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Historic Structures Report

Ashland Town Hall

20 Highland Street, Ashland New Hampshire

February 29, 2020

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and
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Introduction

The purpose of this document is to assist the government and citizens of the Town of Ashland to evaluate the existing conditions of the historic Ashland Town Hall located on Highland Street in the village center of Ashland, New Hampshire. The newly formed Town of Ashland built the brick Town Hall in 1872 on the site of the previously burned Squam Lake Hall which had been used for the first few town meetings of Ashland following their 1868 separation from the Town of Holderness. It is the intent of Town of Ashland that the building continue to serve its original purpose, and to that end, this report will recommend a phased plan of work to repair, maintain, and improve the building to serve the town in an ongoing manner into the future.

First inspections of the building took place in August and September of 2018, by Norman E. Larson, AIA , of Christopher P. Williams, Architects, of Meredith and Mae Williams, Historic Preservation Consultant, also of Meredith. Visual inspection of the building's exterior and interior materials, features, and conditions were noted and photographed. Investigative work on the history of the building continued into the fall and winter with Larson re-visiting the site in October and conducting a tour of the building with Alex Azodi of Omega Structural Engineers on November 1st of 2018. Program and design work for renovating the building for ongoing use for Town Offices and Police, until April 15th when the town directed the Architect to proceed with a design that relocates the Police elsewhere and plan to relocate utility staff into the building. Design work for these revised goals continued through the summer of 2019. In November 2019, Larson met with Town Officials to review the outlined findings and conclusions of this report. The conclusions of the structural engineer are incorporated into this report, and the full report of Omega Structural Engineers is included in the appendix of this study.

On its exterior, the brick-masonry Ashland Town Hall remains significantly in its original condition with only minor renovations at the building's entries. The interior has been heavily modified, and almost all of the building's organization, finishes, plumbing, and electrical systems have been re-worked or installed long after the building's original construction.

The front-gabled brick building is highly detailed with decorative brick masonry and granite accents. The tall building form is well-proportioned with brick pilasters framing window bays each with single tall and narrow arch-topped windows capped with elaborated inverted U-shaped window crowns typical of the Italianate style, each with dressed granite capstones. Corbeled brick below the eaves creates a nod to the wide eave trim typical of wood-framed Greek Revival Town Halls; and at the gable end, a three-part entablature is similarly created in corbled brick, sitting on pilasters with corbeled brick capitals.

The Ashland Town Hall is a significant historical building in the state of New Hampshire and is listed on the National Register of Historic Places. The recommendations of this report beyond the scope of repair and maintenance are made in conformance with the Standards of Rehabilitation, one of the four approaches to the treatment of historic properties outlined by the U.S. Secretary of the Interior. This standard, according to the NPS.gov website, "acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character." The Standards for Rehabilitation "are applied to projects in a reasonable manner, taking into consideration economic and technical feasibility." The building is subject to the requirements of the American's with Disabilities Act and the NFPA Life Safety Code. Any modification would need to meet the requirements of the International Existing Building Code, a component of the New Hampshire State Building Code.

Part I: History and Development of the Ashland Town Hall

The Town Hall in Ashland, New Hampshire was constructed in 1871 as the first municipal building for the new Town of Ashland after it had split off from Holderness in 1868. The building has served several functions throughout its life, beginning as a Town Hall, then serving as a vocational school building for the Ashland School district between 1953 and 1971, and returning to use as the Town Hall in 1971.

Early History of Ashland (1751-ca. 1870)

The area that makes up the present Town of Ashland was once a part of Holderness. Governor Benning Wentworth (1696-1770) first granted Holderness to John Shepard and others on November 10, 1751, "but was forfeited by them through not complying with its conditions".[1] On October 24, 1761, the Governor re-granted the town as New Holderness in honor of Robert, Earl of Holderness.[2] The reliable water sources offered by the Squam River, which drops about 112 feet from Little Squam Lake to the Pemigewasset River at the site of the present village of Ashland, attracted early industries to the town. By the time of Samuel Holland's survey of New Hampshire in the 1780s, surveyors noted a small manufacturing community along Squam River at the present location of the village of Ashland (Figure 1).

Figure 1: Topographical Map of the State of New Hampshire Surveyed under the direction of Samuel Holland, 1784 showing mills at what would become Ashland (Dartmouth College Digital Collections)

[1] Hamilton Child, *Gazetteer of Grafton County, N. H. 1709-1886.* (Syracuse, NY: The Syracuse Journal Company Printers and Binders, 1886), 391.
[2] Child, 391. "New" was dropped from the name on June 12, 1816.

Holderness voted to build a Town House at the center of the Town's road network in 1829 (this Town House is the present Holderness Town Hall). The convergence of several roads near the outlet of Squam Lake was considerably to the northeast of the population center around the mill village (then called Holderness Village) (Figures 2 & 3). As the Industrial Revolution continued to reshape the area in the early nineteenth century, the mill village continued to grow, expanding to several factories including a large woolen mill by 1856.[3] During this period of growth, residents of the mill village petitioned to move the Town House to the larger population center to the southwest.

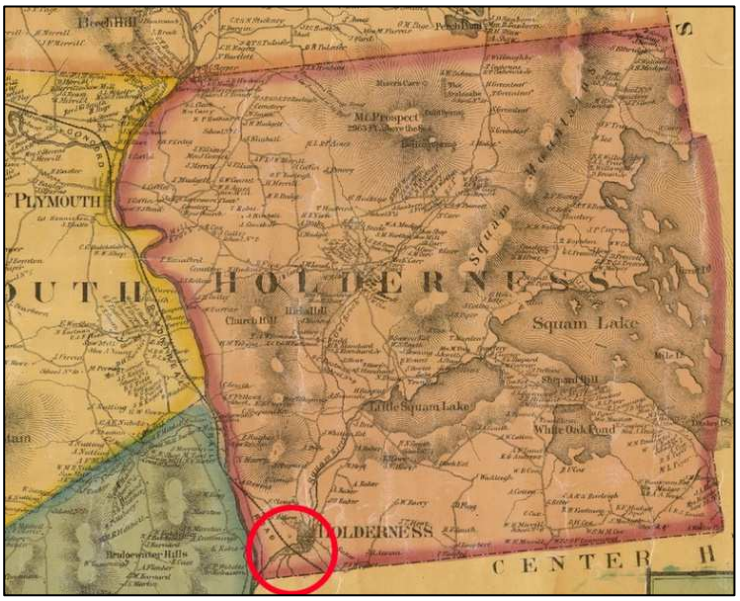

Figure 2: 1860 Grafton County Wall Map

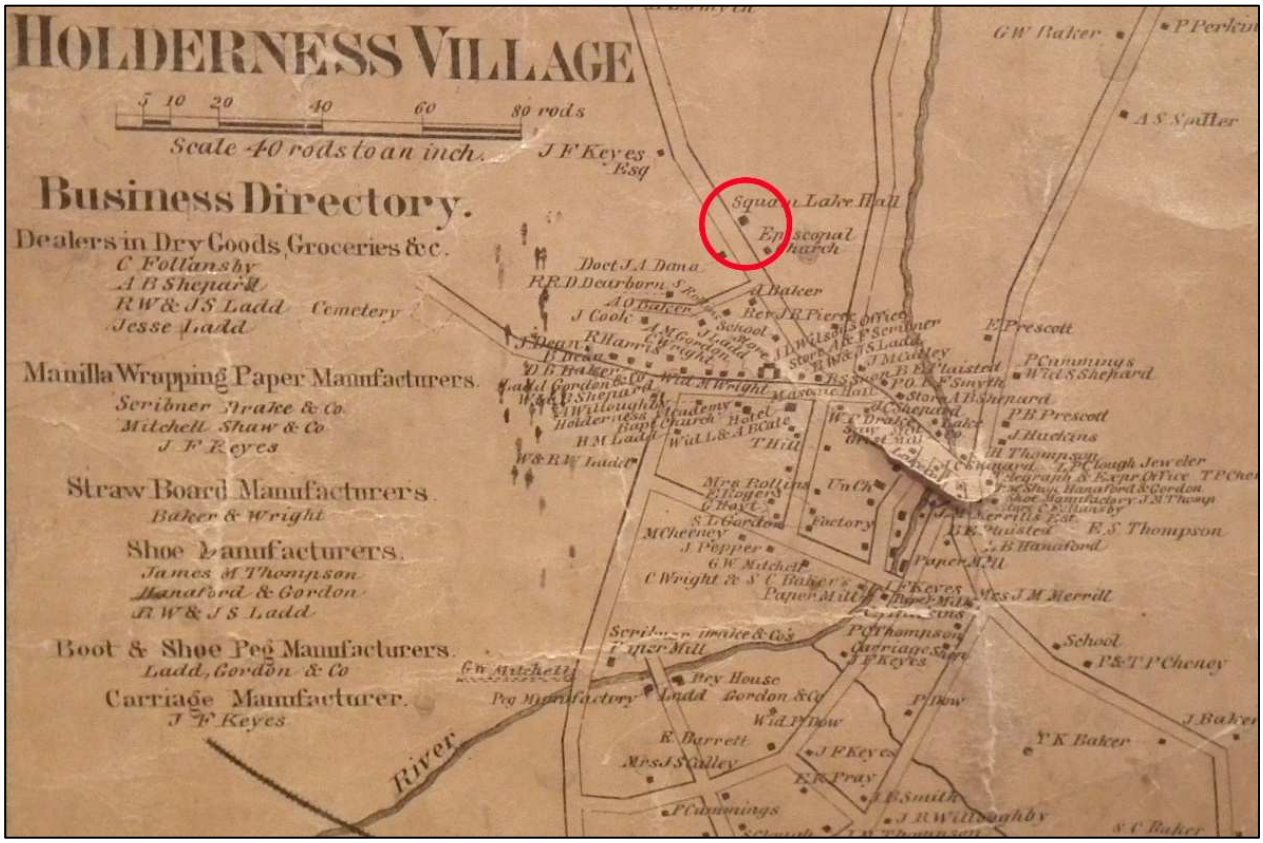

Figure 3: 1860 Map of Holderness Village (aka Ashland)

[3] Edwin A. Charlton, *New Hampshire As it Is* (Claremont, NH: Tracy and Sanford, 1856), 21.

Between 1855 and 1867, there were five warrant articles for such a change: four asking to physically move the Town House and one (in 1860) calling to swap the Town House property with the White Meetinghouse on Mechanic Street in what is now Ashland.[4] Despite the persistence of the villagers, each article failed, further fueling the rift between the townsfolk.

On July 1,1868, the mill village of Holderness set itself off as the new Town of Ashland.[5] The Town was named Ashland in honor of the Kentucky homestead of Henry Clay (1777-1852).[6] When the new municipality was formed, the townsfolk lost their former Town House. As a result, many of the early Ashland Town Meetings were held in the Squam Lake Hall, "a privately owned building usually used for auctions."[7] The Hall had been constructed on the present site of the Town Hall in about 1840 and was used for dances, meetings, concerts and other communal activities.

At the Ashland Town Meeting in March of 1871, the Town voted to build a town hall. Appropriating $8,000 and a five-man building committee consisting of J.A. Dane, Jonathan French Keyes (1811-1899)[8] who owned the Ashland Paper Mill, E.F. Bailey who owned the Ashland leather-board mill, Thomas Perkins Cheney (1833-1916),[9] and Paul S. Perkins (1824-1909)[10].[11] A follow-up meeting was scheduled for April 11.

Then on April 5, 1871, the Squam Lake Hall burned to the ground.[12] The *Lake Village Times* reported that the fire destroyed the building in about 20 minutes.[13] Jonathan French Keyes owned the building, and W. Thurston used it as an auction room. The *Lake Village Times* reported a $400 loss for Keyes and a $1,500 for Thurston with fire supposedly started by an incendiary, but there appears to have been no follow-up to the cause.

With the destruction of the Squam Lake Hall, the subsequent special Town Meeting took place in the pouring rain at the site of the former building. The April 22, 1871, *Lake Village Times* described the meeting as a "Queer Town Meeting," after citizens met for hours without deciding as to where to build the new Town Hall.[14] The only motion was to locate the new

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[4] David Ruell, "Town Hall Talk" (September 14, 2017), 1.
[5] Child, 123.
[6] Catherine Hartshorn Campbell, *A Little History of the Squam Lakes* (Holderness, NH: Squam Lakes Association, 1980), 10 and Elmer Munson Hunt, *New Hampshire Town Names and Whence They Came* (Peterborough, NH: Noone House, 1970), 43.
[7] David Ruell, "National Register of Historic Places Inventory – Nomination Form for the Ashland Town Hall" (1983), 4.
[8] Anonymous, "Find A Grave – Millions of Cemetery Records Online" (www.findagrave.com), Jonathan French Keyes bur. Green Grove Cemetery, Ashland.
[9] Anonymous, "Find A Grave", Col. Thomas Perkins Cheney bur. Green Grove Cemetery. Thomas Perkins Cheney married Mary E. Keyes, daughter of Jonathan French Keyes (Child, 131)
[10] Anonymous, "Find A Grave", Paul S. Perkins bur. Green Grove Cemetery.
[11] Ruell, "National Register of Historic Places Inventory – Nomination for the Ashland Town Hall", 4.
[12] Ruell, "National Register of Historic Places Inventory – Nomination for the Ashland Town Hall", 4.
[13] David Ruell, "Town Hall Talk" (September 14, 2017 unpublished manuscript), 1. The fire was also reported in the *Manchester Daily Union* and *Laconia Democrat*, Friday April 7, 1871.
[14] "Queer Town Meeting" (*Lake Village Times),* April 22, 1871.

Town Hall upon the land near the Episcopal Church, provided that Keyes deed it to the Town at no cost, a motion which was defeated 86 to 96.[15]

On May 3, 1871, another special town meeting convened in the barn of Selectman **Stephen C. Baker** (1821-1907).[16] This meeting considered choosing a committee to find a location for the Town House, purchase the land, and instruct the building agents to construct a structure for $6,000.[17] Again, citizens voted against the motions.

On June 10, 1871, a third special town meeting gathered at the stock house of paper manufacturer, William P. Drake (1821-____).[18] The citizens reduced the appropriation for construction and purchasing land to $4,000 and dismissed the five-man committee. They chose a new, three-man committee to select a site and build a 36 by 60 foot town hall.[19] The new committee consisted of George W. Mitchell (1818-1884),[20] Jeremiah Marston Calley (1813-1897),[21] and Thomas N. Hughes (1819-1883)[22].[23] A final meeting convened on June 29, 1871, at Drake's stock house. At this meeting, the voters elected to build a town house of brick between 36 and 40 feet in width and between 60 and 70 feet in length on the site of the old Squam Lake Hall.[24]

The Town of Ashland purchased the lot on July 25, 1871, from Jonathan F. and Susan Keyes for $500.[25]

<u>The Construction of the Ashland Town Hall (1871-1872)</u>

Ashland Town Records indicate that the building's construction was underway by September 1, with **John Jewell** (1813-1902)[26] contracted to do the construction. Jewell was born in Sandwich and worked as a journeyman and carpenter after learning the carpenter's trade. He built many prominent buildings in Grafton County, including the Ashland Town Hall, St. Mark's Episcopal Church in Ashland (built 1859, NRN 1984),[27] "other large buildings in

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[15] Ruell "Town Hall Talk, 1
[16] New Hampshire Bureau of Vital Records, "New Hampshire Death and Disinterment Records, 1754-1947" (Ancestry.com Operations, Inc. website: www.ancestry.com), Stephen C. Baker and Anonymous, "Find A Grave", Stephen C. Baker bur. Green Grove Cemetery.
[17] David Ruell, "Town Hall Talk", 1.
[18] United States of America, Bureau of the Census, "United States Federal Census" (Washington, DC: National Archives and Records Administration, 1870), Ashland household of Wm. P. Drake.
[19] Ruell, "National Register of Historic Places Inventory – Nomination for the Ashland Town Hall", 4.
[20] Anonymous, "Find A Grave", George W. Mitchell bur. Green Grove Cemetery.
[21] Anonymous, "Find A Grave", Jeremiah Marston Calley bur. Green Grove Cemetery.
[22] Anonymous, "Find A Grave", Thomas N. Hughes bur. Green Grove Cemetery.
[23] Ruell, "Town Hall Talk", 2.
[24] Ruell, "National Register of Historic Places Inventory – Nomination for the Ashland Town Hall", 4 quoting the August 17, 1871 *Laconia Democrat.*
[25] Grafton County Registry of Deeds, Book 319, page 514.
[26] New Hampshire Bureau of Vital Records, "New Hampshire Death and Disinterment Records, 1754-1947" (Ancestry.com Operations, Inc., website www.ancestry.com), John Jewell.
[27] Saint Mark's is located next to the Ashland Town Hall.

Plymouth" and in Lovell, Maine, where he lived for a time before returning to Holderness.[28] He died in 1902, in Holderness, where he had resided for 75 years.

The building saw completion by the end of 1871. On January 15, 1872, the selectmen signed a warrant for a special town meeting to discuss the "Town Hall recently erected for the use of the Town."[29] The building committee reported that the total cost of the construction of the new building, including the stove and furniture, exceeded the $4,000 appropriated by $2,509.42.[30] The construction of the Town Hall cost $6,606.88, with an additional $392.18 spent on furnishings, including a stove, funnel, settees, lamps, chandeliers, etc.[31] The Town paid building agent, **George W. Mitchell** (1818-1884)[32] $5,038.06 in 1871 and $1,100 in 1872.[33]

At the time when it opened, the Ashland Town Hall was two stories. The entrance to the building was through the center of the gable end. There was no awning above the door, which sat at the top of two granite steps. There were five equally spaced windows along either side of the building. Matching interior end chimneys pierced the gable roof. The first floor consisted of a large hall, with anterooms[34] at the entrance end (southwest) below a balcony.[35] The balcony overlooked the hall and there was a stage at the opposite (northeast) end. The second floor (now third floor) was a second large hall.

[28] Ruell, "Town Hall Talk", 3.
[29] Ruell, 4 quoting Ashland Town Clerk's Records, Book 1, page 182.
[30] Unfortunately, the Building Committee's report does not seem to have survived, so the reason behind the balance is unknown.
[31] *Ashland Town Report for the Year Ending March 1872*, 5.
[32] Anonymous, "Find A Grave – Millions of Cemetery Records Online," George W. Mitchell.
[33] *Ashland Town Report for the Year Ending March 1872*, 5.
[34] Likely cloakrooms
[35] *Lake Village Times,* February 2, 1872.

Figure 4: Ashland Town Hall shortly after completion, with St. Mark's Church (built 1859) next door (Ashland Historical Society)

Ashland Town Hall (1872-ca. 1950)

The first Town Meeting took place in the Ashland Town Hall on January 31, 1872, and by February 1872, the building was also used for other community activities.[36] All following Ashland Town Meetings gathered in the hall until after the November 1950 election.[37] Catholic and Methodist Churches also used the building for services before they built their own churches.[38]

In March 1872, the Selectmen leased the upper story of the Town Hall to the **Mt. Prospect Lodge of Masons** for an unspecified term. Earlier, on November 12, 1859, seven masons had met to form a Masonic Lodge in Ashland, and the Grand Lodge granted the charter for the Mount Prospect Lodge No. 69 on July 13, 1860.[39] Between 1887 and 1893, the Masonic Lodge paid an annual rent of $50 per year to the Town. The Lodge continued to lease the

[36] The Free Will Baptist Society held a fair in the new Town Hall in February 1872 (*Lake Village Times,* February 2, 1872)

[37] Beginning in 1951, meetings and elections were held in the auditorium/gymnasium of the school.

[38] David Ruell, "Town Hall Talk", 4.

[39] Ashland Centennial Committee, *Ashland centennial booklet, 1868-1968* (Ashland, NH: Ashland Centennial Committee, 1968), 50.

building until March 27, 1909, when the new masonic hall was dedicated in the Shepherd Block (48 Main Street).[40]

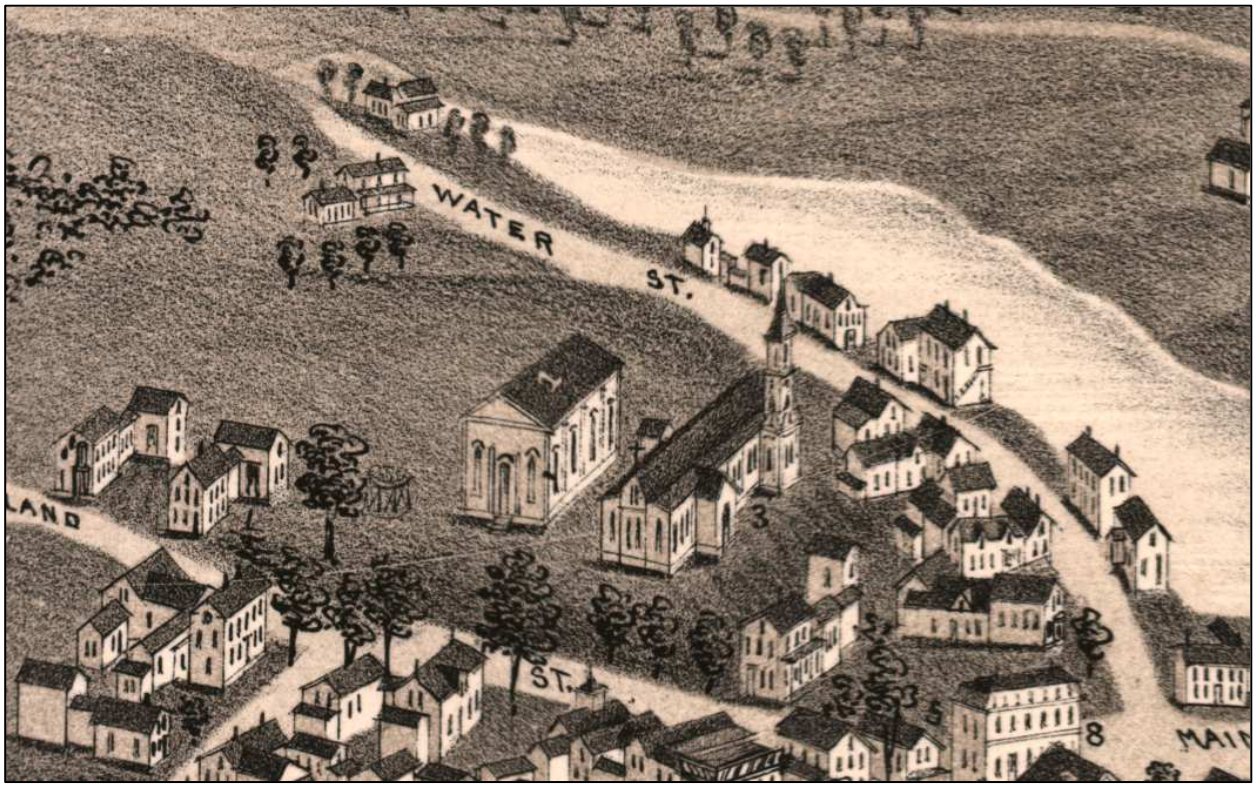

Figure 5: Detail of the 1883 Bird's Eye Map of Ashland (Library of Congress)

At the same 1872 Town Meeting, the town voted to build a "lobby."[41] The Town had first voted to have the selectmen "fit up a proper place for a lobby" and to "call on the treasurer for the cost thereof" at the May 1, 1869, Town Meeting.[42] Apparently the first structure was never constructed. The 1872 lobby was constructed between September 1872 and March 1873 for $582.08.[43] The small brick building served for many years to not only house local criminals but also drunks and indigent people. Multi-purpose 'lobby' buildings and 'tramp houses' arose in New England after the American Civil War, as many former soldiers had trouble re-integrating into society after the war.[44] Buildings constructed specifically for indigent people were often made of wood and located next to railroads and major corridors

[40] "Dedication of the Masonic Hall" *The Ashland Citizen,* March 27, 1909.
[41] A "lobby" is a small hall or waiting room or confined place (such as an antechamber, vestibule, etc. from the Latin "loggia"). "Lobby cells" were holding cells and a "lobby building" was a detached holding cell for minor criminals, transients and those found to be publicly intoxicated.
[42] David Ruell notes regarding the Town Hall property, shared with the author June 28, 2018.
[43] Ruell, 6.
[44] Many late nineteenth century contemporary observers described Civil War Veterans as suffering from "nostalgia" or "soldier's heart", an early diagnosis for what we now refer to as Post Traumatic Stress Disorder (PTSD).

through towns, whereas lobby buildings stood next to town halls and served also a temporary lock-ups for drunks and criminals.[45]

In the late 1870s and early 1880s, Ashland was a thriving industrial community, with many successful businesses that supported continuing upgrades to the municipal building. In 1880, the population of Ashland was 960.[46] Hamilton Child, in his *Gazetteer of Grafton County,* describes Ashland in 1886 as:

> A thriving, brisk post village, located on the southwestern part of the town, on Squam river, and on the Boston & Lowell railroad. It has two churches (Baptist and Episcopal), one hotel, four dry good stores, a shoe-store, millinery store, grocery, etc., one hotel, a bank, public school, two woolen mills, three paper-mills, leather-board mill, two glove factories, two tanneries, machine shop, blacksmith shop, two wagon shops, two saw-mills, and several other small mechanical shops. Aside from these manufactories, the village has about 200 dwellings, and is situated in the midst of wild romantic and beautiful scenery.[47]

The Town of Ashland undertook some repairs to the Town Hall building in 1877-1878. The *Laconia Democrat* reported on February 3, 1878, that carpenters sheathed the ceiling and raised the stage, and plaster artisans frescoed the walls at this time.[48] The work cost $358.28, including the wood, lumber, painting, and labor.[49] In 1884, a new floor was laid at the Town Hall.[50] In June 1886, painters repainted the woodwork of the Town Hal.[51] In 1889, Ashland Electric Light Co. wired the Ashland Town Hall for electricity. The

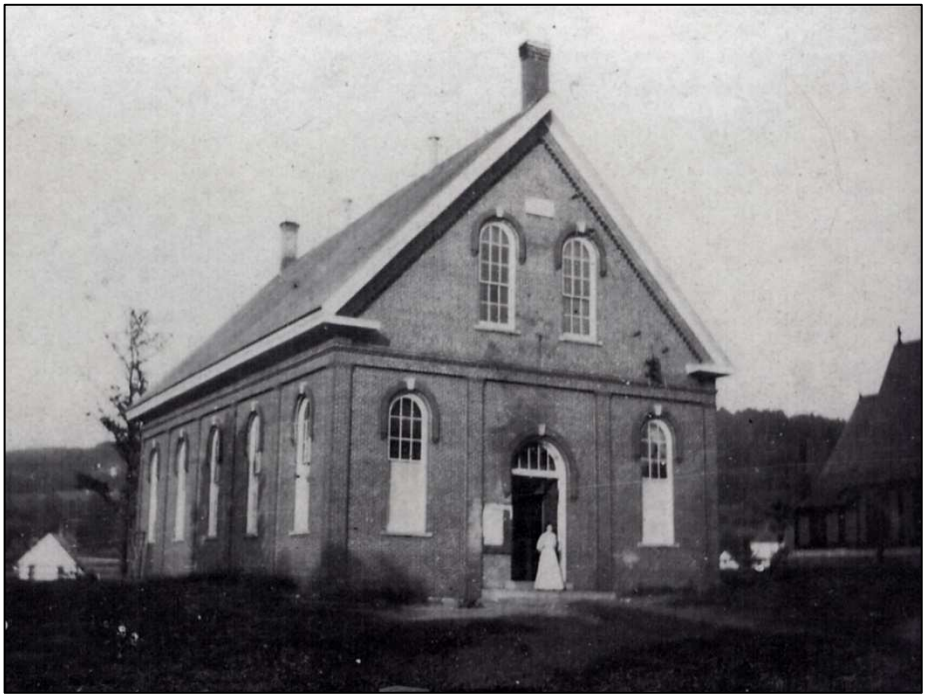

Figure 6: Ashland Town Hall ca. 1890 (Ashland Historical Society)

[45] Another notable example is the Kingston "Tramp House." Though constructed much later (1907), the Kingston building is the only other known brick example in the state.
[46] Neighboring Holderness, by contrast, only had a population of 793. (United States of America, Bureau of the Census, "United States Federal Census" (1880)).
[47] Child, 123.
[48] *Laconia Democrat,* February 3, 1878.
[49] *Ashland Town Report for the Year Ending March 1, 1878,* 6.
[50] *Ashland Town Report for the Year Ending March 1, 1885,* 4.
[51] *Ashland Town Report for the Year Ending March 1, 1887,* 4.

same year, masons repaired the top of the northeast chimney, roofers replaced the shingles and added two ventilators to the roof (Figure 6), and painters repainted the Town House fence.[52]

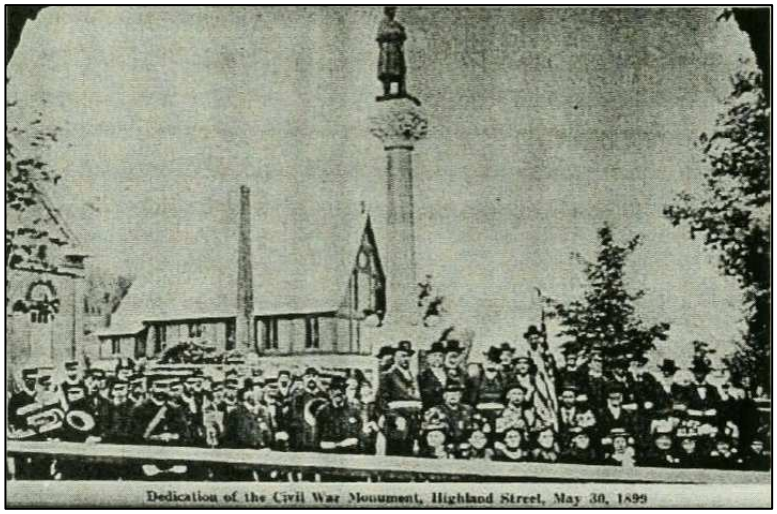

Figure 7: Dedication of the Civil War Monument, May 30, 1899 (Ashland Historical Society)

The Civil War Soldiers' Monument was erected in 1898. The Town appropriated $1,500 for the monument, the Grand Army of the Republic (GAR) raised $200, and the Women's Relief Corps (WRC) raised $300. John Swenson (1851-1918)[53] of Concord was awarded a contract for $2,000 by a three-man committee. Since the committee had neither funds nor authority to purchase land, they erected the monument in the Town Hall yard. One man voiced strong opposition to the location, stating that the memorial should be in a more prominent location on Main Street. Despite a petition of 182 votes for a Main Street location, the committee dedicated the statue in the Town Hall Yard on Memorial Day in 1889.[54]

On June 6, 1899, a special town meeting convened to consider moving the Civil War Soldiers' Memorial. The people of Ashland voted 118 to 0 to move the monument to Main Street. Citizens selected a new committee to find a suitable new location and move the statue. They also voted to remove the plaque with the names of the old committee. New Hampshire State law dictated that money can only be appropriated at a special town meeting if the majority of voters are present and vote. The supporters of the old site simply abstained from voting, allowing the old committee members to obtain an injunction from the court because a majority of the town's 369 voters had not voted at the meeting.[55]

Residents cast a follow-up vote at the March 1900 Ashland Town Meeting. Again, the Town voted to move the Memorial to Main Street and elected the same new committee to oversee the project. The new committee wanted to place the monument on land owned by Colonel Thomas Perkins Cheney (1833-1916),[56] chair of the old committee, but he refused. In the

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[52] *Ashland Town Report for the Year Ending March 1, 1890,* 8, 10 & 11. The brick for the chimney repairs was bought from Charles Spaulding in Rumney and brought to Ashland by freight.
[53] New Hampshire Bureau of Vital Records, "New Hampshire Death and Disinterment Records, 1754-1947", John Swenson.
[54] Ruell, "Town Hall Talk", 5.
[55] Ruell, "Town Hall Talk", 15.
[56] Anonymous, "Find A Grave – Millions of Cemetery Records Online" (www.findagrave.com), Col. Thomas Perkins Cheney, 1833-1916. Cheney wanted to erect a sister Revolutionary War Memorial dedicated to Hercules Mooney (1710-1800).

spring of 1900, the Civil War Soldier's Monument was moved to its present site on Monument Square.

In 1901, workers connected the Ashland Town Hall to town water and installed water closets in the building. OD Thompson was paid $107.19 for plumbing at the Town Hall; AE Porter was paid $12.20 for connecting the building to the sewer and other labor and material.[57]

The next major change to the Ashland Town Hall occurred in 1905. At the March 1905 Ashland Town Meeting it was voted to appropriate $200 to build a suitable fire escape as an exit from the Masonic Hall. The Town paid E. T. Barnum $160.28 for the structure and **Frank Fifield** (1848-1920)[58] $17.38 to erect it at the back of the Town Hall.[59]

Minor updates to the Ashland Town Hall followed in 1906 and 1907. In March 1906, the Town appropriated $275 to re-shingle and repair the chimneys of the Town Hall. The Town paid Squam Lumber Co. $146.00 for shingles, **Horace C. Bickford** (1852-1933)[60] $58.86 for labor, and Gammons & Goddard paid $5.78 for nails, etc.[61] Masons repaired the chimney the following year, with $34.66 spent on repairing the chimney, $3.30 for brick from D. C. Merrill, and $6.64 for lumber from Squam lake Lumber Co..[62] In March 1907, the Town appropriated money to re-wire the Town Hall to conform with the regulations of the NH Board of Underwriters. **Lester Goodwin Fifield** (1878-1925)[63] did the wiring for $147.41.[64]

The Masons moved out of the upper hall of the Ashland Town Hall when they dedicated the new masonic hall in the Shepherd Block on Main Street on March 27, 1909.[65] The hall sat vacant for several years until after the March 1913 Ashland Town Meeting, when it was voted to allow the Ashland Band to use the space for free for their meetings. The same town meeting voted to appropriate $100 to build a new bandstand. This bandstand was constructed by T.C. Shepard for $86.28 in labor and material and painted by C.H. Heath for $13.62.[66] The bandstand was nearly completed by May 17, 1913[67] and stood in the yard of the Town Hall until it was demolished in May of 1930 due to deterioration.[68]

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[57] *Ashland Town Report for the Year Ending February 15, 1902,* 7.
[58] Anonymous, "Find A Grave – Millions of Cemetery Records Online" (www.findagrave.com), Franklin B. Fifield 1848-1920.
[59] *Ashland Town Report for the Year Ending February 15, 1906, 13.*
[60] Anonymous, "Find A Grave – Millions of Cemetery Records Online" (www.findagrave.com), Horace C. Bickford 1852-1933.
[61] *Ashland Town Report for the Year Ending February 15, 1907,* 15-16.
[62] *Ashland Town Report for the Year Ending February 15, 1908,* 9.
[63] Anonymous, "Find A Grave – Millions of Cemetery Records Online" (www.findagrave.com), Lester Goodwin Fifield 1878-1925.
[64] *Ashland Town Report for the Year Ending February 15, 1908,* 9.
[65] "Dedication of the Masonic Hall" *The Ashland Citizen,* March 27, 1909.
[66] $100 total was expended on the band stand in 1913 (*Ashland Town Report for the Year Ending February 15 1914,* 17).
[67] *Ashland Citizen Newspaper, May 17, 1913.*
[68] *Ashland Citizen* and *Plymouth Record*, May 24, 1930.

By 1912, the Lobby was in need of an update. The *Ashland Citizen* reported on February 10, 1912, that the police chief had arrested one man for drunkenness and another for petty theft on Tuesday. Since neither man would give his name, he locked them in the jail. Wednesday morning, when he brought them breakfast, he found that they had escaped by prying off the top of their cells and battering the outside door with a stick. "This makes in the vicinity of twelve persons who have broken from this place and it seems nearly time that something was done towards a proper lock-up."[69] At the Ashland Town Meeting in March, it was voted to appropriate $225 to install two new steel lattice cells within the lobby. The iron work ended up costing $190.15, $16.55 for riveting, $12.50 in labor, and $10.40 in other supplies.[70] The cells were installed by May 1912. It is unclear when the use of the jail cells within the lobby ceased. The lobby was later used as a dog pound[71] and is now used mostly for storage.

In both 1912 and 1913, citizens at the Town Meeting discussed enlarging the stage and installing a heating apparatus in the Town Hall. These repairs were made in 1914, with $245.32 expended for the project.[72] The Town purchased paints from O. A. Brown, and lumber from Squam Lake Lumber Co and G. H. Clark Co. The Town paid C. H. Heath $131.33 for labor.

March 1919 Ashland Town Warrant Article 16 asked to raise and appropriate money to erect a bronze tablet to memorialize the names of the soldiers from Ashland who had served in the World War.[73] Residents voted to appoint a committee to investigate the matter for the next annual meeting. The following March, the committee reported two recommendations:

- 1st to give the local American Legion Post $300 to fit up the building where they were meeting as a temporary headquarters and should 'materially assist the Legion to procure, at some future time, a suitable clubhouse'
- 2nd to appropriate $4,500 to rebuild the Town Hall 'as a lasting memorial in honor of the citizens of Ashland who were in the service of their country during the period of war'[74]

The committee asked to enlarge the Town Hall, remodel the interior and install a heating plant and rededicate the building as Memorial Hall, giving free use of the hall to the Legion for entertainments and public meetings. In 1920, the committee report was accepted and the Town voted to appropriate $4,800 for the cause.[75] The following March (1921), a Town Warrant article asked to raise an additional sum for the changes to the Town Hall. By this

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[69] *Ashland Citizen Newspaper,* February 10, 1912.
[70] *Ashland Town Report for the Year Ending February 15, 1913,* 11.
[71] Doris S. Thatham, "Ashland Town Hall" 1989 from *Ashland Town Report for the Year Ending December 31, 2004,* 37.
[72] *Ashland Town Report for the Year Ending February 15, 1915,* 14.
[73] *Ashland Town Report for the Year Ending January 31, 1919,* 5.
[74] Ruell, "Town Hall Talk", 11.
[75] David Ruell, "Ashland Town Meetings Summary 1920-1979 Plus Addition for 1980-1999" (Manuscript in the collection of the New Hampshire Historical Society, Concord, NH), 12. $300 was appropriated to the Legion to use in updating their current meeting place and $4,500 to rebuild the Town Hall.

time, the project had become quite contentious with several letters to the editor of the local paper. While one letter said the building is a fire trap, insufficiently lit, and of inadequate size, another argued that the project was too expensive in a town that had too much debt.[76] In March 1922, the committee asked for "additional sums of money…for the purpose of enlarging and improving the Town Hall."[77] The vote was delayed and a three-man committee was appointed to review the costs. The committee reported at a special meeting on April 11, 1922, that they had just received architectural plans from **Plummer** of Laconia[78] and, so far, received only one bid. At a follow-up special meeting on May 9, a ballot vote of 118 to 97 appropriated another $7,000 to add to the $5,000 already appropriated by past town meetings[79] and a five-man building committee was chosen for the project. The town then voted

> 'that the selectmen assess every voter on the checklist an equal sum' to raise the $7,000. That amendment 'carried almost unanimously' according to the newspaper, but proved to be the downfall of the project. The selectmen promptly consulted the state attorney general, who told them that method of raising money was illegal, therefore the appropriation was illegal, and the project stopped in its tracks.[80]

By March of 1923, the majority of American Legion members no longer wanted to spend money on the Town Hall, preferring to spend money on a property of their own choosing. The Town voted to rescind the vote of 1920 and give the $5,000 to the Ezra Dupuis Post of the American Legion.[81] The Dupuis Cross Post of the American Legion purchased what is now the Thompson Street apartment house (18 Main Street, Map 16-Lot 9-Block 15) on July 3, 1924.[82]

Meanwhile, **Luther W. Packard** (1873-1950)[83] donated a bronze memorial to for the soldiers of World War I, and had it mounted next to the main entrance of the Town Hall. When the plaque first arrived in April of 1920, it was discovered that a mistake had been made in one of the men's names, so it was sent back to be corrected.[84] In late May, the memorial tablet

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[76] Ruell, "Town Hall Talk", 11.
[77] Ruell, "Ashland Town Meetings Summary 1920-1979…", 12.
[78] Plummer may be John M. Plummer (1867 to 1936), a draftsman for the Boulia Gorrell Lumber Company and architect in Laconia (1920 United States Federal Census for Laconia, Belknap, New Hampshire, household of John M. Plummer and New Hampshire Bureau of Vital Records, "New Hampshire Death and Disinterment Records, 1754-1947", John M. Plummer)
[79] This included $4,500 of the funds appropriated in 1920 and $500 appropriated first in 1920 to install a street sprinkler and re-appropriated in 1921 towards the improvement of the Town Hall.
[80] Ruell, "Town Hall Talk", 11.
[81] *Ashland Town Report for the Year Ending January 31, 1924,* 12.
[82] Grafton County Registry of Deeds, Book 579, page 440.
[83] Anonymous, "Find A Grave – Millions of Cemetery Records Online," Luther William Packard 1873-1950.
[84] *Ashland Citizen Newspaper,* April 17, 1920.

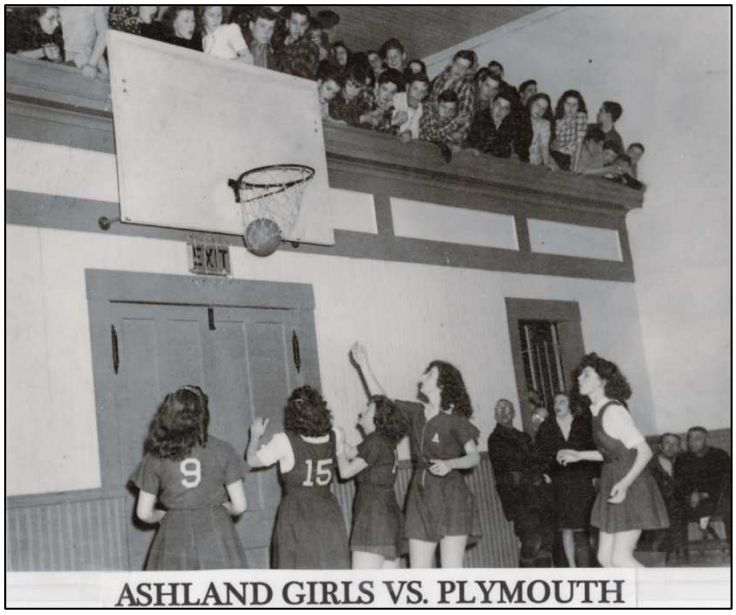

Figure 8: Basketball game, ca. 1945. This photograph is the only known interior photograph of the hall prior to the addition of the second floor (Ashland Historical Society)

was attached to the primary façade of the Ashland Town Hall (where the bulletin board is now). The *Ashland Citizen* reported that the tablet cost Mr. Packard nearly $700.[85]

At the March 1921 Ashland Town Meeting an article was introduced to procure a tablet for a memorial to Veterans of the Spanish American War. This was dismissed and reintroduced in March of 1922. $300 was appropriated for the monument, which was erected in the yard of the Town Hall by May.[86] Town records indicate a payment to F. J. and E. O. Sanborn of $300, confirming that the local firm of Fred J. and son Earle O. Sanborn made the monument.[87]

Both the World War I and Spanish American War memorials were moved to Memorial Square in ca. 1949.[88]

During the 1920s, that the Ashland School District began to use the first floor hall of the Ashland Town Hall for basketball games. It was reported in the Ashland School District Report for the year ending January 31, 1925 that basketball practice was held in the Town Hall every night after school hours.[89] Many of the basketball games held in the Hall were reported in the local papers and town reports. By the 1940s, the Town Hall was the only basketball court in Ashland (Figure 8).

