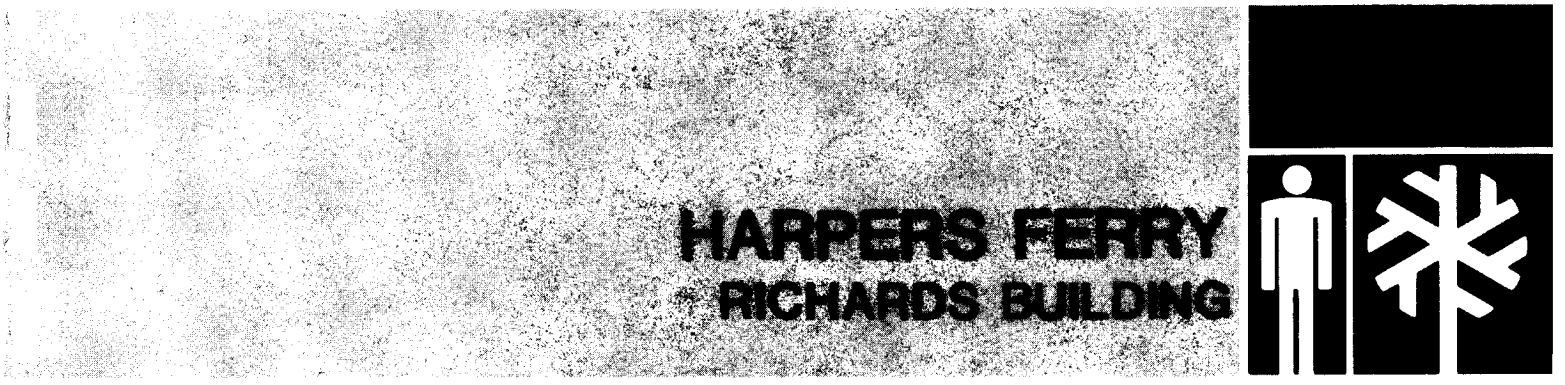
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historic structure report
building 40

december 1983



NATIONAL HISTORICAL PARK, WEST VIRGINIA

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HISTORIC STRUCTURE REPORT

Building 40/ Richards Building
Harpers Ferry National Historical Park
Jefferson County, West Virginia

Prepared by

David D. Ballard

U.S. Department of the Interior/National Park Service

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I. ADMINISTRATIVE DATA

A. NAME AND LOCATION OF STRUCTURE

The William Richards Building, Bldg. No. 40, is a part of project package no. 115. The building occupies Wager Lot No. 49 on the north side of Shenandoah Street, in the lower town of Harpers Ferry, West Virginia. Williams Richards owned and resided in the property for 23 years, from 1859 to 1865.

B. HISTORIC SIGNIFICANCE OF STRUCTURE

The entire lower town of Harpers Ferry is on The National Register of Historic Places. The lower town was built throughout the 19th century and it is the mission of the National Park Service to restore it to its nineteenth century appearance. Building No. 40 was originally built in 1824 and rebuilt in 1873. It is a resource that, while not individually possessing national significance, contributes to the national significance of the historic district and historical park.[1]

Building 40 is on the List of Classified Structures and has been assigned to management category "A." This category includes structures that must be preserved and maintained."[2]

C. PROPOSED USE OF STRUCTURE AND JUSTIFICATION FOR SUCH USE

The exterior of Building 40 will be restored to its appearance at the time of its rebuilding (1873), and the interior will be adaptively restored.

1. National Park Service, Management Policies, (Washington, D.C.; Government Printing Office, 1978), p. v-4.
2. National Park Service, Cultural Resources Management Guideline, NPS 28 (1980), Appendix H, p. 4.

The first floor, which has been used in the past as a clothing store display and is currently used as a workshop, will be open to visitors and will house demonstrations by craftspersons on the restoration process. This floor will be adaptively restored to accommodate this new use, and visible construction details of previous floor levels will be preserved and interpreted.

The upper two floors will undergo a general adaptive restoration that will render the spaces suitable for use as quarters, office or storage space as the need arises. They will not be made accessible to the general public.

This proposal is consistent with the Interpretive Prospectus for Harpers Ferry National Historical Park. This document states that the target period for restoration is "the entire 19th century" and that "with one exception (Building 9), the visitor uses are designed for .... first floor access only. The upper floors of most buildings will be used adaptively for offices, quarters, and storage."[3]

The proposal for adaptive restoration of the interior of Building 40 is also consistent with the guidelines issued in the Management Policies of the National Park Service:

> Adaptive use may be appropriate for the structures that are visually important in the historic scene but do not otherwise qualify for exhibition purposes. In such cases the facade...is treated to achieve the management purpose so that it will be properly understood from the public view. The interior is usually converted to modern functional use, but original fabric is retained wherever practicable.[4]

D. COOPERATIVE AGREEMENTS

Building 40 will be operated and managed as part of Harpers Ferry National Historical Park under the immediate supervision of a superintendent. Although there are no cooperative agreements, community

3. National Park Service, National Capital Region, "Harpers Ferry National Historical Park Interpretive Prospectus" (1980), p. 26.
4. National Park Service, Management Policies, p. v-16.

relations are an important aspect in the development of park programs and policies. This is inevitable because:

> The park is closely bordered by shops, restaurants, museums, and other enterprises catering to the tourist trade. These interests often bring their objectives to the attention of the administration of the park for consideration....Harpers Ferry is administered by a mayor and town council, and close ties must be maintained by the park if good relations are to be upheld....In addition, there are special interest groups and organizations that the park communicates with, such as the Appalachian Trail Conference, Harpers Ferry-Bolivar Merchants Association, environmental groups, and sundry organizations of the county administration.[5]

5. National Park Service, "Harpers Ferry Interpretive Prospectus," p. 35.

II. INVESTIGATIONS AND DOCUMENTARY INFORMATION

A. HISTORICAL DATA SECTION, HISTORIC STRUCTURE REPORT, WILLIAM RICHARDS BUILDING, BUILDING NO. 40

The final draft of the historical data section was completed by Charles W. Snell, historian, in October 1979. This report traces the ownership of Lot No. 49 from 1751 to the present, and describes the various buildings which have occupied this lot.

B. HISTORIC PHOTOGRAPHS

One historic photograph exists which shows the south elevation of Building 40 as it existed in October 1862. It is a photograph of a sketch which appeared in Frank Leslie's Illustrated Newspaper on November 8, 1862, and while it is not accurate in many of its details, it does manage to convey an overall correct impression of the character of the building. There are two other photographs showing the building while it was a burned out ruin from ca. 1862 to 1873. Two other photographs of a flooded lower town show Building 40 as it was rebuilt in 1873 and as it exists today. Several other photographs taken by the park at the time it acquired Building 40 are useful in determining its historic appearance. All of these photographs are included in the appendix (section A) of this report.

C. MAPS

Section B of the appendix contains six maps showing the vicinity of Lot No. 49 at various times between 1803 and 1913. The earliest map (Map 1) illustrates the buildings in existence ca. 1803. Map 2 shows the growing lower town in 1835. Map 3 is a plat map showing the subdivision of the Wager Reservation by John Wager, Jr. among his three heirs in 1835. The Sanborn-Perris maps of Harpers Ferry (Maps 4 & 5) are insurance maps and show the locations and types of buildings

standing in 1894 and 1907. The B & O Railroad main line district map (Map 6) shows the location and types of buildings standing in 1913.[6]

D. DRAWINGS

There are no construction drawings for the building or other documents to indicate the changes made to the building by the National Park Service or by previous owners. Historic American Building Survey drawings were prepared under Survey No. 32, W. Va. however, and a set of these drawings is included in Section C of the Appendix.

E. ARCHEOLOGICAL INVESTIGATIONS

The only archeological investigations of Building 40 were performed as a part of Package 112, which included lowering the streets of Harpers Ferry in 1979. These excavations, initiated and directed by Scott L. Carpenter, were primarily to establish historic grade during various phases of street paving. Upon the location of the architectural features in front of Building 40, the primary goal became the determination of how they related to the building sequence and use. Unfortunately, the excavation was limited to five (5) foot square units directly in front of Building 40. The conclusions drawn from this work are included in the architectural data section of this report, and in a report being prepared by DSC entitled "Excavations at Building 40, Pkg. 115".

6. The source of information for these maps is the "Historic Structure Report, William Richards Building, Building 40, Historical Data Section" (1979) by Charles W. Snell.

III. SUMMARY OF HISTORIC EVENTS

The following is a summary of events related to Lot 49 and Building 40.

CALENDAR OF EVENTS RELATED TO LOT 49 AND ITS STRUCTURES[7]

April 25, 1751 -- Robert Harper, a millwright from Pennsylvania, acquired land--which included the future site of Building 38--in a deed for 125 acres from Lord Fairfax.

October 15, 1782 -- Robert Harper died; the 125-acre estate was inherited by Sarah Harper, a niece of Robert Harper and wife of John Wager, Sr.

June 15, 1796 -- John Wager, Sr. sold all of the 125-acre estate--except for six acres retained in the "Six-Acre Reservation" and an additional three-quarters of an acre situated in the "Ferry Lot"--to the US government for the purpose of establishing a national armory.

February, 1803 -- N. King and L. Harbaugh did a survey (see map 1) which revealed that Lots 50, 51 and a portion of Lot #9 at this time were occupied by a garden that was probably used to provide vegetables for the use of the Wager family and the guests of their hotel (located on Lot 15).

7. The source of information for these maps is the "Historic Structure Report, William Richards Building, Building 40, Historical Data Section" (1979) by Charles W. Snell.

September 21, 1803 -- John Wager, Sr. died. John Wager, Jr. inherited 6 3/4 acres in Harpers Ferry.

October 22, 1813 -- John Wager, Jr. died; his wife, Catherine Wager, and their four minor children inherited the undivided 6 3/4 acres.

February 5, 1824 -- Catherine Wager and her son, John B., signed a ten year lease to Lot 49 with Daniel A. Weed, a Harpers Ferry merchant. Weed agreed to build a two-story stone structure on the lot with a store on the first floor and a three room residence on the second.

1824 -- Construction of Building 40 was completed.

July 29, 1825 -- D. A. Weed sold one undivided moiety of the lease to Otis Dudley for the sum of $1,400.

February 28, 1827 -- Both partners Weed and Dudley sold their rights to the lease for the remaining seven years to Isaac Newton Carter for the sum of $1,000.

February 1827 -- Isaac Newton Carter operated a store
October 1831 in Bldg. 40 and lived in the three room dwelling above his shop.

October 1831 -- Carter sold the remaining three year term of his lease to Henry Crampton.

1834	--	John Wager, Jr.'s son James Bates Wager declared bankruptcy.
November 1831 July 1835	--	Henry Crampton operated the store in Bldg. 40.
April 2, 1835	--	The inherited Wager real estate was divided into 56 numbered lots equally among the three surviving children of John and Catherine Wager: James B. Wager, Gerard B. Wager and Sally Ann Wager (Sally Ann Swayne, wife of Noah H. Swayne).
August 1835 August 1830	--	Henry Crampton sold his stock to Bushrod S. Pine, who operated a dry goods store under a one year lease.
August 1835 April 1836	--	William Avis and Joseph Lemoy conducted a boot and shoe making establishment on the second floor of Building 40.
October 10, 1835	--	Wager Lot 49, together with Building 40, awarded to Gerald B. Wager.
September 1, 1836 August 1837	--	Charles Staley and his wife, Martha A. operated a dry goods and millinery shop in Building 40.
March 1, 1837	--	Gerald B. Wager and his wife, Ellen Augusta, sold Lot 49 and its accompanying Building 40 to Thomas Hughes for the sum of $3,000.
September 1837	--	Thomas Hughes moved his store from Potomac Street into Building 40 on Shenandoah Street.

July 31, 1841	--	Lot 49 and Building 40 sold at public auction to William Chambers, an armory machinist, for the sum of $2,350.
1841-1843	--	Chambers leased the property to Joseph L. Russell and Company, a ready made clothing firm.
March 1843 November 1843	--	Occupants unknown.
December 1844 May 1846	--	David Koonce operated a dry goods store.
June 1846 April 1850	--	William Chambers left the employment of the U.S. Armory and operated a dry goods store in Building 40.
February 15, 1850	--	William Chambers and his wife, Amelia, sold Lot 49 and Building 40 to William Richards for the sum of $3,000.
1850 - 1873	--	Owned by William Richards.
1850 - Sometime between October 1862 July 3, 1863	--	Richards occupied the second floor of Building 40 with his wife.
1850 March 1853	--	John G. Ridenour apparently operated a dry goods store.
April 1853	--	R. Walter and brother operated a shop selling ready made clothing.

August 1854	--	Moses Frank became a partner and firm changed name to Walter, Bro. & Co.
April 1, 1856	--	Partnership Moses Frank dissolved. Nisan Frank was chosen as new partner; company continued as Walter, Bro. & Co.
April 1858	--	The firm of Frankel Bros. Levitoch and Hirsh occupied Building 40 and operated a ready made clothing shop.
October 1859	--	John Brown's raid.
February 1860	--	The firm of Frankel Bros. Levitoch and Hirsh was dissolved, but Bernard D. Hirsh continued to lease the store until April 1861.
Sometime between October 1862 and July 3, 1863	--	Building 40 interior destroyed by fire.
1863 - 1873	--	Unoccupied ruin.
July 15, 1873	--	W. Richards sold Building 40 and Lot 49 to Edward Tearney for the sum of $800. Tearney rebuilt Building 40, adding a brick third floor and substantially altering the facade.
1873 - 1920	--	Building 40 owned by Tearney and his heirs.
1874 - 1892	--	Myers occupied the building.

1894 - 1906	--	Occupied by an unnamed clothing store.
April, 1902	--	Mary Jane Tearney obtained possession of Lot 49 after the death of her father, Edward Tearney.
1907	--	Sanborn-Perris insurance map (map 5) shows that Building 40 was a vacant store.
1913	--	B&O Railroad company plan (map 6) shows that Building 40 was a store (variety and operator unknown).
July 1, 1920	--	Mary Jane Tearney sold Lot 49 and Building 40 to William W. Demory for the sum of $3,249.99.
May 7, 1946	--	William W. Demory and his wife Effie sold Lot 49 and Building 40 to Briscoe Smith.
November 25, 1952	--	Briscoe Smith sold Lot 49 and Building 40 to the state of West Virginia.
December 19, 1955	--	The state of West Virginia donated Wager Lot 49 and Building 40 to the U.S. government for inclusion in the Harpers Ferry National Historical Park.

IV. ARCHITECTURAL DATA

A. HISTORIC APPEARANCE

1. Site

Building 40 was constructed in 1824 on Lot 49 between two existing buildings, a stone stable on Lot 50, and the stone drug store of Dr. Weise on Lot 48. Map No. 2 shows Building 40 abutting the stone stable. Building 40 was to be built "having two feet between the said store house and Dr. Weise's for a passage to the rear of the lot." Photograph No. 4 shows two windows in the southwest end wall of Building 40 closed with stone, indicating that the 1824 specifications were implemented at that time.

The rear of Lot 49 extends back to the public walk (stone steps which provide access to the Catholic Church from High Street --See maps 3 and 4). Since there are no historic photographs of the rear of Building 40, it is difficult to determine the appearance of this area. The rear wall of the building is separated from a rock cliff rising parallel to the wall to about the second floor level. Joist pockets in the wall indicate that some type of porch once spanned from the building to the cliff. Further evidence for this conclusion is the existence of a rear door at the second floor level. Once upon the cliff, stone steps rise along the eastern edge of the lot to the public walk. Part of the cliff terrace is occupied by ruins of a former structure, perhaps a smoke house or store house. However, there are no historic photographs of it. It is not mentioned in historic chronicles, and no archeology has been performed on it. It is recommended that further research be conducted on the Building 40 annex.

2. Exterior

When Daniel A. Weed leased Lot 49 in February 1824, he agreed to build a stone store house, two stories high, 33 feet wide by 35 feet deep.

> And D. A. Weed binds himself to erect a double portico or diaza, i.e., one opposite the cover story and the other opposite the upper story connected by a staircase on the outside. And he further binds himself ... to dig a cellar underneath the house and he is also to lath and plaster the (living) rooms on the upper floor . . .

The actual dimensions of Building 40, as erected by Weed in 1824, are 32 feet 9 inches on the Shenandoah Street front elevation by 34 feet 2 inches in depth. A large two-story frame porch extended across the front elevation and projected out over the sidewalk. A sketch made in October 1862 (photograph 1) indicated that the gable roof ran from north to south and extended out over the portico and was treated as a pediment. There was a semi-circular window located in its center. This same sketch also suggests that there was at least one dormer window on the east side of the gable room. The roof was probably wood shingled sheathed with horizontal wooden clapboards. There appears also to have been a brick chimney in the east side wall of the building. There must have been a chimney in the rear gable wall as well, for there is a fireplace on the first floor that clearly predates the 1873 reconstruction. (See Photo 5).

The front elevation was divided into four bays. The first floor fenestration from the west consisted of window, door, window, door. The second floor fenestration was window, door, window, window. All three doors had transoms. The door and window heads appeared to be equal heights, occurring just below the portico ceiling on both floors. The exterior front stone walls were parged and whitewashed.

An areaway beneath the portico provided access to the cellar. This areaway, according to archeological excavations performed in 1979, was paved with shale. The areaway wall, approximately 2 feet thick, ran parallel to the front wall of Building 40 some 7 feet further to the south.

8. Articles of Agreement, February 5, 1824, Deed Book 12, p. 513.

Photograph 4 (Appendix A) shows Building 40 as a burned out ruin from 1863-1873. From this photo it appears that a doorway into the cellar was located in the center of the front wall. It also appears that there may have been two cellar windows, one on either side of the door. Further archeological investigations should be performed to substantiate this.

The west elevation originally was penetrated by three windows, two on the second floor, and one on the first floor. Two of these windows, the southernmost one on the second floor and the window on the first floor, were later closed with stone. A ghost outline on this wall also indicates that at some time after 1835 and probably prior to 1860, the stone house in Lot 48 was enlarged by extending it to the east so that its new eastern wall abutted against the western wall of Building 40, thus creating the shadow on the stone. The second story window was probably walled in at that time. The first story window was most likely closed at this time as well, although there is no evidence that the expansion of the stone house on Lot 48 covered this section of the Building 40 west wall at this time. The Kaplan Building, erected in 1900, covered the entire west wall and the remaining windows in Building 40 were merely closed with boards, not with the permanence of stone infill. (See Photo 9).

The rear elevation is punctuated by three equal sized windows on the first floor level. These windows are directly opposite the cliff face 6 feet to the north. Their spacing is roughly symmetrical.

The second floor contains two windows and one door. Window 205, on the western edge of the elevation, is the same size masonry opening as the three former windows on the first floor and as window 204 on the southwest elevation of the second floor. Window 206 does not correspond in size to any other windows on the second floor.

The third floor contains three windows and one doorway on the rear elevation. The arrangement is non-symmetrical. The doorway is located along the western edge of the elevation.

The northeast elevation contained at least two windows prior to the construction of Building 38 in 1844. These two visible window openings are located along the northern edge of this elevation where the rear wall of Building 39 intersects Building 40. The window on the first floor was apparently closed with stone during or shortly before the construction of Building 38.

This conclusion is drawn from the fact that a part of the window closure is covered by the rear wall of Building 38. (See Photograph 22.)

The rear stone wall of Building 38 is slightly distorted at the second floor level where the wall meets Building 40. This slight adjustment made during the construction of the wall allowed the window to remain. The window has since been closed with brick. (See Photograph 21.)

3. Interior

When Building 40 was constructed, it was "to be built of stone, two stories high and fitted for a storehouse -- the apartments of the understory are to be three in number and the upper floor to be divided into three apartments [for use as a residence] . . . ."[9]

The exact location of the interior partitions is not known for certain, however, it is rational to assume that since there were two doorways on the front elevations, a north-south wall ran perpendicular to the front wall, dividing the interior space into a store room and hallway. The store was three bays wide while the hallway was one. The store was probably further divided into a front and back room, since it was the larger of the two spaces, and the articles of agreement called for three rooms to be constructed. The articles further called for construction of a double portico, with the upper story connected to the lower story by a staircase on the outside. Since there was a doorway on the second floor opening into the porch and the first and

9. Articles of Agreement, Feb. 5, 1824, Deed Book 12, p. 513.

second floor were often occupied by different persons for entirely different purposes, it seems logical to assume that no interior stairway connected the two floors.

The fire that left Building 40 in ruin and the extensive remodeling of the building that followed during its reconstruction have removed almost all evidence of the original fabric. The one exception is on the rear wall. Here painted plaster stops abruptly at what was the historic floor level, indicating that painted plaster on stone walls was the interior finish.

The first floor probably originally consisted of tongue and groove wood flooring supported by wood joists. This system was common in Harpers Ferry in the early 1800s.

The ceiling finish is unknown, but may have consisted of plaster on wood lath, or tongue and groove boards.

All that is known of the interior configuration of the second floor is that it was to be divided into three rooms, and they were to be lathed and plastered. Building 40 was described as a "large store house with two rooms and a kitchen over the store" in a March 1843 rental advertisement.

The original cellar, which was probably filled in during the building's reconstruction, may contain pre-Civil War objects and building hardware that fell into the basement during the fire. The basement has not yet been archeologically investigated.

B. EXISTING CONDITIONS

1. Site

Building 40 is situated on Lot 49 on the northwest side of Shenandoah Street. In front of the building is a brick walk about 10 feet wide, which was installed by the Park Service in 1979. There is no vegetation in front of the building.

At the time Building 40 was constructed, there were existing buildings on the adjacent lots. Building 40 abutted the stone stable on Lot 50, and was separated from the stone house on Lot 48 by an alleyway. The stable was torn down in 1844 to make way for Building 38, which was constructed that same year. The northeast elevation of Building 40 became a shared wall with the new Building 38, and in fact the gable of Building 38 stood above the roof line of Building 40. When Building 40 was rebuilt in 1873 this gable became an interior wall.

Sometime prior to 1900 the stone house on Lot 48 was destroyed to make way for the Kaplon Building, a four story brick structure erected in 1900. This building was demolished in 1957, and the lot stands today as a vacant, grassy space. A three story stone wall faces the rock cliff separating the rear portion of Lot 49 from Lot 48. There is one tree near the center of Lot 48.

The rear of the Lot 49 is terraced, the lower terrace being occupied by the ruins of the Building 40 annex and overgrown with vegetation. The upper terrace is a mown, manicured lawn area, separated from the public walkway and the adjacent Lot 48 by a wooden picket fence.

There are two doors on the northwest elevation. Door no. 208 on the second floor is connected to the lower terrace by a wooden bridge. Door no. 304 on the third floor is connected to the upper terrace also by a wooden bridge.

2. Exterior

a. Walls

The first floor walls are constructed of stone, the front elevation stuccoed and scored to simulate cut stone. They measure approximately 1' - 8" thick.

The original second floor walls were also constructed of stone. However, when Building 40 was reconstructed by Edward Tearney in 1873, the entire second story front facade was dismantled and rebuilt with brick.

The third story walls are also brick and date from the 1873 reconstruction. They are common bond brick walls with headers at every sixth course, two wythes thick. The brickwork and the bricks themselves appear to be superior in quality on the front facade to that on the remaining three facades.

Both the front and rear walls are capped by a plain, three course corbelled brick cornice. (See photograph 27).

The side walls of Building 40 are gables. The northeast wall is partially an interior wall, since it is a shared wall with the gable end of Building 38. Viewed from the interior of Building 38, this wall is stone at the first and second floor levels, but changes to brick about 1 foot 8 inches above the third floor. Atop this 11-inch band of corbelled brick is a wood plate. The wall then continues up in an irregular combination of stone, brick, and vertical wood members. Photograph 53 shows that a portion of this wall (viewed from Building 38) revealed when plaster was removed. Several openings were originally located in this wall, one in room 301, one in room 302, and one in the attic. Originally Building 40's gable roof sloped down towards this wall. The 11 inch high corbelled brick section of wall was probably the brick cornice under Building 40's eaves. When Building 38 was constructed, the height of this wall was increased to form Building 38's south gable. When Building 40 was reconstructed, this south gable became an interior wall and the windows were bricked up.

b. Roof

Building 40 has a low pitched, gable roof; the gable runs parallel to the front facade. The roof is standing seam metal on 1" X 12" sheathing. There is no overhang at the gable end. The

roof edge flashing overlaps the sidewalls. There is no bargeboard. A galvanized steel gutter hangs along the front and rear elevations.

c. Chimneys

Building 40 presently has four chimneys; two on the northwest wall and one each on the southwest wall and northeast wall. Two of these chimneys have two flues; the other two contain one flue each. These interior brick chimneys rise flush with the wall to varying heights above the roof.

d. Windows

There are presently fourteen windows in Building 40. The first floor has two large storefront windows on the front elevation. The second floor has two on the front elevation, two on the rear elevation, and one on the southwest. The third floor contains three windows on the front, three on the rear, and one on the southwest.

The first floor storefront windows consist of four fixed rectangular panes set in wooden frames on either side of the entry. Below each window is a decorative wooden panel.

The storefront masonry opening has square jambs from the finish floor up to 5'4". Above this the jambs are splayed at an approximate 30° angle. These splayed jambs are the window jambs of the original 1824 building, with the squared off portion indicating the original sill height.

The three former windows in the first floor rear wall have been abandoned. The easternmost window has been infilled with brick. The other two window openings have had the sash removed and replaced with wooden louvers on the exterior. The interior has been sealed with plywood panels fastened to the original window frames.

The second floor windows on the front elevation are six over six and are about the same size as the third floor windows that are lined up directly above them. The main difference between the two floors are the lintels; the second floor windows have flat jack arches, while the third floor windows have wooden lintels.

Window no. 206, centered on the rear elevation at the second floor level, is six over six and has a visible wooden lintel. This window also has splayed masonry jambs, which, unlike windows no. 204 and 205, extend from the window head to the finish floor. The front edge of the wooden frame has a modified ogee profile. All of the other windows have beaded frames.

The sash of the third floor window on the southwest elevation, window no. 304, is a two over two, ill-fitting replacement, probably installed when the window was uncovered in 1957. The masonry opening is the same size as the third floor windows on the rear elevation; the main difference being the flat jack arch above window 305, while the remainder of windows on this floor have flat wooden lintels.

Window 305 of the western half of the elevation is missing original sash and is presently closed with a plywood panel. The remaining two windows on the rear elevation are six over six.

The third floor windows on the front elevation are six over six and, as previously mentioned, line up directly over the second floor fenestration.

The windows are in need of repair. Most of the sashes need to have the glazing compound replaced and are missing hardware. Many of the wooden sills are deteriorating and need attention.

e. Doors

There are presently four entrances to Building 40. All have wooden doors set in wooden frames.

There are two entrances to the first floor along the Shenandoah Street elevation. The main entry to what was the store is a pair of doors, with the right hand leaf being the active leaf. Both doors have three horizontal panes of glass above a large single flush wooden panel. These panels are raise molded on the interior.

Door no. 103, on the eastern edge of the building, is an oversized four panel door with raised molded panels on the outside and flush moulded panels inside. The plain, exterior jamb liner has a front beaded edge.

The interior masonry opening is splayed and plastered. Both of the first floor front doors (doors 101 and 102) have transoms above the door openings. Both transoms consist of two panes of glass side by side. The transom bar above door 101 is a turned ovolo. The transom bar above door 102 is more ornate, resembling a modified egg and dart molding. Both of the transoms are fixed.

A third doorway is located in the front elevation at the second floor level directly above door 101. This doorway is now covered with plywood, but earlier photographs show that a pair of French doors once occupied this opening. Each leaf had one row of four lites. The doors may still be in place, sandwiched by plywood on the outside, and a tub enclosure inside.

The rear elevation has two doorways, one each on the second and third floor levels. Both of these doorways are accessible by wooden ramps spanning from the door openings to the rock cliff at the rear of the lot.

Door no. 208, on the second floor, is a raised panel, ogee sash door. This door has four panels, two larger panels over two smaller panels. The plain exterior jamb liner has a beaded front edge. The interior masonry opening is splayed and plastered.

Doorway 208 has a transom above the door opening. The transom consists of two lites side by side. This transom also has a decorative turned ovolo similar to the transom bar of doorway 101.

Doorway no. 304 on the third floor is also a raised panel ogee sash door. It has four panels, two larger panels above two smaller ones. There is no transom at this opening.

3. Structural Systems

From information uncovered during the brief archeological excavations performed in 1979, the frequent rock outcrops on the site, and past experience with similar structures in Harpers Ferry, it can be reasonably assumed that the building foundations are built with local shale bearing on bedrock.

The perimeter walls are all load bearing. The northeast and southwest walls carry the second and third floor loads, while the northwest and southeast walls carry the third floor ceiling and roof loads. The walls of the first story are built of Harpers Ferry shale and are 1 foot 8 inches to just over 2 feet thick. These stone walls date from the original construction of Building 40 in 1824.

Three of the second story stone walls, the southwest, northeast and northwest walls, are also circa 1824, approximately 1 foot 9 inches thick. The southeast or front wall is a 9 3/4 inches thick brick wall erected in 1873 when Building 40 was reconstructed.

All of the third floor walls are 9 3/4 inch thick circa 1873 rebuilt brick walls.

There is an interior brick bearing wall on the first floor running perpendicular to the front wall which carries the second floor joists and supports a frame bearing wall on the second floor immediately above. This frame wall in turn carries the third floor joists.

The first floor is constructed of a concrete slab of undetermined thickness with a smooth painted finish. It was installed circa 1959.

The second floor system consists of 2" x 11 1/2" joists spaced at 16" on center covered by 3/4" thick tongue and groove random width flooring.

The third floor system consists of 1 1/2" to 2 7/8" x 11 1/2" joists spaced at 24" on center covered by 7/8" thick tongue and groove random width flooring. The third floor ceiling joists are 2" x 7 3/4" spaced at 24" on center. Both the rafters and the ceiling joists span from front to rear and run perpendicular to the second and third floor joists.

A more complete description and analysis of the existing structural system of Building 40 is presented in the engineer's report included in the appendix of this report.

4. Interior

a. Floor Plans

At present the first floor is being used by Harpers Ferry Park as a workshop in which to conduct the restoration activities for the lower town. The second and third floors are presently vacant.

The first floor is divided into four spaces. The workshop is located in what was historically the store, room 101. Centered at the rear of this space is the boiler room, partitioned in 1968. The northeast corner of the building is a bathroom, room 103, built by the National Park Service. The stairs in the hall, room 104, lead to the second and third floors.

The second floor originally contained four rooms. The original hall along the northeast wall has been subdivided into the hall,

room 207 and the bathroom, room 203. The large front room has been subdivided by a 7-foot tall partition into the kitchen, room 202, and another equal sized room, room 201. The two rear rooms (rooms 204 and 206) have been modified by having their common wall removed and replaced by two parallel walls to provide closet space for both rooms.

The small hall, room 205, was constructed at the same time. Another closet, room 210, was constructed in the northeast corner of room 206 to house the electrical panel and transformer which provide power to Building 40.

The third floor is reached by a stairway rising from room 207 below into room 307. There are four other rooms on this floor which all open onto a central hallway. None of the rooms interconnect and it is apparent that this floor has changed little since the 1873 rebuilding.

b. Partitions

There is one historic portion on the first floor, i.e., the brick bearing wall that runs the full depth of the building from front to rear. It is likely that there was a partition built in this location when Weed constructed Building 40 in 1824. However, it is unlikely that the original wall survived the fire. The present 10 inch thick brick wall was probably built by Tearny in 1873. This wall is plaster finished on both sides.

There is an 8 foot high masonry partition surrounding the "boiler room" (room 102) centered along the rear wall of room 101. This partition is not tied into the stone masonry and does not extend to the ceiling.

The bathroom (room 103) was partitioned with fibre board on wood studs by the National Park Service.

The second floor partitions have undergone some alterations in recent years. (Previously discussed under the floor plan section). The original partitions are constructed of wood studs covered with sawn wood lath and plaster. The newer partitions are wood studs covered with drywall, or, in the case of the electric room, (room 210), pegboard.

The third floor partitions have not been significantly altered since 1873. They are constructed of wood studs covered with wood lath and plaster.

The interior walls are in need of repair. There are many cracks and holes in the plaster and several areas where water intrusion has damaged the plaster.

c. Floors

The floor on the first level is painted concrete with a smooth finish. The floor was installed by the National Park Service in 1960 and is in good condition. This floor level is approximately 4 feet 6 inches lower than the original floor.

The upper floors are constructed of random width, tongue and groove wood flooring running from front to rear. The second floor has been covered with vinyl tile over one-quarter inch plywood underlayment. The third floor still retains the wood flooring.

There are several holes or patches in the floors:

(1) In Room 301 there is a 4'2" x 1'8" patch in the floor
(2) In Room 303 there is a 14" x 16" opening in the floor
(3) In Room 304 there is a 4' x 8' plywood patch on the floor

d. Ceilings

There are several finish ceiling materials used in Building 40.

In Room 101 on the first floor the ceiling consists of painted, beaded, tongue and groove wood boards running front to rear. In Room 103 the fibre board ceiling is the same material as the walls. The hall (room 104) has a one-quarter inch plywood ceiling installed by NPS when the bathroom on the second floor was installed.

Only rooms 201 and 202 on the second floor retain their original wood lath and plaster ceilings; the other rooms have been redone with drywall, with the exception of the hall (room 207), which is plywood.

All the ceilings of the third floor rooms are plaster over wood lath. A rectangular opening in the ceiling of room 302 provides access to the attic.

All of the ceilings are painted. The ceiling on the third floor is in the same shape as the walls, with many cracks, some holes and loose plaster.

e. Doors

There are sixteen interior doors in Building 40. While doorway no. 209 no longer has a door, hinge marks on the jamb testify that one did once exist.

Another doorway (no. 210) has been removed completely and the opening finished to match the surrounding walls.

All of the doors suspected of being original (nos. 103, 104, 301, 302, 303, 305) are four panel wood doors consisting of two large panels over two smaller panels.

These doors are all roughly the same size, 2'6" wide by 6'5" high, and can be further identified as raised panel, ogee sash doors. Most of these doors (nos. 301, 302, 303, 305) also have an operable transom window. Three doorways on the second floor (nos. 202, 203, 209) also once had transoms, which have been removed and replaced with tempered hardboard panels.

Most of the doors on the second floor are replacements. Closet doors (205, 206, 207) are 1 3/8" thick flush doors hung on bypass tracks. Door nos. 201, 202, 203, and 204 are hinged, flushed doors.

Door no. 105 is the most modern doorway and is a hollow metal door set in a hollow metal frame.

f. Trim

The trim in Building 40 is fairly consistent. All of the doors and windows on the third floor, all of the second floor windows (with the exception of window no. 206) and some of the second floor doors (nos. 202, 203, 209) have the same style trim. This trim (referred to in the drawings as typical architrave) is fluted and beveled/beaded along the inside edge. (See photograph 58). All corners are mitred; there are no corner blocks or plinths. The windows all have an apron whose profile matches the architrave.

Window 206 has no separate architraves. Its only ornament is the square-edged frame with an applied bullnose stop, and a flat board apron with an inverted ogee cap.

Doorway nos. 104, 204, 205, 206, and 210 are modern openings and have plain, flat board architraves.

Doors nos. 101 and 208 have beveled/beaded architraves while the entry door no. 102 has a flat beaded architrave.

The storefront windows, nos. 101 and 102, have no existing interior trim, however, nail holes along the edge of the wood jambs indicate this was not always the case.

There is only a plain, flat wood base found in the building. This base varies slightly in height and in appearance by the use of two types of ogee caps and two types of "shoe mold", quarter round and flat.

g. Stairways

Building 40 has two interior stairways connecting the first and second and second and third floors. They are both straight run, located above and beneath each other along the northeast wall.

