

# Historic Tabby

*By Lauren Sickels-Taves, Eastern Michigan University*

Historic tabby buildings can be maintained for years of use and enjoyment provided that some basic attention is given to their care and preservation. The conservation staff at The Henry Ford have compiled the information in this fact sheet to assist in helping individuals to care for their tabby buildings. The first step in the care of buildings is to understand and minimize or eliminate factors that cause damage. The second step is to develop and follow a basic maintenance plan for care and longevity.

## **IDENTIFYING TABBY BUILDINGS**

Tabby refers to a unique, centuries old, southern U.S. coastal building material purportedly composed of equal proportions of homemade lime, sand, oyster shells and water. A surface layer of stucco originally protected the finished product. After the introduction of Portland cement in the 1870's, the tabby recipe was modified to include cement and substitute pre-made bag lime for homemade lime, and the stucco was omitted. Various modern forms of tabby, employing only cement are still used today. Modern imitations often expose the shell and forego the stucco in an inaccurate attempt to recreate the appearance of this historic material.

Terminology has been established to clarify the different construction techniques and their time of use. Original is the adjective used to define tabby constructed before 1875. This material employed only the fore-mentioned ingredients of lime, sand, oyster shells, and water. Tabby Revival is the term given to tabby made between 1880 and 1925; although additional ingredients were added, the construction method remained the same. (The five-year span between two types covers a period of no documented construction of either form of tabby.) Tabby falling into either of these categories is considered to be historic or traditional tabby. The present surge of tabby-like construction, termed Pseudo-Tabby, visually represents a link with the past, but is basically a thin cement panel with shells shot into it. Its characteristics do not represent historic tabby, and therefore fall outside the realm of this fact sheet.

## **TABBY PREPARATION**

Original tabby was made from a mix of slurry of water, homemade lime, local sand, and oyster shells. Occasionally, aggregates of broken glass, brick or other similar products were added. The mixture was poured into a wooden form or rectangular bottomless cradle made of finished

boards approximately two inches thick. The length of the cradle varied; the height was 20 to 22 inches in the eighteenth century but was reduced to 10 to 12 inches in the nineteenth century to minimize collapse and provide greater strength. The sides were held in place by dovetailed braces. The tabby was tamped and leveled by hand.

Round pins set at regular intervals held the cradle in place during the entire process. The tabby air-dried in its cradle for two to three days. After it hardened, the form and pins were removed and placed atop the first pour or "round" for subsequent rounds, thus building a wall in a layer-like fashion. The finished wall was then brushed with a broom before stucco or whitewash was applied.

Minute modifications to this procedure distinguish Tabby Revival tabby from its copied original. In addition to the commercially available Portland cement and lime altering the mix after 1880, the cradle was modified to eliminate the use of pins: huge clamps now held the sides. The qualities of the cement enabled builders to discard the previously essential stucco.

The sand was always from a local body of water. Sand from salt water was washed to remove as much salt as possible, since salt causes decay and deterioration, such as spalling. Oyster shells, procured from Indian middens or trash piles, provided a well-washed aggregate and, when burned, produced the third ingredient, lime. A "rick", or bonfire, was built, starting with a frame of hardwood tree trunks surrounding a deep pit filled with pine knots. Layers of logs and oyster shells were then piled on top and set afire. The intense fire burned the shells, turning them into a white powder called quicklime, which reacted with water to set or cure the mixture. After 1880, this burn was omitted in favor of purchasing pre-bagged lime and Portland cement.

Tabby making was labor-intensive and dependent on weather. February through September were the recommended months for manufacture. This allowed builders to avoid winter freeze-thaw cycles and rainy, hurricane-prone autumn months, and take advantage of months of high humidity, which shortened the setting time. Drying tabby was protected from rain by palmetto branches. With the introduction of Portland cement – imparting increased setting time among other properties; tabby builders heeded this traditional advice, but may not have always needed to follow it.

