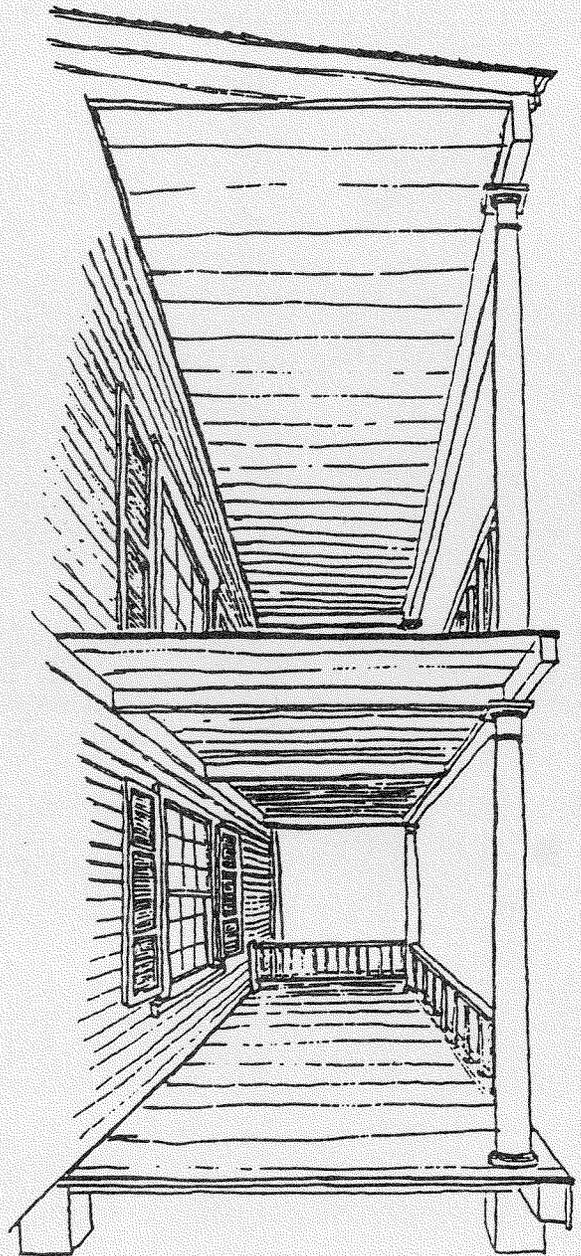


# The Beaufort Preservation Manual

prepared for  
The City of Beaufort  
Beaufort, South Carolina

by  
John Milner Associates  
West Chester, Pennsylvania

August, 1979





# Table of Contents

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Acknowledgements . . . . .	III
Letter to the Beaufort Homeowner & Resident . . . . .	VII

## **Architecture**

Chapter 1: Reflections on Beaufort's Architectural Development . . . .	1
Chapter 2: Architectural Styles - Buildings and Details . . . . .	17
Chapter 3: New Construction and Signage . . . . .	41

## **Masonry**

Chapter 4: Brick and Chimneys . . . . .	57
Chapter 5: Tabby, Stucco, and Concrete . . . . .	69

## **Wood**

Chapter 6: Wood Preservation . . . . .	75
Chapter 7: Porch Repairs . . . . .	79
Chapter 8: Doors, Windows, and Shutters . . . . .	93
Chapter 9: Siding and Trim . . . . .	97

## **Weatherproofing**

Chapter 10: Roof Repairs and Maintenance . . . . .	101
Chapter 11: Flashing, Gutters, and Downspouts . . . . .	107
Chapter 12: Painting . . . . .	113
Chapter 13: Energy Conservation . . . . .	119

## **Site Improvements**

Chapter 14: Landscaping and Site Amenities . . . . .	125
Chapter 15: Public Improvements . . . . .	135

## **Index**

Glossary . . . . .	149
Bibliography . . . . .	153
Index . . . . .	157



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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 businessmen of Beaufort who shared their knowledge and enthusiasm for their town and so warmly encouraged our work.

Special thanks go to Dr. Summers Miller and Dr. Lawrence Rowland of the Beaufort Campus, University of South Carolina; Mrs. J. Riley Gettys, and Mrs. Henrietta Smith of the Beaufort Foundation.



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 man-made elements in the Beaufort Landmark Historic District.

This publication is designed for the convenience of individual property owners. It is 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 problems, 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 Landmark Historic 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. for inclusion in the master inventory file. Such participation will greatly expand 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 style 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 life style of a quiet and pastoral town. This quality is readily acknowledged, and hopefully reflected, in the Manual through the emphasis given to the value of proper and continued maintenance. Only through the dedicated efforts of each homeowner to sensitively and responsibly care for his house 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 personal 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.

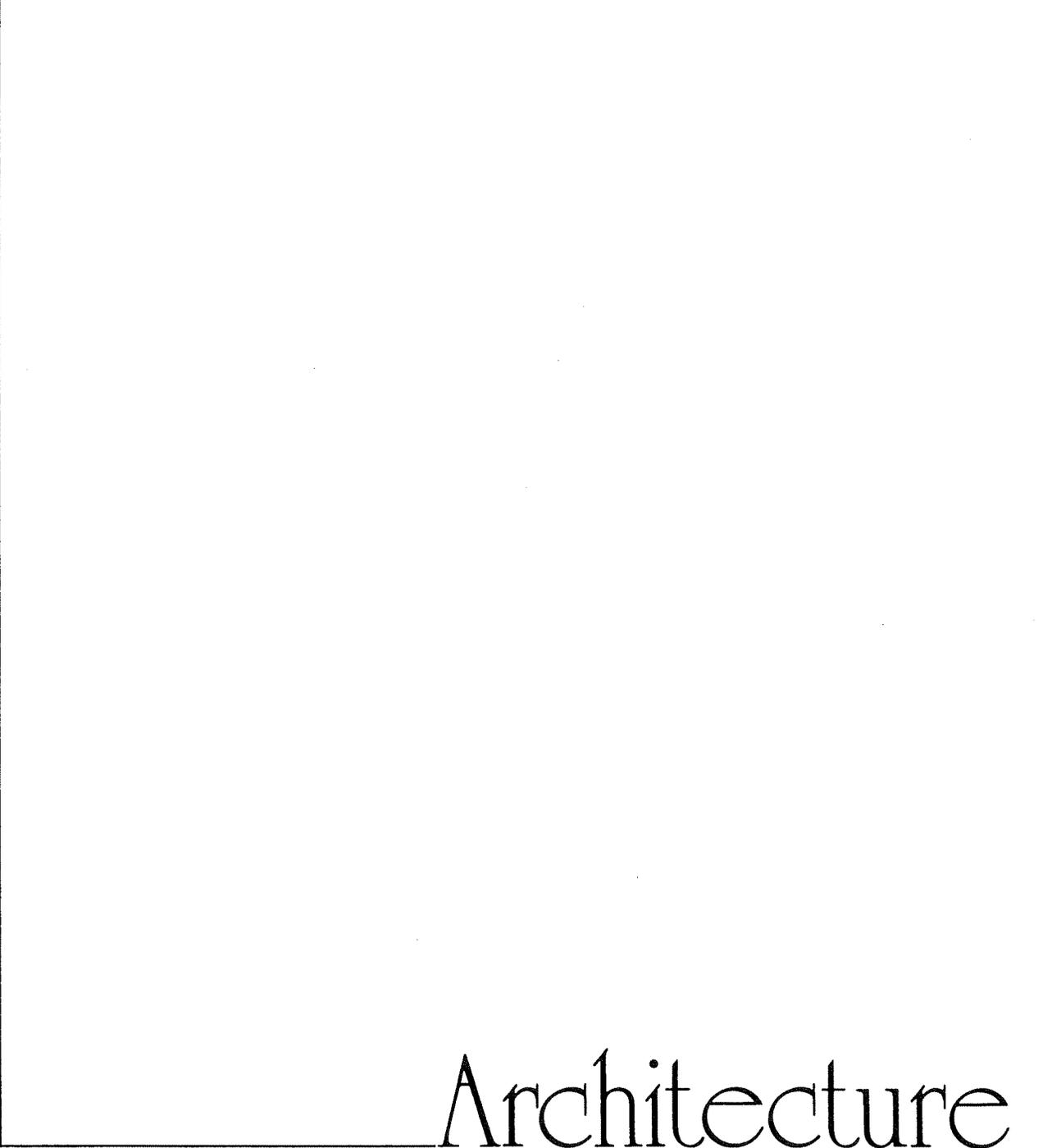
The guidelines presented in the Preservation Manual generally illustrate *the most appropriate* means of stabilization and repair of specific items. However, a concerted effort has been made to combine the optimal with the practical in order to provide techniques with which property owners can readily 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 homeowner. 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 their 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 house. 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 ASSOCIATES  
August, 1979





Architecture



# Chapter 1

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## Reflections on Beaufort's Architectural Development<sup>1</sup>

### 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 twenty 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.<sup>2</sup>

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.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup> Shipbuilding also encouraged early prosperity and, as a spinoff, a local middleman/merchant class began to develop, leading to Beaufort's being used for the transport of local goods to Savannah and Charleston.<sup>6</sup>

### 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.<sup>7</sup> In 1710, the Lords Proprietors agreed that a seaport town should be erected on the islands.<sup>8</sup> 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 Indians in 1715.<sup>9</sup> 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 Calvert Streets, dominated the interior portion of the southeast segment of the grid.<sup>10</sup> Most of the rectangular blocks east of Carteret Street were divided into six or more lots; those to the west into four or six. Twenty-four 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).

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.<sup>11</sup> 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,<sup>12</sup> but neither was a fortress function defined.<sup>13</sup> Soon after the town was founded in 1715, its ability to survive was tested by an attack by the Yemassee Indians. By 1720, the place contained only a handful of homes.<sup>14</sup>

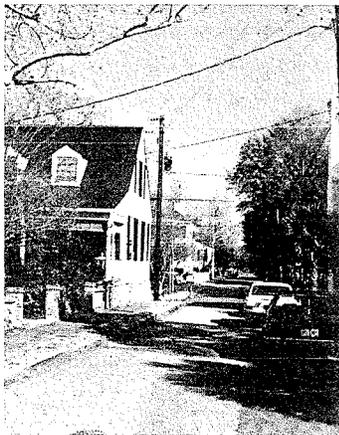
Structured settlement actually began in 1717, the first year that grants were recorded.<sup>15</sup> The list of original grantees, together with the early structures which have survived, suggest that some of what may be called second period houses were constructed at the four corners of streets which are today called New and Port Republic.<sup>16</sup> 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.<sup>17</sup>

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.<sup>18</sup> 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.<sup>19</sup> 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 weatherboarded walls and the brick masonry.



"Second Period" House Type

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.<sup>20</sup> It is also possible that stairs were either relegated to the exterior or assigned to stair towers built for the purpose.<sup>21</sup> Secondary buildings such as kitchens and servants' quarters were built close to the houses but without connection.<sup>22</sup>

## 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.

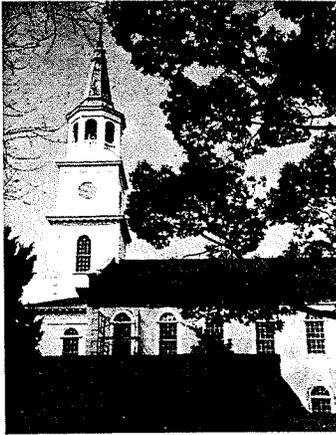
**Defense.** Public structures built for the purpose of defense were either fortresses geared to combat use or arsenals used only for the storage of supplies. Each type is thought to have existed within the limits of the present Historic District, but the structural principles used have not been studied in depth. We do know 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).<sup>23</sup> 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 allotted, 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.<sup>24</sup>

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 crenellated 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 (twelve 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.<sup>25</sup> 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.<sup>26</sup> 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)<sup>27</sup> 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"



**St. Helena's Church**

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.<sup>28</sup> While locally avantgarde, it reflected what had been used in the north a decade earlier.

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



**Church of St. Peter the Apostle**

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.<sup>29</sup> It quietly stressed an ecclesiastical reference.

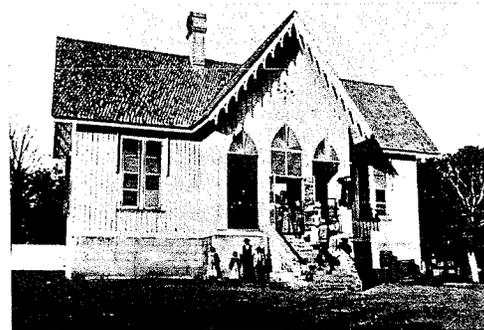
Other interesting examples of church architecture as applied to later nineteenth century style are churches based loosely on Gothic precedent but built in different generations, one in 1865, the other in 1900. Each was undoubtedly an economically conservative venture while also a successful house of 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



**"Praise Church"**

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.

**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 School**

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<sup>30</sup> 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.<sup>31</sup>

**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.<sup>32</sup> This may well be the case since the building was on “public” 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.



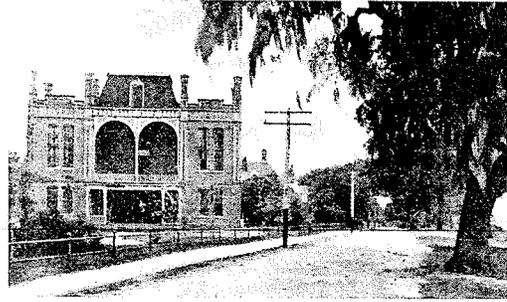
**Early Jail**

**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. Colonial courthouse requirements were also met by buildings of domestic



**Early Nineteenth Century Courthouse**

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**

built on a trapezoidal lot on Bay Street in the west end of the original village.<sup>33</sup> 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.<sup>34</sup>



**Customs House**

Administration at the Federal level does not seem to have been stressed in the epic 1850’s 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-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 1760’s. 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,<sup>35</sup> and the warfs 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



**Mid-Eighteenth Century House Form**

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.<sup>36</sup>

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 roofline. The cornices were coved, typifying the earlier William and Mary phase of classical evolution in American architecture. 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.



**Mid-Eighteenth Century House Form**

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.<sup>38</sup> This was a plus 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.<sup>39</sup> 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.<sup>40</sup>



**Eighteenth Century House Form**

## The 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. In 1785 an Act, 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.<sup>41</sup> According to land records, few lots had not been granted as of 1776 (see Map 1). 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 1790's 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



**Federal Era House Form**

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."<sup>42</sup>

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.<sup>43</sup> 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**

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.<sup>44</sup> 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.<sup>45</sup> 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 fifty years old, it had a population of only two hundred,<sup>46</sup> 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. The local artist who visualized the scene in 1798 depicted these contrasts of scale and density.<sup>47</sup>

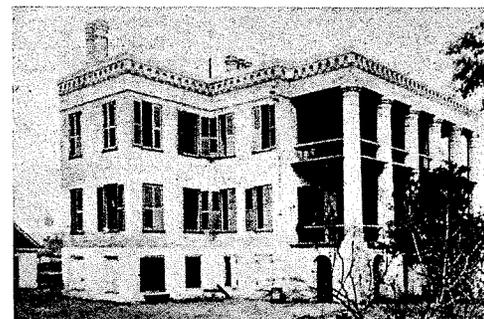
## The Greek Revival Mansions

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.<sup>48</sup> Between 1852 and 1860, Beaufort put forth the most extensive construction effort in the town's nineteenth century history.



**1850's Veranda - Superimposed Orders**

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."<sup>49</sup> It provided the theme for a Beaufort personality which has endured, however modified, to the present time.



**1850's Veranda - Colossal Order**

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.<sup>50</sup>



**Greek Revival Shops**

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 (see Map 2).



**Eighteenth Century House Form with Addition**

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.<sup>51</sup> 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. Indeed, at least one incongruous example of the Greek Revival was appended to an earlier Adamesque home showing utter disrespect for the house to which it was attached.

The variety of the overall effort in Beaufort strongly reflects the



**1850's Italianate Mansion**

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." In Beaufort, the picturesque was usually limited to bracketed eaves, parapeted cornices, or beveled eaves. One Italian villa, however, 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.<sup>52</sup>



**1850's House Form**

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.<sup>53</sup> 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.



**1850's Cottage Form**

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 Sumpter 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.<sup>54</sup>

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."<sup>55</sup> 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 Negroes. 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.<sup>56</sup>

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.<sup>57</sup> Despite this new availability of land, relatively little durable new construction seems to have been undertaken in the late 1860's. 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.<sup>58</sup> Even the courthouse, used when Beaufort again became the county seat in 1872, was a renovated building.<sup>59</sup>

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.<sup>60</sup>

## A New Economic Upturn

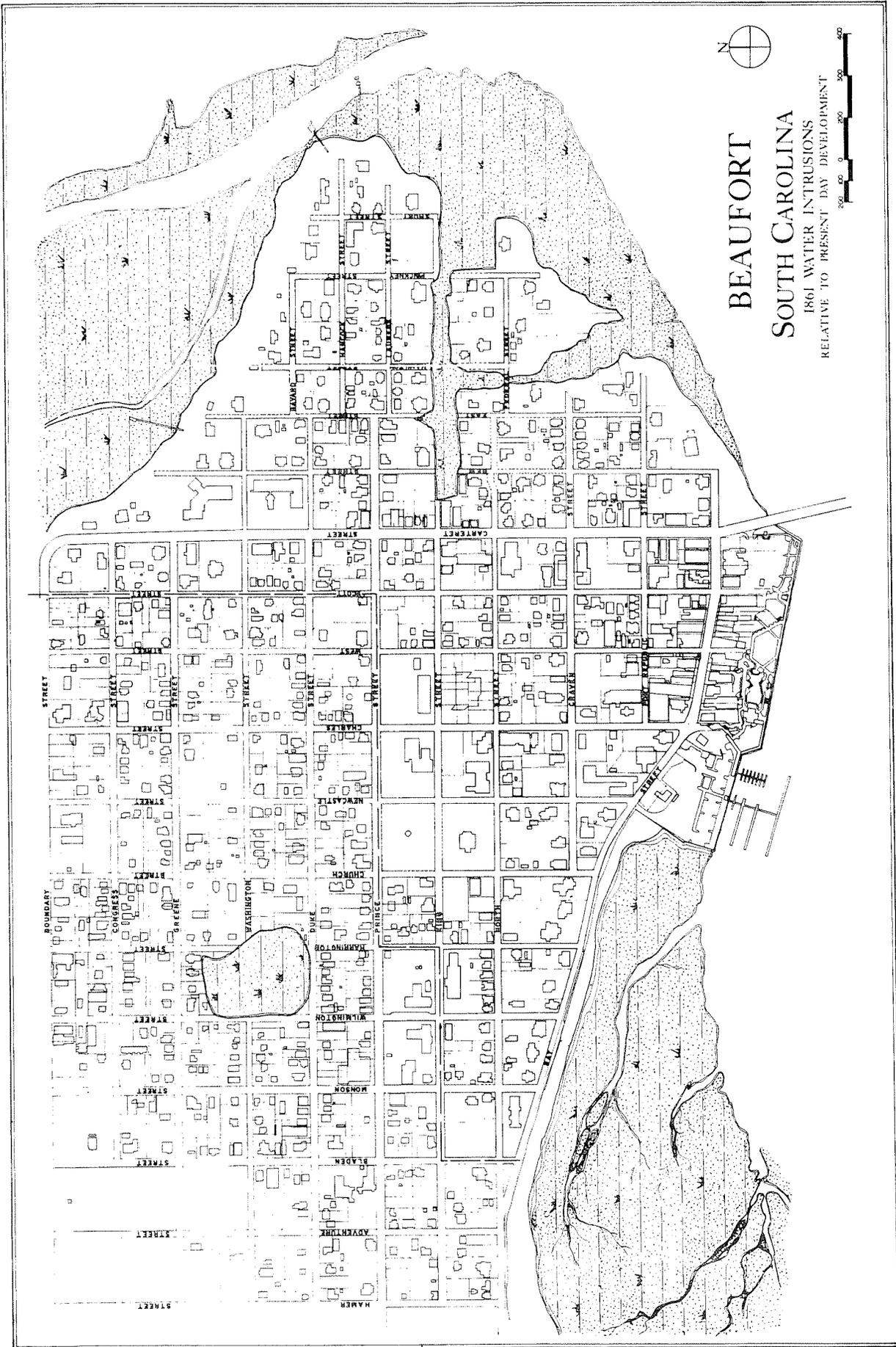
It was not until the 1870's, when the state government returned to control, that domestic and commercial construction seem to have experienced an upturn. By that time, the cotton culture had been reinstated on a modest scale. For added revenue, the phosphate resources of the riverside had been tapped 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 Map 2).<sup>61</sup> 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.<sup>62</sup> 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



**BEAUFORT**  
**SOUTH CAROLINA**  
 1861 WATER INTRUSIONS  
 RELATIVE TO PRESENT DAY DEVELOPMENT



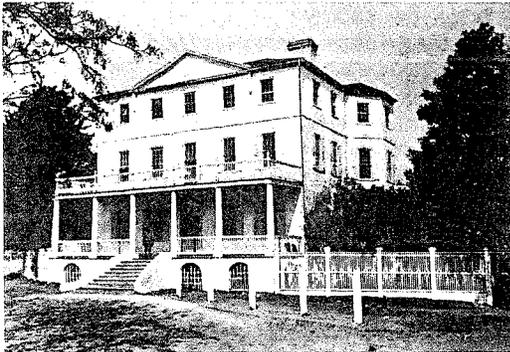
Map 2

waterside edge for the mansions in the 600 block of Bay Street.<sup>63</sup>

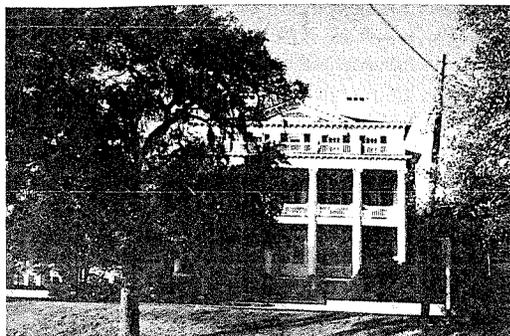
The impact of commercialism on the town was not only underscored by the proliferation of wharfs, cotton gins, and other mills, but also by the hotels, guest houses, and banks which occupied former homes on Bay Street. The renovated hotels were near the waterfront, essentially blocking service structures, ice houses, shanties, sheds, and Negro 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.<sup>64</sup> 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.<sup>65</sup> 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-Classical 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 1900's. Its "new" woodwork and other details reflect what was then so popular in the new houses built in Back Bay Boston.



**William Elliott House**



**William Elliott House After Colonial Revival**

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



**"Queen Anne" House**

as "Queen Anne," these exemplified Americanization of a more serious English style. 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.<sup>66</sup> 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.<sup>67</sup> The more transitional examples, leaning toward the Colonial Revival, were built on the Point where the scale and style was dominated by the 1850's 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.<sup>68</sup> 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 the new construction of the 1870's 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.<sup>69</sup> 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.<sup>70</sup> 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 indisputedly new, this mansion

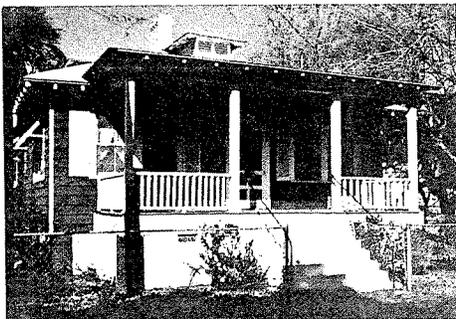


**“Beaux Arts” / Beaufort Mansion**

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.<sup>71</sup>

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, reroofed, and reglazed, 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**

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, doing major damage to several buildings, did the determination to recover instigate the major restoration effort which has continued to today.

It was in the 1960’s, 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.<sup>72</sup> 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 eighty 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**

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 still 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. Nowhere, however, is there the blatant lack of resolve which developed in the nineteenth century.

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



**Waterfront Park**

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 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 river 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.

## 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 which applies to Map #3 (appended to the published report). 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. Gerald 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,

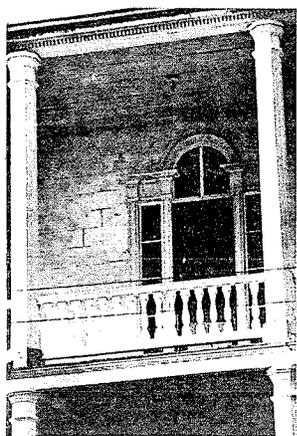
- in terms of the cross house precedent in seventeenth century England together with the Barbados influence and the connection with Sir William Berkeley in Virginia (where cross houses existed), the thesis of stairs set apart from the house block is a plausible one. Several cross houses of the seventeenth 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*, (Hartford, 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 foliage, 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. Gerald 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. Gerald 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. 3.
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 resumé 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 Map #2. Council Minutes could document the date of this work.
63. The "I" house, first so called by Dr. Fred Kniffen in his study of cultural geography, is explained in its Virginia context by Henry Glassie 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.
64. See Note 63.
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-Classical temple form it presently exhibits.
67. A Queen Anne adaptation of an older house is evident at 1203 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 are examples of recent moving ventures.

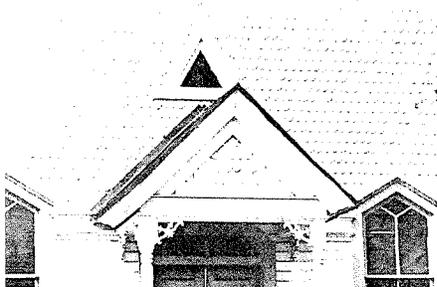
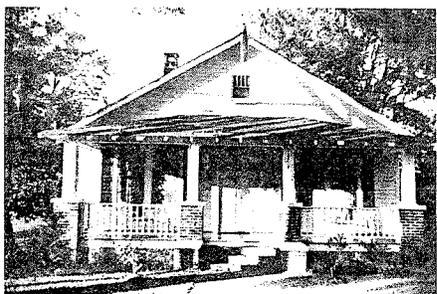
# Chapter 2

## Architectural Styles - Buildings and Details

### Introduction



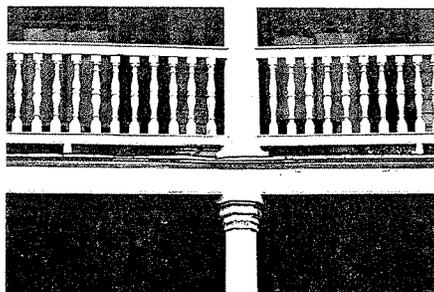
Most of the architecture in Beaufort's Historic District displays a lively mixture of details from various historic periods. This mix testifies to the City's continued health: only minor remodeling and concessions to prevailing tastes have been required to permit the buildings to satisfy the needs of 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.



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 18th century chimney, late 19th century windows, and a Colonial Revival porch -- a combination which, incidentally, is fairly common in Beaufort.



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.



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 his 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.

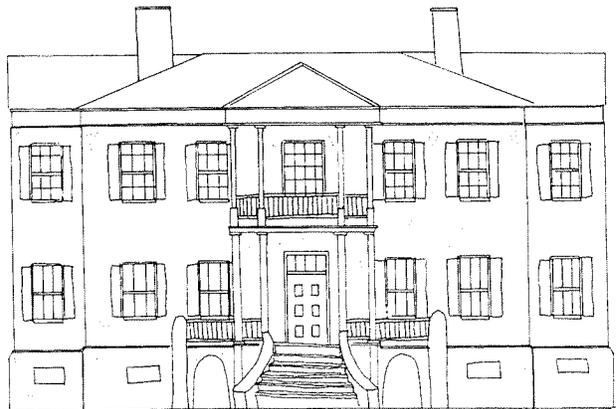
Renovations: both observation and available documentation have been used to illustrate the manner in which certain Beaufort buildings have evolved through time, thus highlighting the tastes of various periods.

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:

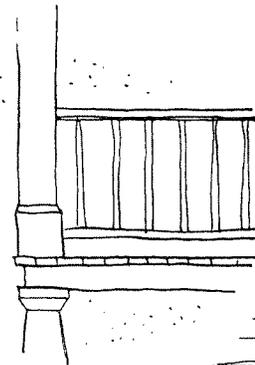
- 801 Bay Street (Verdier House)
- 1211 Bay Street (Tabby Manse)
- 705 Washington Street (Elizabeth Barnwell Gough House)



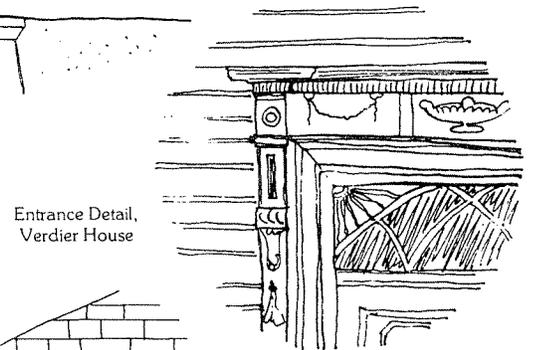
1211 Bay St.  
Tabby Manse



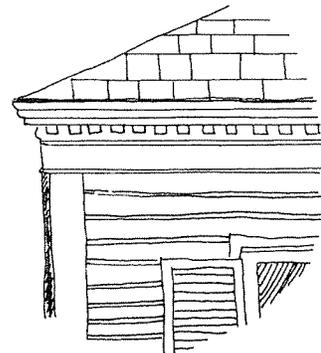
801 Bay  
Verdier house



Porch Detail,  
Verdier House



Entrance Detail,  
Verdier House



Cornice Detail  
Verdier House

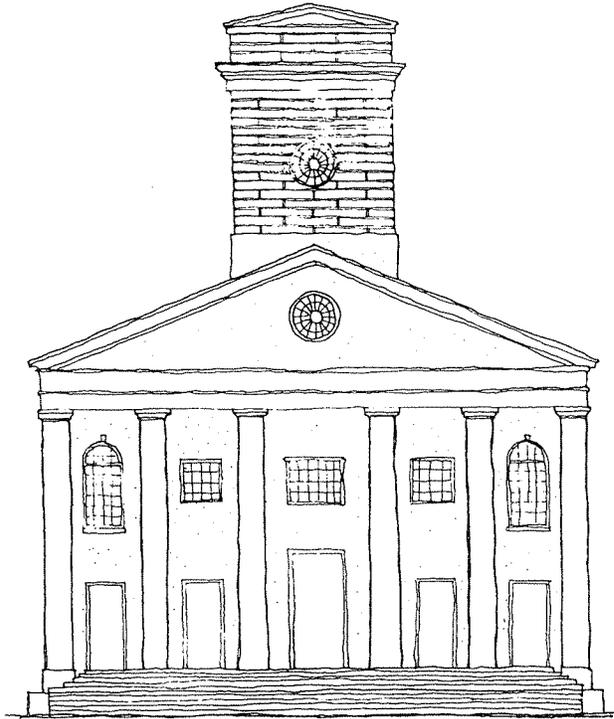
The illustrated examples show the following characteristics typical of this style:

- 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.

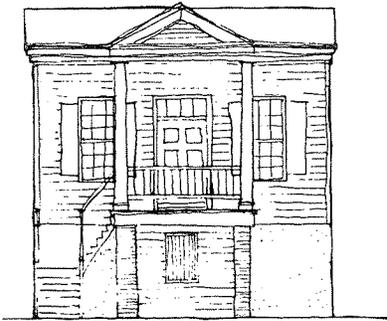
**Greek Revival** 1820-1860. Important Beaufort examples of this style are:

- 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.

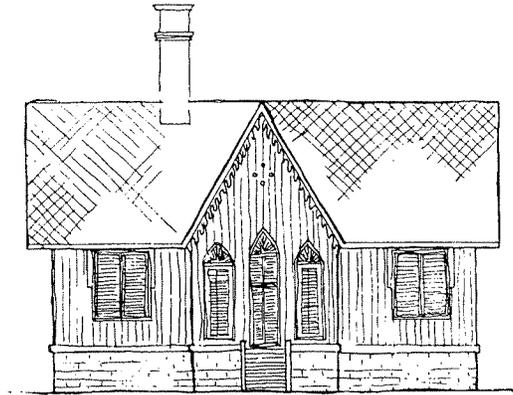
(demolished)

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).



**Boy's School**  
Corner, New Castle & North  
(demolished)

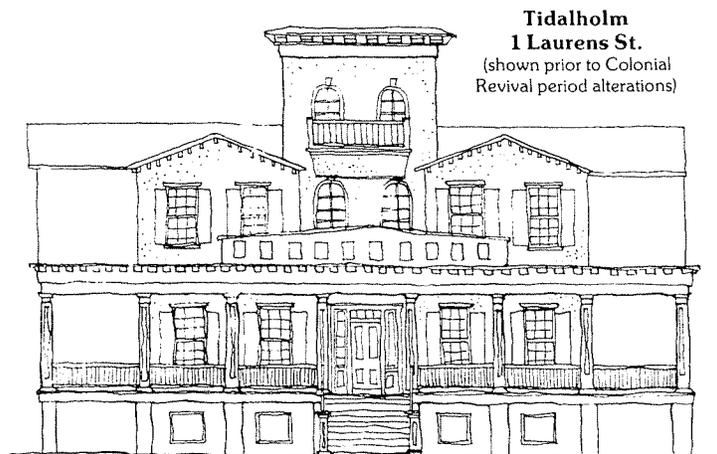
Several buildings in the Historic District display Gothic Revival motifs, though the building itself may be of another style:

- 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.

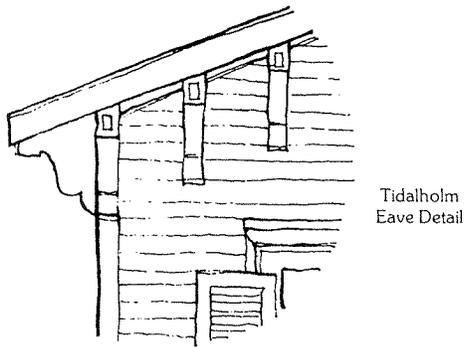
The illustrated example shows the following characteristics typical of this style:

- 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").

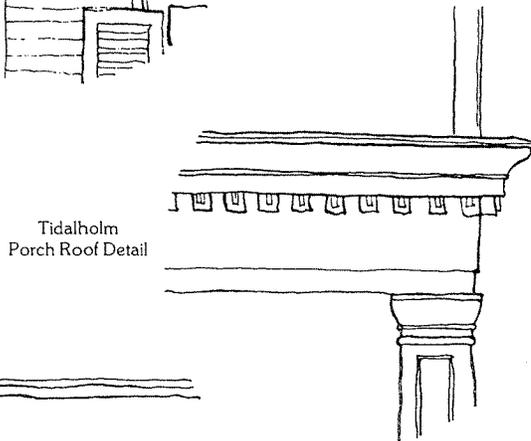
**Italianate** 1840-1880. This style is virtually non-existent in Beaufort. However, Tidalholm, as it looked c. 1864, was originally a fine Italianate mansion before it was so significantly altered in the Colonial Revival period.



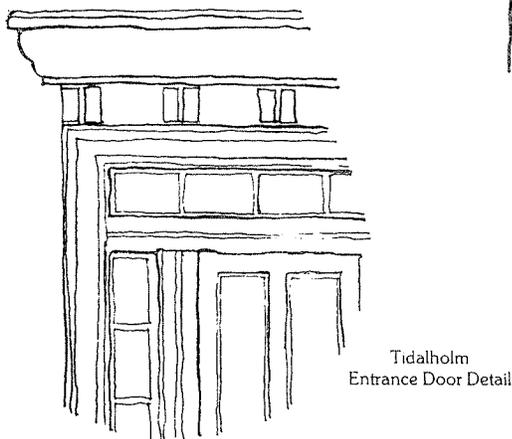
**Tidalholm**  
1 Laurens St.  
(shown prior to Colonial Revival period alterations)



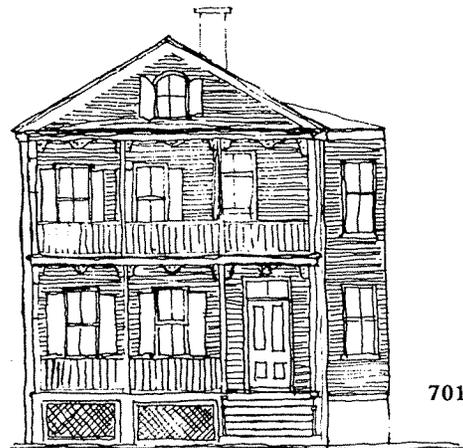
Tidalholm  
Eave Detail



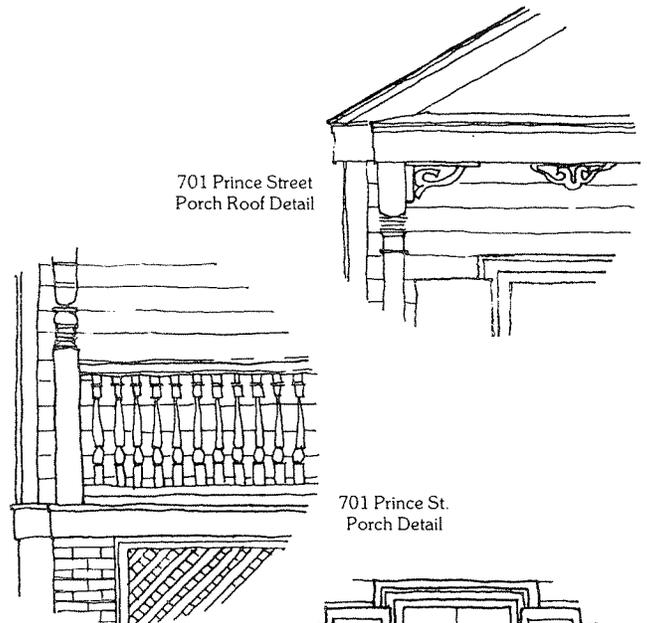
Tidalholm  
Porch Roof Detail



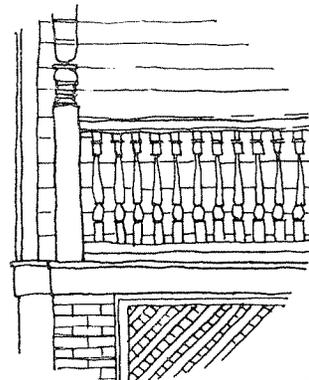
Tidalholm  
Entrance Door Detail



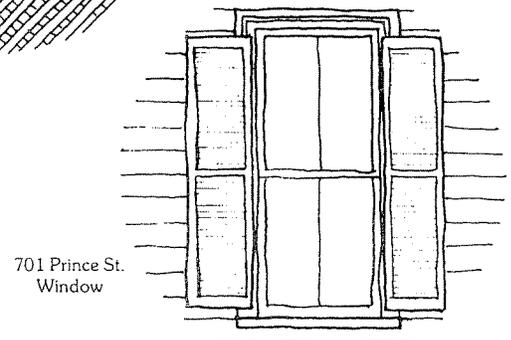
701 Prince Street



701 Prince Street  
Porch Roof Detail



701 Prince St.  
Porch Detail



701 Prince St.  
Window

Several buildings display Italianate influence, such as:

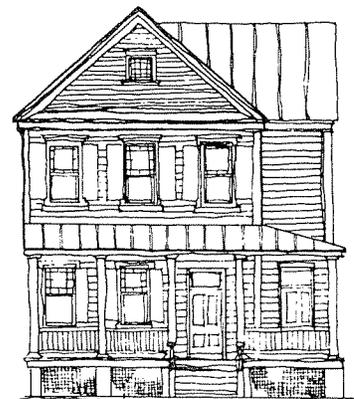
- 100 Laurens (The "Oaks") -- cupola and bracketed cornice
- 907 Craven -- windows, east and west elevations
- 411 King -- cupola

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.

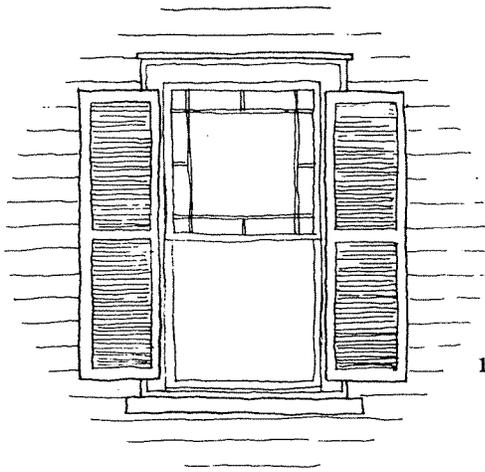
**Queen Anne and Eastlake** 1860-1900. Important Beaufort examples are:

- 1411 North Street
- 701-705 Prince Street
- 1307 Bay Street
- 500 and 600 block of Craven Street
- 1300 Bay Street -- Beaufort County Courthouse (prior to 1930's remodeling)
- 600 Carteret Street.

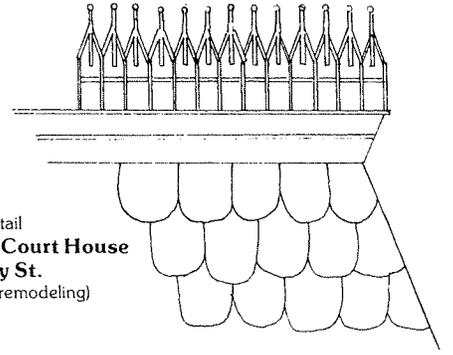


**The William Ritchie House**  
1307 Bay St.

(shown prior to  
modern porch alterations)



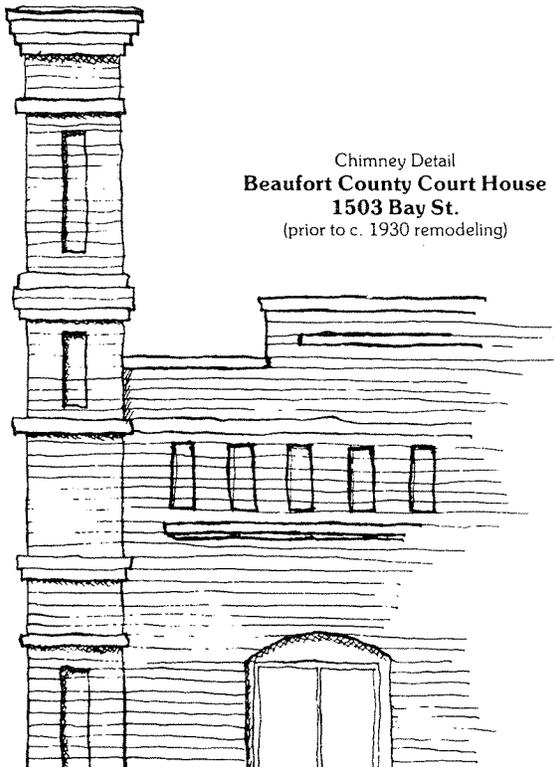
1307 Bay St.  
Window



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



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



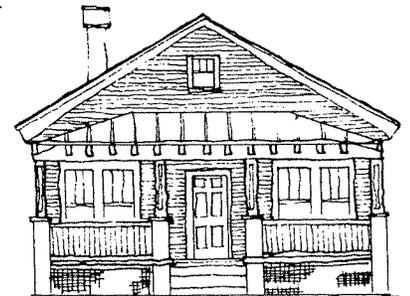
Chimney Detail  
Beaufort County Court House  
1503 Bay St.  
(prior to c. 1930 remodeling)

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:

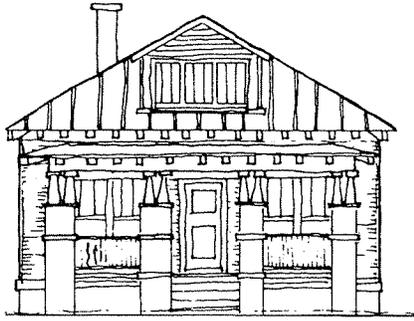
- verticality of proportion, especially in window openings and ornament
- combination of architectural masses into overall building composition (1411 North)
- massive turned columns and balusters which are not necessarily based on any classical models (and which often recall the legs of furniture in 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 -- e.g. 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.

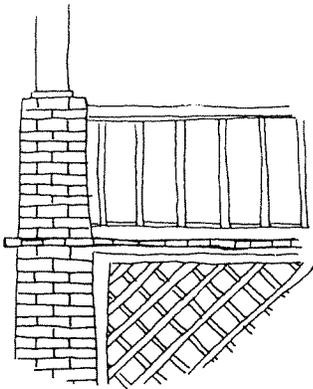
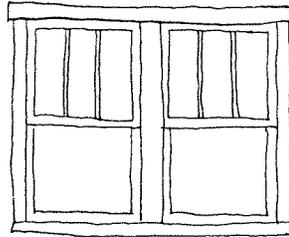


1311 North St.



1309 North St.

Window Detail  
Bungalow Style



Porch Detail  
Bungalow Style

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 Tidalholm, 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:

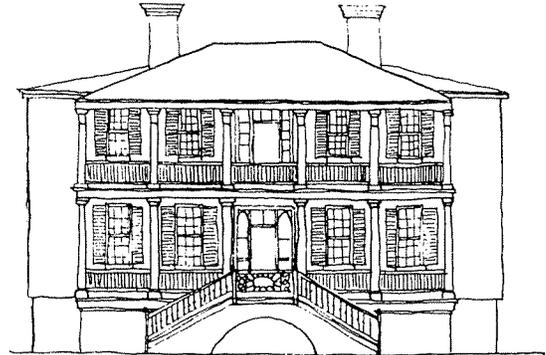
- 1305 Bay Street
- 611 Bay Street.

Important Colonial Revival renovations include:

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



Tidalholm  
1 Laurens St.  
Colonial Revival Renovation



901 Craven St.  
Colonial Revival Renovation



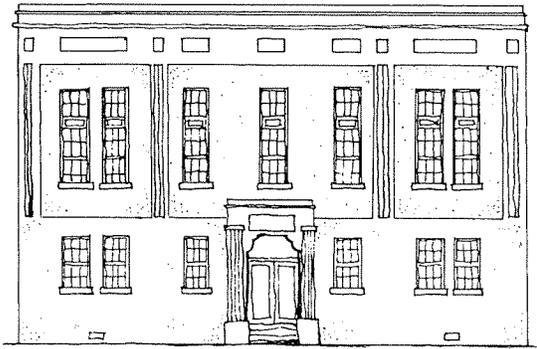
The Achorage  
1103 Bay Street  
Colonial Revival Renovation

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

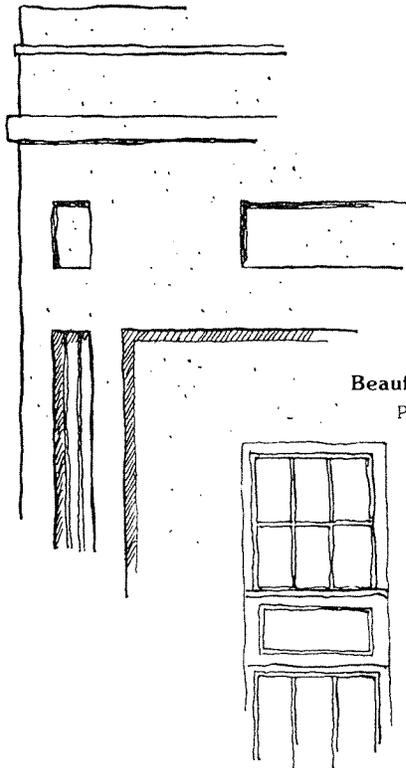
- continuous foundation planting
- ornament and trim based on Colonial, Federal, Georgian prototypes, but not necessarily copying them
- large single light, 1/1 sash or 6/1 sash, often in pairs or threes
- glass-paneled door, often with beveled or stained glass
- large pilastered chimney stack
- shingle 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.

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

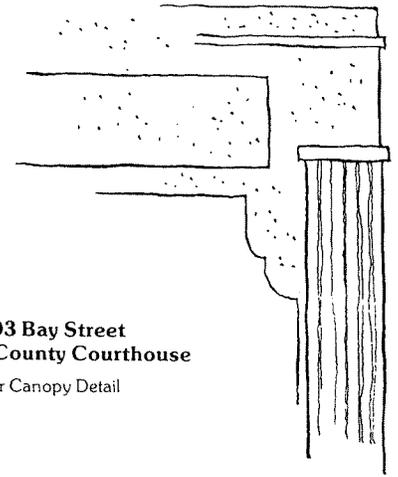
- The Beaufort County Courthouse, a renovation of an earlier structure (see “Queen Anne”)
- The Beaufort County Jail -- 1305 King



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, parapetted 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** - Few buildings in Beaufort remain untouched by renovations appearing at intervals throughout their evolution. 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 Anchorage**  
**1103 Bay Street**  
 Colonial Revival Renovation



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



**901 Craven St.**  
 Colonial Revival Renovation



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



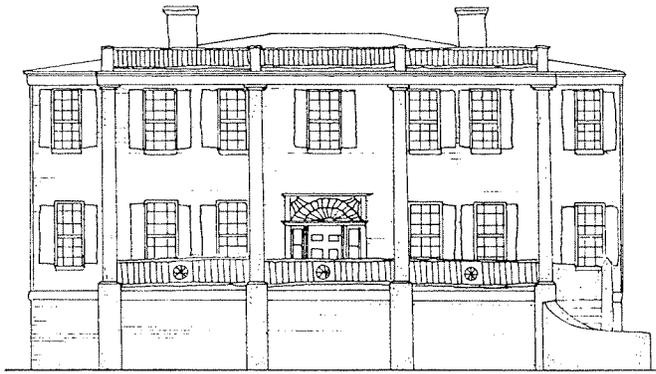
**Tidalholm**  
**1 Laurens St.**  
 Colonial Revival Renovation



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

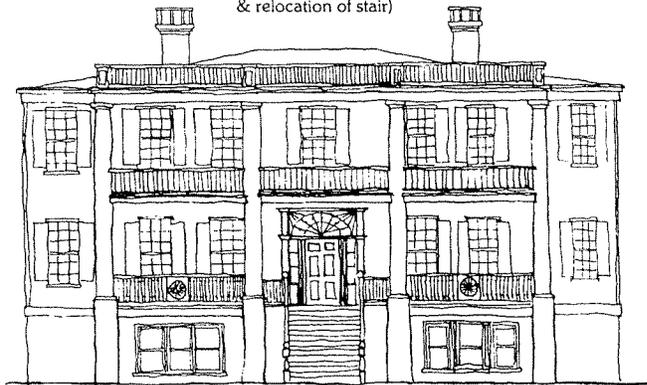


**1503 Bay St.**  
**Beaufort County Courthouse**  
 Art Deco Remodeling



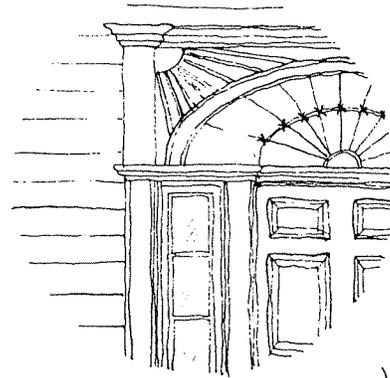
**George Elliot House  
1001 Bay**

(shown prior to addition  
of second story porch  
& relocation of stair)



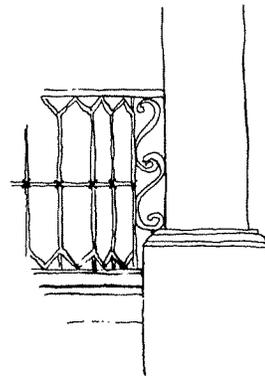
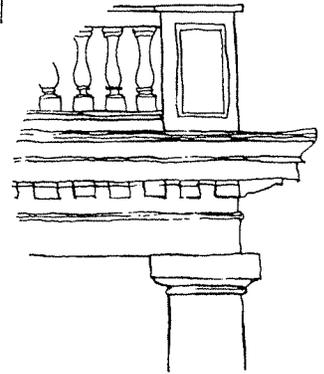
**George Elliot House  
1001 Bay Street**

(shown in current condition,  
with second story porch added)



**Door Detail  
George Elliot House  
1001 Bay St.**

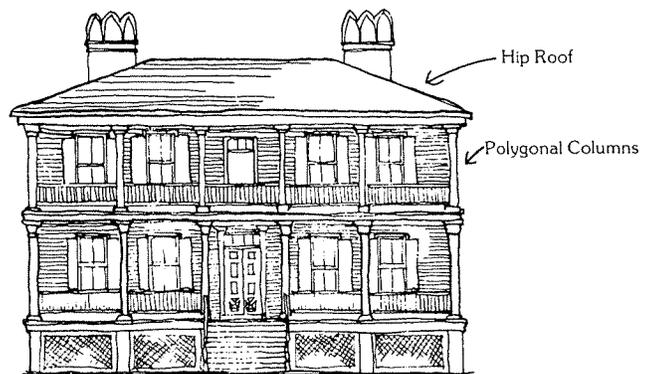
**Porch Cornice/Parapet Detail  
George Elliot House  
1001 Bay Street**



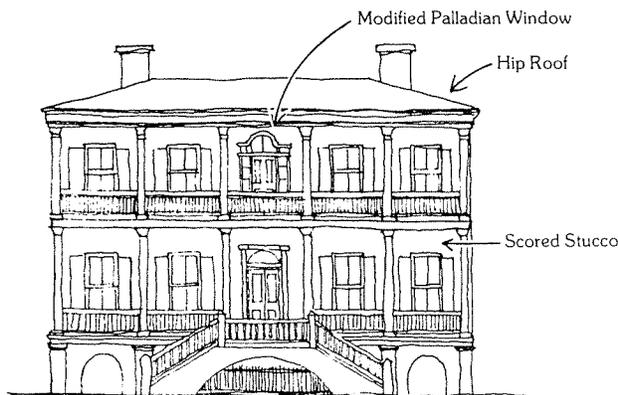
**Porch Detail/Cast Iron Railing  
George Elliot House  
1001 Bay Street**

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.

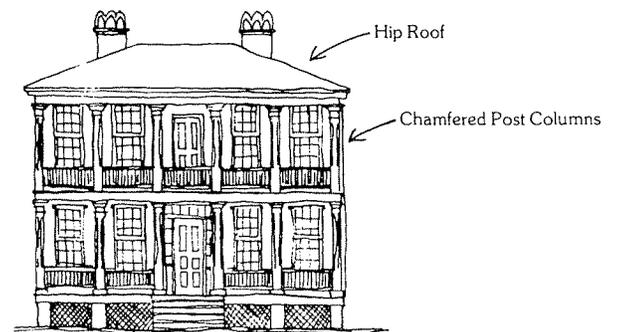
**The Beaufort Style** - Dozens of buildings could have been selected to illustrate the "Beaufort Style," with its raised 1st floor, two-stage porches, southern exposure, high ceilings, and shallow hipped roof. Dating of these structures can be difficult, especially when only the exterior of the house 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.



**915 Port Republic St.**



**901 Prince Street**



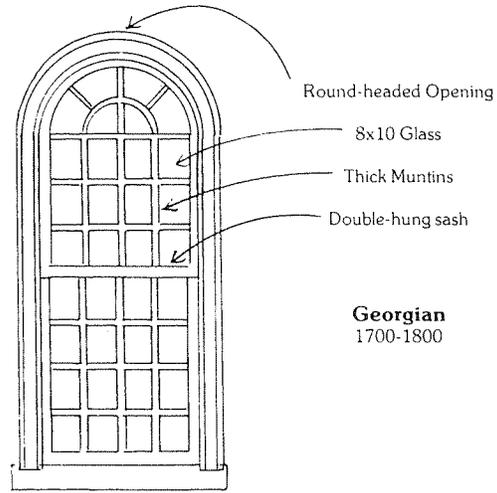
**605 Prince Street**

# 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.

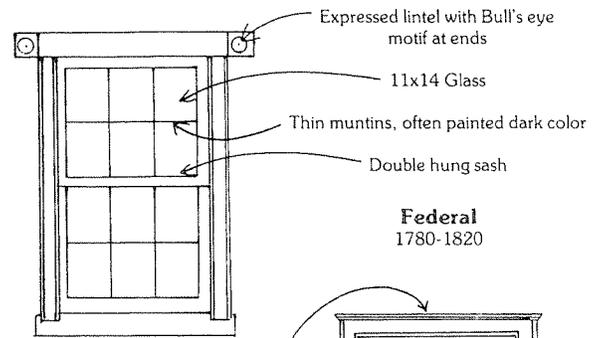
## Windows

- 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 6-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.