The stairs are basically the same; both appear to be in good condition except that the treads are worn. The first-second floor stair has 20 treads and 21 risers, while the second-third floor stair has 17 treads and 18 risers. Both stairs have an open face stringer and a handrail with turned balusters. The handrail rises uninterrupted from the newel post on the first floor up to the third floor where it dies into a wall. The handrail wraps around the stair openings on the second and third floor to guard the stair landings.

h. Fireplaces

There are at present no fireplaces in Building 40. There is evidence that one was located on the first floor along the rear wall between windows 103 and 104. The evidence includes broken brick fireplace 'cheeks' in the stone wall approximately 4'6" above the present concrete floor (see partial interior elevation), indicating that the floor level has been lowered by 4'-6".

5. Heating/Cooling/Electrical/Plumbing Systems

Building 40 was reconstructed with chimneys. While no fireplaces exist, all of the chimneys have stove pipe holes which indicate that at one time stoves were used for heat and vented through the chimneys.

There is one rectangular opening in the floor of room 303. This opening has a grill and was added to aid in the circulation of heated air.

In 1968, the National Park Service awarded a contract to install an oil fired hot water heating system. This included the boiler on the first floor and convectors in the hall (room 104) and throughout the second floor. There are no convectors on the third floor. This system is supplemented by ceiling mounted forced air space heaters used in the shop.

Use of the boiler was discontinued in 1978 as both an economic and safety measure. To provide heat in the second floor apartment, the park installed electric ceiling mounted space heaters in rooms 201 and 206 during the winter of 1982-83.

All of these systems are a visual intrusion and should be modified when the building is restored.

The window air conditioning unit in room 101 and the one in 204 cool the building.

There is ample electric service to the building. The circuit breakers are located on the first floor on the east wall of room 101. The wiring in the upper floors, particularly the third, should be updated if any interior alteration is undertaken.

The plumbing system was added during the post-historic period and is in operating condition. There is some question about the suitability of the waste stack which rises inside the rear wall and seems

to end just under the third floor. The whole system should be thoroughly checked if it is to be placed into routine service.

6. Water Problems

There are three sources of water problems associated with Building 40: floods, seepages from the cliff at the rear of the building, and water intrusion through the deteriorated building envelope.

Building 40, along with many other buildings along Shenandoah Street, has experienced several floods. It is located in the 50-year floodplain, and it can be assumed that the first floor will continue to experience floods in the future. Photograph 7 shows Shenandoah Street during the 1924 flood.

The rock cliff at the rear of building 38 is another source of water problems. Water seeps out from rock seams in the cliff face and accumulates in the area between the cliff and Building 40. This area has been covered with a concrete swale which directs the seepage to Lot 48.

The third area of water problems concerns water intrusion due to deteriorated building materials. This occurs mainly at chimney flashings and at the heads of door openings and results in water stained and deteriorated plaster. This situation must be corrected before any interior work is undertaken.

V. RESTORATION ALTERNATIVES

Three alternatives for restoration will be considered:

A. No action
B. Restoration to the 1873 period
C. Restoration to the 1824 period

A. No action would have the adverse impact of allowing the present deterioration to continue, resulting in further loss of historic fabric and possibly leading to life threatening situations. This alternative is inconsistent with the Management Policies of the National Park Service, and the Interpretive Prospectus for Harper's Ferry.

Applying the criteria of effect 36 CFR Part 800.3(a), it is determined that no action would have an effect on the structure. The criteria of adverse effect, 36 CFR Part 800.3(b) indicate that this effect would be adverse because of:

Neglect of a property resulting in its deterioration or destruction.

B. The second alternative, restoration to the 1873 period, is consistent with the Management Policies of the National Park Service, the Cultural Resources Management Guidelines (NPS-28) and the Interpretive Prospectus for Harpers Ferry NHP.

Applying the criteria of effect, 36 CFR Part 800.3(a), it is determined that restoration to the 1873 period would have an effect on the structure. However, applying the criteria of adverse effect, 36 CFR Part 800.3(b), indicates that this effect would probably not be adverse because:

1. The proposed work would not result in the destruction of significant features of the property. Most of the modifications are planned for the first floor, which has been modified since its original construction.

2. The proposed work would not isolate the building from, or alter its surrounding environment. The proposed work would re-create the historic scene of the mid-1800s.

3. The proposed work would not introduce visual, audible or atmospheric elements that are out of character with the property or alter its setting.

4. The proposed work would not result in the transfer, sale, deterioration, or destruction of federally owned property.

C. The third alternative, restoration to the 1824 period, is inconsistent with the Management Policies of the National Park Service, and the Cultural Resources Management Guidelines (NPS-28):

> It is ordinarily better to retain genuine old work of several periods, rather than arbitrarily to 'restore' the whole, by new work, to its aspect at a single period.[10]

Applying the criteria of effect, 36 CFR Part 800.3(a), it is determined that restoration to the 1824 period would have an effect on the structure. Applying the criteria of adverse effect, 36 CFR Part 800.3(b), indicates that this effect would probably be adverse because:

> The proposed restoration will involve the substantial alteration of a significant portion of the existing structure. The only surviving picture of the building as it existed prior to the building is a sketch which appeared in Frank Leslie's Illustrated Newspaper on November 8, 1862.

In order to comply with the NPS procedures for implementing Executive Orders 11988, "Floodplain Management," and 11990, "Protection of Wetlands," the following were considered for all three alternatives:

- Building 40 is located within the 50-year floodplain.
- Building 40, which is listed on the National Register, would continue to be managed according to NPS-28 to assure its on-site preservation.
- While there would be display areas on the first floor, any exhibits located there could easily be evacuated to the second floor.

10. National Park Service, Management Policies (Washington, D.C.: Government Printing Office, 1978), p. V-15.

VI. PROPOSED WORK PROGRAM: IMPLEMENTATION OF ALTERNATIVE B

The proposed work for Building 40 can be separated into three areas:

A. Exterior restoration: The work needed to restore the building to its 1873 appearance.

B. First Floor Adaptive Restoration: The work required to provide for public access and demonstration areas on the first floor.

C. Second and Third Floor Adaptive Restoration: The work required to upgrade the second and third floor spaces to provide for offices, quarters, or storage.

A. EXTERIOR RESTORATION

Building 40 is presently vulnerable to future loss of historic fabric due to its water intrusion problems. The work outlined under exterior restoration should be performed as soon as possible to mitigate this cost. Only after this work is completed can the interior adaptive restoration work be initiated.

1. Walls

The stone walls on the north and west elevations should be cleaned with a medium pressure warm water wash. This process should remove loose mortar, dirt, and vegetation, exposing the wall for examination and repointing. The wall should be repointed with a lime mortar which matches the existing mortar in composition, color, and texture.

Any loose parging found on the elevation should be removed and reparged with a cement coating matching the original in color, texture, and composition. It should also be scored to resemble cut stone.

The brick walls of the north, south and west elevations should be cleaned with a low pressure warm water wash, using no detergents or abrasives. A natural bristle brush should be used in stubborn areas, using only horizontal and vertical strokes. This process, again, should remove loose mortar, dirt, and vegetation, allowing examination and repointing of the brick masonry, if required. Any damaged brick should be replaced. The walls should be repointed with a lime mortar matching the existing in composition, color, and texture.

2. Store Front

The wooden "Phillip Frankel & Co." sign above the entry should be removed. The sign hanging alongside the entry should be replaced with a sign that reflects the adaptive use of the building. Missing or inappropriate wooden elements of the doors should be replaced.

All wooden elements of the storefront should be carefully scraped and sanded to remove the peeling paint. The cracks in the woodwork should be repaired with an epoxy filler, and the bare wood should be treated with a mixture of three cups exterior varnish, one ounce paraffin wax, and mineral spirits. After the surface has thoroughly dried, the treated surface can be painted. A high quality oil base primer, followed by two top coats of an oil-base paint, is recommended.

The temporary wooden steps should be replaced with stone steps with a wrought iron rail, similar to the entrances found on other buildings on Shenandoah Street.

The second story balcony that extended across the front elevation should be replaced.

3. Doors

Where repairs are required, the existing door frames and doors should be carefully removed, restored, and put back into place. Any wooden replacement parts required should be identical to their historical counterparts. All woodwork should be refinished by the methods prescribed for woodwork in Part 2 - Storefront. All non-historical hardware should be removed and replaced with period replicas. Reinstalled wood door frames should be protected by copper clad foil when in direct contact with masonry.

In particular, the plywood panel covering door no. 211 should be removed and the French doors reinstalled.

4. Windows

When required for repairs, the window frames should be carefully removed, restored, and put back into their original positions. Historic replica sash should be built and installed in windows 304 and 305. The louvers and plywood panels should be removed from windows 103 and 104, and historic replica sash should be built and installed. The glazing putty in all sashes should be replaced. Historic replica shutters should be built and installed on all windows which have pintles, or have evidence of once having had pintles. Windows on the adaptively restored second and third floors should have interior storm windows installed.

5. Chimneys

The existing chimneys should be carefully examined for cracked, spalled, loose or rotten brick, and historically compatible repairs should be made.

Each chimney should be covered by a low screened chimney cap with a water tight top to reduce water and animal intrusion while these chimneys are not in use. If the chimneys are put to use, the

chimney caps should be replaced by spark arrestors and all flues and linings should be examined and replaced or repaired as required.

6. Roof, Gutters, Downspouts and Drainage.

The present structural system of the roof is in generally good condition and no repairs are required at this time. However, the roof has numerous leaks, particularly around the chimneys. The flashing in these areas should be inspected and repaired or replaced as required. While the roof is in reparable shape now, its condition should be reassessed when the adaptive restoration work is undertaken. It should be replaced with a tern-coated standing seam metal roof.

The present guttering and downspouts are functioning adequately. They should be inspected and cleaned of accumulated debris yearly to ensure their continued performance.

The concrete swale along the rear of the building should also be cleaned of debris periodically to ensure that water is directed away from the structure.

B. FIRST FLOOR ADAPTIVE RESTORATION

Because the first floor would be designed for visitor use, accommodations for the physically handicapped should be investigated. The three steps which lead from the sidewalk to the first floor level at the front entry place this barrier in Category 2, moderate problems.*

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*Volume 1, Guide, Accommodation of Handicapped Visitors at Historic Sites (National Park Service, 1979) defines three categories of accessibility barriers. Category 2, moderate problems includes:

1. Three or more steps at an entrance
2. The lack of external railings
3. Inaccessible toilet facilities
4. Narrow or uneven walks
5. Narrow entrances
6. High thresholds

Some actions to remove this barrier would visually affect the historic scene. These solutions include:

1. Constructing a permanent ramp.
2. Installing a mechanical lift.
3. Regrading the sidewalk at the front entry.

These solutions are not recommended. Other, more desirable means of lessening the impact of this barrier might include:

1. Constructing a portable ramp.
2. Assigning personnel to assist the handicapped.
3. Interpreting the demonstration in a nearby accessible location.

The nonhistoric masonry partition which encloses room 102 should be removed. Deteriorating plaster on the remaining walls of room 101 should be repaired, however, care should be taken not to obliterate the clues that indicate the floor level of the original 1824 construction. The fibre board in room 103 should be removed and the walls and ceiling replastered to match the original finish. All plaster should be given one coat of primer and two top coats of an oil base paint.

The tongue and groove board ceiling in room 101 should have any damaged or missing boards replaced. The extraneous boards attached to it should also be removed. The entire surface should be scraped and sanded, given one coat of primer, and two top coats of oil base paint.

The existing concrete floor in rooms 101, 102, 103 and 104 should be removed and replaced with a random width tongue and groove pine floor. Further archeological research should be performed once this nonhistoric concrete floor is removed. Because the subterranean conditions are unknown, the floor structural system should be designed when the floor is removed.

The two interior doors on the first floor should be inspected and repaired if necessary. The door hardware should also be cleaned and repaired if required. The doors and frames should be sanded and given one coat of primer and two coats of an oil base paint.

The stairway leading from the first to second floor should be inspected for loose, split, or worn treads and risers. The handrail, newel post and balusters should also be inspected for loose or missing parts. All replacement components should match the originals. The entire assembly should be given two coats of a good quality oil-base paint.

The present heating system for the first floor is a visual and audible intrusion and should be replaced. Due to a lack of mechanical and duct space, the replacement system should be electric. The system could be located at either the baseboard, in the ceiling, or in the space below the storefront windows, providing a quiet, unobtrusive system for the demonstration areas.

The present electrical service provides ample power to the building, but the existing panel should be relocated or otherwise concealed so as not to distract from the historic scene. Similarly, the surface mounted wiring running haphazardly throughout the room should also be concealed.

The existing "school room" type florescent lighting is also a distraction and should be replaced. The new lighting system should be designed to be compatible with the restoration and provide adequate illumination levels for demonstration purposes.

In accordance with NPS-28, both a fire detection system and an intrusion detection system should be installed in the building. The systems should be concealed and should be compatible with the existing central detection system of the park.

C. SECOND AND THIRD FLOOR ADAPTIVE RESTORATION

The work required to adapt the second and third floor to contemporary usage should commence only after the exterior restoration is completed. It could be deferred indefinitely, however, if the building is not to be used in the near future.

The walls and ceilings of the second and third floors should have any deteriorated plaster removed, and the exposed wood lath and framing should be examined for needed repairs. The wood lath and framing should be replaced only when repairs are not possible. New plaster should be applied to the walls and ceiling to match the historic finish. All plaster should be given one coat of primer and two topcoats of an oil base paint.

Mouldings should be repaired and replaced when the interior walls are restored. Any new material that is required should match the historic fabric. The mouldings are fastened to wood strips which serve as plaster grounds. The grounds are in turn fastened to wood blocking set into the wall. The mouldings should be scraped, sanded, and given two top coats of an oil-base paint.

The original flooring on the second floor is covered with vinyl asbestos tile. It should be examined for cracked or missing tiles and should be repaired if possible. If repair is not possible, the entire flooring should be replaced with a good quality flooring.

The tongue and groove wood third floor has many cracked, warped and broken boards which should be replaced with matching material. The entire floor should be lightly sanded and given two coats of an oil based paint when repairs are completed.

All nonhistoric doors, door frames and hardware should be removed from the building and replaced with historic replicas. The remaining original doors, door frames and hardware should be inspected and repaired where necessary; any replacement parts needed should be

made to match the original parts. If the second floor is to be inhabited, door 202 should be replaced with a fire-rated door.

The stairway leading from the second to the third floor should be inspected for any loose, split or worn treads and risers. The handrail and balusters should also be inspected for loose or missing parts. All replacement components should match the originals. The entire assembly should be given two coats of oil base paint.

The bathroom in the second floor apartment will have to have its lavatory, bath tub, and toilet relocated in order to re-install the French doors on the front elevation. Door 201 will have to be relocated toward the front elevation to facilitate this change as well.

The second floor is presently heated by the two new ceiling suspended electric space heaters. They are marginally sufficient to warm the space and are a visual and audible intrusion. If the second floor is to be adaptively restored, they should be replaced with a less obtrusive electric system.

The third floor, presently unheated, should have an electrical heating system installed also. To improve the thermal comfort in the building, the third floor ceiling should be insulated to R-19 when the heating system is installed.

The existing electric service to the building is sufficient. However, the circuitry and wiring for the second and third floor should be analyzed and upgraded if required before the restoration takes place.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

PAGE _____ OF _____ FOR THIS PACKAGE

PACKAGE NO. 115B

REVISION NO.

ORG. NO.	PARK NAME	DEVELOPED AREA NAME	D.A. CODE	REGION
	Harpers Ferry NHP	Building 40		NCR

PACKAGE TITLE: REHABILITATE BUILDING 40

NET CONSTRUCTION — DETAIL OF ESTIMATES

CLASS OF ESTIMATE

☐ A— WORKING DRAWINGS ☒ B— PRELIMINARY DRAWINGS ☐ C— SIMILAR FACILITIES

THIS ESTIMATE VALID TO: (DATE) September 1983

ITEM	QUANTITY	COST (NET AMOUNT—THOUSANDS) CONSTRUCTION	ROAD CONSTRUCTION
A. Restore Exterior		50,000	
B. Adaptive Restoration First Floor		38,500	
C. Adaptive Restoration Second and Third Floors		36,500	
(if additional space is required—use plain paper and attach)	TOTALS	$125,000	$

NET CONSTRUCTION — COST BY PROJECT TYPE AND FUND SOURCE

PROJ TYPE	PROJECT TITLE	COST BY FUND SOURCE (THOUSANDS OF DOLLARS) PWE	PLAN./CONST	PWE	ROAD CONST.
52	MUSEUM EXHIBIT PRODUCTION				
55	WAYSIDE EXHIBIT PRODUCTION				
57	ACQUISITION OF ARTIFACTS AND GRAPHICS				
62	AUDIOVISUAL ARTS PRODUCTION				
89	RUINS STABILIZATION				
91	CONSTRUCTION				
91	CONSTRUCTION				
92	UTILITY CONTRACTS				
	TOTALS		$		$

ESTIMATE PREPARED BY: (Signature) David O. Ballard — TITLE: Historic Architect — DATE: 5/9/83

ESTIMATE APPROVED BY: (Signature) — TITLE: — DATE

VII. SOURCES CONSULTED

Army Corps of Engineers, Baltimore District. "Potomac River--Part 1: Flood Plain Information, Washington County, Maryland." 1977.

General Services Administration, Public Building Service. Design Criteria New Public Building Accessibility. Washington, D.C.: Government Printing Office, 1977.

National Park Service. Cultural Resources Management Guideline. NPS 28, 1980.

National Park Service. Management Policies. Washington, D.C.: Government Printing Office, 1978.

National Park Service, Denver Service Center. "Historic Structure Report, the Edward Tearney Buildings--Building 38 and 39 on Wager Lot 50, Historical Data," by Charles W. Snell. 1979.

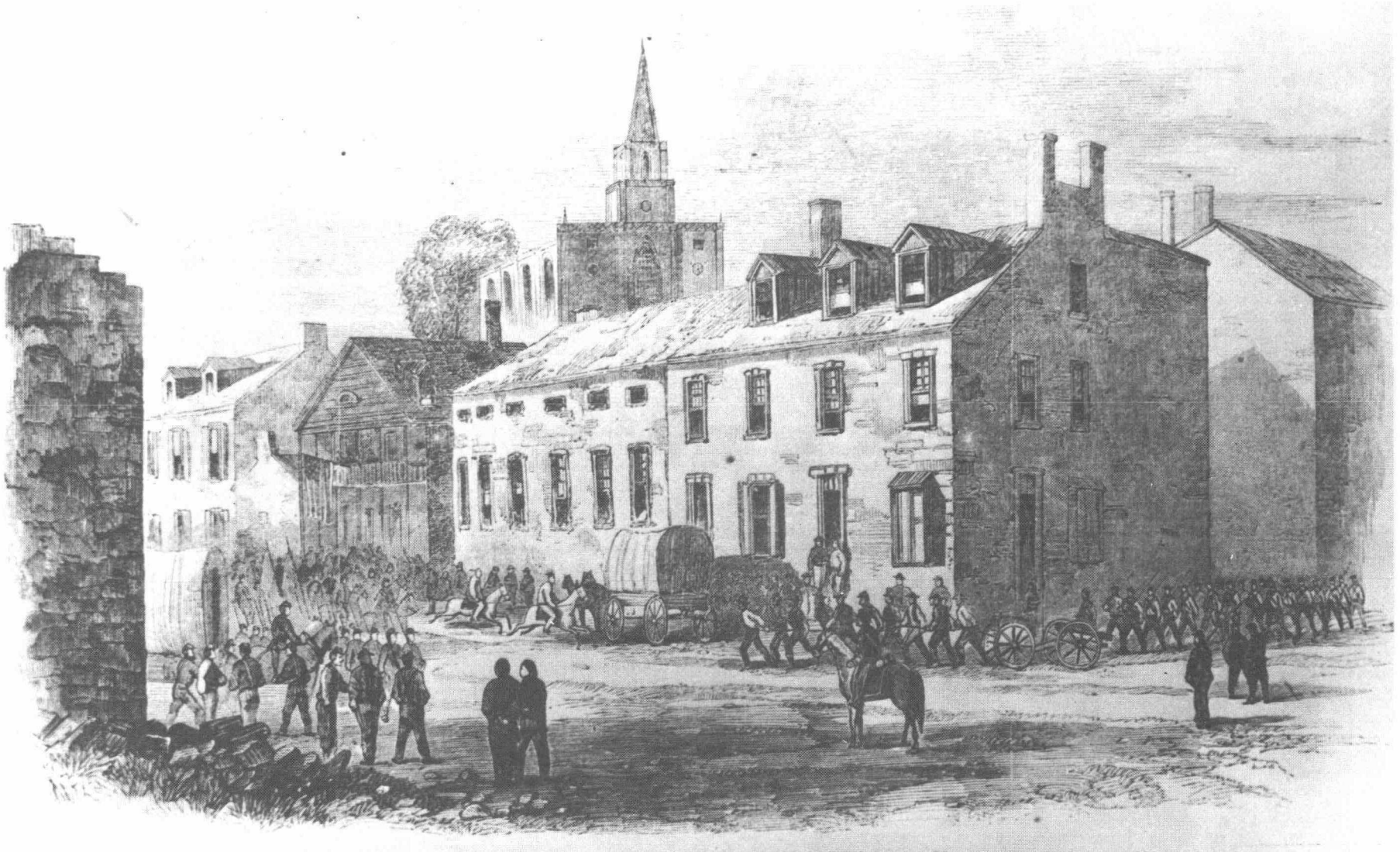
National Park Service, Denver Service Center. "Task Directive, Package 115." 1976.

National Park Service, National Capital Region. "Harpers Ferry National Historical Park Interpretive Prospectus." 1980.

Kay D. Weeks and David W. Look, AIA. Paint on Exterior Historic Woodwork. Technology and Conservation, 2/82, p. 34-45.

APPENDIXES

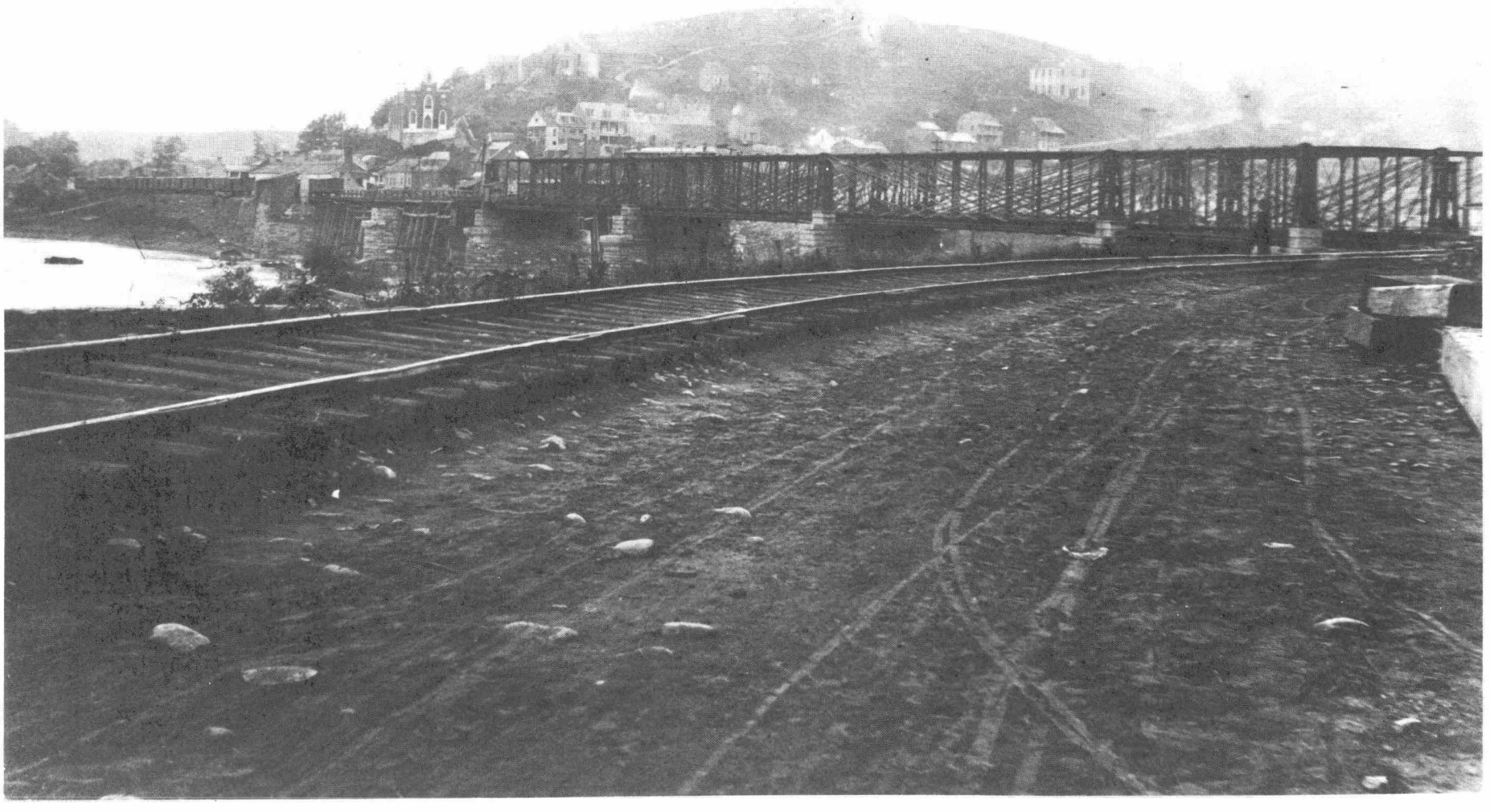
VIII. A. PHOTOGRAPHS



THE MAIN STREET, HARPER'S FERRY, VA.—ZOUAVES ON MULES—CONTRABANDS HAULING GUNS—OFFICERS LOUNGING, &C., OCTOBER 16.—SKETCHED BY OUR SPECIAL ARTIST, MR. EDWIN FORBES

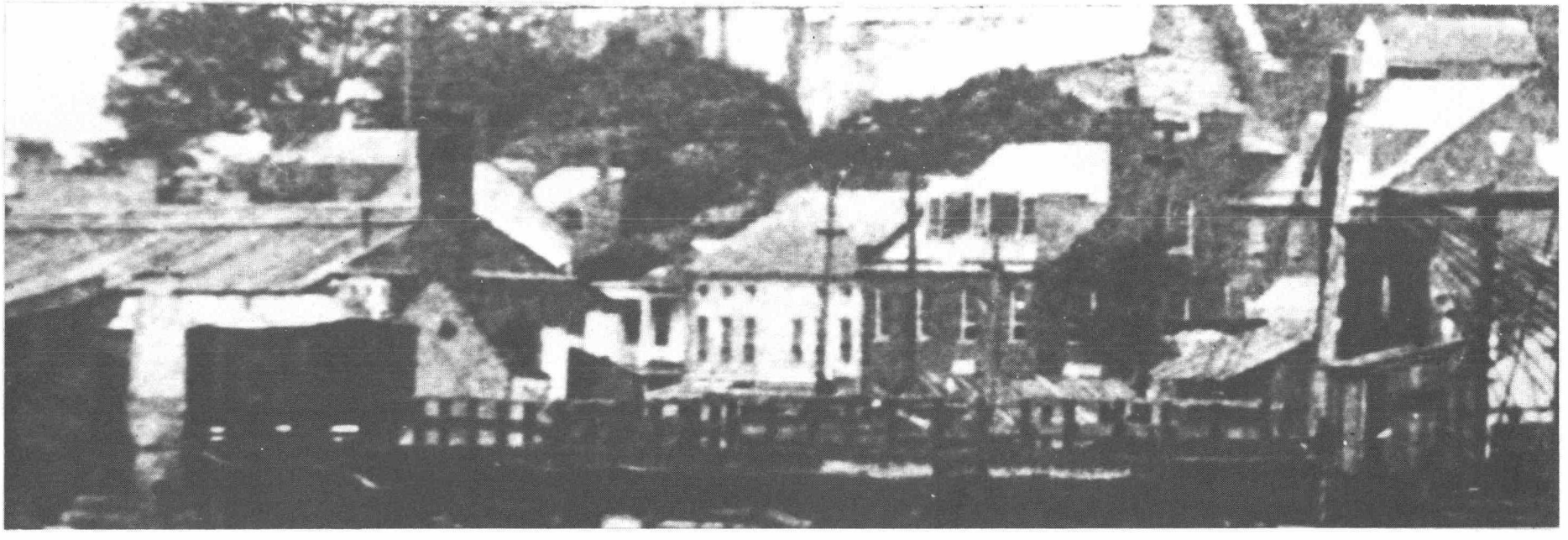
PHOTOGRAPH I (November 8, 1862) (HF Neg. 67)

This sketch which appeared in Frank Leslie's Illustrated Newspaper on November 8, 1862, is the earliest known view of the facade of Building 40. While it is not accurate in many of its details, it manages to convey an impression of Shenandoah St. that is generally accurate. It depicts Building 40 as a two-story gable structure with a two-story paint porch. It shows a semi-circular window centered in the pediment, and a dormer, both of which seem to suggest a habitable attic space.



PHOTOGRAPH 2 (1865) (HF Neg. 40)

"Harpers Ferry and Potomac (Railroad) Bridge from base of Maryland Heights (in Maryland) below (east) of the bridge." This view was taken by the noted photographer Brady and was probably made in May or June of 1865.

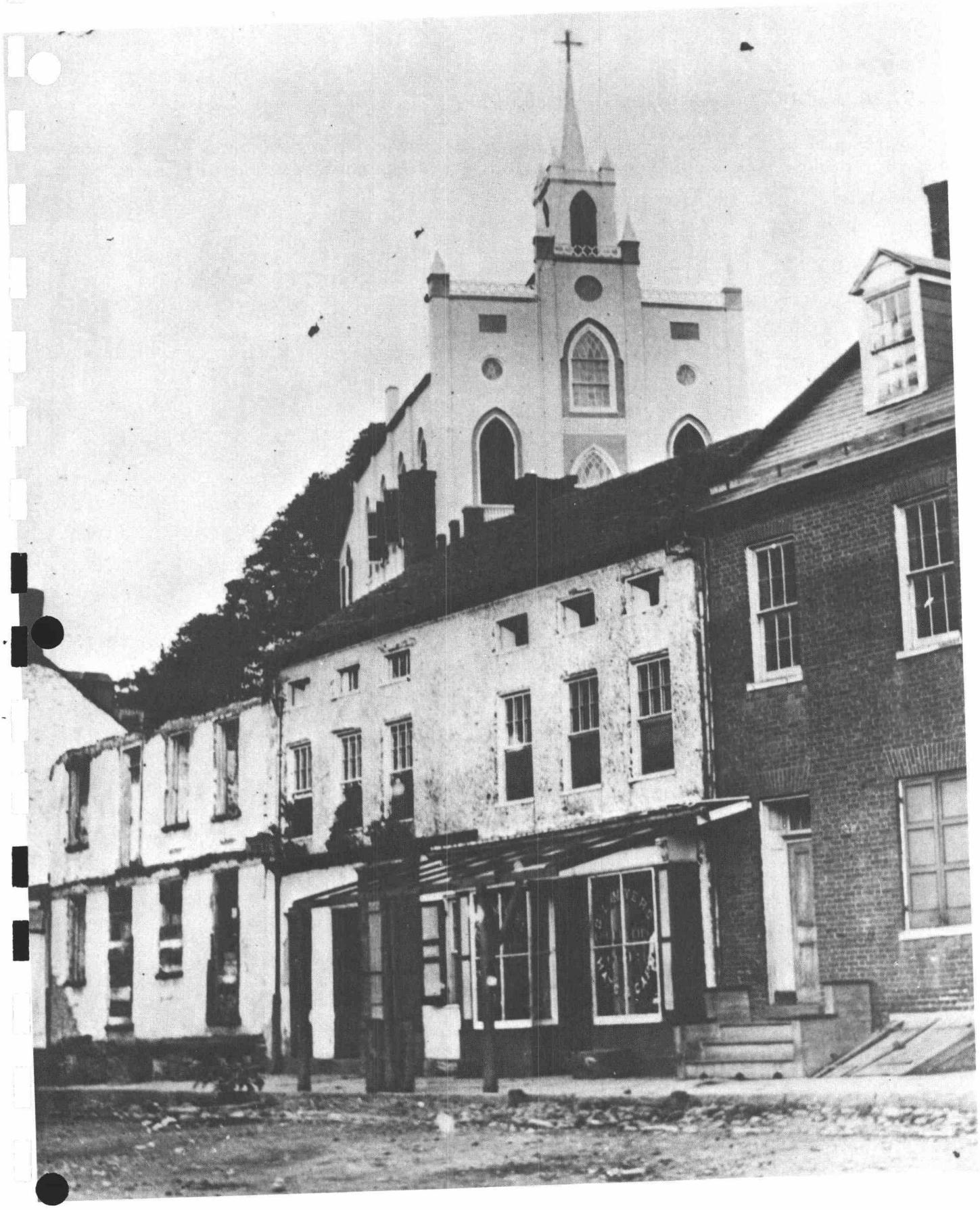


PHOTOGRAPH 3 (1865) (HF Neg. 377)

This view is an enlargement of the upper-left hand portion of photograph 2. Building 40 can be seen as a burned out ruin to the left of center of the picture. Note that a portion of the two-story porch seems to have survived the fire. This photograph together with Photograph 1 indicates that the fire in Building 40 took place after October 1862 and before June 1865.

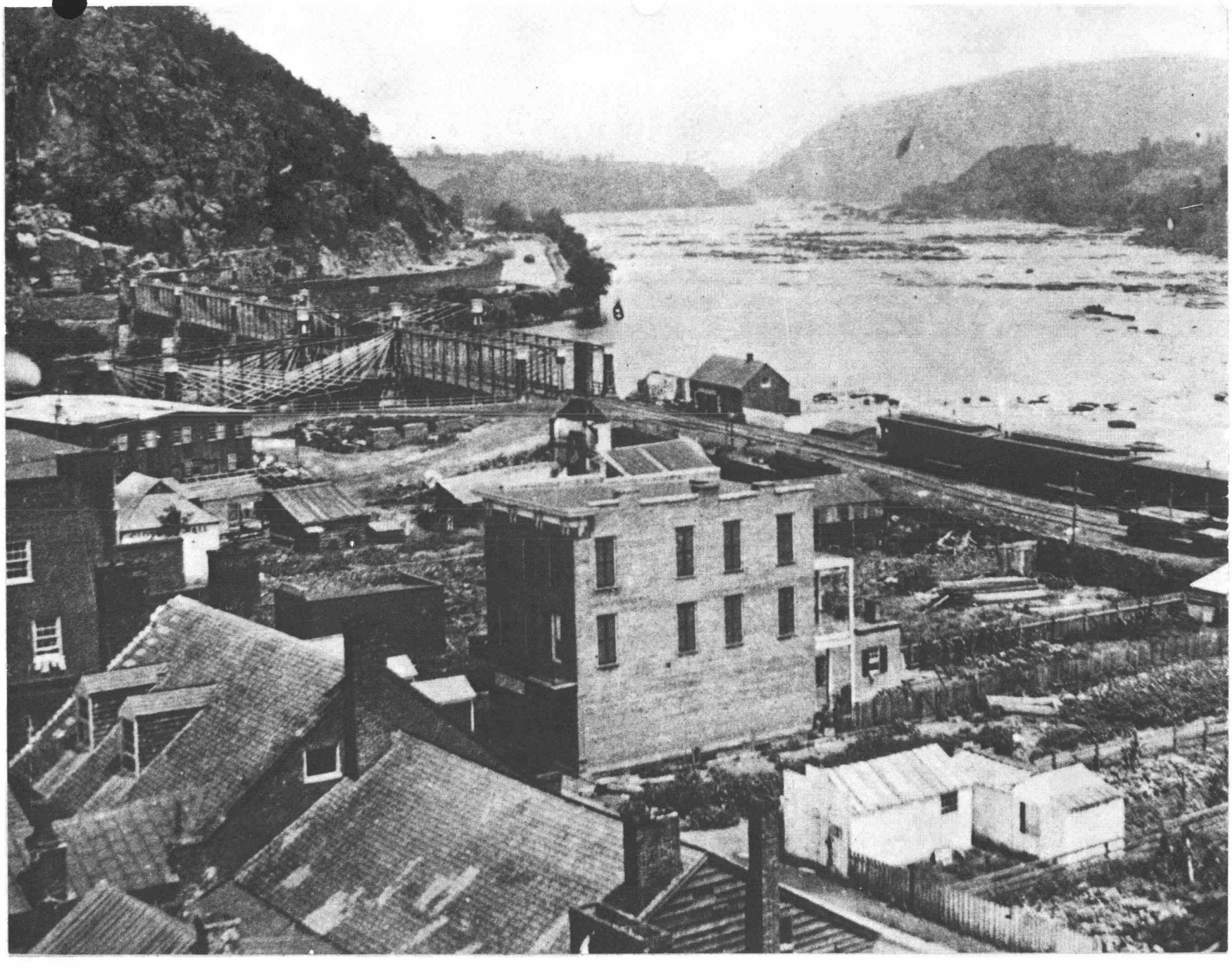
PHOTOGRAPH 4 (1865-1873) (H.F. Neg.-35)
SHENANDOAH STREET, HARPERS FERRY, W. VA.

