DESIGN PROGRAM FOR A MIXED-USE DEVELOPMENT:
HISTORIC CONESTEE MILL, GREENVILLE, SOUTH CAROLINA

by

KAITLIN MCSHEA

B.A., Presbyterian College, 2007
M.H.P., University of Georgia, 2010

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Approved:

[Signature]
Thom Houser, Major Professor

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Date
ABSTRACT

Historic industrial mills have stood the test of time due to their efficient and sturdy masonry construction. They have added to the streetscapes and historic character of towns all over the country. Now, as these buildings are aging and dilapidated due to the movement of the textile industry overseas, new uses must be found to revitalize these properties and the areas surrounding them. Historic industrial mills pose specific design challenges for designers, architects, and planners. However, they have a number of reuses that almost always stimulate local economies after restoration and reconstruction. Conestee Mill, located in Conestee, Greenville County, is a historic textile mill that offers great opportunity in redevelopment. This study will hope to find the best reuse purpose for Conestee Mill as a mixed-use development and will determine its feasibility as a multifamily housing structure. Design challenges, benefits of redevelopment, and design solutions will be presented.

*Keywords:* adaptive reuse, historic industrial buildings, textile mill, Conestee Mill, interior design, programming
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Design Program For A Mixed-Use Development:

Historic Conestee Mill, Greenville, South Carolina

This study will determine the design of an adaptive reuse project using Historic Conestee Mill in Conestee, Greenville County, South Carolina. The mill is a typical Southern textile mill from the early 1800s, including some structures that predate the Civil War. This property holds great historic and cultural significance to the residents of Conestee and the city of Greenville, whose once booming textile-based economy was largely conceived at this mill. Over the years, Conestee Mill has deteriorated and the surrounding neighborhood has fallen into decline.

**Design problem.** There is currently no plan to redevelop Conestee Mill. The City of Greenville has developed several master plans to revitalize other areas, such as downtown, and has been successful in improving economic growth, increasing property values, and enhancing the quality of life in these areas. Though Conestee Mill has long been forgotten, this quiet mill complex on the banks of the Reedy River sits waiting for a development opportunity. This site was chosen because of its unique historic character, proximity to downtown Greenville, and its proximity to the Reedy River, Greenville Hospital System Swamp Rabbit Trail, and Conestee Lake Nature Park. The nearby amenities provide an excellent location to design a mixed-use development with multifamily loft-style apartment living.

The design for the new Conestee Mill development will be creative, entertaining, and create a destination within the City of Greenville. This will be accomplished through the use of modern, sustainable materials, color and lighting, and interesting graphic elements that play on the unique textile history of the mill. The concept of textile fabric will be used throughout the design. The new spaces within the Conestee mill complex will provide new and exciting opportunities to a community, which has been waiting for years for something good to happen.
Future users will include loft housing residents, visitors to a riverfront restaurant, members of the Conestee community, and members of a variety of businesses, local government agencies, schools, and others who will use the new world class conference center, which will be included in the new design. With each type of user, there are different needs. These user and client needs will be discussed further in Chapter 5, The Design Program.

Rationale. This study will include finding the best design solution for the adaptive reuse of Conestee Mill as a mixed-use development that will bring economic benefits to the Conestee community. Once a thriving community, Conestee is now run-down. The new design will provide a new place to live, work, and play.

Organization of the project. This thesis includes all steps of the design process, beginning with programming. Programming is crucial to the overall success of the design and the data gathered in this phase will be applied to the design. The project will be organized into the five-step design process:

1. Programming
2. Schematic Design
3. Design Development
4. Construction Documentation
5. Presentation

The result of the programming phase will be one possible design solution for Conestee Mill. There are many design solutions to any one project, but due to the nature of the thesis and Master of Fine Arts program, only one possible solution will be presented. Based on case study, quantitative and qualitative research, site and building analysis, a design solution for Conestee Mill will be will be outlined in the final chapter of this document.
Project timeline. The project will follow the following timeline:

- August 1 - October 31, 2012: project begins, programming phase
- November 1 - December 1, 2012: schematic design phase
- December 1 - January 1, 2013: design development phase
- January 2 - February 28, 2013: construction documentation, presentation graphics
- March 1 - March 22: finalize project, layout, and final presentation (MFA Show)
- May 1: Thesis due

Literature Review

The first step in the design process is gathering a body of literature related to the preservation and adaptive reuse of historic textile mills. Most literature on this topic falls into the following three categories: literature advocating the preservation of historic industrial buildings; literature about case studies of other historic industrial buildings that have been repurposed; and historical data on Conestee Mill. All three types are useful in gathering the information necessary to determine whether Conestee Mill is a good candidate for restoration and new mixed-use development including multifamily housing. Also included in this review are literature on housing studies and a market feasibility analysis of Greenville County, both of which are relevant to any new development at Conestee Mill.

General design challenges and benefits of reusing historic mills. In reviewing literature, it was important to gain general understanding of the common design challenges and benefits of reusing historic industrial buildings, especially textile mills. The City of New Bedford, Massachusetts published on its Website City of New Bedford Historic Mill Inventory (2008). This article was useful in gaining general knowledge about the adaptive reuse of historic mill buildings, environmental challenges and limitations, and the design challenges that are involved in this type of project. This information though should be site specific, is helpful when making design decisions for Conestee Mill. The City lists the following as the benefits of adapting mill structures:
• New job creation
• Unique space that is attractive to emerging business sectors
• Increased tax revenue
• Catalysts for investment in adjacent areas
• Development adhering to smart growth principles
• Improvements in the environmental quality of the site and adjacent waterways
• Removal of blight from the neighborhoods
• Improvement to scenic vistas and waterfront access
• Retention of a community’s unique heritage and culture (City of New Bedford historic mill inventory, 2008) (City of New Bedford historic mill inventory, 2008).

The article lists some of the common challenges which historic industrial mills often have that can make reuse difficult. Hazardous materials inside the buildings and on site can pose challenges financially and structurally. “The interiors of most historic industrial buildings will commonly contain asbestos, lead based paint, and other heavy metals…although beyond the scope of this inventory, environmental assessments should be conducted for each individual property prior to redevelopment” (City of New Bedford historic mill inventory, 2008). Some of the general design challenges mentioned in the article are listed as follows:

• Column spacing of many 19th century mills are arranged for the placement and weight of looms
• Large window openings often altered in the 1950s when windows were bricked in for better temperature control

This article is a good source for general information but lacks specificity. However the general factors described above can be applied to Conestee Mill.

Sophia Cantrell’s Master of Urban Planning and Regional Planning thesis *The Adaptive Reuse of Historic Industrial Buildings: Regulation Barriers, Best Practices, and Case Studies* (2005) is also useful in determining the general challenges for historic industrial mill reuse projects. This literature gives a much more in-depth analysis of these factors than the City of Bedford’s article, but is quite lengthy and specific to certain locations. Cantrell includes case studies to determine the tools available to planners in reuse projects. This thesis is written from
the planner’s standpoint, however, a designer would benefit from this knowledge as planning strategies greatly influence the direction of the project’s design.

**Advocacy for preserving historic industrial buildings.** This section of literature focuses on the advocacy of preserving historic industrial buildings. Why should buildings be preserved? What is adaptive reuse? How is historic preservation beneficial to the community? How is adaptive reuse considered sustainable design? Each of these questions is common among this literature.

**Case studies for adaptive reuse.** A review of literature indicated that the adaptive reuse of historic industrial buildings is not a new concept, but has been a hot topic for planners, architects, and designers since the 1970s. Comp and Hill’s article *Reuse of Industrial Buildings* (1977) describes a group of historic industrial buildings in Lynchburg, Virginia were reused. Though somewhat outdated as far as today’s standards, this article is informative because many of the incentives such as tax credits are still used today in reconstructing industrial buildings. Also, this article describes the planning, reconstruction, and design of an entire section of old downtown Lynchburg instead of just one industrial building; this is important to my study of Conestee Mill because Conestee Mill is a group of buildings within a textile mill complex, therefore it should be designed appropriately to allow the different structures to work together in their programs and design. Comp and Hill have also included several architectural drawings and photographs of Lynchburg.

Gisselbaek, Haefili, and Hollmuller’s article *Participative retrofit of the ilot 13 area in Geneva* (2006) is a case study about the reuse of historic industrial buildings in Geneva, Switzerland. This article has some useful general information but is limited in its application to this study because it is mainly focused on the people’s perception of adaptive reuse instead of the
actual reuse itself. However, it does offer some insight into the importance of community
involvement in the decision-making process and execution of a design project.

*Reusing Wisconsin's Historic Industrial Buildings* (2002) by Brian McCormick is a case
study about the reuse of several historic industrial buildings in Wisconsin. The article includes
many good examples of restoration and redevelopment, complete with photographs which
document "before and after's" of these structures. Though the information is general and a bit
vague, it helps the reader understand the overall process of adaptive reuse.

**Conestee mill history.** This section of literature includes a plethora of information about
the mill's history. Newspaper articles, hand-drawn floor plans, real-estate brochures, and
ownership timelines have been included. This literature will be used in the History and
Background section of the project research. There is no need to evaluate these sources, as they
are straightforward and historically accurate. For more information on history and background,
see Chapter 3.

**Statistical data.** The Lake Conestee Nature Park Master Plan developed by Clemson
University's Department of Landscape Architecture students in 2007 is useful in understanding
the area adjacent to the Conestee Mill site. Knowing what is around the site will help in the
programming of the mill's new purpose and design. Lake Conestee Nature Park is an asset that
could be utilized by future residents if Conestee Mill is transformed into multifamily housing
units. The master plan gives an overall historical background of the land and mill and includes
many useful photographs and architectural drawings that would be helpful in determining the
mill's future use. Also, the Nature Park and Conestee Mill should be sold as a "package deal" to
investors and new residents, as they will attract people to the area.
Perhaps the best literature found on the subject of multifamily housing is Nico Largo’s article in the Journal of Architectural and Planning Research, titled *Suburbia Shifted: Overlooked Trends & Opportunities in Suburban Multifamily Housing* (Spring, 2010). Focused on the demographics of multifamily housing, this article offers a wealth of information on the types of multifamily housing and who uses it. This article helped to determine the type of multifamily housing that will most likely be successful at Conestee Mill, a “mixed-use lifestyle center” (Larco, 2010).

The South Carolina State Housing Finance and Development Authority as a study to determine the feasibility of a LIHTC housing project at Conestee Mill completed *The Housing Market Study for Conestee Mill, a Proposed LIHTC Apartment Project for Older Persons* (2008). The findings of the study were that the development of a LIHTC housing project for the elderly at Conestee Mill would have “limited success” due to market factors in Greenville County. This study is important because it rules out the possibility of developing Conestee Mill into a LIHTC housing project, based mainly on the concern that this type of multifamily housing would not bring the necessary profit annually due to the subsidization of rent and taxes. Designers should have a general understanding of the potential profitability of the space they are designing before beginning a project. This thorough market analysis includes many charts and graphs showing the demographics and potential earnings of a LIHTC project.