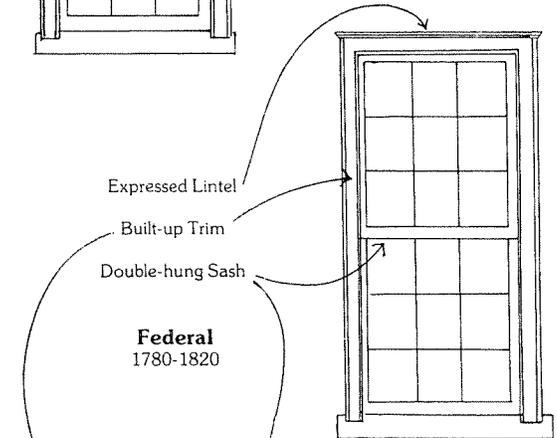


St. Helena's Church

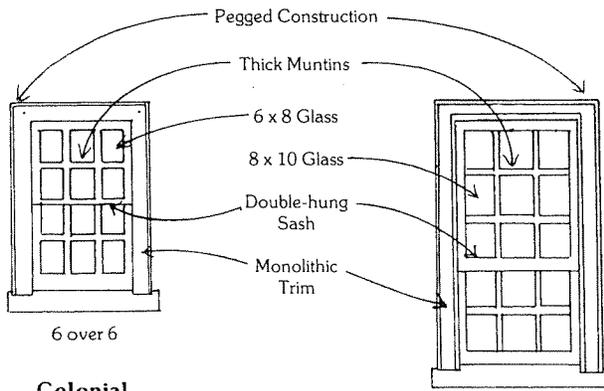
**Georgian**  
1700-1800



**Federal**  
1780-1820

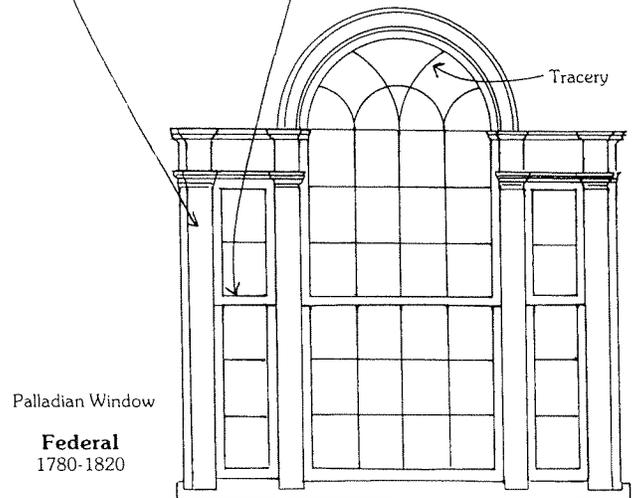


**Federal**  
1780-1820



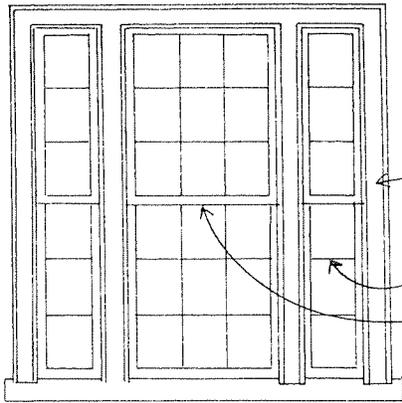
**Colonial**  
1600-1700

**Colonial**  
1600-1700



Palladian Window

**Federal**  
1780-1820



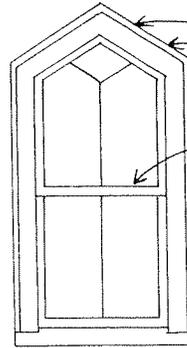
Tripartite Window  
inspired by  
Palladian Theme

Thin Muntins

Double-hung Sash

401 Wilmington  
501 King

**Federal**  
1780-1820

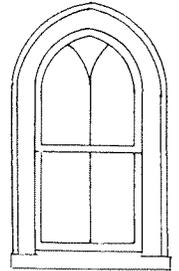


Heavy Simple backband

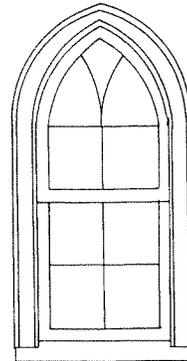
"Abstract" Pointed Arch

Double Hung Sash

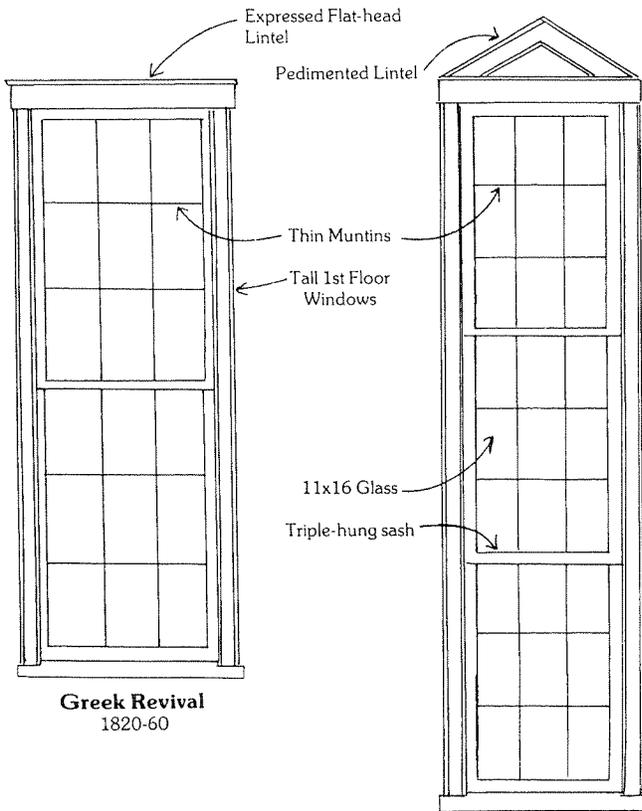
600 Carteret  
**Late Gothic Revival**  
c. 1900



907 Craven St.  
**Gothic Revival**  
1830-60



601 New St.  
**Gothic Revival**  
1830-60



Expressed Flat-head  
Lintel

Pedimented Lintel

Thin Muntins

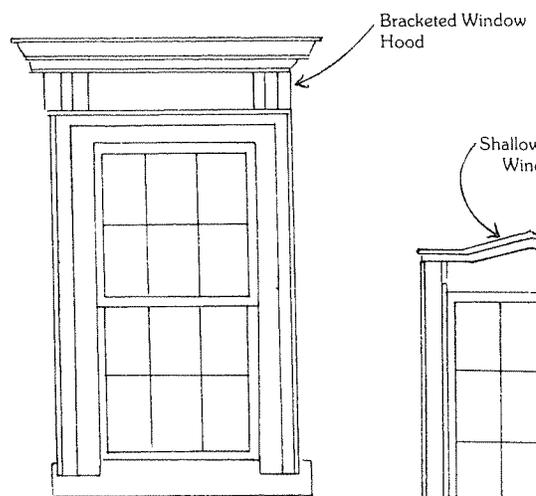
Tall 1st Floor  
Windows

11x16 Glass

Triple-hung sash

**Greek Revival**  
1820-60

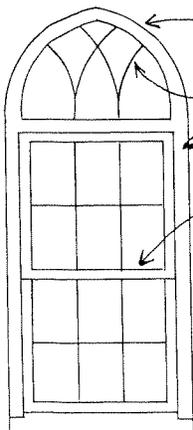
907 Craven St.  
**Greek Revival**  
1820-60



Bracketed Window  
Hood

Tidalholm  
Tall, Thin 1st  
Floor Windows

**Italianate**  
1840-80



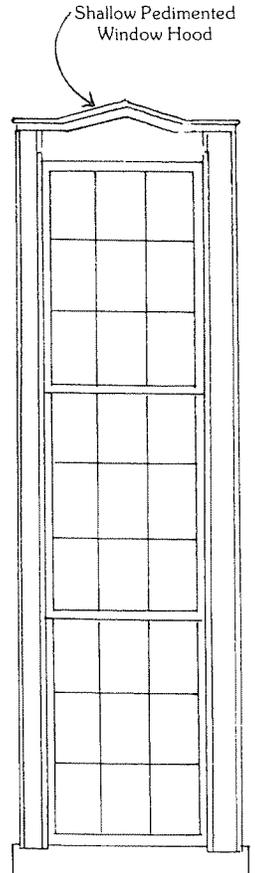
Pointed Arch

Tracery

Thin Overall  
Proportions

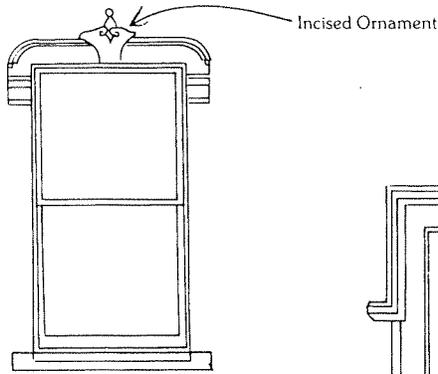
Double-hung  
Sash

713 Craven St.  
The Arsenal  
**Gothic Revival**  
1830-60

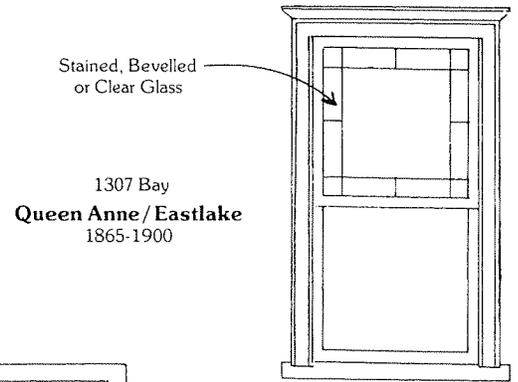
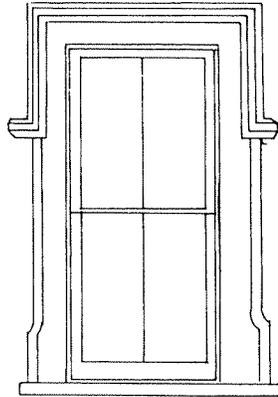


Shallow Pedimented  
Window Hood

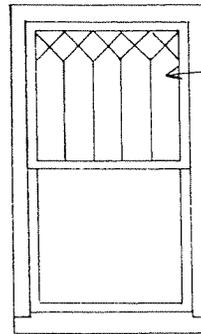
907 Craven St.



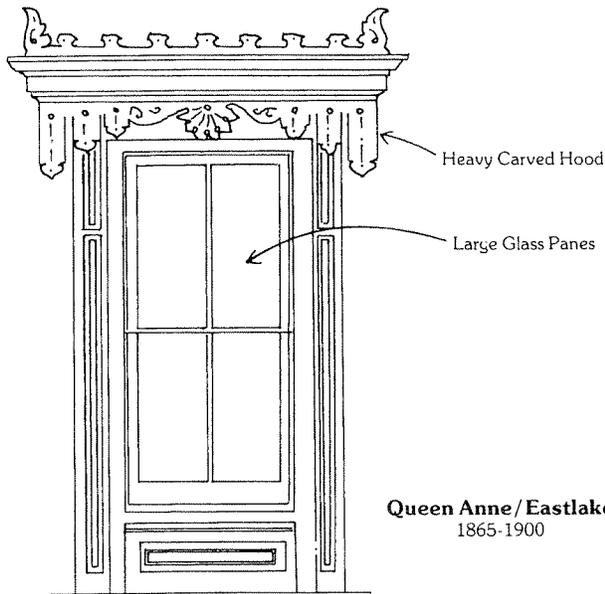
**Queen Anne/Eastlake**  
1865-1900



1307 Bay  
**Queen Anne/Eastlake**  
1865-1900

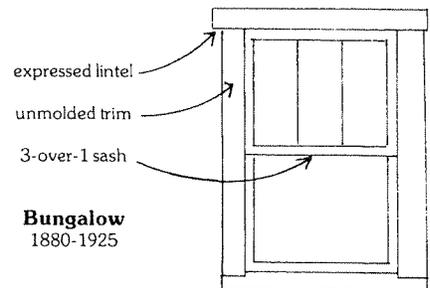


1411 North  
**Queen Anne/Eastlake**  
1865-1900



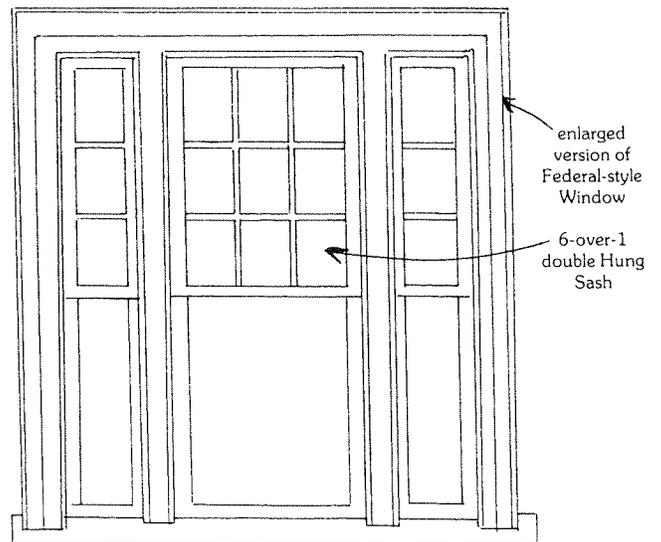
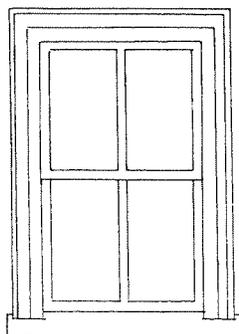
**Queen Anne/Eastlake**  
1865-1900

(see 303 Federal)



**Bungalow**  
1880-1925

601 Prince  
507 North  
**Queen Anne/Eastlake**  
1865-1900



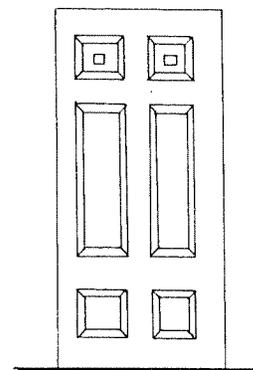
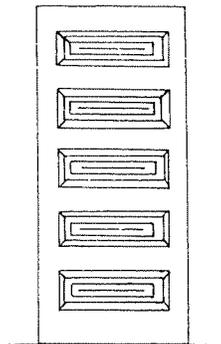
**Colonial Revival**  
1880-1920

**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.

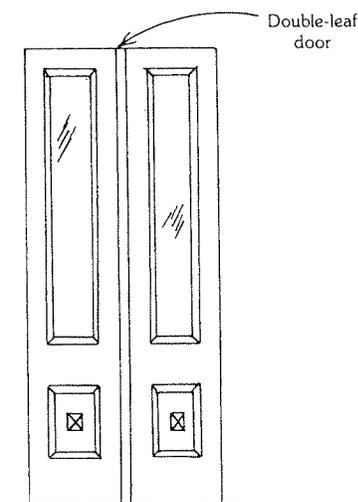
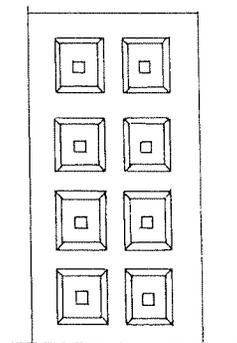
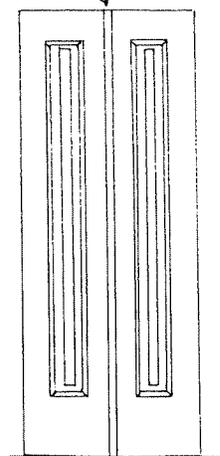
Greek Revival Doors tend to be highly stylized and favor repetition of geometric panels of the same size. Panels are sometimes absolutely square, which is not so common for earlier door designs. Moldings at the perimeter of the panels are usually relatively flat and restrained. It is not uncommon to 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.

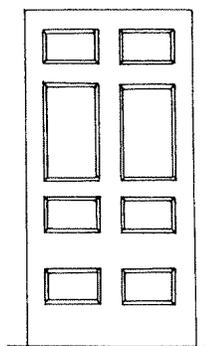
The Bungalow style simplified such glazed doors, combining them into one door with simple louver panels. The popularity of six and eight panel doors persisted, but four and even five panel doors were also used.



Bead At Center Stile To Imitate Double-leaf Door

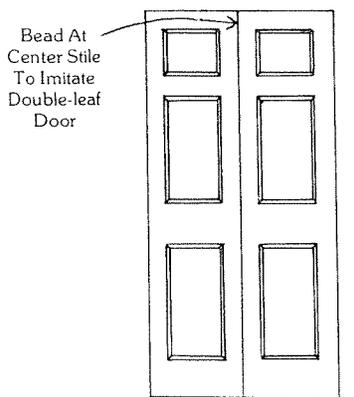


Double-leaf door

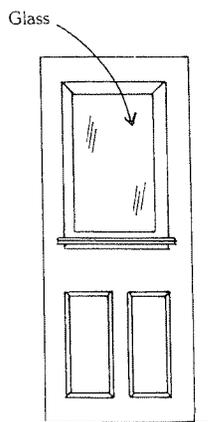


**Federal**  
1780-20

**Greek Revival**  
1820-60

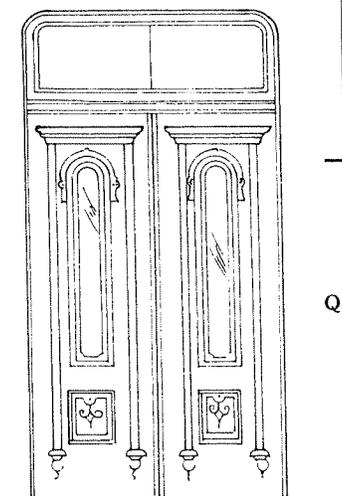


Bead At Center Stile To Imitate Double-leaf Door

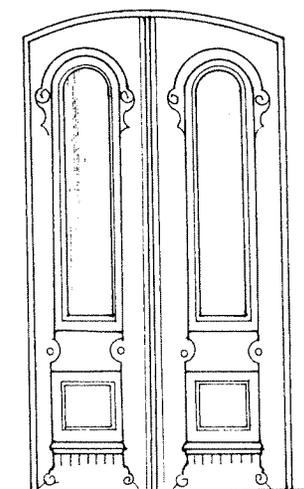


Glass

**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 "corbelled") profiles throughout the history of American architecture.

Chimneys of the Colonial period, (illustrations A, B, C, & D) tended to be quite massive, with pronounced corbelling. 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. Corbelling 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 corbelling 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.

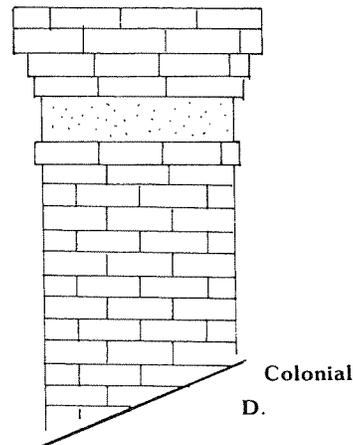
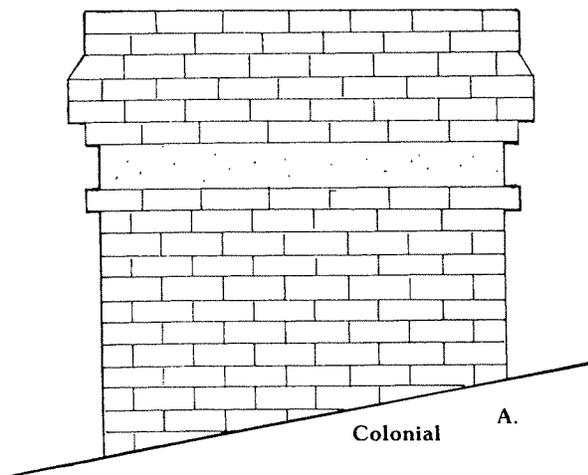
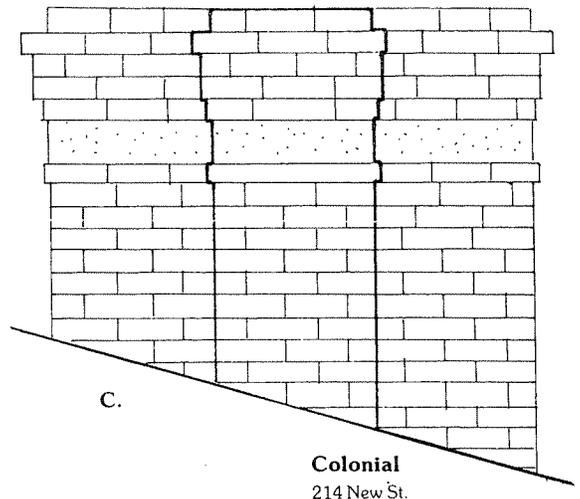
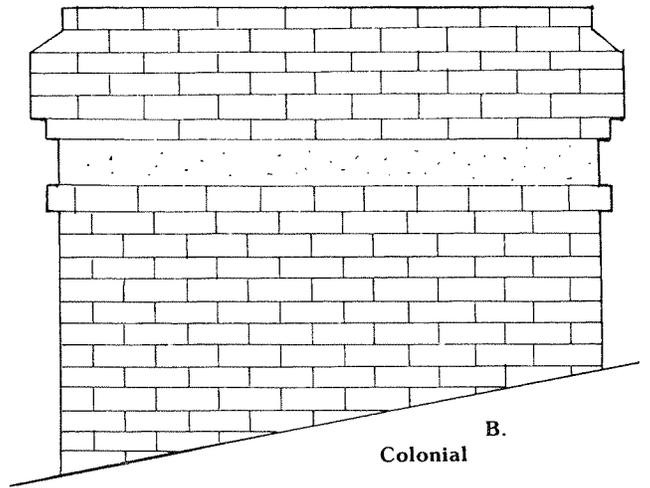
Late Victorian chimneys of the Queen Anne and Eastlake styles (illustrations K, L, and M.) continued the trend of massive corbelling and increased the freedom with which the mass of the chimney was recessed, molded, and ornamented. Proportions, especially late in the century, grew to be quite thin.

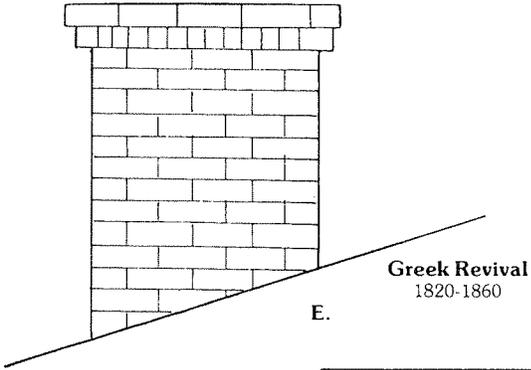
Colonial Revival chimneys tended to be inflated versions of their colonial prototypes. Dominant, massive, and corbelled, they also were frequently recessed in ways similar to late Victorian

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.

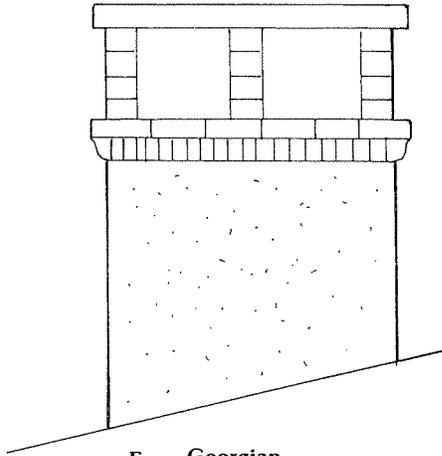
Chimneys of the bungalow period usually occur in the least expansive location. Thus, if there is an interior fireplace, they are usually found along an exterior wall. They are quite simple in shape, as shown in illustration O.

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

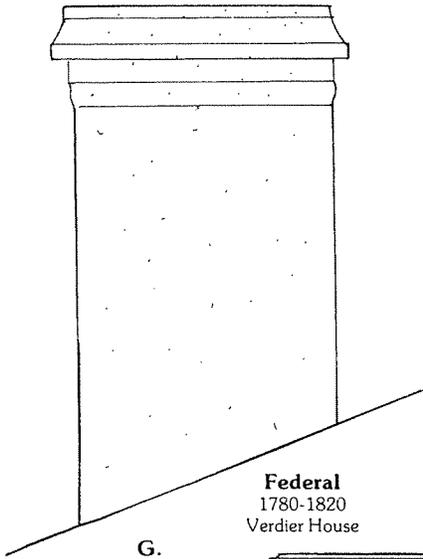




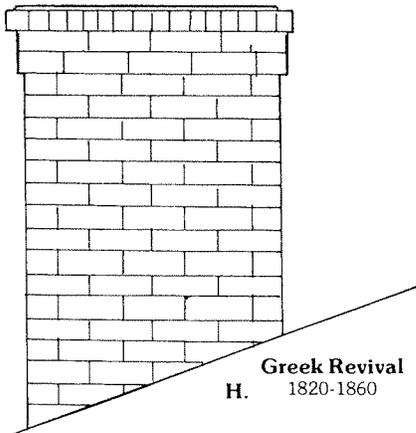
**Greek Revival**  
1820-1860



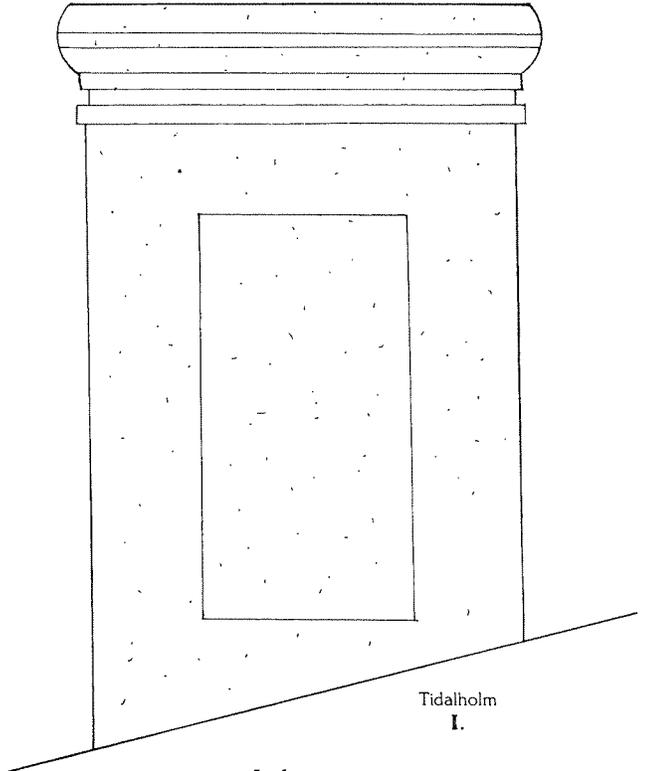
**Georgian**  
1700-1800



**Federal**  
1780-1820  
Verdier House

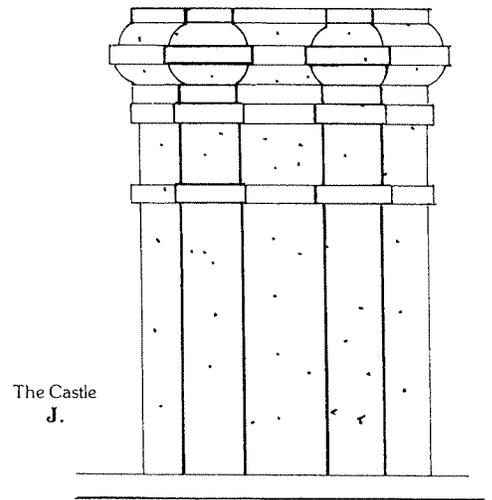


**Greek Revival**  
1820-1860



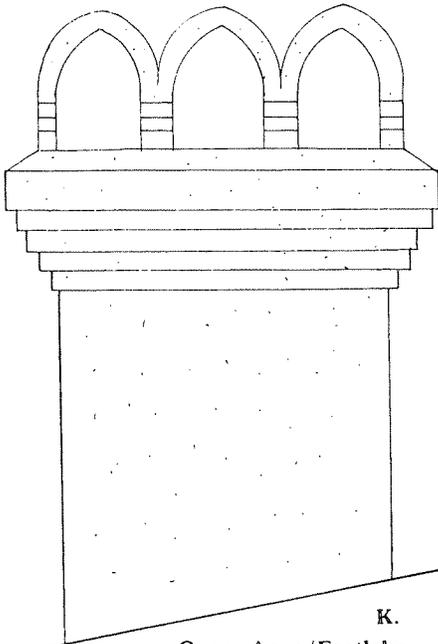
Tidalholm

**Italianate**  
1840-80

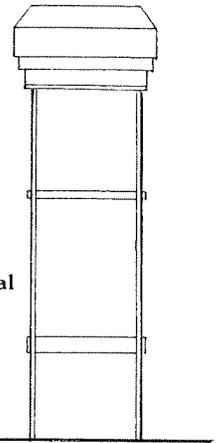


The Castle

**Gothic Revival**  
1830-60

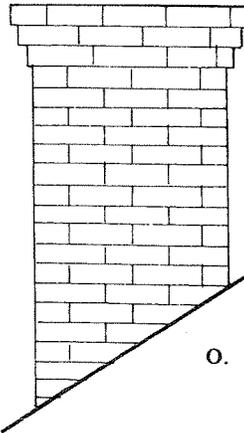


**K.**  
**Queen Anne/ Eastlake**  
1865-1900

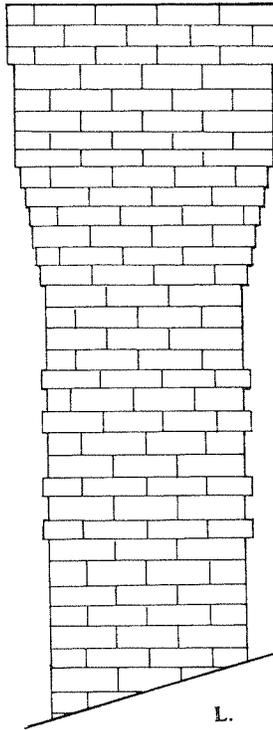


**Colonial Revival**  
1880-1920

607 Bay  
N.

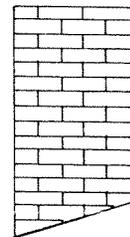


**O.**

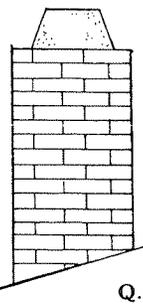


**L.**

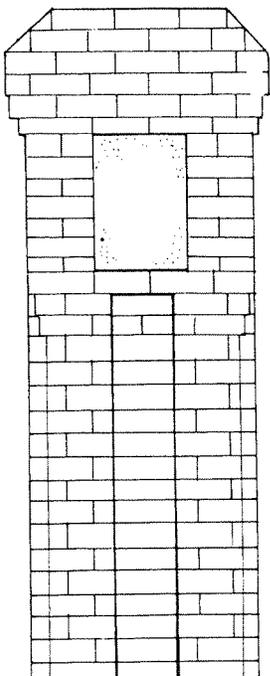
**Queen Anne/ Eastlake**  
1865-1900



**P.**

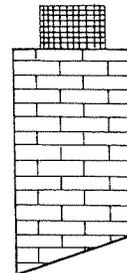


**Q.**

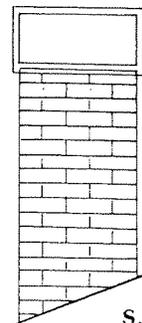


**Queen Anne/ Eastlake**  
1865-1900

**M.**



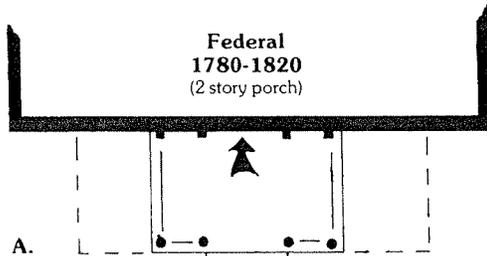
**R.**



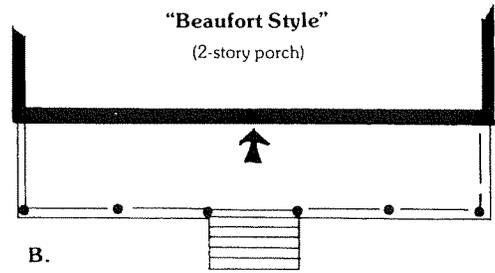
**S.**

**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:

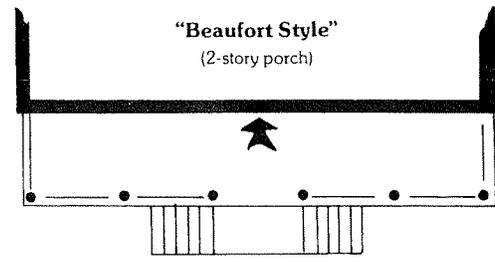
- The three bay double stage portico shown in illustration A is typical of the Federal period in Beaufort. Generally, the end bays are narrower than the center bay (a 1-2-1 rhythm is common) and the columns of the upper story are more slender than those of the lower story.
- The “Beaufort style” porches 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).



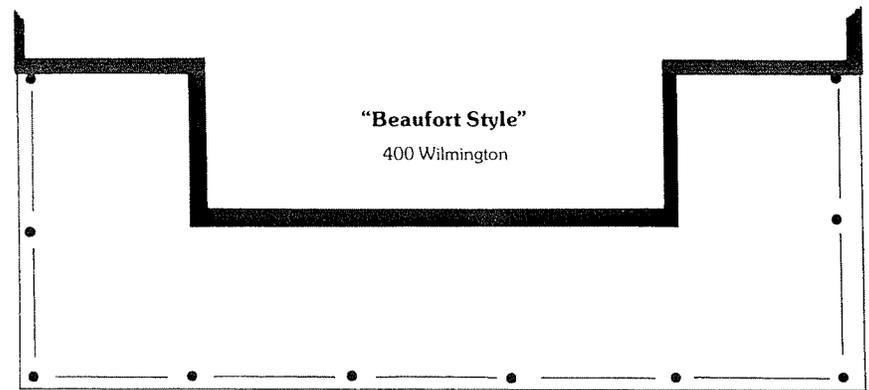
- A.
- 1203 Bay (original porch)
  - 1211 Bay
  - 901 Craven (original porch)
  - 412 East
  - 302 Federal
  - 705 Washington



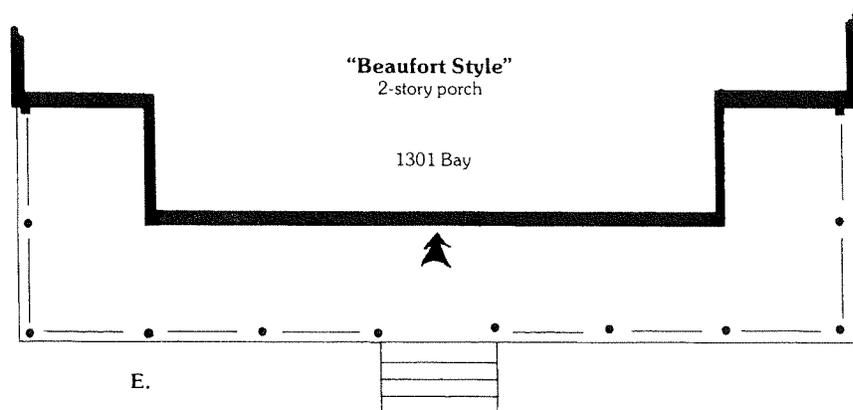
- B.
- |              |             |                   |
|--------------|-------------|-------------------|
| 601 Bay      | 309 Federal | 511 North         |
| 607 Bay      | 315 Federal | 807 North         |
| 611 Bay      | 321 King    | 601 Port Republic |
| 1103 Bay     | 401 King    | 809 Port Republic |
| 1701 Bay     | 411 King    | 915 Port Republic |
| 305 Carteret | 501 King    | 511 Prince        |
| 308 Carteret | 708 King    | 601 Prince        |
| 413 Craven   | 709 King    | 605 Prince        |
| 915 Craven   | 310 New     | 711 Prince        |
| 1109 Craven  | 511 Noth    | 801 Prince        |



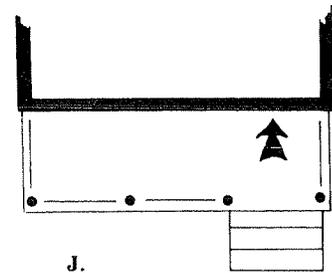
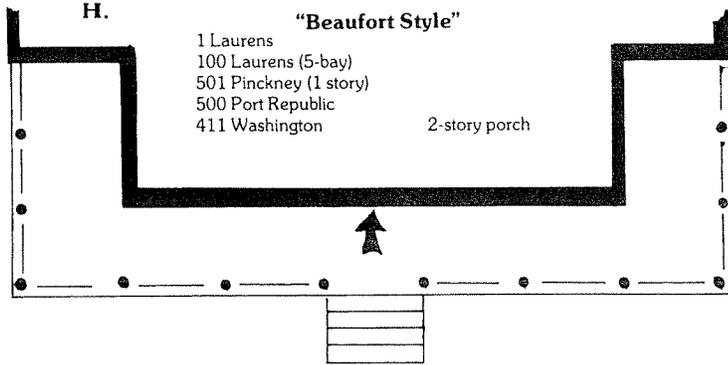
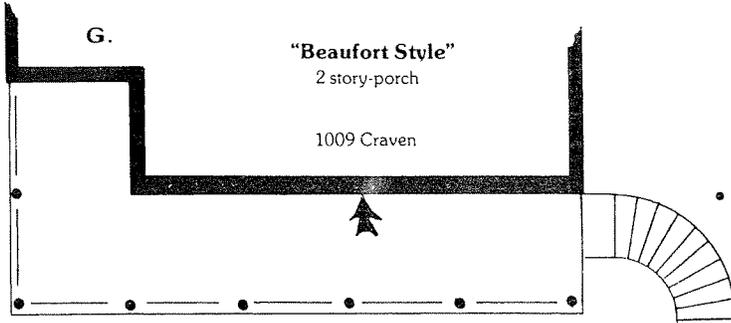
- C.
- 1207 Bay
  - 901 Craven
  - 901 Prince
  - 315 West (1 story)



D.



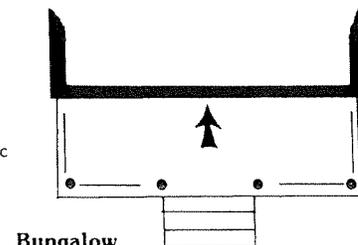
E.



**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

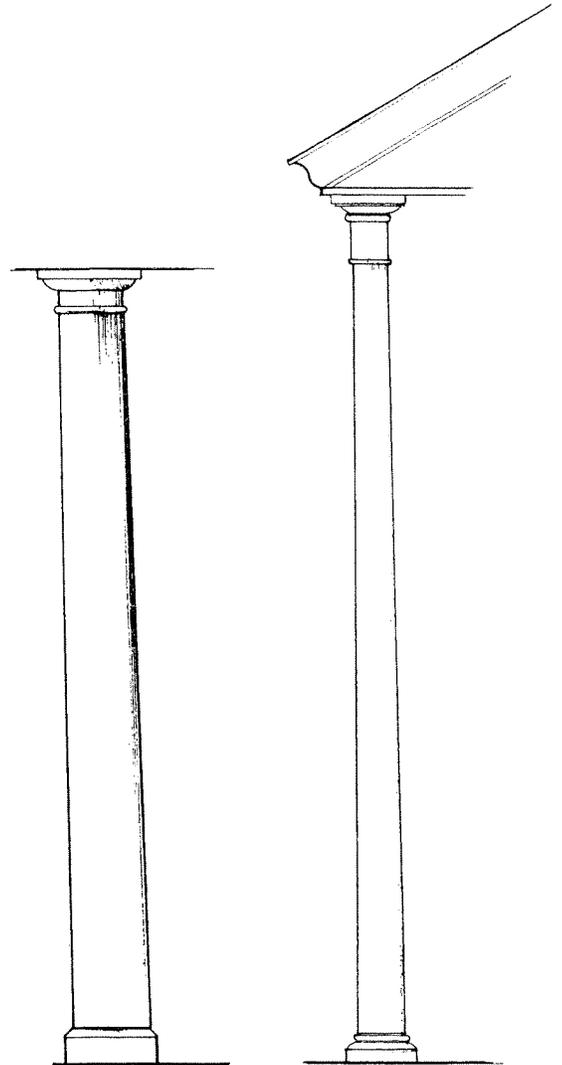
- K.**
- 712 Duke
  - 702 East
  - 704 East
  - 902 North
  - 1307 North
  - 1311 North
  - 505 Port Republic
  - 508 Scotts
  - 1008 Scotts
  - 408 West



**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



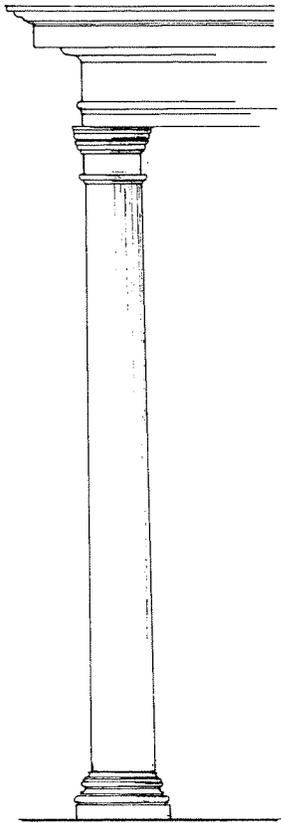
**A.**  
Verdier  
Federal  
1780-1820

**B.**  
Tabby Manse  
2nd floor  
Federal  
1780-1820

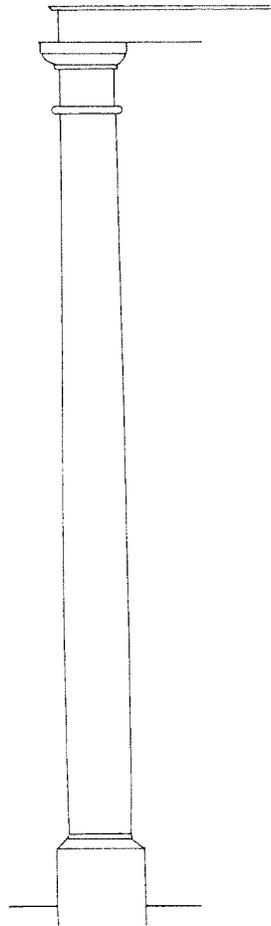
(H) and the Beaufort Baptist Church show severe examples of the unornamented, almost abstract columns typical of this style.

- 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

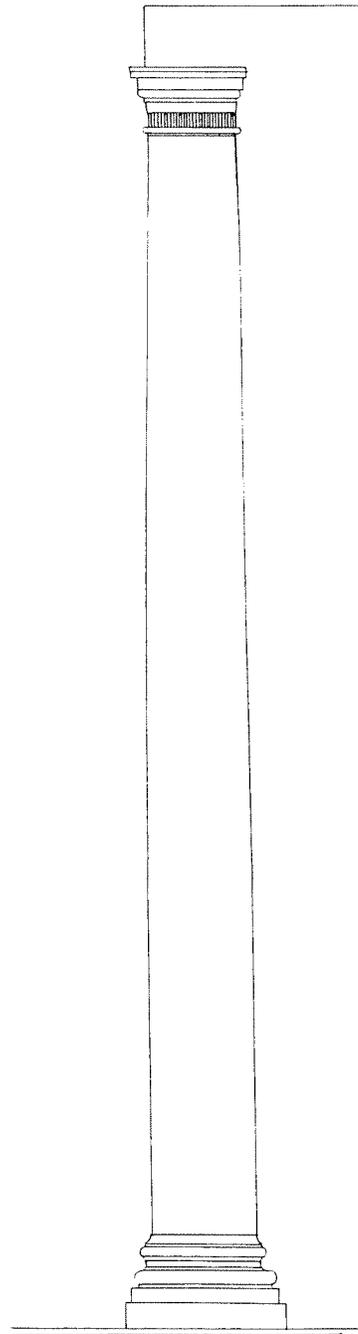
base always looks as if it were nailed onto the basic shaft of wood forming the column itself. Incised detail is almost always the obvious result of the column's having been turned on a lathe. Brackets (shown in illustrations N, P, T, U, or V), often were used in lieu of a capital to visually express the load-carrying work done by the columns.



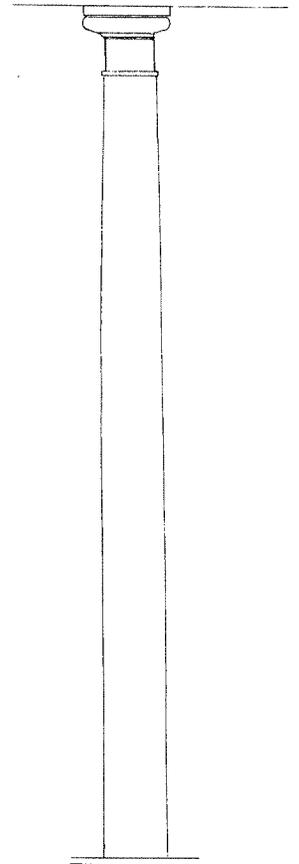
C.  
1790  
**Federal**  
1780-1820



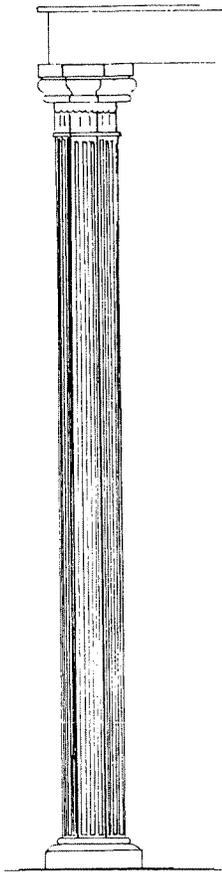
D.  
Tabby Manse  
1st Floor  
**Federal**  
1780-1820



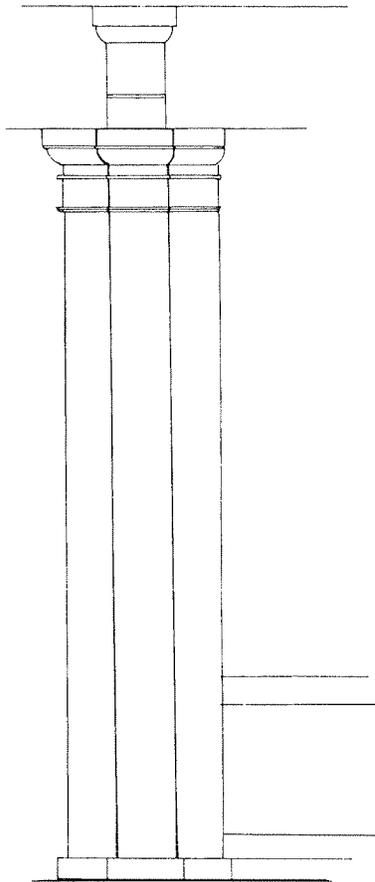
E.  
1790



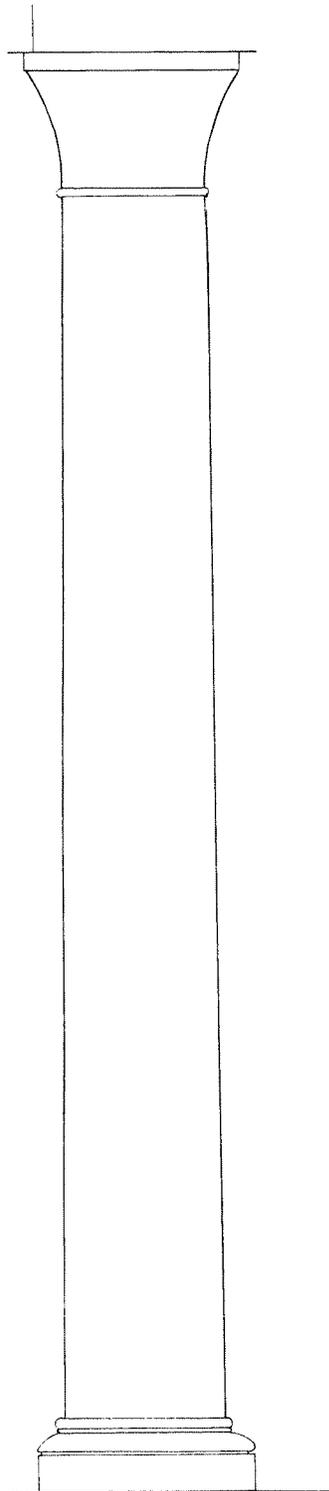
F.  
1797



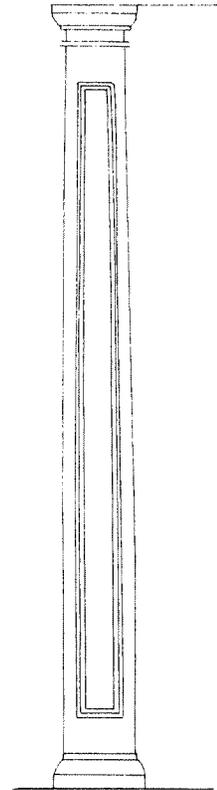
**L.**  
915 Port Republic



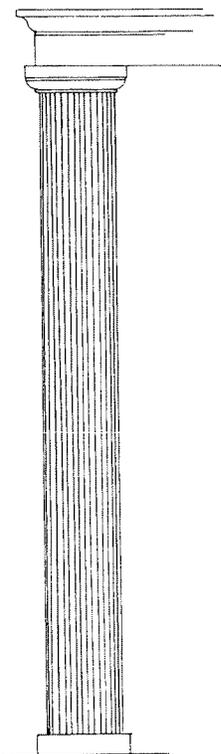
**J.**  
The "Oaks"  
**Italianate**  
1840-80



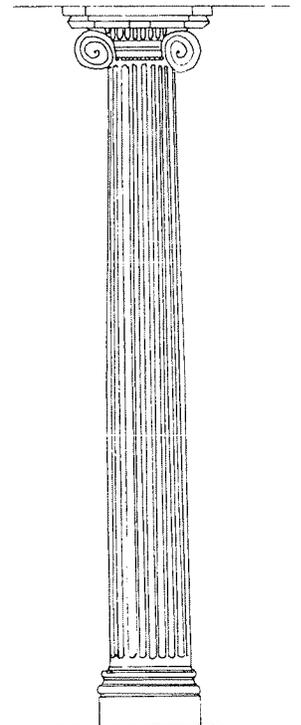
**H.**  
801 Carteret  
**Greek Revival**  
1820-60



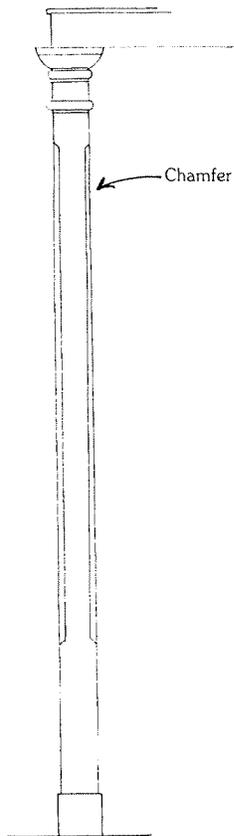
**K.**  
Tidalholm  
**Italianate**  
1840-80



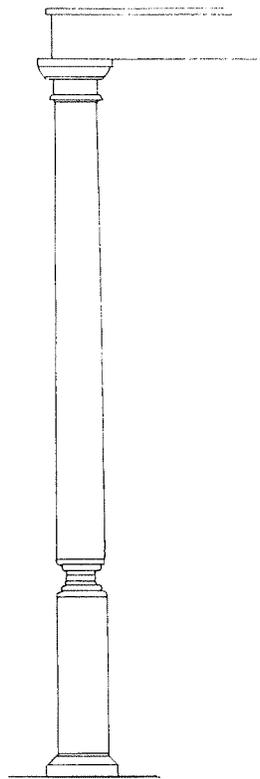
**G.**  
601 Bay  
**Greek Revival**  
1820-60



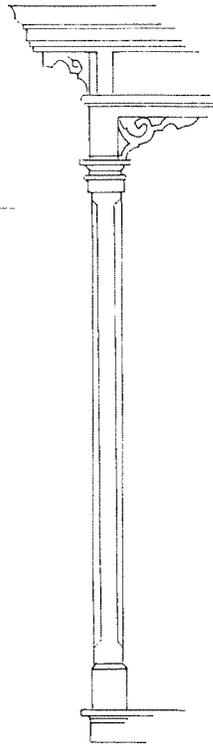
**I.**  
Secession House  
1827  
**Greek Revival**  
1820-60



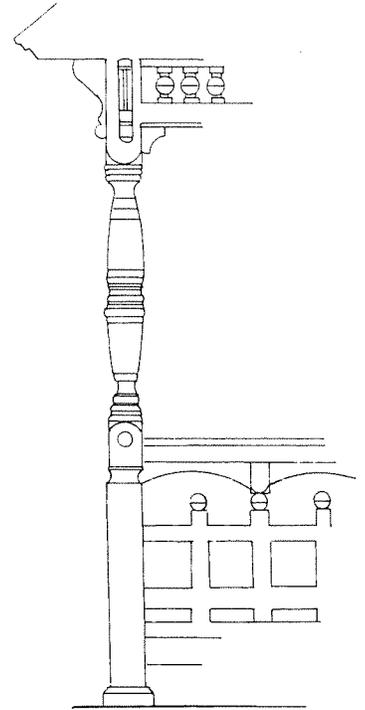
**M.**  
605 Prince



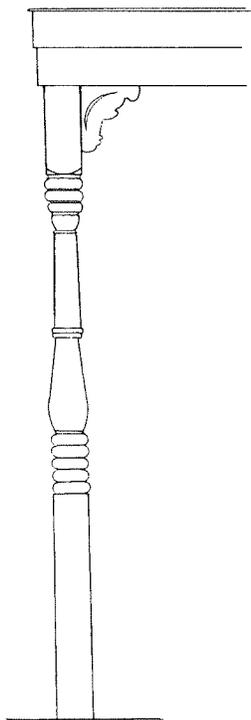
**O.**  
1301 North



**P.**  
1873

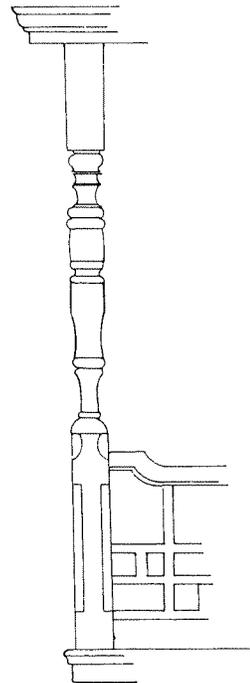


**Q.**  
1881

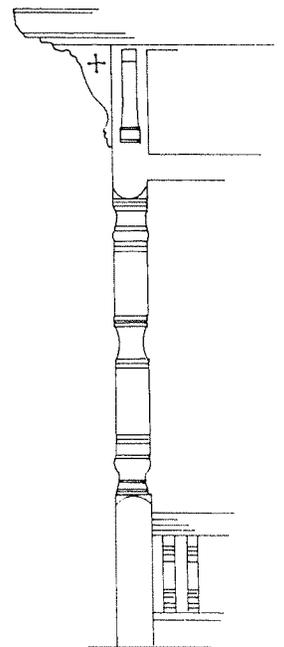


**N.**  
902 North

**Queen Anne/Eastlake**  
1865-1900



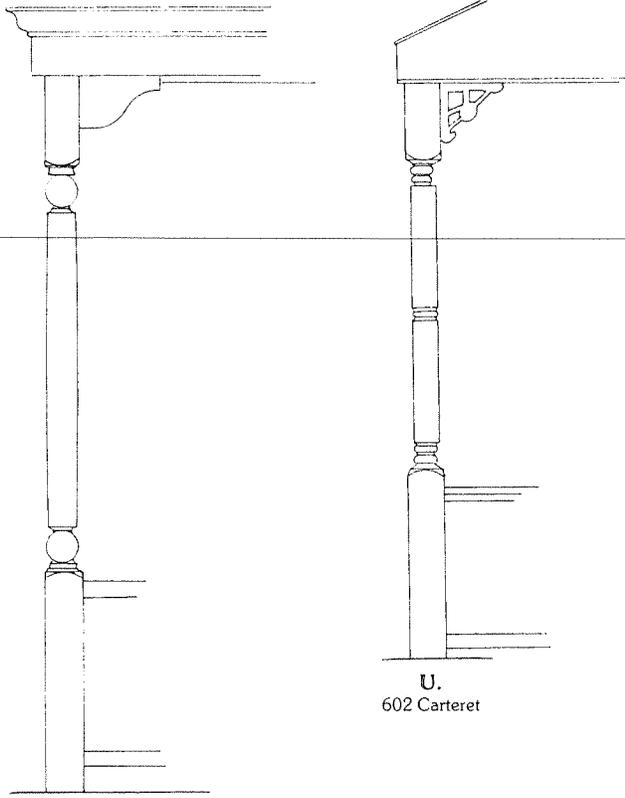
**R.**  
1881



**S.**  
1881

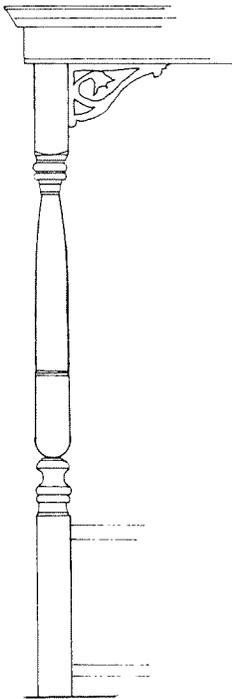
**Balusters.** It is especially difficult to take balusters out of context for the purpose of dating, except for certain late Victorian types whose period is immediately apparent. Balustrades are highly susceptible to deterioration and are frequently replaced entirely. Thus, they date from a period different 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 1870's; that they were often stock parts is 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.)