This view was taken after June, 1865. Because the remains of the two-story porch visable in Photograph 3 has been removed, and prior to 1873, When Edward Tearney began rebuilding No. 40. Note the original fenestration of the four-bay wide facade of Building 40: two doors and two windows on the first floor and one door and three windows on the second floor.



PHOTOGRAPH 5 (CIRCA 1865-1870) (HF Neg. 678)

"The picturesque of the B&O R.R." This view shows the roof and south gable of Building 38, and two brick chimneys of Building 40 which survived the fire.



PHOTOGRAPH 6 (1892-1895) (HF Neg. 99)

"Harpers Ferry from Loudon Heights"

Building 40 is visable to the right of center. The windows on the front elevation are shuttered, and the roof is standing seam metal. Note the collection of outbuildings at the rear of the lot.



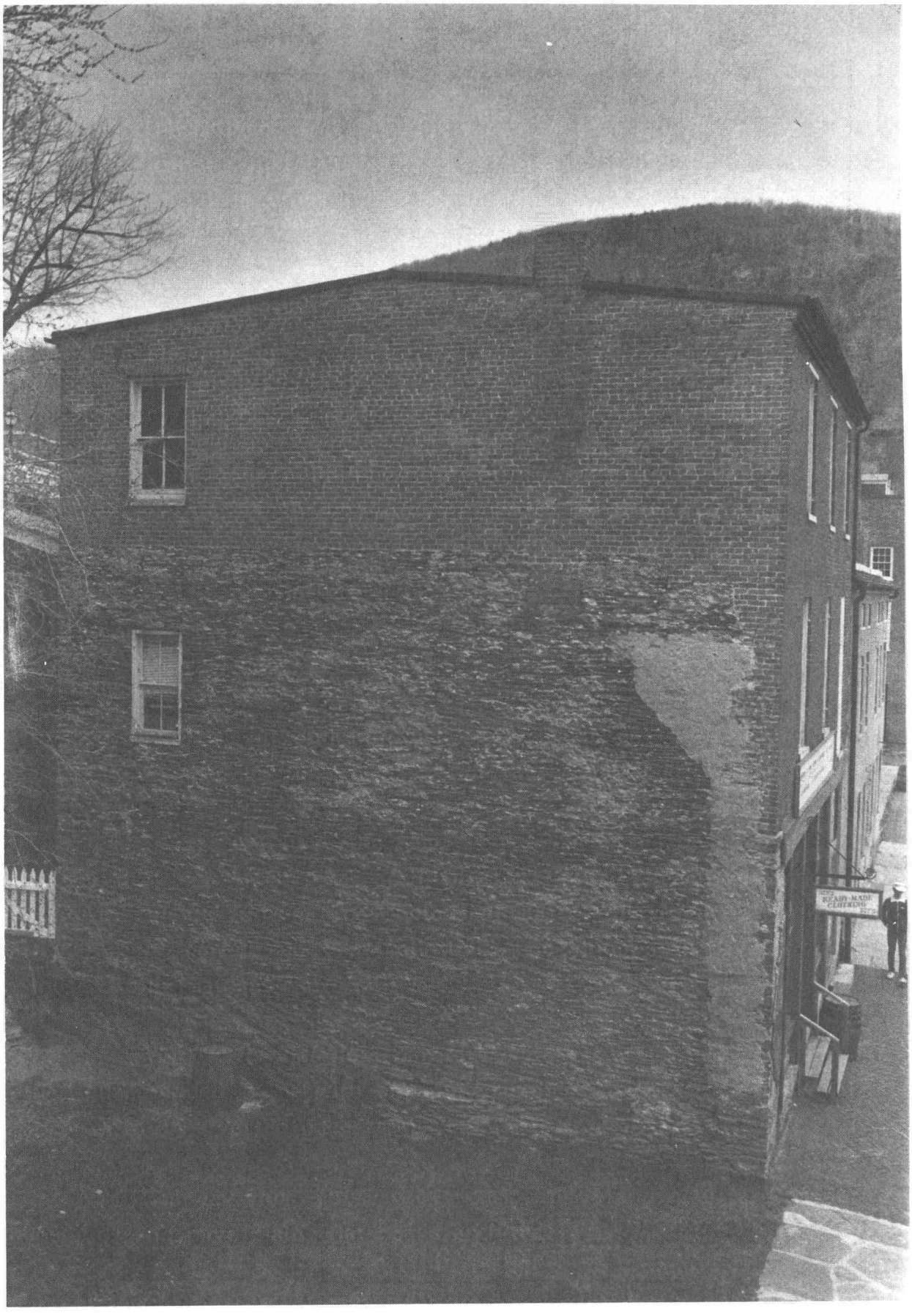
PHOTOGRAPH 7 (1924) (HF Neg. 305)

This vi shows a flooded Shenandoah St. Building 40's ir balcony is also visable.



PHOTOGRAPH 8 (Feb. 1956) (HF Neg. 453)

Shenandoah St. elevation of Building 40, William Richards Building, in 1956, before the National Park Service did any stabilization work on the structure.



PHOTOGRAPH 9 (1983)

Southwest elevation - brick and stone composite wall - note bedrock foundation along re portion of wall - two stoned in former windows - ghost of former adjacent building.



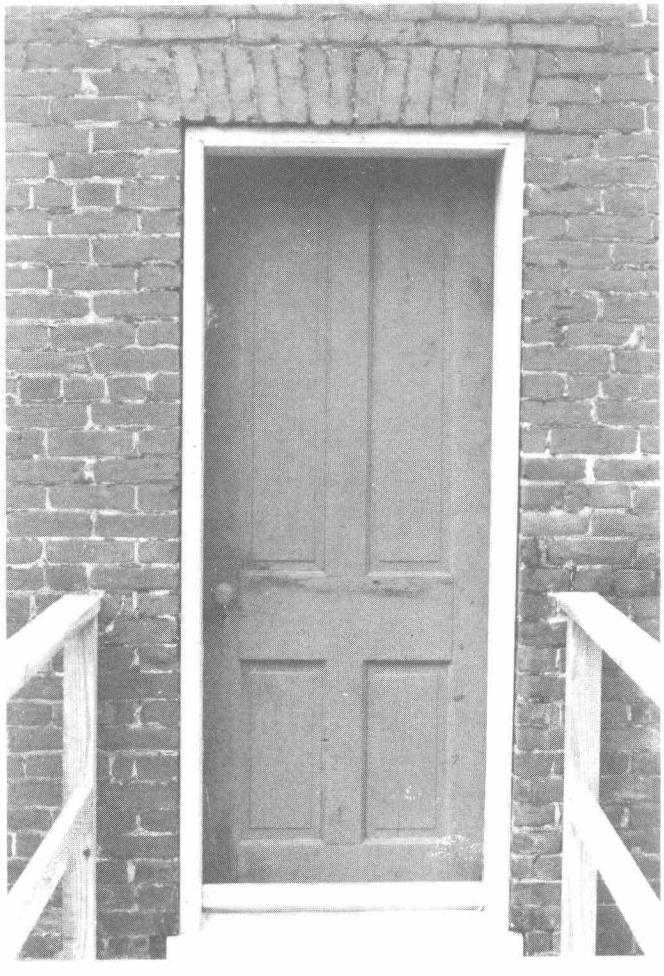
PHOTOGRAPH 10 (1983)

Southeast elevation - note deteriorated parging on either side of storefront.

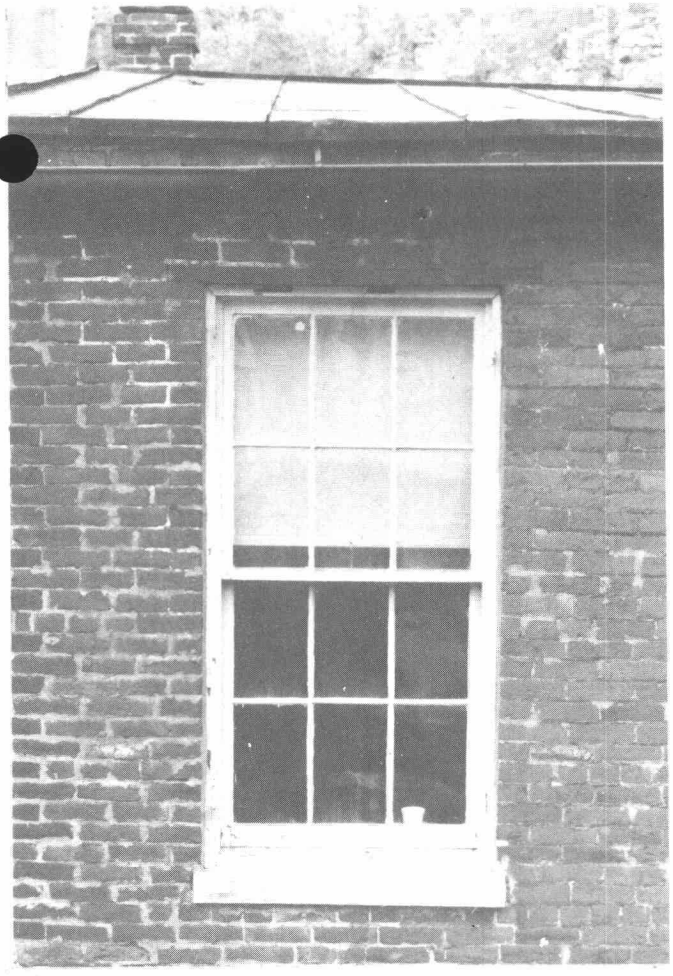


PHOTOGRAPH 11 (1983)

Partial rear elevation

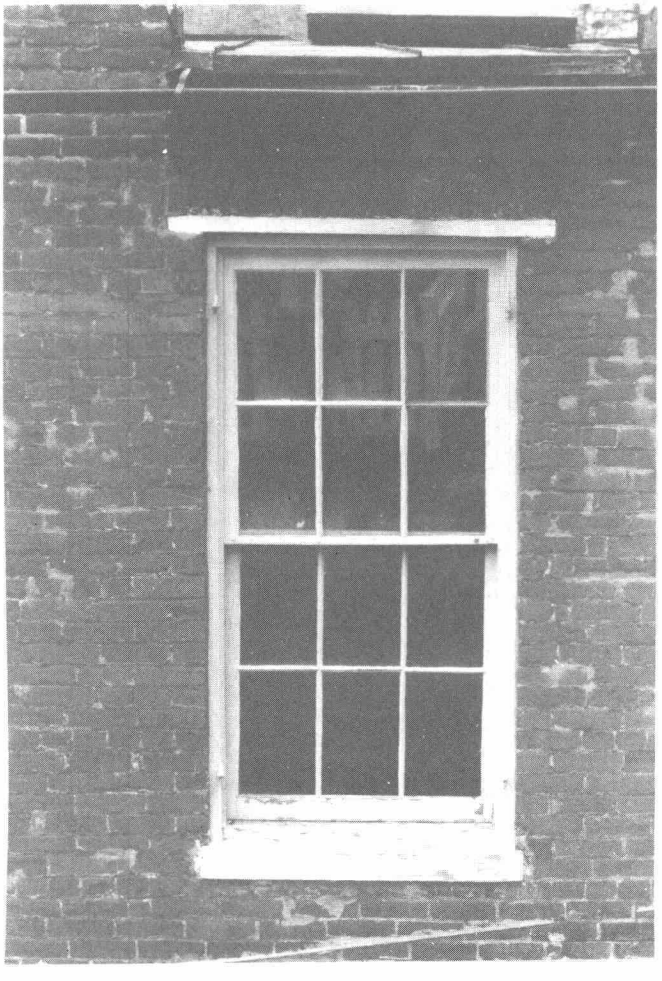


PHOTOGRAPH 12 (1983)
Doorway 304



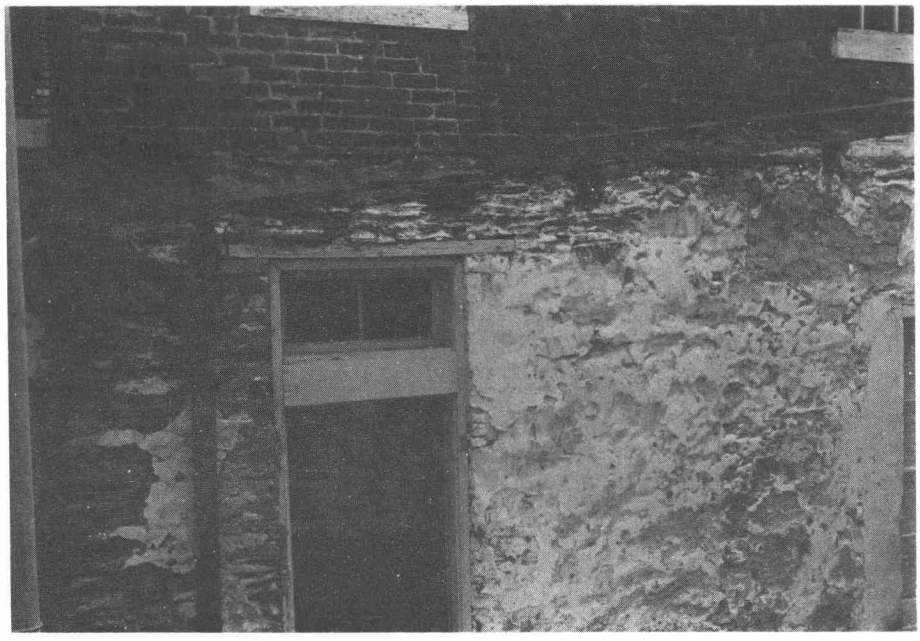
PHOTOGRAPH 13 (1983)
Window 307

Note wooden lintel with stretcher course above.



IOTOGRAPH 14 (1983)
ndow 306

Note wooden lintel with rowlock course above.



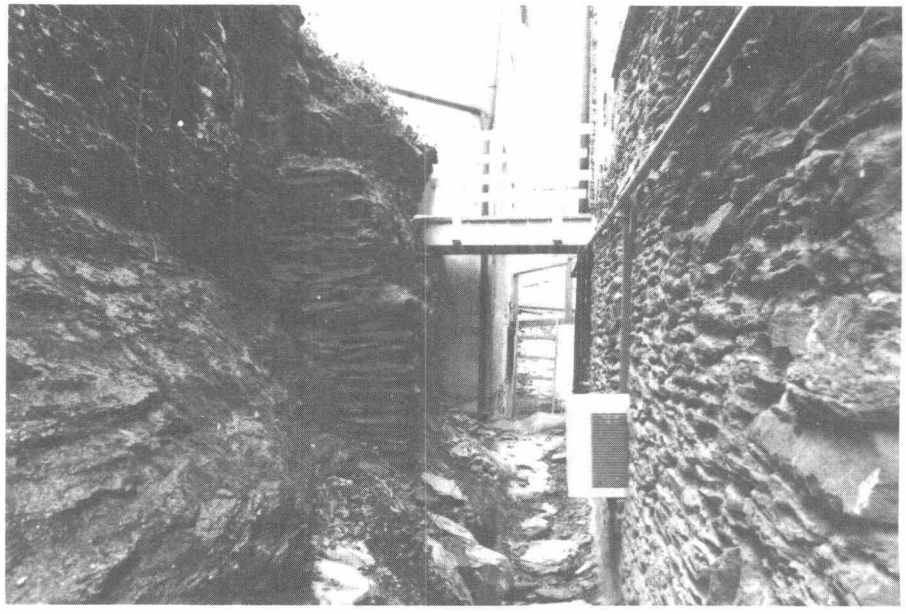
PHOTOGRAPH 15 (1983)

Doorway 208. Note wooden lintel. Brick patch near upper righthand corner. Also outline of roof of former adjacent structure, joist pockets.



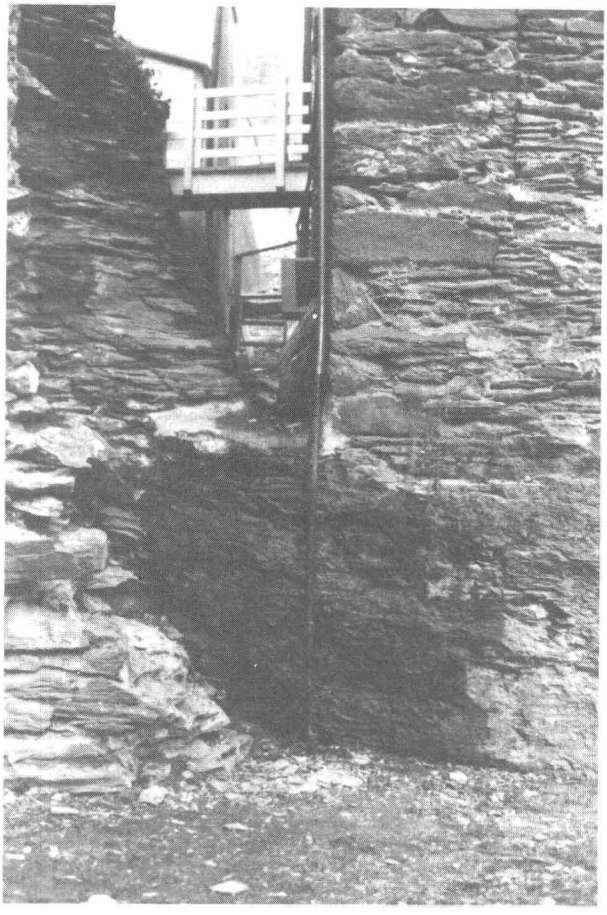
PHOTOGRAPH 16 (1983)

Rear wall. Note remains of painted plaster. Joist pockets and wooden lintel above Window 205. Vertical joint in stone work below window indicates former opening, perhaps doorway of 1824 construction.



PHOTOGRAPH 17 (1983)

Concrete swale between Bldg. 40 and cliff face, looking northeast. Note stonewall facing portion of cliff.

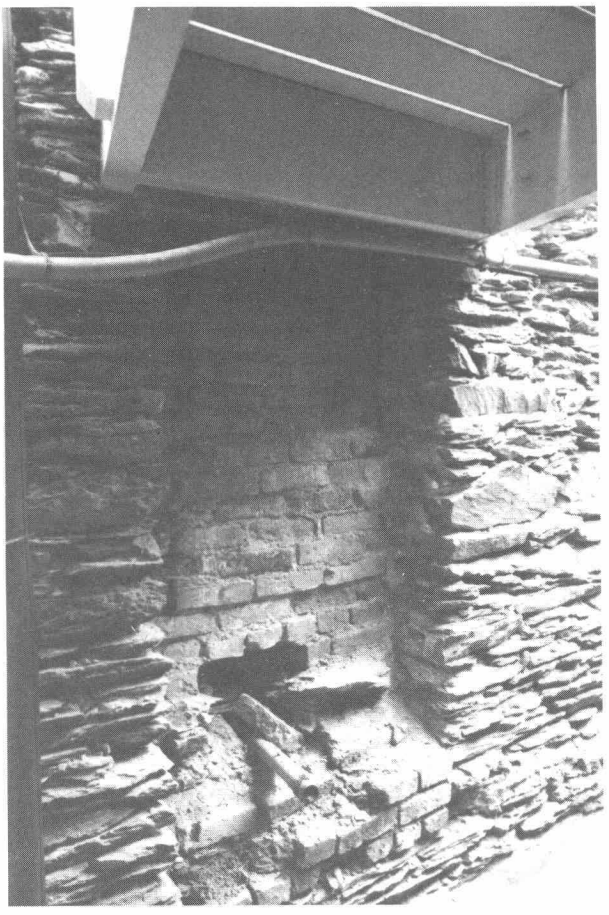


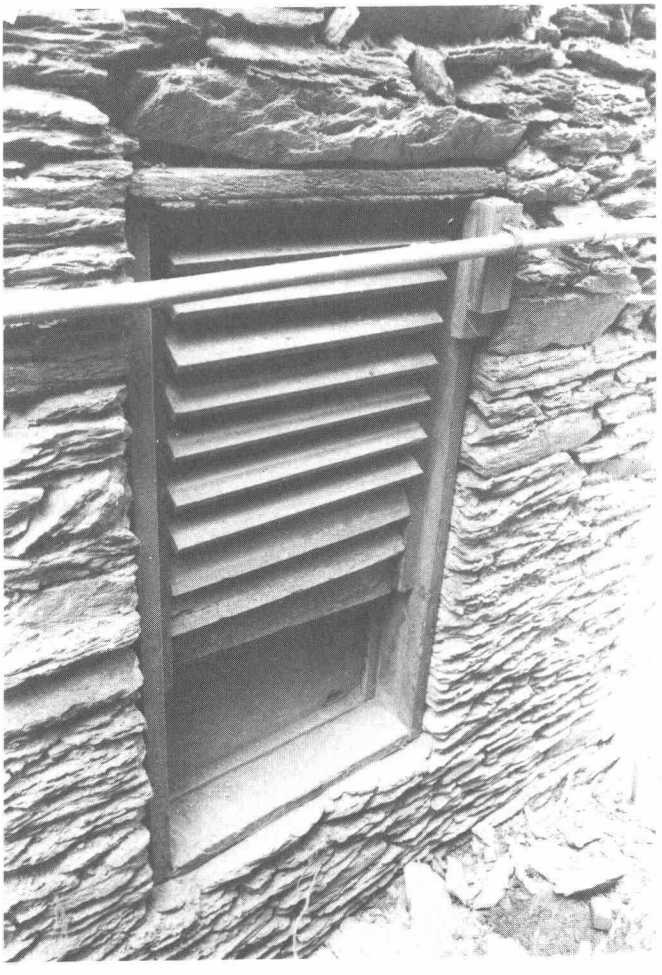
PHOTOGRAPH 18 (1983)

Northwest corner of Building 40. Note wetness on bedrock.

PHOTOGRAPH 19 (1983)

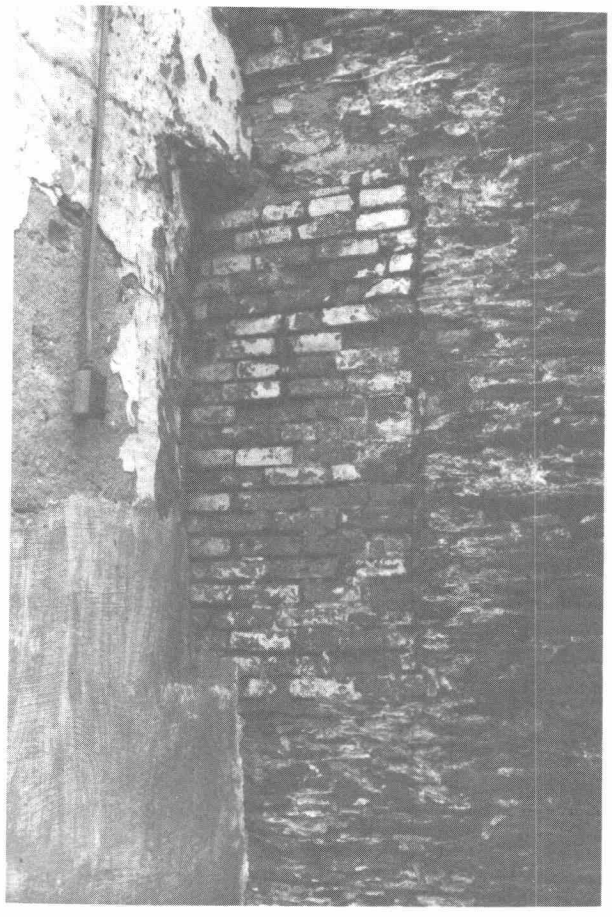
Brick infilled window in rear wall at first floor window probably closed when Park Service installed bathroom in Room 103.





PHOTOGRAPH 20 (1983)

Louvered closure of Window 103 (Window 104 similar)



PHOTOGRAPH 21 (1983)

Bricked-in window on second floor. The rear wall of Building 38 was distorted to accomodate this window in Building 40's sidewall. Date of brick infill unknown.



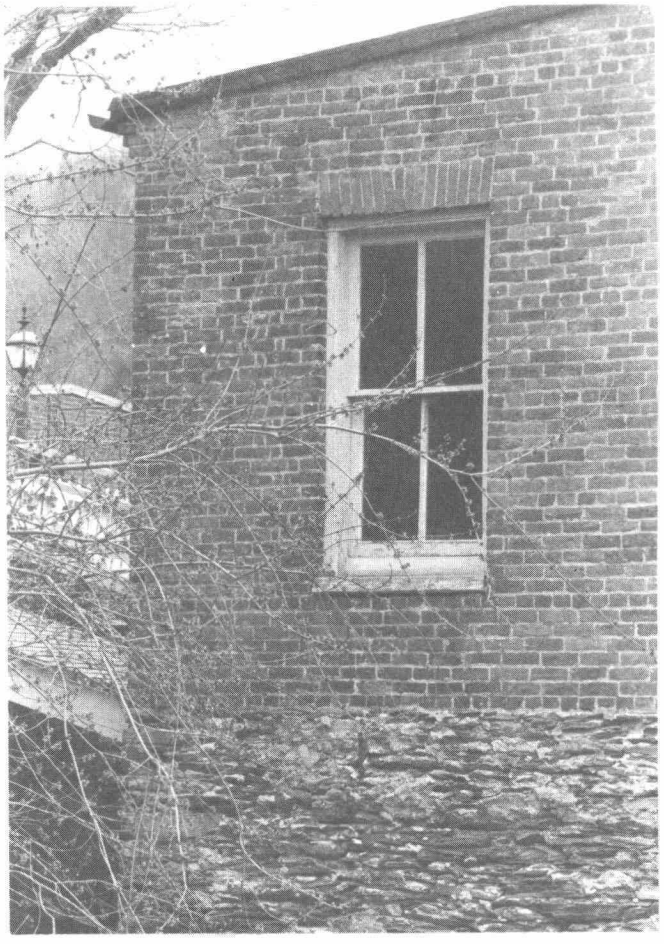
PHOTOGRAPH 22 (1983)

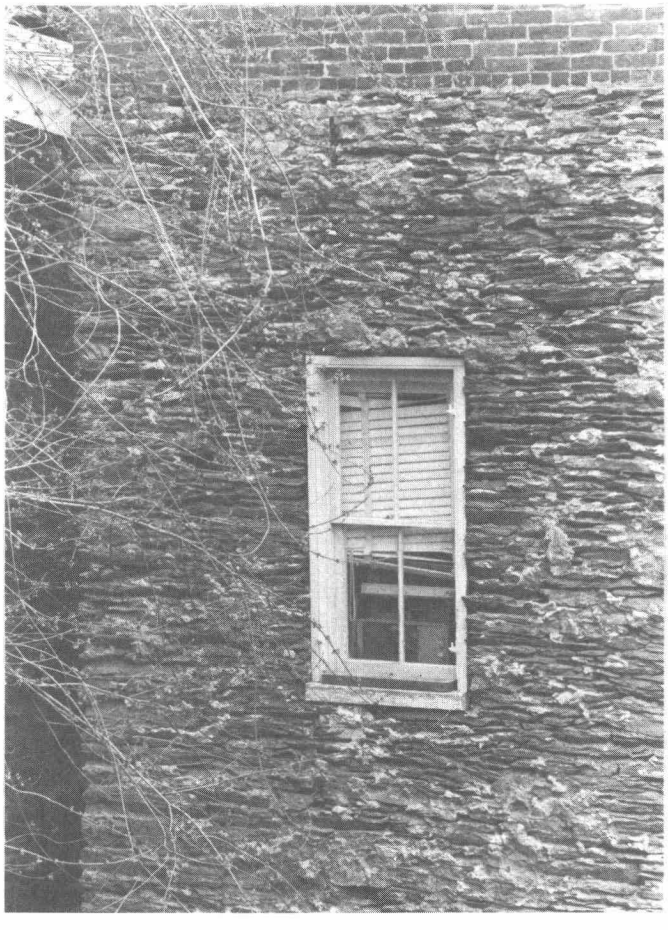
Stone and brick infilled window on the first floor. Building 38's rear wall was not distorted for this window, and was probably abandoned at the time Building 38 was constructed.

PHOTOGRAPH 23 (1983)

Window 304

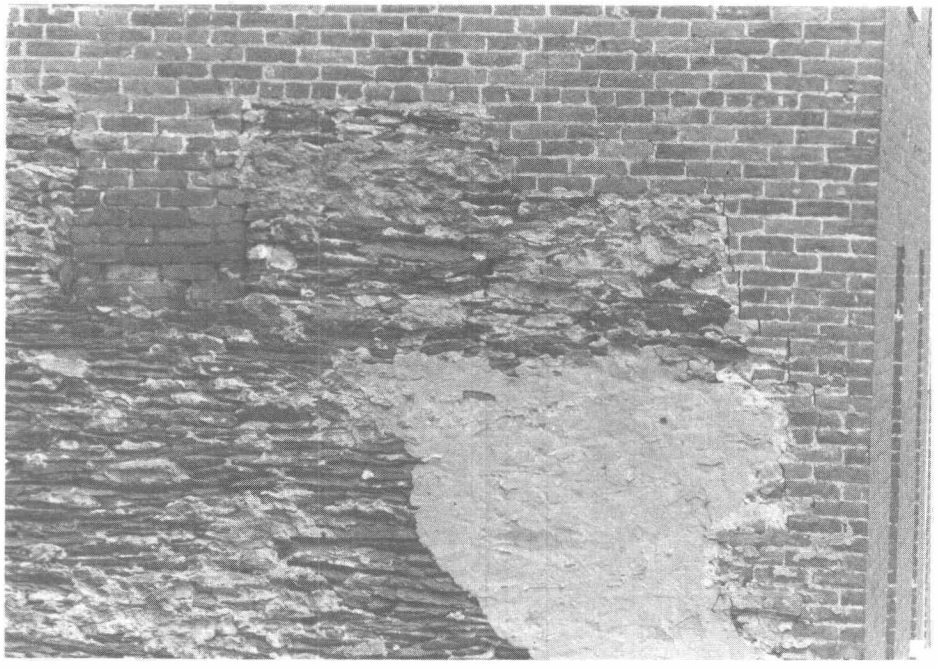
Note flat jack arch, ill fitting replacement sash.





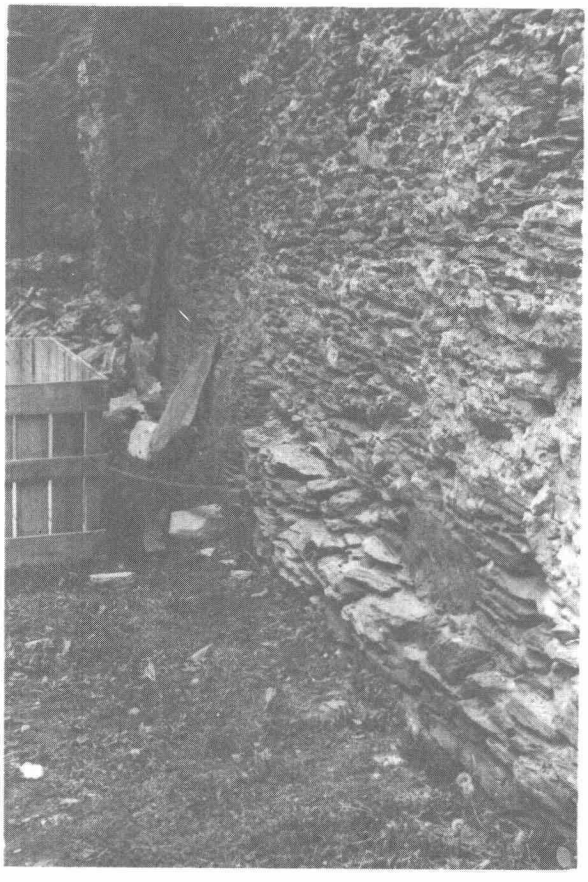
PHOTOGRAPH 24 (1983)
Window 203

No visible lintel.



PHOTOGRAPH 25 (1983)

Partial southwest elevation at juncture of brick and stone work.



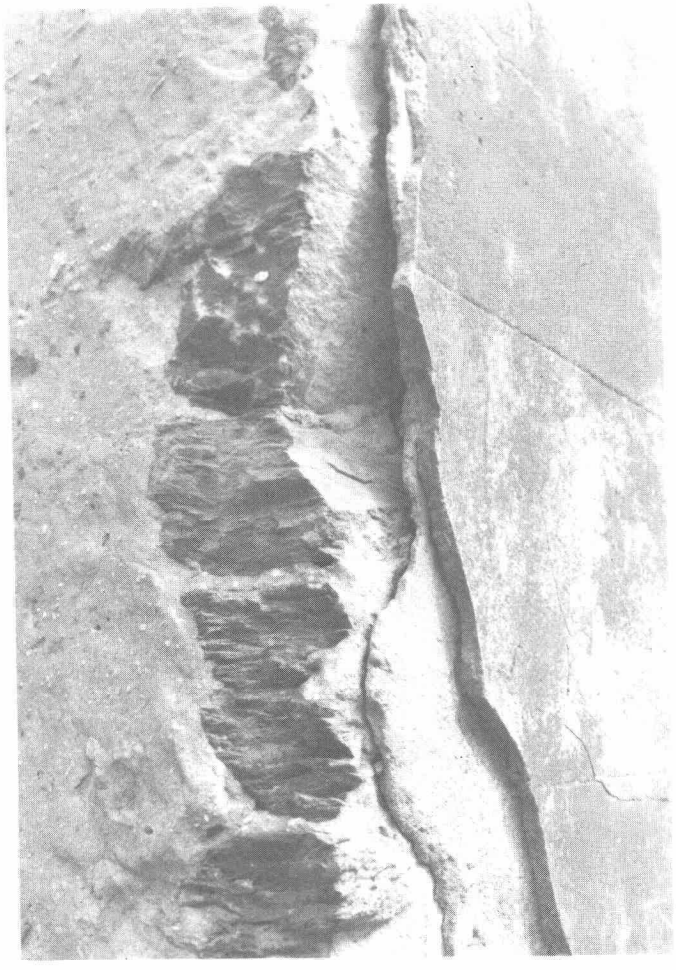
PHOTOGRAPH 26 (1983)

Southwest elevation. Note bedrock projecting from base of wall.