**Conclusions and future study.** This study will include literature from several areas of research, including literature advocating the preservation of historic industrial buildings; literature about case studies of other historic industrial buildings that have been repurposed; and historical data on Conestee Mill. Also, supportive research in the areas of multifamily housing, mill restoration, design challenges, and financial barriers will be needed to complete the research
for this study. The literature gathered in this review offers a lot of general knowledge, however, most of the research that will determine the ultimate use for Conestee Mill will have to be site-specific as each historic industrial building poses different challenges. Site visits, photographic documentation, public survey, and a historic structure report will be needed in order to identify the specific challenges at Conestee Mill. The adaptive reuse of Conestee Mill will be a complex process, however, if planned and designed well can bring economic and cultural revitalization to the forgotten area of Conestee, South Carolina.
CHAPTER 2: RESEARCH

History of Greenville, South Carolina

Indian trading post and mill.

The city of Greenville is situated on land formerly belonging to the Cherokee Indians and was also used as a campsite by an Indian trader, Richard Pearis. During the years leading up to the American Revolution, Pearis built a house, trading post, smoke house, stables, dairy, blacksmith shop, gristmill, sawmill, and slave quarters. He also planted crops and an orchard. However, because he was not a Patriot, he lost all of his possessions and land during the Revolutionary War (The City of Greenville, 2012).

After the defeat of the Cherokee Indians and the British during the Revolutionary War, South Carolina made available to Revolutionary soldiers for first occupancy all of the land which composes both the City of Greenville and the County of Greenville (The City of Greenville, 2012).

The village. In 1797, a Revolutionary War soldier named Thomas Brandon purchased the grant of land which included Pearis' campsite and obtained several other tracts of adjacent land, totaling 11,023 acres. South Carolinian and planner Lemuel Alston drew a plan for a Village with individual lots laid out for the future town, including lots, which were allocated for a courthouse and jail. Alston named the small village “Pleasantburg,” which soon after became known as “Greeneville” and was later changed to “Greenville” (The City of Greenville, 2012).

Lemuel Alston’s dream of development only partly came true. A log jail and courthouse were built, and lots were put up for sale but only a few lots sold (The City of Greenville, 2012).
**McBee influence.** In 1815, Alston sold all of his holdings and his home, which he called Prospect Hill, to Vardry McBee of Lincolnton, North Carolina. McBee's was a progressive in Greenville, and his efforts included the sale of real estate, partnership with newcomers in new businesses, bringing trained tradesmen. He attracted skilled workers from all over the regions, such as harness and saddle makers, brick makers, millwrights, carriage makers and house builders. In addition, McBee gave land to each denomination of religion on which to build their church. (The City of Greenville, 2012).

After becoming a trading center for surrounding counties, in time, the little Town of Greenville became a health resort for the low country people who were escaping the malaria and humidity of the coastal regions. Stagecoaches carried passengers and mail from Charleston and Asheville. Greenville's first newspaper, *The Republican*, was founded during the 1820s. (The City of Greenville, 2012).

**From village to town.** In 1831, the Village of Greenville became the Town of Greenville and established City Government with a council including an intendant and four wardens. The Council appointed a Clerk, a High Constable, a Town Surveyor, a Bell Ringer and a Sexton who would care for the Town Cemetery, later to be named Springwood Cemetery. The Council strongly advocated the planting of trees along downtown streets. To protect their trees, they voted to make citizens who tied their horses to the trees while on business in downtown to pay a fine. (The City of Greenville, 2012).

Of the many log and weather boarded houses built in the town before 1850, only a few remain and all are listed on the National Register of Historic Places. These structures include Whitehall, also referred to as Governor Middleton’s House; the Fountain Fox Beattie House, also
known as the Greenville Woman’s Club; the Elias Earle Town House, and the Josiah Kilgore House, which is home to the Greenville Garden Club (The City of Greenville, 2012).

The 1850s were a time of rapid growth in the small town of Greenville. A new courthouse was built which is believed to have been designed by the well-known engineer and architect Robert Mills. Both Furman University and the Southern Baptist Theological Seminary were founded during the 1850s. (The City of Greenville, 2012).

The first railroad, the *Greenville and Columbia Railroad*, built its terminal in Greenville’s West End area. The Greenville Female College was established and grammar schools were built throughout the town. The largest carriage and wagon manufacturing plant in the South was founded in Greenville during this time. Through the generosity of Greenville citizen Alexander McBee, the town was provided with piped water from the nearby mountains. (The City of Greenville, 2012).

**The 1860s and the Civil War.** During the Civil War, the city council appointed patrols that were organized under the direction of marshals to guard the town. Men were enlisted into military groups. Women’s groups organized to knit socks and gloves, to prepare bandages and to care for the sick and wounded (The City of Greenville, 2012).

Vardry McBee donated a piece of land to the State of South Carolina on which to build an Armory. The Armory was used for the repair and manufacture of Confederate rifles, particularly Morse rifles. Samuel Morse moved to Greenville to oversee the rifle making. At the close of the Civil War, Greenville citizen and attorney Benjamin F. Perry, was appointed provisional Governor of South Carolina. Federal troops, commanded by Major John W. DeForest occupied Greenville for the duration of the Reconstruction period (The City of Greenville, 2012).
From town to city and the textile influence. In February 1869, Greenville's Town Charter was amended by the South Carolina General Assembly establishing Greenville as a City. Again, Greenville began to grow. Springfield Baptist, an African American church was built, the Southern Railroad began operations through Greenville, a large cottonseed oil mill was built on Augusta Street, a horse-drawn street railway began operations, and the first bridge was built for Main Street to cross the Reedy River. Also during this time, the publication of a daily newspaper, Greenville Daily News began, and a large textile mill, Camperdown, was built on the river in downtown Greenville (The City of Greenville, 2012).

In 1876, Saint Mary's Catholic Church was built and marked Greenville's first non-protestant church. In 1882, a second textile mill was built (Huguenot Mill), telephone service was inaugurated, home mail delivery began, and the Greenville City School District was created. By the 1890, a second city hall was built along with a city hospital. In the late 1890s, Greenville hosted a United States Army training camp called Camp Wetherill in which soldiers were trained to serve in the Spanish-American War (The City of Greenville, 2012).

With the turn of the century came electric street cars, Southern Bell telephone service, Coca-Cola manufacturing company, American Cigar production, the building of the Ottaray
Hotel, and the election of a local man, Martin F. Ansel, as Governor of South Carolina (The City of Greenville, 2012).

![Image of Textile Center of the South sign]

**Figure 2** Textile Center of the South sign, seen as one enters the City of Greenville, SC.

From 1910 through 1920, Greenville became known as the “Textile Center of the South,” and an exposition hall for the textile industries was built. World War I and II followed and another army camp was built. This time, the army camp called Camp Sevier was outside of the City, but had a great impact on the economy of the City (The City of Greenville, 2012).

**New residential areas evolve.** With the increase in wealth because of textile manufacturing and other industries coupled with the establishment of a new streetcar system, new residential neighborhoods were established. The Hampton-Pinckney neighborhood, Pettigru Street neighborhood, Pendleton Street neighborhood, James and Earle Streets neighborhood, and the Overbrook neighborhood were established. (The City of Greenville, 2012).
Construction boom. The 1920s brought the Poinsett Hotel (also known as “Carolina’s Finest”), the Chamber of Commerce building, South Carolina’s largest furniture store, and a theater. However, textile mill strikes began and then soon after followed the Great Depression, which hit Greenville’s economy hard just as it did the rest of the country. Construction came to a halt for several years and it was not until World War II and the building of Donaldson Air Force base just south of the City of Greenville that the economy in Greenville improved (The City of Greenville, 2012).

In the mid 1970s, Heritage Green, a cultural complex made up of The Little Theatre, the Greenville County Library, the Greenville County Museum of Art, and the Greenville Symphony Association, opened in downtown Greenville (The City of Greenville, 2012).

As the suburbs of Greenville showed great increases in both housing and businesses, the heart of the City suffered a great decline. In the late 1970s, a Downtown Revitalization Project was launched. The Hyatt Regency and Commons Garage became an anchor to the effort, which led to additional growth and benefits in the downtown area (The City of Greenville, 2012).

A public/private effort was launched in 1985 creating a performing arts center, which became known as The Peace Center for the Performing Arts. The Peace Center opened in 1990 providing six acres of new and restored buildings including the Peace Center, the Gunter Theater, the former Coach Factory, the former textile plant known as Huguenot Mill, and the former mayonnaise factory known as Wyche Pavilion (The City of Greenville, 2012).

The 1990’s brought attention to the West End District, which had become run down over the past century. The City of Greenville developed a restoration plan to reuse two cotton warehouses at the corner of Augusta Street and Main Street into a market. For its successful preservation efforts, the City of Greenville received the National Trust for Historic
Preservation’s South Carolina Honor Award. The Greenville Memorial Auditorium, affectionately known as the “Brown Box,” was torn down in 1997 to make room for the Bi-Lo Center, a large event venue. (The City of Greenville, 2012).

While the arts have always thrived in Greenville, they became a vital part in the redevelopment of downtown Greenville during the 2000’s. From the founding fathers sculpture located on Court Square, the bronze sculpture of African American students of Sterling High School standing proudly at Washington Street, to the hidden bronze mice on Main Street, art in public places became prominent at every corner of downtown (The City of Greenville, 2012).

The new millennium brought with it the reopening of the Westin Poinsett Hotel, which was brought back to life with the elegance it possessed when it first opened in 1925 through historic preservation efforts. Adding to the charm of downtown Greenville was the redevelopment of Falls Park on the Reedy River and the construction of the Liberty Bridge, a modern cable suspension bridge, which was dedicated in 2005. The City took on the difficult challenge of building a baseball stadium in downtown Greenville modeled after Fenway Park, home of the Boston Red Sox. The project was completed in 2006, named Flour Field. The 5,700-seat stadium is located in the heart of downtown. (The City of Greenville, 2012).

Development not only took place in the commercial areas of Greenville, but also in the residential areas. The era brought more opportunities for home ownership and residents accepted more responsibility for their neighborhoods creating additional residential and historical districts. Federal loans allowed for more community development and many residents who once lived in the suburbs returned to Main Street by restoring upper floors of old businesses and transforming them into residential spaces (The City of Greenville, 2012).
At the end of 2000’s Heritage Green underwent a major makeover with the addition of the Hughes Main Library of the Greenville County Library System, the Upcountry History Museum, the Museum and Gallery at Heritage Green, and the Children’s Museum. While the economy of the late 2000’s has brought many cities to its knees, the city of Greenville has continued to grow and thrive, bringing citizens and visitors back to the river where it all began with its rich textile mill history many years ago (The City of Greenville, 2012).

**Textile Industry Background**

New England became the center of the textile center in this country due primarily to the New England legislative enactments of 1643, which encouraged home industries. Development of textile manufacturing continued through the years with a major accomplishment being noted in 1788 with the start of production of the first cotton mill in New England at Beverly, Massachusetts, known as Beverly Manufacturing Company. Textile manufacturing continued to increase in New England until the Civil War period led the South to search for industry in its attempt to recover from the ravages of the Civil War. Progress in the South was rapid. By 1900, the South had acquired and installed looms to a factor of one-third of those installed in New England. Greenville, South Carolina was a major part of the southern textile expansion. In the late 1800s thru 1914, Greenville saw an expansion of the industry, with fourteen textile mills within its vicinity. Greenville was known as the “Textile Center of the South” (Textile Heritage Society, Greenville, South Carolina, 2009-2012).

