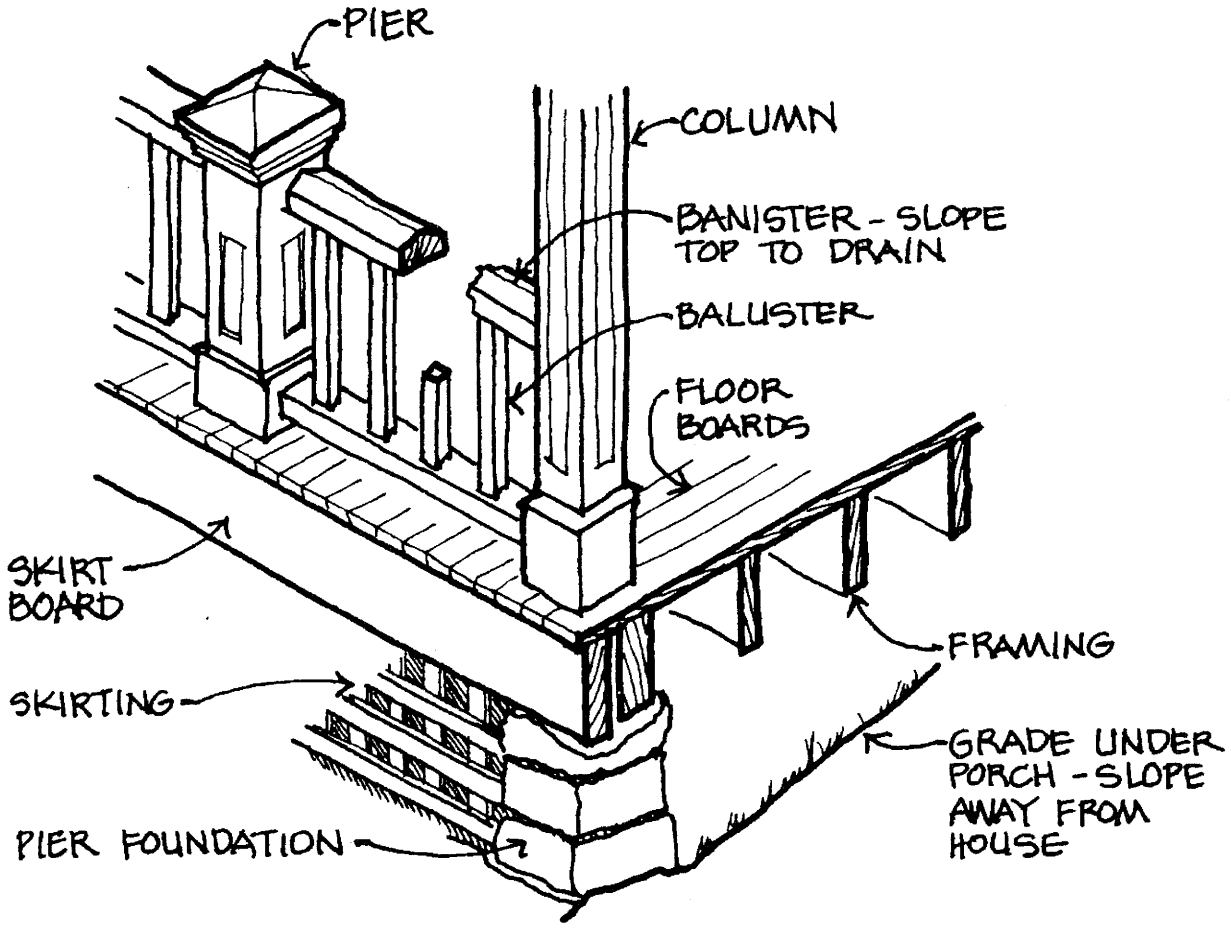
DOOR STYLES

Doors often reflect a particular style or the craftsmanship indicative of the period or locality. Pointed arched panels of the Gothic Revival, heavy curved moldings from the Second Empire, or an oaken plank door from the Craftsman period are all important elements of a house's basic character.

To replace an inappropriate door with something that better matches the period of your house, study designs from old pattern books and catalogues; the Landmark Society has an excellent collection in its library. Once you settle on a specific type, contact local salvage dealers or restoration contractors who might have one tucked away in storage. Many millwork shops also can construct a new door in any design you need. This might seem like a lot of trouble since the local lumber company sells a variety of modern doors, but think about it—what single element of your house is more important than the front door?

Porches

A properly maintained porch is a credit to any house. Because they are extremely vulnerable to every whim of the weather, porches usually require more maintenance than the rest of your house. Piles of melting snow saturate intricate joinery, torrential rain blows into obscure crevices, and summer sunlight bakes the paint and bare wood. Thus, deteriorated porches are often removed, enclosed or unsympathetically repaired. Below are a few suggestions for caring for each element of your porch.



PORCH ELEMENTS

ROOF: Inspect your porch roof yearly for worn shingles and flashing. Never apply a second or third layer of shingles; the extra weight and height might create problems. The flashing at the junction between your porch and house is important and should be replaced if deteriorated.

GUTTERS: Porches shed an enormous amount of yearly rain and snow. Deterioration usually follows the outer perimeter that is most often wet. Unfortunately, this includes the banister, balusters (spindles), and the tongue-and-groove floor—three important elements that are expensive to replace. Properly installed gutters will direct excessive moisture away from these vulnerable elements and the foundation.

FOUNDATION: Many porches droop from the settling of inadequate pier footings. Cracked and warped floors, deflected horizontal lines, leaning columns, and sagging gutters are the common results. If extreme settling is evident, excavate footings below the frost line and reuse the historic materials (stone, brick, block, etc.) above grade. To correct minor settling, jack the porch into level and install shims between the framing and the piers.

FRAMING: Use pressure-treated lumber for the framing under the porch. If joists must be doubled up or layered, use a spacer to maintain an airspace between boards and to prevent moisture from being trapped between them. Always use a spacer between the rim joist and the finish apron or skirting.

FLOOR: Porch decks are traditionally constructed with tongue-and-groove planks inclined away from the house. 5/4 tongue-and-groove flooring is best—anything thinner might be springy and doesn't look authentic. (5/4" is the dimension before planing; it's actually about 1" thick as purchased.) Backprime new decking and seal the tongues and grooves and all end grain as new boards are installed. On existing lumber, remove failing paint and recoat immediately.

COLUMNS: Replace rotting column bases before deterioration moves up column shafts or into the deck and framing. Backprime all base parts and end grain cuts and install columns on lead shims or metal plinths to allow air circulation under and up through the column.

RAILINGS: When reconstructing an entire section, balusters and the lower rail can be designed to shed water away from the joinery. Although seldom seen today, most late Victorian porch rails continued in design down the steps and terminated into a newel that was similar to the columns. Prime all parts on every side before assembly. If your rail sags, use a small painted block between the lower rail and the floor to support the center. Monitor the block to ensure that trapped moisture doesn't deteriorate paint and rot the floor

SKIRTING: Decorative skirting around the porch keeps animals out but allows essential air circulation under the deck and stairs. This circulation is crucial in preventing dampness that attracts carpenter ants, termites, and fungus, and contributes to peeling paint. Lattice and intricate cutout designs in a sturdy frame were used throughout the 19th and early 20th century. If the grade around your porch has risen, there might be a depression under the porch. If this is the case at your house, back-fill this area or remove earth from the lawn to prevent ponding water from accumulating under the porch.

Porch replacement and repair parts should match the original as closely as possible in size, scale, and materials. Don't use "Victorian" stock lumber yard components on your house unless they are appropriate for the period of the house. Don't use pressure-treated decking boards in place of tongue-and-groove porch flooring.

Exterior painting

There are several methods of cleaning and preparing painted surfaces that you should avoid. Never use pressure washers to remove sound or peeling paint. The intense blast of water can destroy wood, masonry, and mortar joints.

Sandblasting, whether with sand, walnut shells, carbide chips, glass beads, or ground corncobs, is abrasive and deteriorates the surface. This abrasion is subsequently sanded smooth, which further removes the building material. In the future, the abraded surface will attract dirt and moisture that could lead to premature paint failure. Nail heads that were once galvanized or countersunk under lead putty will be exposed. Unless properly contained, toxic lead dust will contaminate the area.

Rotary sanding grinders often leave unsightly swirl marks over the surface, remove delicate details, round right angles, and also release lead dust into the environment.

Chemical stripping is expensive, messy, toxic, and often deteriorates building materials. Any chemical removal must be done by experienced professionals after testing random areas to determine if the substrate will be harmed.

Don't even consider open flame torches; they start fires.

Whether you are painting yourself or hiring it out, ask yourself if your house really needs painting. If there is no obvious peeling, the appearance of your house might be drastically improved by washing off the dirt, grime, or mildew. Needless painting just to freshen up the house or to switch to a new color scheme is counter-productive, because excessive layering of paint is a prime cause of paint failure. For the same reason, consider touching up minor problems or painting only the areas that have obviously failed. For example, the south sides of most houses usually need painting long before the north sides. If you paint from corner to corner, it is difficult to see that the other side was not done.

