

*Painting Historic
Exteriors:*

*Colors, Application,
and Regulation*

*A Resource Guide for Historical Commissions,
Historical Societies, Historic House Museums,
Historic District Commissions, and Preservation
Planning Staff*

PAINTING HISTORIC EXTERIORS: COLORS, APPLICATION, AND REGULATION

*A RESOURCE GUIDE FOR HISTORICAL COMMISSIONS, HISTORICAL
SOCIETIES, HISTORIC HOUSE MUSEUMS, HISTORIC DISTRICT
COMMISSIONS, AND PRESERVATION PLANNING STAFF*

SUSAN E. MAYCOCK AND SARAH J. ZIMMERMAN
CAMBRIDGE HISTORICAL COMMISSION
IN COOPERATION WITH THE BAY STATE HISTORICAL LEAGUE
CYNTHIA ROBINSON, DIRECTOR

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**I. UNDERSTANDING ARCHITECTURAL STYLES AND THEIR RELATIONSHIP
TO HISTORIC PAINT COLORS**

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Introduction

From the earliest settlement of the New England colonies to the beginnings of the new republic at the end of the 18th century and through the building booms of the 20th century, the history of American domestic architecture is one of reinterpretation and experimentation with major Classic or European themes. The domestic architectural styles most typically seen in Massachusetts are the Georgian, Federal, Greek Revival, Italianate, Second Empire, Queen Anne, and Colonial Revival styles of architecture, while the medieval revival styles represented by the Gothic and Medieval Revivals are generally much less common. Given Massachusetts' pre-eminent role in the history of the American Revolution, it is not surprising that the state's pre-Revolutionary buildings have been particularly revered and that the Colonial Revival style of architecture has flourished here and continues to influence much of present-day domestic construction.

Each historic style contains distinctive elements that define a particular moment in time, and these include patterns of paint color usage that have changed over time depending on availability of colors, paint technology, and the prevailing fashion. This chapter will survey the stylistic characteristics of the major 19th- and 20th-century movements in Massachusetts domestic architecture and correlate historic paint color usage to those styles.

The purpose of this survey is to provide a basis for recognizing and recreating exterior paint color schemes appropriate to buildings of various periods. It draws on numerous published sources, which are referenced in the text, as well as research in the survey files of the Cambridge Historical Commission and the experience of the Commission as a regulator of historically-appropriate paint colors in the Old Cambridge Historic District since 1963. The earliest periods of Massachusetts' architecture, from the time of first settlement in the 17th century through the American Revolution, are treated in less depth. Houses of this period are rare, relative to the entirety of the built environment, and less often encountered in the authors' experience, and their paint histories are best understood through the precise methodologies of microscopic paint analysis.

The Colonial Period

First Period Construction (1625-1725)

Scholarship on the earliest houses constructed in Massachusetts now defines the period 1625-1725 as the "First Period," meaning the time when English vernacular building traditions were still within the practical memory of those responsible for constructing the shelters of the first settlers. The analysis of these houses has been conducted by several pre-eminent scholars, most notably Abbott Lowell Cummings, whose book, *The Framed Houses of Massachusetts Bay*

(1979), lays the foundation of current knowledge on the subject. Stylistically, First Period houses reflect the last expressions of Gothic or medieval architecture: typical were steep-pitched roofs, often with overhanging upper stories, asymmetrically arranged fenestration, and a celebration of the “wooden-ness” of the construction. Wood was scarce in 17th-century England and its abundance in the colony allowed for decorative display, on the interior of houses in chamfers, molded panels, and exposed framing timbers, and on to the exterior in such details as beaded clapboards, molded cornices, and carved pendants at an overhanging gable.

First Period Paint

Though color was occasionally used to highlight interior features, Cummings states that virtually no evidence survives to indicate the exteriors of First Period houses were stained or painted: the only exterior color treatment revealed through analysis of surviving material suggests that trim elements of a house may occasionally have received a dark red brown stain or paint (the color known as Spanish brown or Indian red and made with red iron oxide, also known as red ocher); clapboards were neither stained nor painted (*Framed Houses of Massachusetts Bay*, pp. 200-201).

Most of the surviving First Period houses in Massachusetts have now been documented, both through scholarly works, such as Cummings', and through a series of thematic inventories funded by the Massachusetts Historical Commission of the earliest-settled areas of the state. Very few First Period houses outside museum ownership survive in anything close to their original condition in the state. Houses with verified First Period dates almost all had exterior alterations in later 18th-century architectural styles and have generally been painted in the manner consistent with their later appearance.

Georgian Architecture (1725-1780)

By the end of the first quarter of the 18th century, precepts of English Georgian architecture began to influence residential construction in Massachusetts. The Georgian style arrived in 18th-century Massachusetts only after a long and circuitous journey. Georgian architecture in Massachusetts derives from 17th and 18th-century English interpretations of 16th-century Italian Renaissance architecture, which was itself a “rebirth” or revival of the classical architecture of ancient Rome. The architecture books of Andrea Palladio (1508-1580) and of various 18th-century English popularizers of his work illustrated classical detailing that served as models for stylish architecture through the early 19th century. The ideals portrayed in these works emphasized symmetry, horizontality, and classical proportions and details over the verticality and asymmetry of 17th century buildings.

The standard Georgian architectural forms have entered the lexicon of American domestic architecture so completely that almost any symmetrical or classically derived building is now called “Colonial”, a real estate term of seemingly infinite

elasticity. Eighteenth-century Georgian architecture, named for the reigns in England of four Georges between 1714 and 1830, encompasses a considerable range of expression, from simple vernacular buildings where only the symmetrical proportions of the façade indicate the style, to more elaborate buildings fully enveloped in classical ornament.

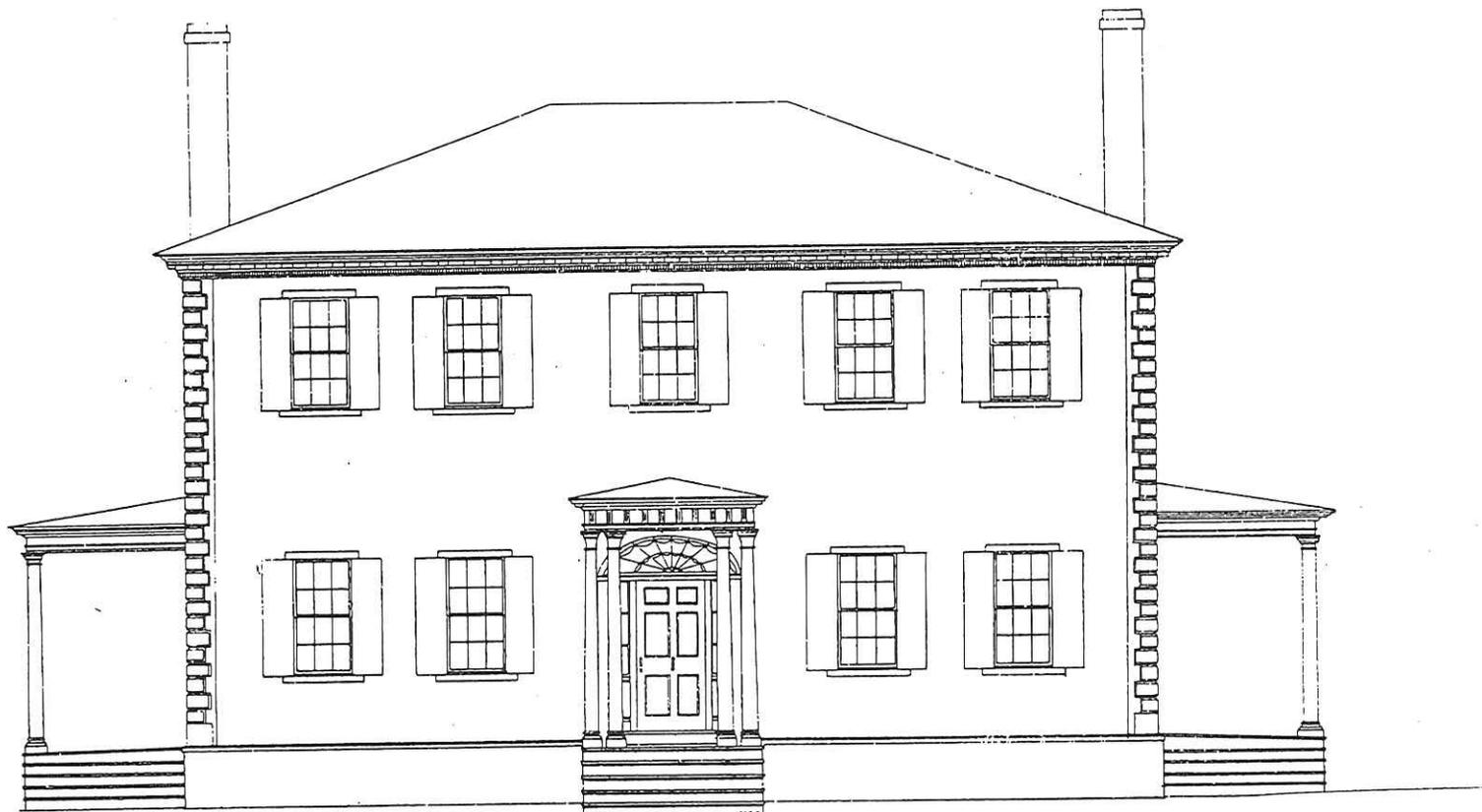
The hallmarks of this style are a symmetrical façade five bays wide with an entrance in the middle bay, two symmetrical chimneys or one large central chimney, and a low gable, gambrel or hipped roof. The windows of a Georgian house are tall and narrow and set in heavy, projecting frames that align in symmetrical rows; the sash have thick dividing bars (muntins), usually creating a pattern of nine or twelve small panes per sash. Ornament is focused at several locations, most often the entrance, the roofline, and the front corners. Entrances have frames enriched with mouldings at the tops and sides; doors are paneled and sometimes have transoms of small panes above. Pilasters (flat column-like details) often flank the door and a triangular pediment may top it, although a section of cornice is more common.

The eave of the roof is frequently accented with a cornice containing a row of small tooth-like blocks (dentils) or with a simpler sequence of mouldings built up to and including a gutter. The front corners of the building may have simple cornerboards running between the eave and the foundation, or they may be detailed with boards cut into rectangular blocks (quoins) and mitered at the corner. The building will be sheathed in narrow clapboards, cut in short lengths and laid up above a simple board (water table) that circles the foundation. Houses are usually set low to the ground, with little or no foundation exposed.

Georgian Paint

With regard to paint, prominent public buildings, such as meeting-houses, and the houses of wealthy city-dwellers were likely to be painted, but modest houses and those in rural settings were frequently not painted at all. Cummings and Candee (*Paint in America*, pp. 23-26) state that fashions in 18th-century exterior paint color tended to favor strongly contrasting schemes before the Revolutionary War, with trim almost always picked out in white. Documentation for several meeting-houses indicated the use of dark stone colors, chocolates, and oranges on the walls, with white trim. Houses in ochers, grays, and red are documented, almost always with white trim and some with painted roofs in reds, chocolates, or yellows.