## **IDENTIFYING FEATURES**

### **POURS**

Pours, when visible, are a key characteristic of historic tabby. By locating the lines demarcating individual pours, distinct differences in pour layers are notable which aid in separating eighteenth century military fabrication from nineteenth century plantation manufacture. The eighteenth century was distinguished by pour heights of 20" or higher; irregular, vertically spaced pinholes; and obvious mold marks with distinct jogs, that

showed the forms were not secured at the ends. The late 1790's onward were characterized by 10 to 12" pour heights; uniformly spaced and aligned pinholes; and no mold marks.

## **PIN HOLES**

In original tabby manufacture, round pins were used to hold the bottomless cradle in place during construction and prevent it from sliding down onto the previously poured layer of tabby. These pins (along with dovetail bracing) also kept the two sides of the cradle from spreading. They were periodically placed but generally not aligned vertically from layer to layer until after the late 1790's.

At a few unrelated locations, surviving pinholes indicate the use of square pins. Although the shape is an anomaly, their placement and alignment were similar to that for round pins. Intriguingly, the sites are separated by hundreds of miles and approximately 100 years.

## **STUCCO**

Original tabby was meant to be covered by stucco or lime wash for protection. The pitted and brushed sides of tabby provided an excellent surface for bonding with the stucco. Generally limited to a single coat, 1/8 – 1/4" thick, it required constant renewal. The quality varied with the use of the structure and the wealth of the owner. The mix consisted of quicklime, sand and water and was applied with a trowel. The surface coating also covered the pinholes made during construction. Early twentieth-century coating repairs to historic tabby have often incorrectly employed neat cement or asphalt caps.

## **OTHER**

Although poured walls were the norm, wedges, bricks, roofs, floors and plugs were just a few of the additional features fashioned from tabby. The flexibility of tabby allowed builders to be creative.

- **Wedges and bricks:** By the altering the recipe slightly to employ crushed oyster shells, smaller shapes could be constructed with tabby by using special cradles or moulds. Wedge-shaped moulds were used for columns: four wedges of dried tabby were placed together to create a circular unit. One unit was set atop another to the desired height. Due to the fireproof qualities of tabby, chimneys were often constructed of rectangular bricks when fired – clay ones were unavailable. Tabby mortar, incorporating either finely crushed oyster shells or other similar aggregate, such as coquina shells, were used to cement the wedges or bricks together.

- **Roofs:** Tabby roofs tended to be flat (pitched roofs were rare due to their massiveness). They were created by pouring a three-to-four inch tabby mix over roof-bearing timbers covered by wooden lath or layers of twigs, in a key-like fashion similar to adobe roofs. To prevent leaks from standing water, a coating of tar and sand was applied.
- **Floors:** Tabby floors were also popular along the coast. Depending on the wealth of the owner, tabby was poured directly on top of tamped earth or, in better buildings, on top of a sub-grade of shell rubble or boards. Laid three to six inches deep, the tabby was tamped, then coated with linseed oil to form a seal. Slab tabby could not withstand concentrated weight and easily became rough and pitted. Tabby floors had a short life span, but could be renewed by pouring subsequent layers over the old.
- **Plugs:** Tabby plugs were merely chunks of tabby mortar. They were created to ingeniously solve a problem when stucco or plaster was unavailable. Holes left by pins that held the cradle in place while a wall was being poured produced a structure that was neither weatherproof nor critter-proof. A quantity of fresh, or wet, tabby mortar was simply inserted into the pinholes and allowed to dry. These plugs effectively filled the holes and did so permanently.

## ARCHITECTURAL DESIGNS

If wood could be bent to create a mould, architectural designs in tabby were limitless. Walls, rarely exceeding two stories, could take on unique shapes. One plantation house, now in ruins, near Woodbine, Georgia, was poured in the shape of a large anchor; sugar mills had octagonal walls; military fortifications had bastions. Foundation walls were constructed by merely pouring tabby – minus the pins – several feet below ground level. Where time prohibited construction of an entire tabby structure, tabby foundation piers were built, with upper stories of wood.