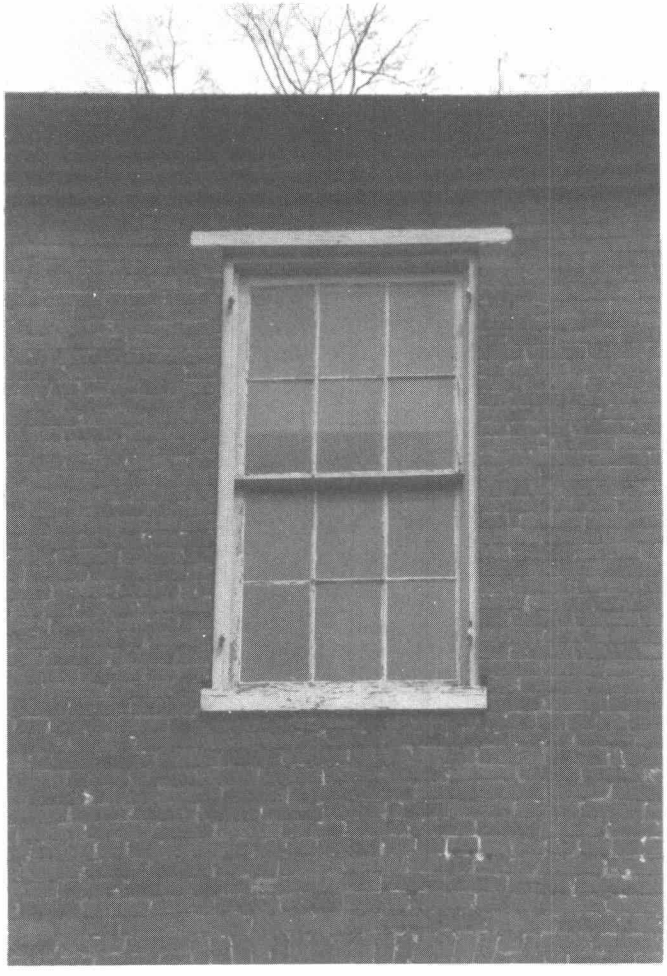
PHOTOGRAPH 27 (1983)
Southwest Gable

Note stepped brick cornice, metal covered rake.



PHOTOGRAPH 28 (1983)

Exterior southwest corner. Note loosening parging on front elevation, scored to simulate stone.

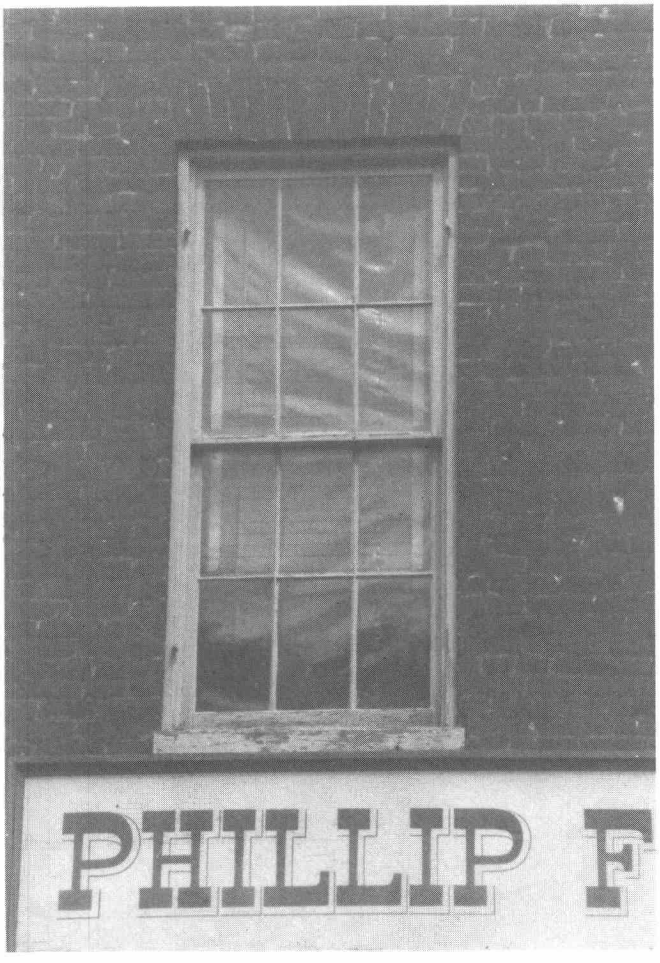


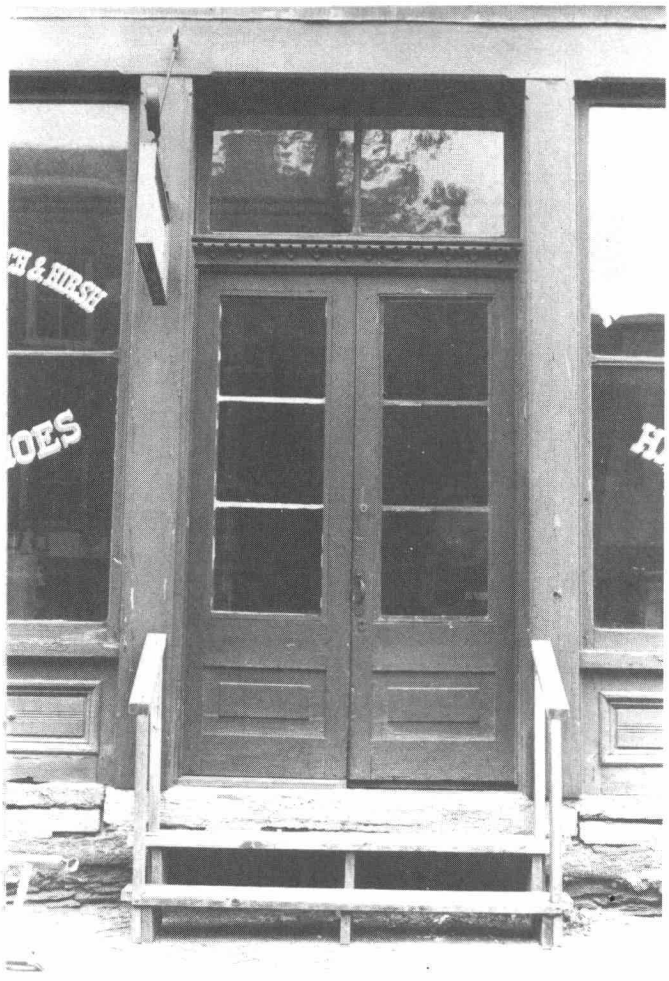
PHOTOGRAPH 29 (1983)
Window 303

Note wooden lintel with brick stretcher course above.

PHOTOGRAPH 30 (1983)
Window 202

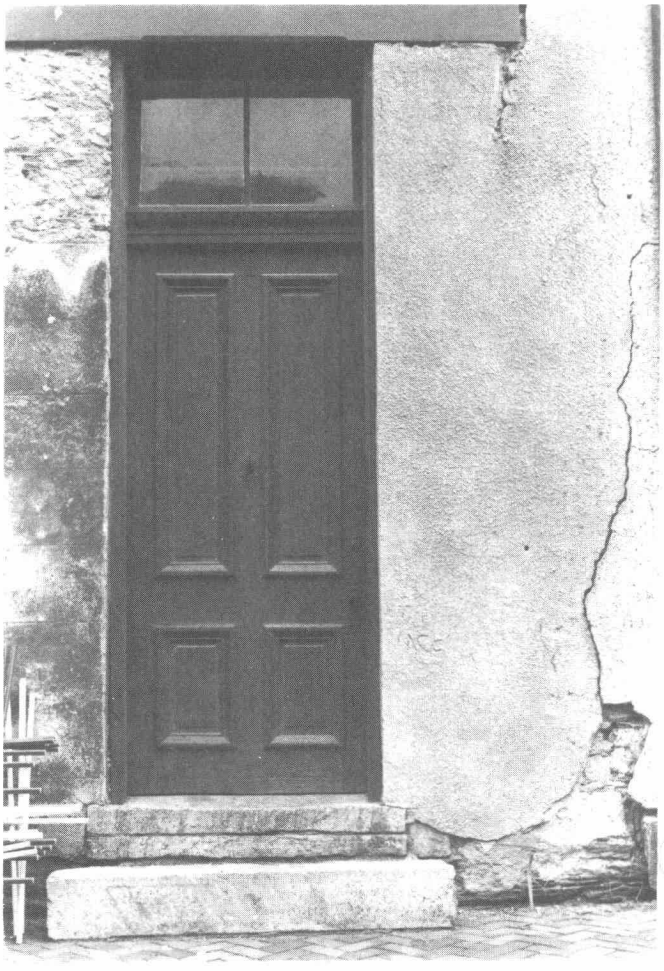
Note flat jack arch above window. Also note plastic storm window on the interior.





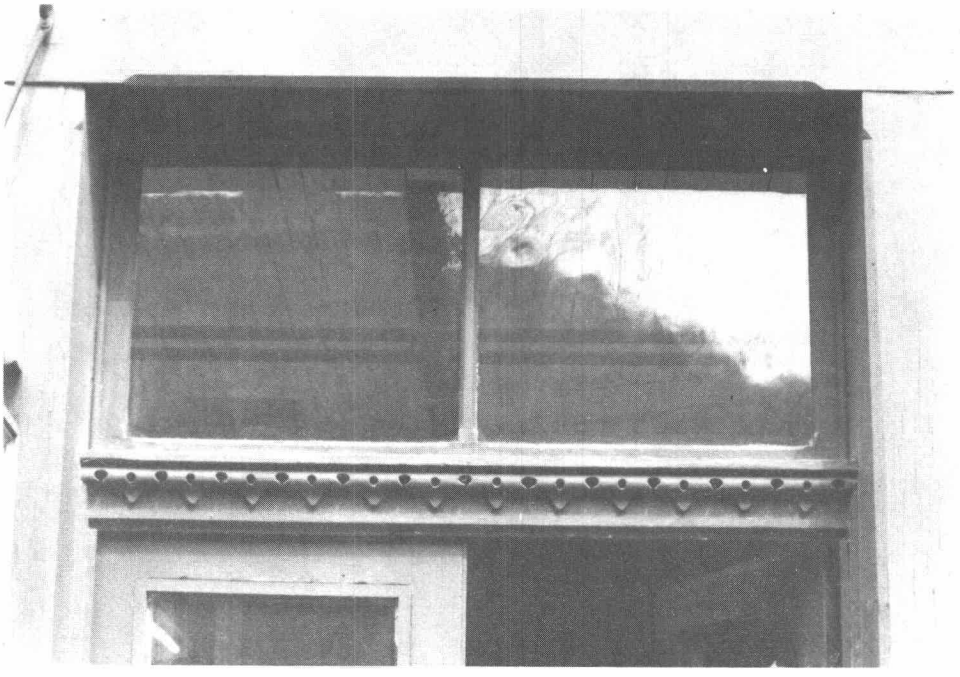
PHOTOGRAPH 31 (1983)

Doorway 102



PHOTOGRAPH 32 (1983)

Doorway 101



PHOTOGRAPH 33 (1983)

Detail, transom and transom bar. Doorway 102.



PHOTOGRAPH 34 (1983)

Detail, cast iron door handle and key hole plate, Door 102



PHOTOGRAPH 35 (1983)

Detail, wooden panel below Window 101 note double stone sill.



PHOTOGRAPH 36 (1983)

Detail pegged mortise and tenon joint on Window 101.



PHOTOGRAPH 37 (1983)

Detail transom bar, Door 101.



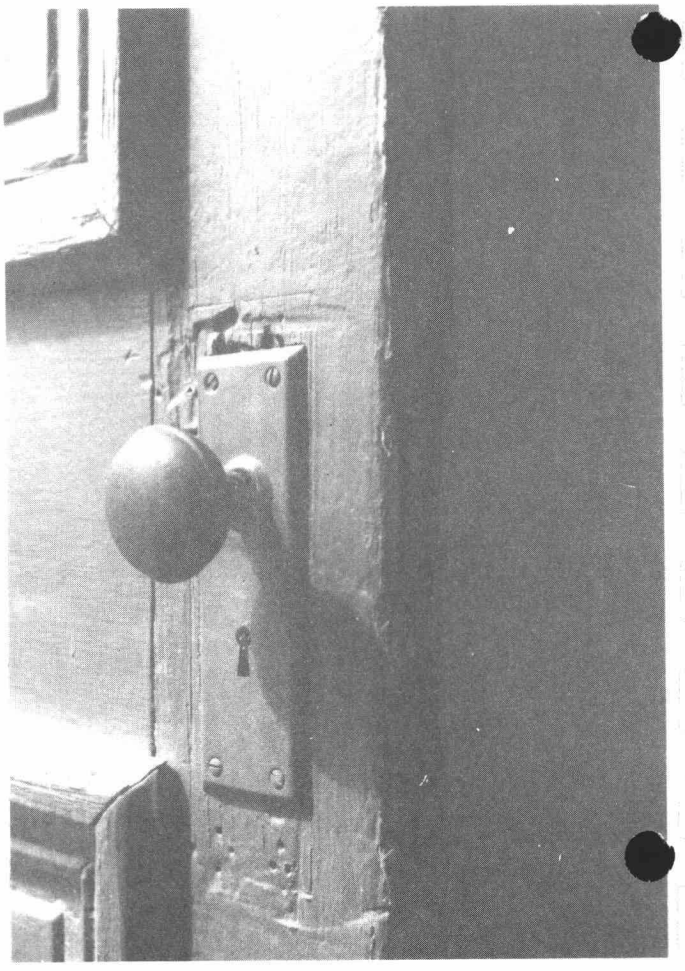
PHOTOGRAPH 38 (1983)

Double stone sill and stone step Doorway 101.



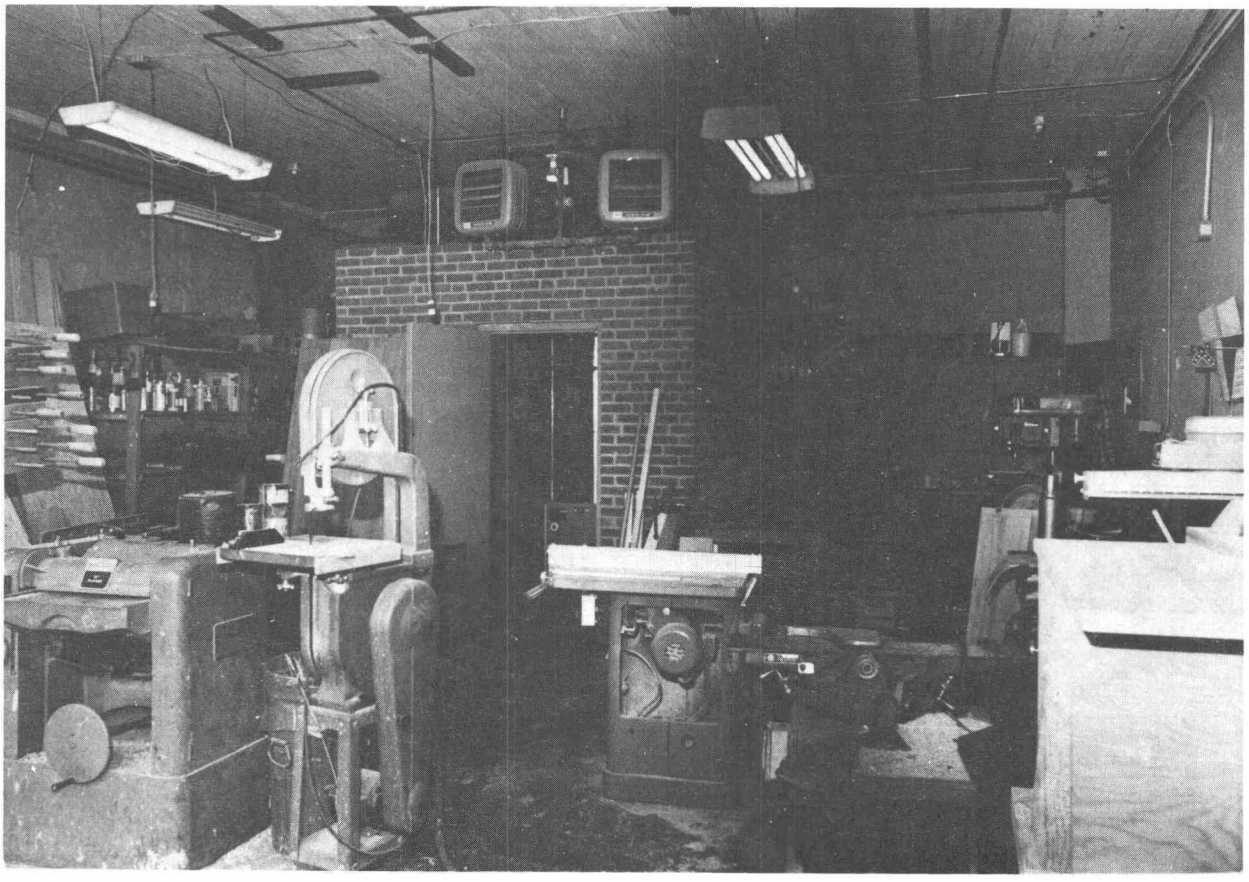
PHOTOGRAPH 39 (1983)

Detail brass doorbell plate. Door 101.



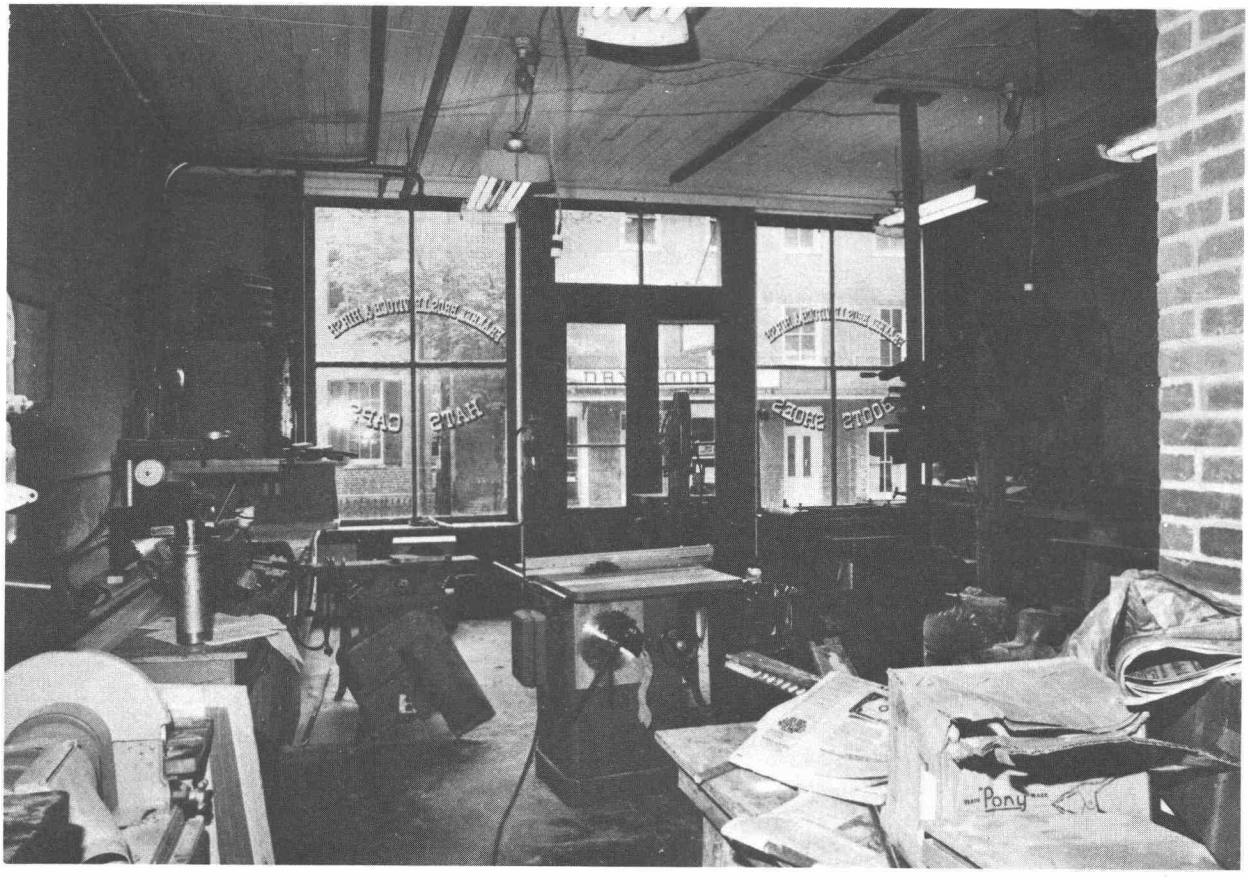
PHOTOGRAPH 40 (1983)

Mortise lockset, Door 101. The numerous scars and holes around the escutcheon indicate this is not the original lockset.



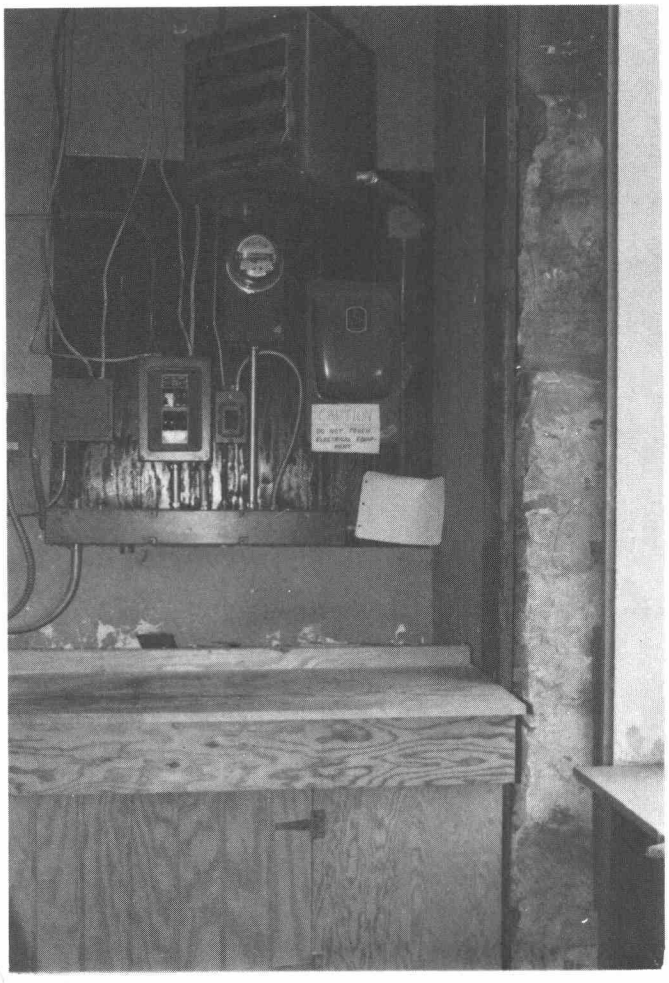
PHOTOGRAPH 41 (1983)

Interior elevation Room 101.



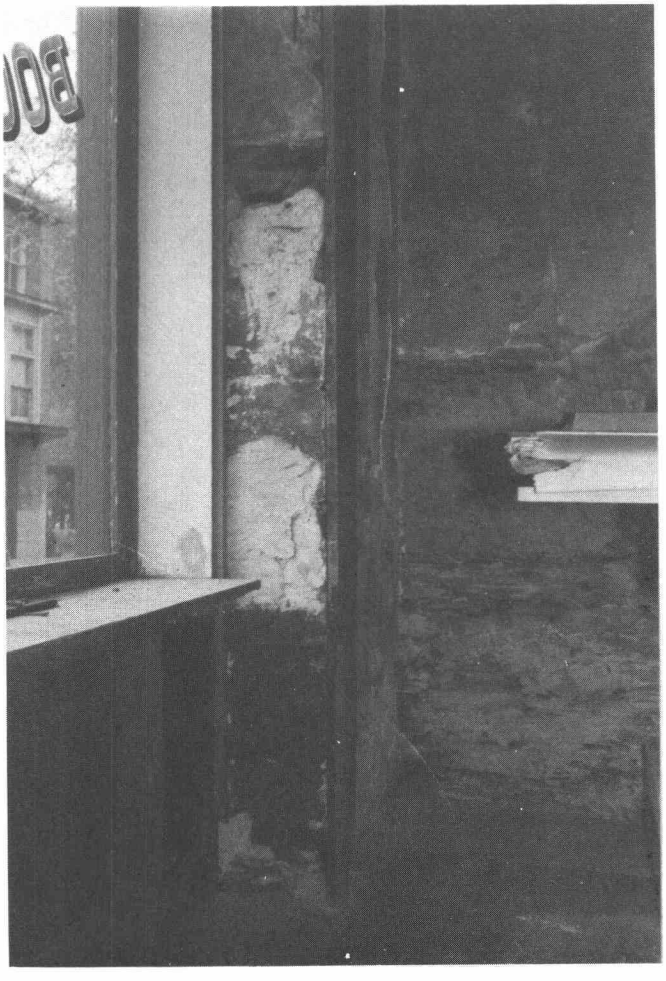
PHOTOGRAPH 42 (1983)

Interior elevation Room 101.



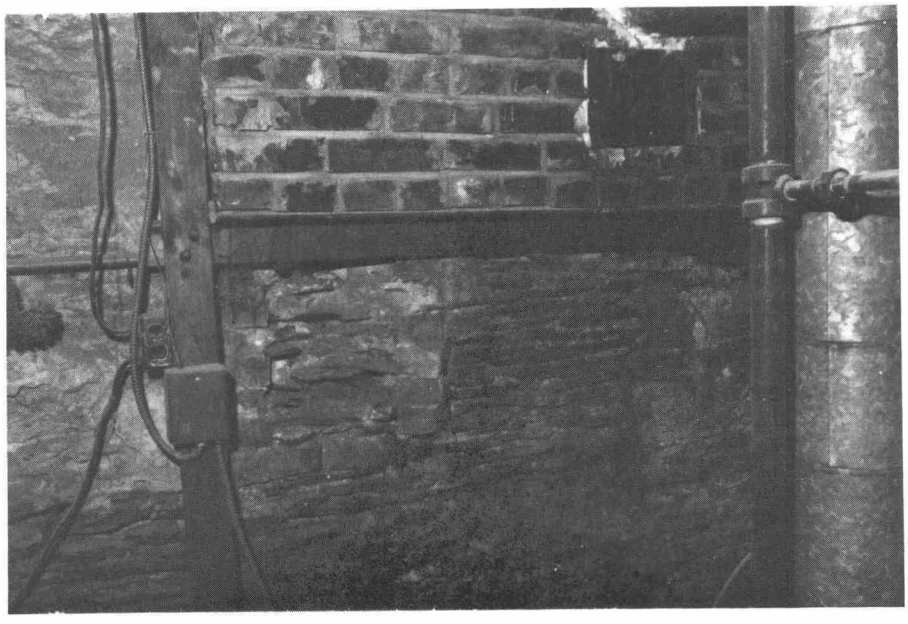
PHOTOGRAPH 43 (1983)

Electric panel in Room 101 note splay in masonry jamb and electric space heater.



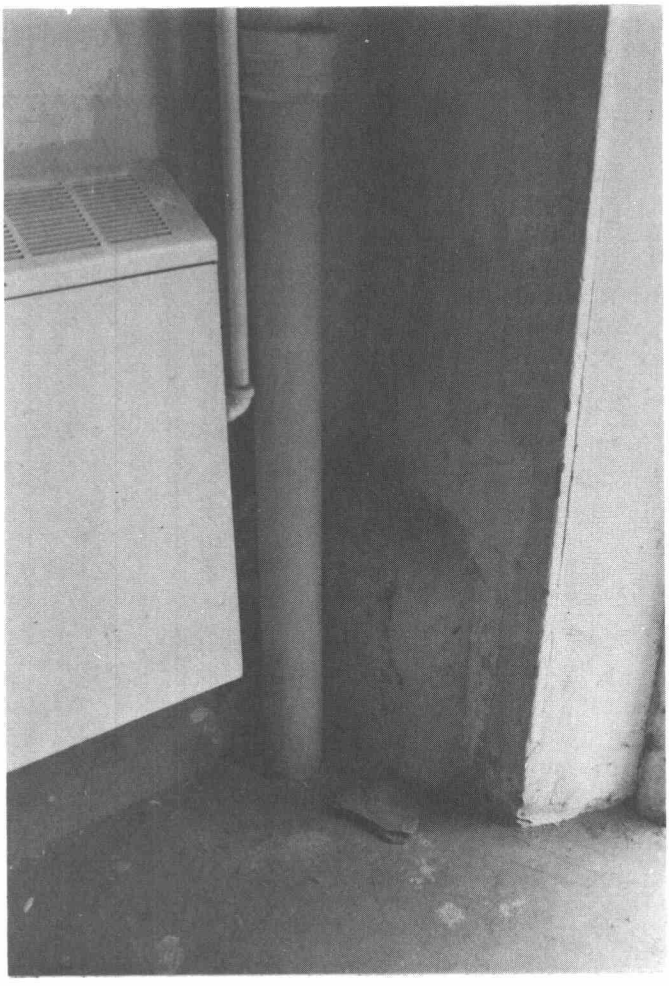
PHOTOGRAPH 44 (1983)

Southwest corner Room 101. Note splay in masonry jamb which occurs at 5'4" above finish floor, and "dimple" in plaster finish at 4'-6" above finish floor.



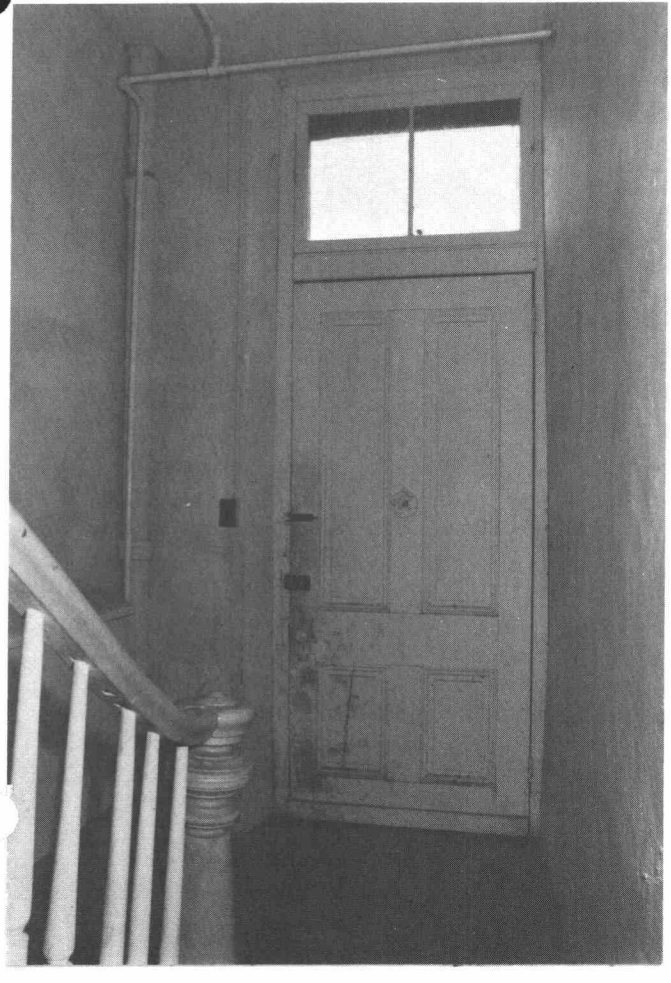
PHOTOGRAPH 45 (1983)

Rear wall of Room 102. Note remains of brick sidewalls of former fireplace.



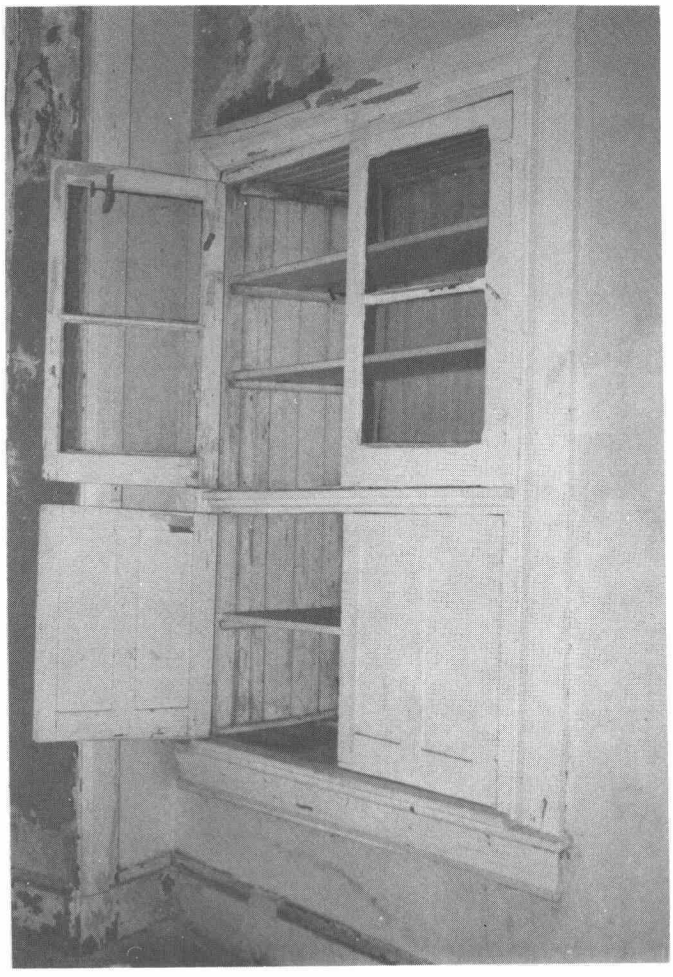
PHOTOGRAPH 46 (1983)

Northeast corner of Room 104



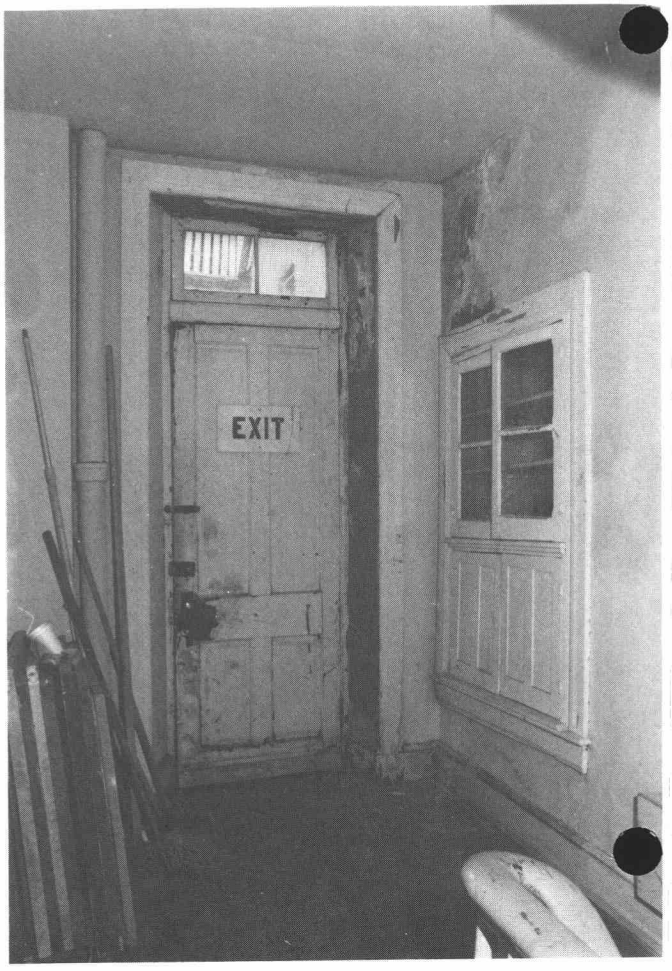
PHOTOGRAPH 47 (1983)

Interior of Door 101



PHOTOGRAPH 48 (1983)

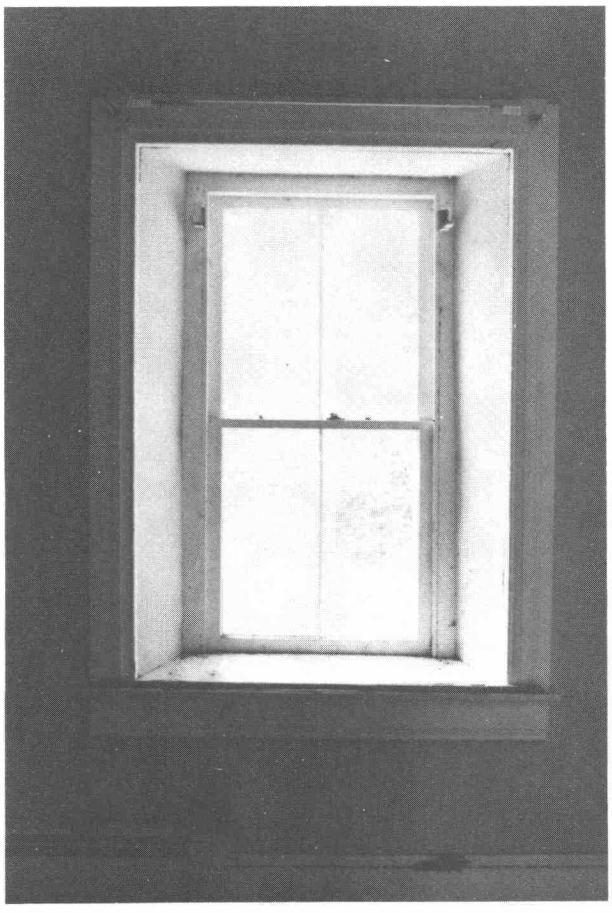
Cabinet built into former window opening, Hall 207.