Eighteenth-century white, typically formulated of linseed oil and white lead, or linseed oil, white lead, and calcium carbonate, was a softer, yellower color than the bright, titanium whites of today, the yellow cast coming from the color of the linseed oil. Rarely in the 18th century, according to Cummings and Candee, was white used to paint an entire house (*Paint in America*, p. 26). Doors were always a dark color, chocolate, red, green or blue.



FEDERAL (1780-1820)

The cornices, window and door casings, cornerboards, and other molded details of the Georgian style all derive from masonry prototypes and were intended to convey the appearance of stone. Stony effects were suggested in the latter half of the 18th century by the use of pale gray, yellowish white and very light blue tones (*Paint in America*, p. 70). Also furthering this illusion was the technique of painting these details in stone-like colors and then blowing sand into the wet paint to create a stony texture.

The Early Republic

Federal Architecture (1780-1820)

What is called the Federal style in America corresponds to the last phases of Georgian architecture in Britain. Despite the political and economic rifts of the period, taste and style were still transmitted from the traditional English sources, as well as from new sources in France. The Federal style reflects a shift or refinement in the standard Georgian vocabulary of classical details away from the robust expressions of the mid 18th-century and towards a lighter and more decorative line. Popular in the early years of the new American republic between the 1780s and the 1820s, the Federal style was particularly influenced by the work of Robert and James Adam, English architects and furniture designers. Their work was disseminated in treatises that described archaeological work of the period at ancient Greek and Roman monuments (notably excavations at Pompeii) that expanded the popular understanding of the variety of forms of classical architecture.

In Massachusetts, while the basic vernacular house forms (one and a half or two story box) remained standard, changes in the location of the chimney and the types of roofs took place, as did other smaller, subtler shifts in window placement and in other proportions and details. Rather than a single, massive central chimney, smaller, multiple chimneys appeared, designed to heat sections of the Federal house. Chimneys shifted from the center location typical of the Georgian period to the outer walls of the house, either to the sides or to the rear. In addition to the standard gable roof form, hipped roofs came into use, often on taller, three-story houses, and gambrel roofs went out of favor. Windows were rarely set directly against the cornice of the house, but rather terminated just below the cornice, which itself became more decorative with built-up series of mouldings. Occasionally, arched, clustered or Palladian windows were placed above the entrance to accent the stairhall, a feature that occupied the newly-opened central hallways that resulted from the elimination of the center chimney mass.

In general, ornament on Federal style houses was more delicate as well as more prominent. This was particularly evident in the more elaborate entrance treatments which developed with doors surmounted by elliptical or semi-circular arched transoms (sometimes set with leaded glazing in fan-like patterns), flanked by glazed sidelights, and sheltered by a portico supported by pairs or clusters of columns.



GREEK REVIVAL (1825-1860)

Federal Paint

The lighter line of this detailing and proportion was evident also in exterior paint color preferences. Cummings and Candee cite the 1812 painting guide of Hezekiah Reynolds of Connecticut for ten exterior paint colors in use at the time: Reynolds provided formulas for making “white, cream, straw, orange, pea green, parrot green, grass green, red, slate, and black” (*Paint in America*, p. 38). While the houses of the elite might have been painted in the lighter stone colors (white, cream, straw) of the Federal style, stronger colors (orange, pea green, red, slate) would continue to be popular in conservative tastes and applications (such as on meeting-houses). Shutters and doors in greens (such as Reynolds’ parrot and grass greens or a darker green made of verdigris in oil and varnish) or black were the norm.

Period landscape views of more prosperous villages depict houses painted in stone colors or white, but the common modern understanding that these houses were always painted white is an overstatement generated by early 20th-century restorationists (*Paint in America*, p. 41). Cummings and Candee also note that in the early 19th-century, contrasting trim colors were less frequently mentioned (*Paint in America*, p. 40), suggesting that use of a single color on a house was common. In many cases, thrift dictated painting the public faces of a building in an up-to-date color, while rear walls were painted in less-expensive reds. Much of the housing stock, especially in rural settings, would still have been unpainted up to the middle years of the 19th century. “In truth”, say Cummings and Candee, early New England “was both far more vivid and more unpainted than we have generally recognized” (*Paint in America*, p. 41).

Greek Revival Architecture (1825-1860)

The period between the 1820s and the Civil War was one of great growth and change in Massachusetts. Historically, the state’s marginal agricultural base had encouraged farmers to diversify into artisanal and mechanical pursuits as a supplement to a precarious farm economy (*Historical Atlas of Massachusetts*, University of Massachusetts, Amherst, 1991, pp. 28-9). That diversification helped to lay a foundation for the growth of industry in the state in the 1820s and ‘30s. Burgeoning industrial cities drew from both native and immigrant born populations to supply the necessary labor. Between 1810 and 1860, the state’s population tripled, with 68 industrializing cities and towns experiencing 150% increases in their population (*Historical Atlas of Massachusetts*, p. 32). As railroads opened agricultural markets in the west, Massachusetts’ farm towns could not compete, and one-fifth of the smaller towns lost population (*Historical Atlas of Massachusetts*, p. 32).

In architectural terms, industrialization created a great demand for housing. As a result, in many communities across the state, and certainly in urban areas, these pre-Civil War buildings are the first group of historical structures to survive in numbers greater than a few scattered examples. A community’s Greek Revival

houses may range from a few full-blown temple front structures to a large number of altered vernacular cottages whose style can only be detected in small details like moulding profiles. Appropriate paint colors can do much to enhance the historic character of these houses.

Architecturally, the main shift in the Greek Revival style does not come from radically new sources of inspiration, but rather from new ways of orienting interior space and of constructing buildings. Like the Federal and Georgian style, the antecedents of the Greek Revival are classically-derived, although the inspiration comes, as the name states, from Greek monuments of antiquity, which were increasingly the subject of careful archaeological investigation in the early years of the 19th century.

The major change can be seen in the way Greek Revival houses are oriented to the street, a response driven in part by an aesthetic desire to mimic the Greek temple form and in part by the geography of intensifying settlement. In the most common Greek Revival house, the box-like footprint of the standard Georgian and Federal house plan was reoriented 90 degrees to turn the gable end to the street, producing a three-bay wide house with side chimneys and an entrance to a sidehall on the wall opposite the chimneys. While center-entrance, gable houses continued to be built well past the mid-century, more numerous are these new sidehall plans which adapted well to the smaller lots of newly-developing urban and suburban subdivisions.

The other technical change in the Greek Revival period was the development after 1832 of balloon framing, which gradually supplanted the traditional heavy-timber frames of 17th- and 18th-century houses. Balloon-framed houses used standard dimensioned lumber, machined nails, and an outer sheathing of boards to create a lightly-structured building that could be quickly and efficiently constructed. Lighter interior framing allowed greater flexibility of design and more opportunity for modifying the floor plan.

The new Greek Revival style involved a resurgence of heavier, more substantial classical ornament, and a general simplification of the components used to create detail. The primary change, orienting houses with their gable ends to the street, invoked the image of the Grecian temple, an allusion reinforced in high-style examples by a full-height columned porticos with triangular pediment. Often the end gable was simply treated as a pediment formed by broad bands of moulding around the gable end and across the eave at the cornice. Broad pilasters at the corners trim the sides of the building from the cornice down to the water table (a board which circles the base of the house just above the foundation). One-story entrance porches with columns are typical and may extend across the front of the house, wrap around to a side porch, or simply protect the door itself. The standard Greek Revival columns are either plain Tuscan columns or fluted Doric columns. Also typical of Greek Revival entrances is glazing around the door, with sidelights extending the full height of the door and a transom across the top.

Windows in Greek Revival houses tend to be larger than in earlier periods and typically have six or eight individual lights in each sash section; windows that open onto front porches are sometimes longer in Greek Revival houses, extending to the porch floor. Window casings on Greek Revival houses are generally simple flat boards framing the window; occasionally, a simple beveled band may be added, or the casing may be ornamented at the corners with square blocks, either flat or decoratively carved. Greek Revival houses typically had shutters, although in many cases, these original elements have been removed.

Greek Revival Paint

Just as the basic style sources of the Greek Revival were part of an established classical continuum, paint colors for the Greek Revival period remained basically unchanged: stone colors (grays, pale blue-grays, gray-browns, tans), straw (ochers and yellows), whites and off-whites. This stability is largely the result of technical limits in paint production that did not change significantly until after the Civil War.

Prior to the innovations that allowed for large-scale production and distribution of paint after 1865, paint was mixed on-site by the painter himself. The painter purchased pigments in bulk and then ground them into oil and white lead on the job and in whatever quantity he needed. These pigments most often used readily-available, naturally-occurring substances.

Among these pigments, carboniferous substances such as lampblack, charcoal black, or bone black (burnt animal bone) were used to tint grays and to create blacks. Red iron oxide and red ocher (from mineral decomposition) made browns and reddish browns; yellow iron oxide and yellow ocher made yellows; and calcium carbonates made whites. Other chemical pigments, which were the result of human manipulation, were also used, including verdigris (copper acetate; green), Prussian blue (ferric ferrocyanide; blue), white and red leads (white and orange-yellow), chrome yellow (lead chromate; yellows), and zinc oxide and barium sulfate (white) (*Paint in America*, pp. 277-90).

The most typical paint scheme for Greek Revival houses was white with green doors and shutters and black sash. Travelers to New England frequently commented on the uniformity of the color: Charles Dickens said of an 1842 visit to Worcester, "All the buildings looked as if they had been painted that morning . . . Every house is the whitest of white; every Venetian blind [shutter] the greenest of the green" (*Century of Color*, p. 9). Another Englishman said of his journey between Northampton and Boston in 1835, "the villages through which we passed presented the same characters- white wooden houses with green Venetian blinds, and everything wearing the appearance of cleanliness, order, and comfort" (*Paint in America*, p. 129). The unpainted, weather-worn character of rural Massachusetts was gradually yielding to a more uniform standard of building maintenance.

Remembering that the whites referenced above (which were intended to suggest the marble temples of antiquity) would have been more like an off-white now, the model of the all-white Greek Revival house with its bright but deep-green shutters can be cautiously considered for reinstating period paint schemes. Use of the traditional stone and straw colors on the clapboard surfaces of a Greek Revival house with trim differentiated in off-white or cream colors will provide additional variety while retaining continuity with the paint colors available at the time. In all cases, regardless of the clapboard color, trim should be off-white, shutters and doors should be a deep tone of green or black, and window sash should be black.

The Mid 19th Century - Romantic Revivals

Italianate Architecture (1840-1880)

In the two decades before the Civil War, the eclecticism that characterizes architectural expression up to the present first became evident. After the 1830s, no one architectural style would dominate residential construction; rather, decisions about style would become the choice of the client or builder, selecting from a range of popular styles promoted in builder's handbooks, ladies' periodicals, and architectural guides. The most prevalent of the romantic revival styles in Massachusetts is the Italianate, based roughly on the medieval and renaissance architecture of northern Italy.

In its high style expressions, Italianate design borrows heavily from the villas of Tuscany, with asymmetrical floor plans and tall, square towers, but vernacular examples far outnumber the state's towered villas. Because there was little change in the sidehall form that is the standard vernacular plan type for the 19th century, vernacular Italianate houses are often confused stylistically with the earlier Greek Revival, but there are distinctive elements of the Italianate style that distinguish it from the Greek Revival.

