A black and white photograph of a row of ornate rowhouses in New York City. The houses feature decorative iron railings and steps leading to the entrances. The architecture is highly detailed, with arched windows and doorways. The street is lined with trees, and the overall scene is a classic urban streetscape.

New York City  
Landmarks  
Preservation  
Commission

# Rowhouse Manual

## Chairman's Foreword

Dear fellow New Yorker:

I am pleased to present the Rowhouse Manual, a guide that we hope will help you, the owner of a rowhouse in one of New York City's remarkable historic districts, to work successfully with the Commission to preserve your property.

The preservation of New York's historic districts is a partnership between the people who own and maintain the buildings within the districts and the Landmarks Preservation Commission, whose mandate is to prevent the loss of those buildings' special character. Without you, the Commission's efforts to preserve and protect the city's architectural and historical character could not succeed.

This manual is intended to assist you in the ongoing effort of maintaining your property. I look forward to continuing to work with you to improve the quality of New York's historic districts.

Sincerely yours,



Jennifer J. Raab  
*Chairman*

Rudolph W. Giuliani,  
*Mayor*

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## Contents

Introduction	1
Doors	2
Windows	5
Wall Surfaces	
Masonry	10
Wood: Clapboard and Shingle Wall Surfaces	18
Air Conditioning	20
Cornices	22
Roofs	24
Stoops, Fences, and Handrails	28
Yards, Areaways, and Sidewalks	32
Rowhouse Styles	35
Glossary	39

# Introduction

New York City is world famous for its skyline of glass and steel, yet architecturally it is in large part a nineteenth century city. A great deal of its architectural character derives from the numerous blocks of rowhouses, the standard, narrow, three- to five-story houses built for the city's expanding middle-class population in the nineteenth century. Such rowhouses make up the predominant building type within a majority of New York's sixty-six designated historic districts. Their care and maintenance have a major impact on the historic and architectural character of the city.

In order to protect the character of the city's landmarks and historic districts, the Landmarks Law requires that owners of landmark buildings apply to the Landmarks Preservation Commission ("Commission") to obtain permits for certain types of work. The Commission reviews proposed changes to ensure that they are architecturally and historically appropriate to the building and the surrounding streetscape within the historic district. This manual is intended to serve as a practical guide for owners of landmark rowhouses contemplating exterior changes.

The manual explains the restoration and rehabilitation methods the Commission finds most successful for exterior work on rowhouses typically found in historic districts. It includes technical information and restoration techniques, and also describes the best approaches to proper maintenance, so as to prevent deterioration.

The manual is organized as a series of chapters focusing on such basic building elements as windows, doors, walls, cornices, and ironwork. Each chapter describes and recommends approaches for maintenance and rehabilitation work. Drawings and photographs provide examples of typical rowhouses in various styles found throughout the city. In cases where buildings have unusual features or restoration problems, owners can consult Commission staff for help in determining the most appropriate solution.

The Commission is aware of the many challenges faced by rowhouse owners in maintaining and restoring historic buildings, but believes that appropriate maintenance and repairs will only enhance a building's value. To be most helpful, the manual should be reviewed prior to choosing a contractor or applying for a Landmarks Commission permit. An informed owner will find it easier to submit a complete and appropriate application to the Commission and to direct the architect or contractor who will be doing the work. Also, complete and appropriate proposals usually take the Commission less time to review.

Please note that the manual does not replace or amend the Rules and Regulations of the Landmarks Preservation Commission found in Title 63 of the Administrative Code of the City of New York. The manual should be used in conjunction with Commission rules and guidelines. Following

the manual does not release an owner from the obligation of obtaining a permit for work from the Commission.

## Applying for a Permit

You may obtain a Landmarks Preservation Commission application form, and a copy of the Instructions for Filing, by calling the Commission or by coming in person to the Commission's office.

In addition to the application form, most proposals will require descriptive material to illustrate the proposed work. This descriptive material should illustrate the existing conditions as well as the proposed changes or new work. Depending on the complexity of the proposed work, drawings, photographs, photomontages, material samples, written statements, and specifications may be needed.

Before filing your application, you may call the Commission staff to discuss what materials are needed or to arrange a meeting at the Commission's office. By using the manual and working closely with the staff, you are likely to develop a proposal that will be found appropriate.

After completing the application form and adding the descriptive materials, you may mail or deliver your application to the Commission's office.

Your application will be given a docket number and assigned to a staff member, who will determine if the application is complete and which type of permit should be issued. Once the application is complete, the Commission must by law make its decision within the following periods:

Certificate of No Effect . . . . .	30 business days
Permit for Minor Work . . . . .	20 business days
Certificate of Appropriateness . . . . .	90 business days

In most instances, a decision is made in less time. If you need more time to prepare additional information or to revise your proposal, you may request an extension of these time limits.

Proposed interior building work above the second story without any change to, replacement of, or penetration of an exterior wall, window, skylight or roof may qualify for an expedited review. Special forms and instructions for expedited reviews can be obtained from the Commission.

Your permit is issued in the form of a letter from the Commission. The permit must be posted prominently at the building while the work is underway.

The staff of the Commission is available to answer your questions and provide additional information and guidance. You are encouraged to call or write the Commission if you have any questions.

## Doors

Doors and doorways have always had great symbolic importance, and in historic rowhouses the doorway is often the most richly ornamented part of the building. Therefore, it is important to retain any original, historic or significant doorway components, including the door, sidelights or transom, door frame, and wood or masonry hood and decorative moldings. If it is necessary to replace or alter any of these elements, changes should be compatible with the architectural character of the building. An inappropriate alteration will change the character of a doorway from an architecturally important and harmonious part of the house to an awkward and obtrusive modernization.

### Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- painting doors or door frames the same color;
- sanding or refinishing doors or door frames that are already stained or varnished;
- repairing wood door and frame components by filling with wood putty or similar materials;
- replacing or installing new locks or hardware on doors;
- replacing broken glass; and
- weather stripping.

### Approvals Required For Work

The following are examples of the types of work that require a permit from the Commission:

- painting doors or door frames a different color;

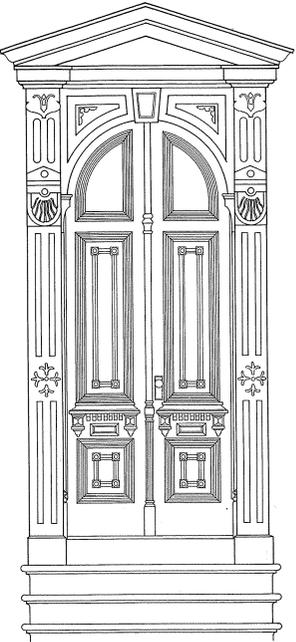
- installing intercom boxes on exterior of building;
- installing light fixtures on exterior of building;
- installing door awnings;
- installing new doors, storm doors, or door frames;
- installing protective grilles or bars on exterior of building;
- replacing solid panels with transparent materials;
- replacing transparent materials with solid panels;
- repairing (other than ordinary maintenance) or altering door entry enframing; and
- changing door configuration— material, shape, size, number of doors, transoms, or glazing within existing opening.

### Door Entry Enframements

The door enframing is the part of the doorway that surrounds the door itself and its wood or metal frame. The entry enframing varies greatly, from simple, undecorated lintels and sills, to elaborate architraves or hoods with pediments, brackets, and carved moldings in wood, stone, brick or terra cotta.

Because of their exposed location and degree of ornamentation, elaborate door enframements are often the first part of a building facade to deteriorate. Such deterioration has been commonly handled in a number of inappropriate ways: removal or shaving of eroded elements, resulting in a simplified appearance; sheathing with another material, such as metal over wood or stone; or, most drastically, complete removal of entire enframements.

Below, a neo-Grec style door and enframing.



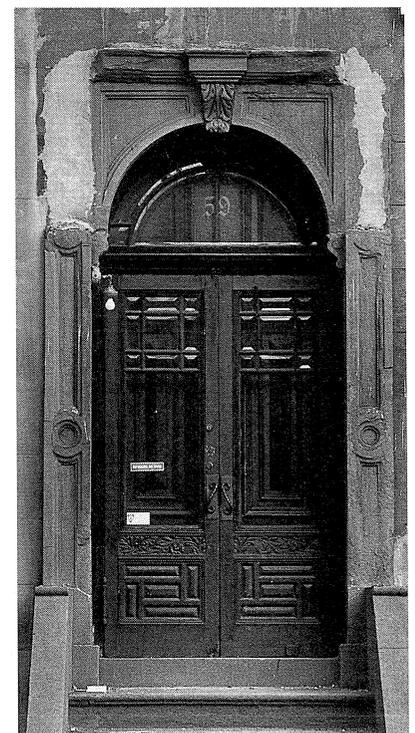
Left to right.  
An intact Italianate style doorway with original double-leaf doors and an elaborate brownstone enframing.



A modified Italianate style doorway with altered double-leaf doors and a shaved masonry enframing.



A modified Italianate style doorway with a partially removed masonry enframing.



Historic door entry enframements should be preserved. Removal of historic elements is discouraged. Wherever possible, unsound material should be stabilized. The skill of restoring stone molding profiles and ornamentation has been mastered by many restoration contractors. Using masonry consolidants, such as silanes, acrylics and epoxies, disintegrating, crumbling, spalling and sugaring masonry can be brought back together and increase the masonry's strength and resistance to further deterioration. These consolidants penetrate deeply to fill the pores within the stone.

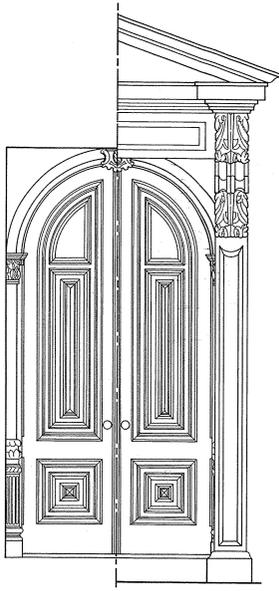
Sections of wood doors, door frames, and

enframements that have deteriorated but are essentially sound can also be consolidated. The loss of wood is progressive. At first the mass of the wood diminishes but retains its size and shape. As decay continues, the wood shrinks and begins to crumble. Wood epoxy consolidants replace the lost mass, restoring strength to the wood. Holes and gaps can be filled and built up with epoxy paste fillers.

Epoxy consolidants are syrupy liquids that permeate porous or decayed wood and are applied to the deteriorated areas to saturate the decayed wood. In order for consolidants to penetrate deeply and to be effective, all wood must be dry. Any gaps in the wood are then filled with epoxy paste (a consolidant combined with powdery fillers, which when hardened has characteristics and flexibility similar to wood). After the filler is cured it can be worked with ordinary woodworking tools and methods, then primed, painted or varnished.

**Door Configuration**

The basic configuration of a doorway (for example, single door with sidelights and transom, or double doors without transom) should be preserved in any proposed alteration. Blocking up or changing the size or shape of door transoms or sidelights is discouraged. Reducing or enlarging door openings, cutting new openings where none previously existed, or blocking in door openings are all alterations that not only affect the design of a building, but permanently destroy its physical integrity.



An Italianate style double-leaf door and enframement.



Top, a Federal style doorway with a single, painted, wood panelled door with a three-light transom.



Top, a transitional Federal/Greek Revival style painted single door with sidelights and a transom.



Bottom, an Italianate style doorway with arched double-leaf doors and an elaborate sandstone enframement.



Bottom, Romanesque Revival style double-leaf varnished doors with a single light transom.

Top right, a retractable, canvas door awning.

Bottom right, an inappropriate fixed aluminum awning.

### New Doors and Door Frames

When replacing doors, it is important to replicate their historic design, material, and configuration. Double doors should be replaced with double doors; single doors should be replaced with single doors. Unfortunately, existing doors cannot always be relied upon as models for duplication; doors are among the most frequently altered building features. The design and material of doors and frames should match the historic ones or be architecturally appropriate. If they are missing on your building, appropriate examples can sometimes be found on similar neighboring historic buildings.

### Painting and Refinishing

Depending on a building's style, its exterior doors would have been finished originally by painting, varnishing, or graining. Graining is a process in which a wood or metal door is painted a natural wood color followed by an overlay color applied to simulate wood grain. The Commission staff can identify an appropriate finish and color for an exterior door. Guidelines for preparation, painting, and selection of paint color for wood doors are the same as those for wood wall surfaces.

Below, a discreet installation of a keybox in a doorway return.

A single, painted light fixture with unexposed conduit installed through plain brick.

### Intercom and Postal Release Boxes

Intercom and postal release boxes should be located on the undecorated sides (the reveals) of the entrance and not on the front face of the building or on the door enframement. If decorative panels are located in the reveal, the preferred method of installation is to surface-mount all intercom equipment, thereby preserving the ornamentation behind it. Where the reveal is architecturally plain, the equipment can be neatly recessed. The intercom and postal release boxes should be small in size with no exposed conduit.

### Doorway Lighting

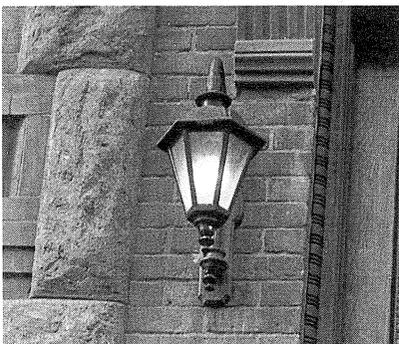
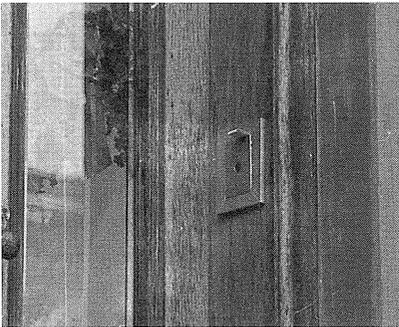
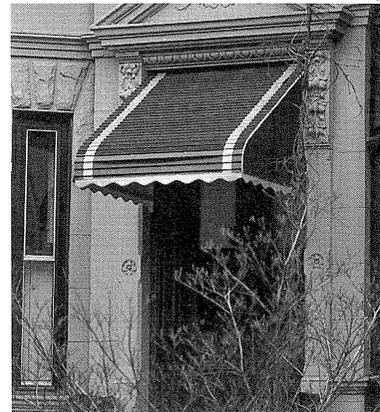
Lighting fixtures are installed at doorways for security, safety, and to meet code requirements. However, most rowhouses in historic districts did not originally have exterior lighting. Occasionally, historic gas or early electric lanterns survive, and these should be retained. Light fixtures should be attached to the masonry with wiring run inside the building so that there is no exposed conduit. The installation should minimize damage to the facade and should not damage decorative stone or woodwork. The

light source can be of the white incandescent or compact fluorescent type. If high intensity flood or spot lighting is used, the light source should be shielded.

Options for fixtures include simple and unobtrusive modern residential-style fixtures, or antique or old-style gas or electric fixtures that harmonize with the architectural style of the rowhouse.

### Entrance Awnings

Many rowhouses in the nineteenth and twentieth centuries had retractable canvas awnings over doorways. Awnings were used then, and can still be used to reduce heat gain by screening the sun and to shield the entrance from rain. Along with similar window awnings, they can be an effective facade decoration. In order not to obscure any significant architectural features, the shape of retractable canvas awnings on doorways and windows should correspond to the shape of the openings to which they are attached, whether arched or square-headed. Striped canvas awnings were frequently used in the nineteenth century. Plain or scalloped awning skirts provide a place for silk-screened house numbers. Fixed awnings, such as those made of aluminum or fiberglass, are not recommended on residential buildings in historic districts. For additional information on awnings, please refer to Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-12: Installation of Retractable Awnings.



# Windows

In most historic buildings, the window sash, window framing, and the architectural detail surrounding them were all carefully designed to harmonize with the style, scale, and character of the building. It is important, therefore, to retain the original window configuration, including the size of openings, sills, lintels, decorative wood or masonry moldings, and the sash themselves. Replacing sash and frames is often unnecessary, because in many cases existing historic windows can be repaired. If it is necessary to replace or alter any window elements, such changes must be made according to the Commission's Window Rules. The historic and architectural character of a building can be seriously damaged by inappropriate window treatments.

For additional information on window replacement and permit requirements, please refer to Title 63 of the Rules of the City of New York, Chapter 3, Sections 3-01-3-07: Repair and Replacement of Windows in Landmarks and Historic District Buildings ("Window Guidelines").

## Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- weather stripping;
- caulking;
- puttying;
- replacing broken glass;
- repairing suspension systems (cords, pulleys, etc.);
- repairing or replacing window hardware;
- repairing window components by partial replacement, scraping, filling, or sanding;
- painting window sash or frames the same color;
- installing most interior storm windows or panels;
- installing interior security gates or grilles; and
- installing regulation child guards.

## Approval Required for Work

The following are examples of the types of work that require a permit from the Commission:

- painting window sash or frames a different color;
- installing new window sash or frames;
- installing exterior storm windows and exterior storm window frames;
- installing or removing exterior shutters;
- installing window awnings;
- repairing or altering window enframements;
- installing or removing exterior security window grilles or bars;
- changing the shape or design of window openings;
- blocking in existing windows or opening up new ones;
- restoring original or architecturally appropriate window openings; and
- replacing (extensive) original window materials or consolidating with epoxies or other plastics.

The deterioration of historic windows is caused by age, weathering, and inadequate maintenance. Such deterioration makes window operation impossible or inefficient and diminishes energy performance. Because it is desirable to maintain the original materials in historic buildings, the installation of new window sash and frames is appropriate only when the windows are in such poor condition that replacement is required. Deteriorated wood windows can often be restored in a cost-effective manner by treatment with preservatives, wood fillers and epoxies, and by replacement of only severely damaged sections. Broken, sticky, or loose sash can be removed from the frames for repair, excess paint can be stripped from the sash and tracks, and weather stripping installed. Repairing and preserving historic windows rather than replacing them is strongly encouraged and will save original material while saving money.

Below left to right.

A six-over-six, double-hung wood window with a modest molded stone lintel and sill.

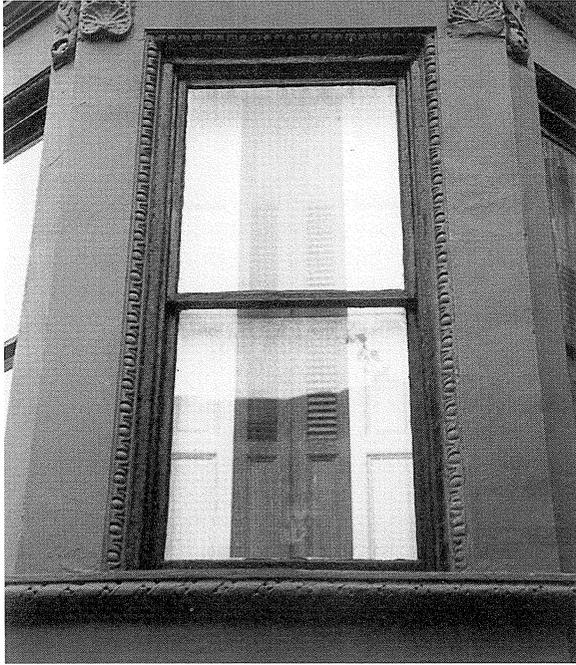
A wood multi-paned casement window with a molded eared stone lintel and sill.

A segmental-headed, one-over-one, double-hung wood window with a bracketed stone lintel and sill.

A two-over-two, double-hung wood window with full window enframement with incised detailing.



A one-over-one, double-hung wood window showing an articulated brick molding.



### Weather Stripping

Shrinkage of wood parts often causes window sash to become loose and drafty. A good way to stop drafts is to install weather stripping. Although weather stripping is one of the least expensive components of a window, it can increase energy performance by as much as 50 percent. Weather stripping should be installed at the upper, lower, and meeting rails of windows, and around the sash and frames.