PHOTOGRAPH 49 (1983)

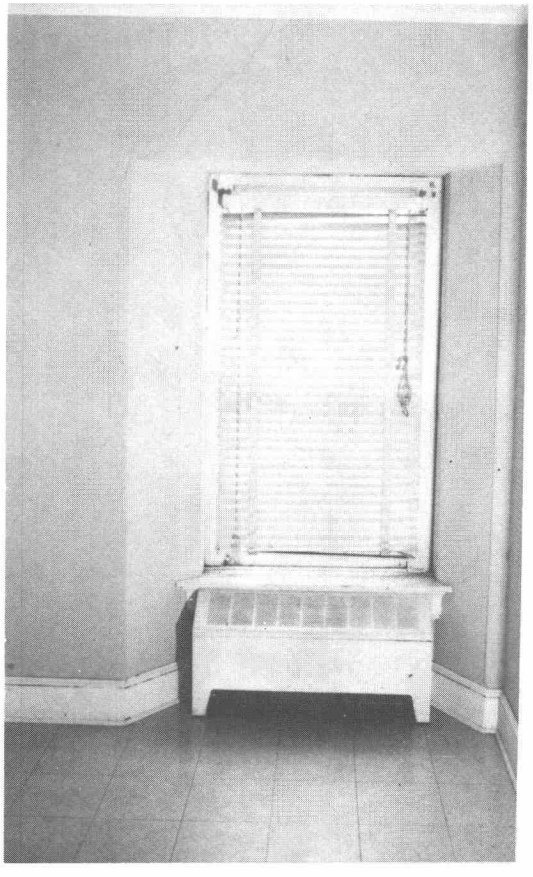
Doorway 208

Note water damage to plaster.



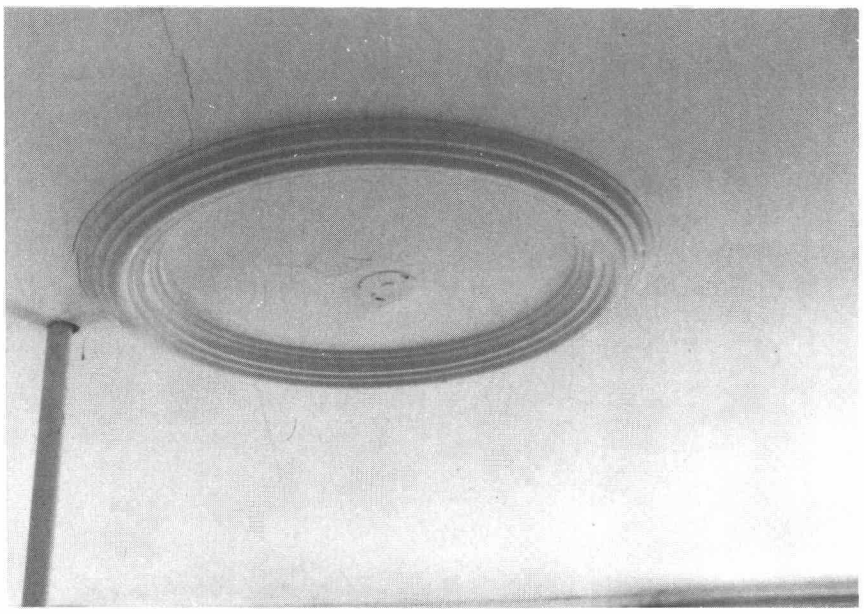
PHOTOGRAPH 50 (1983)

Window 204



PHOTOGRAPH 51 (1983)

Window 205



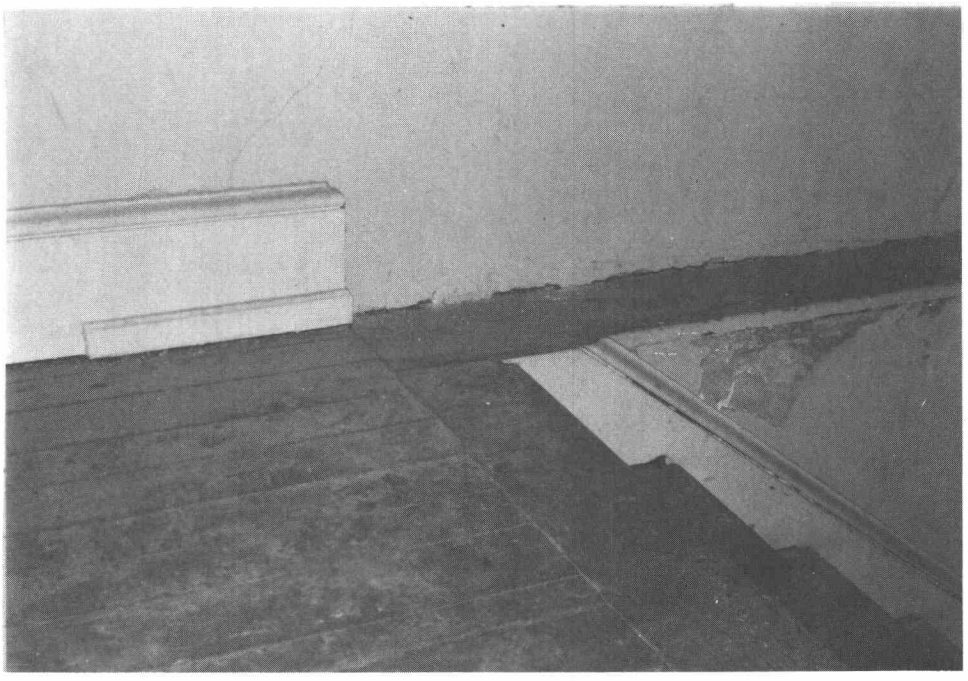
PHOTOGRAPH 52 (1983)

Plaster Medallion Room 201



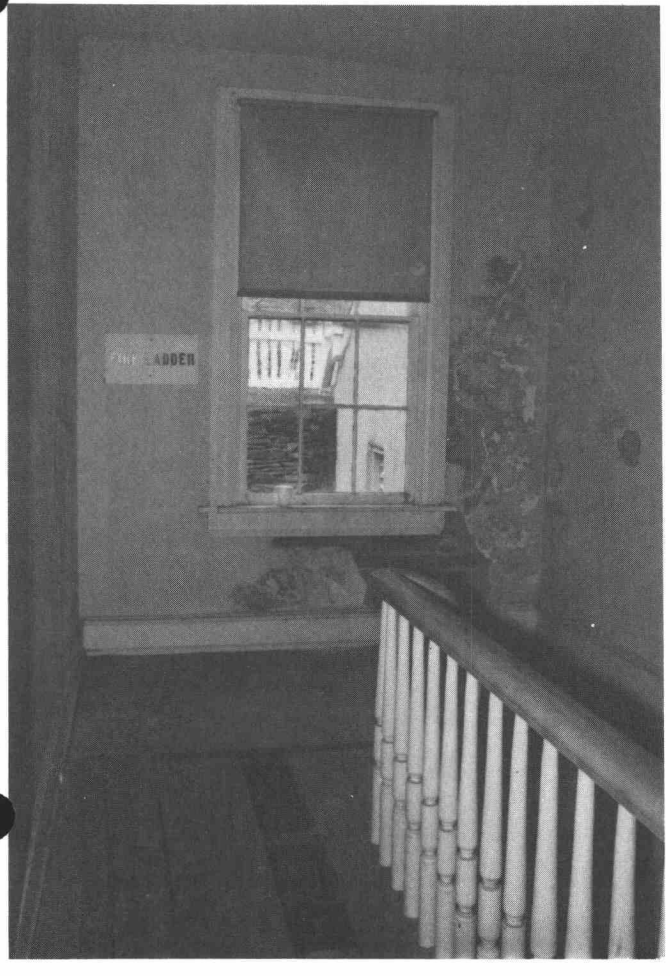
PHOTOGRAPH 53 (1983)

Original cornice of Building 40 viewed from Building 38.



PHOTOGRAPH 54 (1983)

Top of stairs, Room 301. Note change of wall thickness, abrupt end of base.



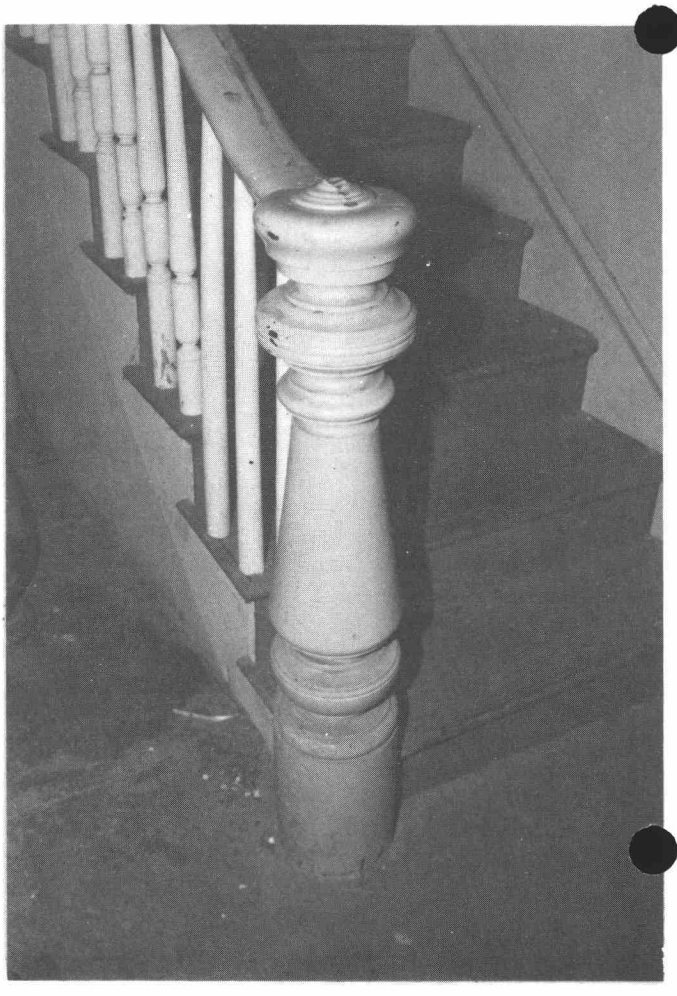
PHOTOGRAPH 55 (1983)

Hall 301, Window 307. Note plywood on floor. Water damage to plaster.



PHOTOGRAPH 56 (1983)

Ballusters & rail, Room 301



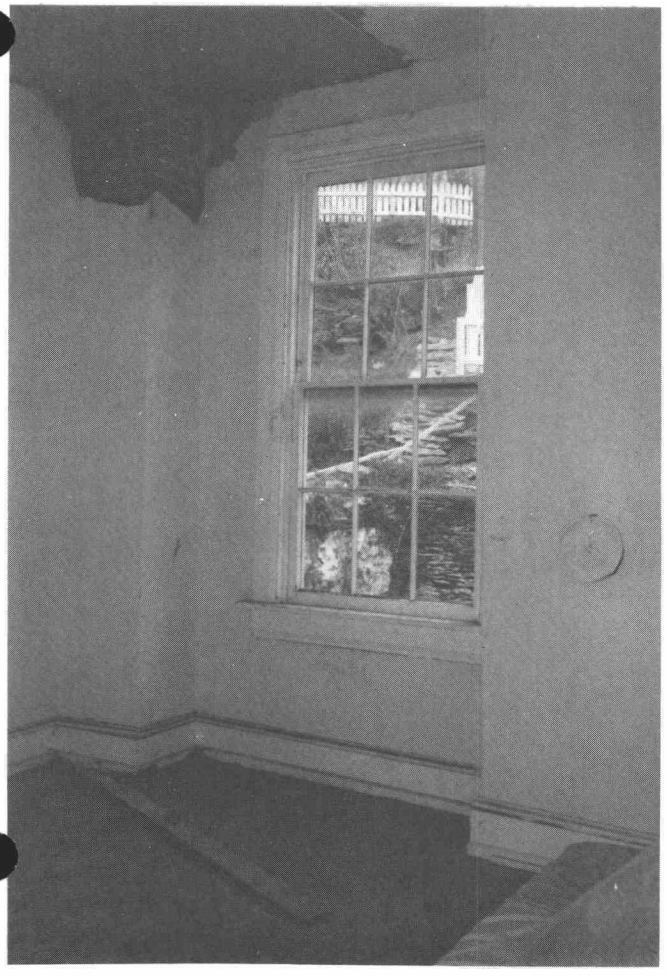
PHOTOGRAPH 57 (1983)

Newel Post
Room 104



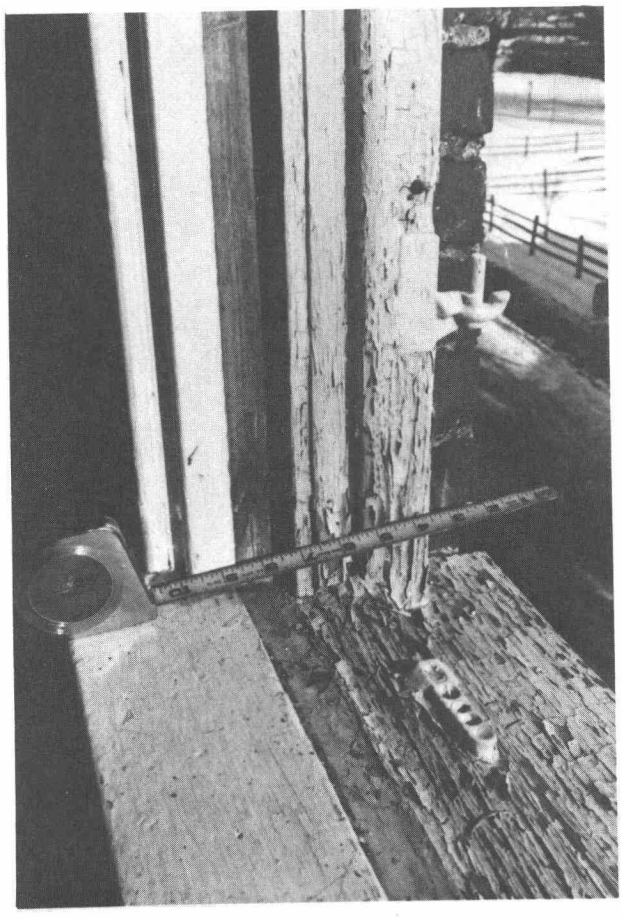
PHOTOGRAPH 58 (1983)

Typical trim. Architrave, Window 302 and apron.



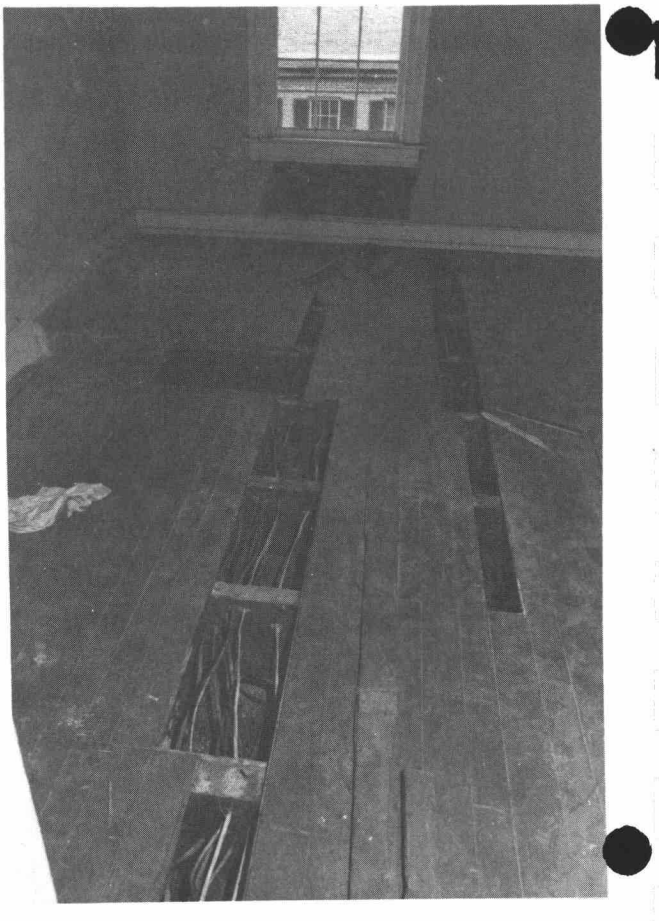
PHOTOGRAPH 59 (1983)

Window 306, Room 303. Note water damage near ceiling. Stove pipe cover on chimney.



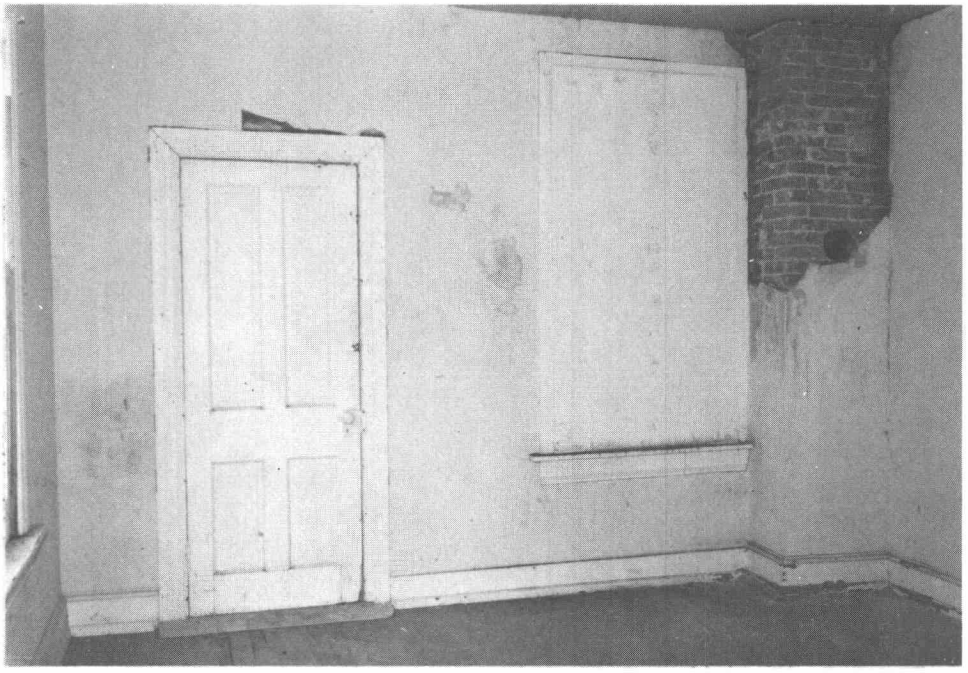
PHOTOGRAPH 60 (1983)

Window details, Window 303.



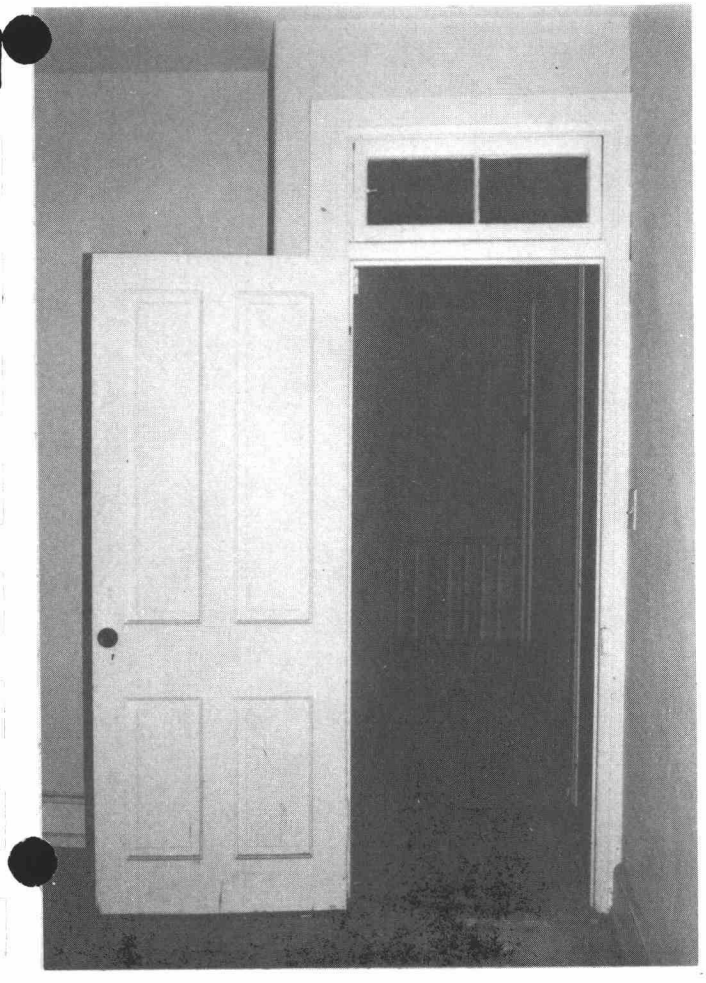
PHOTOGRAPH 61 (1983)

Electric wiring, Room 301



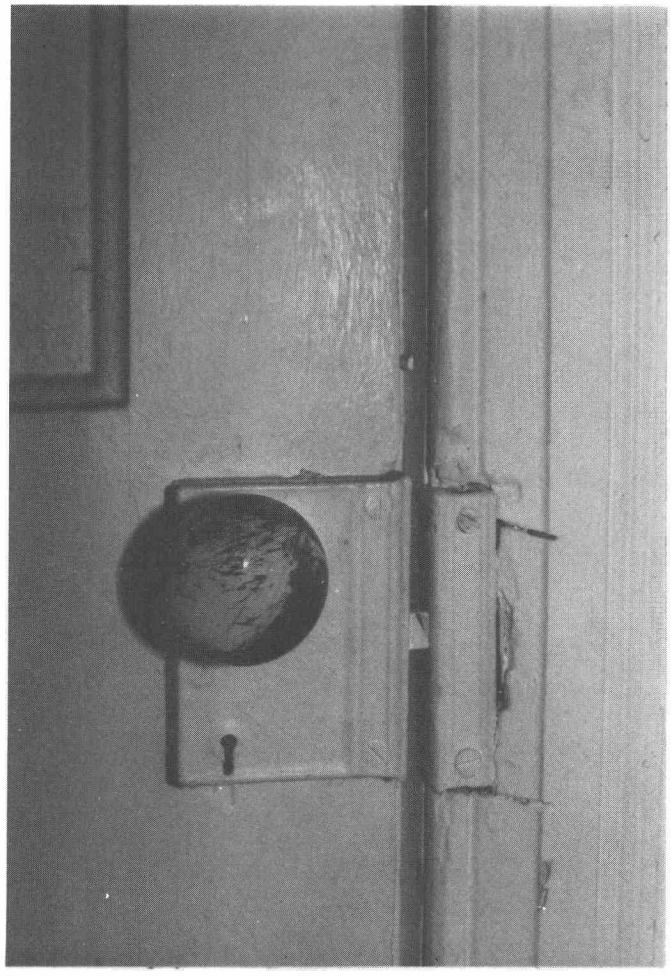
PHOTOGRAPH 62 (1983)

Door 304 and Window 305 in Room 304



PHOTOGRAPH 63 (1983)

Door 303 from Room 304.



PHOTOGRAPH 64 (1983)

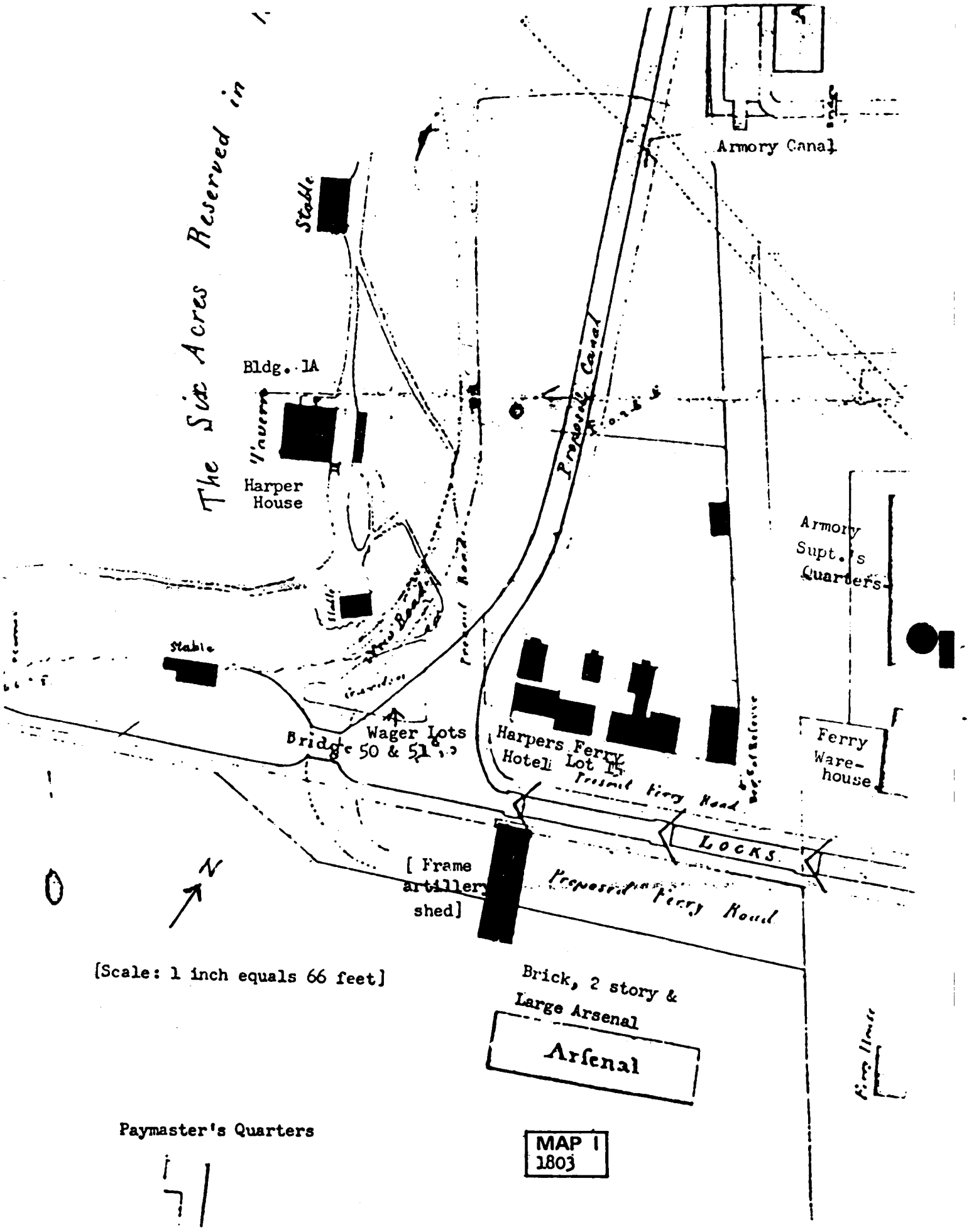
Surface mounted box lock with ceramic knob (all third floor doors similar .



PHOTOGRAPH 65 (1983)

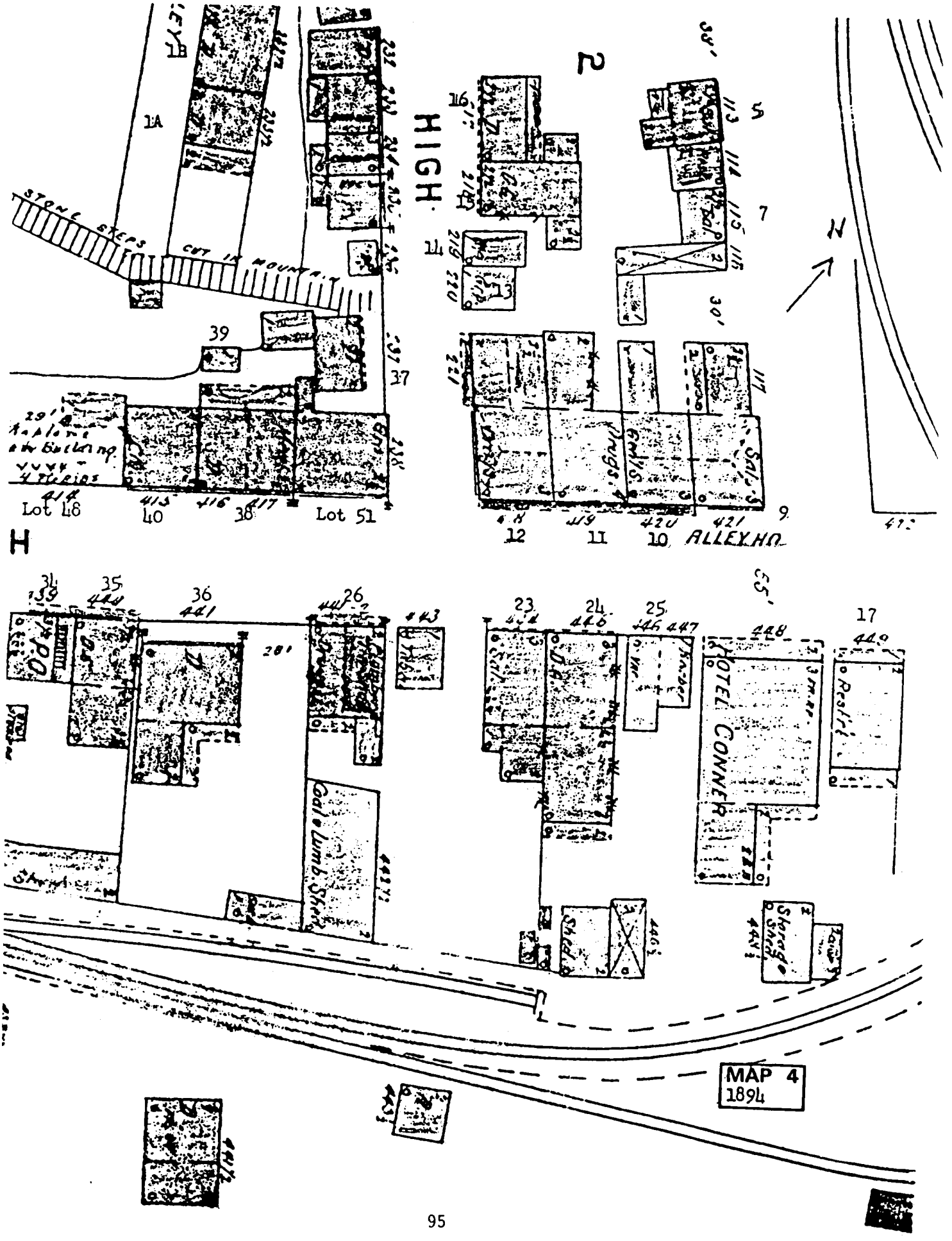
Cast iron hinges (all interior third floor doors).