In March 1924, the Town of Ashland had voted to let the selectmen purchase a wagon scale, to be used as a town scale as provided by state law. Large public platform scales, often referred to as "hay scales," stock scales," or wagon scales," were a common site throughout rural villages and cities in the nineteenth and early twentieth centuries. Publicly maintained scales allowed local businesses to accurately weigh large quantities of loose commodities, especially hay, which were sold by weight instead of volumetric measure. This greatly

[85] *Ashland Citizen Newspaper,* May 29, 1920.
[86] *Ashland Citizen Newspaper*, May 13, 1922. The exact location of the memorial is unspecified.
[87] David Ruell, Ashland historian in conversation with the author.
[88] *Ashland Town Report for the Year Ending December 31, 1948,* 6.
[89] *Ashland Town Report for the Year Ending January 31, 1925,* 18.

increase the accuracy and reliability of certain types of mercantile exchange.[90] The town paid a total of $632.98 for the purchase, freight and installation of the town scales.[91] This was broken down to $187.37 paid to Buffalo Scale Co., Inc.; $9.58 in freight to the Boston and Maine Railroad; $224.72 for the installation of the scales; $36.50 in room and board at the Squam Lake House; $97.64 in lumber; $9.30 in weigh books, and $67.97 to O. A. Brown for cement.[92] When initially set up, the scales were located on Main Street. In March of 1929, citizens voted to move the town wagon scales up from Main Street to the Town Hall yard. By September 14, 1929, the Town Hall yard was dug up in preparation for installing the town scales at their new location.[93] The scales were back up and running in front of the town hall by November 9th,[94] at a total cost of $759.61.[95] The wagon scale continued to sit in the lawn of the Town Hall until 1955, when the Town voted on March 8th to sell the scales which had sat unused for a number of years.[96]

In 1927, doors were added to the sides of the building to allow more than one escape route in case of a fire. The doors were located near the stage and were required by NH State Law.[97] In September of 1929,[98] the interior of the Town Hall was repainted by Charles Mailhot for $455.[99] An addition $176.77 was paid to Carey Furniture Co. for chairs and supplies, $317.55 was paid to T. C. Shepard and $60 to E. W. Sanborn for labor and supplies.[100]

By the 1930s, the lobby building was still in high demand with a rise in homelessness correlating with the end of World War I and then Great Depression. In 1904, the town reported caring for 105 transients.[101] This number dropped to 60 in 1905;[102] then 149 in 1910;[103] 187 in 1911;[104] 131 in 1912[105] (the year the jail cells were installed); 161 in 1913;[106] 301 in 1914;[107] 347 in 1932;[108] and 320 in 1933.[109] At the March 1934 Ashland Town Meeting, the Health Officer issued an order to the selectmen to provide for the proper disposal of 'slops

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[90] For additional contextual information on the development of the platform scale, please refer to James Garvin, "National Register of Historic Places Registration Form for the Francestown Town Hall and Academy and Town Common Historic District." (November 2015).
[91] *Ashland Town Report for the Year Ending January 31, 1925,* 15.
[92] *Ashland Town Report for the Year Ending January 31, 1925,* 20.
[93] *Ashland Citizen* and *Plymouth Record*, September 14, 1929.
[94] *Plymouth Record*, November 9, 1929.
[95] *Ashland Town Report for the Year Ending January 31, 1930,* 23.
[96] *Ashland Town Report for the Year Ending December 31,* 1954, 7.
[97] *Ashland Citizen* and *Plymouth Record,* August 13, 1927.
[98] *Ashland Citizen* and *Plymouth Record,* September 14, 1929.
[99] *Ashland Town Report for the Year Ending January 31, 1929*, 5.
[100] *Ashland Town Report for the Year Ending January 31, 1929*, 5.
[101] *Ashland Town Report for the year ending February 15, 1905,* 13.
[102] *Ashland Town Report for the year ending February 15, 1906,* 12.
[103] *Ashland Town Report for the year ending February 15, 1911,* 12 & 13.
[104] *Ashland Town Report for the year ending February 15, 1912,* 9.
[105] *Ashland Town Report for the year ending February 15, 1913,* 11.
[106] *Ashland Town Report for the year ending February 15, 1914,* 9.
[107] *Ashland Town Report for the year ending February 15, 1915,* 11 & 12.
[108] *Ashland Town Report for the year ending January 31, 1933,* 25.
[109] *Ashland Town Report for the year ending January 31, 1934,* 22.

and waste' from the town jail, instead of the current practice of emptying them upon the ground. The interior of the lobby was renovated later that year, with new furniture, and fresh paint.[110]

In November of 1938, the Town of Ashland held a special Town Meeting to discuss accepting a grant from the Federal Emergency Administration of Public Works to supplement funds appropriated ($1,000) during the March 1938 Town Meeting for improvements to the Town Hall.[111] Initially, the Town planned on re-shingling one side of the roof, painting the building and installing a new heating system. With the additional federal funding, the Town Budget Committee began to consider additional options for the building. They reported that various plans and propositions were discussed with citizens regarding repairs and changes to the Town Hall and the potential construction of a new gymnasium near the Ashland school. After lengthy discussion, the committee concluded that the most feasible plan would be to improve the conditions at the Town Hall without involving a heavy outlet of funding.[112]

In March 1939, the Town Budget Committee presented a plan calling for $17,000 to repair and renovate the Town Hall. Because of the existing town debt, the work would be confined to a pay-as-you-go basis, making approving the plan impossible. It was concluded that a new plan, showing the voters what could be done with six or seven thousand dollars, be presented at the next town meeting.[113] The plan was to be developed by a three-person committee made up of members appointed by the selectmen, school board, and moderator. The committee did not present a report at the March 1940 Ashland Town Meeting.

In March 1941, the budget committee again reported that better facilities are needed for school activities. Because of the lack of funding to expend on a major renovation, the committee recommended raising $5,000 per year 'until a sufficient sum has been raised to erect a new building near the school." This would allow for the modest repair of the town hall at a small cost. The Town voted to hold $5,000 in reserve to purchase land and erect a new assembly building near the high school.[114] Annual appropriations of $5,000 were collected between 1942 and 1949 for the reserve fund.

At the Ashland Town Meeting on March 12, 1946, the Town voted to authorize the Selectmen to issue bonds in the amount of $48,000 for the purpose of building a new Gymnasium and Town Hall.[115] Harry Cote made a presentation that concluded that the site of the Town Hall was the most favorable for the new building. The warrant article (21) was accepted as written by a vote of 125 to 45. The town also voted to have the Moderator choose a committee to carry

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[110] *Ashland Town Report for the year ending January 31, 1935,* 21.
[111] The Federal Emergency Administration funding was accepted, and though $998.27 in funding was received in 1939, the *Ashland Town Report for the year ending January 31, 1940*, 17 does not specify how the money was spent.
[112] *Ashland Town Report for the year ending January31, 1939,* 7.
[113] *Ashland Town Report for the year ending January 31, 1940,* 7.
[114] *Ashland Town Report for the year ending January 31, 1941,* 6.
[115] *Ashland Town Report for the year ending December 31, 1945,* 7.

out the terms of the article to include one school board member, one selectmen and others from civic and fraternal organizations in Ashland.

In September 1946,[116] the Ashland Fire Chief closed the Town Hall for public meetings due to safety concerns. The building was closed in particular as a result of the lack of fire-escapes from the balcony and the need for a new chimney. Work on the improvements was already underway by the time of the closure and the Town Hall was the only public meeting place and basketball court in town. This work, apparently, never included the fire-escapes from the balcony. The Headmaster of the Ashland Schools reported in his Annual Report for 1946 that the Town Hall does not provide adequate playing or spectator space and that the fire law prevents the usage of the balcony. "Without the use of this part of the building as a source of income to carry on athletics, we will be unable to carry on our present programs for next year."[117]

On March 11, 1947, the topic of replacing the Town Hall building with a new town hall/gymnasium was revisited. Town Warrant Article 19, asked to have the Selectmen cooperate with a five-person Building Committee to

A. To construct a Town Hall Building which shall include an auditorium, with stage and a gymnasium at a cost not to exceed the sum of money consisting of $48,000 as was authorized in Article 21 of the Warrant of the Meeting of March 12, 1396, plus the $25,000 previously raised at the rate of $5,000 annually plus the accumulated interest on this sum;
B. To select appropriate plans for the proposed building;
C. To contract according to plans finally selected for the construction of the proposed building on the site of the present Town Hall;
D. To cause the demolition of the present Town Hall when the construction contract shall have been signed;
E. To begin actual construction as soon as expedient;
F. To supervise construction until final acceptance of the finished building
G. To pay for the same, according to contract, out of the funds described in Section "A" of these purposes.[118]

The Town Moderator read a report of the 1946 Building Committee, which had met twice with architect **Norman P. Randlett** (1900-1964) of Laconia. His plans at the first meeting far exceeded the appropriation. His second set of plans included a cinder block addition off of the back of the Town Hall, creating a t-shaped building close to the Highland Street sidewalk. Unanimously the Committee had voted against both plans, opting to allow the money to gather interest until building costs dropped. They also presented the new warrant article giving the committee power to tear down the Town Hall, as this was not included in the 1941 vote. The Committee further recommended that the Town Hall be left alone, and

[116] *Laconia Citizen,* September 23, 1946 and *Ashland Citizen,* September 26, 1946.
[117] *Ashland Town Report for the year ending December 31, 1946,* 27.
[118] *Ashland Town Report for the year ending December 31, 1946,* 7.

that land near the school be purchased for a separate building, to be constructed in 2-3 years.[119]

Another motion was made at the Town Meeting to have the selectmen build fire escapes at the outside of Town Hall building so that the balcony could confirm with fire laws, but the meeting did not vote to build the fire escapes.[120]

By the time of the March 9, 1948 Ashland Town Meeting, the Building Committee had met several times and obtained the option of purchasing the "Fifield Lot" on Highland Street from Gertrude Fifield. Town Warrant Article 22, changed the purpose of the Capital Reserve Fund from purchasing land and erecting a new building to remodeling the Town Hall into a combined gymnasium, assembly building and town hall.[121] The town voted 87 to 76, missing the 2/3 majority required. After further discussion, and several follow-up votes, the article passed on a fifth vote of 122 to 60.[122] The following Warrant Article 23 asked to authorize the remodeling of the Town Hall into a combined gymnasium, assembly building, and Town Hall and instructed the trustees of the trust funds to pay over the capital reserve funds to the Building Committee, who are named as agents of the Town.[123] On May 22, 1948, the Building Committee reported that they had met with architects Norman P. Randlett and **Douglas G. Prescott** from the firm of **Prescott and Erickson**.[124] With the cost restrictions, the Committee concluded that remodeling the Town Hall would not create a satisfactory result. The Committee unanimously disapproved of remodeling the building and instead recommended a new building, designed by Prescott, at an estimated construction cost of $89,000 and proposed the town raise the additional money.[125]

At the March 8, 1949 Town Meeting, it was voted to transfer the funds raised and appropriated for the purchase of land and erection of an assembly building from the Capital Reserve Fund to the School District.[126] On June 30, 1949, the School District Meeting voted on a bond issue of $50,000 to build the $90,000 assembly building by a vote of 164 to 46. A three-man building committee was chosen to assist architect Norman P. Randlett and contractor **Harty Construction Co.** of Boston. The nearly finished gym was first used by the public on June 15, 1950 for the Ashland High School Graduation. The new gymnasium across the street from the Ashland Town Hall moved meetings, elections, sports games, and other public events away from the Town Hall.

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[119] Ruell, "Town Hall Talk", 7.
[120] David Ruell, in conversation with author.
[121] *Ashland Town Report for the year ending December 31, 1947,* 7.
[122] David Ruell, in conversation with author.
[123] *Ashland Town Report for the year ending December 31, 1947,* 7.
[124] In 1956-1957, Prescott and Erickson would build a brick-faced children's room/auditorium addition off of the Gale Library in Laconia.
[125] Ruell, "Ashland Town Meetings Summary 1920-1979…" 42-43.
[126] *Ashland Town Report for the Year Ending December 31, 1948,* 7.

Figure 9: Ashland Town Hall in Dec. 1951 (1951 Town Report Cover)

At 9:00 am on Friday December, 28, 1951, John Cilley discovered a fire in the Ashland School shop building.[127] The two-story frame building was located a short distance from the high school and contained tools and workshop equipment. The small building was a complete loss, and the school board turned to the selectmen to see if they could use the stage of the Town Hall as a temporary shop location.[128]

A special Ashland Town Meeting convened in January 1952 for two warrant articles: to see if the Town would transfer the Town Hall ownership to the school district for use as a replacement shop building and to see if the Town would raise and appropriate funds for the purpose of remodeling the building and purchasing the equipment needed for the renovation. The Budget Committee met with the School Board to discuss plans for outfitting the Town Hall as the new school shop, and it was voted that insurance money could be used for the renovations.

[127] *Plymouth Record*, January 3, 1952. The cause was likely electrical.
[128] *Ashland Town Report for the Year Ending December 31, 1951*, "Superintendent's Report", 31-32.

A special meeting of the School Board was held on February 7, 1952. The primary purpose of this meeting was to transfer the ownership of the Town Hall building and land to the School Board. After voting to accept the building, the School Board voted that the Town raise and appropriate $8,404.68 over and above the insurance money to defray both the cost of remodeling the structure for use as a shop and location to teach home economics and the cost of equipment for the programs. The School Board had received an estimate for remodeling made by G. R. Lyford, contractor of Ashland for $14,150 and an estimate made by J. Bartlett, Instructor of the Shop of $4,975.68 for equipment needs.[129] They also voted to spend the $11,040.30 insurance reimbursement on the renovation. The Budget Committee representative reported that combined town and school appropriations would raise the tax rate by 25%, so the School Board decided not to use the $8,404.68. Instead they voted to phase the project, using just the insurance money for the current annum, and then conduct additional renovations with future appropriations.[130]

Following this meeting, the ownership of the Ashland Town Hall was transferred from the town to the school district.[131] The property was deeded to the Ashland School District on April 16, 1952.[132]

The contract for the renovations of the first floor of the Town Hall for use as a shop was awarded to **Colby Lyford** (1900-1972),[133] who began much of the work in March of 1952.[134] Lyford added a wooden portico to the main entrance, expanded the second-floor balcony across the building to create a second floor between the original first and second floors (now third),[135] added a garage door to the south side of the building to serve the school shop and house the driver education car, and inserted new windows and a fire escape at the rear elevation for use by the second-floor level after future renovations. By May 1 the *Plymouth Record* reported that the shop was nearly complete, pending the arrival and installation of equipment.[136] Through the renovations the Town Hall continued to be used by the Boy Scouts for troop meetings.[137] The new shop equipment was delivered late in the summer[138] and by

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[129] *Ashland Town Report for the Year Ending December 31, 1951*, "Ashland School Report", 9. The School District was also estimating an increase of $300 in insuring the building.
[130] *Plymouth Record*, February 14, 1952 and February 21, 1952.
[131] *Ashland Town Report for the Year Ending December 31, 1951*, "Ashland School Report", 31.
[132] Grafton County Registry of Deeds, Book 817, page 221.
[133] *Ashland Town Report for the Year Ending December 31, 1972,* 3. (The 1972 Town Report was dedicated to Lyford)
[134] *Ashland Town Report for the Year Ending December 31, 1951*, "Ashland School Report", 32 and *Plymouth Record*, March 27, 1952.
[135] The 1952 second-floor is still in place. A number of New Hampshire meetinghouses and town halls were designed with large two-story main meeting halls and were later bisected by the insertion of a full second-floor in order to more efficiently utilize space and break up interior function.
[136] *Plymouth Record*, May 1, 1952.
[137] *Plymouth Record,* May 29, 1952. The School Board allowed the Boy Scouts to continue to meet in the new shop building, provided some unspecified structural repairs were completed first to ensure the children's safety.
[138] *Plymouth Record*, September 18, 1952.

fall, the first-floor shop was in use by the Ashland School, with groups working on creating a welding booth, shaving box for the plainer, paint benches, and tool cabinets.[139] The additions and improvements to the Town Hall (Shop) ended up costing $8,234.22 with $1,371.37 spent on new equipment.[140] While the school district saved in anticipation of completing further renovations to the upper floors of the building, students desiring vocation courses that were unavailable locally were sent to other vocation schools, such as Laconia High School.[141]

Ashland School Shop (1952-1971)

The Ashland Town Hall would be used as part of the Ashland School District between the fall of 1952 and 1971.

By 1953, the Ashland School District was looking to renovate the second and third floors of the Town Hall to allow additional space for a home economics laboratory, band room, and instrumental music classes.[142] Space at the Ashland High School was at a premium, and the 1953 Report of the Superintendent of School and Principal shows that they were working hard to juggle limited space to accommodate the needs of their students, even housing the third grade at the Baptist Church. As a result, on March 18, 1954, the School Board voted on appropriating $8,100 to alter and improve the two upper floors over the present school shop.[143]

The plans for the renovation were given tentative approval by April,[144] and by June it was reported that the Baptist Church would no longer be needed as over-flow for the elementary school for the 1954-1955 school year due to the ability to move the home economics program from the high school to the Town Hall.[145] Again, the work was done by local contractor, Colby Lyford.[146]

In the fall of 1954, the home economics department of the Ashland School was moved into the vocational building (as the Town Hall was then called) and a music room was moved to the third story. Three new sewing machines, a gas range, white sink, cabinets, and rubber tile floors were installed in the new home economics lab.[147] Though the School Board initially lauded the new space, by December the Deputy State Fire Marshall inspection began to temper their enthusiasm by noting the need for changes to the newly renovated space.[148] By December, the Superintendent and Principal reported that housing the home economics

[139] *Plymouth Record*, October 9, 1952.
[140] *Ashland Town Report for the Year Ending December 31, 1952,* "Ashland School Report", 18.
[141] *Ashland Town Report for the Year Ending December 31, 1952,* "Ashland School Report", 24.
[142] *Ashland Town Report for the Year Ending December 31, 1953,* 77.
[143] *Ashland Town Report for the Year Ending December 31, 1953,* 61 and *Plymouth Record*, March 25, 1954.
[144] *Plymouth Record*, April 15, 1954.
[145] *Plymouth Record*, June 17, 1954.
[146] *Plymouth Record*, August 19, 1954.
[147] *Plymouth Record*, September 16, 1954.
[148] *Plymouth Record,* December 30, 1954.

department above the shop was not fully satisfactory for permanent use because of noise from the shop downstairs. Additionally, "one of the home economics rooms has almost no window area, and no provision for ventilation."[149]

By the mid-1960s, the upper floors of the Town Hall were found to no longer be adequate for school use. By this time, both the second and third floors of the Town Hall were being used as overflow classrooms for students from the Allen K. Ober Elementary School. The third floor fan heaters were found to be too noisy and the second floor was deficient due to only having one small window.[150] In 1964, the New Hampshire Department of Education found the third floor to be inadequate, asking the School to consider the health and safety of their students and limit the second floor to use by the home economics program. The 1964 Principal's Report suggested reviewing the use of space within the old Town Hall.

> For instance, present General Math classes which meet on the third floor could meet in the shop; the art, music, and homeroom could use the stage area. This may necessitate some rescheduling where conflicts between classes arise. If conflicts cannot be resolved, it might be more desirable to cut back on the program than continue to place pupils in such an unhealthy and hazardous space.[151]

The third floor was no longer used and the second floor was once again limited to home economics, further exacerbating the space-needs.

Three different warrant articles at the March 10, 1965 Ashland School District annual meeting were in regards to the desire to appropriate money to fund an addition to the Ober Elementary School.[152] These articles were dismissed though a vote as the request to appropriate money to fund the addition was submitted without the recommendation of the Municipal Budget Committee.[153] For several years, the Ashland District had been in conversation with several local districts about forming a new cooperative district. Since no decision had been made, voters were hesitant to expend money on an addition when the school's long-term space needs were unanswered. Meanwhile, because of the partial evacuation of the Town Hall, the school district was forced to make changes to scheduling in order to accommodate existing courses for the remainder of the school year. The school principal lamented, "Due to these changes our high school can no longer be considered capable of offering a comprehensive program."[154] Though the district was currently involved in a cooperative study with area towns, they were no longer able to offer a full curriculum on a local level.

The question of the formation of a cooperative district was still unanswered a year later, in 1966. On March 9, 1966, it was voted at the Annual School District Meeting to continue the

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[149] *Ashland Town Report for the Year Ending December 31, 1954,* 70.
[150] *Ashland Town Report for the Year Ending December 31, 1964*, 158.
[151] *Ashland Town Report for the Year Ending December 31, 1964*, 164.
[152] *Ashland Town Report for the Year Ending December 31, 1964*, 136.
[153] *Ashland Town Report for the Year Ending December 31, 1965*, 150-151.
[154] *Ashland Town Report for the Year Ending December 31, 1965,* 181.

discussion of formulating a cooperative district with Holderness and Campton.[155] By 1966-1967, school space had become so cramped that both the cafeteria and the gymnasium were being used as classrooms and study halls and both the storage area in the Ober Elementary School and Episcopal parish houses were used for classes.[156]

At the March 13, 1968 Annual School Board Meeting, it was voted to authorize and appoint a School Study Committee to study the present school facilities, and make recommendations for improvements and construction of new facilities at a Special School District meeting.[157] In the Principal's Annual Report, Jessie L. Bartlett reported that both the elementary and high school were plagued by substandard facilities with the Gym, Shop, and Cafeteria now used as Study Halls and Ashland High School certified as a "provisionally approved" status school.[158]

The School Study Committee made their report at the March 12, 1969 Annual School Board Meeting.

Mrs. Marjorie Glidden, Chairman of the School Study Committee, gave a very informative report. On a motion, duly seconded, it was voted that the District accept the report of the School Study Committee, and that the Ashland School Board be authorized to petition the Superior Court for permission to hold a Special School District Meeting with the same authority as an annual meeting, in order that the voters of the Ashland School District may act on the recommendation of the School Study Committee for the construction of an addition to the Allen K. Ober Elementary School.[159]

At a Special District Meeting held on April 30, 1969, $350,000 was appropriated for constructing and equipping an addition to the school.[160] The addition included six classrooms, library toilets, storage and an office for the Ober School as well as a separate building for industrial arts, home economics, and a multipurpose room to be used as a cafeteria and for assemblies. Lawson Glidden donated seventeen acres of land adjoining the school for use as a playground.[161] Hanson Bros. Inc. of Manchester was awarded the contract and Arthur Fahr[162] of Moultonborough designed the new school building.

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[155] *Ashland Town Report for the Year Ending December 31, 1966,* 160.
[156] *Ashland Town Report for the Year Ending December 31, 1966,* 190 & 191 and *Ashland Town Report for the Year Ending December 31, 1967,* 173.
[157] *Ashland Town Report for the Year Ending December 31, 1968*, 149.
[158] *Ashland Town Report for the Year Ending December 31, 1968*, 179.
[159] *Ashland Town Report for the Year Ending December 31, 1969,* 132.
[160] *Ashland Town Report for the Year Ending December 31, 1969,* 140.
[161] *Ashland Town Report for the Year Ending December 31, 1969,* 157.
[162] Arthur H. Fahr (1898-1972) was born in New York and began practicing architecture in Massachusetts before moving to Moultonborough by the mid-1950s. In the 1950s, he worked as a consulting architect to Norman P. Randlett in Laconia. He died in Maine in 1972.

The new school buildings were dedicated on November 15, 1970,[163] leaving the Town Hall empty once more. Article IX of the March 10, 1970 Town Meeting attempted to transfer the property known as the "Old Town Hall" from the School District back to the Town and was defeated 95 to 47, as the school district specifically reserved the right to use the land for automobile parking in connection with school purposes.[164] Some eyed the old Town Hall property as a good location for a new fire house, and allowing the school district to use the property for parking would be incompatible with this use.

The issue of returning the old Town Hall building to the Town of Ashland was revisited in 1971. In February, the concept of renovating the hall for use as the Ashland Town Offices was discussed by the Select board as part of the discussion of the 1971 budget.[165] The Selectmen reported that the present town office and garage on Main Street between Mechanic Street and the Squam River was nearly condemned and not useable for official functions nor does it provide any privacy for citizens wishing to discuss problems with the board.[166] Article 8 of the 1971 Town Warrant asked to accept the old Town Hall building from the Ashland School District for use as Town Offices, "with the understanding that it will not be used as a fire station site."[167] This time, the article passed.

The Ashland Town Hall is Transferred Back to Municipal Use (1971-present)

In March 1972, the Town of Ashland increased their budget for town building maintenance by $4,000 to allow for renovations of the Town Hall into Town Offices.[168] The property was deeded from the Ashland School District to the Town of Ashland, with the understanding that the Town will provide parking facilities to the School for use of officers, employees, students and guests in association with school functions, on June 27, 1972.[169]

The Ashland Town Offices moved into the former classrooms of the second floor of the Town Hall on September 18, 1972.[170] The second floor was renovated at very little expense (Figure 10).[171]

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[163] *Ashland Town Report for the Year Ending December 31, 1970,* 176.
[164] *Ashland Town Report for the Year Ending December 31, 1970,* 13.
[165] *Ashland Citizen,* February 4, 1971.
[166] *Ashland Citizen,* March 4, 1971.
[167] *Ashland Town Report for the Year 1971,* 10.
[168] *Ashland Citizen,* February 2, 1972 and March 8, 1972.
[169] Grafton County Registry of Deeds Book 1167, page 405.
[170] *Ashland Citizen*, September 13, 1972 and Ruell, "National Register of Historic Places Inventory – Nomination Form for the Ashland Town Hall," 6.
[171] *Ashland Town Report for the Year Ending December 31, 1972*, 4.

Figure 10: New Ashland Town Offices, 2nd Floor of Town Hall (1972 Town Report)

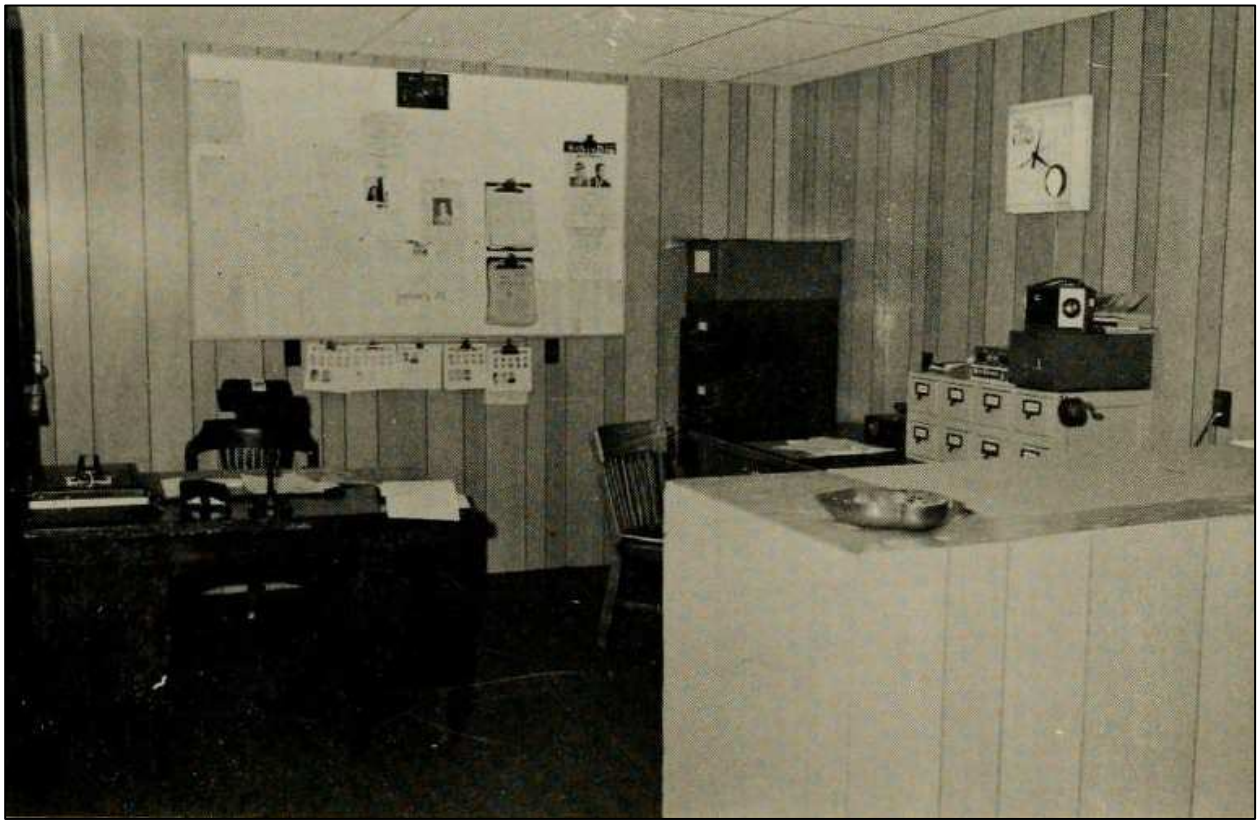

Figure 11: New Ashland Police Department, 1st Floor of Town Hall (1972 Town Report)

The first floor of the Town Hall was converted into a new police station (Figure 11).[172] The former police station was located within the old fire house at approximately 9 Main Street. This building was slated for demolition, preceding the construction of a new fire station at the same location.[173] The police department renovated the space themselves, only charging the Town of Ashland for the materials and electrical work.[174]

In 1975, a fireproof vault was added to the first floor of the Ashland Town Hall. At the March 1975 Town Meeting, Police Chief Guy L. Magoon (1927-1992)[175] spoke of increasing the police facility from 3 to 9 rooms, utilizing volunteer labor and at no cost to the town. $2,500 was allotted for a town vault, constructed of cement block reinforced with steel and a fireproof steel door, which was placed in the location of former police cells and used as a safe location for town records.

The Ashland Bicentennial Committee worked hard to update the exterior of the Town Hall for the American Bicentennial in 1976. The group received a $1,000 matching grant from the New Hampshire American Revolution Bicentennial Commission for a landscaping project at the Town Hall and to erect a monument to the Revolutionary soldiers of Ashland and Holderness. The Town also appropriated $500 towards this permanent improvement to the property.[176] The Revolutionary War Memorial was dedicated on July 4, 1977 (Figure 12).

Figure 12: Revolutionary War Memorial ca. 1977 (Ashland Historical Society)

[172] *Ashland Town Report for the Year Ending December 31, 1972*, 4.
[173] David Ruell was told this by Ernest A. Paquette, Chief of Police (____-1973). The fire station was located in close proximity to the mills along the Ashland River.
[174] *Ashland Town Report for the Year Ending December 31, 1972*, 62.
[175] [175] Anonymous, "Find A Grave – Millions of Cemetery Records Online," Guy L Magoon 1927-1992, bur. Franklin Cemetery.
[176] *Ashland Town Report for the Year Ending December 31, 1976*, 100.

In 1979, the Town of Ashland revisited the question of constructing a new town office building. Article 17 of the 1979 Town Warrant asked if the town would authorize the reconstruction and construction of a new Town Office for $50,000, raised through $12,500 in taxation and a three-year bond of $37,000.[177] The article was not recommended by the Budget Committee, and the Town had just approved $160,000 for a new town garage. The article was passed over and there was no motion pertaining thereto. The issue of renovating the Town Office was raised again in 1980. On January 7, 1980 plans were drawn up to move the Town Offices to the first floor, to allow for easier access to the elderly. Article 23 of the March 13, 1980 Town Meeting requested the authorization of $59,400 for the renovation of the Town Office. This article drew a great deal of comment and debate, and was not recommended by the Budget Committee.[178] It was argued that the building had been condemned in the past, and many were against spending any significant money on the present building, suggesting a new structure be constructed all together. The Building Inspector argued that the Town Hall was a safe structure and renovations should be considered. After much debate, a closed ballot was voted with a result of 66 against to 37 for.[179]

At the same time as the Town was considering extensive renovations to the Town Hall, the Board of Selectmen began doing preliminary work to establish the Town Hall as "an historic building" in 1979.[180] The acceptance of the Town Hall to the National Register of Historic Places would take several years. In December of 1982, it was reported that the building was being considered for the National Register of Historic Places thanks to the support of the Lakes Region Planning Commission.[181] The Town Hall was listed to the National Register on March 24, 1983.

On November 17, 1982, Selectman James Rollins presented a drawing of the proposed remodeling of the Town Hall that would make the town offices more accessible to the public.[182] The December 1982 budget included a small stipend for repairs to the Town Hall roof (which was leaking) and some renovations to the building interior.[183] In the 1982 Selectmen's Report, it was announced that plans were underway to move daily office functions of the Town Office to the ground floor and make renovations to the space with the labor assistance of town employees and assistance from utility commissions, should the voters approve the plans.[184] At this time, the building housed the offices of the selectmen,

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[177] *Ashland Town Report for the Year Ending December 31, 1979,* 20.
[178] *Ashland Town Report for the Year Ending December 31, 1980,* 24 and *Plymouth Record Citizen*, March 19, 1980.
[179] *Ashland Town Report for the Year Ending December 31, 1980,* 24
[180] *Ashland Town Report for the Year Ending December 31, 1979,* 10.
[181] *Ashland Town Report for the Year Ending December 31, 1982,* 6.
[182] *Plymouth Record Citizen,* November 17, 1982.
[183] *Plymouth Record Citizen,* December 15, 1982.
[184] *Ashland Town Report for the Year Ending December 31, 1982,* 6.

town clerk, tax collector, police, water, sewer and electric departments. It also served as the meeting place for many commission and boards.[185]

The Selectmen asked for $10,000 for renovations to the Town Offices during the February 1983 budget hearing, with $5,000 coming from their budget and $5,000 from that of the electric department. Moving the Town Business Office and Utility Office to the first floor was necessary under new accessibility legislation.[186] The renovations began in December of 1983. Though $15,095 was appropriated for the renovations, only $4,566.28 was spent.

At the March 1984 Ashland Town Meeting, the town voted to withdraw $30,000 from the Federal Revenue Sharing fund to renovate the Town Hall.[187] The former garage door at the south side of the building was filled in with brick-faced concrete block, and fit with a six-panel steel door. By December, the renovations were under way.[188] Unfortunately, when the town offices were moved downstairs, the Police department was pushed into smaller quarters, and found themselves badly in need of a supply room, evidence room, and secure storage location for weapons and ammunition.

In 1985, another $6,500 was withdrawn from the Federal Revenue Sharing fund to complete the renovations.[189]

On August 23, 1982, the selectmen approved applications to the Governor's Office of Energy to have **JS King Engineering** perform energy audits of the Town Hall and fire station for $5,800.[190] A grant for $3,100 for the audit of the Town Hall was approved in September.[191] The study was completed in 1990, and recommended replacing bulbs, cleaning and adjusting boilers, annually inspecting air conditioners, insulating the ceiling above the heated area, crawl-space walls, and the furnace room walls, caulking entrances and door frames, weather-stripping doors, and installing acrylic panels over heated single-pane glass.

In 1991, the selectmen approved moving the Ashland utilities to the Town Garage on Collins Street. Renovations to the Garage were completed by November,[192] and the offices for electric, water, and sewer were moved from the Town Hall to the Town Garage between December of 1991 and April of 1992.[193] The removal of the utilities to the Town Garage was made in order to increase efficiency and create more space within the Town Hall for the remaining town offices and police department. Police Chief Paul Dean presented a new plan

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[185] Ruell, "National Register of Historic Places Inventory – Nomination Form for the Ashland Town Hall", 6.
[186] *Ashland Town Report for the Year Ending December 31, 1983,* 9.
[187] *Ashland Town Report for the Year Ending December 31, 1984,* 15.
[188] *Ashland Town Report for the Year Ending December 31, 1984,* 6.
[189] *Ashland Town Report for the Year Ending December 31, 1985,* 21 and 40.
[190] *Plymouth Record Citizen,* August 23, 1989.
[191] *Plymouth Record Citizen,* September 23, 1989
[192] *Plymouth Record Citizen,* November 20, 1991.
[193] *Ashland Town Report for the Year Ending December 31, 1991,* 17.

for the interior layout of the building in December 1991.[194] The plan was to renovate part of the second floor for police, add second floor offices for the chief, sergeant, juvenile officer, a file room, evidence room, and common area and convert the first floor office into a booking room with a new shared conference room and storage space. Most materials and labor for the renovations were to be donated, with funds needed for ceilings and floors on the second floor. The new renovations would allow the department "to meet state and federal regulations in the handling of juvenile cases and in the preservation of evidence."[195] The selectmen encumbered $1,500 of the 1991 surplus for the project.

The renovations to the Town Hall were actually completed during the summer and fall of 1992. The work was completed with little expenditure of town funds, mainly completed with volunteer labor and materials, with the police department doing the majority of the physical renovation to their department.

Throughout the 1990s, several small renovations were made to the Ashland Town Hall. After a disgruntled taxpayer in Newbury, NH, shot and killed two town office workers on November 1, 1993, the Town of Ashland cut off access to the Town Offices and created a public room that was separate from the town employees.[196] "The changes were done as a result of recommendations by our insurance companies and discussion with local police."[197] In 1994, a former storage area was remodeled to create a public space for tax map access. Security cameras were also added in 1994, as a precautionary action in the wake of the Newbury shooting.[198] In 1996, a new entrance to the Police Department was designed by local Ashland firm, Samyn-D'Elia Architects. This entrance included a new gable roof entrance with stairs at the north side of the building, replacing the exit that had been added next to the stage in 1927.[199] In late December, 1998, the selectmen met with the Town Office staff to discuss concerns over lighting, new carpeting, and the need for a railing at the front doors.[200]

By the 2000s, concerns were mounting over outdated mechanical systems at the Town Hall, and concerns over the buildings viability were growing. In 2002, the Town Administrator obtained prices for replacing and repairing old light fixtures throughout the building.[201] In September of 2002, discussions were held regarding a rear entry to the building.[202] By May of 2004, the need for an exhaust system for the public restroom was pointed out.[203] The front doors of the Town Hall building were replaced in 2005. Initially, boarding over the transom

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[194] *Plymouth Record Citizen,* December 18, 1991.
[195] *Ashland Town Report for the Year Ending December 31, 1991,* 50.
[196] This area is the service area between the vestibule and town administration.
[197] *Ashland Town Report for the Year Ending December 31, 1993,* 21.
[198] *Plymouth Record Enterprise,* February 16, 1994.
[199] *Ashland Town Report for the Year Ending December 31, 1996,* 16. The original estimate for the new entrance was around $15,000 with only $6,000 budgeted. After Samyn-D'Elia's design was completed, the cost was estimated at $15, 548 (*Plymouth Record Enterprise,* December 24, 1996).
[200] *Plymouth Record Enterprise,* December 28, 1998.
[201] *Plymouth Record Enterprise,* January 17, 2002.
[202] *Plymouth Record Enterprise,* September 19, 2002.
[203] *Plymouth Record Enterprise,* May 13, 2004.

and fan-lite above the door with a panel mounted with the town seal was discussed.[204] The front entrance to the Ashland Town Hall was repaired and refurbished in June 2005. At this time new front doors were installed, the entrance was repainted and fitted with new signs, and a cast iron hand rail was finally installed.[205] Up until this point, though growing concerns were voiced, and different options were explored as they related to specific problems, no holistic building study was undertaken.

In September of 2005, a Building Committee for the Town Hall was established. This Committee included Town Administrator Richard J. Alpers, Town Clerk/Tax Collector Patricia Tucker, Deputy Town Clerk, Laura Plummer, Police Chief Joseph Chivell II, Police Lieutenant Donald Marren, and others and was intended to look into upgrading the building over the next four to five years. Specific issues they were asked to look at included: handicapped access, layout and use of space within the building, and potential structural problems. Tom Samyn (of Samyn-D'Elia Architects) and local builder, Milton Graton did not see any obvious structural problems during a walk-through, but it was suggested that an engineering study of the structure was worth pursuing. Of particular concern to the Town Administrator was the lack of ventilation and high heat-loss through the historic windows, which he suggested replacing as part of the 2006 budget.[206] It was also noted that a large portion of the first and second floors was currently devoted to storage, which could potentially be moved to the third floor.

In 2006, the Police Department reported that they were facing space shortages within the Town Hall. Though the Chief, Lieutenant, and Sergeant had private offices, the three patrol officers were forced to set up desks in the 2nd floor hall, both sexes needed to share a locker room, there was no police shower, and not enough secure evidence storage.[207]

In 2008, air filters were placed in the Town Hall in an effort to improve air quality and follow through with one of the issues of the recent report.

McCormick Facilities completed an updated energy efficiency report for the Ashland Town Hall in 2010 as part of a project to conduct energy audits of all Ashland town buildings. This report recommended replacing interior and exterior lights, adding room occupancy sensors, replacing the main doors, adding door seals and weather stripping, replacing the windows, insulating the foundation, bulkhead, and attic, replacing water fixtures, and insulating pipes.

The roof of the Town Hall was stripped and re-shingled in 2010. The roof for the lobby was re-shingled in 2010 by Red Mountain Contractors for $2,451.75 (with $2,000 paid by the Ashland Historical Society).[208] The 2005 front doors were also replaced in 2012. Asbestos remediation on the third floor, repairs to the heating and cooling systems, and repairs to the

[204] *Plymouth Record Enterprise,* March 31, 2005.
[205] David Ruell in conversation with the author.
[206] *Plymouth Record Enterprise,* September, 22, 2005.
[207] *Plymouth Record Enterprise,* October 5, 2006.
[208] Ashland Town Records.

fire escape were conducted in 2015.[209] Also in 2015 lighting in all six town-owned buildings was replaced by the Town Administrator.

An article in the 2015 Town Warrant asked for $60,700 for custom-fit replacement windows for the Town Hall was defeated with 126 voting for and 232 against. The same year, the Town voted to establish a town building Capital Reserve fund with $25,000.

In November 2016, the Ashland Selectboard was awarded an $18,250 matching grant from the NH Land and Community Heritage Investment Program (LCHIP) for a $36,500 professional Historic Structures Report for the Town Hall. "Today we can only use about one third of the 8,000 square foot building due to code and regulatory compliance issues resulting from deferred maintenance due to ongoing budget restraints."[210] Through a holistic study of the building, the Town hoped to preserve the exterior of the historic building while rehabilitating the interior to make a safe, comfortable, durable and efficient structure.

In 2017, there were several items on the Town Warrant related to the Town Hall. Though the Town voted to add another $25,000 to the town building Capital Reserve fund, an article asking to match the $18,250 LCHIP grant (using $10,000 from the town building Capital Reserve fund and $8,250 from other grants and donations) was defeated 164 yes to 179 no. The LCHIP grant project was delayed a year, as the Ashland Heritage Commission looked for other grants, services in kind and donations to help match the LCHIP grant with local funds.[211] At the Ashland Town Meeting in March 2018 the LCHIP grant project was finally approved.