### Caulking, Puttying, and Prevention of Moisture Build-Up

The major causes of water damage to windows are interior condensation and exterior exposure to the elements. In cold weather, water vapor contained in the warm air inside a building condenses on cold surfaces such as glass panes in windows and doors, or on window and door frames. Condensation attacks glazing putty and paint, causing loosening, disintegration, blistering, and peeling.

To prevent damage to exterior window components, it is important to keep water away from these components, and to seal all places where water might seep into the building. Windows should be regularly repainted, before old paint cracks and flakes off, exposing the wood. All horizontal surfaces on windows, such as the sills and the tops of lintels, should be slightly pitched so that water does not collect on them. Window-glazing putty solves this problem on the actual sash by directing water away from the window muntins.

Priming the wood muntins under the putty helps to protect the wood, should the putty crack and water seep in, and also helps to form a better bond between the putty and wood.

In masonry buildings, the joint between the window frames and the masonry wall should be caulked to prevent water seepage during driving rains or when ice accumulates. The caulking compound used should be selected for its color, adhesion, and flexibility.

### Paint Build Up

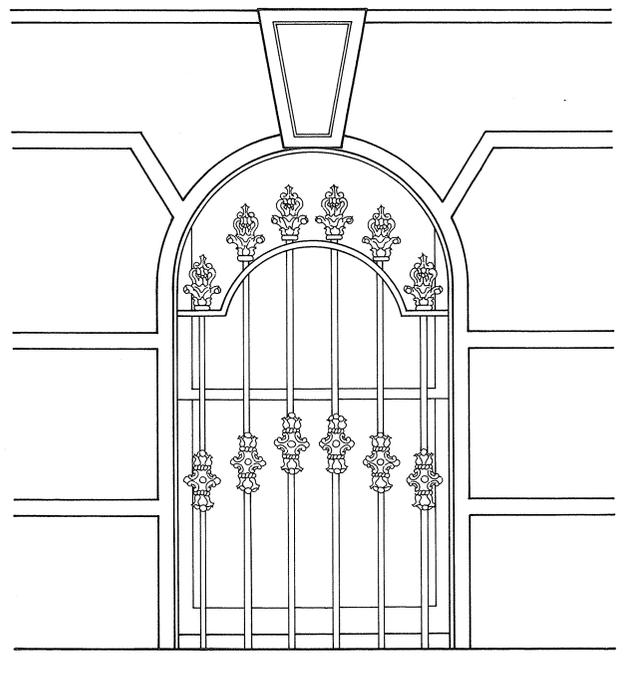
A frequent problem with many old windows is that they have become difficult to operate, or completely inoperable, due to the accumulation of numerous layers of paint on the sash and frame. Paint can be best removed by scraping or stripping the paint off the window components with a chemical paint remover or heat gun.

### Consolidants

Where sections of wood window sash, frames, or sills have deteriorated but are essentially sound, the deteriorated wood can be consolidated. The loss of wood is progressive. At first the mass of the wood diminishes but retains its original size and shape. As decay continues, the wood shrinks and begins to crumble. Epoxy consolidants replace the lost mass, restoring strength to the wood. Holes and gaps can be filled and built up with epoxy paste-fillers.

Epoxy consolidants are syrupy liquids that permeate porous or decayed woods and are applied to the deteriorated areas to saturate the decayed wood. For consolidants to penetrate deeply and to be effective, all wood must be dry. Any gaps in the wood are then filled with epoxy paste (a consolidant combined with powdery

Right, an Italianate style basement level round-arched window with an historic iron security grille.



fillers, which when hardened has characteristics and flexibility similar to those of wood). After the filler is cured, it can be worked with ordinary woodworking tools and methods, then primed and painted.

### Preparation and Repainting of Windows

The exterior surfaces of wood windows and window frames should always be painted rather than varnished. Varnishes and other clear finishes are not durable and historically were very rarely used on windows. Guidelines for preparation, painting, and selection of paint color for windows are the same as those for wood wall surfaces.

### New Window Sash and Frames on Primary Facades

In rowhouses where complete window replacement is unavoidable, new window sash and frames on primary facades should be designed to replicate existing sash and frames (if these are historic) in configuration, operation, material, finish, and details. If the existing windows are replacements, the new windows should be designed to match the historic windows in configuration, operation, material, finish, and details. Other rowhouses of the same style and period in the row or on the block can be used as models to determine the characteristics of the historic windows.

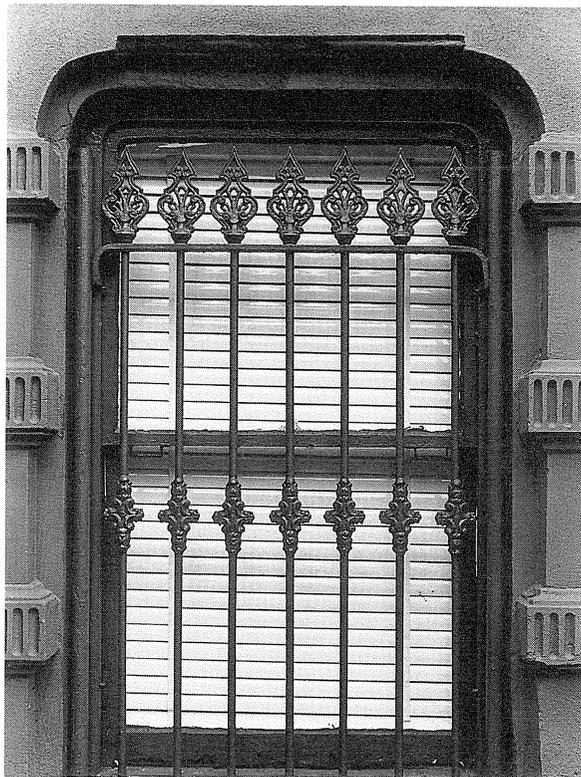
Replacement windows on rear or secondary facades that are visible from a public thoroughfare should match the historic windows in configuration and finish but not necessarily the material.

### Storm Windows

The purpose of storm windows is to insulate against noise and drafts, to save on heating costs, and to protect primary windows from weathering. Unfortunately, their installation on buildings of architectural merit can have a detrimental aesthetic effect. Reflections caused by storm windows obscure the details and configuration of historic windows. Also, depending on their design and color, storm windows can be extremely distracting, reducing the architectural quality of the structure.

If the installation of storm windows is necessary, they should be as unobtrusive as possible. One option is to install interior storm windows or panels, which are easily accessible for cleaning and have a minimal effect on the exterior appearance of the building. A permit is not required for installation of interior storm windows if the interior storm windows have no mullions, muntins, or wide frames that are visible from the exterior of the building and if the glazing consists of clear glass or other transparent material.

A permit is required for the installation of exterior storm windows. Exterior storm windows



A Neo-Grec style basement level window with an historic iron security grille.

should fit tightly within window openings without the need for panning around the perimeter. The color of the frames of exterior storm windows should match the exterior color of the primary window frame, and the glass must be clear. The storm sash must be set as far back from the plane of the exterior wall surface as practicable. Meeting rails may be used only in conjunction with double-hung windows and should align with the primary sash. Insect screens can be manufactured to be part of the storm windows.

### Security Window Grilles or Bars

Protective metal window grilles or bars are usually found on residential buildings on the basement floor. Such grilles were generally installed at the time of the building's construction for both ornamental and security reasons. They are also found on floor-length parlor windows in Greek Revival and Italianate style buildings, and in an elaborate form in Beaux-Arts style buildings, although these bars are generally confined to the lower third of parlor floor windows. Original window grilles should be maintained rather than replaced or removed. However, if window grilles are proposed for basement floor windows where they do not currently exist, they should be of a stylistically compatible design and be installed so that wood frame and the surrounding masonry are not damaged. The color of the grilles should be black or another dark color to match the balance of the ironwork on the building.

It is usually not desirable to install security grilles on windows of buildings which would not

Retractable canvas window and door awnings.



originally have had them. Alternate security measures should be explored for these windows, such as alarm systems or interior security bars. However, in certain cases, window grilles may be found appropriate on parlor floor windows. Consult with the Commission staff for further information on security window grilles.

### Exterior Shutters

Historically, exterior shutters were found only on rowhouses of certain styles. Shutters on these rowhouses are not only attractive facade ornaments but are also practical. When closed, they provide security, privacy, and protection from the elements. In summer they are very effective in controlling heat gain, and in winter they reduce heat loss. The replacement of missing shutters is encouraged, as is the restoration of existing original shutters. Their removal is discouraged.

In cases where shutters are replaced, they must be operable or must appear to be operable. They must have the appropriate hardware, including shutter pins (hinges), shutter dogs, and latches, and must be of a size that would completely fill the window opening if closed.

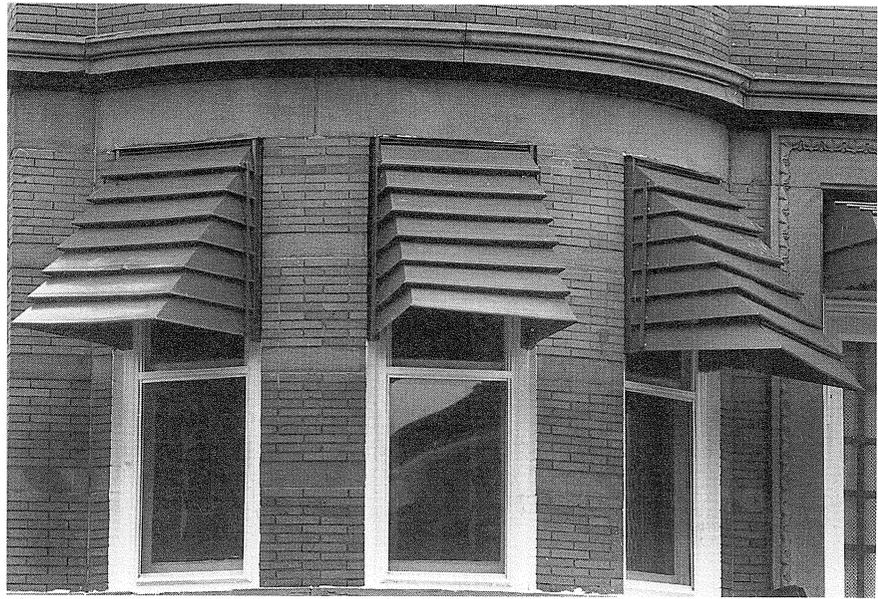
Where permanent storm windows have been installed, it may not be possible to close the shutters completely. Nevertheless, they must appear to be operable. If possible, new storm windows should be designed to permit the complete closing of shutters over them.

### Window Awnings

Many rowhouses in the nineteenth and twentieth centuries had retractable canvas awnings over doorways and windows. Awnings are used to shield openings from rain and to reduce heat gain by screening the sun. In addition, they can be an appropriate facade decoration. In order not to obscure any significant architectural features of the building, the shape of retractable canvas awnings on doorways and windows should correspond to the shape of the openings to which they are attached, whether arched or square-headed. Striped canvas awnings were frequently used in the nineteenth century. Fixed awnings on residential buildings, especially those made of aluminum or fiberglass, are discouraged in historic districts. For additional information on awnings, please refer to Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-12: Installation of Retractable Awnings.

### Window Enframements

The window enframement is that part of the window which surrounds the sash and its wood or metal frame. Window enframements vary greatly from simple, undecorated lintels and sills to elaborate architraves with pediments, brackets, and carved moldings.

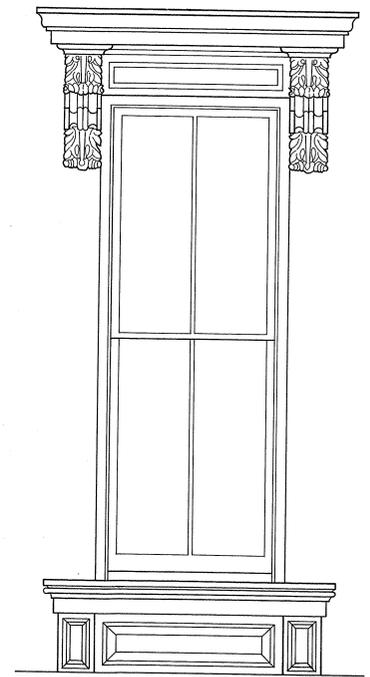


Inappropriate metal window awnings.

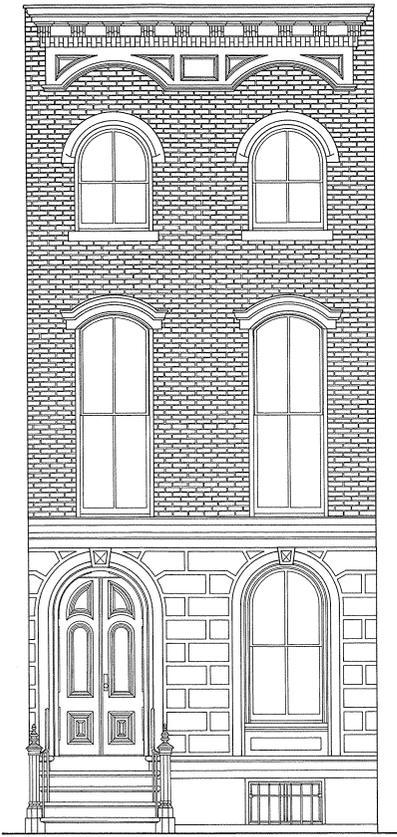
Because of their exposed location and degree of ornamentation, elaborate window enframements are often among the first features of a building facade to deteriorate. Such deterioration often has been addressed in a number of inappropriate ways: removal or smoothing over of eroded elements, resulting in a simplified appearance; sheathing with other material, such as metal over wood or stone; or, most drastically, complete removal or shaving of entire enframements.

The Commission encourages the preservation of window enframements. Removal of any element is discouraged, with stabilization of unsound materials being the recommended approach. The skill of restoring simple stone molding profiles and ornamentation has been mastered by many restoration contractors. Rectilinear and incised ornamentation is fairly easy to recreate in this medium. More complicated, three dimensional, and curvilinear forms can best be duplicated with molds and casts. The use of consolidants, such as silanes, acrylics, and epoxies, can bring disintegrating, crumbling, spalling, and sugaring masonry back together and increase the masonry's strength and resistance to further deterioration. These consolidants penetrate deep to fill the pores within the stone. For additional information on masonry repair, refer to the Wall Surfaces chapter in this publication as well as Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-14: Sandstone Restoration and Replacement.

An Italianate style two-over-two, double-hung wood window with a bracketed, molded stone lintel and sill.



## Wall Surfaces



An Anglo-Italianate style brick and brownstone rowhouse.

Brick, stone, terra cotta, and wood are the predominant building facade materials in New York City. Wood, while popular for rowhouse construction in the eighteenth and early nineteenth centuries, was used infrequently since then, in part for reasons of fire prevention. Most masonry-clad (brick, stone, or terra cotta) rowhouses also use masonry for load-bearing and party walls (that is, shared walls which divide adjacent rowhouses). Floor and roof framing systems are wood. The rowhouse building of the nineteenth century, with few exceptions, consists of brick bearing walls with a veneer of face-brick, terra cotta, limestone, or brownstone on the street facade.

A great deal of variety in types of masonry materials can be found in historic districts. Bricks, for example, vary greatly in size, shape, texture, color, and hardness, depending on their method of manufacture. Through the mid-nineteenth century, most bricks were handmade, relatively soft and porous, and often irregular in color and shape. After that time, as brick-making machines were developed, bricks became more uniform, less porous, and had harder, smoother-looking surfaces. Better quality bricks, called face bricks, were used on the outer face of the wall, while softer common bricks were used for unexposed parts of the wall.

Stone used on residential rowhouse buildings ranges in color from light to dark brownstone to nearly white limestone and marble. Stone is finished in various textures: from highly polished granite or marble to the natural matte finish of limestone or sandstone to heavily cut rock-faced or rusticated stone of any type.

Wood siding includes shingles in many shapes and patterns as well as clapboard of various widths. This variety of materials helps give historic districts their visual interest and character. In addition, the natural aging of wall surfaces helps create a district's ambiance.

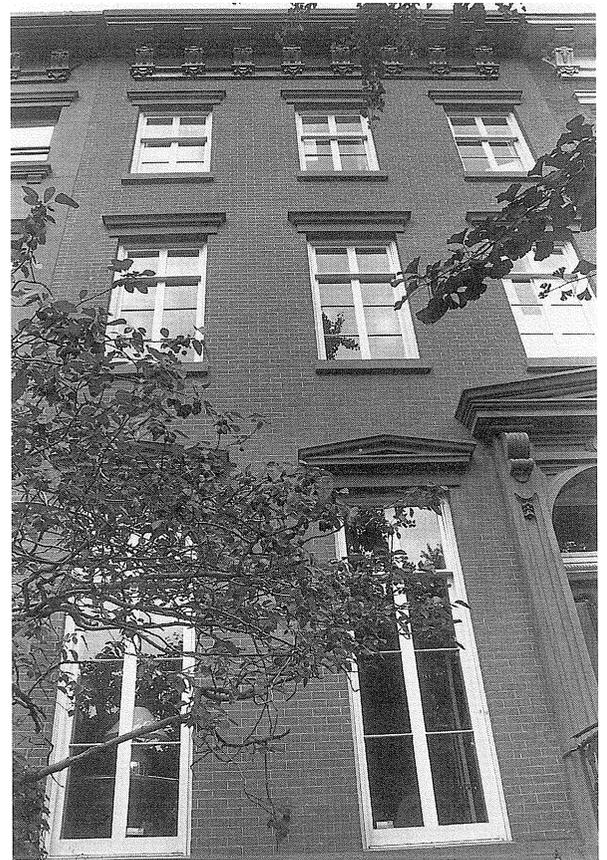
Exterior wall surfaces require proper maintenance. Only those sections that have actually become unsound should be repaired or replaced. The specifications and recipes for masonry restoration included in this chapter are intended as a guide for homeowners to help inform their contractors of the most successful restoration techniques. For additional information on masonry repair and permit requirements, refer to Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-14: Sandstone Restoration and Replacement.

Right, an Italianate style brick rowhouse.

### Replacement Siding: Aluminum, Vinyl, and Artificial Stone

Thousands of historic buildings in New York City have been covered with aluminum, vinyl, and artificial stone siding. These types of siding are not the best options for historic buildings. In fact, on certain blocks, the use of replacement siding has been so extensive that the visual evidence of what these neighborhoods were like originally has been obliterated. Modern replacement siding which is installed over original siding covers and damages the historic building materials and often requires the removal of trim details and other decorative features. This results in the reduction of the integrity and character of historically and architecturally significant buildings. It is therefore usually inappropriate to install aluminum, vinyl, and artificial stone siding over existing historic wall surfaces.

The Commission encourages owners of historic buildings that have been inappropriately re-sided to remove such siding if possible and to restore the original facade material underneath. Building owners who wish to remove replacement siding should consult with the Commission staff to determine how best to restore the underlying historic facade. No other single item of work can so dramatically improve a historic building's appearance as the removal of inappropriate siding and the restoration of the underlying historic facade.





Left, a transitional Neo-Grec style brownstone rowhouse.

and can crystallize beneath the surface as the water evaporates, expanding and pushing the material apart from within. The rusting and consequent expansion of iron bolts embedded in masonry can force it to crack. High sulphur-content heating fuels, when burned, create acids that etch the surface of masonry materials, pitting the masonry and roughening the texture. Ivy tendrils work their way into small crevices and joints, spreading them apart. Long-term physical erosion results from the constant action of wind and water.

The ultimate result of these forces is that the masonry is left more vulnerable to water penetration and subsequent freezing and thawing. Harder, denser stone and brick are naturally more resistant to deterioration, but all masonry material is affected to some degree by age and weathering. Since water is the eventual cause of most masonry deterioration, the best way to ensure that masonry will remain sound is to keep it as dry as possible. It is important to maintain cornices, roofs, gutters, and leaders in good condition to prevent water from spilling down the face of the wall and being absorbed. Storm drains around the foundations of a building should be kept functioning to prevent water from collecting in this area and soaking the lower walls, increasing their rate of deterioration and adding to the level of dampness inside basements.