Currently, there are fourteen textile mills in Greenville. The following mills are the remaining mills in Greenville, South Carolina:

- American Spinning Mill
- Brandon Mill
- Camperdown Mill
- Conestee Mill
- Dunean Mill
- Huguenot Mill/Nuckasee
- Judson Mill
- Mills Mill
- Monaghan Mill
- Poinsett Mill
- Piedmont
- Poe Mill
- Union Bleachery
- Woodside Mill

A culture of adaptive reuse in Greenville, South Carolina. Greenville has lost several of its historic textile mills over the last century, however, a few of these beautiful structures have been restored and re-purposed, often serving as a catalyst for economic growth in their communities. Huguenot Mill and Mills Mill are examples successful restorations of historic textile mills in Greenville.

Figure 3 Huguenot Mill, downtown Greenville. Now used as an event venue.
Historical Documentation of Conestee Mill

The Conestee Foundation, a non-profit organization in Greenville, South Carolina, has gathered a wealth of historical documentation on Conestee Mill. Their mission is “to develop Lake Conestee and contiguous community lands into a nature park and wildlife sanctuary for public recreation…to provide regional environmental education and research facilities, comply with appropriate site safety, regulatory and restrictive covenants, and support other entities
developing the Reedy River Greenway as a regional tourist attraction in Greenville County.” (Conestee Foundation, 2009).

**Revolutionary War period.** Little is known about the Conestee area before the end of the Revolutionary War in 1783. At the end of the Revolutionary War, the new state government often rewarded Patriot soldiers with offers of land. Many of the original landholders in the vicinity of the present day Nature Park likely obtained this land as a result of service in the Revolutionary War. In 1794, a 200-acre parcel of land on both sides of the Reedy River about six miles below Reedy River Falls was deeded to Andrew Nelson. David Reid Evans purchased another 313-acre tract (Conestee Foundation, 2009).

**Carruth Armory.** In 1800, Adam Carruth and Lemuel Alston purchased 213 acres of the land included in the 313-acre tract from David Reid Evans. Although Adam Carruth also purchased several other parcels of land in the vicinity, it is believed that this 213-acre parcel, at the very northern edge of the present Park land, was the site of his musket manufacturing operation, which became known as the South Carolina Armory, the Carruth Armory, and the Carruth Gun Factory. Subsequent deeds to this property identify it as the “Gun Factory Tract” or the “Carruth Old Place.” Carruth established the Gun Factory in 1814 or 1815 to manufacture arms for the South Carolina and Georgia, but in 1816 he received a contract to manufacture a large number of muskets for the U.S. Army. After borrowing a significant amount of money, Carruth produced over 2,000 muskets at the Gun Factory. Adam Carruth lost his business and went bankrupt, and in 1824 he lost the property (Conestee Foundation, 2009).

**Patterson and Dunham Paper Mills.** In 1836, Patterson purchased a plat of 313 acres, which is recorded as including the site of the Carruth Gun Factory, where he constructed his paper mill. Hand drawn maps of the last half of the 19th century show the location of the paper mill on the east side of the Reedy River downstream of Brushy Creek and upstream of Marrow Bone Creek. The paper mill operated successfully for years, but by 1841 Patterson was in major financial trouble. In December 1841, the property was sold “before the Court House door.” Benajah Dunham purchased the Paper Mill and surrounding land, which included “an excellent
saw mill and blacksmith's shop, together with a good dwelling house and all necessary out buildings," in 1842 (Conestee Foundation, 2009).

The Greenville Manufacturing Company. In 1852, Benajah Dunham sold the paper mill and surrounding property, which by then had been expanded to 840 acres, to the Greenville Manufacturing Company, which had been incorporated "for the purpose of manufacturing paper and cotton goods." Dunham became president of the new company. The deed of sale includes the remarks that this Greenville Manufacturing Company property was that "whereon the paper mill now stands and known as the Gun Factory site." By 1869 the owners began to subdivide the 840-acre parcel, which had extended as far south as Marrow Bone Creek. In 1890, the southern part of the property was sold to the Reedy River Manufacturing Company, which apparently needed the undeveloped property to incorporate the northern portions of the expanded lake, which resulted from construction of the present dam structure. (Conestee Foundation, 2009).

McBee Manufacturing and the Reedy River Factory. In 1799, Andrew Nelson sold the downstream 100 acres of his 200-acre parcel to Andrew McDavid for $150. The deed noted that the land included a "mill seat and yard" on the south side of the river, so a mill was constructed near the approximate site of the present day Conestee Mill between 1794 and 1799. McDavid sold this "land and mills on the Reedy River" to Josiah Thompson for $800, who subsequently deeded the property to his son, Samuel Thompson, through his will. By 1820, a small community had grown up around the mills and the village of Conestee was established.

Between December 1831 and October 1832, 295 acres of this parcel, including the existing mill buildings and machinery, were sold to Vardry McBee. Having acquired the property and the existing mills at what is now Conestee at the age of 56, Vardry McBee set out to expand and improve the mill site and the village. The milling operation soon incorporated both a new paper mill and a textile operation. By 1847, the Greenville Mountaineer newspaper was being printed on paper manufactured by V. McBee, Sons & Company at Conestee. At that time, the McBee paper mill and the paper mill of Benjamin Dunham, located about a mile upstream of McBee's mill on the Reedy River, were the only two paper mills in the vicinity of Greenville.
According to an article in the *Southern Patriot* newspaper, by 1851 the McBee Factory property, under the direction of Vardry’s son, Alexander, and his superintendent, John Adams, included a cotton factory, a paper mill, a gristmill, and a sawmill. There were about 50 operating personnel, and a community of more than 150 depended on the McBee Factory for support. The capitalization of the operation was stated to be nearly $40,000 in 1851. The product of the cotton mill was cotton yarn and “linsey-woolsey,” both manufactured from cotton grown in fields surrounding the mills owned by McBee and other landowners (Conestee Foundation, 2009).

McBee Manufacturing thrived during the 1850’s, and many homes were constructed for the workers and their families. In 1862, Vardry McBee sold the mill complex and land to J.W. Grady, D.O. Hawthorn, and W. Perry. At that time, the mills employed approximately 225 workers. Although unconfirmed, local legend states that the mill manufactured material for Confederate Army uniforms during the Civil War. Sometime after the sale by Vardry McBee, the mill complex was renamed Reedy River Factory (Conestee Foundation, 2009).

**The Reedy River Factory.** Sometime around 1890, the Reedy River Factory acquired additional acreage on the north side of the Reedy River Factory property, which included the site of the old Dunham Paper Mill, the larger parcel of which had previously been subdivided. By the 1890’s the Reedy River Factory included the sites of the Carruth Armory, the Patterson and Dunham Paper Mills, and all of the present day Lake Conestee Nature Park (Conestee Foundation, 2009).

**Pollution.** During the first several decades of the 20th Century, the Reedy River Factory was a major textile mill, complete with a surrounding mill town and a company store, which still stands. However, between 1890 and 1915 the number of textile mills and supporting mill villages upstream of Lake Conestee increased from two to more than twelve, and all of these mills and mill villages discharged their wastes directly into the Reedy River or its tributaries. The City of Greenville grew dramatically during this same period, and all of the businesses and residences discharged their wastes into the Reedy River. The raw sewage and industrial discharge contaminants reaching the river flowed downstream, where they settled out in the lake behind the
dam at Conestee Mill. The effects of this pollution were worsened by construction of the City of Greenville's first sewers in 1892, which discharged raw sewage into the Reedy River, accelerating the waste discharge to Lake Conestee. The collection of pollutants behind the dam created numerous problems for both Conestee Mill and the village of Conestee. Untreated sewage was a breeding ground for pathogens, creating noxious odors and a significant health risks. Algae blooms in the lake caused by nutrients in the sewage discharges depleted the oxygen content of the lake, creating further odor problems. Water in the lake and river was unfit for any use other than the generation of power for the mill (Conestee Foundation, 2009).

In 1925, Conestee Mill, as it was now known, sued the City of Greenville in Circuit Court for damages suffered by the mill and residents of Conestee by the City's use of the Reedy River as a sewer. The case dragged out until 1931, and was heard twice in the Supreme Court of South Carolina. The City of Greenville ultimately conceded that it had caused the pollution, "notoriously, conspicuously, and necessarily", as that was the way waste was treated during that time. By the time the case was resolved in the Supreme Court in 1931, Conestee Mill began to fail because of the protracted litigation and the effects of the Great Depression. Not only was it damaged by the pollution from upstream, but it was also fighting the general economic catastrophe, which extended throughout the Country. However, the lawsuit had a major impact in the City's construction of its first wastewater treatment plant in 1928, less than two miles upstream of the mill, and the creation of the Greater Greenville Sanitary District (now Western Carolina Regional Sewer Authority). Also, by taking a public stand against rampant degradation of the river by its use as a public sewer, the lawsuit by Conestee Mills was an early landmark in the fight to clean South Carolina's rivers (Conestee Foundation, 2009).

Conestee Mill. Also about this time, the existing mill building was constructed next to the Conestee dam site. Around 1892, the rock dam as it appears today was constructed (or at least raised to its present height), creating a 130-acre lake. One likely purpose of the dam
expansion in 1892 was the generation of electricity to power the mill. By 1892, the Reedy River Factory property included all of the present day village of Conestee and the Lake Conestee Nature Park. In 1909 the mill was incorporated as Conestee Mills. The mill produced cotton cloth for uniforms in World War I from 1914-1918. The community was self-contained until the 1950s, including a post office, company store, barber, icehouse, carnivals, dances, and a silent movie house. In 1955, the mill gained electricity (Conestee Foundation, 2009).

**The downfall of textile mills.** From the 1950s to present, the textile industry in the United States slowly declined. As businesses moved overseas for cheaper labor, many textile mills closed their doors and fell into disrepair. Consequently, the communities around them suffered economic decline as well. Conestee was no different. The mill has remained vacant since the 1970s (Conestee Foundation, 2009).

Hy Brand purchased the seven buildings once known as Conestee Mill in 1978, which today his company HJ Brand uses as warehouses for storing bolts of fabric. He is currently trying to sell the property for just under $2,000,000 (Conestee Foundation, 2009).
Observational Research

This section of research includes observational data, which was gathered in order to better understand how people interact inside a historic building that was reused. A site was chosen within the City of Athens for convenience and efficiency. The chosen site was Walker’s Pub, a coffee shop/pub located at 128 College Avenue, Athens, Georgia. Walker’s Pub is open day and night, and functions as a coffee shop and restaurant during daytime hours and transitions into a pub at night. It is situated inside a historic commercial building. This location is a central area for activity in downtown Athens, located across from the well-known University of Georgia’s arch and north campus.

Observation began at 11:30 AM and ended at 12:00 PM. The interior environment was crowded with music playing loudly in the background. The shop had a roar of chatter especially on the left side where booth seating could accommodate parties of more than one. Individuals seated by themselves were generally located at the bar, however, there were a few seated at booths with four-tops, which is one reason why there is insufficient seating.

The floor plan sketch below shows major paths of circulation highlighted in yellow. The researcher’s location is highlighted in orange.

Figure 6 Walker’s Pub, floor plan sketch
The overall feeling of the space was welcoming, friendly, warm, and had a unique historic character. People seem to visit regularly, as several people ran into people they know, giving the environment a small town feeling. The exposed brick walls and tin-covered support columns make the space feel a little bit dirty but with a rustic, antique feel that is characteristic of many downtown bars and restaurants of Athens.

