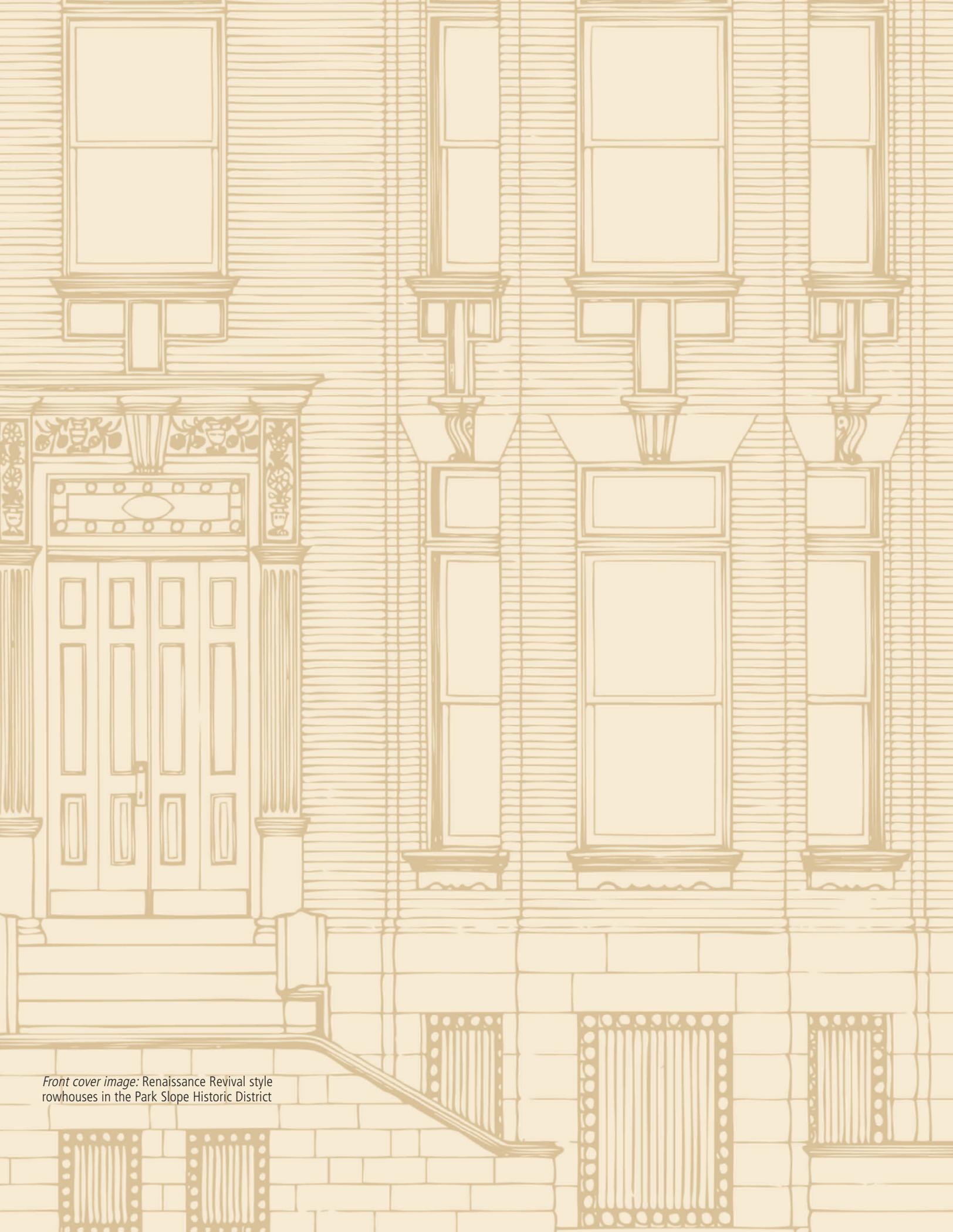


New York City Landmarks Preservation Commission

ROWHOUSE MANUAL





Front cover image: Renaissance Revival style rowhouses in the Park Slope Historic District



Dear Fellow New Yorker,

I'm pleased to present the Landmarks Preservation Commission's Rowhouse Manual, a guide that's designed to help you work successfully with the Commission to protect, maintain and enhance your architecturally and historically significant home.

There currently are more than 100 historic districts throughout New York City, all of which are as diverse as the owners and residents who live in them. They encompass a variety of styles, from the simple brick buildings of Ridgewood North Historic District, Queens to the elegant Beaux-Arts limestone maisonettes of the Upper East Side and the ornate Queen Anne and Romanesque Revival style 19th-century mansions and rowhouses of Crown Heights North in Brooklyn.

Preserving the outstanding buildings that lie within the boundaries of these special neighborhoods is truly a partnership between you, the Commission and its staff. As the City's expert historic preservation agency, the Commission is responsible for preventing the loss of the special features that contribute to the distinctive character of your building, and by extension New York City. But our efforts to safeguard these buildings and sites could not succeed without you.

This manual is meant to assist you care for your property for the long term. It contains a great deal of helpful information, and we've done our best to make it informative and interesting. On behalf of my fellow Commissioners and the Commission's staff, I'd like to thank you for helping us protect the quality of life of every New Yorker, and attract tens of millions of visitors to our City each year. We look forward to continuing to work with you, and for you, in the years and decades to come.

Sincerely,

Robert B. Tierney, Chair
New York City Landmarks Preservation Commission

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New York City is recognized around the world for its 20th century, glass and steel skyline, yet architecturally it's largely a 19th century city. Much of the New York's architectural distinction derives from its rowhouses, the standard, narrow, three-to-five story residences that were constructed to house an expanding middle class population more than a century ago. These distinctive residences are the dominant building type in the majority of the City's historic districts, and their care and maintenance have a substantial impact on its unique character.

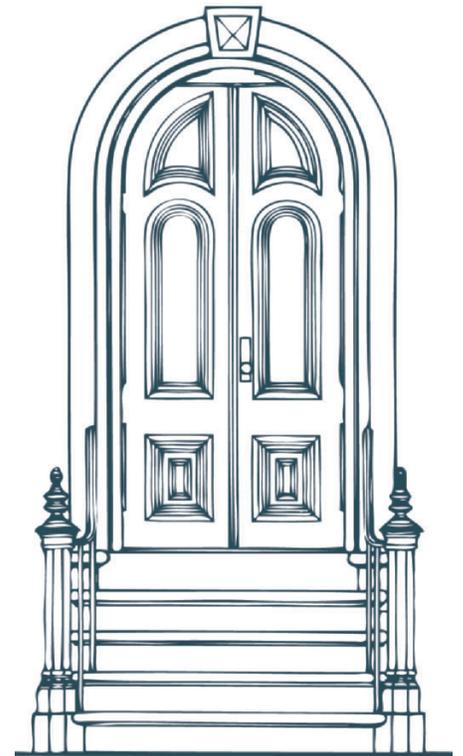
The Landmarks Preservation Commission (LPC) is the Mayoral agency charged with designating and regulating these districts, as well as stand-alone landmarks. It's comprised of a professional staff, and 11 Commissioners who are appointed by the Mayor.