If complete painting is necessary, determine if there is some reason for premature paint failure. You don't want to begin an expensive or time-consuming paint project if there are extenuating problems. Look for pattern failure—excessive peeling around outside walls of the kitchen or bathroom might mean these rooms need better ventilation; peeling and brown stains under the soffits indicate ice damming; peeling around porches and lower areas of the house might be remedied by gutters; general all-encompassing paint failure, revealing bare wood, might mean that your entire house needs better moisture/vapor ventilation.

Preparing your house for painting is the most important part of the job. Generally, hand-scraping and light hand-sanding is adequate for removing old paint. Heat guns and heat plates are a more aggressive method, but must be used with caution. Wash off accumulated dirt and chalking paint with detergent, a hemp brush or sponge, and a garden hose. Spic and Span or tri-sodium-phosphate substitute are both

good detergents for this purpose. Use commercial pressure washers cautiously. If you rent one, use the wide-fan tip only and maintain at least one foot between the house and the sprayer nozzle.

To work effectively, keep several sharp scrapers on hand. If you use one scraper, it must be sharpened several times each day—maybe every hour or so if you're working with thick, hard paint. You'll need smaller scrapers for window and trim work and wider scrapers for clapboards. Most paint stores sell special, shaped scraper sets for working in fluted or hard to reach spots.

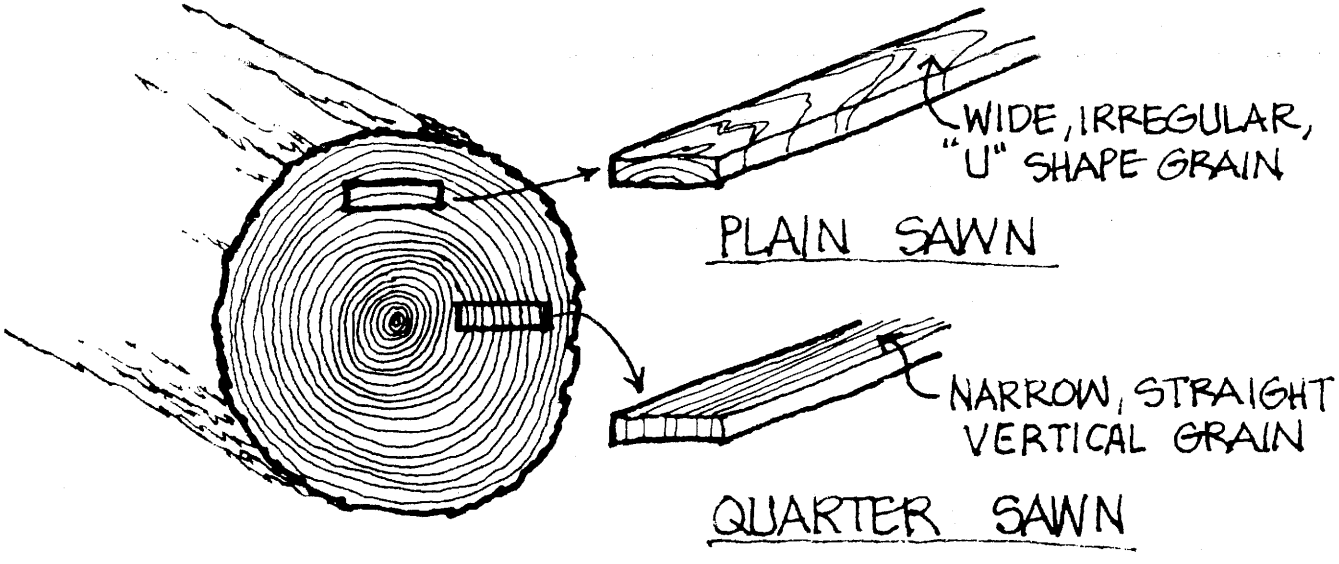
Once you begin scraping and preparing the surface, prime it as soon as possible. A recent multi-year study by the USDA Forest Service concluded that premature paint failure can be directly related to allowing wood to weather before it is finished. Wood that has severely weathered must be sanded by hand or with pad sanders until all of the deteriorated surface is removed.

Changing environmental regulations and their effect on the coating industry

makes choosing primers and paints more complicated every year. One constant remains: it's best to paint over oil with oil and latex with latex. But, if you decide to switch from an oil system to latex, extra measures should be taken to ensure that the new paint lasts.

There are basically two methods to make the change. The safest choice is to completely prime the old surface with an oil primer that is compatible with your top coat of latex paint. The oil primer bonds to the old surface and provides a flat surface for the next coat. The second method is to use an appropriate latex primer. Whenever latex is used over oil, take extra care to remove all dirt, grime, and chalk and to degloss any remaining sheen with sandpaper.

Even if you decide to paint with latex, it's wise to use oil on windows, doors, columns, or areas that receive hard use. When choosing paints, always buy top-of-the-line products. They will cover better, last longer, and look great.



GRAIN PATTERN

Choosing appropriate lumber

Most of the 19th-and early 20th-century siding used in the western New York area was softwood, usually white pine. Although expensive, white pine is still available and a superior choice for siding; it is stable, holds paint well, and resists rot and insects. Western cedar, redwood and clear spruce are acceptable substitutes.

Fir is the preferred choice for tongue-and-groove porch floors and stair treads. If installed and painted correctly, a fir deck can last 50 years or longer. White pine, fir, western cedar, redwood, spruce, and sometimes mahogany are all good trim woods provided they are knot-free. Redwood and cedar hold paint well but are notorious for extractive discoloration of the painted surface, a problem usually controlled with special primers. Avoid using yellow pine, poplar, and most hardwoods for exterior applications. Yellow pine is usually low in quality, resinous, and the summer grain is too hard to hold paint. Poplar has no natural resistance to rot; don't use it outside. Hardwoods such as oak make good door sills, but are generally too dense to absorb

primer or first coats of paint.

When possible, all splice and dutchman repairs should be the same variety of wood as adjoining or surrounding fabric. Vertical grain lumber provides maximum warp resistance and paint longevity. Often referred to as quarter sawn, rift sawn, straight grain, or edge grain, vertical grain lumber exhibits a close, uniform grain pattern running the length of the board. Avoid using boards that exhibit a V-shaped pattern; this is cheaper, less durable plain-sawn lumber.

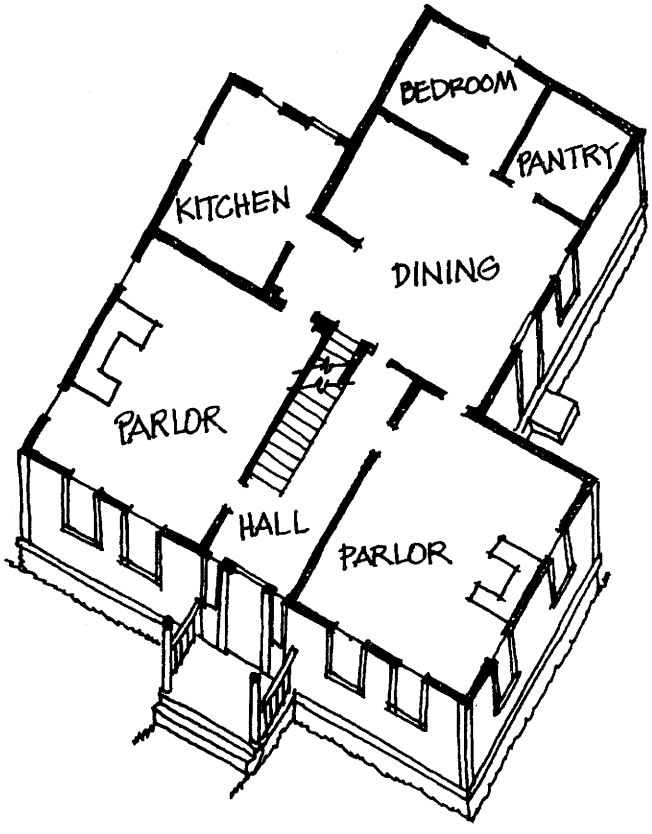
- FLOOR PLANS
- PLASTER
- STRIPPING
- PAINTING
- WALLPAPER

CHAPTER 5

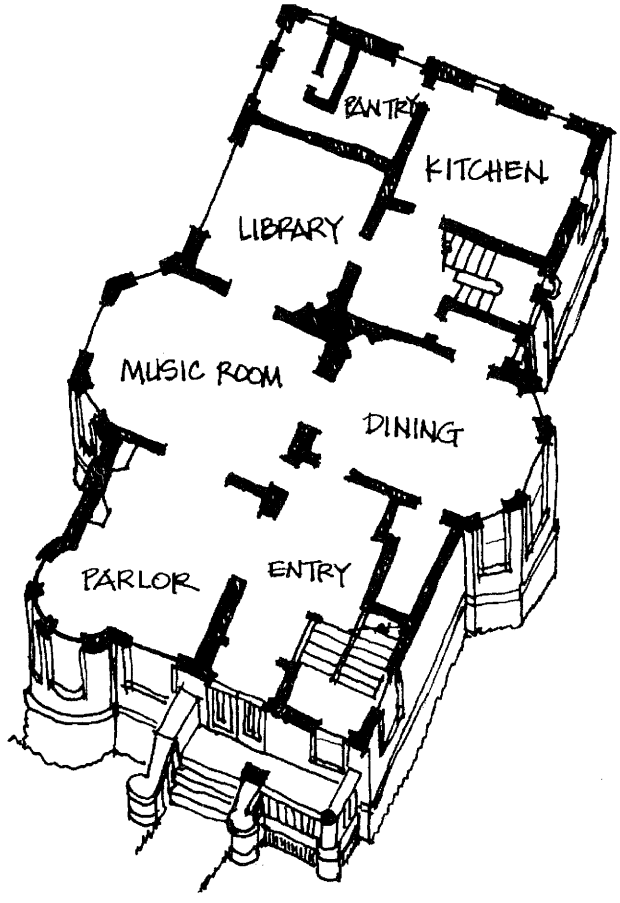
Preserving significant interior features

Preserving significant interior features

Many people believe the preservation of the interior of their home is less important than the preservation of the exterior. They reason, that while the exterior must conform to the neighborhood, the interior must provide all modern amenities. But our homes can be modern and interestingly old at the same time. Let's begin with the floor plan and then consider some individual areas and elements.