The circulation could be improved because there was not enough space for the people waiting in line and people who entered and exited the building to flow comfortably. People tended to move only when entering, walking to the order counter, and leaving. Otherwise they remained still while waiting in line for coffee or food. People who waited for food to take out sat at the bar. They tended to stay for a longer period of time if ordering in or leave in a hurry if ordering take-out.

Booths have wooden seats without cushions, which were not comfortable for staying for a long period of time. This space could definitely use more two-top seating as many customers are sitting by themselves in four-tops and people aren’t comfortable sitting with strangers.

The rough sketches below show the order counter:
Observation conclusions. After observing the interior of Walker's Pub for 30 minutes, I gained a good sense of the overall feeling of the space, its positive characteristics, and its design issues. On one hand, the interior of Walker's Pub has a unique historic atmosphere, friendly and warm with warm colors and rustic materials. On the other hand, some design issues could be improved. Mainly, circulation from the front entry to the counter and back out the front door was along a crowded and uncomfortable path. This issue caused problems when people ordered items and had to wait, creating the awkward feeling one gets when they don't know where to stand to get out of the way. This issue also caused employees to have to yell customers' names to come pick up their food and then customers had to fight their way back through the line to get to the counter. This could be improved dramatically if the entry was not also the exit, so that visitors flowed through the space in only one direction more efficiently.
Another issue within Walker’s Pub was the lighting. There was an intense glare coming from the glass windows on the façade. Also, there was insufficient ambient lighting within the space, particularly at the booth seating. Shades on the front wall and additional lighting at seating areas could improve this dramatically. I will consider these design issues and their solutions when I plan the spaces on my project.
CHAPTER 3: CONESTEE MILL BUILDING AND SITE ANALYSIS

Context & Overview of the City of Greenville

Greenville is the county seat of Greenville County, in upstate South Carolina, United States. Greenville is the sixth largest city in the state of South Carolina but has the third largest urban area in the state. One of the principal cities of the Greenville-Mauldin-Easley Metropolitan Statistical Area (MSA), it had a municipal population of 58,409 and an urban population of 400,492 as of the 2010 census. The metropolitan area had a population of 636,986 in 2010 census (Princeton University, 2012).

Greenville is the largest city of the Greenville-Spartanburg-Anderson Combined Statistical Area (CSA), which in 2006 had an estimated population of 1,203,795, making it the largest CSA in the state of South Carolina. The CSA, an 8-county region of northwestern South Carolina, is known as “The Upstate”. Greenville is located approximately halfway between Atlanta, Georgia and Charlotte, North Carolina along Interstate 85, and its metropolitan area also includes Interstates 185 and 385 (Princeton University, 2012).

Conestee Mill is approximately 7.8 miles from downtown Greenville by automobile and 8.9 miles via the Greenville Hospital System Swamp Rabbit Trail. The Swamp Rabbit trail connects the Conestee Mill community with Lake Conestee Nature Park, downtown Greenville, Furman University, and downtown Travelers Rest. A former rail line, this 13.5-mile South Carolina trail is flat and traffic-free, connecting Greenville to the city of Travelers Rest along a scenic stretch of the Reedy River. Visitors

Figure 9 Greenville County, South Carolina
can travel beneath Liberty Bridge in Greenville's Falls Park, adjacent to waterfalls. At the midpoint, a connector path meanders around Furman Lake. The trail is an important connection in the development of Conestee Mill, and the new Conestee development will offer trail users a destination at the most southern point of the trail (Princeton University, 2012).

Figure 10 Conestee Mill site location on Spanco Drive (Google maps, 2012).
Surrounding Neighborhood

One hundred years ago, Conestee was a flourishing mill community, but over the decades it suffered pollution and the closing of its supporting mill. Now, the community bordered by the Central Park-sized Lake Conestee Nature Park and the SC Technology and Aviation Center (SCTAC) needs a plan to spark redevelopment.

The Conestee community is one of the areas identified in Greenville County’s comprehensive plans as in need of growth and development. The community is located between downtown Greenville and the City of Mauldin. Its nearest Metropolitan Statistical Area (MSA) is Greenville-Mauldin-Easley. Approximately 500 people now live in residences that were built around Conestee Mill. The mill site is adjacent to the 400-acre Conestee Nature Park and Conestee Lake, the Greenville Hospital System Swamp Rabbit Trail, the South Carolina Technology and Aviation Center (SCTAC), and also near the Greenville Little League Ballpark 36-acre campus. This site is ideally located for those who enjoy biking, walking, or just being outdoors.
Figure 11 Greenville Hospital System's Swamp Rabbit Trail; point A is Conestee Mill, point B is downtown Greenville.

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<th>3 Miles</th>
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Table 1: Conestee Demographics (U.S. Census Bureau).
Overview of the Site

The Conestee Mill site includes seven structures built in the 1800s that are in good condition, and two later additions (nine total structures). Buildings around the mill include a company store, post office, bank, and gas station. This site analysis covers the Conestee Mill site in Conestee, Greenville County, South Carolina.

Figure 12 Conestee Mill Site, aerial view (Conestee Foundation, 2009).

The site-specific locational data is listed as follows:

- Site Orientation: NE
- World / USA / South Carolina / Greenville County / Conestee
- Address: Spanco Drive, Conestee, South Carolina
- Coordinates: 34°46'12"N  82°20'52"W
- Site in Acres: 8
- Total Number of Buildings: 9
- Elevation: 2,000 feet above sea level
- Time Zone: Eastern Standard Time
- Climate: Humid Subtropical
- Humidity: very humid summers, mild winters
- Population, Conestee: approximately 500 persons (September, 2012).

**Building Conditions**

The Conestee Mill complex includes nine buildings, seven of which are considered historic. The colored map below shows the general layout and square footages of each building on the site.

*Figure 13 Conestee Mill Complex, buildings and square footages*
Building Conditions Information:

- Total Square feet: 141,000
- Total Number of Buildings: 9
- Building(s) Age: 100 - 192 years old
- Number of Stories: 1, 2, & 3
- Year Built: 1820
- Construction: Brick masonry/19th century industrial building with two later additions
- Property Use Type: Vacant/Owner-User
- Zoning: PD (Planned Development District)

**Access to building from street.** The main entrance gate is on Conestee Road, however, the property has other potential access points on Spanco Drive (intersects with Conestee Road).

**Exterior.** The exteriors are in good condition. The buildings are constructed of 19th and 20th century brick masonry with steel beams. There is some vegetative growth on the exterior walls that will need to be removed. Foundations are constructed of quarried granite stones and cement. Despite its proximity to the river and the floodplain, moisture has not damaged the foundations.
**Interior.** The interior spaces are in need of some restoration, however, they are in generally good condition. HJ Brand is using them for storage. The interiors of the main mill (building 8), and the Old Store (building 5), have kept their original tin ceilings and hardwood floors. All other buildings except later additions have also kept their original hardwood floors. Approximately 25% of the original mill-style windows and doors have been bricked in, but the site has retained its historic integrity.
Daylight conditions. Buildings 5 and 8 are oriented north toward the Reedy River, so the windows get morning and evening sun. The rest of the structures are oriented toward Spanco Drive and get better daylight.

Historic preservation. A historic structure survey report will need to be done to each individual structure on site. Because all structures at the Conestee Mill site were not built at the same time and there have been numerous additions throughout its history, each building will be at a different stage of wear and preservation measures should be taken on an individual basis.

Figure 17 Mill interior, this exterior foundation wall needs restoration.
User Analysis

On a real design project, the following user analysis would be based on demonstrative market demands based on research conducted by researchers. However, because this is a Master’s thesis project, the following user analysis is based on case studies and observation.

A mixed-use development at Conestee Mill will have a variety of users. The types of spaces that will be included in the restoration and reconstruction of the mill complex are listed as follows:

Residential spaces. Loft Apartments: The main mill building (listed as building 8 on page 13) will be the future location for loft apartment housing with on-site amenities including a swimming pool, common area, exercise facility, and educational historic areas. One, two, and three-bedroom lofts will be available.
Commercial spaces. Conference Center: Buildings 6 and 7 will house the future conference center and event venue space. This area will include meeting spaces and will be highly flexible with movable walls and information technology capabilities. A reception area will be located on the first floor with property management and sales offices.

Riverside restaurant: this Southern style restaurant will offer a cuisine that is casual by day and formal at night. The future restaurant will take up the entire second floor of Building 6, an ideal location with a view of the dam and river while offering catering services to the Conference Center. The vivid, contemporary design will create an experience that relaxes, engages and inspires.

Conestee fitness center: Building 6 will function as a fitness center for the community.

Textile History Museum: Building 7 will function as a museum space that will educate and entertain visitors about the unique textile history of Conestee Mill and Greenville.

Definition of target users by space. A mixed-use development at Conestee Mill will have a variety of users. The types of spaces that will be included in the restoration and reconstruction of the mill complex are listed as follows:

Residential spaces. The target user group for the loft apartments is young professionals, single adults, and small families. Offering a maximum of three bedrooms, the lofts will exclude families larger than four persons. The users in this group will work within Greenville County and most likely drive to work, as no public transportation is available in the Conestee area. Rental prices will range from $800.00 to $1,700.00; therefore the users at this property will be in the middle to upper class financially. Ages will range from 23 to 75.

Located near the Lake Conestee Nature Park, the Greenville Little League Baseball Complex, and the Greenville Hospital System Swamp Rabbit Trail, this property will attract active users who like to be outdoors. For this reason, a fitness center and swimming pool membership will be offered as part of an amenities package to residents.
Commercial spaces. Conference Center and Event Venue: The target user group for the Conference Center is local, regional, and national businesses, local government, non-profits, fundraising organizations, wedding parties, and participants in other events (such as proms, family reunions, and arts festivals). This is a large and diverse user group, therefore the Conference Center and Event Venue will need to be flexible and easily accessible to vendors.

Riverside Restaurant: The target user group for this Southern, “snappy casual” style restaurant includes customers, service industry workers, trained chef, restaurant owner, and management. Customers generally include individuals mainly of upper middle class to first class, as this restaurant will offer a chef’s menu with prices ranging from $10.00 to $35.00 per entree.

Conestee Fitness Center: The target user group for the fitness center in Buildings 6 will be members of the Conestee community and residents at Conestee Mill. Users will include business owners, staff, clients, customers, and maintenance workers.

Textile History Museum: The target user group for the textile history museum is people of all ages, races, and genders. The goal is to educate as many people as possible about textile history and increase interest in Conestee Mill. Users will include all of those described in the target user group.

Design Problems and Conclusions

After completing a site and user analysis, several design problems have been established which would need to be solved through the rehabilitation and redesign of Conestee Mill. The main design problems for this site include the following areas:

Historic Preservation: Each building will need to be evaluated for its ability to be restored and what degree in which it will be restored/reconstructed through a historic structure survey report. This will involve the expertise of historic preservationists, structural engineers, and architects.

Codes Research and Implementation: historic structures can be a challenge to get up to current building and fire codes.

LEED Accreditation: Research will be needed in order to reach any level of LEED
Accreditation in the adaptive reuse of these buildings.

Community Input: The Conestee community should be involved in every step of the design process to ensure that the adaptive reuse of Conestee Mill is supported by the community and will be sustainable in that location.

Matching Historic Materials: where new materials must be used, they should match as closely as possible the original building materials. (Except in interior spaces, which are clearly defined as modern design.