Statement of Significance

The Ashland Town Hall is significant for its central role in civic and social history of Ashland and as an example of the traditional New England Town Hall.

When Ashland split from Holderness in 1868, Holderness retained the Town Hall. The Ashland Town Hall was the first significant building constructed by the new municipality in 1871. Since this date, the Ashland Town Hall has been at the center of town administration and a center of communal use. The Hall served as the primary municipal center of Ashland and location of all of the Ashland Town Meetings from 1872 until 1950, when the nearby school gymnasium took over as the primary public gathering place for the Townspeople. Between 1952 and 1971, the building served as an integral part of the educational history of Ashland as part of the Ashland School District. The mid-century renovations to the building help to tell this important chapter of the building's history. The building then returned to municipal use in 1972, and from that date as served as the Ashland Town Offices.

[209] *Ashland Town Report for the Year Ending December 31, 2015,* 29.
[210] *Ashland Town Report for the Year Ending December 31, 2016,* 40.
[211] *The Laker,* April 2017.

The Ashland Town Hall is also significant architecturally, as a Victorian example of a traditional New England Town Hall. The design of the building reflects the aesthetic of the traditional Greek Revival timber-frame hall. Like earlier examples, the entrance to the building is at the center of the gable end, between two symmetrical windows. The fenestration of the structure adheres to a strict symmetry, and tall windows allowed for a great deal of natural lighting into the open interior space. The Greek Revival design was modified and brought up to more "modern" standards for the post-Civil War aesthetic of 1871. The more permanent brick design incorporates elements of the Italianate style, such as semi-circular brick window hoods with central granite keystones over arched windows and dog tooth brick at the fascia on the gable end. Though much of the Victorian interior has been lost as the building has adapted through time, and some details have been lost from the exterior, the overall exterior conveys much of the original design.

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Part II: Architectural Description with Character-Defining Features

The Ashland Town Hall is located on a hill at the north side of the village of Ashland, New Hampshire. The building is on its own lot and set back from Highland Street. The large brick public building is rectangular in form with a gable roof. Though the building has continued to evolve since its construction in 1871, it retains many historic Italianate architectural features.

The identification of character-defining features of properties like the Ashland Town Hall is a critical first step in planning for its future life. Before applying *The Secretary of the Interior's Standards*, it is important to understand what physical features of the building help to tell the story of its history and architectural importance. The *Standards* recognize the importance of maintaining these original features and spaces while rehabilitating the property for a compatible use and future life. Recognizing that a property may have original features throughout that are all "character defining," the *Standards* allow for the categorization of the features into primary and secondary spaces and features. Primary spaces and features are those that should not be changed or removed unless they are beyond repair (at which time they should be replaced to match the old in design, color, texture, and materials). Secondary spaces and features are those that can be altered *when necessary* to accommodate compatible change that allows new and continued use of the property. The guidelines of the *Secretary of the Interior's Standards* state that "identification, retention, protection, and repair should be given first priority in every rehabilitation project." Interior spaces are not only defined by their finishes and features, but by the size and proportion of the rooms themselves and how they functioned in the historic use of the space. Distinctive features and finishes should be retained as much as possible in primary interior spaces, whereas extensive changes are more acceptable in the secondary interior spaces that service the primary or functional portion of the building. This does not mean that secondary interior spaces are insignificant or that all character-defining finishes can be removed from secondary spaces, it just means that more leeway is given for change needed to accommodate modern use in these areas.

Ashland Town Hall Site Description

The Ashland Town Hall is located at 20 Highland Street in Ashland (Ashland tax map 16, lot 7, block 1). The 0.68-acre property is bordered to the west by Highland Street, to the north by Cottage Place, to the east by 15 Cottage Place (16-7-16) and to the south by St. Mark's Episcopal Church at 16-18 Highland Street (16-7-2). The Town Hall is at the intersection between the mixed commercial, residential and municipal town core and a residential neighborhood.

The Ashland Town Hall sits at the northeast corner of the lot, which is shared with a small former jail (historically referred to as a lobby) and several memorials. Aside from a narrow strip of grass to the east of the hall, the majority of the lot is paved to provide parking spaces for the Town Hall and the nearby Ashland School Auditorium/Gymnasium.

The former Ashland Lobby building is at the southeast corner of the lot (Figure 1). This small brick building was constructed for use as a combination jail and tramp house shortly after the construction of the Town Hall. The single-story building is composed of brick set in an unusual common bond with fifteenth course headers, with the exception of the northwest corner of the structure, which appears to a more recent repair done in running bond. The underpinning of the structure is not visible, as the ground level around the building has risen, and the asphalt parking area to the west butts right up against the building. There is a single door at the north gable end, facing the Town Hall. The wooden door surround is narrow and flat, and there is a heavy wooden header above the three-panel door. The threshold is granite. The door is held shut by an historic cast iron thumb-latch that has been augmented by a modern padlock, and there is a large gap beneath the door. The Ashland Lobby has a single window at the west elevation. The window has plain flat wooden surround, heavy wooden header, and plug-split granite sill. The sash is a non-historic wood 6/6 sash. The gable roof of the small building is covered in modern asphalt shingles that were installed in 2010. The roof has an open eave with enclosed rafters and plain fascia. The building has a narrow bed molding at the cornice and a flat frieze board. The interior of the Lobby has been stripped of historic details.

Figure 1: Ashland Lobby

A small memorial garden is located along the Highland Street frontage of the property. A small raised area, within granite curbing, commemorates the Ashland participants in the Revolutionary War. The Revolutionary War Memorial was dedicated on July 4, 1977 as part of the American Bicentennial celebration. The low rough granite slab at the center of the memorial garden holds a bronze plaque. Wooden benches flank either side of the monument (Figure 2).

Figure 2: Revolutionary War Memorial

Figure 3: Location of the Ashland Town Hall

Character-Defining Features of the Site		
Primary Features	***Secondary Features***	***Non-Historic Features***
• *Ashland Lobby*		• *Parking Lot* • *Modern benches and plantings* • *Revolutionary War Memorial (1977)*

Exterior Description

The Ashland Town Hall is 2 ½ story brick meeting hall, which faces west, onto Highland Street. The building is three-by-five bays with primary entrance at the center of the gable end. When it was constructed in 1871, the hall was 1 ½ stories, with a multi-story hall on the first floor level with gallery at the west and stage at the east, and second hall in what is now the third floor. In the 1950s, the gallery level was extended across the hall to create an intermediary floor, creating what is now the second floor.

The underpinning of the Ashland Town Hall is presumably granite, but is not visible at the building exterior. The parking area to the west and south butts directly against the brick, overlapping the lower courses. Though the area to the east of the building is dirt, this too, is built up and obscures the bottom of the walls.

Figure 4: West and south elevations of the Ashland Town Hall

Figure 5: East and north elevations of the Ashland Town Hall

The building is masonry and is composed of brick that has been set in a common bond pattern, with a course of alternating headers and stretchers every 15 courses. A three-course high projecting brick band several courses below the roofline creates a frieze along the sides of the building and circles across the front to create a belt-course. The three most-prominent exterior walls (north, west and south) have been divided into regular bays by shallow brick pilasters below this course, with plain corbeled caps. This subtle use of depth along the elevations creates a level of monumentality reminiscent of that seen in Greek Revival style town hall architecture. This ornamentation gives emphasis to the three bays of the main façade (west) and five bays of the north and south sides of the building.

The gable roof of the Ashland Town Hall is oriented roughly east-west. It is covered with asphalt shingles that were installed in 2010. The eaves are boxed, with cyma recta shingle molding, narrow fascia, flat soffit, and cove bed molding. There are shallow cornice returns at the gable-end, and the moldings of the gable end match those of the eave. There is an exterior brick chimney at the ridge at the rear (eastern) end of the building.

The primary entry to the Ashland Town hall is through the center doorway of the west façade. The doorway has a granite sill above a wide granite step that was bisected by a cast-iron hand rail in 2005. Paired six-panel wooden doors are located beneath a rectangular five-lite transom window below a semi-circular arched window. The doorway is capped by an arched brick hood mold with a granite keystone.

Figure 6: Historic (ca. 1886) view of the entrance to the Ashland Town Hall (left) and the present entrance (right)

The trim around the doorway is narrow and flat. Each of the wooden doors is made of six panels, with two vertical raised wooden panels below the lock rail, two vertical glass panels above, and a pair of small raised rectangular panels between the cross rail and top rail. There is a thumb-latch at the south door and a letter box opening in the lock rail of the north door. These doors are modern, having been installed in 2012. It is difficult to discern the details of the historic doorway from photographs, as the historic (possibly original) doors were painted a very dark hue. The historic doors were significantly taller than the modern units, entirely filling the space now occupied by both the doors and the transom. A sign for the Town Office and Police Department was installed in 2005 and is located at the north side of the doorway, and there is a small notice board to the south of the entrance.

The entry portico, which shelters the entrance to the Town Hall, was added in ca. 1952 when the Town Hall was converted for use as the Ashland School Shop. The portico has a gable roof. The eastern end of the portico is supported by two square fluted columns that sit on square plinths atop the outer corners of the granite step. Each of the columns has heavy capital with decorative geometric modillion in each side. The moldings of the eaves are simplified versions of those seen on the historic building, as are the eave returns at the gable end. The gable end is sheathed in vertically oriented v-groove boards with a decorative arched cut-out at the center to match that of the entrance door within. A colonial revival style exterior light fixture hangs from an arm above the door.

Figure 7: Typical Ashland Town Hall window

There is tall arched double-hung window on either side of the entrance. Each window sits below a semi-circular arched brick hood molding with granite keystone and has nine-over-nine double-hung wooden sash and a rough granite sill. The windows were retrofitted with fixed acrylic storm panels in 1990. When it was constructed in 1871, there were matching windows along each of the five bays on the side elevations of the Town Hall.

The western gable end is pedimented by the brick belt-course at the second (now third) floor level. Two very similar arched windows are located in the gable end above the entrance at what is now the third level (historically second). There is a single wall anchor or tie plate between the windows with a decorative diamond finial. In the gable above the windows is a rectangular granite sign inscribed "1871". Additional ornamentation to the primary façade (west) is seen in simple dog's tooth brick corbelling on the rake.

Figure 8: Detail of south-east corner of Ashland Town Hall

When it was constructed, the north and south elevations of the Ashland Town Hall matched. There were matching nine-over-nine window in each of the articulated bays.[1] The two easternmost bays of the south elevation no longer have the full historic windows.[2] A modern secondary entrance to the Town Hall was added east of the center bay in the mid-1980s to create a barrier-free public entrance to the building. This entrance has narrow flat trim, and a modern hollow-core door. The door sits beneath a gable-roofed awning which is supported by brackets. The doorway is located in the location of the historic lower sash of the window above, and differing colors in the brick and mortar surrounding the entrance attest to several changes to this bay.

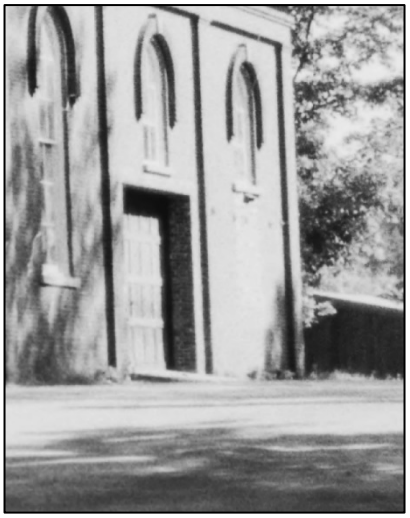


Figure 9: Southeast corner of Town Hall, 1982 showing garage door

The south elevation was first changed in 1927, when an emergency exit was added near the stage, at approximately the location of the present accessible entrance. At this time, the lower sash of the window was removed, and a cast stone sill put beneath the upper sash. The 1927 door was replaced by a garage door, which spanned the entire width of the bay,

[1] Presumably, the westernmost window (or two westernmost windows) were bisected by the gallery.
[2] The easternmost window was shortened in 1975 to accommodate the vault.

in ca. 1952 (Figure 9). The garage door was used by the school shop program and the driver-education car was stored inside. The garage door was removed in 1984, and the modern entrance was created when the area occupied by the garage door was infilled with brick-faced concrete block.

The easternmost bay of the south elevation of the Ashland Town Hall was similarly altered in 1975. At this time, the lower sash of the easternmost window was removed, and the granite sill moved up to sit just below the upper sash. The lower portion of the window opening was bricked in, to allow for the installation of the town vault. The brick used to fill in the window opening is significantly different in color and size to that of the historic building, as is the mortar. Several through-anchors were also added to the corner of the building at this time to support the cast concrete ceiling of the records vault.

Historically, the north elevation of the Ashland Town Hall matched the south elevation, with five tall windows within the five articulated bays. The two easternmost bays of the north elevation have seen several 20th century changes. There is presently a raised porticoed entrance in the bay east of the center of the building. A set of concrete steps lead up to a modern metal exterior door with nine lites in the upper half that allows entry to the Ashland Police Department. The entry is beneath a gabled portico that is supported by four square columns. There are modern pipe metal handrails on the sides of the platform outside the entry. The interior of the portico has a vaulted roof that is unpainted. At the junction between the portico and the building, there is evidence of a former exterior light fixture that hung above the entry.

The north elevation was also first changed in 1927, when an emergency exit was added near the stage, approximately at the location of the present Ashland Police entrance. Presumably, the lower sash was removed at this time, and a row of bricks was added to create something to attach the portico to. Because of the slight pitch downhill on the north side of the building, this entry has always had a set of steps, whereas the companion entrance at the south is at grade. The 1927 entry (Figure 10) was replaced by the current porticoed entry in 1996, which was designed by Ashland architects Samyn-D'Elia.

Figure 10: East and north elevations of the Ashland Town Hall in 1982 (Ruell)

The easternmost window of the north elevation is missing the

lower sash, which has been replaced by a modern 1/1 window and an infill wood panel. The exact date of the alteration of this window is unknown, but it likely occurred in the early 1970s, in conjunction with interior changes to the building.

Of the four building elevations, the eastern elevation of the Ashland Town Hall has seen the most changes. Historically, this elevation was the least complicated, as it was not readily seen by the public. This elevation lacks any of the decorative brickwork that is seen on the other sides of the building. The only brick projection on this side of the building is a chimney. This chimney does not have the original 1871 brick, which appears to have been replaced sometime in the mid-to-late 20th century by the present structure.[3] There is also a fire-escape on the north elevation, as well as a short wooden gabled shed that covers the steps to the basement of the building.

Figure 11: Upper hall level of east elevation (3rd floor)

Because of the interior stage, it is unlikely that the north elevation ever had windows on the first floor level, and there is no obvious physical evidence to suggest otherwise. When constructed, however, there were two arch-topped windows at the upper hall (now third floor). These windows were similar to those in the eastern gable end, but lacked the decorative curved hoods. Instead, these windows have two-course flush brick arch headers.

The window of the south bay of the upper hall (now third floor) has been converted to a doorway (Figure 11). The north window sash appears to be original and historic. The south historic window was replaced by an exterior door beneath a semi-circular curved transom in 1905 when the first exterior fire escape was added. The present exterior door at this level is a modern metal simulated six-panel door. The curved three-light transom above, may be made from part of the historic window that was removed in 1905. The fire escape itself is made from very light steel, with a delicate railing at the third floor level, and along the steps to the second floor level. It is supported by two metal brackets that have been further assisted by the addition of a metal

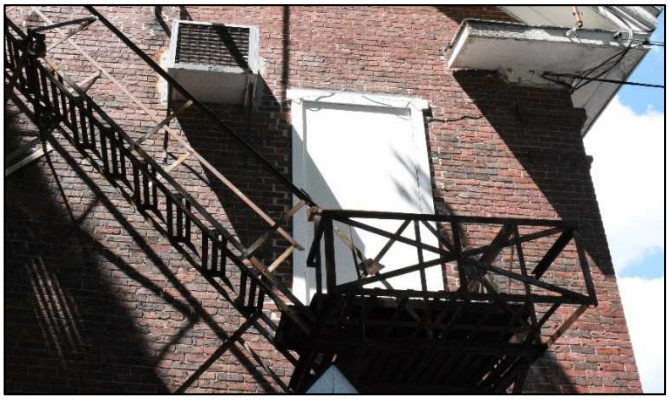


Figure 12: 2nd floor egress, east elevation Ashland Town Hall.

[3] Though it is known to have been constructed prior to 1952, the exact date of the chimney is yet unknown at the time of writing. This may be determined with further research.

column, possibly repurposed from a bridge of some sort.[4]

Figure 13: ca. 1952 metal windows (2nd floor)

A second exterior door was added to the new second floor in ca. 1952, to allow egress from the new classrooms. The 1952 wooden door was typical of the mid-20th century with three horizontal panels below the lock rail and a single glass lite in the upper portion (Figure 10). The door was again replaced in the spring of 2018 with a modern, flat metal egress door that has no exterior hardware. The door surround is narrow and flat with no ornamental molding. An additional hole has been punched in the exterior wall, just to the south of the door to accommodate a permanent air conditioner (Figure 12).

Figure 14: Basement Entry, Ashland Town Hall

Two large steel windows were also added to the new second-floor level in 1952, to light a second-story classroom (Figure 13). Each of the two windows has a small section within it which opens inward to allow for some air movement. This is the only operable window at the 2nd floor level.

There are no openings at the first floor level of the east elevation of the Ashland Town Hall. The south side of the first floor at this level is taken up by the 1975 fireproof vault. Like at the east corner of the south elevation, there are through-bolts visible at the building exterior in this location.

There is a small gable-roofed addition at the northeast corner of the building (Figure 14). This shelters and protects the exterior stairs that lead into the small basement of the Town Hall. The exact date of this addition is unknown. It was likely added in the 1970s, as it is constructed of modern dimensional lumber and was present by the 1982 National Register nomination photographs. The addition has a poured concrete foundation, wood clapboard sheathing with narrow flat cornerboards, and a gable roof that has been sheathed in asphalt shingles. The entry is through a modern flat metal door at the gable end.

[4] Records indicate that the fire escape was repaired in 2015. This may be when the additional support was added.

Character-Defining Features of the Building's Exterior		
Primary Features	***Secondary Features***	***Non-historic Features***
• *Height & massing of building* • *Roof pitch* • *Regular, symmetrical window and door locations (fenestration)* • *Exposed brick, laid in common bond w/ historic mortar profile* • *Granite window sills* • *Historic window frames & sash* • *Corbeled brick decoration*	• *Side & back elevations* • *Historic chimney* • *Eave details and moldings* • *Colonial Revival entrance portico* • *Side entrance locations* • *Fire escape*	• *Front door and transom window* • *Side entrance doors and surrounds* • *Basement entrance*

Interior Description

The interior layout of the Ashland Town Hall has changed significantly over time as the structure has adapted for new uses. The first major interior renovation was in 1952, when the building was significantly renovated for use as the industrial arts building for the Ashland School District. At this time, historic interior finishes were removed from the lower hall, and a full second floor was added at the gallery level. Several windows and doors were also altered at this time. Further changes to the interior were made in the early 1970s, when the building was renovated for use as Town Offices. Many of the 1950s interior finishes to the first and second floors were removed, and replaced by modern materials. In the modern era, the office spaces have been continually upgraded, while the upper hall (now third floor) has retained many historic finishes.

Basement

The Ashland Town Hall has a very small basement area at the east end of the crawlspace. Entry to the basement level is through an enclosed gable addition at the northeast corner of the building that is constructed of modern dimensional lumber. The interior of this addition has been completely encased in modern spray-foam insulation and wiring throughout is modern Romex. The exact date of the basement entry is unknown at the time of writing, but likely dates to the modern period (last quarter of the 20th century).

Most of the basement of the Ashland Town Hall is crawl-space between the joists of the first floor and rock ledge below. The rock is covered by a thick sheet of plastic, which serves as a vapor-barrier. The interior of what is assumed to be granite underpinning and foundation is completely obscured by modern spray-foam insulation. Open floor joists above are set at regular intervals and made of circular-sawn dimensional lumber as would be typical of the 1870s. The subfloor of the first floor is also composed of circular-sawn lumber.

A small area at the north end of the basement has been fully excavated and serves as a utility room. A poured concrete lower wall and floor suggest that this room was added in the early 20th century, possibly in 1914, when repairs were made to the stage and a heating apparatus was installed in the building.

Ground/First Floor

The first and second floors of the Ashland Town Hall have been divided to provide separate office space for the Ashland Town Offices and Ashland Police Department. The Town Offices occupy the west end of the building, and the police department occupies the east end of the building. Because of extensive renovations to these areas, there is very little historic fabric that has been retained, especially on the first floor where most of the interior finishes date to the 1990s.

The primary entry to the Ashland Town Hall (at the southwest side of the building) leads into a small entry vestibule. The vestibule has a modern acoustical drop-ceiling and tile floor (Figure 15). The walls are covered in simulated vertical board panels. Glass doors at the north side of the room leads into the service area of the Ashland Town Offices. An open stairway at the south side of the room leads up to the second floor level. Most of the interior finishes of this space, and the rest of the ground floor level date to the modern period, having been installed during various reconfigurations of the space between the 1970s and 1990s.

Figure 15: Vestibule

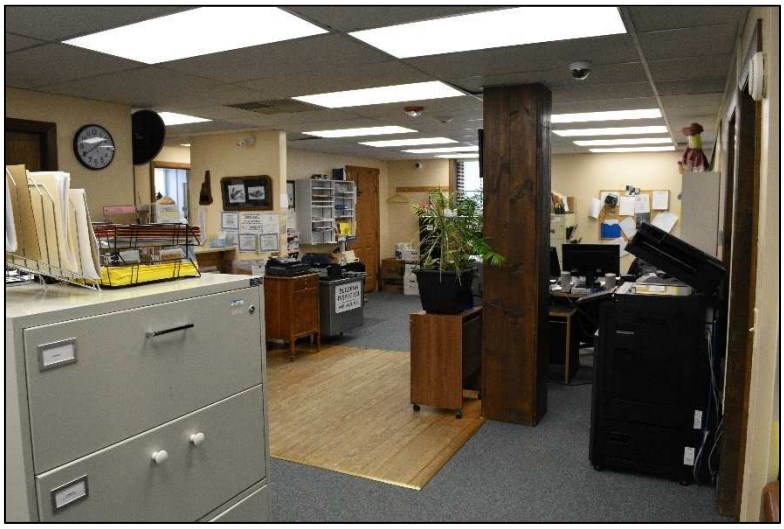


Figure 16: Town Administration

Members of the public interact with town administrators through the service area. This small room has a tile floor, modern gypsum board walls, and an acoustical drop-ceiling. A high counter separates the public from town employees. This barrier was added in 1993.

A large open room in the center of the first floor of the Ashland Town Hall houses the town administration (Figure 16). Like other portions of the first floor, much of this area was

heavily renovated in the 1990s, and the area has an acoustical drop-ceiling and gypsum board walls. Though most of the floor is carpeted, an area of non-historic strip hardwood flooring runs through the room, along the central axis of the building in alignment with the service area. The room is largely unobstructed, with a single boxed column at the center of the room.

A small conference room is located at the center of the east side of the town administration office and is shared between the town offices and Ashland police. There is a large fixed window between the administration room and conference room to allow for limited borrowed light into the interior space. All of the finishes of the conference room are modern and match those of the town administration office.

The office of the Town Manager is located in the southwest corner of the ground floor of the Ashland Town Hall, beneath the stairs to the second floor. The office is accessed through either the service area or the town administration room. This office is one of the largest in the Ashland Town Hall and has natural light on both the south and west sides.

The northwest corner of the ground floor of the Ashland Town Hall contains several small rooms off of the west side of a hallway. These public rooms include a small restroom, and a former storage room that was converted in 1994 into a space where the public can access the Ashland tax maps. Like the rest of the first floor, the ceiling of the rest room is covered by an acoustic drop-ceiling. The interior walls are covered in vertical boards and the floor is linoleum. The bathroom fixtures are relatively modern, having been installed within the last 30 years. The planning room also has a drop-ceiling. Modern dimensional lumber (2"x4") walls were built off of this space in the mid-1990s to create a small mechanical room and electrical closet. The ceiling of the electrical closet is the only space that does not have a drop-ceiling, revealing the historic plaster ceiling above. The plaster is severely cracked, revealing that it has a backing of circular-sawn lath. This ceiling pre-dates the construction of the full second floor in the 1950s, and is located on the underside of the historic balcony area.

The east side of the ground floor of the Ashland Town Hall is made up of several rooms that house the Ashland Police Department. The police department is accessed either via the 1996 entry portico at the north side of the building or through a doorway at the north side of the town administration room, adjacent to the vault. Historically much of the area that is now the police department was once the stage of the ground floor hall. The former stage area has been divided into a room for dispatch at the northeast corner of the building, booking at the center, and the 1975 town vault in the southeast corner. The original raised stage is completely removed. A room at the center of the police station allows for circulation between the restroom, police entry vestibule, dispatch, booking, and the stairs to the second floor. Like in the town office portion of the building, many of the interior dividing walls, materials, and fixtures date to the 1990s.

Second Floor

Prior to the 1950s, there was no full floor at what is now the "second floor" level of the Ashland Town Hall. Until a full floor was added, there was only a second-floor gallery at the west end of the building and the rest of the space was open to the ground floor. The full second floor was added in 1952, when the Town Hall was converted for use as an industrial-arts building for the Ashland School district. The exact configuration of the gallery access prior to these renovations is unknown at this time.

Figure 17: 1/2 newel posts at top of open stairway

The second floor of the Ashland Town Hall is reached via an open stairway at the south side of the ground floor entry vestibule. The walls of the open stairway are plaster, and the ceiling above is made of bead board. There is a plywood wainscot along the interior walls of the stairway. This may have been added in the 1950s, when the space was converted for use as a school. There are simple ½ newel posts on either side of the top of the open stairway, marking the junction between the open stairway and the second floor corridor (Figure 17). The ½ newels are made of three flat boards around the end of the wall with a band of trim around the top. This extremely simple architectural detail likely dates to the 1950s.

A long corridor stretches almost the entire width of the Town Hall, approximately at what was once the eastern edge of the gallery. Like the stairway, the corridor has plaster walls with a plywood wainscot. The floor is carpeted and the ceiling is made of narrow bead board. There are four doors off of the corridor, leading to the town files, men's room, women's room, and hearing room. The doors to the town files, men's room and women's room are each two panel interior doors with large flat plywood panels. These doors likely date to the early 1950s, when the gallery level was renovated and the full second floor constructed.

Figure 18: Town files, facing northwest

The town file room is located in the center of the west wall (Figure 18). Like most of the second floor, the ceiling is narrow bead board. The walls are a mixture of plaster at the exterior wall, gypsum board at the north wall, and knotty pine at the east and south. There is a thick cornice molding at the exterior wall that may date to the 1870s, and a thinner cornice molding around the interior walls that dates to the construction of the interior room ca. 1952. The floor of the room is wood. Modern built-in shelves are located on the walls of the room.

To the north of the Town files is an L-shaped men's room. This bathroom is currently used as overflow storage and has been out of service for many years. The bathroom retains a 1950s toilet and urinal (Figure 19). Interior walls of the room are a mixture of plaster and knotty pine, and the floor is vinyl tile.


Figure 19: 1950s toilet in men's room

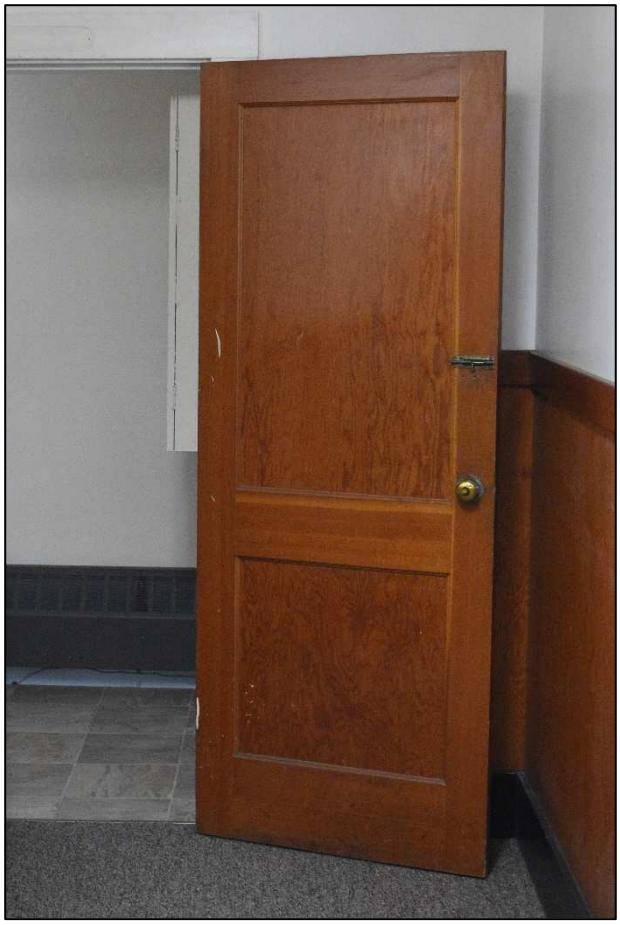


Figure 20: two-panel door

Figure 21: five-panel door

A women's restroom is located just to the north of the men's room. This restroom is still in use and has been updated substantially. The interior walls are sheathed in vertical boards, and the floor is tile. Though the toilet is modern, the sink dates to the 1950s or 1960s. There is a mid-20th century light fixture at the ceiling.

The door into the second floor hearing room is substantially different from the doors to the other rooms off of the corridor. This door is a wide heavy door with five horizontal panels and is likely roughly contemporary with the two-panel plywood doors of the corridor (Figures 20 & 21). The hearing room was first renovated for use as a classroom for the fall of 1954, so the difference in interior door may relate to this second phase of renovation from Town Hall to industrial arts building. The hearing room is finished similarly to the corridor with bead-board ceiling, gypsum board walls, plywood wainscot, and modern carpet. An interior gypsum-board wall was added to the north side of the room, boxing in the upper third of the exterior window and further limiting natural light in this space (Figure 22). A single mid-century pencil sharpener remains at the east wall of the hearing room, and a blackboard is located on the west wall. The bead board ceiling was the original 1870s ceiling of the first floor hall. The ceiling of the room is interrupted by several metal rods that provide additional support the building below the upper hall (now third floor). These supports were likely original to the construction of the Ashland Town Hall in the 1870s.

Figure 22: Hearing Room, facing northeast

The Ashland Police Department occupies the east side of the second floor of the Ashland Town Hall. The second floor of the police station was heavily renovated in 1991. A door at the northeast corner of the hearing room leads to the back hall, which opens to the police station. The door from the hearing room to the back hall has very modern unpainted board trim. Like the hearing room, the hallway has a modern carpet, bead board ceiling, and interior gypsum board wall at the north side. A modern interior wall has also been added to the east end of the hall, inside the emergency exit which was added in 1952 (Figure 23). The wall between the back hall and police station is quite modern, having been added in the 1990s.

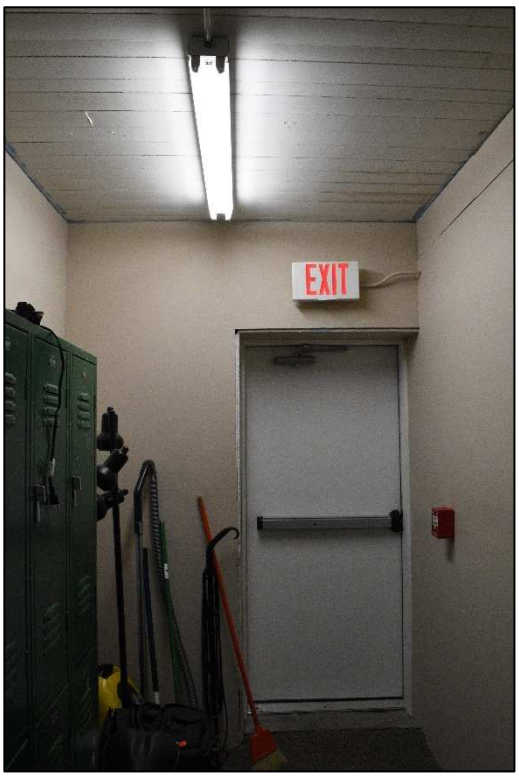


Figure 23: back hall, facing east

In 1991 the east end of the second floor of the Ashland Town Hall was renovated to create offices for the chief, juvenile officer, Sargent and evidence room. As a result, the southeast corner of the second floor contains very little historic fabric. This space has been divided into a Sargent's office, lieutenant's

office, chief's office, police corridor, police restroom, stairway and evidence room. The southeast corner of the building was first used as a classroom in 1952 and then renovated into the Ashland Town Offices in 1972 (see historic photograph figure 11 within the history and development section of this report). The only operable window within the entire second floor of the Ashland Town Hall is the 1952 metal window in the Police Chief's office.

A narrow alley off of the south side of the middle of the second floor (reached either off of the hearing room or through the locker entry room) has been converted into a locker room. The entry to this room retains mid-century linoleum floor tiles. These tiles have been replaced by modern vinyl tile in the locker room. The door between the locker room and hearing room dates to the mid-1950s, and is a five-panel door to match that between the corridor and hearing room. A similar five-panel door is located at the west end of the locker room, at the entry to the armory.

Figure 24: Door to third floor

A modern stairway near the center of the building connects the first and second floors of the Ashland Police Station. The walls of the stairway are modern two-by-four construction, semi-covered in gypsum board.

Third Floor (former Second Floor)

The third floor of the Ashland Town Hall is reached via an attic stairway at the southwest corner of the second floor. Though the wall at the base of the attic stairway was added in the modern era, the five-panel door between the second floor and attic dates to the second half of the 19th century, and is likely contemporary with the building's initial construction in 1871-1872 (Figure 24). The door must, therefore, have been reused from somewhere else in the building. As stated, the wall separating the attic stair from the second floor is quite modern and made of two-by-four construction that has been completely covered on the stair side by a thick layer of spray foam insulation. The back of the historic door has also been sheathed with rigid insulation.

Figure 25: Attic stairway

The configuration of the third floor has changed little since its construction. Prior to insertion of the second floor in 1952, what is now the third floor was a large upper hall. Though the original stair configuration is unknown at this time, much of the layout of the interior space at the modern

third floor level retains its historic layout and many of the historic finishes relating to its use as a hall.

The attic stairway is similar to that between the ground and second floors, and was likely reconfigured or heavily renovated in the 1950s to create the present stair (Figure 25). The interior plaster wall is covered by plywood wainscot. Though the hand rail is now located on this wall, there is evidence that it was once on the exterior wall. Interestingly, the stairway completely bisects the southwest window of the Ashland Town Hall. The interior of the window has been covered over completely.

The north and south walls and ceiling of the third floor are curved to create an arched ceiling. This curved ceiling runs the entire length of the building. The ceiling is lower than the roof, creating narrow attics along the entire length of the north and south sides of the building.

Figure 26: vestibule (now archived files), facing southwest

There is a large vestibule at the top of the attic stairs (Figure 26). This area is now used for archived town files. There is an integrated chimney corbelled into the interior of the west wall with circular cover over a former stove-pipe thimble approximately eight feet off of the floor level. This stove pipe connected to horizontal pipes running above the doors into the Upper Hall (now town storage) and anteroom (now police storage) to disburse heat throughout the space. The walls of the vestibule are plaster, with peg boards along the south and east walls. The floor is wood. The baseboard trim and door and window surrounds are

wide and flat and contemporary with the construction of the building. A large heater hangs from the ceiling in the southeast corner of the space. There is a low panel door at the north wall, hanging on slip-pin butt hinges and giving access to the unfinished north attic.

The former upper hall (now town hall storage) is accessed through a four-panel door at the east wall of the vestibule (archived files) (Figure 27). The four-panel door has elongated flat panels above the lock rail and squat panels below. The applied door moldings are in high relief and the door is typical of ca. 1870.

Figure 27: ca. 1870 door between vestibule and upper hall

Figure 28: Upper Hall (Town Hall Storage) facing east

The upper hall is a large rectangular room with curved ceiling (Figure 28). The curved ceiling is plastered and the knee-walls along the north and south sides of the room are sheathed in vertical bead board wainscot topped by a wide horizontal wooden belt-course. This wainscot continues along the east and west walls, above which are plaster. There is a cast iron vent in the center of the ceiling, possibly allowing for convective cooling of the space.

There is a low dais at the east end of the room, below two window openings. The southeast window sash was removed in 1905, when the fire escape was added (Figure 29). The modern metal exterior door is within the former window opening, at the top of a set of wooden steps. The northeast window remains operational and retains the original 1870s sash. There is an historic stove-pipe thimble near the ceiling to the exterior chimney at the center of the east wall. There are two mid-20th century metal heaters hanging from the ceiling at the east end of the room.

There are two doors within the symmetrical west wall of the upper hall. Each has a semi-circular pediment above which is trimmed with flat moldings to mimic the design of the curved windows on the opposite wall. The door to the north leads to the vestibule (archive files) and that on the south leads to anterooms that now serve as police storage. The south door is no longer accessible from the upper hall after the hall was bisected by the construction of a police storage cage in 2016 out of unpainted two-by-fours and steel welded wire. A black board is located at the west wall, between the doors, and was added the 1950s or 1960s when this area was used as a classroom (Figure 30).

Figure 29: East wall of Upper Hall

Figure 30: West wall of Upper Hall

There are two anterooms in the southwest corner of the 3rd floor. These rooms are accessed either from the vestibule through a ca. 1870 four-panel door with flat panels and no moldings or through the southwest door of the upper hall (now town hall storage). These rooms now serve as police storage but were once used as ante-rooms to the masonic hall. The rooms are finished similarly to the vestibule and were presumably once used by the Masons as a cloak room and control room for the lights of the hall.

Character-Defining Features of the Building's Interior		
Primary Interior Spaces	***Secondary Interior Spaces***	
Upper Hall	*Attic stairway* *Attic vestibule (archived files)* *Ante-rooms of Hall (police storage & anterooms)*	
Primary Features	***Secondary Features***	***Non-Historic Features***
• *Beadboard ceiling at second floor* • *Historic interior doors* • *Curved ceiling of third floor* • *Unobstructed space in upper hall* • *Bead board trim, and window and door surrounds at third floor.*	• *Corridor, open stairway, and configuration of west end of building* • *Surviving 1950s bathroom fixtures* • *1950s ceiling light fixtures*	• *Modern interior dividing walls at first floor* • *Modern interior walls at southeast corner of second floor* • *Police storage cage at third floor*

Ashland Town Hall Comparative Evaluation

The original design of the Ashland Town Hall was typical for a town hall built in the mid-nineteenth century. Most New Hampshire halls from the period around the American Civil War were designed as single-story gable-roofed rectangular structures. The entrance to the hall was typically through either a single central door or paired doors in the gable end and a series of tall windows were installed along the sides to provide natural light to the interior space. Earlier examples of halls of this type are the Holderness Town Hall (1829), Bristol Town Hall (1849), and Sanbornton Town Hall (1834).

Figure 31: Bristol Town Hall, 1849

Figure 32: Charlestown Town Hall, 1872-73

What set the Ashland Town Hall apart from these earlier structures were that it was constructed of brick and given later Victorian-era architectural details instead of the more traditional Greek Revival edifice. Constructed as the first public building of a new industrial town, the Ashland Town Hall utilizes more expensive and durable brick and a slightly larger scale than contemporary buildings and added a second story hall. Though the people of Ashland were anxious to not invest too much money in the building, some architectural ornament was included in the structure. This ornament, manifest in the hooded curved windows, shallow pilasters, and brick belt course, gives the building a sense of monumentality reminiscent of the Greek Revival precursors while incorporating some of the aesthetic of the then popular Italianate style. An example of a near contemporary building of similar scale and monumentality is the Charleston Town Hall (1872-73).

III. Assessment of Existing Conditions

Foundation

The foundation of the Ashland Town Hall is most likely of brick and stone construction, though only the brick portion if visible. Originally comprising a crawl space enclosure, the visible exterior foundation is completely of brick, laid out in a pattern to support pilasters and corner pilasters at regular intervals on the front and sides of the building. The grades around the original building have changed over time and are believed to have been substantially raised on the southern side of the building where an overhead garage door, now eliminated, was installed in place of one of the original tall windows for access to the school's shop space. A single man-door at this location now serves as the handicapped access point of the building with a 3" high ramp cast integrally with the parking lot asphalt. A header course capping the foundation brick wraps the building at a level just below the door threshold. The foundation brick is marked by a slightly darker brick color but it is unknown if this is because of being sourced from a different brick lot, or from being fired in a different part of the kiln.

Figure 1 – Exposed foundation of slightly darker brick matches layout of wall brick above. Pavement on raised grade at south elevation conceals most of foundation.

Asphalt paving abuts the brick masonry foundation on the building's entire south and west sides, exposing as little as 1" of foundation brick. At the west elevation, the foundation is exposed 17" +/-, requiring steps at the front entry doors. All of the exposed mortar joints of the foundation brick are substantially washed out, likely as a result of roof water splashback, and should be repointed. The placement of pavement against a building introduces a number of challenges, though grading around the town hall appears to have been considered carefully enough that stormwater is not being directed into the foundation. Nevertheless, serious consideration should be given to removing the pavement around the building to a point beyond the dripline and replacing it with a washed peastone gravel border over a French drain. The drain should be installed lower than the interior crawl space floor and should be designed to carry water off-site, directly into storm drains if available. Since the grade on much of the south side of the building is higher than the bottom of the floor framing, the potential for water infiltration to cause structural decay in the building floor frame is high, but to this point undetected. In the absence of any plan to regrade the parking lot, waterproofing should be applied below grade to the brick exposed during the French drain installation consisting of a parge coat of mortar and an exterior applied waterproofing membrane.

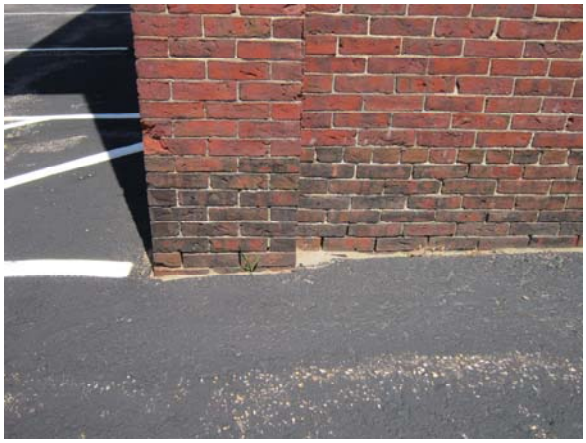


Figure 2 – Brick masonry at bottom of walls, especially those near pavement, exhibit substantial mortar loss due to roof water splash.

A large granite stoop and a shaped granite sill provide the required steps up to the building's main level at the center of the west elevation. The steps should remain, though the building code would require new steps to be 7" height. The granite door sill is in good condition, despite the repeated replacement of the entry doors. The entry stoop is chipped at its outside corners and rust stained at the handrail escutcheon locations. The sill stone should remain in service. If the stoop stone is also to remain, it may be cleaned with the gentlest means possible to remove the staining. Refer the National Park Service's Preservation Brief #1: Assessing Cleaning and Water-Repllent Treatments for Historic Masonry Buildings.

Figure 3 – Ten courses below the header course that marks the top of the foundation, Another header course caps a thickening of the foundation.

