# The Beaufort Preservation Manual

*prepared for the*

City *of* Beaufort

Beaufort, South Carolina

John Milner Architects, Inc.

*Adopted November 15, 2022*

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## Acknowledgments

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The work was accomplished with the critical cooperation of the City of Beaufort Mayor and City Council and the invaluable cooperation and assistance of City of Beaufort staff. The tireless efforts of members of the Historic District Review Board and their staff were integral in shaping this document. Special thanks also go to the Historic Beaufort Foundation for their irreplaceable assistance and deep knowledge of Beaufort's cultural history and architectural fabric.

In addition to those professionally involved at the local and state levels, we are also most grateful for the general interest and involvement shown by the residents and businesses of Beaufort who shared their knowledge and enthusiasm for their town and so warmly encouraged our work. Please see the additional credits for all of those who contributed to the completion of this manual.

## Letter to the Beaufort Homeowner and Resident:

The *Beaufort Preservation Manual* is the culmination of an effort to inventory the historical assets of Beaufort, and to provide a guide to sympathetic maintenance and preservation of the built environment of the Beaufort National Historic Landmark District.

This publication is designed to be convenient for individual property owners. It is also intended that this Manual be used in conjunction with the Inventory and Repair Guide. Together, these documents provide a comprehensive catalog of building recordation, specific building repair issues, and appropriate stabilization and preservation techniques.

The Inventory and Repair Guide is an independent document which serves as a master file of historical data. Included in this document are inventory forms, location maps, existing conditions photographs, and annotated repair photographs for each conforming building within the City Enforced Sector of Beaufort's National Historic Landmark District. This Inventory and Repair Guide is available to property owners for reference through the City's Department of Community Development. Homeowners are encouraged to review the information pertinent to their properties prior to undertaking repairs or alterations. Since the compilation of historical data is a continuing process, individuals are also encouraged to submit further documentation, historical photographs, records, etc. on individual properties for inclusion in the master inventory file. Such participation will greatly expand and enhance the historical data base and consequently multiply the inventory's value as a community resource.

Beaufort is a remarkably well-preserved community. There are comparably few intrusions to conflict with the character of the Historic District. As a building collection, Beaufort is a highly significant and unique repository of architectural styles and additive detail which reflects the continuing life of the community. The vast majority of Beaufort's residents have contributed greatly to the sympathetic and successful maintenance of the City's character, be it in their houses, the community at large, or indeed, even the lifestyle of a quiet and coastal town. This quality is readily acknowledged, and hopefully reflected, in the Guidelines through the emphasis given to the value of proper and continued maintenance. Only through the dedicated efforts of each property owner to sensitively and responsibly care for their building can Beaufort be preserved in such an exemplary state for generations to come.

It is imperative that residents of Beaufort fully understand the intent of the comments contained in both the Preservation Manual and the Inventory and Repair Guide. The recommendations included in the Repair Guide offer suggestions for remedial work on individual buildings. These comments address a variety of problems which range from serious structural inadequacies, to common maintenance items, to architectural or stylistic incongruities. The recommendations are not, in and of themselves, directed toward full restoration of individual structures. Rather, they point out many factors which, over a period of time, contribute to deterioration, structural failure, or the general attrition of historic buildings. In many cases, the recommendations pertain to minor, incompatible elements which, when taken together, have a substantial impact on a property. The suggestions are generally directed to practical matters of maintenance which will offer a savings over replacement or rebuilding, and a protection of property value through both physical and aesthetic means. A conscious attempt was made to avoid matters of subjective taste: where suggestions are offered regarding such features as porch lights, signage, colors, etc., they are based on historical and architectural appropriateness for given periods and styles.

Many of the annotations in the Repair Guide, particularly those which refer to the removal of incongruous elements, are self-explanatory. Other suggestions, however, refer to inappropriate ornamentation or potential structural problems which require more complex remedial actions on the part of the owner. Where such steps have been recommended in the annotated photographs, the owner should refer to the appropriate section(s) of the Preservation Manual for a definitive discussion of proper stabilization, maintenance, and restoration techniques.

The Guidelines presented in the Preservation Manual generally illustrate the most appropriate means of stabilization and repair of specific items. However, a concerted effort has been made to combine the optimal with the practical in order to provide techniques with which property owners can readily comply, and yet remain within the limitations of recognized preservation practices. Where necessary, alternative, but less desirable, repair techniques have been included which offer the most feasible solutions to the average property owner. In preparing both the Repair Guide and Preservation Manual, the authors recognized that few homeowners are in a position to undertake all recommended, applicable repairs or maintenance tasks.

Nonetheless, the guidelines provide the owner with the comprehensive information necessary to establish logical repair and maintenance priorities.

In addition to discussing preservative techniques, the Preservation Manual also includes chapters regarding design criteria for new construction, streetscape improvements, signage, and landscaping; an illustrative guide to architectural styles and building periods; and a summary history of Beaufort's architectural development.

The vast majority of Beaufort's houses are in excellent condition, sensitively preserved, and fastidiously maintained. Since the functions of the Repair Guide and Preservation Manual are 1) to point out potential problems, inadequacies, or inappropriate details, and 2) provide proper remedial techniques, they may imply a negative or critical reflection of the buildings. This, however, is not its intention. The Repair Guide annotations are an abbreviated form of suggesting further improvements and pointing out potential dangers. Unfortunately, this format precludes extensive comment on the many fine qualities of each building. The inventory forms, however, attempt to cover all major architectural features and attributes of the buildings. In any such professional appraisal, an objective and critical approach is necessary in providing a useful, informative document. It is sincerely hoped that each property owner will respect the necessity of this approach, and view the remarks contained in the Repair Guide and Preservation Manual as positive comments directed at further enhancing an already exquisite community.

JOHN MILNER ARCHITECTS
Adopted November 15, 2022

## Introduction

In August 1979, John Milner Associates, presided over by John D. Milner, Principal, completed *The Beaufort Historic District Inventory and Repair Guide* and its accompanying *Beaufort Preservation Manual*. These documents provided the City of Beaufort with an inventory of many of its historical and architectural assets, and a guide to their sympathetic maintenance and preservation.

*The Historic District Inventory and Repair Guide* incorporated in its 21 volumes, a building-by-building survey of all structures located within what was referred to as the "city-enforced" sector of the Historic District. The *Guide*, which since 1979 has been kept in the office of the City Planner, included for each building surveyed a brief description and assessment of its historical and architectural significance and general condition, a location map, and annotated photographs indicating areas where repair or maintenance was required. The *Beaufort Preservation Manual*, which accompanied the *Guide*, explained the methods and materials appropriate to the suggested repairs, as well as the design philosophy which generated them.

The work in 1979 clearly acknowledged that the glory of Beaufort's historical and architectural character emerged from the clarity with which its evolution was expressed along virtually every street within the Historic District. The work was an outgrowth of the simple idea that preservation of that continuum of stylistic expression - whether along a street or within a single building - is preferable to conjectural restoration of given buildings or streetscapes to particular periods in their history. Thus, the bias of the *Manual* was clearly preservation rather than restoration. That attitude was sustained in the 1990 *Supplement*.

Also explicit in the *Manual* was its repeated emphasis on appropriate maintenance as the most effective means to achieve the goal of preservation. The *Manual* recognized that the small attritions of historic building fabric that occur through poorly planned or incorrectly executed repair and maintenance procedures can, over the long run, be more destructive to a community's architectural character than more immediately apparent issues associated with major alterations. The *Manual's* self-defined mission was thus, to a large degree, preservation education. If every property owner, resident, and contractor within the Historic District acknowledged the goals of preservation and exclusively implemented appropriate repair and maintenance procedures, the continuity of much of Beaufort's architectural fabric would be virtually assured.

Since 1979, both the *Guide* and the *Manual* had increasingly begun to function in a manner somewhat different than initially intended, in that they are presently being utilized as a set of guidelines by which the City's Historic District Review Board (HRB) evaluates applications for building permits within the Historic District.

In 1990, John Milner Associates completed a *Supplement* to the Manual. The *Supplement* acknowledged the present use of the *Manual* as a design guidelines document, and updates to it provide both the HRB and applicants for building permits a concise description of the considerations that should affect proposed interventions to buildings and sites within the Historic District.

The *Supplement* was to a large degree an outgrowth of the recommendations contained in *The Beaufort Preservation Plan*, completed in 1988 by Thomason Associates of Nashville, Tennessee. The stated purpose of that *Plan* was:

> to assess the present condition, quality, and administrative process of the Beaufort Landmark Historic District and how the district can be enhanced in the future ... (The *Plan*) is intended to provide goals and objectives for City officials, the Historic Beaufort Foundation, the Board of Architectural Review, and district citizens. (Thomason, p. 5).

To satisfy this intent, the Thomason Plan addressed a wide variety of issues, including the extent to which City-wide preservation goals were adequately addressed in various City Plans and Ordinances. In this context, Thomason Associates provided a chapter-by-chapter discussion of the *Manual's* strengths and weaknesses as design guidelines. The City's acceptance of the Thomason Plan recommendation led to the document. Moreover, many of the particular design guidelines contained herein are a response to issues raised in the Thomason Plan summary of the *Manual*.

The *Supplement* also responded to preservation issues associated with two other concerns raised in the Thomason Plan. The first of these, addressed in Chapter 6 of this *Supplement*, updates the *Manual's* recommendations and evaluations of the facades of commercial properties along Bay Street between Carteret and Charles Streets. The update provided an evaluation of the relative significance of these properties, with implications for the general direction which might be taken to unite economic development and historic preservation goals along Bay Street's commercial core.

The *Supplement* also provided design guidelines for a limited category of interventions within the proposed "Beaufort Conservation Neighborhood". In this proposed area, which occupies the northwest quadrant of the Historic District, preservation design review associated with building permit activities would be limited to buildings of at least 50 years of age and to issues associated with new construction, demolition, and habitable additions to primary facades.

In conclusion, it must be recalled that the *Manual*, though it expressed clear preferences for specific materials and methods, accepted that a wide variety of approaches were likely to be applied to the preservation of Beaufort's historic assets. In general, the *Supplement*, though intended to function as a design guidelines tool, maintained the *Manual's* openness to a variety of architectural expression, in the belief that cities are as much about diversity as they are about architectural excellence. Above and beyond the basic goal of preventing destruction of the physical as well as the intangible assets of a historic district, design guidelines have as their primary goal the management of change, rather than the prevention of change. Design guidelines have the potential to prevent architectural disaster, but if they are not flexibly and judiciously applied they also have the potential to erode the diversity that they are intended to protect.

## A Note on Terminology

As explained in the Introduction, this document is intended to provide applicants for building permits for construction projects in Beaufort's Historic District with an understanding of the design considerations as well as the existing and proposed regulations which will affect the review of their project.

Both the 1979 *Manual* and the *Supplement* were intended to assist the residents and City government in preserving Beaufort's unique and characteristic physical environment - the Manual through its stress on appropriate repair and maintenance procedures, the Supplement through its stress on design guidelines and associated regulatory procedures. This document is intended to combine elements from the 1979 Manual and the 1990 Supplement.

By nature, therefore, the *Supplement* was more detailed than the *Manual* with regard to the various governmental regulations and procedures which bear on Beaufort's preservation goals. Much of the associated terminology is confusing or overlapping, and merits the series of brief definitions below. Rather than alphabetically, these terms are listed in an order compatible with cumulative understanding of their ramifications.

Terms used repeatedly throughout this document are as follows:

<u>The Beaufort Code.</u> This term, referred to throughout as the "Code", refers to the governing "The Beaufort Development Code" which became effective on June 27, 2017. The Code was updated on July 10, 2018 through the formal enactment by City Council of new or altered provisions.

<u>National Historic Landmark District.</u> As used in this document, this term refers to Beaufort's federally-designated historic district. This National Historic Landmark District was listed in the National Register of Historic Places in 1972. As noted, the boundaries of this National Historic District (indicated on Map 2, page 52) have been incorporated into the Code as equivalent to the boundaries of the local Beaufort Historic District (see definition below).

To understand the distinction, it is necessary to recognize that there are only two types of historic districts, federal and local, and that the area contained within the boundaries (shown on Map 2, page 52) is both. National Register listing enables the owners of income-producing historic properties to be eligible for federal tax credits for projects involving the certified rehabilitation of their buildings. It also affords a measure of protection to historic buildings slated for demolition or alteration, but only in cases where federal funding is involved in the project. National Register status does not otherwise establish or place design controls on a historic district. Such controls can only be established through a local historic district authorized by state statute and enacted by local Code.

<u>Beaufort Historic District.</u> As used in this document, this term refers to the local Zoning District Overlay.

The physical boundaries of this Zoning District are defined in the Code as being equivalent to those of Beaufort's National Landmark Historic District (see Map 2, page 52) with minor clarifications. See Code for further detail. It is very important to note that the boundary of the Beaufort Historic District itself encompasses several Zoning Districts, (see Map 3, page 58) and that the requirements of one type of Zoning District may be either more or less flexible than those used by the other in its review of projects.

For additional information on terminology related to the Regulatory Process, please see the related chapter in this Manual and refer to the Beaufort Code.

<u>Historical Significance</u> has been characterized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a person, place, event, or object that "bears a unique or at least exceptional testimony to a cultural tradition..." In the context of the Beaufort Historic District, this applies to a structure's significance as understood through the character of the architecture itself, the building type, the structure's age or scarcity, or the associated persons and events of Beaufort's history.

Historical or Architectural Significance can apply to any structure in the District regardless of its status on the Above Ground Historic Sites Survey. Significance can also change over time as buildings age; new research reveals associations with historic persons or events; or demolitions elsewhere have increased the scarcity of a particular building type; to name a few possibilities leading to increased significance.

While significance can apply to any structure, for it to be considered "contributing," that structure must be added to the Historic Sites Survey and designated as adding to the quality, character, and history of the District.

## How to Use this Manual

Each chapter of this Manual contains, where appropriate, a list of preservation recommendations, which are intended to be reminders of appropriate repair and maintenance techniques rather than design issues.

The design guidelines in this  document are divided into three categories - "recommended," "not recommended," and "inappropriate". 1) Those approaches, treatments, and techniques that are likely to promote the preservation and protection of the Beaufort Historic District are categorized as "recommended". 2) Those that *might* adversely affect the District are categorized as "not recommended". 3) Those that *will* adversely affect the District are categorized as "inappropriate". These three categories reflect proposed treatments that, respectively, the HRB is likely to approve, might approve, and is likely to disapprove.

As architects and historians specializing in historic preservation, we are repeatedly struck by the diversity of stylistic expression, construction techniques, and materials, the protection of which is without question the primary goal of historic preservation. The very notion of design guidelines can be seen as contrary to this diversity. It must therefore be stressed that the guidelines which follow are *not* a design "cookbook" and are intended to inform judgment rather than replace it. There may, therefore, be occasions when the HRB considers it necessary to approve a design with a feature which the following guidelines call "inappropriate," or to deny one that is called "recommended." In fact, there should be such occasions.

Fortunately, there is no possible way to write guidelines that guarantee that every applicant, HRB member, architect, or builder will approach projects or exercise judgment in exactly the same manner. That diversity, after all, is what the notion of community is all about. The design guidelines contained herein are intended to help all those involved in building projects within the Beaufort Historic District walk the very fine lines between individual and communal expression, and between contemporary and historic design.

It is our hope that these design guidelines have the potential to minimize, if not avert, architectural disasters within the Beaufort Historic District. It is also our hope that they will not minimize or avert the opportunities for contemporary architectural excellence at a level of quality consistent with Beaufort's past.

# Architecture

# Chapter 1: Reflections on Beaufort's Architectural Development[1]

## Carolina in the Seventeenth and Eighteenth Centuries

Carolina's history as a province of England began during the reign of Charles II when the power of the Crown was restored after almost 20 years of Commonwealth government. In an effort to revive personal fortunes and a depleted treasury, the royalists saw the debated Carolina area as the key to consolidating English control along the Atlantic seaboard, lessening Spanish domination and providing new income. The king, as the patron of the venture, granted certain lands south of Virginia to a group of Lords Proprietors who were otherwise powerful in the Crown's affairs.[2]

Chartered in 1663, Carolina was, in its beginnings, a seacoast area with much of its land mass in the form of sea islands separated from the mainland by tidal streams. This water-dominated topography, especially in the southern area, defied early attempts at developing a productive agricultural colony. As a consequence, two generations of Proprietors and other investors saw little gain.

By 1690, once the swamplands were reclaimed for the cultivation of rice, structural settlement became favorable, edging also into the higher lands beyond the rice fields where the primary cash crop was indigo.[3] This was an asparagus-like vegetable product which provided a blue dye so much in demand by England's textile industry that its production by 1748 was subsidized by a bounty from the Crown.[4] This favoritism encouraged plantations near Beaufort as well as inland.

By 1758, new methods of irrigation also made rice cultivation a prosperous venture. A system of dams and dikes was constructed by taking advantage of fresh water streams which were affected by the rise and fall of nearby tides. This put a premium on tidewater property near Charleston, Georgetown, and Beaufort, creating a wealthy aristocracy in a relatively short period of time. In the Beaufort area, the money-making agricultural endeavors leaned towards indigo, at least from 1750 until the market with England was cut off by war.[5] Shipbuilding also encouraged early prosperity and, as a spin-off, a local middleman/merchant class began to develop, leading to Beaufort's being used for the transport of local goods to Savannah and Charleston.[6]

## Early Beaufort

The site of Beaufort was probably begun as a British outpost as early as 1706 when a block house is thought to have been built near the river to protect the inland passage. Beginning in 1707, scout boats were stationed on Port Royal Island to watch for hostile intrusion.[7] In 1710, the Lords Proprietors agreed that a seaport town should be erected on the islands.[8] This was to be a second attempt at settling the area; a town established by Scots in 1684 on "Spanish Point" was destroyed by marauding Spanish and Native Americans in 1715.[9] The new settlement was planned for another strategic point near the confluence of two tidal streams and was named Beaufort Town in honor of one of the successor Lords Proprietors, Henry Somerset, Duke of Beaufort.

The original plat was made up of 397 available lots. Four public lots, intersected by Carteret and Craven (Calvert) Streets, dominated the interior portion of the southeast segment of the grid.[10] Most of the rectangular blocks east of Carteret Street were divided into six or more lots; those to the west into four or six. 24 lots of lesser size, presumably planned for commercial use, were sited on the north side of the unnamed street adjacent to the river. Lots twice the size of the average ample plots for mansions were set to the northwest of the waterfront overlooking the marshes. What is now Wilmington Street was the west boundary of the town, Prince Street the north boundary, and East Street the east boundary (see Map 1, page 14).

According to an act of the Provincial Council, every person who took up any of the more strategic front lots was required to build a house, 15' by 30', within two years. Owners of back lots were given three years in which to act.[11] This was a common requirement in colonial development, aimed at improving the tax base as quickly as possible. The Council was undoubtedly also reacting to the loss of Stuart Town on Spanish Point and so proposed to strengthen the frontier with a village that could defend itself.

The plan did not allow for the town common usual to a civilian settlement,[12] but neither was a fortress function defined.[13] Soon after the town was founded in 1715, its ability to survive was tested by an attack by the Yemassee tribe. By 1720, the place contained only a handful of homes.[14]

Structured settlement actually began in 1717, the first year that grants were recorded.[15] The list of original grantees, together with the early structures which have survived, suggest that some of what may be called second period houses were constructed at the four corners of streets which are today called New and Port Republic.[16] Assuming construction immediately followed the taking up of grants, other buildings may have been erected along Bay Street, the west side of West Street, and on Craven Street, south of the Public Square where lots were also granted in 1718.

Proprietary control as established in Carolina did not prove to be successful with the enterprising and self-reliant individuals who had settled the colony by 1719 and the Proprietors were forced to sell their shares to the Crown. The exchange of control took almost a decade to be accomplished. It was as a part of the Crown colony of South Carolina, after 1729, that Beaufort seems to have shown pronounced development. No record of grants exists from 1718 to 1743, after which time a brisk interest in development continued until 1766. There is indication that a great percentage of the lots below Craven Street had been assigned by 1747 but, again, coincidental building activity cannot be proven.[17]

No early house has survived as it was built, but at least three structures near New Street, probably constructed before 1750, offer some strong suggestion for the plan and form of the early architecture.[18] According to this study's street survey, these examples suggest that at least two house forms were utilized in Beaufort's second and third periods of construction (1718-1750). The dwellings were timber framed and built on raised foundations of "tabby" concrete, a mixture devised from the local materials of sand and oyster shells. Some were one-and-one-half story, gable-roofed structures; others rose two stories above the raised foundation and were topped by a roof which was either gabled or hipped. In either elevation, the plan seems to have been limited to single-pile (one-room deep) construction. This plan was composed of a hall and parlor as adjacent rooms, or alternatively, hall, parlor, and center passage. The former would have best fit the requirements for a house 15' by 30', as set up in the early records. In either case, an outshut, or shed addition, may well have extended to the rear to provide added space on the principal floor.[19] The chimneys were brick and built on the exterior gable walls, sometimes in a "pilastered" or T-shaped configuration which visually expressed the various flues they accommodated. As a precaution against fire, the chimney stacks were constructed with a gap of several inches between the weather-boarded walls and the brick masonry.

**"Second Period" House Type - 214 New Street**

Heart pine, obtained locally, and cypress, found in nearby fresh water swamps, were the major building materials used for framing and finish work. The interior rooms were either paneled or plastered and sheathed with horizontal wainscoting which covered the lower portions of the three exterior walls. Vertical board partitions were used to separate the major spaces into rooms and to box any stairs which may have been included in the interior plan.[20] It is also possible that stairs were either relegated to the exterior or assigned to stair towers built for the purpose.[21] Secondary buildings such as kitchens and servants' quarters were built close to the houses but without connection.[22]

## Churches and Early Public Landmarks

In order to visualize Beaufort's overall architectural evolution, we must understand the variety of building types other than dwellings and warehouses which existed in different time periods. Generally, at one time or another, the range was depicted by significant public buildings erected for the purposes of (1) defense, (2) religion, (3) education, (4) detention or incarceration, and (5) public administration. It is probable that these were erected in the order given, unless perhaps detention and defense, or detention and public administration, were considered as one.

**Defense.** Public structures built for the purpose of defense were either fortresses geared to combat use or arsenals used only for the storage of supplies. Each type is thought to have existed within the limits of the present Historic District, but the structural principles used have not been studied in depth. Records suggest that a lot on the south side of King Street, outside the bounds of the early town, was set aside for "His Majesty's Storehouse" (Map 1, page 14).[23] Possibly a powder house or arsenal of comparatively small scale, this would have exemplified a building type in-that its construction, if form, material, and space alotted, would have been directed to the safe storage of ordnance. But, we can assume it would not have been as "determined" a building type as was later devised within the rationale of military technology.[24]

When in 1795 the town organized a local militia to aid in defense, an arsenal was built in the northwestern "publick lot" near Calvert (Craven) and Carteret Streets. No documentary description has been found for this building but it was probably a masonry structure of small scale, not much more advanced than the King's Storehouse. By 1852, the late eighteenth century building was replaced by one of the landmark structures of the town. The new arsenal, built in Beaufort's epic expansion era, was a masonry structure in the Gothic Revival style, and a building constructed for the purpose of meetings and drills as well as for the storage of powder and weapons. It was not only "fireproof' in construction, but, in its crenelated Gothicism, it projected a strong image of its militaristic function.

**Religion.** Building types addressed to "image" have been a part of church history for centuries. The stature of the church in Carolina's development was stressed locally when, as a result of the Church Act of 1706, the Anglican Church became the "established" church of South Carolina. The parish was the local administrative division of government, with the parish vestry (12 local landowners) responsible for the welfare of the community as well as the business affairs of the church.

In 1724, within the scope of first-period building in Beaufort, the Carolina Assembly authorized the vestry of St. Helena's Parish to build a church, most likely in the same location as the present Church of St. Helena's. On a nearby lot, a Presbyterian meeting house was planned by 1744.[25] The former (church) was built with the aid of a tax levy since it was "state" supported. The latter (meeting house) would have been built by the volunteer subscriptions of Scottish dissenters. While the Scots were given the right to erect their own house of worship, everyone had to supplement the construction and maintenance of the "English" Church.[26] The "building type" exemplified here would have reflected the cultural constraints not only of frontier life but of the rational theology with which the Puritans had so strongly indoctrinated British churches. We can assume these buildings were of frame construction, small in scale, and modified in their allusion to liturgy. Each would at least have been oriented east/west (instead of north/south as were the dwellings of the area)[27] and would have featured a communion table at the east end of the chancel and a high pulpit within clear view of the congregation on the east or north. Each had a burial ground adjacent. These first houses of worship, and their cemeteries, were located outside of the developed area, west of the proposed civic center at Calvert (Craven) and Carteret Streets.

In Beaufort, in the post-Revolutionary period, the "established" church, St. Helena's, was disenfranchised. No longer a part of the British government, it became associated with the Protestant Episcopal Church in the United States, separate from but also akin to the Church of England. St. Helena's relied on the contributions of its parishioners rather than the overall support of the community. Coincidentally, the Methodist and Baptist communities began to grow just when the Anglican Church was fighting to survive. So, at the same time that the Palladian mansion became the grand Beaufort house type, the church as a building type was not emphasized. It was not until 1827 that the support of St. Helena's was strong enough to rebuild the church with a larger, galleried sanctuary. By 1842, the structure had assumed much of the form which, except for the steeple of 1942, it features today. This was a pretentious masonry structure in the Georgian mode with seven bays of two-tiered round-headed windows and an entrance porch and steeple.

While St. Helena's stressed a conservative building form, the Baptist congregation concurrently stressed the leadership role more historically associated with a church. The present commodious Baptist Church was built on Charles Street in 1844, using the bold academic ornament of the Greek Revival. This was almost a decade before the monumental columns and large-scale details related to the Orders were adapted for area residences. Still, the Baptist Church was conservative in relation to the history of American church architecture. Even its most striking exterior detail, its "in antis" porch, was a frontispiece feature which had been first used in American churches in 1832.[28] While locally avant-garde, it reflected what had been used in the north a decade earlier.

**Baptist Church - 601 Charles Street**

**St. Helena's Church - 507 Newcastle Street**

The nineteenth-century churches of Beaufort often preferred, but did not require, the heavy investment of large buildings. The Church of St. Peter the Apostle, the Catholic Church built on Carteret near King Street in 1846 was a chapel-sized building, probably smaller than the eighteenth-century churches of the town. It referred, however, to the Greek Revival in its original proportions and classic in its attention to the more general relationship of voids to wall space and roof pitch to volume.[29] It quietly stressed an ecclesiastical reference.

**Church of St. Peter Apostle - 710 Carteret Street**

Other interesting examples of church architecture as applied to later nineteenth century style are churches based loosely on Gothic precedent but built in different generations, one in 1865, the other in 1900. Each was undoubtedly an economically conservative venture while also a successful house of prayer. The First African Church, familiarly referred to as "Praise Church," was built in 1865. Its free use of abstract forms seems to provide a direct reference to a new construction technique known as balloon framing. Similar construction was used later in a Presbyterian Church at what is now 602 Carteret Street. Both exemplify successful use of picturesque materials which suggest, rather than copy, an academic style. Neither of the last two church structures is large, but each exemplifies a building type which conforms to church use, featuring a porch, a bell tower, an aisled sanctuary, and a chancel.

**"Praise Church" - 601 New Street**

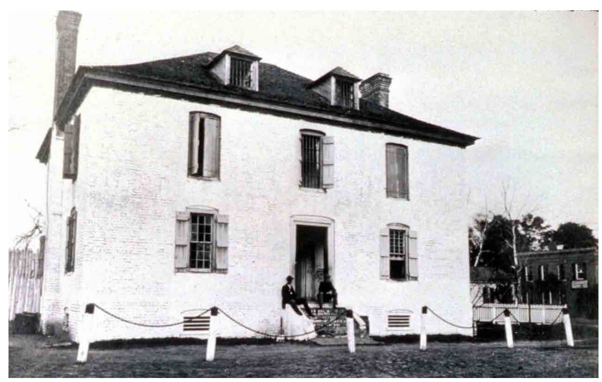
**Education.** Early churches and schools shared the common need for a space where a group could listen to a single speaker and where daylight was used as fully as possible. School buildings, however, were not directed to as structured a program as were churches.

**Early Gothic Revival Cottage (Store for Freedmen, corner of Newcastle and North, now part of Rhett House Inn)**

Architectural history tells us that schools, like churches, were generally advanced in their use of a building form which defined them as a type. No pre-1850 examples of schools as building types are known to exist in Beaufort, but the records suggest that, just as the Greek Revival was first used in Beaufort in church architecture, the Gothic Revival in its board-and-batten cottage form was used first for a school. Built in a cross form on a high foundation with a steeply pitched roof, "lancet" doors, and a curvilinear vergeboard at the gable's edges, this was a free frame construction[30] and, while it did not provide argument for a building type per se, this "Gothic cottage" school demonstrated a public approach to new modes and the versatility of neo-Gothicism as a style.

Primary schools of the early nineteenth century had limited requirements; they needed only uninterrupted, well-lit space. Academies or colleges, on the other hand, required multiple classroom space and office areas. Generally, these were exemplary structures for establishing architectural forms to meet specific functions. Locally, Beaufort College, built on Carteret Street in 1852, exhibited the successful application of the Greek temple form in an abstract but rational approach which also referred to the local "T" plan. In scale and detail, it displayed a strong "image" of community pride.[31]

**Detention or Incarceration.** By 1740, a provincial law provided for a jail. Little is known of the building which served such a purpose unless it was the three-bay, hipped-roof brick structure which served as the Provost Marshal's jail in 1863.[32] This may well be the case since the building was on "publick" land (as established in 1710) east of the original Castle Square. The segmentally-arched windows and the general proportions of this long-gone structure assumed a date close to 1740. Other than the fact that this was a masonry building at a time when brick was not common in the area, this building was a typical dwelling in its overall exterior presence.



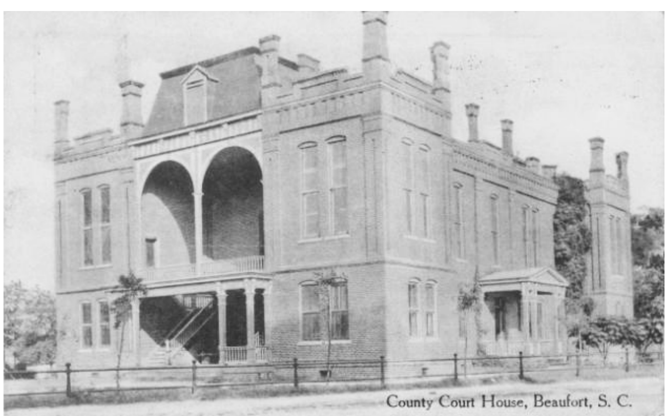
**"Jail" (Burned) at notheast corner of Craven and Carteret**


**"Jail and Market" (Burned) on east side of Carteret at Craven**

**Public Administration.** No graphic record about eighteenth-century structures directed to public administration in Beaufort has as yet been found. In colonial times, and since local authorities could have met at a local tavern and the felons incarcerated in the cellars of commercial establishments, the lack of such buildings would not have been unusual.

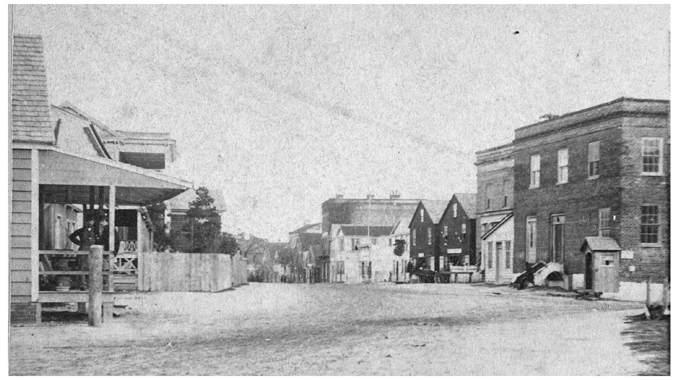
Barnwell Castle at 1501 Bay Street

Colonial courthouse requirements were also met by buildings of domestic demeanor just as were jails.
The epic era of courthouse construction came in the later nineteenth century when, sometime between 1887 and 1907, a monumentally eclectic building which featured a Romanesque entrance arcade was




Late Nineteenth Century Courthouse at 1501 Bay Stret.

built on a trapezoidal lot on Bay Street in the west end of the original village.[33] This structure was four ample bays wide; its recessed two-bay arcade stressed the second or principal floor and was flanked by single bays lit by paired double-hung windows. A "French" roof crowned the central two bays; the virtually flat roof of the outer sections was obscured by battlements. The "appended" quality of the design lent itself to interesting renovation later.[34]



Customs House at 928 Bay Street. Abraham Cockcroft House at far right.

Administration at the Federal level does not seem to have been stressed in the epic 1850s when customs service represented high-level government. Like other public offices in the eighteenth century, customs services were usually housed in the home of the locally appointed officers or in rented rooms in a public house. A similar situation no doubt existed in Beaufort. In the nineteenth century, however, as America's trade expanded, the Customs House as a building type became a prominent national symbol. It almost always presented a classical concept which provided a sense of firmness and unquestionable authority for a building which represented the Federal presence. In Beaufort, a Customs House was built sometime before 1860, indicating foreign trade was conducted from the port. This building was a classic four-square masonry building with an "in antis" porch on the south side placing frontal stress on its waterfront facade. If it followed tradition in plan, it featured not only offices but spaces for Appraisers' Stores.

## Mid-Eighteenth Century Beaufort

At the domestic level, the growth of the town continued through the mid-eighteenth century, but little "imagery" was deliberate before the late 1760s. Early Beaufort by this time was essentially a commercial town where merchants and factors, intent on making the most of diversification, traded local crops for tools and household goods. There were at least three dry goods stores on Bay Street,[35] and the wharfs nearby served ships which then connected Beaufort with the larger cities of the coastal colonies. A Civil War photo of a house, then at the corner of Port Republic and

West Streets, exemplifies what could be the robust form of domestic architecture from 1745-1760. This displayed a chaste exterior which was nevertheless expanded to a two-story-over-raised-basement, double-pile plan. The major feature of this big box was the roof which was hipped or hip-on-hip. A similar elevation survives today at the corner of Boundary and Carteret Streets.[36]

**Mid-Eighteenth Century House Form (Burned in 1907) at 607 Bay Street**

**Early Twentieth Century House Form - 1106 Carteret Street**

In another undated but bold example, a house built at the east end of Bay Street, there was a decided, almost Dutch, flair to the lower edge of the roof line. The cornices were coved, typifying the earlier William and Mary phase of classical evolution in American architecture.[37] Each of these mid-century examples is conservative in its use of subtle detail, such as the single-stage porch. Each also stressed a piered basement, one high and the other low.

In 1768, Carolina's government reorganization not only placed Beaufort in a judicial district of an area somewhat comparable to today's Beaufort, Jasper, and Hampton counties, but it made the port town the district seat as well.[38] This was an advantage for the town's development, though few buildings of any pretention seem to have been built as a result. Those on record were architecturally "aware" but, in relation to structures built elsewhere at the same time, they were conservative in both form and exterior detail.[39] The local versions built in the 1760's were represented by the William Elliott House and the John Barnwell House. The John Barnwell House has been so radically changed that its date provides us with no clues about fourth generation Beaufort architecture. The William Elliott House (The Anchorage) has also been changed, but it retains its original form and can be documented by old photographs. These suggest that, in 1760, dwellings were still single pile in depth, of frame construction, and featured a hipped roof from which architectural chimneys broke on the east and west slopes. The facade was five bays wide with a center entrance or double entrance which was both protected and emphasized by a single stage front veranda. It could be that the 1760 examples differed from the modest earlier houses in only two respects; they were three stories high and they apparently featured a "T" wing which provided extra depth to all three stories rather than just the principal floor. This is in significant contrast to the known double-pile examples.

Despite the moderation this conclusion suggests, these mansions were decidedly Georgian in their sense of proportions and attention to balance. In the William Elliott House at least, the axial fenestration of the facade was underscored by a pediment applied low on the front slope of the roof and proportioned to the openings.

Just as local agriculture began to encourage the trade which had made mid-century new construction possible, the growth was interrupted by war with England. The c.1776 William Johnson House is thought to be one of the very few structures built between 1770 and 1780. In form, this house harkened back to the second period, single-pile plan with exterior chimneys. Its attention to new concepts seems to have been concentrated on the interior where cornices, mantels, and other trim were delicately carved.[40]

**Eighteenth Century House Form - 414 New Street**

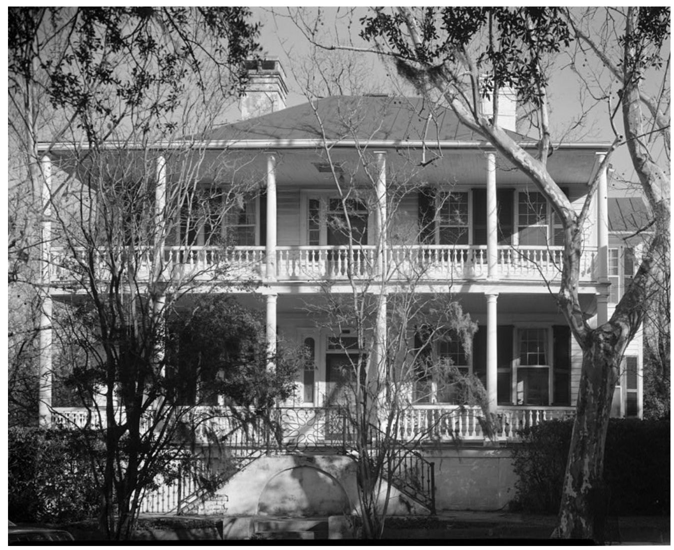
## Federal Period

In 1781, the local seat of government was moved inland to Coosawhatchie, causing Beaufort to forfeit the gain provided by the role of a court town. The town relied then on the port and on its own growth potential. The Act passed in 1785, initiated by the local legislature of the new state of South Carolina, directed the commissioners to ascertain the number of vacant lots in Beaufort, to sell those not previously granted, and pay the proceeds to the State Treasury.[41] According to land records, few lots had not been granted as of 1766 (see Map 1, page 14). While the statute underscores public concern for full development of the town to strengthen the economy of the locale and supply the new state's coffers, it also suggests that some lots which had been granted had not been built upon as planned.

By 1790, a tidal rice culture developed, encouraged by the invention of a rice husking mill. By the late 1790s also, the island plantations near Beaufort, in order to substitute for the declining interest in indigo, began to grow long staple cotton, a strain which simplified the separation of the seed from the fibrous material. The chore of separating the boll, or fluff, from the seed was attended to by the large slave labor force which was integral to the area's economy. The invention of the cotton gin further enhanced the value of the local product, especially when, in 1793, a saw tooth improvement for use with long staple cotton was devised. Sea Island cotton then provided "the finest and most expensive product in America."[42]

**Federal Era House Form - Tabby Manse, 1211 Bay Street**

In keeping with this suggestion of new wealth, the planter elite used Beaufort as a new resort to escape from the danger of fever so prevalent in a plantation summer. Coincidentally, at least five mansions were built within the limits of the town.[43] Based on the Palladian concept of triadic rhythms, delicate details, and harmonic proportions (principles tempered by a continued conservative approach to construction and a restrained use of the delicate Adamesque detail), these were two-story and two-and-a-half story, five-bay homes. They featured the hipped roofs and raised basements used earlier, but otherwise differed greatly from their less imposing antecedents.



**Federal Era House Form - Dr. William Jenkins House, 901 Craven Street**

More often than not, the major new feature was a projecting portico. This was a distinctive yet conservative motif in the form of a frontal, two-stage porch. It provided a feature in which Orders would normally have been superimposed (using the Doric on the first floor and the Ionic on the second floor, as an example). But, in Beaufort a simpler variation occurred and the Doric Order was used at each floor level with a differentiation in the size of the columns serving to identify each level. The columnation was set in a three-part Palladian rhythm, emphasizing a wide center bay flanked by two lesser bays. This tripartite detail was also employed in Palladian windows. In each example, a round-headed opening, flanked by two shorter and narrower openings, was set as a unit in the rear (north) wall to light the stairway and provide a significant interior focal point at the landing area. Elliptical fanlight windows over entrance doors provided a similar delicate but useful light source as an architectural focal point.

Built of tabby and heavy timber frame, these Palladian structures featured four rooms to a floor. While the traditional rear "T" ell provided this space in some examples, others used the double-pile plan which had been used but not popularized before the war. For either plan, interior chimneys rose between the south and north rooms; on the interior, either geometric details were cut in ornamental gougework or biblical and natural motifs were executed in low-relief plaster.[44] Gougework embellished cornices, fireplace surrounds, and dado rails. On the exterior, the continuous cornices provided by the hipped roofs were also delicately detailed with dentils or gougework.

For the two generations that Carolina held a veritable monopoly on the cotton culture, this type of Adamesque-Palladian mansion was the dominant Beaufort style. Its popularity was reflected in the detail of the lesser buildings in town such as the Habersham House on Bay Street.[45] This perpetration of an overall sense of formality demonstrates how successfully architecture could stress an air of self-confidence. In other ways, however, the environment was emphatically unplanned.

In 1796, when Beaufort was more than 50 years old, it had a population of only 200,[46] but its smallness belied its importance. It was recognizable both as a port and as a resort and most of the town's built-up area was concentrated near the waterfront where the newer mansions contrasted in personality and size with the more utilitarian warehouses, taverns, and shops. To the east was the earlier clustered village near New Street.[47]

## Greek Revival Period

Refined Adamesque architecture continued in Beaufort after 1830 when the monumental Greek Revival style became popular in the north. By 1850, as the north became industrialized, new construction methods made use of dimensioned lumber and framing systems that required little skilled labor and made way for new and freer styles. However, in the south, where the wealthy planters had the labor force to build in a traditional manner dependent on the craftsman ethic, the Greek Revival endured. The style, tempered by certain trusted Palladian concepts, took on a personality suited to the aristocratic life style in a warm climate.[48] Between 1852 and 1860, Beaufort put forth the most extensive construction effort in the town's nineteenth century history.

**1850s Veranda - Superimposed Orders - 601 Bay Street**

More than six impressive neo-Greek mansions were built along with the stores and cottages constructed in the classic manner. It was this era which produced the "wealthiest and most cultivated town of its size in the country."[49] It provided the theme for a Beaufort personality which has endured, however modified, to the present time.

**1850s Veranda - Colossal Order - The Castle, 411 Craven Street**

While the mansions used colonnaded verandas to stress the Orders, the more vernacular shops and cottages used a limited amount of molded trim, and confined their classical reference to the relative proportions of height to width.

As the Greek style became the vogue, the older pretentious homes in established neighborhoods on Bay, Craven, and Hancock Streets, were enlarged to conform. Lot size often restricted the size of the renovation, but the change was nevertheless radical enough to destroy the older concept.

Some were actually rebuilt on old basements. Like the new examples, the alterations assumed new identity by virtue of full-width colonnaded verandas which literally screened their earlier history from the passerby.[50]


**Greek Revival Shops (Demolished) at south side of 800 block of Bay Street**

Owners of the newer houses, built apart from the early bounds of the town, emphasized grandeur by choosing large lots which allowed the visual strength of the mansions to be appreciated from a distance of more than a street's width. Rather than town houses, they were country houses in town. The preferred locations were at opposite ends of the community. One suitable site was the west end of Bay Street where large lots had been set out as early as 1743; the other was on a peninsula of land north and east of the eastern edge of the original town, annexed before 1830. This area on the Point was separated from the established sector by a tidal pond which covered much of today's King Street. A portion was actually an island.

In addition to the favored full-width veranda which shaded one or two floors of the principal south facade, each new home featured either a low-pitched hip roof or a gabled roof from which two large symmetrically-placed chimneys broke in the north slope.[51] While the mansions demonstrated these general similarities and a common interest in bold Classical detail, they stressed individuality rather than a staid repetitive scene. Each home differed in plan, in number of bays, in material (three were of brick), and in the detailing of the veranda. Each also differed in the seriousness with which it adopted Classic principles.

**18th c. House Form with Addition - 308 Hancock Street**

The variety of the overall effort in Beaufort strongly reflects the national vitality of the time in which it took place. By the 1850's, once the new framing systems were possible and inexpensive dimensioned lumber was marketed in the north, the Italianate style, classic in form but romantic in concept, and the cottage-Gothic, an even freer style, became the popular "picturesque" (see following two photos). In Beaufort, the picturesque was usually limited to bracketed eaves, parapeted cornices, or belvederes. One Italian villa, Tidalholm, was erected on the easternmost section of the Point, emphasizing the picturesque in its asymmetrical balancing of Classical forms. It fit easily into the community, providing a new concept of Classicism.[52]

**1850s Italianate Mansion, Tidalholm, 1 Laurens Street**

Most of the fervor for new construction and renovation seemed concentrated on the building of mansions. Few modest homes which favored the Greek Revival were built before 1860. Those that were, were built on the less favored rear lots and took three forms: the two-story temple-form house, oriented to the street, the two-story traditional form, oriented to the south, and the one-story cottage.[53] Built on piers or raised basements, these usually were houses which featured pillared verandas; they were particularly significant in their representation of a lesser dwelling type adopting elitist detail. They represented the homes of the local businessmen who had come to Beaufort before 1860.

1850s Cottage Form - Office of Freedmen, 701 Craven Street (Demolished)

All new development was stalled once secession (which had been favored by some residents for more than a generation) became inevitable. The day after the national election of 1860, South Carolinians called a secession convention. On December 20, 1860, by unanimous vote, that convention declared South Carolina no longer a part of the Union. For Beaufort, this political separation signified abrupt change. The lifestyle, which it had taken four generations to cultivate, was never to be regained.

## Wartime Changes

Actual combat with Federal forces began close by when the Confederates bombarded Fort Sumter in Charleston Harbor. It was not long before the genteel life of an inherited plantation aristocracy came quickly to an end. Early in the War Between the States, Beaufort's strategic location was recognized by both sides because it was on the passage which had long protected coastal shipping and it was a prime spot for the south to accept supplies from abroad for the Confederates. Before 1862, the town became a Union camp and succumbed to four years of indifferent tenancy. Some mansions and churches were used for hospitals, others were taken for quarters and offices. Some of the new homes were occupied even before the interiors had been completed.[54]

While Beaufort did not experience the severe havoc wrought on other towns ransacked in the course of military action, it suffered heavily from enemy occupation. A journalist visiting the scene wrote of the "marks of violence and vandalism" in a village "greatly demolished by the rude hand of the invader."[55] Photographs taken during the time of the occupation also attest to the lack of attention given to the maintenance of grounds and buildings.

## Post Civil War Recovery

The war ended the most dramatic increase in Beaufort's architectural development, but it did not end Beaufort's growth. While the local cotton culture was essentially ruined when its economic system based on slave labor was eradicated, the general economy was bolstered by northern money which moved south. The new residents took advantage of available property which had been confiscated by the Federal Government and put up for auction. Former Union soldiers who saw potential in the locale moved back to Beaufort.

Other new residents included members of philanthropic organizations and Federal agents whose offices supplemented the private forces set up to aid the newly freed Blacks. Some former slaves purchased commodious homes, perhaps even those of their former owners, which were being sold for taxes. While the planter elite had been divested of wealth in its real and personal property, some families of long standing did return to Beaufort to continue as best they could.[56]

The town took on new dimensions during Reconstruction as new priorities were established by the intermix of neighbors. The town plan itself changed as a result of a resurvey on the part of the Federal Government. In reference to vacant land, a denser Beaufort was platted, creating six lots where there had been three, and four lots where there had been two.[57] Despite this new availability of land, relatively little durable new construction seems to have been undertaken in the late 1860s. Except for church edifices, built to accommodate increasingly independent black congregations, and perhaps some cottages north of Prince Street, the building effort seems to have emphasized remodeling and the moving of older homes to new sites rather than building anew.[58] Even the courthouse, used when Beaufort again became the county seat in 1872, was a renovated building.[59]

The architecture remained partial to the Classic theme and conservative to the point of being retardataire. In the northwest section of town, on small lots owned previously by the antebellum planters, some local blacks built or renovated cottages for their own use, setting up a distinctive small-scale community separate from some of their fellow Freedmen who lived in the eastern section of town.[60]

## A New Economic Upturn

It was not until the 1870s, when the state government returned to control, that domestic and commercial construction seem to have experienced an upturn. By that time, the cotton culture had been reinstated on a modest scale. For added revenue, the phosphate resources of the riverside had been tapped with the aid of northern investment, creating a new industry. A new townscape took root as houses more akin to the working class homes elsewhere in the nation began to occupy vacant lots in older sections of Beaufort. Development also expanded north and west of the original plat.

Generally, the last quarter of the nineteenth century, from 1880-1910, saw the entire face of Beaufort change as moderately priced houses provided infill on Charles, Carteret, and Craven Streets. Eventually, even the more "select" sections of the Point were affected, especially after the tidal pond in the area of King Street was filled in (see Appendix G).[61] Subtle but no less visible changes also occurred as the older and larger houses were updated with replacement porch details which were commercially milled. One and two-story bay windows were inserted to give added interior light and to provide a sense of the picturesque. New and larger window glass, manufactured in quantity by this time, replaced the smaller panes of the craftsman's era of antebellum times.

In this new construction effort, two house types became evident. Each was a compromise to the small lots of the plan mandated by the Federal resurvey. One featured a five-bay "I" house, a rectangle in miniature of the antebellum mansions but devised in balloon construction using sawn lumber instead of hewn timber posts.[62] A second form, more generally applied throughout the United States at the time, was a survival of the Greek Revival aesthetic: a three-bay, gable-end-to-the-front house with either Italianate, French Academic, or the Eastlake detail, depending upon the construction date. To each of the "national" rather than local forms was added the Beaufortian element of the two-stage, frontal veranda, the veritable leif-motif of local construction which persevered at least until 1900.

To support the new housing, commerce expanded along the riverfront so that by 1884, both sides of Bay Street were entirely built up. The land nearest the river was occupied by wharfs and warehouses; the buildings facing the street were occupied by grocers, jewelers, offices, and dwellings. At the east end, near Charles Street, was a cotton gin. The Palladian mansions built on Bay Street before 1820 served partially as commercial structures.

Cotton gins also existed on the north side of Bay Street between West and Scott Streets and Carteret near Port Republic Street. A concrete sea wall, ten feet high, extended along the river from Carteret to New Street, providing a rigid waterside edge for the mansions in the 600 block of Bay Street.

The impact of commercialism on the town was not only underscored by the proliferation of wharfs, cotton gins, and other mills, but also by the hotels, guest houses, and banks which occupied former homes on Bay Street. The renovated hotels were near the waterfront, essentially blocking service structures, ice houses, shanties, sheds, and Black tenements, all of which were close to the surviving eighteenth-century homes. Apart from Bay Street, lumber yards and planing mills flanked the houses built between Carteret and East Streets, intruding upon once prominent mansions such as Tidewater and the Castle. Stables were close to the prominent houses east of Bay Street and stables and shanties filled the inner sections of many blocks west of Carteret Street. Just as there had been in the eighteenth century, there was still a spontaneous mix of industry and residences in the late nineteenth century.

## Disasters Bring Change

Beaufort's growth no sooner reached a climax when a natural disaster, which wrought probably more havoc than the military occupation of 1861-1866, hit the town in 1893 in the form of a hurricane. Though roofs were blown from several houses, recovery was not directed toward restoration. In some instances, the damage was ignored for years, causing severe decay to house interiors.[65] In others, hipped roofs were replaced with what was then the more stylish gabled contour made popular by the Colonial Revival style. Overall, the Colonial Revival, with its stress on the comfortably familiar neo-Classic theme, impacted a considerable portion of Bay Street and the Point. The epic example is the William Elliott House at 1103 Bay Street which was virtually stripped of its eighteenth-century features and refitted in the early 1900s. Its "new" woodwork and other details reflect what was then so popular in the new houses built in Back Bay Boston.

William Elliott House - now The Anchorage, 1103 Bay Street

William Elliott House After Colonial Revival - now The Anchorage, 1103 Bay Street

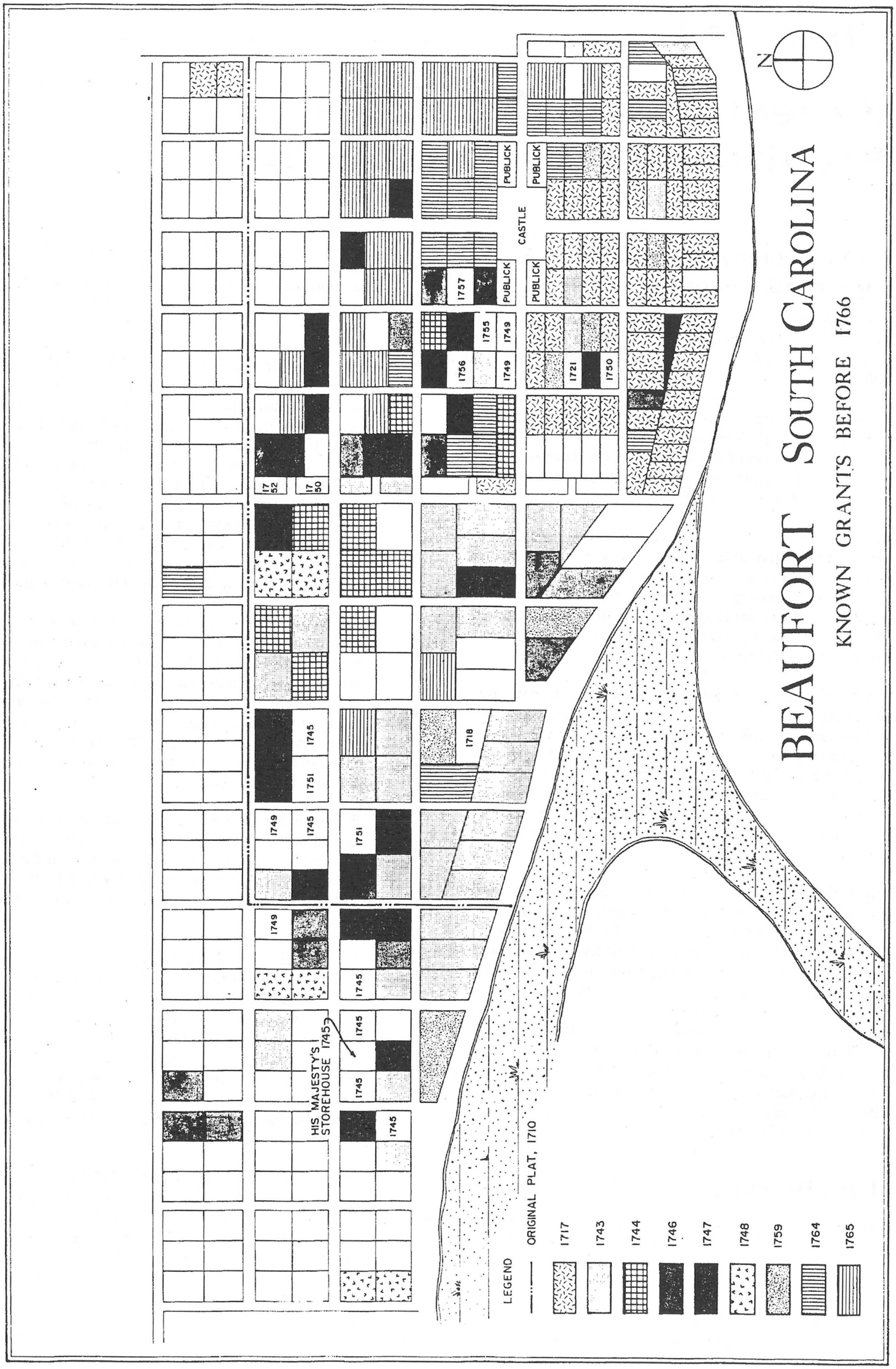
Together with the investment put to remodeling the larger properties, a few modest but spectacular houses were also erected. Similar to others being built throughout the United States, these were romantically eclectic homes with moorish turrets, angled and inverted porches, clipped gables, materials used in combination, and other features reminiscent of medieval or oriental art together with small Classic details. Referred to as "Queen Anne," these exemplified Americanization of a more serious English style.

"Queen Anne" House - North Street Inn, 1411 North Street

Because of its concentration on multiples and irregular massing, the style was probably the most contradictory form ever to be built in Beaufort. Only three examples seem to have been constructed and two of these were in the west end of town.[66] While these could have been residential responses to the similarly romantic Courthouse, there is also the suggestion that more freedoms were taken in the western section throughout Beaufort's developing period.[67] The more transitional examples, leaning toward the Colonial Revival, were built on the Point where the scale and style was dominated by the 1850s showpieces. The one exception was the Yacht Club. Built at the foot of Scott Street at the waterfront, this Queen Anne building suited its lighthearted role before it was so unsympathetically renovated.

## Fire, Depression, and Adaptive Reuse

In 1907, the plank wharf at the foot of Carteret Street was reputedly the scene of the beginning of a fire which destroyed much of the area immediately to the north and as far east as New Street.[68] Two of the three houses in the 600 block were totally destroyed and the roofs of others were irreversibly damaged. The fire, like the hurricane of 1893, did not cut out whole areas, rather it jumped about, arbitrarily destroying pockets of historic fabric. Just as


BEAUFORT SOUTH CAROLINA
KNOWN GRANTS BEFORE 1766
LEGEND
ORIGINAL PLAT, 1710
1717
1743
1744
1746
1747
1748
1759
1764
1765
HIS MAJESTY'S STOREHOUSE 1745
CASTLE
PUBLICK
N

Map 1

the new construction of the 1870s had used new "cheap" building techniques, the rebuilding effort which followed the fire also encouraged new technologies and new design details. At the legislative level, an Ordinance of Council mandated tin roofs in any new construction after the fire.[69] At the innovative private level, the William Joseph House was built of concrete stone and reinforced concrete in 1909, featuring radical new materials for residential construction.[70] Although inspired by the Beaux Arts aesthetics which had been spurred on by the Columbian Exposition of 1893, it freely adapted its paired, stubby Doric columns to a Beaufortian two-stage veranda, correctly superimposing Orders in academic fashion. While indisputably new, this mansion also demonstrated the perseverance of Beaufort's strong architectural personality. After 1910, however, the "Beaufort style" became less definable. New construction more decidedly took its cue from building efforts elsewhere in the country than it had in 1870.[71]

**"Beaux Arts" / Beaufort Mansion - 607 Bay Street**

Plain "four-square" houses took the place of the more distinctly local "T" plans which had evolved in the first century and a half. These were straight-forward, hip-roofed, four-square elevations with simple plans limited to less than six rooms. Their one-story porches were usually frontal areas which utilized, in however a limited fashion, the Classic elements of Doric columns on battered masonry piers. There was also the occasional Beaufortian hybrid which so stressed the veranda that the frontispiece literally wrapped the four-square in an old reference. The townscape by 1920 had become a mix of popular architecture, influenced by nationally distributed magazine literature. The new homes, together with earlier houses which had been added to, altered, re-roofed, and re-glazed, became a part of the visual record of Beaufort's ever-changing history.

The bungalow in at least two forms dominated Beaufort's new construction before and after World War I. It was devised from manufactured detail of the simplest and least expensive sort and limited in plan to a few spaces which performed multiple functions. In both form and materials, the bungalow was the same in Beaufort as it would have been in Davenport, Iowa, or Danbury, Connecticut, so that by 1925 Beaufort's new development had no apparent reference to the past. Nevertheless, in the midst of new popular culture was the survival of many structures built before 1860. The elegance was not destroyed as "Everymans" homes were inserted.

**Bungalow - 1311 North Street**

The world-wide depression which had so negatively affected the economy elsewhere was evident in Beaufort before 1929. The phosphate industry had hit bottom by 1903 when, with the added costs of a State-enforced royalty, it could no longer compete with Tennessee and Algeria. Then, in 1919, the boll weevil attacked the cotton crop, virtually wiping out what investment had been able to persevere through the post-Civil War era. As a result, Beaufort reverted to being a backwater area with little trade to sustain itself. Its recognition as a resort was potentially profitable, however, as more homes with a water view became guest houses.

## World War II and After

By 1941, the installation of large military bases nearby prompted a serious and sudden population explosion. The burden put on the local housing together with the lack of building materials for civilian use prompted a new rationale for the use of the generous spaces offered by the old homes; several mansions were renovated as multi-unit dwellings. The historic section of Beaufort proved its adaptability to the housing conditions imposed by war, but it paid the price just as it had in 1861. Then, once a peacetime economy emerged, large-scale new construction expanded to the west and south, and the historic area became threatened with demolition-by-neglect. Not until a hurricane struck in 1959, causing major damage to several buildings, did the determination to recover instigate the major restoration effort which has continued to today.

It was in the 1960s, when the sea islands exhibited a potential for pre-planned housing developments geared to winter and retirement relaxation, that Beaufort's quiet setting and individualistic early structures provided an alternative incentive for outside investment. In the old section of town new residents joined local families interested in restoring properties to their former elegance and the apartments gave way once again to "the good life." The somewhat deteriorated antebellum mansions were restored and the later Victorian town houses were sympathetically refurbished. Just as homes were renovated, so were others destroyed. Recognizing a need for a preservation program, residents organized the Historic Beaufort Foundation and set up a program to identify the town's cultural resources. As a result, new buyers as well as the Foundation itself bought old homes slated for demolition and either moved or restored them on new and prominent sites.[72] Architectural elements from those which were not saved were purchased for use in restorations.

This consolidated effort has climaxed with recent recognition of a Landmark Historic District comprising an area of approximately 80 blocks. In this "Historic Beaufort," the mansions are the catalyst which has underscored renewal and a distinctive pride of community. Overall, however, the District represents an unparalleled architectural continuum which represents more than two and a half centuries of large and small, "polite" and vernacular in the history of architecture.

## Beaufort Today

What exists is not "the past" frozen at some certain point, rather it is today living comfortably with yesterday. While the original street alignment has survived, the early eighteenth century plat is evident in lots only along Bay Street and the old crossroads near Port Republic and New Streets. The reorientation of 1867 together with more recent subdivisions has changed the layout of much of the larger lots and the streets are now paved. However, sidewalks and curbing remain at an easy-going minimum; in some areas, informal paths cut through the grass. Monumental treelines of palmettos on Bay Street and canopies of live oak on Hancock Street, Craven Street, and elsewhere demonstrate the positive effect of old trees, just as the loss of the shade trees on Carteret Street projects a notable negative impact.

**Canopy of Live Oaks at 200 Block of Laurens Street**

There is no stated regularity. In some sections, there is virtually no setback to the building line; in others, the building line is uniform for whole blocks. In others, the grounds are so ample and heavily planted as to seclude the houses most months of the year. In addition to the waterfront's main artery, Bay Street, a mix of residential and commercial usage, survives in certain blocks of Carteret and Port Republic Streets.

Most of the existing public building development has been a recent contribution and the greater part of the newer buildings, which might "impact" the Historic District, have been located on the far west side of the historic area, the one exception being the Post Office which occupies the block bounded by Charles, King, North, and West Streets.

On Bay Street, the majority of storefronts date from 1950 with some c.1880 examples still very much evident. New construction of commercial buildings on and near Bay Street has generated more local variations of neo-Georgian detail than good contemporary designs, but in each, there has been a noticeable attempt to conform either to historic materials or rhythms. The overall result of this new infill is more of a compromise than a significant architectural effort.

On the Beaufort waterfront, a new public image has been inserted in the form of an urban park. Structured, by means of geometric planting areas and architectural objects, into recreational and commercial spaces and marina facilities south of the commercial strip on Bay Street, the waterfront area has been designed to draw the community to the water and to provide the town's welcome to the visitor approaching by water. While the philosophy of the waterfront park represents an antithetical approach to the more informal townscape, the functions and orientation of the space serve to underscore the direct relationship of the waterway to the town. From the park, a visitor may best be introduced to the history of Beaufort. From here, also, the resident may begin to reflect on the uniqueness of Beaufort's architectural development.

**Henry C. Chambers Waterfront Park**

## Notes

1. This report must not be interpreted as an in-depth architectural history of Beaufort. It is rather, as its title suggests, a reflection on the insight gained from the work involved with the building-by-building survey conducted for three weeks in early 1979. It is hoped that some of the points suggested will spark new research directed to Beaufort's development. A systematic record of this survey, filed at the Community Development Office, provides an archive for the architectural history of Beaufort which may also be kept current in the future. The sheets, separated alphabetically by street and arranged in a consecutive numerical sequence, record each extant building in the city-enforced Historic District.

The work relies heavily on the previous inventory begun by volunteers under the leadership of Dr. Carl Feiss and his colleague, Richard Wright, but this study differs in program and format. It has standard picture references and the negatives are also on file at the Community Development Office. It is also coded with a three-digit reference number. The code for each structure is derived from (1) the block number, and (2) the lot number, each of which is a legal reference for tax purposes. The building number (3) has been assigned for the purposes of the study to define the structure's clockwise alignment in the block to which it refers. This coding identifies the site of each building more _correctly than can be done by street numbers, but street addresses have also been used.

2. The eight original Lords Proprietors under the Patent of Charles II were titled absentee landlords, at least six of whom had little personal Interest in the colonies.
a. The Earl of Clarendon, Edward Hyde, whose daughter was the wife of James II and mother of Queens Mary and Anne.
b. The Duke of Albermarle, Gen. George Monk.
c. William, Lord Craven, who had been a stalwart supporter of the Stuarts during the period of the Commonwealth.
d. Lord Berkeley, who had been similarly distinguished.
e. The Earl of Shaftesbury, Anthony Ashley Cooper, who supported a plantation.
f. Sir George Carteret, a naval officer made famous by his defense of the island of Jersey, which he held for the Crown.
g. Sir John Colleton, an active officer in King Charles' army, who settled in the Barbados and whose sons were important settlers of Carolina.
h. Sir William Berkeley, brother of Lord Berkeley, and Governor of Virginia.

See Alice R. Huger-Smith, The Dwelling Houses of Charleston (Philadelphia: J. B. Lippincott, 1917), p. 19.

3. Both A Guide to Historic Beaufort (Historic Beaufort Foundation, 1977), p. 2, and Roberta Wright, "History in Towns: Beaufort," the Magazine Antiques, March, 1962, p.311, mention that indigo was grown in the sea islands, but the quality of the product is not stressed. Lewis P. Jones, *South Carolina, a Synoptic History for Laymen* (Lexington, S.C.: The Sandapple Store) points out that the most notable indigo was grown in the vicinity of Georgetown.

4. Lewis P. Jones, *South Carolina*, p. 79; Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institute, 1933), Vol. 1, p. 48.

5. See Note 3.

6. Interview with Dr. Larry S. Rowland, University of South Carolina, Beaufort, July 9, 1979. Despite traditions that Beaufort's trade was directly with the Orient, Dr. Rowland's research had not found supporting documentation.

7. Mabel Runette, "Early Settlement of Beaufort Town," a paper delivered to Beaufort County Historical Society, 1943, pp. 17, 32. On file, Beaufort Library.

8. Larry Ivers, *Colonial Forts of South Carolina* (Columbia, S.C.: Tri-centennial Commission, 1971), p. 38.

9. *Historic Beaufort*, p. 2.

10. The 1710 plat is on file at the British Information Office, Somerset House, London. A copy is on file at the Beaufort Library.

11. Henry A. M. Smith, "Beaufort, the Original Plan and the Earliest Settlers," *South Carolina Historical and Genealogical Magazine*, Vol. IX (1908), p. 143.

12. Smith, "Beaufort, the Original Plan," p. 150 cites the *Statistics at Large of South Carolina* in suggesting the commons may have been the space to the north, bounded by lands of Richard Woodward in 1785.

13. The so-called 1729 Gascoigne Map of Port Royal, on file in the Library of Congress, suggests these bastions. Other maps by 1729 suggest that in the vicinity of Scott Street, there existed four bastions, the presence of which suggest a type of fort.

14. Mary Kendall Hilton, *Old Homes and Churches of Beaufort County*, (Columbia: State Printing Co., 1970), p.25, cites a letter from James Sutherland who, in the 1720's, described Beaufort as comprised of "five straggling houses."

15. Smith, "Beaufort, the Original Plan," pp. 152-160.

16. *Historic Beaufort*, (1977), p. 49. Also, Smith, "Beaufort, the Original Plan."

17. Tax records may exist for enough consecutive years in this era to indicate jumps in assessment which may indicate "improvement" or construction. In order to make such study relevant, however, more data needs to be given reference.

18. The significant examples seem to be the Thomas Hepworth

House, the Chaplin House, and the Elizabeth Hext House, but no interior investigation of these homes has been accomplished for this study.

19. An example of such extension exists at 321 King Street.

20. Conclusions having to do with the interior have come from visiting the Daniel Blythewood House, a survival of early form, built in the Federal era. Data from Historic Beaufort and Mary Hilton, Old Homes and Churches, also support this description.

21. The concept of a stair tower needs more investigation, but, in terms of the cross house precedent in seventeenth century England together with the Barbados influence and the connection with Sir William Berkeley in Virginia (where cross houses existed), the thesis of stairs set apart from the house block is a plausible one. Several cross houses of the seventeenth century still survive in Bermuda.

22. The only extant examples of outbuildings are found at 601 Bay Street, 411 Craven Street, 1113 Craven Street, and 201 Laurens Street. There are ruins near 313 Hancock Street. While this paper stresses the development of major structures, secondary buildings must be given their due in any cultural history of Beaufort. Research referring to outbuildings close to houses as well as secondary housing elsewhere in town needs further consideration.

23. Smith, "Beaufort, the Original Plan," p. 14.

24. Ivers, *Colonial Forts*, p. 24 discusses fortresses (two types) but not arsenals. A certain architectural naivete may be assumed in the pre-technology days before West Point provided the country with its first native-born engineers.

25. No grants have been found for the church lots, presumably because the English Church property was owned by the Crown. In contrast, Smith, "Beaufort, the Original Plan," pp. 158, 159 shows that grants were issued to Robert Orr for lots 319, 322, and 324 for a "Presbyterian Meeting House, Burial Grounds and Minister."

26. Church history illustrates this point. See S. W. Perry, *Historical Collections Relating to the American Colonial Church*, (Hartfort, 1870).

27. John Barnwell Campbell in "Bay Street, Beaufort, S.C.," as painted in 1798 and now studied as a copy by an unknown artist, shows only one church building type. This is a rectangular structure with flat-headed windows and a high spire, depicted as being on the north entrance. Even with the artistic license taken with the orientation, the spire suggests that this is St. Helena's. Meetinghouses tended to ignore such ecclesiastical detail.

28. The first such "in antis" porches were used almost simultaneously in 1832 by Thomas U. Walter in the Presbyterian Church in West Chester, Pennsylvania and by Town and Davis in the Carmine Street Church in New York City. The feature was then popularized throughout the country.

29. Recent alterations, including fenestration and elongation of the sanctuary, have negated some of the original quality of this small church.

30. Not all "new" architecture used new construction techniques at this time, particularly in the south. A significantly traditional Gothic Revival house, the Manship House, was built by a northerner in Jackson Mississippi in 1857 using heavy timbers.

31. The "T" form discussed later is evident here in apsidal wings on the east. Bell columns, or Corinthian columns minus foliation, identify the prostylar portico.

32. While jails were built in the colonial period, they were erected with security rather than reform in mind. They were commonly built of masonry but did not stress separate cells, exercise grounds, and workrooms. These features more clearly fit a building type which resulted from the movement for reform begun in the last quarter of the eighteenth century.

33. The photocollection of the Lowcountry Council of Governments, Walterboro, holds a photo of "Castle Barnwell," at one time a courthouse, on the same site. This is concluded from a postcard of the late nineteenth century courthouse, #51 in that collection, which features a manuscript insert, "Site of Barnwell Castle."

34. The present courthouse is an Art Deco renovation of the earlier building.

35. Interview, Dr. Larry S. Rowland, U.S.C., July 9, 1979.

36. Bellamy Inn, at 700 Boundary Street, has undergone many alterations, but it still compares well with this pre-1750 form.

37. The house on Bay Street featured a porch built in two levels with the second level open to the elements and balustraded, a significant alternative to the two-stage portico. A similar porch today exists at 1305 Bay Street.

38. Interview, Dr. Larry S. Rowland.

39. It is important to keep in mind that the full flush of the Chippendale-Georgian aesthetic occurred in the 1760's in the American colonies. The grandest houses in colonial Boston, New York, Philadelphia, and Charleston, were built at this time. (Drayton Hall was a spectacular earlier exception.) More conservative applications to Georgian principles were also found in the same cities which stressed the more rare landmark examples. City Tavern in Philadelphia (1713) was easily comparable to the known 1760's examples built in Beaufort.

40. The house is dated in *Historic Beaufort*. Minus its veranda, it stands at 414 New Street.

41. Smith, "Beaufort, the Original Plan," p. 151, citing Act of March 24, 1785, as recorded in *Statutes at Large of South Carolina*, Vol. 4, p. 712.

42. Letter, William Fripp to relatives in England, cited in Mary Hilton, *Old Homes and Churches*, p. 8.

43. The mansions at 1211 Bay Street, 801 Bay Street, 501 Pinckney Street, 412 East Street, and 414 New Street may still be recognized as resort-type houses. One house at New and Port Republic may also have been such an example of a home updated c.1790. Others have been so altered that they no longer read as c.1790 structures.

44. The craftsman's gougework was characteristic also of Middle Atlantic architecture; some plaster may well refer to manufactured mantle pieces provided by Robert Wellford in Philadelphia.

45. Habersham House, now Belk's Department Store, still features its significant Federal era cornice.

46. This limited size of Beaufort in 1796 may be best contrasted when compared with Alexandria, Virginia, a similar post, which in 1785 had a population of 3,000. Jones, p. 76 citing Bridenbaugh, shows Charleston in 1775 with 4,000!

47. See Note 27.

48. The lessening of crafts construction drew master builders from the north to continue working in their tradition in the south. As an example near Port Gibson, Mississippi, David Shroder was a master builder from Maryland who migrated to the Natchez area in the 1840's and operated a boarding house for his artisan assistants. (This was the builder of the famous "Windsor," now in ruins.) Further research may well indicate that similar situations existed in mid-century Beaufort.

49. *Historic Beaufort*, p.2.

50. Examples of houses which were radically renovated to the Greek Revival include 1113, 1109, and 1009 Craven Street and 1301 Bay Street.

51. Houses with gabled (pitched) roofs which reportedly date from the 1850's survive at 601 Port Republic Street and 311 East Street. The low-pitched roof which could be obscured by a balustrade was such a point of new concern in mid-century that the gable roof contour needs more structural study to determine if it is indeed original to all houses concerned.

52. This is Tidalholm, the Edgar Fripp House, at 1 Laurens Street. Viewed from the south, the house still refers to its original Italianate form. It also retains much original detail.

53. The side elevation to the street and facade facing south are not to be taken as dating factors. The lot size and shape as compared to the Federal survey may be a stronger dating tool than the orientation of the main structure. Each such "Charleston type" house must be studied independently to verify its date.

54. That several interiors were in need of renovation by 1865 is documented by the survival of a type of woodwork which was milled after the war rather than earlier. The extent of new work done in a time of depression precludes the possibility that some post-1865 installation was indeed the first such finish the homes had seen.

55. Jones, p. 174.

56. See *Historic Beaufort* for a clear resume of Black ownership of pertinent properties and mention of local families continuing in ownership.

57. Maps on file at the Beaufort Library, include a Plat of Beaufort, 1863, as adapted from records of the U.S. Direct Tax Commission, for District of S. C., November 3, 1862, February 10, 1863, Record Book A. Other maps from 1862-1870 as well as a map of property ownership in 1770 are filed in RG 58 (Internal Revenue Service), Cartographic Division, National Archives, Building, Washington, D.C.

58. Homes which were moved include 302 Federal Street.

59. This assumes use of Barnwell Castle. See Note 33.

60. It is possible that several cottages in the unenforced Historic District were moved to that area for re-use. This is a subject in need of in-depth research.

61. In the northwest, too, the infill of a marsh provided new building lots near Washington and Wilmington Streets. See Appendix G. Council Minutes could document the date of this work.

62. The "I" house, first so called by Dr. Fred Kniffen in his study of cultural geography, is explained in its Virginia context by Henry Glassic in Folk Housing in Middle Virginia (Knoxville, 1975). This is a configuration which transcends time. Because this is not a style, it is more datable by detail and proportion than by form.

63. Not used.

64. Not used.

65. Reference to derelict houses is made in *Historic Beaufort*.

66. The Emil Lengnick House, at 1411 North Street, is a handsome example of its time. The house at 1411 Bay Street was of a similar style before it was renovated to the neo-Classic temple form it presently exhibits.

67. A Queen Anne adaptation of an older house is evident at 203 Bay Street by reason of its porch.

68. Interview, Mrs. J. Riley Gettys, March 8, 1979.

69. Ibid

70. This was the third house on the site, replacing a frame house destroyed in the fire which itself had replaced a tabby structure.

71. More research is needed to recognize how much of the change to a plain style was an actual evolution from a local antecedent cottage type or a direct adaptation of the more national concept in local housing.

72. The William Wigg Barnwell House (501 King Street), the Trescot House (500 Washington Street), and the house at 803 Prince Street

# Chapter 2: Architectural Styles - Buildings and Details

## Introduction

**Palladian Window, Federal Style - 1207 Bay Street**

Most of the architecture in Beaufort's Historic District displays a lively mixture of details from various historic periods. This mix testifies to the City's continued health: only minor remodeling and concessions to prevailing tastes have been required to permit the buildings to satisfy the needs of many generations. In fact, only a few of Beaufort's buildings, such as 801 Bay Street (the Verdier House), 1411 North, 1311 North, stand out as pure examples of what have come to be accepted as major styles in American architecture. These strong and irreplaceable symbols of specific historic periods are an infallible visual tool which serve to illuminate individual details on other buildings where the evolution has been somewhat more complex.

**Bungalow - 1307 North Street**

Since so few buildings are "pure" in terms of style, the discussion of the evolution of styles is of practical value only if it considers on a specific level such details as doors, windows, or chimneys. Knowing the components of various styles can enable the observer to determine that a given building has, for example, a late eighteenth-century chimney, late nineteenth century windows, and a Colonial Revival porch, a combination which, incidentally, is fairly common in Beaufort.

**"Beaux Arts" / Beaufort Mansion, 607 Bay Street**

It is often the porch that reads as the "style" of a house even though it may be decades newer and of altogether different stylistic components than the house block itself. This chapter illustrates the development of features such as columns, balusters, and plans with the intent of aiding in the estimation of the construction period and stylistic influences of the houses of Beaufort. It should be stressed that the stylistic assessment of a porch does not always imply that the house to which it belongs dates from a similar period. Striking examples of this disparity are seen at Tidalholm and 901 Craven.

**Typical Style of Porch Balusters**

One shortcoming of the commonly accepted designations for American architectural styles is the fact that many significant trends in the architecture of the past have not been acknowledged as representative of a particular style. This omission is more than a simple problem of nomenclature; it virtually negates what in actuality are forceful elements which align themselves with local idiosyncrasy. For example, Beaufort's typical residential architecture, with its raised first floor, double porches, southern orientation, high ceilings, and shallow hipped roof, is a design that persists throughout the City's entire history. Yet there is no universally recognized architectural term for this "style." Consequently it is important to investigate specific details and proportions to aid in stylistic description.

This chapter describes and illustrates in broad terms some of the factors that are considered by the trained architectural observer as characteristic of a structure's style. It is hoped that the owner who is considering period alterations to their property will benefit from this presentation of a variety of the available choices of details for given periods of construction. There is, however, no substitute for first-hand examination of the wealth of material and details already in existence on every street in the Historic District.

Two matters warrant particular caution:

- Do not make building alterations which employ stylistic details pre-dating the period of construction of the main house block.
- Be cautious of the use of stylistic terminology. Such terms may allow for efficient communication and increase the enjoyment of stylistic recognition, but are often misleading or erroneous when applied to an accumulated structure as a whole. The contributions of each style to the District's visual integrity are substantial and merit appreciation in their own right.

## Buildings

The following discussion of style approaches the general configuration and appearance of buildings as a whole from three view points:

"Pure" style: those buildings in the District which are good examples of commonly accepted styles of American architecture.

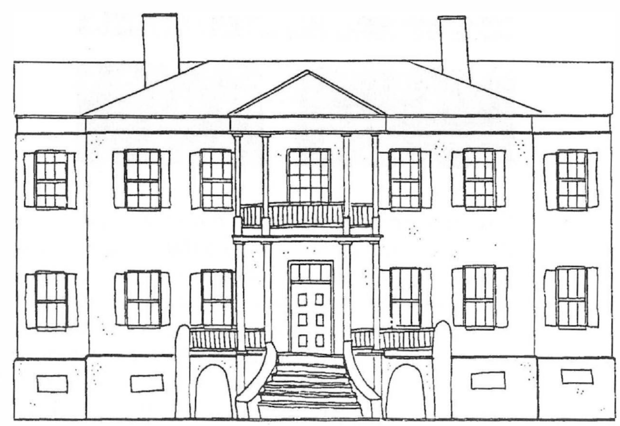
Renovations: both observation and available documentation have been used to illustrate the manner in which certain Beaufort buildings have evolved through time, thus highlighting the tastes of various periods.

The "Beaufort style": Examples of different variations on the basic residential prototype are used to highlight details and proportions of various periods.

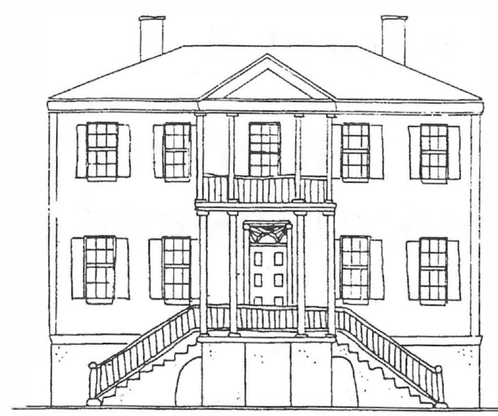
**"Pure" Style**

**Beaufort Federal** 1780-1820. Important Beaufort examples of this style are:

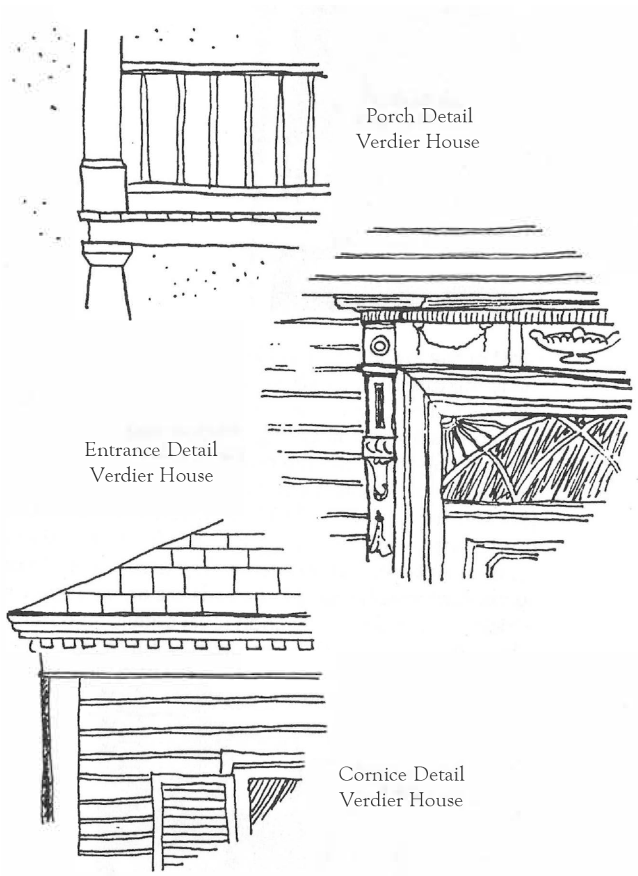
- 801 Bay Street (Verdier House)
- 1211 Bay Street (Tabby Manse)
- 705 Washington Street (Elizabeth Barnwell Gough House)



1211 Bay St.
Tabby Manse



801 Bay St.
Verdier House



Porch Detail
Verdier House

Entrance Detail
Verdier House

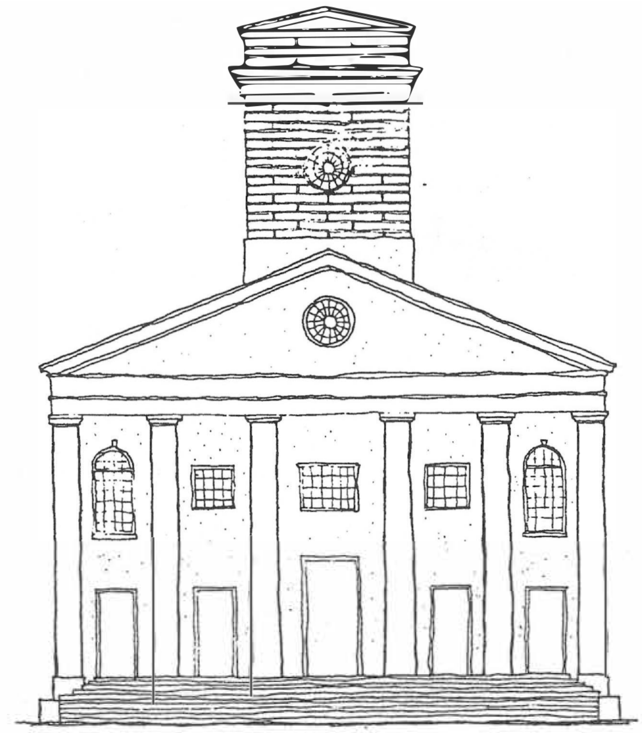
Cornice Detail
Verdier House

The illustrated examples show the following characteristics typical of this style:

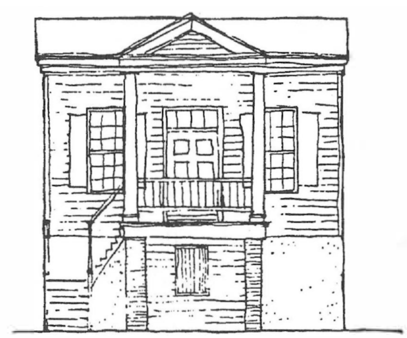
- squarish proportions in the building mass
- vertical proportions in wall openings
- symmetry at the Main south facade
- low hipped-roof profile with symmetrically placed chimneys
- two-story pedimented porch at center bay; columns of upper stories are generally more slender
- thin window trim
- 5-bay facade
- clear relationship to ground: no foundation planting
- detail refined and attenuated: articulated cornice, slender balusters and low-relief detail at door architrave. The entrance detail, showing the door and fanlight trim at the Verdier House, is directly influenced by the work of the popular late eighteenth-century English architect, Robert Adam, using some of his favorite versions of classical motifs: attenuated swags and urns, honeysuckle, and thin cornice.

**Greek Revival** 1820-1860. Important Beaufort examples of this style are:

- 600 Charles Street (Beaufort Baptist Church}
- 701 Craven (demolished ~ the Office for Freedmen)



**Beaufort Baptist Church**
**600 Charles St.**
(shown prior to addition of modern steeple)



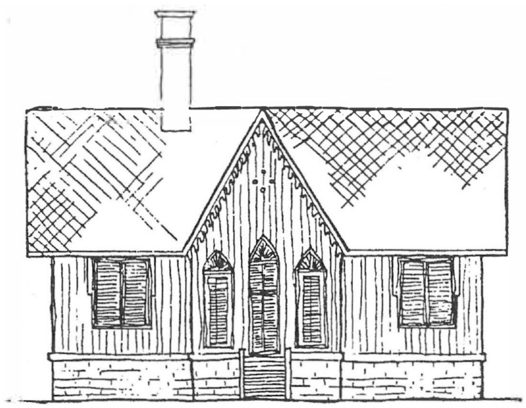
**Office for Freedmen**
**701 Craven St.**
(demolished)

The illustrated examples show the following characteristics typical of this style:

- classical temple form applied as building facade, with a portico on the front and the roof ridge running from the front of the building to the rear
- low pitched pedimented and gable roof
- wall surfaces as smooth as the building material allows
- strong entablature, often composed of combinations of pure geometrical shapes, including the cornice
- tall first floor windows

- oblong rectangular door transom (there are no arched openings such as the Federal door fanlight in the Greek Revival style} and/ or sidelights flanking the door
- monochromatic white or light gray color scheme
- large areas of unadorned wall surface
- simple and flat window trim
- clear relationship to ground: no foundation plantings

**Gothic Revival 1830-1860**. This style is relatively rare in the south, especially on the residential scale. Important Beaufort examples are:
- 713 Craven Street (the Arsenal)
- corner New Castle & North (demolished - Boy's School)



**Store for Freedmen**
**Corner, Newcastle & North**
(now part of Rhett House Inn complex)

Several buildings in the Historic District display Gothic Revival motifs, though the building itself may be of another style:
- 303 Federal: Gothic window at north facade
- 907 Craven: Gothic windows at south elevation
- 1301 Bay: Gothic porch lattice at east and west facades
- 411 Craven: Gothic polygonal chimney pots
- 601 New: Gothic windows at west elevation

The illustrated example shows the following characteristics typical of this style:
- pointed arch openings
- window tracery
- steeply pitched gable roofs, often with ornamental vergeboards
- thinness of window tracery and moldings, often to the point of apparent fragility
- monochrome color, frequently of earth or stone tones with trim painted in darker hue of same color
- polygonal chimney pots
- vertical board and batten popular for wood siding
- scored stucco finish
- beginnings of minor and sporadic planting at foundation (see "Landscaping")

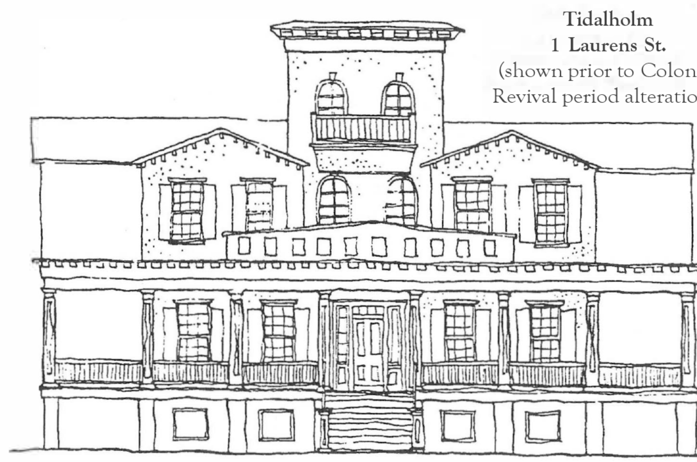
**Italianate 1840-1880**. This style is virtually non-existent in Beaufort. However, Tidalholm, as it looked c. 1864, was originally a fine Italianate mansion before it was so significantly altered in the Colonial Revival period.

Several buildings display Italianate influence, such as:
- 100 Laurens (The "Oaks"): cupola and bracketed cornice
- 907 Craven: windows, east and west elevations
- 411 King: cupola

The illustrated example shows some of the following characteristics typical of this style:
- wide eaves
- large cornice, door and window hood brackets
- shallow pitched roof, hip or gable
- cupola
- tall first floor windows, often adapted as doors
- window hoods
- smooth and uniform wall surfaces
- frequent grouping of round-headed cupola windows in groups of twos or threes

**Queen Anne and Eastlake** 1860-1900. Important Beaufort examples are:
- 1411 North Street
- 701-705 Prince Street

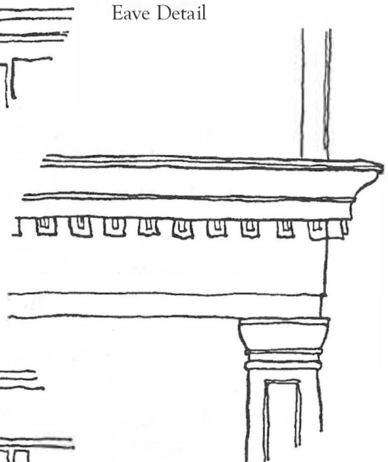
**Tidalholm**
**1 Laurens St.**
(shown prior to Colonial Revival period alterations)



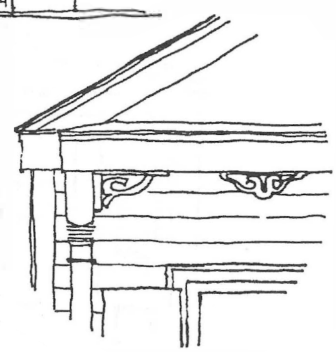
- 1307 Bay Street
- 500 and 600 block of Craven Street
- 1300 Bay Street: Beaufort County Courthouse (prior to 1930s remodeling)
- 600 Carteret Street

**701 Prince Street**

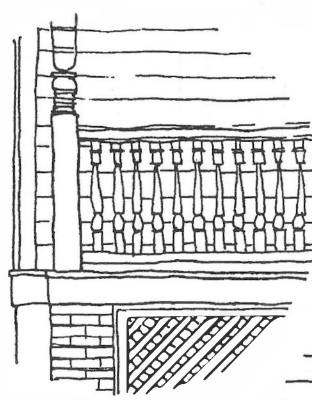
Tidalholm
Eave Detail



Tidalholm
Porch Roof
Detail

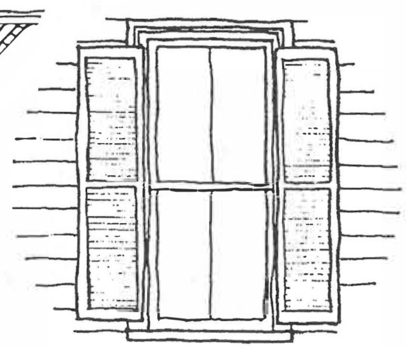


701 Prince St.
Porch Roof Detail



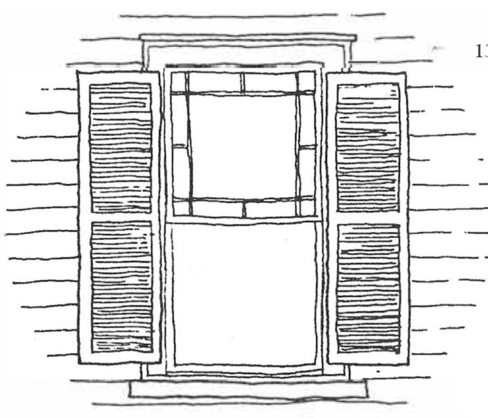
701 Prince St.
Porch Detail

Tidalholm
Entrance Door Detail



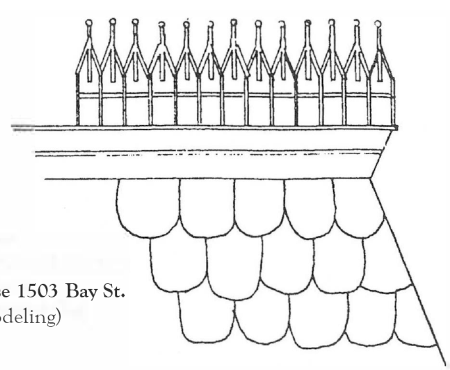
701 Prince St.
Window

**The William Ritchie House**
**1307 Bay St.**
(shown prior to modern porch alterations)

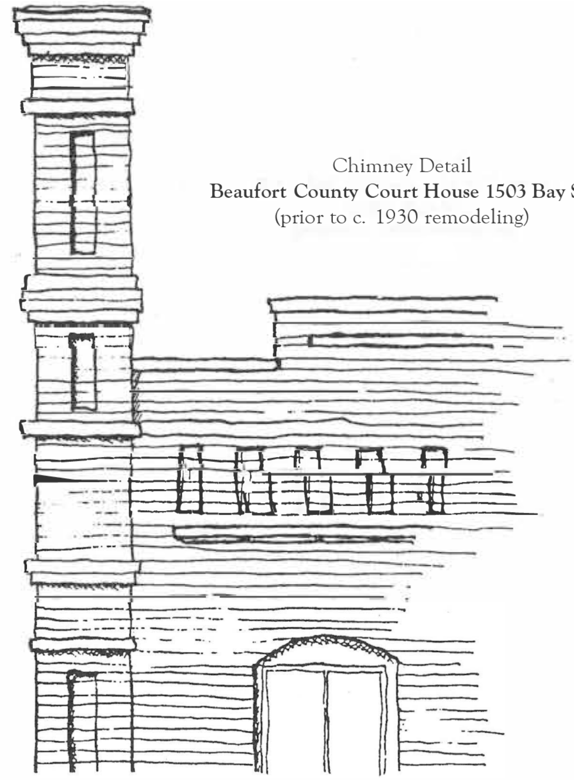


**1307 Bay St.**
**Window**

**Beaufort County Court House 1503 Bay St.**
(shown prior to c. 1930 remodeling)



Roof Detail
**Beaufort County Court House 1503 Bay St.**
(prior to c. 1930 remodeling)



Chimney Detail
**Beaufort County Court House 1503 Bay St.**
(prior to c. 1930 remodeling)

The array of differences between features of the above buildings is indicative of the looseness of the "styles" employed in the architecture of the decades of the Civil War. Many observers, to circumvent categorization of this rich variety, simply resort to describing it as "eclectic." However, certain features are typical of this period:

- verticality of proportion, especially in window openings and ornament
- combination of architectural masses into overall building composition (1411 North)
- massive turned columns and balusters which are not necessarily based on any classical models (and which often recall the legs of furniture in the Eastlake style)
- "gingerbread" brackets and pendants at eaves, vergeboards and porch soffits
- variety of window configurations, with 2/2 as the most common
- millwork such as door and window trim of stock lumber sizes
- polychromatic color scheme favoring dark-toned, muddy colors
- casual approach to symmetry, though in general as the buildings get smaller their attention to symmetry tends to increase
- bay windows
- iron roof cresting in prominent examples

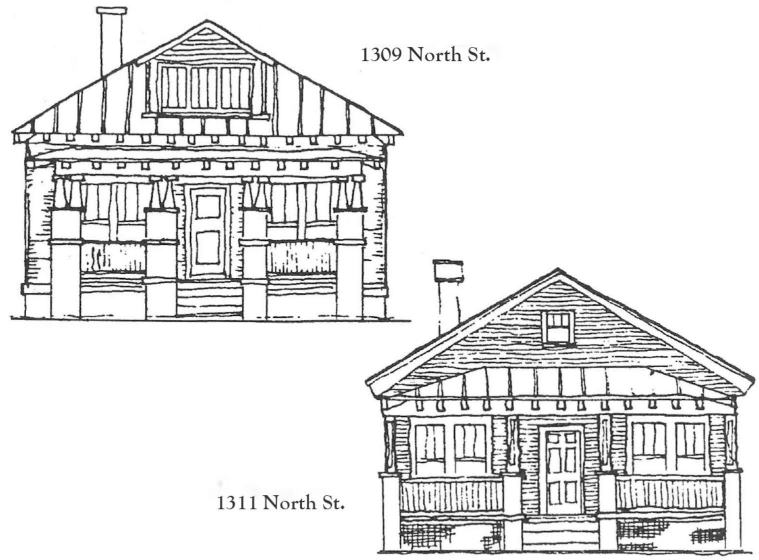
- horizontal wood siding, board and batten, or combination of both
- tall thin chimney with recessed and ornamented surface
- flared second story (601 Craven)
- spindles at porch soffit (Victorian porch at 1203 Bay)
- sporadic foundation planting
- matching buildings often found in groups:1400 block of North Street, 500-600 block of Craven, and 701-705 Prince
- 3-bay schemes with end bay entrance is common
- overall attitude tends toward a "busy" facade which requires the eye of the observer to dart from detail to detail and which is not restful or composed by rules such as those governing the classical styles

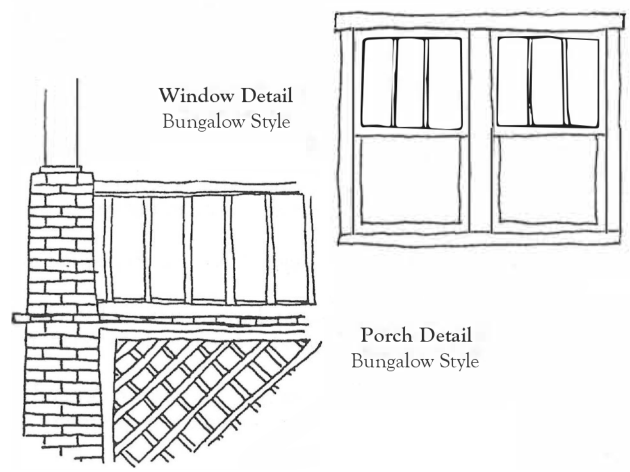
**Bungalow** 1880-1925. Important Beaufort examples are:

- 1315 North Street
- 1309 North Street
- 1010 Carteret Street

The illustrated examples exhibit the important characteristics of this popular style as it appears in Beaufort:

- 1 or 1-1/2 story, 3-bay, entrance at center bay
- horizontal proportions
- elevated masonry porch piers, often battered
- frame construction
- set back from walk with small front yard and continuous foundation planting
- stock molding at doors and windows, often with no ornament at all
- gable roof facing street
- exposed rafters at porch and eaves
- 3/1 windows common, often in pairs
- simple square spindle porch railings
- window and door lintel trim often projects past jamb




**Colonial Revival** 1880-1920. It is evident that one of the most intense periods in terms of Beaufort's building activity was 1880-1920, as evidenced by the quantity of bungalow and Queen Anne houses and the extensive renovations along Colonial Revival lines. The alterations made to Tidalhom, or 901 Craven suggest that Beaufort had become self-conscious of a certain historic image that its earlier buildings presented and did its best to bring its more '"unorthodox" buildings into conformity. In fact, it is possible that the dominant use of white throughout the area is a remnant of the active interjection of the Colonial Revival into the historic fabric of the City.

Important Colonial Revival buildings in Beaufort are:

- 1305 Bay Street
- 611 Bay Street

Important Colonial Revival renovations include:

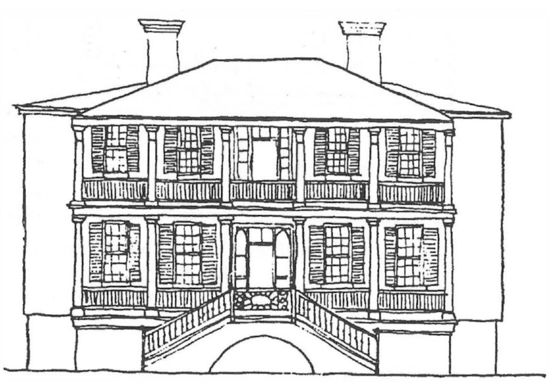
- 901 Craven: porch
- 1103 Bay: porch, columns, cornice
- 303 Federal: balustrade

The examples illustrate some of the following characteristics of the style:

- continuous foundation planting
- ornament and trim based on Colonial, Federal, Georgian prototypes, but not necessarily copying them
- large single light, 1/1 sash or 6/1 sash, often in pairs or threes
- glass-paneled door, often with beveled or stained glass
- large pilastered chimney stack
- shingle roofs
- board siding
- white color scheme with green shutters popular
- renovations common as a reaction to what were perceived to be the "excesses" of Victorian architecture

**The Achorage**
**1103 Bay Street**
Colonial Revival Renovation

**Tidalholm**
**1 Laurens St.**
Colonial Revival Renovation

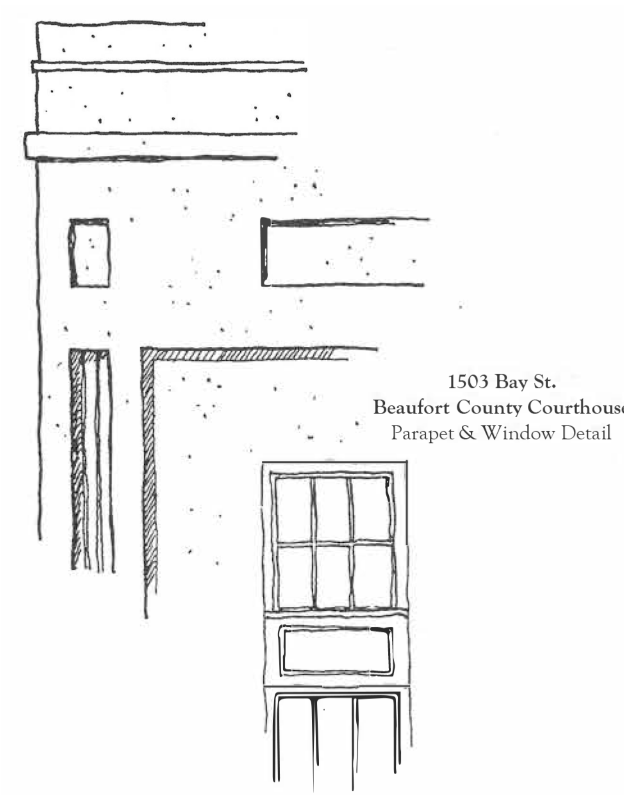


**901 Craven St.**
Colonial Revival Renovation

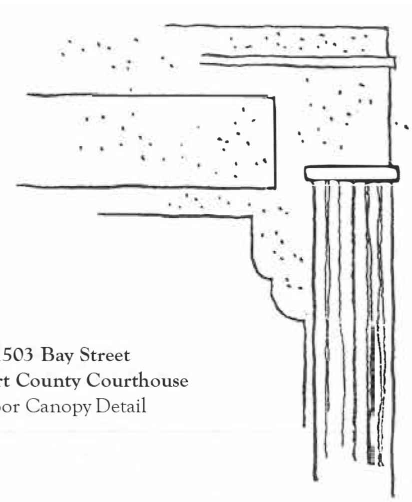
**Art Deco** 1925-1940. Only two important examples of this important civic style exist in Beaufort:

- The Beaufort County Courthouse, a renovation of an earlier structure (see "Queen Anne")
- The Beaufort County Jail ~ 1305 King

**1503 Bay St.**
**Beaufort County Courthouse**
Art Deco Remodeling



**1503 Bay St.**
**Beaufort County Courthouse**
Parapet & Window Detail



**1503 Bay Street**
**Beaufort County Courthouse**
Door Canopy Detail

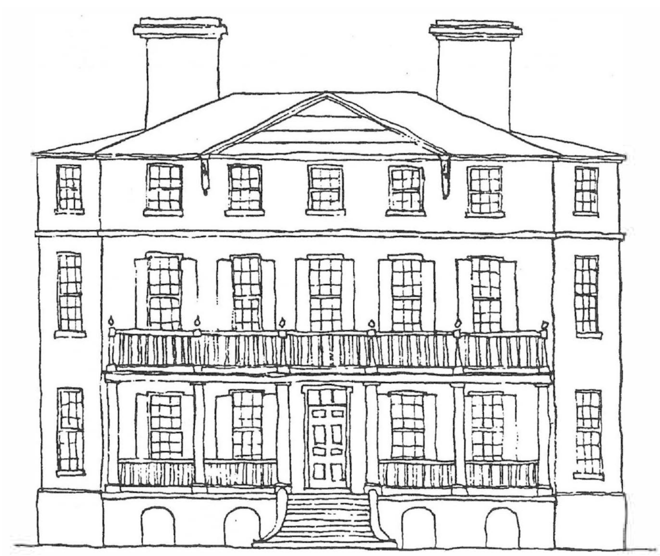
The illustrations exhibit the following characteristics of this style:

- metal sash or casement windows, usually straight-headed
- smooth wall finish
- flat, parapeted roof
- stylized, almost abstract, low-relief panels and pilasters
- "streamlined" moldings at important locations (such as the west entrance to the Courthouse)
- linear, hard-edged quality to facade and its ornament
- vertical emphasis to details if not proportions

**Renovations**: Several significant buildings in Beaufort have been extensively altered. Some of these alterations are of such significant scale that the appearance is one of a virtually new structure.

Dramatic examples include:

- The Anchorage, in which a Colonial Revival renovation added exuberant historically-inspired ornament to what had been a rather restrained facade
- Tidalholm, in which a fine Italianate mansion was cleverly transformed by Colonial Revival alterations
- 901 Craven, in which a pedimented "Beaufort Federal" porch at the center bay was removed and replaced with a Colonial Revival 5-bay porch spanning the width of the entire facade



**The Anchorage**
**1103 Bay St.**
(shown prior to Colonial Revival Renovation)

- The Beaufort County Court House, in which a remarkably successful Art Deco remodeling completely changed the appearance of an equally dramatic late 19th century eclectic structure displaying French, Moorish, and Classical influences
- The George Elliot house, in which a second story porch was inserted into an existing colonnade in the Colonial Revival period

The particular renovations have been largely successful. Other modifications are not quite so successful and have in many cases been pointed out on the individual inventory forms for each building.

**The Anchorage**
**1103 Bay Street**
Colonial Revival Renovation

**Tidalholm**
**1 Laurens St.**
(shown prior to Colonial Revival Renovation)

**Tidalholm**
**1 Laurens St.**
Colonial Revival Renovation

**901 Craven Street**
shown prior to Colonial Revival Renovation

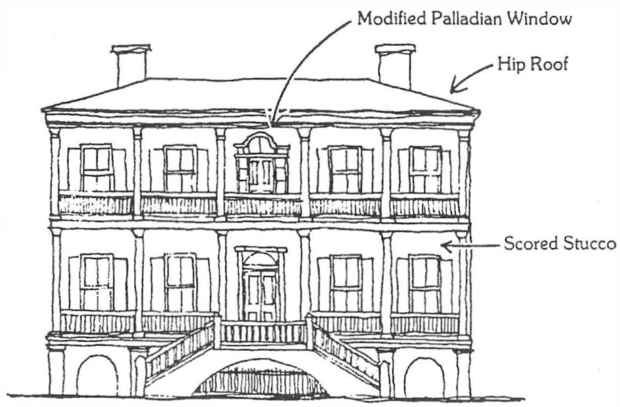
**901 Craven St.**
Colonial Revival Renovation

**Beaufort County Courthouse 1503 Bay St.**
(shown prior to c.1930 remodeling)

**1503 Bay St.**
**Beaufort County Courthouse**
Art Deco Remodeling

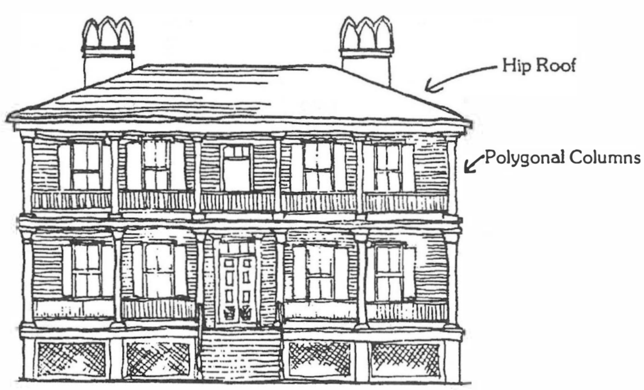
**The Beaufort Style**: Dozens of buildings could have been selected to illustrate the "Beaufort Style," with its raised 1st floor, two-stage porches, southern exposure, high ceilings, and shallow hipped roof. Dating of these structures can be difficult, especially when only the exterior of the house is studied. In fact, it is more logical and accurate to refer to this design solution as a house "type" rather than a style. It is hoped that the additional information furnished below will provide insight into the development of these architectural components.

**George Elliot House 1001 Bay**
(shown prior to addition of second story porch
& relocation of stair)



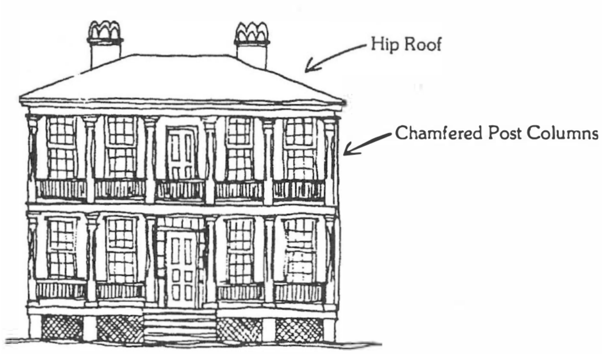

901 Prince Street

**George Elliot House**
**1001 Bay Street**
(shown in current condition with second story porch added)

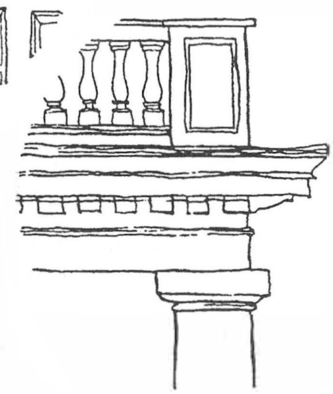



915 Port Republic St.

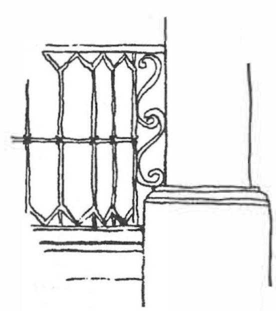
Door Detail
**George Elliot House**
**1001 Bay Street**




605 Prince Street



Porch Cornice/Parapet Detail
**George Elliot House**
**1001 Bay Street**



Porch Detail/Cast Iron Railing
**George Elliot House**
**1001 Bay Street**

## Design Details

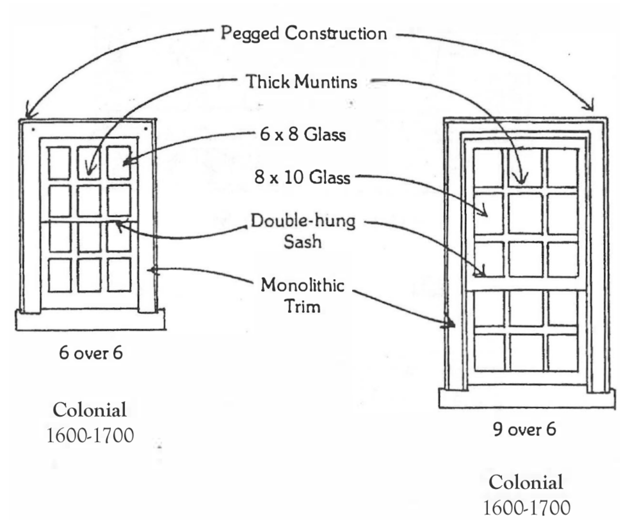
Illustrating any design elements out of context can be misleading. The illustrations are intended only to display certain tendencies of design details for various periods.