In order to protect these special properties, the Landmarks Law requires their owners to apply to LPC to obtain permits for certain types of exterior work before the work begins. The decision to issue a permit rests on whether the proposed work is "appropriate" to the character of a building and/or the surrounding district. This manual is meant to serve as a practical guide for the owners of individually landmarked rowhouses and rowhouses in historic districts who are contemplating exterior changes.

The manual is organized as a series of chapters focusing on such basic building elements as air conditioners, windows, doors, walls, cornices and ironwork, how to maintain, repair or restore them and how to obtain a permit for changes to them.

We are aware of the challenges of owning and maintaining a rowhouse, and are here to help ensure that we have the right information needed to issue a permit in a timely, efficient manner. We strongly urge owners to review this manual before applying for a permit or selecting a contractor. Complete proposals that fall within LPC's rules and regulations, which are specified under Title 63 of the City's Administrative Code, take less time to review.

Please keep in mind that this manual is not a substitute for these regulations, and that it does not release owners from obtaining a permit from the Commission. If you can't find an answer, please visit our Web site, www.nyc.gov/landmarks, or call 311 to contact our staff.

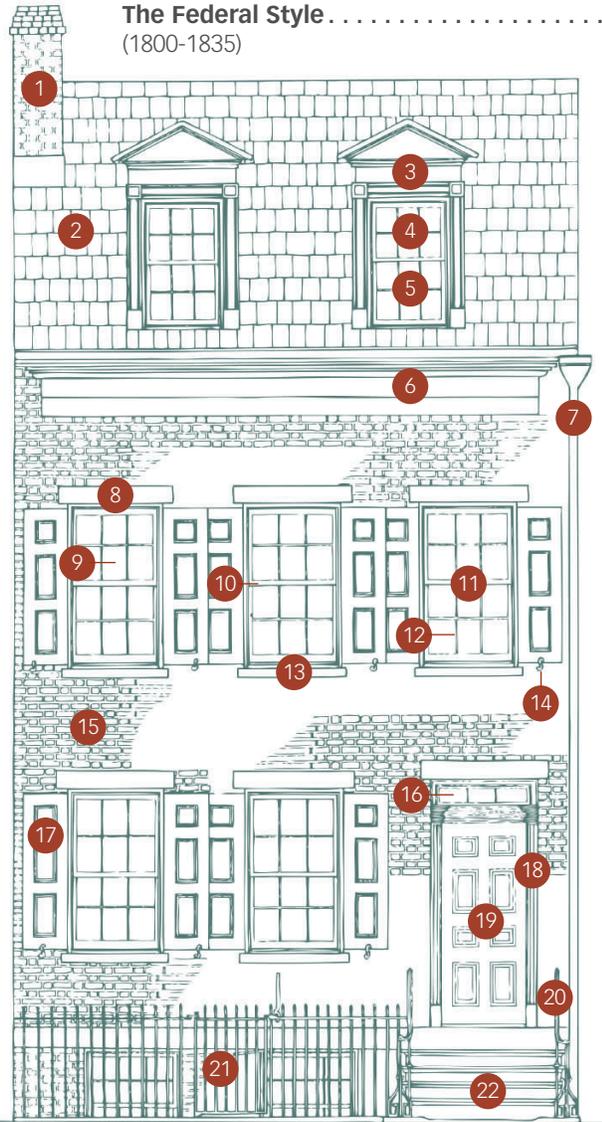


**To contact the Landmarks
Preservation Commission
visit www.nyc.gov/landmarks
or call 311**



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 and the overall styles of the building.

The Federal Style (1800-1835)



1. CHIMNEY
2. PEAKED SLATE ROOF
3. DORMER
4. UPPER SASH
5. LOWER SASH
6. CORNICE
7. LEADER
8. STONE LINTEL
9. WINDOW PANE
10. MEETING RAIL
11. SIX-OVER-SIX, DOUBLE-HUNG WINDOW
12. MUNTIN
13. STONE SILL
14. SHUTTER DOG
15. BRICK LAID IN FLEMISH BOND
16. TRANSOM
17. PANELED WOOD SHUTTERS
18. COLONNETTE
19. PANELED WOOD DOOR
20. IRON STOOP RAILINGS
21. IRON FENCE
22. STOOP

- 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 façade (laid in Flemish bond);
- low stoop with wrought-iron handrails, fence, and newels;
- six- or eight-paneled wood entrance door, sometimes with a leaded transom, sidelights, and colonnettes;
- six-over-six double-hung wood windows (often flanked by paneled shutters);
- stone window sills and paneled stone window lintels; and
- classical wood cornice with dentils, modillions, and moldings.

The Greek Revival Style

(1830-1850)

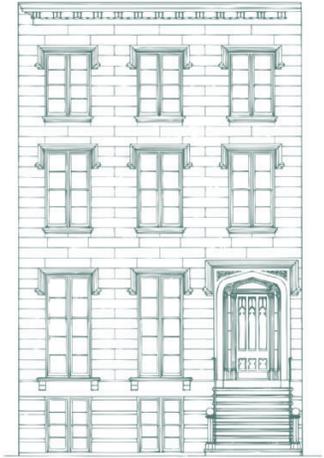
- characterized by simple and bold architectural elements, imitating Greek motifs;
- three to three and one-half stories high with basement, sometimes an attic story below the cornice;
- brownstone base with brick upper façade (laid in English bond);
- stoop of medium height with wrought- or cast-iron handrails, fence, and newels;
- vertical paneled 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)

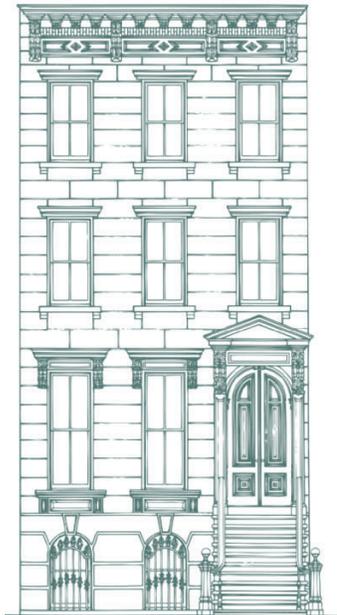
- characterized by architectural elements inspired by organic and natural forms, medievalism, and the picturesque;
- bold, projecting ornament;
- three stories plus basement;
- flat roof;
- brick with brownstone trim or full brownstone façade;
- stoop of medium height with cast-iron handrails, fence, and newels with elaborate gothic motifs;
- recessed doorway with paneled 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)

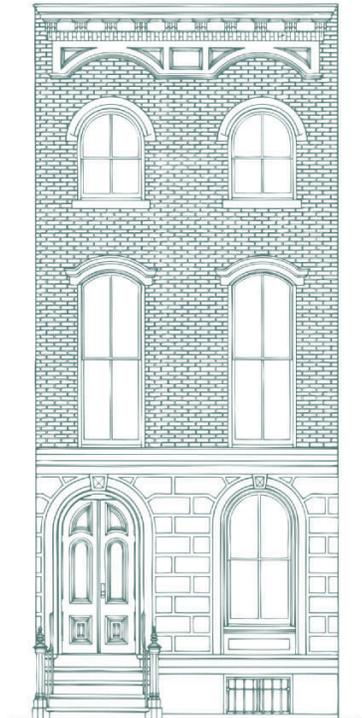
- characterized by elaborate, bold, projecting ornament with an emphasis on repetitive forms;
- two to four stories high with brownstone basement;
- usually a full brownstone façade;
- high and wide stoop with elaborate cast-iron handrails, balusters, fence and newels;
- deeply recessed doorway with heavily 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 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 façade;
- 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 façade;
- 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)