SYMMETRICAL HOUSE PLAN



ASYMMETRICAL HOUSE PLAN

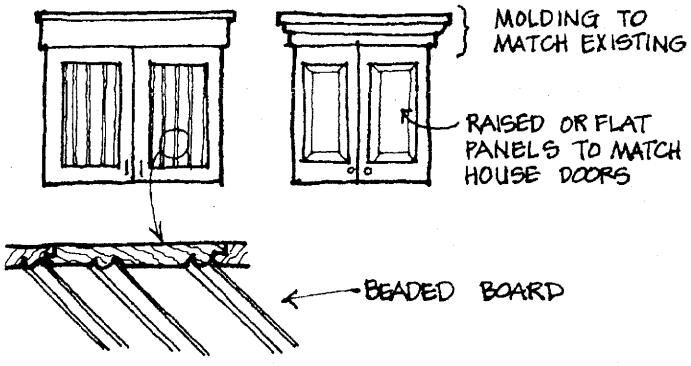
Maintaining your floorplan and original elements

Enter nearly any old house and the first thing you notice is the entry hall. Until the 1860s, large entrance halls were generally flanked by formal parlors and dining rooms. Elaborate stairwells frequently stretched from the hallway up to the private quarters where expensive details and materials were simplified or not used at all. The symmetry in early to mid-nineteenth century residences was as clearly articulated in the interior floorplan as on the exterior elevations.

During the late Victorian period, much of the formality and symmetry went out of style and was replaced with asymmetrical designs including studies, libraries, and conservatories. This eclectic placement of rooms is often evident from the exterior by the odd placement of windows, bays, towers, and various details that are indicative of the period.

Regardless of the style or period of your home, it is best to preserve its unique qualities. Maintain the floor plan, woodwork, doors, hardware, and any decorative features that give your house its special character. When changes are necessary, replicate the original details as much as possible and avoid mixing contemporary products with the old.

Millwork shops can match nearly any details that may have been ruined or removed. Purchase period hardware, light fixtures, tile, and other items from dozens of reproduction and salvage dealers across the country. Two great sources for locating restoration and rehab materials are through these publications:



CABINETRY DESIGN

Baths and kitchens

Kitchens and bathrooms can be convenient and efficient and still maintain their historic charm. It is not unreasonable to expect trouble-free appliances and adequate working space, but this doesn't automatically mean old fixtures and period details must be discarded.

Most original bathroom hardware and fixtures can be serviced or duplicated; this includes faucets as well as toilets. Also preserve or repair original tile floors, walls, and shower enclosures.

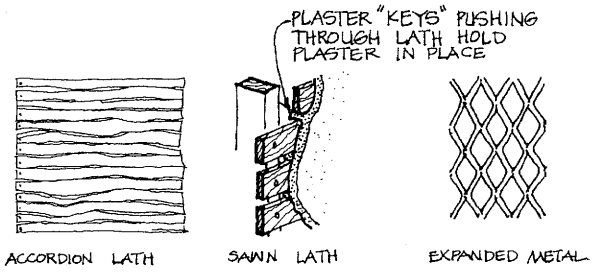
Few of us would tolerate a leaky old icebox, sink handpump, or wood cook stove but kitchens don't have to be gutted of their special appeal. Design new cabinets using moldings, beadboard, trim, or other details similar to those existing. If your house was built before the advent of built-in cabinetry, copy details from examples of free standing cupboards that would have been used. Choose tile or sheet flooring that is similar to old patterns, or paint your floor in an old linoleum pattern.

Wall and ceiling plaster

Plaster is a versatile product used historically for decorative and utilitarian purposes. Since few of us have plastering skills or know anyone who does, we are often hesitant to undertake repairs and too quick to cover good plaster with drywall or plywood paneling.

In western New York, early 19th-century plaster was applied to the wall or ceiling over a primitive system of stretched lath (also called accordion lath). Sawn lath replaced accordion lath around the mid-19th century and was used until expanded metal lath became prominent in the 1920s and 30s.

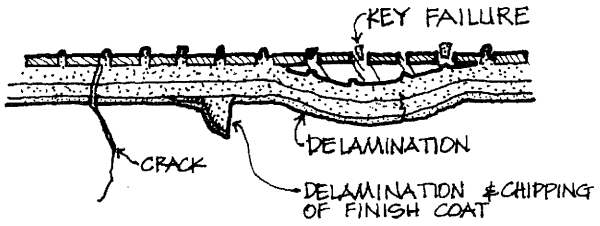
Plaster was usually (but not always) applied in three distinct layers. The first layer, called the scratch coat, was applied thickly, taking care to work plenty of material between the laths to form good keys. When the scratch coat dried, the second layer, known as the brown coat, was applied. The final thin layer known as the finish or putty coat, could be applied with a mirror-like smoothness or in a variety of textures. As an added measure of quality, canvas was sometimes applied over the finished plaster to hide hairline cracks that often appeared after initial construction.



PLASTER LATH

In the Rochester area, plasterers commonly scored horizontal and vertical lines into fresh plaster of kitchens and baths to mimic the grout lines of ceramic tile used in more expensive homes.

When repairing plaster, it helps to know the reason for the failure. Below are some common plaster problems:



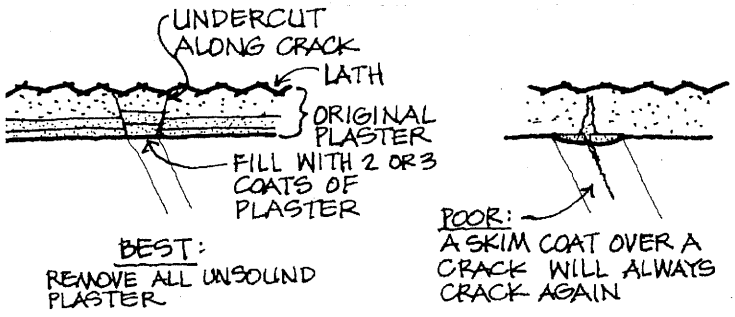
PLASTER FAILURE

CRACKS: Cracks are the most common type of plaster failure. Plaster cracks are not always serious; most old houses have a few in nearly every room. Cracks range from hairline-size to very wide and can follow structural members in a straight line or run diagonally across the surface. If your plaster appears to be firmly attached to the lath, the cracks could be from a structural problem. Foundation settlement, deteriorated basement posts, excessive roof snow loads, under-sized joists, seasonal temperature and humidity changes, warped or twisted studs, and poorly executed repairs or additions can all lead to structural cracks.

DELAMINATION: Delamination, or failure between layers, usually occurs between the finish coat and brown coat. This is obvious when the smooth outer layer (1/8" or less thick) separates from the rougher undercoat. Excessive moisture, a hard shock, or poor mixture of materials can all lead to delamination. Delamination between the scratch coat and the brown coat usually occurs when the wet scratch coat is not scored (thus, the name "scratch") adequately to ensure a proper bond between layers.

KEY FAILURE: Plaster keys secure the plaster to the lath. They are formed by firmly troweling the ground coat material through the lath. Key failure is usually detected by large bulges, with or without accompanying cracks. Failure can result from excessive moisture, a hard shock, inadequate voids for keys, or poor mixtures of plaster materials—including an inadequate amount of animal hair to bind the mixture together.

After making any needed structural repairs, remove all loose, bulging or deteriorated material back to a sound surface. In large or deep repairs, make sure the lath is sound, secured tightly, and that nails are not deteriorated. Clean out cracks by undercutting—bevel the cut back under the surface so that the patch will form a good key. To prevent premature and uneven drying of the new plaster, dampen all old wooden lath and the edges of the sound plaster just before applying your wet material.



