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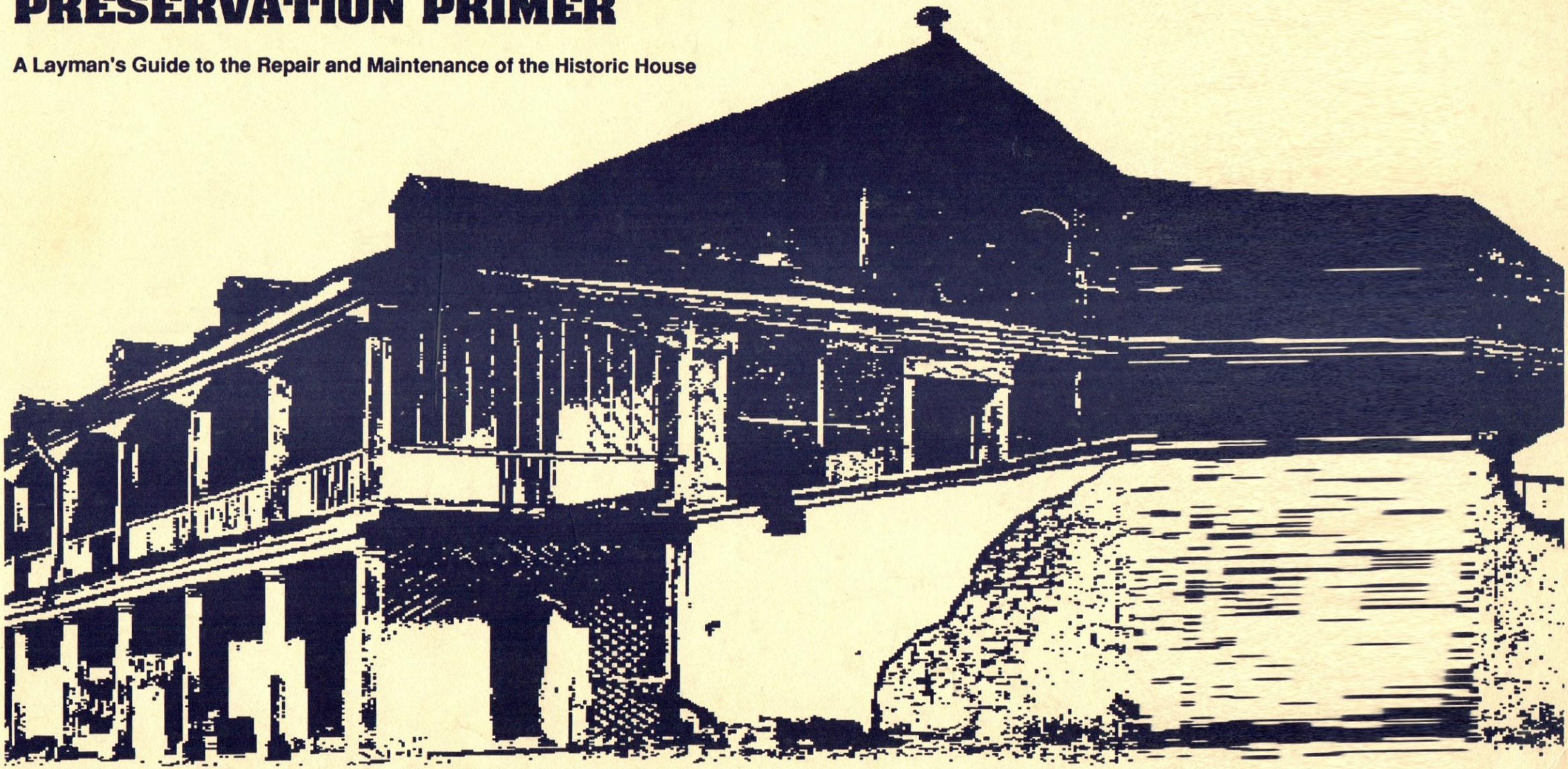
PROPERTY

THIS ONE ...
FOR SALE.

The Las Vegas
PRESERVATION PRIMER

A Layman's Guide to the Repair and Maintenance of the Historic House



The Las Vegas
PRESERVATION PRIMER

A Layman's Guide to the Repair and Maintenance of the Historic House

by David C. Rowland, Jr.
with a little help from his friends Robin Oldham and Katherine Slick

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Section One
Getting Ready to Work

Preservation is more than just buildings. It's people and buildings -- a means to bring people together.
Rheua Pearce

When you first moved into your historic home, chances were you already had several household projects in mind: modifications that had to do with making the house more energy-efficient, or larger to fit your family, adding a new workshop or a sunroom. Rarely does anyone buy a house that's absolutely perfect for them.

But if they do, and it's an older home, other projects are required such as regular maintenance of its physical features, including upkeep of the roof, exterior walls and grounds. Inside, there's the care of aging woodwork and flooring -- and much more.

A third kind of project may confront the historic home owner as well, in the form of restoring the existing structure to its original form or simply reversing the iong-time adverse effects of weather, wear and improper care. This can include stripping layers of aging paint to expose beautiful wood or refinishing heel-worn floors, and more extensive cleaning of dirt-laden exposed areas of walls and timber.

For the owner of a local, state or nationally-registered historic property, these projects call for careful planning, and sometimes a degree of research. It becomes important to consider your home's historic designation and thus, its significant architectural details and overall design, so you may work to maintain its original integrity.

Architectural Styles in Las Vegas

Before planning any renovations it's important to identify your home's architectural style and period, and isolate the existing character-defining elements. Every home has something that helps to shape its character -- windows, decorative details, roof shape or style, exterior wall material or even the basic geometric form of the house. Don't be disheartened if these elements are not clearly definitive, especially if the house has fallen into disrepair. Hopefully some of the things you will learn in this book will help you identify your home's architectural style.

There are variations of elements within styles and periods that may be indigenous to a particular region or community, so it's imperative that you do

Architectural Styles

some research on your home. Some very good sources of information are listed in the reference section of this booklet. The local Citizens' Committee for Historic Preservation (CCHP) may also be able to direct you to some very good local sources of information, such as archival photo collections and records.

The following brief descriptions, based in part on *A Field Guide to American Houses*, (Virginia and Lee McAlester, Alfred A. Knopf, New York, 1984) are offered as a starting place in identifying your home's architectural style and the significant building elements and materials that should be preserved. It may help if you refer periodically to the glossary of architectural and construction terms at the back of this book.

Spanish Colonial Style, including Hispanic Traditional

The Hispanic Traditional Style is an easily recognizable subgroup of the Spanish Colonial because of its typically thick adobe brick or rubble stone walls with smooth adobe mud plaster. (This style should not be confused with the later, more eclectic version known as Pueblo Revival which became popular after the 1920's.)

In Las Vegas, Hispanic Traditional houses greatly outnumber any other style of Spanish Colonial. The roofs are typically flat with parapets, though wood shingle or galvanized steel pitched roofs were added later as materials became available. This is especially true in northern New Mexico's mountainous regions where seasonal rain and snow render flat roofs impractical.

Many of these homes have continuous porches (portales) which originally served as corridors since the rooms were not connected internally. Porch construction generally consists of heavy peeled log (viga) framing supported on massive wood posts with often ornate corbels placed on top of the posts to support beam splices. The flat roofs are also constructed of vigas which support smaller cross-members (latillas). Even smaller

corner, Church Street and Santa Fe Street

pieces of wood are placed across the latillas to support an adobe roof. This construction was typically left in place when pitched roofs were added.

An example of an Hispanic Traditional house is at the intersection of Church and Santa Fe Streets.

Territorial Style

The Territorial Style is a later adaptation of the Hispanic Traditional. As commerce and Anglo influence grew in the Southwest, some of the traditional adobes were transformed with Greek Revival detailing. Parapets of flat roofs were capped with fired brick coping with corbeled or cantilevered courses of brick and dentil detailing. Ornate wood details including flat and pitched pediments were added to window and door surrounds. Portal supports changed from heavy timbers to delicate square Greek Revival columns sometimes found in pairs. Some of the pitched roof variants were also adapted to this style with window, door and porch Greek detailing.

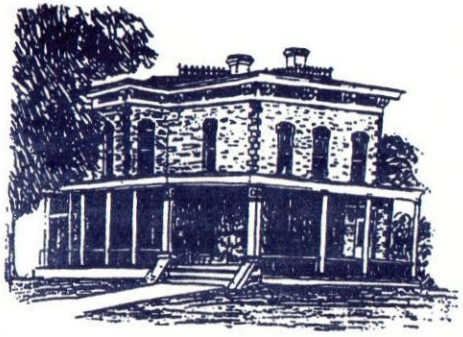
The origins of the Territorial Style are thought to be at Fort Union, north of Las Vegas where some of the first Anglo construction took place. The style is commonly found around Santa Fe, but good examples can be seen in Las Vegas at 1305 S. Pacific and 2003 Hot Springs (the Benigno Romero House).

Italianate Villa

The Italianate Villa Style had its origins in England and was patterned after informal Italian farmhouses. Common features include two- to three-floored structures with low pitched roofs with generous overhangs supported by decorative brackets below the eaves. Brackets are sometimes very ornate and may be arranged in pairs.

Tall, highly decorated windows placed in symmetrical arrangements are common with arched windows on upper floors. Windows are crowned with many variations of details such as arched, pitched and flat pediments usually supported by brackets on either side. Other crowns include hood-like framing which forms inverted "U" shapes.

Like the Second Empire Style, windows are frequently arranged in pairs and



1003 5th Street

Architectural Styles

in triplicate. Porches are commonly one story in height and are not as highly emphasized in detail as the windows. It may help in your identification of Italianate Style to know that some of these houses are referred to as "wedding cakes" because of the decorative detailing around layers of windows. Many times arched windows will alternate with flat or pitched pediment windows for a more decorative effect. An example of an Italianate Villa Style home is the Lutz-Bacharach House, 1003 5th Street.

Queen Anne Victorian

The style name "Queen Anne" curiously bears no reference to the reign of England's Queen Anne. It was a style popularized by a group of 19th century English architects who borrowed from the late Medieval periods preceeding Queen Anne's reign.

This style may be one of the more difficult to identify in terms of its variations, some identified by roof shape and others identified by decorative detailing. One of the more common variants found in Las Vegas is the Spindlework style, characterized by high pitched roofs and ornate porches with delicately detailed railings, columns, brackets and friezes. Most of the decorative elements are turned wood, including columns, balusters and frieze details such as beads -- all of which are referred to as spindlework. This same detailing is often called "ginger-bread."

Other easily recognizable elements include dominant projecting gable roofs over bay windows.

The area where the roof hangs over the bay window angles is often decorated by very delicately beaded pairs of brackets. During the railroad era these materials were readily available in Las Vegas, so the style bloomed. Fortunately for the person needing to replace any of these decorative elements, most are still manufactured.

The Free Classic variation of Queen Anne is also commonly found in Las Vegas and is characterized by classical column groups as porch supports and less elaborate detailing. A good example of spindlework can be found at 812 5th Street (the Louis Fort House) and an

812 5th Street

1027 8th Street

Architectural Styles

example of Free Classic detailing can be found at 1027 8th Street.

Second Empire Victorian

The Second Empire style of Victorian houses is named for the period in France when Napoleon II reigned. The dominant characteristic of this style is the "Mansard" roof, which is a double pitched hip style roof with a lower steeply pitched roof typically adorned with dormer windows. Your research will reveal that there are several variations of this particular style. The lower steep roof is typically trimmed, above and below, by cornice molding and the overhang is supported by ornate brackets. Windows are sometimes trimmed very elaborately and may feature bracketed pediments and scrolled base surrounds. They are generally arranged in matched pairs or in triplicate. Arched pairs of windows are common as well as arch-roofed dormers. Paired entry doors and bay windows are also common.

Two examples of houses with Second Empire detailing are the H.J. Mueller House at 524 Columbia and 1321 S. Pacific.

Shingle Style Victorian

As the name implies, Shingle Style Victorian houses are identified by continuously shingled walls and roofs. Like Queen Anne, the Shingle Style was an interpretation of the traditional Victorian styles. The shingle patterns on the walls and roof are generally very consistent. If decorative detailing exists, it is minimal. This is a good example of a form-dominated style. Research will reveal that the forms are varied from a hipped roof with cross gables to a gambrel roofed structure. A good example of a gambrel roofed Shingle Style can be seen at 1034 8th Street.

Stick Style Victorian

There are other post-railroad Victorian styles in Las Vegas that bear mentioning. One is the Stick Style which is defined mainly by its decorative ornamentation. This style of house has a gabled roof, often steeply pitched, with overhanging eaves and exposed rafter ends. Most of these houses have a one-story porch with diagonal or curved support braces. A good example of a Stick Style porch can be seen at 919 6th Street.

1321 South Pacific

919 6th Street

Architectural Styles

Folk Victorian

Another Victorian style common throughout Las Vegas is the Folk Victorian house. In this case, the roof and house shape is a basic front or side gabled roof or perhaps a hipped roof. The house is usually built of adobe or rock. The Victorian detailing will be played out in spindlework or flat jigsaw trim on the porch or cornice. The porch supports may be turned spindles, square or chamfered posts. The window ornamentation will be a simple pediment or non-existent.

A Folk Victorian house generally has a very symmetrical facade and lacks the textured wall surfaces of the Queen Anne Style. Examples may be seen at 1811 New Mexico and 2004 N. Gonzales.

Half-Timber

Half-timbering is more of a building technique than it is a style. It can be seen in the construction of various styles including Queen Anne and Tudor Revival. It consists of heavy timber framing with filled spaces between the timbers, leaving the edges of the timbers exposed. Some houses are false half-timbered for effect. The filled spaces or panels commonly consist of daub (clay) stucco over wooden lath and occasionally brick infill.

A good example of a half-timbered house can be seen at 506 Columbia.

Colonial Revival

Colonial Revival Style houses are copies of early English and Dutch traditional styles found along the U.S. Atlantic Seaboard. These houses are very simple in form with a single gable, pyramidal, gambrel or hip roof over a square or rectangular plan. There are typically two floors.

The facades are usually symmetrical with a sometimes highly detailed porch-accented doorway. The doorways were further accented with fan lights and/or sidelights. Doors are flush with the exterior wall and rarely recessed. Porch details include slender column outer supports, pilaster supports at the wall, decorative broken and gable end pediments. Individual windows are usually double-hung sashes with divided lights in one or both sashes. Windows are often found in pairs. Roofs have slight overhangs with

1811 New Mexico Avenue

506 Columbia

Architectural Styles

decorative boxed-in cornices for roof and wall junctures. Examples of Colonial Revival may be seen at 1023 7th Street and 1223 6th Street.

Neo-Classical and World's Fair Classic

The World Columbian Exposition in Chicago in 1893 ushered in a return to classicism in architecture. Neo-Classical and World's Fair Classic Styles are a result of this trend, and homes in these styles are some of the most distinguishable in Las Vegas.

The facades of Neo-Classical houses are almost always symmetrical and feature full height porches supported with classical order columns. Roof overhangs are boxed in to the wall with cornices of varying elaboration which sometimes include a lower band of dentils and/or modillions (small brackets). Door and window surrounds are sometimes ornately detailed with arched or gabled pediments and pilasters at the sides which resemble a flattened version of the porch columns.

Early 20th century Las Vegans appear to have particularly liked the style of this era now referred to as World's Fair Classic.

These houses are two-story and usually built of red brick or brick veneer in a rectangular shape with hipped roofs and projecting front porches. In Las Vegas you will see some inventiveness in the variations from classic decoration but generally the local interpretation of the style includes banded red brick piers, white dentil cornices and splayed brick lintels with projecting keystones.

A house built in the Neo-Classical "Georgian Revival" Style is located at 1029 7th Street, and an example of World's Fair Classic architecture may be seen at 1100 7th Street.

Prairie Style

Created by American architect Frank Lloyd Wright, the Prairie Style grew out of a desire for architectural styles originating in the United States. The style features a low-hipped roof with very wide overhangs. Dormers were rarely included. A horizontal effect was the result and it was emphasized by continuous window sills and lintels. Heavy angular piers support veranda roofs and porches.

1023 7th Street

1029 7th Street

Architectural Styles

Prairie Style homes were typically constructed of plaster over a wood frame, but brick was also used.

Very few pure Prairie Style homes exist in New Mexico but the design influenced the styles of many homes, especially World's Fair Classic. In these cases the massing of the house and the hipped roof and porch are Prairie Style while the detailing and ornamentation are strongly classical, showing the vernacular interpretations on a theme. A Las Vegas example of Prairie Style is at 1213 6th Street, and an example of World's Fair Classic is at 1100 7th Street.

Mission Style

It has been said that the Mission Style was California's answer to the Colonial Revival Style which flourished on the East Coast. Mission borrows from the Hispanic heritage of early colonial missions. These are most easily identified by the curvilinear shaped parapets which form porches, roofs and dormers. Large square piers sometimes topped with Greek columns and arches support porches. Visor roofs are sometimes cantilevered out from the walls. Tile was the favored roof material for most Mission homes, but this varied by region.