In addition, it is important to protect the hard outer surface of brick. If this surface is damaged through abrasion, especially sandblasting, the brick will deteriorate more quickly.

## Masonry Wall Surfaces

### Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- repainting previously-painted masonry the same color; and
- removing a small amount of graffiti with a non-abrasive proprietary chemical formulated for graffiti removal and a low pressure water wash.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- repairing or resurfacing masonry;
- cleaning exterior wall surfaces;
- stripping paint from the facade;
- painting facade surfaces that were previously painted in a new color;
- painting previously unpainted masonry;
- applying preservative coatings;
- applying anti-graffiti coatings;
- repointing stone or brick surfaces; and
- repairing settlement cracks.

### Causes and Prevention of Masonry Deterioration

Masonry of all kinds is subject to many sources of deterioration. Airborne particles and other pollutants from natural and industrial sources can be carried onto porous brick or stone by rainwater

### Masonry Repair: Stone

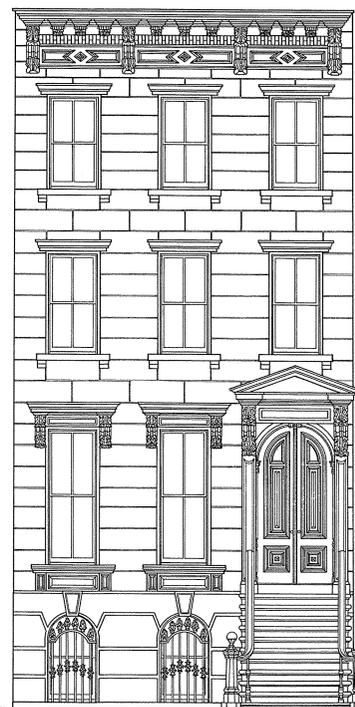
The two most common facing stones in New York City rowhouses are sandstone and limestone.

Sandstone in its most common form in New York City is brown (brownstone), but it is also found in other colors: orange, red, pink, and blue. Bluestone's main use is a pavement material, but it is occasionally found on facades, especially around the base or stoop. Limestone is an off-white, cream, or gray color.

Limestone and sandstone are both sedimentary stones formed of parallel layers of material pressed together and hardened over time. The direction of the layers is called the "grain." For maximum durability in building construction, the stone should be set with the grain running horizontally. Unfortunately, when using stone as a veneer, it was simpler and faster to set it with the grain running vertically, or parallel to the face of the building; this is the way it was used in many brownstone-faced rowhouses.

The problem with setting stone, especially brownstone and bluestone, in this manner is that if any water finds its way between the layers, either through open mortar joints or surface absorption, and then freezes and expands, it

An Italianate style brownstone rowhouse.



**A Renaissance Revival style limestone rowhouse.**



forces the stone apart, layer by layer. This action is called exfoliation or, more commonly, spalling.

Spalling is the most frequent problem encountered in brownstone and bluestone masonry. Once stone has spalled, it must either be repaired with applied layers of tinted stucco or replaced with new stone. Since brownstone is no longer regularly quarried, repairing the stone is often a practical option, unless matching salvaged stone can be acquired.

Unlike sandstone, limestone rarely spalls. Instead it pits, and exposure to mildly acidic rainwater and other pollutants converts limestone to friable gypsum. Limestone is still readily available from stone suppliers.

Consolidation is a process in which a small area of deteriorated masonry is coated with a liquid chemical applied to the surface, which penetrates the stone and solidifies within it. The use of consolidants such as silanes, acrylics, and epoxies can bring disintegrating, crumbling, spalling, and sugaring masonry back together and increase the masonry's strength and resistance to further deterioration.

The procedure for patching damaged areas of stone or resurfacing an entire facade is essentially the same. Because the repair of small patches of deteriorated stone is as complicated as resurfacing a whole facade, qualified contractors should be retained for any work involving stone repair. In order to retain as much original fabric as possible, only those areas of a building's masonry facade which are deteriorated should be replaced.

Resurfacing and patching work should only take place when the exterior temperature remains a constant 45 degrees F or above for a 72 hour period from the commencement of work, or the materials will not properly cure. The Commission usually requires that a test patch of the proposed finish coat of the masonry patch be reviewed and approved by the Commission staff before the work begins. The most recent research on sandstone repair indicates that the following procedure should be used when patching or resurfacing sandstone:

1. Preparation of the Surface: Cut back all deteriorated surfaces to be repaired to a sound base with a toothed chisel to remove all loose stone and provide a rough surface.
2. Mechanical Keying: To create a mechanical key or holding mechanism for the patch, undercut the edges of the patch to form a slight dovetail and drill 1/2-inch diameter holes 1/2-inch deep, spaced 2 to 3 inches apart in staggered rows. The angle of the holes should be varied.
3. Application of Patching Material: Proper application of patching material involves several steps:

A. Surface Washing: Wash the prepared surface with water and a soft brush;

B. Slurry Coat: Apply a thin slurry coat with a brush and rub vigorously into the surface. The slurry coat consists of material in the following mix by volume:

**Right, masons cutting back deteriorated brownstone to a sound surface.**



**Slurry Coat**

1 part white Portland cement  
 2 parts type S lime  
 6 parts sand  
 Mix with water

C. Scratch Coat: The first scratch coat should be pressed into the slurry coat while the slurry coat is still moist. Each scratch coat should be scored before initial drying to provide a key for following coats. No coat should exceed 3/8 inch in thickness. About 2 to 4 hours should be allowed between applications of scratch coats. Scratch coats consist of material in the following mix by volume:

**Scratch Coat**

1 part white Portland cement  
 1 part type S lime  
 6 parts sand  
 Mix with water

D. Finish Coat: The finish coat is applied once the patch has been built up to the required thickness. Only this last coat is formulated to match the color and texture of the stone being repaired. The finish coat should be formulated as follows:

**Finish Coat**

1 part white Portland cement  
 1 part type S lime  
 2–3 parts sand  
 3–4 parts crushed stone  
 Dry Pigments  
 Mix with water

- all measurements are parts by volume;
  - all ingredients should be combined dry and then mixed with potable water;
  - use dry pigments (natural or synthetic stable oxide pigments) when crushed stone is not sufficient to give a color match. Be careful not to exceed recommended maximum amounts, as too much pigment reduces strength and will give unstable color.
  - the best brownstone patching contains actual crushed stone. Use stone removed from the area being repaired or old stone with the same qualities. The crushed stone should be ground and passed through a 16-mesh screen, and washed thoroughly.
4. Surface Finishing: Surface should be finished to match the original stone tooling or existing condition. Possible surface treatments include damp sponging (stippling), dry troweling with a wooden float, and acid etching with dilute hydrofluoric acid, all executed while the patch is partially cured to a leather hardness.

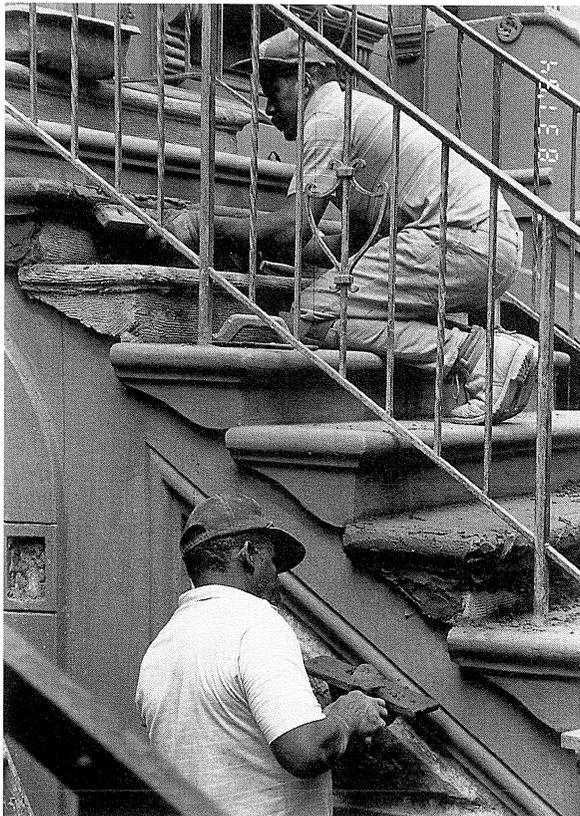
**Repairing Ornamental Stone Surfaces**

There are three techniques for replacing ornamental stone elements when the original ones are missing or deteriorated beyond repair. The first

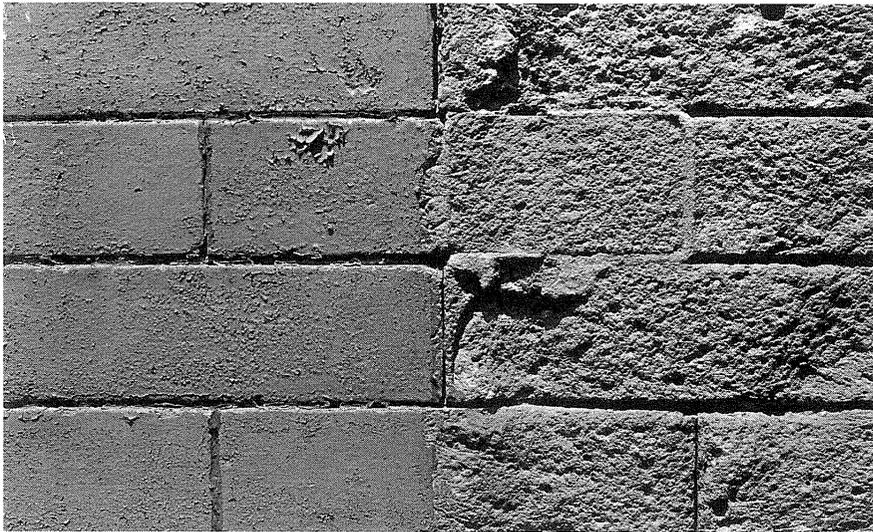
method, as described above, is to build up a reproduction with layers of patching material, sculpting the details into the final layers. The retention of sound, highly decorative, ornamental areas is always recommended.

The second method of replacing ornamental stone elements is to carve new pieces of stone and install them in place of the originals. This is the most desirable method, but stone carvers who can execute complicated designs can be difficult to find. Also, in many cases, matching stone is no longer available. When matching stone is available, and when the ornamentation required is simple (for example, moldings), most stone suppliers can provide the necessary cutting, shaping, and finishing services.

The third method is to cast duplicate pieces of ornament from intact originals on other parts of the building or from other buildings. This method is generally the only practical technique for complicated pieces of ornamentation. In fact, on many early twentieth-century buildings, what appears to be stone ornament is actually “cast stone,” which is essentially concrete. In this method of reproduction, molds are made of remaining ornamental pieces and new pieces are then cast in colored concrete. If no original pieces exist on the building or on another similar building, the alternative is to have models made in clay or wood, and then make molds from the models. For ornament that does not serve a structural purpose, glass fiber reinforced concrete (GFRC) casts or other synthetics offer a substitute for stone, cast stone, and terra cotta.



Masons applying a finish coat of stucco.



The negative effects of abrasive cleaning or sand blasting on brick (shown on the right).

### Masonry Repair: Brick

The deterioration process of brick can be similar to that of stone, in which successive layers flake off. In cases where brick is exposed to constant, soaking moisture, it can disintegrate into powder. This process is accelerated when bricks have had their hard, outer surface destroyed through abrasion, such as sandblasting.

There is no real way of repairing brick short of replacement. The damaged brick must be chipped out, along with the surrounding mortar, and a new brick or bricks inserted and pointed. It is essential when replacing brick to use an exact match in size, color, and texture. If the existing bricks are only damaged on their exterior face, it is sometimes possible, in small areas, to remove the brick intact and re-install it in reverse with the rear face exposed. Besides solving the problem of matching, this method is desirable because it preserves the original materials of the building.

If the existing bricks cannot be used, then new bricks that match the original as closely as possible in terms of size, color and texture should be used. Care should be taken to match the size, tooling, and color of the mortar joints, and the pattern of the brick bond as well.

Many brick buildings have stone trim. If this trim is deteriorated, it should be repaired in accordance with the criteria on stone repair in the preceding section.

### Cleaning Masonry and Removing Paint

#### Cleaning

The decision whether to clean the stone or brick facade of a historic building should depend on the degree to which cleaning the building will physically damage it; the degree to which the dirt on the masonry surface detracts aesthetically from the building; and whether the dirt itself is causing deterioration of the masonry. If cleaning will permanently damage the building, cleaning should not be considered. Even if cleaning will not damage the building, however, it may not be desirable.

On some masonry surfaces, especially brick, a hard, protective surface may have built up over the years. If this surface is removed through cleaning, the brick would be exposed to the harsh pollutants and damaging effects of today's atmosphere.

If the decision is made to proceed with cleaning, it is necessary for the homeowner to work with the Commission staff and the cleaning contractor to discuss the cleaning method to be used. In all cases, the most gentle method that will safely and efficiently remove the dirt and stains from the masonry is recommended. Some soft brick and stone, including brownstone, will tolerate only gentle methods. On brick facades, where mortar makes up a substantial portion of the surface, the cleaning method's effect on the mortar must also be evaluated. The cleaning of masonry surfaces should only take place when the temperature remains a constant 45 degrees F or above for a 72 hour period from the commencement of work. The Landmarks Preservation Commission usually requires that a small test patch area be cleaned to determine the effectiveness of the cleaning method in removing the dirt and stains and the effects of the cleaning method on the masonry surface.

The following cleaning techniques are grouped in order of harshness, with the gentle methods first:

- low-pressure water wash not to exceed 500 psi, with bristle (not metal) brush;
- water sheeting, which soaks the facade with water over a period of about a week (this method can cause water to infiltrate the facade, causing damage to the interior of a building);
- chemical or detergent cleaning and a low-pressure water wash not to exceed 500 psi (acid cleaners can dissolve certain types of stone and mortar or cause staining as a result of chemical reactions); and
- application of a chemical poultice, especially for staining problems rather than superficial dirt.

Poultices are chemical pastes applied to stained masonry in order to remove the dirt or stain. These chemical pastes, made of a solvent and a filler, absorb and draw the stains out of the masonry as they dry. This technique is used to remove stains from porous masonry when other means of cleaning have not successfully removed stains. Poultices may be applied to remove stains such as oil, tar, plant materials (lichens and algae), graffiti, metallic stains (iron and copper), and salt deposits (efflorescence). It is important to determine the source of the stain when using a poultice so that the proper solvent is used in the composition of the poultice mixture. Poultices are applied to pre-wetted masonry stains in a layer 1/3 to 1/2 inch thick and covered with plastic while drying. Once the poultice has dried out, it can be removed by hand with bristle brushes and rinsed with water.

The following methods of masonry cleaning are not allowed:

- high-pressure water wash above 500–600 psi. This method can cause water infiltration and the water itself can act as an abrasive, dislodging old soft mortar, damaging stone and brick by pitting the surface, removing the outer crust of the stone or brick, and breaking carved details; and
- abrasive cleaning methods, including sandblasting or the use of any type of abrasive grit, as well as the use of these abrasives mixed with water.

### Removing Paint

Most masonry facades were not originally painted. However, some rowhouse facades in historic districts have been painted for many years. The Commission will approve the removal of paint from masonry surfaces when the paint removal process will not damage the wall surface or its decorative features. If paint cannot be removed without such damage, then its removal is not appropriate and the masonry should be repainted.

Some early nineteenth-century brick buildings, especially rowhouses which have soft brick facades, were originally intended to be painted for protection. Paint should not be removed from these buildings and they should be repainted periodically. The Commission staff can assist building owners in determining whether it is historically appropriate for a building to be painted.

The techniques for removing paint from masonry are similar to those for cleaning buildings. Proprietary chemical paint removers are applied to the masonry surfaces for a specific time, then removed and thoroughly rinsed off with a low pressure water wash not to exceed 500 psi. The gentler techniques, however, will usually work only if paint is already loose and flaking. If the gentler methods are not strong enough to do the job, and if the masonry in question will be damaged by stronger methods, then paint removal should not be attempted.

As with masonry cleaning, paint removal from masonry should only take place when the exterior temperature remains a constant 45 degrees F or above for a 72 hour period from the commencement of work. In order for a permit to be issued by the Commission for paint removal, the Commission staff must assess the method proposed by the owner and contractor. A test patch is usually required to determine the exact effects on the masonry.

### Painting Previously Painted Masonry Surfaces

If a masonry surface has been previously painted and the owner does not wish to or cannot remove the paint, then the surface will have to be repainted periodically.

Stone surfaces, once painted, require constant upkeep since very often paints do not permanently adhere to exterior stone surfaces. In recent years masonry paints with better adhesion have been developed; however, the effectiveness of a fresh coat of paint depends on the effectiveness of the underlying coat, and if that is peeling, a new coat is not likely to alleviate the problem.

When any masonry is repainted, the surface should be scraped or brushed (with a soft bristle) to remove any loose paint. Surfaces should also be washed, as paint will not adhere well to a dirty surface.

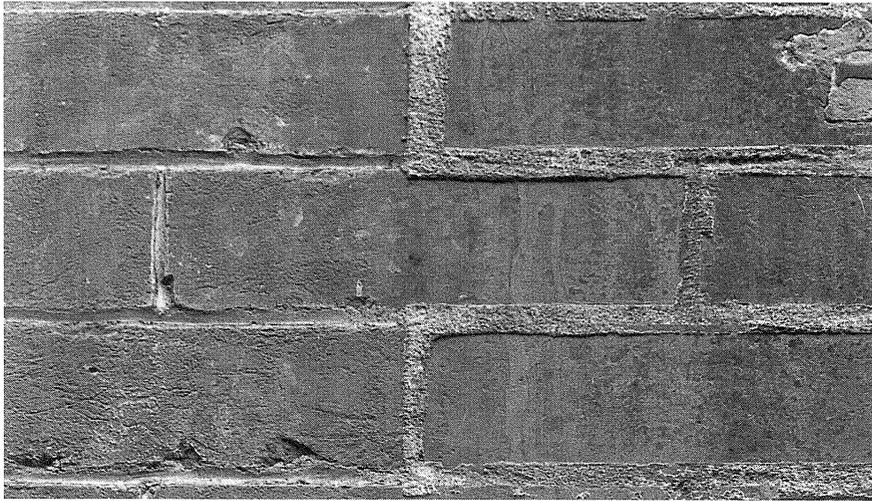
### Selection of Paint Colors

A change of paint colors for previously painted masonry surfaces is subject to approval by the Commission. In most cases, the repainting of brick or stone should be done in a color that matches the original brick or stone color. For masonry buildings of certain styles and periods there may be historic precedents for painting in a variety of colors other than that of the underlying masonry. The determination of appropriate colors should be done in consultation with the Commission staff at the time the owner applies for a permit to do the work.

When any masonry surface is repainted, it is not appropriate to use any thickly-textured or sand-textured paint in order to seal the surface or hide blemishes.



A Greek Revival style painted brick rowhouse.



In a good repointing job (left), the new mortar matches the existing mortar in color, hardness, and joint profile. A poor repointing job (right) can destroy the original appearance of the building. Here, the mortar joints are too wide and the composition of the mortar is too hard.

### Painting Unpainted Masonry

Unpainted masonry buildings should not be painted in order to seal a building against moisture, protect it from deterioration from the atmosphere, or spruce up its appearance. The visual quality of historic masonry building materials can be adversely affected when coated with paint; furthermore, constant repainting becomes necessary. It is also, in some cases, an irreversible change; that is, it may be impossible to remove the paint later.