PLASTER REPAIR

For small and medium-sized repairs, use inexpensive products from your local hardware store or home center. Nothing works better for skim coating, shallow repairs, and cracks than two or three coats of common drywall mud. Try spackling compound for minor blemishes and nail holes. Repair larger and deeper holes with two or three layers of a quick setting drywall compound like Durabond 90. You'll need a heavy-duty drill and mixer to blend the powder with water in a five-gallon bucket. Durabond dries hard and fast, so apply it within the recommended time frame (about 30 minutes) and work neatly—it's nearly impossible to sand unless you purchase the "easy sand" variety. Repairs to large expanses of bare lath, especially overhead, should begin with Structo-Lite or Gypso-Lite. Available at masons' or builders' supply stores, these modern lightweight products can be applied thickly and will not bulge or fall when mixed and troweled properly.

For a temporary fix, try plaster washers to resecure bulging plaster to the lath. To do this, gently push the plaster back into place. Screw enough washers in to hold it firmly. Skim coat a layer of drywall compound or spackling over the countersunk washers, sand, and paint.

If you are thinking about using drywall and traditional plaster is definitely ruled

out, consider using a veneer plaster system (usually called rock lath or blueboard). Blueboard is available in sheets similar to drywall, but has a chemical impregnated in the outer covering that ensures the skim coat of plaster adheres tightly. Once installed, your plasterer will apply one or two coats of finish plaster over the entire surface. Your walls will have a true plaster "feeling," and you'll avoid the unsightly seams and nail bulges so common to drywall.

Large plastering projects are best left to professionals, but if you want traditional formulas and techniques, refer to *Plastering Skills* by Van Den Branden/Hartsell, available from Old-House Journal.

Floors

Original hardwood and wide pine floors rank near the top of most old house-lover's lists. Yet, few home owners agree on the best methods to care for their floors.

To finish or not to finish floors is often a subjective decision. Some people demand a like-new appearance from every detail in their home. For them, only a sanded, refinished floor is acceptable. Others appreciate the patina created by years of use and exposure. Since flooring can only be commercially sanded and refinished a limited number of times, make every effort to protect your floor finish from excessive wear and damage. Here are a few suggestions:

If your floor is looking a little scratched and haggard, but the finish has not worn through to the wood, it might only need a renewed finish. First, remove any wax, polish, oil, dirt, and grime with wax remover and detergent recommended by your local hardware store. To be sure it is clean enough to apply a new finish, lightly sand a small area of the cleaned floor (a six-inch square in an area likely to have been waxed) with 220 grit sandpaper and apply one coat of a compatible finish (typically, varnish, polyurethane, or one of the new water-reducible finishes). If this does not dry thoroughly and adhere adequately to the old finish in the time indicated on the package, the floor is probably still contaminated with wax, etc. If it dries successfully, sand the entire floor with 220 paper, clean up the dust with tack cloths, and apply a fresh coat of finish according to label directions.

If you are a die-hard preservationist, or if the floor can't hold up to another commercial sanding, consider stripping it with paint and varnish remover. Repair damage by sanding, scraping, bleaching, or staining as recommended in furniture refinishing books. This done, you can choose from a variety of finishes for your rejuvenated floor.

There's a lot of confusion about choosing the best floor finish. Some finishes lie on top of the wood, while others soak in and become a part of the upper layer of wood. Generally, surface finishes are preferable to oil or wax finishes. Surface finishes protect the floor from damage by withstanding abuse before it reaches the wood. Oils penetrate the wood; thus, scrapes and stains may be difficult or impossible to remove without sanding. Waxes require high maintenance.

You can't beat old-fashioned gloss or semi-gloss varnish for floors. Varnish provides a durable, water-resistant surface coating that can be easily waxed or recoated. Varnish is often confused with polyurethane and polyurethane-varnish, but these are different products.

Those seeking the toughest, most water-resistant coating available usually choose polyurethane, a cousin to varnish. Polyurethane is excellent for use in kitchens and bathrooms where exceptional durability is required. Once shunned for its plastic-like finish, polyurethane is almost indistinguishable from traditional varnishes and available in a spectrum of sheens from low luster to gloss. Since polyurethane dries very hard, following label directions is extremely important to prevent between-layer failure. It is also difficult to recoat old layers of polyurethane without exceptional preparation between the old and new material.

Modern water-reducible floor finishes are increasingly popular and will surely dominate the future market. Most of these modern finishes require several coats to equal two or three coats of varnish or polyurethane. The best of these products are expensive ($60 per gallon and up), and must be renewed frequently, so think twice before using them in hard-use areas. They should also be used as a complete system and not over old varnish or polyurethane. Still, there's a lot of merit in less toxic finishes that can be recoated the same day.

If you must completely sand your floors, call a professional. Tongue-and-groove and strip flooring can be sanded several times if done carefully. Replace damaged or missing boards with salvaged or new stock. Feather in large repairs by staggering the boards to avoid a patched look.

Mechanical systems

Most plumbing, electrical, and HVAC (heat, ventilation and air-conditioning) work can be accomplished in an inconspicuous manner that will not detract from your home. Choosing a contractor who understands your interest in protecting the integrity of your house and is willing to work with you is extremely important. Wires, pipes, and ductwork should be hidden in walls or in carefully designed chases. If your contractor says a particular project can't be done, he might be right, or he might not want to go to the trouble to do it your way. For example, electricians commonly run surface-mounted wiring because it's time-consuming to snake wires through the walls. If you are willing to pay for first class workmanship, get several estimates and opinions.

Stripping woodwork

It's hard to believe that anyone would paint over beautiful oak, chestnut, or gumwood trim. But styles change, and last year's chic is often this year's faux pas. If you are thinking about restoring your wood trim, whether it's covered with layers of paint or hidden by darkened varnish, there are a few general procedures to follow.

If your woodwork and doors are painted, determine if they were originally painted or if they were clear-finished. You should be able to do this by looking under escutcheon plates or hardware, by stripping a small area, or by looking at chipped paint on door corners or baseboards. If the wood was always painted, there will be paint embedded in the grain of the wood. Varnished wood should look dark but free of paint.

If your woodwork was originally painted, it is probably a common softwood and it might be difficult to refinish to an acceptable, attractive finish. You should try a small area to see what's ahead. If you decide to repaint, you'll get the best job if you strip numerous thick layers before painting. If the paint build-up is not excessively thick, sand it smooth, repair dings with filler, prime, and repaint.

If your woodwork was originally clear-finished, you should be able to bring it back to its original glory. Professionals who strip trim for a living usually begin removing paint with a heat gun, taking care not to scorch or burn the underlying wood. When you've finished with the heat gun, clean up the remaining paint and varnish with chemical stripper. Whether you use chemicals or heat, remove doors and place them on sawhorses; it's less messy and quicker.

Use heat guns to strip paint but not varnish. If you are removing lead-based paint with your heat gun, wear a NIOSH-approved respirator to prevent breathing dangerous lead fumes. You can purchase inexpensive home lead paint-testing kits at most local hardware stores and home centers.

Your choice of chemical stripper depends on your tolerance of chemicals and your schedule. The quickest, most effective stripper is the solvent/methylene chloride variety. Since methylene chloride is a known carcinogen and the solvents are noxious in closed areas, many people refuse to use it. Avoid it if you, your family, or other workers are chemical-sensitive. For most of us, however, the danger and objectionable odor is minimized by adequate ventilation, rubber gloves, and eye protection. You'll also need to use a good chemical respirator in poorly ventilated areas—a paper dust mask is not adequate protection.

You might find the safer, pH neutral strippers preferable for your situation. These strippers are very slow, often taking several hours to work. The newer citrus strippers appear to be more effective than the first "safe strippers" and several local contractors report that they are effective.

You may have read about caustic alkaline strippers that you apply and then

cover with a special membrane. According to their advertising, when the time is right, all the layers of old paint can be pulled off at once. Unfortunately, they seldom work so easily. Don't use caustic, alkaline strippers without first experimenting on an obscure area. They bleach some woods, and when left on the surface too long, the wood grain is often raised or damaged. Several applications might be necessary.

To the credit of alkaline strippers, they are excellent for removing paint from plaster, and any lead residue is contained in the membrane covering and easy to dispose of. Use caustic alkaline products with caution; they will burn your skin. Always use eye protection, chemical resistant rubber gloves, and plenty of protective clothing.

If you are planning a stripping project, save it for warm weather when you can open the windows and doors. Extinguish all pilot lights or open flames when using flammable materials. Organize everything you need, and plenty of it. Once you begin, you don't want to track the residue around the house looking for additional tools. Move any furniture, carpets or valuable items out of the room or away from the work area. Cover furniture with plastic sheeting (at least 2 mil.) and use building paper or heavy cotton drop cloths on the floor. It's a good idea to carefully tape the protective building paper or drop cloths to the baseboard or shoe molding.

Using the heat gun, you'll need a box for disposal of the residue and a variety of scrapers. One of the biggest problems in using a heat gun is keeping your putty knives clean. It speeds up the process to have several on hand.

With chemicals, you'll need clean work buckets and clean, throw-away brushes. Piles and piles of old newspapers for the gummy residue are a must. Also, buy plenty of medium-grade steel wool—several sleeves for the typical room-sized project. Since sharp edged putty knives can gouge and splinter wood, try inexpensive, plastic putty knives for the heavy layers and save sharper tools for the corners, crevices, and fine tuning.