As you come into Las Vegas on the University Avenue exit from I-25, the Castaneda Hotel is the first Mission Style structure you can see over the bridge. It should be easy to recognize Mission homes, such as the one at 1103 8th Street, after you've seen the Castaneda.

Bungalow

The Bungalow Style is typically a one-story vernacular (local or regional interpretation) version of what is known as the Craftsman Style of Eclectic houses. The style was introduced primarily by Charles and Henry Greene of California. Some of the Eclectic influences include elements of oriental architecture and the earlier English Arts and Crafts movement.

The distinctive identifying elements of typical bungalows are roof-to-wall juncture details and porch support elements. Roofs are typically shallow gables with overhangs supported by wood knee brackets, exposed rafters at eaves and extended false roof beams at gable ends.

1027 7th Street

1103 8th Street

Researching Your Home's History

Vsude dobre, doma nejlepsi.
Everywhere is good, but home is best.
--Czechoslovakian Proverb

Gabled or trellised porches are supported by plain wooden posts or massive piers of stone or wooden cladding. Porch railings are often solid masonry or stuccoed masonry. Wall cladding is typically wood clapboard or shingles, although some stuccoed bungalows can be seen in Las Vegas. Gable-roofed dormers with roof details which echo the main roof design are also common. Typical bungalows are found at 1115 6th Street and 810 7th Street.

Researching Your Home's History

A good accompaniment to learning about your home's architectural style is to research your home's individual history. What you find may provide valuable clues to its original construction style and materials, especially when the house has undergone unsympathetic renovations.

A logical step that will also aid in gaining the correct permits and if needed, approval from the correct officials, is to determine your home's legal historical status. A call to the Citizens' Committee for Historic Preservation (425-8829), or the City of Las Vegas Community Development Department (454-1401) can help you find out if your home has been historically designated.

Probably the best visual source for information on your home's history can be gained from old photographs. The Citizens' Committee for Historic Preservation and New Mexico Highlands University maintain a community photo collection at Donnelly Library on the NMHU campus. There is a chance you might find an early photo of your house, or of a photo of a neighboring house with your home in the picture.

Sometimes having the abstract on your property researched can give insight to the time period in which improvements were made as indicated by sudden jumps in the property's value and other descriptions.

Other common sense avenues to explore include visiting with previous owners of your home, if possible, and talking with long-time neighbors.

810 7th Street

Standards for Rehabilitation

Historic preservation is among other things the avoidance of waste. Wast of beauty, time, energy, materials.

After you've obtained necessary background information, you will be ready to proceed with the exact nature of your project and its planning.

You may find yourself asking, "Do I repair it or replace it?" A good rule of thumb is to *always explore the possibility of repairing any historic building element of your home before considering its replacement.* Your goal should be to retain and preserve those elements crucial to your home's character to the greatest extent possible. If a key building component is simply too far gone to repair, then it should be replaced as accurately as possible.

As the owner of an historic home, it's important you be aware of a set of standards established by the U.S. Secretary of the Interior in the interest of protecting and correctly preserving America's historic structures. These guidelines, called the *Secretary of the Interior's Standards for Rehabilitation*, may be used to ensure that the historic character of a building is preserved in the process of rehabilitation. The standards have been adopted by numerous state and local preservation organizations, including New Mexico's State Historic Preservation Division and Las Vegas' Design Review Board.

The standards come into play most frequently in determining if a rehabilitation project qualifies as a "certified rehabilitation" and is eligible for tax credits and historic preservation grants and loans.

If your home is on the state or national historic register, you are probably already somewhat familiar with the term "rehabilitation." According to the *Standards*, "Rehabilitation is defined as the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

The *Secretary of the Interior's Standards for Rehabilitation* are listed on the following page.

Standards for Rehabilitation

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.

2. The distinguishable original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.

3. All buildings, structures and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.

4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.

5. Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure or site shall be treated with sensitivity.

6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historical, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to any project.

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural or cultural material, and such design is compatible with the size scale, color, material and character of the property, neighborhood or environment.

10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

In case you are wondering what all this has to do with the price of nails, consider that these standards provide you with a good conceptual approach to virtually any aspect of preservation work.

The Permit Process

Now that you are aware of the importance of recognizing and preserving the historical character of your home when planning repairs or providing routine maintenance, it's time to get a permit and go to work!

The Permit Process

Your home may be subject to local, state and even national review process of any proposed remodeling work if it is on an historic register or lies within a cultural historic overlay district.

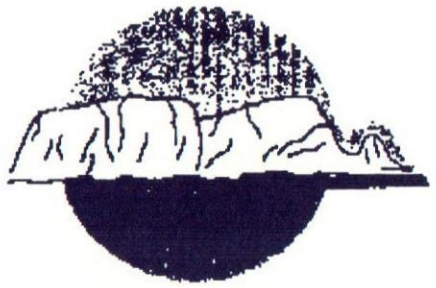
If you're unsure whether your home has state or national historic status or is located in a Las Vegas cultural historic overlay zone call the City of Las Vegas Community Development Department (454-1401), or the Citizens' Committee for Historic Preservation (425-8829). They will help you locate your property on the City's cultural historic overlay map.

In Las Vegas generally all exterior and interior home improvements will require a City building permit before work is begun. Painting inside or out is about the only exception -- and exterior painting is *not* an exception if the property is located within the cultural historic overlay zone. You may call the Community Development Department if you have any questions about the need for a permit or any part of the permit process.

When you apply for a building permit at the City's Community Development office at 1700 N. Grand, the Code Enforcement Officer will first check the location of your property to see if it is in a local or state historic district. If it is *not*, and the estimated cost of your home improvement project is less than $1,000, the City of Las Vegas will issue a building permit for a fee. If the improvements are estimated to cost in excess of $1,000, the application will be sent to the State of New Mexico Construction Industries in Santa Fe for a permit.

The permit stage of your project will usually take less than a week at the local level, and up to 2-3 weeks at the state level.

If your property is located within the City's cultural historic overlay, and the



CITY OF LAS VEGAS

The Permit Process

Mira bien y con cuidadoy en toda empresa determinado.
Be sure you're right, then go ahead.
--Spanish Dicho

planned home improvements will modify the exterior of the property (or include building a new structure), you will be required to gain the approval of the local Design Review Board before a City permit can be issued to do the work. This is a requirement regardless of the estimated cost of the project. The purpose of the Design Review Board and the procedure for presenting your project to the Board will be discussed later.

If during the permit application you are notified your property is not in the *local* historic overlay, but does have State Cultural Property and National Register of Historic Places designations (as many times is the case in Las Vegas) you are not required to present plans to the Design Review Board for approval before being issued a permit for the work.

However, if you are planning modifications to an historic structure, you always have the option to contact the Design Review Board (through the Community Development Department), or the state architect at the New Mexico Historic Preservation Division (827-8320 in Santa Fe) for free advice or information on any exterior rehabilitation project. The State office, as well as the local Design Review Board and the Citizens' Committee for Historic Preservation welcome the opportunity to help you in design and remodeling decisions in the interest of maintaining the historic integrity of your home and your neighborhood. (NOTE: In cases where federal or state preservation grant monies are funding the project, approval from the State Historic Preservation Division and/ or the Department of the Interior is required.)

The Las Vegas Design Review Board

The seven-member Las Vegas Design Review Board was established in 1976 to function primarily as an information resource for homeowners desiring to repair or remodel an historic property. However, all exterior work to property located within the Las Vegas cultural historic overlay is required by local law to receive the Design Review Board's approval before being started.

The Board is made up of at least two preservation-related professionals in the areas of architecture and architectural history, archeology, planning, real estate, design, building trades, landscape architecture, law or finance. The City Manager serves as a non-voting ex-officio member. All Board members are residents of Las Vegas. The Board holds open meetings the last Wednesday of each month to review and approve construction and/or remodeling plans for buildings that lie within the local cultural historic overlay, or have other historic designation and simply wish advice about rehabilitation.

The Design Review Board strives to maintain the historical consistency or significance of a structure or a neighborhood while serving as a valuable advisory body helping to identify realistic solutions to problems. While the Board technically is concerned with all proposals regarding exterior changes (facade restoration and painting, additions, repairs, maintenance, window replacements, garages, fences, sidewalk improvements, etc.), homeowners undertaking similar interior renovations are encouraged to take advantage of the free and knowledgeable advice offered by the City through the Design Review Board.

Once you've determined the need or desire to see the Design Review Board, you should contact the City's Community Development Department (454-1401) to place your project on the agenda before the first day of the month of the meeting you plan to attend. (For instance, call before May 1st to present your project at the May meeting.) You will also need to complete an application of pertinent information prior to the meeting. Applications are available at the Community Development Department, 1700 N. Grand.

The Design Review Board asks that you submit other information prior to the meeting as well, such as: your home address, legal description of the property, plans and drawings that may include elevations, floor plans and site plans. Building scale, materials, colors, and other details should also be indicated as accurately as possible.So you can anticipate some of the concerns of the Design Review Board, the Citizens' Committee for Historic Preservation and the State Historic Preservation Division have published a booklet entitled, "Design Guidelines," that is available at the CCHP office. This booklet itemizes what is important to maintain in structures located in the original six of Las Vegas' nine historic districts.

If this preparation sounds like a lot of effort, rest assured it's time well spent: the more information you can supply the Design Review Board, the better able they will be to understand your project and work with you to achieve your particular goals.

Tax Credits for Historic Rehabilitation

Tax Credits for Historic Rehabilitation

Tax incentives for historic property preservation and rehabilitation are methods local, state and federal governments use to protect and enhance the historical environment.

Las Vegas homeowners with historically designated property might be better able to take advantage of state income tax credits rather than federal -- provided they meet eligibility requirements, and follow the required procedure in applying for the credit and completing the rehabilitation work. The federal Investment Tax Credit (ITC) program allows a credit to federal income tax liability equal to 20% of total rehabilitation costs, but applies only to income-producing properties.

New Mexico State Income Tax Program

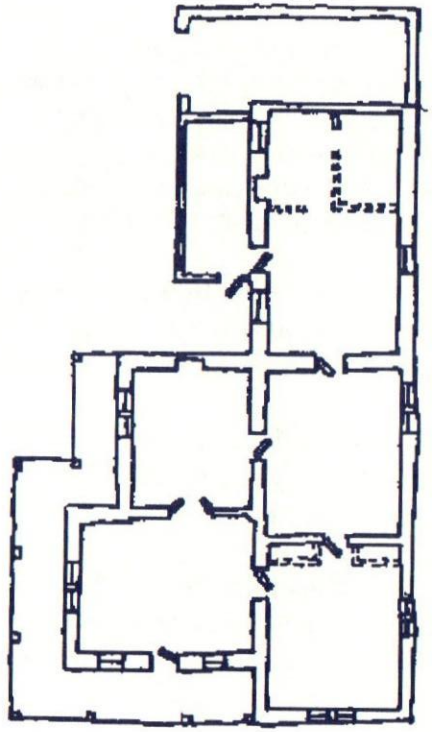
The state income tax credit program for historic rehabilitations allows a credit to state income tax liability equal to the lesser amount of: a) 50% of rehabilitation project costs; b) $25,000.00; (c) five years of liability; the credit may be claimed in the year(s) in which the work is done and carried forward four years.

There are three primary considerations for eligibility for this credit:

1. The building must be listed on the State Register of Cultural Properties;
2. There is no "substantial rehabilitation" clause as there is in the federal program;
3. The property does *not* have to be income-producing.

Following is the application and certification process for state income tax credit, in brief.

1. Contact the State Historic Preservation Division to obtain an "Application for State Income Tax Credit for Restoration, Preservation or Rehabilitation of Registered Cultural Properties Form B, Part 1 and 2," and the regulations for participation in the program.
2. Review the regulations for the program.
3. Fill out the application and submit it to the State Historic Preservation Division.



After a floorplan by Sven Govaars for *Architecture and Preservation in Las Vegas, Ill*, 1984

Tax Credits

4. After checking the application for completeness, the Division will present the application to the Cultural Properties Review Committee (CPRC). The CPRC will certify the status of the building if located within an historic district. The committee will take action on: a) certifying whether the property is individually listed on the State Register or designated as contributing to the State Register Historic District; and b) the proposed work as described in the application.

5. After notification of approval by the Division, proceed with the planned and approved work.

6. Within 60 days after completion of work, but in no event later than January 25 of the first tax year in which the credit is to be claimed, fill out a "Certification for Approval of Restoration, Preservation or Rehabilitation for State Income Tax Credit, Form B, Part 2," and submit it to the Division along with all receipts, invoices and other cost documentation.

7. After checking the application for completeness, the Division will present it to the CPRC. The CPRC will review the restoration, preservation or rehabilitation expenses documented therein and approve or deny the work done.

8. The Division will then send a signed Form B, Part 2 indicating approved rehabilitation expense to the owner and the New Mexico Taxation and Revenue Department.

Federal Investment Tax Credit Program

To obtain a credit toward your federal income tax liability equal to 20% of rehabilitation costs, the work must meet the following criteria:

1. The property is individually listed on the National Register or listed as "contributing" to a National Register district;
2. Rehabilitation must meet the *Secretary of the Interior's Standards for Rehabilitation*;
3. The amount of rehabilitation expenses must meet the adjusted basis of the property (adjusted basis = purchase price minus depreciation plus capital improvements);
4. The property is income-producing (such as a rental house).

The application process requires certification of the property's historical significance (listing on National Register), documentation of planned rehabilitation prior to start of the project, National Park Service approval of plans and certification that the project is completed as approved.

Information on state and federal tax credit programs and the appropriate application forms are available through:

Office of Cultural Affairs
Historic Preservation Division
Villa Rivera, Room 101
228 East Palace Avenue
Santa Fe, New Mexico 87503;
505/827-8320.

New Mexico Historic Preservation Loans

The New Mexico Legislature passed the Historic Preservation Loan Act in 1987. This enables the State Historic Preservation Division, Office of Cultural Affairs, to make below-market interest rate loans directly or through a lending institution to owners of registered cultural properties for the purpose of restoring, rehabilitating or repairing those properties.

The funds of the State may not be used for acquisitions. So while a loan for the combined purposes of acquisition and restoration may be applied for, at least 18.2% of that loan must go to restoration, rehabilitation or repair. This percentage is then considered the State's share.

The principal amount of any loan from the State may not exceed $200,000.00.

Properties eligible to receive loans are those individually listed in the National Register of Historic Places, those officially designated as "contributing" to a historic district entered in the National Register, or those formally determined eligible to the National Register by the State Historic Preservation Officer. Both commercial and residential structures may receive loans.

Every loan project must include some rehabilitation of the facade of the building.

Loan requests must first be received by the State Historic Preservation Division on its Form D, available by calling or writing their office. Requests must be reviewed and approved by the Division. The Division will require floor plans, elevations, details and specifications in order to carry out its review. Such plans, elevations, details and specifications must be prepared by a licensed architect, licensed contractor or licensed engineer as required by State licensing statutes and as determined appropriate by the Division.

Once the Division has established the allowability of the proposal, the applicant must submit either a residential or a non-residential loan application to the Historic Preservation Loan-affiliated bank. The financial institution will process and grant or deny a loan based on normal loan underwriting requirements for any given type of property.

As of publication of this book, the State Historic Preservation Division is seeking a lending institution with whom these preservation loans may be made, so loans may not be immediately available. You may contact the Division at any time for an update on loan availability or for any additional information on loan approval criteria and technical aspects of the project. Please call or write:

New Mexico State Architect
c/o Historic Preservation Division
Office of Cultural Affairs
Villa Rivera, Room 101
228 East Palace Avenue
Santa Fe, New Mexico 87503;
505/827-8320.

Section Two:
Exterior Repairs and Maintenance

Obra empezada, medio acabada.
A work begun is already half done.
--Spanish Dicho

With diligent research and a reasonable amount of "handyperson" expertise, most repair and remodeling work can be planned and executed by the homeowner. However, *it is not recommended that you attempt to do any work that is beyond your expertise*. That work might include electrical, plumbing, heating and foundation and structural repairs, which will all be discussed briefly in a later section of this book. Primarily, this book is intended to be an introduction to the components of your historic house. There will be areas where the text is detailed in its discussion of various topics, but more often you'll find a basic explanation of repair considerations with the suggestion to obtain additional information as relates to your particular project. If you're in doubt about any aspect of your planned home improvement or maintenance procedure, save yourself a lot of trouble and seek qualified advice before you begin.

Proper maintenance is the key to the longevity of all houses, old and new. If a good maintenance program is practiced, most necessity for repair or replacement work can be avoided. New and better methods for preservation maintenance are constantly evolving as a result of new technology and research. This section will touch on some basic elements of maintenance, but your continuing interest and research will reveal methods and materials which will help to see your home through to the next generation and beyond. The Citizens' Committee for Historic Preservation (CCHP) is currently compiling reference materials that will be made available to Las Vegas residents for additional research. Call the CCHP at 425-8829 for more information.

The *Secretary of the Interior's Standards for Rehabilitation* listed in Section One are supplemented by the *Guidelines for Rehabilitating Historic Homes*. This is recommended reading and it provides a good basic overview of maintenance and repair which relates practices in terms of "Recommended" and "Not Recommended." Ask the CCHP how to obtain a copy.