At the north wall of the building, the grade continues to slope downward from the northeast corner of the building to the northeast corner where almost 36" of foundation is exposed. All of the 2"x 2" weeps on this north façade (two per bay, ten in all) remain above the existing grade, but some have been filled with mortar, thus rendered ineffective. Nearest to the northeast corner, at ten courses below the top of the foundation the brick masonry in the north wall transitions outward from 3 wythes thick to 4 wythes thick, integrating the pilasters and corner pilasters into a single flat surface of masonry wall. The cap of the 4th wythe is a header course of brick in fair condition considering its exposure. Like all of the foundation brick, the cap should be fully repointed. Large open weeps should be infilled with solid brick sandwiched between two plastic weep vents. Around the perimeter of the building where these original weeps have been previously filled with solid masonry, the masonry should be removed and new masonry installed along with plastic weep vents similar to above.

At the east side of the building, the decorative pilasters are absent and the distinction between the foundation brick and the building brick becomes less apparent. The tie course is four courses higher than on the north and south facades and the darker brick common only at the foundation level on the other facades is used in an irregular pattern higher up the wall. This wall is absent of much of the ornament of the other facades and was intended as the back of the building. It may be that the left over darker brick used in the foundation was simply "used up" in the construction of this aesthetically unimportant façade of the building.

At the northeast corner of the masonry crawlspace foundation, a deeper concrete foundation has been cast at the building interior to provide a small mechanical space more or less centered on the eastern wall. The separating basement walls extend to just the crawlspace grade and the mechanical equipment area remains open to the larger crawlspace. A portion of the original foundation was removed in order to extend the concrete foundation beyond the original building footprint which now supports a wood framed enclosure and stair to provide access down to the new basement mechanical room. A raised slab cast on top of the original slab with a perimeter drainage channel may indicate exceptional care or a previous water problem in the basement. No such problems were seen on inspection and the basement area on several inspections has been found to be warm and dry.

The original foundation below grade, thought to be stone, is completely hidden from view at the crawlspace interior as it has been completely covered with spray foam insulation and black poly

sheeting as part of a previous insulation and vapor management project. The minor cracks in the exterior brickwork at the building corners may be related to movement of the foundation, but there is little sign that this movement happened anytime in the recent past. It is unknown how deep the footings extend or if they bear on ledge, but the building does not show signs of seasonal frost movement. No structural repair or modification of the Ashland Town Hall's foundation below grade appears necessary at this time.

Three lines of piers and footings extend the length of the building in the crawlspace. Two original lines of brick piers on unknown footings support the primary carrying beams of the main floor at the third points of the width of the building. Along the center of the building, a newer row of square concrete piers, also on unknown footings, support the steel columns which in turn support the primary steel beams installed to support the new second floor. Both floors appear solid and free of movement under live load so no new piers should need to be installed as a repair item. The existing brick piers should be inspected thoroughly for signs of any rotational movement or settlement, and finding none should be repointed as required. Damaged brick piers in crawlspace, if any, should be replaced with new concrete piers and footings. Protect the existing poly vapor barrier draped over the crawlspace floor throughout such inspection services and any pier replacement work. Repair the vapor barrier anywhere it is torn or damaged during work in the crawlspace.

Masonry and Exterior Envelope

The exterior of the Ashland Town Hall, is constructed entirely of brick masonry with granite accents. Constructed c. 1872, the bricks are hand-pressed and laid with tight mortar joints of high lime mortar. The bricks are slightly smaller than modern bricks and are softer with more imperfections than their counterparts today. A high level of detail has been achieved through the use of variations of the thickness of the masonry wall through stepping and corbelling of the brick masonry. All of the exterior facades have been modified over time and the existing masonry construction tells much of the story.

The west facing gable is dressed with a three part entablature composed of a single header course, architrave, a frieze composed of three courses of stretcher bond, and a cornice four courses high. The architrave header course extends a full wythe beyond the face of the wall beneath and flush with the body of the wall pilasters below their two-course corbelled capitals. The frieze is flush with the architrave below and the lowest course of headers that form the cornice above. The cornice corbels out in two separate courses of stretcher bond and is capped with a header course set with its outside face flush with the course above. The architrave has no flashing or apparent mortar cap that could be seen from below, and is heavily damaged by water and ice action on the flat shelf formed at the top of the entablature. Several bricks can be seen to be loose or broken in the top two courses and will need to be re-set or replaced. This loose condition is made less dangerous by the presence of the pediment but the risk of falling brick should be addressed as soon as possible.

The entablature at the west gable end is in need of significant repair including the replacement of some of the bricks in the upper half of the cornice. Difficult to see from the ground, it is anticipated that several of the bricks at the bottom of the wall immediately above the cornice may also need to be re-set or replaced. New copper flashing should be installed over the top of the cornice to shed water away from this problematic area.

The gable wall above the entablature contains two arch-top windows, each with a round arched crown with a dressed granite keystone. The keystone and upper portions of the crowns create opportunities for water infiltration into the wall system which has led apparently to damage and and the repointing of the crown previously. There are no signs visible from the ground of significant failures of the existing pointing. The dogtooth corbelling and the brick trim above seem in good condition. This area should be examined further and repointed and partially rebuilt from a man-lift. Mortar joint in the gable wall that are open or worn ¼" or more behind the the wall face should be repointed. This could require approximately 15% of the joints to be repaired. Where the brickwork at the base of the wall has been heavily washed out by backsplash, repoint 100% of the mortar joints.

The brick above the entablature on the Ashland Town Hall is in fair to good condition. Anticipate 15% repointing to maintain the building in good condition against the weather. Existing mortar that is missing or worn more than ¼" behind the wall faces should be removed by hand to a depth of 3/4". The use of rotary tools to remove mortar should be forbidden in the specifications for the work as this kind of tool can be particularly damaging to soft brick such as that used in the Ashland Town Hall. The new mortar should be applied with slightly recessed joints to visually relate to the adjacent mortar joints to remain. The joints surrounding the granite sills and capstones should be raked free of mortar and infilled with an appropriate color-matched masonry caulk.

Below the entablature, the west facade is laid out in three bays framed by brick pilasters with simple capitals composed of two courses of corbeled brick. The stepped brick of the capitals offers some protection from driven rain but lacking a drip edge, The configuration exposes the masonry of the pilaster below to regular wetting in some instances. In the center bay, a gable porch roof well flashed into the brick masonry has protected the shorter arched opening over the double entry doors. The flashing and brick work above is in good condition but should be inspected closely where the porch roof meets the sides of the pilasters. Below the porch roof, the brick has been well-protected from the weather but has been repeatedly damaged by fasteners and anchors driven into the soft mortar and drilled into the brick and mortar finish. These holes should be filled or closed.

In the center bay that houses the center entry doors, the flashing of the porch roof is hard to see from the ground. It appears to shed water away from the pilasters but the adequacy of the crickets directing water around the pilaster masonry should be double-checked and repaired. Below the entry porch roof, holes remaining in the mortar and brick masonry from previous hardware now removed should be closed to the depth of the face wythe. Holes less than 1 ¼"should be filled with mortar to match the original mix. Larger holes should be filled by removal and replacement of the existing bricks with undamaged new or recycled bricks.

The bays to either side of the entry doors each contain a single, large double-hung window with a granite sill and a half-round top with an Italianate inverted U shaped brick crown with dressed granite keystone, similar to the windows in the gable and identical to all the original windows remaining on the north, west, and south facades. The masonry of all these window crowns are in similar condition with the worst damage typically located in the hardest to see area, near the top of the arched crown. Washed out mortar joints are common on the upper aspects of the crowns. The crowns should be repointed to the extent required on a case by case basis. Also commonly needing attention, the caulk joints securing the wood window frames to the masonry are often failing, especially nearest the granite sills. If mortar in the masonry window frames is damaged adjacent to the caulk joints, the caulk should be removed prior to repointing.

All of the brick crowns at the windows on the west, north, and south facades and the adjacent wall masonry to each should be fully repointed at their tops. This full repointing should continue downward on the arch until up-close inspection reveals the mortar in place is consistently more acceptable than not. Where wood window frames abut masonry, remove limited areas of caulking at the brick as required to selectively repoint the masonry. When both the windows are repainted and the brick masonry around the windows is repointed, the caulk joints around the windows should be fully replaced and re-caulked.

An area of particular concern is the large crack at the upper north side of the west wall which extends diagonally from the rake above, through the entablature, and to the head of the window immediately adjacent to the cap stone. In the opinion of the engineer, this is not a structural concern but rather evidence of how the lack of expansion joints in historic masonry can result in cracks at the weakest points of the wall. The strain resulting from shrinking in the larger wall was released with the opening of the vertical joints. There is some sign that some of these cracks have been previously repaired, but not in the recent past. The important concern right now is the potential for this crack, and others like it, to allow elements of the overhanging masonry to fall out of the system, creating a dangerous situation on the ground below, and a significant weather problem should open through the outer wythes of the masonry system.

The expansion joints that have opened up at the corners of the building should be addressed soon as possible as they allow significant bulk water into the wall cavity. Original mortar should be removed and new mortar matching the composition of the original material should be packed into open head joints to a depth equal to the thickness of the face wythe. At the capstone of the arch and any brick setting beds that have been opened, the mortar replacement should extend the full depth of the face brick or stone. At the capstone of the northernmost window in the west façade, it may be necessary to reset the capstone itself in order to re-establish proper bed joints.

At the north and south sides of the building, the entablature wraps the building corners and extends the full length of the building under the eave, reminiscent of the frieze board that would have been in this location in a wooden Greek Revival building. The eaves protect the tops of this outward extending brick, virtually eliminating the kind of water damage seen on the west elevation. Identical brick pilasters with corbeled capitals are in slightly better shape here than on the west elevation, and along with the wall panels will need to be selectively repointed. Both elevations exhibit expansion related cracks at the head of the leftmost windows. At the southern façade, this expansion related crack has opened up above the westernmost window and will need to be filled similarly to that on the western façade. At the northern façade, a previous attempt to close the crack that opened over the easternmost window. This repair was made with modern mortar too hard for the soft brick adjacent, and the infill mortar should be removed and replace with a high lime mortar to match the original. The two bays at the eastern end of the building have been modified. The windows of both bays have been shortened by the removal of the lower sash, and the walls beneath infilled and re-worked with brick masonry.

In the easternmost bay, the original granite window sill was reinstalled under the upper sash and the opening below infilled with modern brick and mortar with no attempt to match or relate to the original brick. A row of heavily rusted iron plates and tie rod ends across this bay reveal the location of the cast concrete ceiling of a records vault installed on the interior of this bay. One bay east, the better matched brick of the more recently infilled garage door has been laid with poorly worked mortar joints. The roof of the bracketed portico is improperly flashed to this brick and water moving through the masonry has washed out some of this mortar in an area below the portico eaves.

The cast stone windowsill above the portico roof provides a better dripedge than the original granite windowsills and appears to overlap the face brick without visible caulk.

The north and south façades are in need of selective repointing and repair in the frieze, the pilasters, and the wall panels, each of which originally contained a single inset window. Inspect the brick masonry and remove loose mortar and mortar worn ¼" or more below the face brick. As elsewhere, damaged mortar should be removed by hand. The use of power rotary tools to remove mortar will inevitably lead to damage of the faces and corners of the soft, hand pressed brick. Estimate 15% repointing at the south façade and 20% repointing on the north. 100% of the masonry within the 30 inches of grade should be repointed on both the north and south facades. All repointing should be made with slightly recessed joints in keeping with the adjacent mortar joints to the areas of repair. Care should be taken to avoid feathered edges at the exterior which would give the masonry a different appearance at a distance.

At the south façade, the open joint at the westernmost window of the south elevation should filled similarly to the open expansion related crack at the west elevation. At the north façade, the previous repair of the expansion joint that opened above the easternmost window using Portland cement mortar should be removed and replaced with lime mortar. The abandoned sheet metal hood under the relocated sill of the easternmost window of the south elevation should be removed. Rather than matching the unattractive infill brick, consideration should be given to replacing the entire previous patch of unattractive infill brick with brick that better matches the size and color of the original. Adjacent to the portico roof, one bay to the east, the infill mortar should be reworked where damaged by water coming off the roof. New step flashing should be installed and counter-flashed to the masonry under the sill, which should also be sealed to the face brick with appropriate masonry caulk.

Figure 4 – Previous infill brick poorly matched to original brick – replace poor quality installation

The portico roof added to the north side is better flashed than that on the south side, but improvements could be made to close the open joints at the sides of the step flashing. With little evidence of water problems in the wall, it may not be necessary at this time to re-do the step flashing which ought to include counter flashing and a minimum wall coverage above the roof of at least a coupld of inches. Re-doing the flashing should be saved for the next time the portico roofing is replaced. Installed relatively recently in terms of building history, the new brickwork that infills the upper portion of the original window location makes a better match to the color of the original brick, but not the size. Window crowns and other decorative brickwork should be inspected and repaired similarly to those on west and south facades. Nearest to the public way of any façade on the building, a collection of abandoned utility attachment points has formed on the north façade. These should be removed and repaired.

The connection of the portico roof to the building on the north façade is acceptable in the short term but should be fully re-flashed at the time of the next roof replacement. In the nearer timeframe, attempts to close gapping at the sides of the existing step flashings may reduce water infiltration caused by wind or standing snow and ice on the portico roof. Abandoned hardware for previous

utility connections, etc., may be retained or removed, but all existing open holes from previous attachments should be filled with mortar or eliminated by replacing damaged brick.

The east wall was built to be the back of the building with little ornament apart from the flush half-round arches over two high windows in the gable end wall of the original 2nd floor, now the third floor. The masonry on this high, plain wall is in relatively poor condition, perhaps related to a lower level of drying because of trees, vegetation, and construction appendages not extant on the other facades of the building such as the fire escape and the doghouse that provides basement access. 100% of the joints on the east elevation should be repointed. This level of effort should include the replacement of several poorly executed previous repairs made where the coolant and electrical lines tied to the pad mounted condenser, as well as the caulked brick to the south of the utility connection. The modern chimney at the east façade is structurally independent from the east wall of the building and will be discussed later in this report is a section dedicated to chimneys.

Once an alternate interior exit stair has been provided, the unsafe exterior steel fire escape should be removed. Significant repair work will be required to restore the weather face of the wall. Repointing the existing wall should be a priority over interior renovations to the historic Town Hall. The second floor egress doorway will need to be closed with masonry and interior finishes once the fire escape is removed. The top floor doorway will return to its original use as a window. The structural engineer has identified the new windows cut into the east façade as a structural challenge because of the narrowness of the wall between the windows. The damage to this narrow wall caused by the installation of a radio cable is of concern. One or both windows are recommended to be made narrower and the wall between them at least partially re-built to improve the stability of the eastern wall. All of the brickwork above the doghouse roof covering the basement stairs seems to be flashed to the historic brick similarly to that at the entry portico. The southerly side of the doghouse shed roof is relatively tight to the underside of the fire escape stair and will need to be examined further once the fire escape is gone.

Repair work to the brick masonry on the east side of the building could be done as a single project, but might be better to do in two phases if significant interior renovations to the historic Ashland Town Hall be delayed a number of years . In a phase that should happen in a two year time frame, 100% of the mortar joints in remaining historic brick should be repointed on this entire face of the building to maintain/restore the weather barrier. While it would definitely be less expensive to modify this façade in the short term as required for the proposed Town Hall renovation, it seems likely that this effort will take time to develop and fund, and the repair work should not wait. The fire escape should not be removed until a second interior stair is completed to serve the 3rd floor.

Roof and Floor Frames

The roof and floor frames of the Ashland Town Hall have been reviewed by a New Hampshire licensed Structural Engineer in light of the intention to maintain the current use of the building as office and support space for the administration of the town's business, and the operation of town's Police Department. The first-floor frame was found to be in good condition, especially considering its age. The floor is unbroken as access to the basement is made via a stair added to the exterior of the building. The primary floor frame is composed of two sets of timbers spanning the long dimension of the building which in turn support substantial but shallow floor joists spanning about 1/3 of the narrow dimension of the building. The floor frame as partially observed from below was without obvious signs of distress and felt firm when walked upon. Improvements to the thermal

envelope have included the application of spray foam insulation at the bearing location of floor joists at the exterior wall, so these were not observable. The crawl space was warm and dry. No upgrade is recommended for the first floor frame at this time.

The second floor was constructed in 1952, dividing the main hall into an upstairs and downstairs portion, with the upper portions of the original round-topped windows near the floor of the new upper level. This new second floor is framed with primary steel beams spanning across the narrow dimension of the building at the pilaster locations, each supported at its mid-span by a round steel column. The steel beams support flush framed 2x12 joists spanning in the long direction of the building. It appears that the steel beams are set into pockets in the interior masonry wythes, but it is unclear how the joists are attached to the end walls of the building. No upgrade is recommended for the floor frame of the new second floor.

The third floor is original to the building. Its primary structure is composed of transitional timber trusses in which an iron bar is used as a tension chord held off the bottom of the timber with short compression members. The trusses clear-span the short dimension of the building. The floor joists could not be observed but evidence in the third level hall indicates that portions of the floor were removed at intervals and reinstalled upside down. A 1984 report by retired engineer H Edmund Bergeron describes and inspection of the floor frame and calls out the floor framing as 2x12's at 27" o.c. This report indicates that the load capacity of the beams is the limiting factor of the system in place, and that the floor capacity (using unidentified assumptions about allowable deflection and the species of the wood) is only 20 lbs. per square foot. This conclusion means that any intention to use the upper level for office purposes would necessitate an upgrade to the floor frame. As the space has been used for storage since 1964 when the school ceased using it as a classroom, and since 1970 as storage space for the Town Offices, the continued use of the space for this purpose is permitted by the code. Further engineering investigation would be required to analyze the beams according to current engineering standards and to design an appropriate modification to the third floor system to make it usable for the design loads required for a change of use. This will require selective demolition of the existing finishes and engineering work beyond the scope of this report. Please see the November 2018 report of the structural engineer in the Appendix for additional information about the existing structure of the Ashland Town Hall.

If engaging in a major renovation of the Ashland Town Hall, such a study would be appropriate even if the use of the attic is not changed. A qualified engineer should undertake a further study to include exposing the currently hidden floor structure to confirm its construction and layout, to identify the materials and the ways attachments have been made, and to design a cost-effective way to develop the loading capacity of the system to the desired level appropriate to any new use.

The roof of the Ashland Town hall is distinctive in that the barrel-vaulted ceiling of the large top-floor hall is in many ways a forerunner of a modern attic truss system. At each floor truss, a notch in the top surface of the horizontal chord provides a stop for a set of eight layered 1" boards bent into a half circle top chord, which supports purlins that in turn support roof rafters, effectively shortening their structural span. This innovative structural form creates substantial thrust at the foot of the arches and would likely be substantially improved with modern screws able to secure the collection of boards into a single structural member. At present, there appears to be no reason to consider upgrading the roof's structural system. It should be noted, however, that adding insulation to the roof in order to condition the upstairs spaces will decrease the melting that occurs after snow storms, effectively increasing the snow loads that the roof will be required to carry. For this reason, changing the use of the second floor should trigger a review of the roof's structural system.

Roofing

The roofing on the Ashland Town Hall is architectural asphalt shingles in fair condition. This includes the roofing on the main block of the building as well as on all four of the roofs protecting the building entrances: the west side entry porch, the handicapped entry portico, the covered porch roof at the Police entry, and the doghouse securing the east side stairwell access to the basement. Flashing of the entrance roofs to the masonry walls was discussed earlier in this report. Generally this flashing was found to be in fair condition, with the exception being the roof above the handicapped entrance, where there appears to be no flashing at all. This should be corrected sooner rather than later, as it is already damaging the nearby masonry. Remaining flashing issues identified can wait until the next time that the roofing is replaced, which may be fifteen years from now or longer. Another area of inadequate flashing appears to be at the west face of the chimney, where the step flashing never gets higher than the ridge, where it ought to get 3" higher minimum.

The roofing of the Ashland Town is in good condition overall and will last many years. In several areas the flashing that ties the roofing into adjoining masonry is in need of attention. In the near future two specific areas of roofing should be addressed. At the chimney where it passes through the peak of the east gable end, the step flashing and sidewall flashing is inadequate and/or damaged and should be replaced. Remove the roofing to allow for this flashing replacement and provide new shingles to restore or replace the roofing along with the flashing installation. In two other locations, the step flashing at the north side police entry canopy, and on the roof of the doghouse, replace or repair the step flashing tying the roofing to the masonry wall.

The soffits and eaves of the building are in mixed condition. The soffits are generally sound with some gapping and paint failures in localized areas.

The eave returns are in poor to fair condition, with dramatic failures evident at the rear of the building where the entire assemblies, including the flashings, are pulling away from the face of the masonry. Water and rodent damage is common. The eave returns should be repaired or reconstructed.

Figure 5 – Water and rodent damaged eave returns should be repaired or rebuilt.

Chimneys

The single chimney remaining on the Ashland Town Hall is a modern replacement of one of the two original chimneys that were integrated into the east and west brick walls. The top of the original integrated corbled interior chimney at the west gabled wall was removed above the roof prior to the most recent roof repair. The stovepipe thimble at the approximate height of the tops of the gable windows is closed with a metal thimble cover. At the east façade, the remaining rebuilt chimney stands to the outside of the exterior wall. Measuring 28" by 28" above the roof, this apparent two-flue chimney replaced the original chimney, evidence of which is limited to the covered thimble high on the wall of the upstairs hall. The newer chimney is in good shape below the roofline apart from a concerning crack about 4' above the attic floor which appears to have been previously repaired. Above the roof line, the brick work is in poor condition with loose bricks in the slightly corbled cap and extensive areas of washed-out mortar. At the interior of the mechanical space, a short brick

assembly facilitates the horizontal connection of the two furnace flues through to the chimney. Cleanouts are located to the building exterior.

The masonry chimney should be cleaned and the upper portion inspected by a qualified mason. Areas of loose brick should be completely re-built, paying attention to match the corbeling of the existing chimney to ensure that the new cap work matches the original intent of the existing. 100% of the remaining chimney masonry at or above the rake and roof level should be repointed. The mason should inspect the inside of the flues to a level below the apparently infilled crack on the outside of the chimney to verify that this crack has not extended into or through the flue(s).

Exterior Entries and Windows

The entry doors of the Ashland Town Hall are a narrow pair of painted 6-panel wooden doors of recent vintage. The original wooden frame has been modified with the addition of a rectangular transom, to accommodate the current, shorter doors, each of which has two glass panels above the lock rail. The rectangular transom is older than the new doors and is fitted with rain glass. Above it, a half-round window lights the space above the interior ceiling of the vestibule. The wooden doorframe shows the original hinge locations for in-swinging doors. The new doors are hinged to swing outward but only the southern door has operating hardware, the other door (fitted with a mail slot and a letter bin) is latched in place. The door frame, transom, and arched window should be scraped and painted. The base of the door frame is raised above the threshold sloped threshold of the doors by the sculpted profile of the granite doorsill and is in fair condition. It may benefit from some minor epoxy consolidation prior to painting.

Figure 6 – Entry porch and doors are replacements for the originals. Entry is not handicapped accessible

The door frame of the double entry doors along with the rectangular transom and the half-round window above should be scraped and painted. The bottoms of the door frame, near to the granite sill, should be sealed and gaps over 3/16" should be filled with a two part epoxy consolidant and repainted. Protect the granite sill from all contact with the epoxy.

The front entry doors are protected from the weather by a wooden entry porch roof mounted to the building and supported at its facing gable on two slender square posts with fluted faces and simple flat bases and moulded capitals. Paint on the entry canopy is in fair condition with the some deteriorated areas where the wood is in contact with the masonry.

The smaller entry canopy over the side entry at the south façade is supported by applied brackets in good condition. The paint on the face of the gable end shows wood grain, indicating improper priming, though the paint remaining is bonded well with the wood substrate. The entry door the canopy protects is a three foot wide flush metal door. A doorbell on the doorframe allows for handicapped access through the locked door. An area of sloped asphaltic pavement creates a make-shift ramp for such access, though this measure is non-compliant with the standards of the Americans with Disabilities Act. See the section later in this report for details on the building's accessibility. The flat inset casings with brickmold trim are deteriorated at their bases, markedly so on the western side of the door.


Figure 7 – South Side Entrance

At the north side of the building, another side door is provided which now serves as the primary entrance for the Ashland Police Department. The gabled portico stands on four wrapped posts bearing on the concrete sidewalls of the entry stairs and landing. The infill brick size of the installed in the upper window above the door does not match the size or mortar color of the original brick masonry of the historic brick. The wood canopy and its roof are in good condition, as is the concrete entrance steps. The nine light residential entry door is in fair condition, having been reinforced at its exterior to support the hardware the lightly-built door was not designed to support.


Figure 8 – north side portico is more recent addition to building in good condition


Figure 9 – Poor brick match at the inside of the existing north side portico.

The entry canopies of the Ashland Town Hall should be given attention in areas where wood is in contact with the brick masonry of the building and where the posts supporting the front (west) and north canopies bear on their granite or concrete supports respectively. Areas of active decay appear minimal should be tested for internal decay, and if none is found, may be prepared for repainting. Areas of the painted wood at the underside of the entry porch roofs, including its wood barrel vaulted ceiling, tend to be moisture damaged in proximity to the brick masonry. Discovered areas of deeper rot should be consolidated with an epoxy consolidant. It does not appear that any wood materials will need to be replaced, but this is an option if hidden rot is unexpectedly extensive. Once any existing rot is addressed, the wooden components of the entry canopies should be hand-scraped and sanded and then the entire canopies repainted. At the south side entry, the wood door casings should be replaced on the west side of the door and the door, trim, and canopy repainted. At the north side entry, the painted portions of the entry canopy should also be repainted. Consideration should be made to replacing the door with a solid door as reorganization of the building's layout means that the door won't actually open into a staffed area of the police department.

The east side ground-level entry to the building provides access to the basement only and as such is only a service stair, somewhat mollifying its non-compliant stairway at its interior. The wood framed bulkhead addition is dressed with wood clapboard siding in good condition with a flush wood door. This door is insufficient for security purposes and was repeatedly found unlocked during the building inspections.

Like the entry canopies on the other sides of the building, the bulkhead needs to be prepped for repainting, with careful attention and minor repairs made to the connection of the clapboard siding and to the brick masonry of the building. Because the enclosure was finished with corner boards that cover the clapboards rather than applied directly to the sheathing, wind-driven rain may eventually cause decay of the hidden ends of the clapboards, but these clapboards seem sound at this time. The entire enclosure should be scraped and repainted. The lightweight door, if not replaced, should be fitted with a dead bolt lock to better establish the security of the basement/crawlspace area.

The original windows on the Ashland Town Hall are wooden arch-topped double-hung units. In a regular pattern around the south, west, and north facades these windows around the original hall are nine over nine units permanently closed with fixed Plexiglas panels. These fixed panels prevent both the use of the windows for ventilation and the maintenance of their exterior finish. At the building interior, the 1952 second floor and a suspended acoustic ceiling hanging from it pass across the windows. This assembly is visible from the exterior and creates and acoustic connection between rooms on the first floor and those above them, creating noise and privacy concerns. Two of the main level windows at the easterly ends of the north and south facades have been modified during previous renovations to the building. The bottom sash of both easterly windows on the south façade have been removed and the upper sash fixed in place following the masonry infill of the lower sash area, including the installation of a new pre-cast concrete sill at the westerly window or relocated stone sill at the easterly unit. It appears that wooden sills were installed on top of the masonry sills supporting the upper fixed sashes. The storm panels provided outside of these windows sit upon these wood window sills rather on the masonry sills as elsewhere. The front edge of these sills may exhibit a greater degree of water-related decay than the unmodified windows. At the north façade, the easterly window has been similarly modified with the original arch-top sash fixed in place, but the lower sash has been replaced with an infill portion of clapboard-finished wood framed wall with a small double-hung window framed within it. This smaller window is also rendered useless by the later installation of an inoperable and non-removable storm panel within the original arched masonry opening.

The exterior paint on the exposed portions of the window frames and flat window moldings is in fair to poor condition with some minor decay. The exterior paint “protected” by the Plexiglas panel is in poor condition with substantial cracking, flaking, and areas of exposed wood. It is likely that the paint flaking from the windows contains lead. The finishes at the interior sides of the windows are in good condition.

All remnants of the wood window at the location of the north entry were removed in 1996 when a larger portico and stairs were installed to serve as the Police Department entry

All of the fixed Plexiglas panels should be removed from the exterior of all the wood windows on the building and discarded. The wood window sash should be removed and stripped of all failing paint. Removing the sash will require some selective demolition of the ceilings at the window interior as

well as the interior stops. To address lead concerns with the paint, the sash should be stripped of all lead-containing paint on the interior and exterior. The stops and parting beads should be stripped to bare wood or replaced, including the interior stool and also the exterior stops which may require working in place. Non-working (fixed) parts of the windows in good or repairable condition should be stripped of loose paint in place and repaired. Components extensively damaged by moisture should be replaced. The upper sash should be reinstalled as a fixed sash and the lower sash put back into operation with new sash cords or spring balances. Sash pockets no longer needed should be filled with rock wool insulation in a manner providing room for any reinstalled interior sash weight to operate.

At the exterior, the single cast sill at the south façade should be sealed to prevent moisture movement through the porous material. Window casings and window trims in good or repairable condition should be hand scraped and sanded to be free of loose paint in place with repairs made to moisture damaged components too far gone to save. The moldings on the side of the windows should be caulked to the brick masonry but not to the granite sills so that water behind the moldings is not trapped inside of the construction. The windows can then be fully painted inside and out with quality primers and paints.

Install new operable aluminum framed storm windows at the window exteriors with operable screens at the lower sashes so that the windows can be used on the main level for ventilation. The arch tops of the tall historic windows are above the new second floor, passing through a void in the floor. The tops of the windows above the floor should be provided with a fixed, interior wood-framed tempered window sash to better separate the upper and lower level rooms acoustically and environmentally. These interior sashes should be fixed in place with screws or otherwise made removable for maintenance and cleaning of the inside glass surfaces at top of each arched window sash.

As part of the 1952 new second-floor installation, single-pane metal windows were installed in new masonry openings cut through the east façade. The size of these windows, or rather the limited masonry between them, has caused some concern on the part of the structural engineer. The single-paned steel windows should be replaced with insulated units, slightly smaller than the existing so as to allow for structural enhancement of the exterior masonry wall. A reconfiguration of the interior spaces on the second floor, as well as the removal of the fire escape at the east elevation, may lead to a reconfiguration of the windows on the second level including the addressing of the infill of the exit door to the fire escape. The wood arched-top windows at the top floor are character-defining features of the building and should be repaired and refurbished to their original condition. If work proceeds with the suggested building alterations, this may require the construction of new window sash where a door accessing the fire escape has been installed within the historic window frame. Several sash are being stored in the eave space on the north side of this floor, including some which may be those removed at the time of the installation of the fire escape door.

Site Issues

The Historic Ashland Town Hall sits at the northeast corner of the largely paved site. Most of the site fronting Highland Street to the west of the building is paved with asphalt paving in fair to good condition. This paving extends around the south side of the building, leaving only a small strip of vegetation at the site's southern boundary, which is crossed by a sidewalk extension accessing (and presumably maintained) by the St Mark's Episcopal Church next door. Near the western site

boundary, a landscaped linear greenspace with young shade trees, and a pair of benches is maintained by the town as a memorial garden with a Revolutionary War memorial at it's center. At the southeast corner of the site, a small gable-roofed brick structure which once served as the town's jail is now used for storage. The western façade of the building marks the easterly edge of the paved parking area. The paving meets the brick masonry façade of the Town Hall on its south and west side. While the slight slope of the asphalt seems to provide adequate drainage of stormwater away from the building, the hard surface immediately under the drip edge of the roof is causing substantially more erosion of the mortar in the lower courses of the brick masonry wall.

It is recommended that the pavement be removed to a distance of 30" from the building face and a new French drain be installed in a 12-15" bed of loose stones. This would reduce stormwater splashback from the roof and reduce waterflow across the pavement, reducing the need for winter salting. A course of granite cobblestone set at the new pavement edges can help maintain the edge from degrading over time. After the installation of the new French drain, the lower courses of masonry should be repointed as described earlier in this report in the section on masonry.

At the north side of the building, additional paving along Cottage Street provides parking for police vehicles. A crushed stone embankement extends from the building to the street pavement. The stone coverage is too shallow to prevent weeds and slightly unstable at its eastern extents where the pitch of the covered slope is more steep.

After the police offices are relocated to another area, this parking will no longer be needed. At that time, the curb line should be re-established within the Cottage Street right of way, and additional landscaping materials brought in to lessen the pitch of the grade along the northeast corner of the building. Installing a greater depth of crushed stone will aid in weed prevention.

The small yard to the east of the Town Hall and the asphalt parking area is modestly landscaped and provided with a wooden rail fence in good condition preventing passage of vehicles over a buried propane tank in this area. This area has been considered for use as a location for a building addition to include a new Police Department sallyport but such use is difficult because of the relative narrowness of the space and the proximity of the historic jail.

Interior Finishes and Features

The division of the original Main Hall of the original Ashland Town Hall building into two floors removed or covered over almost all of the original interior finishes.

Main floor finishes in the town offices and police department are generally of modern construction installed piecemeal and maintained as the town's finances allowed. Gypsum wallboard finishes are in fair condition, with areas of wear indicative of the intense use of the space, especially in the areas used by the police. Painted wood-paneled walls pre-dating the 1952 renovation are in fair to good condition. Ceiling finishes throughout the main level are suspended acoustic panels. These ceilings generally in good condition within the town offices, but a significant quantity of them are damaged in the offices of the police department, perhaps related to ongoing cabling work happening above the ceiling.

The town offices are undersized and there is the intention of bringing additional town employees into the building, a change that will require reorganization of the interior spaces. Understanding

that this renovation will be likely be delayed for two years or more, regular maintenance patching and painting of the existing gypsum board and plaster finishes should continue until the renovation is scheduled. Patch existing finishes and repaint the drywall in the police department offices. Replace damaged or missing ceiling tiles in suspended ceiling.

Floor finishes on the main level are of mixed construction and condition throughout various rooms. The oldest floor finishes in the map room and adjoining areas are of strip oak in poor to fair condition, likely damaged by the condensate issues with the mechanical equipment in the mechanical closet. Another area of wood floor, also potentially dating from the original construction, is located behind the existing service counter at the center of the administrative area. Finishes have been worn to expose bare wood on as much as two thirds of the floor. The rest of the floor in the Administrative office is of carpet in fair condition. This same carpet extends throughout most of the other spaces of the town offices. The carpet is noticeably worn in places but may last a few more years. Quarry tile installed in the building entry and hallway is durable and in good condition, but could benefit from professional cleaning. The bathroom floor is of sheet vinyl in good condition, but is installed without baseboards, which means cleaning the bathroom floors is likely pushing water underneath the bottom edges of the wood paneled finishes at the interior walls. All of the floor finishes on the main level of the police department are of 12" x 12" vinyl tile in fair to poor condition. Installed properly, this type of floor is very durable. Areas of this flooring in the police department areas show a gapping and slight cupping of the tile edges, especially in high traffic areas.

Wood floors in the existing Map Room and Administrative Office should be refinished in the near term if the town hall renovations are delayed for more than 5 years. Worn carpets may be acceptable in the near term to save resources for the office renovation, but areas affected by tears would be an unacceptable trip hazard and carpets in these areas should be professionally repaired or replaced, as the town has done for the police department recently. Tile flooring and its grouting should be professionally cleaned. Baseboards should be installed in the town-office bathroom with a caulk bead at their base to stop ongoing impact of water on the bathroom wall finishes. The vinyl tile floors in the police department main level should be replaced within a 3-4 year window, sooner if possible.

At the rear of the building (east end), additional offices and support spaces of the police department are accessed by a dedicated stair creating a two-story secure area. The stair is of painted wood construction with partial vinyl treads over the center portion of each step, all in fair to good condition. The stair is open to the circulating corridors at both its top and bottom and the three-sided enclosure is incomplete with open stud framed walls at the higher parts of the upper walls. As in the level below, most of the wall finishes in the upper floor of the police department are in fair condition with some need for limited maintenance. The ceilings within the secure police area are of lay-in acoustical tiles in fair condition.

The incomplete gypsum board finishes in the secure police department stairway pose a fire hazard and should be completed to fully cover the currently exposed wood framing. Mud and tape the drywall to a level 4 finish and paint the new finishes with a coat of latex primer and two coats of quality paint. Other finishes in the upper police department should be inspected, dings repaired, and repainted as required. Acoustical tile ceilings should be inspected and damaged tiles replaced.

The floor finishes of the upper level of the police department were found to be in fair to poor condition, though improvements have reportedly recently been made. The inexpensive carpeting in

the upper corridor was failing at the seams and large gaps and loose materials verged on creating trip hazards on this level. Replacement of this carpet in earlier this year has removed the trip hazard. In the locker room (and likely the armory), 9"x9" vinyl tile in poor condition remains on the floor from the original c. 1952 installation. This product and the mastic that adheres it to the subfloor are often found to contain asbestos, a hazardous material associated with health problems, especially where it is breaking apart as it is in this area.

The floor tile and mastic in the PD locker room should be tested for hazardous materials and recommendations sought for encapsulating or removing any hazardous materials found. It is quite possible that these materials remain under all of the carpeting installed throughout the second floor of the historic town hall. Selective testing should include a determination of the existence and safety of these finishes under all of the second-floor carpets.

The second floor of the building was installed in 1952 at a point slightly higher than the original gallery at the west end of the building. Few finishes on the second floor therefore date from the original construction of the building. One that does is the wooden ceilings of the original open hall which are exposed in the hearing room, hallways and incidental spaces outside of the secure police department area. Below the wood ceilings in these spaces can be seen the steel tension chords of each trussed floor beam above held off the bottom of the beam on tapered wooden saddles. The truss chords are in extreme tension and the wooden saddles should be protected against disturbance during any renovation. In the records room and stairway, some of the original plaster walls remain exposed, where most other walls on this level are of gypsum wall board in fair to good condition. The western corridor and hearing room, as well as the west entry stair, are provided with a simple, durable wainscot with a clear finish.

Similarly to the secure area of the second floor, the floor finishes in the Hearing Room, hallways and accessory spaces used by the town are generally carpeted, though here the carpets have seen less wear and remain in fair to good condition. The working bathroom at the northwest corner has a tile floor in good condition. The non-working bathroom, still labeled BOYS above the door, has vinyl tile flooring in fair to poor condition. Like other vinyl flooring in the building, this flooring should be tested for hazardous materials.

Finishes outside the secure area used by the police department are generally in fair to good condition. Exposed historic wood ceilings should be inspected and repaired with loose boards properly re-secured. Wall finishes throughout the second floor should be have dings repaired and be repainted as required. Like the paint, the clear finishes on the interior doors and wainscots on the second floor may contain lead, which should be handled appropriately.

The top floor of the building, now the third floor, retains much more of its original integrity than any other part of the building. Largely vacant since American Legion stopped using the hall in 1923 except for 1954 – 1964 when the school used it as a music and band room, the space is now used for storage. The floors throughout are of square-edged wood face-nailed in mixed widths in fair condition, but with significant wear of the painted finish. It is unclear if there is any separate subfloor under the finish flooring. A 1984 investigation of the floor's structural condition apparently led to the cutting and removal of portions of the flooring, which seems to have been reinstalled finished side down and left unfinished.

The third floor of the Ashland Town Hall is the only floor in the building in which the primary structural members clear span the entire width of the building. While not uncommon for their time,

the trussed beams are reported to be sized by current standards to support a floor load of 20 pounds per square foot. This is the kind of limited loading anticipated in a residential attic with boxes spread around, not stacked several high in shelving. Before any improvements or renovations are made on this level, it is recommended that a solution be engineered to enhance the floor system to support the desired loading. The design for the future renovation anticipates only storage on this level. Until structural upgrades are undertaken, this storage should be low density so that the loads do not exceed the recommended limit.

The existing wood flooring has many shortcomings but may continue to be used in its current condition with the benefit of a thorough cleaning. Used as storage and without significant renovation, building codes allow for the construction to remain and/or repaired. It is recommended that enhancements be made to the floor to improve fire separation of the attic area from the second floor below. This might be achieved by adding a layer of subflooring under the flooring, or by installing fire rated acoustical ceilings in the spaces below. A better understanding of the actual floor construction is necessary to select the better option, which should be installed at the same time the floor structure itself is enhanced.

The wall and ceiling finishes of the original second floor are all of plaster in fair to poor condition. Unheated space, the third floor is prone to extreme variations of temperature and moisture conditions. This results in seasonal flexing and movement of the lath and framing supporting it, causing hairline cracks in the plaster. This cracking is non-structural and very difficult to repair on more than a short term basis. Plaster finishes that are spalling or puckering off of the wall, such as that above the classroom door to the vestibule are more concerning; as the puckering indicates that the plaster is no longer keyed to the sawn lath that supports it. Water damage has occurred to plaster at the east end chimney where a previous leak has been repaired through the construction of a new chimney. Water damaged finishes also appear in the proximity of the attic vents to the area above the upper portion of the barrel vaults. It may be that air entering the attic at these areas creates condensation in the space above, wetting the plaster and causing adhesion problems on the room side of the plaster finish.

Here again, the approach for repair and maintenance of the existing building finishes is ultimately tied to the final intended use of the third-floor area. Without an upgrade to the mechanical system, these finishes might simply be left “as-is”. The cracking of the plaster finishes will likely be a repeating problem because of the moving of the substrates. As long as the substrates continue to move, the cracks will reappear. If repainting is desired, clean and repair water damaged plaster at the previous leak at east chimney. Repair any significant cracks in the plaster by removing areas of plaster showing signs of detachment from the supporting lath behind should be removed along with all broken plaster keys and repaired with base and finish coats of plaster keyed into the original lath. Install new material to match the existing. Care should be taken to match the texture of the new plaster to the existing adjacent finishes. Refer to Preservation Brief #21: Repairing Historic Flat Plaster – Walls and Ceilings

Areas of peeling paint near the ceiling vents to the attic and elsewhere should be scraped and sanded. Paint the repaired surface with a single coat of a quality alkyd based primer, followed with two coats of a good quality latex paint. A more flexible acrylic paint may help mask the present and future hairline cracking on the curved barrel ceilings of the top floor room, but this future cracking will be inevitable unless the space is conditioned. In such a scenario, a vapor retardant paint should be applied over the repaired existing plaster. For additional information, refer to Preservation Brief

#28: Painting Historic Interiors. Wood finishes should be scraped, primed and repainted. If the third floor is to be converted to heated space, the roof and eave cavities can be insulated in layers with a combination of spray foam (which is less removable, and therefore not recommended) and blown-in insulation. Insulation may require removal and reinstallation of some barrel ceiling finishes, so such work would ideally be completed before minor repairs to the existing plaster.