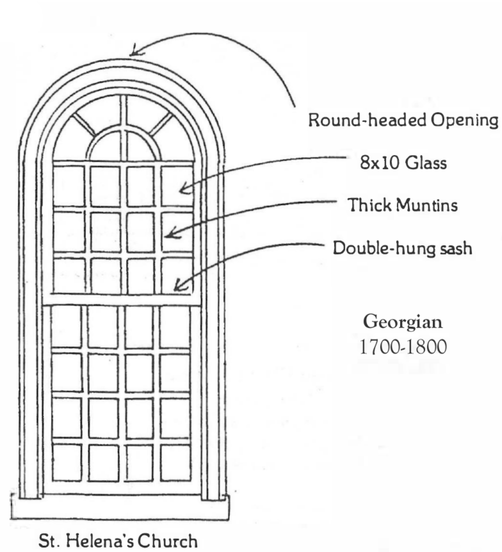
**Windows**

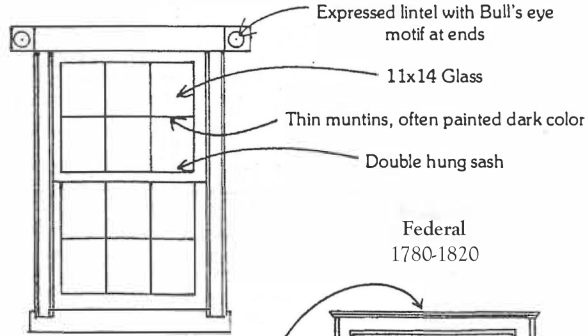
- The history of window design can be seen as an attempt to continually increase the glass size of given openings. Thus throughout the 19th century, (especially in commercial design - see "Signage") opening sizes increase, glass panes get larger, and muntins get thinner. Only the Colonial Revival represents a significant departure from this trend, in which a compromise was struck between the large sheets of available plate glass and the six-light sash with thick muntins common in Colonial building. The compromise was reached in the 6-over-1 window.
- Although dimensional tendencies vary, the following is a rough guide to the increase in size of individual glass panes through the 1st half of the 19th century:

  Colonial 6" x 8" (1600-1700)
  Georgian 8" x 10" ( 1700-1800)
  Federal 8" x 10", 11" x 14", 11" x 16" (1780-1820)
  Greek Revival 11" x 16", 11" x 18", 12" x 20" (1820-1860)

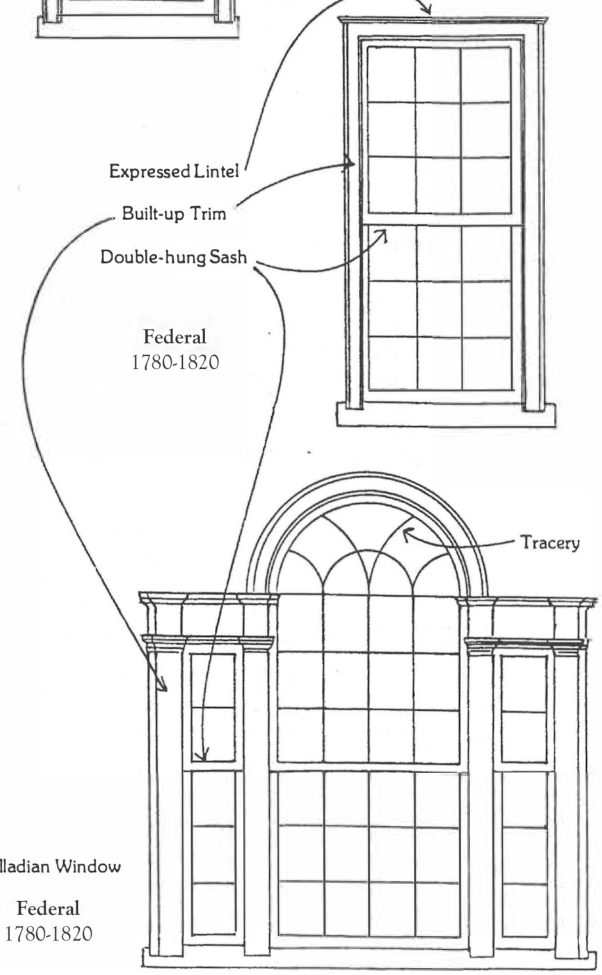
  Early window casing was usually planed out of one piece. Built-up moldings become commonplace in the Federal period and are virtually standardized by the end of the 19th century
- The Palladian window so popular at stair landings on the north facade of Beaufort's houses is an early 19th century motif. It also was the inspiration for the tripartite flat-headed window which appears on such houses as 400 Wilmington and 501 King and which dates from the 1800-20 period
- After 1865, once the larger glass sizes required were becoming commercially available, windows exhibited a good deal less conformity, one with the other. However, the 2 - over - 2 enjoyed widespread use. The commonly seen 3 - over - 1 sash was a favorite Bungalow device and usually dates from the first two decades of the 20th century





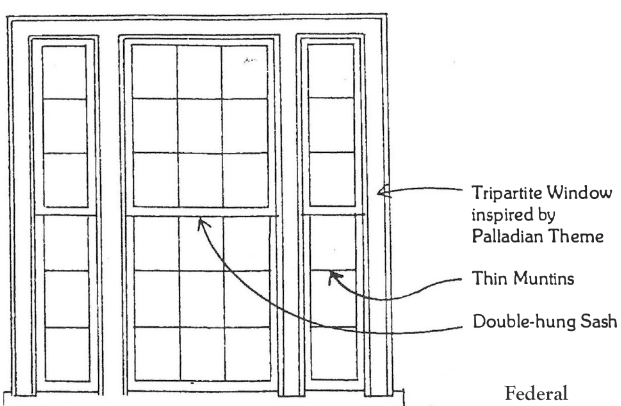

Federal
1780-1820




Federal
1780-1820

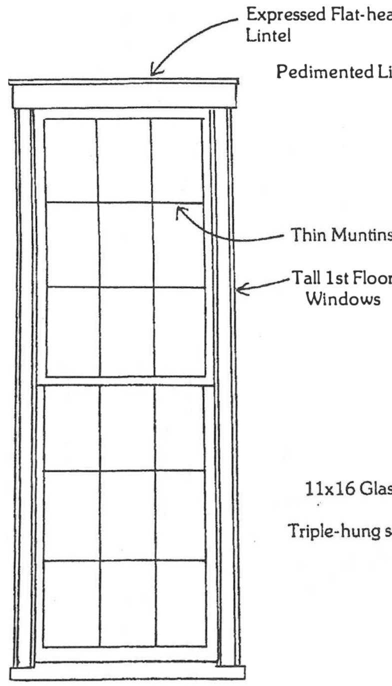
Palladian Window

Federal
1780-1820

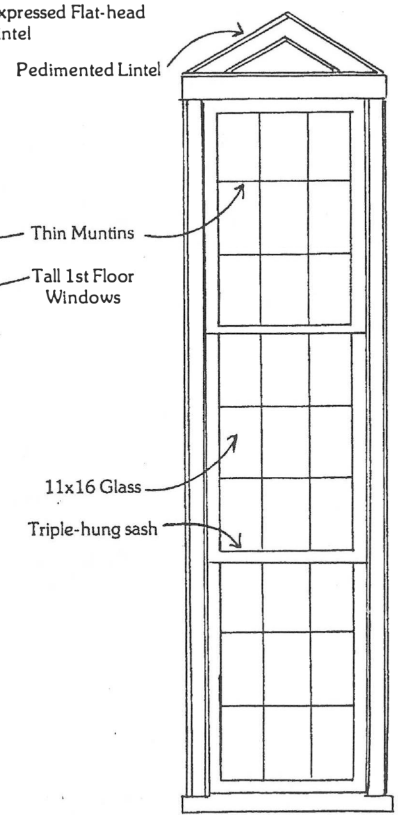



401 Wilmington
501 King

Federal
1780-1820

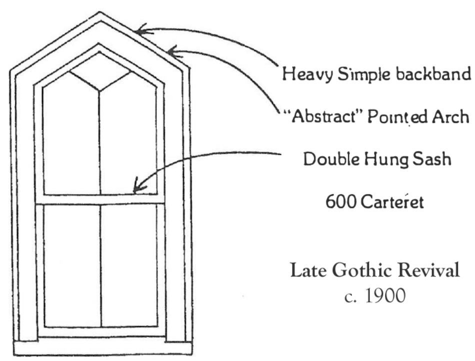



Greek Revival
1820-60



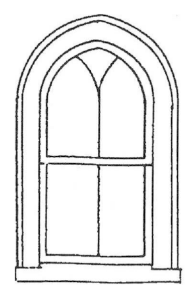

· 907 Craven St.

Greek Revival
1820-60



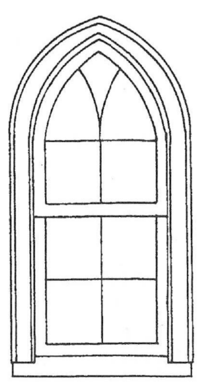

600 Carteret

Late Gothic Revival
c. 1900



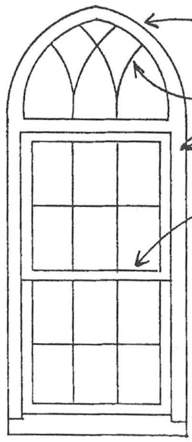
907 Craven St.

Gothic Revival
1830-60



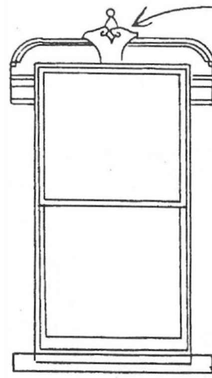
601 New St.

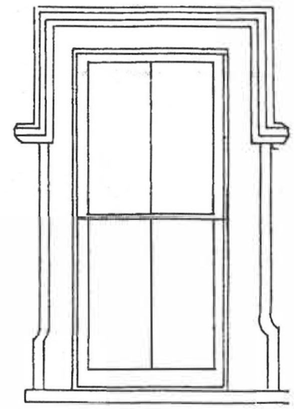
Gothic Revival
1830-60



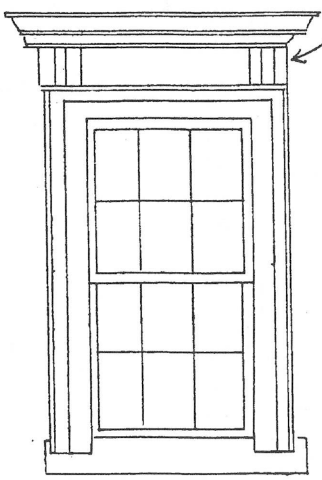

713 Craven St.
The Arsenal

Greek Revival
1830-60



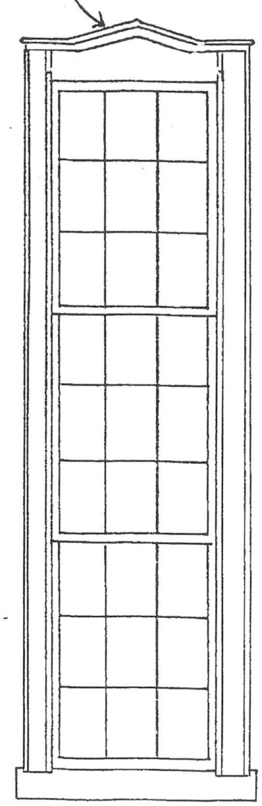



Queen Anne/Eastlake
1865-1900



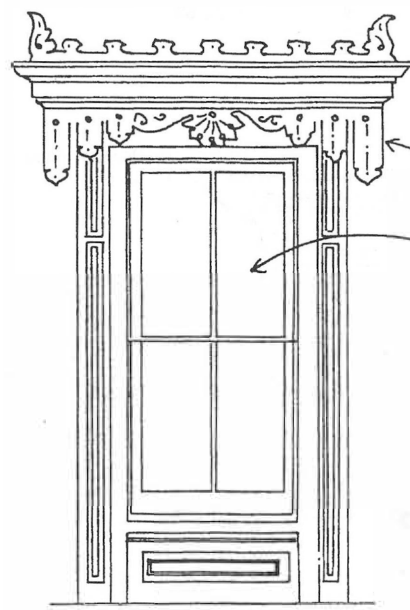

Tidalholm

Tall, Thin 1st Floor Windows



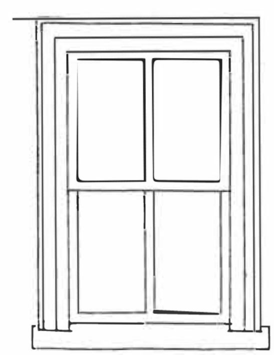

907 Craven St.

Italianate
1840-80



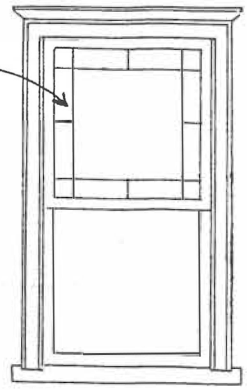

(see 303 Federal)

Queen Anne/Eastlake
1865-1900



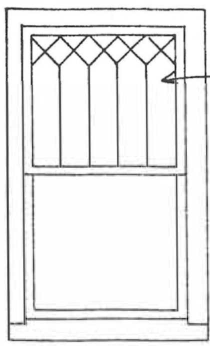
601 Prince
507 North

Queen Anne/Eastlake
1865-1900



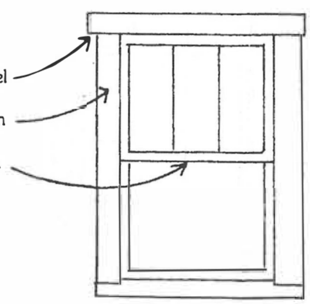

1307 Bay

Queen Anne/Eastlake
1865-1900

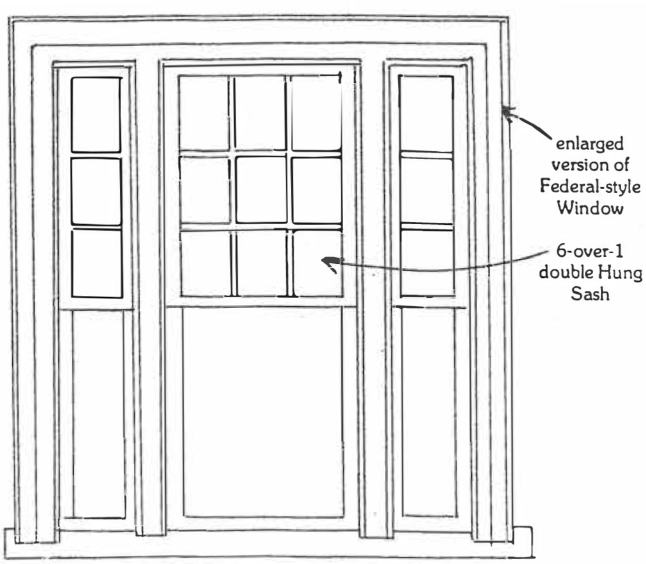



1411 North

Queen Anne/Eastlake
1865-1900




Bungalow
1880-1925



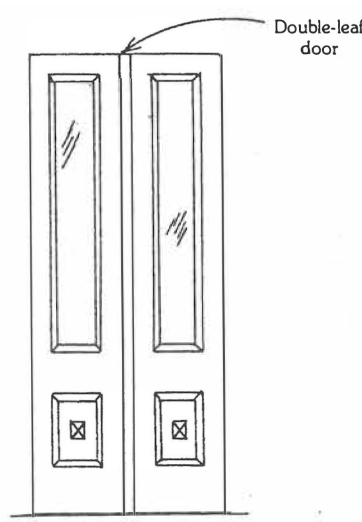

Colonial Revival
1880-1920

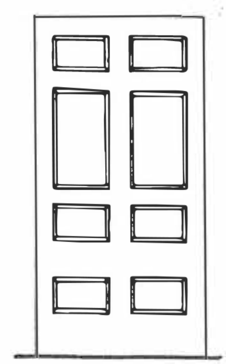
**Doors** - Doors with arrangements of six or eight panels are not in themselves representative of any particular period of American architecture. Alterations in the basic design over time expressed themselves largely in panel trim and moldings.

Greek Revival Doors tend to be highly stylized and favor repetition of geometric panels of the same size. Panels are sometimes absolutely square, which is not so common for earlier door designs. Moldings at the perimeter of the panels are usually relatively flat and restrained. It is not uncommon to find splayed interior trim at Greek Revival doors and windows. A vertical bead at the center stile was often used to simulate double doors and accentuate the vertical proportions of the opening.

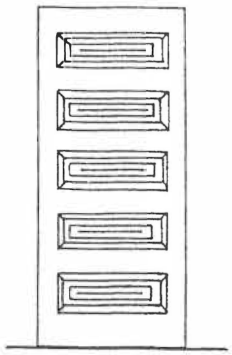
Elongated glazed upper panels began to be used in early Victorian styles such as the Gothic Revival and the Italianate, usually in double doors. While this persisted throughout the Queen Anne/Eastlake period, by the end of the century, carved, incised, and gouged panels in shapes other than rectangular were also being used.

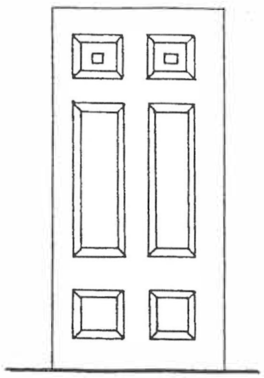
The Bungalow style simplified such glazed doors, combining them into one door with simple louver panels. The popularity of six and eight panel doors persisted, but four and even five panel doors were also used.

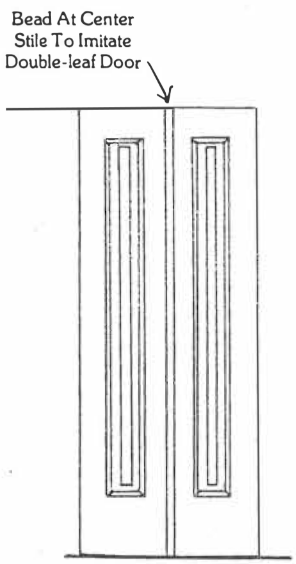


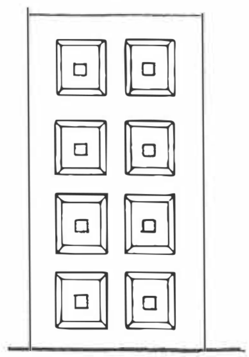



Federal
1780-20

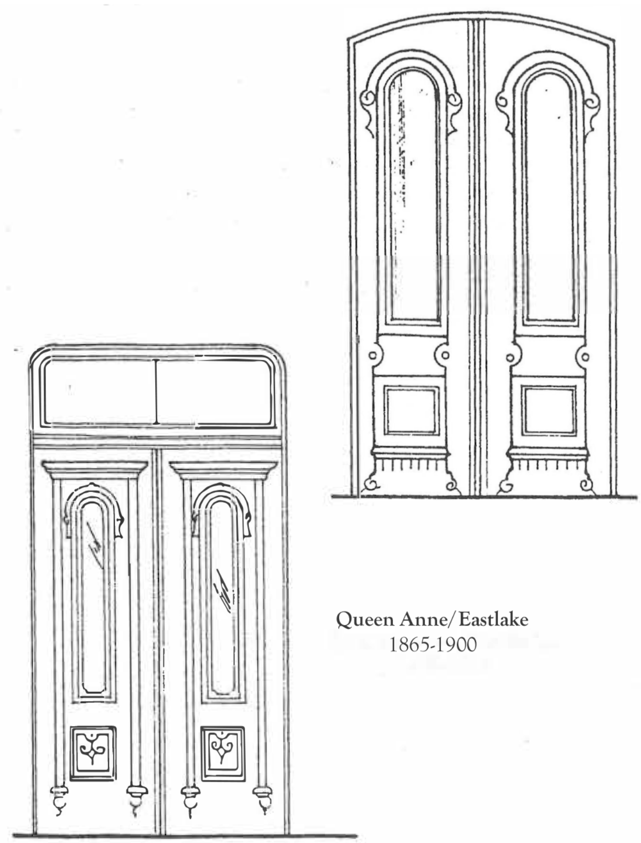




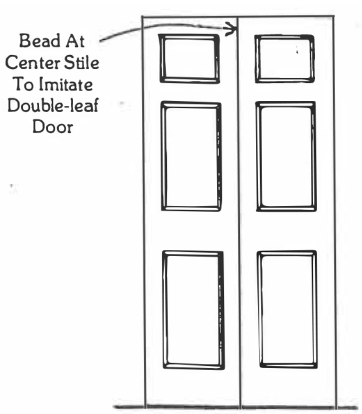


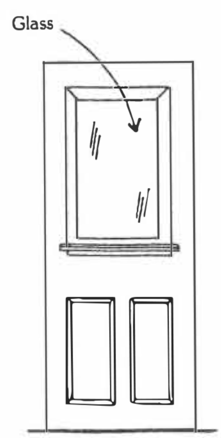



Greek Revival
1820-60



Queen Anne/Eastlake
1865-1900




Queen Anne/Eastlake
1865-1900

**Chimneys** - Corbelling the top of brick chimneys is not a design device which is in itself representative of any particular period of American architecture. Chimneys with architectural prominence have been emphasized at the top with built-out (or "corbeled") profiles throughout the history of American architecture.

Chimneys of the Colonial period, (illustrations A, B, C, & D) tended to be quite massive, with pronounced corbeling. Stucco was often used to provide textural relief. Chimney C also exemplifies the practice of massing the flues into clusters - in this case, into a cross shape in plan. Colonial chimneys often rose from within the house, but when they are exterior, as at 712 New Street, the chimney stack was often held several inches away from the face of the wall.

Georgian and Federal chimneys (illustrations F & G) are often less elaborate than their Colonial counterparts. Usually placed symmetrically, they are often stuccoed, such as the chimneys of the Verdier house. Corbeling tends to be simpler and more restrained. Individual flues within the chimney are occasionally expressed.

Greek Revival chimneys (illustrations E & H) are often even simpler than those of the Federal style. A simple cap of only two or three courses harmonizes with the restraint characteristic to the style. Greek Revival chimneys on stucco buildings were usually stuccoed themselves to prevent jarring textural discontinuity.

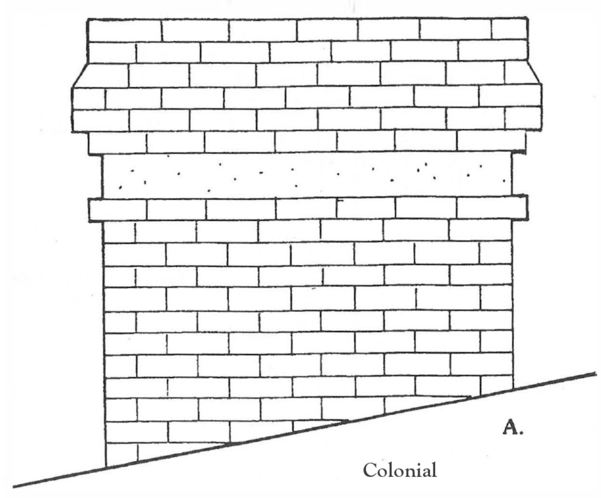
In the early Victorian Revival styles, such as the Gothic and the Italianate, the proportions of chimneys tend to get thinner (illustrations I & J) . Recesses cut into the mass of the chimney such as those at the chimneys of Tidalholm became more frequent in the Italianate style, and the corbeling began once again to be as massive as it was 50 years earlier. Gothic Revival chimneys often took the form of polygonal chimney pots such as the attached octagonal chimneys of the "Castle," which are unique in Beaufort.

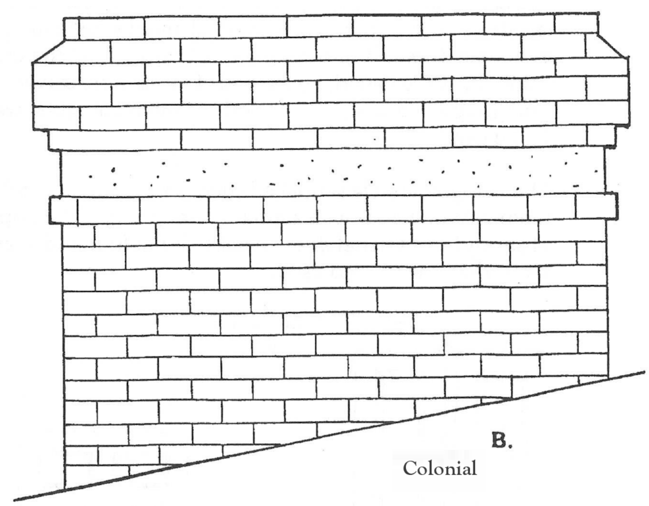
Late Victorian chimneys of the Queen Anne and Eastlake styles (illustrations K, L, and M) continued the trend of massive corbeling and increased the freedom with which the mass of the chimney was recessed, molded, and ornamented. Proportions, especially late in the century, grew to be quite thin.

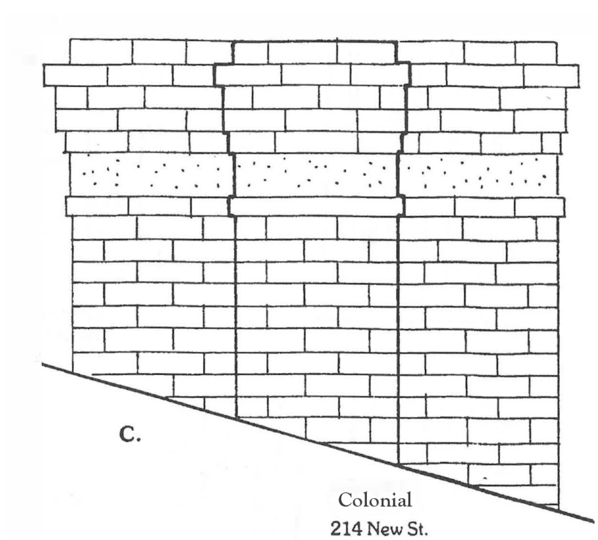
Colonial Revival chimneys tended to be inflated versions of their colonial prototypes. Dominant, massive, and corbeled, they also were frequently recessed in ways similar to late Victorian chimneys, a practice rarely encountered in actual Colonial chimneys. The chimney at 607 Bay (illustration N), though hardly massive, otherwise exemplifies some of the abstract stylizing tendencies of chimneys of this period.

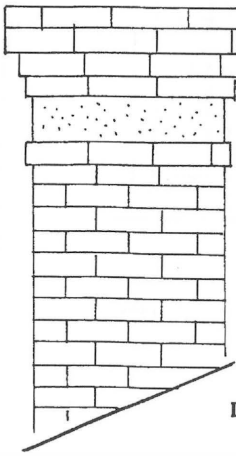
Chimneys of the bungalow period usually occur in the least expansive location. Thus, if there is an interior fireplace, they are usually found along an exterior wall. They are quite simple in shape, as shown in illustration 0.

Modern chimneys such as those shown in illustration P, Q, R, and S are inappropriate for the historic district and should be discouraged.

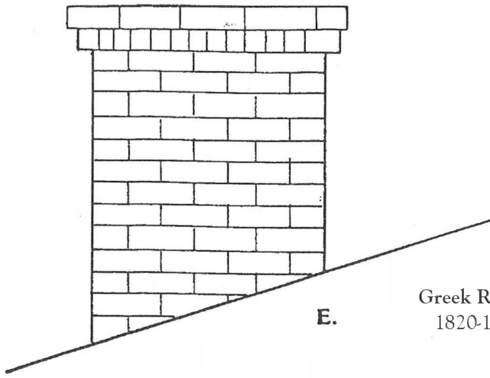


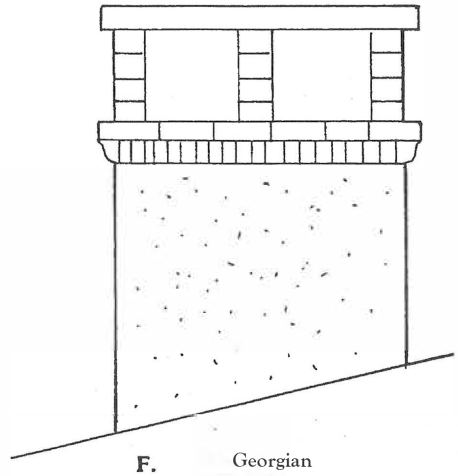





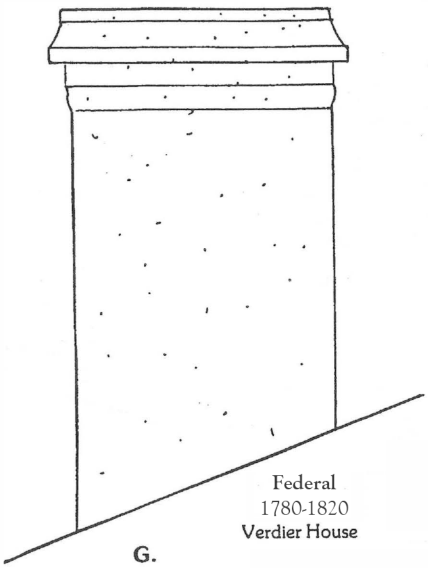
Colonial
D.



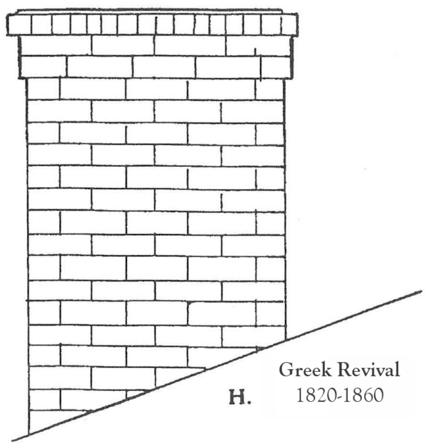
E.
Greek Revival
1820-1860



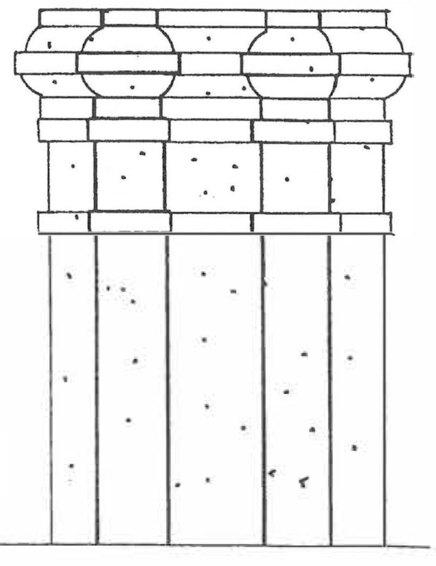
F.
Georgian
1700-1800



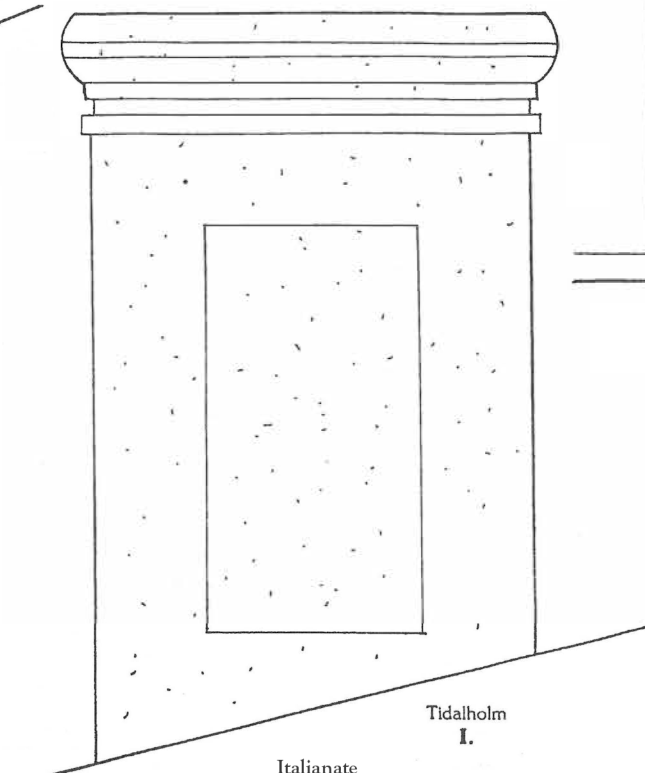
Federal
1780-1820
Verdier House
G.



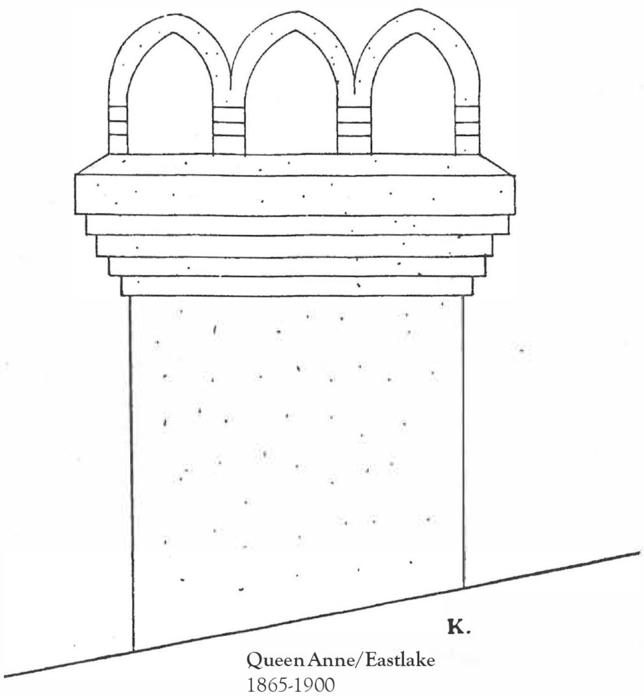
H.
Greek Revival
1820-1860



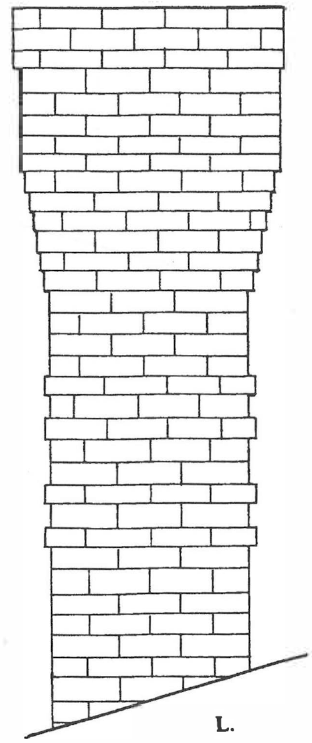
The Castle
J.
Gothic Revival
1830-60



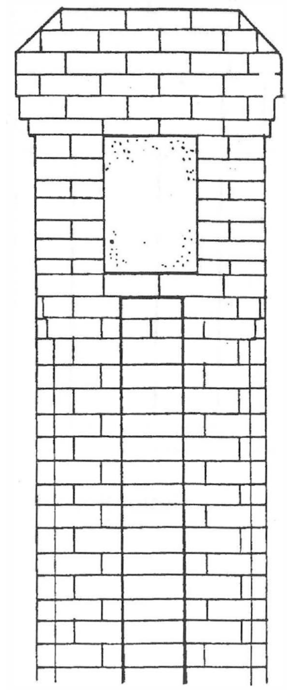
Tidalholm
I.
Italianate
1840-80



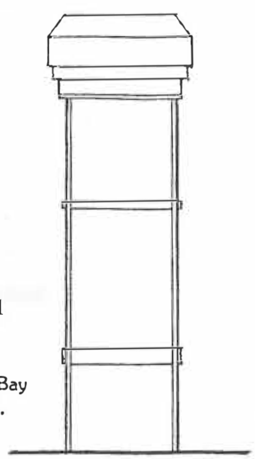
K.
Queen Anne/Eastlake
1865-1900



L.
Queen Anne/Eastlake
1865-1900

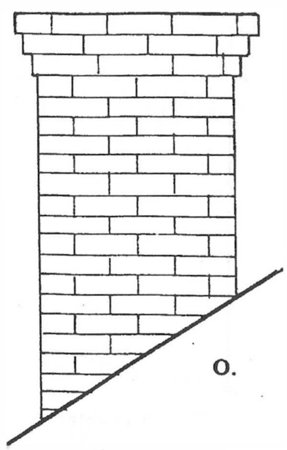


M. Queen Anne/Eastlake
1865-1900

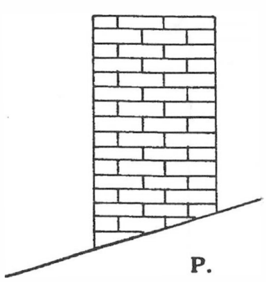


Colonial Revival
1880-1920

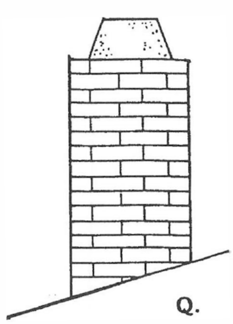
607 Bay
N.



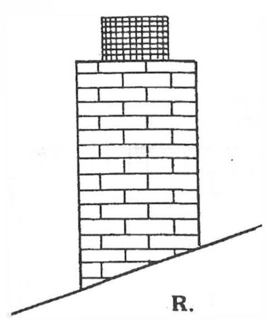
O.
Bungalow
1880-1925



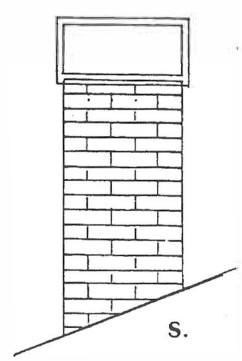
P.



Q.



R.



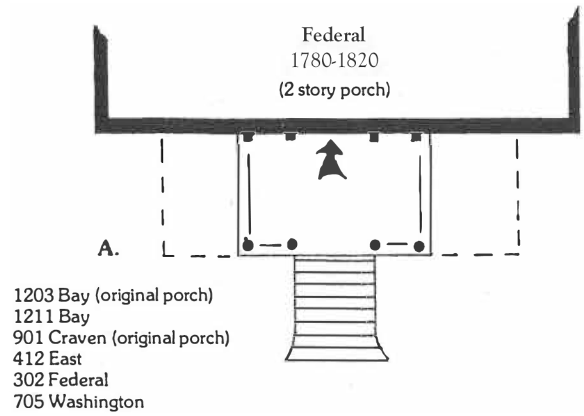
S.

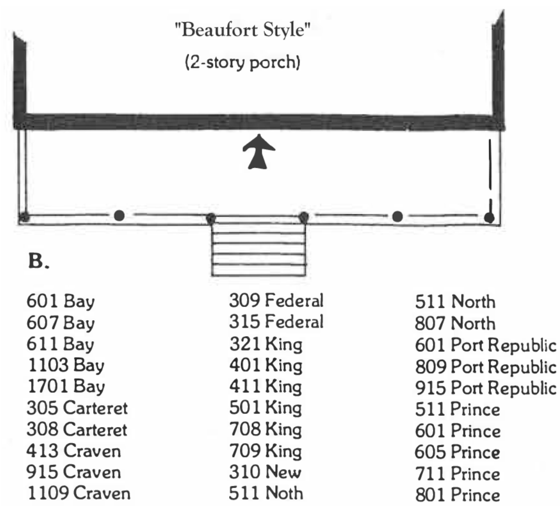
**Porch Plans**:

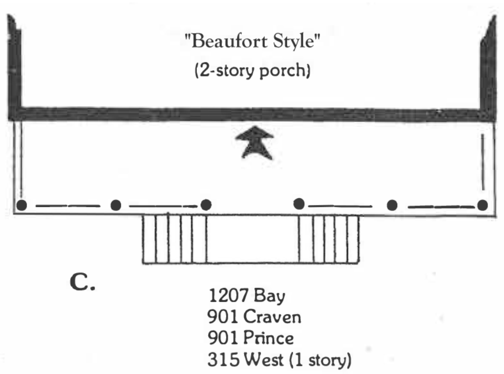
Certain porch plan types can be attributed specifically to particular architectural styles, although of course they may reappear many decades later as a Revival. The "Buildings" section of this chapter illustrates many of these porches; it is the intent of the accompanying plans to categorize certain porch types by era:

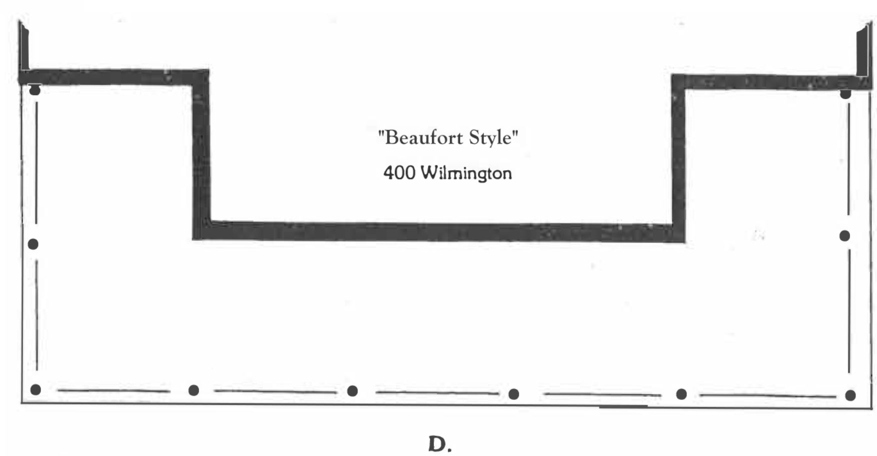
- The three-bay, double-stage portico shown in illustration A is typical of the Federal period in Beaufort. Generally, the end bays are narrower than the center bay (a 1-2-1 rhythm is common) and the columns of the upper story are more slender than those of the lower story
- The "Beaufort style" porches illustrated in plans B-H cannot be directly linked to any of the commonly accepted styles of American architecture. Each betrays a range of stylistic influences which shows up mostly in details such as balusters and columns, described below
- The three-bay, double-stage porch spanning the width of the house with entrance in an end bay is illustrated in drawing J and is a Queen Anne period porch plan.

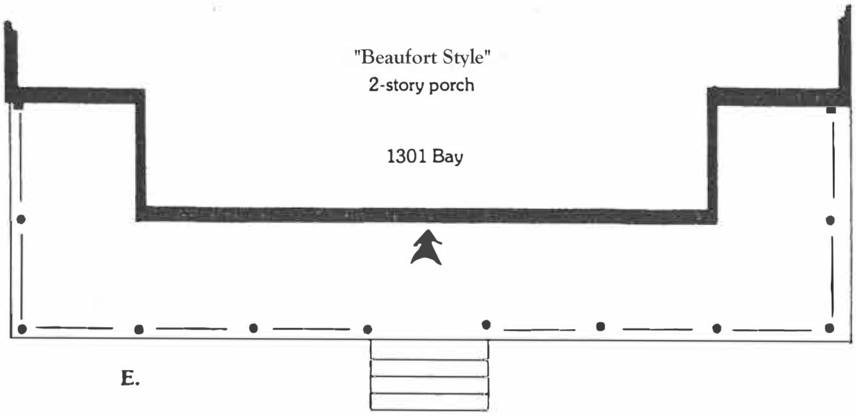
The three-bay single story porch spanning the width of the house with entrance in the center bay is typical of the bungalow style as it appears in Beaufort (K).

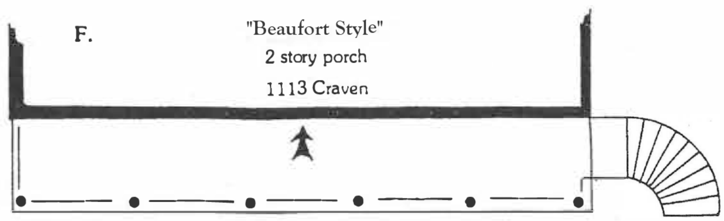


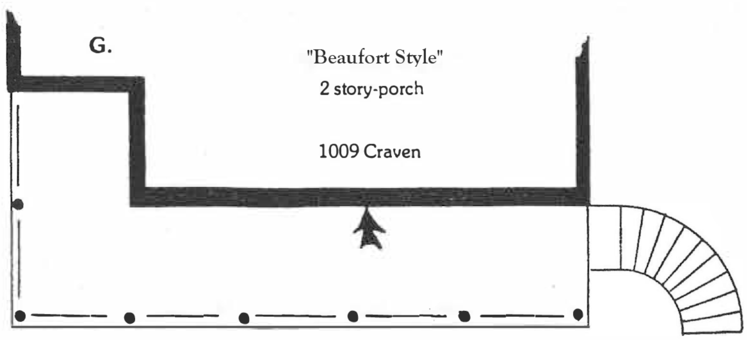



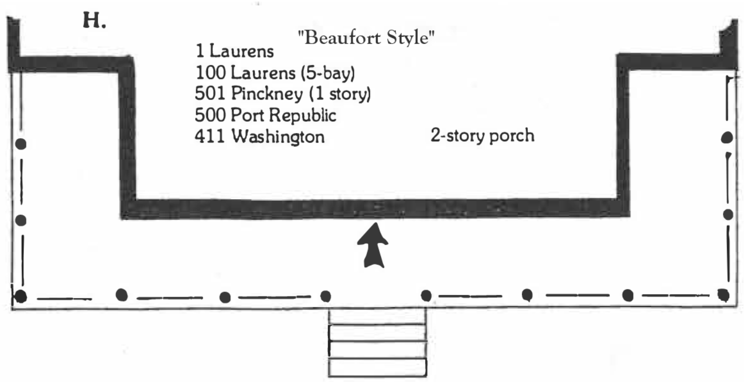



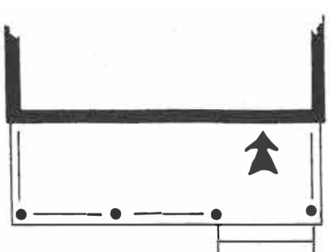





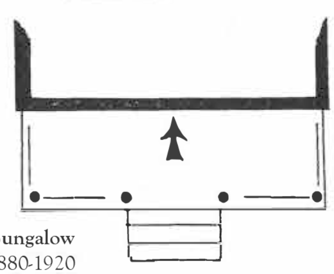
J.

Queen Anne/ Eastlake Cottage
1865-1900
(2-story)

605 Carteret
705 Charles
603 Craven
907 Craven
809 Duke
706 East
708 East
708 Green
207 Hancock
507 North
1301 North
1405 North
1407 North
701 Prince
705 Prince
502 Scott's
807 Scott's

K.

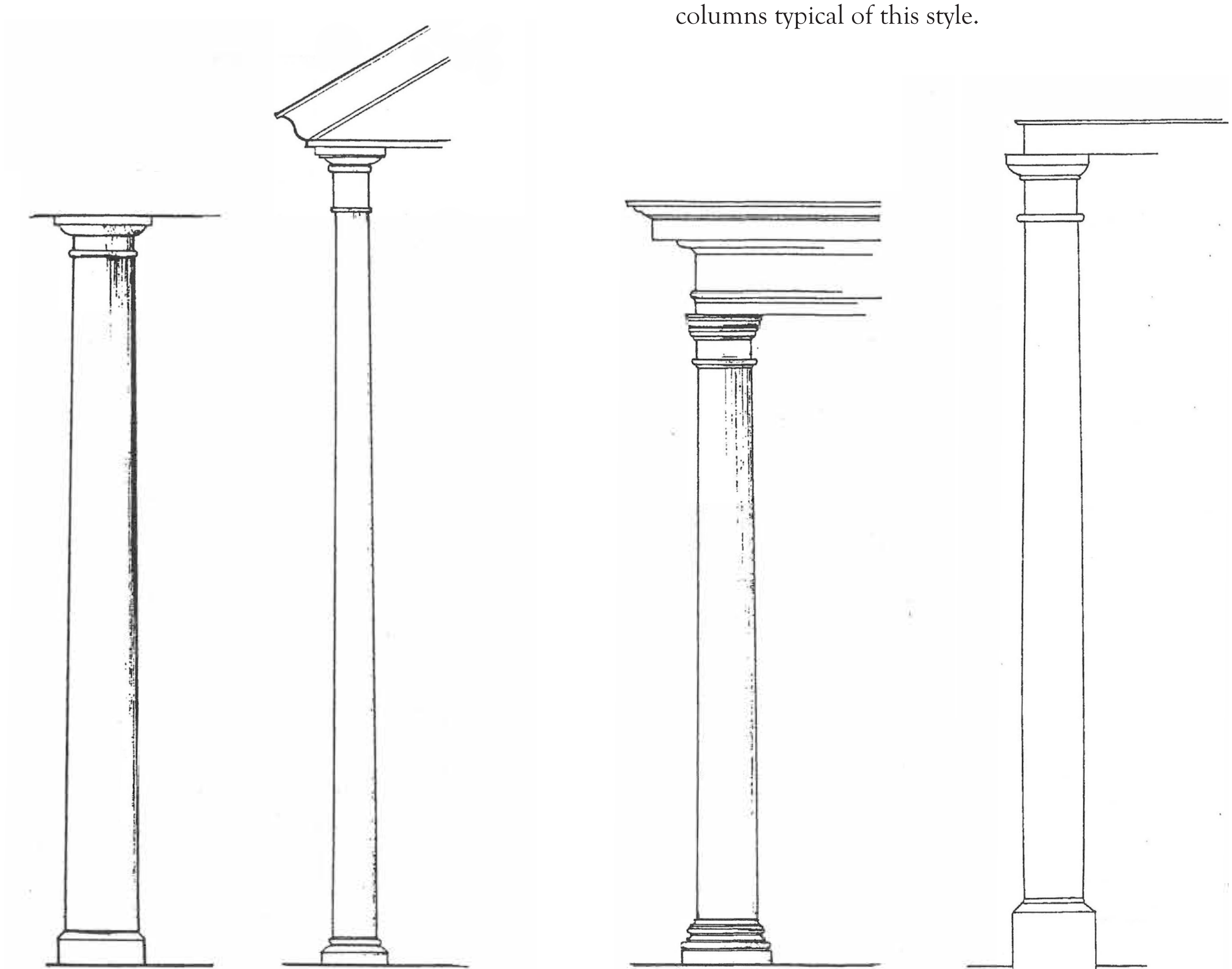
712 Duke
702 East
704 East
902 North
1307 North
1311 North
505 Port Republic
508 Scotts
1008 Scotts
408 West



Bungalow
1880-1920
(1-story porch)

**Columns:**

- Some form of the square column exists in all periods of American architecture, often articulated at the railing height. Common techniques for providing this emphasis include:
    - changing from square column plan to round at rail height and back again to square at the capital
    - chamfering the corners of the square column from the rail height up to the capital (after c. 1850)
    - ornamenting the column above the rail height with often elaborate turned moldings and incisions not always based on classical precedents (Queen Anne Eastlake, 1865-1900).
- Federal columns (see illustrations A-F), exhibited the same refinement as other details characteristic of this style. Proportions were often slender, as for example in the delicate second floor columns of Tabby Manse or the Verdier house. Most columns of this period were careful to exhibit "entasis" (the slight inward curve, or taper, or the upper two-thirds of the column) which contributed strongly to their studied and graceful appearance. Entasis was also found on square columns (illustration F).
- Greek Revival columns (drawings G, H, and I) were often more slavish copies of classical models, usually of the simple Doric order. Columns such as those of 801 Carteret Street (H) and the Beaufort Baptist Church show severe examples of the unornamented, almost abstract columns typical of this style.

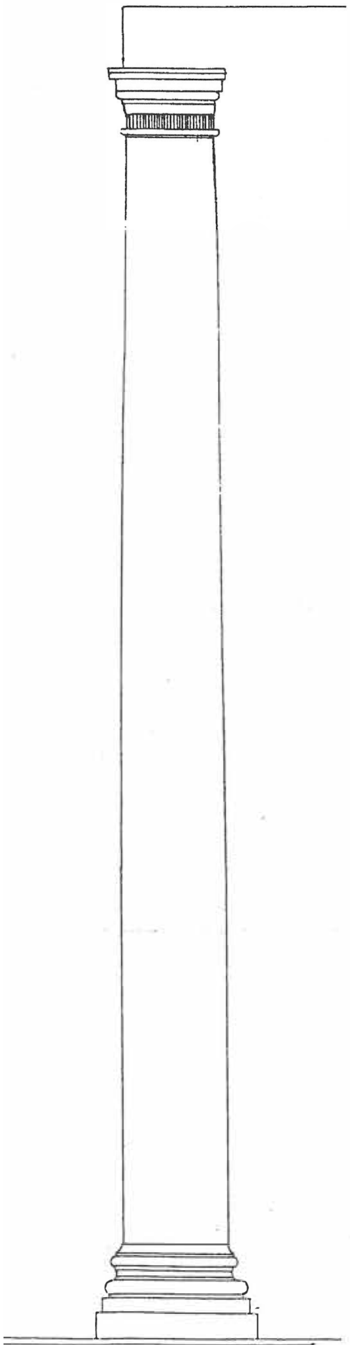


A. Verdier
Federal
1780-1820

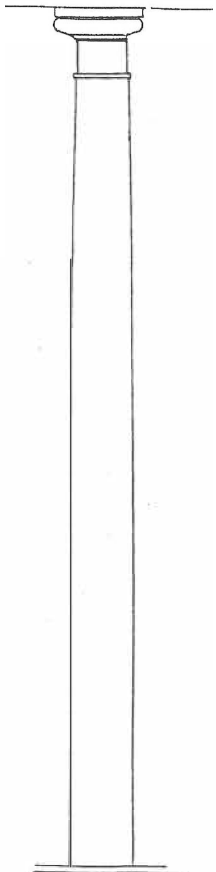
B. Tabby Manse 2nd floor
Federal
1780-1820

C. 1790
Federal
1780-1820

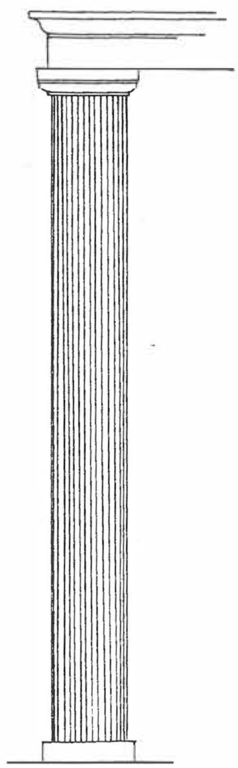
D. Tabby Manse 1st Floor
Federal
1780-1820



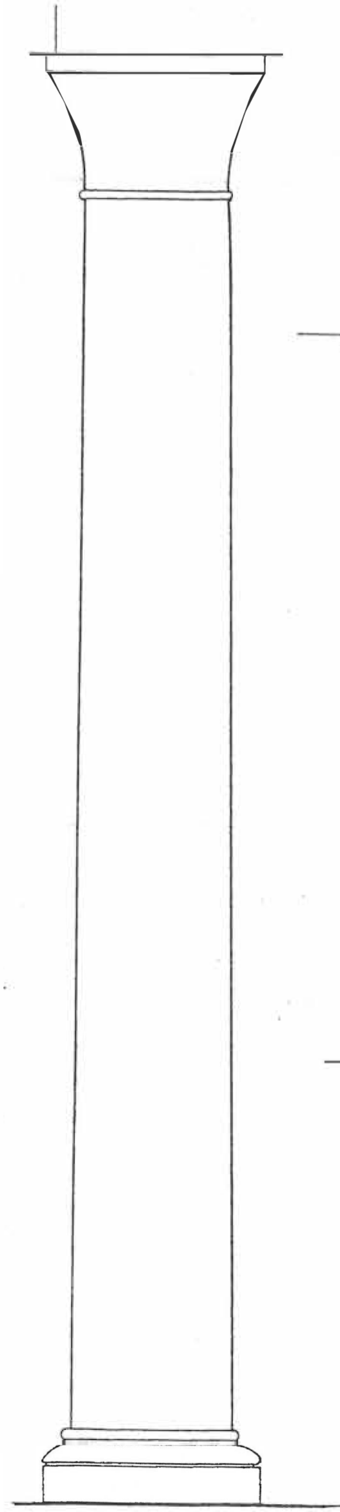
**E.**
1790



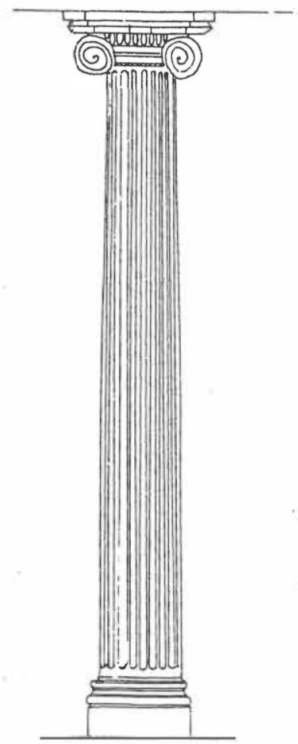
**F.**
1797



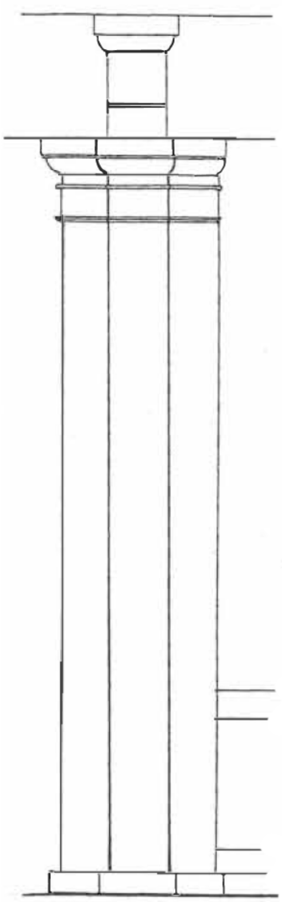
**G.**
601 Bay
Greek Revival
1820-60



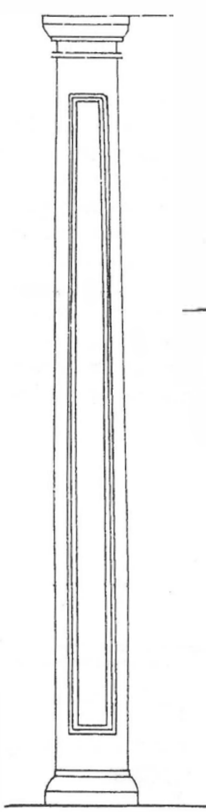
**H.**
801 Carteret
Greek Revival
1820-60



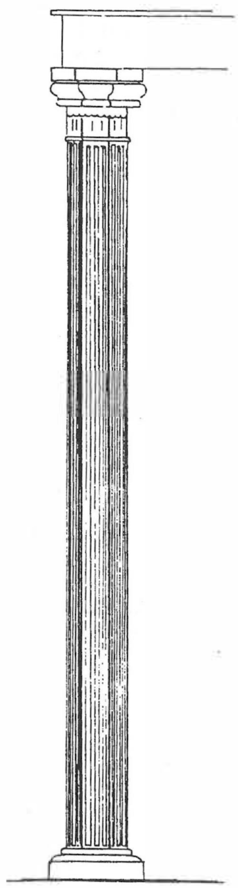
**I.**
Secession House
1827
Greek Revival
1820-60



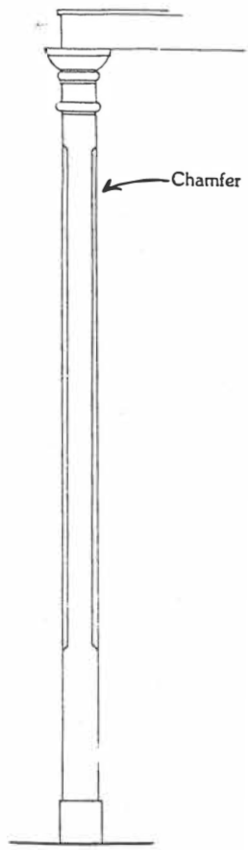
**J.**
The "Oaks"
**Italianate**
1840-80



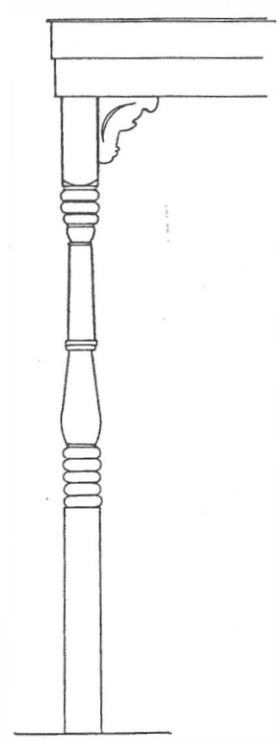
**K.**
Tidalholm
**Italianate**
1840-80



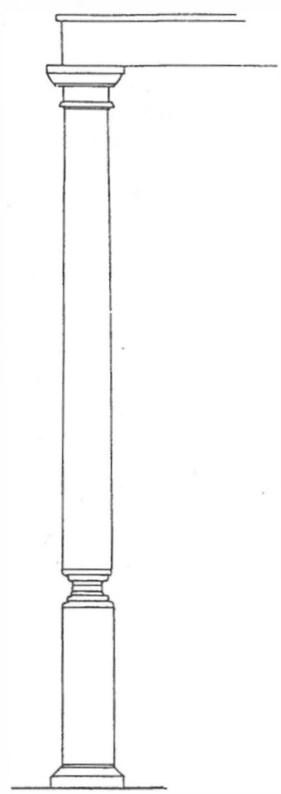
**L.**
915 Port Republic




**M.**
605 Prince

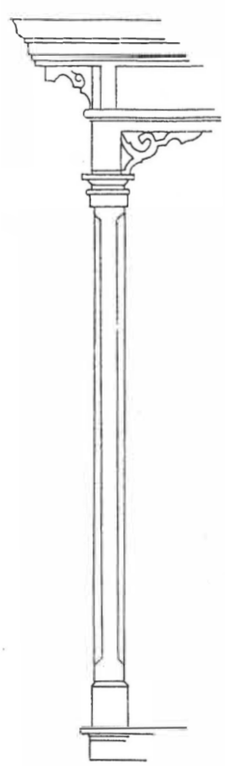


**N.**
902 North

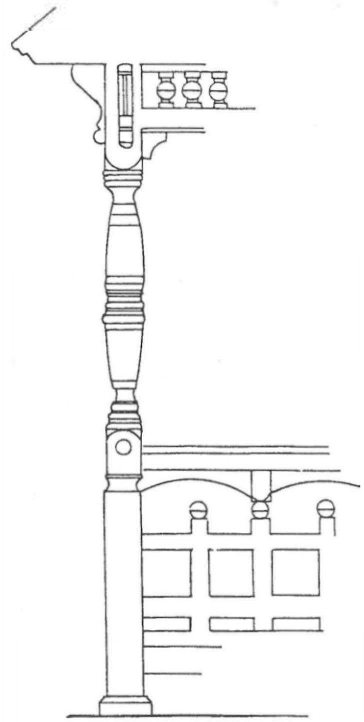


**O.**
1301 North

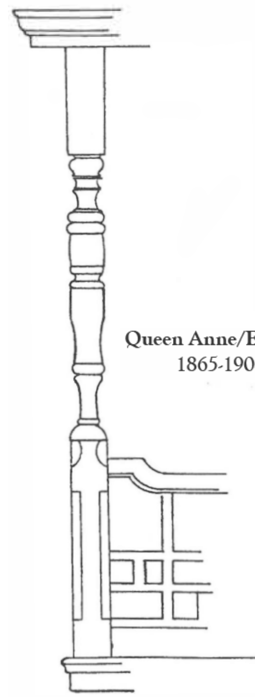
**Queen Anne/Eastlake**
1865-1900



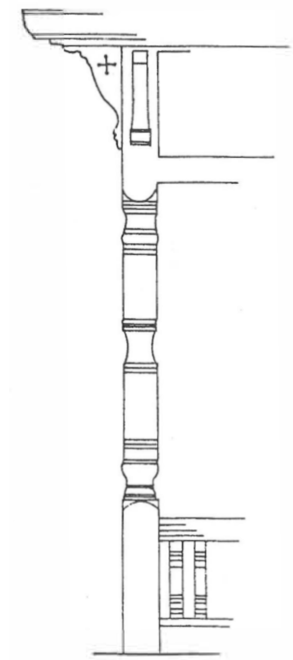
**P.**
1873



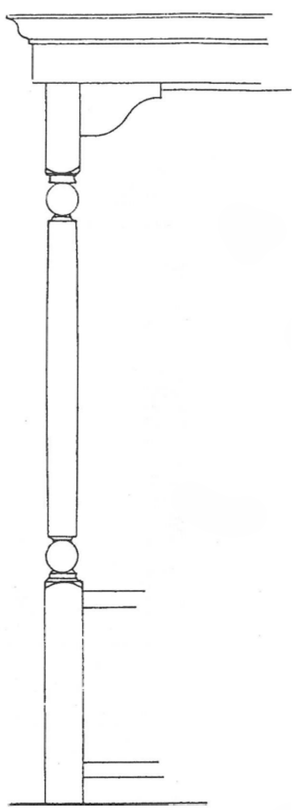
**Q.**
1881



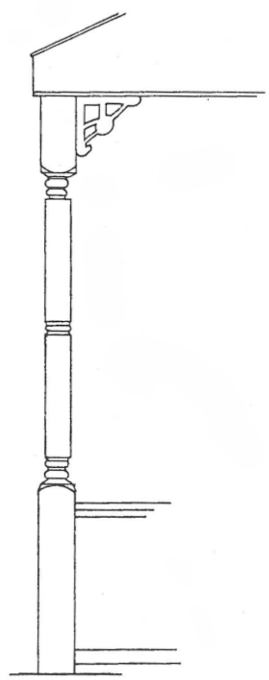
**R.**
1881



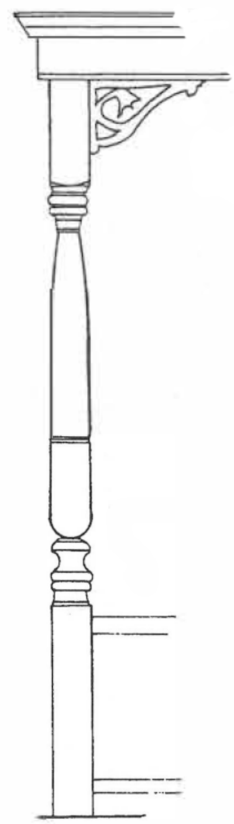
**S.**
1881



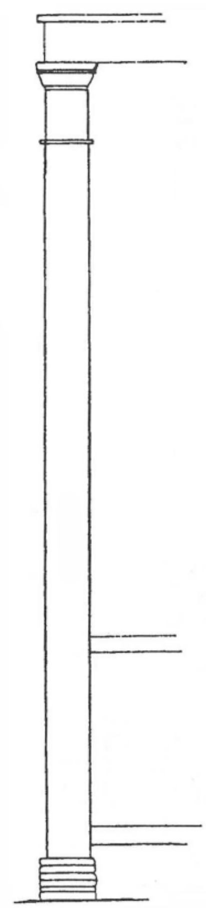
**T.**
601 Craven



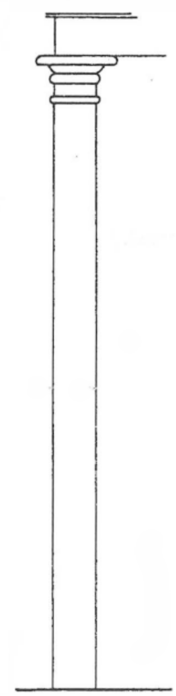
**U.**
602 Carteret



**V.**
508 Scott's

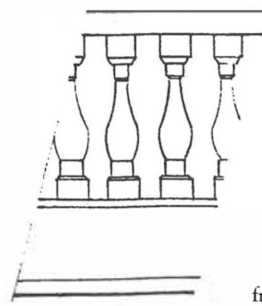


**W.**
709 King

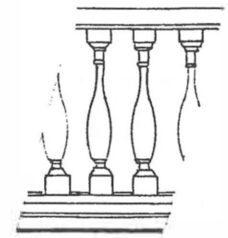


**X.**
601 Prince

- Early Victorian designs such as the Italianate columns (illustrations J and K) began to be treated with less attention to specific classical models than the Greek Revival. Clustering of columns, such as appears at the "Oaks", was not quite so common as the paneled square columns of Tidalholm, which were present on the renderings of Italianate residences appearing in the works of A. J. Downing.
- Late Victorian columns, illustrated in drawings M-X, contained a wealth of detail. The most common, an example of which can be found at 605 Prince Street, chamfered the corners of "the column from the height at the handrail up to some point below the capital. Protruding detail such as the capital or base always looks as if it were nailed onto the basic shaft of wood forming the column itself. Incised detail is almost always the obvious result of the column's having been turned on a lathe. Brackets (shown in illustrations N, P, T, U, or V), often were used in lieu of a capital to visually express the load-carrying work done by the columns.



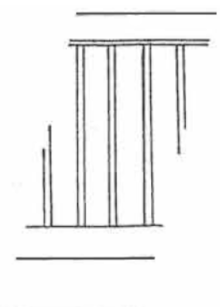
from
**Rules for Drawing the Several Parts of Architecture**
by James Gibbs
1786



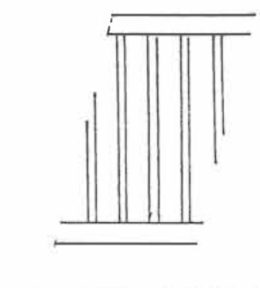
Manigault House
Charleston
1790

**Balusters**. It is especially difficult to take balusters out of context for the purpose of dating, except for certain late Victorian types whose period is immediately apparent. Balustrades are highly susceptible to deterioration and are frequently replaced entirely. Thus, they date from a period different than the house. In fact, they are often not of the same period of the porch itself. The accompanying illustrations exhibit some of the range of the baluster types found either in Beaufort or in important architectural books. The illustrations make the following observations apparent:

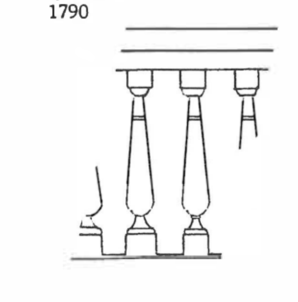
- Square spindles are in themselves not a design feature appropriate to only one particular architectural period. As shown, they are used at the Federal style Tabby Manse, the Beaufort style Robert Means House, the early Victorian house at 605 Prince, and the bungalow style house at 1307 North.
- Scroll-cut butted board balusters, such as those at 601 Port Republic or 807 Craven, are typical features of the 1870s. They were often stock parts as indicated by the recurrence of the latter balustrade in several locations throughout the town.
- Reversible balusters: those that are symmetrical top to bottom, though based on early precedents are frequently used in the Colonial Revival period. (Such balusters can be seen at 303 Federal.)



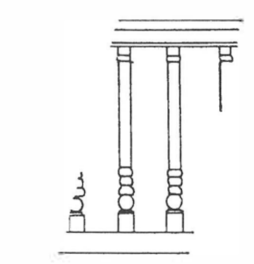
**1211 Bay**
Tabby Manse
1790



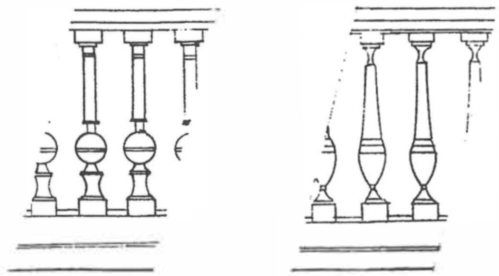
**801 Bay**
Verdier House
1790



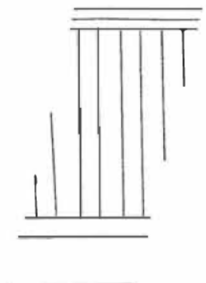
**1009 Craven**
c. 1820
(similar to 509 North)



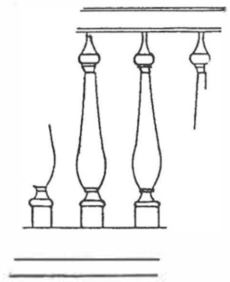
**1113 Craven St.**
c. 1813



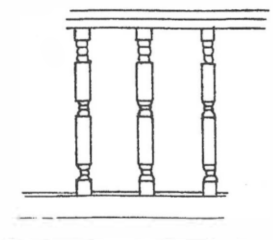
from
**The American Builder's Companion**
by Asher Benjamin
1827



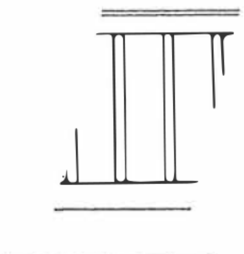
**1207 Bay**
c. 1790



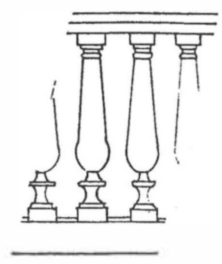
**1301 Bay**



**508 Craven**
1875



**605 Prince**
1850's



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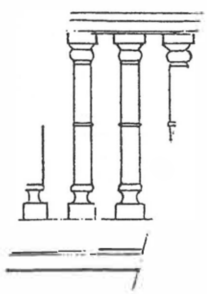

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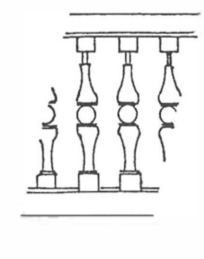
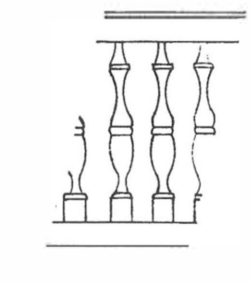
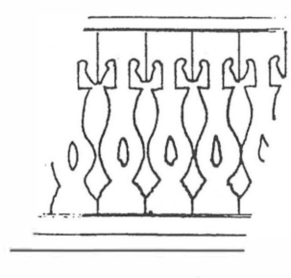


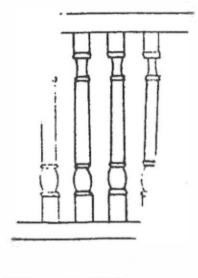
**601 Prince**
1850's



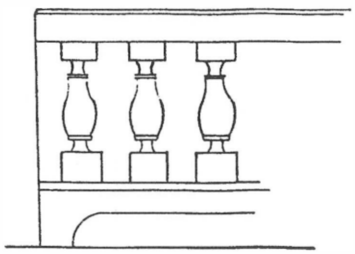
**901 Craven**
1890's



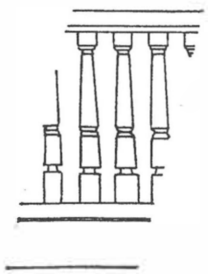
**807 Craven**
**308 Charles**
**201 Laurens**
c. 1875



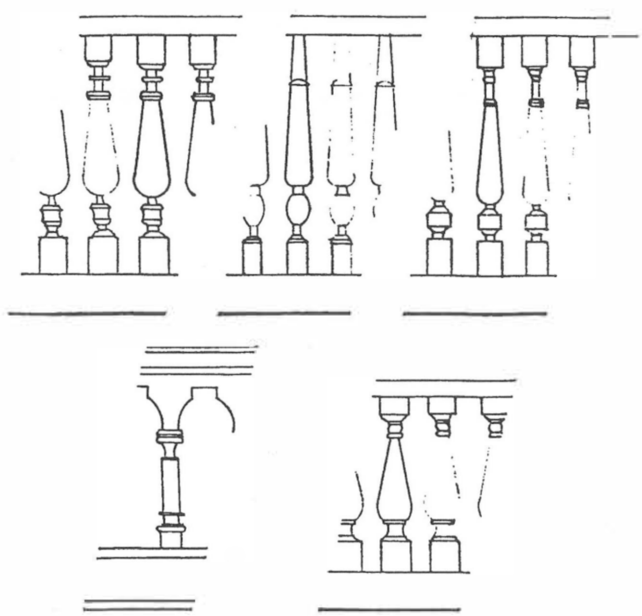
**913 Craven**



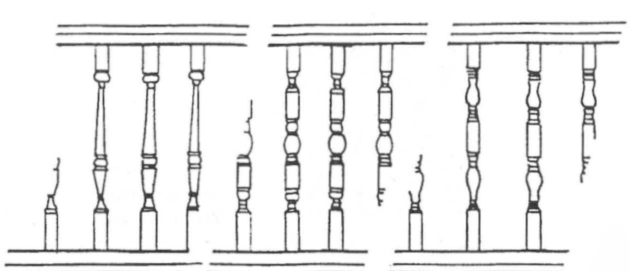
**607 Bay**
1905



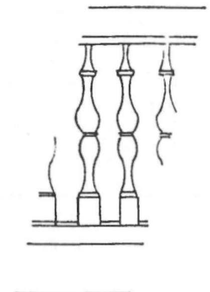
**601 Bay**
c. 1850



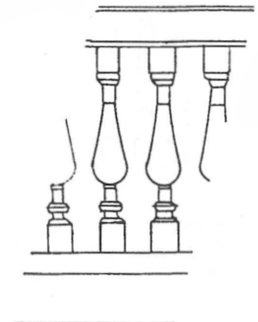
from
Victorian Architecture
by Al Bickwell
1873



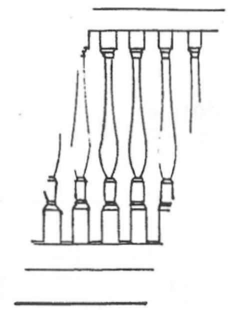
**1887**



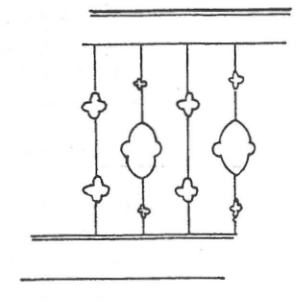
**509 Harrington**
c. 1850



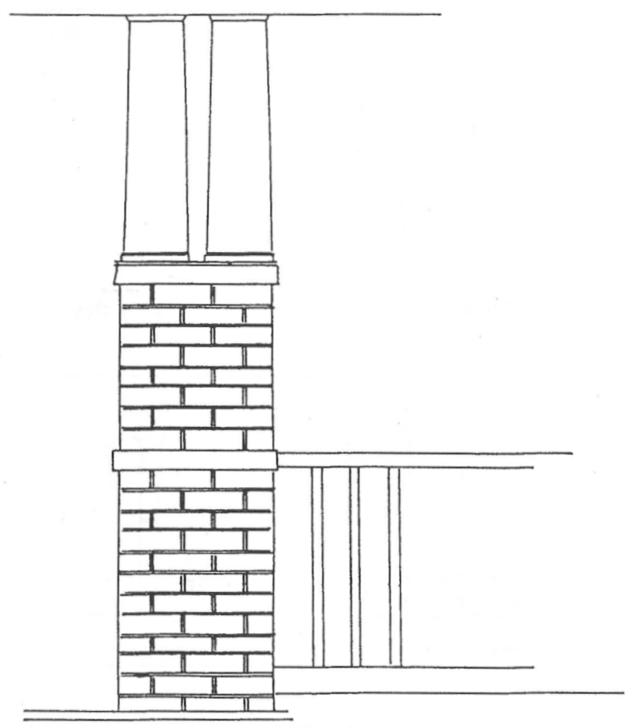
**411 Craven**
c. 1850



**500 Port Republic**
c. 1830



**601 Port Rebublic**
c. 1875



**1307 North**
c. 1905

# Chapter 3: The Beaufort Historic District: Background

The Code explicitly defines the boundaries of the local Beaufort Historic District as being equivalent to those of the National Landmark Historic District. Those boundaries are indicated on Map 2 (page 52). The Code states that the purpose of the Beaufort Historic District is:

> *"to promote the educational, cultural, and general welfare of the public through the preservation, protection and enhancement of old, historic or architecturally significant structures and areas of the City of Beaufort; and to maintain such structures and areas as visible reminders of the history and cultural heritage of the City, the State, and the Nation. The Historic District is a pedestrian-oriented area."*

504 Craven Street

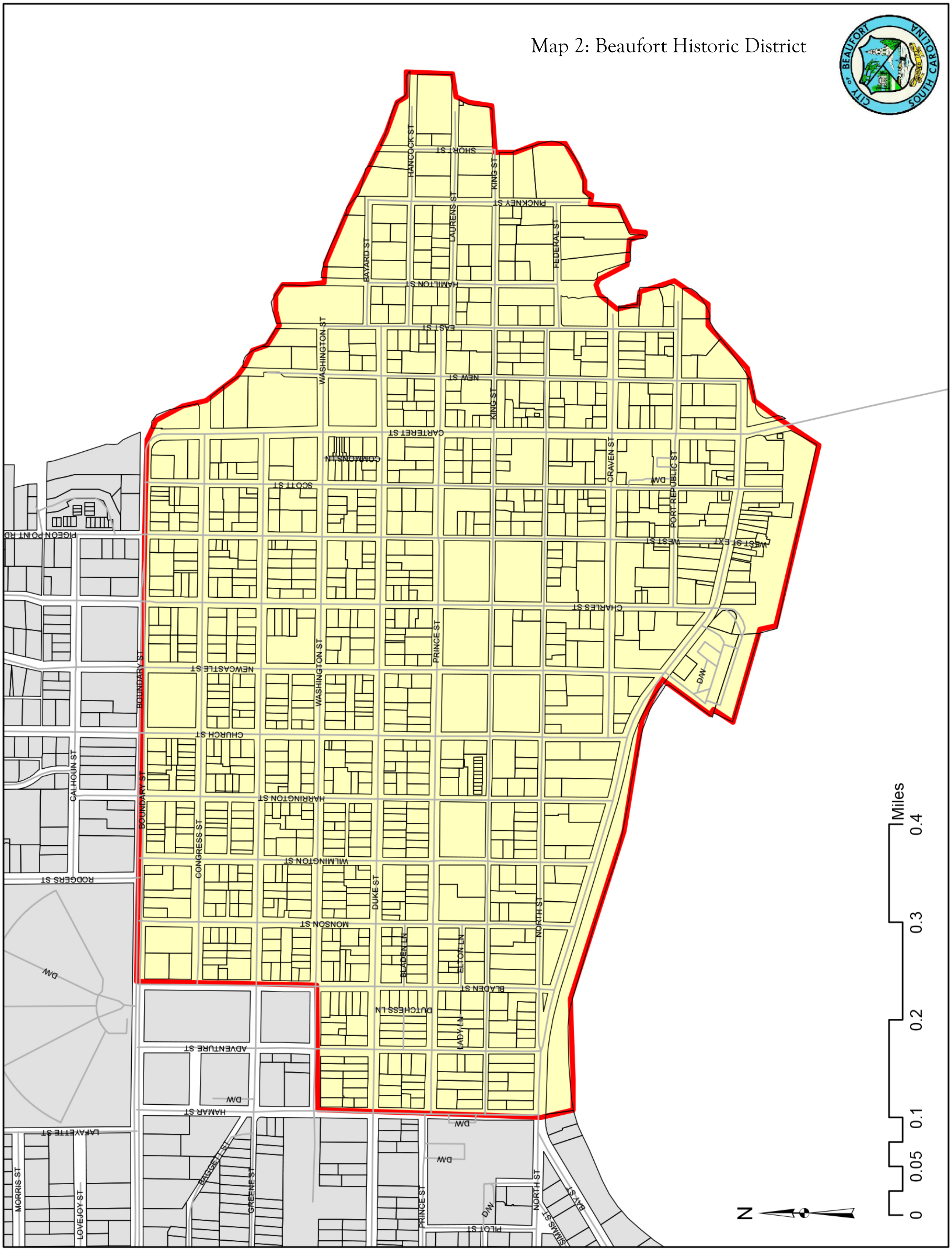

511 Prince Street

To achieve this purpose, the Code sets forth procedures and regulations by which the City will govern construction activities associated with all buildings located within the Historic District.

Please see the chapter on Regulatory Process in this Manual and refer to the Code for additional information regarding review of proposed construction in the Beaufort Historic District.

As noted, Map 2 (page 52) shows the equivalent boundaries of the local Beaufort Historic District and the National Landmark Historic District, within which the HRB is required to review new construction; modification to, or expansion of, existing structures;, relocation of any existing structure; and demolition or partial demolition of any structure. The Code adopts a number of documents for the HRB to use as guidelines in considering the appropriateness of a given project. In addition to this Manual, the Secretary of the Interior's Standards of Rehabilitation is included among these documents. Virtually every preservation or design guidelines document for a local Historic District in the United States has as their underlying philosophy the Secretary's Standards including this Manual. Understanding those *Standards* and their implications is thus critical for both the applicant for a building permit and the reviewer.

Berners Barnwell Sams House, 201 Laurens Street



Map 2: Beaufort Historic District

## Secretary of the Interior's Standards for Rehabilitation

It has become common practice for municipalities across the United States to incorporate reference to the Secretary of the Interior's *Standards for Rehabilitation* within the Code and regulations which govern the administration of construction activities affecting their historic districts and buildings. The *Standards*, which set forth approaches to the treatment of historic buildings, articulate basic philosophical principles which are fundamental to historic preservation and which have convincingly withstood the test of time.

The durability of the *Standards* is testimony not only to their basic soundness, but also to the inherent flexibility of their language. The *Standards* are not design guidelines. They provide to those involved with managing the treatment of historic buildings a shared philosophy and approach to the solution of problems. However, as written, and in and of themselves, they cannot provide a HRB with specific solutions for specific problems. In other words, the Standards inform judgment, but do not replace it.

This *Manual* has been written to recommend interventions that we believe are in keeping with the philosophy of the *Standards*. To help articulate that philosophy, what follows is a brief discussion of the *Standards* as they apply to the historical and architectural character of the Beaufort Historic District. In fact, both the *Manual* and this *Supplement* can be seen as an elaboration of the *Standards* as they apply to that character.

The language of the *Standards* is contained in National Park Service, United States Department of the Interior #36 CFR Park 67.

**The ten Standards are quoted in full as follows:**

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Standard 1, requiring *compatibility of use*, is the only Standard in which the impact of a proposed reuse of a historic building is addressed. (Questions of use are typically fully and appropriately addressed in the zoning Code and building codes.) The principle of this Standard - that a proposed reuse of a historic structure for purposes other than that for which it was initially designed should have minimal distinctive architectural consequences - is to a certain extent self-evident. That is to say, reuses that will clearly result in destructive architectural treatments are unacceptable. However, for reuses where the anticipated impact of a proposed reuse is not readily apparent, evaluation of the architectural treatment rather than the proposed use itself will still be required. In Beaufort, for example, in the case of single family dwellings converted to multi-family occupancy, such as 408 Hancock Street/707 East Street, the implementation of this reuse has had regrettable architectural results. In other cases, such as 500 Port Republic Street, such a reuse has been completed with no apparent negative effects.

**500 Port Republic Street**

Other examples include the Anchorage and 601 Bay Street which, respectively, demonstrate that reuse of a residence or bed and breakfast purposes can be achieved with little or no negative effect.

**408 Hancock / 707 East**

**The Anchorage, 1103 Bay Street**

Standard 2, recommending the *retention and preservation of character-defining features*, is one of several clear statements in the *Standards* which emphasize preservation of as much building fabric as possible. Thus, alterations that accommodate and work with existing original or historic building fabric are, under this Standard, clearly preferable to those that require removals of such fabric.

**708 King Street**

**713 Charles Streets**

Standard 3 recommends *historical honesty*, and is a clear endorsement of "true" versus "false" history. This Standard is thus the basis for the prevention of such practices as conjectural restoration of building features or the grafting of architectural features taken from one historic building onto another. This Standard also discourages relocation of historic buildings into or within the historic district. Such relocations seriously confuse the clarity of the District as a physical record.

**500 Washington Street**

Standard 4, which requires the *acknowledgment of physical evolution* of historic buildings, is a critical component in the evaluation of treatments for a historic building which has undergone many changes. This *Standard* not only accepts but values the fact that most historic buildings contain the record of their own evolution and thus are valuable records of changes in taste and use. This *Standard* would provide the basis for discouraging such practices as replacing historic metal roofing with wood shingles, even in cases where a wood shingle roof is known to have originally existed. It would also prevent the replacement of a late nineteenth century porch on an earlier house with a new porch similar to other porches of the vintage of the house.

**1201 Bay Street**

The clear implication of this *Standard* is that, unless it is intended that a building undergo an accurate restoration to a specific period based on adequate documentation, it is best to recommend repair and/or replacement of historic building features in kind, whether or not they are part of the building's original construction.

Standard 5 requires *preservation of the distinctive components* of historic buildings, and is a straightforward endorsement of preservation whenever possible; and Standard 6 requires repair rather than replacement where possible and, where it is not, visually matching replacements. These two Standards articulate the strong preference in preservation for retaining the real object, and not just something that looks like the real object. Projects such as the porch repairs at 603 Craven Street are in complete accord with these two Standards, and show conscientious retention of historic fabric and careful matching of new replacement materials.

**603 Craven Street**

Standard 7, by its *prohibition of damaging chemical and physical treatments*, reflects an awareness - often gained through painful experience - that certain treatments can irreversibly damage the historic fabric that the preceding *Standards* are intended to protect. Sandblasting in particular, whether of wood for paint removal or masonry for cleaning, can irretrievably alter the surface characteristics of historic materials and thereby destroy not only visual characteristics but physical ones as well.

Standard 8 requires *preservation and protection of archaeological resources*, and of course only comes into consideration when excavations are associated with a project. This *Standard* clearly recognizes that historic properties will in all likelihood have associated archaeological deposits, and recommends that efforts should be made to consider and protect those resources to the extent feasible. Obviously, common sense must dictate the extent to which this consideration affects the evaluation of permit applications for privately-funded projects. It should be noted, however, that in projects utilizing either Federal or State funds, archaeological mitigation may be required.

The goals of Standards 9 and 10 are *compatibility and reversibility of additions, alterations, and new construction*. Both Standards are intended to minimize the overall damage to historic fabric caused by building additions and to insure that new work should be differentiated from but compatible with old, in order to protect the historic integrity of the property.

**Garage at the Castle, 411 Craven Street. An example of appropriate new construction.**

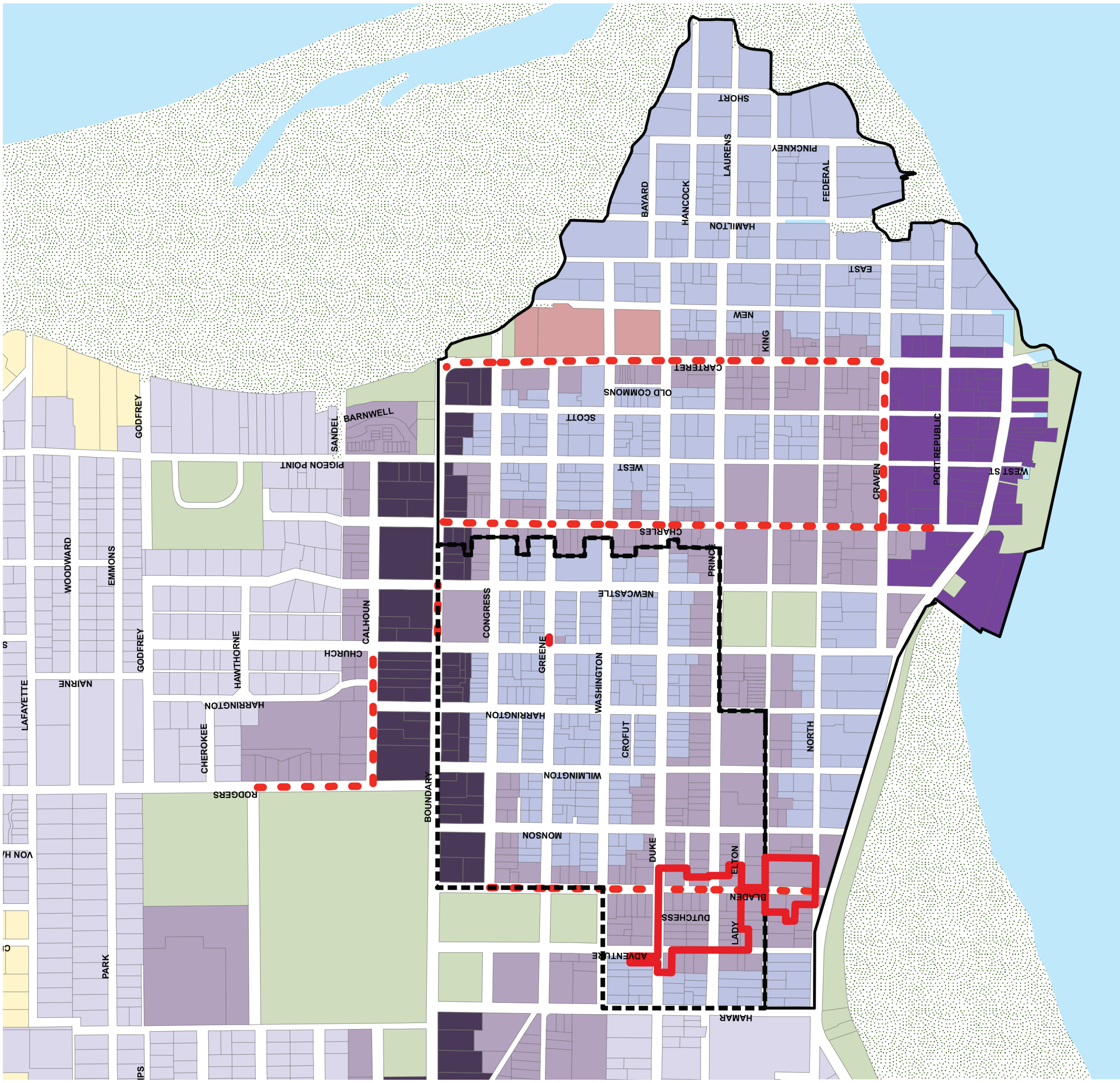
**400 Craven Street. While successful in being understood as new construction, this addition could be improved in terms of scale and fenestration patterns.**

It is important to reiterate that the Secretary of the Interior's *Standards for Rehabilitation* provide a philosophical framework for the evaluation of preservation activities. As summarized above, that framework is one which emphasizes preservation of historic building fabric, honesty of historical expression, and reversibility. It is a philosophical framework which assumes that historic buildings are repositories of not only visual satisfaction but of information, and that as such, it must be possible to "read" the information they contain without having it clouded by conjecture.

The validity of the *Standards'* clear orientation towards architectural continuity and historical integrity is in fact exemplified by the Beaufort Historic District itself, which, to a remarkably high degree, exhibits the continuous application of the philosophical framework on which they are based.

It must also be noted that although the *Standards* as written apply to buildings in their entirety, the regulations governing building permit activity in Beaufort require the input of the HRB for projects affecting only the exterior of structures, including when interior work will impact the exterior, as well as new construction and demolition or partial demolition within the Historic District.

Finally, it must be noted that the same Federal regulation which promulgates the Standards explicitly states that they are intended to be “applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility”. Thus, the level of craftsmanship and detail as well as the quality of materials that are proposed for any rehabilitation project should be commensurate with the structure to which they will be applied. From a preservation standpoint, successful rehabilitations neither “improve” the original design nor detract from it.




## Map 3: Beaufort Zoning Districts

**CITY OF BEAUFORT**

- HISTORIC DISTRICT - Conservation Neighborhood
- HISTORIC DISTRICT-Preservation Neighborhood
- Boundary Street Redevelopment
- Bladen Street Redevelopment
- Retail Overlay

# Chapter 4: The Regulatory Process

## Introduction

The general purposes of the Beaufort Code include promoting the public health, safety, convenience, order, prosperity, and general welfare of the District. To this end, specific purposes include facilitating the creation of a convenient, attractive, and harmonious community and protecting and preserving scenic, historic, or ecologically sensitive areas. The Code states the intent is to be consistent with the Comprehensive Plan and Master Plan which envisions a City with, among other goals, preservation of unique architectural and historic resources, balanced with sensitive infill and investment in the historic core.

To achieve its purposes in regard to Beaufort's historic resources, the Code primarily relies on two administrative tools: the Beaufort Historic District Overlay and the Historic District Review Board (HRB) to review development in the District. The former includes a portion of the city largely contiguous with the National Register Historic District, established in 1969 and made a National Historic Landmark in 1973 (with clarifications as outlined in the Code). It is within this district that the HRB is tasked with reviewing specific proposed projects and issuing a Certificate of Appropriateness as suitable. The HRB's issuance of a Certificate of Appropriateness is a necessary component of the permitting process. The HRB's decision to grant a Certificate of Appropriateness is based on the design guidelines for the Beaufort Historic District, included in the Manual and the Beaufort Code. The HRB thus reviews projects from an architectural and historical perspective, utilizing preservation and visual criteria; this Manual is intended to provide guidelines for these criteria.

**302 King Street**

The area known as the Beaufort Historic District Overlay contains within it two separate subdistricts (see Map 3, page 58). These include the Beaufort Preservation Neighborhood (BPN) and the Beaufort Conservation Neighborhood (BCN). The BCN is also often referred to as the Northwest Quadrant. These two subdistricts together form the larger Historic District but are subject to separate sets of Design Guidelines (BPN) or Design Principles (BCN) as outlined in this document. (See Appendix A for the Northwest Quadrant Design Principles.)

## Permitting Process

In the case of a permit application for a building inside the Beaufort Historic District, the City Administrator, typically the Director of Community Developement, will determine from the permit application whether the proposed work requires a Certificate of Appropriateness (COA). A COA is required for any construction activity in the historic district including new construction; modification to, or expansion of existing structures, including those that apply for the Bailey Bill Special Tax Assessment for Rehabilitated Historic Properties; relocation of any existing structure; or demolition or partial demolition of any structure. Typically, only work impacting the exterior of a structure is reviewed by the HRB, unless aspects of the interior work being undertaken will impact the exterior of the building. If a COA is required, the Administrator will determine, based on criteria outlined in the Code, whether the COA is Minor, Major, or a Design Exception. Minor COAs can be reviewed and either approved or denied by the City Administrator. Major COAs and Design Exceptions will be reviewed and either approved or denied by the HRB. Simple routine maintenance and repair of existing materials typically requires a Minor COA, but if changes to materials, including paint color, are to be undertaken, a Major COA may be required. Following Administrator and/or HRB approval, the permit application will move forward according to the procedures outlined in the Code.

This Manual is the primary document adopted for use by the City Council to guide the HRB in exercising its authority as granted by the Code. Additional documents adopted for use by the HRB include:

1. The "Northwest Quadrant Design Principles" included in this Manual and for use in the Beaufort Conservation Neighborhood.
2. The Secretary of the Interior's "Standards for

Rehabilitation" shall be utilized for review of all projects that modify a contributing structure.

3. The building Design Standards as outlined in the Code for review of all new construction.
4. The Historic District Infill Design Guidelines as outlined in the Code for review of all new construction.
5. Any special area policies adopted by the HRB.

As created by the Code, the HRB will meet publicly as determined by the Board and its officers to review applications for Certificates of Appropriateness. The powers and duties of the HRB, as well as its composition, membership terms, and procedures are outlined in the Beaufort Code.

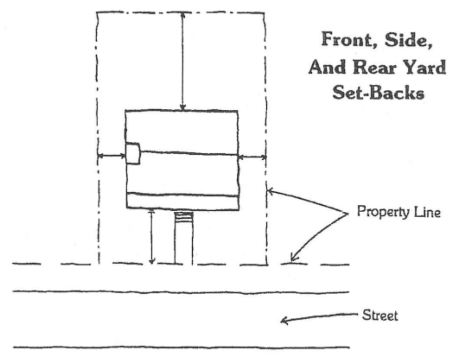
For all procedures related to the appeal of any HRB decision regarding an application for a Certificate of Appropriateness or Design Exception, see the Beaufort Code.

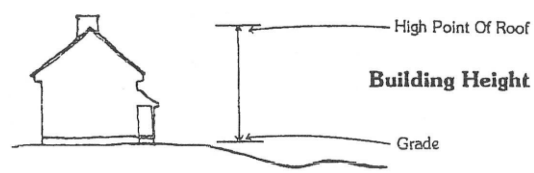
## Zoning Regulations and Requirements

For all projects within the City of Beaufort, especially for those involving new construction or change of use, the first layer of regulations and requirements that must be met during the permitting process may be found clearly specified in the Code. Its zoning requirements provide the most general guidelines with which new construction must comply, intended primarily to ensure compatible uses and to maintain minimum standards for light, air, and density within a given Zoning District.

1103 Craven Street

Zoning Districts have use and dimensional requirements with implications for the character of the Beaufort Historic District and for the two proposed Sub-districts within it. For example, the regulations for each of the various Zoning Districts included within the Beaufort Historic District establish front yard setbacks and building heights, which in and of themselves virtually define the "space" of the street. Similarly, their minimum lot areas, lot widths, and side and rear setbacks determine physical density, the proportion of built to open space. The specific dimensional limits for these various characteristics are outlined in the Code. It should be noted that a Design Exception can be granted by HRB. A Design Exception allows the HRB to authorize a variance of 35% from any numerical standard (except for Height and specific overlay district standards) set forth in Chapter 2 and 4 of the Code where unique characteristics of the project seeking permit justify deviation.




The Code suggests Height must correspond to the adjacent buildings that contribute to or complement the rhythm of the district. Previous ordinances suggested allowable variances of up to 10% of the height and width of adjacent existing historic structures. This may also be used as a guide by the HRB in considering Design Exceptions. HRB must consider all of these elements to determine if such an Exception would be compatible with its surroundings; have no adverse impact on other properties; and is consistent with other plans adopted by the City.

In addition to the above regulations, Section 8.4 of the Beaufort Code addresses the requirements regarding protection of archaeological resources in the City. See 8.4.1.B for the list of general requirements regarding Archaeological Impact Assessments and where they apply.

For additional information regarding Zoning, Districts, Variances, Environmental Protections, and Land Use, please refer to the Beaufort Code.

# Chapter 5: New Construction, Infill, Additions, and Demolition

## Introduction

New construction is a sign of economic health and confidence in Beaufort's future. It is an essential process in a vital community, representing the current phase of an evolution that has been ongoing since the inception of the town. How we construct, where we construct, and what we sacrifice of the old to make way for the new, all determine the mark that our current generation will leave on the man-made environment. If the imprint of new construction in Beaufort is to be a positive one, thoughtful and sensitive consideration must be given to each and every change in the architectural fabric of the community. Uncontrolled demolition, alteration, and new construction irretrievably alter the City; once gone, the ambiance of Beaufort could not be recaptured with any degree of authenticity.

Vacant Lot at 1100 Block of Charles Street. Represents loss of historic fabric and does nothing to contribute to vitality of Beaufort

The process of attrition is an extremely subtle one, often arousing public concern only at the point of crisis. Alterations and loss of building stock occur in small increments, and many times do not seem to warrant public protest in and of themselves. Herein lies the greatest threat to Beaufort, and other communities alike; the potential lack of recognition of the significance that these small, but continuous losses possess. Cumulatively, these changes are unparalleled in their degree of negative impact. It is extremely fortunate that the vast majority of Beaufort's residents, as well as the City administration, is cognizant both of the historic qualities of the town, and the potential threats to those qualities. This concern is manifested in Beaufort's zoning Code and the existence of an architectural review board.

601 Craven Street is an example of a sensitively designed addition.

Attempts to control the components of new construction and to insure continued preservation of historic structures, are often controversial public issues. This is generally the result of conflicts between the desire to maintain the individual's rights and the need to impose protective controls for the public good. In fact, however, most Codes related to the preservation of historic areas serve both purposes. While the prevention of irrevocable building loss may be the overriding intent of a preservation code, there is little doubt that it can also protect individual property owners. For example, a haphazard facade renovation most certainly affects the market value of neighboring properties, particularly in a community such as Beaufort where real estate values are directly related to the historic attractiveness of the town.

1008 Duke Street. Inappropriate facade alterations can reduce "curb appeal" for the building in question and its neighbors

Preservation Codes, and the review bodies that enforce them, must strive to achieve a balance between essential restrictions and the freedom necessary to encourage creative and harmonious design. Overly restrictive Codes may result in a proliferation of new structures which unsuccessfully imitate the old, or at best, lack inspiration and innovation. Conversely, a total lack of enforcement powers offers no protection to the historic community.

Beaufort's current (as of July 10, 2018) Code provides for an assessment of a proposed building's appropriateness by an architectural review board. The Code outlines design guidelines for infill construction that outline desirable characteristics that should be incorporated and damaging design approaches that should be avoided. Most certainly, new construction in Beaufort must go beyond the aspect of "form follows function," and blend harmoniously with the historic fabric of the town. However, passing judgment on new construction requires that the review board build upon the Code with the additional documents adopted by the Code to assist the HRB, including this Manual, and take into account the principles and components inherent in the design process in order to render informed, objective decisions. If the board is to serve as an implement of positive change rather than an impediment to community growth, it must also be prepared to offer constructive criticism and design alternatives which are historically acceptable.

The following section discusses the design components which should be taken into consideration in evaluating proposed structures within the Beaufort Historic District. These guidelines emphasize the "principles" involved in good design as elements which can be objectively assessed.

**601 Craven Street**

It is the intention of this section to provide the review board with the information needed for it to assist the property owner and builder by guiding the direction of new construction. Sample designs, specific design restrictions, and other overly inhibitive requirements are intentionally avoided since such oppressive recommendations seriously limit the potential quality to be realized in creative and innovative design.

Similar flexibility is desirable for signage guidelines. If too strict, such guidelines have the tendency to relate signs to each other rather than to the buildings they serve. Once again, an awareness of the basic components of good signage should help to foster sound judgment on the part of the review board. An understanding of the general historical development of American storefront and signage design is particularly useful in this regard. A brief account of that development is described in this chapter.

## New Construction - Design Criteria

All buildings possess a number of common elements which combine to express the structure both as an entity and as a part of the larger community. No building is so insulated from its surroundings as to avoid an impact on the townscape, whether that impact is positive, negative, or neutral. The principle of protecting the integrity of the Beaufort Historic District as a whole, as outlined and defined in Section 4.7.2 of the Beaufort Code, can be evaluated through seven guidelines:

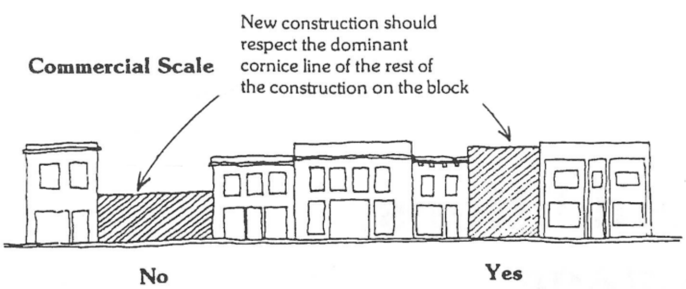
1) Location
2) Design
3) Setting
4) Materials
5) Workmanship
6) Feeling
7) Association.

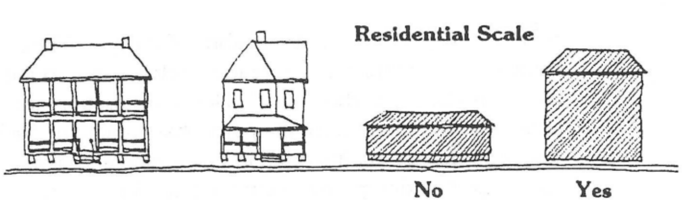
This integrity of the District is protected by reviewing an individual building's design elements as described below. When these elements are identified and their interrelatedness defined, they can be used by the review board in evaluating the appropriateness of proposed construction. In so doing, the board, or individual homeowner, can avoid wholly subjective responses in their appraisal of new buildings.

The basic elements of exterior building design consist of scale, absolute size, massing, orientation, proportions, materials, form, and siting. Each of these design components, along with their roles in assessing new construction, is discussed below.

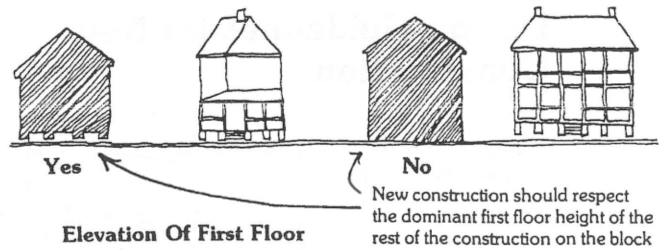
**Scale** - The "scale" of a building is its degree of relatedness to the size and proportions of both the human body and adjacent construction. The following factors affect a building's scale.

**Cornice or eave height** - New construction should reflect the dominant cornice and roof heights of adjacent buildings. This guideline becomes more important as a given street increases in density. New construction, especially in such densely built streets as 700-900 Bay or 500-600 Craven, should not ignore the dominant cornice height of adjacent buildings. New construction disrupting this line, such as the unfortunate example of 719 Bay, destroys the rhythm of the street. While inordinately low buildings create a void at the second floor level that interrupts the feeling of enclosure, disproportionately tall buildings will overpower the majority of the early structures. In some instances, streetscapes have evolved in such a way that a rhythm of varying cornice heights exist. Infill construction should be scaled to augment this rhythm, falling into the pattern of height variations if one exists. In these circumstances, a one-story building between two-story buildings may be appropriate. In cases where the street does not have a dominant or discernible rhythm of cornice heights, the decisions of the board should be more affected by the considerations of absolute height and massing described in subsequent sections.

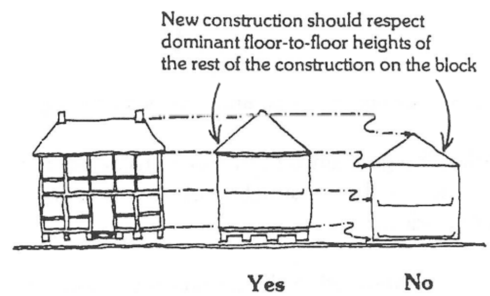



**Elevation of first floor** - The typical residential street in the Historic District is fronted by houses with prominent steps leading to raised first floor porches. These residential streetscapes would suffer greatly from the impact of any new construction with an on-grade entry. Commercial streetscapes, with increased accessibility requirements will call for a different approach. The raised floor is still an excellent response to the climatic conditions of Beaufort (see "Energy") and should be encouraged for new construction wherever possible.




**Floor-to-floor heights** - This important element of scale is often ignored in new construction which tends toward lower ceiling heights. The loftier rooms of the nineteenth century provided a far more appropriate response to climatic conditions. Where a relatively consistent floor-to-floor height is expressed in the facades of a given street, a new construction should be encouraged to conform.

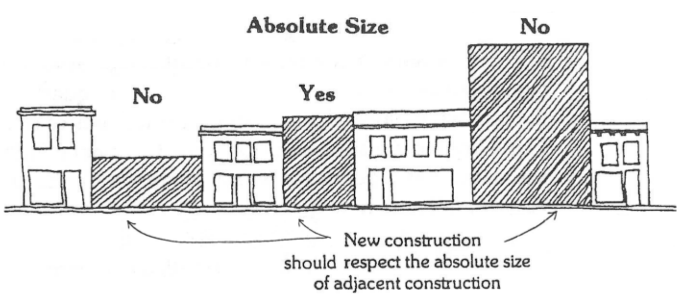



**Scale: Floor-to-Floor Heights**

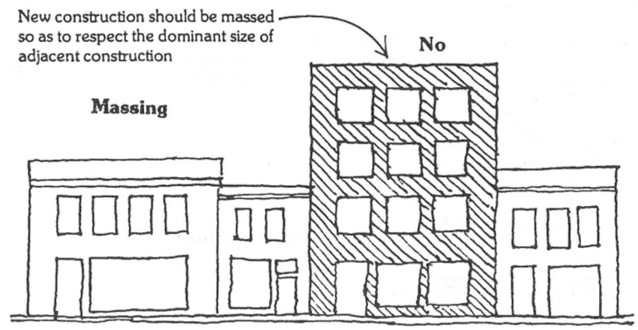
**Bays, windows, and doors** - The scale of a building is strongly affected by proportions, both of the building as a whole, and of its principal facade components. Proportions, in turn, are largely dictated by the height/width relationships of door openings, window openings, and porch column spacings. These features also divide the building visually into what are commonly termed "bays." For example, a first floor facade which contains four windows and a central door is generally referred to as "five bay." The facade of a proposed building should draw upon the proportion and number of bays contained in neighboring structures, if it is to appear compatible with its surroundings.

**Absolute Size** - When the scale of neighborhood buildings, or those of an entire community are relatively consistent, new construction should be restricted from drastically altering these relationships. In the case of Beaufort, the two and three story structure is the norm, and structures which digress from this standard to any great degree seriously impact the Beaufort Historic District. Because of this relative consistency, some limitations can be placed on the range of overall acceptable sizes of new buildings. In general, the Code dictates building height in regards to stories and overall height, but through Design Exceptions and the adoption of this Manual, there can be some flexibility as determined by the HRB in service of the overall goals of the Historic District. This applies equally to commercial and residential structures. Obviously, there may exist circumstances where exceptions must be considered. Specific uses, such as development projects critical to Beaufort's economy, etc. may dictate structures of larger scale, mid-to-high density design.

Each of these situations must be evaluated on its own merits, and this impact upon the District carefully weighed. If large scale construction is to be allowed, particular attention should be given to locational aspects, siting, setbacks, and facade treatments of the proposed building. This situation is discussed in more detail under a subsequent section on "High Density Construction."




**Massing** - Massing refers to the relationship between solids and voids, as well as the differentiation of planes (i.e. projections) of a facade. The surface of a building is made up of "solids" (the siding or walling) and "voids" (window and door openings). The relationship between these two areas, combined with the three dimensional aspects of projecting bays and overhangs defines the "mass" of a building. Large overhangs, small window areas, and expansive brick or stucco walls lend a feeling of weight and solidarity to a structure - vis-a-vis the term "massive." Conversely, large expansive windows, light trim, and vertically elongated elements create a feeling of lightness and delicacy. Obviously, a new one-story structure composed of windowless masonry walls would severely conflict with a neighboring Queen Anne cottage. However, the example need not be this extreme to create discord between the facades of a given street. New facades should attempt to relay the feeling of either lightness or weight of its neighboring structures through the use of similar massing techniques.