The more specific aspects of repair and maintenance generally involve premanufactured materials. Most manufacturers provide very detailed specifications or instructions for the application of their product. You will find that manufacturer's sales representatives can be good sources of information in choosing proper products and methods. However, you should try to remain objective remembering that the goal of sales reps is ultimately to make a sale. On the other hand, most local sales representatives are very helpful and understand the importance of repeat customers and would not recommend an improper material or application.

The logic of proper maintenance and repair is very simple. Most sources of construction deterioration start at the top and work downward. In the case of foundation problems, it is just the opposite, though most foundation problems are caused by improper drainage somewhere above the foundation itself. The simple act of keeping gutters and downspouts clean and in good repair is a very good preventive measure against water-caused deterioration in roofs and walls as well as foundations.

For the sake of logic we'll begin our discussion on exteriors at the top and work our way down.

We shape our buildings, and afterwards our buildings shape us.
--Winston Churchill

Roofs

The roof is where most problems really begin. Roofs are composed of many elements which work together to keep water out of your home. The primary element is the roof material itself which is generally wood, slate or tile shingles, clay tiles, sheet metal or a membrane such as a built-up asphalt roll or sheet roof. Other elements include various flashings, valley and perimeter gutters, roof drains, caulking, etc.

Proper routine maintenance for your roof actually calls for little else but periodic visual inspections to see that no part of the roof is missing or has become damaged, rotted or corroded. Unfortunately, we have to wait for most roof problems to make their presence known, as in the case of leaks.

Many people question the need for and appropriateness of gutters and downspouts on their home. The purpose of this system is to prevent finish damage and erosion problems by diverting water to where you want it. If your home already has a gutter system it was probably put there for water diversion and should be included in your regular maintenance program. However, many of the older homes in Las Vegas have bounteous overhangs by merit of their Victorian architectural styles, thereby having little or no need to divert water away from walls or the foundation.

Most damage from roof or flashing leaks is readily visible and can be repaired quite easily. Yet the less apparent leaks can cause the most damage in the long run. An example of this would be a leak in a concealed or integral perimeter gutter which allows water to seep into the wall below. (This type of gutter is very common on Neoclassical homes.) If the wall is solid masonry, this seepage can wreak havoc as a result of freeze and thaw action in the winter that can literally demolish the wall and foundation system below.

Another example of hidden moisture is condensation that occurs beneath the roof and its deck (the base to which roof material, shingles or metal, is adhered). This develops because of changes in temperature and improper attic ventilation.

Some gable roofs...

...a gambrel roof...

...and some hipped roofs!

Roofs

Following are discussions on particular types of roofs, their potential problems and maintenance suggestions.

Wood Shingle Roofs

Wood shingles are the easiest of roofing elements to repair, and need to be replaced when they begin to rot and lose substance.

Repair generally involves the removal and replacement of a few shingles. Re-placement cedar and oak shingles are available in many shapes, sizes and textures. They will at first appear lighter in color than the existing shingles, but will very quickly weather to match.

In early applications successive layers of shingles provided most of the watershed action. Today, standard practice is to apply fewer layers of shingles over lapped layers of 30 lb. asphalt-impregnated building paper. The water that is not shed by the shingles is kept out of the building by the membrane action of the paper. Generally wood shingles require a roof pitch of no less than 3:12 (a 3 foot vertical rise of a roof over a 12 foot horizontal distance).

In some cases, it may be possible to remove existing shingles extensively and replace them over a new layer of building paper. You should always use a recommended size galvanized or cadmium coated nail because there will always be some moisture present which will cause rust.

If the majority of the existing wood shingles are weathered or rotted beyond repair, they should be replaced with a similar material, size and shape wood shingle. For existing and new shingles, there are many clear sealants available which extend longevity and provide the added advantage of fire retardant properties.

Tile and Slate

Tile and slate roofs can be difficult to repair because of their fragility, and replacement tiles may be hard to find.

The tiles need to be replaced when they are broken or missing -- situations most likely caused by the weather or by people walking on the roof. It is difficult to execute repairs without damaging the surrounding tiles by walking or putting

Roofs

Zelezo rez sezira, a zavistnik od zavisti umira.
Envy eats the envious as rust eats iron.
--Czechoslovakian Proverb

weight on them. You might have to remove several rows of the tiles successively up to the area of damage so that you will have a path in which to walk and work. You'll probably have to do some investigating to find a source for replacement tiles.

The advantage of clay and slate tiles is their inherent longevity, so repair is generally a matter of replacing a few tiles.

The standard practice of tile roof repair when extensive leaks are present and few tiles are broken is to remove rows of the tile, install an asphalt sheet membrane over the existing deck and replace the original tiles in the exact order they were removed using the same method of laying them. The tiles were probably originally nailed and wired into place or mortared. If the original tiles were mortared into place this is one repair job that will probably require some professional help.

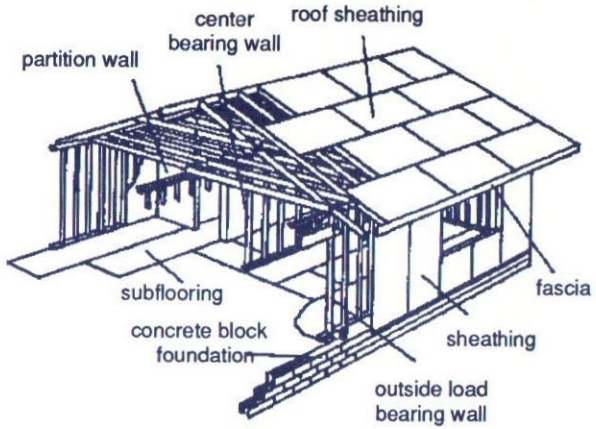
Sheet Metal

Historical sheet metal roofs are generally copper or zinc-coated (galvanized) steel sheet metal. Copper will have a distinctive patina and zinc-coated will appear silver or gray. These roofs can generally be cleaned and repaired and protected from continued corrosion without the more drastic measure of replacement.

When you see corrosion look for the cause to be flat areas of standing water or loose flashings or joints which allow water to penetrate beyond the coated or otherwise protected surface of the sheet metal and try to alleviate it.

Cleaning the corroded area is the next step. Many commercial preparations are available for the cleaning and protection of sheet metal. The important thing to remember is to use the gentlest method. A small area should first be tested to see what the effects of cleaning and protective agents will be. Copper and zinc-coated roofs are meant to be exposed and should not be painted.

Sometimes it may be necessary to replace a small part of the original roof; so use a compatible material. For example, you should not replace copper sheeting with galvanized steel. This will result in galvanic corrosion almost immediately. Replace copper with copper and galvanized steel with galvanized steel.



Roofs

As a last resort, consider replacing an entire badly damaged roof. Sheet metal roofs are difficult to wholly replace because available materials have changed drastically from the original roofs that were installed. However, a lot of architectural metals are available that will give you a similarly close fit. The same material is available today in lighter gauges, but replacement will require some expertise and will involve some expense, especially when using copper sheet roofing.

The corrugated and "v-crimped" galvanized steel roofs of some of the pitched roof northern New Mexico adobe homes can be replaced with a readily available and almost identical material produced in varying degrees of quality. It is recommended that asphalt-impregnated building paper be placed on the decking before the sheet metal roof is installed to prevent condensation under the sheet metal from damaging the deck. Most manufacturers recommend two laps of corrugation be maintained from one section of sheet metal to the next.

The attachment of the roof to the deck is generally done with hex-head cadmium plated screws with neoprene gaskets. The screws should always be placed at the ridge of the corrugations and never in the valley as this would most certainly invite leaks. Be careful to install the screws per the manufacturer's recommended interval from center to center. This will result in a nice appearing diagonal alignment of the screws when viewed from below.

The screws may be drill applied, but be careful not to drive them in too hard. This will cause a "cup" in the sheet metal and damage to the screw gasket and result in a leak. Clutch-head drill attachments are available and will help to drive the screw in with sufficient pressure without damaging the roof. Sheet metal roofs should not be placed over any roof with a pitch less than 3:12 (a 3 foot vertical rise over a 12 foot horizontal distance).

Membrane Roofs

Built-up or asphalt sheet membrane roofs are very troublesome to repair when they begin to leak. There are a variety of cold and hot patch materials and mastics

available for repair attempts. The ballast or gravel should be scraped thoroughly back from the area of the suspected leak and then replaced after you have applied the repair material.

What really makes it tough is that the actual leak itself may be some distance away from where it has shown below -- water tends to migrate through the various layers of the membrane sheeting. Once this type of roof has deteriorated to a certain point, replacement of the entire roof is inevitable, especially when blisters are present in the roof surface. Here again, replacing this roof is something you shouldn't try on your own without some experience.

The important thing to remember is if a built-up roof must be replaced *do not put a new roof over the existing one*. The house was probably not structurally designed to sustain the additional dead load imposed by two or more roofs. You should insist on total removal of the old roof. Besides, when the old roof is removed it provides a good opportunity to inspect the deck for damage and make necessary repairs.

There are newer and lighter synthetic materials available for built-up roof replacement, but they do look a little differently. "Flat" roofs are generally hidden behind parapets so you shouldn't have any problem with the Design Review Board objecting to the way it looks.

Another aspect of membrane roofs you may encounter are "crickets." These are built-in counter slopes designed to divert water where differing slopes of the roof meet, such as around chimneys. Keep an eye on these areas and repair them when they're corroded or otherwise damaged and not performing their intended function.

Flashings and Sealants

The roof elements that are most easily repaired by the homeowner are the ones that most often cause the leaks. Vertical flashings, curbs, valley gutters, parapet caps, etc., all add up to potential roof leaks. Galvanized and prefinished sheet metal replacement materials are readily available. Historical style rain gutters can be obtained but in some cases might have to be custom made and

therefore expensive. Most often an existing gutter or flashing can be repaired with some good caulking material and appropriate fasteners.

Whenever repairing a loose flashing, it is important to remember to use a fastener of similar material to the existing to avoid galvanic action. For example, a copper nail or screw should never be used with a galvanized steel sheet metal flashing or vice-versa. This will cause corrosion very quickly.

Caulking materials have come a long way. Some of the new silicones and polyurethanes can solve a lot of leaking problems if used in their recommended application on appropriate surfaces. Surface preparation is the key to success with most caulking materials. Manufacturer's instructions are usually very specific about how a particular surface should be cleaned and primed to receive various caulking. For example, once silicone has been applied to a surface, it is virtually impossible to apply anything other then silicone to that surface again.

Consult with your sales representative at a caulking or building supply house and you'll be amazed to discover what can be done with a tube of caulk. However, don't become overconfident that caulking can solve what may be a bigger problem, such as a corroded flashing that should be replaced.

Walls

The next logical topic in our discussion on home repairs from the roof down is walls.

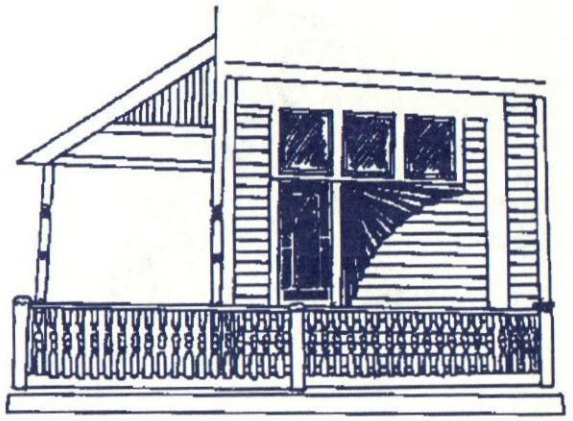
As in roofs, exterior walls vary greatly in composition from wood siding to shingles to many types of masonry and more. We'll begin with a focus on wood walls and a section on dry rot damage. If your concern is for wood walls you will probably also be interested in the Paint chapter following this one.

Wood Siding

Wood siding includes clapboard, shipboard, weatherboard, shingles and board and batt. Most wood siding is available commercially or can be reproduced by a good carpenter, but don't consider replacing wood siding unless it has been damaged. Damage may be evidenced by the cupping (curling) or bulging of siding laps, and pitted, or spongy, rotted areas. Most damage to wood is done by water or, the other extreme, lack of humidity. A lot of unseen damage can be caused by insects or dry rot so it is advisable to have periodic inspections done by pest control experts.

Most repairs to siding can be done easily. A common mistake to avoid is waiting until it's time to repaint the house before making any repairs. You are better advised to repair and repaint even the smallest areas of potential damage, even if you are unable to perfectly match the color. It will save you considerable effort and potentially more damage later.

If a particular area of the wall is becoming damaged for no apparent reason, you will typically find that it is subject to some unusual condition such as dripping water or direct sunlight exposure. Look for damaged flashings or leaking rain gutters above the area. (It is amazing how much work can be saved by keeping your rain gutters clean!) It is also true that some walls of the house will be subject to more weathering than others. The paint on the south and west sides of the house will literally bake off because of more exposure to sun and heat extremes. Some paint manufacturers will even suggest an extra coat or two on the south and west walls. In snow country, snow is slow to melt and dry out on the north side of the house. This can

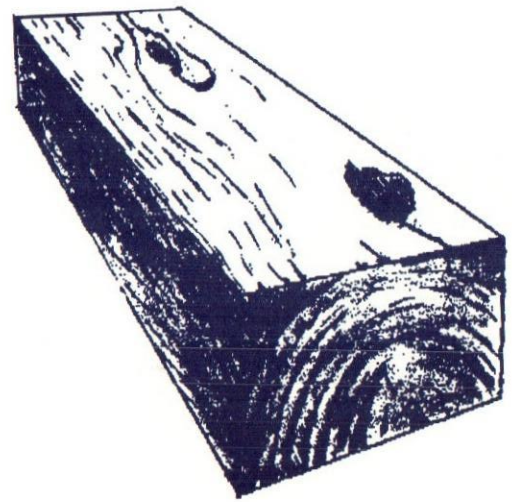


cause great damage to wood porches, railings and siding where the snow is banked. If possible, keep snow and ice swept off wood surfaces on the north side.

When repairing or replacing wood siding it is always best to use corrosion resistant nails or ring-shank nails to prevent unsightly trails of rust streaming down the side of your house from the nails.

Various types of wood siding require a certain amount of lap or interlock from one section of siding to the next. Siding is either rebated or rabbetted for an interlocking lap, or it is beveled for a continuous overlap. Beveled siding generally requires about 1 1/2 " of lap. Laps of siding are started at the bottom and work their way up. This results in a wall face which sheds water. Vertical or butt joints in continuous laps should be staggered from one lap to the next and should be flashed, as caulking is only a temporary solution. Trim elements at corners and openings should also be carefully flashed with building paper or galvanized flashing. When caulking is the only solution use the best quality caulk in its proper application. Lap siding should always be installed over a good 30 lb. lapped building paper over the wall sheathing.

If it is a matter of replacing just a section or two of the existing siding which is no longer commercially available, you can simply pull off a good section of the siding and take it to a millwork shop for reproduction. A good millworks will most likely have a shaper bit or combination of bits that will allow them to reproduce as much of the siding as you require. The problem may be finding the right wood dimension stock. Excellent grades of lumber in truer dimensions were available when most of these houses were built. A 2"X6" board was sawn at exactly 2"X6". Today, 2"X6" refers to the "nominal" dimension of the lumber -- the actual dimension might be only 1 1/2 X5 5/8. You can go to a very expensive custom wood supplier for true dimension wood, but most siding can be milled from readily available dimension lumber. However, watch out for those knotholes! It is hard to find knotless dimension lumber without going to a very expensive grade of "clear" wood, but avoiding



Watch out for those knotholes!
--Dave Rowland

Walls

knotholes means allowing less exposure from the elements to the wall sheathing beneath the siding and avoiding damage. If the damage is extensive, you may want to glue/laminate new pieces of wood over damaged sections of the original siding. You should always try to match the species and density of the repair wood to the original wood.

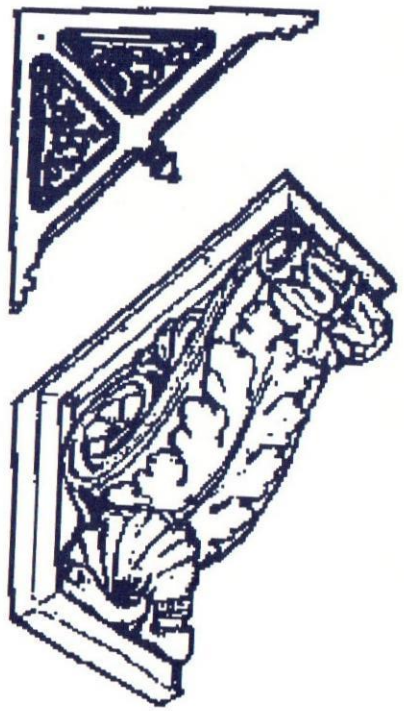
If possible, you should try to do most of the hand shaping of the new piece to match the original before you adhere it to the existing wood. In some instances you might have to install the new piece of wood in a rough form and shape it to match after it is bonded to the existing wood.