Energy Issues

Heating in the Ashland Town Hall is provided by a pair of propane-fired boilers in fair condition located in the mechanical area under the building. The boilers, together in series, supply four heating zones with hot water. Large form fin tube radiators in continuous metal covers are installed along most of the building perimeter, the exception being the c.1975 vault area. The heating system if functional without alteration, but the uses of fossil fuel as a heat source is likely causing unnecessarily high utility costs. There is limited air conditioning in the building, through the use of an isolated air handler unit located in a purpose-built closet in the map room linked with a condenser unit behind the building. Ducts above the suspended ceiling provide cooled air to the first floor offices. Neither the heating system, nor the separate air conditioning system provides any fresh air to the building. The lack of mechanically-provided fresh air is particularly concerning, as the typical supply of fresh air in this type of building has been eliminated through the sealing of most of the building's windows. Fixed storm panels caulked to the exterior of all of the remaining original arched double hung units completely prevent the windows from admitting fresh air..

The lack of ventilation in the Ashland Town Hall is the greatest cause for concern identified through this review and study. The sealed windows and a lack of an active ventilation system means that the level of ventilation is related to the traffic coming and going through the exterior doors of the building, not necessarily a consistent flow. A lack of fresh air in occupied buildings is linked to high levels of carbon dioxide within the office environments. This condition can lead to sleepiness and poor productivity in office workers. An under-vented building can also have higher levels of pollutants from various sources including outgassing from plastics and synthetic materials.

Improved ventilation is an immediate need in the Ashland Town Hall. The recommended approach for this in keeping with the longer term renovation recommendations it to put the historic windows back in working condition. This would at least allow the building occupants to control ventilation in their working environments. An active system of mechanical ventilation for the upstairs offices and conference room should also be explored, ideally as a partial installation of a system that would be expanded as part of the future renovation. A licensed mechanical engineer should be consulted to design such an expandable system.

Attempted improvements have been made to the thermal envelope of the building as part of previous renovations. The building's heavy masonry construction was only marginally insulated, if at all, at the point of the building's original construction, but benefits from the extreme mass of the brick masonry help regulate the interior temperatures. At all of the exterior walls, a new wood stud frame was constructed and insulated with fiberglass batt insulation, probably with an R13 rating, typically held an inch or so off the historic exterior wall. The walls were finished with drywall, but apparently without an independent vapor retarder separate from the fiberglass insulation. Any vapor barrier in place is rendered ineffective on the upper level where reconfiguration of the windows preserved the interior wooden "keystones" in the head casings, but exposed the new cavity vent space behind the new portion of the wall assembly.

The arch-top double-hung windows are character-defining features of the building, and it is right to preserve these at the building exterior, and at the interior to the greatest extent possible given the second-floor installation which bisects the windows above the lock sash. The gap between the original plaster and the new wall should be closed to stop air and vapor movement into the wall cavity. In the renovation, more of the glass should ideally be exposed to the floor, but room ventilation should come from the mechanical system such that a fixed pane of laminated glass at the interior could prevent falls into the historic plate glass and separate the upstairs spaces from those on the main level.

The original second-floor space, now the third level, is outside of the building's existing thermal envelope with 12" of cellulose insulation with an insulation value of R32+/- in the floor frame of this level. This was a cost effective way of insulating the second floor. There is no insulation either in the roof or over the barrel frame of the third floor space. Insulating the roof of the Ashland town hall will require installing insulation in the roof assembly and/or over the top of the barrel enclosure of the attic level space. Used primarily as storage now and intended to continue to be used for storage following the renovation, it may be most cost effective to add ventilation to eject hot summer air and use the space for light storage only, and to remove the most important historic documents back to the vault on the main floor.

The third floor is already being used for storage and may continue to be used for light storage as is. A more useful approach would be to insulate the roof frame with open cell spray foam and mechanically conditioning the third-floor space in order to maintain ideal climate-controlled environment for document storage. A system of air-source heat pumps could readily be installed in the large open spaces of the third floor. A ventilation system may not be necessary for the generally uninhabited space, but may be the most cost effective way to cool the space in summer.

Electric service in the Ashland Town Hall enters the building at the northwest corner via overhead power lines from across Cottage Street. Service distribution equipment dates from the renovations of the building from school use to use by the town in the 1970s and most of the wiring dates from no

Figure 10 – uncovered light switch in former boys room

Figure 11 – Second floor sub panel and fire alarm panel

Figure 12 – Uncovered electrical in the 2nd floor file storage area

earlier than this time period with armored BX-type and Romex cables in use. These wiring would not meet the requirements of today's electrical codes. They are not necessarily unsafe and should continue to be upgraded on a case-by-case basis as renovation requires modifications of the systems in the near term. On the second floor in the hearing room and the spaces that date from the 1952 renovation of the building for use as a school, the quantities of convenience electrical outlets are extremely limited and original outlets in these areas are ungrounded. This has the potential of driving users of these outlets in the conference room to use power strips to apply heavier than

normal loads to the poorest quality wiring likely left in the building. This should be actively avoided with a regular review of such conditions by on-site staff.

All of the interior wiring of the building should be replaced at the time of the recommended major renovation. It is anticipated that as renovated, the electrical loading to the building will be greatly increased with the installation of an electric driven HVAC system and a new elevator. This will likely also drive the replacement of the primary distribution equipment and of the overhead lines from the street. In the meantime, remaining ungrounded outlets in area such as the hearing room and attic level should be rewired to provide grounding at each outlet and all electrical boxes and covers installed on all open boxes.

Life Safety

The Ashland Town Hall offices and as well as those of the police department would generally be classified as a type B – Business Use with a type A3 Assembly Space at the second-floor hearing Room. There is no automatic sprinkler system in the building. A second means of egress is provided from the upper floors of the building via a narrow exterior fire escape with extremely low railings (29" +/-) on the west side of the building. Some areas of the second floor require travelling through the second-floor hearing room to get to this second exit, and this is not a permitted pathway per any building codes. The main stair is non-compliant with today's code, but is permitted to remain if considered a historic stair under the 2015 International Existing Building Code. At 768 s.f., the Hearing Room requires egress capacity for 109 people, though common use and the building program anticipates a max. occupancy of only 42. Limits on the actual allowable occupancy should be established in conjunction with the Fire Department until such time as the fire escape is replaced with a safer means of egress. A posted occupancy limit of 49 is recommended.

There are no illuminated exit signs on the third floor. Egress signs are provided at both Hearing room exit doors, and from the back hallway to the fire escape, but neither stairway down to the main level from the new second floor is marked with such signage. The second exit from the second floor offices of the police department is not marked with an EXIT sign. On the main level, an illuminated exit light is provided at the south (back) exterior door from the Town Hall Staff space, but nowhere else in the areas the town staff can access. The PD has marked exits signage at the exit doors and through the vestibule of the existing main level, though some of these signs are not illuminated as required.

There is a working automatic fire alarm system with smoke detectors in the heated parts of the building and heat detectors in the attic. Fire Alarm pull stations seem to have been recently added on all floors of the building along with limited numbers of alarm annunciator/strobes.

Inadequate emergency egress path lighting is provided within the facility and none at all exists on the third floor. The front hall and hearing room on the second floor have emergency lighting but none exists in the back hall leading to the fire escape. Only two battery back-up emergency lights serve the entire first level of the town offices, one in the common administrative office space and one above the service counter. The police department has good emergency back-up lighting in the upstairs corridor but not in the main level corridor. No back up lighting is provided outside the PD corridors.

Emergency and egress lighting should be improved on all levels of the Ashland Town Hall as soon as possible. The work to renovate the building will have the logical benefit of addressing this problem but it would be best not to wait as a small investment in technology could have a tremendous impact in an emergency situation. Emergency lighting with battery back-up should be installed in compliance with current code requirements in all floors of the building, and illumined exit signage should be added so that all egress paths are appropriately identified per code. The fire escape is unsafe because of its very narrow with and its very low railings. Until a renovation allows users of the hearing room to exit via a different secondary exit, the hearing room should be posted to limit occupancy to 49 or fewer people.

The crawl space under the building, with its exposed framing, is unprotected from fire originating in the mechanical room, which currently houses two propane-fired boilers.

A rated wall assembly should be constructed separating the mechanical space from the crawlspace. A fire-rated door should be installed to access the crawlspace from the mechanical room.

As part of a larger renovation, an automatic sprinkler system should be installed to protect the life safety of the public and staff using the building. The design of this automatic fire sprinkler system should be coordinated with the new layout and construction, and parts of it might be required to be installed in areas subject to freezing.

Additional safety issues identified during the walk through included specific observations in the Police Department area. Mentioned earlier, the unfinished walls of the dedicated stair in the Police Department should be completely finished rather than allowing stud framing of the stairwell to remain exposed. Beneath these same stairs, which are open to the upper and lower corridors of the police department, a closet currently stores cleaning supplies and miscellaneous items. This closet contains a potential fire source and compromises the safety of the stair. The stair itself ought to have been constructed within an enclosed stairwell, with the closet opening to a separate space. Since the hallways of the police department effectively are the stairwell, the closet should technically not be used. It especially should not be used to store especially flammable materials.

The use of the corridors to house furniture, lockers, and equipment is also not recommended as these corridors are part of the egress path of the police department. Since the egress loading is light and the egress path is short, it would be practical to consider the hallways of the Police Department as additional offices, and to isolate the stair within a rated stairwell. This would require some removal of furniture at each level, but not the wholesale removal of everything in the central areas.

The bottom landing of the police department stair should be reconfigured to be separated from the other spaces of the PD main floor with rated walls and exit doors tying the stairway directly to the vestibule and its exterior exit. This change will make the closet under the stairs safer, as the door to the closet won't be opening into the stairwell. Less importantly, but still beneficially, the upper level should be likewise modified to enclose the stairwell and separate it from the upstairs circulation. This exercise would likely require a shrinking of the evidence storage room, a different kind of challenge.

Accessibility

The first floor of the Ashland Town Hall is marginally accessible to individuals with mobility impairments. The relatively flat site allows for easy location of parking spaces with allowable maximum slopes. Two spaces are provided in the parking area, but these are located far from the front doors (which are not accessible) and even further from the side door which is marginally accessible. No access aisle and no marked path to the accessible side door are provided in the parking area. A member of the public must ring a doorbell and once a staff member opens the door, enter via a small ramp at the threshold formed by shaping the asphaltic pavement at this location.

This point of entry accesses the interior of the private offices of the town administration rather than coming to the public side of the service counter. Locked doors to the police department on this level provide similar access from the town office space to the first floor non-public areas of the Police Department space. Access to the first floor thus does exist, especially for the town staff, but is of poor quality for members of the public who must be let into typically private areas of the building. There is no access provided whatsoever is to the two floors above the main level.

In the short term, improvements to access should be undertaken on the first floor. At the exterior, two parking spaces separated by an access aisle should be designated much nearer to the accessible entrance door. Furniture within the space should be relocated to ensure a three-foot wide pathway from the entry door to the desk of every staff member serving the public. Where this is not possible, staff may alternately meet members of the public in the conference room. The staff can go back and forth to their desks (or the service counter) to transact the town's business with the public client.

In the longer term, accessibility to the Ashland Town Hall should be completely revamped at the building's interior. An elevator should be provided to access to all three levels of the Town Hall, or at least those floors containing public spaces and staff work areas. As part of the same project, the building's layout should be altered such that both the front door and the accessible side door access a new, common, public area of the Town Hall, rather than the non-public areas of the town offices and police department. This common public area should be provided with service counters for conducting town business, including at least one low counter or a table for working with those in wheelchairs. Public restrooms and other spaces identified in the Building Program as requiring public access should all be served by the new interior common area.

Recommended Rehabilitation Approach

Standards for Rehabilitation

The recommendations of this report are made in conformance with the Standards of Rehabilitation, outlined by the U.S. Secretary of the Interior. This published standard acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character. This building is currently listed on the National Register of Historic Places. There is no obligation upon the Town of Ashland to follow these standards, but doing so is a necessary part of maintaining listing on the Register as well as a requirement for some external sources of available government and private grant funding supporting preservation of historic buildings. More importantly, the Standards for Rehabilitation are a practical standard of good construction practice for any work on a historic building to ensure that work undertaken does not cause the building to lose its historic nature. The Standards for Rehabilitation "are applied to

projects in a reasonable manner, taking into consideration economic and technical feasibility." These are the Secretary of the Interior's Standards for Rehabilitation :

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired

Building Codes

All design and construction work on the buildings will be required to follow state and local building codes and standards. The New Hampshire Building Code currently includes the 2015 International Building Code (IBC) and the NFPA Life Safety Code. Cited in the IBC and listed as part of the New Hampshire Building Codes are several specialty codes for particular aspects of construction. Among these is the International Existing Building Code (IEBC), which gives significant leeway to improve the safety and durability of preservation projects without needing to meet the full requirements for similarly sized new construction.

Once renovated, the historic Ashland Town Hall will serve the same purposes and the same populations the library serves today, and will be inherently safer for the occupants. It is important that the local Code Official and Fire Officials' appreciation for the historical significance of the building be well informed and that these authorities are invited and involved early in the design development process. Renovations of historic public properties require the support of the both the

community and its code authorities, and without balance, the process may falter and the buildings will remain unchanged without the improvements that will make them safer or better. Education regarding the value of preservation is a key component that will affect the integrity of this historic building as it is renovated to continue in the service of the Ashland Community.

Cost Estimates

In an effort to provide the Town of Ashland with information to help understand and prioritize their efforts to preserve the Ashland Town Hall and to maintain it in useful service, pricing information is provided below. These figures are drawn from nationally published average construction pricing and the experience of the architect preparing this report. They are presented primarily to establish and order of magnitude sense of the work. These are not bids, and the size of the scope and details of final design solutions as well as the overall number of steps taken to achieve the all tasks may have a significant impact on the actual pricing.

Phase 1: Hazard Mitigation

A portion of the recommended work should be undertaken immediately to protect the health and welfare of the building users or to arrest ongoing damage which, untreated, will add significantly to the overall cost of the final repairs. Some of the suggested repair items may be redundant in consideration of the overall work scope recommended in this report. The expectation that it will take several years at a minimum until a larger renovation is undertaken drives the suggestion to undertake several life safety improvements in this list of work to be done as soon as possible.

Post Hearing Room w/ signage designating max. occupancy	45.00
Infill expansion cracks @ west window south facade	501.69
Replace damaged or reset loose bricks in west entablature	1335.54
Repair decay in wood columns bearing on concrete or stone	296.64
Demo plexiglass panels installed over arch-top windows.	684.90
Remove historic window sash- repair and strip paint	9453.44
Remove and strip window components	$6,776.64
Install temporary window	$2,929.00
Hand scrape and sand painted window frame in place.	$5,062.00
Remove pocket window weights and install spring balances	$2,600.00
Fill weight pockets with rock wool insulation.	$327.60
Paint sash and window frames	$3,024.00
Reinstall windows	$7,708.00
Paint and caulk window trim	$10,892.00
Install new operable aluminum storms with screens	$8,833.00
Test PD second floor finishes for hazardous materials	$1,400.00
Complete gypsum board finishes in PD stairwell	$1,310.40
Separate mechanical room from crawlspace with rated wall	$2,813.78
Relocate furniture to create accessible path thru offices	$518.75
Replace ungrounded outlets with grounded units and wiring	$1,400.00
Install complete battery pack system for egress lighting	$2,560.00

Install new illuminated egress signage to code	$2,862.00
Estimated Subtotal for Hazard Mitigation	*$73,334.38*

Phase II: Immediate Concerns – Exterior Envelope

The brick and granite masonry construction of the Ashland Town Hall is very durable but this type of building still needs regular maintenance. Much of this required maintenance has been deferred for some time and the time has come to undertake the necessary projects to keep up the building. The following high priority work is recommended to halt or dramatically decrease the impact of weather related damage currently affecting the building envelope. The degradation of the existing structure may seem to be happening slowly, but the pace of the damage is likely increasing. Planning for the execution of this work should begin immediately and the work itself undertaken as soon as reasonably possible.

It is important that all of the work done on the Ashland Town Hall be completed according to the Secretary of the Interior's Standards for Rehabilitation. A copy of these standards is included previously in this report. Every person who works on the building should be familiar with these standards before working, organizing the work, or bidding on work on the building as following the Standards for Rehabilitation may result in different solutions to various aspects of the project. The National Park Service has published a number of Preservation Briefs to aid in the understanding of appropriate methods to identify and treat historic properties in keeping with the Standards. Preservation Brief (#2) dealing with Repointing Mortar Joints in Historic Masonry Buildings is included in the appendix of this report for masons to read before undertaking any work on the exterior. Other relevant topics are available without charge at www.nps.gov/tps/how-to-preserve/briefs, including (#9) on The Repair of Historic Wooden Windows.

Repoint brick masonry within 30" of existing ashphalt	5200.87
Repoint header course cap of lower foundation at north side	520.04
Install new copper cap on masonry foundation step course	226.68
Infill large open weep holes with masonry and weep vents	676
Open masonry-filled weep holes. Infill with brick and vents	351.5
Repoint 20% of masonry on north façade	3249.4
Repoint 15% of masonry on west façade	2441.82
Repoint 15% of masonry on south façade	$2,592.76
Repoint 100% of masonry on east façade	$11,221.87
Install a new copper cap on entablature cornice	$955.18
Remove mortar where granite meets stone masonry - caulk	$1,736.00
Repoint mortar at expansion joint cracks near corners	$3,511.83
Infill holes in masonry at both sides of entry door	$77.70
Repoint all curved brick window crowns above windows	$623.10
Reset one granite capstone at north window of west façade	$500.00
Clean and inspect chimney cap . Rebuild as req'd.	$855.20
Re-build eave returns with sound wood	$1,200.00
Inspect cricket of entry porch roof at pilasters	$550.00
Install step flashing at south portico roof	$280.00
Close gapping in step flashing at north portico roof	$150.00

Re-flash north portico roof	$280.00
Repair step and sidewall flashing at chimney	$175.00
Replace damaged door casings and refinish south door	$531.20
Renovate bottom landing of PD stair to enclose stair	$1,681.00
Renovate top landing of PD stair to enclose stair	$1,495.00
Estimated Subtotal for Immediate Exterior Envelope Repairs	*$41,082.15*

Phase 3: Site Drainage and Deferred Maintenance

A second grouping of tasks focuses on maintenance tasks that can be undertaken at any time and that need not necessarily all be done at once. Some of these projects are smaller in nature and many may be conceivably be done by town staff. As with the short term work above, completion of the long-term deferred maintenance work should be in keeping with the Secretary of the Interior's Standards for Rehabilitation.

Sawcut asphalt pavement beyond dripline (30" +/-)	$748.54
Hand excavate at areas of removed paving	$1,128.96
Parge brick between bottom of French drain and final grade	$237.69
Install waterproof membrane over parging	$528.96
Install French Drain	$815.22
Tie french drain to existing storm drain	$1,025.00
Install pea gravel fill at drain with cobblestone boundary	$2,140.92
Designate two different handicaped parking spaces	$314.00
Acid wash granite entry step free of ferrous staining	$103.84
Re-flash doghouse roof	$550.00
Repair entry doors - scrape, consolidate wood and paint	$1,324.80
Repair entry canopy ceilings in contact with brick masonry	$1,631.00
Scrape and hand sand entry canopies - prime and repaint	$1,381.60
Replace north side entry door and refinish wood surrounds	$1,681.00
Scrape and repaint doghouse bulkhead entry to basement	$525.10
Replace bulkhead door - Prime and paint.	$994.00
Install thumb-turn dead bolt lock on bulkhead door.	$141.00
Replace damaged/missing ceiling tiles in town office ceiling	$368.64
Patch existing finishes and maintain paint in PD offices	$1,410.08
Patch existing finishes and maintain paint in town offices	$1,934.68
Maintain flooring where worn or torn	$4,294.84
Refinish wood floors in Map Room and Admin. Office	$1,312.50
Install baseboards in main level town office restroom	$132.00
Replace damaged/missing ceiling tiles in PD ceiling	$368.64
Clean third floor storage area for use "as-is"	$1,600.00
Estimated Subtotal for Site and Deferred Maintenance Items	*$26,693.01*

Phase 4: Structural, Mechanical, and Life Safety Systems Upgrades; and Interior Finishes

The building program analysis has reviewed the town's needs for administrative space determined that a substantial reorganization of the interior space is required to serve the long-term needs of the town government. Prior to undertaking such a building renovation, additional design work for mechanical and electrical systems and a determination of construction approach and schedule will need to be developed. Once the goals for the renovation have been determined, a fuller understanding of the details of the renovation may offer opportunities to install incremental updates to the building's systems that can improve workforce health and efficiency in the short-term ahead of the renovation. Decisions about upgrading the third floor structure may be linked to planning for the elevator to be installed in the next phase. Limiting the elevator to serve only the main and second levels of the building will save money and be less impactful on the exterior form of the building.

If an effort is to be made to keep the town's offices in the building during the course of the renovation, it will be possible to update underused portions of the building ahead of the larger renovation project. Small projects that will become part of the overall renovation might be undertaken in the near term in areas that won't be easy to shut off during the renovation.

Building systems renovation and installation, which will be a critical part of the overall renovation project, may be installed ahead of the main body of the work. Some will require additional design work prior to their undertaking. Installing systems early might bring the benefits of such improvements to the staff and visitors who make use of the building years before the rest of the work is completed. New mechanical ventilation, heating, and air conditioning installed in the space above the first floor ceiling may temporarily improve the existing interior climate in the building. Upon completion of the larger renovation, these systems could be modified at reasonable expense to serve the final solution. Likewise, a sprinkler system installed to work with the existing layout could be modified in the future to serve the new town offices, without having to wait for the safety benefit of a sprinkler until the larger renovation is completed. The following list of work could be undertaken ahead of the interior renovation project:

Install automatic sprinkler system	$42,242.00
Design + install 3rd fl. structural system to support storage	$89,055.00
Evaluate / work to improve roof (including barrel framing)	$6,000.00
Replace vinyl floors in main level PD restroom	$223.02
Repair and repaint edge and center bead board ceiling	$4,555.36
Patch existing finishes and maintain paint in 2nd fl. spaces	$2,377.42
Construct wood-framed valances at each 1st floor window	$4,050.00
Install fixed tempered glass storms at 2nd floor windows	$5,667.00
Add active system for ventilation of main level	$26,616.00
Install active ventilation system for second floor	$27,326.00
Estimated Subtotal for Structural, Mechanical, and Life Safety Systems Upgrades; and Interior Finishes	*$208,111.80*

Phase 5: Interior Renovation including Elevator, HVAC, and Electrical

Finally, the interior of the Ashland Town Hall should be renovated to fully meet the needs identified in the Building Program for the town's administrative offices, including the late addition of usable spaces for the town's water and electric utility staff. It has been determined that the best course of action for this work will require the Police Department to move to another building capable of providing space for all of the Police staff, public and training areas as well as a two-car sallyport. The necessary scope of the interior renovation of the Town Hall at this stage will be dependent on how much work identified for the previous phase has been completed prior to the initiation of the construction project below.

It is important to be aware that the building will not be handcapped accessible above the frist floor until the limited-use limited-access elevator recommended in this report is installed and operational. The installation of the shaft inside the building will minimize the impact of the elevator on the building's exterior, but will require modification of the building's structural systems at all levels This location of the elevator was selected to minimize the impact to the primary members of the building's structural system. The new fire stairs at the northeast corner of the building is also in an area where less impact to the existing structural system will be required.

All unfinished items listed in the Preparation Phase above should be completed prior to as part of the following work to complete the renovation of the Town Hall:

Replace damaged masonry piers in crawlspace with concrete	$528.00
Remove existing steel fire escape and supporting hardware	$2,800.00
Replace the primary roofing as part of the long term	$16,804.00
Remove existing single paned steel windows	$650.00
Partially infill masonry openings once cut for steel windows	$500.80
Install new thermally broken dual pane steel windows	$4,200.00
Fit out new office space (no demo)	$227,338.00
Add finish layer at third floor for fire safety	$11,037.00
Clean and patch third floor plaster damage at chimney	$500.00
Clean and patch third floor paint damage at attic vent, etc.	$500.00
Install new heat pump system for main + second levels	$107,858.81
Add ventilation system for third level	$20,977.40
Add heat pump system for third level	$41,943.92
Upgrade electrical service for building	$11,925.00
Install new LULA elevator	$92,800.00
Replace all existing building wiring	$150,850.00
Install electric operator on accesible (south) entry	$6,854.00
With PD out of building, rework north side curb and site	$2,790.00
Add additional gravel fill at north façade	$700.00
Estimated Subtotal for Final Building Renovation	*$701,556.93*

Conclusion

Having served a number of different proposes since its c.1872 construction, the elaborate brick masonry Ashland Town Hall serves the citizens of Ashland as their place for conducting town business. Built originally as a two-story building with a large hall used for town meetings on the main level and for social organization meetings in the barrel-vaulted upper hall, the front-gabled Italianate-styled building retains much of its original exterior appearance. This includes the elaborately corbelled brickwork reflecting Greek Revival details commonly being used for town halls at that time. Having been used for recreational purposes by the town's schools, the building itself was transferred to the Ashland Schools in 1952 for what would become a twenty-year period and heavily renovated at the building's interior, including the addition of a new second floor bisecting the original hall as well as the original tall arched-top windows at the buildings perimeter. The two levels used by the school have been reconfigured several times following the building's return to the town and used for town offices, hearing rooms, and most recently at the eastern side of the building as offices for the town's Police Department.

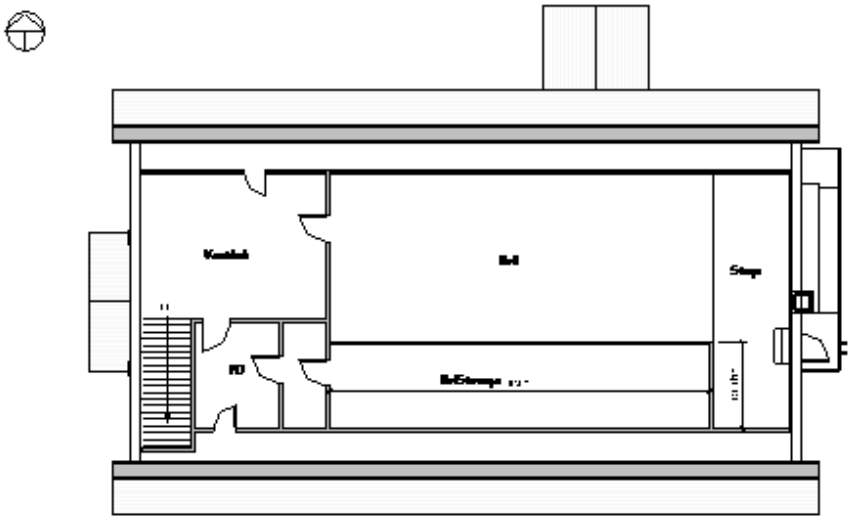
Not a part of the original construction, the front entry porch doors are not accessible. Handicapped accessibility is marginally provided to the main floor of the building via a side door to the town offices provided with a doorbell, though this access brings members of the public to non-public areas of the town offices, and through an interior exit door into the non-public areas of the police department. The upper levels of the building used for hearing rooms, offices, and storage are not usable for anyone with a mobility impairment.

Working with town officials, the expanding needs of the Police Department for secure and safe prisoner handling and for the town offices to conduct their business were identified. Preliminary design work and the late decision to include bringing additional staff currently working in a satellite building elsewhere in town made it clear that the existing building is simply not big enough to adequately house the needs of both the police and the town offices. An investigation was made at the site of other town buildings and it would be more effective to relocate the Police Department offices to another location. This would allow for the expansion of the town office space within the Town Hall building while adding an elevator and a fully enclosed, second interior stairway to make the building fully accessible with safe exits from the upper levels.

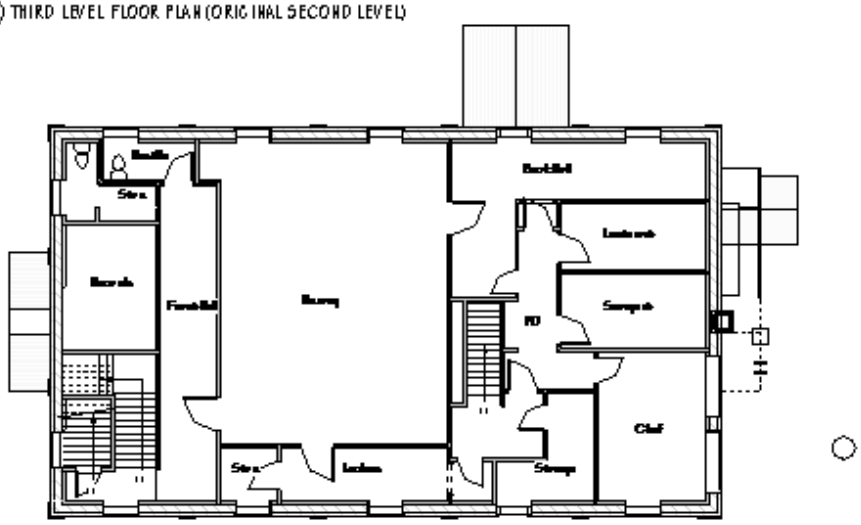
Recommendations for the immediate repair of hazardous conditions and for the prioritized correction of weather damage and ordinary wear and tear have been outlined in this report. This multi-phase rehabilitation approach will allow corrective work to proceed beginning immediately and continue until the larger project of fully renovating the building with a new interior layout can be brought about. Regular care and maintenance and eventually the renovation of the historic Ashland Town Hall are cost effective tools for preserving an important part of the town's heritage and providing quality space for the conduct of the town's business with its citizens.

Drawings and Photographs:

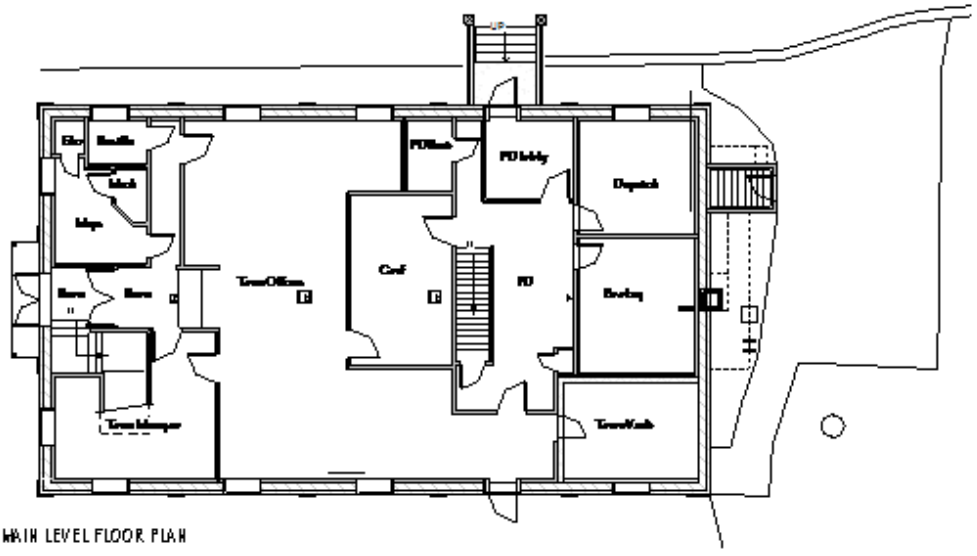
Plans of Existing Conditions



3 THIRD LEVEL FLOOR PLAN (ORIGINAL SECOND LEVEL)



2 SECOND LEVEL FLOOR PLAN



1 MAIN LEVEL FLOOR PLAN

Satellite Image of Ashland Town Hall property

Photographs of Existing Building

The Ashland Town Hall as seen from the south

The Ashland Town Hall as seen from the west

The north facade of the Ashland Town Hall with partial view of east (rear) facade


Previous renovations to the north façade include a fire escape with exit doors at the second and third floors, and steel windows punched through what was originally a blank wall.

The re-worked main entry of the Ashland Town Hall is not handicapped accessible.


The Lobby sits at the southeast corner of the lot and once served as the town's jail.

Town offices looking toward service counter. Note the window in the background is the bottom of a large arched-top window in the south façade. Little remains of the original interior on this level.


The finishes in the PD area (like those in the dispatch office) are significantly worn.

The Hearing Room was built as a classroom when the original hall was bisected with a new floor c. 1952. The ceiling is a remnant of the original construction and clear-spans the building.

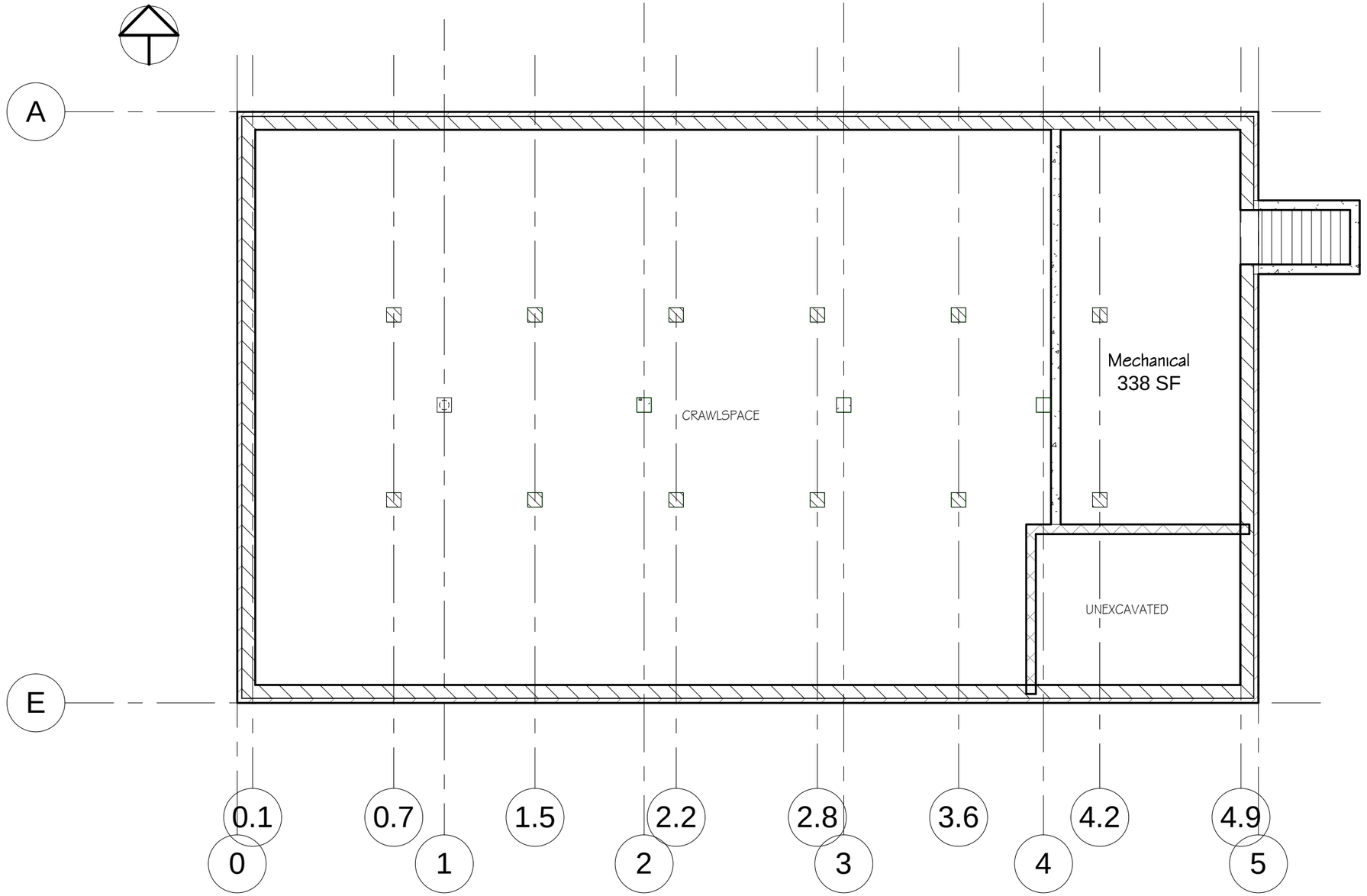
The entrance doors to the barrel-vaulted original second floor Hall (now the third floor and used for storage). The floor on this level will require reinforcement to support more than light storage.

Ashland Town Offices and Police Department
Combined Building Program

Dept.	Old Size	New Size	Req'd.Square Dim.	Position / Area	Work Area	Extra Work/ Storage Area	Net Dedicated Area	Circulation Factor	Equiv. Gross Area Req'd	Waiting /Service	Conference	Office -Large	Office - Medium	Office - Small	Storage	Private Room	Enclosed / systems furn	Semi-enclosed / systems furn	Open	Service Counter	Writing Suface (l.f.)	Computer (count)	Bookshelves (l.f.)	Vertical File Drawers (count)	Lateral File Drawers (count)	Work / Layout Counter (l.f.)	Under-Counter Cabinets (l.f.)	Secure Under-Cntr Cabs (l.f.)	Full Ht Stor. Cabs (l.f.)	Special Filing Storage (s.f.)	Service counter stations	Standing Waiting (people)	Seated Waiting (people)	Guest Chairs	Conf Table	Comments and Adjacencies
Shared	42	36	6.0	Town Hall Vestibule	36	0	36	1.15	41	X									X																Handicapped Accessible. Part of Lobby? place for tax maps adjacent
Shared	39	97	9.8	Town Hall Waiting Area	32	65	97	1.15	112	X									X													6	2			Handicapped Accessible. Part of Lobby? place for tax maps adjacent
Shared	34	60	7.7	Service Counter - 2 Stations	36	24	60	1.15	69	X										X											2					deep counter or half glass
Shared	17	18	4.2	Office Machines Area	0	18	18	1.15	21						X				X							4										copier / printer production - near to Clerk
Shared	14	23	4.7	Office Supplies	0	23	22.5	1.15	26						X				X									5	5							
Shared	0	92	9.6	Small Conference Room	92	0	92	1.15	106		X					X																		6	1	at end of service counter for HC, once a month staff mtg.
Shared	190	234	15.3	Med Conference Room	216	18	233.9	1.15	269		X					X							12	4					4							secure files for Welfare
Shared	74	37	6.1	Kitchenette	21	16	36.75	1.15	42	X									X						7	7		4							staff use / accessible to conf. for coffee
	410	**596**	24.4					1.15																												
Admin.	34	29	5.4	Select Board Office	25	4	29.4	1.15	34				X						X		5		22	2												open space for signing and reviewing papers w/ no mtgs - near to sect.
Admin.	215	172	13.1	Town Manager	144	28	172	1.15	198			X				X					6	1	56		5											personal printer, 5 ft. credenza
Admin.	41	35	5.9	Admin/ Finance Assistant	35	0	35	1.15	40					X				X																		
Admin.	150	150	12.2	Select Board Long Term Storage	150	0	150	1.15	173						X	X																				
	440	**386**	19.7																																	
Town Clerk	281	198	14.1	Town Clerk / Tax Collector	144	54	198.3	1.15	228			X							X		8	3	10	2	2	6										Access and Supervision of Shared Service Counters
Town Clerk	42	106	10.3	Deputy Town Clerk / Tax Collect.	96	10	106	1.15	122					X						X	4	1			2											
Town Clerk	145	145	12.0	Town Clerk Vault (Secure Storage)	145	0	145	1.15	167						X		X																		
Town Clerk	300	150	12.2	Town Clerk Long Term Storage	300	0	300	1.15	345						X		X																		
Tax Collector	36	18	4.2	Tax Collector Storage	0	18	18	1.15	21																					12					
	804	***617***	24.8																																	
Finance	88	161	12.7	Finance Officer	120	41	160.6	1.15	185				X					X			10	2	24	4	2											
Finance	36	47	6.9	Treasurer / Dep. Treasurer	35	12	47.25	1.15	54					X					X		5	1			4											
Finance	192	192	13.9	Finance Long Term Storage	192	0	192	1.15	221						X		X																		
	316	**400**	20.0																																	
Welfare	0	8	2.8	Welfare Officer	0	8	8	1.15	9				X				X				0	0	0	4		2										Set up in conference room.
	0	***8***	2.8					1.15																												
Assessor	contract	0	0.0	Assessor	0	0	0	1.15	0					X					X																	
Assessor	contract	0	0.0	Deputy Assessor	0	0	0	1.15	0					X						X																
	0	***0***	0.0																																	
Land Use	80	33	5.7	Planning and Map Review	9	24	33.05	1.15	38	X									X				4		2	5				1						counter only for reviewing dwgs
Land Use	85	86	9.3	Land Use Admin.	36	50	85.6	1.15	98					X					X		6	1	18	20	4											
Land Use	47	82	9.1	Building Inspector	64	18	82.25	1.15	95					X					X		6	1	30	2												
	212	***201***	14.2																																	
	2,182	**2,208**		**Town Offices subtotal**																																	

				Area Description						Space Type						Enclosure Type					Area Requirements																Notes
Dept.	Old Size	New Size	Req'd.Square Dim.	Position / Area	Work Area	Extra Work/ Storage Area	Net Dedicated Area	Circulation Factor	Equiv. Gross Area Req'd	Waiting /Service	Conference	Office -Large	Office - Medium	Office - Small	Storage	Private Room	Enclosed / systems furn	Semi-enclosed / systems furn	Open	Service Counter	Writing Suface (l.f.)	Computer (count)	Bookshelves (l.f.)	Vertical File Drawers (count)	Lateral File Drawers (count)	Work / Layout Counter (l.f.)	Under-Counter Cabinets (l.f.)	Secure Under-Cntr Cabs (l.f.)	Full Ht Stor. Cabs (l.f.)	Special Filing Storage (s.f.)	Service counter stations	Standing Waiting (people)	Seated Waiting (people)	Guest Chairs	Conf Table	Comments and Adjacencies
Town Boards	581	578	24.0	Hearing Room	578	0	578	1.15	665															4												25 (otherwise 35 max.) people in audience + 7 officials. Secure space for
Town Boards	0	4	1.9	Planning Board	0	4	3.5	1.15	4															4												
Town Boards	0	4	1.9	Zoning Board	0	4	3.5	1.15	4															4		0										
Town Boards	0	0	0.0	CIPC	0	0	0	1.15	0															1												
Town Boards	0	0	0.0	Econ Dev. Committee	0	0	0	1.15	0															1												
Town Boards	0	29	5.3	Conservation Commission	0	29	28.5	1.15	33														5	4					8							
Town Boards	0	0	0.0	Heritage Commission	0	0	0	1.15	0															2												
Town Boards	0	0	0.0	Trustees of Trust Fund	0	0	0	1.15	0															1												
Town Boards	0	0	0.0	Supervisors of the Checklist	0	0	0	1.15	0															1												
Town Boards	0	0	0.0	Budget Committee	0	0	0	1.15	0															1												
	581	***614***	24.8																																	
Bldg. Services	50	50	7.1	General Building Storage	100	0	100	1.15	115																											
Bldg. Services	108	108	10.4	Basement Mechanical Room	108	0	108	1.15	124																											
Bldg. Services	6	56	7.5	Mechanical Closet	56	0	56	1.15	64																											
Bldg. Services	6	56	7.5	Electrical Closet	56	0	56	1.15	64																											
Bldg. Services	28	73	8.5	Main Level Accessible Restroom	73	0	73	1.15	84																											
Bldg. Services	0	0	0.0	Main Level Accessible Restrm #2	73	0	73	1.15	84																											
Bldg. Services	38	73	8.5	Upper Level Accessible Restroom	73	0	73	1.15	84																											
Bldg. Services	50	0	0.0	Upper Level Accessible Restrm #2	73	0	73	1.15	84																											
Bldg. Services	0	15	3.9	Main Level Janitor's Closet	15	0	15	1.15	17																											
Bldg. Services	0	15	3.9	Upper Level Janitor's Closet	15	0	15	1.15	17																											
Bldg. Services	631	0	0.0	Unprogrammed Space	0	0	0	1.15	0																											
	917	***446***	21.1					1.15																												
Circulation	0	62	7.9	Elevator / Shaft - Main Level	62	0	62	1.15	71																											
Circulation	0	62	7.9	Elevator / Shaft - Upper Level	62	0	62	1.15	71																											
Circulation	0	62	7.9	Elevator / Shaft - Attic Level	62	0	62	1.15	71																											
Circulation	0	60	7.7	Elevator / Machine Room	60	0	60	1.15	69																											
Circulation	0	15	3.9	Elevator Lobby - Main Level	15	0	15	1.15	17																											
Circulation	0	15	3.9	Elevator Lobby - Upper Level	15	0	15	1.15	17																											
Circulation	0	15	3.9	Elevator Lobby - Attic Level	15	0	15	1.15	17																											
Circulation	43	43	6.6	West Grand Stair - Main Level	43	0	43	1.15	49																											
Circulation	143	143	12.0	West Grand Stair - Upper Level	143	0	143	1.15	164																											
Circulation	70	70	8.4	West Grand Stair - Attic Level	70	0	70	1.15	81																											
Circulation	0	135	11.6	East Egress Stair - Main Level	135	0	135	1.15	155																											Re-finish with vinyl stair treads
Circulation	0	135	11.6	East Egress Stair - Upper Level	135	0	135	1.15	155																											Re-finish with vinyl stair treads
Circulation	0	135	11.6	East Egress Stair - Attic Level	234	0	234	1.15	269																											Re-finish with vinyl stair treads
Circulation	133		0.0	Horizontal Circulation (included above)				1.15																												
5,160	***389***	***952***	30.9	5,324																																