Across the centuries of its use, tabby was most commonly employed in the erection of homes, exemplifying its ability to reflect architectural styles. A few of the styles uniquely utilizing historic tabby were:

- Georgian (1700-1870, rural to 1830): Although tabby was not uniquely manipulated beyond the expected norm, simple domestic plans reflected Georgian characteristics: large, two rooms deep, two-story. Tooth-like dentils made of tabby bricks on the cornice have also been employed as decoration. Dentils were first introduced as a Georgian feature, but were retained during the subsequent Federal style (1780-1820).

- Greek Revival (1825-1860): This style best reflected the ingenuity of the builders of tabby. The key characteristic of Greek Revival was a full-façade porch comprised of wide, simple cornices supported by rounded columns. Columns were constructed of tabby wedges mortared into circular units which were then stacked atop one another to achieve the desired height.
- Queen Anne (1860-1890): Eclectic and asymmetry characterize Queen Anne, one of the many Victorian styles. Tabby suited this style due to the flexibility of the mould or brick. Chimneys were massive and patterned. Another feature is to use wall surfaces as primary decorative elements. By modifying the typical cradle, arches over all door and window openings could become segmental arches, even Palladian windows.
- Spanish Mission (1890-1920): The key feature of this style is the mission-shaped or Baroque curve. Walls were usually smooth stucco. Tabby once again lent itself well to this style. The curves were easily produced with the malleable material, and the smooth walls created by the cradle produced the desired surface finish without employing stucco.

## **CAUSES OF DETERIORATION**

Water, incompatible materials, and lack of maintenance are the major causes of damage to tabby buildings. The introduction of water is usually the result of the incorrect use of materials, particularly non-compatible repair materials, and the lack of maintenance; 95% of all deterioration can be linked to water. Once introduced and allowed to remain, water can weaken the chemical structure of tabby and encourage wildlife and insect infestation. Allowed to continue, a building will eventually become unstable and collapse.

NOTE: The bulk of deteriorating tabby was built before 1875. Of the documented Tabby Revival sites, only one is in ruins and the denseness of the cement walls are by far more stable than original tabby's lime-based, porous walls. Unless otherwise noted, the rest of this fact sheet is directed at the preservation of original tabby.

## **ENVIRONMENT**

Stucco forms a protective barrier over original tabby. This does not prevent deterioration of tabby under adverse conditions; however, it greatly reduces it, minimizing the risk for infestation by wildlife and insects, and instability by water.

## **WATER**

The moisture content of building materials varies in response to changes in the local humidity and will not usually damage the material or induce decay. The paradox of tabby is that it is a highly porous material and yet was built in coastal areas, which normally have high salt water tables. Tabby is forced to absorb high levels of salt water; however, its porous nature in collaboration with the warm climate allows it to adequately evaporate this same level without harmful side effects. This cyclical feature is assured as long as the pores are not clogged by incompatible, less porous materials and the structure is being maintained.

Water can enter and harm structures in a variety of ways. The path it takes in buildings from entrance to exit can be illogical. There are three sources of water: rain penetration, rising damp and condensation.

- Rain penetration in original tabby structures is generally caused by the effects of structural movement, the wrong choice of materials for repair, badly executed repairs or lack of routine maintenance. It is the single, greatest source of tabby deterioration.
- Rising damp occurs when tabby is in direct contact with damp soil. Moisture is drawn into the pores by a physical process called capillary action. The absorbed moisture will rise in the wall to a height at which there is a balance between the rate of evaporation and the rate at which it can be drawn up by capillary forces. This height will vary somewhat with the time of year and the level of the water table of the soil. Rising damp is not a great concern to tabby unless the pores are clogged as mentioned in the preceding paragraph.
- Condensation is the product of cooled water vapor. When moisture in the air is cooled at a certain temperature called dew point, it will change to liquid water. Due to the climatic location of tabby, this source of water rarely affects tabby.