Remove the damaged wood down to the most durable layer and plane or sand it to a smooth surface for gluing to the new piece. Glue types are varied, depending on the application, and some are even waterproof. Most glues come with instructions that are self-explanatory. When installing a new piece, finish nails or screws are generally sufficient to hold the piece in place while the glue sets. Finish nails can be driven in beyond the surface of the wood with a nail-set tool. This provides a cavity for spackling prior to painting, so the nails will not be visible when the job is completed.

Wood Decorative Elements

Wood decorative elements are generally the first parts of your house to experience deterioration due to the weather. Decorative elements include window/door trim, sills, architraves, pediments, cornices, scrolls, braces, brackets, spindlework, columns, column capitals, friezes, railings, balustrades, shutters, entablatures, etc.

Wood is one of the more available and cooperative mediums to work with and a competent carpenter can repair or reproduce almost any decorative feature in exact detail. Some of the more common decorative elements are manufactured and can be obtained through a lumber yard or specialty supplier. However, you may have to thumb through some catalogues to find what you are after. If you are a hobbiest or professional carpenter and want to take on the challenge of repairing or reproducing historical wood decorations, then more



Brackets

Lo que no se empieza no se acaba.
What is not started is not finished.
--Spanish Dicho

power to you. Seek professional help if you don't have the expertise and/or tools available to you. It is important to remember to match the existing wood in size, shape, color and proportion as closely as possible.

Repairing decorative details will usually involve patching, piecing-in, consolidating or otherwise reinforcing the wooden element in question. For the most part, repairs might just be a matter of a little scraping, spackling and sanding. Refer to the painting section of this book for advice on fillers and sanding. Remember that the filler material will generally be harder and more resistant to sanding than the original wood, so be careful not to sand away the existing wood surface around the filler.

The priming and painting of new wood piece-ins or details is tricky at best. The new wood will never have the same moisture content as the existing wood around it and, therefore, it will most likely shrink as it dries out. This will result in unsightly cracks in your nice new paint. Sometimes a good flexible caulk joint between the old and the new pieces will prevent cracks in the paint. Try to use wood that has cured or dried in similar environmental conditions to those where it is being installed. Experience is the best teacher so, again, refer to a qualified professional if you are in doubt.

If the original detail is completely missing, you are in for a lot of research and investigation that can be very enjoyable. Sometimes you may have to simply replace a missing detail with a detail that is appropriate for the period, style, scale and proportion of the structure without being sure that you are restoring the original detail. In this case, it will be necessary to refer to pictorial information, historical documentation or existing examples of structures that are similar to your home.

Dry Rot

Dry rot is a prevalent problem you will find while preparing surfaces to be painted. Dry rot occurs when a wood surface is left unprotected from the elements causing fungal disease to destroy the wood fiber and it is typically found at window sills and junctures of trim pieces. The wood will be spongy and soft and may sometimes appear to be a total loss and in need of

Walls

La cuna, para que apriete, ha de ser del mismo palo.
The wedge, to be effective, must come from the same wood.
--Spanish Dicho

replacement. However, there will be many instances where the wood can be saved by patching with an epoxy wood filler. You simply dig out the rotted and spongy portions of the wood. Don't worry about digging it all out. You can drill small holes into the wood around the soft area which allows the injection of the epoxy filler. The actual patching is done in two steps. The epoxy consolidant primer is injected into the drill holes and patch hole to prime the areas for the patching compound. This also encapsulates the dry rot and kills fungi that may be present. The two-component patching compound is then applied with a putty knife to fill in all the holes completely. A practice that will save you a lot of sanding is to blade over the epoxy with a putty knife dipped in lacquer thinner. This will make a very smooth surface which will require little sanding.

For information on epoxy, obtain a copy of "Epoxies for Wood Repairs in Historic Buildings," by Morgan Phillips and Dr. Judith Selwy (Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402; 202/783-3238).

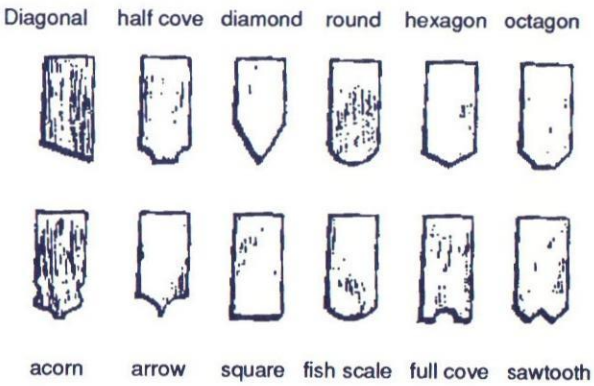
This information is borrowed, in part, from a recent article in Fine Homebuilding, by Robert Dufort. Epoxy fillers may be available locally, but if not, a good source for mail orders is Abatron, Inc. (33 Center Dr., Gilberts, IL 60136; 708/426-2200). You can also try Smith & Co. (5100 Channel Ave., Richmond, CA 94804; 415/237-6842).

Wall Shingles

Wall shingles come in a variety of sizes and shapes and are similar to roof shingles in most respects, also requiring replacement when missing or damaged. Wall shingles are commonly painted to coordinate with and sometimes accent other wall elements such as siding and trim. Sometimes you will find natural wood shingles that have been sealed or treated with a preservative such as creosote. Please note that cedar shingles require a special primer such as "Kilz," which is also effective on redwood. There are many brands of primer available, so please consult your supplier.

Replacement shingles are available in

SOME STYLES OF WOOD SHINGLES



many shapes or a good carpenter can duplicate almost any style of shingle such as "fish scales," for example. As with roof shingles, the shingle alone is no deterrent to blowing rain, so asphalt-impregnated building paper should always be placed over the sheathing beneath the shingles to prevent moisture from penetrating the wall assembly. Cadmium, zinc or other corrosion protected nails should be used to attach wood shingles. The lap distance of one row of shingles over the next depends on the average length of the individual shingles. For example, a 16" long shingle will require 7" of lap leaving 9" exposed to the weather. You need to do a little research on this subject depending on the type and size of shingle you are repairing because scalloped or scaled shingles may require an even greater lap in relationship to their overall length.

Masonry

The repair and replacement of historical masonry is generally beyond the scope of this book. Nevertheless, we will attempt to touch on some of the important elementary aspects of masonry repair and cleaning.

Masonry comes in a variety of materials, shapes and sizes. Your home might be constructed of cut or shaped and coursed ashlar stone, or rubble field stone which can be randomly uncoursed or coursed. Brick and hollow terra cotta block are also common and are composed of fired clay and fine aggregate mixtures. Cast or formed terra cotta also may compose some of the more elaborate details of your home such as wall copings, window heads, jamb and sill trim, column or pilaster capitals, etc. Cut or sculptured limestone commonly forms coping, trim and other architectural details. Adobe masonry is prevalent in our area and deserves further discussion since most repairs can be done without a great deal of expertise.

Concrete foundations are considered an element of masonry construction, but unless you are qualified, repair or replacement work should be done by a professional or experienced concrete mason. In some cases you need to consult an architect or structural engineer if foundation

settlement or damage is evident. See the Foundations chapter for more information on this subject.

The repair of masonry is largely a question of what *not* to do. You never, but never, should paint a masonry surface that has not been previously painted. In turn, you should never consider sandblasting masonry that has been previously painted. If the masonry has been painted, your best alternative might necessarily be to repaint it. Some companies have developed special paints for masonry and stucco with integral acrylic fibers that tend to bridge and prevent cracks in the paint due to cracks in the masonry. However, if the original paint can be removed from the masonry without causing damage to the surface of the masonry, removal may be a better solution than repainting. The problem faced with painting masonry is that water can get behind the seal formed by the paint and never dry out. In the winter, the trapped moisture will wreak havoc as it freezes and thaws in the surface of the masonry causing spalling. Most masonry has an inherent amount of surface porosity which allows moisture to evaporate naturally if it has not been painted or sealed.

More needs to be said about sandblasting. In this day of prolific graffiti artists, it seems that we are constantly faced with the problem of how to clean foreign materials from the surface of masonry. Fortunately, most paint can be removed from masonry chemically or with light water pressure. It is important to remember that the cleaning must be done by the gentlest means possible, which is not sandblasting. When you sandblast masonry, even lightly, you are destroying its inherent ability to resist the ravages of time and weather.

The cleaning of historical masonry is constantly under scrutiny, and is constantly subject to revised practices and theories. At one time, a weak solution of muriatic acid and water was a common method of cleaning masonry. A low pressure water wash or a water wash with a mild non-ionic detergent are now preferred. Some of the dirt that shows on masonry includes mold, efflorescence, metal stains caused by the corrosion of roof and flashing elements, and stains caused by various man-

CLEANING PRECAUTIONS

--The mortar should be fully hardened before cleaning, requiring about 30 days.
--A test cleaning should be conducted before proceeding with entire building.
--Both the area to be cleaned and the wall below should be presoaked with water.
--Cleaning walls of excess mortar should begin at the top and work to the bottom.
--Stiff natural brushes should be used for all surfaces except glazed or polished surfaces, where soft bristles or cloth should be used.
--The use of acid or any agent containing acid should be a last resort.

made environmental pollutants. Limestone has a tendency to turn black in the presence of high levels of carbon monoxide from auto emissions. Efflorescence is caused by soluble salts in the masonry itself, or mortar, and is brought to the surface of the masonry by water and capillary action. It will appear as a white powdery substance and can generally be removed by gentle brushing and for the most part will disappear as soon as the masonry dries for a few days.

The important thing to remember about all masonry cleaning is to utilize the most appropriate and gentlest cleaning method for the type of masonry being cleaned. Always start with a very small test area to determine what you might expect your results to be.

Brick

Fired clay brick is the most common masonry found in historical homes. Sometimes it composes the structure in the form of exterior and interior load bearing walls. It is also used as a veneer which must be tied to framing or other structural walls. As stated before, it is almost a crime to paint or stucco over previously uncovered brick. Some "common" brick walls may have been stuccoed over originally because "common" brick doesn't have the cosmetic or wearing characteristics of "face" brick. Face brick is generally fired at a higher temperature to form a weathering surface and may have a cosmetic texture formed into its surface.

Since brick, like other masonry, is formed by individual units which are mortared into place to form a solid wall, it is commonly damaged at the joints. Water and temperature extremes can cause great damage to mortar joints for many reasons. The original mortar may have been soft or low-strength mortar composed of too many parts of sand or water and not enough cementitious material. Or the joints may not have been "struck" or tooled in a manner that repels water from the joint. Before the introduction of Portland and other water-resistant cements, mortars were composed of low strength mixtures of sand, lime and water. They were poorly mixed and sometimes very porous, allowing water to be

Walls

readily absorbed into the masonry joints, causing frequent need for repointing.

The following information on joint repair is common for all types of masonry. Masonry joint types include raked, struck, weathered, flush, flush and rodded or beaded. The process of mortar repair is referred to as "tuck pointing." It is important to determine the consistency and strength of the existing mortar and match it as closely as possible with the repair mortar. If mortar of a higher strength than the original is used, it will literally tear the wall apart due to the differential expansion and contraction characteristics. The color of the existing mortar is also important to match, and is generally a matter of lime content or the type of sand used as an aggregate. There are testing laboratories which can determine the exact composition of an existing mortar, but a competent mason with preservation experience can generally make a fairly good assessment of the existing mortar.

In tuck pointing the new mortar is tooled into the existing joint with the same technique used originally on the rest of the wall. It is important in tooling joints to match the existing joints and acquire the proper tool for the work.

Damaged individual bricks should be replaced with bricks that match in color, shape, size and texture. This is not always possible so it becomes a matter of doing the best you can. In some cases, custom replacements can be made but this can be very expensive. Looking through salvage yards for used brick will often provide what you are after.

The damaged brick can be completely chiseled out and replaced. In some cases, the damaged brick can be "soaped" or slightly chiseled back and replaced with a "half" brick. This is recommended when the structural integrity of the wall may be in question or if the wall has a brick veneer. The replacement brick can easily be cut to size with a ceramic saw.

If you are not experienced in the trade, brick and other types of masonry repair and replacement is not something you should try on your own. It is best to hire a professional mason with qualified experience in masonry restoration. Not all

Replacement Bricks

Brick walls should be studied so that replacement bricks will match the originals. Within a wall there may be a surprising range of colors, textures and sizes. Replacement bricks should match the range of existing bricks rather than just one brick.

masonry tradesmen have repaired historic buildings, so don't be afraid to ask for qualifications, references and recent examples of work that can be viewed.

Terra Cotta

Terra cotta is similar to brick in composition but is more delicately formed. It is often hollow and formed into units of varying size and complexity. It is generally glazed and fired at higher temperatures than brick which gives it greater surface wearing characteristics. Replacement units for some of the more elaborate units will be difficult if not impossible to find, but some are available through specialty suppliers.

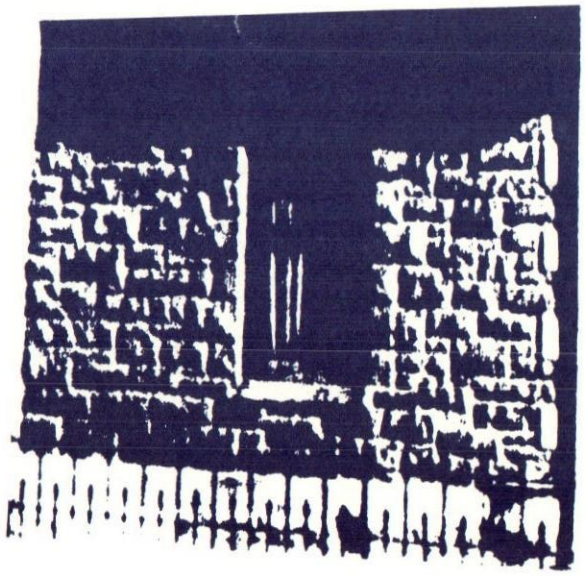
Damage is usually in the form of crazing (minute cracks in the glazed surface). Spalling (chipping) is also common. Since most terra cotta is placed in areas such as tops of walls and windows where it is highly subject to water damage joint repair is critical and is accomplished in much the same manner as brick masonry repair. Remember that terra cotta repair and replacement is a tough job for experienced tradesmen, let alone amateurs.

Stone

Most repair and cleaning techniques for stone masonry are also similar to brick repair. Depending on the type, stone has a little more resistance than brick to the effects of weather and time. Much of the stone in Las Vegas is a locally quarried standstone that is fairly soft, so be gentle with it. Sandblasting will invariably cause damage to mortar joints and damage the stone, so this method of cleaning is discouraged.

In historical residential architecture, ashlar or cut stone is commonly found to form the foundations of many different styles and periods. Joint repair is critical for stone foundations and bearing walls, since the longevity of the rest of the structure depends on the integrity of the foundation. And since the stone units are larger and less regular in shape, integrity of the joints is much more critical. However, the larger problem with unreinforced stone masonry walls can be due to changing soil conditions beneath the wall itself.

There are some simple damage prevention techniques that can be



If you have no idea where you wa go, it makes little difference how fast you travel.
--Italian Proverb

employed to protect your stone masonry foundation or bearing wall. These methods hold true for any type of masonry wall subject to water damage, including concrete. The simplest method is to regrade the slope of the soil around the house to provide a positive drain slope, of 1:10 (a vertical slope of 1 foot over a distance of 10 feet) minimum away from the wall. In some cases water can be shed away from the wall by the installation of concrete walks around the perimeter of the exterior walls, but you must be careful that you are not encapsulating soil that is already wet, for it will never dry out. The concentrated watering of landscaping around the perimeter of home foundations is not recommended. It is amazing how often foundation settlement problems occur in areas of concentrated landscaping and watering.

The more extensive methods of foundation wall damage prevention may include excavating the wall, installing waterproofing, and backfilling for a proper drain slope. Tile drain fields can be installed underground along the foundation wall to carry water through a porous gravel drain field until it "daylights" (surfaces) or reaches a low point for drainage.

When damage occurs in a foundation or masonry load bearing wall, you are best advised to seek the help of a qualified structural engineer or architect. There are various repair techniques, but not all are applicable depending on variables including soil type, bearing characteristics, water content, and so on. Some foundations can be "pressure grouted" if the soil is porous enough or has subsided to form concavities beneath the foundation. Underpinning is an expensive process where additional foundations are installed perpendicular to and beneath the existing wall. This requires extensive excavation and labor cost in the reinforcement and formwork involved. Take care of your foundation and you may never be faced with these expensive decisions.

Cast or solid stone veneers are more commonly found on older commercial buildings, but they might also be found on residences. The panels are tied or anchored into the wall structure with masonry ties or dovetailed joinery. The joints are very critical as the damage that occurs to

panels or veneer generally happens behind the face of the panel. If water is allowed to infiltrate behind the panel or veneer, your first or only indication of trouble may happen when the veneer starts falling off. At times it may be necessary to install an expansion joint in lieu of replacing a mortar or grout joint. This flexible joint allows expansion and contraction in the wall and is generally sawcut and caulked into an existing joint in the wall. Again, this is work for professionals or experienced contractors; don't attempt this yourself.

For more information on the care or repair of foundations see the chapter on Foundations and Interior Bearing Systems.