There are two circumstances in which it may be desirable to paint unpainted masonry. First, stone facades, especially brownstone, that have been extensively patched may have an appearance that is so uneven and unsightly that painting is an acceptable remedy. Of course, natural stone has irregularities in color and texture, and therefore minor unevenness due to patching does not suggest the need for a remedy as severe as painting. If a building has areas of ornamental stone or bandcourses that are in sound condition as well as areas of unsightly patching, it is best to leave ornamental areas or bands unpainted and paint only the flat surfaces in a color to match.

The second condition under which unpainted masonry may be painted is when a brick facade is in such poor condition due to weathering or previous harmful treatment that paint can be useful as a preservative to prevent further deterioration. A permit from the Commission is necessary to paint unpainted masonry.

### Application of Coatings

A number of colorless masonry coatings or sealers have been developed which are intended to seal masonry against water infiltration and protect it from atmospheric pollutants and graffiti.

The Commission does not generally recommend the use of these masonry coatings, and will issue permits for their use only in unusual circumstances. While these coatings may prevent water from entering masonry from its outer surface, they also may trap moisture that may enter the masonry from behind. Such moisture can enter from leaky

roofs or pipes, or result from general interior humidity. This moisture would normally move toward the outer surface, where it would evaporate. If a sealer has been applied, however, the moisture collects in the masonry and, due to freezing and thawing or dissolving of salts, can cause spalling and deterioration of the masonry. Thus, while these sealers may help prevent deterioration from one source, they can increase it from another.

In addition, depending on the characteristics of the sealer and the masonry, the application of a sealer may change the appearance of the masonry, affecting its color and/or surface gloss.

In some cases, the application of a preservative coating is justified by severely deteriorated masonry. Before issuing a permit for the application of a sealer, the Commission staff will determine whether the condition of the masonry justifies such treatment.

### Repointing of Joints Between Stones and Bricks

A problem to be anticipated in any masonry structure is the eventual deterioration of the mortar in the joints between the stones and bricks. In order to retain the stones or bricks in place and to prevent water infiltration, missing mortar should be replaced. The term for this replacement is “repointing” or “tuck-pointing.” Repointing is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar. A wall’s mortar binds together the individual masonry elements and creates a watertight seal at the joints between the individual masonry elements. When properly executed, repointing restores both the physical and visual integrity of the masonry.

The main causes of mortar deterioration are weathering and erosion due to wind and rain. Although mortar joints are not permanent, a good pointing job should last from 50 to 100 years. Damaged or missing mortar can allow moisture to penetrate into the building and cause severe deterioration to the masonry, the interior walls, and other parts of the building.

Repointing, if not executed properly, can be disastrous to a building’s function and appearance. A bad repointing job can ruin the neat, even appearance of a masonry wall and cause poor bonding between the mortar and the masonry. Poor bonding occurs because the mortar is not properly mixed, the joints are not cleaned out effectively, or an excessively hard mortar shrinks, allowing water infiltration. The mortar used for repointing should be slightly less hard and dense than the brick or stone so that the joints provide areas where the wall can “breathe” and moisture can evaporate. A dense mortar can accelerate deterioration of the masonry and will give a poor bond. It also will shrink on drying, causing hairline cracks between it and the masonry, and it may break, trapping moisture which will expand on freezing and dislodge the mortar. It also may stain the masonry if it is too rich in cement.

Ideally, mortar should be specially formulated for each job. Sand should be of a color, texture, and particle size to match the original mortar in appearance. If color additives are needed, chemically pure synthetic oxide pigments are recommended (which are alkali proof and sun fast). Lime and Portland cement should be mixed with the sand in a proportion that results in a mortar softer than the masonry being repointed. Repointing should only take place when the exterior temperature remains a constant 45 degrees F or above for a 72 hour period from the commencement of work, otherwise the mortar will not properly cure. The Commission usually will require that a test patch of the repointing be reviewed and approved by the Commission staff prior to the commencement of the work. To repoint most nineteenth-century rowhouse buildings, the rule of thumb recommendation is for a soft mortar mix. The recipe is as follows:

#### Mortar

- 1 part white Portland cement (ASTM C-150, Type I)  
 2-1/2 parts lime  
 5-6 parts sand
- parts are by volume;
  - mix dry ingredients first before adding potable water;
  - use dry pigments (natural or synthetic stable oxide pigments) to tint or color mortar; and
  - mix all ingredients thoroughly.

In most cases when repointing, the defective joints should be scraped out by hand, not with electric saws or tools. However, in certain cases the Commission will consider alternative mortar removal methods (diamond-tip or carbide-tip grinders) for horizontal joints in 100 percent repointing jobs when contractors have demonstrated adequate skills with the grinders. Both chisels and grinders require skill and concentration to handle, and special care must be taken not to chip the edges of the stone blocks or bricks or enlarge the original spacing between them. The joints must be wetted before repointing and the mortar pressed well back into the joints. It is important to match the new mortar with the color, texture, and hardness of the original mortar and the profile of the finished mortar joint. In particular, new mortar joints should not look wider than the original joints. For both color and profile, existing sound mortar in an area adjacent to that being repaired should be used as a guide. If the adjacent mortar and masonry is dirty, a small section can be cleaned to use as a guide, so that the color of the new mortar matches clean old mortar.

The finished mortar surface usually should be tooled so that the mortar is slightly recessed behind the stone or brick surface. Any excess mortar should be cleaned off the face of the masonry along with the film of cement or lime which comes to the surface of the mortar. Clean-

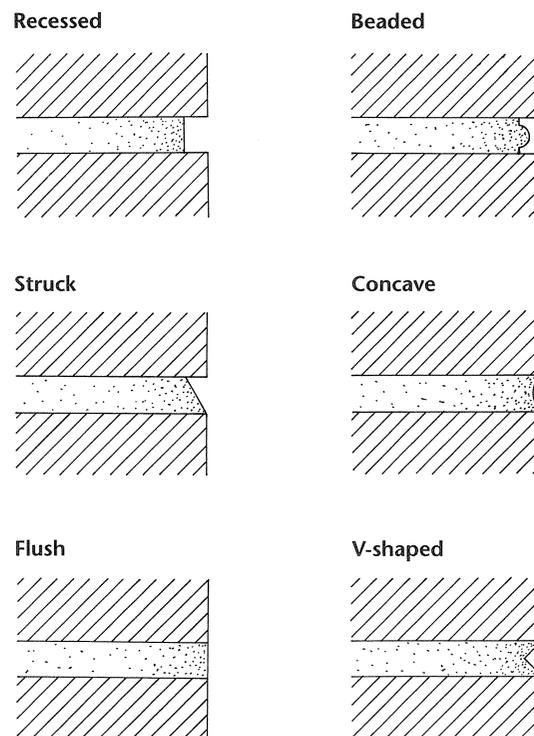
ing should be done with a stiff bristle brush after the initial set has occurred but before the mortar is fully hardened.

If a previous repointing effort has resulted in patches of mortar of the wrong color or profile, in some cases it may be possible to remove this inappropriate mortar and replace it with the correct mortar. However, if the inappropriate mortar contains a high cement content, which is very hard, the removal of this mortar will be difficult to achieve without damaging the surrounding brick or stone.

#### Repair of Settlement Cracks

Most buildings settle on their foundations over time as the soil or rock on which they are built is compressed or shifts its position. While this settling does not usually cause any structural problems, it can sometimes lead to the formation of settlement cracks in the facade. These cracks most often appear along joint lines of stone or bricks as they pull slightly away from each other.

If a settlement crack appears in a building, two things should be done. First, an architect or engineer should evaluate the condition to determine whether the crack is getting worse due to continued settling and whether it has caused any structural weakening of the building. If a structural problem exists, it will have to be remedied promptly. Second, the crack should be filled with mortar according to the guidelines for repointing masonry. Special care must be taken to use a mortar color that will best hide the evidence of the crack. This color may be the color of the brick or stone, the existing mortar, or some shade in between. The Commission staff will suggest an appropriate color when issuing a permit for this work.



A variety of mortar joint profiles can be found. When repointing a facade, the original profiles of the mortar joints should be replicated.

## Wood: Clapboard and Shingle Wall Surfaces

### Ordinary Maintenance (no permit required)

The following is an example of the type of work that is considered ordinary maintenance and does not generally require a permit from the Commission:

- painting wood surfaces the same color.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- painting wood wall surfaces a new color; and
- repairing or replacing deteriorated wood siding, trim, or ornamental elements to match existing or duplicate original conditions.

### Causes and Prevention of Wood Deterioration

Three major problems associated with wood as used in building construction are expansion/contraction, warping, and rot. All are caused by water.

Expansion and contraction are caused by changing humidity. As wood absorbs moisture it expands; when it dries out it contracts. The familiar problem of sticking windows and doors in damp weather is caused by water absorption.

Warping results from unequal absorption of water. When one side of a piece of wood absorbs more moisture than another, that side expands, causing the wood to bend. In addition, if the wood is cut across the grain rather than parallel to it, the warping will be even worse.

Rot sets in when wood is wet repeatedly without being able to dry out. The constant presence of water allows micro-organisms to multiply; these organisms feed on the wood and cause its eventual decomposition.

The best method of preserving wood is to keep it as dry as possible. Exposed wood surfaces should always be protected by coating them with paint. There are numerous measures that can be taken to minimize exposure to water and subsequent absorption. Among these measures are:

- shaping the wood so water runs off;
- using metal flashing to direct water away from the wood, for example, on upper edges of cornices, bay windows and oriel windows;
- keeping gutters in good order so water does not wash down the wall or splash on sills and paving;
- sealing the wood with a primer and paint; and
- caulking between the wood and adjacent masonry with a caulking or sealing compound of matching color, preferably with a silicone or latex base.

In addition, wood that has been pressure-treated with chemical preservatives can be used when replacing deteriorated components. While more expensive than untreated wood, it is much less subject to damp and dry rot and warping and will therefore last longer without deteriorating. It is especially helpful to use treated wood when it is not to be visible and therefore not painted for protection. If pressure-treated wood is not available, the pieces of untreated wood should be treated with preservatives after being cut to size.

### Insect Infestation

Common wood-destroying insects include termites, carpenter ants, and wood-boring beetles. These insects can cause major deterioration and damage to wood surfaces and structures. Most of these insects create nests in damp moisture-laden areas of wood within buildings or underground, and they attack the soft wood for food or for nest-making. To protect against infestation, cut off sources of water and moisture, and keep untreated wood away from the ground surface in the vicinity of the building. Carefully check for leaks in the roof and plumbing system, and repair any defects. If insect infestation does occur, try to identify the type of pest and where the nest is located. Using a chemical insecticide and restricting the moisture that made your home conducive to an infestation should cure the infestation.

### Preparation and Painting of Wood Surfaces

The most important consideration when painting wood—or painting anything, for that matter—is the preparation of the surface to receive the paint. The recommended procedure for surface preparation includes the following steps. These steps should be followed whether touching up a small area or painting an entire house.

1. All loose or scaling paint must be removed by scraping. Care should be taken not to gouge or chip the surface. Heavy build-ups of paint that are not loose can be removed by applying heat or chemicals. Extreme care must be taken with either of these methods; there have been many cases of houses set afire by carelessly used blowtorches or heat guns, or by matches or cigarettes coming in contact with highly flammable chemical paint removers. When applying heat, the paint should be warmed only to the point that it softens and can be scraped away. If it reaches the point where it smolders or burns, it may release poisonous fumes.
2. Nicks, gouges, or cracks in the wood surface should be filled with wood putty compound.
3. The entire area should be sanded to smooth out the putty, if used, and to feather out the edges of paint that is strongly bonded and was not scraped off. Care should be taken, especially if an electric sander is used, not to sand into the wood to the point that sharp edges become rounded or delicate details lost.
4. Areas of bare wood or putty compound must be primed.
5. The area should be painted with two coats of high quality paint. Oil-base and water-base (latex) paints can both be used on wood surfaces, but oil-base paints are generally more durable. If an oil-base paint is used, the wood surface must be completely dry. Dampness will prevent proper bonding and cause the paint to blister and peel.

## Selection of Paint Colors

The Commission regulates the selection of facade paint colors. While changing a paint color is not a permanent change and can be reversed, an inappropriate color on an individual building can disrupt the visual effect of the surrounding streetscape within an historic district. Individual buildings within historic districts should not call attention to themselves through inappropriate paint colors, nor should the architectural details of the buildings and the ambience they create for the district be obscured.

In general, historically appropriate colors on wood buildings are related closely to the period and style of the building. The Commission encourages owners to return their buildings to historically accurate colors, and can help owners determine what those colors are. A paint analysis can sometimes reveal the exact colors that a particular building was originally painted.

While clapboard walls were historically almost always painted, wood shingle walls were sometimes painted, sometimes stained, and sometimes left to weather naturally. Most shingled facades have been painted over, and it is almost impossible to remove the paint from them. Those shingled facades which have never been painted should remain unpainted, however, and if entire shingled facades are replaced, consideration should be given to finishes other than paint.

## Repair or Replacement of Wood Clapboards, Shingles, or Ornamental Elements

The objective when repairing or replacing any wood element on a building is to reproduce the original in size, shape, detail, and pattern. Elements should be repaired rather than replaced in order to retain as much of the original building material as possible. If replacement is necessary, however, extant siding and decorative elements usually provide evidence of what replacements should look like. If certain elements have disappeared entirely, neighboring buildings of similar style can be used as a guide. If no such building exists, the design of the elements can be surmised from a knowledge of the architectural style and period of the building.

Clapboards, for example, are most commonly flat and undecorated. There have been periods, however, especially in the late eighteenth and late nineteenth centuries, when it was fashionable to embellish them with lengthwise grooves or “beads.” Early clapboards were often quite wide, with twelve inches or more exposed, plus the portion of the clapboard hidden by the one above it. Most nineteenth-century clapboards were considerably narrower, with between four and six inches of exposed surface.

Early shingles, like early clapboards, were often wider than later examples. The eighteenth-century technique of hand-splitting shingles was replaced in the nineteenth century by sawing them, first manually and later with

power tools. Late-nineteenth-century shingles were mass-produced in a wide variety of shapes, including squares, diamonds, and hexagons, and were installed on buildings in decorative patterns.

Ornamental woodwork is most often found on cornices, window lintels, door enframements, and porches. Wood detailing is produced by carving, sawing, turning on a lathe, or a combination of these methods. Since most ornamental woodwork serves no structural purpose, it has often been removed over the years. Because of the ornament’s importance to the character of historic buildings, the Commission encourages the repair and replacement of ornamental woodwork.

When deciding whether to repair or replace wood siding or other wood elements, both the proportion of deteriorated to sound surface and the location of the deteriorated elements should be considered. As a rule of thumb, if more than 50 percent of a given area of wood siding (or particular ornamental element) is deteriorated beyond repair, replacement of the entire area or element is appropriate.

When repairing shingled siding, each deteriorated shingle is replaced in its entirety. Clapboard siding, however, can be repaired by replacing only the deteriorated portions of the clapboards. New, wide clapboards are especially difficult to find, and it is often easier and less expensive to replace only those smaller sections that are actually deteriorated.



A wood clapboard Italianate style rowhouse.

## Air Conditioning

The most common type of air-conditioning installation in rowhouses is the window unit. Such an installation is reversible and does not require alteration or damage to architectural features of a building. Other types of air-conditioning systems, including through-the-wall and central systems, must be judged by their effect on architectural features and their visibility.

The number and size of air-conditioning units (as well as energy costs) can be minimized by reducing heat gain from sun shining through unprotected windows. If windows are kept shaded, heat gain can be cut dramatically. In the past, windows were shaded by closing interior or exterior shutters or by lowering seasonally-installed canvas window awnings. These methods work just as well today.

For additional information on air conditioning and permit requirements, please refer to Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-11: Rules Relating to the Installation of Heating, Ventilating, and Air-Conditioning Equipment.

### Ordinary Maintenance (No permit required)

The following is an example of the type of work that is considered a temporary installation and does not generally require a permit from the Commission:

- installing window air-conditioning units or fans in windows, when the window sash and frame are not to be altered and no bracket supports are to be permanently affixed to the building.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- installing window air-conditioning units in window openings which require the use of brackets affixed to the building or the alteration of window sash or frames;
- installing central air-conditioning systems which require exterior condenser units, chillers, or fresh air intakes; and
- installing through-the-wall air-conditioning units on rear or secondary facades.

### Window Units

The use of window air-conditioning units or fans without any alteration of window sash or frames and without brackets has no permanent effect on the architectural integrity of the building. Therefore, it does not require a permit from the Commission.

However, it is important to keep in mind that air conditioners normally remove large amounts of humidity from the air and that this humidity condenses as water, collects in the bottom of the air conditioner, and drips out from a spout in the back or side of the unit. Care should be taken that this water does not run down the surface of the building, since serious staining and masonry disintegration can result. It may be necessary to use a hose or drip pan to direct the water away from the building.

### Permanently Installed Window Units

Large window air conditioners may need to be permanently attached to a building due to their size and weight. Large units, however, can be problematic on historic buildings. They often project considerably beyond the facade and frequently require supporting brackets which must be affixed to the exterior of the building. Therefore, the use of these units should be avoided if possible. In a masonry building, if supporting brackets are necessary, they should be affixed to the building through the mortar joints only, and not into the masonry. This type of installation requires a permit from the Commission.

### Through-the-Wall Units

In small residential rowhouse buildings, the most destructive method of air conditioning is the installation of units through holes cut into the front facade of a building. This type of installation causes irreparable damage to the facade. If the unit is ever removed, it is almost impossible to repair the facade so that the damage does not show. Therefore, except in rare cases, the Commission does not approve the installation of through-the-wall air-conditioning units on primary or developed secondary facades of rowhouses. Alternate means of air conditioning should be investigated, such as window units or central air-conditioning systems.

A permit may be issued for the installation of through-the-wall air-conditioning units on a masonry secondary facade if the placement of the unit is centered beneath a window opening, the exterior grille is mounted flush with the exterior wall, and the exterior grille is finished to approximate the color of surrounding masonry.

### Central Air-Conditioning Units

The two basic types of central air-conditioning systems are forced air and chilled water. A forced air system distributes cool air throughout the building via ducts. A chilled water system circulates cold water from a central source to remote room units. These units, in turn, produce cool air and blow it into the desired space. Systems using cold water require less interior cutting than a forced air system, since only narrow pipes, rather than bulky ducts, are installed.

All central air-conditioning systems require exterior condenser units, chillers, or fresh air intakes. These units should be placed on the ground outside the building in the rear yard or on the roof of the building where they will not be visible or will be minimally visible from the street or public thoroughfare (such a unit projects into the line of sight by not more than a maximum of 12 inches in height). For additional information and permit requirements for mechanical equipment on roofs, please refer to Title 63 of the Rules of the City of New York, Chapter 2, Subchapter B, Section 2-19: Rules Relating to Proposed Construction of Rooftop Additions.



A portable window air conditioning unit temporarily installed below a raised lower window sash.

# Cornices

Roof cornices are significant architectural elements, both functionally and aesthetically. They are an important part of the design of most buildings in New York City's historic districts. Most cornices are constructed of sheet metal or wood, but they are sometimes made of masonry, cast iron, or copper. A cornice prevents rain and melted snow from washing down the face of the building, capping the facade and establishing continuity with adjacent buildings. Removal of a cornice will expose the facade of the building to excessive weathering and will significantly reduce its historic and architectural character.

Original cornices should be retained, kept watertight and painted, and repaired when necessary. If a cornice is missing, it should be replaced with a new cornice of an appropriate style.