Interior Design: space-planning of the overall site, circulation within the buildings and how they connect on the exterior, which areas will consist of residential loft apartments and which areas will be commercial—these are all decisions that must be made by the designer.

Designing with the Surrounding Environment and Historical Context: the new design must be context sensitive to the surrounding environment and neighborhood, retain the historic character of the mill, but also be innovative and interesting.

Branding & Marketing for the New Development: this will be a key area for the success of the development. Branding and identity must be strong and identified early in the design process.

The following chapter will analyze to related projects to examine how such design problems were addressed.
CHAPTER 4: CASE STUDIES

Introduction

The following two case studies were examined for their applicability to the Conestee Mill redevelopment project as examples of successful textile mill rehabilitation and redevelopment projects. The cases included are Porterdale Mill Lofts in Porterdale, Georgia and Saxapahaw Rivermill Village in Saxapahaw, North Carolina. Both case studies involve rehabilitating historic textile mills and reusing them for mixed-use developments. The case studies are analyzed using a set group of criteria, including their building history, building type, residential and commercial components, tax credits used (if any), design concept, sustainability, and economic impact on the surrounding areas. This set of criteria is evaluated and listed in the table at the end of this chapter.

Case Study 1: Porterdale Mill Lofts

The Porterdale Mill Lofts is a 300,000 square foot complex developed by Walter Davis. The mill sits on the banks of the Yellow River in the City of Porterdale in Newton County,
Georgia. In 2001, the mill was listed on the National Register of Historic Places. The completion of the Porterdale Mill Lofts included 150 loft apartments, two restaurant spaces, live/work spaces, and commercial spaces. The Porterdale Mill Lofts are in high demand and now have a waiting list for prospective tenants. The lofts were at 80% occupancy after rehabilitation and the project is considered to be a significant economic success in Newnan County (University of Georgia, 2012).

**Location.** The Porterdale Mill Lofts complex is located approximately 35 miles east of Atlanta and only two miles from the City of Covington, Georgia. The complex is convenient to DeKalb, Newton, Rockdale, and Fulton counties. Conveniently, it is only 35 miles to Midtown, Atlanta; 11 miles from Stonecrest Mall; eight miles from Conyers, and four miles from Oxford College (Lofts, 2012).

Figure 20 Porterdale Map (Lofts, 2012).
About Porterdale. In 1830, Porterdale was a tiny grist mill and foundry settlement known as Cedar Shoals located a few miles south of Covington. In 1890, it became colloquially known as Porterdale with the opening of the newly formed Porterdale Mills, Inc. The town officially became Porterdale in 1917. Like many towns all over the Southeast, Porterdale’s economy and development was based on the textile mill. After the mill closed in the early 1970s, Porterdale went through a period of economic decline. Today, Portdale is again looking to its beautiful mill buildings as a source of economic growth and development (Lofts, 2012).

About the mill. Porterdale Mill opened its doors in 1889 and prospered until the 1960s as one of the world’s largest producers of twine. The mill closed in the early 1970s due to lower priced global competition and its closing caused the City of Porterdale to go into decline. It remained closed and forgotten, deteriorating slowly over time until 2006, when developer Walter Davis and Pimsler Hoss Architects, Inc. restored and transformed the mill into the Porterdale Mill Lofts.

Site description. There are two late 19th century industrial buildings on the mill site, including the Textile Mill and the Cotton Warehouse facility, both which are listed on the National Register of Historic Places (Lofts, 2012).

Architects. Pimsler Hoss Architects, Inc. (PH/A) of Atlanta, GA was the firm in charge of the design for the Porterdale Mill Lofts project. PH/A has expertise in the areas of design, planning, management, and construction technology. The firm specializes in a wide range of project types, including residential, commercial, adaptive reuse of historic structures, institutional, planning, and sustainable design projects. A group of engineers, landscape architects, and interior designers work together on projects (Pimsler Hoss Architects, Inc., 2012). PH/A describes their philosophy of mixed-use design on their website:
“Mixed Use developments incorporate more than one major functional use within the development of the project. Historically, this was often seen as ground floor retail with living areas in stories above. By today’s definition, mixed use developments are associated with the concept of New Urbanism planning that is intended to provide multiple services within walking distance of each other to reduce the demand for driving. PHA mixed use projects range from retail / residential mixes to multi-use complexes that include commercial, retail, and hospitality uses. The project type can be challenging, as the building codes applying to the various uses must be satisfied in the overall development” (Pimsler Hoss Architects, Inc., 2012).

**Awards and notable projects.** PH/A won the 2007 Georgia Trust for Historic Preservation’s Excellence in Rehabilitation Award for is design of the Porterdale Mill Lofts. The firm has also been recognized with the following awards for similar adaptive reuse mixed-use projects:

- **2007 Kirkwood Tour of Homes;** for its modern remodel of a post-war cottage that adds contemporary flair and respects the contextual scale of the surrounding neighborhood;

- **2006 Magnolia Award: Special Achievement in Affordable Housing;** for its adaptive reuse of an old inner-city GE factory building and construction of a new apartment building to provide mixed use and residential lofts;

- **2004 Atlanta Business Chronicle, “Best of Atlanta” Publication;** for its restoration and conversion of the historic Crogman School building to affordable housing and retail/commercial space; and

- **2004 Atlanta Urban Design Commission Award of Excellence;** also for the Crogman School Apartments (Pimsler Hoss Architects, Inc., 2012).

**The Porterdale Mill Lofts project.** After three decades of neglect and over a century of hard industrial work before that, the Porterdale Mill was in bad shape when the project broke ground in 2005. The following images show the early stages of reconstruction:
Figure 21 Parking garage, early stages (Lofts, 2012).

Figure 22 Main mill building, the original equipment is in disrepair (Lofts, 2012).

Figure 23 Main mill building, pre-reconstruction (Lofts, 2012).
PH/A's conversion of three abandoned mill buildings at the Porterdale Mill complex has transformed Porterdale into a model of historic preservation, adaptive reuse, and mixed-use planning. The project includes 150 residential units, with one, two, and three-bedroom units available (Lofts, 2012). The reconstruction was a $20 million investment that involved making the buildings structurally sound by reinforcing the walls and floors with steel beams and making adjustments to the foundation. The grounds were leveled to provide areas for resident and client parking and a retaining wall was installed for the swimming pool.

Figure 24 Porterdale Mill Lofts apartments, floor plans (Lofts, 2012).
The residential area includes an on-site exercise facility and a riverside recreational deck area. There are also seven retail spaces, two restaurants, and a roof deck community area overlooking the river, community room, pool, and covered parking. The main building has views of the Yellow River, which runs through certain passages at the building’s lowest levels (Pimsler Hoss Architects, Inc., 2012).

![Diagram](image)

Figure 25 Retail, restaurant, live/work plan (Lofts, 2012).

The Cotton Warehouse and Pub holds retail spaces for lease. Each space is 2,262 square feet with stained concrete floors. The Mill Building restaurant is 4,406 square feet and includes a large patio overlooking the river (Lofts, 2012). A third building nearby the site was also restored to provide deck parking to residents.
Users and clients. The Porterdale Mill Lofts complex was designed for “young families and singles, professionals and artists, small and independent retailers and business owners and anyone seeking a genuinely unique contemporary lifestyle” (Lofts, 2012).

The interiors of the Porterdale Mill Lofts showcase the materials and craftsmanship of the 19th century. Support beams made of the heartwood of mature Southern yellow pines are still used in much of the Cotton Warehouse and Mill Building. Also called longleaf pines, these trees are very rare, which makes it nearly impossible to craft beams like these today. Many of the hallways and lofts feature the original maple wood flooring (Lofts, 2012).

Figure 26 Porterdale Mill Lofts, interior view of living room (Lofts, 2012).

Case study 1 conclusion. Much can be learned from the Porterdale Mill Lofts, as they are an excellent example of mixed-use planning, adaptive reuse, and historic preservation.
Case Study 2: Saxapahaw Rivermill Marketplace And Lofts

![Saxapahaw Rivermill Village](image)

**Figure 27 Saxapahaw Rivermill Village, computer rendering of exterior by Clearscapes (Clearscapes, 2012).**

**Introduction.** The Saxapahaw Rivermill Marketplace and Lofts is a restored Cotton Mill and Dye House complex on the banks of the Haw River. Located in Saxapahaw, North Carolina, the Rivermill Village offers a unique blend of history, community, sustainability, local culture and nature while providing for every modern necessity. Featured recently in *The New York Times* and *The Washington Post*, Saxapahaw is becoming a national model for adaptive reuse and historic preservation. This historic village is now acclaimed for its food, music, farmland, forests, lakes and riverside trails. Former mill buildings have been transformed into homes and businesses beside the Haw River. The complex is now home to the 5 Star Gas Station, The Saxapahaw General Store, and The Eddy Pub, the summer farmers’ market, and music series Saturdays in Saxapahaw, the Haw River Ballroom, Paperhand Puppet Intervention, The Haw

The Haw River is a valuable natural resource running from the headwaters of the Cape Fear River Basin to Jordan Lake. The river provides drinking water to many of the surrounding communities, important habitat for wildlife, including endangered species, and recreational and scenic areas. The Haw River is the heart of Saxapahaw located right in the town center. The Buddy Collins Memorial Bridge links the riversides and spans a natural island in the center of the river with Public Trails and easy access. There are kayak and canoe ramps and running trails along the river near the Saxapahaw Rivermill (Saxapahaw Rivermill Lofts, 2011).

**Location.** Saxapahaw is located in Alamance County, North Carolina and is located at 35°57′8″N 79°19′28″W. Saxapahaw is a census-designated place (CDP) in Alamance County, North Carolina, United States. It is part of the Burlington North Carolina Metropolitan Statistical Area. The population was 1,418 at the 2000 census. According to the United States Census Bureau, the CDP has a total area of 5.5 square miles (14 km²), of which, 5.2 square miles (13 km²) of it is land and 0.3 square miles (0.78 km²) of it (5.23%) is water (U.S. Census Bureau).

![Map of North Carolina](image_url)

*Figure 28 Map of North Carolina. Saxapahaw located in Alamance County in central North Carolina (U.S. Census Bureau).*
Demographics of Alamance County, North Carolina (2009):

- Males: 817 (49.6%)  
- Females: 831 (50.4%)  
- Median Resident Age: 36.6 years
- Estimated median household income: $49,856
- Estimated median household income, Saxapahaw: $49,674
- Estimated median household income, North Carolina: $43,674 (U.S. Census Bureau).

**History.** Saxapahaw, like most communities in Alamance County, was a mill town built around the community's cotton mill and along the Haw River. The first mill was built in the community in 1844 by a Quaker settler, John Newlin, but was later demolished to make way for a brick structure. The current mill building was owned and operated by Dixie Yarns until 1994, when a tornado damaged the structure and operations never resumed. Building remodeling was completed in 2006 by Clearscapes design firm, and the facility now houses apartments (Shapard, 2006).

![Saxapahaw Mill, before rehabilitation (Clearscapes, 2012).](image)

**The site.** A 300+ acre lake that is part of the Haw River is located within walking distance from the Rivermill (Saxapahaw Rivermill Lofts, 2011). The Saxapahaw Rivermill Marketplace and Lofts includes residential lofts, the Saxapahaw Rivermill offices, the Seasons Restaurant, the Hawbridge School, several retail spaces, the Eddy Pub, Haw River Ballroom,
Cup 22 coffee shop, and The Saxapahaw General Store. On site, there is an outdoor amphitheater, residential courtyard, and a nearby cultural history museum. The site map below shows the various businesses and activities located on the Saxapahaw Rivermill site.