Limestone

Limestone is generally used in the same manner and applications as terra cotta. It forms copings, balustrades, door and window details and sculptured decorative elements. Limestone is much more vulnerable to the effects of climate and pollution than other masonry materials. It is also very soft so sandblasting as a cleaning method is completely out of the question. A low pressure water wash or a water wash with a mild non-ionic detergent are the best methods of cleaning. As with terra cotta, joint repair is critical and the same techniques used for all masonry joint repair are applicable.

Decorative limestone elements are sometimes fastened into place with iron rods, pins, insert dovetails and other metal fasteners which are extremely susceptable to rust and corrosion. Limestone thus fastened can be successfully removed and replaced with custom fabricated fasteners made of more corrosion resistant metal. The resulting joint or juncture of the limestone element to the wall is then grouted with a mortar similar to the existing mortar to seal the fastening element from the effects of moisture. As in working with terra cotta, don't try limestone repair or cleaning without some professional guidance.

Adobe

A great deal has been learned about adobe in recent years. We have finally come to recognize that adobe's advantage lies in the fact that it is a completely

homogenous material. Exotic blends of stabilizing admixtures, Portland cement stucco coatings and mortar, incompatible reinforcing materials and many so-called "innovations" have all been attempted improvements on it; none have met with great success. Common practice now is to repair or replace the adobe block and mud plaster with a material that most closely resembles that which was originally used. Some adobe was reinforced with horse hair, which might be difficult to duplicate, but for the most part adobe bricks and plaster were generally made from indigenous soil which can be duplicated.

Some of the more obvious mistakes to avoid in the repair or replacement of adobe bricks are as follows. Never use a Portland cement mortar to set adobe blocks. The expansion and contraction characteristics of portland cement are drastically different from adobe and will tear the wall apart due to differential expansion. Besides, the cement mortar will not form a bond with the adobe. Only adobe mud mortar of a similar composition as the block itself will form the desired bond.

Portland cement stucco applied over the adobe is also a mistake. The stucco will not bond to the adobe and as it expands and contracts at its own rate, it will pop off. The other danger of this type of stucco lies in its ability to develop minute cracks which allow water to penetrate the adobe wall. Since the stucco is more or less waterproof, the water has no way to evaporate from the wall or dry out. Your old adobe house will dissolve behind a seemingly intact surface of the cement stucco.

A greater problem with historical adobe houses is that very few of the original adobe walls were built upon adequate footings and some were not built on footings at all. Some have rock foundations that may or may not be mortared into place. The options of foundation repair for existing adobe walls are limited. In some cases, reinforced concrete bond beams can be formed under the wall on one side and then the other to form a more or less composite footing. This is a painstaking process and unless you've done it before, don't try it. Generally speaking, most surviving adobe structures that have been

The All Natural Recipe
for mixing your own Adobe

Test your earth by mixing it with water in a glass jar to milkshake consistency to see if your soil will work for adobe.

Let mix stand overnight and it should separate this way:

1/3 clay @ top
1/3 bigger particles
1/3 sand.

Let the mix dry to confirm hardness. If you are satisfied, you're ready to go.

Mix the soil with water making sure all clay particles are wet. Then add straw or grass clippings until the mixture has a gelatin-like consistency. The mix will hold together with some liquid seepage but it will not be pourable.

Fill your wet molds and make adobes.

maintained and roofed over are either built on stable soil or reasonably stable rock foundations. If the walls haven't gone anywhere by now, they probably won't unless something drastic happens such as a change in water below grade...or an earthquake. As with other walls, it is extremely important to keep water away from the base of adobe walls.

Another problem that occurs in adobe structures is corner separation. This indicates that the wall was probably not constructed with an integral perimeter bond beam around the top of the wall. Most adobe walls were built with a continuous heavy timber bond beam that is joined at the corners. The bond beam serves the purpose of a roof bearing support and the purpose of holding the masonry walls together so that they laterally support each other. The more common technique of wall separation repair is the installation of a buttress or battered wing wall which supports the wall from the outside. When the buttress is constructed, the adobe corner can be repaired by "toothing-in" new adobe bricks at the point of separation to form a once again homogenous wall with the added lateral support of the buttress. In some cases, the buttress can be an interesting visual feature as long as it does not detract from the existing character of the structure as a whole.

A new bond beam can be installed in an existing adobe wall, but this involves considerable dismantling of the existing wall and roof above the bearing point which may prove to be a serious detraction from the historic style of the structure by the time it has been reconstructed.

Lintels over the door and window openings sometimes need to be replaced in historic adobes. Most original lintels are rough-hewn timbers which are subject to rapid deterioration due to our temperature and humidity extremes. The top portion of the wall over the lintel must be temporarily braced as the existing lintel is removed and replaced. This is generally done by penetrating the wall directly above the lintel with perpendicular supports which are braced vertically on either side of the wall.

Sometimes, the failed lintel may have caused significant cracks in the wall above.

Beauty of style and harmony and grace and good rhythm depend on simplicity.
--Plato

Walls

In this case, the wall is removed above the lintel with a temporary roof structure bracing which allows the lintel to be easily replaced. The wall is then toothed-in with as much of the original adobe as possible and new adobe to match the existing, if required. With a new coat of compatible adobe plaster over the repaired wall, others will never know the repairs have taken place.

To own an historic adobe structure, you must accept the challenge of maintaining it. There are no easy fixes. The walls must be plastered smooth occasionally with compatible adobe mud plaster. Sometimes a little lime can be added to the plaster mixture for a harder more durable surface. Without the plaster, water would be allowed access to the wall to create even greater maintenance problems.

A good source for information on the care and maintaining of historic adobe structures is the New Mexico Community Foundation which has worked with many of the historic adobe churches in northern New Mexico through their "Churches, Symbols of Community" project. The Foundation has compiled the most current data on rehabilitating adobe structures and has aided in the training of volunteers to help maintain the buildings. To contact the Foundation call 505/982-9521.

The trade-off to all this maintenance is that the adobe experience offers a special kind of thermal and psychological comfort. The thick walls act as a thermal heat sink which moderates the effects of outside weather conditions to a point which requires very little in the way of modification. The thermal lag effect allows the heat of the day to gently find its way into the house during the cool of the night. The cool of the night, in turn, finds its way into the house during the warm day. Also, the rounded corners and smooth irregular walls offer a very humanistic environment that can be comforting to the soul.

Paint

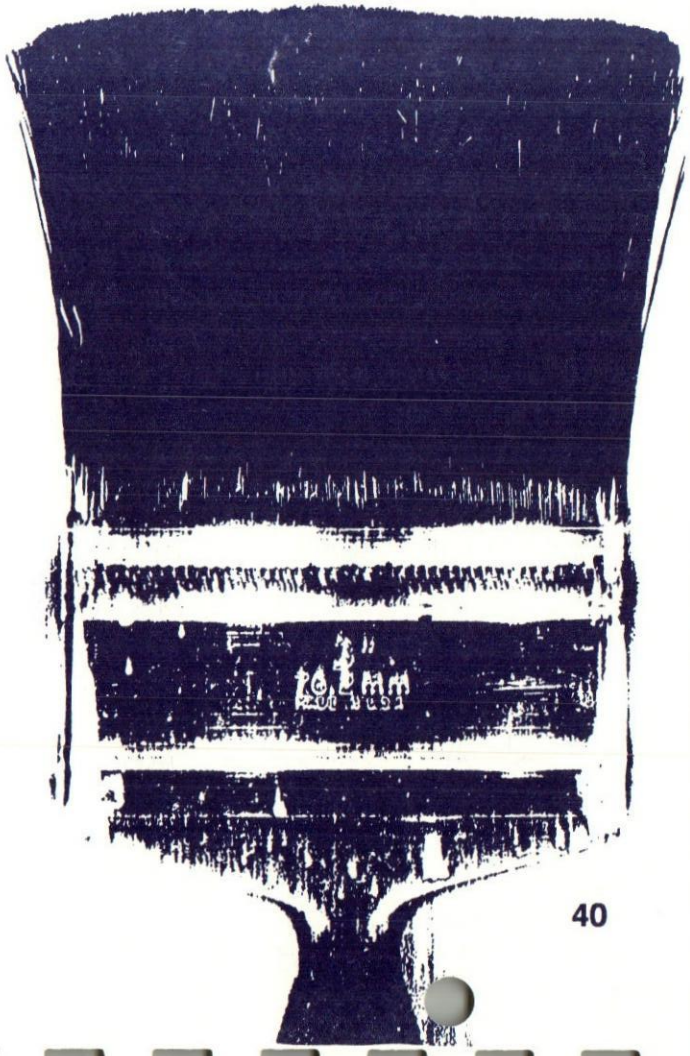
Exterior wood is a material that must be protected from the ravages of the elements and paint is its common protective coating. For exposed natural wood, clear sealants with ultraviolet protection are recommended. When the appearance of a painted surface begins to look bad, a good cleaning may suffice in lieu of repainting so clean a small section before buying paint.

The most important aspect of repairing and repainting existing wood surfaces is the preparation of the surface to receive new paint. When a previously painted surface is to be painted, the damaged paint should be removed down to the most durable layer by scraping or sanding by hand. If the existing paint is so far gone that removal of all layers is required, then gently remove the paint with a hot air gun or chemical stripper. Test a small area before getting too far into the project so that you are sure the wood is not being damaged. Don't use a torch to blister the paint; fire potential and risk of wood damage are too great.

It is not advised to remove paint that is firmly adhered to wood for it might damage the surface of the wood as the paint is removed. Simply scrape off the loose scaling paint and sand it smooth.

Once the paint is removed or scraped and sanded, the surface must be prepared and primed properly. If a chemical stripper is used, the chemical residues in the wood must be neutralized at this priming stage so the paint will bond to the surface. The chemical paint stripper manufacturer's product information should give you advice on the proper preparation for painting.

Repainting over an existing paint surface requires some preliminary investigation. You first need to identify the type of paint that was originally used. It is important to correctly identify existing paint before priming it for new paint to ensure proper bonding. Consult a detailed paint manual like the "The Paint Problem Solver," provided by the Painting and Decorating Contractors of America, 3913 Old Lee Highway, Suite 33B, Fairfax, Virginia, 22030, 703/389-0826, or take a sample to your paint supply store.However, there are some indicators as to the type paint you should use that can point



Paint

you in the right direction.

Most old paint is petroleum- or lead-based. Usually chips of this paint are very brittle. Other paints are alkyd-, acrylic- or latex-based and tend to remain more flexible and somewhat "stretchy."

How you prime the existing paint depends on both the type of paint already down *and* the type of paint to be applied. Preparing the surface incorrectly can cause all kinds of problems. Fortunately, most of the available new paints are latex-based and can be applied over any existing paint if the surface is primed properly. Some of the better petroleum-based paints are becoming less available because of stringent material and safety guidelines. (You should always familiarize yourself with the varying toxicity of the material with which you are working and adhere to the manufacturer's safety guidelines.)

In addition to proper scraping, sanding and priming, the surface to be painted should be repaired if needed. A lot of good filler and spackling materials are now available. A hole or crack in the surface to be painted should be filled with the material best suited, depending on the size and nature of the cavity. Most of these materials come with instructions that are self-explanatory. Some of the latex-based spackling materials have the added feature of expansion and contraction flexibility and have less tendency to crack or pop out of holes as a result of temperature changes. Some of the so-called one-application spackles claim to not shrink like some of the older wood putty fillers. Unfortunately, all materials must be sanded to some extent, depending on your dexterity with the putty knife. One important thing to remember is that the filler will sometimes dry to a more dense consistency than the surface of the material to which it is applied. Be careful when sanding so you don't sand away too much of the surface being repaired. If you are careful with the first application of the filler with the putty knife, you should not have much sanding to do.

Some manufacturers have introduced new paint lines which duplicate historical paints in name, color and consistency. Sherwin-Williams is one example and they have published a book which shows color

Paint

elevation drawings of historical homes with documented examples of colors appropriate to period and style. Other manufacturers such as Wellborn claim to have developed paint that is adapted to a certain climate or region such as the Southwest, where dry climate is a factor in the longevity of the paint. All manufacturers publish extensive technical data and support literature which specifies the best paint and surface preparation for a given application. However, some of this information can be quite technical and you are best advised to talk directly to a sales representative who will give you application suggestions and color samples. Here again, if your home is in the local cultural historic overlay, you might have to prepare color samples for review by the Design Review Committee.

The painting of metal details is not recommended unless the metal has not been protected with a corrosion resistant surface. Some galvanized metals can be painted if primed properly. It is recommended that you seek qualified advice if you need to paint or repaint metal details. Don't be fooled by paint products that claim to halt rust action without adequate surface preparation. The rust or oxidation of the metal can continue beneath the surface of the new paint. Again, the key to success is in the surface preparation.

A very good rule of thumb to follow in painting that should also be mentioned here is "never paint something that was not intended to be painted." This is especially true when working with brick or stone. Painting these surfaces can begin a travail of maintenance that will never end.

Doors and Windows

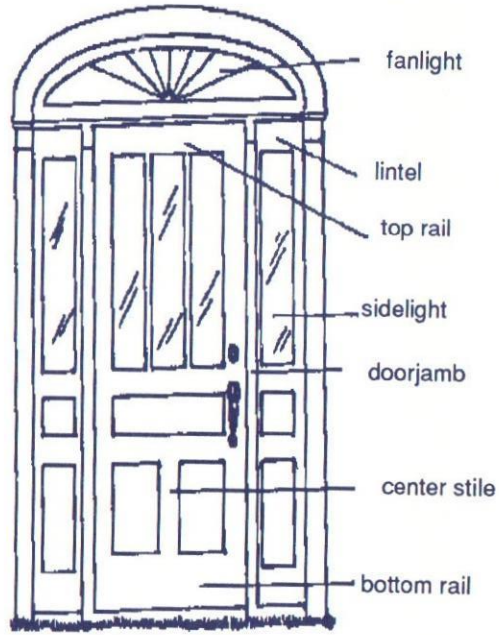
Doors are typically subject to a lot of wear and tear through the years and are one of the first elements to require repair or replacement. Doors come in many styles and sizes with many different glazing features.

Historical doors are typically composed of panels which are framed by vertical "stiles." Some stiles are solidly molded with panels permanently framed-in. Panels on some doors are held into the frame or stile with more or less ornate cove molding. If badly damaged, this type of panel can be easily replaced by removing the molding. Exact replacement molding can be hard to find, but recall that a good millwork shop can reproduce almost anything. Cabinet shops also carry a variety of moldings or have access to specialty suppliers who carry many types of moldings.

If the entire door needs replacing rest assured that the art of door making has not died and there are many custom door and window shops which can manufacture a replacement. If you are a hobbyist, or a professional carpenter, door making can be very rewarding provided you have the proper tools and knowledge. You may need to do some research on a source of good clear wood of the proper replacement dimensions. You should also pay close attention to the type of joinery that was used on the original door and try to match it.

Replacing door hardware can be a real problem. There are very few sources for historical hardware. If you are careful the hardware on the existing door can be repaired and reused. Most historical door hardware is made of solid brass and it is amazing how well it can be cleaned with a little commercial brass cleaner and a lot of "elbow grease." Most of the locksets you find are fully mortised into the door stile. If you are lucky, the latch portion of the lock might still function. The original lock may have been operated with a skeleton key, so often a new lock or deadbolt has been added to the door at one time or another.

The stiles of the door are the part of the door frame usually requiring the most repair. Some are solid wood; others are laminated and veneered. Our previous discussion of wood detail repair is pertinent here.



Doors and Windows

A door frame that seems truly hopeless to repair can be virtually rebuilt with the epoxy penetrating sealer and filler process. Epoxy can be used to fill areas where hinges have pulled out of the frame and left holes and dry rot. The holes can be redrilled for the hinges and other hardware. One drawback is if the door was previously natural clear-varnished wood: it may be very difficult, if not impossible, to match the wood color with the epoxy filler. You may need to consider painting the door.

Glazed (glass) doors with broken glazing panels should be treated as windows. Wood glazing stops must be carefully removed and cleaned. If they are rotten or damaged and can not be reused, replace them with as close a fit of similar wood molding as possible. Because the glazing in doors is subject to the possibility of physical contact, it is recommended that replacement glazing be tempered or safety glass. (Plate glass breaks into very large and sharp pieces and is therefore dangerous. It should not be used in doors or in windows next to doors.) You should set the glazing panel into a good quality butyl glazing tape before replacing the wood stop molding. You may only have one shot at setting the glass into the tape because it will very firmly adhere, so be sure of the position of the glass before you press it firmly into the tape. Replace the wooden nails and nail-set them so that the holes can be filled and sanded.

Windows

Windows which are unique in shape, trim or size contribute greatly to the historical character of a home as opposed to repetitive windows of the same general shape and size which are less likely to be assessed as unique character-defining elements of a house facade. Unique windows should be retained and repaired to the greatest extent possible. The same rules of preservation apply to windows: if you can repair it, don't replace it.