Dept.	Old Size	New Size	Req'd.Square Dim.	Area Description / Position / Area	Work Area	Extra Work/ Storage Area	Net Dedicated Area	Circulation Factor	Equiv. Gross Area Req'd	Space Type: Waiting /Service	Conference	Office -Large	Office - Medium	Office - Small	Storage	Enclosure Type: Private Room	Enclosed / systems furn	Semi-enclosed / systems furn	Open	Service Counter	Area Requirements: Writing Suface (l.f.)	Computer (count)	Bookshelves (l.f.)	Vertical File Drawers (count)	Lateral File Drawers (count)	Work / Layout Counter (l.f.)	Under-Counter Cabinets (l.f.)	Secure Under-Cntr Cabs (l.f.)	Full Ht Stor. Cabs (l.f.)	Special Filing Storage (s.f.)	Service counter stations	Standing Waiting (people)	Seated Waiting (people)	Guest Chairs	Conf Table	Comments and Adjacencies
Police	76	96	9.8	Lobby / Waiting	64	32	96	1.15	110	X						X														1		2			restroom nearby?
Police	36	73	8.5	Visitor Restroom	73	0	73	1.15	84	X						X																			
Police	146	110	10.5	Reception	80	30	110.3	1.15	127					X						X	6	1				8	8								
Police	0	19	4.3	Office Equipment	12	7	18.75	1.15	22	X									X							3								Not shared with town, Located near Admin
Police	4	25	5.0	Office Supply	10	15	25	1.15	29						X				X										5						
Police	186	187	13.7	Chief's Office	144	43	187.4	1.15	216			X				X					6	1	12	12	2	5									Communications rack
Police	81	200	14.2	Squad Room	100	100	200.4	1.15	230					X				X			16	4	12	12		3				4					4 Desks - Direct Access to Reception
Police	109	114	10.7	Sergeant's Office	100	14	113.5	1.15	131				X			X					5	1		4										2 Guest Charis or loveseat (relaxed)
Police	118	114	10.7	Lieutenant's Office	100	14	113.5	1.15	131				X			X					5	1		4										
Police	36	73	8.5	Upper Level Restroom (staff)	73	0	73	1.15	84	X						X																		
Police	0	0	0.0	Training Room / Conference	216	3	219	1.15	252		X					X													1					1	ceiling mounted projector / smartboard - in hearing room, close to PD Adr
Police	0	39	6.2	Kitchenette	21	18	39	1.15	45	X									X								4							could be shared w/ town
Police	33	95	9.8	Armory	80	15	95.4	1.15	110						X	X							32			4								2'x4' counter 42" high, lots of shelves, 3 gun safes
Police	149	145	12.0	Records Storage	120	25	144.5	1.15	166						X	X								16										Near to Adiministration
Police	73	129	11.3	Evidence Storage Room	105	24	128.5	1.15	148						X	X						1								9				
Police	0	18	4.2	Evidence Processing	9	9	18	1.15	21												3								3						betw'n sqaud rm. + evidence stor.pass-thru lockers
Police	117	88	9.4	Locker Room	40	48	88	1.15	101						X	X														32					10 full ht. lockers 15"; shower/chang'g - bathrm nearby
Police	0	if poss.	15.6	Exercise Room	242	0	242	1.15	278						X	X																		
Police	0	68	8.2	Interview Room / Juvenile Detention	68	0	68	1.15	78		X					X																4	1		secure table to floor at one side of room
Police	93	156	12.5	Booking Room	120	36	155.5	1.15	179	X						X						1				6				1					camera and AV - bench and 3' counter 4 feet away (clear)
Police	0	576	24.0	Sally-Port	576	0	576	1.15	662						X	X																		2 cars - 2 doors - at-grade; could be drive through
Police	351	90	9.5	Surplus Storage	90	0	90	1.15	104						X	X																		"1/4 size of existing"
Police	44	58	7.6	Private Main Level Stair - Upper Level	135	0	135	1.15	155																									
Police	0	58	7.6	Private Upper Level Stair - Attic	135	0	135	1.15	155																									
Police	0	0	0.0	Horizontal Circulation (included above)																														
	1,652	***2,679***	51.8																															
	5,721		6,824	Total Space Needed			Gross		8,296																									
minus	93	732	27	Sally-port Addition				115%	841																									
minus		0	0	Spaces to Locate Elsewhere				1.15	0																									
	5,628	6,093	78	Comparative Exist vs. Need																														
		465	22	Difference = Additional Space Req'd.																														
		635	25	Added Circulation Included Above																														



1 EXISTING BASEMENT FLOOR PLAN
1/8" = 1'-0"

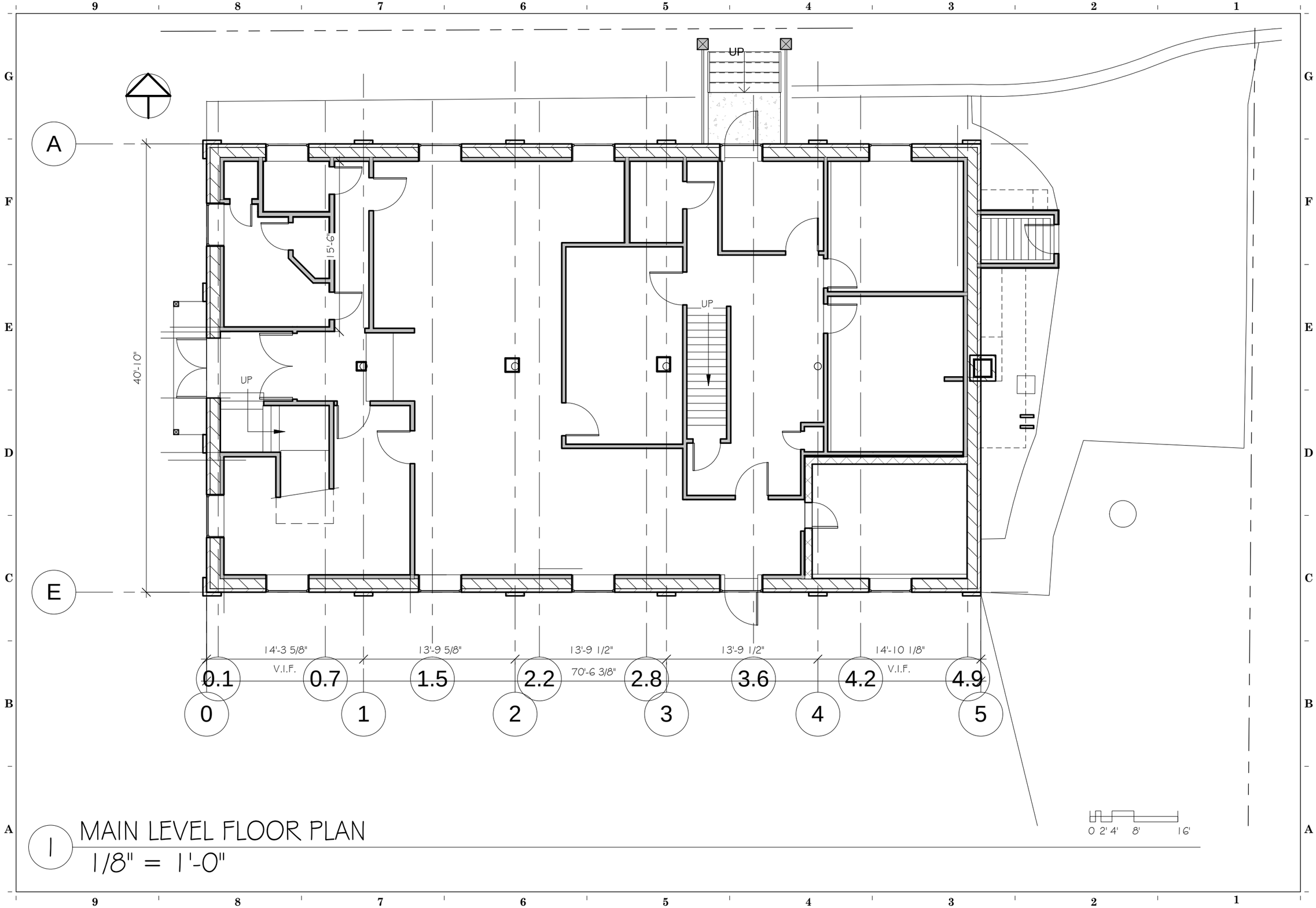
CHRISTOPHER P. WILLIAMS ARCHITECTS, PLLC
PO Box 703 Meredith New Hampshire 03253
603-279-6513 www.cpwarchitects.com

TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
EXISTING BASEMENT PLAN

REVISION:	
DATE:	03/20/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-X.0



1 MAIN LEVEL FLOOR PLAN
1/8" = 1'-0"

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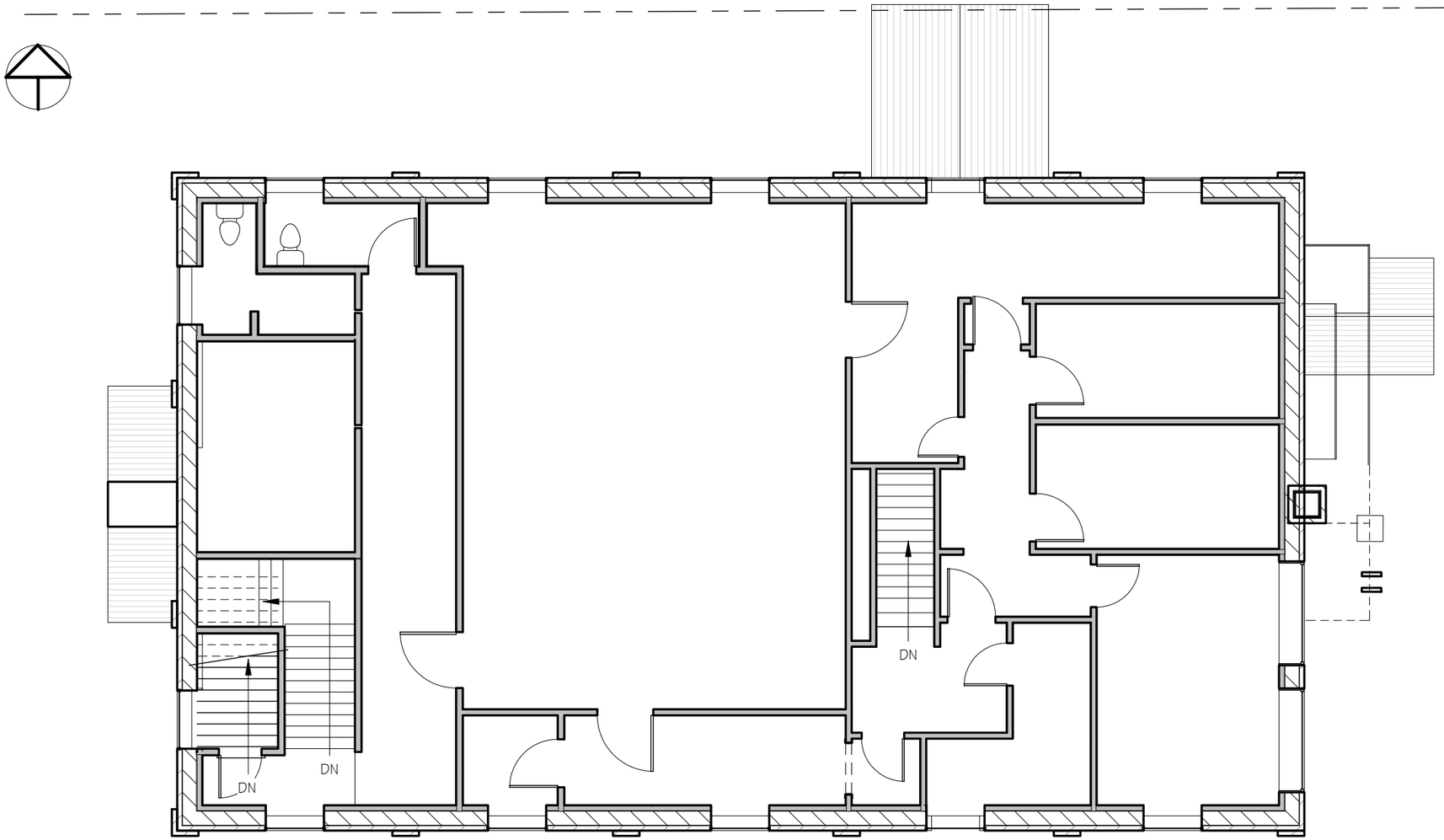
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
EXISTING MAIN LEVEL PLAN

REVISION:	
DATE:	03/20/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-X.1



1 X-Second Level Plan
1/8" = 1'-0"

0 2' 4' 8' 16'

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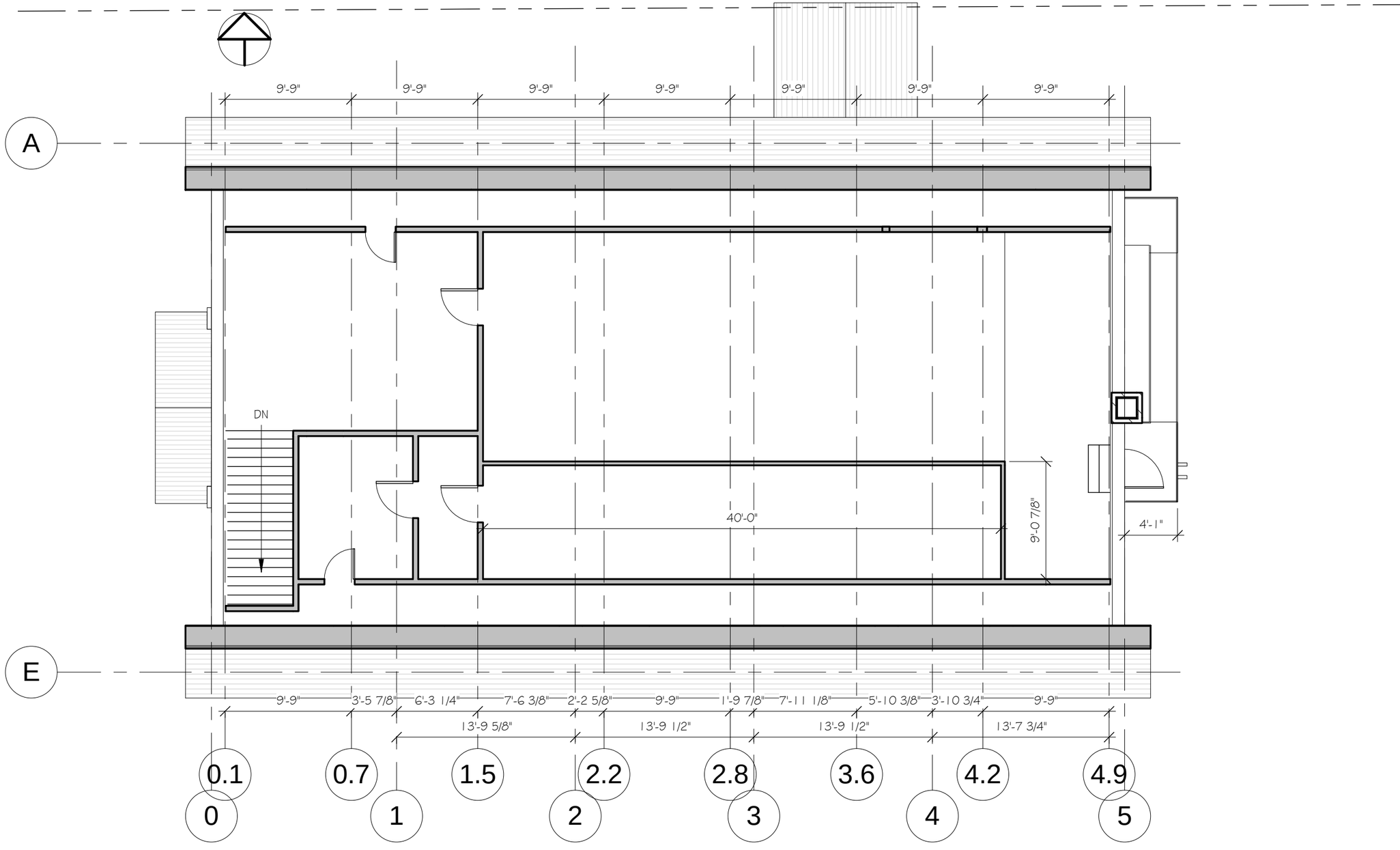
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
EXISTING SECOND FLOOR PLAN

REVISION:	
DATE:	03/20/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-X.2



1 ROOF PLAN
1/8" = 1'-0"

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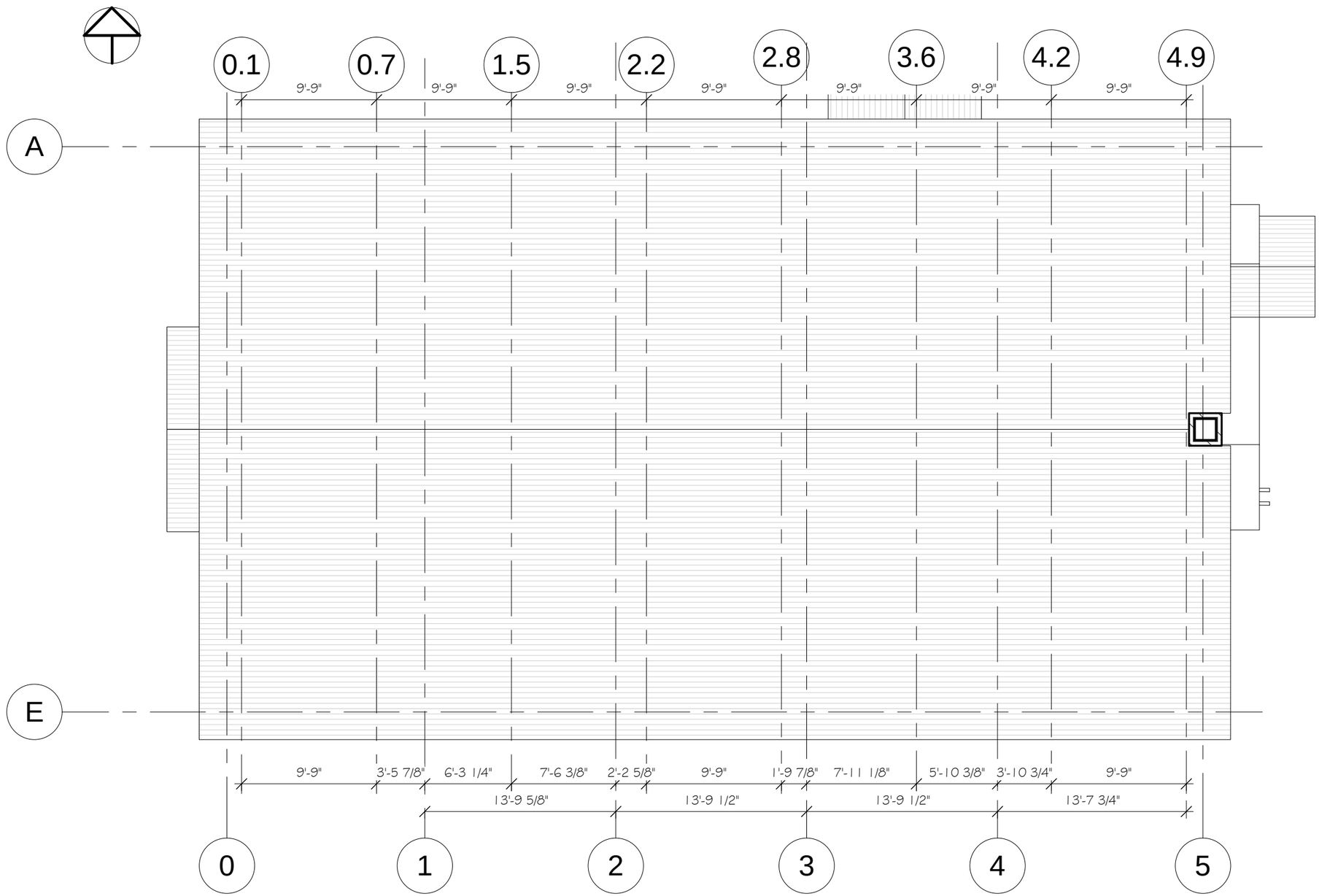
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
EXISTING THIRD FLOOR PLAN

REVISION:	
DATE:	03/20/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-X.3



1 X-Roof Plan
1/8" = 1'-0"

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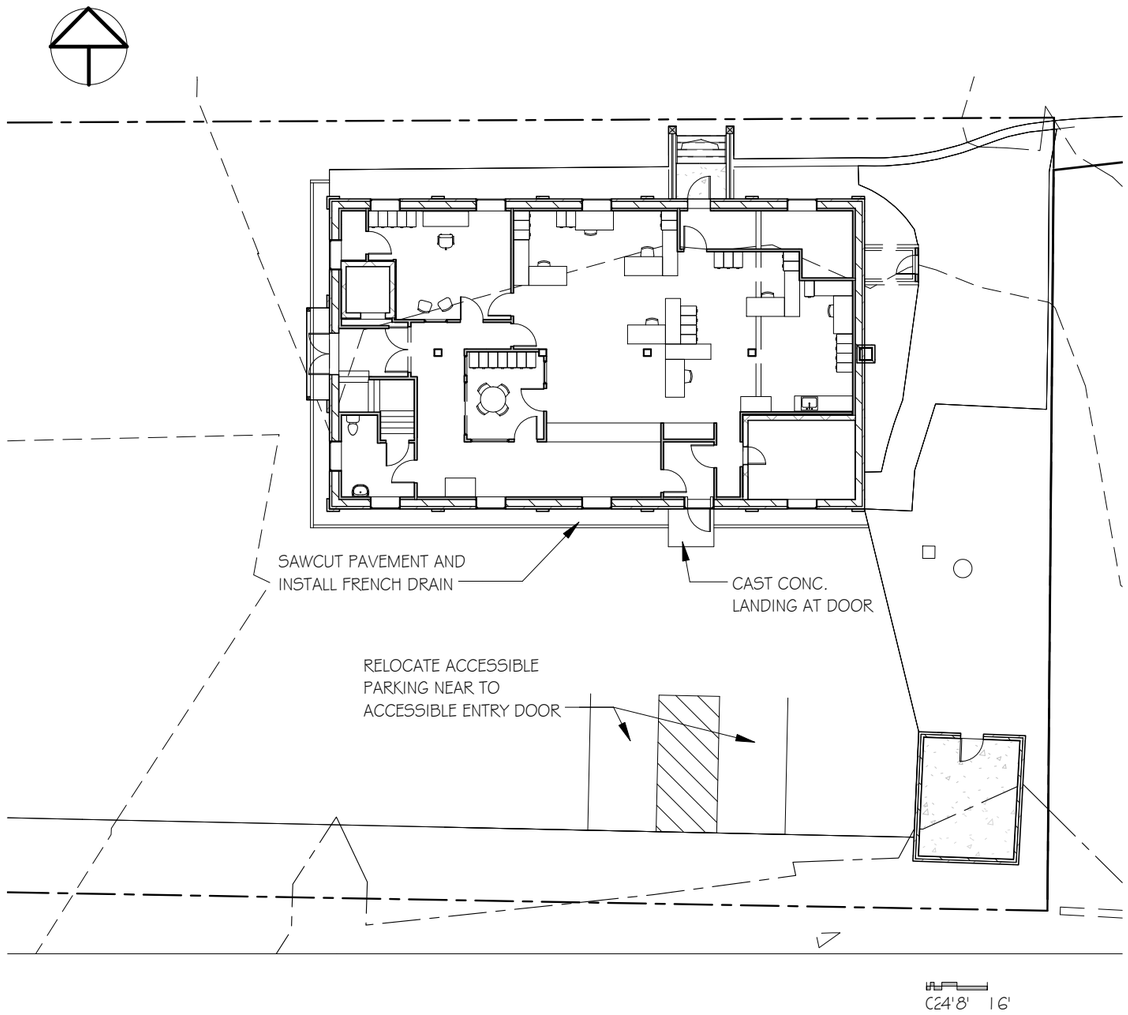
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation

EXISTING ROOF PLAN

REVISION:	
DATE:	03/20/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-X.4



1 SITE PLAN
1" = 20'-0"

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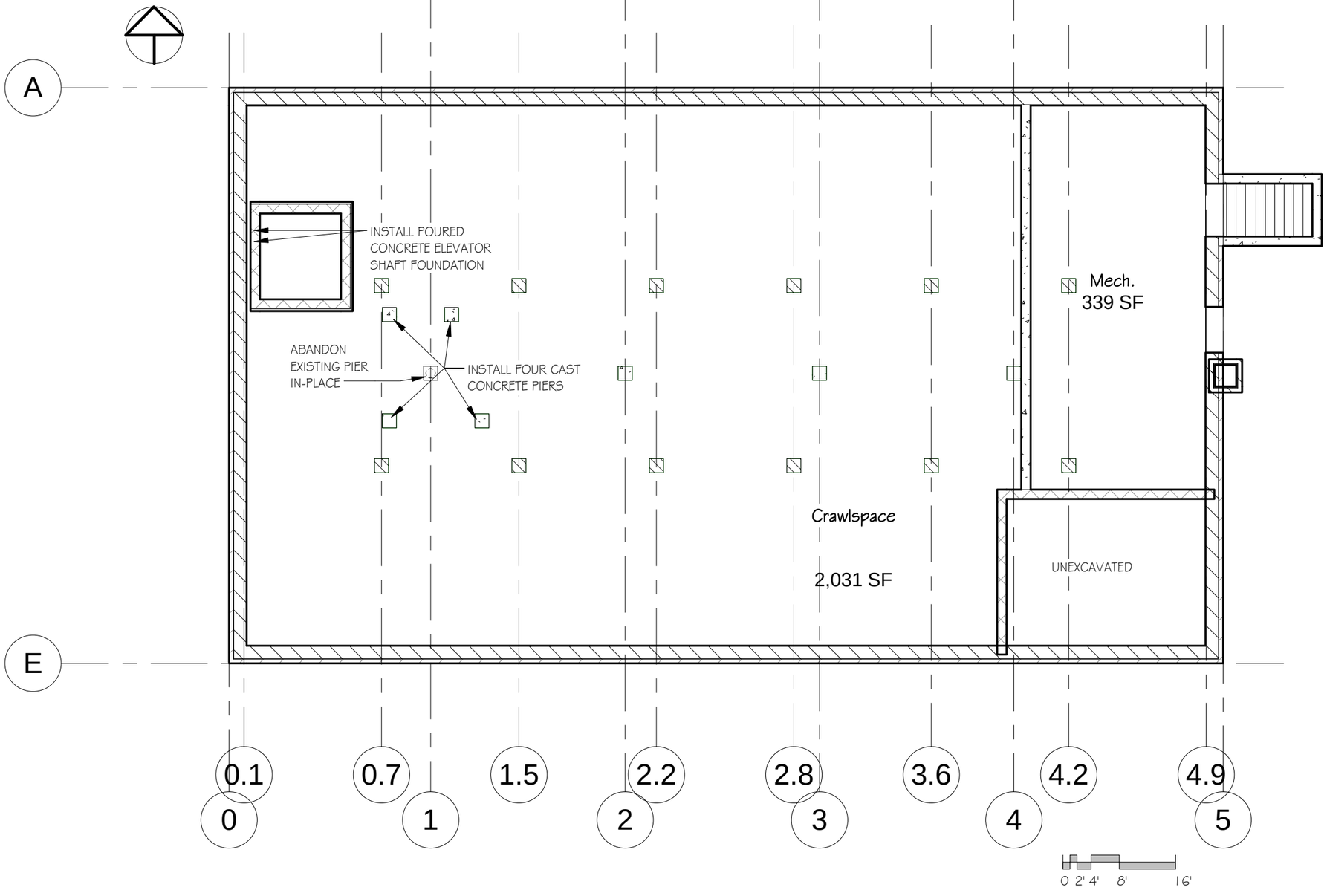
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
PROPOSED SITE PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1" = 20'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-C



1 Proposed Basementl Plan
1/8" = 1'-0"

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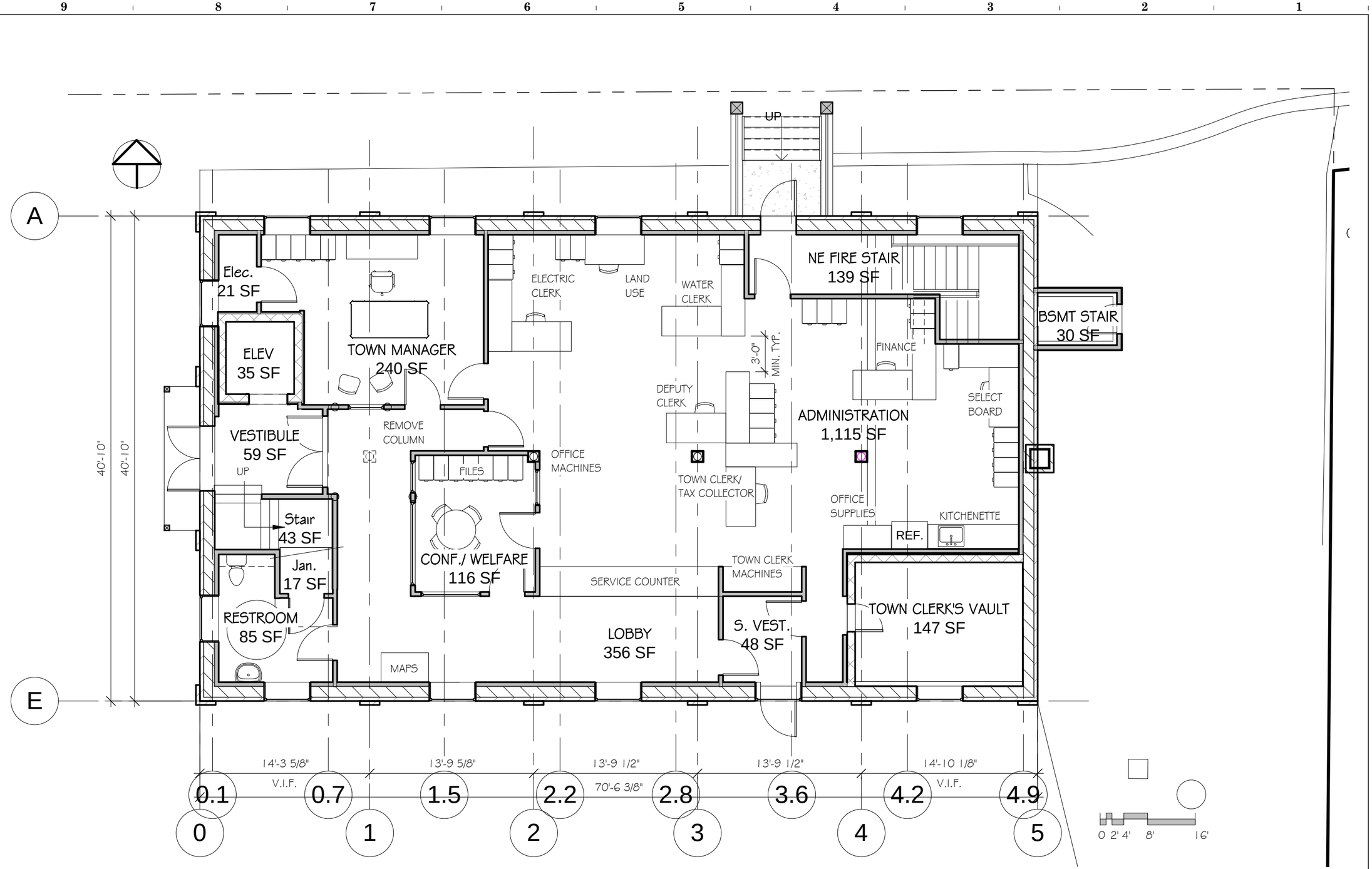
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation
PROPOSED BASEMENT PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-0



1 Proposed Main Level Plan
1/8" = 1'-0"

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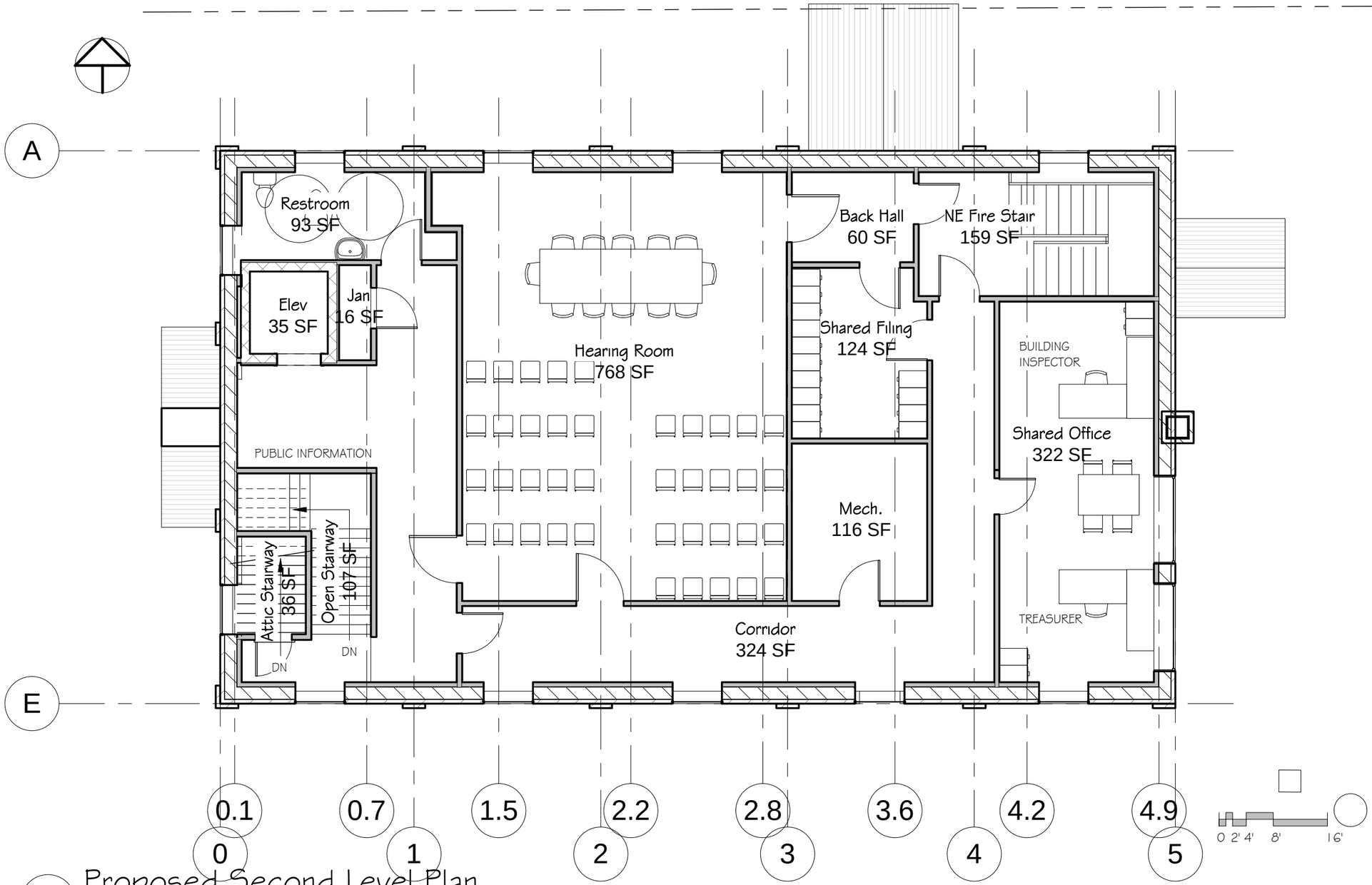
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation

PROPOSED MAIN LEVEL PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-1



1 Proposed Second Level Plan
1/8" = 1'-0"

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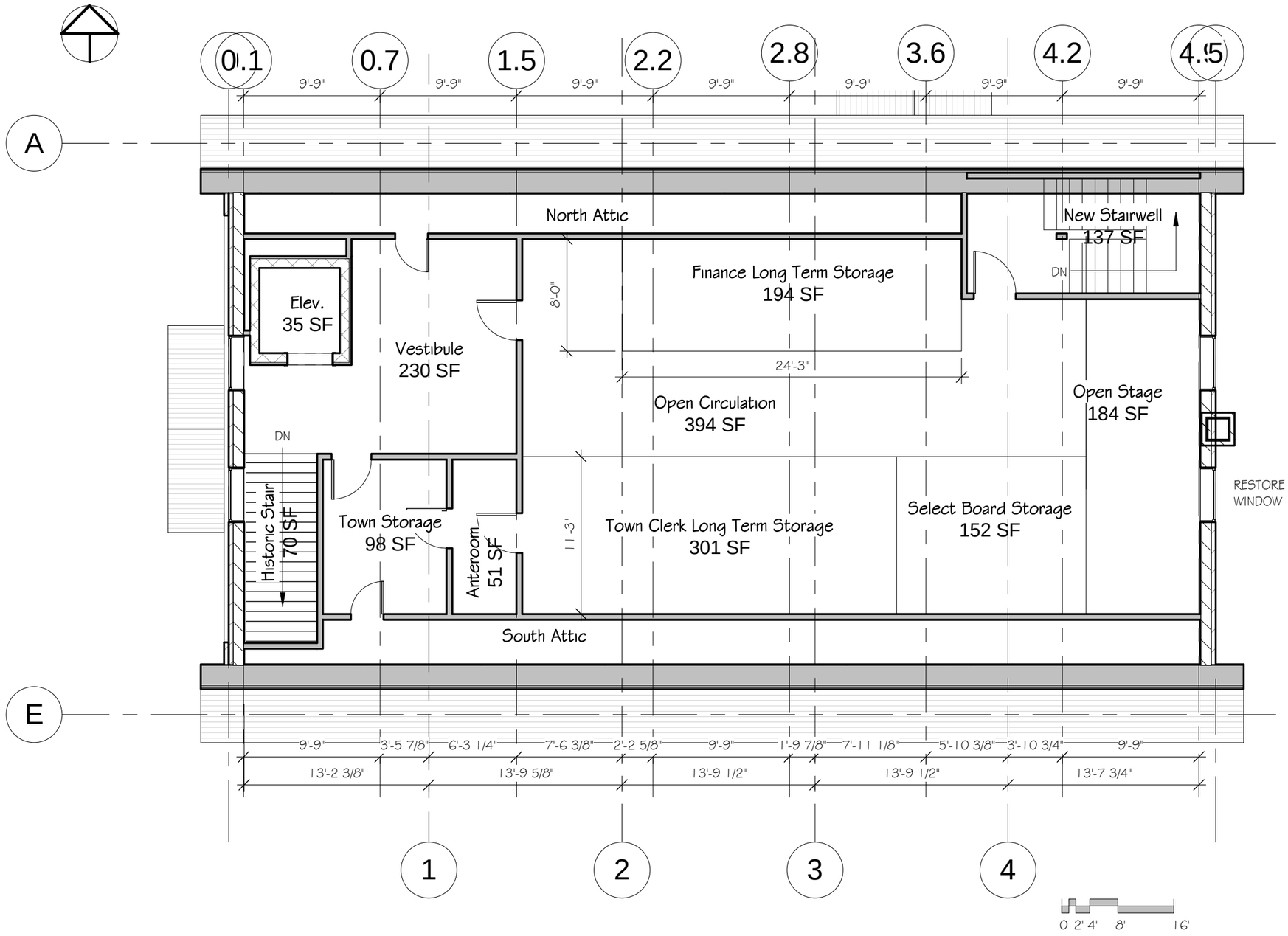
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation

PROPOSED SECOND FLOOR PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-2



1 Proposed Third Level Plan
1/8" = 1'-0"

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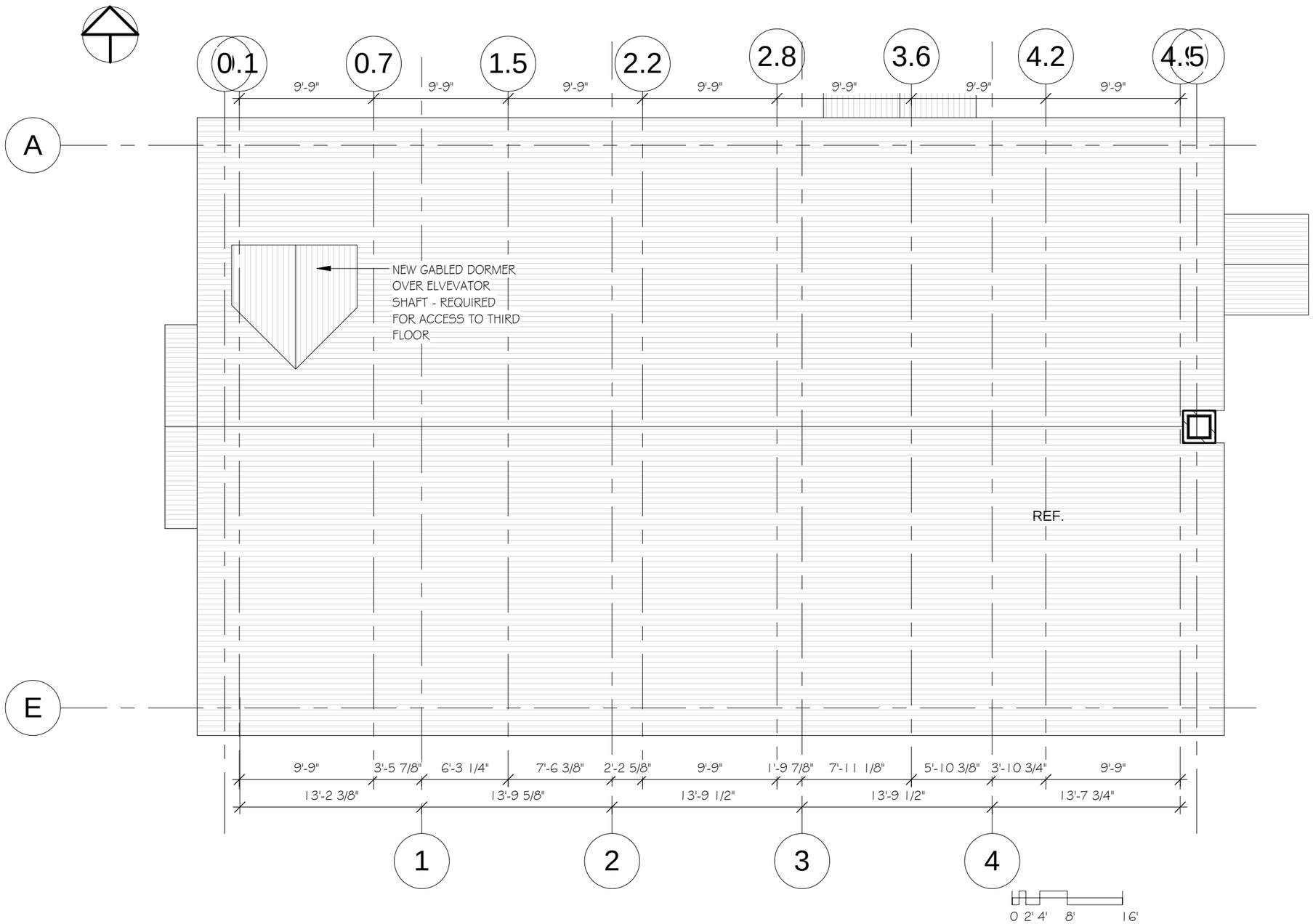
TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation

PROPOSED THIRD FLOOR PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-3



1 Proposed Roof Plan
1/8" = 1'-0"

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TOWN HALL RENOVATION
Town of Ashland
20 Highland Street
Ashland, New Hampshire

Preliminary - Town Hall Renovation

PROPOSED ROOF PLAN

REVISION:	
DATE:	09/24/19
SCALE:	1/8" = 1'-0"
DRAWN BY:	NEL
PROJ. NO.:	1811-B

SD-4

OMEGA STRUCTURAL ENGINEERS, PLLC
RESIDENTIAL . COMMERCIAL . CONSULTING . RETROFIT . FORENSIC

28 November 2018

Norman E. Larson
Christopher P. Williams, Architects
4 Stevens Avenue / P.O. Box 703
Meredith, NH 03253

Re: Structural Observation
Ashland Town Hall
20 Highland Street
Ashland NH 03217

Dear Norman:

As you requested, a site visit was made to the above-referenced property on November 1st, 2018. The purpose of this site visit was to perform a limited walk through of the existing building in order to provide a professional engineer's opinion regarding the current structural condition of the building. Present during this walk through were you, and the writer. This report contains a summary of the observations and discussions, followed by conclusions and recommendations.

