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Dendrochronology: A Status Report for the Eastern United States

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DENDROCHRONOLOGY:
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ABSTRACT

Architectural historians and historic preservation practitioners have turned with increasing frequency to dendrochronology to determine dates of construction for houses and other timber structures for which the application of traditional dating techniques, chief among them historical documentation and stylistic analysis, failed. Since the advent of modern, statistically-driven tree-ring dating, analysis of the application of dendrochronology on the eastern region of the United States reveals that the use of this scientific technique has been unevenly applied and is most often used in New England and the Chesapeake. While the techniques used by American dendrochronologists are generally similar, practitioners have failed to adopt a consistent methodology. This study is an assessment of the current state of dendrochronology in the eastern United States and a recordation of available information on locations of dendrochronologically dated buildings. Analysis of dendrochronology reports for 475 buildings conducted by seven labs and consultants reveal expanding application that has produced greater clarity and precision in regional architectural histories.

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INTRODUCTION

Tree-rings and their reflection of growth patterns have been observed since the 1500s by men who worked with wood in Europe. The first use of tree-rings to date buildings, began in the early 20th century, primarily in the Southwest for Native American structures. In the 1980s, dendroarchaeology was more widely applied in the eastern United States. Recognition of dendrochronology spread rapidly because the scientific technique allowed scientists to determine a date of construction in the absence of documentary evidence. Despite its expanding role in architectural studies, practitioners disagree on what might be called "best practices." For example, there is no professional consensus on whether measured drawings are necessary preparation to taking samples, nor is there agreement on the how samples should be documented. No central repository for collected data exists, nor is there a standard national publishing requirement so that the results are disseminated. The purpose of this study is to assess the current state of dendrochronology in the eastern United States.

Dendrochronology is generally defined as the study of the annual growth of trees. Each year, trees lay down new growth around the circumference of the trunk. Thus, counting these annual growth rings reveals the age of the tree. The width of the rings varies from year to year, reflecting fluctuations in the climate. For example, if the year was rainy, the ring will be wide. Conversely, if the climate was dry, the ring will be narrow. The width of the growth rings creates a pattern that is replicated, customarily, in all of the trees of the same species in a given region.[1] By connecting patterns from different living trees to those from historic structures and artifacts,

[1] Tree-ring width can fluctuate based on living conditions such as high water table or surrounding trees. As a result, tree-rings from the same species can vary.

patterns can be extended back in time up to 9,000 years. Once a dendrochronologist develops a master or reference chronology for a specific region, samples with an unknown felling date, that is the date the tree was chopped down, can be compared to the master chronology. If a match is found between the sample pattern and master chronology, a felling date is determined, thus indicating that the building was built after that date. Using tree-rings to determine the date of construction for a building is called dendroarchaeology.

Numerous scientific fields apply data derived from tree -ring science to continuously recreate the past. The most common application of dendrochronology is climatology. This subfield applies the analysis of tree-rings to reconstruct historic climate changes. Analysis of the ring widths captures evidence of droughts, temperature and precipitation. For example, an article written in 1998 by David W. Stahle, Malcolm K. Cleaveland, Dennis B. Blanton, Matthew D. Therrell, and David A. Gay titled "The Lost Colony and Jamestown Droughts" used tree-ring research to try to understand why Jamestown from the 17th century, located in present day Virginia, and the Lost Colony, in present day North Carolina, were unsuccessful.[2] Tree-ring data during the settlement time of these colonies indicated the most severe drought in the Southeastern United States in 770 years. The drought lasted three years and is correlated with reports by Father Juan Batista de Segura who acknowledged a shortage of food which led to deaths due to starvation. There is a strong possibility that the drought caused a shortage of food leading to malnutrition and death. Before this study, it was believed poor preparation caused the colonies to be unsuccessful. It is possible that this drought and its devastating effect on

[2]David W. Stahle, Malcolm K. Cleaveland, Dennis B. Blanton, Matthew D. Therrell, and David A. Gay, "The Lost Colony and Jamestown Droughts," *Science,* New Series, Vol. 280, No. 5363, (Apr. 24, 1998): 564.

agriculture was indirectly responsible for the 4,800 deaths of 6,000 settlers that arrived in Jamestown between 1607 and 1625.

Ecology, geomorphology and chemistry are other applications of tree-ring science. Dendroecology utilizes trees as part of the ecosystem to track tree-line movement, fire incidence, and insect outbreak. Dendrogeomorphology employs tree-rings to study the landforms that effect tree growth including landslides and glacial activity. Dendromorphologists apply tree-rings to date geographic events such as mudflows. Dendrochemistry establishes past temperatures, sources of water, and pollution where a tree was maturing.[3] Tree-rings can also help determine when past earthquakes occurred and fault line movements.

Dendroarchaeology does have limitations. For example, if structural timber was reused, the date of construction based on the salvaged wood would not be correct. The species of wood also influences how effective the dating process is. Currently oak is the most commonly sampled wood, as they display clear rings and are frequently used for structural timbers throughout the country. Pine and poplar have also been used, but do not always produce well-defined rings. If the building does not possess sound oak, dating a structure can be very difficult.

Organizations throughout the United States have taken advantage of dendroarchaeology. The University of Arizona first used dendrochronology to date Native American structures in the Southwest. The Oxford Dendrochronology Laboratory has dated buildings throughout the Northeast and is continuously progressing. Colonial Williamsburg Foundation, clients of Jack Heikkenen, used this method to date several of their structures in

[3] For more information on the subfields of dendrochronology refer to: Speer, *Fundamentals of Tree-Ring Research.*

Williamsburg, Virginia. The Cornell Tree-Ring Laboratory devotes an educational program to dating buildings in New York and the Northeast. Dr. Henri Grissino-Mayer of the University of Tennessee and colleagues date buildings primarily in the Southeast. While the application of dendroarchaeology has increased since the 1980s, the technique is unevenly applied throughout the eastern United States. A list of almost 500 buildings dated by dendrochronologists revealed ninety-five percent of the buildings compiled were in the Northeast and Mid-Atlantic regions, with Massachusetts, Maryland, New York, and Virginia containing the greatest volume. Figure one is a pie chart of the building locations by state. The major sponsors of dendroarchaeology are individual owners and historic sites such as Colonial Williamsburg and Historic Deerfield.

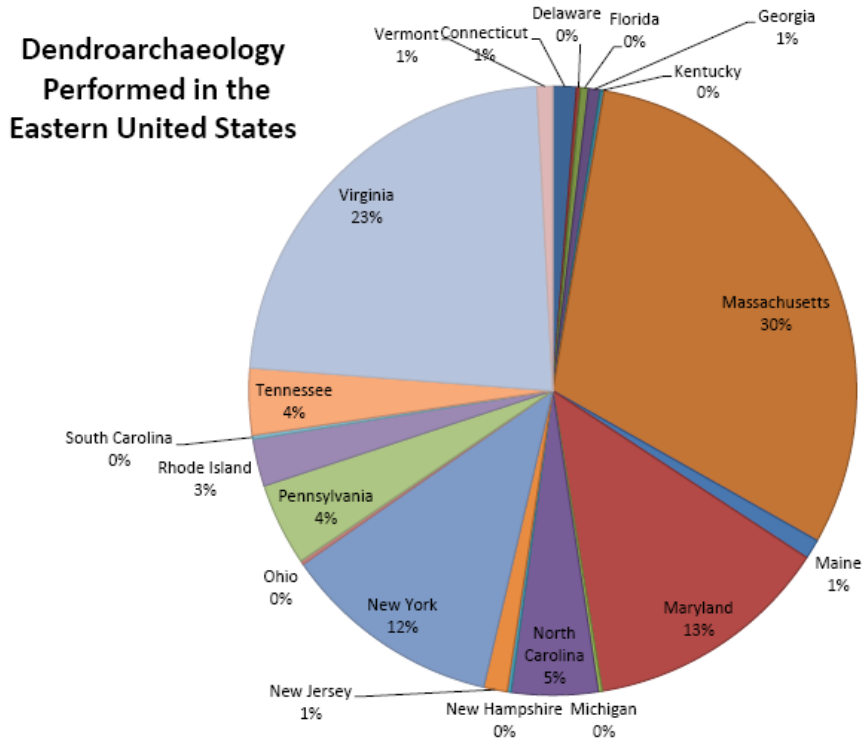

Figure 1: Dendroarchaeology Performed in the Eastern United States created by author

While all practitioners aim to date the building, the techniques employed vary between laboratories. For example, some labs create and utilize measured drawings to record the location of samples while others simply label the sample based on its position in the structure. Oxford Dendrochronology Laboratory, an English organization, expanded to the United States in the 1980s. Oxford abides by the guidelines created by a cultural heritage organization, English Heritage. The University of Tennessee does not follow any established guidelines but execute extensive preparatory investigations before taking any samples. Historic Deerfield has dated numerous buildings in the Northeast since 2001. Trained by scientists from Columbia University, Historic Deerfield uses measured drawings when available to label sample locations in the building and emphasizes the scientific process more than the initial sample assessment.

This study focuses on the eastern region of United States. It was, however, important to compare United States practices with other countries. England has applied dendroarchaeology extensively and recently established a set of guidelines that professionals follow when using tree-rings to date buildings. English Heritage, the US equivalent of the National Park Service, developed "Guidelines on Producing and Interpreting Dendrochronological Dates," with Oxford Dendrochronology Laboratory's Daniel Miles. These guidelines provide an outline of the procedure from creating a team, to taking samples, and publishing the results. These guidelines present a striking contrast to the United States where no organization has adopted either professional standards or publishing requirements.

Practitioners and clients have debated regulating dendrochronological methods. Experts in the United States, however, have made little headway toward developing a standard. There is, at present, no set procedure. Original methods did not include field sketches, samples were

not properly labeled or stored and it was impossible to replicate the process. Past attempts to develop guidelines for tree-ring research were controversial and unsuccessful. It would be beneficial to the field to have standards that would facilitate the transfer of data and coordinate the techniques used to obtain samples. If standards were to exist, historic integrity would be better protected and buildings would be easier to date.

The final section of this study assesses the potential for application of dendroarchaeology in Charleston, South Carolina where tree-ring research has not been utilized as a dating technique. A list of buildings which could be sampled to develop a master chronology for Charleston is explored as well as buildings whose dates of construction might be ascertained through dendrochronology.

Architectural historians have eagerly turned to dendrochronology for the precision it can derive when dating historic buildings. A recent analysis by Anne Grady, an independent architectural historian, determined common wood species and general building practices based off of a study of forty-nine dendrochronologically dated buildings. “Ringing in the Truth: What Dating Results are Telling us About Architectural History in Eastern New England,” illustrated the efficiency of the process[4] (See Figure 2.) There is as much as a twenty year difference between the dates revealed by dendrochronology versus those determined by architectural historians. Dendroarchaeological dates transformed the understanding of the building and history by uncovering new and accurate construction dates in replacement of hypothesized dates.

[4] Anne Grady, "Ringing in the Truth: What Dating Results are Telling us About Architectural History in Eastern New England," Tree-Ring Dating in the Northeast: Dendrochronology and the Study of Historical Forests, Climates, Cultures, and Structures, Deerfield: Historic Deerfield, Inc., 2005, 67-87.

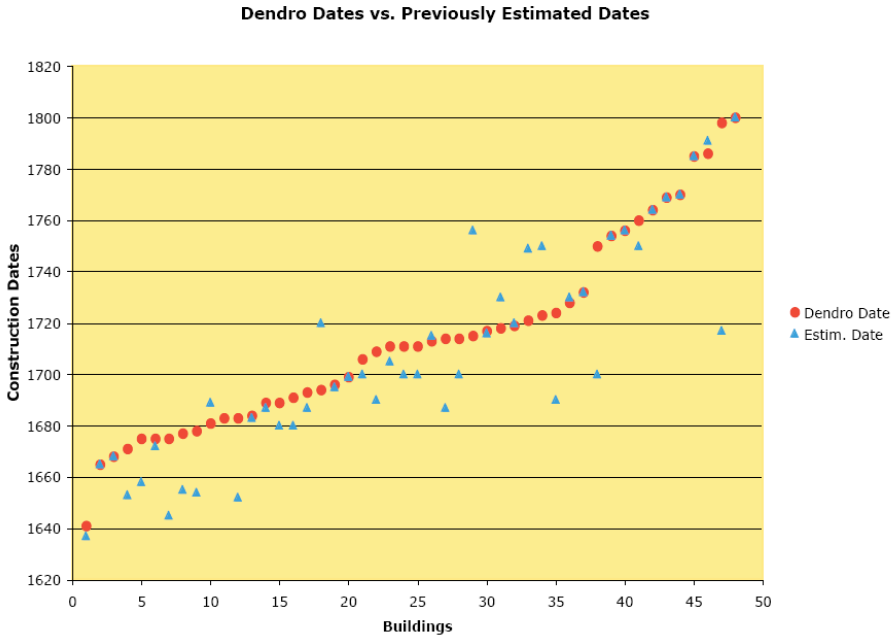

Figure 2: Anne Grady, "Ringing in the Truth: What Dating Results are Telling us About Architectural History in Eastern New England," Dendro Dates vs. Previously Estimated Dates. The blue triangles in the Figure 2 chart indicate the construction dates that architectural historians determined for the buildings in the test group. The red circles designate the dates rendered from dendroarchaeology.

AUTHOR'S METHODOLOGY

Dendrochronology has been commonly applied by experts in the architectural, climatological, and geological fields from the 1960s forward. To assess the state of dendrochronology in the eastern United States, information on the history of dendrochronology, its application, its methodology, and the possibility of standardizing the methods were explored. A review of the scholarly literature and websites, a means of disseminating scientific information that has been actively embraced by the field, provided information that was helpful, not only in recovering the history of dendrochronology but its methods as well. In order to determine the locations of dendroarchaeology, the techniques used, and the current state of standardizations, it was necessary to contact practicing professionals.

There is significant literature available on the development and the fundamentals of tree-ring science. Much less has been written or published about dendroarchaeological data. Most reports are not published or made available to the public. It was thus essential to contact professionals and acquire lists of dated buildings. These lists were then merged to create a document that contains the buildings that were dated using dendrochronology in the eastern United States.[5] The search for buildings was greatly concentrated in the eastern section of the United States, including the Northeastern, Mid-Atlantic and Southeastern states. Oxford Dendrochronology Laboratory, Cornell University, Columbia University, Historic Deerfield, The

[5]See Appendix A

University of Tennessee, and Jack Heikkenen all significantly contributed to the inventory.[6] Other institutions, such as the University of Arkansas and the University of Arizona, are performing dendroarchaeology in the Southwest but are not included in the compilation of buildings. This limitation factor was decided due to time constraints and professional availability. Practitioners were hesitant to provide lists of dendrochronologically dated buildings. Several organizations created or updated lists specifically for this study.

In order to determine the current means of collecting, recording, and testing data, Oxford Dendrochronology Laboratory in Baltimore, Maryland; The University of Tennessee; and Historic Deerfield in Deerfield, Massachusetts; were contacted. These three professionals, one from each region of the eastern United States, were selected because of their contribution to the field, the region in which they are located, and their accessibility. A standard set of ten questions was developed in order to establish a standard method of inquiry. Questions focused on three main components: their process before taking the sample, how they take the sample and the statistical programs used. Each of the professional's responses were recorded, analyzed and compared in the "Current Methods of Dendroarchaeology in the United States" chapter.

Practitioners were questioned on their opinions of standardizing the dendroarchaeological process and the controversy between scientists and architectural historians. The architectural historians aspire to preserve the building's historic integrity throughout the sampling process. The dendrochronologists feel the historians and past dendrochronologists are not qualified to determine how the dendroarchaeological process

[6] These organizations as well as several smaller societies provided building lists and report examples. Other institutions farther west performed dendroarchaeology on numerous buildings that are not included in Appendix A.

should be applied. Standardizing techniques has caused a rift between the two and made discussing the topic arduous. This was a major challenge when determining the best possible means of a dendroarchaeological procedure.

A SHORT HISTORY OF DENDROCHRONOLOGY

While tree-rings have been used to date buildings and to reconstruct ancient climates since the 1900s, tree-rings themselves were observed as a record of time for centuries. From the 1400s to the 1800s, professionals observed the annual rings of trees and theorized the potential use of this data. There are few recorded instances of these observations, but one can speculate that carpenters and wood workers detected the tree's power to record time.

As early as the late sixteenth century, scientists discovered the annual growth of trees. Leonardo Di Vinci recorded tree-ring growth and hypothesized that the ring size was directly related to the weather. In the 1580s, a carpenter taught a traveler about tree-rings and the relationship to the environment, which the traveler recorded in a travel journal. The carpenter even stated that he could determine the age of wood brought to his shop.[7] From these two early examples, we can guess that others were also aware of tree's capability to document time.

In the 18th century, scientists discovered specific rings that created the basis for dendrochronology. Two French scientists, Henri Louis Duhamel du Monceau and George Louis Leclerc de Buffon hypothesized a specific ring visible in most trees was significantly thinner due to cold temperatures. That ring occurred in 1709 and was utilized as a marker by early European scientists in Sweden, Germany, as well as France. Duhamel took this research a step further and tested trees by making a small cut in them. Duhamel later examined the cut to determine the growth since the wounding.

[7]James H. Speer, *Fundamentals of Tree-Ring Research*, (Arizona: The University of Arizona Press, 2010), 28.

In the 1800s, tree-ring's growth became widespread knowledge. In 1811, the mayor of New York, De Witt Clinton, dated mounds of earth by counting the rings of the trees growing atop. He concluded that the Europeans did not construct the mounds but the Native Americans did earlier. This is the first recorded use of tree-rings to date archaeological specimens. It is unlikely, however, he estimated the age of the trees correctly. Alexander Catlin Twining not only discovered that tree-rings recorded time but also that they illustrated the weather of the season. Twining observed "every tree had preserved a record of the seasons, for the whole period of its growth, what is worthy of observation, every tree told the same story."[8] He recognized that trees could be compared and tree-ring sequences developed. While Twining thought this knowledge was valuable primarily to observe past seasons, he was, in the 1820s, creating a basis for dendroarchaeology.

Cross-dating, defined as "matching ring widths to obtain exact dates of annual growth,"[9] is the process utilized by dendrochronologists to determine a construction date for a building. In the 1800s, scientists started using tree-ring data and developed recognizable rings patterns. In early the 1900s, A. E. Douglass, the father of dendroarchaeology, used these recognizable tree-ring patterns to date Native American structures in the southwest United States and started the first dendrochronology educational program in 1937 at the University of Arizona. The procedure remained predominantly in the Southwest for the next several decades and did not cross the Mississippi River into the eastern United States until the 70s, when recognition of the process grew and several university programs were initiated. In 1973, Cornell University began their dendrochronology program followed by Columbia University in 1975. As awareness of the

[8]Speer, *Fundamentals*, 32.
[9]Speer, *Fundamentals*, 2.

potential applications to architectural history grew in the eastern region, so did the clients and the practitioners. In the 1980s, dendrochronologist, Jack Heikkenen began creating chronologies and dating buildings for Colonial Williamsburg followed closely by Oxford Dendrochronology Laboratory. In the early 2000s, two significant dendrochronology projects including fifty plus buildings were conducted by Columbia University and Oxford Dendrochronology Laboratory, one for Historic New England and one for Historic Deerfield. These projects performed in the Northeast, greatly increased the number of reference chronologies as well as the publicity of the procedure. Today, individual owners as well as museum agencies comprise the clientele and depend on dendrochronology to provide a scientifically supported construction date.

Before a ring sequence is developed, several factors need to be assessed to determine suitable samples for study. One aspect that largely regulates tree growth is rainfall. A tree requires significant water in the soil to grow. A tree that has a consistent source of water, such as a high water table, is not a good sample tree. This sample will produce regular intervals of rings with little variations for comparison. A better sample is a tree that relies on rainfall for water, such as a tree on a hill, allowing good variation in tree-rings based on the climate. Trees growing in dense forests do not make good specimens due to the competition among other trees. If a tree is protected or covered by surrounding trees, its rings will not reflect the environmental changes. Unquestionably, old, healthy trees are ideal, however, they are not always accessible. It is important that many samples are taken to verify the pattern. On occasion, very dry years will not produce a ring. With multiple samples, it can be ensured this anomaly is not overlooked. The length of the timeline increases with more samples.

In order to cross-date a sample, the tree-rings must first be measured to determine and record the tree-ring's pattern. When samples are observed under magnification, there are two components of each ring, the early growth and the late growth. Early growth is composed of large cells formed during spring and the rainy season, while the tree was growing quickly. Late growth is developed during the colder season while the tree is dormant and is composed of small cells close together. With the naked eye, the late growth looks like a dark area of the ring. The end of one ring is determined by the dark, late growth cells and the new ring is visible by the lighter, larger early growth cells. The change from late growth to early growth is abrupt providing a sharp contrast.

In 1838, Charles Babbage became one of the first scientists to recognize tree-rings potential for dating. His paper on tree-rings and the concept of cross-dating, as with previous scientists, detected the annual ring growth and its variability with climate changes but also discussed the ability to compare ring sequences with other trees. [10] Babbage recognized that trees of the same species generate the same seasonal tree-ring pattern. Babbage took a step further than previous tree-ring observers and described the variant effects such as the influence neighboring trees have on tree-ring growth. Outside growth factors create a dendrochronological challenge, however, Babbage explained that variation can be counteracted if numerous trees are sampled and a pattern averaged. The more trees sampled from a region, the stronger the reliability of the chronology. With this example, Babbage demonstrated the importance of replication to reduce the margin of error in tree-ring sequences.[11]

[10] Speer, *Fundamentals*, 28
[11] Speer, *Fundamentals*, 28

In 1869, John Muir used tree-rings to date an event for the first time in the Sierra Nevada Mountains in California. Muir recognized that a violent snow storm badly damaged but did not kill a tree. Muir was able to determine the date of the snow storm by counting the number of rings which grew around the part of the tree that experienced damage. This simple calculation allowed insight into events of the past. In the same area, an avalanche cleared a field of trees. Muir noted that if they dated the saplings, an approximate date of when the avalanche occurred could be revealed. During this time, it was well established that trees produced annual rings. It was the application of this data that began to push the field of dendrochronology forward.