One concern about windows is their thermal efficiency and there are many ways to improve single pane windows without altering their historic character or replacing the original windows. Storm windows may be added to the inside of the window sash

Windows

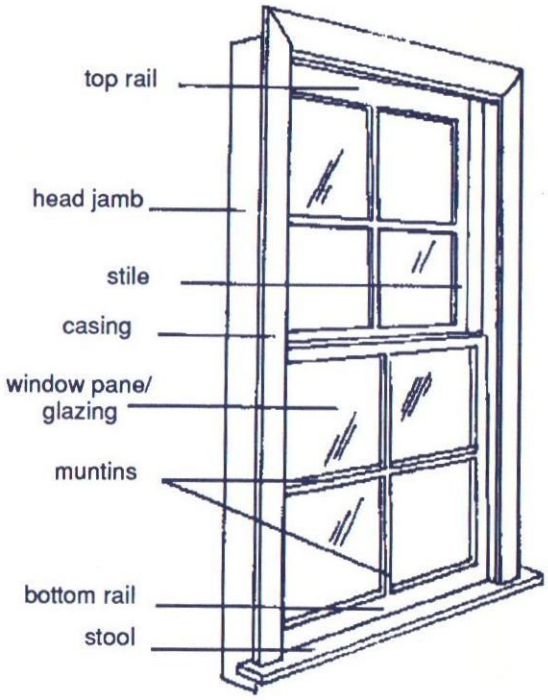
for added R value (thermal resistance to heat lose or gain). Existing glass panels can be reglazed into their sash or muntin for a more airtight fit. Frames and sashes can be made less subject to air infiltration by caulking and replacing weather gasketing.

The glass in historic windows is sometimes very poor in visual clarity. The glass can be wavy and cause distorted views of the world outside. However, with the earliest advent of float glass, some of the original glazing panels in your home may have been replaced. Replacing broken or cracked glazing panels is the least of your worries when repairing windows because glass today can be cut to fit virtually any size or shape opening. You should be aware that building codes now require that panels close to paths of egress, such as doorways, must be tempered or safety glass. This includes glazing panels in doors and directly adjacent to doors. Ask the City Code Enforcement Officer if you're in doubt.

Flashing and caulking around the exterior of a window is critical to the life of the window. You also need to pay close attention to protective coatings such as paint or varnish over wood frames and sashes. Repaint or reseal the window before damage to the wood occurs. Many of the newer clear varnishes have a built-in ultraviolet ray protection which prevents continued deterioration of the wood frame from exposure to the sun. A good time to reglaze the windows is when you repaint or revarnish them. If the frame and muntins can be repainted while the glass is removed, your project will be easier.

Many single hung historic windows may have had, or still have, sash weights built into the frame. The sash weight operates as a counterweight in raising or lowering the window sash. The weight is tied to a rope connected to a pulley. When the rope ages and becomes brittle, it will suddenly break and drop the sash weight into the existing wall (a frightening experience for the unsuspecting passerby!).

Some frames do not allow easy access to the jamb cavity, but many do. In the case that yours do, a simple trim piece can be removed so that the sash weight can be



If you want a golden rule that will fit everybody, this is it: Have nothing in your houses that you do not know to be useful, or believe to be beautiful.
--William Morris

rehung from the pulley with a new rope. If the sash weight has dropped down into the wall framing, forget about reusing it and go to a building wrecker or salvage yard for a replacement sash weight. Nylon replacement rope is not recommended because of its rapid deterioration due to ultraviolet rays. Original ropes were typically cotton, which is still a suitable replacement.

Adding windows to an existing historic facade is not altogether forbidden, but great care must be taken to do so in a manner consistent with period and style. You would not want to add a shiny aluminum frame window to a facade with existing wood windows. For that matter, you should never add a shiny aluminum window to any part of an historic structure with wood windows.

Scale is equally important. You shouldn't consider a window that is not of similar scale and proportion as the existing ones. Also, blocking-in or closing-off existing windows is discouraged because such openings are an essential part of the character of any historic home.

If you are considering altering or adding windows to your historic house, it is a good time to get some free design help from the Las Vegas Design Review Board or the state architect in the Historic Preservation Division. Look at the resources listed at the end of the book for information.

If a window is no longer serviceable or reparable, replace it with a window that is an accurate reproduction of the existing window. There should be enough physical evidence left of the original window to match it, or you may find an historic photo that shows how the window looked originally. Window manufacturers such as Marvin Windows and Anderson Windows are now reproducing historically styled windows to great avail. They will also custom build, as will other window craftsmen, just about any conceivable window design.

First, investigate repairing or replacing only parts of the original window, such as the sash, while maintaining the original panel configuration and frame. Or be creative: in one project the windows in good condition at the rear of the house were moved to the front to replace the deteriorated windows on the historic facade, which were of a similar size and shape. The rear windows were then replaced with new windows with added thermal features, including double glazing.

Foundations and Interior Bearing Systems

Mas vale paso que durem que no que apresure.
Haste makes waste.
--Spanish Dicho

The foundation consists of the footing -- a wide portion of rock or concrete which transmits loads below finished grade directly to the ground -- and the foundation wall which is constructed over the footing. Framing or masonry wall structural systems are constructed over the foundation.

In some cases the foundation wall is one thickness and forms a combination footing and foundation wall. Most foundations on historical homes are composed of coursed or random ashlar stone mortared into place to form a composite footing/foundation wall. Adobe wall foundations are discussed in the portion of this book concerning adobe walls. Later reproductions of Victorian, Craftsman or Colonial Style homes may actually have concrete footings and foundation walls, but it is very unlikely that the concrete is steel reinforced. Most Bungalow Style homes have concrete foundations although in some cases rock foundation walls are evident depending on the availability of concrete at the time the home was built.

Most damage that occurs to foundation walls is readily apparent. It may appear as cracks in plaster walls on the inside of the house, or cracks in the foundation wall that can be seen from the outside. Floors can move out of plumb due to foundation movement or soil subsidence, but this process generally occurs over a long period of time and may not be as noticeable. The damage due to foundation settlement can be caused by soil expansion and contraction, water under or around foundations, freeze and thaw cycles or poor construction among other things.

There are some simple damage prevention techniques that a homeowner can practice to protect the foundation. It is particularly recommended to avoid doing anything that might change the soil conditions around the existing foundation. This includes altering the drainage characteristics of the finished grade around the foundation so that water is retained at the foundation wall. All finished grades around the exterior walls should slope away from the building at a minimum of 1:10, or 1" vertical fall in 10" of horizontal slope. This slope may have to be slightly less, depending on grades around your

Foundations

home, but all water which falls around the house should positively drain away from the walls for a distance of at least 10 feet. Ponding of water should be avoided anywhere near the walls. If this condition occurs you can either cut existing soil to provide a better slope away from the building or bring in fill dirt for a better drain slope.

Freeze and thaw action can be a real problem with foundation systems. The bottom of the foundation should be located below the frostline which varies in depth from one climate to the next. Typically, 18" to 24" of depth from the finished grade to the bottom of the foundation is sufficient. If you are experiencing settlement and suspect that frost action may be at work because of added foundation deterioration, you can bank the finished grade higher on the foundation wall to provide more coverage over the foundation. However, make sure the finished grade is at least 8" below the start of floor framing or the "mud sill," which is a continuous wood plate atop the foundation wall upon which all floor framing is anchored.

You might want to consider adding a gutter and downspout system to the roof overhang. There are many new systems available that are in keeping with the period and style of your home. The gutter system channels water away from the foundations of your home and decreases the possibility of settlement. As mentioned earlier, keeping a gutter system clean and in good repair is an excellent preventive measure against costly structural repairs.

A more extensive measure of foundation wall repair or preventive maintenance is to excavate around the wall adding a lining of waterproofing and insulation to below the frost line or down to basement level, laying a perforated pipe around the foundation footings, then backfilling with porous material (such as pea gravel). The pipe should maintain a slope for positive drain until it surfaces, or "daylights." This system of perforated drain pipe collects water that manages to percolate below your finished grade next to the foundation, and channels it to a point where it drains from below grade. This is obviously a big job and may require professional assistance.

Foundations

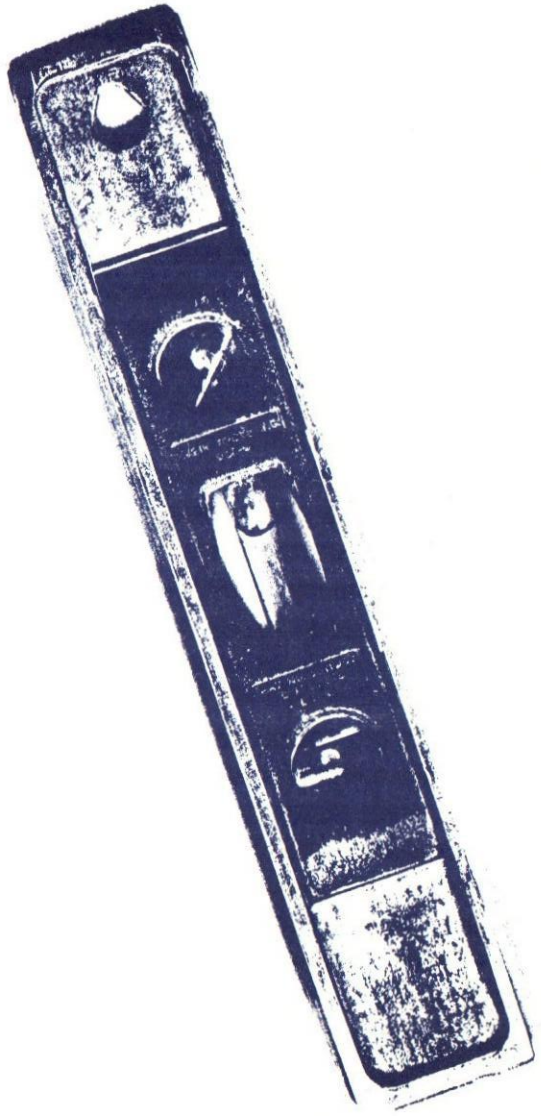
Once a positive slope of grade has been established around the exterior walls, landscaping should be considered. It is not recommended that flower beds be placed near the foundations as this might cause water saturation and differential settlement at the area being watered too much. You should consider ground cover type landscaping that will prevent erosion; don't plant something that will require a lot of water.

Concrete sidewalks with generous cross-slopes are a good way to protect footings from water, but take care that you are not covering up soil that is already saturated. Once the concrete is placed over wet soil, it will never dry out -- especially if the existing soil has a high clay content which tends to hold water.

With any foundation problem beyond drainage slope corrections, you are best advised to seek professional help to determine the extent of repairs that may be in order. A qualified structural or architectural engineer should be contacted to perform an inspection of foundation problems. Depending on the professional recommendation, the repairs might range from drain slope maintenance, soil pressure grouting or the more drastic measure of foundation underpinning. If a foundation has settled previously then the only measure to take might be to prevent further settlement. Vertical cracks in foundation walls are sometimes steel-plated and through-bolted. Other corrective measures might include the excavation and tuck-pointing of a rock foundation wall which as been discussed in previous chapters. In most cases it is fairly easy to determine why damage has occurred with the foundation, but again, the determination of corrective measures will most likely require the assistance of a qualified professional.

Interior Bearing Systems

Wood framing and other structural elements are highly susceptible to damage from water. Basements and crawl spaces should be well ventilated to allow moisture to evaporate. A minimum of 18" from the crawl space grade to the bottom of the floor framing should be



Interior Bearing Systems

maintained. It is recommended that one square foot of ventilation area be provided for every 150 square feet of underfloor area. The vents should be screened with a corrosion resistant material to keep "varmints" out.

It is common for wood-framed homes to experience some floor settlement problems. Wood frame floors are generally supported at the interior by either a post and beam bearing system or by an interior bearing wall. Post support bearings which have settled are relatively easy to fix -- *but you must know exactly what you're doing.*

The beams are jacked and shored up to the original level. Reinforced concrete footings can be installed for a new post bearing which is installed, or "kicked-in," under the raised beam. Beams are generally spliced at post bearings, so the fastening or connection from the post to the beam(s) is important. Previously, posts may have been steel plated and through-bolted to beams, or "toenailed" (nails angled in a tenuous attempt to provide a better connection), but there are now many types of premanufactured steel connectors which deliver a much better hold. The post must also be anchored to the new footing with a fastener which is appropriate for the loads involved. Simpson Strongtie is one of many companies that manufacture framing connectors.

Please realize the discussion on foundations in wood-framed homes is included in this book solely for your understanding of the system and its parts, and is not intended to be a step-by-step guide for someone inexperienced in architectural or construction work. The risk of extensive damage to your house is too great for this type of project to be attempted by amateurs.

You must be careful that when the floor is jacked up you are not causing other damage to areas above. At times, you might be better off to adapt to the interesting contour that a settled floor imparts to your home if the consequences of raising the floor include possible major damage to other finishes and structures.

Another common interior bearing system is a framed bearing or "footer" wall which is generally constructed on top of a rock foundation wall. When this type

of system has experienced settlement, it is a difficult problem to repair. You don't have the advantage of a beam system which supports the cross-framing above. A common method of repairing this problem is to construct a new beam under the framing and to install new posts on concrete footings. The success of this method depends on the amount of overlap in the floor framing that has been left over the bearing. You might be able to add splicing to the floor framing over the new beam to make a better connection of floor joists to the beam.

In some of the older balloon framed homes, the interior bearing wall might be continous from its foundation to the roof bearing above. Keep in mind that even the slightest adjustment in the supporting structure below could translate forces to the floor and roof structure above that might prove to be disastrous. Always seek a professional opinion when dealing with structural problems of this nature.

A typical structural problem is indicated by the development of sagging at midspan of the roof rafters. If the rafters were improperly sized for the span they support, this will occur at some point. Though most walls and roofs in historical homes were constructed better than they had to be, moisture in attic areas can cause degradation of the rafters and loss of strength. Make sure that all attic and enclosed areas of roof framing are well ventilated. When humidity conditions are high outside and it is warm inside, the moisture will have a tendency to condense on materials inside. Without ventilation, the moisture will remain until it has caused irreversible damage to the structure.

Sometimes the sagging is caused by loads imposed on the roof which exceed the capacity for which it was designed. An example of this would be too many layers of shingles. Old shingles should be removed when installing new ones so that you don't overload your roof system. The effect of too many layers of shingles and a heavy wet snow could have disastrous consequences.

There are many ways to repair sagging roofs, including adding wood webs or "cripples" as vertical or diagonal supports from bearing points at the ceiling joists below to the rafter above. Remember, it is very difficult to jack and shore structure without causing untold damage to finishes above or below, so don't try this yourself unless you know what you're doing.

Interiors, In Brief

Interior features are generally the best preserved elements of historical homes due to lack of exposure to the weather. However, unoccupied interiors can be subject to vandalism and abuse. If you own an unoccupied historical home and are considering some restoration, take care that the interior is inaccessible to the public so that the character defining elements are not removed or otherwise abused.

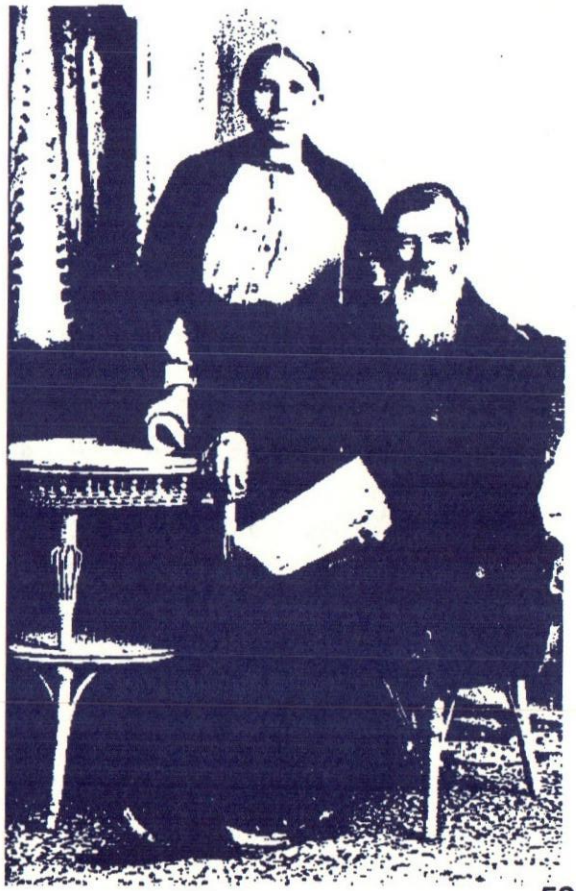
The restoration and repair of interior spaces, features and finishes involves many of the same practices and considerations of exterior repair. However, with interior restoration you might be more concerned with *restoring* an existing finish rather than *refinishing*. For example, an old wood fireplace mantel that had been painted or clear-varnished should retain its original finish. If it had been painted, it would not be appropriate to strip the paint and varnish it for a natural look. It follows that it would not be appropriate to remove a varnish finish and repaint the wood for a newer look. Gently chipping or sanding down to the lowest layer will help you discover if the original finish of an interior detail was painted or natural, as opposed to the possibility that a previous tenant applied the wrong finish.

If a finish cannot be restored, then it should be replaced with a finish as similar to the original as possible. Gently remove the existing finish down to the most durable layer, and refinish with a similar material of a similar color.