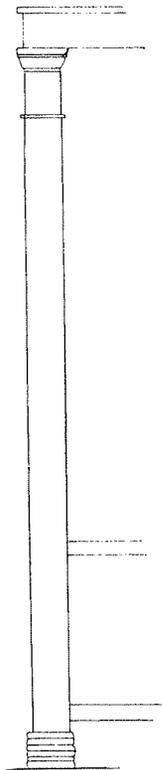


T.  
601 Craven

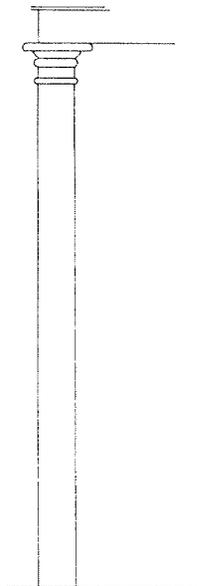
U.  
602 Carteret



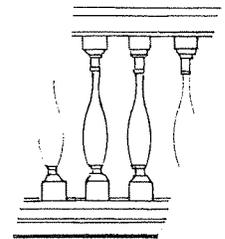
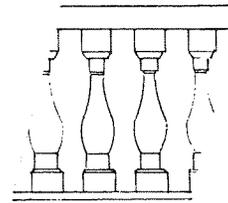
V.  
508 Scott's



W.  
709 King

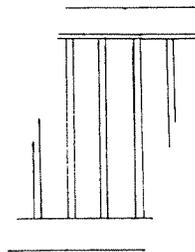


X.  
601 Prince

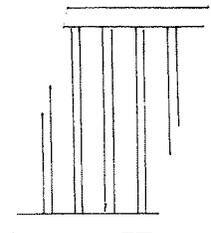


from  
**Rules for drawing the  
Several Parts of Architecture** by James Gibbs  
1786

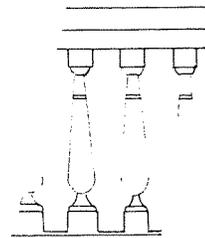
Manigault House  
Charleston  
1790



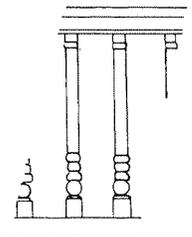
**1211 Bay**  
Tabby Manse  
1790



**801 Bay**  
Verdier House  
1790

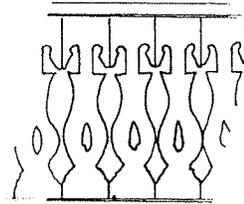
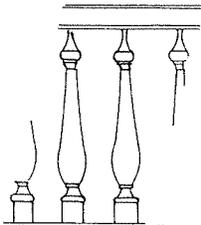
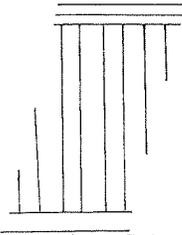


**1009 Craven**  
c. 1820  
(similar to 509 North)



**1113 Craven St.**  
c. 1813

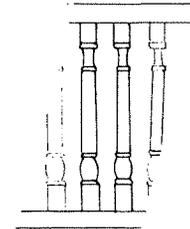
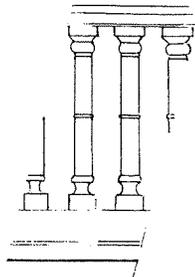
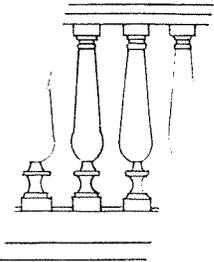
**Queen Anne/Eastlake**  
1865-1900



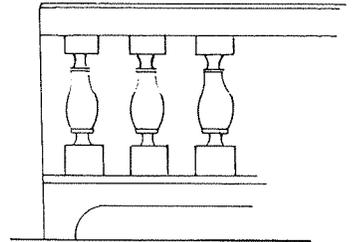
807 Craven  
308 Charles  
201 Laurens  
c. 1875

1207 Bay  
c. 1790

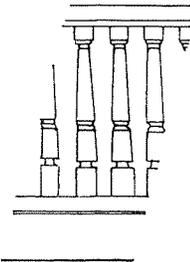
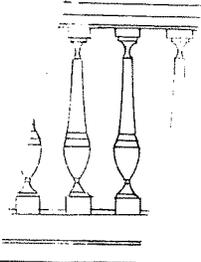
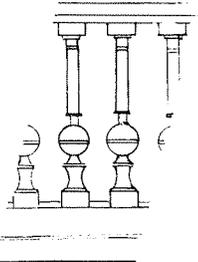
1301 Bay



913 Craven

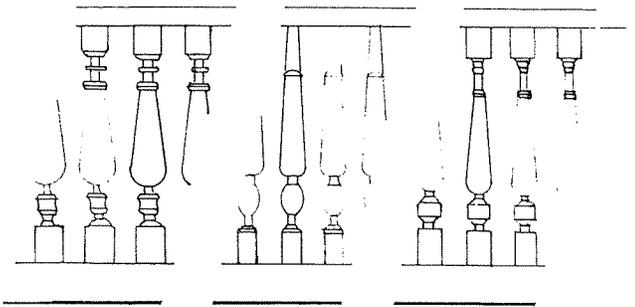
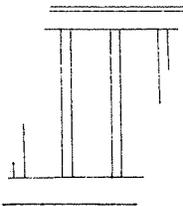
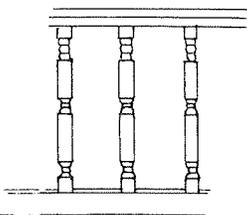


607 Bay  
1905



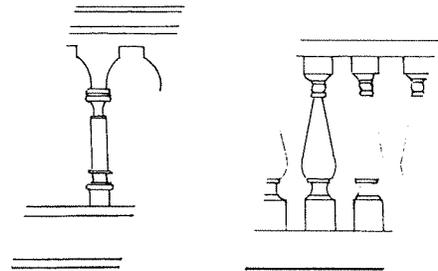
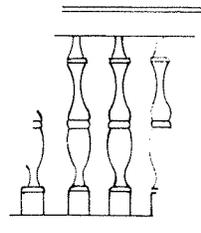
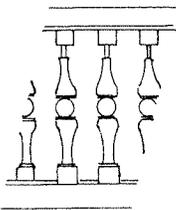
601 Bay  
c. 1850

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



508 Craven  
1875

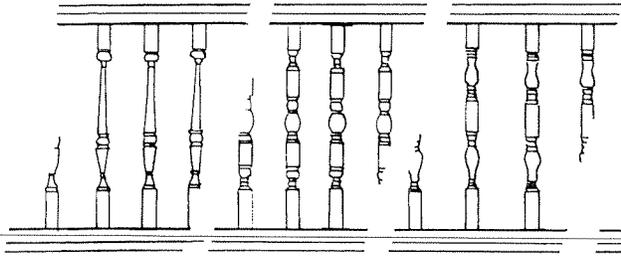
605 Prince  
1850's



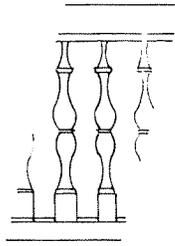
601 Prince  
1850's

901 Craven  
1890's

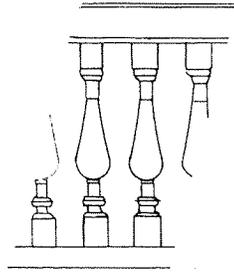
from  
**Victorian Architecture**  
by Al Bickwell  
1873



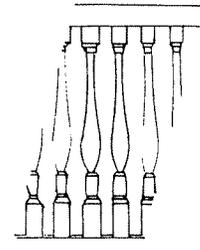
1887



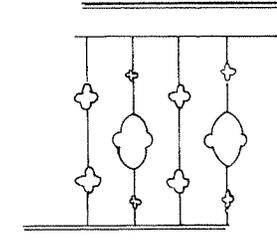
509 Harrington  
c. 1850



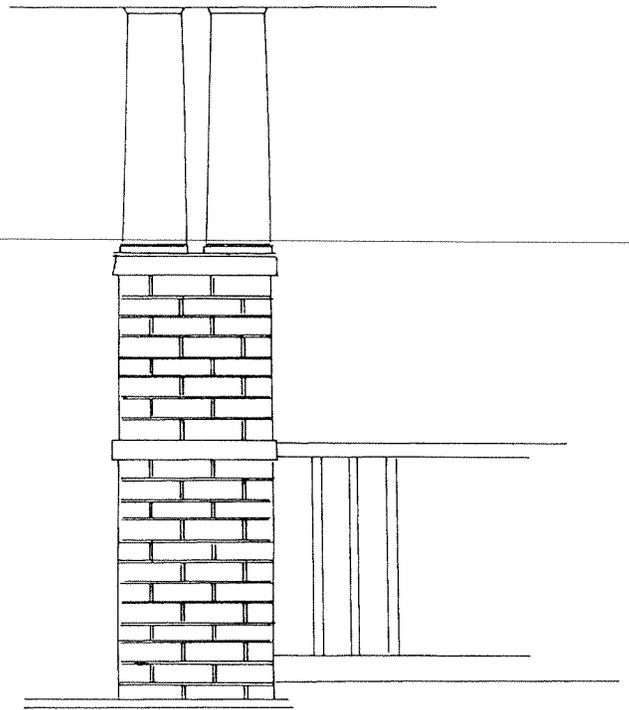
411 Craven  
c. 1850



500 Port Republic  
c. 1830



601 Port Republic  
c. 1875



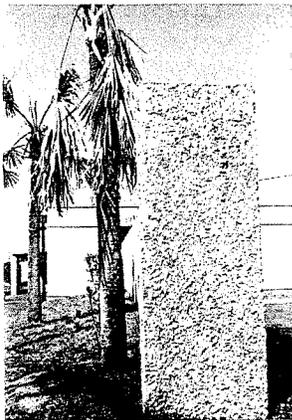
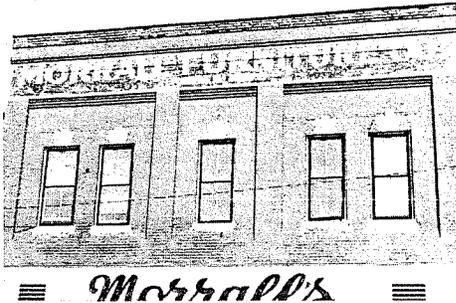
1307 North  
c. 1905

# Chapter 3

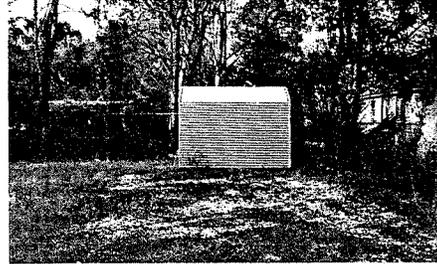
## New Construction and Signage

### 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 every change in the architectural fabric of the community. Uncontrolled demolition, alteration, and new construction irretrievably alter the City; once gone, the ambience of Beaufort could not be recaptured with any degree of authenticity.



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 resident's, 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 ordinance and the existence of an architectural review board.



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 ordinances 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 ordinance, 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.



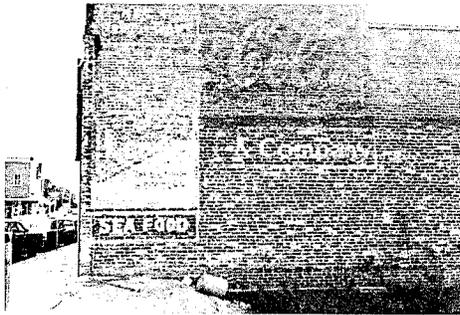
Preservation ordinances, and the review bodies that enforce them, must strive to achieve a balance between essential restrictions and the freedom necessary to encourage creative and harmonious design. Overly restrictive ordinances may result in a proliferation of new structures which unsuccessfully imitate 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 ordinance provides for an assessment of a proposed building's appropriateness by an architectural review board. The ordinance defines inappropriate construction as that which has "... arresting and spectacular effects, violent contrasts of material or colors and intense lurid colors, a multiplicity or incongruity of details resulting in a restless and disturbing appearance, the absence of unity in composition..." The ordinance is undoubtedly accurate in stating that such characteristics are inappropriate to the Historic District. 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 judgement on new construction

requires that the review board build upon the ordinance 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 in impediment to community growth, it must also be prepared to offer constructive criticism and design alternatives which are aesthetically and economically acceptable.



The following section discusses the design components which should be taken into consideration in evaluating proposed structures within the District. These guidelines emphasize the “principles” involved in good design as elements which can be objectively assessed. 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 judgement 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. These design elements, when identified and their interrelatedness defined, 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, 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 705-709 Bay, destroys the rhythm of the street.

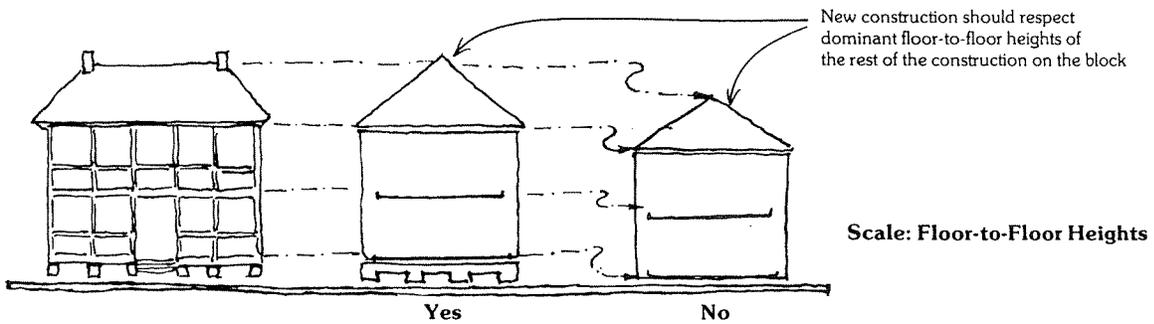
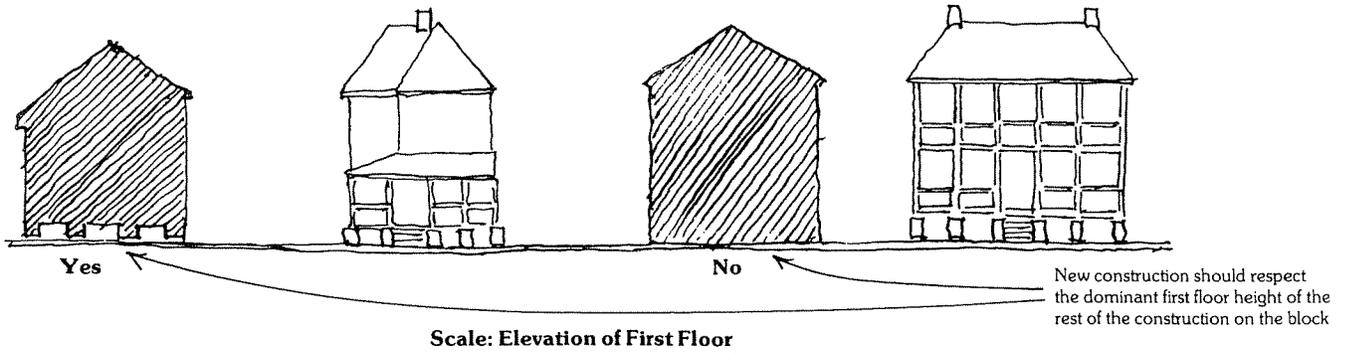
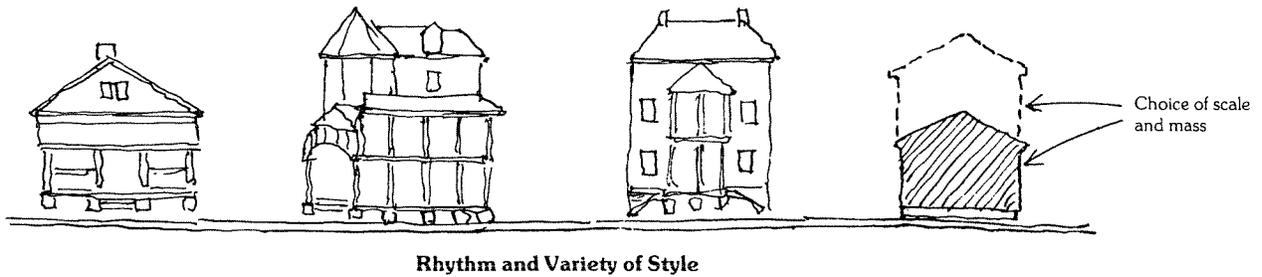
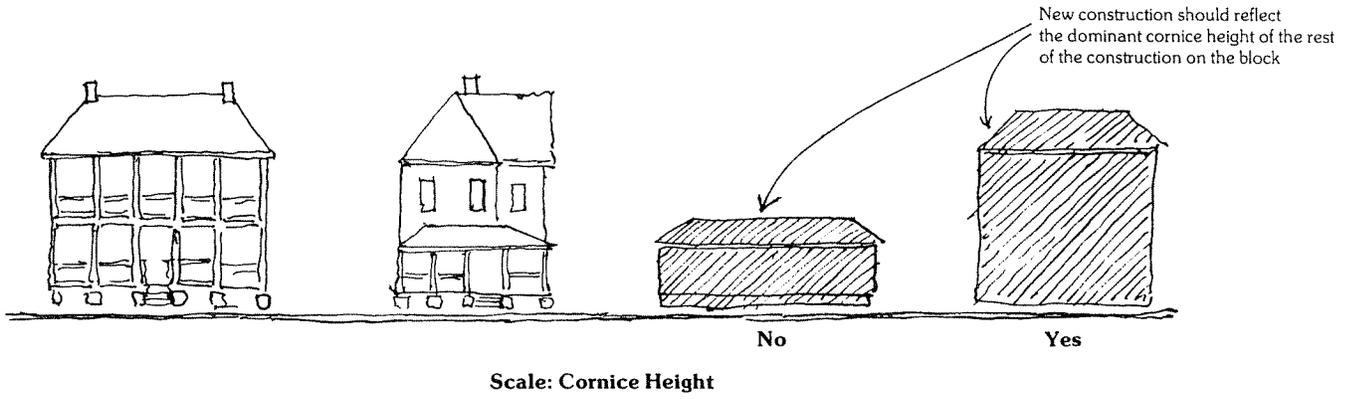
While inordinately low buildings create a void at the second floor level that interrupts the feeling of enclosure, disproportionately tall buildings will overpower the majority of the early structures. In some instances, streetscapes have evolved in such a way that a rhythm of varying cornice heights exist. Infill construction should be scaled to augment this rhythm, falling into the pattern of height variations if one exists. In cases where the street does **not** have a dominant or discernable rhythm of cornice heights, the decisions of the board should be more affected by the considerations of absolute height and massing described below.

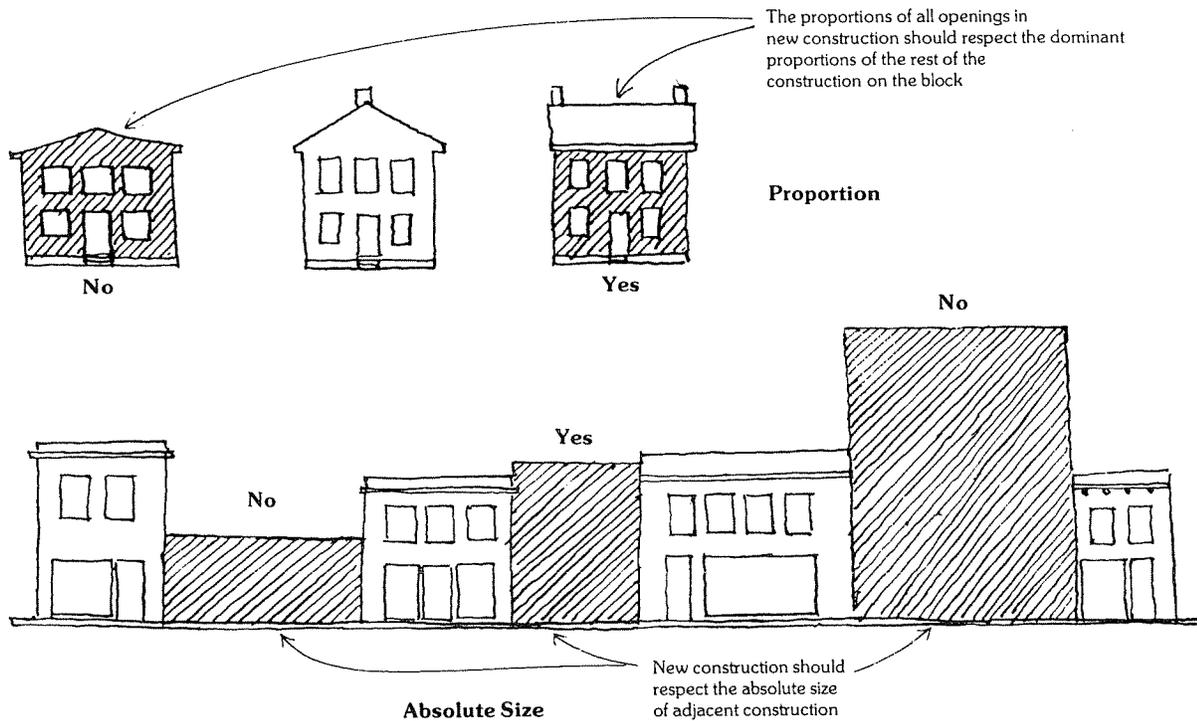
**Elevation of first floor.** The typical residential street in the Historic District is fronted by houses with prominent steps leading to raised first floor porches. These streetscapes would suffer greatly from the impact of any new construction with an on-grade entry. The raised floor is still an excellent 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.

**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 District. Because of this relative consistency, some limitations can be placed on the range of overall acceptable sizes of new buildings. In general, it is desirable that new structures in the District be limited to two and three story structures (in terms of height, if not in number of actual floor levels). This applies equally to commercial and residential structures. Obviously, there will exist circumstances where exceptions must be granted. Specific uses, development projects critical to Beaufort’s economy, etc. may dictate structures of larger scale, mid-to-high density design.



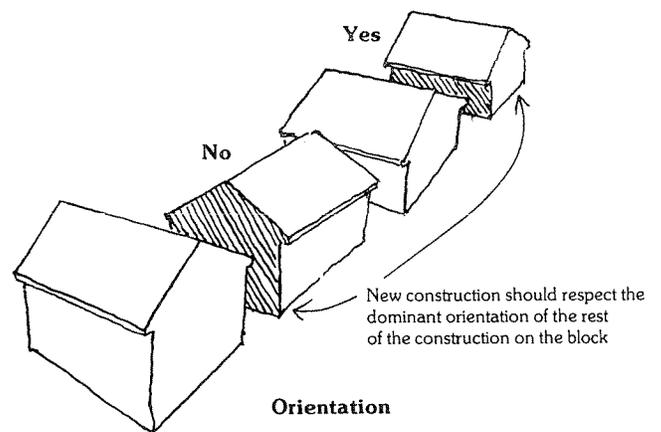


Each of these situations must be evaluated on its own merits, and this impact upon the District carefully weighed. If large scale construction is to be allowed, particular attention should be given to locational aspects, siting, setbacks, and facade treatments. This situation is discussed in more detail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

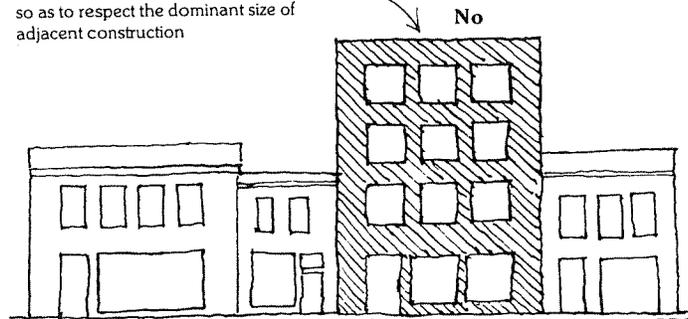
**Massing** - Massing refers to the relationship between solids and voids, as well as the differentiation of planes (i.e. projections) of a facade. The surface of a building is made up of "solids" (the siding or walling) and "voids" (window and door openings). The relationship between these two areas, 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.

**Orientation** - Principal facades of new construction should be oriented in the same direction as the rest of the buildings on a street. In Beaufort, the prevalence of south-facing residential construction and a strict north-south/east-west street grid reinforce the importance of this basic design decision.

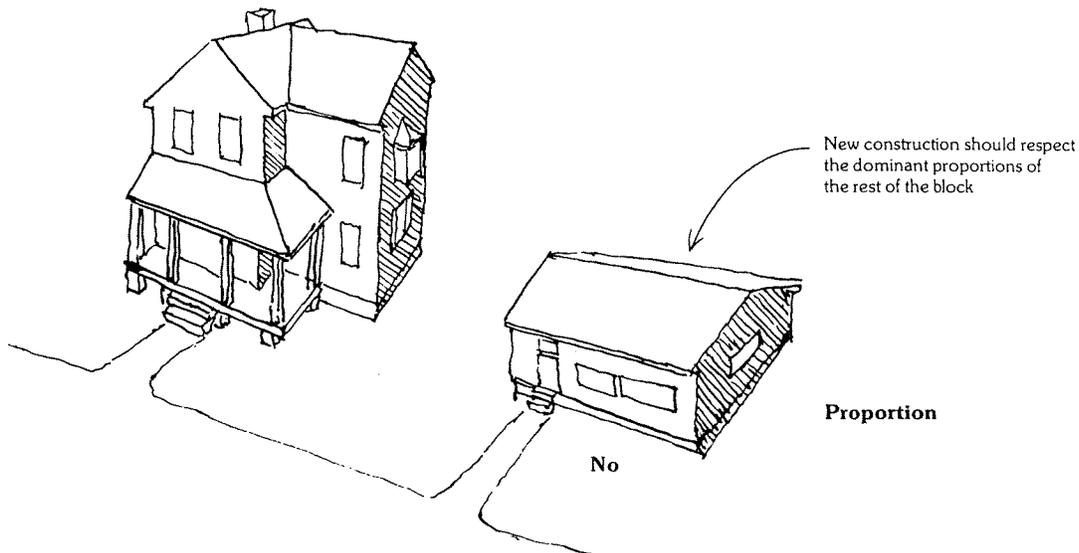


New construction should be massed so as to respect the dominant size of adjacent construction



Scale: Commercial Street

**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. In Beaufort, this would generally discourage the construction of long, low-slung buildings such as the Sea Island motel or 510 Carteret Street, as well as elements such as square or round windows. A new structure should emulate the proportions of the major elements of its early neighbors to the degree practicable.



**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
- painted concrete masonry
- 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 windows
  - glass block
  - picture windows
  - windows with horizontal glazing
- asbestos siding

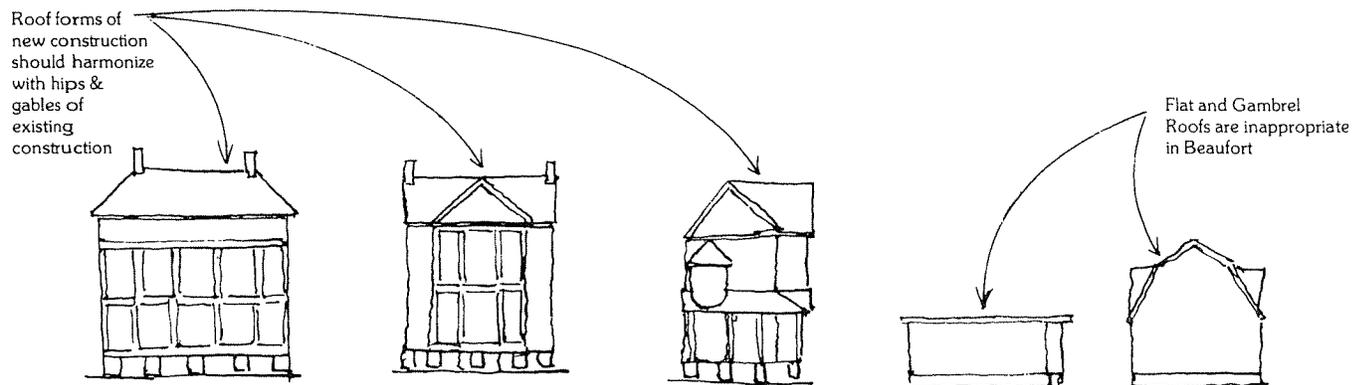
A sympathetic use of proper construction materials is perhaps the most obvious and direct means of achieving a relationship between old and new buildings. It is fundamental in creating harmony between neighboring structures, although success is dependent upon more than generalized material similarities. 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 judgements 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



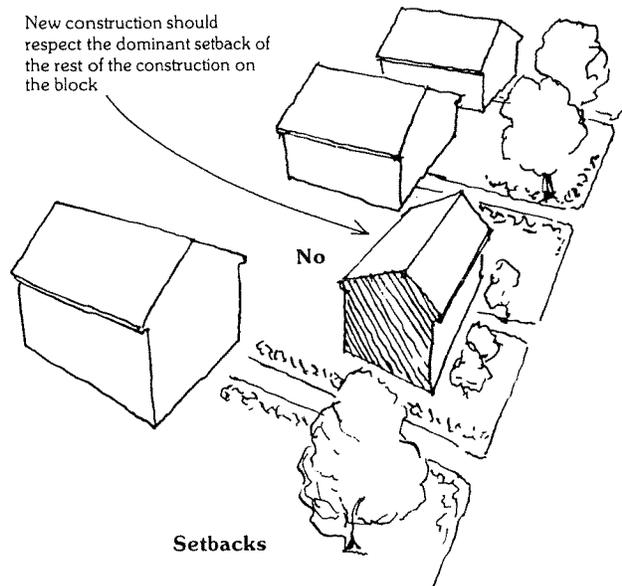
**Roof Forms**

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, it is obvious that 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.

**Siting** - New construction should respect the dominant setback line of existing construction. 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").

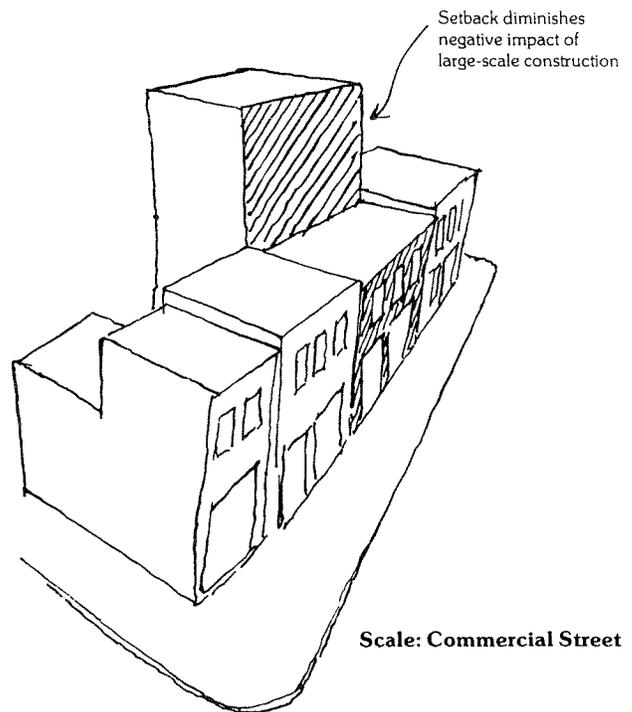
On a purely practical level, the review board should request information on the expected adult size of any proposed tree for new landscaping. Trees should not be planted so close to each other as to inhibit their growth in the future (as is the case with the Sea Island Motel parking lot), nor should they have the potential for physical interference with adjacent construction.



**High Density Construction** - Ideally, the Historic District of Beaufort would be able to avoid the intrusion of large scale building and mid-to-high density construction ad infinitum. However, the economic growth of a community, development pressures, and increased demands for space can periodically overshadow preservation concerns. From a realistic standpoint, the residents and review board must be prepared to deal with these inevitable (and hopefully rare) instances. While massive construction projects certainly warrant protest on legitimate preservation grounds, the board should be aware of the means

by which the negative impact of large scale buildings can be minimized. In the event that such construction is deemed a necessity by the community-at-large, it should, at the very least, conform to the following design and locational parameters.

- 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, the situation is unavoidable, 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.



- "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 historic buildings 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 subgrade, 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 overscaled 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.

Of course, it is highly desirable to avoid large scale construction altogether by limiting the height, volume and/or plan 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 can negatively impact the District to the same degree as mid-to-high rise structures.

**Bay Street Facade Rehabilitation** - The City of Beaufort has taken a major step toward the revitalization of its commercial district with the recent completion of the waterfront park development. The commercial area is largely limited to Bay, Carteret, and Port Republic Streets. 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 used car and 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 renovative 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 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 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.

## North Side of Bay Street

### 703 Fordham Hardware

- Carry brick end piers to ground.
- Restore leaded glass window transoms.
- Install new wood doors and storefront windows.
- Paint sign on brick beneath second floor window sills.
- Install brick panels beneath display windows to match existing brick.
- Install canvas awning with signage along edge.

### 705-9

- Install continuous canvas awning with signage along edge to obscure existing brick projections.
- Construct new full-story height parapet wall with stone belt course and cap and openings so as to bring building more into scale with its neighbors.

### 711-13 Morrall's

- Install stone plinths at base of brick piers.
- Restore leaded glass door and window transoms.
- Restore painted signs above second floor windows at east and west bay.
- Restore painted sign along top brick band.
- Install new wood storefront.
- Install canvas awning with signage along edge.

### 715

- Install new wood siding and corner board.
- Install new wood storefront and cornice.
- Paint sign on display window.
- Install canvas awning with signage along edge.

### 719 Discount Sewing

- Install new wood cornice.
- Paint sign on brick between cornice and top of awning.
- Install new canvas awning with signage along edge.

### 723 Beaufort Hardware

- Remove brick veneer and repair/replace wood siding beneath.
- Restore original windows and shutters at second floor.
- Install new wood display window with cornice at head and paneled kick plate beneath.
- Install new wood entry doors at corner entrance.
- Install new canvas awning with signage along edge.

### 803 Verdier House

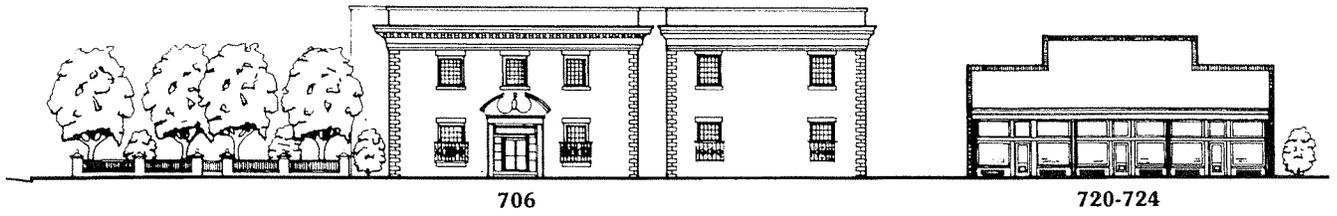
- No alterations recommended.

### 805 Hollingsworth Barber Shop

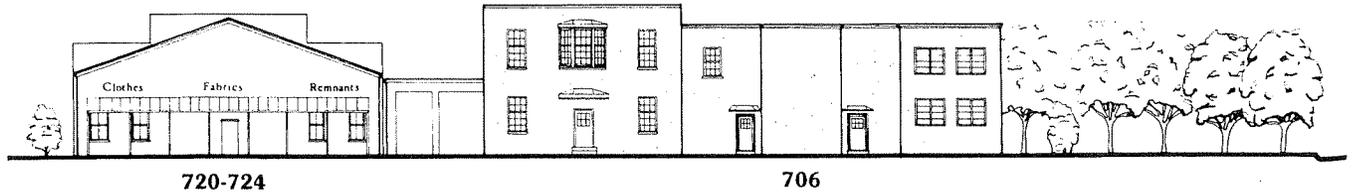
- Install new canvas awning to match those installed at 807-13.
- Install new wood storefront.
- Install new clapboard siding.
- Paint sign on new clapboard siding.

### 807-13 Allied Department Stores

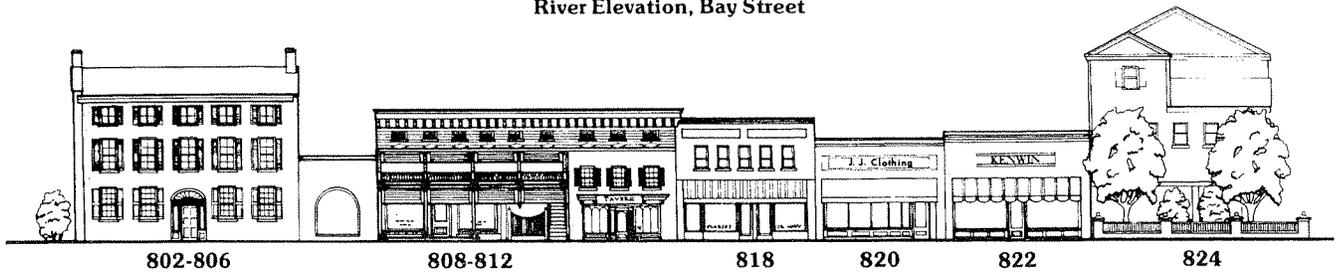
- Remove brick and aluminum storefront.
- Install wooden Doric pilasters at pier lines.
- Install new wood storefronts between each pilaster.



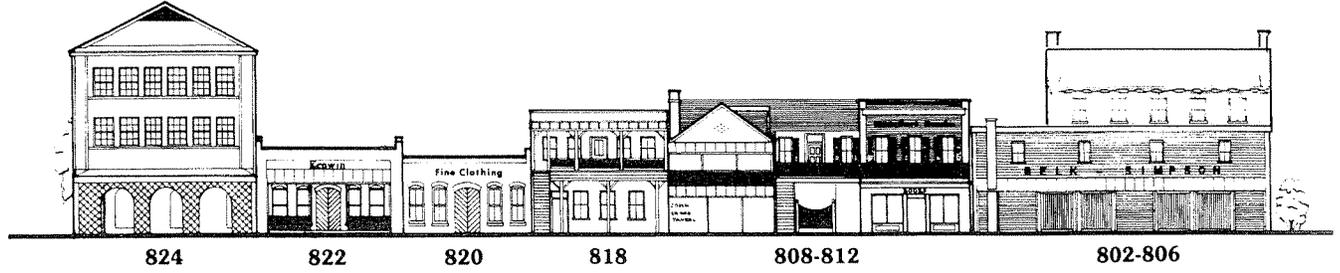
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720-724  
South Side, Bay Street



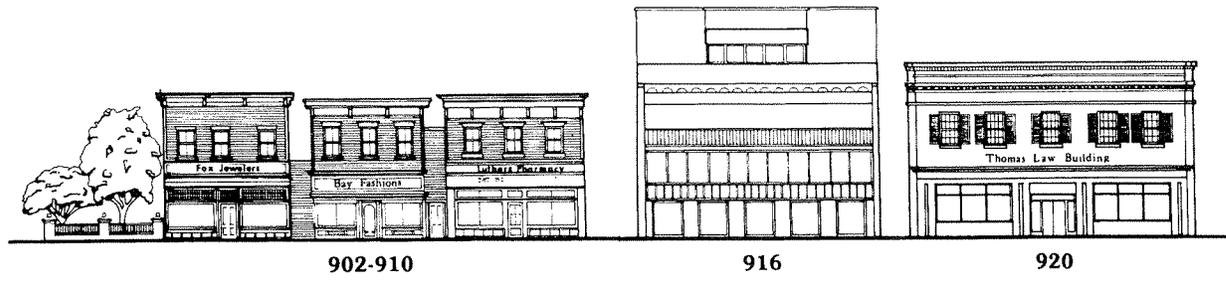
720-724  
706  
River Elevation, Bay Street



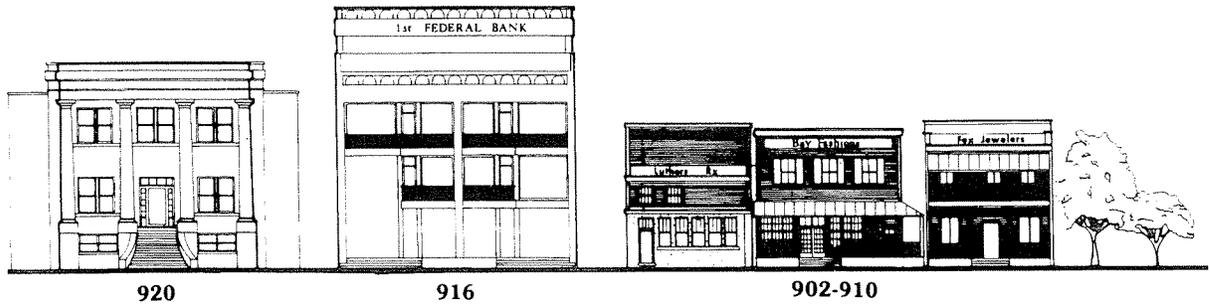
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South Side, Bay Street



824  
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River Elevation, Bay Street



902-910  
916  
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South Side, Bay Street



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River Elevation, Bay Street



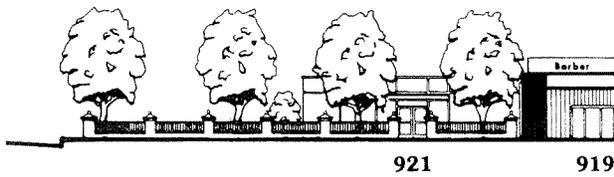
North Side, Bay Street



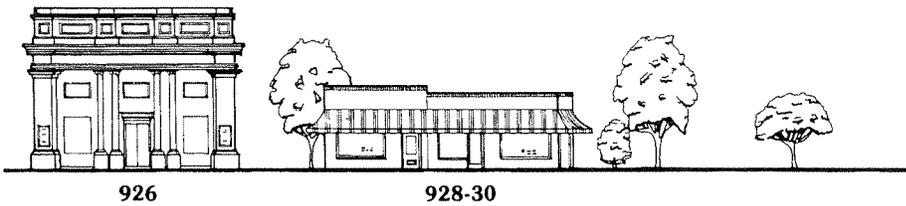
North Side, Bay Street



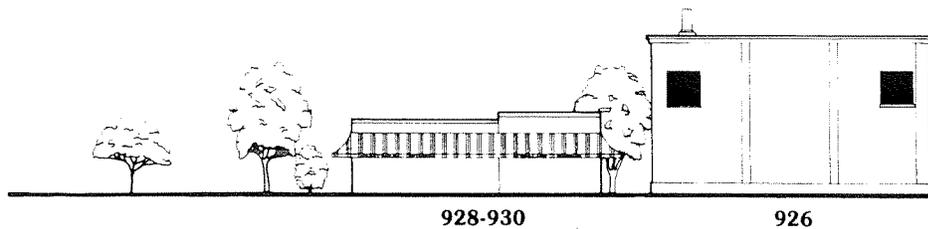
North Side, Bay Street



North Side, Bay Street



South Side, Bay Street



River Elevation, Bay Street

- Install new canvas awnings between each pilaster with signage along edge.

### 815-17

- Install new 3-over-1 windows at second floor.
- Remove wooden storefront; carry brick piers to ground.
- Install new metal storefront with recessed doors, metal windows with glazing clips at corners, and painted brick kick plates beneath windows.
- Install new canvas awnings at each bay with signage along edge.

### 825 Lipsitz

- Remove vinyl siding and repair/replace wood siding beneath.
- Install new wood corner boards.
- Replace wood shutters at second floor windows.
- Install new wood storefronts at each end with cornices similar to main building cornice but of smaller scale.
- Install new wood second floor entry door with glazed transom.
- Paint signs in transoms of display windows.
- Install new canvas awning at each storefront with signage along edge.

### 901 Hirsch's

- Install new wood storefront.

### 903

- Install new wood cornice.
- Install new canvas awning with signage along edge.
- Paint sign on brick between awning and cornice.

### 905-9

- Remove stucco panels and repair/replace wood siding beneath.
- Remove fixed windows and replace with 2-over-2 double hung wood windows.
- Install new wood storefronts.
- Install new canvas awning with signage along edge.

### 911-913 Schein's

- Install new wood storefronts at each building.
- Restore leaded glass transoms.
- Paint sign in brick panel at top of east building.
- Install new canvas awnings with signage at edge.

### 913 Edward's

- No alterations recommended.

### 919 Barber Shop

- Install painted wood panel sign at parapet.
- Remove barn siding and continue brick veneer along facade.

### 921 South Carolina Savings

- Install brick and iron fence to screen parking area and emphasize important corner of Charles and Bay.
- Increase scale and density of landscaping along Charles and Bay Street sides of parking lot, behind new fence.

## South Side of Bay Street

### 706 Bankers Trust

North Elevation:

- Apply corner quoins and cornice to west wing to match those of east wing.
- Install brick and iron fence to screen parking area and emphasize important corner at Bay and Carteret.
- Increase scale and density of landscaping along Bay and Carteret sides of parking lot, behind new fence.

### 720-24

North Elevation:

- Install new wood storefronts at each store, linked by continuous wood cornice.
- Install new canvas awnings at each store.
- Use glass area of display windows and doors and edge of new canvas awnings for signage.

South Elevation:

- Restore original door and window openings; install new wood doors and windows similar to those on north elevation.
- Install continuous shed structure with flat seam metal roof, chamfered wood posts, and wood platform.
- Paint signs on brick surface above shed structure.

### 802-6 Belk-Simpson

North Elevation:

- Remove modern storefront; restore original 9-over-6 first-floor windows and shutters.
- Install new wood paneled entry door with sidelights and fanlight.
- Install new arched display window at west wing.

South Elevation:

- Remove composition panels and sheath warehouse with wood clapboard siding.
- Install new wood cornice and corner boards.
- Stucco chimney.
- Install new sliding wood board-and-batten doors to warehouse.
- Install new 2-over-2 windows at second story of warehouse.
- Paint sign on clapboard siding.
- Install continuous shed structure with flat seam metal roof, chamfered wood posts, and wood platform.

### 808-12 John Cross Tavern

North Elevation:

- Install fixed wood louvers at top portion of columns at second-story porch.
- Install wood columns to match those of second floor; rest on 6" wood platform across front of 808 Bay.
- Install fixed wood louvers at top portion of new first floor columns.
- Install new wood storefront at bookstore.
- Install new wood gate at passage to rear.
- Install new wood stairs.
- Install new wood storefront at 812 Bay to match available photographic evidence of original configuration.

South Elevation:

- Continue existing wood railing and balcony around south and west sides of 808 bay.
- Install new or restored jib doors along south and west sides of 808 Bay to match original.
- Install new wood storefront at rear entrance to 808 Bay.
- Paint sign on clapboard of 808 Bay above second story windows.
- Install new metal shed roof with wood posts at first and second floor levels to cover building projections at John Cross Tavern.

### 818 Bay Florist/U.S. Army Recruiting

North Elevation:

- Install new canvas awning across both storefronts.

South Elevation

- Install new balustrade at second floor rail.
- Install new wood stair from second floor.

**820**

## North Elevation:

- Install new wood storefront.
- Install new canvas awning with sign along edge.
- Install new wood cornice.
- Paint sign on brick or on applied wood panel above awning.

## South Elevation:

- Install new wood doors to completely fill masonry opening.
- Paint sign on brick above door and window head.

**822 Kenwin**

## North Elevation:

- Install new wood storefront.
- Install new canvas awning with sign along edge.
- Install new wood cornice.
- Paint sign on brick or on applied wood panel above awning.

## South Elevation:

- Install new wood doors and windows.
- Install continuous shed structure with flat seam metal roof, wood posts and railing, and wood platform.
- Paint sign on brick above top of canvas awning.

**824 Beaufort Yacht Club**

## North Elevation:

- Install brick and iron fence along Bay Street to enclose landscaped park and serve as entry to waterfront development.
- Increase scale and density of landscaping along Bay Street; install trees.

## South Elevation:

- Install wood trellis with regularly-spaced arched openings beneath overhang along south and west facades.

**902-910 Fox Jewelers / Bay Fashions / Luther's Pharmacy**

## North Elevation:

- Remove continuous storefront and install new wood storefronts at each building.
- Install signage at first floor cornice of each building or on applied wood panel.

## South Elevation:

- Install two stage wood porch with flat seam metal roof at 902.
- Install new or restored wood windows and doors at original openings at 902.
- Install painted sign on wooden panel located between parapet walls at 902.
- Install new 2-over-2 windows and shutters at second story at 904.
- Install new painted sign on wood panel attached to building above second floor window heads at 904.
- Install new continuous shed along south and east elevation with flat seam metal roof, wood posts and rail, and wood platform at 904.
- Install new window at southwest corner to match that at southeast at 904.
- Install painted sign atop second story cornice on wooden panel at 910.

**916 First Federal Savings Bank**

Non-conforming structure - no alterations recommended (note, however, suggestion of sign at upper band of concrete on south elevation).

**920 Thomas Law Building**

## North Elevation:

- Install new window framing at first-floor windows.

## South Elevation:

- Replace stair to rear entrance at center bay.
- Replace glass-block basement windows to match sash of upper stories. *or ...*
- Restore original rear colonnade and porch configuration.

**926 Bay Street Theater**

## North Elevation:

- Restore facade to match available photographic evidence of original configuration; install new marquee recessed behind colonnade.

**928-30**

## North Elevation:

- Install new wood door and window at 928.
- Install new canvas awning, continuous around structure.

## South Elevation:

- Install new canvas awning, continuous around structure.

**Signage**

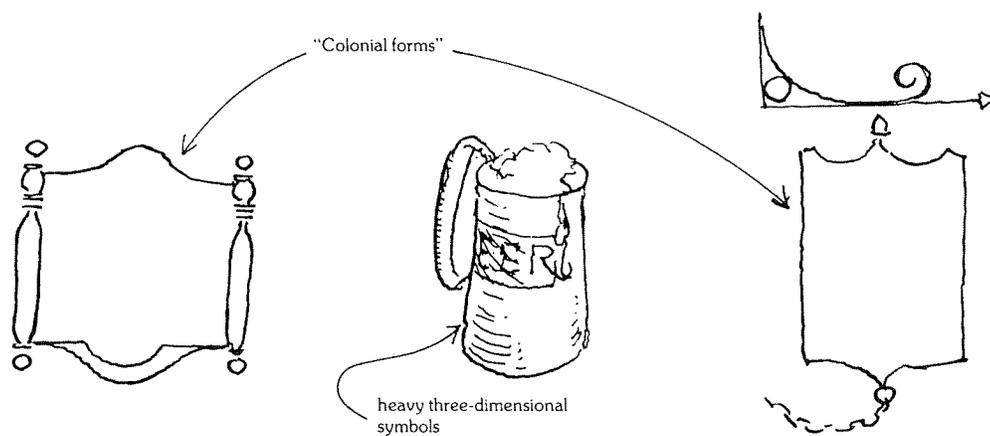
The quality of signage has a potentially great impact, either positive or negative, on an historic streetscape. A profusion of discordant, poorly designed signs can detract seriously from a commercial area. Conversely, good quality, well designed, appropriately located signs are one of the most economical and dramatic improvements that retailers can make.

In an effort to encourage and direct this type of upgrading, many communities have enacted sign ordinances. While the intent of such ordinances 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 ordinances 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 buildings they serve. Perhaps the most ironic result of such restrictive ordinances, however, is the outlawing of authentic period signs because of size and material limitations.

While an effective sign ordinance 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 pre-dating 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 ordinance will be that which offers the greatest design flexibility, prohibits only those elements which are indisputable detriments to the historic character of the District,



**Signage: Inappropriate Designs**

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 bevelled 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 stencilled, 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.

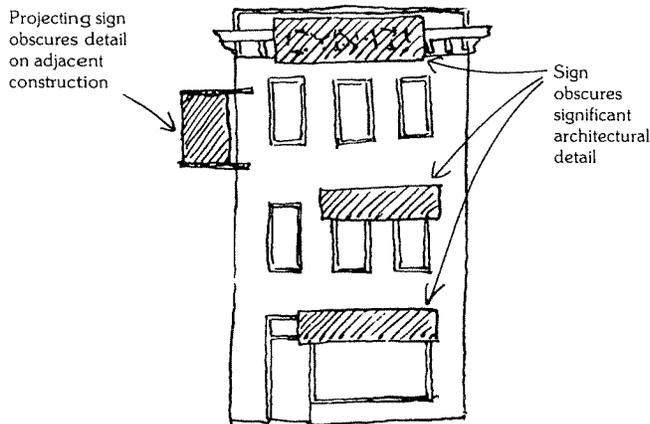
**Signage Guidelines** - It is important for every one concerned -- the sign designer, owner, and member of the review board

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**



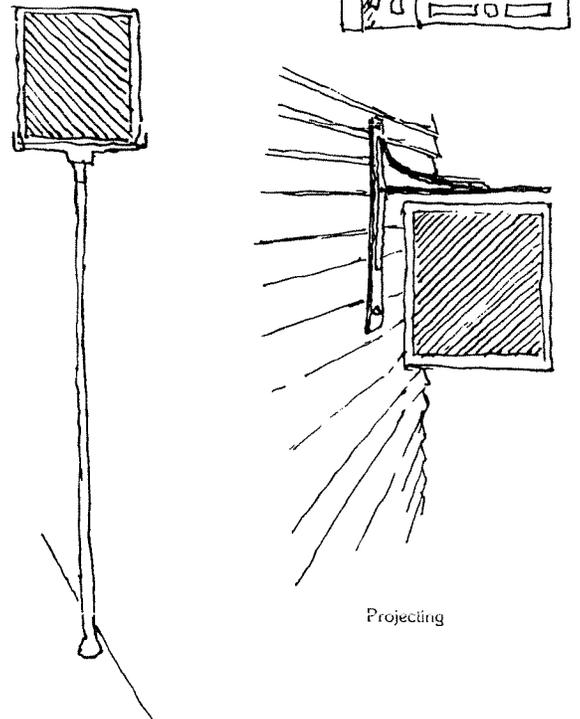
**Appropriate Sign Locations**

- 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.

At first floor cornice

On display window case

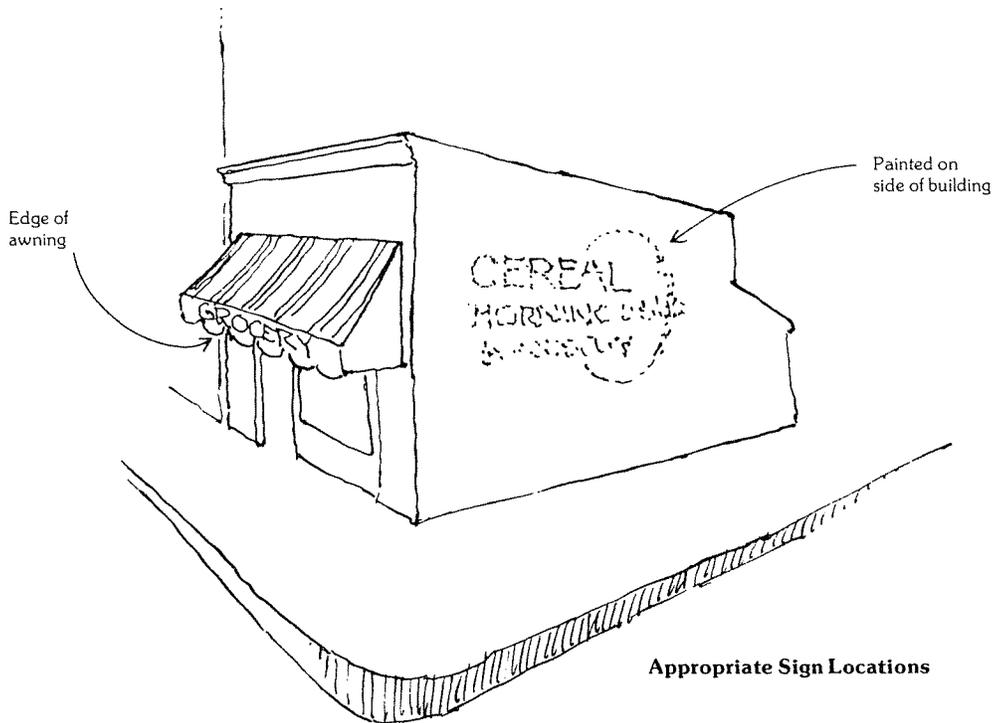


Projecting

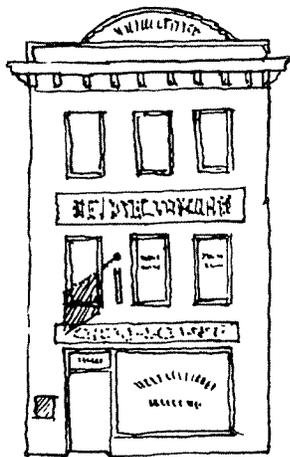
Freestanding

**Appropriate Sign Designs**

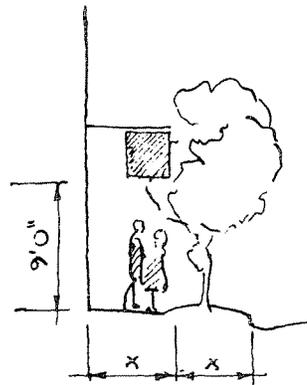
Beaufort's current zoning ordinance prohibits all warning-type flashing signs, banners, and signs in the street or public right-of-way. While there is little doubt that flashing signs would be a detraction in Beaufort's Historic District, the other prohibitions are questionable as blanket restrictions. While signs within the cartway would pose an obvious hazard, it is plausible that freestanding signs on the sidewalks may be quite appropriate in



**Appropriate Sign Locations**



**Appropriate Sign Locations**



**Projecting Signs:**  
Recommended Placement

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.

**Size** - Beaufort's ordinance 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 contem-

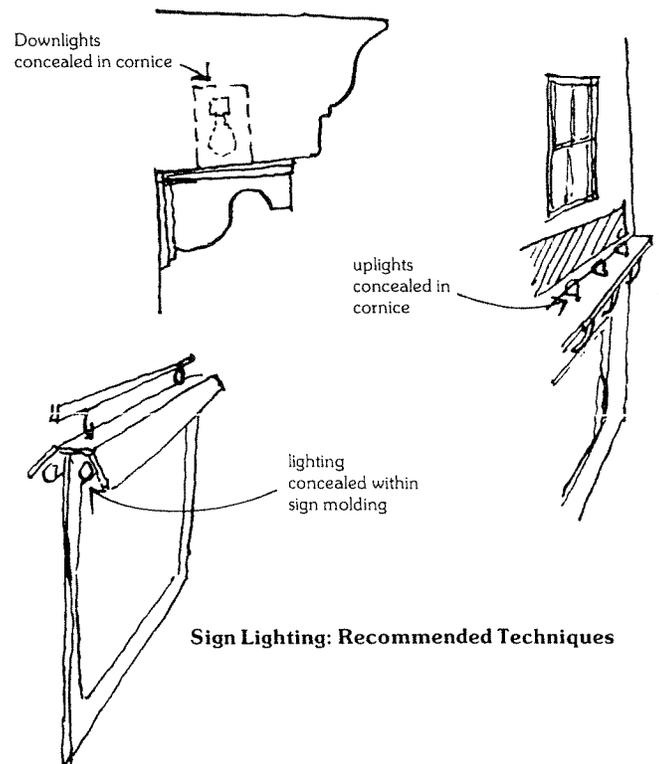
porary design should be used while respecting, and conforming to, the size and limited projection of neighboring signs.

**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**



Masonry

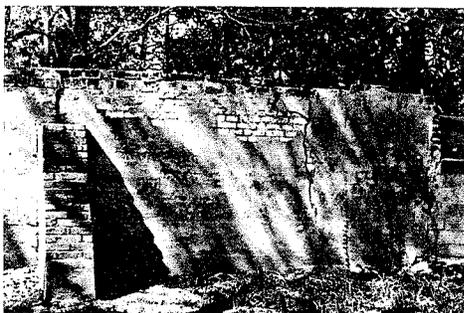


# Chapter 4

## Brick and Chimneys

### Introduction / Brick

Brick construction plays an important and varied role in the architecture of Beaufort. 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.



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. The clearest example is the well-meaning, but tremendously over-scaled attempt by the Bank of Beaufort on Bay Street to



evoke certain dominant aspects of the town's traditional residential design. 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.



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.

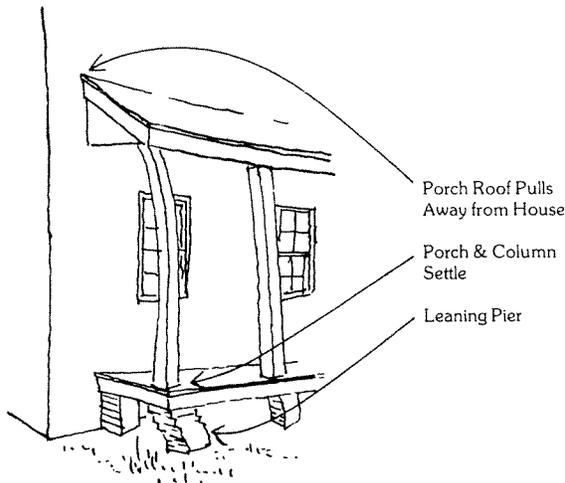
The repair and maintenance techniques that are discussed in the following pages are a basic guide to approaching and understanding brick problems. Throughout the recommendations, the intentions are threefold:

- to maintain structural stability
- to maintain impermeability to moisture
- to maintain vertical and horizontal visual continuity between original material and patches.

## Brick Structural Problems

**Brick Piers** - Any deterioration of the piers which form the structural base for the entire building is obviously very serious and should be attended to immediately and cautiously.

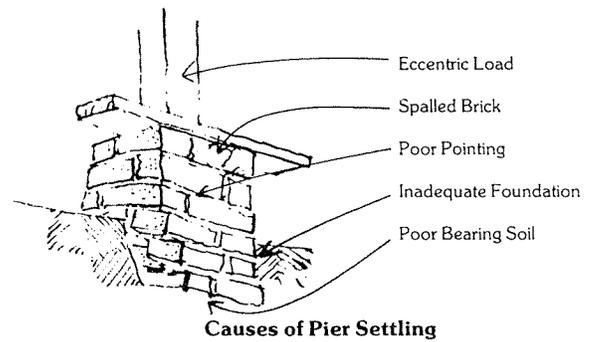
As the porch piers lean away from their intended position, the column and porch floor will settle to a new location pulling the porch ceiling along. Such strains can often put an excessive load on structural elements that were not designed for such work.