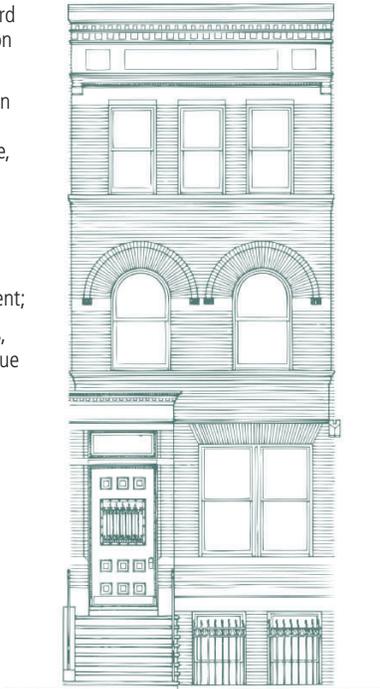
- characterized by extremely stylized, classical details, angular forms, and incised detailing formed by mechanical stone cutting;
- three to five stories high with basement;
- brownstone and/or brick façade with simplified ornament, including single-line incised cuttings in the stone;
- high stoop with massive, heavy angular cast-iron handrails, fence, and newels,
- massive door hood and enframingent 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)

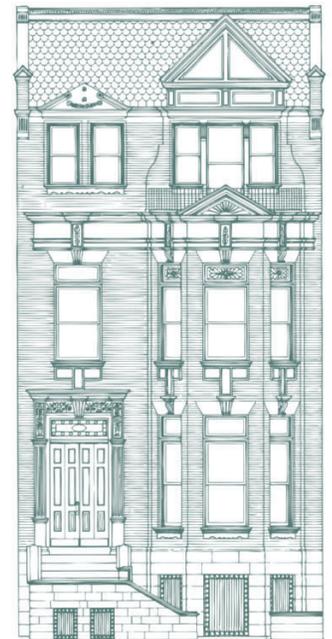
- characterized by heavy forms, asymmetry, and polychromatic materials, and a straightforward use of materials and expression of structure;
- tonal and textural juxtaposition of materials: rock-faced brownstone, granite, limestone, elongated red, yellow, and brown brick, and terra cotta;
- use of permanence 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-paneled 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-paned 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 façade;
- 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 landing
- 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)

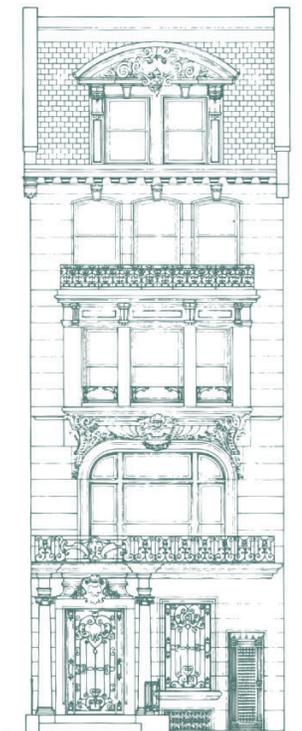
- characterized by the use of colonial design motifs, a combination of elements from the Federal and Greek Revival styles;
- symmetrical red brick façade laid in Flemish bond;
- high stoop or simple steps;
- stone trim around doorway and windows;
- six or eight paneled wood door with leaded fanlight 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;
- simple cornice.



The Beaux-Arts Style

(1890-1920)

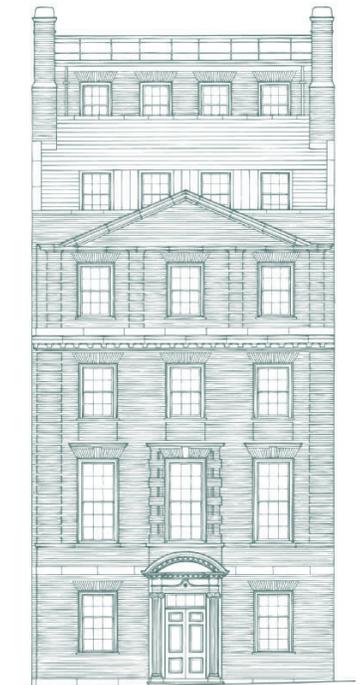
- characterized by an academic classicism, symmetry of design, and an ordered, uniform appearance;
- five stories high;
- steep mansard roof with ornate dormers, or flat or low-pitched roof;
- white marble, limestone, or a light color brick façade;
- bold, three-dimensional stone carving;
- use of cartouches 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 18th-century English townhouse architecture;
- subdued classical ornament;
- four to five stories high;
- full brick façade laid in Flemish bond or limestone façade;
- 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.





The Landmarks Preservation Commission preserves and protects New York City’s historic districts by regulating proposed changes to the buildings that lie within them. To ensure that planned alterations are consistent with the style and materials of a particular building, as well as others in a historic district, owners are required to apply for a work permit **before** a project begins.

How To Apply for a Permit

You can obtain an application and a copy of filing instructions on our Web site, www.nyc.gov/landmarks, by calling 311 or in person at our offices, 1 Centre Street, 9th Floor, New York, NY 10007.

In many cases, applications must be accompanied by photographs, drawings, building material samples and/or photomontages to illustrate the existing condition of the feature that is to be repaired or replaced, and the proposed new work.

Before filing your application, you are welcome to call an LPC staff member to discuss which materials are needed, or to arrange a meeting at our offices. By using the manual and working closely with the staff, you are likely to develop a proposal that LPC can find appropriate, and approve.

After you complete the application form, and add the necessary descriptive materials, you can mail or deliver them to our offices, where they will be docketed and assigned to a staff member. The staff member then determines whether the application is complete, and which type of permit is needed for the proposed work.

About Permits

The Commission issues three different types of permits for work on rowhouses: 1) a Certificate of No Effect 2) a Permit for Minor Work and 3) a Certificate of Appropriateness. After they’re submitted to the Commission, applications are assigned to a staff member, who will determine the type of permit and documentation your project requires.

The project will be authorized by either a staff member or the full Commission, depending upon its complexity. If Commission approval is necessary, your project must be first reviewed by your Community Board and then by the Commission after a public hearing.

Permits come in the form of a letter, describe the approved work and explain why it was approved. Permits must be posted prominently while the work is under way.

Permits issued for work on rowhouses and the work they cover:

Certificate of No Effect (CNE)

- Issued when the proposed work requires a Department of Buildings (DOB) permit, but either does not affect the protected architectural features of a building, or meets criteria spelled out in LPC’s Rules for specific alterations to the exterior of buildings
- Work covered: interior renovations, plumbing and heating equipment installation; rear wall alterations, cleaning or repair that require DOB approval, such as Local Law 11 repairs
- Valid for four years
- Public hearing not required

Permit for Minor Work (PMW)

- Issued when the proposed work does not require a Department of Buildings (DOB) permit, and which either meets the criteria under LPC’s Rules for specific exterior alterations or is considered to be good preservation practice.
- Work covered: exterior painting, replacing doors or window sash, installing storm windows, or masonry restoration, cleaning or repair, and restoration of architectural detail
- Valid for four years
- Public hearing not required

Certificate of Appropriateness (CofA)

- Issued when the proposed work affects significant architectural features or when any proposed changes do not meet the LPC’s Rules for staff level approval. This work may or may not require a Department of Buildings permit.
- Work covered: additions, demolition, new buildings, storefronts, removal of important architectural features such as stoops and cornices, or installation of replacement windows that do not meet LPC’s Rules
- Valid for six years
- Public hearing is required



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.