## Ordinary Maintenance (No permit required)

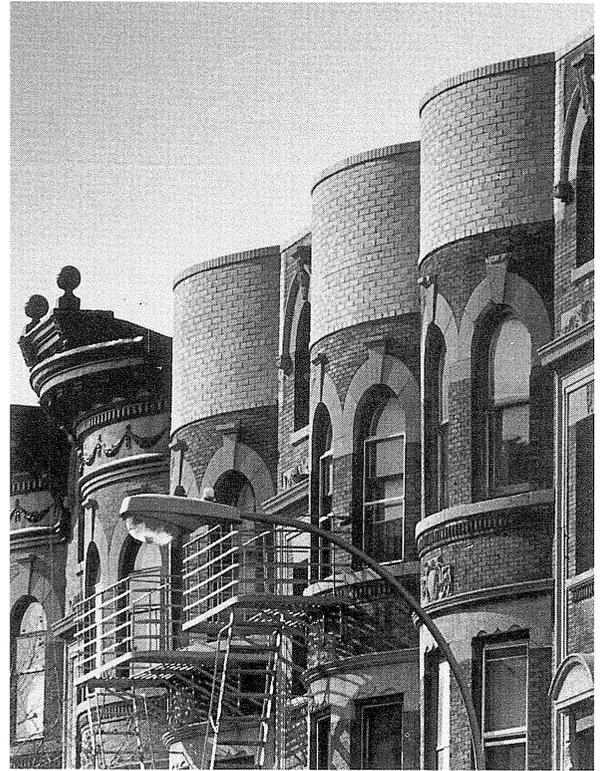
The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- removing scaling paint or superficial rust from wood or metal cornices;
- painting cornices the same color;
- repairing or replacing cap flashing;
- patching holes and dents in cornices to restore their original appearance.

## Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- painting wood or metal cornices a different color;
- replacing surfaces or decorative components of cornices;
- repairing, repainting, or otherwise treating masonry cornices (other than ordinary maintenance); and
- replacing the entire cornice with an exact replica of appropriate design.



## Keeping Cornices Watertight

Deterioration of all types of cornices usually results from the penetration of water between the cornice and the wall to which it is attached.

There are several causes for water penetration:

- deterioration of or damage to cap flashing along the top of the cornice;
- openings in joints between cornice parts;
- cracks or openings in the parapet wall (if one exists) behind the cornice;
- leaks in the roof immediately behind the cornice; and
- clogged or damaged gutters, especially those that are built into the cornice.

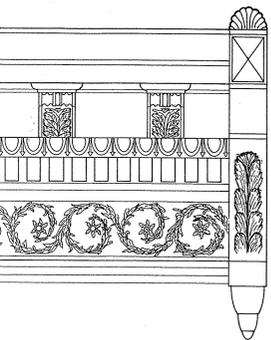
If water is allowed to penetrate a cornice, it will eventually rot or rust the cornice from within. The freezing and expansion of trapped water in winter can cause an entire cornice to pull away from a building facade, or in extreme cases, to break apart entirely. Deterioration of metal and wood cornices will also occur when their exterior surfaces are not protected from water. Therefore, it is best to keep cornices well sealed and painted, and to ensure that adjacent parts of the building, especially the roof, flashing, and parapet walls, are in good repair.

## Preparation and Painting of Cornices

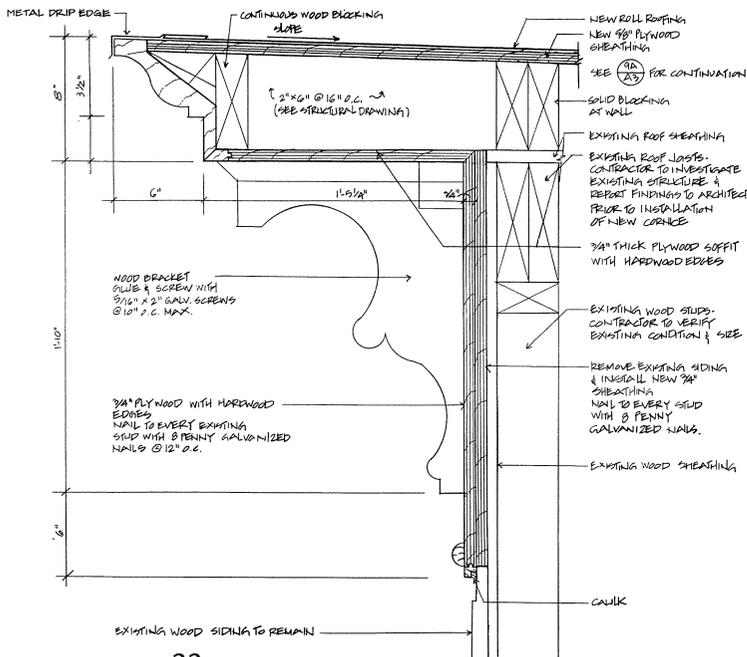
Wood and metal cornices should be painted at least as often as other wood or metal parts of the building. Before repainting, loose paint should be scraped off, metal cornices should be wire-brushed, and the appropriate oil-base or rust-inhibiting primer should be applied.

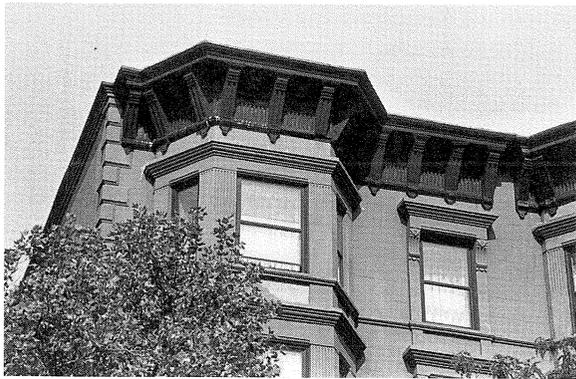
Right, the continuity and rhythm of the row is disrupted by the removal of a cornice.

A detail of a Renaissance Revival style cornice.



A typical cornice section showing construction and flashing.





### Removal or Replacement of Entire Cornices

It is never appropriate for a cornice to be removed entirely from a building and not be replaced in some fashion. The absence of a cornice on one building in a row can have a severely detrimental effect by breaking the visual rhythm of the streetscape.

If it is absolutely necessary to remove an existing cornice, it should be replaced with a new cornice in an appropriate style for the building. New cornices can be fabricated in alternative materials such as aluminum, fiberglass, and GFRC (glass fiber-reinforced concrete).

Left, a Neo-Grec style painted cornice.

### Selection of Paint Colors

The selection of paint colors for cornices, as for other parts of buildings within historic districts, is subject to approval by the Commission. Owners are encouraged to paint cornices in historically accurate colors, and the Commission staff can help owners determine what those colors should be.

### Anti-Bird Devices

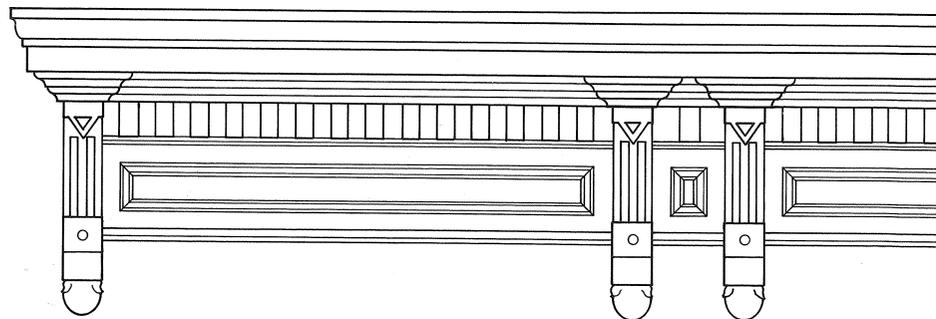
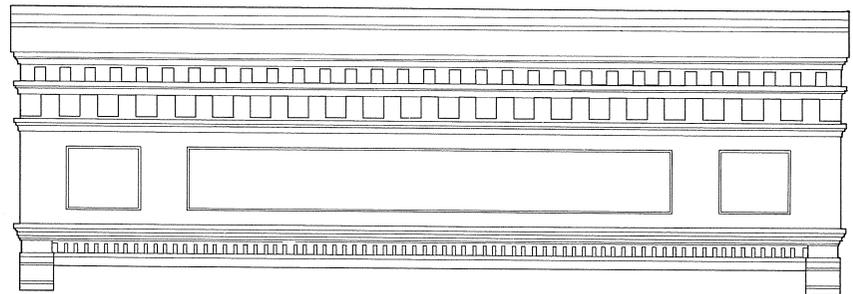
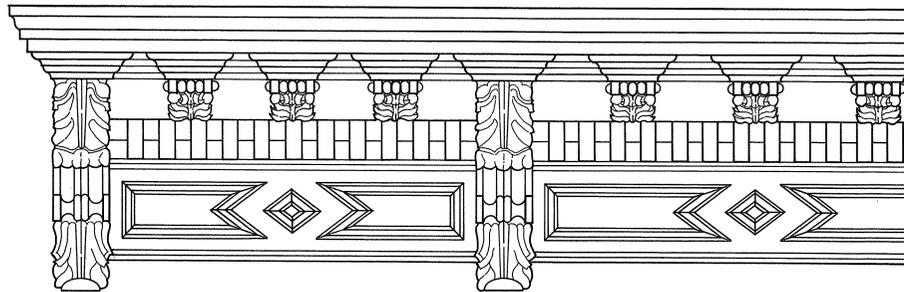
Cornices, window sills, and ledges are natural nesting and roosting places for birds, especially pigeons. The continuous presence of pigeons and other birds can damage building fabric, and be a nuisance. Suggested methods for pigeon control are:

- systems utilizing nearly invisible wires that prevent birds from landing; and
- stiff wire devices that are affixed like beds of nails to ledges and other resting places.

The application of petroleum-based substances on architectural elements such as ledges and window sills and the encasing of cornices in wire mesh are discouraged. These methods are not consistently effective and may damage architectural elements of a building.

### Replacement of Decorative Cornice Elements

As a decorative part of a building, cornices are often embellished with rows of dentils, panelled friezes, and fancy, carved brackets. Damaged ornament can be replaced with substitutes that have been carved or molded from a material matching the original in appearance.



Top to bottom.  
A transitional Italianate/Neo-Grec style cornice.

A Romanesque Revival style cornice.

A Neo-Grec style cornice.

Left, Renaissance Revival style cornices.



## Roofs

Roofs can be nearly flat and invisible from the street, or they can be one of the most important design elements of an historic building, featuring gables, cupolas, fanciful finials, iron crestings, and patterned, textured, and colored shingles. The main function of a roof, however, whether utilitarian or ornate, is to keep water from entering the building and to direct this water away from the building's exterior walls. Roofs should, therefore, be maintained and repaired in order to keep them watertight. If a roof is architecturally significant, it is also important to preserve its appearance.

### Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- caulking joints of dormers, skylights, and other roof elements;
- replacing or repairing flashing at roof edges and around dormers and other roof elements with the same kind of flashing material;
- replacing or repairing skylights, chimneys, roof hatches, and other features which are not visible from the street;
- re-setting coping stones on parapet walls;
- replacing or repairing flat built-up bituminous roofs; and
- removing, replacing, or installing gutters and leaders.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- replacing flashing at roof edges and around dormers and other roof elements with a different kind of flashing material;
- replacing and repointing chimneys, parapet walls, or other masonry parts of the roof;
- replacing roofing material on all roofs other than flat roofs;
- constructing roof hatches or skylights; and
- altering or removing dormers, dormer windows, chimneys, or other roof elements.

### Roofing Materials

Roofs and roofing materials can impart much of the special architectural character of a building. Therefore, when repairing or replacing a roof, it is important to preserve the architectural character of the roof. Roofing materials can be divided into two categories, depending on the type of roof being covered. Pitched (sloping) roofs are usually covered with shingles or sheet metal; flat or very low-pitched roofs are usually covered with built-up roofing.

### Pitched Roofs

Historic roofing materials in New York City for pitched roofs include wood shingles, slate shingles, sheet metal, and clay tiles. Each type of material weathers in its own fashion according to its own physical properties, and the longevity of each material depends on the quality of the material and its weathering properties.

Rowhouses can display a variety of roof types, including gable, pitched, and flat roofs.





A bird's eye view of a row of typical rowhouse flat roofs with built-up roofing.

Wood shingles will last approximately 10–20 years, for example, and are prone to rot in those areas of the roof subjected to dampness. In time, they will also split, curl, and lift, creating crevices that trap water.

Slate shingles will last approximately 80–100 years and are extremely resistant to erosion, but can spall or come off in layers after many years of exposure to the elements.

Clay tiles will last approximately 125 years. While they are as resistant to erosion as slate shingles, clay tiles are very brittle and can crack or shatter.

Asphalt shingles, which are a relatively modern roofing material, have the shortest life of any shingle-type roofing material, a maximum of 10 to 15 years. They can deteriorate by splitting, curling, eroding, or disintegrating from continued exposure to the weather.

Metal roofs will last approximately 25–50 years and are made of parallel strips of sheet metal, usually about 2 feet wide, joined by full-length seams. The metal is usually lead, copper, galvanized sheet-steel, or terne (sheet-iron coated with an alloy of tin and lead). Metal roofs are long lasting and impervious to water. The major causes for their deterioration are punctures from nails, workers' feet, falling or wind-blown objects, or chemical pollutants in the air or rain-water.

All kinds of shingles tend to loosen, and roofs should be inspected periodically for slipped or missing shingles.

### Flat Roofs

The built-up roofing which usually covers flat or very low-pitched roofs consists of alternating layers of waterproof membranes and other

bituminous materials. Built-up roofs age by blistering, drying out, and cracking.

### Causes of Roof Leaks

A poorly maintained roof will soon suffer water damage and will eventually leak, damaging both the interior of the building and exterior walls and ornament. Most roof leaks are related to one of the following problems:

- clogged or damaged gutters or leaders;
- deteriorated or missing flashing and roofing materials on and around the perimeter of the roof or other rooftop features;
- damaged or deteriorated roof dormers, skylights, hatches, or roof ornaments and/or open joints around the edges of these objects;
- deteriorated chimneys or parapet walls; and
- damaged or deteriorated roofing materials.



A Romanesque Revival style building with a clay tile roof.

The causes and treatment of each of these problems are discussed below.

### Gutters

The purpose of gutters and leaders is to collect water running off roofs and to conduct it down from the roof and away from the building. Water is thereby kept from washing over the facade, or from soaking into the ground around the foundation walls, either of which will accelerate deterioration of the building.

When gutters, leaders, and drains are clogged, water becomes trapped, backs up, and overflows. Water washes down the facade and onto the ground at the base of the building, causing paint to peel, wood to rot, and masonry to disintegrate. In addition, in some cases (especially with box or built-in gutters), backed-up water can soak the roofing material and leak down into the building.

For these reasons, it is advisable to inspect and clean gutters and leaders every six months, or at least yearly. If a building is surrounded by many trees, it is best to cover open gutters and leader drains with screen or mesh to prevent constant leaf clogging.

### Damaged Roof Elements

It is important to keep roof elements such as dormers, skylights, hatches, finials, and crestings in good repair. These features are most vulnerable to leakage at points of juncture with the roof. Joints are usually sealed with sheet-metal flashing to waterproof roof valleys, hips, or angles between roofs and chimneys. It is important to keep flashing in good condition and to replace it promptly if it lifts, corrodes, or dries out.

### Deteriorated Chimneys and Parapet Walls

Deteriorated chimneys and parapet walls can also conduct water through the roof membrane and into the building. Chimneys are often entirely open at the top, and water traveling down the sides of the flue can soak through the chimney wall into the building. One means of preventing this problem is to line the chimney with an impervious clay flue liner. Another is to top the flue with a capstone, elevated on corner posts to allow smoke to escape. Unused flues should be tightly sealed at the top. Chimneys should be kept well pointed and their base flashing kept in good condition.

Damaged coping stones on parapet walls can allow water to seep through the top of the wall and down into the building. Joints between coping stones (as well as the joint between coping stones and the wall) should be kept well sealed, and damaged or loosened coping stones should be secured promptly. Damaged coping stones should be repaired or replaced in kind.

### Damaged or Deteriorated Roofing Material

Periodic inspections can help to locate damaged or deteriorated roofing materials before water can infiltrate a building. When damage is discovered, the roof should be repaired as soon as possible with the appropriate method.

### Repair and Replacement of Roofing Material

For reasons of economy, availability, and preservation, every effort should be made to repair damaged or deteriorated sections of original roofs rather than to replace them completely. Wood and slate shingles, clay and terra-cotta roof tiles, and sheet metal are all available. If the bal-

The mansard roof of this Second Empire style rowhouse retains its original slate and iron roof crestings.



ance of the roof is sound, the most appropriate way to repair original roof materials is to locate or have manufactured duplicate shingles, tiles, or metal sections, replacing only those areas that are actually deteriorated.

Great care must be taken when patching slate, shingle, and clay or terra-cotta tile roofs because they cannot be walked on without risk of breaking. In order to carry out repairs on these types of roofs, scaffolds and other devices must be used to avoid concentrated pressure on the roof surface. Such precautionary measures are directly reflected in the cost of the work, but repairs using these materials will last much longer than repairs using cheaper materials.

As with slate and tile roofs, when metal roofs are repaired, only damaged portions should be patched. The common practice of applying a coating of bituminous material (tar) to the entire roof is discouraged. Such a coating hides the roof's beauty and damages the original historic roofing material. It is also ineffective as a sealer and will not deter leaks.

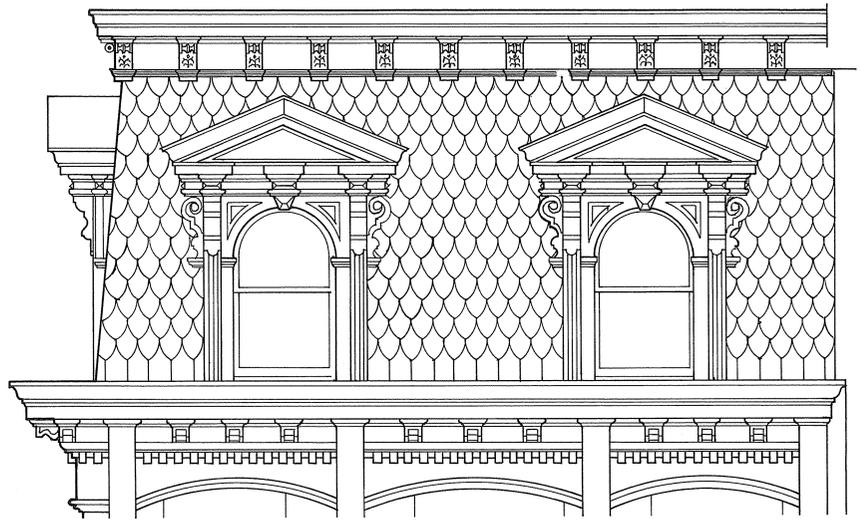
Flat, built-up roofs can be repaired by adding layers of waterproof membranes over the existing roof. Eventually, it will be necessary to strip off the old layers to reduce the weight of the roofing material before applying new roofing.

If original roofing material has deteriorated to the point that little or none of it can be salvaged, the best solution is to replace the entire roof with new material that duplicates the original. It should be noted that the existing roof may not be original at all, but may represent a second or third covering. The original covering should be determined by removing the later material. If the original roofing was itself removed, its composition and appearance can probably be determined in consultation with the Commission staff.

The replacement of shingles or tiles with tar-paper or other bituminous material is discouraged because the smooth, uniform texture and color of a bituminous roof is not at all similar to the appearance of a shingle or tile roof, which is composed of small units. For the same reason, it is not appropriate to cover a deteriorated roof with bituminous material.

### Construction of Roof Hatches and Skylights

Roof hatches or skylights can often be cut into existing roofs in such a way that they do not obscure or otherwise affect existing, original roof elements, and do not disrupt the overall historic appearance of the roof. Generally, the larger the proposed hatch or skylight, the more visible (and therefore the more potentially disruptive) it will be.