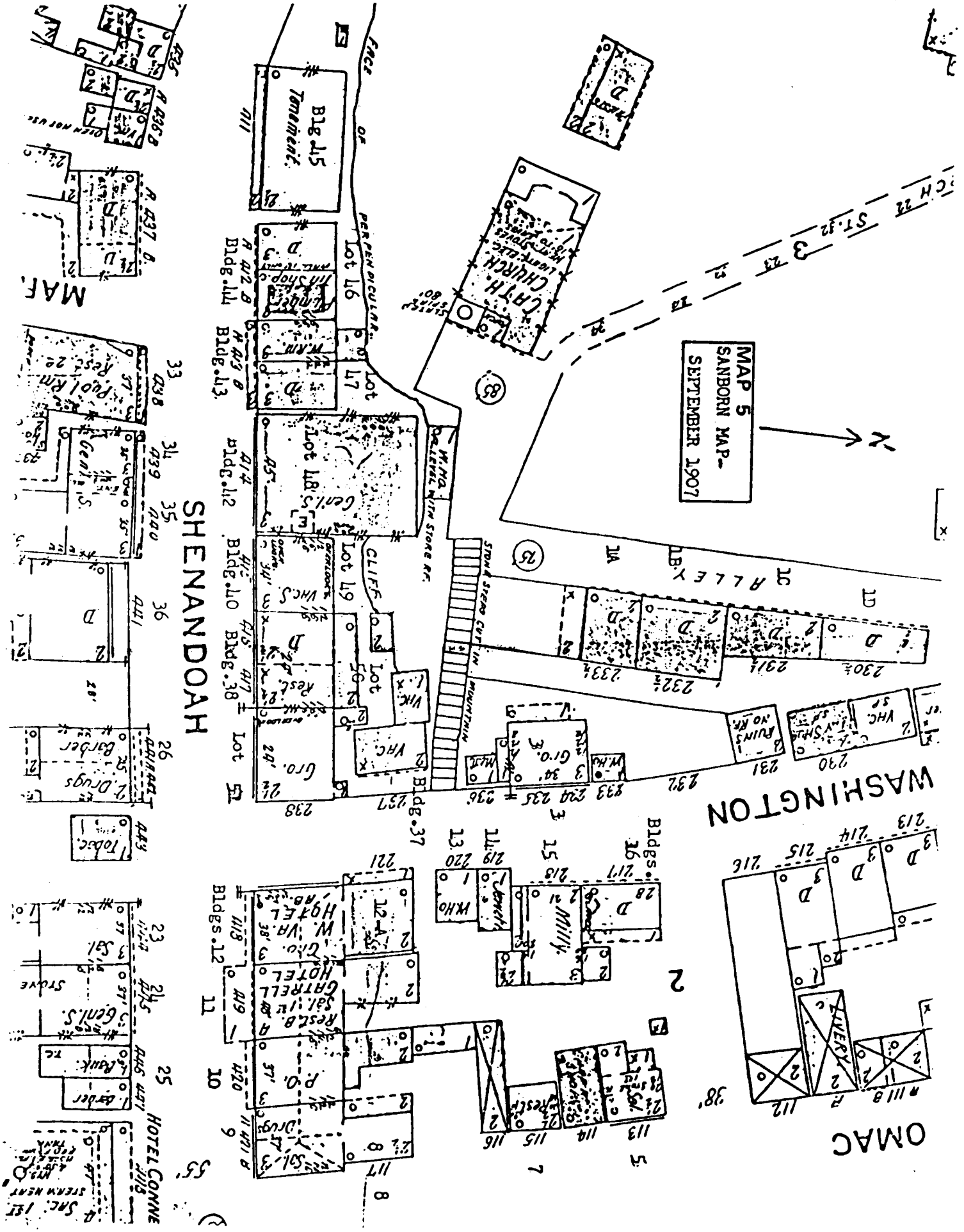
VIII. B. MAPS

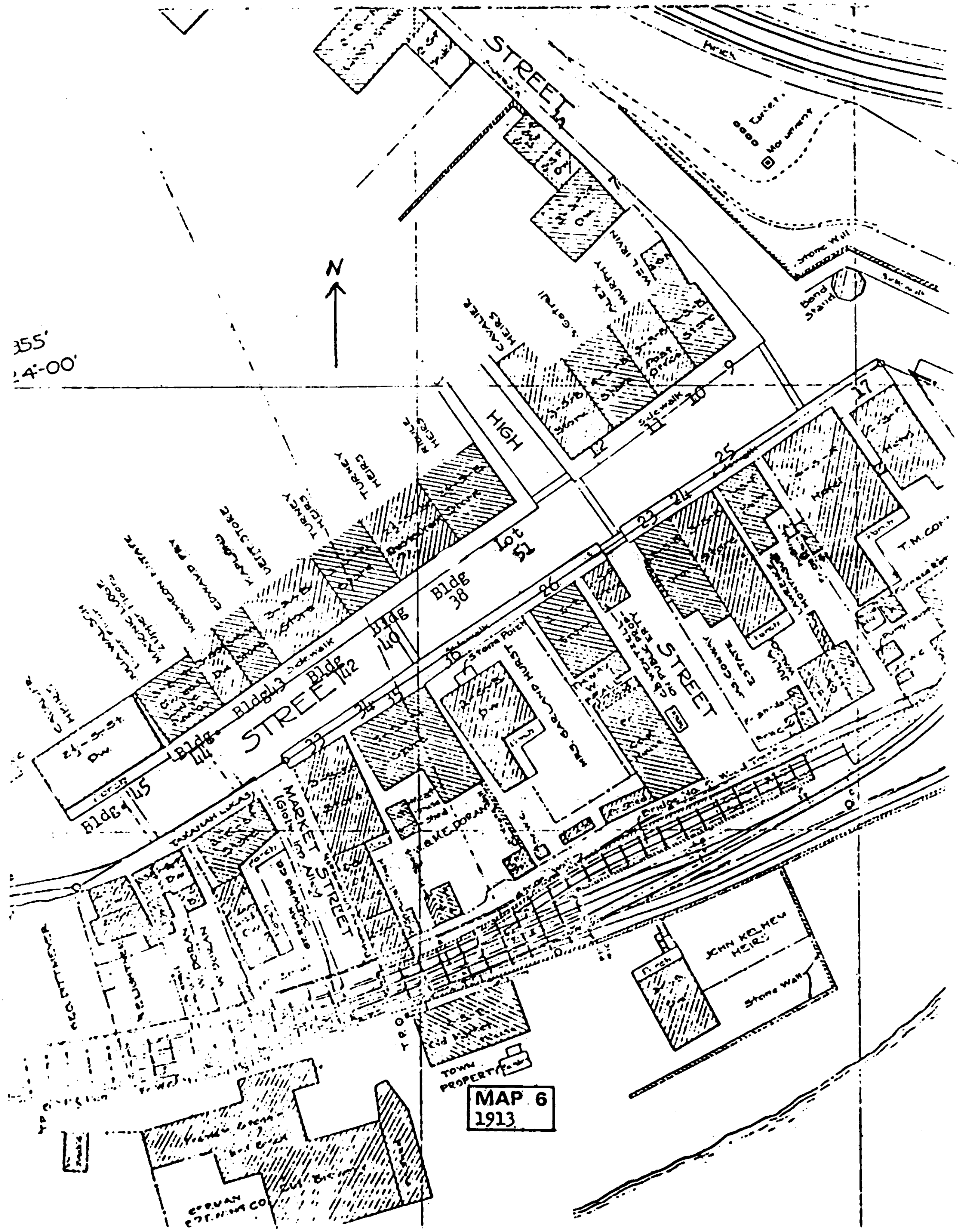

The Six Acres Reserved in
Stable
Armory Canal
Bldg. 1A
Tavern
Harper House
Proposed Canal
Armory Supt.'s Quarters
Stable
Wager Lots
Bridge 50 & 51
Harpers Ferry Hotel Lot 15
Present Ferry Road
Ferry Ware-house
LOCKS
[Frame artillery shed]
Proposed Ferry Road
[Scale: 1 inch equals 66 feet]
Brick, 2 story & Large Arsenal
Arsenal
Paymaster's Quarters
MAP 1
1803

Supt's Quarters
Potomac
Lot 11
Lot 12
Wagers Bridge
Lot 5
Lot 4
Lot 6
Harpers Ferry Hotel- Lot 15
Lot 50
Lot 51
Lot 49
Lot 48
Bldg 40
Catholic Church
Shenandoah Street
Small Arsenal
Supt.'s Office
Supt.'s Old Office
Stock House
Timber shed
Old Arsenal
Ice House
Pay Office
privy
Master Armourer's
Bldg. 35
Bldg. 45
Globe Inn
Globe Alley
Stable
Barracks
Lane between U.S. Arsenal and Wagers
Name house
Landing
MAP 2
1835

PUBLIC
LAND
Bridge Lot 3
ALLEY
C STREET
D ALLEY
CANAL
ARSENAL YARD
STREET
RAIL ROAD
RIVER
SHENANDOAH
RAIL ROAD
POTOMAC
RIVER
MAP 3
Oct. 10, 1835


HIGH
STONE STEPS
CUT IN MOUNTAIN
Lot 48
Lot 51
ALLEY
HOTEL CONNER
MAP 4
1894


MAP 5
SANBORN MAP-
SEPTEMBER 1907
SHENANDOAH
WASHINGTON
OMAC
Bldg.45 Tenement
Lot 46
Lot 47
Lot 48
Lot 49
Lot 50
Lot 51
Bldg.43
Bldg.44
Bldg.42
Bldg.41
Bldg.40
Bldg.38
Bldg.37
Bldgs.12
CLIFF
MOUNTAIN
PERPENDICULAR
CATH. CHURCH
Gen'l.S.
Pool Rm
Drugs
Tobac.
Grocs.
Hotel
Bldgs.
Bldg.
Lot
Ave
St.
Alley
Gen'l.S.
Drugs
Tobac.
Grocs.
Hotel
Bldgs.
Bldg.
Lot
Ave
St.
Alley


N
STREET
HIGH
STREET
STREET
MARKET STREET
Bldg 38
Bldg 40
Bldg 42
Bldg 43
Bldg 44
Bldg 45
Lot 51
Sidewalk
Stone Wall
Band Stand
Post Office
TURNEY HEIRS
CAVALIER HEIRS
ALEX MURPHY
WM IRVIN
MRS GARLAND HURST
TOWN PROPERTY
355'
24-00'

MAP 6
1913

VIII. C. MINUTES OF MEETING AT MORRELL HOUSE FEBRUARY 24, 1983

United States Department of the Interior

NATIONAL PARK SERVICE

DENVER SERVICE CENTER - NATIONAL CAPITAL TEAM

5600 Columbia Pike / Room 312 . Falls Church . Va. 22041

H3015 (DSC-TNC)
HAFE-115B-40

Memorandum

To: Assistant Manager, National Capital Team, DSC

From: David Ballard, Historical Architect, National Capital Team, DSC

Reference: Harpers Ferry National Historical Park, Package No. 115B, Park General, Historic Structure Report, Building 40

Subject: Meeting Held at Morrell House, February 24, 1983

A meeting was held at Harpers Ferry on February 24, to discuss the park's planned use of Building 40 in order to determine what restoration options should be investigated. Those in attendance were Messrs. Don Campbell, Park Superintendent, Archie Franzen, Park Architect, and David Ballard, Historical Architect, DSC-TNC.

It was established that the future theme of Building 40 will focus on the restoration crafts and hopefully will employ carpenters, tinsmiths, etc., plying their trades in traditional manner for park visitors. These demonstrations will allow visitor access to the first floor. This theme is congruous with the Interpretive Prospectus for the park.

It was also decided that the upper two floors should remain flexible for future use as quarters, offices or storage, and that any restoration work proposed should consider the requirements for all uses. This would include upgrading the electrical and mechanical systems, rough-in plumbing, and upgrading the rated floor capacities if required.

There was some discussion concerning the original roof line of Building 40. The Interpretive Prospectus for Harpers Ferry National Historical Park defines the target period for restoration as "the entire 19th century". While the existing Building 40 dates from that period, it was decided that a study of the existing fabric and historic photographs should be pursued in an attempt to uncover the original roof design. The evidence thus discovered will be included in the Historic Structure Report as the basis for a restoration alternative.

SIGNED

David Ballard

cc:
Regional Director-NCR
Superintendent-HAFE
DSC-TNC-Bohannon

Year of the Visitor

VIII. D. ENGINEER'S REPORT

VIII. D. ENGINEER'S REPORT

Background Information:

Built in 1824, the original structure on Wager Lot No. 49 was destroyed by a fire during the Civil War in the period after October 1862 and before May or June 1865. On July 15, 1873, Edward Tearney purchased lot no. 49 and the ruins of the destroyed structure and proceeded to construct Bldg. 40, probably that same year. Tearney retained the original two-story high stone walls of the northeast and southwest sides and also of the rear wall, and topped them with an entirely new brick third story. He also modified the store front facade (facing Shenandoah St.) by increasing the width of the two windows at the first story level, by demolishing the second story portion of the original stone wall, and by rebuilding the facade of the second and third stories entirely with brick. In addition to these exterior changes, he also arranged for the installation of a low pitched gable roof and all new interior structural systems and architectural finishes.

Existing Conditions:

The existing metal roof cover on Bldg. 40 dates to 1952. It lies over 1" thick variable width sheathing which is supported by 1 3/4" x 5 3/8" to 6" rafters 24" o.c. and spaning 14'-9". The rafters run from front to rear, bear directly on the perimeter brick walls, and butt together at the peak. They are supported at the peak and at approximately midspan by 1" thick boards of variable width which rest on a central beam or are nailed to the sides of the third story ceiling joists. The ceiling joists in the attic are 2" x 7 3/4" spaced 24" o.c. They are supported by the front and rear brick walls and by a 3" x 11 3/8" beam (running from side to side) that is located directly over an interior frame wall. The joists are supported and fastened to this beam by a pegged mortise and tenon connection.

Except for the brick load bearing wall running from front to rear on the first story and the brick enclosure for the furnace, all interior walls are of frame construction. Those on the third story probably date to Bldg. 40's 1873 reconstruction as all the toe molding at the base of these walls is the same in pattern and matches that along the perimeter masonry walls and around the doors. On the second story, the major wall running from side to side and the interior wall running from front to rear (bounding the stairway) also dates to 1873. Other walls include a nonhistoric 6 ft. ± high partition in the front half of this level separating the two main living areas, the frame wall southeast of the stairway which encloses the bathroom, and several new walls built to provide closet space or hide electrical equipment in the back half of this building.

All historic frame walls are built with 3" x 3 3/4" studs 16" o.c. and have a plaster on lath finish. On the second story, the principal wall running from side to side contains 2" x 6" diagonal braces let into the studs. These braces bear (at the second story floor level) on the southwest perimeter wall and interior brick wall, and butt together at the third story floor level. Their purpose is to transfer loads from midspan of the beam/joist directly above to the masonry walls on which they bear.

The exterior walls are, as described earlier, built from a combination of stone and brick. The only problem encountered relating to this feature of the building occurs over the rear entrance at the second story level where the water intrusion has resulted in rotting of the door frame and architrave.

The floor at the first story level of Bldg. 40 consists of a concrete slab which was, for the most part, restored by NPS crews between 1959 and 1960. It is 4'-6" below the store floor level of the 1824 structure. This change in floor elevations occurred during the 1873 reconstruction and resulted in the elimination of the cellar that existed in the original structure. No evidence or documentation was uncovered, indicating the supporting conditions under the slab, its thickness, or the amount of

steel reinforcement it contained. This lack of information limits the extent to which a loading limit can be established. However, as no structural problems have developed since its last resurfacing, it is recommended that loading be limited to the present (light to moderate) levels.

The framing for the second story floor system is with 2" x 11½" joists running from southwest to northeast and spaced 16" o.c. The floor boards are 3/4" thick and of varying widths. The third story floor system consists of 1 1/2" to 2 7/8" x 11 1/2" joists spaced 24" o.c. with 7/8" (thick) floor boards. Both floor systems should be rated for a live load of 30 PSF. Should a need arise to increase the allowable loading limit, further investigation and possible testing could be undertaken to determine whether this would be possible without modifications to the existing framework.

Conclusions

As a whole, Bldg. 40 is in good structural condition and requires no major structural repairs. Isolated improvements, such as replacing the rotted door framing and architrave at the rear entrance of the second story and replacement of the missing or damaged floor boards at the head of the third story stairs, are typical examples of the miscellaneous repairs that are needed.

One final consideration which might affect the safety and structural stability of Bldg. 40 involves the rock cliff located adjacent to its southwest corner. The cause of concern centers around a diagonal seam which runs through this geologic formation. This portion of the rock cliff was only recently exposed when park maintenance crews dismantled the rubble masonry wall on the northwest side of (vacant) lot no. 48. This potential failure line is oriented in such a manner that if slippage occurred, a sizeable section of this rock cliff would be directed toward the rear of Bldg. 40 and would impact on this structure. Such an occurrence could potentially result in considerable damage to the rear wall of Bldg. 40.

Although this rock formation has remained in this condition without failure for some time, it is recommended that a determination be made by a geologist on whether this condition represents any danger to the building. If so controlled, removal of the rock outcrop above the seam or stabilization using rock bolts would be necessary. In the meantime, a differential movement monitoring device should be installed along the face of the cliff to detect any slippage along this seam.

FORM D S C - 44

Park HARPERS FERRY N.H.P.	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 1
Area LOWER TOWN			of
Project BLDG. 40	By MACDONALD	Checked	Pkg.
Feature FLOOR ANALYSIS	Date 6/3/82	Date	Account

FRAMING SYSTEM FOR SECOND STORY FLOOR CONSISTS OF 2" x 11½" JOISTS 16" O.C. W/ ¾" THICK RANDOM WIDTH T&G FLOORING & CEILING BOARDS. THE JOISTS ARE SUPPORTED BY THE EAST AND WEST PERIMETER WALLS & THE INTERIOR BRICK WALL RUNNING NORTH TO SOUTH.

DEAD LOADS :-

FLOOR & CEILING BOARDS 4.5 PSF (1½" THICK)
JOISTS 6.4 PLF
OR 4.8 PSF

PARTITIONS ⊥ TO JOISTS - ASSUME 22 PSF (VERT. SURFACE) AT MIDSPAN OF JOISTS.

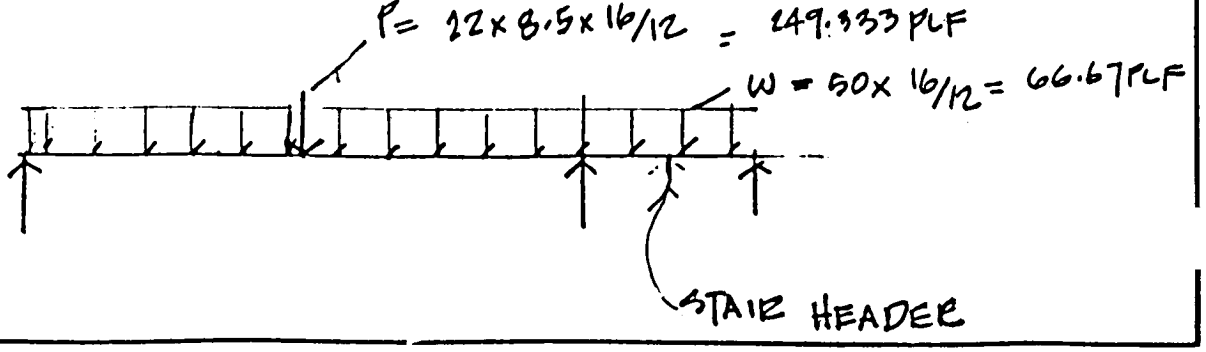
LIVE LOADS 40 PSF

TOTAL :- ≈ 50 PSF plus conc. load of (22 x 8.5) PLF at MIDSPAN

FLOOR JOIST ANALYSIS :-

FOR BENDING :-

S (for 2" x 11½") = 44.083

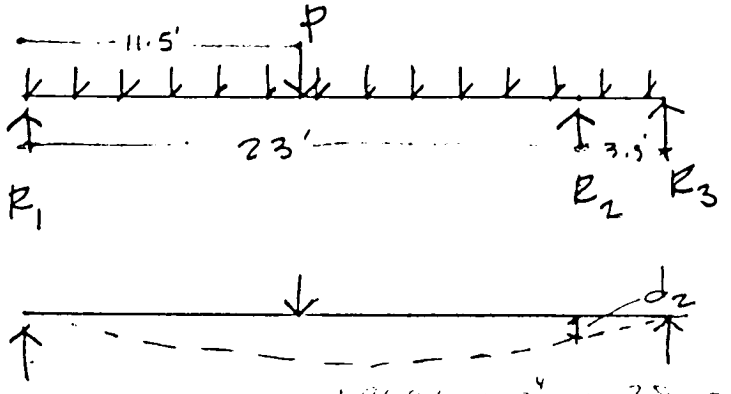


FORM D S C - 44

Park HARPERS FERRY N.H.P	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 2
Area LOWER TOWN			of
Project BLDG. 40	By MACDONALD	Checked	Pkg.
Feature 2ND STORY FLOOR	Date 6/3/82	Date	Account

ANALYZE SYSTEM USING METHOP OF EQUIV. DISPLACE-MENT TO DETERMINE REACTIONS AT WALLS.

FOR JOISTS WHICH TIE INTO STAIR HEADER, ...



$$d_2 = \frac{(66.67)(23)}{24EI}\left[(26.5)^3 - 2(23)^2(26.5) + (23)^3\right]$$

$$+ \frac{249.333\,(11.5)(3.5)}{6EI\,(26.5)}\left[(26.5)^2 - (11.5)^2 - (3.5)^2\right](12)^2$$

ASSUME $E = 1.5 \times 10^6$ psi;

$I = 253.48$ in^4

$$d_2 = 1.6804\times10^{-7}\left[1.86096\times10^4 - 2.8037\times10^4 + 1.2167\times10^4\right](12)^2$$

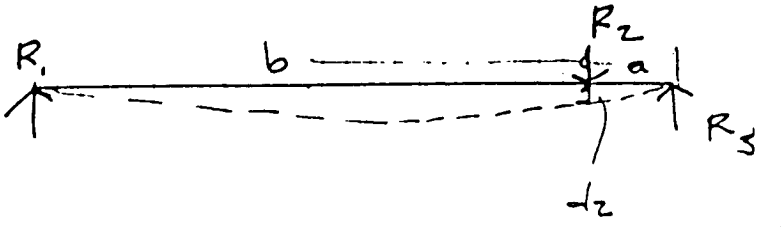
$$+ 1.66\times10^{-7}\left[7.0225\times10^2 - 1.3225\times10^2 - .1225\times10^2\right](12)$$

$$= 6.63\times10^{-2} + 1.333\times10^{-2} = 7.963\times10^{-2}\ \text{ft}$$

$$= 9.555\times10^{-1}\ \text{in} = 0.9555''$$

FORM D S C - 44

Park HARPERS FERRY N.H.P.	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 3
Area LOWER DWN			of
Project BLDG. 40	By MACDONALD	Checked	Pkg.
Feature FLOOR ANALYSIS	Date 6/3/82	Date	Account



$$d_2 = \frac{R_2 a^2 b^2}{3EI\,l} = \frac{R_2 (3.5)^2 (23)^2 (12)^3}{3(11.5\times10^6)(253.48)(26.5)}$$

$$0.9555 = R_2 (3.7045\times10^{-4})$$

$$R_2 = 2579.43 \text{ lbs}$$

$$\Sigma M_1 = (R_2)(23) + R_3(26.5) - wl^2/2 - P(11.5)$$

$$= 59326.87 + 26.5R_3 - 23409.5 - 2867.33$$

$$R_3 = -1247.17 \text{ lbs.}$$

$$\Sigma M_3 = 23409.5 + P(15) - 3.5R_2 - 26.5R_1$$

$$= 23409.5 + 3740 - 9028.0 - 26.5R_1$$

$$R_1 = 683.83 \text{ lbs}$$

M_{MAX} @ MIDSECTION OF JOIST $= \left(\frac{683.3}{66.67}\right)(683.3)/2$

$= 3504.28$ ft-lbs. USE AS M_{MAX}

$$M_{\text{AT BEARING WALL}} = \left(23.0/2\right)\left(249.333\right) + \left(23 - \frac{2(683.3)}{66.67}\right)^2 (66.67$$

$$= 2867.33 + 208.68 = 3076.01 \text{ ft-lbs}$$

Park HARPERS FERRY N.H.P.	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 4
Area LOWER TOWN			of
Project BLDG 40	By MACDONALD	Checked	Pkg.
Feature FLOOR ANALYSIS	Date 6/3/82	Date	Account

ASSUMING $f = 1200$ psi

$$S_{reqd} = \frac{M_{MAX}}{f} = (3504.28)(12)/1200 = 35.04 \text{ in}^3$$

$S_{ACT.} = 44.083 \text{ in}^3$ OK

ANALYSIS CONSIDERING ALLOWABLE LIMITS FOR DEFLECTION NOT CALCULATED.

FOR SIMPLE SPAN OF 23'

$M_{MAX} = (44.083)(1200) = 52,899.6$ in-lbs

$w = (8)(52,899.6)/(23)^2(12)$

$= 66.67$ lbs/ft

Total load per SF OF floor area = 50 PSF

FOR DEAD LOAD OF 10 PSF, ALL. LIVE LOAD = 40 PSF

FORM D S C - 44

Park HARPERS FERRY N.H.P.	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 5
Area LOWER TOWN			of
Project BLDG. 40	By MACDONALD	Checked	Pkg.
Feature 3rd STORY FLOOR ANAL.	Date 6/3/02	Date	Account

3RD STORY FLOOR FRAMING SYSTEM :- 2 7/8" X 11 1/2" joists 24" o.c. w/ 3/4" WOOD T&G FLOORING & plaster ceiling.

DEAD LOADS

CEILING	10.0 PSF
JOISTS	4.6 PSF
FLOORING	3.0 "
PARTITION ⊥ TO JOISTS - 22 PSF VERT SURFACE AT MIDSPAN OF JOISTS	

LIVE LOAD 40 PSF

WOOD PROPERTIES (ASSUMED FOR DESIGN)

$f = 1200$ psi

$E = 1.5 \times 10^6$ psi

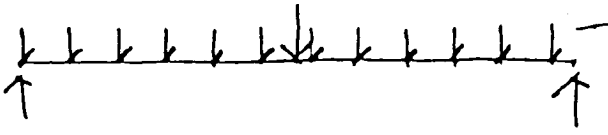
$S = 69.37$ in^3

$I = 364.38$ in^4

ANALYZE FOR SIMPLE SPAN OF 23 FT — MORE CRITICAL IN BENDING THAN THE ACTUAL CONDITION OF JOISTS 27' LONG & SUPPORTED BY PERIMETER & INTERIOR WALLS.

Park HARPERS FERRY N.H.P.	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 6
Area LOWER TOWN			of
Project BLDG 40	By MACDONALD	Checked	Pkg.
Feature 3RD STORY FLOOR ANAL.	Date 6/3/82	Date	Account

$P = (8.5)(22)(2) = 374$ lbs.



$W = (57.5)(2) = 115$ PLF

FOR BENDING :-

$$M_{MAX} = \frac{P \cdot l}{4} + \frac{W l^2}{8} = \frac{(374)(23)}{4} + \frac{(23)^2}{8} W$$

for $f = 1200$ psi & $S = 63.37\ in^3$

$$M_{MAX} = (S)(f) = (1200)(63.37)$$

$$= 76044 \text{ in-lbs} = 6337 \text{ ft-lbs}$$

$$66.125 W = 6337 - 2150.5 = 4186.5$$

$$W = 63.31 \text{ PLF}$$

TOTAL LOAD PER SF OF FLOOR AREA = 31.66

" ALLOWABLE LIVE LOAD = $31.66 - 10 - 7.6$

$= 14.1$ PSF

FOR $f = 1400$ psi

$M_{MAX} = 7393.2$ ft-lbs

$W = (7393.2 - 2150.5)/66.125$

$= 79.28$ PLF

FORM D 8 C - 44

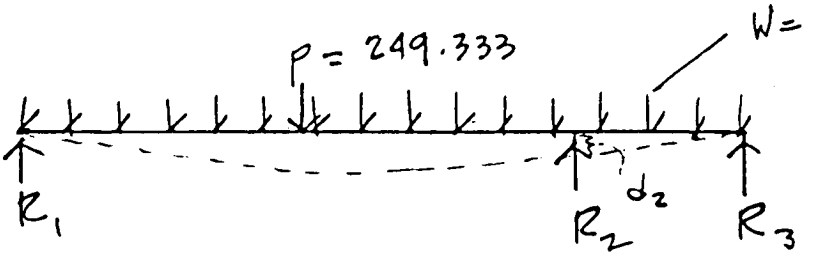
Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 7
Area LOWER TOWN			of
Project BLDG. 40	By MACDONALD	Checked	Pkg.
Feature 3RD STORY FLOOR ANAL.	Date 6/3/82	Date	Account

TOTAL LOAD PER SF OF FLOOR AREA = 39.64 PSF

TOTAL ALLOWABLE LIVE LOAD = 39.64 − 17.6

= 22.04 PSF

FOR ACTUAL CONDITION OF TWO SPANS, ...



$$d_2 = \frac{(115)(23)}{24\,EI}\left[(30)^3 - 2(23)^2(30) + (23)^3\right](12)^2$$

$$+ \frac{249.333\,(11.5)(7)}{6\,EI\,(30)}\left[(30)^2 - (11.5)^2 - (7)^2\right](12)^2$$

$$d_2 = 2.9036\times10^{-5}\left[2.7\times10^4 - 3.174\times10^4 + 1.217\times10^4\right]$$

$$+ 2.938\times10^{-5}\left[9.00\times10^2 - 1.3225\times10^2 - 49\right]$$

$$= \left(2.1574\times10^{-1} + 2.112\times10^{-2}\right)\text{ft}$$

$$= (0.237)(12) = 2.844$$

R_2 REQD TO PREVENT THIS MOVEMENT

$$= \frac{3d_2\,EIl}{a^2b^2} = \frac{(3)(2.844)(1.5\times10^6)(364.38)(30)}{(7)^2(23)^2(12)^3}$$

Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 9
Area LOWER TOWN			of
Project BLDG 40	By MACDONALD	Checked	Pkg.
Feature 3ED STORY FLOOR	Date 6/3/82	Date	Account

$R_2 = 3123.416$

$\Sigma M_1 = R_2(23) + 30R_3 - wl^2/2 - 11.5P$

$= 71,837.34 + 30R_3 - (115)(30)^2/2 - 11.5(374)$

$R_3 = -526.2$ lbs.

$\Sigma M_3 = 7(R_2) + 30R_1 - wl^2/2 - 19.5P$

$= 21863.8 + 30R_1 - 51750 - 4861.99$

$R_1 = +34748.19/30 = 1158.273$ lbs.

$M_{\text{AT MIDSECTION OF JOISTS}} = \left(\frac{1158.273}{115}\right)(1158.273)/2$

$= 5833.03$ ft-lbs

$M_{\text{AT INT BEARING WALL}} = (23/2)(249.333) + \left(23 - 2\frac{(1158.273)}{115}\right)(115/2)$

$= 2867.33 + 164.23$

$= 3031.56$ ft-lbs.

Use 5833.03 ft-lbs as the max Mom

Assuming $f = 1200$ psi

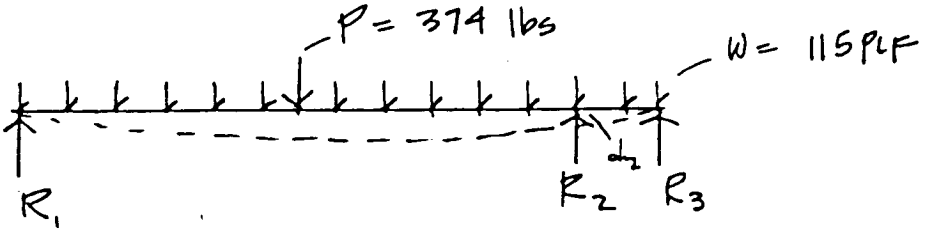
$S_{reqd} = \frac{5833.03 \times 12}{1200} = 58.33\ in^3$ OK

$S_{act} = 63.37\ in^3$

FORM D S C - 44

Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER			Sheet 9
Area LOWER TOWN				of
Project BLDG 40 HSR	By MACDONALD		Checked	Pkg.
Feature 3RD STORY FLOOR ANAL	Date 6/4/82		Date	Account

ANALYSIS OF 3RD FLOOR AREA ADJACENT TO STAIRS & STAIR HEADER



$$d_2 = \frac{(115)(23)}{24EI}\left[(26.5)^3 - 2(23)^2(26.5) + (23)^2\right](12)^2$$

$$+ \frac{249.333(11.5)(3.5)}{6EI(26.5)}\left[(26.5)^2 - (11.5)^2 - (3.5)^2\right](12)^2$$

$$= 2.1036\times10^{-5}\left[1.8610\times10^4 - 2.8037\times10^4 + 1.2167\times10^4\right]$$

$$+ 1.663\times10^{-5}\left[702.25 - 132.25 - 12.25\right]$$

$$= 7.7559\times10^{-2} + 9.2754\times10^{-3}$$

$$= 8.8834\times10^{-2}\ \text{ft}$$

$$= 1.066''$$

R_2 REQ'D TO PREVENT THIS MOVEMENT

$$= \frac{3(1.066)EIl}{a^2b^2} = \frac{(3)(1.066)(1.5\times10^6)(3648)(26.5)}{(3.5)^2(23)^2(12)^3}$$

$$= 4.1366\times10^3\ \text{lbs}$$

Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 10
Area LOWER TOWN			of
Project BLDG. 40 HSR	By MACDONALD	Checked	Pkg.
Feature 3RD STORY FLOOR	Date 6/4/82	Date	Account

$$\Sigma M_1 = R_2(23) + 26.5 R_3 - wl^2/2 - 11.5 P$$

$$= 9.5141 \times 10^4 + 26.5 R_3 - 4.03794 \times 10^4 - 4301$$

$$R_3 = -1.9042 \times 10^3 \text{ lbs.}$$

$$\Sigma M_3 = 3.5 R_2 + 26.5 R_1 - wl^2/2 - 15 P$$

$$= 1.448 \times 10^4 + 26.5 R_1 - 4.038 \times 10^4 - 5610$$

$$R_1 = 1.1891 \times 10^3 \text{ lbs}$$

check

$$\Sigma F_V = R_1 + R_2 + R_3 - wl - P = 0$$

$$= 1189.1 + 4136.6 - 1904.2 - 3047.5 - 374 = 0$$

OK

$M_{@ \text{ MIDSECTION OF JOISTS}} = \left(\frac{1189.1}{115}\right)\left(1189.1\right) 1/2$

$= 6147.65 \text{ ft-lbs} = M_{MAX}$

$S_{reqd} = 6147.65 \times 12 / 1200 = 61.477 \text{ in}^3$

$S_{act} = 63.37 \text{ in}^3$

OK

FORM D S C - 44

Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 11
Area LOWER TOWN			of
Project BLDG. 40 HSR	By MACDONALD	Checked	Pkg.
Feature 3RD STORY FLOOR	Date 6/4/02	Date	Account

BASED ON THESE CALCULATIONS, IT IS SAFE TO SAY THAT THE FLOOR JOISTS ON BOTH LEVELS CAN SAFELY SUPPORT A LIVE LOAD OF 40 PSF. THE ONLY AREA OF CONCERN IS AT THE STAIR HEADERS WHERE THERE IS A SIGNIFICANT UPLIFT FORCE WHEN THE FLOORS ARE FULLY LOADED. ALTHOUGH THE X-SECTIONAL DIMENSIONS OF THESE HEADERS HAS NOT BEEN DETERMINED, IT IS DOUBTFUL THAT THEY WOULD BE OVERSTRESSED FOR THE SHORT SPAN EXISTING ON THE THIRD FLOOR AND BECAUSE SOME "PLAY" BY THE JOISTS SUPPORTING THESE HEADERS WOULD BE EXPECTED. ALSO, A LOADING OF 40 PSF IN THE ENTIRE AREA ADJACENT TO BOTH THESE STAIR HEADERS IS NOT LIKELY ENOUGH TO MODIFY THE STAIR FRAMING. MY RECOMMENDATIO WOULD BE TO LEAVE THE FLOOR FRAMING "AS IS" AND RESTRICT USE OF BOTH STORIES TO MODERATE OR LOW LOADING LEVELS – 30 TO 40 PSF OR LESS. SHOULD A NEED ARISE TO INCREASE THIS PROPOSED ALLOWABLE LIMIT, FURTHER INVESTIGATION AND POSSIBLE TESTING COULD BE UNDERTAKEN TO DETERMINE WHETHER THIS WOULD BE POSSIBLE WITHIN THE EXISTING FRAMEWORK.

OTHER CONCERNS INCLUDE THE ADEQUACY OF THE JOISTS/BEAM THAT HELP SUPPORT THE INTERIOR WALLS RUNNING PARALLEL TO THE JOISTS. ALTHOUGH DIAGONAL BRACING EXISTS WITHIN THESE PARTITIONS, IT IS NOT PRACTICAL TO DETERMINE TO WHAT EXTENT THESE MEMBERS ARE ABLE TO TRANSFER LOADS TO THE WEST AND INTERIOR SUPPORTING WALLS OR THE SIZES OF THE MEMBERS (AT FLOOR LEVEL). BASED ON THE OVERALL GOOD CONDITION OF THE STRUCTURE, THE ADEQUATE SIZING

Park HAFE	NATIONAL PARK SERVICE DENVER SERVICE CENTER		Sheet 12
Area LOWER TOWN			of
Project BLDG 40 HSR	By MACDONALD	Checked	Pkg.
Feature INTERIOR WALLS	Date 6/4/82	Date	Account

OF MEMBERS IN OTHER AREAS, AND THE LACK OF VISIBLE PROBLEMS IN THIS AREA, IT IS ASSUMED THAT NO ADDITIONAL SUPPORT TO FLOOR JOISTS IS NEEDED.