Restoration of paint, varnish, plaster, wallpaper and other historical interior finishes is a lengthy subject that is for the most part beyond the scope of this book and you will probably want to do additional research or seek the help of a qualified professional. The Citizens' Committee for Historic Preservation may have reference materials that will help you; please call for information.

Interior Wood

Many historical homes feature built-in furniture, shelving, cabinetry and other features. These elements should be retained, maintained or restored, if needed. Built-in elements are as much a part of the house as the walls and windows.



Interiors

Historical wood flooring is commonly found covered with newer finishes such as carpet and vinyl flooring. Depending on the condition of the existing wood floor, you may or may not want to attempt to remove the newer finish and restore the wood. Hardwood floors can be refinished, but in some cases you might cause damage to the wood by trying to refinish it. It may be more appropriate to leave the wood floor covered, especially if the wood has been refinished many times and is vulnerable to traffic and wear.

If a wood floor so damaged that it is not functioning as a floor should and presents a dangerous condition, it should be replaced. One very expensive approach is to contact one of many companies that specialize in supplying wood flooring taken from demolished historical homes. This wood is aged but has been preserved for reuse. Another more economical approach might be to simply replace the flooring with a similar species and style of new wood flooring. Note: This would certainly be a good time to take a look at the foundation system below the floor and make any necessary repairs.

Paneling, detailing and trim should be retained and restored if at all possible. There are a few millwork companies listed in the product reference section of this book, but for the most part, wood trim and details can be restored or reproduced in exact detail by a competent local finish carpenter.

Wallpaper

Wallpaper is one of the more difficult historical interior finishes to maintain and restore. Preventive maintenance procedures include keeping direct sunlight from the paper and avoiding setting furniture and other items against it. Cleaning methods for faded or stained wallpapers are limited. If an existing wallpaper cannot be gently brushed clean or restored professionally, you will most likely have to replace it. There are a myriad of styles, colors and patterns that have been reprinted after early designs.

This is one finish material that has not changed much from earlier applications. The glue has improved and some of the paper backing is a little more durable and resistant to wear and time.

The Cleaning of Floors

- Wash floors only when necessary.
- A good cleaning solution is Synperonic N and warm water; use as little water as possible, rinse with clear water and dry quickly.
- For unpolished wood floors, mop with clear water and dry with a dry mop. If you must scrub, use the brush in the direction of the wood grain.
- Stone, marble and ceramic tile floors are susceptible to water damage, so don't leave them wet too long.
- The best way to polish a wood floor is with an electric polisher and a dry commercial polish. Make sure the brushes on the polisher are clean.
- Two or three times a year it's a good idea to use Johnson's Traffic Wax.
- A cloth impregnated with paraffin and vinegar and tied around the head of a dry mop collects dust and shines the floor between polishings.
- Follow manufacturer's recommendations for linoleum and vinyl flooring.

--from *The National Trust Manual of Housekeeping*, Allen Lane/Penguin Books Publishers, 1984

Interiors

Wallpapering is a very broad topic, and if you are in doubt of your own expertise, then you should contact a wallpapering contractor.

Interior Metals

Interior metals, such as pressed tin ceilings can still be obtained in most of the earlier forms and some suppliers are listed in this book's product reference section. However, the existing ceiling should always be preserved to the greatest extent possible. Pressed tin is very delicate and should be treated very carefully. If it is in need of repainting, the existing paint should be removed only to the most durable layer. Do not attempt to completely remove the paint or you will most likely cause permanent damage to the tin. Priming paint over tin for repainting will require some professional advice and you are advised to consult with a paint specialist.

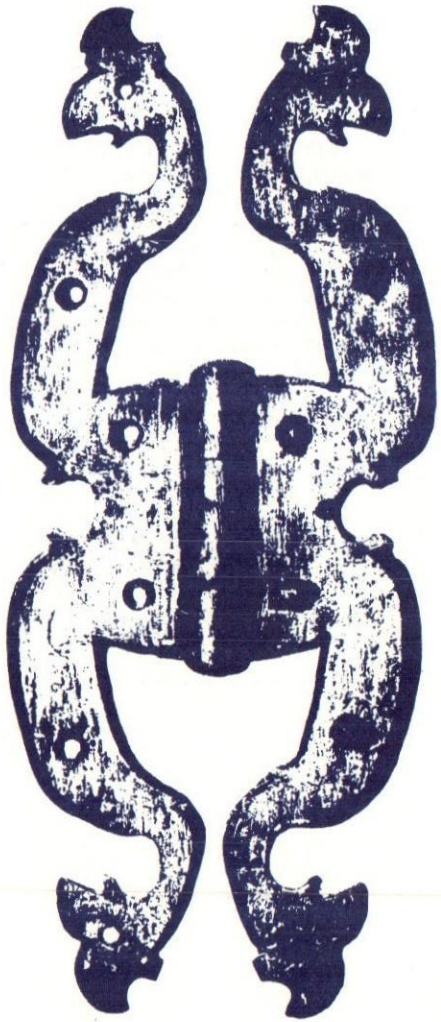
Brass fittings and hardware in historical homes should always be retained. A little brass cleaner and elbow grease will go a long way in restoring old brass. You should be able to find a variety of commercial coatings that can be applied over restored brass that will prevent further tarnishing.

Plaster

Plastering technology has not changed a great deal through time. The type of lath, or reinforcement behind the plaster has improved considerably. Early plaster was applied to a wood strip lath which was nailed over the framing members. Some of the early plaster can be very hard or very soft, depending on the proportions of ingredients.

For repairs, always look into the possibility of repairing the existing plaster with a plaster that is similar in composition. A professional plastering contractor may suggest a newer material that is more readily available, but it will most likely not be compatible. Plaster composition ranges from daub (sand and clay) to lime and sand, to the newer gypsum plasters. A good plastering contractor should be able to recognize the composition of an existing plaster, and perform repairs with a similar material.

If the existing plaster is too damaged to repair, then you can consider a newer



material because the look is basically the same when finished. Gypsum board or rock lath is applied to the framing and the new plaster is scratch-coated over the lath with a rough surface texture so that the next coat, called the brown coat, will adhere. The finish coat of hard or "slick" plaster is trowel-applied (floated) over the brown coat. Plaster is generally painted for surface protection. If cost is a factor, then you may want to simply consider painted or wallpapered gypsum board as a replacement for old plaster that is not reparable.

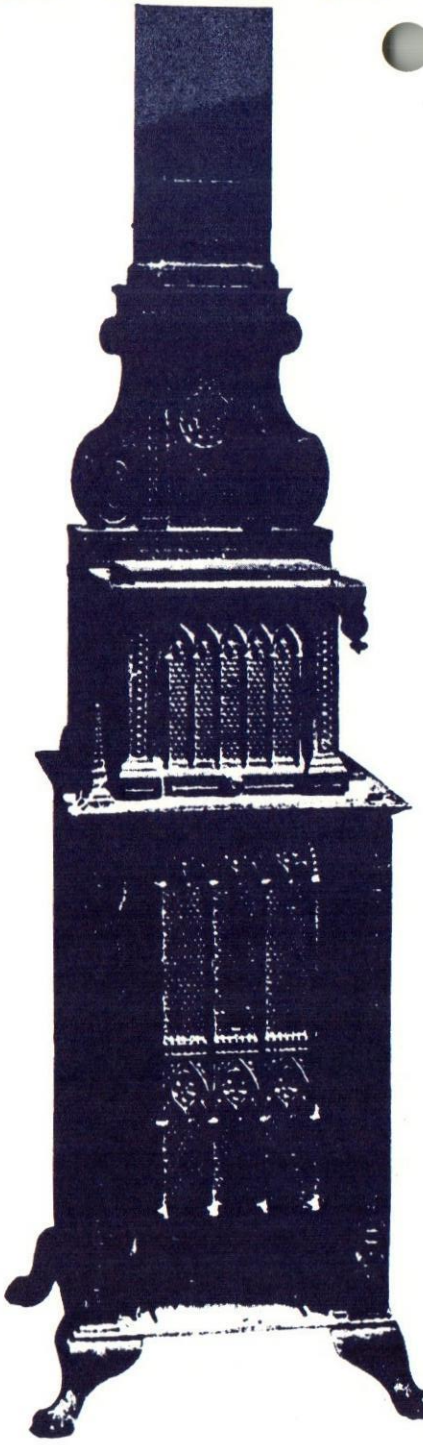
Fireplaces

Most historical homes are equipped with one or more fireplaces. For the most part the fireplaces are masonry, but cast iron woodburning stoves are also common; the chimneys for both are constructed of masonry.

Depending on the period the house was built, wood or coal may have been the original energy source for heat and cooking. However, early masonry fireplaces were very inefficient sources of heat. Woodburning stoves are more efficient in terms of heat distribution, but the rising cost and lower availability of wood as a heat source will ultimately make wood heating impractical and expensive. Still, this does not diminish the unmistakable soul-warming effect of an occasional fire in a beautiful old masonry fireplace!

Fireplace restoration generally involves masonry repair which has been previously discussed. The most important consideration is the condition and function of the chimney. A chimney in disrepair can result in the introduction of carbon monoxide and other poisonous gases into your home. It can also lead to the buildup of soot and a chimney fire, which has been likened to the sound of a rocket taking off right overhead, with an accompanying grave fire danger.

If you do not intend to use an existing fireplace it should by all means be restored and repaired cosmetically. If this is the case, you may want to block or cap the chimney so it doesn't create a draft which would pull all the warm air out of your house in the winter. Don't hesitate to enlist the aid of an experienced contractor



Lo barato cuesta caro.
Cheap things may be more expensive.
--Spanish Dicho

if you are unsure of the repairs needed for a fireplace you don't intend to use.

Some old fireplaces are trimmed by wood mantels which vary in design and elaboration. Wood repair and restoration has been discussed earlier in this book, but special attention may be required when repairing wood fireplace mantels. The wood has been subject to heat and probably smoke damage and may require some special treatment or replacement. Again, always try to retain or replace the wood details in exact detail as the original.

There are some new finishes and coatings which act as a fire-retardant, but special care must be taken to ensure that the finish is similar to the existing one in appearance.

Electrical Systems

Archaic electrical wiring is a real and present danger in older homes. Most of the insulating material used on early wiring degrades quickly and may cause shorts in the system. When a short develops there may be a great deal of heat generated creating the potential for a fire. Many of the earlier fusing systems can be hazardous because of failure to break a circuit in the event of a short. Electrical shorts are the most common cause of fire in homes, even in newer homes.

Electrical wiring, switching and power distribution should be one of the first considerations when remodeling an historic home. The electrical service and connection from the utility company might also have to be replaced for an upgraded amperage capacity due to the increased load demand of newer electrical home appliances. Any adaptations done to an electrical system should be done by a licensed electrical contractor and a permit is generally required.

Mechanical Systems

A lot of older homes are heated by a gas or fuel oil fired steam boiler which is usually located in what was previously the coal bin or basement. The steam is transferred through plumbing to radiators above which transfer the heat into the home.

A lot of old steam boilers are being replaced with newer low pressure hydronic or hot water baseboard heating systems. The system consists of a very

Preservation gives us a real knowledge of our roots -- without roots we'd never come up even a second year.
--Katherine Hepburn

small and efficient boiler with a network of separately zoned baseboard units in the living space which are placed near the perimeter walls along windows. Although this replacement alternative is high in initial cost, it is one of the more efficient systems in terms of operating cost and comfort level.

A gas-fired forced-air heating system with all its necessary ductwork may require extensive remodeling to accommodate the supply and return air duct runs. On the other hand, electrical baseboard heating systems involve low initial cost, but may involve high utility cost, depending on the type of system installed. You will want to consult with a mechanical engineer or a licensed mechanical contractor to help you explore the alternatives in terms of initial installation cost versus payback periods as a method of comparing one system to another.

Cooling in Las Vegas is not always necessary, depending on the comfort level you require. There are few options available for cooling an historical home which has no existing ductwork. In some cases, you might be able to duct a rooftop air handling/cooling unit to several rooms through an attic space, but this will only work for single floor homes. Another option might be to install ductwork in the crawl space or basement and provide floor registers to distribute cooled air from a ground-mounted refrigerated or evaporative unit. Duct sizing and return air capacity are critical factors in the performance of any cooling system. You should confer with a mechanical engineer or a licensed mechanical contractor with in-house design capability for advice with regard to cooling system installations.

Plumbing

Many historical homes are equipped with lead water pipes. Lead has been proven to be an environmental hazard of extreme toxicity to humans. You can determine for certain if lead water piping is present in your home by sending a sample of the morning's first water from the tap to any of several private environmental hazard testing firms. The Las Vegas office of the New Mexico Environmental Improvement Division (425-6764) is an accessible source of information and

guidance for this and similar concerns. If lead pipes or solder are present, do not hesitate to replace them.

Copper pipe is the industry standard for water plumbing, although PVC is sometimes used. Drain lines and vents are generally replaced with ABS plastic or PVC.

Most early sewer systems are composed of clay tile pipe which is subject to problems like root growth and blockage. The individual sections of pipe are simply laid end to end without any sealant. You may have to replace all sewer lines with PVC or ABS lines. This is a decision you will probably have to make once you are confronted with constant rooting to keep the pipes clear, or similar telling situations.

Energy Retrofitting

Energy considerations should always be considered when remodeling an historic home. Adding insulation with radiant barriers is the first and best method of accomplishing energy savings.

We have previously discussed methods of improving the thermal efficiency of existing windows by adding storm windows which do not obscure the historical appearance of the window. The infiltration of air through frame openings around windows and doors can also account for significant heat loss or gain. Caulking and weather gasketing will go a long way toward reducing energy cost.

Heating system efficiency has been briefly discussed but deserves more investigation on your part. There have been many successful solar adaptations to historical homes which were done so they did not detract from the historical character of the house.

Additions

If you feel that a new addition is necessary to your enjoyment of your home, you should not feel compelled to reproduce the exact design and detailing of the existing house. This can be cost-prohibitive and can sometimes detract from the original structure. In historic preservation terms it is more important that the new addition be "compatible with the size, scale, color, material, and character of the property, neighborhood or environment," according to the *Secretary*

of the Interior's Standards for Rehabilitation.

In terms of an addition to your home, consider that sometimes "less is more." As an example, an existing house may have a series of windows which forms a pattern that helps to define the main facade. A reasonable alternative for an addition to the house might be to include a simplified version of windows in the predominant wall with similar proportions and spacing without actually reproducing the original windows in exact detail.

Roof styles can also be incorporated as simple relating forms without repeating existing corbel, fascia and trim designs. In other words, elements of new construction that relate to the existing can be done simply and have an implied similarity rather than trying to mirror what's there. In this manner, the new addition will be readily discernable and at the same time bear enough similarity in style and proportion to be harmonious with the original house.

The most important aspect of altering or adding to your historical home is to do it in such a manner that it maintains the character of the existing house, and does nothing to detract from it. An addition should be done so that if it is removed at a later time it will not destroy the character defining qualities of your historic home. This is where the Design Review Board may be required to enter the picture, or at the least, can offer valuable advice.

When considering moving or remodeling existing interior walls, remember that some walls are walls bearing weight while others are just partitions. Care must be taken not to cause structural problems, especially when considering new openings in existing walls. If at all possible, the quality of interior space, as differentiated by the walls, should be retained.

Alterations to existing elements of the house that impart historical character, such as porches, railings, roofs, windows and finish materials are not recommended.

Much can be said about alterations and additions to historic homes, but for the most part, this book does not permit the space for further discussion. Almost anything you do to alter the character of an historic home will have a detrimental effect. If alterations or additions are done at all, the utmost degree of care and sensitivity should be taken. It is highly recommended that you seek professional design help if there is no other alternative than to remodel or add on to your historic home.

Supplemental Information
The Citizens' Committee for Historic Preservation

Formed originally in 1978 by a handful of Las Vegas residents, the Citizens' Committee for Historic Preservation (CCHP) has as its mission the identification and maintenance of Las Vegas' many historic resources for the benefit of the community--aesthetically and economically. Projects begun in 1978 have resulted in Las Vegas having more structures on the State and National Registers of Historic Places than any other New Mexico city -- almost 900 buildings have this distinction in Las Vegas.

Due to efforts by the CCHP to uncover and publicize incentives for historic property rehabilitation and use, primarily in the form of state and federal tax credits, many of Las Vegas' valuable buildings and homes survive as witnesses to the city's rich, colorful past.

The buildings in any community are the physical manifestation of issues that are prevalent at the time the structures were built. As an example, Las Vegas has surviving territorial-style houses of adobe, the architectural style and material of choice prior to the arrival of the railroad in 1879.

In addition, Las Vegas has the added presence of many Victorian-style homes built in the 1880s and '90s, a direct result of influences the railroad broughtwith it from the East: ideas, as well as previously unavailable building materials such as moldings, columns and decorative ornamentation.

Suddenly, everyone from Charles Ilfeld to Benigno Romero wanted "stylish, modern" homes or commercial buildings. Even as the Victorian-era of architecture declined elsewhere, it stayed in Las Vegas, as evidenced by these remaining structures. Today, it is the mixture of old, older and new that intrigues visitors to Las Vegas, many of whom come expressly for the prupose of seeing the cultural overlay the city's historic structures present.