The grounds immediately around tabby structures play an important role in minimizing water damage. Poor drainage and shallow eaves can allow water to build up near the foundation, permitting excessive rising damp and coving. Excessive water can ultimately pop stucco and break down a tabby wall's chemical and physical bond.

## **VEGETATION, WILDLIFE, AND INSECTS**

Vines and trees, with their extensive, creeping root systems, are the most detrimental of all vegetation, weaving into porous tabby walls, upheaving them and creating cracks for future growth. Without intervention, complete failure is imminent. Maintenance and early

detection are therefore vital. Despite legislative protection, several ruins near Woodbine and Darien, Georgia, have recently collapsed from tree encroachment, tunneling by gopher turtles and riverbank erosion.

All vegetation within 12 to 18 inches of a building should be removed. This eliminates the potential for damage from roots and permits air circulation near the stucco surface, discouraging mildew. Roots and vines that have penetrated tabby and become a structural support should be treated cautiously: they should be cut to prevent further growth, yet left in place as they are now an integral part of the wall. Birds and burrowing animals should be discouraged.

Tabby interiors exposed to the elements invite other infestations. Joist beams experience rot and termites, and the pockets are often filled with spiders and birds' nests.

### **STRUCTURAL DAMAGE**

One key link to structural problems is derived from the weak or inadequate lime produced by burning oyster shells. The best lime was made when bonfire temperatures exceeded 1094oC (2000oF) and no rain penetrated the lime before it was placed in barrels. Any deviation created a weaker lime and a weaker block of tabby. Weaker limes can place buildings structurally at risk. Inferior tabby, carrying the weight of a second story, was apt to slowly compress and settle at a rain enters and further erodes the lime, collapse is imminent. This construction flaw may manifest itself only under certain conditions (e.g. rain and missing stucco.)

Today quality control is expected in bag lime, and a repair can be made easily, using a simplified cradle. Neat cement or synthetic additives of any kind should be avoided in repair, because their plasticity is incompatible with that of lime.

Another potential structural problem may occur in the foundations. Tabby foundations were generally poured only two to three feet deep and lacked spread footing or buttressing. Walls were 10 inches thick underground. Fortunately, the nature of tabby and its construction prevented the risk of toppling: each pour had hardened sufficiently before a subsequent pour was added, and cradles were made to pour around corners in a continuous form, thereby linking one wall to the next cohesively. Joists and other beams merely added additional support to the structure. However, high winds can put pressure on walls. Cracks in stucco are a good indication of structural problems.

Note: The in-house conservation staff at The Henry Ford has developed these Preservation Fact Sheets to assist in caring for your historical materials. These fact sheets provide basic information on the care, cleaning, and handling of a particular type of artifact, referral information to other conservation organizations, and a bibliography of authoritative works. Individuals may also arrange for a private consultation with a conservator. For more information, please contact the Benson Ford Research Center at [research.center@thehenryford.com](mailto:research.center@thehenryford.com).

## **INCOMPATIBLE MATERIALS**

Traditional building materials are more porous than their modern substitutes. They will absorb more water but have the advantage of allowing it to evaporate freely under drier conditions. When certain modern materials with low porosity are introduced during maintenance and repair, incompatibility becomes an issue. There is a decrease in natural ventilation that can cause persistent dampness in many old buildings. The logical progression is deterioration.

**PORTLAND CEMENT:** Cement and its various forms can do irreparable damage to tabby structures. It has most popularly been used as the sole ingredient in repairs or stucco, which in itself is historically inaccurate. Its density reduces uniform breathability throughout a structure, effectively sealing the porous surface from water. Clogged pores mean that the tabby is unable to breathe.

Spot repairs with cement create saturated surrounding areas, thus weakening the bond between the new and old materials.

Stucco should be flexible, and it should never be stronger than the material to which it adheres. By employing cement, a rigid, incompatible stucco is being introduced, basically sealing the tabby structure in a plastic bag.