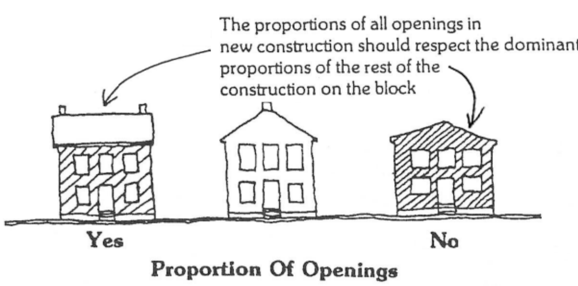

**800 Block of Bay Street illustrates both Absolute Size and Massing. Heights are generally similar and despite the porches and recessed facade, the massing is perceived as consistent.**

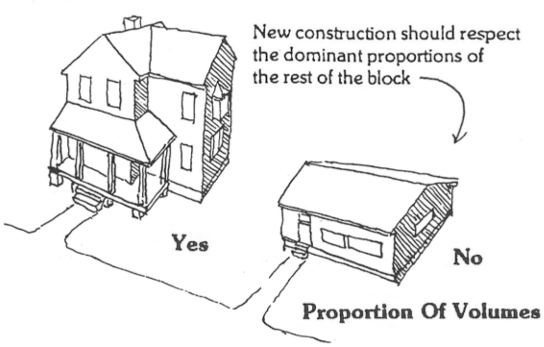
**Orientation** - Principal facades of new construction should be oriented in the same direction as the rest of the buildings on a street. Facades of new construction on a corner site should differentiate between the two streets. That is to say, new construction with two primary facades or two relatively undifferentiated primary facades is inappropriate. The primary facade should face the larger street similar to its neighbors. The secondary facade of the corner lot should be visually differentiated from the primary facade. In Beaufort residential construction, this hierarchy of orientation is found in the prevalence of south-facing primary facades and a strict north-south/east-west street grid.

**Proportions** - New construction should relate to the dominant proportions of the styles present in its immediate neighborhood. The proposed design should pay close attention to height/width ratios of overall building proportions as well as for doors, windows, and porch bays. A new structure should emulate the proportions of the major elements of its early neighbors to the degree practicable.

500 Port Republic Street. The east addition has appropriate proportions.

500 Port Republic Addition




**Materials** - Certain materials and design treatments are so destructive of the visual texture of the District that their use should be strongly discouraged:

- exposed concrete masonry units
- painted concrete masonry units
- ornamental pierced concrete masonry screens and walls
- "antiqued" brick
- vinyl and metal siding
- wrought iron porch columns
- exposed chain link fencing
- "astroturf" porch flooring
- flush mounted exterior doors
- inappropriate window treatments:
  - jalousie, awning, and hopper windows
  - glass block
  - picture windows
  - windows with horizontal glazing

See Code for additional material information.

A sympathetic use of proper construction materials is perhaps the most obvious and direct means of achieving a relationship between old and new buildings. It is fundamental in creating harmony between neighboring structures, although success is dependent upon more than generalized material similarities. It is inadequate to assume that all new brick masonry is complementary to all existing brick buildings. Harmony is achieved when a variety of brick elements complement each other in terms of color, tooling, craftsmanship, size, and applicability of the material to the function it performs. The same is true of wood siding, trim, stucco, roofing materials, and so on through the spectrum of building products.

It cannot be expected that the materials used in new construction will replicate the old in detail. Furthermore, it is not suggested that new construction attempt to imitate historic structures through "reproduction" facades. Nonetheless, a sympathetic treatment is necessary in which new materials are selected on the basis of color, texture and scale similarities to neighboring properties.

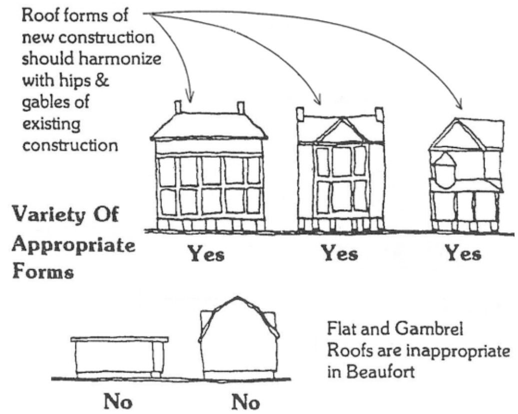
Close observation of the buildings in the District will reveal characteristic materials as well as their principal historic uses. Through this effort of comparing early buildings, the review board will come to recognize the sizes, shapes, colors, and textures most commonly associated with the predominant historic materials in the District. With this awareness, the board can make objective judgments on the compatibility of new building materials.

**Forms** - Many of the exterior elements of historic structures are significant features because of their form, as well as proportion and detail. These forms often characterize particular styles and building periods, and consequently aid the layman and professional alike in recognizing the historicity of these structures. Because these forms can be significant and representative elements of a building, neighborhood, or entire community, they should be taken into consideration by modern construction.

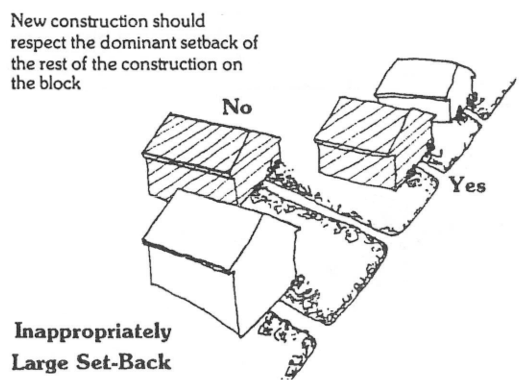
Some of the more identifiable and prominent "forms" reflected in a building are found in roof configurations (e.g. hips or gables), projecting bays or ells (which often reflect the overall floor plan), the shapes of window and door heads, architectural chimneys, and overall porch configurations. New construction can often incorporate these forms in a simplified, contemporary manner, which contributes to the continuum of the form without falsification of design. Just as there is a valid climatic purpose in continuing the principal of raised first floors in Beaufort, similar functional bases exist for incorporating many of the early architectural forms. For example, projecting facade bays of many Queen Anne houses allow a significant increase in natural light through a greater window area. Arched window heads, beyond stylistic considerations, are an honest expression of an appropriate structural configuration of brick.

Combining the principles of form and proportion, horizontal bands of windows, flat or gambrel roofs, "Colonial" bay windows, etc., are inappropriate elements in the District. Every attempt should be made to encourage the continued incorporation of historic forms into new construction, wherever a valid function for their use exists, and where they can be valuable assets to the spatial requirements of the building. It should be emphasized, however, that these forms should be simplified or adapted as necessary to reflect the qualities of good contemporary design.

**Example of Colonial Bay Windows - Typically Inappropriate in the District**

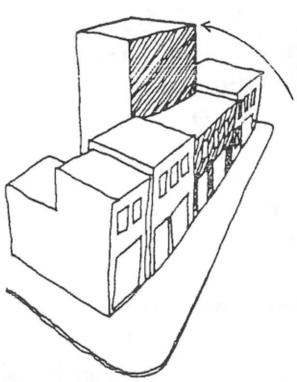



**Siting** - New construction in the Beaufort Historic District should respect the dominant setback line of existing construction, over and above what might be the setback lines prescribed in the Code. A street which is faced by residences with generous front yards is significantly impaired by new construction which abuts the public sidewalk. In addition, the landscape palette of new construction should not be discordant with that of the rest of the town (see "Landscaping").
On a purely practical level, the review board should request information on the expected mature size of any proposed tree for new landscaping. Trees should not be planted so close to each other as to inhibit their growth in the future, nor should they have the potential for physical interference with adjacent construction.



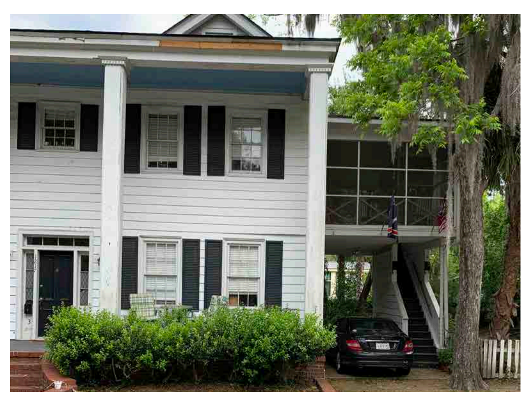

**High Density Construction** - Per the Beaufort Code, higher density construction (greater than three stories, no setbacks) is not permitted in much of the Historic District. Exceptions include the Downtown Commercial area which allows 3.5 story buildings with no setbacks (refer to the Code), specific Redevelopment Overlay Districts, and by Special Exception. In the event that such construction is approved, it should, at the very least, conform to the following design and locational parameters. The below guidelines should be considered, in conjunction with the Code, when evaluating how proposed projects can be best incorporated into the Historic District.

- Large scale structures should be set back, preferably beyond the facade lines of adjacent buildings in residential areas, to avoid their becoming the dominant element in a vista or streetscape. Large scale plantings, such as live oaks, can assist in camouflaging upper stories from the pedestrian's vantage point. Large scale structures along a period commercial streetscape should be strongly discouraged. If, however, code allows for a larger structure, the upper stories of the facade should be stepped back. From the pedestrian's view on the street, the facade should thus appear consistent in height and proportions with neighboring buildings. The lowermost two-to-three stories should follow the building line of the street and should not create a setback, or gap, in the continuity of the commercial structures.




**Set-Back For Large Scale Construction**

- "Intra-block" areas should be efficiently utilized for the majority of the building area. The central portions of blocks within Beaufort's commercial area are inefficiently utilized at present. Higher density construction should take advantage of this volume. The degree of frontage of such structures on the streetscape should be limited to the height and width of typical commercial row structures in Beaufort. Such restrictions will encourage both stepbacks in the upper facade stories and more intense utilization of inner block areas.
- The design factors of scale, materials, proportions, etc. outlined in this section should be applied equally to larger scale construction.
- Prior to admitting such construction within the District, the review board and City administration should require that an effort be made to seek acceptable alternative sites beyond the boundaries of the District. Assistance should be provided to the owner/ developer in locating such sites as will be mutually beneficial to the town and the property owner.
- No development or large scale construction should be permitted which is predicated upon demolition of buildings included in the Contributing Structures list for its implementation.
- Where multi-story structures include one or more stories devoted to mechanical and/or storage space, designs should be encouraged which allow these facilities to be housed in an ell, or wing, thus reducing the overall height requirements. Height can also be limited by incorporating sub-grade, or basement, levels where high water tables do not present a problem.
- Within the District, locations should be sought which best accommodate larger scale structures; e.g. areas previously intruded upon by modern construction; large lots which can be easily screened; areas containing few or no significant historic structures; areas which can best accommodate parking facilities, etc. In no case should over-scaled structures be located so as to block major vistas, particularly at the terminus of streets or in such a way that they become the dominant visible architectural massing of an area.
- Many high density buildings require a substantial amount of associated parking. This can be a more significant detriment than the building itself and Beaufort cannot afford to lose additional early building stock to parking lots. Parking should either be accommodated within the structure, in an intra-block lot (screened from the street), or limited to available on-street parking spaces.



**Attached Secondary Structure on North Street**

Of course, it is highly desirable to avoid large scale construction altogether by limiting the height, volume and/or footprint area of new buildings. However, exceptions will inevitably occur as attested to by several existing banks and motels in the commercial sector of the District. It should be noted that "large scale" construction, as discussed here, applies equally to one or two story structures of extensive floor area. Extremely long, low continuous buildings, such as "Big Box" stores, can negatively impact the District to the same degree as mid-to-high rise structures.

**Secondary Structures** - Secondary structures include but are not limited to garages, studios, and guest houses. Similar to additions, they should be subordinate to the primary structure on the lot and visually complementary to the existing building. New secondary structures should in no way compromise the historic character of the existing structure on the lot. Ideally, the secondary structure should be located so as not to be visible from the street. In any case, secondary structures should be located as far to the rear of a lot as possible.

**Detached Garage at 501 Duke Street**

Secondary structures should be free-standing and not linked to the primary structure. The design guidelines above regarding proportions, massing, materials, form, orientation, and siting apply to secondary structures as well.

**Bay Street Facade Rehabilitation** - The City of Beaufort has taken a major step toward the revitalization of its commercial district with the completion of the waterfront park development. The commercial area is largely limited to Bay, Carteret, Port Republic, Bladen, and Charles Streets. (Note that a portion of Bladen Street in not within the Beaufort Historic District.) Of these, the latter two have lost a great deal of their original character through the demolition of early structures, new construction and a proliferation of parking lots. Bay Street, however, retains much of its early appearance, with numerous facades partially or wholly intact. While "remodelings" and new construction have taken place, the opportunity exists to preserve an historically significant commercial street and regain a period setting in mood if not complete physical detail.

Toward this end, schematic facade renovation designs were prepared as a part of these guidelines, illustrating proposed rehabilitative measures for each storefront on Bay Street. Also included are designs for all building elevations fronting on the waterfront park. Since specific building usages are transient, the schematic designs represent appropriate treatments for each particular building based on extant fabric and architectural style, rather than current function. The scope of the project did not allow for detailed structural or use analysis, nor for extensive documentary or investigatory research. Consequently, the designs depict "suggested" levels of treatment for each facade which are intended as examples of appropriate rehabilitation. The designs reflect four principles which should be adhered to in any renovation work.

- Do not remove, demolish, or obliterate extant historic fabric, or alter the major forms of the building.
- Respect the period and style of each structure. Do not incorporate historically inappropriate or contradictory stylistic elements in an attempt to give the appearance of an earlier style. For example, do not include Victorian "gingerbread" trim on a 1930s building. Contemporary structures should be treated as such.
- Designs for renovation should take into consideration the impact that the work will have on neighboring structures, as well as the practical merchandising needs of the owner or tenant.
- Preservation is preferable to restoration, which is in turn, highly preferable to reconstruction. The complete restoration of a building facade should only be considered when 1) detailed, accurate information exists regarding its early appearance, 2) a substantial amount of original material exists, and 3) it does not dictate the removal of significant historical material from later periods.

For additional guidance, refer to the seven integrity guidelines discussed earlier in this chapter and Section 4.7.2 of the Beaufort Code.

## Additions to Existing Buildings

Additions to existing buildings in the Beaufort Historic District include construction that results in the addition of habitable space, and porches and decks. The design guidelines for new construction above apply to additions to existing buildings, with the exception that instead of compatibility and relationship to its neighbors, an addition has the original building as its strongest context and precedent. Historic additions, many of which are well done, are prevalent in the District and also may serve as precedents for the design of new additions.

In general, to conform to the Secretary of the Interior's Standards #9 and #10, an addition to a building in the proposed Beaufort Historic District should be subordinate to the original building, and should read clearly as an addition. Standard #9 states that contemporary design and additions to existing properties should not destroy significant architectural fabric and should be compatible with the design of the property and neighborhood. Standard #10 states that wherever possible additions to structures shall be done so that future removal will leave unimpaired the essential form and integrity of the historic structure.

Specific guidelines to be considered in permit applications for additions to structures under HRB jurisdiction are as follows:

**Scale** - An addition should be smaller than the original building.


Scale Of Addition

**Elevation of the first floor** - The floor lines of an addition may be equal to or slightly lower than the original building, but should not be higher than those of the original building.

**Floor-to-floor heights** - As above, these may be equal to or slightly less than the original building, but should not be taller than those of the original building.


First Floor And Floor-To-Floor Heights Of Additions

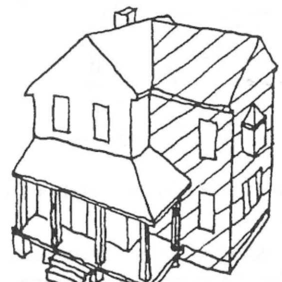
**Massing** - The massing of an addition should complement, but not necessarily be the same as the original building. For example, a glassed-in porch on a rear facade may be a "lighter" variation of the original facade massing. However, a solidly infilled rear porch is not appropriate.

Massing at Rear of 501 Duke Street

**Orientation** - The addition should be located, planned, and detailed so as not to confuse the dominant historic orientation of the original building. The addition may or may not have its own hierarchy of facades, but it must not have the effect of creating a primary facade out of a secondary facade. The addition should not assert itself visually, but should be screened from the street as much as possible.

400 Craven Street

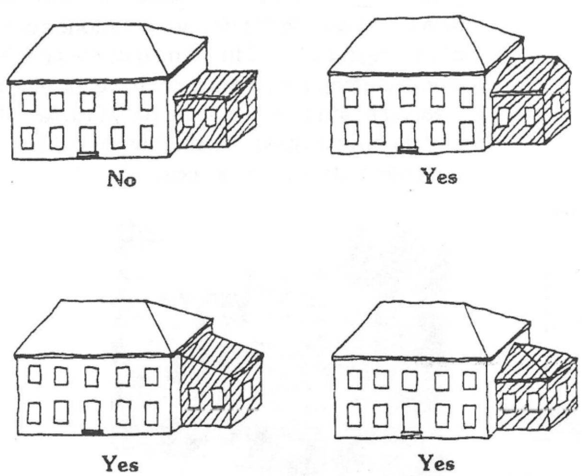
**Proportions** - The proportions of the addition should be complementary to the proportions of the original house. A long, low addition to a vertical house might not be as appropriate as a two-story ell at the back of the building. The addition should be smaller in proportion to the original building, both in its overall square footage and in its footprint. Ideally, the addition should not exceed approximately half of the original building's total floor area or footprint.



Appropriately Proportioned Addition

**Materials** - An addition may be made of the same material as the original building, or it may be made of subordinate material. A brick house should have a brick or wood addition, but a wood house should not have a brick addition. The material restrictions in the section on new construction, above, apply to additions to existing construction.

**Forms** - Similar to proportions, the form of additions should be complementary to the overall form of the house. A shed roof addition is appropriate on a gable-roofed or hip-roofed structure, as would be a gable or hip roof. Flat roofs are rarely appropriate for additions in the Beaufort Historic District.




Forms Of Additions

**Siting** - Additions should be sited to have least visual impact from the street. There should be no new additions to front facades, and additions to side facades should be held back as far as possible from the street, but one bay at a minimum. Rear additions are most appropriate. The following guidelines are additional guidelines for additions to existing construction:

- New front porches may not be added to a historic building without precedent for a porch.
- Front porches should not be enclosed, except as per Chapter 10 of this Manual.

- Roof-top additions may not be constructed. These would disturb the proportions of the building and the historic form of the roof.

- The addition of dormer windows and skylights is not recommended, but may be acceptable if kept to the rear of the building.

- The design of the addition should make clear what is new and what is original. This may be done in a variety of ways, including simplifying of details, changing materials, slightly altering proportions, etc.

- Decks are inappropriate on front or side facades and when on rear facades should be screened with landscaping completely from the street.

- The architectural style of an addition should not be older than the style of the existing building.

## Demolition

The pressure to demolish buildings within any historic district is a regrettable fact of life. Either through catastrophic damage or through years of neglect, there are and will continue to develop situations when a building is deemed beyond repair and "not worth" preserving. In addition, as the Beaufort Historic District continues to attract new residents and businesses, there may be pressure to "make way" for the "progress" that new construction is believed by some to represent.

Whereas issues of design guidelines for preservation and new construction are driven by architectural and aesthetic considerations, demolition, especially of repairable structures, is more frequently an economic issue. Indeed, the only other legitimate reason for consideration of

demolition is if the building poses a threat to public safety. In considering applications for demolition, especially those based on economic or development considerations, the HRB must weigh issues beyond matters of architectural appropriateness, for demolition of an historic building in an Historic District is rarely if ever appropriate. Rather, the HRB must be convinced that all possible means of saving the building have been exhausted.
Valiant efforts to preserve buildings threatened by demolition have been successful in the past. These include the Historic Beaufort Foundation's revolving fund that has purchased, renovated, and then sold property, private efforts to do the same, and, as an absolute last resort, moving threatened buildings to other locations.

The Beaufort Code currently includes several provisions regarding the demolition of contributing primary and accessory structures within the Historic District. These include public notification of the demolition application and holding a public hearing about the application. The HRB may also request from the Administrator a report on the state of repair and structural stability of the structure before deciding on approval, denial, or postponement. Please see the Code for additional information.

**1108 West Street. "Mothballing" a structure, or protecting a vacant building from weather and vandalism, can buy precious time when seeking a new owner or use for a building.**

# Masonry

# Chapter 6: Brick and Chimneys

## Introduction / Brick

Masonry construction plays an important and varied role in the architecture of Beaufort. Its strength, durability, attractive appearance, and relatively low maintenance make masonry construction an important subject of preservation efforts, as well as, in certain circumstances, a desirable material for new construction or additions. Its repeated use for foundation piers, chimneys, and garden walls makes a strong visual contribution to the texture of the Historic District. Obscured by stucco veneer, it offers invisible service as the structural material for the walls of such key buildings as the Joseph Johnson House and St. Helena's Episcopal Church. Exposed brick buildings such as the Edward Means House, Morrall's Furniture, or the Carteret Methodist Church are in many cases of good to outstanding architectural quality with pivotal positive impact on their immediate neighborhood.

**Brick Wall at 500 Block of Newcastle Street. A good example of planting helping a brick wall blend in with its surroundings.**

**Brick Wall at 600 Block of Pinckney Street. Another good example of a lace brick wall sensitively suited to its site.**

Unfortunately, much new brick construction in Beaufort does not have this positive impact. It is clear that, in many cases, brick has been chosen for use as a material in new construction because of its historical associations. It is also clear, however, that the use of brick without careful consideration to detail and scale mocks any associations the brick is trying to achieve. Less prominent, but more pervasive, is the popularity throughout the District of a modern brick which is manufactured with stains and color variations in an attempt to look "historic." To a trained eye the insistent regularity of size and the structural hardness of these "antiqued" brick belies their visual intentions. Also of negative impact throughout the District is the frequent use of modern brick steps in residential applications for which wood is more appropriate.

**811 King Street. Porch steps should not typically be built of brick, but the cheek walls and metal railings in this example emphasize the incongruity.**

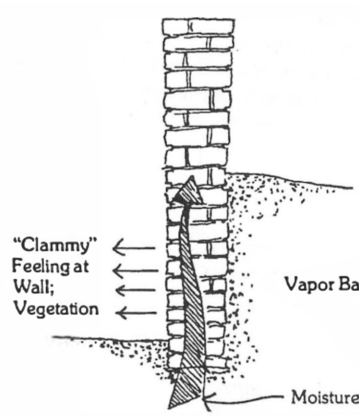
Equally serious negative impact stems from casual or inadequate maintenance of the important historic brick features throughout the District. Common problems include cracking and settling piers, inadequate patching, potentially harmful vegetation, or poor pointing. Brick is a material of great longevity, but it is not invulnerable. The uses to which it is put are varied: structural in the case of piers and wall, moisture protection in the case of walls, and smoke removal in the case of chimneys. Its ability to perform these different tasks depends on cautious and well-informed maintenance.

## MOISTURE-RELATED CONDITIONS

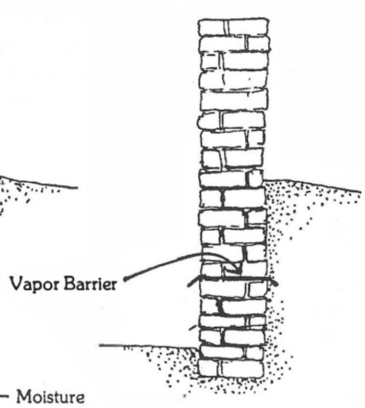
### Rising Damp

This is a common and serious problem in areas subject to a high water table, including Beaufort. Dampness in the soil, which is extensive given Beaufort's particular climatic and soil conditions, is absorbed and drawn upwards by capillary action into the masonry wall itself. Brick and mortar are both porous materials with many minute, interconnected voids which allow moisture to migrate through them. Since a brick wall "breathes," moisture within the wall will seek to migrate to the nearest exposed surface to escape, resulting in the characteristic moist, clammy feeling at or near the base of a wall. The moist feeling is often accompanied by minute vegetation and/or mold which finds this environment hospitable and which often imparts a definite stain to the brick.

While moss and mold secrete acidic compounds which may prove destructive to brick masonry over time, the crystallization of soluble salts carried by rising damp is much more damaging. Moisture traveling upward through the masonry dissolves a variety of soluble salts from the mortar and the masonry units themselves, carrying them upward as it seeks to reach an evaporation point. As the moisture evaporates, the dissolved salts recrystallize within the pores of the masonry, exerting pressure and fracturing the bonds between masonry particles. This phenomenon often manifests itself as an accumulation of brick and mortar dust at the base of the wall and/or a visible "tide line" of white, powdery salts across the face of the wall with powdering brick below.



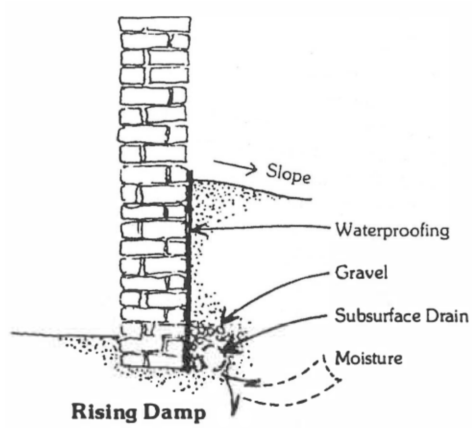

Rising Damp




Rising Damp

The problem of rising damp is often confronted directly in new construction by the installation of a vapor barrier of metal, polyethylene, or heavy paper which acts as a dam to the rising moisture. In cases where rising damp is not continuous, this is an effective technique. However, in a location with the climatic and soil conditions of Beaufort, this could have the effect of permanently concentrating moisture in one location, thus promoting deterioration of the brick.

In existing construction, the problem of rising damp may be alleviated in part by providing an intentional path of least resistance through which the moisture may escape. This approach usually consists of a gravel bed and subsurface drain installed along the perimeter of the building, in conjunction with waterproofing of all below-grade wall surfaces. This is an effective technique, but it is laborious in that it requires a continuous trench to be dug around the perimeter of the wall to the depth of the bottom of the foundation. (Be sure to shore the foundation wall during this work). Where it is impractical or not feasible to expose an entire wall, a perimeter drain may be installed in a reasonably effective manner, utilizing a shallow (2 foot - 4 foot) trench containing a perforated pipe and fill. While some ground water may continue to affect the foundation wall below the level of the trench, the degree of saturation will be reduced. It is imperative for the perforated drain line to extend beyond the perimeter of the house and to carry the water to an acceptable discharge point.




Rising Damp

Other measures to reduce rising damp include proper grading of surrounding soil to slope away from the building line, minimizing foundation plantings of shrubbery and ground covers that inhibit evaporation of moisture from the soil around the foundation and installation of splash blocks or gutter extensions to direct rainwater away from the foundation.

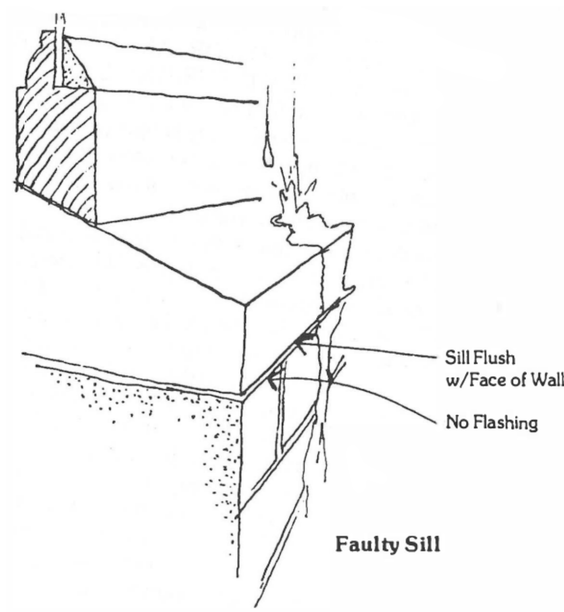
## Failed Mortar and Sealant Joints

Open and deteriorated mortar joints provide a direct pathway for moisture to enter a masonry wall, damaging both the brick and interior finishes in the vicinity. Even joints exhibiting only hairline cracks between brick and mortar may admit significant quantities of water, particularly if located on a façade subject to wind-blown rain. Periodic inspection and spot pointing of damaged joints is critical to maintaining the integrity of brick masonry walls. See the "Brick Repair" section for specific information regarding appropriate pointing materials and techniques.

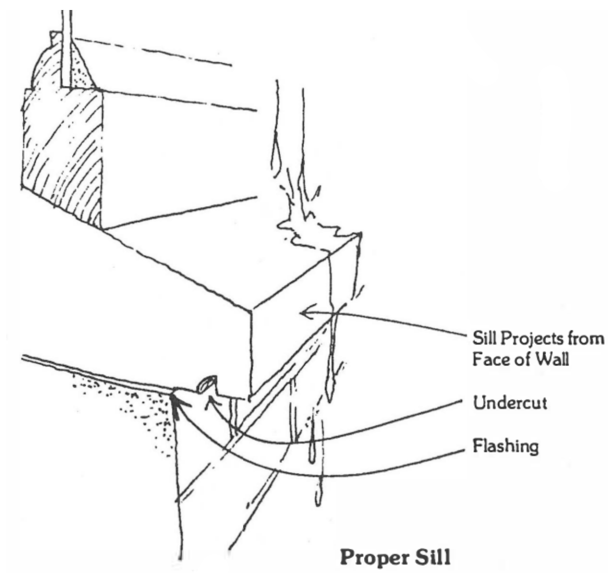
Flexible joint sealants are commonly used to waterproof exterior joints that are subject to cyclical movement generally associated with both daily and seasonal changes in temperature and humidity. Typical installations include joints between dissimilar materials, Upward-facing parapet joints, reglets where flashing is let into masonry walls and at the perimeter joints between window and door frames and masonry openings. The service life of sealants varies widely depending the composition of the material and the severity of the conditions to which it is exposed. UV light is particularly damaging. Aged sealants become brittle and may detach from the sides of the masonry joint, leaving it vulnerable to water penetration. See the "Flashing" section for specific repair and maintenance information.
Poor Detailing at Window Sills and Parapets

Poorly installed or repaired drips and sills can be responsible for a tremendous amount of moisture penetration into the masonry. The function of these devices is to carry water away from the surface of the walls against which they are placed. Good practice includes an undercut, or "drip," which prevents the water from flowing back to the wall along the underside of the sill. The property owner can obtain an indication of whether or not sills are performing their function properly by investigating the wall area immediately below the windows after a heavy rain. The sills are not carrying water away if that wall area appears darker or remains moist for a longer period of time than the adjacent surfaces. This may be due to one of the following:

- the original sill design lacked projection beyond the wall surface and was not intended to protect the wall surface beneath.
- the sill is deteriorated and moisture is penetrating the sill and, subsequently, the wall beneath.
- the mortar joint or flashing immediately beneath the sill is flawed and water is entering the wall at this point.



Faulty Sill



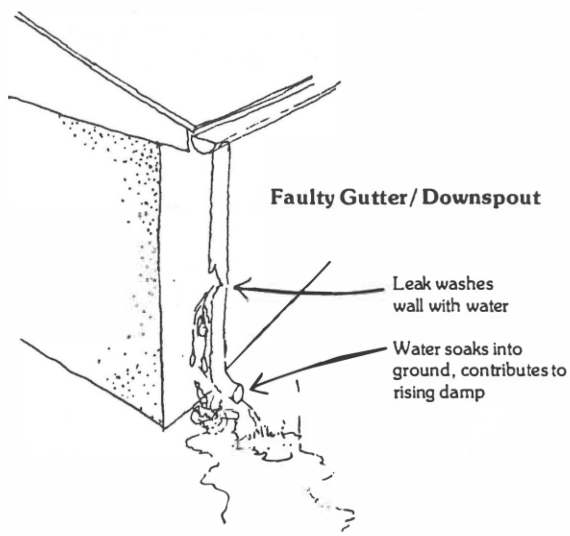
Proper Sill

## Faulty Gutters and Downspouts

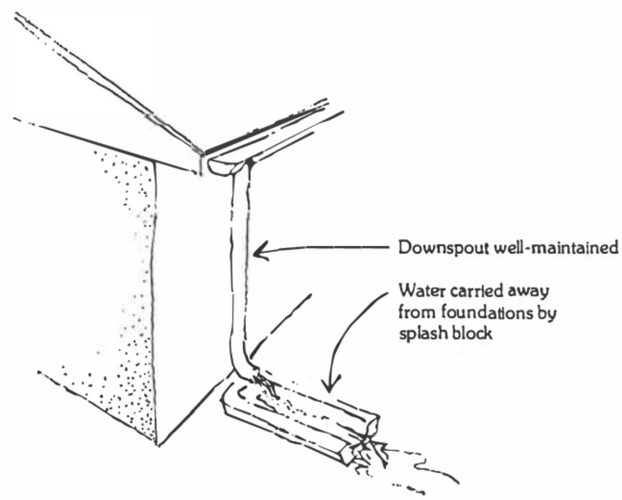
Gutters and downspouts accumulate runoff from roof surfaces and concentrate the flow for evacuation and discharge at specific locations. These discharge points may handle hundreds of gallons of runoff during heavy rain events. It is therefore critical that gutters and downspouts be sturdy, free-flowing, adequately sized to carry the expected amount of runoff and properly located to discharge water away from the building perimeter.

Gutters and downspouts must be adequately sized based on the square footage and slope of the roof area to be drained as well as expected rainfall for the building location. Free gutter size calculators are readily available online at both commercial and non-profit websites. Regular cleaning of building gutters and downspouts is required to remove leaves and debris that impede the flow of runoff and clog downspouts. In locations with overhanging trees, gutter screens and downspout strainers may help to reduce debris accumulation. Assuming that water is draining freely through the roof drainage system, the downspout discharge should be directed to a point at least four feet from the building line to avoid water accumulation around the building foundation that could result in both interior leakage and/or foundation settlement. Downspout extensions and splash blocks are two possible ways of diverting rainwater away from the building.

The functioning of the roof drainage system can be easily evaluated by observation during a heavy rain. Overspill from clogged or undersized gutters, leakage from open downspout seams or connection and areas of water accumulation at grade should be noted and addressed as indicated above.



Faulty Gutter/Downspout



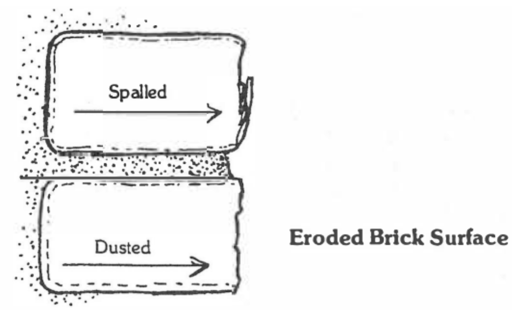
Proper Gutter/Downspout

## Eroded Brick Surfaces

Architectural brick is essentially a form of ceramic, made from fire clay. The heat of the kiln melts the silicate minerals in the clay mixture, allowing them to fuse together, forming a thin, vitrified layer or “fire skin.” The fire skin is significantly less porous than the interior body of the brick and serves to protect it from moisture intrusion. Damage to or loss of the fire skin leaves the softer interior of the brick vulnerable to water intrusion. Like so many moisture penetration problems, the initial entry of moisture into a wall becomes self-generating and accelerates rapidly.

Spalling and dusting are two basic types of deterioration associated with damage to the protective outer layer. Both are serious warnings of the existence of moisture within the brick. “Spalling” refers to part or all of the brick face which has heaved or “popped” outward from the surface of the wall, or to the outer face of a brick which is separating from the body of the brick. Both cases are usually the result of an accumulation of moisture behind or within the brick which, if aggravated by freezing conditions or the presence of soluble salts, expands outward. If the moisture is trapped within the brick, only the outer surface spalls; if it is behind the brick, the entire unit is forced outward. If the mortar is in relatively good condition, a spalling brick can often pull its neighbors with it, compounding the problem. In either case, the repair is two-fold: investigating and rectifying the cause of the moisture penetration, and replacing the affected brick.

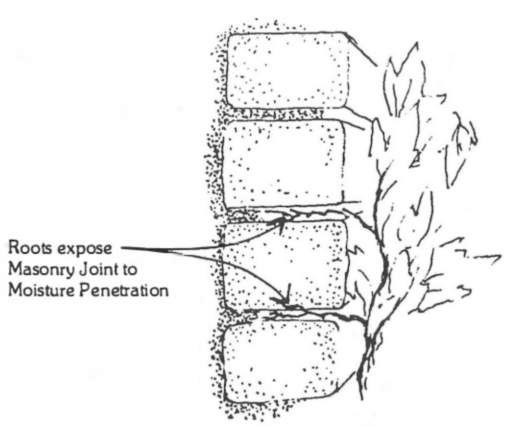
Dusting occurs where the protective skin has already been damaged or lost entirely. Without its protective covering the softer interior of the clay body absorbs moisture like a sponge. Repeated wetting and drying of the clay body and crystallization of dissolved salts causes the bonds between the clay particles to fracture. Loss continues grain by grain, leaving a powdery fragile surface that may be further eroded by wind and rain. This condition is particularly common in underfired “salmon” brick where the protective fire skin was never fully formed.




Treatment of bricks suffering this type of damage may depend on the location and number of units affected. Where a small number of bricks are failing in an otherwise sound wall, replacement of the defective units is required to prevent them becoming a source of water infiltration and damage to adjacent fabric. Where a large area displays consistent, minor surface loss, the use of a penetrating sealer may slow the rate of loss. It should be noted, however, that such products will require periodic recoating, particularly on those surfaces with heavy sun and weather exposure. Additional information is provided in the "Brick Masonry Cleaning and Coating" section.

### Moss and Vegetation

The presence of moss or vegetation living on a brick wall is undeniably charming, but it is also an infallible sign that moisture, in potentially damaging quantities, is present within the wall. The roots and tendrils of a plant which has attached itself into the joints of a brick wall are in themselves destructive due to expansion and contraction. Each root creates a point at which water can enter. A channel is created as the roof forces its way deeper into the joint. The roots of moss do not always penetrate so deeply, but the danger is still present. Moreover, the irregular surface imparted to brick covered with moss can provide more surface area for moisture to condense or collect and can also impede the smooth flow of moisture down the surface of the brick.

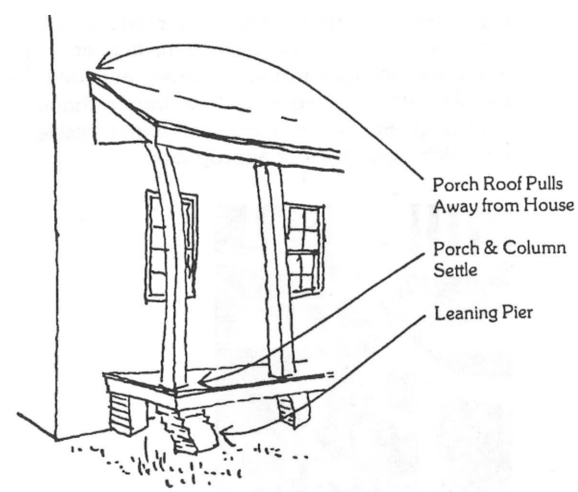



## STRUCTURAL CONDITIONS

### Settlement of Porch Piers and Small Foundations

Brick masonry piers support porches, and sometimes entire buildings, throughout Beaufort. Any deterioration of the piers supporting a structure is obviously very serious and should be attended to immediately and cautiously. As structural piers lean away from their intended vertical position, the beams and columns they support will settle to a new location, often pulling other portions of the structure out of alignment. Such strains can often put an excessive load on structural elements that were not designed for such work.

CAUTION: The property owner should be aware that the following recommendations for this, and other structural conditions, cannot and should not be a substitution for on-site advice by a professional engineer competent in such matters. The first step in remedying these problems is to determine the cause, which will certainly vary from condition to condition and which can only be determined at the site. Also, a good professional engineer will be able to tell if the pier is undergoing the degree of settlement normal in all construction or whether it is a recent situation meriting concern.



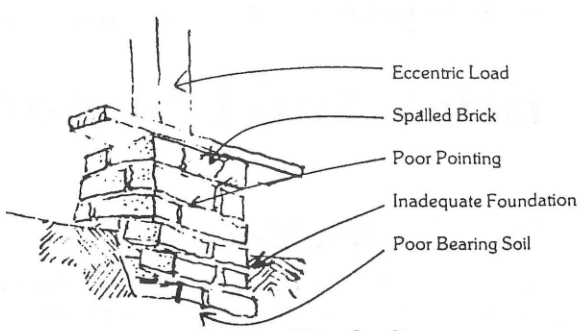

Settlement of pier foundations may be traced to a number of potential causes and conditions, beginning with the initial design and continuing through the life of the building:

- Inadequate functions. Early brick construction did not always employ the well-designed foundations used in good modern practice where the base of the pier or wall rests on a broader concrete pad called a "spread footing." Without this support, the pier, which imposes a concentrated load at one point, has a tendency to bore into the soil. This problem is compounded in Beaufort by the high underground water table and the softness of the soil bearing this structural load. Significant changes in the ground water level can have a tendency to weaken the bearing soil in the worst case, causing the base of the pier to sink or to rotate out of plumb. The result is leaning.

- Shifting loads. All buildings experience some movement throughout their life. In Beaufort this has contributed to leaning piers under many porches. As a pier settles, it induces some movement in the supported area above, which in turn affects the pier still further. A gradual but continuous cycle is initiated. This can be slowed either by eliminating eccentric loading on the pier or by installing an adequate foundation. A well-designed pier, if it has no foundations, should receive its load at the center; loads in any other position tend to induce some degree of rotation.

- Poor pointing. The mortar joints between the bricks have as important a role to play in the structural integrity of the pier or wall as the bricks themselves. When this mortar crumbles or deteriorates, for reasons that will be discussed later, a structural gap is created and the load forces change in the shape of the pier. This usually shows up as a crack.

- Deteriorated brick. Single bricks, or areas of brick, can pop ("spall") or deteriorate ("dust") and cause similar structural gaps, the result of which shows up as a crack.



**Causes of Pier Settling**

Repairs to building foundations of any kind are not to be undertaken lightly. Again, a professional engineer should be consulted for advice as to the best method for any given condition. Structural problems can compound themselves rapidly, and the removal or revision of a supporting pier that may have been in position for one hundred years may have unforeseen consequences to other portions of the structure. However, various stabilization measures may be implemented by the homeowner to arrest movement pending permanent repairs. See the "Brick Masonry Maintenance and Repairs" section for additional information.

## Cracking

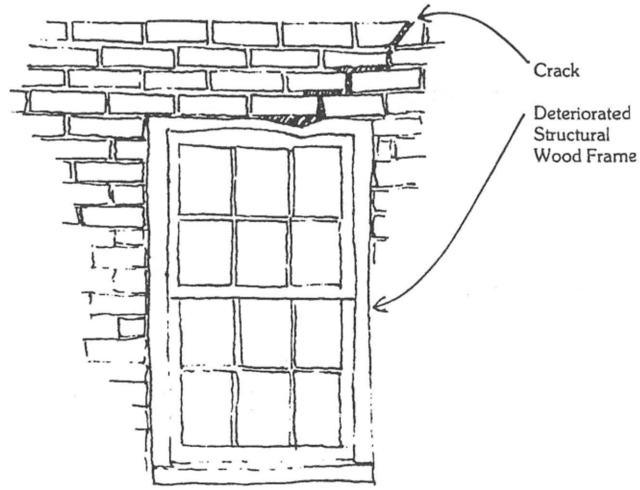
Masonry construction has long been known for its extraordinary longevity and its ability to support exceptionally heavy loads. However, its strength is largely limited to compressive (pushing) loads like those carried by a foundation wall supporting the weight of a superstructure above. Masonry construction performs poorly under tension (pulling) and torsion (twisting). When these forces are at work on a masonry structure, the result is cracking. Once cracked, a masonry assembly becomes vulnerable to other issues such as water penetration.

Cracks in masonry may be caused by both cyclical and non-cyclical movement in the building structure. Cyclical cracks occur due to the expansion and contraction of building components relative to one another caused by daily and seasonal changes in temperature and humidity. Such cracks are often observed at the joint between a historic structure and a later addition and at corners where opposing walls push against one another. Non-cyclical cracks occur at areas of differential settlement, ice jacking or deterioration of underlying structural timber or embedded metal. While minor cracking is to be expected after years of expansion and contraction and small structural movements, the appearance of new cracks or the widening or lengthening of existing cracks should be cause for investigation. The placement and monitoring of an inexpensive crack gauge (shown below) or other tell-tale over a period of months or change in seasons may be helpful in assessing whether a crack is due to cyclical movement or a progressive movement that might be cause for concern.

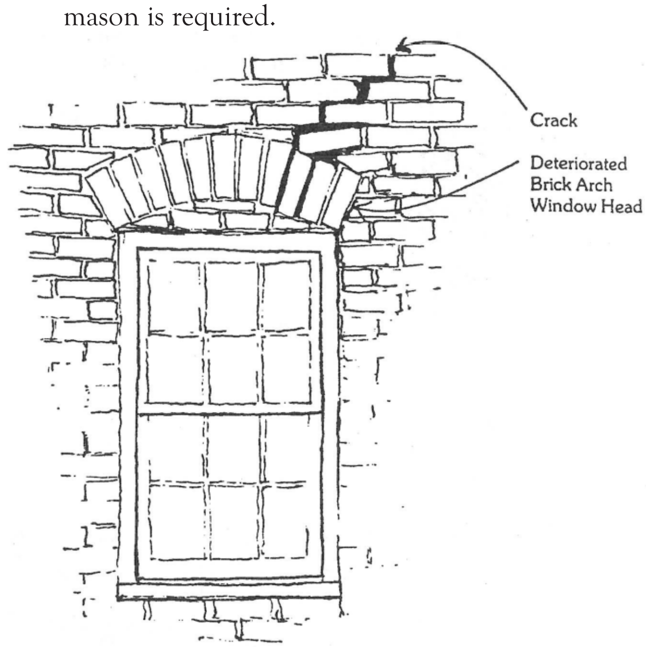

**Crack Gauge**

Brick masonry is particularly vulnerable to cracking at openings such as windows and doors. This is due to the inability of brick to span openings and to support its own weight without the aid of certain structural devices. Historically, at least three such devices were commonly used:

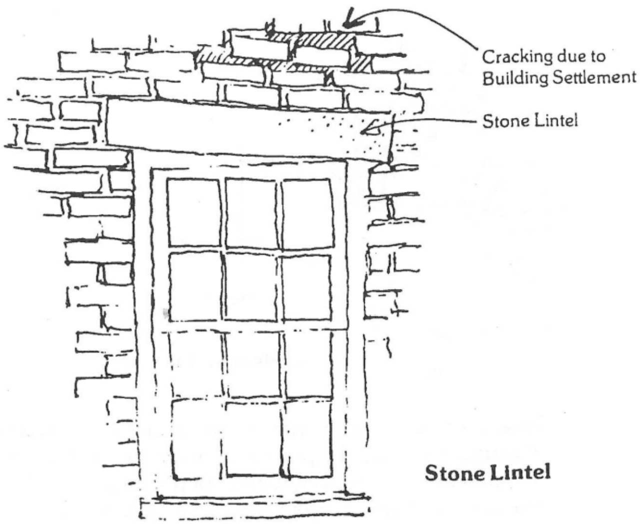
- Structural wood-framed opening. Where no visible continuous lintel is evident, the masonry window head is most likely supported by a wood subframe built into the masonry or by the wood window unit itself. Cracking in this condition can occur because of deterioration of the wood caused by moisture penetration either at the surface or at the edges. The wood window frame expands and contracts with seasonal fluctuations in humidity eventually causing gaps to form between the window and the masonry. Water penetration through these gaps may initiate rot in the underlying wood frame. As the wood rots, it loses its strength and no longer provides support to the masonry above, which fails under tension. This type of failure may be prevented by providing a bead of caulking around the perimeter of the frame. The caulking, obscured by paint or an overlayment of pointing, accommodates the cyclical movement of the wood and prevents water from reaching the wood frame.




- Brick arched-head windows. The placement of bricks into a curved or flat arch forms a masonry lintel over a window or door opening. The masonry above the opening therefore does not rely on the wood window or door frame for support. The arched head of a window fails either because of inadequacies or deterioration in the pointing or movement of the building as a whole. The former is often limited to small areas at corners at a single window opening. The latter usually appears as a problem common to several openings within a structure. If the arch is cracked but the bricks have not shifted position, repairs may be completed in place. Where the bricks have shifted out of place, the arch must first be shored on a wooden centering form, which conforms to the arch profile and then rebuilt as necessary. In either case, an experienced mason is required.



- Stone window and door lintels serve a structural and often a decorative purpose. Failure of these elements typically occurs as a result of deterioration in the surrounding masonry rather than in the lintel itself. It is generally the result of building settlement.



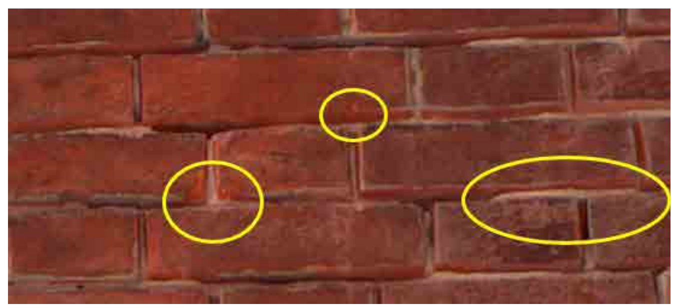

For information regarding methods of repair of cyclical and non-cyclical cracking, including that associated with deteriorated lintels, see the "Brick Masonry Maintenance and Repairs" section.

## BRICK MASONRY MAINTENANCE AND REPAIRS

### Pointing

One of the final processes in laying up brick or masonry walls is the pointing of the mortar joints between the masonry units. Although the final result can be a decorative feature of the wall or pier, the property owner should be aware that the primary purpose of pointing is to compress the mortar into the joint and thus seal it against moisture. Joints in which the pointing mortar is cracked or dusting, or in which it can be easily pulled away with the fingers, are joints which will admit water into the wall. They must be repointed.

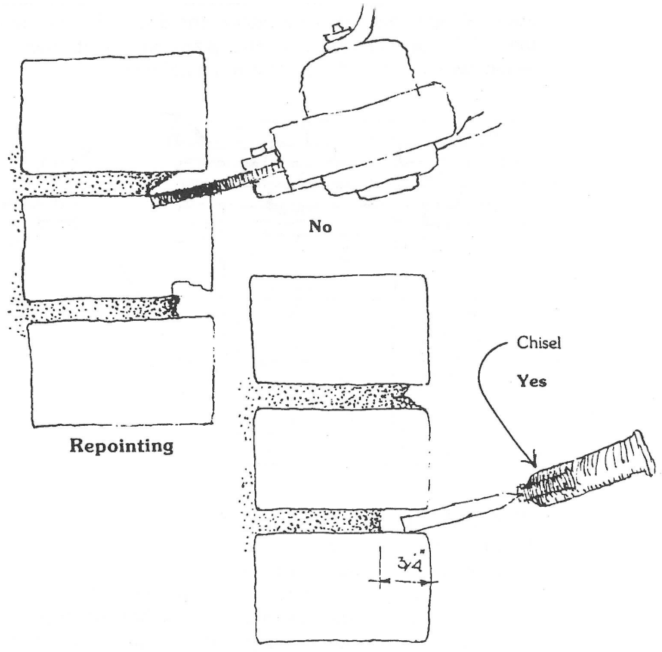
If a contractor is to be retained for this work, verify his qualifications. Serious and irremediable physical and visual damage can be done by improper repointing. For example, a masonry contractor may wish to perform the required initial step of mortar removal with a grinder. A highly skilled mason may be capable of accomplishing this satisfactorily; however, it is far safer to utilize a contractor who is experienced in and willing to undertake mortar removal using hand tool methods. While the use of a grinder may reduce the cost of the preparatory work, the improper use of this tool can wreak tremendous damage in a very short amount of time. In the image below, the use of a grinder has chipped the brick at intersection of two joints (left), dug into adjacent bricks by overrunning the head joints (middle) and left joints of inconsistent depth for pointing (right). If even the small amounts of brick are removed, the appearance of your building will be permanently altered for the worse, as will the ability of the brick to shed water and withstand weathering. Thus, a contractor who insists upon widening the mortar joints to ease the task of repointing (and reduce costs) should not be retained.



**Chipped Brick from Grinder**

It should, however, be recognized that removing mortar using hand or pneumatic chisels is a laborious and time-consuming task, particularly for large expanses of masonry. Where mortar joints exceed 3/8-inch in width, a grinder may facilitate raking of continuous bed joints by removing the mortar down the center of the joint to allow finishing by chisel. It is recommended that the use of grinders for raking head joints be avoided.

Regardless of the method or combination of methods is proposed, the contractor should prepare a test panel at least 2 feet square to demonstrate his ability to remove the old mortar safely to a minimum depth of ¾ inch without damaging the brick or widening the joints. This test panel should be photographed to serve as the expected standard for the remaining work.

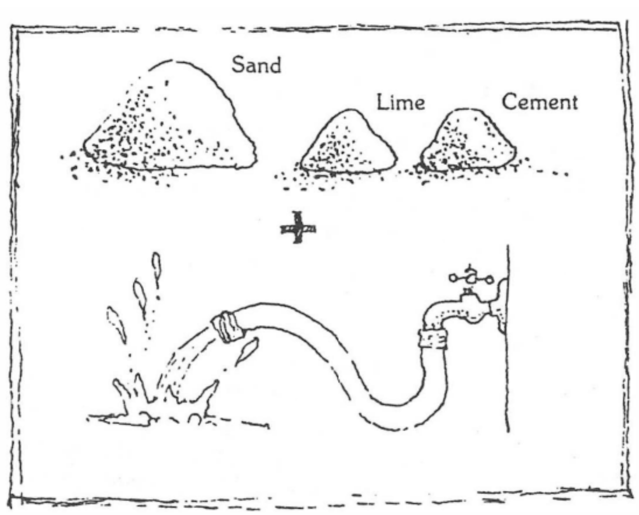


Repointing

Repointing

"Do-it-yourself" repointing:

1. Perform the repointing over a relatively large area to keep it as inconspicuous as possible.
2. Remove all existing mortar in the affected joints to a depth of 3/4" or to sound material, whichever depth is greater. Clean out the joints thoroughly and carefully.
3. Flush out the clean joints with a hose and allow them to dry.
4. Mix all materials for the mortar recipe in their dry state and add water as needed for only about 10-15 minutes worth of work. Wet down the area of wall that is to be repointed thoroughly so that the brick does not absorb water from the mortar, which may affect curing.

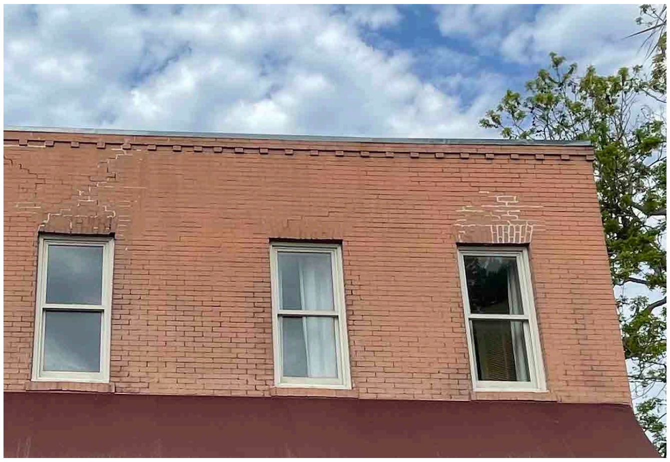


Mortar

5. The mortar recipe is crucial to the success of the whole process of repointing. Even a cursory look around Beaufort evidences the damage that has been done by giving inadequate attention to this detail. The damage is not only visual; the characteristic gray putty color of mortar made with modern Portland cement is everywhere in evidence and is a precursor of serious problems. Portland cement is an absolute last resort in repairing historic brick walls and piers because it is generally stronger and more brittle than the brick around which it is placed. Many older brick walls - a good example is the boundary wall of St. Helena's - depended on sheer mass for their strength, were fairly plastic, and underwent much internal motion without significant deterioration of the wall. The strength and rigidity of Portland cement prevents this motion. It is not uncommon to find an old brick wall patched with Portland cement where the bricks, unable to move, have popped out, leaving only the exposed grid of the mortar joints. NO MORTAR SHOULD BE STRONGER THAN THE BRICK IT SURROUNDS. As a general rule, the older the brick, the softer the mortar should be. For example, most early twentieth-century brick are compatible with a Type N mortar with a cement:lime ratio not exceeding 1:1. For older masonry, mortar Types O and K with lower cement:lime ratios, are more appropriate. For fragile eighteenth and nineteenth-century brick or for brick that has lost its fire-skin, Portland cement content should be avoided entirely in favor of a hydraulic-lime-based mix.
6. Ascertaining whether or not existing mortar has a lime or Portland base is a relatively simple process: soak a piece of the mortar in question under water. If it is lime, it will soften and crumble under pressure. If it is Portland, it will not soften but will crack under pressure.

7. It is desirable to match the color and texture as well as the strength of the adjacent existing mortar. The color of any given mortar is obtained primarily from and therefore varied by the percentage and type of sand, lime, and inclusions of other materials such as oyster shell, slag and brick dust. Examination of the existing mortar should provide some guidance regarding the general color and texture of sand aggregate required for the new mortar. Small amounts of various aggregates may be obtained from masonry suppliers for purposes of color matching. Prepare multiple mortar samples, varying the colors and proportions of sand, and allow to cure at least two weeks before assessing the color match to the original material. If possible, a test area of repointing should be prepared in a relatively insignificant location and allowed to weather. Several different mortar

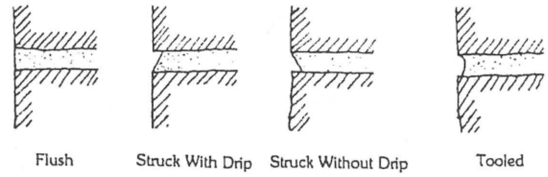
recipes should be tried. When mixing the mortar, it is important to remember that it may darken, or lighten, over time.



**Upper Facade Masonry Detail**

8. Pre-mixed restoration mortar may also be used in lieu of job-mixed pointing mortar though the material cost is significantly higher. Most manufacturers of restoration mortar products also offer custom color matching and, often, instruction and training materials pertaining to the use of their products. Local additions such as oyster shell may be added to pre-mixed products to improve the final texture match. 9. Where doubt exists as to the original mortar composition, it is advisable to seek out an expert who can perform a simple laboratory analysis of the contents and proportions of the mortar in the wall to be repointed.

10. It is important to match the tooling of repointed joints with those in the rest of the wall. Various options exist. In the illustration below, the "Flush" profile is generally more characteristic of nineteenth or twentieth-century brick masonry, particularly where the joints are very narrow. the "Struck without Drip" possesses the disadvantage of exposing the top side of the lower brick to the weather and should generally be avoided. The "Tooled" profile is the most commonly seen in eighteenth-century brick construction. This profile was occasionally modified by running a narrow tool down the center of the joint to produce a groove or "grapevine" profile.




**Masonry Mortar Joints**

## Crack Repair

Cracking, whether cyclical or non-cyclical, represents an avenue for water penetration and must therefore be repaired.

## Cyclical Cracking

Cyclical cracking generally occurs at the joint between dissimilar materials such as wood windows in masonry openings or at where masonry masses join together such as the joint between an original building and an addition. In these locations, rigid fill materials such as mortar cannot accommodate ongoing movement and will eventually crack or dislodge. Therefore, a flexible material, such as an elastomeric sealant, is required that will expand and contract with the underlying substrate. Early sealants were particularly vulnerable to photo-aging, causing them to become brittle and detach from masonry substrates. Advances in sealant formulation have greatly improved these products' resistance to ultra-violet light, significantly extending their expected service life. For use in masonry, urethane or non-staining, neutral-cure silicone sealants are preferred. Bituminous surface-applied materials such as mastic are to be avoided.

A word of warning regarding the use of sealants: Flexible sealants are an excellent solution to the problem of cyclical movement as discussed above. However, the relatively low cost and ease of use of these products creates a temptation to overuse them in circumstances where they are not appropriate. It is extremely common to find silicone sealant used in lieu of mortar to patch non-cyclical cracks and repoint damaged mortar joints. Sealants, unlike mortar, do not impart any structural strength or stability to masonry. Moreover, they are impermeable, unlike mortar. Therefore, any moisture that does enter the masonry will not be able to escape through the joints as intended but will migrate through the brick instead, potentially causing severe damage.

## Non-Cyclical Cracking

Where cracking is determined to be non-cyclical, the question arises as to whether the crack is static or continuing to grow. Barring any obvious cause of ongoing movement such as deteriorating embedded steel or wood, the primary aim of crack repair is to prevent water from penetrating into the masonry wall. Repair is easiest where the masonry on either side of the crack remains in plane with no lateral movement between the sections. Where the crack follows the pattern of the masonry joints, raking and repointing of the affected joints as described above will suffice. Where the crack passes through individual bricks, those bricks should be removed and replaced as described in the following section. The affected masonry should be monitored after completion of these repairs to look for signs of continued structural movement. If the crack reappears, additional investigation is required to determine and correct the underlying cause.

Where the masonry on either side of a crack has displaced relative to the other side, repair becomes more complex as the wall has likely cracked through its full section. Crack repair in this situation must restore the cohesion of the masonry in addition to excluding water. Crack stitching involves the placement of metal reinforcing in the brick masonry bed joints at intervals along the length of the crack to provide tensile strength to the assembly in addition to raking and pointing of the crack itself. Off-the-shelf threaded stainless-steel rods may be used or any of several proprietary systems of stainless-steel masonry wall ties are suitable for this purpose. However, the advice of a structural engineer should be sought to determine the required size, number and placement of ties.

## Brick Replacement

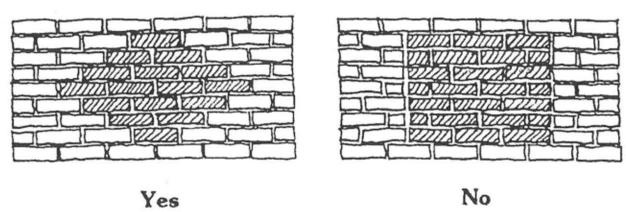
The cautionary advice that pertained to pointing mortar formulation also applies to replacement of historic bricks: Do not replace old brick with new brick that is substantially stronger than that used throughout the rest of the wall. The cemetery wall surrounding St. Helena's Episcopal Church is an example of an historically significant structure possessing an encyclopedia of brick problems. The wall suffers from the inappropriate insertion of modern brick patches which are too regular, too strong, and which are not installed in a matching bond, all of which detract from the appearance and may be potentially damaging. In such cases, it is necessary to seek out hand-molded brick, still being produced for application in historic structures by several manufacturers. Historic brick salvaged from other parts of the building or other local structures may also provide a suitable match. See Appendix F for a list of manufacturers.

When replacement of an area of brick in a brick wall is required, that area should match the existing adjacent brick in bonding pattern, coursing, color, size, strength, pointing, and mortar, and should be toothed or keyed to existing brickwork.

The installation of a repair patch which does not conform to the bonding pattern and coursing of the rest of the wall is inexcusable on the part of an accomplished mason. This lack of attention to and respect for significant historic fabric severely detracts from the original character of the feature and introduces potential structural threats.

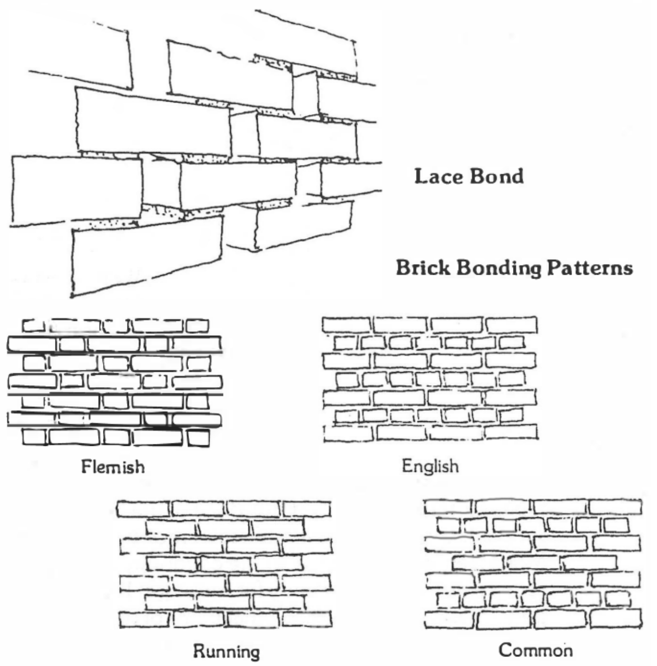
It is also important that a patched brick area be "keyed" or "toothed" into the existing brick in order to form a smooth transition between original and new material. In summary, replace areas of spalled, cracked or crumbling brick with brick that matches the adjacent original as closely as possible in terms of color, size, strength, bonding, pointing, and mortar.

Removal of a damaged brick to be replaced may be accomplished with a grinder to minimize impact and vibration damage to adjacent joints and bricks. A hand chisel should be used to clean the final opening to accommodate the full depth of the replacement brick.

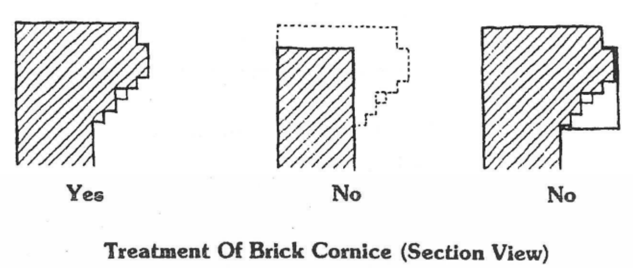



**Brick Replacement**

Pay particular attention to masonry detailing at the upper facades of brick residences and commercial buildings when brick repair and replacement is needed. If rebuilding is required, full photographic and dimensional documentation should precede it. Projecting and decorative cornices should be retained and repaired in-kind if possible, or replicated in-kind. They should neither be removed, nor covered up.

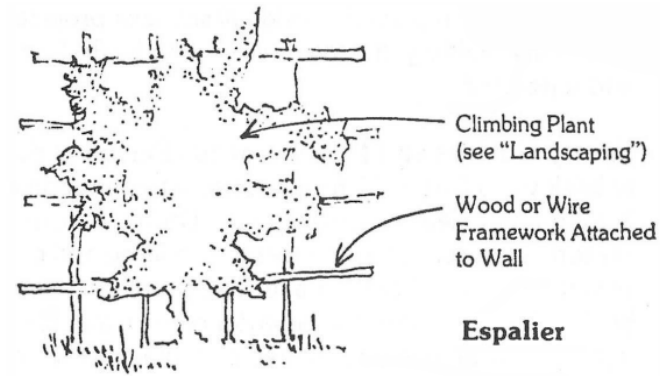



Brick Facades at 200 West Street




## Moss and Vegetation

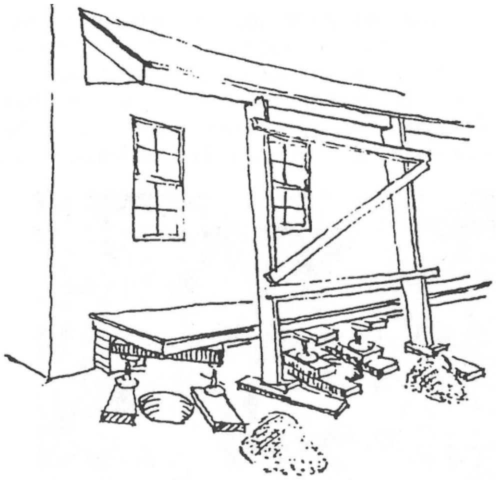
Moss and vegetation that is invading the joints of a brick wall can and should be removed. Help is available by means of various appropriate fungicides (see "Brick Cleaning"). But the property owner should carefully investigate their caustic properties with respect to the brick and mortar before making a selection. It is possible to maintain vegetation on a wall with minimal adverse impact by means of the espalier technique. This consists of a wood or wire network held out from the surface of the wall which provides a firm support for any climbing plant (see "Landscaping").




## Stabilization of Settled Piers

The preliminary requirement for solving pier problems is an awareness of shoring devices and techniques. Shoring is a means for temporarily supporting architectural elements such as porch floors or roofs while work is being performed on the structural members that normally support them. The illustration below is one example of temporary shoring that may be installed to support an existing porch structure prior to undertaking repair of the pier foundations. Note the following:

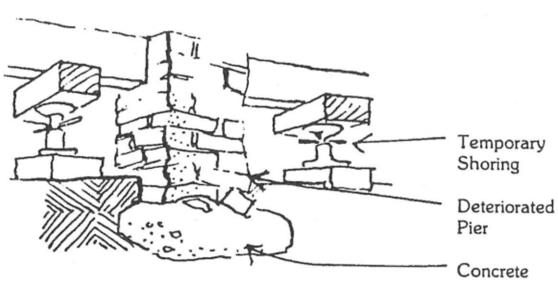
- Installation of jacks to support porch deck framing and timber braces to support roof framing;
- Use of lumber under the shoring jacks and timber braces to spread the structural load and prevent sinking into the soil;
- Notching of top end of the vertical roof braces to prevent slippage;
- Installation of lateral and diagonal bracing on roof supports to prevent the vertical members from spreading.



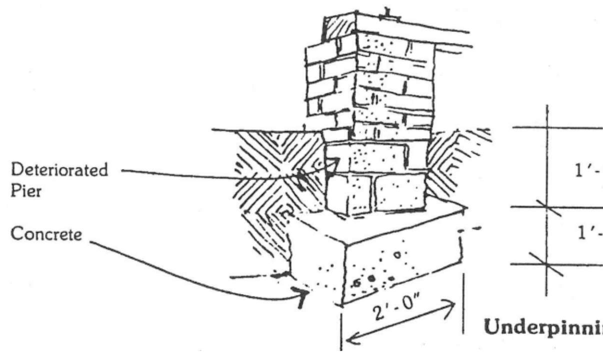
**Shoring Techniques**

If it is determined that a pier is settling because of the lack of a spread footer or the addition of unexpected or eccentric loads, a common solution can be provided by "underpinning," a process by which a modern concrete spread footing is installed beneath an existing pier or wall. This is always done in stages to prevent the necessity of digging out the entire base of soil below the affected area. Temporary shoring is a necessity. Both the shoring and the staging should be determined by a structural engineer. There are two repair options: the first, although crude, could be fairly effective, but not so much as the second which is of a sort that a competent engineer would recommend. Such a repair requires the construction of wood forms to receive the concrete, and the laying of concrete masonry to form the pier base. Each of these options is beyond the capacities of the average home repair buff and demand an experienced and sympathetic contractor.

(Note: The dimensions given in the illustrations are in no way absolute and are only meant as a rough guide to the amount of material the property owner should expect to need.)




**Underpinning - #1**

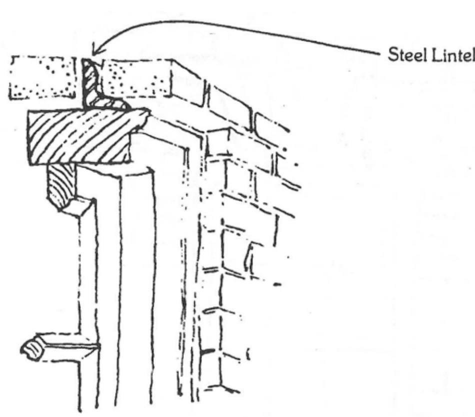



**Underpinning - #2**

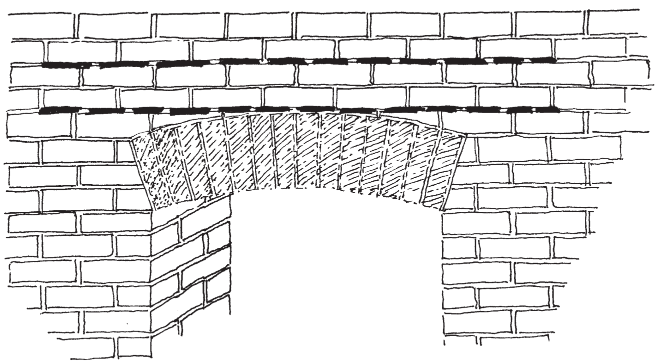
## Lintel Repairs

Reinforcement is generally required for the repair of brick cracking associated with brick window and door heads. Reinforcement may take multiple forms.

For frame-supported openings with no visible lintels, the installation of a concealed structural member is required to bridge the opening and relieve the pressure on the window or door frame. The most expeditious solution is to dismantle two to three courses of brick above the window or door head and install a galvanized or stainless-steel angle to act as a lintel and carry the brick across the opening. The lintel should extend four to six inches beyond the jambs of the opening on each side to provide adequate bearing. Sizing of this member is always a matter for the engineer, as is installation a matter for the competent masonry contractor. This "helper" is most easily accommodated in windows which depend on wood frames for support, or in those which have arched brick heads over rectangular frames. (Note: in no case should the new lintel be visible. The use of galvanized or stainless steel is recommended to avoid potential damage from corrosion of the embedded metal.)




For arch-supported openings, another option is the installation of horizontal and vertical stainless-steel reinforcing in multiple brick courses above the arch to provide tensile strength and relieve some of the load on the lintel arch. This type of repair may be done with off-the-shelf components or using one of several available proprietary masonry tie systems. In a nutshell, the bed joints above the arch may be deeply raked to at least 12 inches on either side of the opening and stainless-steel rods bedded in place using resin and/or grout. The number and sizing of the reinforcing rods should be determined by a structural engineer. With the load transferred to the steel reinforcing, the original arch may be repaired and repointed.



Restoration of a dropped stone lintel to the original configuration is a major undertaking requiring dismantling and reconstruction of the masonry above for which a competent engineer should be consulted. For cases of minor slippage, stabilization in situ is a more practical option. A reputable mason should be employed as the opening must be shored while the supporting masonry is partially disassembled and rebuilt.

## BRICK MASONRY CLEANING AND COATING

Cleaning of brick and other masonry surfaces must be well thought out if damage to the brick's appearance and ability to shed moisture is to be avoided. First and foremost, it is essential that no brick area be cleaned until that area has been thoroughly repointed. Brick surfaces are cleaned for more than purely cosmetic reasons, although a good cleaning does have the effect of restoring the crispness of details and edges that may have long been obscured under layers of dirt. In fact, cleaning accomplishes much more. Since accumulated dirt on brick increases the surface area, it enhances brick's vulnerability to the absorption of moisture from the atmosphere. In addition, dirty brick surfaces retain wetness longer, encouraging biological growth. It is important to note, however, that cleaning can do more harm than good, especially if what appears to be "dirt" is actually only weathered masonry, the "skin" of which could be removed by aggressive cleaning.

The passage of time brings with it the accumulation of stains and general grime that can disfigure historic brick masonry as well as most other building materials. The accumulation of soiling on a brick structure is greatly affected by its location and environment including its proximity to roads, its orientation, the direction of prevailing winds and overhanging trees to name but a few factors.

The implementation of a cleaning program is affected by the condition of the underlying masonry and must be coordinated with any required repairs as the penetration of cleaning chemicals and rinse water into open cracks and deteriorated joints may cause significant damage to interior finishes. Where the masonry is generally sound with few cracks and open joints, the damaged areas can be protected with temporary sealant to allow cleaning to proceed. Once the building is clean, the necessary repairs can be accurately color-matched to the cleaned surfaces. Where the masonry to be cleaned is in fair to poor condition and in need of extensive pointing, temporary sealants are not a practical solution to allow cleaning to proceed. In this case, the preparation of a small cleaning test panel is recommended to allow for color matching of repair materials, permitting the necessary repointing and crack repair to be completed prior to cleaning.

### General Cleaning

General cleaning is employed to removed accumulated atmospheric soiling from building surfaces. Atmospheric soiling consists primarily of particulate deposits including airborne soot and grease from vehicle exhaust and industrial emissions as well as loose biological growth, windborne silt and organic matter and may vary at different locations on the building. General cleaning of the entire structure is recommended to remove this type of accumulation from the masonry surface and to provide a more uniform appearance.

Overall Cleaning - There are three basic methods for cleaning brick surfaces, each of which should be executed by an experienced contractor and not the home repairman. It is essential that the property owner understand the advantages and disadvantages of each method so that he can best protect the interest of his building. If possible, it is desirable to test clean a small area using the approved method and to then allow it to weather for several months to a year. The basic methods of general cleaning are:

Water. Cleaning with plain water can be very effective for removal of loose atmospheric soiling and mild biological growth. However, the water pressure must be carefully monitored as the use of excessive water pressure in cleaning fragile masonry can be extraordinarily destructive. High pressure water can easily remove the fire-skin from historic bricks. A test panel should be prepared in an inconspicuous location to determine the appropriate pressure. The categories of pressure washing in the context of historic masonry may be defined as follows:

Low pressure: Less than 500 pounds per square inch (psi)
Medium pressure: 500 – 1000 psi
High pressure: Over 1000 psi. Not suitable for most historic masonry.

Before this method can be undertaken, open joints and cracks shall be temporarily sealed or repointed to prevent water penetration. Badly eroded or damaged brick should be replaced. The success of water cleaning is affected by several factors including:

Water temperature: Hot water may be more effective than cold water.

Pressure: Utilize only the amount of pressure needed to remove loose soiling without damaging the brick surface.
Nozzle configuration: Utilize a fan-tip nozzle of 15 -45 degrees.

Application distance: The spray nozzle should remain at least 12 inches from the masonry surface. Resist the temptation to move the nozzle closer to clean stubborn soiling.
Dwell time: Low pressure spray or mist over an extended period may be used to soften encrusted dirt in preparation for removal by pressure washing.

Where the masonry surface cannot tolerate medium or high pressure washing, a low pressure long-term wash is enough to soften dirt and can be supplemented by scrubbing with non-metallic bristle brushes.

Chemical. A tremendous variety of products is available for masonry cleaning. However, many of these cleaners are intended for new masonry and are completely inappropriate for historic brick. Alkali-based chemicals attack all silica material such as brick so that even plain washing soda could do damage. Conversely, acid-based chemicals, particularly those with muriatic (hydrochloric) acid and ammonium bifluoride (hydrofluoric acid) are particularly dangerous. Potential side effects include efflorescence, color change and loss of fire-skin. Detergent-based products are a safer choice for stubborn soiling.

Abrasive Blasting. Abrasive blasting can be an effective method of cleaning heavily soiled brick masonry. However, the choice of blasting media is critical for removing soiling successfully without damaging the masonry surface. Preparation of a test panel is mandatory. Dry-blasting with sponge media or powdered limestone may successfully remove embedded dirt from porous surfaces. These processes are proprietary and generally must be performed by a certified contractor.

A note regarding sandblasting. THIS IS NEVER A JUSTIFIABLE CLEANING PROCEDURE. Detail is eroded, the critical protective surface becomes pitted, erosion is accelerated, and mortar joints are weakened. Ironically, brick also becomes soiled more quickly because the surface area has been increased.

## Stain Removal

Effective cleaning requires, as a preliminary step, the identification of the source and type of dirt to be removed. While some types of stains such as rust might be immediately evident, spot cleaning of stains on a soiled masonry surface is rarely recommended unless the surface is generally clean as the treated areas will may show up as glaring spots compared to the surrounding surface. Completion of a general cleaning may also reveal areas of previously unidentified staining which may be addressed by spot treatments. Common stains and removal techniques are discussed below:

**Oil stains.** Horizontal surfaces such as paving may be subject to leakage from vehicles driving over or parked on them. While excess oil that is still on top of the masonry surface may be absorbed with cat litter, sawdust, paper towels or other absorbent material, oil that has soaked into the surface will require the application of a poultice to draw out the stain. A poultice consists of a solvent, water, and an inert filler such as talc, Fuller's earth, or powdered silica mixed to form a paste. For fresh oil stains, liquid dish soap or laundry detergent may suffice as a solvent. For old, deep-set stains, a pre-mixed commercial poultice product utilizing a stronger solvent may be required. The paste is applied in 1/4" layers, re-wetted regularly, and protected from evaporation by taping sheets of polyethylene over the treated area. When dried, the powder which has absorbed the stain can be scraped off with non-metallic tools such as bristle brushes or wooden paddles. The area should then be thoroughly rinsed with clean water.

**Asphalt and tar.** These stains are usually caused by sloppy roofing work, and are difficult to remove completely. Removal of bituminous products generally requires a strong solvent. These chemicals are strong-smelling and generally flammable. Therefore, adequate ventilation and respiratory protection is essential. A pre-mixed commercial mastic remover is recommended in lieu of a DIY formulation and the manufacturer's instructions should be followed closely. Before applying the mastic remover, carefully scrape off all excess materials without harming the brick surface. Applying ice to the mastic may ease the process by making the bituminous material more brittle. Multiple applications will likely be required to remove all of the asphalt residue.

**Iron and corrosion stains.** These stains are quite common, the result of runoff from rusty iron or steel embedded in the masonry. For light stains, a solution of oxalic acid in water, in a 1:10 ratio by weight, or 1 pound of acid to 1 gallon of water can be applied in spray form. Pre-mixed ferrous stain removers are also readily available. Clean the area with clear water immediately after removing the stain. Deeper stains require a poultice of 1 part sodium or ammonium citrate, 7 parts glycerine, and 6 parts warm water, with an inert filler such as whiting. The mixture is allowed to remain on the stain for several days before it is carefully scraped off with non-metallic tools. Pre-mixed poultice solvents formulated for rust removal are also available. CAUTION: Nearly all rust removal products contain one or more acids. Extreme care must be taken in the use of any acid to protect against personal injury or irreparable damage to building fabric. Homeowners are strongly encouraged to retain experienced professionals for this work.

**Copper.** Bluish green copper staining occurs at areas subject to runoff from copper roofing, flashing or cladding. Copper stains require the use of a poultice to draw them from the masonry surface. There are multiple copper stain poultices commercially available and, due to the specialized chemicals required, the use of one of these products is recommended in lieu of a field-mixed poultice.

**Biological growth.** Porous masonry surfaces may support a wide variety of plant growth ranging from microscopic mildew and algae to larger organisms such as moss and lichen. There are numerous commercially available mold and mildew removal products, most of which are quaternary ammonium compounds. These products are typically sprayed on the soiled surface and allowed to dwell for up to several days after which a low to medium pressure (<1000 psi) water rinse is used to remove the dead growth. For heavy moss or mold growth, another option is a solution containing a commercial weed killer or household bleach respectively. The property owner should be aware that the presence of molds, lichens and moss is likely to be a recurring problem, particularly on north-facing elevations.

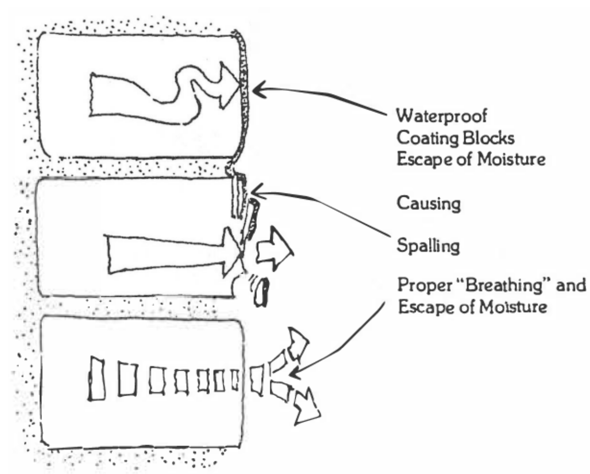
**Efflorescence.** This very common whitish stain, so prevalent in freshly laid brick walls, is the result of water-soluble salts in the brick or mortar which have been drawn or washed to the surface when they have crystallized. If the stain appears on an old wall, it is a sure sign of an area of moisture penetration that must be discovered and repaired. After this repair, loose deposits can be removed with a bristle brush. It is important to remember, however, that brick surfaces exhibiting efflorescence due to water infiltration may be very fragile and vigorous rubbing is to be avoided if the brick is showing signs of powdering or spalling. Where exceptionally heavy salt deposits (such as small drips or stalagtites) occur due to long-term water infiltration, low-pressure blasting using walnut shells or glass beads may be effective. However, a specialized professional contractor is required for this type of work. Under no circumstances should sandblasting be employed. It should be remembered that the key aims of the process are to restore detail and color and retard deterioration, and not to give the surface a "brand-new" appearance, which could require dangerously harsh cleaning.

**Paint and coatings.** It is not uncommon to find brick masonry coated with oil or latex-based paints, applied for aesthetic reasons or in an attempt to protect deteriorating bricks and mortar. These coatings are generally not problematic on a sound, dry masonry wall but will almost certainly cause difficulties when applied to chronically damp masonry. Oil paints permit neither the passage of liquid water nor water vapor and therefore inhibit the evaporation of any moisture that may enter the masonry through rising damp or cracks or leaks. The migrating moisture will seek to evaporate either toward the interior, often causing mold on or behind interior finishes or toward the exterior by blistering the coating. Modern latex masonry paints are marginally better as they may allow passage of water vapor but that breathability is reduced with each layer of coating applied. Removal of accumulated paint from masonry surfaces is best accomplished using a paste-type paint remover that is covered with a paper scrim to inhibit evaporation and peeled off. Sandblasting should never be used to remove paint from a brick masonry building.

## Brick Masonry Coatings

**Decorative Coatings.** Decorative coatings have been applied to brick masonry for centuries and may include oil-based paints, latex paints and mineral silicate paints. The application of oil-based and latex paints significantly impede the movement of water and water vapor through the underlying masonry. As discussed above, the only types of coating that is truly breathable are mineral-based paints such as silicate paints and limewashes. Mineral silicate paints have advantages and disadvantage. Their chief advantage is the coating bonds chemically with the masonry substrate rather than forming a film that sits on top of the surface, thereby retaining the breathability of the masonry. These coatings are rarely affected by peeling and flaking, even on damp masonry. Rather, silicate paints tend to wear slowly away over decades. They are also relatively translucent and may be layered over one another to renew the finish or blend colors. However, mineral silicate paints cannot be applied over other types of paint but only on bare masonry surfaces. Their durability may also be a disadvantage as this type of coating is exceptionally difficult to remove. Limewashes, which may be field-mixed or purchased pre-mixed, are less expensive than mineral silicates. However, they are less durable and their color range is limited.

**Water Repellent Coatings.** The past twenty years have seen tremendous advances in the formulation of water repellent products used to seal and protect masonry. These products work by lining the pores of the masonry surface with a hydrophobic resin which repels liquid water while allowing water vapor to pass freely. Though penetrating water repellents have been on the market since the 1980s, early versions did not achieve significant surface penetration and were readily degraded by UV light exposure, requiring frequent reapplications on facades subject to hard weathering. In addition, early formulations employed volatile organic compounds as the solvent used to carry the water repellent resin into the masonry, creating both a health and environmental hazard. The VOC content of the later-generation products now on the market is greatly reduced and the resins now in use are considerably smaller in molecular size and can penetrate masonry surfaces more readily. UV-resistance has also been greatly increased, extending the service life. Water repellents may also be combined with consolidants to increase cohesion in powdering surfaces. This type of product may be extremely helpful to protect the body of the brick where the fire-skin has been compromised or lost altogether. However, water repellent coatings cannot bridge cracks or seal open joints and are therefore not a substitute for repointing and other regular maintenance.




**Anti-graffiti coatings.** Anti-graffiti coatings may be considered in exceptionally vulnerable areas. However, these products almost always produce a slight color change and/or gloss on the finished surface and should be used only in inconspicuous locations. Because these coatings must be impermeable to other paints, they pose the same problems as regular paints in terms of trapping moisture in the substrate and should therefore be used with caution on masonry subject to rising damp or other moisture penetration.

## Introduction to Chimneys

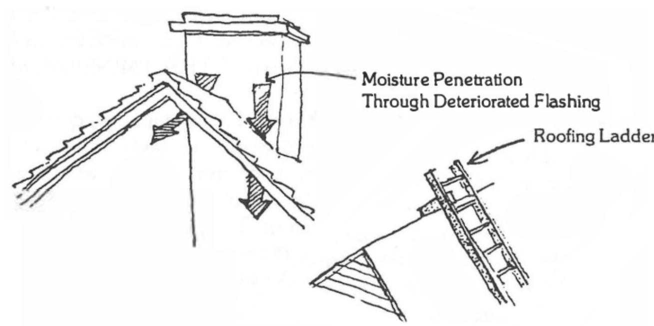
The sole function of a chimney is the safe removal of smoke and sparks. Any major deterioration of a chimney compromises this purpose with serious implications for the comfort and safety of the inhabitants of the building. Above the roof line, a chimney is essentially a freestanding column, that is, an unrestrained vertical shaft which must support its own weight and withstand bending movements from wind loads. A deteriorated chimney is no longer able to restrain itself from compressive or bending actions, the most serious consequence of which is the cracking of the flue liner: The continuity of this lining must be maintained if a chimney is to function. Chimneys are subject to the same forces of decay as in all other exterior masonry construction. However, because they are not so visible, chimney problems are more often neglected. All chimneys should be inspected annually, prior to the heating season, for:

• cracking
• deteriorated pointing or brickwork
• deteriorated flashing
• deteriorated flue liner
• build-up of surface soot or intrusions such as nests or debris.

Investigation will occasionally reveal that it is necessary to completely rebuild that part of a chimney which is above the roof line. It should be kept in mind that the proportions, brickwork, and general appearance of chimneys underwent continued stylistic transformations (see "Style"). The style of a rebuilt chimney should conform to the building's period. It should be remembered that the chimney is a significant part of the building's visual silhouette. Consequently, stripping down or simplifying the detail of an architectural chimney will have negative impact on the building as a whole. The following chimney recommendations are intended to achieve several purposes:
• maintenance of architectural integrity
• maintenance of structural strength
• maintenance of function.

## Chimney Investigation

On an annual basis the brickwork should be inspected for problems of pointing and spalling, the base should be inspected for corroded flashing, and any stucco veneer should be inspected for cracks and holes. It is also possible to determine if a chimney is beginning to lean. The property owner can generally conduct such inspection without having to climb onto the roof. Simple observation from ground level can be aided by binoculars. If an attic exists, further inspection can be made. Deterioration in the base flashing of the chimney will be evidenced by water or signs of moisture in the form of rot on the underside of the roof-sheathing boards adjacent to the chimney.




If possible, a final inspection should be made on the roof itself during dry weather. Depending on the form of the roof, it may be necessary to obtain a roofing ladder or to modify a standard wood ladder to hang well over the ridge of the roof. From the roof, pointing and stucco can be examined closely, as can the important conditions at the top of the chimney. Flashing problems can also be more conclusively inspected from the roof. If there is any indication of chimney cracks from which smoke or sparks could escape, repairs should be performed immediately. If there are concerns regarding the integrity of the flue liner, a professional chimney sweep may perform a smoke test to identify points of leakage. An inspection conducted from the roof can also verify whether or not a chimney is starting to lean. A leaning chimney is an architectural problem that accelerates if left unattended, and its consequences are obvious. Leaning creates tension and ultimately cracking, not only in the mortar joints but in the flue liner if one exists. Checking the chimney for plumb is the best test. The chimney should maintain a true vertical regardless of leans and sags in the rest of the building structure.

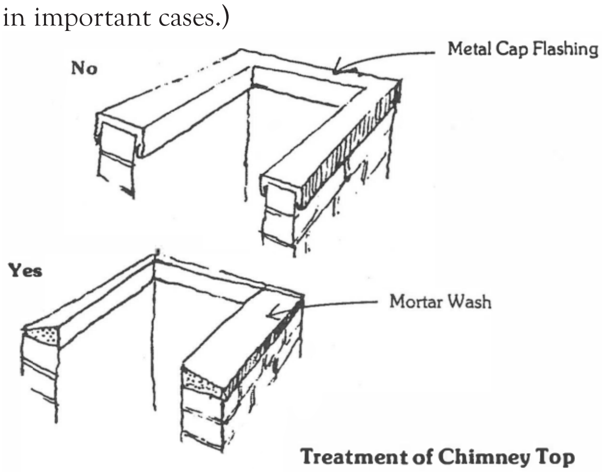
## Chimney Repairs

**Brickwork** - Pointing and spalling problems in brick chimneys are treated as described in "Brick Masonry Maintenance and Repair." Ornamental brickwork or corbelling, as exists on most of Beaufort's architectural chimneys, should be retained.

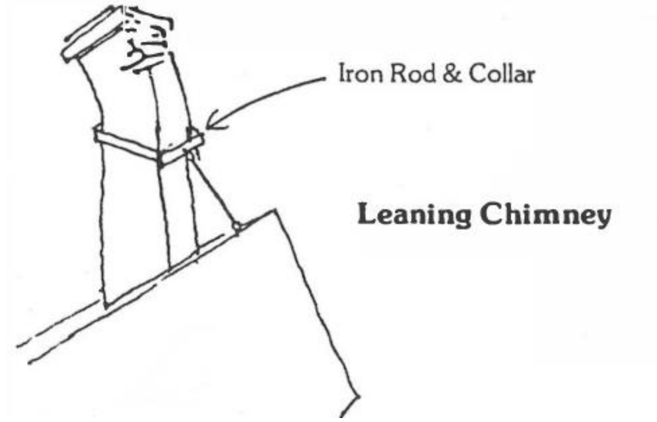
The brick of a chimney is perhaps most vulnerable at the top where it is exposed to the weather. Although cap flashing is often used in new construction, the exposed metal strip that this requires at the perimeter of the chimney is unacceptable for historic buildings. Instead, a thin mortar wash should be employed. The mortar should be periodically inspected and patched as necessary to prevent moisture penetration through the brick joints at the top of the chimney. This task should be performed during annual maintenance investigations.

**Stucco** - A crack or hole in the stucco veneer of a chimney should be patched immediately (see "Concrete/ Tabby/ Stucco") because, in many cases, a stucco veneer was applied as a coating over relatively soft brick to increase its resistance to weathering. Breaks in the stucco veneer obviously diminish its effectiveness and also provide cracks and ledges in which moisture can accumulate.

**Leaning Chimneys** - If inspection reveals that a chimney has begun to lean, it may be possible to stabilize it early in the process with an iron collar and rod arrangement. This "repair," however, is far more popular than its effectiveness warrants and is appropriate only in the early stages of leaning. When a chimney has shifted to the extent that it appears dangerous, an iron collar and rod could do more harm than good. The tension placed on the rod by the weight of the leaning chimney could create inordinate stress on all inadequately sized structural members. In such serious cases there is little alternative to demolition and reconstruction of the chimney. If the chimney is an architectural feature, it should be carefully photographed and documented (measured) so that it can be duplicated in detail. (In fact, one should attempt to reuse as many original bricks as possible, resorting to hand demolition in important cases.)



**Treatment of Chimney Top**

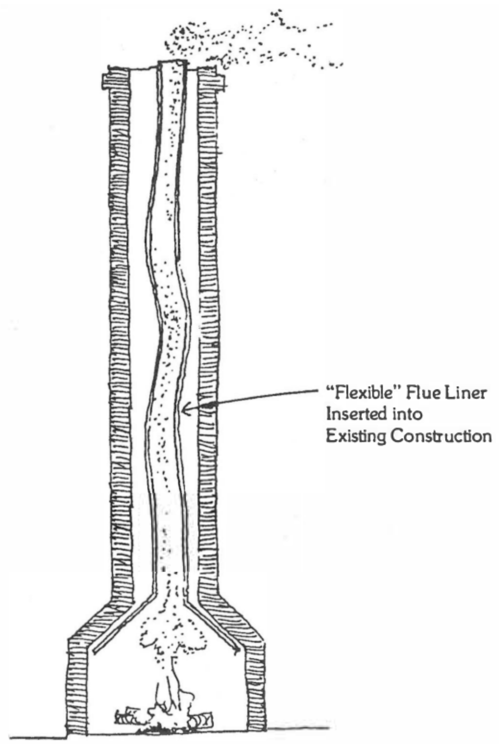


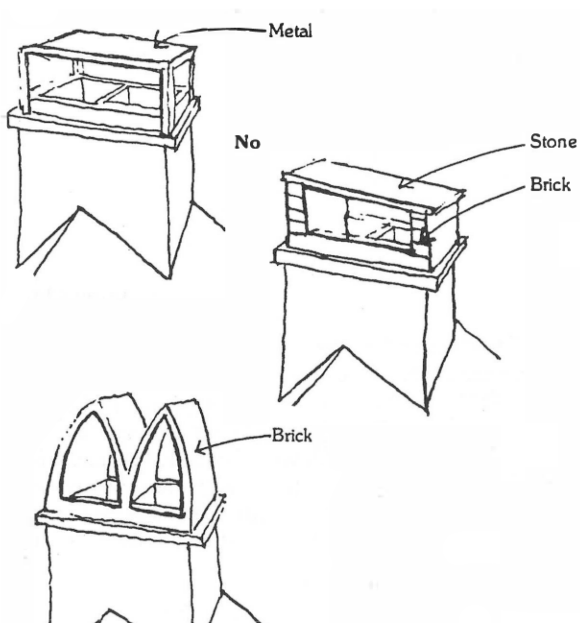
**Leaning Chimney**

**Cracks in Chimney or Flue Lining** - Some chimneys are built around a center shaft of round or square terra cotta tiles. Repair of cracks in this flue lining, if it is present, are a matter for professionals. Many chimneys in Beaufort may have no flue liner whatsoever. Recently, a "flexible" flue liner has been developed which can be an economical means of introducing this safety feature with minimal disturbance to existing interior construction. Again, work on the interior construction and capacity of an existing chimney is a matter for qualified contractors with appropriate work experience.

If it is determined that a flue liner is unnecessary, the property owner should be aware that the interior of the flue must be cleaned periodically and the pointing inspected. Repointing the inside of the flue wall will require selective removal of interior walls and finishes, but it is essential.

**Chimney Caps** - The final, but by no means unimportant, feature of the chimney, is the chimney cap. These devices, when employed, form the visual terminus of a chimney, and thus become architectural features in and of themselves. The simple purpose of a chimney cap is to prevent rain from entering the flue. In addition, a chimney cap which is open only on the sides facing the prevailing winds can, in effect, create a wind tunnel, increasing an updraft.

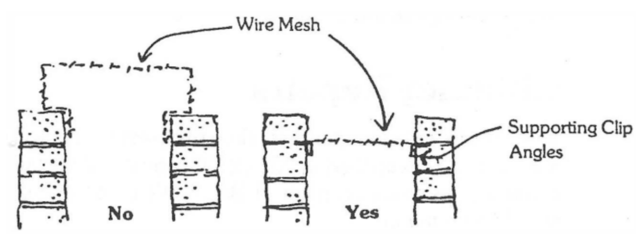



Chimney Caps

The property owner should be aware that eighteenth and early nineteenth century chimneys rarely included caps so that few designs are available which look authentic. Because the actual extent of water penetration into the flue during a storm is rarely serious enough to warrant this sheltering device, a careful assessment of "need" should be made before installing a chimney cap. If a cap is absolutely necessary, the stone cap has the least impact on pre-Victorian chimneys while the arched brick cap is most appropriate for late nineteenth century and early twentieth century chimneys in Beaufort. In no case should metal chimney caps be permitted in the District. Where a chimney is inactive, the open shaft may be capped with a flat stone slab fitted with a low-profile, screened stainless-steel vent to allow continued air movement through the chimney shaft while excluding birds and insects from nesting within the chimney shaft.

A more functional and less obvious alteration to a chimney is the spark arrester, a galvanized or stainless-steel screen to catch sparks before they can land upon the building roof. In common modern construction practice this device is located so that it protrudes above the chimney. However, there is an equally effective method which is not as visually destructive to the chimney as a whole. Mounting the screen on a frame secured within the shaft of the chimney keeps the assembly out of sight. This device serves the added function of excluding birds and insects from the chimney shaft. The spark arrester should be removable to allow chimney inspection and maintenance.




Spark Arrester

**Summary of Recommendations**

Maintaining the aesthetic qualities and inherent durability of masonry construction requires the utilization of correct and appropriate repair and preservation methods. The following recommendations and preservation guidelines summarized below are critical to the longevity of masonry and bear repeating. They should be considered in permit applications in which the masonry of structures under HRB jurisdiction would be affected.

- Masonry structures should be inspected annually for cracks, open or deteriorating mortar joints, displaced flashings, efflorescence or other signs of potential water penetration. Vertical and structural elements should be observed for signs of leaning or displacement.

- Where brick masonry features exhibit pronounced cracking or displacement, a structural engineer should be consulted to identify the underlying cause of the structural movement prior to initiating repairs.

- Keep brick masonry walls free of moss, vines and other vegetation which hold moisture within the masonry and damage mortar joints with their penetrating roots.

- Where repointing is proposed, the repointing mortar should be equivalent to or softer than the original mortar in the masonry joints. The hard mortar will diminish the wall's flexibility and performance and will contribute to accelerating its deterioration. To determine the composition for equivalent mortar, it is necessary to perform laboratory analysis of the mortar. In the absence of such analysis, a high-lime content mortar will usually be compatible with most historic brick masonry. In addition to hardness, repointing mortar should match the appearance, color and texture of the original pointing.

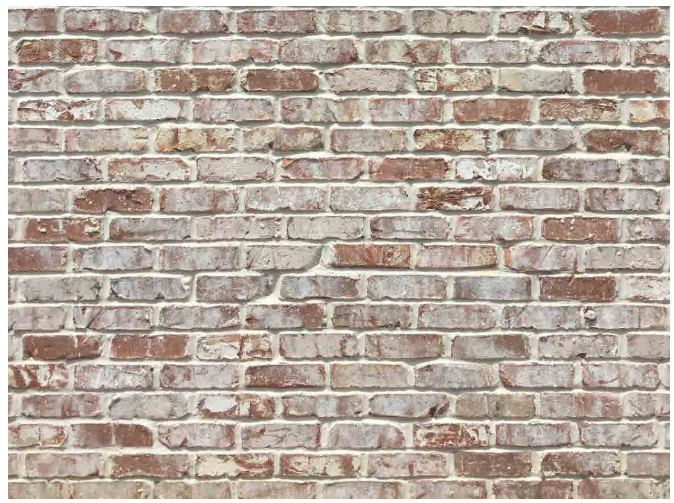
- Proper joint preparation is critical to successful repointing. Potential masonry contractors should prepare a test panel to demonstrate their ability to rake joints to a sufficient uniform depth without altering joint width or damaging the bricks. Grinders may be used to for bulk mortar removal subject to a successful test panel. However, finish raking should be completed joint size, and tooling of the original using hand or low-pressure pneumatic chisels. Repointed joints should match the width and tooling of the original joints.

- Elastomeric sealants may be used to seal cyclical cracks and joints between masonry and dissimilar materials. They should NOT be used in place of mortar for pointing open joints or crack repair.

- Prior to rebuilding any masonry wall, foundation or chimney, carefully document the structure by photography and actual measurement to facilitate accurate duplication. Reuse as many bricks as possible.

- When replacement of an area of brick in a brick wall is required, that area should match the existing brick in bonding pattern, coursing, color, size, strength, pointing, and mortar, and should be toothed or keyed to existing brickwork. Replacement brick should never be substantially stronger than the existing. The stronger brick will diminish the wall's inherent flexibility and will thus act to disintegrate the weaker older brick. Do not use modern "antiqued" brick for patching existing historic walls. masonry. Molded reproduction bricks are commercially manufactured and salvaged brick from other local buildings may be available to provide a suitable match.

- Do not use modern "antiqued" brick for new construction. It is too regular in its contrived variability, and easily distinguished by the discriminating eye.



**Antiqued Brick**

**Antiqued Brick Close-up**

- Pay particular attention to decorative masonry detailing at the upper facades of brick residences and commercial buildings. If rebuilding is required, full photographic and dimensional documentation should precede it. Projecting and decorative cornices should be retained and repaired in-kind if possible, or replicated in-kind. They should neither be removed, nor covered up.

- Historic brick masonry should be cleaned by the gentlest means possible to avoid damaging the vitrified surface of the brick ("fire-skin") and potentially fragile mortar joints. A low to medium-pressure wash is often sufficient to remove surface soiling. Pressure-washing in excess of 1000 psi is generally to be avoided. Potential masonry cleaning contractors should prepare a test panel in an inconspicuous location to demonstrate that the proposed cleaning method will not damage the brick.

- Chemical cleaning may be required for heavily soiled masonry. However, commercial masonry cleaners formulated for new masonry may be extremely damaging to historic brick. Near-neutral pH detergent-based masonry cleaners are generally safe for most brick surfaces. The use of both acid and caustic cleaners is to be avoided.

- Proprietary abrasive cleaning processes using soft aggregates such as powdered limestone or sponge may be helpful in removing heavy efflorescence or embedded soiling. These processes require specialized equipment and must be performed by a manufacturer-certified contractor. Do not sandblast brick masonry for any reason.

- The sequence of masonry cleaning and repair is largely dependent on the condition of the masonry and must be carefully coordinated. Masonry that is in generally good condition may be cleaned prior to initiating repairs provided that cracks and open joints are temporarily sealed to prevent water penetration. Materials for subsequent repairs may then be matched to the cleaned surfaces. Where the masonry condition is too poor to allow cleaning, a small test area may be cleaned to permit color matching of pointing and repair materials, allowing the necessary repairs to proceed prior to masonry cleaning.

- Brick masonry walls in good condition generally do not require the use of water repellent sealers. However, penetrating water-repellent sealers may provide a measure of protection for brick that has lost some or all of its original fire skin. These products penetrate the pores of the brick and mortar and repel water while allowing water vapor to pass, maintaining the breathability of the masonry. Building owners should be aware that the service life of these products varies with exposure and cyclical reapplication may be required. Waterproof coatings such as most oil or latex paints inhibit breathability and are problematic on walls where moisture is present.

- Brick chimneys should be inspected annually for cracks, loss of pointing mortar, structural displacement and accumulated creosote, bird nests or debris. Chimneys serving wood-burning fireplaces should be cleaned regularly at intervals depending on the frequency of use. Any evidence of smoke leakage should be assessed by a professional chimney sweep.

- Chimney caps generally are not recommended. Their use is especially unwarranted on eighteenth and early nineteenth century chimneys. Open chimney shafts may be protected by interior-mounted spark arrestors.

# Chapter 7: Tabby, Stucco, and Concrete

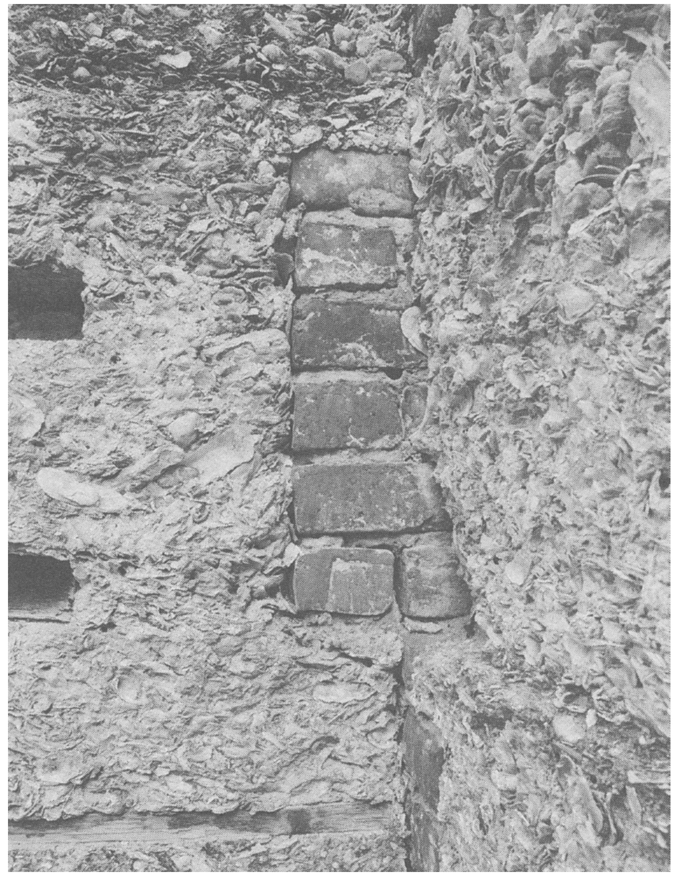
## Introduction

Tabby, a composite of lime, sand, water, ash and oyster shells, is a truly historic building material found mainly in coastal areas, including Beaufort. It is a plastic mixture molded in forms much like modern concrete though its use dates back past the 16th century in North African architecture. The lime used in the mixture was historically made from burned and pulverized oyster shells rather burned limestone. Tabby evolved to incorporate innovations in materials such as manufactured lime and Portland cement. True tabby construction has all but ceased in the United States as the oyster shell lime has been supplanted by more durable and readily available Portland cement. Modern versions of tabby are often plain concrete with oyster shells pressed into the surface which is incompatible with the historic material in both hardness and appearance. Therefore, it is imperative that those examples that survive be treated with great care and as much authenticity as possible. An essential component of the background of Beaufort, it functions as the prime material at such important sites as St. Helena's Cemetery Wall, the Beaufort Sea Wall, Tabby Manse, and the B. B. Sams House slave quarters.

**Example of poorly mixed faux tabby construction**

Tabby walls were raised by pouring the mixture into wooden forms and tamping it until well packed. When the mixture had set for several days, the forms were then lifted for each subsequent pour. This construction method lends true tabby a distinctive layered appearance. Early lime tabby may be distinguished from later nineteenth-century tabby by the thickness of the layers. Early tabby was typically placed in much deeper lifts, up to 20-22 inches. As the material hardened, the aggregate settled, forming a visible concentration of shells at the base of each pour. Small, irregularly spaced holes are sometimes visible in older tabby walls where the pegs were temporarily set to separate the forms. Pin holes in later tabby are generally uniformly spaced and aligned between lifts.

The moldability of the tabby mixture also lent itself to the molding of individual masonry blocks, poured slabs and architectural elements though these components are not widely seen in Beaufort.



**Tabby Construction**

The typical texture of many of Beaufort's exposed tabby walls, with their irregular surfaces of exposed shells, does not give a true indication of the original appearance. Because its pitted surface made it highly susceptible to weathering, tabby was almost never left exposed. A coating of stucco was typically applied to give true tabby a smooth, finished appearance and to protect it from erosion and dissolution by wind and rain. Later nineteenth-century tabby, which contains Portland cement, is significantly more weather-resistant than earlier material and the stucco application was sometimes omitted on later buildings.

Stucco, consisting of layers of lime and/or cement mortar, is used strictly as a finish material over tabby and numerous other substrates. Mixed by hand and spread over tabby, brick and concrete, stucco appears throughout the Historic District as a protective and decorative finish. Historic stucco application techniques varied by substrate. Stucco coatings on tabby structures generally consisted of a single, relatively thin coat troweled directly on the molded surface. Stucco applications on brick and concrete employed multiple coats of varying thickness.

**Tabby Construction at Berners Barnwell Sams House, 201 Laurens Street**
**Courtesy of Library of Congress**

**Tabby Manse - 1211 Bay Street**

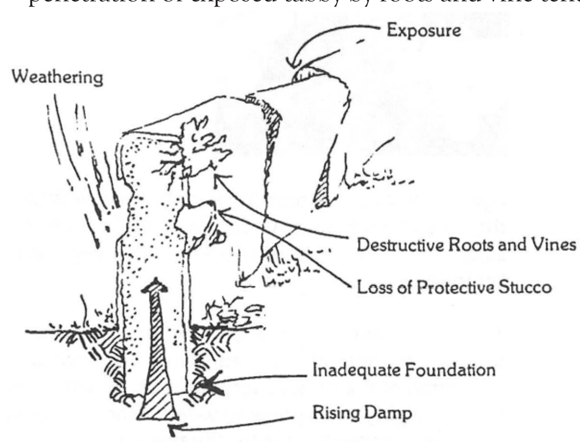
Although commonly thought of as a contemporary material, important experiments in concrete construction were occurring in America by the last quarter of the nineteenth century. The house at 607 Bay Street, though in many ways atypical of construction in the Historic District, is an important example of the work that was being done in early reinforced concrete construction. In addition, this house is significant to the street that forms the main southern gateway to the Historic District. Manufactured pre-cast concrete components such as balustrades, columns and copings began to appear more frequently on both residential and commercial buildings as the twentieth century progressed.

**Early Concrete Construction at 607 Bay Street**

## TABBY CONDITIONS

The basic tabby mixture’ of lime, sand, water, and oyster shell aggregate is considered in modern terms to be a “soft” mix with limited compressive strength compared to modern materials. The manufacture of lime by burning oyster shells produced a lime of highly variable quality. Due to the irregular nature of the oyster shell aggregate, the finished material is rough in texture and highly porous. These qualities make tabby highly susceptible to moisture penetration and to colonization by plants and insects. The lime binder can be readily weakened by migrating moisture. Unreinforced tabby walls are likely to crack with structural settlement. The range of influences constantly at work to deteriorate tabby include:

- erosion and weathering at open cracks and areas exposed by loss of the protective stucco;
- loss of breathability due to incompatible coatings and repairs;
- dissolution and weakening of the lime binder in below-grade walls due to poor site drainage and/or rising damp;
- undermining of tabby walls by burrowing rodents;
- penetration of exposed tabby by roots and vine tendrils.




**Sources of Deterioration of Tabby Walls**

## Erosion and Weathering

Tabby is formed of a lime matrix which binds together the sand and oyster shell aggregates. Once fully cured, the lime matrix is essentially calcium carbonate which is sensitive to acid. Because of the nearly ubiquitous presence of vehicle emissions in the air, rain water is slightly acidic. While not causing immediate dissolution, chronic exposure to acidic rain will start to dissolve the calcium carbonate, weakening the binder and causing the tabby material to become friable. The washing of rain water over exposed tabby will erode the surface gradually by both chemical dissolution and mechanical abrasion. Wind-borne particulates can also erode the weakened surfaces.

## Incompatible Coatings and Repairs

Tabby is an exceptionally porous and breathable material through which water migrates easily. Repair materials must be similarly porous and breathable. Even though Portland cement may have been used in the original tabby formulation, Portland cement is not significantly harder and denser than tabby and is therefore potentially damaging when used as a repair material. Where cement patches are made to a tabby wall, migrating moisture is unable to escape through the patch but will seek to evaporate when it reaches the perimeter of the patched area, causing deterioration at the margins and eventually causing the patch to fail. When Portland cement is used as a stucco to cover the entire tabby surface, migrating moisture is unable to escape at all but will remain trapped inside the wall, dissolving and weakening the lime matrix. When the offending stucco is removed, the core of the wall may be found to be crumbling away behind it.

Portland cement is not the only incompatible repair material used on historic tabby construction. Silicone and other elastomeric sealants used to fill cracks are in appropriate for tabby both in appearance and inn performance. Though flexible, these materials are completely impermeable to both water and water vapor and may trap moisture within tabby walls which may contribute to weakening of the host material. Asphalt has often been used as a waterproof cap on tabby walls. This type of material penetrates the tabby surface, making it extremely difficult to remove without taking a portion of the surface with it.