When you begin, apply your chemicals liberally and give them time to work. Remove your initial heavy layers of paint with putty knives, and save your steel wool for final clean-up. Old toothbrushes, soft brass wire brushes, and clean paint brushes with the bristles cut short are good for cleaning the residue from corners, intricate moldings, or from the grain of the wood. A cotton rag soaked in lacquer thinner is great for final clean-up.

When the stripper dries completely, give the bare wood a light sanding with 220 grit paper, apply two or three coats of varnish, and you'll be back in business.

For more information on stripping, refer to Bruce Johnson's *The Weekend Refinisher*, Ballantine: New York, 1989; or the "Woodwork" chapter of Patricia Poore's *The Old-House Journal Guide to Restoration,* Dutton: New York, 1992.

Painting

Interior painting may not be one of the worst or most expensive components of a rehab project, but dealing with multiple layers of old paint, varnish, wallpaper, and ceiling textures can truly make a job seem endless. Here are some simple rules that can make your project run smoothly:

1. Don't paint until all electrical, mechanical and carpentry work is finished. Begin your work with the ceiling and walls. You'll work quickly and efficiently if you completely cover the floor with drop cloths or builder's paper. Patch any holes, cracks, or plaster problems and remove inappropriate stipple textures. Remove old wallpaper and all traces of old paste.
2. Strip trim completely or prepare it for painting by sanding and filling. Repair sticky doors or windows by planing or sanding. Repair broken window glass, sash cords, and hardware.
3. Prime old or bare plaster and seal water stains with the appropriate sealer.
4. Prime woodwork, walls, and ceiling.
5. Caulk cracks between walls and woodwork.
6. Paint as desired or as necessary.

Flat paint and low-sheen enamels are your best choices for walls and ceilings. Use a shiny paint, even a semi-gloss, and you may suddenly realize that your plaster walls aren't as smooth as you thought.

On the other hand, your woodwork should be painted with a satin or semi-gloss enamel. These paints wear better than flats and can be cleaned or washed easily. For a smooth finish, maintain a clean work area and use a tack rag after sanding.

If your trim is varnished but looks dull or worn, a fresh coat of varnish might be the answer. Before applying any clear finish, clean off all traces of polish, wax, or oil residues and scuff up the surface with 220 grit sandpaper.

Choosing the best lumber

The choice of lumber for interior projects depends on your planned finish. Some good paint-grade woods for interior use are poplar, white pine, and birch. Other varieties will give a good painted appearance provided they are knot-free and the summer and spring growth grain is narrow and even. Avoid using yellow pine. The difference between summer and spring grain of yellow pine is impossible to sand out enough to prevent "telegraphing" of the grain pattern through the paint. Also avoid open-grained hardwoods like oak.

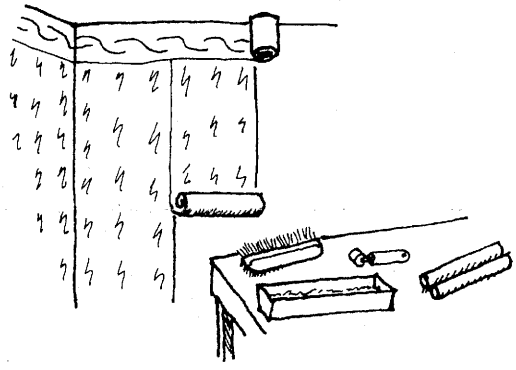
When possible, replace or repair clear-finished trim with the same type of wood surrounding it. This helps alleviate the task of matching stain and grain. There is no inexpensive substitute for oak, ash, or chestnut trim. Therefore, it is best to locate one of these hardwoods rather than attempt to match it. Since the grain patterns of these are similar, any of the three can usually be stained to match the others.

Many Rochester-area homes are trimmed with sweetgum. Gum can still be purchased but is expensive. Poplar and white pine are good substitutes that can be stained to an effective gum-like match in grain and color.

Wallpaper

From roughly 1840 until 1950, inexpensive wallpaper was a favored choice for decorating walls. The use of wallpaper was so pervasive that plasterers often finished new walls with only one coat of plaster over the lath, knowing that the paper would hide imperfections.

Hanging wallpaper has long been a do-it-yourself project, and the industry has introduced innovative techniques and materials to make the task easier—pre-pasted paper is one example. Most paper-hangers, however, will correctly tell you that installation disasters are common, and you'd better do your homework if you want to avoid making a mess. Your first decision is whether to hang the paper yourself or to hire it out. Consider the cost of the material with your ability to install it. You might be willing to ruin a roll or two of $15 per roll paper, but is it worth the risk if the paper costs $50 or more per roll?



WALLPAPER

If you decide to hang it yourself, buy the paper from a reputable dealer who can help you with some of these questions:

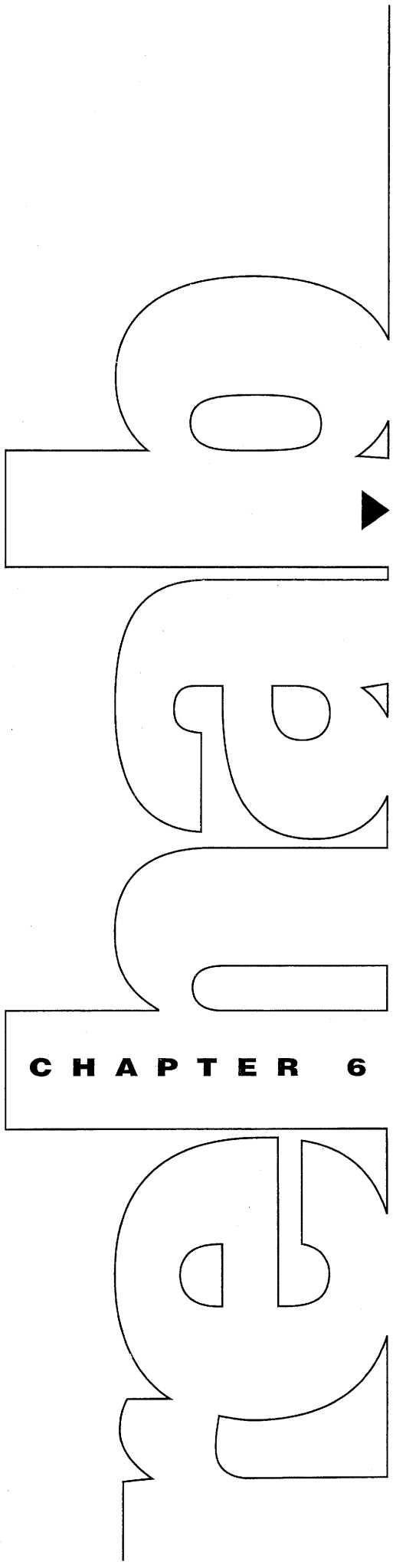
- Do you know the difference in vinyls, paper-backed vinyls, foils, flocks, and plain paper?
- Will the variety you've chosen perform in the kitchen or bathroom?
- Are there secrets in hanging it, for example, does it stretch while wet and shrink when dry?
- Is it pre-pasted, and if so, does it help to add paste anyway?
- Is it untrimmed, and if so, should it be trimmed on the table or on the wall?
- Does it work with the manufacturer's recommended paste or does another type work better?
- Will you void the warranty if you use an alternative paste?
- Should you use a liner under expensive paper?
- Does your choice require a special size?
- Can I hang it over my wall paint?
- Can I wash it periodically?

Here are a few tips to get you started. Don't use bold designs in smaller spaces, and avoid bold stripes in rooms that are obviously out-of-plumb. Vinyls and vinyl-coated papers are best for baths and kitchens. When you get your paper home, inspect and compare the rolls on the floor or a large table for pattern match and color variations. Once you've hung it, it's too late to complain about imperfections, even if they are obvious. Always remove old wallpaper before hanging the new material—you'll get a better, trouble-free job. Once old paper is removed, scrub off the old paste with warm water, a little vinegar, and a plastic scrubbing pad; if the wet wall feels slimy, there's more to remove. NEVER paint over old wallpaper glue; your paint will eventually fail. NEVER paint over old wallpaper; paint makes it difficult to remove.

Hang your paper last, after painting, floor-finishing, and carpentry. Repair cracks, voids, and other imperfections just as you would for painting. Prime your walls with one coat of flat alkyd enamel undercoat or sealer like Kilz and then use the recommended size. Never hang your paper over latex paint; the paste often reacts with the paint; this is particularly true over old water-base or inferior paints. Never hang your paper over glossy paints; the paper and paste may slide excessively, or the seams might pull apart or pucker. When cleaning up excess paste, one swipe of the sponge is not enough; it might take three or more passes of the sponge, using clean warm water each pass. If you leave paste, it will look like dry skim milk on trim or ceilings.

Look at the room carefully before you begin. Don't hang your first strip in the most obvious part of a room. Your last strip will join your first, but they will not match. Behind a door is a good place to begin and end; this also allows you to get started and make a mistake or two in an area that won't be noticed.

Hanging paper is not really a hard project, but remember that every material has its peculiarities and limitations. Always inquire about the material you've chosen and read a good "how to" manual before beginning.