![Site Map of Saxapahaw Rivermill](image)

Figure 30 Saxapahaw Rivermill Site Plan (Clearscapes, 2012).

Also located nearby is a local farmer’s market, the United States Post Office, Cosi Farms, Saxapahaw Artists Gallery and Art Center, Jordan Properties, Paperhand Puppet Intervention, the Haw River Canoe and Kayak Company, antique shops, and sculpture studios.

**The Hawbridge School.** Located in one of the Saxapahaw Rivermill buildings, The Hawbridge School serves grades 6-12. The Hawbridge School offers a curriculum in Environmental Studies and the arts, and a focus on environmental stewardship as a problem of ethics. Fully utilizing its natural surroundings, the school is a leader in the outdoor classroom movement, and outdoor research projects are a daily occurrence. Hawbridge’s faculty includes
scientists, mathematicians, composers, linguists, writers, editors, performers, and artists—all of them highly accredited and committed to research-driven education (Hawbridge School, 2007-2009).

The lofts. The Saxapahaw Rivermill Lofts are located in The Dye House, also known as the 1700 Block of Saxapahaw Rivermill on Bethlehem Church Road. The lofts are geothermal and solar powered spaces. One, two, and three-bedroom lofts are available for sale. Loft owners can select from several floor plans with the option to leave spaces open. All of the spaces have maintained original hardwood floors, 12-foot ceilings, historic details, and huge windows. There are courtyards, decks and gardens for individual lofts and all residents have access to the riverside running trails, picnic and grill areas, and a canoe/kayak park and put-in (Saxapahaw Rivermill Lofts, 2011).

![Figure 31 Saxapahaw Rivermill lofts, interior after renovation (Saxapahaw Rivermill Lofts, 2011).](image)

Architects and designers. Clearscapes, a multi-disciplinary design firm that was founded in 1981 by architect Steve Schuster and artist Thomas Sayre, merged their talents to renovate a facility for developmentally disabled residents of North Carolina. Clearscapes combines architecture and art in innovative ways, offering unique solutions for historic preservation, civic, arts, and educational projects. The firm specializes in projects involving
urban renewal, and continues to be involved in revitalization efforts across the state of North Carolina (Clearscapes, 2012).

Clearscapes is based in Raleigh, North Carolina. The firm has a broad based, full service design team comprised of twenty-two architects, artists, and support personnel with diverse educational, geographic, and experiential backgrounds (Clearscapes, 2012).

A significant focus of Clearscapes’ work has been the revitalization of historic structures and the infill of new construction in sensitive historic settings throughout North Carolina. The firm has been recognized with numerous design awards for these projects (Clearscapes, 2012).

Clearscapes' recent work includes:

• Raleigh’s new Contemporary Art Museum;
• The revitalization of historic theaters in Washington, Elizabeth City, Cary and Apex, North Carolina;
• The conversion of a historic textile mill in Edenton, renovation of the student Union on the campus of the University of North Carolina at Chapel Hill; and
• Numerous public art installations across the country, including Washington, DC; Nashville, Tennessee; Oklahoma City, OK; Tucson, Arizona; and San Jose, California (Clearscapes, 2012).
Case Studies Analysis & Conclusion

Both Porterdale Mill Lofts and Saxapahaw Rivermill Marketplace and Lofts are excellent examples of incorporating new design with historic preservation in historic textile mills. Both are successful mixed-use developments with striking similarities, including the adaptive reuse of the main mill buildings as residential lofts, a restaurant, and retail spaces. Saxapahaw Rivermill Marketplace and Lofts is considerably larger than Porterdale Mill Lofts, and it also has a pub, school, ballroom, coffee shop, outdoor amphitheater, residential courtyard, and a nearby cultural history museum. However, though these cases differ in scale and location, they provide underlying success factors. First, a significant portion of the property is dedicated to loft apartments for stable revenue. Both have allocated at least seventy-five percent of the total square footage to residential space. Secondly, both have event and/or meeting spaces, another good means of generating property value and revenue. Thirdly, both have a retail and/or office component and at least one restaurant. These characteristics create a vibrant and attractive place to live, work, and play. These characteristics will be considered in the programming phase of the Conestee Mill redevelopment.

The Case Study Comparison Table below shows some of the differences and similarities between Porterdale Mill Lofts and The Saxapahaw Rivermill Marketplace and Lofts.
## Case Study Comparison Table

<table>
<thead>
<tr>
<th></th>
<th>Case Study 1: Porterdale Mill Lofts</th>
<th>Case Study 2: Saxapahaw Mill, NC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building History</strong></td>
<td>Yes, included on PML website</td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>19th century industrial building</strong></td>
<td>Yes, circa 1890.</td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>Residential component</strong></td>
<td>Yes, 150 loft-style apartments</td>
<td>Yes, loft-style apartments</td>
</tr>
<tr>
<td><strong>Commercial component</strong></td>
<td>Yes</td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>Conference Center included</strong></td>
<td>Yes</td>
<td>Haw River Ballroom and Coffee Shop can be used for different events.</td>
</tr>
<tr>
<td><strong>Tax credits used</strong></td>
<td>Yes.</td>
<td></td>
</tr>
<tr>
<td><strong>Clear Design Concept</strong></td>
<td>Yes, historic industrial</td>
<td>Yes, historic industrial</td>
</tr>
<tr>
<td><strong>User description</strong></td>
<td>Young families, singles, professionals, businesses</td>
<td>No description included.</td>
</tr>
<tr>
<td><strong>Design implemented or still in progress</strong></td>
<td>Completed 2006.</td>
<td>Completed in 2006.</td>
</tr>
<tr>
<td><strong>Contributing economic factors post-reconstruction/restoration</strong></td>
<td>Yes, created jobs, increased property value, increased tax base.</td>
<td>Yes, created jobs, increased property value, increased tax base, added more residential rental units</td>
</tr>
<tr>
<td><strong>Design Awards given</strong></td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>Public input involved in design process</strong></td>
<td>N/A</td>
<td>Not mentioned.</td>
</tr>
<tr>
<td><strong>% Occupancy after completion</strong></td>
<td>100% with waiting list.</td>
<td>Not mentioned.</td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td>Yes. Use of as much of original materials as possible</td>
<td>Yes. Use of as much of original materials as possible</td>
</tr>
<tr>
<td><strong>Sparked preservation in nearby areas?</strong></td>
<td>Yes.</td>
<td>Unknown.</td>
</tr>
</tbody>
</table>

Table 2 Case Study Comparison Table
CHAPTER 5: THE DESIGN PROGRAM

Significant Findings that Contribute to the Program

After a review of literature, historical documentation, site and user analysis, observational and interactive research and case studies, a large amount of data and knowledge about the adaptive reuse of historic textile mills as mixed-use developments has been gained. Historic textile mills are versatile, allowing for a variety of different modern applications. However, they do require more maintenance and preservation than modern buildings.

Based on what I have learned while studying the adaptive reuse of other textile mills through case studies and what people prefer in their living environments through interview and survey, I have assigned the buildings on the Conestee Mill site specific uses. These uses are common among successful mixed-use developments. Buildings 1, 2, 3, 4, and 5 will not be space-planned in this project due to time constraints. However, these buildings would be a feasible second phase of the reuse of Conestee Mill and would be excellent spaces for start-up businesses as they are located on Spanco Drive. Building 6 will be used for a fitness center and Building 7 will be used for a textile history museum and residential lobby/entrance. A conference center and event venue will take up the entire first floor of Buildings 8, while the second and third floors will be transformed into loft apartments. Building 9 will house the riverside restaurant, named Fiber, on the first floor and second floors with more loft units on the third floor.

Identification of Relevant Codes

The following codes are required for buildings in Greenville County, South Carolina and are listed on the Greenville County Building and Safety Department website:

• (ICC) International Plumbing Code & International Private Sewage Disposal Code 2006
• (ICC) International Mechanical Code 2006
• (ICC) International Fuel Gas Code 2006
• (ICC) International Fire Code 2006
• (NEC) National Electrical Code, NFPA 70 2008
• SC Barrier Free Building Design Standard (SC Code of Regulations § 19-400 as established by SC Law § 10-5-210 with Reference to and including ANSI - A117.1 (ICC-ANSI) 2003
• (ICC) International Property Maintenance Code 2006
• (ICC) International Residential Code for One and Two Family Dwellings 2006 (Greenville County, 2002).

Other relevant codes are as follows:
• NFPA Life Safety Code & NFPA 5000
• ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)

**Programmed Spaces**

With over 141,000 square feet and nine buildings on the Conestee Mill site, this program focuses on select buildings for which a design will be proposed. The focus buildings include

Buildings 8 (Main Mill Building), 9, and 5. The remaining buildings (1, 2, 3, 4, 6, and 7) will be space-planned with proposed usages, but will not be designed during the next phase of the project. Additional research and programming will be needed to design the remaining buildings.

The color-coded site map from Chapter 3 is shown again below for your reference:
Figure 33 Color-coded site plan
Conference Center, Building 8 (Main Mill Building), Floor 1

- Total Square Footage: 17,450
- Type of Building Occupancy: ICC: A-3 (Assembly, worship, recreation, amusement); NFPA: A-A Assembly OL greater than 1000.
- Occupancy Load: Assembly without fixed seats of less concentrated use is 15 net SF (conferences, exhibits, lounges, etc.)
- Water closets: 2 public restrooms located at either end of the conference hall with four stalls in each male and female restroom.

The table below shows the square footage requirements for the spaces within the conference center based on square footage needs for each space.

<table>
<thead>
<tr>
<th></th>
<th># of spaces</th>
<th>Square Feet per Space</th>
<th>Total Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby</td>
<td>1</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Reception</td>
<td>1</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Sales Office</td>
<td>1</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Luggage/Coat Check</td>
<td>1</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Restrooms</td>
<td>4</td>
<td>350</td>
<td>1400</td>
</tr>
<tr>
<td>Business Center</td>
<td>1</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Kitchen/Catering</td>
<td>1</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>Small Meeting</td>
<td>5</td>
<td>800</td>
<td>4000</td>
</tr>
<tr>
<td>Large Meeting(&lt;theater style)</td>
<td>1</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Storage</td>
<td>1</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Vending</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Stairs</td>
<td>2</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Elevator</td>
<td>2</td>
<td>80</td>
<td>160</td>
</tr>
<tr>
<td>IT</td>
<td>1</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Back of House</td>
<td>1</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Coffee Shop</td>
<td>1</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13390</td>
</tr>
<tr>
<td>Circulation</td>
<td></td>
<td></td>
<td>4017</td>
</tr>
<tr>
<td>Total Square Footage</td>
<td></td>
<td></td>
<td>17407</td>
</tr>
</tbody>
</table>

Table 3 Conference Center square footages

**Adjacency matrix.** The matrix on the following page shows the relationship between the spaces within the conference center. The degree of relationship is measured by determining the level of interaction between the spaces and are then described as having a strong, somewhat strong, neutral, or negative relationship. The matrix is used to determine where certain spaces will be allocated on the floor plan and how these spaces will relate to each other.
Adjacency matrix. The matrix below shows the relationship between the spaces within the loft apartments/residential areas. The degree of relationship is measured by determining the level of interaction between the spaces and are then described as having a strong, somewhat strong, neutral, or negative relationship.