A. E. Douglass, considered the catalyst for dendrochronology in the United States, began applying tree-ring patterns to dating structures in the early 1900s and coined the term dendrochronology in 1928. A 2002 article called "Peering into Rings of Grains" by Michael Olmert from the *Colonial Williamsburg Journal,* enforces how Andrew Ellicot Douglass developed the idea that tree-rings can incorporate hundreds of years and thus be used as a "very-long-term annual clock."[12] Douglass was an astronomer by education, but in the 1910s, he taught physics and geography at the University of Arizona. While teaching, Douglass collected samples from 230 trees from five states and recorded 75,000 rings.[13] He collected samples from giant sequoias and developed from them, a 3,000 year chronology. In the Southwest, A. E. Douglass's sampling region, tree-rings experience a lack of water instead of a variance in temperature as in the eastern region and produce pronounced differences in tree-ring's seasonal growth between years. In 1904, Douglass discovered several characteristic rings that

[12]Michael Olmert, "Peering into the Rings of Grains," *Colonial Williamsburg Journal*, (2002), 2.
[13]Speer, *Fundamentals,* 38.

occurred in 1899, 1902, and 1904 and are repeated throughout the Southwest region of the United States. Douglass not only developed the practice of dendrochronology, he started the first tree-ring laboratory. In 1937, he began using lab space beneath the Arizona University football stadium where the tree-ring laboratory still resides. He also educated many of the future leaders in dendrochronology such as Bruno Huber and Edmund Shulman, both who worked extensively in Europe.

In 1914, Douglass began producing a lengthy chronology from living trees which he used to date Native American structures in the Southwest, one of the first modern endeavors in dendroarchaeology. After fourteen years of research, Douglass developed a chronology from living trees and beam samples that started in the modern era and spanned 700 years. Using building samples and other previously dated artifacts, Douglass was able to develop a second chronology that was not anchored with the modern day but could be used to tentatively date the Native American structures. In 1929, Douglass acquired funding which was used to sample buildings and attempt to close the gap between the two chronologies. He and two other workers examined existing structures for a beam in the Southwest that could connect the two chronologies. In 1929, in Show Low, Arizona, they successfully found the required beam with a tree-ring sequence that revealed that there was no gap between the two chronologies Douglass had created. The overlap was so small, scientists did not notice it before. With this breakthrough, a 1,200 year chronology was created for the Southwest region that spans to 700 AD.[14]

[14]Speer, *Fundamentals,* 154.

Douglass developed more than tree-ring chronologies during his studies. He created a graphic representation of dendrochronological data called the skeleton plot. This graph uses a series of lines to record when ring length varies between years and to represent significant ring series, all at a glance. On the graph, a very narrow ring equates a long mark, average rings do not require any mark, and very wide rings are marked "b" for big. If a very large ring, followed by a narrow ring is demonstrated in the tree-ring chronology, this significant distinction is marked on the graph. These graphs are still used by dendrochronologists across the country as an approach of comparing dendrochronological data. See Figure 3 for an example of how ring size is marked on a skeleton plot.[15]

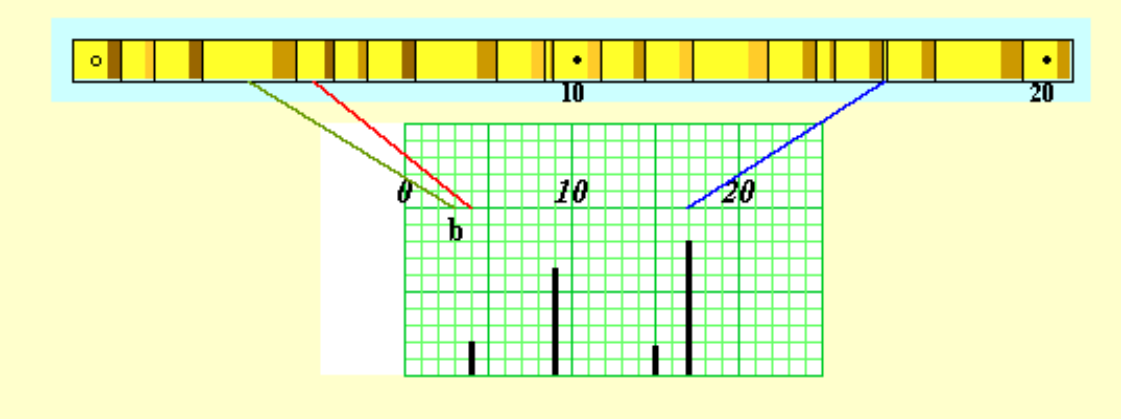

Figure 3: Skeleton Plot courtesy of www.ltrr.arizona.edu

While Douglass applied dendroarchaeology successfully to date ancient Native American architecture, it was not until the 1970s that the technique was applied to historic buildings east of the Mississippi. Jack Heikkenen, one of the first dendrochronologists to work in the eastern United States, raised awareness of the potential of dendroarchaeology to historic organizations

[15]Photo Courtesy of the University of Arizona website: http://www.ltrr.arizona.edu/skeletonplot/plotting.htm

and house owners. He developed his own graphic representation of dendrochronological data. Heikkenen's interest in dendroarchaeology began when he used tree-rings to determine the age of a Boy Scout cabin.[16] In the 1980s, Heikkenen created a comparison technique called "key-year" cross-dating which was simpler than A. E. Douglass's skeleton plot. According to Heikkenen, "each year's growth ring, compared to last year's, can be only one of three things: greater, which is recorded as a plus; equal, which is a zero; or less, which is a minus."[17] The resulting graph displayed a plus and minus pattern that could be easily compared to other key-year patterns. When a match was found, Heikkenen then statistically determined the precision of the match and the probability of error using a computer program. Series that exhibited a recognizable pattern, for example, six pluses in a row, were considered "key-years" and were clearly displayed on a key-ring graph. Heikkenen's process was not well received. Some critics questioned the validity of his statistical technique and still do not accept dates derived by his key-year method. Heikkenen's very strong personality, combined with questions about his methods, invited controversy. In response to critics, Colonial Williamsburg, had Heikkenen derive dates for buildings with unmistakably documented dates of construction. Heikkenen was able to date many of the buildings to the documented construction date and thus prove his methods accurate. Heikkenen patented the key-year technique, which is not standard protocol for a scientific method. During twenty years of research, Heikkenen dated seventy-nine total buildings, fifteen of them at Colonial Williamsburg.[18]

[16] Olmert, "Peering," 3.
[17] Olmert, "Peering," 3.
[18] This number was determined by the list of buildings dated by dendrochronology from Colonial Williamsburg.

The rapid expansion of tree-ring chronologies in the world prompted the creation of the International Tree-Ring Data Bank in 1974 by Dr. Harold C. Fritts of the University of Arizona. Originally a volunteer initiative, the repository collected dendrochronological data from any source or location. In 1990, The National Oceanic and Atmospheric Administration's, (NOAA) Paleoclimatology took over the initiative and provided funding and maintenance. The website currently contains several resources on obtaining dendrochronological data, climatology data, software used with tree-ring data, and several other avenues of research. The International Tree-Ring Data Bank (ITRDB) stores tree-ring contributions from 1973 through 2011[19] and incorporates samples on an interactive Google Earth template showing all of the locations of data throughout the world.

Journals were also emerging during this time from the University of Arizona and abroad as tree-ring usage became more widespread. The journals "Dendrochronologia" and "Tree-Ring Bulletin" are both journals based solely on dendrochronology. The "Tree-Ring Bulletin," originally published by the University of Arizona, is now published by The Tree-Ring Society. It is a quarterly document established in 1934 and contains a large amount of information.[20] "Dendrochronologia" is an international journal which encompasses all aspects of tree-ring research. It is produced by professionals from all over the world. The executive producer is from the WSL Swiss Federal Research Institute. These documents do not circulate widely.

[19]"Update History of the ITRDB," *NOAA Paleoclimatology,* last modified April 2011, accessed September 20, 2011, ftp://ftp.ncdc.noaa.gov/pub/data/paleo/treering/version.txt.
[20]Henri D.Grissino-Mayer, and Peter M. Brown, *Tree-Ring Bulletin and Tree-Ring Research,* last modified August 8, 2011, accessed September 25,2011, http://www.treeringsociety.org/TRBTRR/TRBTRR.htm.

As greater awareness of the potential applications of dendrochronology grew, so did the available organizations to perform the process. Oxford Dendrochronology Laboratory (ODL), an organization dedicated to dating standing structures with dendrochronology, started practicing in the United States in the 1980s. Based in England, the organization dated 139 buildings in the eastern United States primarily in the early 2000s. The organization was founded in 1970 by Dr. John Fletcher with the focus of using dendrochronology to date English buildings. The lab came to the United States in approximately 1986 and was unique in that their work focused on dating timbers, buildings, and artifacts in contrast to several educational programs whose main dendrochronology focus is climatology or geomorphology and intermittently dated buildings. Oxford Dendrochronology Laboratory has a close affiliation with the Research Laboratory for Archaeology and the History of Art at Oxford University. Because of the lab's strong ties to England, they follow the strict dendrochronological data guidelines established by English Heritage, an organization that recognizes the importance of historic places and counsels the public and the government on the best practices to ensure their survival for future generations. Michael Worthington, head of the American branch headquartered in Baltimore, Maryland has become a prominent name and worked on buildings at Mount Vernon, Montpelier, Colonial Williamsburg, and Historic New England.[21]

As awards presented to dendroarchaeology projects and symposiums increased awareness, interest in dendrochronology in the eastern United States expanded among museums and preservation organizations in the early 2000s. In 2004, the Vernacular Architecture Forum awarded the Paul E. Buchanan Award to the project "Dendrochronology for

[21]Worthington, *Oxford Dendrochronology Laboratory Website*, "Map of Dated Buildings-USA."

the Colonial Virginia House."[22] This project raised awareness of dendrochronology, refined and revised the understandings of the buildings, and was a catalyst for further research in the area. On May 19-20, 2005, Historic Deerfield hosted a symposium titled "Tree-Ring Dating in the Northeast: Dendrochronology and the Study of Historical Forests, Climates, Cultures, and Structures." Several prominent practitioners such as Paul Krusic and Edward Cook of Columbia University, Dr. David Stahle of the University of Arkansas, Dan Miles and Michael Worthington of Oxford Dendrochronology Laboratory, and Bill Flynt of Historic Deerfield attended. Each presented a paper on subjects relating to dendrochronology. For example, Michael Worthington presented "Dating an Historic Building from Initial Assessment to Final Report," an overview of the dendroarchaeology process. Dr. Edward Cook presented "The Scientific Value of Tree-Ring Data Obtained from Historical Structures in Eastern North America," which gives an analysis of tree-ring research. This symposium attempted to bring recognition to the importance of tree-ring studies and how others can benefit.

Museum and preservation organizations began to recognize tree-ring dating as a credible dating source and turned increasingly to dendroarchaeology to provide construction dates for buildings. One of the first organizations to take advantage of dendrochronology's ability to provide a credible date of construction was Historic New England, a non-profit organization which aims to preserve and exhibit cultural heritage of New England. In 2001, the organization conducted a dendroarchaeological initiative in and around Boston, Massachusetts to first create a chronology that could be used to date buildings in the area and then to expand

[22]Gail Dubrow, "2004 Paul E. Buchanan Award," *Vernacular Architecture Newsletter,* 101 (2004): 13.

the boundaries of which the chronology was applicable.[23] The study ultimately dated over fifty buildings in the Massachusetts area, in conjunction with Oxford Dendrochronology Laboratory and Columbia University. Historic New England, originally named the Society for the Preservation of New England Antiquities or SPNEA, was started in 1910 by William Sumner Appleton in reaction to the demolition or dramatic alteration of several historic buildings. At Appleton's death in 1947, the organization owned fifty-one historic places and managed an archive and museum.[24] Historic New England provided a catalyst for the procedure in the eastern United States by commissioning several phases of dendrochronological work.

Historic Deerfield in Deerfield, Massachusetts, began a different dendrochronological initiative in 2001, developing a rare pine chronology. Founded in 1669, Deerfield is located in the northeast portion of the state and was attacked several times, most notably by the French and Indians in 1704. It still survives today with little change. It is now comprised of eleven house museums built primarily in the 18th century, a museum, and a visitor center. The village also houses functioning farms and schools. Up until the early 2000s oak was predominantly used to date due to the clear ring sequences oak produced and its prevalence in building structures. In the Historic Deerfield region, pitch pine was used more commonly for 18th century framing as well as floors, sheathing and furniture. Through help from Columbia University, a pine

[23] Worthington, *Oxford Dendrochronology Laboratory Website*, "Boston Dendrochronology Project," last modified 2011, accessed January 2012, http://www.dendrochronology.net/boston_project.asp#.
[24]Historic New England, *Historic New England, About Us*, last modified 2012, accessed February 2012, http://www.historicnewengland.org/about-us.

chronology was developed that Bill Flynt, of Historic Deerfield, used to date 113 buildings in and around Deerfield, Massachusetts and continues to work.[25]

Between the 1970s and early 2000s, several universities initiated dendrochronological programs, including Cornell University in 1973, Columbia University in 1975, and the University of Tennessee nearly a decade ago. The New York State and NE North American Dendrochronology Project, aims to date historic buildings in the New York region from a master tree-ring chronology which they developed as part of their program.[26] This project, started as part of Dr. Carol Griggs' doctoral studies, is part of the course offered to graduate and undergraduate students providing a hands-on approach to the scientific method of dendrochronology. The program has dated forty-seven buildings in the past decade and is still an educational option for Cornell students today.[27]

Columbia University has been involved educationally and instrumentally in dendrochronology, providing courses but also creating and using chronologies to date buildings throughout the eastern region of the United States. Dr. Gordon Jacoby and Dr. Edward R. Cook began the Tree-Ring Laboratory of the Lamont-Doherty Earth Observatory with Columbia University in 1975. The lab originally "focused on establishing long tree-ring records from

[25]William A. Flynt" The Timbers are Talking: Developing Chronologies and Dating Historic Structures in the Connecticut River Valley." Tree-Ring Dating in the Northeast: Dendrochronology and the Study of Historical Forests, Climates, Cultures, and Structures, (Deerfield: Historic Deerfield, Inc., 2005), 88-101.
[26] Cornell is highly involved with international dendrochronology accommodating two programs. The Malcolm and Carolyn Wiener Laboratory for Aegean and Near Eastern Dendrochronology aims to create a timeline that spans 10,000 years in the Aegean region of Turkey and the Near East area. Another international project, the Southern Levant Dendrochronology Project, focuses on tree-rings and chronologies of Israel, Jordan, Egypt, and Lebanon.
[27] Dr. Carol Griggs, "List of Dendrochronologically dated historic buildings and other structures at the Cornell Tree-Ring Laboratory" (2012).

temperature-sensitive boreal forest locations in North American for studies of global change."[28] The Tree-Ring Laboratory developed technology that advanced measurement programs and helped practitioners use different species of trees, while extending master tree-ring chronologies. Dendroarchaeology is not the primary focus of the lab, however, Dr. Edward Cook, Paul Krusic, and William J. Callahan of the Lamont-Doherty Earth Observatory have dated over seventy-five buildings individually and in conjunction with several other prominent practitioners in the first decade of the 21st century.

One of the more recent educational programs to be created, the University of Tennessee, located in Knoxville, has been conducting tree-ring research for almost ten years and has dated buildings throughout the southeast United States. Directed by Dr. Henri Grissino-Mayer, the Laboratory of Tree-Ring Science focuses on fire histories, climate, and archaeology. The lab's primary focus is not archaeology, however, the program successfully performed dendroarchaeology on thirty-five buildings in the past decade through educational studies as well as for individual owners, and are one of the only labs working in the Southeast region. Dr. Grissino-Mayer maintains the website *The Ultimate Tree-Ring Webpages,* which provides a guide to dendrochronology in all forms and is a comprehensive resource for amateurs and professionals alike.

[28] Tree-Ring Lab History, *Lamont Doherty Earth Observatory, Columbia University,* accessed February 25, 2012.

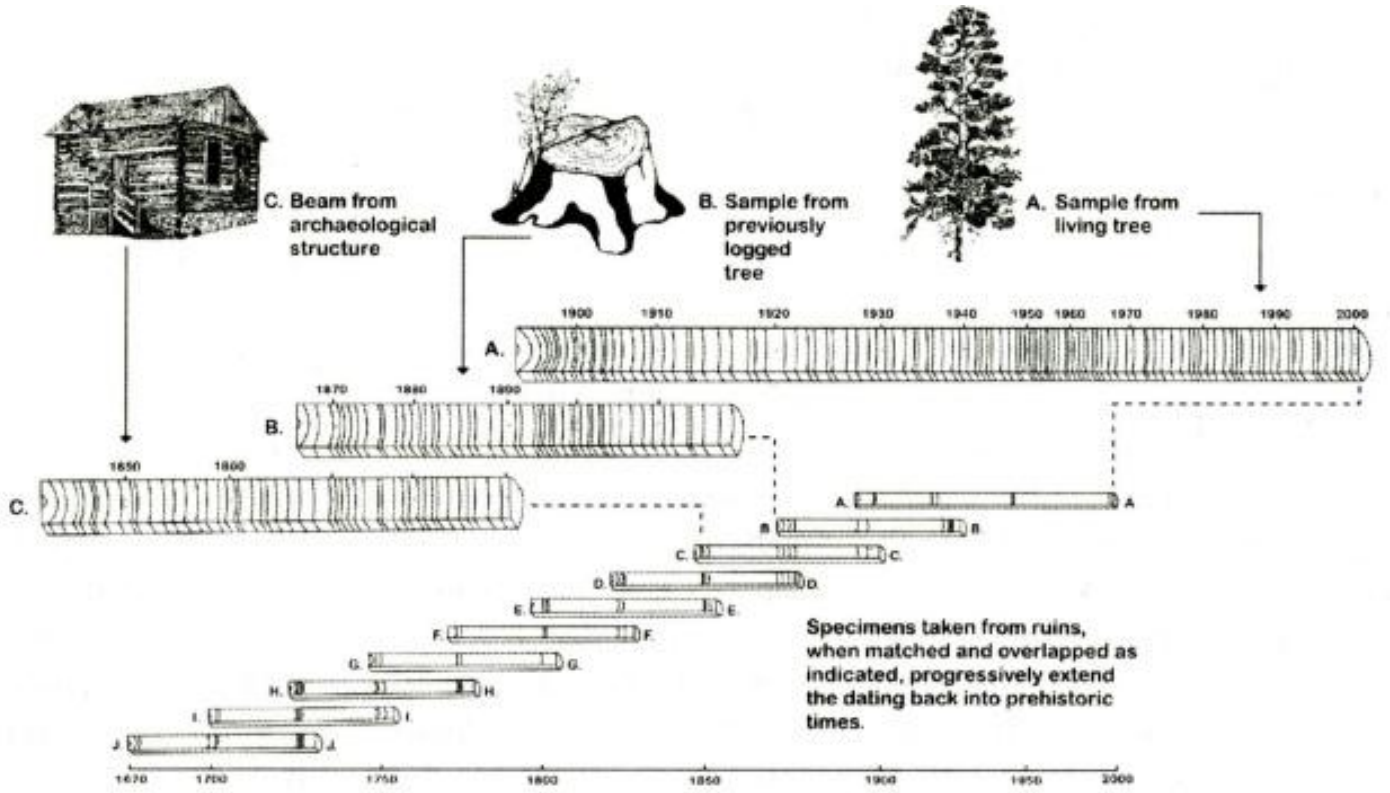

Figure 4: Cross dating: James H. Speer, *Fundamentals of Tree-Ring Research* (Arizona: The University of Arizona Press, 2010). 12.

LIMITATIONS OF DENDROARCHAEOLOGY

Dating a building using tree-ring science is a precise process and there are specific characteristics which can limit the success. When tree growth factors are extreme, such as very low temperature or rainfall, special circumstances in tree-rings occur making it problematic to count the rings. Builders often recover and reuse old wood and samples taken from this salvaged wood will not produce an accurate date. Furthermore, the process of cross-dating does not always produce a construction date. The type and quality of the wood also play an important role in dating the timber.

Climate is the number one factor that effects tree-ring growth. When measuring the tree-rings, false or missing rings can produce incorrect data. Rings for certain years can be indistinguishable when growth is limited by drought, insufficient rain fall or extreme temperatures. Two rings for one year occur when late growth cells vary enough to look like the start of early growth cells, as though there is a dark segment followed by a light one. This false ring can be determined by examining the late to early growth cells. If there is a gradual transition between the rings, it is a false ring. Figure 5 shows an example of a false ring. Also, wet climates often do not produce a variation in ring widths and a ring pattern cannot be differentiated. This is frequently a problem in tropical climates. One resolution for this problem is to study various species of trees in order to investigate if different trees react more sensitively to the environment. However, this limitation makes dendrochronology difficult for certain regions.

Architectural changes can impede the success of dendroarchaeology. Often, builders use reclaimed wood when renovating buildings. Therefore, if practitioners date a building based

on a salvaged member, it will not be an accurate date for the building. Because of this limitation, it is advantageous to employ an architectural historian or a professional familiar with the signs of salvaged wood. Those well versed in historic buildings can determine the difference between a member's original location and wood that has been moved. This is always a concern for dendroarchaeologists while dating buildings using dendrochronology.

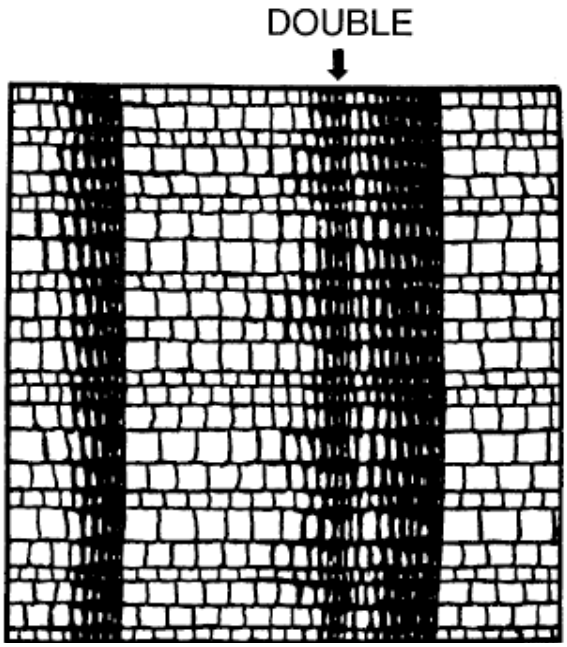

Figure 5: False ring from Stephen E. Nash, "Archaeological Tree-Ring Dating at the Millennium," *Journal of Archaeological Research,* vol. 10, no. 3 (September 2002).