The most obvious change is in the end gable of an Italianate house, where the heavy flat cornice mouldings that form the Greek Revival pediment are not present and the gable eaves are expressed only with a short "return." Other clues to the Italianate are deep, overhanging eaves supported on rows or pairs of brackets, round-headed or arched windows, and porches with square piers rather than columns.

In addition to the standard three-bay wide, sidehall plan, other common plans for Italianate houses were a shallow, one-bay deep, three-bay wide rectangle with a center entrance; an asymmetrical L-plan with an entrance at the crux of the two sections; and a squared-off, cube-like plan, often with a projecting bay at one side of the façade. This style typically uses nearly-flat, hipped roofs or very shallow-pitched gable roofs. Occasionally, square cupolas or "belvederes" accented the roofs of more elaborate houses.



ITALIANATE (1840-1880)

Italianate windows often incorporate some form of arched top, either a semi-circular (or round-arched) or a segmental (so called because it is composed of a shallow section, or segment, of a circle) arch. The windows frequently are set in elaborate casings with hoods (small projecting "roofs") over the window and small "feet" supporting the sill. Like the bracketed eaves of the Italianate house, window hoods may also be ornamented with brackets. The sash of an Italianate house may feature large panes of glass set in two-over-two (two side by side panes in both the upper and lower sash) or one-over-one (a single pane of glass in each of the lower and upper sash) configurations. Shutters were still commonly used, with the tops of the shutters arched if the windows are arched.

In general, the Italianate style is more elaborated and decorative than the Greek Revival. This stems in part from the desire for romantic, picturesque silhouettes and in part from the technological improvements in woodworking machinery, such as the band saw, which enabled the production of large quantities of architectural millwork in a great variety of forms. Brackets are the hallmark element of the Italianate style, but other trim elements also distinguish the style. Broad pilasters were replaced with narrow cornerboards, cornerboards with an arched inset panel, quoins (blocks of wood laid up at the corners to look like stone), or round or rope-turned mouldings applied vertically at the corners. Around the entrance, full-length sidelights were less frequently used; sidelights above a paneled base were more common. One- and two-story angled bays are a typical feature, although the presence of bays alone is not diagnostic of the style since these were often added to older houses to update them.

Gothic Revival Architecture (1840-1880)

Less common in mid 19th-century residences was the Gothic Revival style. Much of the signature trim of the style was fragile, jig-sawn scrollwork on eaves and porches. These feature may not have survived, but other clues to the style include prominent roof gables, steep-pitched roofs, and windows with a narrow, pointed, or lancet, arch at the top.

Romantic Revival Paint Colors

As indicated earlier, few major innovations occurred in the paint industry prior to the Civil War, so despite stylistic changes, paint color remained conservative. The primary distinctions for the painting of Italianate buildings are in how colors were used together and where they were applied to the structure. Unlike the Greek Revival paint scheme, where a single monochromatic white or a combination of stone or straw color on the body and white on the trim may have been used, Gothic Revival and Italianate houses use two related colors. Trim is always differentiated from the body (clapboard) surfaces of the structure, but it is never painted white.

It was in the works of Andrew Jackson Downing, an architect and arbiter of taste in both architectural and horticultural design, that the color philosophy of the pre-Civil War era was first articulated. In his books *Cottage Residences* (1842) and



GOTHIC REVIVAL (1840-1880)

The Architecture of Country Houses (1850), Downing espoused the integration of buildings within their natural environment and the use of soft, naturalistic colors that would blend buildings into their surroundings. He abhorred the use of white, stating:

There is one colour . . . which we feel bound to protest against most heartily, as entirely unsuitable, and in bad taste. This is white, which is so universally applied to our wooden houses . . . The glaring nature of this colour, when seen in contrast with the soft green foliage, renders it extremely unpleasant to an eye attuned to harmony of colouring . . .
(Moss, p. 18)

Downing gave practical form to his recommendations for natural, harmonious colors by including in *Cottage Residences* a plate illustrating “six shades of colour suitable for the exterior of cottages and villas.” (*Victorian Exterior Decoration*, p. 18) This hand-tinted plate, the earliest (1842) color card available in the United States, showed three shades of gray and three of “drab” or “fawn”, a light warm ocher. Downing recommended darker, dignified colors for large houses or those in exposed locations and lighter, livelier shades for smaller, more concealed houses. In all cases, the paint colors were to be soft, quiet, and neutral; “positive” colors (whites, yellows, reds, blues, blacks) were to be avoided. (*Victorian Exterior Decoration*, p. 19)

In Downing’s approach, the trim is always differentiated from the main color of the house. Downing wrote that “the simplest practical rule . . . is the following: Choose paint of some neutral tint that is quite satisfactory, and if the tint is a *light* one, let the facings [trim] of the windows, cornices, etc., be painted several *shades* darker, of the same colour.” (*Victorian Exterior Decoration*, p. 20) He recommended painting blinds in a still darker shade of the trim, or in the darkest green available. If the body color is deeper, the trim will be a lighter shade of the body color.

Late 19th-Century Revivals

The “Victorian” Era and its Architecture

The public’s fascination with “historic” paint colors focuses largely on the houses of the late 19th-century, universally called “Victorians.” Again, the terminology derives from an English source, the reign of Queen Victoria from 1837 to 1901, a period in which the modern, industrial age took root and flourished, generating vast growth and change, socially and topographically, in both England and America.

Architecturally, the “Victorian” era harbors some half dozen distinctive architectural styles, which evolved from a variety of historical and cultural sources and which require particular exterior paint treatments. The major architectural styles of the period commonly found in Massachusetts are the

mansard (or Second Empire), Stick Style, Queen Anne Style, Shingle Style, and to a lesser extent, the Richardsonian Romanesque and a brick variant of the Stick Style named the Panel Brick by architectural historian Bainbridge Bunting.

Socially, the state was increasingly industrial and urbanized. By 1900, 86% of the state's population lived in urban areas and after Rhode Island, Massachusetts was the most densely-populated state in 19th-century America (*Historical Atlas of Massachusetts*, p. 35). As early as 1865, Boston was the fourth largest manufacturing city in the country (*Historical Atlas of Massachusetts*, p. 36). Major expansion of both railroad and streetcar lines in the period gave Massachusetts one of the country's most extensive transportation networks (*Historical Atlas of Massachusetts*, p. 34). Inner cities were transformed into densely-settled areas of multi-family and tenement housing, while outer districts saw unprecedented suburban growth.

Post Civil War Paint and Color Theory

Major innovations in the production and distribution of paint in America followed the Civil War. The history of this period is thoroughly detailed in two books by architectural historian Roger Moss:

- *Century of Color: Exterior Decoration for American Buildings, 1820-1920* (The American Life Foundation, 1981, out of print), and
- *Victorian Exterior Decoration: How to Paint Your Nineteenth-Century American House Historically* (Henry Holt and Company, 1987), co-authored with Gail Caskey Winkler.

In these books, Moss describes the evolution of paint from an artisan-based craft to a mass-produced, mass-marketed industry.

The first ready-mixed paints became available about 1870, as a result of a number of technical innovations. Chief among these were the development of machinery to grind pigment into white lead and oil, resealable cans to contain and ship the paint, a national transportation network to distribute the product, and inexpensive paper and high-speed steam presses to print the advertising brochures that attracted the public's attention to the new product. (*Victorian Exterior Decoration*, p. 15) Advances in the chemical industry, notably in Germany, expanded the range of chemically-based pigments on the market.

Moss illustrates an 1871 paint card advertising Harrison Bros. & Company's "Town and Country Ready Prepared Paint" to demonstrate the shifting trend in paint color: the card shows the quiet neutrals Downing advocated along with a range of other colors newly available to the mass market. Among these are rose, peach, terracotta, and olive. These new colors, and their promotion directly to homeowners and not just to painters, required a new pedagogy on paint application. Moss states, "architects and paint manufacturers began to specify rules based less on personal judgment and more on a growing body of color theory." (*Victorian Exterior Decoration*, p. 22)

Books such as John W. Masury's *House-painting: Plain and Decorative* (1868) incorporated the theories of David Hay, a Scottish painter and author who in the 1820s espoused a theory of paint color harmony that was widely disseminated in the 1850s and '60s. Hay described two approaches that remained useful through the end of the 19th century: the first, "harmony by analogy," used colors adjacent to each other on the color wheel; the second, "harmony by contrast," advocated colors opposite, or complementary, to one another on the color wheel. (*Victorian Exterior Decoration*, p. 22) The color wheel is composed of six primary and secondary colors with a complementary (secondary) color opposite a primary color. Thus, red, blue, and yellow are complemented by green, orange, and purple, the secondary colors formed by combinations of the three primary colors. Tertiary colors (bronze, olive, russet) were formed by combining two secondary colors and provided additional range.

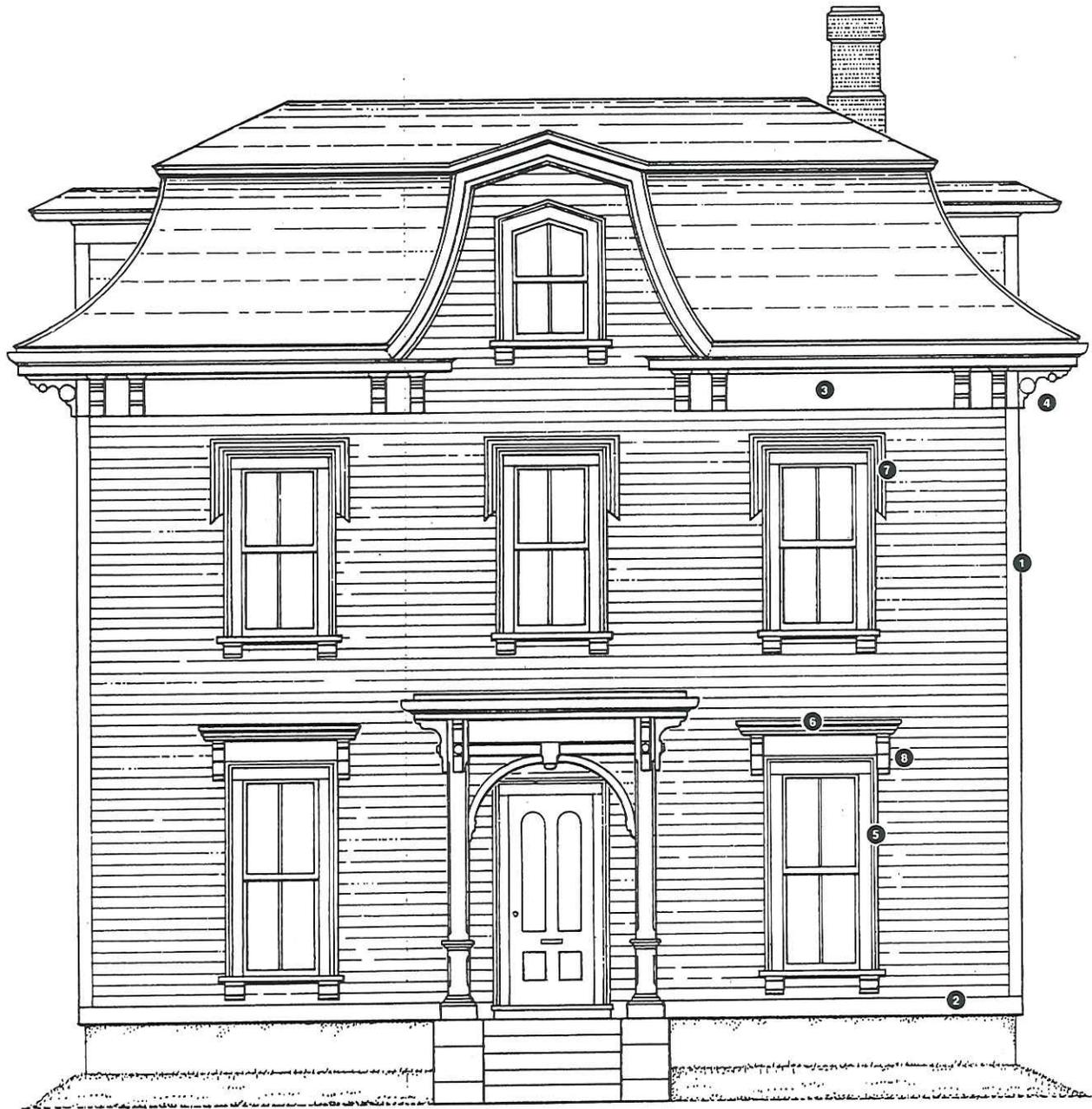
In the harmony by analogy approach, colors adjacent to each other could be used together (i.e., red/orange/purple, blue/green/purple, or yellow/green/orange), while in color by harmony, opposite colors would be linked (i.e., red and green, blue and orange, yellow and purple). Also important were the theories of Michel Chevreul, a French tapestry dyer, who in 1839 wrote about how the human eye responds to color. Chevreul found that the eye alters colors depending on how they are used together; complementary colors appear more intense in proximity to one another, while adjacent colors become altered, or shift, in hue. (*Victorian Exterior Decoration*, pp. 22-23) This physiological response to color can be beneficial in selecting paint colors, when the consultant wishes to emphasize (or diminish) a particular component of the color desired.