Door Configuration

The basic configuration of a doorway 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.

Door Entry Enframement

The door enframement is the part of the doorway that surrounds the door itself, and its wood or metal frame. The entry enframement can vary 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 façade to deteriorate. Such deterioration has been commonly handled in a number of inappropriate and unsympathetic 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.

Historic door entry enframements should be preserved and the removal of historic elements is discouraged. Wherever possible, unsound material should be stabilized.

Repairs and Maintenance

Restoring stone molding profiles and ornamentation is a skill that 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.

IN BRIEF

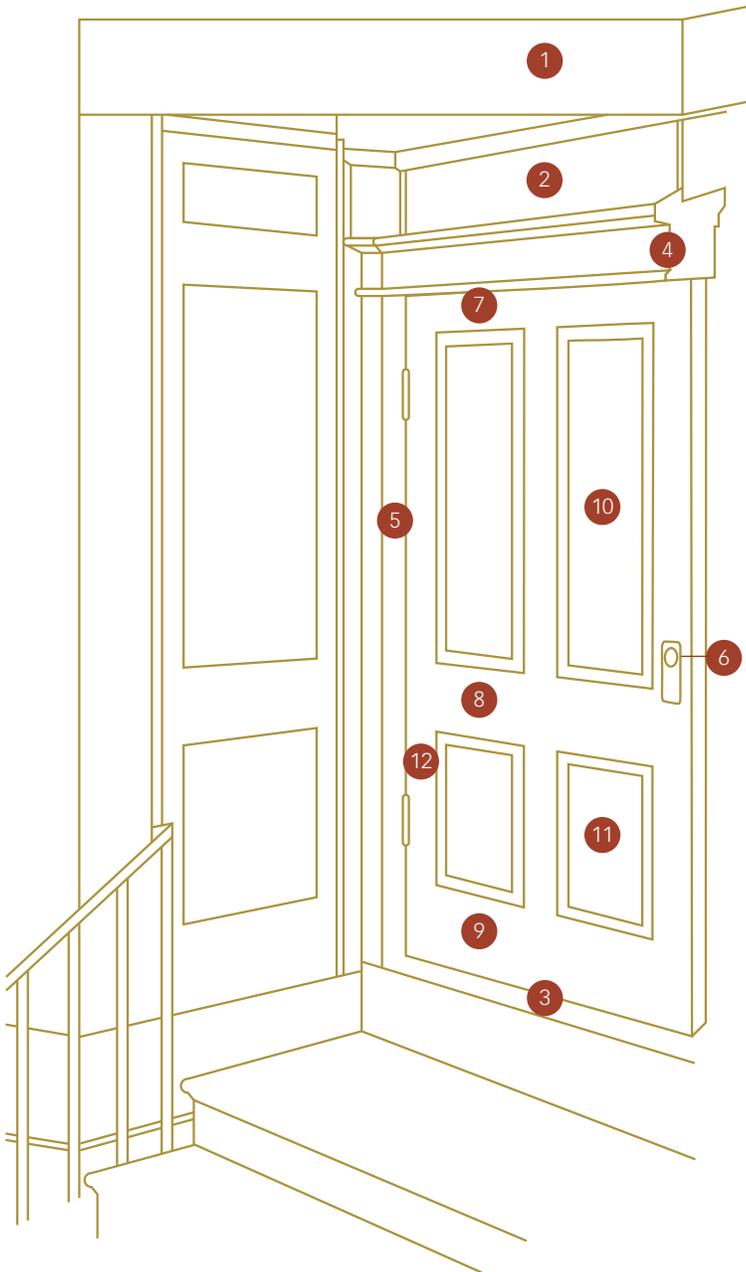
No permit required

- 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;
- Weather stripping

Permit required

- Painting doors or door frames a different color;
- Installing intercom boxes on the 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;
- Repairs requiring alterations to door entry enframement;
- Changing door configuration, including material, shape, size number of doors, transoms or glazing within existing opening.

Anatomy of a door



1. LINTEL

The horizontal beam that spans the top of the opening for the door that supports the rest of the building above the door.

2. TRANSOM

A horizontally-oriented window, typically rectangular, located above the door.

3. THRESHOLD

The horizontal base of the door that is raised above the exterior, signaling a transition from outside to inside.

DOOR

A slab-like element that closes a wall opening. Doors can opening by swinging or sliding.

4. DOOR FRAME

The opening and surrounding trim of the passage between rooms or the entrance of the building.

5. DOORJAMB

Facing sides of the wall opening for the passage in which a door is set.

6. DOORKNOB

The rotating handle of the locking mechanism. Also doubles the function of a door pull.

RAIL

The horizontal framing member of a door.

7. TOP RAIL

The upper-most horizontal framing member of a door.

8. LOCK RAIL

The horizontal framing member of a door located in the lower-middle of the door in which the door pull or locking mechanism is set.

9. BOTTOM RAIL

The bottom-most horizontal framing member of a door.

PANEL

A small, plane surface, typically rectangular, that fills the space between the rails and stiles. Can be either opaque or glazed.

10. MIDDLE PANEL

The panels located between the frieze panels and the bottom panels.

11. BOTTOM PANEL

The bottom-most panels in a door.

STILE

The vertical framing member of a door.

12. HANGING STILE

The vertical framing member of a door to which the hinges attach.

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.

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 pain color for wood doors are the same as those for wood wall surfaces.

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.

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 façade 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.



Federal style doorway with delicate colonnettes, paneled wood door, and leaded sidelights and transom.



Greek Revival style doorway with grand brownstone entrance enframement, paneled wood door, sidelights, and transom.



Gothic Revival style doorway with molded eared lintel and pointed-arched double-leaf wood doors.



Transitional Italianate style doorway with projecting segmental-arched lintel, foliate brackets, and round-headed double-leaf wood doors.

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.

Intercoms and Mailboxes

Intercoms and mailboxes are not considered historic elements of rowhouses, and can have an adverse impact on the composition of a façade. The Commission can issue a permit for them as long as they're appropriate to the style and character of your rowhouse. It's advised that you consult with the Commission staff before installing them to help you determine the best solution for your particular entry.

Entrance Awnings

Many rowhouses in the 19th and 20th centuries had retractable canvas awnings over doorways. Awnings were used then, and can still be used today, to reduce heat gain by screening the sun and to shield the entrance from rain. As with window awnings, they can be an effective façade decoration.

To avoid obscuring 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, on LPC's Web site, www.nyc.gov/landmarks.



Neo-Grec style doorway with pedimented lintel, incised brackets, and paneled double-leaf wood doors.



Renaissance Revival style doorway with applied Classical ornament, fluted pilasters, large transom, and wood double-leaf wood doors.