The sampling and statistical stages can be problematic when dendroarchaeology is implemented. The first step when taking samples is to determine quality specimens. Timbers that display fewer than fifty to seventy-five rings are difficult to date or do not provide a stable match. Also, sapwood or wane edges, both which indicate the last year of growth on the tree, are necessary to determine a felling date. If these are missing, it can be assumed that the date

of construction is after the last ring of growth, however, a specific date cannot be determined. Another important first step is to determine the type of wood, preferably oak or pine. A significant number of chronologies exist throughout the US which provides a comparison for timber samples. The availability depends greatly on region and is imperative to the success of samples. If there is not a master chronology available for comparison, one must be developed before any building with an unknown construction date can be tested. Also, it is not guaranteed that the sample will match. There are some species such as pine that contain patterns which do not match master chronologies. Dendrochronologist Michael Worthington with Oxford Dendrochronology Laboratory worked in the Southeast for over a year before acquiring any data that was functional for dendroarchaeological purposes.[29]

Despite all of dendroarchaeology's limitations, the process has been very successful. With emerging research and the method becoming more common, new chronologies are constantly developed and hopefully, the samples which are not currently matched can be retested in the future.

[29]Michael Worthington, interview and e-mail by author, (August, 2011).

COMPUTER PROGRAMS

After a reference chronology is created, building samples can be compared and ring patterns matched to find the precise date of the building. Cross-dating should not be determined by the human eye alone, a computer generated statistic is necessary to concluded how well the sample matches the reference chronology. There are numerous statistics and equations used to decide the strength and other aspects of the tree-ring patterns. Computer programs were developed to ease the measuring and cross-dating of tree-rings and provide more accurate results.

Statistical equations are used to compare samples to each other and to a master chronology. The chronologies from the National Oceanic and Atmospheric Administration's International Tree-Ring Data Bank include four standard tests. The first is "series intercorrelation." This equation compares a sample to a master chronology or two samples together to show their relationship. It represents the average of every series with the master chronology. It is also a measure of the reliability of the chronology.[30] "Means sensitivity" is the measurement of the variability from year to year, producing a number between zero and one. If there is no change between ring widths, the means sensitivity would be zero. If the change is so great that every other ring is missing, it would be close to one. The ideal means sensitivity is .2; .1 and .4 are both difficult to date due to the slight or drastic change in ring width.[31] This value is significant because it determines the sample's cross-dating ability. The next test, the "average standard deviation" illustrates the level of change in the series. This value is not comparable to

[30]National Oceanic and Atmospheric Administration, "User Guide to COFECHA output files," NOAA Paleoclimatology, last modified August 20, 2008,accessed February 2012, http://www.ncdc.noaa.gov/paleo/treering/cofecha/userguide.html.
[31]Speer, *Fundamentals*,107.

other values. The final value shown is “average autocorrelation” or the “measure of the previous year's influence on current year's growth.” This value is usually between .300 and .800.[32]

Additional statistics are commonly used to determine the growth rate and signal strength. The Gleichläufigkeit test, or G score, compares two ring patterns and determines if the two trees are growing at the same rate.[33] The G score allows researchers to discover the trend of growth as well as erroneous samples. If the trend for the samples is increasing growth, and a tree’s G score concludes decreasing growth, it is possible the tree is not an applicable sample. It is conceivable it was stunted by surrounding trees or was affected by an insect infestation; however, it will not produce rings that are consistent with others. Another common statistic, the running r-bar determines the signal strength through the course of the chronology.

Various dendrochronological programs are available that only measure tree-rings, are used for cross-dating, or combine several uses of tree-ring data in one program. Cornell University uses software called Corina, developed to fit the demands of their Laboratory of Tree-Ring Research and provides measuring and cross-dating analysis. The University of Arizona has six different software options available for download from their website, each supplying different types of dendrochronological analysis tools. A much smaller organization, Historic Deerfield, uses COFECHA for cross-dating.

Programs such as MeasureJ2X or PJK are used to measure the samples. These programs input data to the computer from a recording device on a microscope. Each program varies

[32]"User Guide to COFECHA output files."
[33]Speer, *Fundamentals*, 107-108.

minimally but work towards the same objective. PJK has been used for decades and is often free. MeasureJ2K is a professionally developed program and needs to be purchased.

COFECHA is the most common program labs used to cross-date samples. This program, developed by Richard Holmes, provides a date for undated samples by comparison to master chronologies. The program generates a *t*-score which is the value of the match between the chronologies. Most laboratories use a value of 3.5 or higher as a strong match with the preferential five or six. Specimens from the same tree will produce a value of ten.[34] COFECHA should be used in congruence with visual and graphical dating applications. This program was updated in 2005 to be applicable to Mac and Windows.[35]

Corina, the software used by Cornell University, is also used to cross-date samples. Corina was developed to support multiple versions of tree-ring software such as TriDaS, the Netherland initiative to standardize dendrochronological data. It can produce *t*-values and trends as well as numerous other applications. Corina is widely available and can be used on Mac and Windows.[36]

[34]Oxford Dendrochronology Laboratory, "Basic Dendrochronology," Oxford Dendrochronology Laboratory, last modified 2011, accessed January 2012, http://www.dendrochronology.net/basic_dendrochronology.asp.
[35]"User Guide to COFECHA output files."
[36] Cornell University, "Corina," Cornell Tree-Ring Laboratory, last modified November 8, 2011,accessed March 15, 2012, http://dendro.cornell.edu/corina/index.php.

COMPILATION OF DENDROARCHAEOLOGICALLY DATED BUILDINGS ILLUSTRATING DISTRIBUTION OF WORK IN EASTERN UNITED STATES

A great deal of dendrochronological data is accessible online with countless applications, however, the regions where data was collected are not well-defined. It is clear certain regions are more researched than others. Practitioners dated buildings extensively in the Midwest and the Northeast as well as small regions throughout the country. The Laboratory of Tree-Ring Research, at the University of Arizona, has a clear timeline for their region. The Oxford Dendrochronology Laboratory completed extensive research in the Northeast portion of the United States. There are numerous reports of cross-dating Colonial Williamsburg buildings with existing tree-ring timelines as well as other buildings in Virginia. Several universities contributed to the data collection in the United States such as the University of Tennessee, and Cornell University. The University of Arkansas, also developed chronologies from Virginia to Florida. While some articles clearly state their geographic content, other resources are not as straight forward that they provide locations of dendrochronological data. Articles written about topics other than dendroarchaeology allude to useful data. For example, "Paleoclimate and the Potential Food Reserves of Mississippian Societies: A Case Study from the Savannah River Valley" written in 1995 by David G. Anderson, David W. Stahle, and Malcolm K. Cleaveland analyzed dendrochronological data from the Savannah River between South Carolina and Georgia.[37] Articles such as these, refer to dendrochronological data that can be helpful to determine locations of tree-ring samples.

[37]David G Anderson, David W Stahle and Malcolm K Cleaveland, "Paleoclimate and the Potential Food Reserves of Mississippian Societies: A Case Study from the Savannah River Valley," *American Antiquity,* Vol. 60, No. 2, (April, 1995): 258-286.

To illustrate the locations of dendroarchaeology applications in the eastern region of the United States, reports and lists of dendrochronologically dated buildings were compiled from practitioners and their websites. Figure 6 illustrates the sites of dendrochronologically dated buildings. Scientists and historians applied dendrochronology throughout the United States, however, most of the buildings compiled for this study are located in the Northeast and Mid-Atlantic regions. The data is organized by regions, Northeast, Mid-Atlantic, and Southeast, and then by the professionals who performed the dating. Information for 473 total buildings was compiled.[38]

[38]Appendix A is a document with all of the buildings. This information was compiled through interaction with professionals as well as website research. It lists the buildings first by state and then by practitioner.

Figure 6: Map of Dendroarchaeologically Dated Buildings created by author

The Northeast United States has the highest concentration of dendrochronologically dated buildings, 229 buildings in seven states. In Maine, five buildings were dated, one by Dan Miles in 2004, and four by Carol Griggs and the Cornell Tree-Ring Laboratory, two in 2007 and two in 2011. In 2007, Oxford Dendrochronology Laboratory dated one building in New Hampshire. Historic Deerfield dated four buildings in Vermont. Oxford dated ten of the twelve buildings in Rhode Island between 2003 and 2005. The last building was dated by the Cornell

Tree-Ring Laboratory in 2010. In Connecticut, six buildings were dated; two by Oxford and four by Historic Deerfield. In New York, fifty-six buildings were dendrochronologically dated. Three buildings were dated in 2006 by Oxford Dendrochronology Laboratory, four were a combination of Oxford and Lamont-Doherty Earth Observatory, and four were dated by Historic Deerfield. Thirty-six buildings were dated by the Cornell Tree-Ring Laboratory between 2001 and 2011 and nine were dated by Edward Cook and William J. Callahan from the Lamont-Doherty Earth Observatory of Columbia University. Massachusetts has the highest assembly of buildings dated by dendrochronology with 145 buildings. Fifty-two buildings were dated by Oxford Dendrochronology Laboratory between 2001 and 2007. Historic New England commissioned dendroarchaeology on several buildings in New England in four phases. In the first phase, in 2001, Ed Cook and Paul Krusic created a Boston Area Master Chronology that spans from 1513 to 1996.[39] Miles, Worthington, and Anne Grady, then affiliated with Historic New England, conducted Phase Two in 2002. The first goal of Phase Two was to evaluate the distance the Boston Area Master Chronology could be applicable for dating samples and still produce matching tree-ring patterns. This was conducted by analyzing buildings within fifty miles of Boston. The second goal was to increase the number of samples in order to reinforce the integrity of early years of the master chronology. Between these two studies, numerous buildings in New England have been dated. In addition to the Boston study, nine buildings in Massachusetts were dated by the Lamont-Doherty Earth Observatory and four buildings were dated by Cornell University.

[39]Worthington, *Oxford Dendrochronology Laboratory Website*, "Boston Dendrochronology Project," last modified 2011, accessed January 2012, http://www.dendrochronology.net/boston_project.asp#.

Eighty of the buildings dated in Massachusetts were completed by Historic Deerfield. In 2001, in correlation with Historic New England and Paul Krusic of the Lamont-Doherty Earth Observatory at Columbia University, a pilot project was conducted to determine if chronologies for pitch pine could be developed. Two well documented buildings were sampled and a chronology based off documentation instead of live trees was created. This project established that pitch pine was feasible to date buildings. With this hopeful prognosis, more buildings and artifacts were sampled and in 2002, Krusic was able to date one of the chronologies developed against a known dated pine chronology from New York. This provided Historic Deerfield with a dated chronology to reference when dating future buildings. Living samples were added to the chronology and anchored the dates to the present. Flynt has since been able to date 113 buildings.

The Mid-Atlantic has the second highest consolidation of buildings dated by dendrochronology. Cornell dated one building in Pennsylvania in 2010 and Edward Cook and William J. Callahan dated twenty. Maryland has had sixty-two buildings dated using dendrochronology. Twenty-eight structures were dated by Oxford Dendrochronology Lab between 2006 and 2011 and three by the Lamont-Doherty Earth Observatory. Thirty-one were dated by Jack Heikkenen between 1982 and 1993. Twenty-two buildings have been dated in North Carolina, sixteen by Jack Heikkenen between 1992 and 1995, four by Oxford in 2006, and two by the University of Tennessee. Virginia has the second highest concentration of dendrochronologically dated buildings in the eastern United States. 110 buildings have been dated, the majority, thirty-five, by Oxford Dendrochronology Laboratory between 2003 and 2008. Jack Heikkenen, Edward Cook, and William J. Callahan also dated a large amount, thirty-

three by Heikkenen between 1980 and 2000 and twenty-six by Cook and Callahan. Dr. Grissino-Mayer of the University of Tennessee dated five. New Jersey has had six buildings dated, all by Edward Cook and William J. Callahan. Columbia University also dated one building in Delaware.

The Southeast has taken the least advantage of dendroarchaeology. The University of Tennessee has performed the majority of work completed to date. Three buildings in Georgia, two buildings in Florida, seventeen buildings in Tennessee, two in Kentucky, and one in South Carolina were all dated by the University of Tennessee in the past decade. Work is currently proceeding in South Carolina by Michael Worthington however; no buildings have been dated thus far. In the Midwest, two buildings have been dated. One building in Ohio and one in Michigan were both dated by the University of Tennessee.

Dendroarchaeology is greatly concentrated in the Northeast and Mid-Atlantic. One of the main reasons for this concentration is the mass clearing of wood that has occurred in the Southeast. Deforestation has created a lack of old wood that is required to develop a regional master chronology. The types of wood that survive for long periods of time in the Southeast, such as live oaks, do not produce viable samples. The warmer temperatures increase the decomposition rates leaving less wood for scientists to sample. Another difficulty is the lack of pattern distinction in trees in the Southeast. Due to moderate rainfall, ring patterns are not as recognizable as tree-rings in Arizona which get little rainfall and makes cross-dating very problematic. Skeleton plots become less useful when there is little variation between tree-rings. Nevertheless, there is still hope for dendroarchaeology in the Southeast. Several universities, such as the University of Tennessee and University of West Georgia, developed dendrochronological programs and currently study tree-rings in the region. More individual

owners are becoming interested in verifying the date of construction for their structure and therefore, more professionals are starting to perform work. While it is more difficult to complete dendroarchaeology in the Southeast United States, it is not impossible.

INTERACTIVE MAP

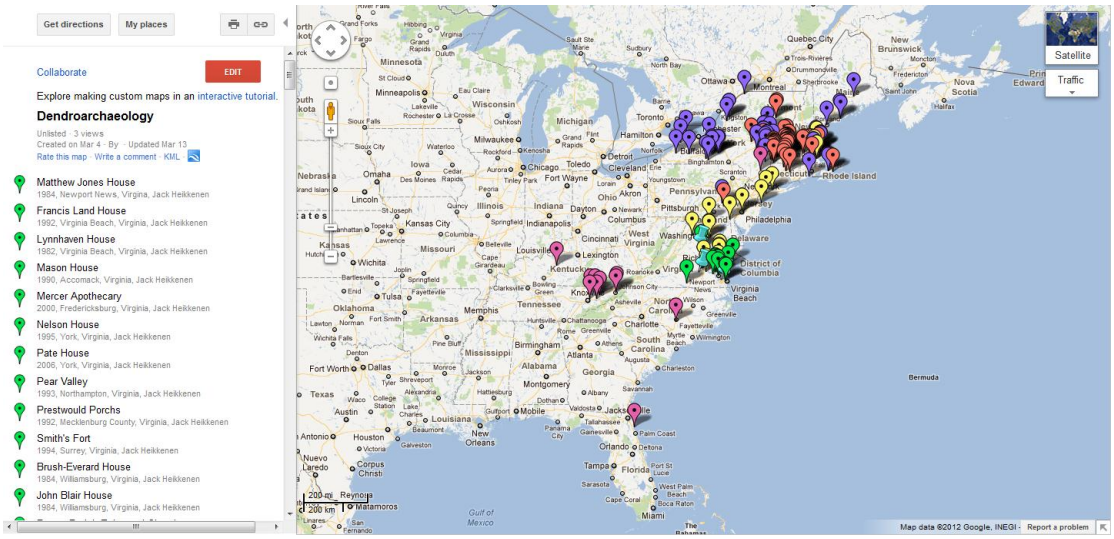

Figure 7: Google Map created by author

The locations of dendroarchaeologically dated buildings were incorporated into an interactive Google Map titled Dendroarchaeology by the author.[40] Each icon in the map can be selected and information displayed such as name of the building, the date the work was performed, and who completed the work. Each icon is color coded based on the practitioner; blue is Oxford Dendrochronology Laboratory, green is Heikkenen, orange is Historic Deerfield, purple is Cornell University, pink is the University of Tennessee, and yellow is Columbia University. The map can also be converted into a Google Earth map.

[40] The link to the map is: http://maps.google.com/maps/ms?msid=204276333039016681869.0004ba6f48e151007d81c&msa=0&ll=36.527295,-78.530273&spn=24.421206,46.538086.

This compilation of locations of dendroarchaeologically dated buildings is significant because no other list exists. Dendrochronologists do not often work together and therefore, are unaware of where completed studies exist. In the past, practitioners have entered a building, intending to date the structure, and find someone else has already obtained samples. If this happens in the future, this map can be consulted and the practitioner determined. It will encourage the spread of data between laboratories. Organizations often do not possess a compilation of their own locations so this list is unique in that it includes work from more than six laboratories and illustrates the regions where most work has been performed. Ninety-five percent of the work was completed in the Northeast and Mid-Atlantic regions with only five percent in the Southeast and Midwest. There is great opportunity for these regions to be examined more closely. The use of this map not only illustrates a clear picture of where dendroarchaeology has been completed but encourages inter-laboratory communication.

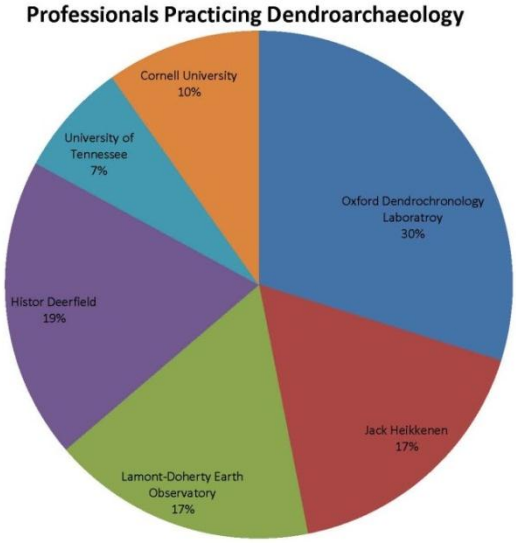

Figure 8: Professionals Practicing Dendroarchaeology created by author

CURRENT METHODS OF DENDROARCHAEOLOGY IN THE UNITED STATES

The process of collecting and preparing samples is not well documented in literature and in order to determine current practices, practitioners were interviewed about their initial assessments and sampling techniques. Several organizations are performing dendroarchaeology using their own techniques and practices including documenting the building before taking the sample, sample extraction, sample preparation, and digital data storage. In the United States, there are no guidelines for practicing dendroarchaeology and therefore, specialists use their own methods. Literature provided an overview of what is performed in laboratories but it was necessary to contact practitioners to determine real life sampling techniques. In order to more closely understand how dendroarchaeology is currently performed, three prevalent organizations were analyzed.

One literary source that provided an overview of how samples are taken from a building and analyzed is *An Introduction to Tree-Ring Dating* written by Marvin A. Stokes and Terah L. Smiley in 1968.[41] Stokes and Smiley explained the process of taking, preparing, recording and comparing samples. One disadvantage of the book is its age. It was written in 1968 before computer systems analyzed the data and before data could be shared digitally. The process the book used to compare data was to record the rings on graph paper, then compare the data to other previously recorded rings with the human eye. This method is still currently used as a confirmation of computer results, but rarely alone. *An Introduction to Tree-Ring Dating* gave a

[41] Marvin A. Stokes and Terah L. Smiley, *An Introduction to Tree-Ring Dating, (*Chicago: University of Chicago Press, 1968).

valuable abbreviated version of what dendrochronology is and the process that was exercised up until the late 1960s.[42]

Each laboratory follows the same basic procedure when completing dendroarchaeology. The first step is to determine the logs or beams which will be the best for sampling and take the samples. Each sample is clearly labeled with location, type, date and time, and specimen number in the field. The samples are returned to the laboratory and prepared for measurement. Preparation of the sample includes reinforcing a fragile sample, making a cross section, and sanding the sample so that detail is clear. Each ring is then measured and documented in chronological order (middle to outermost ring) on a computer. This process is repeated for every sample to insure the timeline is accurate and developed to the greatest extent. Characteristic rings, such as the 1709 frost ring, help to avoid miss-counting or counting false rings. After a pattern is developed, it is then compared to ring sequences on wooden building members in order to find the date of felling. To utilize dendroarchaeology, this reference chronology must first be researched and developed. Live trees are not the only means of extending a master chronology. Historic buildings and artifacts are also measured and documented and can add to the length of a chronology.

The Oxford Dendrochronology Laboratory developed methods of collecting samples for dendroarchaeology that closely reflect English Heritage's guidelines for dendrochronologically dated buildings, outlined in the following section. The main goal for Oxford when sampling a structure is to assemble enough sound samples to accurately represent the construction date of the building. This includes obtaining an average of six to eight well examined samples per phase;

[42] Stokes and Smiley, *Introduction*, 14.

the more samples, the less likely salvaged wood or repurposed members will skew the data. It is important to Oxford that practitioners take samples with more than seventy-five rings. If the number of rings is less than seventy-five, more than eight samples should be taken in order to increase the chances of cross-dating. If possible, samples with sapwood should be used since they can most accurately illustrate the felling date. It is also important that the wood be dry, if members are not fully dry, they will not core successfully.[43]

After determining the best possible samples, Oxford Dendrochronology Laboratory then takes the sample. The most common method of obtaining samples is in situ. This is the least detrimental method of obtaining samples from the building. When sections are cut out of the building, they rarely display the necessary number of rings or are in good enough condition for analyzing. In situ sample collection at Oxford Dendrochronology Lab requires an 800 watt drill which provides enough power to cut through extremely old, hardened wood but slowly enough to allow careful extraction. The specially manufactured sixteen millimeter core bits are strong enough to cut through steel and produce a ten millimeter core. The location of each sample is very important to Oxford Dendrochronology Lab and they are vigilant to label each of the samples taken on building drawings. If documentation does not exist, Oxford believes it should be created. If the sample was acquired in a visible area, "the resulting hole is plugged with a dowel, stained, and distressed to match the surround surface."[44]

Oxford Dendrochronology Laboratory gives safety precedence in the worksite. Work completed on upper beams should not be performed on a ladder; a platform or scaffolding

[43] Oxford Dendrochronology Website, "Sampling Procedures," Oxford Dendrochronology Laboratory, last modified 2011, accessed January 2012, http://www.dendrochronology.net/sampling_procedures.asp#.
[44] Oxford Dendrochronology Website, "Sampling Procedures."

should be provided. When taking the sample, a mask and goggles should be worn to protect the sampler. It is ideal if the client accompanies the dendrochronologist when taking samples, however, if the client is unavailable, the sampler should never work unaccompanied. Any equipment used should be inspected regularly and comply with any code requirements. Sampling should occur in locations with little distractions, such as where other work is not currently being undertaken. Lighting is also very important and should be considered before taking the sample.

Back in the lab, the cores are prepared for observation. After determining they are fully dry, the samples are sanded down to clearly display the rings. This is accomplished by using a bench mounted belt sander with sixty to 120 grit papers. For additional cleaning, compressed air is employed to fully reveal the rings. The rings are then measured and analyzed using both computer and graphical means.