Given the relative complexity of the available choices at the end of the 19th century, as well as the theories that supported those choices, it is not surprising that homeowners today are daunted by the prospect of painting a "Victorian" house. Nevertheless, it is possible to establish workable guidelines for period-appropriate exterior paint colors based on the architectural style of the house.

Second Empire (or Mansard) Architecture (1855-1885)

The first of the late 19th-century architectural styles is the Second Empire or mansard style. The mansard roof that is the hallmark of the style is so dominant that the more academic term, Second Empire (named for the reign of Napoleon III in France from 1852-70), may overstate the case for the simpler, vernacular versions of the style. In many cases, a mansard roof is the only Second Empire element on a house that otherwise displays predominantly Italianate features. The architectural historians Virginia and Lee McAlester make the point that, unlike the Gothic Revival and Italianate styles, which looked to a romanticized past for inspiration, the Second Empire was modern, imitating the latest French fashion. (*A Field Guide to American Houses*, p. 242)

In general, Second Empire floor plans tend to be more formal and symmetrical than those for the Italianate style. Boxy proportions, emphasized by the mass of



1. Corner board
2. Water table
3. Frieze board
4. Cornice bracket
5. Band moulding
6. Window hood
7. Drip moulding
8. Window bracket

SECOND EMPIRE/MANSARD (1855-1885)

the mansard roof at the third story, were typical. Second Empire houses often contain three bays across the façade, with the entrance in the center bay. The standard focus of ornament around the entrance may travel upward on a Second Empire house through decorative fenestration on the second floor to a central dormer or tower rising above the main roof. A number of trim elements carry over from the Italianate style, particularly the use of elaborate bracketed cornices and window hoods.

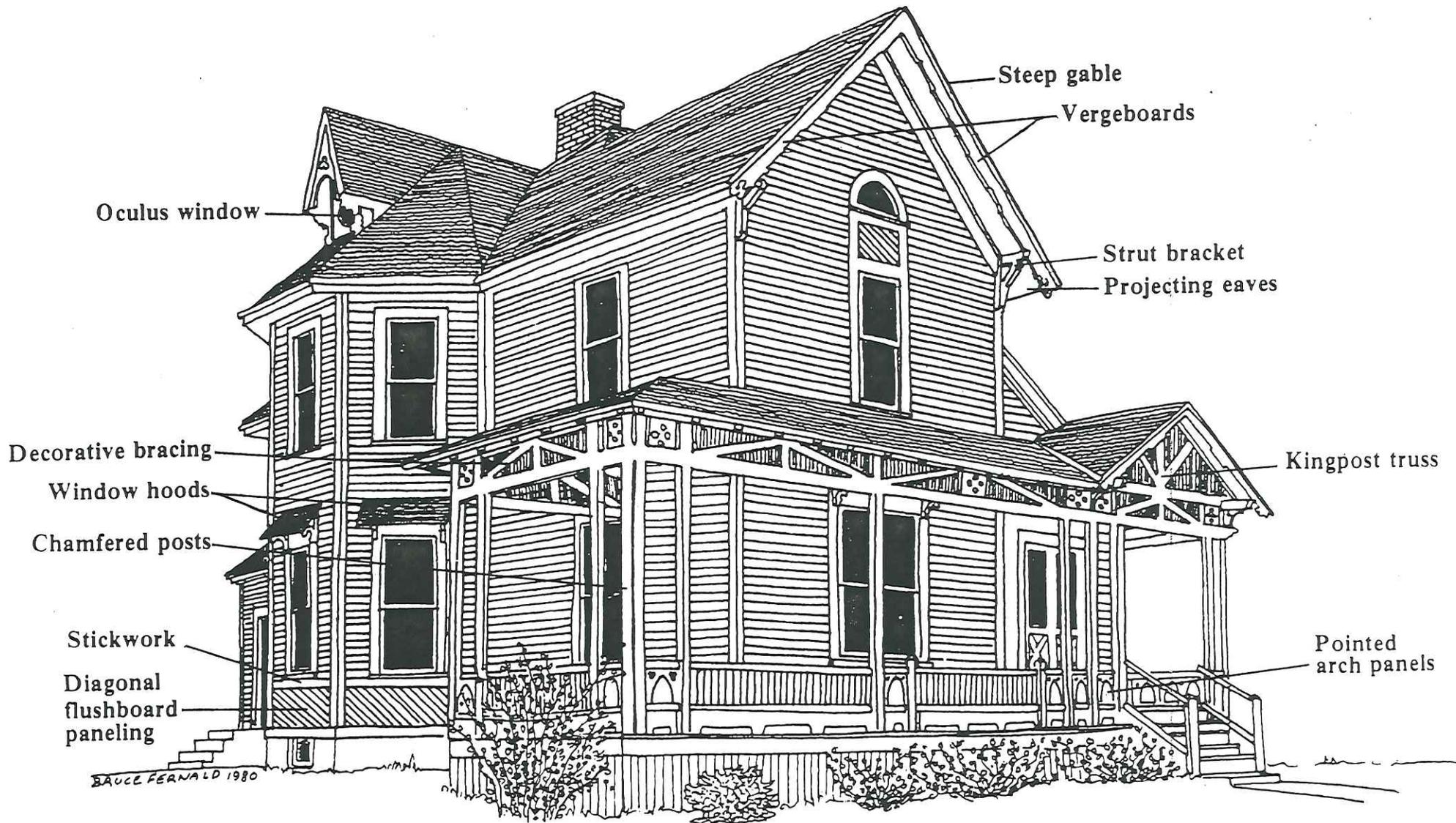
Illusions to masonry construction are common with Second Empire houses as the Parisian prototypes were stone buildings. Thus, the front wall plane of a wooden house may be sheathed in flush boarding scored to look like masonry blocks and corners may have quoins instead of corner boards. Another feature of Second Empire houses is the use of segmental-arched windows. Where in the Italianate style, round-headed windows are typical, in the Second Empire style, the flatter segmental arch (so called because it is a segment of a circle) is distinctive. Segmental-arched windows were used on the façade of the house as well as in dormers and are another reminder of the masonry origins of the style. Shutters and storm sash for these windows would be arched at the top to accommodate the curve of the primary sash.

Finally, the mansard roof was itself an important element in the trim of the Second Empire house. Because it constituted an extra floor of living space, the mansard nearly always had dormers for light and air. These are frequently constructed with elaborate pediments, brackets, and applied woodwork. The mansard roof form, which is essentially a pyramidal hipped roof in two planes, an upper section composed of a shallow hip and a steeply-pitched or nearly-vertical lower portion, offered its own ornamental potential. Commonly, mansard roofs were sheathed with slate, which was often decoratively installed. Bands of multi-colored slate and the use of slates cut in geometric forms (hexagons, scallops, or diamonds) are typical decorative features.

Second Empire Paint

Because of their masonry antecedents, Second Empire houses can be painted in the stone colors that were used throughout the 19th century: grays, tans, ochers, warm beiges. It is appropriate to use two shades of the same color for such houses, either the more common modern application with the lighter color on the trim elements, or the reverse, with the darker shade on the trim. As a wider range of colors came into use in the period, it is also appropriate to use paints in contrasting colors, but the shades should reflect the formal, urban character of the style. Deep tones of russets, olives, gray-greens, ochers, or browns in combination will convey the formality of the style. Sash should be dark: black or very dark green. Shutters should be painted black, very dark green, or a very deep tone of the house colors.

The Stick Style (1860-1890)



STICK STYLE (1860-1890)

Architectural historian Vincent Scully developed the term Stick Style for a type of wood frame house in which the trim elements were composed largely of pieces of flat stock lumber applied in rectilinear, geometric patterns. In his book, *The Shingle Style and the Stick Style* (1955, revised 1971), Scully identified the style as a transitional link between the picturesque cottages of the Gothic Revival and the Queen Anne style of the late 19th century, both of which derived loosely from English medieval precedents.

The Stick Style house nearly always has a front-facing, steeply-pitched gable roof and an entrance offset to a side hall in a three-bay wide facade. The hallmark of the style is the abundant use of flat boards in vertical, horizontal, and triangular patterns. Typically, trim boards (which can be distinguished from clapboards because they are flat instead of beveled at the edge) define sections of the exterior walls, circling the house in horizontal bands that align with the heads and sills of the windows. Sometimes the sections of wall enclosed by these trim boards are treated decoratively with diagonal patterns, vertical pickets, or patterned shingles.

The eaves of the roof project and are supported on the exposed ends of the rafter beams that frame the roof. As a precursor to the Queen Anne style, Stick Style roofs frequently are complex, with intersecting cross-gables. Decorative king-post or sunburst trusses infill the gable ends. Dormers and porches have shed roofs, the dormer roofs simply being sections of the main roof raised up at a slightly shallower pitch. Porches typically span the ground floor façade and are supported on square posts; often, the railings are composed of cross-braced timbers, rather than upright balusters. Bays on a Stick Style house are nearly always square in section.

Stick Style Paint

The critical element in painting Stick Style houses is to differentiate correctly between the trim elements and the body of the house. The organizing design elements of the style are lost when flat-stock trim is painted the color of the clapboards that surround it. Close study of the sheathing will reveal the difference between clapboards (which are beveled to lie at an angle on the body of the house) and Stick Style trim (which is flat). The vibrant color combinations of the Queen Anne style were also seen in Stick Style houses, in which contrasting colors (yellow with dark green, dark red with olive, light and dark gray-green) were used to emphasize the geometric patterns that mark the style. Sash, doors, and shutters, while still dark, were also more colorful: dark green, dark brown, deep red, or maroon as well as the standard black.