**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.

Several possible causes should be investigated for the settling pier problem:

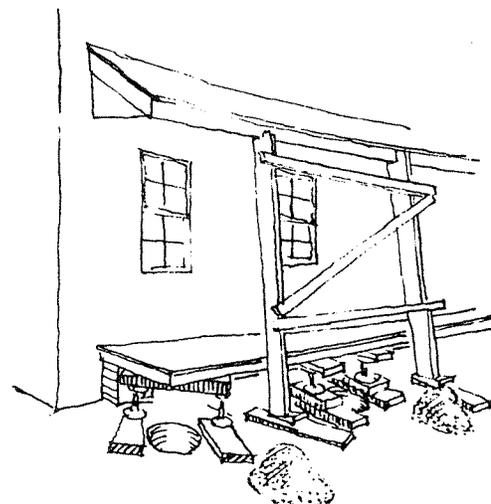
- Inadequate functions. Early brick construction did not always employ the well-designed foundations used in good modern practice where the base of the pier or wall rest on a broader concrete pad called a "spread footing." Without this support, the pier, which is a concentration of supported weight at 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



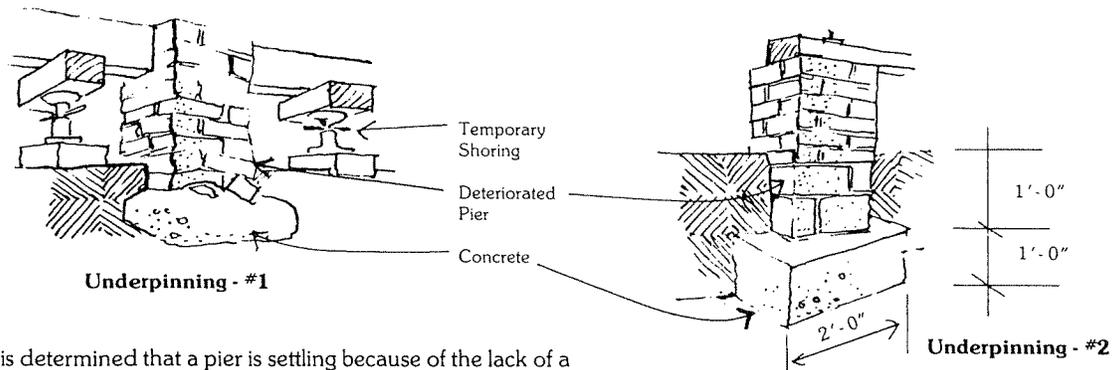
a tendency to weaken the bearing soil in the worst case, or to simply initiate a degree of rotation at the base of the pier. The result is leaning.

- 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 each brick have as important a role to play in the structural integrity of the pier or wall as the brick itself. 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.

Repairs for settlement and leaning: 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. **CAUTION:** 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 is not to be undertaken lightly.



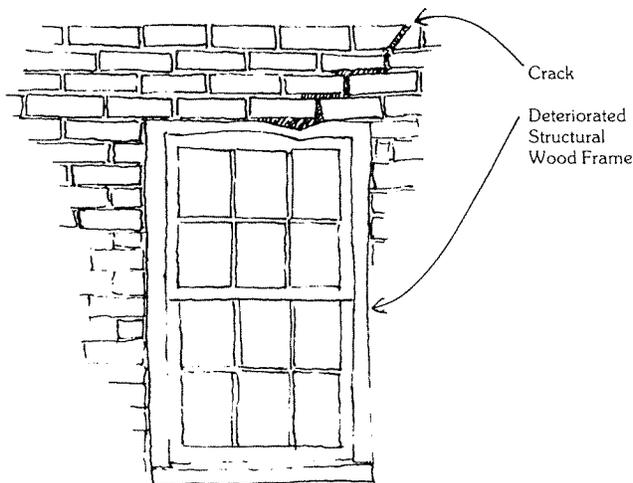
**Shoring Techniques**



If it is determined that a pier is settling because of the lack of a foundation 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.)

**Wall Cracks Above Openings** - Not only is a crack an undeniable indicator of movement in a building, it is also a vulnerable spot for moisture penetration and further deterioration. That part of a brick wall most vulnerable to cracking is located above all openings such as windows and doors. This is due to the inability of brick to span openings and support its own weight without the aid of certain structural devices.

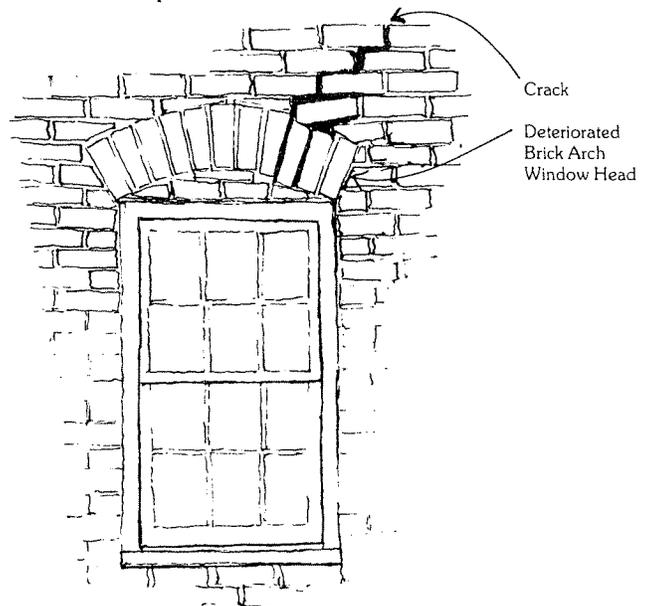


Historically, at least three such devices were commonly used:

- Structural wood-framed opening. Visualize the top head of a door or window as a beam, the jambs as the columns, the sill as the supporting plate. Cracking in this condition can occur because of deterioration of the wood caused by moisture penetration either at the surface or at the edges which could have been prevented by adequate painting. The

latter case may be prevented by providing a recessed bead of caulking around the perimeter of the frame. Such caulking, obscured by an overlayment of pointing, would tolerate the different rates of expansion and contraction of brick and wood that so often aggravates this problem.

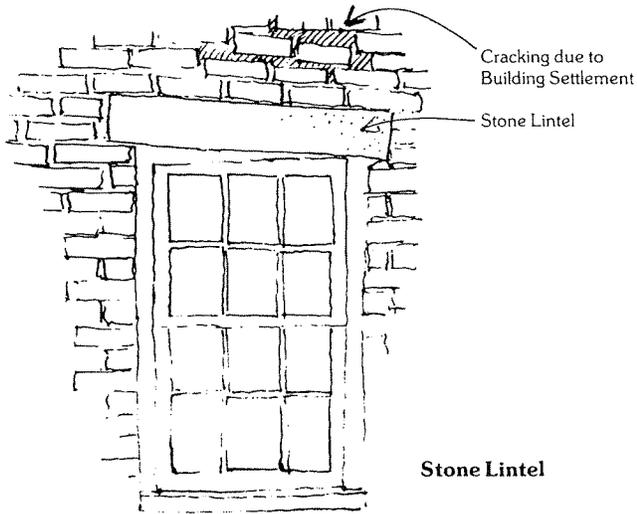
- Brick arched-head windows. The arched head of a window fails either because of inadequacies or deterioration in the pointing or movement of the building as a whole. The latter usually appears as a problem common to several openings within a structure. In the former case, the arch must first be shored on a wooden centering form, which conforms to the arch profile. It can then be rebuilt as necessary. An experienced mason is required.



- Stone lintels. Failure of stone lintels 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. What is desired is not necessarily restoration to the original configuration, but stabilization, for which a competent engineer should be consulted.

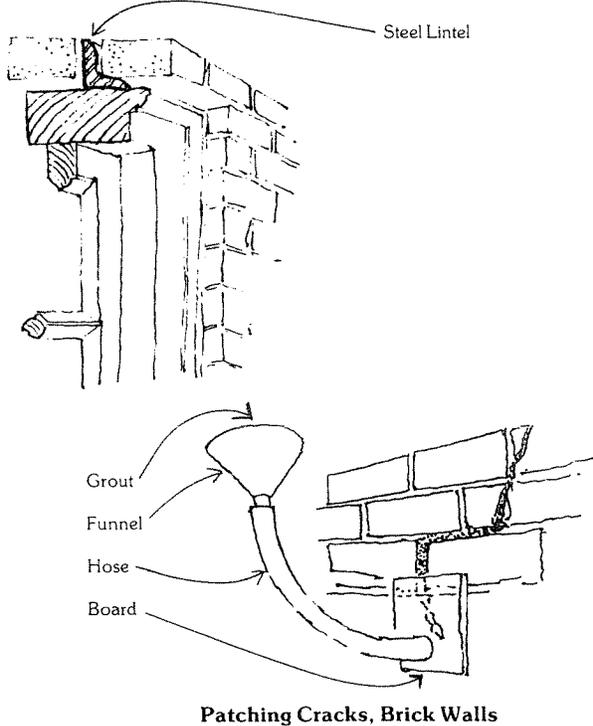
In all cases, two repairs are strongly recommended:

- reinforcement of the lintel with hidden means of support, for which the most obvious solution is a steel lintel extending four to six inches beyond the jambs of the opening on each side. 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. It should always be painted prior to installation with a rust-preventative paint, such as "Rust-Oleum," to prevent future brick stains caused by metal oxidation.)

- patch the crack to prevent moisture penetration. If the break is long and deep, grout must be fed into it. Wet the crack and seal its base temporarily with a board. Pour grout into a funnel attached to a tube extending into the crack. Let the grout set for a day and then point over it. Move up the wall in stages as often as required to fill the crack.



(Note: the visual impact of such a repair can and should be minimized by using mortar coloring similar to that of the brick being patched, or by mixing into the grout a powder of similarly colored, pulverized brick.)

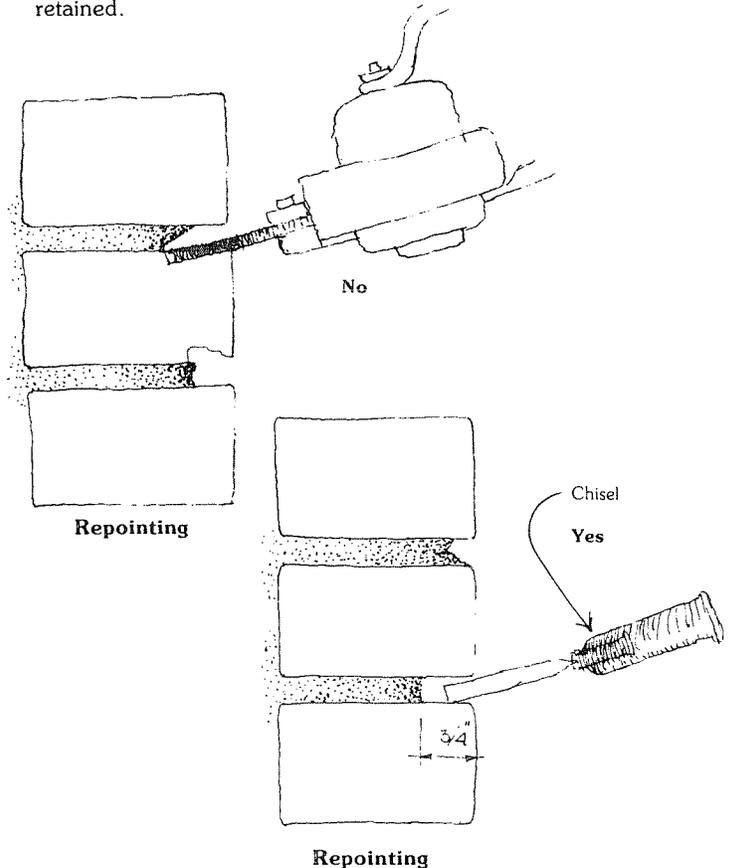
## Brick Moisture Penetration

The ability of brick construction to shed water is obviously crucial to its function as the exterior walling of a building.

A brick wall with a high moisture content throughout is not functioning properly as a skin for the building and will not function properly as a structural support until the situation is rectified. Like many repair and maintenance problems, once the initial moisture penetration has occurred, unfavorable conditions are created which in turn increase the accessibility of moisture in a process of deterioration that feeds upon itself. The following sections contain a brief review of various causes of moisture penetration in brick construction and suggest reasonable procedures for repair.

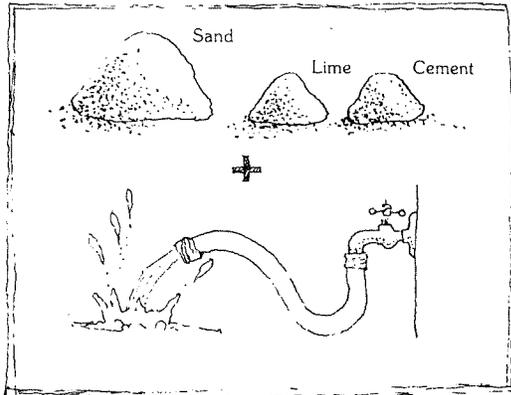
**Brick Pointing** - One of the final processes in laying up brick or masonry walls is the pointing of the mortar joints between the masonry units. Although the final result can be a decorative feature of the wall or pier, the property owner should be aware that the primary purpose of pointing is to 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.

Procedures for repointing. 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 power saw. While a highly skilled mason **may** be capable of accomplishing this satisfactorily, it is far safer to utilize a contractor who is experienced in and willing to undertake mortar removal using hand tool methods. It should, however, be recognized that removing mortar in this manner is a laborious and time-consuming task. If even the smallest amount of brick is removed, the scale 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.



“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 no excess water from the mortar is absorbed by the brick.

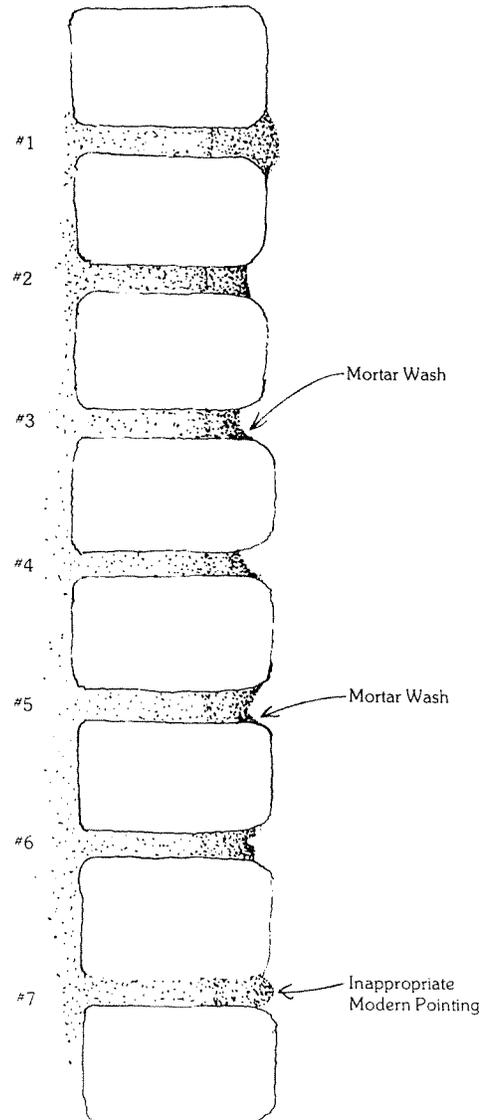


Mortar

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.**
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 as well as the strength of the adjacent existing mortar. 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. The color of any given mortar is obtained from and therefore varied by the percentage and type of sand, lime, and inclusions of other materials such as brick dust.
8. In some instances, an original mortar may be difficult to reproduce in color or composition using only natural products. This is particularly true of mud mortars, or those with a great many inclusions (charcoal, brick dust, ground stone, etc.). In addition, an accurate reproduction may result in an inordinately soft or inferior mortar that will not possess the

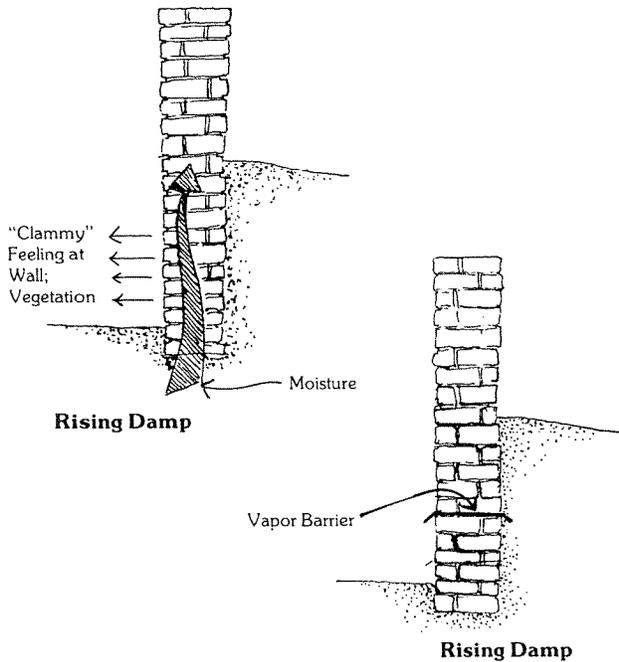
necessary durability to withstand weathering through time. In such cases, a mortar premix, or admix, may be substituted if used with caution. If a colored premix is used, the proportion of Portland cement should be reduced by adding additional lime and sand. This will result in a more flexible pointing mortar. Also, premixes may contain unstable color pigments, which can alter the appearance of the mortar substantially over the course of several years. Consequently, the pigments used in a specific color of premix should be identified and their permanency verified before commencing work. Bear in mind that a color should be selected which is somewhat darker than the desired result, since the addition of lime will tint or lighten the final hue. Again, a test area or panel of pointing should be prepared and allowed to stand for several weeks (or preferably months) before proceeding with overall repointing. Wherever possible, it is advantageous to prepare pointing mortars from natural products as opposed to using premixes.

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 numbers 3 and 5 possess the disadvantage of exposing the top side of the lower brick to the weather.



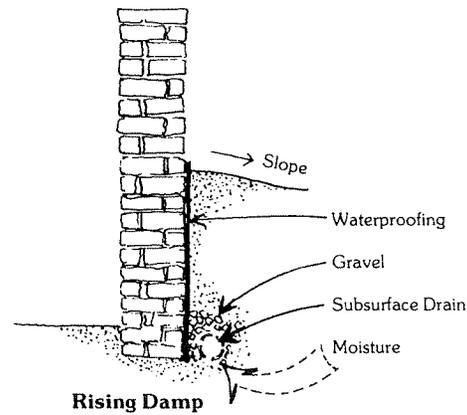
This drawback can be eliminated by allowing a thin “wash” of mortar to run continuously along the top surface of the brick below the joint. Number 1 should be avoided because the widened joints alter the original scale of the building, and because the upper edge of the brick course below the new pointing is vulnerable to moisture penetration. Number 7 is a modern version of Colonial brickwork which is comparable to “antiqued” brick in terms of its lack of authenticity. It is immediately recognizable as an inappropriate historic affectation and should not be used.

**Rising Damp** - This is a common and serious problem throughout 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 wall itself. Since a brick wall “breathes,” moisture within the wall will gravitate to the exposed surface, resulting in the characteristic moist, clammy feeling at or near the base of a wall. This is often accompanied by minute vegetation or mold which finds such moisture hospitable and which often imparts a definite stain to the brick.



This problem is often confronted directly in new construction by the installation of a vapor barrier of metal, polyethelene, 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 or 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)

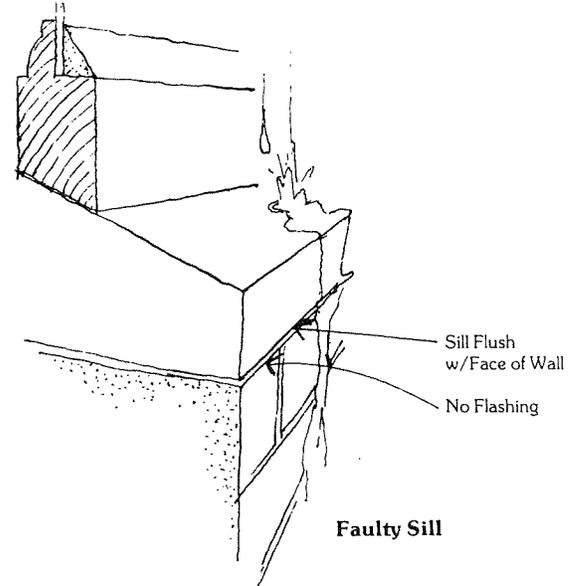


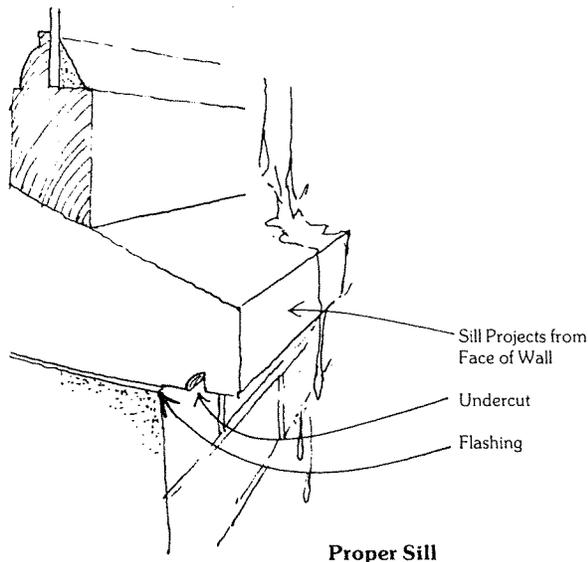
trench containing a perforated pipe and gravel fill. While some ground water may continue to affect the foundation wall below the level of the trench, the degree of saturation will be reduced. It is imperative for the perforated drain line to extend beyond the perimeter of the house and to carry the water to an acceptable discharge point.

**Flashing and Caulking** - A vulnerable point common to all construction is the joint between different materials and/or planes of the building. Depending on the circumstance, these areas are usually sealed with either metal flashing or a bead of flexible caulking. (See “Flashing” for further repair and maintenance information.)

**Faulty Drips and Sills at Parapets and Windows** - 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.



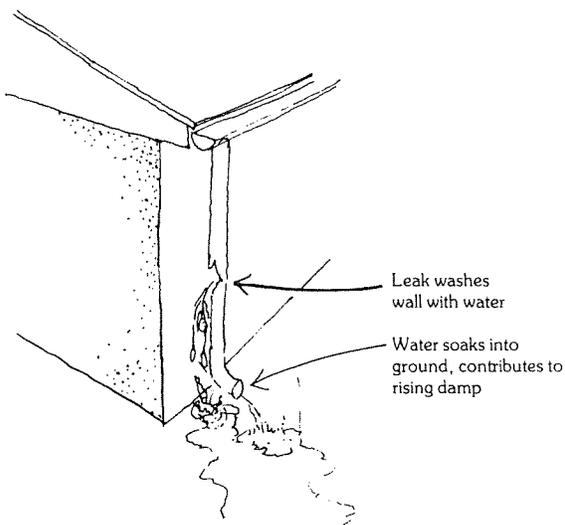


**Proper Sill**

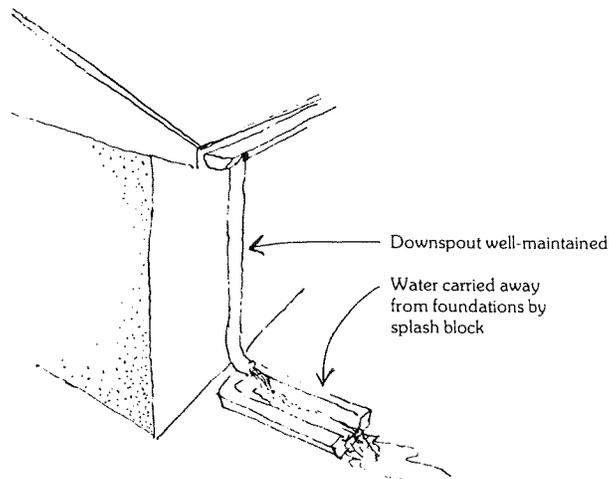
- the sill is deteriorated and moisture is penetrating the sill and, subsequently, the wall beneath.
- the mortar joint or flashing immediately beneath the sill is flawed and water is entering the wall at this point.

In some cases, proper maintenance of sills, such as repainting, will regain the necessary watertightness. If severely deteriorated, the sill must be replaced. If original sills lack projection from the face of the building, the lower edge may be flashed, caulked, and repointed.

**Faulty Gutters and Downspouts** - Persistent damage is done to brick walls that suffer from moisture penetration caused by inadequate or leaking downspouts. During a storm or rainy season, such conditions concentrate a large and constant flow of water against a brick surface. The problem is easily discovered by merely investigating the behavior of the water removal system during a storm, and is remedied by replacing the deteriorated parts (see "Flashing").

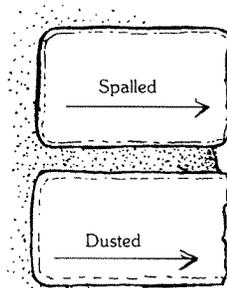


**Faulty Gutter/Downspout**



**Proper Gutter/Downspout**

**Eroded Brick Surface** - Spalling and dusting are two basic types of deterioration in the surface of the brick itself. Both are serious warnings of the existence of moisture within the brick. Moreover, any disruption in the continuity of the brick surface represents a vulnerable entry for moisture. Like so many moisture penetration problems, the initial entry of moisture into a wall becomes self-generating and accelerates rapidly.

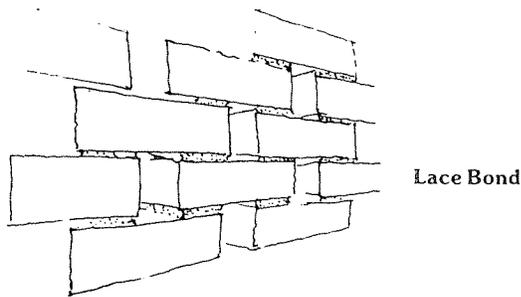


**Eroded Brick Surface**

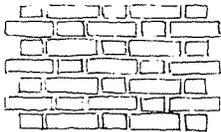
"Spalling" refers to entire bricks which have heaved or "popped" outward from the surface of the wall, or to the outer face of a brick which is separating from the body of the brick. Both cases are usually the result of an accumulation of moisture behind or within the brick which, if aggravated by freezing conditions, expands outward. If the moisture is trapped in a fissure 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 twofold: investigating and rectifying the cause of the moisture penetration, and replacing the affected brick.

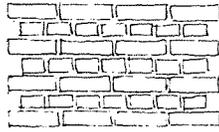
Replacing brick: the cautionary advice that pertained to mortar recipes also applies here: do not replace old brick with new brick that is substantially stronger than that throughout the rest of the wall. The cemetery wall surrounding St. Helena's Episcopal Church is an example of an historically significant structure possessing an encyclopedia of brick problems. The wall suffers from the inappropriate insertion of modern brick patches which are too regular and too strong and which are not installed in a matching bond. In such cases, it is necessary to seek out hand-molded brick, still being produced for application in historic structures by several manufacturers (e.g. Bickerstaff Brick of Columbus, Georgia or Old Virginia Brick).



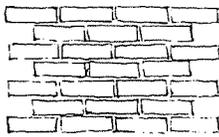
Lace Bond



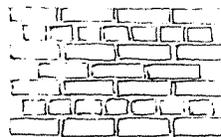
Flemish



English



Running



Common

### Brick Bonding Patterns

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.

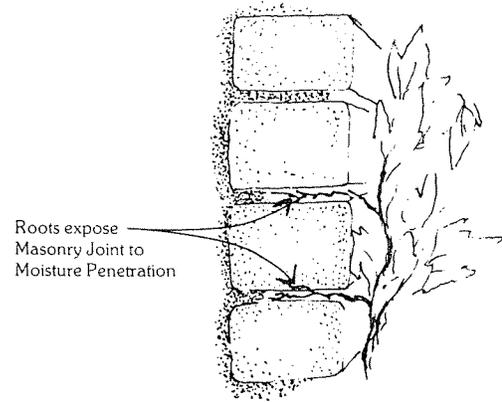
It is also important that a patched brick area be “keyed” or “toothed” into the existing brick in order to form a smooth transition between original and new material. In summary, replace areas of spalled brick with brick that matches the adjacent original as closely as possible in terms of color, size,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

“Dusting” refers to a sugary-textured brick whose surface has been so eroded that the softer, inner body of the brick can be rubbed away with the fingers with little or no pressure. The condition is presaged by a soft and pitted brick surface.

Dusting occurs for one of several reasons. First, soft, so-called “salmon,” bricks may have been inappropriately used in an exterior wall. When the surface of these bricks weather away in the normal course of erosion (or perhaps an ill-considered sandblasting), the soft inner core is exposed and rapidly disintegrates. Or, if the surface of a salmon brick has spalled because of moisture within, the inner core is exposed and subject to rapid disintegration. In any case, the repair involves chiseling out the affected brick and replacing it as described under “spalling.” If entire areas are constructed in salmon brick, one should be prepared to repeat this process with some regularity.

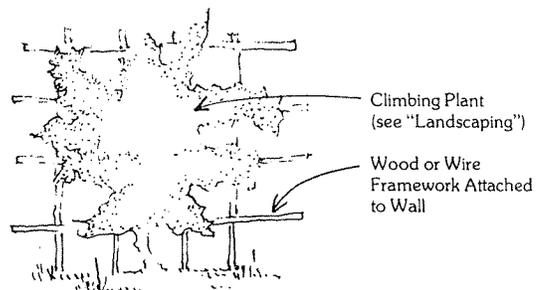
**Moss and Vegetation** - The presence of moss or vegetation living on a brick wall is undeniably charming, but it is also an infallible sign that moisture, in potentially damaging quantities, is present within the wall.

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 root 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.

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.



Espalier

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”).

## Brick Cleaning

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 all 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.

It is important to note 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 cleaning. Effective cleaning requires, as a preliminary step, the identification of the source and type of dirt to be removed.

**Stains** - Much dirt appears in the form of stains which must be removed prior to an overall cleaning of the surface. However, if only stains are removed, those areas treated will show up as glaring "clean" spots; conversely, cleaning the overall surface without removing the stains often serves only to highlight them. Common stains and removal techniques are discussed below:

**Oil stains.** To remove excess oil, scrub the affected area with soap, scouring powder, and trisodium phosphate (a cleaning agent available in better paint stores). Then apply a poultice made with a solvent such as carbon tetrachloride or benzol, **USED WITH CAUTION AND IN A WELL-VENTILATED AREA.** The poultice consists of this solvent, water, and an inert filler such as talc, Fuller's earth, or powdered silica, and is applied in 1/4" layers, rewetted regularly, and protected from evaporation by taping sheets of polyvinyl 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.

(Note: Before mixing the poultice, be sure that the cleaning solvent will have no chemical reaction with the filler material.)

**Asphalt and tar.** These stains are usually caused by sloppy roofing work, and are difficult to remove completely. Before applying a poultice, carefully scrape off all excess materials without harming the brick surface. The poultice solvent can be mineral spirits which evaporates quite slowly. **STRONGER SOLVENTS SUCH AS TOLUENE OR TRICHOLORETHYLENE ARE NOT RECOMMENDED FOR USE BY THE HOME REPAIRMAN BECAUSE THEY ARE EVEN MORE VOLATILE AND FLAMMABLE THAN MINERAL SPIRITS.**

**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. The addition of a small amount of ammonium bifluoride speeds the removal but necessitates working quickly because it can etch the brick surface. 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.

**CAUTION:** 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.

**Lichens and mosses.** These can usually be killed with a solution of 1 part zinc or magnesium silico fluoride to 40 parts water by weight. Another option is a solution containing a commercial weed killer or household detergents and bleaches. The property owner should be aware that the presence of lichens and moss is likely to be a recurring problem.

**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, the deposits can be removed with a heavy bristle brush or one of a variety of

readily available solutions that penetrate the brick and neutralize the salt.

When the stains are removed as fully as possible, the process of cleaning can begin. 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.

**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 a year; in fact, on historically important brick surfaces, this is essential.

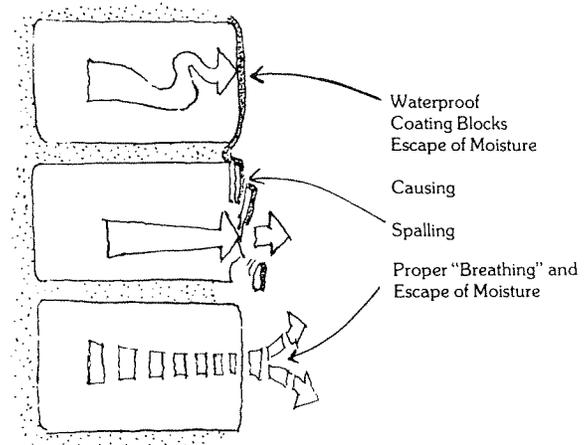
The cleaning methods available are:

**Water.** Before this method can be undertaken, all masonry should be repointed and all spalling or dusting masonry should be replaced. Often a low pressure long-term wash is enough to soften dirt and can be supplemented by scrubbing with bristle brushes. **CAUTION:** Wire brushes should never be used in brick cleaning. High pressure washes and steam can also be employed but it is unlikely such techniques would be required in Beaufort.

**Chemical.** The listing of chemicals used for stain removal should not imply that chemical cleaners are recommended for overall treatment. In fact, chemical cleaning is not recommended for overall cleaning of historic brick surfaces. Alkali-based chemicals attack all silica material such as brick so that even plain washing soda could do damage. Conversely, acid-based chemicals can cause efflorescence or even color change.

**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.

**Waterproof Coatings** - There has recently been an increase in the practice of applying waterproof coatings to recently cleaned brick. This is rarely justified and can potentially create more problems than it solves. Since a waterproof coating acts as an impermeable dam, the brick can no longer "breathe."



Where rising damp exists, the water can no longer percolate outward; it thus rises further in the wall and percolates inward, slowly but surely damaging interior finishes from behind. While some “breathable” coatings that allow moisture to pass through a wall, are commercially available, they may trap salts within the brick or mortar that would normally come to the surface as relatively harmless efflorescence. When these salts remain trapped behind the coating, a permanent stain results. Serious damage can occur as the outward pressure increases over time. If water is penetrating to the interior, it is rarely coming in through the masonry (which is often the rationale for using a waterproof coating). More often, it enters from the sources outlined in the moisture protection section above. When the masonry itself is the source of water penetration, it is almost invariably because of deteriorated mortar joints or broken masonry units rather than general saturation of the wall. Coatings will not alleviate water problems under these circumstances.

## Introduction/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 regularly investigated for:

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

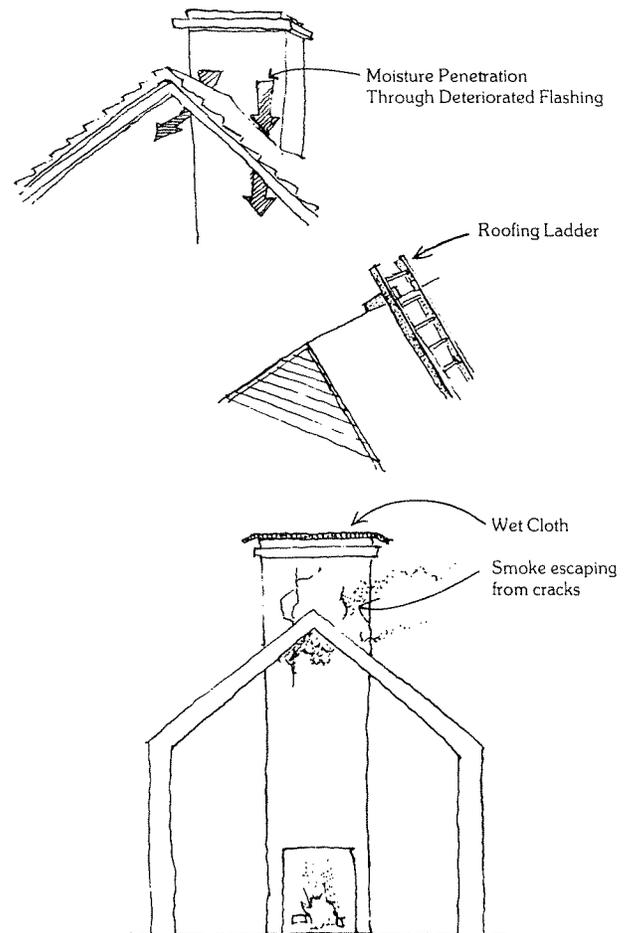
Investigation will occasionally reveal that it is necessary to completely rebuild that part of a chimney which is above the roof line. It should be kept in mind that the proportions, brickwork, and general appearance of chimneys underwent continued stylistic transformations (see “Style”). The style of 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.



Checking for Chimney Cracks

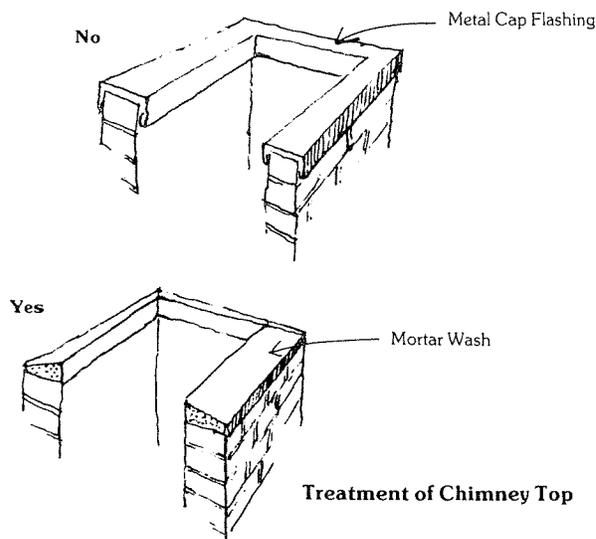
If possible, a final inspection should be made on the roof itself during dry weather. Depending on the form of the roof, it may be necessary to obtain a roofing ladder or to modify a standard wood ladder to hang well over the ridge of the roof. From the roof, pointing and stucco can be examined closely, 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, a simple test should be performed which consists of draping a heavy, water-saturated cloth over the top of the chimney and lighting a fire in the fireplace. Smoke escaping through cracks indicates a broken flue or deteriorated brick or mortar and constitutes a serious potential fire hazard.

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

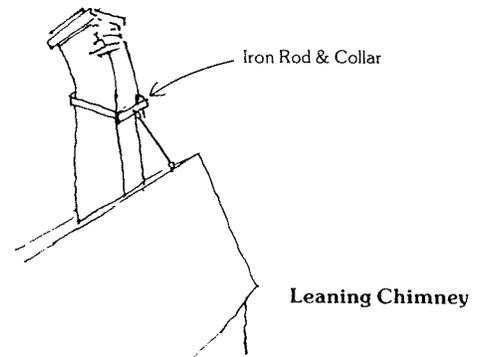
**Brickwork** - Pointing and spalling problems in brick chimneys are treated as described in "Brick." Ornamental brickwork or corbelling, as exists on most of Beaufort's architectural chimneys, should be retained.



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.

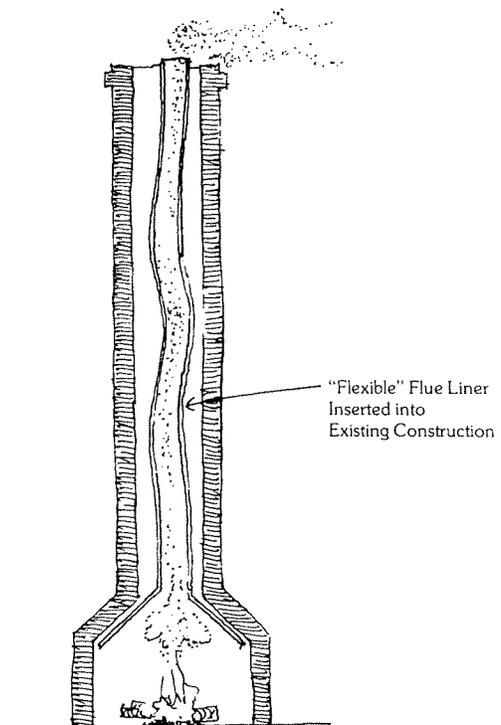
**Stucco** - A crack or hole in the stucco veneer of a chimney should be patched immediately (see "Concrete/Tabby//stucco") because, in many cases, a stucco veneer was applied as a coating over relatively soft brick to increase its resistance to weathering. Breaks in the stucco veneer obviously diminish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



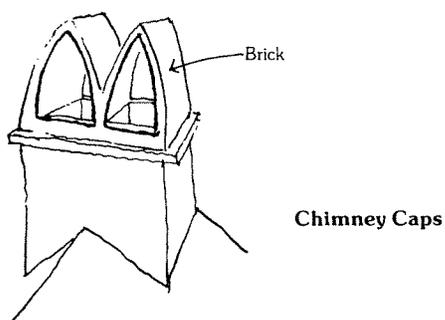
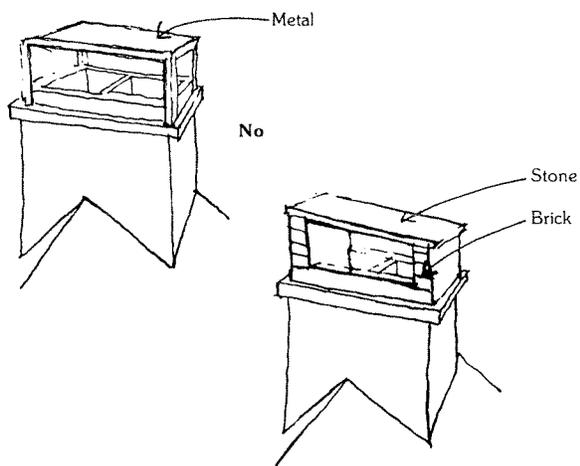
**Cracks in Chimney or Flue Lining** - If the maintenance test described above reveals smoke leaks, it is time to repair cracks in the brickwork (see "Brick") and the lining. The latter is a matter for professionals.

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 removal of interior walls and finishes, but it is essential.

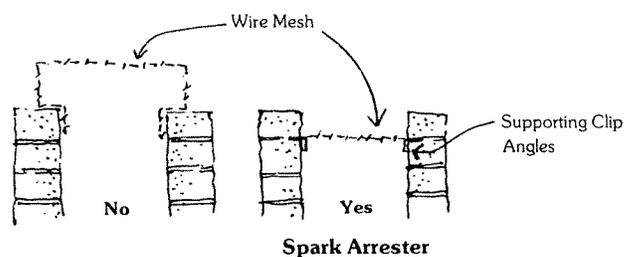
**Chimney Caps** - The final, but by no means unimportant, feature of brick masonry, is the chimney cap. These devices, when employed, form the visual terminus of a chimney, and thus become architectural features in and of themselves. The simple purpose of a chimney cap is to prevent rain from entering 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.



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.

A more functional and less obvious alteration to a chimney is the spark arrester. 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.



# Chapter 5

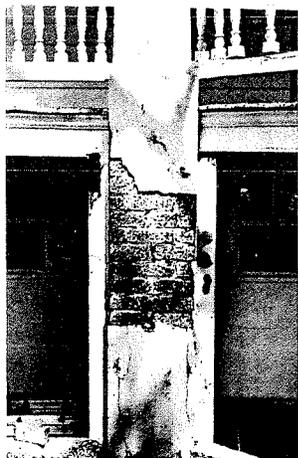
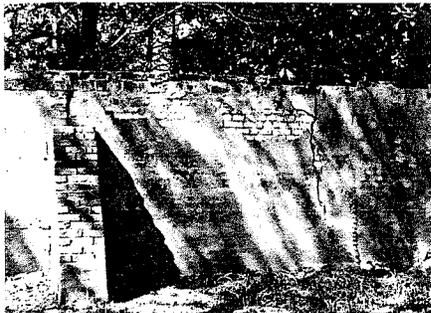
## Tabby, Stucco, and Concrete

### Introduction

Tabby, the most truly historic building material in Beaufort, has diminished in use as an intrinsic part of the architectural fabric. 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.



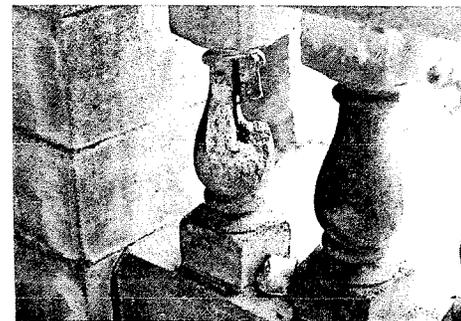
Tabby is an historic precursor of modern concrete and can still be found in North African structures dating from the sixteenth century. Basically a hard mortar, tabby is a composite of lime, sand, water, and an aggregate of oyster shells. A tabby wall is raised by pouring this mixture into wooden forms and tamping it until well packed. When the mixture has set, the forms are then lifted for each subsequent pour. As this material hardens, the



aggregate will settle forming a visible concentration of shells at the base of each pour. Older tabby walls occasionally contain small, irregularly spaced holes in which pegs were temporarily set to separate the forms.

The typical texture of many of Beaufort's 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. Stucco, the preferred finish coating, was applied to give tabby a smooth, finished appearance and to protect it from the decay caused by exposure.

Stucco itself is a hard mortar with many important applications throughout the Historic District. Although in modern construction practice the installation of stucco has become somewhat standardized, it is, in capable hands, an extremely versatile material. It is not only a protective coating for tabby, but also for brick elements such as piers and chimneys.



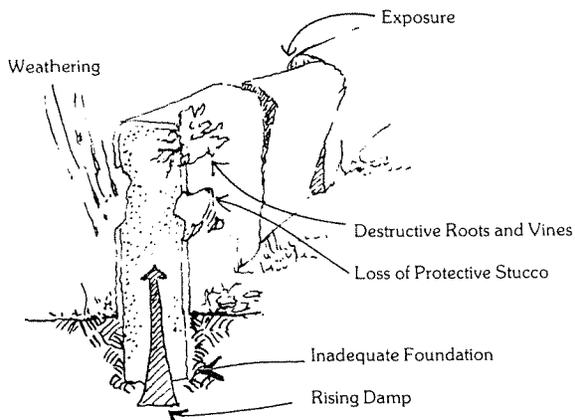
Both tabby and stucco are significant ancestors of concrete. Although commonly thought of as a contemporary material, important experiments in concrete construction were occurring in America by the last quarter of the nineteenth century. The house at 607 Bay Street, though in many ways atypical of construction 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.

The concrete repair recommendations in this chapter deal with the unusual and severe problems associated with this particular type of house.

## Tabby

The basic tabby "recipe" of lime, sand, water, and oyster shell aggregate is considered in modern terms to be a "soft" mix. This fundamental nature makes its surface highly susceptible to moisture penetration and deterioration from the freezing and thawing cycle. The range of influences constantly at work to deteriorate tabby include:

- loss of the thin protective stucco layer because of weathering, erosion, rising damp, etc.
- settling
- exposure of tabby due to deterioration or removal of other adjacent parts of the building
- penetration of the tabby wall by roots and vine tendrils.



Sources of Deterioration of Tabby Walls

Given these contributions to deterioration, it is obvious that the best preventive maintenance program for tabby walls should include (in order of their importance):

- stabilization of the foundation (see "Brick")
- prevention of rising damp (see "Brick")
- maintenance of the protective stucco coating
- removal of harmful vegetation.

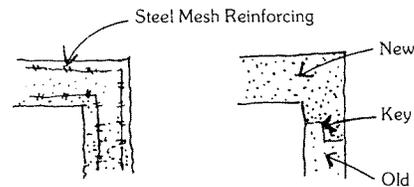
### Repairs to Tabby -

- **Spot 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. Three levels of deterioration exist, each of which can probably be found on any given historic tabby wall:
  - **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.
  - **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 (see "Stucco").
  - **Minor.** The protective stucco coating remains, but is cracked and spalled. This condition contains serious potential for decay (see "Stucco").

**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 the tabby recipe described below, in the following applications:

- **Filling large voids.** Clean the old tabby and key it to receive the new material. Wet the old surface and brush it with a thin coat of "neat" cement (i.e. containing no aggregate) to aid in bonding the new material to the old. Pour the new material into appropriate wood forms, keeping the forms in place for three to four hours. After removal of the forms, brush the wall with water and a **bristle** brush to bring out the shell texture.



Tabby Walls: Corners

- **Patching small holes or large shallow surfaces.** This procedure is simplified by a process which, in effect, mixes the tabby within the wall. The hole or depression should be filled with a 1:3 cement:sand mixture (stiffened with water) plus a trace of broken oyster shell. The mix should be allowed to set for an hour and can then be washed with a spray of water which will help to achieve the texture of the older adjacent material. To match the texture of older adjacent material, shells may be added immediately after this application.

On relatively flat surfaces, this repair should be executed with a trowel. 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.)

- **Making tabby.** 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 most likely varies slightly from wall to wall. Since it is important that the repair material not be stronger than the existing construction itself, repair of any given tabby wall in Beaufort should be preceded by laboratory analysis 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.

The original recipe consisted of four components of variable proportions: oyster shell lime, sand, water, and oyster shell aggregate. The National Park Service has stabilized several tabby walls in the south and in these instances has had to modify the recipe because of the difficulty in duplicating oyster shell lime. The modified recipe, given below, is only intended to represent the basic proportions.

The recipe:

- 1 part white Portland cement
- 1/8 part grey Portland cement
- 2 parts river sand
- 2-3 parts oyster shell, broken small enough to pass through a 2" screen.

The ratio of the two Portland 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. In addition, the density of Portland cement in excessive quantities blocks rising damp so that it collects just below the repair where it can spall the tabby.

The basic mixing procedure:

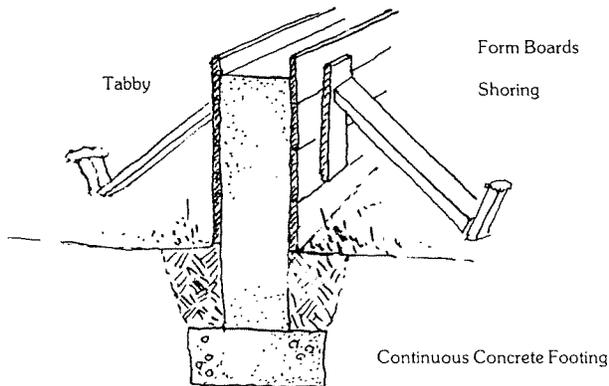
1st - Dry-mix cements and sand.

2nd - Add water for a stiff mix.

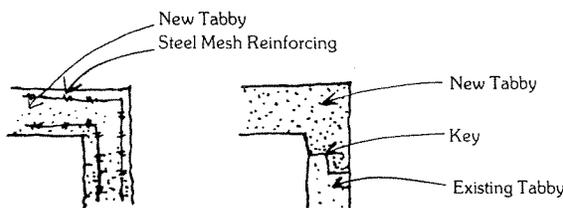
3rd - Add wet oyster shells.

Since the tabby sets in three to four hours, mix only enough for each pour.

- **Rebuilding 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 4 to 6 inch layers. Three to four hours after each 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. Several precautions will help to insure structural stability. New walls can be set onto continuous spread footings while existing, while settling 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. With a stiff bristle brush, a mixture of "neat" cement (cement in which aggregate is omitted) is poured on to facilitate bonding of the new material to the old.



**Rebuilding Tabby Walls**



**Tabby Walls: Corners**

Finally, the "aging" of the new tabby can be artificially hastened by carefully applying a single thin coat of swamp muck. This adjusts the color of the tabby and adds the minute quantity of harmless vegetation which gives older tabby walls their character.

## Stucco

**Repairing Stucco Coating on Tabby Walls** - This repair cannot be performed using modern stucco installation practices. Modern stucco construction usually involves a 3/8"-minimum-thickness coating 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 usually needed to determine the exact "recipe" for the original stucco coating of a given historic tabby wall. The following recipe is only intended to represent typical proportions:

- 1 part white Portland cement
- 1 part gray Portland cement
- 1/2 part lime
- 6 parts fine sand
- 1/2 - 1 part oyster shell, broken small enough to pass through a 3/4" screen

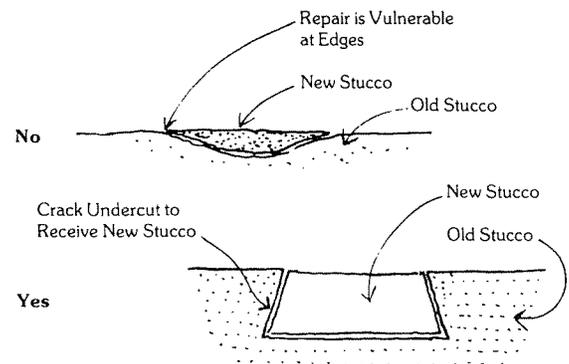
Again, the Portland cement content given here is intended to be an absolute maximum, although both shades of cement can be adjusted for purposes of toning the final color. This recipe allows for stucco of any thickness. No base, or "scratch," coat is required since the rough surface of the tabby performs 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.

The Application:

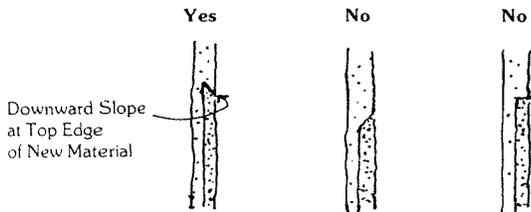
- Work down from the top of the wall.
- Float the new stucco on with a plasterer's trowel and carry it over to the adjacent old stucco. Application should be smooth. Surplus stucco should be washed off with a light stream of water.
- Allow the stucco to set for 30 to 60 minutes.
- Using a fine spray of water, etch the surface carefully to match the texture of the earlier stucco.

### Repairing Stucco on Bases Other than Tabby -

- Cracks. 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 and undercutting the edges with a hammer and chisel. 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**



Stucco Patches

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 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.

Modern practice calls for the application of three coats of stucco:

- Base, or "scratch," coat. This provides a key for finish material and is usually unnecessary in Beaufort since the stucco is generally applied over brick or tabby.
- Brown coat. 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.
- Finish coat. This coat, 1/8" minimum in thickness, 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 modern 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.

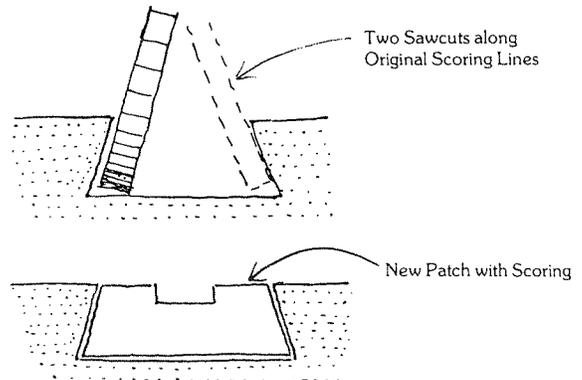
**Re-scoring Stucco** - Certain important buildings in the Historic District of Beaufort employed grooving, or "scoring," of the finish stucco coat in an attempt to mimic the joint lines of architectural stonework. Long term deterioration of this scoring seriously diminishes the architectural impact 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.

The Procedures:

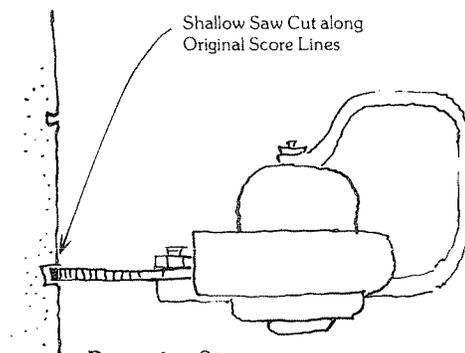
- Cut out along the original scores with a saw to make an undercut key for the new stucco which will contain the scoring. Two passes of the saw will be required for this keying. If the stucco is very thin, such cuts will have to be made by hand. Clean out the joints, patch with new stucco that has been tested for color match, and re-score along the original lines. When executing such major work on important buildings, it is always good practice to leave an undisturbed area as a record of original material.



Rescoring Stucco

Or:

- Make one pass 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.

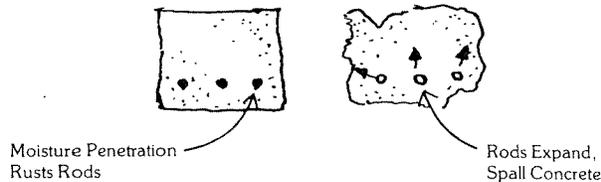
## Concrete

**Repairs to Concrete** - The early reinforced concrete construction represented in the house at 607 Bay Street 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.

“Reinforced” concrete is strengthened against tension forces by metal bars or mesh which are imbedded in key structural locations. Since these bars perform structural functions which concrete alone cannot achieve, it is essential that they be preserved from corrosion and that their bond with the surrounding concrete be maintained.

Exposed reinforcing rods pose a very serious problem for 607 Bay Street and should be inspected and repaired immediately. Inevitably, exposed rods will rust and, in the process, expand, thereby breaking off more concrete, further exposing themselves. This process can accelerate quite rapidly.



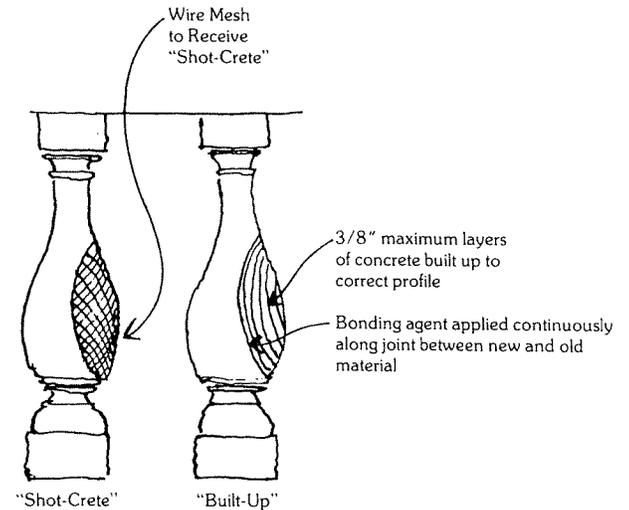
#### Deterioration of Reinforced Concrete

Since reinforced concrete is a relatively new material, no time-honored, craftsmanlike repair techniques are available. This is especially the case in turn-of-the-century applications which so often involved ornate ornamental shapes and profiles in imitation of other materials. The concrete industry itself had largely put aside such imitative practices by 1920, and preservationists are only now beginning to turn to such problems.

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. There are two possible approaches to repair, both of which are intricate and require the services of a highly qualified professional. 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. Of the following procedures, the second is more likely to be within the capabilities of a competent and sympathetic concrete contractor and is therefore the recommended technique.

- “Shot” concrete. Perform laboratory analysis to determine the exact composition of the concrete. Sandblast the affected areas with a gentle, wet grit blast to the extent of exposing the white metal of the reinforcing. Brush off all loose material and coat the exposed area with a concrete bonding agent. There are two types of available chemical agents which strengthen and consolidate the bond of new concrete to old: epoxy-based and polymer-based. Polymer-based agents are more flexible and accommodate the stresses of movement better than epoxy and are recommended for this application.