Another practitioner, Dr. Henri Grissino-Mayer of the University of Tennessee, employs similar means of performing dendroarchaeology. Emphasis is put on the initial assessment of timbers and before any samples are taken, three steps must be completed. First, Dr. Grissino-Mayer inspects the quality of the logs one by one determining if some are too decayed or in poor condition for sampling. Second, the logs which pass the first test are inspected to determine their species. The third step is to look at the log end and determine if the beam has enough rings worthy of sampling. Seventy to eighty rings is the desirable amount. Dr. Grissino-Mayer and the University of Tennessee does not create floor plans, however, they will utilize available drawings and create field sketches. It is also important to the Laboratory of Tree-Ring

Science to research the building and use the information in conjunction with the dendrochronological data.

The next step in the dendrochronology procedure is to take the sample. Dr. Grissino-Mayer uses special drill bits which are half inch in diameter and ten inches long. The bit is attached to an electric drill and the sample is taken. Most samples are taken from the bottom of the timber due to the difficulty of taking samples from the top. This also helps to hide the core hole. Usually one to two samples are taken per log, however, the more, the better due to the possibility of relocated and salvaged wood. Depending on the client's wishes, if the opening is visible, they will plug it with cork.

In the lab, cores are prepared for observation. The core is glued into a wooden, grooved mount in the same orientation as it was removed from the timber. The sample is then sanded down and buffed with furniture polish to make the rings stand out. On the sample, every tenth ring is marked with a pencil to ease the measuring process. Then, a moving stage micrometer is used to measure each sample to the 1000^{th} of a millimeter. The tree-rings are then analyzed by a computer program and confirmed graphically.

Dr. Henri Grissino-Mayer emphasized the amount of time and cost dating buildings using dendrochronology demands. It is a very laborious and expensive process that takes several months and numerous employees both out on the site as well as in the lab. The University of Tennessee's Laboratory of Tree-Ring Science does not publish any data until they are 99.99% sure of their results. The process is fully replicable so that other labs can analyze the data and determine if their results are the same.

Bill Flynt, of Historic Deerfield, utilizes his own techniques to practice dendroarchaeology. Flynt does not create measured drawings for the structures sampled but employs existing documents. In order to label his samples, he uses compass orientation then creates a description of the timber from which he took the sample. For example, "south chimney girt at 1st floor ceiling."[45]

When taking the sample, Flynt uses a drill with custom-made ½ inch coring bits. See Figure 9 and 10 for an example of Flynt's drill, core bits, and core extractor. After the sample is extracted, Flynt wraps it in masking tape and labels it with a custom sample number. In a notebook, Flynt records the location of the sample, sample number, tentative species identification and if there is a wane edge on the sample. In the laboratory, Flynt glues the sample into wooden holders which he constructs himself. The samples are cut down halfway and then sanded with incremental grit paper. After the sample is prepared, Flynt uses a computer program, PJK, to measure the ring length and COFECHA for cross-dating.

[45] Bill Flynt, e-mail with author, November 18, 2011.

Figure 9: Historic Deerfield's Architectural Conservator, Bill Flynt's, Pitch Pine Cores: Before and After Sanding

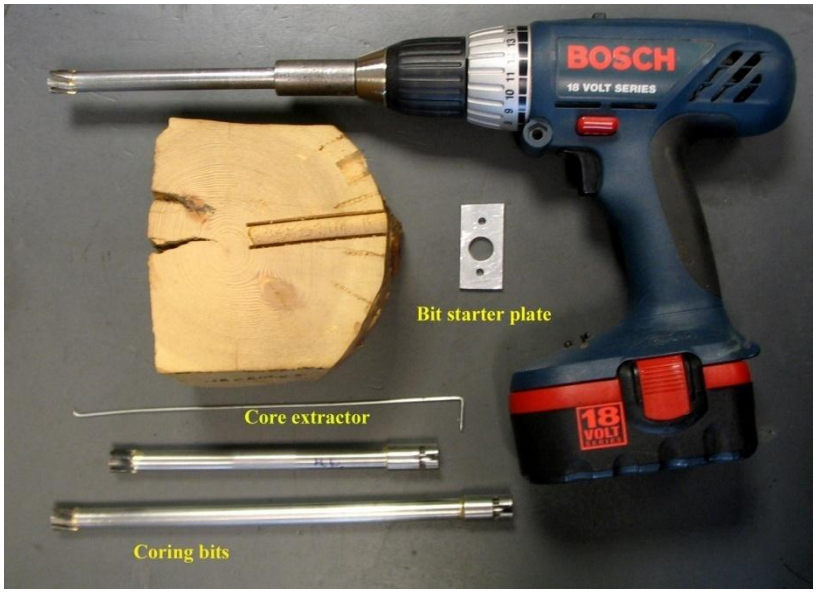

Figure 10: Bill Flynt's Coring Tools

ENGLISH HERITAGE

In England, English Heritage, the nation's distinguished preservation organization, has made great strides in promoting dendroarchaeology and creating national standards. English Heritage, much like the National Park Service in the United States, is a preservation organization that aims to protect historical resources for future generations. Managed by the Commission of English Heritage, the organization maintains over 400 historic sites throughout the country, among them, Stonehenge. They research in congruence with archaeologists and historians and help with restorations and re-creations. English Heritage provides grants and other money to historic places, and maintains a list of historic buildings and structures. English Heritage also advocates for historic places, whether it be funding or to avoid demolition. Several programs were initiated by English Heritage. For example, "Save our Streets" is an English Heritage operation whose goal is to return streets that are unfriendly to pedestrians back into an inviting place to be. English Heritage has created "Streetscape Manuals" which include guidelines for creating uncluttered walkways and pedestrian friendly environments. Another important aspect of English Heritage is their involvement with dendrochronology. Dendrochronology is an important historic research tool and with help from Dr. Daniel Miles of the Oxford Dendrochronology Laboratory, developed a set of guidelines to follow. It is important for the United States to regard these guidelines as an example. They are intended to give an overview of the dendrochronological process to ensure that it is analogous between laboratories creating data that is accurate, thorough and meets a national standard.

In an effort to create a national standard of dendroarchaeological techniques, English Heritage developed the "Guidelines on Producing and Interpreting Dendrochronological Dates."

The guidelines are divided into two core sections. Part one contains an overview of dendrochronology and why it is important to dating buildings. This section explains that dendrochronology analyzes the annual growth of tree-rings and because this dating technique is a scientific method, it is accurate and "should take precedence over those [dates] produced by any other means."[46] The guidelines present a short historical summary, briefly incorporating A. E. Douglass's contributions in the Southeast United States and the transition of dendroarchaeology to Europe and England. The measured, documented, and dated tree-ring patterns in England are extensive and therefore in the British Isles, timbers can most often, be matched to a date.[47]

The first section of the guidelines explained the methodology of dendrochronology starting with the preparation of the sample or making the rings viewable. This frequently involves cutting the sample and then sanding with variable grit sizes from coarse to fine. This process relies on personal preference and varies between labs in England. After the sample has been prepared and before measurement, the guidelines suggested the size of the overall sample, the ring orientation, and any sapwood or growth irregularities be documented. The guidelines also clarified the measuring process.

To measure the sample, the cross section is viewed under a microscope connected to a computer. A crosswire is placed at the beginning of the first ring; then the sample is moved so that the crosswire is aligned with the end of the first ring. A button is pressed and the computer records the measurement of the ring width. This is repeated for the entire sample, producing a

[46]English Heritage. *Dendrochronology: Guidelines on producing and interpreting dendrochronological dates,* last modified June 2004, accessed February 10, 2012, http://www.english-heritage.org.uk/publications/dendrochronology-guidelines/, 5-7.

measurement for every ring. Once the sample is measured, the guidelines proceed to crossmatching, using a reference tree-ring pattern with a secure date to match and date an undated tree-ring sample. This process is usually a combination of three methods: visual matching, computer cross-dating, and replication. Visual matching compares plotted data for a match between ring-width variations, first within the site and then to a master chronology, using only the human eye. For computer crossmatching, an *r*-value is assigned for each place where the two samples being compared overlap. Then, a *t*-value is assigned which "provides a measure of the probability of the observed value of *r* having arisen by chance."[48] This indicates how strong the match is between the two chronologies. A *t*-value of 3.5 or higher is considered a match but the higher, the better. Often, both visual and computer techniques are utilized. If a *t*-value greater than 10 is calculated, it can be hypothesized that those samples were taken from the same tree, however, this is not a definite rule. The final form of crossmatching described by the guidelines is replication. Replication states that if sample A and sample B match, and sample C matches sample A, then sample C should match sample B. This reinforces the reliability of tree-ring measurements and matching. If sample C does not match sample B, this indicates there is a problem in the measurements and should be verified.

After measuring and crossmatching all of the samples, a master chronology is created. The guidelines stated that the simplest technique to develop a master chronology is to average the ring widths for a specific year, that is to add up the ring widths and then divide by the number of samples. These results are then displayed using a bar graph with dates assigned. After assigning dates to the samples, the guidelines examine how to interpret the results

[48] English Heritage, *Dendrochronology Guidelines,* 10.

including how to determine if a felling date can be concluded. English Heritage stated that the date of the last ring on the sample is the earliest possible felling date. Further research is encouraged in order to avoid dating salvaged or repaired wood. These members do not provide an accurate date of construction. Part one concludes with the types of samples dendrochronology can be applied to and the limitations of its use. Also, the results the user should expect including several case studies and other applications of dendrochronology.

Part Two of English Heritage's "Guidelines on Producing and Interpreting Dendrochronological Dates" explained the process; from planning to the distribution of the results. Figure 11 is a graphic illustration of the information in Part two. The planning section of the guidelines stressed the importance of using measured drawings of the structure "of the highest quality" before sampling occurs.[49] The guidelines highly recommended an assembly of the dendrochronologist, the client, and an architectural historian to assess the timbers before any samples are taken. This assessment which would identify the building phases, the wood types, the dimensions of the timbers, the tree-ring's orientation, reused building members, if sapwood or bark is present, and the timbers to sample. The initial assessment should also take into consideration any safety issues for the dendrochronologist. The guidelines suggested that eight to ten timbers be sampled and the location of the samples well described and documented on the drawings. The samples should be taken in discreet locations so as not to deface the building. The guidelines also described in detail how samples should be taken from waterlogged wood, art specimens, and living trees.

[49] English Heritage, *Dendrochronology Guidelines,* 21.

Finally, after analyzing the sample, the guidelines advised the results be in report form consisting of five sections: Summary, Introduction, Methodology, Results, and Interpretation. The goal of this report is to present well illustrated information so that it can be replicated by other dendrochronologists. A list of buildings dated using dendrochronology is published annually in the journal *Vernacular Architecture.*

The methods and research protocols English Heritage espouses and employs provides a stark point of comparison for the United States. The United States currently does not employ any type of guidelines or recommendations. Each dendrochronology project is performed as the professional pleases. This means that measured drawings are not created and initial assessments are not performed before work commences. In England, it is highly recommended a historian or someone with in-depth knowledge of the building accompanies the dendrochronologist for an initial assessment. This is not the case in the United States, therefore, the person performing dendrochronology may not possess previous knowledge of the building or historic structures and destroy the historic fabric in the process of taking samples. Also, the US has no reporting requirements. Often the dendrochronological reports are for individual house owners and not published or available for public reference. Without making the data public, it is almost impossible to know which structures throughout the United States were dated. Finally, because the results are not published, there is no peer-review process. If other professionals do not examine the data, it is conceivable that there are errors or incorrect dates. When the data is made public, the information becomes more credible.

Figure 11: A Check List for Project Leaders and Dendrochronologists[50]

PHASE	ACTION
1 Planning	a) inform dendrochronologist that site with wet wood might exist b) get preliminary advice on sampling and wood storage c) establish contact between specialists (excavator, dendrochronologist, technologist, conservator) d) discuss time tabling, costings, and production of a research design e) discuss the need for spot dates
2 Fieldwork	a) one or more site visit by dendrochronologist, if necessary; most effective if technologists and conservator also present b) advice on sampling c) liaison between specialists d) ask for spot dates if results will help direction of field work e) sampling f) reassess the assessment strategy: is a pilot study necessary?
3 Assessment	a) timbers are assessed by dendrochronologist or someone approved by dendrochronologist for: • approximate number of rings • oak or non-oak • presence of sapwood/bark b) list of timbers for conservation given to dendrochronologist c) prioritise samples on basis of suitability for dendrochronology and ability to answer archaeological and other research priorities d) pilot study of further spot dates, if necessary

[50] English Heritage, *Dendrochronology Guidelines,* 21

4 Analysis	a) sort out samples in order of priority b) analyse top priority samples c) provide results to excavator and other specialists and obtain feedback d) process is repeated with next priority samples and so on
5 Dissemination	a) write archive report b) incorporate comments from project leader and other specialists c) assimilate report into publication d) publication text sent to dendrochronologist to check interpretation of tree-ring results

STANDARDIZATION

Organizations communicated a desire to standardize the methods used to sample buildings and the means of digital data storage so that it can be used universally throughout the fields. The Vernacular Architecture Forum (VAF) is a leader in standardizing field work, so it is logical that they started the discussion on standardizing dendrochronology techniques as the process became more common. The focus of the VAF was on the digital format and storage of dendrochronological data. They aspire to have the data online so that others can use the information for their studies and promote further assessments and evaluation of the data.[51] Colonial Williamsburg has additionally, considered following a standard protocol for dendroarchaeology to ensure a building's historic integrity.[52]

Although this study focuses on dendrochronology in the United States, the Netherlands initiative for an international repository for tree-ring data provides a strong comparison. Over a million tree-ring patterns were developed throughout Europe, many that were not originally digitally recorded. The Digital Collaboratory for Cultural Dendrochronology (DCCD) is attempting to combine all the files from southern Europe including Belgium, Germany, France, Poland and the Netherlands. They also initiated communication with Austria, Denmark, Ireland, Latvia, Lithuania, Poland, Slovenia, Spain and England to utilize this same repository.[53] In addition to data compendium, the collaboration comprises a multi-language dictionary for

[51]Gary Stanton, "Dendrochronology and the Study of Vernacular Architecture," *Vernacular Architecture Newsletter*, (2006): 4-5.
[52]*Colonial Williamsburg Research Division Web Site*, last modified October 2004, accessed September 15, 2011, http://research.history.org/Features/NewsItem.cfm?NewsID=1.
[53]Esther Jansma, "Preserving Tree-Ring Data: A Repository for the Low Countries, "Edited by Martijn De Groot and Marion Wittenberg, *Driven by Data: Exploring the Research Horizon*, Pallas Publishers, (2010): 29-33.

dendrochronological terms, a database for producing data analysis, and a forum for educational conversations. The dictionary establishes a uniform set of terms which was essential internationally and between laboratories, due to practitioners using the same terms with different definitions. The digital data standard which DCCD developed is called TRiDaS or The Tree-Ring Data Standard was developed in collaboration with Cornell and allows for many different data versions to be converted to a TRiDaS version. The intent is that the entire dendrochronology industry will adopt this program so that all data can be stored in one place. This will facilitate research in dendroarchaeology, dendroclimatology, and the rest of the sciences that examine tree-ring data. There are four main objectives of the file storage system. The system is adaptable, it is easy to use; it is multilingual, and it is universally accessible on all computer operating systems. The most recent program release was February 2, 2011. Peter Brewer, of Cornell University, collaborated closely with the entire project. With this partnership, the United States is cooperating with Europe in developing an international standard for digital data collection. This would alleviate the challenge of multiple incompatible data formats. TRiDaS will allow international collaboration increasing data and knowledge transfer and lead to more effective, consistent research.[54]

In the United States, there is no set standard of procedure when dendrochronologists sample a building or analyze its timbers. Practitioners can procure samples however they desire with the only requirements coming from the client. In the past when buildings were analyzed, samples were not labeled, field sketches were not created, and it was virtually impossible for

[54]Esther Jansma, Peter W Brewer, and Ivo Zanhuis, "TRiDaS 1.1: The Tree-Ring Data Standard," *TRiDaS.org,* last modified November 30, 2009, accessed September 25, 2011, http://www.tridas.org/documents/tridas.pdf.

the process to be replicated. Furthermore, there is currently no requirement for the publication of results. The United States' dendroarchaeology techniques have evolved dramatically since the turn of the century, the requirements and respect for the building need to evolve as well.

One of the main arguments for standardization of techniques is to ensure the respect of the historic fabric. When this technique was first developed, dendrochronologists executed the sampling and data analysis. While they are the most qualified, scientists were not always sensitive to a building's historic integrity. In some instances, chainsaws were used to take samples, which not only destroy the building but did not provide a strong, long-lasting sample. Without the consultation of an architectural historian, samples were taken from salvaged wood and repurposed timbers which skewed the data and did not provide an accurate date of construction.

Another goal of standardization is to create credible data. The ultimate goal of dendroarchaeology is to determine the date of construction with as much certainty as possible. If the date is ever in question or needs to be retested, the procedure and samples of the previous practitioner should be documented well enough that the entire process can be replicated. This encourages a peer review system which strengthens the credibility of the data. In order for the process to be replicated, several steps need to be taken during the initial process. One of the first steps that should be completed is consultation with an architectural historian. The building should be researched and assessed before any samples are taken. The architectural historian will help the dendrochronologist understand the history and the integrity of the building. Each timber should be examined to ensure it is original but also inspected for wane edge and sapwood. This initial examination certifies that only the best timbers for dating

are sampled; providing the most information from the least amount of samples. Another step imperative for data to be replicated is documentation. Every location of where a sample was taken should be recorded, if possible, on measured drawings. If measured drawings are not available, field sketches should clearly illustrate the locations of the samples. While on site, it is very important that the entire process be documented.

Publication is another important step of dendroarchaeology which fosters credible data. Each building that is sampled becomes its own reference chronology. If this information is made public, dendrochronologists can benefit from each other's work and can strengthen the credibility of dates. The data should also be submitted to the International Tree-Ring Data Bank managed by the National Oceanic and Atmospheric Administration. If all researchers submitted their data, the reference chronologies would benefit the entire discipline.

In 2004, Colonial Williamsburg organized a symposium to discuss developing guidelines for tree-ring dating of buildings. The guidelines were created by several professionals including dendrochronologists and architectural historians, coordinated by Willie Graham, Curator of Architecture at Colonial Williamsburg. The objective of the guidelines was to "ensure reliability and replication of the dendrochronology results, and to impose the least amount of disturbance to the historic fabric."[55] The guidelines were divided into six sections, each addressed a different part of the dating process. The first two sections, "Role of the Client," and "The Team," considered the steps before any sample is taken. They stated that the client should assemble a team which has both building and dendrochronology knowledge so that the historic integrity of the building is maintained and the most effective samples are taken. The client should be

[55] Williamsburg Dendrochronology Symposium, "Guidelines for Tree-Ring Dating of Buildings," September, 2004, 1.

involved with the sampling and discuss beforehand ownership of the samples and results. The next section, “Sampling and Recording,” aimed to ensure the minimum amount of damage to the building occurred during the sampling process but yet yielded a sufficient amount of rings. “Ownership and Curation of Samples” addressed by what means the samples are stored and the ownership of the materials. The guidelines stated that the sample should always be labeled, samples from the same building should remain together, and the report which corresponds with the samples should be stored together. The guidelines also expressed that no matter the ownership, the samples should be accessible in the case that another lab or practitioner should need them. The final two sections, “Reporting Results” and “Publicizing Results,” outlined the final reports and their publication. It is strongly recommended that the results be published online, in a scholarly journal, and submitted to the International Tree-Ring Data Bank. In general, the purpose of the guidelines was to successfully date a building with as little damage as possible to the historic integrity.

In the past, there has been controversy over the standardization of techniques. Several professionals think that the guidelines will be advantageous and should be highly recommended for every project, while others believe they are not necessary. In the United States, dendroarchaeological work is performed for a client and that client owns the information discovered. Therefore, if the client does not want the report or location published, the dendrochronologist cannot publish it. This agreement is impeding the field of dendrochronology. Sharing knowledge and data can only be beneficial and strengthen the data. “I paid for it, I own it” is the current mindset. Several labs which perform work for individual

building owners have clients who want the results kept quiet. If guidelines were in place, the requirements for publication could be easily explained to the client.

The Colonial Williamsburg Symposium was very controversial. Some practitioners did not agree with the methods utilized by Colonial Williamsburg's dendrochronologist Jack Heikkenen and did not participate. Heikkenen did not record samples well or publish his data. He did not share his samples and professionals questioned his results. It is clear that had guidelines for documentation and sampling existed, perhaps the controversy could be cleared by retesting his data. To this day, professionals will not discuss the symposium or share their data because of the association with Heikkenen. There are still ill feelings hindering dendroarchaeology.

Colonial Williamsburg's symposium was also controversial because the scientists did not appreciate the goals. Some scientists felt that the architectural historians were telling them how to do their job. Research performed for "Current Methods of Dendroarchaeology" suggests labs are currently practicing essentially in the same manner as the guidelines recommend. It is feasible that the only change their current practices need is an official title. For example, Dr. Henri Grissino-Mayer of the University of Tennessee in Knoxville, states their lab makes an initial assessment before any timber is sampled in order to ensure the best samples are taken. This is one of the steps in the proposed guidelines, therefore, nothing would change.

In general, devising a set of guidelines to monitor tree-ring dating would be beneficial to the field and should be developed and enforced. While some are opposed to the intrusion, many labs would not need to change their current methods. Documenting samples and publishing results encourages a peer review system and strengthens the integrity of the

dendrochronological date. Perhaps if the owners who wish to keep their information quiet were educated to the benefits of sharing dendrochronological data, the mindset could change. Every practitioner and client's objective is to better their knowledge of the history of the structure and using a set of guidelines can help achieve that goal.

CONCLUSION AND CHARLESTON AS A NEW TEST LOCATION

Using the patterns of tree-rings, the field of archaeology and architecture can greatly increase its historical knowledge by providing credible construction dates for buildings. The field has some limitations, mainly due to the lack of available data. Therefore practicing professionals provided the best information concerning the techniques of sampling and providing the locations of dendroarchaeologically dated buildings.

There are many organizations and universities practicing dendroarchaeology in the United States. The organizations which contributed the most are the University of Arizona, Oxford Dendrochronology Laboratory, the University of Arkansas, Columbia University, Cornell University, Colonial Williamsburg and Jack Heikkenen, the University of Tennessee, and Historic Deerfield. This study focused on buildings located in the eastern region of the United States. All of these organizations except the University of Arizona significantly contributed to the research in this region. The greatest amount of work has been completed in the Northeast and Mid-Atlantic regions, with very little in the Southeast. A list of 473 buildings was compiled including several reports and included on an interactive Google map.