Queen Anne Style (1880-1915)

More than any other architectural style, the Queen Anne is associated with the multi-colored paint schemes that have come to be called "Painted Ladies" after the books of that title that advocate the use of bold exterior color treatments. The Painted Ladies series presents color schemes that are not historically accurate or appropriate; they are a late 20th-century "boutique" approach that says more about the tastes of our own period than the original intent of the designers of these elaborate buildings. Because the style of these buildings is so decorative and complex, the need for strong organizational principles in paint application is all the more critical to achieving a coherent, effective paint scheme.

The Queen Anne style is characterized by variety, irregularity, and asymmetry in many aspects of building design. Building massing was often complex and additive, with several subsidiary roof shapes clustering around a main hipped or gabled roof, and bays, towers, and ells projecting from the central rectangular or square mass of the house. Roofs were steeply pitched, enclosing tall attic spaces; multiple chimneys piercing those roofs hinted at the asymmetrical nature of the interior floor plan, with rooms arranged irregularly around a large open stairhall. Windows in a variety of sizes further reflected the asymmetry of the style. But it is the decorative nature of the finishes, interior and exterior, which most deeply impresses present-day observers and can confuse and confound painters.

Frequently, exterior surfaces of Queen Anne houses were clad in more than one building material. Even in simple examples, such as three-deckers, builders relied on the use of both clapboards and shingles to convey texture and complexity. Bands of patterned shingles alternated with clapboard areas on three-deckers and tenement blocks, while in single and two-family houses, decoratively-shingled gables or upper stories were common. Multiple forms of siding material generally calls for the use of more than one main paint color on the body of a building (see Chapter II).

The abundant use of applied wooden ornament is another source of decorative complexity on the Queen Anne house. Porches, often with their own subsidiary roofing systems, are a common decorative focus. Queen Anne porches typically have lathe-turned columns or posts in clusters and pairs, balustrades of elaborately-turned rails, friezes of turned spindles, and brackets of varying sizes. All of this is trim and should be painted in the trim color.

Beginning with the Queen Anne style and continuing into the period of the Colonial Revival, the desire for figural ornament (floral, foliate or classical in origin) led to the widespread use of mastic trim. Mastic, generically a combination of resinous materials with plaster, sawdust or gypsum that was molded into decorative ornaments, allowed a great range of exterior detailing. Most of what is often assumed to be carved detail is, in fact, a molded, mastic-type product. While such details are often whimsical and charming, they were never intended to be colored realistically and should be painted either in the trim



QUEEN ANNE (1880-1915)

color, or alternatively in the body color, where that is being used as an accent (see Chapter II).

Window sash in Queen Anne houses are often decoratively constructed in varying patterns of small and large panes of glass (lights). Asymmetrical arrangements of multi-paned lights over a single lower light, fixed sash in diamond or other patterns, and stained glass are all common. Queen Anne sash were painted in a deep but lively color. Their decorative character was intended to be noticed, although modern combination storm windows often obscure them now.

Queen Anne Paint

The Queen Anne style is quintessentially an expression of weight, complexity, and substance, and these houses need to be grounded to their sites with colors that convey that gravity. Consequently, Queen Anne houses should not be painted in light color schemes. The rich tertiary colors introduced in the 1870s became particularly popular in the 1880s for Queen Anne buildings. Color cards and advertisements from late 19th-century paint companies demonstrate the range of these new colors, as well as their placement on the buildings. Moss and Winkler quote from the H. W. Johns Company, which claimed to be the first “to introduce the rich olive drabs, olive greens, maroons, etc. which are now so effectively and tastefully used in the decoration of ornamental villas,” and to have added “new dark body and trimming colors . . . in consequence of the constantly increasing demand for the new styles of decoration.” (*Victorian Exterior Decoration*, p. 27)

Many other paint companies advocated multi-colored paint schemes for these decorative houses as well, and early photographs and promotional material support the popularity of this look. Rather than the fussy use of many colors sprinkled throughout a building which is often seen today on Queen Anne houses, visual evidence from the period indicates that most houses were painted in one or two body colors with a unifying trim color and perhaps an accent color in the gables or decorative banding. Window sash, doors, and shutters were deep contrasting colors. Some early photographs seem to indicate a more elaborate treatment of porches and turrets, but this may have been achieved by using one of the body colors as an accent color rather than by introducing additional colors.

Window sash in Queen Anne houses were typically painted the darkest color in the house, creating the desired appearance of deeply recessed shadows. The standard dark sash colors (dark green, black, or deep brown) from the preceding period continued in use in the Queen Anne period. Other dark colors such as deep red, maroon, chocolate, and deep umber were also popular and contrasted effectively with a variety of trim colors. Sash in Queen Anne houses were always dark, never light.

Shingle Style (1880-1900)

The Shingle Style, characterized by the use of wood shingles for exterior cladding, combines elements of Queen Anne massing and complexity with the classically derived trim that would become the hallmarks of the Colonial Revival style. On Shingle Style houses the shingles typically wrap the house completely; trim is subordinated to the complexity of the massing of the house, which often includes towers, porches, and bays that have been pulled into the main mass of the house rather projecting from it. Recessed windows, eyebrow dormers, and porches are common.

Shingle Style Paint

Because the Shingle Style is so “wooden” and rustic in appearance, colors for the exterior also must be “woody.” Despite contemporary tastes for lighter colors, it is inappropriate to paint Shingle Style houses in light colors. Many of these houses were originally stained dark brown, and any shade of medium to rich brown is appropriate for the style. Deep olives, gray-browns, and dark greens can also be considered, but they should not be bright. Shingles were intended to be stained, never painted; if the house has not already been painted, stain should be continued. Otherwise, choose paint in a suitably dark brown or chocolate. Trim can be painted in a neutral beige or tan to coordinate with the body color, in a color very closely related to the body color, or in a darker contrasting color, such as dark green, dark olive, or maroon. Sash and doors should be dark.

Colonial Revival (1885-1915)

The period following the Philadelphia Centennial Exposition in 1876 saw a resurgence of interest in all aspects of 18th-century American culture, especially in the Boston area, which became a center of the Colonial Revival movement. The presence of the country’s first architectural school at MIT (established in 1866) and the lively influence of the large numbers of architectural firms practicing in Boston ensured that the region’s architecture would be significantly influenced by the Colonial Revival movement. This influence showed itself in the study of surviving 18th-century houses and the incorporation of aspects of that architecture in the residences of the area.

While the earliest examples of the Colonial Revival style used Georgian details eclectically, in the manner of the Queen Anne style, by 1900, the Colonial Revival style was characterized by greater symmetry and order and a closer mimicking of actual 18th-century houses. Hallmarks of the style are the use of the classical orders in porches, entrances, windows and cornices. Roof balustrades, pedimented dormers, Palladian or oval windows, denticulated cornices, pilasters with Ionic or Corinthian capitals, and expansive porches with fluted or plain columns in pairs or clusters, are typical of the Colonial Revival house. Entrances frequently feature leaded fanlights and sidelights. Windows typically contain double-hung sash with six-over-six, eight-over-eight, or twelve-over-twelve glazing. Because the Colonial Revival house often had a larger footprint than its 18th-century prototype, the more capacious hip roof form was commonly used.



COLONIAL REVIVAL (1885-1915)

Colonial Revival Paint

The Colonial Revival style marked a return to lighter paint colors. Study of early houses suggested (in fact, erroneously) that 18th-century paint colors were faded pastel tones, while the extensive use of classical details dictated off-white and cream-colored trims. Eighteenth-century landmarks, like Cambridge's Longfellow House, painted with an ocher body, cream-colored trim, and dark green shutters, were publicized as models of the style. Ochers, yellows, tans, grays, gray-blues, and gray-greens are the standard paint colors for the style. Trim is always off-white or cream.

The major distinction in the Colonial Revival paint scheme is in the sash color, which is the same as the trim color. This is true particularly in later examples which show little of the Queen Anne asymmetry. Only in early, transitional style houses will sash still be painted dark green or black. In general, off-white or cream sash and very dark green shutters are the marks of the Colonial Revival style.

20th Century Revivals

The early 20th century in Massachusetts was a period of economic consolidation around a few major industries (textiles, paper and shoes), significant immigrant-based population growth, and increased population density around the state's industrial cities. Electric street railways served large areas of the state and enabled suburbs to grow and flourish.

In residential architecture, two dominant strains emerged, one developing out of the Colonial Revival movement and relying on 18th-century prototypes, and the other based in the Arts and Crafts movement and evolving from the Stick and Shingle styles and their loosely-medieval precedents. These two strains formed the basis of much of the residential architecture of the early 20th century. In paint, the dominance of these two styles had a conservative effect, with color choices coalescing around the browns of the Craftsman and the whites of the Georgian Revival. It was from this formulaic context that the colorist movement and interest in historically-appropriate paint colors awakened in the 1970s.

Georgian Revival (1900-1930)

The Georgian Revival style, a subset or continuation of the Colonial Revival, predominated in the suburbs that swept out from Massachusetts' cities and towns in the early 20th century and continues to influence conservative residential construction to the present. In its standard, tract-house form, the Georgian Revival has a box-like floor plan, one or two stories tall, with a centered entrance and a gable or gambrel roof. Multi-paned sash are standard, and non-functional shutters are a frequent accessory. Because stock millwork was available in a broad range of traditional profiles and because labor costs were relatively low, the level of finish detail is normally quite substantial, with porches, cornices,

dormers, and window and door casings of good quality and accurate design. Sleeping porches, screened porches or verandas, and garages are common additions to Georgian Revival houses that were not present on the 18th-century prototypes.

Georgian Revival Paint

Paint colors for Georgian Revival houses are the same as those for the Colonial Revival: yellows, tans, grays, gray-blues, and gray-greens for the main body color with cream or off-white on the trim. For houses built in the 1920s, which may have fancifully-cut out decorative shutters, some brighter or less traditional colors (deep blues, reds, brighter greens) can also be used on the shutters and doors, but sash should continue to match the trim color. Garages should be painted to match the main house: body color on the clapboards, off-white on the trim and sash, and doors painted in the same dark color as the doors on the house.

For brick Georgian Revival houses, which were common in the early 20th-century, an off-white or cream color should be used on the sash and trim. For houses with brick-veneered facades, the remaining wooden siding should be painted in a light to medium color that relates to the tone of the mortar used on masonry sections (see Chapter II). Trim and sash should be cream or off-white. Never paint brick.

Craftsman/Medieval Revival (1900-1930)

The influence of the Arts and Crafts, or Craftsman, movement, was most evident, in the Midwest in Prairie Style houses that were inspired by Frank Lloyd Wright's early work (which was widely publicized in ladies' magazines of the day); in the far west, in bungalows. In Massachusetts, however, the movement was tempered by a long tradition of classicism, so many of the state's Craftsman style houses are more hybrids, incorporating elements of classical detailing in porches, entrances, and ornament.

The most common Craftsman style house in Massachusetts is a two-story, hip-roofed house with a square footprint which gives the type its common nickname, "four-square." Hallmarks of the Craftsman style house are roofs with deep, overhanging eaves supported on exposed rafter ends, prominent gable- or hip-roofed dormers, and deep porches, often with short columns supported on tapered bases. Shingle, stucco, and "novelty" siding (shiplapped clapboards, wide weatherboards with a channeled groove) or combinations of these materials are common. Often a Craftsman house will have a tall foundation of fieldstone boulders or concrete block.