A retractable cloth awning installed above the entrance of an Italianate style rowhouse.



A retractable cloth awning installed above the entrance of a Renaissance Revival style rowhouse.



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, as well as the sashes themselves. Replacing sashes 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.

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 sashes 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 sashes 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.

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”) on LPC’s Web site, www.nyc.gov/landmarks.

IN BRIEF

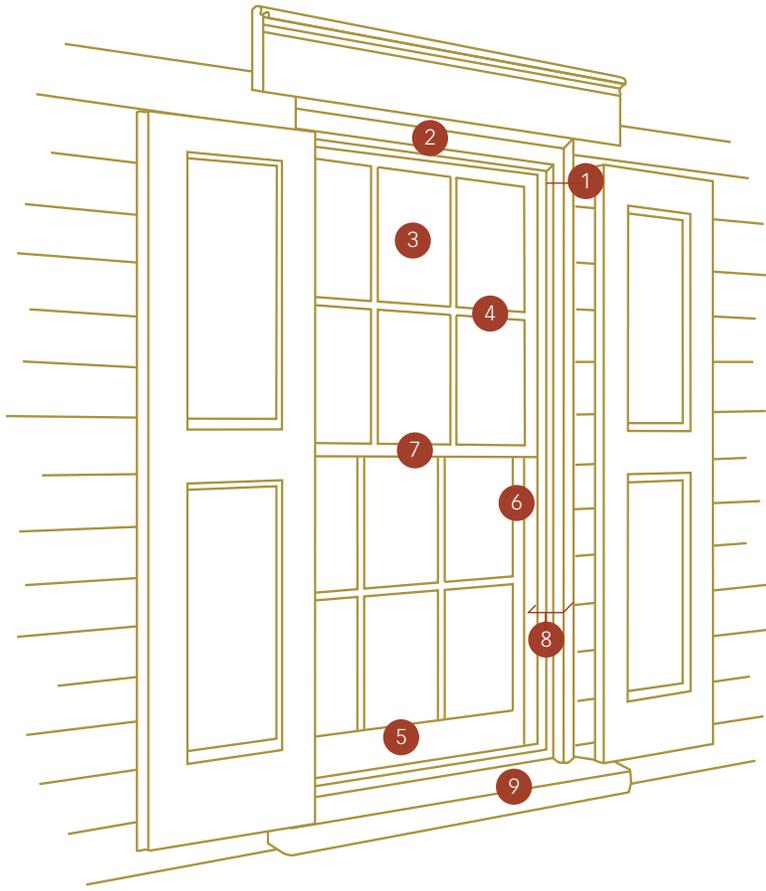
No permit required

- 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
- Installing regulation child guard

Permit required

- 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
- Replacing (extensive) original window materials or consolidating with epoxies or other plastics

Anatomy of a window



1. BRICK MOLD

The molding, usually wooden, that covers the gap between the window frame and the opening into which the window is set.

2. CASING

The molding surrounding the window jamb, usually seen on the exterior on frame buildings.

3. LIGHTS/ GLAZING/ PANES

The glass or pieces of glass that makes up the transparent portion of a window.

4. MUNTIN

The narrow horizontal and vertical pieces that hold together the panes of glass in multi-pane windows.

5. SASH

The wooden frame located inside the jamb that holds the glass; also known as the operable component of the window.

6. STILES

The vertical members of the sash.

7. MEETING RAILS

The bottom horizontal member of the upper sash and the top member of the lower sash.

8. JAMB

The sides and top of a window.

9. SILL

The bottom side of the window usually made out of heavier material that slopes away from the building to help shed water.



A six-over-six, double-hung window with brownstone lintel and sill.



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



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



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

Window Enframements

The window enframent is the part of the window that surrounds the sash and its wood or metal frame. Window enframents vary greatly from simple, undecorated lintels and sills to elaborate architraves with pediments, brackets, and carved moldings. The Commission encourages the preservation of window enframents. Removal of any element is discouraged. Stabilizing unsound materials is recommended.

Because of their exposed location and degree of ornamentation, elaborate window enframents are often among the first features of a building façade to deteriorate. Such deterioration is sometimes addressed in such inappropriate ways as removing or smoothing over of eroded elements; sheathing with other material, such as metal over wood or stone; or, most drastically, completely removing or shaving them.

Repairs and Maintenance

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 frame.

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 water damage to exterior components, it is important 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 helps to form a better bond between the putty and wood.

In masonry buildings, the joint between 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 become difficult to operate, or completely inoperable, due to the accumulations of numerous layers of paint on the sash and frame. Paint can be best removed by scraping or stripping it 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 can replace the lost mass, restoring strength to the wood. Holes and gaps can be covered 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, which is a consolidant that's combined with powdery fillers and has the characteristics and flexibility of wood. Filler can be primed and painted, once it's cured.

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 the preparation, painting, and selection of paint color for windows are the same as those for façade surfaces made of wood.

New Window Sashes and Frames on Primary Facades

In rowhouses where complete window replacement is unavoidable, new window sashes and frames on primary facades should be designed to replicate existing sashes 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.

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 on Greek Revival and Italianate 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 the 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 that would not 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. It's a good idea to consult with the Commission staff for further information on security window grilles.

Child Protective Security Barriers

Child security barriers are permitted on the interior of windows.



An Italianate style basement level window with an historic iron security grille.



Operable wood shutters on a shingle-clad rowhouse.

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, diminishing 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 a 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 should fit tightly within 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.

Window Awnings

Many rowhouses in the 19th and 20th centuries had retractable canvas awnings over doorways and windows. Awnings shield openings from rain, reduce heat gain by screening the sun. In addition, they can be an appropriate façade decoration.

The shape of retractable canvas awnings on doorways and windows should correspond to the shape of the openings to which they are attached to avoid obscuring any significant architectural features of the building.

Fixed awnings on residential buildings, especially those made of aluminum or fiberglass, are discouraged in historic districts.

For more information, 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, on LPC's Web site, www.nyc.gov/landmarks.

Exterior Shutters

Historically, exterior shutters were found only on rowhouses of certain styles. Shutters on these rowhouses are not only attractive façade ornaments, but 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. We encourage the replacement of missing shutters, and the restoration of existing original shutters, but discourage their removal.

Replacement shutters must be operable, or appear to be operable. They must have the appropriate hardware, including shutter pins (hinges), shutter dogs, and latches, and must 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.



Retractable canvas window and entrance awnings.



Brick, stone, terra cotta, and wood are the predominant building materials used on the walls and facades of New York City rowhouses. This variety of materials lends visual interest to the historic districts where the buildings are located, and fosters a special sense of place.

Historic districts feature a wide variety of masonry materials. Bricks, for example, vary greatly in size, shape, texture, color, and hardness, depending on their method of manufacture. Through the mid-19th century, most bricks were handmade, relatively soft and porous, and often irregular in color and shape. 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; white softer common bricks were used for unexposed parts of the wall.

Stone used on residential rowhouse buildings ranges in color from light and dark brownstone to nearly white limestone and marble. It's finished in a number of textures, such as highly polished granite or marble, naturally matted limestone or sandstone, heavily cut rock, or is rusticated.

Wood siding includes shingles arranged in a variety of shapes and patterns, and clapboard of differing widths.