## Poor Site Drainage

While the maintenance of the protective stucco coating is critical to excluding rain from tabby construction, the design and maintenance of proper site drainage is also important to protect the below-grade portions of the wall. Excessively wet soil around building foundations may compress under load, causing settlement cracking, and tabby foundations may be weakened by dissolution when exposed to chronically high moisture levels. A positive grade, sloping away from the foundation and effective removal of gutter and downspout discharge away from the building are necessary to minimize the moisture level in the soil adjacent to tabby foundation walls.

## Rising Damp

Like other types of masonry, tabby is a porous material with many connected voids. However, the voids in tabby are much larger than those found in brick and mortar due to the use of irregular oyster shell aggregate rather than uniformly graded sand – too large to allow water to migrate upward by capillary action. Therefore, rising damp is relatively limited in tabby structures, except where in situations where the porosity has been altered by the use of incompatible coatings or repair materials.

## Plant and Animal Damage

The many nooks and crannies between the oyster shells used as aggregate in true tabby construction provide numerous footholds for vegetation to take root when the surface is exposed. Vines are particularly destructive as their roots may penetrate deep within building walls if not promptly removed. Indeed, where woody roots have penetrated deep into tabby construction, the wiser course is often to leave them in place after the plant has been killed with herbicide rather than potentially fracturing the surface by trying to remove them completely.

Given these contributions to deterioration, it is obvious that the best preventive maintenance program for tabby walls should include:

- stabilization of shifting foundations (see "Brick Masonry")

- maintenance of the protective stucco coating
- removal and replacement of incompatible repairs and coatings
- effective site drainage.
- removal and control of harmful vegetation and rodent control.

## TABBY REPAIR AND MAINTENANCE

### Crack and Spall Repairs

To patch and fill exposed sections of historic tabby walls, it is important as a first step to determine the seriousness of the deterioration of the material. It is significant to remember that in early tabby construction the tabby itself was rarely left rough, but instead had a protective stucco layer. Degrees of tabby deterioration may be classified as follows:

- Minor. The protective stucco coating remains, but is cracked and spalled. This condition contains serious potential for decay if water penetrates behind the stucco into the core of the wall.

- Medium. The tabby is exposed, but the integrity of the material still remains. Although such tabby is hard to the touch, the condition represents a problem in terms of the inevitable decay of the unprotected tabby.
- Serious. The tabby is exposed and "friable," that is, it pulverizes to the touch. In addition, the tabby may be eroded significantly at certain portions of the wall so as to seriously diminish the thickness of the wall.

CAUTION: For all serious deterioration of tabby affecting structural conditions such as a crack in an arch or lintel, the repair and stabilization should be supervised by a competent professional engineer experienced in using this material. Repairs should proceed using one of the tabby recipes described below, in the following applications:

### Repair Mixtures for Tabby Walls

The most important component of successful tabby walls is the design mix, or "recipe," for the material itself. The actual mix used in the tabby walls throughout Beaufort may vary slightly from wall to wall. Since it is important that the repair material not be stronger than the existing construction itself, laboratory analysis of the tabby to be repaired should be considered to determine its exact composition. This is a necessary and justifiable procedure because of the historic importance of every tabby wall in the Historic District.

In general, formulation of a repair material required for historic tabby is dependent on the age of the structure. Eighteenth and early-nineteenth century tabby consisted of four components of variable proportions: oyster shell lime, sand, water, and oyster shell aggregate. Portland cement was not available and was not incorporated into the tabby mix. Therefore, it should not be incorporated in the repair mix for early tabby. A typical repair mix may be formulated as follows:

1 part hydrated lime (ASTM C 207, Type S)
1 part hydraulic lime (ASTM C 141, NHL 3.5 or less)
4 parts sand (ASTM C 144)
4-6 parts oyster shell (crushed into pieces passing a 2-inch screen or smaller)

The oyster shell lime used in tabby construction consisted of burned oyster shells ground into a fine powder. This material is not available commercially. Though it is theoretically possible for a homeowner to burn oyster shells to create oyster shell lime, there is no way to ensure material of a consistent strength and quality. Bagged hydrated lime is readily available from home improvement stores and masonry suppliers. Bagged hydraulic lime is available at masonry suppliers and online from several manufacturers. The size of the oyster shell aggregate required is determined by the size and depth of the area to be patched. In general, the smaller the patch, the smaller the oyster shell aggregate. For very large patches or re-casting of full sections, aggregate size may range up to full oyster shells depending on the material to be matched. As tabby mixed with oyster shell lime often had a grayish color due to inclusions of wood ash in the lime, small amounts of wood ash or black masonry pigment may be required to achieve a matching color if the tabby is to remain exposed.

NOTE: There are numerous products sold under the name of oyster shell lime in garden stores and online; however, these products are composed simply of ground oyster shells that have not been burned and will not react chemically with water to form a cementitious compound.

Once Portland cement became commercially available in the late nineteenth century, it soon found its way into tabby construction. Incorporation of cement into tabby mixtures increased their compressive strength and reduced the required setting time, speeding the casting process. Tabby repair materials for late-nineteenth-century structures may incorporate gray and/or white Portland cement into the mixture. The ratio of gray to white cement ingredients can vary as necessary to achieve proper shading. The indicated amount of Portland cement should be taken as an absolute upper limit; any increase would strengthen the repair area beyond that of the original material with serious consequences. A typical repair mix may be formulated as follows:

1 part hydrated lime (ASTM C 207, Type S)
1 part gray and/or white Portland cement (ASTM C 150, Type I)
4 parts sand (ASTM C 144)
4-6 parts oyster shell (crushed into pieces passing a 2-inch screen or smaller)

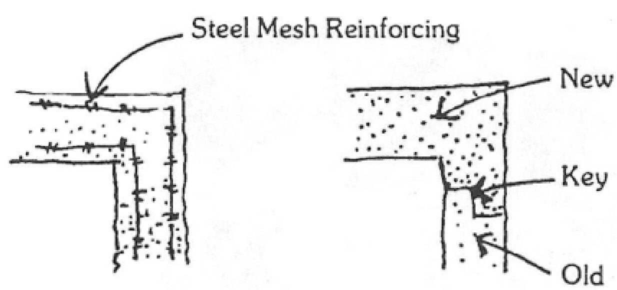
The basic mixing procedure is as follows:

- Dry-mix hydrated lime, hydraulic lime (as applicable), cements (as applicable) and sand.
- Add water and mix to a stiff consistency. (15 minutes for manual mixing, 4-5 minutes for machine mixing. Do not overmix)
- Add wet oyster shells.

Since the tabby begins to set in three to four hours, mix only as much material as can be placed within that period of time.

## Patching Tabby Surfaces

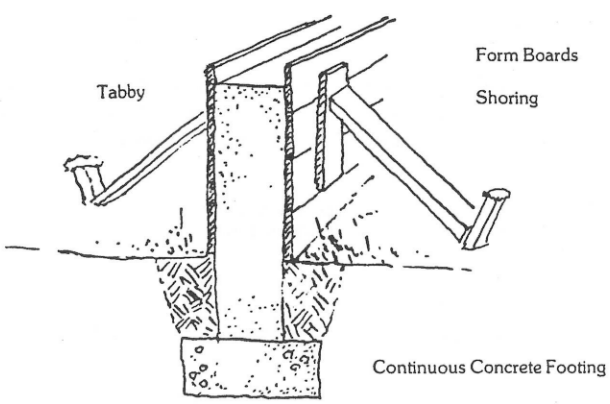
- Preparation of tabby surfaces for patching: Remove loose, friable material to expose a sound surface to receive patching. Surfaces to be patched should be thoroughly wetted to minimize absorption of mixing water from the patching material which may cause premature drying. The use of neat cement as a bonding agent is not recommended.
- Patching small holes or large shallow surfaces: Small holes and minor losses of surface that do not significantly reduce the section of the wall may be addressed by simply applying an additional coat, or a single thicker coat, of stucco. See “Stucco Repairs on Tabby Substrates” below. Where the tabby is to remain exposed, prepare the substrate for patching with one of the tabby mixtures described above. For holes, apply patching material in 1-inch lifts, working the patching material into the full depth of the hole with rod or similar tool. On relatively flat surfaces, apply a single coat of patching mixture with a trowel, working it into the rough surface of the host material, screed to level with adjacent surfaces. Do not attempt to float the patching material to a smooth surface. On irregular surfaces, applying the tabby with a brush, sponge, or even bare hands is recommended, adding broken shells as required to match adjacent material. (This procedure is also effective for protecting broken end pieces and for capping walls.)
- Filling large voids: Repair of large voids requires the use of forms to contain the patching material. Prepare the old tabby by removing loose material and biological growth. At corners and edges, reinforce the area to be patched with stainless steel mesh fastened to the substrate. (Where mesh reinforcing is required, reduce the size of the shell aggregate to less than the mesh openings to allow patching material to penetrate through it. Wet existing surface thoroughly. Pour the new material into appropriate wood forms, fastened to the existing surface or clamped firmly in place, tapping frequently to consolidate the patching material. Keeping the forms in place for two to three days to allow for full setting of the patch. After removal of the forms, brush the wall with water and a non-metallic bristle brush to bring out the shell texture.
- Proper curing is critical to ensure proper adhesion longevity of patches in tabby construction. Covering patched areas with burlap is critical to preventing premature loss of moisture from the patching material. Covered patches should be misted with water at regular intervals (dependent on ambient temperature and humidity levels) for at least 72 hours after placement.



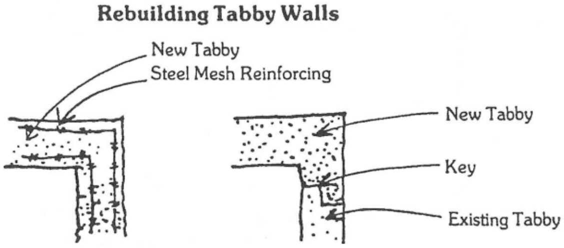
Tabby Walls: Corners

## Recasting Tabby Walls

The reconstruction of entire sections of wall is very similar to the historical process of building tabby. Horizontal form boards are used into which pours are made in layers. If the tabby is to remain exposed, the thickness of the layers and placement of peg holes should match that of the existing material. If not, then layers 6-10 inches thick, tamped frequently during placement, should suffice. Two to three days after the pour, the forms are removed. The exposed face of the new wall section is then brushed with water and a fiber bristle brush to bring out the shell texture and provide a key for stucco. Several precautions will help to insure structural stability. New walls can be set onto continuous spread footings while existing, settled walls can be underpinned (see “Brick”); in either case the advice of a competent structural engineer is essential. New corners should be reinforced with steel mesh, and where old corners meet with new material, a “key” should be cut in the old tabby.




**Rebuilding Tabby Walls**




**Tabby Walls: Corners**

Finally, the “aging” of exposed new tabby can be artificially hastened by carefully applying a single thin coat of swamp muck. This dulls the bright white color of the binder and adds the minute quantity of harmless vegetation which gives older tabby walls their character.

## Stucco Repairs on Tabby Substrates

This repair cannot be performed using modern stucco installation practices. Modern stucco construction usually involves multiple coats of material on a base of wire mesh. This is entirely too thick and regular for use as a protective coating for tabby. In addition, the use of a more regularized sand in modern mixes produces a stucco that differs from earlier materials in its color and blending. As with tabby itself, careful lab analysis is recommended to determine the exact “recipe” for the original stucco coating of a given historic tabby wall. What is critical is that the stucco coating not be harder and denser than the underlying material. As with tabby itself, stucco for eighteenth and early nineteenth-century buildings should be formulated without Portland cement while stucco for repair of later nineteenth-century buildings may include cement for strength and enhanced setting time. The following mixes are only intended to represent typical proportions:

**Eighteenth/Early-nineteenth century Buildings:**

1 part hydrated lime (ASTM C 207, Type S)
1 part hydraulic lime (ASTM C 141, NHL 3.5 or less)
4 parts fine sand (ASTM C 144)
Crushed oyster shell was sometimes included in historic stucco and may be added in small amounts if present in the original material.

**Later Nineteenth-Century Buildings:**

- 1 part hydrated lime (ASTM C 207, Type S)
- 1 part gray and/or white Portland cement (ASTM C 150, Type I)
- 4 parts fine sand (ASTM C 144)
- Crushed oyster shell was sometimes included in historic stucco and may be added in small amounts if present in the original material.

Again, the Portland cement content given here is intended to be an absolute maximum, although both shades of cement can be adjusted for purposes of toning the final color. This recipe allows for stucco of any thickness. No base, or “scratch,” coat is required since the rough surface of the tabby performs this function. On historically important walls requiring extensive repair, it is best to execute a test patch in an unobtrusive location. The stucco in such patches should then be allowed to weather for at least a year to determine its suitability in terms of performance and appearance.

Historically, stucco was applied in a single, relatively thin, coat over the tabby surface. Though thicker stucco applications may be expected to last longer, new stucco should be restricted to a maximum of two coats. Where the historic surface is irregular or weathered, the first coat of stucco may be increased to fill small, shallow voids and/or make up for the loss of eroded material. Where two coats are to be applied, the first should be scratched with a comb prior to applying the finish. Float the new stucco on with a plasterer's trowel and carry it over to the adjacent old stucco. Application should be smooth. Surplus stucco should be washed off with a light stream of water. After the finish coat has achieved initial set, the surface may be carefully brushed or etched with a light spray of water to match the texture of the earlier stucco. Cover and cure new stucco surfaces by misting periodically with clean water. The higher the ambient temperature, the shorter the interval between mistings should be.

## Stucco

Stucco is found on other substrates besides tabby throughout the Beaufort Historic District. The most common of these is brick. Stucco was often used historically on brick masonry to impart a smooth finish like that produced by much more expensive ashlar stone masonry. In fact, stucco surfaces were commonly scored to produce a bonded pattern resembling the joints of stone masonry.

Stucco as a material is essentially mortar, consisting of a lime and/or cement binder mixed with sand aggregate, spread over an architectural surface. The difference lies in its application. On substrates other than tabby, stucco is typically applied in two or three coats either directly to masonry or over wood or wire lath as follows:

- The first coat, also called the scratch coat, is the thickest (up to ¾ inch) and may contain reinforcement such as animal hair or plant fiber. While still plastic, this coat is scratched or combed to provide a mechanical key for the succeeding layer. This step is not often seen in Beaufort as stucco is typically applied directly to masonry.
- The second coat, also called the brown coat, is usually a similar mix to the scratch coat though the fiber reinforcement is often omitted. This coat is applied in a slightly thinner layer (up to ½ inch) than the scratch coat and is troweled smooth to provide a base for the finish. In two-coat work, this layer is the first applied. This should be installed with a wood float, rather than modern metal tools, to achieve a slightly rougher and more appropriate texture. This coat should be moist "cured" (see above) for at least two days and subsequently allowed to dry for five days.
- The third or final coat is the finish and is mixed with a higher ratio of binder to aggregate than the other coats to produce better adhesion and a smoother finish. Applied to a 1/8" minimum thickness, the finish should be allowed to set for a day. It can then be cured for a day with a light mist. Whether a patch is made with thin "tabby" stucco or with more modem techniques, final work should always be preceded by patient experimentation to determine final color and weathering strength. Although it is almost impossible to precisely match stucco colors in repairs, patches of new material can be installed that are at least compatible in appearance with the old.

Tabby construction is extremely rough and porous, allowing subsequent stucco coatings to penetrate, forming a consistent mechanical key across the entire surface. Concrete and masonry construction are smoother and less porous, giving less of a foothold for a stucco coating. Historically, when stucco was applied to a masonry substrate, the masonry joints were raked to allow the stucco to penetrate and form keys. In modern stucco work, expanded metal lath is mechanically fastened to the masonry or concrete surface to receive the stucco and hold it in place.

# STUCCO CONDITIONS

Stucco on masonry substrates is vulnerable to both structural movement and moisture penetration and is subject to the same types of deterioration mechanisms as stucco on tabby construction including cracking, erosion and delamination.

## Cracking

As a relatively rigid material, stucco is vulnerable to any movement of the underlying substrate. Structural movement, including cyclical thermal expansion and contraction and non-cyclical differential settlement between building components, is often reflected in cracking of stucco finishes. Once cracked, stucco becomes susceptible to water penetration and vegetation growth.

## Delamination

Delamination is the loss of bond between a stucco coating and its substrate. In coating. In historic stucco, weakening or fracturing of the mechanical keys may be caused by structural movement or the ingress of water behind the coating. Water trapped between a stucco and the substrate may be subject to ice jacking, causing small areas to crack and bulge. In modern stucco, water trapped between the stucco and substrate deteriorates the mechanical fasteners attaching the metal lath to the structure. Because the stucco is so thoroughly keyed to the wire lath, large areas may delaminate with only minimal cracking.

## Erosion/Powdering

Rising damp in masonry structures is often reflected in deterioration of their exterior stucco near grade. As with uncoated brick masonry, migrating moisture carries soluble salts leached from soil and from the masonry itself upward toward the exterior wall surface. As the moisture evaporates, the salts recrystallize in and on the masonry surface, forcing the grains of stone or brick or mortar apart and causing the surface to powder away. When a stucco coating is applied over damp masonry, the evaporation point is moved outward to the surface of the stucco, causing the powdering and erosion to occur in the stucco rather than in the underlying masonry. In some areas subject to chronic dampness, stucco is applied as a sacrificial coating, renewed every few years but protecting the masonry substrate from salt damage.

# STUCCO REPAIR AND MAINTENANCE

As with tabby construction, the materials used to patch stucco applied to other substrates must match the original material in strength and hardness as well as color and texture. Stucco for eighteenth and early nineteenth-century buildings should be formulated without Portland cement while stucco for repair of later nineteenth and twentieth-century buildings may include cement for strength and enhanced setting time. The following mixes are only intended to represent typical proportions:

**Eighteenth/Early-nineteenth century Buildings:**

**Scratch / Brown coat**
- 1 part hydrated lime (ASTM C 207, Type S)
- 1 part hydraulic lime (ASTM C 141, NHL 3.5 or less)
- 6 parts fine sand (ASTM C 144)
- Animal hair nylon or glass fiber

**Finish Coat**
- 1 part hydrated lime (ASTM C 207, Type S)
- 1 part hydraulic lime (ASTM C 141, NHL 3.5 or less)
- 4 parts fine sand (ASTM C 144)

**Later Nineteenth-Century Buildings:**

**Scratch / Brown coat**
- 1 part hydrated lime (ASTM C 207, Type S)
- 1 part gray and/or white Portland cement (ASTM C 150, Type I)
- 6 parts fine sand (ASTM C 144)
- Animal hair nylon or glass fiber

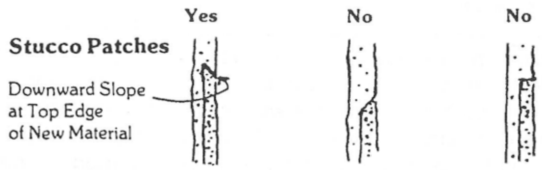
**Finish coat**
- 1 part hydrated lime (ASTM C 207, Type S)
- 1 part hydraulic lime (ASTM C 141, NHL 3.5 or less)
- 4 parts fine sand (ASTM C 144)

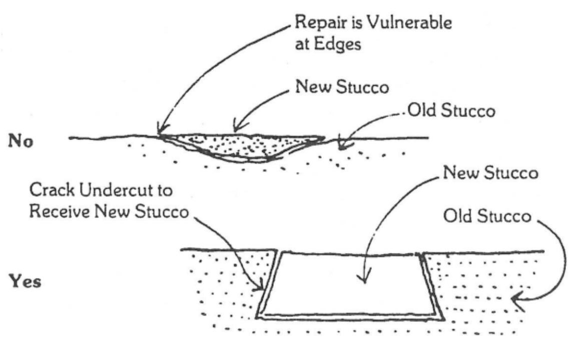
Again, the Portland cement content given here is intended to be an absolute maximum, although both shades of cement can be adjusted for purposes of toning the final color. This recipe allows for stucco of any thickness. On historically important walls requiring extensive repair, it is best to execute a test patch in an unobtrusive location. The stucco in such patches should then be allowed to weather for up to a year to determine its suitability in terms of performance and appearance.

Cracks. As with other masonry, the appropriate repair of stucco cracks is dependent on the type of crack to be repaired. Cyclical cracks resulting from daily or seasonal expansion and contraction may occur at the juncture between dissimilar materials such as wood window frames and stucco or at the intersection of building masses such as where an addition joins the original building. At locations such as these, the crack is active and a flexible repair is appropriate. To form a functional sealant joint, the crack must be raked to a uniform width of at least ¼ inch, cleaned of loose debris and filled with flexible elastomeric sealant.

For non-cyclical cracks, a cementitious repair is required once the underlying cause of the crack is identified and repaired. The use of a flexible sealants is aesthetically inappropriate in this application and may inhibit the movement of water vapor through the masonry.

Proper preparation of stucco cracks for patching is critical to achieving a durable repair. Never install new stucco in a crack that has been merely grooved to receive it. Instead, existing stucco should be undercut to provide a "key" for receiving the new work. This is made by opening up the crack with a knife or small diameter grinding wheel and undercutting the edges. Horizontal cracks, along with the top edge of vertical cracks, should be undercut so that no seam between existing and new construction will lead downward into the building.



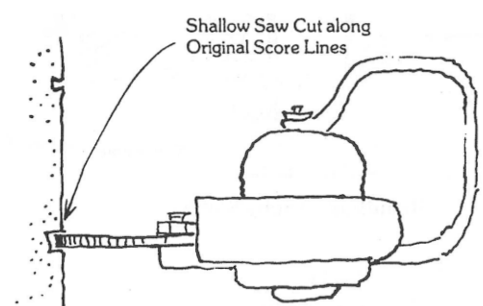



**Cracked Stucco Repairs**

After the undercut has been made, brush out all loose material. Then, moisten the crack and fill it with a stucco that matches the adjacent material. The stucco is applied with a trowel or a putty knife and should fill the crack tightly and completely. In fact, it should slightly overfill the edges of the crack. After it has set for fifteen minutes, the stucco can be troweled flush with adjacent areas. It should then be "cured" for three or four days, during which time the repaired area is moistened daily, both in the early morning and late afternoon. Successful patch recipes will weather to match the original material over time. When a proper recipe has been determined for a given structure, it should be preserved for future repairs.

Patches. Deep patches must match the thickness of adjacent, original material. The stucco recipe given above is extremely flexible, and suitable for very thin (1/4 inch) applications. Thicker patches can either be built up or installed according to modern practices. In the latter case, all affected stucco should be removed down to the bare wall. If that wall is brick, the mortar joints can be cleaned out to a depth of about 1/4" to act as a key for the new material. All cleaning should be done with bristle brushes, never with wire brushes. Where the stucco to be patched is applied over metal lath, the metal lath may be reused if sound or new metal lath applied over it and fastened independently to the substrate.

**Re-scoring Stucco -** Certain important buildings in the Historic District of Beaufort employed grooving, or "scoring," of the finish stucco coat in an attempt to mimic the joint lines of architectural stonework. Long term deterioration of this scoring seriously diminishes the architectural impact of such key structures as the Secession House, the "Castle," and the Arsenal. Various procedures are possible for re-scoring stucco. Each method is expensive and should only be attempted by an experienced craftsman. Also, re-scoring should never take place until all other stucco repairs are completed and an accurate recipe has been determined through laboratory analysis and test patches. There are two options for reestablishing historic score lines without replacing the stucco. First, a single shallow pass may be made with a saw along each score line to slightly deepen the groove. Paint over the groove with paint to match the color of adjacent original material.



**Rescoring Stucco**

Or:
It is possible to "emphasize'' the original scoring lines with paint alone. If repainting of the exterior stucco is undertaken, the scoring joints can be painted one hue darker than the adjacent material. It is recommended that very strong contrasting shades of paint be avoided for joints and "stone." This will only give an artificial appearance to the finished product.

When executing such major work on important buildings, it is always good practice to leave an undisturbed area as a record of original material and technique.

Grout Injection and Pinning

Areas of stucco that have delaminated from the underlying substrate may be re-adhered in one of two ways depending on the thickness of the stucco coating and the condition of the underlying substrate.

Injection grouting may be used to successfully reattach small areas of loose stucco provided the coating has not bulged more than approximately ¼ inch out of plane. This method works particularly well with fragile, lime-based stucco on masonry. As with other masonry restoration materials, the grout used must be formulated to be compatible in strength with both the masonry and the stucco. Standard cement grout commonly used for new masonry construction is significantly harder than both and may cause damage over time by decreasing the breathability of the wall. Restoration grouts specifically formulated for injection into historic masonry are commercially available.

The process of injection grouting is not complicated but can further damage the stucco if not done properly. It is therefore recommended that the building owner seek the help of an experienced conservator or restoration mason. Small-diameter pilot holes are drilled in the delaminated area, which must be done carefully to avoid cracking the stucco. The grout is fed into the void working from the bottom up and sealing the injection holes as the work progresses. The grout is gravity-fed to avoid exerting internal pressure on the stucco which could defeat the purpose by pushing the stucco further away from the substrate.

Pinning of delaminated stucco is best suited to relatively thick (over 1 inch) later-nineteenth or twentieth-century coatings on masonry or concrete, particularly those applied over metal lath. In this method, short (2-3 inches in length) helical stainless-steel pins, only a few millimeters in diameter, are drilled through the stucco into the masonry substrate below. The pins are spaced at regular intervals vertically and horizontally depending on the thickness of the stucco and whether or not it is applied on metal lath. It is the most economical method of reattaching large areas of delaminated material. The pin holes can be easily patched with mortar after completion of the work.

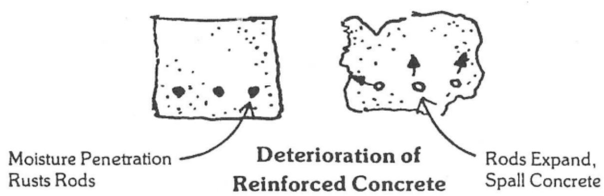
## Stucco Cleaning

Stucco is prone to the same types of soiling and staining as brick and other masonry. However, eighteenth and early-nineteenth century stucco is likely to be significantly more fragile than brick masonry. Stucco, because it composed largely of lime, is also much more acid-sensitive than brick masonry. While the recommended cleaning techniques remain generally the same, extra care must be taken to avoid the use of acidic cleaning products and excessive water pressure for cleaning and rinsing. Stucco near grade is likely to be slightly deteriorated due to moisture and salt migration and may be severely damaged by the use of moderate or high pressure-washing. The preparation of a cleaning test panel in an inconspicuous location is critical prior to implementing a building-wide cleaning program.

## CONCRETE

The number of historically significant concrete structures in Beaufort is extremely limited. Only the house at 607 Bay Street represents an early comprehensive architectural use of reinforced concrete. The early reinforced concrete construction represented in this structure is similar to the stucco described above in its attempt to imitate stone. The scoring, textures, and shapes are all reminiscent of architectural details originally executed in stone. Though the aesthetic use of reinforced concrete is rare in the District, information regarding basic concrete repair is included herein as curbs, areaways site walls and other features associated with historic buildings are commonly constructed with it.

Concrete, like all other masonry materials, is extremely strong under compressive loads such as those borne by building foundations but performs poorly under tensile loads like those imposed on beams and girders. Reinforced concrete is strengthened against tension forces by embedding metal bars or mesh in key structural locations. Even decorative precast elements such as balusters are frequently reinforced with one or more embedded rods. Since these bars perform a structural function which concrete alone cannot achieve, it is essential that they be preserved from corrosion and that their bond with the surrounding concrete be maintained. Freshly cast concrete is highly alkaline and the high pH protects the embedded steel from corrosion. Over many years, however, the pH of concrete is reduced as the free alkali in the material reacts with the air and atmospheric moisture to form calcium carbonate. As the carbonation process proceeds, starting at the surface and progressing inward, the embedded metal becomes susceptible to corrosive attack by salts and moisture. This problem is particularly acute in a coastal environment like that of Beaufort. Modern building codes mandate a minimum amount of concrete coverage for embedded reinforcing. Historic concrete, fabricated prior to the implementation of building codes, may have metals embedded closer to the surface and vulnerable to moisture penetration. Corroding iron may expand up to ten times its original size, eventually fracturing the bond between the reinforcement and the surrounding concrete and causing the surface to spall, leaving the rod exposed.




Exposed reinforcing rods pose a very serious problem as the corrosion will generally continue, reducing the strength of the reinforcement and the concrete assembly as a whole. This process can accelerate quite rapidly. It is therefore highly recommended that concrete elements be inspected annually for signs of corrosion such as rust stains, spalls and bulges. Prompt repair can limit the damage and avoid structural deterioration.

## CONCRETE REPAIR AND MAINTENANCE

The house at 607 Bay Street, with its "turned" balusters, fluted columns, and decorative lintels is a typical example of the reinforced concrete construction of the early twentieth century. Once the corroded metals are addressed, repair of these features in not unlike the repair of natural stone. However, the repair of profiled decorative elements requires a level of skill that is generally beyond the average homeowner. A highly qualified professional masonry restoration contractor with experience in rebuilding carved surfaces should be consulted. In all cases, a competent structural engineer should supervise work involving structural members. In addition, all work should be shored while repairs are being made.

### Cracks

Cracks are of particular concern in reinforced concrete as they provide avenues for water to penetrate directly into the surface and attack the reinforcing. As with other masonry, the type of cracking must be assessed before beginning repair. Any time a concrete mass displays through-cracking, a structural engineer should inspect and provide the assessment.

Active cyclical cracks should be repaired with a neutral-curing, non-staining flexible sealant to accommodate continued movement. Assuming that underlying structural conditions are addressed, non-cyclical structural cracks can be repaired with either sealant or mortar. The choice of repair material is primarily an aesthetic one. When cracks are smaller than 3/16" they must be slightly enlarged to at least ¼ inch or in accordance with the sealant manufacturer's minimum required joint size. If the crack exceeds 5/8 inch in width, the sealant manufacturer should be consulted to determine a suitable joint design. Installation of a backing rod will likely be required prior to sealing to maintain the proper sealant depth. The sealant should be applied as nearly flush to the adjacent surface as possible. The crack can be further hidden by dusting fine sand onto the surface of the sealant while it is still tacky.

Preparation and cementitious repair of cracked concrete is performed in the same manner as crack repairs in stucco discussed previously. The repair mix, however, will be different than that used for historic stucco. Early concrete in general is significantly lower in compressive strength than modern material and this must be taken into account when formulating a repair mixture to avoid a repair that is significantly harder and denser than the host substrate. Neat Portland cement should not be used as a repair material. Lime should be incorporated in the mix to ensure that the compressive strength of the repair is less than that of the historic concrete. The following mix is only intended to represent typical proportions:

- ½ - 1 part hydrated lime (ASTM C 207, Type S)
- 2 parts gray and/or white Portland cement (ASTM C 150, Type I)
- 5-6 parts fine sand (ASTM C 144)
- 8-9 parts gravel passing a ¾ inch sieve (For patches in excess of 2 inches deep only)

Numerous proprietary patching products are available in home-improvement stores but most of these are inappropriate for use in historic concrete. There are, however, several manufacturers of restoration mortars that supply products specifically formulated for use on older concrete, including precast. For repair of decorative cast concrete, the use of one of these proprietary products is recommended. These suppliers generally also offer custom color-matching services.

## Corrosion Spalls

Repair of corrosion spalls in reinforced concrete requires considerably more preparation work than repair of spalls in unreinforced masonry. The corroding reinforcement must be exposed and cleaned to expose sound metal. All unsound, friable concrete must be removed and the edges of the area to be patched should be undercut to provide a key for the new material. Where concrete deterioration continues behind the reinforcing, that loose material must be removed to allow the patching material to completely surround the reinforcing. A corrosion-inhibiting coating must then be applied to the metal prior to placement of the cementitious patch.

Once the damaged area is prepared to receive the new material is prepared, the substrate should be thoroughly wetted but with no standing water left on the surface. The mating surface may be coated with a slurry of neat cement or commercial bonding agent. Apply patching material for shallow spalls in lifts of approximately ½ inch, working the mortar well into the surface. Do not allow patching material to set between lifts unless the surface is scratched to key in the subsequent layer. Float to a smooth surface flush and continuous with the original surface.

Large, deep spalls in flat surfaces require the use of forms with a repair mix containing gravel to impart both strength and stability to the patched area and reduce shrinkage. Forms may be anchored to the concrete surface or clamped in place depending on the configuration of the surface to be patched.

Where decorative profiles must be restored, place and tool patching material in accordance with manufacturer's instructions.

As with other types of masonry patching, moist-curing of the new material for at least 48 hours is critical to promote adhesion and prevent the development of shrinkage cracks.

**Adhesive Repairs.** Where decorative elements have spalled and the detached fragment remains intact, reattachment using a moisture-proof epoxy or acrylic resin adhesive may be possible. Preparation for re-adhering a detached fragment consists of cleaning and coating any exposed reinforcing steel and removing and loose material and dry-fitting the fragment back in place to verify that it will seat properly. Prepare the adhesive in accordance with manufacturer's instructions and apply to both of the mating surfaces. Press the fragment firmly into place and quickly remove any adhesive that exudes from the perimeter joint. Clamp or bind the reattached piece in place until the adhesive is fully cured. Touch up any visible joint around the edges with a small amount of lime and cement mortar.

## Maintenance

Even concrete that is not apparently deteriorated should be frequently checked for potential problems. In so doing, the suspect material is "sounded" by striking it lightly with a hammer or, in the case of a floor, by dragging a chain across the surface. Healthy concrete responds with a ringing noise, while deteriorated concrete is indicated by a hollow "clunking" sound. Also, rust stains suggest that concealed reinforcing is corroded, and is thus losing its structural capacities. Deterioration problems are to be expected in such locations. When serious problems are suspected, it may be necessary to make a small hole with an electric drill and masonry carbide bit. With healthy concrete, the drill should firm up almost immediately; damage caused by such testing can be repaired easily. If the drill penetrates deeply, there is reason to suspect hidden deterioration. When any such tests suggest deterioration, the suspect areas should be frequently examined for signs of further deterioration. At the first sign of spalling, the area should be opened up to expose all rusted reinforcement and repairs should be made as outlined above.

## Summary of Recommendations

## Tabby

- Historically, tabby is a mixture consisting of oyster shell lime, sand, water and oyster shells placed in forms or molds in the same manner as modern concrete. With the introduction of Portland cement in the last quarter of the nineteenth century, the tabby mixture came to incorporate cement for increased strength and decreased setting time. The use of Portland cement is to be avoided entirely in the repair of early tabby structures. A limited amount of Portland cement may be included in repair mixes for late nineteenth and

twentieth century tabby structures that utilized cement in their original mix.
- Tabby is a rough and highly porous material and not originally intended for prolonged exposure to the elements. A thin layer of lime-based stucco was typically applied to seal the surface against water penetration. Maintenance of the protective stucco coating is critical to the preservation of historic tabby.
- Tabby is highly vulnerable to weakening and dissolution by water penetrating the material through cracks, rising damp, poor site drainage or through vegetative growth.
- Tabby, particularly eighteenth-century tabby, is a relatively plastic and porous material and therefore must be repaired with materials of similar strength and breathability. The use of hard, dense or impermeable repair materials on tabby surfaces is likely to trap moisture within the body of the structure, accelerating internal deterioration.
- Faux tabby, consisting of cementitious material with oyster shell fragments pressed or shot into the surface, is both functionally and aesthetically inappropriate and should be avoided in both repairs and new construction.

## Stucco

- Stucco is essentially mortar applied to building surfaces in one or more coats for protective and/or decorative purposes. Stucco was often applied to impart a smooth surface to rough materials such as brick, concrete and tabby and scored in imitation of more expensive ashlar stone masonry.
- Modern stucco is typically applied in three coats. The first, or scratch, coat is bonded to the substrate and usually reinforced with hair or other natural fiber to provide tensile strength. His initial coat is then scratched to provide a key for the succeeding coat. The second, or brown, is similar in composition to the first but is floated smooth to receive the final coat. The third, or finish, coat is generally much thinner than the preceding coats and incorporates less aggregate, resulting in a less porous surface.
- Stucco may be applied directly to masonry or applied over wood or metal lath anchored to the substrate.
- Conditions affected in stucco include cracking, erosion or powdering and delamination or loss of adhesion to the substrate. In all cases, repair materials must be similar to the original stucco material in strength and porosity or the repairs may trap moisture and accelerate deterioration.
- Cementitious repairs are the most commonly used to address cracks and spalls. Delaminated stucco, depending on its condition and substrate, may be reattached using injection grouting or dry-pinning, both of which should be performed by a professional contractor.

## Concrete

- Reinforced concrete is concrete in which metal rods or cable are embedded to provide tensile strength. While the metal reinforcing greatly strengthens concrete, allowing for construction of beams, decks and other tension members, it also makes it vulnerable to cracks and spalling caused by corrosion of the embedded metal.
- Patching of cracks in historic concrete is dependent on whether the crack is active or non-active. Active cracks must receive flexible repairs to accommodate continued movement while inactive cracks may be repaired with either mortar or sealant.
- Restoration of spalls in historic concrete must include cleaning and coating of exposed reinforcing to prevent continued corrosion that could compromise the repair.
- Patching materials for historic concrete must be similar to the host material in strength and hardness. The use of straight Portland cement in repair mixes is to be avoided. For decorative precast concrete features, the use of a proprietary restoration mortar is recommended.
- Broken fragments from decorative elements, if intact, may be re-adhered using resin adhesives provided any exposed embedded metals are first cleaned and treated.

# Wood

# Chapter 8: Wood Preservation

## Introduction

Workability and flexibility make wood one of the most versatile of all building materials. For each function it serves - structural stability, moisture protection, or ornament - techniques of design and installation have been developed over centuries of use.

609 Craven Street

The life of a wood element is highly dependent on the extent and quality of maintenance it receives. As versatile as it is, wood can only perform satisfactorily when it is protected from the three natural forces that work to weaken and deteriorate it: pests, rot, and weathering. The capacity of wood to resist these forces depends to a large degree on periodic inspection and immediate response to all warning signs. Both the inspection and response involve simple techniques, but are among the most important procedures that can be taken to protect a property. Like many decay processes, once begun, deterioration of wood accelerates rapidly and is self-generating.

Deteriorated Wood Example

Deteriorated Wood Example

Throughout these guidelines, it is suggested that new, replacement woods should match the species of existing adjacent material. This is true not only because of textural appearance, but also because different species have different rates of expansion. This is particularly important where new wood dutchmen patches are to be bonded to existing wood components. The U.S. Forest Service provides an invaluable and free service in the identification of wood species.

Property owners may obtain additional information about this service by reviewing the fact sheet available at the following website: https://www.fpl.fs.fed.us/research/centers/woodanatomy/wood_idfactsheet.php. The fact sheet includes the required submission form and information regarding sample preparation and shipping.

A note regarding wood species: The wood components found on many historic buildings in Beaufort were fabricated from old-growth lumber taken from the virgin forests that once covered the southern United States. The vast majority of lumber species available in 2022, however, are not from old-growth trees but from much younger trees farmed in managed forests. Lumber from these newer-growth trees is generally inferior to old-growth lumber in terms of its strength and its resistance to fungi and insects. Therefore, it is necessary at times to replicate historic features using non-native woods or treated wood products instead of with the original species in the interest of longevity. Where the exposed wood surfaces are to be painted, the use of alternate products will not be recognizable. In applications where wood components are to receive a transparent finish, however, the color and grain pattern of the wood are part of the historic character. In these cases, it is worth seeking out replacement wood of the same species.

Each wood species and treated wood product has its own unique characteristics which suit it for particular uses, and not others. The following links a variety of species with their appropriate uses.

- Heavy framing: Dense yellow pine, Douglas fir, White oak, Eastern Larch, Spruce
- Light framing, including joists and rafters: Spruce, Hemlock, Common yellow pine, Larch, Pressure-treated lumber (KDAT)*
- Outside finish (Painted finish): Cypress (treated), Redwood, Pressure-treated (KDAT)*, Acetylated wood**
- Shingles and shakes: Cedar (Red, White or Yellow), Cypress (treated only)
- Siding and clapboards: Cypress (treated only), Redwood, Larch, Spruce, Pressure-treated (KDAT)*, Acetylated wood**
- Window sash, doors, frames to receive a painted finish: Plantation-grown Honduras mahogany, sapele

* KDAT refers to pressure-treated lumber that is "Kiln-Dried After Treatment." Kiln-dried lumber is lighter and less subject to warping, cupping or twisting. While this product is suitable to receive a painted finish, compatibility of the proposed primer with pressure-treated wood should be verified with the coating manufacturer. The use of hot-dipped galvanized or stainless-steel fasteners is required.

**Acetylated wood is softwood that has been chemically modified to eliminate water absorption and resist rot. This material is more brittle than untreated lumber and cannot be worked on a lathe. While this product is suitable to receive a painted finish, compatibility of the proposed primer with acetylated wood should be verified with the coating manufacturer. Due to the acidic nature of the treatment, the use of stainless-steel fasteners is required.

A note regarding wood grades: Lumber materials are graded based on the percentage of heartwood versus sapwood and the number and distribution of knots, fissures and other defects. In general, lumber to be used in trim applications should be of higher grade to void defects that may interfere with the milling process. The following are typical grades used in exterior architectural applications:

Framing Lumber:
- Spruce/Pine/Fir (Structural Framing): No. 1 or better
- Spruce/Pine/Fir (Non-Structural Framing): Construction grade
- White oak: No. 1 or better

Finish Lumber:
- Acetylated wood: Grade A1
- Cedar (Shingles): Grade 1
- Cypress (Shingles): Heartwood (treated only)
- Cypress (Siding): Select (treated only)
- Mahogany or Sapele (Painted finish): Select or better
- Pressure-Treated KDAT: C & Better
- Redwood: Heart B or better

**809 Bladen Street**

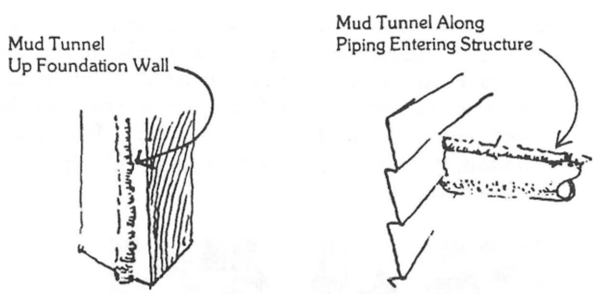
The following section treats only broad general problems associated with wood, regardless of its application. Specific construction and repair problems are treated in the appropriate sections: “Porches,” “Doors/Windows,” “Siding/Trim,” etc.

## Pest Control

Certain pests are natural enemies of wood. They can quietly, but dramatically, destroy the structural stability of a wood-frame house in a very short period. These pests include termites, powder post beetles, and carpenter ants.

**Termites -** These pests, which live in moist soil, enter wood for food and shelter and then return to the soil each day. This constant traffic usually results in tunnels and passageways on vertical surfaces, an obvious sign of their presence. The property owner should be on the lookout for:

- half-round vertical mud tunnels on foundation walls, piers, piping, etc. These tunnels usually form the most direct route from the ground to the food source in the exposed wood. Crawl spaces should be frequently inspected for revealing tunnels.
- pathways at horizontal openings where piping enters the house or its foundation wall.




**Evidence of the Presence of Termites**

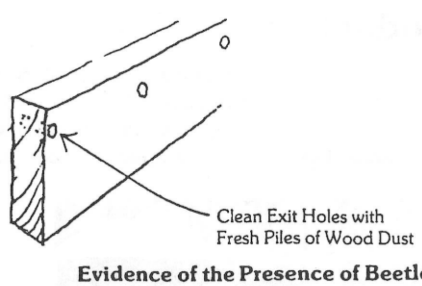
If termites are suspected, all suspicious wood should be investigated for infestation. If a sharp awl can penetrate the wood to a depth of a minimum of 1/2” to 3/4” with only hand pressure, there is a strong possibility of the existence of termites or rot.

As a prevention and cure for termite infestation, the following steps should be taken:

- Remove permanently all scrap wood and lumber from the crawl space beneath the house and yard. This deprives termites of an appealing living space.
- Control of termites requires both the use of chemical baits and barriers and the modification of the environment around the building perimeter to make it less hospitals to termites. The chemicals used to kill and repel termites may be hazardous to both the applicator and the building occupants if not applied properly. The implementation of chemical termite treatments is not a legal do-it-yourself project for the homeowner. A licensed commercial pest-control professional should be employed to perform this work.
- Repellent and non-repellant barrier applications attempt to control termites by introducing large quantities of liquid insecticide into the soil under and immediately adjacent to the building foundation. Repellant treatments are detectable by termites and deter their passage through treated areas. Non-repellant treatments allow termites to pass through the treated area. These applications may be quite effective but may require over 100 gallons of chemical to completely permeate the soil. The barrier must extend fully underneath basement slabs. Any gaps in the treatment barrier may be exploited by termites to enter the building. The lifespan of these treatments may range between 5 and 10 years depending on the soil chemistry and other environmental factors. The choice of chemical for termite treatment should be determined by a pest-control professional.
- New wood construction materials may be pre-treated with borate-based termiticides.
- Preventive measures to discourage termites can be easily implemented by the homeowner and are generally quite effective at preventing serious infestations. These measures include the following:
- Remove all unnecessary wood, cardboard and paper materials stored in and around the house, particularly in basements, crawlspaces and attics. These items provide a food source attractive to termites. Do not store lumber materials adjacent to the building foundation. Store firewood well away from the building, bringing only small quantities indoors as needed during heating season.
- Clearing of crawlspaces, basements and attics also improves air circulation in these areas, reducing the general level of moisture. Air circulation and environmental moisture levels can be further improved by removing shrubbery and vegetation planted within 24 inches of the building perimeter and limiting the use of wood mulches in planting beds adjacent to the foundation. Mulch should never be in contact with wood siding or framing.

- Inspect crawlspaces, basements and attics regularly for any evidence of dampness or leakage, particularly around pipe penetrations. Repair any leakage immediately. Leaking pipes provide a water source attractive to termites and other insects.
- Extend downspout discharges to a minimum distance of six feet away from the building line using extension pipes and/or splash blocks. Where downspouts are connected to below-grade drains, inspect inside the basement adjacent to drain locations for signs of leakage including mold and deteriorating masonry. Where no basement is present, inspect for signs of subsidence in piers adjacent to downspout locations.
- Avoid the use of wood construction, such as porch steps and deck posts, in contact with the ground. These elements may provide a conduit for termites to enter the rest of the building.
- Cut out all damaged wood at least one foot beyond the infestation in all directions. Of course, any affected structural members must be correctly shored during such removal (see "Brick") under the direction of a competent structural engineer. All removed, infested wood should be burned. Replacement of the same species should be installed. For structural members, lap splices are preferable (see "Porches") although the exact dimension and connection of such a splice depends on the specific situation and is a matter for the engineer.

**Beetles -** Wood is especially susceptible to beetle attack during the process of seasoning and storage, prior to its conversion to lumber. No wood that is infested should be introduced to the property; suspect material can be sterilized by means of fumigation and the direct application of an appropriate insecticide.




**Evidence of the Presence of Beetles**

Protection from beetle attack should be considered an essential preventive maintenance practice for all vulnerable structural wood. One treatment is to coat all uninfested wood with a film-forming finish that prevents the insect from laying its eggs on bare wood. Simpler, and more fruitful for other purposes as well, is the application of a suitable wood preservative such as pentachlorophenol (see "Rot").

Beetles are frequently attracted to wood that has already been softened by rot or fungal attack. Thus, prevention of moisture penetration and removal of the fungus is an additional effective preventive maintenance technique for beetles.

The appearance of clean bright exit holes accompanied by piles of fresh boredust is a sure sign of a recent beetle attack. Treatment of such an attack is similar to that for termites, and includes installing appropriate shoring if a structural member is involved. Infested wood must be cut away and then burned immediately. All exposed lumber should be treated with a suitable insecticide. The insecticide should be lavishly brushed over the members and can also be injected into the various bore holes. Because the complete life cycle of many of these destructive beetles may be twelve to fifteen years, suspect wood should be treated at three to four year intervals.

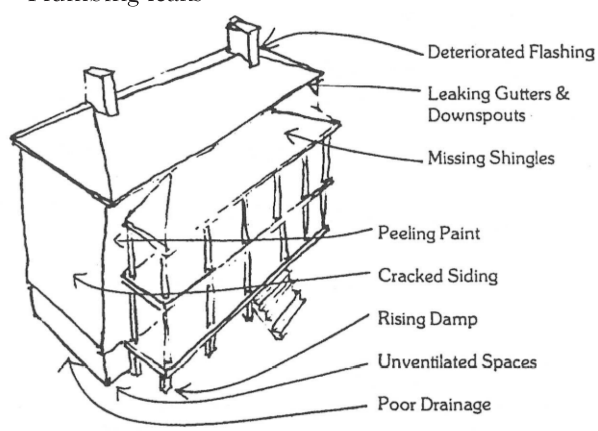
**Carpenter Ants -** Like termites, carpenter ants usually attack a house from the crawl space of the basement. Soil-applied fumigants along the perimeter of the building in conjunction with surface-applied pesticides are usually adequate controls for this pest. The chemicals required for soil treatment for carpenter ants are subject to the same restrictions as those employed for termites. They are not available except through licensed commercial pest-control contractors. As carpenter ants are attracted to moisture in the same manner as termites, the homeowner may implement the moisture control measures described above to minimize the likelihood of carpenter ant infestation.

## Rot

"Rot" generally refers to one of several fungi. These organisms often require at least 20% moisture content in the wood, proper food, and the correct temperature range for survival. Dryness is the best available preventive technique. Keep in mind the serious potential of fungi for weakening the structural integrity of wood in the sense of diminishing its capacity to carry loads or its ability to withstand crushing. Without these capabilities, the wood frame of a house can be rendered useless.

There are many varieties of rot, some serious and some minor. However, all rot indicates a failure with respect to the building's ability to withstand moisture penetration. Thus, attending to the rotted wood itself is inadequate. If the source of the moisture is not discovered and eliminated, rot will recur and spread. Typical vulnerable points where moisture penetration most often occurs are listed below. If rotted wood members are present, these areas should be investigated. Where the following are observed, nearby structural members should be inspected for possible rot:

- Leaking gutters and downspouts
- Accumulating water adjacent to the building foundation
- Loose, detached or missing flashings, particularly where flashings are face-adhered to wall surfaces rather than let in under siding or trim failure in the integrity of the siding or roofing material, e.g. peeling paint, cracked siding, missing shingles
- Failures in roofing or siding including missing shingles, split siding and peeling paint
- Rainwater discharge adjacent to foundation
- High water table and/or rising damp
- Plumbing leaks




**Moisture Penetration**

**Types -** After the source of moisture has been ascertained, the second inspection procedure involves a determination of the type of rot affecting the wood. A broad range of potential consequences accompanies rot and it is helpful to be able to differentiate serious attacks from minor ones.

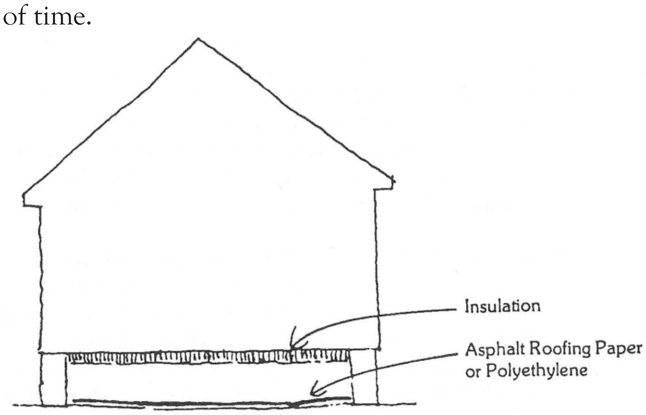
- Mold or mildew. This appears as a powdery loose surf ace on the wood. Its color can be orange, pink, green, or black. It is not serious in itself, but does increase the susceptibility of the affected wood to more damaging varieties of rot.
- White rot. This fungus eats the cellulose fibers of the wood so that the wood loses color and takes on a whitish cast. The wood itself becomes fibrous and stringy, but no cracking is present. When this rot is very advanced, some shrinkage and collapsing of the wood will occur. White rot is as serious as brown rot, though it does not proceed as rapidly.
- Bluestain. In this variety of rot, the fungus invades the sapwood. In itself, bluestain is not especially serious although it does lead the way to worse conditions. Also, like all rot, it indicates serious moisture problems. It is easily identified by its characteristic blue-green color, although it can also be gray, black, or brown. Bluestain is typically found at window sash, sweating pipes, and leaky bathroom fixtures.
- Brown rot. This is one of the most serious forms of rot. It cracks the wood across the grain, weakening it and increasing its water absorbency, thereby accelerating decay. Brown rot, which causes major structural damage, can decay wood in a matter of weeks if its environmental requirements are maximized. Affected wood takes on a brown color.
- Soft rot. This rot typically occurs at frequently wet exterior surfaces such as shingles, sash, weatherboards, or shutters. Normally confined to the surface of the wood, soft rot shows up as an extremely cracked and fissured surface, both with and across the grain. Like other relatively minor rots, it can become potentially damaging if unattended. Decay of wood through soft rot proceeds at a relatively slow rate.
- Water-conducting "dry" rot. This is the most serious variety of rot because of its ability to conduct water through web-like tentacles deep into sound wood. It can spread throughout the inside of partitions without detection. In appearance, it has characteristic white strands which can develop into sheets that look like wool. It can leave the surface of the wood undisturbed while destroying the interior. One important symptom of dry rot is a hollow sound when suspect wood is tapped. Other symptoms include a musty smell, fleshy white tendrils, and the cracking and bulging of interior joints.

An awl that can be pushed into suspect wood with only hand pressure to a depth of about 1/2" indicates a possible location of rot. Also, healthy wood will lift up in long splinters, while rotted wood lifts in short sections, across the grain, with no splinters. Finally, a "lead" sound when the wood is tapped should arouse suspicion.

**Treatment -** To survive, a fungus needs four elements:
- moisture
- oxygen
- food
- moderate room temperature.

The elimination of one or more of these elements will prevent rot. Moisture or food deprivation as outlined below are the easiest and most effective means of counterattack.

**Moisture deprivation.**
- **Ground water.** Keep all wood elements out of direct contact with soil. Where wood members are in direct contact with masonry, attention must be paid where rising damp is evident. Exterior measures to reduce rising damp include the installation of foundation drains and the extension of downspouts at least six feet beyond the building line. Interior measures include the use of sump pumps and dehumidifiers to reduce the general humidity level.
- **Precipitation.** All exterior wood surfaces that are unprotected by paint or preservative or which have open and uncaulked joints are vulnerable to rot. The end grain of wood, because of its porosity, is especially vulnerable. Maintain all joints and protective finishes. Keep all gutters clean and functioning properly so that no water backs up to the roof edge. Check the soffit of the cornice for peeling or blistering paint, a sure sign of water penetration.
- **Leaky plumbing.** Slow, undetected leaks or sweaty pipes can cause cumulative long-term damage and should not be allowed to go unrepaired for long periods of time.



**Minimizing Crawl-Space Condensation**

- **Condensation.** If a house is air-conditioned, the crawl space is especially likely to suffer from condensation, although every crawl space is susceptible to some degree. Strips of asphalt roofing paper or polyethylene laid across the ground in the crawl space are effective preventive measures, as is a 1" to 3" concrete slab. Insulation can also be considered (see "Energy").
- **Paint.** By itself paint does not prevent rot. However, the paint film does shed moisture and thus deprives fungi of the water vital to their survival. The paint film must be maintained regularly. Cracked or blistered paint enables moisture to seep behind it to the vulnerable wood. Before paint is applied, all cracks and holes in the exterior wood should be plugged with caulk and putty respectively (see "Painting").

**Food deprivation.** Chemical treatments deter fungal growth by poisoning the food source, namely the wood substrate. These treatments by impregnating new wood materials prior to construction or by surface application to or embedment in existing structural members.

Chemicals used to impregnate new construction include the following:
- Alkaline copper quaternary (ACQ). Used for pressure-treatment of wood for above-grade applications.
- Copper Azole. Used for pressure-treatment only in applications not associated with aquatic environments or food/feed storage.
- Copper Napthenate. Used for wood in contact with soil, primarily in landscape or utility settings. May be applied by brush or dip and is available for consumer use.
- Copper HDO (bis-(Ncyclohexyldiazeniumdioxy-copper)). Used for pressure-treatment only in applications not associated with aquatic environments or food/feed storage.
- Polymeric Betaine. Used for pressure-treatment only.
- Creosote. This is an older treatment that is largely confined to commercial uses such as telephone poles and railroad ties.
- Borates. May be applied in brushable liquid form or as solid rods for embedment in timber. Available for consumer use.

Of the chemicals listed above, only copper napthenate and borate are readily available to the homeowner for do-it-yourself application. Of these two preservatives, only the borate formulations are suitable for interior use.

Borate in solution may be applied by brush to unpainted wood surfaces or by dipping for very small components. Because surface-applied borate preservatives are soluble in water, they cannot be used for exterior applications subject to precipitation which will dissolve the preservative and wash it away over time. Borate solution applied by brush is not particularly effective at protecting the full depth of larger structural members. For this type of application, the use of embedded borate rods provides more thorough and longer-lasting protection. Solid rods are inserted in holes drilled into the lumber and the natural movement of moisture within the wood distributes the preservative. The number, size and placement of rods is based on the dimensions of the wood member and the borate manufacturer's instructions should be consulted. Once placed, embedded borate rods may provide five to ten years of protection and must be replaced periodically.

**Rot Stabilization.** Where wood decay is limited to small areas and not far advanced, deteriorated surfaces may be consolidated and filled with epoxy resin to avoid having to replace entire components. This is often an effective repair at wood window sills and jambs where deterioration tends to occur but where full replacement of the wood member is an onerous task. Combined with the use of fiberglass reinforcing rods, epoxy resins may also provide an acceptable repair at deteriorating timber connections. However, the implementation of such repairs in structural members should be supervised by a structural engineer experienced in the repair of historic timber framing.

To prepare a rotted wood surface for consolidation, any loose, soft and friable material must be removed. Once the deteriorated wood is removed, the resulting cavity may be stabilized with consolidant, a penetrating liquid epoxy applied in multiple coats until the no longer absorbed by the wood. Where the condition of the underlying substrate is suspect, holes may be drilled in the wood surface to encourage deeper penetration of the epoxy. After curing the epoxy in accordance with the manufacturer's instructions, holes, checks and profiles may be filled with a compatible epoxy paste and tooled to match the adjacent surface. To ensure compatibility between the consolidant and the fill material, both should be products of the same manufacturer.
**Dutchman repair.** Where decay is severe but the extent is limited to a small area, a dutchman repair may be employed. A dutchman is simply a new piece of wood shaped to fill the void where damaged material has been removed. To maintain consistency of expansion and contraction between the patch and the host wood, the dutchman must be of the same species with its grain oriented in the same direction as the original wood. If the member to be patched is profiled, then the profile of the patch must match exactly. This type of repair is frequently used to replace deteriorated trim at the base of a window jamb, at the bottom edge of doors and at old penetrations after the removal of electrical conduits and plumbing pipes.

**Maintenance.** Perhaps the most critical aspect of maintenance for interior and exterior wood components is regular inspection. Indoors, an annual inspection of exposed wood members in basements and attics is particularly important to look for any signs of insect activity or active decay. The presence of fresh sawdust, visible mold, or mud tubes on wood or adjacent masonry surfaces indicates a need for further assessment and possible treatment. Other interior conditions that may be indicative of concealed wood decay include failing paint and/or plaster, visible mold growth and/or a strong moldy odor. On the exterior, annual review of exterior siding, trim, windows and doors for the above-mentioned conditions will identify problem areas in need of attention. In addition, reviewing the functioning of building gutters and downspouts regularly will identify potential problem areas before active decay or insect damage occurs.

The second most critical aspect of maintaining wood structures is the maintenance of their painted finishes which protect the underlying wood from both moisture and damaging UV radiation. If failed areas are too small to warrant a full repainting, the preparation and priming of failed areas where the bare wood is exposed is recommended to prolong the life of the remaining paint. Once paint has started peeling, subsequent exposure to wet weather introduces moisture into the wood substrate from where it will migrate under adjacent areas of coating, causing additional failure. For more information regarding the painting of wood substrates, see the "Painting" section of this manual.

## Summary of Recommendations

Where possible, replacement wood components should be fabricated from the same species of the originals. However, in consideration of the fact that modern lumber is generally not equivalent to historic material in strength and resistance, non-native species and treated materials may be used in areas prone to heavy weathering including (but not limited to) window sills, railings and balustrades, cornices and porches. However, where the original feature has a transparent finish, that same species should be used for patching replacement components.

Architectural elements that are profiled such as crown moldings, balustrade components, railings, door and window trim generally require a better grade of wood than structural elements. For siding and roof shingles which are subject to frequent rain and strong UV radiation, the top grade of a given species should be used and the use of treated material should be strongly considered.

## Wood-Destroying Pests

Termites

- Professional termite treatments include repellant and non-repellant barriers which require the application of many gallons of termiticide to treat the full perimeter of the building and underneath the footings and basement slab (if present). These chemicals can only be purchased and applied by a licensed pest-control professional.
- Preventive Measures for Homeowners include:
  - Removal of all scrap lumber, cardboard and paper from the building site and from concealed spaces such as basements and attics.
  - Clearing of other stored materials from site, basements and attic to increase air circulation.
  - Clearing of foundation plantings and groundcovers from the building perimeter to reduce ambient moisture.
  - Minimize mulch applications next to building foundations. Mulch should never be in contact with siding, skirt boards or plates.
  - Avoid the use of wood features, such as porch posts, in contact with the ground which may act as a conduit to the main structure.
  - Extend all downspout discharges to at least six feet away from the building line.

Powder Post Beetles

- Surface application, injection and embedment of borate-based wood preservative every three to four years is required to control powder post infestation.

Carpenter Ants

- The provisions required for control of carpenter ants are the same as those outlined for termites.

## Wood-Destroying Fungi

Types of Fungi (in approximate order of destructiveness)

- Mold/mildew
- Bluestain
- White Rot
- Brown rot
- Soft rot
- Dry rot

Fungi require moisture, food, moderate temperature and oxygen to survive. Control of moisture and contamination of the food supply (wood) by the application of wood preservatives are the most effective means of limiting fungal attack.

- Borate wood preservatives are the least toxic and therefore the most suited for use by the homeowner. They are also one of the few that can be applied to wood surfaces in situ. The majority of commercial wood preservatives are designed for pressure-treatment of new lumber.
- Borate wood preservative are available in powder, liquid and solid form (rods). Borates in solution are best used on wood components that are relatively thin in section such as shingles, siding and architectural trim. Large structural timbers generally require embedment of borate rods to protect the full section of the member.

Typical locations of fungal attack

- Leaking gutters and downspouts
- Accumulating water next to building foundations
- Loose, detached or missing flashings
- Gaps or failures in roofing or siding
- High water table and/or rising damp
- Plumbing leaks

## Types of Wood Repair

- Consolidation and fill: For use where deterioration is not far advanced or widespread
- Dutchman patching: For use where deterioration is very advanced but limited in extent.

## Annual Interior and Exterior Inspection

This is critical to maintenance of wood surfaces. Inspection should look for the following signs of deterioration:

- Fresh sawdust or mud tubes
- Failing paint and/or plaster
- Leaking gutters and downspouts
- Ponding water adjacent to the building foundation
- Missing or damaged flashing, shingles or siding boards
- Visible mold
- Moldy odor

# Chapter 9: Porch Repairs

## Introduction

The porch is the principal element in the gracious and civil image and character of the residential sections of the Beaufort Historic District. The unique nature of the porch as an open, outdoor living room dictates that its typical fine detailing and lightweight structure be fully exposed to the weather. The maintenance and preservation of porches is thus a constant process, and the proper design of porches entails more than the correct architectural elements, proportions, and materials, and extends to detailing. This is true of all porches and porch repairs, whether on historic, new, or non-historic structures.

## New Porches

New porches should not be added to the primary facade of historic structures that never had porches. If a porch restoration is to be undertaken where a porch once was, but where no fabric remains, every effort should be made to obtain photographs or other documentation of the building's historic porch on which to base the design.

**Two-Story Porch at 813 King Street**

For porches on new houses, existing porches on similar adjacent houses should be studied for proportions and individual elements such as columns, railings, fascia, cornices, etc. While the idea is not to replicate existing porches, the overall character should be respected. Also, the rhythm and proportions of new porches should relate directly to the design of the facade behind it.

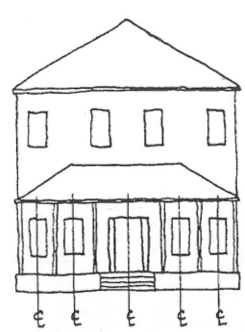
**1301 Washington Street**

Acknowledging that repair in-kind is the overriding design guideline for repairs to existing porches which retain most or all of their original material, the following additional considerations should be brought to bear in the evaluation of the design of new porches on structures under HRB jurisdiction.

- The porch floor should be equal to or no more than one step below the level of the corresponding floor of the house.

- The ceiling of the porch should be at or very near the same height as that of adjacent internal rooms.

- The rhythm of the bays, as established by the porch columns, should be regular and symmetrical. This rhythm often, though not always, follows the rhythm of the solids and voids of the house facade behind it.



**Rhythm Of Porch And House Bays**

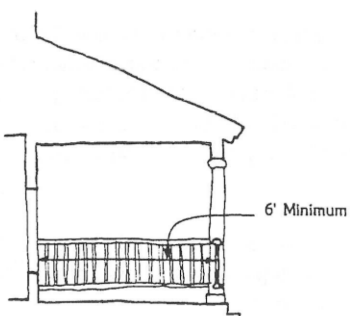
- Porches along the primary elevation of new construction that is based on the "Beaufort Style" should be symmetrical and should extend the entire width of the house.

- In general, porches on secondary facades that do not face the street should be discouraged. If necessary they should be held back from the primary facade by a distance no less than one third the overall depth of the house. Note that the primary facade does not always face the street.

- The height of the bottom of the porch fascia board should be at or very near the height of the window head.

- All visible porch components should be painted wood; do not use exposed natural or treated lumber on any porch in the Beaufort Historic District.

- A porch should be a minimum 6' deep to allow comfortable seating. The maximum depth of any given porch will be in proportion to the height of the house and porch ceiling. Porches 12' deep or more are necessary to properly shade some Beaufort houses.




Porch Depth

## Porch Preservation

To appreciate the preservation problems associated with porches, a homeowner must be aware of two basic facts: 1) buildings are in constant motion, and 2) moisture in any form is a serious and persistent threat to building fabric. Lacking both the mass and structural integrity of a walled structure, porches are particularly susceptible to movement. Every wood joint, corner, and edge is a potential moisture trap. A good many decorative porch elements in Beaufort are installed using interior rather than exterior construction techniques. Over time, this failure to utilize appropriate exterior details becomes apparent through deterioration.

**Two-Story Porch at 1109 Craven Street**

**Rotting Deck Post Example**

**Deteriorated Porch Structure Example**

Although most buildings do not rely on the porch for structural support, it is nonetheless an essential element of the house both for the comfort it provides and for its contribution to the overall imagery of Beaufort. Indeed, the dominance of porches as architectural elements can dictate the "style" of structures in the public eye despite the fact that they often are additions or alterations. The lack of proper maintenance and preservation imparts a poor impression of a house that may be otherwise impeccable. Thus, the significance of Beaufort porches cannot be overemphasized.

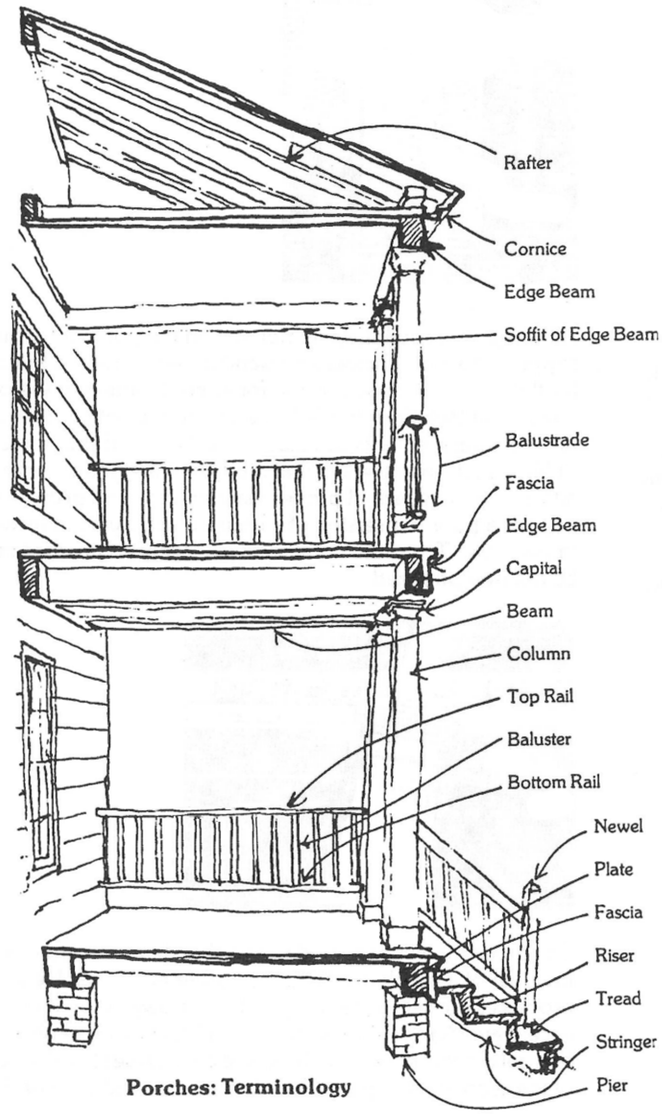
The property owner should realize that deterioration of one member of a porch quickly affects other elements. Deterioration processes are self-generating and, once begun, continue to accelerate. A rotting floor, for example, will lose its ability to act as a solid column base. In turn, the column settles, the support of the second story porch floor is reduced, and the porch structure, including the roof, rotates and pulls away from the house.

For the repair and preservation of existing porches, in-kind repair is highly recommended, unless the existing conditions are themselves inappropriate according to the recommendations in this Manual. All porch elements should be repaired, or if necessary, replaced using the same materials, sizes, and profiles as the existing porch.

**Deteriorated Porch Floor Boards Example**

The following section explains in some detail the most common problems encountered in porch maintenance. All major porch elements are discussed in a general sequence from foundations through roofing. Causes, as well as remedies, for deterioration are described in detail on the principle that no repair can be truly effective without a knowledge of the causes that necessitated it.

The accompanying sketch is intended to clarify several of the more technical terms used throughout this discussion.




**Porches: Terminology**

The additional design guidelines that follow apply to specific porch details, and are pertinent to the preservation of historic porches, the design of porch restorations at existing buildings, and the design of porches for new construction. Note that these guidelines apply only to houses and residential structures and should not be adapted for commercial buildings.

## Porch Piers

Historic porches in the Beaufort Historic District are typically supported on non-continuous masonry piers. This permits critical ventilation beneath the porch floor that will increase the longevity of the porch floor joists and flooring. Exposed brick piers are most appropriate and should match the brick foundations of the house. A less desirable alternative, though one for which there is historic precedent in the District, is stuccoed concrete masonry or brick piers.

Infill between the masonry porch piers should be open wood grillage that may have a variety of conformations such as lattice, vertical picket, diamond slat, or horizontal hogspen. This will allow ventilation while preventing animals from entering below the porch. Wire or plastic screening may be fastened to the back of the grillage to decrease animal or insect infestation.

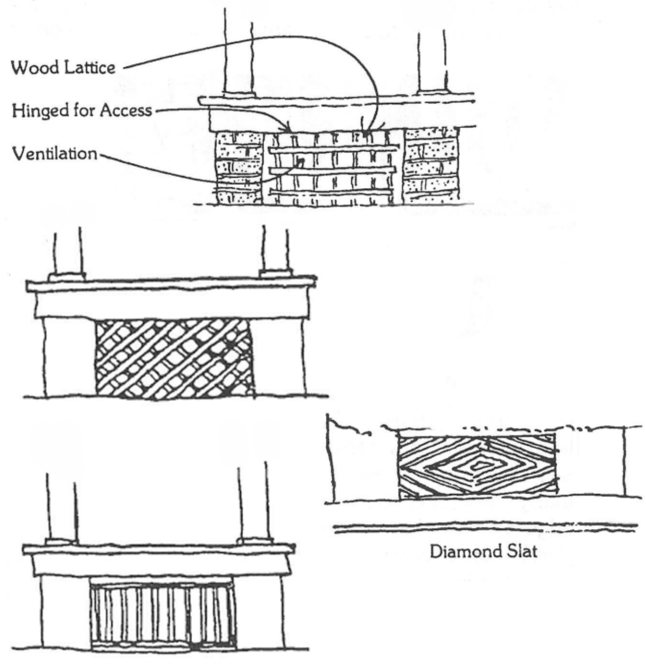
**508 Craven Street**

## Porch Pier Repairs

- Settling/cracking/leaning: See "Brick."-
- Foundation infill. One of Beaufort's recurrent design problems is caused by the infill of foundations with inappropriate materials. Nearly every pre-1930 structure in the District faces this problem. In many cases, this infill may be a response to the requirements of certain insurance companies. Given the serious potential for moisture and condensation damage to the first floor structure caused by such solid infill, it seems advisable to investigate alternate insurance sources. Short of that, installation techniques are described in this chapter for minimizing the serious negative visual impact of this unfortunate practice.

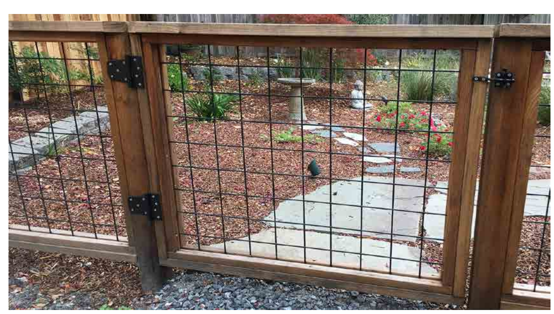
It is likely that, in most cases, the need for foundation infill was originally satisfied with some form of lattice, if there was in fact any enclosure at all. The raised first floor and open foundation system was conceived to serve several functions which remain valuable today:

- continuous ventilation to the sub-floor structure
- ease of access to the sub-floor structure for periodic maintenance




**Appropriate Lattice Infill At Foundation Piers**

- architectural considerations. Freestanding porch piers are a direct expression of the bays and structure of the porch above. A continuously infilled base gives the entire house a bottom-heavy look that is at odds with the lightness created by the elevated floor of the prototypical Beaufort style. Various techniques for minimizing this visual intrusion exist; all are aimed at restoring, at least visually, the correct appearance of freestanding, directly expressed, square brick piers.

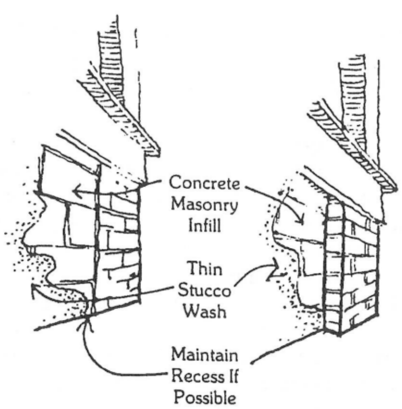


**An example of hogspen fencing that may be an appropriate design for infill panels between porch piers.**

A walk through the Historic District reveals many possible approaches to infilling the space between porch piers, some of which are more appropriate than others. Types of infill include:

**Concrete masonry infill.** Continuous masonry infill between porch piers is prevalent in the Beaufort Historic District, though it is neither appropriate nor recommended and should be removed because it accelerates deterioration. In all cases the optimal approach to this problem is the removal of the concrete masonry. Where continuous masonry infill already exists and is to remain in place, there are two methods for minimizing its negative impact:

- Where the face of infill masonry is flush with the outside face of the piers, the visual rhythm of the piers must be reestablished. This is most easily accomplished by painting the stucco a contrasting, darker color a dark black-green color and planting out the foundation. The installation of foundation plantings should be employed only if the style and date of your building gracefully accepts foundation planting (see "Landscape"). The property owner should be aware that, in all cases where his crawl space has been infilled with concrete masonry, continuous sub-floor ventilation must be maintained. Large openings, fitted with screens, must be cut in the concrete masonry to allow for this essential cross ventilation.

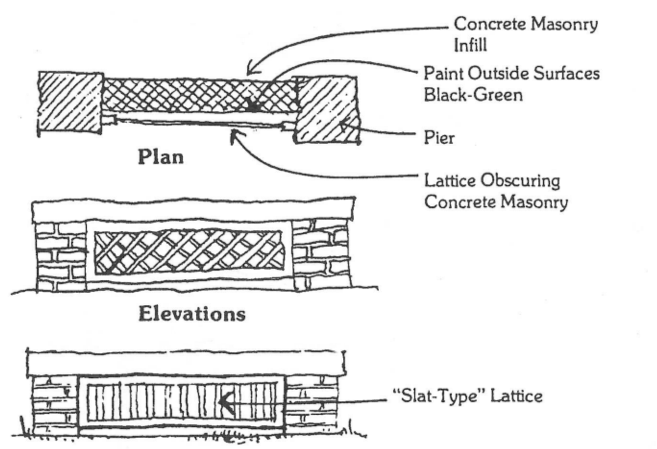


**Concrete Masonry Infill At Foundation Piers**

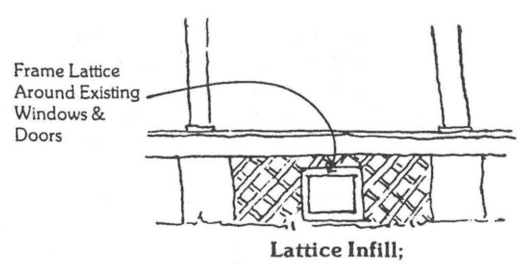
- If the face of the concrete masonry is recessed from the face of the brick pier, the piers are already expressed to a degree. If the setback is less than 1-1/4", a thin stucco treatment may be employed.
- Utilize pressure-treated lattice material and keep the lower edge a minimum of 2" above the ground to prevent damage from surface water.
- However, the stucco should not be brought flush with the surface of the brick pier. If the setback is at least 1-1/4", it is possible to effectively and economically obscure the inappropriate concrete masonry with wood lattice. The concrete masonry should be painted a drab black-green prior to installation of the lattice. This treatment is also recommended for crawl spaces that have been enclosed to form additional living or storage areas; in such cases, the window and door openings can be expressed simply by framing the lattice around the existing opening.

Remember to:
- always maintain continuous ventilation to the crawl space
- always provide continuous access to the crawl space for periodic inspection
- paint concrete masonry black or black-green prior to the installation of the lattice
- soak the lattice in preservative prior to assembly and keep the lower edge a minimum of 2" above the ground to prevent damage from surface water.

(Note: For a discussion of the insulation value of concrete masonry infill, see "Energy.")

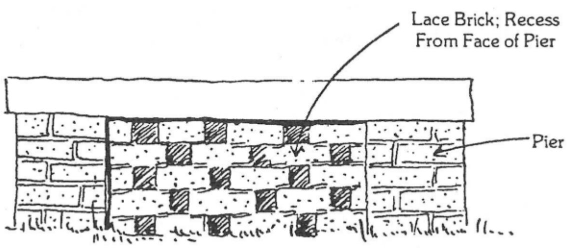


**Lattice Infill Over Masonry Between Foundation Piers**



**Lattice Infill; Occupied Basements**

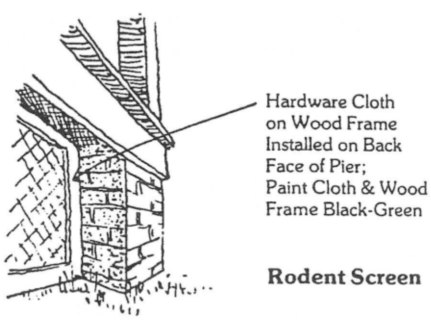
**Lace brick infill.** Like many of the modern garden walls laid up in this bond, infill of this sort rarely looks authentic. The major advantage of this sort of infill is that it successfully provides continuous ventilation and is relatively maintenance free; however, it is not as visually appropriate for most Beaufort houses as lattice and not recommended.




**Lace Brick Infill
At Foundation Piers**

The property owner who is determined to install lace brick infill between his porch piers should consider the following recommendations:

- try to match color, size, and pointing of the brick of the porch piers if neither element is to be painted
- recess the outside face of the lace brick infill at least 2" from the outside face of the foundation piers
- do not key the brickwork of the infill to the brickwork of the pier.
- maintain an opening of sufficient size to allow access underneath the porch for periodic inspection and repair.




**Rodent Screen**

**Inappropriate infill treatments.** There are three modern infill treatments used throughout the District which are entirely inappropriate: chain-link fencing, plywood, and corrugated metal or fiberglass. The apparent intent of such infill is the exclusion of rodents and small animals. A simpler and less obtrusive solution consists of a frame of hardware cloth or heavy screen, painted black and attached to the inside face of the piers. At least one panel should be hinged for easy access to the crawl space.

## Fascia Boards

These boards trim and protect the edge beams that support the porch floor joists and the porch roof rafters. Typically these boards clearly express the structure of the porch as a simple horizontal member, as seen from the street. Decorated porch fascia boards are inappropriate in the Beaufort Historic District, except where existing on a Queen Anne style house, or where proposed for new construction based on the Queen Anne style.

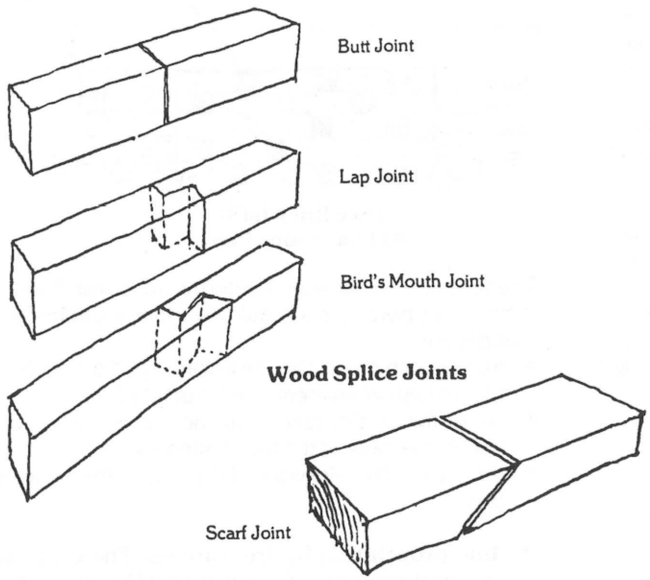
**Queen Anne Fascia Boards at 508 Duke Street**

## Fascia Deterioration

The fascia boards are subject to several kinds of deterioration of varying degrees of severity. These obviously need attention, but more importantly they should be viewed as symptoms of more serious difficulties.

**Joint Separation.** The separation of wood joints is caused by movement, either in the porch as a whole or in the abutting boards. The latter is often the result of moisture penetration. The former may appear in other guises throughout the porch, as will be described throughout this "Porches" section. If decay due to moisture penetration is determined to have been the cause, the moisture source must be found and eliminated or the repair will be useless.

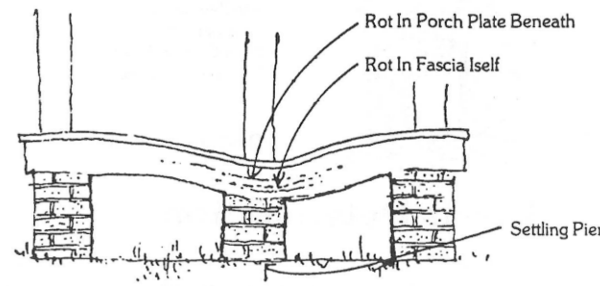
Separated joints caused by expansion and contraction or warping in the fascia board should be repaired by removing the board and replacing it with a new board fabricated from pressure-treated material. If it is suffering from decay, all adjacent wood should be carefully Inspected for the same condition and replaced to match with treated members as necessary (see "Wood"). Adjacent pieces of fascia may have to be removed as well in order to form the weatherproof joints that are recommended for this application. The butt joint, although it is the easiest to install, is the most likely to separate. Both the lap and scarf joints will require the removal of the adjacent piece of fascia.



**Wood Splice Joints**

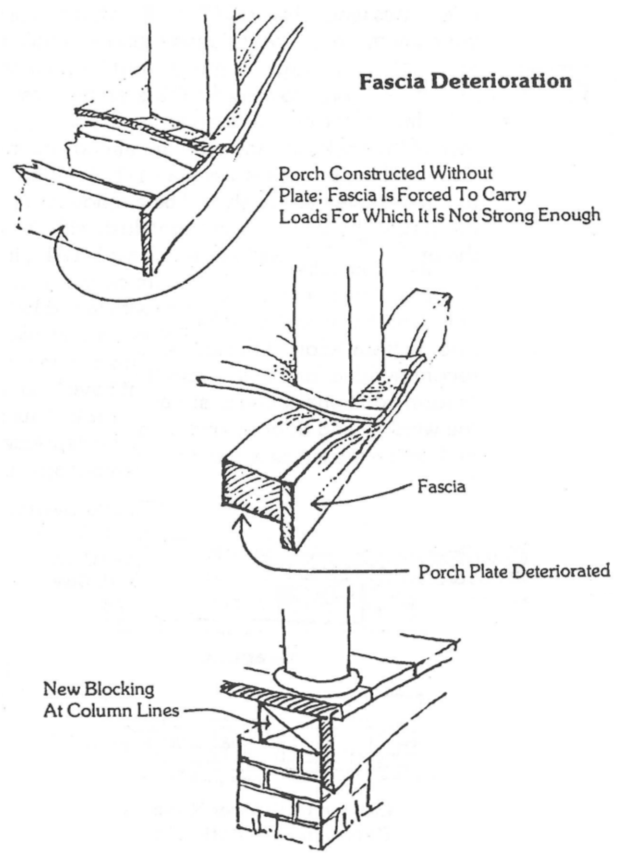
**Crushed fascia.** The most easily remedied, but least likely cause of this problem is decay, with subsequent loss of internal stability in the fascia itself. A more common cause is that the fascia, which was designed as a non-structural closure board, has been forced to perform a load-bearing function. This occurs when movement in the porch shifts the vertical loads from the column bases directly to the fascia. If the fascia is crushed directly below a column, poor structural condition is definitely indicated. This is likely to be the result of one of the following:

- Rotting porch plate. If moisture has deteriorated the porch plate to the extent that it no longer has structural integrity, the transfer of weight from the columns will gradually compress the plate, crushing the fascia. If this problem is suspected, the fascia should be removed at the column lines to allow inspection of the plate for rot and deterioration. Replacement or reinforcement of a deteriorated plate is not a task for the do-it-yourself-er, and should only be undertaken with the supervision of a competent structural engineer. If the rot is not too far advanced, the repair is likely to involve stabilization or replacement of rotted areas, jacking-up the columns framing into the plate, and inserting hardwood wedges over the compressed areas of the plate at the column lines.

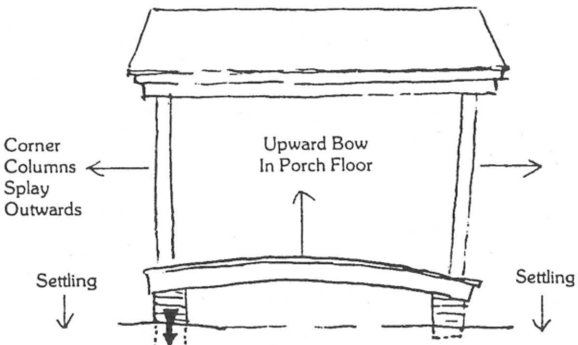


**Fascia Deterioration: Causes**

- Missing porch plate. There are more than a few cases in Beaufort in which a porch has been constructed with no plate at all, which forces the fascia to do excessive structural work. Again, a structural engineer must be consulted. His repair may be directed at inserting hardwood blocks between the column bases and the tops of the piers to function as an "abbreviated" plate.



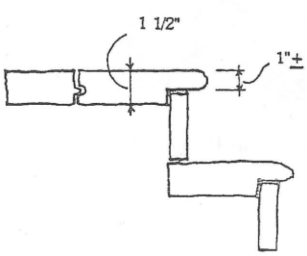

- Foundation pier settlement. If removal of the crushed fascia at the column line reveals that the porch plate is in healthy condition, it is likely that the problem is a result of settlement of the brick pier. This particular problem is often indicated by a sag at the comers of porches accompanied by a slight upward bow at the center of the porch. Such problems are more apparent when the porch is viewed from a distance. Underpinning the pier is usually recommended (see “Brick”).



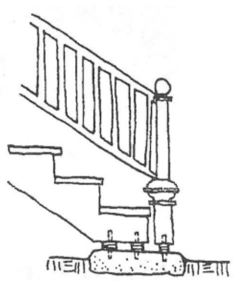

**Signs Of Settling Piers**

## Porch Steps

Painted wood steps with closed treads and risers are the most appropriate design for porch steps. If 2x material is utilized to construct porch steps, its leading edge should be reduced at the treads, as the full dimension would be too visually heavy. Typical handrails and newels are simply decorated. Wood stairs and posts should not come in contact with the ground but should land on a stone plinth.




**Detail For Reducing Tread And Porch Floor Edge Thickness**

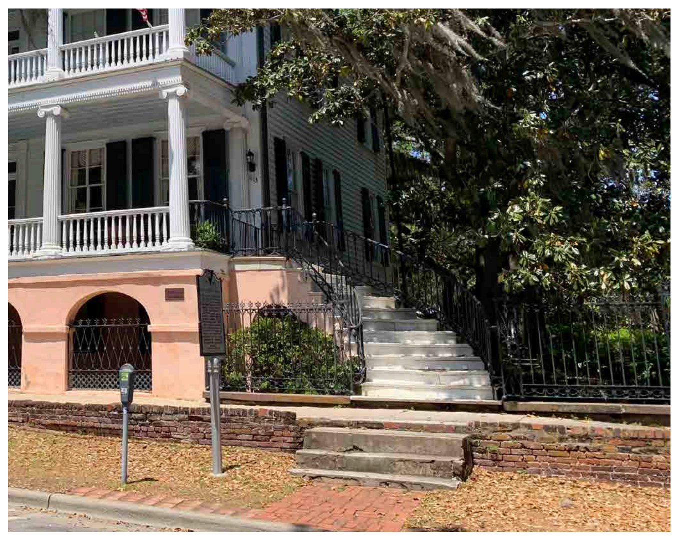


**Stone Plinth For Wood Steps**

Generally, the replacement of historic wood steps with brick porch steps is not recommended. The durability and low maintenance of brick make it an attractive material, as attested to by its use at various porches throughout the Beaufort Historic District, as a historic feature or, more often, an alteration. Those brick steps which are later alterations are usually not as visually appropriate as wood. Concrete and concrete masonry porch steps are inappropriate in the Beaufort Historic District.

Several of the significant structures in the Beaufort Historic District retain their historic stone porch steps (typically marble with ornamental metal railings); the retention of these rare and distinctive features should be encouraged whenever possible, and repairs should always be in-kind. However, stone steps are inappropriate for porches on new construction in the Beaufort Historic District.

**Porch at 207 Hancock Street**



**Stone Steps at Secession House, 1113 Craven Street**

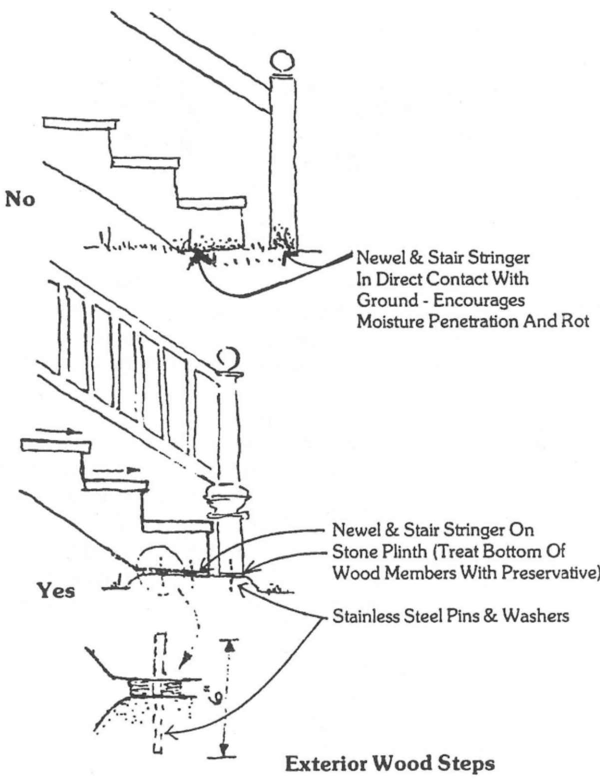
## Porch Step Repairs

As outlined above, various materials are used for porch steps in Beaufort. Typical repairs are outlined below.

**Wood Steps.**

- **Decay.** This common problem is generally the result of bringing elements like steps, newels, or rails into direct contact with the ground where moisture can penetrate the wood. The bottom step or stair stringer should be set on a stone plinth, raised slightly above the surface of the earth. All treads should slope to drain away from the house. The use of stainless steel pins and washers, or stock post bases, allows water to flow under the stair and will further protect the vulnerable bases of wooden stairs. It is important that the stone plinth also slopes away from the stairs and has no depressions in which water can collect.

409 Federal Street

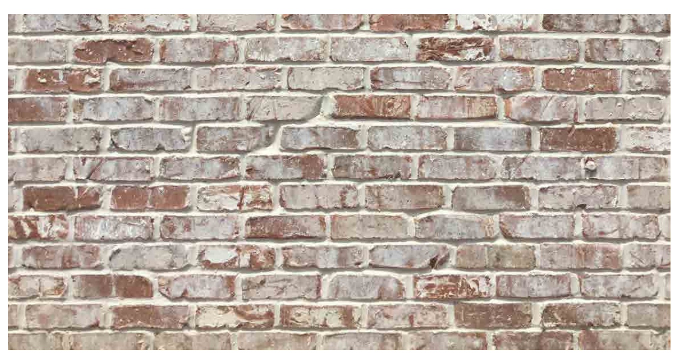



- **Replacement of cracked treads and risers.** This is a simple repair that is often done so casually as to have harmful visual effect. Replacement treads should not simply be stock lumber nailed to the stair stringer, but should be carefully matched in thickness, profile (shape), and species to the existing treads. All new replacement stair components should be fabricated from treated wood material, either pressured-treated (KDAT) or acetylated wood.

**Brick steps.** Brick porch steps have replaced original wood steps at many structures throughout the Beaufort district, presumably due to their greater durability and longevity. However, the mass and detailing of masonry steps are not generally in keeping with the scale and delicacy of the associated wood porches so they cannot be considered historically or visually appropriate. However, it is more than likely that homeowners will continue to pursue replacement of wood steps with masonry. If the HRB is to consider approval of such a request, the following guidelines should be incorporated into the new work:

- Match the brick of any new steps to the size, color, and pointing of the brick piers of the house, if they are exposed.
- Avoid modern "antiqued" brick. Its regularity and hardness immediately give it away as an obvious modern material.

Antiqued Brick at 800 Congress Street



Antiqued Brick

- If a brick-paved entry is being considered, the steps and walk should be compatible. There are many piecemeal design examples in Beaufort with separate brick colors and styles for foundations, steps, and walks which could easily have been avoided.
- Consider finishing off the cheek walls of brick steps with a thin layer of stucco (see "Tabby/Stucco/Concrete"), especially if the existing porch piers are already stuccoed, to lighten the visual effect of the brick porch steps.

  (For spalled, dusted or poorly pointed brick steps, see "Brick" for suggested repair techniques.)

**Stone steps.** Stone steps appear primarily on very significant buildings in the District and their proper maintenance and repair is of the highest priority. The primary stone used in these installations is marble. After two centuries of exposure, the following typical conditions may be observed:

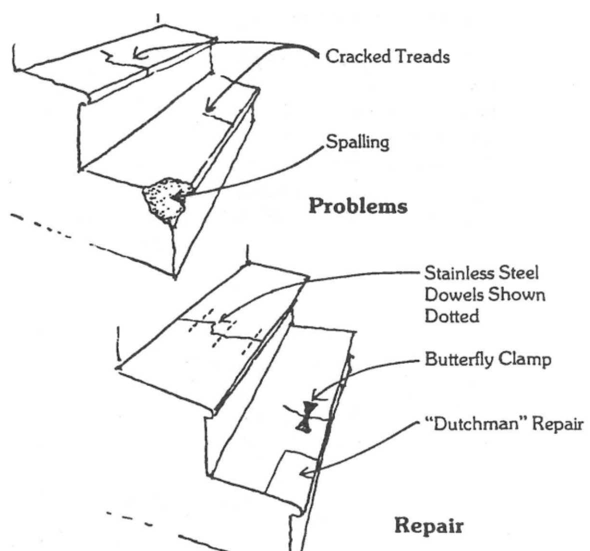
- **Spalling.** Most of the historic marble stairs in Beaufort are ornamented with wrought iron railings, anchored in the stone. Wrought iron is under constant threat of corrosion in the humid climate of South Carolina. Most of the spalling observed is associated with the corrosion of embedded iron anchors associated with stair railings. As iron can expand up to 1,000% in section as it corrodes, large chunks of stone may break loose.
- **Cracking.** Cracking observed in marble steps is generally caused by a lack of support. Original stair foundations may be constructed of brick or may simply consist of rubble fill. Intermediate supports under the stair span may or may not exist. Where inadequate support exists, the stone is subject to bending and will eventually crack, usually at the center of the span.
- **Settlement.** Even if the stone is of sufficient strength to support its own weight, differential settlement between stair supports may cause treads to tip, tilt or skew, causing a tripping hazard.
- **Soiling.** In the humid climate, it is unsurprising to find the appearance of many marble stairs disfigured by accumulated mold, algae and moss.

Repair of the conditions described above is not usually a matter for the do-it-yourselfer because a high degree of craftsmanship is involved and because partial disassembly of the steps may be required which involves rigging and handling large, unwieldy and surprisingly fragile stones The elements of repair may include the following:

- **Patching.** Spalls in marble steps may be patched in one of several ways depending on the size, configuration and location of the spall.
- **Adhesive repair.** If the spall is recent and the spalled fragment is intact and in good condition, it may be reattached using a resin-based adhesive. The installation of one or more stainless-steel pins may be required to strengthen the repair.
- **Cementitious repair.** Where the spalled fragment is missing or badly damaged, a cementitious repair may be appropriate to fill the damage and restore the appearance of the stone feature. There are multiple stone restoration mortars available which can be custom-color-matched where necessary. This method is particularly helpful where the profiles to be matched are heavily weathered and difficult to replicate in a dutchman. However, a cementitious repair may not be particularly durable when subject to foot traffic such as at a stair nosing. In no case should Portland-cement based mortar be used.
- **Dutchman repair.** Where the damaged area is in the path of foot traffic and the profiles required are crisp and not particularly complex, a dutchman patch may be provide a more durable repair. Attention should be paid to match the color, figuring and grain orientation of the patch to the host stone.
- **Crack Repair.** The necessity of repairing cracks in stone is generally dependent on the width and location of the crack and whether there is any evidence of differential movement between the fragments. Where there is no evidence of differential movement between the cracked pieces, the goal of the repair may be to simply exclude water, plant growth and vermin from penetrating the stair assembly. In this case, the crack may be widened to a uniform width of at least ¼ inch and pointed flush with a matching restoration mortar. Where the stone surfaces on either side of the crack are offset from one another, a pinned repair is necessary to restore the structural capacity of the stone tread. Ideally, the entire stone should be lifted and placed on a level surface for drilling and pinning with stainless-steel rods prior to installation. However, if the displacement is small enough that it does not pose a tripping hazard, the tread may be pinned in place with dry-fix anchors drilled in at opposing angles to span the crack.
- **Settlement.** Settlement of steps is a function of failure in the foundation and may be handled in a manner similar to porch piers. Where individual treads or

entire flights of steps have settled out of level, an assessment must be made to determine whether they can be stabilized in place or if more extensive measures are required. Where the tip or tilt of the steps is not severe enough to pose a fall hazard or where the steps are no longer in use, they may be underpinned in place with the guidance of a structural engineer. Where the settlement is significant and causes a pronounced tip or tilt or produces irregularities in stair height, dismantling and reconstruction is the only option, particularly if the steps are heavily used. The guidance of a structural engineer should be sought to design a suitable foundation.

- **Soiling.** Cleaning and washing of the stone are necessary steps which remove salts and biological growth. All joints should be thoroughly grouted prior to this washing to prevent water penetration. While plain water cleaning and detergent-based products may be suitable for cleaning stone steps, the use of acidic products on marble is to be avoided. See the Brick Masonry section for specific information regarding masonry cleaning.



**Stone Steps**

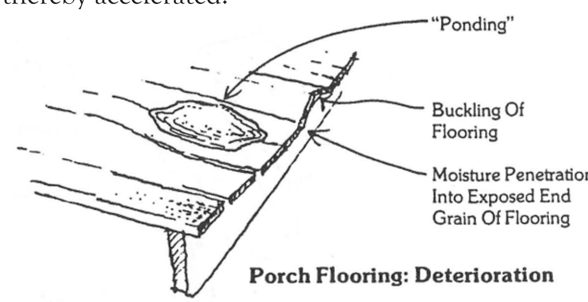
**Concrete/mortar topping on steps.** Many fine exterior stone stairs, such as those of the Baptist Church, have suffered from later installation of a thin coating of concrete or mortar. This coating cracks very easily, admitting and trapping moisture. If possible, these coatings should be carefully removed by means of careful and laborious hand-chisel work. The stone beneath is likely to be in relatively good condition; if not, repairs and stabilization techniques proceed as outlined above for stone and marble stairs.

**Concrete masonry steps.** Under no circumstances should these be considered for pre-1930 structures in the Historic District. Existing stairs of this material should be removed and replaced with new, wood stairs.

## Porch Flooring

The lightweight construction of the typical porch in Beaufort makes wood the only appropriate porch floor material.

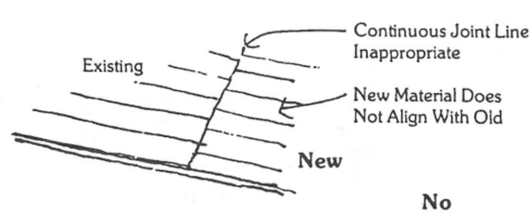
**Decay.** The frequency of this problem in Beaufort is the direct result of the city-wide practice of leaving the ends of each floorboard unprotected. This typical installation allows the continuous penetration of moisture into the porous end grains of the flooring. When the deterioration advances, small areas of buckling are created across the porch floor. These areas act as "ponds" in which runoff water is collected and retained. The process of deterioration is thereby accelerated.

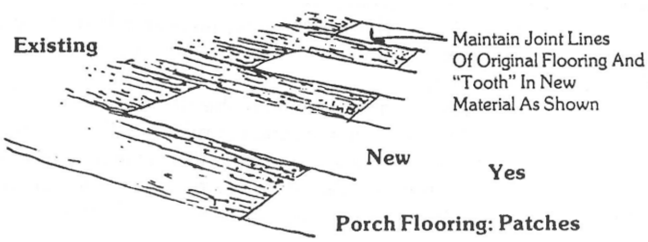


**Porch Flooring: Deterioration**

The following repair procedure should be undertaken:

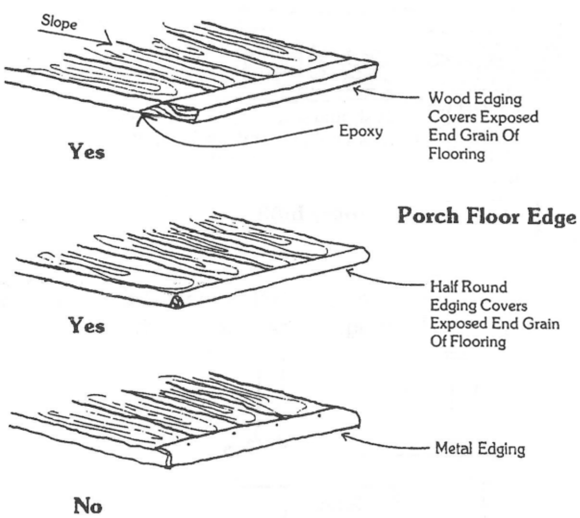
- Cut out all affected rotted wood. Remove deteriorated wood immediately from site to prevent spread of pests.
- Repairs and/or replacement of porch floors should be in-kind repairs, using lumber of the same face dimension as the existing floor. Replacement floor decking material should be pressure-treated (KDAT).
- Patched areas must align with the floor joints of the rest of the porch.
- Where possible, flooring should be toothed in to avoid obvious patches.





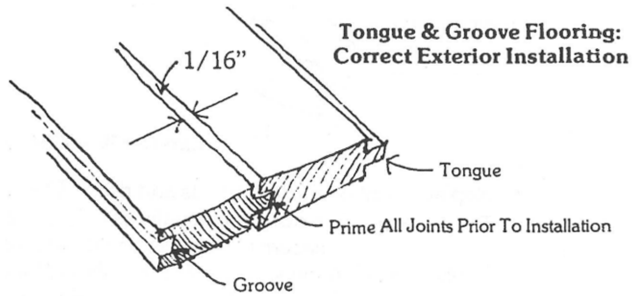
Porch Flooring: Patches

- Back-prime all wood flooring, including end grains, prior to installation.
- Some porch installations protect the end grains of the deck boards by installing a continuous wood edge strip, either half-round or square. While this cannot be considered historically appropriate on most houses, it is preferable to metal edging. Metal edging is visually inappropriate and will trap water, thus accelerating deterioration.



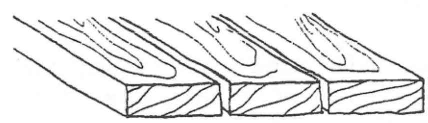

**Buckling.** The buckling described above may also result because of flooring that was initially installed too tightly. When wood expands due to moisture or temperature, the flooring has no means to relieve the pressure other than by buckling upwards.

To repair this condition, carefully remove all affected flooring and inspect it and all adjacent pieces for rot (see "Wood"). If the removed flooring is not significantly deteriorated, it may be planed along the edges to decrease its width and re-installed. In the case of an entire floor being replaced, or a new porch floor, tongue-and-groove wood flooring should be set with a gap to allow proper expansion and prevent buckling. The size of the gap is determined by the temperature and humidity conditions at the time of installation. If the deck is installed when the humidity is low and the boards are at their minimum width, a maximum gap of 1/16 inch should be provided. If the deck is installed when the humidity is high and the boards are at their maximum size, the gap may be reduced to 1/32 inch. It should also be backprimed.




The homeowner should note that buckling is aggravated by the lack of continuous ventilation to the underside of the porch. A porch foundation that has been continuously infilled with masonry must be punctured to admit constant air circulation.

In addition, leaving large gaps between floor boards is neither appropriate nor recommended. If 2X decking is to be used to construct a new porch floor, exposing its full dimension at the edge is also inappropriate, as the edge of the porch will appear too thick. (Porch flooring is more typically constructed of "5/4 boards", which historically were typically slightly thicker than 1 1/4" and in modern lumber are typically slightly thinner than 1 1/8".)

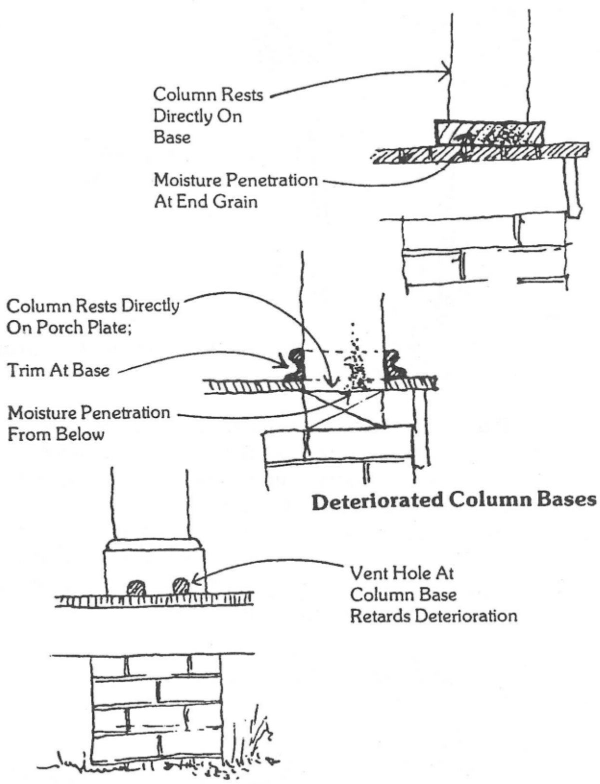


2x Decking: Full Depth And Wide Gaps Between Boards Are Inappropriate

**Compression at column lines.** This problem is related to the crushed fascia board previously discussed. It is symptomatic of rotted and therefore weakened flooring or porch plates, and/or a settling foundation pier. The compressed porch floor is a serious problem in that it can cause slight but cumulative and important settlements throughout the porch structure as a whole.

There are several possible approaches to repair of the condition. The homeowner should adopt the one which best suits construction.

- If the porch flooring extends beneath the base of the column, temporary shoring may be required to remove the column and gain access to the flooring. Again, a competent engineer must be consulted for all shoring or other structural work. Once the column is clear of the affected flooring, that flooring should be repaired or replaced as described above. The column base should be well ventilated to prevent this problem in the future.
- If the porch flooring butts against the base of the column, the flooring may be repaired as described under "Decay."



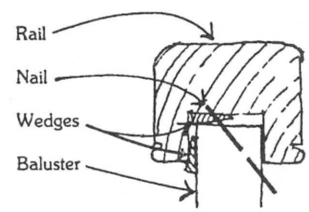

**Deteriorated Column Bases**

## Porch Railings

Decorative balustrades are extremely vulnerable to poor maintenance and improper repairs. Since the balustrade is an important architectural element of the porch, its condition should not be allowed to deteriorate. The property owner should repair and replace damaged or deteriorated porch railings in kind using members of the same size, and profile as the existing railing. Either sapele or pressure-treated (KDAT) are recommended for the fabrication of replacement components. See Wood section for grade information. Additionally, they should keep in mind the following repair precautions and techniques:

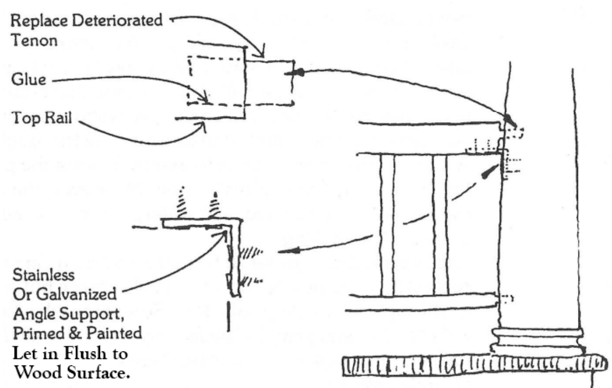
**Wood railings:**

- **Deterioration.** As with most wood porch elements, decay resulting from moisture penetration is the most serious enemy. When the protective paint film deteriorates, the balustrade must be stripped of paint, brushed liberally with wood preservative, and repainted (see "Painting").
- **Replacement of railings.** If a rail has cracked or rotted to the point of serious deterioration, it may have to be completely replaced. Many of the residential porches of the Beaufort Historic District have decorative balusters, newels, and top rails which may entail careful execution of custom millwork. A good mill can easily match the rail profile being replaced and, as a more economical alternative, mouldings may occasionally be duplicated with stock wood mouldings built up to a shape that closely resembles the original.
- **Replacement of baluster.** If turned wood balusters must be replaced, the property owner has little choice but to have a mill copy the existing balusters. Sometimes the fact that a baluster is missing can be masked by removing all the balusters in a bay and re-spacing them evenly. However, this is rarely easy and often ineffective. If a mill is matching the balusters, it is best to have several extras made for future repairs. Square spindles are, of course, easier to replace; for example, 1-1/2" x 1-3/4" spindles are compatible with existing balusters and can be ripped from stock 2 x 4 lumber. It should be noted that there are various companies that keep in stock a range of turned balusters of historic design. The homeowner who needs a replacement baluster should consider contacting such mail-order firms to determine the appropriateness of their stock materials.
- **Securing loose balusters.** If decay is the cause, identify and eliminate the source and replace all affected members with matching pieces soaked in preservative. If the cause lies in expansion of the rail or deterioration of the moulding receiving the baluster, drive a small hardwood wedge into the gap between each edge of the baluster and the rail, and re-nail at top and bottom with a stainless-steel fastener.

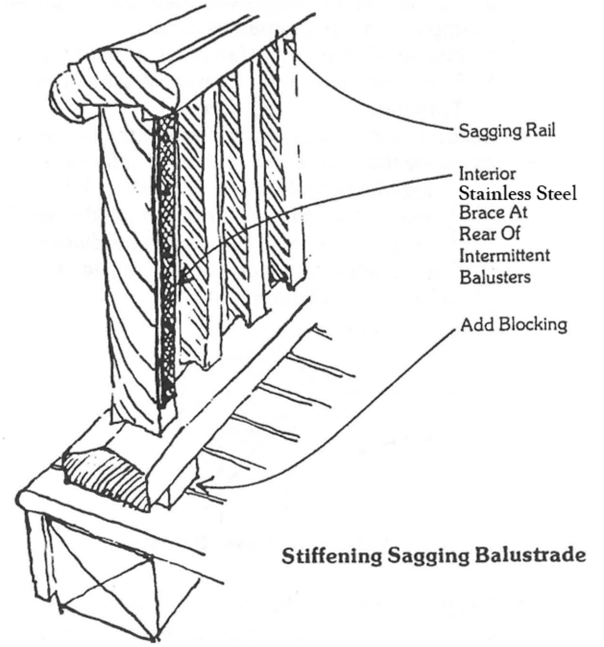



**Tightening Loose Balusters**

- **Sagging balustrade.** When the entire balustrade assembly of a given bay is leaning to one side, a problem with the column connection is generally indicated (although it could result from the more serious cause of differential settlement of the columns, which would probably show up in other areas throughout the porch). Many of the porch railings in Beaufort are not original to the house. Consequently, what would normally have been mortise/tenon connections between the balustrade rails and the columns are instead butt joint connections of new material to old.