Current methods of practicing dendroarchaeology are comparable between practicing laboratories. Techniques from three different organizations were compiled: Oxford Dendrochronology Laboratory, Dr. Henri Grissino-Mayer from the University of Tennessee, and Bill Flynt from Historic Deerfield.

After reviewing techniques in the United States, it was important to examine standardization documents from other experienced countries. England's premier preservation

organization, comparable to the National Trust in the United States, English Heritage, created guidelines for practicing dendroarchaeology. The "Guidelines on Producing and Interpreting Dendrochronological Dates" is an outline of English Heritage's recommendations. These guidelines provided an important comparison seeing that, to date, the US does not have any formal rules. Professionals sample and interpret as they deem necessary on individuals' projects. In 2004, Colonial Williamsburg, held a symposium to develop a protocol for dendroarchaeologically dated buildings. A group of professionals gathered to develop a document. The event was very controversial, however, and certain professionals did not attend. It is clear from the symposium's research that the historic building fabric should be protected from improper sampling. Furthermore, since no current publishing requirements are in place when new chronologies are developed, information is not being analyzed or shared with other professionals. This hinders the progress of dendroarchaeology in the United States. If a publishing requirement was in place, information could move between professionals creating more credible data and expanding the number of tree-ring chronologies available for comparison.

DENDROARCHAEOLOGY IN CHARLESTON

Charleston, South Carolina would benefit from the application of dendroarchaeology. There are many historic buildings with surviving original timber that could be used to develop a master chronology. There are, more importantly, many buildings whose construction dates are unknown and for which there is little or no documentary evidence. In both cases, dendroarchaeology could provide answers that traditional methods of architectural analysis have not. The climate of the South Carolina Lowcountry presents a number of significant

challenges to establishing a master chronology, among them the effect that significant storms such as Hurricane Hugo in 1989 have had historically on tree growth.

The first step for dendroarchaeology in Charleston would be to develop a reference chronology. Because live trees are not a good source of tree-ring patterns, several buildings in Charleston possess solid dates which can be used for creating a master chronology. Mulberry Plantation located in Berkeley County has solid evidence that the original building was built in 1712. It is known that St. James Goose Creek Church was built in 1715. 39 Church Street in downtown Charleston was built in the 1740s as well as with Drayton Hall, a plantation on the Ashley River with a firmly established date of construction provided by letters and others documents kept by its builder, John Drayton. St. Michael's Church on Meeting Street in downtown Charleston was built in 1755 and the Exchange Building, which occupies a prominent site where Broad Street intersects with East Bay, was completed in 1770. The Heyward-Washington House on Church Street was also built in 1770. Although completed about the same time as St Michael's Church, the Charleston Courthouse was raised a full story in 1790. Its roof system is largely intact from this enlargement. These buildings contain viable timber which could be sampled to piece together a chronology for the 18th century.

There are numerous known buildings built in the 19th century as well. The Joseph Manigault House in downtown Charleston was built in 1803. The Nathanial Russell House was built in 1809 and the Aiken-Rhett House in three phases: the first in 1818, the second in 1835, and the third in 1855. Twelve Vanderhorst Street was built in 1890. Again, these buildings could hold dendrochronological data that could extend the data series.

Debate continues between professionals concerning if standards are necessary, and if reports should be published. This study concludes that standards are essential. If a construction date is ever in question or needs to be retested, the procedure and samples of the previous practitioner should be documented well enough that the entire process can be replicated. Measured drawings can be used to clearly label the location of each sample. Before samples are procured, a comprehensive assessment of each timber in the building should be executed in order to determine the best possible timbers to be tested. This assessment should search for sapwood, wane edge, timbers with more than seventy-five rings, and wood that is original to its current location. The preparation process should be standardized in laboratories. Then, the samples should be stored in a conditioned environment. Technology is always changing. In the future, advanced technology could emerge for the retesting of tree-ring samples. The final step, that should be a part of every group or laboratory, is publishing. There are two journals devoted to tree-ring research that are suitable candidates for this. Overall, creating a process that is replicable and published encourages a peer review system and ultimately strengthens the credibility of the data.

APPENDICES

APPENDIX A: BUILDINGS DATED IN THE EASTERN UNITED STATES USING DENDROARCHAEOLOGY

Dated Buildings in Connecticut

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Joseph Webb House	Wethersfield		Connecticut	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
2	Congregational Church	Burlington		Connecticut			ODL	Worthington Website	
3	Oliver Hanchett house	Suffield	Hartford	Connecticut			HD	Historic Deerfield	Owner, HD
4	Bacon barn	Simsbury	Hartford	Connecticut			HD	Historic Deerfield	HD,Owner
5	Youngs-Keller house	Hebron	Tolland	Connecticut			HD	Historic Deerfield	HD,Owner,YAG
6	Hubbard House	Wethersfield	Hartford	Connecticut			HD	Historic Deerfield	HD,Owner

Dated Buildings in Delaware

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	One Structure			Delaware			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Florida

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Ximenez-Fatio House	St. Augustine	St. John's	Florida	2007	Dr. Henri D. Grissino-Mayer, Leda N. Kobziar, Grant L. Harley, Kevin P. Russell, Lisa B. LaForest, and Josept K. Oppermann		UTRW	
2	Spanish Mission Post	St. Augustine	St. John's	Florida			UT	Dr. Henri Grissino-Mayer	UTRW

Dated Buildings in Georgia

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Bryan-Redd Antebellum House	Cumming	Forsyth	Georgia	2004	Georgia Georgina Deweese Wight and Dr. Henri D. Grissino-Mayer,		Ultimate Tree-Ring Webpages (UTRW)	
2	John Ross House	Rossville		Georgia			University of Tennessee	Dr. Grissino-Mayer	
3	Two Structures			Georgia (Southeastern)			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Kentucky

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Abraham Lincoln's Birthplace		Hodgeville	Kentucky		Henri D. Grissino-Mayer and Dwight T. Pitcaithley	University of Tennessee	UT Tree-Ring Website	
2	One Structure			Kentucky			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Maine

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Ramsdell House	York		Maine	2004	D. H. Miles	ODL	Worthington Website	
2	Brewer Tide Mill	Brewer	Penobscot	Maine	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
3	Tate House	Portland	Cumberland	Maine	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
4	Bryant-Barstow Docks	Walpole	Damariscotta	Maine	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
5	Pemaquid Point	Pemaquid	Damariscotta	Maine	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in Maryland

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	St. Francis Xavier Roman Catholic Churc		St. Mary's	Maryland	1982	Jack Heikkenen and Mark R. Edwards		Colonial Williamsburg	
2	Newton Manor House		St. Mary's	Maryland	1982	Jack Heikkenen and Mark R. Edwards		Colonial Williamsburg	
3	Cedar Park		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
4	Holly Hill		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
5	Tongue Tobacco House		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
6	Maidstone		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
7	Morgan Hill Farm		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
8	St. Leonard Shores Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
9	Wilson Frame Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
10	Wilson Log Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
11	Greenland (now "The Exchange")		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
12	Johnsontown Farm Tobacco Barn Site		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
13	Sarum		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
14	Bayside Farm Barns		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
15	Brome Barn or Large Granary		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
16	Brome Granary		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
17	Bushwood (now "Ocean Hall")		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
18	Dixon's Purchase Dwelling		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
19	Eldon Grove		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
20	Fenwick House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
21	Mulberry Fields Carriage House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
22	Mulberry Fields Weaving House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
23	Mulberry Fields		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
24	Parke Dela Brooke Manor		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
25	Savona Tobacco House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
26	Simms-Bond Log Tobacco Barn		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
27	Cross Manor		St. Mary's	Maryland	1988	Jack Heikkenen	AIDI	Colonial Williamsburg	
28	Cross Manor Kitchen Wing		St. Mary's	Maryland	1988	Jack Heikkenen	AIDI	Colonial Williamsburg	
29	The Last Year of Tree Growth for Selected Timbers within Reward		Somerset	Maryland	1989	Jack Heikkenen	AIDI	Colonial Williamsburg	
30	Riversdale Slave Quarters	Annapolis		Maryland	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
31	Hollingsworth House	Elk Landing	Cecil	Maryland	2001	Edward Cook and William J. Callahan		Colonial Williamsburg	
32	Hampton -- Correspondence from Lynne Hastings		Baltimore	Maryland	2004	Lynne Hastings		Colonial Williamsburg	
33	Sotterley Mansion	Hollywood	St. Mary's	Maryland	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
34	Middlekauf Farm; Kelly's Purchase	Sharpsburg	Washington	Maryland	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
35	Keedy House	Boonsboro	Washington	Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
36	Keedy Cottage	Boonsboro	Washington	Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
37	Red House, Wye Plantation	Easton		Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
38	Melwood Park		Prince George's	Maryland	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
39	Little Bennett Regional Park, Perry Browning House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	

Dated Buildings in Maryland

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
40	Little Bennett Regional Park, Zeigler Log House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
41	Little Bennett Regional Park, Prescott Road Log Cabin	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
42	Little Bennett Regional Park, Norwood Log Tobacco House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
43	Antietam National Battlefield, Mary Locher Cabin	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
44	Antietam National Battlefield, Joseph Poffenberger Barn	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
45	Antietam National Battlefield, Roulette House	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
46	Antietam National Battlefield, Wash House	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
47	Antietam National Battlefield, Wagon Shed	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
48	Monocacy National Battlefield, Best Farm, Detached Log Kitchen	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
49	Monocacy National Battlefield, Best Farm, Main House Cellar	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
50	Monocacy National Battlefield, Best Farm, Secondary House	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
51	Monocacy National Battlefield, Best Farm, Corn Crib	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
52	Monocacy National Battlefield, Thomas Farm House	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
53	Charles Carroll House	Annapolis		Maryland	1989, 1993	Jack Heikkenen	American Institute of Dendrochronology, Inc. (AIDI)	Colonial Williamsburg	
54	Robert Strawbridge House		Carroll	Maryland	Undated	Edward Cook and William J. Callahan	Tree-Ring Laboratory, Lamont-Doherty Earth Observatory	Colonial Williamsburg	
55	Doughoregan Site (11 buildings: Centre Block, Kitchen Wing, South Hyphen, Bath House, Ash House, Smoke House, Overseers House, Slave House, Laundry House, Store House)	Baltimore		Maryland			ODL	Worthington Website	
56	Bear Island	West of Bethesda		Maryland			ODL	Worthington Website	
57	Linchester Mill	Preston	Caroline	Maryland			ODL	Worthington Website	
58	Handsell	Vienna	Dorchester	Maryland			ODL	Worthington Website	

Dated Buildings in Maryland

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
59	Josiah Bensen Site (1-story log addition dated)	North Bethesda	Montgomery	Maryland			ODL	Worthington Website	
60	Poplar Neck, House		Caroline	Maryland			ODL	Worthington Website	
61	Poplar Neck, Corn Crib		Caroline	Maryland			ODL	Worthington Website	
62	Bacon's Castle Slave Quarters	Surry		Maryland			ODL	Worthington Website	
63	Strawbridge Shrine	Westminster		Maryland		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in Massachusetts

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Mill Ditch, Blackstone Street	Boston	Suffolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
2	Cooper-Frost-Austin House	Cambridge	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
3	Fairbanks House	Dedham	Norfolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
4	Pierce House	Dorchester	Suffolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
5	First Parish Church	Groton	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
6	Tuttle House	Ipswich	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
7	Whipple House	Ipswich	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
8	Capen House	Milton	Norfolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
9	Mass Coffin House	Newbury	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
10	Mass Gedney House	Salem	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
11	Narbonne House	Salem	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
12	Mass Townsend United Methodist Church	Townsend	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
13	Deane Winthrop House	Winthrop		Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
14	Olive Stow House	Concord		Massachusetts	2002	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
15	Boston Mill Dam	Boston		Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
16	Parson Capen House	Topsfield		Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
17	Prospect Street Friends Meetinghouse		Somerset	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Colonial Williamsburg	
18	Abbot House	Andover	Essex	Massachusetts	2003	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
19	Cogswell's Grant	Essex	Essex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
20	155 Whitcomb Ave.	Littleton	Middlesex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
21	Chestnut Hill Meeting House	Millville	Worchester	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
22	Bardeen-Culver House	West Newberry	Essex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
23	Old Castle, Pigeon Cover Center	Rockport	Essex	Massachusetts	2004	D. H. Miles	ODL	Worthington Website	
24	Old Garrison House	Rockport	Essex	Massachusetts	2004	D. H. Miles	ODL	Worthington Website	
25	Bradford House	Kingston	Plymouth	Massachusetts	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
26	John Adam's Birthplace	Quincy	Norfolk	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	

Dated Buildings in Massachusetts

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
27	John Quincy Adam's Birthplace	Quincy	Norfolk	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
28	Turner House, House of Seven Gables	Salem	Essex	Massachusetts	2005		ODL	Worthington Website	
29	Jenck's Barn	Seekonk	Bristol	Massachusetts	2005		ODL	Worthington Website	
30	Paine House		Ipswich	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Colonial Williamsburg	
31	Balch House	Beverly	Essex	Massachusetts	2006		ODL	Worthington Website	
32	Chickering-Francis Farmhouse	Dover	Norfolk	Massachusetts	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
33	Hart House	Ipswich	Essex	Massachusetts	2006		ODL	Worthington Website	
34	Smith-Healey House	Walpole	Norfolk	Massachusetts	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
35	Cory Cornell House	Westport	Bristol	Massachusetts	2006		ODL	Worthington Website	
36	20 White Place	Brookline	Suffolk	Massachusetts	2007		ODL	Worthington Website	
37	Hancock-Clarke House	Lexington	Middlesex	Massachusetts	2007		ODL	Worthington Website	
38	Dwight-Derby House	Medfield		Massachusetts	2007		ODL	Worthington Website	
39	Barnstable Co, the Wing House	Sandwich		Massachusetts	2007		ODL	Worthington Website	
40	Pickering House	Salem	Essex	Massachusetts	2007		NPS, ODL	Worthington Website	
41	Edmund-Fowle House	Watertown	Middlesex	Massachusetts	2007		ODL	Worthington Website	
42	Gov. Bellingham-Cary House	Chelsea	Suffolk	Massachusetts	2008		ODL	Worthington Website	
43	Historic Deerfield		Deerfield	Massachusetts	2004/5	Publication of Historic Deerfield, Inc.		Colonial Williamsburg	
44	Haskell House	Beverly		Massachusetts			ODL	Worthington Website	
45	Holt Farm	Andover		Massachusetts			ODL	Worthington Website	
46	Blake House	Boston	Suffolk	Massachusetts			ODL	Historic New England	Historical Society
47	Hooper-Lee-Nichols House	Cambridge	Middlesex	Massachusetts			ODL	Historic New England	Historical Society
48	Spencer-Peirce-Little House	Newbury	Essex	Massachusetts			ODL	Historic New England	MHC, SPNEA, II
49	Iron Works House	Saugus	Essex	Massachusetts			U. Az/LDEO	Historic New England	Service
50	Boardman House	Saugus	Essex	Massachusetts			ODL	Historic New England	MHC
51	White-Ellery House	Gloucester	Essex	Massachusetts			W. Flynt	Historic New England	Cape Ann Historical Association
52	Howard House	Ipswich	Essex	Massachusetts			U. Az/Oxford	Historic New England	SPNEA, II
53	Cogswell's Grant, Salt Hay Barn	Essex	Essex	Massachusetts			ODL	Historic Deerfield	SPNEA, III
54	United Church of Christ Congregational	Burlington	Middlesex	Massachusetts			LDEO	Historic Deerfield	SPNEA, I
55	Harvard Hall	Cambridge	Middlesex	Massachusetts			LDEO	Historic Deerfield	SPNEA, I
56	Rocky Hill Meeting House	Amesbury	Essex	Massachusetts			ODL	Historic Deerfield	SPNEA, I
57	Old Ship Church	Hingham	Norfolk	Massachusetts			LDEO	Historic Deerfield	SPNEA, I
58	Allen house	Deerfield	Franklin	Massachusetts			LDEO,HD	Historic Deerfield	HD
59	Rev. J. Ashley house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
60	Ashley Barn	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
61	Eldad Bardwell house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
62	Barnard Tavern	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
63	Brick Church	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
64	Bull-Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
65	Timothy Childs house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD

Dated Buildings in Massachusetts

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
66	David Dickinson house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
67	David Dickinson shed	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
68	Dray house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
69	Hall Tavern(Charlemont)	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
70	Eliezer Hawks house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
71	Jonathon Hoit house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
72	Little Brown house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
73	Moors house ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
74	Benjamin Munn house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
75	Severance house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
76	David Sexton house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
77	Sheldon house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
78	Joseph Stebbins house	Deerfield	Franklin	Massachusetts			LDEO	Historic Deerfield	HD
79	Wells-Thorn house	Deerfield	Franklin	Massachusetts			LDEO,HD	Historic Deerfield	HD
80	Gen. Ashley house	Ashley Falls	Berkshire	Massachusetts			HD	Historic Deerfield	HD
81	Col. Ashley house	Ashley Falls	Berkshire	Massachusetts			HD	Historic Deerfield	TTOR,HD
82	Alpheus Moore house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
83	David Graves house	Whately	Franklin	Massachusetts			HD	Historic Deerfield	HD
84	David Graves barn	Whately	Franklin	Massachusetts			HD	Historic Deerfield	HD
85	Szumowski house	Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
86	Nathaniel Parsons house	Northampton	Hampshire	Massachusetts			HD	Historic Deerfield	HD
87	Dollard house	Northfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
88	Gideon Hubbard house	Leverett	Franklin	Massachusetts			HD	Historic Deerfield	HD
89	Samuel Willis house	Leverett	Franklin	Massachusetts			HD	Historic Deerfield	HD
90	Israel Childs house	Sunderland	Franklin	Massachusetts			HD	Historic Deerfield	HD
91	Josiah White house	S.Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
92	Rawson house	S.Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
93	Howland house	Conway	Franklin	Massachusetts			HD	Historic Deerfield	HD
94	Turn Barn	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
95	Thomas Dickinson house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
96	Barnard-Delano house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
97	Haskell house	Beverly	Essex	Massachusetts			HD	Historic Deerfield	HD, Owner
98	White-Ellery barn	Gloucester	Essex	Massachusetts			HD	Historic Deerfield	HD,MHC,Owner
99	Interlaken barn	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD, Owner
100	Jonathon Smith house	W.Springfld.	Hampden	Massachusetts			HD	Historic Deerfield	HD,Owner
101	Bakeman house	Lancaster	Worcester	Massachusetts			HD	Historic Deerfield	HD,Owner
102	Fenno house	Canton	Norfolk	Massachusetts			HD	Historic Deerfield	HD, OSV
103	Cherry Cottage	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
104	The Mission house	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD,TTOR
105	Joseph Barnard house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
106	J. Barnard ell (reused)	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
107	Nims house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
108	Nims shed	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
109	Bloody Brook Tavern	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
110	H&A Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
111	Barnard-Arms house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
112	John Sheldon house parts	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD

Dated Buildings in Massachusetts

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
113	Benjamin Munn house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
114	Smead house parts	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
115	Thomas Dickinson house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
116	Mary Hawks House	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
117	Thomas Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
118	Thomas Williams house ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
119	William Russell house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
120	William Russell ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
121	Boston Town Dock timbers	Boston	Suffolk	Massachusetts			HD	Historic Deerfield	HD, MHC, NPS
122	Atwood House	Chatham	Barnstable	Massachusetts			HD	Historic Deerfield	HD
123	Robbins-Hutchinson house	Concord	Middlesex	Massachusetts			HD	Historic Deerfield	HD,Owner
124	Josiah Dennis house	Dennis	Barnstable	Massachusetts			HD	Historic Deerfield	HD, Owner
125	George Benson house	Florence	Hampshire	Massachusetts			HD	Historic Deerfield	HD, Owner
126	David Ruggles Center	Florence	Hampshire	Massachusetts			HD	Historic Deerfield	HD, Owner
127	Harwood Barn	Gr. Barrington	Berkshire	Massachusetts			HD	Historic Deerfield	HD, Owner
128	Houghton house	Harvard	Worcester	Massachusetts			HD	Historic Deerfield	HD,Owner
129	Hingham Underpass timbers	Hingham	Plymouth	Massachusetts			HD	Historic Deerfield	HD, UMA
130	Brookside Barn	Lee	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
131	Andrew Evans house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
132	Ward house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
133	Bartlet Lower Wharf Timbers	Newburyport	Essex	Massachusetts			HD	Historic Deerfield	HD, NHS
134	Shaker Farm	Richmond	Berkshire	Massachusetts			HD	Historic Deerfield	HD, Owner
135	Sofield house	Amherst	Hampshire	Massachusetts			HD	Historic Deerfield	HD,Owner
136	Phelps house	S. Egremont	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
137	Cooper house	S. Egremont	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
138	Dwight House	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
139	The Evergreens ell	Amherst	Hampshire	Massachusetts			HD	Historic Deerfield	HD, DH
140	Winkelman House	Gloucester	Essex	Massachusetts	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
141	Wharf	Boston	Suffolk	Massachusetts	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
142	Row Houses	Boston	Suffolk	Massachusetts	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
143	Taylor-Brey Farm	Yarmouth	Barnstable	Massachusetts	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
144	Customs House	Boston		Massachusetts		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
145	Old South United Presbyterian Church	Newburyport	Essex	Massachusetts			LDEO	Historic Deerfield	SPNEA, I

Dated Buildings in Michigan

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Lund-Spathelf House	Ann Arbor	Washtenaw	Michigan	2011	Grant L. Harley, Dr. Henri D. Grissino-Mayer, Lisa B. LaForest, Patrick McCauley	UTRW		

Dated Buildings in New Hampshire

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Gilman Garrison House	Exeter		New Hampshire	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	

Dated Buildings in New Jersey

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Allen House	Shrewsbury		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
2	Indian King Tavern	Haddonfield		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
3	Penny Watson House	Greenwich		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
4	Pyne House	Cape May		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
5	Springwater Farm	Stockton		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
6	Updike Barn	Princeton		New Jersey		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in New York

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Houghton RR	Houghton	Allegany	New York	2001	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
2	Patterson Inn	Corning	Steuben	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
3	Campbell Log Cabin	Campbell	Steuben	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
4	Seneca Lake, Peach Orchard Dock	Hector	Schuyler	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
5	Hiram Edson House	Phelps	Ontario	New York	2005	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
6	Buried logging timber-Lake George	Lake George	Washington	New York	2005	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
7	Old House- Cutchogue	Long Island		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, Lamont-Doherty Earth Observatory-Columbia University	Worthington Website	
8	Terry Mulford House, Orient Point	Long Island		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, Lamont-Doherty Earth Observatory-Columbia University	Worthington Website	
9	Home-Sweet-Home, East Hampton	Long Island		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, Lamont-Doherty Earth Observatory-Columbia University	Worthington Website	
10	Gardiner-Brown House	Long Island		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, Lamont-Doherty Earth Observatory-Columbia University	Worthington Website	
11	Mulford Farm	East Hampton		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
12	Sylvester Manor	Shelter Island		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
13	Halsey House	Southampton		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
14	Hull House	Lancaster	Erie	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in New York