VIII. E. HISTORIC AMERICAN BUILDING SURVEY DRAWINGS

TRIM LINE

WILLIAM RICHARDS BUILDING

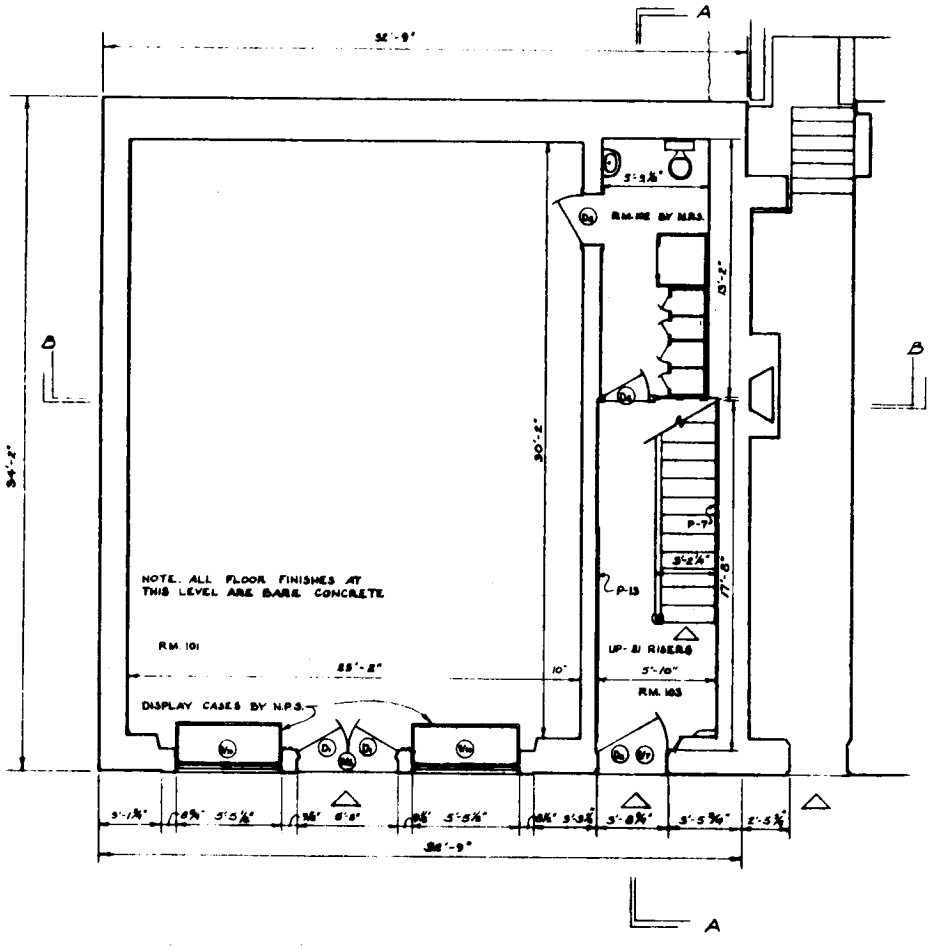


120

JOHN E. DONAGHEY – DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE WILLIAM RICHARDS BUILDING BLDG # 40 HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA	SURVEY NO.	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 1 OF 13 SHEETS

TRIM LINE



FIRST FLOOR PLAN
SCALE ¼" = 1'-0"

0 1 2 3 4 5 6 7 8 9 10 FEET
0 1 2 3 METERS

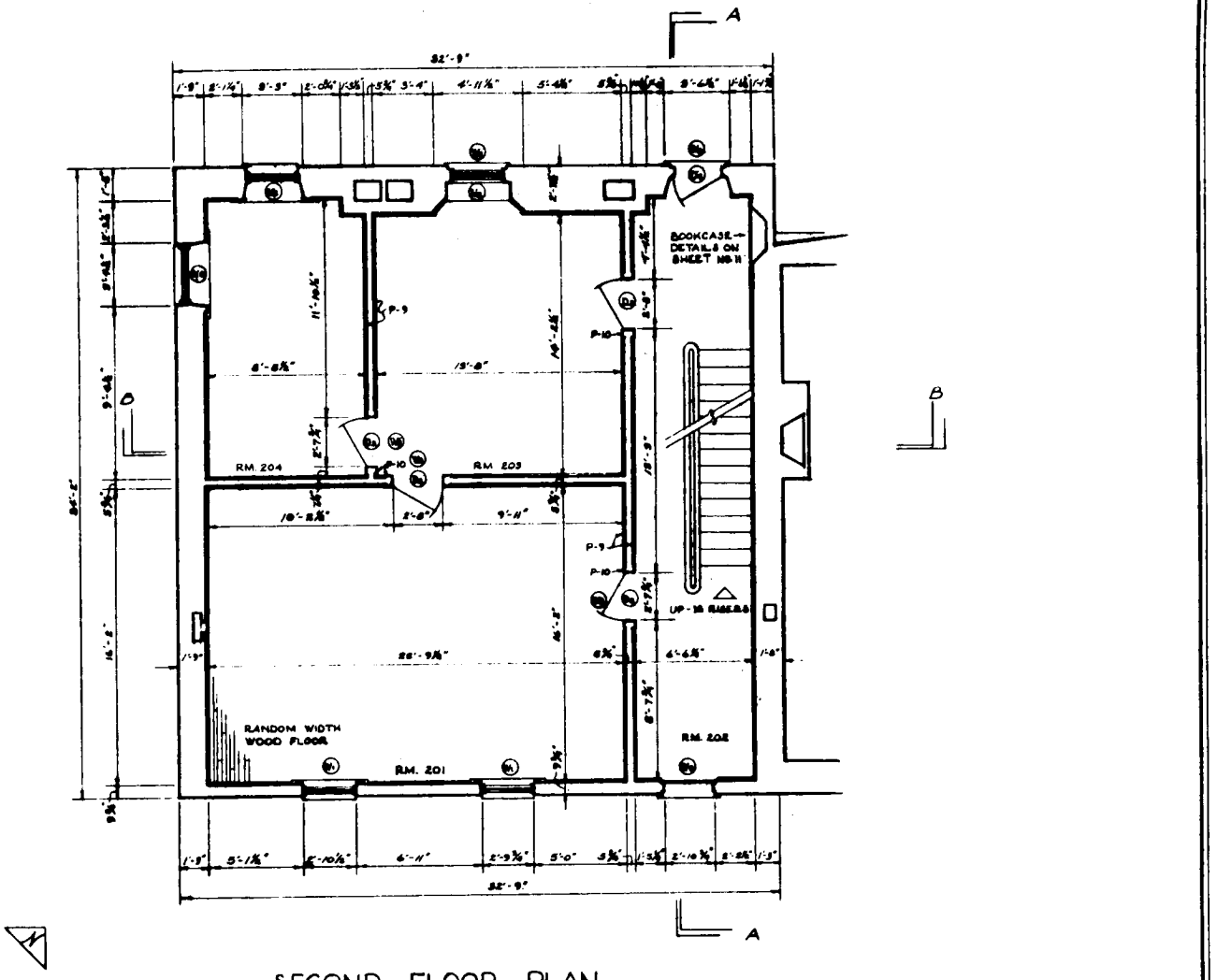
JOHN E. DONAGHEY – DEL

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 8 OF 13 SHEETS



SECOND FLOOR PLAN
SCALE ¼" = 1'-0"

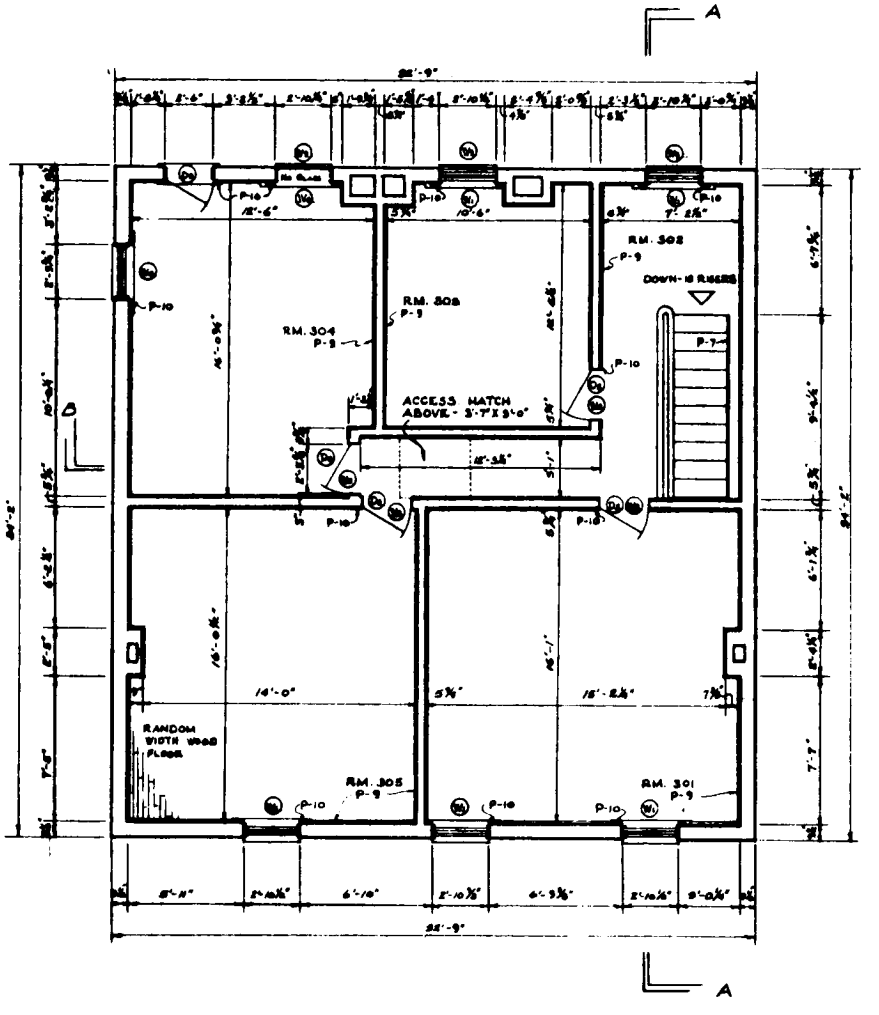
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN
BUILDINGS SURVEY
SHEET 3 OF 13 SHEETS



THIRD FLOOR PLAN

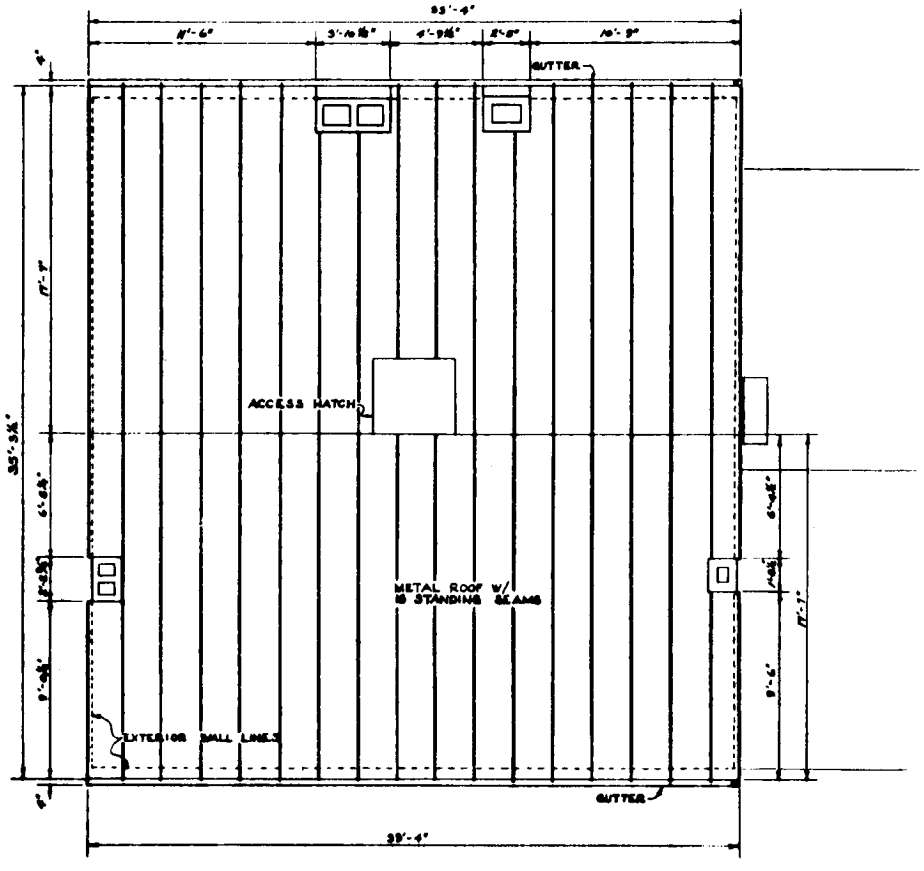
SCALE ⅛" = 1'-0"

0 1 2 3 4 5 6 7 8 FEET

0 1 2 METERS

JOHN E. DONAGHEY – DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE WILLIAM RICHARDS BUILDING HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA	SURVEY NO.	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 4 OF 13 SHEETS	LIBRARY OF CONGRESS



ROOF PLAN

SCALE 1/4" = 1'-0"

0 1 2 3 4 5 6 7 8 FEET

0 1 2 METERS

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NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE

WILLIAM RICHARDS BUILDING

HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY

SHEET 8 OF 18 SHEETS



SOUTHEAST ELEVATION
SCALE ¼" = 1'-0"

0 1 2 3 4 5 6 7 8 FEET
0 1 2 METERS

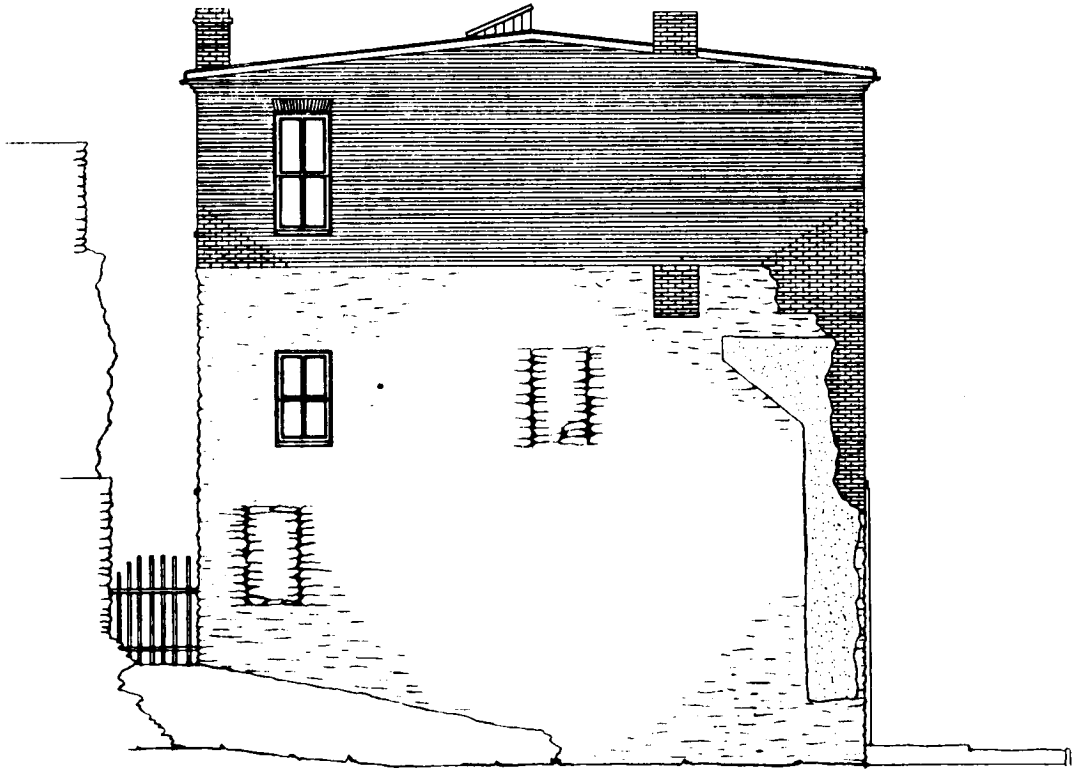
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 4 OF 10 SHEETS



SOUTHWEST ELEVATION
SCALE 1/4" = 1'-0"

FEET
METERS

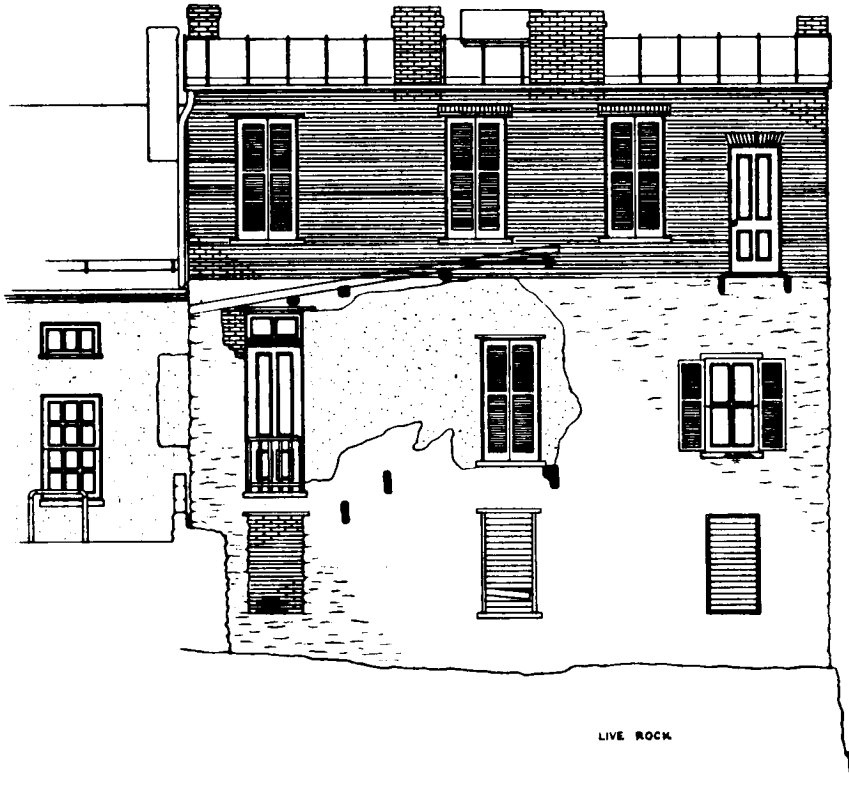
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 7 OF 13 SHEETS



NOTE JOIST POCKETS IN THIS ELEVATION WHICH WERE USED IN ATTACHING FORMER STRUCTURE

NORTHWEST ELEVATION

SCALE ¼" = 1'-0"

0 1 2 3 4 5 6 7 8 FEET

0 1 2 METERS

JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE

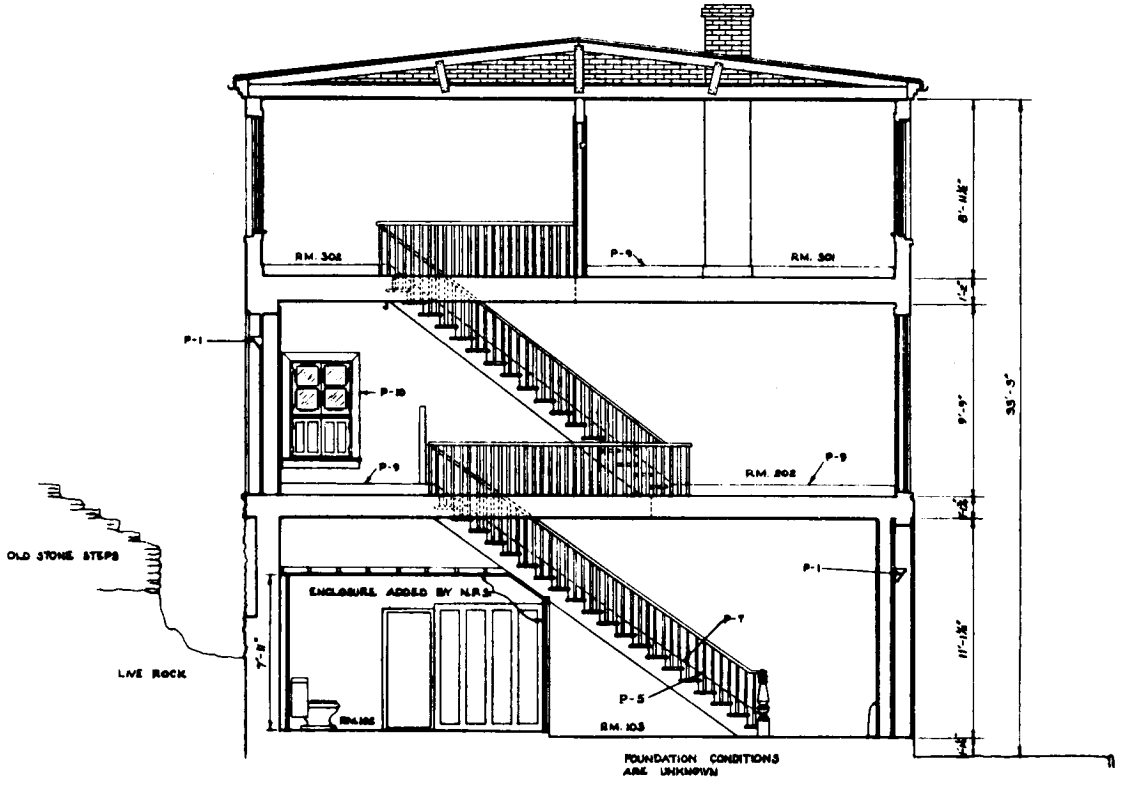
WILLIAM RICHARDS BUILDING

HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY

SHEET 6 OF 13 SHEETS



TRANSVERSE SECTION "A-A"
SCALE ¼" = 1'-0"

0 1 2 3 4 5 6 7 8 9 10 FEET
0 1 2 3 METERS

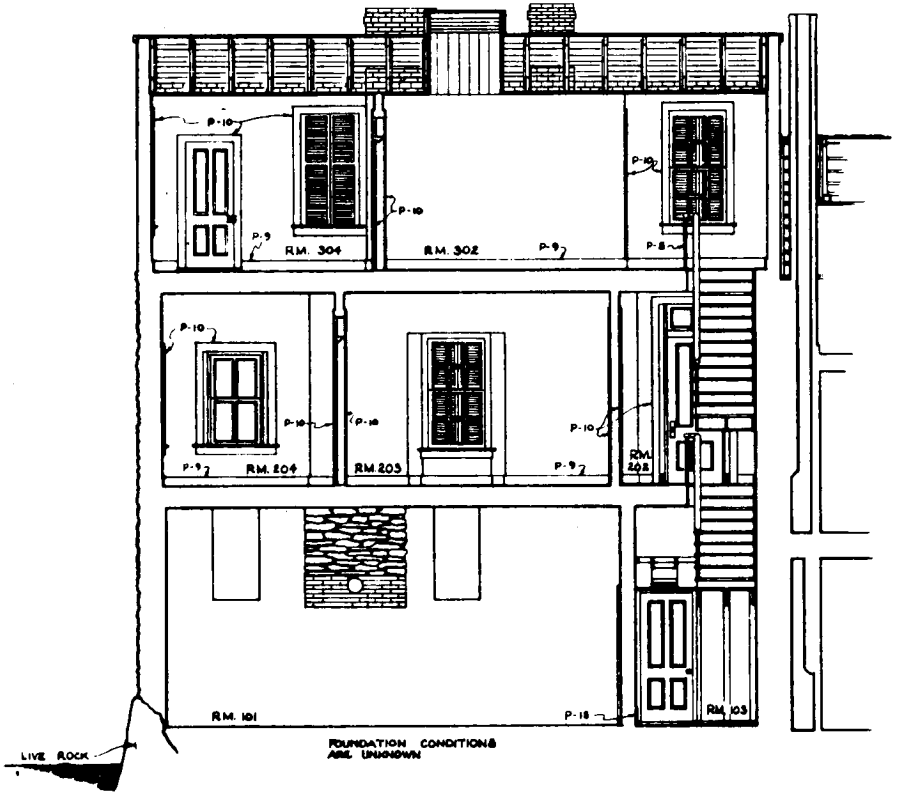
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 9 OF 18 SHEETS



SECTION "B-B"
SCALE ¼" = 1'-0"

0 1 2 3 4 5 6 7 8 FEET
0 1 2 METERS

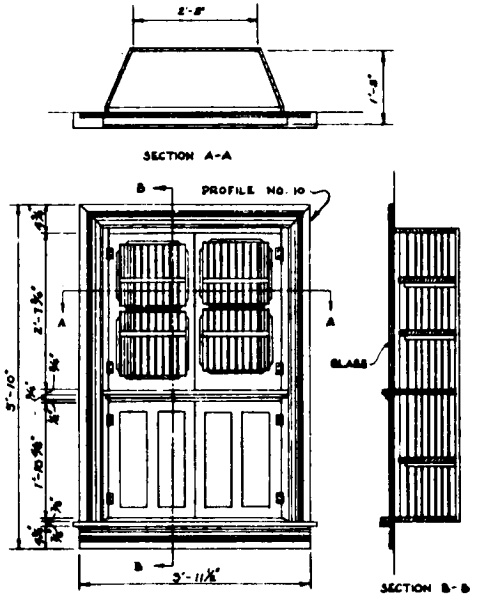
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

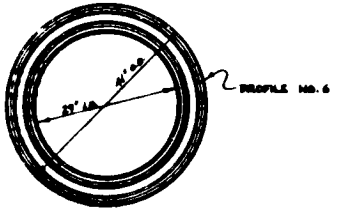
NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

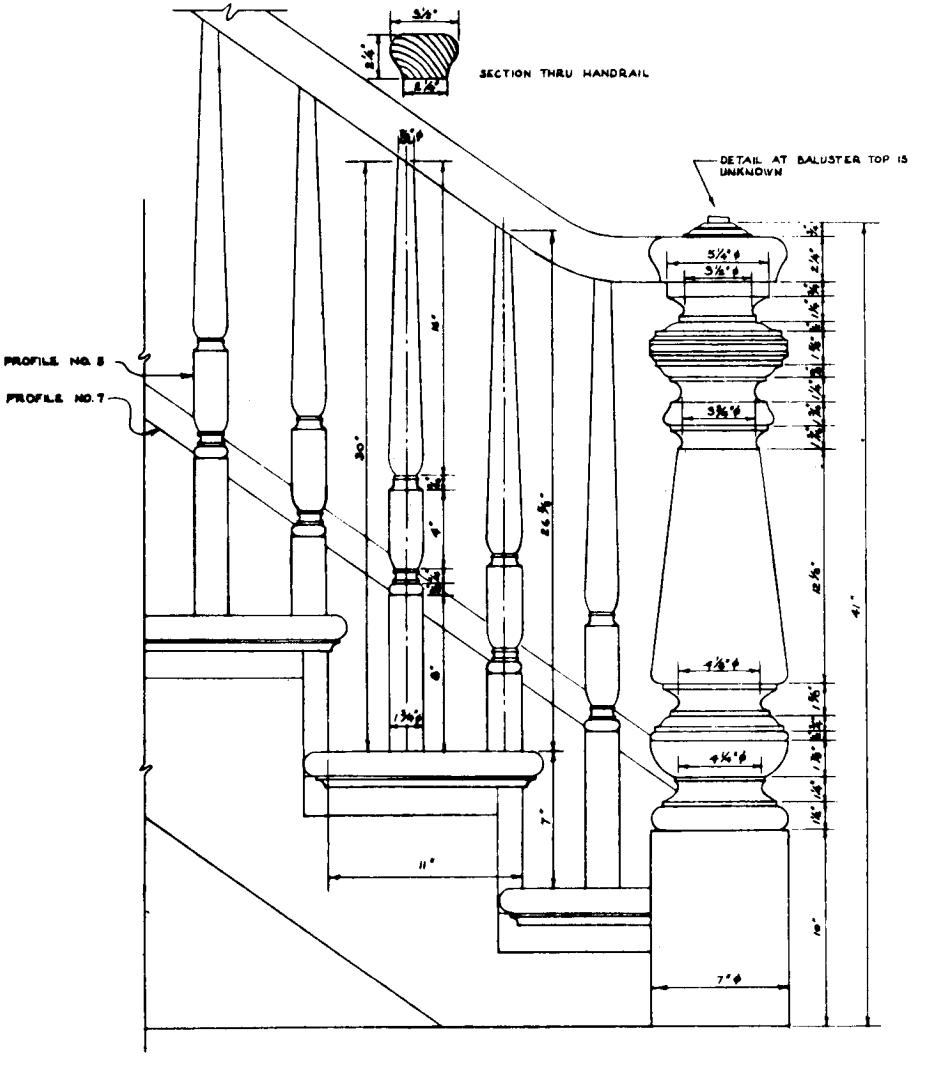
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 10 OF 18 SHEETS



BOOKCASE DETAIL - ROOM 202
SCALE ⅜" = 1'-0"



PLASTER MOLDING DETAIL AROUND LIGHT FIXTURE IN ROOM 201
SCALE: ¾" = 1'-0"



NEWEL AND BALUSTER DETAIL AT FIRST FLOOR
SCALE 3" = 1'-0"

FEET
METERS

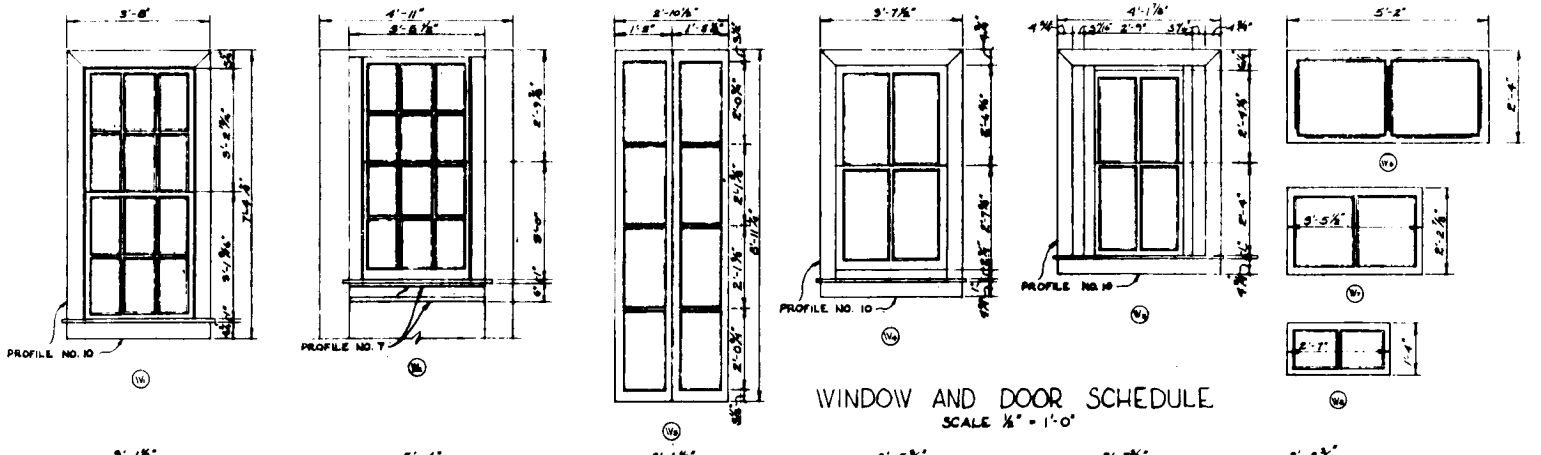
JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

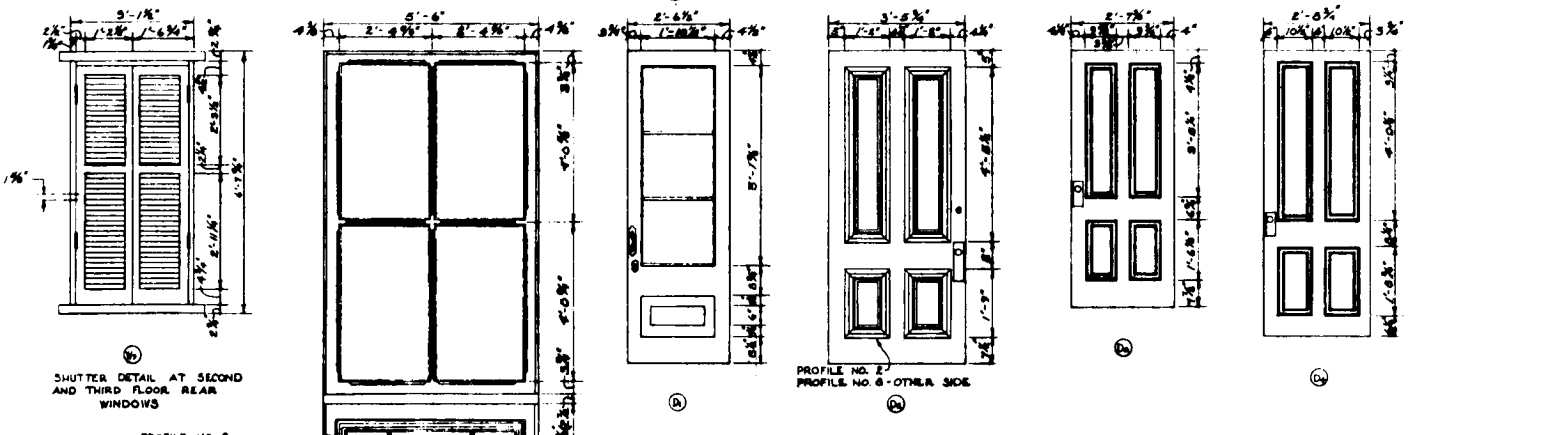
NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

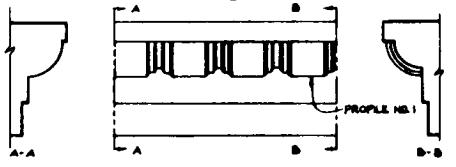
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HISTORIC AMERICAN BUILDINGS SURVEY
SHEET # OF 13 SHEETS

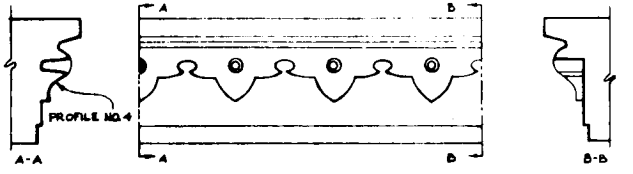


WINDOW AND DOOR SCHEDULE
SCALE ½" = 1'-0"

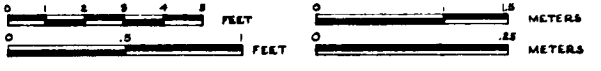




MOLDING DETAIL ABOVE DOOR NO.'S 2 AND 4
SCALE 3" = 1'-0"



MOLDING DETAIL ABOVE DOOR NO. 1
SCALE 3" = 1'-0"



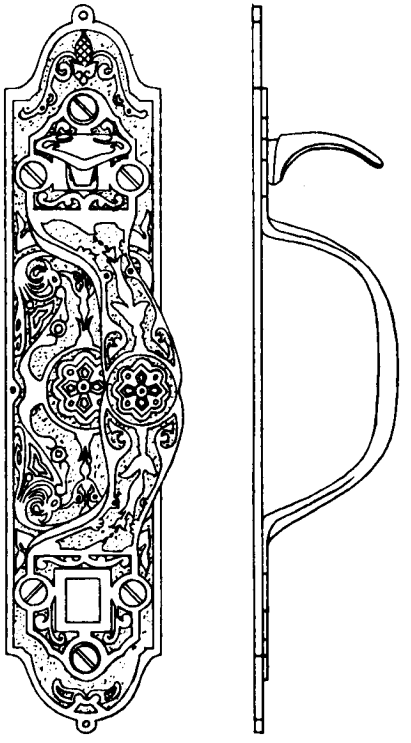
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NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

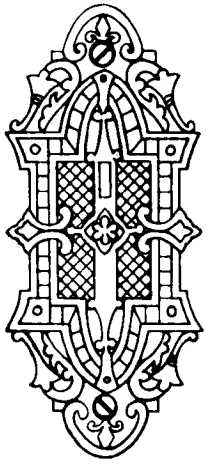
NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.

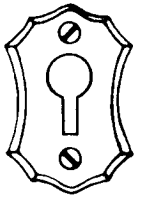
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET #2 OF #3 SHEETS



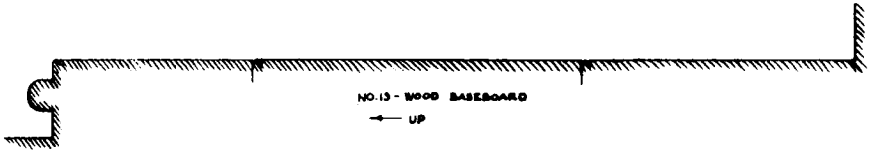
CAST IRON DOOR HANDLE DETAIL
SCALE 1" = 1'

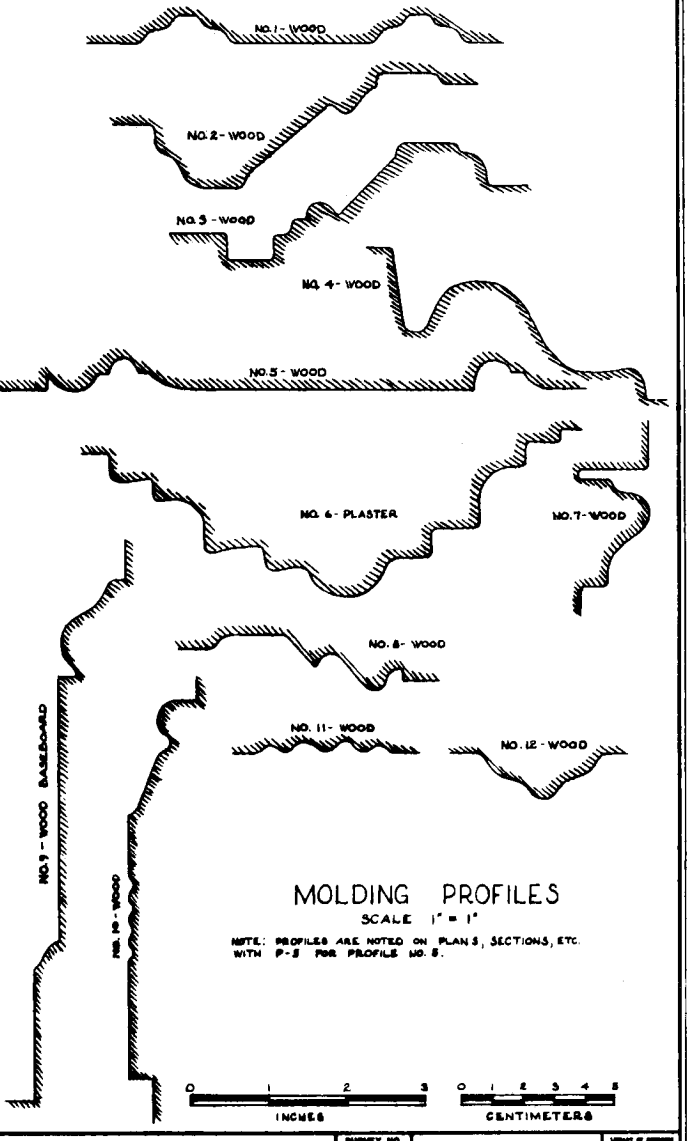


BRASS DOOR BELL PLATE
SCALE 1" = 1'



KEYHOLE PLATE
SCALE 1" = 1'





MOLDING PROFILES
SCALE 1" = 1"

NOTE: PROFILES ARE NOTED ON PLANS, SECTIONS, ETC. WITH P-5 FOR PROFILE NO. 5.