Houses in the Medieval Revival are generally less modernist in their design, relying instead on English medieval precedents. These houses often have asymmetrical footprints, steeply-pitched gable roofs, tall narrow casement or leaded glass windows in bands or pairs, and prominent chimneys. Typically, they are sided in combinations of wood, stucco, masonry or masonry veneers. The use of half-timbering in gables, of over-fired "clinker" brick, or of brick laid in



CRAFTSMAN (1900-1930)

ornamental bonds (Flemish bond or herringbone patterns) is also common. It is theatrical, picturesque style in that much of the detail, based on functional precedents of the Elizabethan era in English history, is a veneer.

Craftsman/Medieval Revival Paint

Since the Arts and Crafts movement was intended as a reawakening to the virtues of the rustic crafts of the past (woodworking, pottery, metalsmithing, weaving), colors for the style are rustic and earthy. The use of shingles as a favored Craftsman siding maintained the Shingle Style browns, while the russets of brick and the sands of stucco formed the Medieval Revival palette.

Classically-derived trim can continue to be painted in creams or off-whites, but for Medieval Revival buildings, darker trim colors should be used (dark green, dark brown, chocolate brown, dark red, dark olive). Shingles can be stained dark brown, olive brown, chocolate brown, very dark green, dark red, or dark taupe, but should not be light. Where brick or brick veneers are used, tone the trim color, whether dark or light, to the tones present in the bricks or mortar. For stucco, consider the overall color of the stucco in choosing a trim color. Dark colors were used in the period but can create a strong contrast. An alternative is to use a medium to dark shade of the color in the stucco itself as the trim color. Where the stucco has already been painted and must be repainted, use a paint formulated for concrete and masonry and choose a stony neutral color for the body.

Sash color on the Craftsman or Medieval Revival house depends on the trim color selected. Use of a cream color on the trim suggests continuing that color on the sash, especially where the detailing is basically "colonial" in design. On houses where the details are more medieval, dark colors should be used on the sash. Black, dark green, dark brown, or dark red are possibilities. For Medieval Revival houses, only dark colors will be appropriate.

II. PRACTICALITIES OF PAINT APPLICATION

II. PRACTICALITIES OF PAINT APPLICATION

What's Body, What's Trim?

The correct answer to this question underlies all successful paint applications. Often, the placement of paint colors on a building is more critical to conveying the original sense of its design than the actual colors of paint used. Nearly all 19th and early 20th-century houses should be painted in three colors: 1) the body color, which is the color used on the main body of the house; 2) the trim color, used on all the decorative woodwork of the house; and 3) the sash and door color, used only on the movable parts of the windows and doors. A period-appropriate paint scheme is, with few exceptions, a three-color paint scheme.

The simplest rule for determining what is trim and what is body is to remember that only the main sheathing material (clapboard or shingle) is painted in the body color; all other woodwork is painted in the trim color. Trim woodwork is intended as a surrounding frame for the wall surface, thus trim pieces should always intersect and link up with other trim pieces; "dangling" trim (i.e., trim that does not appear to lie against or connect up with other trim) is probably not painted correctly. The sash and door color is the third color used on the building. Sash and doors, which recess into the building, provide a psychological sense as well as an actual means of entry into the building. For most of the 19th-century, sash and doors were painted in deep colors that drew the eye into the building and reinforced the perception of depth.

The Use of Multiple Body Colors

Using multiple body colors in a paint scheme might be compared to orchestrating a musical narrative: just as individual instruments will characterize a particular musical theme, each building component must carry a consistent color theme in order for the composition of the whole to be coherent. The key is consistency.

A house that has more than one major sheathing or siding material can have two body colors. A change in the major siding material indicates the original designer's intent for a change in color as well. A good example is Queen Anne houses where a ground floor is sheathed in clapboards and the upper stories or gables are shingled. Wherever the second siding material appears, it is painted in the second body color; the use of the second body color then becomes the identifying characteristic of that material, building a "theme" that will ensure a consistent visual organization to the paint scheme as a whole. When two body colors are used, the trim color remains the same throughout the composition.

Finding two body colors that relate but can be readily differentiated by the eye and coordinating these two colors with a third color for the trim can be challenging. Frequently, the ground floor area will represent only about a third of the surface area of the house. Because it will be less prominent visually, the color used on the ground floor can be a darker or less appealing color than one would want to use for larger areas of the body. Because the ground floor is also the



ITALIANATE HOUSE SHOWING DIFFERENTIATION BETWEEN BODY AND TRIM

usual focus of the bulk of the trim (porches, bays), an unusual color on that portion of the body will be significantly relieved by extensive use of the trim color.

An exception to the use of a second body color is where the secondary sheathing material does not completely encircle the building or is not itself completely encircled with trim. While a field of contrasting color can be an important accent, for example, in a shingled gable end that is surrounded by mouldings, if the secondary material directly abuts the main material, the resulting intersection of color will distract rather than accent. This situation often occurs on bays, which may be detailed with a shingled band that does not carry over onto the main body of the house. In such cases, using a second body color is not advised.

The Use of Accent Colors

As in the use of a second body color, the key to successful use of accent colors is their consistent application. Randomly painting details in a bright or contrasting accent color creates confusion rather than whimsy and may give the impression of a "magic marker" approach to applying color.

Accent colors can enhance unique detailing when used correctly but consider the entirety of the architectural presentation before deciding what and if to accent. Consider the features of the building that are truly unique and worth calling attention to: sunbursts in pediments, the astragal mouldings framing the panels of a bay, or other ornament applied on top of, projecting from, or recessed within, the main surface of the trim. Try to focus the accent color on a moulding that circles the building completely, such as the bed moulding that covers the joint between the fascia and soffit at the eaves of the roof, then apply the accent color to that moulding everywhere it appears on the house, including, for example, secondary rooflines on bays and porches.

Avoid accenting standard or utilitarian components of the building such as gutters, band mouldings on window casings, or porch floors. The band mouldings that are applied to window casings will only be found on three sides of the window; the mouldings stop at the sill. Accenting these band mouldings is often suggested by painting contractors but results in an incomplete "frame" of color around the window and gives a choppy appearance. Similarly, features like gutters are hardly worth noting with an unusual or striking color accent.

A standard approach to accent color in the 19th century was to use the body color to highlight some areas of trim instead of adding a new color to the scheme. In this approach, the trim color is applied to all non-clapboard or shingled woodwork in the standard manner. Then the body color is applied to those areas of trim you have decided to accent. Again, consistency and restraint is the best rule.

Ask the painter to add the accent color after the main body and trim painting is complete, and then proceed cautiously once you have identified the elements to be

accented. Accents can always be painted over in the trim color if they are too jarring.

Paint Application

[From Chapter VII of *Maintaining Your Old House in Cambridge*, by Charles Sullivan, Eileen Woodford, and the Staff of the Cambridge Historical Commission (1988)]

Traditional wood frame construction and exterior finish materials developed from the accumulated experience of generations of builders and architects with available materials. The perishable qualities of wood require that frame structures be shielded from the elements; if not, destruction will be as sure (though not as swift) as if the roof is allowed to fail. But if it is properly protected from the weather, wood will last indefinitely.

Techniques reached an optimal state by the end of the 19th century, and standards remained high through the 1930s. Since about 1950, incompatible and sometimes inferior construction materials, moisture-generating appliances, improperly installed insulation, and the necessary abandonment of lead-based paints have threatened the integrity of old frame houses and made it more difficult to achieve a long-lasting paint job.

The covering that best met the requirements of frame construction was a linseed-oil-based paint with a white lead pigment. Lead paint had excellent characteristics of adherence, weathering, vapor transmission, and color retention, but it began to be phased out in 1972 and was outlawed in 1978. Unfortunately, new paints have not surpassed the old in these qualities. In general, however, paint remains the only choice for previously painted surfaces; stain is best used on new wood or previously stained surfaces.

Paint Failure

There are numerous causes of paint failure. The three major ones involve moisture, defects in the surface, and inadequate preparation. The quality of the materials used must also be considered.

Traditional construction deals as effectively with moisture generated inside the house as it does with the elements; both capabilities are essential. While the house must be protected from the weather, it must also be able to ventilate moisture generated inside. Traditional construction breathes: lath and plaster interior finish, back-plastered wall cavities, plank sheathing, and wood clapboards or shingles readily vent the 150 to 175 gallons of moisture generated each week by the average household of four. Unvented moisture is a leading cause of paint failure, causing peeling down to the bare wood.

Excessive interior moisture can be remedied by properly venting bathrooms and clothes dryers to the exterior, clearing the weep holes of storm windows, and limiting weatherization efforts well short of achieving an air tight house. If humidifiers are used for comfort, buy a hygrometer (moisture meter) and keep the

relative humidity below 40%. If the walls or attic have been insulated, be sure that an effective vapor barrier was installed.

Blown-in cellulose insulation is one of the leading causes of paint failure. If the inside surfaces of the exterior walls are not sealed with a plastic vapor barrier installed underneath the plaster, or at least painted with a oil-based primer, moisture will condense within the wall cavity. Cellulose insulation is merely shredded newspaper treated with a fire retardant, and it will absorb moisture and compress down into the bottom of the cavity. The cellulose will stay damp, rotting the wall and causing the paint to fail quite dramatically. More expensive shredded fiberglass will not absorb moisture, but it too needs to be installed with a vapor barrier.

Sources of exterior moisture need to be brought under control. Leaking gutters, faulty flashing, inadequate caulking, and shrubbery too close to the house must all be corrected to prevent paint failure.

The second major cause of paint failure involves the condition of the surface to be painted. While lead paints tended to weather away between paintings, a substantial buildup of paint is frequently seen on old houses. Once the paint film exceeds 3/32 inch or if the house has received more than five coats of paint, failure is likely, and the old paint should be removed down to the wood. Other conditions of old paint include alligating and checking, in which the old paint is cracked and crazed. When bare wood can be seen in the fissures, the old paint should be completely removed.

Bare wood that is very dry or weathered may not accept paint well. Some painters recommend an application of boiled linseed oil, cut 50% with paint thinner or turpentine, to condition the surface for painting with an oil-base primer. Sometimes the only solution for old wood is replacement.

New cedar clapboards have a poor reputation for holding paint. The cause is unclear; one theory is that the planed surface as it comes from the mill is too smooth and hard to accept paint. To remedy this problem, sand the new surface lightly, giving it "tooth" to hold the paint, or let the wood weather for a season. Some carpenters put up clapboards with the rough face out; the coarse texture resembles a weathered surface and is suitable for staining.

Another leading cause of paint failure is improper preparation of the surface. If the old paint is not thoroughly scraped and sanded or if mildew, dust, and powdering paint are not fully removed, the new paint will tend to fail, leaving the old paint in place.

The compatibility of the new paint with the old must be carefully considered. While latex paints have gained great popularity because they are easy to apply and clean up, most painters in the Boston area still recommend oil-based paints for exterior work. Oil paints tend to be a little more durable, but, more important, they are compatible with the paints traditionally used. The greatest asset of latex

paint is that it "breathes" and will transmit moisture more effectively than oil paint. However, latex paints exert more tension on the old surface and often will pull underlying layers of oil paint away from the wood. Remember that latex paint may be used over oil paint but not the reverse; once a house has been painted with latex it must continue to be painted with latex, even if the incompatibility of latex with oil causes the older layers to fail. The only solution in such cases is to remove all the paint down to bare wood.