![Adjacency Matrix, Residential Areas](image-url)
**Bubble diagram.** The bubble diagram shown below shows the degree of relationship between spaces within the residential areas. The bubbles are proportional to their square footages.

*Figure 37 Bubble Diagram, Residential Areas*
**Fiber Restaurant, Building 9/Floors 1 and 2**

- Total Square Footage: 2,715
- Type of Building Occupancy: ICC: A-2 (Assembly, Food and/or Drink Consumption); NFPA: A-C (Assembly, OL 50-300)
- Dining Room Occupancy Load: 15 net (Assembly without fixed seats, tables and chairs)
- Kitchen Occupancy Load: 200 gross
- Plumbing code requirements:
  - 1 water fountain per floor (or 1 per 1000 persons)
  - Water Closets: 2 male, 2 female

**Space square footage requirement.**

<table>
<thead>
<tr>
<th></th>
<th>Number of Spaces</th>
<th>Square Feet per Space</th>
<th>Total Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobby/Waiting</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Dining Room</td>
<td>1</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Restrooms</td>
<td>1</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Kitchen/Prep</td>
<td>1</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Bar</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Circulation (20%)</td>
<td></td>
<td></td>
<td>450</td>
</tr>
<tr>
<td><strong>Total Square Footage</strong></td>
<td></td>
<td></td>
<td>2700</td>
</tr>
</tbody>
</table>

*Table 6 Square Footage Requirements, Restaurant*

**Adjacency matrix.** The matrix below shows the relationship between the spaces within the restaurant. The degree of relationship is measured by determining the level of interaction between the spaces and are then described as having a strong, somewhat strong, neutral, or negative relationship.

![Adjacency Matrix, Riverside Restaurant](image)

**Degree of Relationship**
- ● Strong
- ○ Somewhat Strong
- ○ Neutral
- ▷ Negative
Bubble diagram. The bubble diagram shown below shows the degree of relationship between spaces within the Riverside Restaurant. The bubbles are proportional to their square footages.

Figure 39 Bubble Diagram, Riverside Restaurant
Block Diagrams

The following block diagrams show space allocations by floor. Conference areas are highlighted in yellow; Riverside Restaurant is highlighted in blue; residential areas are highlighted in purple; the General Store is highlighted in red; retail and office spaces are highlighted in dark green; and the rooftop deck area is highlighted in light green.

Figure 40 Floor 1 Block Diagram
Figure 41 Floor 2 Block Diagram

Figure 42 Floor 3 Block Diagram
Figure 43 Rooftop/Level 4 Block Diagram
Figure 4: Concept Diagram

Versatile, modern, chic, high-tech venue, convertible wedding location, estation on the river, gathering people & ideas together, small and large meeting spaces, excellent catering services, everything you need to conduct first-class event, one-site event planning.

Program 1: Conference Center

Program 2: Residential Lofts

Program 3: The General Store

Program 4: Riverside Restaurant

Convenient, local, time general store, post office, local vendors, farmer's market, handmade original pieces, neighborhood store, ood and drinks right off of the Swamp Rabbit Trail, friendly, art market, original historic building, unique character, studio spaces available for rent with loft apartments above.

Beautiful river views, waterfall from the dam, warm, friendly environment, chef made meals, casual by day, a little bit fancy by night, a gathering place full of history, next to nature, a new party destination, outdoor patio with live music, Southern food with a modern twist, family-friendly, great service, discount to Conestee Mill Lofts residents and workers, a great place to be.
CHAPTER 6: ANALYSIS OF DESIGN SOLUTION

Design Solution Analysis

Conestee Mill provides an excellent opportunity for redevelopment. Historic textile mills are versatile spaces, which can be reused in countless ways. However, often these mills are converted to mixed-use developments that maximize their earning potential as residents provide consistent and reliable rent and also help to preserve the buildings because they stay maintained. Commercial spaces compliment the residential units, providing opportunity for businesses to be located in an eclectic environment and add jobs, contribute to higher property values and taxes, and stimulate community economies.

Like the case studies in Porterdale, GA and Saxapahaw, NC, Conestee Mill will have similar characteristics. For example, the residential section will take up a large portion of the total square footage of the site. The one and two-bedroom units will be designed with sustainable materials and building systems in order to keep utility costs down for residents while having as low of an impact as possible on the natural environment. Amenities will include an on-site swimming pool, rooftop garden and deck, outdoor amphitheater by the Reedy River, and a 24-hour access fitness center for residents and members. The Conference Center will be versatile enough to accommodate a variety of events and party sizes, and will have a unique blend of historic character with state-of-the-art technologies that will attract even the most sophisticated of venue users. Fiber Restaurant will add another destination for visitors to the Conestee Mill site, as it will provide beautiful river views with a modern design concept of textile fibers, but keeping its traditional Southern charm. Guests will be able to enjoy casual dining during the day with fine dining in the evening. The menu will reflect the character of the “old days” in the South Carolina, with delicious items from the Low country and Gullah culture to the meals of the
Piedmont region. Fiber Restaurant will be a one-of-a-kind dining experience to guest of all ages. The restaurant will offer catering services to the adjacent Conference Center, and will be part of event packages for weddings and other special events. The remaining buildings on the site, which are not included in this program, will be allocated for office and retail spaces.

The goal of this program is to gather all of the data necessary to transform Conestee Mill into a beautiful, walkable, family-friendly, mixed-use development located in the natural setting along the Reedy River. The new design should impact the Conestee community in a positive way, providing a catalyst for other preservation and development efforts in this long-forgotten area of Greenville County.

Limitations and Recommendations

Though this program reflects research and data collection for the four focus areas (Residential, Conference Center, Fiber Restaurant, and the Textile History Museum), it cannot provide a basis for a design solution for the entire Conestee Mill site, as this is an area for future study.

This project will have limitations and challenges. One of the biggest challenges for this project will be finding a source of funding. Currently, the property owner, Hy Brand, is trying to sell it for just under $2 million. No buyer has come forth yet, probably due to its second biggest challenge, historic preservation. Though preserving the structures on the site will be costly, there are ways in which the developer can save some money through preservation tax credits through the South Carolina State Historic Preservation Office and the National Trust for Historic Preservation. Further research is needed to determine which tax credits, grants, and other financial assistance is available. While this will play a key role in the development of Conestee Mill, this area is not the focus of this program.
Another challenge will be addressing the surrounding neighborhood. Right now, the Conestee neighborhood has a high crime rate and is run-down. It is not an attractive place to live, though it could be one day with the right changes in place. The Conestee Mill Lofts will serve as a catalyst for economic growth and beautification as many other revitalized textile mills have proven to be. Both Porterdale Mill and Saxapahaw Rivermill have done just that in their neighborhoods.

This project will have to tackle several design issues, including getting the historic structures to meet modern codes and regulations. Some additions may have to be made in order to accomplish this task, especially at points of egress. Making sure the original buildings are structurally sound will require the expertise of structural engineers and/or architects. Also, fire rating the historic structures without causing any harm to the original structure will be a challenge.
CHAPTER 7: CONCLUSIONS AND DESIGN

Design Concept

While designing the Conestee Mill Complex, the designer was inspired by its textile history. The entire mill complex is designed using the shapes and forms of textiles, particularly rolls of fabric and thread-like parallel lines reminiscent of weaving looms. While the mill's historic character is preserved through the preservation of the main mill building which dates back to the mid-nineteenth century, the designer sought to create modern spaces that will relate to future generations, giving the old mill “new life.” Its close proximity to the Conestee Nature Park and Reedy River influenced the design of outdoor spaces and floor plans that take advantage of river views. Sustainable materials such as reclaimed wood, low VOC emission plastics, recycled glass, and the reuse of the mill’s existing materials makes the new Conestee Mill Complex environmentally friendly both indoors and outdoors.

Site Plan

The Conestee Mill Complex site plan displays the amenities available, including outdoor meeting spaces, an amphitheater, outdoor fitness plaza used by the Conestee Fitness Center, resident and member swimming public restrooms house, fountain, and patio. The parking lot is constructed with permeable concrete and planted with native plantings to collect storm water runoff and add shade to the site. Underground water basins will collect storm water and be redistributed for landscaping needs. These basins will also act as filters to prevent polluted materials from draining into the Reedy River.

The site has two entrances. The main central entrance leads conference center visitors to the drop-off area under the porte-cochere. Ample parking is available and residents have reserved spaces in the main lot.
Floor Plans

Level one.

The Conestee Conference Center, Conestee Fitness Center, Fiber Bar & Restaurant, Residential Lobby, and the Textile History Museum are located on Level One.

Level two.

Fiber Bar & Restaurant's upstairs dining room, the Conestee Lofts residences, mechanical rooms, and a residents' movie theater are located on Level Two.

Level three.

The Conestee Lofts residences are located on Level Three.

Figure 45 Site plan
Figure 47 Level 2 floor plan
North Elevation

Figure 49 Conestee Mill, north elevation

South Elevation

Figure 50 Conestee Mill, south elevation

East Elevation

Figure 51 Conestee Mill, east elevation

West Elevation

Figure 52 Conestee Mill, west elevation
Conference Center, Building 8 (Main Mill Building), Floor 1

The Conestee Conference Center is located on in the main mill building where it takes advantage of the unique historic character of the mill. The Conference Center includes a Textile History Museum, nine meeting and event spaces, including six small meeting rooms, an auditorium, multi-purpose room with moveable walls, and a banquet hall.

The small meeting spaces are set up in six different layouts to show the versatility of the spaces and are named after the historic textile mills of Greenville, South Carolina.

The pre-function spaces accommodate large crowds and a serving/warming kitchen can meet the needs for outside catering. Guests can relax in several break areas, including the Riverview Deck, Atrium, and outdoor spaces. The business center is available for any printing, faxing, and Internet needs.
Figure 54 Conestee Conference Center Lobby

Figure 55 Conestee Conference Center, Lobby Atrium
Figure 56 Conestee Conference Center, Boardroom

Figure 57 Conestee Conference Center, Classroom
Conestee Mill Lofts

Conestee Mill Lofts are available in one and two-bedroom layouts. The loft shown in the following renderings is a two-bedroom, two-and-a-half-bath layout. The kitchen, living, dining, half-bath, and laundry are located on the first level and bedrooms and private baths are on the second level.

Figure 60 Conestee Mill Lofts, Living Room
Figure 61 Conestee Mill Lofts, Kitchen and Dining Area
Fiber Bar & Restaurant

Inspired by the parallel lines formed by the threads in a textile weaving loom machine, Fiber Bar & Restaurant puts a modern twist on the historic character of Conestee Mill. Throughout the space, “threads” can be found, from the bar ceiling spanning out towards the Reedy River to the textures on the walls and floors. Stainless steel dining chairs and hovering metallic lighting fixtures over the dining spaces create an industrial but sophisticated dining experience.

The menu includes specialty Southern and local foods from the Piedmont and Low country regions of South Carolina.