VENTILATION

INSULATION

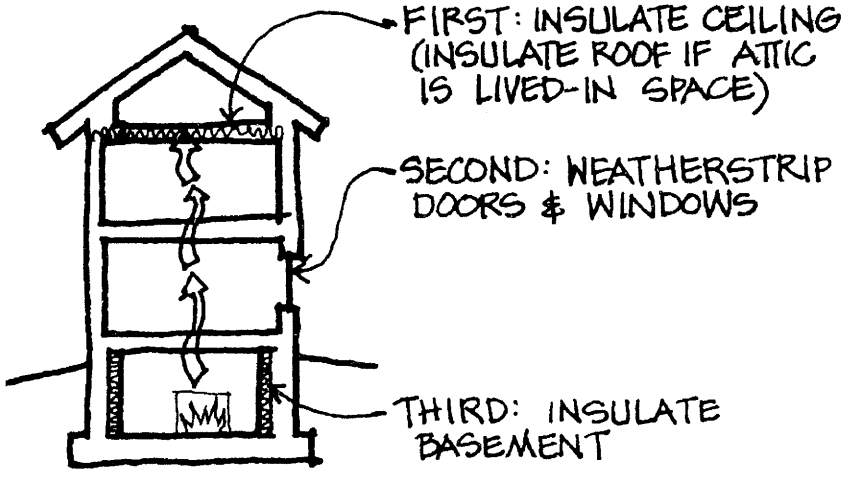
CHAPTER 6

Energy conservation

6

Energy conservation

With the high cost of utility bills these days, energy efficiency is as important to homeowners as any maintenance issue. We are inundated with promotional literature and advertisements to insulate our homes or to install new siding, double-glazed replacement windows, and various specialty products. Unfortunately, no one has any incentive to advertise inexpensive, commonly available materials, or techniques. A little common sense goes a long way in evaluating these products and tailoring the best solutions to each situation.



INSULATION PRIORITIES

Insulation and weatherproofing

Begin in the attic. Heat rises—so it is extremely important to prevent heat from escaping from the living spaces through the ceiling. Unfinished attics are easy to insulate with fiberglass batts, or loose material; RG&E recommends a minimum level of R-30 or about 10 inches of fill.

Heated attics and cathedral ceilings introduce a difficult problem. To help prevent ice dams, any insulation installed in the rafter cavity must include an open space for ventilation in conjunction with soffit vents and ridge or gable vents. This allows cooler air in through the soffit vents; as it rises, it cools the roof surface and then leaves through the ridge or gable vent as warmer air. For more insulation advice, refer to the attic ventilation section in this chapter.

One area that is easy to insulate but often overlooked is the rim joist just above the foundation and below the first-level floor.

Weather-tight windows and properly weatherstripped doors are very important. Weatherstripping comes in a variety of styles. Don't use cheap adhesive-backed foam or plastic. Use spring metal or one of the new tubular gaskets that is tacked onto the

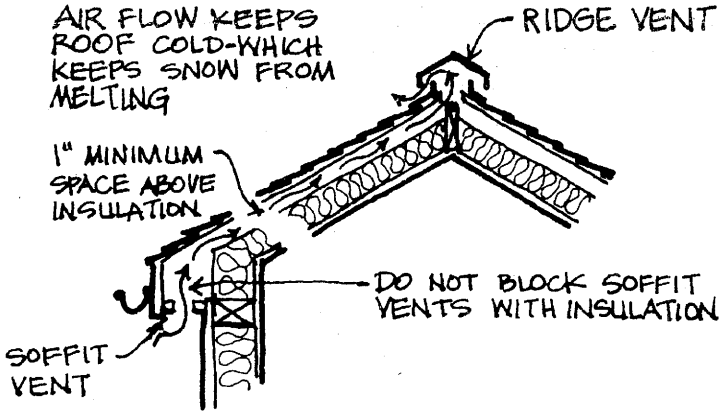
stop or installed into a special groove in the stop. Refer to chapter V for more information on window weatherstripping and sources for materials.

Check areas of suspected air infiltration around doors, windows, and electrical outlets with a lighted candle or cigarette. If the candle flickers or the smoke is disturbed, you've discovered an area that needs attention. Install special insulators under perimeter wall electrical receptacles and switches. Long cloth bags filled with sand are good for the bottom of doors and the meeting rails of windows. Finally, don't forget simple passive techniques. Let the warm sun flood your rooms in the daylight and pull the curtains or shades in the evening to keep the warmth in the house.

On the exterior, seal vertical cracks around window and door casings and corner boards with a paintable acrylic latex caulk. Pay special attention to holes around pipes, electrical outlets, and HVAC equipment. Don't caulk the horizontal cracks under clapboards—these cracks provide a good escape route for vapor passing through the walls. Repoint or repair cracks or holes in the foundation or any masonry surfaces.

Attic ventilation

In cold and warm weather, attic ventilation goes hand-in-hand with energy conservation. In our snowy climate it is important to maintain cold attic temperatures, especially when snow is piled on the roof. If your attic is warm, accumulated snow will melt rapidly and refreeze as it drips over the eaves or into the gutter, creating a bulge or dam of ice. As this ice dam grows, melting snow above it cannot run off the eaves. This moisture backs up under the roofing.



SOFFIT & RIDGE VENTS

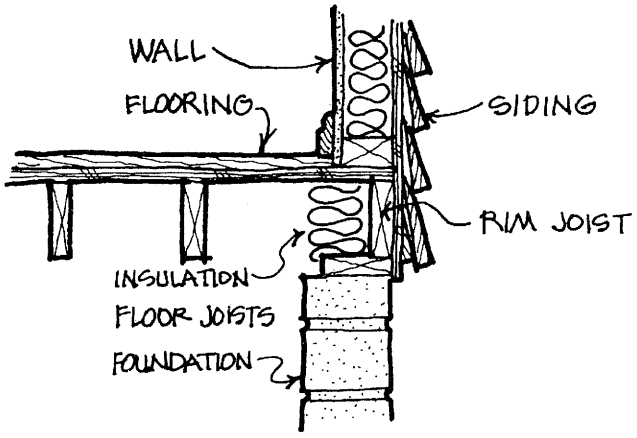
Typical signs of ice dams are bulging gutters, long icicles, peeling paint, and damaged boards under overhangs. Tea-colored icicles usually indicate that moisture has penetrated under the roofing, soaked old wooden shingles or decking, and then escaped with an additional load of dirt, soot, and tannin. On houses with shallow overhangs, this moisture can enter the wall cavity or come inside to damage walls, ceilings, decoration, and woodwork. Although various methods of flashing, ice shields, and tar-reinforced layers of felt are used to deter this damage, it is best to maintain a cool attic and prevent the problem completely.

Houses with converted attics are subject to ice dam problems. Construct attics in a way that ensures proper ventilation. If the space is large enough, a room can be enclosed with adequate ventilation behind knee walls and over the ceiling.

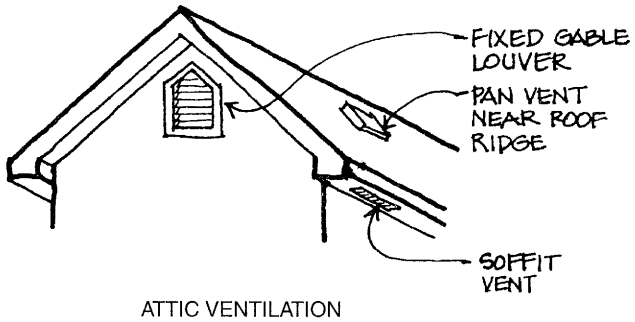
If your attic enclosure uses the rafters as framing for the ceiling (often called a cathedral ceiling), install overhead insulation with at least two inches of space between the roof deck and the insulation to promote the free flow of air from soffits to the ridge. One way to do this is to use prefabricated rafter vents, available at most home centers and building supply stores.

If you are experiencing ice dam problems and your enclosed attic does not have plumbing, it may help to turn off the heat to this area when snow is piled on the roof. In the long run, however, remedying your attic ventilation problem will be much more economical than repairing damaged soffit boards, gutters, and paint. Also, remember that covering your soffits and facia with aluminum or vinyl covers the problem; it does not solve it.

Since attic temperatures rise significantly in the summer, adequate cross-ventilation can also make a big difference in the comfort of your home in warm weather. Excessive heat and condensation created by inadequate ventilation shortens the life of your roof and makes upstairs living spaces unbearably hot. If your house is air-condi-



INSULATING THE RIM JOIST



ATTIC VENTILATION

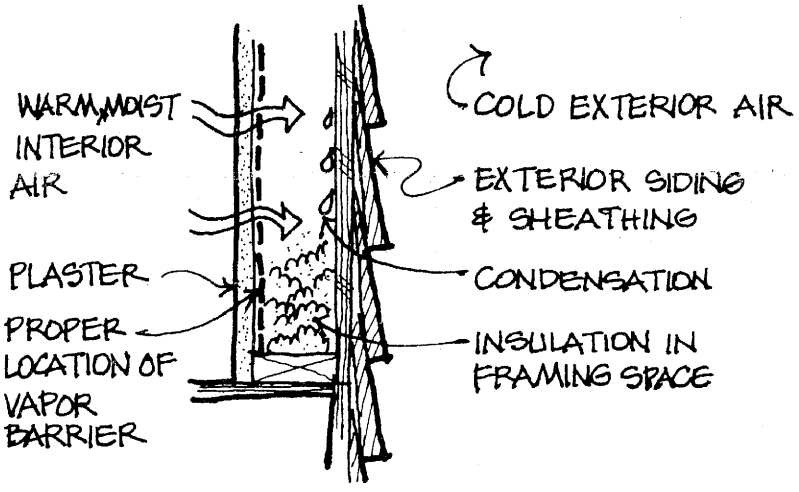
tioned, adequate attic ventilation can lengthen the life of your cooling equipment by lowering the ambient temperature, thus creating less demand for its use.