JOHN E. DONAGHEY - DEL.

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
WILLIAM RICHARDS BUILDING
HARPERS FERRY · JEFFERSON COUNTY · WEST VIRGINIA

SURVEY NO.
WVA-32

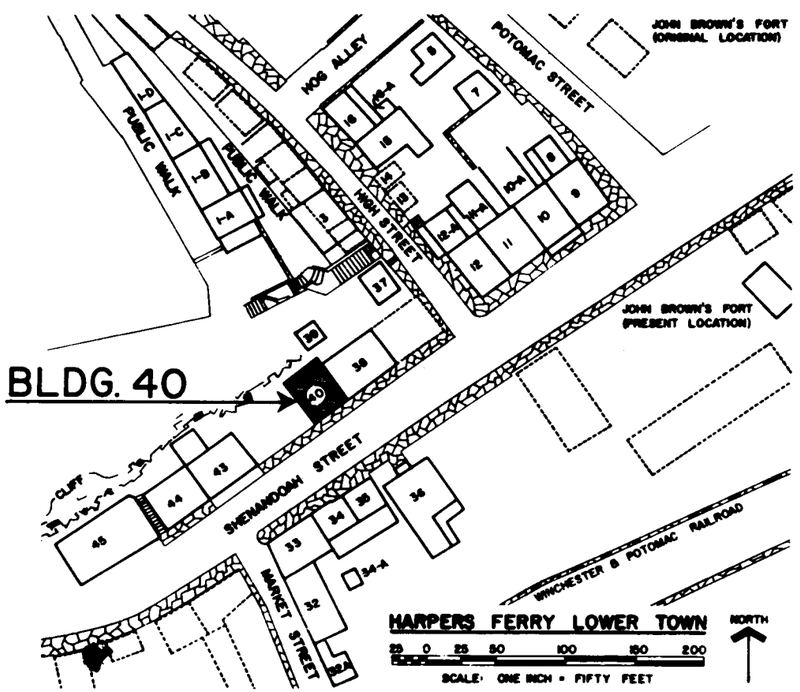
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 15 OF 15 SHEETS

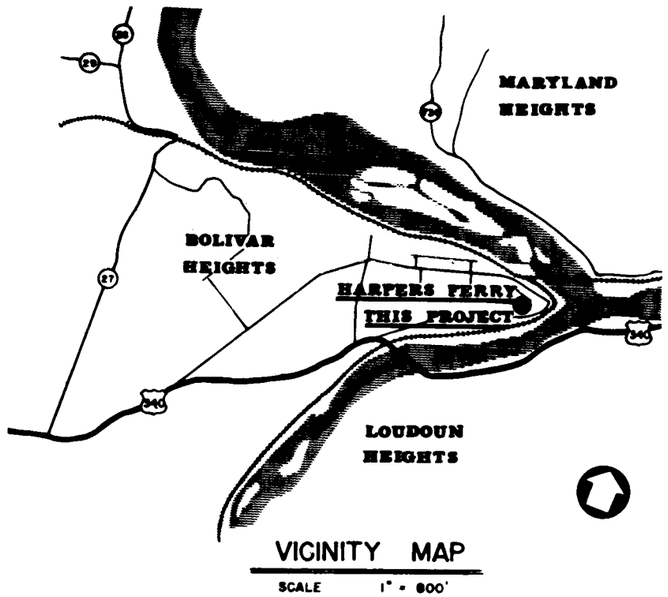
VIII. F. DRAWINGS OF EXISTING CONDITIONS AND PROPOSED RESTORATION



Historic Structures Report Drawings

WILLIAM RICHARDS BUILDING
- BLDG. 40 -



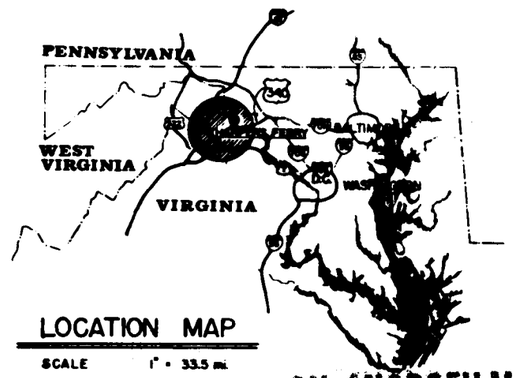


VICINITY MAP
SCALE 1" = 800'



SHEET INDEX

1	COVER SHEET	EXISTING
2	SITE PLAN	
3	FIRST & SECOND FLOOR PLANS	
4	THIRD FLOOR & ROOF PLANS	
5	ELEVATIONS	
6	ELEVATIONS	
7	BUILDING SECTIONS	
8	WINDOW DETAILS	
9	DOOR DETAILS	
10	DOOR & WINDOW DETAILS	
11	MISCELLANEOUS DETAILS	
12	DOOR SCHEDULE	
13	ROOM FINISH SCHEDULE	
14	FIRST & SECOND FLOOR PLANS	PROPOSED
15	THIRD & ROOF PLANS	
16	ELEVATIONS	
17	ELEVATION	
18	SECTIONS	



LOCATION MAP
SCALE 1" = 33.5 mi.

ON MICROFILM

REDUCED COPY

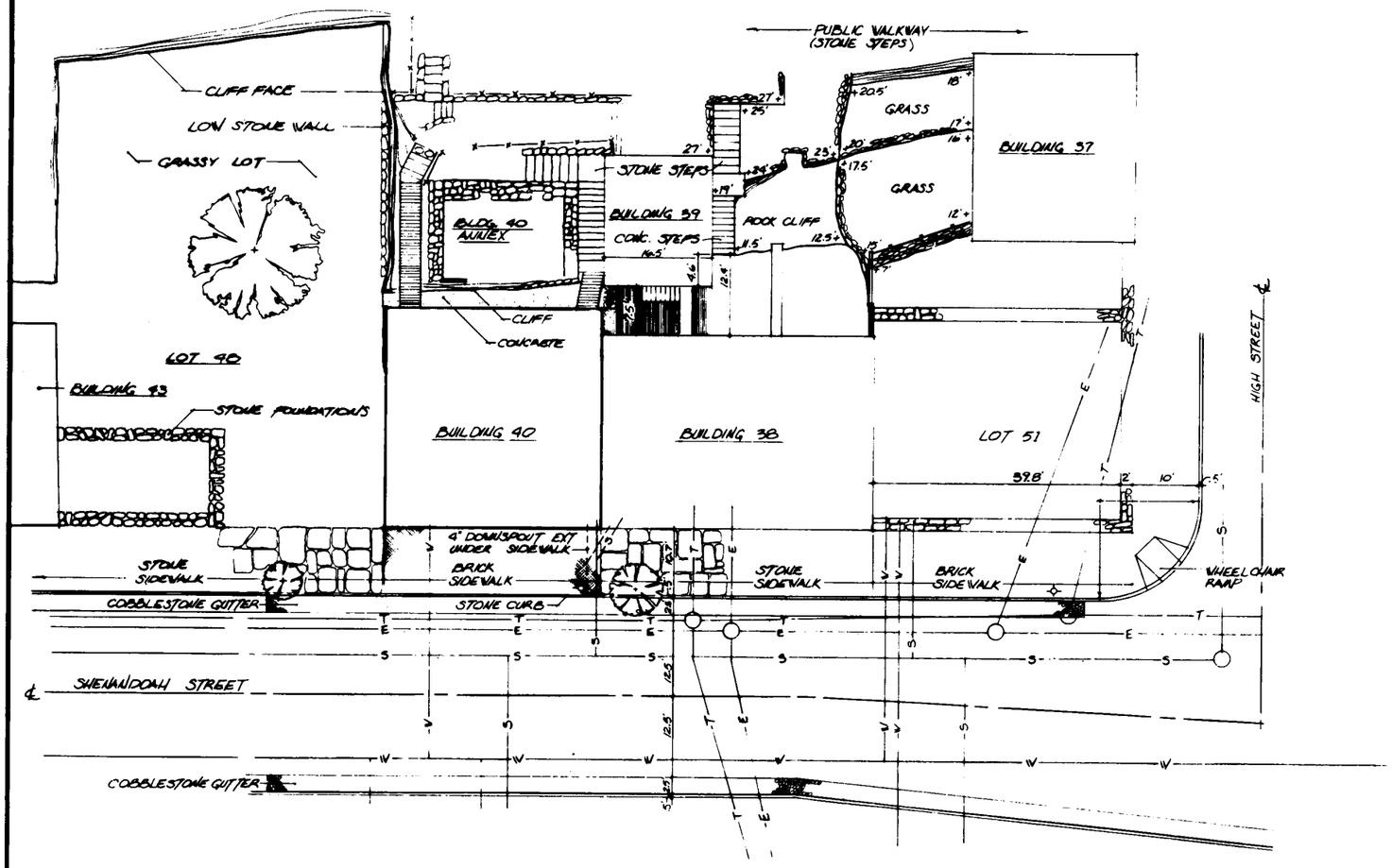
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

PREPARED T.E.FIELDS
DESIGNED T.E.FIELDS
DRAWN A.S.DONALD
CHECKED
JUNE 1983
DATE

TITLE OF DRAWING
WILLIAM RICHARDS BUILDING (BLDG 40)
LOCATION WITHIN PARK
LOWER TOWN
NAME OF PARK
HARPERS FERRY NATIONAL HISTORICAL PARK
N.C.R. REGION | JEFFERSON COUNTY | W.VA. STATE

DRAWING NO. 285 25014
SHEET 1 OF 18

Harpers Ferry N.H.P.



SITE PLAN
SCALE 1" = 10'

LEGEND:
- WATER LINE — W —
- ELECTRICAL LINE — E —
- TELEPHONE LINE — T —
- SEWER LINE — S —
- MANHOLE
- STREETLIGHT

NOTE:
THIS PLAN IS NOT INTENDED TO REPRESENT A PROFESSIONAL LEGAL SURVEY.

SOURCE OF UTILITY INFORMATION: DRAWINGS FOR HARPERS FERRY HISTORICAL PARK PROJECT 1A1 LOWER TOWN HARPERS FERRY PREPARED BY U.S. DEPT. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION AUGUST 1976

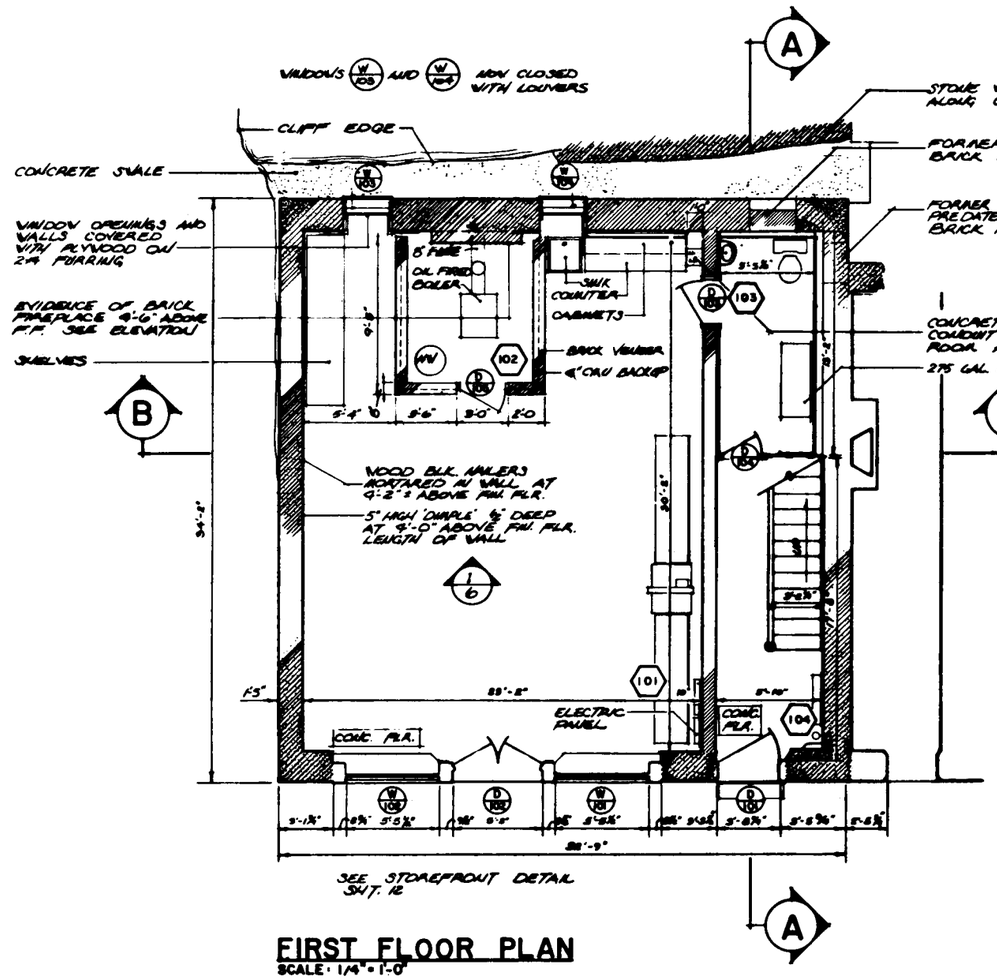
MICROFILM

BUILDING 40
EXISTING CONDITIONS

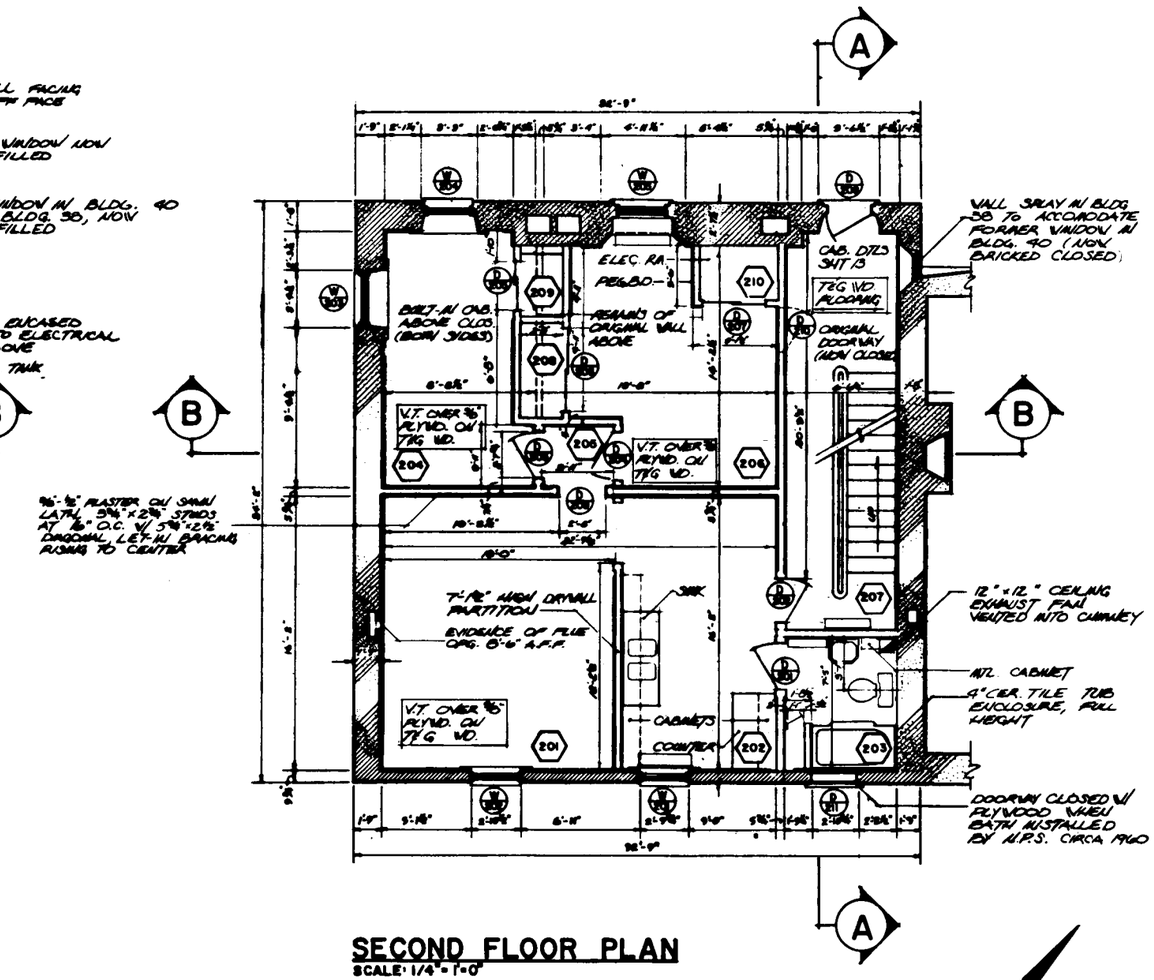
SITE PLAN
SCALE 1" = 10'

PREPARED	DRAWING NO.
DESIGNED BALLARD	385 25014
DRAWN DONALD	PCIP PKG 115B — SHEET 2 OF 18
CHECKED JUNE 1983	
DATE	

REDUCED COPY



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEY

- CONCRETE
- STONE
- BRICK

1

BUILDING 40
EXISTING CONDITIONS

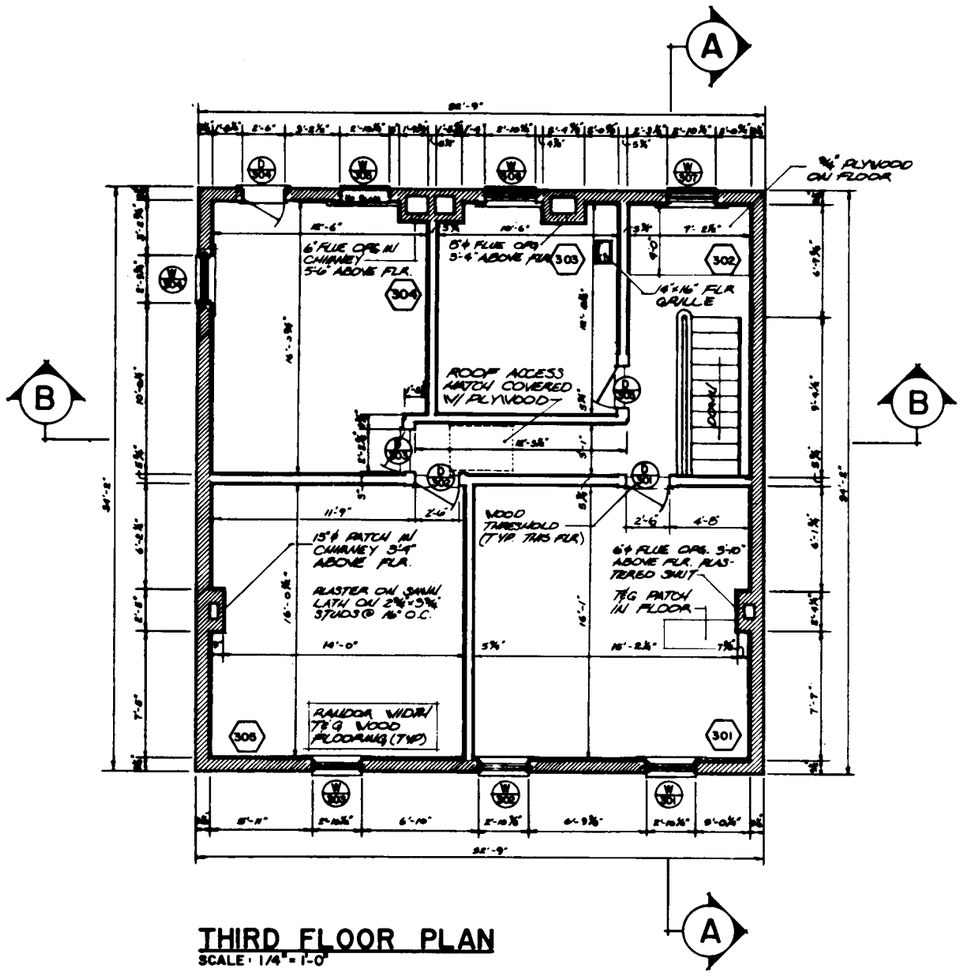
FIRST & SECOND FLOOR PLANS

SCALE: 1/4" = 1'-0"

PREPARED	DRAWING NO.
DESIGNED BALLARD	385 25014
DRAWN DONALD	PCSP 1358
CHECKED	SHEET 3 OF 18
JUNE 1983 DATE	

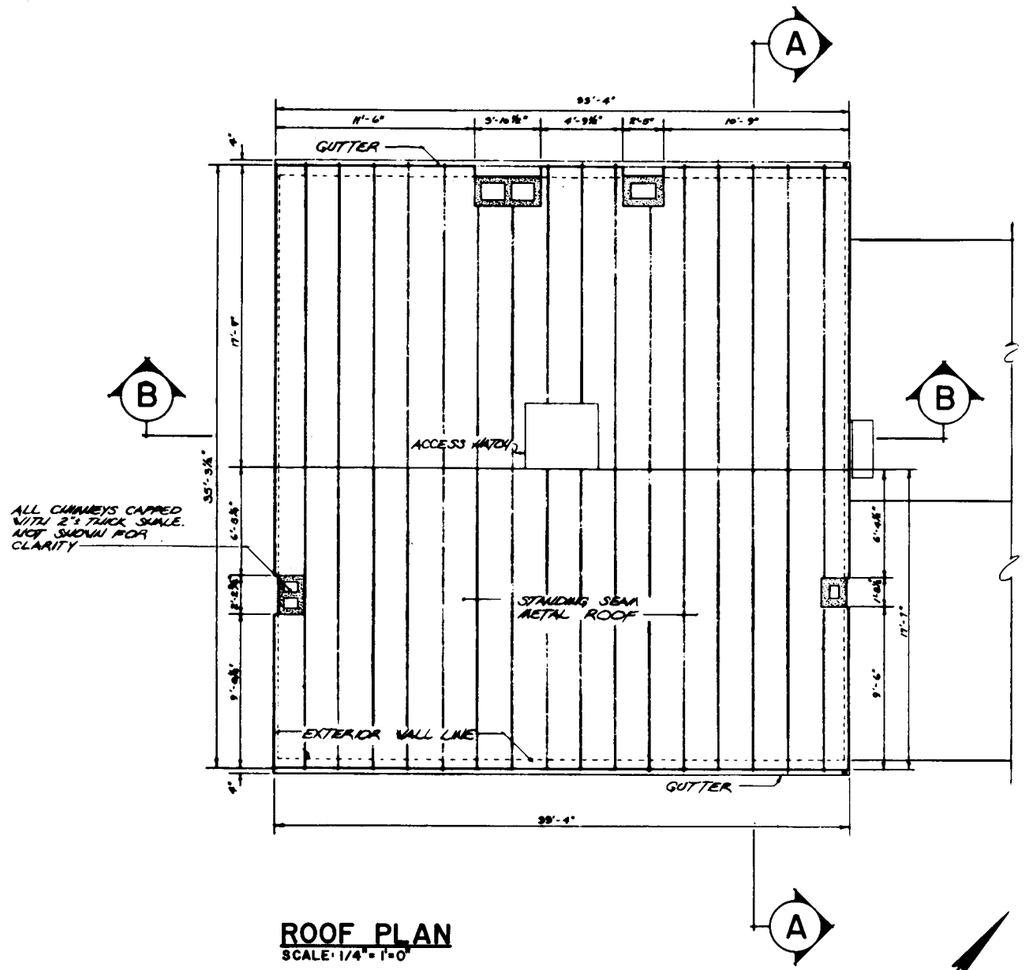
REDUCED COPY

ON MICROFILM



THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"



ROOF PLAN

SCALE: 1/4" = 1'-0"

BUILDING 40
EXISTING CONDITIONS

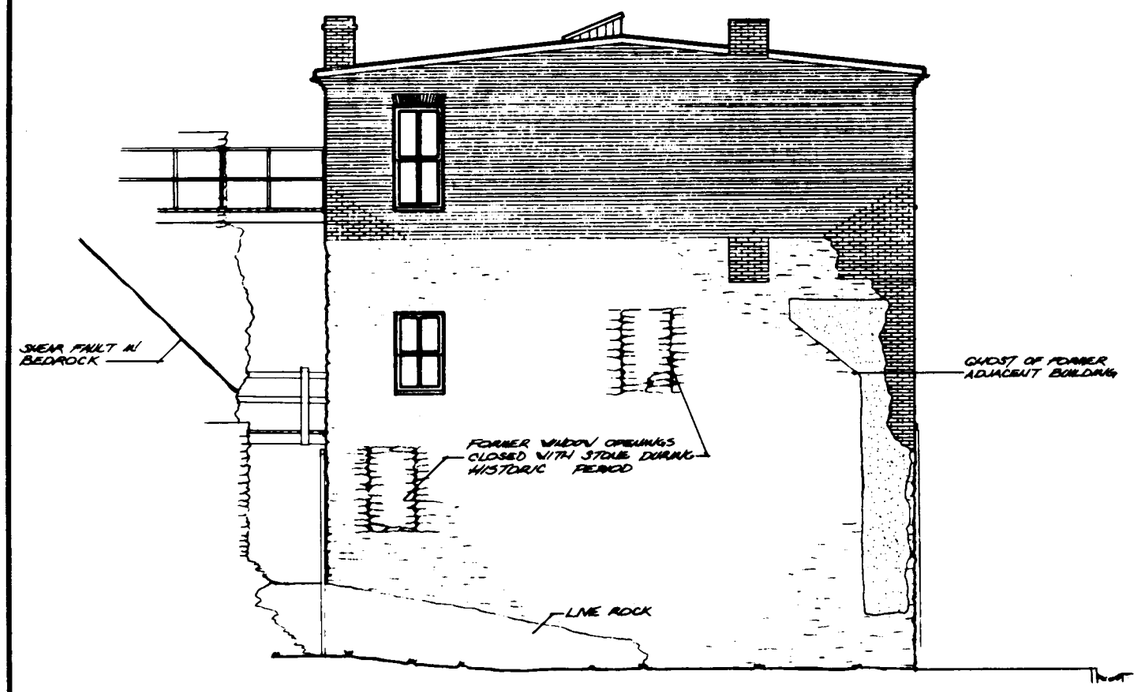
THIRD FLOOR & ROOF PLANS

SCALE: 0 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' METERS
1/4" = 1'-0"

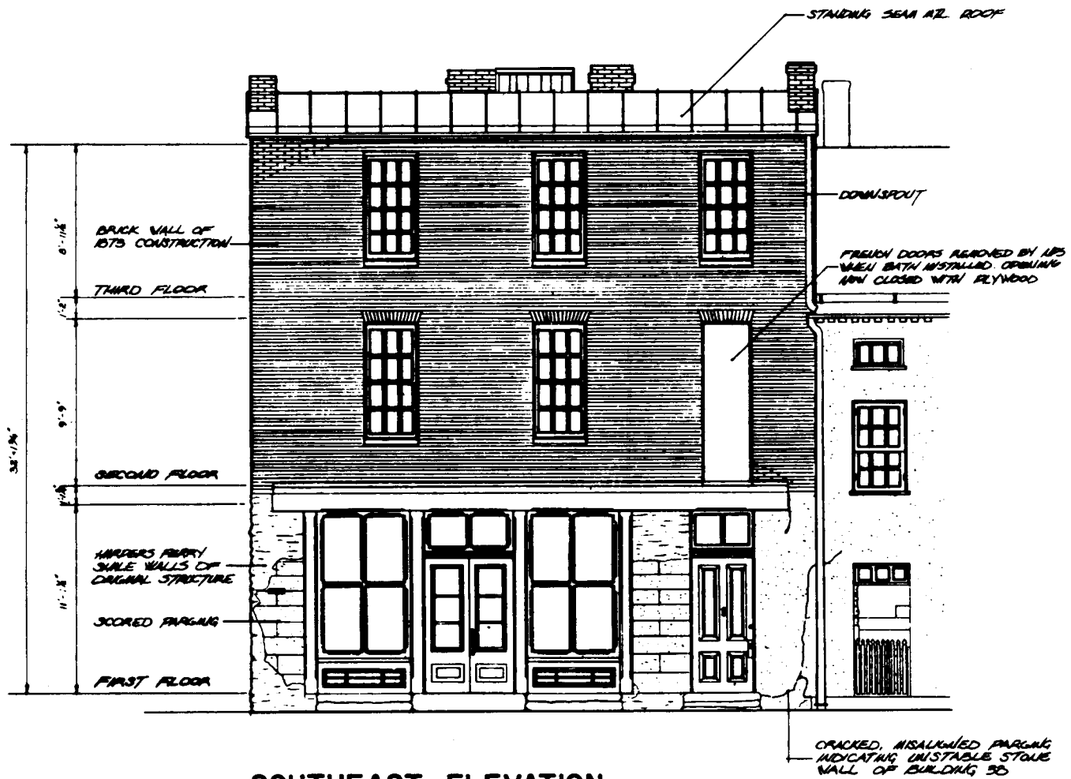
PREPARED	DRAWING NO. 385 25014
DESIGNED BALLARD	
DRAWN DONALD	PCTP PKG. NO.
CHECKED JUNE 1983	SHEET 4 OF 18
DATE	

REDUCED COPY

ON MICROFILM



SOUTHWEST ELEVATION
SCALE: 1/4" = 1'-0"



SOUTHEAST ELEVATION
SCALE: 1/4" = 1'-0"

BUILDING 40
EXISTING CONDITIONS

SOUTHWEST & SOUTHEAST ELEVATIONS

SCALE: 1/4" = 1'-0"

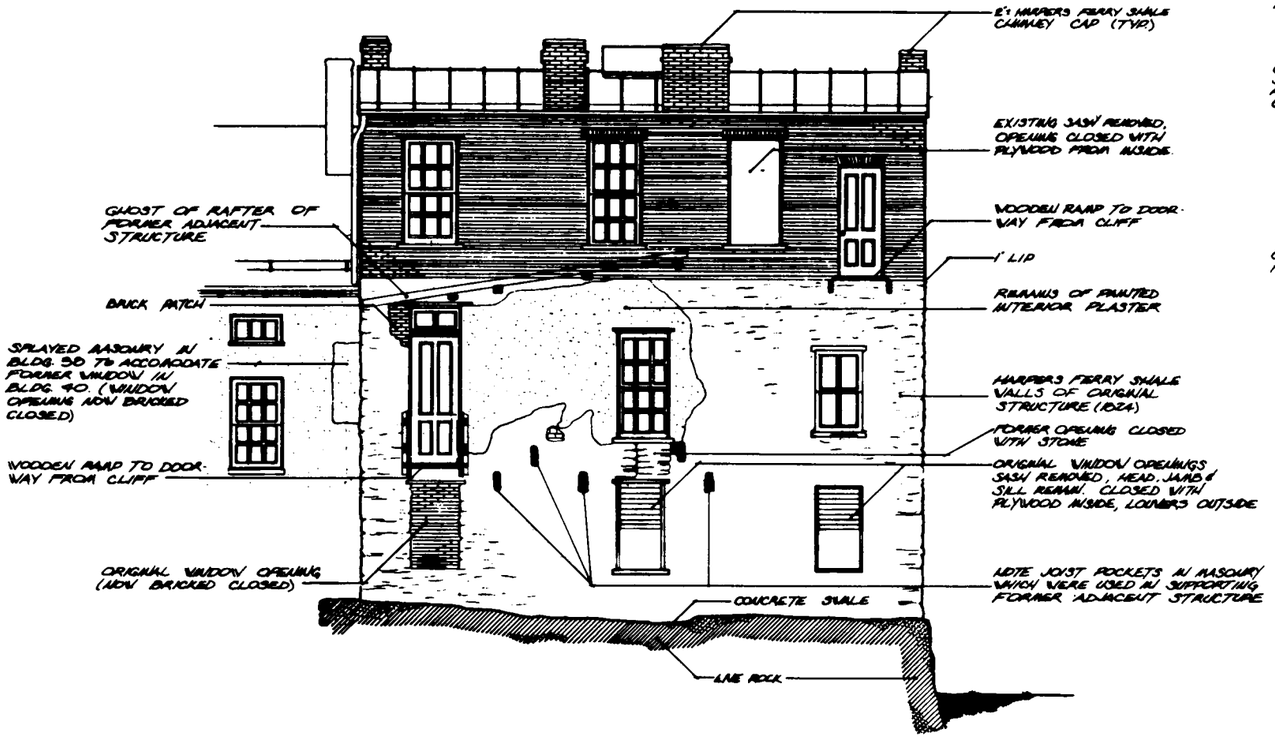
0 1' 2' 3' 4' 5' 6' 7' 8' 9' 10'

0 1 2 3 4 5 METERS

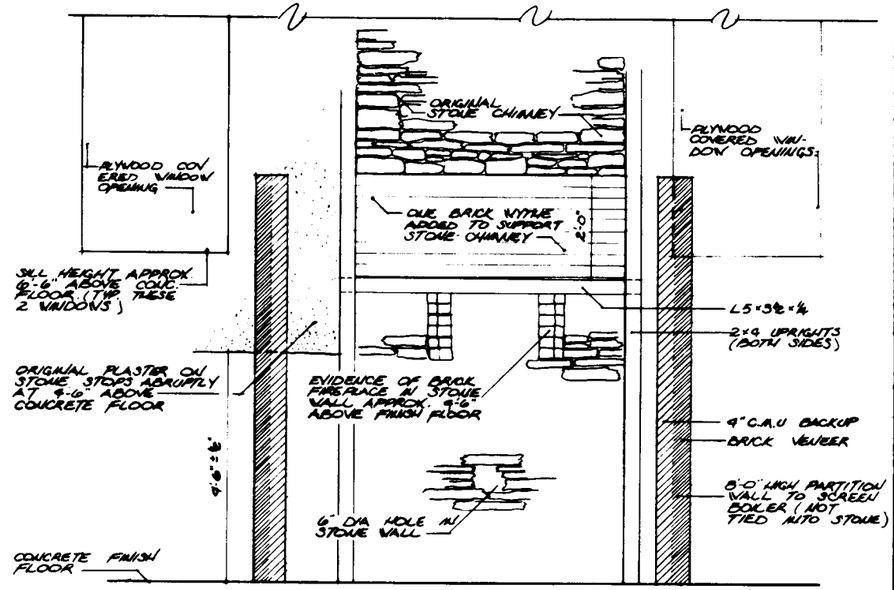
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PREPARED	DRAWING NO.
DESIGNED	385
BALLARD	25014
DRAWN	PCTP PKG NO. 1B
DONALD	SHEET 5
CHECKED	OF 18
JUNE 1983	
DATE	



NORTHWEST ELEVATION
SCALE: 1/4" = 1'-0"



PARTIAL INTERIOR ELEVATION (1/6)
SCALE: 3/4" = 1'-0"

BUILDING 40
EXISTING CONDITIONS

NORTHWEST ELEVATION
SCALE: 1/4" = 1'-0"

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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