**SILICONE SEALANTS:** Sealants are soft or liquid moisture-impervious compounds. They are designed to be flexible in areas with anticipated movement, but have little or no ability to breathe. These modern products are not suitable for historic tabby structures due to their non-porous nature as well as being historically inappropriate. Sealants, generally, have improved lately to achieve color stability, and resist ultraviolet rays and mildew, but their impervious nature prohibits them from working with traditional building materials, particularly porous ones.

**ASPHALT:** Asphalt caps were a popular solution to sealing the tops of tabby ruins in the 1950's. Unfortunately, the asphalt did not merely coat the tabby; it also penetrated into the honeycomb fabric of the wall. Once hardened, it



effectively sealed the top surfaces from rain penetration, but prohibited its removal.

## **CHEMICALS**

Water-based and toxic chemicals should never be used on or near tabby. They can escalate decay as well as visually alter the color and appearance of tabby. The walls draw the chemicals into its pores by capillary action and water rarely can dissipate the effects fully.

## **LACK OF MAINTENANCE**

While water does the most harm to buildings, it is merely a source. Lack of maintenance is the key catalyst to its introduction. No building can go without maintenance. If regular maintenance is carried out, the longevity of the structure is assured and the financial outlay for major repairs is minimized.

## **REPAIRS**

Reversibility is a prime issue in repairing historic buildings. It minimizes problems during maintenance and future repairs, and helps to maintain the integrity of the structure. Replacing deteriorated components with compatible materials ensures that the new and old materials will work together. Repairs are best made with materials that are traditional to the structure.

NOTE: Tabby is technically an early form of concrete, using oysters shells as aggregate. Unfortunately, many contractors assume incorrectly that neat cement or a pre-mix with cement in it is a suitable repair material. Cement was not introduced in this country until around 1870, so is not a compatible material for original tabby. Cement and its many twentieth century variations may physically harm tabby structures, creating long-term problems, and they may not be totally reversible.

## **TABBY**

There are varying degrees of tabby restoration, ranging from patching to structural repairs. Each tabby structure should be evaluated on its own merits to determine the most appropriate repair. Every attempt should be made to save as much historic tabby as possible.

## **WATERPROOFING**

The simplest, most effective, and perhaps sole means of waterproofing original tabby, is to retain and maintain its traditional stucco coating. Stucco reduces the

potential for water infiltration and protects tabby from permeability and absorption until carbonation has increased its strength.

### **REMOVAL OF EARLIER REPAIRS**

The easiest form of tabby restoration involves repairing neglected structures. In other cases, earlier repairs must be removed. Documented examples of unacceptable, incompatible repairs include Portland cement stucco, caps of asphalt tar, silicone sealants, and visible alterations created by the sculpting of the stucco to redefine the edges and basic appearance of the tabby.

Tar and cement are difficult to remove, since they tend to be stronger than the material to which they adhere. Upon excision of the tar or cement, substantial sections of tabby may come away as well. Subsequent repairs, therefore, are more costly, necessitating the employment of cradles to fill significant voids. It is best to leave these repairs alone. Asphalt will eventually deteriorate and actually become weaker than the tabby. It can then be carefully removed, prior to the installation of a more suitable cap.

Silicone sealants have also been applied to the external surface of tabby and/or stucco. Unfortunately, they cannot be removed or reversed, since the silicone seeps into the pores and voids of tabby. Time alone can aid in stabilizing the imbalance of moisture levels.

Even with the use of proper ingredients and proportions, a new tabby mix and/or stucco can be applied inappropriately or carelessly, dramatically altering the visual character of the original structure. Color and application are as important as ingredients and proportions. Historically, tabby has been light gray, from the combination of white lime and gray-to-black wood ash (ash being included inadvertently when lime was retrieved from the pit after burning.) The stucco was either the same color or a soft beige, if the sand dominated the color more than the ash. The gray in Tabby Revival tabby was the result of the cement since ash was no longer a component from burning oyster shells to obtain lime.