Keep in mind that exterior wall surfaces require proper maintenance. Only those sections that have actually become unsound should be repaired or replaced.

For additional information on masonry repair and permit requirements, please refer to LPC's Web site, www.nyc.gov/landmarks.

A Note about Aluminum, Vinyl, and Artificial Stone Siding

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 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 façade 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 façade.

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 façade.

MASONRY WALL SURFACES

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 and can crystallize beneath the surface as the water evaporates, expanding and pushing the material apart from within. The rising 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.

Repairing Stone Facades

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 also found in other colors: orange, red, pink, and blue. Bluestone's main use is as a pavement material, but it is occasionally found on facades, especially around the base or stoop. Limestone can be off-white, cream, or gray.

Limestone and sandstone are both sedi-



Brick, brownstone, and limestone facade surfaces.

mentary 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 matter 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 forces the stone apart, layer by layer. This condition is typically known as spalling.

Spalling is the most frequent problem that occurs 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 masonry back together, and increase its strength and resistance to further deterioration.

The procedure for patching damaged areas of stone or resurfacing an entire façade is essentially the same. Because the repair of small

IN BRIEF

Masonry Wall Surfaces

No permit required

- Repairing previously-painted masonry the same color
- Removing a small amount of graffiti with a non-abrasive chemical formulated for graffiti removal and low pressure water wash

Permit required

- Repairing or resurfacing masonry
- Cleaning exterior wall surfaces
- Stripping paint from the façade
- Painting façade 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
- Repairing settlement cracks

patches of deteriorated stone is as complicated as resurfacing a whole façade, 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 façade that are deteriorated should be replaced.

Resurfacing and patching work should take place only when the exterior temperature remains a constant 45 degrees F or above for a 72-hour period from the start 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 staff before the work begins.

Repairing Ornamental Stone Elements

There are three techniques for replacing ornamental stone elements when the original ones are missing or deteriorated beyond repair. The first method is to build up a reproduction with layers of patching material, sculpting the details into the final layers. The retention of sound, high 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.

Repairing 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, the color of the mortar joints, and the pattern of the brick bond.

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 façade 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 gentlest method that will safely and efficiently remove

See page 44 for Sandstone Patching Repair and Materials



A brownstone facade being partially resurfaced with matching stucco.

Masonry Cleaning Techniques

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

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

The following methods of masonry cleaning are not allowed:

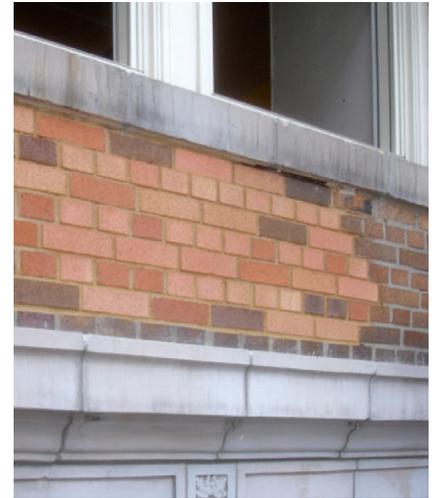
- High-pressure water washes above 500-600 psi. This method can cause water infiltration and the water itself can act as an abrasive, dislodging old soft mortar, damaging stone and brick by pitting the surface, removing the outer crust of the stone or brick, and breaking carved details;
- Abrasive cleaning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



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



Paint being removed from a brownstone facade with a proprietary chemical peel.



A test patch of a cleaned brick facade.

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.

Poultices are chemical pastes applied to stained masonry in order to remove the dirt of stain. These chemical pastes, made of a solvent and 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.

Removing Paint from Masonry

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 19th-century brick buildings, especially rowhouses that 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, and then removed 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 start 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 paints usually don't 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 requires Commission approval. 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 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.

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 façades, especially brownstone that has 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 façade 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. Thus, while these sealers may help prevent deterioration from one source, they can attract 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 for a sealer, the Commission staff will determine whether the condition of the masonry justifies such treatment.

Repointing of Joints between Stones and Bricks

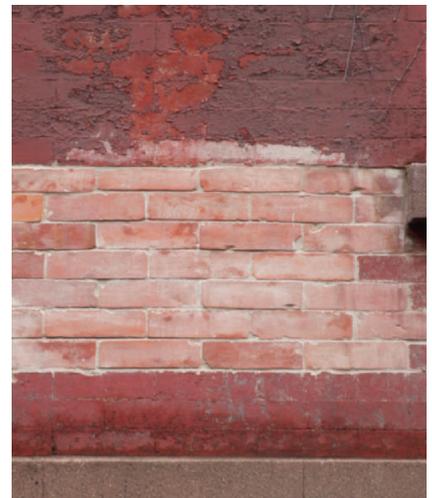
A problem to be anticipated in any masonry structure is the eventual deterioration of the mortar in the joints between the stones and bricks. In order to retain the stones or bricks in place and to prevent water infiltration, missing mortar should be replaced. The term for this replacement is “repointing” 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.

See page 44 for
Soft Mortar Mix Recipe



Paint colors should match as closely as possible the original brick or masonry.



Paint removed from a test patch on a brick facade.

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 50 to 100 years. Damaged or missing mortar can allow moisture to penetrate into the building and cause severe deterioration to the masonry, 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 when it dries, causing hairline cracks between it and the masonry, and it may break, trapping moisture which will expand on freezing and dislodge the mortar. It may also stain the masonry if it's too rich in cement.

General Guidelines:

- Mortar should be specially formulated for each job.
- 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 or above for a 72-hour period from the commencement of the 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.



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.

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 façade. 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.

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WOOD: CLAPBOARD AND SHINGLE WALL SURFACES

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. 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. Warping will be even worse if wood is cut across the grain rather than parallel to it.

Rot sets in when wood is wet repeatedly without being able to dry out. The constant presence of water promotes the growth of micro-organisms, which feed on the wood, causing 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. In addition, there are numerous measures that can be taken to minimize exposure to water and subsequent absorption.

These measures include:

- 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;
- Caulking between the wood and adjacent masonry with 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 susceptible 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 nests.

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, which should be followed whether touching up a small area or painting an entire house:

- All loose or scaling paint must be removed by scraping. Care should be taken not to gouge or chip the surface.
- Heaving 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.
- Nicks, gouges, or cracks in the wood surface should be filled with wood putty compound.
- The entire area should be sanded to smooth out the putty, if used, and feather out the edges of paint that is strongly bonded and was not scraped off. Care should be taken, especially if an electric



Painted wood clapboards and shingles.

IN BRIEF

Wood: Clapboard and Shingle Wall Surfaces

No permit required

- Painting wood surfaces the same color

Permit required

- Painting wood wall surfaces a different color
- Repairing or replacing deteriorated wood siding, trim, or ornamental elements to match existing or duplicate original conditions

sander is used, not to sand into the wood to the point where sharp edges become rounded or delicate details lost.

- Areas of bare wood or putty compound must be primed.
- 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 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 façade 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 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 shingles were sometimes stained, and sometimes left to weather naturally. Most shingled facades have been painted over, and it's almost impossible to remove the paint from them. Shingled facades that 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 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 18th and late 19th 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 19th-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 18th-century technique of hand-splitting shingles was replaced in the 19th century by sawing them, first manually and later with power tools. Late 19th-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. If this is the case, replacement with in-kind materials is best; however, alternative materials can be considered, and should be discussed with a member of LPC's staff.