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
15	Greek Revival Home	Ithaca	Tompkins	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
16	Massena Courduroy Road	Louisville	St Lawrence	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
17	Beardslee House	East Berlin	Otsego	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
18	Cornell, McGraw Hall Attic	Ithaca	Tompkins	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
19	Tinker Cabin	Easton	Washington	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
20	Yates House	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
21	Brouwer House	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
22	Mabee Farm	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
23	Albany Stockade	Albany	Albany	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
24	Crailo House	Rensselaer	Rensselaer	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
25	Front Street House	Schenectady	Schenectady	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
26	Newland House	Saratoga	Saratoga	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
27	New York State Museum-Three Dugouts			New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
28	Spooner House	Adams	Jefferson	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
29	River Edge Mansion	Oak Orchard	Oswego	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in New York

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
30	Schoneman House	Burdett	Schuyler	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
31	Gregoire's Farm	Burdett	Schuyler	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
32	McCutcheon House	Bethlehem	Albany	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
33	Erie Canal Store	Albany	Albany	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
34	Babcock Barn	Gowanda	Cattaraugus	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
35	Griffin Barn	Saratoga	Saratoga	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
36	Demolished Barn next to Griffin Barn	Saratoga	Saratoga	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
37	Bowerie House	Clermont	Columbia	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
38	Sternberg House	Schoharie	Schoharie	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
39	Sternberg Tavern	Schoharie	Schoharie	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
40	Ithaca Inlet	Ithaca	Tompkins	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
41	Coeymans House	Coeymans	Albany	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
42	Titus Ives House	Watertown	Jefferson	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
43	Erastus Ives House	Watertown	Jefferson	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
44	Wormley house	N. Hillsdale	Columbia	New York			HD	Historic Deerfield	HD,Owner
45	Longfield Barn	Guilderland	Albany	New York			HD	Historic Deerfield	HD, Owner
46	Dutch barn	Fort Plain	Montgomery	New York			HD	Historic Deerfield	
47	Dutch barn	Ephrata	Fulton	New York			HD	Historic Deerfield	HD,Owner

Dated Buildings in New York

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
48	West Camp House	Saugerties		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
49	Sweeney-Miller House	Kingston		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
50	Radcliff van Ostrade	Albany		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
51	Morris Jumel House	Jamaica		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
52	John Bowne House	Forest Hills		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
53	Daniel Pieter Winne House	Bethlehem		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
54	Conklin House	Huntington		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
55	Bowne House	Queens		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
56	Abraham Hasbrouck House	New Paltz		New York		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in North Carolina

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Chowan County Courthouse		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
2	Cupola House		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
3	Palmer-Marsh House		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
4	Iredell House		Chowan	North Carolina	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
5	Iredell House Kitchen		Chowan	North Carolina	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
6	Milford		Camden	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
7	Joseph Bell House		Carteret	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
8	Bellair		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
9	Coor-Gaston House		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
10	John Wright Stanley House		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
11	Horton Grove Slave Quarter		Durham	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
12	Old Town Plantation		Edgecombe	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
13	Hoyle House		Gaston	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
14	Church Street House		New Hanover	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
15	Sloop Point		Pender	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
16	Robson		Pitt	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
17	Hoggatt House, now at High Point Museum		Guilford	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
18	Armfield House (demolished), used for Hoggatt House		Guilford	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
19	Blacksmith Shop, re-erected at High Point Museum		Davidson	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
20	Hoskins House	Greensboro	Guilford	North Carolina	2006	Henri D. Grissino-Mayer and Joseph P. Henderson		UTRW	
21	Tanner House		Henderson	North Carolina			ODL	Worthington Website	
22	Hope Mills Crib Dam	Hope Mills		North Carolina			University of TN	UTRW	Ultimate Tree-Ring

Dated Buildings in Ohio

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	One Structure			Ohio			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Pennsylvania

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Schaeffer Farm	Schaefferstown	Lancaster	Pennsylvania	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
2	William Garrett House	Sugartown		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
3	Varnum's HQ	Valley Forge		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
4	Thomas Grist Mill	Exton		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
5	Thomas Thomas House	Newtown Square		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
6	St. Peter's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
7	Podrum Farm	Limekiln		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
8	Powell House	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
9	Frederick Muhlenberg House	Trappe		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
10	Old Caln Meeting House	Thorndale		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
11	Old Swede's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
12	Pennock House & Barn	London Grove		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
13	Log Cabin	Fort Loudon		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
14	Lower Swedish Log Cabin		Delaware	Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
15	Independence Hall	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
16	Harriton House	Bryn Mawr		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
17	Ephrata Cloisters		Lancaster	Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
18	Fallsington Log House		Bucks	Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
19	Daniel Boone Homestead	Birdsboro		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
20	Carpenter's Hall	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
21	Christ's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in Rhode Island

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Walker House	East Providence		Rhode Island	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
2	Clemence Irons House	Johnston		Rhode Island	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	
3	Eleazer Arnold House	Lincoln		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
4	Newport Friends Meetinghouse	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
5	Wilbour-Ellery House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
6	Augustus Lucus House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
7	Simeon Potter House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
8	David Braman, Sr. House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
9	Wanton-Lyman Hazard House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	
10	Capt. Thomas Paine House	Jamestown	Newport	Rhode Island			ODL	Historic New England	Owner
11	Newport Friends Meetinghouse	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoration Foundation
12	Barney House	Newport	Newport	Rhode Island	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in South Carolina

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	One Structure		(Coastal)	South Carolina			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Tennessee

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Swaggerty Blockhouse	Parrottsville	Cocke	Tennessee	2007	David F. Mann, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner, and John B. Rehder	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
2	John Sevier Cabin	Knox	Knox	Tennessee	2007	Jessica D. Brogden, Maggie R. Stevens, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
3	Alfred's Cabin, Andrew Jackson's Hermitage Plantation	Nashville	Davidson	Tennessee	2005	Daniel B. Lewis, Whitney L. Kocis, Dr. Henri D. Grissino-Mayer, Edward R. Cook	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
4	Cobb-Massengill House	Piney Flats	Sullivan	Tennessee	2007	Dr. Henri D. Grissino-Mayer and Saskia L. van de Gevel	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
5	Cobb-Massengill House- Kitchen House	Piney Flats	Sullivan	Tennessee	2007	Dr. Henri D. Grissino-Mayer and Saskia L. van de Gevel	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
6	Saltpeter Vats		Van Buren	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring Webpages
7	Walker Springs Cabin	Knox	Knox	Tennessee	2007	Jessica D. Brogden, Maggie R. Stevens, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner	University of Tennessee	UTRW	Ultimate Tree-Ring Webpages
8	Reding Thesis Site		Grainger	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring Webpages
9	Reding Thesis Site		Hamblen	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring Webpages
10	Reding Thesis Site		Jefferson	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring Webpages
11	Reding Thesis Site		Union	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring Webpages
12	Devault Cabin		Johnson City	Tennessee		Henri D. Grissino-Mayer, David F. Mann, Bill Reding, and Daniel B. Lewis	University of Tennessee	UT Tree-Ring Website	
13	One Structure			Tennessee (Northeastern)			University of Tennessee	Dr. Grissino-Mayer	
14	One Structure			Tennessee (Northeastern)			University of Tennessee	Dr. Grissino-Mayer	
15	One Structure			Tennessee (Middle Eastern)			University of Tennessee	Dr. Grissino-Mayer	
16	One Structure			Tennessee (Middle Eastern)			University of Tennessee	Dr. Grissino-Mayer	
17	One Structure			Tennessee (Central)			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in Vermont

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Flynt Barn	Dummerston	Windham	Vermont			HD	Historic Deerfield	HD
2	Berner house	Marlboro	Windham	Vermont			HD	Historic Deerfield	HD,Owner
3	Congregational Church	Middlebury	Addison	Vermont			HD	Historic Deerfield	HD
4	Knowles Barn	W. Cornwall	Addison	Vermont			HD	Historic Deerfield	HD,Owner

Dated Buildings in Virginia

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Bacon's Castle		Surry	Virginia	1980	Jack Heikkenen	AIDI	Colonial Williamsburg	
2	Lynnhaven House	Virginia Beach		Virginia	1982	Jack Heikkenen	AIDI	Colonial Williamsburg	
3	Matthew Jones House	Newport News		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
4	John Blair House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
5	Brush-Everard House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
6	Bruton Parish Church	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
7	James Geddy House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
8	Ludwell-Paradise House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
9	Public Records Office	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
10	Peyton Randolph House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
11	Redwood Ordinary	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
12	Mason House	Accomack		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
13	Grissell-Hay House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
14	Nelson-Galt House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
15	Nicholson House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
16	Timson House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
17	Francis Land House	Virginia Beach		Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
18	Prestwould Porchs		Mecklenburg	Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
19	Travis House, Period III	Williamsburg		Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
20	Pear Valley		Northampton	Virginia	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
21	Smith's Fort		Surry	Virginia	1994	Jack Heikkenen	AIDI	Colonial Williamsburg	
22	Nelson House		York	Virginia	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
23	St. George Tucker House, Period I	Williamsburg		Virginia	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
24	Armistead House	Williamsburg		Virginia	1996	Jack Heikkenen	AIDI	Colonial Williamsburg	
25	Fielding Lewis Store	Fredericksburg		Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
26	Grovement		Richmond	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
27	Sally Jordan House (Yacobie)		Isle of Wight	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
28	Marmion		King George	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
29	Shirley		Charles City	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
30	Tuckahoe		Goochland	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
31	Mercer Apothecary	Fredericksburg		Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
32	Hollow House	Markham	Fauquier	Virginia	2002	Dr. Edward Cook, William J. Callahan	Lamont-Doherty Earth Observatory	Colonial Williamsburg	
33	Eyre Hall	Cheriton	Northampton	Virginia	2003	D. H. Miles	ODL	Worthington Website	
34	Adam Thoroughgood House	Virginia Beach		Virginia	2004	Mark Reed	City of Virginia Beach	Colonial Williamsburg	
35	Mount Vernon, The Spinning House		Fairfax	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
36	Mount Vernon, Trees		Fairfax	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
37	Adam Thoroughgood House	Virginia Beach	Princess Anne	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
38	Gadsby's Tavern, Period II	Alexandria		Virginia	2005	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
39	College of William and Mary, Digges House	Williamsburg		Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	

Dated Buildings in Virginia

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
40	College of William and Mary, President's House	Williamsburg		Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
41	Gloucester Courthouse, Courthouse	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
42	Gloucester Courthouse, Botetourt Hotel	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
43	Gloucester Courthouse, Debtors' Prison	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
44	Ware Church		Gloucester	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
45	Montpelier Mansion	Montpelier Station	Orange	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
46	Mount Vernon, The Gardener's House		Fairfax	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
47	Mount Vernon, The Mansion House Cellar		Fairfax	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
48	R. R. Moton House, Pleasant Shade Kitchen Quarter	Rice	Prince Edward	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
49	Brockenbrough House	Port Royal	Caroline	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
50	Adam Keeling House	Virginia Beach	Princess Anne	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
51	Brush-Everard House	Williamsburg		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
52	President's House, College of William and Mary	Williamsburg		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
53	Pate House		York	Virginia	2006	Jack Heikkenen	AIDI	Colonial Williamsburg	
54	Failling Creek Archaeological Site		Chesterfield	Virginia	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
55	Lynnhaven House	Virginia Beach	Princess Anne	Virginia	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
56	Merchant's Hope Church	Hopewell	Prince George	Virginia	2007	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells	AIDI	Colonial Williamsburg	
57	Rural Plains	Mechanicsville	Hanover	Virginia	2007	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
58	Headquarters Farm	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
59	Yates Schoolhouse	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
60	Hale Cabin	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
61	Rubush Hunting Cabin	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
62	Hay House	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
63	Browns Cove, Headquarters Farm Smokehouse	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
64	Browns Cove, Brightberry Farmhouse	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
65	Browns Cove, Walnut Level	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
66	Browns Cove, Mount Fair House	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
67	Browns Cove, Outbuildings	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
68	St. John's Church	Richmond		Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
69	Green Spring House	Alexandria	Fairfax	Virginia	2008	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
70	Cappahosic House	Gloucester	Gloucester	Virginia	2009	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	

Dated Buildings in Virginia

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
71	Early Virginia House	Verville	Lancaster	Virginia	1998-2002	Camille Wells, Heikkenen, Dr. Ed Cook, and William J. Callahan		Colonial Williamsburg	
72	The Old Mansion	Boiling Green		Virginia	2006, 2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
73	Ben Lomand Historic Site	Manassas		Virginia			ODL	Worthington Website	
74	Boston Mill Dam			Virginia			ODL	Worthington Website	
75	Four Square Plantation	Smithfield		Virginia			ODL	Worthington Website	
76	Battersea	Petersburg		Virginia				Colonial Williamsburg	
77	Bewdley		King and Queen	Virginia		D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
78	Kenmore	Fredericksburg		Virginia		Willie Graham		Colonial Williamsburg	
79	One Structure			Virginia (Southwestern)			University of Tennessee	Dr. Grissino-Mayer	
80	One Structure			Virginia (Southwestern)			University of Tennessee	Dr. Grissino-Mayer	
81	Four Structures			Virginia (Southwestern)			University of Tennessee	Dr. Grissino-Mayer	
82	One Structure			Virginia (Central)			University of Tennessee	Dr. Grissino-Mayer	
83	One Structure			Virginia (Northeastern)			University of Tennessee	Dr. Grissino-Mayer	
84	Newport Parish Church			Virginia				Carl Loundsbury's presentation for HCF	
85	Wilton		Westmoreland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
86	Yew Hill		Fauquier	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
87	Westover		Charles City	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
88	Verville		Lancaster	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
89	Tuckahoe		Goochland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
90	Thomas and John Marshall House	Markham		Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
91	Rippon Lodge		Prince William	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
92	Rochester House		Westmoreland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
93	Sabine Hall		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
94	Shirley		Charles City	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
95	Spangler Hall	Bentonville		Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
96	Marmion		King George	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in Virginia