After applying the bonding agent, construct an armature of wire or chicken mesh so that it conforms to the general shape of the affected member. “Shot-crete” is then sprayed on the affected area. This is a concrete application process in which the concrete is effectively mixed in the air. A pressure gun with two adjacent nozzles is used. One nozzle emits water of the correct temperature while the other sprays the dry concrete ingredients. Irregular shapes and thin profiles of great strength can be achieved. An ornamental element can



#### Repair of Ornamental Concrete Elements

be built up to a general desired shape and then modeled further by hand before the concrete sets up.

Work must obviously be accomplished quickly and correctly if it is to result in an ornamental “turned” baluster rather than an irregular lump of concrete. It is doubtful that contractors experienced in this procedure exist in the immediate vicinity of Beaufort.

- Built-up concrete. All loose concrete, dirt, and rust is to be removed from the affected area, and the exposed surface cleaned with a wire brush. The area to be patched is then carefully primed with an approved polymer-based concrete bonding agent such as “Octo-weld.” A grout mixture is then prepared of Portland cement, sand, and water in proportions determined by analysis. Additional bonding agent is added to the grout in an amount recommended by the manufacturer.

This grout patch is to be built up slowly, in thicknesses of no more than 3/8”. Each coat must cure slowly, and should be kept moist for at least the first 48 hours. Where deep patches are involved, a scratch coat is applied first, followed by successive coats as required. The final coat is, of course, the crucial one for appearance and should match adjacent material for color and texture. Patience is required; some of the repairs at 607 Bay Street may entail as many as fifteen grout layers.

Structural cracks can be caulked. When cracks are smaller than 3/16” they are to be slightly enlarged and when they are larger than 5/8” they are to be filled to make a uniform continuous 1/2”-wide opening. The sides of the crack should be primed as recommended by the manufacturer of the final sealant. This sealant should be a 2-part, poly-sulfide base, synthetic rubber such as “Tremco Lastomeric,” “Tremco Cymeric,” or “Pecora GC-5 Synthacalk.” Additionally, if it is practical and the crack is deep enough, a backing rod can be inserted prior to sealing. 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.

**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 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. Repairs should be made as outlined above.

Wood

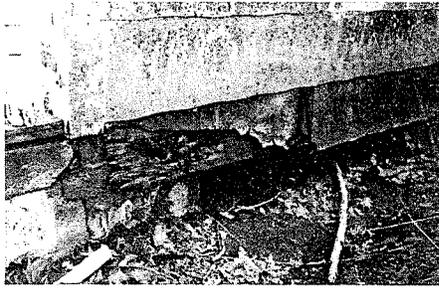


# Chapter 6

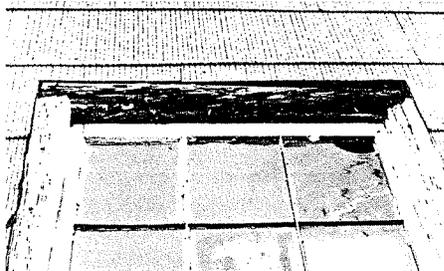
## Wood Preservation

### Introduction

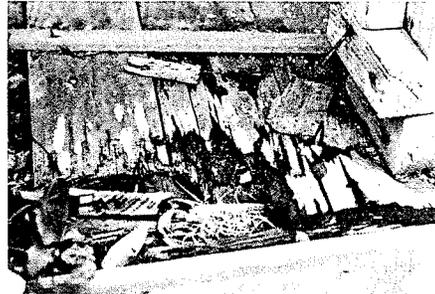
Workability and flexibility make wood one of the most versatile of all building materials. For each function it serves - structural stability, moisture protection, or ornament - techniques of design and installation have been developed over centuries of use.



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.



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

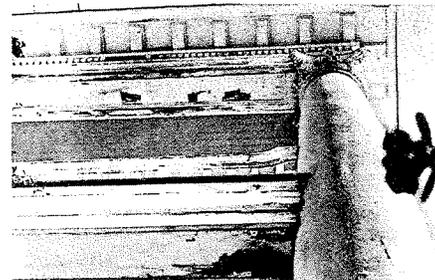


rates of expansion. The U. S. Forest Service provides an invaluable and free service in the identification of wood species. Property owners may obtain further information about this service by writing to: U. S. Department of Agriculture, Forest Service, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin, 53705. Sample wood chips should be enclosed with the inquiry.



Each species of wood has 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, larch, spruce
- light framing, joists, rafters: spruce, hemlock, common yellow pine, larch
- outside finish: white pine, cypress, redwood, western white pine, poplar, spruce
- shingles: cedar, cypress, redwood
- siding and clapboards: cypress, redwood, larch, spruce
- sash, doors, frames: white pine, fir, western white pine



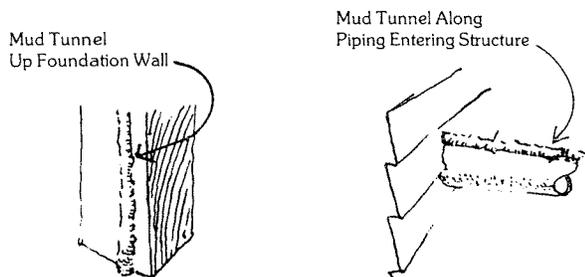
The following section treats only broad general problems associated with wood, regardless of its application. Specific construction and repair problems are treated in the appropriate sections: "Porches," "Doors/Windows," "Siding/Trim," etc.

## 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**

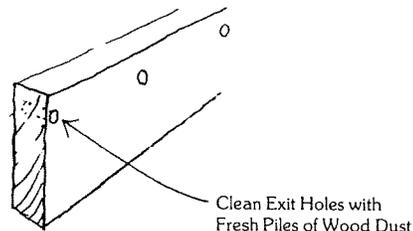
If termites are suspected, all suspicious wood should be investigated for infestation. If a sharp awl can penetrate the wood to a depth of a minimum of 1/2" to 3/4" with only hand pressure, there is a strong possibility of the existence of termites or rot.

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.
- poison the wall surface of the foundation and the soil beneath the building. **BE EXTREMELY CAUTIONS WITH ALL POISONS; IF ANY DOUBT EXISTS, EMPLOY A QUALIFIED PROFESSIONAL.** A commonly used poison is chlordane in a water solution. The local Health Inspector should be consulted as to the legality of this product in Beaufort, while a competent landscape architect will advise as to its potential effects on the plantings near the base of the building. Chlordane can also be placed in cracks in the basement, the basement floor, and the foundation walls. **THOROUGH VENTILATION IS ESSENTIAL FOR ALL SUCH WORK. EXCESSIVE CAUTION IS IN ORDER HERE, FOR CHLORDANE IS TOXIC TO HUMANS AND ANIMALS, AND REMAINS IN THE SOIL FOR A LONG PERIOD OF TIME.**
- 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. **AGAIN, EXTREME CAUTION SHOULD BE EXERCISED IN THE USE OF ALL POISONS; IF THERE IS ANY DOUBT, IT IS BEST TO EMPLOY A COMPETENT PROFESSIONAL.**

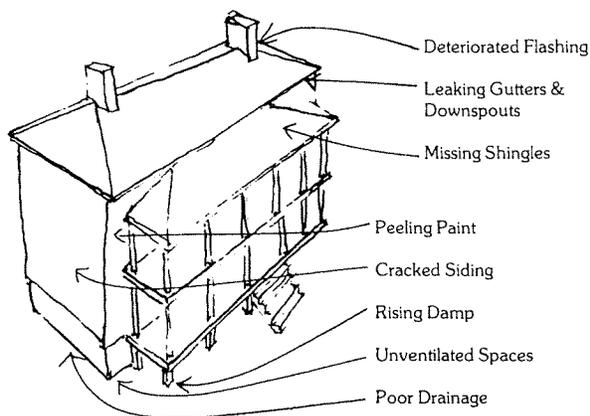
## Rot

"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:

- leaking gutters/downspouts
- inadequate/deteriorated flashing
- unventilated spaces
- failure in the integrity of the siding or roofing material, e.g. peeling paint, cracked siding, missing shingles
- poor drainage around the foundation
- poor rainwater removal at the foundation
- high water table/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 surface 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.

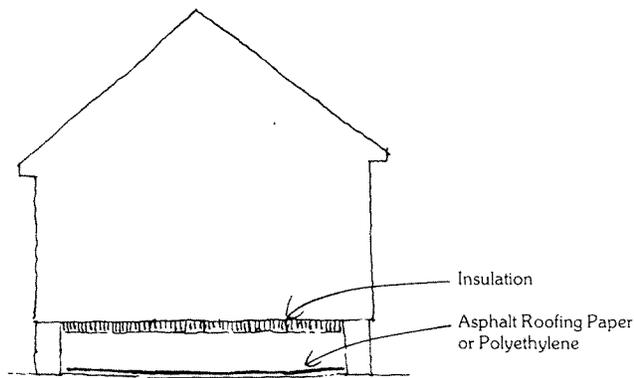
An awl that can be pushed into suspect wood with only hand pressure to a depth of about 1/2" indicates a possible location of rot. Also, healthy wood will lift up in long splinters, while rotted wood lifts in short sections, across the grain, with no splinters. Finally, a "dead" sound when the wood is 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 the soil. If there is a potential for rising damp (see "Brick"), it should be prevented with appropriate foundation drainage. Wood members embedded in masonry and subjected to rising damp must be thoroughly treated with preservative (see below). **THERE MUST BE CONTINUOUS VENTILATION BENEATH THE BUILDING IF POTENTIALLY HARMFUL CONDENSATION IS TO BE ELIMINATED.**
  - **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.
  - **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



### Minimizing Crawl-Space Condensation

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. Listed below are chemical treatments which attack fungi by poisoning. They are strongly recommended for all new construction and repairs.
  - pentachlorophenol (Penta). This chemical is available in products such as "Good-Wood" or "Wood-Life." (Always use clear penta as other varieties have a tendency to turn green with time.) Penta is a poison which affects rot-causing fungi, and contains water repellants which keep moisture from penetrating wood. It is also an effective primer. **SINCE PENTA IS A POISON, IT SHOULD ALWAYS BE USED WITH CAUTION.**

Three methods of application are used.

- Pressure-treated. This is beyond the capacity of the do-it-yourselfer, requiring a shop or lumberyard with proper equipment. Although best utilized in new construction, replacement pieces can also be pressure treated. If possible, cuts and drill holes should be made prior to pressure treatment so that all important joints will be protected.
- Soaking. This is also done before installation and, if the piece is small enough, soaking can be done by the do-it-yourselfer. The length of soaking time is dependent upon the size and function of the member being treated. Follow manufacturer's recommendations for saturation period and drying time.
- Brushing. The only available technique for treating lumber in place, brushing is nevertheless an effective deterrent. Special attention must be paid to all end grains and penta should be lavishly applied.

(Note: penta coatings are not permanent and should be replaced at least every two years. Since paint must be maintained regularly as well, these two processes may be combined. Note that paint must be removed for re-application of penta.) It is also important that only oil-based paint be used over penta. Latex paints may be prone to lifting if applied over wood preservatives (see "Painting").

- Creosote. This is an older treatment that has largely been replaced by penta. It has little desirability because of its characteristic pungent odor and its shortcomings as a

primer. It is, however, useful in applications to heavy, unexposed members, especially the house plate. Clear creosote is recommended. Creosote is also valuable on wood that is being placed underground.

- Rot stabilization. Wood in which decay is not well advanced can be saved and the rot prevented from spreading by utilizing two products designed for marine use. The first is "Git-Rot," an epoxy material that is injected into the wood coating all infected fibers. The second is "Marine-Tex," a surface application which contributes to the water-shedding ability of the surface and prevents moisture penetration. Both should be installed according to manufacturer's recommendations (see "Doors and Windows").

In summary, maintenance and repair procedures for rot should include the following:

- inspect for rot at least once a year
- eliminate sources of moisture and dry out the wood by providing continuous and permanent ventilation to enclosed areas
- treat all wood with penta preservative and maintain regularly
- remove and burn all incapacitated wood and replace to match
- or
- stabilize all affected wood with epoxy products.

## Weathering

This inevitable deterioration process occurs on the surface of exposed wood over relatively long periods of time. It is the result of rapid wetting and drying and causes the wood to become brittle and lose substance.

Wood is protected from the weathering process by coatings or finishes which retard the penetration of moisture. Coated wood that is penetrated by moisture swells much more slowly than uncoated wood and is thus less likely to crack.

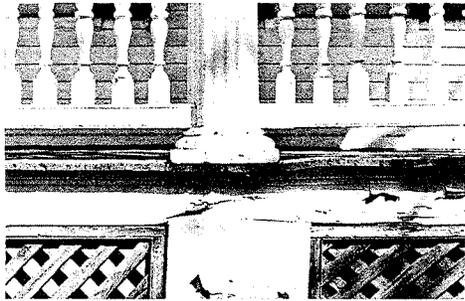
For use on pre-1930 buildings in the Historic District, preservative and oil-base paint are the best available coatings. Modern construction can employ even more effective coatings such as high gloss enamel paint (see "Paint").

# Chapter 7

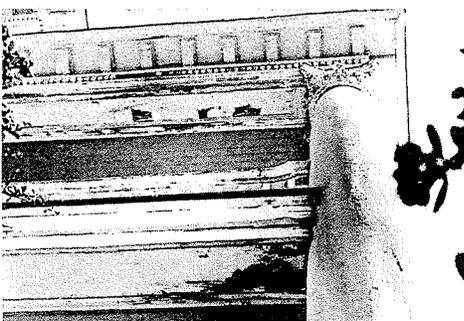
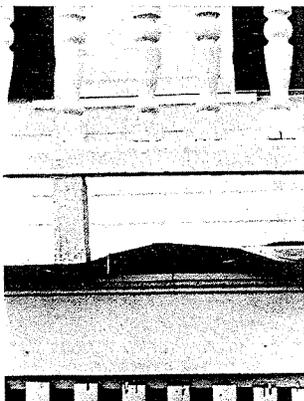
## Porch Repairs

### Introduction

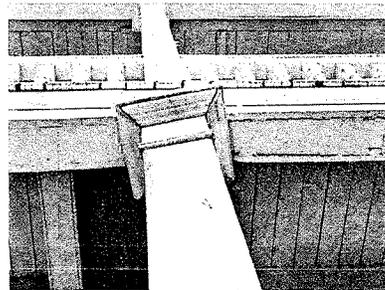
The porch is the principal element in the overall architectural image of the Beaufort Historic District. From a preservation standpoint, it is also one of the most vulnerable, being continuously exposed to the complete range of local weather conditions.



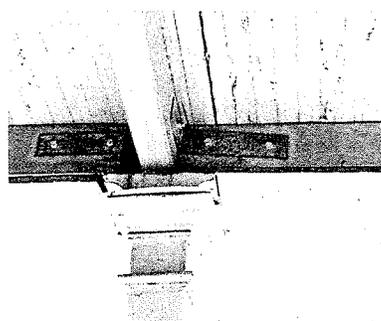
To appreciate the preservation problems associated with porches, a homeowner must be aware of two basic facts: 1) buildings are in constant motion, and 2) moisture in any form is a serious and persistent threat to building fabric. Lacking both the mass and structural integrity of a walled structure, 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.



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 over-emphasized.



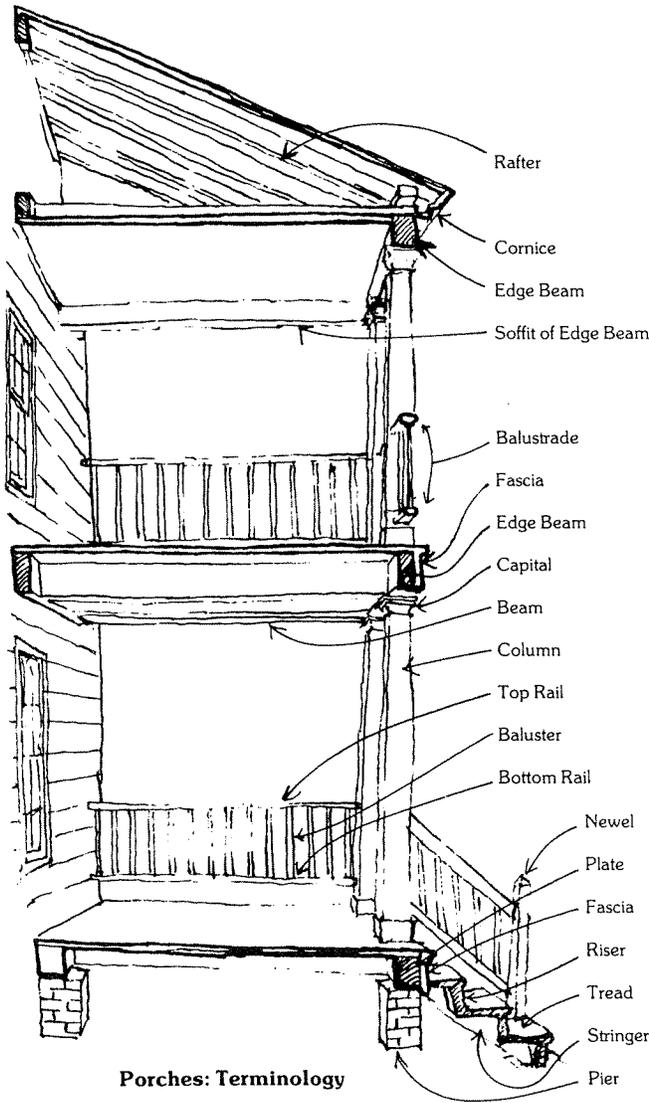
The property owner should realize that deterioration of one member of a porch quickly affects other elements. Deterioration processes are self-generating and, once begun, continue to accelerate. A rotting floor, for example, will lose its ability to act as a solid column base. In turn, the column settles,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



structure, including the roof, rotates and pulls away from the house.

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.



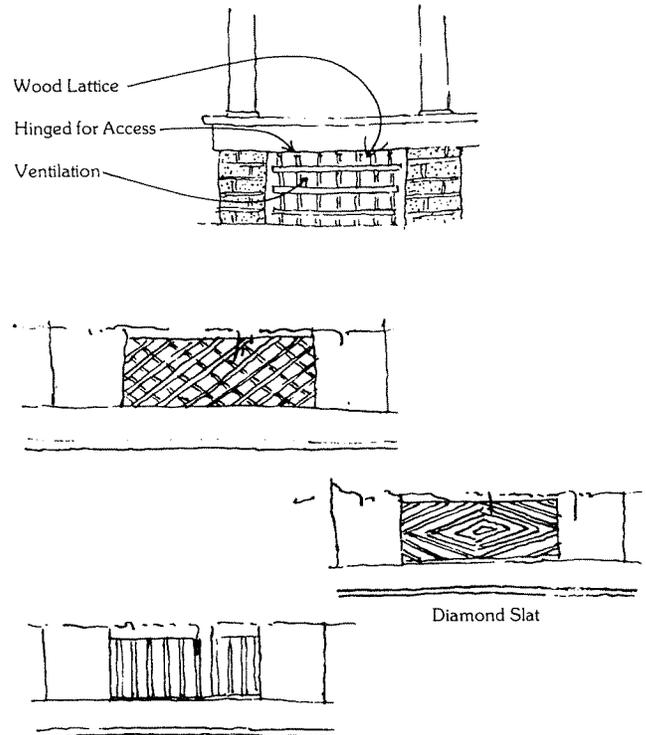
## Porch Piers -

- **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 subfloor structure
- ease of access to the subfloor structure for periodic maintenance



### Appropriate Lattice Infill At Foundation Piers

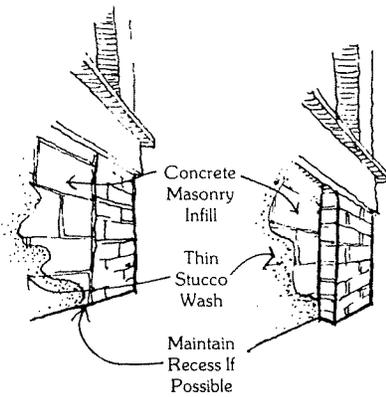
- architectural considerations. Freestanding porch piers are a direct expression of the bays and structure of the porch above.

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.

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.

Approaches:

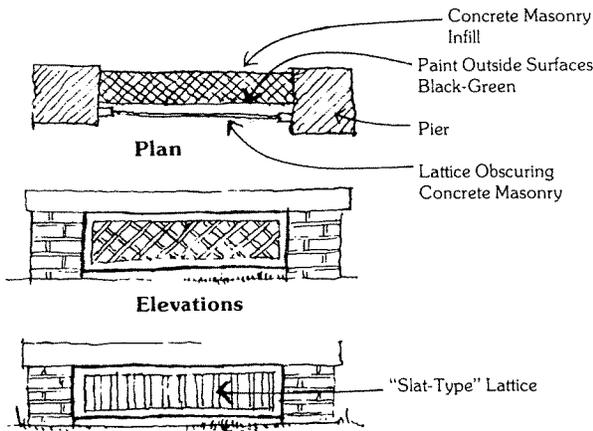
- **Concrete masonry infill.** In all cases the optimal approach to this problem is the removal of the concrete masonry. If it must remain, there are two methods for minimizing its negative impact:
  - Where the face of infill masonry is flush with the outside face of the piers, the infill should be stuccoed with a thin wash, feathered out to a sharp line at the edge of the piers. (Note that the common modern 3/8" thick stucco coating would be inappropriate in this condition. See "Stucco" for an application technique of thin stucco wash.) The contrast between pier and infill can be heightened by painting the stucco a dark black-green color and planting out the foundation. This method



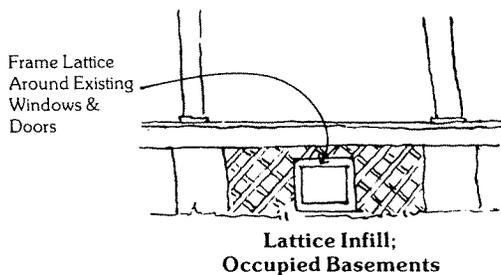
### Concrete Masonry Infill At Foundation Piers

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 subfloor ventilation **must** be maintained. Large openings must be cut in the concrete masonry to allow for this essential cross ventilation.

- 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", the stucco treatment given above should be employed. 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.



### Lattice Infill Over Masonry Between Foundation Piers

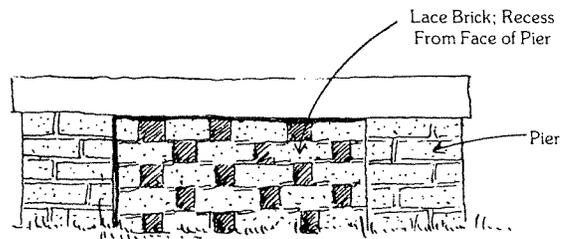


Remember to:

- **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.")

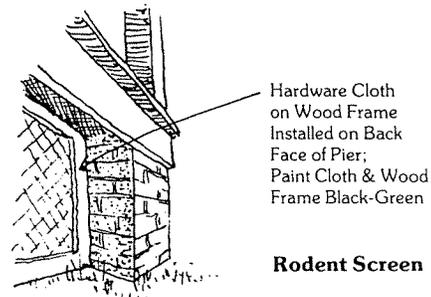
- **Lace brick infill.** Like many of the modern garden walls laid up in this bond, infill of this sort rarely looks authentic. One drawback is the frequent installation of "antiqued" brick which is much more regular than the adjacent older bricks of the piers. The major advantage of this sort of infill 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.



### 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.
- **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.



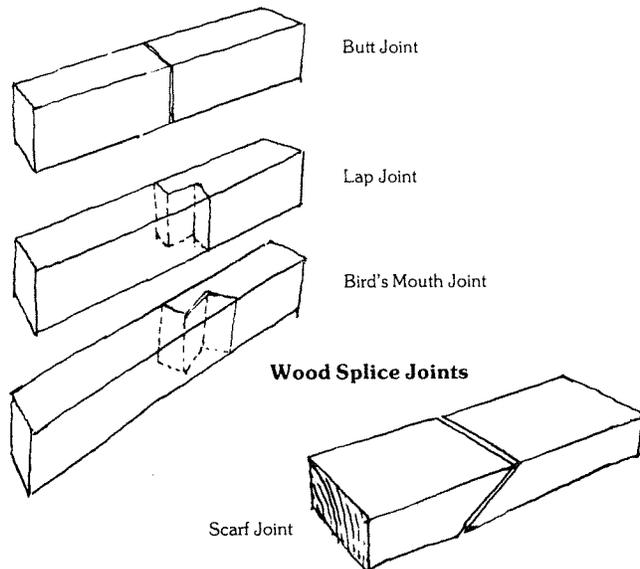
### Fascia Deterioration

The fascia boards which trim and protect the ends of the first and second floor porch rafters 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.

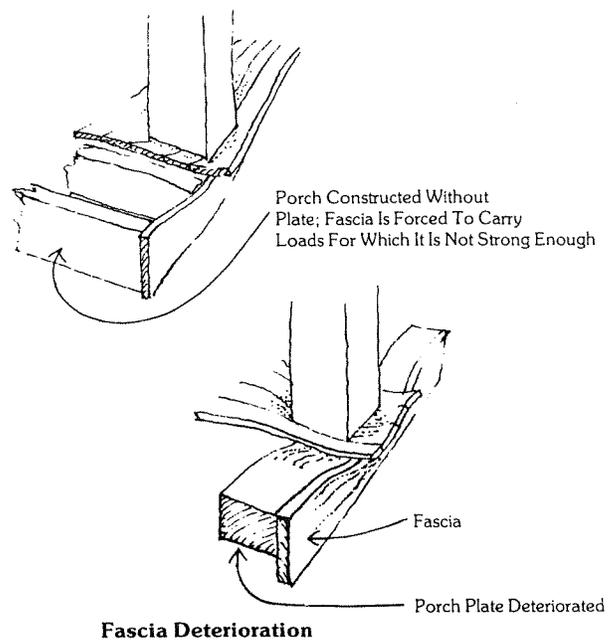
**Joint Separation.** The separation of wood joints is caused by movement, either in the porch as a whole or in the abutting boards. The latter is often the result of moisture penetration. The former may appear in other guises throughout the porch, as will be described throughout this "Porches" section. 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.

Joints separated by expansion or contraction in the fascia board should be repaired by removing the board and matching it with a new board soaked in preservative. 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.



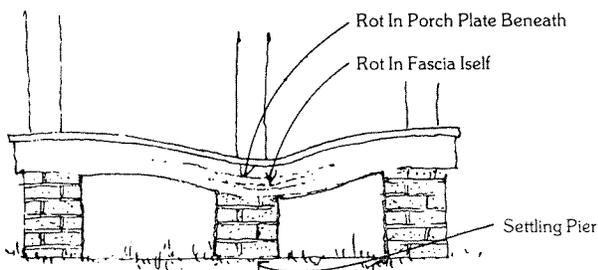
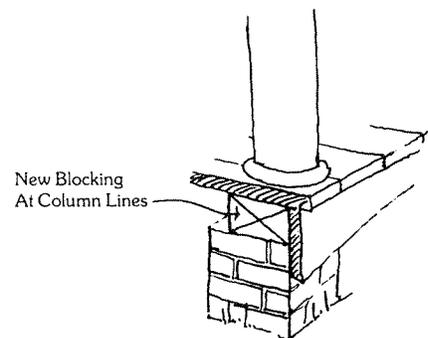
the transfer of weight from the columns will gradually compress the plate, crushing the fascia. If this problem is suspected, the fascia should be removed at the column lines to allow inspection of the plate for rot and deterioration. Replacement or reinforcement of a deteriorated plate is not a task for the do-it-yourselfer, 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.

- 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.



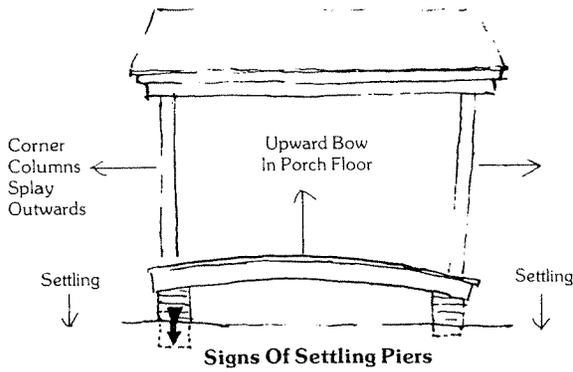
**Crushed fascia.** The most easily remedied, but least likely cause of this problem is decay, with subsequent loss of internal stability in the fascia itself. A more common cause is that the fascia, which was designed as a non-structural closure board, has been forced to perform a load-bearing function. 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,



**Fascia Deterioration: Causes**

- 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 corners 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") although the problem can sometimes be temporarily alleviated with hardwood wedges at the top of the sound plate.

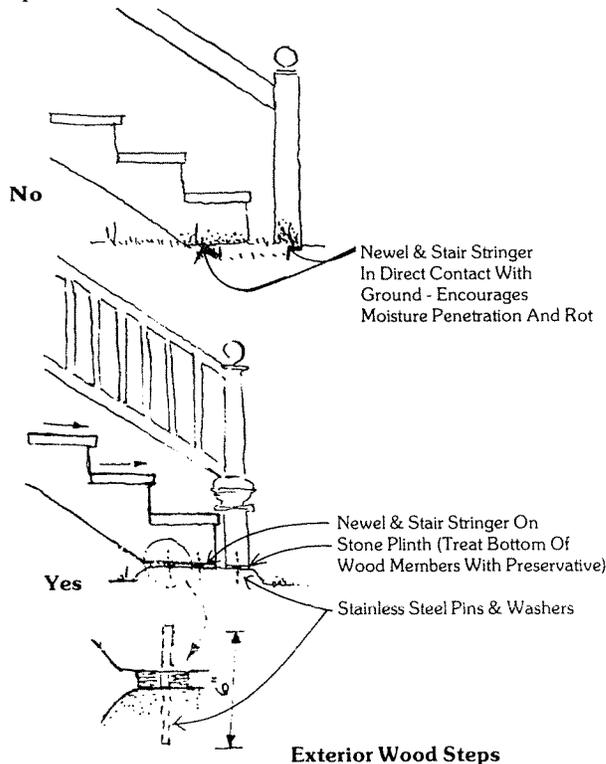


## Porch Steps

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.



- 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 material should be soaked with preservative, especially at the end grains.

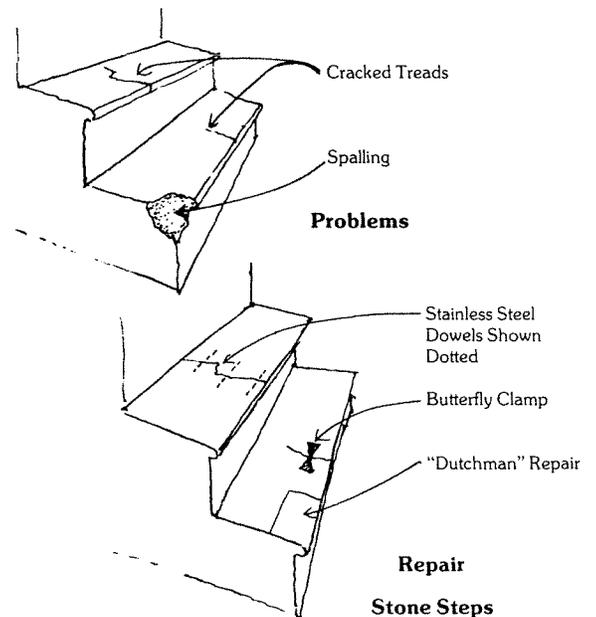
**Brick steps.** In almost all cases, brick porch steps in Beaufort

seem to have replaced earlier wood steps. For the sake of visual and historic authenticity, it is generally recommended that these be replaced with wood stairs. However, it is more than likely that many of the brick steps in existence will remain for some time and that many property owners will continue to replace their wood steps with brick for reasons of maintenance and durability. Several considerations for the design of new brick steps are:

- 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.
- 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.

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

**Stone steps.** The spalling and cracking of stone steps usually occurs when iron rails, fasteners, cramps, etc. anchored into the stone corrode, allowing the water to enter. Both cracking and spalling also result from the differential expansion and contraction between iron and stone. However, if there are cracks in the center of treads or risers, they are more than likely the result of an inadequate original foundation. (This is similar to the leaning brick pier problem discussed in “Brick.”)



Repair of these flaws is not usually a matter for the do-it-yourselfer because a high degree of craftsmanship is involved and because stone (marble) steps generally appear only on very significant buildings in the District. The elements of repair include the following:

- Cleaning and washing of the stone are necessary steps which remove salts and chemicals. All joints should be thoroughly grouted prior to this washing to prevent water penetration. It is best to use **only** water for cleaning, avoiding acids or cleaning agents because of their potentially harmful

effects on the stone.

- Various repairs to the crack or spall are possible, depending on both the craftsman and the circumstances. For cracks, stainless steel dowels can be employed, although the more common and completely acceptable repair is the leaded "butterfly" clamp. Various epoxies are sometimes employed; their selection should be based on consistency of color and investigation of any potentially adverse chemical reaction between the particular stone and the epoxy itself. In no cases should concrete patches be used.

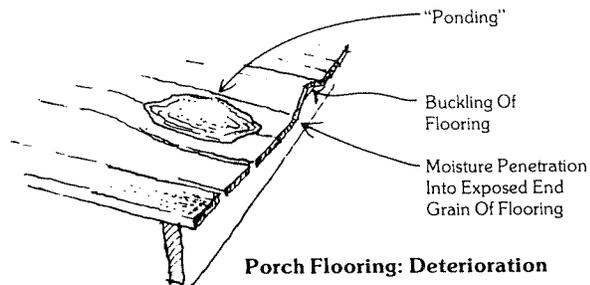
In many cases, cracked stone steps can be seen as having merely settled into a position in which they are less subject to pressure. Often it is best to simply stabilize the condition and leave the cracked areas alone rather than to attempt a difficult dutchman patch. In some instances, a cracked tread may be clamped and turned upside down. Settlement conditions can be stabilized with underpinning if required. (See "Brick" for the basic principles of this procedure.)

**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.

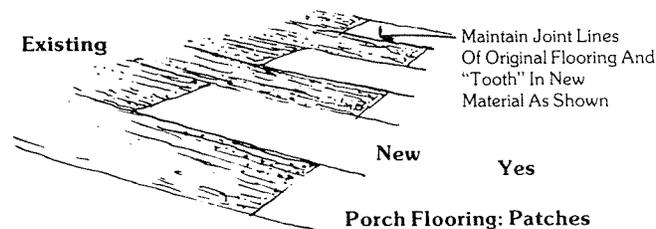
## Porch Flooring

**Decay.** The frequency of this problem in Beaufort is the direct result of the city-wide practice of leaving the ends of each floor-board 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.



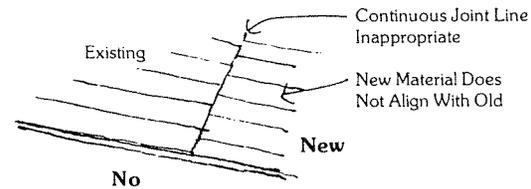
The following repair procedure should be undertaken:

- Cut out all affected rotted wood (this material should be burned to eliminate the possible spread of infestation).
- Replace with new flooring of the same dimension and species.

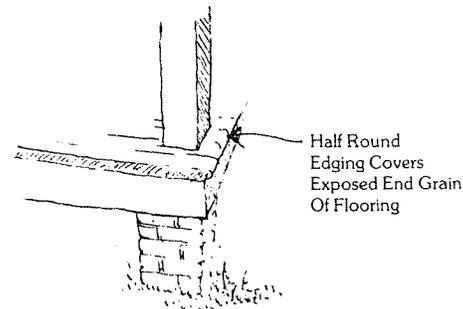
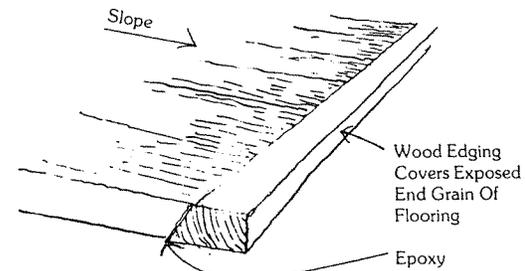


Replacement flooring must be thoroughly soaked in preservative prior to installation. Patched areas must align with the floor joints of the rest of the porch.

- Protect the end grains with a continuous wood edge strip, either half-round or square. Do not edge your porch with metal.

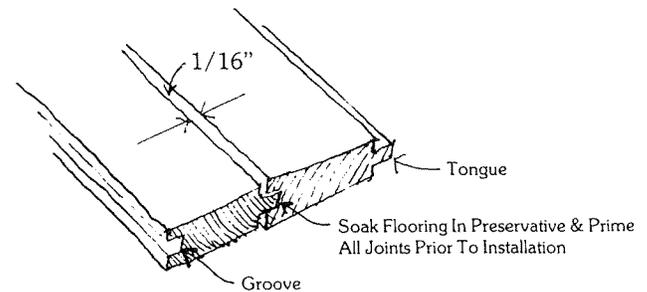


**Porch Flooring: Patches**



**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. Tongue-and-groove flooring should be set with a  $1/16'' \pm$  gap to allow proper expansion. If the flooring is rotted beyond reuse, replace it as described under "Decay" above. In either case, the new wood must be liberally treated with preservative.



**Tongue & Groove Flooring: Correct Exterior Installation**

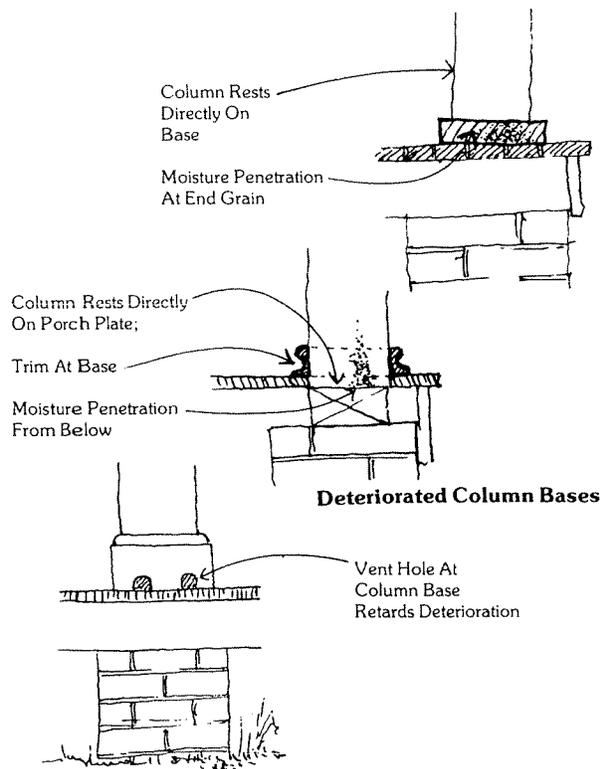
The homeowner should note that buckling is aggravated by the lack of continuous ventilation to the underside of the porch.

A porch foundation that has been continuously infilled with masonry must be punctured to admit constant air circulation.

**Compression at column lines.** This problem is related to the crushed fascia board previously discussed (photo on page 79). 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."

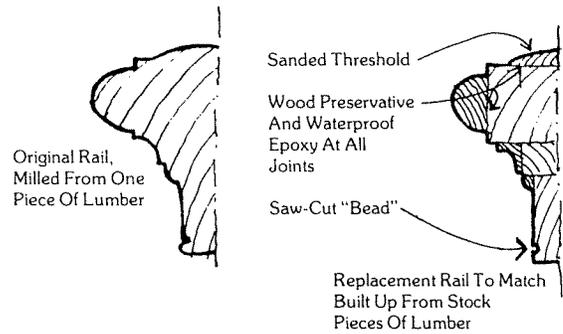


## Porch Railings

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 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



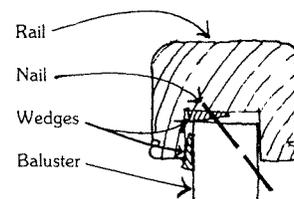
### Handrail Replacement

point of serious deterioration, it may have to be completely replaced. Most of the remaining railings in Beaufort have been milled with decorative profiles and a good mill can easily match the rail being replaced. As a more economical alternative, mouldings may occasionally be duplicated with stock wood mouldings built up to a shape that closely resembles the original. The major precaution for this sort of built-up moulding is that all pieces must be thoroughly soaked in preservative prior to assembly since the possibility for separation of the pieces is great. Moreover, the individual pieces should be bonded with waterproof glue in addition to standard trim nailing.

- **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 respacing 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. Representative examples of such companies include:

- House of Moulding, Van Nuys, California
- E. A. Nord Co., Inc., Everett, Washington
- Turncraft, White City, Oregon
- **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.

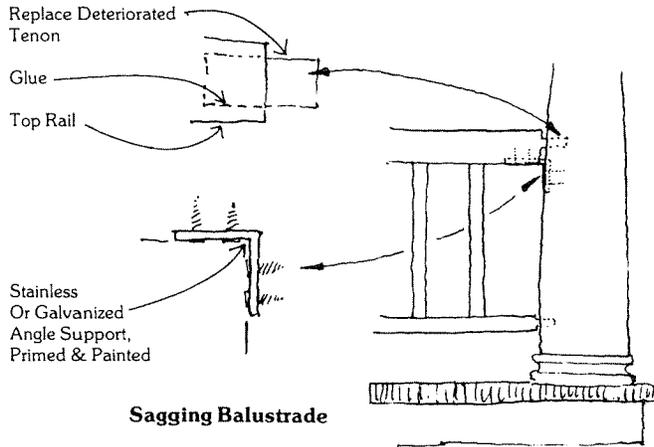


### Tightening Loose Balusters

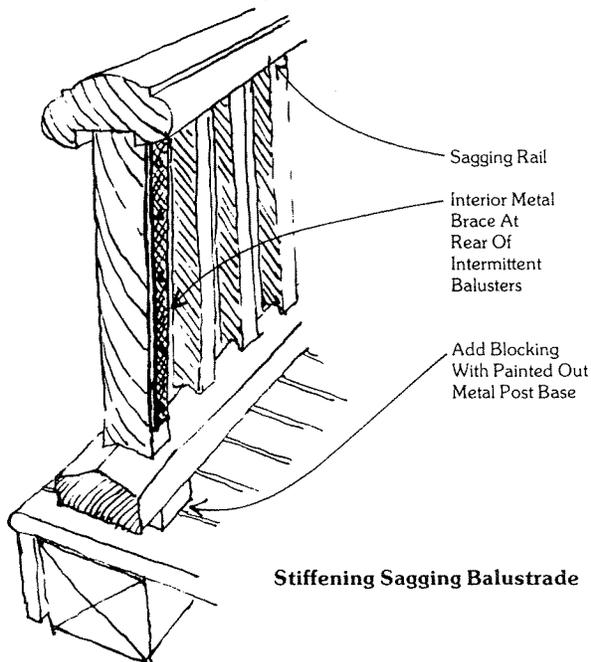
- **Sagging balustrade.** When the entire balustrade assembly of a given bay is leaning to one side, a problem with the column connection is generally indicated (although it could result from the more serious cause of differential settlement of the columns, which would probably show up in other areas

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.

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, 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

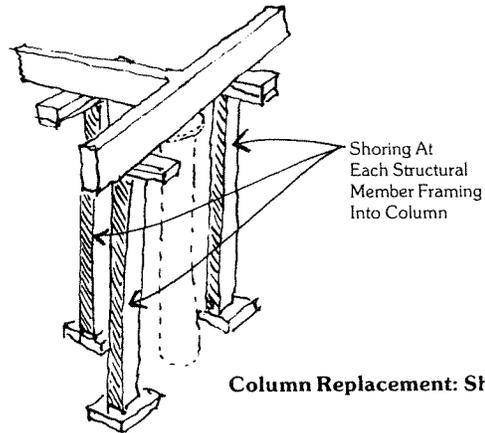
those that will be concealed, should be painted with suitable rust-inhibiting paint.

## Porch Columns

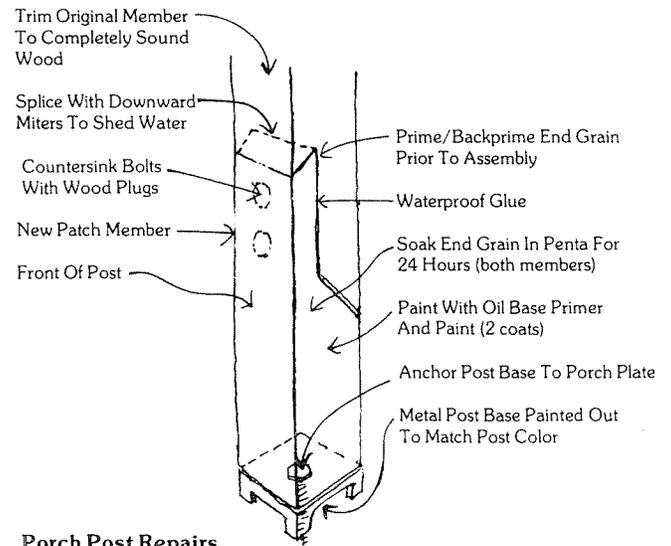
Columns are crucial structural and decorative elements of the porch. Most column repairs, except those having to do with trim, should be preceded by consultation with a competent engineer. **CAUTION:** Any problem which potentially reduces the effective length of a column or affects the shifting of its 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 soaked in preservative can be slipped under the column and wedged into place. Always maintain continuous ventilation to the underside of the column base.

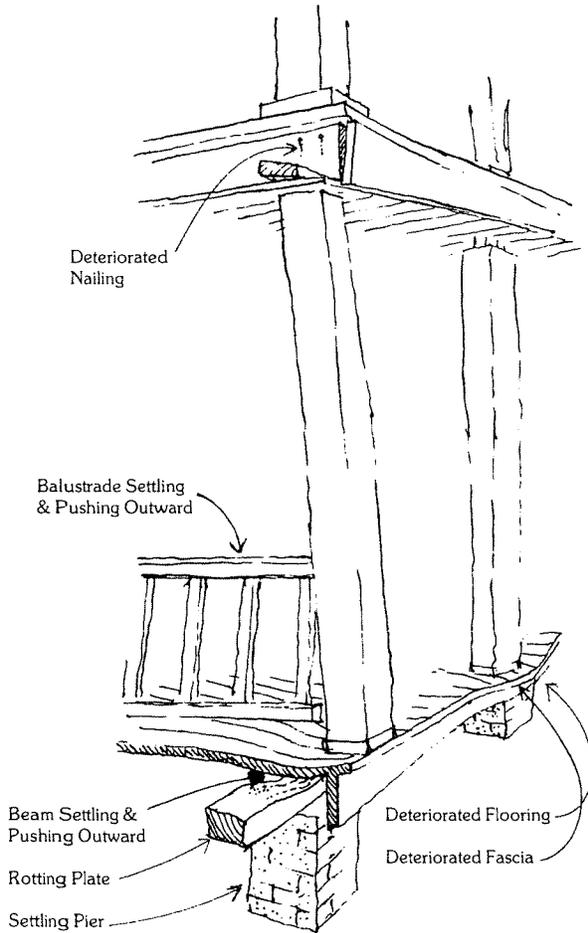


If the column base consists of ornamental trim surrounding the working column, the repair may be simpler. Be aware, however, that rotted trim may be symptomatic of deterioration at the base of the functional column. If so, a splice must be made in which new, treated material of matching profile is connected 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



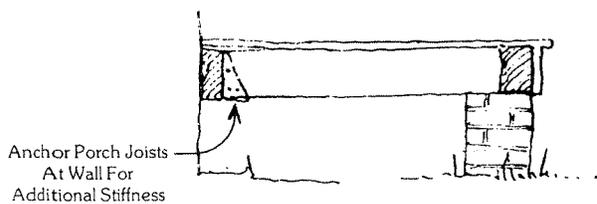
ventilation to the underside of the column should be maintained.

- Leaning or rotated columns. Both, especially the former, are symptoms of a serious movement problem of which there are 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 re-set or replaced to match after applying a preservative treatment.

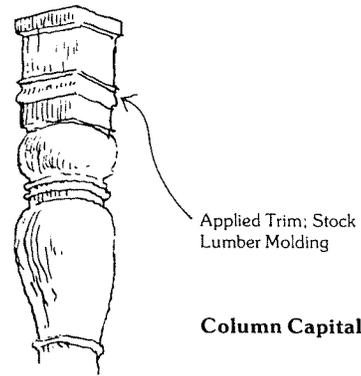


**Leaning/Rotated Columns: Causes**

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 gussets and angles to increase the porch's rigidity. In addition, suspect porch piers should be under-pinned (see "Brick").



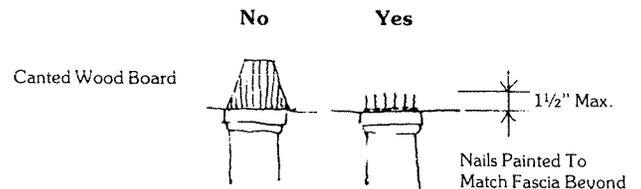
- Restoring trim. In many cases the applied mouldings at the top, or "capitals," of the columns are not substantially different from the stock trim presently available at better



lumber yards. Missing trim can usually be replaced to approximately the original profile and wood species.

Fluted columns pose more difficult problems. It is inappropriate to "repair" damaged fluting by splicing together two columns of different profiles. The splice is best performed by shoring the beams framing into the column, removing the column, and having new material added at the required location. Normally a carpenter experienced with historic buildings should perform such work.

- Bird-proofing. There are few infallible techniques for this particular problem that are not unattractive. Several of the devices in use around Beaufort, e.g. wire mesh, canted wood boards, etc., should be removed. Less obtrusive options include:



**Bird-Proofing**

- installation of a low profile wedge with a high gloss slippery coating at the exposed surface
- exposed nails, although the exposure should be limited to 1-1/2". Nails should be primed with rust-inhibiting paint and painted out prior to installation. The top of the column should be appropriately soaked with preservative to eliminate damage from moisture penetration at the nail holes.
- miscellaneous: various noise devices, light devices, chemicals, adhesives, etc. are available as bird deterrents. Rubber snakes have even been found to be effective in some applications.

The homeowner should be prepared to accept the fact that no infallible bird deterrent yet exists.

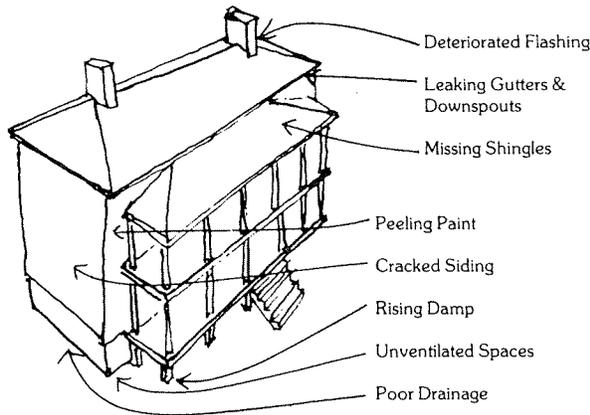
- Repair of stucco or cast mouldings at column capitals or bases. Erosion over time has eliminated much of the crispness of these key decorative features. Since this construction technique is present in some of Beaufort's more important buildings, repair should not be dismissed as merely cosmetic.

This repair requires an experienced ornamental plaster craftsman. He will construct a template matching the exact

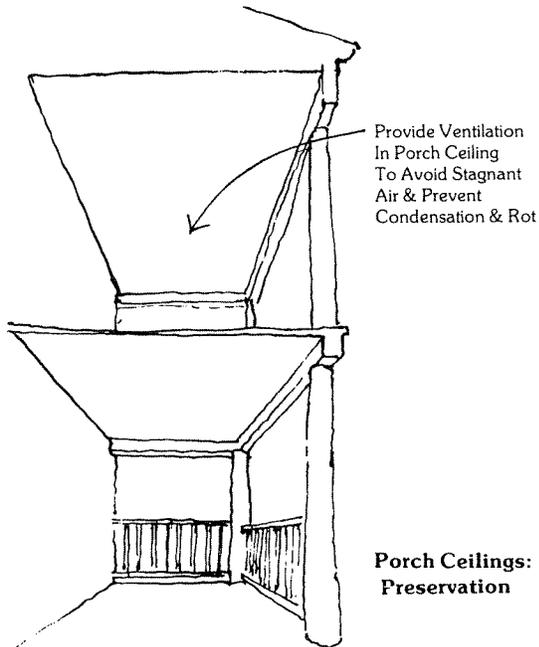
shape of the deteriorated molding. This will be used as a shaping tool when applying new patch material. When carefully and properly executed, this process will restore important details to their original crispness.

## Porch Ceilings

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.



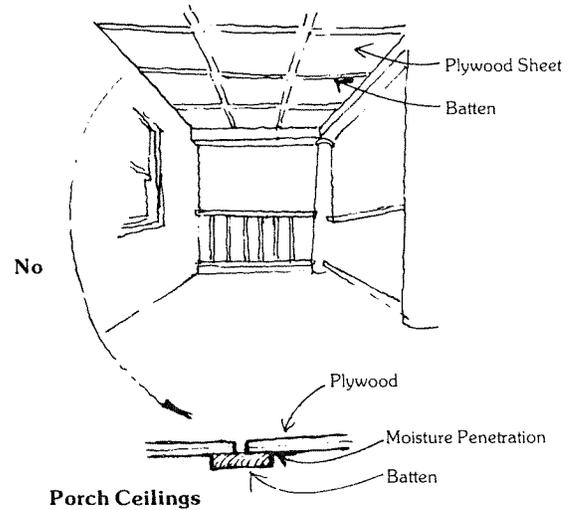
**Moisture Penetration**



**Porch Ceilings: Preservation**

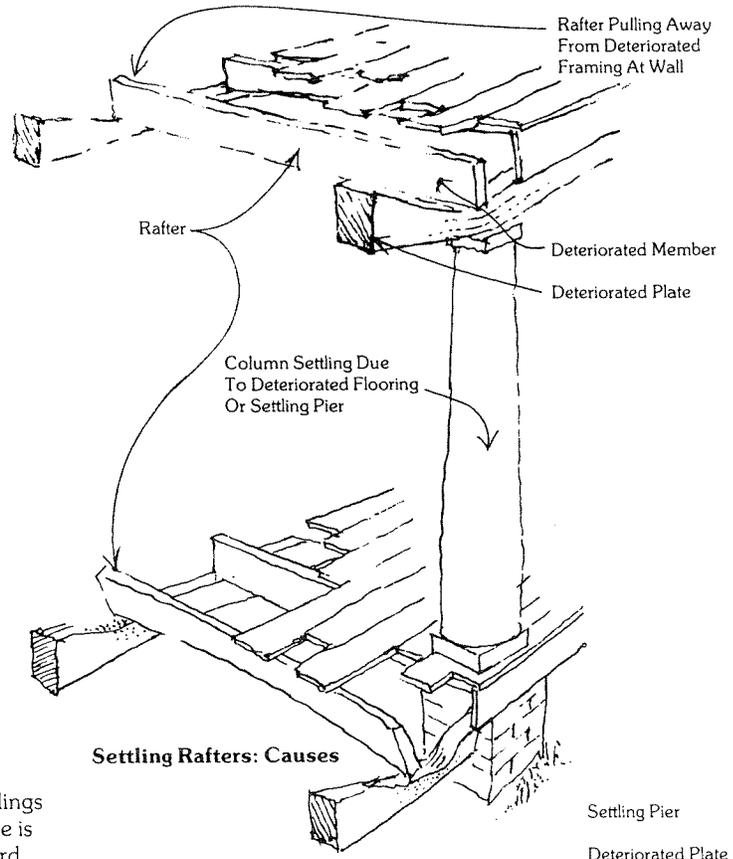
A common, modern replacement for deteriorated porch ceilings is plywood sealed at the joints with wood battens. Since there is almost no opportunity for flexibility of this material with regard

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.



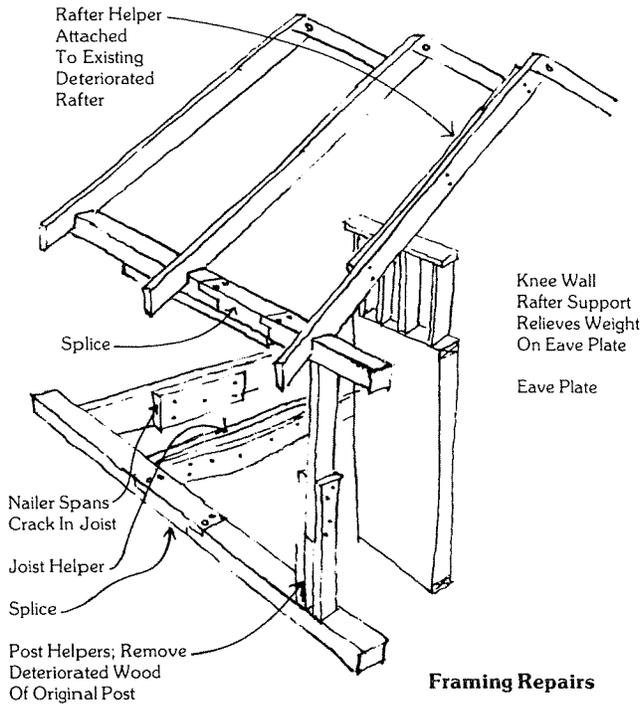
More appropriate is the traditional tongue-and-groove board ceiling. If joined too tightly, these boards are subject to the same buckling problems as porch floor boards. However, if laid correctly, tongue-and-groove ceilings have great flexibility and possess the correct historical appearance. Repairs 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

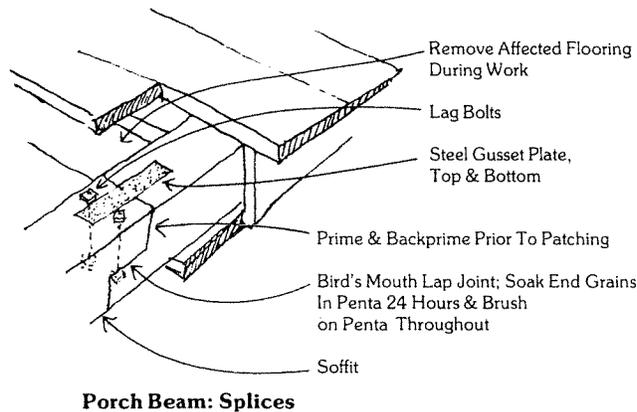


**Settling Rafters: Causes**

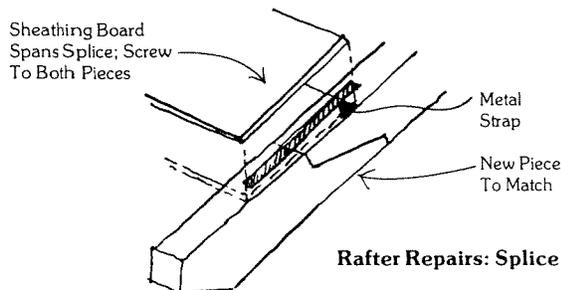
As structural members, these elements require shoring during repairs and alterations and **must** be investigated by a competent structural engineer prior to any work. Roof settling is almost always the cause of cracking or dislocation of rafters and beams, though decay plays an important role as well.