Use respected brands of paints, stains, primers, and caulks. Quality materials, though more expensive, yield a more durable and consistent finish. Major manufacturers will stand by their product and investigate complaints of product failure. Specify brand names so that the contractor can prepare a realistic estimate.

Removing Old Paint

Removing the old paint may become a disagreeable necessity as the house gets older and paint layers build up to an unacceptable thickness. Too much paint causes unsightly cracks and blurs the crisp detail of entrances and trim. Often, removing paint on a selective basis—such as from the front door surround, porch, or weather side of a house—can pay big dividends in appearance and not be prohibitively expensive.

Paint can be removed with heat or chemicals. After removing loose material with a scraper, an electric heating element is applied to soften the paint, which can then be scraped away to leave a clean surface. Hot-air guns or torches are not recommended for exterior work because they can set fire to pockets of dust in the wall.

Chemicals are expensive, slow, and messy. Most paint removers take time to work and must be protected from drying while they take effect. Some companies advertise paint removal from wood with a chemical spray, but this has not been proven effective or safe in all cases. In any case, thoroughly rinse all the chemical residue from the wood before painting.

Loose paint can be removed with an electric sander, but this must be done carefully or the sander will gouge the wood. Because of this and the associated problems of noise and dust, electric sanding is generally not recommended.

Sandblasting has been advertised recently as an easy way to remove old paint. This method is definitely not advisable, as it invariably raises the grain of the wood, leaving the surface porous and rough, and creates an unacceptable environmental hazard from flying dust.

A major consideration in paint removal is protection against lead poisoning, since all older homes were originally painted with lead-based paint. Wear a dust mask when sanding. A mask rated for fumes must be worn when a high-temperature heating element or hot-air gun is used to remove lead paint; a paper mask will not be effective. When removing lead paint, make sure that children, nursing and

pregnant women, and pets are out of the work area. Catch the old paint in a drop cloth for disposal, and afterward wash the area with a high-phosphate cleaner such as trisodium phosphate (TSP). Lead poisoning can lead to severe health problems, including brain and kidney damage. For further information on lead paint removal, call the Lead Poisoning Prevention Program of the Massachusetts Department of Public Health (1-800-532-9571 or 617-522-3700).

Paint versus Stain

Paint and stain protect from deterioration in different ways, and each finish has drawbacks.

There are two kinds of paint: oil (or alkyd) and latex. Alkyd is a synthetic resin paint similar to traditional oil paint, while latex paints are emulsion-based and water soluble. All paint, whether oil, alkyd, or latex, consists of three elements: a binder, a thinner, and a pigment. The binder is the key to good paint performance, since it acts to "bind" the paint ingredients together and ensures adhesion. It is usually alkyd resin or linseed oil in oil-based paint or latex or acrylic emulsion in latex paint. Thinners are mineral spirits or turpentine in oil-based paint or water in latex paint. The pigment is the color of the paint. Check the ingredients listed on the paint can look for a high proportion of binder to pigment and thinner. Inexpensive paints have a lower proportion of binder and less adhesive ability.

Stains can also be oil-based or latex, and, depending on the amount of pigment, they may be described as transparent or opaque. An opaque stain has a deeper color and more closely resembles paint than a transparent stain, which allows more of the wood's natural grain to show.

Whether a house is painted or stained depends a great deal on the existing finish and the type of siding. Paint can be applied over stain, but stain cannot be applied effectively over paint—despite advertising to the contrary. Stain is best applied to new wood or surfaces that have been stripped clean to bare wood. Clapboards are usually painted; shingles may be either stained or painted. All trim, such as gutters, window frames, aprons, corner boards, doors, and mouldings, should be painted.

Paint protects the house by drying to a protective "skin" that adheres to the siding material. Stain protects the house by conditioning the siding, which absorbs the oil with little buildup of layers. However, staining can create a thin skin of pigment on the surface, which can peel and flake.

Application

The first step in painting or staining a house is to do any necessary carpentry or repairs. Split clapboards, broken shingles, and rotted wood should be repaired or replaced before work begins. It is especially important to check the gutters and downspouts, as poor drainage can lead to early failure of the finish. Also check sills, railings, posts, columns, and steps for signs of deterioration.

After repairs are made, it will be necessary to wash the house with a detergent such as trisodium phosphate (TSP), since new paint will not adhere to a dirty surface. Thoroughly scrub any areas that have fungus or mold growths with a bleach and water solution. The presence of either condition indicates the presence of moisture, so be sure to correct the problem.

After scraping and washing, the next step is priming. The primer coat promotes adhesion between the wood or old paint and the new paint. Unless the house has been stripped, it is usually not necessary to prime the entire surface, but all areas of bare wood and any areas that are chalking extensively should be primed. Use an alkyd primer with either alkyd or latex paint. Do not paint over the primer until it has dried thoroughly. Primer should not be left unpainted for more than two weeks after application, or chalking must be removed before the finish coat is applied. Stains are applied directly, without priming.

Once the house is primed, all holes should be caulked or filled with wood putty. All vertical seams around doors and windows should be caulked in order to prevent water leakage. Use a good exterior acrylic latex or silicone caulk, as less expensive caulks tend to break down quickly.

In addition to surface preparation and materials, environmental factors must also be considered when painting a house. Most important, the house should be dry inside and out, and each coat of paint should be allowed to dry before the next coat is applied. If the wood underneath the newly applied paint is damp, the paint will begin to bubble and peel immediately. If the paint is applied too thickly or if the coat underneath is not properly cured or dried, the top coat will wrinkle and begin to peel. Pay careful attention to areas around windows, under gutters, and near the foundation, since these areas often stay wet longer than the rest of the house and are, therefore, susceptible to peeling and bubbling. Paint should not be applied when the temperature is below 40 degrees or in direct sunlight, since extremes of heat and cold prevent proper drying.

Even with thorough preparation, do not expect a paint or stain job to last more than 5 to 7 years. Air pollution, the absence of lead as a pigment, and the varying effects of wind, sunlight, and precipitation all decrease the life of paint and stain. But careful attention to moisture and thorough preparation will significantly increase the life expectancy of the job.

Working with a Painter

Painting is a trade that includes a number of skills, and the homeowner should expect more from a painter than simply a paint job and a bill. Traditionally, painters remove old paint to the extent required, caulk, seal, and prepare surfaces for painting, and apply the paint. They also reglaze windows, replacing broken glass and renewing the glazing compound as necessary, and replace broken sash cords if told to do so. Painters will also oil gutters. Painters do not, as a rule, do any carpentry. If the house needs any repairs more serious than nailing an occasional loose clapboard, retain a carpenter. As with any tradesman, it is essential to have a complete understanding with the painter of the work to be

done. Specify areas of old paint to be removed; understand the degree to which the house will be scraped and sanded, keeping in mind that it is impossible to obtain a really smooth surface without removing all the paint; agree on the brand and type of paint and caulk to be used; specify window and gutter work if desired; and decide when the work is to be done. Make room in the garage or basement so the painters can store their materials and change clothes. If the painters come to work on a day that is rainy or too cold, do not hesitate to ask them to come back another day. If you are unsure about color, do not rely on the workmen; painters succeed by skill and thoroughness, not necessarily by good taste.

Altered and Hybrid Buildings

There are many instances in which the straightforward rules about paint colors become less clear. Dealing with altered buildings, in which the characteristics of more than one style are evident, can be problematic. Occasionally, a mid-19th-century building will have been updated with the features of a later style, such as a Second Empire house which has later Queen Anne or Colonial Revival porches or dormers. In such instances, a neutral approach to paint color selection is best. Strong colors or strongly contrasting combinations (including the overly-contrasting use of white on the trim) will generally serve only to highlight the stylistic disparities of such a building.

Consider the dominant features of the building and paint according to the appropriate colors for that style. Frequently, those features will be the latest component of the design and typically they are classical in origin. Using a neutral, light trim color (cream, off-white or a very light neutral shade of the main body color) will unify the trim elements, despite stylistic differences. A neutral, medium tone of gray-brown, gray, tan, or gray-green on the body of the house will often serve to ground the structure without calling undue attention to its hybrid quality. Each altered building will present a different set of issues, depending on the styles and time periods involved.

Masonry Buildings

Masonry buildings also present a challenge, particularly where more than one type of masonry is used. On brick buildings, trim is found around windows, at entrances, and at the cornice. The architectural style of the building will dictate the appropriate trim color: Federal, Greek Revival, and Colonial and Georgian Revival buildings require a light, neutral trim color (off-white, light gray, cream) while late 19th-century styles need deeper, darker colors (dark brown, maroon, deep green, or black).

A good rule of thumb for choosing colors for masonry trim is to relate the color to the tones either in the material itself or in the mortar used to lay it up. Bricks have distinctive colors ranging from salmons through russets to browns; using the dominant tones in the brick to tone the trim color will ensure a good blend. Similarly, mortars, when closely examined, are colored either through tinting with pigments or from the color of the sands used to mix them. Choosing a trim color

that matches the dominant color of the mortar is often a good approach, unless the mortar is distinctly pink or rose-colored (as on some late 19th-century buildings). For such buildings, it is advisable to select a trim color from the bricks rather than the mortar. In these cases, the best method is to consider the wooden trim as an imitation of the building stones commonly used for trim pieces (brownstone, granite, sandstone) and to choose a deep paint color that will blend into its surrounding masonry.

Stone buildings, too, will have a dominant tone depending on the stone and blending to match wooden trim to its surrounding masonry is also advisable in these circumstances. The wide range of off-whites and light grays available in all major paint lines ensures that a good match can be achieved for limestone or granite, while darker stones (slate and brownstone) can be matched in the deep gray-greens and warm browns of some of the historic color lines of the major manufacturers.

Foundations

Normally, foundations are not painted. Where a brick foundation has previously been painted, the paint should be allowed to weather off. To hasten this process, loose paint can be removed by gentle wire-brushing when the painting contractor prepares the house for re-painting. Brick should never be sandblasted to remove paint, as it destroys the protective outer layer of the brick.

Blind or False Windows

A common element on 19th-century houses was the use of blind or false windows. While these can be mistaken for actual window openings that have been filled in with clapboards in later alterations, in nearly all instances, these blind windows are original elements of the exterior design employed purely to preserve symmetry. Almost all were never intended to have sash in them. A blind window on the exterior of the house is indicated by the presence of a complete window casing and sill on the exterior of the house, but with clapboards rather than glazing in the "opening". Some blind windows still have shutters permanently closed over them, while in other instances, the clapboards are left showing. Blind windows should be painted as body and trim: that is to say, the clapboard or body color should continue on the clapboards in the "opening" while the casing trim should be painted in the same color as the casings of the real window openings in the rest of the house. Shutters, where these are present, should be painted in the shutter color. Painting in this manner will allow the original rhythms of the design to be properly expressed.

Window Sash Colors

Treatment of window sash as part of the color scheme of a house varies with the architectural style and period of the house, as shown in the following table.