### Alteration of Dormers, Chimneys, and Other Roof Elements

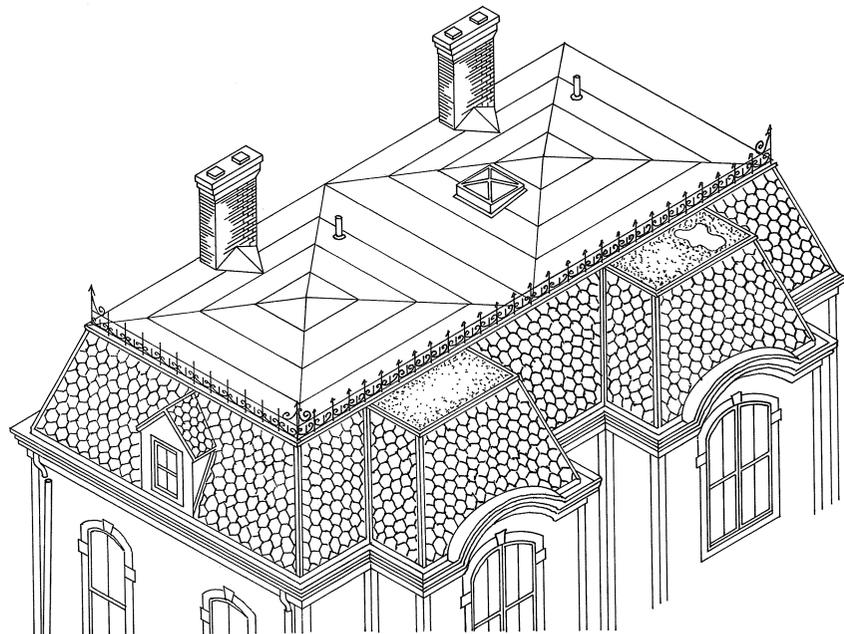
Altering original or architecturally significant roof elements in a way that changes the appearance of a historic building is discouraged.

Commonly proposed alterations that fall into this category are:

- joining adjacent roof dormers to make one large dormer;
- changing the roof configuration of existing dormers;
- changing the window configuration of existing dormers;
- covering over existing masonry chimneys with tar or cement (rather than repointing and repairing them); and
- removing such decorative features as finials, iron cresting, crockets, ornamental ridge tiles, and dormer brackets.

A Second Empire style rowhouse with a slate mansard roof.

A slate mansard roof.



## Stoops, Fences, and Handrails

Right, an Italianate style wrought-iron fence and gate with cast-iron details.

Stoops, fences, handrails, and related details were designed to harmonize with the buildings to which they are attached. They help unify the elements of a facade and call attention to the importance of the entranceway or other features.

Most stoops in New York are constructed of brick or stone, although a few wood stoops remain, usually attached to wood houses. Masonry stoops are usually constructed of the same type of brick or stone as the facade of the building, although occasionally a different material was used for contrast.

Historic fences and handrails typically are constructed of wrought iron, cast iron, masonry, or wood. Occasionally these materials are used together, the most usual combination being wrought iron and cast iron. The material used for fences and handrails is usually related to the materials of the building – wood for wood buildings, masonry or iron for brick and stone buildings.

In historic districts, stoops, fences, handrails, and other such details play an important role in the streetscape. A row of houses set off with identical or subtly varying fences or stoops and railings can be very picturesque. It is important to retain original stoops, fences, handrails, and ironwork. If these

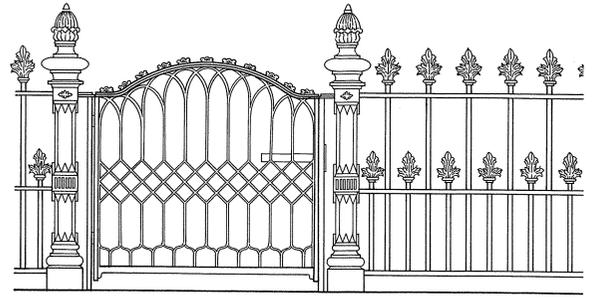
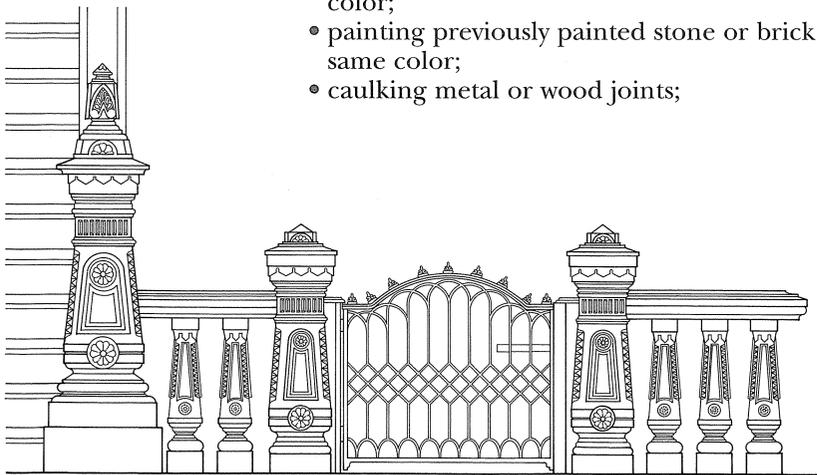
elements are deteriorated beyond repair or missing altogether, they should be replaced with components of the appropriate style, scale, and appearance.

### Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- patching and minor repairs to damaged metal work which do not change the original appearance and do not include removal of any parts;
- removing paint or rust from metal or wood by scraping;
- painting wood or metal surfaces the same color;
- painting previously painted stone or brick the same color;
- caulking metal or wood joints;

Neo-Grec style cast-iron stoop, newel, and areaway balusters with a wrought iron gate.



- replacing corroded bolts, hinges, and latches; and
- removing a small amount of graffiti with a non-abrasive proprietary chemical and a low pressure water wash.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

- painting wood, masonry, or iron fences, handrails, balusters, or stoops a new color;
- painting previously unpainted masonry surfaces;
- repairing or resurfacing masonry stoops, handrails, or walls;
- cleaning masonry surfaces;
- repointing masonry stoops, wall areas, or handrails;
- removing paint or rust with chemicals, heat guns or blasting;
- replacing parts of a fence or railing with new parts;
- installing or constructing a fence, railing, or wall where none exists;
- removing a fence, handrail, wall, stoop, or similar building component; and
- replacing, recreating or removing any stoop.

### Cast-Iron and Wrought-Iron Fences, Handrails, and Related Details

Fences and handrails made of cast iron and wrought iron differ in appearance due to the distinctive ways in which these metals were manufactured and used in construction. Wrought iron was traditionally formed by hammering rods of hot iron over an anvil, and bending or twisting them into thin, flowing shapes. For this reason, wrought-iron fences and rails seem light and airy. Their surface is usually quite plain.

Cast iron is manufactured by pouring molten iron into a pressed sand mold. Because its crystalline structure makes it more brittle than wrought iron, it cannot be shaped by heating and bending, but retains whatever form it has when cast. As a result, cast-iron fences and rails look heavier than those of wrought iron, and have more elaborate ornamentation, matching the intricate design of their molds.

Cast-iron components are often hollow. Certain newel posts or balusters that look solid are, in fact, made up of several pieces of thin-

walled cast iron that have been bolted together. Small cast-iron ornaments were sometimes applied to wrought-iron fences or railings as decorative elements.

### Patching and Minor Part Replacement

In both wrought iron and cast iron, small holes and minor areas of deteriorated ironwork can be patched with plumbing epoxy or auto-body filler, then shaped and sanded to blend with the iron. Larger breaks, however, require that each metal be repaired differently, according to the process of its manufacture. Whereas wrought iron can easily be mended by welding or by heating and bending or hammering, cast iron is too brittle to endure such treatment. Serious breaks in cast-iron fences and handrails can sometimes be brazed or soldered. Usually, however, they are repaired by introducing new pieces of reinforcing metal, which are bolted into place from the inside.

Missing parts of fences and handrails can sometimes be replaced with new stock parts found in catalogues or with old, matching parts found in salvage yards. Otherwise, exact replicas of cast-iron fence parts can be made by taking molds from original pieces and casting new pieces.

### Painting, Rust Removal, and Rust Protection

The major enemy of both wrought and cast iron is rust, which can be prevented through routine painting. Iron fences and handrails should be painted at least once every three or four years with a high gloss oil-base paint. Before painting, loose rust must be removed thoroughly by chipping and wire-brushing. Rusted fastening devices such as screws and bolts should be replaced, and small holes and minor areas of deteriorated metal should be patched. Exposed areas of metal should be primed with rust-inhibiting metal primer.

Unfortunately, not all rusting takes place on the visible exterior surface of ironwork. In the case of cast iron, rusting often begins inside newel posts and other hollow components where water collects. Many building owners attempt to solve this problem by filling hollow, cast-iron rails and balusters with concrete. The result of this process, however, is disastrous because concrete absorbs water, encouraging the iron to continue to rust from the inside out. Not only does water continue to seep in between the concrete and the iron, producing new rust, but iron components are pushed apart, buckling outwards, then destroyed when trapped water freezes and expands.

The best way to prevent rust from developing inside rails and balusters is to maintain the caulking in joints between metal parts. Water is thereby kept from attacking the inside of iron surfaces.



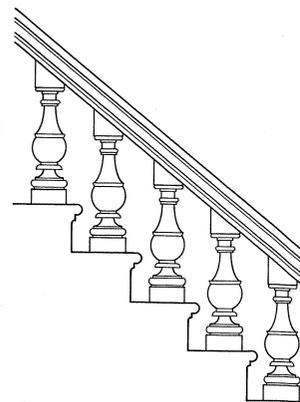
### Selection of Paint Colors

The selection of paint colors for iron components on designated historic buildings is subject to approval by the Commission. Wrought and cast iron generally should be painted with glossy black, dark brown, or very dark green, although occasionally another color is stylistically appropriate. Cast iron was sometimes treated to imitate stone by painting it with masonry-colored, sanded paint. This practice was especially common during the third quarter of the nineteenth century, and should be kept in mind if ironwork of this type is to be painted. Cast iron that masquerades as stone should be painted a color that matches the masonry on the building. The Commission staff can help determine the appropriate color for a building's ironwork.

### Connecting Ironwork to Stoops and Walls

Connections between iron fences and wood or masonry stoops and walls should be checked frequently since they are especially vulnerable to rust. When ironwork is joined to masonry, the attachment is usually made with iron pins. These

A homogeneous streetscape showing a row of intact stoops and areaway ironwork.



Italianate style cast-iron stoop balusters.

Neo-Grec style cast-iron areaway fence, stoop and railings.

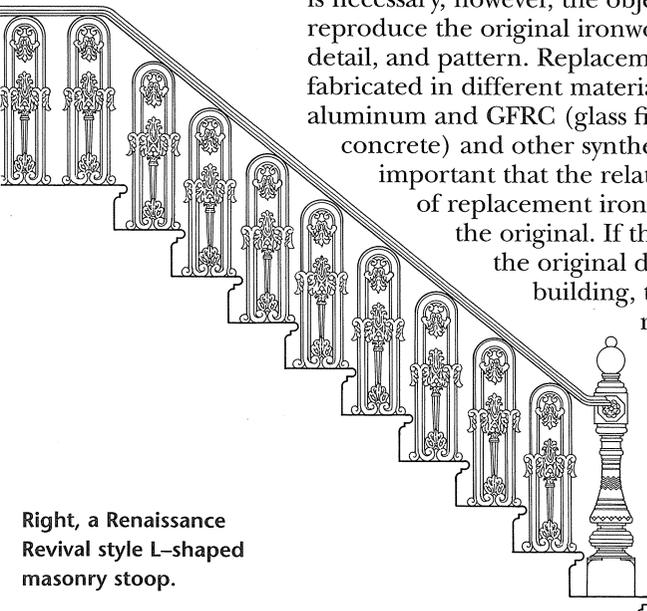


pins are fastened at one end to the fence or handrail, and embedded at the other end in holes drilled in the masonry. Either grout or lead fills the space between the pin and the masonry to make the connection permanent—so permanent, in fact, that the pin usually rusts away before the plug works loose. For this reason, rust-proof stainless-steel bolts should be used in place of iron pins when pins need replacement. Likewise, screwed or bolted connections between wood and iron should be replaced with either bronze or heavily plated steel components.

### Masonry Stoops, Fences, and Handrails

Most stoops in historic districts are constructed of masonry, the preferred building material for stoops throughout the nineteenth and into the twentieth centuries. Masonry rails and fences, on the other hand, were popular only during the late nineteenth century. While they varied considerably from building to building, two popular styles of masonry rails and fences prevailed: the Classical, with heavy bulbous balusters, and the Romanesque Revival, whose various elements

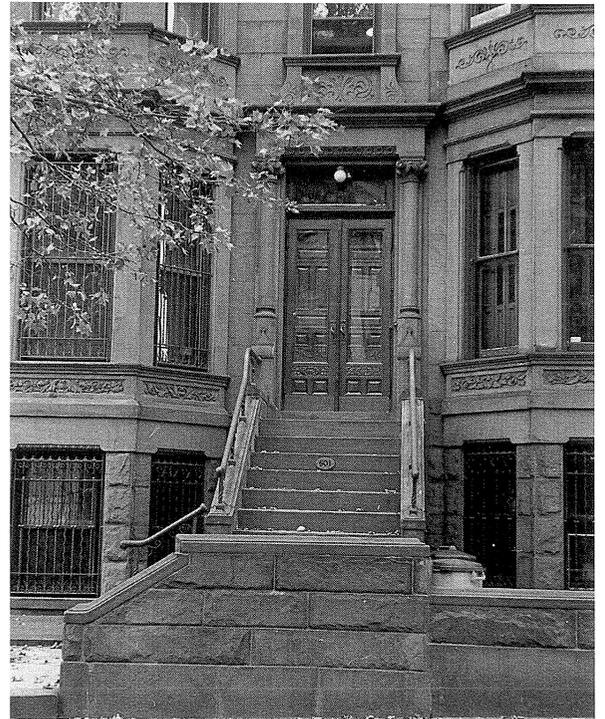
Below, an Italianate style wrought-iron stoop railing with cast-iron newels and details.



### Replacement

Iron elements should be repaired rather than replaced whenever possible. If replacement is necessary, however, the objective should be to reproduce the original ironwork in size, shape, detail, and pattern. Replacement pieces can be fabricated in different materials such as cast aluminum and GFR (glass fiber-reinforced concrete) and other synthetics. It is especially important that the relative size and massing of replacement ironwork be similar to the original. If there are no clues to the original design left on the building, then ironwork on neighboring structures of a similar age and style can be used as a guide.

Right, a Renaissance Revival style L-shaped masonry stoop.



were encrusted with carved ornament in organic motifs. The former type was carved from brownstone, limestone, or marble; the latter was almost always brownstone. During other periods, iron or wood rails and fences were used along with masonry stoops.

Guidelines for maintaining, repairing, repointing, cleaning, painting, and replacing masonry stoops, handrails, and fences are the same as those for masonry wall surfaces.

If a masonry stoop, wall, handrail, or baluster is missing entirely or deteriorated beyond repair, it should be replaced with either a duplicate of the original or a component of similar, appropriate design. It should be possible to determine the original appearance of the component by examining remaining fragments of the original or similar components in neighboring buildings of the same style. Depending on the extent of the work involved and the type of masonry, it may not be possible or necessary to utilize stone or brick in re-creating a masonry stoop, wall, handrail, or baluster. Other materials, such as cast stone (concrete) or GFRC (glass fiber-reinforced concrete) may be acceptable if they are finished to imitate the original masonry in color, texture, finish, and details.

### Wood Stoops, Fences, and Handrails

In New York City, wood stoops, fences, and handrails are far less common than those of iron or masonry. They appear, in fact, to be confined to detached wood houses and to the city's few remaining wood rowhouses. Generally, wood fences and railings of the late nineteenth century are quite elaborate. Earlier examples are plain, as are those of turn-of-the-twentieth-century revival styles. Wood balusters have three basic shapes. They are square or rectangular posts, turned circular posts, or flat slats that often feature a jig-saw cut-out design. Regardless of style, wood stoops, fences, and railings are always painted, rather than varnished, or left unfinished.

### General Protection and Painting

As in the case of iron, wood stoops, fences, and handrails are subject to water damage, which most commonly takes the form of rot. Areas most vulnerable to deterioration are those where the wood comes in contact with the earth or where it is constantly soaked by rain and mud.

To protect against deterioration, all wood fences, handrails, and stoops should be kept well caulked at joints, have cracks filled with wood filler, be scraped and primed, and be painted periodically.

### Selection of Paint Colors

The selection of paint colors for handrails, fences, stoops, or other wood components of designated buildings is subject to approval by the



Commission. Owners are encouraged to paint wood elements of their buildings in historically accurate colors, and the Commission can help owners determine what those colors are.

### Repair and Replacement of Wood Stoops, Fences, and Handrails

The objective when replacing or repairing any wood element on a building is to reproduce the original in size, shape, detail, and pattern. Wood fences and handrails can be made of components of varying complexity. Simple moldings or round posts can be obtained from lumberyards. More ornamental woodwork is produced by carving, jig-sawing, turning on a lathe, or a combination of these methods. When replacing deteriorated wood elements, it is important to use a high quality, sturdy wood which has been properly cured and treated.

Top, a Renaissance Revival style L-shaped masonry stoop.

Bottom, Greek Revival style wrought-iron stoop rails.

## Yards, Areaways, and Sidewalks

Yards and areaways are incorporated into the private open space in front and on the side of rowhouses and semi-detached rowhouses. In addition to front and side yards, the open space may include driveways and walkways of rowhouses and semi-detached rowhouses. Besides providing private outdoor space, access to basement doorways, and lightwells for basement level rooms, yards and areaways have two other important functions. One is to act as a surface for draining rainwater away from the building, thus preventing water damage to the building's facade or interior. The second function, an aesthetic one, is to act as a base for the building and to separate it from the street or other public space.

Yard or areaway elements such as original paving materials, yard walls, fences, ornamental iron or stonework, and historic lighting fixtures should be retained wherever possible. Changes to any of these elements should be made according to the following recommendations to ensure that the character of the yard or areaway is maintained.

### Ordinary Maintenance (No permit required)

The following are examples of the types of work that are considered ordinary maintenance and do not generally require a permit from the Commission:

- maintaining lawns or shrubs;
- planting new lawns or shrubs in existing unpaved areas;
- repairing or repainting (the same color) cellar access hatch covers; and
- placing and planting pots, planter boxes, or window boxes.

### Approvals Required for Work

The following are examples of the types of work that require a permit from the Commission:

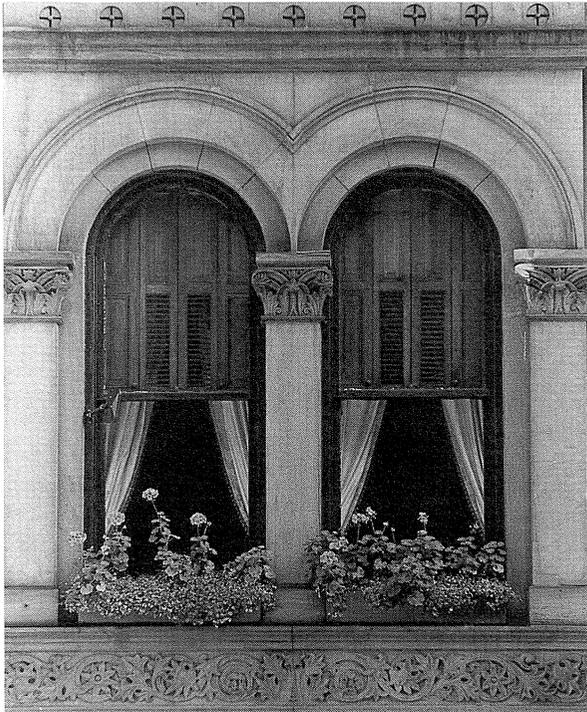
- replacing pavement in yards, areaways, or sidewalks;
- repairing or patching pavement in a yard, areaway, or sidewalk with a different material (for example, concrete patching in a stone areaway);
- installing pavement in yard areas previously unpaved;
- removing paving material;
- changing paving material in existing yards, areaways, or sidewalks;
- altering areaway steps;
- installing or removing permanently installed planters;
- painting yard, areaway, or sidewalk pavement;
- constructing garbage-can enclosures or any other structures in yards or areaways;
- installing new sidewalk tree pits;
- installing yard or areaway lighting;
- changing the level of yards or areaways; and
- creating a curb cut or parking lot in the yard or areaway.