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
97	Menokin		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
98	Monaskon		Lancaster	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
99	Kirnan		Westmoreland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
100	Linden Farm		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
101	Hills Farm		Accomack	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
102	Indian Banks		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
103	Fawcett House	Alexandria		Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
104	Gilmore Cabin	Montpelier Station	Montpelier	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
105	Gracie Mansion		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
106	Grove Mount		Richmond	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
107	Hanover Tavern	Hanover Courthouse		Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
108	Ditchley		Northumberland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
109	Clifton		Northumberland	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	
110	Belle Ilse		Lancaster	Virginia		Edward Cook and William J. Callahan	Columbia University	Sisk Cabin Final Report	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
1	Charles Carroll House	Annapolis		Maryland	1989, 1993	Jack Heikkenen	American Institute of Dendrochronology, Inc. (AIDI)	Colonial Williamsburg	
2	Cross Manor		St. Mary's	Maryland	1988	Jack Heikkenen	AIDI	Colonial Williamsburg	
3	Cross Manor Kitchen Wing		St. Mary's	Maryland	1988	Jack Heikkenen	AIDI	Colonial Williamsburg	
4	Cedar Park		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
5	Holly Hill		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
6	Tongue Tobacco House		Anne Arundel	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
7	Maidstone		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
8	Morgan Hill Farm		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
9	St. Leonard Shores Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
10	Wilson Frame Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
11	Wilson Log Tobacco Barn		Calvert	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
12	Greenland (now "The Exchange")		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
13	Johnsontown Farm Tobacco Barn Site		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
14	Sarum		Charles	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
15	Bayside Farm Barns		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
16	Brome Barn or Large Granary		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
17	Brome Granary		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
18	Bushwood (now "Ocean Hall")		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
19	Dixon's Purchase Dwelling		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
20	Eldon Grove		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
21	Fenwick House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
22	Mulberry Fields Carriage House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
23	Mulberry Fields Weaving House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
24	Mulberry Fields		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
25	Parke Dela Brooke Manor		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
26	Savona Tobacco House		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
27	Simms-Bond Log Tobacco Barn		St. Mary's	Maryland	1987	Jack Heikkenen	AIDI	Colonial Williamsburg	
28	The Last Year of Tree Growth for Selected Timbers within Reward		Somerset	Maryland	1989	Jack Heikkenen	AIDI	Colonial Williamsburg	
29	Riversdale Slave Quarters	Annapolis		Maryland	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
30	Milford		Camden	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
31	Joseph Bell House		Carteret	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
32	Bellair		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
33	Coor-Gaston House		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
34	John Wright Stanley House		Craven	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
35	Horton Grove Slave Quarter		Durham	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
36	Old Town Plantation		Edgecombe	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
37	Hoyle House		Gaston	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
38	Church Street House		New Hanover	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
39	Sloop Point		Pender	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
40	Robson		Pitt	North Carolina	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
41	Chowan County Courthouse		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
42	Cupola House		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
43	Iredell House		Chowan	North Carolina	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
44	Iredell House Kitchen		Chowan	North Carolina	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
45	Palmer-Marsh House		Chowan	North Carolina	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
46	Bacon's Castle		Surry	Virginia	1980	Jack Heikkenen	AIDI	Colonial Williamsburg	
47	Fielding Lewis Store	Fredericksburg		Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
48	Grovement		Richmond	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
49	Sally Jordan House (Yacobie)		Isle of Wight	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
50	Marmion		King George	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
51	Shirley		Charles City	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
52	Tuckahoe		Goochland	Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
53	Matthew Jones House	Newport News		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
54	Francis Land House	Virginia Beach		Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
55	Lynnhaven House	Virginia Beach		Virginia	1982	Jack Heikkenen	AIDI	Colonial Williamsburg	
56	Mason House	Accomack		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
57	Mercer Apothecary	Fredericksburg		Virginia	2000	Jack Heikkenen	AIDI	Colonial Williamsburg	
58	Merchant's Hope Church	Hopewell	Prince George	Virginia	2007	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells	AIDI	Colonial Williamsburg	
59	Nelson House		York	Virginia	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
60	Pate House		York	Virginia	2006	Jack Heikkenen	AIDI	Colonial Williamsburg	
61	Pear Valley		Northampton	Virginia	1993	Jack Heikkenen	AIDI	Colonial Williamsburg	
62	Prestwould Porchs		Mecklenburg	Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
63	Smith's Fort		Surry	Virginia	1994	Jack Heikkenen	AIDI	Colonial Williamsburg	
64	John Blair House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
65	Brush-Everard House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
66	Bruton Parish Church	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
67	James Geddy House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
68	Ludwell-Paradise House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
69	Public Records Office	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
70	Peyton Randolph House	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
71	Redwood Ordinary	Williamsburg		Virginia	1984	Jack Heikkenen	AIDI	Colonial Williamsburg	
72	Armistead House	Williamsburg		Virginia	1996	Jack Heikkenen	AIDI	Colonial Williamsburg	
73	Grissell-Hay House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
74	Nelson-Galt House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
75	Nicholson House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
76	Timson House	Williamsburg		Virginia	1990	Jack Heikkenen	AIDI	Colonial Williamsburg	
77	Travis House, Period III	Williamsburg		Virginia	1992	Jack Heikkenen	AIDI	Colonial Williamsburg	
78	St. George Tucker House, Period I	Williamsburg		Virginia	1995	Jack Heikkenen	AIDI	Colonial Williamsburg	
79	St. Francis Xavier Roman Catholic Church		St. Mary's	Maryland	1982	Jack Heikkenen and Mark R. Edwards		Colonial Williamsburg	
80	Newton Manor House		St. Mary's	Maryland	1982	Jack Heikkenen and Mark R. Edwards		Colonial Williamsburg	
81	Adam Thoroughgood House	Virginia Beach		Virginia	2004	Mark Reed	City of Virginia Beach	Colonial Williamsburg	
82	Abraham Hasbrouck House	New Paltz		New York		Edward Cook and William J. Callahan	Columbia University, Lamont-Doherty Earth Observatory (LDEO)	Sisk Cabin Final Report	
83	Allen House	Shrewsbury		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
84	Belle Ilse		Lancaster	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
85	Bowne House	Queens		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
86	Carpenter's Hall	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
87	Christ's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
88	Clifton		Northumberland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
89	Conklin House	Huntington		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
90	Customs House	Boston		Massachusetts		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
91	Daniel Boone Homestead	Birdsboro		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
92	Daniel Pieter Winne House	Bethlehem		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
93	Ditchley		Northumberland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
94	Ephrata Cloisters		Lancaster	Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
95	Fallsington Log House		Bucks	Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
96	Fawcett House	Alexandria		Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
97	Gilmore Cabin	Montpelier Station	Montpelier	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
98	Gracie Mansion		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
99	Grove Mount		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
100	Hanover Tavern	Hanover Courthouse		Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
101	Harriton House	Bryn Mawr		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
102	Hills Farm		Accomack	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
103	Indian Banks		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
104	Indian King Tavern	Haddonfield		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
105	Independence Hall	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
106	John Bowne House	Forest Hills		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
107	Kirnan		Westmoreland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
108	Linden Farm		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
109	Log Cabin	Fort Loudon		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
110	Lower Swedish Log Cabin		Delaware	Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
111	Marmion		King George	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
112	Menokin		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
113	Monaskon		Lancaster	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
114	Morris Jumel House	Jamaica		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
115	Frederick Muhlenberg House	Trappe		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
116	Old Caln Meeting House	Thorndale		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
117	Old Swede's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
118	Pennock House & Barn	London Grove		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
119	Penny Watson House	Greenwich		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
120	Podrum Farm	Limekiln		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
121	Powell House	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
122	Pyne House	Cape May		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
123	Radcliff van Ostrade	Albany		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
124	Rippon Lodge		Prince William	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
125	Rochester House		Westmoreland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
126	Sabine Hall		Richmond	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
127	Shirley		Charles City	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
128	Spangler Hall	Bentonville		Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
129	Springwater Farm	Stockton		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
130	St. Peter's Church	Philadelphia		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
131	Strawbridge Shrine	Westminster		Maryland		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
132	Sweeney-Miller House	Kingston		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
133	Thomas and John Marshall House	Markham		Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
134	Thomas Grist Mill	Exton		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
135	Thomas Thomas House	Newtown Square		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
136	Tuckahoe		Goochland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
137	Updike Barn	Princeton		New Jersey		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
138	Varnum's HQ	Valley Forge		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
139	Verville		Lancaster	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
140	West Camp House	Saugerties		New York		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
141	Westover		Charles City	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
142	William Garrett House	Sugartown		Pennsylvania		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
143	Wilton		Westmoreland	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	
144	Yew Hill		Fauquier	Virginia		Edward Cook and William J. Callahan	LDEO	Sisk Cabin Final Report	SPNEA, I
145	Hollow House	Markham	Fauquier	Virginia	2002	Dr. Edward Cook, William J. Callahan	LDEO	Colonial Williamsburg	SPNEA, I
146	United Church of Christ Congregational	Burlington	Middlesex	Massachusetts			LDEO	Historic Deerfield	SPNEA, I
147	Old South United Presbyterian Church	Newburyport	Essex	Massachusetts			LDEO	Historic Deerfield	HD
148	Harvard Hall	Cambridge	Middlesex	Massachusetts			LDEO	Historic Deerfield	HD
149	Old Ship Church	Hingham	Norfolk	Massachusetts			LDEO	Historic Deerfield	HD
150	Joseph Stebbins house	Deerfield	Franklin	Massachusetts			LDEO	Historic Deerfield	HD
151	Allen house	Deerfield	Franklin	Massachusetts			LDEO,HD	Historic Deerfield	
152	Wells-Thorn house	Deerfield	Franklin	Massachusetts			LDEO,HD	Historic Deerfield	
153	Robert Strawbridge House		Carroll	Maryland	Undated	Edward Cook and William J. Callahan	LDEO	Colonial Williamsburg	
154	Hollingsworth House	Elk Landing	Cecil	Maryland	2001	Edward Cook and William J. Callahan		Colonial Williamsburg	
155	Cappahosic House	Gloucester	Gloucester	Virginia	2009	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
156	Gadsby's Tavern, Period II	Alexandria		Virginia	2005	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
157	Green Spring House	Alexandria	Fairfax	Virginia	2008	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	
158	Rural Plains	Mechanicsville	Hanover	Virginia	2007	Dr. Edward Cook, William J. Callahan, Jr., Dr. Camille Wells		Colonial Williamsburg	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
159	Early Virginia House	Verville	Lancaster	Virginia	1998-2002	Camille Wells, Heikkenen, Dr. Ed Cook, and William J. Callahan		Colonial Williamsburg	
160	Hull House	Lancaster	Erie	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
161	Houghton RR	Houghton	Allegany	New York	2001	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
162	Babcock Barn	Gowanda	Cattaraugus	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
163	Patterson Inn	Corning	Steuben	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
164	Campbell Log Cabin	Campbell	Steuben	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
165	Hiram Edson House	Phelps	Ontario	New York	2005	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
166	Greek Revival Home	Ithaca	Tompkins	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
167	Beardslee House	East Berlin	Otsego	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
168	River Edge Mansion	Oak Orchard	Oswego	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
169	Seneca Lake, Peach Orchard Dock	Hector	Schuyler	New York	2003	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
170	Cornell, McGraw Hall Attic	Ithaca	Tompkins	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
171	Schoneman House	Burdett	Schuyler	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
172	Gregoire's Farm	Burdett	Schuyler	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
173	Ithaca Inlet	Ithaca	Tompkins	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
174	Griffin Barn	Saratoga	Saratoga	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
175	Demolished Barn next to Griffin Barn	Saratoga	Saratoga	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
176	Tinker Cabin	Easton	Washington	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
177	Yates House	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
178	Brouwer House	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
179	Mabee Farm	Schenectady	Schenectady	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
180	Front Street House	Schenectady	Schenectady	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
181	Albany Stockade	Albany	Albany	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
182	Crailo House	Rensselaer	Rensselaer	New York	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
183	McCutcheon House	Bethlehem	Albany	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
184	Bowerie House	Clermont	Columbia	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
185	Buried logging timber-Lake George	Lake George	Washington	New York	2005	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
186	Newland House	Saratoga	Saratoga	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
187	Erie Canal Store	Albany	Albany	New York	2009	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
188	Coeymans House	Coeymans	Albany	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
189	Sternberg House	Schoharie	Schoharie	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
190	Sternberg Tavern	Schoharie	Schoharie	New York	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
191	New York State Museum-Three Dugouts			New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
192	Spooner House	Adams	Jefferson	New York	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
193	Titus Ives House	Watertown	Jefferson	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
194	Erastus Ives House	Watertown	Jefferson	New York	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
195	Massena Courduroy Road	Louisville	St Lawrence	New York	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
196	Brewer Tide Mill	Brewer	Penobscot	Maine	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
197	Tate House	Portland	Cumberland	Maine	2007	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
198	Bryant-Barstow Docks	Walpole	Damariscotta	Maine	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
199	Pemaquid Point	Pemaquid	Damariscotta	Maine	2011	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
200	Winkelman House	Gloucester	Essex	Massachusetts	2008	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
201	Wharf	Boston	Suffolk	Massachusetts	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
202	Row Houses	Boston	Suffolk	Massachusetts	2006	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
203	Taylor-Brey Farm	Yarmouth	Barnstable	Massachusetts	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
204	Schaeffer Farm	Schaefferstown	Lancaster	Pennsylvania	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Cornell University
205	Barney House	Newport	Newport	Rhode Island	2010	Northeast North America Dendrochronology Project	Cornell Tree Ring Laboratory	Dr. Carol Griggs	Ultimate Tree-Ring
206	Rev. J. Ashley house	Deerfield	Franklin	Massachusetts			Historic Deerfield (H	Historic Deerfield	HD
207	Ashley Barn	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
208	Eldad Bardwell house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
209	Barnard Tavern	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
210	Brick Church	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
211	Bull-Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
212	Timothy Childs house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
213	David Dickinson house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
214	David Dickinson shed	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
215	Dray house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
216	Hall Tavern(Charlemont)	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
217	Eliezer Hawks house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
218	Jonathon Hoit house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
219	Little Brown house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
220	Moors house ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
221	Benjamin Munn house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
222	Severance house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
223	David Sexton house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
224	Sheldon house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
225	Gen. Ashley house	Ashley Falls	Berkshire	Massachusetts			HD	Historic Deerfield	TTOR,HD
226	Col. Ashley house	Ashley Falls	Berkshire	Massachusetts			HD	Historic Deerfield	HD
227	Alpheus Moore house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
228	David Graves house	Whately	Franklin	Massachusetts			HD	Historic Deerfield	HD
229	David Graves barn	Whately	Franklin	Massachusetts			HD	Historic Deerfield	HD
230	Szumowski house	Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
231	Nathaniel Parsons house	Northampton	Hampshire	Massachusetts			HD	Historic Deerfield	HD
232	Dollard house	Northfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
233	Gideon Hubbard house	Leverett	Franklin	Massachusetts			HD	Historic Deerfield	HD
234	Samuel Willis house	Leverett	Franklin	Massachusetts			HD	Historic Deerfield	HD
235	Israel Childs house	Sunderland	Franklin	Massachusetts			HD	Historic Deerfield	Owner, HD
236	Oliver Hanchett house	Suffield	Hartford	Connecticut			HD	Historic Deerfield	HD
237	Josiah White house	S.Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
238	Rawson house	S.Hadley	Hampshire	Massachusetts			HD	Historic Deerfield	HD
239	Howland house	Conway	Franklin	Massachusetts			HD	Historic Deerfield	HD
240	Turn Barn	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD
241	Thomas Dickinson house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
242	Barnard-Delano house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD, Owner
243	Haskell house	Beverly	Essex	Massachusetts			HD	Historic Deerfield	HD,MHC,Owner
244	White-Ellery barn	Gloucester	Essex	Massachusetts			HD	Historic Deerfield	HD, Owner
245	Interlaken barn	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
246	Jonathon Smith house	W.Springfld.	Hampden	Massachusetts			HD	Historic Deerfield	HD,Owner
247	Bakeman house	Lancaster	Worcester	Massachusetts			HD	Historic Deerfield	HD,Owner
248	Bacon barn	Simsbury	Hartford	Connecticut			HD	Historic Deerfield	HD, OSV
249	Fenno house	Canton	Norfolk	Massachusetts			HD	Historic Deerfield	HD,Owner
250	Wormley house	N. Hillsdale	Columbia	New York			HD	Historic Deerfield	HD,Owner
251	Cherry Cottage	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD,TTOR
252	The Mission house	Stockbridge	Berkshire	Massachusetts			HD	Historic Deerfield	HD
253	Joseph Barnard house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
254	J. Barnard ell (reused)	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
255	Nims house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
256	Nims shed	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
257	Bloody Brook Tavern	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
258	H&A Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
259	Barnard-Arms house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
260	John Sheldon house parts	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
261	Smead house parts	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
262	Mary Hawks House	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
263	Thomas Williams house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
264	Thomas Williams house ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
265	William Russell house	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD
266	William Russell ell	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD, MHC, NPS
267	Boston Town Dock timbers	Boston	Suffolk	Massachusetts			HD	Historic Deerfield	HD
268	Atwood House	Chatham	Barnstable	Massachusetts			HD	Historic Deerfield	HD,Owner
269	Robbins-Hutchinson house	Concord	Middlesex	Massachusetts			HD	Historic Deerfield	HD, Owner
270	Josiah Dennis house	Dennis	Barnstable	Massachusetts			HD	Historic Deerfield	HD
271	Flynt Barn	Dummerston	Windham	Vermont			HD	Historic Deerfield	HD, Owner
272	George Benson house	Florence	Hampshire	Massachusetts			HD	Historic Deerfield	HD, Owner
273	David Ruggles Center	Florence	Hampshire	Massachusetts			HD	Historic Deerfield	HD, Owner
274	Harwood Barn	Gr. Barrington	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner,YAG
275	Youngs-Keller house	Hebron	Tolland	Connecticut			HD	Historic Deerfield	HD,Owner
276	Houghton house	Harvard	Worcester	Massachusetts			HD	Historic Deerfield	HD, UMA
277	Hingham Underpass timbers	Hingham	Plymouth	Massachusetts			HD	Historic Deerfield	HD,Owner
278	Brookside Barn	Lee	Berkshire	Massachusetts			HD	Historic Deerfield	HD
279	Andrew Evans house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD,Owner
280	Berner house	Marlboro	Windham	Vermont			HD	Historic Deerfield	HD
281	Congregational Church	Middlebury	Addison	Vermont			HD	Historic Deerfield	HD
282	Ward house	Montague	Franklin	Massachusetts			HD	Historic Deerfield	HD, NHS
283	Bartlet Lower Wharf Timbers	Newburyport	Essex	Massachusetts			HD	Historic Deerfield	HD, Owner
284	Longfield Barn	Guilderland	Albany	New York			HD	Historic Deerfield	HD, Owner
285	Shaker Farm	Richmond	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
286	Sofield house	Amherst	Hampshire	Massachusetts			HD	Historic Deerfield	HD,Owner
287	Phelps house	S. Egremont	Berkshire	Massachusetts			HD	Historic Deerfield	HD,Owner
288	Cooper house	S. Egremont	Berkshire	Massachusetts			HD	Historic Deerfield	HD
289	Dwight House	Deerfield	Franklin	Massachusetts			HD	Historic Deerfield	HD,Owner
290	Knowles Barn	W. Cornwall	Addison	Vermont			HD	Historic Deerfield	HD,Owner
291	Hubbard House	Wethersfield	Hartford	Connecticut			HD	Historic Deerfield	

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	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
292	Dutch barn	Fort Plain	Montgomery	New York			HD	Historic Deerfield	HD,Owner
293	Dutch barn	Ephrata	Fulton	New York			HD	Historic Deerfield	HD, DH
294	The Evergreens ell	Amherst	Hampshire	Massachusetts			HD	Historic Deerfield	Cornell University
295	Pickering House	Salem	Essex	Massachusetts	2007		NPS, ODL	Worthington Website	Pickering Foundatic
296	Joseph Webb House	Wethersfield		Connecticut	2006	D. H. Miles and M. J. Worthington	Oxford Dendrochronology Laboratory (ODL)	Worthington Website	
297	Ramsdell House	York		Maine	2004	D. H. Miles	ODL	Worthington Website	Old York Historical
298	Keedy House	Boonsboro	Washington	Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
299	Keedy Cottage	Boonsboro	Washington	Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
300	Sotterley Mansion	Hollywood	St. Mary's	Maryland	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
301	Linchester Mill	Preston	Caroline	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
302	Melwood Park		Prince George's	Maryland	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
303	Middlekauf Farm; Kelly's Purchase	Sharpsburg	Washington	Maryland	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
304	Red House, Wye Plantation	Easton		Maryland	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
305	Antietam National Battlefield, Mary Locher Cabin	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
306	Antietam National Battlefield, Joseph Poffenberger Barn	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
307	Antietam National Battlefield, Roulette House	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
308	Antietam National Battlefield, Wash House	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
309	Antietam National Battlefield, Wagon Shed	Sharpsburg	Washington	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
310	Monocacy National Battlefield, Best Farm, Detached Log Kitchen	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
311	Monocacy National Battlefield, Best Farm, Main House Cellar	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
312	Monocacy National Battlefield, Best Farm, Secondary House	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
313	Monocacy National Battlefield, Best Farm, Corn Crib	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
314	Monocacy National Battlefield, Thomas Farm House	Frederick		Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	
315	Little Bennett Regional Park, Perry Browning House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
316	Little Bennett Regional Park, Zeigler Log House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
317	Little Bennett Regional Park, Prescott Road Log Cabin	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
318	Little Bennett Regional Park, Norwood Log Tobacco House	Clarksburg	Montgomery	Maryland	2009	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
319	Handsell	Vienna	Dorchester	Maryland	2011	M. J. Worthington and J. I. Seiter	ODL	Worthington Website	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
320	Josiah Bensen Site (1-story log addition dated)	North Bethesda	Montgomery	Maryland	2010	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
321	Doughoregan Site (11 buildings: Centre Block, Kitchen Wing, South Hyphen, Bath House, Ash House, Smoke House, Overseers House, Slave House, Laundry House, Store House)	Baltimore		Maryland			ODL	Worthington Website	
322	Bear Island	West of Bethesda		Maryland			ODL	Worthington Website	
323	Poplar Neck, House		Caroline	Maryland			ODL	Worthington Website	
324	Poplar Neck, Corn Crib		Caroline	Maryland			ODL	Worthington Website	
325	Abbot House	Andover	Essex	Massachusetts	2003	D. H. Miles and M. J. Worthington	ODL	Worthington Website	Lion TV
326	Mill Ditch, Blackstone Street	Boston	Suffolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
327	Bradford House	Kingston	Plymouth	Massachusetts	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	Jones River Village
328	Balch House	Beverly	Essex	Massachusetts	2006		ODL	Worthington Website	Beverly Historical S
329	20 White Place	Brookline	Suffolk	Massachusetts	2007		ODL	Worthington Website	Owner
330	Gov. Bellingham-Cary House	Chelsea	Suffolk	Massachusetts	2008		ODL	Worthington Website	
331	Cooper-Frost-Austin House	Cambridge	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
332	Fairbanks House	Dedham	Norfolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
333	Pierce House	Dorchester	Suffolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
334	Chickering-Francis Farmhouse	Dover	Norfolk	Massachusetts	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
335	Cogswell's Grant	Essex	Essex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, III
336	First Parish Church	Groton	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
337	Hart House	Ipswich	Essex	Massachusetts	2006		ODL	Worthington Website	Metropolitan Muse
338	Tuttle House	Ipswich	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
339	Whipple House	Ipswich	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, IV
340	Hancock-Clarke House	Lexington	Middlesex	Massachusetts	2007		ODL	Worthington Website	
341	155 Whitcomb Ave.	Littleton	Middlesex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, III
342	Dwight-Derby House	Medfield	Norfolk	Massachusetts	2007		ODL	Worthington Website	Town of Medfield
343	Chestnut Hill Meeting House	Millville	Worchester	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, III
344	Capen House	Milton	Norfolk	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
345	Mass Coffin House	Newbury	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
346	John Adams Birthplace	Quincy	Norfolk	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	National Park Servi

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
347	John Quincy Adams Birthplace	Quincy	Norfolk	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	National Park Servi
348	Old Castle, Pigeon Cover Center	Rockport	Essex	Massachusetts	2004	D. H. Miles	ODL	Worthington Website	Sandy Bay Historica
349	Old Garrison House	Rockport	Essex	Massachusetts	2004	D. H. Miles	ODL	Worthington Website	Sandy Bay Historica
350	Mass Gedney House	Salem	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
351	Narbonne House	Salem	Essex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, IV
352	Turner House, House of Seven Gables	Salem	Essex	Massachusetts	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website, Colonial Williamsburg	SPNEA, IV
353	Barnstable Co, the Wing House	Sandwich		Massachusetts	2007		ODL	Worthington Website	
354	Jenck's Barn	Seekonk	Bristol	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website, Colonial Williamsburg	SPNEA, IV
355	Mass Townsend United Methodist Church	Townsend	Middlesex	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
356	Smith-Healey House	Walpole	Norfolk	Massachusetts	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
357	Edmund-Fowle House	Watertown	Middlesex	Massachusetts	2007		ODL	Worthington Website	
358	Bardeen-Culver House	West Newberry	Essex	Massachusetts	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, III
359	Cory Cornell House	Westport	Bristol	Massachusetts	2006		ODL	Worthington Website	
360	Deane Winthrop House	Winthrop		Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
361	Haskell House	Beverly	Essex	Massachusetts	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website, Colonial Williamsburg	Owner
362	Holt Farm	Andover	Essex	Massachusetts	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website, Colonial Williamsburg	Owner
363	Jacob Wittemore	Lexington		Massachusetts			ODL	Worthington Website	National Park Servi
364	Olive Stow House	Concord		Massachusetts	2002	D. H. Miles and M. J. Worthington	ODL	Worthington Website	National Park Servi
365	Parson Capen House	Topsfield		Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, II
366	Gilman Garrison House	Exeter		New Hampshire	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	SPNEA, ilia
367	Hoggatt House, now at High Point Museum		Guilford	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
368	Armfield House (demolished), used for Hoggatt House		Guilford	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
369	Tanner House		Henderson	North Carolina			ODL	Worthington Website	
370	Blacksmith Shop, re-erected at High Point Museum		Davidson	North Carolina	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
371	Walker House	East Providence	Providence	Rhode Island	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	Preserve Rhode Isla
372	Clemence Irons House	Johnston	Providence	Rhode Island	2003	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Worthington Website	SPNEA, III

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
373	Eleazer Arnold House	Lincoln	Providence	Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	SPNEA, III
374	Wilbour-Ellery House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoratic
375	Augustus Lucus House	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoratic
376	Simeon Potter House	Newport	Newport	Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoratic
377	David Braman, Sr. House	Newport	Newport	Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoratic
378	Wanton-Lyman Hazard House	Newport	Newport	Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Newport Restoratic
379	The Old Mansion	Bowling Green	Caroline	Virginia	2006, 2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
380	Headquarters Farm	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
381	Yates Schoolhouse-ex situ	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
382	Hale Cabin	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
383	Rubush Hunting Cabin	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
384	Hay House	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
385	Browns Cove, Headquarters Farm Smokehouse	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
386	Browns Cove, Brightberry Farmhouse	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
387	Browns Cove, Walnut Level	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
388	Browns Cove, Mount Fair House	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
389	Browns Cove, Outbuildings	Crozet	Albemarle	Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
390	Falling Creek Archaeological Site		Chesterfield	Virginia	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
391	Eyre Hall	Cheriton	Northampton	Virginia	2003	D. H. Miles	ODL	Worthington Website	
392	Gloucester Courthouse, Courthouse	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
393	Gloucester Courthouse, Botetourt Hotel	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
394	Gloucester Courthouse, Debtors' Prison	Gloucester Courthouse		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
395	Ware Church		Gloucester	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
396	Mansion	Montpelier Station	Orange	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
397	Mount Vernon, The Gardener's House		Fairfax	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
398	Mount Vernon, The Mansion House Cellar		Fairfax	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
399	Mount Vernon, The Spinning House		Fairfax	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
400	Mount Vernon, Trees		Fairfax	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
401	R. R. Moton House, Pleasant Shade Kitchen Quarter	Rice	Prince Edward	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
402	St. John's Church	Richmond		Virginia	2008	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
403	Brockenbrough House	Port Royal	Caroline	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
404	Adam Keeling House	Virginia Beach	Princess Anne	Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
405	Adam Thoroughgood House	Virginia Beach	Princess Anne	Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
406	Lynnhaven House	Virginia Beach	Princess Anne	Virginia	2007	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
407	Brush-Everard House	Williamsburg		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
408	President's House, College of William and Mary	Williamsburg		Virginia	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
409	Ben Lomand Historic Site	Manassas		Virginia			ODL	Worthington Website	
410	Four Square Plantation	Smithfield		Virginia			ODL	Worthington Website	
411	Spring Hill Farm, Slave Quarters		Culpeper	Virginia			ODL	Worthington Website	
412	Congregational Church	Burlington		Connecticut			ODL	Worthington Website	
413	Prospect Street Friends Meetinghouse		Somerset	Massachusetts	2002	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Colonial Williamsburg	Trustees of Reserva
414	Paine House	Ipswich	Essex	Massachusetts	2005	D. H. Miles, M. J. Worthington, A. A. Grady	ODL	Colonial Williamsburg	
415	Mulford Farm	East Hampton		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
416	Sylvester Manor	Shelter Island		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
417	Halsey House	Southampton		New York	2006	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
418	Bewdley		King and Queen	Virginia		D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
419	College of William and Mary, Digges House	Williamsburg		Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
420	College of William and Mary, President's House	Williamsburg		Virginia	2005	D. H. Miles and M. J. Worthington	ODL	Colonial Williamsburg	
421	Blake House	Boston	Suffolk	Massachusetts			ODL	Historic New England	Cambridge Historic
422	Hooper-Lee-Nichols House	Cambridge	Middlesex	Massachusetts			ODL	Historic New England	MHC, SPNEA, II
423	Spencer-Peirce-Little House	Newbury	Essex	Massachusetts			ODL	Historic New England	National Park Servi
424	Capt. Thomas Paine House	Jamestown	Newport	Rhode Island			ODL	Historic New England	MHC
425	Boardman House	Saugus	Essex	Massachusetts			ODL	Historic New England	Newport Restoratic
426	Newport Friends Meetinghouse	Newport		Rhode Island	2005	D. H. Miles, M. J. Worthington, R. P. Foley	ODL	Worthington Website	Cape Ann Historica
427	Cogswell's Grant, Salt Hay Barn	Essex	Essex	Massachusetts			ODL	Historic Deerfield	SPNEA, I
428	Rocky Hill Meeting House	Amesbury	Essex	Massachusetts			ODL	Historic Deerfield	SPNEA, I
429	Old House- Cutchogue	Long Island		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, LDEO	Worthington Website	
430	Terry Mulford House, Orient Point	Orient Point		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, LDEO	Worthington Website	
431	Home-Sweet-Home, East Hampton	East Hampton		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, LDEO	Worthington Website	
432	Gardiner-Brown House	East Hampton		New York	2006	D. H. Miles, M. J. Worthington, Dr. E. Cook, and Paul Krusic	ODL, LDEO	Worthington Website	
433	Officer's Club, part of the Presidio	San Francisco		California	2006	D. H. Miles and M. J. Worthington	ODL	Worthington Website	
434	Iron Works House	Saugus	Essex	Massachusetts			U. Az/LDEO	Historic New England	Owner
435	Howard House	Ipswich	Essex	Massachusetts			U. Az/Oxford	Historic New England	SPNEA, III