Sagging Balustrade




Stiffening Sagging Balustrade

If the sagging balustrade is original to the porch, one should suspect deterioration in either the mortise of the column or the tenon of the rail (or both), resulting in movement and loss of dimensional stability. If rotted, the affected tenon should be removed and replaced. If the decay has proceeded along the rail, all damaged material will have to be removed and new, matching, treated material spliced to the old. If no decay is present, it may be possible to merely wedge up the rails to the proper position with hardwood wedges. If the sagging balustrade is toenailed rather than mortised into the column, stiffeners must be applied at the ends to maintain a true horizontal. The corners can be strengthened with galvanized or stainless steel cleats, recessed into routed columns and painted over for minimal visual impact. Further stability can be achieved by using a thin, stainless-steel plate stiffener on the back side of every third or fourth baluster.

**Cast iron railings.** Most maintenance and repair concerns for cast iron are discussed under "Amenities." It is important to note here that all pieces of cast iron porch railings, including those that will be concealed, should be painted with suitable rust-inhibiting paint.

**New Construction.** In the case of new construction, the design of the porch railing should be informed by the railings on porches of similar houses in the Beaufort Historic District. It should be noted that building codes governing new construction may require porch railings to be several inches taller than their historic precedents, which will of course require the adjustment of the overall proportion.

A close study of handrails on historic porches reveals a lively variety of details. Generally speaking, the level of detail should be equal to the "grandeur" of the house. The Castle porch, for example, would look under-designed with the simple square balusters of the house at 214 New Street, just as the stately and shapely balusters on the Castle porch would detract from the modest grace of 214 New Street. Within these general guidelines, a great deal of variety is possible and desirable.

214 New Street

## Porch Columns

Columns are critical porch elements both architecturally and structurally. Their size, shape, and placement determine the rhythm and proportion of the openings in the porch, while they also hold up the roof.

Similar to the Guidelines for the design of porch railings above, the design of porch columns should be consistent with the character of the house itself, and informed by the design of the columns that exist on historic houses of similar character within the Beaufort Historic District. Just as a Corinthian column might be overwhelming on the porch of a bungalow, a simple rectangular column would be unconvincing on the porch of a large mansion.

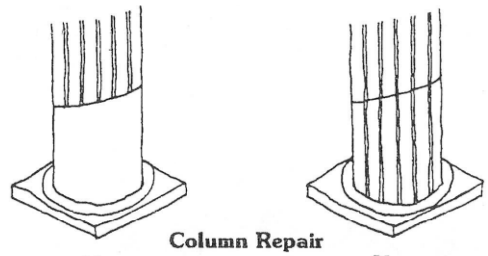
**The Castle, 411 Craven Street**

The use of historic architectural elements is a very complex and delicate task and should certainly be left to a trained architect. The use of the more decorative orders, as at the "Anchorage" and the "Secession" house, should be reserved only for very significant construction. New designs should not compete with historic structures but should be compatible in scale and appearance.

The Anchorage, 1103 Bay Street

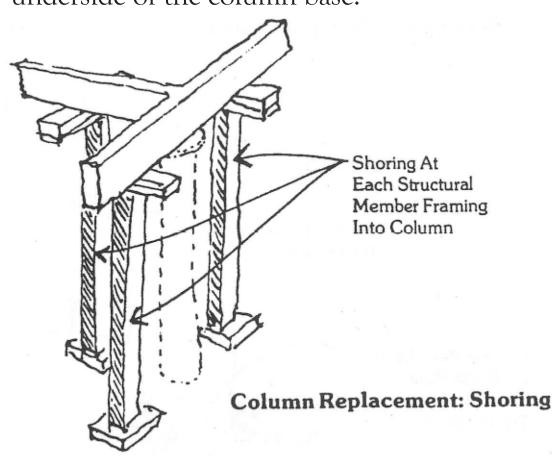
## Porch Column Repairs

The repair and replacement of porch columns should always be in-kind, using wood of similar species, size, and profile. Repair or replacement of column bases, shafts, and capitals will often require custom millwork in order to match existing conditions. Obviously, simple Doric columns should not be replaced with a fluted Corinthian column.

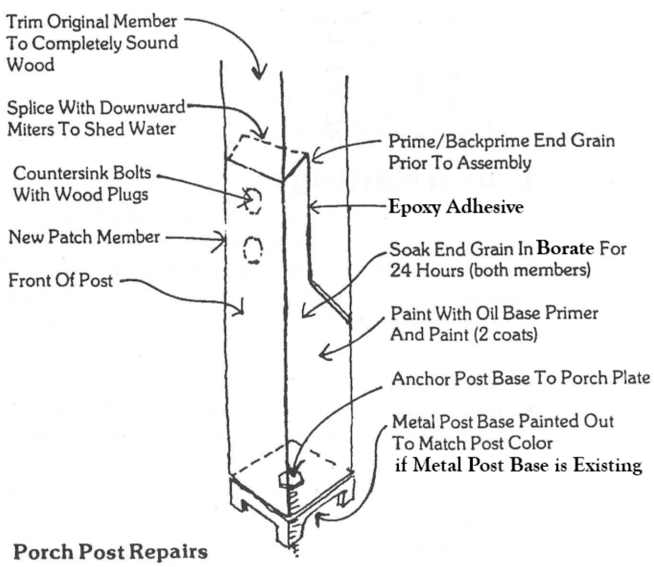



Most column repairs, except those having to do with trim, should be preceded by consultation with a competent engineer. CAUTION: Any problem which potentially reduces the effective length of a column or affects the shifting of its central axis off of a true vertical will have serious structural consequences. The following are the most common repair problems:

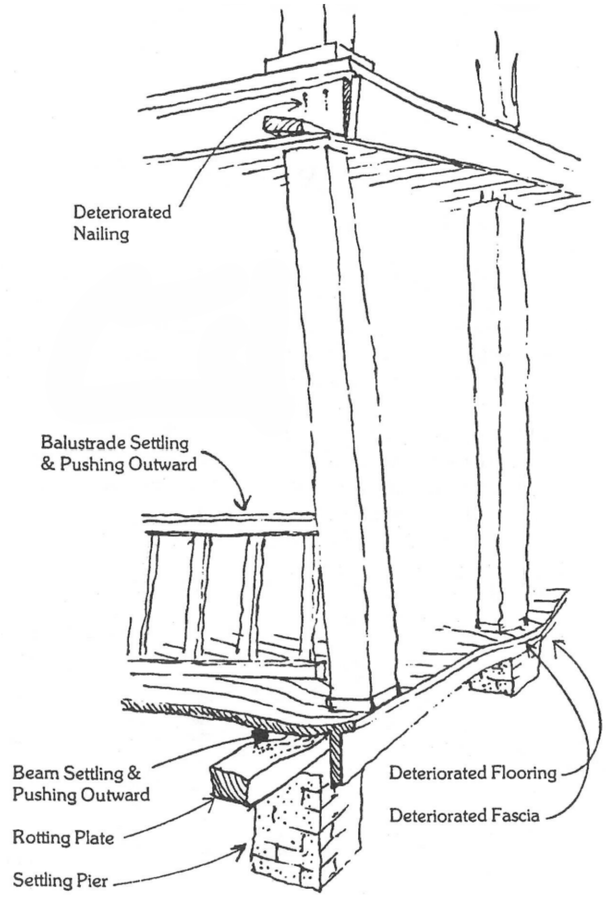
- **Decay at bases.** With the intention of restoring the structural stability of the column, specific repair techniques will depend on the existing construction. If a column base is intended as a load bearing element and shows signs of decay, all beams framing into the top of the column will have to be adequately shored to allow for harmless removal of the affected base. A new, matching base, fabricated from pressure-treated or preservative-treated wood can be slipped under the column and wedged into place. Always maintain continuous ventilation, if already present, to the underside of the column base.



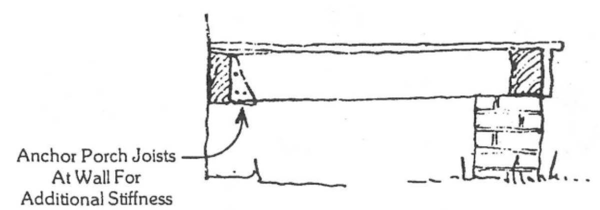
If the column base consists of ornamental trim surrounding the working column, the repair may be simpler. Be aware, however, that rotted trim may be symptomatic of deterioration at the base of the functional column. If so, a splice must be made in which new, preservative-treated material of matching species and profile is connected to existing. Shoring will be required for such a repair. If, however, only the trim itself is decayed, it need only be removed and replaced to match. Continuous ventilation to the underside of the column, if present, should be maintained.



**Porch Post Repairs**



**Leaning/Rotated Columns: Causes**

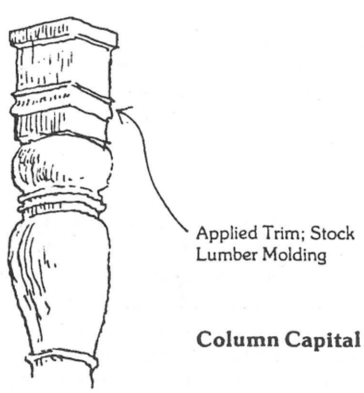



- **Leaning or rotated columns.** Both, especially the former, are symptoms of a serious movement problem of which there could be several causes. Repairs, which must involve a structural engineer, will generally require shoring. Note: Shoring should always be taken to grade. It is poor practice to shore a second-floor element to a first-floor support.) When the cause of the problem has been determined, the column can either be reset or replaced to match with new preservative-treated wood. Further stiffening of the porch should be attempted when the shoring and re-setting are in progress. For example, the rear plate of the porch should be anchored to the house to avoid minor rotation. All major joints can be stiffened with concealed gusset plates and angles to increase the rigidity of the whole. In addition, suspect porch piers should be underpinned (see "Brick").
- **Restoring trim.** Depending on the extent of deterioration, options available for restoring deteriorated porch trim include consolidation and epoxy fill, dutchman patching and full replacement as outlined in the "Wood" section.
- **Consolidation** requires stripping of the paint finishes and removal of friable material down to firm substrate. The missing profile may be rebuilt with epoxy putty. Though repair of flat surfaces and simple profiles are within reach of the homeowner, restoration of turned profiled, fluting and carved ornament is best left to a professional with demonstrated experience in this technique. It is not uncommon to find "restored" components, often done by experienced carpenters,

that are misshapen with crooked edges and dimpled surfaces.

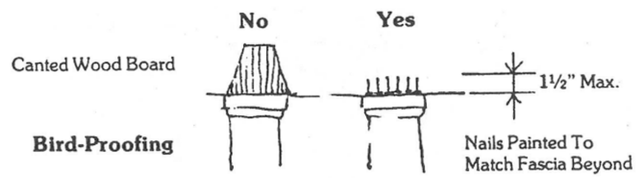
- **Dutchman.** This patching is often appropriate for features exhibiting severe deterioration in a very limited area, particularly at a damaged mortise. Where a mortise has deteriorated, a slightly larger wood dutchman of matching species may be installed and the mortise cut anew.
- **Replacement.** This should be considered a last resort; however, when faced with the possibility of extensive (and expensive) epoxy restoration work on a large number of identical features such as balusters, replacement may indeed be the more sensible option unless the building or the wood feature itself is of exceptional significance. If replacement, it determined to be the course of action, one or more samples of the historic material should be saved for future record.

A note regarding fluted columns: Fluted columns pose a difficult problem in terms of inserting splices and dutchman patching as the profile of the flute must be matched along with the entasis of the column at the location to be patched. Where possible, this type of column should be restored in situ using epoxy consolidation which allows for the profile of the patched area to be married with the host material. If a splice is required, the structure is best shored and the column removed for repair offsite in a woodworking shop. A woodworker with experience in historic profiles should perform such work.




- **Bird-proofing.** There are few infallible techniques for this particular problem that are not unattractive. Most of the devices in use around Beaufort, e.g. wire mesh, canted wood boards, etc., are aesthetically inappropriate should be removed. Less obtrusive options include:

- Installation of a copper plate with nails soldered to the upward-facing surface, although the exposure should be limited to 1-1/2”. The plate may be caulked in place rather than mechanically fastened to upward-facing ledges and columns capitals.




- Other deterrent devices noise devices and lights to disrupt roosting. Rubber snakes have even been found to be effective in some applications. The use of bird deterrent gels and adhesive substances is to be avoided. These measures attract soiling and may run down the building under extreme heat. The homeowner should be prepared to accept the fact that no infallible bird deterrent yet exists.

- Repair of stucco or cast mouldings at column capitals or bases on masonry columns. Erosion over time has eliminated much of the crispness of these key decorative features. Since this construction technique is present in some of Beaufort’s more important buildings, repair should not be dismissed as merely cosmetic. This repair requires an experienced ornamental plaster craftsman. He They will construct a template matching the exact shape of the deteriorated molding. This will be used as a shaping tool when applying new patch material. When carefully and properly executed, this process will restore important details to their original crispness.

## Porch Roofs

The porch roof may be separate from or a continuation of the house roof. Hip, shed, or gable roofs are appropriate, depending upon the type of house. Hipped roofs are often found on the porches of grander houses such as 1113 Craven Street. Shed roofs appear most commonly on more modest houses such as the bungalow at 712 East Street. Gable roofs appear on narrower porches at the entrance facades of grander houses such as the Verdier house, Tabby Manse, and 1203 Bay Street, pulled out from the main block of a hipped-roof house. This hierarchy of roof-type should be followed in the design of porches for new construction.

**Hipped Porch Roof at 1113 Craven, Courtesy of Rocket Homes**

**Gable Porch Roof - 1203 Bay Street**

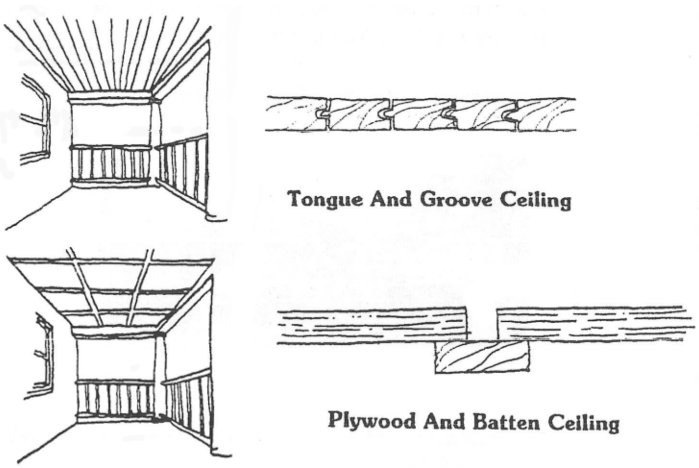
**Bungalow with Shed Roof - 804 Wilmington Street**

**Gable Porch Roof - Tabby Manse, 1211 Bay Street**

**Gable Porch Roof - Verdier House, 801 Bay Street**

## Porch Ceilings

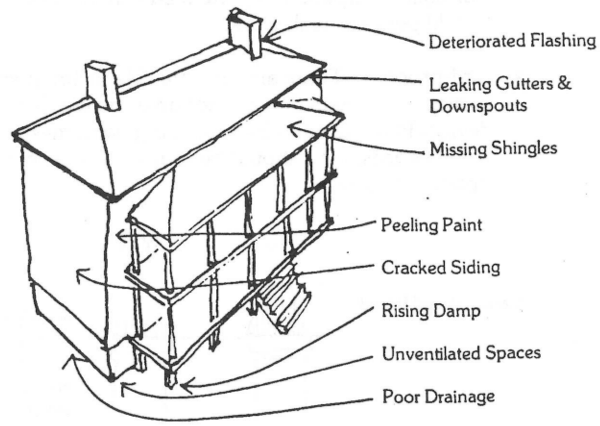
By far the most common ceiling finish found on 18th and 19th-century historic porches throughout Beaufort is beaded wood tongue-and-groove boards. Early twentieth century porches, especially those on Bungalow houses, may also be finished with plywood-and-batten ceilings though this is more often than not a later replacement. There are even examples in the Beaufort Historic District of panelled porch ceilings (such as 705 Washington Street). As with all porch components, it is best to repair existing fabric in-kind unless strong evidence warrants otherwise. The materials to repair and replicate beaded board and plywood-and-batten ceilings are readily available.



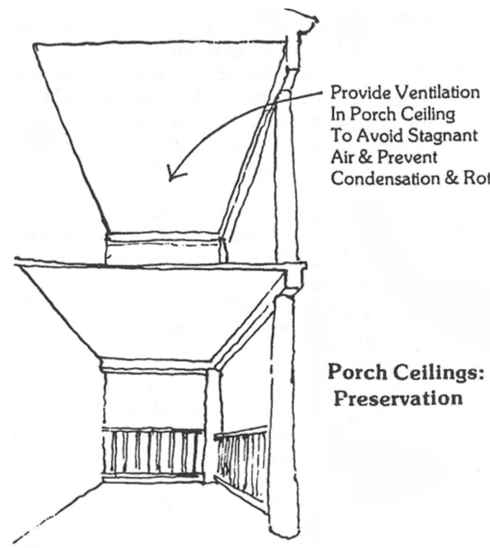

Many of the porch ceilings in Beaufort, especially at the second story, are sagging, a sure sign of moisture penetration from above. Rather than merely re-nailing loose ceiling boards, it is advisable to remove them and investigate the exposed condition for the possible source of moisture penetration. The accompanying sketch shows the range of the most likely sources of trouble. If the opportunity exists to examine the ceiling during a heavy storm, it is likely that water will be seen entering from one of the several locations. The floor or roof in the suspect area can also be flushed with water from a hose for purposes of examination. Of course, if daylight can be seen through the roof, the source of the leak is obvious. Be sure, however, that water is not penetrating in other locations as well. If none of the suggested locations is the source of the leak, it is possible that the porch ceiling is buckling downwards due to a lack of interior ventilation. Provide continuous protected ventilation to all such enclosed areas.

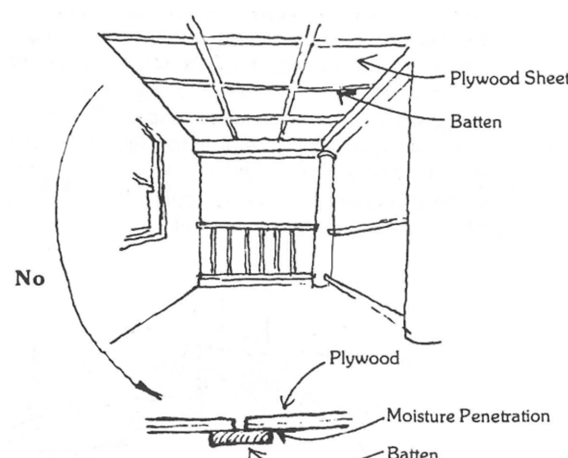
**Panelled Porch Ceiling at 1113 Craven Street**

A common, modern replacement for deteriorated porch ceilings is plywood sealed at the joints with wood battens. This type of installation is unacceptable from a performance as well as a historical perspective. Since there is almost no opportunity for flexibility of this material with regard to movement, and since warping at the edges is likely, this will not be a long-lasting repair. Moreover, it is visually inappropriate for most of the buildings in the District.




**Moisture Penetration**

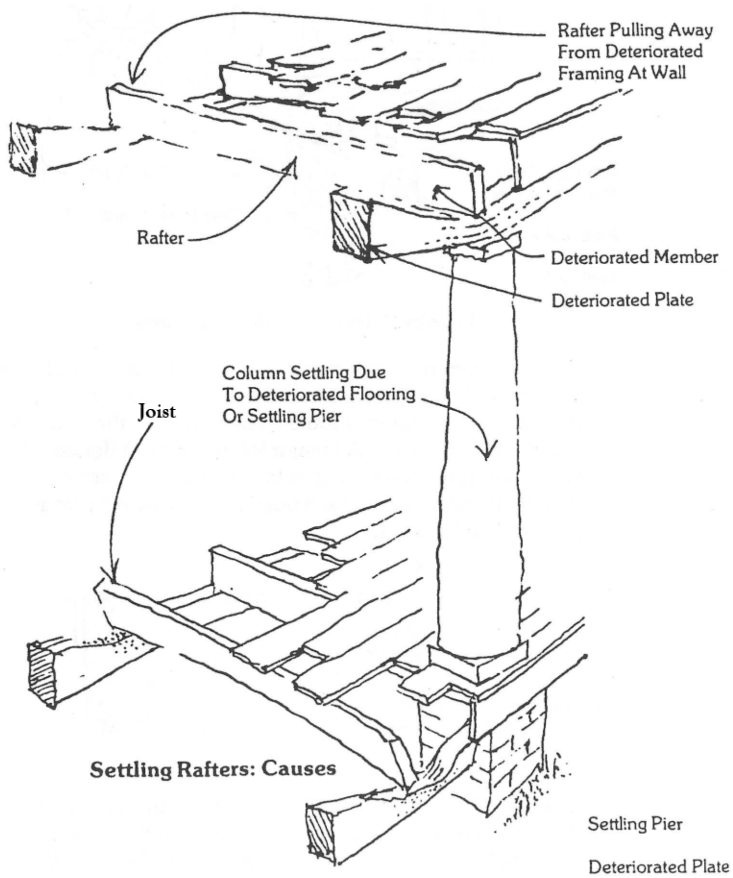



**Porch Ceilings**

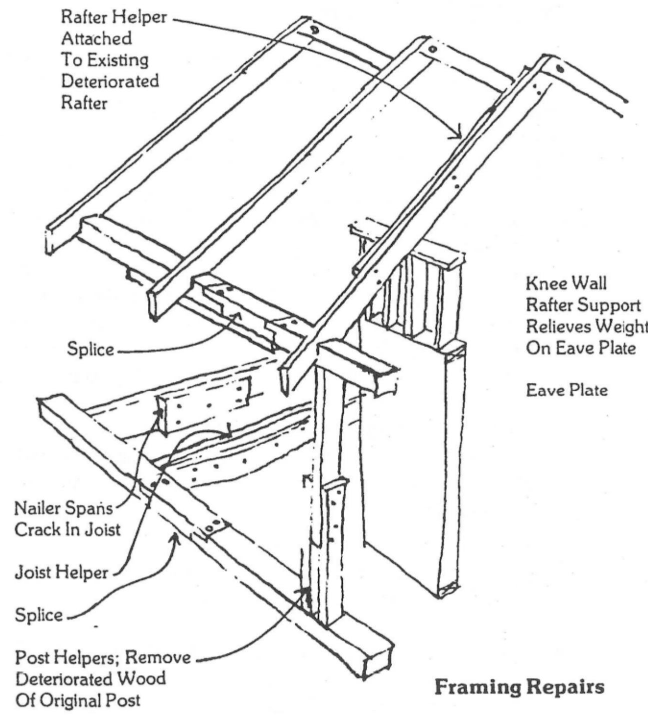
More appropriate is the traditional tongue-and-groove board ceiling. If joined too tightly, these boards are subject to the same buckling problems as porch floor boards. However, if laid correctly, tongue-and-groove ceilings have great flexibility and possess the correct historical appearance. Repairs to buckling tongue-and-groove board ceilings are relatively simple: remove the tongue of the affected member with a floor chisel so that the board can be lifted out. Other adjacent affected boards can then be removed without damaging the tongue, and the whole series of boards can be re-nailed. The board with the removed tongue can be narrowed by planing and replaced last.

## Porch Rafters and Beams



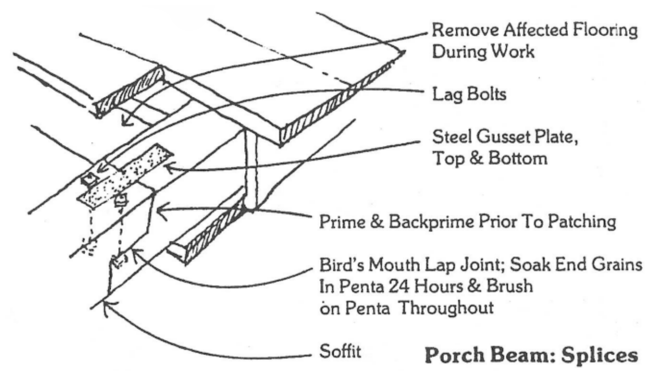
**Settling Rafters: Causes**

Above the porch ceilings lie the structural members that support the roof and floor decks and tie the structure to the main building. As structural members, these elements require shoring during repairs and alterations and must be investigated by a competent structural engineer prior to any work. Though much larger in section than most of the exposed porch woodwork, the structural members are subject to the same deterioration mechanisms affecting the trim and balustrades, namely moisture penetration and structural movement. Insufficiency in the original design may also play a part in the deformation and deterioration of wood structures over time.

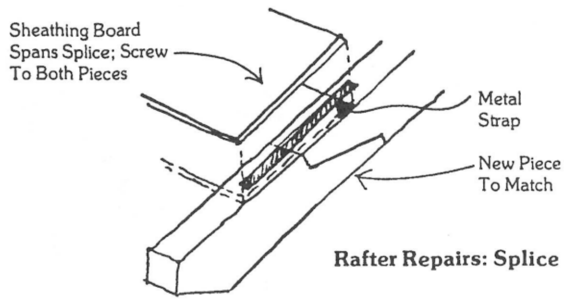


**Framing Repairs**

The assessment of historic wood structural members and the design of specific repairs should be completed by a structural engineer as the calculation of loads, sizing of structural members and design of connections are not the realm of amateurs. The following illustrations are intended only as a general depiction of a number of common structural conditions and typical types of repairs. Where possible, in situ repair by splicing in new material and/or reinforcing deteriorated members and leaving them in place is preferable to more invasive work which may inadvertently introduce additional structural complication.



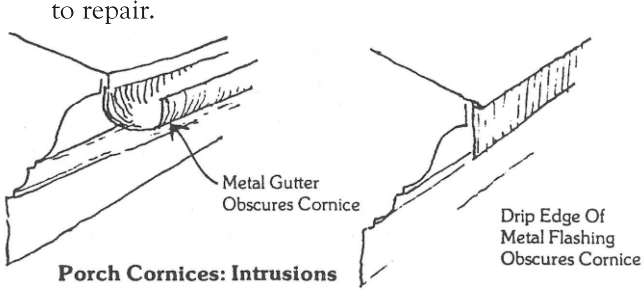
**Porch Beam: Splices**




## Porch Cornices

The detail of the porch cornice should not be obscured by the addition of gutters or inappropriate roof-edge flashing. Repair and replacement should be in-kind, which may entail custom millwork. The design of the porch cornice for new construction should be based on the design of porch cornices on similar adjacent houses in the Beaufort Historic District. Several common, but avoidable appurtenances have diminished the impact of many Beaufort porch cornices. Examples are:

- rain gutters, installed so as to obscure the cornice (see "Downspouts and Gutters" for recommended repairs)
- roof edge flashing, installed so as to obscure the cornice (see "Flashing')
- deteriorated cornice trim. Again, deterioration is usually the result of moisture penetration, the source of which should be discovered and eliminated prior to repair.




**Separation of joints at cornice.** Similar to the problem afflicting fascia boards, the separation of joints in the cornice is often indicative of an elevated moisture level due to leakage behind the molding. This condition is potentially serious in that accumulated moisture affects not only the cornice trim but also the structural members supporting it. However, the immediate urge to caulk the separated joints must be resisted until the source of the leakage is identified and corrected. Otherwise, the caulk may only serve to trap water within the cornice assembly, accelerating the damage. Once the repairs are made and the assembly has had a chance to dry out, all such open joints should be caulked and the caulking inspected yearly.

All such joints should be caulked and the caulking inspected yearly.

## Porch Enclosures

Enclosing front porches or prominently visible porches in the Beaufort Historic District in wood and glass or wood frame and screens is inappropriate. Enclosing rear and side porches is not recommended. If rear or side porches must be enclosed, the enclosure should reflect the massing, the proportion of solid to void, of the existing porch. That is, porch enclosures should be transparent, and not opaque.

Although porches are easily screened in ways that are not intrusive to overall appearance, few enclosures have been erected thoughtfully in the District. Screening should not conceal or compete with the configuration of the original porch structure. The porch enclosure at 611 New Street, while successfully respecting the architectural elements of the existing porch, fails to reflect the massing, the relationship of solid to void, of the existing porch as it employs solid clapboard rather than screening.

**Enclosed Porch at 611 New Street. If a porch is to be enclosed, it should be with screening, not solid walls.**

**Inappropriate Porch Enclosure, 1711 King Street**

Certain principles will allow the property owner to screen in their porch without invalidating its architectural character:

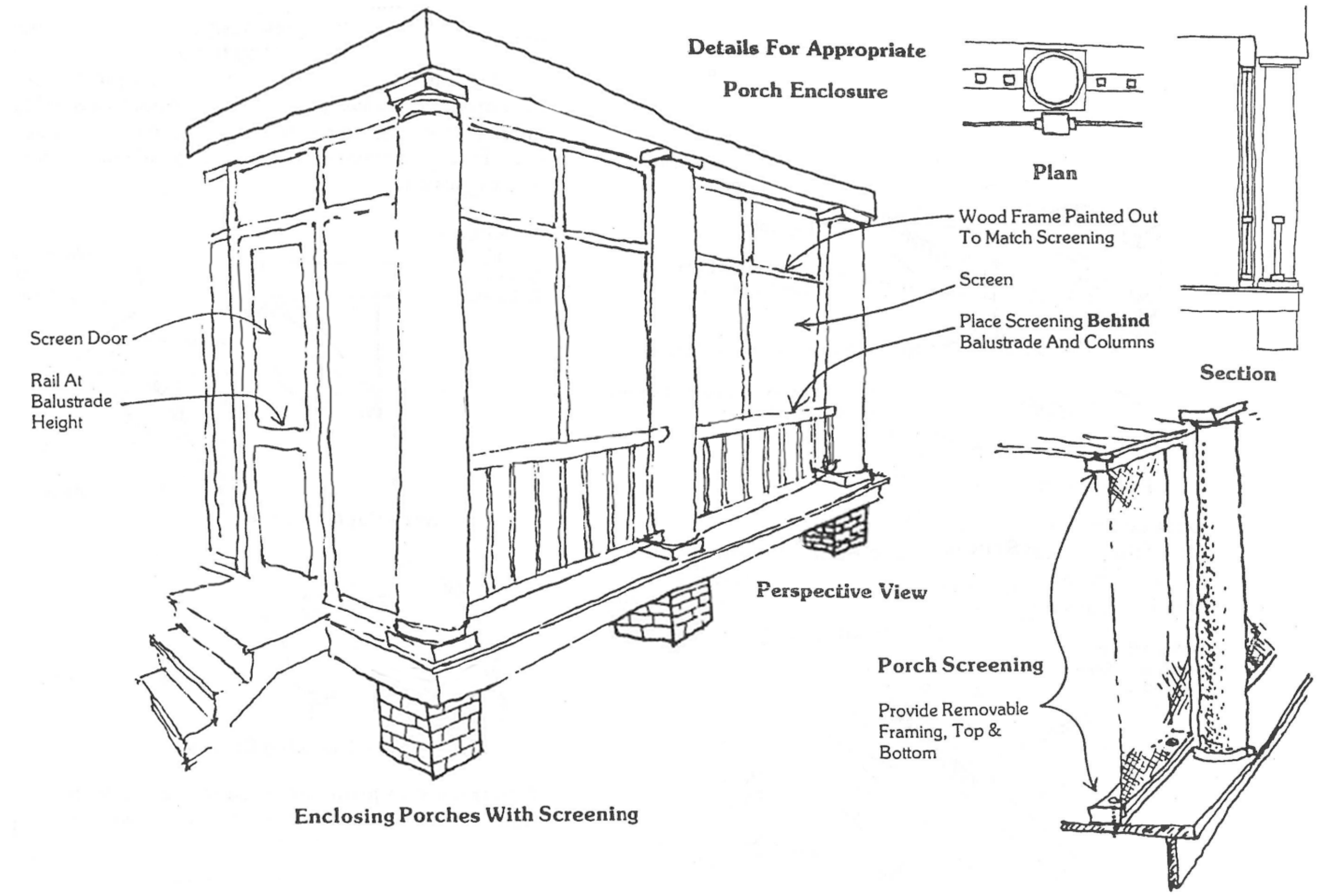
- The wood frame and glass or screen assembly should always be placed behind the columns and balustrade of the porch so that those important architectural elements are not obscured.
- If a horizontal framing member is required for the screen, it should be placed at balustrade height so as not to introduce visible horizontal elements where none existed before. Do not to introduce a horizontal rail above the balustrade.
- Vertical framing members should be located directly behind existing porch columns. Vertical mullions should divide porch bays evenly into halves, thirds, or quarters. The porch enclosure at 611 New Street, while successfully respecting the architectural elements of the existing porch, fails to reflect the massing of the building. It also fails in maintaining the solid to void of the existing porch because it utilizes solid clapboard siding.
  If required, visible framing for enclosures should be painted in a matte finish and in a color to match the screening, or to match the glass. The new framing of the enclosure should be painted in a dark color compatible with that of the screen or glass, rather than the color of the existing columns and balustrade. The latter elements are major architectural features which express the rhythm of the building's structure, and should not be confused with the later infill. Do not use tinted or reflective glass.
- In the case of screened enclosures, screens should be fastened with easily removed screws or wing nuts, to permit ease of maintenance.
- Screens themselves should be framed in wood. If aluminum is used, it should be painted out, as above.
- Screen doors should be wood frame and as simple as possible.
- Modern aluminum screen doors are, almost without exception, serious visual detractions in the District and should be discouraged.
- The frame of the screen door itself need not be painted out to match the screening. Rather, it can match the color of the principal architectural features of the porch, such as the columns and balustrade.
- Any horizontal rails in the door of a porch enclosure should align with the horizontal rail of the balustrade.

**Appropriate Porch Enclosure at 1311 Prince Street**

## Porch Hardware

The accumulation of distracting ornament and inappropriate hardware can ruin the appearance of an entry porch that is otherwise in perfect condition. A porch is its own ornament, and is more eloquent when unadorned with fake-Colonial aluminum carriage lanterns, over-scaled redwood address numbers, brass eagles on doors, and overly decorative mailboxes. Recommendations for such elements are as follows:

- Mailboxes. A handsome and entirely appropriate treatment for most of Beaufort's houses is a brass mail slot located in the door. It has the effect of making a simple feature appear to be a considered part of the architecture rather than an afterthought. Handsome brass mail slots are commercially available and should be installed according to the manufacturer's recommendations. Simpler cast varieties can also be considered. Whatever the selection, the mail slot should not upstage the door, but should appear to be of the same stylistic influences. A mail slot should also comfortably fit the horizontal rail of its door. In cases where there are several tenants in one house, it is preferable to arrange to have all mail delivered to the vestibule rather than placing many mailboxes adjacent to the door.
- Porch lights. Modern "versions" of historic exterior lighting fixtures do little for our own period or for the period they are attempting to evoke. The ubiquitous wall-mounted "carriage" fixture generally appears pretentious and "manufactured," especially when in juxtaposition to a well proportioned and detailed doorway. It should be remembered that such fixtures were developed largely to lend important historic and symbolic association to post-war development housing. Beaufort is fortunate to contain a multitude of fine




architectural examples which have no need of tacked-on architectural symbolism. If the original elements of an historic house and porch are in good order, the owner should reflect carefully on the overall character before applying additional ornament. Additional decorative treatment may have diminishing returns. Generally, a simple lighting fixture at the porch ceiling is sufficient.

**Doorknockers and ornament.** Brass or wrought iron eagles, carriages, flags, "Colonial" style doorknockers, etc. should be removed. They are additions that detract from the doorway. Heavy brass knockers belong only on the doors of imposing homes, no more than a handful of which exist in the District.

# Chapter 10: Doors, Windows, and Shutters

## Introduction

Doors, windows, and shutters are the "moving parts" of the house, subject to hard and frequent use. They are also critical elements in regulating the passage of light, air, and people into the interior of the house. Under such demands, it is essential for these moving parts to perform adequately, which is only possible with proper maintenance. Failure to function properly is immediately apparent and annoying and can result in undesired penetration of both moisture and air as well as damage to the part itself. Windows and doors that do not seal are of little use, and shutters that do not operate deprive a structure of an effective energy saving device.


Door at 1207 Bay Street

Besides their functional purposes, doors, windows, and shutters are crucial elements in determining the architectural character and style of any structure. Changes in architectural styles and fashions were reflected in these elements; there is little chance of mistaking, for example, a late nineteenth century Queen Anne window for a Federal window of the eighteenth century. As such, the correct preservation of existing historic doors, windows, and shutters, as well as the design of their replacements, is absolutely essential to maintain the character of an individual house and the entire Beaufort Historic District. These design developments are briefly outlined in the "Style" section, but no description of changing taste could be as illustrative as an observant walk through the Historic District itself.

**Windows at "Queen Anne" House - North Street Inn, 1411 North Street**

**Palladian Window at 1207 Bay Street**

## Preservation of Historic Doors

### Preservation Recommendations

The following recommendations are intended to serve as reminders of general considerations in the evaluation of proposed treatment of the doors of structures under HRB jurisdiction:

**General Guidelines**

- Repair or replace existing historic doors in-kind.
- Save as much historic door fabric as possible. In some cases, this will involve removing deteriorated sections and patching as invisibly as possible.
- Replace inappropriate doors with doors appropriate to the period of the house.
- Extant nineteenth-century screen doors should be retained, maintained, and repaired to the greatest extent possible.

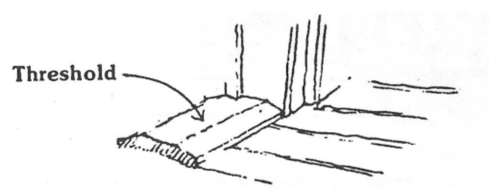
**Deteriorated Bottom Edge:** The bottom edge of the door is chronically exposed to moisture via splashing rain and may begin to exhibit softening and deterioration, particularly in the end grain of the stiles. The amount of actual deterioration is generally quite limited, leaving two options for repair. If the wood surfaces are softened but have not yet lost their strength, epoxy consolidation may suffice to preserve the wood and provide a surface suitable for painting. If deterioration is more advanced but still confined to the bottom edge, a dutchman repair may be required. Rather than attempting to fabricate separate dutchman patches for the bottom of each stile and the width of the bottom rail, the installation of which would require significant disassembly of the door, a single strip dutchman may be installed across the full width of the door, scored at the location of the stile joints for visual continuity. This type of repair is suitable only for doors with a painted finish.

**Loose Hinges:** The screws fastening door hinges to the door frame may start to work loose after years of constant opening and closing. While replacement with larger screws may be successful in the short term, a long-term repair will require improvement of the substrate to which the hinges are attached. The damaged screw holes may be drilled out and plugged with fresh wood set in epoxy adhesive or the entire area of the hinge mortise may be repaired with a dutchman patch. Either method provides a firm attachment point for the hinge screws.

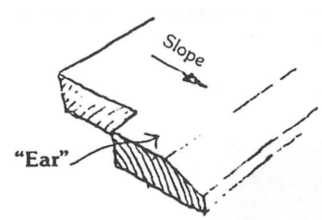
**Loose joints:** The mortise-and-tenon joints between stiles and rails, particularly in screen doors, may begin to work themselves loose after years of opening and closing and wracking. The preferred option in this case is to disassemble the loose members and reassemble with fresh adhesive and stainless-steel fasteners. For screen doors, which lack the strength and stability of wood panels, the installation of one or more reinforcing galvanized or stainless steel plates on the interior face of the door at the damaged joints may provide a satisfactory temporary repair.

**Rotted Door Threshold:** Deterioration of this part of an exterior door's frame is serious in that it allows moisture to penetrate directly to the interior floor and sub-floor and even, in some cases, to the principal house plate. Steps for replacement are as follows:

- Carefully measure the existing threshold so that an exact copy can be made.
- Remove the threshold. If it projects beneath the door frame, this may necessitate removal of the door stop. If the threshold is completely rotted, it may be easiest to remove it piecemeal by chiseling. Otherwise, the center section can be cut out with a back saw to allow for the play required to remove the threshold from beneath the frame.




- Prepare a new pressure-treated or sapele threshold similar to the one that has been removed. Be careful to include the "ears," or lugs, at each end, and be certain that the new threshold is fashioned so that it slopes for drainage. Make sure the new threshold has been treated with wood preservative and back-primed prior to installation.




- Gently tap the new threshold in beneath the door frame. If it has to be forced, it is too tight and should be removed and sanded.
- Drill pilot holes in the threshold for attaching it with approximately 2-1/2 inch stainless-steel nails or screws. These fasteners should be countersunk and the nails holes filled with putty and sanded.
- Prime and paint the new threshold.

## Design and Selection of New Doors for Historic Homes and New Construction

These guidelines should be considered in permit applications in which the doors of structures under HRB jurisdiction would be affected:

## Summary of Door Recommendations

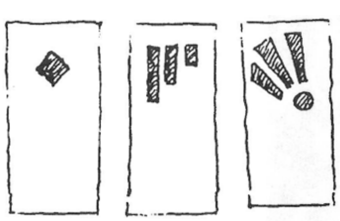
### Appropriate / Recommended

- For new construction, paneled doors are appropriate for virtually any house that might be built. They should match the style of the structure, many of which are visible throughout the District and can be taken as models.

**Example of Appropriate Door at Historic Home**

### Inappropriate / Not Recommended

- Modern flush doors. Many original eighteenth and nineteenth-century entrance doors in the Historic District have been replaced with modern flush doors. These are inadequate and inappropriate treatments with a tremendously adverse impact on an historic structure. This type of installation may be considered appropriate only on mid-20th century houses.

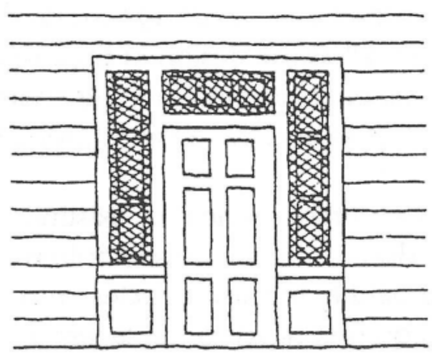


**Inappropriate Modern Exterior Doors**

FAUX LEADED GLASS PICTURE

**An example of poorly installed lead tape intended to look like leaded glass.**

- Glazed doors containing windows with snap-in muntins, or masking tape to simulate divided lights, or lead tape to mimic leaded glass are inappropriate for installation on historic buildings. These are easily discernible and visually unsatisfying.
  Doors that are entirely glazed are inappropriate.
- Enclosure of existing transoms and sidelights is not appropriate.

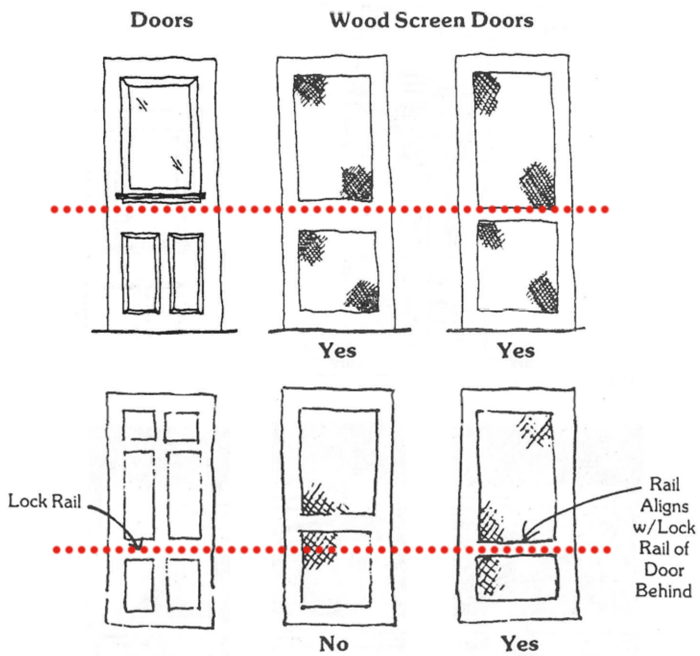


**Inappropriate**

### Screen Doors

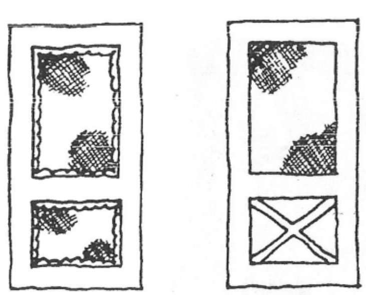
- For eighteenth and early to mid-nineteenth century houses, as well as for new construction, screen doors should be wood and should be kept as simple as possible. The simple wood frame can be painted in a color similar to that of the screen itself.
- Screen doors associated with the Queen Anne and Eastlake styles were often elaborately composed, intricately detailed, and far from simple. Extant, original screen doors of late nineteenth century houses should be retained and maintained.

- Except for screen doors that are part of a porch enclosure, horizontal and vertical rails of screen doors should align and coincide with those of the door behind.
- Fully-glazed storm doors installed over historic doors are not appropriate and should be avoided.




Screen Doors To Align With Doors

- Screen doors that are located out at the line of the balustrade as part of a porch enclosure should be treated somewhat differently, as described in "Porches."
- Aluminum screen doors are not appropriate for historic homes. Modern aluminum screen doors plague the Historic District of Beaufort. Not only are "decorative" or "Colonial" doors a detraction in themselves, but too often they hide the fine paneled doors behind.



Inappropriate Modern Screen Doors

## Preservation of Historic Windows

### Preservation Recommendations

The following recommendations are intended to serve as reminders of general considerations in the evaluation of proposed treatment of the windows of structures under HRB jurisdiction:

### General Guidelines

- Repair or replace existing historic windows in-kind. The profiles of window frames, sash, mullions, muntins, beads, and stops are critical elements to the appearance and character of the window and must be closely replicated. The "relief" of these elements, the relationship of their receding planes, cause the shadow lines which determine the character of the window. Replacement windows should thus duplicate the existing historic windows.
- Save as much historic fabric as possible. In some cases, this will involve removing deteriorated sections and patching as invisibly as possible. Historic windows should be replaced only if they are beyond repair.
- Replace inappropriate windows with windows appropriate to the period of the house.
- Extant wood window screens should be retained, maintained, and repaired as necessary.

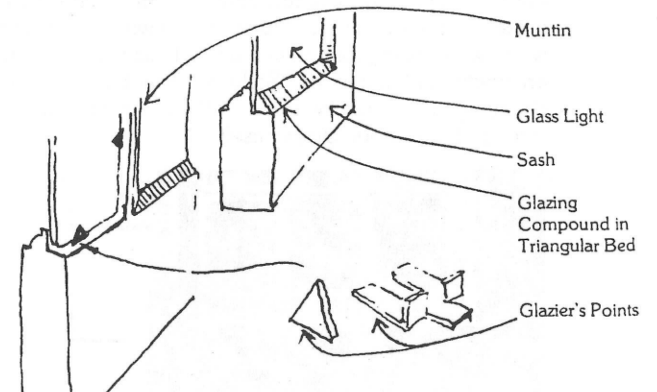
For weatherstripping information, see "Energy Conservation."

**Broken glass and deteriorated glazing putty:** Inspection of window glazing should be part of a yearly maintenance program for any structure. Broken panes and cracked or missing putty can allow moisture penetration and can cause rapid deterioration and rot of wood sash. Steps for proper re-glazing are as follows:

- Remove all loose and cracked glazing putty, with a putty knife. (The glazing putty is the final moisture seal of the window; it is not what holds the glass in place. Glazier's points, described below, are used for this purpose.)
- If the glass does not require replacement, skip to the final step below.
- If glass is cracked or broken, remove glazier's points and remove glass pieces from setting bed. Wearing heavy gloves, remove all broken glass and old putty. The latter can sometimes be softened with a heat gun, though extreme care must be exercised to avoid damage to the wood and surrounding glass must be

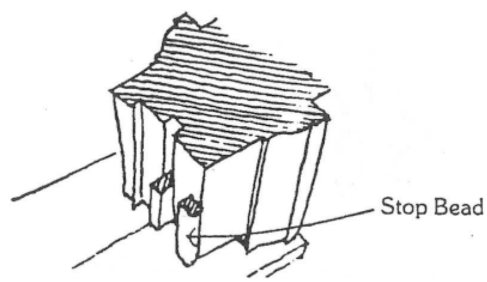
protected by a metallic heat shield. A putty knife is a safer and simpler alternative, albeit more tedious.

- After removing glass, scrape remaining putty out of glazing rabbet. Sand the groove to a smooth finish. Remove all dust and dirt from the putty area with a stiff bristle brush and a strong vacuum cleaner.
- Treat the exposed wood area with borate wood preservative and back-prime the muntins.
- Cut a new piece of glass that is 1/8" smaller than the opening in each direction.
- Apply a thin bed of glazing compound to the groove and press the pane into place. In modern practice an elastic glazing compound is recommended because, unlike putty, it remains permanently flexible. Thus, it is not subject to the cracking and splintering that affects the original material. The glass should not contact any wood when in its final position.
    - Traditional linseed-oil-based glazing putty is commercially available through specialty stores and several online suppliers. Though this material will provide a long-lived installation, it will become brittle over time. Its primary disadvantage, however, is a very long cure time (up to several weeks) depending on temperature and humidity conditions.
    - Oil-based glazing putty is manufactured with modified oils and retains its flexibility longer than traditional linseed-oil putty. Like linseed putty, modified oil-based glazing compounds also have a long curing time. These products are readily found in major home improvement stores.
    - Acrylic-based glazing compound has the advantage of an accelerated cure time. This type of product comes in both hardening and non-hardening types. Non-hardening compounds may provide better performance in operating windows and doors that are subject to frequent movement.
- Secure the glass in place with glazier's points, placed at 4-6 inches on center. These points can be driven into the sash with a screwdriver or putty knife.
- Form the elastic glazing compound into a rope about 3/8" in diameter and press it into the groove. Form a neat triangular bed with the putty knife, forcing the putty into firm, contact with the glass and the glazing rabbet. The outer edge of the putty should be flush with the exterior face of the muntin.



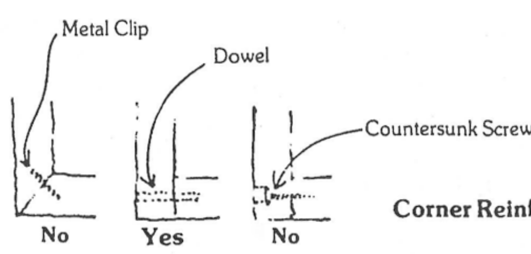

Glazing

**Warped and Sagging Sash:** Such deterioration usually requires removal of the sash, which is most easily accomplished from the inside by first removing the stop bead.




(Caution: the cord holding the sash weights should be secured at the top prior to removal so that it is not pulled to the inside of the frame when the window is removed.) When the sash is removed, the following procedures can be taken to remedy the warping:

- Planing binding surfaces
- Reinforcing the corners, preferably by means of a hidden repair



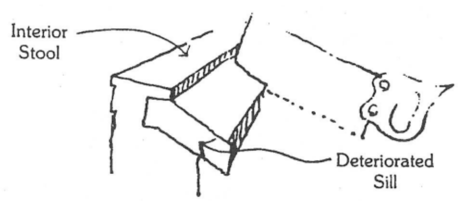

Corner Reinforcing

- Lubricating the frame with soap or silicone so that the sash will move more easily
- For seriously racked sash, the mortise and tenon joints of the rails and stiles must be realigned and re-doweled, or the members replaced

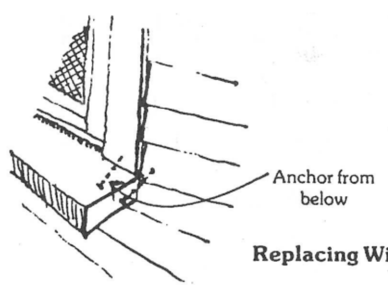
**Loose joints:** Window sashes displaying loose joints at the bottom rail or between muntins have typically suffered prolonged moisture penetration and the tenons or pegs joining the members are likely damaged. Repair of this condition must be done in a shop and may involve replacement of one or more members. Muntins, in particular, are thin in section and the joints are likely to be deteriorated beyond repair. It is recommended that the homeowner engage the services of an experienced woodworker to perform this type of work.

**Rotted Window Sills:** Window sills take tremendous abuse both from intense sun exposure and constant water runoff. Where the protective paint film is allowed to deteriorate, rot may begin to slowly disintegrate the wood sill. The procedure for replacement of damaged window sills is similar to that described for door sills. The following is the proper procedure:

• Remove the deteriorated sill by cutting out the center portion with a saw to allow freedom of movement for removal of the ends. Be careful not to cut the interior stool. If the- sill is seriously rotted, it can be removed piecemeal with a chisel. If the window jambs are mortised into the sill, the jamb tenons may be cut. If the sill is in sufficiently poor condition that it requires replacement, this connection may already be compromised.




• Prepare a new sill of sapele or pressure-treated (KDAT) pine to match the dimensions and profile of the original sill. The new sill should be sanded, primed and back-primed prior to installation.




**Replacing Window Sill**

• Gently tap the new sill into place and anchor it to the window casing from below. Caulk all joints. Instead of entirely replacing the wood sill it may occasionally be "restored." One of three techniques may be used for this purpose, all of which recapture the water-shedding surface necessary to the sill's primary function. The techniques are discussed below:

- Saturate the partially rotted sill with an epoxy consolidant to arrest the spread of rot by surrounding the affected fibers in resin. The surface of the sill can be filled and smoothed with a compatible epoxy putty. After the epoxy is dry, the sill can be painted.
- When the surface of the sill itself is basically intact, but pitted with holes and cracks, all loose material can be scraped off with a putty knife and stiff bristle brush. The sill is next treated with borate wood preservative, then saturated with a mixture of boiled linseed oil and turpentine. After repeating this process, fill all cracks and holes with non-shrink wood putty. When a skin forms on the putty, prime and paint the sill with an oil-based primer.
- When the surface of the sill is badly deteriorated and must be built up to its original profile, the sill may be planed down to a flat surface and a cover board installed which matches the original profile. The cover board should be attached to the underlying sill with a continuous application of waterproof resorcinol glue and stainless-steel fasteners, countersunk and puttied flush.

**Deteriorated paint:** Maintenance of the paint finish is critical to the preservation of wood windows for two reasons. First, the paint protects the wood from damaging ultra-violet radiation which bleaches and weakens the wood surface. Second, paint protects the hairline joints between sash members. Water penetration at these locations can cause severe deterioration in a relatively short time if not arrested.

• Examine the condition of all wood frames and sash. All open cracks and holes should be cleaned and filled with putty, and all loose or blistering paint should be scraped and replaced (see "Painting").

## Leaded Glass

Decorative leaded glass is found in many buildings of the mid-nineteenth century through the early twentieth century.

The treatment of these installation should be proportional to their significance. If the glass installation is located in a building of exceptional significance or is known to be the work of a particularly well-known studio, a stained-glass conservator should be consulted. Even if the significance of the piece cannot be verified, the services of a conservator should be considered for any installations incorporating figural designs, plated (layered) and/or painted glass.

Stained glass consists of colored glass suspended in a framework of lead (or occasionally zinc) channels (called cames). The glass is cemented into place by working a paste of oil and whiting between the glass and the flanges of the lead which serves not only to hold the glass firmly but also to waterproof the surface. With proper care, stained-glass installations may last over one hundred years without significant maintenance. However, the lead cames forming the panel framework have a limited service life (between one hundred and two hundred years) and will eventually deform over time. Installations in doors and ventilator sashes that are subject to frequent vibration and racking will fail more quickly as will panels installed in non-vertical positions such as laylights and domes. Observation of the following conditions in a stained-glass installation should be cause for concern:

**Bulging or buckling:** Bulging and buckling in stained glass occur after years of expansion and contraction as well as slow deformation of the lead due to gravity. Buckling is more often seen along horizontal lines in geometric patterns while bulging occurs more frequently in patterns without pronounced horizontal lines. In either case, the stained-glass panel must be removed to the bench for repair on a flat surface. Minor buckling or bulging may be repairable by resoldering damaged joints and adding reinforcement. Major deformations, however, cannot generally be repaired and the damaged portion must be re-leaded.

**Cracked or broken glass:** Deformation of the lead framework exerts significant stress on the glass within and may cause cracks. External forces such as vandalism may also cause breakage. Glass pieces exhibiting a single crack can generally be left as is or repaired in place using clear epoxy. Pieces exhibiting multiple or converging cracks generally require replacement. Because replacement requires cutting and bending of the lead flanges, this type of repair is not recommended for the average homeowner. Where the damaged piece is an important element of the window design such as a face, the involvement of a trained stained-glass restorer is critical to ensure that the repair is not more disfiguring than the original damage.

**Fading or loss of painted detail:** Vitreous paint (which is fired onto the glass itself) is often used for finer detail including faces and inscriptions. Failure of the paint may occur due to improper firing or because of insensitive cleaning. The homeowner is advised never to clean any areas of glass containing painted detail by any method other than blotting with distilled water and cotton swabs. Where fading or loss of painted detail is evident, no cleaning should be attempted and the services of a conservator should be sought immediately.

While the conditions identified above require the intervention of an experienced stained-glass craftsman, minor repairs on simpler geometric patterns such as those frequently found in Queen Anne and other late-nineteenth-century homes may be tackled by a competent do-it-yourselfer. Supplies are readily available; many crafts and hobby shops carry stained-glass supplies.

The following precautions and tips are recommended:
• Use the proper tools ~ a good glass cutter, soldering iron, flux, and 60/40 lead/tin solder.
• Cracked solder joints: Using a sharp blade or file, clean the patina off the existing lead to a distance of 1/4”-1/2” beyond either side of the cracked lead joint. Re-solder all broken lead joints. The new solder will be brighter in color than the original material but should quickly darken as it weathers.
• Replace deteriorated waterproofing by sweeping damaged putty out from under flanges with a bristle brush, vacuuming the surface and wiping new putty under the flanges of the lead came. Though the interior putty is typically in much better condition, inspect and re-putty any areas of missing material.

## Design and Selection of New Windows for Historic Homes and New Construction

Historic windows found in the Beaufort Historic District are overwhelmingly constructed of wood with the exception of limited use of metal windows, particularly in commercial structures. New replacement windows are manufactured in a variety of materials; however, not all of these are appropriate for installation on historic structures.

Many of the factors that determine whether a material is appropriate for window replacements in a historic building also apply to a window in a new building. The quality of materials, overall durability, appearance, range of size and proportion options, required maintenance, and expense should all be taken into account. There is inherently some flexibility of material selection in new construction as the windows are not trying to match existing examples.

**Wood:** The ideal replacement material for historic wood windows is, of course, wood and new wood windows are readily available from a variety of national manufacturers as well as local woodworking shops. The majority of species used to fabricate historic wood windows are no longer recommended for new replacement units due to a decline in quality. The majority of manufacturers now utilize various species of pressure-treated spruce and pine. Mahogany and sapele may also be used but are significantly more expensive. A painted finish is required to protect any species in the humid environment of Beaufort.

For new construction, while the character and design flexibility of wood is difficult to match. The expense and required maintenance of the material can make it a difficult choice.

**Aluminum-clad wood:** A principal disadvantage to the use of replacement wood windows is the necessity for frequent repainting. The difficulty and cost of this critical maintenance may become prohibitive on late nineteenth-century buildings where roofs may be steeper and windows less accessible from the exterior. In these situations, the selective use of aluminum-clad wood windows may be considered provided that windows of appropriate size, configuration and finish can be found.

For new construction, this material often blends the ability to achieve a relatively authentic appearance with reduced maintenance and improved energy performance.

**Fiberglass:** Similar to aluminum-clad wood, fiberglass windows can blend authentic appearance with reduced maintenance. Fiberglass profiles, unlike aluminum and vinyl windows, are often available in sizes similar to historic wood windows. Sash and frame members approximating wood sizes allow for glass pane sizes similar to historic configurations. Additionally, fiberglass can be painted giving it a painted wood-like appearance. While painted surfaces will have to be maintained, fiberglass windows can have a very long life and age well without warping and fewer open joints that vinyl. Like fiberglass siding, fiberglass windows are available with a wood grain pattern. This option should be avoided to achieve the most authentic appearance.

**Aluminum:** Aluminum windows are an inexpensive solution and may be appropriate for houses dating to the mid-twentieth century or later if that was what is original to the building. In no case, however, are aluminum windows an appropriate replacement for wood double-hung windows. Not only are the available sizes and light configurations likely not to be compatible with historic openings but the sight lines created by the narrow stiles and rails are completely out of character with the appearance of an eighteenth or nineteenth-century building.

As stated above for historic buildings, in new construction aluminum is only appropriate if the new building is designed in a mid-twentieth century style. Aluminum can also be appropriate for commercial use.

**Vinyl:** The same objections pertaining to aluminum windows are even more applicable to vinyl windows. Their primary attraction is their relatively low initial cost. However, they age poorly and their appearance is incompatible with historic structures. The only conceivable use for this type of window within the historic district is for installation in basement window openings that are concealed by porches. The vinyl or fiberglass frame is typically impervious to moisture within the foundation masonry, making it a more durable choice than wood in these inconspicuous locations.

For new construction, the appearance of vinyl, especially as it ages, makes it difficult to recommend. While understanding the appeal of reduced costs, a building sympathetically designed for the surrounding District would likely be better served aesthetically with windows of a different material.

## Summary of Window Recommendations

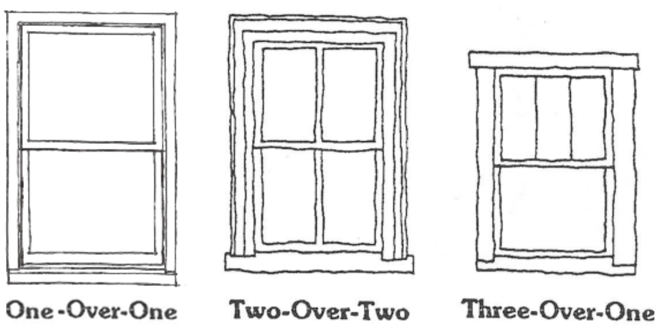
These guidelines should be considered in permit applications in which the windows of structures under HRB jurisdiction would be affected:

**Appropriate/Recommended**

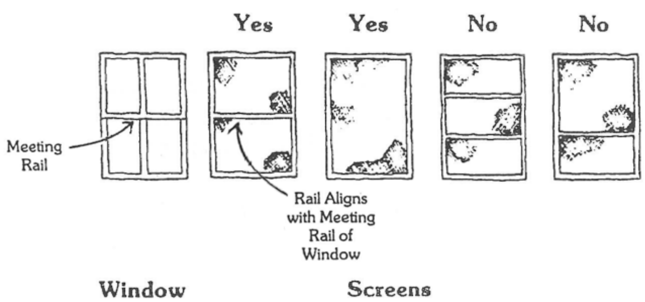
- Operable double-hung wood windows are appropriate in the Beaufort Historic District.
- Use only clear glass in any window in the Beaufort

Historic District.

- In the case of new construction, the use of true divided lights for all wood windows in the proposed Beaufort Historic District is preferred; however, simulated divided lights, equipped with spacer bars, may be acceptable.
- Replacement windows should match the number of lights of the existing sash. In the case of replacing previous non-historic-windows, the number of lights in the new window should be consistent with the style and period of the building.




- Rails of window screens should match rails of windows behind.

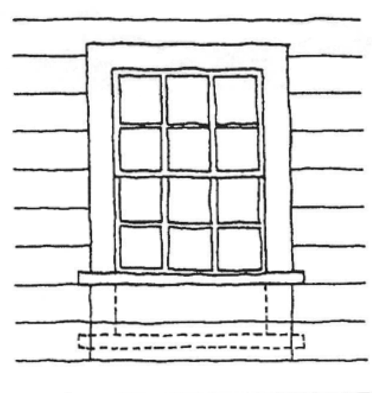



**Not Recommended**

- It is worth noting that references to the Palladian and tripartite windows particular to the north-facing stair landings in early nineteenth century Beaufort houses have been included in recent additions and rehabilitations of historic structures, and in new construction, with varied results. These windows in additions to and rehabilitations of historic buildings can be the architectural equivalent of a quotation, taken out of context, losing its meaning. The proportion, detailing, and location of the windows, and their position in the hierarchy of the facade is compromised, and the overall effect is not harmonious. Conversely, the Palladian window motif may be used in new construction in a manner that, while never to be confused with historic fabric, connects the new building to historic building practices.
- Casement and slider windows are not recommended for historic buildings in the Beaufort Historic District.

**Inappropriate**

- Do not alter the size of existing window openings to accommodate the stock sizes of replacement windows or picture windows, or to accommodate the insertion of new interior furnishings or cabinetry.
    - Do not enlarge original window openings for the installation of a picture window.
    - Do not decrease the size of window openings to allow for the installation of stock-size replacement windows. Besides spoiling the appearance of a house, such practices rarely save money because of the extra expense required in creating a new opening size.



- Do not attempt to mimic multi-pane windows by adding masking tape or snap-in muntins to modern plate glass. The effect is cheap and unconvincing to all but the most untrained eye. These include glazed panels treated with lead tape to mimic the appearance of true leaded glass.
- Do not insert picture windows in the primary or side facades of historic houses in the Beaufort Historic District.

## Shutters

Wood shutters are prevalent in the houses of the Beaufort Historic District. They are architectural responses to the climate and environment of Beaufort, functioning to allow air to pass into the house while keeping rain and sunlight out, and acting as storm windows during heavy rains. They are also attractive elements in the overall design of facades of the houses of the Beaufort Historic District.

## Preservation of Historic Shutters

The following recommendations are intended to serve as reminders of general considerations in the evaluation of proposed treatment of shutters on structures under HRB jurisdiction:

**General Guidelines**

- Repair or replace existing historic shutters in-kind. The profiles of shutter frames, panels, and louvers are critical elements to the appearance and character of the shutter and must be closely replicated. Replacement shutters should thus duplicate the existing historic shutters.
- Save as much historic fabric as possible. In some cases, this will involve removing deteriorated sections and patching as invisibly as possible. Historic shutters should be replaced only if they are beyond repair.
- Replace inappropriate shutters with shutters appropriate to the period of the house.

The range of problems affecting shutters diminishes their significant effectiveness as an energy-saving device. These problems and their repairs are as follows:

**Loose Hinges:** If the hinges are loose because of deteriorated wood surrounding the fasteners, the screw holes should be drilled out and a glue-soaked dowel inserted. The hinges may then be re-secured. An alternative but less desirable repair would be to dutchman the entire hinge mortise to provide a fresh mounting surface.

**Loose Joints Between Stiles and Rails:** There are several possible repairs for this problem:

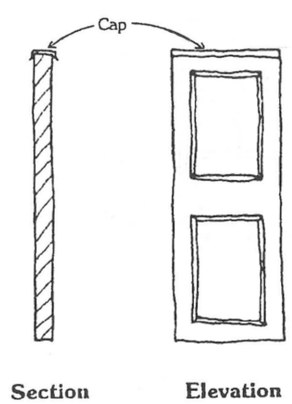
- Open up the joints to allow more glue to be forced in. Clamp the joint until the glue sets.
- If the joints are extremely loose, disassemble and re-glue the entire shutter. Dowels, or "pins," in the mortise and tenon joints may be punched out if loose, or drilled. If realignment of the rails is necessary, the dowel holes may need to be relocated/ re-drilled and new pins installed. Sagging shutters can also be stiffened by driving a wedge into the underside of the center mortise at each end of the rails.

**Loose Louvers:** Operable louvers can become loosened at two locations: the vertical rod which controls their movement, and at the stiles into which they are framed.

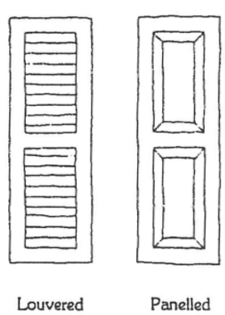
- To repair the connection at the vertical rod, a very small finishing nail can be used. The head is cut off and filed to a point, and the nail is then bent into a U-shape using a needle pliers. The new pin is then simply wrapped around the post and forced into the holes of the missing pin.
- Louvers that have pulled loose from the shutter stiles typically do so because the ends of the louver itself are deteriorated or damaged or because the stiles have spread due to damage at the joints between the stiles and rails. In the former case, the shutter must be disassembled and rebuilt with new replacement louvers as needed. In the latter case, repair of the loose joints as described above will be required.

In addition to the above guidelines, the following considerations should be kept in mind:

- Installation of a simple metal cap (painted to match the shutter color) along the top surface of wood shutters will dramatically increase their longevity by providing protection to the exposed end grain of the stiles.




**Metal Cap For Shutter**




**Shutters**

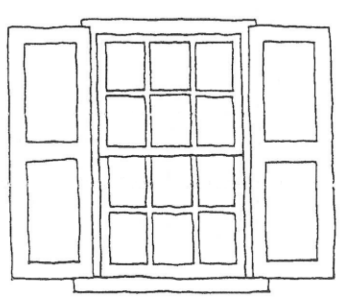
## Design and Selection of New Shutters for Historic Homes and New Construction

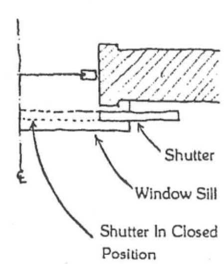
These guidelines should be considered in permit applications in which the shutters of structures under HRB jurisdiction would be affected:

## Summary of Window Recommendations

**Appropriate / Recommended**

- Shutters should be made of wood, preferably sapele or pressure-treated (KDAT) pine and painted for protection. Shutter fabricated from composite lumber with a smooth painted finish may also be acceptable.
- Either louvered or paneled wood shutters are appropriate. (Typically, paneled shutters were used only at the lower floors, affording as they did a measure of security. For late nineteenth century houses, however, all shutters were frequently louvered.)
- Shutters should operate, or at least give the appearance of being operable.
- Shutters must be proportioned and properly hung to completely cover the window or door when in the closed position.






**Not Recommended**

- Non-operating shutters are not recommended.
- Composite materials bearing a false wood grain texture are not acceptable.
- Similar to windows, vinyl shutters age poorly. Near-constant exposure to sunlight often results in expansion and contraction of the material that can result in open joints. Ultraviolet light fades the factory color and the material does not receive paint well. Similarly metal shutters are not recommended as persistent solar exposure and heated metal can compromise the finish which is difficult to replace or paint over.

**Inappropriate**

- Shutters that are too narrow or too short to completely cover the door or window in a closed position.
- Do not hang shutters in a location or manner that will prevent their closing completely over the window.

# Chapter 11: Siding and Trim

## Introduction

The siding (or cladding) of a building is literally its skin, functioning to shed water and deflect sunlight and wind. The task of shedding water quickly and thoroughly is important in preventing decay of the hidden structural skeleton and staining of interior finishes.

**Example of Deteriorated Wood Clapboard Siding**

The siding is also visually important in the appearance of the house, constituting the "solid" part of the composition of the facade. Each clapboard casts a shadow line on the clapboard below, helping to establish the scale of the house and lending texture to the facade. The width of the clapboards also helps to establish the mass and proportion of the building. Historically, the siding was considered a significant design feature on the most important elevation, and its size and shape was modulated and refined accordingly, as at 603 Craven Street and 906 North Street).

**Example of Shadow Lines**

**603 Craven Street**

The trim of a building completes and complements the siding, functionally and visually. Trim seals the siding at vulnerable locations such as joints, corners, and openings, and introduces vertical elements and elements that visually frame the field of siding, creating a transition between the siding and more decorative elements at the cornice, windows, or doors.

**Example of Trim Sealing Vulnerable Locations**

Cracks, chips, or other flaws in either the siding or the trim defeat the functional purpose of these features and can lead to serious consequences. While repairs and maintenance are relatively simple, the property owner should not underestimate their importance.

In addition to a discussion of repair and maintenance techniques for wood siding and trim, this chapter also addresses alternative modern siding and trim materials such as aluminum, vinyl, cellular PVC, fiber cement and wood fiber composites.

## Wood Siding

Wood siding was the most readily available finish for seventeenth and eighteenth-century homes throughout the American colonies. The first settlers utilized whatever wood was at hand and a great variety of species is found in many areas. The style of wood siding generally varied in accordance with the background and ethnic building traditions of the settlers themselves. Clapboard, tongue-and-groove flush siding, ship-lapped siding and vertical boards and battens are but a few of the siding types seen on eighteenth-century structures. By far the most common siding type in Beaufort is beveled or beaded clapboard, installed in a range of widths. Horizontal siding was typically sanded to produce a smooth finish once painted. Later nineteenth-century structures may also feature shingle siding used in a decorative fashion. The rare examples of siding being used more decoratively in Beaufort occur at such houses as the Queen Anne structures in the 600 block of Craven Street. The use of vertical siding is not generally consistent with the historic fabric of Beaufort.

**601 Craven Street uses decorative shingle siding.**

**Wood Siding and "Queen Anne" Fascia Boards at 508 Duke Street**

## Wood Trim

**Corner Boards.** This trim is an extremely important aspect of construction with wood siding in that it forms a strong visual edge to the structure. In fact, investigation of the size and shape of corner boards is often used as supplementary information when attempting to date a building. Early corner boards such as those at the Verdier House, for example, tend to be very pronounced and are often molded. In addition to their visual role, corner boards serve to seal the corner of the building and provide termination for the siding, protecting the end grain.

**Corner Boards at Verdier House, 801 Bay Street**

**Pilasters.** Pilasters are most commonly found supporting an entablature ornamenting the primary entrance to a historic home. They may take the place of corner boards and porch supports on more elaborate residences. As with columns, the typical pilaster consists of three parts: base, shaft and capital. Depending on the building, pilasters may range from a flat shaft with simple linear moldings to a carved, fluted shaft with decoratively carved or profiled capitals and bases.

**Pilasters at 1103 Bay Street**

**Cornices.** The cornice terminates the bottom edge of the roof, concealing and protecting the bearing ends of the roof framing. Depending on the style of the building and the general proportions of the façade, the cornice may range from a shallow soffit and crown molding to a more elaborate compound profile with denticulated ornament to the deep, bracketed cornices seen on mid-nineteenth century Italianate homes.

**Denticulated Cornice at Lewis Reeves Sams House, 601 Bay Street**

**Italianate Cornice at Hattie Ford House, 507 Craven Street**

**Window Caps and Door Hoods.** Window and door caps became more prominent with the rise of the Greek Revival toward the mid-nineteenth century and remained popular with the later Italianate and Victorian styles. As with corner boards, the application of decorative moldings over doors and windows served not only a decorative but also a protective function. The decorative moldings protruding past the plane of the wood siding helped to shed rain water away from the vulnerable heads of the window openings.

**Window Caps at 103 Bryan Drive**

**Brackets.** Brackets may be incorporated in many decorative features including porches, cornices, door and window surrounds. They may range from simple scrolls to the elaborately cut “Gingerbread” evident on many Victorian homes.

## Preservation of Historic Wood Siding and Trim

The longevity of wood siding is heavily dependent on consistent and careful maintenance, particularly painting. Original wood siding, fabricated from old-growth wood, may still be found throughout Beaufort. This type of material which is stronger and more rot-resistant than most modern lumber of comparable species, is no longer available at any price and is therefore worth preserving wherever possible. However, no material can resist the effects of age and exposure entirely and cracking, sagging, and general deterioration is present in much of the siding in the Historic District. An annual inspection of all exterior siding is recommended, followed by prompt repair of all such defects. The following repair techniques are within the realm of the homeowner:

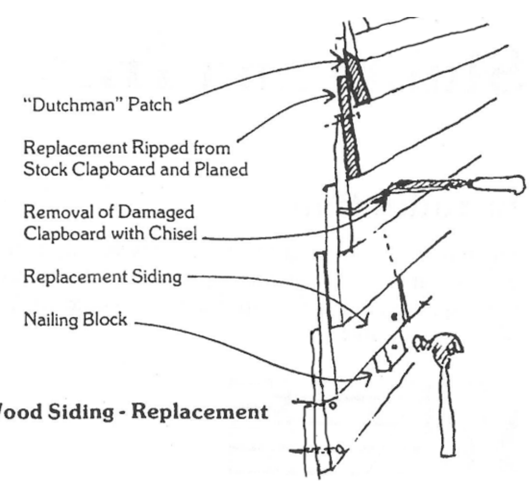
**Swelling.** Swelling may occur where siding abuts vertical trim such as window trim and corner boards. When gaps develop at these locations, water may penetrate the end grain of the siding boards, leading to swelling of the wood and paint failure. Liquid epoxy consolidant may be used to firm up the surface and impregnate the end grain to some degree prior to repainting. The installation of caulk at the gap between the wood siding and various elements of vertical trim is essential to keep moisture at bay at these locations. Hybrid siliconized latex caulk is compatible with both alkyd and latex paint finishes.

**Splits and cracks.** Wood siding undergoes constant cycles of expansion and contraction with fluctuations in temperature and humidity. It is unsurprising therefore, that splits and cracks develop on siding boards as the wood fibers are pulled apart from one another. Small cracks in otherwise sound wood can simply be sealed with wood putty or epoxy putty. The putty is installed in the crack, compressed and scraped flush with a putty knife, and allowed to dry for a few days until a skin is formed on the material. The seal should then be primed and finish painted.

If the crack is wider than 1/4”, it is likely that the board is already compromised by decay to some degree. In this situation, a wood dutchman repair will prove to be a more durable repair than caulking or putty. Horizontal Dutchman patches that replace only the material below the split will be less visually intrusive than patching the full depth of a damaged segment. Patches should be installed so that all horizontal joints between old and new material project downward and outward.

**Removal and Replacement of Siding.** Where deterioration or damage is severe, replacement of one or more siding boards may be required. Several options are available, depending on the extent of the required replacement. For minor repairs to only a few pieces of siding, an effective patch can sometimes be fashioned from stock clapboard. For replacement of an entire piece, it may be possible to rip a section of siding from stock clapboard which closely resembles the butt thickness of the existing siding. Differences in the degree of taper between new and old material can be effectively minimized by sanding or light planing of the concealed face. If the required replacement is extensive, it is preferable to use siding that is a genuine match for the existing material in overall size, and shape. Matching the historic species is often no longer possible due to the inferior quality of modern lumber. The use of pressure-treated (KDAT) or acetylated material is preferred. Patching with non-wood composite materials is not recommended.

The most desirable repair technique for serious siding problems requires cutting the damaged siding with a saw along the butt edge of the adjacent clapboard. The board is then carefully removed with a chisel. Special care should be taken to avoid puncturing any membrane {i.e. building paper) that might exist beneath the siding, though this will probably not be present in most historic houses. If the damaged board was nailed near the upper rather than lower edge, the adjacent clapboard must be pried out enough to allow the nails to be cut with a saw.



**Wood Siding - Replacement**

When the damaged siding is removed, the replacement piece can be inserted. It should match exactly, in dimension and profile, the siding that is being replaced. Prior to replacement, any holes in the building membrane of the affected area should be patched with roofing compound.

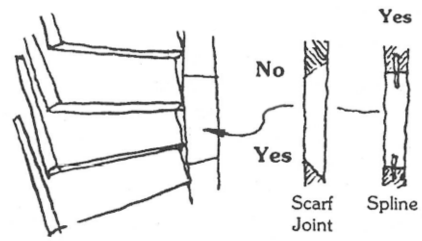
The new piece of siding should then be tapped gently into place with a nailing block. It should then be nailed along the bottom edges to avoid penetrating the piece of siding immediately above. After the siding is secured, all end joints and nail holes should be sealed with putty. When the putty is dry, the siding can be primed and painted.

Replacement of deteriorated or missing shingles is much simpler and may be accomplished in much the same manner using pressure-treated replacement material.

**Salvaging Existing Trim.** If the deterioration of the trim is minor, it can sometimes be salvaged through the use of the epoxy consolidant and patching products described in "Wood." In this technique, an epoxy saturates the affected piece and arrests the rot by surrounding the wood fibers in resin. The surface can then be filled with an epoxy putty to rebuild any missing profile. Loose trim that is in otherwise good condition should simply be re-secured. However, because there is a likelihood of splitting the piece, care must be taken. Drill a small pilot hole in the trim piece and secure it to its support with an annular nail. New nailing should be countersunk, covered with wood or epoxy putty, primed, and painted.

**Corner Boards.** The integrity of the corner boards is essential to protecting the integrity of the wood siding. Therefore, replacement of any rotted material is essential to avoid the spread of decay to the siding boards. If the entire board is rotted, it should be removed and burned, thus preventing possible contamination of the rest of the structure. The structure beneath should then be investigated to determine the extent to which it has been affected by decay. If decay has not progressed too far, it should be arrested with the use of the epoxy consolidant and patching products described in "Wood." When the interior conditions at the corner have been repaired and stabilized, a new corner board, matching the existing one in size and profile, should be treated with preservative and installed. As added insurance against further decay, the end grain of wood siding that is exposed during the removal of the original corner board should be liberally brushed with borate preservative or sealed with liquid epoxy.

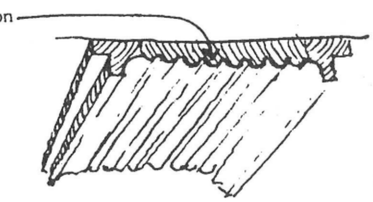
If the decay is limited to a small section of the comer board, it should be carefully cut out using downward sloping (scarf) cuts. The new patch piece must be carefully spliced to the old so that no visual disruption will occur. (An alternative to the scarf joint is the spline, a more difficult joint to fashion but not dramatically more effective than the scarf.) In no cases should butt joint patches be used because they are very susceptible to moisture penetration. When the new piece is attached, the joint lines are sealed with wood or epoxy putty. The seal is sanded when dry and the piece is then primed and painted.



**Corner Board Patches**
Glued & Epoxy

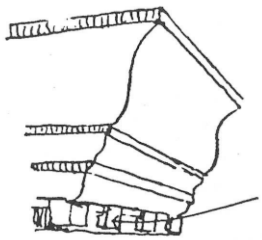
**Building Up Trim from Stock Molding.** Many of the trim elements on structures built prior to about the middle of the nineteenth century were milled from single, solid pieces of wood. Where repairs are small, however, it is generally not economical to custom-fabricate a matching monolithic profile. In these cases, larger elements as railings, door and window frames, or cornice sections can often be effectively imitated by carefully assembling a section composed of several appropriate pieces of stock lumber. It should be noted, however, that these repairs are susceptible to water infiltration due to the many joints between elements and must be consistently maintained. Where a large number of similar repairs are required, it is worth the expense to replicate the original profile.

- **Pilasters.** It is often possible to patch damaged or missing reeds or flutes at the pilasters flanking doorways with stock half-round pieces. Obviously, the size of the replacement must be an exact match for the original adjacent material.

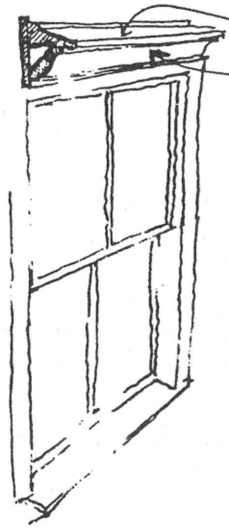


**Patching Pilasters**

- **Cornice Dentils.** Missing dentils can generally be replaced with stock lumber cut to size.




Patching Cornice Dentils




Window Caps

- **Window caps.** Most trim dating from the middle of the nineteenth century onward is built-up of several sections of milled lumber. The technique is no different today, although the stock shapes and sizes have changed. It is best to become thoroughly familiar with the range of shapes available at a good local lumberyard. Such familiarity can suggest a whole range of possible combinations. A window cap, for example, may combine a stock sill and stock cornice molding.

- **Brackets.** The use of preservative-treated material is critical in a climate like that of Beaufort. Pressure-treated (KDAT) lumber is one option for use in replacing damaged or missing ornamental brackets on the Victorian house. The other option is the use of marine-grade plywood, glued with marine-grade epoxy to build up the required section and coated with epoxy prior to painting. Again, the tools and techniques for construction of such pieces are not substantially different today than they were one hundred years ago. They involve 1"-2" stock material, a drill, and a sabre saw. The original piece should be removed and saved for use as a template in duplicating size and shape. The replacement piece should be primed, and back-primed prior to installation. Damage to the paint surface that results from nailing can simply be touched up.

## Alternative Siding Materials

A number of modern materials have come into use since the mid-to-late 20th century as alternatives to wood siding. None of these wood substitute products is suitable for use on historic buildings. Some materials, such as aluminum and vinyl siding, have been used for application over existing wood siding to eliminate the need for periodic painting. This type of application over older siding materials is particularly inadvisable, as it not only decreases the breathability of the wall assembly but also because it makes proper inspection of the genuine fabric of the building largely impossible. Their use on existing buildings is analogous to wall-papering a room in which the plaster is in a continued state of deterioration. The problems are hidden, not addressed.

However, some of these alternative materials may occasionally find a place in the preservation of historic homes or, more likely, the construction of new buildings. While this discussion does not constitute a recommendation for use of these materials on historic buildings, it is recognized that the reduced maintenance required for some of these products will likely be attractive to homebuilders and buyers. It is difficult to generalize about the long-term performance of some of these materials because they have been in use for relatively short periods of time.

**Aluminum.** This material has been frequently used as a means of replacing, or covering, wood siding. Drawbacks to aluminum siding are numerous and significant. Metal siding that is struck, for example, by a ball or a tree limb, becomes permanently dented, or "oil-canned," which automatically belies its effectiveness as a copy of wood clapboard. Further, aluminum siding, if not carefully installed, has the unfortunate effect of altering the scale and obscuring the trim of the historic house, thereby instantly reducing its architectural significance. Also, the sheen of a baked-on enamel finish can be quite different than the reflective qualities of painted wood clapboard. Aluminum siding is not an appropriate covering for any historic building and is not a particularly attractive option for a new one.

**Vinyl.** This material has even fewer advantages than aluminum. Its false embossed grain, dimensional instability, buckling motion, and numerous and pronounced vertical joints all make it a serious detraction to the historic house and a poor option for new work in the harsh climate of Beaufort.

**Cellular PVC.** Cellular PVC consists of an extruded plastic foam with a plastic skin. The foam and the skin are moisture and mold-resistant and UV-stabilized. This product is cut and fastened in much the same way as wood and may be painted. Cellular PVC is most commonly available for use as trim in a variety of board sizes and molding profiles. The principal disadvantage to this type of product is the limited range of profiles available. While the standard range of profiles might be sufficient to replicate a simple trim installation, custom profiles are not available to replicate the more complex moldings found on nineteenth-century homes. The usefulness of this type of material for historic buildings is extremely limited as it is not suitable for patching existing wood fabric.

**Fiber Cement and Wood Fiber Composite Siding.** Unlike the thin fiber-cement shingles popular in the early-to-mid-20th century, modern fiber cement fabrications are now available in a variety of sizes and thicknesses for use as both plank and panel siding and architectural trim. This material is now available in a variety of sizes as both plank and panel siding and architectural trim. Its advantages include rot resistance, dimensional stability and fire resistance. While this type of product may be readily used for new construction, the physical properties of fiber-reinforced cement boards are vastly different from those of historic wood, making it incompatible for patching, re-siding and other restoration applications. Fiber-reinforced cement material to be used for new construction should be smooth surfaced rather than embossed with an artificial wood grain.

## Summary of Siding Recommendations

The following guidelines should be considered in permit applications in which the historic siding and trim of structures under HDRB jurisdiction would be affected.

### Appropriate

- Retain all siding and trim unless deteriorated beyond repair. For areas of partial deterioration, techniques utilizing in-kind and visually matching patches are preferable to total replacement, in the interest of retaining as much historic material as possible.
- In the case of new construction, it should be noted that plain or beaded beveled horizontal siding is appropriate for the Beaufort Historic District, although plain is preferable. Vertical siding is a more modern intrusion and would be more appropriate in Beaufort to secondary structures such as sheds and outbuildings.
- When siding is to be used in new construction, its primary visual characteristics - width, shadow line, profile, and exposure - should be compatible with those on houses of similar scale in the Beaufort Historic District.
- The use of modern fiber-reinforced cement planks in lieu of wood may be acceptable for new construction subject to the above.
- All siding and trim should be painted.

### Not Recommended

- Aluminum and vinyl siding are inappropriate for use on new or existing buildings in the District, for reasons that have to do with their poor aesthetic quality and their potentially destructive effects.
- Modern products such as cellular PVC, fiber cement, and wood fiber composite siding are not appropriate for restoration and repair of historic wood siding and trim as their performance characteristics differ significantly from those of wood. These materials may be appropriate in new construction though they are best used at cornices, dormers, and other elements further removed so they are not as easily perceived from the street.

# Weatherproofing

Chapter 12: Roof Repairs and Maintenance

Chapter 13: Flashing, Gutters, and Downspouts

Chapter 14: Painting

Chapter 15: Energy Conservation/Mechanical, Electrical, and Communication Systems

# Chapter 12: Roof Repair and Maintenance

## Introduction

A building's roof is the most important single element in determining its longevity. Presenting a nearly perpendicular plane to the wind and weather, the roof is a building's most exposed and most active element. It is relentlessly subject to deterioration from wind, temperature shifts, wetting and drying, and building movement. Roofs therefore require vigilant and regular inspection. Simple, routine maintenance will greatly increase the life of any roof and roof drainage system.

**712 Congress Street**

Few things are more upsetting to the average homeowner than the sudden appearance of a roof leak. Unfortunately, it is usually not until this moment that the roof is inspected with the attention that would have prevented minor problems from escalating. The attitude of many homeowners towards roofing is a good illustration of the "out of sight, out of mind" syndrome. It is the intent of this section to reverse that neglect.

**Moisture damage at ceiling due to roof leakage**

All exterior elements of a structure are subject to deterioration from exposure. However, it is the roof that takes the hardest beating. Obviously, it must be able to withstand all levels of precipitation, shedding water as quickly as possible by collecting and delivering it to the downspout/gutter system. What is less common knowledge is that a fine sunny day can be just as serious a burden for a roof. Because the roof is roughly perpendicular to the sun's rays, it must cope with an enormous amount of heat (and conversely, cold), thus withstanding internal pressures of expansion (and contraction).

**Oil canning of metal roofing may have multiple causes including thermal movement**

Moreover, the roof is highly susceptible to wind. Slate, wood, and asphalt shingles all have a tendency to lift during windy weather. Eventually, shingles may shift or slip and moisture is allowed to penetrate.

**Cupping and splitting of wood shingles**

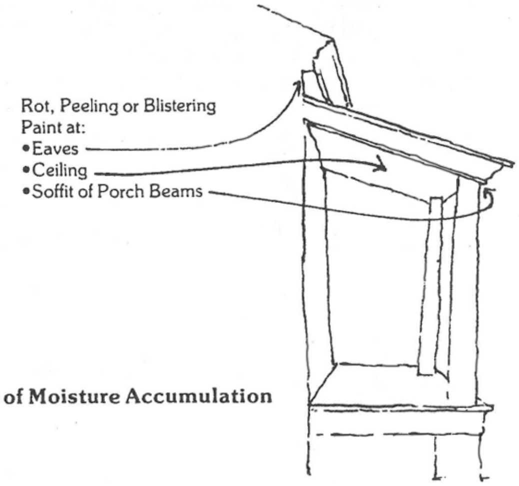
**Missing asphalt shingles**

It is hoped that an awareness of the stresses that roofs must endure will lead the homeowner to appreciate the need for vigilant and regular inspection. The repair of minor defects such as slipped shingles or damaged flashing may be accomplished with minimal expense. However, deferral of such basic maintenance increases the likelihood that the scope of eventual repairs will come to include repairs to the roof deck, framing and interior finishes. Minor maintenance on low-slope roofs or single-story buildings may be within the capacities of the competent do-it-yourself-er. However, roof work on steep slopes and/or multi-story buildings should be left to professionals properly equipped and trained in fall protection.

## Leaks

On sloping roofs, a leak rarely originates directly above the area where it makes its appearance on the ceiling below. Infiltrating moisture may migrate quite a few feet away from the entry point both horizontally and vertically. There are many signs that should alert the informed homeowner of a probable accumulation of moisture that has not yet become evident as a leak. Such symptoms may include:

- Rot and/or peeling and blistering paint at eaves and cornices.
- Rot and/or peeling and blistering paint at the soffit of porch-edge beams.
- Rot, peeling and blistering paint and/or sagging at porch ceilings.
- Lifted, deteriorated, or missing shingles.
- Paint failure at ceiling
- Cracked, bulging, or discolored plaster at ceiling or upper wall.




**Signs of Moisture Accumulation**

When a leak is evident, or suspected to be imminent because of the above symptoms, close inspection of the roofing should be made. The first stage of this should occur in the attic of the house, if one exists. If daylight can be seen through the roof, the source of the leak is, of course, evident. In such cases, a thin, flexible material such as a zip-tie may be threaded through the hole to make its location evident from the exterior of the roof.

If no hole is visible, other symptoms such as discoloration or drip marks on roof decking, roof framing or attic flooring may help identify the source of the leak. Observation of the area during a storm or by hosing down the roof with a steady stream of water may also provide useful clues as to the origin of the leak. Leaks are commonly located higher on the roof slope than their point of entry on the interior would initially suggest. However, water will take the course of least resistance, often traveling horizontally for some distance along beams, plates, or grooved sheathing boards. With patience, and a concerted effort, the homeowner will usually be able to follow the line of moisture to its point of entry.

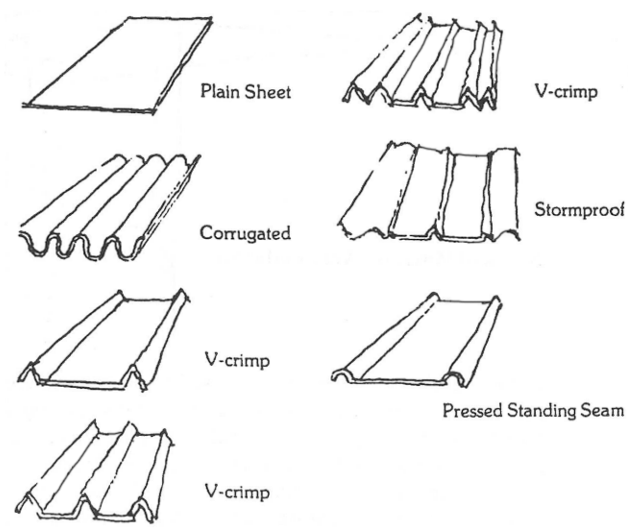
If there is no accessible attic, or if the leak cannot be found, it will be necessary to inspect the roof from above. In the former case, the location of the leak should be referenced against a common checkpoint, such as the corner of a chimney, so that the actual affected area can be inspected. If no visible flaw in the roofing is found, then the services of a roofing professional may be required. Techniques such as infrared thermography may be helpful in tracing the route of water penetration.

CAUTION: THE CARE REQUIRED TO PREVENT PERSONAL INJURY WHEN WORKING ON A SLOPED ROOF CANNOT BE OVER-EMPHASIZED. THE HOMEOWNER SHOULD OBJECTIVELY ASSESS THEIR EXPERIENCE LEVEL AND PHYSICAL FITNESS BEFORE ATTEMPTING TO ACCESS THE BUILDING ROOF. THE SERVICES OF A PROFESSIONAL ARE RECOMMENDED FOR STEEP SLOPES AND MULTI-STORY BUILDINGS.

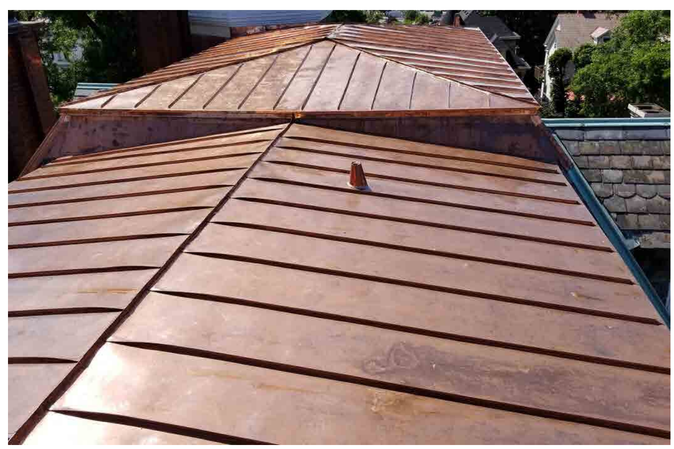
## Roofing Materials

**Wood Shingles.** The earliest roofing material typically found in the American colonies was wood shingles, fabricated from the many species of trees found in the plentiful native forests. This material is most appropriate for eighteenth and early nineteenth century structures in the Historic District. Historic wood shingles hewn from old-growth lumber possessed excellent rot weathering resistance, even in the humid climate of Beaufort. As with other modern lumber, the quality of modern wood shingles is not equal to that of their historic counterparts and the use of chemical preservative treatment is required to ensure a maximum service life for wood shingles.

**Metal Roofing.** The development of manufacturing capabilities in the United States brought a wider variety of options in roofing materials. Metal roofing fabricated from copper, tin-plated steel, terne metal and galvanized steel gained in popularity through the nineteenth century. With periodic maintenance, specifically painting (except for copper), metal roofs provided a significantly longer service life than wood shingles. Metal roofing remains a popular material today in Beaufort and is certainly appropriate for most small-scale structures dating from as early as the Civil War period. Unfortunately, some materials such as terne metal and tin-plated steel are no longer commercially available though substitute products such as tin-plated stainless and tin-zinc plated copper may lend themselves to particular circumstances. Metal roofing may take the form of flat sheets locked together with flat or standing seams, corrugated or crimped panels or pressed tiles nailed like shingles. A wide variety of prefabricated and pre-finished metal panels is now available which may be suitable for new construction. However, the physical characteristics of the manufactured systems are not compatible with historic metal roof materials and installation techniques and should not be used for patching or repairs. The color and gloss of these products are also not consistent with the appearance of historic metal roofing.




**Sheet Metal Roofing: Profiles**



**A good example of a standing seam roof with traditional seaming technique.**

**Asphalt Rolls and Shingles.** The use of asphalt-saturated products for roofing applications began with the production of asphalt rolls in the late nineteenth century and transitioned to shingles at the turn of the twentieth century. Asphalt shingle products are available today in a myriad of colors, cuts and textures. While asphalt shingles may be appropriate for twentieth century buildings, the flat, uniform appearance of this roofing material is not appropriate for earlier structures. Asphalt shingles that are intended to mimic other materials such as wood or slate are in appropriate for any  building within the Historic District.

**Slate and Ceramic.** Though extremely durable, the use of slate shingles and fired ceramic roofing tiles is extremely limited in Beaufort and in the low country region in general due to the difficulty and expense of transporting these heavy materials from other parts of the country. Synthetic versions of these materials are now available that are lighter in weight and slightly less expensive than true slate or tile. However, these imitation materials are immediately distinguishable from the real thing and are not appropriate for either restoration or new construction within the Historic District.

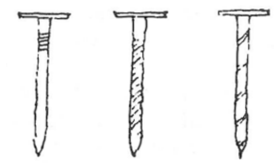
## Preservation of Historic Roofing

**Wood Shingle Roofing.** Wood shingle roofing should be inspected annually for broken, cupped, slipped or missing shingles which may allow for water penetration.

- Replacement. Cupped, curled, split and missing shingles should be replaced as quickly as possible. Replacement is simply a matter of removing the damaged shingle and replacing it with a new shingle to match. Replacement shingles must match the adjacent shingles in length, thickness and taper to avoid disruption of the existing coursing. Many of the native species once used for roof shingles are no longer available or are of inferior quality. Premium-grade red and yellow cedar offer the longest service life. However, in the humid climate of Beaufort, pressure treatment with copper-based preservatives is recommended for wood shingles of any species to maximize the life of the installation.

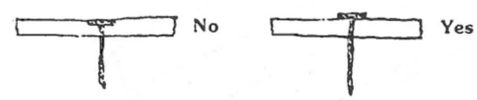
Tips and procedures which may be helpful for this repair are discussed below.

- Removal of damaged shingles and nails can be eased by the use of a shingle-ripping tool. (CAUTION: DO NOT puncture any felt or paper coating that is between the underside of the shingles and the top of the roof sheathing. Any such holes, as well as the nail holes from the removed shingle, must be patched with roofing tar.)
- Slide the new shingle into place. The replacement should match the adjacent shingles in length, thickness and taper.
- Stainless steel roofing nails should always be used since common uncoated wire nails are subject to rust and corrosion, particularly in treated shingles.



Typical Roofing Nails

- Roofing nails should be driven in flush with the surface of the shingle, but they should not crush the wood. Two nails per shingle installed 1” above the exposure line, are generally recommended




Nailing Wood Shingles

- Make sure that the roofing nails used are of a length sufficient to penetrate the sheathing. It is best to get the advice of a professional roofer or a reputable local home center as to the size of roofing nails required for your particular problem.

**Fireproofing wood shingles.** When an entire roof is going to be re-shingled, the property owner should be aware that “fireproofed” wood shingles are available. Although these shingle-s do retard the spread of flames, they also possess the following serious drawbacks:

- The fireproofing treatment makes wood shingles extremely brittle, making them increasingly susceptible to cracks and splits. Fire-retardant treatment is also incompatible with preservative treatment. Thus a fireproofed wood shingle roof has a much shorter life expectancy than one on which the shingles have not been treated.
- The fireproofing material can often leach out of the wood, rendering the treatment useless and staining the shingles.

**Substitutes for wood shingles.** There are many products available today which attempt to copy the appearance of wood shingles. To all but the most untrained eye these are usually unconvincing substitutes. Moreover, they are in many cases no cheaper than a genuine wood shingle roof. Such substitutes should be avoided on structures in the Historic District.

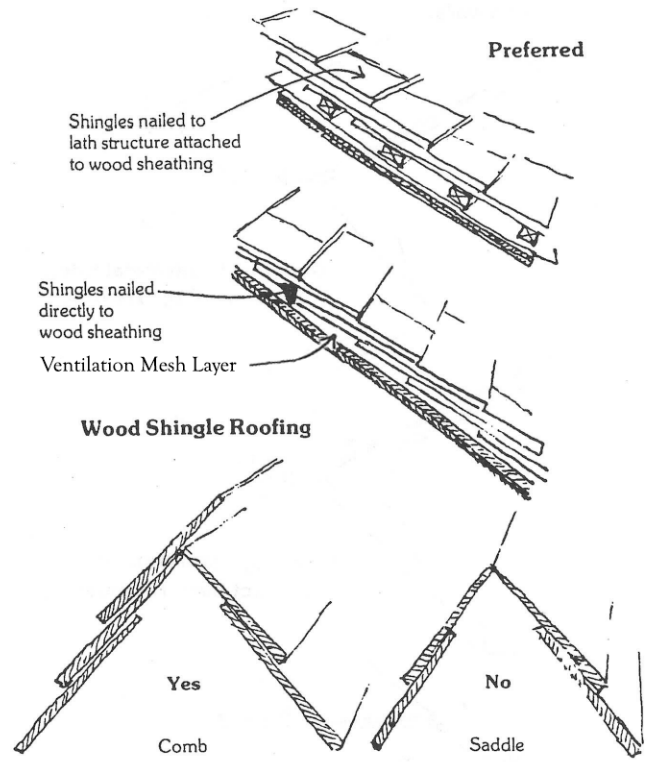
- Applying wood shingles to existing roofing. Several houses in the District which have prominent roof lines unfortunately have had their original roofs replaced with asphalt or fiberglass shingle roofing. On important structures it would be desirable for the sake of the District to replace these asphalt or fiberglass shingles with wood or metal as appropriate. From a more practical standpoint, wood shingles can be reintroduced when asphalt-shingled roofs wear out. The following tips and procedures are recommended.

- If the existing roof is composed of metal or asbestos-cement shingles, these materials must be properly abated and removed prior to installing a wood roof since they do not form an adequate nailing base for the new shingles. Asbestos-cement shingles must be properly abated in accordance with federal, state and local environmental regulations. When the existing roofing is removed, any damaged sheathing and underlayment should be replaced prior to re-roofing. As an alternative to stripping an existing roof, installation of new lath directly over the existing roofing material may be proposed, followed by installation of wood shingles. This practice is to be avoided as the "breathability" of the roof structure is greatly reduced which may adversely affect the new wood shingles. This type of installation also requires the raising of the cornice and is, therefore, not recommended.

- Do not install wood shingles on a roof with a slope of less than six inches vertical to twelve inches horizontal.

- Try to nail the shingles to a lath structure so that they can be exposed to air on their underside. This lengthens their life and improves their performance. Where this is not possible, install wood shingles over ventilation mesh to allow for air circulation.

- Because it is directed away from the prevailing wind, the best ridge treatment for roofing over non-climate-controlled spaces on the historic house is the comb.




**Metal Roofing.** Three types of typical problems are evident in these roofs: inappropriate patches, careless treatment of edges and joints, and inadequate maintenance with respect to painting (see "Painting").

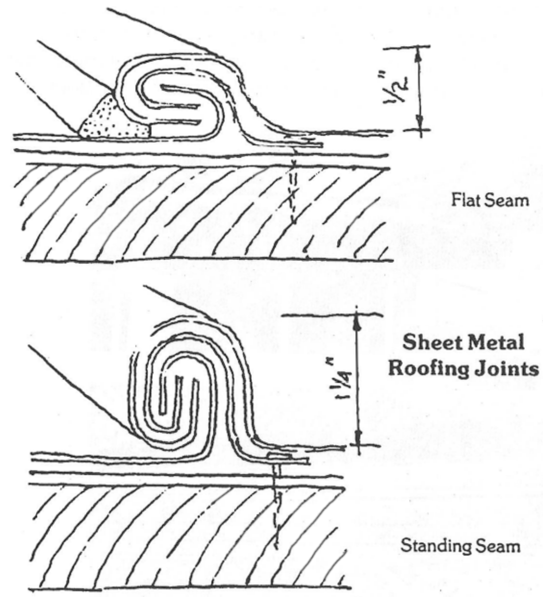
- Patching. Though metal roofing is exceptionally long-lived, years of weather exposure and thermal movement eventually take their toll. Solder joints may crack and metal sheets may split under stress. Plated steel products and even copper will eventually corrode, creating pinholes that slowly expand. Small, isolated defects in copper roofing such as pinholes and minor splits may be repaired mechanically with new solder and metal by an experienced sheet metal worker. This type of repair is less practical for repair of plated products, largely because new material for patches is unavailable. Great care must be taken in performing soldered repairs on existing roofs.

- Where minor defects are plentiful and widespread or where matching material is not available, the application of a liquid membrane coating may prove more effective for extending the life of a historic metal roof. Numerous acrylic membrane systems are available for application with or without fabric reinforcing. These products are flexible enough to bridge pinholes and splits and to accommodate ongoing thermal movement. This type of membrane is suitable for materials such as terne metal, tin-plated roofing and galvanized steel, which are meant to be painted anyway. It is less appropriate for copper as the uniform color of the membrane does not match the mottled appearance of a true copper patina. With periodic re-coating, fluid-applied membrane coatings may extend the life of a historic metal roof by decades. While membrane materials are available in a wide variety of colors, the use of traditional roof colors such as iron oxide red, gray and green is recommended (see "Painting").

There are numerous prefabricated sheet metal profile types available on the market. However, few are appropriate for use in patching historic metal roofs. Corrugated and pressed standing seam sections are, for example, to be discouraged for use on all but modern construction. Corrugated sections shown in the "Sheet Metal Roofing : Profiles" sketch (pg 171) are not appropriate in patching earlier material since the likelihood of finding a matching profile is minimal. Nevertheless, many metal roofs in the District have become a quilt of incongruous sheet metal sections. Care and common sense would have avoided this unfortunate appearance.

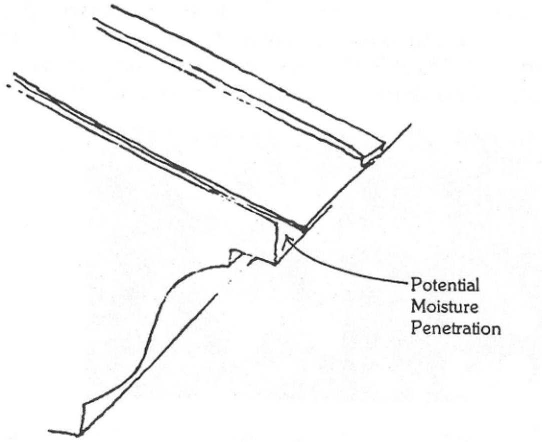
- Detailing. Historic metal roofs were typically fabricated with either flat or standing seams. Of the two joint treatments, flat seam and standing seam, the standing seam was the more commonly employed on steeper slopes while flat seams were more commonly installed on lower pitches. Historically, either type of seam was mechanically formed in the field by folding the edges of adjoining sheets tightly together and soldering to produce a water-tight seam. The forming and soldering of this type of seam requires a high level of experience and craftsmanship. The snap-lock seam is a modern innovation that requires significantly less time and expertise to install. However, this type of seam is also less watertight than a mechanically formed seam and is therefore not appropriate for use on low slope (below 3:12 pitch) roofs. While the use of snap-lock metal roofing may be suitable for new construction, existing historic roofs do not employ this type of seam and are therefore not compatible with this technique. The following recommendations are intended for mechanically-formed seams in historic metal roofs.

- For either flat or standing seam, proper detailing of roof edges, intersections and changes in pitch is critical to ensure a water-tight installation.




**This example of a standing seam roof illustrates a traditional folded ridge detail.**

- Edge treatment. The typical edge treatment of metal roofing at the cornice line throughout the Beaufort Historic District is abrupt and detracts from the other detail of the buildings. It is common to see the metal roofing simply stop at the cornice with no edge treatment whatsoever. This not only deprives the facade of the very important line created by the edge of the roofing, but it also makes the edge of the roof sheathing more susceptible to moisture penetration.



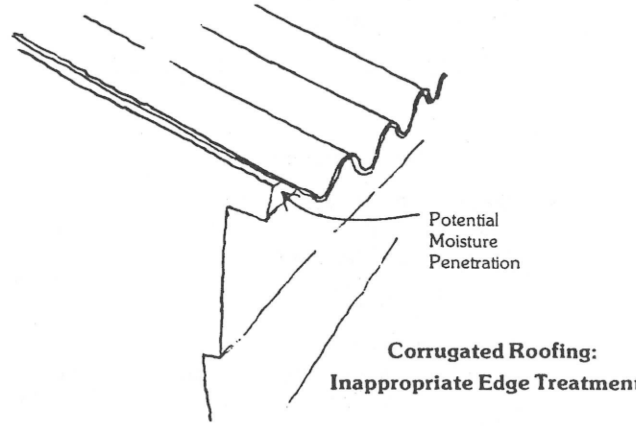

Flat Seam Metal Roofing: Improper Edge Treatment

- A preferable treatment for flat seam metal roofing offers several advantages:
  - the edge of the roof sheathing is protected from moisture by the drip edging and the continuous cleat
  - the continuous cleat gives visual depth to the roof line
  - the lower edge of the drip is hemmed for purposes of added strength and stability
  - the edge of the cleat does not obscure the cornice in any way. Similar treatment should be given to the edge of the metal roofing along the raked, or sloping edge of the roof gable end walls

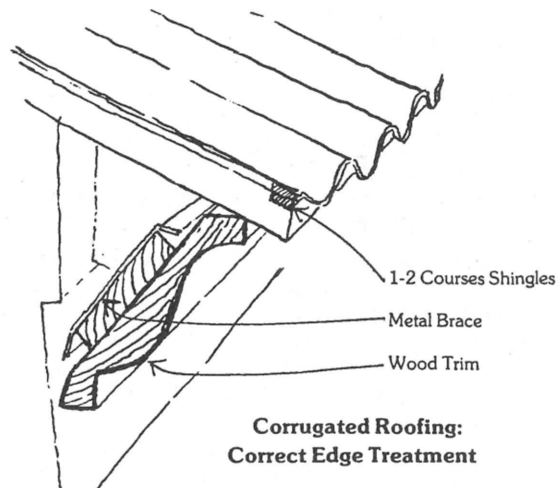
The edges of standing seam metal roofing should be treated in a similar manner showing cornice and rake conditions.

Perhaps the most difficult roof detail to fabricate in either flat or standing seam metal is the roof ridge which traditionally requires folding and locking of multiple sheets together. Metal workers skilled in fabricating this detail are in short supply. Alternatively, the use of a formed ridge cap may allow for a less complex installation.

The corrugated and pressed seam sections that have been installed on the roofs of many Beaufort houses, however inappropriate, are not likely to be removed in the near future. However, in many cases the corrugated roofing projects several inches beyond the edge of the roof sheathing and should be trimmed and closed. This procedure simply modifies the standard industrial metal brace by allowing it to function as a support for a piece of wood trim. In addition, two courses of wood shingles along the edge give desirable depth to the important roof line.



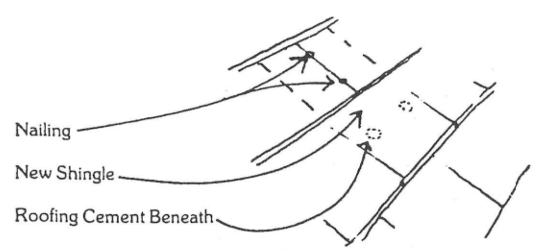

Corrugated Roofing:
Inappropriate Edge Treatment



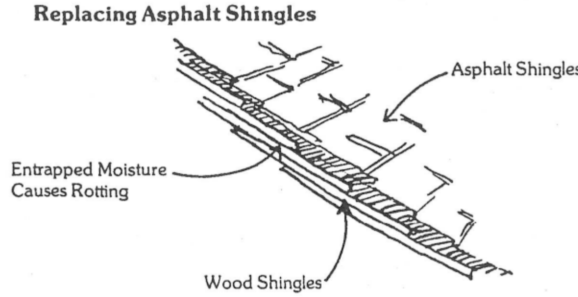

Corrugated Roofing:
Correct Edge Treatment

**Asphalt or Fiberglass Shingle Roofing.** Repair techniques for asphalt shingles are similar to those for wood, with the following exceptions.

Securing replacement shingles: after sliding a new asphalt shingle into the proper position, it should be nailed along the joint of the two shingles immediately above it




Replacing Asphalt Shingles



It is best to repair asphalt shingles on a warm day when they are less prone to cracking.

- A small patch of roofing cement along the underside of their bottom edge will help keep replacement shingles from lifting.
- Asphalt shingles should never be applied directly over wood shingles because they can easily entrap moisture and cause rotting of the shingles and the top face of the rafters beneath, thus loosening important nailing and lath.

## Summary of Roof Recommendations

At present, the dominant historic roofing material in Beaufort Historic District is metal roofing. Its presence is one of the strongest defining elements in the character of the District. Therefore metal roofs are most appropriate in the Beaufort Historic District.