Figure 62 Fiber Restaurant, Bar
Textile History Museum

The Textile History Museum celebrates the unique history of the mills of Greenville County, South Carolina with an emphasis on Conestee Mill. Programming includes a timeline of the mills that played important economic roles in building the City of Greenville, child labor, the Civil War period, World War I and World War II efforts, women in the mills, textile samples and historic manufacturing equipment, and the decline of the textile mills in the South.

Figure 66 Textile History Museum, interior
HISTORIC CONESTEE MILL COMPLEX

Currently, there is a plan to develop Conestee Mill, a historic textile mill in Greenville County, South Carolina dating back to the nineteenth century. The City of Greenville has developed several master plans to revitalize other areas, such as Downtown, and has been successful in raising economic growth, increasing property values, and enhancing the quality of life in these areas. The beautiful Conestee Mill has long been forgotten, if not totally hidden deep within the banks of the Reedy River, waiting for its development opportunity. The site was chosen because of its unique historic character, proximity to downtown Greenville, and proximity to the Reedy River. Greenville hospital System Swamp Rabbit Trail and Conestee Lake Park. The nearby amenities provide an excellent location for a mixed-use development with a conference center, multi-family apartment, restaurant, fitness center, outdoor event space, and visitor information center.

DESIGN CONCEPT

While designing the Conestee Mill Complex, the designer was inspired by historic mills. The entire mill complex is designed using the shapes and forms of textiles, particularly roll of fabric and thread-like parallel lines reminiscent of weaving looms. The mill’s historic character is preserved through the preservation of the main mill building which dates back to the mid-nineteenth century. The designer sought to create modern spaces that will evolve over generations, given the old mill “new life.” In this process, the Committee for the Arts and Reedy River influenced the design of outdoor spaces and public spaces that take advantage of views of the Reedy River. Sustainable solutions such as recycled wood, low VOC emission glazing, recycled glass, and the use of the mill existing material make the new Conestee Mill Complex environmentally friendly both indoor and outdoor.

SITE PLAN

The Conestee Mill Complex site plan (shown left) displays the amenities available, including outdoor meeting spaces, an amphitheater, outdoor fitness, plus access to the Conestee Mill Center, a continuing education center and visitors center.

The parking lot is constructed with permeable concrete and planted with native plantings. A collection stormwater system is also included to redirect stormwater away from the developing area. These spaces will also add up 150 feet to prevent polluted materials from draining into the Reedy River.

The site has two entrances: The east corner entrance leads conference center visitors to the drop-off area under the porte cochere. Ample parking is available, and residents have reserved spaces in the main lot.

SITE PLAN KEY:
1. Main Entrance
2. Secondary Entrance
3. Fitness Center/Conference Center entrance
4. Eritman Plaza
5. Fitness Center/Museum parking
6. Resident parking
7. Fitness Bar/Restaurant parking
8. Paff Park Trail
9. Amenity area
10. Conestee Mill Center/Outdoor fitness area
11. Swimming pool
12. Resident/conference center house
13. Swimming pool area
14. Conference center entrance

ELEVATIONS

NORTH ELEVATION

WEST ELEVATION

SOUTH ELEVATION

EAST ELEVATION

Figure 67 Presentation Board 1
CONESTEE CONFERENCE CENTER

DESCRIPTION

The Conestee Conference Center is located in the main mill building, where it takes advantage of the unique architectural and industrial history of the mill. The Conference Center includes a textile history museum, five meeting and event spaces, including a small meeting room, a ballroom, a multipurpose room, and a mezzanine with a banquet hall.

Small meeting rooms are set up in different layouts to show the versatility of the spaces and are named after the historic textile mills of Greenville, South Carolina. The conference space includes a command center stage and a serving/warming kitchen, meeting the needs for corporate catering. Ovens are available in several areas, including the ballroom and atrium, and outdoor spaces. The conference center is equipped for on-site printing and Internet access.

The Textile History Museum, established in Greenville, South Carolina, is a unique tool for understanding the history of the state's textile industry, including the rise and fall of textile mills, the impact of the Civil War, and the decline of textile mills in the U.S. in the 20th century.

Figure 69 Presentation Board 3
**FIBER RESTAURANT**

**LEVEL 1 FLOOR PLAN**

**LEVEL 2 FLOOR PLAN**

**KEY PLAN**

**DESCRIPTION**

Inspired by the parallel lines formed by the beams of the steel and brick construction, the interior features the rustic character of Conestee Mill. Throughout the space, "threads" can be found from the bar taking patrons out towards the mezzanine to the fixtures on the walls and from the stainless steel chaps to the dining space, creating an industrial yet sophisticated dining experience.

The menu includes specialty Southern fare from the Piedmont and Lowcountry regions of South Carolina.

**CONESTEE MILL LOFTS**

**LEVEL 1**

**LEVEL 2**

**LIVING ROOM**

**KITCHEN & DINING AREA**

**DESCRIPTION**

Conestee Mill loft floor plans are available in one and two-bedroom units. The floor shown in the above rendering is a two-bedroom, two-bath layout, with a master bedroom, living, dining, kitchen, and both bathrooms located on level 1 and bedrooms and private terraces are located on level 2.
Project Presentation Display, MFA Show
Georgia Museum of Art, University of Georgia

Figure 71 Conestee "C" logo made from thread

Figure 72 Conestee Logo with photographs of Conestee Mill
Figure 73 Presentation wall at GMOA Gallery
REFERENCES


APPENDIX

INTERIOR SPACE PLANNING: PRE-PLANNING & CODES COMPLIANCES (itech, 2010).

Uniform Building Codes and Compliances
Prior to planning, Interior Designer will evaluate the given building to check for codes compliance. This is usually as part of the building feasibility study to examine if the given building facilities are appropriate to accommodate the client’s needs and operations.

Types of codes to consider in Pre-planning

- Egress and Life Safety
- Plumbing Fixtures

Egress Requirements

Factors to consider in Planning for egress

- Types of construction
- Types of occupancy
- Occupancy factor and occupancy load

Types of Construction and Occupancy
Most corporate offices are high rises classified user Type I or type II construction. Office is classified as Business under the Occupancy type. If there are other needs such as assembly, laboratories, etc. will be classified as Mixed Occupancy type.

Occupancy factor and Occupancy Load
The occupancy factors is used to calculate the occupancy load:

- Assembly of concentrated use is 7 square feet net (auditoriums, churches, stadiums)
- Assembly of less concentrated use is 15 square feet net (conferences, exhibits, lounges, etc.)
- Business such as offices, banks, etc. is 100 square feet gross

Notes:
The net areas do not include corridors, restrooms, mechanical rooms, utility closets, stairs, etc.

In the case of mixed use, the occupancy load of the floor is equal to the sum of the occupancy load of each type of occupancy.

Occupancy Separation
Separation is needed between different occupancy types or between different uses of the same type of occupancy.
• Large or small assembly - 2 hours
• Business - 1 hour
• Educational - 2 hour
• Hazardous check codes of different types
• Mercantile - 1 hour
• Storage, moderate hazard - 3 hours
• Storage, low hazard - 2 hours
• Residential - 1 hour
• Institutional - 2 hours

Number of Exits
The occupancy load determines the total number of exits but the minimum is two (2) exits whether they are for a whole building, or a typical floor or a space within the building. Occupancy load of a floor is determined by total square feet of that floor divide by the occupancy factor based on the types of occupancy. If the occupants exit through that floor, the calculation must add 50% of the floor directly above or below, and 25% of all other floors beyond served by that floor. The total number of exits required is:

• 1-500 will be 2 exits
• 500-1000 will be 3 exits
• Over 1000 will be 4 exits

Note: The floor with the largest occupant load determines the number of required exits for all lower floors. If there is mixed occupancies, then calculating each occupancy type separately and then adding them together tabulate the occupancy load.

Arrangement of Exit
Distance between the stairwells should be no less than 50% of the longest distance between two points of the building. This is usually the diagonal of the building. It is measured using a straight line between the centers of door A to door B between the two exits. If this fails the requirements, then use a rated corridor to connect the two stairwells and the distance will be measured from the center of one exit to the center of the next exit travel along the center of the corridor.

Travel Distance
Exit maximum travel distance for Business and Assembly occupancies are 200 feet for non-sprinkler space and 250 feet for sprinkler space. This is measured from the most remote location in the building and traveled along the isles and corridor until the stairwell door is reached.

The codes allow additional 100 feet to reach the exits if the last portion of the travel distance is within a one-hour fire-rated corridor.

No dead ends shall be more than 20 feet long.

Rated corridors are required if there is more than one tenant on the same floor. Rated corridors or exit access corridors have a minimum fire rating of one hour including surrounding partitions and ceiling.
Walls enclosing exit stairs have a one-hour rating for buildings with three stories or less and a two-hour rating if they are four or more stories high.

Boiler rooms, furnace rooms and large storage rooms or hazardous material storage rooms require one-hour to two-hour rating separations from the rest of the building.

Storage rooms of more than 50 square feet and less than 100 square feet requires one-hour rating (otherwise it is a two-hour rating).

The walls forming the means of egress must have three-hour fire rating and self-closing exit doors must have one-hour rating.

Exit Width
Corridor is defined as circulation space enclosed by the full height of walls or partitions over 5'-9". An aisle is a circulation space created by furniture or equipment. Minimum corridor width for egress must be 0'-44" clear and with no obstructions or projections. In addition, the width of the exit corridors from each office space to the exit stairs is based on the total occupancy load of that floor multiplied by a width variable.

The total exit width is divided between the total numbers of exits used on the floor. The width variable calculation is shown below:

- Exit stairs is 0.3
- Level exit is 0.2

Travel Direction & Signs
The exit doors must open in the direction of travel. There must be exit signs in a corridor leading to an exit door. This door must also have an exit sign.

Smoke Isolation
An elevator must be equipped with a smoke isolation method from the rest of the building in the case of fire. This may be concealed when not in use. This can be done using:

- Manual operable doors and must be kept close at all times
- Automatic doors that is activated in case of fire

Fire Suppression
Each floor must have two fire extinguishers in the corridors and they must be visible to the public.

Exit Accesses
Doors cannot be less than 6'-8" inches high. Most minimum door sizes are 0'-36" in width. The swing of a door cannot reduce any of the required landing dimensions by more than 0'-7" when the door is fully open and not more than half of the required corridor with at any open position. Doors cannot be more than 4'-0" wide or less than 3'-0" wide.
Adjoining or intervening rooms like kitchens, storerooms, restrooms, closets, or spaces subject to locking are not allowed to be used as exit access points.

**Plumbing Requirements**

*Restrooms*

There should be toilet stalls and lavatories for both sexes on each floor with at least one male and one female stall on each floor. Privacy screening is required at restroom entrances and within restrooms when there are multiple fixtures.

Drinking fountains should be located on each floor. If there is more than one floor, each floor should have its own. A common location for drinking fountains is in the corridor outside of the restroom area. If only one is used, then it must be a hi-low fountain.

*Minimum number of plumbing facilities*

Assembly concentrated use:
- Male stalls - 1 per 125
- Female stalls - 1 per 65
- Lavatories - 1 per 200
- Drinking Fountains - 1 per 500

Assembly less concentrated:
- Male stalls - 1 per 75
- Female stalls - 1 per 75
- Lavatories - 1 per 200
- Drinking Fountains 1 per 500

Business:
- Male stalls - 1 per 50
- Female stalls - 1 per 50
- Lavatories - 1 per 80
- Drinking Fountains - 1 per 100 (itech, 2010).