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 wiser and less expensive to replace only those smaller sections that are actually deteriorated.



A wood clapboard Federal style rowhouse that has undergone a sensitive exterior restoration.



A wood entrance enframement.



Detail of a wood neo-Grec style cornice.



Window units are the most common types of air conditioners installed in rowhouses, followed by through-the-wall and central systems. In general, a permit is required only if the installation of a unit or system affects a building's architectural features.

For additional information and permit requirements for air conditioning, 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, on LPC's Web site www.nyc.gov/landmarks.

Types of Air Conditioning Units

Temporary Window Units

In general, these air conditioners and fans have no effect on a window sash or frame, do not require brackets and have no permanent effect on the architectural integrity of the building. Installing support brackets affixed to the exterior of a building requires a permit.

Units Attached by Support Brackets

Large window air conditioners may need to be permanently attached to a building because of their size and weight. These units often project far beyond the façade and often require supporting brackets that must be affixed to the building's exterior. Therefore, installing these units requires a permit.

Tip: Supporting brackets should be affixed through the mortar joints, not into the masonry.

Through-the-Wall-Units

These units tend to be the most destructive method of air conditioning in rowhouses because holes must be cut into the front façade to install them, causing irreparable damage to the façade. If the unit is ever removed, it's almost impossible to repair the façade so that the damage does not show. Therefore, except in rare cases, the Com-



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

IN BRIEF

No permit required for installing:

- Window air conditioners that don't require brackets affixed to the exterior, or don't alter the window sash or frame
- Window fans that don't require brackets affixed to the exterior, or don't alter the window sash or frame

Permits required for installing:

- Window units that require brackets affixed to the exterior or alter the window sash or frame
- Central air conditioning systems that require exterior condenser units, chillers or fresh air intakes
- Through-the-wall air conditioning units on some rear or secondary facades
- Split heating and cooling systems

mission does not approve the installation of through-the-wall air conditioning units on primary or developed secondary facades of rowhouses.

It may issue a permit for the installation of through-the-wall air conditioning units on a masonry secondary façade 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.

All central air-conditioning systems require exterior condenser units, chillers, or fresh air intakes. The 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 as a unit projects into the line of sight by not more than a maximum of 12 inches in height). Therefore, installing these systems requires a permit.

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, on LPC's Web site www.nyc.gov.landmarks.

Tip: Keep in mind that air conditioners remove large amounts of humidity which condenses as water, collects in the bottom of the air conditioner, and drips out from a spout on the back or side of the unit. Make sure this water does not run down the surface of the building. Water not only disintegrates masonry surfaces, it stains them. Consider using a hose or drip pan to direct the water away from the building.

Ductless Split Systems

The installation of ductless mini-split heating and air-conditioning systems, while smaller and less disruptive to a building's interior and exterior than many traditional HVAC systems, require a permit.



A large air conditioning unit supported on brackets projecting well beyond the plane of the building facade.



A large air conditioning unit supported on brackets not permanently affixed to the facade.



Roof cornices, the upward projecting moldings found at the top of a building, are significant architectural elements, both functionally and aesthetically. They are an important part of the design of most buildings in the City's historic districts. Most cornices are constructed of sheet metal or wood, but are sometimes made of masonry, cast iron, or copper. A cornice prevents rain and melted snow from washing down the face of the building. It also caps the façade and establishes continuity with adjacent buildings. Removal of a cornice will expose a building's facade to excessive weathering, and will significantly diminish 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.

Maintenance

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

If water penetrates 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 façade, 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.



A row of Renaissance Revival style rowhouses with their cornices intact.



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

IN BRIEF

No permit required

- Removing scaling paint or superficial rust from wood or metal cornice
- Painting cornices the same color
- Repairing or replacing cap flashing
- Patching holes and dents in cornices to restore their original appearance

Permit required

- Painting wood or metal cornices a different color
- Replacing, repainting, or treating masonry cornices for anything other than ordinary maintenance
- Replacing the entire cornice with an exact replica of appropriate design

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.

Selection of Paint Colors

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

Replacement of Decorative Cornice Elements

As a decorative part of a building, cornices are often embellished with rows of dentil, paneled 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.

Removal or Replacement of Entire Cornices

It is never appropriate for a cornice to be removed entirely from a building and without replacing it 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).

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 can be a nuisance. Suggested methods for pigeon control include systems using 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 is discouraged. These methods are not consistently effective and may damage architectural elements of a building.



1. Greek Revival style cornice.
2. Italianate style cornice
3. Neo-Grec style cornice.
4. Renaissance Revival style cornice.



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, 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.

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. While replacement with in-kind roofing materials is best, alternative replacement materials can be considered, and should be discussed with a member of LPC's staff.

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.

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



A Georgian Revival rowhouse with a pitched slate roof and two gable dormers with arch-headed windows.



These Craftsman rowhouses feature intersecting gables with steeply pitched slate-covered roofs.

IN BRIEF

No permit required

- 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
- Resetting coping stones on parapet walls
- Replacing or repairing flat built-up bituminous roofs
- Removing, replacing, or installing gutters and leaders

Permit required

- 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
- Altering or removing dormers, dormer windows, chimneys, or other roof elements

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 two 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 rainwater.

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.

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 balance 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 ma-

terials 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 materials (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 rip 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; it 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.

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.

Damaged Roof Elements

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



Slate roof and dormer on a Queen Anne style rowhouse.



Corbelled brick parapet and chimney on a Romanesque Revival style rowhouse.

method. It is important to keep roof elements such as dormers, skylights, hatches, finials, and *cresting?* 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.

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 façade, 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 tripped, backs up, and overflows. Water washes down the façade 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.

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 flu 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



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

promptly. Damaged coping stones should be repaired or replaced in kind.

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 include: 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.



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 façade 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 façade 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.

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 was 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.



Wrought-iron areaway fence and stoop rails on a Greek Revival style rowhouse.



Cast-iron areaway fence and stoop rails on a neo-Grec style rowhouse.

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 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 to four years with a high gloss oil-based 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.

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 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.

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 GRFC (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 the neighboring structures of a similar age and style can be used as a guide.

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.



A Gothic Revival wrought iron fence.

IN BRIEF

Cast and Wrought Iron Fences, Handrails, and Related Details

No permit required

- 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 by scraping
- Painting metal surfaces the same color
- Replacing corroded bolts, hinges, and latches
- Removing a small amount of graffiti with a non-abrasive proprietary chemical and a low-pressure water wash

Permit required

- Painting iron fences, handrails, balusters, or stoops a new color
- 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
- Replacing, re-creating, or removing any stoop



Wood stoop and railing on a Greek Revival style rowhouse.



Wood fence, stoop, and railings on a Federal style rowhouse.

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 19th century are quite elaborate. Earlier examples are plain, as are those of turn-of-the-20th-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.