Background and Observation:

The existing town hall is a two-story structure with an attic. The exterior walls are constructed of multi-wythe brick and act as bearing and shear walls. Original attic floor and roof are constructed with wood framing. The newer second floor is constructed with wood joists, steel beams, and columns. The building is rectangular in plan with an approximate dimension of 40 feet by 70 feet and is over a crawl space with a small partial basement for mechanical room. This mechanical room is not original and has been added at a later date. The building is reported to have been constructed originally circa 1871 as the town hall and still functions today as the town hall although the police department is also occupying a portion of the building.

The existing second floor is not original to the building. The building was originally constructed as a tall one-story building with an attic area. As was explained by you, this building, in a period between the 1940s and the 60s, had become part of the school system. It appears that it was during that period when the current second floor was added as part of the school operation.

211 STATE ROUTE 103 NEWBURY, NH 03255 T 603.938.6222 F 603.938.6288 OMEGAENGINEERING@TDS.NET

It is my understanding that the town intends to renovate and improve this building. This renovation involves an addition to the back, an elevator, and mainly architectural improvements, however, the occupancy will remain unchanged and there are no plans for structural change. The purpose of this visit was to do a walk through in order to provide you and the owners with a professional consultation and an engineer's opinion on the current structural condition and to try to identify visible structural damage or concerns. As was noted above, the site visit and observation were limited to visibly accessible areas, the items discussed and or noted during the walk through, and a general look at the addition. No destructive testing was performed during this visit or as part of this report. The walk thorough was mainly focused on identifying visibly obvious structural problems.

Following is the list of the items noted and discussed at the site:

1- Roof: Through an opening in the attic wall, we were able to observe part of the existing roof framing. It consists of rough 2x rafters supported on exterior walls and interior beams. There are arched beams, made up of bent thin layers of wood, at approximately 9"-9" spacing, spanning in the transverse direction of the building, and supported at both ends on attic trussed beams (see item 2 below). These arched beams form the side walls of the attic room and support the roof rafters and beams. With the exception of one location which showed some signs of delamination of the arched beam layers, the observed portion of the roof framing appeared to be in good structural shape with no apparent signs of deflection, overstress, splitting, or structural concern.

2- Attic: The original attic floor framing is covered with architectural finishes and not available for viewing. As part of the preparation of this report, I reviewed a report, dated December 31, 1984, by H.E.B., regarding town hall structural inspection. It is stated in this report that the attic floor is consists of 2x12 joists at approximately 27" spacing which are supported by trussed wooden beams clear-spanning the transverse length of the building and placed at 9'-9" spacing. The report notes that analyses of the attic floor indicates that these trussed beams are the "weak link in the floor structure". Analyses of theses beams indicates that their loading capacity is about 20 psf. Although not overly excessive, at the time of this walk thorough, there was visible deflection of this attic floor.

3- Second Floor: As was mentioned earlier in this report, this floor is not original to the building and was added later. Through an opening in the ceiling, in two locations, we were able to see part of the framing of this floor. Floor framing consists of 2x12 joists at approximately 16" spacing spanning in the longitudinal direction of the building supported by the exterior walls and interior steel beams. The steel beams span in the transverse direction of the building and are supported by the exterior walls and one centrally located interior steel column. These steel beams are spaced at approximately 13'-10" which is the same spacing as the original brick piers on the exterior walls of the building. Looking through the small access opening, it appears that the steel beams are inserted into a pocket in the original piers. No analyses have been performed on the structural capacity of these beams. However, there has been no report of discomfort or issues with the use of this floor. Both you and I agreed that the floor felt solid and there is no perceptible movement or vibration under walking loads during this site visit.

4- First floor (ground level) framing is reportedly original to this building. This floor is over a shallow crawl space and not open for clear observation, however, in the back of the building, at some point in time, a small mechanical room has been added. A part of the original crawl space has been excavated and turned into a mechanical space. From this mechanical space, we were able to view a portion of the first floor framing. This floor is constructed of 3"x8 ½" (actual dimension) wood joists at approximately 18" spacing, spanning in the transverse direction of the building, and supported by the exterior walls and two lines of interior wood beams. Interior wood beams are 8x8. Although, the foundation walls for the mechanical room are concrete, it was not possible to establish, in this visit, the material and construction of the original foundation wall. As with the 2nd floor, no analyses have been performed on the floor framings as part of this report, however, the floor felt very sound and solid with no perceptible movement or vibration under walking loads. There has not been any report that has been made available to me that indicates the owner has any complaints regarding the use and performance of this floor in the past.

5- Exterior walls of the building are constructed of multi-Wythe bricks. I believe it is three courses wide as total wall thickness, as reported by architect, is 18.5" which includes a 2x4 interior wood stud wall and plaster, however, I was not able to verify this during this site visit.

In one area of the attic, I was able to see a small portion of the brick wall above the attic and it appears that the gable wall, at least above the attic floor, narrows down to two-wythes wide. There are corner cracks at the arches of the first window at some of the corners. It was not possible to view these cracks from the inside as it is covered by a wood stud wall and architectural finishes. The bottom nearly 2 feet of the wall is showing some signs of moderate to severe deterioration and loss of mortar between bricks due to water splash against the outside grade/pavement.

Conclusions and recommendations

The purpose of this report is to provide a professional opinion, from a structural perspective, on the current structural condition of the building and items that were noted at the site and/or of concern to you, as noted above. Consultation and recommendations provided at the site and discussed below are based on visual assessment during the walk through and based on professional judgement and experience. The following represents my professional opinion at this time based on my limited observation, my professional judgement, and the discussions during the site visit. No subsequent analyses or investigation has been performed after the site visit.

Overall, structurally, the existing building appears to be in good condition. There was no apparent evidence that past snow or wind loading has caused severe overstress to the framing. No unusual sign of existing or past structural overstress was observed or noted in the observed areas of the framing during this visit. The walls and posts supporting the floor and the framing are visually plumb and, with the exception of what is noted in this report, do not show visible signs of structural overstress or movement. The floor framing feels sound, without apparent floor deflection or vibration under walking conditions.

The following discussions and recommendations are in response to the items noted above and in the same numerical order:

1- Roof: The existing roof framing appeared to be in good and sound condition. There was no apparent evidence that past snow loading has caused major stress to the roof framing. It should be noted that if analysis of the roof members is performed based on today's building code

requirements, the members and their connections are likely to be insufficient to meet the structural requirements. However, in general, the state of New Hampshire does not require an existing building to be upgraded to meet today's structural code requirements unless one of the following exists: a) known dangerous situations, b) a change in building use and occupancy, or c) proposed renovations that will add to or alter the structural loading. I am not at this time aware that any of these three conditions applies to this project. As was noted, at least in one area, the laminations of the arched beams seem to be separating. I recommend that, as part of this renovation, the arched beams be inspected and this condition be improved. This can be done by the addition of mechanical fasteners or other methods designed and approved by a registered professional.

2- Attic framing: You mentioned that, as part of the renovation, you may consider using the attic space as offices or some public function. As was noted above, an earlier investigation indicates that this floor is not suitable for any use that requires more that 20 psf loading capacity. If you intend to change the use of the attic, I recommend that a more detailed investigation and analyses of the attic framing be performed and the floor framing be upgraded to accommodate the requirements for such use.

3- 2nd Floor: It is my understanding that this floor will continue to function as it has been with no major alteration. As mentioned above, no unusual structural issue was noted regarding this floor framing during this site visit.

4- First Floor: As with the 2nd floor, this floor is also intended to continue to function after the renovation as it did before with no alteration. no unusual structural issue was noted regarding this floor framing during this site visit.

5- Exterior walls, as noted above, are constructed of multi-wythe bricks and serve both as bearing walls and shear walls. This type of construction is not desirable today as, brick walls with no reinforcement, is not a ductile element and therefore will not perform well when subjected to lateral forces, however, since it generally appears to be in good condition, the function and use of this building is not changing, and there are no plans to modify this wall, in my opinion, it can continue to function provided the recommendations in this report are followed. Also, the addition of the second floor has substantially improved the expected performance of this

wall as this second floor, if properly attached according to recommendations in this report, provides an intermediate lateral support and cuts down the wall vertical span by half.

As noted, corner cracks were observed at the arches of the first windows on some of the corners. These are not very unusual cracks. It is not known when these corner cracks initiated and if they are currently active. Visually, however, it appears to me that these are old cracks and the condition is stable now. I did not see visible evidence of building settlement or out-of-plumb walls. I recommend that the cracks be treated and filled at this time and be monitored. If the process continues, more thorough investigations and repair methods will be required.

The bottom few feet of the exterior walls show extensive signs of mortar deterioration and loss due to contact with elements and water splash. This condition must certainly be addressed in this renovation. As a minimum, the mortar must be cleaned and repointed. A program of protecting the brick against water should be considered.

6- Additional recommendations: Weak performance of brick and other type of old massive walls has been by far due to the fact they were not traditionally properly attached to the floor and roof diaphragm. Positive attachment to prevent these massive walls from separating from the floor and roof diaphragm is essential during major events such as an earthquake. I was not able to visually establish the type of connection between the attic floor and second floor framing to the exterior walls. I recommend that during this renovation, these connections be clearly viewed and improved if required by a structural engineer. Solutions may be as easy as adding steel connections from the wall to the floor or steel tie rods from wall to the opposing wall.

I understand that an addition is proposed to the back of this building. I recommend, in order to improve the structural performance of the existing exterior brick wall in the back of the building and the lateral performance of the building as a whole, that, as part of this renovation, consideration be given to either closing one or both of the two windows in the current police chief office or by other methods as recommended and designed by a structural engineer. This recommendation is because I do not believe that these two windows are original to this

building. With these openings and in combination with the other doors and windows along that wall- some of which also seem not original and may have been added later- I think the structural performance of this wall has been undesirably affected and the wall and the building will benefit from an upgrade.

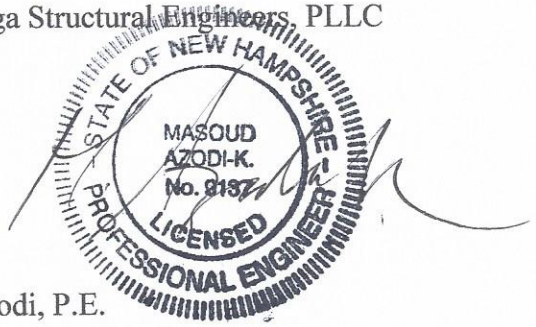
This completes the scope of work. Thank you for this opportunity to provide you with this structural engineering consultation. Please do not hesitate to call if you have any questions or need additional assistance. Our office will be pleased to work with you and your contractors in assisting with the structural requirements, reviewing and interpreting the data, or to assist you should you decide to investigate the structural conditions further as recommended. During any actual structural improvement, we can provide the necessary structural analysis, review the process, provide sketches, construction consultation support, or assist you in any other areas that you feel may require structural engineering assistance.

Report Limitations and Disclaimer

The opinions stated in this report are based on the limited observation of the visible structural conditions during the site visit and information provided by you, and address only the areas observed for structural issues. They do not express or imply any warranty or guarantee of the structure, or that all conditions have been observed. Scope of this work was limited to the areas observed and noted. No other elements were investigated except as noted in this report. No testing including any destructive testing was performed during this visit except when noted in this report. Existing structural drawings were not reviewed as part of this work. No analysis has been performed as part of the preparation of this report. Conclusions and recommendations are based on observations, experience, and professional engineering judgment.

Sincerely,

Ω Omega Structural Engineers, PLLC



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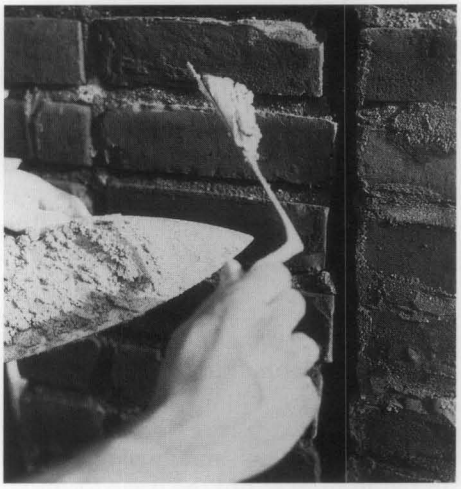
2 PRESERVATION BRIEFS

Repointing Mortar Joints in Historic Masonry Buildings

Robert C. Mack, FAIA
John P. Speweik



U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

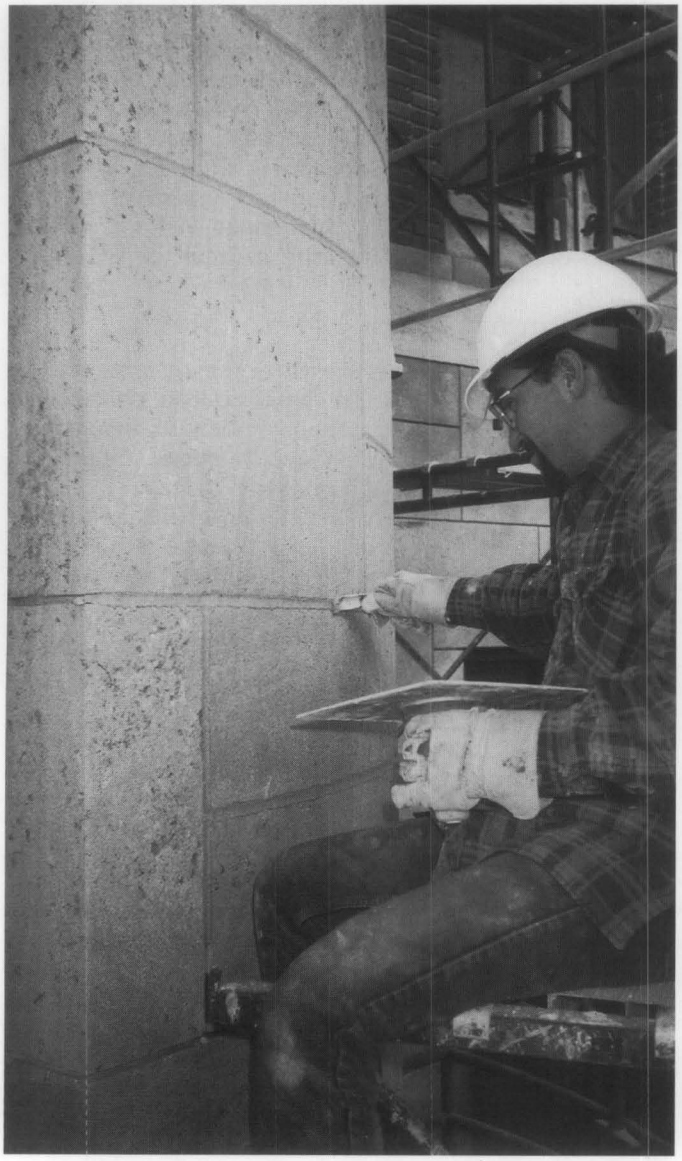


Figure 1. After removing deteriorated mortar, an experienced mason repoints a portion of this early-20th century limestone building. Photo: Robert C. Mack, FAIA.

Masonry — brick, stone, terra-cotta, and concrete block — is found on nearly every historic building. Structures with all-masonry exteriors come to mind immediately, but most other buildings at least have masonry foundations or chimneys. Although generally considered "permanent," masonry is subject to deterioration, especially at the mortar joints. Repointing, also known simply as "pointing"or—somewhat inaccurately—"tuck pointing"*, is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar (Fig. 1). Properly done, repointing restores the visual and physical integrity of the masonry. Improperly done, repointing not only detracts from the appearance of the building, but may also cause physical damage to the masonry units themselves.

The purpose of this Brief is to provide general guidance on appropriate materials and methods for repointing historic masonry buildings and it is intended to benefit building owners, architects, and contractors. The Brief should serve as a guide to prepare specifications for repointing historic masonry buildings. It should also help develop sensitivity to the particular needs of historic masonry, and to assist historic building owners in working cooperatively with architects, architectural conservators and historic preservation consultants, and contractors. Although specifically intended for historic buildings, the guidance is appropriate for other masonry buildings as well. This publication updates *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings* to include all types of historic unit masonry. The scope of the earlier Brief has also been expanded to acknowledge that the many buildings constructed in the first half of the 20th century are now historic and eligible for listing in the National Register of Historic Places, and that they may have been originally constructed with portland cement mortar.

*Tuckpointing technically describes a primarily decorative application of a raised mortar joint or lime putty joint on top of flush mortar joints.

Historical Background

Mortar consisting primarily of lime and sand has been used as an integral part of masonry structures for thousands of years. Up until about the mid-19th century, lime or quicklime (sometimes called lump lime) was delivered to construction sites, where it had to be slaked, or combined with water. Mixing with water caused it to boil and resulted in a wet lime putty that was left to mature in a pit or wooden box for several weeks, up to a year. Traditional mortar was made from lime putty, or slaked lime, combined with local sand, generally in a ratio of 1 part lime putty to 3 parts sand by volume. Often other ingredients, such as crushed marine shells (another source of lime), brick dust, clay, natural cements, pigments, and even animal hair were also added to mortar, but the basic formulation for lime putty and sand mortar remained unchanged for centuries until the advent of portland cement or its forerunner, Roman cement, a natural, hydraulic cement.

Portland cement was patented in Great Britain in 1824. It was named after the stone from Portland in Dorset which it resembled when hard. This is a fast-curing, hydraulic cement which hardens under water. Portland cement was first manufactured in the United States in 1872, although it was imported before this date. But it was not in common use throughout the country until the early 20th century. Up until the turn of the century portland cement was considered primarily an additive, or "minor ingredient" to help accelerate mortar set time. By the 1930s, however, most masons used a mix of equal parts portland cement and lime putty. Thus, the mortar found in masonry structures built between 1873 and 1930 can range from pure lime and sand mixes to a wide variety of lime, portland cement, and sand combinations.

In the 1930s more new mortar products intended to hasten and simplify masons' work were introduced in the U.S. These included **masonry cement**, a premixed, bagged mortar which is a combination of portland cement and ground limestone, and **hydrated lime**, machine-slaked lime that eliminated the necessity of slaking quicklime into putty at the site.

Identifying the Problem Before Repointing

The decision to repoint is most often related to some obvious sign of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks or stones, damp walls, or damaged plasterwork. It is, however, erroneous to assume that repointing alone will solve deficiencies that result from other problems (Fig. 2). The root cause of the deterioration—leaking roofs or gutters, differential settlement of the building, capillary action causing rising damp, or extreme weather exposure—should always be dealt with prior to beginning work. Without appropriate repairs to eliminate the source of the problem, mortar deterioration will continue and any repointing will have been a waste of time and money.

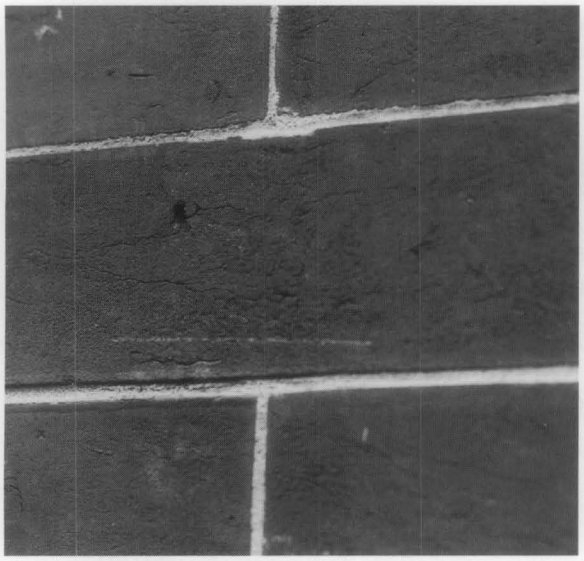
Use of Consultants. Because there are so many possible causes for deterioration in historic buildings, it may be desirable to retain a consultant, such as a historic architect or architectural conservator, to analyze the building. In addition to determining the most appropriate solutions to the problems, a consultant can prepare specifications which reflect the particular requirements of each job and can provide oversight of the work in progress. Referrals to preservation consultants frequently can be obtained from State Historic Preservation Offices, the American Institute for Conservation of Historic and Artistic Works (AIC), the Association for Preservation Technology (APT), and local chapters of the American Institute of Architects (AIA).

Figure 2. Much of the mortar on this building has been leached away by water from a leaking downspout. The downspout must be replaced and any other drainage problems repaired before repointing. Photo: Robert C. Mack, FAIA.

Finding an Appropriate Mortar Match

Preliminary research is necessary to ensure that the proposed repointing work is both physically and visually appropriate to the building. Analysis of unweathered portions of the historic mortar to which the new mortar will be matched can suggest appropriate mixes for the repointing mortar so that it will not damage the building because it is excessively strong or vapor impermeable. Examination and analysis of the masonry units—brick, stone or terra cotta—and the techniques used in the original construction will assist in maintaining the building's historic appearance (Figs. 3-4). A simple, non-technical, evaluation of the masonry units and mortar can provide information concerning the relative strength and permeability of each–critical factors in selecting the repointing mortar—while a visual analysis of the historic mortar can provide the information necessary for developing the new mortar mix and application techniques.

Although not crucial to a successful repointing project, for projects involving properties of special historic significance, a mortar analysis by a qualified laboratory can be useful by providing information on the original ingredients. However, there are limitations with such an analysis, and replacement mortar specifications should not be based solely on laboratory analysis. Analysis requires interpretation, and there are important factors which affect the condition and performance of the mortar that cannot be established through laboratory analysis. These may include: the original water content, rate of curing, weather conditions during original construction, the method of mixing and placing the mortar, and the cleanliness and condition of the sand. *The most useful information that can come out of laboratory analysis is the identification of sand by*



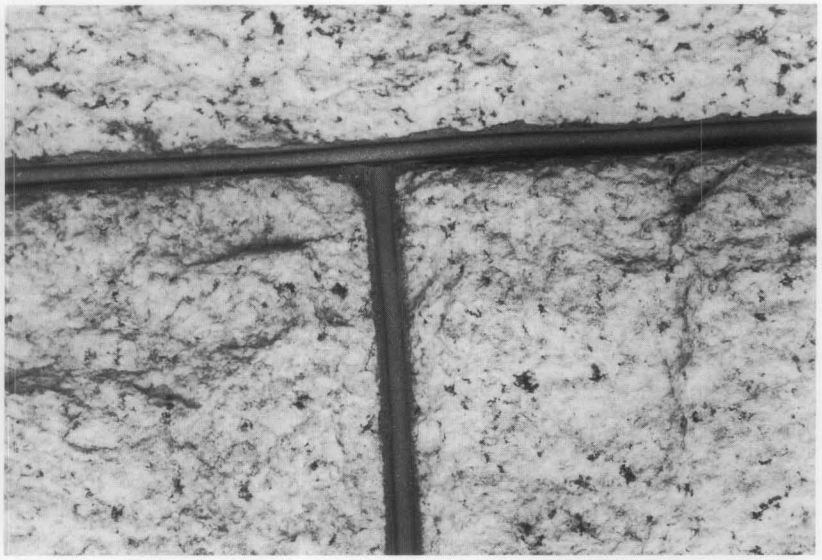


Figure 3. Good-quality repointing closely replicates the original in composition, texture, joint type and profile on this 19th century brick building (left), and on this late-19th century granite on H.H. Richardson's Glessner House in Chicago (right). Photos: Charles E. Fisher: Sharon C. Park, FAIA.

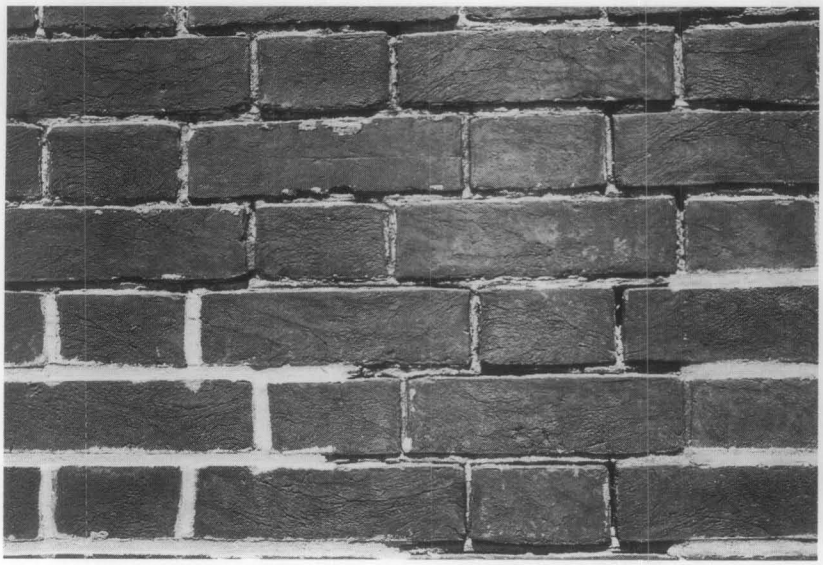
gradation and color. This allows the color and the texture of the mortar to be matched with some accuracy because sand is the largest ingredient by volume.

In creating a repointing mortar that is compatible with the masonry units, the objective is to achieve one that matches the historic mortar as closely as possible, so that the new material can coexist with the old in a sympathetic, supportive and, if necessary, sacrificial capacity. The exact physical and chemical properties of the historic mortar are not of major significance as long as the new mortar conforms to the following criteria:

- The new mortar must match the historic mortar in color, texture and tooling. (If a laboratory analysis is undertaken, it may be possible to match the binder components and their proportions with the historic mortar, if those materials are available.)
- The sand must match the sand in the historic mortar. (The color and texture of the new mortar will usually fall into place if the sand is matched successfully.)
- The new mortar must have **greater vapor permeability** and be **softer** (measured in compressive strength) than the masonry units.
- The new mortar must be **as vapor permeable** and **as soft or softer** (measured in compressive strength) than the historic mortar. (Softness or hardness is not necessarily an indication of permeability; old, hard lime mortars can still retain high permeability.)

Properties of Mortar

Mortars for repointing should be softer or more permeable than the masonry units and no harder or more impermeable than the historic mortar to prevent damage to the masonry units. It is a common error to assume that hardness or high strength is a measure of appropriateness, particularly for lime-based historic mortars. Stresses within a wall caused by expansion, contraction, moisture migration, or settlement must be accommodated in some manner; in a masonry wall these



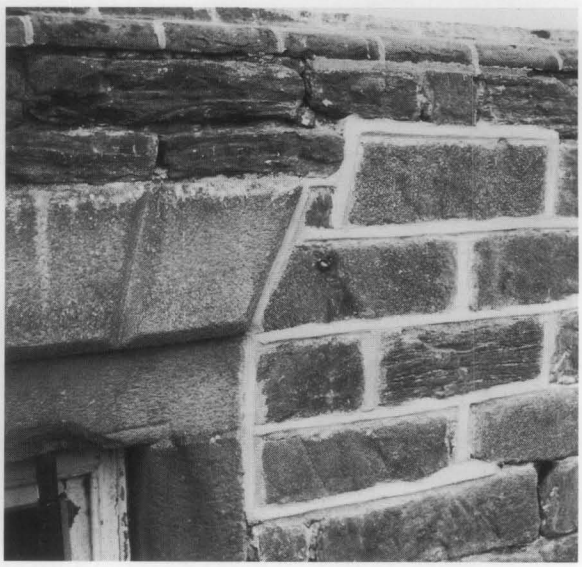


Figure 4. (left) The poor quality of this repointing–it appears to have been "tooled" with the mason's finger–does not match the delicacy of the original beaded joint on this 19th-century brick wall. (right) It is obvious that the repointing on this "test patch" is not an appropriate replacement mortar joint for this early-19th century stone foundation. Photos: Lee H. Nelson, FAIA.

stresses should be relieved by the mortar rather than by the masonry units. A mortar that is stronger in compressive strength than the masonry units, will not "give," thus causing the stresses to be relieved through the masonry units—resulting in permanent damage to the masonry, such as cracking and spalling, that cannot be repaired easily (Fig. 5). While stresses can also break the bond between the mortar and the masonry units, permitting water to penetrate the resulting hairline cracks, this is easier to correct in the joint through repointing than if the break occurs in the masonry units.

Permeability, or rate of vapor transmission, is also critical. High lime mortars are more permeable than denser cement mortars. Historically, mortar acted as a bedding material–not unlike an expansion joint–rather than a "glue" for the masonry units, and moisture was able to migrate through the mortar joints rather than the masonry units. When moisture evaporates from the masonry it deposits any soluble salts either on the surface as *efflorescence* or below the surface as *subflorescence*. While salts deposited on the surface of masonry units are usually relatively harmless, salt crystallization within a masonry unit creates pressure that can cause parts of the outer surface to spall off or delaminate. If the mortar does not permit moisture or moisture vapor to migrate out of the wall and evaporate, the result will be damage to the masonry units.

Components of Mortar

Sand. Sand is the largest component of mortar and the material that gives mortar its distinctive color, texture and cohesiveness. Sand must be free of impurities, such as salts or clay. The three key characteristics of sand are: particle shape, gradation and void ratios.

Figure 5. The use of hard, portland-cement mortar that is less permeable than the soft bricks has resulted in severe damage to this brick wall. Moisture trapped in the wall was unable to evaporate through the mortar which is intended to be sacrificial, and thus protect the bricks. As a result the moisture remained in the walls until water pressure eventually popped the surface off the bricks. Photo: National Park Service Files.

When viewed under a magnifying glass or low-power microscope, particles of sand generally have either rounded edges, such as found in beach and river sand, or sharp, angular edges, found in crushed or manufactured sand. For repointing mortar, rounded or natural sand is preferred for two reasons. It is usually similar to the sand in the historic mortar and provides a better visual match. It also has better working qualities or plasticity and can thus be forced into the joint more easily, forming a good contact with the remaining historic mortar and the surface of the adjacent masonry units. Although manufactured sand is frequently more readily available, it is usually possible to locate a supply of rounded sand.

The gradation of the sand (particle size distribution) plays a very important role in the durability and cohesive properties of a mortar. Mortar must have a certain percentage of large to small particle sizes in order to deliver the optimum performance. Acceptable guidelines on particle size distribution may be found in ASTM C 144 (American Society for Testing and Materials). However, in actuality, since neither historic nor modern sands are always in compliance with ASTM C 144, matching the same particle appearance and gradation usually requires sieving the sand.

A scoop of sand contains many small voids between the individual grains. A mortar that performs well fills all these small voids with binder (cement/lime combination or mix) in a balanced manner. Well-graded sand generally has a 30 per cent void ratio by volume. Thus, 30 per cent binder by volume generally should be used, unless the historic mortar had a different binder: aggregate ratio. This represents the 1:3 binder to sand ratios often seen in mortar specifications.

For repointing, sand generally should conform to ASTM C 144 to assure proper gradation and freedom from impurities; some variation may be necessary to match the original size and gradation. Sand color and texture also should match the original as closely as possible to provide the proper color match without other additives.

Lime. Mortar formulations prior to the late-19th century used lime as the primary binding material. Lime is derived from heating limestone at high temperatures which burns off the carbon dioxide, and turns the limestone into quicklime. There are three types of limestone—calcium, magnesium, and dolomitic—differentiated by the different levels of magnesium carbonate they contain which impart specific qualities to mortar. Historically, calcium lime was used for mortar rather than the dolomitic lime (calcium magnesium carbonate) most often used today. But it is also important to keep in mind the fact that the historic limes, and other components of mortar, varied a great deal because they were natural, as opposed to modern lime which is manufactured and, therefore, standardized. Because some of the kinds of lime, as well as other components of mortar, that were used historically are no longer readily available, even when a conscious effort is made to replicate a "historic" mix, this may not be achievable due to the differences between modern and historic materials.

Lime, itself, when mixed with water into a paste is very plastic and creamy. It will remain workable and soft indefinitely, if stored in a sealed container. Lime (calcium hydroxide) hardens by carbonation absorbing carbon dioxide primarily from the air, converting itself to calcium carbonate. Once a lime and sand mortar is mixed and placed in a wall, it begins the process of carbonation. If lime mortar is left to dry too rapidly, carbonation of the mortar will be reduced, resulting in poor adhesion and poor durability. In addition, lime mortar is slightly water soluble and thus is able to re-seal any hairline cracks that may develop during the life of the mortar. Lime mortar is soft, porous, and changes little in volume during temperature fluctuations, thus making it a good choice for historic buildings. *Because of these qualities, high calcium lime mortar may be considered for many repointing projects, not just those involving historic buildings.*

For repointing, lime should conform to ASTM C 207, Type S, or Type SA, Hydrated Lime for Masonry Purposes. This machine-slaked lime is designed to assure high plasticity and water retention. The use of quicklime which must be slaked and soaked by hand may have advantages over hydrated lime in some restoration projects if time and money allow.

Lime putty. Lime putty is slaked lime that has a putty or paste-like consistency. It should conform to ASTM C 5. Mortar can be mixed using lime putty according to ASTM C 270 property or proportion specification.

Portland cement. More recent, 20th-century mortar has used portland cement as a primary binding material. A straight portland cement and sand mortar is extremely hard, resists the movement of water, shrinks upon setting, and undergoes relatively large thermal movements. When mixed with water, portland cement forms a harsh, stiff paste that is quite unworkable, becoming hard very quickly. (Unlike lime, portland cement will harden regardless of weather conditions and does not require wetting and drying cycles.) Some portland cement assists the workability and plasticity of the mortar without adversely affecting the finished project; it also provides early strength to the mortar and speeds setting. Thus, it may be appropriate to add some portland cement to an essentially lime-based mortar even when repointing relatively soft 18th or 19th century brick under some circumstances when a slightly harder mortar is required. The more portland cement that is added to a mortar formulation the harder it becomes—and the faster the initial set.

For repointing, portland cement should conform to ASTM C 150. White, non-staining portland cement may provide a better color match for some historic mortars than the more commonly available grey portland cement. But, it should not be assumed, however, that white portland cement is always appropriate for all historic buildings, since the original mortar may have been mixed with grey cement. The cement should not have more than 0.60 per cent alkali to help avoid efflorescence.

Masonry cement. Masonry cement is a preblended mortar mix commonly found at hardware and home repair stores. It is designed to produce mortars with a compressive strength of 750 psi or higher when mixed

MORTAR ANALYSIS

Methods for analyzing mortars can be divided into two broad categories: **wet chemical** and **instrumental**. Many laboratories that analyze historic mortars use a simple **wet-chemical** method called *acid digestion*, whereby a sample of the mortar is crushed and then mixed with a dilute acid. The acid dissolves all the carbonate-containing minerals not only in the binder, but also in the aggregate (such as oyster shells, coral sands, or other carbonate-based materials), as well as any other acid-soluble materials. The sand and fine-grained acid-insoluble material is left behind. There are several variations on the simple acid digestion test. One involves collecting the carbon dioxide gas given off as the carbonate is digested by the acid; based on the gas volume the carbonate content of the mortar can be accurately determined (Jedrzejewska, 1960). Simple acid digestion methods are rapid, inexpensive, and easy to perform, but the information they provide about the original composition of a mortar is limited to the color and texture of the sand. The gas collection method provides more information about the binder than a simple acid digestion test.

Instrumental analysis methods that have been used to evaluate mortars include polarized light or thin-section microscopy, scanning electron microscopy, atomic absorption spectroscopy, X-ray diffraction, and differential thermal analysis. All instrumental methods require not only expensive, specialized equipment, but also highly-trained experienced analysts. However, instrumental methods can provide much more information about a mortar. Thin-section microscopy is probably the most commonly used instrumental method. Examination of thin slices of a mortar in transmitted light is often used to supplement acid digestion methods, particularly to look for carbonate-based aggregate. For example, the new ASTM test method, ASTM C 1324-96 "Test Method for Examination and Analysis of Hardened Mortars" which was designed specifically for the analysis of modern lime-cement and masonry cement mortars, combines a complex series of wet chemical analyses with thin-section microscopy.

The drawback of most mortar analysis methods is that mortar samples of known composition have not been analyzed in order to evaluate the method. Historic mortars were not prepared to narrowly defined specifications from materials of uniform quality; they contain a wide array of locally derived materials combined at the discretion of the mason. While a particular method might be able to accurately determine the original proportions of a lime-cement-sand mortar prepared from modern materials, the usefulness of that method for evaluating historic mortars is questionable unless it has been tested against mortars prepared from materials more commonly used in the past.

Lorraine Schnabel.

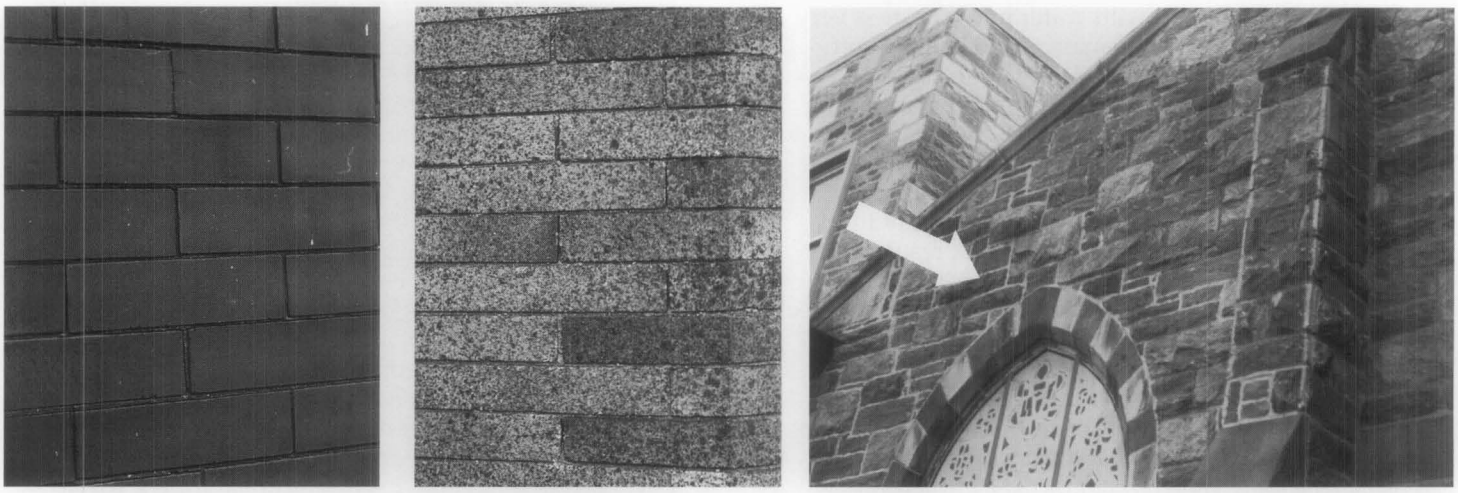


Figure 6. Tinted mortar. (left)Black mortar with a beaded joint was used here on this late-19th century hard pressed red brick and, (center) a dark brown tinted mortar with an almost flush joint was used on this early-20th century Roman brick. (right) When constructed at the turn-of-the-century, this building was pointed with a dark gray mortar to blend with the color of the stone, but the light-colored mortar used in spot repointing has destroyed this harmony and adversely impacts the building's historic character. Photos: Anne Grimmer.

with sand and water at the job site. It may contain hydrated lime, but it always contains a large amount of portland cement, as well as ground limestone and other workability agents, including air-entraining agents. Because masonry cements are not required to contain hydrated lime, and generally do not contain lime, they produce high strength mortars that can damage historic masonry. *For this reason, they generally are not recommended for use on historic masonry buildings.*

Lime mortar (pre-blended). Hydrated lime mortars, and pre-blended lime putty mortars with or without a matched sand are commercially available. Custom mortars are also available with color. In most instances, pre-blended lime mortars containing sand may not provide an exact match; however, if the project calls for total repointing, a pre-blended lime mortar may be worth considering as long as the mortar is compatible in strength with the masonry. If the project involves only selected, "spot" repointing, then it may be better to carry out a mortar analysis which can provide a custom pre-blended lime mortar with a matching sand. In either case, if a preblended lime mortar is to be used, it should contain Type S or SA hydrated lime conforming to ASTM C 207.