The use of boards and dovetailed corners in cradle construction produced a flush wall with sharp corners. When stucco was applied, masons retained this appearance. Efforts should be made to duplicate tabby in color, texture, and application, as well as ingredients and proportions. The basic preservation guidelines outlined in the Secretary of the Interior's Standards for Rehabilitation are applicable.

### **PATCHING**

Simple tabby repairs can be made employing a trowel and a tabby mix including broken oyster shells. In its historic form, tabby utilized only whole oyster shells. However, broken shell pieces are better suited to small repairs.

Stucco (the tabby mix minus shell) may be used to repair portions of a tabby wall, if the depth of the repair does not exceed 1 inch. (The basic thickness of the first or scratch coat of stucco is one-quarter to one-half inch.) Extending the depth will slow the stucco's drying time, but will not irreparably harm the tabby or its final appearance.

When a restoration project requires new tabby, a properly formulated mix must be specified. All materials should conform to ASTM standards.

- Lime should conform to ASTM C-207, Type S, hydrated lime, or ASTM C-141 for hydraulic hydrated lime.
- Sand should conform to ASTM C-144 to ensure proper gradation and freedom from impurities. Sand, or other type of aggregate, should match the original as closely as possible. Research suggests that channel sand, not pit sand, was the key source.
- Cement should conform to ASTM C-150, Type II, white, non-staining Portland cement.

One suggested mix for original tabby is:

1 parts by volume	hydraulic lime
1 parts by volume	hydrated lime
4 parts by volume	sand

If Tabby Revival tabby is being repaired, Portland cement may be included in the mix. One recommended recipe is:

1 parts by volume	white Portland cement
2 parts by volume	hydrated lime
9 parts by volume	sand

These recipes may vary depending on the tabby under restoration. Additional information is given in the sources listed in the bibliography.

Once the appropriate tabby mix has been selected, the ingredients need to be measured out by volume, not weight. Mixing is a critical factor in proper application; tabby can be overmixed, ultimately causing crazing or shrinkage

from a too-rapid set. Manual mixing should be limited to 15 minutes, and machine mixing should not exceed four minutes. All substrate surfaces, defined here as the apparent surface layer, be they tabby or a stucco base coat, must be thoroughly wetted to retard drying and minimize the rate of moisture absorption from the new materials into the old. Drying tabby should be covered with burlap and misted during the daylight hours to prevent rapid moisture loss and cracking.

## **STRUCTURAL REPAIRS**

Before patching or stucco repair, structural tabby should be assessed. Tabby is a structurally sound building material. Historical documents cite its strength and re-use value in converting ruins to new structures. For example, the wall thickness of one tabby structure, examined after a fire, had diminished to six inches, a loss of two inches on each of the external and internal surfaces, yet it is still a substantial wall. Where vines have become a structural support within tabby walls, and the full thickness remains, the different layers may have shifted from alignment. In evaluating repairs, therefore, one needs to ascertain whether the traditional 10-to-12-inch width is extant and aligned, and if not, whether the missing portion requires repouring or just a thicker stucco.

If repouring is required, traditional cradles or forms must be made, utilizing wood boards of a minimum one-inch thickness. The sturdiness of the boards helps to minimize the potential for warping from shrinkage. The existing wall must be stabilized with bracing as necessary. All disintegrated tabby must be removed, leaving a clean, detritus-free surface. Simple brushing by hand may be sufficient, but where necessary, low-pressure mechanical air blowing is acceptable.

Once a clean surface has been exposed and wetted to improve adhesion, a new cradle must be fashioned to fit the repair area. Resting on substantial lower pours, if possible, or bracing, the cradle should be made of sideboards only. The new tabby slurry should be mixed and poured in the traditional manner and tamped periodically to settle oyster shells and minimize air pockets. ) See recommended mixes cited under "patching".) The cracks and grooves of existing tabby serve as points of adhesion for the new tabby. No attempt should be made to fill the void or repair areas with substances other than tabby slurry, such as brick chips, unless clear evidence exists of its inclusion in the original mix.