IN BRIEF

Wood Stoops, Fences, and Handrails

No permit required

- Removing paint from wood by scraping
- Painting wood surfaces the same color
- Caulking wood joints
- Removing a small amount of graffiti with a non-abrasive proprietary chemical and a low-pressure water wash

Permit required

- Painting wood handrails, balusters, or stoops a new color
- Removing paint 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
- Replacing, re-creating, or removing any stoop



Brownstone stoop and areaway fence on an Italianate style rowhouse.



Limestone L-shaped stoop on a Renaissance Revival style rowhouse.



Brownstone L-shaped stoop on a Renaissance Revival style rowhouse.

MASONRY STOOPS, FENCES, AND HANDRAILS

Most stoops in historic districts are constructed of masonry, the preferred building material for stoops throughout the 19th and into the 20th centuries. Masonry rails and fences, on the other hand, were popular only during the late 19th 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 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, repainting, 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 use stone or brick in re-creating a masonry stoop, wall, handrail, or baluster. Other materials, such as cast stone (concrete) or GFCE (glass fiber-reinforced concrete) may be acceptable if they are finished to imitate the original masonry in color, texture, finish, and details.

IN BRIEF

Masonry Stoops, Fences, and Handrails

No permit required for

- Painting previously painted stone or brick the same color
- Removing a small amount of graffiti with a non-abrasive proprietary chemical and a low-pressure water wash

Permit required for

- Painting masonry 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 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
- Replacing, re-creating, or removing any stoop



(including areaway lighting, garbage enclosures, and plantings)

As a general matter, the Commission regulates “hardscape” features, such as the installation of sidewalks, paths, areaways, patios, etc., and does not regulate “landscape” features.

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 light wells 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 façade 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.

In general, concrete should be replaced with concrete and tinted to match surrounding sidewalks. Bluestone should be reset. If it is impossible to reset bluestone, tinted concrete is acceptable.

Pavement Materials and Their Repair

In small areaways, yard walkways, and sidewalks in 19th century residential historic districts, the most common original pavement material was bluestone. Rowhouses built in the 20th 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, pavement 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 19th 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 replaced 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 contrast with, the historic visual quality of the façade.

If stone paving in yards, areaways, or

IN BRIEF

No permit required

- Maintaining lawns or shrubs
- Planting new lawns or shrubs in existing unpaved area
- Repairing or repainting cellar access hatch covers the same color
- Placing and planting pots, planter boxes, or window boxes

Permit required

- Replacing pavement in yards, areaways, or sidewalks
- Repairing or patching pavement in a yard or areaway with a different material
- Installing pavement in yard areas previously unpaved
- Removing paving material
- Changing paving material in existing yards or areaways
- Altering areaway steps
- Installing or removing permanently installed planters
- Painting yard or areaway 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
- Creating a curb cut or parking lot in the yard or areaway



Renaissance Revival rowhouse areaway with low brownstone fence and concrete paving.



A Renaissance Revival rowhouse with a low limestone fence and concrete paving.

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 water-proofing 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.

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 pater 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 an historic house. If window boxes need to be permanently attached to the façade, they should be affixed to the window frame or through masonry joints and not directly through stone or masonry surfaces.

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's 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.



Window flower box.

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 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 the 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.

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

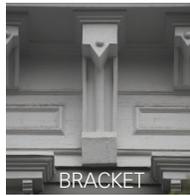
A regularly repeating division of a façade, marked by fenestration.

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, et cetera.



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.



CREATING

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

CROCKET

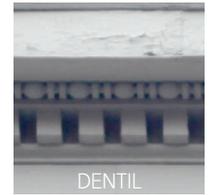
An ornamental foliate form placed at regularly spaced intervals on the slopes and edges of the spires, pinnacles, gables, and similar elements of Gothic buildings.

CUPOLA

A small dome on a base crowning a roof.

DENTIL

A small, square, tooth-like block in a series beneath a cornice.

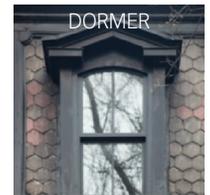


DORIC

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, which projects from a sloping roof and is covered by a separate roof structure.



DOUBLE HUNG

A type of window with two sashes, 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.

ENFRAMEMENT

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.

FAÇADE

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

FANLIGHT

A semicircular or semi-elliptical window above a door, usually inset with radiating glazing bars.

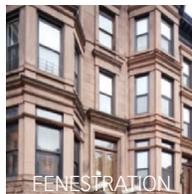


FASCIA

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 painted 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 stringcourse, 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 "volute," 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

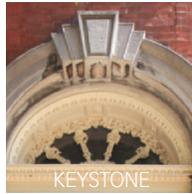
One of a series of parallel timber beams used to support floor and ceiling loads, and supported in turn by larger beams, girders, or bearing walls; the widest dimension is vertically oriented.

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 row-house design, a double-sloped roof on the building front, below a flat roof.

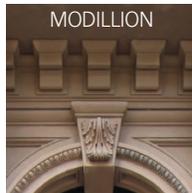


MEETING RAIL

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.

MUNTIN

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 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

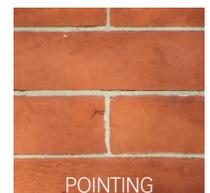
Sloping, especially referring to a roof.

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 muntins.

SECONDARY FAÇADE

The façade 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 façade, 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.



Sandstone Patching Repair and Materials

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 ½ inch diameter holes ½ 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:
 - **Surface Washing:** Wash the prepared surface with water and a soft brush;
 - **Slurry Coat:** Apply a thin slurry coat with a brush and rub vigorously into the surface. The slurry coat consists of material in the mix to the right by volume.
 - **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 mix to the right by volume.
 - **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 formulation is to the right.
- 4. Surface Finishing:** Surface should be finished to match the original stone tooling or existing condition. Possible surface treatments include damp sponging (stippling), dry toweling with a wooden float, and acid etching with diluted hydrofluoric acid, all executed while the patch is partially cured to leather hardness.

SLURRY COAT

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

SCRATCH COAT

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

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

Mixing Tips

- 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.

Soft Mortar Mix Recipe

To repoint most 19th-century rowhouse buildings, the rule of thumb recommendation is for a soft mortar mix. The recipe is as follows:

SOFT MORTAR MIX

1 part white Portland cement
2 ½ 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.

Mix all ingredients thoroughly.

Removing Joints

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-top 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.

Mortar Matching Tips

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 original joints. For both color and profile, existing sound mortar in an area adjacent to the mortar that's 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 the 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. Cleaning 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.

Back cover images:

Row 1

Brooklyn Heights Historic District, Crown Heights North Historic District,
Crown Heights North Historic District, Jumel Terrace Historic District

Row 2

Perry Avenue Historic District, Ocean on the Park Historic District,
Manhattan Avenue Historic District, Crown Heights North Historic District

Row 3

Park Slope Historic District, Hunter's Point Historic District,
Prospect Heights Historic District, Alice and Agate Courts Historic District,

Row 4

Upper East Side Extension Historic District, Horton's Row,
West End-Collegiate Historic District, Ridgewood North Historic District

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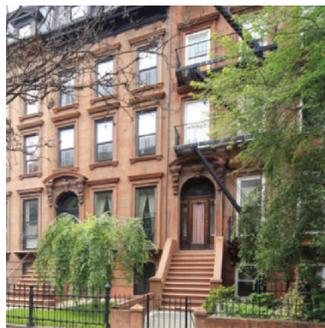
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