### Pavement Materials and Their Repair

In small areaways, yard walkways, and sidewalks in nineteenth century residential historic districts, the most common original pavement material was bluestone. Rowhouses built in the twentieth century may have concrete paving. When a building is set well back from the street, the area in front of the building takes on the aspect of a front yard, rather than simply an entrance to the basement. In these cases, pave-

A rowhouse areaway with Italianate style fencing.





Left, window flower boxes on window sills.

If it is not possible to replace missing stone pavers in kind, pre-cast or poured-in-place concrete is the best alternative. The concrete should be tinted and scored or jointed to match the color and pattern of the remaining or original stone. Proprietary concrete tints can be used to match the color of the original stone. If concrete is being used to patch concrete paving, it should also be tinted and scored to match the existing concrete. Asphalt should never be used to patch stone, brick, or concrete pavements.

### Drainage

Most pavement problems in areaways or yards result from improper drainage. Drains, therefore, should be provided and should be kept open and functioning. The pavement should slope away from the building and any yard walls and towards the drain. Pavement in older buildings that has sunk or otherwise become displaced may allow water to collect in the wrong places. The best cure for this problem is to re-set the existing pavers according to the recommendations in the preceding section.

### Plantings

Yard and areaway plantings can range from a window box or potted plant on a rowhouse stoop to a completely landscaped front yard with trees, shrubbery, and lawn. Permits are not required for changes to or additions of plant material.

Permits are required for the installation of new sidewalk tree pits.

### Window Boxes, Pots, and Planters

In large yards trees and shrubs are planted directly in the ground. In areaways and yards which are mostly paved, however, plantings can be located in pots or planter boxes. Sometimes narrow strips or small areas for planting are left unpaved at the edges of an areaway or small yard. In most cases, original stone paving, however, should not be removed to create planting space.

Window boxes can add a great deal of color and greenery and are an excellent way to enhance a historic house. If window boxes need to be permanently attached to the facade, they should be affixed to the window frame or through masonry joints and not directly through stone or masonry surfaces.

ment was probably originally limited to walkways or other small areas, while the rest of the yard featured a lawn, planting beds, shrubs, and even trees. Brick was not used as an areaway pavement material in nineteenth century rowhouses in New York City.

Maintenance of the original yard, areaway, or sidewalk pavement is encouraged. Unfortunately, many of these surfaces have had their original pavement removed. A concrete surface which replaces bluestone pavers has a harder, plainer, and usually brighter appearance than historic paving materials. Because it is one of the areaway's most important visual features, the pavement should be a material that complements, rather than contrasts with, the historic visual quality of the facade.

If stone paving in yards, areaways, or sidewalks has sunk, shifted, shattered or become displaced and dangerously uneven, the best solution is to remove and reset the pavers, replacing only those too deteriorated to reset. If original paving stones are missing, they too should be replaced with new or salvaged pavers of the same material, shape, and color.

Stone pavers should be laid on a bed consisting of compacted earth, approximately 4" of limestone screenings, and a one-half inch setting bed of a dry sand and cement mixture. The stone screenings become hard, yet allow water to drain through. If necessary for load-bearing or waterproofing purposes, stone pavers can be laid on a concrete base. Stone should be set tightly with the sand-cement mixture brushed in to fill the minimal joints. Tinted mortar is used to fill any wider joints. The Commission can provide more detailed specifications for the installation of stone pavers.

### Vines

Vines, such as ivy and wisteria, are destructive to building walls. They work their way into mortar on masonry buildings, hastening its deterioration. On wood buildings, they can work their way between the clapboards or shingles, damaging the wood. All plant growth should be removed from the facades of historic buildings. This vegetation prevents the proper drying of the building surface during wet weather conditions and the tendrils from these species can penetrate and damage the surface texture, pitting and marring stone and wood surfaces and deteriorating the mortar joints.

### Cellar Access Hatches

A common feature of the areaway is the access hatch to the cellar. These hatches are generally constructed of wood with a protective metal skin. Replacements for access hatches should be simple in design and painted a dark color to make them as unobtrusive as possible. While a metal cover is probably the most durable solution, wood covers, kept well painted and in good repair, are acceptable.

### Garbage Enclosures

Wood or masonry enclosures to contain garbage cans can be constructed within areaways provided that the enclosures are simple in design and composition and do not remove or damage any historic fabric.

### Yard and Areaway Lighting

With few exceptions, yards and areaways of historic houses were not originally lighted with either electric or gas fixtures. If original or historic lighting fixtures remain, however, they should be retained. Where such fixtures existed, they were sometimes attached to fences or newel posts by means of posts extending up from these features. The light source for such fixtures should be either gas or low-wattage white incandescent or compact fluorescent bulbs.

If yard or areaway lighting is desired when there is no evidence of original lighting fixtures, it should be designed to be as unobtrusive as possible. Fixtures should not be placed on posts in the yard or areaway, or on fences. The best approach is to conceal the light source by locating it on short, hooded fixtures attached to areaway walls or installed in the ground in shrub or plant beds. Basement or garden-level doorways are best lighted from fixtures under the main stoop or on the wall next to the entrance under the stoop.

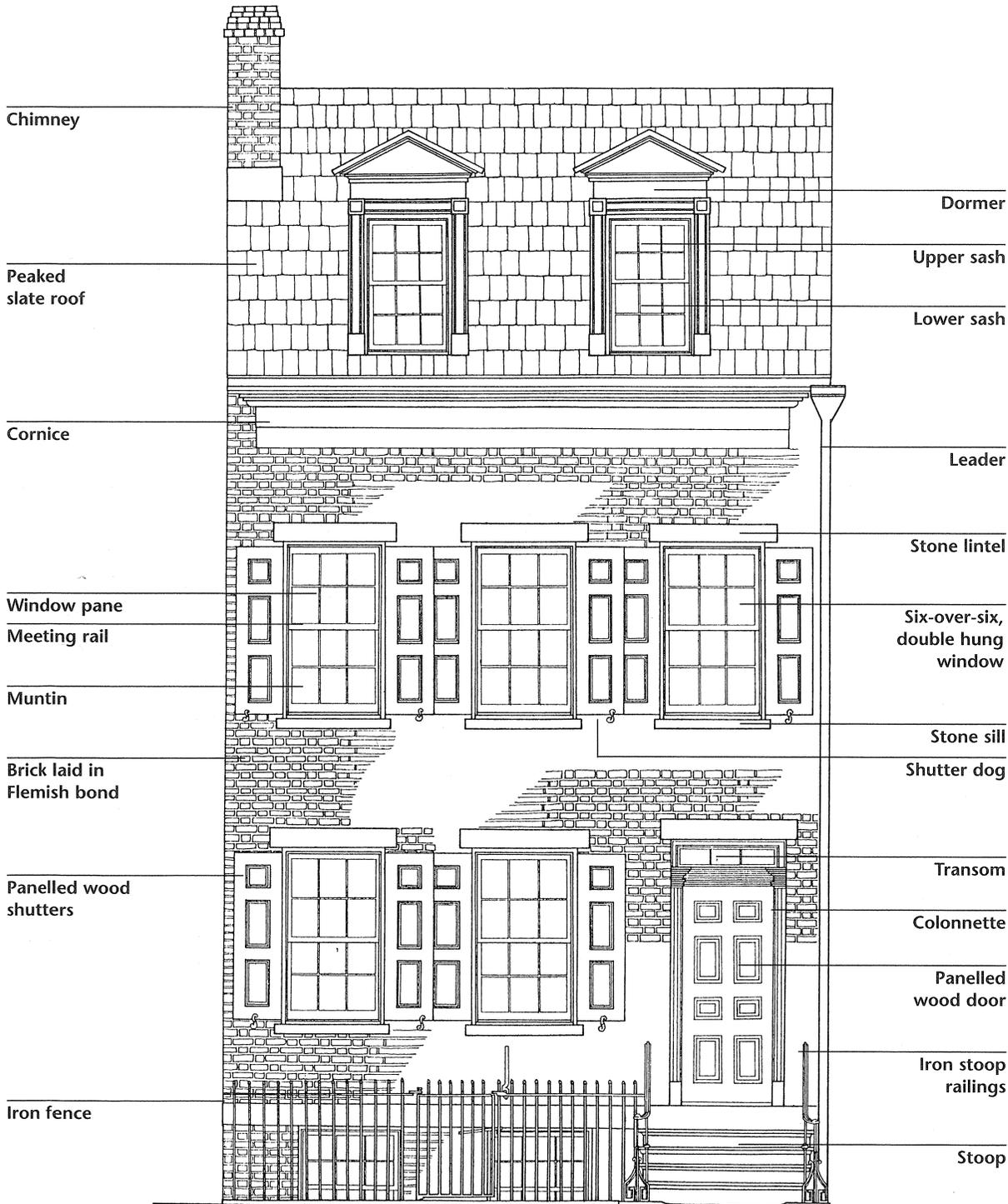
A rowhouse areaway with concrete paving.



# Rowhouse Styles

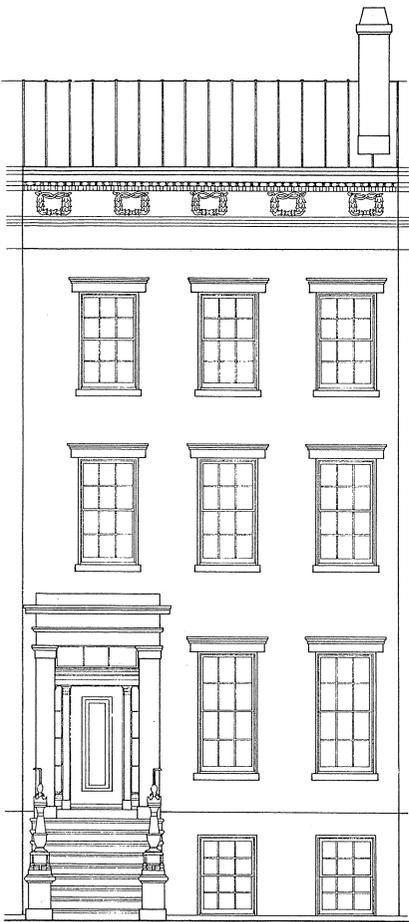
The following drawings and text depict and describe the most common rowhouse styles found in New York City's residential historic districts. Each style is identified by a generalized listing of its most common and archetypal identifying features and the dates of its most common appearance. It must be remembered, however, that architecture is a creative endeavor. Not all houses of a particular style will exactly fit the description given. Architectural styles evolve slowly. Older styles did not lose popularity as soon as

new styles were introduced. Therefore, many rowhouses can be identified as transitional buildings with forms and details characteristic of two or more styles. In addition, many of New York City's rowhouses have been altered since they were built. Often the change was the addition of one or more elements to make an older rowhouse more stylish. Thus each element of a rowhouse should be handled in accordance with the attributes of its style.



## THE FEDERAL STYLE (1800-1835)

- characterized by modest scale and simple architectural ornament inspired by ancient Greek and Roman architecture;
- two to three stories high with basement and attic half-story with dormer windows;
- metal or slate peaked roof;
- brownstone base with red brick upper facade (laid in Flemish bond);
- low stoop with wrought-iron handrails, fence, and newels;
- six or eight-panelled wood entrance door, sometimes with a leaded transom, side-lights, and colonnettes;
- six-over-six double-hung wood windows (often flanked by panelled shutters);
- stone window sills and panelled stone window lintels; and
- classical wood cornice with dentils, modillions, and moldings.

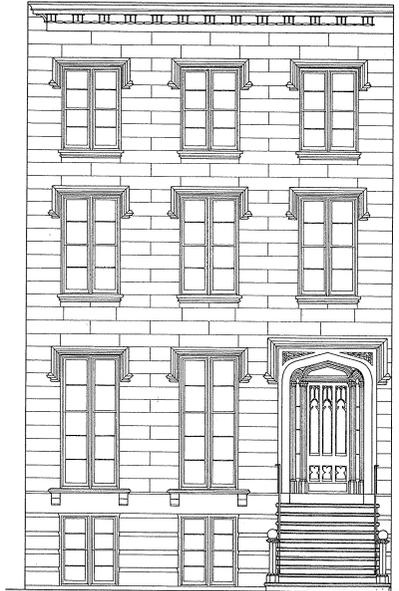


**THE GREEK REVIVAL STYLE  
(1830–1850)**

- characterized by simple and bold architectural elements, imitating Greek motifs;
- three to three and one-half stories high with basement, sometimes an attic story below the cornice;
- brownstone base with brick upper facade (laid in English bond);
- stoop of medium height with wrought- or cast-iron handrails, fence, and newels;
- vertical panelled wood door;
- grand entrance pilasters, sidelights, and stone enframements;
- six-over-six double-hung wood windows, six-over-nine often on the parlor floor, and sometimes small attic windows;
- modest molded stone window lintels and sills; and
- wood dentiled cornice.

**THE GOTHIC REVIVAL STYLE  
(1840–1860)**

- characterized by architectural elements inspired by organic and natural forms, medievalism, and the picturesque;
- bold, projecting ornament;
- three stories plus basement;
- flat roof;
- brick with brownstone trim or full brownstone facade;
- stoop of medium height with cast-iron handrails, fence, and newels with elaborate gothic motifs;
- recessed doorway with panelled wood door with pointed arches and occasional trefoils or quatrefoils;
- door surmounted by horizontal hood molding or low Tudor arch or combination of the two with foliated spandrel carving;
- picturesque hooded stone window lintels;
- multi-paned double-hung wood windows or multi-paned wood casement windows; and
- plain Greek Revival style or boldly projecting Italianate style cornice.

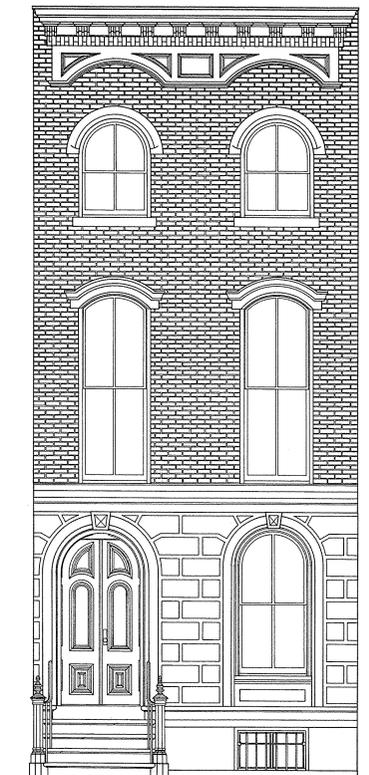
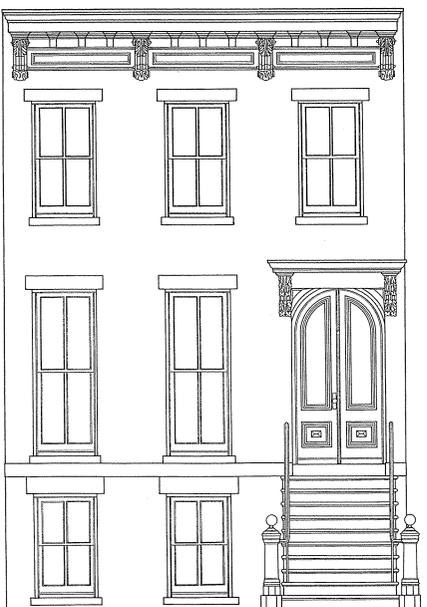


**THE ITALIANATE STYLE  
(1840–1870)**

- characterized by elaborate, bold, projecting ornament with an emphasis on repetitive forms;
- two to four stories high with brownstone basement;
- usually a full brownstone facade;
- high and wide stoop with elaborate cast-iron handrails, balusters, fence and newels;
- deeply recessed doorway with heavy protruding door hood and console brackets;
- round-headed double-leaf doors with heavily molded arched panels;
- large double-hung two-over-two or one-over-one wood windows, sometimes with heavy muntins to imitate casement windows;
- heavy, projecting stone window lintels and sills (sometimes resting on brackets) or full window enframements; and
- heavy, imposing, projecting cornice, embellished with moldings and supported by rectangular or scroll-shaped brackets.

**THE ANGLO-ITALIANATE STYLE  
(1840–1860)**

- three to five stories high;
- narrow width;
- rusticated brownstone basement and first story with smooth brownstone or brick upper facade;
- low stoop;
- round-headed, double-leaf wood door with arched panels;
- round-arched door surround;
- square-headed, round-arch, or segmental-headed window openings;
- two-over-two, one-over-one, or multi-paned wood windows;
- simple brownstone window lintels and sills; and
- bracketed cornice with recessed panels and an arched fascia.

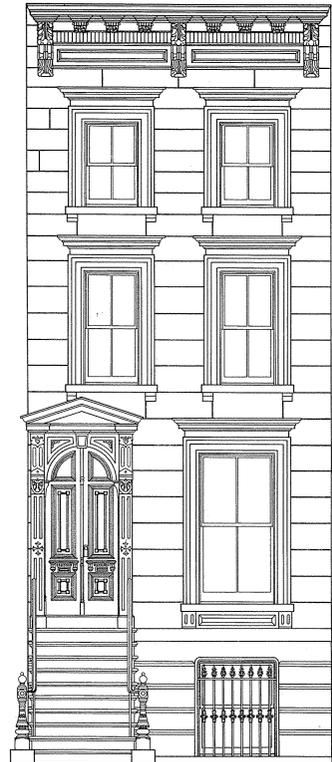


**THE SECOND EMPIRE STYLE  
(1860–1875)**



- similar to Italianate style;
- three to five stories high;
- brownstone facade;
- wide stoop with classically inspired iron handrails, fence and newels;
- mansard roof (usually slate with iron crestings); and
- doorway with stone pilasters, consoles, and segmental arched pediment.

**THE NEO-GREC STYLE  
(1865–1885)**



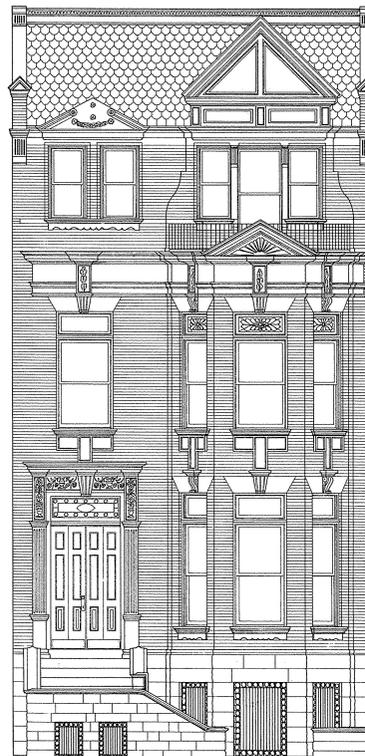
- characterized by extremely stylized, classical details, angular forms, and incised detailing formed by mechanical stone cutting;
- three to five stories high with basement;
- brownstone and/or brick facade with simplified ornament, including single-line incised cuttings in the stone;
- high stoop with massive, heavy, angular cast-iron handrails, fence, and newels;
- massive door hood and enframing with angular decorative elements resting on stylized brackets;
- double-leaf wood entrance doors with angular ornament;
- stylized, angular incised window surrounds;
- two-over-two or one-over-one double-hung windows;
- projecting angular bays; and
- projecting wood or metal cornice resting on angular brackets.

**THE ROMANESQUE REVIVAL  
STYLE (1880–1890s)**



- characterized by heavy forms, asymmetry, and polychromatic materials, and a straightforward use of materials and expression of structure;
- tonal and textural juxtaposition of materials: rock-faced brownstone, granite, limestone, elongated red, yellow, and brown brick, and terra cotta;
- use of permanence of stone to evoke sense of solidity;
- Byzantine-style carved ornament
- spiny, interlaced vegetal forms, abstract patterns, and grotesque human and animal heads;
- massive arches;
- deeply recessed round-arched door and window openings;
- multi-panelled wood double doors;
- elaborate stained-glass transom lights; and
- Spanish tile roofs.