Las Vegas citizens are literally surrounded by history everywhere they go in town, especially in one of the nine established historic districts: the Plaza District; Railroad District; Bridge Street District; Distrito de las Escuelas; Lincoln Park District; Library Park District; Old Town Residential District; North New Town District, and Douglas/Sixth Street District.

Activities of the CCHP are funded primarily by the federally-sponsored Certified Local Government (CLG) program through the Historic Preservation Division of the state government. Other funding may come in the form of grants from sources such as the New Mexico Endowment for the Humanities. Membership dues, private contributions and various fundraising projects are responsible for the remainder of the CCHP budget.

In recent years, the CCHP has sponsored many events and exhibits at its Antonio Sanchez Cultural Center to relate Las Vegas' history and encourage pride in it.

The CCHP seeks the involvement of all Las Vegas citizens -- whether they live or work in historic buildings or not. Because Las Vegas is a community rich with history, preservation, or lack of it affects everyone.

To inquire about tax-deductible memberships or to donate time or services contact the CCHP, P.O. Box 707, Las Vegas, NM, 87701; call 505/425-8829.

Supplemental Information

General References

For general historic preservation information, especially locally:

The Citizens' Committee for Historic Preservation (CCHP)
P.O. Box 707
Las Vegas, NM 87701
505/425-8829

For building permit information and applications, local historic designation and Design Review Board information:

Community Development Department
City of Las Vegas
1700 N. Grand
Las Vegas, NM 87701
505/454-1401

For information on state and federal income tax credits, low-interest preservation loans, state and nationwide preservation information and architectural assistance:

New Mexico Historic Preservation Division, Office of Cultural Affairs
Room 101, 228 East Palace Avenue
Santa Fe, NM 87503
505/827-8320

Also:

The *Secretary of the Interior's Standards for Rehabilitation* and *Guidelines for Rehabilitating Historic Buildings*
U.S. Department of the Interior
National Park Service
Washington, D.C.

Means Illustrated Construction Dictionary
First Edition, 1985

Architectural Graphic Standards
Third Edition, 1941
Ramsey and Sleeper
John Wiley & Sons, Inc.

Old House Journal
Box 58017
Boulder, CO 80322-8017
800/888-9070

Fine Homebuilding
The Taunton Press
P.O. Box 5506
Newtown, CT 06470-5506

Preservation Briefs
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402-9325

Historic Preservation Magazine
1785 Massachusetts Ave., N.W.
Washington, D.C. 20036
202/673-4129

The Historic House Association of America (HHAA)
1600 H Street, N.W.
Washington, D.C. 20006

The National Trust Manual of Housekeeping
compiled by Sandwith and Stainton
Allen Lane, 1984
Penguin Books Ltd.
536 King's Road
London SW10 0UH

Victorian Exterior Decoration, How to Paint Your Nineteenth-Century American House Historically
Moss and Winkler
Henry Holt & Co., Inc., 1987
521 Fifth Avenue
New York, New York 10175

Old House Catalogue
compiled by Lawrence Grow
The Main Street Press, Inc.
William Case House
Pittstown, NJ 08867

Supplemental Information

Clem Labine's *Traditional Building*
(bi-monthly catalogue)
69A Seventh Ave.
Brooklyn, NY 11217
718/636-0788

House Histories, A Guide to Tracing the Genealogy of Your Home
Sally Light
Golden Hill Press, Inc.
Box 122
Spencertown, NY 12165
518/392-2358

New Mexico Environmental Improvement Division (environmental hazard information)
1800 New Mexico Ave.
Las Vegas, NM 87701
505/425-6764

Geoscience Consultants, Ltd. (GCL)
(environmental hazard home audits)
500 Copper Ave., N.W., Suite 200
Albuquerque, NM 87102
505/842-0001

Product Source References

Electrical/Lighting

The Washington Copper Works (copper lanterns)
South Street
Washington, CT 06793

Historic Housefitters Co. (light fixtures), see listing under Hardware

Lighting by Hammerworks (hand-forged colonial reproductions)
6 Fremont St.
Worcester, MA 01603
508/755-3434

Roy Electric Co., Inc. (gas, oil and electric lighting)
1054 Coney Island Ave.
Brooklyn, NY 11230
718/434-7002

Hardware

Historic Housefitters Co. (door, window and cabinet hardware)
Dept. 4040 Farm-to-Market Road
Brewster, NY 10509
914/278-2427

Ball and Ball (historical hardware, brass and iron)
463 W. Lincoln Highway
Exton, PA 19341
215/363-7330

Remodelers & Renovators Supplies (hardware)
Box 45478
Boise, ID 83711
800/456-2135

Masonry

The Brickyard (custom replacement brick)
P.O. Box A
Harrisonville, MO 64701

Felber Studios, Inc. (ornamental plaster)
110 Ardmore Ave., Box 551A
Ardmore, PA 19003
215/642-4710

Aristocast Originals, Inc. (architectural plaster details)
Dept. 05, 6200 Highlands Pkwy., #1
Smyrna, GA 30082
404/333-9934

Supplemental Information

Metal

AA Abbington Affiliates, Inc. (tin ceilings)
Dept. FH 2149, Utica Ave.
Brooklyn, NY 11234
718/258/8333

Paint/Fillers/Finishes

Abatron, Inc. (epoxy wood restoration)
33 Center Dr., Dept. FHB
Gilberts, IL 60136
312/426-2200

Smith & Co. (epoxy sealer and filler)
5100 Channel Ave.
Richmond, CA 94804
415/237-6842

Plumbing

Roy Electric Co., Inc. (antique tubs, WC's, etc.), see listing under Electrical

Wood

Kirby Millworks (doors, moldings, interior detailing)
Box 898-FH
Ignacio, CO 81137
800/245-3667

South Coast Shingle Co. (fish scales, diamond, etc.)
2220 E. South Street
Long Beach, CA 90805
213/634-7100

Forest Wood Products (curved moulding, round top windows and doors)
1407 21st Street
Des Moines, IA 50311

Gary R. Partelow (custom turned wood, spindles)
34 Lyme Street
Old Lyme, CT 06371
203/434-2065

Vintage Wood Works (gingerbread)
513 S. Adams, #1864
Fredericksburg, TX 78624
Anthony Wood Products (details, brackets, gingerbread)
Box 1081-HB
Hillsboro, TX 76645
817/582-7225

Stair Parts, Inc. (balusters, rails, etc.)
2197 Canton Road
Marietta, GA 30066
404/427-0124

American Heirlooms (balusters)
Route 2, Box 1120
Bean Station, TN 37708
615/586-2225

Bruce Post Co., Inc. (turned posts, spindles)
P.O. Box 332
Chestertown, MD 21620
301/778-6181

Oak Crest Mfg., Inc. (oak shingles and shakes)
P.O. Box 128
Jonesborough, TN 37659
615/753-6599

Carlisle Restoration Lumber (ship-lap pine, paneling, flooring)
HCR 32, Box 679, Dept. FH
Stoddard, NH 03464-9712
603/446-3937

Hicksville Woodworks Co. (wood details)
Dept. FH, 265 Jerusalem Ave.
Hicksville, NY 11801
800/526-6398

Supplemental Information

Southington Specialty Wood Co., Ltd.
(moldings, siding)
835 West Queen Street
Southington, CT 06489
203/612-6787

Worthington Group, Ltd. (historical columns)
P.O. Box 53101
Atlanta, GA 30355
800/872-1608

Chadsworth Inc. (columns)
P.O. Box 53268
Atlanta, GA 30355
404/876-5410

National Pest Control Assn. (wood pests)
8100 Oak Street
Dunn Loring, VA 22027

Glossary

Abreuvoir Mortar joint between masonry units.
Adobe Unfired clay masonry unit. It also denotes a structure built of the material.
Aggregate Granular material such as sand, gravel or crushed stone used in concrete, mortar or paving mix.
Alteration Any act or process that changes one or more of the exterior architectural features of a structure, including but not limited to the erection, construction, reconstruction, painting or removal of any structure or part thereof.
Apex Stone Sometimes called the *keystone*, is the highest stone in an arch, gable or vault. It may be decorative.
Arcade Row of arches on columns alongside a covered walkway.
Architrave Lowest portion of entablature, originally a beam, which rests directly upon column capitals. Term may also be used for door or window frame with moldings.
Ashlar Square cut stone; *coursed* if laid in level horizontal rows, and *random* if rows are broken.
Astragal Molding attached to one of a pair of doors or windows to cover the stiles joint

Backset The offset or horizontal distance between the edge of the stile to the centerline of the hardware latch or lockset.
Ballast A coarse gravel, stone or slag which is placed over an asphalt or membrane roof for protection and weight.
Baluster A small post forming the support for a handrail.
Balustrade A row of balusters.
Balloon Framing Method of framing in which all vertical supporting members are continuous from sill to roof bearing plates. Horizontal framing members are let-into the vertical members.
Bargeboard An ornamented, usually flat board placed against the side of a gable to conceal the ends of the horizontal roof timbers.
Batten A narrow strip of wood which covers the parallel joints in boards used as siding.
Brace A diagonal element made of an arrangement of turned wood parts which may support or appear to support a roof overhang, porch or window.
Bracket A horizontal or angled element projecting from a vertical wall which is used as a supporting element for cornices, pediments, porch columns, door and window hoods. They are sometimes used repetitively as a decorative element.
Battered Having faces that slope inward toward the top.
Bullnose A rounded outside corner or edge.
Buttress A short section of wall built at right angles and sloped into or battered to one of the main walls of a building to prevent thrust or lateral movement of the vertical wall.

Calcimine A white lyme-based wash used in early plaster and other masonry surfaces, including adobe.
Canales Projecting gutters used in adobe construction to throw the rain water off the roof and away from the walls.
Capital The uppermost part of a column or pilaster which provides the bearing for horizontal structural elements and signifies the decorative order or style of the column.
Casement A hinged window frame that opens horizontally like a door.

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Cement The chemical agent in concrete mixtures that bonds the aggregates together when reacting with water or hydration, such as Portland cement.
Chamfered Beveled, grooved or fluted on the edges or ends, as on posts on a porch.
Check Rail The horizontal meeting rail of a double-hung window.
Clapboard Narrow wood boards, thicker at one edge and lapped over wood framing as an exterior finish.
Clavel *Apex stone, keystone or voussoir* of an arch.
Colombage Half-timber construction using wood, not less than 5"X10" in cross section
Column A vertical support composed of three parts: base, shaft and capital (a Doric column has no base). The Classical orders of columns are Doric, Ionic, Corinthian, Tuscan and Composite.
Concrete A composite material consisting of a chemical binder and aggregate particles held in a rigid suspension by a chemical reaction.
Coping The protective top element of vertical walls, masonry, wood or metal, is usually sloped to shed water and projects out from the wall with a drip groove on the underside.
Corbel A small projection, such as successive courses of masonry, that project out from the wall to support the eaves of the roof or some other feature.
Cornice An exterior ornamental trim of wood or masonry at the meeting of wall and roof; the uppermost, projecting part of the entablature. In wood construction, it consists of a bed molding, soffit, fascia and cornice molding.
Course A continuous horizontal row of stones or bricks on a wall.
Cove Concave in shape.
Cove Ceiling A concave surface between a wall and ceiling.
Crazing Minute cracks in the glazed surface of terra cotta.
Cultural Historic Overlay District In the Las Vegas Zoning Ordinance, "an area designated as a 'Cultural Historic District' by ordinance of the City Council which may contain within definable geographic boundaries other properties or structures that, while not of such historic and/or architectural significance to be designated as landmarks, nevertheless contribute to the overall visual characteristics of the landmark or landmarks located within the historic district."
Cupola A small dome on a roof or tower.
Curb An ornamented edging along the tops of the lower slopes of a *gambrel* or *mansard* roof.
Cyma A molding having an S-curve section.

Daub Clay and sand composite stucco.
Dentils A molding of small toothlike squares under a cornice.
Dormer Window A window lighting the space of a roof. When it is in the plane of the wall, it is called a wall dormer; when it rises from the side of a sloping roof, it is called a roof dormer.
Dry Rot A type of decomposition in wood caused by fungi.

Eave The portion of the roof that projects beyond the outside wall.
Efflorescense White powdery substance composed of soluble salts left as a deposit after moisture evaporation.

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Egg and Dart Molding A molding formed by alternating egg shapes and arrow shapes.
Entablature The horizontal portion of a classical architectural order which rests on columns and consists of a cornice, frieze and architrave. It also refers to a horizontal element running across the top of a house.
Entasis The outward vertical curvature of a classical order column.

Facade The face or front of a building.
False Gable A gable with no structure behind it.
Fanlight A semi-circular or semi-elliptical window above a door.
Fascia The outside vertical face of a cornice; a board nailed onto the ends of rafters at the eaves.
Finial A decorative ornament on the point of a spire, pinnacle or conical roof.
Fishscale Shingle A shingle with curved edges, like the scale of a fish.
Flashing A thin impervious material placed at joints in construction to prevent water penetration or divert water flow.
Fluting Long narrow grooves in a column.
Footing The portion of a foundation system that transmits loads directly to the ground.
Formwork A structure of wood (or other materials) used to mold the surfaces of a concrete structure and then removed after the concrete has dried.
Frame Building A building in which the roof, walls and floor are supported on a structural frame of wood, metal or reinforced concrete.
Frieze The horizontal decorative band that lies between the cornice and the architrave.

Gable The triangular upper part of a wall under the end of a ridged roof.
Gabled Roof Peaked or ridged roof shape which is triangular in cross section.
Galvanic Corrosion The electrochemical action caused by contact between dissimilar metals in the presence of an electrolyte.
Gambrel Roof A roof with a double slope of different pitch.
Gingerbread Pierced curvilinear ornament, made with a jig saw or scroll saw, under the eaves of a roof.
Grade The degree of inclination of a surface compared to the horizontal.
Grout A hydrous mortar placed in masonry voids such as between bricks or tiles to form solid walls.
Half-Timbering A technique in wooden-frame construction in which the members are exposed on the outside wall.
Hard Plaster Calcined gypsum composite plaster.
Hipped Roof A roof with slopes on all four sides like a pyramid; it may or may not have a flat top.
Hood A molding projecting out over the top of a window or door.

Keystone The wedge-shaped stone at the top of an arch holding the other stones in place.

Lap Siding Siding cut to overlap.
Light A section of a window.
Lintel A beam over an opening in a wall or over multiple pillars or posts.
Lock Rail The horizontal frame element of a door between the stiles and at the same height as the lock.

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Lock Stile The vertical framing member of a door which closes the jamb.
Loggia The Italian word for *veranda.*

Mansard Roof A roof with a steep slope on all four sides and either a second slope not as steep as the first or a flat top; named for the French architect Francois Mansart.
Molding Ornamental strips used at joints or junctures in building elements.
Mullion A major vertical bar dividing a window.
Muntin One of the minor bars holding the windowpanes in place in the sash.

Newel Post The main post at the top or bottom of a flight of stairs.

Oakum A hemp fiber and asphalt caulking material.
Oriel Window A bay window, often on an upper story, usually appearing to be supported by a large bracket.
Ovolo A convex molding that approximates the shape of a quarter circle in cross section.
Palladian Window A window with an arched central *light* and rectangular sections on either side.
Panel molding A horizontal band of framed panels.
Parapet A low wall that extends above the roof line.
Pediment Classically a low pitched gable on a columned temple. A triangular section of molding over windows, doors or *porticoes.*
Pilaster A column or false column built within the wall and projecting slightly from the face of the wall.
Pillar A rectangular upright support.
Pitch The degree of slope of a roof.
Plaster A cementitious composite mixture troweled onto lath as an exterior or interior finish.
Portico A roofed porch supported by columns or pillars.

Quoin Along the outside corner of a building, a row of stone or brick, used to strengthen the structure of the building.

R Value A measurement of a property's capacity for heat loss or heat gain.
Rabbet To unite by a groove cut in the edge of one piece of wood and joined through a corresponding cut in another piece of wood.
Rafter Part of a wooden roof frame, sloping down from the *ridge* to the eaves and establishing the pitch.
Ridge Horizontal line where the upper slopes of the roof meet.
Rubble Stones that have not been cut or have been shaped by fracture.
Rustication Stones with angled edges, creating deep grooves between the individual blocks.

Sash The framework of a window that holds the glass.
Shiplap Siding with rabbetted edges for an interlocking fit.
Soffit Underside of an architectural element, such as roof overhang, stair beam or arch.
Spalling The chipping away of stone or brick caused by erosion.
Spindlework Turned wooden ornaments on Victorian houses.
Stile Outside vertical piece of a door frame.

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Stool A narrow shelf across the lower part of a window that abuts the sill.
Strip Footing A continuous foundation under a bearing wall which transfers loads directly to the ground.

Transom A horizontal glazed or solid panel above a door or window, often hinged for ventilation.
Turret A small windowless tower.

Veranda A space alongside a house covered by a roof supported by posts, pillars, columns or arches.
Viga The Spanish word for beam.
Voussoir A wedge-shaped stone or brick in the top of an arch.