**Recommended**

The following guidelines should be considered in permit applications in which the historic roofs of structures under HRB jurisdiction would be affected:

- Retain and repair roofing materials in-kind, whether original to the building or not, to visually match the existing.
- Use fasteners that are the same material as the metal roof, to prevent galvanic corrosion.
- Utilize preservative-treated pine or cedar for patching or replacement of wood shingle roofs.
- For historic metals such as terne, tin-plate and galvanized steel which were traditionally painted, maintain a regular schedule of maintenance painting to minimize potential for corrosion.
- For surviving historic metal roofs (other than copper), where patching material is not available, the application of an acrylic membrane in lieu of paint may extend the service life of the historic metal by bridging pinholes and cracks and accommodating thermal movements.
- Unless an overall, accurate, and adequately documented restoration of a given building to a particular period in its history is being undertaken, it is best not to selectively replace historic building fabric with replicas of original fabric. Thus, in a project involving minimal exterior work, the replacement of historic metal roofing with new wood shingles would be inappropriate.
- Where historic terne metal or tin-plated roofing is deteriorated beyond repair and replacement material is no longer available, alternate materials such as tin-plated stainless steel or zinc-tin-coated copper may provide a suitable finish.
- Flat seam and standing seam metal roofs are appropriate treatments for replacement metal roofs and new construction. Metal roofing should be installed in accordance with the recommendations of the Sheet Metal and Air Conditioning Contractors' National Association, Inc. Its recommendations are especially critical for important edge and intersection details such as the edge treatment for flat seam and standing seam roofs.
- Pressed seam and preformed metal roofing panel systems, including snap-lock panels, are appropriate treatments only for metal roofs on new construction and only where roof slopes exceed 3:12 pitch.
- Corrugated metal roofing is an appropriate material for new construction, but only for outbuildings and secondary structures such as garages or sheds.
- Leave exposed eaves open and uncovered.
- Maintain historic roof forms.
- The comb ridge is the proper treatment for the ridges of wood shingle roofs.

**Not Recommended**

- Do not place lath over existing asphalt roofing to provide a nailing surface for new wood shingles. This will increase the thickness and decrease the breathability of the roof and will likely require enlarging or raising the cornice, thus changing the proportion of the facade.
- Do not apply asphalt or fiberglass shingles over wood shingles. This will entrap moisture and accelerate the deterioration of the roof and roof structure.
- Skylights are not recommended for the roofs above front and side facades of existing historic buildings or where visible from the street. Where installed on roofs above the rear facade, and on new construction, skylights should have minimal curbing and flat glass.
- Asphalt or fiberglass shingles are not recommended for existing historic buildings earlier than the mid-twentieth century. When used for new or existing construction, they should be monochromatic so as to lessen their visual impact.

- Preformed metal roofing panel systems are not recommended for existing historic buildings. While it is a relatively inexpensive metal roof, it is intended primarily for use on contemporary commercial structures. Its wide cap and trim pieces give it a thick and heavy appearance that is not compatible with the massing of roofs on historical buildings. Its relatively poor longevity make it, in the long-term, no savings in comparison to the fifty year lifetime of good quality flat or standing seam roofing.

**Inappropriate**

- Do not remove historic decorative elements such as iron cresting and finials.
- Do not use imitation wood shingles, synthetic slate or other modern imitations of natural materials.
- Do not change historic roof forms.
- "Bubble" or raised skylights are inappropriate on new or existing construction.
- Striations in panels to prevent oil-canning are inappropriate on historic nor new construction metal roofs as they present a visually busy roof out of scale with character of Beaufort Historic District.

**Preservation Recommendations**

- Retain and repair existing historic roofs.
- Patches to metal roofs should be in-kind.
- Use fasteners that are the same material as the metal roof, or stainless steel, to prevent galvanic corrosion.
- Metal roofing should be installed in accordance with the recommendations of the Sheet Metal and Air Conditioning Contractors' National Association, Inc., (8224 Old Courthouse Road, Vienna, Virginia, 703-790-9890). Its recommendations are especially critical for important edge and intersection details such as the edge treatment for flat seam and standing seam roofs.

# Chapter 13: Flashing, Gutters, and Downspouts

## Introduction

As discussed in the "wood" section, the prevention of all moisture penetration is an essential step in preserving and maintaining structures. Any given building has a degree of susceptibility to moisture penetration. There are, however, several specific areas of high vulnerability. These include the edge of the roof, the foundation wall, and the joints between dissimilar materials and intersecting planes. Both flashing and gutters deal with these conditions and, if well-installed and maintained, can add years to the life of a building.

**Leaking gutters and broken downspouts allow water to penetrate vulnerable wood structures and masonry foundations**

Flashing, gutters, and downspouts are the accessories to the roof. Flashing is a continuous barrier that spans and seals vulnerable joints between dissimilar materials, incompatible profiles, or differential expansion, such as at intersections between roof and wall, roof terminations and penetrations, building corners, roof ridges and valleys, or at changes of wall plane between an addition and original construction. Unfortunately, in many of the historic buildings in Beaufort, flashing is installed with unsympathetic and often second-rate practices. Large swaths of raw sheet metal or strips of asphalt paper simply detract from the building and are not particularly effective. The following section suggests ways in which the important joints of historic structures can be protected with minimum adverse visual impact.

This chapter also describes techniques by which downspouts and gutters can be maintained or added to historic structures in such a way that they function efficiently with minimum intrusion. The downspout and gutter system of a house collects major quantities of storm water and, if working properly, directs it away from the building as promptly as possible. At the gutter itself, a free flow of water must be maintained to avoid backup and consequent soaking of the roof. This requires periodic cleaning to remove debris. The downspouts function to disperse and remove water from the foundation. Their failure to perform this function will contribute directly to the serious problem of rising damp.

**Example of Rising Damp**

Given the slightest of opportunities, water will enter and accumulate in a building. Flashing and the gutter/ downspout systems provide invulnerable barriers if designed, installed, and maintained properly. However, they should be concealed wherever possible, and should never obscure important architectural detail.

## Flashing

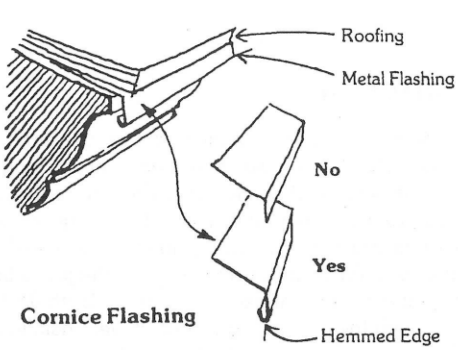
The significant number of poor flashing applications within the Historic District relates to one of two conditions: exposed metal in situations for which such treatment is historically inappropriate, and careless installations at major joints.

**Repair Recommendations -**

- Metal flashing. Generally, exposed metal flashing may be considered inappropriate for pre- Civil War structures. However, since the performance of properly installed metal flashing is unparalleled, it is unwise to suggest its elimination.

- Cornice flashing. The cornice terminates the building visually and is an important part of the scale and silhouette. On many houses in the Historic District, this important architectural detail is unnecessarily obscured with modern metal flashing. Three points should be considered when applying flashing at this location:

    - The bottom edge of the flashing is unrestrained and susceptible to bowing. This can be prevented by hemming the leading edge to provide extra thickness. The hemming provides the stiffness needed to resist wind and maintain the visual strength of a straight line. Without a straight edge, flashing calls attention to itself as material different than the adjacent wood cornice.

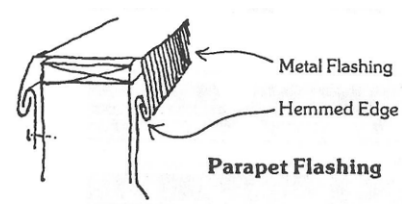



Cornice Flashing

    - The drip edge of the metal flashing should never project below the top vertical facet of the wood cornice. This condition alters the cornice proportions and projects a heavy shadow where one is not intended.

    - Flashing should always be painted to match the cornice and not remain exposed as untreated metal. If the building has a painted metal roof, exposed-edge flashing should match the cornice rather than the roof color.

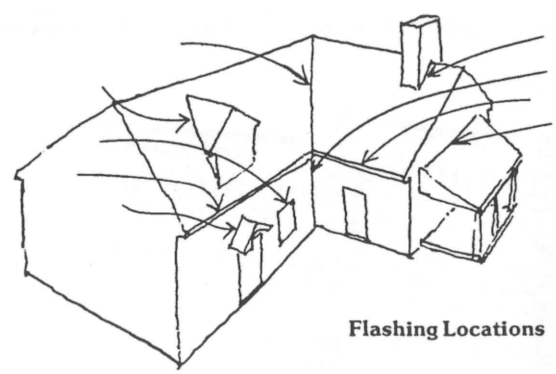
(The above considerations pertain to the concealment of wood parapet wall flashing as well.)




Parapet Flashing

- Inspection and temporary repair of flashing. Because of the importance of flashing, it should be inspected at least once a year. The property owner should not only be looking for obvious flaws such as cracks or corrosion; even pinholes are a sign of trouble, especially at mortar seals. Patches can be made with roofing cement, if the flashing is not in a prominent location, or with additional cement mortar if the detail described above has been affected.

  There are several locations where proper installation and maintenance of flashing is critical. Annual inspection should focus on these areas. If there is leakage or decay adjacent to any of these areas, deteriorated or missing flashing is the probable cause.



Flashing Locations

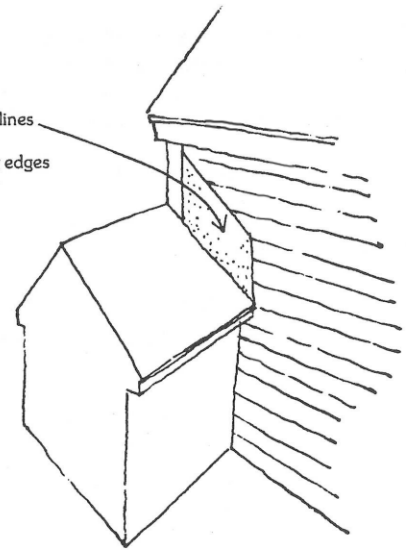
Corroded flashing should be immediately replaced.

The property owner should solicit experienced advice regarding the particular type and gauge (thickness) of metal that is best suited to his particular needs. Possibilities include copper, stainless steel, zinc alloy, lead, aluminum, and galvanized steel. The latter two are the most likely choices for residential applications in Beaufort.

It is important that flashing be secured with nails of the same material. Dissimilar metals in continuous contact can undergo electrolysis which will ultimately cause corrosion as well as staining of the adjacent surfaces. It follows that new or replacement metal flashing should not be placed in contact with any metal with which it has the potential for an electrolytic reaction. The following metals are listed in an order that corresponds to their proximity on an electrolytic scale. Metals listed consecutively, or nearly so, may be placed in contact with each other (e.g. zinc and galvanized iron). Metals not listed in the direct proximity of each other should not be used conjunctively (e.g. aluminum and copper).
aluminum
zinc
galvanized iron
tin or steel
lead
stainless steel
copper

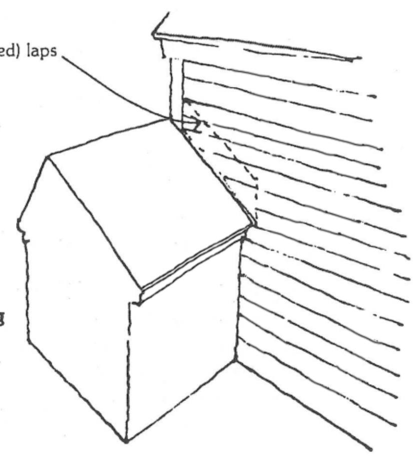
Thus copper flashing should never be installed with aluminum nails, though stainless steel nails would be acceptable.

- Repair of inappropriate existing flashing. Too frequently, flashing applied to wood siding is lapped over several courses of clapboards. This destroys the visual continuity of the siding by interrupting the shadow line of each course. It also prevents inspection of the siding's condition at potentially weak joints with respect to moisture penetration. The flashing should instead be installed so that it laps under consecutive courses of clapboard. Shadow lines are thus uninterrupted and a "patched" appearance can be avoided.

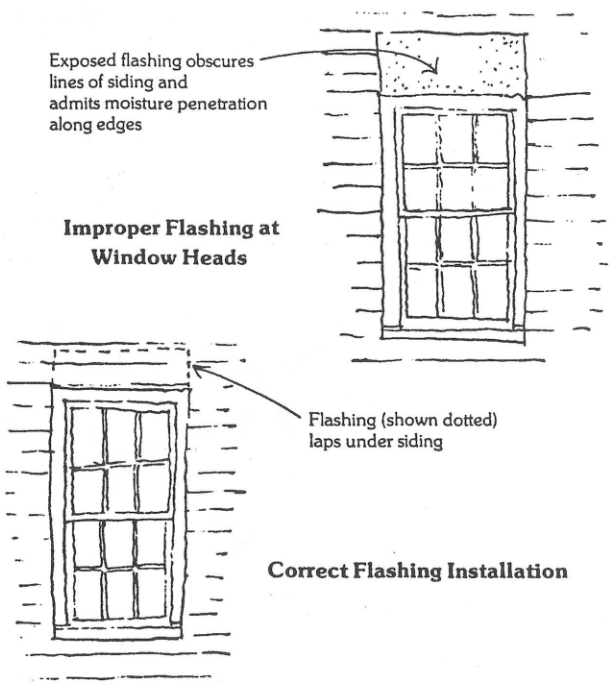


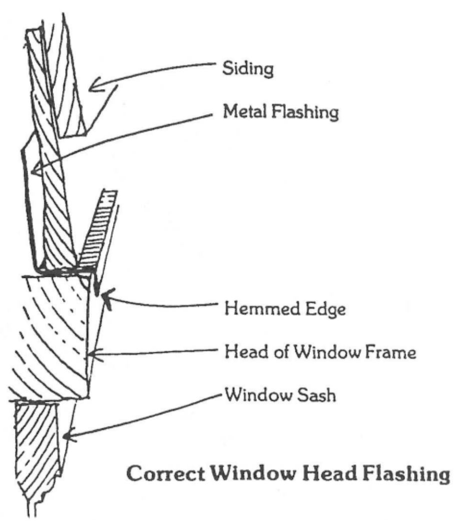

**Inappropriate Flashing Installation**

This ill-considered flashing treatment also occurs frequently at window and door heads throughout the District. Flashing at this location should not be so extensive as to cover several clapboard courses. Instead it should lap under the immediately adjacent clapboard.




**Correct Flashing Installation**




The preceding illustrates four basic principles to be kept in mind with respect to the flashing of historic buildings:

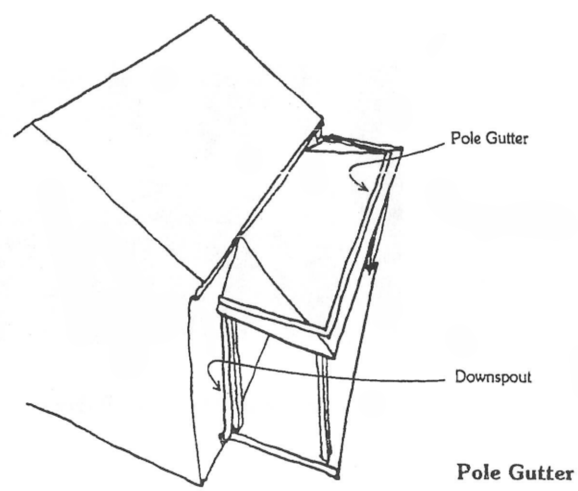
- conceal flashing to the maximum possible degree
- paint out or conceal exposed flashing with cement mortar, as appropriate
- maintain original shadow lines and profiles with flashing which conforms to the shape and size of the element to which it is applied
- inspect regularly.

## Downspouts and Gutters

Gutters and downspouts function to carry away from the building the water that has been shed by the roof. The design of flashing, gutters and downspouts is determined mostly by their function. In the Beaufort Historic District, they have in common that they should be as visually unobtrusive as possible.

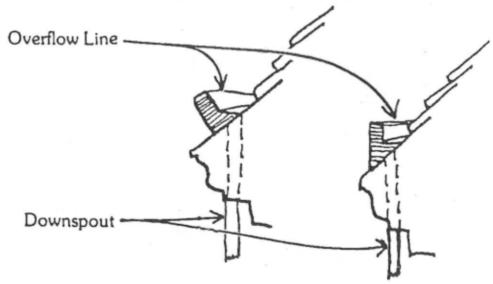
Some of the most striking buildings in the Historic District have had their fine architectural cornices needlessly obscured with contemporary metal gutters. To further complicate the problem, these gutters often threaten historically significant cornices because of inadequate installation. Several available options are described in the following paragraphs.

**Pole Gutters -** The pole gutter is strongly recommended as the most acceptable solution from an historical standpoint.



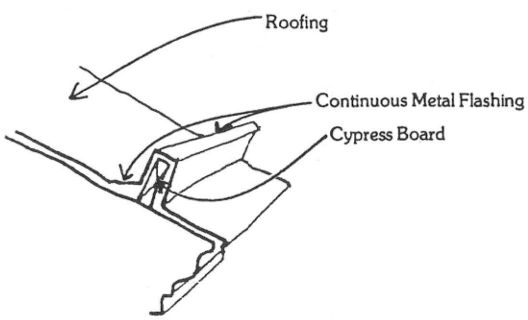

**Pole Gutter**

Use of a pole gutter enables water to be diverted to locations where a downspout is architecturally unobjectionable. This device, also known as a "standing gutter," consists of a plain board which is set on the roof at least a foot back from the eave. The board may be installed either vertically or perpendicular to the roof plane and is fitted with a "floor," or trough, between it and the roof surface behind. This trough slopes at least 1/2" per foot towards the end of the gutter where the downspout is located. Whether installed vertically or perpendicularly to the roof plane, it is essential that the roof shingles stop at the overflow line. The pole gutter is typically covered with continuous metal flashing, generally copper or tin plate, which should extend well beneath the roof material to prevent any accumulated water from backing up under the roofing.




Section At Downspout

Pole Gutter Detail




Section At Gutter

Example of Pole Gutter Lined with Lead-coated Copper

Because the pole gutter penetrates the roof at the downspout locations, it must be checked for blockage at least every six months, more often if there are many trees on the property. Failure of the system can cause serious and hidden damage to roofing and roof sheathing. Fluid-applied membrane coatings, reinforced with non-woven fabric, may be used to significantly prolong the life of pole gutters. The reinforced membrane can effectively seal cracked solder joints and pinholes in the metal liner. To be effective, however, the membrane must be applied up under the bottom course of shingles.

**Modern Gutters -** A common but visually dissatisfying alternative to the pole gutter is the modern metal gutter. Several materials are available:

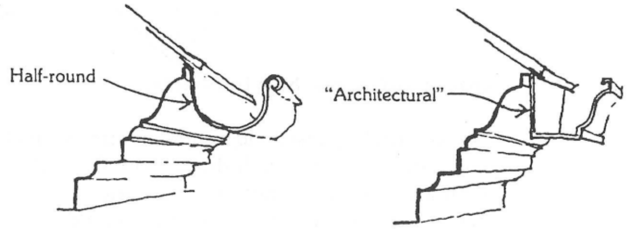
- Steel. This is the cheapest and least permanent available gutter/ downspout material. It is not recommended. However, if it is used, it should be allowed to weather before it is primed and finished with rust-inhibiting paint.

- Aluminum. Though not as strong as steel, aluminum has better resistance to corrosion and is usually adequate for residential application. However, it does oxidize and, therefore, it too must be painted.

- Galvanized steel. More corrosive resistant than untreated steel, it should, nevertheless, be painted.

- Copper and lead-coated copper. The best alternative from both maintenance and historic standpoints, use of this material is not always warranted. It is more appropriate, for example, on buildings with a certain degree of architectural presence and would not enhance a bungalow-style building or an unpretentious Queen Anne cottage. Also, copper eventually develops a brown and then a bluish-green patina with exposure to the weather. Patina development is greatly affected by environmental factors such as atmospheric pollutants, acidic precipitation and drainage patterns and copper surfaces may take on a streaky appearance which must be considered with respect to the color scheme of the building as a whole. In addition to considerations of material selection, the property owner is confronted with several choices of shape for a proposed gutter:

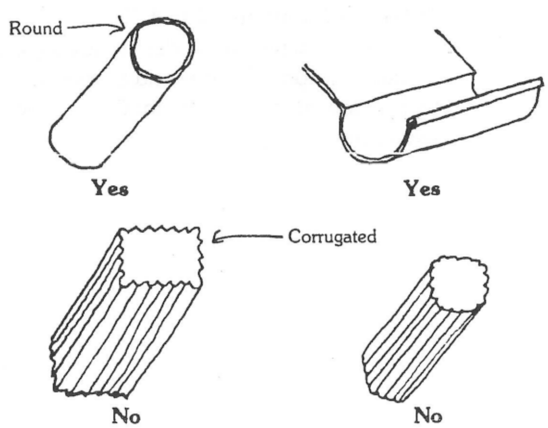
- Half-round. This most commonly used shape is considered desirable not only because of its simplicity, but also because its profile cannot easily be confused with that of an adjacent cornice. Late nineteenth and early twentieth century gutters were generally half-round. If a pole gutter cannot be used, the half-round is the best selection. However, this should not be considered an enthusiastic recommendation.




Metal Gutter Profiles

- "Architectural" gutters. These gutters have an outer face that is molded with a shape which mimics that of a simple wood cornice. In general, they are not recommended because they either falsify the genuine proportions of an existing cornice or create the illusion of a molded cornice where none would exist. (The latter objection is especially strong when these cornice gutters are hung from the rafters or fascia board of a bungalow-style house.)

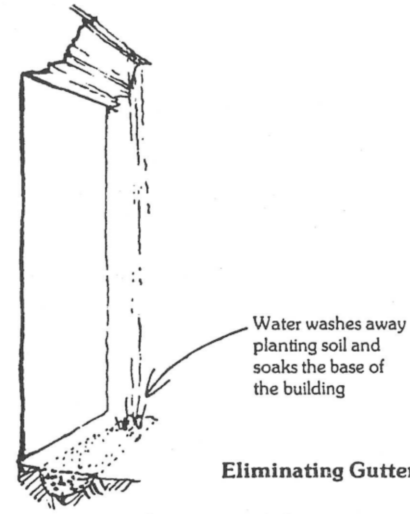
**Downspouts** - Corrugated downspouts are entirely inappropriate for historic buildings. Either plain round or rectangular downspouts with smoothly-turned elbows should be used. In many cases, stone splash blocks may be used at the foot of the downspout to direct water away from the foundation.




Gutters And Downspouts

## Common Repairs

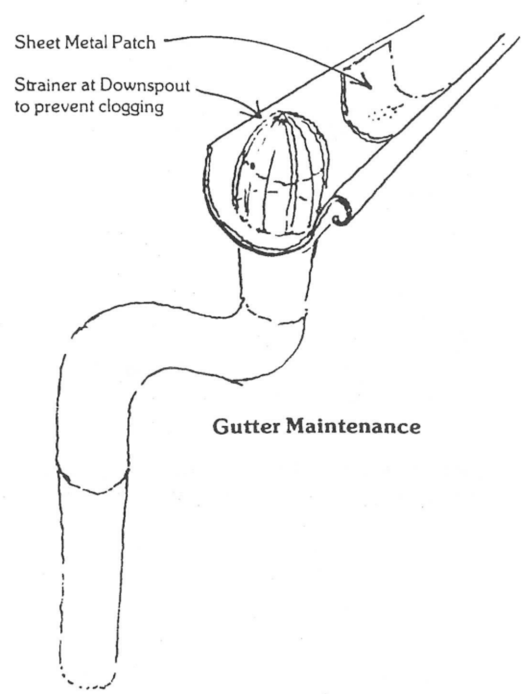
The temptation to eliminate gutters should be resisted. Without gutters, rain water washes away the planting soil along the foundation and soaks the face of the building, threatening mortar joints and foundations and contributing to rising damp.




Eliminating Gutters

Common repairs of gutters and downspouts:

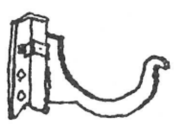
- Clogging. Blockage of gutters and downspouts is serious not only because it removes the ability of the system to eliminate water, but also because the added weight of wet debris can pull the gutter away from the building. Such debris should be removed by hand at least every six months, more often if the property has many trees. A leaf strainer should be present at every downspout. In addition, continuous wide mesh screening can be placed along the top of a gutter to keep out debris. Note, however, that these devices do not necessarily eliminate the threat of blockages and must be periodically checked. Clogged elbow connections can be easily cleaned with a plumber's snake. Do not use chemical drain cleaners




Gutter Maintenance

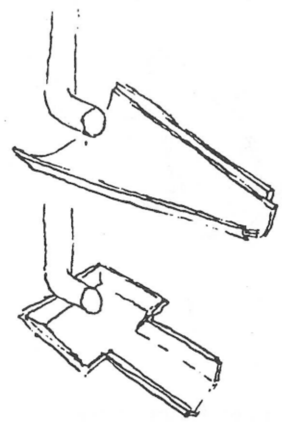
- Leaking. This condition can potentially increase moisture penetration to the fascia, thereby rotting it and the structure behind. Holes in gutters and downspouts can be patched with a liberal amount of black asphalt roof cement. If the crack is larger than 1/4”, a patch of light sheet metal or dense screening can be pieced in and lapped at least 2” in all directions from the crack. The patch should then be and bonded with black asphalt roof cement. (Clean all such cracked areas with sandpaper and solvent before patching to insure a good bond.)

- Rotting. Rotted gutters should be replaced to match sound adjacent areas in material and profile. Where an architecturally good cornice exists, the gutter should not be spiked into it, but rather attached with gutter hangers available for the purpose. Because of the potential electrolysis problem, the property owner should be certain of the original material of the gutter and the repair pieces if contact between the two will be made.



Gutter Hanger

- Splash blocks. Immediate dispersion of water away from the base of the building is the intended purpose of the entire downspout system. If, instead of feeding into a below-grade storm drainage system, the downspouts discharge at the ground surface, as it does for most buildings in the Historic District, it is essential that all grades at the base of the building slope away from the foundation. No downspout should simply discharge water directly onto the ground. Stone (not concrete) splash blocks will assist in dispersing this water. Several configurations of splash blocks are appropriate to various periods of construction. They are simple devices serving an important purpose. Another acceptable and efficient alternative is a spring-rolled, perforated hose which extends during a storm to divert water, and retracts automatically during dry weather.



Splash Blocks

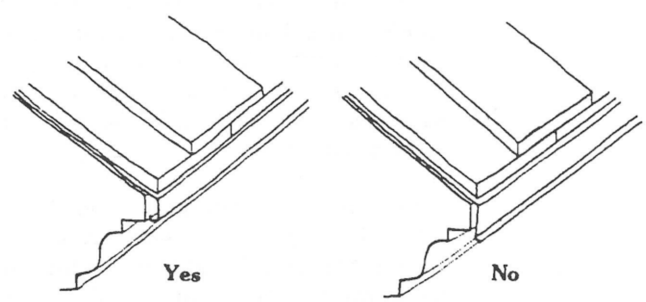
## Summary of Recommendations

### Appropriate

- The following guidelines should be considered in permit applications in which the historic flashing, gutters, and downspouts of structures under HRB jurisdiction would be affected:

- Use 1/2 round sheet metal gutters and round downspouts. (If availability of these shapes is difficult, contact Sheet Metal and Air Conditioning Contractors’ National Association, Inc. for the name of a local source.)

- Metal drips at the roof edge should be installed so as not to exceed the length of the topmost vertical section of cornice. Paint the drip to match the cornice.




Excessive Length Of Drip Edge Partially Obscures Cornice

**Metal Drip Edge**

- Flashing at door heads, windows, and at the intersection of roofs and walls should not cover clapboards, but should lap underneath the immediately adjacent clapboard.

- Pole gutters are most appropriate. These have the advantage of being historically compatible and visibly less obtrusive than hung gutters. (It should be noted that gutters or any type were rare before 1820.)

**Not Recommended**

- Extensive areas of visible metal flashing are not recommended. Metal flashing should be kept to the minimum amount possible while still provided complete weather protection.

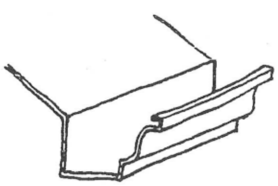
- Steel gutters and downspouts are not recommended as they may rust and stain adjacent surfaces. If used, steel gutters and downspouts must be permitted to weather prior to being painted with a rust inhibiting paint.

**Inappropriate**

- PVC or other plastic gutters and downspouts are inappropriate.

- Do not use corrugated downspout material on primary facades or on facades visible from the street.

- Do not use architecturally profiled gutter material along the building cornice.



**Inappropriate "Architectural" Gutter**

**Preservation Recommendations**

- Gutters should be cleared out and downspouts flushed at least twice a year.

- Downspouts should connect to a sub-surface drainage system, and should not discharge adjacent to the building foundation. Where subsurface drainage is not feasible, use splash blocks or flexible recoiling piping.

# Chapter 14: Painting

## Introduction

As currently defined in the Code:

No structure within the Historic District may be erected, demolished, or removed in whole or in part, nor may the exterior architectural character of such a structure be altered until after an application for a Certificate of Appropriateness has been submitted to the Board of Architectural Review and approved by it.

The Code in its elaboration of the HRB's responsibilities, repeatedly references exterior color as among the issues which affect a structure's "exterior architectural appearance" and which therefore requires HRB review. The Code goes so far as to state that "arresting and spectacular effects, violent contrasts of materials or colors and intense or lurid colors" are among the defects for which the HRB is to consider a design inappropriate, requiring disapproval, and resubmission.

It is thus the clear mandate of the HRB to review proposed alterations to the exterior color of buildings within the Beaufort Historic District. It is not their clear mandate to require strict restoration and research fidelity to the determination and recreation of a historic building's colors upon its completion or at a significant period of its history. The HRB must allow the distinctions in color expression which accompany the architectural styles represented in the District, while at the same time encouraging exterior color schemes which preserve the overall harmony and character of the District. Further, the HRB is to prevent color schemes which disrupt that character.

In other words, the HRB is essentially insuring that color schemes exemplify continuity with Beaufort's architectural fabric, rather than individualistic expression. Color schemes which appear to call attention to themselves as their primary goal are inappropriate.

The remarkable effectiveness of paint as a protective coating depends directly on maintaining the continuity of its surface. Although paint does not actually prevent rot in wood, the moisture-shedding film it provides does prevent the accumulation and absorption of the water which is a necessary life support for fungi. Paint that is cracked, blistered, or peeling can potentially create worse problems than no paint at all.

**Painted finish of 810 Congress Street has not been maintained.**

**The paint at 1001 Greene Street has also become badly deteriorated.**

The upkeep and maintenance of exterior paint is one of the most important contributions that can be made to the protection and preservation of important historic material. Such upkeep is relatively simple and is well within the capabilities of the average do-it-yourselfer. The requirements are awareness of techniques for non-destructive paint removal and surface preparation, sensitivity to factors affecting color selection, and thoughtful application. Of these requirements, color selection can have either the most positive or injurious impact on a property's appearance. It should be remembered that this impact will extend into the neighborhood as well.

When selecting colors for the historic house, personal taste should be tempered with an awareness of the evolution of color in American architecture. These historical trends are well established and are described in this section.

500 Block of Craven Street


501 Craven Street. While Victorian architecture can exhibit a broad range of colors, this color begins to push the boundaries of appropriate tones.

It should be stressed that a description of the development of changing color trends should be interpreted as broadly as possible and does not account for local variations. For example, it would be surprising (albeit possible) to discover that the palette of Beaufort's residential architecture was always so predominantly white. Because of the possibility of local variation, only careful study on a house-by-house basis can accurately determine an original color scheme. The investigatory techniques described in this section have been developed with such an end in mind and require analysis by a trained interpreter to insure accurate results. The paint study is an invaluable procedure, particularly for historically significant buildings. The Beaufort Historic District would greatly benefit from a program whereby paint samples were collected at a central location and delivered to professional analysts.

The following chapter discusses five important aspects of exterior painting:

- paint removal
- surface preparation
- color selection
- paint selection
- application

## Paint Removal Techniques

Much of the older exterior woodwork in the Historic District has been repainted so frequently that significant detail has been obscured or dulled. In such cases, a successful paint job entails more than an additional coat of paint. For both visual and maintenance reasons, it is desirable to remove heavy accumulations of paint prior to repainting. Furthermore, if paint flaws, i.e. cracks, chips, or blistering, are extensive, paint should be removed to bare wood. In all probability, both of the following removal techniques would be required for any given building.

Regardless of the paint removal technique employed, the presence of lead paint on most historic surfaces poses safety concerns. Any paint removal method that generates dust, such as sanding, requires containment measures be taken to prevent the spread of lead dust into the building interior via windows, doors or vents. Heat-generating tools must also be used with caution as lead may be vaporized and poses a respiratory hazard. Chemical paint removers generate lead-containing residue which must be disposed of with care and in accordance with local environmental regulations. Personnel involved in paint removal work should be equipped with respiratory protection when sanding or performing other activities generating lead dust. Proper hygiene including frequent washing of hands and avoidance of eating and drinking in work areas is essential to prevent accidental ingestion of lead residue. Gloves and eye protection are required when working with chemical paint removers.

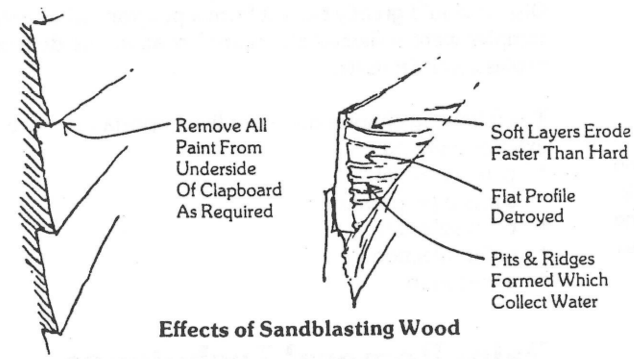
**Manual Removers -** All loose or flaking paint should be removed with a paint scraper, a wire brush; a putty knife, and/ or sandpaper. All are effective but potentially injurious tools. Extreme caution should be exercised, especially with the wire brush, to avoid gouging the wood. In fact, for important structures, wire brush paint removal should not be attempted by the amateur.

**Chemical Removers -** Paint that is difficult to remove manually can first be loosened with one of the many available chemical paint removers. Water-based removers generally have the least harmful effect. Thick, paste-type removers are available for use on vertical surfaces. When using a remover, it is best to work on only a small section of wood at a time. Do not neglect the underside of wood surfaces such as the bottom edge of wood siding. Once softened, the accumulated paint may be removed with hand tools. The use of power tools and sandblasting for paint removal methods is not recommended for the reasons outlined below.

**Power Tools -** Blow torches, electric burners, heat guns, and power sanders are only for the professional and in any case should never be used on highly significant buildings. The potential for scorching the wood fiber and weakening the crispness of detail is extremely high. Such mistakes are obviously irrevocable. The use of heat guns, heat plates and torches also pose the risk of potential ignition.

**Sandblasting -** There is no justification for sandblasting wood for any reason, particularly paint removal. Even the "gentlest" wet grit blast destroys the nature of wood and hastens its deterioration. There is evidence that this removal technique is becoming popular in Beaufort. It cannot be stressed too strongly that sandblasting poses serious dangers to even the healthiest wood for the following reasons:

- Sandblasting destroys the flat face profile of lumber. The blast may indeed remove paint, but it will also erode the soft layers of wood more quickly than the hard layers. Such differential erosion produces an uneven surface with numerous pits and ridges. Increasing the surface area in this way provides numerous locations for water to collect and remain in the wood, thus increasing the speed with which weathering and deterioration occur. In addition, painting is much more difficult because the irregular surface hinders smooth, proper coverage.




**Effects of Sandblasting Wood**

- Sandblasting completely alters any sort of architectural detail, an effect which cannot be reversed.

DO NOT SANDBLAST WOOD UNDER ANY CIRCUMSTANCES.

## Surface Preparation

The selection of a proper surface preparation technique relates directly to the condition of the wood. As in paint removal, it is likely that any given building would require use of several of the methods discussed below.

**New Wood -** Prior to painting, new wood must be dusted and cleaned of all dirt, preferably with a combination cleaner/degreaser. After dusting, the wood should be primed and back-primed immediately. If possible, such steps can be avoided altogether by having new wood factory primed prior to delivery and by insuring that wood will not sit outside and unprotected prior to painting.

**Wood-In-Place -** If an existing paint surface is merely dirty or "chalky," it need only be wiped with a rag. However, to assure bonding between the new and old paint, the surface should be wiped with a liquid sanding agent. For very soiled conditions, household cleanser and water is usually adequate, providing the wood is thoroughly rinsed with clean water afterward. All such prepared surfaces should be allowed to dry completely before priming or painting.

**Loose, Blistered, or Peeling Paint Surfaces -** Such flaws usually indicate a moisture problem, although they may also be caused by excessive heat or dryness. Careful investigation should be made to determine the source of the problem and corrective steps taken immediately. Otherwise, new paint will merely mask a condition which will inevitably recur.

If moisture penetration is suspected:

- inspect and repair all downspouts, gutters and flashing (see “Flashing”)
- replace all rotted wood (see “Wood”)
- seal all open joints with caulking
- replace all corroded nails; coutersink the new nails and protect the heads with a non-shrinking wood filler such as plastic wood
- repair all deteriorated siding (see “Siding/Trim”).

**Mildew -** Remove all mildew. Mildew is a form of rot which is indicative of moisture penetration problems. Such problems should be investigated as described above and the mildew removed prior to repainting. Mildew can be removed with a mixture of three parts warm water, one part household bleach, and a small amount of powdered household detergent. The mix should be allowed to set for about five minutes after application and can then be rinsed off with clean water. Allow the wood to dry thoroughly before repainting. CAUTION: Such mildew removal should always be performed with proper safety goggles. Do not use ammonia-based bleaches or detergents in the formula described above.

**Weathering -** After cleaning, treat heavily weathered surfaces with a mixture of linseed oil and turpentine.

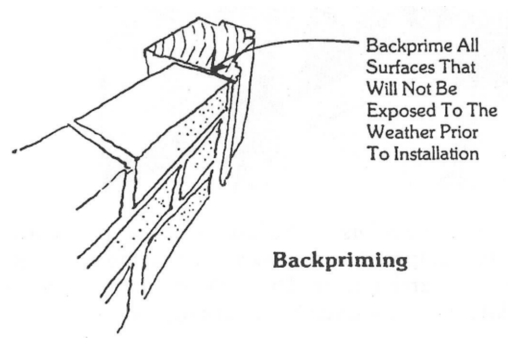
**Sash -** Repair all sash as described in “Doors, Windows, and Shutters.”

**Feathering -** Sand the edges of all areas of remaining paint so that the transition to exposed wood is gradual. This “feathering” eliminates rough edges between painted and non-painted areas which would be visible through new coats of paint.

**Dryness -** Make sure all wood is dry. If there has been a recent rain, wait for several days prior to painting. All new woodwork should be painted as soon as possible after installation.

**Priming -** Prime and back-prime all wood. It is not sufficient to prime only exposed wood surfaces. Areas of new wood that will abut other elements should also be painted.

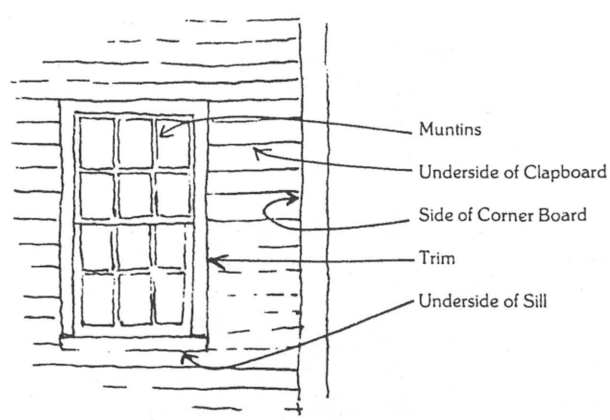
**Exposed Iron and Steel -** Remove surface rust with a wire brush to clean metal and paint with a rust-inhibiting primer. For heavily rusted iron and steel, apply rust converter to stabilize surface prior to priming.




Backpriming

## Color Selection

Exterior paint color falls under the jurisdiction of the HRB and can be the basis for denial of Certificate of Appropriateness. Please see the Code for color considerations. When possible, implementation of historically appropriate colors can be a suitable approach. Verification of the original or early paint colors applied to a building must be accomplished through a specific procedure of investigation and analysis. The principal steps in this process are the exposure and the examination of the paint layers that have been applied to a particular surface over a period of time. Small chips of paint are removed down to the bare wood at various strategic spots on the building and analyzed to determine the sequence of colors. If the homeowner is collecting his own samples for analysis, the following factors will be of importance to the professional making the color evaluation:

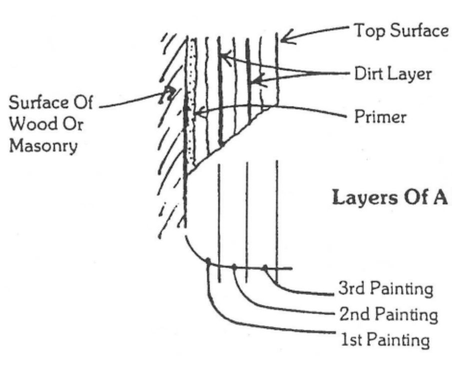



Sources For Paint Sample Chips

- Each sample must be clearly identified as to its location and the element from which it was taken,

e.g. door trim, shutter, siding, cornice, etc. In addition, it is desirable to enclose a photograph of the building with the source of the sample clearly marked.
- Each sample must include all layers of paint, from the current finish coat through the original, including a fragment of the wood to which the paint adheres. Note: while some homeowners may wish to undertake this investigation, it is not a requirement.
- Preferably, each sample should be at least ½" x 1" in size.
- A photograph of the overall facade of the building, as well as any available historical documentation, should accompany the samples. This data will offer supportive information and clues to the analyst in comparing the paint results with stylistic trends of specific architectural periods.

While the technique of collecting paint chips is simple, analysis and interpretation of the samples requires proper training and equipment. The homeowner, having collected a series of paint samples, should contact the City or the State Preservation Office for sources of paint color analysts. The property owner should be aware that the number of samples that should be collected will vary based on the period and style of the building. A single sample is never adequate. Certain building styles employed much more variety of color than others. For example, a Greek Revival house might be investigated with one siding sample plus one or two trim and/or shutter samples, whereas the more colorful Queen Anne house might require the addition of several trim and siding samples as well as separate sash samples.



Layers Of A Paint Sample Chip

A complete sample for an early nineteenth-century home may reveal twenty or more layers of color. Thin layers of dirt may be visible between painting campaigns. Primers occur immediately below finish colors with no intervening dirt layer. These colors, once exposed, can be carefully matched against samples from modern paint companies. For even greater accuracy, the chosen colors may be measured with a spectrophotometer and expressed in one or more systems of standard color coordinates. For purposes of formulating custom paint colors, the CIE LAB color system is the most widely used. The trained interpreter will be able to match the color, and will take into account these factors:
- Oil paint, the most common paint for exterior use until the early twentieth century, will yellow if not exposed to the air and thus provides clues to determining which layers are undercoats.
- With overexposure, oil paint bleaches so that the top layer of any given application will appear somewhat lighter than its original hue. Also, finishes such as shellacs and varnishes will have altered the original color.
- Certain pigments such as Prussian Blue are highly fugitive and may alter dramatically over time when covered by succeeding paint layers.
- The comparative thickness of dirt layers is an important clue to the relative length of time each layer was exposed to the air.

Short of the paint study, owners can make educated guesses about the original color of their property if they have knowledge of the ways in which changing architectural styles were accompanied by changing tastes in color. Of course, as in style itself, there may be considerable overlapping, so that an Italianate house, for example, might have a Greek Revival color scheme. The following summary is by no means intended to replace paint study techniques as a means of selecting colors for important historic buildings. Nor does this summary respond to any local variations and tastes (see "Style" for additional information).

**Greek Revival and Federal styles** (1790-1840). The use of light and intense colors in combination with each other was an attempt to recall the marble prototypes of these styles. The most popular color scheme was white trim and siding with dark green shutters. Yellow siding, white trim, and green shutters was another common scheme.

**801 Bay**
**Verdier house**

Federal Style

**Office for Freedmen**
**701 Craven St.**
(demolished)

Greek Revival

**Gothic and Italianate** (1840-1870). Wood was again painted to resemble its masonry prototypes. Soft earth colors were favored for Italianate while the Gothic tended to favor grays. Trim was painted in a contrasting shade of the basic colors. Drab browns, grays, and fawns predominated.

**Tidalholm**
**1 Laurens St.**
(shown prior to Colonial Revival period alterations)

Italianate

**Victorian Commercial** (1870-1920). Although they vary, dark shades were usually favored. (It should be noted that brick commercial structures were often intended to be painted and that it would be unwise to remove existing paint with potentially harmful processes.)

**901 Bay St.**

Victorian Commercial

**Queen Anne** (1870-1900). This style saw increased boldness and contrast in color. There was also more variety. For example, two separate and distinct trim colors were frequently employed. A house that was clearly divided into two levels architecturally would often express the division with color as well. Buildings such as those in the 1400 and 600 blocks of Craven Street could benefit from the variety and richness of late nineteenth century hues rather than the repetitive use of white as the dominant color.

**701 Prince Street**

Queen Anne/Eastlake

**Colonial Revival** (1900-1920). This style saw a return to the dominant white siding/ green shutters of the Greek Revival period. There is reason to suspect that much of the white palette of the Historic District stems from this period.

**Tidalholm**
**1 Laurens St.**

Colonial Revival Renovation

## Paint Selection

Historic paints for wood surfaces were mixed with pigments ground in linseed oil. Contemporary paints are either water-based (latex) or oil. Each has various uses in the historic structure and should be used only with an awareness of their drawbacks in given situations.

**Latex.** A relatively modern paint, latex consists of water-soluble acrylic resin. Its popularity has surpassed that of oil-based paints because of its low odor and ease of application and cleanup. The implementation of stricter environmental regulations on the use of Volatile Organic Compounds have placed further limitations on the use of alkyd paints, making latex paints a more attractive choice. Early latex paints had several drawbacks which limited their use on exterior surfaces. However, great strides have been made in the technology of latex paints to improve UV-resistance and mold-resistance, and many are reputed to possess the durability and water-shedding characteristics of oil-based paints. Nonetheless, the following factors should be taken into consideration before electing to use latex. In certain instances latex is inappropriate, as indicated.

- These guidelines suggest numerous instances where wood, either new or old, should be treated with a preservative such as liquid borate. While oil-based paint will adhere properly to treated wood, there is evidence that latex paints may lift or separate from the underlying preservative. Since preservative treatments are imperative to much of the historic fabric of Beaufort, their use is to be encouraged. In consequence, oil-based paint rather than latex should be applied in all such situations.
- Where historic wood surfaces are only partially exposed and sound paint remains, the use of latex paint as a spot primer may introduce water into the wood surface where it may migrate under the remaining sound paint and become trapped. The trapped moisture may eventually cause failure in the surrounding paint.
- Oil-based paints possess certain historical characteristics, such as "sheen" and the retention of visible brush strokes, which lend particular reflective qualities and texture to a wood surface. Many latex paints do not simulate these subtle but important characteristics.
- Much of the existing exterior paint on Beaufort's historic houses, and certainly the early underlying layers of paint, are oil based. Flexible latex finish paints differ in their performance characteristics and may not be compatible with older and more brittle oil paints. The use of an appropriate primer is required to ensure a successful transition from oil to latex finishes. (Note: Latex is, however, a generally acceptable paint for exterior masonry.)

**Oil paints.** So-called "oil paints," those in which the pigment binder is thinned in an organic solvent, include the traditional linseed oil house paint. Modern oil paints have steadily decreased in linseed oil content from 70% to 80% as far as 4% to 10%. Alkyd resins have, to a large extent, replaced linseed oils in paint. Generally, for historic structures, the higher the oil content, the glossier and more durable the finish.

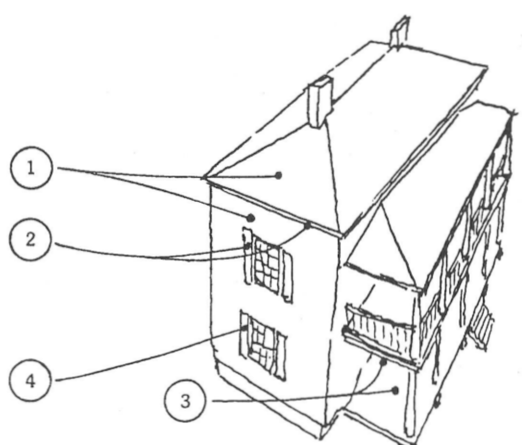
Oil-based paints are highly recommended for use on the exterior of historic wood structures. Their preservative qualities are well recognized, and both adherence and penetration are better assured than with latex. In addition, oil paints are very durable and may retain colorfastness for longer periods than some latex paints. Finally, oil paints are the preferred primer over borate wood preservative (see "Wood"). Exposed historic wood surfaces should always receive an oil-based prime coat and two finish coats of either oil or latex paint.

**Hybrid Coatings.** More recently, hybrid coatings featuring water-borne alkyd resins have emerged that combine the hard, durable finish of oil-paint with the favorable VOC profile and easy cleanup of water-based paints.

**Masonry Coatings.** The porous nature of masonry materials, particularly in a moist humid climate, demands the use of breathable finish coatings. There are several coating types that exclude liquid water while allowing moisture vapor to migrate through. The most authentic finish coating for masonry is, of course, limewash, mixed from lime or lime putty and water. Historical limewash mixtures also included curious additives such as beer and blood. Mineral silicate paints are a late-nineteenth century innovation that are water-based and suitable for masonry and stucco substrates. These paints bond chemically with masonry surfaces rather than forming a surface film. They therefore are not prone to peeling or flaking unlike oil or latex paints on masonry.

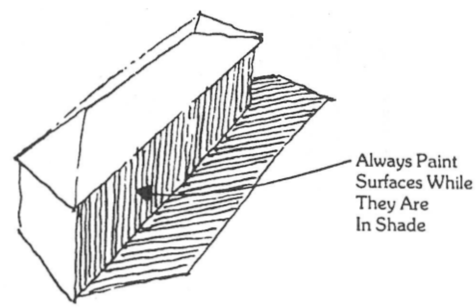
## Application

When adequate surface preparation is completed and a paint color and type selected, final painting can begin. The following is a list of recommended and helpful tips.

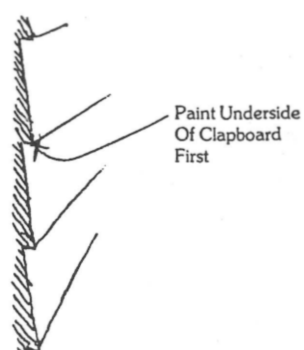



Sequence For House Painting

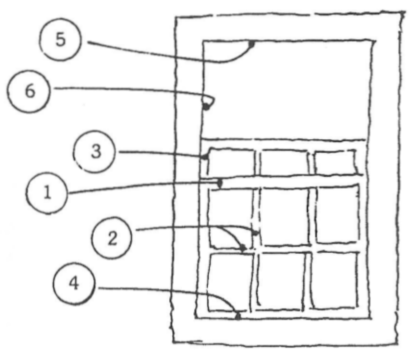
- Always work from the top down. The following suggests an effective order of work:
  1st - the main part of the house, including siding, roofing, and other large surfaces
  2nd - trim - cornices, corner boards, doors, windows, dormers, etc.
  3rd - porches - floors, ceilings, balustrades
  4th - shutters and screens (painted when removed from building)
- Also, always work horizontally. Don't leave any given clapboard half done overnight.
- Always work in the shade. When paint is applied in strong sunlight, the oils are drawn to the surface by the heat of the sun. This affects the bond, potentially blistering the paint.



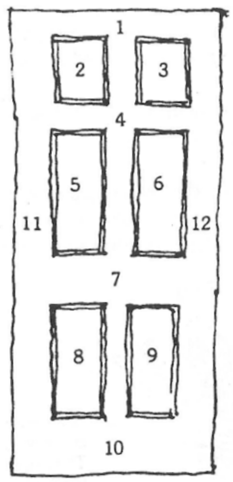

- Always prime and caulk properly and thoroughly. New wood can be primed according to the recommendations of the paint manufacturer. Old wood must be primed where the paint has been badly weathered or where oil-based paint is to be used. If latex is to be the finish coat, only bare spots need be primed. Please remember, however, that latex is not recommended for exterior use over existing oil-based paints. Caulking should occur at all window and door frames, corner boards, etc., after priming.
- Always mix the paint prior to opening the can.
- Always paint the underside of a given piece of siding first and do several boards at a time. The paint should be worked into the siding with long back and forth strokes. Finish strokes on any wood surface should parallel the grain of the wood.




- Always paint window and door elements in the proper sequence to minimize the difficulty in handling certain edges. Caulk and re-glaze windows as required prior to repainting (see "Openings".




**Sequence Of Window Painting**




**Sequence Of Door Painting**

## Summary of Paint Recommendations

- Paint removal may be accomplished by the homeowner using manual tools and chemical paint removers. The use of heat-based methods of paint removal are recommended only for professional use.
- Sandblasting should never be used for paint removal from either wood or masonry surfaces.
- Lead paint is present on most intact historic surfaces. Precautions must be taken during paint removal to prevent the spread of lead-bearing dust and the accidental ingestion or inhalation of lead. Gloves and eye protection are required when working with chemical paint removers.
- Surface preparation is critical to the performance and appearance of the completed painting work. Surfaces must be clean and dry and with sufficient tooth to take new paint.
- Oil-based primer is recommended for historic wood surfaces. Water-based primers may introduce water into the wood surface, compromising the surrounding paint.
- The use of a primer is recommended to bridge between existing oil-based finish paints and new latex finishes.
- Original historic paint schemes may be determined using microscopical analysis of paint samples extracted from selected building features. The number of samples required to identify the color scheme depends on the period and style of the building.
- Mineral-silicate paints or limewash are recommended for use on masonry surfaces as they permit the passage of water vapor through the masonry surface.

# Chapter 15: Energy Conservation/Mechanical, Electrical and Communication Systems

## Introduction

The *Manual* recognizes that the design of historic buildings in Beaufort was in many ways a direct response to the specific climatic conditions of the local environment. The deep porches shade the house from the harshest rays of the summer sun. High ceilings allow heat to rise above the occupants and accommodate tall windows that open up to the breeze and permit the low winter sun to warm the interior. The raised first floor puts living spaces higher into cooling breezes, accelerates heat transfer through the floor and reduces problems of dampness in living areas. Operating shutters offer shade and keep out rain while allowing ventilation, and act as a barrier to heavy storms. The light-toned color scheme reflects heat. The enormous shade trees, a part of the landscape design, block the sun's rays in the summer while permitting them through in the winter.

**Vernacular Responses to Climate at 915 Port Republic Street**

**Shutters Providing Shade at 509 Harrington Street**

Many of the changes and alterations to existing buildings in the District, and some of the new construction in the District, have not responded to these historic environmental precedents. While a lower ceiling may save on heating costs, it may just as well cause an occupant to use air conditioning on summer days when a full height ceiling and natural ventilation would have sufficed. It is the contention of this *Manual* that because of the responsiveness to the environment of the original buildings, historic preservation, and energy conservation are completely compatible and mutually supportive. Moreover, some non-historic energy conservation innovations, such as storm windows and batt insulation, may be sympathetically incorporated in both historical buildings and new construction in the District.

Mechanical, electrical, and communication systems are non-historic, though essential, additions to the District. As such, they should be hidden or screened from view. Their undisguised presence, such as in window or through-wall air conditioner units, in the District is inappropriate.

**Air Conditioning Window Units**


**Air Conditioning Units at 703 Congress Street**

A well-maintained pre-1940s house may well be a far more energy efficient structure than many of the residences under construction today. In fact, what has been called the "Beaufort style" is a residential design type that is in many ways a direct response to the specific climatic conditions of the local environment.

308 Hancock Street

It is important to understand the energy components of a house, if only to be aware of the effective energy-saving devices that may already be in existence and which may need only minor adjustments to attain maximum efficiency. There is no case in the Beaufort Historic District in which serious architectural harm needs to be done to increase energy efficiency.

The following is a brief review of factors affecting the energy efficiency of the historic building including many popular devices that upon closer inspection may prove wasteful and damaging.

## Energy Efficiency Principles

**Maximizing the Existing Energy Efficiency of the Historic House -** Increasing one's awareness of the way in which a building is used - when, how, by what sorts of people - is the first effective step towards organizing the range of available options. These measures are obvious and by now well-known; however, they are effective.

- Thermostat settings. In the heating season, the thermostat should be set to the lowest possible temperature within comfort range. The addition of a de-humidifier in frequently inhabited rooms can help to maintain comfort at a lower setting. Of course, the thermostat setting can be lowered still further at night, although a decrease of more than six to seven degrees may actually increase energy consumption because of the fuel required to regain the normal daytime temperature. Rooms used frequently should be neither heated nor cooled individually when simply closing a door, turning off a radiator, or sealing an air conditioning supply vent will accomplish this purpose. Of course, heat should not be turned off in rooms containing pipes when there is a potential for freezing.
- Reduce the illumination level throughout the house. Most modern spaces are over-illuminated and the increased heat generated by light represents an additional cooling load for an air-conditioning system.
- Use all operable windows and shutters. The average house is capable of a dramatic response to environmental conditions if various elements are properly utilized by the owner. Windows help diminish a cooling load during summer months by providing refreshing cross-ventilation. Shutters further reduce this cooling load by blocking out the harsh west and southwest light of late afternoon and early evening. They also diminish the heating load in winter by acting as partial insulation on the north and northeast sides where the building receives little direct sunlight.
- Houses such as the "Oaks" at 100 Laurens Street or 411 King Street which have cupolas, should keep the cupola windows open in the summer to allow the escape of warm air.

Cupola Windows at 411 King Street

- Service all mechanical equipment regularly and thoroughly. Dirty filters in air-conditioning units and furnaces or sediment collecting at the base of undrained water heaters diminish the energy efficiency of the equipment and cost the owner more energy-related dollars for less output.
- Dehumidify the air to reduce the level of cooling required.
- Keep all radiators clean and preferably unpainted. Do not place large, heavy furniture directly in front of radiators.

Use air conditioning as little as possible. Cheaper alternatives, such as attic fans can often be as effective while consuming considerably less energy. Attic fans are more effective if used in an exhaust capacity. If you intend to cool only one or two rooms with an attic fan, close the windows of all other rooms in the house.

**Physical Modifications to the Historic House which Increase its Energy Efficiency**

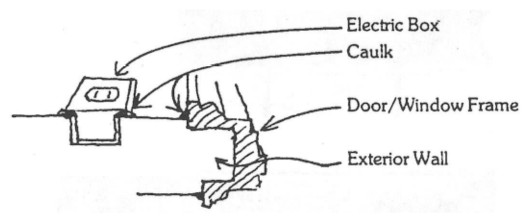
In addition to the above, there are certain devices that can be employed to increase a structure's efficiency. These modifications, which have varying degrees of physical impact, must be very carefully considered in the historic house. Remember that some degree of increased efficiency can almost always be achieved without serious damage to the architectural integrity of the structure. Prior to undertaking such energy-saving measures, consideration should be given to removing modern elements that may have diminished the house's efficiency, including:

- replacing "picture" windows with restored windows that match the original
- removing "insulating" aluminum or vinyl siding and repairing or replacing the original wood siding beneath
- removing all dropped ceilings and restoring rooms to their full height, especially if summer cooling is considered to be a major comfort requirement.

**Effective Energy Measures -** The major positive steps for energy conservation are listed below in order from most-to-least cost effective:

**Air infiltration.** Cracks at windows, doors and construction joints admit a continuous and significant quantity of cold or hot air which adds a considerable burden to a cooling or heating system. Simple maintenance procedures such as the following are very cost effective.

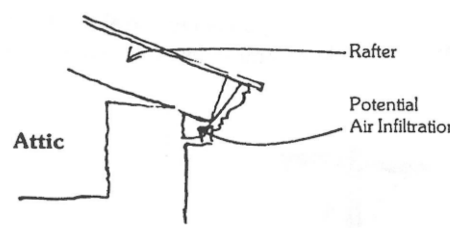
- Caulk all construction gaps. Running a hand along interior woodwork, access holes or other joints, will immediately indicate the locations of drafts. Window and door casings should be caulked inside and out. Major construction joints such as those at exterior corners and between different materials are prone to air leaks and should be sealed.



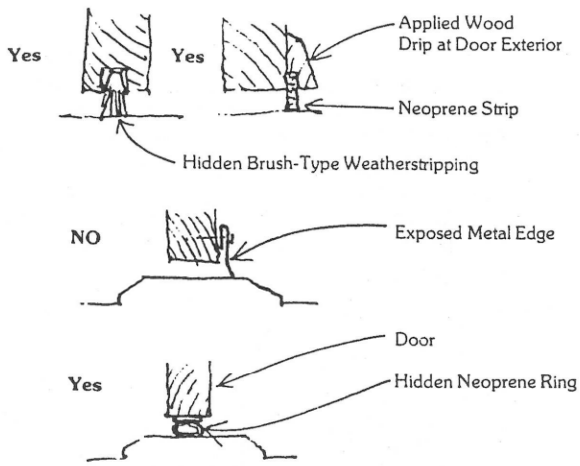

**Interior Caulking to Minimize Air Infiltration**

Most Beaufort houses have a crawl space or unheated basement which makes the floor itself a location for potential air leaks. All gaps in first floor flooring can be packed from the underside with felt strips or batt insulation. Keep all basement windows open during the cooling season to improve air circulation.

Investigate the weather-tightness of the eaves (the point at which rafters meet the walls). Separation here is often so drastic that the joint has to be sealed with wood and caulked.



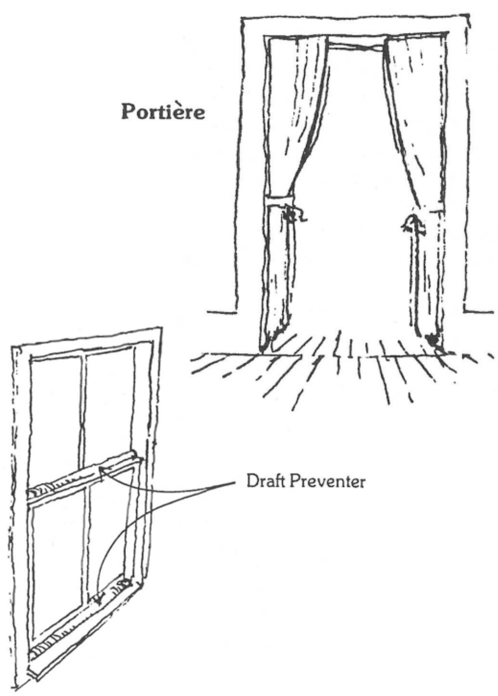

**Weatherstripping.** Mechanically sealing the numerous cracks between windows and frames or doors and frames with strips of foam rubber, felt, vinyl, or metal greatly diminishes the amount of air which can enter the house. (Dependent on the period of the structure, if metal weatherstripping is used, it should be primed and painted so that it does not present a jarring-obtrusive element to historic doors or windows.) Double-hung windows should be weatherstripped around the inside perimeter and at the meeting rail, which is the most common area of air infiltration. At doors, weatherstripping should be installed on the frame and along the full width of the bottom door rail. The charm and impact of a paneled door will be destroyed by an insensitive application of weatherstripping. There are several compatible weatherstripping techniques that are greatly preferred to surface applied, metal strips.




**Door Weatherstripping**

Victorian period houses in Beaufort originally included many effective energy-conserving devices that could easily be reused or replaced. Each of the following devices deals directly with the problem of drafts and air infiltration:

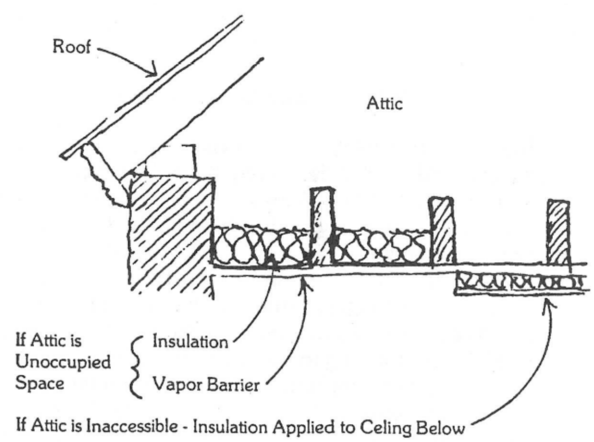
- the portière. This was a heavy velvet drape hung during the winter in the doorways of rooms to keep the heat generated by the fire place from escaping to uninhabited rooms.




- homemade draft preventer. This was simply a sausage-shaped bag, sewn from left-over winter drape or curtain fabric and stuffed with sawdust or beans. It was useful in temporarily obstructing cracks and was commonly placed along the meeting rails of windows or at the bottoms of doors separating heated and unheated spaces.
- drapes. Heavy velvet window drapes were hung from floor to ceiling in the winter as an effective seal against the infiltration of air into living spaces.

**Attic insulation.** Rising heat, which escapes through the attic and roof, is a major source of energy inefficiency which is easily rectified with insulation. Well-placed attic insulation also reduces cooling loads and is an effective investment. However, insulation installed in an unheated attic is ineffective if the attic is not ventilated because moisture from condensation soaks the insulation, reducing its ability to contain heat. A vent size equal to 1/300 of the area of the attic is a common rule of thumb and cross-ventilation is recommended.

The most common mistake in the installation of attic insulation is incorrect placement. In an unheated attic, the insulation should be placed between the floor joists with the vapor barrier down. It should not be installed between the rafters directly against the underside of the wood roof where it will shut off crucial ventilation to the roof sheathing.




**Attic Insulation**

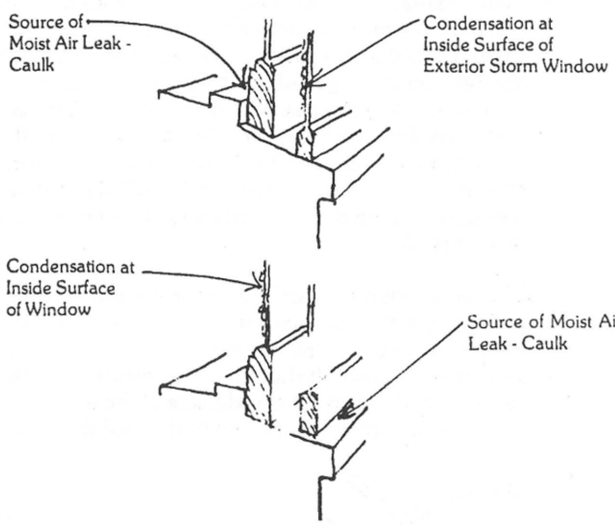
The principal types of insulation available are fiberglass or mineral wool blankets, spray foam, blown-in cellulose treated with boric acid, and blown-in fiberglass. Each type has merits relating to specific situations. If in doubt about which type to use, it is best to consult a mechanical engineer for advice. Whatever type is chosen, it should be installed according to the recommendations of the manufacturer.

If the attic is inaccessible, it is possible to apply some types of insulation directly to the ceiling of the room below.

One such insulation is extruded polystyrene boards, which should be installed according to the recommendations of the manufacturer. However, before the homeowner undertakes such treatment, he should carefully consider possible damages to such details as cornices, door and window beads, and picture rails.

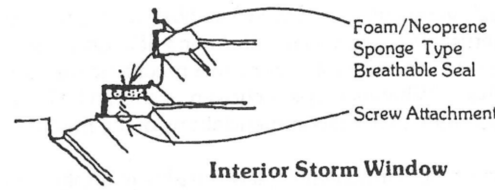
**Storm windows.** With proper planning and care, storm windows can be installed on the historic house so that they have minimal adverse visual impact. If exterior storm windows are contemplated, make sure that they do not obscure any window trim at the frames. Adverse impact of aluminum storm windows is effectively reduced if they are primed and painted to match the rest of the window trim. Do not install raw aluminum storm windows.

Window/storm window assemblies which are suffering from condensation problems in the winter are generally experiencing leakage of moist air. Caulking, when applied correctly, usually alleviates this problem. An option to caulking is a sponge-type "filter" placed on the bottom edge of the frame of the storm window. This treatment allows gradual air movement.




**Storm Windows and Condensation**

Interior storms are generally a visual improvement over exterior, although they do require slightly more maintenance. Since condensation will inevitably occur, there is potential for moisture damage to wood sash and trim. To minimize this, remove the interior storms periodically in the winter and entirely during the summer to allow the sash to dry. Be sure the sash is thoroughly caulked and weatherstripped. There are several manufacturers of interior storm windows that offer a variety of installation methods. These methods include magnetic sash attached to a mechanically- attached frame and another method uses spring-assisted pressure-fit sash with neoprene gasketing instead of a frame.



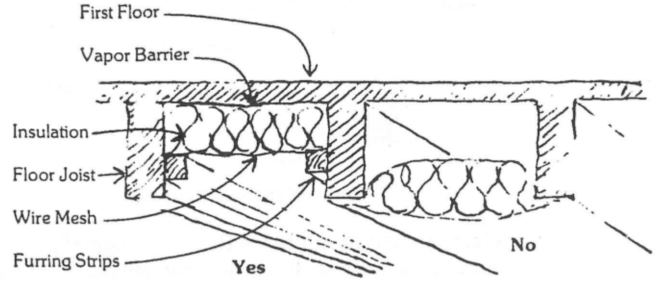

**Interior Storm Window**

Exterior wood storm windows which are effective and visually satisfying are available. However, they may be more expensive than other alternatives and they require annual maintenance.

So-called "replacement" windows are not recommended. They are not substantially more effective than storm windows and do not maintain the visual authenticity of the house. If a window sash or frame is completely deteriorated, it should be replicated and replaced (see "Doors and Windows").

**Basement/ crawl space insulation.** A common modern construction practice in Beaufort is the infilling of crawl space areas between porch piers with brick, concrete masonry, or even sheets of plastic. Much of this work seems to stem, at least in part, from an attempt to insulate the house from below. However, this "solution" is architecturally destructive and inefficient in energy-saving terms. Moisture from below is still present, and the masonry infill often prevents important periodic inspection. It also contributes to the rotting of floor joists.

Crawl space insulation, an effective device for minimizing both cooling and heating loads, should be installed against the underside of the flooring or underlayment between the joists with the vapor barrier up. A common but ill advised practice is to apply the insulation so as to create an air space between its top surface and the underside of the flooring. Although it makes for easier installation, the insulation can be rendered useless by condensation of moisture in the resulting air space.




**Crawl Space Insulation**

**Awnings, shading devices, and shutters.** These devices and techniques are important means for reducing the cooling load in the summertime. Each has traditional precedent and blends in comfortably with the historic architecture of Beaufort.

- Deciduous shade trees. If these do not already exist, their addition on the southwest and west sides of the property could be an important contribution to summer comfort. When planting a new tree, be aware of the expected mature size so that it will not physically conflict with the building when fully grown. In no case should a new tree be planted any closer than ten feet to a foundation wall. Open crawl spaces should not be completely surrounded by shrubs because they act to hold in the moist air.

- Awnings. These are more appropriate for commercial applications, although the Queen Anne Cottage and the bungalow are two residential styles which accept them gracefully. Metal or plywood awnings are not a fitting device in the Historic District. However, canvas awnings are an effective energy-saving device which provide an immediate uplift to a facade. The top of a new awning should conform to the shape of the top of the window opening and be contained within it.

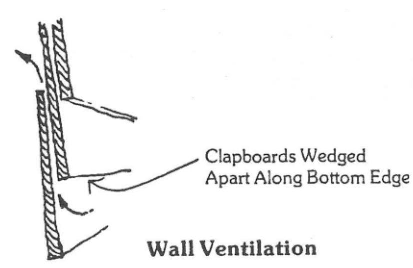
- Shutters. If shutters are used as intended, they can aid considerably in the conservation of energy. For example, the following procedure should be employed to help to cool the house in the summer.
  - Open up doors and windows for cool morning air.
  - As the day becomes warmer, draw the shades and/or close the shutters on the sunny side of the house. This is especially important in the late afternoon because the west and southwest rays of the sun are the most powerful.
  - Keep all fireplace dampers open in summer to allow the hot air to escape. (The above procedures can be reversed in the wintertime to maximize heat gain and reduce heat load.) Using such practices, it should be possible to keep to a minimum the amount of time needed to run an air conditioner.

**Ineffective Energy Measures -**
**Modern doors and storm doors.** The typical paneled wood door on the historic house is, if properly weatherstripped, an effective weather seal. A storm door in Beaufort's climate is unnecessary and is a major visual intrusion throughout the District, obscuring important features.

**Vestibules.** If a vestibule exists, it should be retained. Otherwise, it is an unnecessary addition, the expense of which is not likely to be recovered in energy_ savings. Also, it is more than likely that a new vestibule attached to the outside of the house would seriously mar the building's appearance and proportions.

**Wall insulation, wood frame construction.** Adding this insulation to construction where it does not exist would be, given Beaufort's climate, an ineffective expense. In fact, many professionals feel that potential damage can result from inserting insulation into such structures because the "breath-ability" of the walls is permanently altered. Moreover, wall insulation in wood frame construction is highly susceptible to condensation. In any event, heat loss through the side walls is relatively small compared to other surface areas of the building. If however, side wall insulation is still desired, the following practices are recommended:

- For blanket and batt insulation work from the outside in by carefully removing (and numbering for replacement) all wood siding. The vapor barrier should be installed in the proper direction; in southern locations it is often placed facing out. Consult a local mechanical engineer for the proper installation. In any case, the vapor barrier is absolutely necessary to prevent condensation from destroying the effectiveness of the insulation and threatening the wood frame. The space between each pair of studs must be ventilated.



**Wall Ventilation**

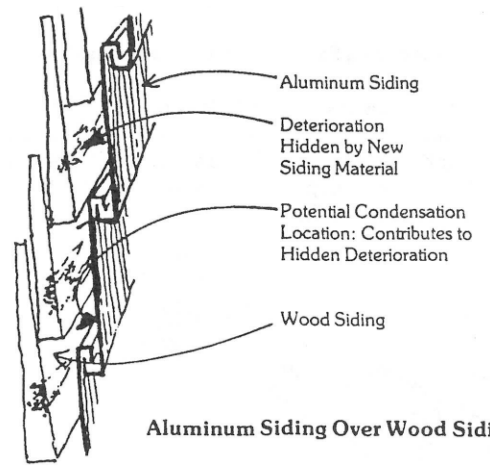
With blown-in or spray foam insulation each stud wall cavity must be ventilated. This can be accomplished from the clapboard side of the cavity or by providing a screened two-inch diameter hole on the interior at the base of each wall cavity. It is commonly felt that the following types of blown-in insulation may have certain drawbacks:

- urea formaldehyde foam: shrinks and often allows water into the cavities
- aluminum cellulose or ammonium sulfate cellulose: can potentially corrode materials such as nails and other fasteners
- polyurethane: may give off toxic gases in a fire and, therefore, needs to be installed behind fireproof gypsum board.
- spray foam: can shrink and requires an experienced installer.

**Wall insulation in masonry cavity walls.** Masonry cavity walls are naturally effective insulation devices. Insulation is not recommended because the air cavity within is eliminated and subjected to possible condensation. It is also an expensive process.

**Wall insulation on the interior face of walls.** Although walls can be furred out by 1-1/2" or 3-1/2" to receive insulation batts, this technique is not recommended since window, door, baseboard, and cornice elements must either be covered over or removed and the jamb reveals altered. In the former case, important architectural elements are lost. In the latter, the room proportions are altered along with the authentic recess of the openings. A more acceptable alternative is the installation of rigid styrofoam insulation (treated for fire retardancy). Applied on the interior surface of walls, the system involves the same techniques described above for insulation batts. However, rigid styrofoam can be installed in effective thicknesses of 1/2" to 1-1/2". Consequently, alterations to room and window jamb proportions are considerably lessened. Nonetheless, interior surface applied insulation is a costly and elaborate process if performed correctly. The procedure is far more practical if carried out concurrently with other major interior renovations or restoration involving door, window and wall repairs.

**Insulation applied to the exterior of the wall.** Aluminum or vinyl siding installed directly over wood siding can be highly detrimental to an old house. The promotion of such materials is usually based on the claim that longterm maintenance is reduced, performance improved, and appearance upgraded. These claims are not necessarily correct. Besides the fact that original and important decorative features are often hidden by siding, its application over existing siding merely hides what may be very serious problems, preventing future inspection. Moreover, as has been stated, heat loss through side walls is not the most significant factor in energy conservation. In many localities, aluminum and vinyl sidings are now on par with clapboard in terms of initial cost, a fact which significantly reduces their advantage in cost effectiveness. It is doubtful that the materials and installation cost of aluminum or vinyl siding will be regained in energy savings over a reasonable period of time.




**Aluminum Siding Over Wood Siding**

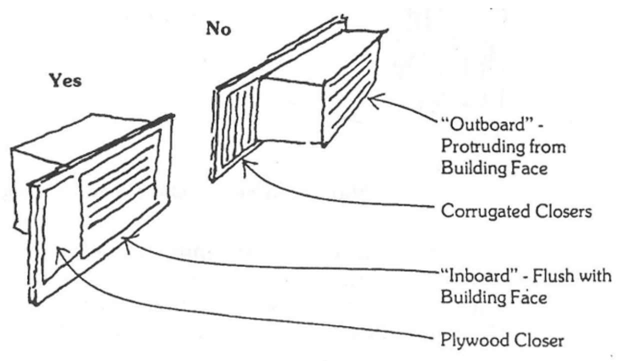
**Waterproof masonry coatings.** These products are frequently purported to have substantial insulation value when, in fact, they have a minimal insulating effect. Moreover, they can cause serious damage to the walls on which they are placed (see "Brick").

## Visual Aspects of Mechanical Equipment

Although mechanical intrusions such as TV antennas electric meters, air-conditioning equipment, and overhead wiring are so commonplace as to be overlooked, they actually detract seriously from the character and charm of the Historic District. No one would suggest eliminating the conveniences this equipment serves, but the visual and historic integrity of the District could be much enhanced through more sympathetic placement and selection.

Air-conditioning equipment. Centrally-cooled houses have fairly large and conspicuous equipment which is usually placed at the foundation wall. Such equipment should be placed at the rear of the house where possible and screened with plantings or latticework which matches the infill between the foundation piers, placed at a distance to permit air circulation to/from unit. These screening techniques can be gracefully accepted by late nineteenth and early twentieth century structures, but in cases of early architecture, where foundation planting should be kept to a minimum, it is best to keep all condenser equipment some distance from the house (see "Landscaping").

One system that has become increasingly popular in recent years is the "mini-split" or "multi-split" system. These are typically a ductless system that consists of a single outdoor unit for the system and then a single indoor unit for each indoor room being conditioned; as many as eight per system. the indoor units and outdoor unit are connected through refrigerant lines that are usually much easier to install discreetly when compared to the ducts of a conventional system. The outdoor units are typically much smaller than a central air condenser and therefore much easier to conceal.

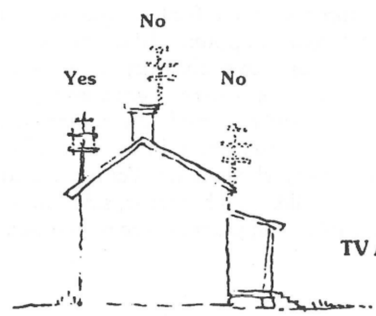



**Mounting Window Air-Conditioning Units**

It is also possible, with a little care, to minimize the visual impact of window air-conditioning units. First, in the historic house they can and should be placed "inboard" so that they do not protrude from the face of the house. Few homeowners in Beaufort have taken advantage of this alternative. Also, it is helpful to paint out all exposed metal in a dark neutral color that appears from a distance to be the same tone as the glass itself again, a simple but effective technique. Instead of plastic or corrugated metal closures, plywood should be cut to flank the unit and close the opening. Such closures should also be painted out. Finally, where the option exists, window units should be located on the side or rear elevations of a building rather than on the principal facade.

For commercial installations, outdoor equipment should be installed either behind the building or where not possible, on the roof. Roof installations should be located near the rear of the building where visibility from the street can be eliminated and visibility from the upper floors of nearby buildings can be mitigated. Required dunnage or other curbs required should be kept to an absolute minimum to help reduce the height of the unit. Where a new building is proposed, parapets and other screening can be used to address visibility. Where the character of adjacent buildings or roof height make visibility of the equipment inevitable, proper screening should be installed to obscure the view of the equipment. Where suitable, this screening should be constructed of similar materials to the building to attempt to blend in with the overall structure. This should not be attempted with a masonry structure where a masonry rooftop structure would not make sense.

TV antennas or satellite dishes. Many lovely houses throughout the District compromise their silhouette by putting an antenna or group of antenna in what seems to be the most prominent and visible location. Some houses even attach their antennas to the gable of the facade, a jarring insult to any existing architectural features. To minimize this effect, several antennas on a building should be consolidated into one. No antenna or dish should be placed where it will be dominant or even visible




**TV Aerial Locations**

from the street. Placed to the rear of the building, with height kept to a reasonable dimension, the antenna can perform its proper role as a piece of service equipment rather than as an ornament.

- Meters and wiring. There is no need to place water and electric meters on the major facade of any building in the District, yet it is a common practice. Meters, like antennas, are service equipment and belong near the service entrances of a building; in general this implies the rear or side elevations. Where these items remain an intrusion, they should be screened from public view with plantings. Overhead wiring should also be kept to a minimum, and service lines, if possible, brought in underground or to the rear of the building.

Electrical Wires

## Summary of Recommendations

The following guidelines should be considered in permit applications involving visible energy conservation measures and/or mechanical/electrical systems of structures under HRB jurisdiction.

### Appropriate

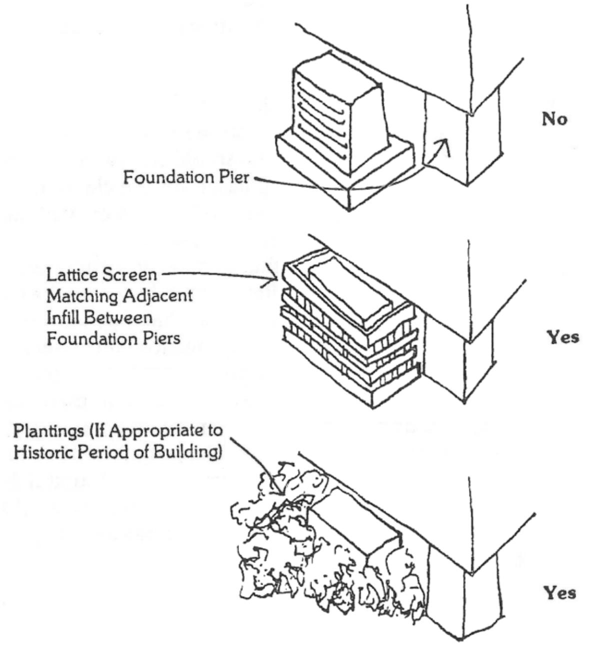
- Where increased thermal performance is required of existing windows, install interior thermal storm windows within existing openings. Allow for air circulation between windows. Match the color of the existing window. Match opening size and overall design. Metal thermal sash is recommended for metal windows, and wood, PVC, or vinyl thermal sash is recommended for wood windows.

- All glass in any window should be clear glass rather than tinted or reflective.

- Awnings are more appropriate in the commercial areas of the District and on Queen Anne and Bungalow style houses. These should be of canvas, and may be colored or striped. Their shape should be simple, to conform to the configuration of the window.

800 Block of Bay Street

- Air conditioning equipment should be screened by plantings, lattice, or brickwork, so as not to be visible from the street.

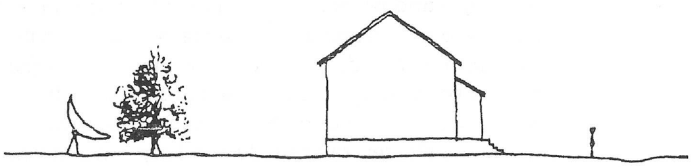



Obscuring Exterior Air-Conditioning Equipment

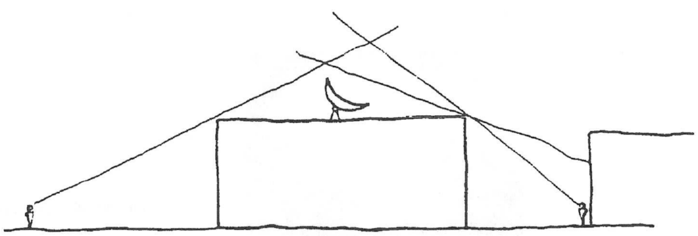
Example of Mechanical Equipment visible from the public right of way.

- All mechanical equipment, including TV antennas and satellite dishes, should be located so as not to be visible from the street. Where possible, consolidate several antennae on any one building into one antenna. If necessary, sight lines studies should be performed to assist in the selection of unobtrusive locations for such equipment.


Example of Inappropriate Location for Satellite Dishes



Appropriate Location For Satellite Dish



Appropriate Location For Satellite Dish

- Roof-top solar panels should be located so as not to be visible from the street.

### Not Recommended

- Exterior storm windows are not recommended, especially when they would be installed over multi-light sash, in which case they alter the character of the window opening and thus interfere with the proportions of the facade.

### Inappropriate

- Do not add vestibules to the exterior of the house. The expense of the construction will probably not be recovered through energy savings, and the addition to the entrance facade would significantly alter the building's proportions and massing.

- Modern aluminum doors and storm doors are historically inappropriate and do much harm to the character of historic houses.

- The addition of aluminum vinyl siding, asphalt, or asbestos shingle siding to existing buildings within the Beaufort Historic District is not appropriate. For full discussion see Chapter 8.

- The addition of aluminum siding to existing structures is not recommended as an energy conservation strategy. In addition to the loss of historic character and features, the application of siding prevents inspection of underlying historic fabric, thus concealing the early indicators of what may be serious deterioration due to moisture or insects. Also, there is a great deal of controversy as to whether siding is in fact an effective insulator. A study performed by the U.S. Department of Housing and Urban Development in Providence, Rhode Island, showed an energy conservation related payback period of 30 years for aluminum siding, while the payback for storm doors, storm windows, and attic insulation was 4.5 years. For strategies for mitigating the damage caused by adding aluminum siding to a historic structure, see Chapter 12.

### Preservation Recommendations

In addition to the above guidelines, the following recommendations are intended to serve as reminders of general considerations which should be brought to bear on the evaluation of proposed treatment of visible energy conservation measures on structures under HRB jurisdiction.

- Apply weatherstripping between windows and frames and doors and frames. Paint all weatherstripping to match windows, doors, and frames.

- Shutters should remain operable.

- Provide attic insulation. Provide an attic vent 1/300 the area of the attic. Install batt insulation with the vapor barrier face down between the floor joists in unheated attics.

- Insulate first floor at basement and crawl spaces. Install vapor barrier up, directly underneath floor boards.

- Whenever possible, relocate overhead wiring underground. Locate meters and exterior wiring on rear facades.

- Do not add wall insulation to the air spaces within the exterior walls of wood frame construction. This will alter the ability of water vapor to pass in and out of the wall. This, combined with the susceptibility to condensation of wood frame construction, has the potential to cause irreversible damage to the walls.

- Do not add insulation to masonry cavity walls. These walls have inherent insulation value and the elimination of the air cavity may cause condensation to form. It is also expensive.

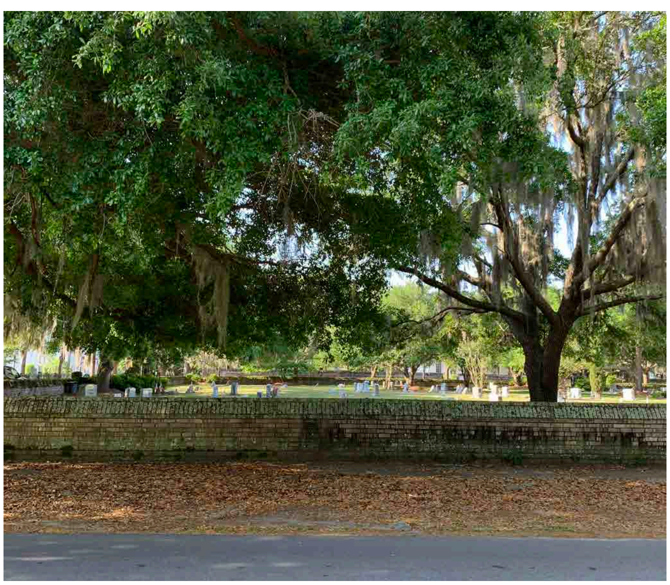
# Site Improvements

Chapter 16: Public Streetscape Improvements

# Chapter 16: Public Streetscape Improvements

Beaufort's streetscapes are as distinctive and significant to the ambiance of the City as its rich variety of buildings. They provide the stage frame or setting for the architecture beyond, while creating a continuity of scale and sense of place for the District as a whole. Within the Historic District, individual streets are often characterized by retaining walls, walks and curbs (or the lack thereof), palmetto-lined streets, or canopies of live oaks. Being directly related to the occurrence of commercial, public, modest domestic, or monumental residential structures, the streetscapes of the District may also be differentiated by types of use. As it is the tendency for similar classifications of building uses and forms to appear in relative proximity, so do streetscape characteristics often follow suit.

**Bladen Street**



**Prince Street**

The characteristics which lend special qualities to the environs of the Beaufort Historic District may be broadly defined:

- Intimate scale and rhythm of spaces are created by canopies of trees, often regularly spaced along the linear extent of several blocks. The regimented placement of palmettos creates a feeling of order in an otherwise casual setting. Conversely, the broad, heavy foliage of massive live oaks forms an enclosure of human scale which lends "interior" qualities to exterior spaces.

**Craven Street**

**200 Block of Laurens Street**

500 Block of Craven Street

- A high degree of informality is present in the public domain, particularly in residential areas. In many cases, the edges of cartways possess no clear definition; often, the macadam is feathered into the sandy buffer areas of adjacent properties. Many streets lack curbs, drainage systems, or formal sidewalks. In several instances, the cartway or parking areas meander around existing-trees into the vehicular right-of-way. Street lighting is sparse, and by-and-large only the presence of macadam, cars, and utility lines attests to the reality of the twentieth century in the physical setting. This casual approach to the street should be encouraged and maintained. It is an important element in the overall character of the City, minimizing the impact of the automobile and is vastly superior to the oft imposed "reproduction" streetscape.

While each of these attributes abounds in the District, there also exist several intrusions common to both residential and commercial areas alike. The following illustrates those elements of negative impact and suggests remedial action which would enhance the historic setting.

## Overhead Utilities

The simple existence of overhead utility lines does not necessarily present a severe impact. However, there are numerous locations within the District where an insensitive placement of such lines (or the aggregate of many lines and transformers) greatly impairs the visual quality of historic structures or streetscapes. The annotated repair photos which accompany the inventory call attention to the most serious of these cases. In general, overhead utility lines pose the greatest intrusion in open space areas where they possess high visibility, e.g. along Carteret and Charles Streets. There should be more coordination with the utilities companies, as well as an incentive for placing utilities underground. While all new construction requires utilites be located underground, it would be desirable to plan and implement a multi-phased, long-range program to relocate existing utilities underground. The program has particular relevance to the commercial area where plantings are minimal. Utility relocation should be undertaken as an integral part of any commercial revitalization/public improvements project.

1100 Block of Carteret Street

Utility Poles

## Paving: Walks and Roadways

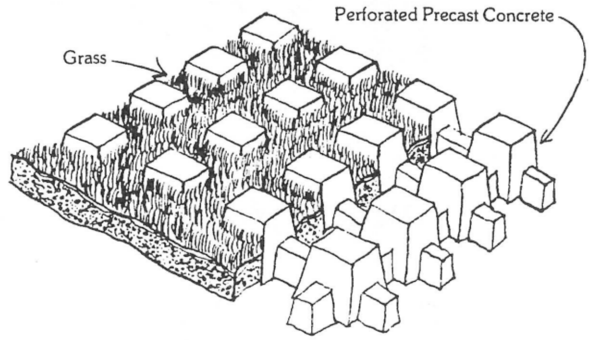
Tarmacadam cartways and concrete walks have become commonplace, even within our nation's most historically significant areas, a concession to practicality and economy. This proliferance of concrete and asphalt has made us nearly oblivious to its presence in many cases, including historic districts. Consequently, concrete walks, while lacking positive impact, may have only limited negative affect on the average resident or visitor. This is particularly true if both the number and width of walks are minimized. In residential areas, the inclusion of adjacent fencing; plantings, and grass parking strips can further diminish this impact. Indeed, early twentieth century streetscapes may appropriately include concrete walks. However, portland cement, concrete, and asphalt connote basically modern elements for which more sympathetic options exist. Dry-laid brick or stone walks; oyster shell, tanbark chip, or pea gravel drives; concrete or wood curbing; and slurry grit (epoxy based, matte finished. pea gravel) cartways offer more historically compatible paving materials. Sustainable materials should be favored where suitable.

**Brick Walkway at 1 Laurens Street**

**Pea Gravel Drive at 600 Block of Hamilton Street**

As the more residential areas of the District did not have walkways or sidewalks historically, the development of new walkways should be kept to a minimum wherever possible. Even when constructed of compatible materials, a more formal structure will be superimposed on the City altering the overall character. At present many of the roadways are used by pedestrians as well as automobiles. Because the streets offer this flexibility in pedestrian routes and movements, there is presently little feeling that the car dominates the roadway except on major traffic arteries.

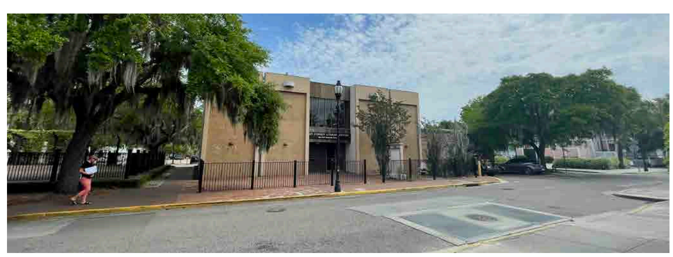
Likewise, most residential streets seem pedestrian in scale although they are ample in width for current vehicular loads. This is in part attributable to paving of only the cartway proper and retaining grass or sand in the on-street parking areas.




**"Checkerblock" Paving for Parking Areas**

Widening of the paved cartways would alter this scale substantially. Where it is deemed necessary to provide more durable, hard-surfaced, on-street parking in residential areas, perforated, pre-cast concrete would be preferable to asphalt and would allow the areas to remain grass.

Beaufort's commercial area possesses a distinctly different character from the residential sector and should be treated accordingly. Carteret, Bay, and Port Republic make up the principal commercial streets in the District. Of these streets, Carteret and Port Republic have lost much of their original character, the former due to street widening and inappropriate remodeling of buildings, and the latter through demolition and non-conforming new construction.



**Port Republic Street**

**Port Republic Street**

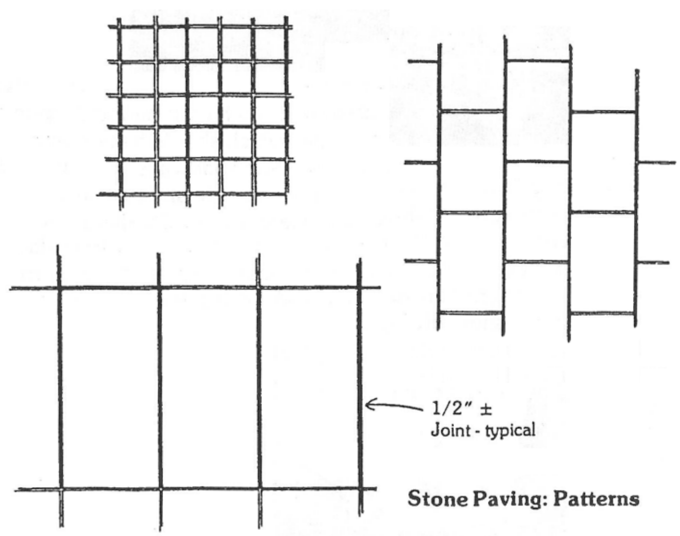
Bay Street, however, retains much of its period character and best expresses the attributes which should be built upon and enhanced. In terms of walks and roadways, Bay Street suffers from the same imposition of concrete and macadam as the other commercial streets. Hard-surfaced walks and cartways are unquestionably necessary in the retail sector because of heavy pedestrian and vehicular use. Nonetheless, the resulting unbroken expanse of concrete and asphalt detracts from the buildings which form the walls of this linear space. The street and walkways make up the floor of this space, and consequently are major visual elements. Any effort to recapture the historical appearance of the streetscape must take the paved areas into consideration because these surfaces can potentially unite the stylistically diverse facades into an harmonious setting with a unique identity and sense of place.

**700 Block of Bay Street**

Striving for compatibility is not, however, to suggest that a "theme" street be created. The uniqueness of Beaufort's commercial area is very much dependent upon maintaining the diverse mix of materials and stylistic elements reflected in the buildings. In order to upgrade Beaufort's commercial area in a sensitive and appropriate manner, it is essential to first understand and visualize the character of a nineteenth century streetscape. These areas were not, as was often imagined, exemplary cases of integrated design. They typically reflected the diverse, individual tastes of the merchants; building facades were occasionally all but obliterated with signage; the streets were often devoid of trees, roads were dirt, and walkways, if any, were often loose boards or stones embedded in the soil. Pedestrian areas were minimal and "traffic jams" were not uncommon, albeit nose-to-nose rather than bumper-to-bumper. In short, these were functional areas, given to barter, trade, supply - the movement of goods. The commercial area was often associated with political and governmental activity; it was the grapevine of local news and the setting for social intercourse. It was an area of intense human activity and interchange which created a spirit of prosperity and excitement. This was undoubtedly the case in Beaufort given the associated river trade.

Present day upgrading of paved areas of commercial streets can best be realized by incorporating the following suggestions.

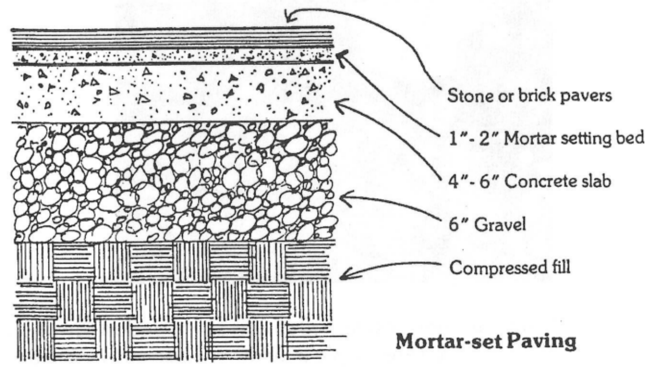
- Utilize natural, period materials such as wood, stone, and brick for walkway surfaces. Slate, flagstone, bluestone, and sandstone are all appropriate, durable materials if properly selected and installed. The size and pattern of stone is important in creating a period affect although a number of physical characteristics should also be taken into consideration from a functional standpoint. Stones, bricks, or other materials used in a pedestrian area should have a minimum compressive strength of 5000 PSI, and preferably 8000 PSI.



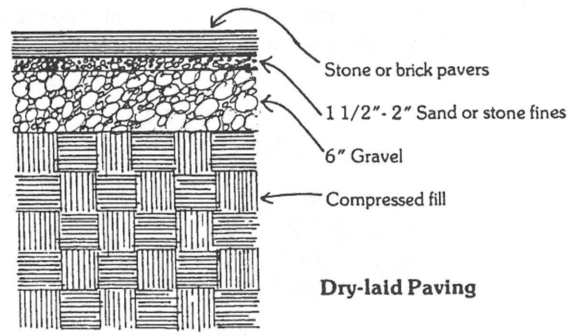

**Stone Paving: Patterns**

Such materials used in vehicular areas should be limited to a minimum of 8000 PSI, and preferably 10,000 PSI. A surface treatment (i.e. texture and finish} should be selected which possesses a coefficient of friction nearing that of concrete. For stones such as bluestone or Alberene, this can be achieved with a thermal, or "flame" finish. Two of the most significant factors in the quality of stone paving involve resistance to lamination, and the establishment of solid setting beds. Selection of high quality stone, such as New York Heldeberg Bluestone, and Virginia Buckingham Slate effectively preclude the former. The latter requires the use of skilled mechanics in construction of a solid and continuous setting bed, whether concrete based or dry laid.

The abrasive level of brick pavers can be increased through the use of wire cut brick. Wood walks can also be utilized if rough sawn for texture, and either amply treated with a wood preservative such as pentachloraphenol or pressure treated. Both stone and brick should be evaluated for resistance to shear particularly if they are to be dry set. Such paving materials may either be set on a concrete base, in which case the joints should be mortared, or dry set on fines (crushed stone such as granite) as opposed to sand.

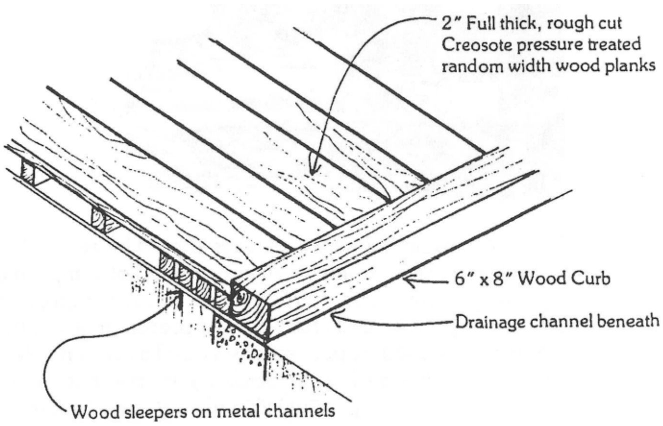


**Mortar-set Paving**

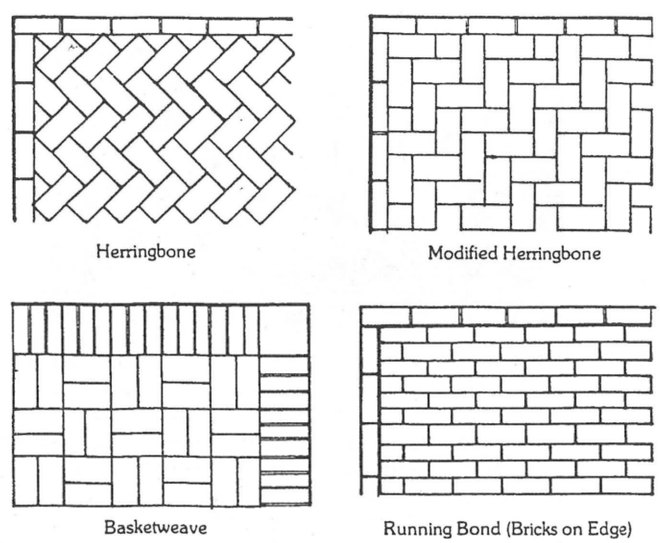


**Dry-laid Paving**

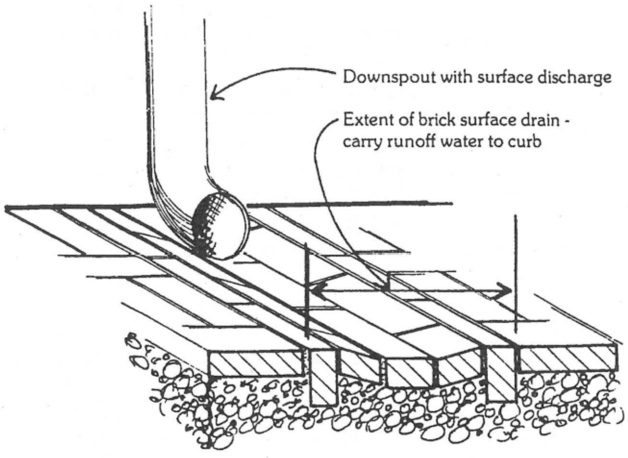
Pattern, color, and size are important elements in the use of brick paving. Contemporary colors, such as buff or brown brick, should be avoided. A modular size, while historically inaccurate, allows for flexibility in patterns and economy of setting.



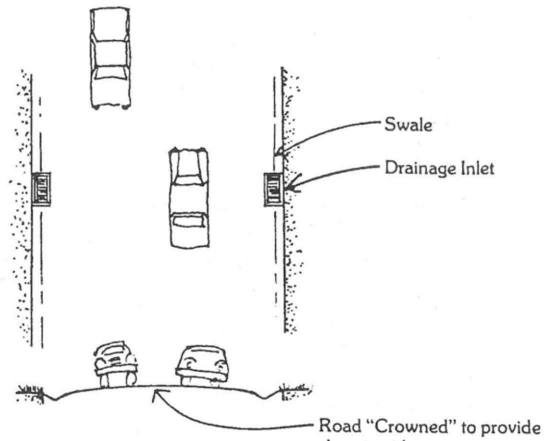
**Wood Sidewalk: Detail**



**Brick Paving Patterns**

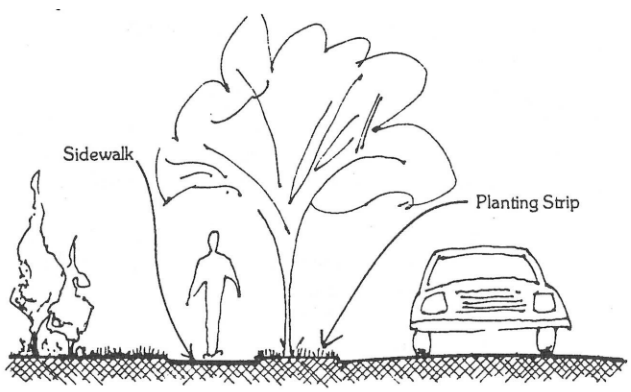



Brick Surface Drain




Cartway Drainage

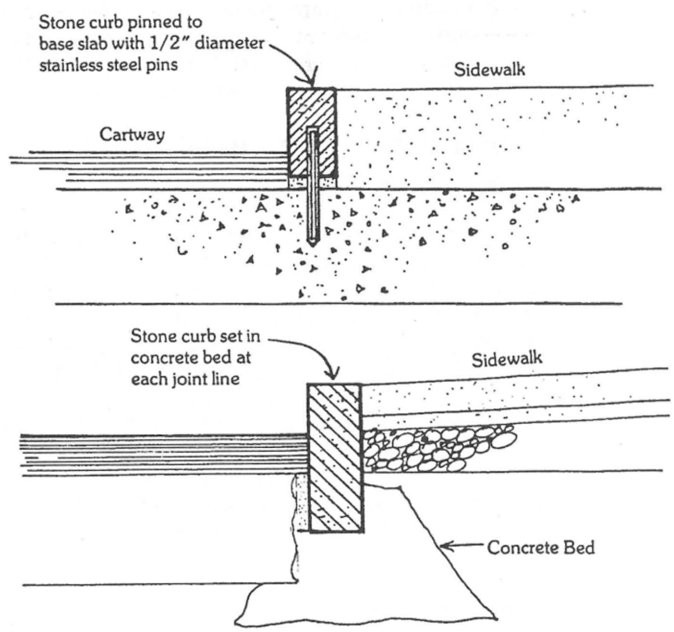
- Walks in residential areas may often be handled in a more casual fashion. While dry-laid red brick, or slate/bluestone walks are appropriate, tanbark chips, oyster shell, or pea gravel provide a more natural, informal walk in areas of light pedestrian traffic. A more permanent walkway can be created using pea gravel or oyster shell set in a clear epoxy base. Even concrete or asphalt walks will be more in keeping with the setting if finished in exposed aggregate. Sustainable materials should be favored where suitable. Wherever possible, residential walks should be limited to 3-to-4 feet in width and separated from the cartway by a grass planting strip several feet wide.




Sidewalks: Residential Street

- Curbing, like walks, can be minimized in residential areas. Again, the formality of 6" vertical face curbing is unnecessary in most streets, and would reduce the present parking flexibility. Rather, improved drainage may be established, where required, through grading and the incorporation of an asphalted drainage channel.

Vertical curbing exists along most commercial streets and is a necessity. While stone curbing is more durable, concrete curbing is more economical. Wood curbing may also be installed alongside wooden walks, using pressure treated railroad ties.




Stone Curb Anchorage

Although materials such as stone and brick walks have a greater initial cost than concrete, they often have an economic advantage in the long run in terms of design life, durability, and ease of maintenance/replacement. Where initial construction costs pose an overriding consideration, several alternatives exist which yet offer aesthetic advantages over concrete and macadam.

Interlocking concrete pavers, and poured-in-place patterned concrete offer a durable, economical solution while giving the general effect of brick or stone. A wide range of colors, patterns, and textures are available and when properly installed, the effect can be quite complementary to a period streetscape. These products generally have a higher compressive strength and greater density than standard concrete. However, as is typical of cementitious products, a degree of susceptibility to salts and other corrosives remains. In general, it is preferable to adhere to natural products, such as stone, to avoid artificiality; and thus maximize the authenticity and compatibility of the paving material with the historic surroundings.

- The cartways of commercial areas form major elements in the overall streetscape. Budgetary limitations often restrict these surfaces to macadam or concrete. Yet it is entirely feasible from a construction standpoint to pave cartways in epoxy-based pea gravel or oyster shell, interlocking concrete pavers, cobbles, or patterned concrete. While such products are compatible with the surroundings, extreme care must be taken to avoid an "over-kill" in paving materials. The feeling of an early street must be maintained; but Beaufort's commercial area need not become an artificial stage setting in order to be economically and architecturally successful.

- As a matter of long range practicality and ease of maintenance, the City should strongly consider repair/replacement of all public utilities in conjunction with major commercial streetscape work. Storm and sanitary sewers, water service, telephone, gas, and electrical service should all be revised during the course of a downtown revitalization project. Such utility revisions are normally allowable costs under federally assisted improvement programs. Costs are generally reduced in comparison to separate utility repair programs and future demolition of the completed streetscape improvements for utility modifications can be avoided.

## Plantings

Plant materials, especially trees, are significant streetscape elements which can potentially upgrade an area dramatically, and at relatively low cost when compared with many other public improvements. Much of the charm and quality of Beaufort is directly related to the nearly continuous canopy of trees which line the city streets. The residential streets in particular retain a great many mature trees, principally live oaks along with palmettos and crepe myrtles. Most residential streets need little supplemental planting, although a conscientious planting and maintenance program should be established to ensure the continuance of this setting.

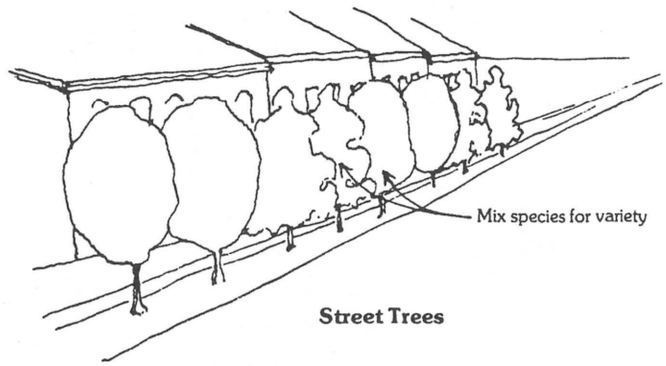
**Live Oaks**

As recently as the 1970s, many principal streets were notably devoid of plantings. However, tree planting efforts along these streets since then have served a variety of purposes. Trees provide a sense of enclosure which reduces a major artery, such as Carteret, to human scale. The width of the cartway is visually reduced and the canopy of foliage creates an upper level, or ceiling, to the space diminishing the thoroughfare effect. This canopy also offers a sense of protection from inclement weather. Coupled with storefront awnings and canopies, commercial streets can provide a substantial degree of shelter, a counterpoint to interior shopping malls, since they are combined with an open air setting, and take advantage of natural light and breezes.

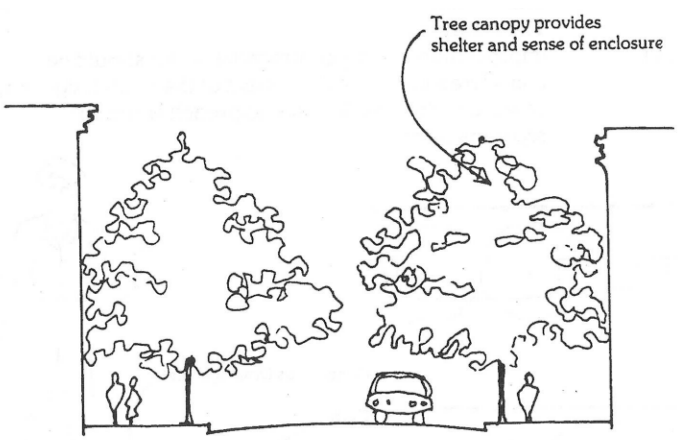
In addition, trees may be strategically located to either accent or conceal particular facades. Background buildings, incongruous facades, and upper stories which may likely remain in disrepair for some years, may be effectively screened by foliage. Conversely, restored or otherwise notable facades may be "framed" with plantings which draw attention toward the architectural assets and divert the eye from the more incompatible elements. Street plantings may be further used to reflect the architectural style of adjacent buildings. For example, a large, simple structure or one with robust detail can be reflected in a large scale shade tree with fairly dense foliage and a sharply defined form, such as oaks or maples. A delicately detailed facade, containing scroll-work, gingerbread, etc. would be suitably accented by a light, airy tree such as honey locust. Shrubs and planters may also be employed for this purpose, particularly at building entrances. Utilizing a variety of trees complements the diversity of architectural periods and styles and adds interest to the street. From a more practical standpoint, this variety guards against the loss of all trees due to disease or similarity of life span. Plantings may also be used to define spaces, either historical or contemporary.