**THE QUEEN ANNE STYLE  
(1870–1890)**

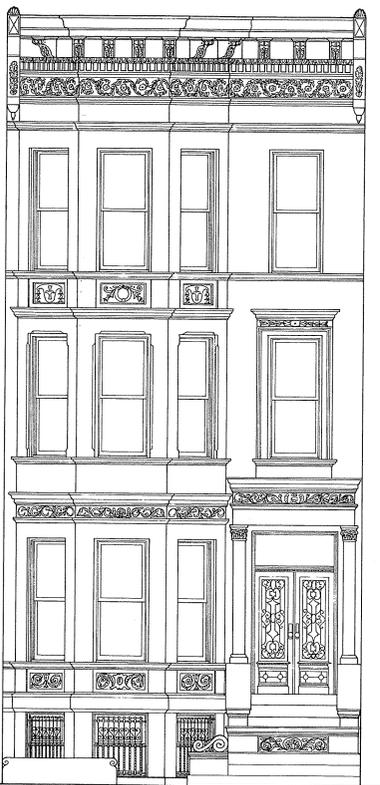


- characterized by asymmetric massing of forms and details;
- contrasts of varied materials, colors, and textures;
- eccentric details, often with Classical or Renaissance precedents and often mixed with Romanesque Revival style forms;
- use of terra cotta;
- three-sided projecting bay windows;
- whimsical juxtaposition of window pane size, usually double-hung windows with small paned upper sash;
- wrought iron used at doorways and railings;
- L-shaped stoops or straight stoops;
- multi-panelled wood doors; and
- gable roofs covered with tiles or slate and featuring dormers and chimneys.

**THE RENAISSANCE REVIVAL STYLE (1880–1920)**

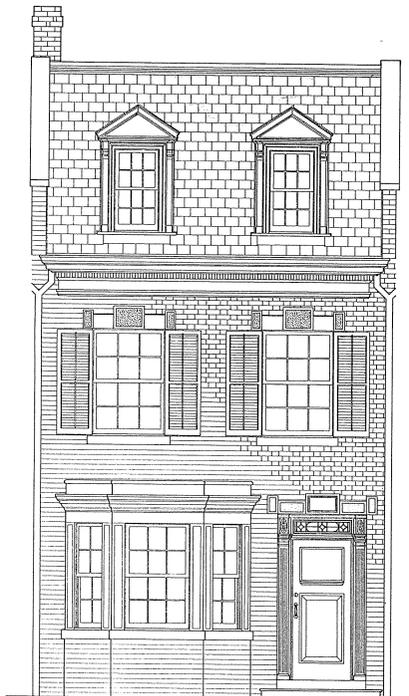
- characterized by simple, restrained Renaissance design forms, and an interest in classicism;
- two to three stories high;
- brownstone, limestone or light colored brick facade;
- subdued Classical ornament concentrated around door and window openings;
- applied detail includes motifs of wreaths, baskets of fruit, and garlands of flowers;
- L-shaped stoop, often with two landings;
- entrance surround features a full stone enframing;
- wood double-leaf doors with glazed openings, sometimes with iron grilles; and
- simple iron cornice with Renaissance-inspired ornament.

The Neo-Renaissance style (1890–1920) was an outgrowth of the Renaissance Revival style. Neo-Renaissance style rowhouses are similar to Renaissance Revival style rowhouses but are more academic in their use and expression of classical ornament.



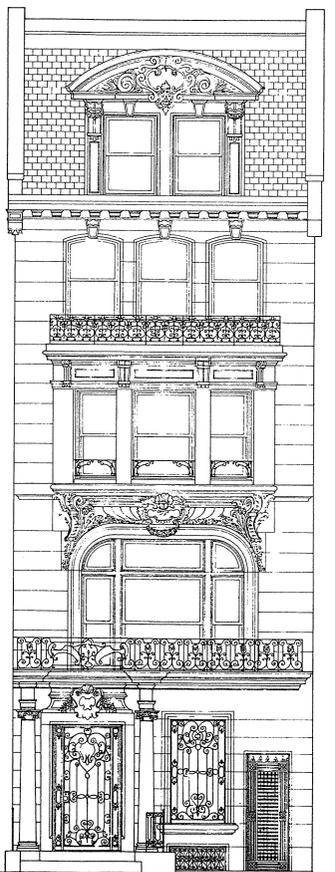
**THE COLONIAL REVIVAL STYLE (1880–1930)**

- characterized by the use of colonial design motifs, a combination of elements from the Federal and Greek Revival styles;
- symmetrical red brick facade laid in Flemish bond;
- high stoop or simple steps;
- stone trim around doorway and windows;
- six or eight panelled wood door with leaded fanlight or rectangular sidelights and transom;
- simple iron handrails and fences;
- multi-pane double-hung wood windows;
- Classical details often include urns, festoons, and broken pediments;
- delicate, slender moldings; and
- simple cornice.



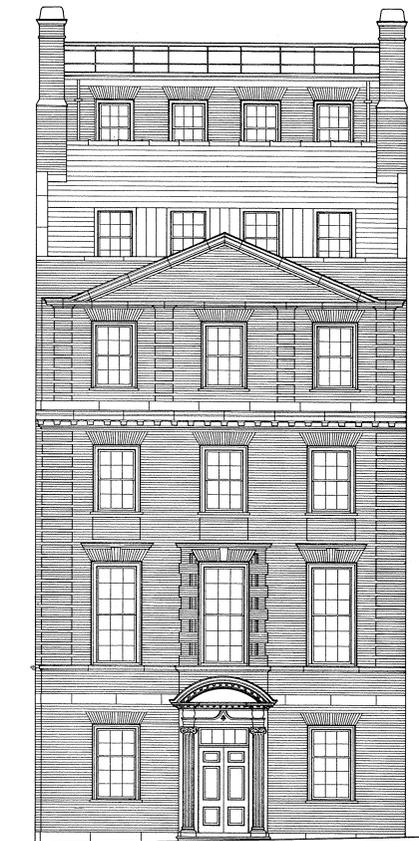
**THE BEAUX-ARTS STYLE (1890–1920)**

- characterized by an academic classicism, symmetry of design, and an ordered, uniform appearance;
- five stories high;
- steep mansard roof with ornate dormers, or flat or low-pitched roof;
- white marble, limestone, or a light color brick facade;
- bold, three-dimensional stone carving;
- use of cartouches as ornament;
- lacks high stoop, entrance door is one or two steps above the sidewalk;
- main floor is often one floor above the entrance and usually has large windows with balconies;
- double-hung and casement wood windows;
- curved or three-sided projecting bay windows; and
- sheet metal cornice with console brackets embellished with friezes.



**THE ENGLISH NEO-CLASSICAL STYLE (1900–1925)**

- characterized by the pure design and accurate replication of eighteenth-century English town house architecture;
- subdued classical ornament;
- four to five stories high;
- full brick facade laid in Flemish bond or limestone facade;
- projecting entrance portico at ground level with full entablature;
- double-leaf glass and iron entrance doors;
- modestly projecting window and door surrounds with hoods, and eared surrounds;
- florid wrought iron;
- roof may be flat, steeply pitched with dormers, or steeply pitched with a triangular pediment set before it; and
- cornice set on modillions and surmounted by a balustrade.



# Glossary

**architrave** 1. The lowest part of a classical *entablature*. 2. A molding enframing an opening such as a window.

**areaway** The open space between a rowhouse and the sidewalk, usually beside the stoop.

**awning** A projecting shading device, usually of canvas, mounted on the outside of a door or window.

**baluster** One of a series of short vertical posts, often ornamental, used to support a rail.

**balustrade** A railing composed of *balusters* and a top rail running along the edge of a porch, balcony, roof, or *stoop*.

**bay** A regularly repeating division of a facade, marked by *fenestration*.

**bay window** A projecting form containing windows that rises from the ground or from some other support, such as a porch roof; see also *oriel*.

**bracket** A projecting angled or curved form used as a support, found in conjunction with balconies, *lintels*, *pediments*, *cornices*, etc.

**brick molding** A milled wood trim piece covering the gap between the window frame and masonry, which can be rectilinear, curved or composite-curved.

**cap flashing** A waterproof sheet that seals the tops of *cornices* and walls.

**capital** The topmost member, usually decorated, of a *column* or *pilaster*.

**casement** A window *sash* that is hinged on the side.

**cast iron** A type of iron, mass-produced in the nineteenth century, created by pouring molten iron into a mold; used for ornament, garden furniture, and building parts.

**clapboard** Wood siding composed of horizontal, overlapping boards, the lower edges of which are usually thicker than the upper.

**colonnade** A row of regularly spaced *columns* supporting an *entablature*.

**colonnette** A diminutive *column* which is usually either short or slender.

**column** A vertical cylindrical support. In classical design it is composed of a base (except in the Greek *Doric* order), a long, gradually tapered shaft, and a *capital*.

**console** A scroll-shaped projecting bracket that supports a horizontal member.

**coping** A protective cap, top, or cover of a wall *parapet*, commonly sloping to protect masonry from water.

**corbel** An architectural member which projects upward and outward from a wall that supports a horizontal member.

**cornice** A projecting molding that tops the elements to which it is attached; used especially for a roof or the crowning member of an *entablature*, located above the *frieze*.

**cresting** A decorative element, frequently of iron, usually located at the peak or edge of a roof.

**crocket** An ornamental *foliate* form placed at regularly spaced intervals on the slopes and edges of the spires, pinnacles, gables, and similar elements of Gothic buildings,

**cupola** A small dome on a base crowning a roof.

**dentil** A small, square, toothlike block in a series beneath a *cornice*.

**Doric** One of five classical orders, recognizable by its simple *capital*. The Greek *Doric column* has a fluted shaft and no base; the Roman *Doric column* may be fluted or smooth and rests on a molded base.

**dormer** A vertical structure, usually housing a window, that projects from a sloping roof and is covered by a separate roof structure.

**double-hung** A type of window with two sash, each sliding on a vertical track.

**drip molding** A projecting molding around the head of a door or window frame, often extended horizontally at right angles to the sides of the frame, intended to channel rain away from the opening; also called a drip *lintel*.

**eave** The overhanging edge of a roof.

**egg and dart** An ornamental band molding of egg forms alternating with dart forms.

**elevation** An exterior face of a building; also, a drawing thereof.

**enframing** A general term referring to any elements surrounding a window or door.

**English bond** A pattern of brickwork with alternate courses of *headers* and *stretchers*.

**entablature** In classical architecture, a major horizontal member carried by a *column(s)* or *pilaster(s)*; it consists of an *architrave*, a *frieze*, and a *cornice*. The proportions and detailing are different for each order, and strictly prescribed.

**eyebrow dormer** A curved *dormer* with no sides, covered by a smooth protrusion from the sloping roof.

**facade** The main exterior face of a building, sometimes distinguished from the other faces by elaboration of architectural or ornamental details.

**fanlight** A semicircular or semielliptical window above a door, usually inset with radiating glazing bars.

**fascia** A horizontal, flat element, often combined with a *cornice* and *architrave*.

**fenestration** The organization and design of windows in a building.

**festoon** A carved ornament in the form of a band, loop, or wreath, suspended from two points; also called a “garland” or a “swag.”

**finial** The crowning ornament of a pointed element, such as a spire.

**flashing** Strips of sheet metal bent to fit the angle between any two roof surfaces or between the roof and any projection, such as a chimney.

**Flemish bond** A pattern of brickwork in which each course consists of *headers* and *stretchers* laid alternately; each header is centered between the stretcher above and the stretcher below it.

**foliate** Decorative leafage, often applied to *capitals* or *moldings*.

**French door, window** A tall *casement* window that reaches to the floor, usually arranged in two leaves as a double door.

**frieze** 1. The middle horizontal member of a classical *entablature*, above the *architrave* and below the *cornice*. 2. A similar decorative band in a *string-course*, or near the top of an interior wall below the *cornice*.

**gable** The upper portion of an end wall formed by the slope of a roof.

**galvanized iron** Iron that has been coated with zinc to inhibit rusting.

**glazing bar** See *mullion*.

**Gothic sash** A window sash pattern composed of *mullions* that cross to form pointed arches.

**grille** A decorative, openwork grating, usually of iron, used to protect a window, door, or other opening.

**gutter** A shallow channel of metal or wood set immediately below and along the eaves of a building to catch and carry off rainwater.

**header** A masonry wall unit of brick which is laid so that its short end is exposed.

**hood** A projection that shelters an element such as a door or window.

**ionic** One of the five classical orders, characterized by *capitals* with spiral elements called “*volutes*,” a fasciated *entablature*, continuous *frieze*, *dentils* in its *cornice*, and by its elegant detailing.

**jigsaw carving** Wooden ornament cut with a thin narrow saw blade.

**joist** One of a series of parallel timber beams used to support floor and ceiling loads, and supported in turn by larger beams, girders, or bearing walls; the widest dimension is vertically oriented.

**key** A block, often used in a series, which projects beyond the edge of the *enframing* of an opening and is joined with the surrounding masonry. A block handled in such a manner is keyed to the masonry; see *quoin*.

**keystone** The central wedge-shaped member of a masonry arch; also used as a decorative element on arches in wood structures.

**latticework** Thin strips of wood arranged in a net-like grid pattern, often set diagonally.

**leaded window** A window composed of small panes, usually diamond-shaped or rectangular, held in place by narrow strips of cast lead.

**leader** A horizontal or vertical cylinder, usually made of metal, which carries water from the gutter to the ground.

**lintel** A horizontal structural element over an opening which carries the weight of the wall above it.

**loggia** 1. An arcaded or *colonnaded* structure, open on one or more sides, sometimes with an upper story. 2. An arcaded or *colonnaded* porch or gallery attached to a larger structure.

**lunette** A crescent-shaped or semicircular area or opening on a wall surface.

**mansard** A roof having a double slope on all four sides, the lower slope being much steeper. In rowhouse design, a double-sloped roof on the building front, below a flat roof.

**meeting rail** The rail of a *double-hung* window sash designed to interlock with the adjacent rail.

**modillion** A projecting scroll-shaped *bracket* or simple horizontal block arranged in series under the *soffit* of a *cornice*.

**molding** A decorative band of varied contour, used to trim structural members, wall planes, and openings.

**mullion** A vertical primary framing member that separates paired or multiple windows within a single opening.

**muntn** A thin framing member that separates the panes of a window *sash* or glazed doors.

**newel** The main post at the foot of a stairway or *stoop*.

**oriel** A projecting bay window carried on *corbels* or *brackets*.

**Palladian window** A three-part window opening with a tall, round-arched center window flanked by smaller rectangular windows and separated by posts or *pilasters*.

**panel** A portion of a flat surface recessed, or raised from the surrounding area, distinctly set off by *molding* or some other decorative device.

**parapet** A low wall that serves as a vertical barrier at the edge of a roof, terrace, or other raised area; in an exterior wall, the part entirely above the roof.

**paver** A block of stone used in sidewalk or areaway paving.

**pediment** 1. In classical architecture, the triangular space forming the *gable* end of a roof above the horizontal *cornice*. 2. An ornamental *gable*, usually triangular, above a door or window.

**pier** 1. A *column* designed to support concentrated load. 2. A member, usually in the form of a thickened section, which forms an integral part of a wall; usually placed at intervals along the wall to provide lateral support or to take concentrated vertical loads.

**pilaster** An engaged *pier* or pillar, often with *capital* and base.

**pitched** Sloping, especially referring to a roof.

**plinth** A platform base supporting a *column* or *pilaster*.

**pointing, repointing** The treatment of joints between bricks, stone, or other masonry components by filling with mortar; also called tuck-pointing.

**portico** A small porch composed of a roof supported by *columns*, often found in front of a doorway.

**p.s.i.** Pounds per square inch, a term generally used when describing water pressure when cleaning a building.

**quoin** A structural form, usually of masonry, used at the corners of a building for the purpose of reinforcement, frequently imitated for decorative purposes.

**relief** Carved or molded ornament that projects from a flat surface.

**repointing** See *pointing*.

**return** The part of a *molding*, *cornice*, or wall surface that changes direction, usually at a right angle, toward the building wall.

**reveal** The side of an opening for a door or window between the frame and the outer surface of a wall, showing the wall's thickness.

**rock faced** Masonry treated with a rough surface that retains or simulates the irregular texture of natural stone.

**rosette** A round floral ornament, usually carved or painted.

**round arch** A semicircular arch.

**rowhouse** One of a group of an unbroken line of attached houses that share common side walls, known as party walls.

**rubble stone** Irregularly shaped, rough-textured stone laid in an irregular manner.

**rustication, rusticated** Stonework composed of large blocks of masonry separated by wide, recessed joints; often imitated in other materials for decorative purposes.

**sash** The secondary part of a window which holds the glazing in place; may be operable or fixed; usually constructed of horizontal and vertical members; sash may be subdivided with *muntns*.

**secondary facade** The facade that does not face a public thoroughfare, mews, or court and that does not possess significant architectural features.

**segmental arch** An arch which is in the form of a segment of a semicircle.

**semidetached** A building attached to a similar one on one side but unattached on the other.

**shaft** The vertical segment of a *column* or *pilaster* between the base and the *capital*.

**shed dormer** A *dormer* window covered by a single roof slope without a *gable*.

**shingle** A unit composed of wood, cement, asphalt compound, slate, tile or the like, employed in an overlapping series to cover roofs and walls.

**shouldered arch** An arch composed of a square-headed *lintel* supported at each end by a concave *corbel*.

**shutter dogs** The metal attachments which hold shutters in an open position against the face of a building.

**sidelight** A vertically framed area of fixed glass, often subdivided into panes, flanking a door.

**sill** The horizontal member at the bottom of a window or door.

**soffit** The exposed underside of any architectural element, especially a roof.

**spalling** The chipping or erosion of masonry caused by abuse or weathering.

**spandrel** 1. A panel between the top of one window and the sill of another window on the story directly above it. 2. An irregular, triangular wall segment adjacent to an arched opening.

**stile** A main vertical member of a door or window.

**stoop** The steps which lead to the front door; from the Dutch "stoep."

**stretcher** A masonry unit or brick laid horizontally with its length parallel to the wall.

**stringcourse** A narrow horizontal band of masonry, extending across the facade, which can be flush or projecting, and flat surfaced, molded, or richly carved.

**stucco** A coating for exterior walls made from Portland cement, lime, sand, and water.

**subframe** A secondary frame set within a masonry opening.

**sugaring** A term describing the deterioration of stone caused by the breaking up or dissolving of the stone surface.

**surround** The ornamental frame of a door or window.

**swag** A carved ornament in the form of a draped cloth or a *festoon* of fruit or flowers.

**terra cotta** Hard fired clay, either glazed or unglazed, molded into ornamental elements, wall cladding and roof tiles.

**tie rod** A metal tension rod connecting two structural members, such as *gable* walls or beams, acting as a brace or reinforcement; often anchored by means of a metal plate in such forms as an "S" or a star.

**tracery** An ornamental configuration of curved *mullions* in a *Gothic sash*.

**transom** 1. A horizontal bar of wood or stone across a window. 2. The cross-bar separating a door from the window, *panel*, or *fanlight* above it. 3. The window above the *transom* bar of a door.

**transom bar** A horizontal element that subdivides an opening, usually between a door and window.

**trefoil** A three-lobed decorative form used in Gothic architecture.

**tuck-pointing** See *pointing*.

**turret** A small tower, usually supported by *corbels*.

**volute** A carved spiral form in classical architecture; often used in pairs as in the capitals of *Ionic columns*.

**voussoir** A wedge-shaped component of an arch.

**wrought iron** Iron that is worked by being forged or hammered.

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