A typical edge beam splice repair is shown in the sketch below. It is suggested **only** as a guide to the type of repairs that will be necessary, and not as a replacement for on-site advice that relates to specific conditions.



Concealed rafters that are sagging or which threaten to lose most of their structural capacity are often repaired with a "helper." This piece should be carefully attached to the sagging rafter by means of pre-drilled holes which have been brushed

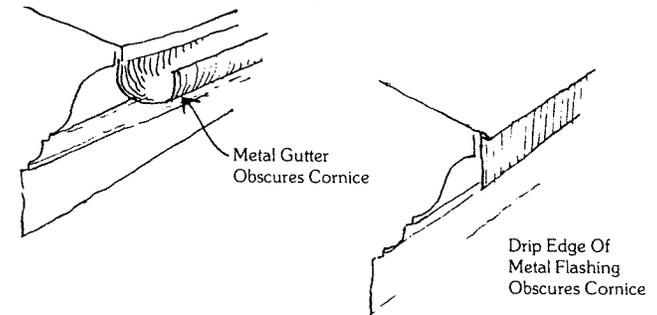


liberally with wood preservative. The helper **must** be anchored into sound wood and completely span any deteriorated portion of the rafter. If all areas of the rafter are in poor condition, the helper should bear upon the rafter plates, completely relieving the deteriorated rafter of any structural load whatsoever.

## Porch Cornices

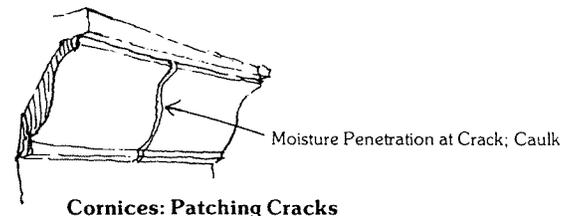
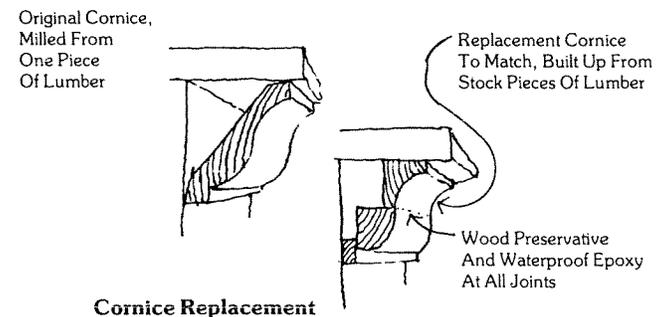
Several common, but avoidable appurtenances have diminished the impact of many Beaufort porch cornices. Examples are:

- 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.



### Porch Cornices: Intrusions

It is often possible to successfully copy a piece of millwork, such as cornice, by building up pieces of stock moulding. This is a technique similar to that previously described for handrails. The numerous joints necessitated by this technique create increased susceptibility to decay and moisture. Every piece must therefore be thoroughly soaked in preservative prior to assembly and the entire cornice should be joined by both nails and waterproof glue. Frequent maintenance inspection of built-up sections is also suggested.



**Separation of joints at cornice.** Similar to the problem afflicting fascia boards, this condition is potentially serious in that moisture can be admitted to structural members through the crack. For this reason, all horizontal joints in the cornice should also be investigated; though less immediately apparent, the openings they present to moisture have damaging possibilities.

All such joints should be caulked and the caulking inspected yearly.

## Screened Porch Enclosures

Although porches are easily screened in ways that are not intrusive to overall appearance, few have been erected thoughtfully in the District. Screening should not conceal or compete with the configuration of the original porch structure.

Certain principles will allow the property owner to screen in his porch without invalidating its architectural character:

- The screening and screen framing 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. Try not to introduce a horizontal rail above the balustrade.
- Any visible screen framing above the balustrade rail and between the columns should be painted a matte finish in a color which blends with the screening itself. It is a mistake to paint visible screening members the same color as the column and balustrade. The former are minor elements while the latter are major architectural features which express the rhythm of the building's structure.
- For ease of removal, screens should be installed with screw attachments at top and bottom.
- Screen framing should be wood rather than raw aluminum. If aluminum is used, it should be painted out as described above.
- Screen doors should be as simple as possible. Modern aluminum screen doors are, almost without exception, serious visual detractors 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. If a horizontal rail is required at the screen door, it should be placed level with the balustrade rail.

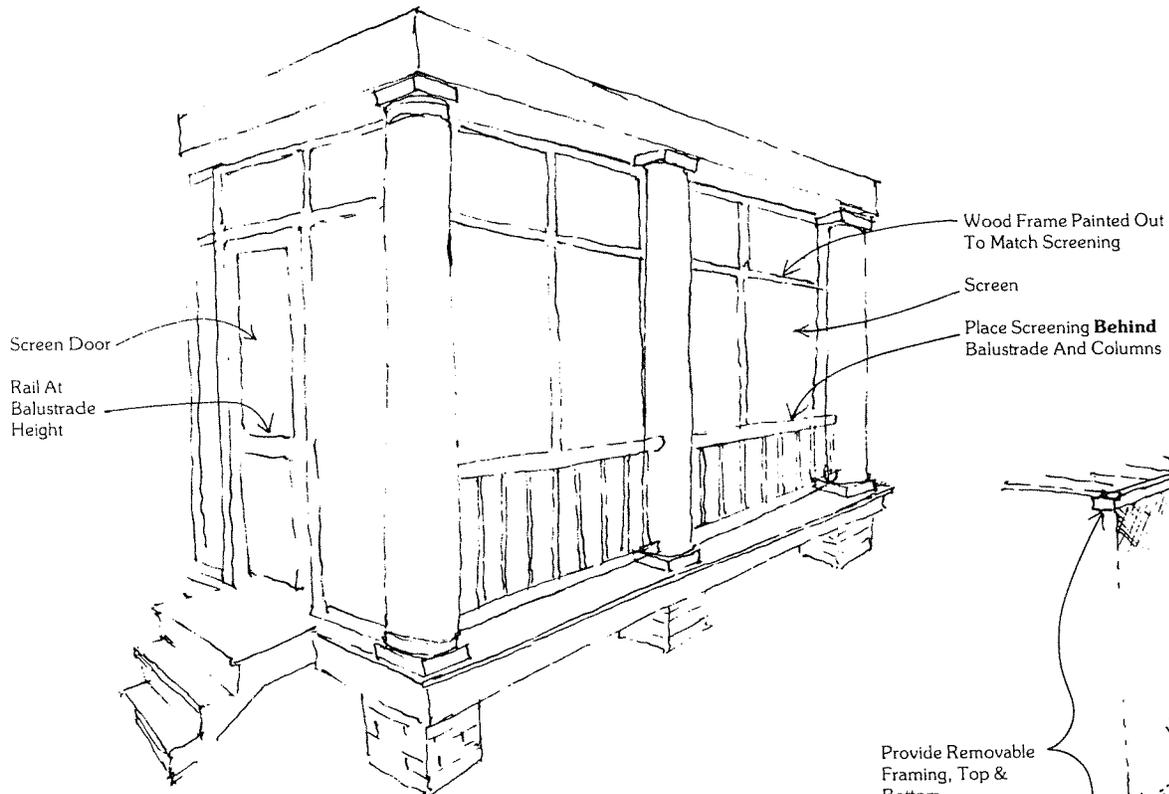
## Porch Hardware

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.

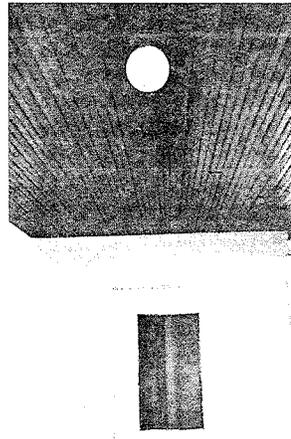
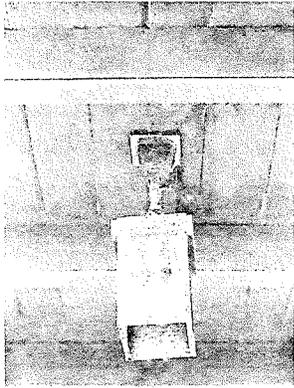
In cases where there are several tenants in one house, it is preferable to arrange to have all mail delivered to the vestibule rather than placing many mailboxes adjacent to the door.

- 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"



Enclosing Porches With Screening

Porch Screening



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; the photos above illustrate acceptable solutions.

**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.



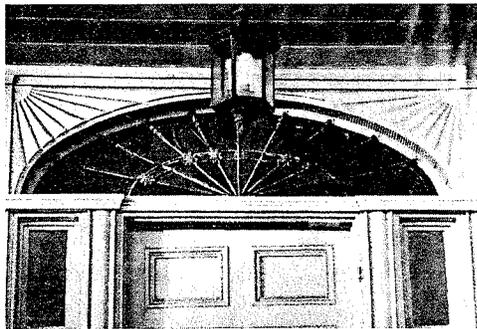
# Chapter 8

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## Doors, Windows, and Shutters

### Introduction

Doors, windows, and shutters are the “moving parts” of the house, subject to hard and frequent use. Under such demands these moving parts will perform adequately only 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.



Besides their functional purposes, doors, windows, and shutters are crucial elements in the 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. 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.



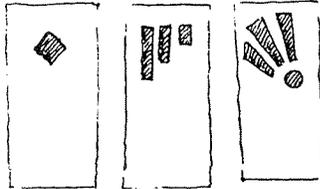
Common problems affecting doors, windows, and shutters in Beaufort have to do with their two basic aspects, visual and functional. The unsympathetic substitution and insertion of inappropriate modern materials like aluminum doors, snap-in muntins, picture or jalousie windows, and vinyl shutters have harmed many an otherwise lovely home. Neglected obvious functional problems such as warped frames, rotted sills, or broken shutters are all too apparent and have serious negative impact on the appearance of a house as well as on the intended functions of these elements.



The following section discusses the range of these problems and offers recommendations for repair and maintenance.

## Doors

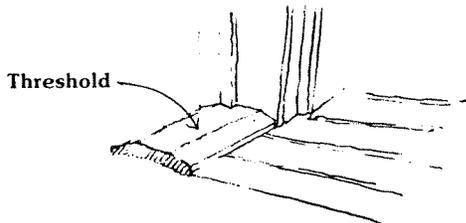
**Modern Wood Doors** - Many original entrance doors in the Historic District have been replaced with modern flush doors. These are inadequate and inappropriate treatments with a tremendously adverse impact on an historic structure. It is strongly recommended that these modern insertions be replaced with doors appropriate to the style of the structure, many of which are visible throughout the District and can be taken as models.



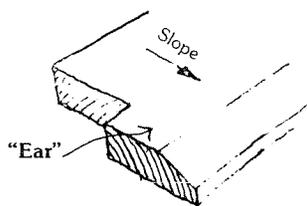
**Inappropriate Modern Exterior Doors**

**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 chiselling. Otherwise, the center section can be cut out with a backsaw to allow for the play required to remove the threshold from beneath the frame.

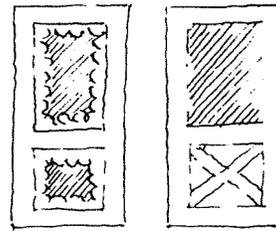


- Prepare a new oak or hardwood threshold similar to the one that has been removed. Be careful to include the "ears," or lugs, at each end, and be certain that the new threshold is fashioned so that it slopes for drainage. Make sure the new threshold has been treated with wood preservative and back-primed prior to installation.



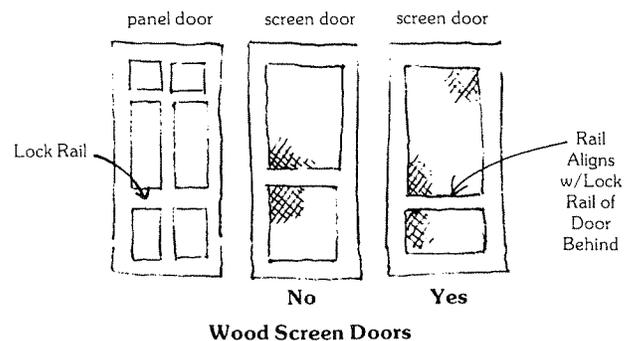
- Gently tap the new threshold in beneath the door frame. If it has to be forced, it is too tight and should be removed and sanded.
- Drill pilot holes in the threshold for attaching it with approximately 2-1/2 inch galvanized nails or screws. These fasteners should be countersunk and the nail holes filled with putty and sanded.
- Prime and paint the new threshold.

**Screen Doors** - 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**

Screen doors should be made of wood and kept as simple as possible. Extant, original screen doors of late nineteenth century houses should be retained and maintained. The simple wood frame can be painted in a color similar to that of the screen itself. If a horizontal rail is required, its location should coincide with the height of the lock rail of the paneled door behind it. (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.")



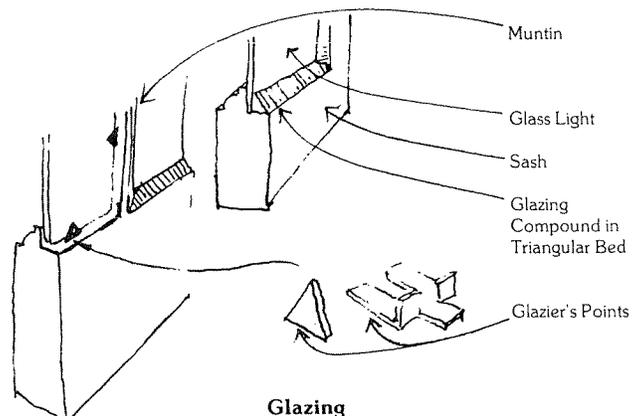
**Wood Screen Doors**

For weatherstripping information, see "Energy Conservation."

## Windows

**Re-glazing** - 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:

- 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").
- 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.) 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 wood preservative.
- Install a new bed of putty which can be struck clean with a putty knife. 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.

If the glass pane (called a "light") needs replacing, proceed as follows:

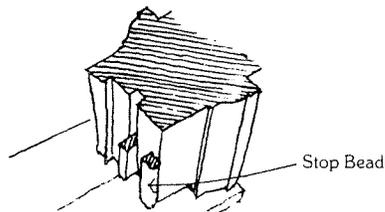
- Cut a new piece of glass that is 1/8" smaller than the opening in each direction.
- Wearing heavy gloves, remove all broken glass and old putty. The latter can sometimes be softened with a blowtorch, though **extreme care** must be exercised to avoid damage to the wood. A putty knife is a safer and simpler alternative, albeit more tedious.
- Remove all glazing points and sand the groove to a smooth finish. Treat the exposed wood with preservative, and prime and backprime the muntins.
- Apply a thin bed of glazing compound to the groove and press the pane into place. The glass should not contact any wood when in its final position.
- 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. The outer edge of the putty should be flush with the exterior face of the muntin.

**Leaded Glass** - A good craftsman or competent do-it-yourselfer can, with patience, repair most problems affecting leaded glass. Supplies are readily available; many crafts and hobby shops carry do-it-yourself leading kits.

The following precautions and tips are recommended:

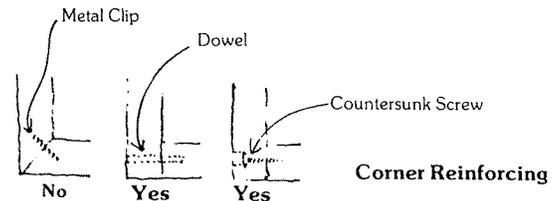
- Do not remove the window to make repairs.
- Use the proper tools -- a good glass cutter, soldering iron, glux, and 60/40 lead/tin solder.
- Using a sharp blade or file, clean the patina off the existing lead to a distance of 1/4"-1/2" beyond either side of the crack.
- Re-solder all broken lead joints. The new solder will be brighter in color than the original material but should quickly darken as it weathers.
- Tighten all loose glass by forcing putty into the lead frame (or "came") holding it.
- Replace all rotted comes.
- Protect small areas of shattered glass from further breakage with a film of epoxy.

**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:

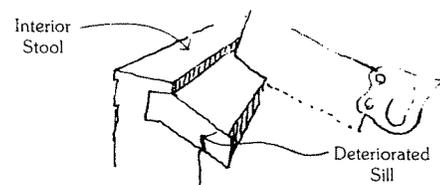
- Planing
- Reinforcing the corners, preferably by means of a hidden repair



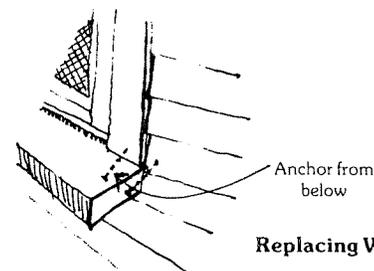
- Lubricating the frame with soap or silicone so that the sash will move more easily
- For seriously racked sash the mortise and tenon joints of the rails and stiles must be realigned and redoweled, or the members replaced.

**Replacing Rotted Window Sills** - This repair is similar to that described for door sills. The sill is the part of a window frame that generally receives the most punishment from the elements; often, it is the only part of a frame that needs replacement. The following is the proper procedure:

- Remove the sill by cutting out the center portion with a backsaw 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.



- Prepare a new sill of hardwood or preservative-treated yellow pine or cedar to match the original sill. The new sill should be sanded, primed and backprimed prior to installation.



- 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 a marine epoxy such as "Git-Rot" which arrests the spread of rot by surrounding the affected fibers in resin. The surface of the sill can be filled with another marine product such as "Marine-Tex." After the epoxy is dry, the sill can be painted. Or ...
- 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 soaked with pentachlorophenol for one day, then saturated with boiled linseed oil. After repeating this process, fill all cracks and holes with putty. When a skin forms on the putty, prime and paint the sill. Or ...
- When the surface of the sill is badly deteriorated and must be built up to its original profile it is sometimes possible to install, in layers, a paste made of fine sawdust and waterproof glue.

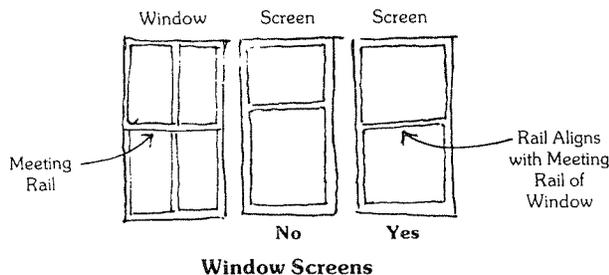
Each coat should be allowed to dry thoroughly before a new coat is applied. When the build-up is complete, sand, prime, and paint the sill. Alternatively the sill may be planed down to a flat surface and a cover board installed which matches the original profile. The cover board should be attached to the underlying sill with a continuous application of water resorcinol glue.

**Inappropriate Window Treatments** - The following inappropriate renovation practices are discouraged for historic structures:

- 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.
- 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.

### Window Screens

- Sagging and warping. This common problem is treated with the same corner reinforcements shown under "Warped and Sagging Sash," earlier in this section.
- Screen appearance. Screens, whether of wood or aluminum, should relate to the sash of the window in which they are placed. If a horizontal rail is required for the screen, it should align with the meeting rail of the window behind.



**Window Screens**

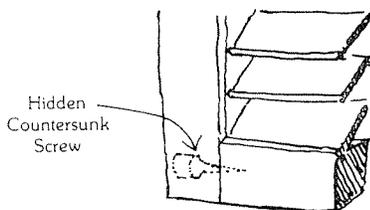
## Shutters

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 resecured. An alternative but less desirable repair would be to fill the holes with plastic wood.

**Loose Joints Between Stiles and Rails** - There are several possible repairs for this problem:

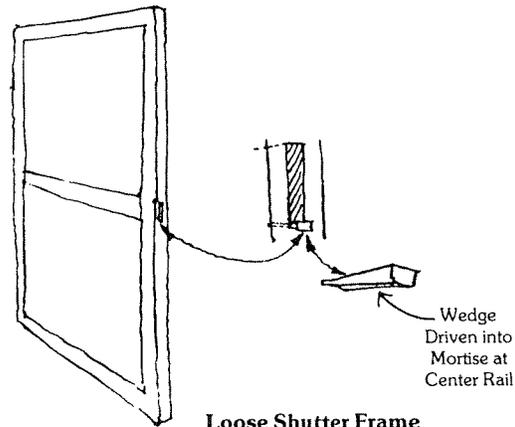
- Open up the joints to allow more glue to be forced in. Clamp the joint until the glue sets. Or ...
- Install a 3" countersunk screw; install putty over the screw-



**Loose Shutter Frame**

head. Or ...

- If the joints are extremely loose, disassemble and reglue 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/redrilled and new pins installed.

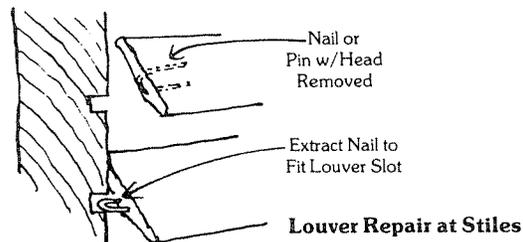


**Loose Shutter Frame**

Sagging shutters can also be stiffened by driving a wedge into the underside of the center mortise at each end of the rails.

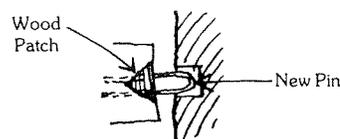
**Loose Louvers** - Operable louvers can become loosened at two locations: the vertical rod which controls their movement, and at the stiles into which they are framed.

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.



**Louver Repair at Stiles**

Similar repairs are used to restore the connection at the stiles of the shutter. Again, the head of a small nail is cut off and the blunt end sharpened. Bent into a U-shape, the nail is then forced into the side of the loose louver deeply enough so that the louver can go back into its frame. When in place, the pin is withdrawn with the needle pliers to a distance sufficient to support the louver in the hole supplied for that purpose.



Alternatively, a new post of wood can be made, inserted into the hole, notched to the louver, and glued in place. Although a more time-consuming repair, it is more craftsmanlike and permanent.

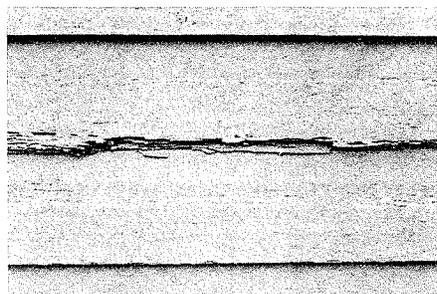
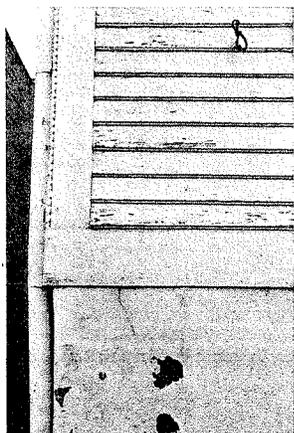
If required, a new louver can be added by cutting a thin piece of wood to match the size and profile of adjacent louvers and securing the ends with either the protruding pin or a glued patch as described above.

# Chapter 9

## Siding and Trim

### Introduction

The siding (or cladding) of a building is literally its skin. It is the task of that skin to shed water quickly and thoroughly, preventing decay of the hidden structural skeleton and staining of interior finishes.



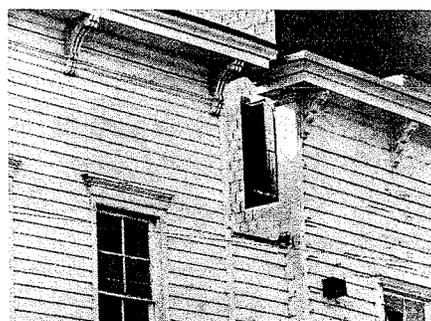
In addition, siding plays an important visual role in establishing the scale of a building. The shadow line cast by the projection of each clapboard adds a three-dimensional quality to the wall, while the width of each clapboard visually affects the mass and proportions of the building. Many historic houses in the District reflect these qualities as an integral part of the original design. The width of the clapboards on the facades of many Beaufort houses varies from that on the remaining elevations (i.e. sides and rear). The siding was thus considered a significant design feature on the most architecturally important elevation, and its



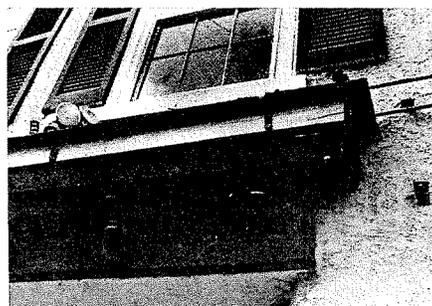
size and shape was refined accordingly (for example, note 906 North Street).



Directly associated with siding is the exterior trim of a building. In addition to serving an architectural and visual purpose, various trim elements also serve the critical function of sealing the structure at vulnerable locations. Corner boards, fascia boards, window caps, and architraves are examples of trim elements which protect critical areas of a building from exposure.



Cracks, chips, or other flaws in either siding or 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 investigates more modern siding materials such as aluminum, vinyl, and asbestos. It is difficult to generalize about the performance of these materials because they have been in use for relatively short periods of time. However, their application over older siding materials is inadvisable, if only because proper inspection of the genuine fabric of the building is thereby prevented. Nevertheless, there are many property owners who are attracted to the economic advantages and "maintenance-free" aspects of these materials. Consequently, a discussion is included which identifies ways in which such materials can be used with minimum negative visual impact. While this discussion does not constitute a recommendation for use of these materials, it is recognized that property owners must often seek practical and efficient means of rehabilitation.

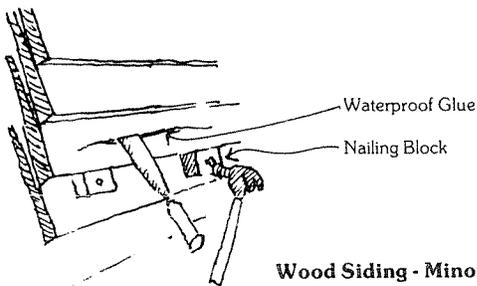
## Wood Siding

Cracking, sagging, and general deterioration is present in much of the siding in the Historic District. All such problems should be remedied immediately. Repair techniques are as follows:

**Temporary Repair** - Small cracks can simply be sealed with putty or plastic wood. 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", a caulking bead should be run in the crack prior to applying putty or plastic wood.

In a preferred alternative to minor repairs, the crack in the siding is filled with waterproof glue, then forced closed with a "nailing block" which is left in place during the glue-drying period. Upon removal of the wood block, all nail holes should be sealed with putty, primed, and painted.

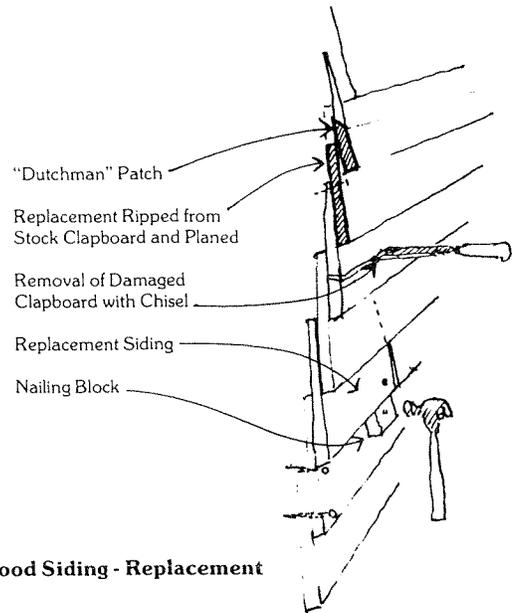


Wood Siding - Minor Repair

**Removal and Replacement of Siding** - 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. "Dutchman" patches should be installed so that all horizontal joints between old and new material project downward and outward. 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 species, overall size, and shape. The most desirable repair technique for serious siding problems requires cutting the damaged siding with a backsaw along the butt edge of the adjacent clapboard.



Wood Siding - Replacement

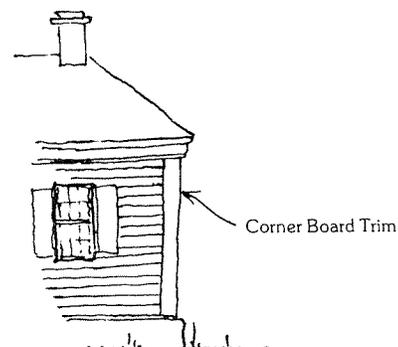
The board is then carefully removed with a chisel. Special care should be taken to avoid puncturing any membrane (i.e. building paper) that might exist beneath the siding, though this will probably not be present in most historic houses. If the damaged board was nailed near the upper rather than lower edge, the adjacent clapboard must be pried out enough to allow the nails to be cut with a hacksaw.

When the damaged siding is removed, the replacement piece can be inserted. It should match exactly in profile and species 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, after suitable treatment with wood preservative (see "Wood"), 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.

## 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.

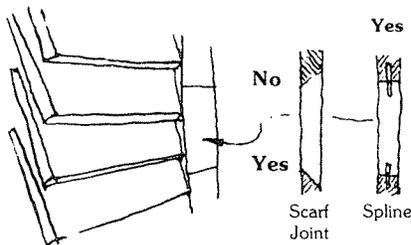
In addition to their visual role, corner boards serve to seal the



corner of the building and provide termination for the siding.

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 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, profile, and species, 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 preservative.

If the decay is limited to a small section of the corner 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.



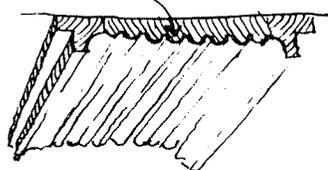
**Corner Board Patches**

When the new piece is attached, the joint lines are sealed with putty or plastic wood. The seal is sanded when dry and the piece is then primed and painted.

**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. Such monolithic 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. This technique is also discussed for railings and cornices in the "Porches" section. The following is a list of several more possible applications:

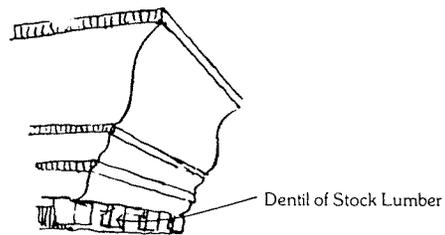
- Pilasters. It is often possible to patch damaged or missing reeds or flutes at the pilasters flanking doorways with stock half-round pieces. Obviously, the size of the replacement must be an exact match for the original adjacent material.

Half-round of  
Appropriate Dimension



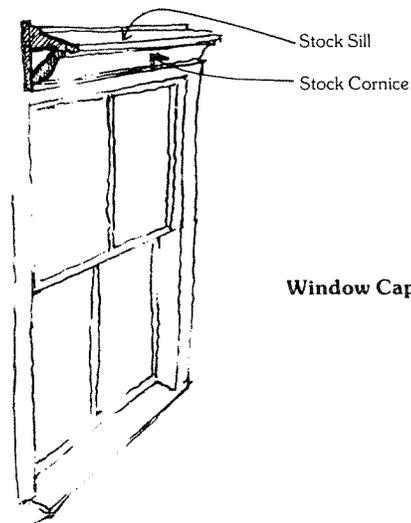
**Patching Pilasters**

- Cornice dentils. Missing dentils can sometimes be replaced with wood lattice. More often, this material is too thin and stock lumber must be used for the purpose.



**Patching Cornice Dentils**

- 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.



**Window Caps**

- Brackets. White Idaho pine is a superior material for use in replacing damaged or missing ornamental brackets on the Victorian house. 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 treated with preservative, primed, and backprimed prior to installation. Damage to the paint surface that results from nailing can simply be touched up.

**Salvaging Existing Trim** - If the deterioration of the trim is minor, it can sometimes be salvaged through the use of the marine epoxy products described in "Wood." In this technique, an epoxy such as "Git-Rot" saturates the affected piece and arrests the rot by surrounding the wood fibers in resin. The surface can then be filled with an epoxy such as "Marine-Tex."

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 putty or plastic wood, primed, and painted.

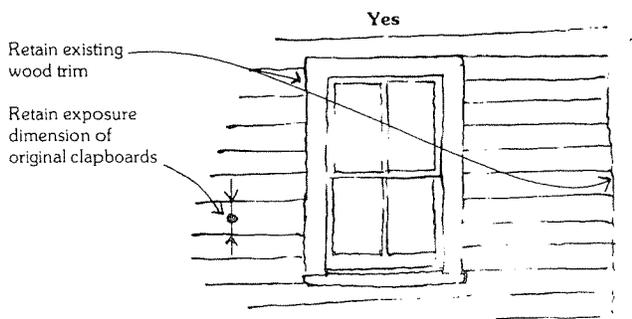
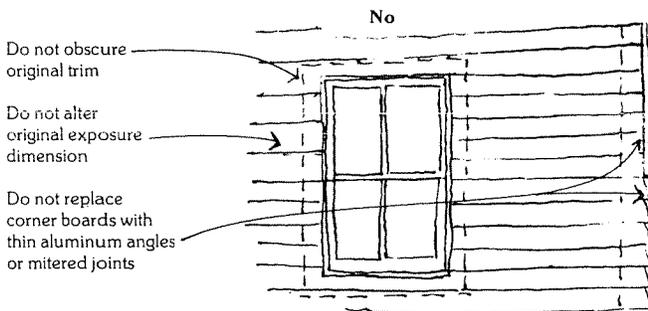
## Other Siding Materials

**Aluminum** - This material has become quite popular in recent years as a means of replacing, or covering, wood siding. The principal danger in overlaying existing siding with aluminum is the resultant effect of hiding all problems from view. Unfortunately, aluminum is too often installed for precisely this reason in the hope that out of sight problems will disappear. Since this is unrealistic, aluminum siding simply becomes cosmetic and does not represent a solution to underlying problems of cladding or structure. Its use on existing buildings is analogous to wall-papering a room in which the plaster is in a continued state of deterioration. The problem is hidden, not addressed.

Other drawbacks exist as well. Applying new siding to a structure that has comfortably stood for a long period of time sheathed only in wood may alter the “breathability” of the original wall causing unforeseen consequences such as hidden condensation. 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. Finally, claims have been made that aluminum siding can, in some instances, be a potential fire hazard in that it acts like an oven wall, holding heat in instead of allowing it to escape (this has been hypothesized, although not necessarily substantiated).

Nevertheless, many property owners decide to sheath their wood structures with aluminum siding. The following is a list of steps to be taken to minimize the negative impact of this material:

- Do not obscure such trim as window frames, door frames, and corner boards. Aluminum siding should butt the trim in a manner similar to the original wood siding since such trim is



**Aluminum Siding Installation**

an important element of the historic structure. Aluminum siding increases the overall thickness of the wall if applied over existing siding. Thus, it may be necessary to remove and pack out all trim if the visual integrity of the structure is to be preserved.

- If corner boards cannot be retained, use an aluminum corner which at least duplicates the width of the original piece. On an historic house, the corners of aluminum siding should not be sealed with a thin aluminum angle or mitered corners.
- Avoid pastel and “ranch house” colors.
- Match the exposure dimension (width of the face) of the original wood siding. This dimension helped set the scale of the house and deserves to be given the same respect that the house as a whole receives as an historic structure. Applying, for example, 9” exposure aluminum siding over 4” exposure wood siding entirely and irrevocably alters the proportion and appearance of the structure for the worse.
- Maintain constant ventilation to the inside surface of the aluminum siding. Without such ventilation, the effects of inevitable condensation on the hidden wood structure would be prolonged, serious, and invisible. Some aluminum sidings are available with “weep holes” placed at intervals along the lower edges, although it is not certain how effective this refinement is.

**Vinyl** - This material has even fewer advantages than aluminum for use on the historic house. Its false embossed grain, dimensional instability, buckling motion, and numerous and pronounced vertical joints all make it a serious detraction to the historic house. Aluminum siding, if carefully installed, can at least approach the appearance of wood, while vinyl’s imitative success is far more rare. The property owner who is determined to install this material, usually under the illusion that it is “maintenance-free,” should follow the same guidelines as those described for aluminum siding.

**Asbestos** - It is absolutely impossible to maintain the original building scale with asbestos shingle siding. In fact, the only historic style which can accept this material with any degree of grace is the bungalow (see “Style”). Again, although there are no significant advantages to this material, its popularity persists. If the product itself is “maintenance-free,” the same cannot be said for the underlying structure in the sense that problems are hidden rather than resolved. The same visual tips for aluminum siding apply to this material. In addition, asbestos shingles which are manufactured with a wavy bottom edge instead of a straight line are strongly discouraged as visually destructive to the structure on which they are applied.

Weatherproofing

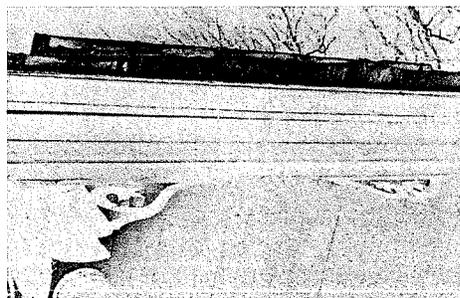


# Chapter 10

## Roof Repair and Maintenance

### Introduction

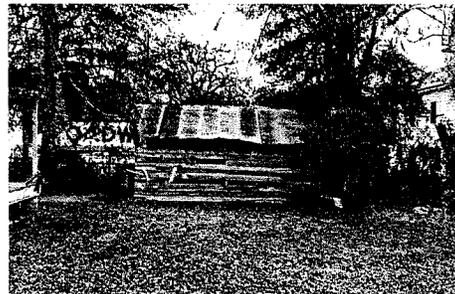
Few things are more upsetting to the average homeowner than the sudden appearance of a roof leak. Unfortunately, it is usually not until this moment that the roof is inspected with the attention that would have prevented minor problems from escalating. The attitude of many homeowners towards roofing is a good illustration of the "out of sight, out of mind" syndrome. It is the intent of this section to reverse that neglect.



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 most cope with an enormous amount of heat (and conversely, cold), thus withstanding internal pressures of expansion (and contraction).



Moreover, the roof is highly susceptible to wind. Slate, wood, or asphalt shingles all have a tendency to lift during windy weather. Inevitably, the lift occurs and moisture is allowed to penetrate.



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. Most maintenance is well within the capacities of the competent do-it-yourselfer. If, however, this routine maintenance is neglected, the inevitable, expensive day when a professional roofer must be summoned to deal with major problems will be hastened.

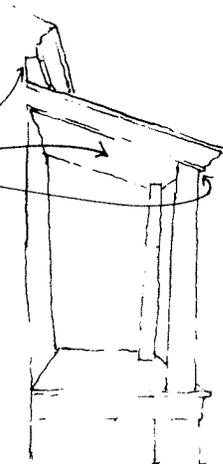
### Leaks

On sloping roofs, a leak rarely originates directly above the area where it makes its appearance on the ceiling below. 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 include:

- Rot and/or peeling and blistering paint at eaves.
- 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.
- Cracked, bulging, or discolored ceiling plaster.

Rot, Peeling or Blistering  
Paint at:

- Eaves
- Ceiling
- Soffit of Porch Beams



Signs of Moisture Accumulation

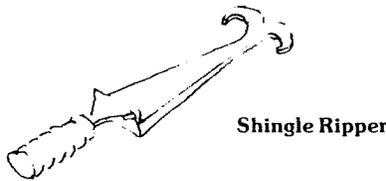
When a leak is evident, or suspected to be imminent because of the above symptoms, close inspection of the roofing should be made. The first stage of this should occur in the attic of the house, if one exists. If daylight can be seen through the roof, the source of the leak is, of course, evident. In such cases, a nail should be driven outwards near the hole to make its location evident from the exterior of the roof.

If no hole is visible, the roofing will have to be observed from the attic during a storm or by hosing down the roof with a steady stream of water. 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 source of the leak is likely to be deteriorated flashing.

**CAUTION: THE CARE REQUIRED TO PREVENT PERSONAL INJURY WHEN WORKING ON A SLOPED ROOF CANNOT BE OVER-EMPHASIZED. IT IS ADVISIBLE TO:**

- wear sneakers or rubber-soled shoes
- work in pairs
- use a roof ladder such as that shown in "Chimneys"
- use a rope or safety line as a final insurance against falls
- keep all tools with you at all times. The tools required will be a hammer, trowel, roofing cement, roofing nails, and a shingle ripper.

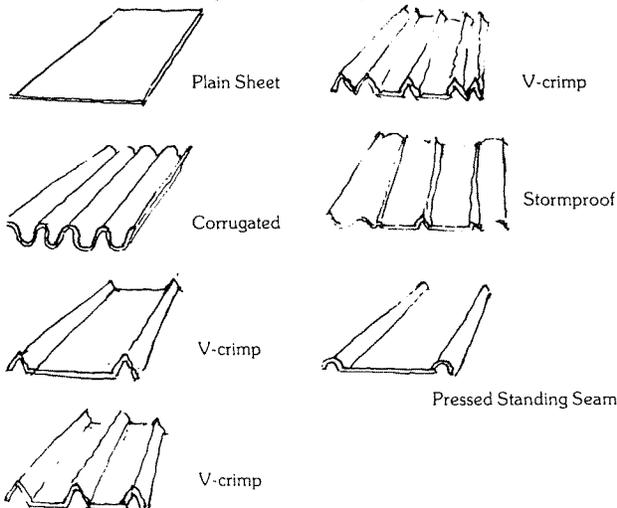


Shingle Ripper

## Roofing Materials

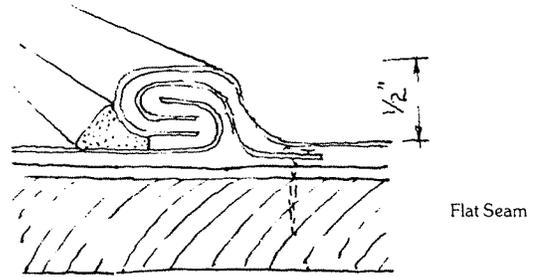
With these general principles in mind, the homeowner should be able to identify most roofing problems. The following discusses typical conditions encountered for different types of roofing.

**Metal Roofing** - Metal roofing is a popular material in Beaufort and is certainly appropriate for most small-scale structures dating from as early as the Civil War period. Three types of problems are evident in these roofs: inappropriate patches, careless treatment of edges and joints, and inadequate maintenance with respect to painting (see "Painting").

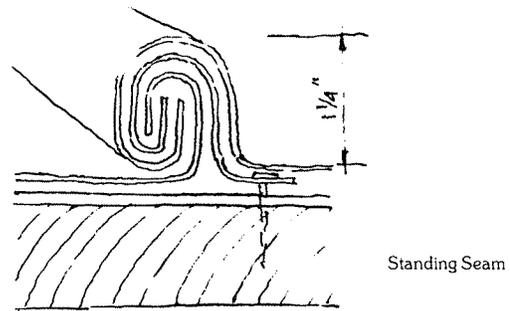


Sheet Metal Roofing: Profiles

- Patching. There are numerous sheet metal profile types available on the market. However, few are appropriate for use on the historic house. Corrugated and pressed standing seam sections are, for example, to be discouraged for use on all but modern construction. Of the remaining profile types, plain sheet metal has been in use for the longest period of time and is recommended. Of the two joint treatments, flat seam and standing seam, the standing seam was the more commonly employed. It is obvious that the corrugated sections shown in the sketch are not appropriate in patching earlier material since no blend is possible. 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.



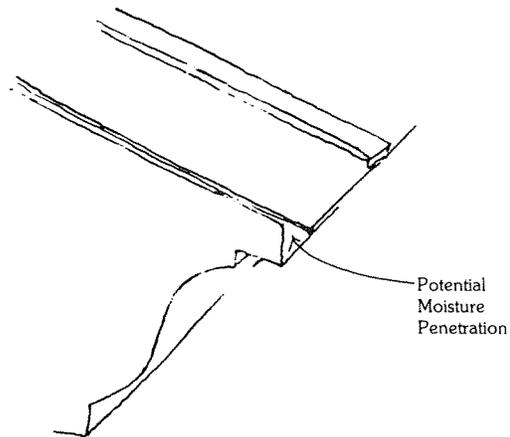
Flat Seam



Standing Seam

### Sheet Metal Roofing Joints

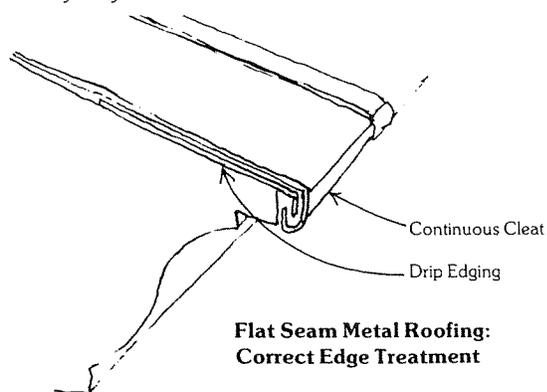
- Edge treatment. The typical edge treatment of metal roofing at the cornice line throughout the Beaufort Historic District is abrupt and detracts from the other detail of the buildings. It is common to see the metal roofing simply stop at the cornice with no edge treatment whatsoever. This not only 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.



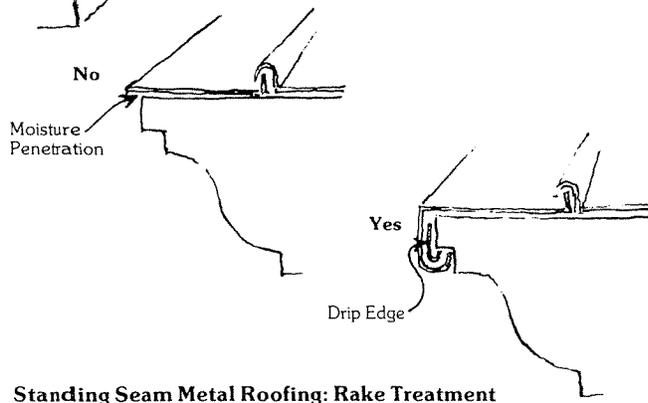
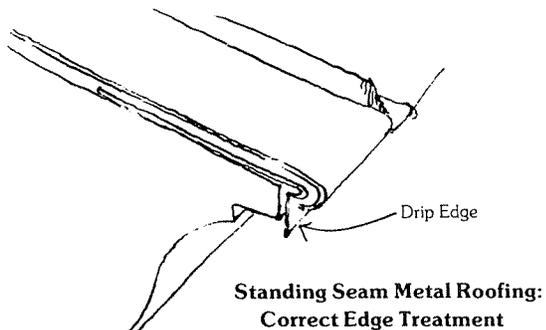
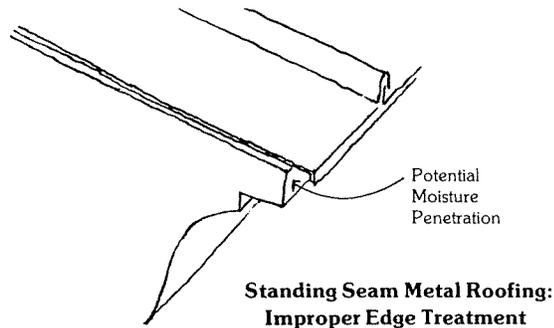
Flat Seam Metal Roofing: Improper Edge Treatment

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.

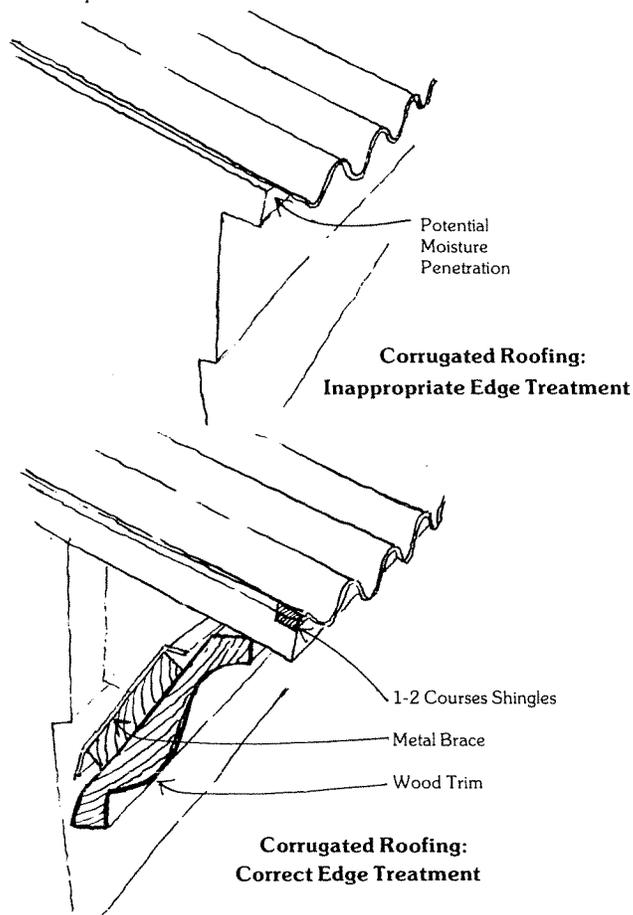


Similar treatment should be given to the edge of the metal roofing along the raked, or sloping, edge of the roof at gable end walls.



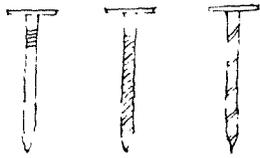
The edges of standing seam metal roofing should be treated in a similar manner showing cornice and rake conditions.

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 this 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.



**Wood Shingle Roofing** - Typical repair and maintenance problems for wood roofing shingles are discussed in the following paragraphs.

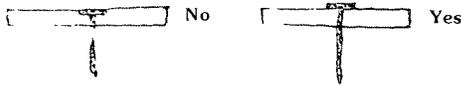
- **Replacement.** After a roof leak is discovered by means of the inspection techniques described above, the roofing should be investigated for any broken or lifted shingles. Replacement is simply a matter of removing the damaged shingle and replacing it with a new shingle to match. Tips and procedures 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 (illustrated on page 102). (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 wood species, dimensions, and taper.
  - Zinc-coated, galvanized aluminum or stainless steel



**Typical Roofing Nails**

roofing nails should always be used since common uncoated wire nails are subject to rust and corrosion and do not secure the shingles. Patch the nail heads with a touch of roofing cement.

- 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.

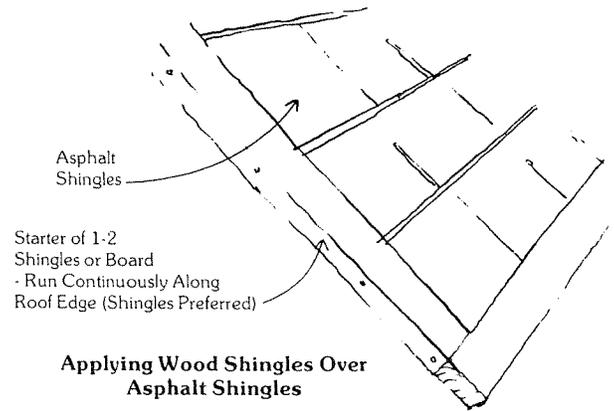


**Nailing Wood Shingles**

- 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 reshingled, the property owner should be aware that "fireproofed" wood shingles are available. Although these shingles 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. 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 shingle roofing. On important structures it would be desirable for the sake of the District to replace these asphalt 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 shingles, these materials must be removed prior to installing a wood roof since they do not form an adequate nailing base for the new shingles. When the existing roofing is removed, any damaged sheathing and underlayment should be replaced prior to re-roofing.

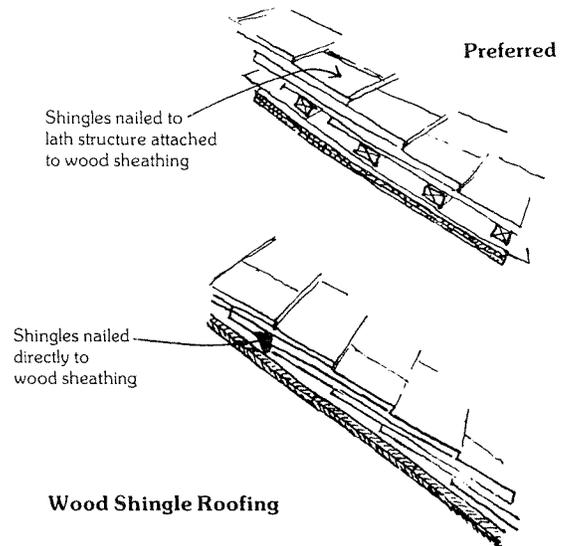
As an alternative to stripping an existing roof, new lath may be installed directly over the roofing material and wood shingles applied. However, this requires the raising of the cornice and is, therefore, not recommended.

- An existing asphalt shingle roof need not be removed in order to apply a new wood roof. However, it is desirable to remove at least one course of the asphalt shingles along the eaves and rakes and replace them with a starter

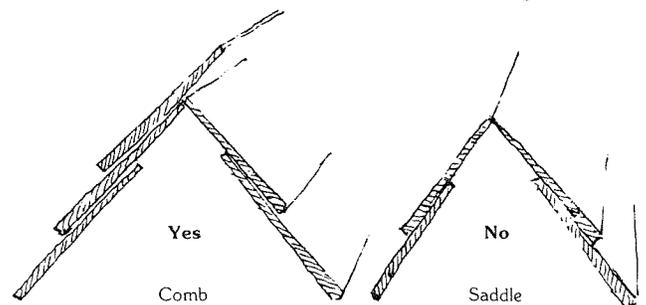


course of shingles. This will conceal the asphalt roofing and provide the desired visual thickness at the edge of the roof.

- 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.
- Because it is directed away from the prevailing wind, the best ridge treatment for use on the historic house is the comb.



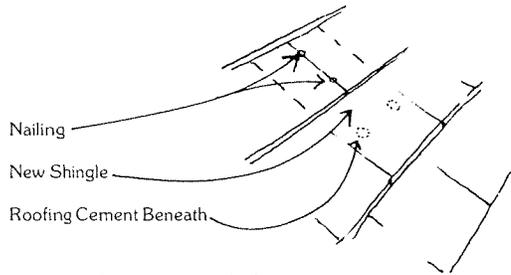
**Wood Shingle Roofing**



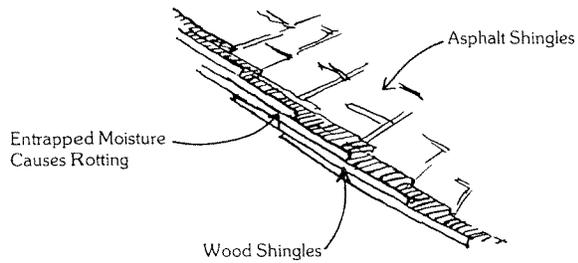
**Ridge Treatments: Wood Shingle Roof**

**Asphalt 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.

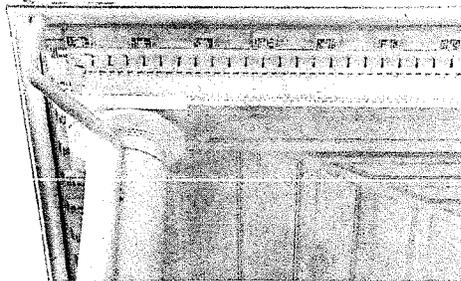


# Chapter 11

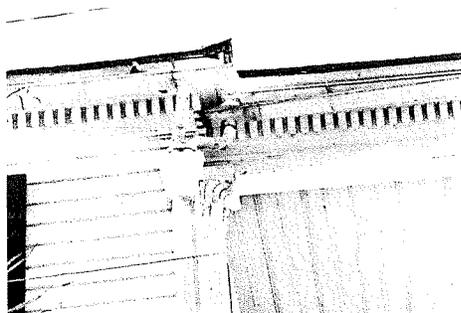
## Flashing, Gutters, and Downspouts

### 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.



Flashing is a continuous metal barrier which acts as a seal at all vulnerable joints. It is a means of bridging and sealing the gap between dissimilar materials, their incompatible profiles, and/or rates of expansion. It insures watertightness at building corners, ridges, valleys, or other changes in plane that are prone to separation, such as the joint between an addition and the original structure. 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.



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.

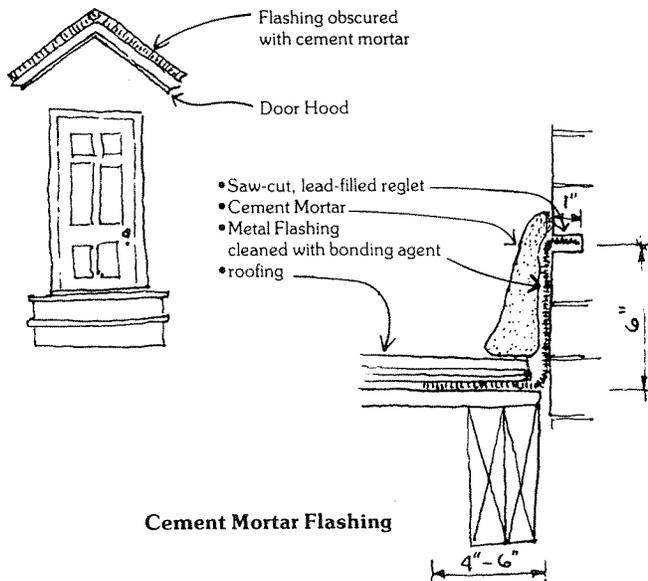
## Flashing

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, especially when effective concealment techniques exist.

For example, joints between horizontal wood and vertical brick surfaces can be treated with cement mortar flashing. This treatment, which would be appropriate for flashing the joints of wood roofs and brick chimneys or wood porch roofs and brick walls, is especially recommended for pre-1860 construction. It is apparent that this technique does not eliminate metal flashing but conceals it with cement mortar. (Black roofing pitch is sometimes seen as a substitution and is entirely inappropriate.) It is best to prepare the metal flashing with a bonding agent and to epoxy grout it to the brick surface prior to applying the cement mortar. These steps minimize the movement in the flashing and improve the bond between mortar and metal, increasing the life expectancy of the mortar flashing.

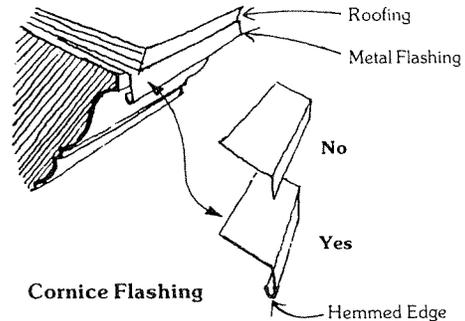


**Cement Mortar Flashing**

Note: This concealment technique is not recommended in cases where the vertical surface is wood as, for example, in joints between the roof of an addition and the wood siding of the original building. The best form of concealment in this case is simply proper installation.