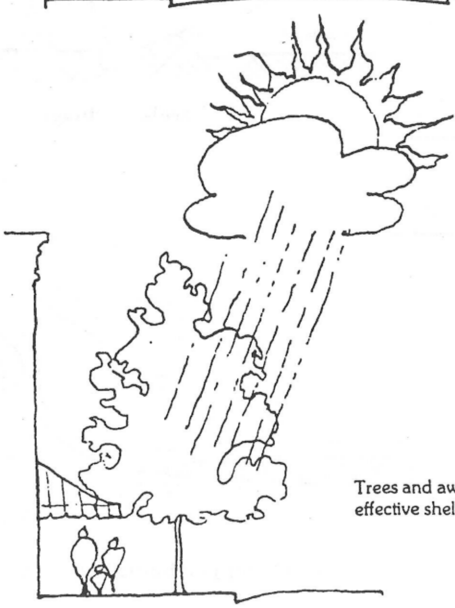
This is particularly true at corners where strong architectural elements are often critical in setting the tone for the block beyond, or in making a smooth transition from one block to the next. It is strongly

Tree as architectural accent: Commercial street

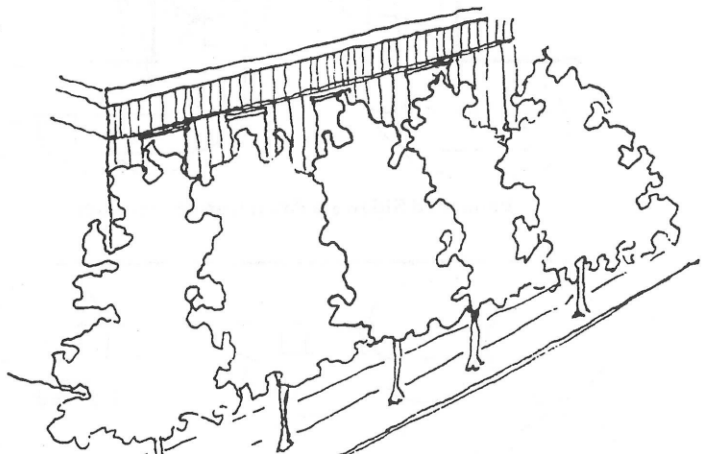



Street Trees

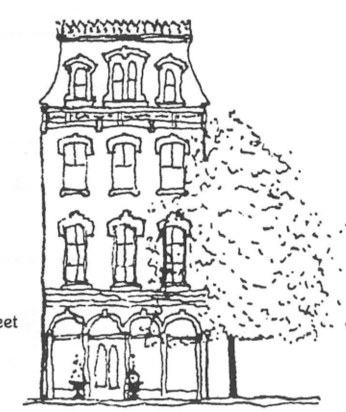


Trees and awnings as effective shelter



Street trees screen non-conforming facade



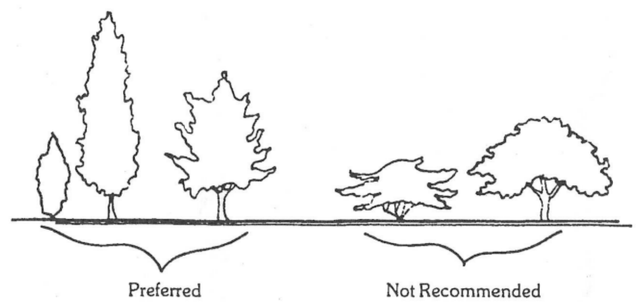
Tree as architectural accent: Commercial street recommended that any additional parking areas in the commercial section be limited to the intra-block area, although the demolition of buildings for this purpose should be avoided. The loss of early building stock for surface parking is irretrievable, and this approach reaches a point of diminishing returns when, eventually, too few structures remain to accommodate the quantity and variety of retail spaces necessary in attracting widespread patronage.

Proper landscaping can also help to interpret historical elements or concepts in the early development of a town plan. For instance, early maps of Beaufort indicate a public square at Carteret and Craven Streets. The square consisted of open space within the corner lots of the four contiguous blocks. Although this concept was superseded at an early date, it may yet be depicted for interpretive value by appropriate plantings, so located as to bound and redefine this space. In combination with variations in walkway widths and placement, the area can impart a feeling of having once been a public square.

In addition to trees, shrubs and seasonal flowers can also play an important role in upgrading a commercial area. Where space is too restrictive to accommodate trees, shrubs can be effective in softening the streetscape and providing a continuity in the use of planting. Shrubbery is also an effective means of providing a sense of enclosure and protection for seating areas located near the cartway. Seasonal flowers may be used, in appropriate planters such as cast iron urns at building entrances as an economical means of accenting storefronts and identifying points of entry. However, restraint must be used with either flowers or shrubs to avoid a cluttered or "cute" appearance. Understatement is the most effective and tasteful means of augmenting a street which already possesses an historic flavor.

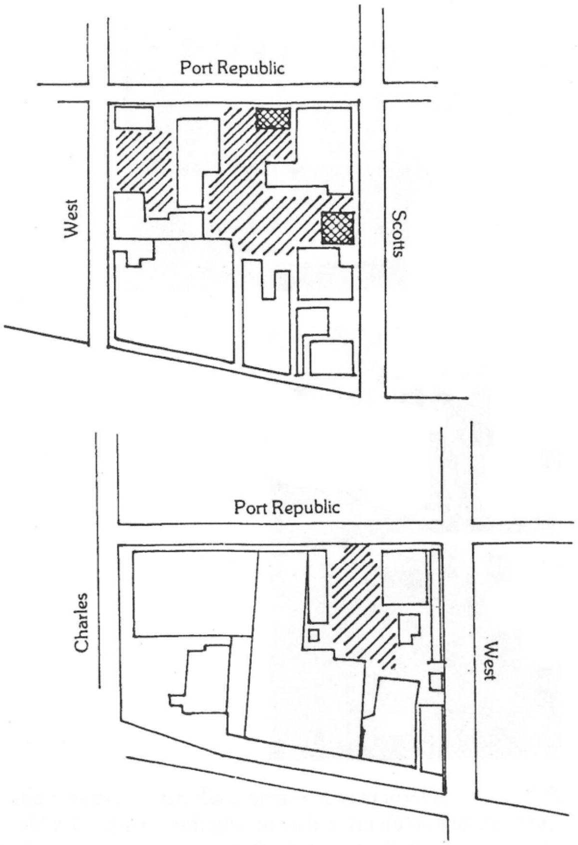

In selecting plantings for commercial areas several factors should be born in mind:

- Within such linear areas, usable space is limited, particularly for pedestrian activity. Plantings should not be so numerous or dense as to infringe on potential pedestrian uses. To minimize this impact, plantings with a compact form or vertical habit are preferable to broad, horizontal shrubs.

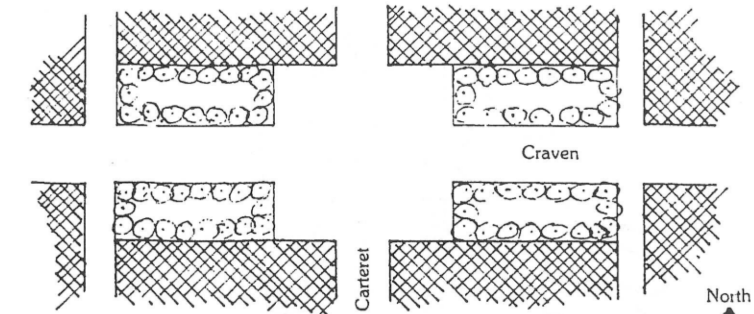



**Tree Silhouettes: Commercial Street**

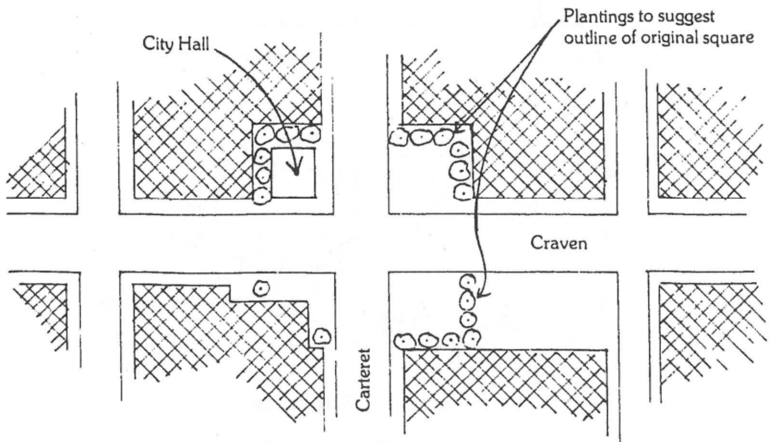
- It is desirable to maintain the design impact of plantings on a year-round basis. Coniferous, or evergreen varieties will provide for greenery throughout the seasons and should be incorporated in key locations.
- To maximize seasonal variation and interest, especially in South Carolina's climate, several varieties of flowering trees or shrubs would be beneficial.
- Vandalism to plants and planters is a major concern in many communities dealing with revitalization. Thus, plant containers should be durable and of adequate weight/size to preclude theft. An alternative is to utilize in-ground planting methods as opposed to movable planters. Similarly, plants themselves should be of hardy varieties and installed in relatively large calipers. Many trees can be installed at a 5" - 6" caliper planted size. Shrubs, also, should be selected which are of adequate growth to give the impression of permanency and imply difficulty in removal. Increased plant sizes will also create a much greater positive impact on a completed project.



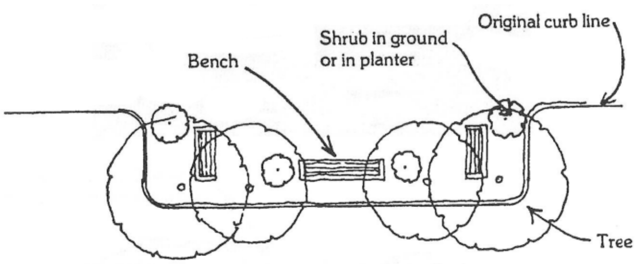

**Intra-block Parking in Existing Open Space**



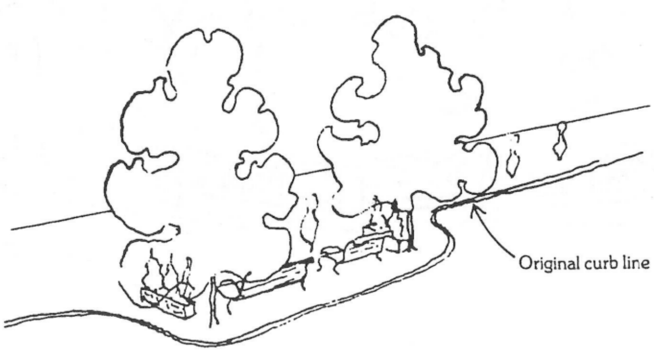

**Original Public Square**



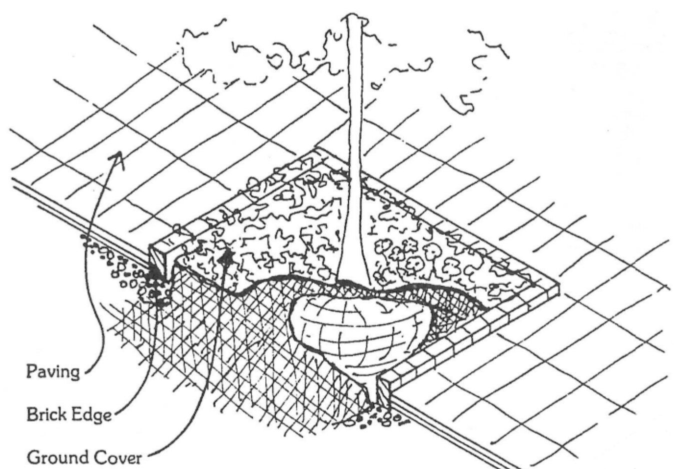

**Suggested Plantings**




**Plan: Expanded Sidewalk Area**




**Expanded Sidewalk Area**




**Commercial Street: Planting Bed**

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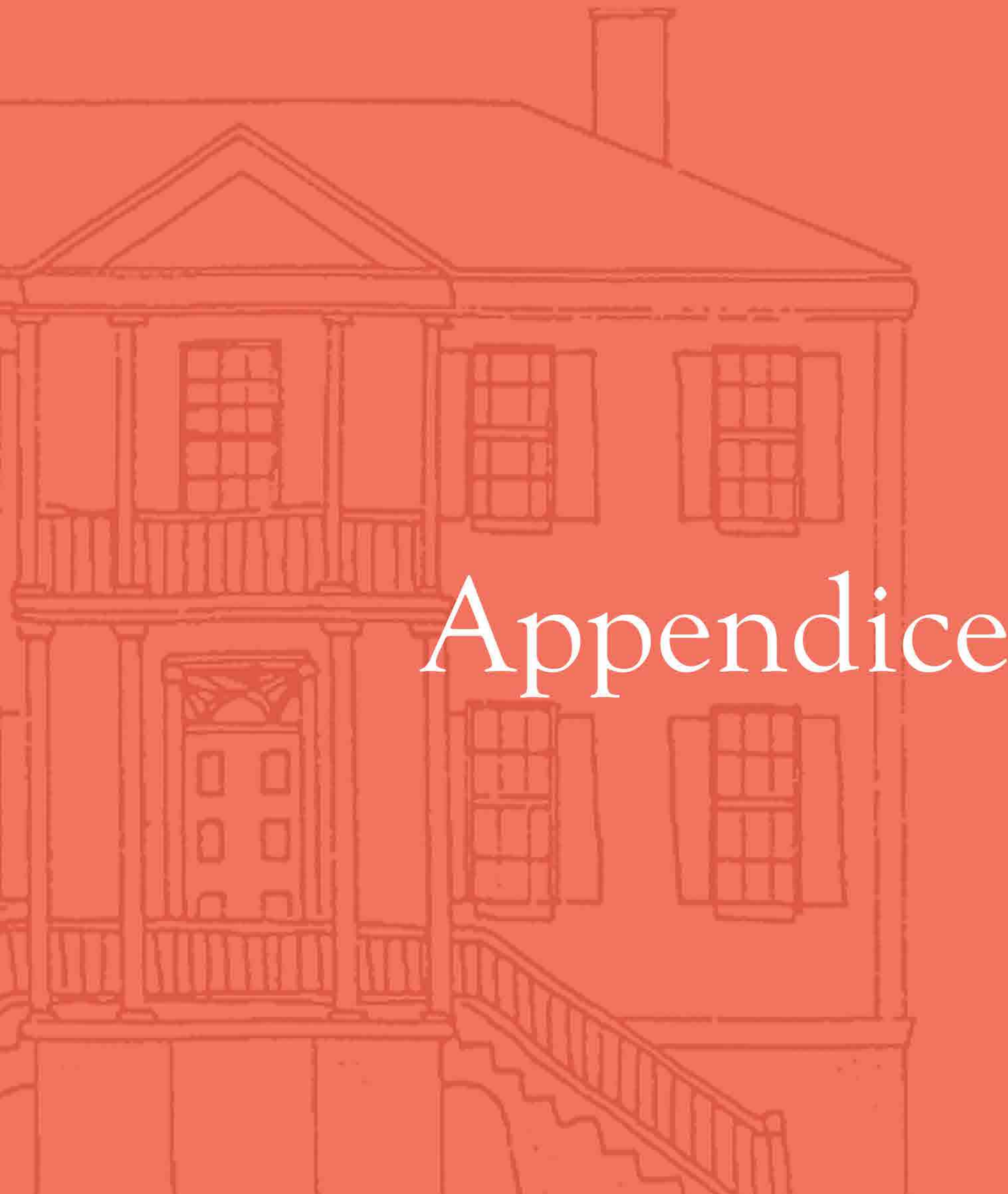
# Appendices



# APPENDIX A: Northwest Quadrant Design Principles

## Background

The Beaufort Code contains regulations regarding the local Beaufort Historic District, and explicitly defines the boundaries of that District as being equivalent to those of the National Landmark Historic District with minor clarifications. Those boundaries are indicated on Map 2 (page 52).

Map 2 shows the equivalent boundaries of the Beaufort Historic District and the National Landmark Historic District within which the HRB is required by the Code to review new construction, full and partial demolition, relocation, and modification to existing structures. Map 3 (page 58) also indicates an internal boundary line dividing the Historic District into two subdistricts. The subdistricts, as outlined in the code are the Beaufort Preservation Neighborhood (BPN) and the Beaufort Conservation Neighborhood (BCN).

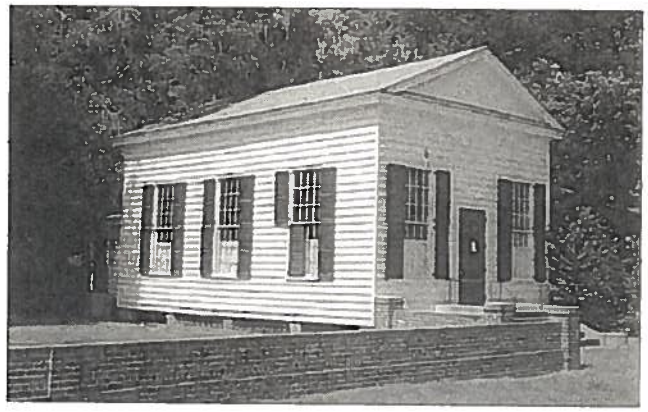
The BCN is roughly the northwestern quadrant of the Historic District. For many years, prior to the creation of the subdistrict, this sector of the Historic District was not reviewed comprehensively by the HRB in same manner as the remainder of the District. Eventually, this sector was designated as its own Conservation Neighborhood, as an area of important architectural and historical resources in the city. Given the age and character of the northwest quadrant, it was determined that it was in the best interest of the neighborhood to have a distinct set of guidelines from the remainder of the Historic District. These efforts eventually resulted in the creation of the Northwest Quadrant Design Principles, a separate document adopted by the City for the use of the HRB in reviewing proposed projects for this neighborhood.

The Northwest Quadrant Design Principles are included in their entirety as a separate appendix to this manual.

**1203 Congress Street**

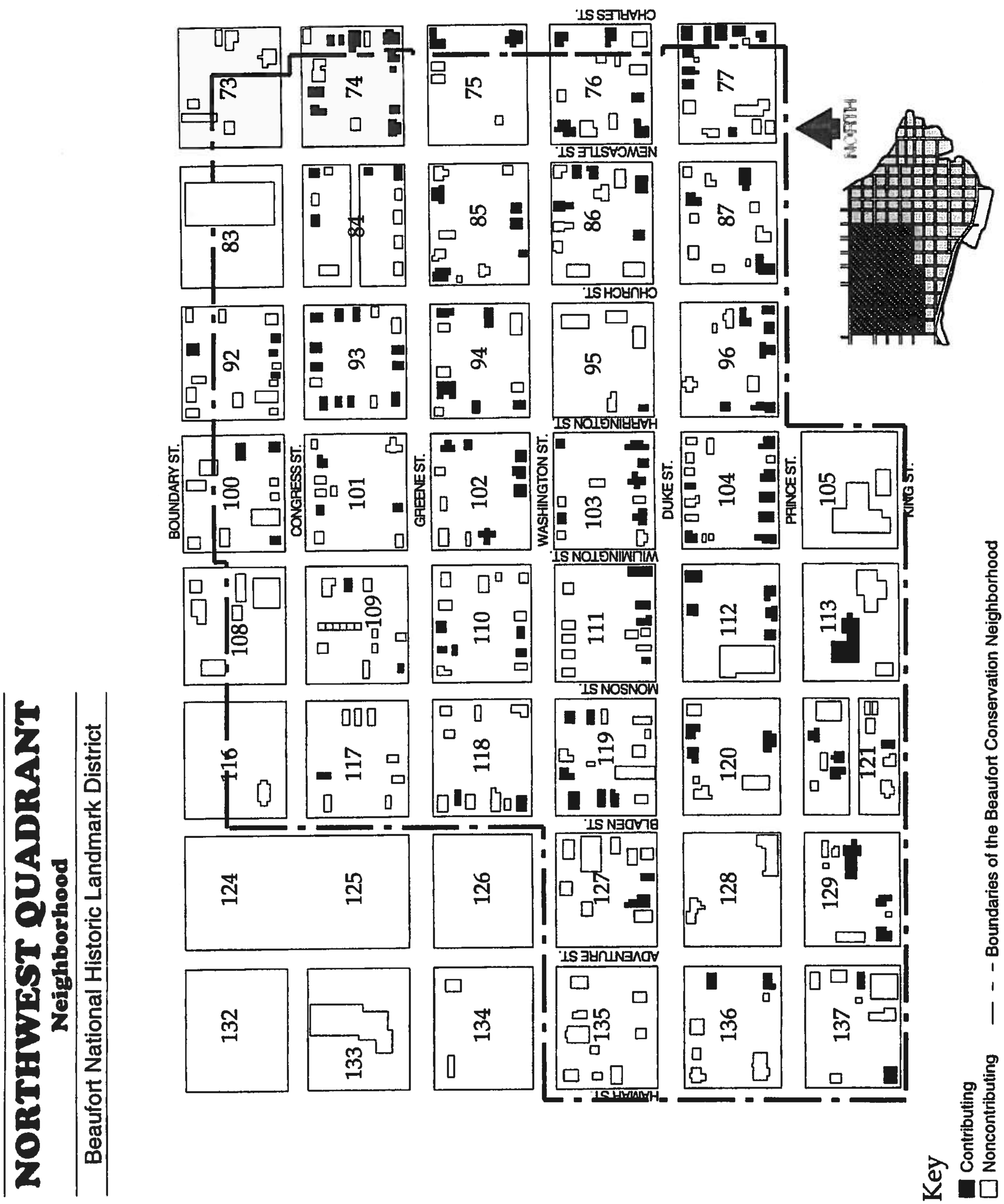
**1307 Greene Street**

# Northwest Quadrant Design Principles



**The City of Beaufort**
**Beaufort, South Carolina**

**May 1999**


NORTHWEST QUADRANT
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Beaufort National Historic Landmark District
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Noncontributing
Boundaries of the Beaufort Conservation Neighborhood
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CONGRESS ST.
GREENE ST.
WASHINGTON ST.
DUKE ST.
PRINCE ST.
KING ST.
CHARLES ST.
NEWCASTLE ST.
CHURCH ST.
HARRINGTON ST.
WILMINGTON ST.
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# Northwest Quadrant Design Principles

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**May 1999**

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# Table of Contents

## Chapter 1

# Historic Overview for the NWQ

The modest buildings of the Northwest Quadrant illustrate an important chapter in the history of Beaufort. The area developed in the years following the Civil War and was populated predominantly by African-American tradespeople, domestics, laborers and small business owners.

Little is known about this area of the city prior to the Civil War. A town plat of 1800, shows blocks and streets arranged generally along their present lines, with blocks north of Duke Street typically divided into four quarter lots and those to the south into six lots. Ownership of the individual parcels is indicated on the plat and includes the names of many of Beaufort's prominent planters, merchants, and citizens. No buildings are shown and the use to which the land was put is unclear. The only building presently surviving that may date from this period is the house at 1013 Duke Street. While the house has not been accurately dated, architectural evidence suggests that it was built in the latter decades of the 1700s.

By the time of the Civil War, cartographic sources suggest that the neighborhood was still undeveloped. Like other parts of Beaufort, land was confiscated by the federal government and resold for taxes. A plat prepared by the Direct Tax Commission in 1863, typically indicates the ownership of individual parcels prior to confiscation. Almost all of the blocks within the Northwest Quadrant have no such ownership citation, suggesting the possibility the land had largely reverted to the government before the war. Prior ownership is indicated for only six parcels. Blocks 96, 104, and 105 were not subdivided and individual owners, "J. Johnson," "Hall" and "Danner," respectively, are indicated. One-quarter block parcels are shown at the southwest corner of block 76, the southeast corner of block 77 and the southwest corner of block 87. The parcel on block 76 corresponds to 1013 Duke Street and is indicated as having been owned by "J. W. Patterson." The parcel on block 77 is annotated "J. Jackson, col'd" and the parcel on block 87 is annotated "Ph. Givens."

When Beaufort was occupied by federal troops December, 1861, most of its residents had already fled their homes never to return. During the war, Beaufort's African-American population began to grow as refugees from nearby plantations made their way to town looking for shelter and work. At first classified as contraband of war, and later freed by the Emancipation Proclamation of 1862, these former slaves took part in the first efforts to assimilate former slaves into the broader society which became known as the Port Royal experiment. With the establishment of schools such as the Penn School on St. Helena Island and the Mather School on Port Royal Island, freedmen were given access to educational opportunities. Redistribution of land resulting from the direct tax, allowed many former slaves to be able to purchase land for the first time.

The war brought about profound social and political changes in the city. Beaufort's population shifted from a white majority to an African-American one. Prior to the war, there were approximately 850 white residents, a number that fell to 466 by the time of the 1870 census. Conversely, the community's African-American population rose dramatically after the war, reaching 1,273 by 1870. With this majority, Beaufort's African-American community was able to gain substantial political influence.

Largely because of its early occupation, the confiscation of the property of the former plantation owners, and the establishment of schools during the war, African-Americans in Beaufort County enjoyed better access to education and property than in many parts of the post-war south. As a result, it is thought to have become somewhat of a haven for African-Americans during Reconstruction. The African-American population in the city rose in part as people moved from surrounding counties to avail themselves of the more favorable political and social climate.

African-Americans during this time resided throughout the city. Those more prominent acquired the mansions of former slaveholders. Others built new dwellings scattered within the city's existing neighborhoods. Still others began to acquire property within the Northwest Quadrant and to build small houses there. An 1878 article in Harper's New Monthly Magazine, stated that most of the city's African-Americans occupied "their former slave quarters or new and neat shanties or houses."

In the latter 1800s, Beaufort's economy recovered due to the development of the phosphate industry and the resurgence of sea island cotton cultivation. This new prosperity created jobs that allowed many African-Americans to leave the former plantations to settle in town. As a result, new houses were built throughout the city, and especially within the Northwest Quadrant, to accommodate this population. Among those living in the Northwest Quadrant, were the builders and artisans responsible for building many of the historically significant buildings throughout Beaufort.

In the years after the turn of the century, the population of the Northwest Quadrant has changed. Although still predominantly an African-American neighborhood, a small number of immigrant residents from Europe and Asia are indicated in census records by 1900. During World War II, with a housing supply shortage throughout Beaufort County, the cultural mix of the neighborhood continued to change.

Today, the Northwest Quadrant continues to reflect its rich history through its modest residential architecture.

## Typical Building Types

The following is a brief description of the typical building types found in the neighborhood.

### Freedmen's Cottage
### (circa 1850 - 1880)

The first houses of newly freed African-Americans tended to reflect their modest economic circumstances and the simple architecture of the plantation slave houses they were familiar with. These houses are recognized by their simple architectural character—typically rectangular in plan, 1 room in depth, with a steep lateral gable roof and a front shed porch.

### Gable Fronts
### (circa 1870 - 1940)

Gable fronts are recognized by the fact that their roof gables face the street. Examples are found on both one- and two-story variations. Based stylistically on Greek Revival precedents, the gable front houses are stylistically very simple. Many house styles adopted the gable front form and examples of gable front Folk Victorian, Craftsman and Minimal Traditional houses are common.

### Hall and Parlor
### (circa 1870 - 1900)

As financial resources improved, houses tended to begin to reflect these changed circumstances. Still relatively simple in character, these houses are recognized by their rectangular, 1 room depth, central entrances, lateral gable roofs and front shed porches.

## Massed Plan
**(circa 1880 - 1940)**

Massed plan houses became popular after the coming of the railroads, as they made light framing lumber more readily available. Still relatively simple in character, these houses are recognized by their rectangular shape, 2 or more room depth and open interior plans. They often have side gabled or hipped roofs.

## Shotgun
**(circa 1880 - 1940)**

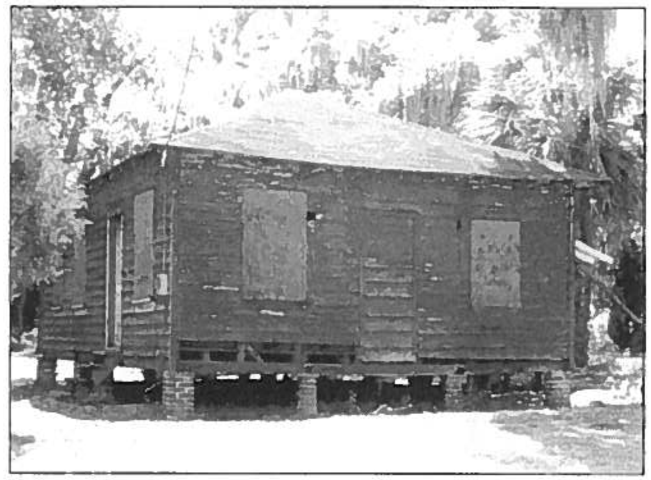
A major African-American folk architectural tradition, the Shotgun house has direct design precedents in African architecture. These houses are recognized by their orientation towards the street and they are typically one room wide and two or more rooms deep. They typically have front-facing gable or hipped roofs and front porches.

## I-House
**(circa 1870 - 1940)**

I-houses are similar to hall-and-parlour houses in that their principal block is only one room deep and often three rooms wide with a central hallway. The primary difference is that I-houses are two stories in height. Typically, they have side gabled roofs, although the Charleston single house form is an I-house with its gable end to the street. Both types are found in the Northwest Quadrant.

**Gable Front & Wing**
**(circa 1870 - 1940)**
Gable front and wing houses feature a front facing gable portion and a side-gabled wing that connect to form an ell-shaped plan. Shed or hipped roof porches are typically located along the front of the house within the ell.

**Pyramidal**
**(circa 1870 - 1940)**
Pyramidal houses are typically square or almost square in plan and feature four-sided hipped or pyramidal roofs.



**Folk Victorian**
**(circa 1870 - 1910)**
Folk Victorian buildings are generally similar to the previously listed folk styles, with the exception that Victorian details, such as spindlework porch details and jigsaw cut trim, have been added.

**Minimal Traditional**
**(circa 1935 - 1955)**

"With the economic Depression of the 1930s came this compromise style which reflects the form of traditional Eclectic houses, but lacks their decorative detailing. Roof pitches are low or intermediate...eaves and rake are close...Usually, but not always, there is a large chimney and at least one front gable." (*A Field Guide to American Houses*, Virginia and Lee McAlester, 1984, p. 478.)

In addition to these common building types mentioned above, there are a variety of other architectural styles represented, often by only one or a couple of buildings. The Historic Beaufort Foundation can provide more information about these styles. Also available for viewing at the City Planning Department is a copy of *A Field Guide to American Houses*, by Virginia and Lee McAlester, which might contain more information on these and other historic architectural styles.

## Chapter 2

# Character-Defining Features

The Northwest Quadrant is different from other parts of the historic district in Beaufort. In general, its buildings are "younger," dating from 1865 to 1950. Most are simple one and two story houses, set back from the street with a small front yard.

Because most buildings in the neighborhood are simple in design, the features that most strongly define the neighborhood are seen at the "block level." That is, the way in which sets of buildings relate to each other defines the character of the area.

This is different from other parts of the historic district, where "fancier" houses are noted for their architectural details and the specific way in which doors and windows are arranged help to convey the historic character. It is also true that these houses retain most of their early features.

In the Northwest Quadrant, however, buildings were modest and altering them was a part of the tradition. A porch might have been screened to provide additional living space, or a dormer might have been added to create a bedroom in the attic.

*Because most buildings in the neighborhood are simple in design, the features that most strongly define the neighborhood are seen at the "block level."*

These changes are a part of the character of the Northwest Quadrant. They indicate that further alterations may also be considered, when they are designed to respect the underlying features of the neighborhood.

It is also likely that many new houses will be constructed here in the future. In fact many of the lots are vacant, in some cases because earlier buildings have now been lost or because lots that once were side yards will now be considered opportunities for "infill" construction. This new construction is also appropriate, if it is designed to respect the traditional ways of building in the area.

However, new construction need not directly copy older building styles. In fact, doing so is discouraged because it would blur the ability to tell which buildings are old and which are new.

### What are the key character-defining features of the Northwest Quadrant?

#### *SITE FEATURES*

The most important features that contribute to the character of the Northwest Quadrant are seen at the scale of an entire block. The manner in which sidewalks are constructed, the presence of street trees and the way in which houses face the street are some of the most important design ingredients.

#### Vegetation

In general, plantings are lush in this area. Although few houses have formal landscape designs, most contain a combination of street trees, planting beds and shrubs. It is this lack of formality that provides a uniqueness to the area. Therefore, yard plantings are encouraged. The vegetation provides interest along the street, making this area a good place to walk or bike.

**Trees**
One of the most important features is the presence of many mature trees. These tower over buildings and help to define the scale of the street. Maintaining trees along the street is therefore important.

**Sidewalks**
Most streets have no sidewalks. This contributes to a friendly "walking street" atmosphere, in which pedestrians share the street with automobiles. In some blocks, however, sidewalks do exist; where they occur, they are separated from the street with a grassy strip. Respecting these different conditions is preferred.

**Front yards**
Most properties have small front yards, which are planted with grass. Houses are set back about the same distance from the street, which also establishes a line of building fronts along the block. Maintaining this established building line is therefore a policy.

**House orientation**
Most houses face the street. This helps each property "connect" with the neighborhood. This relationship is important to maintain.

*Because most buildings are simple in design, the key features are fairly basic.*

## *HOUSE FORM AND CHARACTER*

**Box shapes**
Building forms were simple box shapes, usually raised on piers. A few were made of "sets" of box shapes combined. The shotgun form also was popular and is an important part of the neighborhood's history. Buildings need not be "grand" in this area. In other words, the building forms were consistently simple, and generally did not have complex "footprints," or building shapes.

**Roofs**
Roofs were simple sloping forms (gable or hip types). Materials were shingles and metal sheets. Heavier materials, such as tiles, were not used. Some houses had dormers, which helped to break up the size of the roof. This traditional variety may be considered in repairs and new construction.

**Porches**
Most houses had a deep porch, which faced the street and helped to identify the front door. This is one of the most important features of the area and should be respected. It helps establish a human scale for each building. It also shades the front of the house. As a result, the details of the front building wall are often in shadow and are less significant than the character of the porch itself.

**Materials**
Traditionally, wood clapboard siding was the most popular building material. In some cases, other types of wood siding were used, such as board and batten. Occasionally, brick veneer buildings appeared, especially in later years. In many cases homeowners used what was readily available.

**Architectural details**
Because most of the early buildings were simple in design, the key features are fairly basic. In a few cases, architectural details, such as ornamental porch posts or brackets were used. Operable shutters also were applied on some windows.

### Respecting key character-defining features in the Northwest Quadrant

The key to the character of the Northwest Quadrant is that it is a collection of relatively modest buildings which have been combined with the surrounding landscape. The basic way in which simple house forms were used, the manner in which they were set back from the street with small front yards and the limited range of building materials were important characteristics. These, and the consistent use of a front porch are the elements that must be preserved in order to maintain the traditional character of the area. These are the elements that the BOAR will focus on when determining the appropriateness of proposed work.

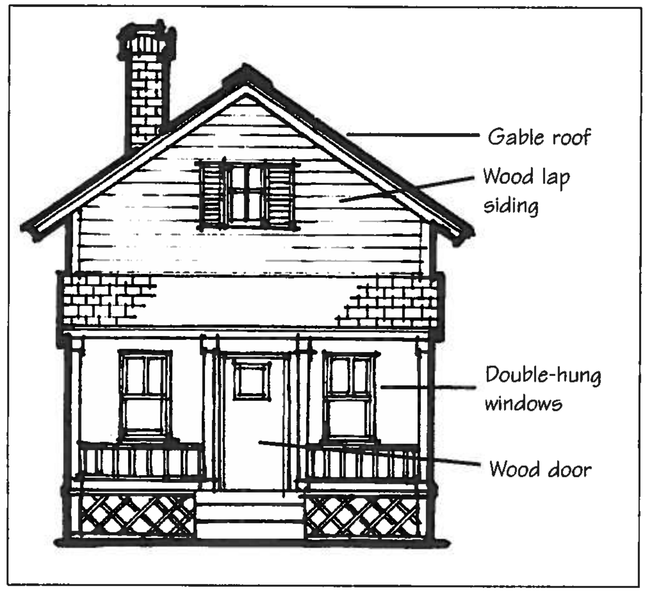
With this said, it is important to note that many of the building details are secondary to the historic context and therefore greater flexibility in their treatment is appropriate.

*The consistent use of a front porch must be preserved in order to maintain the traditional character of the area.*

## Chapter 3

# Design Principles

These design principles apply to all properties in the Northwest Quadrant and for projects including 1) historic buildings, 2) existing non-historic buildings, 3) new construction and 4) site improvements. The design principles are organized in categories ranging from broad scale elements to those of more detail. Their sequence does not indicate order of importance.




*Elements of a typical house.*

# Site Features

## 1 Maintain the traditional character of each block.

The established streetscape is one of the most important aspects of the Northwest Quadrant. There is still a very informal character within the neighborhood. This includes lush, sub-tropical vegetation, vacant lots and, in most cases, no sidewalks for pedestrians.

### 1.1 Planting trees is encouraged.

- It is *preferred* that existing vegetation be preserved, when feasible.
- When an existing tree dies, replacement is *preferred*.
- Clear-cutting a site for new construction is *not appropriate*, especially if landscaping is a part of the finished project.

### 1.2 Vacant lots should be kept in good condition.

- Many houses in the neighborhood have vacant lots next to them. It is *preferred* that property owners should do what they can to keep these lots clear of debris.
- Clean lots will help invite continued investment in the neighborhood.

**For More Information, Refer to:**

☞ *The Beaufort Preservation Manual Supplement*:
- p. 59: Landscaping
- p. 62: Paving and Bordering

☞ *The Beaufort Preservation Manual*:
- p. 1: Reflections on Beaufort's Architectural Development
- p. 125: Landscaping & Site Amenities
- p. 135: Public Improvements

## 2 Maintain the informal nature of streets, lanes and gardens where they exist.

Part of what makes the Northwest Quadrant a unique neighborhood and an important historic neighborhood is the rural, informal character of the streets and residences. Streets with soft, grassy edges, the few grassy lanes which still exist and the simple private gardens all contribute to this character. Although these features sometimes go unnoticed, they are important to the neighborhood and should be maintained.

*Maintaining the soft edges found along neighborhood streets is preferred.*

### 2.1 Maintain the soft edges found along neighborhood streets.

- Roll curbs are used along most streets in the Northwest Quadrant. This type of curb tends to soften the street edge and is *preferred.*
- Installing a sidewalk at the street edge is *not appropriate*, except where it already exists in the block.
- Sidewalks may be considered in some limited circumstances, such as near schools or churches, where traffic safety is a concern. When they must be used, it is *preferred* that a grass strip between the curb and sidewalk be provided.
- Do not replace roll curbs with, or install new, block curb and gutter systems—it is *not appropriate.*

*When they must be used, it is preferred that a grass strip between the curb and sidewalk be provided.*

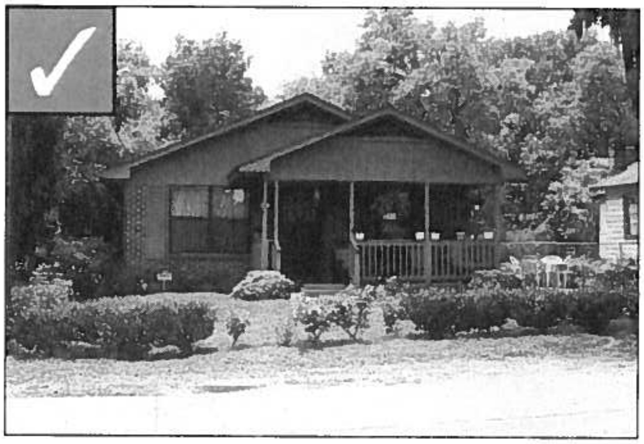
### 2.2 Where a grassy lane exists, it should be maintained.

- These lanes were not developed with large automobiles in mind. If a grassy lane is needed as a driveway or for loading purposes, it is *acceptable* to consider using grasscrete on a limited basis to maintain the visual appearance of grass while reinforcing the lane to withstand the weight of vehicular traffic.

### 2.3 Informal gardens are encouraged throughout the neighborhood.

- Traditionally, gardens were a part of the pedestrian experience in the Northwest Quadrant. They invite personal interaction between residents and provide interest for passersby. This trend is *acceptable.*

## 3 Maintain the traditional character of a front yard.



*The existence of grass lawns enhances the pedestrian environment and contributes to the character of the neighborhood, and is therefore acceptable.*

Buildings in the Northwest Quadrant are typically set back a similar distance from the street edge. In cases where detached sidewalks exist, this setback may be even greater. These setbacks help to define a house's front yard. The existence of these grass lawns enhances the pedestrian environment and contributes to the character of the neighborhood; it should be maintained.

### 3.1 Use a grass lawn in the front yard.

- It is *preferred* that the front yard be similar in depth to neighboring houses.
- Minimizing the amount of hard surface paving for patios, terraces or drives in front yards is *preferred.*
- It is *not appropriate* to use rock and gravel in a front yard. If used, however, it should only occur as an accent element.

### 3.2 Maintain the visual connection to the front lawn from the street.

- Although not part of the tradition, a front fence or low retaining wall may be *acceptable,* if it meets the guidance found in Policy #4 (p. 21).
- Enclosing a front lawn with a fence or porch, such that it is not visible from the street, is generally *not appropriate.*

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement:*
- p. 8: Zoning Regulations & Requirements
- p. 15: Siting

☞ *The Beaufort Preservation Manual:*
- p. 46: Siting
- p. 125: Landscaping & Site Amenities

## 4 If it is to be used, a fence should be in character with those seen traditionally.

Using fences in front yards is not a strong tradition in the Northwest Quadrant. Typically, fences were seen enclosing side and rear yards. They were low and appeared semi-transparent. Wood pickets, wire or thin metal members were typical.

### 4.1 It is *not appropriate* to use a front yard fence.

- Keep the front yard open to the street and inviting to pedestrians. Using no fence at all is often the *preferred* approach.
- When a front yard fence is to be installed, a low fence (4 feet or less) is *preferred.*
- Transparent elements, such as wrought iron and wood picket, are *preferred.*
- There is also a tradition of twisted wire fences and low masonry walls in the neighborhood that are *acceptable.* This design is *preferred* over chain link.
- A chain link fence is *not appropriate.* However, they may be *acceptable* in side and rear yards, where security issues merit.

### 4.2 Fences are *preferred* for side and rear yards.

- A low wood or metal fence is *acceptable.*
- Taller fences may be *acceptable* in side and rear yards where more privacy is desired. These will be considered on a case-by-case basis.

*Using a low wood or metal fence in side and rear yards is acceptable.*

*There is also a tradition of twisted wire fences in the neighborhood that are acceptable. This design is preferred over chain link.*

**4.3 Due to the folk character of the neighborhood, it is *preferred* that all fence designs be very simple.**

- Vertical board fences of 4 feet or less in height are *preferred.* Avoid the use of solid fences by leaving spaces between the vertical boards.
- "Living fences" may be *acceptable.* They should be planted out adequately to ensure proper vegetation. In addition, vegetation vulnerable to frost is *not appropriate.*

**4.4 The following types of fencing are *not appropriate* for use within the neighborhood.**

- They may be considered on a case-by-case basis. In reviewing such applications, the BOAR should consider the location and context of the fencing and whether or not there are other traditional examples in the immediate area:
  - Exposed treated lumber fencing
  - Lattice fences
  - Railroad ties or other rough or naturally finished wood
  - Barbed wire fencing
  - Vinyl or other synthetic fencing
  - Woven wood fencing

## For More Information, Refer to:

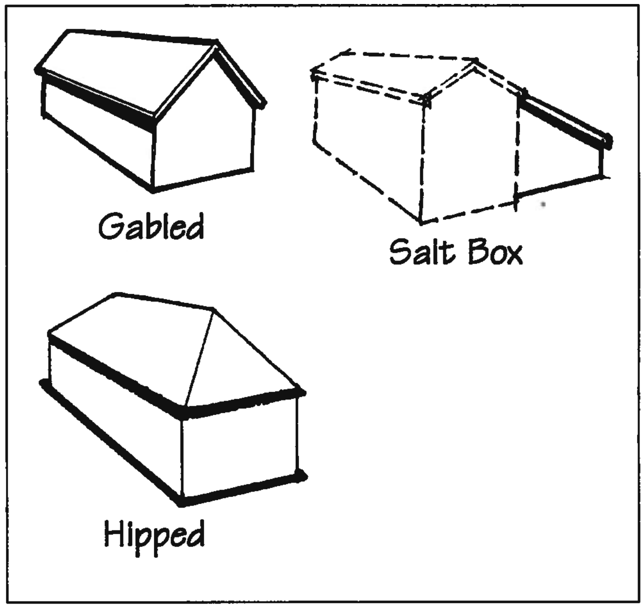
☞ *The Beaufort Preservation Manual Supplement*:
- p. 61: Fencing and Walls
- p. 71: The demolition of a Porch

☞ *The Beaufort Preservation Manual*:
- p. 130: Site Amenities: Fencing & Walls

# Building Form

## 5 Building forms should be similar to those seen traditionally.

A similarity of building forms also contributes to a sense of visual continuity. In order to maintain this feature, a new building should have a basic form that is similar to those seen traditionally. The character of the roof is a major feature of buildings in the Northwest Quadrant. This should be maintained.




*Sloping roofs such as gable and hipped roofs are acceptable for primary roof forms.*

**5.1 Simple rectangular building forms are *preferred.***

- An A-frame form, for example, is *not appropriate.*

**5.2 Sloping roofs such as gable and hipped roofs are *acceptable* for primary roof forms.**

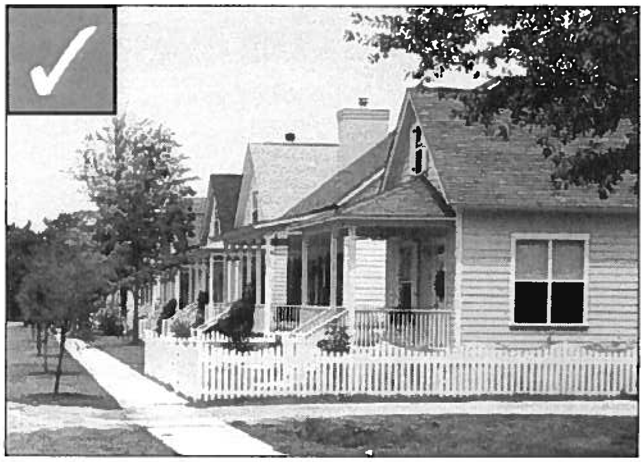
- Shed roofs are *acceptable* for porches and additions.

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement:*
- p. 15: Design Guidelines for New Construction: Forms

☞ *The Beaufort Preservation Manual:*
- p. 45: New Construction - Design Criteria: Forms

# 6 Buildings should appear similar in scale to houses found traditionally in the neighborhood.



*These new houses in Port Royal successfully incorporate one-story porches that are similar in size to those seen traditionally in their community.*

**6.1 Buildings may convey a sense of human scale by employing the following techniques.**

- Using building materials that are of traditional dimensions is *preferred*. For example, the lap dimension of traditional wood siding gives a sense of human scale.
- Providing a porch that is similar in size to those seen traditionally is *preferred*.
- Using a building mass that is similar in size to those seen traditionally is *preferred*.

**6.2 A building should relate to single family houses seen traditionally in the neighborhood.**

- The majority of houses in the Northwest Quadrant are one-story cottages with a front porch or entry element. However, some larger two-story structures exist.
- It is *preferred* that a new building relate in character to the contributing historic buildings in the Northwest Quadrant.
- It is *preferred* that a building not be wider at the front than that seen traditionally on surrounding houses.
- If a larger building would be needed, it is *acceptable* to divide it into smaller "modules" that reflect the one- to two-story character.

## For More Information, Refer to:

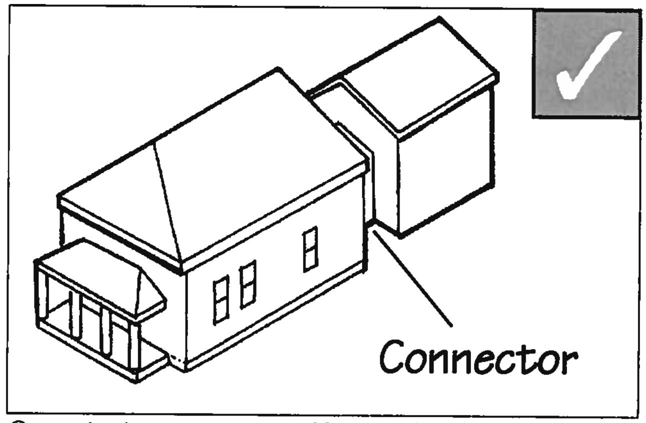
☞ *The Beaufort Preservation Manual Supplement*:
- p. 13: Design Guidelines for New Construction

☞ *The Beaufort Preservation Manual*:
- p. 42: New Construction - Design Criteria

# Additions

## 7 Design an addition to be compatible with the main house.

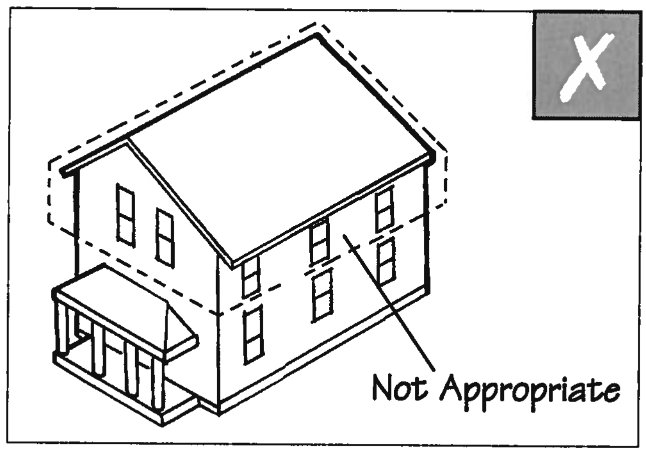
The overall design of the addition should be in keeping with the design of the primary structure as well. Keeping the size of the addition small, in relation to the main structure, also will help minimize its visual impacts.




*One option is to construct an addition to the rear and link it to the main structure with a "connector."*

### 7.1 An addition should be made distinguishable from the original building.

- Creating a jog in the foundation between the original and the new may help to define the later addition and is *acceptable.*
- Even applying a new trim board at the connection point can help define the addition and is *acceptable.*




*A new addition should not negatively affect the character of the existing building.*

### 7.2 Placing an addition at the rear of a building and/or setting it back from the front to minimize the visual impacts is *preferred.*

- This will allow the original proportions and character to remain prominent.
- Locating an addition at the front of a structure is *not appropriate.*

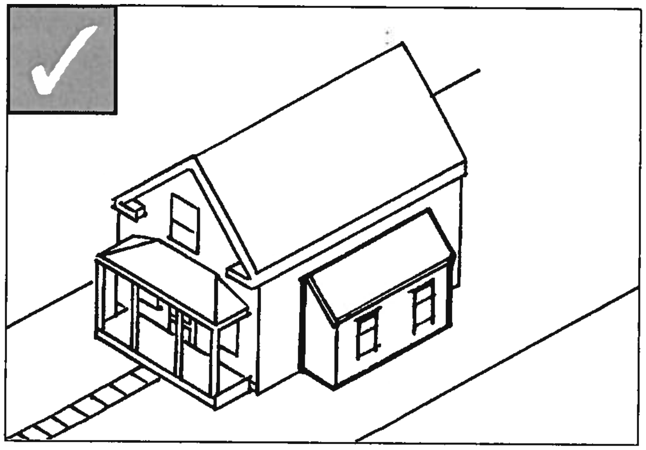
### 7.3 Design an addition to be compatible in size and scale with the main building.

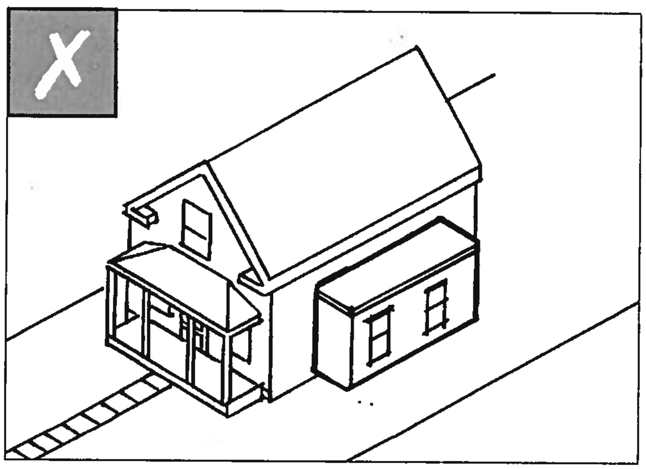
- Keeping the mass visually subordinate to the original building is *preferred.*
- Keeping the existing building visually dominant over the addition is *preferred.* One *acceptable* treatment is to separate it from the primary building and then link it with a "connector."

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement:*
- p. 17: Additions to Existing Buildings
- p. 70: Additions to Main Facades

## 8 Use roof forms and roof pitches on additions that are compatible with the main house.





*Use roof forms and roof pitches on additions that are compatible with the primary structure and with other established structures along the block.*

**8.1 A basic rectangular building form and a hipped or gabled roof are *preferred* for additions.**

**8.2 The roof form of a new addition should be in character with that of the primary building.**

- It is *preferred* that if the roof of the primary building is symmetrically proportioned, the roof of the addition should be similar.
- It is also *preferred* that the slope of the roof be similar to that of the primary building.
- Typically, gable, hip and shed roofs are *acceptable.*
- Flat roofs are generally *not appropriate.*

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 17: Additions to Existing Buildings
- p. 70: Additions to Main Facades

## 9 A roof-top addition should not visually overpower the primary structure.

**9.1 When constructing a rooftop addition, keeping the mass and scale subordinate to that of the primary building is *preferred.***

- It is *not appropriate* for the addition to overhang the lower floors of the primary building in the front or to the side.

**9.2 It is *preferred* to set a rooftop addition back from the front of the building when this will preserve the building's proportions as seen from the street.**

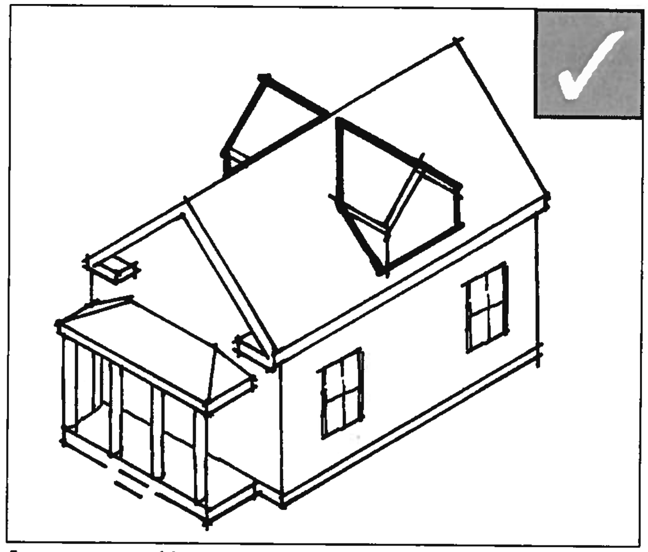
- A second floor addition that is in the plane of the building front may be *acceptable* in limited situations where the overall character is maintained.

**9.3 When adding a dormer to an existing roof, it is *preferred* that it be in character with the primary structure.**

- The dormer should be subordinate to the overall roof mass and should be in scale with older ones on similar structures.

**9.4 A skylight may be *acceptable* if it lies flat with the roof.**

- A skylight is *not appropriate* where it would be visible from a public vantage.
- A bubble skylight is *not appropriate.*

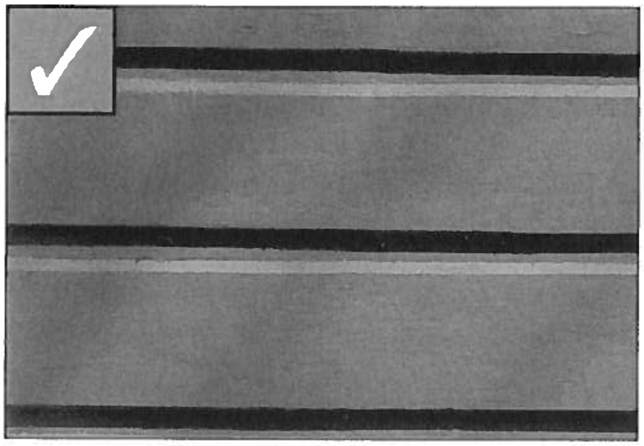


*In some cases, adding on vertically, through construction of dormers, will help to minimize the impacts of additions and preserve rear yards.*

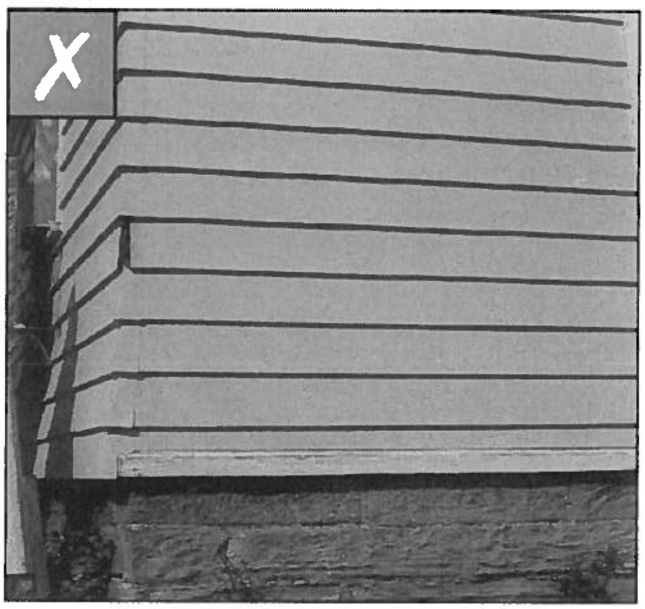
*A skylight is not appropriate where it would be visible from a public vantage.*

# Building Materials

## 10 Primary historic building materials should be preserved in place whenever feasible.



*Protect wood features from deterioration. Maintain protective coatings to retard drying and ultraviolet damage. If the building was painted originally, it should remain painted.*



*Consider removing inappropriate covering materials; examples include vinyl, aluminum or asphalt siding.*

In the neighborhood, brick and wood siding are the dominant primary building materials. Wood siding occurs in a variety of forms but painted, horizontal clapboard is typical.

### 10.1 Preserving historic siding is *preferred.*

- It is *acceptable* to remove only the siding which is deteriorated and must be replaced.
- If portions of wood siding must be replaced, it is *preferred* that the style and lap dimensions match that of the original.
- If the building was painted historically, it is *preferred* that it remain painted, including all trim.
- It is *not appropriate* to remove siding that is in good condition or that can be repaired in place.

### 10.2 Repair existing wood features to blend in with existing adjacent conditions.

- When repairing materials, it is *preferred* to patch or consolidate where needed, matching the adjacent material exactly in size, profile and surface appearance.
- Removing damaged wood that can be repaired is *not appropriate.*
- For more information, contact the City of Beaufort Planning Department or the Historic Beaufort Foundation.

### 10.3 Historic building materials should not be covered with synthetic sidings.

- If original materials are presently covered, it is *preferred* that they be exposed once more.
- Vinyl, aluminum and imitation brick are *not appropriate* as coverings of historic materials.

**10.4 Using materials similar to those employed historically is *preferred*.**

- It is *acceptable* to use substitute materials if they match the original in appearance as closely as is possible.
- Retaining later covering materials that have not achieved historic significance is *not appropriate*. Asphalt siding that covers original wood siding is still considered to be inappropriate.

**10.5 Preserving masonry features that define the overall historic character of the building is *preferred*.**

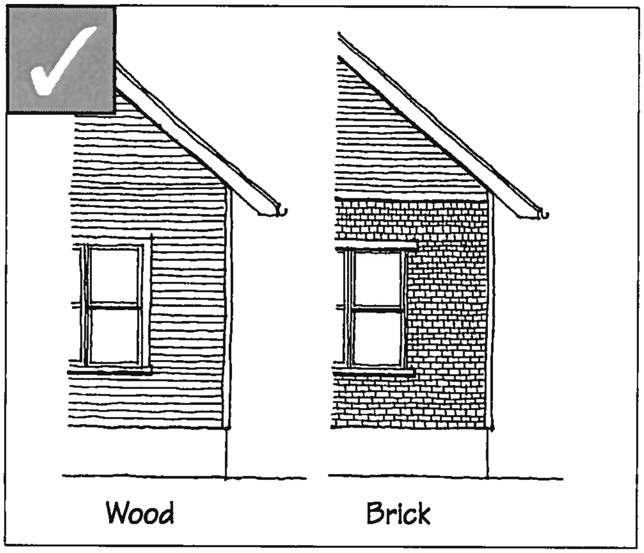
- Examples are walls, cornices, pediments, steps and foundations.
- It is *preferred* to preserve the original mortar joint and brick unit size, the tooling and bonding patterns, coatings and color when feasible.
- It is *not appropriate* to paint brick or stone that was not painted historically.

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 25: Masonry - Brick, Tabby, Stucco, Concrete
- p. 41: Siding and Trim

☞ *The Beaufort Preservation Manual*:
- p. 57: Brick and Chimneys
- p. 69: Tabby, Stucco, & Concrete
- p. 75: Wood Preservation
- p. 97: Siding and Trim

# 11 Building materials should be similar to those used traditionally in the neighborhood.




*Wood lap siding, brick and stone are acceptable primary building materials for the Northwest Quadrant.*

Building materials of new structures and additions to existing structures should contribute to the visual continuity of the neighborhood. They should appear similar to those seen traditionally to establish a sense of visual continuity.

**11.1 Horizontal lap siding is *acceptable* in most applications.**

- It is *preferred* that all wood siding have a weather-protective finish.

**11.2 The use of masonry that appears similar in character to that seen traditionally is also *acceptable*.**

- It is *preferred* that brick have a modular dimension similar to that used traditionally.
- The use of concrete block is *not appropriate.* Where it is used, it is *acceptable* if it is painted or has a surface textured to approximate the appearance of stone or stucco.
- It is *not appropriate* to use "antiqued" bricks.

**11.3 Other than for foundations, the use of brick is *acceptable* for non-contributing buildings and new construction only.**

- Installing a brick veneer over an existing building is *not appropriate.*

**11.4 New materials that are similar in character to traditional materials are *acceptable* for non-contributing buildings and new construction.**

- It is *preferred* that alternative materials should appear similar in scale, proportion, texture and finish to those used traditionally. They also should have a proven durability in similar locations in this climate.
- Use of highly reflective materials is *not appropriate.*

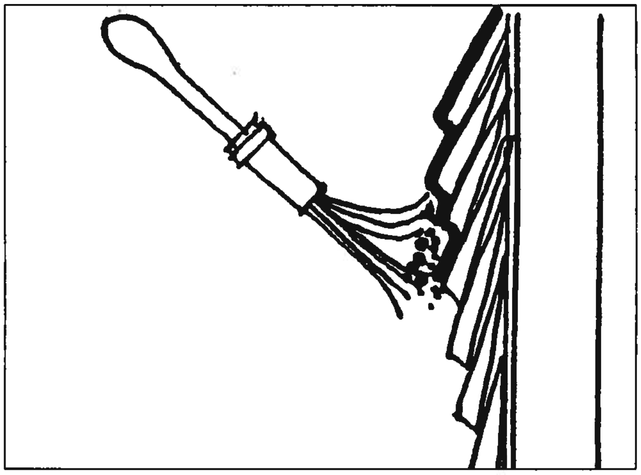
*It is preferred that alternative materials should appear similar in scale, proportion, texture and finish to those used traditionally.*

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:

- p. 25: Masonry - Brick, Tabby, Stucco, Concrete
- p. 41: Siding and Trim

# 12 Wood siding and other surfaces which were painted historically should remain so.



*Plan repainting carefully. Preparing a good base and using compatible paints is preferred.*

Frame houses were usually painted to protect the wood. Historically, the range of paint colors available was limited.

### 12.1 All wood surfaces should be painted.

- It is *not appropriate* for exposed treated wood to be visible from public vantages. It is a common misconception that pressure treated lumber does not need to be painted. In fact it will withstand our local climate much better if it is painted.

### 12.2 Preparing a good base for painting is always *preferred.*

- Remove damaged or deteriorated paint only to the next intact layer, using the gentlest method possible, prior to painting.

### 12.3 Using compatible paints is *preferred.*

- It is *not appropriate* to use some latex paints because they will not bond well to earlier oil-based paints without a primer coat.

### 12.4 Using the historic scheme is *preferred.* If it cannot be used, then the following options are *acceptable*:

- Use one muted color as a background, which unifies the composition. Use one or two colors to highlight details and trim.
- Use a single color scheme for the entire exterior so upper and lower floors and subordinate wings of buildings are seen as components of a single structure.
- Use bright primary colors as accent colors (including yellow, green or "haint blue").
- Neon or visually jarring colors are *not appropriate.*

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement:*
- p. 51: Painting

☞ *The Beaufort Preservation Manual:*
- p. 113: Painting

# 13 Roof materials should be similar to those used traditionally in the neighborhood.

**13.1 Roof materials should either be standing seam metal or composition shingles.**

- Roof materials that convey a scale and texture similar to those used traditionally are *preferred*.
- Roof materials that have a matte, non-reflective finish are *preferred*.
- Imitation wood shingles are *not appropriate*.
- Imitation asbestos tile is *not appropriate*.

**13.2 Existing historic roofing should be retained and repaired wherever possible.**

- Early houses often had wood shingles, but in time were replaced with composition shingles or with metal. Traditionally, these were relatively low profile. Wood shingles are rarely used today. It is *preferred* that replacement materials have a texture and size similar to materials used historically.
- Within the neighborhood are several surviving historic standing seam metal roofs. Modern coatings may be applied which offer a relatively low-cost repair alternative.

**13.3 When using metal roofing, a metal roof with a low profile is *preferred*.**

- A rolled seam is *preferred*. Traditional ridge and eave details are also *preferred*.
- Other low standing seam designs are also *acceptable*.
- Painting a metal roof is *preferred*.
- "V" crimp and "5-V" roofing is *acceptable*.
- Roofs with a taller standing seam than used traditionally or those of a corrugated design are *not appropriate*, but may be considered on a case-by-case basis.
- Prefabricated industrial roofing or modern pan roofing is *not appropriate*.
- Snap lock seams are generally *not appropriate*.

*Standing seam metal is an acceptable roofing material.*

*Composition shingles are an acceptable roofing material.*

**13.4 Painted standing seam or exposed wood shingle roofing is *acceptable* for use on contributing buildings.**

**13.5 Asphalt or fiberglass shingle roofing is *acceptable* for use on all buildings.**

- Architectural three-tab roofing is *preferred.*
- Gray or black roofing is *preferred.*
- Green, brown and red are *acceptable.*
- Patterned shingles are *acceptable.*
- Blue shingles are *not appropriate.*

**13.6 Tile and slate roofs were not a part of the building tradition in the Northwest Quadrant and are *not appropriate*.**

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 32: Porch Roofs
- p. 45: Roofs, Flashing, Gutters, and Downspouts

☞ *The Beaufort Preservation Manual*:
- p. 101: Roof Repair and Maintenance

# Architectural Features

## 14 Preserve historic building features and details.

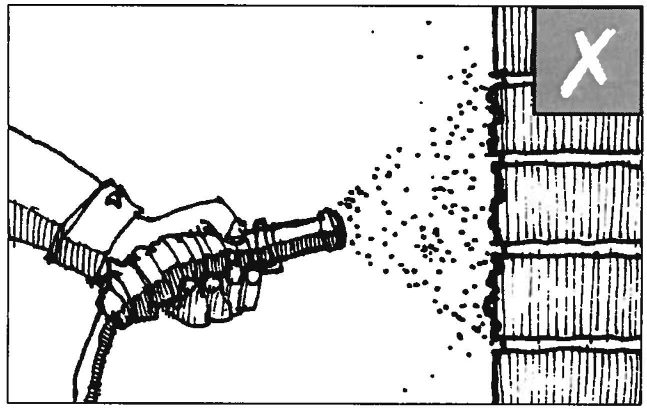
Historic features, including original materials, architectural details, as well as window and door openings, contribute to the character of a structure and should be preserved when feasible. Continued maintenance is the best preservation method. When required, work should not destroy the distinguishing qualities or character of the property and its environment.

### 14.1 Removing or altering historic materials or significant features is *not appropriate*.

- Porches, turned columns and brackets, are examples of architectural features which should not be removed or altered.
- Preserving features such as original doors, windows and porches is *preferred.*
- It is also *preferred* that original siding material be preserved.

### 14.2 Using approved technical procedures for cleaning, refinishing and repairing historic materials is *preferred.*

- When choosing preservation treatments, it is *preferred* to use the gentlest means possible that will achieve the desired results.
- Employ treatments such as rust removal, calking, limited paint removal and reapplication of paint.
- Belt sanding is *acceptable*. Circular sanding or sandblasting is *not appropriate* because it can damage the material surface.



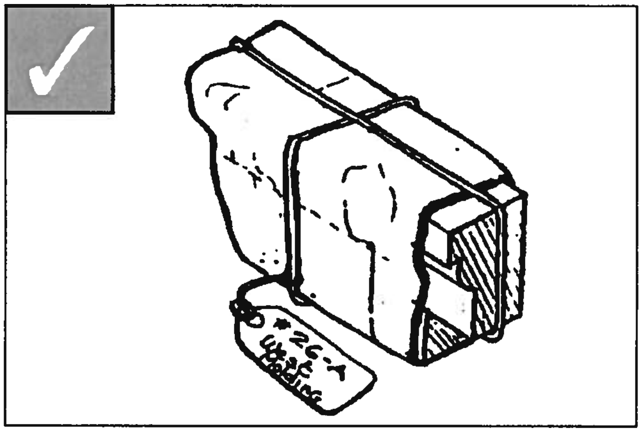

*Use approved technical procedures for cleaning, refinishing and repairing historic materials. Harsh cleaning methods, such as sandblasting, and circular sanding, can damage the historic materials, changing their appearance. Such procedures are not appropriate.*

## For More Information, Refer to:

*The Beaufort Preservation Manual Supplement*:
- p. 27: Porches
- p. 35: Doors, Windows, Shutters
- p. 48: Flashing, Gutters, and Downspouts

*The Beaufort Preservation Manual*:
- p. 57: Brick and Chimneys
- p. 69: Tabby, Stucco, & Concrete
- p. 75: Wood Preservation
- p. 79: Porch Repairs
- p. 93: Doors, Windows, and Shutters
- p. 97: Siding and Trim
- p. 107: Flashing, Gutters, and Downspouts
- p. 113: Painting

## 15 Deteriorated architectural features should be repaired rather than replaced, whenever possible.




*When disassembly of an historic feature is required in a restoration procedure, document its location so that it may be repositioned accurately.*

**15.1 Make the minimum possible repairs to historic elements.**

- Maintaining character-defining features is *preferred.* Then, repair only those features that are deteriorated. Finally, replace only those features that are beyond repair.
- Patch, piece-in, splice, consolidate or otherwise upgrade the existing material, using recognized preservation methods whenever possible.

**15.2 Replacement of missing elements may be included in repair activities.**

- Using the same kind of material as the original is *preferred.*
- A substitute material may be *acceptable* if the form and design of the substitute itself conveys the visual appearance of the original material.

**15.3 When disassembly of an historic element is necessary for its restoration, using methods that minimize damage to the original materials is *preferred.***

- When disassembly of an historic feature is required in a restoration procedure, document its location so it may be repositioned accurately. Always devise methods of replacing the disassembled materials in their original configuration.

# 16 Replace historic features in-kind when restoration is not an option.

While restoration of the original feature is the preferred alternative, in-kind replacement is also an option. In the event replacement is necessary, the new material should match that being replaced in design, color, texture and other visual qualities. Replacement should occur only if the existing historic material cannot be reasonably repaired.

**16.1 Replacement of missing elements may be included in repair activities.**

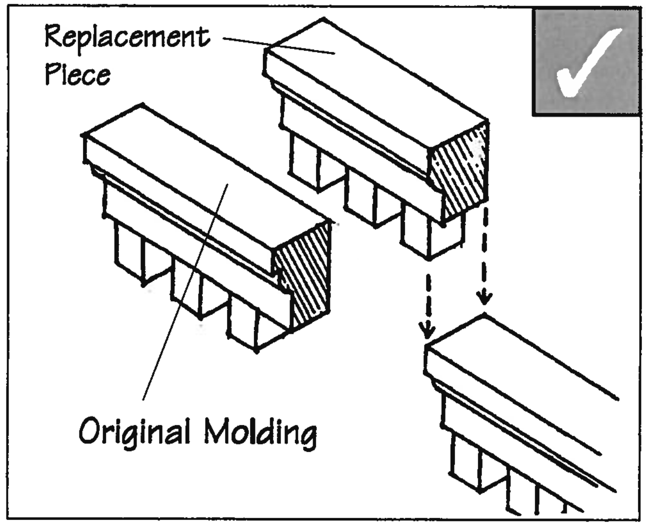
- Replacing only those portions that are beyond repair is *preferred*.
- It is *preferred* that replacement elements be based on documented evidence.
- Generally, in-kind replacement does not require BOAR approval. However, if the existing condition is in conflict with design principles, then it should be brought to Staff in order to be placed on the review agenda, if necessary.

**16.2 Repair or replacement of missing or deteriorated architectural elements should be based on original features.**

- It is *preferred* that the design be substantiated by physical or pictorial evidence to avoid creating a misrepresentation of the building's genuine heritage.
- When reconstruction of an element is impossible, developing a compatible new design that is a simplified interpretation of the original is *acceptable*.

**16.3 Guessing "historic" designs for replacement parts is *not appropriate*.**

- Where "scars" on the exterior siding suggest the location of decorative brackets but no photographs exist of its design, then designs based on brackets of historic houses that are clearly similar in character are *acceptable*.



*Where replacement is required, one should remove only those portions that are deteriorated beyond repair.*

# 17 Architectural features should be used with restraint.

*Using architectural features that are common to traditional buildings in the neighborhood are preferred.*

For the most part, buildings in the Northwest Quadrant were simple in design, with little or no decorative detailing. Even the larger homes in the neighborhood have little architectural detailing. New buildings should maintain this tradition.

**17.1 Using architectural features that are common to traditional buildings in the neighborhood are *preferred.***

- These include porch columns and balustrades, chimneys, trim elements and shutters.

**17.2 Don't confuse the history of building design in the Northwest Quadrant with fake historic details.**

- Using ornamental details with restraint is *preferred.*
- Historic details that were not found in the Northwest Quadrant are *not appropriate.*
- The exact copying or replication of historic styles is also *not appropriate.*

**17.3 Exposed eaves should remain open and uncovered.**

# 18 A porch should "appear" similar to those seen traditionally.

Like most southern neighborhoods, most of the houses in the Northwest Quadrant incorporate front porches. Historically, these porches were open and some were later screened in. Some were the full width of the house, while others were seen as small front stoops. On some of the larger houses, the porches were sometimes two-stories in height. Although there was a variety in the treatment of front porches, the common element was that there always was one.

### 18.1 All houses should have a front porch.

- All new construction should include a front porch element similar to those seen traditionally.

### 18.2 Existing porches should be maintained in good condition.

- If a porch is to be enclosed, using screens is *preferred*.
- Enclosing with glass may also be *acceptable*.
- Using a solid material is *not appropriate*.

### 18.3 Maintain the character-defining features of a porch if enclosing it with glass.

- It is *preferred* that porch piers and balustrades still be seen after a porch has been enclosed. The transparent nature of glass will still allow the porch to read as an "open" element.

### 18.4 Porch supports should be of a substantial enough size that the porch does not appear to float above the entry.

- Brick or wood columns are *preferred* for most structures in the neighborhood.
- Where wrought iron supports exist, replacing them with more substantial columns is *preferred*.

*When replacing porch posts, use supports that are of adequate size. This porch reconstruction was based on neighboring houses of similar character and age and is preferred.*

*This porch has experienced an alteration that is not appropriate; wrought iron supports have replaced wood piers.*

*Enclosing an open porch with screen material is acceptable.*

*A ramp should access the porch from the side when there is adequate space.*

**18.5 A ramp for handicap or elderly person access should not detract from the appearance of a front porch.**

- A ramp that accesses the porch from the side, when there is adequate space, is *preferred.*
- For a ramp that must protrude from the front of a porch, a "jog" that will diminish its overall size is *acceptable.*
- It is also *acceptable* to locate a ramp to the rear of the building.

**18.6 Existing historic porches and porch details on contributing buildings within the neighborhood should be retained and repaired rather than replaced.**

**18.7 The use of painted tongue and groove porch decking is *preferred.***

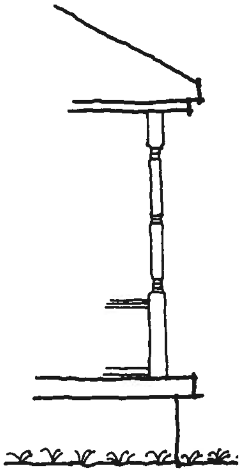
- Sloping porch decks to adequately allow water runoff is *preferred.*
- Other types of painted wood plank decking is *acceptable* for non-contributing buildings and new construction.

**18.8 Concrete porch decks are *not appropriate* but are *acceptable* on non-contributing houses and new construction.**

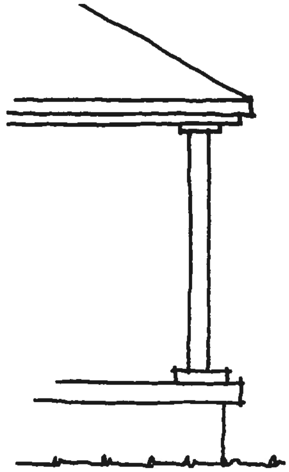
## For More Information, Refer to:

*The Beaufort Preservation Manual Supplement*:
- p. 27: Porches

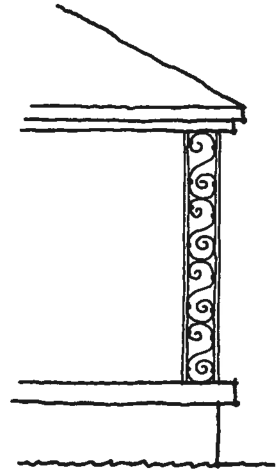
*The Beaufort Preservation Manual*:
- p. 79: Porch Repairs
- p. 101: Roof Repair & Maintenance



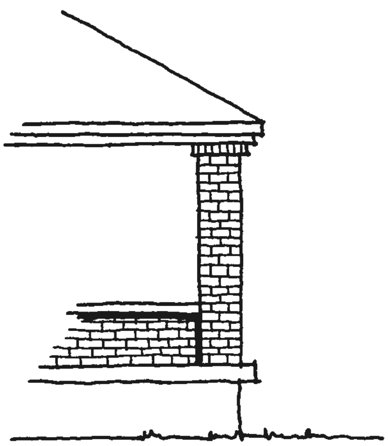
Turned column
Acceptable for Cottages, Shotgun and Queen Anne



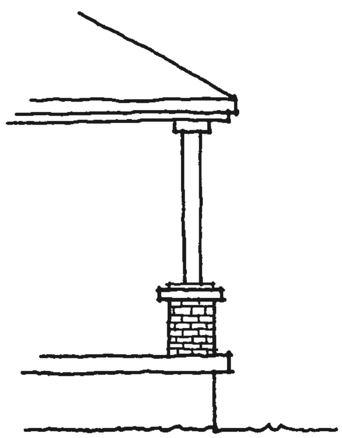
Classical Column
Acceptable for American Four Square, Cottages, Shotgun, Minimal Traditional and Queen Anne style houses.



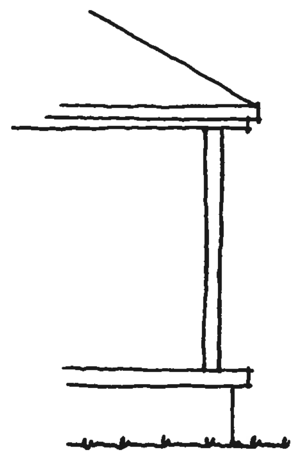
Wrought Iron Columns
Not appropriate for all historic style houses.



Continuous column
Acceptable for Bungalow and Craftsman style houses.



Column supported by pier
Acceptable for Bungalows, Craftsman and Four Square style houses.



Timber column
Not appropriate for all historic style homes. Appropriate for Ranch and Minimal Traditional.

***A variety of column styles, illustrated above, are found throughout the Northwest Quadrant. Specific column styles compliment building types. For example, turned columns are mostly found on Vernacular cottages. Consider using the appropriate column style when restoring a porch.***

## 19 Keeping the original arrangement of windows and doors on the building front is encouraged.

For many of the vernacular houses of the Northwest Quadrant, the position and design of windows and doors is of less concern than the overall form of a building and the character of its siding and porch. In fact, doors and windows sometimes were altered during the history of a building. Preserving original door and window designs is encouraged, however, on properties rated "contributing."

**19.1 Keep original doors and windows on the front of the house, when feasible.**

- Maintaining original door and window frames and trim is *preferred*.
- Altering openings on the sides of houses in the area may be *acceptable*, as determined on a case-by-case basis.

**19.2 If a replacement is necessary, using a design similar to the original is *preferred*.**

- Replacing a wood window with wood is *preferred*.
- Alternative materials are *acceptable* if they have a painted finish.
- Aluminum or vinyl clad replacement window systems are *acceptable* for non-contributing buildings and new construction.
- Using unpainted metal on the front of a contributing house is *not appropriate*.
- Note that these same provisions apply to storm windows.

**19.3 Using clear glass in windows and doors is *preferred*.**

**19.4 Where existing shutters survive, it is *preferred* that they be retained and repaired.**

**19.5 Installing picture windows or other specialty windows on elevations that do not face the street is *acceptable*.**

**19.6 Window screens are *acceptable*.**

- The screen system should cover the entire window opening and framing should be as minimally visible as possible.
- Dividing rails should be visually aligned with the dividing rails of the window themselves.

**19.7 Altering existing historic window opening sizes is *not appropriate*.**

**19.8 Installing window air-conditioners in front windows is *not appropriate*.**

**19.9 Vinyl or aluminum shutters are *not appropriate* on contributing buildings.**

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 35: Doors, Windows, Shutters

☞ *The Beaufort Preservation Manual*:
- p. 93: Doors, Windows and Shutters
- p. 119: Energy Conservation

## 20 Raised cottages are a part of the building tradition and their use should be continued.

*A raised cottage should remain so.*

Historically, most houses in the South were raised above grade by brick or stone piers to protect the wood framing from rot—due to both termites and water damage. Recently, many property owners have filled these voids with concrete block or poured concrete foundations. Some new construction has even resorted to placing the structure on a concrete slab, thereby not raising the cottage at all. Although there are cost savings involved with building on a concrete slab, raising cottages is a strong part of the building tradition in the Northwest Quadrant and should be continued.

### 20.1 A raised cottage should remain so.

- The piers should be kept in sound condition.
- If it is necessary to enclose a foundation, using lattice to maintain good ventilation is *acceptable.*

### 20.2 Raising a new structure above grade is *preferred.*

- This neighborhood is in a coastal environment, and raising the structure will help protect it against potential water damage from tropical storms.
- A solid foundation can be used, but proper ventilation should be incorporated into its design.

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 14: Elevation of the first floor
- p. 28: Porch Piers
- p. 60: Landscaping at Basement Piers

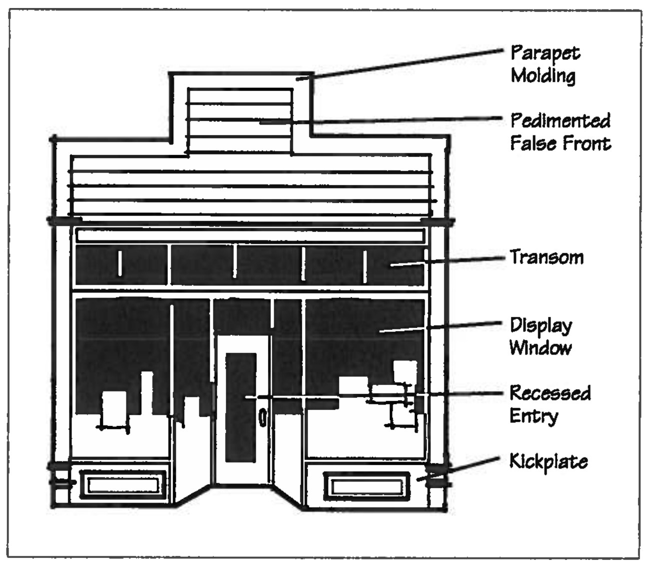
☞ *The Beaufort Preservation Manual*:
- p. 42: New Construction - Design Criteria: Elevation of first floors
- p. 58: Brick Piers
- p. 76: Pest Control
- p. 76: Rot
- p. 79: Porch Repairs

# Non-Residential Buildings

## 21 Commercial and institutional structures should reflect their traditional role within the neighborhood.

Churches and corner stores were a strong part of southern neighborhoods. They provided goods and services and local gathering spots all within walking distance for area residents. Many times, however, the original uses are no longer viable for the structures. When this occurs, the building's character should still be retained. Even if a corner store is purchased for a residential use, the historic building should still be seen as a commercial structure.

*This traditional storefront uses many of the storefront facade elements. The use of oversized windows is acceptable. Note how these are used instead of storefront windows with transoms and kickplates.*




*Typical storefront facade elements.*

**21.1 Preserving the appearance of commercial and institutional structures is *preferred.***

- Every reasonable effort should be made to provide a compatible use for the building that requires minimal alteration(s).

**21.2 A new commercial building should reflect the traditional corner store arrangement of the neighborhood. Locating a new commercial building at the front of a property is *preferred.***

- Locating parking to the rear or to the side is *preferred.*
- Locating parking in front is *not appropriate.*

**21.3 Maintaining or using traditional storefront elements is *preferred.***

- Use elements such as display windows, recessed entries, parapet moldings, kickplates and transoms.

**21.4 Buffering parking areas with appropriate landscaping is *preferred.***

- Planning parking areas and driveways in a manner that minimizes their visual impact on the property and the surrounding neighborhood is *preferred.*
- **For more information, see the city's landscape regulations.**

# Accessory Buildings

## 22 An accessory building should be detached from the primary structure on a lot, and should be smaller in scale.

Historically, accessory buildings were smaller than the primary structure on a lot. The tradition of detached accessory buildings is acceptable because it reduces the overall mass of building on a lot. This includes sheds, garages, pools and pool sheds.

**22.1 Locating an accessory building to the rear of a lot, when conditions permit, is *preferred*.**

- Above ground pools are *not appropriate*, but may be considered on a case-by-case basis.
- If they are allowed, they should be screened from public view. If a wood screen or wall is used, it should be painted and appropriate landscaping should be planted in front of it to help soften its visual impact.

**22.2 Locating an accessory building as far from the primary structure is *preferred*.**

**22.3 It is *preferred*, that the character of the accessory building be very modest, and reflect the building form of the primary structure.**

- Basic rectangular forms, with hip or gable roofs are *preferred*.
- Building materials and details should be similar to those seen on the primary structure.

# Mechanical Equipment

## 23 Mechanical equipment and associated areas should not be visually obtrusive to a building's site.

New technologies in heating, ventilating and telecommunications have introduced mechanical equipment into historic areas where they were not seen traditionally. Satellite dishes and rooftop heating and ventilating equipment are among those that may now intrude upon the visual appearance of historic neighborhoods. Whenever feasible, the visual impacts of such systems should be minimized such that the historic character of the area or building is not negatively affected.

### 23.1 Minimize the visual impacts of mechanical equipment, as seen from the street.

- Screening mechanical equipment from view is *preferred*. Screen ground mounted units with fences, stone walls or hedges.
- Using low-profile mechanical units on rooftops so they will not be visible from the street is *preferred.*
- Using smaller satellite dishes and mounting them low to the ground away from front yards, front facades or highly visible roof planes is *preferred.*
- Where rooftop units are visible, screening them with materials that are compatible with those of the building itself is *acceptable.*
- It is *acceptable* to use muted colors on telecommunications and mechanical equipment that will help minimize their appearance.
- Locating window air conditioning units on a primary facade is *not appropriate.*
- Locating new meters on a primary facade is *not appropriate.*

## For More Information, Refer to:

☞ *The Beaufort Preservation Manual Supplement*:
- p. 55: Mechanical, Electrical and Communication Systems

☞ *The Beaufort Preservation Manual*:
- p. 124: Visual Aspects of Mechanical Equipment

# Securing Buildings

## 24 If a building must be closed, secure it in a way that respects its basic character.

*At times, it may be necessary to "mothball" a building in order to keep it safe until it can be improved.*

At times, it may be necessary to "mothball" a building in order to keep it safe until it can be improved. Doing so is preferred, rather than letting the building deteriorate.

**24.1 Secure the building against vandalism, break-ins and natural disasters.**

- Maintaining a weather-tight roof is *preferred.* Temporary roofing may be installed if needed.
- Structurally stabilizing the building, if needed, is *preferred.*
- When closing window and door openings, it is *not appropriate* to damage frame and sash components. Mounting wood panels to fit within the openings is *preferred.* Painting the panels to match the building color is *preferred.*

**24.2 Providing adequate ventilation to the interior of the building is *preferred.***

**24.3 The building should be treated for termites before it is closed.**

**24.4 Secure the mechanical and utility systems.**

- Terminating the utilities is *preferred.*
- Removing flammable items from the building is *preferred.*

**24.5 Periodically monitor the building to insure the effectiveness of the mothballing program.**

# Demolition

## 25 The demolition of contributing historic buildings is generally not appropriate.

**23.1 In the unlikely event that the BOAR must approve the demolition of a building or a portion of a building, it may require documentation as a condition of the approval.**

- At a minimum, the applicant will be required to provide photographs clearly showing what is to be demolished.
- The BOAR may require additional photographic documentation and/or measured drawings.
- **For more information, see *Recording Historic Structures*, edited by John A. Burns, AIA, Washington, DC: The AIA Press, 1989, available for use at the City of Beaufort Planning Department.**

## Chapter 4

# Appendices

# Appendix A: The Secretary of the Interior's Standards for the Rehabilitation of Historic Buildings

The Secretary of the Interior's Standards are general rehabilitation guidelines established by the National Park Service. These standards are policies that serve as a basis for design principles presented in this document. The Secretary's Standards state that:

1. *A property shall be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.*
2. *The historic character of a property shall be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.*
3. *Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, shall not be undertaken.*
4. *Changes to a property that have acquired historic significance in their own right shall be retained and preserved.*
5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.*
6. *Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and, where possible, materials. Replacement of missing features shall be substantiated by documentary and physical evidence.*
7. *Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.*
8. *Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.*
9. *New additions, exterior alterations, or related new construction shall not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*
10. *New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

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

# Appendix B: Preservation Briefs

Following is a comprehensive list of all 40 *Preservation Briefs*, as published by the National Park Service (as of June 1998). All of these materials, as well as others like it, can be found at the City of Beaufort, Planning Department, 701 Craven Street, Beaufort, South Carolina 29902, (803) 525-7014. (Those *Preservation Briefs* which Northwest Quadrant residents might find particularly useful are in **bold face.**)

Mack, Robert C. *Preservation Briefs 1: The Cleaning and Waterproof Coating of Masonry Buildings.* Washington, D.C.: U.S. Government Printing Office, 1975.

**Mack, Robert C., de Teel Patterson Tiller and James S. Askins. *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick.* Washington, D.C.: U.S. Government Printing Office, 1980.**

**Baird, Smith M. *Preservation Briefs 3: Conserving Energy in Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1978.**

**Sweetser, Sarah M. *Preservation Briefs 4: Roofing for Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1978.**

U.S. Department of the Interior. *Preservation Briefs 5: Preservation of Historic Adobe Buildings.* Washington, D.C.: U.S. Government Printing Office, 1978.

**Grimmer, Anne E. *Preservation Briefs 6: Dangers of Abrasive Cleaning to Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1979.**

Tiller, de Teel Patterson. *Preservation Briefs 7: The Preservation of Historic Glazed Architectural Terra-Cotta.* Washington, D.C.: U.S. Government Printing Office, 1979.

**Myers, John H., revised by Gary L. Hume. *Preservation Briefs 8: Aluminum and Vinyl Siding on Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1978.**

**Myers, John H. *Preservation Briefs 9: The Repair of Historic Wooden Windows.* Washington, D.C.: U.S. Government Printing Office, 1981.**

**Weeks, Kay D. and David W. Look. *Preservation Briefs 10: Exterior Paint Problems on Historic Woodwork.* Washington, D.C.: U.S. Government Printing Office, 1982.**

Jandl, H. Ward. *Preservation Briefs 11: Rehabilitating Historic Storefronts.* Washington, D.C.: U.S. Government Printing Office.

U.S. Department of the Interior. *Preservation Briefs 12: The Preservation of Historic Pigmented Structural Glass.* Washington, D.C.: U.S. Government Printing Office, 1984.

Park, Sharon C. *Preservation Briefs 13: The Repair and Thermal Upgrading of Historic Steel Windows.* Washington, D.C.: U.S. Government Printing Office.

**Weeks, Kay D. *Preservation Briefs 14: New Exterior Additions to Historic Buildings: Preservation Concerns.* Washington, D.C.: U.S. Government Printing Office, 1986.**

Coney, William B. and Wiss, Janney, Elstner Associates, Inc. *Preservation Briefs 15: Preservation of Historic Concrete: Problems and General Approaches.* Washington, D.C.: U.S. Government Printing Office.

**Park Sharon C. *Preservation Briefs 16: The Use of Substitute Materials on Historic Building Exteriors.* Washington, D.C.: U.S. Government Printing Office.**

**Nelson, Lee H. *Preservation Briefs 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character.* Washington, D.C.: U.S. Government Printing Office.**

Jandl, H. Ward. *Preservation Briefs 18: Rehabilitating Interiors in Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1988.

Park Sharon C. *Preservation Briefs 19: The Repair and Replacement of Historic Wooden Shingle Roofs.* Washington, D.C.: U.S. Government Printing Office.

Auer, Michael J. *Preservation Briefs 20: The Preservation of Historic Barns.* Washington, D.C.: U.S. Government Printing Office, 1989.

MacDonald, Marylee. *Preservation Briefs 21: Repairing Historic Flat Plaster—Walls and Ceilings.* Washington, D.C.: U.S. Government Printing Office, 1989.

**Grimmer, Anne. *Preservation Briefs 22: The Preservation and Repair of Historic Stucco.* Washington, D.C.: U.S. Government Printing Office, 1990.**

Flaharty, David. *Preservation Briefs 23: Preserving Historic Ornamental Plaster.* Washington, D.C.: U.S. Government Printing Office, 1990.

Park, Sharon C. *Preservation Briefs 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches.* Washington, D.C.: U.S. Government Printing Office, 1991.

Auer, Michael J. *Preservation Briefs 25: The Preservation of Historic Signs.* Washington, D.C.: U.S. Government Printing Office, 1991.

Bomberger, Bruce D. *Preservation Briefs 26: The Preservation and Repair of Historic Log Buildings.* Washington, D.C.: U.S. Government Printing Office, 1991.

Waite, John G. *Preservation Briefs 27: The Maintenance and Repair of Architectural Cast Iron.* Washington, D.C.: U.S. Government Printing Office, 1991.

Chase, Sara B. *Preservation Briefs 28: Painting Historic Interiors.* Washington, D.C.: U.S. Government Printing Office, 1992.

Levine, Jeffrey S. *Preservation Briefs 29: The Repair, Replacement, and Maintenance of Historic Slate Roofs.* Washington, D.C.: U.S. Government Printing Office, 1992.

Grimmer, Anne E. and Paul K. Williams. *Preservation Briefs 30: The Preservation and Repair of Historic Clay Tile Roofs.* Washington, D.C.: U.S. Government Printing Office, 1992.

**Park, Sharon C. *Preservation Briefs 31: Mothballing Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1993.**

**Jester, Thomas C. and Sharon C. Park. *Preservation Briefs 32: Making Historic Properties Accessible.* Washington, D.C.: U.S. Government Printing Office, 1993.**

Vogel, Neal A. and Rolf Achilles. *Preservation Briefs 33: The Preservation and Repair of Historic Stained and Leaded Glass.* Washington, D.C.: U.S. Government Printing Office, 1993.

Thornton, Jonathan and William Adair. *Preservation Briefs 34: Applied Decoration for Historic Interiors: Preserving Composition Ornament.* Washington, D.C.: U.S. Government Printing Office, 1994.

McDonald, Travis C. *Preservation Briefs 35: Understanding Old Buildings: The Process of Architectural Investigation.* Washington, D.C.: U.S. Government Printing Office, 1994.

Birnbaum, Charles A. *Preservation Briefs 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.* Washington, D.C.: U.S. Government Printing Office, 1994.

Park, Sharon C. and Douglas Hicks. *Preservation Briefs 37: Appropriate Methods for Reducing Lead Paint Hazards in Historic Housing.* Washington, D.C.: U.S. Government Printing Office, 1995.

Weaver, Martin E. *Preservation Briefs 38: Removing Graffiti from Historic Masonry.* Washington, D.C.: U.S. Government Printing Office, 1995.

Park, Sharon C. *Preservation Briefs 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings.* Washington, D.C.: U.S. Government Printing Office, 1994.

Grimmer, Anne E. and Kimberly A. Konrad. *Preservation Briefs 40: Preserving Historic Ceramic Tile Floors.* Washington, D.C.: U.S. Government Printing Office, 1995.

# Appendix C: Glossary

***Alignment.*** The arrangement of objects along a straight line.

***"Antiqued" Brick.*** New brick that is manufactured to look old. The disadvantage of "antiqued" brick is that the brick surface is easily discernible, as the "antiqued" surfaces are fairly consistent throughout.

***Asphalt Shingles.*** A type of roofing material composed of layers of saturated felt, cloth or paper, and coated with a tar, or asphalt substance, and granules.

***Baluster.*** A short, upright column or urn-shaped support of a railing.

***Balustrade.*** A row of balusters and the railing connecting them. Used as a stair rail and also above the cornice on the outside of a building.

***Bargeboard.*** A projecting board, often decorated, that acts as trim to cover the ends of the structure where a pitched roof overhangs a gable.

***Board and Batten.*** Vertical plank siding with joints covered by narrow wood strips.

***Bracket.*** A supporting member for a projecting element or shelf, sometimes in the shape of an inverted L and sometimes as a solid piece or a triangular truss.

***Clapboards.*** Narrow, horizontal, overlapping wooden boards, usually thicker along the bottom edge, that form the outer skin of the walls of many wood frame houses. The horizontal lines of the overlaps generally are from four to six inches apart in older houses.

***Column.*** A slender upright structure, generally consisting of a cylindrical shaft, a base and a capital; pillar: It is usually a supporting or ornamental member in a building.

***Composition Shingles.*** See asphalt shingles.

***Cornice.*** The continuous projection at the top of a wall. The top course or molding of a wall when it serves as a crowning member.

***Double-Hung Window.*** A window with two sashes (the framework in which window panes are set), each moveable by a means of cords and weights.

***Dormer.*** A window set upright in a sloping roof. The term is also used to refer to the roofed projection in which this window is set.

***Eave.*** The underside of a sloping roof projecting beyond the wall of a building.

***Elevation.*** A mechanically accurate, "head-on" drawing of a face of a building or object, without any allowance for the effect of the laws of perspective. Any measurement on an elevation will be in a fixed proportion, or scale, to the corresponding measurement on the real building.

***Facade.*** Front or principal face of a building, any side of a building that faces a street or other open space.

***Fascia.*** A flat board with a vertical face that forms the trim along the edge of a flat roof, or along the horizontal, or "eaves," sides of a pitched roof. The rain gutter is often mounted on it.

***Form.*** The overall shape of a structure (i.e. most structures are rectangular in form).

***Frame.*** A window component. See window parts.

***Gable.*** The portion, above eave level, of an end wall of a building with a pitched or gambrel roof. In the case of a pitched roof this takes the form of a triangle. The term is also used sometimes to refer to the whole end wall.

***Renovation.*** The act or process of returning a property to a state of utility through repair or alteration which makes possible a contemporary use.

***In-Kind Replacement.*** To replace a feature of a building with materials of the same characteristics, such as material, texture, color, etc.

***Kickplate.*** The horizontal element or assembly at the base of a storefront parallel to a public walkway. The kickplate provides a transition between the ground and storefront glazing area.

***Lap Siding.*** See clapboards.

***Mass.*** The physical size and bulk of a structure.

***Masonry.*** Construction materials such as stone, brick, concrete block or tile.

***Module.*** The appearance of a single facade plane, despite being part of a larger building. One large building can incorporate several building modules.

***Molding.*** A decorative band or strip of material with a constant profile or section designed to cast interesting shadows. It is generally used in cornices and as trim around window and door openings.

***Muntin.*** A bar member supporting and separating panes of glass in a window or door.

***Parapet.*** A low wall or railing often used around a balcony or along the edge of a roof.

***Opaque Fence.*** A fence that one *cannot* see through.

***Orientation.*** Generally, orientation refers to the manner in which a building relates to the street. The entrance to the building plays a large role in the orientation of a building; whereas, it should face the street.

***Pediment.*** A triangular section framed by a horizontal molding on its base and two sloping moldings on each of its sides. Usually used as a crowning member for doors, windows and mantles.

***Porch Piers.*** Upright structures of masonry which serve as principal supports for porch columns.

***Post.*** A piece of wood, metal, etc., usually long and square or cylindrical, set upright to support a building, sign, gate, etc.; pillar; pole.

***Preservation.*** The act or process of applying measures to sustain the existing form, integrity and materials of a building or structure, and the existing form and vegetative cover of a site. It may include initial stabilization work, where necessary, as well as ongoing maintenance of the historic building materials.

***Protection.*** The act or process of applying measures designed to affect the physical condition of a property by defending or guarding it from deterioration, loss or attack or to cover or shield the property from danger of injury. In the case of buildings and structures, such treatment is generally of a temporary nature and anticipates future historic preservation treatment; in the case of archaeological sites, the protective measure may be temporary or permanent.

***Reconstruction.*** The act or process of reproducing by new construction the exact form and detail of a vanished building, structure or object, or part thereof, as it appeared at a specific period of time.

***Recessed Entry.*** A common component of a historic storefront. Display windows, which contained dry goods and other wares for sale, flanked the recessed entry historically.

***Rehabilitation.*** The act or process of returning a property to a state of utility through repair or alteration which makes possible an efficient contemporary use while preserving those portions or features of the property which are significant to its historical, architectural and cultural value.

***Renovation.*** The act or process of returning a property to a state of utility through repair or alteration which makes possible a contemporary use.

***Restoration.*** The act or process of accurately recovering the form and details of a property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work.

***Roof.*** The top covering of a building (see sketches on page 23). Following are some types:

- ***Gable roof*** has a pitched roof with ridge and vertical ends.
- ***Hip roof*** has sloped ends instead of vertical ends.
- ***Shed roof*** (lean-to) has one slope only and is built against a higher wall.

***Sash.*** See window parts.

***Scale.*** The size of structure as it appears to the pedestrian.

***Semi-Transparent Fence.*** A fence that one *can* see partly through.

***Shape.*** The general outline of a building or its facade.

***Siding.*** The narrow horizontal or vertical wood boards that form the outer face of the walls in a traditional wood frame house. Horizontal wood siding is also referred to as clapboards. The term "siding" is also more loosely used to describe any material that can be applied to the outside of a building as a finish.

***Sill.*** The lowest horizontal member in a frame or opening for a window or door. Also, the lowest horizontal member in a framed wall or partition.

***Size.*** The dimensions in height and width of a building's face.

***Stile.*** A vertical piece in a panel or frame, as of a door or window.

***Stabilization.*** The fact or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

***Standing Seam Metal Roof.*** A standing seam roof is a roof with vertical panels. Historically, the panels were fitted together with hand rolled seams.

***Store Front.*** The street level facade of a commercial building, usually having display windows.

***Sreetscape.*** Generally, the streetscape refers to the character of the street, or how elements of the street form a cohesive environment.

***Tongue and Groove Boards.*** Boards that fit together by a joint composed of a rib (tongue) and a groove.

***Transom Window.*** A small window or series of panes above a door, or above a casement or double hung window.

***Transparent Fence.*** A fence that one *can* see through.

***Vernacular.*** This means that a building does not have details associated with a specific architectural style, but is a simple building with modest detailing and form. Historically, factors often influencing vernacular building were things such as local building materials, local climate and building forms used by successive generations.

***Visual Continuity.*** A sense of unity or belonging together that elements of the built environment exhibit because of similarities among them.

***Window Parts.*** The moving units of a window are known as *sashes* and move within the fixed Frame. The *sash* may consist of one large *pane* of glass or may be subdivided into smaller panes by thin members called *muntins* or *glazing bars*. Sometimes in nineteenth-century houses windows are arranged side by side and divided by heavy vertical wood members called *mullions*.

# APPENDIX B: Signage

This appendix was originally included in the Beaufort Preservation Manual and Supplement from the 1970s and 80s. Many of the relevant guidelines have been subsequently adopted as part of Chapter 6 of the Beaufort Code. **The appendix has not been updated to reflect the Code, but is included in this Manual for informational purposes, especially as it regards the history of commercial signage.**

## Signage

The quality of signage has a potentially great impact, either positive or negative, on an historic streetscape. A profusion of discordant, poorly designed signs can detract seriously from a commercial area. Conversely, good quality, well designed, appropriately located signs are one of the most economical and dramatic improvements that retailers can make.
In an effort to encourage and direct this type of upgrading, many communities have enacted sign codes. While the intent of such codes is to positively affect the quality of the environment, most fall drastically short of their goal. In an effort to eliminate the existing potpourri of conflicting signs, many codes create severe restrictions on materials, size, placement, and illumination. These restrictions are often rather arbitrary and effectively suppress the creativity of signmakers and designers. The result is often a streetscape filled with look-alike graphics, monotonous, with little inspiration or respect for the building enterprises they serve. Perhaps the most ironic result of such restrictive codes, however, is the outlawing of authentic period signs because of size and material limitations.

While an effective sign code is difficult to develop at best, there are several principles which should be incorporated into the document that reflect the basic intent of the law.

- Any appropriate period sign which reflects historical authenticity of design, materials, and placement for the architectural style of the structure it serves, should be allowed regardless of any limitations imposed on contemporary signage.
- The design of any new or reproduction sign should be consistent with its corresponding facade in terms of style, size placement, and materials. No building should be applied with signs which are of a style predating the construction of the facade. For example, Victorian storefronts should not be adorned with "colonialized" signs.
- Signs are first and foremost a means of advertising, of attracting patronage. They are intended to capture the attention of the passerby, and in consequence rely on the innovation and creativity of the designer. The potential variety and quality that can be achieved from this freedom is far more valuable than restrictions which dictate conformity. Of course, in turn this implies flexibility in the use of materials, colors, and designs.

The most successful signage code will be that which offers the greatest design flexibility, prohibits only those elements which are indisputable detriments to the historic character of the District, and provides assistance and guidance to the property owner in the design and placement of signs. To better understand the range of appropriate signs in a business district, it is valuable to review the historical development of the storefront. The characteristics of these facades help to illuminate the factors which determined the appearance and application of commercial signs.

**1870-1880** - Much of the development of storefront design can be seen as a drive to increase the available window display and glass size as much as possible. The 1870's saw the first use of large-scale first floor display windows, framed in a storefront system of wood or cast iron. Windows were either single sheets of glass or framed 2-over-2; display windows often led on an oblique line toward the entry. Imitative colors were popular: white to represent marble, brown/red to represent sandstone, etc. Cast iron was frequently used for window sills and caps. Also, cornices of galvanized or cast iron began to be produced and were often painted to imitate stone. Canopies were usually made of canvas, or occasionally tin or wood, and were important climate-control devices as well as effective sign locations.

**1880-1900** - Similar practices prevailed, although 2-over-2 glazing for the display window was no longer quite so common. Also, tin and wooden canopies began to disappear; canvas was the most commonly used material for this application. The use of cast iron was more widespread.

**1900-1915** - By this era, the effort to maximize the size of display windows was reaching fruition with the result that the building became almost completely glass at street level. Metal glazing strips replaced wood mullions because the thinner dimension allowed a larger glass area . The 2-over-2 window subdivision was by now completely out of favor. Instead, an "overlight" (rectangular strip of glass above the display window itself) was often included which was subdivided into two or three sections above each display window. Alternatively, these overlights, or "transoms," were occasionally leaded with small square glass panes such as can be seen at 901 Bay Street. Setting the display windows in an oblique angle toward the entry door was still a common practice.

**1915-1925** - The display window is as large as possible in this period. In fact, corner post and metal strips at glass corners began to be eliminated in favor of simple metal clips which allowed the glass expanse to be uninterrupted. Window transoms became very decorative, and contained leaded, stained, or beveled glass. Canvas awnings retained their importance as climate protection and sign location. Colors were somewhat brighter than they had been twenty years before. For example, galvanized iron was often painted a blue-green shade to look like oxidized copper.

**Graphics** - Several practices were common in the graphic design that accompanied these subtle shifts in American storefront design from 1870-1925. Typical of these graphic conventions were the following:

- Several lettering styles were commonly used together within a single advertisement.
- Lettering styles were far more varied than many of our current attempts at reproduction might imply . Although modern versions of "Victorian" lettering tend to favor the sans serif "P.T. Barnum" style, serif styles were frequently used.
- Signs were often painted directly on building surfaces, especially brick. A typical location for these signs was between the sill of the top story windows and the window head below. (Such signs are still faintly visible at Morrall's Furniture on Bay Street.) Also, signs were painted or stenciled, often in gold leaf, directly on the display window itself, for which script lettering was commonly employed.
- Signs attached to building surfaces were commonly located at the edge of balconies, at roof ridges, or were simply attached to any available surface on the main building facade.
- Plain wood signs (i.e. painted letters on a simple board) were often mounted on the facade between second and third story windows. They were also mounted atop, or incorporated into the storefront cornices.
- The popular canvas awning functioned as a sign location. Such signs were placed along the vertical edge strip rather than on the top of the awning.
- Three-dimensional signs, whether free-standing or projecting, though popular today for "historic" streetscapes, were perhaps less common in the nineteenth century than types suggested above.
- By 1900, commercial architecture designs often included a space on the building facade specifically designed to contain graphics, such as a wide strip of stone above the display window transom, or a recess in the brickwork of the facade.

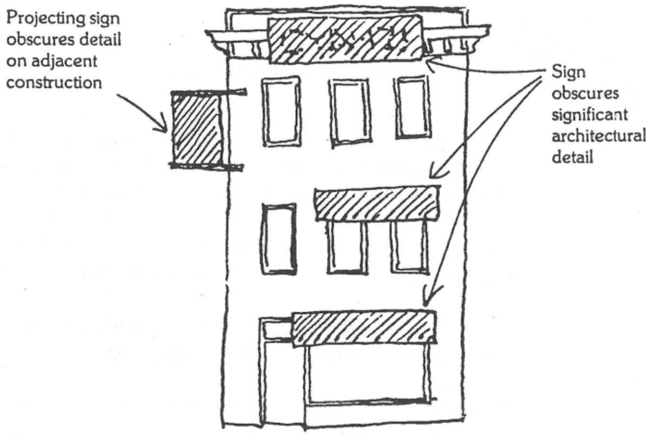
This brief account of shifting tastes in commercial, architectural, and graphic design is by no means meant to replace accurate "restoration" of existing storefronts or their signage. Nor does it account for local variations in sequence, materials, etc. It is intended as a guide to historical precedents on which the "appropriateness" of new signs may be evaluated .

**Signage Guidelines** - It is important for every one concerned - the sign designer, owner, and member of the review board alike -- to consider the entire principal building facade as the "sign." The entire elevation of the storefront was conceived to attract shoppers -- signage, windows displaying merchandise, and architectural orientation. Consequently, the sign is an integral part of the building facade in both design and function. Buildings whose facades are carefully considered and well maintained do not require the tremendously over-scaled signs that plague most modern streets.

It is generally more effective to foster the cooperation of store owners in modifying their signs than it is to prepare definitive and restrictive regulations. Nevertheless, certain signage guidelines are desirable, in order to prevent unquestionably detrimental features. These guidelines should consider five basic components: location, size, style, materials, and illumination.

**Placement** - The following general principles should be observed regarding sign placement.

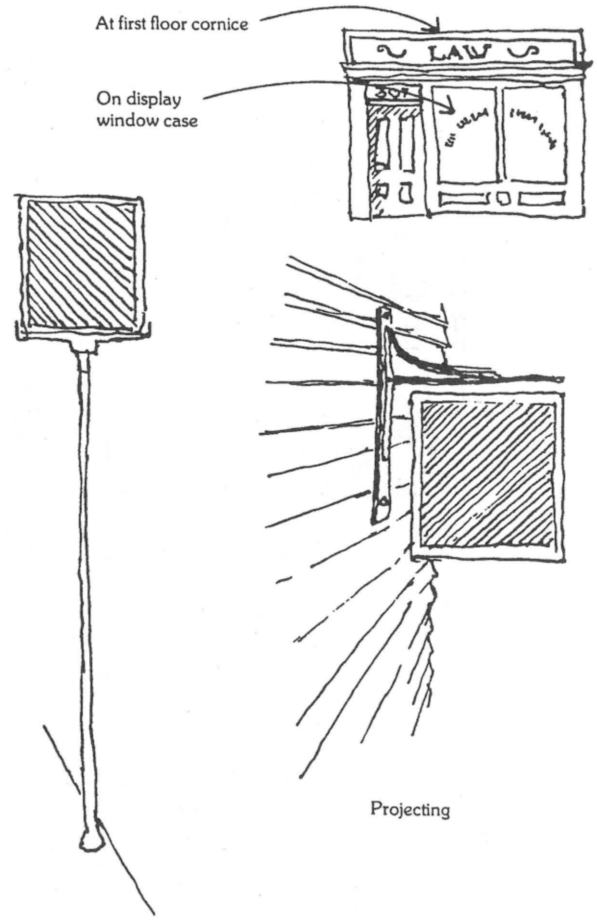
- No sign should be allowed to interfere with a neighboring store. Thus, no sign should extend beyond its property line nor should it obscure adjacent signage or architectural features from view.