After drying in its cradle for two to three days, the boards may be removed and set above for subsequent pours. Walls should be roughened by brushing to improve the adhesion of newly applied stucco.

It is difficult to define the point at which cradle restoration is substituted with a thicker stucco. A one-inch thickness represents a lower limit for the use of a cradle, since the oyster shells might not be adequately seep into areas of less than one-inch depth. If a pour shows more erosion on its lower half than its upper, tabby may have to be repaired by hand with a trowel or the vertical cradle board pivoted outward to allow tabby slurry to reach the repair area. Once the deteriorated area is nearly filled, the cradleboard can be returned to its upright position and the pouring resumed to the desired height.

Some tabby structures have been constructed from tabby bricks rather than from the more traditional pouring method. Structural repairs should include reconstruction of handmade sundried tabby bricks, held in place by a tabby mortar. However, some handmade clay bricks in earlier repairs do not appear to have damaged surrounding tabby bricks.

## STUCCO

Traditional materials are recommended when stucco repairs or replacement are necessary, despite the fact that they may require annual attention. The retention of historical integrity and the lack of problems due to compatibility far outweigh the trouble of undertaking seasonal repairs.

Since stucco is by and large tabby without the shells or at most, crumbled shell, the recipe for stucco is the same as for original tabby.

1 part by volume	hydraulic lime
1 part by volume	hydrated lime
4 parts by volume	sand

Though generally not used, ground oyster shells have been noted in some surviving examples of original stucco.

The use of hydraulic lime imparts increased strength while retaining plasticity; Portland cement increases strength, but reduces plasticity. White Portland cement is not as strong as gray cement. Any decision to substitute Portland cement should be made by a professional knowing the detrimental qualities of cement, and its use is largely recommended only on a Tabby Revival structure with cement in its original mix.

Manmade additives should never be used. The properties, such as freeze resistance, they impart to the recipe are generally unnecessary and have largely been tested on modern tabby only. Stuccoing should be completed before cold weather and freezing temperatures, above 10oC (50oF) is best.

When replacing stucco, a maximum of two coats should be applied. This may vary from the more common single coat (one-eighth to one-quarter inch), but historical documents mention annual restuccoing. A thicker, two-coat stucco will obviate the need for annual renewal. The substrate of tabby must be thoroughly cleaned and misted – not saturated – with water before restuccoing begins. This will increase the bond of the stucco with the tabby, and will prevent the stucco from drawing the water out of the tabby, shrinking, and developing hairline cracks upon drying.

After applying the scratch coat (one-quarter to one-half inch) with a trowel, the surface should be gently scored with a comb, and excess stucco removed before the layer completely dries. The wall should be draped in burlap and the latter frequently misted during sunlit hours to prevent the stucco from drying too quickly and to aid in reducing hairline cracks. An effective drying time is two days, after which the final coat of one-eighth-inch thickness may be applied smoothly and evenly. The burlap and misting should be repeated after this coat as well.

## **MAINTENANCE PLANS**

Historic tabby structures require annual inspections. Traditional stucco may need annual renewal or spot repairs. Maintaining stucco, roofs and gutters; and monitoring vegetation, burrowing animals and other soil-eroding activities can virtually eliminate major problems. Without this care, the above environmental causes of deterioration will inevitably occur.

By establishing a regular maintenance plan, areas comprised of missing materials or problems that can ultimately cause decay can be addressed early. Repair costs will be dramatically reduced while the longevity of the historic tabby structure will be assured.

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## **SUPPLIERS**

Hydraulic Lime:



Riverton Corporation  
1111 Riverton Rd.  
Front Royal, VA 22630  
540-635-4131

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PO Box 806  
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<http://www2.cr.nps.gov/tps/secstan8.htm>

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20900 Oakwood Boulevard, Dearborn, MI 48124-5029  
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