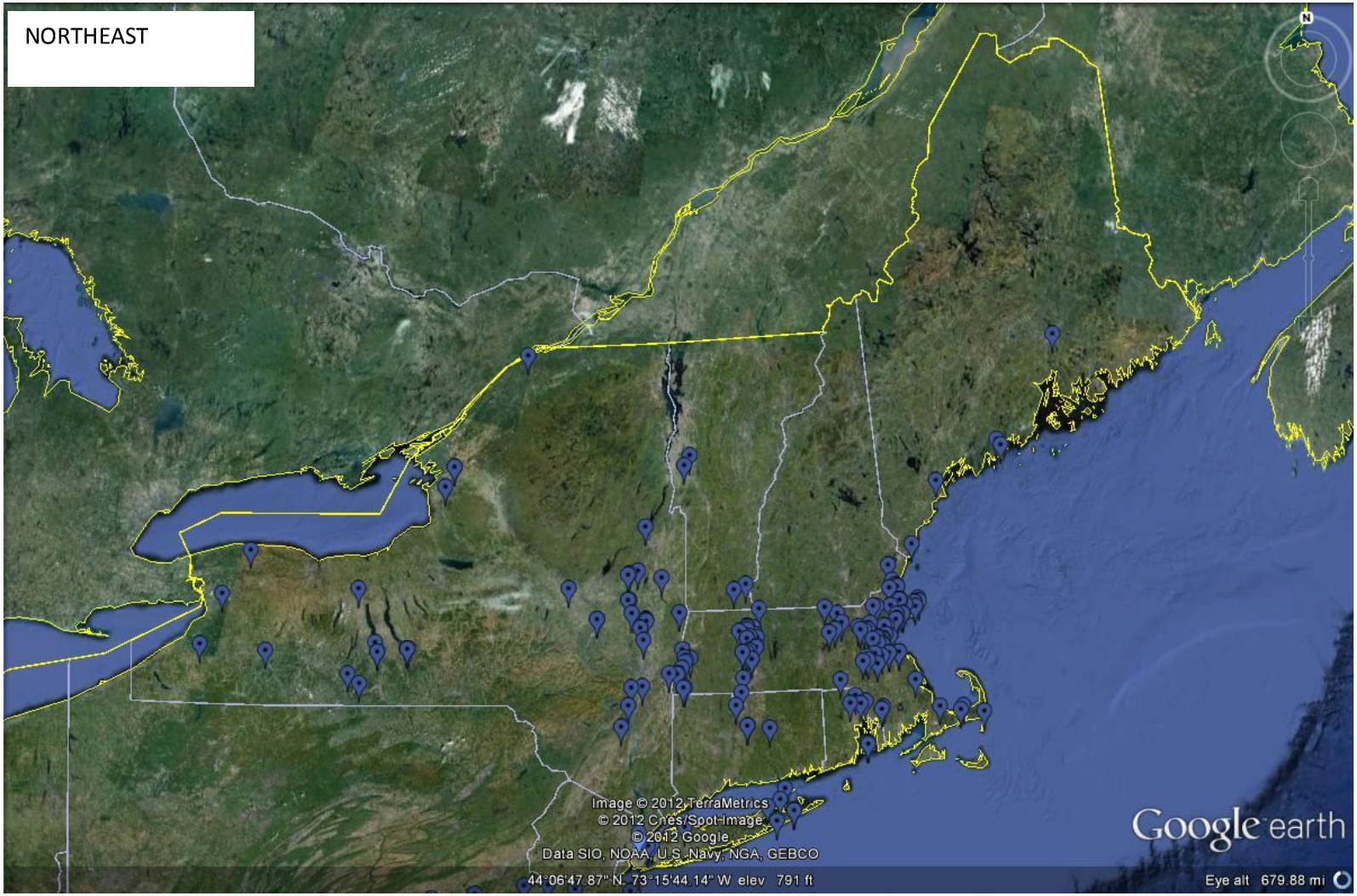
Dated Buildings in the United States by Professional

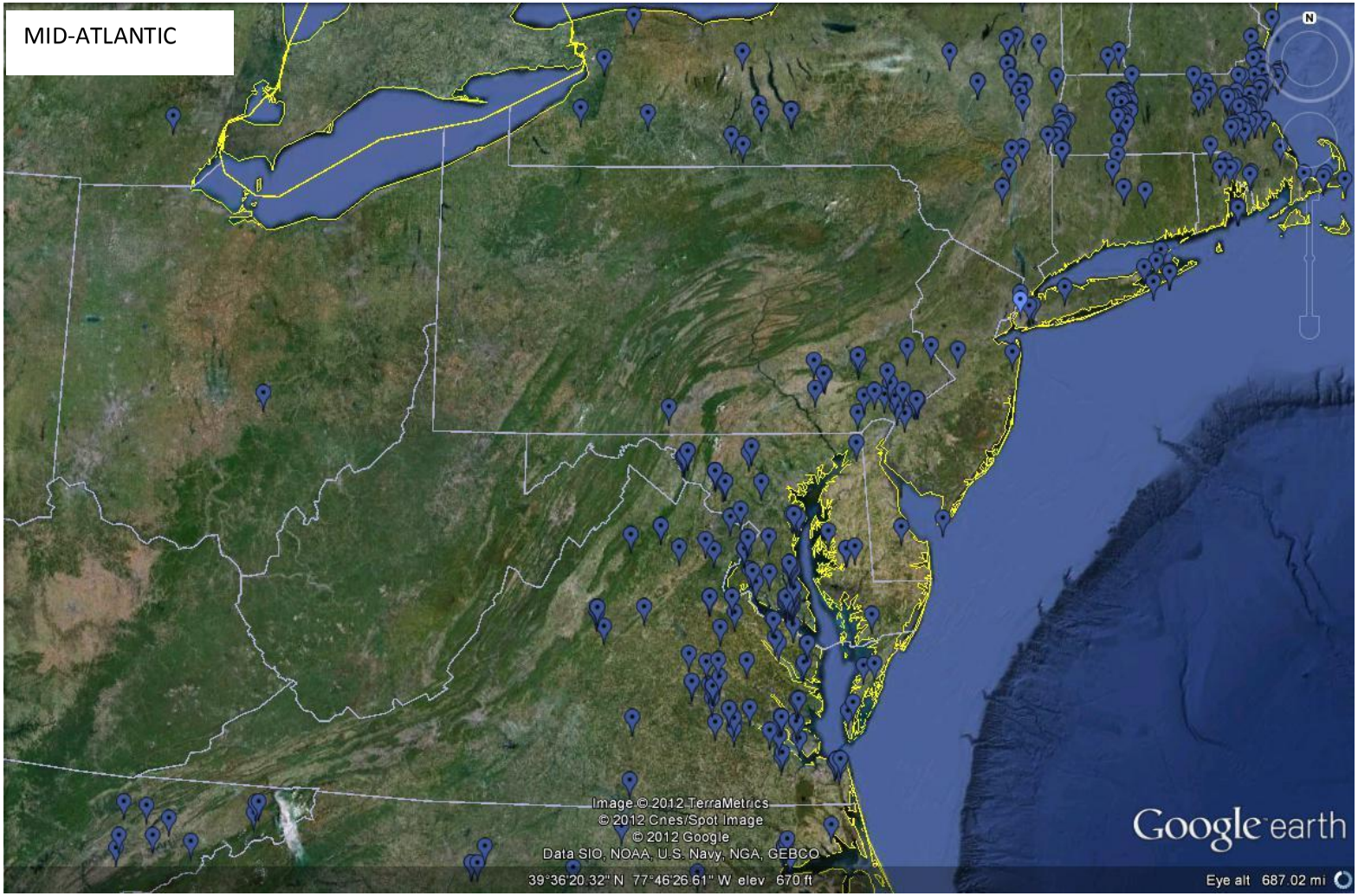
	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
436	Bryan-Redd Antebellum House	Cumming	Forsyth	Georgia	2004	Georgia Georgina Deweese Wight and Dr. Henri D. Grissino-Mayer,	University of Tennessee	Ultimate Tree-Ring Webpages (UTRW)	
437	Swaggerty Blockhouse	Parrottsville	Cocke	Tennessee	2007	David F. Mann, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner, and John B. Rehder	University of Tennessee	UTRW	
438	Ximenez-Fatio House	St. Augustine	St. John's	Florida	2007	Dr. Henri D. Grissino-Mayer, Leda N. Kobziar, Grant L. Harley, Kevin P. Russell, Lisa B. LaForest, and Joseph K. Oppermann	University of Tennessee	UTRW	
439	John Sevier Cabin	Knox	Knox	Tennessee	2007	Jessica D. Brogden, Maggie R. Stevens, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner	University of Tennessee	UTRW	
440	Hoskins House	Greensboro	Guilford	North Carolina	2006	Henri D. Grissino-Mayer and Joseph P. Henderson	University of Tennessee	UTRW	
441	Alfred's Cabin, Andrew Jackson's Hermitage Plantation	Nashville	Davidson	Tennessee	2005	Daniel B. Lewis, Whitney L. Kocis, Dr. Henri D. Grissino-Mayer, Edward R. Cook	University of Tennessee	UTRW	
442	Cobb-Massengill House	Piney Flats	Sullivan	Tennessee	2007	Dr. Henri D. Grissino-Mayer and Saskia L. van de Gevel	University of Tennessee	UTRW	
443	Lund-Spathelf House	Ann Arbor	Washtenaw	Michigan	2011	Grant L. Harley, Dr. Henri D. Grissino-Mayer, Lisa B. LaForest, Patrick McCauley	University of Tennessee	UTRW	Dorchester Historic
444	Cobb-Massengill House- Kitchen House	Piney Flats	Sullivan	Tennessee	2007	Dr. Henri D. Grissino-Mayer and Saskia L. van de Gevel	University of Tennessee	UTRW	Ultimate Tree-Ring
445	Walker Springs Cabin	Knox	Knox	Tennessee	2007	Jessica D. Brogden, Maggie R. Stevens, Dr. Henri D. Grissino-Mayer, Charles H. Faulkner	University of Tennessee	UTRW	Ultimate Tree-Ring
446	Hope Mills Crib Dam	Hope Mills		North Carolina			University of Tennessee	UTRW	UTRW
447	Spanish Mission Post	St. Augustine	St. John's	Florida			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring
448	Reding Thesis Site		Grainger	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring
449	Reding Thesis Site		Hamblen	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring
450	Reding Thesis Site		Jefferson	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	Ultimate Tree-Ring
451	Reding Thesis Site		Union	Tennessee			University of Tennessee	Dr. Henri Grissino-Mayer	
452	Abraham Lincoln's Birthplace		Hodgeville	Kentucky		Henri D. Grissino-Mayer and Dwight T. Pitcaithley	University of Tennessee	UT Tree-Ring Website	
453	Devault Cabin		Johnson City	Tennessee		Henri D. Grissino-Mayer, David F. Mann, Bill Reding, and Daniel B. Lewis	University of Tennessee	UT Tree-Ring Website	
454	One Structure			Ohio			University of Tennessee	Dr. Grissino-Mayer	

Dated Buildings in the United States by Professional

	Name of Building	City	County	State	Year work performed	Who	Organization	Source	Report Location
455	One Structure			Delaware			University of Tennessee	Dr. Grissino-Mayer	
456	Taylor-Haynes	Johnson City		Tennessee			University of Tennessee	Dr. Grissino-Mayer	
457	One Structure		(Northeastern)	Tennessee			University of Tennessee	Dr. Grissino-Mayer	
458	One Structure		(Middle Eastern)	Tennessee			University of Tennessee	Dr. Grissino-Mayer	
459	One Structure		(Middle Eastern)	Tennessee			University of Tennessee	Dr. Grissino-Mayer	
460	Stewart-Carroll Cabin		van Buren	Tennessee			University of Tennessee	Dr. Grissino-Mayer	
461	One Structure		(Southwestern)	Virginia			University of Tennessee	Dr. Grissino-Mayer	
462	One Structure		(Southwestern)	Virginia			University of Tennessee	Dr. Grissino-Mayer	
463	Four Structures		(Southwestern)	Virginia			University of Tennessee	Dr. Grissino-Mayer	
464	One Structure		(Central)	Virginia			University of Tennessee	Dr. Grissino-Mayer	
465	One Structure		(Northeastern)	Virginia			University of Tennessee	Dr. Grissino-Mayer	
466	John Ross House	Rossville		Georgia			University of Tennessee	Dr. Grissino-Mayer	
467	Two Structures		(Southeastern)	Georgia			University of Tennessee	Dr. Grissino-Mayer	
468	One Structure		(Coastal)	South Carolina			University of Tennessee	Dr. Grissino-Mayer	
469	White-Ellery House	Gloucester	Essex	Massachusetts			W. Flynt	Historic New England	SPNEA, II
470	Battersea	Petersburg		Virginia				Colonial Williamsburg	
471	Kenmore	Fredericksburg		Virginia		Willie Graham		Colonial Williamsburg	
472	Newport Parish Church			Virginia				Carl Loundsbury's presentation for HCF	
473	St. Luke's Church							Carl Loundsbury's presentation for HCF	

APPENDIX B: MAPS OF DENDROARCHAEOLOGICALLY DATED BUILDINGS


NORTHEAST
Image © 2012 TerraMetrics
© 2012 Cnes/Spot Image
© 2012 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
44°06'47.87" N 73°15'44.14" W elev 791 ft
Google earth
Eye alt 679.88 mi


MID-ATLANTIC
Image © 2012 TerraMetrics
© 2012 Cnes/Spot Image
© 2012 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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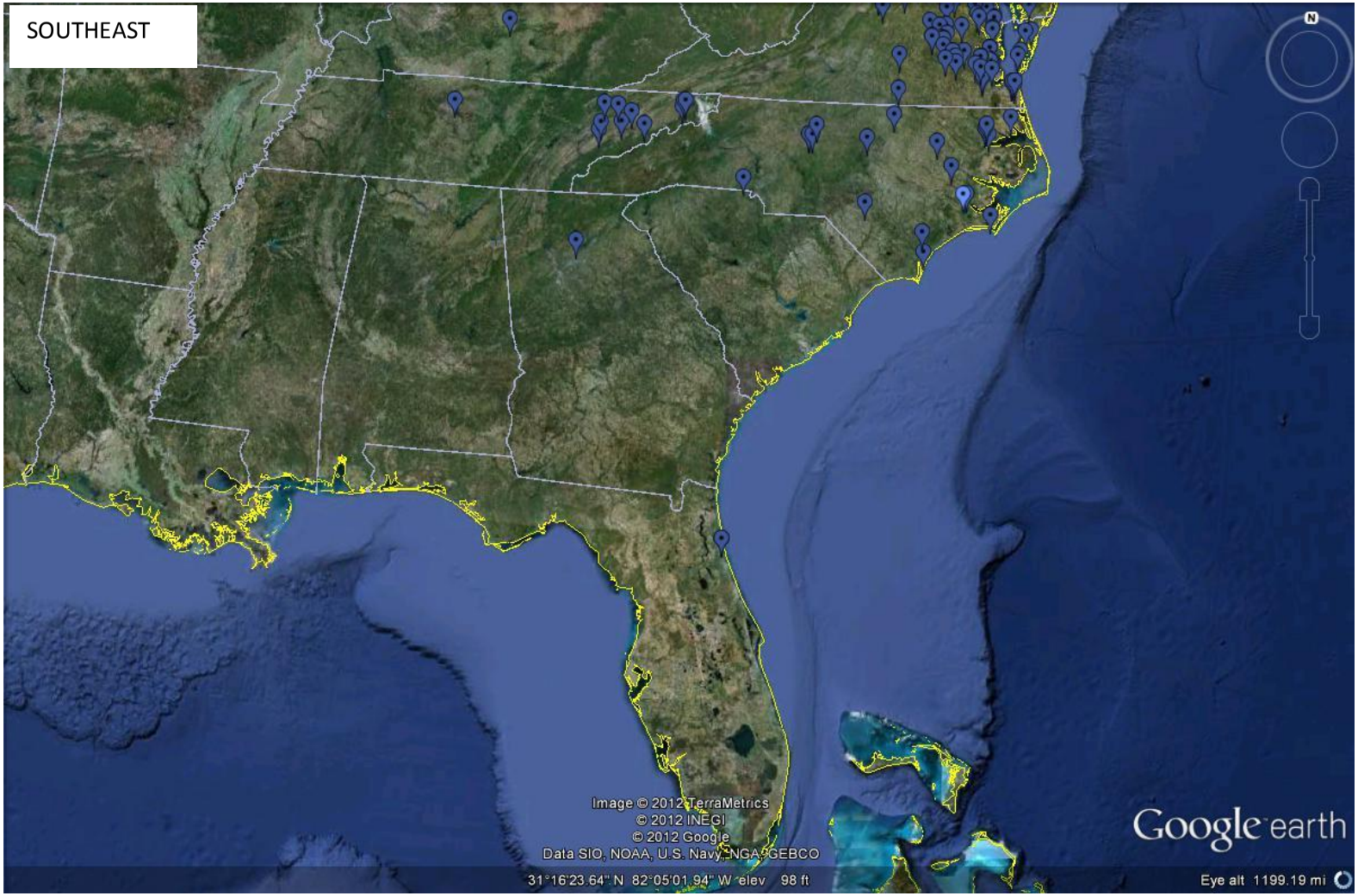
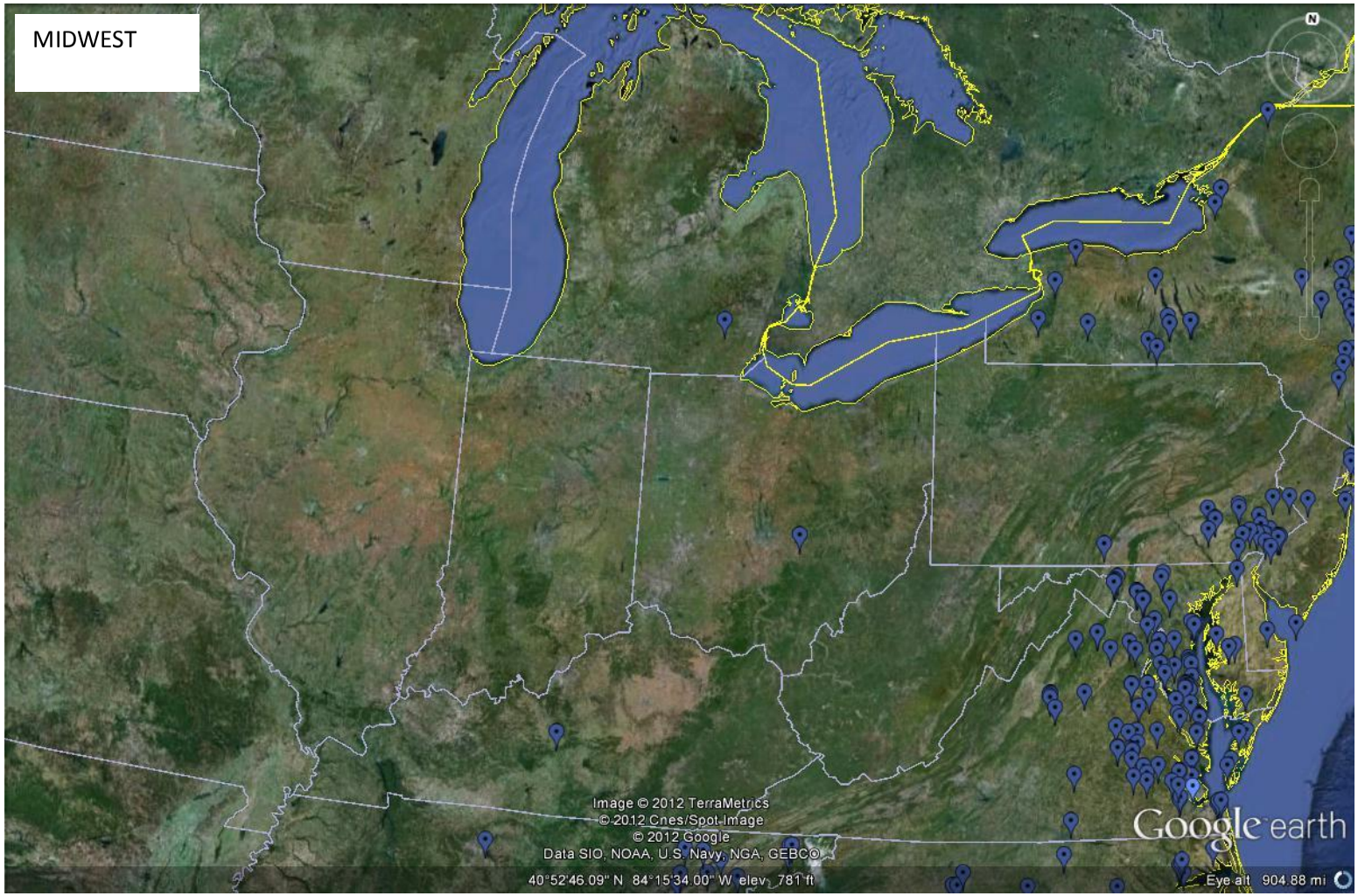
Google earth
Eye alt 687.02 mi


SOUTHEAST
Image © 2012 TerraMetrics
© 2012 INEGI
© 2012 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
31°16'23.64" N 82°05'01.94" W elev 98 ft
Eye alt 1199.19 mi
Google earth


MIDWEST
Image © 2012 TerraMetrics
© 2012 Cnes/Spot Image
© 2012 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
40°52'46.09" N 84°15'34.00" W elev 781 ft
Google earth
Eye alt 904.88 mi

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