- 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:

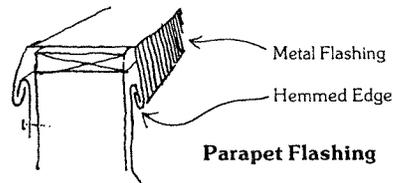
- The bottom edge of the flashing is unrestrained and susceptible to bowing. This can be prevented by hemming the leading edge to provide extra thickness. The hemming provides the stiffness needed to resist wind and maintain the visual strength of a straight line. Without a straight edge, flashing calls 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.

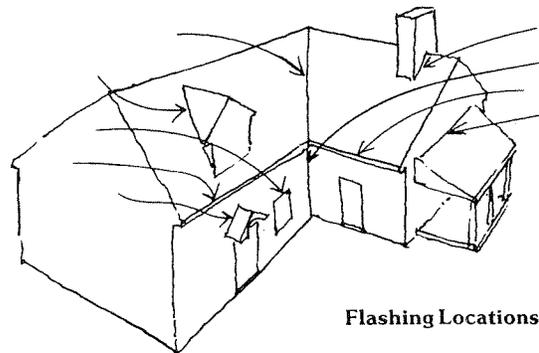
(The above considerations pertain to the concealment of wood parapet wall flashing as well.)



**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**

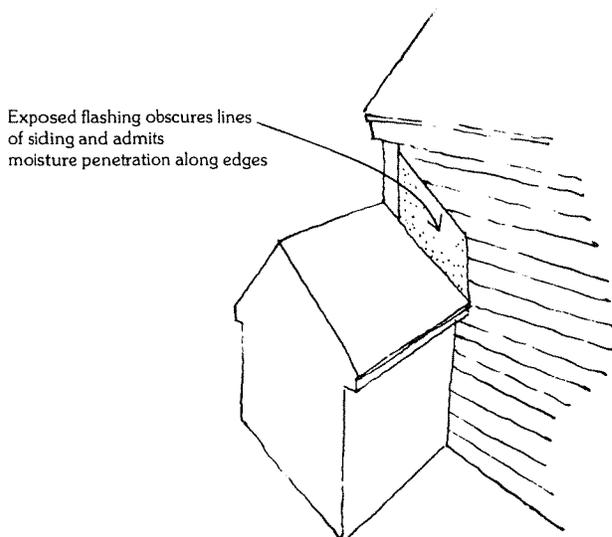
Corroded flashing should be immediately replaced. The property owner should solicit experienced advice regarding the particular type and gauge (thickness) of metal that is best suited to his particular needs. Possibilities include copper, stainless steel, zinc alloy, lead, terne, aluminum, and galvanized 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

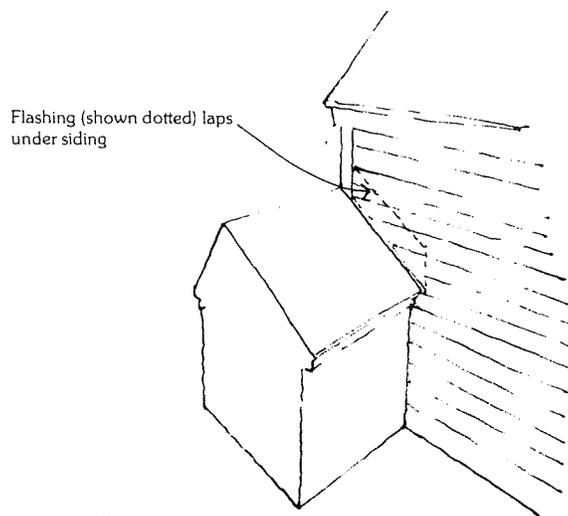
Thus copper flashing should never be installed with aluminum nails, though stainless steel nails would be acceptable.

- 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.

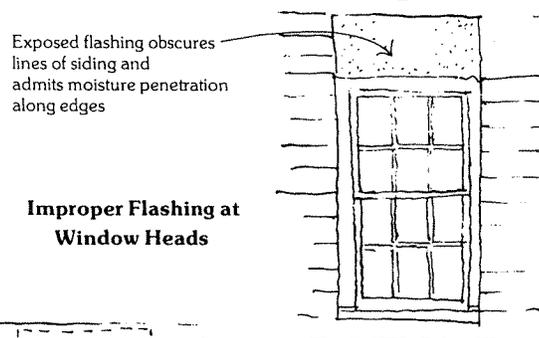


**Inappropriate Flashing Installation**

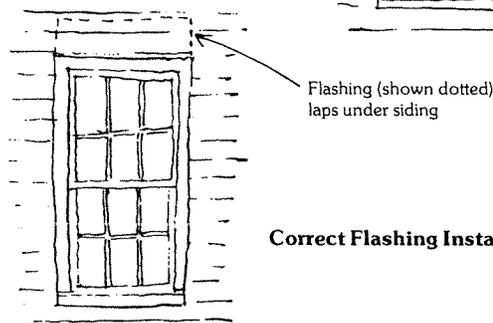
This ill-considered flashing treatment also occurs frequently at window and door heads throughout the District. Flashing at this location should not be so extensive as to cover several clapboard courses. Instead it should lap under the immediately adjacent clapboard.



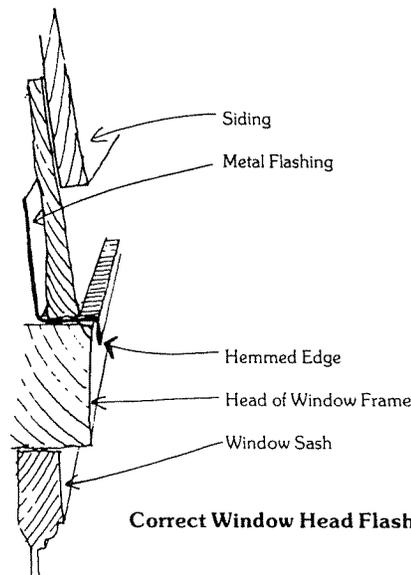
**Correct Flashing Installation**



**Improper Flashing at Window Heads**



**Correct Flashing Installation**



**Correct Window Head Flashing**

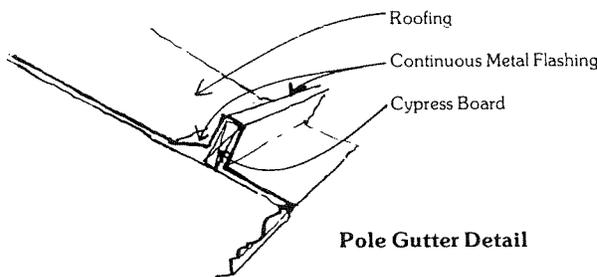
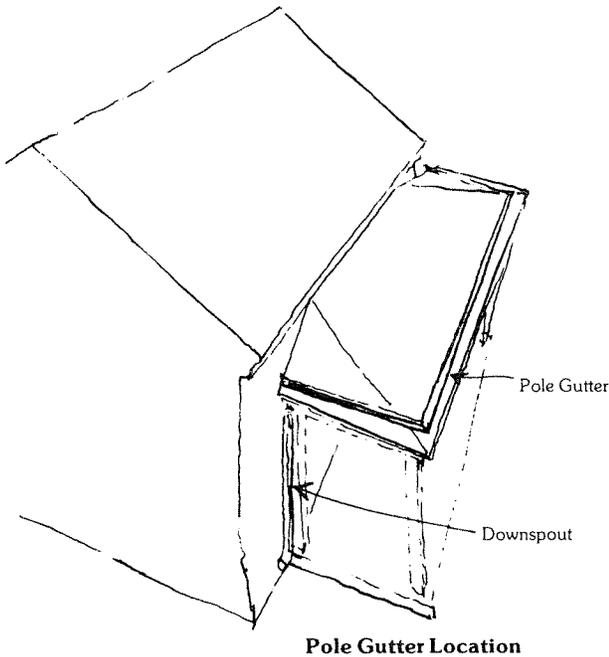
The preceding illustrates four basic principles to be kept in mind with respect to the flashing of historic buildings:

- 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.

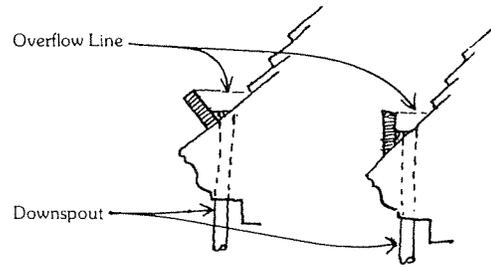
## Downspouts and Gutters

Many of the most striking buildings in the Historic District have had their fine architectural cornices needlessly obscured with contemporary metal gutters (see photo, page 107). 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.



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 (cypress is commonly used) 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



Pole Gutter Detail

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.

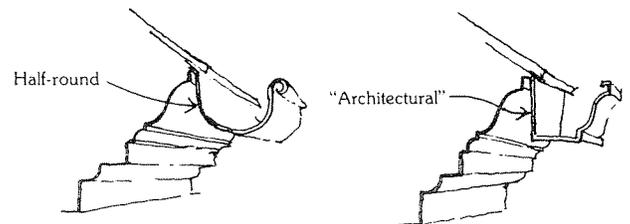
Because the pole gutter penetrates the roof at the downspout locations, it must be checked for blockage at least every six months, more often if there are many trees on the property. Failure of the system can cause serious and hidden damage to roofing and roof sheathing.

**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 ultimately weathers to a blue-green patina, 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

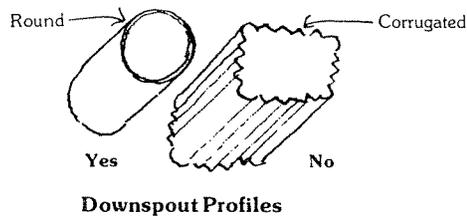


Metal Gutter Profiles

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.

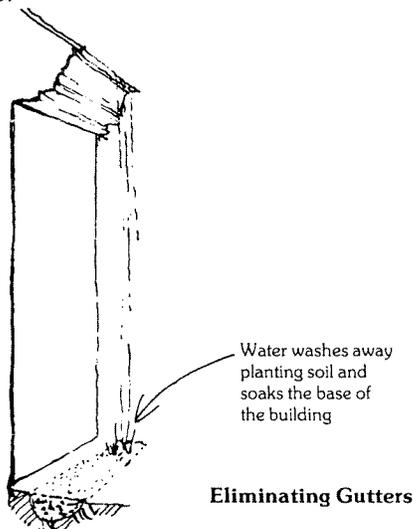
- “Architectural” gutters. These gutters have an outer face that is molded with a shape which mimics that of a simple wood cornice. In general, they are not recommended because they either falsify the genuine proportions of an existing cornice or create the illusion of a molded cornice where none would 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 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.



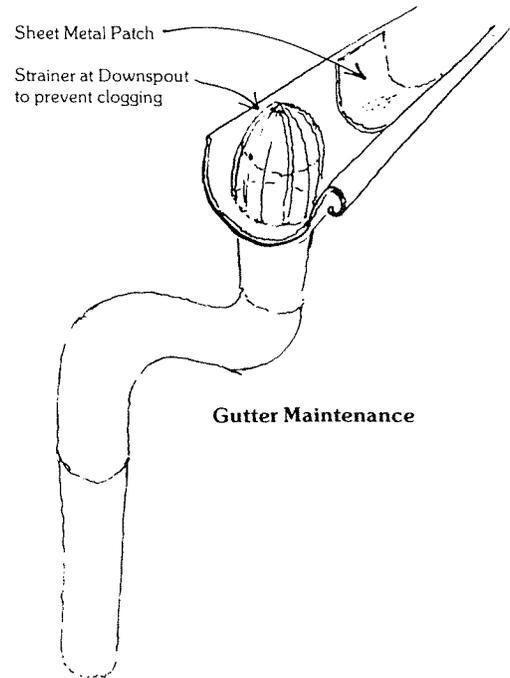
## Common Repairs

The temptation to eliminate gutters should be resisted. Without gutters, rain water washed away the planting soil along the foundation and soaks the face of the building, threatening mortar joints and foundations and contributing to the rising damp.



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

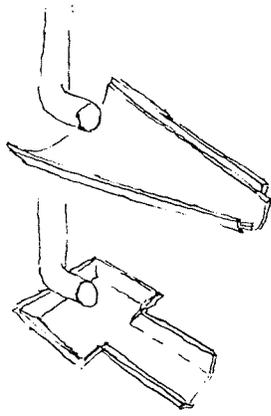


and must be periodically checked. Clogged elbow connections can be easily cleaned with a plumber's snake. Do not use chemical drain cleaners.

- **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.



- **Splash blocks.** Immediate dispersion of water away from the base of the building is the intended purpose of the entire downspout system. If the system discharges 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,



**Splash Blocks**

perforated hose which extends during a storm to divert water, and retracts automatically during dry weather.

# Chapter 12

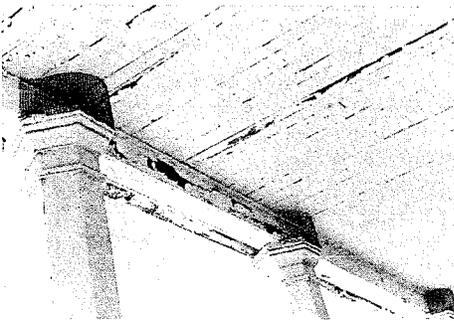
## Painting

### Introduction

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.

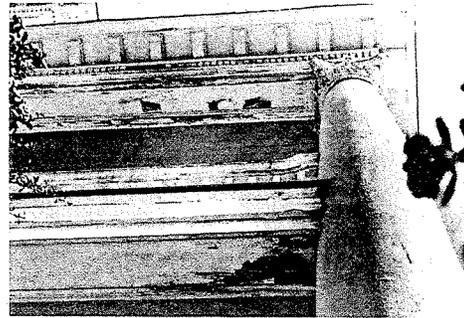


The upkeep and maintenance of exterior paint is one of the most important contributions that can be made to the protection and preservation of important historic material. Such upkeep is relatively simple and is well within the capabilities of the average do-it-yourselfer. The requirements are awareness 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.

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.

**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.

The use of power tools and sandblasting for paint removal

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.

**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.



- 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 backprimed 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; countersink 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.

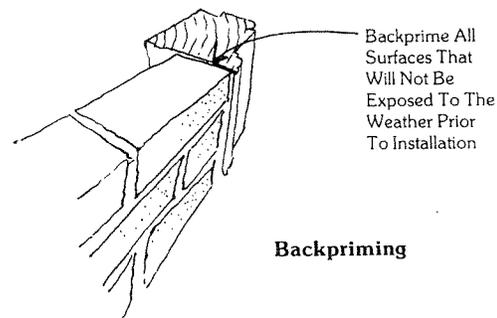
**Sash** - Repair all sash as described in "Doors, Windows, and Shutters."

**Exposed Iron and Steel** - paint all exposed iron and steel with a rust-inhibiting primer such as "Rust-oleum."

**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.

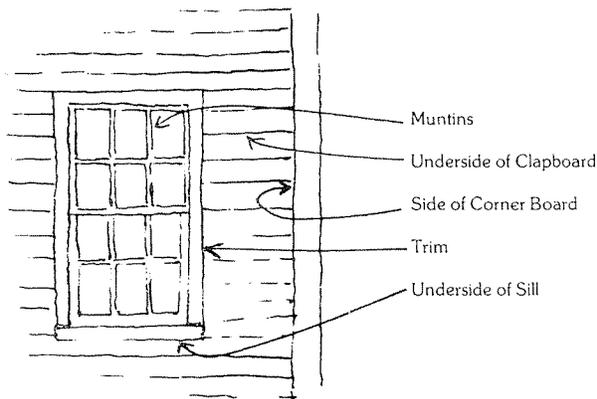
**Dryness** - Make sure all wood is dry. If there has been a recent rain, wait for several days prior to painting. All new woodwork should be painted as soon as possible after installation.

**Priming** - Prime and backprime 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.



## Color Selection

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



**Sources For Paint Sample Chips**

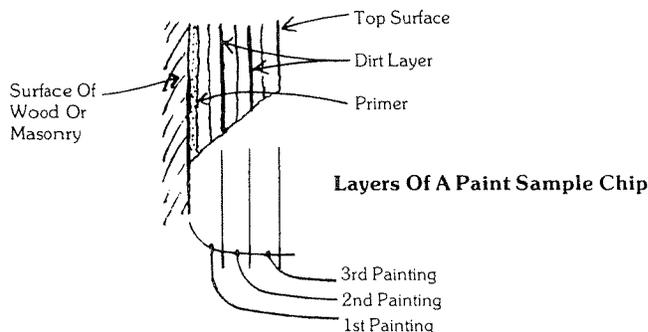
been applied to a particular surface over a period of time. Small chips of paint are removed down to the bare wood at various strategic spots on the building and analyzed to determine the sequence of colors. If the homeowner is collecting his own samples for analysis, the following factors will be of importance to the professional making the color evaluation:

- 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.
- Preferably, each sample should be at least 1/2" 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 of the reasonable number of samples that should be collected for any given 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.

The scraped sample will reveal several layers of color. Former exterior colors will be covered with a thin layer of dirt. Primers



**Layers Of A Paint Sample Chip**

occur immediately below finish colors with no intervening dirt layer. These colors, once exposed, can be carefully matched against samples from modern paint companies, or, for even greater accuracy, against such color systems as Munsell or Federal. (The Federal System is a standardization of color prepared by the U.S. Government which can be obtained for relatively little cost. It is available from the Standardization Division, Federal Supply Service, General Services Administration, Washington, D.C. 20406. The Munsell System is much more extensive with commensurate costs. It offers a series of coded color chips which can be matched by a good paint store. It is available from the Munsell Color Co., Inc., 2441 N. Calvert Street, Baltimore, Maryland 21218. Neither system is associated with any particular brand of paint.) The trained interpreter will be able to match the color, and will take into account these factors:

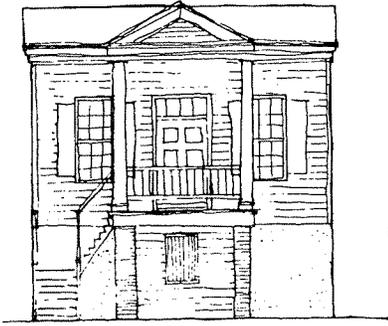
- Oil paint, the most common paint for exterior use until the early twentieth century, will yellow if not exposed to the air and thus provides clues to determining which layers are undercoats.
- With overexposure, oil paint bleaches so that the top layer of any given application will appear somewhat lighter than its original hue. Also, finishes such as shellacs and varnishes will have altered the original color.
- 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.

**Victorian Commercial** (1870-1920). Although colors can 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**



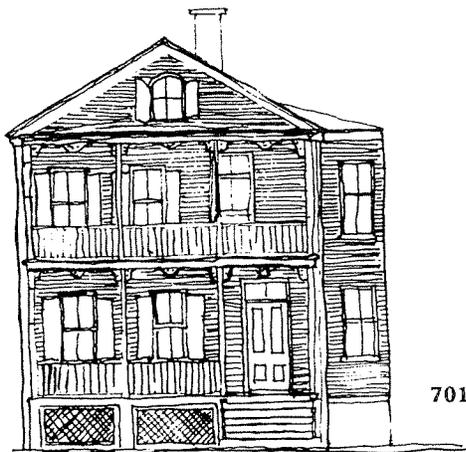
**Tidalholm**  
**1 Laurens St.**  
 (shown prior to Colonial  
 Revival period alterations)  
**Italianate**

**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.

**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



**701 Prince Street**  
**Queen Anne/  
 Eastlake**

## Paint Selection

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 has become very popular because of its ease of application and cleanup. Early latex paints had several drawbacks which limited their use on exterior surfaces. However, a great many strides have been made in the technology of latex paints, and many are reputed to possess the durability and watershedding 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 pentachlorophenol. 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.

- The linseed oil in oil-based paints impregnates the surface of wood, thereby sealing the wood itself against moisture which may pass through the coating. In addition, a level of "breathability" is established over a long period of time. These advantageous properties may be altered, if not omitted, in the use of some latex paints.
- 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. The application of latex over oil may result in a lack of adhesion unless existing paint is completely removed and/or the surface meticulously prepared.

(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 better.

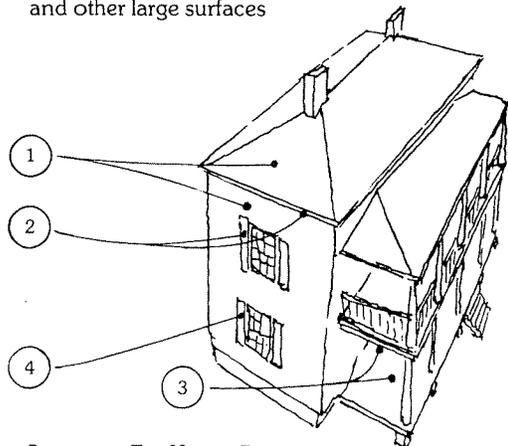
Oil-based paints are highly recommended for use on the exterior of historic wood structures. Their preservative qualities are well recognized, and both adherence and penetration are better assured than with latex. In addition, oil paints are very durable and may retain colorfastness for longer periods than some latex paints. Finally, oil paints are the preferred finish coat over pentachlorophenol wood preservative and primer (see "Wood").

Newly painted wood surfaces should always receive a prime coat and two coats of oil paint. Finish sealers can be applied according to the recommendations of the oil paint manufacturer.

## 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.

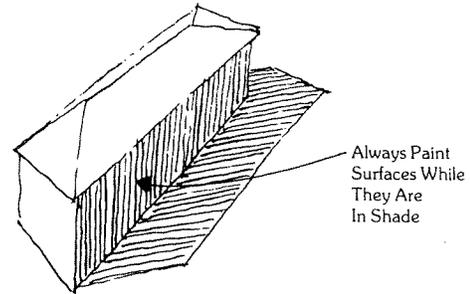
- Always work from the top down. The following suggests an effective order of work:
  - 1st - the main part of the house, including siding, roofing, and other large surfaces



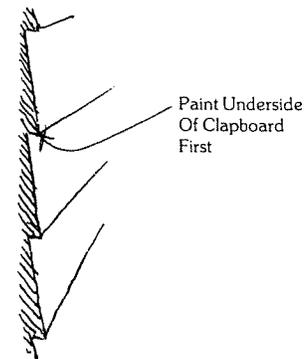
Sequence For House Painting

- 2nd - trim -- cornices, cornerboards, 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.

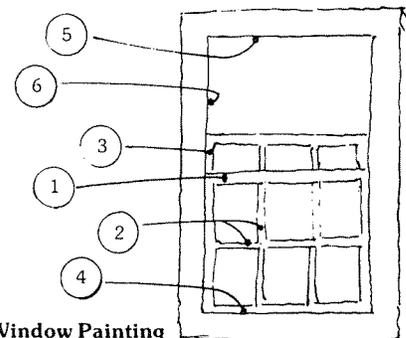
- Always work in the shade. When paint is applied in strong sunlight, the oils are drawn to the surface by the heat of the sun. This affects the bond, potentially blistering the paint.



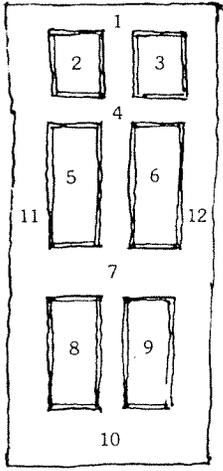
- Always prime and caulk properly and thoroughly. New wood can be primed according to the recommendations of the paint manufacturer. Old wood must be primed where the paint has been badly weathered or where oil-based paint is to be used. If latex is to be the finish coat, only bare spots need be primed. 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, cornerboards, 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



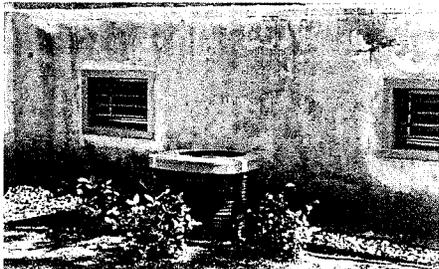
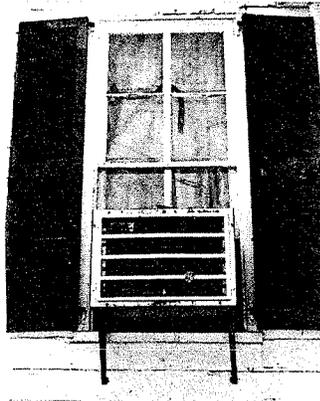
**Sequence Of Door Painting**

# Chapter 13

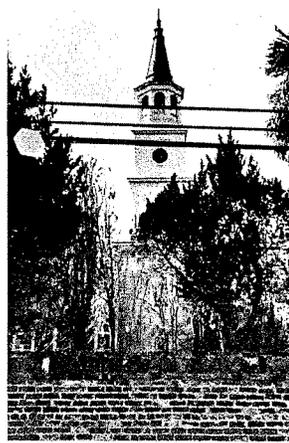
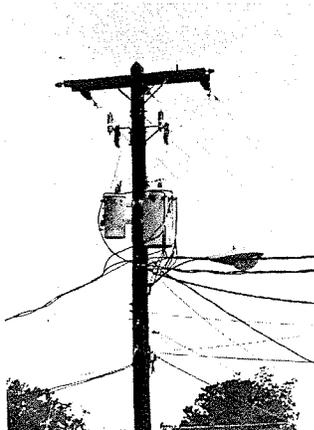
## Energy Conservation

### Introduction

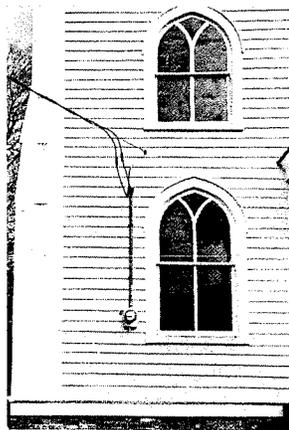
A well-maintained pre-1940's house may well be a far more energy efficient structure than many of the residences under construction today. In fact, what has been called the "Beaufort style" is a residential design type that is in many ways a direct response to the specific climatic conditions of the local environment.



Features of this adaptation are numerous. There are, for example, the deep porch structures facing south, and in some cases east and west as well, which shade the interior of the house from the harshest rays of the summer sun. There are the high ceilings which allow heat to rise above the level of the inhabitants while accommodating spacious windows that



capture the prevailing breeze and the low winter sun. There is the magnificent profusion of shade trees which block the rays of the sun from entering the house, especially on the south and west sides. (Note the live oak at the south side of the "Castle" for a vivid example of this usage). There is the typical raising of the first floor which increases the accessibility of the living spaces to cooling breezes and accelerates heat transfer through the floor. There is the dominant light-toned color scheme which reflects rather than absorbs heat.



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 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" or 411 King Street which have cupolas, should keep the cupola windows open in the summer to allow the escape of warm air.
- 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 or window fans can often be as effective while consuming considerably less energy. Attic and window 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

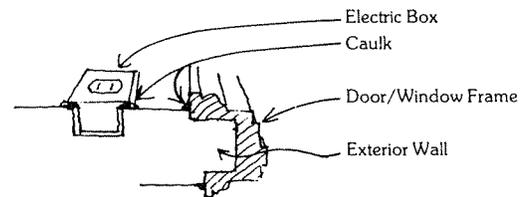
**Increase its Energy Efficiency** - In addition to the above, there are certain devices that can be employed to increase a structure's efficiency. These modifications, which have varying degrees of physical impact, must be very carefully considered in the historic house. Remember that some degree of 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:

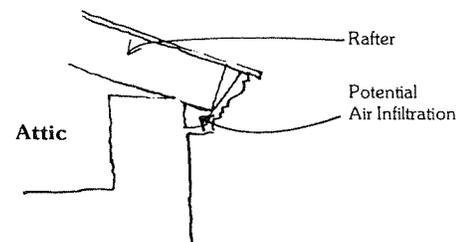
- **Air infiltration.** Cracks at windows, doors and construction joints admit a continuous and significant quantity of cold or hot air which adds a considerable burden to a cooling or heating system. Simple maintenance procedures such as the following are very cost effective.
- Caulk all construction 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**

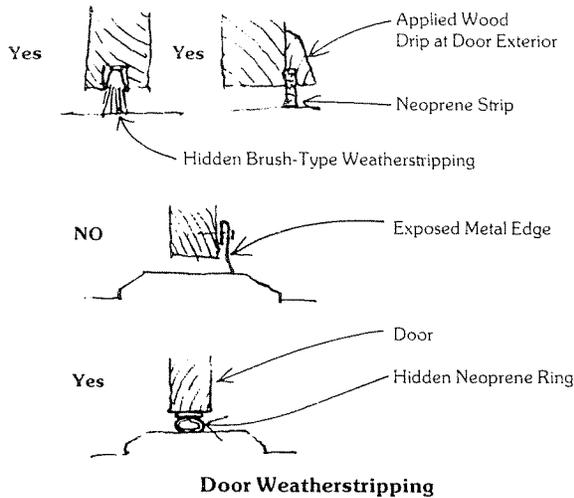
Most Beaufort houses have a crawl space or unheated basement which makes the floor itself a location for potential air leaks. All gaps in first floor flooring can be packed from the underside with felt strips. Keep all basement windows open during the cooling season to improve air circulation.

Investigate the weathertightness 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.



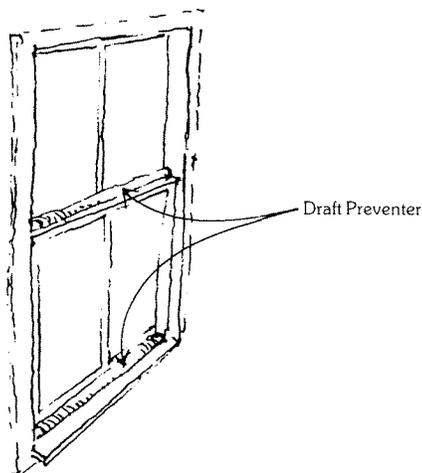
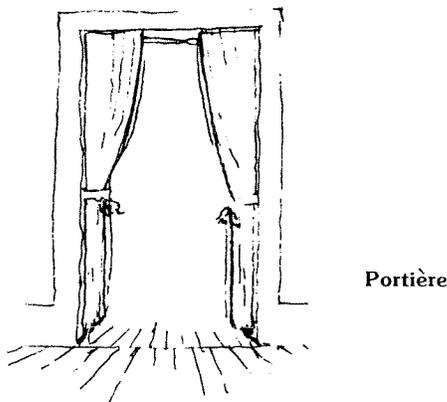
- **Weatherstripping.** Mechanically sealing the numerous cracks between windows and frames or doors and frames with strips of foam rubber, felt, vinyl, or metal greatly diminishes the amount of air which can enter the house. (If metal weatherstripping is used, it should be primed and painted so that 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.



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:

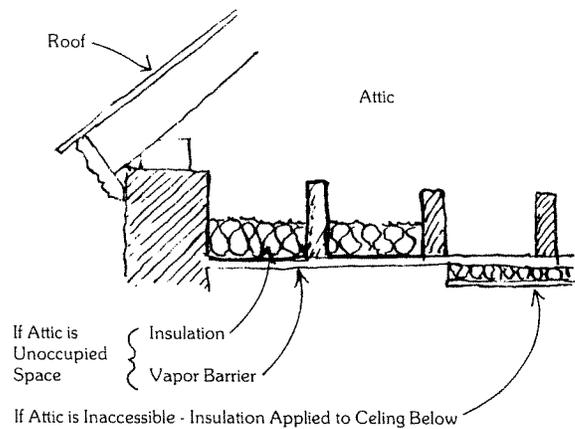
- the portière. This was a heavy velvet drape hung during the winter in the doorways of rooms to keep the heat generated by the fire place from escaping to uninhabited rooms.



- 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.



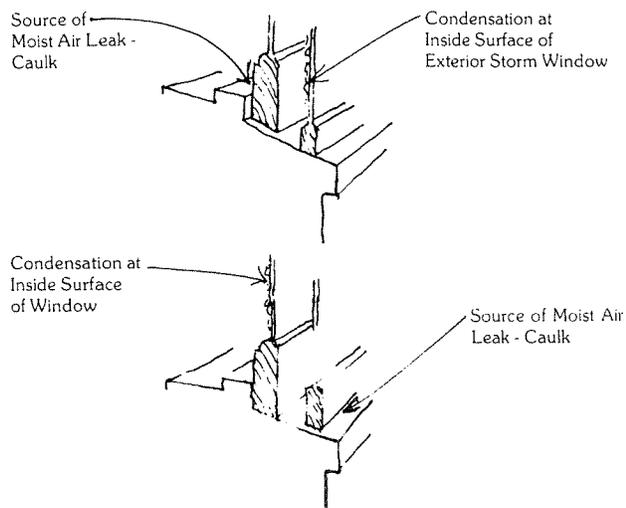
The principal types of insulation available are fiberglass or mineral wool blankets, blown-in cellulose treated with boric acid, vermiculite, and blown-in fiberglass. Each type has merits relating to specific situations. If in doubt about which type to use, it is best to consult a mechanical engineer 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 "homosote" which is available in several finishes and 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

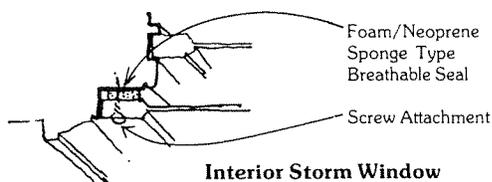
primed and painted to match the rest of the window trim. Do not install raw aluminum storm windows.

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. Interior storms can be easily made with a sheet of 1/8" glass or plexiglas conforming to the size of the inside sash opening. A strip of foam or neoprene weatherstripping tape is applied around the perimeter of the glass sheet. (Felt tape should not be used in this circumstance because it is not "breathable.") The sheet can be held in place with temporary fasteners in pre-drilled holes or attached through a wood frame with screws.



**Interior Storm Window**

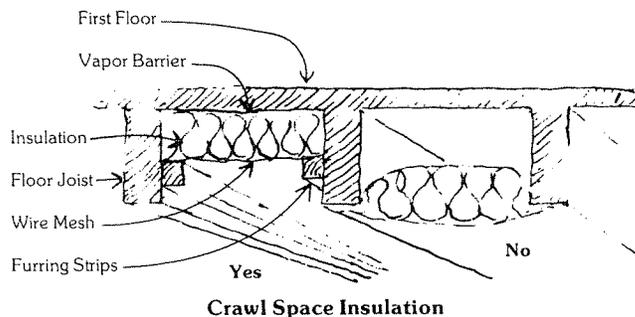
Exterior wood storm windows which are effective and visually satisfying are available. However, they may be more expensive than other alternatives and they require annual maintenance.

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 duplicated 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**

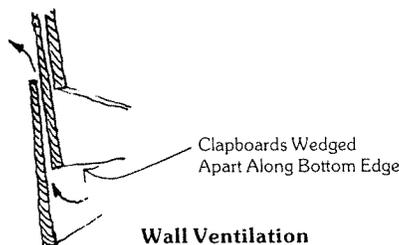
- **Awnings, shading devices, and shutters.** These devices and techniques are important means for reducing the cooling load in the summertime. Each has traditional precedent and blends in comfortably with the historic architecture of Beaufort.
  - Deciduous shade trees. If these do not already exist, 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 -

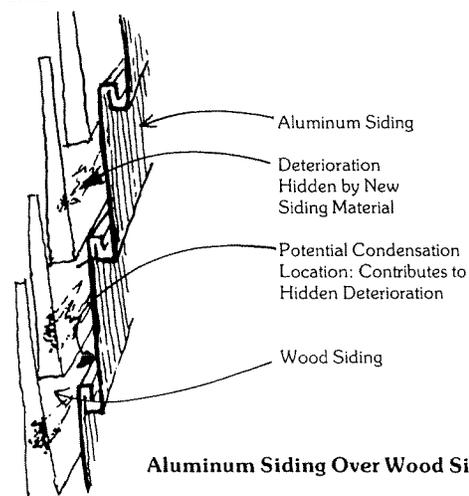
- **Modern doors and storm doors.** The typical paneled wood door on the historic house is, if properly weatherstripped, an effective weather seal. A storm door in Beaufort's climate is unnecessary and is a major visual intrusion throughout the District, obscuring important features.
- **Vestibules.** 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 "breathability" 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 northern climates the barrier always faces in, although in southern locations it is often placed facing out. For insurance against serious damage, vapor barriers in both directions are sometimes recommended. 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.



- With blown-in 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.

- **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 a 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.

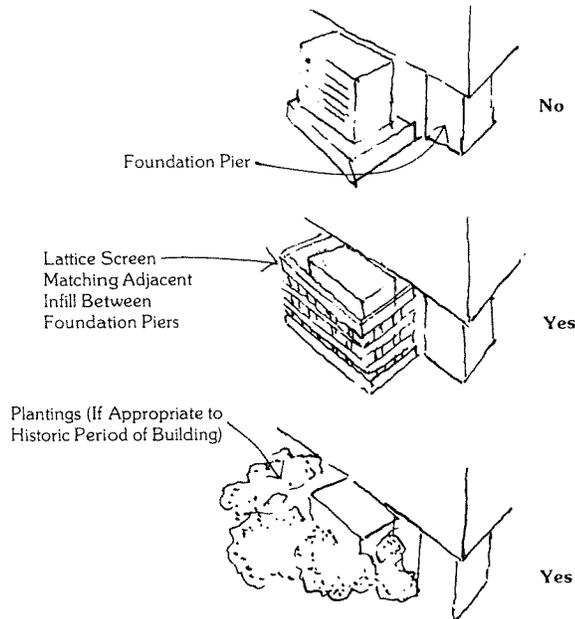


- **Waterproof masonry coatings.** These products are frequently purported to have substantial insulation value when, in fact, they have a minimal insulating effect. Moreover, they can cause serious damage to the walls on which they are placed (see "Brick").

# Visual Aspects of Mechanical Equipment

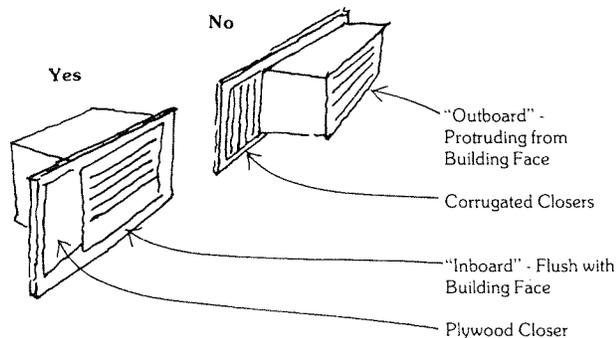
Although mechanical intrusions such as TV antennas, electric meters, air-conditioning equipment, and overhead wiring are so commonplace as to be overlooked, they actually detract seriously from the character and charm of the Historic District. No one would suggest eliminating the conveniences this equipment serves, but the visual and historic integrity of the District could be much enhanced through more sympathetic placement and selection. For example:

- Air-conditioning equipment. Centrally-cooled houses have fairly large and conspicuous equipment which is usually placed at the foundation wall. Such equipment should be screened with plantings or latticework which matches the infill between the foundation piers. 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").



## Obscuring Exterior Air-Conditioning Equipment

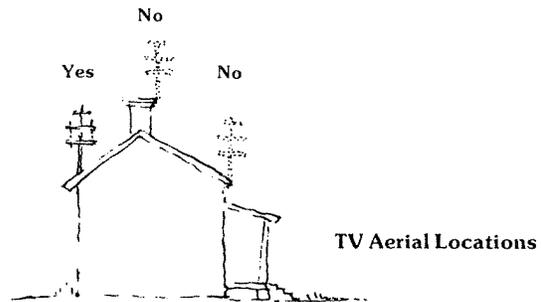
It is also possible, with a little care, to minimize the visual impact of window air-conditioning units. First, in the historic house they can and should be placed "inboard" so that they do not protrude from the face of the house. Few homeowners in Beaufort have taken advantage of this



## Mounting Window Air-Conditioning Units

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.

- TV antennas. Many lovely houses throughout the District compromise their silhouette by putting an antenna or group of antennas 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 should be placed where it will be dominant or even



visible 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.

# Site Improvements

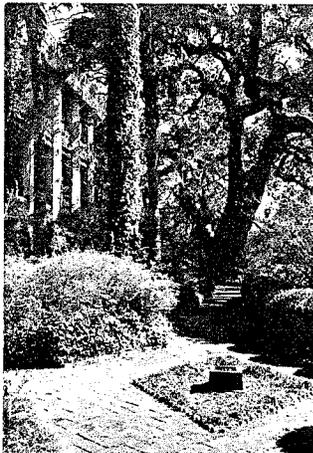


# Chapter 14

## Landscaping and Site Amenities

### Introduction

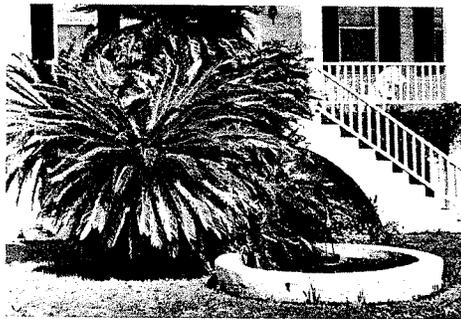
The plant material of Beaufort has a lush vitality which lends a dense and overgrown appearance to the City. While this informal and profuse approach to residential landscape differs from the sparse and tailored look of period design, it is no less appropriate to the character of the town. Indeed, it contributes greatly to the architecture and streetscape, with few residences suffering from the lack of formality. These plantings, whether they follow period or current trends, deserve careful maintenance.



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.



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



the demands of the architectural materials and construction they adjoin.



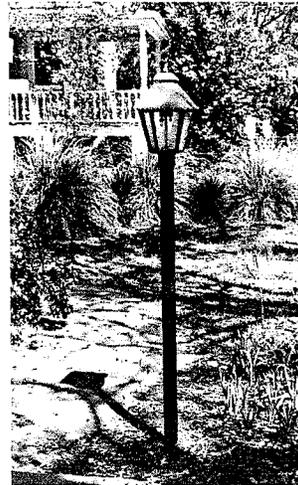
The following discussion of landscaping has two aims: recommendations for repair, maintenance, and selection of plant species appropriate for contemporary landscape design in Beaufort, and a brief overview of historical trends in American landscape design. While it is not the intent of this overview 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.



The image of each house in the Historic District of Beaufort is intimately tied to the treatment of its immediate surroundings. Nearly all of Beaufort’s houses 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 streetscapes. Aside from the maintenance requirements for fences, it is also important to determine the appropriateness of a given boundary for a given property.

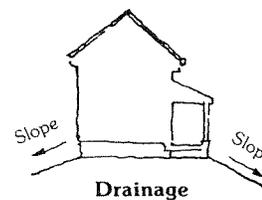


Another important site element is the paving used within or along the perimeter of a property, particularly walks leading from the street to the building entrance. There are many otherwise lovely front yards and gardens in Beaufort that are cut by overscaled concrete walks. If the paving functions as the “carpet” to the door, it should be as graceful as the rest of the yard.

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

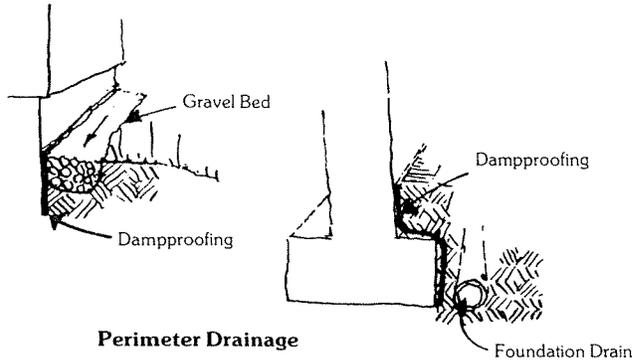
**Drainage.** Landscape design should be conducive to both absorption and dispersal of water. Any evidence of “ponding” after a heavy rainfall indicates a drainage problem, the cause of which is most likely to be inadequate slopes (or “grades”). It is essential for the safety of a building that no water 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

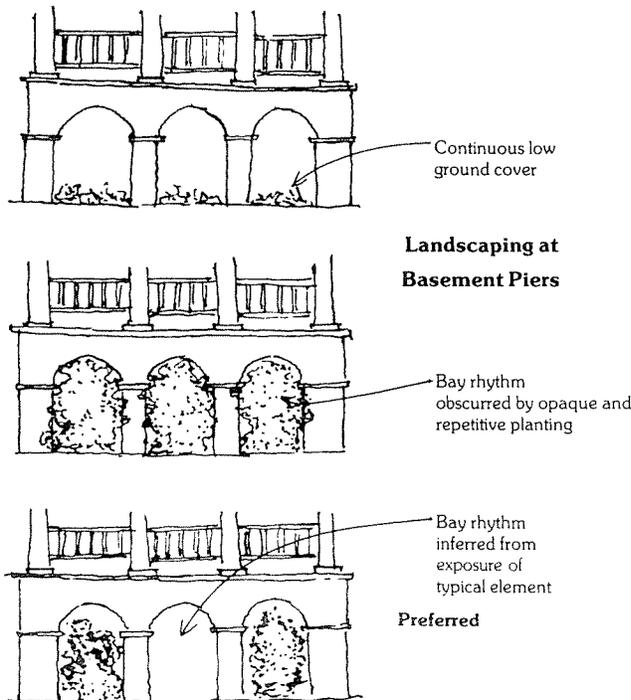
water. Several methods, similar to those used to combat rising damp, are available.

- 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).



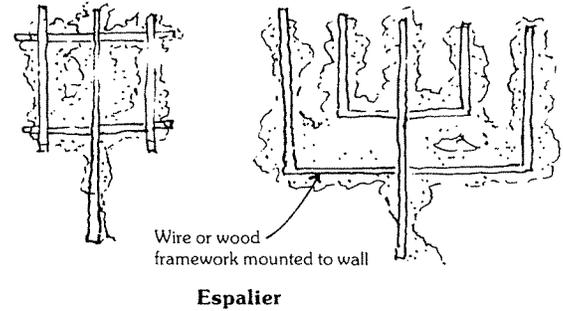
- New construction should always include a foundation drain which removes water near the bottom of the footing. Such drains should also terminate at a dry well or storm sewer.
- In all cases where water is not being effectively carried away from the perimeter walls, dampproofing should be installed as 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 415 and 500 Washington Street.

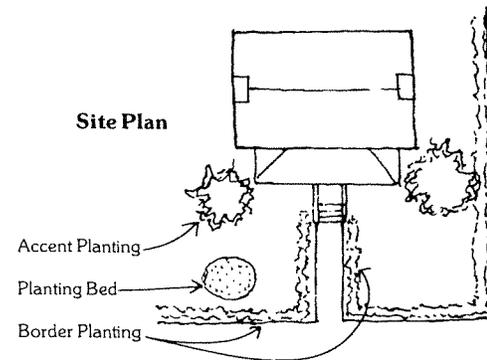
In addition, landscaping should not destroy architectural fabric. The charming ground cover and vines that trail along and through masonry walls throughout the Historic District pose serious threats that should be investigated and then eliminated if required (see “Brick” and “Tabby”). The fragrant vine crawling up the side of a porch can encircle a balustrade causing irreparable damage in only one season.



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 flanking the stairs at 311 East 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 sun
- Japanese cherry sun/partial sun
- weeping cherry sun/partial sun
- scarlet firethorn sun
- formosa firethorn sun/partial sun
- doublefile viburnum sun/partial sun

**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 magolia 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/partial shade
- pecan sun/partial shade
- beech sun
- sweet gum sun/partial shade
- water oak sun/partial shade

## Historic Landscape Design

• **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
- bachelor’s button
- chrysanthemum
- crocus
- delphinium
- forget-me-not
- geranium
- heliotrope
- iris
- jonquil
- larkspur
- lily-of-the-valley
- marigold
- morning glory
- narcissus
- peony
- poppy
- snapdragon
- sunflower
- tulip
- zinnia

### Trees, shrubs, vines:

- American holly
- catalpa
- English ivy
- flowering quince
- ginko
- hawthorn
- horse chestnut
- mulberry
- trumpet vine
- tulip poplar
- weeping willow
- witchhazel

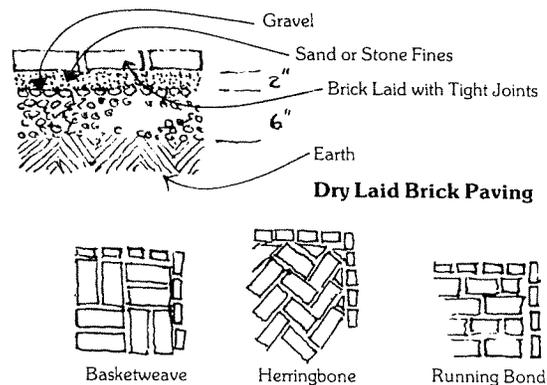
### Herbs:

- anise
- basil
- camomile
- caraway
- catnip
- chive
- dill
- garlic
- marjoram
- parsley
- peppermint
- rosemary
- sage
- tarragon
- thyme

In summary, consider these “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



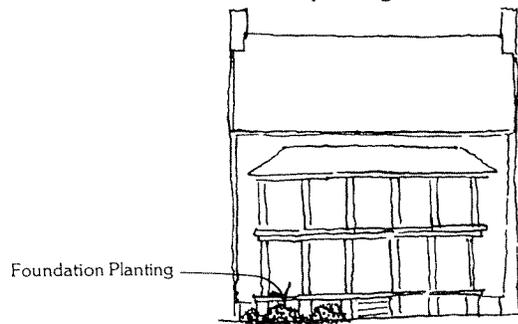
Brick Paving Patterns

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.

- 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.

#### Don'ts:

- 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.

## 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.

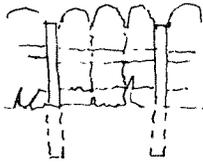
**Concrete Masonry Walls** - Concrete block is a modern device that is completely inappropriate as a fencing material in the District and its use should be prohibited. Existing concrete walls should be stuccoed and painted, while "decorative" masonry screens should be painted black-green and planted out.

**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 604 Pinckney or 412 East. 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.")

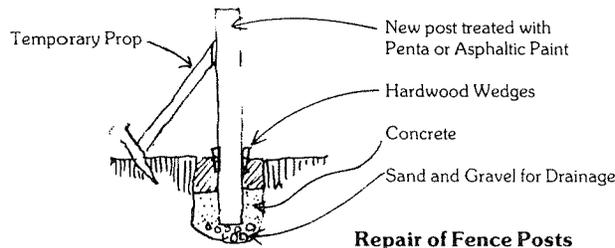
**Chain Link Fencing** - Despite its explicit association with exclusion and confinement, and despite its harsh appearance, this visually destructive material can be found in use throughout the entire District. However, it can be effectively and, indeed, handsomely masked with full ivy plantings. A rich 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.

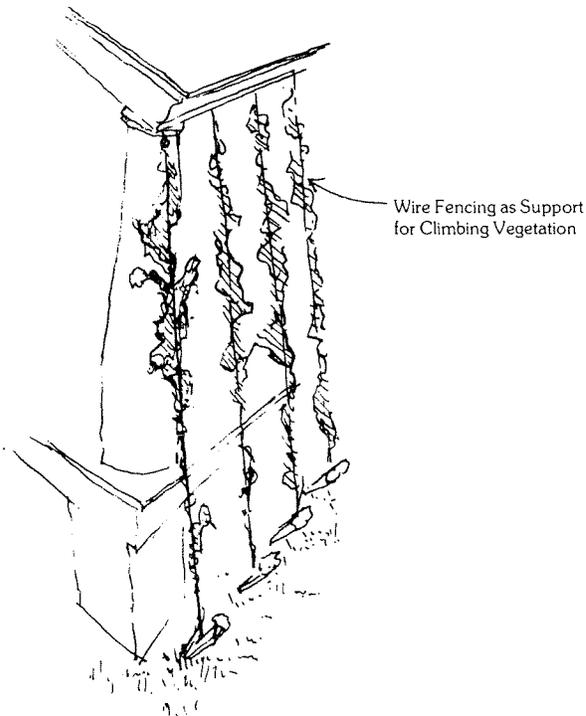


Wire Fencing

- 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.

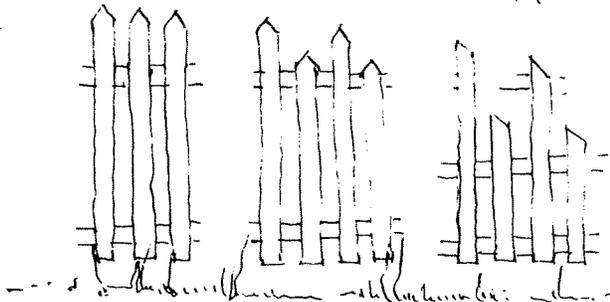
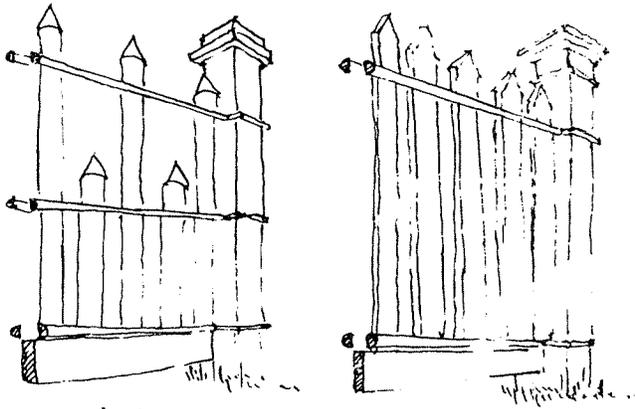
- **Rust.** The most common cast iron problem is excessive rusting which has the unfortunate effect of obscuring detail and threatening the stability of the fence itself. Paint is the best rust preventer, but it cannot be applied until all rust is removed. Various tools and products accomplish this quite 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 re-painting. Either commercial paint removers or a torch are acceptable.
- **Repainting.** Cast iron should be thoroughly primed with a dark gray, rust-inhibiting paint such as "Rulon" or "Rust-oleum." 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.

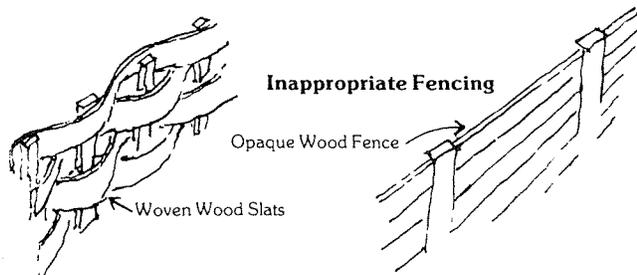
The original fabricator's trademark can often be found imprinted on the base of the cast iron. In some cases, these companies are still in operation and have access to the patterns you may be trying to repair or replace. In addition, there are several companies who specialize in old cast iron and who 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.



Appropriate Wood Fencing Types



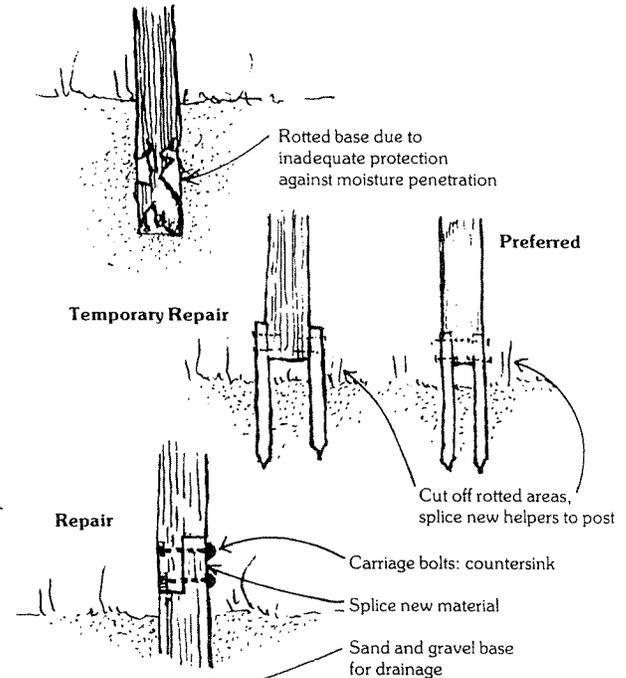
Inappropriate Fencing

Woven Wood Slats

Typical wood fence repair and maintenance problems are discussed below.

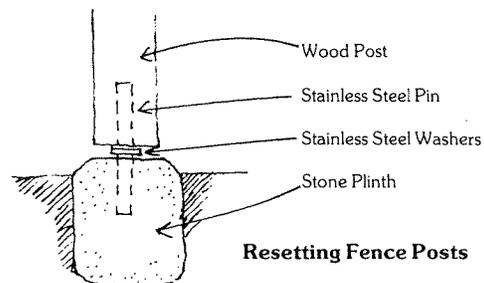
- **Rotted fence posts.** If a fence post is so deteriorated as to be unsalvageable, total replacement may be required. In such a case, match the post and re-install according to the process previously discussed in this section under "Wire Fencing." However, if the fencing is an important historic feature, an effort should be made to splice good existing material to new material. The process is as follows:

- Prop up adjacent picket rails.



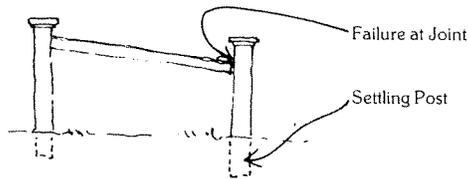
Rotted Fence Posts

- 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.



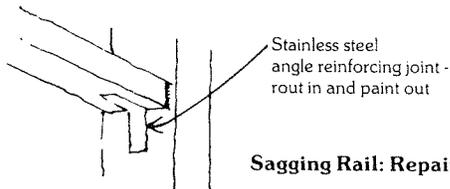
Resetting Fence Posts

- **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.



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.

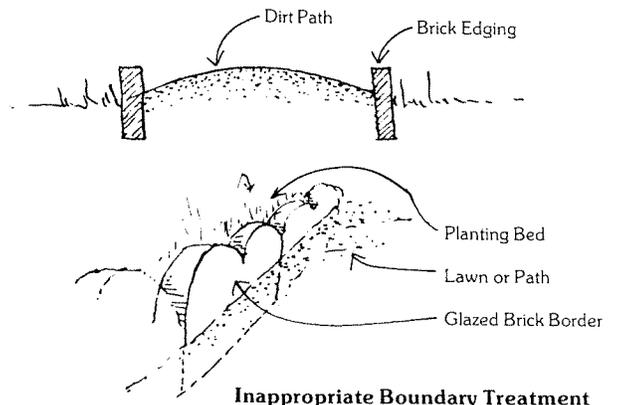
## Paving and Bordering

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



Brick Paving Patterns

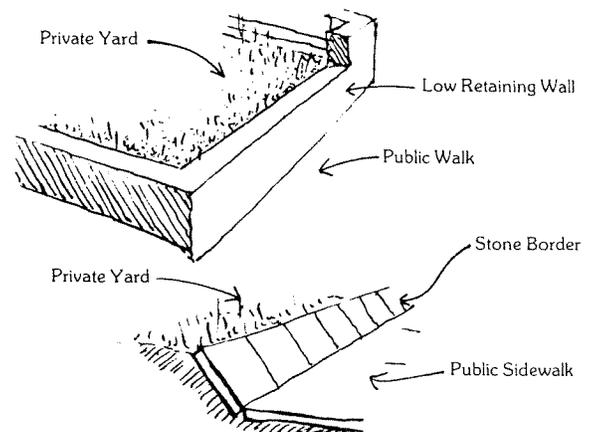
edge brick ("soldier" or "rowlock" courses) provide graceful alternatives with increased stability. In fact, even a dirt or gravel path can be dignified by the simple addition of a raised brick edging.