Water. Water should be potable—clean and free from acids, alkalis, or other dissolved organic materials.

Other Components

Historic components. In addition to the color of the sand, the texture of the mortar is of critical importance in duplicating historic mortar. Most mortars dating from the mid-19th century on—with some exceptions—have a fairly homogeneous texture and color. Some earlier mortars are not as uniformly textured and may contain lumps of partially burned lime or "dirty lime", shell (which often provided a source of lime, particularly in coastal areas), natural cements, pieces of clay, lampblack or other pigments, or even animal hair. The visual characteristics of these mortars can be duplicated through the use of similar materials in the repointing mortar.

Replicating such unique or individual mortars will require writing new specifications for each project. If possible, suggested sources for special materials should be included. For example, crushed oyster shells can be obtained in a variety of sizes from poultry supply dealers.

Pigments. Some historic mortars, particularly in the late 19th century, were tinted to match or contrast with the brick or stone (Fig. 6). Red pigments, sometimes in the form of brick dust, as well as brown, and black pigments were commonly used. Modern pigments are available which can be added to the mortar at the job site, but they should not exceed 10 per cent by weight of the portland cement in the mix, and carbon black should be limited to 2 per cent. Only synthetic mineral oxides, which are alkali-proof and sun-fast, should be used to prevent bleaching and fading.

Modern components. Admixtures are used to create specific characteristics in mortar, and whether they should be used will depend upon the individual project. *Air-entraining agents*, for example, help the mortar to resist freeze-thaw damage in northern climates. *Accelerators* are used to reduce mortar freezing prior to setting while *retarders* help to extend the mortar life in hot climates. Selection of admixtures should be made by the architect or architectural conservator as part of the specifications, not something routinely added by the masons.

Generally, modern chemical additives are unnecessary and may, in fact, have detrimental effects in historic masonry projects. The use of antifreeze compounds is not recommended. They are not very effective with high lime mortars and may introduce salts, which may cause efflorescence later. A better practice is to warm the sand and water, and to protect the completed work from freezing. No definitive study has determined whether air-entraining additives should be used to resist frost action and enhance plasticity, but in areas of extreme exposure requiring high-strength mortars with lower permeability, air-entrainment of 10-16 percent may be desirable (see formula for "severe weather exposure" in **Mortar Type and Mix**). Bonding agents are not a substitute for proper joint preparation, and they should generally be avoided. If the joint is properly prepared, there will be a good bond between the new mortar and the adjacent surfaces. In addition, a bonding agent is difficult to remove if smeared on a masonry surface (Fig. 7).

Mortar Type and Mix

Mortars for repointing projects, especially those involving historic buildings, typically are custom mixed in order to ensure the proper physical and visual qualities. These materials can be combined in varying proportions to create a mortar with the desired performance and durability. The actual specification of a particular mortar type should take into consideration all of the factors affecting the life of the building including: current site conditions, present condition of the masonry, function of the new mortar, degree of weather exposure, and skill of the mason. Thus, no two repointing projects are exactly the same. Modern materials specified for use in repointing mortar should conform to specifications of the American Society for Testing and Materials (ASTM) or comparable federal specifications, and the resulting mortar should conform to ASTM C 270, Mortar for Unit Masonry.

Specifying the proportions for the repointing mortar for a specific job is not as difficult as it might seem. Five mortar types, each with a corresponding recommended mix, have been established by ASTM to distinguish high strength mortar from soft flexible mortars. The ASTM designated them in decreasing order of approximate general strength as Type M (2,500 psi), Type S (1,800 psi), Type N (750 psi), Type O (350 psi) and Type K (75 psi). (The letters identifying the types are from the words MASON WORK using every other letter.) Type K has the highest lime content of the mixes that contain portland cement, although it is seldom used today, except for some historic preservation projects. The designation "L" in the accompanying chart identifies a straight lime and sand mix. Specifying the appropriate ASTM mortar by proportion of ingredients, will ensure the desired physical properties. Unless specified otherwise, measurements or proportions for mortar mixes are always given in the following order: cement-lime-sand. Thus, a Type K mix, for example, would be referred to as 1-3-10, or 1 part cement to 3 parts lime to 10 parts sand. Other requirements to create the desired visual qualities should be included in the specifications.

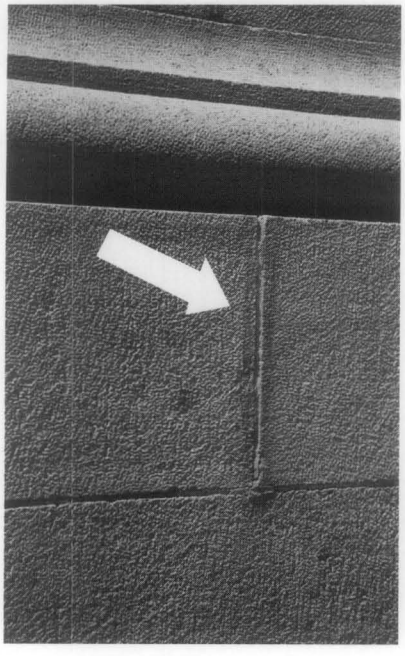


Figure 7. The dark stain on either side of the vertical joint on this sandstone watertable probably resulted from the use of a bonding agent that was not properly cleaned off the masonry after repointing. Photo: Anne Grimmer.

Figure 8. Due to inadequate joint preparation, the repointing mortar has not adhered properly and is falling out of the joint. Photo: Robert C. Mack, FAIA.

The strength of a mortar can vary. If mixed with higher amounts of portland cement, a harder mortar is obtained. The more lime that is added, the softer and more plastic the mortar becomes, increasing its workability. A mortar strong in compressive strength might be desirable for a hard stone (such as granite) pier holding up a bridge deck, whereas a softer, more permeable lime mortar would be preferable for a historic wall of soft brick. Masonry deterioration caused by salt deposition results when the mortar is less permeable that the masonry unit. A strong mortar is still more permeable than hard dense stone. However, in a wall constructed of soft bricks where the masonry unit itself has a relatively high permeability or vapor transmission rate, a soft, high lime mortar is necessary to retain sufficient permeability.

Budgeting and Scheduling

Repointing is both expensive and time consuming due to the extent of handwork and special materials required. It is preferable to repoint only those areas that require work rather than an entire wall, as is often specified. But, if 25 to 50 per cent or more of a wall needs to be repointed, repointing the entire wall may be more cost effective than spot repointing. Total repointing may also be more sensible when access is difficult, requiring the erection of expensive scaffolding (unless the majority of the mortar is sound and unlikely to require replacement in the foreseeable future). Each project requires judgement based on a variety of factors. Recognizing this at the outset will help to prevent many jobs from becoming prohibitively expensive.

In scheduling, seasonal aspects need to be considered first. Generally speaking, wall temperatures between 40 and 95 degrees F (8 and 38 degrees C) will prevent freezing or excessive evaporation of the water in the mortar. Ideally, repointing should be done in shade, away from strong sunlight in order to slow the drying process, especially during hot weather. If necessary, shade can be provided for large-scale projects with appropriate modifications to scaffolding.

The relationship of repointing to other work proposed on the building must also be recognized. For example, if paint removal or cleaning is anticipated, and if the mortar joints are basically sound and need only selective repointing, it is generally better to postpone repointing

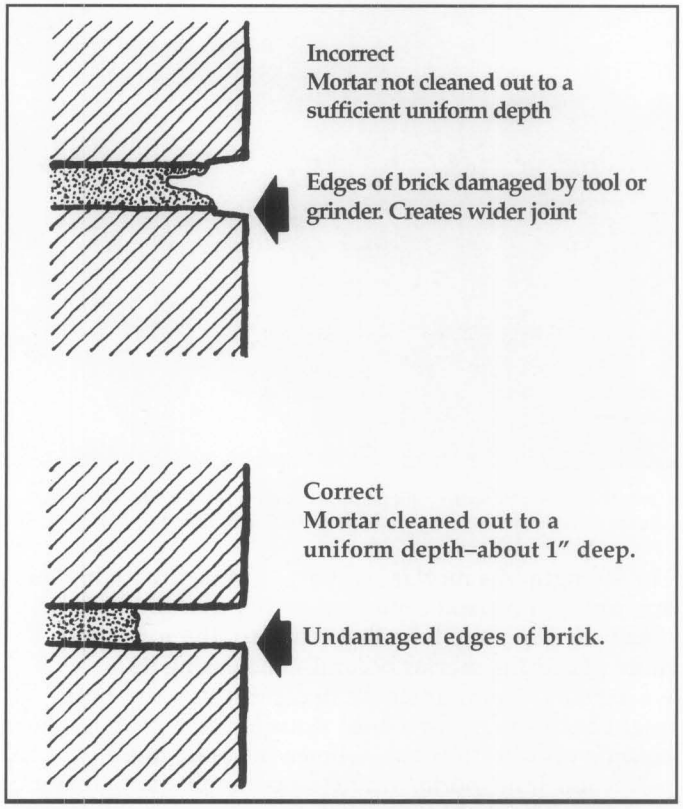


Figure 9. Comparison of incorrect and correct preparation of mortar joints for repointing. Drawing: Robert C. Mack, FAIA, and David W. Look, AIA.

until after completion of these activities. However, if the mortar has eroded badly, allowing moisture to penetrate deeply into the wall, repointing should be accomplished before cleaning. Related work, such as structural or roof repairs, should be scheduled so that they do not interfere with repointing and so that all work can take maximum advantage of erected scaffolding.

Building managers also must recognize the difficulties that a repointing project can create. The process is time consuming, and scaffolding may need to remain in place for an extended period of time. The joint preparation process can be quite noisy and can generate large quantities of dust which must be controlled, especially at air intakes to protect human health, and also where it might damage operating machinery. Entrances may be blocked from time to time making access difficult for both building tenants and visitors. Clearly, building managers will need to coordinate the repointing work with other events at the site.

Contractor Selection

The ideal way to select a contractor is to ask knowledgeable owners of recently repointed historic buildings for recommendations. Qualified contractors then can provide lists of other repointing projects for inspection. More commonly, however, the contractor for a repointing project is selected through a competitive bidding process over which the client or consultant has only limited control. In this situation it is important to ensure that the specifications stipulate that masons must have a minimum of five years' experience with repointing historic masonry buildings to be eligible to bid on the project. Contracts are awarded to the lowest *responsible* bidder, and bidders who have performed poorly on other projects usually can be eliminated from consideration on this basis, even if they have the lowest prices.

The contract documents should call for unit prices as well as a base bid. Unit pricing forces the contractor to determine in advance what the cost addition or reduction will be for work which varies from the scope of the base bid. If, for example, the contractor has fifty linear feet less of stone repointing than indicated on the contract documents but thirty linear feet more of brick repointing, it will be easy to determine the final price for the work. Note that each type of work—brick repointing, stone repointing, or similar items—will have its own unit price. The unit price also should reflect quantities; one linear foot of pointing in five different spots will be more expensive than five contiguous linear feet.

Execution of the Work

Test Panels. These panels are prepared by the contractor using the same techniques that will be used on the remainder of the project. Several panel locations—preferably not on the front or other highly visible location of the building—may be necessary to include all types of masonry, joint styles, mortar colors, and other problems likely to be encountered on the job. If cleaning tests, for

Figure 10. Using a hammer and masonry chisel is the least damaging and, thus, generally the preferred method of removing old mortar in preparation for repointing historic masonry. Photo: John P. Speweik.

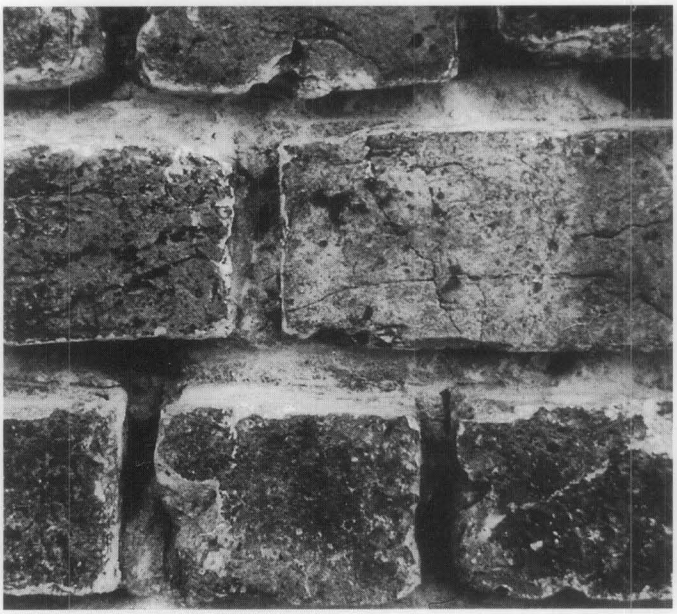


Figure 11. The damage to the edges and corners of these historic bricks was caused by using a mechanical grinder to rake out the joints. Note the overcutting of the head joint and the damage to the arises (corners) of the bricks. Photo: Lee H. Nelson, FAIA.

example, are also to be undertaken, they should be carried out in the same location. Usually a 3 foot by 3 foot area is sufficient for brickwork, while a somewhat larger area may be required for stonework. These panels establish an acceptable standard of work and serve as a benchmark for evaluating and accepting subsequent work on the building.

Joint Preparation. Old mortar should be removed to a minimum depth of 2 to 2- $^1/_2$ times the width of the joint to ensure an adequate bond and to prevent mortar "popouts" (Fig. 8). For most brick joints, this will require removal of the mortar to a depth of approximately $^1/_2$ to 1 inch; for stone masonry with wide joints, mortar may need to be removed to a depth of several inches. Any loose or disintegrated mortar beyond this minimum depth also should be removed (Fig. 9).

Although some damage may be inevitable, careful joint preparation can help limit damage to masonry units. The traditional manner of removing old mortar is through the use of hand chisels and mash hammers (Fig. 10). Though labor-intensive, in most instances this method poses the least threat for damage to historic masonry units and produces the best final product.

The most common method of removing mortar, however, is through the use of power saws or grinders. The use of power tools by unskilled masons can be disastrous for historic masonry, particularly soft brick. Using power saws on walls with thin joints, such as most brick walls, almost always will result in damage to the masonry units by breaking the edges and by overcutting on the head, or vertical joints (Fig. 11).

However, small pneumatically-powered chisels generally can be used safely and effectively to remove mortar on historic buildings as long as the masons maintain appropriate control over the equipment.

Figure 12.. A power grinder, operated correctly by a skilled mason may be used in preparation for repointing to cut wide, horizontal mortar joints, typical of many early-20th century brick structures without causing damage to the brick. Note the use of protective safety equipment. Photo: Robert C. Mack, FAIA.

Under certain circumstances, thin diamond-bladed grinders may be used to cut out *horizontal* joints only on hard portland cement mortar common to most early-20th century masonry buildings (Fig. 12). Usually, automatic tools most successfully remove old mortar without damaging the masonry units when they are used in combination with hand tools in preparation for repointing. Where horizontal joints are uniform and fairly wide, it may be possible to use a power masonry saw to assist the removal of mortar, such as by cutting along the middle of the joint; final mortar removal from the sides of the joints still should be done with a hand chisel and hammer. Caulking cutters with diamond blades can sometimes be used successfully to cut out joints without damaging the masonry. Caulking cutters are slow; they do not rotate, but vibrate at very high speeds, thus minimizing the possibility of damage to masonry units (Fig. 13). Although mechanical tools may be used safely in limited circumstances to cut out horizontal joints in preparation for repointing, they should never be used on vertical joints because of the danger of slipping and cutting into the brick above or below the vertical joint. Using power tools to remove mortar without damaging the surrounding masonry units also necessitates highly skilled masons experienced in working on historic masonry buildings. Contractors

Figure 13. (left) In preparation for repointing, the mortar joints on these granite steps are first cut out mechanically (note the vacuum attached to the cutting tool in foreground to cut down on dust). (right) Final removal of the old mortar is done by hand to avoid damage to the edges of the joints. Mechanical preparation of horizontal joints by an experienced mason may sometimes be acceptable, especially where the joints are quite wide and the masonry is a very hard stone. Photos: Anne Grimmer.

should demonstrate proficiency with power tools before their use is approved.

Using any of these power tools may also be more acceptable on hard stone, such as quartzite or granite, than on terra cotta with its glass-like glaze, or on soft brick or stone. The test panel should determine the acceptability of power tools. If power tools are to be permitted, the contractor should establish a quality control program to account for worker fatigue and similar variables.

Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut. Before filling, the joints should be rinsed with a jet of water to remove all loose particles and dust. At the time of filling, the joints should be damp, but with no standing water present. For masonry walls—limestone, sandstone and common brick—that are extremely absorbent, it is recommended that a continual mist of water be applied for a few hours before repointing begins.

Mortar Preparation. Mortar components should be measured and mixed carefully to assure the uniformity of visual and physical characteristics. Dry ingredients are measured by volume and thoroughly mixed before the addition of any water. Sand must be added in a damp, loose condition to avoid over sanding. Repointing mortar is typically pre-hydrated by adding water so it will just hold together, thus allowing it to stand for a period of time before the final water is added. Half the water should be added, followed by mixing for approximately 5 minutes. The remaining water should then be added in small portions until a mortar of the desired consistency is reached. The total volume of water necessary may vary from batch to batch, depending on weather conditions. It is important to keep the water to a minimum for two reasons: first, a drier mortar is cleaner to work with, and it can be compacted tightly into the joints; second, with no excess water to evaporate, the mortar cures without shrinkage cracks. Mortar should be used within approximately 30 minutes of final mixing, and "retempering," or adding more water, should not be permitted.

Using Lime Putty to Make Mortar. Mortar made with lime putty and sand, sometimes referred to as roughage or course stuff, should be measured by volume, and may require slightly different proportions from those used with hydrated lime (Fig. 14). No additional water is usually needed to achieve a workable consistency because enough water is already contained in the putty. Sand is proportioned first, followed by the lime putty, then mixed for five minutes or until all the sand is thoroughly coated with the lime putty. But mixing, in the familiar sense of turning over with a hoe, sometimes may not be sufficient if the best possible performance is to be obtained from a lime putty mortar. Although the old practice of chopping, beating and ramming the mortar has largely been forgotten, recent field work has confirmed that lime putty and sand rammed and beaten with a wooden mallet or ax handle, interspersed by chopping with a hoe, can significantly improve workability and performance. The intensity of this action increases the overall lime/sand contact and removes any surplus water by compacting the other ingredients. It may also be advantageous for larger projects to use a mortar pan mill for mixing. Mortar pan mills which have a long tradition in Europe produce a superior lime putty mortar not attainable with today's modern paddle and drum type mixers.

For larger repointing projects the lime putty and sand can be mixed together ahead of time and stored indefinitely, on or off site, which eliminates the need for piles of sand on the job site. This mixture, which resembles damp brown sugar, must be protected from the air in sealed containers with a wet piece of burlap over the top or sealed in a large plastic bag to prevent evaporation and premature carbonation. The lime putty and sand mixture can be recombined into a workable plastic state months later with no additional water.

If portland cement is specified in a lime putty and sand mortar—Type O (1:2:9) or Type K (1:3:11)—the portland cement should first be mixed into a slurry paste before adding it to the lime putty and sand. Not only will this ensure that the portland cement is evenly distributed throughout the mixture, but if dry portland cement is added to wet ingredients it tends to "ball up," jeopardizing dispersion. (Usually water must be added to the lime putty and sand anyway once the portland cement is introduced.) Any color pigments should be added at this stage and mixed for a full five minutes. The mortar should be used within 30 minutes to 1 ½ hours and it should not be retempered. Once portland cement has been added the mortar can no longer be stored.

Filling the Joint. Where existing mortar has been removed to a depth of greater than 1 inch, these deeper areas should be filled first, compacting the new mortar in several layers. The back of the entire joint should be filled successively by applying approximately ¼ inch of mortar, packing it well into the back corners. This

Figure 14. Mixing mortar using lime putty: (a) proportioning sand; (b) proportioning lime putty; (c) placing lime putty on top of sand; (d) mixing sand over lime putty; (e) hand mixing mortar; and, (f) sample of mortar after mixing. Photos: John P. Speweik.

application may extend along the wall for several feet. As soon as the mortar has reached thumb-print hardness, another ¼ inch layer of mortar—approximately the same thickness—may be applied. Several layers will be needed to fill the joint flush with the outer surface of the masonry. It is important to allow each layer time to harden before the next layer is applied; most of the mortar shrinkage occurs during the hardening process and layering thus minimizes overall shrinkage.

When the final layer of mortar is thumb-print hard, the joint should be tooled to match the historic joint (Fig. 15). Proper timing of the tooling is important for uniform color and appearance. If tooled when too soft, the color will be lighter than expected, and hairline cracks may occur; if tooled when too hard, there may be dark streaks called "tool burning," and good closure of the mortar against the masonry units will not be achieved.

If the old bricks or stones have worn, rounded edges, it is best to recess the final mortar slightly from the face of the masonry. This treatment will help avoid a joint which is visually wider than the actual joint; it also will avoid creation of a large, thin featheredge which is easily damaged, thus admitting water (Fig. 16). After tooling, excess mortar can be removed from the edge of the joint by brushing with a natural bristle or nylon brush. Metal bristle brushes should never be used on historic masonry.

Curing Conditions. The preliminary hardening of high-lime content mortars—those mortars that contain more lime by volume than portland cement, i.e., Type O (1:2:9), Type K (1:3:11), and straight lime/sand, Type "L"(0:1:3) —takes place fairly rapidly as water in the mix is lost to the porous surface of the masonry and through evaporation. A high lime mortar (especially Type "L") left to dry out too rapidly can result in chalking, poor adhesion, and poor durability. Periodic wetting of the repointed area after the mortar joints are thumb-print hard and have been finish tooled may significantly accelerate the carbonation process. When feasible, misting using a hand sprayer with a fine nozzle can be simple to do for a day or two after repointing. Local conditions will dictate the frequency of wetting, but initially it may be as often as every hour and gradually reduced to every three or four hours. Walls should be covered with burlap for the first three days after repointing. (Plastic may be used, but it should be tented out and not placed directly against the wall.) This helps keep the walls damp and protects them from direct sunlight. Once carbonation of the lime has begun, it will continue for many years and the lime will gain strength as it reverts back to calcium carbonate within the wall.

***Aging* the Mortar.** Even with the best efforts at matching the existing mortar color, texture, and materials, there will usually be a visible difference between the old and

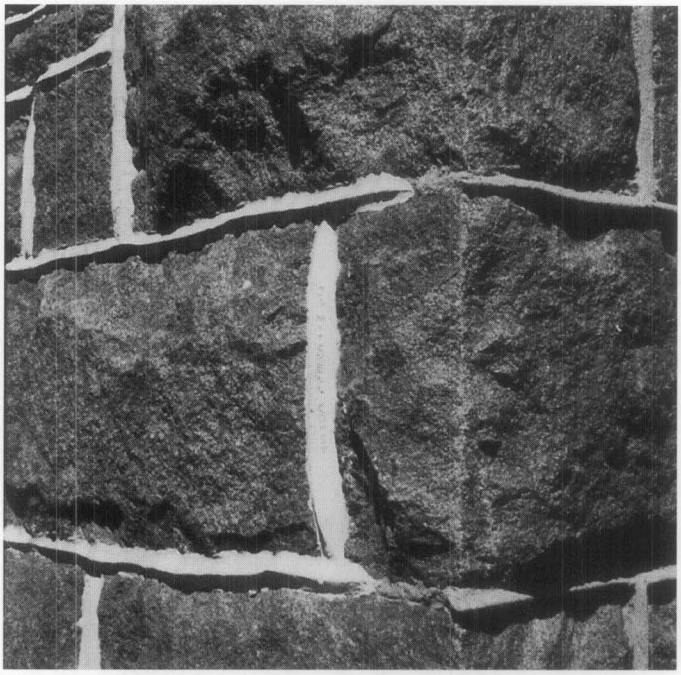


Figure 15. The profile of the repointed joints on the left replicate the historic joints around the corner to the right on the front of this stone building in Leesburg, VA. The contractor's pride in the repointing work is evident by the signature in the vertical joint. Photo: Anne Grimmer.

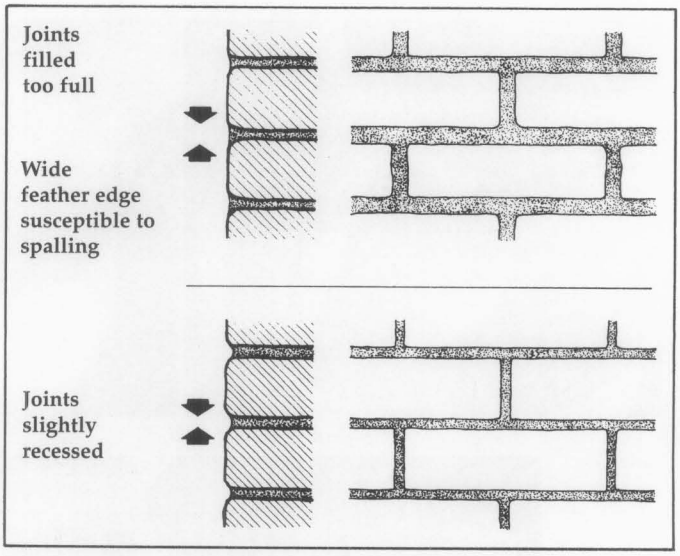


Figure 16. Comparison of visual effect of full mortar joints vs. slightly recessed joints. Filling joints too full hides the actual joint thickness and changes the character of the original brickwork. Drawing: Robert C. Mack, FAIA.

new work, partly because the new mortar has been matched to the unweathered portions of the historic mortar. Another reason for a slight mismatch may be that the sand is more exposed in old mortar due to the slight erosion of the lime or cement. Although spot repointing is generally preferable and some color difference should be acceptable, if the difference between old and new mortar is too extreme, it may be advisable in some instances to repoint an entire area of a wall, or an entire feature such as a bay, to minimize the difference between the old and the new mortar. If the mortars have been properly matched, usually the best way to deal with surface color differences is to let the mortars age naturally. Other treatments to overcome these differences, including cleaning the non-repointed areas or staining the new mortar, should be carefully tested prior to implementation.

Staining the new mortar to achieve a better color match is generally not recommended, but it may be appropriate in some instances. Although staining may provide an initial match, the old and new mortars may weather at different rates, leading to visual differences after a few seasons. In addition, the mixtures used to stain the mortar may be harmful to the masonry; for example, they may introduce salts into the masonry which can lead to efflorescence.

Cleaning the Repointed Masonry. If repointing work is carefully executed, there will be little need for cleaning other than to remove the small amount of mortar from the edge of the joint following tooling. This can be done with a stiff natural bristle or nylon brush after the mortar has dried, but before it is initially set (1-2 hours). Mortar that has hardened can usually be removed with a wooden paddle or, if necessary, a chisel.

Further cleaning is best accomplished with plain water and natural bristle or nylon brushes. If chemicals must be used, they should be selected with extreme caution. Improper cleaning can lead to deterioration of the masonry units, deterioration of the mortar, mortar smear, and efflorescence. New mortar joints are especially susceptible to damage because they do not become fully cured for several months. Chemical cleaners, particularly acids, should never be used on dry masonry. The masonry should always be completely soaked once with water before chemicals are applied. After cleaning, the walls should be flushed again with plain water to remove all traces of the chemicals.

Several precautions should be taken if a freshly repointed masonry wall is to be cleaned. First, the mortar should be fully hardened before cleaning. Thirty days is usually sufficient, depending on weather and exposure; as mentioned previously, the mortar will continue to cure even after it has hardened. Test panels should be prepared to evaluate the effects of different cleaning

Figure 17. This photograph shows the significant visual change to the character of this historic brick building that has resulted from improper repointing procedures and a noticeably increased thickness of the mortar joints. Photo: Lee H. Nelson, FAIA.

Mortar Types			
(Measured by volume)			
Designation	Cement	Hydrated Lime or Lime Putty	Sand
M	1	1/4	3 - 3 3/4
S	1	1/2	4 - 4 1/2
N	1	1	5 - 6
O	1	2	8 - 9
K	1	3	10 - 12
"L"	0	1	2 1/4 - 3

Suggested Mortar Types for Different Exposures			
	Exposure		
Masonry Material	Sheltered	Moderate	Severe
Very Durable: granite, hard-cored brick, etc.	O	N	S
Moderately Durable: limestone, durable stone, molded brick	K	O	N
Minimally Durable: soft hand-made brick	"L"	K	O

methods. Generally, on newly repointed masonry walls, only very low pressure (100 psi) water washing supplemented by stiff natural bristle or nylon brushes should be used, except on glazed or polished surfaces, where only soft cloths should be used.**

New construction "bloom" or efflorescence occasionally appears within the first few months of repointing and usually disappears through the normal process of weathering. If the efflorescence is not removed by natural processes, the safest way to remove it is by dry brushing with stiff natural or nylon bristle brushes followed by wet brushing. Hydrochloric (muriatic) acid, is generally ineffective, and it should not be used to remove efflorescence. It may liberate additional salts, which, in turn, can lead to more efflorescence.

Surface Grouting is sometimes suggested as an alternative to repointing brick buildings, in particular. This process involves the application of a thin coat of cement-based grout to the mortar joints and the mortar/brick interface. To be effective the grout must extend slightly onto the face of the masonry units, thus widening the joint visually. The change in the joint appearance can alter the historic character of the structure to an unacceptable degree. In addition, although masking of the bricks is intended to keep the grout off the remainder of the face of the bricks, some level of residue, called "veiling," will inevitably remain. Surface grouting cannot substitute for the more extensive work of repointing, and it is not a recommended treatment for historic masonry.

**Additional information on masonry cleaning is presented in *Preservation Briefs 1: The Cleaning and Waterproof Coating of Masonry Buildings*, Robert C. Mack, AIA, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 1975; and *Keeping it Clean: Removing Exterior Dirt, Paint, Stains & Graffiti from Historic Masonry Buildings*, Anne E. Grimmer, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 1988.

Summary

For the Owner/Administrator. The owner or administrator of a historic building should remember that repointing is likely to be a lengthy and expensive process. First, there must be adequate time for evaluation of the building and investigation into the cause of problems. Then, there will be time needed for preparation of the contract documents. The work itself is precise, time-consuming and noisy, and scaffolding may cover the face of the building for some time. Therefore, the owner must carefully plan the work to avoid problems. Schedules for both repointing and other activities will thus require careful coordination to avoid unanticipated conflicts. The owner must avoid the tendency to rush the work or cut corners if the historic building is to retain its visual integrity and the job is to be durable.

For the Architect/Consultant. Because the primary role of the consultant is to ensure the life of the building, a knowledge of historic construction techniques and the special problems found in older buildings is essential. The consultant must assist the owner in planning for logistical problems relating to research and construction. It is the consultant's responsibility to determine the *cause* of the mortar deterioration and ensure that it is corrected before the masonry is repointed. The consultant must also be prepared to spend more time in project inspections than is customary in modern construction.

For the Masons. Successful repointing depends on the masons themselves. Experienced masons understand the special requirements for work on historic buildings and the added time and expense they require. The entire masonry crew must be willing and able to perform the work in conformance with the specifications, even when the specifications may not be in conformance with standard practice. At the same time, the masons should not hesitate to question the specifications if it appears that the work specified would damage the building.

Visually Examining the Mortar and the Masonry Units

A simple in-situ comparison will help determine the hardness and condition of the mortar and the masonry units. Begin by scraping the mortar with a screwdriver, and gradually tapping harder with a cold chisel and mason's hammer. Masonry units can be tested in the same way beginning, even more gently, by scraping with a fingernail. This relative analysis which is derived from the 10-point hardness scale used to describe minerals, provides a good starting point for selection of an appropriate mortar. It is described more fully in "The Russack System for Brick & Mortar Description" referenced in **Selected Reading** at the end of this Brief.

Mortar samples should be chosen carefully, and picked from a variety of locations on the building to find unweathered mortar, if possible. Portions of the building may have been repointed in the past while other areas may be subject to conditions causing unusual deterioration. There may be several colors of mortar dating from different construction periods or sand used from different sources during the initial construction. Any of these situations can give false readings to the visual or physical characteristics required for the new mortar. Variations should be noted which may require developing more than one mix.

1) Remove with a chisel and hammer three or four unweathered samples of the mortar to be matched from several locations on the building. (Set the largest sample aside—this will be used later for comparison with the repointing mortar). Removing a full representation of samples will allow selection of a "mean" or average mortar sample.

2) Mash the remaining samples with a wooden mallet, or hammer if necessary, until they are separated into their constituent parts. There should be a good handful of the material.

3) Examine the powdered portion—the lime and/or cement matrix of the mortar. Most particularly, note the color. There is a tendency to think of historic mortars as having white binders, but grey portland cement was available by the last quarter of the 19th century, and traditional limes were also sometimes grey. Thus, in some instances, the natural color of the historic binder may be grey, rather than white. The mortar may also have been tinted to create a colored mortar, and this color should be identified at this point.

4) Carefully blow away the powdery material (the lime and/or cement matrix which bound the mortar together).

5) With a low power (10 power) magnifying glass, examine the remaining sand and other materials such as lumps of lime or shell.

6) Note and record the wide range of color as well as the varying sizes of the individual grains of sand, impurities, or other materials.

Other Factors to Consider

Color. Regardless of the color of the binder or colored additives, the sand is the primary material that gives mortar its color. A surprising variety of colors of sand may be found in a single sample of historic mortar, and the different sizes of the grains of sand or other materials, such as incompletely ground lime or cement, play an important role in the texture of the repointing mortar. Therefore, when specifying sand for repointing mortar, it may be necessary to obtain sand from several sources and to combine or screen them in order to approximate the range of sand colors and grain sizes in the historic mortar sample.

Figure 19. Mortar joints of 18th century brick buildings were often as much as 1/2 inch wide, cut flush and struck with a grapevine joint, but for window and door surrounds where a finer quality rubbed brick was used, mortar joints were very thin. Photo: National Park Service Files.

Pointing Style. Close examination of the historic masonry wall and the techniques used in the original construction will assist in maintaining the visual qualities of the building (Fig. 18). Pointing styles and the methods of producing them should be examined. It is important to look at both the horizontal and the vertical joints to determine the order in which they were tooled and whether they were the same style. Some late-19th and early-20th century buildings, for example, have horizontal joints that were raked back while the vertical joints were finished flush and stained to match the bricks, thus creating the illusion of horizontal bands. Pointing styles may also differ from one facade to another; front walls often received greater attention to mortar detailing than side and rear walls (Fig. 19). **Tuckpointing** is not true repointing but the

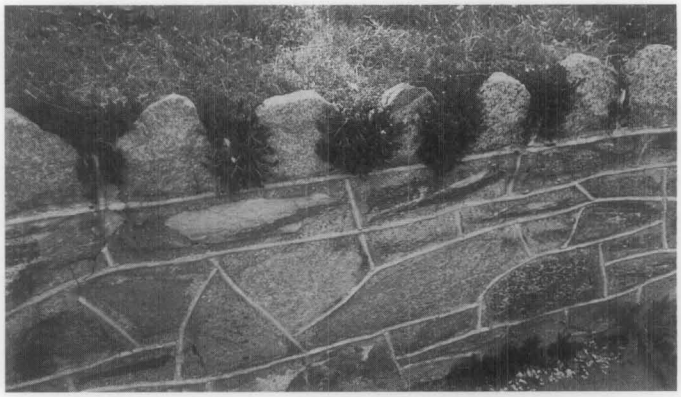
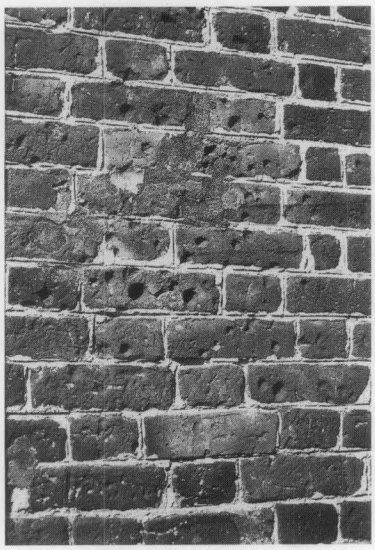


Figure 20. This stone garden wall was tuckpointed to match the tuckpointing on the c. 1920s house on the property. Photo: Anne Grimmer.



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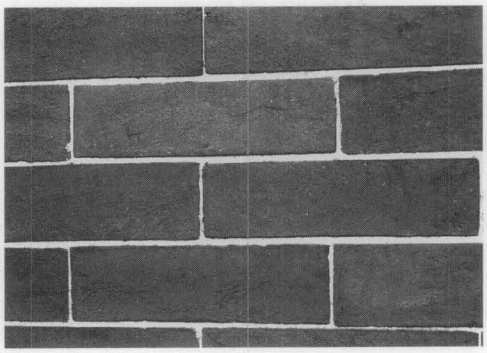

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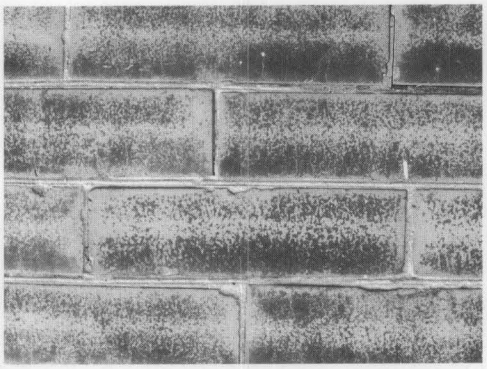

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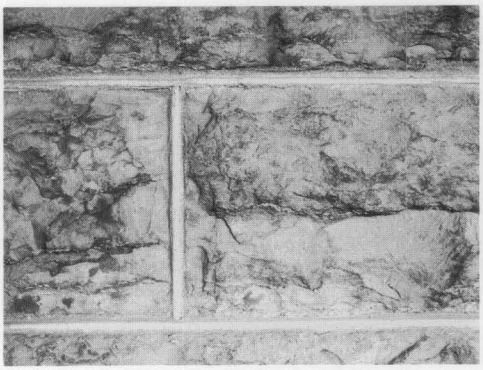

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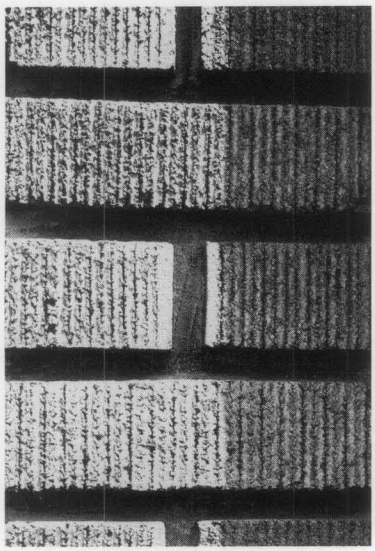

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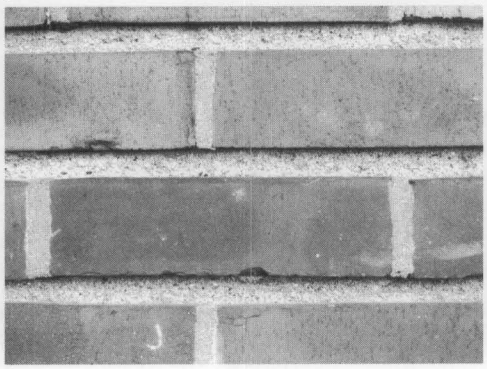

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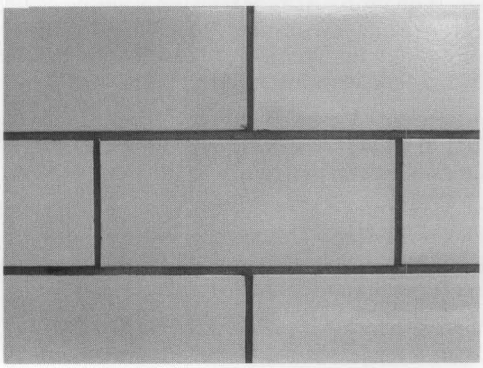

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Figure 18. A cross-section of mortar joint types. (a) Grapevine joints on a mid-18th century brick building; (b) flush joints on a mid-to-late 19th century brick building; (c) beaded joints on a late-19th century brick building; (d) early-20th century beaded joints on rough-cut limestone where the vertical joints were struck prior to the horizontal joints; (e) raked joints on 1920s wire brick; (f) horizontal joints on a 1934 building designed by Frank Lloyd Wright were raked back from the face of the bricks, and the vertical joints were filled with a red-tinted mortar to emphasize the horizontality of the narrow bricks, and struck flush with the face of the bricks; (g) the joints on this 20th century glazed terra-cotta tile building are raked slightly, emphasizing the glazed block face. Photos: National Park Service Files (a,b,e); Robert C. Mack, FAIA (c,d,f,g).

application of a raised joint or lime putty joint on top of flush mortar joints (Fig. 20). **Penciling** is a purely decorative, painted surface treatment over a mortar joint, often in a contrasting color.

Masonry Units. The masonry units should also be examined so that any replacement units will match the historic masonry. Within a wall there may be a wide range of colors, textures, and sizes, particularly with hand-made brick or rough-cut, locally-quarried stone. Replacement units should blend in with the full range of masonry units rather than a single brick or stone.

Matching Color and Texture of the Repointing Mortar

New mortar should match the unweathered interior portions of the historic mortar. The simplest way to check the match is to make a small sample of the proposed mix and allow it to cure at a temperature of approximately 70 degrees F for about a week, or it can be baked in an oven to speed up the curing; this sample is then broken open and the surface is compared with the surface of the largest "saved" sample of historic mortar.

If a proper color match cannot be achieved through the use of natural sand or colored aggregates like crushed marble or brick dust, it may be necessary to use a modern mortar pigment.

During the early stages of the project, it should be determined how closely the new mortar should match the historic mortar. Will "quite close" be sufficient, or is "exactly" expected? The specifications should state this clearly so that the contractor has a reasonable idea how much time and expense will be required to develop an acceptable match.

The same judgment will be necessary in matching replacement terra cotta, stone or brick. If there is a known source for replacements, this should be included in the specifications. If a source cannot be determined prior to the bidding process, the specifications should include an estimated price for the replacement materials with the final price based on the actual cost to the contractor.

Conclusion

A good repointing job is meant to last, at least 30 years, and preferably 50-100 years. Shortcuts and poor craftsmanship result not only in diminishing the historic character of a building, but also in a job that looks bad, and will require future repointing sooner than if the work had been done correctly (Fig. 17). The mortar joint in a historic masonry building has often been called a wall's "first line of defense." Good repointing practices guarantee the long life of the mortar joint, the wall, and the historic structure. Although careful maintenance will help preserve the freshly repointed mortar joints, it is important to remember that mortar joints are intended to be sacrificial and will probably require repointing some time in the future. Nevertheless, if the historic mortar joints proved durable for many years, then careful repointing should have an equally long life, ultimately contributing to the preservation of the entire building.

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Useful Addresses

Brick Institute of America
11490 Commerce Park Drive
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National Lime Association
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Front Cover: Repointing a historic brick building using a lime-based mortar. Traditional lime mortars have a consistency that enables the mortar to cling to a repointing tool while in a vertical position. Photo: John P. Speweik.

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