Typical ventilation requirements are usually minimum standards governed by factors such as color of the roof (black roofs are hotter than white), the amount of insulation in the attic floor, the presence or absence of a vapor barrier, the presence of screens over openings, and the amount of shade protecting the roof. One square foot of cross-ventilation for every 300 feet of attic space is a rule of thumb; however, an attic with too much ventilation is rare.

Static ventilators such as fixed gable louvers work best when upper and lower ventilation is provided. For instance, soffit vents in combination with gable or roof ridge vents enable cooler air to enter at soffit level and escape as hotter air through the gable or ridge opening. In many post 1930 homes, the absence of cornice overhangs makes this option impossible. One alternative is the installation of small pan vents in combination with ridge or gable vents. Attic fans can also be used to ventilate the attic and cool your house. Installed in the gable or in the upstairs ceiling, an attic fan works by replacing hot indoor air with cooler air pulled in through open windows and doors. Install venting equipment sensitively so that it does not aesthetically detract from your home. If possible, venting equipment should not show from principal elevations.

Wall insulation

Since the energy crisis of the 1970s, there has been a lot of confusion about blown-in wall insulation. The problem with adding wall insulation to an old house is that there is seldom an opportunity to install a vapor barrier. A vapor barrier is an impermeable material (such as heavy plastic) installed on the warm side of the framing under the plaster or wall board. Old houses were nearly always a little drafty, and any condensation that developed in the walls between the warm interior and cold exterior condensed and dissipated. When insulation is added to the wall cavity without a vapor barrier, condensation can build up in the loose insulation with no opportunity to escape. This constant dampness can rot sills, attract insects, and create a terrible paint



VAPOR BARRIER

problem; thus, the need for a vapor barrier in our cold climate.

Since most heat loss is through drafty windows, doors, uninsulated attics, and uncaulked cracks, blown-in insulation may not be cost-effective if your house is appropriately weatherproofed. Combine the threats of potential rot, paint failure, and the unsightly holes drilled all over your house, and retrofitted insulation may not seem like an indispensable part of your energy-savings plan.

If your walls have been insulated and you are worried about potential problems, the following recommendations should help: (1) Vent your bathroom and kitchen range to the outside. (2) Use humidifiers judiciously or not at all. (3) Cut down the number of house plants. (4) Don't take long showers. (5) Make sure your basement is dry and that there is no standing water. (6) Provide adequate attic ventilation. (7) Make sure the heating equipment and the hot water heater are vented properly.

Since most vapor escapes through cracks, baseboards, window and door trim, and electrical outlets, seal these areas as well as possible. Consider using a vapor barrier paint on interior perimeter walls. Barrier paints aren't the perfect answer to this problem, but they do offer some resistance to the vapor. Some companies manufacture specific vapor barrier paints, but most oil-base enamels are adequate.

If you've weighed the pros and cons and decided to insulate your walls, ask for fiberglass fill; it settles less than cellulose fill. Don't allow the contractor to drill holes in your siding. Insist that clapboards be carefully removed and replaced, or have holes drilled in interior plaster walls. A thermographic scan conducted during cold weather will indicate if your blown-in insulation effectively fills every wall cavity.

- SETBACK
- RHYTHM
- SCALE
- DECKS
- FENCES
- SKYLIGHTS
- LANDSCAPING

CHAPTER 7

Living in harmony with your neighborhood

7

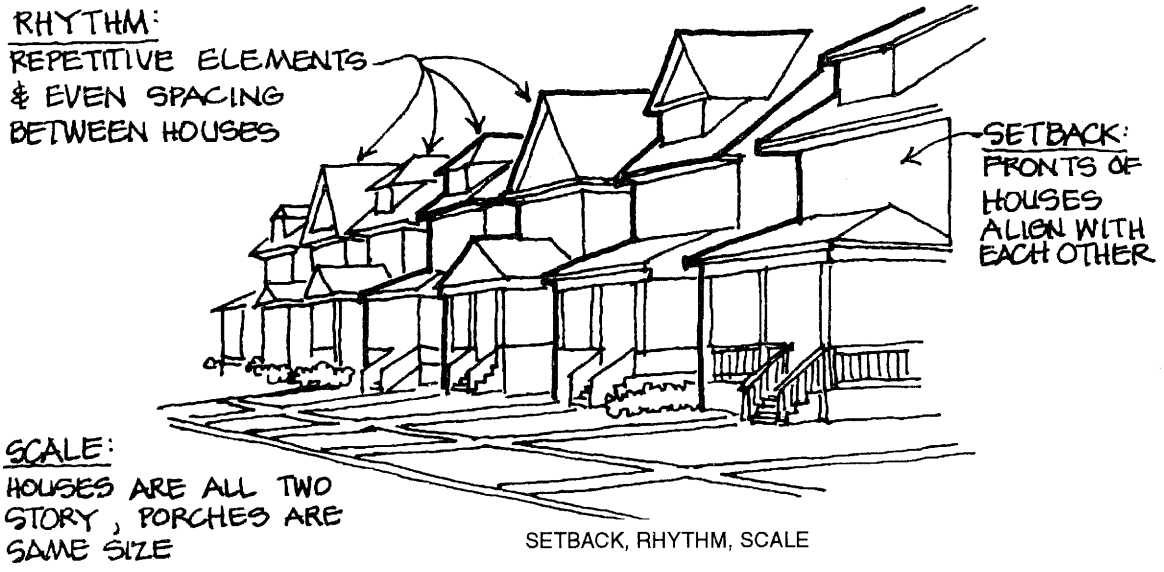
Living in harmony with your neighborhood

Do you rush to mow your lawn before it becomes a neighborhood eyesore? Bring your garbage containers in the evening after pick-up? Clean up debris from the sidewalk and curb? Chances are, you do all of these things to keep your neighborhood and home attractive. Maintaining a well kept home and lawn is just one way to support the quality of your neighborhood. Maintaining the cohesive features of the street is another.

The way houses relate to each other and to the street can be as important as the architecture of the individual unit. Setback, rhythm, and scale are three important features that help form the streetscape.

Setback, rhythm, and scale

Setback is the distance from the face of a house or building to the property line. Compared to the suburbs, most Rochester properties are relatively close to the street,



SETBACK, RHYTHM, SCALE

particularly in neighborhoods of the pre-automobile era. Some streets are noteworthy because of the consistent housing setback. This is evident in many areas that developed quickly from about 1900 to 1940. Glance down these streets and you'll notice a visual corridor—every house exactly in line with all the others. Changes to this order—porch removals, front additions, green houses, etc.—can ruin the visual harmony of the street. If you are thinking about an addition, look to the back of your property.

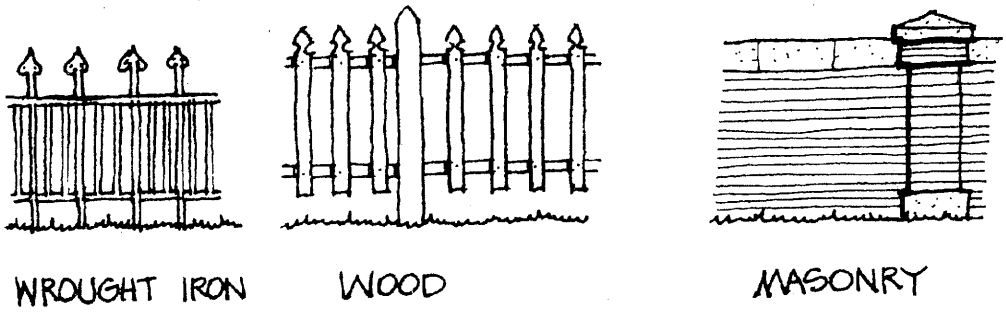
Rhythm refers to the repetition and spacing between units. It is an important part of the streetscape, and it can be important to the individual unit. Repetition of elements such as bay windows, dormers, or front porches also create an interesting rhythm. In dense urban neighborhoods, houses were often tall, narrow, and closely spaced. This looks great when every house is in place, but if a house is removed, the rhythm of the streetscape is disturbed; the adjacent houses may appear out of proportion—too thin for the lot without the support of the neighboring structure. Any addi-

tions or new construction in a neighborhood should conform to present examples to maintain the rhythm of the streetscape.

Scale refers to the size of a property and its relationship to other properties in the neighborhood. Most homes along a street are approximately the same height and size. A four-story office building on a street of single-story houses is out of scale and diminishes the harmony of the streetscape.