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.)

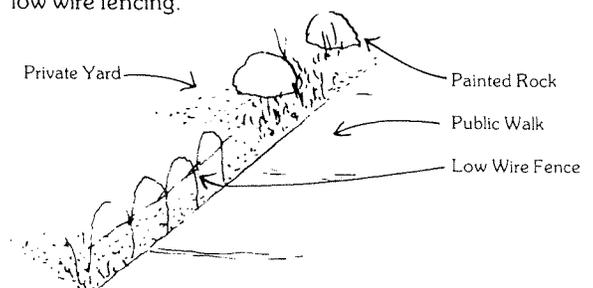
A typical late nineteenth and early twentieth century landscaping device was the slight elevation of the front yard above the public walk which flanked the property. One acceptable border for this condition is the low stuccoed brick retaining wall (for repairs to this wall, see "Brick" and "Stucco"). Less common, but more graceful, is the canted course of stone seen at 901 Craven.



Boundary Treatment

Do not use the following bordering materials in the Historic District:

- concrete block
- painted rocks
- low wire fencing.



Inappropriate Boundary Treatment

## 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.

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.

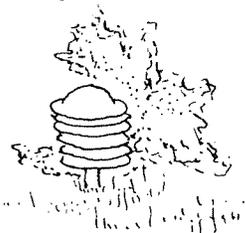
If major elements, such as a period fountain, are to be used as focal points for a garden, they should be carefully incorporated into an overall design scheme. Only one such focal point should exist if the landscape plan is to be cohesive. These yard furnishings must be carefully scaled so as not to 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



**Unobtrusive Modern Yard Lighting**

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.

# Chapter 15

## Public Streetscape Improvements

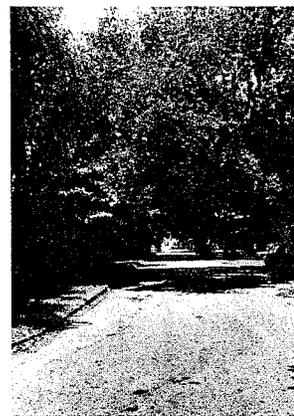
### Introduction

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.



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.

- An ethereal quality is expressed in the intricate patterns of sunlight and shade which adorn both the buildings and streets. It is this quality, when combined with most laden oaks and an understory of rich vegetation, that creates an entire mood in the district and evokes an image of life from the past. This setting epitomizes the romantic qualities of a bygone era, an invaluable quality in communicating both authenticity and the illusion of timelessness that stimulates the imagination.



- 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. A replanting program should be established along these streets, with the resultant tree foliage minimizing the visual impact of utility lines. It would be still more desirable to plan and implement a multiphased, long-range program of underground utility relocation. 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.

## 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 proliferation 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





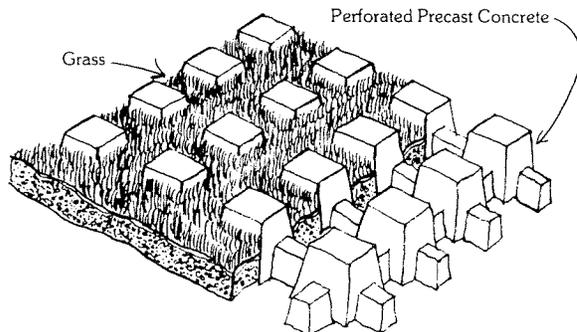
basically modern elements for which more sympathetic options exist. Dry-laid brick or stone walks; oyster shell, tanbark chip, or pea gravel drives; granite or wood curbing; and slurry grit (epoxy based, matte finished, pea gravel) cartways offer more historically compatible paving materials.



The development of new walkways should be avoided 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, precast 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 remodelling of buildings, and the latter through demolition and non-conforming new construction.



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

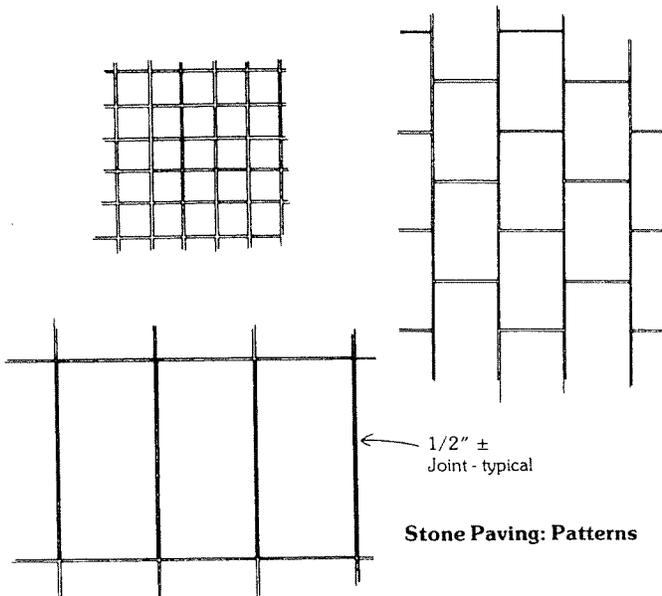


and walkways make up the floor of this space, and consequently are major visual elements. Any effort to recapture the historical appearance of the streetscape must take the paved areas into consideration because these surfaces can potentially unite the stylistically diverse facades into an harmonious setting with a unique identity and sense of place.

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 imbedded 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.

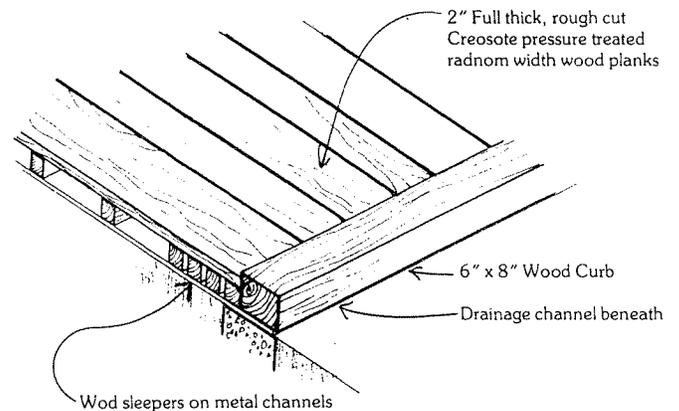
- Utilize natural, period materials such as wood, stone, and brick for walkway surfaces. Slate, flagstone, bluestone, and sandstone are all appropriate, durable materials if properly selected and installed. The size and pattern of stone is



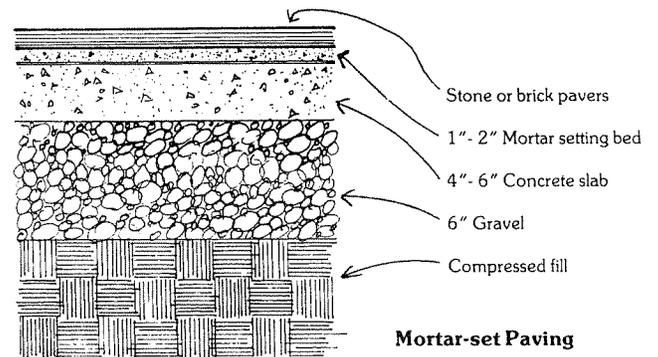
important in creating a period affect although a number of physical characteristics should also be taken into consideration from a functional standpoint. Stones, bricks, or other materials used in a pedestrian area should have a minimum compressive strength of 5000 PSI, and preferably 8000 PSI. Such 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.

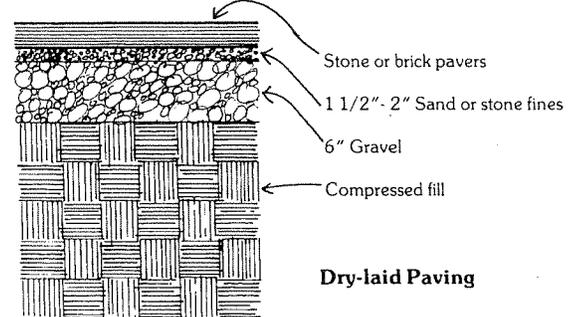
The abrasive level of brick pavers can be increased through the use of wire cut brick. Wood walks can also be utilized if rough sawn for texture, and either amply treated with a wood preservative such as pentachlorophenol or pressure treated. Both stone and brick should be evaluated for resistance to 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.



**Wood Sidewalk: Detail**

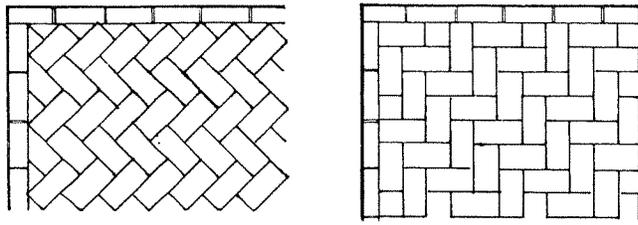


**Mortar-set Paving**



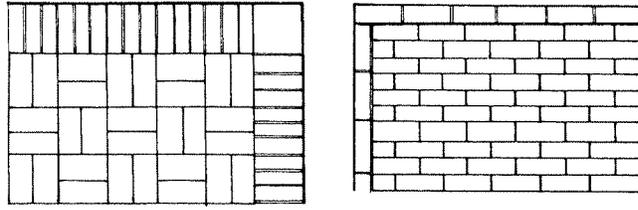
**Dry-laid Paving**

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



Herringbone

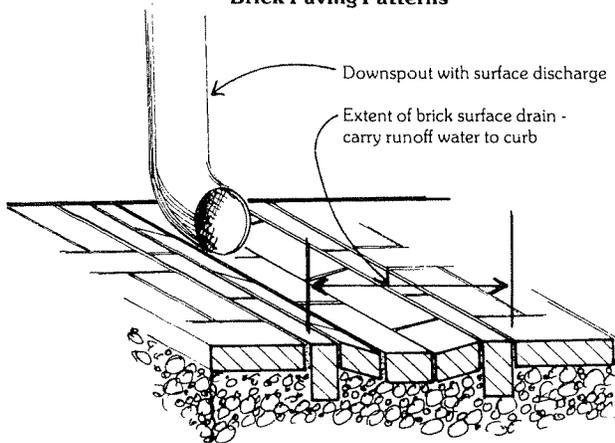
Modified Herringbone



Basketweave

Running Bond (Bricks on Edge)

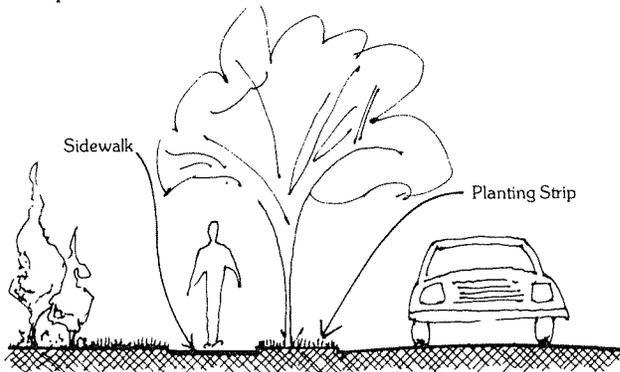
**Brick Paving Patterns**



**Brick Surface Drain**

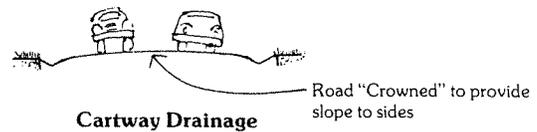
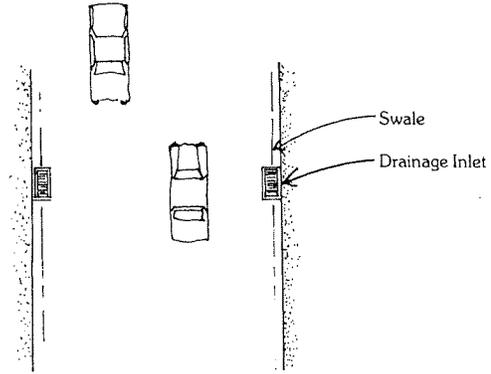
inaccurate, allows for flexibility in patterns and economy of setting.

- 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. 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.



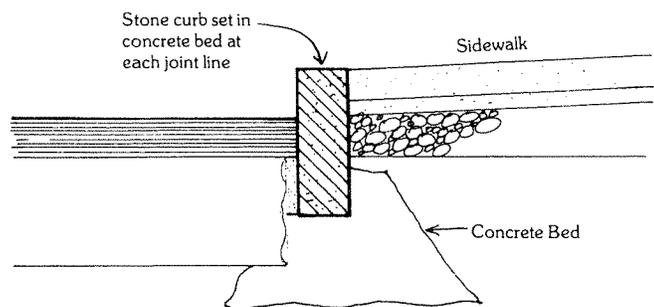
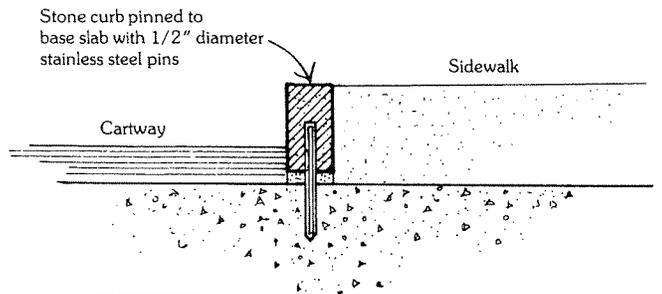
**Sidewalks: Residential Street**

- 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.



**Cartway Drainage**

Vertical curbing exists along most commercial streets and is a necessity. However, like concrete walks, concrete curbing does little to enhance the streetscape. Split face granite curbing is a more compatible material and is more durable than concrete. 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.

## Community Streetscapes: Configurations

Perhaps the most critical element of commercial revitalization, that which sets the parameters and tone for the overall development, is the configuration of the public improvements plan. The physical layout for walks, parking, crosswalks, and intersections dictates traffic capacities, turning movements, pedestrian movements, accommodation of plantings and street furniture, as well as the scale and character of the streetscape. Any proposed plan should be firmly based on established need for parking facilities, projected vehicular loads and movements, and a coordinated CBD traffic circulation plan. It must also respond to the needs for accessibility, loading, and delivery requirements of individual retailers, and anticipated street-related activities.

It is exceedingly rare that small and mid-sized communities



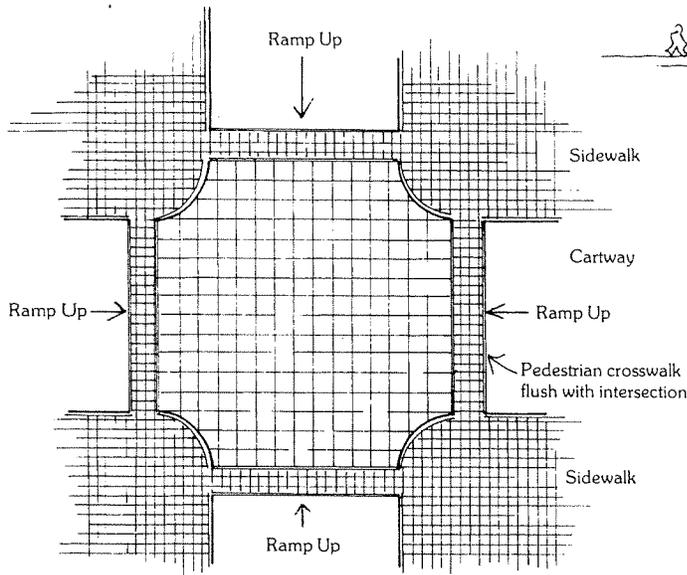
actually need fully pedestrian “malls.” Indeed, the elimination of vehicular traffic from a commercial core often imposes serious parking, access, and circulation problems in the course of attempting to provide the attributes of suburban shopping malls. Our older downtown areas do not possess the characteristics of shopping malls and cannot compete with them in these terms. Rather, a commercial area such as downtown Beaufort can offer a unique shopping environment, specialty and service-oriented merchandise, and a degree of activities and community interaction not found in the malls.

The overriding principle in achieving this form of retail center is an understanding and respect for the historic nature of the commercial street. A broad variety of architectural styles, businesses, and types of public activity are inherent to the downtown and contribute heavily to its uniqueness and long-term success. Likewise, direct accessibility has been a constant factor in forming shopping habits. The commercial area consists of “streets” in the truest sense of the word; they were built to a scale and configuration intended to accommodate both pedestrians and “vehicular” modes of transportation, combined with direct accessibility to individual merchants. While pedestrian malls have become a trend, the necessity for precluding vehicular traffic is highly questionable in many cases. Furthermore, this exclusion may well inhibit the qualities which have historically attracted residents to a downtown shopping area. Equally critical is the effect that pedestrian malls have on altering the scale and character of a commercial street. Unless extreme restraint is taken in the design, the desire to “fill” the void which was once a cartway with “amenities” often results in a cluttered, artificial stage setting which has little function. Such malls often appear empty in terms of people since such a vast degree of pedestrian space is unwarranted by the number of potential shoppers and residents.

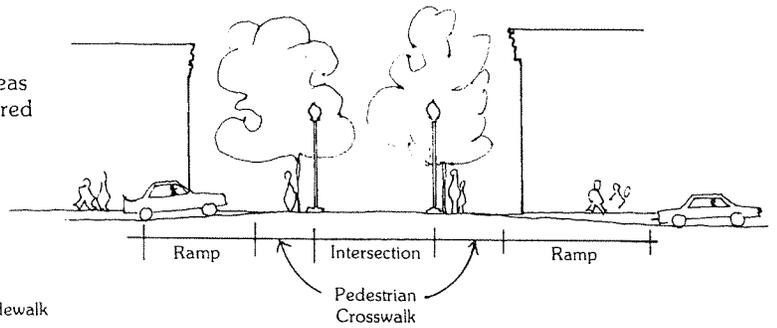
Both pedestrian and vehicular use can often be maintained in harmony without the closing off of entire streets. What is often referred to alternately as “streetscape improvements” or “semi-mall” can achieve a desired human scale, increase the space for activities and pedestrian use, and minimize the impact of the automobile. Many of the following techniques can be utilized to achieve these ends:

- Paving of intersections and crosswalks in brick or other materials which reflect pedestrian use can reduce the expanse of cartway and impart a feeling of pedestrian activity and dominance over the automobile.
- In some instances intersections may be raised flush with the sidewalks. The use of approach ramps in cobbled materials will further define the intersection as a pedestrian area and help restrict traffic speeds. Raised intersections also eliminate the need for handicap ramps.
- In addition, parking laybys can be paved in patterned concrete, cobbles, etc., to create a definition of use and

minimize the extent of asphalt roadway. In general, pedestrian areas should be paved in smooth materials, whereas parking laybys, ramps, and other vehicular areas can be suitably surfaced in cobbles or other rough textured materials which inhibit extensive pedestrian use.



**Flush Intersection: Plan**

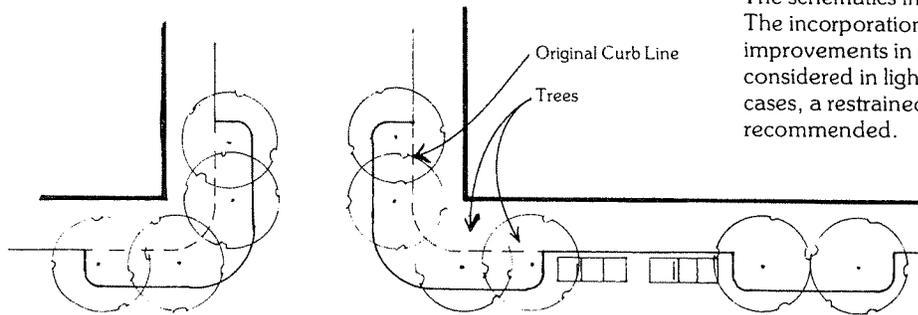


**Flush Intersection: Section**

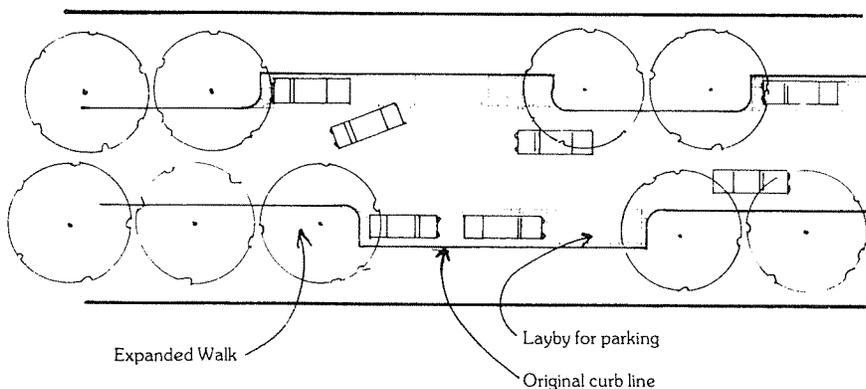
- Expanded pedestrian space (which can serve as seating or planting areas, space for sidewalk sales, vendors, or other activities) can be created by increasing the walkway widths where on-street parking is not essential. An eight-foot increase in sidewalk width provides usable pedestrian space without reducing the cartway width. Such sidewalk expansion is particularly appropriate at intersections, reducing by sixteen feet the effective distance that a pedestrian must traverse in crossing the cartway.

Intersections, curb cuts, planting areas, and sidewalk drainage may also be handled in a variety of ways, such as those illustrated.

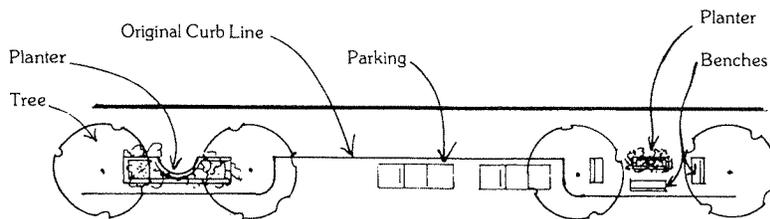
- The schematics involve major walk and cartway elements. The incorporation of these or other solutions to public improvements in the commercial sector should be considered in light of the impact of the total design but, in all cases, a restrained, low key approach is strongly recommended.



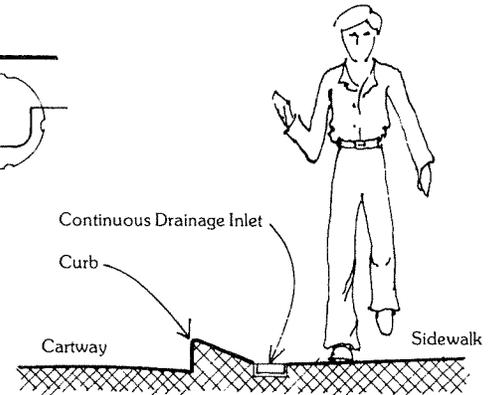
**Expanded Sidewalk Area: Corner Treatment**



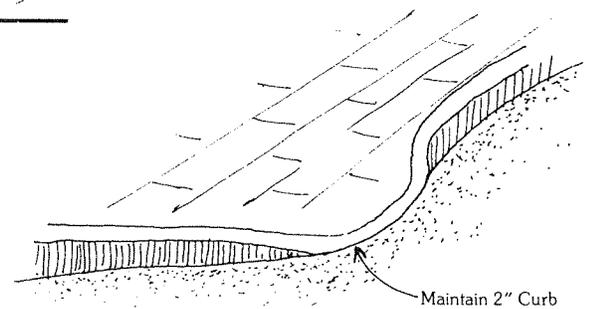
**Expanded Sidewalk Area**



**Seating Plans at Expanded Sidewalk Area**



**Sidewalk Drainage**



**Handicapped Ramp at Curb Line**

# Plantings

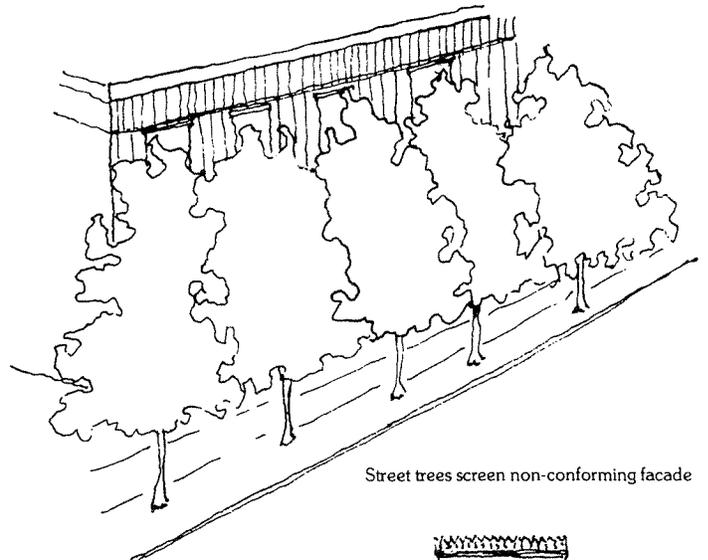
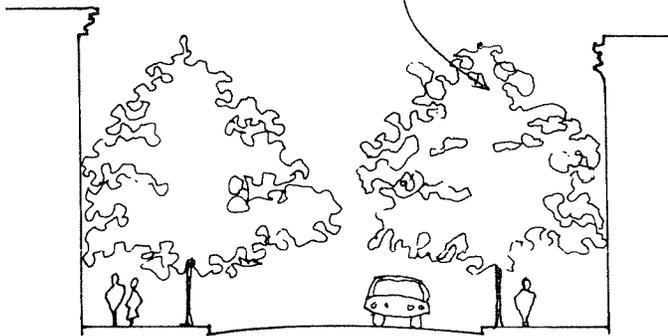
Plant materials, especially trees, are significant streetscape elements which can potentially upgrade an area dramatically, and at relatively low cost when compared with many other public improvements. Much of the charm and quality of Beaufort is directly related to the nearly continuous canopy of trees 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.



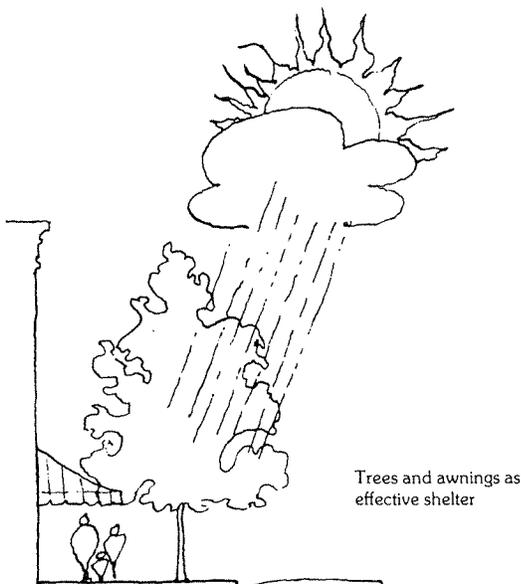
Tree canopy provides shelter and sense of enclosure

Some principal streets are notably devoid of plantings, in particular Carteret, Bay and portions of Charles Street. A major tree planting program along these streets would serve 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 scrollwork, 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.

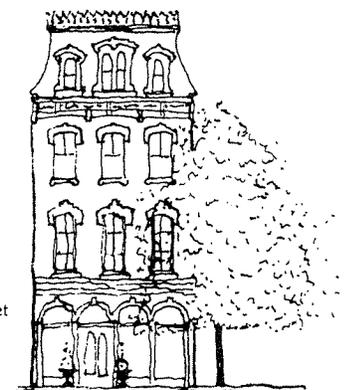


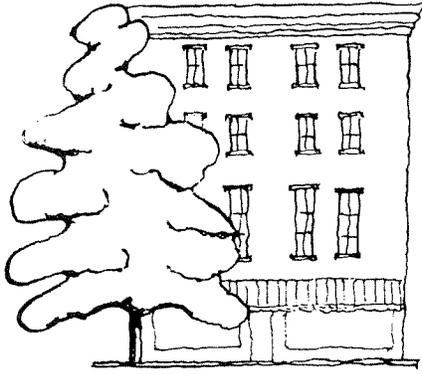
Street trees screen non-conforming facade



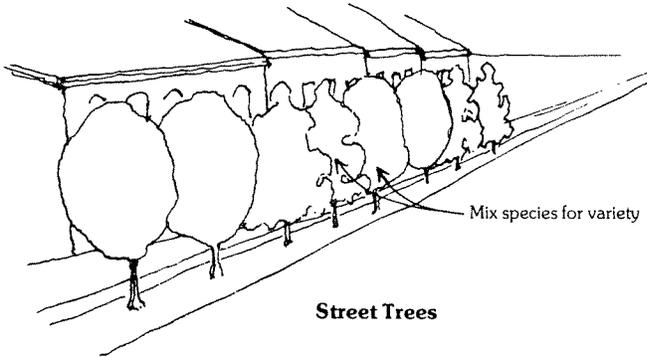
Trees and awnings as effective shelter

Tree as architectural accent: Comercial street





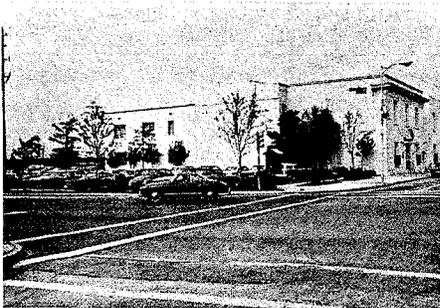
Tree as architectural accent: Commercial street



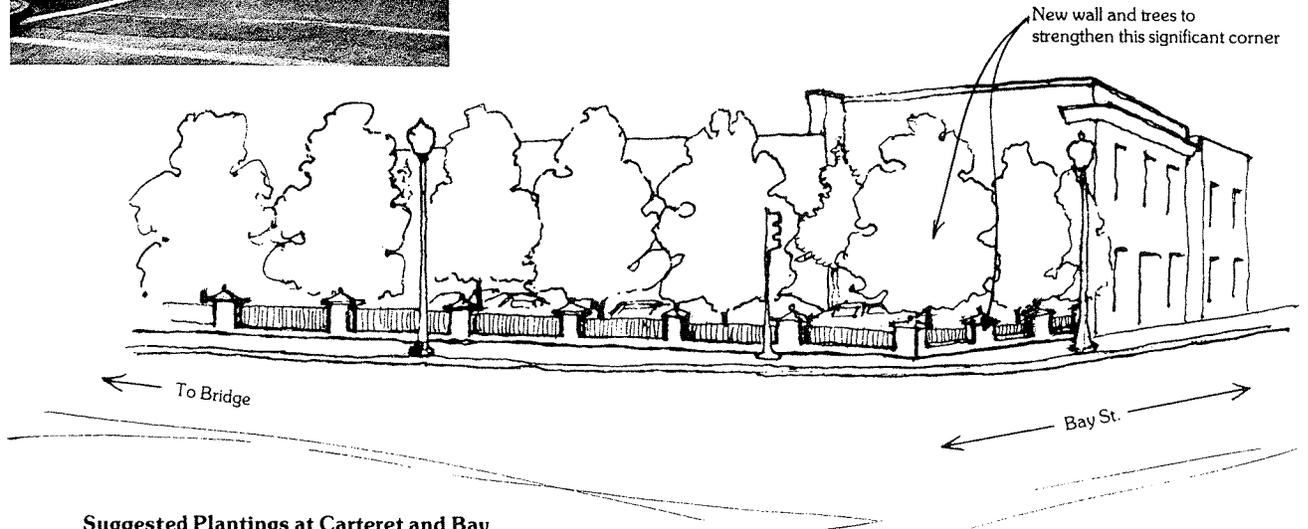
Street Trees

Plantings may also be used to define spaces, either historical or contemporary. For example, the southwest corner at Bay and Carteret is a weak terminus to the commercial district due to the presence of a surface parking lot and consequent lack of a strong corner structure. A fairly regimented stand of trees at this corner, coupled with a brick wall or other structure to partially conceal the proliferation of cars, would assist in strengthening this end of the commercial block. In general, surface parking lots adjacent to streets detract heavily from a commercial area.

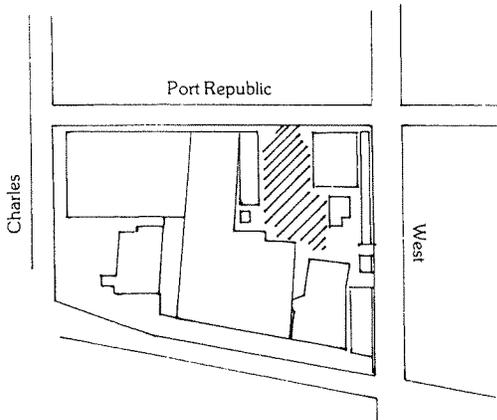
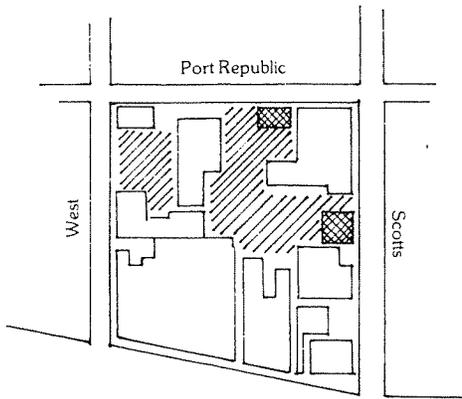
This is particularly true at corners where strong architectural elements are often critical in setting the tone for the block beyond, or in making a smooth transition from one block to the next. It is strongly recommended that any additional parking areas in the commercial section be limited to the intra-block 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



New wall and trees to strengthen this significant corner



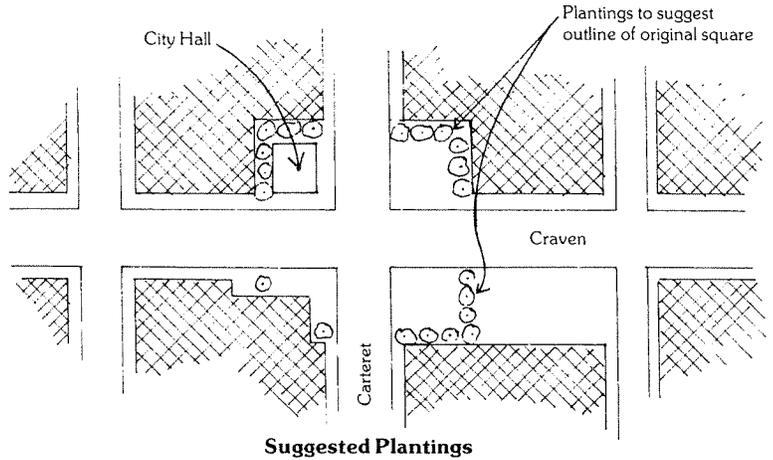
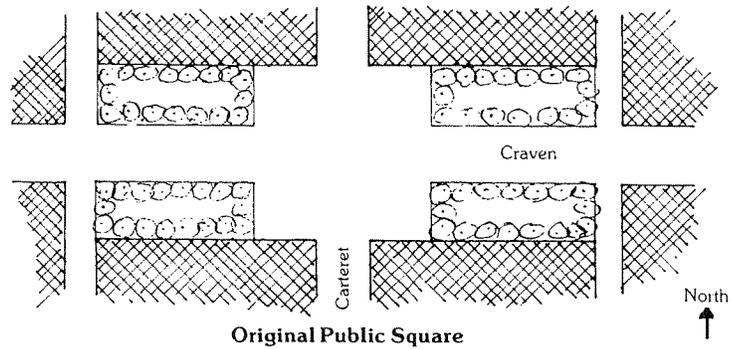
Suggested Plantings at Carteret and Bay



**Intra-block Parking in Existing Open Space**

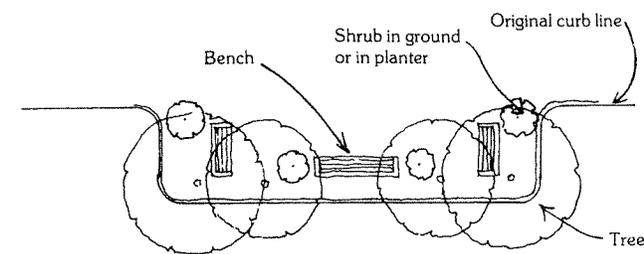
diminishing returns when, eventually, too few structures remain to accommodate the quantity and variety of retail spaces necessary in attracting widespread patronage.

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 superceded at an early date, it may

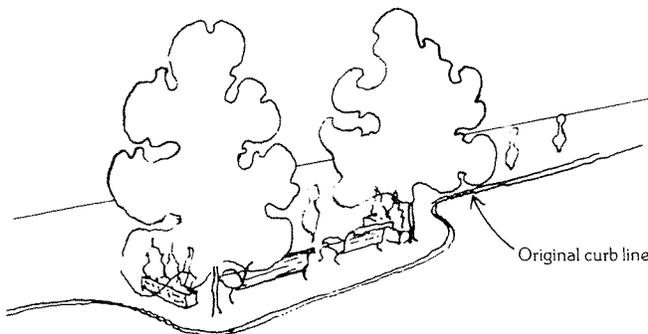


yet be depicted for interpretive value by appropriate plantings, so located as to bound and redefine this space. In combination with variations in walkway widths and placement, the area can impart a feeling of having once been a public square.

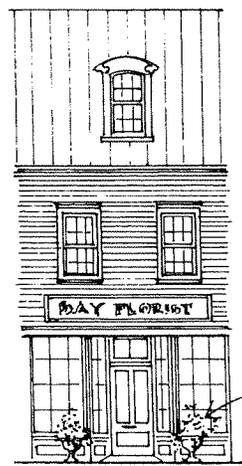
In addition to trees, shrubs and seasonal flowers can also play an important role in upgrading a commercial area. Where space is too restrictive to accommodate trees, shrubs can be effective in softening the streetscape and providing a continuity in the use of planting. Shrubbery is also an effective 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.



**Plan: Expanded Sidewalk Area**



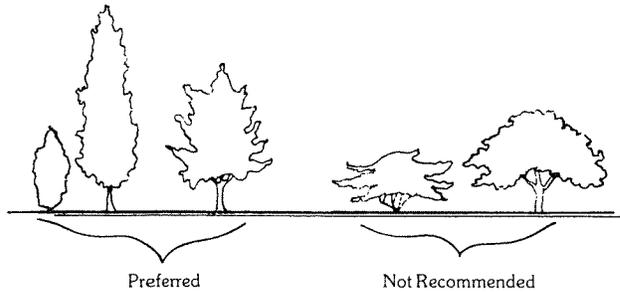
**Expanded Sidewalk Area**



Plants in urns accent important entrances

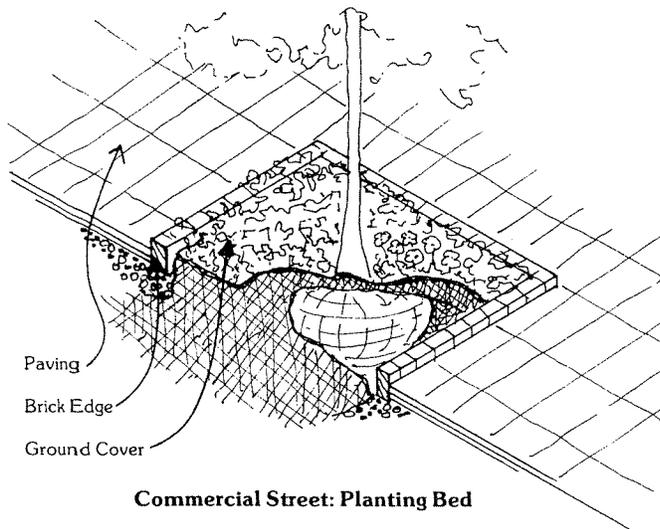
In selecting plantings for commercial areas several factors should be born in mind:

- 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**

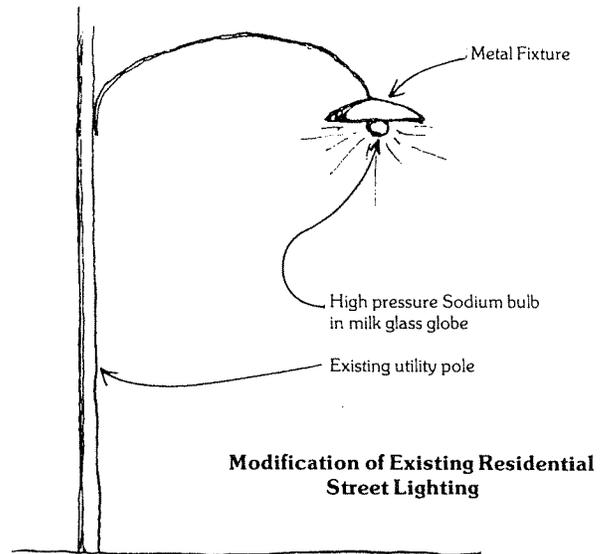
- It is desirable to maintain the design impact of plantings on a year-round basis. Coniferous, or evergreen varieties will provide for greenery throughout the seasons and should be incorporated in key locations.
- To maximize seasonal variation and interest, especially in South Carolina's climate, several 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.



**Commercial Street: Planting Bed**

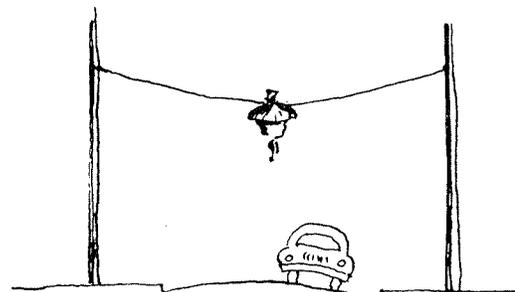
## Street Lighting

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

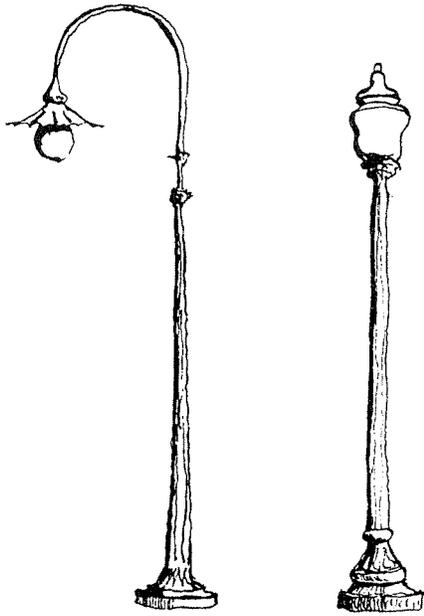


serious detractors because of their limited number and a mounting height which falls within the height of tree foliage. More appropriate fixtures could, however, be incorporated in the future. The use of milk glass or translucent globes would assist in softening the quality of light as well as concealing a modern 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.

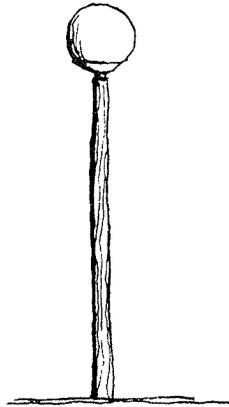
The quality of fixtures for either commercial or residential use is perhaps as important as the stylistic elements. As a matter of economy, many reproduction poles and fixtures currently on the market have simplified or omitted original details and substituted pressed metal caps, finials, etc. for originally 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.), Welsbach (N.J.), and Robinson Foundry (Ala.).



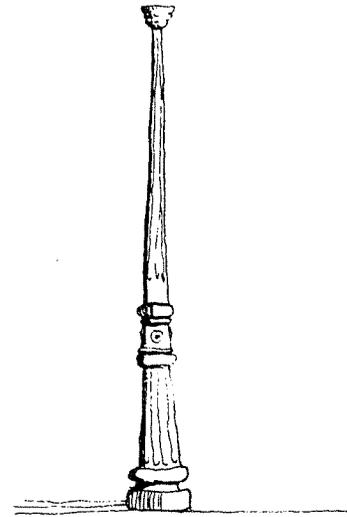
**Street Lighting**



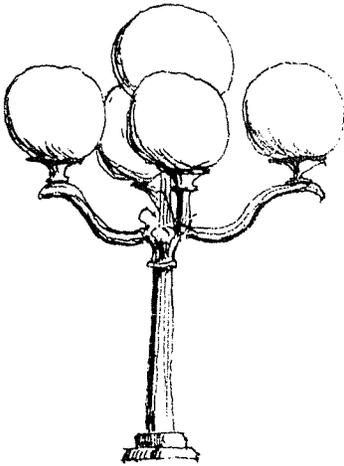
Cast Iron Street Light Fixture:  
Early 20th Century Design



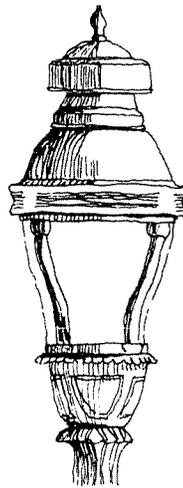
Street Light Fixture:  
Modern Design



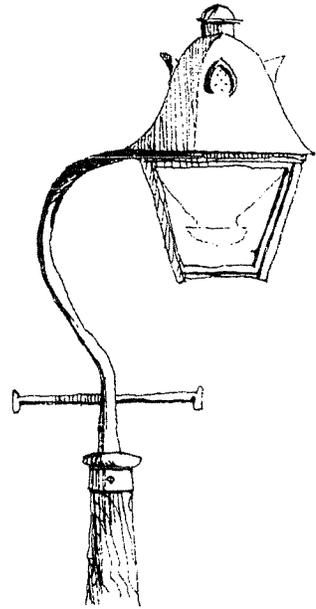
Cast Iron Street Light Pole



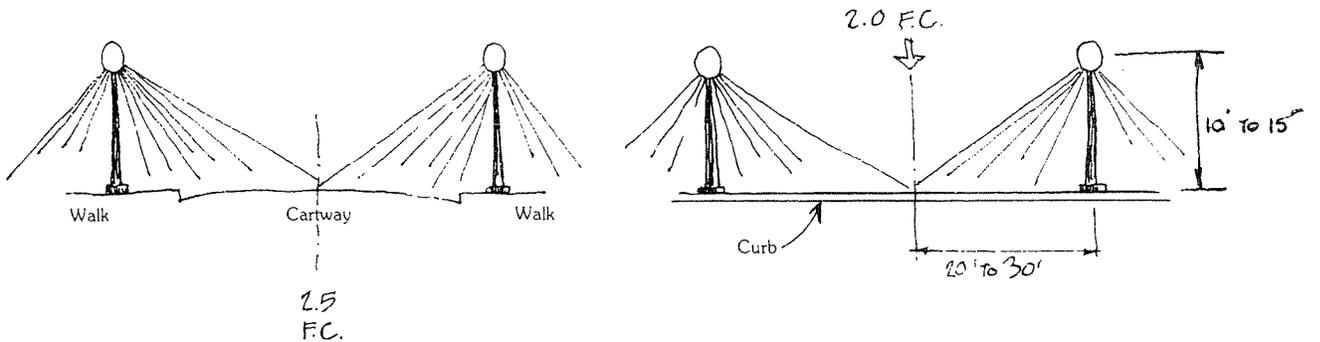
Cast Iron Street Light Fixture



Cast Iron Street Light Fixture:  
Victorian Design



Street Light Fixture: Colonial Design



Lighting Level Criteria: Commercial Street

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 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 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 150-watt high pressure sodium bulbs, 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

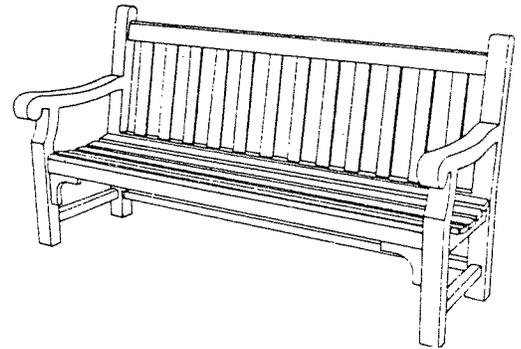
Amenities such as benches and planters are the physical symbols of a street's hospitality to pedestrians. Such street furniture must be well designed and thoughtfully integrated into any overall public improvement plan if the gesture that prompted it is not to appear half-hearted. Any bench, no matter 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

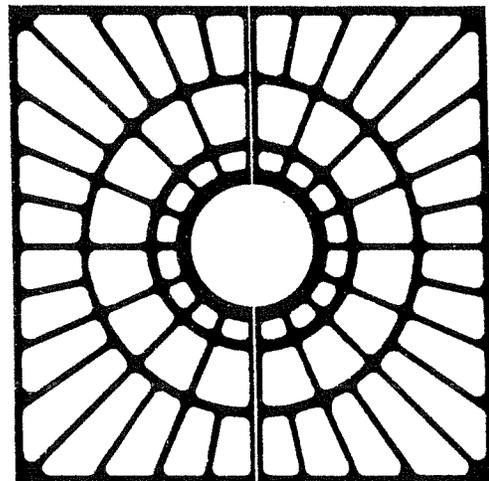
positive additions to Beaufort's streetscapes. This is not to imply, however, that ubiquitous modern benches of rough cast concrete or redwood are recommended. Simple design must also incorporate a sympathetic use of materials and forms. A timeless design, such as the teak English garden bench, provides 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 such as those manufactured by "Rulon."

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. Presently, buildings as disparate as the Arsenal, City Hall, the Beaufort County Court House, and the City Library are all signified by redwood signs. Such signs constitute intrusions, especially at the Arsenal and the Court House, and should be 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.



Index

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# Glossary

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(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.

**Apsidal:** Containing a vaulted semicircular or polygonal recess in a building.

**Backpriming:** 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.

**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.

**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 plaster 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.

**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 surface 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.

**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.

**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.

**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 doorsill.

**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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# Index

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- Air Conditioning Equipment, Installation; pg. 124.
- Architectural Style, Development of; pp. 18-25.
- Art Deco Style; pg. 23.
- Awnings; and Energy Conservation, pg. 122; as sign locations, pp. 52-53.
- \*\*\*\*\*
- Balusters; Repair, pg. 85; Stylistic Development of, pp. 38-40.
- Bay Street Rehabilitation; pp. 47-51.
- Beaufort, Architectural Development of; Churches and Early Public Landmarks, pg. 3; Early Beaufort, pg. 5; Federal Period, pg. 6; First World War and Depression Era, pg. 11; Greek Revival, pg. 7; Late Nineteenth Century, pg. 11; Post-Civil War Recovery, pg. 9; Wartime Changes, pg. 9.
- Beetles; pg. 76.
- Benches; pg. 147.
- Bird Proofing; pg. 87.
- Brick, Repairs; Cleaning, pp. 64-66; Cracks, pp. 59-60; Moisture Penetration, pg. 60; Piers, pg. 58; Pointing, pg. 60; Rising Damp, pg. 62; Tooling, pp. 61-62.
- Bungalow Style; pg. 21.
- \*\*\*\*\*
- Carpenter Ants; pg. 76.
- Cast Iron Fencing; pg. 131.
- Ceilings, Porch; pg. 88.
- Chain Link Fencing; pg. 131.
- Chimneys, Repair of; Caps, pg. 68; Cracks, pg. 67; Leaning, pg. 67.
- Chimney Inspection; pg. 66.
- Chimneys, Stylistic Development of; pp. 30-32.
- Colonial Revival Style; pg. 22.
- Columns, Repair of; Fluting, pg. 87; Leaning, pg. 87; Molding, pg. 87; Rot, pg. 86; Rotation, pg. 87; Stucco, pg. 87.
- Columns, Stylistic Development of; pp. 34-38.
- Concrete Masonry; Infill, pp. 80-81; Steps, pg. 84; Walls, pg. 130.
- Concrete, Reinforced; pp. 72-74.
- Cornice Repair; pg. 89.
- Cracks, Brick Walls; pp. 59-60.
- Creosote; pg. 78.
- Curbs; pg. 139.
- \*\*\*\*\*
- Doors; Screen Doors, pg. 94; Threshold Repair, pg. 94.
- Doors, Stylistic Development of; pg. 29.
- Drainage, Site; pg. 126.
- \*\*\*\*\*
- Eastlake Style; pg. 20.
- Efflorescence; pg. 65.
- Energy Conservation; Awnings, pg. 122; Caulking, pg. 120; Cupolas, pg. 120; Humidifiers, pg. 120; Insulation, pp. 121-122; Mechanical Equipment, pg. 120; Radiators, pg. 120; Shutters, pg. 122; Storm Doors, pg. 123; Storm Windows, pg. 121; Thermostats, pg. 120; Vestibules, pg. 123; Victorian Techniques, pg. 121; Weatherstripping, pg. 120.
- Espalier; pg. 64, 127, 128.
- \*\*\*\*\*
- Fascia Boards, Repair of; pg. 81.
- Federal Style; pg. 18.
- Fencing Repairs; Cast Iron, pg. 131; Chain Link, pg. 131; Concrete Masonry, pg. 130; Lace Brick, pg. 130; Wire, pg. 131; Wood, pg. 132.
- Fireproof Shingles; pg. 104.
- Flashing; Cement Mortar, pg. 108; Cornice, pg. 108; Inspection, pg. 108; Installation, pg. 109; Metal, pg. 109.
- Flat Seam Roofing; pp. 102-103.
- Flooring, Porch; Buckling, pg. 84; Compression, pg. 85; Rot, pg. 84.
- Foundation Infill; pp. 80-81.
- French Drain; pg. 127.
- \*\*\*\*\*
- Gothic Revival Style; pg. 19.
- Greek Revival Style; pg. 19.
- Gutters; Intallation, pg. 110; Materials, pg. 110; Repairs, pg. 111.
- \*\*\*\*\*
- High Density Construction; pg. 46.

Insulation; Attic, pg. 121; Basement, pg. 122; Crawl Space, pg. 122; Wall, Brick, pg. 123; Wall, Exterior, pg. 123; Wall Interior, pg. 123; Wall, Wood Frame, pg. 123.

Italianate Style; pg. 19.

\*\*\*\*\*

Joints, Wood; pg. 82.

\*\*\*\*\*

Lace Brick; pg. 64, 130.

Landscape Design; Borders, pg. 133; Contemporary, pp. 126-129; Historic, pp. 129-130; Plant Species, pg. 128.

Latex Paint; pg. 116.

Lattice; pp. 80-81.

Lighting, Porch; pg. 91.

Lighting, Street; pg. 145.

Lighting, Yard; pg. 134.

Lintels, Steel; pg. 60.

\*\*\*\*\*

Mailboxes; pg. 90.

Mildew; pg. 114.

Mortar; pp. 60-61.

\*\*\*\*\*

New Construction, Criteria for; Absolute Size, pg. 42; Forms, pg. 45; High Density Construction, pg. 46; Massing, pg. 44; Materials, pg. 45; Orientation, pg. 44; Proportion, pg. 44; Scale, pg. 42; Siting, pg. 46.

\*\*\*\*\*

Oil Paint; pg. 117.

\*\*\*\*\*

Paint; Color Selection, pp. 114-116; Latex Paint, pg. 116; Oil Paint, pg. 117.

Paint Colors, Historic Development; pp. 115-116.

Painting, Exterior; Application, pg. 117; Surface Preparation, pg. 114.

Paint, Removal; Chemical Removers, pg. 113; Manual Techniques, pg. 113; Sandblasting, pg. 114.

Palladian Window; pg. 26.

Paving, Roadway; pp. 136-141.

Paving, Sidewalk; pp. 136-141.

Paving, Site; pg. 133.

Pentachlorophenol; pg. 78.

Pests, Wood-attacking; Beetles, pg. 76; Carpenter Ants, pg. 76; Termites, pg. 76.

Plants, Species; Contemporary Usage, pp. 128-129; Historic Usage, pg. 129.

Plantings, Street; pp. 142-145.

Pole Gutter; pg. 110.

Porches, Repairs of; Ceilings, pg. 88; Columns, pg. 86; Cornices, pg. 89; Fascia, pg. 81; Flooring, pg. 84; Hardware, pg. 90; Piers, pg. 80; Rafters, pg. 88; Railings, pg. 85; Screen Enclosures, pg. 90; Steps, pg. 83.

Porch Plans, Stylistic Development of; pp. 33-34.

Portland Cement; in brick walls, pg. 61; in tabby walls, pg. 70; in stucco, pg. 71.

Priming; pg. 114.

\*\*\*\*\*

Queen Anne Style; pg. 20.

\*\*\*\*\*

Rafters Porch; pg. 88.

Railings, Cast Iron; pg. 86.

Railings, Wood; pg. 85.

Rising Damp; pg. 62.

Rot, Species; pp. 76-77.

Rot, Treatment; pg. 77, 95.

Roofing; Asphalt, pg. 104; Metal, pg. 102; Wood Shingle, pg. 103.

Roof Leaks; pg. 101.

\*\*\*\*\*

Sandblasting; and brick, pg. 65; and Wood, pg. 114.

Screen Doors; Aluminum, pg. 90; Wood, pg. 94.

Screen Enclosures; pg. 90.

Shoring; pg. 58.

Shutters, Repair; pg. 96.

Shutters, Usage; pg. 122.

Siding; Aluminum, pg. 100; Asbestos, pg. 100; Vinyl, pg. 100; Wood, pg. 98.

Signage, Commercial; pp. 51-55.

Signage, Municipal; pg. 148.

Spalling Brick; pg. 63.

Spark Arresters; pg. 68.

Splash Blocks; pg. 111.

Standing Seam Roofing; pp. 102-103.

Steps, Porch; Brick, pg. 83; Concrete Masonry, pg. 84; Concrete Topping, pg. 84; Stone, pg. 83; Wood, pg. 83.

Storm Windows; pg. 121.

Street Furniture, pg. 147.

Streetscapes; pg. 140.

Stucco; Mixture, pg. 71; Repairs on Brick Base, pg. 71; Repairs on Tabby, pg. 71; Rescoring, pg. 72.

Stucco, Moldings; pg. 87.



Tabby; Mixture, pg. 70; Rebuilding Walls, pg. 71; Spot Repairs, pg. 70.

Television Antennas, Placement; pg. 124.

Termites; pg. 76.

Thermostats; pg. 120.

Thresholds, Door; pg. 94.

Tongue-and-Groove Ceilings; pg. 88.

Trim, Wood; Built-up Trim, pg. 99; Corner Boards, pg. 98; Preservation, pg. 99.



Underpinning; pg. 59.

Utility Lines; pg. 136.



Vapor Barriers; pg. 123.



Waterproof Coatings; pp. 65, 123.

Weathering; pg. 78.

Weatherstripping, pg. 120.

Windows; Leaded, pg. 95; Reglazing, pg. 94; Sash Repairs, pg. 95; Screens, pg. 96; Sills, pg. 95.

Windows, Stylistic Development of; pp. 26-28.

Wire Fencing; pg. 131.

Wood Species; pg. 75.



Yard Furniture; pg. 134.

Yard Lighting; pg. 134.