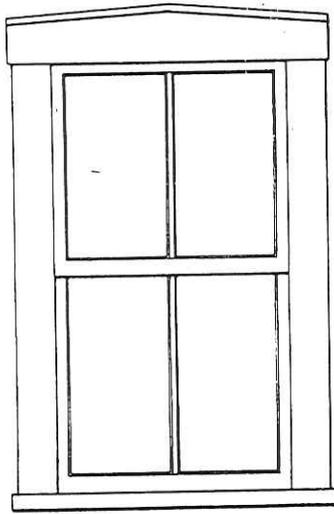
In Georgian and Federal style houses, which were erected into the beginning of the 19th century, window sash were painted the same color as the trim around the windows. However, beginning in the Greek Revival period and continuing throughout most of the 19th century, window sash were painted darker than the window trim, and sash were generally the darkest parts of the house. While some rural areas may have continued the earlier treatment of same color sash and window frames well into the 19th century, most communities show a change to black window sash with the introduction of the Greek Revival style.

By the 1840s and 1850s the romantic movement produced Italianate houses and Gothic cottages with a profusion of ornament. To emphasize the recessed quality of the windows in these houses, window sash were painted black or sometimes the color of the trim if the trim were dark. Mansard roofed houses before and after the Civil War also used black or sometimes very dark green for window sash regardless of the trim color.

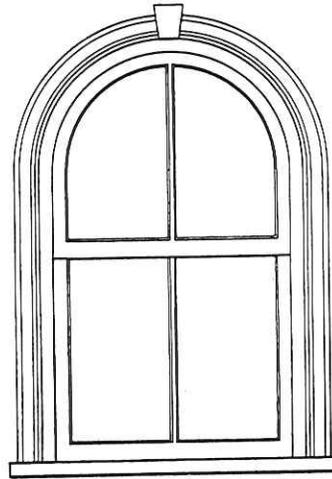
By the 1870s and 1880s houses built in the Stick Style and Queen Anne style all had very dark window sash, distinctly darker than the trim color. While black continued to be the most common sash color, many houses of this period had sash painted in very deep shades of green, red, brown, or olive depending on the color scheme of the house. Through the Shingle Style, window sash continued to be the darkest color on the exterior of the house.

The introduction of the Colonial Revival style after the Centennial in 1876 brought a return to the lighter window treatment of the 18th and early 19th century. For houses in this style and the Georgian Revival style that followed it, window sash was always painted the same color as the window trim, generally cream or off-white. In Craftsman and Medieval Revival style houses window sash were also painted the same color as the window trim, but there was often more variety in trim color, as there was more variety in building materials.

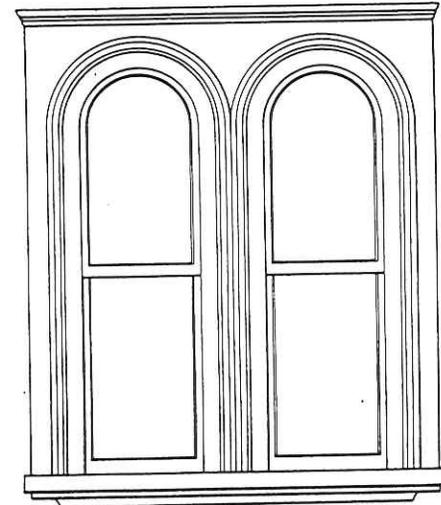
In all periods, storm windows should be the same color as the windows they protect. This rule applies whether the storm windows are old wooden ones or modern aluminum combination storms and screens.



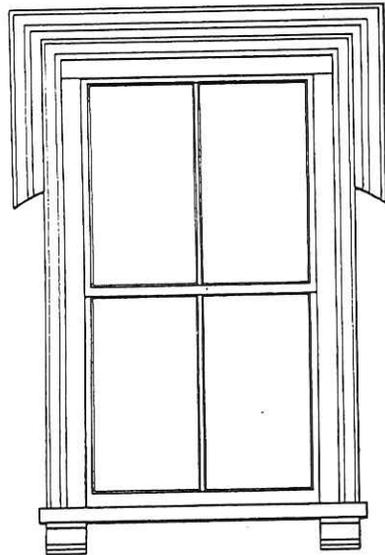
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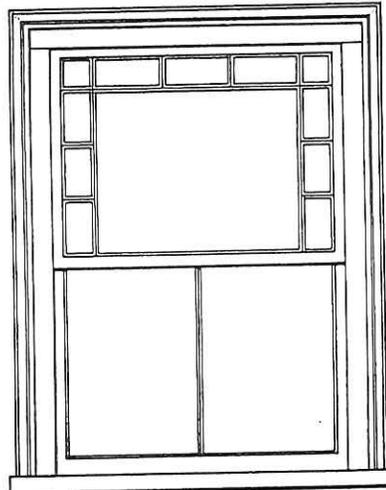
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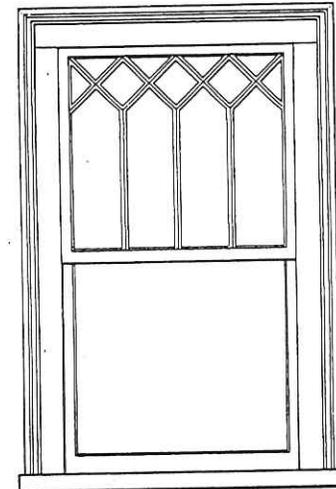
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E



F

Window styles varied substantially in the 19th century. A. The detailing of this casing suggests a pediment and was occasionally used in Greek Revival houses. B. An arched window, a hallmark of the Italianate style, often appears in a gable end. C. Paired arched windows are sometimes seen on high-style Italianate houses.

D. The Gothic Revival, Italianate, and Mansard styles all incorporated drip mouldings around windows. E. The Queen Anne style often used large sheets of glass surrounded by smaller lights to create a picturesque effect. F. The basketweave muntins appear in the Colonial Revival period.

Window Sash Colors According to Building Style

STYLE	SASH COLOR
Georgian	Same color as the window frames (trim)
Federal	Same color as the window frames
Greek Revival	Black
Bracketed/Italianate	Black Same color as the window frames
Gothic Revival	Black Very dark shutter green Same color as the window frames
Mansard/ Second Empire	Black Very dark shutter green
Stick Style	Black Very dark shutter green Dark red Reddish or chocolate brown Dark olive
Queen Anne	Black Very dark shutter green Dark red Reddish or chocolate brown Blackish brown Dark olive
Shingle Style	Black Very dark browns Very dark greens Very dark olives
Colonial Revival	Same color as the window frames, usually cream or off-white
Georgian Revival	Same color as the window frames, usually cream or off-white
Craftsman/Medieval Revival	Same color as the window frames

Storm Windows and Screens

Nineteenth-century storm windows and screens were wooden window frames, either glazed or screened with metal mesh, that were placed seasonally over the main, or primary, sash. These were hung from hooks placed in the window casings above the opening and then secured with hooks and eyes at the window sill. Because they duplicated exactly the primary sash behind them (i.e., two-over-two primary sash had two-over-two storms and screens), the storm windows and screens were treated as an extension of the primary sash window. Therefore, they were always painted the same color as the primary sash.

Modern aluminum combination storm windows come only in a one-over-one configuration and normally, in three finishes: galvanized (i.e., "silver" aluminum color), bronze or white. The bronze and white finishes are factory-applied enamels intended to coordinate with the finish colors of aluminum primary sash (which typically are used in modern construction and can be ordered in either of those two standard colors) and are not intended to complement or match wooden sash colors. In general, because white sash were only typical of the Colonial Revival style paint color schemes and because modern whites are too starkly-bright for a period paint scheme, white combination storm sash should be avoided. Similarly, bronze finish combination storm sash will not blend well with most period-appropriate paint schemes and also should be avoided.

Fortunately, most storm window manufacturers also make storm sash available in a black factory-finished enamel coating. While this can require a custom order, it is far preferable to use a black storm sash for most 19th-century houses. Black was the most common color for 19th-century windows from the Greek Revival through the Queen Anne and selection of a black combination storm sash will be appropriate for all houses other than those in the Colonial Revival style. With some manufacturers, it is also possible to obtain an almond or off-white finish color; for Colonial Revival houses, the off-white color is preferable to factory white.

If storm sash are not being replaced, existing galvanized-finish storm sash can be painted to match the primary sash color. Paint formulated for use on metal can be used to paint weathered or sanded galvanized storm sash. The frames of the standard triple-track combination storm window are deeper than storm sash frames were historically, but painting the frame of the combination storm will provide the intended line of sash color in the paint scheme, increasing the visibility of the primary sash color. Do not attempt to paint the narrow strips of metal that surround the glazing/screen panels themselves: paint will be scraped off the movable portions of the sash in raising and lowering the panels.

Porches

Getting the paint color in the right places on a porch seems to be a perplexing issue for many homeowners. Understanding the structure of the porch helps to clarify where the paint goes and why. Porches consist of a raised floor accessed by a staircase and framed on a system of posts and joists at some distance above grade level with the underlying structure concealed behind a lattice screen.

The framing elements of the porch (the sills, posts, and railings, and the staircase framing, including the stringers and risers) are all considered part of the trim of the house and should be painted in the trim color. Anything that gets walked on (i.e., the treads of the steps and the decking of the porch) is considered flooring and is stained or painted with products formulated for decks and porches. Coatings for porch floors need to be durable, weather-resistant, and easily re-covered. They cannot be slippery and should not be easily dirtied. For all these reasons, using a stain on the flooring is recommended, although porch and floor enamels (sometimes with sand mixed in to deter slipperiness) can also be used.

Historically, porch floors were stained with a combination of linseed oil and lampblack to create a charcoal-gray finish that would not show footmarks or dirt. Today, a deep, neutral color such as a charcoal-gray stain can be used. Depending on the color of the house, the gray of the porch can be toned to complement the main body color. But porch floors should never be a bright or lively accent color.

Finally, the latticed portions of the porch should always be painted dark green or the body color of the house. Dark green blends well with foundation plantings and forms a neutral backdrop that grounds the porch. Only the lattice itself should be painted; its framing should be painted to match the trim color.

Outbuildings

The decision about how to paint outbuildings depends in part on the nature of the building itself. For utilitarian agricultural buildings, such as barns or sheds, that have no architectural relationship to the main structure on the property or that are essentially without defining stylistic features, the standard 19th-century approach was either to leave them unpainted or to use the least expensive form of coating. This would have been the color now known as Barn Red, and historically termed Spanish brown or red ocher. In such cases, painting a second color on whatever trim exists on the structure is probably unnecessary; a monochromatic treatment of sheathing and trim is appropriate. Windows and doors can be painted in a simple second color (black or off-white).

If the outbuilding is an architectural extension of the main building, in other words, shares consistent architectural features with the main building, then it should be painted to match the main building. Carriage houses or garages, for

example, would be painted in the standard three-color manner used on the main house: clapboards (body color), trim (second color), and sash and doors (third color).

Fences

Wooden fences are a common landscape feature. They are always painted to match the trim color of the main building. Because fences are exposed and must be recoated frequently, they may be stained in a solid-color oil or acrylic stain. Less surface preparation is required for staining and it can be applied more easily than paint. Where the color of the trim is inappropriately strong for a fence, consideration can be given to using a neutral, coordinating color on the fence (off-white, light gray, gray-brown, light brown).

Cast iron fencing is always painted black, as are other cast iron architectural elements such as pipe railings, fire escapes, and balconies.