**Inappropriate Sign Locations**


**Appropriate Sign Locations**

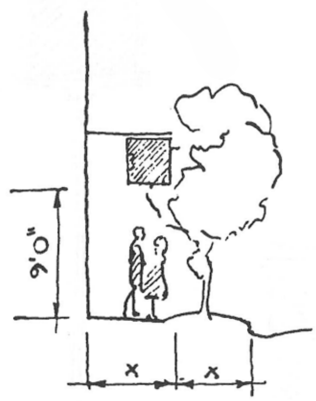
- New storefront improvements should not obscure signage or architectural ornamentation. For example, a new awning should not be mounted so as to obscure an existing sign or storefront cornice.
- Signs should be placed where they best complement the building; for example, on blank expanses of wall or building areas that are clearly designed as potential sign locations (e.g. large plate glass windows, painted overlights, or broad plain fascias in the cornices).
- Signs should not obscure architectural detail. A good building established a conscious scale and provided for an appropriate sign placement. Thus, a proposed sign will most likely be acceptable in terms of placement if its size and location are confined to the flat, unadorned surfaces of the facade ~ for example, glass, awnings, cornice fascias, spandrels, blank wall areas, etc.
- Signs should never be allowed to project to the extent of presenting a visual or physical hazard to vehicular or pedestrian traffic. All necessary vehicular sign lines must be maintained. To prevent vandalism, conform to general storefront heights, and be easily visible to pedestrians and motorists alike, projecting signs should maintain a clearance of approximately nine feet from sidewalk level.
- Signage at the storefront level should be oriented principally to the pedestrian. Consequently, they need not project more than 3 to 4 feet from the facade. Since large projecting signs located at the upper stories would be primarily oriented to vehicular traffic, they are unnecessary and should be discouraged.
- Signage on the waterfront elevations of Bay Street buildings can be oriented to the distant reader in size and placement; for example, signs located at the cornice or ridge




**Appropriate Sign Designs**

Beaufort's current zoning Code prohibits all warning-type flashing signs, banners, signs in the street or public right-of way, and digital signs with exceptions. While there is little doubt that flashing signs would be a detraction in Beaufort's Historic District, the other prohibitions are questionable as blanket restrictions. While signs within the cartway would pose an obvious hazard, it is plausible that free standing signs on the sidewalks may be quite appropriate in some locations; for example, signs which direct the pedestrian to shops located on the waterfront. Likewise, the waterfront facades may well benefit from a limited use of banners. While these forms of signage may not be appropriate to historic structures, they lend the atmosphere of gaiety and recreation associated with the river and waterfront park.

Appropriate Sign Locations




**Projecting Signs:**
Recommended Placement

**Size** - Beaufort's Code further restricts individual signs to a maximum size of twenty square feet. Many signage guidelines adopt the approach of limiting the maximum size of a proposed sign to a certain percentage of the square footage of the building facade; a typical range is 15-20%. This approach is useful only if its apparent limitations are recognized and confronted. First, a size limitation based on percentage of facade area does not allow for the retention or incorporation of larger signs that may have some historic value; for example, the Morrall's Furniture sign or the Coca-Cola sign on the west side of the Kenwin store, both on Bay Street. Also, percentage limitations do not recognize the fact that very small commercial structures, such as the former Discount Sewing Center on Bay Street, often achieve whatever character they have by the presence of a sign whose size is much over-scaled with respect to the facade. In effect, the sign becomes the principal feature of the facade.

In short, signage guidelines must be sensitive and flexible with respect to the issue of size. Only a very few absolute constraints are possible.

- Signs should be placed high enough to avoid vandalism. Thus, the bottom edge should be at least nine feet above the ground.
- Signs should not be allowed to project more than 50% of the width of the sidewalk, to avoid possible interference with street plantings, light fixtures, vehicular heights, and site lines.
- Size of individual signs should be limited to the extent necessary to prevent them from obscuring or competing with other elements of the building. Its proportions, ornamentation, and lettering style as well as its size should relate to the architecture of the building it advertises.
- Once the placement and size of a proposed sign has been determined, it should be reviewed in terms of its effect on neighboring buildings. The sign should not be permitted to obscure either the signage, merchandising displays, or architectural features of adjacent structures from the vantage point of a pedestrian looking parallel to the building line. If such visual clarity is impaired, either the placement or size of the sign should be revised.
- While no absolute size constraints should be adhered to exclusively, the review board should be sensitive to the fact that one over-scaled sign on a commercial street almost inevitably fosters competition from its neighbors. Some delicacy is thus required by the board to prevent the proliferation of large upper-story projecting signs. It is suggested that the board grant large scale signs only upon written opinion regarding the historic precedent of specific factors involved in determining their "appropriateness" for a particular facade.

**Style** - The most important stylistic aspect of signage is conformity to the architectural period and ornamentation of the corresponding facade. Several generalizations can be made regarding the conventions and stylistics of period signage. However, it should be recognized that these prototypical examples were not without exception. In each and every era, shopkeepers used signage to attract business, and often this meant going against tradition.

- The actual signboards containing lettering or illustrations were typically simple. Signboards mounted directly onto the face of the building were customarily square or rectangular boards, devoid of carving or wood ornament. Decorative banding or borders, if used, were applied with painted lines, often as a pinstripe at the edges. Projecting, hanging, or free-standing signs were less common than flush mounted signs, but were nonetheless produced from simple, flat boards. Both faces of the sign would have been painted. Occasionally, the upper or lower edges of these signboards were cut in more decorative shapes. Such hanging, projecting, or free-standing signs were more commonly used in the Colonial or Federal periods than in the Victorian era. This effectively limits their applicability to Beaufort.

- Victorian signs typically relied upon stylized lettering to relay the message, as opposed to graphic caricatures, logos, or illustrations. While Colonial signs occasionally used hand painted figures, objects, or scenes on signboards, they were rarely three-dimensional applications. These signs were rarely bordered with moldings or other embellishments.
- The sheer quantity of signs applied to facades continually grew up to and including the Victorian era, during which time storefronts were sometimes nearly obliterated with advertising messages. While it is not necessarily desirable to repeat this process, it should be recognized that this proliferation of signage was a part of the historic scene.
- It was extremely common in Victorian signage to combine several widely diverse styles of lettering. Signs often contained several messages regarding goods and services of an establishment, wherein the principal message(s) were elaborately scripted in strong colors (e.g. red or black) with letters accented in secondary colors. Sub-titles, or subordinate messages were generally composed of smaller and simpler lettering as a counterpoint. These minor notations were often painted in black letters. The lettering of signboards was generally in high contrast with the background, such as black letters on a white board. The information contained in the signs often listed particular values such as the prices of meals, range of merchandise, special services, or unique products. Rather than the simple store name reflected in most modern signage, early signs often crowded a great deal of information into a small space.
- Larger signs, such as those spanning the width of a facade between the second and third story windows, many times contained only the name of the store, and were executed in large "block style" (sans serif) letters painted on a simple board or directly on the masonry itself.
- While windows often contained advertising information, they were not generally cluttered with extensive lettering since this would obscure merchandise displays and reduce natural light. Upper story windows contained the names of professional or other firms utilizing these secondary spaces, occasionally supplemented with information regarding their specialties or rates. Storefront windows occasionally used black or gold leaf lettering, painted directly on the glass, with a message limited to the store name, and perhaps the name of the proprietor. Overlights, or transom glass sometimes contained information regarding the principal merchandise departments or primary products of a store. The glass of central door and transom were also used for store names and street number.

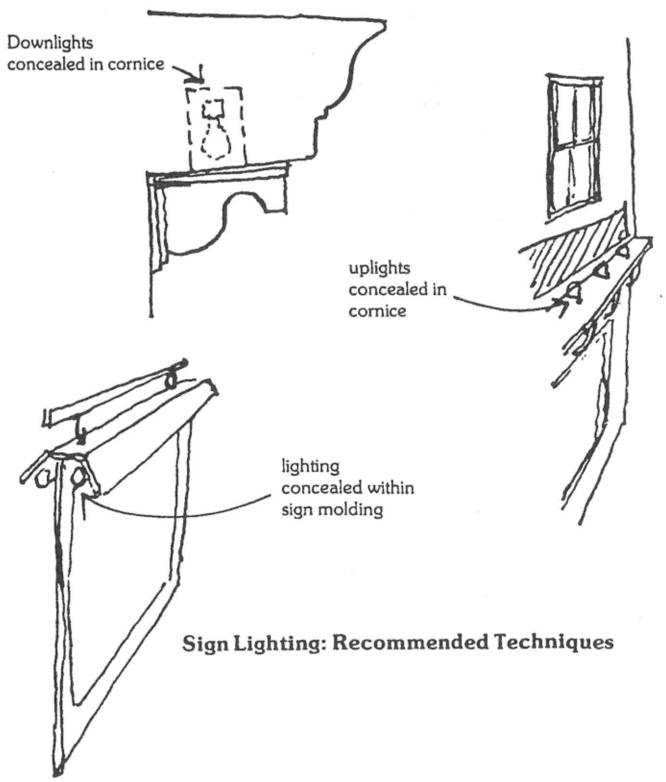
Contemporary storefronts should not attempt to duplicate the stylistics of early signage, although locational aspects may be equally valid. Simple, clean graphics which reflect the contemporary design should be used while respecting, and conforming to, the size and limited projection of neighboring signs.

**Materials** - Throughout the eighteenth and nineteenth century, signs were almost exclusively produced in wood, with hand painted lettering, and no artificial illumination. However, in the latter part of the nineteenth century, signs were occasionally painted on sheet metal backings. On some industrial and commercial buildings, signs were even painted on the metal surface of standing seam, gabled roofs.

The building facade itself is, of course, an appropriate surface for signage, which can be hand-painted directly onto stucco, exposed brick, clapboard siding, or glass. Projecting or hanging signs on early buildings should generally be constructed of wood. Plastics and metals should be avoided when an early facade is intact, or restored. Occasionally, a small bronze plaque may be appropriate for larger scale masonry or stucco buildings, particularly of an institutional or governmental nature. Such plaques should only contain the name of the institution or agency. Monumental free-standing signs, such as stone monoliths or brick "walls" containing plaques are inappropriate for the District.

Buildings from the early twentieth century should be allowed to erect signage consistent with the period of structure. Such signs were often projecting, three-dimensional, and lit with incandescent bulbs or neon. However, this type of sign should only be permitted where dictated by the particular architectural style or period of the facade.

**Lighting** - Concealed (or indirect) incandescent lighting is almost always to be preferred for signage in the Historic District. When considering a proposed sign, the review board should be certain that the illumination will not glare for either the pedestrian or driver. Exposed spotlights are unnecessary in a well-designed sign and should be actively discouraged. With adequate street lighting, it may be possible to omit the separate illumination of any building signs.




**Sign Lighting: Recommended Techniques**

# APPENDIX C: Landscaping and Site Amenities

This appendix was originally included in the Beaufort Preservation Manual and Supplement from the 1970s and 80s. Many of the relevant guidelines have been subsequently adopted as part of Chapter 5 and Appendix A of the Beaufort Code. **The appendix has not been updated to reflect the Code, but is included in this Manual for informational purposes, especially as it regards historic landscapes and site design.**

## Introduction

The image of each building in the Beaufort Historic District is in large part a function of the treatment of its immediate surroundings. Plantings and site amenities such as fences, retaining walls, paving and light fixtures provide the setting for individual buildings while helping to define the character of the District. Although the Code limits the HRB's jurisdiction to "structures" within the Beaufort Historic District, defined as "walls, fences, signs, light fixtures, steps, or appurtenant elements thereof", it also states that planting information must be included on plans submitted in support of applications for Certificates of Appropriateness.

In addition to providing the setting for individual buildings, landscaping and site amenities also help define the relationship between structures. While the grander mansions such as Tidalholm and Marshlands are set back from the street, the overall relationship of structures in the Beaufort Historic District is one of civility and sociability. Many houses are sited with porches close enough to the street to permit and encourage conversation with passers-by. This open relationship to the street distinguishes Beaufort from cities like Charleston where garden walls make each property more of a private enclave. Landscape and site amenities in the Beaufort Historic District should thus be low enough and transparent enough to permit and encourage this sociability.

The plant material of Beaufort has a lush vitality which lends a dense and overgrown appearance to the City. While this informal and profuse approach to residential landscape differs from the sparse and tailored look of period design, it is no less appropriate to the character of the town. Indeed, it contributes greatly to the architecture and street-scape, with few residences suffering from the lack of formality. These plantings, whether they follow period or current trends, deserve careful maintenance.

**915 Port Republic Street**

**501 King Street**

Beaufort's residential architecture is hospitable to the stunning profusion of plant material which surrounds it. The raised first floor eliminates the uneasy visual conflict that exists between modern earth-bound residential construction and its predictable foundation plantings. Also, the porches that are so prevalent throughout the District function as vantage points from which to overlook the gardens.

**315 Federal Street**

The effects of landscaping extend beyond the visual and are not always so benign as they appear. The "Brick" section of this guideline points out the potentially dangerous effects of vegetation on masonry walls. In "Wood" and "Porches," there are discussions of the ways in which overly dense plantings can threaten adjacent features with increased moisture, decreased ventilation, and rot. The visual demands of good landscape design, period or otherwise, need to be carefully balanced with he demands of the architectural materials and construction they adjoin.


**1305 North Street**

**309 Federal Street**

The following discussion of landscaping has two aims: recommendations for repair, maintenance, and selection of plant species appropriate for contemporary landscape design in Beaufort, and a brief overview of historical trends in American landscape design. While it is not the intent of this overview to suggest that the property owner remove existing plant materials and "reconstruct" an historic landscape, it is hoped that such historical awareness will enable future site alterations and maintenance to be undertaken in a sensitive, informed manner.

**708 Duke Street**

The image of each house in the Historic District of Beaufort is intimately tied to the treatment of its immediate surroundings. While many houses are sited with porches close to the street are freestanding and set well back from the street so that the site itself is a major decorative feature of each structure. Overall landscape configuration is, of course, the major component in the "setting" of the house. However, design details and the selection of specific plantings can be equally important.

Often, the most expressive of these site amenities in terms of symbolism is the treatment of the site boundary, the border between public and private areas. The fencing and low retaining walls that flank the street side of so many of the house in the District serve to define this important edge and are an essential part of Beaufort's street-scape. Aside from the maintenance requirements for fences, it is also important to determine the appropriateness of a given boundary for a given property.

500 Block of Port Republic Street

605 Prince Street

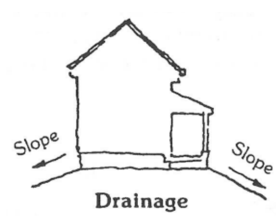
Another important site element is the paving used within or along the perimeter of a property, particularly walks leading from the street to the building entrance. There are many otherwise lovely front yards and gardens in Beaufort that are cut by over-scaled concrete walks. If the paving functions as the "carpet" to the door, it should be as graceful as the rest of the yard.

207 Hancock Street

Appropriate details for dealing with such site problems as lighting and edging also require consideration. Although these features can be incorporated unobtrusively, in modern practice they are too often harsh and inappropriate. Decorative amenities are often added in an attempt to add variety and interest to a seemingly lack-luster site. However, such efforts often go overboard, and consequently detract from the site's aesthetic quality.

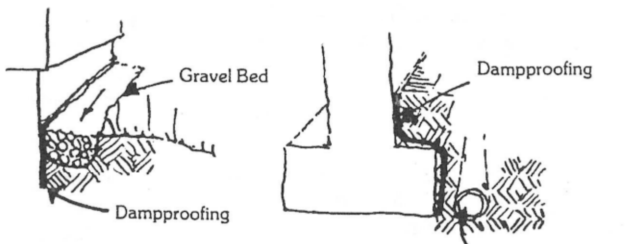
## Contemporary Landscape Design

**Drainage.** Landscape design should be conducive to both absorption and dispersal of water. Any evidence of "ponding" after a heavy rainfall indicates a drainage problem, the cause of which is most likely to be inadequate slopes (or "grades''). It is essential for the safety of a building that no water be allowed to accumulate at its perimeter. To this end grades should slope at least 1/2" to the foot away from the building. A solid plant or grass bed minimizes the dangers of erosion of these slopes.

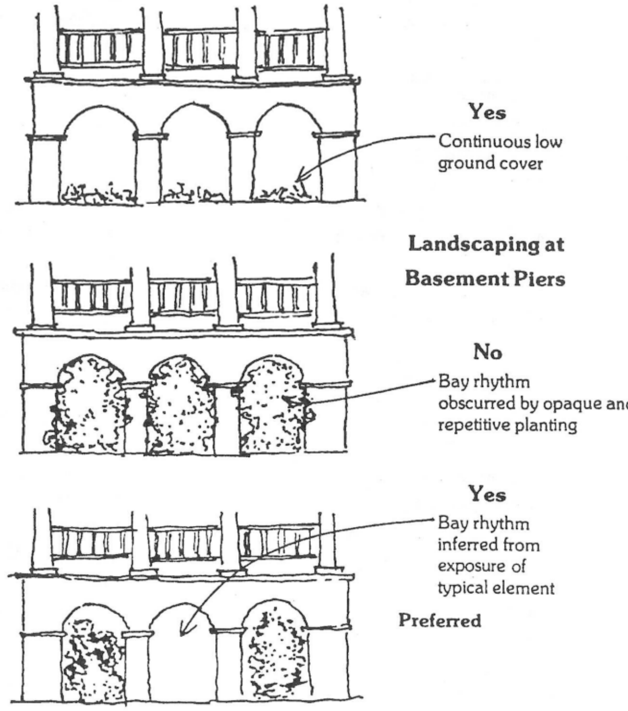



There may be locations in which such a slope cannot be achieved or maintained. Such circumstances are often made obvious by the symptom of "rising damp'' (see "Brick") at the base of the perimeter wall. In such a condition it is essential to make provision for easy and thorough removal of accumulated water. Several methods, similar to those used to combat rising damp, are available.

- Install a gravel bed several feet in depth along the perimeter of the house. This is combined with an underground perforated "french drain" of tile or concrete which collects and disperses the accumulated water at a dry well or storm sewer. The system should be installed by a competent contractor to avoid invisible clogs or movement in the system that can result from improper construction. The surface of the gravel bed should slope away from the house, and may be supplemented by a "swale" (a contour grading technique which forms a channel for directing drainage).




**Perimeter Drainage**




- New construction should always include a foundation drain which removes water near the bottom of the footing. Such drains should also terminate at a dry well or storm sewer.
- In all cases where water is not being effectively carried away from the perimeter walls, damp proofing should be installed as an extra and invaluable precaution.

**Landscaping and architectural detail.** Plant material should be strategically selected and located so as to accent and enhance significant architectural forms rather than obscuring them. For example, the exposed porch piers typical of Beaufort's houses are strong expressions of the bays above. Plantings at the perimeter of these buildings should strive to express this rhythm, which can be inferred by the exposure of even one or two of the piers. The varying effects of foundation plantings can be seen by comparing the differences between the main elevations of 503 and 507 Washington Street.

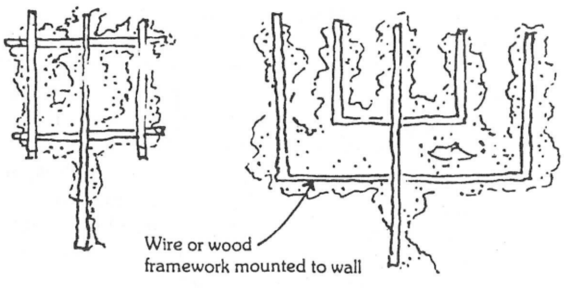
**503 Washington Street**

**507 Washington Street**

**103 Hancock Street**

**711 Prince Street**

In addition, landscaping should not destroy architectural fabric. The charming ground cover and vines that trail along and through masonry walls throughout the Historic District pose serious threats that should be investigated and then eliminated if required (see "Brick" and "Tabby"). The fragrant vine crawling up the side of a porch can encircle a balustrade causing irreparable damage in only one season.

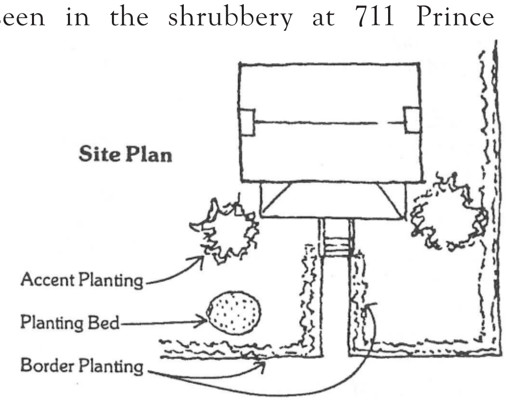


**Espalier**

There are occasions when it is desirable to plant such climbing vines in order to complement or screen masonry walls. A technique known as "espalier" involves a framework of wire or lattice mounted on a wall that vines can cling to without damage to the masonry behind. Various patterns and installation details may be used. (The plant list contained in this section suggests appropriate species for this application.)

**Landscape planning.** Appropriate plants should be used as accents to important site and architectural features. When planning for the inclusion of accent plant materials, the following should be taken into consideration.

- Plantings that accent architectural features should be pruned or trimmed regularly. Plant materials that grow unrestricted for long periods of time may obscure the architectural feature that they were intended to highlight. An example of uncontrolled growth can be seen in the shrubbery at 711 Prince Street.




- Planting can be located so as to soften corners, angles or high foundations. However, for some of the more significant early buildings in Beaufort, it should be stressed that plantings along the perimeter of the foundation are stylistically inappropriate (see "Historic Landscape Design" below).
- Planting can be used to accent the main entry stair and to edge important walkways.
- A landscape plan need not rely excessively on floral display, especially if it is designed to respond to historical garden principles.

**Plant species.** In planning or altering a landscape design, certain factors, listed below, must be considered if plant selection is to be appropriate for a given usage.

- Determine the amount of foot traffic any planted area might be expected to bear and select plants of appropriate hardiness.
- Be certain of the site characteristics of the proposed plant location with respect to sun and shade, soil condition, and adjacency to other plants.
- Consider the size of the plant in its fully mature state to ascertain its potential longterm impact on adjacent construction.
- Select plants that are compatible with the visual requirements of the proposed location. To accomplish this, plants must be considered in abstract design terms. For example, consider the "texture" of a given plant as created by its branch structure and its degree of transparency, and the "habit" of a plant, e.g. rounded, columnar, horizontal. Unless a deliberate contrast is desired, combine finely textured, airy plants with fine architectural detail such as wood porches, and dense, coarse-textured plants with massive construction such as solid brick or tabby walls. Columnar plants augment porch posts and other vertical elements while lower, rounded forms supplement foundation features.
- Consult a professional landscape architect for information about specific conditions and species. Usage, availability, the range of varieties within any given species, soil requirements, rate of growth, mature size, and period of flowering should all be considered.

To assist such decisions, the following is an abbreviated list of plant species that are compatible with Beaufort's climate. The purposes to which they are best put and the sun/shade conditions required are also indicated.

**Edge Planting/Borders:**

| | |
|---|---|
| blue fescue | sun |
| strawberry | sun/light shade |
| evergreen candytuft | sun |

| | |
|---|---|
| lily turf | shade |
| snakebeard | shade or sun |
| thrift | sun |
| green santolina | sun |
| plantain lily | shade |
| fragrant plantain | shade |

**Ground Covers:**

| | |
|---|---|
| bugleflower | shade |
| cast iron plant | dense shade |
| cotoneaster | sun/shade |
| holly fern | shade/partial shade |
| "leaf lawn" (dichondra) | sun/partial shade |
| sargent juniper | sun |
| shore juniper | sun |
| creeping juniper | sun |
| mondo grass | sun/shade |
| Japanese spurge (pachysandra) | shade |
| periwinkle | partial shade |

**Espalier/ Climbing Plants:**

| | |
|---|---|
| camellia | sun/partial sun |
| eastern redbud | sun/partial sun |
| Japanese flowering quince | sun/partial sun |
| flowering quince | sun/partial sun |
| bearberry cotoneaster | sun/partial sun |
| rockspray cotoneaster | sun |
| winged euonymus | sun/partial sun |
| border forsythia | sun |
| Chinese holly | sun/partial sun |
| Japanese holly | sun/partial sun |
| winter jasmine | sun/partial sun |
| pfitzer juniper | sun |
| tea olive | sun/partial |
| Japanese cherry | sun/partial |
| weeping cherry | sun/partial |
| scarlet firethorn | sun |
| formosa firethorn | sun/partial |
| doublefile viburnum | sun/partial |

**Shrubs:**

| | |
|---|---|
| azalea | partial sun |
| harland boxwood | sun/partial shade |
| rockspray cotoneaster | sun |
| winter daphne | sun/shade |
| evergreen bittersweet | sun/shade |
| dwarf gardenia | sun/partial shade |
| dwarf horned holly | sun/ partial shade |
| kingsville Japanese holly | sun/shade |
| repanden Japanese holly | sun/shade |
| English lavender | sun |
| rosemary | sun |
| India hawthorn | sun/shade |
| David viburnum | sun/partial shade |
| hydrangea | sun/partial shade |
| kalm St. John's wort | sun |
| winter jasmine | sun/shade |
| Japanese boxwood | sun/shade |
| American boxwood | partial shade/shade |
| spreading euonymus | sun/shade |
| convexa Japanese holly | sun/shade |
| flowering jasmine | sun/partial shade |
| scarlet firethorn | sun |
| delavay tea olive | sun/partial shade |
| Japanese rose | sun |
| hedge bamboo | sun/shade |
| bottlebrush | sun |
| camellia | partial shade |
| Chinese holly | sun/partial shade |
| Japanese holly | sun/ partial shade |
| laurel | sun |
| sweet bay | sun/partial shade |
| oleander | sun |
| fragrant tea olive | sun/partial shade |
| sweetshrub | sun/shade |
| pampas grass | sun/partial shade |
| Scotch broom | sun/partial shade |
| star magnolia | sun |

**Trees:**

| | |
|---|---|
| Austrian pine | sun |
| palmetto | sun/shade |
| windmill palm | partial shade |
| Carolina cherry laurel | sun/partial shade |
| mimosa | sun |
| flowering dogwood | partial shade |
| Russian olive | sun |
| crape-myrtle | sun |
| saucer magnolia | sun/partial shade |
| flowering crab apple | sun |
| sour cherry | sun/partial shade |
| peach | sun |
| Japanese cherry | sun/partial shade |
| callery pear | sun/partial shade |
| southern magnolia | sun/partial shade |
| longleaf pine | sun/partial shade |
| white pine | sun |
| laurel oak | sun/partial shade |
| live oak | sun/partial shade |
| Norway maple | sun |

| | |
|---|---|
| red maple | sun/shade |
| silver maple | sun |
| sugar maple | sun/shade |
| pecan | sun/shade |
| beech | sun |
| sweet gum | sun/partial shade |
| water oak | sun/partial shade |

**Clues.** Close observation of a site often yields a surprising number of clues to an earlier landscaping layout. With such information in hand, alterations or even maintenance might proceed in certain direction aimed at highlighting or recreating original features. Evidence to look for may include the features indicated below.

- Variations in texture or color of similar plant materials often reveal traces of an earlier pathway. (This is a result of different soil composition and drainage patterns of the material subsequently used to infill the patch.)

- Certain "exotic" plants such as tulips, peonies, or narcissus can last long after an early garden is abandoned. Their unexpected presence might indicate the location of a former planting bed.

- Clumps of trees or trees planted in a straight line are often the remnants of an earlier landscape design. Also, certain floral material was popular in the nineteenth century for use under specific conditions; for example, lilac was often planted near privies, day lily outside the kitchen door, and lily of the valley or periwinkle along a north wall. Certain vegetables are hardy and persist long after their garden has been abandoned; for example, outcroppings of asparagus, rhubarb, or raspberry plants might indicate the location of an earlier vegetable garden. Finally, a clump of plant material that is substantially thicker and taller than its immediately adjacent vegetation might suggest the location of an earlier well.

All of these clues are very subtle, often escaping the notice of even the trained observer. Sometimes they are more easily identified if the yard is viewed at a distance from an unusual vantage point such as a second floor window. It is best to combine any such clues with some knowledge of the way residential landscaping evolved over time. It is also necessary to temper any conclusions drawn from these clues with an awareness that a variety of conditions may account for this "evidence," both historical and non-historical in nature.

## Historical Overview

**Pre-1840 landscape practices.** Much residential landscape design before 1840 was an extension of typical features of the English Tudor tradition. Briefly, in this tradition, gardens were generally enclosed and consisted of geometric planting beds outlined with narrow paths.

In the eighteenth century, plants were often combined in a single planting bed regardless of their separate functions. Thus, a given bed might contain vegetables, herbs, medicinal plants, and flowers. This practice of diverse assemblage was slow to change, but by the early nineteenth century, gardens were less purely utilitarian; vegetables were separated from ornamental beds, and garden furnishings such as arbors and pavilions were beginning to be introduced.

In the southern United States, it was popular to edge these planting beds with low boxwood. The beds, themselves often mounded up higher than the adjacent paths, were rarely wider than six feet and not excessively long. Also favored in the South was a more formal, axial geometry for planting bed layout.

The typical pre-1840 garden also contained paths and drives composed of packed earth, gravel, oyster shells, or dry-laid brick. Such paths might have been edged with stones or saplings. Shrubbery did not yet have the popularity it was to achieve in the latter half of the nineteenth century.

The following is a list of popular plant materials that were available in the United States before 1840.

**Flowers:**

| | |
|---|---|
| balsam | lily-of-the-valley |
| bachelor's button | marigold |
| chrysanthemum | morning glory |
| crocus | narcisus |
| delphinium | peony |
| forget-me-not | poppy |
| geranium | snapdragon |
| heliotrope | sunflower |
| iris | tulip |
| jonquil | zinnia |
| larkspur | |

**Trees, shrubs, vines:**

| | |
|---|---|
| American holly | horse chestnut |
| catalpa | mullberry |
| English ivy | trumpet vine |
| flowering quince | tulip poplar |
| ginko | weeping willow |
| hawthorn | witchhazel |

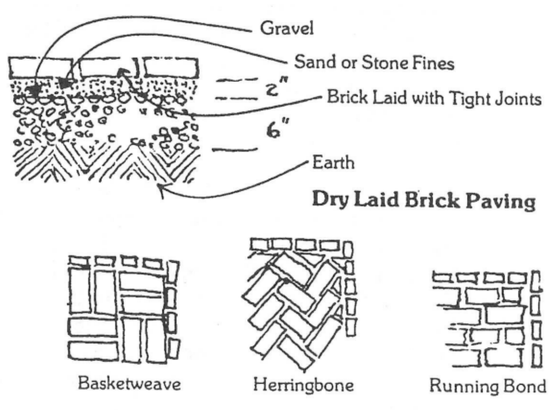
**Herbs:**

| | |
|---|---|
| anise | marjoram |
| basil | parsley |
| chamomile | peppermint |
| caraway | rosemary |
| catnip | sage |
| chive | tarragon |
| dill | thyme |
| garlic | |

In summary, consider theses "do's and don'ts" for the pre-1840 residential garden.

**Do's:**

- Do consult your local garden club for advice.
- Do use appropriate paving materials at drives and walks. These include earth, gravel, oyster shells, or patterns of dry-laid brick, any of which should be installed over a continuous gravel bed of 4"- 6" to facilitate drainage.

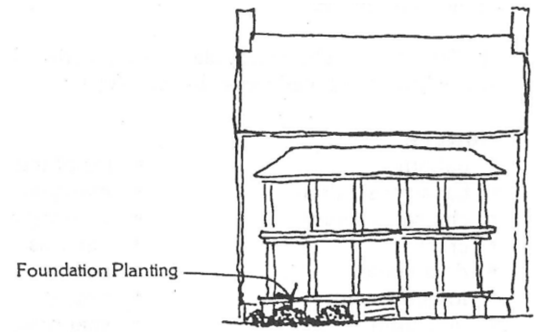



**Brick Paving Patterns**

- Do retain the exposure of the fascia boards at the first floor level. Low ground cover or an occasional accent shrub can be used at the base of the building.

**Dont's:**

- Don't use continuous plantings at the foundations.




- Don't use improper paving materials such as blacktop, mortar-set brick paving, concrete, or modern "antiqued" brick.
- Don't use shrubs profusely. Shrubs should be used sparingly as bed enclosures or occasional accents. They should not be used to enclose the garden as a whole or to border paths.
- Don't over-maintain the lawn. The modern close-cropped lawn was not possible until the development of the lawnmower in the late nineteenth century. From a more practical standpoint, a higher setting may be used on the lawnmower blade.
- Don't use plant material that was unavailable at the time the building was erected. This rules out such popular twentieth century plants as Japanese yew, spirea, white wisteria, and pachysandra, as well as most oriental plants and annual flowers. Also, plants that were available but rarely used, such as junipers, mountain laurel, or rhododendron, should be avoided.

**1840-1875 landscape practices.** Two major influences altered the style and expanded the palette of residential landscaping after 1840. First, broadening interest in horticulture spawned "plant explorers" who introduced new species discovered in their travels throughout the world. Annual flowers such as fuchsia and salvia were a result of such exploration, as were the early Victorian garden "exotics"; banana, palm, fig, and lemon. Other species and their dates of introduction to the United States include Japanese yew (1844), Boston ivy (1862), hydrangea (1862), Japanese burberry (1874), and viburnum (1880).

Another influence in the Victorian landscape was the publication of A. J. Downing's tremendously popular books, Treatise on the Theory and Practice of Landscape Gardening (1841), Cottage Residences (1842), The Fruits and Fruit Trees of America (1845), and Country Houses (1850). These widely read publications altered the look of much residential landscape design throughout the United

States. Downing, a landscape architect, was careful to identify plantings and layouts as they related to specific styles of architecture, and to distinguish between the "beautiful" and the "picturesque." "Beautiful" styles were meant to accompany Greek Revival and Italianate buildings and were thus more appropriate to Beaufort. Toward this end Downing suggested soft lawns, regular trees and shrubs, and curved beds and pathways. Planting beds were to include one or two varieties of annuals. Downing also popularized shrubbery, suggesting its use near the base of the house and as a border along walkways. For the "beautiful" he especially favored flowering shrubs such as lilacs or mock-orange.

**1875-1900 landscape practices.** Simplification of layout typified the landscape design of the last two decades of the nineteenth century. Wide expanses of fine lawns and large trees were popular, and planting beds of complex shapes were interspersed in the grass area. Popular trees included elm, beech, and silver maple, used as accents rather than boundary plantings. The use of shrubbery as a property border increased. Yet there was still little use of the continuous foundation planting so popular today, though flowering plants could often be found as an accent under a window or along the edge of a veranda. The elevation of an entire lot was often raised above the level of the adjacent public walkway and bordered with a low stone or brick retaining wall. Geraniums, coleus, cockscomb, nasturtium, canna, and zinnia were popular flower species.

**1900-1920 landscape practices.** By the turn of the century the vogue for foundation planting had begun. It was especially favored in the bungalow and Colonial Revival styles (see "Style"). Lawns were continuous and uninterrupted by flower beds. The popularity of exotics waned as designs tended to favor native species and gentle borders of low shrubs and flowers.

## Summary of Landscaping Recommendations

The general character of the plant material in Beaufort is lush. While the various periods of historic landscape design in Beaufort are defined by varying degrees of formality, the present "overgrown" character of the District is pleasing to the eye and completely appropriate.

The following design guidelines may be gleaned from that discussion and apply to all planting in the Beaufort Historic District.

**Appropriate**

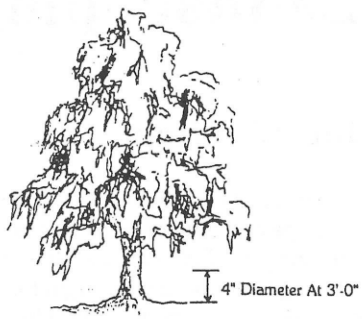
- Unless a deliberate contrast is desired, select and locate plant material so as to accent and enhance significant architectural forms, rather than obscuring them.
- Consider the "texture" of a plant, its branch structure and degree of transparency. Consider also its "habit", its form, be it round, columnar, or horizontal, etc.
- Combine finely textured, airy plants with fine architectural detail such as wood porches and dense, coarse-textured plants with massive construction such as solid brick or tabby walls. Columnar plants complement vertical elements such as porch columns while lower rounded forms complement foundation features.

**509 North Street**

- Plantings at the perimeter of foundations should express or at least not obscure the rhythm of the building itself. Continuous foundation planting did not become popular until the early twentieth century, and was especially favored in the Colonial Revival and Bungalow styles.
- Select and locate plant and tree material according to site conditions of sun, shade, soil, and adjacent plant material.
- Select plant and tree material according to its mature size, to allow for the long term impact of mature growth.
- Select plant species appropriate to the climate and

growing conditions of Beaufort. The "plant explorers" of the mid-nineteenth century greatly expanded the palette of the gardener.

- Large trees are certainly the single most character-defining element of the Beaufort landscape. Every effort should be made to save these trees. Indeed, the Code requires that a permit be issued by the Parks and Trees Advisory Committee for the removal of any tree whose trunk is greater than 4" in diameter at 36" above grade.




**Permit Required For Tree Removal**

- Where planting to screen or complement masonry walls, provide a wire or wood frame for the vine or plant to cling to. This technique is known as "espalier".

- Do not "overplant". Every period of landscape design in Beaufort treated the house as the central element of the overall landscape design. Whether the Beaufort house presided over a nineteenth century formal garden or floated on a sea of uninterrupted lawn, planting material never obscured or enclosed the typical Beaufort house. Allowing for the mature size of trees and shrubs is critical.

**804 West Street**

**311 East Street**

**801 Prince Street**

## Not Recommended

It should be noted that without the advantage of either physical remains or documentary evidence, "historic" garden design is highly speculative. As a rule the design of "formal" gardens should be as simple as possible, concentrating on location and groupings of planting material. In the absence of strong historic evidence, the introduction of paved garden walks, beds raised with retaining walls, .. and garden structures such as gazebos, pergolas, and arbors is not recommended.

## Inappropriate

Continuous foundation planting is inappropriate for all architectural styles in Beaufort, except those styles dating from the 1920s to present.

Continuous Foundation Plantings at 709 Duke Street

**Preservation Recommendations**

- Provide adequate drainage away from structures on the site. Even the raised houses of Beaufort would be well served by foundation drains or by grade sloping away from the building.

- Do not permit plant material to destroy architectural fabric. Ground cover and vines that have grown on masonry walls may be accelerating the deterioration of the masonry. (See discussion of "espalier" technique, above.)

## Site Amenities: Fencing and Walling

There is a broad range of fencing and wall materials in use in Beaufort's Historic District. Repair and maintenance recommendations for each are outlined below.

**Concrete Masonry Walls -** Concrete block is a modern device that is completely inappropriate as a fencing material for buildings in the District built prior to the mid-twentieth century and its use should be prohibited. Existing concrete walls should be stuccoed and painted, while "decorative" masonry screens should be painted black-green and planted out.

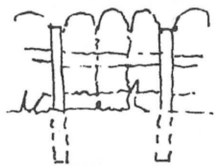
In some instances, where a "decorative" masonry screen was constructed in conjunction with a mid-twentieth century structure, the screen and the structure may be complementary of each other and perceived as a comprehensive design. In these instances, the screen may be considered appropriate to the period of the house.

Decorative Concrete Masonry Wall

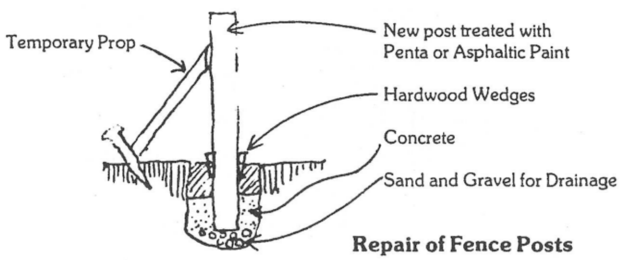
**Lace Brick Walls -** Most lace brick border walls in the District appear to be of modern construction, built in an attempt to emulate such fine early walls as those at 412 East Street or 604 Pinckney Street. Much of their unconvincing appearance stems from the use of "antiqued" brick (see "Brick"), coupled with historically inappropriate pointing. Typically, these modern lace brick walls are laid up with either a heavily "beaded" joint (which is much cruder than the average Colonial bricklayer would have accepted) or a tooled grapevine joint that is more sophisticated than a simple garden wall demands.
The lace brick wall when left totally barren looks rather stark. It is more than likely that its effect was meant to be softened by plantings, as evidenced again by the walls at 804 West Street or 311 East Street. These plantings need not be continuous. In fact, an excellent effect can be achieved by their intermittent placement so that the wall has the occasional opportunity to stand on its own, unadorned. Lists of appropriate plants for this application have been included earlier in this section. (For lace brick repair/ maintenance problems, see "Brick.")

**Chain Link Fencing -** Despite its explicit association with exclusion and confinement, and despite its harsh appearance, this visually destructive material can be found in use throughout the entire District. However, it can be effectively and, indeed, handsomely masked with full ivy plantings. A rich example of this treatment can be seen at 605 Prince Street. The success of this particular application is due both to the fullness of the plantings and to the fact that they are allowed to trail across and through the entire fence, including the gate itself. There is really no other available option to improving the visual impact of chain link fencing short of total removal.

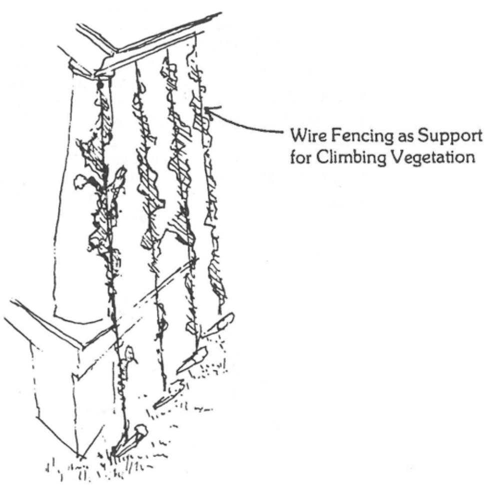
**Wire Fencing -** This inexpensive and popular fencing material, available in easy-to-install rolls, was introduced in the middle of the nineteenth century. If well maintained, it is an acceptable material for most post-Civil War residential construction, although it is more appropriate to residences of a relatively modest scale. Wire fencing does present recurring maintenance problems which are discussed below.


Wire Fencing

- Deterioration of wood post supports due to rot (see "Wood"). This important repair is simple if done according to the following procedures.
    - Prop up the wire fencing and remove/replace one deteriorated post at a time.



Repair of Fence Posts




    - Prior to installation, soak the new post overnight in preservative, being especially careful to soak the end grains. Consider that the overall length of the post should be at least half again as long as the above-ground portion. Place a gravel bed for drainage in the bottom of the hole and set the post vertically, propping it up in the hole as required. The hole should then be backfilled with earth or concrete. The upper surface of concrete, if used, should be recessed several inches below grade to allow a covering of soil.

- Deteriorated/rusting fencing. The easiest repair of this condition is to simply replace the fencing, as this material is still readily available. (Unless the owner intends to plant it out heavily, modern green plastic-coated wire fencing is an inappropriate replacement.)

- Wire fencing should be used as a plant support and not left completely unadorned at the border of the site. It is even useful in vertical applications as a support for shade planting or screens concealing undesirable features.

**Cast Iron Fencing -** This material, so treasured today, was produced in mass quantities in the latter half of the nineteenth century as an inexpensive and popular alternative to the wood fence. Hundreds of designs were available for selection from catalogs, often emulating the wood fencing that was being replaced. A typical design consisted of three horizontal bars with intermittent supporting posts and decorative pickets. Corners, gate posts, and picket tops were common locations for additional ornamentation and embellishment.
Typical repair and maintenance problems are discussed below.

- **Rust.** The most common cast iron problem is excessive rusting which has the unfortunate effect of obscuring detail and threatening the stability of the fence itself. Paint is the best rust preventer, but it cannot be applied until all rust is removed. Various tools and products accomplish this quite readily, though their use depends on the severity of the problem. Do not use harsh tools for simple problems. The list below is given in order from gentlest to strongest removal:
    - emery board and paper
    - putty knife used as scraper
    - wire brush
    - wire cup brush/ electric drill attachment
    - commercial rust remover (e.g. naval jelly) (The average job of cast iron rust removal will employ all of these tools to varying degrees.)
- **Paint removal.** The main objectives of paint removal are to highlight and distinguish obscured detail and to allow for repainting. Either commercial paint removers or a torch are acceptable.

- **Repainting.** Cast iron should be thoroughly primed with a dark gray, rust-inhibiting paint. Finish coats should be high gloss enamel paint of a dark color.

- **Maintenance.** If a particularly rich finish is desired, cast iron surfaces can be waxed every three months with a liquid floor wax or a mixture of beeswax and turpentine. (All rust should first be removed with emery paper or turpentine.) Allow the wax to set for about fifteen minutes and then buff.

- **Repair.** Typical repairs include the straightening of bent pieces or rebuilding of joints that are rusted out. These repairs are commonplace for a good ironworker and should be entrusted to his services. Broken sections of hollow ironwork can be braised back together. If the broken section is missing, the edges of any resultant holes should be painted. If water can enter the hollow interior of the iron as a result of the break, drill two 1/4" holes at the base allowing any water to escape. Alternatively, if the break in the ironwork is small, a water seal of Portland cement can be installed and painted out.

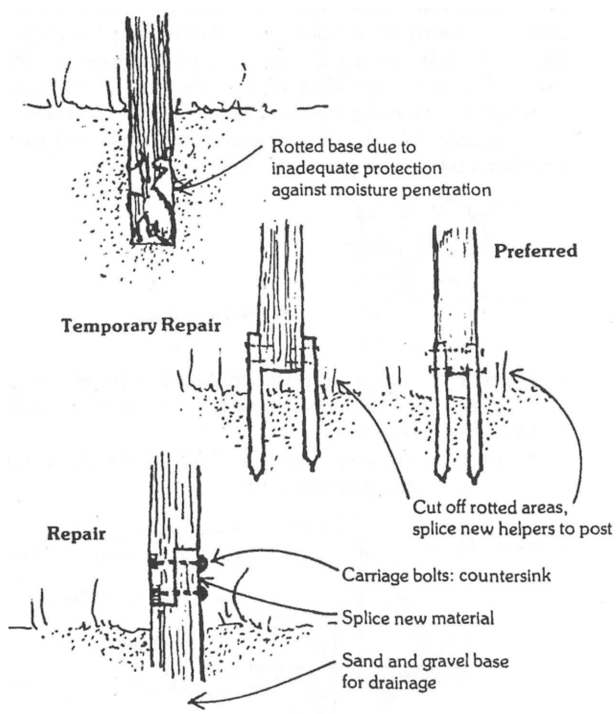
  The original fabricator's trademark can often be found imprinted on the base of the cast iron. In some cases, these companies are still in operation and have access to the patterns you may be trying to repair or replace. In addition, there are several companies who specialize in old cast iron and who have accumulated a vast quantity of historic cast iron patterns. These companies will more than likely be able to assist in replacing or enriching your cast iron. Examples include:

Robinson Iron Company - Robinson City, Alabama
Lawler Machine & Foundry - Birmingham, Alabama
Tennessee Fabricating - Memphis, Tennessee

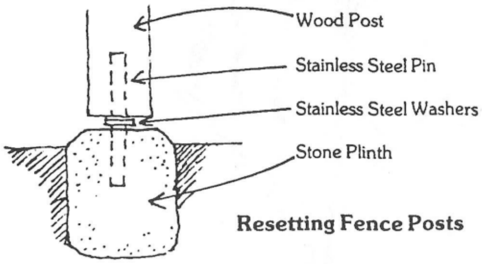
**Wood Fencing -** Wood picket fences are the most dominant site-bordering device employed in the Historic District. The range of appropriate designs is broad enough that the property owner who is considering a new fence need not turn to one of the many modern redwood fences currently on the market. Such fencing is in general a completely inappropriate site-bordering device and should be prohibited from use along streets and dominant facades throughout the District. Typical wood fence repair and maintenance problems are discussed below.

**Rotted fence posts.** If a fence post is so deteriorated as to be unsalvageable, total replacement may be required. In such a case, match the post and re-install according to the process previously discussed in this section under "Wire Fencing." However, if the fencing is an important historic feature, an effort should be made to splice good existing material to new material. The process is as follows:

- Prop up adjacent picket rails .
- Dig out the earth around the post base and cut off the rotted section.
- Liberally brush wood preservative along the bottom face of the trimmed existing post.
- Splice new materials to the bottom of the post using either "helpers" or a matching splice. All new material should be thoroughly soaked in preservative.
- If the post is to be embedded in concrete, the top surface of the concrete should be kept below grade and covered with soil.
- If the entire post is not embedded in the ground, it should be mounted on a stone plinth (base) rather than concrete. Again, the post, and especially the end grain should be thoroughly soaked in preservative.

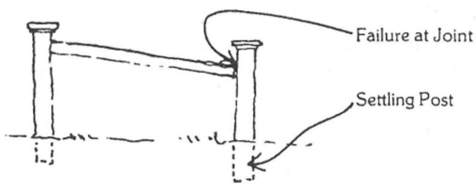



Rotted Fence Posts



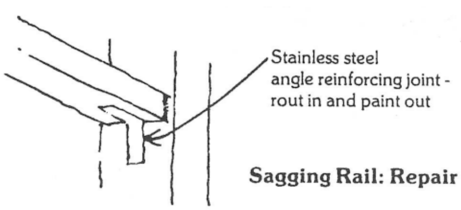

Resetting Fence Posts

**Rotted or sagging horizontal rails.** This condition indicates either a failure at the connection of the rail and post or a settling of the post. Possible repairs are discussed in the following paragraphs.




Sagging Fence Rail

- Brace the corner with a stainless steel angle as shown. It is more effective visually and structurally if the rail and post are slightly grooved to receive the brace, which can be further obscured by paint.




Sagging Rail: Repair

or:

- The top rail may be removed and replaced. Though more complicated, this is a better repair and should be used in cases where the top rail is inserted or "let into," the post. The procedure is as follows:
  - Remove the top rail by sawing it off as close to the posts as possible. When the rail is removed, its severed tenon can be extracted from the post mortise.
  - Duplicate the removed rail in new wood, including the tenons.
  - Using a wood chisel, extend the vertical length of one of the adjacent post mortises in a downward direction. The extended "notch" will allow for reinsertion of the new rail tenon. Following installation of the new rail, the extended portion of the notch should be filled with a "dutchman" (small wood patch).
  - Replace the pickets, countersink all nail holes and fill with putty.

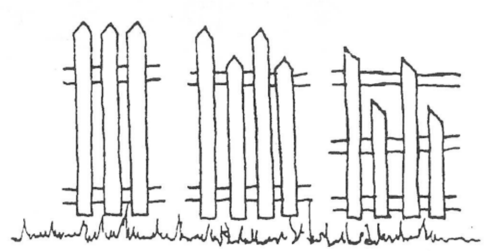
**Rotted/Deteriorated pickets.** Decay and rot in pickets occurs either because of failure of the paint surface or because of the picket's contact with the earth. Make sure the replacement picket is an exact match of the original that has been thoroughly soaked in preservative. If necessary, the length of the picket may be reduced in order to maintain a minimum distance of two inches between the picket and the ground.

## Summary of Recommendations

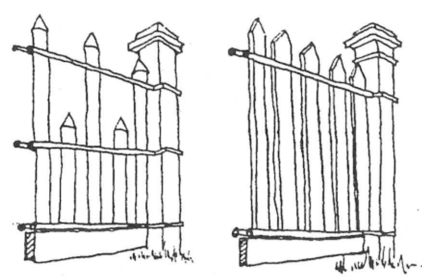
Generally, site fences and walls in the Beaufort Historic District should not exceed 4'0" in height. The following design guidelines should be considered in permit applications in which fencing and walls on properties under jurisdiction would be affected.

**Recommended**

- Wood picket fences of a wide range of designs are appropriate in the Beaufort Historic District.

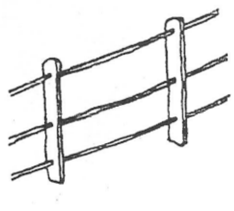


Picket Fences



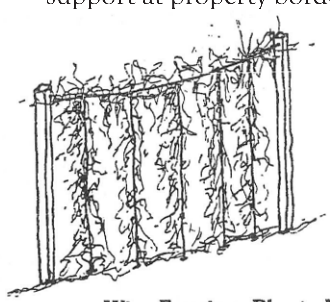
Picket Fences

- Examples of cast iron fencing exist throughout the District. This material is appropriate for use now. Existing cast iron fencing should be repaired or replaced in-kind. New cast iron fencing should be of relatively simple design; a typical earlier design was three horizontal bars with intermittent supporting posts and decorative pickets, with ornamentation at corners, gates, and picket tops.



Cast Iron Fencing

- Wire fencing is inexpensive and easy to install. This fencing material is appropriate for more modest residences built after 1865. It should be used as a plant support at property borders, and not left unadorned.

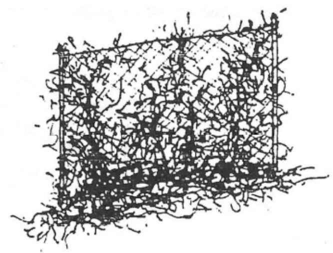


Wire Fencing, Planted

- It appears that many of the older lace brick walls in the District were re-used from previous construction. Use of recycled brick for new lace brick walls is recommended, as its use will introduce the irregularity that is missing when modern "antiqued" brick is used. Also the mortar joints in lace brick walls should probably be pointed with a simple tooled joint, no more than 3/8" in width. These walls are rather stark looking, in and of themselves, and were probably intended to be softened by plantings. These plantings are best done intermittently, allowing sections of the wall to be visible.

### Not Recommended

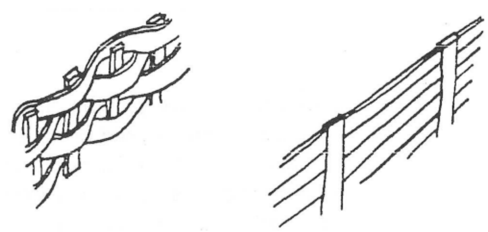
- Chain link fencing is unattractive and suggestive of exclusion and confinement, and is not recommended for use in the Beaufort Historic District. Where it exists, it may be successfully planted out by encouraging vines to trail across and through it. Where a new installation is proposed it must be limited to side and rear yards. At side yards, chain link fence may not be placed forward of the front of the house. At comer properties, chain link fence may not be installed along either street frontage.



Chain Link Fencing, Planted

### Inappropriate

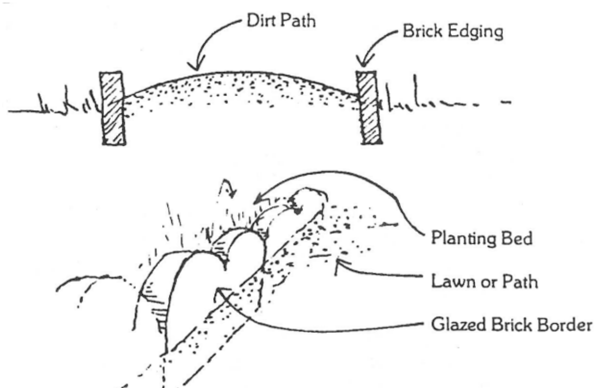
- Concrete walls are inappropriate as a fencing material in the Beaufort Historic District and should be prohibited. Existing concrete walls should be stuccoed and painted, while "decorative" masonry screens should be painted black-green and painted out.
- Woven wood fencing and opaque wood fencing and any modern style fence is inappropriate in the Beaufort Historic District.
- Unpainted wood fences, whether made of treated lumber or not, are inappropriate in the Beaufort Historic District.



Inappropriate Wood Fencing

## Paving and Bordering

Brick, gravel, and even simple compressed earth paths are, of course, much preferable to concrete and concrete tiles for domestic gardens in Beaufort. Brick paving should be installed dry-laid in any one of several patterns. A variation in patterns and materials help to differentiate between main and subsidiary paths (see "Landscaping" for installation details). Although the edges of brick walks may be composed of face bricks, borders of edge brick ("soldier" or "rowlock" courses) provide graceful alternatives with increased stability. In fact, even a dirt or gravel path can be dignified by the simple addition of a raised brick edging.

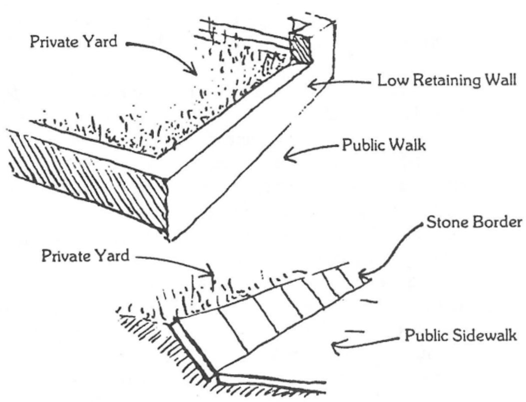


**Inappropriate Boundary Treatment**

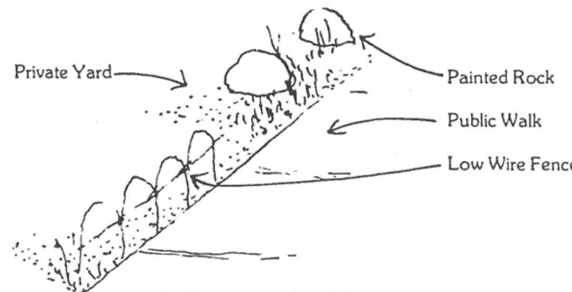
Glazed brick borders of decorative shapes were produced in the late nineteenth century and are appropriate materials for path or planting bed borders in Victorian gardens. (They can be seen in effective use in the southwest garden of 915 Port Republic.) A typical late nineteenth and early twentieth century landscaping device was the slight elevation of the front yard above the public walk which flanked the property. One acceptable border for this condition is the low stuccoed brick retaining wall (for repairs to this wall, see "Brick" and "Stucco"). Less common, but more graceful, is the canted course of stone seen at 901 Craven.

Do not use the following bordering materials in the Historic District:

- exposed CMU (however stucco covered CMU may be appropriate in a garden wall design).
- painted rocks
- low wire fencing



**Boundary Treatment**



**Inappropriate Boundary Treatment**

## Summary of Border Recommendations

The paving along or within the perimeter of a property provides the connection between the front door and the street. Providing the "carpet" to the door, it should be as graceful as the rest of the yard.

### Recommended

- Brick, gravel, and compressed earth paths are appropriate for domestic walls and garden paths.
- Brick paving should be dry-laid in one of several patterns

**Brick Paving Patterns**

- Glazed brick borders are appropriate for planting bed borders in victorian style gardens.

### Not Recommended

- "Over-paving" to create formal gardens is not recommended in the Beaufort Historic District.

### Inappropriate

- Concrete block, painted rocks, and low wire fencing are inappropriate border materials in the Beaufort Historic District.

## Yard Furniture

Modern yard furniture is best avoided altogether, or at the least, selected with great care and restraint. Just as modern ornamentation such as carriage lamps and eagles can obliterate the character of a facade, so can a profusion of yard furniture clutter detract from a period landscape.

Yard furniture contemporary to the house would be acceptable. If sensitively incorporated into the planting plan, antique or reproduction Victorian benches and urns can be used as accents. Foundations, statuary, urns and benches of appropriate patterns are readily available through cast stone and iron companies such as those previously listed. Reproduction garden furnishings can also be obtained through such mail order companies as Kenneth Lynch and Sons, Wilton, Connecticut.

If major elements, such as a period fountain, are to be used as focal points for a garden, they should be carefully incorporated into an overall design scheme. Only one such focal point should exist if the landscape plan is to be cohesive. These yard furnishings must be carefully scaled so as not to overpower the house or the garden.

Preferable to such major elements are less dominating furnishings such as the cast iron garden bench or urn. Benches can be installed where they form an integral part of a planting cluster, beneath shade trees, or in other locations which provide a comfortable, attractive vantage point from which to view the gardens. Urns may be used to accent garden steps, a rear stair to the house, the terminus of a walkway, or other points requiring definition. Again, restraint should be used, and only one or two such features should be incorporated into the garden if they are to maintain their impact as special furnishings. In general, it is best to limit these items to rear yards and gardens where there is no danger of their conflicting with the architecture or setting of the facade.

Many homeowners in Beaufort have installed prefabricated metal tool sheds, often in fairly prominent locations. While these are certainly practical devices in terms of cost and durability, they detract greatly from a period landscape, as well as the architecture of the house. Optimally, garden sheds of appropriate design and materials should be constructed in lieu of prefabricated garden buildings. However, from a more practical standpoint, the metal shed has proliferated because of its qualities of cost and convenience. To minimize the impact of these structures, they should be located in a removed section of the yard which lends itself to dense, heavy plantings. These plantings can effectively conceal the structure while providing an element of privacy to the yard and serving as an integral part of the overall planting plan. At the very least, a simple framework of wire fencing can be mounted around the shed and thoroughly planted out with a fast growing ivy.

## Yard Lighting

The majority of reproduction fixtures commercially available for this use are poor imitations of early fixtures which generally functioned as street lights rather than yard lights. When these fixtures are modified in material and scale to serve as yard lights, both their quality and authenticity are lost. Where lighting of walks and gardens is a necessity, modern unobtrusive “footlights” can be used. These fixtures project only about a foot above ground level and blend in quite well with plantings while providing an adequate light level for safety. If yard fixtures are required to shed light over a broader area of a garden for nighttime use, either temporary garden torches may be utilized or a very simple contemporary fixture can be installed. In the latter case, the light should be located in planted areas which partially conceal the post and fixture without interrupting the cone of light. Ivy and other climbing plants can be used to further conceal the fixture. In all cases, the level of illumination should be kept as low as possible.

## Parking Lots

Parking lots are the unfortunate by-product of a mobile culture. Their incorporation into historic districts is problematic. Parking lots should be screened from the street and their layout should include borders and islands planted with trees and shrubs to break up expanses of paved areas. Given any parking lot within the Beaufort Historic District, at least 20% of the area within it should be unpaved and planted. The visual effect of the parking lot on West Street between Craven and Port Republic would be greatly enhanced by making it more “park”-like, similar to the Church parking lot in the 600 block of Charles Street.

**Parking Lot at West Street is highly visible from the street and sidewalk.**

**Parking Lot at 600 Block of Charles Street has been appropriately screened, thereby mitigating its visual impact.**

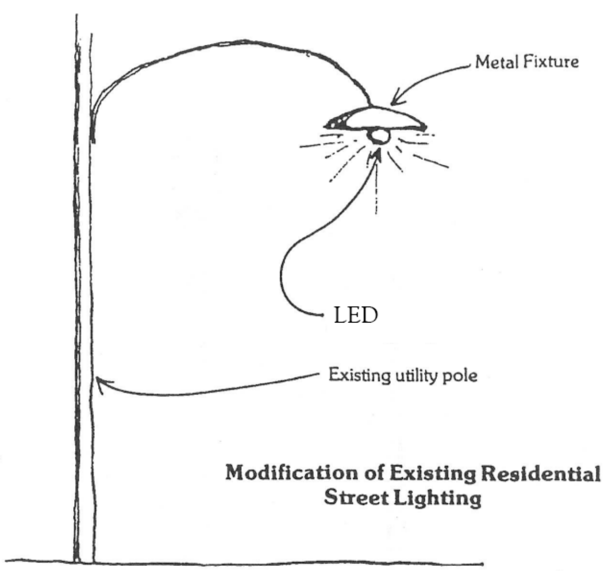
# APPENDIX D: Site Lighting

This appendix was originally included in the Beaufort Preservation Manual and Supplement from the 1970s and 80s. Many of the relevant guidelines have been subsequently adopted as part of Chapter 5 and Appendix C of the Beaufort Code. **The appendix has not been updated to reflect the Code, but is included in this Manual for informational purposes, especially as it regards historic site lighting.**

## Street Lighting

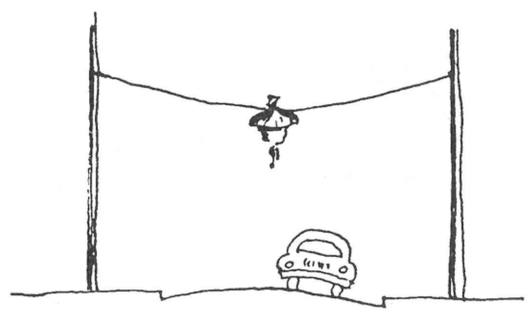
The existing street lighting in the majority of Beaufort's residential areas is limited to a single, arm-mounted overhead fixture located at intersections. This level of lighting is both adequate and appropriate for the residential sectors and should not be substantially increased. The fixtures themselves are not serious detractions because of their limited number and a mounting height which falls within the height of tree foliage. More appropriate fixtures could be incorporated in the future. The use of milk glass or translucent globes would assist in softening the quality of light as well as concealing a modem light source. In place of mercury vapor, the use of high pressure sodium bulbs for their yellowish gaslight quality is also desirable. High pressure sodium also offers a longer bulb life and, consequently, operational savings over mercury vapor.

The use of contemporary fixtures need not be rejected, if carefully selected. Modern street light standards and fixtures should be simple, properly scaled, of compatible materials such as wood or iron, and evolved from earlier precedents in form; e.g. glass globes as were common to gas and early electrical fixtures.




**Modification of Existing Residential Street Lighting**

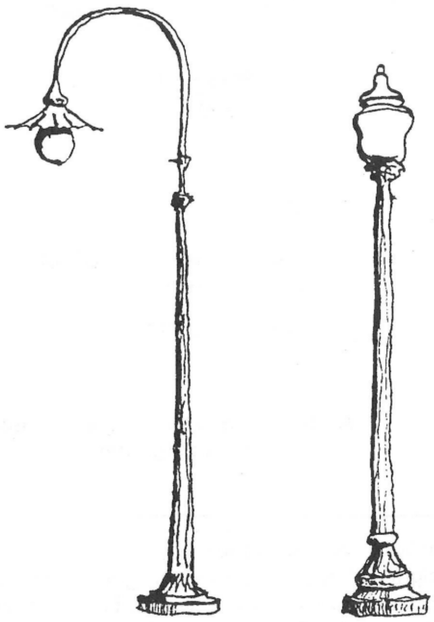
The quality of fixtures for either commercial or residential use is perhaps as important as the stylistic elements. As a matter of economy, many reproduction poles and fixtures currently on the market have simplified or omitted original details and substituted pressed metal caps, finials, etc. for originally cast elements. These modifications often cheapen the fixture, in appearance as well as cost, with the result of looking artificial which indeed they are. However, manufacturers of higher quality reproduction fixtures are often amenable to re-incorporating original elements. If a sizable number of fixtures are involved, these modifications need not be disproportionately expensive. Where lighting manufacturers are not conducive to change, iron foundries can often adapt these fixtures and provide quality casting. A number of foundries possess 19th century patterns and can create a great many authentic details. Light fixtures of the caliber required for a city such as Beaufort can be obtained from companies such as Hadco (Pa.), Spring City Electric (Pa.), and Robinson Iron (Ala.).



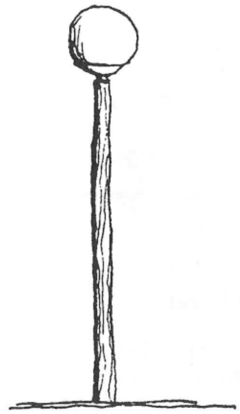
**Street Lighting**

In addition to high quality detailing, durable materials should be selected which are compatible with the historic character of the street. Cast iron or solid wood poles, copper or cast hoods, porcelain burners, granite bases, wrought iron arms or brackets, and brass fittings are examples of appropriate materials; conversely, contemporary materials such as unfinished aluminum, while durable, are of a distinctly modern character. While globes can be glass, polycarbonate globes (either clear or translucent) are considerably more durable and retain the appearance of glass.

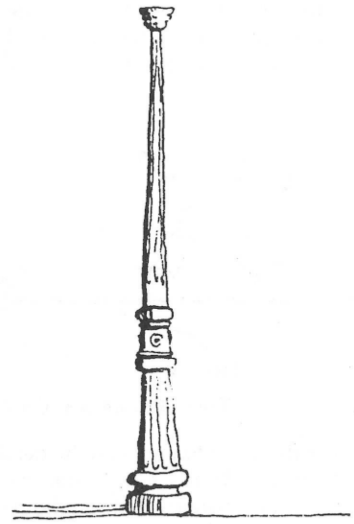
The level and quality of light in an historic district has so much importance that it can either create or destroy the ambiance of the setting. Light levels of from 1.5 to 2.5 footcandles are generally adequate in a commercial area such as Beaufort's, although it may be desirable to raise this level slightly in the areas of crosswalks and



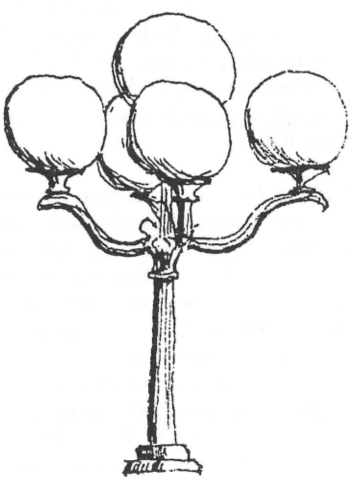
**Cast Iron Street Light Fixture: Early 20th Century Design**



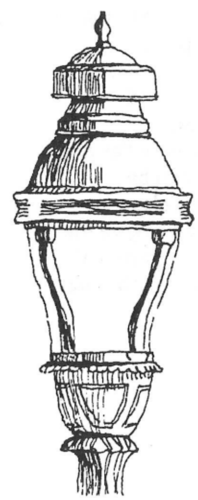
**Street Light Fixture: Modern Design**



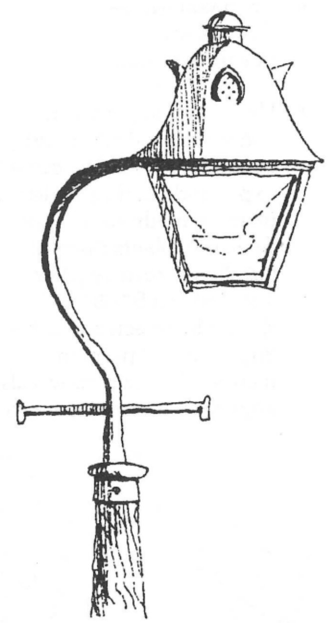
**Cast Iron Street Light Pole**



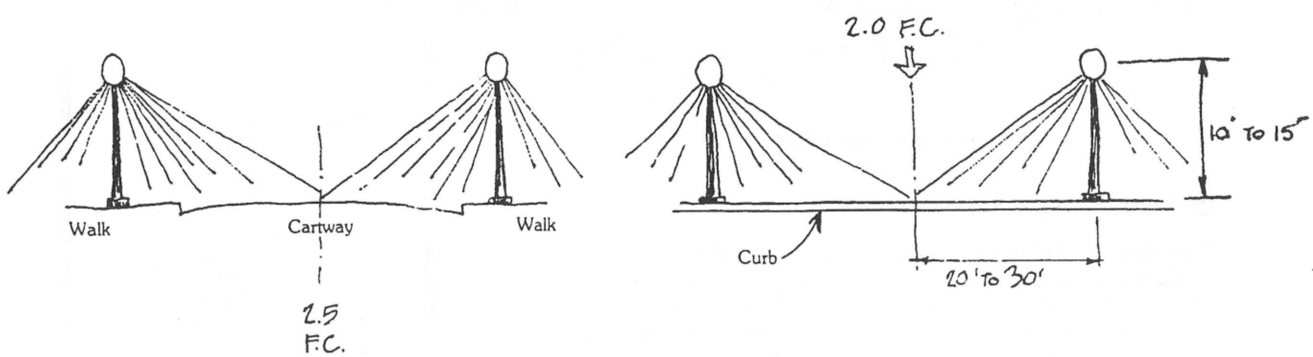
**Cast Iron Street Light Fixture**



**Cast Iron Street Light Fixture: Victorian Design**



**Street Light Fixture: Colonial Design**




**Lighting Level Criteria: Commercial Street**

intersections. Contemporary lighting levels for malls, e.g. 5.0.footcandles, creates a "daytime" appearance, thus losing one of the potentially finest moods and aspects of an historic streetscape.

The light source and fixture height of street lighting should be appropriately scaled to both buildings and pedestrians. A light source height of from 10 to 15 feet will achieve this end for Beaufort's commercial streets (although Carteret can accept a somewhat taller fixture). With the LED fixtures, a standard light fixture spacing of 35 to 45 feet should achieve an average footcandle level of 2.0.

A final consideration in the selection of street light fixtures: the stylistic value of a street lies in providing some continuity in an architecturally diverse area. They should help to integrate the street as a whole, add an element of interest, and provide positive impact on the historic character of the setting. However, the light fixtures should not be so numerous, or ornate, as to overshadow the architectural elements they are intended to enhance. As with all street furniture elements, restraint must be used to avoid cluttering the site.

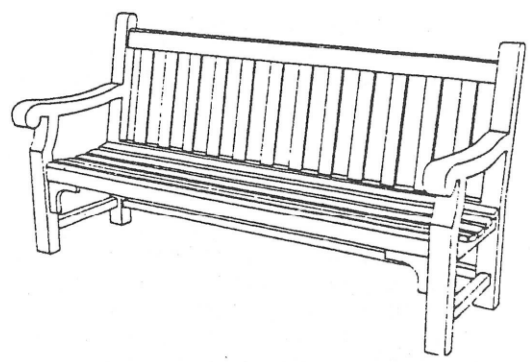
## Street Furniture

Amenities such as benches and planters are the physical symbols of a street's hospitality to pedestrians. Such street furniture must be well designed and thoughtfully integrated into any overall public improvement plan if the gesture that prompted it is not to appear half-hearted. Any bench, no matter how well designed, cannot help but appear as an afterthought when arbitrarily situated in direct proximity to vehicular areas.

Public improvement plans for the commercial street can offer many opportunities for well-placed street furniture. For example, the design approach previously described suggests an expansion of portions of the sidewalk area into the cartway at key locations, thus reclaiming significant space for the pedestrian along the street and providing seating areas out of the main stream of pedestrian traffic. Set off by trees and shrubbery, and protected from traffic by bollards, such seating areas offer a relaxing place from which to observe the activity of the street without being buffeted by it.

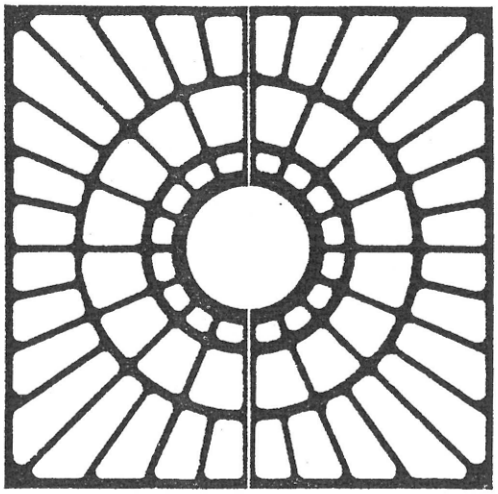
It is essential that public improvements and street furniture not detract from the unique, informal and unstructured streetscapes of Beaufort. Over-design could in many ways pose the gravest threat to the excellent street quality already existing in the City. Design decisions should be governed by this principle, from broad planning issues to the specifics of street furniture selection.

Simple street furniture designs are likely to be the most positive additions to Beaufort's streetscapes. This is not to imply, however, that ubiquitous modern benches of rough cast concrete or redwood are recommended. Simple design must also incorporate a sympathetic use of materials and forms. A timeless design, such as the teak English garden bench, provides a relatively inexpensive, aesthetically pleasing, easily maintained, and exceptionally comfortable alternative. Benches of this type harmonize well with most architectural styles and settings. Their scale and limited ornament provide them with the visual weight and interest necessary to hold their own against both massive and delicate architecture of all periods.



Also, the familiar late-nineteenth-century bench type, with ornamented cast-iron ends supporting wooden slats, effectively supplements the English garden bench and adds an important degree of variety to the streetscape. It would be especially effective in proximity to Victorian commercial structures such as 901 Bay Street.

All street furniture should be installed so as to discourage theft and vandalism. Benches such as those described above can be attached at each leg with 1/4" stainless or galvanized steel rods, drilled through the sidewalk paving, and anchored into a concrete footing. On wood benches, these rods can be inserted into the base of each leg so that the anchorage is completely invisible. In addition, cast iron can be sealed with transparent "graffiti-proof' coatings.



Bollards are a valuable accessory to seating areas along the commercial street. While physically protecting the pedestrian areas from vehicular traffic, they also provide circulation control as well as lending a sense of security necessary for a comfortable seating area. Again, simplicity and restraint are crucial to the successful usage of these elements. Heavy 10”-12” diameter oak bollards harmonize well with the English garden bench. Also, cast-iron bollards are available in many accurate Victorian designs; such bollards would effectively compliment the wood/cast-iron benches. Concrete bollards are not desirable for Beaufort’s streetscapes and are unwarranted given the available alternatives.

Active commercial streets can also benefit from many other convenience and amenity features such as drinking fountains, planters, public bulletin boards, telephone enclosures, litter receptacles, attractive directional signage, and so forth. Each of these items is, however, supplemental to the architectural essence of the streetscape. Thus, they should enhance, but not overpower the fundamental qualities of the area. Quantity and selection should be firmly based on function, need, and the degree of contribution which each element can make to the enhancement of the setting.

## Municipal Signage

The recommendations for commercial signage outlined in the “New Construction” section stress the importance of relating signs throughout the Historic District to the buildings they serve rather than to each other. If the City government itself is to exemplify this important principle, it should consider some modifications to existing municipal signage. Previously, buildings as disparate as the Arsenal, City Hall, the Beaufort County Court House, and the City Library were all signified by redwood signs. Such signs constituted intrusions, especially at the Arsenal and the Court House, and were removed or replaced with signs utilizing materials, scale, design, and lettering styles compatible with their corresponding buildings. Conversely, the street name signs used throughout Beaufort are most appropriate and require only sympathetic maintenance to continue their positive role as significant streetscape features.


**Standard Municipal Street Signage**

# APPENDIX E: Bay Street Commercial Properties: Facade Rehabilitation

This appendix was originally included in the Beaufort Preservation Manual and Supplement from the 1970s and 80s. **The appendix has not been updated to reflect subsequent changes, but is included in this Manual for informational and documentation purposes. Building labels and addresses may no longer be accurate.**

## Introduction

The 1979 *Beaufort Preservation Manual* observed about the Bay Street commercial properties that:

> Bay Street…retains much of its early appearance, with numerous facades partially or wholly intact. While "remodelings" and new construction have taken place, the opportunity exists to preserve an historically significant commercial street and regain a period setting in mood if not complete physical detail. (*Manual*, p.47)

Towards that end, the *Manual* provided a series of suggested schematic facade rehabilitation designs. As the *Manual* stated, these suggested levels of treatment for each commercial facade were intended to provide examples of appropriate levels of rehabilitation rather than specific directions regarding the treatment of each property. As such, the Manual's Bay Street recommendations were not based on extensive documentary or investigatory research, nor did they incorporate detailed structural or use analysis.


**800 Block of Bay Street, Google Maps**

Nevertheless, many of the *Manual's* recommendations for Bay Street (such as 720-24 and 901) have in fact been implemented, with positive results. Those recommendations were based on four principles, which are a condensation of the Secretary of the Interior's *Standards for Rehabilitation* (see Chapter 3), and which were stated in the *Manual* as follows:

- Do not remove, demolish, or obliterate extant historic fabric, or alter the major forms of the building.
- Respect the period and style of each structure. Do not impose artificial or contradictory stylistic elements in an attempt to "Colonialize" a building. Contemporary structures should be treated as such.
- Designs for renovation should take into consideration the impact that the work will have on neighboring structures, as well as the practical merchandising needs of the owner or tenant.
- Preservation is preferable to restoration, which is in turn preferable to reconstruction. The complete restoration of a building facade should only be considered when 1) detailed, accurate information exists regarding its early appearance, 2) a substantial amount of original material exists, and 3) it does not dictate the removal of significant historic material from later periods.


**Luther's Pharmacy on 900 Block of Bay Street, Google Maps**

## Evaluation of Significance

More than a decade after the completion of the *Manual*, the commercial blocks of Bay Street reflect, if anything, an even more active commercial climate than was present in 1979. The energy and achievements of an organization like Main Street, Beaufort USA, created in 1985, testifies to the awareness by both the merchants and the City of the continued viability of Bay Street and its critical role within the overall context of the Historic District.

The *Manual's* approach to the Bay Street commercial properties was essentially one of beautification informed by consciousness of the prototypes of historic commercial architecture. The *Manual* treated the commercial structures along Bay Street as if they were each of equal architectural merit. The subsequent evolution of both the level and type of commercial activity suggests that it would now be appropriate to provide a relative assessment of the architectural significance and, by implication, the inherent development flexibility of the existing commercial properties on Bay Street.

**800 Block of Bay Street, Google Maps**

Towards that end, the relative significance of the Bay Street commercial properties were evaluated, and each were placed into one of three categories: significant, contributing, or non-contributing. These evaluations are based purely on visual inspection and thus could be modified through documentary research. Moreover, these evaluations reflect apparent levels of significance within the limited context of Bay Street itself rather than within the overall context of the Historic District. Structures listed as non-contributing should be considered as potentially suitable for removal if appropriate development of their sites is proposed.

**Plaza at 800 Block of Bay Street**

The categorization of the commercial properties is indicated on the Bay Street elevation drawings which follow. Also indicated on each drawing, where appropriate, are brief observations which either update the *Manual's* recommendations or provide observations regarding specific existing conditions.

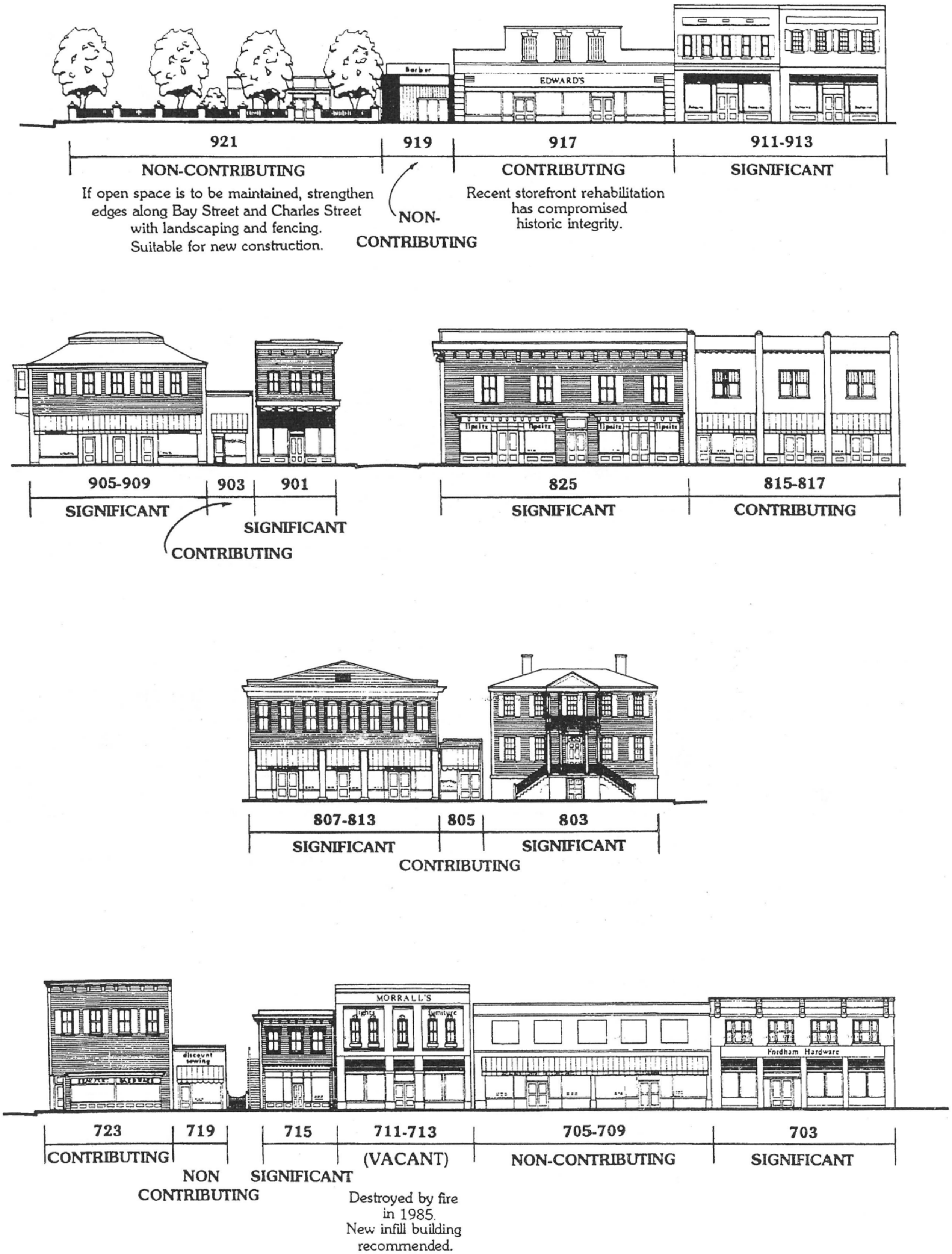
The drawings which follow are unaltered reproductions of those which first appeared in the *Manual*. It must be stressed that those drawings, as stated in the *Manual*, are intended to represent examples of appropriate levels of rehabilitation not specific rehabilitation or restoration requirements for each building.

It is very clear that significant commercial rehabilitation opportunities still exist along Bay Street. Special attention must be paid to 802-806 and 905-909, which are rare if not unique examples of tabby construction.

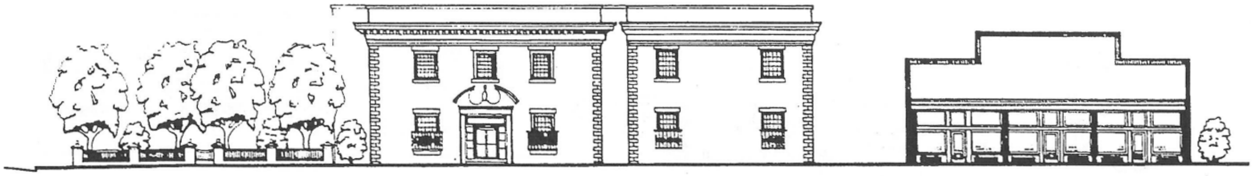
By any consideration, buildings such as 802-806, 808-812, 825, 902-910, and 905- 909, are important historic structures, the restoration and rehabilitation of which cannot but contribute dramatically to Bay Street's character.

**800 Block of Bay Street, Google Maps**

The riverside, rear facades, possess similar potential. Moreover, open space provides opportunities for new infill structures which, if appropriately done, could reinforce Bay Street's lively mix of commercial architecture and historic buildings and emphasize the important message that Beaufort is not only a significant historic environment, but a viable modern community.



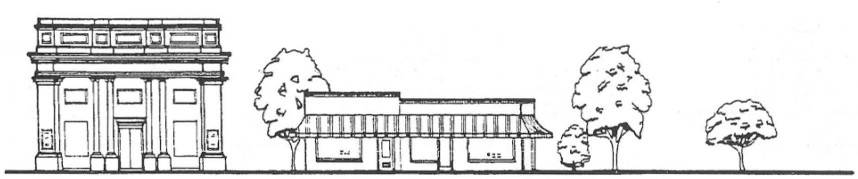

**North Side, Bay Street**



| | | |
|---|---|---|
| | 706 | 720-724 |
| CONTRIBUTING | CONTRIBUTING | SIGNIFICANT |
| Maintain as open space, with Bay Street and Carteret Street edges defined by landscaping and/or fencing. | Disregard *Manual*'s recommendations to apply quoins and cornice. | |


| | | | | | |
|---|---|---|---|---|---|
| 802-806 | 808-812 | 818 | 820 | 822 | 824 |
| SIGNIFICANT | SIGNIFICANT | CONTRIBUTING | | | (BEYOND) CONTRIBUTING |
| | | Disregard *Manual*'s recommendations to apply new wood cornices at 820 and 822. | | | Open space north of Yacht Club suitable for new construction; maintain access to river park. |


| | | |
|---|---|---|
| 902-910 | 916 | 920 |
| SIGNIFICANT | CONTRIBUTING | CONTRIBUTING |
| Re-emphasize *Manual*'s recommendations to replace existing continuous metal storefront with new wood storefront. | Non-conforming structure; no alterations recommended. | |



| | | |
|---|---|---|
| 926 | 928-930 | |
| SIGNIFICANT | NON-CONTRIBUTING | NON-CONTRIBUTING → |
| Current rehabilitation has seriously compromised historic integrity. | | |

## South Side, Bay Street

# APPENDIX F: Approved Product Manufacturers - August 2022

*The following list of suppliers for restoration products and processes may serve as a starting point for the property owner but is not all-inclusive. Specific product recommendations are generally not included as each project has its own unique requirements. The reader is advised to contact companies directly for technical advice regarding product selection.*

## Brick, Stone and Stucco

### Reproduction Brick Suppliers

Glen Gery
9905 Godwin Drive
Manassas, VA 20110
(703) 263-8057
www.glengery.com

Old Carolina Brick Company
475 Majolica Road
Salisbury, NC. 28147
(800) 536-8850
www.handmadebrick.com

Palmetto Brick Company
3501 Brickyard Road
Wallace, SC 29596
(800) 922-2243
www.palmettobrick.com

St. Joe Brick Works, Inc.
63076 Hwy 1091
Pearl River, LA 70452
985-863-6161
www.stjoebrickworks.com

### Masonry Restoration Suppliers

Carolina Supplies & Materials
2440 Meeting Street Rd
North Charleston, SC 29405
(843) 723-6588
www.carolinasupplies.com
*Oyster shell and masonry supplier*

Cathedral Stone Products
7266 Park Cir Dr, Hanover, MD 21076
(410) 782-9150
www.cathedralstone.com
*Pre-mixed bedding and pointing mortars, stone and ceramic patching mortars, injection grouts, potassium silicate paints, water repellents, masonry cleaners and paint strippers*

Chemique, Inc.
315 N Washington Ave.
Moorestown, NJ 08057
(856) 235-4161
*Masonry cleaners and paint strippers*

Conproco
(800) 258-3500
www.conproco.com
*Pre-mixed stone and ceramic patching mortars, injection grouts, mortar additives, potassium silicate paints, elastomeric masonry coatings*

deGruchy Masonry / Limeworks US
3145 State Road, Telford, PA 18969
(215) 536-6706
www.limeworks.us
*Pre-mixed bedding and pointing mortars, stone and ceramic patching mortars, pre-mixed lime stucco, hydraulic lime, limewash, mineral silicate paints, masonry cleaners*

Edison Coatings, Inc.
3 Northwest Dr, Plainville, CT 06062
(860) 747-2220
www.edisoncoatings.com
*Pre-mixed pointing mortars, stone and ceramic patching mortars, injection grouts, mortar additives, potassium silicate paints, elastomeric masonry coatings, hydraulic lime, epoxy adhesives and repair products*

ESCA Blast
1427 Boulder Ct, Ste B
Greensboro, NC 27409
(800) 699-3722
www.escablast.com
*Microabrasive masonry cleaning and paint removal*

Franmar
PO Box 1143
Bloomington, IL. 61702
(800) 538-5069
www.franmar.com
Paint and mastic removers

Helifix
4965 Eisenhauer Rd.
San Antonio, TX 78218
(888) 992-9989
www.helifix.com
*Masonry pins, anchors and repair systems*
Keim Mineral Coatings of America
3935 Perimeter West Drive, Suite 100
Charlotte, NC 28214
(866) 906-5346
www.keim-usa.com
*Pre-mixed stone and ceramic patching mortars, injection grouts, potassium silicate paints, water repellents, masonry cleaners and paint strippers*

ProSoCo, Inc.
3741 Greenway Circle
Lawrence, KS 66046
(800) 255-4255
www.prosoco.com
*Masonry cleaners, consolidants, water repellents, masonry pins, anchors and repair systems*

Sponge-Jet, Inc.
14 Patterson Lane
Newington, NH 03801
(603) 610-7950
www.spongejet.com
*Sponge blasting for masonry cleaning and coating removal*

US Heritage Group
2900 N Kearsarge Ave, Chicago, IL 60641
(773) 286-2100
www.usheritage.com
*Pre-mixed bedding and pointing mortars, stone and ceramic patching mortars, pre-mixed lime stucco, hydraulic lime, limewash*

**Wood Consolidation**

Abatron
5501 - 95th Avenue
Kenosha, WI 53144
(262) 653-2000
www.abatron.com

ConServ Epoxy LLC
P.O. Box 454
Northford, CT 06472
203-484-4123
www.conservepoxy.com

West System Epoxy (Gougeon Brothers)
100 Patterson Ave.
P.O. Box 665
Bay City, MI 48707-0665
(866) 937-8797
www.westsystem.com

**Wood Preservatives**

Penashield and Boracare Borate Wood Treatments
Nisus Corporation
100 Nisus Drive
Rockford, TN 37853
(800) 264-0870
www.nisuscorp.com

Preservation Resource Group
P.O. Box 1768
Rockville, MD 20849-1768
(800) 774-7891
www.prginc.com
*Liquid, powder, paste and solid borate wood preservatives*

**Custom Replacement Millwork**

Grayco Building Center
20 Sams Point Rd.
Beaufort SC 29907
(843) 522-9994
www.graycoinc.com

Southern Lumber and Millwork Corp.
2031 King Street
Charleston, SC 29405
(843) 744-6281
www.solumber.com

The Woodshop, Inc.
19 Gay Drive
Beaufort, SC 29907
(843) 521-4999

**Treated Wood Products**

Accoya
www.accoya.com
*Acetylated wood*

Elite Treated (Southern Lumber & Millwork Corp)
2031 King Street
Charleston, SC 29405
(843) 744-6281
www.solumber.com
*Pressure-treated KDAT*

LP SmartSide
LP Building Products
(888) 820-0325
www.lpcorp.com
*Treated wood siding*

Structura
www.structura.com
*Acetylated wood*

YellaWood
www.yellawood.com
*Pressure-treated KDAT*

**Composite Wood Materials**

Azek
The AZEK Company
1330 W Fulton Street Suite #350 | Chicago, IL 60607
(877) 275-2935
www.azekco.com
*Cellular PVC fabrications*

Cellular PVC Trim
Certainteed St. Gobain
800-233-8990
www.certainteed.com
*Cellular PVC fabrications*

James Hardie
1-888-542-7343
www.jameshardie.com
*Fiber cement siding and trim*

Smooth Matte Trim
Versatex Building Products
400 Steel Street
Aliquippa, PA 15001
(724) 857-1111
www.versatex.com
*Cellular PVC fabrications*

TruExterior Trim and Siding
Westlake Royal Building Products
(800) 521-8486
www.truexterior.com
*Fly ash composite trim and siding*

**Paint and Coatings**

Benjamin Moore
www.benjaminmoore.com
*Paints, stains and varnishes*

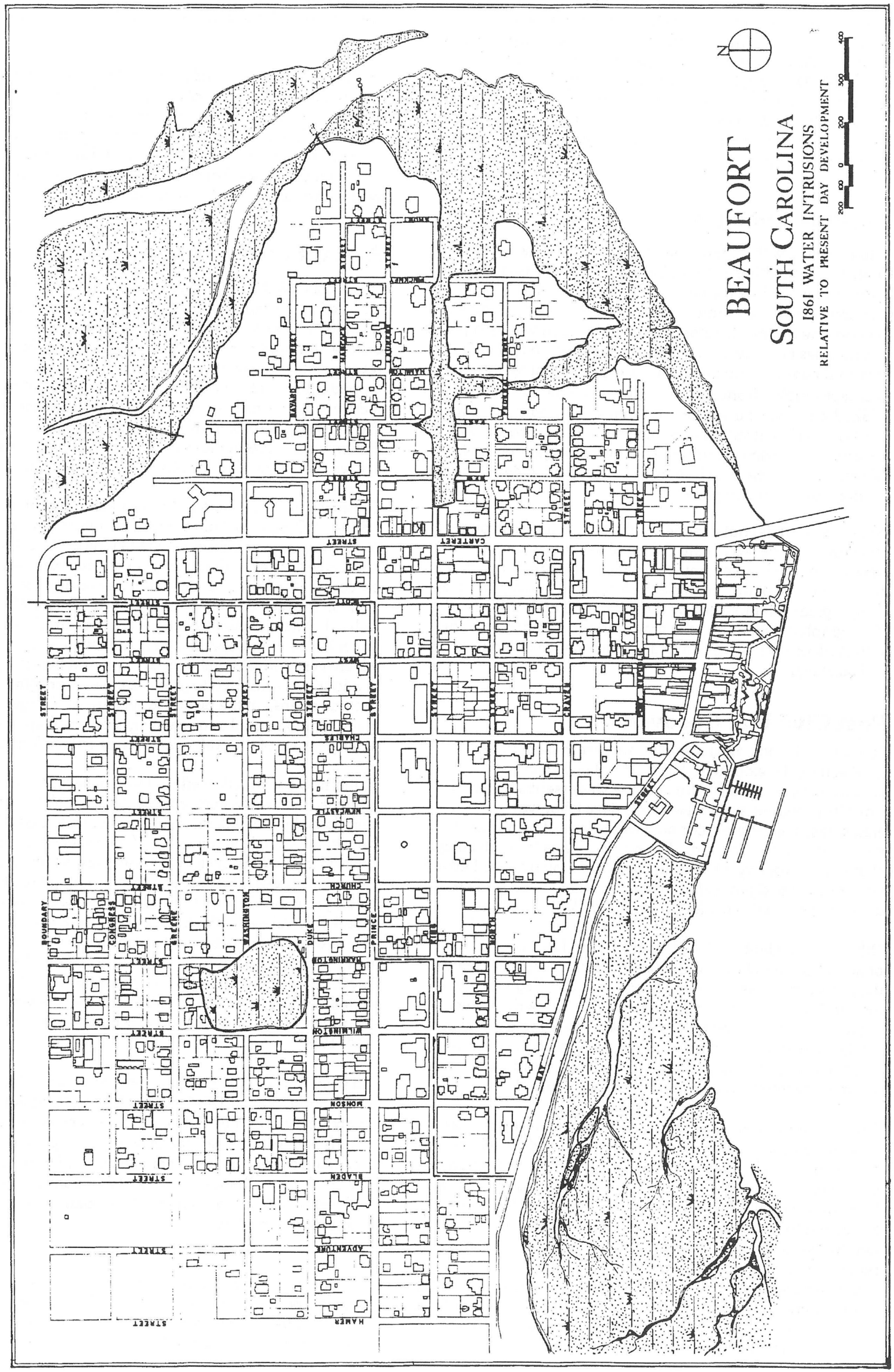
Dumond Chemicals
253 South Bailey Road
Downingtown, PA 19335
(609) 655-7700
www.dumondglobal.com
*Paint removers*

PPG Paints
www.ppgpaints.com
*Paints, stains and varnishes*

Sherwin-Williams
www.sherwin-williams.com
*Paints, stains and varnishes*

Sunnyside Corporation
225 Carpenter Ave, Wheeling, IL 60090
(847) 541-5700
www.sunnysidecorp.com
*Solvents and paint removers*

# APPENDIX G: 1861 Water Intrusions



# Glossary

(with reference to: *The Random House Dictionary, Everyman's Concise Encyclopedia of Architecture, and Dictionary of Architecture*, by H. Saylor)

**Alkyd:** A sticky resin derived from dicarboxylic acids, found in adhesions and paints.

**Antae:** A thickening of a wall at its normal termination, such as a pilaster projecting from the wall at either end of a range of columns.

**Anthemion:** In Greek and Greek Revival architecture a conventionalized ornament based on floral forms such as the honeysuckle and the palmette.

**"Antiqued" Brick:** New brick that is manufactured to look old. The disadvantage of "antiqued" brick is that the brick surface is easily discernible, as the "antiqued" surfaces are fairly consistent throughout. Another method of "antique-ing" brick is by distressing, tumbling, staining, or otherwise artificially weathering or damaging bricks to give them an historic appearance. This can compromise the quality of the brick and is not equivalent to salvaged historic brick.

**Appropriate:** Suitable or right for a particular situation or occasion.

**Apsidal:** Containing a vaulted semicircular or polygonal recess in a building.

**Back priming:** The protection against deterioration of the unexposed surfaces of exterior wood members by means of a primer coat of paint.

**Baluster:** One of a number of closely spaced supports for a railing.

**Balustrade:** A railing or parapet consisting of a handrail on balusters.

**Bargeboard:** The vertical face board following, and set back under, the roof edge of a gable and along the wall, sometimes decorated by carving.

**Batten:** A narrow cover strip at the vertical joint between two boards.

**Battered Pier:** A pier whose sides slope downward and outward from a perpendicular angle; a battered pier's dimension across the top is smaller than that taken across the bottom.

**Bay:** The portion of a plan of a building contained between adjacent piers or columns.

**Bay Window:** A window or windows in a wall that projects angularly from another wall.

**Bead:** A convex shape cut into the length of the surface and/ or corner of wood moldings.

**Bell Capital:** The simple vase form at the central portion of a Corinthian capital, which is surrounded by foliated elements.

**Bond:** Any of various arrangements of bricks, stones, etc., having a regular pattern and intended to increase the strength or enhance the appearance of masonry construction.

**Bonding Agent:** Element used to bind or hold together adjacent materials, such as that used in joining new applications of concrete to existing.

**Brazing:** The procedure of uniting metal objects by holding them together, usually over a hearth, and joining them with any of various solders having a high melting point and containing copper, zinc, and other alloys.

**Butt Joint:** A meeting of two members squarely end to end.

**Came:** A soft-metal division strip between adjacent pieces of glass in leaded or stained-glass windows.

**Capital:** The top member or group of members of a column, pier, shaft, or pilaster.

**Cat Slide:** A roof of two unequal lengths, the longer leg of which is broken into two different slopes.

**Caulking:** The process engaged to fill cracks and crevices chiefly along the intersection of wood or metal with masonry, using a non-hardening putty-like compound often applied from a pressure gun.

**Chamfer:** A cut made at a 45 degree angle to a square or rectangular piece of wood, occurring at either the linear corners or the end corners.

**Cheek Walls:** Any pair of upright facing members, such as the end walls of a brick stair.

**Clapboard:** A board that is thin on one edge and thicker on the other, which is overlapped horizontally with similar boards to form a weatherproof, exterior wall surface.

**Closed String:** A stair in which the edges of risers and treads are covered on the outside by a slanting member.

**Concrete Masonry Unit (CMU):** Concrete masonry unit; a chemically hardened concrete block, usually hollow and having some degree of structural quality.

**Comb:** In a shingle roof, a top course which projects above the ridge away from the direction of prevailing winds.

**Concrete Masonry:** A compound of cement, large and small aggregates, and water, deposited in temporary forms while in a fluid state, which attains hardness and strength when set.

**Contributing:** A building, structure, site, feature or object that contributes to the historic character of the district, was built during the district's period of significance, and retains its appearance from that time.

**Corbelling:** A means of forming a bracket or cornice by extending successive courses of masonry beyond the wall surface.

**Corner Board:** A vertical strip of wood placed on exterior corners of a building sheathed with wood siding, used for purposes of decoration, protection, and construction.

**Cornice:** A continuous, horizontally projecting feature at the top of a wall, such as may be found below the eaves of a roof.

**Cornice Return:** The termination of a cornice by a right-angled change in the direction of its group of moldings.

**Countersink:** An added depression below a surface to receive the head of a nail, screw, or bolt.

**Crawl Space:** Space beneath the first floor construction and above the ground where excavation has not been carried out and which provides access to pipes, ducts, etc., may be obtained.

**Curing:** The process of keeping the surface of newly-installed stucco or concrete moist so as to avoid premature drying and imperfect setting.

**Dado:** That part of a wall which is marked off to resemble a base or pedestal.

**Dentils:** A series of closely spaced, small, block-like projections on a cornice.

**Doric:** One of the classical orders of architectural columns.

**Double-Hung Window:** A window having two balanced sashes, one sliding over the other vertically.

**Double Pile:** A plan arrangement in which the structure is two rooms deep.

**Dowel:** A cylindrical pin used in woodworking joints.

**Downspout:** A rain leader or vertical pipe which conducts water from the eaves gutter.

**Dusting:** The loosening of fine particles on the surface of brick or stone by abrasion, weathering, or decay.

**Dutchman:** A patch spliced into the existing construction to match the original in size, shape, texture, and material.

**Eave:** The edge of a roof that projects over an outside wall.

**Eccentric Load:** A condition which exists when a structural load is placed off-center of the axis of the pier or column supports it.

**Edge Beam:** A beam transversing the ends of a structure.

**Efflorescence:** A disfiguring deposit of white particles on the weather face of masonry, particularly brickwork, resulting from the presence of salts in the clay or mortar.

**End Grain:** Describing the face of a piece of wood that is exposed when the fibers are cut transversely.

**Entablature:** In classical architecture, the horizontal group of members which is immediately above the column capitals.

**Entasis:** The curve by which the upper shaft of a column is diminished in section above the lowest third.

**Espalier:** A decorative lattice or wire armature fixed against a wall upon which vegetation can grow in a controlled fashion.

**Facade:** The face of a building, usually the principal front.

**Fanlight:** An oblong, semicircular, or elliptical window over a door, with radial muntins or leads in decorative patterns.

**Fascia:** A horizontal band of vertical surface which forms the outer edge of the finish to an eave, porch floor, or cornice.

**Feathering:** The thinning out of the edge thickness of new material where it meets old so as to eliminate a visually disruptive joint line.

**Flashing:** The mechanical closure of joints between planes and/or dissimilar materials, such as the joint between a chimney and the roof, usually executed with metal sheets or composition flashing.

**Flat Seam:** A sheet metal joint on metal roofs where the end result is a flat or flush connection between adjacent strips of roofing material or at ridges and valleys.

**Float:** A tool which consists of a flat board with a handle on one side, used for spreading and smoothing plater or cement.

**Flue:** A vertical passage through a chimney for the escape of air or combustion gases.

**Flute:** Parallel grooves used in embellishing pillars, columns, and moldings.

**Footing:** The spread foundation base of a wall or pier.

**Foundations:** The bottom part of a structure; the part in or on the supporting earth.

**Gable:** The upper triangular part of an end wall under the ridge of a pitched roof.

**Gauge:** The thickness or diameter of various thin materials, such as the thickness of sheet metal or the diameter of a screw.

**Glaze:** To install glass panes in a sash or door.

**Gougework:** Decorative incised woodwork for which the gouge or chisel are the principal tools; seen chiefly in the Federal period.

**Grout:** Concrete with small aggregates and heavy liquid consistency, capable of being poured to fill small cracks or seams.

**Gusset:** A structural plate stiffening an angular meeting of two or more members in a framework.

**Head:** The top of the frame of a door or window.

**Hip Roof:** A roof with sloping ends and sides.

**In Antis:** A temple form in which the side walls project, providing closed ends for the front colonnade.

**Inappropriate:** Unsuitable, especially for the particular time, place, or situation.

**Jamb:** The side of a window or door opening against which the sash or the door abuts.

**Jib Door:** A concealed door, usually the lower third of a large window, constructed so as to appear as part of the wall surf ace or as a dado when closed.

**Lace Brick:** The type of brick wall construction in which header-size openings have been left in each horizontal row of brick to provide a decorative openwork effect.

**Latex:** An emulsion in water of finely divided particles of synthetic rubber or plastic, used as a medium for pigment in modern paint.

**Lath:** Rib-like support of wood or metal upon which plaster is spread.

**Lattice:** An openwork grille of interlacing wood strips.

**Leaded Glass:** Glass set in lead cames.

**Lintel:** A short beam which forms the structural support at the head of window and door openings in brick masonry construction.

**Masonry Cavity Wall:** A masonry wall built with two parallel vertical masonry walls and having insulating air space between.

**Meeting Rail:** The horizontal member at the junction of upper and lower double-hung window sash.

**Metope:** A square panel between the triglyphs of the frieze of the Doric order.

**Mortar:** A mixture of sand, water, lime, and cement, sometimes including moisture-repellent substances, used to bind together units of masonry.

**Mortise:** A cut-out receptacle in one member which receives the tenon of another to which it is to be joined.

**Muntin:** A bar member supporting and separating panes of glass in a sash or door.

**Mutule:** A flat block projecting from the underside of the horizontal surface (the corona) of the cornice of the Doric order.

**Neat Cement:** Cement used without the addition of sand or aggregate.

**Newel:** A post terminating the handrail of a stairway at top, bottom, or on a landing.

**Non-Contributing:** A feature, addition or building, structure, object, or site which does not add to the sense of historic authenticity or evolution of an historic resource or landmark or where the location, design, setting, materials, workmanship, history, and/or association of the building, structure, object or site has been so altered or deteriorated that the overall integrity of that resource has been irretrievably lost.

**Not Recommended:** A course of action is not consistent with historic preservation Best Practices and/or other laws, codes, or requirements and should not be adopted.

**Outshut:** An annex to the main block of a building often resulting in a cat slide roof configuration.

**Palladian Window:** A window composed of an arched opening closely flanked by square-head openings of smaller size and with the same base or sill.

**Parapet:** A low wall at the edge of a roof, porch, or terrace.

**Pediment:** The triangular face of a roof gable, especially in its classical form.

**Penta Chlorophenal ("Penta"):** A white, crystalline, water insoluble powder used chiefly in fungicides, disinfectants, and wood preservatives.

**Pier:** An upright structure of masonry which serves as a principal support, whether isolated or as part of a wall.

**Pilaster:** An engaged pier of shallow depth; in classical architecture, it follows the height and width of related columns, with similar base and cap.

**Plate:** The horizontal member capping the range of exterior wall studs and supporting the rafters.

**Plinth:** The base block of a column, pedestal, or other isolated object.

**Pointing:** The final filling and finishing of mortar joints that have been left raw or raked out.

**Pole Gutter:** A horizontal channel made of wood and metal along the lower portion of a roof which diverts rain water to the downspouts.

**Ponding:** An undesired collection of water in depressed areas of soil or flooring.

**Porte-Cochere:** A shelter for vehicles at the outside of an entrance door.

**Portland Cement:** Widely used hydraulic cement, so called because of its resemblance to English Portland stone.

**Preservative:** A chemical substance used to protect a material such as wood from decomposition.

**Primer:** A base coat in painting.

**Prostylar:** Having columns in front of the principal facade.

**Quatrefoil:** A four leaf or lobed figure (similar to a four-leaf clover).

**Rafter:** A supporting member immediately beneath the roofing material or the roof boarding.

**Rail:** A horizontal member in a panel frame, as in a paneled door between the stiles.

**Rake:** A slope or inclination, as of a roof or gable.

**Recommended:** Advised or suggested as good or suitable.

**Reed:** A part of a molding or surface, made up of closely spaced, parallel, half-round, convex profiles.

**Reinforced Concrete:** Concrete in which steel bars or mesh have been embedded to provide strength against forces of tension.

**Retaining Wall:** A wall built to retain a bank of earth, as at a change in grade levels.

**Ridge:** The top horizontal member of a sloping roof against which the upper ends of the rafters are fixed.

**Riser:** The vertical member between treads of a stair.

**Rising Damp:** The capillary action of masonry walls absorbing moisture from the surrounding earth.

**Rope Molding:** Molding simulating the twisted strands of rope.

**Rot:** Deterioration or decay of a material such as wood.

**Salmon Brick:** One of the more lightly burned upper bricks of a kiln.

**Sash:** A frame for glass used to close a window opening.

**Scarf Joint:** An angled end joint in wood construction.

**Scoring:** Shallow grooves made in the surface of wet stucco which imitate the appearance of course stone.

**Sheathing:** A covering of boards or other surfacing on the inside or outside of a structural frame.

**Shoring:** Temporary supports to prevent collapse of a building or parts of a building under alteration.

**Sidelight:** One of a pair of narrow windows flanking a door.

**Sill:** The horizontal water-shedding member at the bottom of a door or window frame.

**Significance:** The heritage preservation value of a property in relation to an important historic context or theme related to history, architecture, landscape architecture, engineering, or culture.

**Single Pile:** A plan arrangement in which the structure is one room deep.

**Soffit:** The finished underside of an eave or beam or other spanning member.

**Spalling:** The splitting off of the surface of masonry due to the effects of the weather.

**Spark Arrester:** A metal grate or wire screen placed at the top of a chimney flue to prevent sparks from escaping.

**Spindle:** A short, turned piece of wood, such as a baluster.

**Splash Block:** A stone or cast concrete block at the base of a downspout which is used to divert rainwater away from the sides of a foundation or building.

**Splice:** A joint formed by overlapping and binding together two members.

**Spline:** A thin strip forming a key between two boards or planks and locking their edges together; usually the spline is of rectangular section, but sometimes of x-section.

**Spread Footing:** The foundation base of a wall or pier.

**Standing Gutter:** See "Pole Gutter."

**Standing Seam:** The metal strip joining and covering two adjoining sheets of metal roofing which is crimped at 90 degrees to the roofing.

**Stile:** A vertical framing member of a paneled door or of paneling.

**Stringer:** The sloping structural end of a stair.

**Stucco:** Plaster for exterior walls.

**Tabby:** A building material compound of oyster shells, lime, and sand mixed with water.

**Tenon:** A projection on the shoulder of a wood member which fits snugly into a socket or mortise in another wood member to form a joint.

**Tetrastylar:** In classical architecture, a portico consisting of four columns in a row.

**Threshold:** A door sill.

**Tongue-and-Groove (T & G):** Applied to boards having a tongue formed on one edge and a groove on the other for tight joining.

**Tooling:** Tooled ornamental grooves on wood or stone.

**Transom:** An opening over a door or window, containing a glazed or solid sash.

**Tread:** The horizontal surface of a step.

**Trellis:** Lattice work as an outdoor screen, often a support for vines.

**Triglyph:** A projecting rectangular block with vertical grooves which occurs in a rectangular series along the entablature of a Doric cornice.

**Turned Baluster:** Balusters cut on a lathe.

**Tuscan:** One of the classical orders resembling the Doric but of greater simplicity.

**Two-Stage Veranda:** A porch or portico which by its division into two floor levels also emphasizes the use of classical orders.

**Two-Story Veranda:** A porch or portico, the configuration of which rises to two stories, but which may be fronted by columns of two-story height.

**Tympanum:** The space enclosed by the three sides of a pediment.

**Underpinning:** A foundation replacing a former one or reinforcing it from below.

**Vapor Barrier:** A material, usually in thin sheet form or combined with a sheathing material, designed to prevent the passage of moisture through a wall, ceiling, or floor with the aim of avoiding condensation.

**Vergeboard:** The vertical face board following and set under the roof edge of a gable, sometimes decorated by carving.

**Wainscot:** Dado height paneling.

**Wash:** The slight slope of a top surface of brick masonry construction which sheds water and which is usually constructed of cement or mortar.

**Weatherboard:** A horizontal exterior siding board installed so that its lower edge overlaps the adjacent board below.

**Weatherstripping:** Interlocking strips of material that help block the passage of air around a door, window, or other exterior opening.

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