Fences, decks, and skylights

Fences make good neighbors, right? Maybe, if you give them a little thought. If your street is a series of uninterrupted lawns, don't ruin this harmony by installing a fence in the front yard. Locate your fence from the back of your house around the rear property line. Don't use chainlink fences in historic neighborhoods. Instead, use an appropriate iron, masonry, or wood fence. If your wooden fence has a good and bad side (the bad side shows the framing), install the bad side toward your house and the good side toward your neighbor; or better still, choose a design that is attractive on



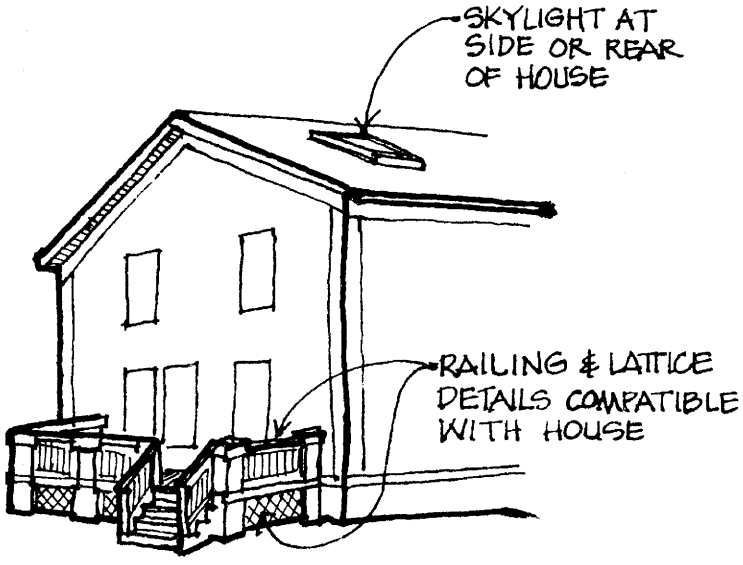
FENCES

both sides. If you need a fence for your pets, consider an underground electronic fence.

Decks are a modern version of the porch. They're easy to construct and inexpensive. Unfortunately, they're inappropriate for older homes. To design a deck compatible with your home, begin by locating it in an area that is inconspicuous or at the rear of your property.

Construct your deck so that it joins the house appropriately; look at porches to see how they connect. Copy spindles, bannisters, newels, framed lattice, and step details from your porch. Stain bare wood to match your house color (pressure-treated lumber can be stained after one summer season). If you add a new door or window opening onto your deck, copy existing trim details.

Skylights are a popular way to bring natural light into a dark space or attic, but they can compromise the visual integrity of your house. Before installing skylights, determine if a dormer would be more appropriate. Locate skylights on rear and side roofs, not on the front of the house.



SKYLIGHT & DECK

Historic landscape features

The 1991 ice storm reminded all of us how important trees were to our neighborhoods, but there are many more features of the historic landscape besides trees. Maintain or reinstate any trees, gardens, walkways, walls, and landscape features that are typical of the neighborhood. Avoid lava rock gardens, pre-cast paving stones, marble chips, and other materials that are more appropriately used in suburban settings.

Below is a partial list of trees and shrubs for late 19th-and early 20th-century residences compiled by Deirdre Cunningham, Landscape Curator of the George Eastman House.

Shrubs:

Latin name	Common name
3'-5' maximum height	
Abelia grandiflora	glossy abelia
Berberis thunbergii 'Minor'	box barberry
Buxus sempervirons 'Suffruticosa'	edging boxwood
Cotoneaster horizontalis	rockspray Cotoneaster

Latin name	Common name
5'-10' maximum height	
Berberis julianea	wintergreen barberry
Berberis thunbergii	Japanese barberry
Calycanthus floridus	Carolina allspice
Clethra alnifolia	summersweet
Deutzia crenata	Deutzia
Forsythia spp.	Forsythia
Fothergilla major	large Fothergilla
Kerria japonica 'Pleniflora'	double-flowering Kerria
Philadelphus spp.	mock orange
Spirea x vanhouttei	Vanhoutte Spirea
Syringa vulgaris	common Lilac
popular lilac cultivars:	- 'Charles X'
	- 'Madame Lemoine'
	- 'Ellen Willmott'
	- 'President Grevy'

Trees:

15'-25' maximum height	
Acer palmatum	Japanese maple
Aralia spinosa	devil's walking stick
Buxus sempervirons 'Pyramidata'	pyramidal boxwood
Magnolia x soulangiana	saucer Magnolia
Magnolia x soulangiana 'Norbertei'	Norbert's Magnolia
30'-50' maximum height	
Morus alba 'Pendula'	weeping mulberry
Magnolia denudata	Yulan Magnolia
50'-80' maximum height	
Ginkgo biloba	Ginkgo
Sophora japonica	scholar tree
Ulmus americana	American elm
Zelkova serrata	Zelkova (often a substitute for elm trees)

HOME INSPECTION CHECKLIST

SITE CONDITIONS

Is the site sufficiently graded and drained?

Do large trees or limbs lean over the house?

Are there large trees or shrubs next to the house?

ROOF

Are shingles curling, cracked, or missing?

Are gutters full of granules from asphalt shingles?

Is roof uneven or bumpy from several layers of shingles?

Are there asphalt cement patches on the roof?

Does the roof ridge sag?

Is paint peeling on cornices and overhangs, or are there brown stains on these areas suggesting ice dam problems?

FLASHING, GUTTERS, AND DOWNSPOUTS

Are rusting, missing parts, or asphalt patches evident on any valleys or flashings?

Are gutters drained correctly, clean, and rust-free?

Do gutter connections leak?

Are downspouts loose, damaged, or missing?

Are downspouts connected to underground drains or splashblocks?

CHIMNEYS AND FIREPLACES

Is masonry cracked, in need of repointing, or missing units?

Are chimneys lined? Are fireplaces usable? Do they smoke? Are dampers installed?

Are antennas attached to chimneys?

EXTERIOR WALLS

Are walls plumb without bulges or depressions?

Are clapboards or shingles loose or deteriorated?

Is masonry cracked, missing, or deteriorating?

Has the surface been sandblasted?

Do doors and windows fit frames squarely?

Does the house need painting?

Is the paint peeling only outside the bathroom?

PORCHES

Do porches properly slope away from the building?

Is there evidence of rot around column bases, posts, stairs, balusters, or the apron. Are there secure handrails, posts, and rails?

Is there unusual settling of the porch foundation?

Is the underside of the porch adequately ventilated?

Are stairs pulling away from the building?

DOORS

Are exterior doors solid and securely hung to jambs?

Do doors have deadbolt locks?

Are doors adequately weatherstripped?

Are there storm doors?

WINDOWS

Do windows line up squarely in their frames?

Are there open joints in need of caulking around the frames and trim?

Is the glazing compound (putty) sound?

Do the windows operate smoothly?

Are they loose?

Do they have locks?

Are there quality storm windows?

ROT AND INSECTS

Are there signs of rot or insect damage under porches or steps?

Does wood appear spongy or brittle on window sills, framing sills, beams, or posts?

Is there any sign of rot from leaks on the roof decking, facias, or overhangs?

Are framing and cladding less than 8 inches from the ground?

BASEMENT AND FOUNDATION

Are there water stains on walls, indicating flooding?

Does basement smell musty?

Is there adequate ventilation or a dehumidifier?

Are there any signs of sagging floors, bowed, or rotten support posts, or temporary shoring to hold up weak floors?

Do supply and waste pipes appear in good condition?

Is there efflorescence on the foundation wall?

Is foundation mortar soft, crumbling, cracked, or missing?

Does the ground slope away from the foundation outside?

INTERIOR

Are there signs of moisture problems in bathrooms or kitchens?

Is plaster loose or cracked?

Does the floor or staircase bounce or squeak?

Are all stair rails and balusters secure?

Is hardwood flooring in good repair?

Are floors level?

Do cabinets and built-ins work properly?

ATTIC

Are there signs of leaks around valleys, dormers, chimneys, or penetrations?

Does light indicate missing shingles?

Is attic ventilated?

Are rafters bowed?

Are rafter plates deteriorated?

PLUMBING

Are pipes galvanized, lead, brass, copper, or PVC?

Do faucets leak or toilets run?

Is water pressure adequate?

Has a new line been installed from the street to the house?

Are there basement cutoffs to upstairs appliances?

Do they work?

Does each appliance have its own supply cutoff?

HEATING

How old is the heating system? Are ducts and pipes insulated with asbestos?

Is hot water capacity sufficient?

If radiator system, are there any leaks?

ELECTRICAL

Does the house have a fuse box or breaker box?

Is the service at least 100 amps?

Are fuses or breakers labeled?

Has obsolete wiring been removed or tagged?

Is the wiring Romex, BX cable, or knob and tube?

Are there enough outlets in every room?

Do all receptacles and switches work?

Is there 220 service for the electric range, air conditioners, and the clothes dryer?

Are the refrigerator, micro-wave oven, dishwasher, clothes washer, and other large appliances on individual circuits?

ENERGY CONSERVATION

Is there insulation between the attic joists?

How much?

Is there insulation in the exterior walls?

Does the house have a vapor barrier?

Are hot water pipes insulated?

Are hot air ducts insulated in unheated areas?

Is the house air conditioned?